Power System Study
for the
Disney GC3 Campus – East and West Buildings
Glendale, California

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RECOMMENDATIONS

EXECUTIVE SUMMARY

Each aspect of the study, its pertinent results, and recommendations are summarized below. Detailed discussions appear later in each respective section of this report.

1. The main purpose of the **Short-Circuit Study** was to determine if each protective device was rated to handle the maximum fault current that it may be subjected to during a fault condition. This was done by comparing the device's published short-circuit current rating to its calculated fault current duty.

    - The Short Circuit Study indicates that all devices and panels are appropriately rated.

2. The **Coordination Study** found that the majority of the adjustable protective devices could be set to provide the greatest selectivity and minimize overall system impact in the event of a fault. As a result, it is recommended that all adjustable low voltage (277/480V through 120/208V) breakers be set and tested at the recommended settings.

    - In some cases (typically 120V/208V applications), Thermal Magnetic Breakers have overlap in the Instantaneous Trip Region. This is normal with these style breakers since most do not have an adjustable instantaneous setting.

    - A complete listing of all breaker settings can be found in the *Appendix / Coordination Study - Analysis/Tables* section of this report.

INTRODUCTORY SECTION

Study Objective

GE Energy – I & FS Engineering Services was contracted to perform a Short Circuit Study and Coordination Analysis for the *Disney GC3 Campus – East and West Buildings* project located in *Glendale*, *California*. The scope of the short-circuit study included the electrical system from the incoming 480V GWP services to two separate switchboards (MSA-E & MSA-W), several sub-panels throughout two buildings, several step-down transformers and several 120/208 panelboards.

The purpose of a **Short-Circuit Study** is to determine if each protective device, within the scope of this study, is rated to handle the maximum fault current that it may be subjected to in the event of a fault. This is done by comparing each device's published short-circuit current rating to its individually calculated fault current duty. The calculated short-circuit current values are also used in selecting protective device settings in the Coordination Study. A discussion of the method of calculation is contained in the *Short-Circuit Study - Introduction* section of this report. The results are discussed in the *Short-Circuit Study – Analysis* section of this report. The report also contains documentation of the system components in the *Appendix* / *Short-Circuit Study - Analysis* section, including information on each transformer and motor, utility fault current contributions, installed feeder conductors and their respective conduits.

The **Coordination Study** work scope includes the determination of recommended settings for all adjustable protective devices down to low voltage 120/208V distribution panel main breakers. The settings recommended in this study provide a reasonable compromise between the often-conflicting goals of service continuity and equipment protection. The nature of the load and its tolerance to service interruptions must be considered as well as the consequences of delays in clearing a fault. Where possible, the minimum amount of equipment is removed from service when a system protective device operates to clear a fault or system abnormality. This is known as selectivity. The recommended settings, tabulated according to the device location, are located in the *Appendix / Coordination Study - Analysis* section of this report.

A high degree of selectivity was achieved for the majority of the studied electrical system. The section entitled *Coordination Study - Analysis* should be referenced for identifying and setting breakers to achieve the highest level of protection and selectivity. The time current curves found in the *Appendix / Coordination Study - Curve/Graphics* section of the report were generated using recognized industry software.

The methods used in the course of these studies conform to NEC, ANSI, and other applicable standards and accepted industry practices.

All insulated cables within the scope of the study have been checked for protection to insure compliance with the National Electrical Code standard for over-current-protection.

Primary transformer protection was examined to insure avoidance of nuisance outages from inrush currents, as well as providing over-current protection as required by the 1999 National Electrical Code, and fault protection as provided by the American National Standards Institute (ANSI). Coordination with secondary protective equipment was also an objective. This protection was examined by means of time current curves.

Compliance with the 2002 National Electric Code (NEC) sections pertaining to system protection was evaluated. Motor starting was also examined to identify the impact of starting each of the larger motors within the system (assuring breaker settings were sufficient to allow proper starting). Motor curves are found on several of the Time Current Curves located in this report.

Motor starting was also examined to identify the impact of starting each of the larger motors within the system (assuring breaker settings were sufficient to allow proper starting). Motor curves are found on several of the Time Current Curves located in this report.

Description of the Electrical System

A one-line diagram was entered into ESA's EasyPower 7.0 Software to accurately model the electrical system from the utility source, the Main Switchboard, and subsequesnt downstream 277/480V panel boards, step down transformers, and finally several 120/208V sub-panels. The single-line diagrams illustrated in the Appendix of this report represent the Single Line Diagrams provided by the design Engineer of Record.

Study Approach

When performing the power system study, the equipment Bill of Material and Engineering / Contractor supplied information was reviewed and entered into the analysis software. By using this information, it was possible to evaluate the system in its truest terms and recommend optimum engineering changes, where necessary.

Before a study of any system can begin, a variety of data must be collected and entered in the analysis software. All protective and impedance elements must be closely inspected to determine their true arrangement sufficient for construction of the single-line model. This includes the true circuit arrangement including all breaker types, ratings, and interrupting capacities. Additional information regarding cable sizes, types, and lengths; transformer sizes and impedances; and utility related data is also entered into the software.

When all necessary electrical system data has been collected from the field, the information is entered into a software database for short-circuit, protective device evaluation, and coordination analysis. The short-circuit program determines the maximum fault current available at each of the pre-selected fault buses as identified on the one-line diagrams. The program output shows both the first cycle of fault duty (as needed for momentary

evaluations, fuse and low-voltage breaker interrupting capacity), and interrupting duties for the slower, five-cycle, medium voltage breakers.

The Short-Circuit Device Evaluation Report, found in the *Appendix / Short-Circuit Study - Analysis* section of this report, compares the interrupting capacities of each device with the interrupting duty calculated from this study.

These fault levels are equally important for proper coordination, and it will be noted that each time-current coordination plot uses these values. Advantage is taken of the various line and transformer impedances to set primary instantaneous devices above the level of a secondary transformer fault. For example, it is desired that the secondary instantaneous device operate first to clear the fault without primary interruption. Also, transformer inrush current varies with circuit impedance, and is considered in the calculations to select smaller than normally required fuse or relay setting.

Coordination in practice is generally a compromise between the mutually desirable but somewhat inconsistent goals of maximum protection and maximum service continuity. For this reason, and because of factors such as established system design, there may be combinations of device settings that are classified as acceptable. The settings suggested in this study are based on an exercise of judgment as to the best balance between competing objectives.

SHORT-CIRCUIT STUDY INTRODUCTION

Introduction

A power system short-circuit study is used to check or determine:

1. The calculated fault duty against the rating of circuit interrupting devices, such as circuit breakers and fuses.
2. The selection and rating or setting of short-circuit protective devices such as direct-acting trips, fuses and relays.
3. The calculated fault duty against the short-circuit ratings of non-interrupting equipment such as busway, motor control centers, switchgear, and distribution panels.

General Discussion

The study procedure consists of representing the electrical power system in a software based modeling program. Each of the power system components (utility sources, generators, motors, transformers, cables, etc.) is represented by a resistance value and a reactance value.

Bus IDs are used to assign short-circuit sources, base voltages, and per-unit impedance values to the correct locations within the modeled system. The output data is referenced to these Bus IDs. These buses do not necessarily represent real buses or readily accessible connection points in the actual electrical system. They may identify hypothetical buses that are the junction points of impedance elements in the real system, such as cable and busway with transformers or reactors. Separate Bus IDs facilitate data collection and organization with the operation of the software.

The software places an assumed three-phase fault on each bus located in the system and a set of short-circuit currents is calculated that can be compared with the published short-circuit rating of the actual power system equipment. Any interrupting device must be able to withstand and interrupt the most severe short-circuit current available. Generally, three-phase bolted faults and the maximum utility short-circuit duty result in the greatest required equipment duty ratings.

The calculation techniques used are in accordance with American National Standards C37.13-1981 for low-voltage breakers, C37.010-1979 and C37.5-1979 for medium and high-voltage breakers.

System Impedance Data

The one-line diagram included in this report represents the modeled electrical power distribution system. Impedance values for this study are listed in the Database Report found in the *Appendix / Database Report* section. The Database Report is a tabulation of all system components relative to the scope of this study. This includes Utility Sources,

Generators, Motors, Transformers, Circuit Breakers, Switches, Fuses, Cables, and Busways.

The voltage bases used in the impedance network generally are those associated with the rated winding voltages of the main transformers and the load-centers on their "flat-tap" positions. Therefore, the system study results typically are based on 12470, 4160, 2400, 480 and 208 Volts as the "system" voltage bases.

The **utility system** is represented as an infinite bus connected to a line whose impedance equals the utility's equivalent source impedance at the facility's incoming service. The other end of this line is connected to the incoming service point. The utility impedance is typically given on the one-line diagram on a 10 or 100 MVA base.

The **transformer** nameplate impedances are given in percent, and are based on the self-cooled kVA rating of the transformer. Normally, the X/R ratios of the transformers are derived from the "medium-typical" curves in ANSI C37.010 although specific X/R ratios may also be used for particular applications. Additional transformer data is entered into the software, and may include its type, such as oil, gas, or dry, silicone or vapor. The transformer class may also include various combinations of forced air, water or forced oil. Examples are shown below.

Type	Class
Oil	- OA, OA/FA, FOA, OW, OW/A, FOW, OA/FA/FA, OA/FA/FOA, OA/FOA/FOA
Gas	- VA, VA/FA
Silicon	- SA, SA/FA
VP Dry	- AA, AFA, AAFA
Cast Coil	- AA, AFA, AAFA

Other transformer data parameters include its connection (delta, wye-ungrounded or wye-grounded), its ground impedance (if wye-grounded) and its ANSI temperature rating, as shown below.

ANSI Temperature Ratings

45°C	65°C	80/110°C
55°C	65/80°C	150°C
55/65°C	80°C	150/180°C

A transformer's Load Tap Changer data is also used in the model. Its step size may be defined as either 5/8 or 10/8 percentage steps along with its minimum and maximum tap values. Its control type may be either voltage or MVAR controlled for load-flow analysis. The software does not model single phase or dual single phase transformer secondaries (such as 480V-120/240V), and therefore are modeled at the highest three phase secondary voltage (i.e. 240V) to achieve the proper fault current.

The system's **cable** and **busway** impedances are represented in per unit on the study-base impedance, using typical impedance values for such equipment available in standard references, such as the IEEE "Red Book".

Cables may be defined as one of five different types, 1/C-one conductor, 3/C-three conductor, IAA-interlocked armor aluminum, IAS-interlocked armor steel or MAC-messenger aerial cable. Other variables include material (copper or aluminum), size, length, number of conductors per phase temperature (25ºC to 250ºC) and insulation. Some common insulation abbreviations are shown below:

Low voltage Insulation (1000 volts or less):

THHN	- Heat Resistant Thermoplastic
THWN	- Moisture and Heat Resistant Thermoplastic
THW	- Moisture and Heat Resistant Thermoplastic
RHH	- Heat Resistant Rubber
RHW	- Moisture and Heat Resistant Rubber
XHHW	- Moisture and Heat Resistant Crosslinked Synthetic Polymer (480V equivalent of XLPE)

High Voltage Insulation (Over 1000 volts):

XLPE	- Crosslinked Polyethylene
XLPE-133%	- Crosslinked Polyethylene with 133% insulation
XLPE-NJ	- Non-Jacketed Crosslinked Polyethylene
XLPE-NJ-133%	- Non-Jacketed Crosslinked Polyethylene with 133% insulation
XLPES	- Shielded Crosslinked Polyethylene
XLPES-133%	- Shielded Crosslinked Polyethylene with 133% insulation
EPR	- Ethylene Propylene Rubber
EPR-133%	- Ethylene Propylene Rubber with 133% insulation
EPR -NJ	- Non-Jacketed Ethylene Propylene Rubber
EPR -NJ -133%	- Non-Jacketed Ethylene Propylene Rubber with 133% insulation
EPRS	- Shielded Ethylene Propylene Rubber
EPRS-133%	- Shielded Ethylene Propylene Rubber with 133% insulation
PILC	- Paper Insulated Lead Sheath
PILC-133%	- Paper Insulated Lead Sheath with 133% insulation

Busways are defined by manufacturer, material (copper or aluminum) and length.

The modeling software sometimes requires a zero-impedance branch for certain device configurations. Cables indicated with 10 - 500MCM conductors per phase or a 5000A Copper bus-duct with a length of ten feet is used to represent this requirement. This is used mainly with bifurcated feeder breakers where two conductors are connected to the load terminals of the breaker. A zero-impedance branch is connected through the breaker between its line-side connection to the bus and its load-side cable connections.

The **motors** in each unit substation are grouped (lumped) and a single impedance is determined based on the total connected motor kVA. Typical sub-transient reactance (X''_d) or locked rotor (X_{lr}) for each motor within the group is determined and averaged.

The total equivalent kVA and impedance is based on the following assumptions when exact motor impedances are not known.

Table SCI-1

Induction motor	1 hp = 1 kVA
Synchronous motor, 0.8 PF	1 hp = 1 kVA
Synchronous motor, 1.0 PF	1 hp = 0.8 kVA
Induction motor not greater than 600V	X_{lr} = 0.25 per unit
Induction motors greater than 600V	X_{lr} = 0.17 per unit
Synchronous motors not less than 1200 rpm	X''_d = 0.15 per unit
Synchronous motors less than 1200 rpm	X''_d = 0.20 per unit

(The motor impedances are in per unit on the motor kVA rating. These reactances and motor base kVA ratings listed above were taken from data and assumptions in IEEE Publication No. 141, Fourteenth Edition, "IEEE Red Book".)

The sub-transient reactance (X''_d) values listed in the Table SCI-2 are used in first-cycle (momentary) current calculations while a modified sub-transient reactance is used for the interrupting duties for the medium and high-voltage breakers. These values are in accordance with the pertinent circuit breaker application standards.

The ANSI standards for calculating short-circuit duties require that the actual motor or generator reactances be modified under certain conditions. The modification factors are listed in the following table for both momentary (close and latch) and interrupting-duty calculations. Low-Voltage Duty is calculated per ANSI C37.13-1981 while Momentary and Interrupting Duty is calculated per ANSI C37.010-1979 and C37.5-1979.

Table SCI-2

Motor Code	Motor Type	First Cycle - Low Voltage	First Cycle - Momentary Duty for Medium & High Voltage Breakers	1.5-4 Cycles - Interrupting Duty for Medium & High Voltage Breakers
1	Synchronous	1.0 X_d''	1.0 X_d''	1.5 X_d''
2	Induction > 1000HP or > 250HP @3600 RPM	1.0 X_d''	1.0 X_d''	1.5 X_d''
3	Induction Motor Group >= 50 HP	1.2 X_d''	1.2 X_d''	3.0 X_d''
4	Induction Motor Group < 50 HP	1.67 X_d''	1.67 X_d''	Neglect
5	Lumped Induction Motor Group	1.0 X_d''	1.0 X_d'' *	3.0 X_d''

Note- X_d'' for induction motor groups are assumed equal to 0.167. This corresponds to an equivalent motor contribution of 3.6 to 4.8 times the full load current.

* = X_d'' assumed equal to 0.25.

When exact data is not known, the X/R ratios of induction motors and transformers are determined by using the "medium typical" curves from ANSI C37.010-1979. For synchronous motors less than 1000 horsepower, an X/R ratio from the curve of induction motor X/R ratios is determined.

When hand calculations are performed, the above approximations may be used along with the X/R ratios, provided in the next table, unless more accurate calculations are required. Motor code letters are usually listed on the nameplate, and correspond to kilovolt-amperes per horsepower with locked rotor in accordance with Section 430 of the National Electrical Code. The reciprocal of this kVA/horsepower value may be used as the motor impedance on its own kVA base. This is especially desirable for low-voltage motors with two pole or ratings over 250 HP.

Table SCI-3
Table of Typical Induction Motor Short-Circuit X/R Ratios

Nameplate Horsepower	X/R Ratio	Nameplate Horsepower	X/R Ratio	Nameplate Horsepower	X/R Ratio
5	2.5	50	5.7	300	15.0
7.5	2.7	60	6.3	350	16.3
10	3.2	75	7.0	400	17.4
15	3.6	100	8.2	450	18.5
20	3.9	125	9.0	500	19.4
25	4.3	150	10.0	600	20.7
30	4.5	200	11.7	700	22.1
40	5.1	250	13.4	800	23.4

Short-Circuit Calculations

There are four possibilities for a fault in a three-phase system:

1. Three-phase fault - the three-phase conductors are shorted together.
2. Line-to-line fault - any two phase conductors are shorted together.
3. Double line-to-ground fault - any two phase conductors are shorted together and simultaneously to ground.
4. Line-to-ground fault - one phase conductor is shorted to ground.

For a particular location in a power system, the magnitude of fault current is generally the greatest for three-phase faults and least for phase-to-ground faults. However, ground-fault current magnitude can exceed the three-phase fault current under certain conditions. This can occur near (1) solidly grounded synchronous machines, (2) solidly grounded wye connection of a delta-wye transformer of the three-phase core (three leg) design, (3) grounded wye-delta "tertiary" auto-transformers, or (4) grounded wye-grounded wye-delta tertiary three-winding transformers.

The short-circuit study does not include prefault steady-state load currents. The effect of system load currents is usually negligible in short-circuit studies for industrial and commercial power distribution systems.

Bus IDs used on the one-line diagrams are assigned to establish the locations that are faulted, and typically match the system nomenclature on the Design / Construction Drawings. Contributions from sources of short-circuit current such as the electric utility system, generators, and motors are indicated on the Single Line Diagram printout.

Switchgear Ratings

The short-circuit rating assigned to a power circuit breaker design by the manufacturer is significant in two ways. First, the rating represents a conservative statement of the actual capability of the breaker design to close against, to withstand, and to interrupt short-circuit currents. Thus, the rating is the maximum condition under which the breaker design may be safely applied. Secondly, the rating is the maximum condition of application for which the manufacturer guarantees that the breaker will perform satisfactorily. It is essential, then, that a circuit breaker be applied within the rating assigned to its design if the installation is to be safe and if it is to be covered to the full extent of the manufacturer's warranty. One purpose of a short-circuit study is to determine the conditions under which switchgear will be applied in a specific system.

From a series of laboratory tests, the manufacturer determines the actual breaker capability. Then a rating is selected and assigned to the breaker. In the United States the procedures for testing breakers the rating structure, and the listing of preferred ratings are industry standards dictated by the Sectional Committee on Power Switchgear (C37) of the American National Standards Institute.

The short-circuit rating of a circuit breaker is its capability at the maximum voltage at which the breaker may be applied. Therefore, there is a distinction that must be made between the rating of the breaker and its capability in a specific application.

Prior to 1964, breakers were assigned a short-circuit interrupting capacity in asymmetrical MVA, and it was stated that the interrupting capacity was a constant over a defined range of voltages. An equivalent interrupting capacity in amperes could be calculated at each voltage level. This is called a total-current basis for rating breakers. Since 1964, however, breakers have been assigned an interrupting capacity in symmetrical RMS amperes at a specified maximum voltage, and the capacity is said to increase in inverse proportion to voltage up to a specified maximum current. This is the so-called symmetrical current basis of rating. Under the new rating structure, an MVA rating is still assigned to breakers for class distinction, but it is not the interrupting capability of the device in most cases.

Under the symmetrical current basis of rating switchgear, the factor k defines the permissible range of voltage and fault current. The interrupting capabilities of the breaker then fall into one of three categories:

1. Voltage is greater than the rated maximum voltage; the breaker may not be applied.
2. Voltage is between the rated maximum voltage and l/k times the rated voltage; the interrupting capacity is:

$$\frac{\text{(Interrupting capacity at rated voltage)} \quad \text{(Rated voltage)}}{\text{(Actual Voltage)}}$$

3. Voltage is less than l/k times the rated voltage; the interrupting capacity is k times the interrupting capacity at the rated voltage.

The momentary current capability, defined as the fully offset RMS fault current against which the breaker must be able to close and latch its contacts, is 1.5k times the symmetrical RMS interrupting capacity of the breaker at rated maximum voltage and is not a function of the actual voltage of application.

Under the total-current basis of rating switchgear, the breaker is assigned an interrupting MVA and rated voltage from which an interrupting capability in amperes at rated voltage can be calculated. The breaker is also assigned a range of voltages over which the interrupting MVA is a constant number. If the upper limit of voltage can be exceeded in application, the application is not proper. Below the lower limit, the interrupting capability is not proper. Below the lower limit, the interrupting capability in amperes is constant at a value calculated from the interrupting MVA at the lower-limit voltage. Momentary (or first-cycle) current capability is defined as the maximum fully offset RMS current the breaker can withstand for one second and is assigned by the manufacturer.

Low-voltage breakers are tested and applied in accordance with ANSI C37.13. Low-voltage breakers of present and recent manufacture have symmetrical current interrupting ratings. For low-voltage breakers, calculated first-cycle symmetrical short-circuit currents are compared with the manufacturer's symmetrical ratings since these breakers may be operated rapidly enough to part their contacts during the first-cycle of short-circuit current. Low-voltage breakers manufactured prior to 1957 had <u>average symmetrical</u> short-circuit interrupting current ratings which were compared with 1.25 times calculated first-cycle symmetrical short-circuit currents.

Fuses are fast-acting protective devices that operate in the first-cycle of fault and are rated on a total symmetrical or asymmetrical fault current, depending on the fuse type and voltage rating.

Standards for Short-Circuit Duty Calculations

Electrical power system operating conditions change constantly with system loading and operating procedures. The available short-circuit current also changes with system operating conditions. For any operating condition, the short-circuit current decreases from a maximum value at the inception of a fault until the fault is removed. The rate of this short-circuit current decay depends on many factors.

The American National Standards Institute (ANSI) has developed standards to be used by the electrical industry for calculating short-circuit currents to be compared with short-circuit ratings or capabilities of electrical equipment.

Industrial and commercial power system studies are made by calculating short-circuit current values in accordance with these standards.

Duty and Relay Short-Circuit Current Calculations

The following gives a brief description of the type of calculations that can be made:

1. **First-Cycle Duty per ANSI C37.13-1981 (similar to ASA C37.5-1953)**
   The momentary duty calculated by following ANSI C37.13-1981 is used to compare with the interrupting rating for low-voltage breakers and fuses since their interrupting time is within the first-cycle.

   Impedances represent the utility source, generators, motors, transformers and lines. Sub-transient impedances are used for the utility sources, generators, and synchronous motors. Locked rotor impedances are used for induction motors. For a simplified and more conservative answer only reactances need be used.

   Present-day, low-voltage breaker ratings are compared to the symmetrical current obtained by an E/A calculation at the fault point, while some older low-voltage ratings are compared to an average asymmetrical current 1.25 times the symmetrical current. For symmetrically rated low-voltage circuit breakers, when the X/R ratio is greater than 6.6, the calculated duty is multiplied by a number greater than 1.00 as listed in Table 3 of ANSI C37.13-1981 for comparison with breaker rating. If the X/R ratio is not known, the multiplier should be 1.15. Fuse rating are compared to an asymmetrical current equal to 1.6 times the symmetrical currents in some cases. For low-voltage current-limiting fuses the multiplier is 1.0.

2. **First-Cycle Duty per ANSI C37.010-1979 and C37.5-1979**
   Momentary duty calculated by following ANSI C37.010-1979 and C37.5-1979 is compared with the closing and latching capability of medium and high-voltage circuit breakers. Total impedances, or reactance portions of the utility source impedance, generator, motor, transformer and line impedances are used for the momentary current calculations. The reactances used for the utility source, generator, and synchronous machines are sub-transient reactances. The reactances of the induction motors are entered per Table SCI-3. The circuit E/X current at the fault point is the symmetrical momentary (short time) duty for the breakers. The close-and-latch duty is found by multiplying the symmetrical duty by 1.6 or by using the actual X/R ratio multiplier.

   The superseded ASA 37.5-1953 calculating procedure or the procedure given in C37.13-1981 for low-voltage breakers is sometimes used to evaluate the medium and high-voltage breaker first-cycle duties, along with fuses and low-voltage breaker duties. Using either of the above procedures will yield a slightly higher calculated

duty (usually 2%-5%) for medium and high-voltage breakers than ANSI C37.010-1979 because all induction motors are included at their locked rotor impedance.

3. **Interrupting Duty per ANSI C37.010-1979 and C37.5-1981**
   The interrupting duty calculated by following ANSI C37.010-1979 for symmetrical-current-rated breakers and ANSI C37.5-1979 for total current rated circuit breakers is compared with the medium and high-voltage breaker interrupting ratings.

   The interrupting current is lower than the momentary current because it takes into account the short-circuit decrement with respect to time while the power circuit breaker is opening. The interrupting duty is calculated by using the reactances given in Table SC-3 of this introductory section.

   The interrupting duty is found by calculating the short-circuit current (E/X) from the reactance network only and then finding the equivalent resistance for the circuit at the fault point, using a resistance-only network reduction. The breaker interrupting time, electrical distance away from generators (measured by the number of intervening transformers) and X/R ratio at the fault are used to determine a multiplying factor to be applied to the symmetrical current to take into account the appropriate direct-current decrements for breakers rated from two- to eight-cycles interrupting time. The multipliers are taken from curves given in ANSI Standard C37.5-1979 for total-current-rated breakers.

   Frequently, interrupting current calculations are made using IEEE Transactions Paper 60TP146-IGA Sept/Oct 1969, "Interpretation of New American National Standards for Power Circuit Breaker Application" (GER-2550) as a guide. The principal extension of the ANSI standards is that a ratio of remote-generator fault current to the sum of the local-generator fault current and remote-generator fault current is used as a measure of the electrical distance from the fault to the generation. The resulting fault-current multiplier takes into account reactors and line impedances that may be equivalent to transformer impedances, as well as variations in the size of transformers.

4. **Short-Circuit Relay Currents**
   Short-circuit studies are also made to determine the branch current required to determine settings for relays and protective devices in coordination studies. The impedances of generators and motors depend on the time of interest subsequent to the fault. For long time periods after the fault, the utility source and transient impedance of the generators may be the only short-circuit sources in the network.

One-Line Diagram Discussion

All switching devices indicated on the one-line are assumed “closed” unless designated as "open". Unless specifically requested, multiple utility feeders are not faulted together

in a parallel arrangement. Generally, Main-Tie-Main breaker arrangements incorporate "Krik-Lock" type devices that prevent accidentally paralleling of multiple utility sources.

SHORT CIRCUIT ANALYSIS

Utility Short-Circuit Impedance

The Utility short-circuit contributions used in this study are shown below on a 100 MVA, 480kV base. Henry Abrari of Glendale Public Service provided the values shown below. The X/R values were chosen as typical values for a delivery system of this size. A sensitivity analysis was performed to verify these X/R values as reasonable by running the Short Circuit Analysis at X/R = 1 and X/R = 100. No equipment was found to fail equipment duty ratings within this range of X/R.

At the Utility Service Entrance (@480V):

	System East and West
Three Phase Fault	42kA
Three Phase X/R	7
Ground Fault	42kA
Ground Fault X/R	7

Database Printout

The first computerized printout represents the equipment database that includes all system components used in generating this report. The utility, generator and motor contributions are detailed first, then transformers, cables, and panels. The output is generally self-explanatory.

Cable sizes were determined from Single Line Diagrams and Tables submitted by the Engineer of Record and/or electrical contractor. Additional information regarding cable lengths was also determined from the Single Line Diagrams, and typically provided by the electrical contractor based on estimated take-offs. When cable lengths were not provided, a value of 11' is used (this is for simplicity in finding such cables in future data reviews). Low-voltage motor speeds were assumed as 1800 RPM.

Short-Circuit Program Output Explanation

ESA's EasyPower Version 7.0 was used to calculate the three-phase fault duties using a nodal admittance network. Pre-fault steady-state load currents are omitted since the effects of system load current through a device during a fault is usually negligible in typical industrial and commercial electrical distribution systems.

This short-circuit program provides full implementation of ANSI Standards C37.010-1979, C37.5-1979 and C37.13-1981.

For **momentary duty** (1/2 cycle) fault calculations, the positive sequence impedance is assumed equal to the negative sequence impedance. X/R ratios are derived from the complex network.

For **interrupting duty** fault calculations, rotating machine subtransient impedances are modified by multipliers outlined in ANSI Standards C37.010-1979, and C37.5-1979. Negative sequence impedances are modeled using the rotating machine subtransient impedances with no multipliers. A separate "R" (resistance) network is formed for the calculation of the fault point X/R ratio. The X/R ratio used for the calculation of the interrupting duty multipliers is then found from the relationship Z/R. This method fully complies with the ANSI standard and has the advantage of accurate currents and voltages and increased accuracy of a separate X separate R solution technique. NACD (No AC Decrement) ratios are calculated with consideration of generator "Local" and "Remote" contributions as outlined in ANSI Standard C37.010-1979 and Reference 4. Medium and high-voltage interrupting multipliers are also derived from Reference 4.

The first printout is the *Equipment Duty Violation and Warning Report.*

The interrupting duty shown in this device evaluation report is the available fault current taken from the Short-Circuit Reports at the appropriate point in the system minus the contributions generated downstream of that point. The interrupting duty is the symmetrical rating specified by the device manufacturer. The comparison is shown as a percent under-duty (negative percentage) or a percent over-duty (positive number) e.g. (1 - 16.1 kA/37 kA) = 56.6%. Comments indicate whether the equipment is not capable of safely interrupting the available fault current i.e. "VIOLATION".

Devices that are calculated as over-dutied (VIOLATION) should be replaced as indicated in the *Results - Discussion* found at the end of this section. The devices shown with a "WARNING" comment should be replaced if further motor loading or increased incoming capacity is foreseen. A "WARNING" indicates that a device's calculated fault current is within 10% of its rating. The result of a device applied in excess of its rating may be the destruction of the device as well as the load it was supposed to protect in the event of a major fault.

Molded-Case Circuit Breakers

An important consideration in the application of molded-case and insulated case circuit breakers is that often the interrupting rating given to the equipment is higher than its tested interrupting capacity. In testing circuit breakers for short circuit interrupting ratings, Underwriter's Laboratories (UL) uses an additional four feet, ten inches of cable sized to 125% of the trip setting of the breaker. Thus a 15 amp trip circuit breaker is tested with 4'10" of 14 AWG wire between it and the fault point. This added impedance can severely limit the test current actually applied to the device. The above breaker may have an interrupting rating of 14,000 amps symmetrical short-circuit current at 50% power factor but is only tested at 7,353 amps at 77% power factor at the line connections of the breaker. This discrepancy is most significant at lower trip sizes and at higher interrupting ratings. This may mean that the application of a circuit breaker whose interrupting capacity is less than the

available fault current is a violation of the NEC even though the interrupting rating is sufficient. Similar testing procedures and ratings differences also exist for motor starters, enclosures, distribution panels and motor control centers.

Table SCA-1 lists some common interrupting ratings and capacities for smaller breaker sizes at 480 Volts.

Table SCA-1 [6]

Interrupting Rating	Trip Size	Tested Int. Capacity	Interrupting Rating	Trip Size	Tested Int. Capacity
10,000 A	15 A	7,353 A	14,000 A	15 A	9,772 A
10,000 A	20 A	8,203 A	14,000 A	20 A	11,226 A
10,000 A	25&30A	8,882 A	14,000 A	25&30A	12,354 A
10,000 A	40&50A	9,249 A	14,000 A	40&50A	12,926 A
25,000 A	15 A	13,530 A	42,000 A	15 A	15,714 A
25,000 A	20 A	17,037 A	42,000 A	20 A	21,526 A
25,000 A	25&30A	20,248 A	42,000 A	25&30A	28,352 A
25,000 A	40&50A	21,948 A			
25,000 A	60 A	23,104 A			

The next printout is the *Interrupting Breaker Duties Using Interrupting Impedance Circuit*.

The interrupting duty short-circuit program output gives the calculated 1-1/2 to 4 cycle (interrupting) short-circuit currents which are used to determine the interrupting duties for medium and high-voltage circuit breakers. Interrupting-duty currents are calculated using modified subtransient reactances for all sources of short-circuit current, as specified in the appropriate ANSI calculating procedures.[1,2,3,5] The ANSI Standard method uses a separate R network for the interrupting duty network to determine a conservative Z/R ratio. This ratio is used as the Thevenin equivalent fault point X/R ratio for determining the appropriate breaker contact parting time multipliers and NACD (No AC Decrement) ratios.

Up to six of the standard duties are given (3, 5 and 8 cycle on a Total basis and on a Symmetrical basis), along with the multiplying factors. Fault current values based listed with these interrupting times are based on circuit breaker contact parting times of 0.0333, 0.05 and 0.0667 seconds respectively (2, 3 and 4 cycles, for 60 hertz systems). "Total" refers to a circuit breaker rated on a total current basis and the calculated fault duty is based on references 2 and 4. "Symmetrical" refers to a circuit breaker rated on a symmetrical current basis and the calculated fault duty is based on references 1 and 4. The Adj. Factor times the symmetrical current gives the maximum duty level. The Adj. Factor is determined from curves in Reference 1 and 2, the fault point X/R ratio and the ratio of "Remote/Total" currents as given in Reference 4.

The contributions from adjacent buses are also listed.

The last printout from the Short-Circuit Program is the *Low Voltage Momentary (First Cycle) Breaker Duties Using Momentary Impedance Circuit*.

Calculated first-cycle (momentary) short-circuit currents are used to evaluate interrupting duty for fast-operating interrupters such as fuses and low-voltage circuit breakers, and to calculate relay currents used in protective-device coordination studies. First-cycle duty currents are calculated using subtransient or modified subtransient reactance (X"d) for all sources of short-circuit current as specified in the appropriate ANSI calculating procedures.[1,2,3,4,5]

As indicated, this printout shows the symmetrical amps and the fault X/R ratio as well as asymmetrical amps for each faulted bus in the system. X/R ratios are derived from the complex network. Contributions from adjacent buses are also shown. The "duty" affecting a protective device is normally defined as the contribution from buses "upstream" of the device in the electrical system.

Power Circuit Breaker Duty is shown under the heading "Symmetrical Amps", while Molded-Case Breakers may be shown with multiple duties. This is because molded-case breakers have different Test Power Factors. If the actual fault PF is less than that at which the device was tested (fault X/R ratio greater than test X/R ratio), the device must be derated or a multiplier applied to its duty before comparing the duty with the device's rating for interrupting evaluation.

The Test Power Factors for the above devices are listed here at their worst-case, highest values. This means that for a fault PF less than this, a multiplier is applied to the calculated fault current before it is compared to the device's rating. Breakers with interrupting ratings 10kA or less have a Test Power Factor of 0.50. Breakers with interrupting ratings from 10kA to 20kA have a Test Power Factor of 0.30. Breakers with interrupting ratings of 20kA, or greater, have a Test Power Factor of 0.20. Power Circuit Breakers have a Test Power Factor of 0.15. Similarly, Low-Voltage Fuses have Test PF associated with them as well. There are two different Test PFs, 0.20 and 0.50.

The multiplier to increase the calculated fault current so that it may be compared to the device's nameplate interrupting rating may be calculated by equation SC-E1.

Equation SC-E1.

$$\text{Multiplier} = \frac{1 + \in^{\frac{-\Pi}{(X/R)}}}{1 + \in^{\frac{-\Pi}{K}}}$$

where X/R= Fault X/R ratio
K = tan { $\cos^{-1}$(PF)}

and PF= Test Power Factor (device dependent)

The multiplier to change the calculated symmetrical amperes to asymmetrical amperes is shown in the right half of Equation SC-E2.

Equation SC-E2.

$$\text{Asym} = \text{Sym} * \sqrt{1 + 2 \in^{\frac{-2\pi}{(X/R)}}}$$

where Sym = symmetrical amperes calculated
and Asym = asymmetrical amperes

References

1. "Application Guide for AC High-Voltage Breakers Rated on a Symmetrical Current Basis," ANSI Standard C37.010-1979.

2. "Calculation of Fault Currents for Application of Power Circuit Breakers Rated on a Total-Current Basis," ANSI Standard C37.5-1979.

3. "American National Standard for Low-Voltage AC Power Circuit Breakers Used in Enclosures," ANSI Standard C37.13-1981.

4. "Interpretation of New American National Standard for Power Circuit Breakers Applications,", W.C. Huening Jr., IEEE Transaction on Industry and General Applications, Vol. IGA-5, No. 5, Sept./Oct. 1969.

5. "Calculating Short-Circuit Currents With Contributions From Induction Motors," W.C. Huening, Jr., Conference Record Industry Applications Society, IAS-1981: 21A, 81CH1678-2, page 427-33.

6. "Short Circuit Ratings, Labels, and Fault Withstandability of Molded-case and Insulated-case Circuit Breakers and Combination Motor Starters," Arthur J. Smith, Conference Record of the 1989 IEEE Industry Applications Society Annual Meeting, 89CH2792-0.

Results - Discussion

The Equipment Duty Rating printouts indicate that all of the protective devices or panels in the scope of this study were not overdutied (or within 10% of their rating) – except for the following:

- No devices were found to be in "Violation".

New protective devices added to the system should be checked per the short circuit levels given in the program to insure adequate interrupting ratings are provided. Any major change or addition to the power system can significantly change the short circuit levels. The program should particularly be re-examined in the event of a change in the utility service, a change of one of the principal transformers, or a significant addition of motor load to the studied electrical system.

COORDINATION STUDY INTRODUCTION

Introduction

The purpose of a coordination study is to properly select the circuit protective devices and to provide coordinated settings for adjustable protection devices in the facility that are within the scope of the study. The scope of this study includes the 480V GWP services to two separate switchboards (MSA-E & MSA-W), several sub-panels throughout two buildings, several step-down transformers and several 120/208 panelboards. This study includes a tabulation of all appropriate feeder breaker settings.

The protective device ratings and settings were chosen to provide a reasonable compromise, based on a thorough engineering evaluation, between the often-conflicting goals of maximum protection and greatest service continuity. Judgments were made as to the best balance between these factors. When a balance is attained, the protective system is described as being "coordinated". It is not always possible to obtain the desired degree of system and equipment protection in a selective fashion. Selectivity means that for a fault at a given location, only the protective device nearest the fault will operate to isolate the fault from the circuit. Other "upstream" devices see the fault but allow the "downstream" device to operate first.

The Coordination Study's methods and recommendations are in conformance with the National Electrical Code (NEC), ANSI/IEEE Standard 242-1986 (IEEE Buff Book), and accepted industry practice. A general explanation of the methods used for this study is found under this tab in a section entitled *Procedures.*

The Coordination Study section of the report is organized as follows, *Compliance with Codes and Standards*, *Procedures*, and *General Discussion of Protective Devices.* The next section is titled *Coordination Study - Analysis* and includes the specific discussion and recommendations for the *Disney GC3 Campus – East and West Buildings* project. Time Current Curves used during the evaluation of this particular electrical distribution system are included in the *Appendix*.

Compliance with Codes and Standards

The following discussion addresses the study's compliance with the National Electric Code and ANSI/IEEE Standards.

Lack of selectivity normally occurs with the **use of molded-case circuit breakers and fuses** for both feeder protection and branch circuit protection. Underwriter's Laboratory standard (UL489) requires that the molded-case circuit breakers incorporate an instantaneous trip. This provides self-protection for the molded-case breaker. At high levels of fault current, the instantaneous trip sensor of both the upstream substation feeder breaker and the downstream molded-case breaker or fuse will sense the fault current. Either or both may trip. This lack of selectivity occurs under severe fault

conditions when molded-case breakers or fuses are applied as feeder protective devices. It should also be noted that utilizing series rated combinations of circuit breakers would also compromise selectivity.

The electrical system is examined to find areas that do not conform to the current (2002) version of the **National Electric Code (NEC)**. The NEC is not necessarily enforced retroactively and it is not possible to determine the provisions of the NEC that were in force at the time that a particular installation was made. However, since the NEC provisions cited pertain to basic electrical system protection concepts, facility management should be cognizant of them and initiate corrective action when necessary.

Cable Ampacity - The ratings of all protective devices within the scope of this study were examined to see if they conformed to the requirements of NEC Article 240.4 which states that *"Conductors, . . ., shall be protected against overcurrent in accordance with their ampacities . . . "*

Ampacity values for wires with either a 60°C or 75°C thermal rating were used for this evaluation because these wire thermal ratings are stipulated in the UL listing instructions for the terminations of distribution equipment. The termination provisions are based on the use of 60°C rated wire for wire sizes #14 to #1 AWG and 75°C rated wire for wire sizes Nos. 1/0 and greater. Wire with a higher thermal rating may be used but this wire must have a cross-sectional area not less than that of the 60°C or 75°C rated wire in order to comply with the listing instructions. These listing instructions must be followed as required by NEC Article 110.3(B).

The next higher device rating is allowed in the code if the standard ampere rating of the fuse or circuit breaker doesn't correspond to the cable ampacity and if this rating does not exceed 800 amperes. The NEC contains tables of ampacities, which provide standard values for various cable types and voltage ranges. Adjustable trip circuit breaker settings can be considered acceptable if the minimum setting is within the limit imposed by the next largest standard device ampacity. The National Electric Code defines standard ampere ratings for fuses and inverse time circuit breakers in section 240-6 as ". . . 15, 20, 25, 30, 35, 40, 45, 50, 60, 70, 80, 90, 100, 110, 125, 150, 175, 200, 225, 250, 300, 350, 400, 450, 500, 600, 700, 800, 1000, 1200, 1600, 2000, 2500, 3000, 4000, 5000, and 6000 amperes".

The protective device that protects each of the non conforming circuits should be replaced with one having a rating not greater than that indicated as the maximum device rating <u>or</u> the wire should be replaced with a quantity and size which will provide an ampacity not less than that indicated for the minimum wire size.

The National Electric Code Table 310-16 provides the ampacity of the system's 480V cables.

SIZE	AMPACITY
1/0	150
2/0	175
3/0	200
4/0	230
250	255
300	285
350	310
400	335
500	380
600	420
700	460
750	475
800	490
900	520
1000	545
1250	590
1500	625
1750	650
2000	665

Cable Ampacity for Capacitors is addressed in NEC article 460.8, which states, *"The ampacity of capacitor circuit conductors shall not be less than 135 percent of the rated current of the capacitor."*

Ground fault protection is examined on the 480V system pursuant to NEC articles 230.95 and 215.10. Equipment ground fault protection is required on service and feeder disconnecting means rated 1,000A or more in solidly grounded wye systems with greater than 150V to ground, but not exceeding 600 volts phase-to-phase. Feeder ground fault protection is not required if ground fault protection is installed on the supply side of the feeder, for example, at a main circuit breaker.

The inability of phase overcurrent devices to protect equipment from the damage caused by arcing ground faults is well documented. The arc is resistive and can limit the fault current to levels below the pickup settings of short-time and instantaneous devices. The ground fault may only be isolated through the action of an overload device, which allows the fault to continue for an extended period of time before tripping occurs. This extended time will result in greater damage to equipment than had the ground fault been isolated rapidly. Many instances have been recorded where equipment was literally consumed by an arcing ground fault.

While ground fault protection will greatly reduce the extent of damage that a ground fault arc can cause, the ground fault device may not necessarily operate selectively with phase overcurrent devices downstream. For this reason, ground fault protection

on both main and feeder circuit breakers should be contemplated in order to improve selectivity for feeder ground faults. The decision to install ground fault protection on feeder circuit breakers as well as main circuit breakers should consider the following issues:

1. Presence of critical loads on the feeders. Will critical loads experience an outage due to ground faults on other feeders?

2. Rating and type of downstream overcurrent devices. Are downstream phase overcurrent devices capable of sensing ground fault currents within their zone of protection? Is the degree of protection provided by these devices adequate to limit the extent of potential damage to a tolerable level?

3. Main ground fault protection sensitivity. Can the main ground fault device pickup and/or delay be set high enough to allow downstream overcurrent devices to isolate ground fault currents within their protective zone?

The analysis outlined above is beyond the scope of this study. A minimum recommendation would be to have ground fault protection at the main circuit breakers.

Transformer overcurrent protective devices applied at the primary and secondary of transformers were evaluated for compliance with NEC section 450.3. NEC Article 450-3(b)(2) permits the secondary protective device to be set no greater than 125 percent of the transformer rated secondary current when the primary device is not greater than 250 percent of the transformer rated primary current. Note that this article of the NEC *does not* permit the next highest rated device to be applied for the secondary protection when 125% of the rated current does not correspond to a standard rating.

Maximum Continuous Ratings of Fuses and Circuit Breakers
Permitted For Various Transformer Voltage Levels and Impedances
NEC Table 450.3(A)

Transformers with Primaries Over 600V

Location Limitations	Transformer Rated Impedance	Primary Protection		Secondary Side Protection *N2		
				Over 600V		600V or Below
		Maximum Breaker Rating	Maximum Fuse Rating	Maximum Breaker Rating *N4	Maximum Fuse Rating	Maximum Circuit Breaker or Fuse Rating
Any Location	6% & Below	600% *N1	300% *N1	300% *N1	250% *N1	125% *N1
	More than 6% & not more than 10%	400% *N1	300% *N1	250% *N1	225% *N1	125% *N1
Supervised Locations Only *N3	Any	300% *N1	250% *N1	Not Req'd	Not Req'd	Not Req'd
	6% & Below	600%	300%	300% *N5	250% *N5	250% *N5
	More than 6% & not more than 10%	400%	300%	250% *N5	225% *N5	250% *N5

*N = Notes for Table 450.3(A)

1. Where the required fuse rating or circuit breaker setting does not correspond to a standard rating or setting, a higher rating or setting that does not exceed the next higher standard rating or setting shall be permitted.
2. Where secondary overcurrent protection is required, the secondary overcurrent device shall be permitted to consist of not more than six circuit breakers or six sets of fuses grouped in one location. Where multiple overcurrent devices are utilized, the total of all the device ratings shall not exceed the allowed value of a single overcurrent device. If both circuit breakers and fuses are used as the overcurrent device, the total of the device ratings shall not exceed that allowed for fuses.
3. A supervised location is a location where conditions of maintenance and supervision ensure that only qualified persons will monitor and service the transformer installation.
4. Electronically actuated fuses that may be set to open at a specific current shall be set in accordance with settings for circuit breakers.
5. A transformer equipped with a coordinated thermal overload protection by the manufacturer shall be permitted to have separate secondary protection omitted.

NEC Table 450.3(B)

Transformers with Primaries 600V and Below

Protection Method	Primary Protection			Secondary Protection *N2	
	Currents of 9 Amperes or More	Currents Less than 9 Amperes	Currents Less than 2 Amperes	Currents of 9 Amperes or More	Currents Less than 9 Amperes
Primary Only	125% *N1	167%	300%	Not Req'd	Not Req'd
Primary & Secondary	250% *N3	250% *N3	250% *N3	125% *N3	167%

*N = Notes for Table 450.3(B)

1. Where 125 percent of this current does not correspond to a standard rating of a fuse or nonadjustable circuit breaker, a higher rating that does not exceed the next higher standard rating shall be permitted.
2. Where secondary overcurrent protection is required, the secondary overcurrent device shall be permitted to consist of not more than six circuit breakers or six sets of fuses grouped in one location. Where multiple overcurrent devices are utilized, the total of all the device ratings shall not exceed the allowed value of a single overcurrent device. If both breakers and fuses are utilized as the overcurrent device, the total of the device ratings shall not exceed that allowed for fuses.
3. A transformer equipped with coordinated thermal overload protection by the manufacturer and arranged to interrupt the primary current, shall be permitted to have primary overcurrent protection rated or set at a current value that is not more than six times the rated current of the transformer for transformers having not more than 6 percent and not more than four times the rated current of the transformer for transformers having more than 6 percent but not more than 10 percent impedance.

Conductors that supply motor loads are subject to special requirements found in Article 430 of the NEC. First, it should be noted that NEC Table 430.150 shall be utilized for the full load current values applied to cable ampacity calculations for three-phase motors as specified in Article 430.6. The table supplies full load current values for motors rated up to 200HP. Current values for motors rated greater than 200HP can be interpolated from the table data.

References to motor full load current ratings in this report, when related to conductor ampacity, pertain to the values found in the NEC tables. Motor branch conductors supplying a single motor must have an ampacity greater or equal to 125 percent of the motor full load current rating (Article 430.24). The ampacity of both branch and feeder conductors which supply several motors must have a minimum ampacity greater or equal to the sum of the full load currents of the connected motors plus 25 percent of the full load current rating of the highest rated motor. These requirements must be applied when motors are operated simultaneously and continuously. However, special consideration can be granted from the authority having jurisdiction to these requirements when it can be shown that on-duty cycle, demand factor is less than 100 percent, operational procedures, production demands or nature of the work is such that not all motors are running at the same time and reduce the conductor heating sufficiently to allow use of a smaller conductor size (Article 430.26). In this report, motors are assumed to be run on a continuous basis unless stated otherwise.

Procedures

The coordination study generally begins at the Main Service Breaker. Settings were chosen with the goal of providing the best coordination that was possible with the largest downstream fixed-setting protective device (such as a transformer breaker). The study then proceeds by coordinating each of the feeder and sub-panel breakers. Time-current curves were used to determine the settings that provided optimum coordination. This report contains those time-current curves that were deemed to contain essential information.

The following is a tested, generally accepted philosophy for selecting and setting protective devices:

1. A feeder "first-line" or "primary" protective device will remove fault current as quickly as possible.
2. If the feeder primary protection fails, a "back-up" protective device will remove the fault. An upstream device that acts as the primary device in its zone usually provides the back-up function. Therefore, time-current coordination is required between the feeder primary and back-up protective devices.

The protective device settings are individually chosen to accommodate circuit parameters. The criteria used in determining the recommended feeder protective device settings are:

1. System or feeder circuit full-load current.
2. Allowance for coordination with the largest downstream protective device set to the highest pickup and time delay including substation secondary circuit protective devices.
3. Transformer protection in compliance with American National Standards Institute (ANSI) and National Electrical Code (NEC) requirements.
4. Avoidance of nuisance tripping due to transformer magnetizing inrush currents or motor inrush currents.
5. Short circuit for faults occurring in the protected zone of the system, including faults on transformer secondaries.
6. Protection of cables per NEC requirements and published heating limits.

Included in the report are protective device one-line diagrams which functionally depict connections of protective devices to instrument transformers (current transformers, potential transformers).

Calibration and Testing of Protective Devices

The time-current relationships between protective devices as established in this report require that the individual relay operating characteristics do not depart appreciably from those shown on the published time-current curves from the manufacturer. The specified settings will provide operation of the devices essentially as shown. However, device tolerance and the difficulty in obtaining exact field settings may result in deviations from the specified

operating times. Therefore, it is recommended that the device settings be calibrated by field tests to insure the desired response.

Satisfactory device coordination depends on operation of the protective devices when required, even though they may be inactive for long periods of time. To assure continued proper device action, it is essential the devices be calibrated and checked at regular intervals.

Low Voltage Cable Protection
Article 240.3 of the National Electric Code states that *"Conductors, . . . , shall be protected against overcurrent in accordance with their ampacities . . . "* The next higher standard overcurrent device rating (above the ampacity of the conductors being protected) is allowed in the code with some conditions if the standard rating of the fuse or circuit breaker doesn't correspond to the cable ampacity (below 800 amperes). NEC section 220.10(B) precludes setting an overcurrent protective device above its ampere rating in most situations.

System Medium Voltage Relay Settings
The medium voltage system relay settings are given in the *Relay Settings Table*.

One protection philosophy followed in this study in most cases is the avoidance of 0.5 relay time dial settings with standard non-static overcurrent relays. This is because experience has shown that nuisance tripping can be caused in this situation due to simple vibration. As much as possible, 0.75 is the lowest time dial setting used.

Low Voltage Circuit Breaker Settings
The low voltage circuit breaker device settings are provided in the *Adjustable Breaker Settings Table*. The protection and coordination for many of these circuit breakers becomes highly redundant, and many settings can be derived from a single curve.

As the table may indicate, some of the long time band settings may be set higher than minimum to allow coordination with downstream circuit breakers or fuses. In most cases the long time pickup is set for cable protection. Short time trip settings are chosen for close coordination with downstream devices, while the instantaneous trip settings are set at their highest value to allow maximum selectivity with upstream coordination. Also taken into account is the fault current available at the end of a feeder. This is to assure that a breaker operates when subjected to fault current levels.

ANSI STANDARD DEVICE FUNCTION NUMBERS

Dev. No.	Function
1.	Master Element
2.	Time-delay Starting or Closing Relay
3.	Checking or Interlocking Relay
4.	Master Contactor
5.	Stopping Device
6.	Starting Circuit Breaker
7.	Anode Circuit Breaker
8.	Control-Power Disconnecting Device
9.	Reversing Device
10.	Unit Sequence Switch
11.	Reserved for Future Application
12.	Over-speed Device
13.	Synchronous-speed Device
14.	Under-speed Device
15.	Speed or Frequency-Matching Device
16.	Reserved for Future Application
17.	Shunting or Discharge Switch
18.	Accelerating or Decelerating Device
19.	Starting-to-Running Transition Contactor
20.	Electrically Operated Valve
21.	Distance Relay
22.	Equalizer Circuit Breaker
23.	Temperature Control Device
24.	Reserved for Future Application
25.	Synchronizing or Synchronism-Check Device
26.	Apparatus Thermal Device
27.	Undervoltage Relay
28.	Flame Detector
29.	Isolating Contactor
30.	Annunciator Relay
31.	Separate Excitation Device
32.	Directional Power Relay
33.	Position Switch
34.	Master Sequence Device
35.	Brush-Operating or Slip-Ring Short-Circuiting Device
36.	Polarity or Polarizing Voltage Device
37.	Undercurrent or Underpower Relay
38.	Bearing Protective Device
39.	Mechanical-Condition Monitor
40.	Field Relay
41.	Field Circuit Breaker
42.	Running Circuit Breaker
43.	Manual Transfer or Selector Device
44.	Unit Sequence Starting Relay
45.	Atmospheric Condition Monitor
46.	Reverse-Phase or Phase-Balance Current Relay
47.	Phase-Sequence Voltage Relay
48.	Incomplete Sequence Relay
49.	Machine or Transformer Thermal Relay
50.	Instantaneous Overcurrent or Rate-of-Rise Relay
51.	AC Time Overcurrent Relay
52.	AC Circuit Breaker
53.	Exciter of DC Generator Relay
54.	Reserved for Future Application
55.	Power Factor Relay
56.	Field-Application Relay
57.	Short-Circuiting or Grounding Device
58.	Rectification Failure Relay
59.	Overvoltage Relay
60.	Voltage or Current Balance Relay
61.	Reserved for Future Application
62.	Time-Delay Stopping or Opening Relay
63.	Pressure Switch
64.	Ground Protective Relay
65.	Governor
66.	Notching or Jogging Device
67.	AC Directional Overcurrent Relay
68.	Blocking Relay
69.	Permissive Control Device
70.	Rheostat
71.	Level Switch
72.	DC Circuit Breaker
73.	Load-Resistor Contactor
74.	Alarm Relay
75.	Position Changing Mechanism
76.	DC Overcurrent Relay
77.	Pulse Transmitter
78.	Phase Angle Measuring or Out-of-Step Protective Relay
79.	AC Reclosing Relay
80.	Flow Switch
81.	Frequency Relay
82.	DC Reclosing Relay
83.	Automatic Selective Control or Transfer Relay
84.	Operating Mechanism
85.	Carrier or Pilot-Wire Receiver Relay
86.	Locking-Out Relay
87.	Differential Protective Relay
88.	Auxiliary Motor or Motor Generator
89.	Line Switch
90.	Regulating Device
91.	Voltage Directional Relay
92.	Voltage and Power Directional Relay
93.	Field-Changing Contactor
94.	Tripping or Trip-Free Relay
95.)	
96.)	Used only for specific applications on individual
97.)	installations where none of the assigned numbered
98.)	functions from 1 to 94 are suitable.
99.)	

General Discussion of Protective Devices

The elements that make up a protected system include relays, direct-acting trip devices, and fuses. Low-voltage power circuit breakers and insulated-case circuit breakers can be adjusted within certain limits to meet protection and coordination requirements. In medium and high-voltage systems, relays are used almost exclusively in the design of a flexible and coordinated protective system.

A brief description of some common relay types used in power distribution systems follows. Appropriate instruction books should be consulted to obtain further information concerning equipment details and their application.

Time-Overcurrent Relays (Device 51) - These relays operate on the electromagnetic induction principle and are available with several time-current operating characteristics. This flexibility makes it possible to select operating characteristics in close harmony with the protective requirements of a particular system component. These relays are non-directional in their operation and are used for both phase and ground fault overcurrent protection of transformers and distribution circuits. Special types are available for motor and generator protection.

The theoretical minimum current at which the relay will operate is called the *pickup current*, which is adjustable within a specified range by changing the *ampere tap* plug. Because of extremely low torques at low-current magnitude, electromechanical relays cannot generally be expected to operate predictably for currents less than 1.5 times the ampere tap setting. This accounts for the termination of the published time operating characteristics at this current level.

Generally, the time delay can be changed by means of a continuously adjustable time dial marked 0 to 10 or 0 to 11. Time-dial markings are arbitrary reference points and are not related to the actual time delay in seconds.

On time-current plots, relay operating characteristics are extended to the maximum short-circuit current value to which a relay is expected to respond. If the overcurrent relay is equipped with an instantaneous attachment (Device 50), then the curve will be terminated at the intersection with the instantaneous relay characteristic.

Overcurrent relays intended for phase fault protection are denoted as 51. Residually connected ground fault relays carry the designation 51N while ground fault relays connected to current transformers in the neutral of a transformer or generator are designated as 51G.

Time overcurrent relays employing electronic circuitry are also available. While these relays have different operating principles from their electromechanical counterparts, the general application procedures described still apply.

Instantaneous Overcurrent Relays (Device 50) - Instantaneous relays have extremely fast operating times (about one cycle). They are essential for fast clearing of extremely high fault currents to reduce burning damage and the possibility of unstable operation of rotating machinery.

However, instantaneous relays cannot always be used when selectivity is desired. Since they cannot be made selective with other instantaneous relays, they are generally only used as the last downstream relay of a series of protective devices which respond to essentially the same magnitude of short-circuit current. This may be a branch-circuit protector, such as a motor starter, or a transformer primary protector.

Whenever there is a large impedance in the circuit (such as a current-limiting reactor or a transformer) the fault current level on the load side may differ significantly from that on the source side. In such cases, the instantaneous relay on the source side of the impedance may be able to be set above the current that would flow to a fault on the load side.

Selectivity between instantaneous relays and fuses for fault clearing times of less than 0.1 second cannot be evaluated on a time-current basis. Since sufficient data are not available to verify selectivity, extreme caution should be exercised in predicting coordination on the basis of the time current characteristics of these devices.

Instantaneous relays may be either self-contained or provided as an attachment to a time-overcurrent relay. Many instantaneous relays operate on the electromagnetic attraction principle. These relays will operate equally well on dc and ac currents and the settings determined for them must recognize the possibility of asymmetry in the fault current. Induction cup type instantaneous relays are available for special applications.

Ground instantaneous relays are given designation suffixes in the same manner as ground time overcurrent relays.

Ground Relays (Devices 50GS and 51GS) - A sensitive ground-fault relay is used to take full advantage of a resistance-grounded system. This ground-fault relay is connected to a low-ratio, window-type current transformer encompassing the three-phase conductors. A matched combination is commonly referred to as a ground sensor. Both time-overcurrent and instantaneous ground sensors can be used (Devices 51GS and 50GS, respectively) to obtain selectivity.

The low-burden capability of window-type transformers introduces a ratio error which is taken into account by the use of operating curves applicable to the ground

sensor package being used; that is, the relay-CT combination. These curves may be obtained only by test and are available from the manufacturer. Note that directional ground overcurrent relays should never be connected to low ratio window-type current transformers.

The ground sensor is not responsive to positive and negative sequence load currents but is sensitive to zero sequence (ground fault) currents. Hence, the current transformer ratio is not governed by the anticipated load currents. A 50/5 current transformer ratio is generally used.

Differential Relays (Devices 87G, 87T, 87B and 87L) - Differential relays are employed to permit fast and sensitive protection for phase and ground faults in a bus (87B), a generator (87G), a transformer (87T), or a line (87L). Their use will not only reduce fault point burning damage, but will also improve the ability of rotating machines in the system to return to a stable, steady state mode of operation following a disturbance in the differential zone.

Differential relays are connected to two or more sets of current transformers located at the perimeters of the zone to be protected. Current transformers ideally should have identical characteristics so that through currents will not result in false operation of the differential relays. To allow for normal current transformer tolerances, differential relays are designed to be insensitive to small error currents.

Transformer differential relays are normally designed to provide restraint for harmonic currents predominant in transformer magnetizing inrush currents that are sensed by the transformer source-side current transformers. An adjustable percentage slope adjustment permits de-sensitizing the relay to prevent misoperation for a through fault due to current transformer ratio errors. Ratio tap adjustments are provided to match as nearly as possible the secondary currents in the primary and secondary current transformers.

COORDINATION STUDY ANALYSIS

Discussion and Recommendations

The coordination study analysis is provided below.

- All Feeder Breakers should be set and tested at the recommended settings.
- All low-voltage breakers should be set and tested at their recommended settings for proper coordination with upstream breakers and for proper protection of equipment.
- Several 120V / 208V thermal magnetic breakers had overlapping instantaneous regions upstream and downstream at several panels. This is not uncommon since these breakers typically do not employ adjustable instantaneous pickup capabilities.

APPENDIX

East Building

Database Report

Project Name: Disney Campus
Comment: East Equipment Database Report

Summary

1	Base MVA	100
2	Frequency	60
3	Buses	62
4	MCC Schedules	0
5	Panel Schedules	0
6	Utilities	1
7	Generators	1
8	UPS	0
9	Motors	5
10	Capacitors	0
11	Loads	0
12	Shunts	0
13	Filters	0
14	2-Transformers	12
15	3-Transformers	0
16	Zigzags	0
17	Cables	52
18	Busways	0
19	Xmission Lines	0
20	CL Reactors	0
21	HV Breakers	0
22	LV Breakers	71
23	Switches	2
24	Fuses	0
25	ATS	2
26	Meters	0
27	CTs	0
28	Relays	0
29	Notes	4
30	Lines	0

Buses

	ID Name	Status	Base kV	Area	Zone	AF Type	AF Option	Comment
1	1ATSE	On	0.48	1	1	Other	Specified	
2	1EDH-A1E	On	0.48	1	1	Panelboard	Specified	MLO
3	2ATSE	On	0.48	1	1	Other	Specified	
4	2EH-A1E	On	0.48	1	1	Panelboard	Specified	MLO
5	2EH-B1E	On	0.48	1	1	Panelboard	Specified	MLO
6	2EL-A1E	On	0.208	1	1	Panelboard	Specified	
7	2EL-B1E	On	0.208	1	1	Panelboard	Specified	
8	3EH-A1E	On	0.48	1	1	Panelboard	Specified	MLO
9	3EL-A1E	On	0.208	1	1	Panelboard	Specified	
10	3EL-B1E	On	0.208	1	1	Panelboard	Specified	
11	A1HE	On	0.48	1	1	Panelboard	Specified	MLO
12	A1L1E	On	0.208	1	1	Panelboard	Specified	MLO
13	A1L2E	On	0.208	1	1	Panelboard	Specified	MLO
14	A2HE	On	0.48	1	1	Panelboard	Specified	MLO
15	A2L1E	On	0.208	1	1	Panelboard	Specified	MLO
16	A2L2E	On	0.208	1	1	Panelboard	Specified	MLO
17	A3HE	On	0.48	1	1	Panelboard	Specified	MLO
18	A3L1E	On	0.208	1	1	Panelboard	Specified	MLO
19	A3L2E	On	0.208	1	1	Panelboard	Specified	MLO
20	AC-1E	On	0.48	1	1	Conductor	Specified	
21	AC-2E	On	0.48	1	1	Conductor	Specified	
22	AC-3E	On	0.48	1	1	Conductor	Specified	
23	B1HE	On	0.48	1	1	Panelboard	Specified	MLO
24	B1L1E	On	0.208	1	1	Panelboard	Specified	MLO
25	B1L2E	On	0.208	1	1	Panelboard	Specified	MLO
26	B2HE	On	0.48	1	1	Panelboard	Specified	MLO
27	B2L1E	On	0.208	1	1	Panelboard	Specified	MLO
28	B2L2E	On	0.208	1	1	Panelboard	Specified	MLO
29	B3HE	On	0.48	1	1	Panelboard	Specified	MLO
30	B3L1E	On	0.208	1	1	Panelboard	Specified	MLO
31	B3L2E	On	0.208	1	1	Panelboard	Specified	MLO
32	G-1	On	0.48	1	1	Other	Specified	
33	GEN E	On	0.48	1	1	Other	Specified	
34	IDF-2BE	On	0.208	1	1	Panelboard	Specified	MLO
35	LB	On	0.48	1	1	Other	Specified	
36	MDFE	On	0.208	1	1	Panelboard	Specified	
37	MSA-E	On	0.48	1	1	Switchboard	Specified	
38	RHE	On	0.48	1	1	Panelboard	Specified	MLO
39	TX 2ETR-1AE	On	0.48	1	1	Other	Specified	
40	TX 2ETR-1AE L	On	0.208	1	1	Other	Specified	
41	TX 2ETR-1BE	On	0.48	1	1	Other	Specified	
42	TX 2ETR-1BE L	On	0.208	1	1	Other	Specified	
43	TX 3ETR-1AE	On	0.48	1	1	Other	Specified	
44	TX 3ETR-1AE L	On	0.208	1	1	Other	Specified	
45	TX 3ETR-1BE	On	0.48	1	1	Other	Specified	
46	TX 3ETR-1BE L	On	0.208	1	1	Other	Specified	
47	TX ATR1E H	On	0.48	1	1	Other	Specified	
48	TX ATR1E L	On	0.208	1	1	Other	Specified	
49	TX ATR2E H	On	0.48	1	1	Other	Specified	
50	TX ATR2E L	On	0.208	1	1	Other	Specified	
51	TX ATR3E H	On	0.48	1	1	Other	Specified	
52	TX ATR3E L	On	0.208	1	1	Other	Specified	
53	TX BTR1E H	On	0.48	1	1	Other	Specified	
54	TX BTR1E L	On	0.208	1	1	Other	Specified	
55	TX BTR2E H	On	0.48	1	1	Other	Specified	
56	TX BTR2E L	On	0.208	1	1	Other	Specified	
57	TX BTR3E H	On	0.48	1	1	Other	Specified	
58	TX BTR3E L	On	0.208	1	1	Other	Specified	
59	TX GWP H	Off	12.47	1	1	Other	Specified	
60	TX GWP L	On	0.48	1	1	Other	Specified	
61	TX STR-1AE H	On	0.48	1	1	Other	Specified	
62	TX STR-1AE L	On	0.208	1	1	Other	Specified	

Utilities

	ID Name	Status	To bus	Base kV	Util kV	Fault Unit	3Ph SC1	3Ph SC2	SLG SC1	SLG SC2	Model	MW	MVAR	CTL kV pu	MVAR Min	MVAR Max	kV pu Min	kV pu Max
1	GWP	On	TX GWP L	0.48	0.48	kA	42	7	42	7	Swing	0	0	1	-100000	100000	0.8	1.2

Utilities

	ID Name	Ctl Angle	Ctl Bus	Ctl Base kV	R1 pu	X1 pu	R0 pu	X0 pu	Hrm RC Factor	Hrm RC Value	I Hrm Rating	Comment
1	GWP	0	TX GWP L	0.48	0.40500	2.83505	0.40500	2.83505	R-EXP	0.5	120281.	

Generators

	ID Name	Status	To bus	Base kV	Gen kV	Conn	MVA	Type	Power Factor	Efficiency	RPM	X/R	Model	MW	MVAR	Ctl kV pu	MVAR Min	MVAR Max
1	GEN E	Off	GEN E	0.48	0.48	YG	0.25	SYN-SP	0.8	0.95	3600	14.2141	PV	0	0	1	-100000	100000

Generators

	ID Name	kV pu Min	kV pu Max	Ctl Angle	Ctl Bus	Ctl Base kV	X"dv	X'dv	X0	Xlr	RG OHM	XG OHM	R1 pu	X1 pu	R0 pu	X0 pu	R Gnd pu	X Gnd pu
1	GEN E	0.8	1.2	0	GEN E	0.48					0	0						

Generators

	ID Name	Hrm RC Factor	Hrm RC Value	I Hrm Rating	Comment
1	GEN E	R-EXP	0.5		

Motors

	ID Name	Status	To Bus	Base kV	Unit	Model	Motor kV	Hp or kW	Type	Load Class	RPM	FLA	Power Factor	Eff	kVA/Hp	ANSI Code	Connected
1	M AC-1E	Off	AC-1E	0.48	U.S.	Individual	0.46		Induction	Non-essential	1800		0.82	0.91		> 50	100
2	M AC-2E	Off	AC-2E	0.48	U.S.	Individual	0.46		Induction	Non-essential	1800		0.82	0.91		> 50	100
3	M AC-3E	Off	AC-3E	0.48	U.S.	Individual	0.46		Induction	Non-essential	1800		0.82	0.91		> 50	100
4	M ELEV1	On	G-1	0.48	U.S.	Individual	0.46	60	Induction	Non-essential	1800		0.82	0.91		> 50	100
5	M ELEV2	On	G-1	0.48	U.S.	Individual	0.46	60	Induction	Non-essential	1800		0.82	0.91		> 50	100

Motors

	ID Name	X"dv or Xlr	X/R	Load Model	Motor kVA	Load Type	Load Scaling	SCADA kW	SCADA jkVar	SCADA Type	SCADA Scaling	Hrm RC Value	Hrm RC Factor	R1 pu	X1 pu	Int MF	Hrm R1 pu	Hrm X1 pu
1	M AC-1E			Spec	49.9866	kVA	100	0	0	kVA	100	0.5	R-EXP					
2	M AC-2E			Spec	49.9866	kVA	100	0	0	kVA	100	0.5	R-EXP					
3	M AC-3E			Spec	49.9866	kVA	100	0	0	kVA	100	0.5	R-EXP					
4	M ELEV1	16.7	6.09674	Spec	59.9839	kVA	100	0	0	kVA	100	0.5	R-EXP	49.6630	302.782	2.5	41.3859	252.319
5	M ELEV2	16.7	6.09674	Spec	59.9839	kVA	100	0	0	kVA	100	0.5	R-EXP	49.6630	302.782	2.5	41.3859	252.319

Motors

	ID Name	I Hrm Rating	TCC Starter	Plot TCC	Service Factor	Locked Rotor Mult	Asym Offset	Reduced Inrush Mult	Accel Time	Stall Time	Stall Time To	Largest Motor HP	Comment
1	M AC-1E		Full Volt		1	6	1.6	100	5	6	200	50	
2	M AC-2E		Full Volt		1	6	1.6	100	5	6	200	50	
3	M AC-3E		Full Volt		1	6	1.6	100	5	6	200	50	
4	M ELEV1	72.1494	Full Volt		1	6	1.6	100	5	6	200	60	
5	M ELEV2	72.1494	Full Volt		1	6	1.6	100	5	6	200	60	

2W-Xformers

	ID Name	Status	From bus	From Base kV	From Conn	To Bus	To Base kV	To Conn	Type	Class	Temp	Form	From Nom kV	From Tap kV	From Gnd R	From Gnd jX	To Nom kV
1	TX 2ETR-1AE	On	TX 2ETR-1AE H	0.48	D	TX 2ETR-1AE L	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
2	TX 2ETR-1BE	On	TX 2ETR-1BE H	0.48	D	TX 2ETR-1BE L	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
3	TX 3ETR-1AE	On	TX 3ETR-1AE H	0.48	D	TX 3ETR-1AE L	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
4	TX 3ETR-1BE	On	TX 3ETR-1BE H	0.48	D	TX 3ETR-1BE L	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
5	TX ATR1E	On	TX ATR1E H	0.48	D	TX ATR1E L	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
6	TX ATR2E	On	TX ATR2E H	0.48	D	TX ATR2E L	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
7	TX ATR3E	On	TX ATR3E H	0.48	D	TX ATR3E L	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
8	TX BTR1E	On	TX BTR1E H	0.48	D	TX BTR1E L	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
9	TX BTR2E	On	TX BTR2E H	0.48	D	TX BTR2E L	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
10	TX BTR3E	On	TX BTR3E H	0.48	D	TX BTR3E L	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
11	TX GWP	Off	TX GWP H	12.47	D	TX GWP L	0.48	YG	Oil	OA	80	Core	12.47	12.47	0	0	0.48
12	TX STR-1AE	On	TX STR-1AE H	0.48	D	TX STR-1AE L	0.208	YG	Dry	OA	115	Core	0.48	0.48	0	0	0.208

2W-Xformers

	ID Name	To Tap kV	To Gnd R	To Gnd jX	MVA	MVA O/L	Z	Z0	X/R	LTC Tap	LTC Step	LTC Min Tap	LTC Max Tap	Ctl Type	Ctl Value	Zps R1 pu	Zps X1 pu	Zps R0 pu	Zps X0 pu
1	TX 2ETR-1AE	0.208	0	0	0.015	0.015	5.1	4.335	1.55252	None	0.625	0.1	1500	V (PU)	1	184.111	285.837	10000	1e+007
2	TX 2ETR-1BE	0.208	0	0	0.015	0.015	5.1	4.335	1.55252	None	0.625	0.1	1500	V (PU)	1	184.111	285.837	10000	1e+007
3	TX 3ETR-1AE	0.208	0	0	0.03	0.03	5.5	4.675	1.60219	None	0.625	0.1	1500	V (PU)	1	97.0709	155.526	10000	1e+007
4	TX 3ETR-1BE	0.208	0	0	0.03	0.03	5.5	4.675	1.60219	None	0.625	0.1	1500	V (PU)	1	97.0709	155.526	10000	1e+007
5	TX ATR1E	0.208	0	0	0.1125	0.1125	5.5	4.675	1.88578	None	0.625	0.1	1500	V (PU)	1	22.9039	43.1918	10000	1e+007
6	TX ATR2E	0.208	0	0	0.1125	0.1125	5.5	4.675	1.88578	None	0.625	0.1	1500	V (PU)	1	22.9039	43.1918	10000	1e+007
7	TX ATR3E	0.208	0	0	0.1125	0.1125	5.5	4.675	1.88578	None	0.625	0.1	1500	V (PU)	1	22.9039	43.1918	10000	1e+007
8	TX BTR1E	0.208	0	0	0.1125	0.1125	5.5	4.675	1.88578	None	0.625	0.1	1500	V (PU)	1	22.9039	43.1918	10000	1e+007
9	TX BTR2E	0.208	0	0	0.1125	0.1125	5.5	4.675	1.88578	None	0.625	0.1	1500	V (PU)	1	22.9039	43.1918	10000	1e+007
10	TX BTR3E	0.208	0	0	0.1125	0.1125	5.5	4.675	1.88578	None	0.625	0.1	1500	V (PU)	1	22.9039	43.1918	10000	1e+007
11	TX GWP	0.48	0	0						None	0.625	0.1	1500	V (PU)	1				
12	TX STR-1AE	0.208	0	0	0.075	0.075	3	2.55	1.75974	None	0.625	0.1	1500	V (PU)	1	19.7625	34.777	10000	1e+007

2W-Xformers

	ID Name	Rps0+3Rpsg	Xps0+3Xpsg	From Gnd R1 pu	From Gnd jX pu	To Gnd R1 pu	To Gnd jX pu	TCC Standard	TCC FLA Based On	Freq Fault Curve	TCC Max Plot Time	TCC Inrush FLA Mult	TCC Inrush Cycles	Hrm RC Factor	Hrm RC Value
1	TX 2ETR-1AE	156.495	242.9616	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
2	TX 2ETR-1BE	156.495	242.9616	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
3	TX 3ETR-1AE	82.51028	132.1971	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
4	TX 3ETR-1BE	82.51028	132.1971	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
5	TX ATR1E	19.46836	36.71304	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
6	TX ATR2E	19.46836	36.71304	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
7	TX ATR3E	19.46836	36.71304	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
8	TX BTR1E	19.46836	36.71304	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
9	TX BTR2E	19.46836	36.71304	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
10	TX BTR3E	19.46836	36.71304	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
11	TX GWP							ANSI C57.109	MVA O/L	Yes	500	8	6	R-EXP	0
12	TX STR-1AE	16.79819	29.56045	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0

2W-Xformers

	ID Name	Hrm Pec-r %	Hrm From I Rating	Hrm To I Rating	Comment
1	TX 2ETR-1AE	15	18.0422	41.6358	
2	TX 2ETR-1BE	15	18.0422	41.6358	
3	TX 3ETR-1AE	15	36.0844	83.2716	
4	TX 3ETR-1BE	15	36.0844	83.2716	
5	TX ATR1E	15	135.316	312.268	
6	TX ATR2E	15	135.316	312.268	
7	TX ATR3E	15	135.316	312.268	
8	TX BTR1E	15	135.316	312.268	
9	TX BTR2E	15	135.316	312.268	
10	TX BTR3E	15	135.316	312.268	
11	TX GWP	15			
12	TX STR-1AE	15	90.2109	208.179	K-rated transformer

Cables

	ID Name	Status	From Bus ID	From Base kV	To Bus ID	To Base kV	Unit	Type	No/Ph	Size	Length	Temp	Insulation	Rating (A)	Material
1	C 1ATSE	On	1ATSE	0.48	1ATSE	0.48	U.S.	1/C	1	1/0	10	50	THWN	150	Copper
2	C 1EDH-A1E	On	2ATSE	0.48	1EDH-A1E	0.48	U.S.	1/C	1	500	10	50	THWN	380	Copper
3	C 2ATSE	On	2ATSE	0.48	2ATSE	0.48	U.S.	1/C	1	250	10	50	THWN	255	Copper
4	C 2EH-A1E	On	1ATSE	0.48	2EH-A1E	0.48	U.S.	1/C	1	1/0	40	50	THWN	150	Copper
5	C 2EH-B1E	On	2EH-A1E	0.48	2EH-B1E	0.48	U.S.	1/C	1	1/0	250	50	THWN	150	Copper
6	C 2EL-A1E	On	TX 2ETR-1AE L	0.208	2EL-A1E	0.208	U.S.	1/C	1	6	10	50	THWN	65	Copper
7	C 2EL-B1E	On	TX 2ETR-1BE L	0.208	2EL-B1E	0.208	U.S.	1/C	1	6	10	50	THWN	65	Copper
8	C 3EH-A1E	On	1EDH-A1E	0.48	3EH-A1E	0.48	U.S.	1/C	1	2	40	50	THWN	115	Copper
9	C 3EL-A1E	On	TX 3ETR-1AE L	0.208	3EL-A1E	0.208	U.S.	1/C	1	2	10	50	THWN	115	Copper
10	C 3EL-B1E	On	TX 3ETR-1BE L	0.208	3EL-B1E	0.208	U.S.	1/C	1	2	10	50	THWN	115	Copper
11	C A1HE	On	MSA-E	0.48	A1HE	0.48	U.S.	1/C	1	1/0	20	50	THWN	150	Copper
12	C A1L1E	On	TX ATR1E L	0.208	A1L1E	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
13	C A1L2E	On	A1L1E	0.208	A1L2E	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
14	C A2HE	On	MSA-E	0.48	A2HE	0.48	U.S.	1/C	1	1/0	100	50	THWN	150	Copper
15	C A2L1E	On	TX ATR2E L	0.208	A2L1E	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
16	C A2L2E	On	A2L1E	0.208	A2L2E	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
17	C A3HE	On	MSA-E	0.48	A3HE	0.48	U.S.	1/C	1	1/0	120	50	THWN	150	Copper
18	C A3L1E	On	TX ATR3E L	0.208	A3L1E	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
19	C A3L2E	On	A3L1E	0.208	A3L2E	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
20	C AC-1E	On	MSA-E	0.48	AC-1E	0.48	U.S.	1/C	1	350	150	75	THWN	310	Copper
21	C AC-2E	On	MSA-E	0.48	AC-2E	0.48	U.S.	1/C	1	350	270	75	THWN	310	Copper
22	C AC-3E	On	MSA-E	0.48	AC-3E	0.48	U.S.	1/C	1	350	350	75	THWN	310	Copper
23	C B1HE	On	MSA-E	0.48	B1HE	0.48	U.S.	1/C	1	4/0	260	50	THWN	230	Copper
24	C B1L1E	On	TX BTR1E L	0.208	B1L1E	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
25	C B1L2E	On	B1L1E	0.208	B1L2E	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
26	C B2HE	On	MSA-E	0.48	B2HE	0.48	U.S.	1/C	1	1	300	50	THWN	130	Copper
27	C B2L1E	On	TX BTR2E L	0.208	B2L1E	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
28	C B2L2E	On	B2L1E	0.208	B2L2E	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
29	C B3HE	On	MSA-E	0.48	B3HE	0.48	U.S.	1/C	1	1	320	50	THWN	130	Copper
30	C B3L1E	On	TX BTR3E L	0.208	B3L1E	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
31	C B3L2E	On	B3L1E	0.208	B3L2E	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
32	C G-1	On	1EDH-A1E	0.48	G-1	0.48	U.S.	1/C	1	3/0	140	50	THWN	200	Copper
33	C GEN-E 1ATS	On	GEN E	0.48	1ATSE	0.48	U.S.	1/C	1	1/0	120	50	THWN	150	Copper
34	C GEN-E 2ATS	On	GEN E	0.48	2ATSE	0.48	U.S.	1/C	1	250	120	50	THWN	255	Copper
35	C IDF-2BE	On	MDFE	0.208	IDF-2BE	0.208	U.S.	1/C	1	1/0	240	50	THWN	150	Copper
36	C LB	On	GEN E	0.48	LB	0.48	U.S.	1/C	1	2/0	10	50	THWN	175	Copper
37	C MDFE	On	TX STR-1AE L	0.208	MDFE	0.208	U.S.	1/C	1	4/0	50	50	THWN	230	Copper
38	C MSA-E	On	TX GWP L	0.48	MSA-E	0.48	U.S.	1/C	8	500	50	50	THWN	3040	Copper
39	C MSA-E 1ATS	On	MSA-E	0.48	1ATSE	0.48	U.S.	1/C	1	1/0	70	50	THWN	150	Copper
40	C MSA-E 2ATS	On	MSA-E	0.48	2ATSE	0.48	U.S.	1/C	1	500	70	50	THWN	380	Copper
41	C RHE	On	MSA-E	0.48	RHE	0.48	U.S.	1/C	1	1/0	350	75	THWN	150	Copper
42	C TX 2ETR-1A	On	2EH-A1E	0.48	TX 2ETR-1AE H	0.48	U.S.	1/C	1	10	20	50	THWN	35	Copper
43	C TX 2ETR-1B	On	2EH-B1E	0.48	TX 2ETR-1BE H	0.48	U.S.	1/C	1	10	20	50	THWN	35	Copper
44	C TX 3ETR-1A	On	3EH-A1E	0.48	TX 3ETR-1AE H	0.48	U.S.	1/C	1	4	20	50	THWN	85	Copper
45	C TX 3ETR-1B	On	3EH-A1E	0.48	TX 3ETR-1BE H	0.48	U.S.	1/C	1	2	225	50	THWN	115	Copper
46	C TX ATR1E	On	MSA-E	0.48	TX ATR1E H	0.48	U.S.	1/C	1	4/0	100	50	THWN	230	Copper
47	C TX ATR2E	On	MSA-E	0.48	TX ATR2E H	0.48	U.S.	1/C	1	4/0	100	50	THWN	230	Copper
48	C TX ATR3E	On	MSA-E	0.48	TX ATR3E H	0.48	U.S.	1/C	1	4/0	120	50	THWN	230	Copper
49	C TX BTR1E	On	MSA-E	0.48	TX BTR1E H	0.48	U.S.	1/C	1	4/0	260	50	THWN	230	Copper
50	C TX BTR2E	On	MSA-E	0.48	TX BTR2E H	0.48	U.S.	1/C	1	4/0	300	50	THWN	230	Copper
51	C TX BTR3E	On	MSA-E	0.48	TX BTR3E H	0.48	U.S.	1/C	1	4/0	300	50	THWN	230	Copper
52	C TX STR-1AE	On	1EDH-A1E	0.48	TX STR-1AE H	0.48	U.S.	1/C	1	1/0	10	50	THWN	150	Copper

Cables

	ID Name	Raceway Type	Raceway Mtl	R1	X1	R0	X0	Xc	Xc0	Gnd Num	Gnd Size	Gnd Mtl	Gnd Type	Gnd Insul	Neutral Num	Neutral Size	Neutral Rating
1	C 1ATSE	Conduit	EMT	0.11201	0.04068	0.22402	0.08137	0.00653	0.00653	1	6	Copper	Separate	Yes	1	1/0	10
2	C 1EDH-A1E	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	Other	10
3	C 2ATSE	Conduit	EMT	0.04860	0.03903	0.09721	0.07806	0.00521	0.00521	1	4	Copper	Separate	Yes	1	Other	10
4	C 2EH-A1E	Conduit	EMT	0.11201	0.04068	0.22402	0.08137	0.00653	0.00653	1	6	Copper	Separate	Yes	1	1/0	10
5	C 2EH-B1E	Conduit	EMT	0.11201	0.04068	0.22402	0.08137	0.00653	0.00653	1	6	Copper	Separate	Yes	1	1/0	10
6	C 2EL-A1E	Conduit	EMT	0.45045	0.04222	0.90091	0.08445	0.00776	0.00776	1	10	Copper	Separate	Yes	1	6	10
7	C 2EL-B1E	Conduit	EMT	0.45045	0.04222	0.90091	0.08445	0.00776	0.00776	1	10	Copper	Separate	Yes	1	6	10
8	C 3EH-A1E	Conduit	EMT	0.17821	0.04084	0.35641	0.08168	0.00665	0.00665	1	8	Copper	Separate	Yes	1	Other	10
9	C 3EL-A1E	Conduit	EMT	0.17821	0.04084	0.35641	0.08168	0.00665	0.00665	2	8	Copper	Separate	Yes	1	2	10
10	C 3EL-B1E	Conduit	EMT	0.17821	0.04084	0.35641	0.08168	0.00665	0.00665	2	8	Copper	Separate	Yes	1	2	10
11	C A1HE	Conduit	PVC	0.11201	0.03254	0.22402	0.06509	0.00653	0.00653	1	1/0	Copper	Separate	Yes	0	Other	10
12	C A1L1E	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
13	C A1L2E	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
14	C A2HE	Conduit	EMT	0.11201	0.04068	0.22402	0.08137	0.00653	0.00653	1	1/0	Copper	Separate	Yes	0	Other	10
15	C A2L1E	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
16	C A2L2E	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
17	C A3HE	Conduit	EMT	0.11201	0.04068	0.22402	0.08137	0.00653	0.00653	1	1/0	Copper	Separate	Yes	0	Other	10
18	C A3L1E	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
19	C A3L2E	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
20	C AC-1E	Conduit	EMT	0.03881	0.03809	0.07762	0.07618	0.00446	0.00446	1	4	Copper	Separate	Yes	0	Other	10
21	C AC-2E	Conduit	EMT	0.03881	0.03809	0.07762	0.07618	0.00446	0.00446	1	4	Copper	Separate	Yes	0	Other	10
22	C AC-3E	Conduit	EMT	0.03881	0.03809	0.07762	0.07618	0.00446	0.00446	1	4	Copper	Separate	Yes	0	Other	10
23	C B1HE	Conduit	PVC	0.05587	0.03078	0.11174	0.06156	0.00476	0.00476	1	4/0	Copper	Separate	Yes	0	4/0	10
24	C B1L1E	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
25	C B1L2E	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
26	C B2HE	Conduit	EMT	0.14127	0.04157	0.28254	0.08314	0.00723	0.00723	1	1	Copper	Separate	Yes	0	Other	10
27	C B2L1E	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
28	C B2L2E	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
29	C B3HE	Conduit	EMT	0.14127	0.04157	0.28254	0.08314	0.00723	0.00723	1	1	Copper	Separate	Yes	0	Other	10
30	C B3L1E	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
31	C B3L2E	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
32	C G-1	Conduit	PVC	0.07046	0.03131	0.14092	0.06263	0.00530	0.00530	1	6	Copper	Separate	Yes	1	Other	10
33	C GEN-E 1ATS	Conduit	PVC	0.11201	0.03254	0.22402	0.06509	0.00653	0.00653	1	6	Copper	Separate	Yes	1	1/0	10
34	C GEN-E 2ATS	Conduit	PVC	0.04814	0.03122	0.09629	0.06244	0.00521	0.00521	1	4	Copper	Separate	Yes	1	Other	10
35	C IDF-2BE	Conduit	Steel	0.11201	0.04068	0.44804	0.16274	0.00653	0.00653	1	6	Copper	Separate	Yes	1	1/0	10
36	C LB	Conduit	PVC	0.08883	0.03190	0.17766	0.06380	0.00588	0.00588	1	6	Copper	Separate	Yes	1	2/0	10
37	C MDFE	Conduit	PVC	0.05587	0.03078	0.11174	0.06156	0.00476	0.00476	1	4	Copper	Separate	Yes	1	4/0	10
38	C MSA-E	Conduit	Steel	0.02613	0.03724	0.10453	0.14897	0.00378	0.00378	8	3/0	Copper	Separate	Yes	8	500	10
39	C MSA-E 1ATS	Conduit	PVC	0.11201	0.03254	0.22402	0.06509	0.00653	0.00653	1	6	Copper	Separate	Yes	1	1/0	10
40	C MSA-E 2ATS	Conduit	PVC	0.02502	0.02979	0.05005	0.05958	0.00378	0.00378	1	2	Copper	Separate	Yes	1	Other	10
41	C RHE	Conduit	EMT	0.12192	0.04068	0.24384	0.08137	0.00653	0.00653	1	6	Copper	Separate	Yes	0	Other	10
42	C TX 2ETR-1A	Conduit	EMT	1.13918	0.04271	2.27836	0.08542	0.00814	0.00814	1	10	Copper	Separate	Yes	0	10	10
43	C TX 2ETR-1B	Conduit	EMT	1.13918	0.04271	2.27836	0.08542	0.00814	0.00814	1	10	Copper	Separate	Yes	0	Other	10
44	C TX 3ETR-1A	Conduit	EMT	0.28320	0.04271	0.56641	0.08542	0.00814	0.00814	1	8	Copper	Separate	Yes	0	Other	10
45	C TX 3ETR-1B	Conduit	Steel	0.17821	0.04084	0.71283	0.16337	0.00665	0.00665	1	8	Copper	Separate	Yes	0	Other	10
46	C TX ATR1E	Conduit	PVC	0.05587	0.03078	0.11174	0.06156	0.00476	0.00476	1	4	Copper	Separate	Yes	0	Other	10
47	C TX ATR2E	Conduit	EMT	0.05587	0.03847	0.11174	0.07695	0.00476	0.00476	1	4	Copper	Separate	Yes	0	Other	10
48	C TX ATR3E	Conduit	EMT	0.05587	0.03847	0.11174	0.07695	0.00476	0.00476	1	4	Copper	Separate	Yes	0	Other	10
49	C TX BTR1E	Conduit	PVC	0.05587	0.03078	0.11174	0.06156	0.00476	0.00476	1	4	Copper	Separate	Yes	0	Other	10
50	C TX BTR2E	Conduit	EMT	0.05587	0.03847	0.11174	0.07695	0.00476	0.00476	1	4	Copper	Separate	Yes	0	Other	10
51	C TX BTR3E	Conduit	EMT	0.05587	0.03847	0.11174	0.07695	0.00476	0.00476	1	4	Copper	Separate	Yes	0	Other	10
52	C TX STR-1AE	Conduit	EMT	0.11201	0.04068	0.22402	0.08137	0.00653	0.00653	1	6	Copper	Separate	Yes	0	Other	10

Cables

	ID Name	Neutral Mtl	Neutral Insul	Conductor Lay	Conductor Form	Spacing	R1 pu	X1 pu	R0 pu	X0 pu	B1 pu	B0 pu	Hrm RC Factor	Hrm RC Value	I Hrm Rating	Comment
1	C 1ATSE	Copper	Yes	Triangle	Round	0	0.48615	0.17658	0.97231	0.35317	3.52774	3.52774	R-EXP	0.5	150	
2	C 1EDH-A1E	Copper	Yes	Triangle	Round	0	0.11343	0.16164	0.22686	0.32328	6.08610	6.08610	R-EXP	0.5	380	
3	C 2ATSE	Copper	Yes	Triangle	Round	0	0.21096	0.16940	0.42193	0.33881	4.42065	4.42065	R-EXP	0.5	255	
4	C 2EH-A1E	Copper	Yes	Triangle	Round	0	1.94463	0.70634	3.88927	1.41268	1.41109	1.41109	R-EXP	0.5	150	
5	C 2EH-B1E	Copper	Yes	Triangle	Round	0	12.1539	4.41462	24.3079	8.82925	8.81935	8.81935	R-EXP	0.5	150	
6	C 2EL-A1E	Copper	Yes	Triangle	Round	0	10.4118	0.97603	20.8235	1.95206	5.57479	5.57479	R-EXP	0.5	65	
7	C 2EL-B1E	Copper	Yes	Triangle	Round	0	10.4118	0.97603	20.8235	1.95206	5.57479	5.57479	R-EXP	0.5	65	
8	C 3EH-A1E	Copper	Yes	Triangle	Round	0	3.09392	0.70910	6.18783	1.41821	1.38415	1.38415	R-EXP	0.5	115	
9	C 3EL-A1E	Copper	Yes	Triangle	Round	0	4.11912	0.94407	8.23823	1.88815	6.49784	6.49784	R-EXP	0.5	115	
10	C 3EL-B1E	Copper	Yes	Triangle	Round	0	4.11912	0.94407	8.23823	1.88815	6.49784	6.49784	R-EXP	0.5	115	
11	C A1HE	Copper	Yes	Triangle	Round	0	0.97231	0.28253	1.94463	0.56507	7.05548	7.05548	R-EXP	0.5	150	
12	C A1L1E	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
13	C A1L2E	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
14	C A2HE	Copper	Yes	Triangle	Round	0	4.86158	1.76585	9.72317	3.53170	3.52774	3.52774	R-EXP	0.5	150	
15	C A2L1E	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
16	C A2L2E	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
17	C A3HE	Copper	Yes	Triangle	Round	0	5.83390	2.11902	11.6678	4.23804	4.23329	4.23329	R-EXP	0.5	150	
18	C A3L1E	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
19	C A3L2E	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
20	C AC-1E	Copper	Yes	Triangle	Round	0	2.52686	2.47992	5.05372	4.95984	7.74405	7.74405	R-EXP	0.5	310	
21	C AC-2E	Copper	Yes	Triangle	Round	0	4.54835	4.46386	9.09670	8.92772	1.39392	1.39392	R-EXP	0.5	310	
22	C AC-3E	Copper	Yes	Triangle	Round	0	5.89601	5.78648	11.7920	11.5729	1.80694	1.80694	R-EXP	0.5	310	
23	C B1HE	Copper	Yes	Triangle	Round	0	6.30523	3.47351	12.6104	6.94704	1.25604	1.25604	R-EXP	0.5	230	
24	C B1L1E	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
25	C B1L2E	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
26	C B2HE	Copper	Yes	Triangle	Round	0	18.3950	5.41326	36.7902	10.8265	9.54722	9.54722	R-EXP	0.5	130	
27	C B2L1E	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
28	C B2L2E	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
29	C B3HE	Copper	Yes	Triangle	Round	0	19.6213	5.77415	39.2429	11.5482	1.01837	1.01837	R-EXP	0.5	130	
30	C B3L1E	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
31	C B3L2E	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
32	C G-1	Copper	Yes	Triangle	Round	0	4.28153	1.90297	8.56309	3.80594	6.08105	6.08105	R-EXP	0.5	200	
33	C GEN-E 1ATS	Copper	Yes	Triangle	Round	0	5.83390	1.69521	11.6678	3.39043	4.23329	4.23329	R-EXP	0.5	150	
34	C GEN-E 2ATS	Copper	Yes	Triangle	Round	0	2.50773	1.62629	5.01545	3.25258	5.30478	5.30478	R-EXP	0.5	255	
35	C IDF-2BE	Copper	Yes	Triangle	Round	0	62.1362	22.5694	248.545	90.2779	1.58983	1.58983	R-EXP	0.5	150	
36	C LB	Copper	Yes	Triangle	Round	0	0.38555	0.13845	0.77110	0.27691	3.91481	3.91481	R-EXP	0.5	175	
37	C MDFE	Copper	Yes	Triangle	Round	0	6.45734	3.55731	12.9146	7.11463	4.53572	4.53572	R-EXP	0.5	230	
38	C MSA-E	Copper	Yes	Triangle	Round	0	0.07089	0.10102	0.28358	0.40410	2.43444	2.43444	R-EXP	0.5	3040	
39	C MSA-E 1ATS	Copper	Yes	Triangle	Round	0	3.40311	0.98887	6.80622	1.97775	2.46941	2.46941	R-EXP	0.5	150	
40	C MSA-E 2ATS	Copper	Yes	Triangle	Round	0	0.76034	0.90519	1.52068	1.81040	4.26027	4.26027	R-EXP	0.5	380	
41	C RHE	Copper	Yes	Triangle	Round	0	18.5216	6.18047	37.0430	12.3609	1.23471	1.23471	R-EXP	0.5	150	
42	C TX 2ETR-1A	Copper	Yes	Triangle	Round	0	9.88871	0.37075	19.7774	0.74150	5.65639	5.65639	R-EXP	0.5	35	
43	C TX 2ETR-1B	Copper	Yes	Triangle	Round	0	9.88871	0.37075	19.7774	0.74150	5.65639	5.65639	R-EXP	0.5	35	
44	C TX 3ETR-1A	Copper	Yes	Triangle	Round	0	2.45838	0.37075	4.91678	0.74150	5.65639	5.65639	R-EXP	0.5	85	
45	C TX 3ETR-1B	Copper	Yes	Triangle	Round	0	17.4033	3.98873	69.6130	15.9548	7.78587	7.78587	R-EXP	0.5	115	
46	C TX ATR1E	Copper	Yes	Triangle	Round	0	2.42509	1.33596	4.85017	2.67194	4.83094	4.83094	R-EXP	0.5	230	
47	C TX ATR2E	Copper	Yes	Triangle	Round	0	2.42509	1.66996	4.85017	3.33992	4.83094	4.83094	R-EXP	0.5	230	
48	C TX ATR3E	Copper	Yes	Triangle	Round	0	2.91011	2.00395	5.82020	4.00790	5.79713	5.79713	R-EXP	0.5	230	
49	C TX BTR1E	Copper	Yes	Triangle	Round	0	6.30523	3.47351	12.6104	6.94704	1.25604	1.25604	R-EXP	0.5	230	
50	C TX BTR2E	Copper	Yes	Triangle	Round	0	7.27527	5.00988	14.5505	10.0197	1.44928	1.44928	R-EXP	0.5	230	
51	C TX BTR3E	Copper	Yes	Triangle	Round	0	7.27527	5.00988	14.5505	10.0197	1.44928	1.44928	R-EXP	0.5	230	
52	C TX STR-1AE	Copper	Yes	Triangle	Round	0	0.48615	0.17658	0.97231	0.35317	3.52774	3.52774	R-EXP	0.5	150	

LV Breakers

	ID Name	Status	On Bus	Base kV	Conn Type	Class	Options	Breaker Mfr	Breaker Type	Breaker Style	Cont Current (A)	SC Int kA	SC Test Std
1	B 1ATSE	On	1ATSE	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	125	65	ANSI-SYM
2	B 2ATSE	On	2ATSE	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	250	65	ANSI-SYM
3	B 2EL-A1E BR	On	2EL-A1E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
4	B 2EL-A1E MAI	On	2EL-A1E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	60	10	ANSI-SYM
5	B 2EL-B1E	On	2EL-B1E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	60	10	ANSI-SYM
6	B 2EL-B1E BR	On	2EL-B1E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
7	B 3EH-1AE BR	On	3EH-A1E	0.48	Feeder	MCCB	Breaker Onl	GE	E150	THED(100A480V)	15	25	ANSI-SYM
8	B 3EH-A1E	On	1EDH-A1E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	100	65	ANSI-SYM
9	B 3EL-A1E BR	On	3EL-A1E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
10	B 3EL-A1E MAI	On	3EL-A1E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	100	10	ANSI-SYM
11	B 3EL-B1E BR	On	3EL-B1E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
12	B 3EL-B1E MAI	On	3EL-B1E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	100	10	ANSI-SYM
13	B A1HE	On	MSA-E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	150	65	ANSI-SYM
14	B A1HE-BRAN	On	A1HE	0.48	Feeder	MCCB	Breaker Onl	GE	Record Plus	FBN	20	65	ANSI-SYM
15	B A1L1E BRAN	On	A1L1E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
16	B A1L2E BRAN	On	A1L2E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
17	B A2HE	On	MSA-E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	125	65	ANSI-SYM
18	B A2HE-BRAN	On	A2HE	0.48	Feeder	MCCB	Breaker Onl	GE	Record Plus	FBV	20	35	ANSI-SYM
19	B A2L1E BRAN	On	A2L1E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
20	B A2L2E-BRAN	On	A2L2E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
21	B A3HE	On	MSA-E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	125	65	ANSI-SYM
22	B A3HE-BRAN	On	A3HE	0.48	Feeder	MCCB	Breaker Onl	GE	Record Plus	FBV	20	35	ANSI-SYM
23	B A3L1E BRAN	On	A3L1E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
24	B A3L2E BRAN	On	A3L2E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
25	B AC-1E	On	MSA-E	0.48	Feeder	LVPCB	Breaker Onl	<None>	<None>	<None>	0	0	ANSI-SYM
26	B AC-2E	On	MSA-E	0.48	Feeder	LVPCB	Breaker Onl	<None>	<None>	<None>	0	0	ANSI-SYM
27	B AC-3E	On	MSA-E	0.48	Feeder	LVPCB	Breaker Onl	<None>	<None>	<None>	0	0	ANSI-SYM
28	B ATR1E	On	TX ATR1E L	0.208	Feeder	MCCB	Breaker Onl	GE	Spectra	SGL4	400	100	ANSI-SYM
29	B ATR2E	On	TX ATR2E L	0.208	Feeder	MCCB	Breaker Onl	GE	Spectra	SGL4	400	100	ANSI-SYM
30	B ATR3E	On	TX ATR3E L	0.208	Feeder	MCCB	Breaker Onl	GE	Spectra	SGL4	400	100	ANSI-SYM
31	B B1HE	On	MSA-E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	150	65	ANSI-SYM
32	B B1HE-BRAN	On	B1HE	0.48	Feeder	MCCB	Breaker Onl	GE	E150	TEY	20	14	ANSI-SYM
33	B B1L1E BRAN	On	B1L1E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
34	B B1L2E-BRAN	On	B1L2E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
35	B B2HE	On	MSA-E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	125	65	ANSI-SYM
36	B B2HE-BRAN	On	B2HE	0.48	Feeder	MCCB	Breaker Onl	GE	E150	TEY	20	14	ANSI-SYM
37	B B2L1E BRAN	On	B2L1E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
38	B B2L2E BRAN	On	B2L2E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
39	B B3HE	On	MSA-E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	125	65	ANSI-SYM
40	B B3HE-BRAN	On	B3HE	0.48	Feeder	MCCB	Breaker Onl	GE	E150	TEY	20	14	ANSI-SYM
41	B B3L1E BRAN	On	B3L1E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
42	B B3L2E-BRAN	On	B3L2E	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
43	B BTR1E	On	TX BTR1E L	0.208	Feeder	MCCB	Breaker Onl	GE	Spectra	SGL4	400	100	ANSI-SYM
44	B BTR2E	On	TX BTR2E L	0.208	Feeder	MCCB	Breaker Onl	GE	Spectra	SGL4	400	100	ANSI-SYM
45	B BTR3E	On	TX BTR3E L	0.208	Feeder	MCCB	Breaker Onl	GE	Spectra	SGL4	400	100	ANSI-SYM
46	B ELEV1	On	G-1	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	125	65	ANSI-SYM
47	B ELEV2	On	G-1	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	125	65	ANSI-SYM
48	B G-1	On	1EDH-A1E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	200	65	ANSI-SYM
49	B GEN-E 1ATS	On	GEN E	0.48	Feeder	MCCB	Breaker Onl	<None>	<None>	<None>	0	0	ANSI-SYM
50	B GEN-E 2ATS	On	GEN E	0.48	Feeder	MCCB	Breaker Onl	<None>	<None>	<None>	0	0	ANSI-SYM
51	B IDF-2BE	On	MDFE	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	100	10	ANSI-SYM
52	B IDF-2BR BRA	On	IDF-2BE	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
53	B LB	On	GEN E	0.48	Feeder	MCCB	Breaker Onl	<None>	<None>	<None>	0	0	ANSI-SYM
54	B MDFE BRAN	On	MDFE	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
55	B MDFE MAIN	On	MDFE	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	TQD	225	10	ANSI-SYM
56	B MSA-E 1ATS	On	MSA-E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	125	65	ANSI-SYM
57	B MSA-E 2ATS	On	MSA-E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SGL4	400	65	ANSI-SYM
58	B MSA-E MAIN	On	MSA-E	0.48	Feeder	ICCB	Breaker Onl	GE	Power Break II	SS-30	3000	100	ANSI-SYM
59	B RHE	On	MSA-E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	150	65	ANSI-SYM
60	B RHE-BRANC	On	RHE	0.48	Feeder	MCCB	Breaker Onl	GE	Record Plus	FBN	15	65	ANSI-SYM
61	B TX 2ETR-1AE	On	2EH-A1E	0.48	Feeder	MCCB	Breaker Onl	GE	Record Plus	FBV	25	35	ANSI-SYM
62	B TX 2ETR-1BE	On	2EH-B1E	0.48	Feeder	MCCB	Breaker Onl	GE	Record Plus	FBV	25	35	ANSI-SYM
63	B TX 3ETR-1AE	On	3EH-A1E	0.48	Feeder	MCCB	Breaker Onl	GE	E150	THED(100A480V)	70	25	ANSI-SYM
64	B TX 3ETR-1BE	On	3EH-A1E	0.48	Feeder	MCCB	Breaker Onl	GE	E150	THED(100A480V)	70	25	ANSI-SYM
65	B TX ATR1E	On	MSA-E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	225	65	ANSI-SYM
66	B TX ATR2E	On	MSA-E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	225	65	ANSI-SYM
67	B TX ATR3E	On	MSA-E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	225	65	ANSI-SYM
68	B TX BTR1E	On	MSA-E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	225	65	ANSI-SYM
69	B TX BTR2E	On	MSA-E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	225	65	ANSI-SYM
70	B TX BTR3E	On	MSA-E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	225	65	ANSI-SYM
71	B TX STR-1AE	On	1EDH-A1E	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	150	65	ANSI-SYM

LV Breakers

	ID Name	Normal State	Trip	Trip Mfr	Trip Type	Trip Style	Sensor/Frame	Plug/Tap/Trip	LTPU Setting	LTPU Mult	LTPU (A)	LTD Band
1	B 1ATSE	Closed	SST	GE	Spectra RMS	MCCB SE	150A (125AT)	125	1	1	125	Fixed
2	B 2ATSE	Closed	SST	GE	Spectra RMS	MCCB SF	250	250	1		250	Fixed
3	B 2EL-A1E BR	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
4	B 2EL-A1E MAI	Closed	TMGN	GE	Q Line	THQB	100A(60-100AT)	60				
5	B 2EL-B1E	Closed	TMGN	GE	Q Line	THQB	100A(60-100AT)	60				
6	B 2EL-B1E BR	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
7	B 3EH-1AE BR	Closed	TMGN	GE	E150	THED(100A480V)	150A(15-50AT)	15				
8	B 3EH-A1E	Closed	SST	GE	Spectra RMS	MCCB SE	100A (100AT)	100	1	1	100	Fixed
9	B 3EL-A1E BR	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
10	B 3EL-A1E MAI	Closed	TMGN	GE	Q Line	THQB	100A(60-100AT)	100				
11	B 3EL-B1E BR	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
12	B 3EL-B1E MAI	Closed	TMGN	GE	Q Line	THQB	100A(60-100AT)	100				
13	B A1HE	Closed	SST	GE	Spectra RMS	MCCB SE	150A (150AT)	150	1	1	150	Fixed
14	B A1HE-BRAN	Closed	TMGN	GE	Record Plus	FBN	100A (20AT)	20				
15	B A1L1E BRAN	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
16	B A1L2E BRAN	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
17	B A2HE	Closed	SST	GE	Spectra RMS	MCCB SE	150A (125AT)	125	1	1	125	Fixed
18	B A2HE-BRAN	Closed	TMGN	GE	Record Plus	FBV	100A (20AT)	20				
19	B A2L1E BRAN	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
20	B A2L2E-BRAN	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
21	B A3HE	Closed	SST	GE	Spectra RMS	MCCB SE	150A (125AT)	125	1	1	125	Fixed
22	B A3HE-BRAN	Closed	TMGN	GE	Record Plus	FBV	100A (20AT)	20				
23	B A3L1E BRAN	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
24	B A3L2E BRAN	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
25	B AC-1E	Closed	SST									
26	B AC-2E	Closed	SST									
27	B AC-3E	Closed	SST									
28	B ATR1E	Closed	SST	GE	Spectra RMS	MCCB SG	400	400	1	1	400	Fixed
29	B ATR2E	Closed	SST	GE	Spectra RMS	MCCB SG	400	400	1	1	400	Fixed
30	B ATR3E	Closed	SST	GE	Spectra RMS	MCCB SG	400	400	1	1	400	Fixed
31	B B1HE	Closed	SST	GE	Spectra RMS	MCCB SE	150A (150AT)	150	1	1	150	Fixed
32	B B1HE-BRAN	Closed	TMGN	GE	E150	TEY	100A (20A)	20				
33	B B1L1E BRAN	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
34	B B1L2E-BRAN	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
35	B B2HE	Closed	SST	GE	Spectra RMS	MCCB SE	150A (125AT)	125	1	1	125	Fixed
36	B B2HE-BRAN	Closed	TMGN	GE	E150	TEY	100A (20A)	20				
37	B B2L1E BRAN	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
38	B B2L2E BRAN	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
39	B B3HE	Closed	SST	GE	Spectra RMS	MCCB SE	150A (125AT)	125	1	1	125	Fixed
40	B B3HE-BRAN	Closed	TMGN	GE	E150	TEY	100A (20A)	20				
41	B B3L1E BRAN	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
42	B B3L2E-BRAN	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
43	B BTR1E	Closed	SST	GE	Spectra RMS	MCCB SG	400	400	1	1	400	Fixed
44	B BTR2E	Closed	SST	GE	Spectra RMS	MCCB SG	400	400	1	1	400	Fixed
45	B BTR3E	Closed	SST	GE	Spectra RMS	MCCB SG	400	400	1	1	400	Fixed
46	B ELEV1	Closed	SST	GE	Spectra RMS	MCCB SF	250	125	1		125	Fixed
47	B ELEV2	Closed	SST	GE	Spectra RMS	MCCB SF	250	125	1		125	Fixed
48	B G-1	Closed	SST	GE	Spectra RMS	MCCB SF	250	200	1		200	Fixed
49	B GEN-E 1ATS	Closed	SST									
50	B GEN-E 2ATS	Closed	SST									
51	B IDF-2BE	Closed	TMGN	GE	Q Line	THQB	100A(60-100AT)	100				
52	B IDF-2BR BRA	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
53	B LB	Closed	SST									
54	B MDFE BRAN	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
55	B MDFE MAIN	Closed	TMGN	GE	Q Line	TQD	225A(100-225AT)	225				
56	B MSA-E 1ATS	Closed	SST	GE	Spectra RMS	MCCB SE	150A (125AT)	125	1	1	125	Fixed
57	B MSA-E 2ATS	Closed	SST	GE	Spectra RMS	MCCB SG	400	400	1	1	400	Fixed
58	B MSA-E MAIN	Closed	SST	GE	MVT-Plus	ICCB	3000	3000	1		3000	3
59	B RHE	Closed	SST	GE	Spectra RMS	MCCB SE	150A (150AT)	150	1	1	150	Fixed
60	B RHE-BRANC	Closed	TMGN	GE	Record Plus	FBN	100A (15AT)	15				
61	B TX 2ETR-1AE	Closed	TMGN	GE	Record Plus	FBV	100A (25AT)	25				
62	B TX 2ETR-1BE	Closed	TMGN	GE	Record Plus	FBV	100A (25AT)	25				
63	B TX 3ETR-1AE	Closed	TMGN	GE	E150	THED(100A480V)	150A(60-80AT)	70				
64	B TX 3ETR-1BE	Closed	TMGN	GE	E150	THED(100A480V)	150A(60-80AT)	70				
65	B TX ATR1E	Closed	SST	GE	Spectra RMS	MCCB SF	250	225	1		225	Fixed
66	B TX ATR2E	Closed	SST	GE	Spectra RMS	MCCB SF	250	225	1		225	Fixed
67	B TX ATR3E	Closed	SST	GE	Spectra RMS	MCCB SF	250	225	1		225	Fixed
68	B TX BTR1E	Closed	SST	GE	Spectra RMS	MCCB SF	250	225	1		225	Fixed
69	B TX BTR2E	Closed	SST	GE	Spectra RMS	MCCB SF	250	225	1		225	Fixed
70	B TX BTR3E	Closed	SST	GE	Spectra RMS	MCCB SF	250	225	1		225	Fixed
71	B TX STR-1AE	Closed	SST	GE	Spectra RMS	MCCB SF	250	150	1		150	Fixed

LV Breakers

	ID Name	STPU Setting	STPU Band	STPU I2T	STPU (A)	Inst Setting	Inst Override	Inst (A)	Gnd Pickup	Gnd Delay	Gnd I2T	Gnd (A)	Fuse Mfr	Fuse Type
1	B 1ATSE	Max	Fixed	In	875	Max	Pickup	1562.5			Out		<None>	<None>
2	B 2ATSE	Max	Fixed	In	1250	Max	Pickup	2500			Out		<None>	<None>
3	B 2EL-A1E BR												<None>	<None>
4	B 2EL-A1E MAI												<None>	<None>
5	B 2EL-B1E												<None>	<None>
6	B 2EL-B1E BR												<None>	<None>
7	B 3EH-1AE BR												<None>	<None>
8	B 3EH-A1E	Max	Fixed	In	660	Max	Pickup	1250			Out		<None>	<None>
9	B 3EL-A1E BR												<None>	<None>
10	B 3EL-A1E MAI												<None>	<None>
11	B 3EL-B1E BR												<None>	<None>
12	B 3EL-B1E MAI												<None>	<None>
13	B A1HE	Max	Fixed	In	1110	Max	Pickup	1875			Out		<None>	<None>
14	B A1HE-BRAN												<None>	<None>
15	B A1L1E BRAN												<None>	<None>
16	B A1L2E BRAN												<None>	<None>
17	B A2HE	Max	Fixed	In	875	Max	Pickup	1562.5			Out		<None>	<None>
18	B A2HE-BRAN												<None>	<None>
19	B A2L1E BRAN												<None>	<None>
20	B A2L2E-BRAN												<None>	<None>
21	B A3HE	Max	Fixed	In	875	Max	Pickup	1562.5			Out		<None>	<None>
22	B A3HE-BRAN												<None>	<None>
23	B A3L1E BRAN												<None>	<None>
24	B A3L2E BRAN												<None>	<None>
25	B AC-1E						Pickup						<None>	<None>
26	B AC-2E						Pickup						<None>	<None>
27	B AC-3E						Pickup						<None>	<None>
28	B ATR1E	Max	Fixed	In	2000	Max	Pickup	4048			Out		<None>	<None>
29	B ATR2E	Max	Fixed	In	2000	Max	Pickup	4048			Out		<None>	<None>
30	B ATR3E	Max	Fixed	In	2000	Max	Pickup	4048			Out		<None>	<None>
31	B B1HE	Max	Fixed	In	1110	Max	Pickup	1875			Out		<None>	<None>
32	B B1HE-BRAN												<None>	<None>
33	B B1L1E BRAN												<None>	<None>
34	B B1L2E-BRAN												<None>	<None>
35	B B2HE	Max	Fixed	In	875	Max	Pickup	1562.5			Out		<None>	<None>
36	B B2HE-BRAN												<None>	<None>
37	B B2L1E BRAN												<None>	<None>
38	B B2L2E BRAN												<None>	<None>
39	B B3HE	Max	Fixed	In	875	Max	Pickup	1562.5			Out		<None>	<None>
40	B B3HE-BRAN												<None>	<None>
41	B B3L1E BRAN												<None>	<None>
42	B B3L2E-BRAN												<None>	<None>
43	B BTR1E	Max	Fixed	In	2000	Max	Pickup	4048			Out		<None>	<None>
44	B BTR2E	Max	Fixed	In	2000	Max	Pickup	4048			Out		<None>	<None>
45	B BTR3E	Max	Fixed	In	2000	Max	Pickup	4048			Out		<None>	<None>
46	B ELEV1	Max	Fixed	In	625	Max	Pickup	1250			Out		<None>	<None>
47	B ELEV2	Max	Fixed	In	625	Max	Pickup	1250			Out		<None>	<None>
48	B G-1	Max	Fixed	In	1000	Max	Pickup	2000			Out		<None>	<None>
49	B GEN-E 1ATS						Pickup						<None>	<None>
50	B GEN-E 2ATS						Pickup						<None>	<None>
51	B IDF-2BE												<None>	<None>
52	B IDF-2BR BRA												<None>	<None>
53	B LB						Pickup						<None>	<None>
54	B MDFE BRAN												<None>	<None>
55	B MDFE MAIN												<None>	<None>
56	B MSA-E 1ATS	Max	Fixed	In	875	Max	Pickup	1562.5			Out		<None>	<None>
57	B MSA-E 2ATS	Max	Fixed	In	2000	Max	Pickup	4048			Out		<None>	<None>
58	B MSA-E MAIN	4.5	Max	Out	13500	9	Pickup	27000	0.3	Max	Out	900.0001	<None>	<None>
59	B RHE	Max	Fixed	In	1110	Max	Pickup	1875			Out		<None>	<None>
60	B RHE-BRANC												<None>	<None>
61	B TX 2ETR-1AE												<None>	<None>
62	B TX 2ETR-1BE												<None>	<None>
63	B TX 3ETR-1AE												<None>	<None>
64	B TX 3ETR-1BE												<None>	<None>
65	B TX ATR1E	Max	Fixed	In	1125	Max	Pickup	2250			Out		<None>	<None>
66	B TX ATR2E	Max	Fixed	In	1125	Max	Pickup	2250			Out		<None>	<None>
67	B TX ATR3E	Max	Fixed	In	1125	Max	Pickup	2250			Out		<None>	<None>
68	B TX BTR1E	Max	Fixed	In	1125	Max	Pickup	2250			Out		<None>	<None>
69	B TX BTR2E	Max	Fixed	In	1125	Max	Pickup	2250			Out		<None>	<None>
70	B TX BTR3E	Max	Fixed	In	1125	Max	Pickup	2250			Out		<None>	<None>
71	B TX STR-1AE	Max	Fixed	In	750	Max	Pickup	1500			Out		<None>	<None>

LV Breakers

	ID Name	Fuse Style	Fuse Size	Mtr O/L Mfr	Mtr O/L Type	Mtr O/L Style	Motor FLA	Service Factor	PCC kVA Demand	PCC Isc/ILoad	Comment
1	B 1ATSE	<None>	<None>	<None>	<None>	<None>		1			
2	B 2ATSE	<None>	<None>	<None>	<None>	<None>		1			
3	B 2EL-A1E BR	<None>	<None>	<None>	<None>	<None>		1			
4	B 2EL-A1E MAI	<None>	<None>	<None>	<None>	<None>		1			
5	B 2EL-B1E	<None>	<None>	<None>	<None>	<None>		1			
6	B 2EL-B1E BR	<None>	<None>	<None>	<None>	<None>		1			
7	B 3EH-1AE BR	<None>	<None>	<None>	<None>	<None>		1			
8	B 3EH-A1E	<None>	<None>	<None>	<None>	<None>		1			
9	B 3EL-A1E BR	<None>	<None>	<None>	<None>	<None>		1			
10	B 3EL-A1E MAI	<None>	<None>	<None>	<None>	<None>		1			
11	B 3EL-B1E BR	<None>	<None>	<None>	<None>	<None>		1			
12	B 3EL-B1E MAI	<None>	<None>	<None>	<None>	<None>		1			
13	B A1HE	<None>	<None>	<None>	<None>	<None>		1			
14	B A1HE-BRAN	<None>	<None>	<None>	<None>	<None>		1			
15	B A1L1E BRAN	<None>	<None>	<None>	<None>	<None>		1			
16	B A1L2E BRAN	<None>	<None>	<None>	<None>	<None>		1			
17	B A2HE	<None>	<None>	<None>	<None>	<None>		1			
18	B A2HE-BRAN	<None>	<None>	<None>	<None>	<None>		1			
19	B A2L1E BRAN	<None>	<None>	<None>	<None>	<None>		1			
20	B A2L2E-BRAN	<None>	<None>	<None>	<None>	<None>		1			
21	B A3HE	<None>	<None>	<None>	<None>	<None>		1			
22	B A3HE-BRAN	<None>	<None>	<None>	<None>	<None>		1			
23	B A3L1E BRAN	<None>	<None>	<None>	<None>	<None>		1			
24	B A3L2E BRAN	<None>	<None>	<None>	<None>	<None>		1			
25	B AC-1E	<None>	<None>	<None>	<None>	<None>		1			
26	B AC-2E	<None>	<None>	<None>	<None>	<None>		1			
27	B AC-3E	<None>	<None>	<None>	<None>	<None>		1			
28	B ATR1E	<None>	<None>	<None>	<None>	<None>		1			
29	B ATR2E	<None>	<None>	<None>	<None>	<None>		1			
30	B ATR3E	<None>	<None>	<None>	<None>	<None>		1			
31	B B1HE	<None>	<None>	<None>	<None>	<None>		1			
32	B B1HE-BRAN	<None>	<None>	<None>	<None>	<None>		1			
33	B B1L1E BRAN	<None>	<None>	<None>	<None>	<None>		1			
34	B B1L2E-BRAN	<None>	<None>	<None>	<None>	<None>		1			
35	B B2HE	<None>	<None>	<None>	<None>	<None>		1			
36	B B2HE-BRAN	<None>	<None>	<None>	<None>	<None>		1			
37	B B2L1E BRAN	<None>	<None>	<None>	<None>	<None>		1			
38	B B2L2E BRAN	<None>	<None>	<None>	<None>	<None>		1			
39	B B3HE	<None>	<None>	<None>	<None>	<None>		1			
40	B B3HE-BRAN	<None>	<None>	<None>	<None>	<None>		1			
41	B B3L1E BRAN	<None>	<None>	<None>	<None>	<None>		1			
42	B B3L2E-BRAN	<None>	<None>	<None>	<None>	<None>		1			
43	B BTR1E	<None>	<None>	<None>	<None>	<None>		1			
44	B BTR2E	<None>	<None>	<None>	<None>	<None>		1			
45	B BTR3E	<None>	<None>	<None>	<None>	<None>		1			
46	B ELEV1	<None>	<None>	<None>	<None>	<None>		1			
47	B ELEV2	<None>	<None>	<None>	<None>	<None>		1			
48	B G-1	<None>	<None>	<None>	<None>	<None>		1			
49	B GEN-E 1ATS	<None>	<None>	<None>	<None>	<None>		1			
50	B GEN-E 2ATS	<None>	<None>	<None>	<None>	<None>		1			
51	B IDF-2BE	<None>	<None>	<None>	<None>	<None>		1			
52	B IDF-2BR BRA	<None>	<None>	<None>	<None>	<None>		1			
53	B LB	<None>	<None>	<None>	<None>	<None>		1			
54	B MDFE BRAN	<None>	<None>	<None>	<None>	<None>		1			
55	B MDFE MAIN	<None>	<None>	<None>	<None>	<None>		1			
56	B MSA-E 1ATS	<None>	<None>	<None>	<None>	<None>		1			
57	B MSA-E 2ATS	<None>	<None>	<None>	<None>	<None>		1			
58	B MSA-E MAIN	<None>	<None>	<None>	<None>	<None>		1			LSIG Programmer
59	B RHE	<None>	<None>	<None>	<None>	<None>		1			
60	B RHE-BRANC	<None>	<None>	<None>	<None>	<None>		1			
61	B TX 2ETR-1AE	<None>	<None>	<None>	<None>	<None>		1			
62	B TX 2ETR-1BE	<None>	<None>	<None>	<None>	<None>		1			
63	B TX 3ETR-1AE	<None>	<None>	<None>	<None>	<None>		1			
64	B TX 3ETR-1BE	<None>	<None>	<None>	<None>	<None>		1			
65	B TX ATR1E	<None>	<None>	<None>	<None>	<None>		1			
66	B TX ATR2E	<None>	<None>	<None>	<None>	<None>		1			
67	B TX ATR3E	<None>	<None>	<None>	<None>	<None>		1			
68	B TX BTR1E	<None>	<None>	<None>	<None>	<None>		1			
69	B TX BTR2E	<None>	<None>	<None>	<None>	<None>		1			
70	B TX BTR3E	<None>	<None>	<None>	<None>	<None>		1			
71	B TX STR-1AE	<None>	<None>	<None>	<None>	<None>		1			

Switches

	ID Name	Status	On Bus	Base kV	Conn Type	Normal State	Manufacturer	Type	Style	Cont Current (A)	SC Mom kA	SC Test Std	PCC kVA Demand
1	1ATSE:Switch	On	1ATSE	0.48	Feeder	Closed	<None>	<None>	<None>	0	0	ANSI-SYM	
2	2ATSE:Switch	On	2ATSE	0.48	Feeder	Closed	<None>	<None>	<None>	0	0	ANSI-SYM	

Switches

	ID Name	PCC Isc/ILoad	Comment
1	1ATSE:Switch		
2	2ATSE:Switch		

ATSs

	ID Name	Status	Base kV	Area	Zone	AF Type	AF Option	Source Connection	Model	Comment
1	1ATSE	On	0.48	1	1	ATS	Specified	Source 1 Bus	Switch	
2	2ATSE	On	0.48	1	1	ATS	Specified	Source 1 Bus	Switch	

Three Phase Bolted Fault

Equipment Duty Ratings

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

****

Equipment Duty Comparison Report For Bus:
1ATSE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties			Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA	(%)
B 1ATSE	GE	/SEL	ANSI-SYM	65.00			0.00	(-100.0%)		

****

Equipment Duty Comparison Report For Bus:
1EDH-A1E Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties			Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA	(%)
B TX STR-1AE	GE	/SFL	ANSI-SYM	65.00			29.24	(-55.0%)		
B G-1	GE	/SFL	ANSI-SYM	65.00			28.47	(-56.2%)		
B 3EH-A1E	GE	/SEL	ANSI-SYM	65.00			29.24	(-55.0%)		
1EDH-A1E		/	ANSI-SYM	42.00			29.24	(-30.4%)		

****

Equipment Duty Comparison Report For Bus:
2ATSE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties			Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA	(%)
B 2ATSE	GE	/SFL	ANSI-SYM	65.00			0.00	(-100.0%)		

****

Equipment Duty Comparison Report For Bus:
2EH-A1E Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties			Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA	(%)
B TX 2ETR-1AE	GE	/FBV	ANSI-SYM	35.00			16.25	(-53.6%)		
2EH-A1E		/	ANSI-SYM	25.00			16.25	(-35.0%)		

Project Name: Disney Campus
Comment: East - Three Phase Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

****

Equipment Duty Comparison Report For Bus:
2EH-B1E Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B TX 2ETR-1BE	GE /FBV	ANSI-SYM	35.00			5.99(-82.9%)			
2EH-B1E	/	ANSI-SYM	25.00			5.99(-76.1%)			

****

Equipment Duty Comparison Report For Bus:
2EL-A1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 2EL-A1E BRANCH	GE /THQB	ANSI-SYM	10.00			0.77(-92.3%)			
B 2EL-A1E MAIN	GE /THQB	ANSI-SYM	10.00			0.77(-92.3%)			
2EL-A1E	/	ANSI-SYM	10.00			0.77(-92.3%)			

****

Equipment Duty Comparison Report For Bus:
2EL-B1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 2EL-B1E BRANCH	GE /THQB	ANSI-SYM	10.00			0.75(-92.5%)			
B 2EL-B1E	GE /THQB	ANSI-SYM	10.00			0.75(-92.5%)			
2EL-B1E	/	ANSI-SYM	10.00			0.75(-92.5%)			

****

Equipment Duty Comparison Report For Bus:
3EH-A1E Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 3EH-1AE BRANCH	GE /THED(100A480V)	ANSI-SYM	25.00			18.88(-24.5%)			
B TX 3ETR-1BE	GE /THED(100A480V)	ANSI-SYM	25.00			18.88(-24.5%)			
B TX 3ETR-1AE	GE /THED(100A480V)	ANSI-SYM	25.00			18.88(-24.5%)			
3EH-A1E	/	ANSI-SYM	25.00			18.88(-24.5%)			

Project Name: Disney Campus
Comment: East - Three Phase Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

****

Equipment Duty Comparison Report For Bus:
3EL-A1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 3EL-A1E BRANCH	GE /THQB	ANSI-SYM	10.00			1.43(-85.7%)			
B 3EL-A1E MAIN	GE /THQB	ANSI-SYM	10.00			1.43(-85.7%)			
3EL-A1E	/	ANSI-SYM	10.00			1.43(-85.7%)			

****

Equipment Duty Comparison Report For Bus:
3EL-B1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 3EL-B1E MAIN	GE /THQB	ANSI-SYM	10.00			1.35(-86.5%)			
B 3EL-B1E BRANCH	GE /THQB	ANSI-SYM	10.00			1.35(-86.5%)			
3EL-B1E	/	ANSI-SYM	10.00			1.35(-86.5%)			

****

Equipment Duty Comparison Report For Bus:
A1HE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A1HE-BRANCH	GE /FBN	ANSI-SYM	65.00			34.60(-46.8%)			
A1HE	/	ANSI-SYM	42.00			34.60(-17.6%)			

****

Equipment Duty Comparison Report For Bus:
A1L1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A1L1E BRANCH	GE /THQB	ANSI-SYM	10.00			5.05(-49.5%)			
A1L1E	/	ANSI-SYM	10.00			5.05(-49.5%)			

Project Name: Disney Campus
Comment: East - Three Phase Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

****

Equipment Duty Comparison Report For Bus:
A1L2E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A1L2E BRANCH	GE /THQB	ANSI-SYM	10.00			4.95(-50.5%)			
A1L2E	/	ANSI-SYM	10.00			4.95(-50.5%)			

****

Equipment Duty Comparison Report For Bus:
A2HE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A2HE-BRANCH	GE /FBV	ANSI-SYM	35.00			17.01(-51.4%)			
A2HE	/	ANSI-SYM	25.00			17.01(-32.0%)			

****

Equipment Duty Comparison Report For Bus:
A2L1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A2L1E BRANCH	GE /THQB	ANSI-SYM	10.00			5.02(-49.8%)			
A2L1E	/	ANSI-SYM	10.00			5.02(-49.8%)			

****

Equipment Duty Comparison Report For Bus:
A2L2E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A2L2E-BRANCH	GE /THQB	ANSI-SYM	10.00			4.93(-50.7%)			
A2L2E	/	ANSI-SYM	10.00			4.93(-50.7%)			

Project Name: Disney Campus
Comment: East - Three Phase Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

****

Equipment Duty Comparison Report For Bus:
A3HE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A3HE-BRANCH	GE /FBV	ANSI-SYM	35.00			14.95(-57.3%)			
A3HE	/	ANSI-SYM	25.00			14.95(-40.2%)			

****

Equipment Duty Comparison Report For Bus:
A3L1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A3L1E BRANCH	GE /THQB	ANSI-SYM	10.00			4.97(-50.3%)			
A3L1E	/	ANSI-SYM	10.00			4.97(-50.3%)			

****

Equipment Duty Comparison Report For Bus:
A3L2E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A3L2E BRANCH	GE /THQB	ANSI-SYM	10.00			4.88(-51.2%)			
A3L2E	/	ANSI-SYM	10.00			4.88(-51.2%)			

****

Equipment Duty Comparison Report For Bus:
B1HE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B B1HE-BRANCH	GE /TEY	ANSI-SYM	14.00			12.95(-7.5%)			Warning
B1HE	/	ANSI-SYM	14.00			12.95(-7.5%)			Warning

Project Name: Disney Campus
Comment: East - Three Phase Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
B1L1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc		1/2 Cycle kA (%)	Interrupting kA (%)	
B B1L1E BRANCH	GE /THQB	ANSI-SYM	10.00			4.72(-52.8%)		
B1L1E	/	ANSI-SYM	10.00			4.72(-52.8%)		

****

Equipment Duty Comparison Report For Bus:
B1L2E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc		1/2 Cycle kA (%)	Interrupting kA (%)	
B B1L2E-BRANCH	GE /THQB	ANSI-SYM	10.00			4.64(-53.6%)		
B1L2E	/	ANSI-SYM	10.00			4.64(-53.6%)		

****

Equipment Duty Comparison Report For Bus:
B2HE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc		1/2 Cycle kA (%)	Interrupting kA (%)	
B B2HE-BRANCH	GE /TEY	ANSI-SYM	14.00			5.84(-58.3%)		
B2HE	/	ANSI-SYM	14.00			5.84(-58.3%)		

****

Equipment Duty Comparison Report For Bus:
B2L1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc		1/2 Cycle kA (%)	Interrupting kA (%)	
B B2L1E BRANCH	GE /THQB	ANSI-SYM	10.00			4.58(-54.2%)		
B2L1E	/	ANSI-SYM	10.00			4.58(-54.2%)		

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

****

Equipment Duty Comparison Report For Bus:
B2L2E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B B2L2E BRANCH	GE /THQB	ANSI-SYM	10.00			4.50(-55.0%)			
B2L2E	/	ANSI-SYM	10.00			4.50(-55.0%)			

****

Equipment Duty Comparison Report For Bus:
B3HE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B B3HE-BRANCH	GE /TEY	ANSI-SYM	14.00			5.50(-60.7%)			
B3HE	/	ANSI-SYM	14.00			5.50(-60.7%)			

****

Equipment Duty Comparison Report For Bus:
B3L1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B B3L1E BRANCH	GE /THQB	ANSI-SYM	10.00			4.58(-54.2%)			
B3L1E	/	ANSI-SYM	10.00			4.58(-54.2%)			

****

Equipment Duty Comparison Report For Bus:
B3L2E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B B3L2E-BRANCH	GE /THQB	ANSI-SYM	10.00			4.50(-55.0%)			
B3L2E	/	ANSI-SYM	10.00			4.50(-55.0%)			

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
G-1 Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B ELEV1	GE	/SFL	ANSI-SYM	65.00			15.07(-76.8%)		
B ELEV2	GE	/SFL	ANSI-SYM	65.00			15.07(-76.8%)		

****

Equipment Duty Comparison Report For Bus:
IDF-2BE Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B IDF-2BR BRANCH	GE	/THQB	ANSI-SYM	10.00			2.50(-75.0%)		
IDF-2BE		/	ANSI-SYM	10.00			2.50(-75.0%)		

****

Equipment Duty Comparison Report For Bus:
MDFE Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B MDFE MAIN	GE	/TQD	ANSI-SYM	10.00			5.46(-45.4%)		
B IDF-2BE	GE	/THQB	ANSI-SYM	10.00			5.46(-45.4%)		
B MDFE BRANCH	GE	/THQB	ANSI-SYM	10.00			5.46(-45.4%)		
MDFE		/	ANSI-SYM	10.00			5.46(-45.4%)		

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Equipment Duty Comparison Report For Bus:
MSA-E Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B MSA-E MAIN	GE	/SS-30	ANSI-SYM	100.00			42.19(-57.8%)		
B TX BTR1E	GE	/SFL	ANSI-SYM	65.00			42.99(-33.9%)		
B B1HE	GE	/SEL	ANSI-SYM	65.00			42.99(-33.9%)		
B TX BTR2E	GE	/SFL	ANSI-SYM	65.00			42.99(-33.9%)		
B B2HE	GE	/SEL	ANSI-SYM	65.00			42.99(-33.9%)		
B TX BTR3E	GE	/SFL	ANSI-SYM	65.00			42.99(-33.9%)		
B B3HE	GE	/SEL	ANSI-SYM	65.00			42.99(-33.9%)		
B A3HE	GE	/SEL	ANSI-SYM	65.00			42.99(-33.9%)		

Project Name: Disney Campus
Comment: East - Three Phase Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

B TX ATR3E	GE	/SFL	ANSI-SYM	65.00	42.99(-33.9%)
B A2HE	GE	/SEL	ANSI-SYM	65.00	42.99(-33.9%)
B TX ATR2E	GE	/SFL	ANSI-SYM	65.00	42.99(-33.9%)
B A1HE	GE	/SEL	ANSI-SYM	65.00	42.99(-33.9%)
B TX ATR1E	GE	/SFL	ANSI-SYM	65.00	42.99(-33.9%)
B RHE	GE	/SEL	ANSI-SYM	65.00	42.99(-33.9%)
B MSA-E 1ATSE	GE	/SEL	ANSI-SYM	65.00	42.99(-33.9%)
B MSA-E 2ATSE	GE	/SGL4	ANSI-SYM	65.00	42.19(-35.1%)
MSA-E		/	ANSI-SYM	65.00	41.20(-36.6%)

****

Equipment Duty Comparison Report For Bus:
RHE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B RHE-BRANCH	GE	/FBN	ANSI-SYM	65.00			5.72(-91.2%)		
RHE		/	ANSI-SYM	42.00			5.72(-86.4%)		

****

Equipment Duty Comparison Report For Bus:
TX ATR1E L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B ATR1E	GE	/SGL4	ANSI-SYM	100.00			5.14(-94.9%)		

****

Equipment Duty Comparison Report For Bus:
TX ATR2E L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B ATR2E	GE	/SGL4	ANSI-SYM	100.00			5.11(-94.9%)		

****

Equipment Duty Comparison Report For Bus:
TX ATR3E L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B ATR3E	GE	/SGL4	ANSI-SYM	100.00			5.07(-94.9%)		

Project Name: Disney Campus
Comment: East - Three Phase Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
TX BTR1E L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B BTR1E	GE /SGL4	ANSI-SYM	100.00			4.81(-95.2%)			

****

Equipment Duty Comparison Report For Bus:
TX BTR2E L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B BTR2E	GE /SGL4	ANSI-SYM	100.00			4.66(-95.3%)			

****

Equipment Duty Comparison Report For Bus:
TX BTR3E L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B BTR3E	GE /SGL4	ANSI-SYM	100.00			4.66(-95.3%)			

Three Phase Bolted Fault

Low Voltage Momentary Report

Project Name: Disney Campus
Comment: East - Three Phase Fault - Low Voltage Momentary Report

First Cycle Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus 1ATSE 0.480 kV, Zone 1, Area 1
E/Z = 21.971 kA (18.27 MVA) At -44.99DEG, X/R = 1.00
Z1 = 3.871853 +j 3.870207 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 35.154 IASYM Based on X/R ratio = 22.085

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
2EH-A1E		1ATSE	0.00	0.00	Branch	1	1	C 2EH-A1E
MSA-E		1ATSE	21.97	-44.99	Branch	1	1	C MSA-E 1ATSE

*Bus 1ATSE 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.00 MVA) At 0.00DEG, X/R = 1.55
Z1 = ********** +j ********** pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 0.000 IASYM Based on X/R ratio = 0.000

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN E		1ATSE	0.00	0.00	Branch	1	1	C GEN-E 1ATSE
1ATSE		1ATSE	0.00	0.00	Branch	1	1	C 1ATSE

*Bus 1EDH-A1E 0.480 kV, Zone 1, Area 1
E/Z = 29.237 kA (24.31 MVA) At -71.57DEG, X/R = 3.00
Z1 = 1.300320 +j 3.903082 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 46.779 IASYM Based on X/R ratio = 33.334

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1AE H		1EDH-A1E	0.00	0.00	Branch	1	1	C TX STR-1AE
G-1		1EDH-A1E	0.77	-79.25	Branch	1	1	C G-1
3EH-A1E		1EDH-A1E	0.00	0.00	Branch	1	1	C 3EH-A1E
2ATSE		1EDH-A1E	28.47	-71.37	Branch	1	1	C 1EDH-A1E

*Bus 2ATSE 0.480 kV, Zone 1, Area 1
E/Z = 30.571 kA (25.42 MVA) At -72.34DEG, X/R = 3.14
Z1 = 1.193745 +j 3.748963 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 48.914 IASYM Based on X/R ratio = 35.177

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1EDH-A1E		2ATSE	0.77	-79.22	Branch	1	1	C 1EDH-A1E
MSA-E		2ATSE	29.81	-72.16	Branch	1	1	C MSA-E 2ATSE

*Bus 2ATSE 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.00 MVA) At 0.00DEG, X/R = 1.55
Z1 = ********** +j ********** pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 0.000 IASYM Based on X/R ratio = 0.000

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN E		2ATSE	0.00	0.00	Branch	1	1	C GEN-E 2ATSE
2ATSE		2ATSE	0.00	0.00	Branch	1	1	C 2ATSE

*Bus 2EH-A1E 0.480 kV, Zone 1, Area 1
E/Z = 16.252 kA (13.51 MVA) At -38.20DEG, X/R = 0.79
Z1 = 5.816489 +j 4.576548 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 26.003 IASYM Based on X/R ratio = 16.274

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1ATSE		2EH-A1E	16.25	-38.20	Branch	1	1	C 2EH-A1E
TX 2ETR-1AE H		2EH-A1E	0.00	0.00	Branch	1	1	C TX 2ETR-1AE
2EH-B1E		2EH-A1E	0.00	0.00	Branch	1	1	C 2EH-B1E

Project Name: Disney Campus
Comment: East - Three Phase Fault - Low Voltage Momentary Report

First Cycle Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

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*Bus 2EH-B1E            0.480 kV, Zone     1, Area     1
       E/Z =      5.986 kA (        4.98 MVA)  At   -26.58DEG, X/R =     0.50
       Z1 =   17.970461 +j   8.991175 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      9.577   IASYM Based on X/R ratio =    5.986

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       2EH-A1E           2EH-B1E                 5.99    -26.58  Branch      1      1  C 2EH-B1E
       TX 2ETR-1BE H     2EH-B1E                 0.00      0.00  Branch      1      1  C TX 2ETR-1BE

*Bus 2EL-A1E            0.208 kV, Zone     1, Area     1
       E/Z =      0.772 kA (        0.28 MVA)  At   -54.23DEG, X/R =     1.39
       Z1 =  210.228726 +j 291.760461 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      1.235   IASYM Based on X/R ratio =    0.788

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1AE L     2EL-A1E                 0.77    -54.23  Branch      1      1  C 2EL-A1E

*Bus 2EL-B1E            0.208 kV, Zone     1, Area     1
       E/Z =      0.749 kA (        0.27 MVA)  At   -53.10DEG, X/R =     1.33
       Z1 =  222.382699 +j 296.175088 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      1.199   IASYM Based on X/R ratio =    0.763

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1BE L     2EL-B1E                 0.75    -53.10  Branch      1      1  C 2EL-B1E

*Bus 3EH-A1E            0.480 kV, Zone     1, Area     1
       E/Z =     18.881 kA (       15.70 MVA)  At   -46.39DEG, X/R =     1.05
       Z1 =    4.394244 +j   4.612190 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     30.210   IASYM Based on X/R ratio =   19.005

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       1EDH-A1E          3EH-A1E                18.88    -46.39  Branch      1      1  C 3EH-A1E
       TX 3ETR-1AE H     3EH-A1E                 0.00      0.00  Branch      1      1  C TX 3ETR-1AE
       TX 3ETR-1BE H     3EH-A1E                 0.00      0.00  Branch      1      1  C TX 3ETR-1BE

*Bus 3EL-A1E            0.208 kV, Zone     1, Area     1
       E/Z =      1.429 kA (        0.51 MVA)  At   -56.21DEG, X/R =     1.49
       Z1 =  108.042667 +j 161.453069 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      2.286   IASYM Based on X/R ratio =    1.467

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1AE L     3EL-A1E                 1.43    -56.21  Branch      1      1  C 3EL-A1E

*Bus 3EL-B1E            0.208 kV, Zone     1, Area     1
       E/Z =      1.348 kA (        0.49 MVA)  At   -53.31DEG, X/R =     1.34
       Z1 =  122.987603 +j 165.071046 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      2.157   IASYM Based on X/R ratio =    1.373

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1BE L     3EL-B1E                 1.35    -53.31  Branch      1      1  C 3EL-B1E
```

Project Name: Disney Campus
Comment: East - Three Phase Fault - Low Voltage Momentary Report

First Cycle Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

```
*Bus A1HE                0.480 kV, Zone     1, Area     1
       E/Z =     34.597 kA (       28.76 MVA)  At   -65.51DEG, X/R =     2.20
       Z1 =    1.441058 +j   3.163868 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     55.356   IASYM Based on X/R ratio =   37.254

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             A1HE                   34.60    -65.51  Branch      1      1  C A1HE

*Bus A1L1E               0.208 kV, Zone     1, Area     1
       E/Z =      5.045 kA (        1.82 MVA)  At   -61.32DEG, X/R =     1.83
       Z1 =   26.401859 +j  48.269927 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.072   IASYM Based on X/R ratio =    5.292

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR1E L        A1L1E                   5.05    -61.32  Branch      1      1  C A1L1E
       A1L2E             A1L1E                   0.00      0.00  Branch      1      1  C A1L2E

*Bus A1L2E               0.208 kV, Zone     1, Area     1
       E/Z =      4.951 kA (        1.78 MVA)  At   -61.20DEG, X/R =     1.82
       Z1 =   27.005936 +j  49.130747 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      7.922   IASYM Based on X/R ratio =    5.190

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       A1L1E             A1L2E                   4.95    -61.20  Branch      1      1  C A1L2E

*Bus A2HE                0.480 kV, Zone     1, Area     1
       E/Z =     17.009 kA (       14.14 MVA)  At   -41.08DEG, X/R =     0.87
       Z1 =    5.330330 +j   4.647184 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     27.214   IASYM Based on X/R ratio =   17.052

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             A2HE                   17.01    -41.08  Branch      1      1  C A2HE

*Bus A2L1E               0.208 kV, Zone     1, Area     1
       E/Z =      5.018 kA (        1.81 MVA)  At   -61.49DEG, X/R =     1.84
       Z1 =   26.401859 +j  48.603920 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.029   IASYM Based on X/R ratio =    5.268

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR2E L        A2L1E                   5.02    -61.49  Branch      1      1  C A2L1E
       A2L2E             A2L1E                   0.00      0.00  Branch      1      1  C A2L2E

*Bus A2L2E               0.208 kV, Zone     1, Area     1
       E/Z =      4.925 kA (        1.77 MVA)  At   -61.37DEG, X/R =     1.83
       Z1 =   27.005936 +j  49.464740 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      7.880   IASYM Based on X/R ratio =    5.167

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       A2L1E             A2L2E                   4.93    -61.37  Branch      1      1  C A2L2E
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Project Name: Disney Campus
Comment: East - Three Phase Fault - Low Voltage Momentary Report

First Cycle Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

```
*Bus A3HE                0.480 kV, Zone     1, Area     1
       E/Z =     14.951 kA (       12.43 MVA)  At   -38.43DEG, X/R =     0.79
       Z1 =    6.302648 +j   5.000354 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     23.921   IASYM Based on X/R ratio =   14.972

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             A3HE                   14.95    -38.43  Branch      1      1  C A3HE

*Bus A3L1E               0.208 kV, Zone     1, Area     1
       E/Z =      4.971 kA (        1.79 MVA)  At   -61.22DEG, X/R =     1.82
       Z1 =   26.886877 +j  48.937913 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      7.954   IASYM Based on X/R ratio =    5.211

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR3E L        A3L1E                   4.97    -61.22  Branch      1      1  C A3L1E
       A3L2E             A3L1E                   0.00      0.00  Branch      1      1  C A3L2E

*Bus A3L2E               0.208 kV, Zone     1, Area     1
       E/Z =      4.880 kA (        1.76 MVA)  At   -61.10DEG, X/R =     1.81
       Z1 =   27.490955 +j  49.798732 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      7.808   IASYM Based on X/R ratio =    5.112

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       A3L1E             A3L2E                   4.88    -61.10  Branch      1      1  C A3L2E

*Bus AC-1E               0.480 kV, Zone     1, Area     1
       E/Z =     19.585 kA (       16.28 MVA)  At   -60.81DEG, X/R =     1.79
       Z1 =    2.995603 +j   5.361255 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     31.337   IASYM Based on X/R ratio =   20.489

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             AC-1E                  19.59    -60.81  Branch      1      1  C AC-1E

*Bus AC-2E               0.480 kV, Zone     1, Area     1
       E/Z =     13.522 kA (       11.24 MVA)  At   -55.67DEG, X/R =     1.46
       Z1 =    5.017093 +j   7.345193 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     21.635   IASYM Based on X/R ratio =   13.859

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             AC-2E                  13.52    -55.67  Branch      1      1  C AC-2E

*Bus AC-3E               0.480 kV, Zone     1, Area     1
       E/Z =     11.185 kA (        9.30 MVA)  At   -53.71DEG, X/R =     1.36
       Z1 =    6.364753 +j   8.667818 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     17.896   IASYM Based on X/R ratio =   11.402

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             AC-3E                  11.19    -53.71  Branch      1      1  C AC-3E
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First Cycle Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

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*Bus B1HE                0.480 kV, Zone     1, Area     1
       E/Z =     12.950 kA (       10.77 MVA)  At   -43.17DEG, X/R =     0.94
       Z1 =    6.773978 +j   6.354850 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     20.720   IASYM Based on X/R ratio =   12.998

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             B1HE                   12.95    -43.17  Branch      1      1  C B1HE

*Bus B1L1E               0.208 kV, Zone     1, Area     1
       E/Z =      4.720 kA (        1.70 MVA)  At   -59.00DEG, X/R =     1.66
       Z1 =   30.282005 +j  50.407476 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      7.552   IASYM Based on X/R ratio =    4.897

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX BTR1E L        B1L1E                   4.72    -59.00  Branch      1      1  C B1L1E
       B1L2E             B1L1E                   0.00      0.00  Branch      1      1  C B1L2E

*Bus B1L2E               0.208 kV, Zone     1, Area     1
       E/Z =      4.638 kA (        1.67 MVA)  At   -58.93DEG, X/R =     1.66
       Z1 =   30.886083 +j  51.268296 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      7.420   IASYM Based on X/R ratio =    4.810

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       B1L1E             B1L2E                   4.64    -58.93  Branch      1      1  C B1L2E

*Bus B2HE                0.480 kV, Zone     1, Area     1
       E/Z =      5.837 kA (        4.85 MVA)  At   -23.74DEG, X/R =     0.44
       Z1 =   18.863794 +j   8.294601 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      9.339   IASYM Based on X/R ratio =    5.837

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             B2HE                    5.84    -23.74  Branch      1      1  C B2HE

*Bus B2L1E               0.208 kV, Zone     1, Area     1
       E/Z =      4.579 kA (        1.65 MVA)  At   -58.97DEG, X/R =     1.66
       Z1 =   31.252042 +j  51.943842 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      7.326   IASYM Based on X/R ratio =    4.750

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX BTR2E L        B2L1E                   4.58    -58.97  Branch      1      1  C B2L1E
       B2L2E             B2L1E                   0.00      0.00  Branch      1      1  C B2L2E

*Bus B2L2E               0.208 kV, Zone     1, Area     1
       E/Z =      4.501 kA (        1.62 MVA)  At   -58.90DEG, X/R =     1.66
       Z1 =   31.856119 +j  52.804662 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      7.202   IASYM Based on X/R ratio =    4.668

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       B2L1E             B2L2E                   4.50    -58.90  Branch      1      1  C B2L2E
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Driving Point Voltage (P.U.) = 1.00000

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*Bus B3HE                0.480 kV, Zone     1, Area     1
       E/Z =      5.498 kA (        4.57 MVA)  At   -23.31DEG, X/R =     0.43
       Z1 =   20.090132 +j   8.655486 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.798   IASYM Based on X/R ratio =    5.499

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             B3HE                    5.50    -23.31  Branch      1      1  C B3HE

*Bus B3L1E               0.208 kV, Zone     1, Area     1
       E/Z =      4.579 kA (        1.65 MVA)  At   -58.97DEG, X/R =     1.66
       Z1 =   31.252042 +j  51.943842 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      7.326   IASYM Based on X/R ratio =    4.750

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX BTR3E L        B3L1E                   4.58    -58.97  Branch      1      1  C B3L1E
       B3L2E             B3L1E                   0.00      0.00  Branch      1      1  C B3L2E

*Bus B3L2E               0.208 kV, Zone     1, Area     1
       E/Z =      4.501 kA (        1.62 MVA)  At   -58.90DEG, X/R =     1.66
       Z1 =   31.856119 +j  52.804662 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      7.202   IASYM Based on X/R ratio =    4.668

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       B3L1E             B3L2E                   4.50    -58.90  Branch      1      1  C B3L2E

*Bus G-1                 0.480 kV, Zone     1, Area     1
       E/Z =     15.394 kA (       12.80 MVA)  At   -48.01DEG, X/R =     1.11
       Z1 =    5.227398 +j   5.807549 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     24.630   IASYM Based on X/R ratio =   15.525

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       M ELEV1           G-1                     0.39    -80.69  Motor       1      1
       M ELEV2           G-1                     0.39    -80.69  Motor       1      1
       1EDH-A1E          G-1                    14.74    -46.36  Branch      1      1  C G-1

*Bus GEN E               0.480 kV, Zone     1, Area     1
       E/Z =      0.000 kA (        0.00 MVA)  At     0.00DEG, X/R =     1.55
       Z1 =  ********** +j ********** pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      0.000   IASYM Based on X/R ratio =    0.000

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       1ATSE             GEN E                   0.00      0.00  Branch      1      1  C GEN-E 1ATSE
       2ATSE             GEN E                   0.00      0.00  Branch      1      1  C GEN-E 2ATSE
       LB                GEN E                   0.00      0.00  Branch      1      1  C LB

*Bus IDF-2BE             0.208 kV, Zone     1, Area     1
       E/Z =      2.498 kA (        0.90 MVA)  At   -35.79DEG, X/R =     0.72
       Z1 =   90.142680 +j  64.983433 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      3.997   IASYM Based on X/R ratio =    2.500

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MDFE              IDF-2BE                 2.50    -35.79  Branch      1      1  C IDF-2BE
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First Cycle Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus LB 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.00 MVA) At 0.00DEG, X/R = 1.55
Z1 = ********** +j ********** pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 0.000 IASYM Based on X/R ratio = 0.000

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN E		LB	0.00	0.00	Branch	1	1	C LB

*Bus MDFE 0.208 kV, Zone 1, Area 1
E/Z = 5.461 kA (1.97 MVA) At -56.56DEG, X/R = 1.51
Z1 = 28.006404 +j 42.413982 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 8.738 IASYM Based on X/R ratio = 5.614

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1AE L		MDFE	5.46	-56.56	Branch	1	1	C MDFE
IDF-2BE		MDFE	0.00	0.00	Branch	1	1	C IDF-2BE

*Bus MSA-E 0.480 kV, Zone 1, Area 1
E/Z = 41.203 kA (34.26 MVA) At -80.76DEG, X/R = 6.15
Z1 = 0.468741 +j 2.881333 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 65.925 IASYM Based on X/R ratio = 54.571

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A2HE		MSA-E	0.00	0.00	Branch	1	1	C A2HE
TX GWP L		MSA-E	40.44	-80.79	Branch	1	1	C MSA-E
TX BTR1E H		MSA-E	0.00	0.00	Branch	1	1	C TX BTR1E
B1HE		MSA-E	0.00	0.00	Branch	1	1	C B1HE
TX BTR2E H		MSA-E	0.00	0.00	Branch	1	1	C TX BTR2E
B2HE		MSA-E	0.00	0.00	Branch	1	1	C B2HE
TX BTR3E H		MSA-E	0.00	0.00	Branch	1	1	C TX BTR3E
B3HE		MSA-E	0.00	0.00	Branch	1	1	C B3HE
A3HE		MSA-E	0.00	0.00	Branch	1	1	C A3HE
TX ATR3E H		MSA-E	0.00	0.00	Branch	1	1	C TX ATR3E
TX ATR2E H		MSA-E	0.00	0.00	Branch	1	1	C TX ATR2E
A1HE		MSA-E	0.00	0.00	Branch	1	1	C A1HE
TX ATR1E H		MSA-E	0.00	0.00	Branch	1	1	C TX ATR1E
AC-1E		MSA-E	0.00	0.00	Branch	1	1	C AC-1E
AC-2E		MSA-E	0.00	0.00	Branch	1	1	C AC-2E
AC-3E		MSA-E	0.00	0.00	Branch	1	1	C AC-3E
RHE		MSA-E	0.00	0.00	Branch	1	1	C RHE
1ATSE		MSA-E	0.00	0.00	Branch	1	1	C MSA-E 1ATSE
2ATSE		MSA-E	0.76	-79.01	Branch	1	1	C MSA-E 2ATSE

*Bus RHE 0.480 kV, Zone 1, Area 1
E/Z = 5.716 kA (4.75 MVA) At -25.51DEG, X/R = 0.48
Z1 = 18.990336 +j 9.061811 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 9.146 IASYM Based on X/R ratio = 5.716

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-E		RHE	5.72	-25.51	Branch	1	1	C RHE

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First Cycle Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

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*Bus TX 2ETR-1AE H       0.480 kV, Zone     1, Area     1
       E/Z =      7.305 kA (        6.07 MVA)  At   -17.48DEG, X/R =     0.32
       Z1 =   15.705204 +j   4.947302 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     11.688   IASYM Based on X/R ratio =    7.305

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1AE L     TX 2ETR-1AE H           0.00      0.00  Branch      1      1  TX 2ETR-1AE
       2EH-A1E           TX 2ETR-1AE H           7.30    -17.48  Branch      1      1  C TX 2ETR-1AE

*Bus TX 2ETR-1AE L       0.208 kV, Zone     1, Area     1
       E/Z =      0.787 kA (        0.28 MVA)  At   -55.50DEG, X/R =     1.46
       Z1 =  199.816929 +j 290.784430 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      1.259   IASYM Based on X/R ratio =    0.806

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1AE H     TX 2ETR-1AE L           0.79    -55.50  Branch      1      1  TX 2ETR-1AE
       2EL-A1E           TX 2ETR-1AE L           0.00      0.00  Branch      1      1  C 2EL-A1E

*Bus TX 2ETR-1BE H       0.480 kV, Zone     1, Area     1
       E/Z =      4.093 kA (        3.40 MVA)  At   -18.57DEG, X/R =     0.34
       Z1 =   27.859177 +j   9.361929 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      6.548   IASYM Based on X/R ratio =    4.093

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1BE L     TX 2ETR-1BE H           0.00      0.00  Branch      1      1  TX 2ETR-1BE
       2EH-B1E           TX 2ETR-1BE H           4.09    -18.57  Branch      1      1  C TX 2ETR-1BE

*Bus TX 2ETR-1BE L       0.208 kV, Zone     1, Area     1
       E/Z =      0.764 kA (        0.28 MVA)  At   -54.32DEG, X/R =     1.39
       Z1 =  211.970902 +j 295.199057 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      1.222   IASYM Based on X/R ratio =    0.780

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1BE H     TX 2ETR-1BE L           0.76    -54.32  Branch      1      1  TX 2ETR-1BE
       2EL-B1E           TX 2ETR-1BE L           0.00      0.00  Branch      1      1  C 2EL-B1E

*Bus TX 3ETR-1AE H       0.480 kV, Zone     1, Area     1
       E/Z =     14.196 kA (       11.80 MVA)  At   -36.02DEG, X/R =     0.73
       Z1 =    6.852630 +j   4.982944 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     22.714   IASYM Based on X/R ratio =   14.208

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1AE L     TX 3ETR-1AE H           0.00      0.00  Branch      1      1  TX 3ETR-1AE
       3EH-A1E           TX 3ETR-1AE H          14.20    -36.02  Branch      1      1  C TX 3ETR-1AE

*Bus TX 3ETR-1AE L       0.208 kV, Zone     1, Area     1
       E/Z =      1.452 kA (        0.52 MVA)  At   -57.08DEG, X/R =     1.54
       Z1 =  103.923537 +j 160.508991 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      2.323   IASYM Based on X/R ratio =    1.495

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1AE H     TX 3ETR-1AE L           1.45    -57.08  Branch      1      1  TX 3ETR-1AE
       3EL-A1E           TX 3ETR-1AE L           0.00      0.00  Branch      1      1  C 3EL-A1E
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First Cycle Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

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*Bus TX 3ETR-1BE H       0.480 kV, Zone     1, Area     1
       E/Z =      5.133 kA (        4.27 MVA)  At   -21.53DEG, X/R =     0.39
       Z1 =   21.797566 +j   8.600921 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.213   IASYM Based on X/R ratio =    5.133

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1BE L     TX 3ETR-1BE H           0.00      0.00  Branch      1      1  TX 3ETR-1BE
       3EH-A1E           TX 3ETR-1BE H           5.13    -21.53  Branch      1      1  C TX 3ETR-1BE

*Bus TX 3ETR-1BE L       0.208 kV, Zone     1, Area     1
       E/Z =      1.370 kA (        0.49 MVA)  At   -54.09DEG, X/R =     1.38
       Z1 =  118.868474 +j 164.126967 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      2.192   IASYM Based on X/R ratio =    1.398

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1BE H     TX 3ETR-1BE L           1.37    -54.09  Branch      1      1  TX 3ETR-1BE
       3EL-B1E           TX 3ETR-1BE L           0.00      0.00  Branch      1      1  C 3EL-B1E

*Bus TX ATR1E H          0.480 kV, Zone     1, Area     1
       E/Z =     23.517 kA (       19.55 MVA)  At   -55.54DEG, X/R =     1.46
       Z1 =    2.893832 +j   4.217301 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     37.627   IASYM Based on X/R ratio =   24.094

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR1E L        TX ATR1E H              0.00      0.00  Branch      1      1  TX ATR1E
       MSA-E             TX ATR1E H             23.52    -55.54  Branch      1      1  C TX ATR1E

*Bus TX ATR1E L          0.208 kV, Zone     1, Area     1
       E/Z =      5.143 kA (        1.85 MVA)  At   -61.45DEG, X/R =     1.84
       Z1 =   25.797782 +j  47.409108 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.228   IASYM Based on X/R ratio =    5.398

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR1E H        TX ATR1E L              5.14    -61.45  Branch      1      1  TX ATR1E
       A1L1E             TX ATR1E L              0.00      0.00  Branch      1      1  C A1L1E

*Bus TX ATR2E H          0.480 kV, Zone     1, Area     1
       E/Z =     22.302 kA (       18.54 MVA)  At   -57.55DEG, X/R =     1.57
       Z1 =    2.893832 +j   4.551294 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     35.683   IASYM Based on X/R ratio =   23.004

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR2E L        TX ATR2E H              0.00      0.00  Branch      1      1  TX ATR2E
       MSA-E             TX ATR2E H             22.30    -57.55  Branch      1      1  C TX ATR2E

*Bus TX ATR2E L          0.208 kV, Zone     1, Area     1
       E/Z =      5.115 kA (        1.84 MVA)  At   -61.62DEG, X/R =     1.85
       Z1 =   25.797782 +j  47.743101 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.184   IASYM Based on X/R ratio =    5.373

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR2E H        TX ATR2E L              5.11    -61.62  Branch      1      1  TX ATR2E
       A2L1E             TX ATR2E L              0.00      0.00  Branch      1      1  C A2L1E
```

Project Name: Disney Campus
Comment: East - Three Phase Fault - Low Voltage Momentary Report

First Cycle Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

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*Bus TX ATR3E H          0.480 kV, Zone     1, Area     1
       E/Z =     20.250 kA (       16.84 MVA)  At   -55.33DEG, X/R =     1.45
       Z1 =    3.378850 +j   4.885286 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     32.399   IASYM Based on X/R ratio =   20.734

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX ATR3E L        TX ATR3E H             0.00      0.00  Branch      1      1  TX ATR3E
       MSA-E             TX ATR3E H            20.25    -55.33  Branch      1      1  C TX ATR3E

*Bus TX ATR3E L          0.208 kV, Zone     1, Area     1
       E/Z =      5.066 kA (        1.83 MVA)  At   -61.34DEG, X/R =     1.83
       Z1 =   26.282800 +j  48.077093 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.105   IASYM Based on X/R ratio =    5.314

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX ATR3E H        TX ATR3E L             5.07    -61.34  Branch      1      1  TX ATR3E
       A3L1E             TX ATR3E L             0.00      0.00  Branch      1      1  C A3L1E

*Bus TX BTR1E H          0.480 kV, Zone     1, Area     1
       E/Z =     12.950 kA (       10.77 MVA)  At   -43.17DEG, X/R =     0.94
       Z1 =    6.773978 +j   6.354850 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     20.720   IASYM Based on X/R ratio =   12.998

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX BTR1E L        TX BTR1E H             0.00      0.00  Branch      1      1  TX BTR1E
       MSA-E             TX BTR1E H            12.95    -43.17  Branch      1      1  C TX BTR1E

*Bus TX BTR1E L          0.208 kV, Zone     1, Area     1
       E/Z =      4.806 kA (        1.73 MVA)  At   -59.08DEG, X/R =     1.67
       Z1 =   29.677928 +j  49.546656 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      7.690   IASYM Based on X/R ratio =    4.988

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX BTR1E H        TX BTR1E L             4.81    -59.08  Branch      1      1  TX BTR1E
       B1L1E             TX BTR1E L             0.00      0.00  Branch      1      1  C B1L1E

*Bus TX BTR2E H          0.480 kV, Zone     1, Area     1
       E/Z =     10.879 kA (        9.04 MVA)  At   -45.54DEG, X/R =     1.02
       Z1 =    7.744015 +j   7.891216 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     17.406   IASYM Based on X/R ratio =   10.941

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX BTR2E L        TX BTR2E H             0.00      0.00  Branch      1      1  TX BTR2E
       MSA-E             TX BTR2E H            10.88    -45.54  Branch      1      1  C TX BTR2E

*Bus TX BTR2E L          0.208 kV, Zone     1, Area     1
       E/Z =      4.659 kA (        1.68 MVA)  At   -59.04DEG, X/R =     1.67
       Z1 =   30.647965 +j  51.083023 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      7.455   IASYM Based on X/R ratio =    4.835

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX BTR2E H        TX BTR2E L             4.66    -59.04  Branch      1      1  TX BTR2E
       B2L1E             TX BTR2E L             0.00      0.00  Branch      1      1  C B2L1E
```

Project Name: Disney Campus
Comment: East - Three Phase Fault - Low Voltage Momentary Report

First Cycle Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

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*Bus TX BTR3E H          0.480 kV, Zone     1, Area     1
       E/Z =     10.879 kA (        9.04 MVA)  At   -45.54DEG, X/R =     1.02
       Z1 =    7.744015 +j   7.891216 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     17.406   IASYM Based on X/R ratio =   10.941

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX BTR3E L        TX BTR3E H             0.00      0.00  Branch      1      1  TX BTR3E
       MSA-E             TX BTR3E H            10.88    -45.54  Branch      1      1  C TX BTR3E

*Bus TX BTR3E L          0.208 kV, Zone     1, Area     1
       E/Z =      4.659 kA (        1.68 MVA)  At   -59.04DEG, X/R =     1.67
       Z1 =   30.647965 +j  51.083023 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      7.455   IASYM Based on X/R ratio =    4.835

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX BTR3E H        TX BTR3E L             4.66    -59.04  Branch      1      1  TX BTR3E
       B3L1E             TX BTR3E L             0.00      0.00  Branch      1      1  C B3L1E

*Bus TX GWP L            0.480 kV, Zone     1, Area     1
       E/Z =     42.763 kA (       35.55 MVA)  At   -81.82DEG, X/R =     6.96
       Z1 =    0.400280 +j   2.784087 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     68.421   IASYM Based on X/R ratio =   58.007

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       GWP               TX GWP L              42.00    -81.87  Util        1      1
       MSA-E             TX GWP L               0.76    -78.99  Branch      1      1  C MSA-E

*Bus TX STR-1AE H        0.480 kV, Zone     1, Area     1
       E/Z =     27.007 kA (       22.45 MVA)  At   -66.35DEG, X/R =     2.28
       Z1 =    1.786479 +j   4.079667 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     43.212   IASYM Based on X/R ratio =   29.268

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX STR-1AE L      TX STR-1AE H           0.00      0.00  Branch      1      1  TX STR-1AE
       1EDH-A1E          TX STR-1AE H          27.01    -66.35  Branch      1      1  C TX STR-1AE

*Bus TX STR-1AE L        0.208 kV, Zone     1, Area     1
       E/Z =      6.247 kA (        2.25 MVA)  At   -60.99DEG, X/R =     1.80
       Z1 =   21.549060 +j  38.856671 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      9.995   IASYM Based on X/R ratio =    6.541

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX STR-1AE H      TX STR-1AE L           6.25    -60.99  Branch      1      1  TX STR-1AE
       MDFE              TX STR-1AE L           0.00      0.00  Branch      1      1  C MDFE
```

Three Phase Bolted Fault

Low Voltage Interrupting Report

Project Name: Disney Campus
Comment: East - Three Phase Fault - Low Voltage Interrupting Report

Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus 1ATSE 0.480 kV, Zone 1, Area 1
E/Z = 21.869 kA (18.182 MVA) At -45.20DEG, X/R = 1.42
Z1 = 3.875695 +j 3.902537 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
2EH-A1E		1ATSE	0.00	0.00	Branch	1	1	C 2EH-A1E
MSA-E		1ATSE	21.87	-45.20	Branch	1	1	C MSA-E 1ATSE

*Bus 1ATSE 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.000 MVA) At 0.00DEG, X/R = 1.49
Z1 = ********** +j ********** pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN E		1ATSE	0.00	0.00	Branch	1	1	C GEN-E 1ATSE
1ATSE		1ATSE	0.00	0.00	Branch	1	1	C 1ATSE

*Bus 1EDH-A1E 0.480 kV, Zone 1, Area 1
E/Z = 28.781 kA (23.928 MVA) At -71.46DEG, X/R = 3.16
Z1 = 1.328725 +j 3.962289 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1AE H		1EDH-A1E	0.00	0.00	Branch	1	1	C TX STR-1AE
G-1		1EDH-A1E	0.31	-80.10	Branch	1	1	C G-1
3EH-A1E		1EDH-A1E	0.00	0.00	Branch	1	1	C 3EH-A1E
2ATSE		1EDH-A1E	28.47	-71.37	Branch	1	1	C 1EDH-A1E

*Bus 2ATSE 0.480 kV, Zone 1, Area 1
E/Z = 30.116 kA (25.038 MVA) At -72.24DEG, X/R = 3.29
Z1 = 1.218160 +j 3.803687 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1EDH-A1E		2ATSE	0.31	-80.09	Branch	1	1	C 1EDH-A1E
MSA-E		2ATSE	29.81	-72.16	Branch	1	1	C MSA-E 2ATSE

*Bus 2ATSE 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.000 MVA) At 0.00DEG, X/R = 1.49
Z1 = ********** +j ********** pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN E		2ATSE	0.00	0.00	Branch	1	1	C GEN-E 2ATSE
2ATSE		2ATSE	0.00	0.00	Branch	1	1	C 2ATSE

*Bus 2EH-A1E 0.480 kV, Zone 1, Area 1
E/Z = 16.201 kA (13.470 MVA) At -38.37DEG, X/R = 1.28
Z1 = 5.820331 +j 4.608877 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1ATSE		2EH-A1E	16.20	-38.37	Branch	1	1	C 2EH-A1E
TX 2ETR-1AE H		2EH-A1E	0.00	0.00	Branch	1	1	C TX 2ETR-1AE
2EH-B1E		2EH-A1E	0.00	0.00	Branch	1	1	C 2EH-B1E

Project Name: Disney Campus
Comment: East - Three Phase Fault - Low Voltage Interrupting Report

Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus 2EH-B1E 0.480 kV, Zone 1, Area 1
E/Z = 5.981 kA (4.972 MVA) At -26.66DEG, X/R = 1.12
Z1 = 17.974304 +j 9.023504 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
2EH-A1E		2EH-B1E	5.98	-26.66	Branch	1	1	C 2EH-B1E
TX 2ETR-1BE H		2EH-B1E	0.00	0.00	Branch	1	1	C TX 2ETR-1BE

*Bus 2EL-A1E 0.208 kV, Zone 1, Area 1
E/Z = 0.772 kA (0.278 MVA) At -54.23DEG, X/R = 1.71
Z1 = 210.232568 +j 291.792790 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1AE L		2EL-A1E	0.77	-54.23	Branch	1	1	C 2EL-A1E

*Bus 2EL-B1E 0.208 kV, Zone 1, Area 1
E/Z = 0.749 kA (0.270 MVA) At -53.10DEG, X/R = 1.67
Z1 = 222.386541 +j 296.207417 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1BE L		2EL-B1E	0.75	-53.10	Branch	1	1	C 2EL-B1E

*Bus 3EH-A1E 0.480 kV, Zone 1, Area 1
E/Z = 18.698 kA (15.545 MVA) At -46.57DEG, X/R = 1.46
Z1 = 4.422649 +j 4.671397 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1EDH-A1E		3EH-A1E	18.70	-46.57	Branch	1	1	C 3EH-A1E
TX 3ETR-1AE H		3EH-A1E	0.00	0.00	Branch	1	1	C TX 3ETR-1AE
TX 3ETR-1BE H		3EH-A1E	0.00	0.00	Branch	1	1	C TX 3ETR-1BE

*Bus 3EL-A1E 0.208 kV, Zone 1, Area 1
E/Z = 1.428 kA (0.515 MVA) At -56.21DEG, X/R = 1.80
Z1 = 108.071071 +j 161.512277 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1AE L		3EL-A1E	1.43	-56.21	Branch	1	1	C 3EL-A1E

*Bus 3EL-B1E 0.208 kV, Zone 1, Area 1
E/Z = 1.348 kA (0.486 MVA) At -53.32DEG, X/R = 1.67
Z1 = 123.016008 +j 165.130253 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1BE L		3EL-B1E	1.35	-53.32	Branch	1	1	C 3EL-B1E

*Bus A1HE 0.480 kV, Zone 1, Area 1
E/Z = 34.291 kA (28.509 MVA) At -65.67DEG, X/R = 2.43
Z1 = 1.444901 +j 3.196197 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-E		A1HE	34.29	-65.67	Branch	1	1	C A1HE

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Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus A1L1E 0.208 kV, Zone 1, Area 1
E/Z = 5.042 kA (1.817 MVA) At -61.34DEG, X/R = 2.08
Z1 = 26.405701 +j 48.302256 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR1E	L	A1L1E	5.04	-61.34	Branch	1	1	C A1L1E
A1L2E		A1L1E	0.00	0.00	Branch	1	1	C A1L2E

*Bus A1L2E 0.208 kV, Zone 1, Area 1
E/Z = 4.948 kA (1.783 MVA) At -61.22DEG, X/R = 2.08
Z1 = 27.009779 +j 49.163076 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A1L1E		A1L2E	4.95	-61.22	Branch	1	1	C A1L2E

*Bus A2HE 0.480 kV, Zone 1, Area 1
E/Z = 16.951 kA (14.093 MVA) At -41.26DEG, X/R = 1.33
Z1 = 5.334172 +j 4.679513 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-E		A2HE	16.95	-41.26	Branch	1	1	C A2HE

*Bus A2L1E 0.208 kV, Zone 1, Area 1
E/Z = 5.016 kA (1.807 MVA) At -61.50DEG, X/R = 2.10
Z1 = 26.405701 +j 48.636249 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR2E	L	A2L1E	5.02	-61.50	Branch	1	1	C A2L1E
A2L2E		A2L1E	0.00	0.00	Branch	1	1	C A2L2E

*Bus A2L2E 0.208 kV, Zone 1, Area 1
E/Z = 4.923 kA (1.773 MVA) At -61.38DEG, X/R = 2.09
Z1 = 27.009779 +j 49.497069 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A2L1E		A2L2E	4.92	-61.38	Branch	1	1	C A2L2E

*Bus A3HE 0.480 kV, Zone 1, Area 1
E/Z = 14.908 kA (12.394 MVA) At -38.59DEG, X/R = 1.28
Z1 = 6.306490 +j 5.032683 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-E		A3HE	14.91	-38.59	Branch	1	1	C A3HE

*Bus A3L1E 0.208 kV, Zone 1, Area 1
E/Z = 4.968 kA (1.790 MVA) At -61.23DEG, X/R = 2.08
Z1 = 26.890720 +j 48.970242 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR3E	L	A3L1E	4.97	-61.23	Branch	1	1	C A3L1E
A3L2E		A3L1E	0.00	0.00	Branch	1	1	C A3L2E

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Comment: East - Three Phase Fault - Low Voltage Interrupting Report

Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus A3L2E 0.208 kV, Zone 1, Area 1
E/Z = 4.877 kA (1.757 MVA) At -61.11DEG, X/R = 2.07
Z1 = 27.494797 +j 49.831061 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A3L1E		A3L2E	4.88	-61.11	Branch	1	1	C A3L2E

*Bus AC-1E 0.480 kV, Zone 1, Area 1
E/Z = 19.490 kA (16.204 MVA) At -60.92DEG, X/R = 2.06
Z1 = 2.999445 +j 5.393584 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-E		AC-1E	19.49	-60.92	Branch	1	1	C AC-1E

*Bus AC-2E 0.480 kV, Zone 1, Area 1
E/Z = 13.478 kA (11.206 MVA) At -55.76DEG, X/R = 1.78
Z1 = 5.020935 +j 7.377522 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-E		AC-2E	13.48	-55.76	Branch	1	1	C AC-2E

*Bus AC-3E 0.480 kV, Zone 1, Area 1
E/Z = 11.156 kA (9.275 MVA) At -53.80DEG, X/R = 1.69
Z1 = 6.368595 +j 8.700147 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-E		AC-3E	11.16	-53.80	Branch	1	1	C AC-3E

*Bus B1HE 0.480 kV, Zone 1, Area 1
E/Z = 12.915 kA (10.737 MVA) At -43.30DEG, X/R = 1.37
Z1 = 6.777821 +j 6.387179 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-E		B1HE	12.92	-43.30	Branch	1	1	C B1HE

*Bus B1L1E 0.208 kV, Zone 1, Area 1
E/Z = 4.718 kA (1.700 MVA) At -59.02DEG, X/R = 1.94
Z1 = 30.285848 +j 50.439805 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR1E L		B1L1E	4.72	-59.02	Branch	1	1	C B1L1E
B1L2E		B1L1E	0.00	0.00	Branch	1	1	C B1L2E

*Bus B1L2E 0.208 kV, Zone 1, Area 1
E/Z = 4.635 kA (1.670 MVA) At -58.95DEG, X/R = 1.94
Z1 = 30.889925 +j 51.300625 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
B1L1E		B1L2E	4.64	-58.95	Branch	1	1	C B1L2E

Project Name: Disney Campus
Comment: East - Three Phase Fault - Low Voltage Interrupting Report

Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus B2HE 0.480 kV, Zone 1, Area 1
E/Z = 5.832 kA (4.849 MVA) At -23.81DEG, X/R = 1.09
Z1 = 18.867637 +j 8.326930 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-E		B2HE	5.83	-23.81	Branch	1	1	C B2HE

*Bus B2L1E 0.208 kV, Zone 1, Area 1
E/Z = 4.577 kA (1.649 MVA) At -58.98DEG, X/R = 1.94
Z1 = 31.255884 +j 51.976172 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR2E L		B2L1E	4.58	-58.98	Branch	1	1	C B2L1E
B2L2E		B2L1E	0.00	0.00	Branch	1	1	C B2L2E

*Bus B2L2E 0.208 kV, Zone 1, Area 1
E/Z = 4.499 kA (1.621 MVA) At -58.91DEG, X/R = 1.94
Z1 = 31.859962 +j 52.836991 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
B2L1E		B2L2E	4.50	-58.91	Branch	1	1	C B2L2E

*Bus B3HE 0.480 kV, Zone 1, Area 1
E/Z = 5.494 kA (4.568 MVA) At -23.38DEG, X/R = 1.09
Z1 = 20.093974 +j 8.687815 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-E		B3HE	5.49	-23.38	Branch	1	1	C B3HE

*Bus B3L1E 0.208 kV, Zone 1, Area 1
E/Z = 4.577 kA (1.649 MVA) At -58.98DEG, X/R = 1.94
Z1 = 31.255884 +j 51.976172 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR3E L		B3L1E	4.58	-58.98	Branch	1	1	C B3L1E
B3L2E		B3L1E	0.00	0.00	Branch	1	1	C B3L2E

*Bus B3L2E 0.208 kV, Zone 1, Area 1
E/Z = 4.499 kA (1.621 MVA) At -58.91DEG, X/R = 1.94
Z1 = 31.859962 +j 52.836991 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
B3L1E		B3L2E	4.50	-58.91	Branch	1	1	C B3L2E

*Bus G-1 0.480 kV, Zone 1, Area 1
E/Z = 15.000 kA (12.471 MVA) At -47.04DEG, X/R = 1.55
Z1 = 5.464785 +j 5.868340 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
M ELEV1		G-1	0.16	-80.69	Motor	1	1	
M ELEV2		G-1	0.16	-80.69	Motor	1	1	
1EDH-A1E		G-1	14.74	-46.36	Branch	1	1	C G-1

Project Name: Disney Campus
Comment: East - Three Phase Fault - Low Voltage Interrupting Report

Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus GEN E 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.000 MVA) At 0.00DEG, X/R = 1.49
Z1 = ********** +j ********** pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1ATSE		GEN E	0.00	0.00	Branch	1	1	C GEN-E 1ATSE
2ATSE		GEN E	0.00	0.00	Branch	1	1	C GEN-E 2ATSE
LB		GEN E	0.00	0.00	Branch	1	1	C LB

*Bus IDF-2BE 0.208 kV, Zone 1, Area 1
E/Z = 2.497 kA (0.899 MVA) At -35.80DEG, X/R = 1.23
Z1 = 90.171085 +j 65.042640 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MDFE		IDF-2BE	2.50	-35.80	Branch	1	1	C IDF-2BE

*Bus LB 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.000 MVA) At 0.00DEG, X/R = 1.49
Z1 = ********** +j ********** pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN E		LB	0.00	0.00	Branch	1	1	C LB

*Bus MDFE 0.208 kV, Zone 1, Area 1
E/Z = 5.454 kA (1.965 MVA) At -56.57DEG, X/R = 1.82
Z1 = 28.034809 +j 42.473190 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1AE L		MDFE	5.45	-56.57	Branch	1	1	C MDFE
IDF-2BE		MDFE	0.00	0.00	Branch	1	1	C IDF-2BE

*Bus MSA-E 0.480 kV, Zone 1, Area 1
E/Z = 40.749 kA (33.878 MVA) At -80.79DEG, X/R = 6.25
Z1 = 0.472583 +j 2.913662 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A2HE		MSA-E	0.00	0.00	Branch	1	1	C A2HE
TX GWP L		MSA-E	40.44	-80.79	Branch	1	1	C MSA-E
TX BTR1E H		MSA-E	0.00	0.00	Branch	1	1	C TX BTR1E
B1HE		MSA-E	0.00	0.00	Branch	1	1	C B1HE
TX BTR2E H		MSA-E	0.00	0.00	Branch	1	1	C TX BTR2E
B2HE		MSA-E	0.00	0.00	Branch	1	1	C B2HE
TX BTR3E H		MSA-E	0.00	0.00	Branch	1	1	C TX BTR3E
B3HE		MSA-E	0.00	0.00	Branch	1	1	C B3HE
A3HE		MSA-E	0.00	0.00	Branch	1	1	C A3HE
TX ATR3E H		MSA-E	0.00	0.00	Branch	1	1	C TX ATR3E
TX ATR2E H		MSA-E	0.00	0.00	Branch	1	1	C TX ATR2E
A1HE		MSA-E	0.00	0.00	Branch	1	1	C A1HE
TX ATR1E H		MSA-E	0.00	0.00	Branch	1	1	C TX ATR1E
AC-1E		MSA-E	0.00	0.00	Branch	1	1	C AC-1E
AC-2E		MSA-E	0.00	0.00	Branch	1	1	C AC-2E
AC-3E		MSA-E	0.00	0.00	Branch	1	1	C AC-3E
RHE		MSA-E	0.00	0.00	Branch	1	1	C RHE
1ATSE		MSA-E	0.00	0.00	Branch	1	1	C MSA-E 1ATSE
2ATSE		MSA-E	0.31	-80.00	Branch	1	1	C MSA-E 2ATSE

Project Name: Disney Campus
Comment: East - Three Phase Fault - Low Voltage Interrupting Report

Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus RHE 0.480 kV, Zone 1, Area 1
E/Z = 5.712 kA (4.749 MVA) At -25.58DEG, X/R = 1.11
Z1 = 18.994178 +j 9.094140 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-E		RHE	5.71	-25.58	Branch	1	1	C RHE

*Bus TX 2ETR-1AE H 0.480 kV, Zone 1, Area 1
E/Z = 7.299 kA (6.068 MVA) At -17.59DEG, X/R = 1.05
Z1 = 15.709047 +j 4.979631 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1AE L		TX 2ETR-1AE H	0.00	0.00	Branch	1	1	TX 2ETR-1AE
2EH-A1E		TX 2ETR-1AE H	7.30	-17.59	Branch	1	1	C TX 2ETR-1AE

*Bus TX 2ETR-1AE L 0.208 kV, Zone 1, Area 1
E/Z = 0.787 kA (0.283 MVA) At -55.51DEG, X/R = 1.77
Z1 = 199.820772 +j 290.816759 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1AE H		TX 2ETR-1AE L	0.79	-55.51	Branch	1	1	TX 2ETR-1AE
2EL-A1E		TX 2ETR-1AE L	0.00	0.00	Branch	1	1	C 2EL-A1E

*Bus TX 2ETR-1BE H 0.480 kV, Zone 1, Area 1
E/Z = 4.091 kA (3.401 MVA) At -18.63DEG, X/R = 1.06
Z1 = 27.863019 +j 9.394258 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1BE L		TX 2ETR-1BE H	0.00	0.00	Branch	1	1	TX 2ETR-1BE
2EH-B1E		TX 2ETR-1BE H	4.09	-18.63	Branch	1	1	C TX 2ETR-1BE

*Bus TX 2ETR-1BE L 0.208 kV, Zone 1, Area 1
E/Z = 0.764 kA (0.275 MVA) At -54.32DEG, X/R = 1.71
Z1 = 211.974744 +j 295.231386 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1BE H		TX 2ETR-1BE L	0.76	-54.32	Branch	1	1	TX 2ETR-1BE
2EL-B1E		TX 2ETR-1BE L	0.00	0.00	Branch	1	1	C 2EL-B1E

*Bus TX 3ETR-1AE H 0.480 kV, Zone 1, Area 1
E/Z = 14.100 kA (11.722 MVA) At -36.23DEG, X/R = 1.24
Z1 = 6.881035 +j 5.042152 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1AE L		TX 3ETR-1AE H	0.00	0.00	Branch	1	1	TX 3ETR-1AE
3EH-A1E		TX 3ETR-1AE H	14.10	-36.23	Branch	1	1	C TX 3ETR-1AE

*Bus TX 3ETR-1AE L 0.208 kV, Zone 1, Area 1
E/Z = 1.451 kA (0.523 MVA) At -57.08DEG, X/R = 1.84
Z1 = 103.951942 +j 160.568198 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1AE H		TX 3ETR-1AE L	1.45	-57.08	Branch	1	1	TX 3ETR-1AE
3EL-A1E		TX 3ETR-1AE L	0.00	0.00	Branch	1	1	C 3EL-A1E

Project Name: Disney Campus
Comment: East - Three Phase Fault - Low Voltage Interrupting Report

Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus TX 3ETR-1BE H 0.480 kV, Zone 1, Area 1
E/Z = 5.122 kA (4.259 MVA) At -21.64DEG, X/R = 1.08
Z1 = 21.825971 +j 8.660128 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1BE L		TX 3ETR-1BE H	0.00	0.00	Branch	1	1	TX 3ETR-1BE
3EH-A1E		TX 3ETR-1BE H	5.12	-21.64	Branch	1	1	C TX 3ETR-1BE

*Bus TX 3ETR-1BE L 0.208 kV, Zone 1, Area 1
E/Z = 1.369 kA (0.493 MVA) At -54.09DEG, X/R = 1.71
Z1 = 118.896879 +j 164.186175 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1BE H		TX 3ETR-1BE L	1.37	-54.09	Branch	1	1	TX 3ETR-1BE
3EL-B1E		TX 3ETR-1BE L	0.00	0.00	Branch	1	1	C 3EL-B1E

*Bus TX ATR1E H 0.480 kV, Zone 1, Area 1
E/Z = 23.385 kA (19.442 MVA) At -55.71DEG, X/R = 1.78
Z1 = 2.897674 +j 4.249630 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR1E L		TX ATR1E H	0.00	0.00	Branch	1	1	TX ATR1E
MSA-E		TX ATR1E H	23.38	-55.71	Branch	1	1	C TX ATR1E

*Bus TX ATR1E L 0.208 kV, Zone 1, Area 1
E/Z = 5.140 kA (1.852 MVA) At -61.46DEG, X/R = 2.09
Z1 = 25.801624 +j 47.441437 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR1E H		TX ATR1E L	5.14	-61.46	Branch	1	1	TX ATR1E
A1L1E		TX ATR1E L	0.00	0.00	Branch	1	1	C A1L1E

*Bus TX ATR2E H 0.480 kV, Zone 1, Area 1
E/Z = 22.181 kA (18.441 MVA) At -57.70DEG, X/R = 1.87
Z1 = 2.897674 +j 4.583623 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR2E L		TX ATR2E H	0.00	0.00	Branch	1	1	TX ATR2E
MSA-E		TX ATR2E H	22.18	-57.70	Branch	1	1	C TX ATR2E

*Bus TX ATR2E L 0.208 kV, Zone 1, Area 1
E/Z = 5.112 kA (1.842 MVA) At -61.63DEG, X/R = 2.10
Z1 = 25.801624 +j 47.775430 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR2E H		TX ATR2E L	5.11	-61.63	Branch	1	1	TX ATR2E
A2L1E		TX ATR2E L	0.00	0.00	Branch	1	1	C A2L1E

*Bus TX ATR3E H 0.480 kV, Zone 1, Area 1
E/Z = 20.152 kA (16.754 MVA) At -55.48DEG, X/R = 1.76
Z1 = 3.382693 +j 4.917615 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR3E L		TX ATR3E H	0.00	0.00	Branch	1	1	TX ATR3E
MSA-E		TX ATR3E H	20.15	-55.48	Branch	1	1	C TX ATR3E

Project Name: Disney Campus
Comment: East - Three Phase Fault - Low Voltage Interrupting Report

Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus TX ATR3E L 0.208 kV, Zone 1, Area 1
E/Z = 5.063 kA (1.824 MVA) At -61.35DEG, X/R = 2.09
Z1 = 26.286642 +j 48.109422 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR3E H		TX ATR3E L	5.06	-61.35	Branch	1	1	TX ATR3E
A3L1E		TX ATR3E L	0.00	0.00	Branch	1	1	C A3L1E

*Bus TX BTR1E H 0.480 kV, Zone 1, Area 1
E/Z = 12.915 kA (10.737 MVA) At -43.30DEG, X/R = 1.37
Z1 = 6.777821 +j 6.387179 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR1E L		TX BTR1E H	0.00	0.00	Branch	1	1	TX BTR1E
MSA-E		TX BTR1E H	12.92	-43.30	Branch	1	1	C TX BTR1E

*Bus TX BTR1E L 0.208 kV, Zone 1, Area 1
E/Z = 4.804 kA (1.731 MVA) At -59.09DEG, X/R = 1.95
Z1 = 29.681770 +j 49.578986 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR1E H		TX BTR1E L	4.80	-59.09	Branch	1	1	TX BTR1E
B1L1E		TX BTR1E L	0.00	0.00	Branch	1	1	C B1L1E

*Bus TX BTR2E H 0.480 kV, Zone 1, Area 1
E/Z = 10.854 kA (9.024 MVA) At -45.64DEG, X/R = 1.43
Z1 = 7.747857 +j 7.923545 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR2E L		TX BTR2E H	0.00	0.00	Branch	1	1	TX BTR2E
MSA-E		TX BTR2E H	10.85	-45.64	Branch	1	1	C TX BTR2E

*Bus TX BTR2E L 0.208 kV, Zone 1, Area 1
E/Z = 4.657 kA (1.678 MVA) At -59.05DEG, X/R = 1.94
Z1 = 30.651807 +j 51.115352 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR2E H		TX BTR2E L	4.66	-59.05	Branch	1	1	TX BTR2E
B2L1E		TX BTR2E L	0.00	0.00	Branch	1	1	C B2L1E

*Bus TX BTR3E H 0.480 kV, Zone 1, Area 1
E/Z = 10.854 kA (9.024 MVA) At -45.64DEG, X/R = 1.43
Z1 = 7.747857 +j 7.923545 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR3E L		TX BTR3E H	0.00	0.00	Branch	1	1	TX BTR3E
MSA-E		TX BTR3E H	10.85	-45.64	Branch	1	1	C TX BTR3E

*Bus TX BTR3E L 0.208 kV, Zone 1, Area 1
E/Z = 4.657 kA (1.678 MVA) At -59.05DEG, X/R = 1.94
Z1 = 30.651807 +j 51.115352 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR3E H		TX BTR3E L	4.66	-59.05	Branch	1	1	TX BTR3E
B3L1E		TX BTR3E L	0.00	0.00	Branch	1	1	C B3L1E

Project Name: Disney Campus
Comment: East - Three Phase Fault - Low Voltage Interrupting Report

Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus TX GWP L 0.480 kV, Zone 1, Area 1
E/Z = 42.310 kA (35.176 MVA) At -81.86DEG, X/R = 7.06
Z1 = 0.402713 +j 2.814170 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GWP		TX GWP L	42.00	-81.87	Util	1	1	
MSA-E		TX GWP L	0.31	-80.00	Branch	1	1	C MSA-E

*Bus TX STR-1AE H 0.480 kV, Zone 1, Area 1
E/Z = 26.615 kA (22.127 MVA) At -66.32DEG, X/R = 2.50
Z1 = 1.814884 +j 4.138875 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1AE L		TX STR-1AE H	0.00	0.00	Branch	1	1	TX STR-1AE
1EDH-A1E		TX STR-1AE H	26.62	-66.32	Branch	1	1	C TX STR-1AE

*Bus TX STR-1AE L 0.208 kV, Zone 1, Area 1
E/Z = 6.238 kA (2.247 MVA) At -60.99DEG, X/R = 2.06
Z1 = 21.577465 +j 38.915879 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1AE H		TX STR-1AE L	6.24	-60.99	Branch	1	1	TX STR-1AE
MDFE		TX STR-1AE L	0.00	0.00	Branch	1	1	C MDFE

Ground Fault

Equipment Duty Ratings

Project Name: Disney Campus
Comment: East - Ground Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
1ATSE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle Interrupting (kA)	(kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B 1ATSE	GE	/SEL	ANSI-SYM	65.00			0.00(-100.0%)		

****

Equipment Duty Comparison Report For Bus:
1EDH-A1E Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle Interrupting (kA)	(kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B TX STR-1AE	GE	/SFL	ANSI-SYM	65.00			25.58(-60.7%)		
B G-1	GE	/SFL	ANSI-SYM	65.00			25.13(-61.3%)		
B 3EH-A1E	GE	/SEL	ANSI-SYM	65.00			25.58(-60.7%)		
1EDH-A1E		/	ANSI-SYM	42.00			25.58(-39.1%)		

****

Equipment Duty Comparison Report For Bus:
2ATSE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle Interrupting (kA)	(kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B 2ATSE	GE	/SFL	ANSI-SYM	65.00			0.00(-100.0%)		

****

Equipment Duty Comparison Report For Bus:
2EH-A1E Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle Interrupting (kA)	(kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B TX 2ETR-1AE	GE	/FBV	ANSI-SYM	35.00			12.93(-63.1%)		
2EH-A1E		/	ANSI-SYM	25.00			12.93(-48.3%)		

Project Name: Disney Campus
Comment: East - Ground Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
2EH-B1E Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B TX 2ETR-1BE	GE /FBV	ANSI-SYM	35.00			4.56(-87.0%)			
2EH-B1E	/	ANSI-SYM	25.00			4.56(-81.7%)			

****

Equipment Duty Comparison Report For Bus:
2EL-A1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 2EL-A1E BRANCH	GE /THQB	ANSI-SYM	10.00			0.82(-91.8%)			
B 2EL-A1E MAIN	GE /THQB	ANSI-SYM	10.00			0.82(-91.8%)			
2EL-A1E	/	ANSI-SYM	10.00			0.82(-91.8%)			

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Equipment Duty Comparison Report For Bus:
2EL-B1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 2EL-B1E BRANCH	GE /THQB	ANSI-SYM	10.00			0.80(-92.0%)			
B 2EL-B1E	GE /THQB	ANSI-SYM	10.00			0.80(-92.0%)			
2EL-B1E	/	ANSI-SYM	10.00			0.80(-92.0%)			

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Equipment Duty Comparison Report For Bus:
3EH-A1E Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 3EH-1AE BRANCH	GE /THED(100A480V)	ANSI-SYM	25.00			15.25(-39.0%)			
B TX 3ETR-1BE	GE /THED(100A480V)	ANSI-SYM	25.00			15.25(-39.0%)			
B TX 3ETR-1AE	GE /THED(100A480V)	ANSI-SYM	25.00			15.25(-39.0%)			
3EH-A1E	/	ANSI-SYM	25.00			15.25(-39.0%)			

Project Name: Disney Campus
Comment: East - Ground Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
3EL-A1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 3EL-A1E BRANCH	GE /THQB	ANSI-SYM	10.00			1.51(-84.9%)			
B 3EL-A1E MAIN	GE /THQB	ANSI-SYM	10.00			1.51(-84.9%)			
3EL-A1E	/	ANSI-SYM	10.00			1.51(-84.9%)			

****

Equipment Duty Comparison Report For Bus:
3EL-B1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 3EL-B1E MAIN	GE /THQB	ANSI-SYM	10.00			1.45(-85.5%)			
B 3EL-B1E BRANCH	GE /THQB	ANSI-SYM	10.00			1.45(-85.5%)			
3EL-B1E	/	ANSI-SYM	10.00			1.45(-85.5%)			

****

Equipment Duty Comparison Report For Bus:
A1HE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A1HE-BRANCH	GE /FBN	ANSI-SYM	65.00			31.28(-51.9%)			
A1HE	/	ANSI-SYM	42.00			31.28(-25.5%)			

****

Equipment Duty Comparison Report For Bus:
A1L1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A1L1E BRANCH	GE /THQB	ANSI-SYM	10.00			5.42(-45.8%)			
A1L1E	/	ANSI-SYM	10.00			5.42(-45.8%)			

Project Name: Disney Campus
Comment: East - Ground Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
A1L2E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A1L2E BRANCH	GE /THQB	ANSI-SYM	10.00			5.28(-47.2%)			
A1L2E	/	ANSI-SYM	10.00			5.28(-47.2%)			

****

Equipment Duty Comparison Report For Bus:
A2HE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A2HE-BRANCH	GE /FBV	ANSI-SYM	35.00			13.62(-61.1%)			
A2HE	/	ANSI-SYM	25.00			13.62(-45.5%)			

****

Equipment Duty Comparison Report For Bus:
A2L1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A2L1E BRANCH	GE /THQB	ANSI-SYM	10.00			5.40(-46.0%)			
A2L1E	/	ANSI-SYM	10.00			5.40(-46.0%)			

****

Equipment Duty Comparison Report For Bus:
A2L2E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A2L2E-BRANCH	GE /THQB	ANSI-SYM	10.00			5.26(-47.4%)			
A2L2E	/	ANSI-SYM	10.00			5.26(-47.4%)			

Project Name: Disney Campus
Comment: East - Ground Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
A3HE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A3HE-BRANCH	GE /FBV	ANSI-SYM	35.00			11.84(-66.2%)			
A3HE	/	ANSI-SYM	25.00			11.84(-52.6%)			

****

Equipment Duty Comparison Report For Bus:
A3L1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A3L1E BRANCH	GE /THQB	ANSI-SYM	10.00			5.36(-46.4%)			
A3L1E	/	ANSI-SYM	10.00			5.36(-46.4%)			

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Equipment Duty Comparison Report For Bus:
A3L2E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A3L2E BRANCH	GE /THQB	ANSI-SYM	10.00			5.22(-47.8%)			
A3L2E	/	ANSI-SYM	10.00			5.22(-47.8%)			

****

Equipment Duty Comparison Report For Bus:
B1HE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B B1HE-BRANCH	GE /TEY	ANSI-SYM	14.00			10.23(-27.0%)			
B1HE	/	ANSI-SYM	14.00			10.23(-27.0%)			

Project Name: Disney Campus
Comment: East - Ground Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
B1L1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment			Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B B1L1E BRANCH	GE /THQB	ANSI-SYM	10.00			5.17(-48.3%)		
B1L1E	/	ANSI-SYM	10.00			5.17(-48.3%)		

****

Equipment Duty Comparison Report For Bus:
B1L2E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment			Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B B1L2E-BRANCH	GE /THQB	ANSI-SYM	10.00			5.03(-49.7%)		
B1L2E	/	ANSI-SYM	10.00			5.03(-49.7%)		

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Equipment Duty Comparison Report For Bus:
B2HE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment			Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B B2HE-BRANCH	GE /TEY	ANSI-SYM	14.00			4.44(-68.3%)		
B2HE	/	ANSI-SYM	14.00			4.44(-68.3%)		

****

Equipment Duty Comparison Report For Bus:
B2L1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment			Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B B2L1E BRANCH	GE /THQB	ANSI-SYM	10.00			5.05(-49.5%)		
B2L1E	/	ANSI-SYM	10.00			5.05(-49.5%)		

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
B2L2E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties			Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA	(%)	
B B2L2E BRANCH	GE /THQB	ANSI-SYM	10.00			4.93	(-50.7%)			
B2L2E	/	ANSI-SYM	10.00			4.93	(-50.7%)			

****

Equipment Duty Comparison Report For Bus:
B3HE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties			Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA	(%)	
B B3HE-BRANCH	GE /TEY	ANSI-SYM	14.00			4.18	(-70.1%)			
B3HE	/	ANSI-SYM	14.00			4.18	(-70.1%)			

****

Equipment Duty Comparison Report For Bus:
B3L1E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties			Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA	(%)	
B B3L1E BRANCH	GE /THQB	ANSI-SYM	10.00			5.05	(-49.5%)			
B3L1E	/	ANSI-SYM	10.00			5.05	(-49.5%)			

****

Equipment Duty Comparison Report For Bus:
B3L2E Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties			Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA	(%)	
B B3L2E-BRANCH	GE /THQB	ANSI-SYM	10.00			4.93	(-50.7%)			
B3L2E	/	ANSI-SYM	10.00			4.93	(-50.7%)			

Project Name: Disney Campus
Comment: East - Ground Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
G-1 Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B ELEV1	GE	/SFL	ANSI-SYM	65.00			11.91(-81.7%)		
B ELEV2	GE	/SFL	ANSI-SYM	65.00			11.91(-81.7%)		

****

Equipment Duty Comparison Report For Bus:
IDF-2BE Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B IDF-2BR BRANCH	GE	/THQB	ANSI-SYM	10.00			1.58(-84.2%)		
IDF-2BE		/	ANSI-SYM	10.00			1.58(-84.2%)		

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Equipment Duty Comparison Report For Bus:
MDFE Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B MDFE MAIN	GE	/TQD	ANSI-SYM	10.00			5.60(-44.0%)		
B IDF-2BE	GE	/THQB	ANSI-SYM	10.00			5.60(-44.0%)		
B MDFE BRANCH	GE	/THQB	ANSI-SYM	10.00			5.60(-44.0%)		
MDFE		/	ANSI-SYM	10.00			5.60(-44.0%)		

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Equipment Duty Comparison Report For Bus:
MSA-E Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B MSA-E MAIN	GE	/SS-30	ANSI-SYM	100.00			39.89(-60.1%)		
B TX BTR1E	GE	/SFL	ANSI-SYM	65.00			40.39(-37.9%)		
B B1HE	GE	/SEL	ANSI-SYM	65.00			40.39(-37.9%)		
B TX BTR2E	GE	/SFL	ANSI-SYM	65.00			40.39(-37.9%)		
B B2HE	GE	/SEL	ANSI-SYM	65.00			40.39(-37.9%)		
B TX BTR3E	GE	/SFL	ANSI-SYM	65.00			40.39(-37.9%)		
B B3HE	GE	/SEL	ANSI-SYM	65.00			40.39(-37.9%)		
B A3HE	GE	/SEL	ANSI-SYM	65.00			40.39(-37.9%)		

Project Name: Disney Campus
Comment: East - Ground Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

B TX ATR3E	GE	/SFL	ANSI-SYM	65.00	40.39(-37.9%)
B A2HE	GE	/SEL	ANSI-SYM	65.00	40.39(-37.9%)
B TX ATR2E	GE	/SFL	ANSI-SYM	65.00	40.39(-37.9%)
B A1HE	GE	/SEL	ANSI-SYM	65.00	40.39(-37.9%)
B TX ATR1E	GE	/SFL	ANSI-SYM	65.00	40.39(-37.9%)
B RHE	GE	/SEL	ANSI-SYM	65.00	40.39(-37.9%)
B MSA-E 1ATSE	GE	/SEL	ANSI-SYM	65.00	40.39(-37.9%)
B MSA-E 2ATSE	GE	/SGL4	ANSI-SYM	65.00	39.89(-38.6%)
MSA-E		/	ANSI-SYM	65.00	39.45(-39.3%)

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Equipment Duty Comparison Report For Bus:
RHE Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B RHE-BRANCH	GE	/FBN	ANSI-SYM	65.00			4.35(-93.3%)		
RHE		/	ANSI-SYM	42.00			4.35(-89.6%)		

****

Equipment Duty Comparison Report For Bus:
TX ATR1E L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B ATR1E	GE	/SGL4	ANSI-SYM	100.00			5.57(-94.4%)		

****

Equipment Duty Comparison Report For Bus:
TX ATR2E L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B ATR2E	GE	/SGL4	ANSI-SYM	100.00			5.55(-94.5%)		

****

Equipment Duty Comparison Report For Bus:
TX ATR3E L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B ATR3E	GE	/SGL4	ANSI-SYM	100.00			5.51(-94.5%)		

Project Name: Disney Campus
Comment: East - Ground Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
TX BTR1E L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA	(%)
B BTR1E	GE /SGL4	ANSI-SYM	100.00			5.30	(-94.7%)		

****

Equipment Duty Comparison Report For Bus:
TX BTR2E L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA	(%)
B BTR2E	GE /SGL4	ANSI-SYM	100.00			5.18	(-94.8%)		

****

Equipment Duty Comparison Report For Bus:
TX BTR3E L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA	(%)
B BTR3E	GE /SGL4	ANSI-SYM	100.00			5.18	(-94.8%)		

Ground Fault

Low Voltage Momentary Report

Project Name: Disney Campus
Comment: East - Ground Fault - Low Voltage Momentary Report

First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus 1ATSE 0.480 kV, Zone 1, Area 1
E/Z = 18.040 kA (15.00 MVA) At -40.37DEG, X/R = 0.85
Z1 = 3.871853 +j 3.870207 pu, Z0 = 7.494794 +j 5.216914 pu
1.6*ISYM= 28.864 IASYM Based on X/R ratio = 18.079

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
2EH-A1E		1ATSE	0.00	0.00	Branch	1	1	C 2EH-A1E
MSA-E		1ATSE	18.04	-40.37	Branch	1	1	C MSA-E 1ATSE

*Bus 1ATSE 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.00 MVA) At 0.00DEG, X/R = 0.47
Z1 = ********** +j ********** pu, Z0 = ********** +j ********** pu
1.6*ISYM= 0.000 IASYM Based on X/R ratio = 0.000

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN E		1ATSE	0.00	0.00	Branch	1	1	C GEN-E 1ATSE
1ATSE		1ATSE	0.00	0.00	Branch	1	1	C 1ATSE

*Bus 1EDH-A1E 0.480 kV, Zone 1, Area 1
E/Z = 25.576 kA (21.26 MVA) At -69.08DEG, X/R = 2.62
Z1 = 1.300320 +j 3.903082 pu, Z0 = 2.436122 +j 5.372838 pu
1.6*ISYM= 40.922 IASYM Based on X/R ratio = 28.393

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1AE H		1EDH-A1E	0.00	0.00	Branch	1	1	C TX STR-1AE
G-1		1EDH-A1E	0.45	-76.76	Branch	1	1	C G-1
3EH-A1E		1EDH-A1E	0.00	0.00	Branch	1	1	C 3EH-A1E
2ATSE		1EDH-A1E	25.13	-68.95	Branch	1	1	C 1EDH-A1E

*Bus 2ATSE 0.480 kV, Zone 1, Area 1
E/Z = 27.003 kA (22.45 MVA) At -69.88DEG, X/R = 2.73
Z1 = 1.193745 +j 3.748963 pu, Z0 = 2.209259 +j 5.049553 pu
1.6*ISYM= 43.205 IASYM Based on X/R ratio = 30.218

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1EDH-A1E		2ATSE	0.45	-76.76	Branch	1	1	C 1EDH-A1E
MSA-E		2ATSE	26.55	-69.76	Branch	1	1	C MSA-E 2ATSE

*Bus 2ATSE 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.00 MVA) At 0.00DEG, X/R = 0.47
Z1 = ********** +j ********** pu, Z0 = ********** +j ********** pu
1.6*ISYM= 0.000 IASYM Based on X/R ratio = 0.000

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN E		2ATSE	0.00	0.00	Branch	1	1	C GEN-E 2ATSE
2ATSE		2ATSE	0.00	0.00	Branch	1	1	C 2ATSE

*Bus 2EH-A1E 0.480 kV, Zone 1, Area 1
E/Z = 12.930 kA (10.75 MVA) At -34.44DEG, X/R = 0.69
Z1 = 5.816489 +j 4.576548 pu, Z0 = 11.384050 +j 6.629606 pu
1.6*ISYM= 20.687 IASYM Based on X/R ratio = 12.937

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1ATSE		2EH-A1E	12.93	-34.44	Branch	1	1	C 2EH-A1E
TX 2ETR-1AE H		2EH-A1E	0.00	0.00	Branch	1	1	C TX 2ETR-1AE
2EH-B1E		2EH-A1E	0.00	0.00	Branch	1	1	C 2EH-B1E

Project Name: Disney Campus
Comment: East - Ground Fault - Low Voltage Momentary Report

First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

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*Bus 2EH-B1E            0.480 kV, Zone     1, Area     1
       E/Z =      4.565 kA (        3.79 MVA)  At   -25.03DEG, X/R =     0.47
       Z1 =   17.970461 +j   8.991175 pu,  Z0 =  35.691900 +j  15.458955 pu
       1.6*ISYM=      7.303   IASYM Based on X/R ratio =    4.565

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       2EH-A1E           2EH-B1E                 4.56    -25.03  Branch      1      1  C 2EH-B1E
       TX 2ETR-1BE H     2EH-B1E                 0.00      0.00  Branch      1      1  C TX 2ETR-1BE

*Bus 2EL-A1E            0.208 kV, Zone     1, Area     1
       E/Z =      0.815 kA (        0.29 MVA)  At   -54.19DEG, X/R =     1.39
       Z1 =  210.228726 +j 291.760461 pu,  Z0 = 177.310957 +j 244.910163 pu
       1.6*ISYM=      1.304   IASYM Based on X/R ratio =    0.832

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1AE L     2EL-A1E                 0.82    -54.19  Branch      1      1  C 2EL-A1E

*Bus 2EL-B1E            0.208 kV, Zone     1, Area     1
       E/Z =      0.798 kA (        0.29 MVA)  At   -53.39DEG, X/R =     1.35
       Z1 =  222.382699 +j 296.175088 pu,  Z0 = 177.310957 +j 244.910163 pu
       1.6*ISYM=      1.277   IASYM Based on X/R ratio =    0.813

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1BE L     2EL-B1E                 0.80    -53.39  Branch      1      1  C 2EL-B1E

*Bus 3EH-A1E            0.480 kV, Zone     1, Area     1
       E/Z =     15.253 kA (       12.68 MVA)  At   -42.61DEG, X/R =     0.92
       Z1 =    4.394244 +j   4.612190 pu,  Z0 =   8.623934 +j   6.791064 pu
       1.6*ISYM=     24.404   IASYM Based on X/R ratio =   15.304

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       1EDH-A1E          3EH-A1E                15.25    -42.61  Branch      1      1  C 3EH-A1E
       TX 3ETR-1AE H     3EH-A1E                 0.00      0.00  Branch      1      1  C TX 3ETR-1AE
       TX 3ETR-1BE H     3EH-A1E                 0.00      0.00  Branch      1      1  C TX 3ETR-1BE

*Bus 3EL-A1E            0.208 kV, Zone     1, Area     1
       E/Z =      1.513 kA (        0.55 MVA)  At   -56.12DEG, X/R =     1.49
       Z1 =  108.042667 +j 161.453069 pu,  Z0 =  90.746331 +j 134.084231 pu
       1.6*ISYM=      2.421   IASYM Based on X/R ratio =    1.553

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1AE L     3EL-A1E                 1.51    -56.12  Branch      1      1  C 3EL-A1E

*Bus 3EL-B1E            0.208 kV, Zone     1, Area     1
       E/Z =      1.452 kA (        0.52 MVA)  At   -54.05DEG, X/R =     1.38
       Z1 =  122.987603 +j 165.071046 pu,  Z0 =  90.746331 +j 134.084231 pu
       1.6*ISYM=      2.323   IASYM Based on X/R ratio =    1.481

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1BE L     3EL-B1E                 1.45    -54.05  Branch      1      1  C 3EL-B1E
```

Project Name: Disney Campus
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First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

```
*Bus A1HE                0.480 kV, Zone     1, Area     1
       E/Z =     31.280 kA (       26.01 MVA)  At   -61.44DEG, X/R =     1.84
       Z1 =    1.441058 +j   3.163868 pu,  Z0 =   2.633219 +j   3.804226 pu
       1.6*ISYM=     50.048   IASYM Based on X/R ratio =   32.829

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             A1HE                   31.28    -61.44  Branch      1      1  C A1HE

*Bus A1L1E               0.208 kV, Zone     1, Area     1
       E/Z =      5.419 kA (        1.95 MVA)  At   -61.44DEG, X/R =     1.84
       Z1 =   26.401859 +j  48.269927 pu,  Z0 =  20.676369 +j  38.434584 pu
       1.6*ISYM=      8.670   IASYM Based on X/R ratio =    5.687

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR1E L        A1L1E                   5.42    -61.44  Branch      1      1  C A1L1E
       A1L2E             A1L1E                   0.00      0.00  Branch      1      1  C A1L2E

*Bus A1L2E               0.208 kV, Zone     1, Area     1
       E/Z =      5.275 kA (        1.90 MVA)  At   -61.26DEG, X/R =     1.82
       Z1 =   27.005936 +j  49.130747 pu,  Z0 =  21.884523 +j  40.156225 pu
       1.6*ISYM=      8.440   IASYM Based on X/R ratio =    5.531

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       A1L1E             A1L2E                   5.28    -61.26  Branch      1      1  C A1L2E

*Bus A2HE                0.480 kV, Zone     1, Area     1
       E/Z =     13.618 kA (       11.32 MVA)  At   -37.32DEG, X/R =     0.76
       Z1 =    5.330330 +j   4.647184 pu,  Z0 =  10.411761 +j   6.770855 pu
       1.6*ISYM=     21.789   IASYM Based on X/R ratio =   13.633

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             A2HE                   13.62    -37.32  Branch      1      1  C A2HE

*Bus A2L1E               0.208 kV, Zone     1, Area     1
       E/Z =      5.398 kA (        1.94 MVA)  At   -61.55DEG, X/R =     1.85
       Z1 =   26.401859 +j  48.603920 pu,  Z0 =  20.676369 +j  38.434584 pu
       1.6*ISYM=      8.637   IASYM Based on X/R ratio =    5.669

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR2E L        A2L1E                   5.40    -61.55  Branch      1      1  C A2L1E
       A2L2E             A2L1E                   0.00      0.00  Branch      1      1  C A2L2E

*Bus A2L2E               0.208 kV, Zone     1, Area     1
       E/Z =      5.256 kA (        1.89 MVA)  At   -61.38DEG, X/R =     1.83
       Z1 =   27.005936 +j  49.464740 pu,  Z0 =  21.884523 +j  40.156225 pu
       1.6*ISYM=      8.409   IASYM Based on X/R ratio =    5.514

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       A2L1E             A2L2E                   5.26    -61.38  Branch      1      1  C A2L2E
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First Cycle Results S L-GND
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```
*Bus A3HE                0.480 kV, Zone     1, Area     1
       E/Z =     11.842 kA (        9.84 MVA)  At   -35.00DEG, X/R =     0.70
       Z1 =    6.302648 +j   5.000354 pu,  Z0 =  12.356398 +j   7.477195 pu
       1.6*ISYM=     18.947   IASYM Based on X/R ratio =   11.849

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             A3HE                   11.84    -35.00  Branch      1      1  C A3HE

*Bus A3L1E               0.208 kV, Zone     1, Area     1
       E/Z =      5.361 kA (        1.93 MVA)  At   -61.36DEG, X/R =     1.83
       Z1 =   26.886877 +j  48.937913 pu,  Z0 =  20.676369 +j  38.434584 pu
       1.6*ISYM=      8.578   IASYM Based on X/R ratio =    5.624

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR3E L        A3L1E                   5.36    -61.36  Branch      1      1  C A3L1E
       A3L2E             A3L1E                   0.00      0.00  Branch      1      1  C A3L2E

*Bus A3L2E               0.208 kV, Zone     1, Area     1
       E/Z =      5.221 kA (        1.88 MVA)  At   -61.19DEG, X/R =     1.82
       Z1 =   27.490955 +j  49.798732 pu,  Z0 =  21.884523 +j  40.156225 pu
       1.6*ISYM=      8.353   IASYM Based on X/R ratio =    5.472

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       A3L1E             A3L2E                   5.22    -61.19  Branch      1      1  C A3L2E

*Bus AC-1E               0.480 kV, Zone     1, Area     1
       E/Z =     16.207 kA (       13.47 MVA)  At   -58.20DEG, X/R =     1.61
       Z1 =    2.995603 +j   5.361255 pu,  Z0 =   5.742308 +j   8.198998 pu
       1.6*ISYM=     25.932   IASYM Based on X/R ratio =   16.759

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             AC-1E                  16.21    -58.20  Branch      1      1  C AC-1E

*Bus AC-2E               0.480 kV, Zone     1, Area     1
       E/Z =     10.811 kA (        8.99 MVA)  At   -53.57DEG, X/R =     1.36
       Z1 =    5.017093 +j   7.345193 pu,  Z0 =   9.785288 +j  12.166874 pu
       1.6*ISYM=     17.297   IASYM Based on X/R ratio =   11.016

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             AC-2E                  10.81    -53.57  Branch      1      1  C AC-2E

*Bus AC-3E               0.480 kV, Zone     1, Area     1
       E/Z =      8.833 kA (        7.34 MVA)  At   -51.90DEG, X/R =     1.28
       Z1 =    6.364753 +j   8.667818 pu,  Z0 =  12.480608 +j  14.812124 pu
       1.6*ISYM=     14.132   IASYM Based on X/R ratio =    8.966

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             AC-3E                   8.83    -51.90  Branch      1      1  C AC-3E
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Driving Point Voltage (P.U.) = 1.00000

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*Bus B1HE                0.480 kV, Zone     1, Area     1
       E/Z =     10.227 kA (        8.50 MVA)  At   -40.46DEG, X/R =     0.85
       Z1 =    6.773978 +j   6.354850 pu,  Z0 =  13.299037 +j  10.186198 pu
       1.6*ISYM=     16.363   IASYM Based on X/R ratio =   10.249

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             B1HE                   10.23    -40.46  Branch      1      1  C B1HE

*Bus B1L1E               0.208 kV, Zone     1, Area     1
       E/Z =      5.165 kA (        1.86 MVA)  At   -59.74DEG, X/R =     1.71
       Z1 =   30.282005 +j  50.407476 pu,  Z0 =  20.676369 +j  38.434584 pu
       1.6*ISYM=      8.264   IASYM Based on X/R ratio =    5.376

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX BTR1E L        B1L1E                   5.17    -59.74  Branch      1      1  C B1L1E
       B1L2E             B1L1E                   0.00      0.00  Branch      1      1  C B1L2E

*Bus B1L2E               0.208 kV, Zone     1, Area     1
       E/Z =      5.034 kA (        1.81 MVA)  At   -59.62DEG, X/R =     1.71
       Z1 =   30.886083 +j  51.268296 pu,  Z0 =  21.884523 +j  40.156225 pu
       1.6*ISYM=      8.055   IASYM Based on X/R ratio =    5.237

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       B1L1E             B1L2E                   5.03    -59.62  Branch      1      1  C B1L2E

*Bus B2HE                0.480 kV, Zone     1, Area     1
       E/Z =      4.443 kA (        3.69 MVA)  At   -22.18DEG, X/R =     0.41
       Z1 =   18.863794 +j   8.294601 pu,  Z0 =  37.478821 +j  14.065677 pu
       1.6*ISYM=      7.109   IASYM Based on X/R ratio =    4.443

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             B2HE                    4.44    -22.18  Branch      1      1  C B2HE

*Bus B2L1E               0.208 kV, Zone     1, Area     1
       E/Z =      5.051 kA (        1.82 MVA)  At   -59.70DEG, X/R =     1.71
       Z1 =   31.252042 +j  51.943842 pu,  Z0 =  20.676369 +j  38.434584 pu
       1.6*ISYM=      8.082   IASYM Based on X/R ratio =    5.257

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX BTR2E L        B2L1E                   5.05    -59.70  Branch      1      1  C B2L1E
       B2L2E             B2L1E                   0.00      0.00  Branch      1      1  C B2L2E

*Bus B2L2E               0.208 kV, Zone     1, Area     1
       E/Z =      4.926 kA (        1.77 MVA)  At   -59.58DEG, X/R =     1.70
       Z1 =   31.856119 +j  52.804662 pu,  Z0 =  21.884523 +j  40.156225 pu
       1.6*ISYM=      7.882   IASYM Based on X/R ratio =    5.124

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       B2L1E             B2L2E                   4.93    -59.58  Branch      1      1  C B2L2E
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First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

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*Bus B3HE                0.480 kV, Zone     1, Area     1
       E/Z =      4.181 kA (        3.48 MVA)  At   -21.83DEG, X/R =     0.40
       Z1 =   20.090132 +j   8.655486 pu,  Z0 =  39.931503 +j  14.787446 pu
       1.6*ISYM=      6.690   IASYM Based on X/R ratio =    4.181

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-E             B3HE                    4.18    -21.83  Branch      1      1  C B3HE

*Bus B3L1E               0.208 kV, Zone     1, Area     1
       E/Z =      5.051 kA (        1.82 MVA)  At   -59.70DEG, X/R =     1.71
       Z1 =   31.252042 +j  51.943842 pu,  Z0 =  20.676369 +j  38.434584 pu
       1.6*ISYM=      8.082   IASYM Based on X/R ratio =    5.257

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX BTR3E L        B3L1E                   5.05    -59.70  Branch      1      1  C B3L1E
       B3L2E             B3L1E                   0.00      0.00  Branch      1      1  C B3L2E

*Bus B3L2E               0.208 kV, Zone     1, Area     1
       E/Z =      4.926 kA (        1.77 MVA)  At   -59.58DEG, X/R =     1.70
       Z1 =   31.856119 +j  52.804662 pu,  Z0 =  21.884523 +j  40.156225 pu
       1.6*ISYM=      7.882   IASYM Based on X/R ratio =    5.124

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       B3L1E             B3L2E                   4.93    -59.58  Branch      1      1  C B3L2E

*Bus G-1                 0.480 kV, Zone     1, Area     1
       E/Z =     12.077 kA (       10.04 MVA)  At   -44.10DEG, X/R =     0.97
       Z1 =    5.227398 +j   5.807549 pu,  Z0 =  10.999214 +j   9.178785 pu
       1.6*ISYM=     19.324   IASYM Based on X/R ratio =   12.131

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       M ELEV1           G-1                     0.21    -76.78  Motor       1      1
       M ELEV2           G-1                     0.21    -76.78  Motor       1      1
       1EDH-A1E          G-1                    11.73    -43.02  Branch      1      1  C G-1

*Bus GEN E               0.480 kV, Zone     1, Area     1
       E/Z =      0.000 kA (        0.00 MVA)  At     0.00DEG, X/R =     0.47
       Z1 =  ********** +j ********** pu,  Z0 = ********** +j ********** pu
       1.6*ISYM=      0.000   IASYM Based on X/R ratio =    0.000

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       1ATSE             GEN E                   0.00      0.00  Branch      1      1  C GEN-E 1ATSE
       2ATSE             GEN E                   0.00      0.00  Branch      1      1  C GEN-E 2ATSE
       LB                GEN E                   0.00      0.00  Branch      1      1  C LB

*Bus IDF-2BE             0.208 kV, Zone     1, Area     1
       E/Z =      1.584 kA (        0.57 MVA)  At   -29.26DEG, X/R =     0.56
       Z1 =   90.142680 +j  64.983433 pu,  Z0 = 278.258413 +j 126.952951 pu
       1.6*ISYM=      2.535   IASYM Based on X/R ratio =    1.584

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MDFE              IDF-2BE                 1.58    -29.26  Branch      1      1  C IDF-2BE
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First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus LB 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.00 MVA) At 0.00DEG, X/R = 0.47
Z1 = ********** +j ********** pu, Z0 = ********** +j ********** pu
1.6*ISYM= 0.000 IASYM Based on X/R ratio = 0.000

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN E		LB	0.00	0.00	Branch	1	1	C LB

*Bus MDFE 0.208 kV, Zone 1, Area 1
E/Z = 5.600 kA (2.02 MVA) At -54.80DEG, X/R = 1.42
Z1 = 28.006404 +j 42.413982 pu, Z0 = 29.712759 +j 36.675027 pu
1.6*ISYM= 8.960 IASYM Based on X/R ratio = 5.725

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1AE L		MDFE	5.60	-54.80	Branch	1	1	C MDFE
IDF-2BE		MDFE	0.00	0.00	Branch	1	1	C IDF-2BE

*Bus MSA-E 0.480 kV, Zone 1, Area 1
E/Z = 39.447 kA (32.80 MVA) At -79.76DEG, X/R = 5.54
Z1 = 0.468741 +j 2.881333 pu, Z0 = 0.688584 +j 3.239153 pu
1.6*ISYM= 63.116 IASYM Based on X/R ratio = 51.154

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A2HE		MSA-E	0.00	0.00	Branch	1	1	C A2HE
TX GWP L		MSA-E	38.96	-79.78	Branch	1	1	C MSA-E
TX BTR1E H		MSA-E	0.00	0.00	Branch	1	1	C TX BTR1E
B1HE		MSA-E	0.00	0.00	Branch	1	1	C B1HE
TX BTR2E H		MSA-E	0.00	0.00	Branch	1	1	C TX BTR2E
B2HE		MSA-E	0.00	0.00	Branch	1	1	C B2HE
TX BTR3E H		MSA-E	0.00	0.00	Branch	1	1	C TX BTR3E
B3HE		MSA-E	0.00	0.00	Branch	1	1	C B3HE
A3HE		MSA-E	0.00	0.00	Branch	1	1	C A3HE
TX ATR3E H		MSA-E	0.00	0.00	Branch	1	1	C TX ATR3E
TX ATR2E H		MSA-E	0.00	0.00	Branch	1	1	C TX ATR2E
A1HE		MSA-E	0.00	0.00	Branch	1	1	C A1HE
TX ATR1E H		MSA-E	0.00	0.00	Branch	1	1	C TX ATR1E
AC-1E		MSA-E	0.00	0.00	Branch	1	1	C AC-1E
AC-2E		MSA-E	0.00	0.00	Branch	1	1	C AC-2E
AC-3E		MSA-E	0.00	0.00	Branch	1	1	C AC-3E
RHE		MSA-E	0.00	0.00	Branch	1	1	C RHE
1ATSE		MSA-E	0.00	0.00	Branch	1	1	C MSA-E 1ATSE
2ATSE		MSA-E	0.49	-78.01	Branch	1	1	C MSA-E 2ATSE

*Bus RHE 0.480 kV, Zone 1, Area 1
E/Z = 4.354 kA (3.62 MVA) At -24.01DEG, X/R = 0.45
Z1 = 18.990336 +j 9.061811 pu, Z0 = 37.731621 +j 15.600110 pu
1.6*ISYM= 6.966 IASYM Based on X/R ratio = 4.354

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-E		RHE	4.35	-24.01	Branch	1	1	C RHE

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First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

```
*Bus TX 2ETR-1AE H       0.480 kV, Zone     1, Area     1
       E/Z =      5.559 kA (        4.62 MVA)  At   -15.43DEG, X/R =     0.28
       Z1 =   15.705204 +j   4.947302 pu,  Z0 =  31.161451 +j   7.371196 pu
       1.6*ISYM=      8.895   IASYM Based on X/R ratio =    5.559

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1AE L     TX 2ETR-1AE H           0.00      0.00  Branch      1      1  TX 2ETR-1AE
       2EH-A1E           TX 2ETR-1AE H           5.56    -15.43  Branch      1      1  C TX 2ETR-1AE

*Bus TX 2ETR-1AE L       0.208 kV, Zone     1, Area     1
       E/Z =      0.837 kA (        0.30 MVA)  At   -56.00DEG, X/R =     1.48
       Z1 =  199.816929 +j 290.784430 pu,  Z0 = 156.487364 +j 242.958101 pu
       1.6*ISYM=      1.340   IASYM Based on X/R ratio =    0.859

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1AE H     TX 2ETR-1AE L           0.84    -56.00  Branch      1      1  TX 2ETR-1AE
       2EL-A1E           TX 2ETR-1AE L           0.00      0.00  Branch      1      1  C 2EL-A1E

*Bus TX 2ETR-1BE H       0.480 kV, Zone     1, Area     1
       E/Z =      3.096 kA (        2.57 MVA)  At   -17.44DEG, X/R =     0.31
       Z1 =   27.859177 +j   9.361929 pu,  Z0 =  55.469262 +j  16.200640 pu
       1.6*ISYM=      4.954   IASYM Based on X/R ratio =    3.096

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1BE L     TX 2ETR-1BE H           0.00      0.00  Branch      1      1  TX 2ETR-1BE
       2EH-B1E           TX 2ETR-1BE H           3.10    -17.44  Branch      1      1  C TX 2ETR-1BE

*Bus TX 2ETR-1BE L       0.208 kV, Zone     1, Area     1
       E/Z =      0.820 kA (        0.30 MVA)  At   -55.14DEG, X/R =     1.44
       Z1 =  211.970902 +j 295.199057 pu,  Z0 = 156.487364 +j 242.958101 pu
       1.6*ISYM=      1.312   IASYM Based on X/R ratio =    0.839

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1BE H     TX 2ETR-1BE L           0.82    -55.14  Branch      1      1  TX 2ETR-1BE
       2EL-B1E           TX 2ETR-1BE L           0.00      0.00  Branch      1      1  C 2EL-B1E

*Bus TX 3ETR-1AE H       0.480 kV, Zone     1, Area     1
       E/Z =     11.144 kA (        9.26 MVA)  At   -32.71DEG, X/R =     0.64
       Z1 =    6.852630 +j   4.982944 pu,  Z0 =  13.540706 +j   7.532582 pu
       1.6*ISYM=     17.830   IASYM Based on X/R ratio =   11.147

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1AE L     TX 3ETR-1AE H           0.00      0.00  Branch      1      1  TX 3ETR-1AE
       3EH-A1E           TX 3ETR-1AE H          11.14    -32.71  Branch      1      1  C TX 3ETR-1AE

*Bus TX 3ETR-1AE L       0.208 kV, Zone     1, Area     1
       E/Z =      1.547 kA (        0.56 MVA)  At   -57.35DEG, X/R =     1.56
       Z1 =  103.923537 +j 160.508991 pu,  Z0 =  82.508096 +j 132.196075 pu
       1.6*ISYM=      2.475   IASYM Based on X/R ratio =    1.595

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1AE H     TX 3ETR-1AE L           1.55    -57.35  Branch      1      1  TX 3ETR-1AE
       3EL-A1E           TX 3ETR-1AE L           0.00      0.00  Branch      1      1  C 3EL-A1E
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Project Name: Disney Campus
Comment: East - Ground Fault - Low Voltage Momentary Report

First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

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*Bus TX 3ETR-1BE H       0.480 kV, Zone     1, Area     1
       E/Z =      2.814 kA (        2.34 MVA)  At   -18.15DEG, X/R =     0.33
       Z1 =   21.797566 +j   8.600921 pu,  Z0 =  78.236680 +j  22.746506 pu
       1.6*ISYM=      4.503   IASYM Based on X/R ratio =    2.814

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1BE L     TX 3ETR-1BE H           0.00      0.00  Branch      1      1  TX 3ETR-1BE
       3EH-A1E           TX 3ETR-1BE H           2.81    -18.15  Branch      1      1  C TX 3ETR-1BE

*Bus TX 3ETR-1BE L       0.208 kV, Zone     1, Area     1
       E/Z =      1.485 kA (        0.53 MVA)  At   -55.18DEG, X/R =     1.44
       Z1 =  118.868474 +j 164.126967 pu,  Z0 =  82.508096 +j 132.196075 pu
       1.6*ISYM=      2.376   IASYM Based on X/R ratio =    1.520

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1BE H     TX 3ETR-1BE L           1.48    -55.18  Branch      1      1  TX 3ETR-1BE
       3EL-B1E           TX 3ETR-1BE L           0.00      0.00  Branch      1      1  C 3EL-B1E

*Bus TX ATR1E H          0.480 kV, Zone     1, Area     1
       E/Z =     19.742 kA (       16.41 MVA)  At   -51.71DEG, X/R =     1.27
       Z1 =    2.893832 +j   4.217301 pu,  Z0 =   5.538752 +j   5.911094 pu
       1.6*ISYM=     31.587   IASYM Based on X/R ratio =   20.033

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR1E L        TX ATR1E H              0.00      0.00  Branch      1      1  TX ATR1E
       MSA-E             TX ATR1E H             19.74    -51.71  Branch      1      1  C TX ATR1E

*Bus TX ATR1E L          0.208 kV, Zone     1, Area     1
       E/Z =      5.570 kA (        2.01 MVA)  At   -61.62DEG, X/R =     1.85
       Z1 =   25.797782 +j  47.409108 pu,  Z0 =  19.468214 +j  36.712942 pu
       1.6*ISYM=      8.912   IASYM Based on X/R ratio =    5.851

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR1E H        TX ATR1E L              5.57    -61.62  Branch      1      1  TX ATR1E
       A1L1E             TX ATR1E L              0.00      0.00  Branch      1      1  C A1L1E

*Bus TX ATR2E H          0.480 kV, Zone     1, Area     1
       E/Z =     18.654 kA (       15.51 MVA)  At   -54.16DEG, X/R =     1.38
       Z1 =    2.893832 +j   4.551294 pu,  Z0 =   5.538751 +j   6.579076 pu
       1.6*ISYM=     29.846   IASYM Based on X/R ratio =   19.037

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR2E L        TX ATR2E H              0.00      0.00  Branch      1      1  TX ATR2E
       MSA-E             TX ATR2E H             18.65    -54.16  Branch      1      1  C TX ATR2E

*Bus TX ATR2E L          0.208 kV, Zone     1, Area     1
       E/Z =      5.548 kA (        2.00 MVA)  At   -61.74DEG, X/R =     1.86
       Z1 =   25.797782 +j  47.743101 pu,  Z0 =  19.468214 +j  36.712942 pu
       1.6*ISYM=      8.877   IASYM Based on X/R ratio =    5.832

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR2E H        TX ATR2E L              5.55    -61.74  Branch      1      1  TX ATR2E
       A2L1E             TX ATR2E L              0.00      0.00  Branch      1      1  C A2L1E
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Project Name: Disney Campus
Comment: East - Ground Fault - Low Voltage Momentary Report

First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

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*Bus TX ATR3E H          0.480 kV, Zone     1, Area     1
       E/Z =     16.723 kA (       13.90 MVA)  At   -52.06DEG, X/R =     1.28
       Z1 =    3.378850 +j   4.885286 pu,  Z0 =   6.508784 +j   7.247060 pu
       1.6*ISYM=     26.757   IASYM Based on X/R ratio =   16.982

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX ATR3E L        TX ATR3E H             0.00      0.00  Branch      1      1  TX ATR3E
       MSA-E             TX ATR3E H            16.72    -52.06  Branch      1      1  C TX ATR3E

*Bus TX ATR3E L          0.208 kV, Zone     1, Area     1
       E/Z =      5.510 kA (        1.98 MVA)  At   -61.54DEG, X/R =     1.84
       Z1 =   26.282800 +j  48.077093 pu,  Z0 =  19.468214 +j  36.712942 pu
       1.6*ISYM=      8.815   IASYM Based on X/R ratio =    5.785

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX ATR3E H        TX ATR3E L             5.51    -61.54  Branch      1      1  TX ATR3E
       A3L1E             TX ATR3E L             0.00      0.00  Branch      1      1  C A3L1E

*Bus TX BTR1E H          0.480 kV, Zone     1, Area     1
       E/Z =     10.227 kA (        8.50 MVA)  At   -40.46DEG, X/R =     0.85
       Z1 =    6.773978 +j   6.354850 pu,  Z0 =  13.299010 +j  10.186207 pu
       1.6*ISYM=     16.363   IASYM Based on X/R ratio =   10.249

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX BTR1E L        TX BTR1E H             0.00      0.00  Branch      1      1  TX BTR1E
       MSA-E             TX BTR1E H            10.23    -40.46  Branch      1      1  C TX BTR1E

*Bus TX BTR1E L          0.208 kV, Zone     1, Area     1
       E/Z =      5.303 kA (        1.91 MVA)  At   -59.87DEG, X/R =     1.72
       Z1 =   29.677928 +j  49.546656 pu,  Z0 =  19.468214 +j  36.712942 pu
       1.6*ISYM=      8.485   IASYM Based on X/R ratio =    5.523

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX BTR1E H        TX BTR1E L             5.30    -59.87  Branch      1      1  TX BTR1E
       B1L1E             TX BTR1E L             0.00      0.00  Branch      1      1  C B1L1E

*Bus TX BTR2E H          0.480 kV, Zone     1, Area     1
       E/Z =      8.535 kA (        7.10 MVA)  At   -43.38DEG, X/R =     0.95
       Z1 =    7.744015 +j   7.891216 pu,  Z0 =  15.239065 +j  13.258927 pu
       1.6*ISYM=     13.656   IASYM Based on X/R ratio =    8.568

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX BTR2E L        TX BTR2E H             0.00      0.00  Branch      1      1  TX BTR2E
       MSA-E             TX BTR2E H             8.53    -43.38  Branch      1      1  C TX BTR2E

*Bus TX BTR2E L          0.208 kV, Zone     1, Area     1
       E/Z =      5.183 kA (        1.87 MVA)  At   -59.82DEG, X/R =     1.72
       Z1 =   30.647965 +j  51.083023 pu,  Z0 =  19.468214 +j  36.712942 pu
       1.6*ISYM=      8.293   IASYM Based on X/R ratio =    5.397

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX BTR2E H        TX BTR2E L             5.18    -59.82  Branch      1      1  TX BTR2E
       B2L1E             TX BTR2E L             0.00      0.00  Branch      1      1  C B2L1E
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Project Name: Disney Campus
Comment: East - Ground Fault - Low Voltage Momentary Report

First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

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*Bus TX BTR3E H          0.480 kV, Zone     1, Area     1
       E/Z =      8.535 kA (        7.10 MVA)  At   -43.38DEG, X/R =     0.95
       Z1 =    7.744015 +j   7.891216 pu,  Z0 =  15.239065 +j  13.258927 pu
       1.6*ISYM=     13.656   IASYM Based on X/R ratio =    8.568

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX BTR3E L        TX BTR3E H              0.00      0.00  Branch      1      1  TX BTR3E
       MSA-E             TX BTR3E H              8.53    -43.38  Branch      1      1  C TX BTR3E

*Bus TX BTR3E L          0.208 kV, Zone     1, Area     1
       E/Z =      5.183 kA (        1.87 MVA)  At   -59.82DEG, X/R =     1.72
       Z1 =   30.647965 +j  51.083023 pu,  Z0 =  19.468214 +j  36.712942 pu
       1.6*ISYM=      8.293   IASYM Based on X/R ratio =    5.397

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX BTR3E H        TX BTR3E L              5.18    -59.82  Branch      1      1  TX BTR3E
       B3L1E             TX BTR3E L              0.00      0.00  Branch      1      1  C B3L1E

*Bus TX GWP L            0.480 kV, Zone     1, Area     1
       E/Z =     42.506 kA (       35.34 MVA)  At   -81.84DEG, X/R =     6.97
       Z1 =    0.400280 +j   2.784087 pu,  Z0 =   0.405006 +j   2.835049 pu
       1.6*ISYM=     68.009   IASYM Based on X/R ratio =   57.681

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       GWP               TX GWP L               42.00    -81.87  Util        1      1
       MSA-E             TX GWP L                0.51    -79.01  Branch      1      1  C MSA-E

*Bus TX STR-1AE H        0.480 kV, Zone     1, Area     1
       E/Z =     23.218 kA (       19.30 MVA)  At   -63.31DEG, X/R =     1.99
       Z1 =    1.786479 +j   4.079667 pu,  Z0 =   3.408439 +j   5.726009 pu
       1.6*ISYM=     37.149   IASYM Based on X/R ratio =   24.629

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX STR-1AE L      TX STR-1AE H            0.00      0.00  Branch      1      1  TX STR-1AE
       1EDH-A1E          TX STR-1AE H           23.22    -63.31  Branch      1      1  C TX STR-1AE

*Bus TX STR-1AE L        0.208 kV, Zone     1, Area     1
       E/Z =      6.778 kA (        2.44 MVA)  At   -60.82DEG, X/R =     1.79
       Z1 =   21.549060 +j  38.856671 pu,  Z0 =  16.798096 +j  29.560394 pu
       1.6*ISYM=     10.844   IASYM Based on X/R ratio =    7.091

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX STR-1AE H      TX STR-1AE L            6.78    -60.82  Branch      1      1  TX STR-1AE
       MDFE              TX STR-1AE L            0.00      0.00  Branch      1      1  C MDFE
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Ground Fault

Low Voltage Interrupting Report

Project Name: Disney Campus
Comment: East - Ground Fault - Low Voltage Interrupting Report

Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus 1ATSE 0.480 kV, Zone 1, Area 1
E/Z = 18.018 kA (14.980 MVA) At -40.44DEG, X/R = 1.32
Z1 = 3.875695 +j 3.902537 pu, Z0 = 7.494794 +j 5.216914 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
2EH-A1E		1ATSE	0.00	0.00	Branch	1	1	C 2EH-A1E
MSA-E		1ATSE	18.02	-40.44	Branch	1	1	C MSA-E 1ATSE

*Bus 1ATSE 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.000 MVA) At 0.00DEG, X/R = 1.40
Z1 = ********** +j ********** pu, Z0 = ********** +j ********** pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN E		1ATSE	0.00	0.00	Branch	1	1	C GEN-E 1ATSE
1ATSE		1ATSE	0.00	0.00	Branch	1	1	C 1ATSE

*Bus 1EDH-A1E 0.480 kV, Zone 1, Area 1
E/Z = 25.458 kA (21.165 MVA) At -69.06DEG, X/R = 2.79
Z1 = 1.328725 +j 3.962289 pu, Z0 = 2.436122 +j 5.372838 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1AE H		1EDH-A1E	0.00	0.00	Branch	1	1	C TX STR-1AE
G-1		1EDH-A1E	0.32	-77.02	Branch	1	1	C G-1
3EH-A1E		1EDH-A1E	0.00	0.00	Branch	1	1	C 3EH-A1E
2ATSE		1EDH-A1E	25.15	-68.96	Branch	1	1	C 1EDH-A1E

*Bus 2ATSE 0.480 kV, Zone 1, Area 1
E/Z = 26.883 kA (22.350 MVA) At -69.86DEG, X/R = 2.90
Z1 = 1.218160 +j 3.803687 pu, Z0 = 2.209259 +j 5.049553 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1EDH-A1E		2ATSE	0.32	-77.02	Branch	1	1	C 1EDH-A1E
MSA-E		2ATSE	26.57	-69.78	Branch	1	1	C MSA-E 2ATSE

*Bus 2ATSE 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.000 MVA) At 0.00DEG, X/R = 1.40
Z1 = ********** +j ********** pu, Z0 = ********** +j ********** pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN E		2ATSE	0.00	0.00	Branch	1	1	C GEN-E 2ATSE
2ATSE		2ATSE	0.00	0.00	Branch	1	1	C 2ATSE

*Bus 2EH-A1E 0.480 kV, Zone 1, Area 1
E/Z = 12.920 kA (10.741 MVA) At -34.49DEG, X/R = 1.22
Z1 = 5.820331 +j 4.608877 pu, Z0 = 11.384050 +j 6.629606 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1ATSE		2EH-A1E	12.92	-34.49	Branch	1	1	C 2EH-A1E
TX 2ETR-1AE H		2EH-A1E	0.00	0.00	Branch	1	1	C TX 2ETR-1AE
2EH-B1E		2EH-A1E	0.00	0.00	Branch	1	1	C 2EH-B1E

Project Name: Disney Campus
Comment: East - Ground Fault - Low Voltage Interrupting Report

Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus 2EH-B1E 0.480 kV, Zone 1, Area 1
E/Z = 4.564 kA (3.794 MVA) At -25.05DEG, X/R = 1.11
Z1 = 17.974304 +j 9.023504 pu, Z0 = 35.691900 +j 15.458955 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
2EH-A1E		2EH-B1E	4.56	-25.05	Branch	1	1	C 2EH-B1E
TX 2ETR-1BE H		2EH-B1E	0.00	0.00	Branch	1	1	C TX 2ETR-1BE

*Bus 2EL-A1E 0.208 kV, Zone 1, Area 1
E/Z = 0.815 kA (0.294 MVA) At -54.19DEG, X/R = 1.72
Z1 = 210.232568 +j 291.792790 pu, Z0 = 177.310957 +j 244.910163 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1AE L		2EL-A1E	0.82	-54.19	Branch	1	1	C 2EL-A1E

*Bus 2EL-B1E 0.208 kV, Zone 1, Area 1
E/Z = 0.798 kA (0.288 MVA) At -53.39DEG, X/R = 1.68
Z1 = 222.386541 +j 296.207417 pu, Z0 = 177.310957 +j 244.910163 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1BE L		2EL-B1E	0.80	-53.39	Branch	1	1	C 2EL-B1E

*Bus 3EH-A1E 0.480 kV, Zone 1, Area 1
E/Z = 15.213 kA (12.648 MVA) At -42.67DEG, X/R = 1.36
Z1 = 4.422649 +j 4.671397 pu, Z0 = 8.623934 +j 6.791064 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1EDH-A1E		3EH-A1E	15.21	-42.67	Branch	1	1	C 3EH-A1E
TX 3ETR-1AE H		3EH-A1E	0.00	0.00	Branch	1	1	C TX 3ETR-1AE
TX 3ETR-1BE H		3EH-A1E	0.00	0.00	Branch	1	1	C TX 3ETR-1BE

*Bus 3EL-A1E 0.208 kV, Zone 1, Area 1
E/Z = 1.513 kA (0.545 MVA) At -56.12DEG, X/R = 1.80
Z1 = 108.071071 +j 161.512277 pu, Z0 = 90.746331 +j 134.084231 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1AE L		3EL-A1E	1.51	-56.12	Branch	1	1	C 3EL-A1E

*Bus 3EL-B1E 0.208 kV, Zone 1, Area 1
E/Z = 1.452 kA (0.523 MVA) At -54.05DEG, X/R = 1.71
Z1 = 123.016008 +j 165.130253 pu, Z0 = 90.746331 +j 134.084231 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1BE L		3EL-B1E	1.45	-54.05	Branch	1	1	C 3EL-B1E

*Bus A1HE 0.480 kV, Zone 1, Area 1
E/Z = 31.198 kA (25.938 MVA) At -61.50DEG, X/R = 2.10
Z1 = 1.444901 +j 3.196197 pu, Z0 = 2.633219 +j 3.804226 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-E		A1HE	31.20	-61.50	Branch	1	1	C A1HE

Project Name: Disney Campus
Comment: East - Ground Fault - Low Voltage Interrupting Report

Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus A1L1E 0.208 kV, Zone 1, Area 1
E/Z = 5.417 kA (1.952 MVA) At -61.44DEG, X/R = 2.09
Z1 = 26.405701 +j 48.302256 pu, Z0 = 20.676369 +j 38.434584 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR1E	L	A1L1E	5.42	-61.44	Branch	1	1	C A1L1E
A1L2E		A1L1E	0.00	0.00	Branch	1	1	C A1L2E

*Bus A1L2E 0.208 kV, Zone 1, Area 1
E/Z = 5.274 kA (1.900 MVA) At -61.27DEG, X/R = 2.08
Z1 = 27.009779 +j 49.163076 pu, Z0 = 21.884523 +j 40.156225 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A1L1E		A1L2E	5.27	-61.27	Branch	1	1	C A1L2E

*Bus A2HE 0.480 kV, Zone 1, Area 1
E/Z = 13.606 kA (11.312 MVA) At -37.37DEG, X/R = 1.26
Z1 = 5.334172 +j 4.679513 pu, Z0 = 10.411761 +j 6.770855 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-E		A2HE	13.61	-37.37	Branch	1	1	C A2HE

*Bus A2L1E 0.208 kV, Zone 1, Area 1
E/Z = 5.397 kA (1.944 MVA) At -61.56DEG, X/R = 2.10
Z1 = 26.405701 +j 48.636249 pu, Z0 = 20.676369 +j 38.434584 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR2E	L	A2L1E	5.40	-61.56	Branch	1	1	C A2L1E
A2L2E		A2L1E	0.00	0.00	Branch	1	1	C A2L2E

*Bus A2L2E 0.208 kV, Zone 1, Area 1
E/Z = 5.255 kA (1.893 MVA) At -61.38DEG, X/R = 2.09
Z1 = 27.009779 +j 49.497069 pu, Z0 = 21.884523 +j 40.156225 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A2L1E		A2L2E	5.25	-61.38	Branch	1	1	C A2L2E

*Bus A3HE 0.480 kV, Zone 1, Area 1
E/Z = 11.833 kA (9.838 MVA) At -35.04DEG, X/R = 1.22
Z1 = 6.306490 +j 5.032683 pu, Z0 = 12.356398 +j 7.477195 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-E		A3HE	11.83	-35.04	Branch	1	1	C A3HE

*Bus A3L1E 0.208 kV, Zone 1, Area 1
E/Z = 5.360 kA (1.931 MVA) At -61.36DEG, X/R = 2.09
Z1 = 26.890720 +j 48.970242 pu, Z0 = 20.676369 +j 38.434584 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR3E	L	A3L1E	5.36	-61.36	Branch	1	1	C A3L1E
A3L2E		A3L1E	0.00	0.00	Branch	1	1	C A3L2E

Project Name: Disney Campus
Comment: East - Ground Fault - Low Voltage Interrupting Report

Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

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*Bus A3L2E              0.208 kV, Zone     1, Area     1
      E/Z =      5.220 kA (       1.881 MVA)  At   -61.19DEG, X/R =     2.08
      Z1 =   27.494797 +j  49.831061 pu,  Z0 =  21.884523 +j  40.156225 pu

      Contributions In kA
      Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
      A3L1E             A3L2E                  5.22    -61.19  Branch      1      1  C A3L2E

*Bus AC-1E              0.480 kV, Zone     1, Area     1
      E/Z =     16.186 kA (      13.457 MVA)  At   -58.23DEG, X/R =     1.90
      Z1 =    2.999445 +j   5.393584 pu,  Z0 =   5.742308 +j   8.198998 pu

      Contributions In kA
      Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
      MSA-E             AC-1E                 16.19    -58.23  Branch      1      1  C AC-1E

*Bus AC-2E              0.480 kV, Zone     1, Area     1
      E/Z =     10.802 kA (       8.980 MVA)  At   -53.60DEG, X/R =     1.69
      Z1 =    5.020935 +j   7.377522 pu,  Z0 =   9.785288 +j  12.166874 pu

      Contributions In kA
      Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
      MSA-E             AC-2E                 10.80    -53.60  Branch      1      1  C AC-2E

*Bus AC-3E              0.480 kV, Zone     1, Area     1
      E/Z =      8.827 kA (       7.338 MVA)  At   -51.92DEG, X/R =     1.62
      Z1 =    6.368595 +j   8.700147 pu,  Z0 =  12.480608 +j  14.812124 pu

      Contributions In kA
      Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
      MSA-E             AC-3E                  8.83    -51.92  Branch      1      1  C AC-3E

*Bus B1HE               0.480 kV, Zone     1, Area     1
      E/Z =     10.220 kA (       8.497 MVA)  At   -40.49DEG, X/R =     1.32
      Z1 =    6.777821 +j   6.387179 pu,  Z0 =  13.299037 +j  10.186198 pu

      Contributions In kA
      Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
      MSA-E             B1HE                  10.22    -40.49  Branch      1      1  C B1HE

*Bus B1L1E              0.208 kV, Zone     1, Area     1
      E/Z =      5.164 kA (       1.861 MVA)  At   -59.74DEG, X/R =     1.99
      Z1 =   30.285848 +j  50.439805 pu,  Z0 =  20.676369 +j  38.434584 pu

      Contributions In kA
      Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
      TX BTR1E L        B1L1E                  5.16    -59.74  Branch      1      1  C B1L1E
      B1L2E             B1L1E                  0.00      0.00  Branch      1      1  C B1L2E

*Bus B1L2E              0.208 kV, Zone     1, Area     1
      E/Z =      5.033 kA (       1.813 MVA)  At   -59.62DEG, X/R =     1.98
      Z1 =   30.889925 +j  51.300625 pu,  Z0 =  21.884523 +j  40.156225 pu

      Contributions In kA
      Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
      B1L1E             B1L2E                  5.03    -59.62  Branch      1      1  C B1L2E
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Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus B2HE 0.480 kV, Zone 1, Area 1
E/Z = 4.442 kA (3.693 MVA) At -22.20DEG, X/R = 1.08
Z1 = 18.867637 +j 8.326930 pu, Z0 = 37.478821 +j 14.065677 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-E		B2HE	4.44	-22.20	Branch	1	1	C B2HE

*Bus B2L1E 0.208 kV, Zone 1, Area 1
E/Z = 5.051 kA (1.820 MVA) At -59.70DEG, X/R = 1.98
Z1 = 31.255884 +j 51.976172 pu, Z0 = 20.676369 +j 38.434584 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR2E L		B2L1E	5.05	-59.70	Branch	1	1	C B2L1E
B2L2E		B2L1E	0.00	0.00	Branch	1	1	C B2L2E

*Bus B2L2E 0.208 kV, Zone 1, Area 1
E/Z = 4.925 kA (1.774 MVA) At -59.58DEG, X/R = 1.98
Z1 = 31.859962 +j 52.836991 pu, Z0 = 21.884523 +j 40.156225 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
B2L1E		B2L2E	4.93	-59.58	Branch	1	1	C B2L2E

*Bus B3HE 0.480 kV, Zone 1, Area 1
E/Z = 4.180 kA (3.475 MVA) At -21.85DEG, X/R = 1.08
Z1 = 20.093974 +j 8.687815 pu, Z0 = 39.931503 +j 14.787446 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-E		B3HE	4.18	-21.85	Branch	1	1	C B3HE

*Bus B3L1E 0.208 kV, Zone 1, Area 1
E/Z = 5.051 kA (1.820 MVA) At -59.70DEG, X/R = 1.98
Z1 = 31.255884 +j 51.976172 pu, Z0 = 20.676369 +j 38.434584 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR3E L		B3L1E	5.05	-59.70	Branch	1	1	C B3L1E
B3L2E		B3L1E	0.00	0.00	Branch	1	1	C B3L2E

*Bus B3L2E 0.208 kV, Zone 1, Area 1
E/Z = 4.925 kA (1.774 MVA) At -59.58DEG, X/R = 1.98
Z1 = 31.859962 +j 52.836991 pu, Z0 = 21.884523 +j 40.156225 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
B3L1E		B3L2E	4.93	-59.58	Branch	1	1	C B3L2E

*Bus G-1 0.480 kV, Zone 1, Area 1
E/Z = 11.992 kA (9.970 MVA) At -43.87DEG, X/R = 1.41
Z1 = 5.464785 +j 5.868340 pu, Z0 = 10.999214 +j 9.178785 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
M ELEV1		G-1	0.14	-76.83	Motor	1	1	
M ELEV2		G-1	0.14	-76.83	Motor	1	1	
1EDH-A1E		G-1	11.75	-43.11	Branch	1	1	C G-1

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Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus GEN E 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.000 MVA) At 0.00DEG, X/R = 1.40
Z1 = ********** +j ********** pu, Z0 = ********** +j ********** pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1ATSE		GEN E	0.00	0.00	Branch	1	1	C GEN-E 1ATSE
2ATSE		GEN E	0.00	0.00	Branch	1	1	C GEN-E 2ATSE
LB		GEN E	0.00	0.00	Branch	1	1	C LB

*Bus IDF-2BE 0.208 kV, Zone 1, Area 1
E/Z = 1.584 kA (0.571 MVA) At -29.27DEG, X/R = 1.15
Z1 = 90.171085 +j 65.042640 pu, Z0 = 278.258413 +j 126.952951 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MDFE		IDF-2BE	1.58	-29.27	Branch	1	1	C IDF-2BE

*Bus LB 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.000 MVA) At 0.00DEG, X/R = 1.40
Z1 = ********** +j ********** pu, Z0 = ********** +j ********** pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN E		LB	0.00	0.00	Branch	1	1	C LB

*Bus MDFE 0.208 kV, Zone 1, Area 1
E/Z = 5.598 kA (2.017 MVA) At -54.80DEG, X/R = 1.74
Z1 = 28.034809 +j 42.473190 pu, Z0 = 29.712759 +j 36.675027 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1AE L		MDFE	5.60	-54.80	Branch	1	1	C MDFE
IDF-2BE		MDFE	0.00	0.00	Branch	1	1	C IDF-2BE

*Bus MSA-E 0.480 kV, Zone 1, Area 1
E/Z = 39.308 kA (32.680 MVA) At -79.77DEG, X/R = 5.62
Z1 = 0.472583 +j 2.913662 pu, Z0 = 0.688584 +j 3.239153 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A2HE		MSA-E	0.00	0.00	Branch	1	1	C A2HE
TX GWP L		MSA-E	38.96	-79.79	Branch	1	1	C MSA-E
TX BTR1E H		MSA-E	0.00	0.00	Branch	1	1	C TX BTR1E
B1HE		MSA-E	0.00	0.00	Branch	1	1	C B1HE
TX BTR2E H		MSA-E	0.00	0.00	Branch	1	1	C TX BTR2E
B2HE		MSA-E	0.00	0.00	Branch	1	1	C B2HE
TX BTR3E H		MSA-E	0.00	0.00	Branch	1	1	C TX BTR3E
B3HE		MSA-E	0.00	0.00	Branch	1	1	C B3HE
A3HE		MSA-E	0.00	0.00	Branch	1	1	C A3HE
TX ATR3E H		MSA-E	0.00	0.00	Branch	1	1	C TX ATR3E
TX ATR2E H		MSA-E	0.00	0.00	Branch	1	1	C TX ATR2E
A1HE		MSA-E	0.00	0.00	Branch	1	1	C A1HE
TX ATR1E H		MSA-E	0.00	0.00	Branch	1	1	C TX ATR1E
AC-1E		MSA-E	0.00	0.00	Branch	1	1	C AC-1E
AC-2E		MSA-E	0.00	0.00	Branch	1	1	C AC-2E
AC-3E		MSA-E	0.00	0.00	Branch	1	1	C AC-3E
RHE		MSA-E	0.00	0.00	Branch	1	1	C RHE
1ATSE		MSA-E	0.00	0.00	Branch	1	1	C MSA-E 1ATSE
2ATSE		MSA-E	0.34	-78.30	Branch	1	1	C MSA-E 2ATSE

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Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

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*Bus RHE                 0.480 kV, Zone     1, Area     1
      E/Z =      4.353 kA (       3.619 MVA)  At   -24.03DEG, X/R =     1.10
      Z1 =   18.994178 +j   9.094140 pu,  Z0 =  37.731621 +j  15.600110 pu

      Contributions In kA
      Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
      MSA-E             RHE                     4.35    -24.03  Branch      1      1  C RHE

*Bus TX 2ETR-1AE H       0.480 kV, Zone     1, Area     1
      E/Z =      5.558 kA (       4.621 MVA)  At   -15.45DEG, X/R =     1.04
      Z1 =   15.709047 +j   4.979631 pu,  Z0 =  31.161451 +j   7.371196 pu

      Contributions In kA
      Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
      TX 2ETR-1AE L     TX 2ETR-1AE H           0.00      0.00  Branch      1      1  TX 2ETR-1AE
      2EH-A1E           TX 2ETR-1AE H           5.56    -15.45  Branch      1      1  C TX 2ETR-1AE

*Bus TX 2ETR-1AE L       0.208 kV, Zone     1, Area     1
      E/Z =      0.837 kA (       0.302 MVA)  At   -56.00DEG, X/R =     1.80
      Z1 =  199.820772 +j 290.816759 pu,  Z0 = 156.487364 +j 242.958101 pu

      Contributions In kA
      Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
      TX 2ETR-1AE H     TX 2ETR-1AE L           0.84    -56.00  Branch      1      1  TX 2ETR-1AE
      2EL-A1E           TX 2ETR-1AE L           0.00      0.00  Branch      1      1  C 2EL-A1E

*Bus TX 2ETR-1BE H       0.480 kV, Zone     1, Area     1
      E/Z =      3.096 kA (       2.574 MVA)  At   -17.45DEG, X/R =     1.05
      Z1 =   27.863019 +j   9.394258 pu,  Z0 =  55.469262 +j  16.200640 pu

      Contributions In kA
      Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
      TX 2ETR-1BE L     TX 2ETR-1BE H           0.00      0.00  Branch      1      1  TX 2ETR-1BE
      2EH-B1E           TX 2ETR-1BE H           3.10    -17.45  Branch      1      1  C TX 2ETR-1BE

*Bus TX 2ETR-1BE L       0.208 kV, Zone     1, Area     1
      E/Z =      0.820 kA (       0.295 MVA)  At   -55.14DEG, X/R =     1.76
      Z1 =  211.974744 +j 295.231386 pu,  Z0 = 156.487364 +j 242.958101 pu

      Contributions In kA
      Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
      TX 2ETR-1BE H     TX 2ETR-1BE L           0.82    -55.14  Branch      1      1  TX 2ETR-1BE
      2EL-B1E           TX 2ETR-1BE L           0.00      0.00  Branch      1      1  C 2EL-B1E

*Bus TX 3ETR-1AE H       0.480 kV, Zone     1, Area     1
      E/Z =     11.124 kA (       9.249 MVA)  At   -32.77DEG, X/R =     1.19
      Z1 =    6.881035 +j   5.042152 pu,  Z0 =  13.540706 +j   7.532582 pu

      Contributions In kA
      Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
      TX 3ETR-1AE L     TX 3ETR-1AE H           0.00      0.00  Branch      1      1  TX 3ETR-1AE
      3EH-A1E           TX 3ETR-1AE H          11.12    -32.77  Branch      1      1  C TX 3ETR-1AE

*Bus TX 3ETR-1AE L       0.208 kV, Zone     1, Area     1
      E/Z =      1.547 kA (       0.557 MVA)  At   -57.35DEG, X/R =     1.86
      Z1 =  103.951942 +j 160.568198 pu,  Z0 =  82.508096 +j 132.196075 pu

      Contributions In kA
      Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
      TX 3ETR-1AE H     TX 3ETR-1AE L           1.55    -57.35  Branch      1      1  TX 3ETR-1AE
      3EL-A1E           TX 3ETR-1AE L           0.00      0.00  Branch      1      1  C 3EL-A1E
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Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus TX 3ETR-1BE H 0.480 kV, Zone 1, Area 1
E/Z = 2.813 kA (2.339 MVA) At -18.18DEG, X/R = 1.06
Z1 = 21.825971 +j 8.660128 pu, Z0 = 78.236680 +j 22.746506 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1BE L		TX 3ETR-1BE H	0.00	0.00	Branch	1	1	TX 3ETR-1BE
3EH-A1E		TX 3ETR-1BE H	2.81	-18.18	Branch	1	1	C TX 3ETR-1BE

*Bus TX 3ETR-1BE L 0.208 kV, Zone 1, Area 1
E/Z = 1.485 kA (0.535 MVA) At -55.18DEG, X/R = 1.76
Z1 = 118.896879 +j 164.186175 pu, Z0 = 82.508096 +j 132.196075 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1BE H		TX 3ETR-1BE L	1.48	-55.18	Branch	1	1	TX 3ETR-1BE
3EL-B1E		TX 3ETR-1BE L	0.00	0.00	Branch	1	1	C 3EL-B1E

*Bus TX ATR1E H 0.480 kV, Zone 1, Area 1
E/Z = 19.712 kA (16.388 MVA) At -51.76DEG, X/R = 1.62
Z1 = 2.897674 +j 4.249630 pu, Z0 = 5.538752 +j 5.911094 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR1E L		TX ATR1E H	0.00	0.00	Branch	1	1	TX ATR1E
MSA-E		TX ATR1E H	19.71	-51.76	Branch	1	1	C TX ATR1E

*Bus TX ATR1E L 0.208 kV, Zone 1, Area 1
E/Z = 5.569 kA (2.006 MVA) At -61.62DEG, X/R = 2.11
Z1 = 25.801624 +j 47.441437 pu, Z0 = 19.468214 +j 36.712942 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR1E H		TX ATR1E L	5.57	-61.62	Branch	1	1	TX ATR1E
A1L1E		TX ATR1E L	0.00	0.00	Branch	1	1	C A1L1E

*Bus TX ATR2E H 0.480 kV, Zone 1, Area 1
E/Z = 18.626 kA (15.486 MVA) At -54.21DEG, X/R = 1.71
Z1 = 2.897674 +j 4.583623 pu, Z0 = 5.538751 +j 6.579076 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR2E L		TX ATR2E H	0.00	0.00	Branch	1	1	TX ATR2E
MSA-E		TX ATR2E H	18.63	-54.21	Branch	1	1	C TX ATR2E

*Bus TX ATR2E L 0.208 kV, Zone 1, Area 1
E/Z = 5.547 kA (1.998 MVA) At -61.74DEG, X/R = 2.11
Z1 = 25.801624 +j 47.775430 pu, Z0 = 19.468214 +j 36.712942 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR2E H		TX ATR2E L	5.55	-61.74	Branch	1	1	TX ATR2E
A2L1E		TX ATR2E L	0.00	0.00	Branch	1	1	C A2L1E

*Bus TX ATR3E H 0.480 kV, Zone 1, Area 1
E/Z = 16.701 kA (13.885 MVA) At -52.11DEG, X/R = 1.63
Z1 = 3.382693 +j 4.917615 pu, Z0 = 6.508784 +j 7.247060 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR3E L		TX ATR3E H	0.00	0.00	Branch	1	1	TX ATR3E
MSA-E		TX ATR3E H	16.70	-52.11	Branch	1	1	C TX ATR3E

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Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus TX ATR3E L 0.208 kV, Zone 1, Area 1
E/Z = 5.509 kA (1.985 MVA) At -61.54DEG, X/R = 2.10
Z1 = 26.286642 +j 48.109422 pu, Z0 = 19.468214 +j 36.712942 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR3E H	TX ATR3E L	5.51	-61.54	Branch	1	1	TX ATR3E
A3L1E	TX ATR3E L	0.00	0.00	Branch	1	1	C A3L1E

*Bus TX BTR1E H 0.480 kV, Zone 1, Area 1
E/Z = 10.220 kA (8.497 MVA) At -40.49DEG, X/R = 1.32
Z1 = 6.777821 +j 6.387179 pu, Z0 = 13.299010 +j 10.186207 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR1E L	TX BTR1E H	0.00	0.00	Branch	1	1	TX BTR1E
MSA-E	TX BTR1E H	10.22	-40.49	Branch	1	1	C TX BTR1E

*Bus TX BTR1E L 0.208 kV, Zone 1, Area 1
E/Z = 5.302 kA (1.910 MVA) At -59.87DEG, X/R = 1.99
Z1 = 29.681770 +j 49.578986 pu, Z0 = 19.468214 +j 36.712942 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR1E H	TX BTR1E L	5.30	-59.87	Branch	1	1	TX BTR1E
B1L1E	TX BTR1E L	0.00	0.00	Branch	1	1	C B1L1E

*Bus TX BTR2E H 0.480 kV, Zone 1, Area 1
E/Z = 8.530 kA (7.091 MVA) At -43.41DEG, X/R = 1.38
Z1 = 7.747857 +j 7.923545 pu, Z0 = 15.239065 +j 13.258927 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR2E L	TX BTR2E H	0.00	0.00	Branch	1	1	TX BTR2E
MSA-E	TX BTR2E H	8.53	-43.41	Branch	1	1	C TX BTR2E

*Bus TX BTR2E L 0.208 kV, Zone 1, Area 1
E/Z = 5.182 kA (1.867 MVA) At -59.82DEG, X/R = 1.99
Z1 = 30.651807 +j 51.115352 pu, Z0 = 19.468214 +j 36.712942 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR2E H	TX BTR2E L	5.18	-59.82	Branch	1	1	TX BTR2E
B2L1E	TX BTR2E L	0.00	0.00	Branch	1	1	C B2L1E

*Bus TX BTR3E H 0.480 kV, Zone 1, Area 1
E/Z = 8.530 kA (7.091 MVA) At -43.41DEG, X/R = 1.38
Z1 = 7.747857 +j 7.923545 pu, Z0 = 15.239065 +j 13.258927 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR3E L	TX BTR3E H	0.00	0.00	Branch	1	1	TX BTR3E
MSA-E	TX BTR3E H	8.53	-43.41	Branch	1	1	C TX BTR3E

*Bus TX BTR3E L 0.208 kV, Zone 1, Area 1
E/Z = 5.182 kA (1.867 MVA) At -59.82DEG, X/R = 1.99
Z1 = 30.651807 +j 51.115352 pu, Z0 = 19.468214 +j 36.712942 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR3E H	TX BTR3E L	5.18	-59.82	Branch	1	1	TX BTR3E
B3L1E	TX BTR3E L	0.00	0.00	Branch	1	1	C B3L1E

Project Name: Disney Campus
Comment: East - Ground Fault - Low Voltage Interrupting Report

Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus TX GWP L 0.480 kV, Zone 1, Area 1
E/Z = 42.356 kA (35.214 MVA) At -81.85DEG, X/R = 7.04
Z1 = 0.402713 +j 2.814170 pu, Z0 = 0.405006 +j 2.835049 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GWP		TX GWP L	42.00	-81.87	Util	1	1	
MSA-E		TX GWP L	0.36	-79.30	Branch	1	1	C MSA-E

*Bus TX STR-1AE H 0.480 kV, Zone 1, Area 1
E/Z = 23.120 kA (19.222 MVA) At -63.31DEG, X/R = 2.23
Z1 = 1.814884 +j 4.138875 pu, Z0 = 3.408439 +j 5.726009 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1AE L		TX STR-1AE H	0.00	0.00	Branch	1	1	TX STR-1AE
1EDH-A1E		TX STR-1AE H	23.12	-63.31	Branch	1	1	C TX STR-1AE

*Bus TX STR-1AE L 0.208 kV, Zone 1, Area 1
E/Z = 6.774 kA (2.440 MVA) At -60.83DEG, X/R = 2.05
Z1 = 21.577465 +j 38.915879 pu, Z0 = 16.798096 +j 29.560394 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1AE H		TX STR-1AE L	6.77	-60.83	Branch	1	1	TX STR-1AE
MDFE		TX STR-1AE L	0.00	0.00	Branch	1	1	C MDFE

West Building

Database Report

Project Name: Disney Campus
Comment: Equipment Database Report

Summary

1	Base MVA	100
2	Frequency	60
3	Buses	63
4	MCC Schedules	0
5	Panel Schedules	0
6	Utilities	1
7	Generators	1
8	UPS	0
9	Motors	5
10	Capacitors	0
11	Loads	0
12	Shunts	0
13	Filters	0
14	2-Transformers	12
15	3-Transformers	0
16	Zigzags	0
17	Cables	53
18	Busways	0
19	Xmission Lines	0
20	CL Reactors	0
21	HV Breakers	0
22	LV Breakers	74
23	Switches	2
24	Fuses	0
25	ATS	2
26	Meters	0
27	CTs	0
28	Relays	0
29	Notes	5
30	Lines	0

Buses

	ID Name	Status	Base kV	Area	Zone	AF Type	AF Option	Comment
1	1ATSW	On	0.48	1	1	Other	Specified	
2	1EDH-B1W	On	0.48	1	1	Panelboard	Specified	MLO
3	1ELA1W	On	0.208	1	1	Panelboard	Specified	MLO
4	2ATSW	On	0.48	1	1	Other	Specified	
5	2EH-A1W	On	0.48	1	1	Panelboard	Specified	MLO
6	2EH-B1W	On	0.48	1	1	Panelboard	Specified	MLO
7	2EL-A1W	On	0.208	1	1	Panelboard	Specified	
8	2EL-B1W	On	0.208	1	1	Panelboard	Specified	
9	3EH-B1W	On	0.48	1	1	Panelboard	Specified	MLO
10	3EL-A1W	On	0.208	1	1	Panelboard	Specified	
11	3EL-B1W	On	0.208	1	1	Panelboard	Specified	
12	A1HW	On	0.48	1	1	Panelboard	Specified	MLO
13	A1L1W	On	0.208	1	1	Panelboard	Specified	MLO
14	A1L2W	On	0.208	1	1	Panelboard	Specified	MLO
15	A2HW	On	0.48	1	1	Panelboard	Specified	MLO
16	A2L1W	On	0.208	1	1	Panelboard	Specified	MLO
17	A2L2W	On	0.208	1	1	Panelboard	Specified	MLO
18	A3HW	On	0.48	1	1	Panelboard	Specified	MLO
19	A3L1W	On	0.208	1	1	Panelboard	Specified	MLO
20	A3L2W	On	0.208	1	1	Panelboard	Specified	MLO
21	AC-1W	On	0.48	1	1	Conductor	Specified	
22	AC-2W	On	0.48	1	1	Conductor	Specified	
23	AC-3W	On	0.48	1	1	Conductor	Specified	
24	B1HW	On	0.48	1	1	Panelboard	Specified	MLO
25	B1L1W	On	0.208	1	1	Panelboard	Specified	MLO
26	B1L2W	On	0.208	1	1	Panelboard	Specified	MLO
27	B2HW	On	0.48	1	1	Panelboard	Specified	MLO
28	B2L1W	On	0.208	1	1	Panelboard	Specified	MLO
29	B2L2W	On	0.208	1	1	Panelboard	Specified	MLO
30	B3HW	On	0.48	1	1	Panelboard	Specified	MLO
31	B3L1W	On	0.208	1	1	Panelboard	Specified	MLO
32	B3L2W	On	0.208	1	1	Panelboard	Specified	MLO
33	G-1	On	0.48	1	1	Other	Specified	
34	GEN W	On	0.48	1	1	Other	Specified	
35	IDF-2AW	On	0.208	1	1	Panelboard	Specified	MLO
36	LB	On	0.48	1	1	Other	Specified	
37	MDFW	On	0.208	1	1	Panelboard	Specified	
38	MSA-W	On	0.48	1	1	Switchboard	Specified	
39	RHW	On	0.48	1	1	Panelboard	Specified	MLO
40	TX 2ETR-1AW	On	0.48	1	1	Other	Specified	
41	TX 2ETR-1AW	On	0.208	1	1	Other	Specified	
42	TX 2ETR-1BW	On	0.48	1	1	Other	Specified	
43	TX 2ETR-1BW	On	0.208	1	1	Other	Specified	
44	TX 3ETR-1AW	On	0.48	1	1	Other	Specified	
45	TX 3ETR-1AW	On	0.208	1	1	Other	Specified	
46	TX 3ETR-1BW	On	0.48	1	1	Other	Specified	
47	TX 3ETR-1BW	On	0.208	1	1	Other	Specified	
48	TX ATR1W H	On	0.48	1	1	Other	Specified	
49	TX ATR1W L	On	0.208	1	1	Other	Specified	
50	TX ATR2W H	On	0.48	1	1	Other	Specified	
51	TX ATR2W L	On	0.208	1	1	Other	Specified	
52	TX ATR3W H	On	0.48	1	1	Other	Specified	
53	TX ATR3W L	On	0.208	1	1	Other	Specified	
54	TX BTR1W H	On	0.48	1	1	Other	Specified	
55	TX BTR1W L	On	0.208	1	1	Other	Specified	
56	TX BTR2W H	On	0.48	1	1	Other	Specified	
57	TX BTR2W L	On	0.208	1	1	Other	Specified	
58	TX BTR3W H	On	0.48	1	1	Other	Specified	
59	TX BTR3W L	On	0.208	1	1	Other	Specified	
60	TX GWP H	Off	12.47	1	1	Other	Specified	
61	TX GWP L	On	0.48	1	1	Other	Specified	
62	TX STR-1BW H	On	0.48	1	1	Other	Specified	
63	TX STR-1BW L	On	0.208	1	1	Other	Specified	

Utilities

	ID Name	Status	To bus	Base kV	Util kV	Fault Unit	3Ph SC1	3Ph SC2	SLG SC1	SLG SC2	Model	MW	MVAR	CTL kV pu	MVAR Min	MVAR Max	kV pu Min	kV pu Max
1	GWP	On	TX GWP L	0.48	0.48	kA	42	7	42	7	Swing	0	0	1	-100000	100000	0.8	1.2

Utilities

	ID Name	Ctl Angle	Ctl Bus	Ctl Base kV	R1 pu	X1 pu	R0 pu	X0 pu	Hrm RC Factor	Hrm RC Value	I Hrm Rating	Comment
1	GWP	0	TX GWP L	0.48	0.40500	2.83505	0.40500	2.83505	R-EXP	0.5	120281.	

Generators

	ID Name	Status	To bus	Base kV	Gen kV	Conn	MVA	Type	Power Factor	Efficiency	RPM	X/R	Model	MW	MVAR	Ctl kV pu	MVAR Min	MVAR Max
1	GEN W	Off	GEN W	0.48	0.48	YG	0.25	SYN-SP	0.8	0.95	3600	14.2141	PV	0	0	1	-100000	100000

Generators

	ID Name	kV pu Min	kV pu Max	Ctl Angle	Ctl Bus	Ctl Base kV	X"dv	X'dv	X0	Xlr	RG OHM	XG OHM	R1 pu	X1 pu	R0 pu	X0 pu	R Gnd pu	X Gnd pu
1	GEN W	0.8	1.2	0	GEN W	0.48					0	0						

Generators

	ID Name	Hrm RC Factor	Hrm RC Value	I Hrm Rating	Comment
1	GEN W	R-EXP	0.5		

Motors

	ID Name	Status	To Bus	Base kV	Unit	Model	Motor kV	Hp or kW	Type	Load Class	RPM	FLA	Power Factor	Eff	kVA/Hp	ANSI Code	Connected
1	M AC-1W	Off	AC-1W	0.48	U.S.	Individual	0.46		Induction	Non-essential	1800		0.82	0.91		> 50	100
2	M AC-2W	Off	AC-2W	0.48	U.S.	Individual	0.46		Induction	Non-essential	1800		0.82	0.91		> 50	100
3	M AC-3W	Off	AC-3W	0.48	U.S.	Individual	0.46		Induction	Non-essential	1800		0.82	0.91		> 50	100
4	M ELEV1	On	G-1	0.48	U.S.	Individual	0.46	60	Induction	Non-essential	1800		0.82	0.91		> 50	100
5	M ELEV2	On	G-1	0.48	U.S.	Individual	0.46	60	Induction	Non-essential	1800		0.82	0.91		> 50	100

Motors

	ID Name	X"dv or Xlr	X/R	Load Model	Motor kVA	Load Type	Load Scaling	SCADA kW	SCADA jkVar	SCADA Type	SCADA Scaling	Hrm RC Value	Hrm RC Factor	R1 pu	X1 pu	Int MF	Hrm R1 pu	Hrm X1 pu
1	M AC-1W			Spec	49.9866	kVA	100	0	0	kVA	100	0.5	R-EXP					
2	M AC-2W			Spec	49.9866	kVA	100	0	0	kVA	100	0.5	R-EXP					
3	M AC-3W			Spec	49.9866	kVA	100	0	0	kVA	100	0.5	R-EXP					
4	M ELEV1	16.7	6.09674	Spec	59.9839	kVA	100	0	0	kVA	100	0.5	R-EXP	49.6630	302.782	2.5	41.3859	252.319
5	M ELEV2	16.7	6.09674	Spec	59.9839	kVA	100	0	0	kVA	100	0.5	R-EXP	49.6630	302.782	2.5	41.3859	252.319

Motors

	ID Name	I Hrm Rating	TCC Starter	Plot TCC	Service Factor	Locked Rotor Mult	Asym Offset	Reduced Inrush Mult	Accel Time	Stall Time	Stall Time To	Largest Motor HP	Comment
1	M AC-1W		Full Volt		1	6	1.6	100	5	6	200	50	
2	M AC-2W		Full Volt		1	6	1.6	100	5	6	200	50	
3	M AC-3W		Full Volt		1	6	1.6	100	5	6	200	50	
4	M ELEV1	72.1494	Full Volt		1	6	1.6	100	5	6	200	60	
5	M ELEV2	72.1494	Full Volt		1	6	1.6	100	5	6	200	60	

2W-Xformers

	ID Name	Status	From bus	From Base kV	From Conn	To Bus	To Base kV	To Conn	Type	Class	Temp	Form	From Nom kV	From Tap kV	From Gnd R	From Gnd jX	To Nom kV
1	TX 2ETR-1AW	On	TX 2ETR-1AW	0.48	D	TX 2ETR-1AW	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
2	TX 2ETR-1BW	On	TX 2ETR-1BW	0.48	D	TX 2ETR-1BW	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
3	TX 3ETR-1AW	On	TX 3ETR-1AW	0.48	D	TX 3ETR-1AW	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
4	TX 3ETR-1BW	On	TX 3ETR-1BW	0.48	D	TX 3ETR-1BW	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
5	TX ATR1W	On	TX ATR1W H	0.48	D	TX ATR1W L	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
6	TX ATR2W	On	TX ATR2W H	0.48	D	TX ATR2W L	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
7	TX ATR3W	On	TX ATR3W H	0.48	D	TX ATR3W L	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
8	TX BTR1W	On	TX BTR1W H	0.48	D	TX BTR1W L	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
9	TX BTR2W	On	TX BTR2W H	0.48	D	TX BTR2W L	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
10	TX BTR3W	On	TX BTR3W H	0.48	D	TX BTR3W L	0.208	YG	Dry	OA	150	Core	0.48	0.48	0	0	0.208
11	TX GWP	Off	TX GWP H	12.47	D	TX GWP L	0.48	YG	Oil	OA	80	Core	12.47	12.47	0	0	0.48
12	TX STR-1BW	On	TX STR-1BW H	0.48	D	TX STR-1BW L	0.208	YG	Dry	OA	115	Core	0.48	0.48	0	0	0.208

2W-Xformers

	ID Name	To Tap kV	To Gnd R	To Gnd jX	MVA	MVA O/L	Z	Z0	X/R	LTC Tap	LTC Step	LTC Min Tap	LTC Max Tap	Ctl Type	Ctl Value	Zps R1 pu	Zps X1 pu	Zps R0 pu	Zps X0 pu
1	TX 2ETR-1AW	0.208	0	0	0.03	0.03	5.5	4.675	1.60219	None	0.625	0.1	1500	V (PU)	1	97.0709	155.526	10000	1e+007
2	TX 2ETR-1BW	0.208	0	0	0.015	0.015	5.1	4.335	1.55252	None	0.625	0.1	1500	V (PU)	1	184.111	285.837	10000	1e+007
3	TX 3ETR-1AW	0.208	0	0	0.03	0.03	5.5	4.675	1.60219	None	0.625	0.1	1500	V (PU)	1	97.0709	155.526	10000	1e+007
4	TX 3ETR-1BW	0.208	0	0	0.03	0.03	5.5	4.675	1.60219	None	0.625	0.1	1500	V (PU)	1	97.0709	155.526	10000	1e+007
5	TX ATR1W	0.208	0	0	0.1125	0.1125	5.5	4.675	1.88578	None	0.625	0.1	1500	V (PU)	1	22.9039	43.1918	10000	1e+007
6	TX ATR2W	0.208	0	0	0.1125	0.1125	5.5	4.675	1.88578	None	0.625	0.1	1500	V (PU)	1	22.9039	43.1918	10000	1e+007
7	TX ATR3W	0.208	0	0	0.1125	0.1125	5.5	4.675	1.88578	None	0.625	0.1	1500	V (PU)	1	22.9039	43.1918	10000	1e+007
8	TX BTR1W	0.208	0	0	0.1125	0.1125	5.5	4.675	1.88578	None	0.625	0.1	1500	V (PU)	1	22.9039	43.1918	10000	1e+007
9	TX BTR2W	0.208	0	0	0.1125	0.1125	5.5	4.675	1.88578	None	0.625	0.1	1500	V (PU)	1	22.9039	43.1918	10000	1e+007
10	TX BTR3W	0.208	0	0	0.1125	0.1125	5.5	4.675	1.88578	None	0.625	0.1	1500	V (PU)	1	22.9039	43.1918	10000	1e+007
11	TX GWP	0.48	0	0						None	0.625	0.1	1500	V (PU)	1				
12	TX STR-1BW	0.208	0	0	0.075	0.075	3	2.55	1.75974	None	0.625	0.1	1500	V (PU)	1	19.7625	34.777	10000	1e+007

2W-Xformers

	ID Name	Rps0+3Rpsg	Xps0+3Xpsg	From Gnd R1 pu	From Gnd jX pu	To Gnd R1 pu	To Gnd jX pu	TCC Standard	TCC FLA Based On	Freq Fault Curve	TCC Max Plot Time	TCC Inrush FLA Mult	TCC Inrush Cycles	Hrm RC Factor	Hrm RC Value
1	TX 2ETR-1AW	82.51028	132.1971	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
2	TX 2ETR-1BW	156.495	242.9616	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
3	TX 3ETR-1AW	82.51028	132.1971	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
4	TX 3ETR-1BW	82.51028	132.1971	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
5	TX ATR1W	19.46836	36.71304	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
6	TX ATR2W	19.46836	36.71304	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
7	TX ATR3W	19.46836	36.71304	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
8	TX BTR1W	19.46836	36.71304	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
9	TX BTR2W	19.46836	36.71304	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
10	TX BTR3W	19.46836	36.71304	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0
11	TX GWP							ANSI C57.109	MVA O/L	Yes	500	8	6	R-EXP	0
12	TX STR-1BW	16.79819	29.56045	0	0	0	0	ANSI C57.12.59	kVA O/L	Yes	500	8	6	R-EXP	0

2W-Xformers

	ID Name	Hrm Pec-r %	Hrm From I Rating	Hrm To I Rating	Comment
1	TX 2ETR-1AW	15	36.0844	83.2716	
2	TX 2ETR-1BW	15	18.0422	41.6358	
3	TX 3ETR-1AW	15	36.0844	83.2716	
4	TX 3ETR-1BW	15	36.0844	83.2716	
5	TX ATR1W	15	135.316	312.268	
6	TX ATR2W	15	135.316	312.268	
7	TX ATR3W	15	135.316	312.268	
8	TX BTR1W	15	135.316	312.268	
9	TX BTR2W	15	135.316	312.268	
10	TX BTR3W	15	135.316	312.268	
11	TX GWP	15			
12	TX STR-1BW	15	90.2109	208.179	K-rated transformer

Cables

	ID Name	Status	From Bus ID	From Base kV	To Bus ID	To Base kV	Unit	Type	No/Ph	Size	Length	Temp	Insulation	Rating (A)	Material
1	C 1ATSW	On	1ATSW	0.48	1ATSW	0.48	U.S.	1/C	1	1/0	10	50	THWN	150	Copper
2	C 1EDH-B1W	On	2ATSW	0.48	1EDH-B1W	0.48	U.S.	1/C	1	500	10	50	THWN	380	Copper
3	C 1ELA1W	On	2EL-A1W	0.208	1ELA1W	0.208	U.S.	1/C	1	1/0	480	50	THWN	150	Copper
4	C 2ATSW	On	2ATSW	0.48	2ATSW	0.48	U.S.	1/C	1	250	10	50	THWN	255	Copper
5	C 2EH-A1W	On	2EH-B1W	0.48	2EH-A1W	0.48	U.S.	1/C	1	1/0	260	50	THWN	150	Copper
6	C 2EH-B1W	On	1ATSW	0.48	2EH-B1W	0.48	U.S.	1/C	1	1/0	50	50	THWN	150	Copper
7	C 2EL-A1W	On	TX 2ETR-1AW	0.208	2EL-A1W	0.208	U.S.	1/C	1	2	10	50	THWN	115	Copper
8	C 2EL-B1W	On	TX 2ETR-1BW	0.208	2EL-B1W	0.208	U.S.	1/C	1	6	10	50	THWN	65	Copper
9	C 3EH-B1W	On	1EDH-B1W	0.48	3EH-B1W	0.48	U.S.	1/C	1	2	60	50	THWN	115	Copper
10	C 3EL-A1W	On	TX 3ETR-1AW	0.208	3EL-A1W	0.208	U.S.	1/C	1	2	10	50	THWN	115	Copper
11	C 3EL-B1W	On	TX 3ETR-1BW	0.208	3EL-B1W	0.208	U.S.	1/C	1	2	10	50	THWN	115	Copper
12	C A1HW	On	MSA-W	0.48	A1HW	0.48	U.S.	1/C	1	1/0	270	50	THWN	150	Copper
13	C A1L1W	On	TX ATR1W L	0.208	A1L1W	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
14	C A1L2W	On	A1L1W	0.208	A1L2W	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
15	C A2HW	On	MSA-W	0.48	A2HW	0.48	U.S.	1/C	1	1/0	280	50	THWN	150	Copper
16	C A2L1W	On	TX ATR2W L	0.208	A2L1W	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
17	C A2L2W	On	A2L1W	0.208	A2L2W	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
18	C A3HW	On	MSA-W	0.48	A3HW	0.48	U.S.	1/C	1	1/0	300	50	THWN	150	Copper
19	C A3L1W	On	TX ATR3W L	0.208	A3L1W	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
20	C A3L2W	On	A3L1W	0.208	A3L2W	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
21	C AC-1W	On	MSA-W	0.48	AC-1W	0.48	U.S.	1/C	1	350	150	75	THWN	310	Copper
22	C AC-2W	On	MSA-W	0.48	AC-2W	0.48	U.S.	1/C	1	350	270	75	THWN	310	Copper
23	C AC-3W	On	MSA-W	0.48	AC-3W	0.48	U.S.	1/C	1	350	350	75	THWN	310	Copper
24	C B1HW	On	MSA-W	0.48	B1HW	0.48	U.S.	1/C	1	4/0	20	50	THWN	230	Copper
25	C B1L1W	On	TX BTR1W L	0.208	B1L1W	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
26	C B1L2W	On	B1L1W	0.208	B1L2W	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
27	C B2HW	On	MSA-W	0.48	B2HW	0.48	U.S.	1/C	1	1	60	50	THWN	130	Copper
28	C B2L1W	On	TX BTR2W L	0.208	B2L1W	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
29	C B2L2W	On	B2L1W	0.208	B2L2W	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
30	C B3HW	On	MSA-W	0.48	B3HW	0.48	U.S.	1/C	1	1	80	50	THWN	130	Copper
31	C B3L1W	On	TX BTR3W L	0.208	B3L1W	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
32	C B3L2W	On	B3L1W	0.208	B3L2W	0.208	U.S.	1/C	1	500	10	50	THWN	380	Copper
33	C G-1	On	1EDH-B1W	0.48	G-1	0.48	U.S.	1/C	1	3/0	200	50	THWN	200	Copper
34	C GEN-W 1AT	On	GEN W	0.48	1ATSW	0.48	U.S.	1/C	1	1/0	70	50	THWN	150	Copper
35	C GEN-W 2AT	On	GEN W	0.48	2ATSW	0.48	U.S.	1/C	1	250	70	50	THWN	255	Copper
36	C IDF-2AW	On	MDFW	0.208	IDF-2AW	0.208	U.S.	1/C	1	1/0	270	50	THWN	150	Copper
37	C LB	On	GEN W	0.48	LB	0.48	U.S.	1/C	1	2/0	10	50	THWN	175	Copper
38	C MDFW	On	TX STR-1BW L	0.208	MDFW	0.208	U.S.	1/C	1	4/0	10	50	THWN	230	Copper
39	C MSA-W	On	TX GWP L	0.48	MSA-W	0.48	U.S.	1/C	8	500	40	50	THWN	3040	Copper
40	C MSA-W 1AT	On	MSA-W	0.48	1ATSW	0.48	U.S.	1/C	1	1/0	40	50	THWN	150	Copper
41	C MSA-W 2AT	On	MSA-W	0.48	2ATSW	0.48	U.S.	1/C	1	500	40	50	THWN	380	Copper
42	C RHW	On	MSA-W	0.48	RHW	0.48	U.S.	1/C	1	1/0	350	75	THWN	150	Copper
43	C TX 2ETR-1A	On	2EH-A1W	0.48	TX 2ETR-1AW	0.48	U.S.	1/C	1	4	20	50	THWN	85	Copper
44	C TX 2ETR-1B	On	2EH-B1W	0.48	TX 2ETR-1BW	0.48	U.S.	1/C	1	10	20	50	THWN	35	Copper
45	C TX 3ETR-1A	On	3EH-B1W	0.48	TX 3ETR-1AW	0.48	U.S.	1/C	1	2	260	50	THWN	115	Copper
46	C TX 3ETR-1B	On	3EH-B1W	0.48	TX 3ETR-1BW	0.48	U.S.	1/C	1	4	20	50	THWN	85	Copper
47	C TX ATR1W	On	MSA-W	0.48	TX ATR1W H	0.48	U.S.	1/C	1	4/0	20	50	THWN	230	Copper
48	C TX ATR2W	On	MSA-W	0.48	TX ATR2W H	0.48	U.S.	1/C	1	4/0	20	50	THWN	230	Copper
49	C TX ATR3W	On	MSA-W	0.48	TX ATR3W H	0.48	U.S.	1/C	1	4/0	300	50	THWN	230	Copper
50	C TX BTR1W	On	MSA-W	0.48	TX BTR1W H	0.48	U.S.	1/C	1	4/0	20	50	THWN	230	Copper
51	C TX BTR2W	On	MSA-W	0.48	TX BTR2W H	0.48	U.S.	1/C	1	4/0	60	50	THWN	230	Copper
52	C TX BTR3W	On	MSA-W	0.48	TX BTR3W H	0.48	U.S.	1/C	1	4/0	80	50	THWN	230	Copper
53	C TX STR-1BW	On	1EDH-B1W	0.48	TX STR-1BW H	0.48	U.S.	1/C	1	1/0	20	50	THWN	150	Copper

Cables

	ID Name	Raceway Type	Raceway Mtl	R1	X1	R0	X0	Xc	Xc0	Gnd Num	Gnd Size	Gnd Mtl	Gnd Type	Gnd Insul	Neutral Num	Neutral Size	Neutral Rating
1	C 1ATSW	Conduit	EMT	0.11201	0.04068	0.22402	0.08137	0.00653	0.00653	1	6	Copper	Separate	Yes	1	1/0	10
2	C 1EDH-B1W	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	Other	10
3	C 1ELA1W	Conduit	PVC	0.11201	0.03254	0.22402	0.06509	0.00653	0.00653	1	4	Copper	Separate	Yes	1	1/0	10
4	C 2ATSW	Conduit	EMT	0.04860	0.03903	0.09721	0.07806	0.00521	0.00521	1	4	Copper	Separate	Yes	1	Other	10
5	C 2EH-A1W	Conduit	EMT	0.11201	0.04068	0.22402	0.08137	0.00653	0.00653	1	6	Copper	Separate	Yes	1	1/0	10
6	C 2EH-B1W	Conduit	EMT	0.11201	0.04068	0.22402	0.08137	0.00653	0.00653	1	6	Copper	Separate	Yes	1	1/0	10
7	C 2EL-A1W	Conduit	EMT	0.17821	0.04084	0.35641	0.08168	0.00665	0.00665	2	8	Copper	Separate	Yes	1	2	10
8	C 2EL-B1W	Conduit	EMT	0.45045	0.04222	0.90091	0.08445	0.00776	0.00776	1	10	Copper	Separate	Yes	1	6	10
9	C 3EH-B1W	Conduit	EMT	0.17821	0.04084	0.35641	0.08168	0.00665	0.00665	1	8	Copper	Separate	Yes	1	Other	10
10	C 3EL-A1W	Conduit	EMT	0.17821	0.04084	0.35641	0.08168	0.00665	0.00665	2	8	Copper	Separate	Yes	1	2	10
11	C 3EL-B1W	Conduit	EMT	0.17821	0.04084	0.35641	0.08168	0.00665	0.00665	2	8	Copper	Separate	Yes	1	2	10
12	C A1HW	Conduit	PVC	0.11201	0.03254	0.22402	0.06509	0.00653	0.00653	1	1/0	Copper	Separate	Yes	0	Other	10
13	C A1L1W	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
14	C A1L2W	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
15	C A2HW	Conduit	EMT	0.11201	0.04068	0.22402	0.08137	0.00653	0.00653	1	1/0	Copper	Separate	Yes	0	Other	10
16	C A2L1W	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
17	C A2L2W	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
18	C A3HW	Conduit	EMT	0.11201	0.04068	0.22402	0.08137	0.00653	0.00653	1	1/0	Copper	Separate	Yes	0	Other	10
19	C A3L1W	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
20	C A3L2W	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
21	C AC-1W	Conduit	EMT	0.03881	0.03809	0.07762	0.07618	0.00446	0.00446	1	4	Copper	Separate	Yes	0	Other	10
22	C AC-2W	Conduit	EMT	0.03881	0.03809	0.07762	0.07618	0.00446	0.00446	1	4	Copper	Separate	Yes	0	Other	10
23	C AC-3W	Conduit	EMT	0.03881	0.03809	0.07762	0.07618	0.00446	0.00446	1	4	Copper	Separate	Yes	0	Other	10
24	C B1HW	Conduit	PVC	0.05587	0.03078	0.11174	0.06156	0.00476	0.00476	1	4/0	Copper	Separate	Yes	0	4/0	10
25	C B1L1W	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
26	C B1L2W	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
27	C B2HW	Conduit	EMT	0.14127	0.04157	0.28254	0.08314	0.00723	0.00723	1	1	Copper	Separate	Yes	0	Other	10
28	C B2L1W	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
29	C B2L2W	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
30	C B3HW	Conduit	EMT	0.14127	0.04157	0.28254	0.08314	0.00723	0.00723	1	1	Copper	Separate	Yes	0	Other	10
31	C B3L1W	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
32	C B3L2W	Conduit	EMT	0.02613	0.03724	0.05226	0.07448	0.00378	0.00378	1	2	Copper	Separate	Yes	1	500	10
33	C G-1	Conduit	PVC	0.07046	0.03131	0.14092	0.06263	0.00530	0.00530	1	6	Copper	Separate	Yes	1	Other	10
34	C GEN-W 1AT	Conduit	PVC	0.11201	0.03254	0.22402	0.06509	0.00653	0.00653	1	6	Copper	Separate	Yes	1	1/0	10
35	C GEN-W 2AT	Conduit	PVC	0.04814	0.03122	0.09629	0.06244	0.00521	0.00521	1	4	Copper	Separate	Yes	1	Other	10
36	C IDF-2AW	Conduit	Steel	0.11201	0.04068	0.44804	0.16274	0.00653	0.00653	1	6	Copper	Separate	Yes	1	1/0	10
37	C LB	Conduit	PVC	0.08883	0.03190	0.17766	0.06380	0.00588	0.00588	1	6	Copper	Separate	Yes	1	2/0	10
38	C MDFW	Conduit	PVC	0.05587	0.03078	0.11174	0.06156	0.00476	0.00476	1	4	Copper	Separate	Yes	1	4/0	10
39	C MSA-W	Conduit	Steel	0.02613	0.03724	0.10453	0.14897	0.00378	0.00378	8	3/0	Copper	Separate	Yes	8	500	10
40	C MSA-W 1AT	Conduit	PVC	0.11201	0.03254	0.22402	0.06509	0.00653	0.00653	1	6	Copper	Separate	Yes	1	1/0	10
41	C MSA-W 2AT	Conduit	PVC	0.02502	0.02979	0.05005	0.05958	0.00378	0.00378	1	2	Copper	Separate	Yes	1	Other	10
42	C RHW	Conduit	EMT	0.12192	0.04068	0.24384	0.08137	0.00653	0.00653	1	6	Copper	Separate	Yes	0	Other	10
43	C TX 2ETR-1A	Conduit	EMT	0.28320	0.04271	0.56641	0.08542	0.00814	0.00814	1	8	Copper	Separate	Yes	0	10	10
44	C TX 2ETR-1B	Conduit	EMT	1.13918	0.04271	2.27836	0.08542	0.00814	0.00814	1	10	Copper	Separate	Yes	0	Other	10
45	C TX 3ETR-1A	Conduit	EMT	0.17821	0.04084	0.35641	0.08168	0.00665	0.00665	1	8	Copper	Separate	Yes	0	Other	10
46	C TX 3ETR-1B	Conduit	Steel	0.28320	0.04271	1.13283	0.17084	0.00814	0.00814	1	8	Copper	Separate	Yes	0	Other	10
47	C TX ATR1W	Conduit	PVC	0.05587	0.03078	0.11174	0.06156	0.00476	0.00476	1	4	Copper	Separate	Yes	0	Other	10
48	C TX ATR2W	Conduit	EMT	0.05587	0.03847	0.11174	0.07695	0.00476	0.00476	1	4	Copper	Separate	Yes	0	Other	10
49	C TX ATR3W	Conduit	EMT	0.05587	0.03847	0.11174	0.07695	0.00476	0.00476	1	4	Copper	Separate	Yes	0	Other	10
50	C TX BTR1W	Conduit	PVC	0.05587	0.03078	0.11174	0.06156	0.00476	0.00476	1	4	Copper	Separate	Yes	0	Other	10
51	C TX BTR2W	Conduit	EMT	0.05587	0.03847	0.11174	0.07695	0.00476	0.00476	1	4	Copper	Separate	Yes	0	Other	10
52	C TX BTR3W	Conduit	EMT	0.05587	0.03847	0.11174	0.07695	0.00476	0.00476	1	4	Copper	Separate	Yes	0	Other	10
53	C TX STR-1BW	Conduit	EMT	0.11201	0.04068	0.22402	0.08137	0.00653	0.00653	1	6	Copper	Separate	Yes	0	Other	10

Cables

	ID Name	Neutral Mtl	Neutral Insul	Conductor Lay	Conductor Form	Spacing	R1 pu	X1 pu	R0 pu	X0 pu	B1 pu	B0 pu	Hrm RC Factor	Hrm RC Value	I Hrm Rating	Comment
1	C 1ATSW	Copper	Yes	Triangle	Round	0	0.48615	0.17658	0.97231	0.35317	3.52774	3.52774	R-EXP	0.5	150	
2	C 1EDH-B1W	Copper	Yes	Triangle	Round	0	0.11343	0.16164	0.22686	0.32328	6.08610	6.08610	R-EXP	0.5	380	
3	C 1ELA1W	Copper	Yes	Triangle	Round	0	124.272	36.1110	248.545	72.2222	3.17967	3.17967	R-EXP	0.5	150	
4	C 2ATSW	Copper	Yes	Triangle	Round	0	0.21096	0.16940	0.42193	0.33881	4.42065	4.42065	R-EXP	0.5	255	
5	C 2EH-A1W	Copper	Yes	Triangle	Round	0	12.6401	4.59121	25.2802	9.18242	9.17212	9.17212	R-EXP	0.5	150	
6	C 2EH-B1W	Copper	Yes	Triangle	Round	0	2.43079	0.88292	4.86158	1.76585	1.76387	1.76387	R-EXP	0.5	150	
7	C 2EL-A1W	Copper	Yes	Triangle	Round	0	4.11912	0.94407	8.23823	1.88815	6.49784	6.49784	R-EXP	0.5	115	
8	C 2EL-B1W	Copper	Yes	Triangle	Round	0	10.4118	0.97603	20.8235	1.95206	5.57479	5.57479	R-EXP	0.5	65	
9	C 3EH-B1W	Copper	Yes	Triangle	Round	0	4.64088	1.06366	9.28174	2.12732	2.07623	2.07623	R-EXP	0.5	115	
10	C 3EL-A1W	Copper	Yes	Triangle	Round	0	4.11912	0.94407	8.23823	1.88815	6.49784	6.49784	R-EXP	0.5	115	
11	C 3EL-B1W	Copper	Yes	Triangle	Round	0	4.11912	0.94407	8.23823	1.88815	6.49784	6.49784	R-EXP	0.5	115	
12	C A1HW	Copper	Yes	Triangle	Round	0	13.1262	3.81423	26.2525	7.62847	9.52490	9.52490	R-EXP	0.5	150	
13	C A1L1W	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
14	C A1L2W	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
15	C A2HW	Copper	Yes	Triangle	Round	0	13.6124	4.94438	27.2249	9.88876	9.87767	9.87767	R-EXP	0.5	150	
16	C A2L1W	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
17	C A2L2W	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
18	C A3HW	Copper	Yes	Triangle	Round	0	14.5847	5.29755	29.1695	10.5951	1.05832	1.05832	R-EXP	0.5	150	
19	C A3L1W	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
20	C A3L2W	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
21	C AC-1W	Copper	Yes	Triangle	Round	0	2.52686	2.47992	5.05372	4.95984	7.74405	7.74405	R-EXP	0.5	310	
22	C AC-2W	Copper	Yes	Triangle	Round	0	4.54835	4.46386	9.09670	8.92772	1.39392	1.39392	R-EXP	0.5	310	
23	C AC-3W	Copper	Yes	Triangle	Round	0	5.89601	5.78648	11.7920	11.5729	1.80694	1.80694	R-EXP	0.5	310	
24	C B1HW	Copper	Yes	Triangle	Round	0	0.48501	0.26719	0.97003	0.53438	9.66189	9.66189	R-EXP	0.5	230	
25	C B1L1W	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
26	C B1L2W	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
27	C B2HW	Copper	Yes	Triangle	Round	0	3.67901	1.08265	7.35804	2.16530	1.90944	1.90944	R-EXP	0.5	130	
28	C B2L1W	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
29	C B2L2W	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
30	C B3HW	Copper	Yes	Triangle	Round	0	4.90534	1.44353	9.81073	2.88707	2.54592	2.54592	R-EXP	0.5	130	
31	C B3L1W	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
32	C B3L2W	Copper	Yes	Triangle	Round	0	0.60407	0.86081	1.20815	1.72164	1.14283	1.14283	R-EXP	0.5	380	
33	C G-1	Copper	Yes	Triangle	Round	0	6.11647	2.71853	12.2329	5.43706	8.68722	8.68722	R-EXP	0.5	200	
34	C GEN-W 1AT	Copper	Yes	Triangle	Round	0	3.40311	0.98887	6.80622	1.97775	2.46941	2.46941	R-EXP	0.5	150	
35	C GEN-W 2AT	Copper	Yes	Triangle	Round	0	1.46284	0.94867	2.92568	1.89734	3.09445	3.09445	R-EXP	0.5	255	
36	C IDF-2AW	Copper	Yes	Triangle	Round	0	69.9033	25.3906	279.613	101.562	1.78856	1.78856	R-EXP	0.5	150	
37	C LB	Copper	Yes	Triangle	Round	0	0.38555	0.13845	0.77110	0.27691	3.91481	3.91481	R-EXP	0.5	175	
38	C MDFW	Copper	Yes	Triangle	Round	0	1.29146	0.71146	2.58293	1.42292	9.07144	9.07144	R-EXP	0.5	230	
39	C MSA-W	Copper	Yes	Triangle	Round	0	0.05671	0.08082	0.22686	0.32328	1.94755	1.94755	R-EXP	0.5	3040	
40	C MSA-W 1AT	Copper	Yes	Triangle	Round	0	1.94463	0.56507	3.88927	1.13014	1.41109	1.41109	R-EXP	0.5	150	
41	C MSA-W 2AT	Copper	Yes	Triangle	Round	0	0.43448	0.51725	0.86896	1.03451	2.43444	2.43444	R-EXP	0.5	380	
42	C RHW	Copper	Yes	Triangle	Round	0	18.5216	6.18047	37.0430	12.3609	1.23471	1.23471	R-EXP	0.5	150	
43	C TX 2ETR-1A	Copper	Yes	Triangle	Round	0	2.45838	0.37075	4.91678	0.74150	5.65639	5.65639	R-EXP	0.5	85	
44	C TX 2ETR-1B	Copper	Yes	Triangle	Round	0	9.88871	0.37075	19.7774	0.74150	5.65639	5.65639	R-EXP	0.5	35	
45	C TX 3ETR-1A	Copper	Yes	Triangle	Round	0	20.1105	4.6092	40.2209	9.21840	8.99701	8.99701	R-EXP	0.5	115	
46	C TX 3ETR-1B	Copper	Yes	Triangle	Round	0	2.45838	0.37075	9.83359	1.48301	5.65639	5.65639	R-EXP	0.5	85	
47	C TX ATR1W	Copper	Yes	Triangle	Round	0	0.48501	0.26719	0.97003	0.53438	9.66189	9.66189	R-EXP	0.5	230	
48	C TX ATR2W	Copper	Yes	Triangle	Round	0	0.48501	0.33399	0.97003	0.66798	9.66189	9.66189	R-EXP	0.5	230	
49	C TX ATR3W	Copper	Yes	Triangle	Round	0	7.27527	5.00988	14.5505	10.0197	1.44928	1.44928	R-EXP	0.5	230	
50	C TX BTR1W	Copper	Yes	Triangle	Round	0	0.48501	0.26719	0.97003	0.53438	9.66189	9.66189	R-EXP	0.5	230	
51	C TX BTR2W	Copper	Yes	Triangle	Round	0	1.45505	1.00197	2.91010	2.00395	2.89856	2.89856	R-EXP	0.5	230	
52	C TX BTR3W	Copper	Yes	Triangle	Round	0	1.94007	1.33596	3.88013	2.67193	3.86475	3.86475	R-EXP	0.5	230	
53	C TX STR-1BW	Copper	Yes	Triangle	Round	0	0.97231	0.35317	1.94463	0.70634	7.05548	7.05548	R-EXP	0.5	150	

LV Breakers

	ID Name	Status	On Bus	Base kV	Conn Type	Class	Options	Breaker Mfr	Breaker Type	Breaker Style	Cont Current (A)	SC Int kA	SC Test Std
1	B 1ATSW	On	1ATSW	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	125	65	ANSI-SYM
2	B 1ELA1W BR	On	1ELA1W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
3	B 1ELA1W-MAI	On	1ELA1W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	60	10	ANSI-SYM
4	B 2ATSW	On	2ATSW	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	250	65	ANSI-SYM
5	B 2EL-A1W BR	On	2EL-A1W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
6	B 2EL-A1W MA	On	2EL-A1W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	100	10	ANSI-SYM
7	B 2EL-B1W	On	2EL-B1W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	60	10	ANSI-SYM
8	B 2EL-B1W BR	On	2EL-B1W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
9	B 3EH-B1W	On	1EDH-B1W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	200	65	ANSI-SYM
10	B 3EH-B1W BR	On	3EH-B1W	0.48	Feeder	MCCB	Breaker Onl	GE	E150	THED(100A480V)	20	25	ANSI-SYM
11	B 3EL-A1W BR	On	3EL-A1W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
12	B 3EL-A1W MA	On	3EL-A1W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	100	10	ANSI-SYM
13	B 3EL-B1W BR	On	3EL-B1W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
14	B 3EL-B1W MA	On	3EL-B1W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	100	10	ANSI-SYM
15	B A1HW	On	MSA-W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	150	65	ANSI-SYM
16	B A1HW-BRAN	On	A1HW	0.48	Feeder	MCCB	Breaker Onl	GE	E150	TEY	20	14	ANSI-SYM
17	B A1L1W BRA	On	A1L1W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
18	B A1L2W BRA	On	A1L2W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
19	B A2HW	On	MSA-W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	125	65	ANSI-SYM
20	B A2HW-BRAN	On	A2HW	0.48	Feeder	MCCB	Breaker Onl	GE	E150	TEY	20	14	ANSI-SYM
21	B A2L1W BRA	On	A2L1W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
22	B A2L2W-BRA	On	A2L2W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
23	B A3HW	On	MSA-W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	125	65	ANSI-SYM
24	B A3HW-BRAN	On	A3HW	0.48	Feeder	MCCB	Breaker Onl	GE	E150	TEY	20	14	ANSI-SYM
25	B A3L1W BRA	On	A3L1W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
26	B A3L2W BRA	On	A3L2W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
27	B AC-1W	On	MSA-W	0.48	Feeder	LVPCB	Breaker Onl	<None>	<None>	<None>	0	0	ANSI-SYM
28	B AC-2W	On	MSA-W	0.48	Feeder	LVPCB	Breaker Onl	<None>	<None>	<None>	0	0	ANSI-SYM
29	B AC-3W	On	MSA-W	0.48	Feeder	LVPCB	Breaker Onl	<None>	<None>	<None>	0	0	ANSI-SYM
30	B ATR1W	On	TX ATR1W L	0.208	Feeder	MCCB	Breaker Onl	GE	Spectra	SGL4	400	100	ANSI-SYM
31	B ATR2W	On	TX ATR2W L	0.208	Feeder	MCCB	Breaker Onl	GE	Spectra	SGL4	400	100	ANSI-SYM
32	B ATR3W	On	TX ATR3W L	0.208	Feeder	MCCB	Breaker Onl	GE	Spectra	SGL4	400	100	ANSI-SYM
33	B B1HW	On	MSA-W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	225	65	ANSI-SYM
34	B B1HW-BRAN	On	B1HW	0.48	Feeder	MCCB	Breaker Onl	GE	E150	THED (277V)	20	65	ANSI-SYM
35	B B1HW-BRNC	On	B1HW	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	40	65	ANSI-SYM
36	B B1L1W BRA	On	B1L1W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
37	B B1L2W-BRA	On	B1L2W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
38	B B2HW	On	MSA-W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	125	65	ANSI-SYM
39	B B2HW-BRAN	On	B2HW	0.48	Feeder	MCCB	Breaker Onl	GE	Record Plus	FBN	20	65	ANSI-SYM
40	B B2L1W BRA	On	B2L1W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
41	B B2L2W BRA	On	B2L2W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
42	B B3HW	On	MSA-W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	125	65	ANSI-SYM
43	B B3HW-BRAN	On	B3HW	0.48	Feeder	MCCB	Breaker Onl	GE	Record Plus	FBN	20	65	ANSI-SYM
44	B B3L1W BRA	On	B3L1W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
45	B B3L2W-BRA	On	B3L2W	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
46	B BTR1W	On	TX BTR1W L	0.208	Feeder	MCCB	Breaker Onl	GE	Spectra	SGL4	400	100	ANSI-SYM
47	B BTR2W	On	TX BTR2W L	0.208	Feeder	MCCB	Breaker Onl	GE	Spectra	SGL4	400	100	ANSI-SYM
48	B BTR3W	On	TX BTR3W L	0.208	Feeder	MCCB	Breaker Onl	GE	Spectra	SGL4	400	100	ANSI-SYM
49	B ELEV1	On	G-1	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	125	65	ANSI-SYM
50	B ELEV2	On	G-1	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	125	65	ANSI-SYM
51	B G-1	On	1EDH-B1W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	200	65	ANSI-SYM
52	B GEN-W 1ATS	On	GEN W	0.48	Feeder	MCCB	Breaker Onl	<None>	<None>	<None>	0	0	ANSI-SYM
53	B GEN-W 2ATS	On	GEN W	0.48	Feeder	MCCB	Breaker Onl	<None>	<None>	<None>	0	0	ANSI-SYM
54	B IDF-2AW	On	MDFW	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	100	10	ANSI-SYM
55	B IDF-2AW BR	On	IDF-2AW	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
56	B LB	On	GEN W	0.48	Feeder	MCCB	Breaker Onl	<None>	<None>	<None>	0	0	ANSI-SYM
57	B MDFW BRAN	On	MDFW	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	THQB	20	10	ANSI-SYM
58	B MDFW MAIN	On	MDFW	0.208	Feeder	MCCB	Breaker Onl	GE	Q Line	TQD	225	10	ANSI-SYM
59	B MSA-W 1ATS	On	MSA-W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	125	65	ANSI-SYM
60	B MSA-W 2ATS	On	MSA-W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SGL4	400	65	ANSI-SYM
61	B MSA-W MAIN	On	MSA-W	0.48	Feeder	ICCB	Breaker Onl	GE	Power Break II	SS-30	3000	100	ANSI-SYM
62	B RHW	On	MSA-W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	150	65	ANSI-SYM
63	B RHW-BRAN	On	RHW	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SEL	15	65	ANSI-SYM
64	B TX 2ETR-1A	On	2EH-A1W	0.48	Feeder	MCCB	Breaker Onl	GE	E150	TEY	70	14	ANSI-SYM
65	B TX 2ETR-1B	On	2EH-B1W	0.48	Feeder	MCCB	Breaker Onl	GE	Record Plus	FBV	25	35	ANSI-SYM
66	B TX 3ETR-1A	On	3EH-B1W	0.48	Feeder	MCCB	Breaker Onl	GE	E150	THED(100A480V)	70	25	ANSI-SYM
67	B TX 3ETR-1B	On	3EH-B1W	0.48	Feeder	MCCB	Breaker Onl	GE	E150	THED(100A480V)	70	25	ANSI-SYM
68	B TX ATR1W	On	MSA-W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	225	65	ANSI-SYM
69	B TX ATR2W	On	MSA-W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	225	65	ANSI-SYM
70	B TX ATR3W	On	MSA-W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	225	65	ANSI-SYM
71	B TX BTR1W	On	MSA-W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	225	65	ANSI-SYM
72	B TX BTR2W	On	MSA-W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	225	65	ANSI-SYM
73	B TX BTR3W	On	MSA-W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	225	65	ANSI-SYM
74	B TX STR-1BW	On	1EDH-B1W	0.48	Feeder	MCCB	Breaker Onl	GE	Spectra	SFL	150	65	ANSI-SYM

LV Breakers

	ID Name	Normal State	Trip	Trip Mfr	Trip Type	Trip Style	Sensor/Frame	Plug/Tap/Trip	LTPU Setting	LTPU Mult	LTPU (A)	LTD Band
1	B 1ATSW	Closed	SST	GE	Spectra RMS	MCCB SE	150A (125AT)	125	1	1	125	Fixed
2	B 1ELA1W BR	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
3	B 1ELA1W-MAI	Closed	TMGN	GE	Q Line	THQB	100A(60-100AT)	60				
4	B 2ATSW	Closed	SST	GE	Spectra RMS	MCCB SF	250	250	1		250	Fixed
5	B 2EL-A1W BR	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
6	B 2EL-A1W MA	Closed	TMGN	GE	Q Line	THQB	100A(60-100AT)	100				
7	B 2EL-B1W	Closed	TMGN	GE	Q Line	THQB	100A(60-100AT)	60				
8	B 2EL-B1W BR	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
9	B 3EH-B1W	Closed	SST	GE	Spectra RMS	MCCB SF	250	200	1		200	Fixed
10	B 3EH-B1W BR	Closed	TMGN	GE	E150	THED(100A480V)	150A(15-50AT)	20				
11	B 3EL-A1W BR	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
12	B 3EL-A1W MA	Closed	TMGN	GE	Q Line	THQB	100A(60-100AT)	100				
13	B 3EL-B1W BR	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
14	B 3EL-B1W MA	Closed	TMGN	GE	Q Line	THQB	100A(60-100AT)	100				
15	B A1HW	Closed	SST	GE	Spectra RMS	MCCB SE	150A (150AT)	150	1	1	150	Fixed
16	B A1HW-BRAN	Closed	TMGN	GE	E150	TEY	100A (20A)	20				
17	B A1L1W BRA	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
18	B A1L2W BRA	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
19	B A2HW	Closed	SST	GE	Spectra RMS	MCCB SE	150A (125AT)	125	1	1	125	Fixed
20	B A2HW-BRAN	Closed	TMGN	GE	E150	TEY	100A (20A)	20				
21	B A2L1W BRA	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
22	B A2L2W-BRA	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
23	B A3HW	Closed	SST	GE	Spectra RMS	MCCB SE	150A (125AT)	125	1	1	125	Fixed
24	B A3HW-BRAN	Closed	TMGN	GE	E150	TEY	100A (20A)	20				
25	B A3L1W BRA	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
26	B A3L2W BRA	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
27	B AC-1W	Closed	SST									
28	B AC-2W	Closed	SST									
29	B AC-3W	Closed	SST									
30	B ATR1W	Closed	SST	GE	Spectra RMS	MCCB SG	400	400	1	1	400	Fixed
31	B ATR2W	Closed	SST	GE	Spectra RMS	MCCB SG	400	400	1	1	400	Fixed
32	B ATR3W	Closed	SST	GE	Spectra RMS	MCCB SG	400	400	1	1	400	Fixed
33	B B1HW	Closed	SST	GE	Spectra RMS	MCCB SF	250	225	1		225	Fixed
34	B B1HW-BRAN	Closed	TMGN	GE	E150	THED (277V)	150A(15-30AT)	20				
35	B B1HW-BRNC	Closed	SST	GE	Spectra RMS	MCCB SE	60A (40AT)	40	1	1	40	Fixed
36	B B1L1W BRA	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
37	B B1L2W-BRA	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
38	B B2HW	Closed	SST	GE	Spectra RMS	MCCB SE	150A (125AT)	125	1	1	125	Fixed
39	B B2HW-BRAN	Closed	TMGN	GE	Record Plus	FBN	100A (20AT)	20				
40	B B2L1W BRA	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
41	B B2L2W BRA	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
42	B B3HW	Closed	SST	GE	Spectra RMS	MCCB SE	150A (125AT)	125	1	1	125	Fixed
43	B B3HW-BRAN	Closed	TMGN	GE	Record Plus	FBN	100A (20AT)	20				
44	B B3L1W BRA	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
45	B B3L2W-BRA	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
46	B BTR1W	Closed	SST	GE	Spectra RMS	MCCB SG	400	400	1	1	400	Fixed
47	B BTR2W	Closed	SST	GE	Spectra RMS	MCCB SG	400	400	1	1	400	Fixed
48	B BTR3W	Closed	SST	GE	Spectra RMS	MCCB SG	400	400	1	1	400	Fixed
49	B ELEV1	Closed	SST	GE	Spectra RMS	MCCB SF	250	125	1		125	Fixed
50	B ELEV2	Closed	SST	GE	Spectra RMS	MCCB SF	250	125	1		125	Fixed
51	B G-1	Closed	SST	GE	Spectra RMS	MCCB SF	250	200	1		200	Fixed
52	B GEN-W 1ATS	Closed	SST									
53	B GEN-W 2ATS	Closed	SST									
54	B IDF-2AW	Closed	TMGN	GE	Q Line	THQB	100A(60-100AT)	100				
55	B IDF-2AW BR	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
56	B LB	Closed	SST									
57	B MDFW BRAN	Closed	TMGN	GE	Q Line	THQB	100A (15-50AT)	20				
58	B MDFW MAIN	Closed	TMGN	GE	Q Line	TQD	225A(100-225AT)	225				
59	B MSA-W 1ATS	Closed	SST	GE	Spectra RMS	MCCB SE	150A (125AT)	125	1	1	125	Fixed
60	B MSA-W 2ATS	Closed	SST	GE	Spectra RMS	MCCB SG	400	400	1	1	400	Fixed
61	B MSA-W MAIN	Closed	SST	GE	MVT-Plus	ICCB	3000	3000	1		3000	3
62	B RHW	Closed	SST	GE	Spectra RMS	MCCB SE	150A (150AT)	150	1	1	150	Fixed
63	B RHW-BRAN	Closed	SST	GE	Spectra RMS	MCCB SE	30A (15AT)	15	1	1	15	Fixed
64	B TX 2ETR-1A	Closed	TMGN	GE	E150	TEY	100A (70A)	70				
65	B TX 2ETR-1B	Closed	TMGN	GE	Record Plus	FBV	100A (25AT)	25				
66	B TX 3ETR-1A	Closed	TMGN	GE	E150	THED(100A480V)	150A(60-80AT)	70				
67	B TX 3ETR-1B	Closed	TMGN	GE	E150	THED(100A480V)	150A(60-80AT)	70				
68	B TX ATR1W	Closed	SST	GE	Spectra RMS	MCCB SF	250	225	1		225	Fixed
69	B TX ATR2W	Closed	SST	GE	Spectra RMS	MCCB SF	250	225	1		225	Fixed
70	B TX ATR3W	Closed	SST	GE	Spectra RMS	MCCB SF	250	225	1		225	Fixed
71	B TX BTR1W	Closed	SST	GE	Spectra RMS	MCCB SF	250	225	1		225	Fixed
72	B TX BTR2W	Closed	SST	GE	Spectra RMS	MCCB SF	250	225	1		225	Fixed
73	B TX BTR3W	Closed	SST	GE	Spectra RMS	MCCB SF	250	225	1		225	Fixed
74	B TX STR-1BW	Closed	SST	GE	Spectra RMS	MCCB SF	250	150	1		150	Fixed

LV Breakers

	ID Name	STPU Setting	STPU Band	STPU I2T	STPU (A)	Inst Setting	Inst Override	Inst (A)	Gnd Pickup	Gnd Delay	Gnd I2T	Gnd (A)	Fuse Mfr	Fuse Type
1	B 1ATSW	Max	Fixed	In	875	Max	Pickup	1562.5			Out		<None>	<None>
2	B 1ELA1W BR												<None>	<None>
3	B 1ELA1W-MAI												<None>	<None>
4	B 2ATSW	Max	Fixed	In	1250	Max	Pickup	2500			Out		<None>	<None>
5	B 2EL-A1W BR												<None>	<None>
6	B 2EL-A1W MA												<None>	<None>
7	B 2EL-B1W												<None>	<None>
8	B 2EL-B1W BR												<None>	<None>
9	B 3EH-B1W	Max	Fixed	In	1000	Max	Pickup	2000			Out		<None>	<None>
10	B 3EH-B1W BR												<None>	<None>
11	B 3EL-A1W BR												<None>	<None>
12	B 3EL-A1W MA												<None>	<None>
13	B 3EL-B1W BR												<None>	<None>
14	B 3EL-B1W MA												<None>	<None>
15	B A1HW	Max	Fixed	In	1110	Max	Pickup	1875			Out		<None>	<None>
16	B A1HW-BRAN												<None>	<None>
17	B A1L1W BRA												<None>	<None>
18	B A1L2W BRA												<None>	<None>
19	B A2HW	Max	Fixed	In	875	Max	Pickup	1562.5			Out		<None>	<None>
20	B A2HW-BRAN												<None>	<None>
21	B A2L1W BRA												<None>	<None>
22	B A2L2W-BRA												<None>	<None>
23	B A3HW	Max	Fixed	In	875	Max	Pickup	1562.5			Out		<None>	<None>
24	B A3HW-BRAN												<None>	<None>
25	B A3L1W BRA												<None>	<None>
26	B A3L2W BRA												<None>	<None>
27	B AC-1W						Pickup						<None>	<None>
28	B AC-2W						Pickup						<None>	<None>
29	B AC-3W						Pickup						<None>	<None>
30	B ATR1W	Max	Fixed	In	2000	Max	Pickup	4048			Out		<None>	<None>
31	B ATR2W	Max	Fixed	In	2000	Max	Pickup	4048			Out		<None>	<None>
32	B ATR3W	Max	Fixed	In	2000	Max	Pickup	4048			Out		<None>	<None>
33	B B1HW	Max	Fixed	In	1125	Max	Pickup	2250			Out		<None>	<None>
34	B B1HW-BRAN												<None>	<None>
35	B B1HW-BRNC	Max	Fixed	In	256	Max	Pickup	500			Out		<None>	<None>
36	B B1L1W BRA												<None>	<None>
37	B B1L2W-BRA												<None>	<None>
38	B B2HW	Max	Fixed	In	875	Max	Pickup	1562.5			Out		<None>	<None>
39	B B2HW-BRAN												<None>	<None>
40	B B2L1W BRA												<None>	<None>
41	B B2L2W BRA												<None>	<None>
42	B B3HW	Max	Fixed	In	875	Max	Pickup	1562.5			Out		<None>	<None>
43	B B3HW-BRAN												<None>	<None>
44	B B3L1W BRA												<None>	<None>
45	B B3L2W-BRA												<None>	<None>
46	B BTR1W	Max	Fixed	In	2000	Max	Pickup	4048			Out		<None>	<None>
47	B BTR2W	Max	Fixed	In	2000	Max	Pickup	4048			Out		<None>	<None>
48	B BTR3W	Max	Fixed	In	2000	Max	Pickup	4048			Out		<None>	<None>
49	B ELEV1	5	Fixed	In	475	5	Pickup	975			Out		<None>	<None>
50	B ELEV2	Max	Fixed	In	625	Max	Pickup	1250			Out		<None>	<None>
51	B G-1	Max	Fixed	In	1000	Max	Pickup	2000			Out		<None>	<None>
52	B GEN-W 1ATS						Pickup						<None>	<None>
53	B GEN-W 2ATS						Pickup						<None>	<None>
54	B IDF-2AW												<None>	<None>
55	B IDF-2AW BR												<None>	<None>
56	B LB						Pickup						<None>	<None>
57	B MDFW BRAN												<None>	<None>
58	B MDFW MAIN												<None>	<None>
59	B MSA-W 1ATS	Max	Fixed	In	875	Max	Pickup	1562.5			Out		<None>	<None>
60	B MSA-W 2ATS	Max	Fixed	In	2000	Max	Pickup	4048			Out		<None>	<None>
61	B MSA-W MAIN	4.5	Max	Out	13500	9	Pickup	27000	0.3	Int	Out	900.0001	<None>	<None>
62	B RHW	Max	Fixed	In	1110	Max	Pickup	1875			Out		<None>	<None>
63	B RHW-BRAN	Max	Fixed	In	90	Max	Pickup	187.5			Out		<None>	<None>
64	B TX 2ETR-1A												<None>	<None>
65	B TX 2ETR-1B												<None>	<None>
66	B TX 3ETR-1A												<None>	<None>
67	B TX 3ETR-1B												<None>	<None>
68	B TX ATR1W	Max	Fixed	In	1125	Max	Pickup	2250			Out		<None>	<None>
69	B TX ATR2W	Max	Fixed	In	1125	Max	Pickup	2250			Out		<None>	<None>
70	B TX ATR3W	Max	Fixed	In	1125	Max	Pickup	2250			Out		<None>	<None>
71	B TX BTR1W	5	Fixed	In	855	5	Pickup	1755			Out		<None>	<None>
72	B TX BTR2W	Max	Fixed	In	1125	Max	Pickup	2250			Out		<None>	<None>
73	B TX BTR3W	Max	Fixed	In	1125	Max	Pickup	2250			Out		<None>	<None>
74	B TX STR-1BW	Max	Fixed	In	750	Max	Pickup	1500			Out		<None>	<None>

LV Breakers

	ID Name	Fuse Style	Fuse Size	Mtr O/L Mfr	Mtr O/L Type	Mtr O/L Style	Motor FLA	Service Factor	PCC kVA Demand	PCC Isc/ILoad	Comment
1	B 1ATSW	<None>	<None>	<None>	<None>	<None>		1			
2	B 1ELA1W BR	<None>	<None>	<None>	<None>	<None>		1			
3	B 1ELA1W-MAI	<None>	<None>	<None>	<None>	<None>		1			
4	B 2ATSW	<None>	<None>	<None>	<None>	<None>		1			
5	B 2EL-A1W BR	<None>	<None>	<None>	<None>	<None>		1			
6	B 2EL-A1W MA	<None>	<None>	<None>	<None>	<None>		1			
7	B 2EL-B1W	<None>	<None>	<None>	<None>	<None>		1			
8	B 2EL-B1W BR	<None>	<None>	<None>	<None>	<None>		1			
9	B 3EH-B1W	<None>	<None>	<None>	<None>	<None>		1			
10	B 3EH-B1W BR	<None>	<None>	<None>	<None>	<None>		1			
11	B 3EL-A1W BR	<None>	<None>	<None>	<None>	<None>		1			
12	B 3EL-A1W MA	<None>	<None>	<None>	<None>	<None>		1			
13	B 3EL-B1W BR	<None>	<None>	<None>	<None>	<None>		1			
14	B 3EL-B1W MA	<None>	<None>	<None>	<None>	<None>		1			
15	B A1HW	<None>	<None>	<None>	<None>	<None>		1			
16	B A1HW-BRAN	<None>	<None>	<None>	<None>	<None>		1			
17	B A1L1W BRA	<None>	<None>	<None>	<None>	<None>		1			
18	B A1L2W BRA	<None>	<None>	<None>	<None>	<None>		1			
19	B A2HW	<None>	<None>	<None>	<None>	<None>		1			
20	B A2HW-BRAN	<None>	<None>	<None>	<None>	<None>		1			
21	B A2L1W BRA	<None>	<None>	<None>	<None>	<None>		1			
22	B A2L2W-BRA	<None>	<None>	<None>	<None>	<None>		1			
23	B A3HW	<None>	<None>	<None>	<None>	<None>		1			
24	B A3HW-BRAN	<None>	<None>	<None>	<None>	<None>		1			
25	B A3L1W BRA	<None>	<None>	<None>	<None>	<None>		1			
26	B A3L2W BRA	<None>	<None>	<None>	<None>	<None>		1			
27	B AC-1W	<None>	<None>	<None>	<None>	<None>		1			
28	B AC-2W	<None>	<None>	<None>	<None>	<None>		1			
29	B AC-3W	<None>	<None>	<None>	<None>	<None>		1			
30	B ATR1W	<None>	<None>	<None>	<None>	<None>		1			
31	B ATR2W	<None>	<None>	<None>	<None>	<None>		1			
32	B ATR3W	<None>	<None>	<None>	<None>	<None>		1			
33	B B1HW	<None>	<None>	<None>	<None>	<None>		1			
34	B B1HW-BRAN	<None>	<None>	<None>	<None>	<None>		1			
35	B B1HW-BRNC	<None>	<None>	<None>	<None>	<None>		1			
36	B B1L1W BRA	<None>	<None>	<None>	<None>	<None>		1			
37	B B1L2W-BRA	<None>	<None>	<None>	<None>	<None>		1			
38	B B2HW	<None>	<None>	<None>	<None>	<None>		1			
39	B B2HW-BRAN	<None>	<None>	<None>	<None>	<None>		1			
40	B B2L1W BRA	<None>	<None>	<None>	<None>	<None>		1			
41	B B2L2W BRA	<None>	<None>	<None>	<None>	<None>		1			
42	B B3HW	<None>	<None>	<None>	<None>	<None>		1			
43	B B3HW-BRAN	<None>	<None>	<None>	<None>	<None>		1			
44	B B3L1W BRA	<None>	<None>	<None>	<None>	<None>		1			
45	B B3L2W-BRA	<None>	<None>	<None>	<None>	<None>		1			
46	B BTR1W	<None>	<None>	<None>	<None>	<None>		1			
47	B BTR2W	<None>	<None>	<None>	<None>	<None>		1			
48	B BTR3W	<None>	<None>	<None>	<None>	<None>		1			
49	B ELEV1	<None>	<None>	<None>	<None>	<None>		1			
50	B ELEV2	<None>	<None>	<None>	<None>	<None>		1			
51	B G-1	<None>	<None>	<None>	<None>	<None>		1			
52	B GEN-W 1ATS	<None>	<None>	<None>	<None>	<None>		1			
53	B GEN-W 2ATS	<None>	<None>	<None>	<None>	<None>		1			
54	B IDF-2AW	<None>	<None>	<None>	<None>	<None>		1			
55	B IDF-2AW BR	<None>	<None>	<None>	<None>	<None>		1			
56	B LB	<None>	<None>	<None>	<None>	<None>		1			
57	B MDFW BRAN	<None>	<None>	<None>	<None>	<None>		1			
58	B MDFW MAIN	<None>	<None>	<None>	<None>	<None>		1			
59	B MSA-W 1ATS	<None>	<None>	<None>	<None>	<None>		1			
60	B MSA-W 2ATS	<None>	<None>	<None>	<None>	<None>		1			
61	B MSA-W MAIN	<None>	<None>	<None>	<None>	<None>		1			LSIG Programmer
62	B RHW	<None>	<None>	<None>	<None>	<None>		1			
63	B RHW-BRAN	<None>	<None>	<None>	<None>	<None>		1			
64	B TX 2ETR-1A	<None>	<None>	<None>	<None>	<None>		1			
65	B TX 2ETR-1B	<None>	<None>	<None>	<None>	<None>		1			
66	B TX 3ETR-1A	<None>	<None>	<None>	<None>	<None>		1			
67	B TX 3ETR-1B	<None>	<None>	<None>	<None>	<None>		1			
68	B TX ATR1W	<None>	<None>	<None>	<None>	<None>		1			
69	B TX ATR2W	<None>	<None>	<None>	<None>	<None>		1			
70	B TX ATR3W	<None>	<None>	<None>	<None>	<None>		1			
71	B TX BTR1W	<None>	<None>	<None>	<None>	<None>		1			
72	B TX BTR2W	<None>	<None>	<None>	<None>	<None>		1			
73	B TX BTR3W	<None>	<None>	<None>	<None>	<None>		1			
74	B TX STR-1BW	<None>	<None>	<None>	<None>	<None>		1			

Switches

	ID Name	Status	On Bus	Base kV	Conn Type	Normal State	Manufacturer	Type	Style	Cont Current (A)	SC Mom kA	SC Test Std	PCC kVA Demand
1	1ATSW:Switch	On	1ATSW	0.48	Feeder	Closed	<None>	<None>	<None>	0	0	ANSI-SYM	
2	2ATSW:Switch	On	2ATSW	0.48	Feeder	Closed	<None>	<None>	<None>	0	0	ANSI-SYM	

Switches

	ID Name	PCC Isc/ILoad	Comment
1	1ATSW:Switch		
2	2ATSW:Switch		

ATSs

	ID Name	Status	Base kV	Area	Zone	AF Type	AF Option	Source Connection	Model	Comment
1	1ATSW	On	0.48	1	1	ATS	Specified	Source 1 Bus	Switch	
2	2ATSW	On	0.48	1	1	ATS	Specified	Source 1 Bus	Switch	

Three Phase Bolted Fault

Equipment Duty Ratings

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

****

Equipment Duty Comparison Report For Bus:
1ATSW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B 1ATSW	GE	/SEL	ANSI-SYM	65.00			0.00(-100.0%)		

****

Equipment Duty Comparison Report For Bus:
1EDH-B1W Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B TX STR-1BW	GE	/SFL	ANSI-SYM	65.00			32.98(-49.3%)		
B G-1	GE	/SFL	ANSI-SYM	65.00			32.21(-50.4%)		
B 3EH-B1W	GE	/SFL	ANSI-SYM	65.00			32.98(-49.3%)		
1EDH-B1W		/	ANSI-SYM	42.00			32.98(-21.5%)		

****

Equipment Duty Comparison Report For Bus:
1ELA1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B 1ELA1W BRANCH	GE	/THQB	ANSI-SYM	10.00			0.87(-91.3%)		
B 1ELA1W-MAIN	GE	/THQB	ANSI-SYM	10.00			0.87(-91.3%)		
1ELA1W		/	ANSI-SYM	10.00			0.87(-91.3%)		

****

Equipment Duty Comparison Report For Bus:
2ATSW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B 2ATSW	GE	/SFL	ANSI-SYM	65.00			0.00(-100.0%)		

Project Name: Disney Campus
Comment: West - Three Phase Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

****

Equipment Duty Comparison Report For Bus:
2EH-A1W Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B TX 2ETR-1AW	GE /TEY	ANSI-SYM	14.00			6.13(-56.2%)			
2EH-A1W	/	ANSI-SYM	14.00			6.13(-56.2%)			

****

Equipment Duty Comparison Report For Bus:
2EH-B1W Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B TX 2ETR-1BW	GE /FBV	ANSI-SYM	35.00			18.58(-46.9%)			
2EH-B1W	/	ANSI-SYM	25.00			18.58(-25.7%)			

****

Equipment Duty Comparison Report For Bus:
2EL-A1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 2EL-A1W BRANCH	GE /THQB	ANSI-SYM	10.00			1.35(-86.5%)			
B 2EL-A1W MAIN	GE /THQB	ANSI-SYM	10.00			1.35(-86.5%)			
2EL-A1W	/	ANSI-SYM	10.00			1.35(-86.5%)			

****

Equipment Duty Comparison Report For Bus:
2EL-B1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 2EL-B1W BRANCH	GE /THQB	ANSI-SYM	10.00			0.77(-92.3%)			
B 2EL-B1W	GE /THQB	ANSI-SYM	10.00			0.77(-92.3%)			
2EL-B1W	/	ANSI-SYM	10.00			0.77(-92.3%)			

Project Name: Disney Campus
Comment: West - Three Phase Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
3EH-B1W Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 3EH-B1W BRANCH	GE /THED(100A480V)	ANSI-SYM	25.00			16.59(-33.6%)			
B TX 3ETR-1BW	GE /THED(100A480V)	ANSI-SYM	25.00			16.59(-33.6%)			
B TX 3ETR-1AW	GE /THED(100A480V)	ANSI-SYM	25.00			16.59(-33.6%)			
3EH-B1W	/	ANSI-SYM	25.00			16.59(-33.6%)			

****

Equipment Duty Comparison Report For Bus:
3EL-A1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 3EL-A1W BRANCH	GE /THQB	ANSI-SYM	10.00			1.33(-86.7%)			
B 3EL-A1W MAIN	GE /THQB	ANSI-SYM	10.00			1.33(-86.7%)			
3EL-A1W	/	ANSI-SYM	10.00			1.33(-86.7%)			

****

Equipment Duty Comparison Report For Bus:
3EL-B1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 3EL-B1W MAIN	GE /THQB	ANSI-SYM	10.00			1.42(-85.8%)			
B 3EL-B1W BRANCH	GE /THQB	ANSI-SYM	10.00			1.42(-85.8%)			
3EL-B1W	/	ANSI-SYM	10.00			1.42(-85.8%)			

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Equipment Duty Comparison Report For Bus:
A1HW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A1HW-BRANCH	GE /TEY	ANSI-SYM	14.00			7.95(-43.2%)			
A1HW	/	ANSI-SYM	14.00			7.95(-43.2%)			

Project Name: Disney Campus
Comment: West - Three Phase Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
A1L1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A1L1W BRANCH	GE /THQB	ANSI-SYM	10.00		5.22(-47.8%)			
A1L1W	/	ANSI-SYM	10.00		5.22(-47.8%)			

****

Equipment Duty Comparison Report For Bus:
A1L2W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A1L2W BRANCH	GE /THQB	ANSI-SYM	10.00		5.12(-48.8%)			
A1L2W	/	ANSI-SYM	10.00		5.12(-48.8%)			

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Equipment Duty Comparison Report For Bus:
A2HW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A2HW-BRANCH	GE /TEY	ANSI-SYM	14.00		7.48(-46.6%)			
A2HW	/	ANSI-SYM	14.00		7.48(-46.6%)			

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Equipment Duty Comparison Report For Bus:
A2L1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A2L1W BRANCH	GE /THQB	ANSI-SYM	10.00		5.22(-47.8%)			
A2L1W	/	ANSI-SYM	10.00		5.22(-47.8%)			

Project Name: Disney Campus
Comment: West - Three Phase Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
A2L2W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle Interrupting (kA)	(kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A2L2W-BRANCH	GE /THQB	ANSI-SYM	10.00			5.12(-48.8%)			
A2L2W	/	ANSI-SYM	10.00			5.12(-48.8%)			

****

Equipment Duty Comparison Report For Bus:
A3HW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle Interrupting (kA)	(kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A3HW-BRANCH	GE /TEY	ANSI-SYM	14.00			7.03(-49.8%)			
A3HW	/	ANSI-SYM	14.00			7.03(-49.8%)			

****

Equipment Duty Comparison Report For Bus:
A3L1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle Interrupting (kA)	(kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A3L1W BRANCH	GE /THQB	ANSI-SYM	10.00			4.58(-54.2%)			
A3L1W	/	ANSI-SYM	10.00			4.58(-54.2%)			

****

Equipment Duty Comparison Report For Bus:
A3L2W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle Interrupting (kA)	(kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A3L2W BRANCH	GE /THQB	ANSI-SYM	10.00			4.50(-55.0%)			
A3L2W	/	ANSI-SYM	10.00			4.50(-55.0%)			

Project Name: Disney Campus
Comment: West - Three Phase Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
B1HW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle Interrupting (kA)	(kA) Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B B1HW-BRANCH	GE /THED (277V)	ANSI-SYM	65.00		36.81(-43.4%)			
B B1HW-BRNCH2	GE /SEL	ANSI-SYM	65.00		36.81(-43.4%)			
B1HW	/	ANSI-SYM	42.00		36.81(-12.4%)			

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Equipment Duty Comparison Report For Bus:
B1L1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle Interrupting (kA)	(kA) Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B B1L1W BRANCH	GE /THQB	ANSI-SYM	10.00		5.22(-47.8%)			
B1L1W	/	ANSI-SYM	10.00		5.22(-47.8%)			

****

Equipment Duty Comparison Report For Bus:
B1L2W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle Interrupting (kA)	(kA) Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B B1L2W-BRANCH	GE /THQB	ANSI-SYM	10.00		5.12(-48.8%)			
B1L2W	/	ANSI-SYM	10.00		5.12(-48.8%)			

****

Equipment Duty Comparison Report For Bus:
B2HW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle Interrupting (kA)	(kA) Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B B2HW-BRANCH	GE /FBN	ANSI-SYM	65.00		21.05(-67.6%)			
B2HW	/	ANSI-SYM	42.00		21.05(-49.9%)			

Project Name: Disney Campus
Comment: West - Three Phase Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
B2L1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc		1/2 Cycle kA (%)	Interrupting kA (%)	
B B2L1W BRANCH	GE /THQB	ANSI-SYM	10.00			5.12(-48.8%)		
B2L1W	/	ANSI-SYM	10.00			5.12(-48.8%)		

****

Equipment Duty Comparison Report For Bus:
B2L2W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc		1/2 Cycle kA (%)	Interrupting kA (%)	
B B2L2W BRANCH	GE /THQB	ANSI-SYM	10.00			5.02(-49.8%)		
B2L2W	/	ANSI-SYM	10.00			5.02(-49.8%)		

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Equipment Duty Comparison Report For Bus:
B3HW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc		1/2 Cycle kA (%)	Interrupting kA (%)	
B B3HW-BRANCH	GE /FBN	ANSI-SYM	65.00			17.49(-73.1%)		
B3HW	/	ANSI-SYM	42.00			17.49(-58.3%)		

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Equipment Duty Comparison Report For Bus:
B3L1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc		1/2 Cycle kA (%)	Interrupting kA (%)	
B B3L1W BRANCH	GE /THQB	ANSI-SYM	10.00			5.07(-49.3%)		
B3L1W	/	ANSI-SYM	10.00			5.07(-49.3%)		

Project Name: Disney Campus
Comment: West - Three Phase Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
B3L2W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc		1/2 Cycle kA (%)	Interrupting kA (%)	
B B3L2W-BRANCH	GE /THQB	ANSI-SYM	10.00			4.97(-50.3%)		
B3L2W	/	ANSI-SYM	10.00			4.97(-50.3%)		

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Equipment Duty Comparison Report For Bus:
G-1 Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc		1/2 Cycle kA (%)	Interrupting kA (%)	
B ELEV1	GE /SFL	ANSI-SYM	65.00			12.94(-80.1%)		
B ELEV2	GE /SFL	ANSI-SYM	65.00			12.94(-80.1%)		

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Equipment Duty Comparison Report For Bus:
IDF-2AW Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc		1/2 Cycle kA (%)	Interrupting kA (%)	
B IDF-2AW BRANCH	GE /THQB	ANSI-SYM	10.00			2.45(-75.5%)		
IDF-2AW	/	ANSI-SYM	10.00			2.45(-75.5%)		

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Equipment Duty Comparison Report For Bus:
MDFW Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc		1/2 Cycle kA (%)	Interrupting kA (%)	
B MDFW MAIN	GE /TQD	ANSI-SYM	10.00			6.09(-39.1%)		
B IDF-2AW	GE /THQB	ANSI-SYM	10.00			6.09(-39.1%)		
B MDFW BRANCH	GE /THQB	ANSI-SYM	10.00			6.09(-39.1%)		
MDFW	/	ANSI-SYM	10.00			6.09(-39.1%)		

Project Name: Disney Campus
Comment: West - Three Phase Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
MSA-W Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA	(%)
B MSA-W MAIN	GE	/SS-30	ANSI-SYM	100.00			42.67	(-57.3%)		
B TX BTR1W	GE	/SFL	ANSI-SYM	65.00			43.47	(-33.1%)		
B B1HW	GE	/SFL	ANSI-SYM	65.00			43.47	(-33.1%)		
B TX BTR2W	GE	/SFL	ANSI-SYM	65.00			43.47	(-33.1%)		
B B2HW	GE	/SEL	ANSI-SYM	65.00			43.47	(-33.1%)		
B TX BTR3W	GE	/SFL	ANSI-SYM	65.00			43.47	(-33.1%)		
B B3HW	GE	/SEL	ANSI-SYM	65.00			43.47	(-33.1%)		
B A3HW	GE	/SEL	ANSI-SYM	65.00			43.47	(-33.1%)		
B TX ATR3W	GE	/SFL	ANSI-SYM	65.00			43.47	(-33.1%)		
B A2HW	GE	/SEL	ANSI-SYM	65.00			43.47	(-33.1%)		
B TX ATR2W	GE	/SFL	ANSI-SYM	65.00			43.47	(-33.1%)		
B A1HW	GE	/SEL	ANSI-SYM	65.00			43.47	(-33.1%)		
B TX ATR1W	GE	/SFL	ANSI-SYM	65.00			43.47	(-33.1%)		
B RHW	GE	/SEL	ANSI-SYM	65.00			43.47	(-33.1%)		
B MSA-W 1ATSW	GE	/SEL	ANSI-SYM	65.00			43.47	(-33.1%)		
B MSA-W 2ATSW	GE	/SGL4	ANSI-SYM	65.00			42.67	(-34.4%)		
MSA-W		/	ANSI-SYM	65.00			41.50	(-36.1%)		

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Equipment Duty Comparison Report For Bus:
RHW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA	(%)
B RHW-BRANCH	GE	/SEL	ANSI-SYM	65.00			5.72	(-91.2%)		
RHW		/	ANSI-SYM	42.00			5.72	(-86.4%)		

****

Equipment Duty Comparison Report For Bus:
TX ATR1W L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA	(%)
B ATR1W	GE	/SGL4	ANSI-SYM	100.00			5.33	(-94.7%)		

Project Name: Disney Campus
Comment: West - Three Phase Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
TX ATR2W L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B ATR2W	GE /SGL4	ANSI-SYM	100.00			5.32(-94.7%)			

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Equipment Duty Comparison Report For Bus:
TX ATR3W L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B ATR3W	GE /SGL4	ANSI-SYM	100.00			4.66(-95.3%)			

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Equipment Duty Comparison Report For Bus:
TX BTR1W L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B BTR1W	GE /SGL4	ANSI-SYM	100.00			5.33(-94.7%)			

****

Equipment Duty Comparison Report For Bus:
TX BTR2W L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B BTR2W	GE /SGL4	ANSI-SYM	100.00			5.22(-94.8%)			

****

Equipment Duty Comparison Report For Bus:
TX BTR3W L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B BTR3W	GE /SGL4	ANSI-SYM	100.00			5.17(-94.8%)			

Three Phase Bolted Fault

Low Voltage Momentary Report

Project Name: Disney Campus
Comment: West - Three Phase Fault - Low Voltage Momentary Report

First Cycle Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus 1ATSW 0.480 kV, Zone 1, Area 1
E/Z = 28.748 kA (23.90 MVA) At -54.99DEG, X/R = 1.43
Z1 = 2.400191 +j 3.427139 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 45.996 IASYM Based on X/R ratio = 29.406

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
2EH-B1W		1ATSW	0.00	0.00	Branch	1	1	C 2EH-B1W
MSA-W		1ATSW	28.75	-54.99	Branch	1	1	C MSA-W 1ATSW

*Bus 1ATSW 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.00 MVA) At 0.00DEG, X/R = 3.07
Z1 = ********** +j ********** pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 0.000 IASYM Based on X/R ratio = 0.000

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN W		1ATSW	0.00	0.00	Branch	1	1	C GEN-W 1ATSW
1ATSW		1ATSW	0.00	0.00	Branch	1	1	C 1ATSW

*Bus 1EDH-B1W 0.480 kV, Zone 1, Area 1
E/Z = 32.977 kA (27.42 MVA) At -74.41DEG, X/R = 3.58
Z1 = 0.980117 +j 3.513320 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 52.763 IASYM Based on X/R ratio = 39.006

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1BW H		1EDH-B1W	0.00	0.00	Branch	1	1	C TX STR-1BW
G-1		1EDH-B1W	0.77	-78.65	Branch	1	1	C G-1
3EH-B1W		1EDH-B1W	0.00	0.00	Branch	1	1	C 3EH-B1W
2ATSW		1EDH-B1W	32.21	-74.31	Branch	1	1	C 1EDH-B1W

*Bus 1ELA1W 0.208 kV, Zone 1, Area 1
E/Z = 0.874 kA (0.31 MVA) At -39.44DEG, X/R = 0.82
Z1 = 245.392092 +j 201.853213 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 1.398 IASYM Based on X/R ratio = 0.875

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
2EL-A1W		1ELA1W	0.87	-39.44	Branch	1	1	C 1ELA1W

*Bus 2ATSW 0.480 kV, Zone 1, Area 1
E/Z = 34.663 kA (28.82 MVA) At -75.44DEG, X/R = 3.85
Z1 = 0.872281 +j 3.358644 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 55.460 IASYM Based on X/R ratio = 41.629

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1EDH-B1W		2ATSW	0.76	-78.62	Branch	1	1	C 1EDH-B1W
MSA-W		2ATSW	33.90	-75.37	Branch	1	1	C MSA-W 2ATSW

*Bus 2ATSW 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.00 MVA) At 0.00DEG, X/R = 3.07
Z1 = ********** +j ********** pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 0.000 IASYM Based on X/R ratio = 0.000

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN W		2ATSW	0.00	0.00	Branch	1	1	C GEN-W 2ATSW
2ATSW		2ATSW	0.00	0.00	Branch	1	1	C 2ATSW

Project Name: Disney Campus
Comment: West - Three Phase Fault - Low Voltage Momentary Report

First Cycle Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

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*Bus 2EH-A1W            0.480 kV, Zone     1, Area     1
       E/Z =      6.134 kA (        5.10 MVA)  At   -27.00DEG, X/R =     0.51
       Z1 =   17.471117 +j   8.901277 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      9.815   IASYM Based on X/R ratio =    6.135

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       2EH-B1W           2EH-A1W                 6.13    -27.00  Branch      1      1  C 2EH-A1W
       TX 2ETR-1AW H     2EH-A1W                 0.00      0.00  Branch      1      1  C TX 2ETR-1AW

*Bus 2EH-B1W            0.480 kV, Zone     1, Area     1
       E/Z =     18.579 kA (       15.45 MVA)  At   -41.74DEG, X/R =     0.89
       Z1 =    4.830985 +j   4.310064 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     29.726   IASYM Based on X/R ratio =   18.632

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       2EH-A1W           2EH-B1W                 0.00      0.00  Branch      1      1  C 2EH-A1W
       1ATSW             2EH-B1W                18.58    -41.74  Branch      1      1  C 2EH-B1W
       TX 2ETR-1BW H     2EH-B1W                 0.00      0.00  Branch      1      1  C TX 2ETR-1BW

*Bus 2EL-A1W            0.208 kV, Zone     1, Area     1
       E/Z =      1.352 kA (        0.49 MVA)  At   -53.84DEG, X/R =     1.37
       Z1 =  121.119539 +j 165.742156 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      2.163   IASYM Based on X/R ratio =    1.379

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1AW L     2EL-A1W                 1.35    -53.84  Branch      1      1  C 2EL-A1W
       1ELA1W            2EL-A1W                 0.00      0.00  Branch      1      1  C 1ELA1W

*Bus 2EL-B1W            0.208 kV, Zone     1, Area     1
       E/Z =      0.774 kA (        0.28 MVA)  At   -54.33DEG, X/R =     1.39
       Z1 =  209.243222 +j 291.493977 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      1.238   IASYM Based on X/R ratio =    0.790

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1BW L     2EL-B1W                 0.77    -54.33  Branch      1      1  C 2EL-B1W

*Bus 3EH-B1W            0.480 kV, Zone     1, Area     1
       E/Z =     16.593 kA (       13.80 MVA)  At   -39.15DEG, X/R =     0.81
       Z1 =    5.621003 +j   4.576981 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     26.549   IASYM Based on X/R ratio =   16.621

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       1EDH-B1W          3EH-B1W                16.59    -39.15  Branch      1      1  C 3EH-B1W
       TX 3ETR-1AW H     3EH-B1W                 0.00      0.00  Branch      1      1  C TX 3ETR-1AW
       TX 3ETR-1BW H     3EH-B1W                 0.00      0.00  Branch      1      1  C TX 3ETR-1BW

*Bus 3EL-A1W            0.208 kV, Zone     1, Area     1
       E/Z =      1.330 kA (        0.48 MVA)  At   -52.54DEG, X/R =     1.31
       Z1 =  126.921546 +j 165.656307 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      2.128   IASYM Based on X/R ratio =    1.352

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1AW L     3EL-A1W                 1.33    -52.54  Branch      1      1  C 3EL-A1W
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Project Name: Disney Campus
Comment: West - Three Phase Fault - Low Voltage Momentary Report

First Cycle Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

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*Bus 3EL-B1W            0.208 kV, Zone     1, Area     1
       E/Z =      1.424 kA (        0.51 MVA)  At   -55.90DEG, X/R =     1.48
       Z1 =  109.269425 +j 161.417861 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      2.278   IASYM Based on X/R ratio =    1.461

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1BW L     3EL-B1W                1.42    -55.90  Branch      1      1  C 3EL-B1W

*Bus A1HW               0.480 kV, Zone     1, Area     1
       E/Z =      7.948 kA (        6.61 MVA)  At   -26.18DEG, X/R =     0.49
       Z1 =   13.581846 +j   6.676299 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     12.716   IASYM Based on X/R ratio =    7.948

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       MSA-W             A1HW                   7.95    -26.18  Branch      1      1  C A1HW

*Bus A1L1W              0.208 kV, Zone     1, Area     1
       E/Z =      5.223 kA (        1.88 MVA)  At   -62.61DEG, X/R =     1.93
       Z1 =   24.448600 +j  47.181888 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.357   IASYM Based on X/R ratio =    5.518

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX ATR1W L        A1L1W                  5.22    -62.61  Branch      1      1  C A1L1W
       A1L2W             A1L1W                  0.00      0.00  Branch      1      1  C A1L2W

*Bus A1L2W              0.208 kV, Zone     1, Area     1
       E/Z =      5.123 kA (        1.85 MVA)  At   -62.46DEG, X/R =     1.92
       Z1 =   25.052677 +j  48.042707 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.197   IASYM Based on X/R ratio =    5.407

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       A1L1W             A1L2W                  5.12    -62.46  Branch      1      1  C A1L2W

*Bus A2HW               0.480 kV, Zone     1, Area     1
       E/Z =      7.476 kA (        6.22 MVA)  At   -29.03DEG, X/R =     0.55
       Z1 =   14.068004 +j   7.806450 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     11.962   IASYM Based on X/R ratio =    7.477

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       MSA-W             A2HW                   7.48    -29.03  Branch      1      1  C A2HW

*Bus A2L1W              0.208 kV, Zone     1, Area     1
       E/Z =      5.218 kA (        1.88 MVA)  At   -62.64DEG, X/R =     1.93
       Z1 =   24.448600 +j  47.248686 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.348   IASYM Based on X/R ratio =    5.513

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX ATR2W L        A2L1W                  5.22    -62.64  Branch      1      1  C A2L1W
       A2L2W             A2L1W                  0.00      0.00  Branch      1      1  C A2L2W
```

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Driving Point Voltage (P.U.) = 1.00000

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*Bus A2L2W              0.208 kV, Zone     1, Area     1
       E/Z =      5.117 kA (        1.84 MVA)  At   -62.49DEG, X/R =     1.92
       Z1 =   25.052677 +j  48.109506 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.188   IASYM Based on X/R ratio =    5.402

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       A2L1W             A2L2W                  5.12    -62.49  Branch      1      1  C A2L2W

*Bus A3HW               0.480 kV, Zone     1, Area     1
       E/Z =      7.029 kA (        5.84 MVA)  At   -28.48DEG, X/R =     0.54
       Z1 =   15.040321 +j   8.159620 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     11.247   IASYM Based on X/R ratio =    7.030

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       MSA-W             A3HW                   7.03    -28.48  Branch      1      1  C A3HW

*Bus A3L1W              0.208 kV, Zone     1, Area     1
       E/Z =      4.581 kA (        1.65 MVA)  At   -58.97DEG, X/R =     1.66
       Z1 =   31.238856 +j  51.924577 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      7.329   IASYM Based on X/R ratio =    4.751

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX ATR3W L        A3L1W                  4.58    -58.97  Branch      1      1  C A3L1W
       A3L2W             A3L1W                  0.00      0.00  Branch      1      1  C A3L2W

*Bus A3L2W              0.208 kV, Zone     1, Area     1
       E/Z =      4.503 kA (        1.62 MVA)  At   -58.90DEG, X/R =     1.66
       Z1 =   31.842933 +j  52.785397 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      7.204   IASYM Based on X/R ratio =    4.669

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       A3L1W             A3L2W                  4.50    -58.90  Branch      1      1  C A3L2W

*Bus AC-1W              0.480 kV, Zone     1, Area     1
       E/Z =     19.660 kA (       16.34 MVA)  At   -60.83DEG, X/R =     1.79
       Z1 =    2.982417 +j   5.341990 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     31.456   IASYM Based on X/R ratio =   20.568

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       MSA-W             AC-1W                 19.66    -60.83  Branch      1      1  C AC-1W

*Bus AC-2W              0.480 kV, Zone     1, Area     1
       E/Z =     13.558 kA (       11.27 MVA)  At   -55.67DEG, X/R =     1.46
       Z1 =    5.003907 +j   7.325928 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     21.692   IASYM Based on X/R ratio =   13.896

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       MSA-W             AC-2W                 13.56    -55.67  Branch      1      1  C AC-2W
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*Bus AC-3W              0.480 kV, Zone     1, Area     1
       E/Z =     11.209 kA (        9.32 MVA)  At   -53.71DEG, X/R =     1.36
       Z1 =    6.351567 +j   8.648553 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     17.935   IASYM Based on X/R ratio =   11.426

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       MSA-W             AC-3W                 11.21    -53.71  Branch      1      1  C AC-3W

*Bus B1HW               0.480 kV, Zone     1, Area     1
       E/Z =     36.811 kA (       30.60 MVA)  At   -73.27DEG, X/R =     3.33
       Z1 =    0.940573 +j   3.129261 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     58.897   IASYM Based on X/R ratio =   42.864

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       MSA-W             B1HW                  36.81    -73.27  Branch      1      1  C B1HW

*Bus B1L1W              0.208 kV, Zone     1, Area     1
       E/Z =      5.223 kA (        1.88 MVA)  At   -62.61DEG, X/R =     1.93
       Z1 =   24.448600 +j  47.181888 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.357   IASYM Based on X/R ratio =    5.518

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX BTR1W L        B1L1W                  5.22    -62.61  Branch      1      1  C B1L1W
       B1L2W             B1L1W                  0.00      0.00  Branch      1      1  C B1L2W

*Bus B1L2W              0.208 kV, Zone     1, Area     1
       E/Z =      5.123 kA (        1.85 MVA)  At   -62.46DEG, X/R =     1.92
       Z1 =   25.052677 +j  48.042707 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.197   IASYM Based on X/R ratio =    5.407

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       B1L1W             B1L2W                  5.12    -62.46  Branch      1      1  C B1L2W

*Bus B2HW               0.480 kV, Zone     1, Area     1
       E/Z =     21.048 kA (       17.50 MVA)  At   -43.65DEG, X/R =     0.95
       Z1 =    4.134566 +j   3.944721 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     33.678   IASYM Based on X/R ratio =   21.135

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       MSA-W             B2HW                  21.05    -43.65  Branch      1      1  C B2HW

*Bus B2L1W              0.208 kV, Zone     1, Area     1
       E/Z =      5.117 kA (        1.84 MVA)  At   -62.06DEG, X/R =     1.89
       Z1 =   25.418637 +j  47.916671 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.188   IASYM Based on X/R ratio =    5.389

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX BTR2W L        B2L1W                  5.12    -62.06  Branch      1      1  C B2L1W
       B2L2W             B2L1W                  0.00      0.00  Branch      1      1  C B2L2W
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Driving Point Voltage (P.U.) = 1.00000

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*Bus B2L2W              0.208 kV, Zone     1, Area     1
       E/Z =      5.021 kA (        1.81 MVA)  At   -61.92DEG, X/R =     1.87
       Z1 =   26.022714 +j  48.777490 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.033   IASYM Based on X/R ratio =    5.283

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       B2L1W             B2L2W                  5.02    -61.92  Branch      1      1  C B2L2W

*Bus B3HW               0.480 kV, Zone     1, Area     1
       E/Z =     17.493 kA (       14.54 MVA)  At   -38.77DEG, X/R =     0.80
       Z1 =    5.360903 +j   4.305606 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     27.989   IASYM Based on X/R ratio =   17.520

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       MSA-W             B3HW                  17.49    -38.77  Branch      1      1  C B3HW

*Bus B3L1W              0.208 kV, Zone     1, Area     1
       E/Z =      5.068 kA (        1.83 MVA)  At   -61.77DEG, X/R =     1.86
       Z1 =   25.903655 +j  48.250663 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.110   IASYM Based on X/R ratio =    5.329

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX BTR3W L        B3L1W                  5.07    -61.77  Branch      1      1  C B3L1W
       B3L2W             B3L1W                  0.00      0.00  Branch      1      1  C B3L2W

*Bus B3L2W              0.208 kV, Zone     1, Area     1
       E/Z =      4.974 kA (        1.79 MVA)  At   -61.64DEG, X/R =     1.85
       Z1 =   26.507732 +j  49.111482 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      7.958   IASYM Based on X/R ratio =    5.226

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       B3L1W             B3L2W                  4.97    -61.64  Branch      1      1  C B3L2W

*Bus G-1                0.480 kV, Zone     1, Area     1
       E/Z =     13.251 kA (       11.02 MVA)  At   -43.68DEG, X/R =     0.95
       Z1 =    6.564585 +j   6.268788 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     21.202   IASYM Based on X/R ratio =   13.306

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       M ELEV1           G-1                    0.39    -80.69  Motor       1      1
       M ELEV2           G-1                    0.39    -80.69  Motor       1      1
       1EDH-B1W          G-1                   12.63    -41.54  Branch      1      1  C G-1

*Bus GEN W              0.480 kV, Zone     1, Area     1
       E/Z =      0.000 kA (        0.00 MVA)  At     0.00DEG, X/R =     3.07
       Z1 =  ********** +j ********** pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      0.000   IASYM Based on X/R ratio =    0.000

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       1ATSW             GEN W                  0.00      0.00  Branch      1      1  C GEN-W 1ATSW
       2ATSW             GEN W                  0.00      0.00  Branch      1      1  C GEN-W 2ATSW
       LB                GEN W                  0.00      0.00  Branch      1      1  C LB
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Driving Point Voltage (P.U.) = 1.00000

*Bus IDF-2AW 0.208 kV, Zone 1, Area 1
E/Z = 2.451 kA (0.88 MVA) At -34.87DEG, X/R = 0.70
Z1 = 92.909797 +j 64.745589 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 3.922 IASYM Based on X/R ratio = 2.453

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MDFW		IDF-2AW	2.45	-34.87	Branch	1	1	C IDF-2AW

*Bus LB 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.00 MVA) At 0.00DEG, X/R = 3.07
Z1 = ********** +j ********** pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 0.000 IASYM Based on X/R ratio = 0.000

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN W		LB	0.00	0.00	Branch	1	1	C LB

*Bus MDFW 0.208 kV, Zone 1, Area 1
E/Z = 6.089 kA (2.19 MVA) At -59.69DEG, X/R = 1.71
Z1 = 23.006484 +j 39.354956 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 9.742 IASYM Based on X/R ratio = 6.336

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1BW L		MDFW	6.09	-59.69	Branch	1	1	C MDFW
IDF-2AW		MDFW	0.00	0.00	Branch	1	1	C IDF-2AW

*Bus MSA-W 0.480 kV, Zone 1, Area 1
E/Z = 41.504 kA (34.51 MVA) At -80.96DEG, X/R = 6.28
Z1 = 0.455555 +j 2.862068 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 66.406 IASYM Based on X/R ratio = 55.206

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A2HW		MSA-W	0.00	0.00	Branch	1	1	C A2HW
TX GWP L		MSA-W	40.74	-81.00	Branch	1	1	C MSA-W
TX BTR1W H		MSA-W	0.00	0.00	Branch	1	1	C TX BTR1W
B1HW		MSA-W	0.00	0.00	Branch	1	1	C B1HW
TX BTR2W H		MSA-W	0.00	0.00	Branch	1	1	C TX BTR2W
B2HW		MSA-W	0.00	0.00	Branch	1	1	C B2HW
TX BTR3W H		MSA-W	0.00	0.00	Branch	1	1	C TX BTR3W
B3HW		MSA-W	0.00	0.00	Branch	1	1	C B3HW
A3HW		MSA-W	0.00	0.00	Branch	1	1	C A3HW
TX ATR3W H		MSA-W	0.00	0.00	Branch	1	1	C TX ATR3W
TX ATR2W H		MSA-W	0.00	0.00	Branch	1	1	C TX ATR2W
A1HW		MSA-W	0.00	0.00	Branch	1	1	C A1HW
TX ATR1W H		MSA-W	0.00	0.00	Branch	1	1	C TX ATR1W
AC-1W		MSA-W	0.00	0.00	Branch	1	1	C AC-1W
AC-2W		MSA-W	0.00	0.00	Branch	1	1	C AC-2W
AC-3W		MSA-W	0.00	0.00	Branch	1	1	C AC-3W
RHW		MSA-W	0.00	0.00	Branch	1	1	C RHW
1ATSW		MSA-W	0.00	0.00	Branch	1	1	C MSA-W 1ATSW
2ATSW		MSA-W	0.76	-78.50	Branch	1	1	C MSA-W 2ATSW

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Driving Point Voltage (P.U.) = 1.00000

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*Bus RHW                 0.480 kV, Zone     1, Area     1
       E/Z =      5.722 kA (        4.76 MVA)  At   -25.48DEG, X/R =     0.48
       Z1 =   18.977150 +j   9.042546 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      9.155   IASYM Based on X/R ratio =    5.722

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-W             RHW                     5.72    -25.48  Branch      1      1  C RHW

*Bus TX 2ETR-1AW H       0.480 kV, Zone     1, Area     1
       E/Z =      5.472 kA (        4.55 MVA)  At   -24.95DEG, X/R =     0.47
       Z1 =   19.929502 +j   9.272031 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.755   IASYM Based on X/R ratio =    5.472

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1AW L     TX 2ETR-1AW H           0.00      0.00  Branch      1      1  TX 2ETR-1AW
       2EH-A1W           TX 2ETR-1AW H           5.47    -24.95  Branch      1      1  C TX 2ETR-1AW

*Bus TX 2ETR-1AW L       0.208 kV, Zone     1, Area     1
       E/Z =      1.373 kA (        0.49 MVA)  At   -54.63DEG, X/R =     1.41
       Z1 =  117.000410 +j 164.798078 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      2.197   IASYM Based on X/R ratio =    1.403

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1AW H     TX 2ETR-1AW L           1.37    -54.63  Branch      1      1  TX 2ETR-1AW
       2EL-A1W           TX 2ETR-1AW L           0.00      0.00  Branch      1      1  C 2EL-A1W

*Bus TX 2ETR-1BW H       0.480 kV, Zone     1, Area     1
       E/Z =      7.787 kA (        6.47 MVA)  At   -17.64DEG, X/R =     0.32
       Z1 =   14.719701 +j   4.680819 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     12.460   IASYM Based on X/R ratio =    7.787

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1BW L     TX 2ETR-1BW H           0.00      0.00  Branch      1      1  TX 2ETR-1BW
       2EH-B1W           TX 2ETR-1BW H           7.79    -17.64  Branch      1      1  C TX 2ETR-1BW

*Bus TX 2ETR-1BW L       0.208 kV, Zone     1, Area     1
       E/Z =      0.788 kA (        0.28 MVA)  At   -55.61DEG, X/R =     1.46
       Z1 =  198.831426 +j 290.517946 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      1.262   IASYM Based on X/R ratio =    0.808

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1BW H     TX 2ETR-1BW L           0.79    -55.61  Branch      1      1  TX 2ETR-1BW
       2EL-B1W           TX 2ETR-1BW L           0.00      0.00  Branch      1      1  C 2EL-B1W

*Bus TX 3ETR-1AW H       0.480 kV, Zone     1, Area     1
       E/Z =      4.402 kA (        3.66 MVA)  At   -19.65DEG, X/R =     0.36
       Z1 =   25.731509 +j   9.186182 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      7.044   IASYM Based on X/R ratio =    4.402

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1AW L     TX 3ETR-1AW H           0.00      0.00  Branch      1      1  TX 3ETR-1AW
       3EH-B1W           TX 3ETR-1AW H           4.40    -19.65  Branch      1      1  C TX 3ETR-1AW
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Comment: West - Three Phase Fault - Low Voltage Momentary Report

First Cycle Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

```
*Bus TX 3ETR-1AW L       0.208 kV, Zone     1, Area     1
       E/Z =      1.351 kA (        0.49 MVA)  At   -53.29DEG, X/R =     1.34
       Z1 =  122.802417 +j 164.712229 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      2.162   IASYM Based on X/R ratio =    1.376

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1AW H     TX 3ETR-1AW L           1.35    -53.29  Branch      1      1  TX 3ETR-1AW
       3EL-A1W           TX 3ETR-1AW L           0.00      0.00  Branch      1      1  C 3EL-A1W

*Bus TX 3ETR-1BW H       0.480 kV, Zone     1, Area     1
       E/Z =     12.696 kA (       10.56 MVA)  At   -31.48DEG, X/R =     0.61
       Z1 =    8.079388 +j   4.947736 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     20.314   IASYM Based on X/R ratio =   12.699

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1BW L     TX 3ETR-1BW H           0.00      0.00  Branch      1      1  TX 3ETR-1BW
       3EH-B1W           TX 3ETR-1BW H          12.70    -31.48  Branch      1      1  C TX 3ETR-1BW

*Bus TX 3ETR-1BW L       0.208 kV, Zone     1, Area     1
       E/Z =      1.447 kA (        0.52 MVA)  At   -56.77DEG, X/R =     1.53
       Z1 =  105.150296 +j 160.473783 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      2.315   IASYM Based on X/R ratio =    1.488

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1BW H     TX 3ETR-1BW L           1.45    -56.77  Branch      1      1  TX 3ETR-1BW
       3EL-B1W           TX 3ETR-1BW L           0.00      0.00  Branch      1      1  C 3EL-B1W

*Bus TX ATR1W H          0.480 kV, Zone     1, Area     1
       E/Z =     36.811 kA (       30.60 MVA)  At   -73.27DEG, X/R =     3.33
       Z1 =    0.940573 +j   3.129261 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     58.897   IASYM Based on X/R ratio =   42.864

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR1W L        TX ATR1W H              0.00      0.00  Branch      1      1  TX ATR1W
       MSA-W             TX ATR1W H             36.81    -73.27  Branch      1      1  C TX ATR1W

*Bus TX ATR1W L          0.208 kV, Zone     1, Area     1
       E/Z =      5.328 kA (        1.92 MVA)  At   -62.76DEG, X/R =     1.94
       Z1 =   23.844523 +j  46.321068 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=      8.525   IASYM Based on X/R ratio =    5.633

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR1W H        TX ATR1W L              5.33    -62.76  Branch      1      1  TX ATR1W
       A1L1W             TX ATR1W L              0.00      0.00  Branch      1      1  C A1L1W

*Bus TX ATR2W H          0.480 kV, Zone     1, Area     1
       E/Z =     36.103 kA (       30.02 MVA)  At   -73.60DEG, X/R =     3.40
       Z1 =    0.940573 +j   3.196060 pu,  Z0 =   0.000000 +j   0.000000 pu
       1.6*ISYM=     57.765   IASYM Based on X/R ratio =   42.226

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR2W L        TX ATR2W H              0.00      0.00  Branch      1      1  TX ATR2W
       MSA-W             TX ATR2W H             36.10    -73.60  Branch      1      1  C TX ATR2W
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First Cycle Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus TX ATR2W L 0.208 kV, Zone 1, Area 1
E/Z = 5.322 kA (1.92 MVA) At -62.80DEG, X/R = 1.95
Z1 = 23.844523 +j 46.387867 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 8.515 IASYM Based on X/R ratio = 5.628

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR2W H	TX ATR2W L	5.32	-62.80	Branch	1	1	TX ATR2W
A2L1W	TX ATR2W L	0.00	0.00	Branch	1	1	C A2L1W

*Bus TX ATR3W H 0.480 kV, Zone 1, Area 1
E/Z = 10.902 kA (9.06 MVA) At -45.52DEG, X/R = 1.02
Z1 = 7.730829 +j 7.871951 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 17.443 IASYM Based on X/R ratio = 10.964

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR3W L	TX ATR3W H	0.00	0.00	Branch	1	1	TX ATR3W
MSA-W	TX ATR3W H	10.90	-45.52	Branch	1	1	C TX ATR3W

*Bus TX ATR3W L 0.208 kV, Zone 1, Area 1
E/Z = 4.661 kA (1.68 MVA) At -59.04DEG, X/R = 1.67
Z1 = 30.634779 +j 51.063758 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 7.458 IASYM Based on X/R ratio = 4.837

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR3W H	TX ATR3W L	4.66	-59.04	Branch	1	1	TX ATR3W
A3L1W	TX ATR3W L	0.00	0.00	Branch	1	1	C A3L1W

*Bus TX BTR1W H 0.480 kV, Zone 1, Area 1
E/Z = 36.811 kA (30.60 MVA) At -73.27DEG, X/R = 3.33
Z1 = 0.940573 +j 3.129261 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 58.897 IASYM Based on X/R ratio = 42.864

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR1W L	TX BTR1W H	0.00	0.00	Branch	1	1	TX BTR1W
MSA-W	TX BTR1W H	36.81	-73.27	Branch	1	1	C TX BTR1W

*Bus TX BTR1W L 0.208 kV, Zone 1, Area 1
E/Z = 5.328 kA (1.92 MVA) At -62.76DEG, X/R = 1.94
Z1 = 23.844523 +j 46.321068 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 8.525 IASYM Based on X/R ratio = 5.633

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR1W H	TX BTR1W L	5.33	-62.76	Branch	1	1	TX BTR1W
B1L1W	TX BTR1W L	0.00	0.00	Branch	1	1	C B1L1W

*Bus TX BTR2W H 0.480 kV, Zone 1, Area 1
E/Z = 27.904 kA (23.20 MVA) At -63.69DEG, X/R = 2.02
Z1 = 1.910610 +j 3.864044 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 44.646 IASYM Based on X/R ratio = 29.671

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR2W L	TX BTR2W H	0.00	0.00	Branch	1	1	TX BTR2W
MSA-W	TX BTR2W H	27.90	-63.69	Branch	1	1	C TX BTR2W

Project Name: Disney Campus
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First Cycle Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus TX BTR2W L 0.208 kV, Zone 1, Area 1
E/Z = 5.218 kA (1.88 MVA) At -62.20DEG, X/R = 1.90
Z1 = 24.814559 +j 47.055851 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 8.348 IASYM Based on X/R ratio = 5.499

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR2W H		TX BTR2W L	5.22	-62.20	Branch	1	1	TX BTR2W
B2L1W		TX BTR2W L	0.00	0.00	Branch	1	1	C B2L1W

*Bus TX BTR3W H 0.480 kV, Zone 1, Area 1
E/Z = 24.885 kA (20.69 MVA) At -60.29DEG, X/R = 1.75
Z1 = 2.395628 +j 4.198036 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 39.816 IASYM Based on X/R ratio = 25.967

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR3W L		TX BTR3W H	0.00	0.00	Branch	1	1	TX BTR3W
MSA-W		TX BTR3W H	24.89	-60.29	Branch	1	1	C TX BTR3W

*Bus TX BTR3W L 0.208 kV, Zone 1, Area 1
E/Z = 5.167 kA (1.86 MVA) At -61.90DEG, X/R = 1.87
Z1 = 25.299578 +j 47.389843 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 8.267 IASYM Based on X/R ratio = 5.436

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR3W H		TX BTR3W L	5.17	-61.90	Branch	1	1	TX BTR3W
B3L1W		TX BTR3W L	0.00	0.00	Branch	1	1	C B3L1W

*Bus TX GWP L 0.480 kV, Zone 1, Area 1
E/Z = 42.760 kA (35.55 MVA) At -81.81DEG, X/R = 6.95
Z1 = 0.400739 +j 2.784267 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 68.416 IASYM Based on X/R ratio = 57.990

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GWP		TX GWP L	42.00	-81.87	Util	1	1	
MSA-W		TX GWP L	0.76	-78.48	Branch	1	1	C MSA-W

*Bus TX STR-1BW H 0.480 kV, Zone 1, Area 1
E/Z = 27.769 kA (23.09 MVA) At -63.21DEG, X/R = 1.98
Z1 = 1.952435 +j 3.866490 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 44.431 IASYM Based on X/R ratio = 29.439

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1BW L		TX STR-1BW H	0.00	0.00	Branch	1	1	TX STR-1BW
1EDH-B1W		TX STR-1BW H	27.77	-63.21	Branch	1	1	C TX STR-1BW

*Bus TX STR-1BW L 0.208 kV, Zone 1, Area 1
E/Z = 6.262 kA (2.26 MVA) At -60.67DEG, X/R = 1.78
Z1 = 21.715015 +j 38.643494 pu, Z0 = 0.000000 +j 0.000000 pu
1.6*ISYM= 10.019 IASYM Based on X/R ratio = 6.546

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1BW H		TX STR-1BW L	6.26	-60.67	Branch	1	1	TX STR-1BW
MDFW		TX STR-1BW L	0.00	0.00	Branch	1	1	C MDFW

Three Phase Bolted Fault

Low Voltage Interrupting Report

Project Name: Disney Campus
Comment: West - Three Phase Fault - Low Voltage Interrupting Report

Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus 1ATSW 0.480 kV, Zone 1, Area 1
E/Z = 28.558 kA (23.742 MVA) At -55.21DEG, X/R = 1.75
Z1 = 2.403335 +j 3.458864 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
2EH-B1W		1ATSW	0.00	0.00	Branch	1	1	C 2EH-B1W
MSA-W		1ATSW	28.56	-55.21	Branch	1	1	C MSA-W 1ATSW

*Bus 1ATSW 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.000 MVA) At 0.00DEG, X/R = 0.22
Z1 = ********** +j ********** pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN W		1ATSW	0.00	0.00	Branch	1	1	C GEN-W 1ATSW
1ATSW		1ATSW	0.00	0.00	Branch	1	1	C 1ATSW

*Bus 1EDH-B1W 0.480 kV, Zone 1, Area 1
E/Z = 32.523 kA (27.039 MVA) At -74.36DEG, X/R = 3.72
Z1 = 0.996754 +j 3.561528 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1BW H		1EDH-B1W	0.00	0.00	Branch	1	1	C TX STR-1BW
G-1		1EDH-B1W	0.31	-79.86	Branch	1	1	C G-1
3EH-B1W		1EDH-B1W	0.00	0.00	Branch	1	1	C 3EH-B1W
2ATSW		1EDH-B1W	32.21	-74.31	Branch	1	1	C 1EDH-B1W

*Bus 1ELA1W 0.208 kV, Zone 1, Area 1
E/Z = 0.874 kA (0.315 MVA) At -39.44DEG, X/R = 1.29
Z1 = 245.395236 +j 201.884939 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
2EL-A1W		1ELA1W	0.87	-39.44	Branch	1	1	C 1ELA1W

*Bus 2ATSW 0.480 kV, Zone 1, Area 1
E/Z = 34.209 kA (28.441 MVA) At -75.41DEG, X/R = 3.97
Z1 = 0.885687 +j 3.402701 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1EDH-B1W		2ATSW	0.31	-79.84	Branch	1	1	C 1EDH-B1W
MSA-W		2ATSW	33.90	-75.37	Branch	1	1	C MSA-W 2ATSW

*Bus 2ATSW 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.000 MVA) At 0.00DEG, X/R = 0.22
Z1 = ********** +j ********** pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN W		2ATSW	0.00	0.00	Branch	1	1	C GEN-W 2ATSW
2ATSW		2ATSW	0.00	0.00	Branch	1	1	C 2ATSW

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Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus 2EH-A1W 0.480 kV, Zone 1, Area 1
E/Z = 6.129 kA (5.095 MVA) At -27.08DEG, X/R = 1.12
Z1 = 17.474261 +j 8.933002 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
2EH-B1W		2EH-A1W	6.13	-27.08	Branch	1	1	C 2EH-A1W
TX 2ETR-1AW H		2EH-A1W	0.00	0.00	Branch	1	1	C TX 2ETR-1AW

*Bus 2EH-B1W 0.480 kV, Zone 1, Area 1
E/Z = 18.511 kA (15.390 MVA) At -41.93DEG, X/R = 1.34
Z1 = 4.834129 +j 4.341790 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
2EH-A1W		2EH-B1W	0.00	0.00	Branch	1	1	C 2EH-A1W
1ATSW		2EH-B1W	18.51	-41.93	Branch	1	1	C 2EH-B1W
TX 2ETR-1BW H		2EH-B1W	0.00	0.00	Branch	1	1	C TX 2ETR-1BW

*Bus 2EL-A1W 0.208 kV, Zone 1, Area 1
E/Z = 1.352 kA (0.487 MVA) At -53.85DEG, X/R = 1.70
Z1 = 121.122683 +j 165.773881 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1AW L		2EL-A1W	1.35	-53.85	Branch	1	1	C 2EL-A1W
1ELA1W		2EL-A1W	0.00	0.00	Branch	1	1	C 1ELA1W

*Bus 2EL-B1W 0.208 kV, Zone 1, Area 1
E/Z = 0.774 kA (0.279 MVA) At -54.33DEG, X/R = 1.71
Z1 = 209.246366 +j 291.525703 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1BW L		2EL-B1W	0.77	-54.33	Branch	1	1	C 2EL-B1W

*Bus 3EH-B1W 0.480 kV, Zone 1, Area 1
E/Z = 16.495 kA (13.713 MVA) At -39.37DEG, X/R = 1.29
Z1 = 5.637640 +j 4.625190 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1EDH-B1W		3EH-B1W	16.49	-39.37	Branch	1	1	C 3EH-B1W
TX 3ETR-1AW H		3EH-B1W	0.00	0.00	Branch	1	1	C TX 3ETR-1AW
TX 3ETR-1BW H		3EH-B1W	0.00	0.00	Branch	1	1	C TX 3ETR-1BW

*Bus 3EL-A1W 0.208 kV, Zone 1, Area 1
E/Z = 1.330 kA (0.479 MVA) At -52.55DEG, X/R = 1.64
Z1 = 126.938183 +j 165.704515 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1AW L		3EL-A1W	1.33	-52.55	Branch	1	1	C 3EL-A1W

*Bus 3EL-B1W 0.208 kV, Zone 1, Area 1
E/Z = 1.424 kA (0.513 MVA) At -55.91DEG, X/R = 1.78
Z1 = 109.286062 +j 161.466069 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1BW L		3EL-B1W	1.42	-55.91	Branch	1	1	C 3EL-B1W

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Driving Point Voltage (P.U.) = 1.00000

*Bus A1HW 0.480 kV, Zone 1, Area 1
E/Z = 7.939 kA (6.600 MVA) At -26.28DEG, X/R = 1.12
Z1 = 13.584990 +j 6.708024 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		A1HW	7.94	-26.28	Branch	1	1	C A1HW

*Bus A1L1W 0.208 kV, Zone 1, Area 1
E/Z = 5.221 kA (1.881 MVA) At -62.62DEG, X/R = 2.17
Z1 = 24.451744 +j 47.213613 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR1W L		A1L1W	5.22	-62.62	Branch	1	1	C A1L1W
A1L2W		A1L1W	0.00	0.00	Branch	1	1	C A1L2W

*Bus A1L2W 0.208 kV, Zone 1, Area 1
E/Z = 5.120 kA (1.845 MVA) At -62.47DEG, X/R = 2.16
Z1 = 25.055821 +j 48.074433 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A1L1W		A1L2W	5.12	-62.47	Branch	1	1	C A1L2W

*Bus A2HW 0.480 kV, Zone 1, Area 1
E/Z = 7.468 kA (6.208 MVA) At -29.12DEG, X/R = 1.14
Z1 = 14.071149 +j 7.838176 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		A2HW	7.47	-29.12	Branch	1	1	C A2HW

*Bus A2L1W 0.208 kV, Zone 1, Area 1
E/Z = 5.215 kA (1.879 MVA) At -62.65DEG, X/R = 2.18
Z1 = 24.451744 +j 47.280412 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR2W L		A2L1W	5.21	-62.65	Branch	1	1	C A2L1W
A2L2W		A2L1W	0.00	0.00	Branch	1	1	C A2L2W

*Bus A2L2W 0.208 kV, Zone 1, Area 1
E/Z = 5.115 kA (1.843 MVA) At -62.50DEG, X/R = 2.17
Z1 = 25.055821 +j 48.141231 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A2L1W		A2L2W	5.11	-62.50	Branch	1	1	C A2L2W

*Bus A3HW 0.480 kV, Zone 1, Area 1
E/Z = 7.022 kA (5.838 MVA) At -28.57DEG, X/R = 1.14
Z1 = 15.043465 +j 8.191346 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		A3HW	7.02	-28.57	Branch	1	1	C A3HW

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Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus A3L1W 0.208 kV, Zone 1, Area 1
E/Z = 4.578 kA (1.649 MVA) At -58.98DEG, X/R = 1.94
Z1 = 31.242000 +j 51.956303 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR3W L		A3L1W	4.58	-58.98	Branch	1	1	C A3L1W
A3L2W		A3L1W	0.00	0.00	Branch	1	1	C A3L2W

*Bus A3L2W 0.208 kV, Zone 1, Area 1
E/Z = 4.501 kA (1.621 MVA) At -58.91DEG, X/R = 1.94
Z1 = 31.846077 +j 52.817122 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A3L1W		A3L2W	4.50	-58.91	Branch	1	1	C A3L2W

*Bus AC-1W 0.480 kV, Zone 1, Area 1
E/Z = 19.566 kA (16.267 MVA) At -60.94DEG, X/R = 2.06
Z1 = 2.985561 +j 5.373715 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		AC-1W	19.57	-60.94	Branch	1	1	C AC-1W

*Bus AC-2W 0.480 kV, Zone 1, Area 1
E/Z = 13.515 kA (11.236 MVA) At -55.76DEG, X/R = 1.78
Z1 = 5.007051 +j 7.357653 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		AC-2W	13.52	-55.76	Branch	1	1	C AC-2W

*Bus AC-3W 0.480 kV, Zone 1, Area 1
E/Z = 11.181 kA (9.296 MVA) At -53.79DEG, X/R = 1.69
Z1 = 6.354711 +j 8.680278 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		AC-3W	11.18	-53.79	Branch	1	1	C AC-3W

*Bus B1HW 0.480 kV, Zone 1, Area 1
E/Z = 36.462 kA (30.314 MVA) At -73.38DEG, X/R = 3.50
Z1 = 0.943717 +j 3.160987 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		B1HW	36.46	-73.38	Branch	1	1	C B1HW

*Bus B1L1W 0.208 kV, Zone 1, Area 1
E/Z = 5.221 kA (1.881 MVA) At -62.62DEG, X/R = 2.17
Z1 = 24.451744 +j 47.213613 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR1W L		B1L1W	5.22	-62.62	Branch	1	1	C B1L1W
B1L2W		B1L1W	0.00	0.00	Branch	1	1	C B1L2W

Project Name: Disney Campus
Comment: West - Three Phase Fault - Low Voltage Interrupting Report

Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

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*Bus B1L2W              0.208 kV, Zone     1, Area     1
      E/Z =      5.120 kA (       1.845 MVA)  At   -62.47DEG, X/R =     2.16
      Z1 =   25.055821 +j  48.074433 pu,  Z0 =   0.000000 +j   0.000000 pu

      Contributions In kA
      Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
      B1L1W             B1L2W                  5.12    -62.47  Branch      1      1  C B1L2W

*Bus B2HW               0.480 kV, Zone     1, Area     1
      E/Z =     20.960 kA (      17.426 MVA)  At   -43.86DEG, X/R =     1.39
      Z1 =    4.137710 +j   3.976447 pu,  Z0 =   0.000000 +j   0.000000 pu

      Contributions In kA
      Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
      MSA-W             B2HW                  20.96    -43.86  Branch      1      1  C B2HW

*Bus B2L1W              0.208 kV, Zone     1, Area     1
      E/Z =      5.115 kA (       1.843 MVA)  At   -62.07DEG, X/R =     2.13
      Z1 =   25.421781 +j  47.948396 pu,  Z0 =   0.000000 +j   0.000000 pu

      Contributions In kA
      Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
      TX BTR2W L        B2L1W                  5.11    -62.07  Branch      1      1  C B2L1W
      B2L2W             B2L1W                  0.00      0.00  Branch      1      1  C B2L2W

*Bus B2L2W              0.208 kV, Zone     1, Area     1
      E/Z =      5.018 kA (       1.808 MVA)  At   -61.93DEG, X/R =     2.13
      Z1 =   26.025858 +j  48.809216 pu,  Z0 =   0.000000 +j   0.000000 pu

      Contributions In kA
      Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
      B2L1W             B2L2W                  5.02    -61.93  Branch      1      1  C B2L2W

*Bus B3HW               0.480 kV, Zone     1, Area     1
      E/Z =     17.437 kA (      14.496 MVA)  At   -38.96DEG, X/R =     1.29
      Z1 =    5.364047 +j   4.337331 pu,  Z0 =   0.000000 +j   0.000000 pu

      Contributions In kA
      Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
      MSA-W             B3HW                  17.44    -38.96  Branch      1      1  C B3HW

*Bus B3L1W              0.208 kV, Zone     1, Area     1
      E/Z =      5.066 kA (       1.825 MVA)  At   -61.78DEG, X/R =     2.12
      Z1 =   25.906799 +j  48.282388 pu,  Z0 =   0.000000 +j   0.000000 pu

      Contributions In kA
      Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
      TX BTR3W L        B3L1W                  5.07    -61.78  Branch      1      1  C B3L1W
      B3L2W             B3L1W                  0.00      0.00  Branch      1      1  C B3L2W

*Bus B3L2W              0.208 kV, Zone     1, Area     1
      E/Z =      4.971 kA (       1.791 MVA)  At   -61.65DEG, X/R =     2.11
      Z1 =   26.510876 +j  49.143208 pu,  Z0 =   0.000000 +j   0.000000 pu

      Contributions In kA
      Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
      B3L1W             B3L2W                  4.97    -61.65  Branch      1      1  C B3L2W
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Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus G-1 0.480 kV, Zone 1, Area 1
E/Z = 12.879 kA (10.707 MVA) At -42.42DEG, X/R = 1.46
Z1 = 6.894658 +j 6.300073 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
M ELEV1		G-1	0.16	-80.69	Motor	1	1	
M ELEV2		G-1	0.16	-80.69	Motor	1	1	
1EDH-B1W		G-1	12.63	-41.54	Branch	1	1	C G-1

*Bus GEN W 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.000 MVA) At 0.00DEG, X/R = 0.22
Z1 = ********** +j ********** pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1ATSW		GEN W	0.00	0.00	Branch	1	1	C GEN-W 1ATSW
2ATSW		GEN W	0.00	0.00	Branch	1	1	C GEN-W 2ATSW
LB		GEN W	0.00	0.00	Branch	1	1	C LB

*Bus IDF-2AW 0.208 kV, Zone 1, Area 1
E/Z = 2.450 kA (0.883 MVA) At -34.89DEG, X/R = 1.22
Z1 = 92.926434 +j 64.793797 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MDFW		IDF-2AW	2.45	-34.89	Branch	1	1	C IDF-2AW

*Bus LB 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.000 MVA) At 0.00DEG, X/R = 0.22
Z1 = ********** +j ********** pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN W		LB	0.00	0.00	Branch	1	1	C LB

*Bus MDFW 0.208 kV, Zone 1, Area 1
E/Z = 6.082 kA (2.191 MVA) At -59.70DEG, X/R = 1.98
Z1 = 23.023121 +j 39.403165 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1BW L		MDFW	6.08	-59.70	Branch	1	1	C MDFW
IDF-2AW		MDFW	0.00	0.00	Branch	1	1	C IDF-2AW

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Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus MSA-W 0.480 kV, Zone 1, Area 1
E/Z = 41.053 kA (34.131 MVA) At -80.99DEG, X/R = 6.39
Z1 = 0.458699 +j 2.893793 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A2HW		MSA-W	0.00	0.00	Branch	1	1	C A2HW
TX GWP L		MSA-W	40.74	-81.00	Branch	1	1	C MSA-W
TX BTR1W H		MSA-W	0.00	0.00	Branch	1	1	C TX BTR1W
B1HW		MSA-W	0.00	0.00	Branch	1	1	C B1HW
TX BTR2W H		MSA-W	0.00	0.00	Branch	1	1	C TX BTR2W
B2HW		MSA-W	0.00	0.00	Branch	1	1	C B2HW
TX BTR3W H		MSA-W	0.00	0.00	Branch	1	1	C TX BTR3W
B3HW		MSA-W	0.00	0.00	Branch	1	1	C B3HW
A3HW		MSA-W	0.00	0.00	Branch	1	1	C A3HW
TX ATR3W H		MSA-W	0.00	0.00	Branch	1	1	C TX ATR3W
TX ATR2W H		MSA-W	0.00	0.00	Branch	1	1	C TX ATR2W
A1HW		MSA-W	0.00	0.00	Branch	1	1	C A1HW
TX ATR1W H		MSA-W	0.00	0.00	Branch	1	1	C TX ATR1W
AC-1W		MSA-W	0.00	0.00	Branch	1	1	C AC-1W
AC-2W		MSA-W	0.00	0.00	Branch	1	1	C AC-2W
AC-3W		MSA-W	0.00	0.00	Branch	1	1	C AC-3W
RHW		MSA-W	0.00	0.00	Branch	1	1	C RHW
1ATSW		MSA-W	0.00	0.00	Branch	1	1	C MSA-W 1ATSW
2ATSW		MSA-W	0.31	-79.80	Branch	1	1	C MSA-W 2ATSW

*Bus RHW 0.480 kV, Zone 1, Area 1
E/Z = 5.717 kA (4.753 MVA) At -25.55DEG, X/R = 1.11
Z1 = 18.980294 +j 9.074271 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		RHW	5.72	-25.55	Branch	1	1	C RHW

*Bus TX 2ETR-1AW H 0.480 kV, Zone 1, Area 1
E/Z = 5.468 kA (4.546 MVA) At -25.02DEG, X/R = 1.10
Z1 = 19.932646 +j 9.303756 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1AW L		TX 2ETR-1AW H	0.00	0.00	Branch	1	1	TX 2ETR-1AW
2EH-A1W		TX 2ETR-1AW H	5.47	-25.02	Branch	1	1	C TX 2ETR-1AW

*Bus TX 2ETR-1AW L 0.208 kV, Zone 1, Area 1
E/Z = 1.373 kA (0.495 MVA) At -54.63DEG, X/R = 1.73
Z1 = 117.003554 +j 164.829803 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1AW H		TX 2ETR-1AW L	1.37	-54.63	Branch	1	1	TX 2ETR-1AW
2EL-A1W		TX 2ETR-1AW L	0.00	0.00	Branch	1	1	C 2EL-A1W

*Bus TX 2ETR-1BW H 0.480 kV, Zone 1, Area 1
E/Z = 7.781 kA (6.469 MVA) At -17.75DEG, X/R = 1.05
Z1 = 14.722845 +j 4.712544 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1BW L		TX 2ETR-1BW H	0.00	0.00	Branch	1	1	TX 2ETR-1BW
2EH-B1W		TX 2ETR-1BW H	7.78	-17.75	Branch	1	1	C TX 2ETR-1BW

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Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus TX 2ETR-1BW L 0.208 kV, Zone 1, Area 1
E/Z = 0.788 kA (0.284 MVA) At -55.61DEG, X/R = 1.77
Z1 = 198.834570 +j 290.549672 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1BW H	TX 2ETR-1BW L	0.79	-55.61	Branch	1	1	TX 2ETR-1BW
2EL-B1W	TX 2ETR-1BW L	0.00	0.00	Branch	1	1	C 2EL-B1W

*Bus TX 3ETR-1AW H 0.480 kV, Zone 1, Area 1
E/Z = 4.397 kA (3.656 MVA) At -19.73DEG, X/R = 1.06
Z1 = 25.748146 +j 9.234390 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1AW L	TX 3ETR-1AW H	0.00	0.00	Branch	1	1	TX 3ETR-1AW
3EH-B1W	TX 3ETR-1AW H	4.40	-19.73	Branch	1	1	C TX 3ETR-1AW

*Bus TX 3ETR-1AW L 0.208 kV, Zone 1, Area 1
E/Z = 1.351 kA (0.487 MVA) At -53.30DEG, X/R = 1.67
Z1 = 122.819054 +j 164.760437 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1AW H	TX 3ETR-1AW L	1.35	-53.30	Branch	1	1	TX 3ETR-1AW
3EL-A1W	TX 3ETR-1AW L	0.00	0.00	Branch	1	1	C 3EL-A1W

*Bus TX 3ETR-1BW H 0.480 kV, Zone 1, Area 1
E/Z = 12.643 kA (10.511 MVA) At -31.68DEG, X/R = 1.18
Z1 = 8.096025 +j 4.995944 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1BW L	TX 3ETR-1BW H	0.00	0.00	Branch	1	1	TX 3ETR-1BW
3EH-B1W	TX 3ETR-1BW H	12.64	-31.68	Branch	1	1	C TX 3ETR-1BW

*Bus TX 3ETR-1BW L 0.208 kV, Zone 1, Area 1
E/Z = 1.446 kA (0.521 MVA) At -56.77DEG, X/R = 1.82
Z1 = 105.166933 +j 160.521991 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1BW H	TX 3ETR-1BW L	1.45	-56.77	Branch	1	1	TX 3ETR-1BW
3EL-B1W	TX 3ETR-1BW L	0.00	0.00	Branch	1	1	C 3EL-B1W

*Bus TX ATR1W H 0.480 kV, Zone 1, Area 1
E/Z = 36.462 kA (30.314 MVA) At -73.38DEG, X/R = 3.50
Z1 = 0.943717 +j 3.160987 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR1W L	TX ATR1W H	0.00	0.00	Branch	1	1	TX ATR1W
MSA-W	TX ATR1W H	36.46	-73.38	Branch	1	1	C TX ATR1W

*Bus TX ATR1W L 0.208 kV, Zone 1, Area 1
E/Z = 5.325 kA (1.918 MVA) At -62.78DEG, X/R = 2.19
Z1 = 23.847667 +j 46.352793 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR1W H	TX ATR1W L	5.32	-62.78	Branch	1	1	TX ATR1W
A1L1W	TX ATR1W L	0.00	0.00	Branch	1	1	C A1L1W

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Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus TX ATR2W H 0.480 kV, Zone 1, Area 1
E/Z = 35.767 kA (29.736 MVA) At -73.70DEG, X/R = 3.56
Z1 = 0.943717 +j 3.227785 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR2W L		TX ATR2W H	0.00	0.00	Branch	1	1	TX ATR2W
MSA-W		TX ATR2W H	35.77	-73.70	Branch	1	1	C TX ATR2W

*Bus TX ATR2W L 0.208 kV, Zone 1, Area 1
E/Z = 5.319 kA (1.916 MVA) At -62.81DEG, X/R = 2.19
Z1 = 23.847667 +j 46.419592 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR2W H		TX ATR2W L	5.32	-62.81	Branch	1	1	TX ATR2W
A2L1W		TX ATR2W L	0.00	0.00	Branch	1	1	C A2L1W

*Bus TX ATR3W H 0.480 kV, Zone 1, Area 1
E/Z = 10.877 kA (9.043 MVA) At -45.62DEG, X/R = 1.43
Z1 = 7.733973 +j 7.903676 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR3W L		TX ATR3W H	0.00	0.00	Branch	1	1	TX ATR3W
MSA-W		TX ATR3W H	10.88	-45.62	Branch	1	1	C TX ATR3W

*Bus TX ATR3W L 0.208 kV, Zone 1, Area 1
E/Z = 4.659 kA (1.678 MVA) At -59.05DEG, X/R = 1.94
Z1 = 30.637923 +j 51.095483 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR3W H		TX ATR3W L	4.66	-59.05	Branch	1	1	TX ATR3W
A3L1W		TX ATR3W L	0.00	0.00	Branch	1	1	C A3L1W

*Bus TX BTR1W H 0.480 kV, Zone 1, Area 1
E/Z = 36.462 kA (30.314 MVA) At -73.38DEG, X/R = 3.50
Z1 = 0.943717 +j 3.160987 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR1W L		TX BTR1W H	0.00	0.00	Branch	1	1	TX BTR1W
MSA-W		TX BTR1W H	36.46	-73.38	Branch	1	1	C TX BTR1W

*Bus TX BTR1W L 0.208 kV, Zone 1, Area 1
E/Z = 5.325 kA (1.918 MVA) At -62.78DEG, X/R = 2.19
Z1 = 23.847667 +j 46.352793 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR1W H		TX BTR1W L	5.32	-62.78	Branch	1	1	TX BTR1W
B1L1W		TX BTR1W L	0.00	0.00	Branch	1	1	C B1L1W

*Bus TX BTR2W H 0.480 kV, Zone 1, Area 1
E/Z = 27.712 kA (23.039 MVA) At -63.84DEG, X/R = 2.27
Z1 = 1.913754 +j 3.895770 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR2W L		TX BTR2W H	0.00	0.00	Branch	1	1	TX BTR2W
MSA-W		TX BTR2W H	27.71	-63.84	Branch	1	1	C TX BTR2W

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Interrupting Results 3 PHASE
Driving Point Voltage (P.U.) = 1.00000

*Bus TX BTR2W L 0.208 kV, Zone 1, Area 1
E/Z = 5.215 kA (1.879 MVA) At -62.21DEG, X/R = 2.14
Z1 = 24.817703 +j 47.087577 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR2W H	TX BTR2W L	5.21	-62.21	Branch	1	1	TX BTR2W
B2L1W	TX BTR2W L	0.00	0.00	Branch	1	1	C B2L1W

*Bus TX BTR3W H 0.480 kV, Zone 1, Area 1
E/Z = 24.736 kA (20.565 MVA) At -60.44DEG, X/R = 2.03
Z1 = 2.398772 +j 4.229762 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR3W L	TX BTR3W H	0.00	0.00	Branch	1	1	TX BTR3W
MSA-W	TX BTR3W H	24.74	-60.44	Branch	1	1	C TX BTR3W

*Bus TX BTR3W L 0.208 kV, Zone 1, Area 1
E/Z = 5.164 kA (1.860 MVA) At -61.92DEG, X/R = 2.12
Z1 = 25.302722 +j 47.421569 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR3W H	TX BTR3W L	5.16	-61.92	Branch	1	1	TX BTR3W
B3L1W	TX BTR3W L	0.00	0.00	Branch	1	1	C B3L1W

*Bus TX GWP L 0.480 kV, Zone 1, Area 1
E/Z = 42.310 kA (35.176 MVA) At -81.85DEG, X/R = 7.06
Z1 = 0.402792 +j 2.814197 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
GWP	TX GWP L	42.00	-81.87	Util	1	1	
MSA-W	TX GWP L	0.31	-79.79	Branch	1	1	C MSA-W

*Bus TX STR-1BW H 0.480 kV, Zone 1, Area 1
E/Z = 27.449 kA (22.821 MVA) At -63.30DEG, X/R = 2.23
Z1 = 1.969071 +j 3.914698 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1BW L	TX STR-1BW H	0.00	0.00	Branch	1	1	TX STR-1BW
1EDH-B1W	TX STR-1BW H	27.45	-63.30	Branch	1	1	C TX STR-1BW

*Bus TX STR-1BW L 0.208 kV, Zone 1, Area 1
E/Z = 6.255 kA (2.253 MVA) At -60.68DEG, X/R = 2.04
Z1 = 21.731652 +j 38.691702 pu, Z0 = 0.000000 +j 0.000000 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1BW H	TX STR-1BW L	6.25	-60.68	Branch	1	1	TX STR-1BW
MDFW	TX STR-1BW L	0.00	0.00	Branch	1	1	C MDFW

Ground Fault

Equipment Duty Ratings

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
1ATSW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B 1ATSW	GE	/SEL	ANSI-SYM	65.00			0.00(-100.0%)		

****

Equipment Duty Comparison Report For Bus:
1EDH-B1W Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B TX STR-1BW	GE	/SFL	ANSI-SYM	65.00			29.78(-54.2%)		
B G-1	GE	/SFL	ANSI-SYM	65.00			29.32(-54.9%)		
B 3EH-B1W	GE	/SFL	ANSI-SYM	65.00			29.78(-54.2%)		
1EDH-B1W		/	ANSI-SYM	42.00			29.78(-29.1%)		

****

Equipment Duty Comparison Report For Bus:
1ELA1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B 1ELA1W BRANCH	GE	/THQB	ANSI-SYM	10.00			0.81(-91.9%)		
B 1ELA1W-MAIN	GE	/THQB	ANSI-SYM	10.00			0.81(-91.9%)		
1ELA1W		/	ANSI-SYM	10.00			0.81(-91.9%)		

****

Equipment Duty Comparison Report For Bus:
2ATSW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B 2ATSW	GE	/SFL	ANSI-SYM	65.00			0.00(-100.0%)		

Project Name: Disney Campus
Comment: West - Ground Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
2EH-A1W Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B TX 2ETR-1AW	GE /TEY	ANSI-SYM	14.00		4.68(-66.5%)			
2EH-A1W	/	ANSI-SYM	14.00		4.68(-66.5%)			

****

Equipment Duty Comparison Report For Bus:
2EH-B1W Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B TX 2ETR-1BW	GE /FBV	ANSI-SYM	35.00		15.01(-57.1%)			
2EH-B1W	/	ANSI-SYM	25.00		15.01(-40.0%)			

****

Equipment Duty Comparison Report For Bus:
2EL-A1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 2EL-A1W BRANCH	GE /THQB	ANSI-SYM	10.00		1.45(-85.5%)			
B 2EL-A1W MAIN	GE /THQB	ANSI-SYM	10.00		1.45(-85.5%)			
2EL-A1W	/	ANSI-SYM	10.00		1.45(-85.5%)			

****

Equipment Duty Comparison Report For Bus:
2EL-B1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings		Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA) Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 2EL-B1W BRANCH	GE /THQB	ANSI-SYM	10.00		0.82(-91.8%)			
B 2EL-B1W	GE /THQB	ANSI-SYM	10.00		0.82(-91.8%)			
2EL-B1W	/	ANSI-SYM	10.00		0.82(-91.8%)			

Project Name: Disney Campus
Comment: West - Ground Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
3EH-B1W Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 3EH-B1W BRANCH	GE /THED(100A480V)	ANSI-SYM	25.00			13.22(-47.1%)			
B TX 3ETR-1BW	GE /THED(100A480V)	ANSI-SYM	25.00			13.22(-47.1%)			
B TX 3ETR-1AW	GE /THED(100A480V)	ANSI-SYM	25.00			13.22(-47.1%)			
3EH-B1W	/	ANSI-SYM	25.00			13.22(-47.1%)			

****

Equipment Duty Comparison Report For Bus:
3EL-A1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 3EL-A1W BRANCH	GE /THQB	ANSI-SYM	10.00			1.44(-85.6%)			
B 3EL-A1W MAIN	GE /THQB	ANSI-SYM	10.00			1.44(-85.6%)			
3EL-A1W	/	ANSI-SYM	10.00			1.44(-85.6%)			

****

Equipment Duty Comparison Report For Bus:
3EL-B1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B 3EL-B1W MAIN	GE /THQB	ANSI-SYM	10.00			1.51(-84.9%)			
B 3EL-B1W BRANCH	GE /THQB	ANSI-SYM	10.00			1.51(-84.9%)			
3EL-B1W	/	ANSI-SYM	10.00			1.51(-84.9%)			

****

Equipment Duty Comparison Report For Bus:
A1HW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A1HW-BRANCH	GE /TEY	ANSI-SYM	14.00			6.10(-56.5%)			
A1HW	/	ANSI-SYM	14.00			6.10(-56.5%)			

Project Name: Disney Campus
Comment: West - Ground Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
A1L1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment			Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B A1L1W BRANCH	GE /THQB	ANSI-SYM	10.00			5.55(-44.5%)		
A1L1W	/	ANSI-SYM	10.00			5.55(-44.5%)		

****

Equipment Duty Comparison Report For Bus:
A1L2W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment			Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B A1L2W BRANCH	GE /THQB	ANSI-SYM	10.00			5.40(-46.0%)		
A1L2W	/	ANSI-SYM	10.00			5.40(-46.0%)		

****

Equipment Duty Comparison Report For Bus:
A2HW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment			Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B A2HW-BRANCH	GE /TEY	ANSI-SYM	14.00			5.74(-59.0%)		
A2HW	/	ANSI-SYM	14.00			5.74(-59.0%)		

****

Equipment Duty Comparison Report For Bus:
A2L1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment			Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)	
B A2L1W BRANCH	GE /THQB	ANSI-SYM	10.00			5.55(-44.5%)		
A2L1W	/	ANSI-SYM	10.00			5.55(-44.5%)		

Project Name: Disney Campus
Comment: West - Ground Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
A2L2W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A2L2W-BRANCH	GE /THQB	ANSI-SYM	10.00			5.40(-46.0%)			
A2L2W	/	ANSI-SYM	10.00			5.40(-46.0%)			

****

Equipment Duty Comparison Report For Bus:
A3HW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A3HW-BRANCH	GE /TEY	ANSI-SYM	14.00			5.38(-61.5%)			
A3HW	/	ANSI-SYM	14.00			5.38(-61.5%)			

****

Equipment Duty Comparison Report For Bus:
A3L1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A3L1W BRANCH	GE /THQB	ANSI-SYM	10.00			5.05(-49.5%)			
A3L1W	/	ANSI-SYM	10.00			5.05(-49.5%)			

****

Equipment Duty Comparison Report For Bus:
A3L2W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B A3L2W BRANCH	GE /THQB	ANSI-SYM	10.00			4.93(-50.7%)			
A3L2W	/	ANSI-SYM	10.00			4.93(-50.7%)			

Project Name: Disney Campus
Comment: West - Ground Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
B1HW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle Interrupting (kA)	(kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA (%)
B B1HW-BRANCH	GE	/THED (277V)	ANSI-SYM	65.00			34.23	(-47.3%)	
B B1HW-BRNCH2	GE	/SEL	ANSI-SYM	65.00			34.23	(-47.3%)	
B1HW		/	ANSI-SYM	42.00			34.23	(-18.5%)	

****

Equipment Duty Comparison Report For Bus:
B1L1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle Interrupting (kA)	(kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA (%)
B B1L1W BRANCH	GE	/THQB	ANSI-SYM	10.00			5.55	(-44.5%)	
B1L1W		/	ANSI-SYM	10.00			5.55	(-44.5%)	

****

Equipment Duty Comparison Report For Bus:
B1L2W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle Interrupting (kA)	(kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA (%)
B B1L2W-BRANCH	GE	/THQB	ANSI-SYM	10.00			5.40	(-46.0%)	
B1L2W		/	ANSI-SYM	10.00			5.40	(-46.0%)	

****

Equipment Duty Comparison Report For Bus:
B2HW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle Interrupting (kA)	(kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA (%)
B B2HW-BRANCH	GE	/FBN	ANSI-SYM	65.00			17.22	(-73.5%)	
B2HW		/	ANSI-SYM	42.00			17.22	(-59.0%)	

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
B2L1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B B2L1W BRANCH	GE /THQB	ANSI-SYM	10.00			5.47(-45.3%)			
B2L1W	/	ANSI-SYM	10.00			5.47(-45.3%)			

****

Equipment Duty Comparison Report For Bus:
B2L2W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B B2L2W BRANCH	GE /THQB	ANSI-SYM	10.00			5.33(-46.7%)			
B2L2W	/	ANSI-SYM	10.00			5.33(-46.7%)			

****

Equipment Duty Comparison Report For Bus:
B3HW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B B3HW-BRANCH	GE /FBN	ANSI-SYM	65.00			14.02(-78.4%)			
B3HW	/	ANSI-SYM	42.00			14.02(-66.6%)			

****

Equipment Duty Comparison Report For Bus:
B3L1W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B B3L1W BRANCH	GE /THQB	ANSI-SYM	10.00			5.44(-45.6%)			
B3L1W	/	ANSI-SYM	10.00			5.44(-45.6%)			

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

****

Equipment Duty Comparison Report For Bus:
B3L2W Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B B3L2W-BRANCH	GE /THQB	ANSI-SYM	10.00			5.29(-47.1%)			
B3L2W	/	ANSI-SYM	10.00			5.29(-47.1%)			

****

Equipment Duty Comparison Report For Bus:
G-1 Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B ELEV1	GE /SFL	ANSI-SYM	65.00			10.09(-84.5%)			
B ELEV2	GE /SFL	ANSI-SYM	65.00			10.09(-84.5%)			

****

Equipment Duty Comparison Report For Bus:
IDF-2AW Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B IDF-2AW BRANCH	GE /THQB	ANSI-SYM	10.00			1.51(-84.9%)			
IDF-2AW	/	ANSI-SYM	10.00			1.51(-84.9%)			

****

Equipment Duty Comparison Report For Bus:
MDFW Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B MDFW MAIN	GE /TQD	ANSI-SYM	10.00			6.52(-34.8%)			
B IDF-2AW	GE /THQB	ANSI-SYM	10.00			6.52(-34.8%)			
B MDFW BRANCH	GE /THQB	ANSI-SYM	10.00			6.52(-34.8%)			
MDFW	/	ANSI-SYM	10.00			6.52(-34.8%)			

Project Name: Disney Campus
Comment: West - Ground Fault - Equipment Duty Report

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
MSA-W Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA (%)
B MSA-W MAIN	GE	/SS-30	ANSI-SYM	100.00			40.77	(-59.2%)	
B TX BTR1W	GE	/SFL	ANSI-SYM	65.00			41.27	(-36.5%)	
B B1HW	GE	/SFL	ANSI-SYM	65.00			41.27	(-36.5%)	
B TX BTR2W	GE	/SFL	ANSI-SYM	65.00			41.27	(-36.5%)	
B B2HW	GE	/SEL	ANSI-SYM	65.00			41.27	(-36.5%)	
B TX BTR3W	GE	/SFL	ANSI-SYM	65.00			41.27	(-36.5%)	
B B3HW	GE	/SEL	ANSI-SYM	65.00			41.27	(-36.5%)	
B A3HW	GE	/SEL	ANSI-SYM	65.00			41.27	(-36.5%)	
B TX ATR3W	GE	/SFL	ANSI-SYM	65.00			41.27	(-36.5%)	
B A2HW	GE	/SEL	ANSI-SYM	65.00			41.27	(-36.5%)	
B TX ATR2W	GE	/SFL	ANSI-SYM	65.00			41.27	(-36.5%)	
B A1HW	GE	/SEL	ANSI-SYM	65.00			41.27	(-36.5%)	
B TX ATR1W	GE	/SFL	ANSI-SYM	65.00			41.27	(-36.5%)	
B RHW	GE	/SEL	ANSI-SYM	65.00			41.27	(-36.5%)	
B MSA-W 1ATSW	GE	/SEL	ANSI-SYM	65.00			41.27	(-36.5%)	
B MSA-W 2ATSW	GE	/SGL4	ANSI-SYM	65.00			40.77	(-37.3%)	
MSA-W		/	ANSI-SYM	65.00			40.02	(-38.4%)	

****

Equipment Duty Comparison Report For Bus:
RHW Area: 1 Zone: 1 Bus kV: 0.48 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA (%)
B RHW-BRANCH	GE	/SEL	ANSI-SYM	65.00			4.36	(-93.3%)	
RHW		/	ANSI-SYM	42.00			4.36	(-89.6%)	

****

Equipment Duty Comparison Report For Bus:
TX ATR1W L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer	/ Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA	(%)	Interrupting kA (%)
B ATR1W	GE	/SGL4	ANSI-SYM	100.00			5.71	(-94.3%)	

EQUIPMENT DUTY VIOLATION AND WARNING DETAILED REPORTS
Driving Point Voltage (P.U.) = 1.00000

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Equipment Duty Comparison Report For Bus:
TX ATR2W L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B ATR2W	GE /SGL4	ANSI-SYM	100.00			5.71(-94.3%)			

****

Equipment Duty Comparison Report For Bus:
TX ATR3W L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B ATR3W	GE /SGL4	ANSI-SYM	100.00			5.18(-94.8%)			

****

Equipment Duty Comparison Report For Bus:
TX BTR1W L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B BTR1W	GE /SGL4	ANSI-SYM	100.00			5.71(-94.3%)			

****

Equipment Duty Comparison Report For Bus:
TX BTR2W L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B BTR2W	GE /SGL4	ANSI-SYM	100.00			5.63(-94.4%)			

****

Equipment Duty Comparison Report For Bus:
TX BTR3W L Area: 1 Zone: 1 Bus kV: 0.21 kV

Equipment				Ratings			Duties		Comments
ID	Manufacturer / Style	Test Standard	1/2 Cycle (kA)	Interrupting (kA)	Cyc	1/2 Cycle kA (%)	Interrupting kA (%)		
B BTR3W	GE /SGL4	ANSI-SYM	100.00			5.59(-94.4%)			

Ground Fault

Low Voltage Momentary Report

Project Name: Disney Campus
Comment: West - Ground Fault - Low Voltage Momentary Report

First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

```
*Bus 1ATSW              0.480 kV, Zone     1, Area     1
       E/Z =     24.838 kA (       20.65 MVA)  At   -50.09DEG, X/R =     1.20
       Z1 =    2.400191 +j   3.427139 pu,  Z0 =   4.521132 +j   4.288479 pu
       1.6*ISYM=     39.742   IASYM Based on X/R ratio =   25.128

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       2EH-B1W           1ATSW                  0.00      0.00  Branch      1      1  C 2EH-B1W
       MSA-W             1ATSW                 24.84    -50.09  Branch      1      1  C MSA-W 1ATSW

*Bus 1ATSW              0.480 kV, Zone     1, Area     1
       E/Z =      0.000 kA (        0.00 MVA)  At     0.00DEG, X/R =     2.58
       Z1 =  ********** +j ********** pu,  Z0 = ********** +j ********** pu
       1.6*ISYM=      0.000   IASYM Based on X/R ratio =    0.000

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       GEN W             1ATSW                  0.00      0.00  Branch      1      1  C GEN-W 1ATSW
       1ATSW             1ATSW                  0.00      0.00  Branch      1      1  C 1ATSW

*Bus 1EDH-B1W           0.480 kV, Zone     1, Area     1
       E/Z =     29.778 kA (       24.76 MVA)  At   -72.28DEG, X/R =     3.13
       Z1 =    0.980117 +j   3.513320 pu,  Z0 =   1.727689 +j   4.516132 pu
       1.6*ISYM=     47.646   IASYM Based on X/R ratio =   34.241

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX STR-1BW H      1EDH-B1W               0.00      0.00  Branch      1      1  C TX STR-1BW
       G-1               1EDH-B1W               0.46    -76.51  Branch      1      1  C G-1
       3EH-B1W           1EDH-B1W               0.00      0.00  Branch      1      1  C 3EH-B1W
       2ATSW             1EDH-B1W              29.32    -72.21  Branch      1      1  C 1EDH-B1W

*Bus 1ELA1W             0.208 kV, Zone     1, Area     1
       E/Z =      0.808 kA (        0.29 MVA)  At   -36.31DEG, X/R =     0.73
       Z1 =  245.392092 +j 201.853213 pu,  Z0 = 339.291436 +j 206.306452 pu
       1.6*ISYM=      1.293   IASYM Based on X/R ratio =    0.809

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       2EL-A1W           1ELA1W                 0.81    -36.31  Branch      1      1  C 1ELA1W

*Bus 2ATSW              0.480 kV, Zone     1, Area     1
       E/Z =     31.701 kA (       26.36 MVA)  At   -73.43DEG, X/R =     3.36
       Z1 =    0.872281 +j   3.358644 pu,  Z0 =   1.500826 +j   4.192847 pu
       1.6*ISYM=     50.722   IASYM Based on X/R ratio =   36.995

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       1EDH-B1W          2ATSW                  0.47    -76.61  Branch      1      1  C 1EDH-B1W
       MSA-W             2ATSW                 31.24    -73.39  Branch      1      1  C MSA-W 2ATSW

*Bus 2ATSW              0.480 kV, Zone     1, Area     1
       E/Z =      0.000 kA (        0.00 MVA)  At     0.00DEG, X/R =     2.58
       Z1 =  ********** +j ********** pu,  Z0 = ********** +j ********** pu
       1.6*ISYM=      0.000   IASYM Based on X/R ratio =    0.000

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       GEN W             2ATSW                  0.00      0.00  Branch      1      1  C GEN-W 2ATSW
       2ATSW             2ATSW                  0.00      0.00  Branch      1      1  C 2ATSW
```

Project Name: Disney Campus
Comment: West - Ground Fault - Low Voltage Momentary Report

First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

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*Bus 2EH-A1W            0.480 kV, Zone     1, Area     1
       E/Z =      4.683 kA (        3.89 MVA)  At   -25.39DEG, X/R =     0.47
       Z1 =   17.471117 +j   8.901277 pu,  Z0 =  34.662876 +j  15.236856 pu
       1.6*ISYM=      7.493   IASYM Based on X/R ratio =    4.683

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       2EH-B1W           2EH-A1W                 4.68    -25.39  Branch      1      1  C 2EH-A1W
       TX 2ETR-1AW H     2EH-A1W                 0.00      0.00  Branch      1      1  C TX 2ETR-1AW

*Bus 2EH-B1W            0.480 kV, Zone     1, Area     1
       E/Z =     15.009 kA (       12.48 MVA)  At   -37.62DEG, X/R =     0.77
       Z1 =    4.830985 +j   4.310064 pu,  Z0 =   9.382706 +j   6.054340 pu
       1.6*ISYM=     24.014   IASYM Based on X/R ratio =   15.027

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       2EH-A1W           2EH-B1W                 0.00      0.00  Branch      1      1  C 2EH-A1W
       1ATSW             2EH-B1W                15.01    -37.62  Branch      1      1  C 2EH-B1W
       TX 2ETR-1BW H     2EH-B1W                 0.00      0.00  Branch      1      1  C TX 2ETR-1BW

*Bus 2EL-A1W            0.208 kV, Zone     1, Area     1
       E/Z =      1.455 kA (        0.52 MVA)  At   -54.43DEG, X/R =     1.40
       Z1 =  121.119539 +j 165.742156 pu,  Z0 =  90.746331 +j 134.084231 pu
       1.6*ISYM=      2.328   IASYM Based on X/R ratio =    1.486

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1AW L     2EL-A1W                 1.45    -54.43  Branch      1      1  C 2EL-A1W
       1ELA1W            2EL-A1W                 0.00      0.00  Branch      1      1  C 1ELA1W

*Bus 2EL-B1W            0.208 kV, Zone     1, Area     1
       E/Z =      0.816 kA (        0.29 MVA)  At   -54.26DEG, X/R =     1.39
       Z1 =  209.243222 +j 291.493977 pu,  Z0 = 177.310957 +j 244.910163 pu
       1.6*ISYM=      1.306   IASYM Based on X/R ratio =    0.833

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1BW L     2EL-B1W                 0.82    -54.26  Branch      1      1  C 2EL-B1W

*Bus 3EH-B1W            0.480 kV, Zone     1, Area     1
       E/Z =     13.223 kA (       10.99 MVA)  At   -35.37DEG, X/R =     0.71
       Z1 =    5.621003 +j   4.576981 pu,  Z0 =  11.009409 +j   6.643474 pu
       1.6*ISYM=     21.157   IASYM Based on X/R ratio =   13.232

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       1EDH-B1W          3EH-B1W                13.22    -35.37  Branch      1      1  C 3EH-B1W
       TX 3ETR-1AW H     3EH-B1W                 0.00      0.00  Branch      1      1  C TX 3ETR-1AW
       TX 3ETR-1BW H     3EH-B1W                 0.00      0.00  Branch      1      1  C TX 3ETR-1BW

*Bus 3EL-A1W            0.208 kV, Zone     1, Area     1
       E/Z =      1.438 kA (        0.52 MVA)  At   -53.48DEG, X/R =     1.35
       Z1 =  126.921546 +j 165.656307 pu,  Z0 =  90.746331 +j 134.084231 pu
       1.6*ISYM=      2.301   IASYM Based on X/R ratio =    1.465

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1AW L     3EL-A1W                 1.44    -53.48  Branch      1      1  C 3EL-A1W
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First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

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*Bus 3EL-B1W            0.208 kV, Zone     1, Area     1
       E/Z =      1.509 kA (        0.54 MVA)  At   -55.91DEG, X/R =     1.48
       Z1 =  109.269425 +j 161.417861 pu,  Z0 =  90.746331 +j 134.084231 pu
       1.6*ISYM=      2.415   IASYM Based on X/R ratio =    1.548

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1BW L     3EL-B1W                1.51    -55.91  Branch      1      1  C 3EL-B1W

*Bus A1HW               0.480 kV, Zone     1, Area     1
       E/Z =      6.096 kA (        5.07 MVA)  At   -24.07DEG, X/R =     0.45
       Z1 =   13.581846 +j   6.676299 pu,  Z0 =  26.884451 +j  10.786806 pu
       1.6*ISYM=      9.754   IASYM Based on X/R ratio =    6.096

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       MSA-W             A1HW                   6.10    -24.07  Branch      1      1  C A1HW

*Bus A1L1W              0.208 kV, Zone     1, Area     1
       E/Z =      5.554 kA (        2.00 MVA)  At   -62.35DEG, X/R =     1.91
       Z1 =   24.448600 +j  47.181888 pu,  Z0 =  20.676369 +j  38.434584 pu
       1.6*ISYM=      8.887   IASYM Based on X/R ratio =    5.859

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX ATR1W L        A1L1W                  5.55    -62.35  Branch      1      1  C A1L1W
       A1L2W             A1L1W                  0.00      0.00  Branch      1      1  C A1L2W

*Bus A1L2W              0.208 kV, Zone     1, Area     1
       E/Z =      5.404 kA (        1.95 MVA)  At   -62.15DEG, X/R =     1.89
       Z1 =   25.052677 +j  48.042707 pu,  Z0 =  21.884523 +j  40.156225 pu
       1.6*ISYM=      8.646   IASYM Based on X/R ratio =    5.694

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       A1L1W             A1L2W                  5.40    -62.15  Branch      1      1  C A1L2W

*Bus A2HW               0.480 kV, Zone     1, Area     1
       E/Z =      5.737 kA (        4.77 MVA)  At   -27.11DEG, X/R =     0.51
       Z1 =   14.068004 +j   7.806450 pu,  Z0 =  27.856767 +j  13.047098 pu
       1.6*ISYM=      9.179   IASYM Based on X/R ratio =    5.737

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       MSA-W             A2HW                   5.74    -27.11  Branch      1      1  C A2HW

*Bus A2L1W              0.208 kV, Zone     1, Area     1
       E/Z =      5.550 kA (        2.00 MVA)  At   -62.37DEG, X/R =     1.91
       Z1 =   24.448600 +j  47.248686 pu,  Z0 =  20.676369 +j  38.434584 pu
       1.6*ISYM=      8.880   IASYM Based on X/R ratio =    5.855

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX ATR2W L        A2L1W                  5.55    -62.37  Branch      1      1  C A2L1W
       A2L2W             A2L1W                  0.00      0.00  Branch      1      1  C A2L2W
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First Cycle Results S L-GND
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*Bus A2L2W              0.208 kV, Zone     1, Area     1
       E/Z =      5.400 kA (        1.95 MVA)  At   -62.17DEG, X/R =     1.89
       Z1 =   25.052677 +j  48.109506 pu,  Z0 =  21.884523 +j  40.156225 pu
       1.6*ISYM=      8.640   IASYM Based on X/R ratio =    5.690

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       A2L1W             A2L2W                  5.40    -62.17  Branch      1      1  C A2L2W

*Bus A3HW               0.480 kV, Zone     1, Area     1
       E/Z =      5.385 kA (        4.48 MVA)  At   -26.67DEG, X/R =     0.50
       Z1 =   15.040321 +j   8.159620 pu,  Z0 =  29.801401 +j  13.753438 pu
       1.6*ISYM=      8.616   IASYM Based on X/R ratio =    5.385

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       MSA-W             A3HW                   5.38    -26.67  Branch      1      1  C A3HW

*Bus A3L1W              0.208 kV, Zone     1, Area     1
       E/Z =      5.053 kA (        1.82 MVA)  At   -59.70DEG, X/R =     1.71
       Z1 =   31.238856 +j  51.924577 pu,  Z0 =  20.676369 +j  38.434584 pu
       1.6*ISYM=      8.085   IASYM Based on X/R ratio =    5.258

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX ATR3W L        A3L1W                  5.05    -59.70  Branch      1      1  C A3L1W
       A3L2W             A3L1W                  0.00      0.00  Branch      1      1  C A3L2W

*Bus A3L2W              0.208 kV, Zone     1, Area     1
       E/Z =      4.928 kA (        1.78 MVA)  At   -59.58DEG, X/R =     1.70
       Z1 =   31.842933 +j  52.785397 pu,  Z0 =  21.884523 +j  40.156225 pu
       1.6*ISYM=      7.884   IASYM Based on X/R ratio =    5.125

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       A3L1W             A3L2W                  4.93    -59.58  Branch      1      1  C A3L2W

*Bus AC-1W              0.480 kV, Zone     1, Area     1
       E/Z =     16.314 kA (       13.56 MVA)  At   -58.22DEG, X/R =     1.61
       Z1 =    2.982417 +j   5.341990 pu,  Z0 =   5.685592 +j   8.118177 pu
       1.6*ISYM=     26.102   IASYM Based on X/R ratio =   16.870

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       MSA-W             AC-1W                 16.31    -58.22  Branch      1      1  C AC-1W

*Bus AC-2W              0.480 kV, Zone     1, Area     1
       E/Z =     10.858 kA (        9.03 MVA)  At   -53.57DEG, X/R =     1.35
       Z1 =    5.003907 +j   7.325928 pu,  Z0 =   9.728572 +j  12.086053 pu
       1.6*ISYM=     17.373   IASYM Based on X/R ratio =   11.064

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       MSA-W             AC-2W                 10.86    -53.57  Branch      1      1  C AC-2W
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Driving Point Voltage (P.U.) = 1.00000

```
*Bus AC-3W              0.480 kV, Zone     1, Area     1
       E/Z =      8.864 kA (        7.37 MVA)  At   -51.88DEG, X/R =     1.27
       Z1 =    6.351567 +j   8.648553 pu,  Z0 =  12.423893 +j  14.731303 pu
       1.6*ISYM=     14.183   IASYM Based on X/R ratio =    8.998

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       MSA-W             AC-3W                  8.86    -51.88  Branch      1      1  C AC-3W

*Bus B1HW               0.480 kV, Zone     1, Area     1
       E/Z =     34.225 kA (       28.45 MVA)  At   -70.71DEG, X/R =     2.86
       Z1 =    0.940573 +j   3.129261 pu,  Z0 =   1.601903 +j   3.692721 pu
       1.6*ISYM=     54.760   IASYM Based on X/R ratio =   38.640

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       MSA-W             B1HW                  34.23    -70.71  Branch      1      1  C B1HW

*Bus B1L1W              0.208 kV, Zone     1, Area     1
       E/Z =      5.554 kA (        2.00 MVA)  At   -62.35DEG, X/R =     1.91
       Z1 =   24.448600 +j  47.181888 pu,  Z0 =  20.676369 +j  38.434584 pu
       1.6*ISYM=      8.887   IASYM Based on X/R ratio =    5.859

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX BTR1W L        B1L1W                  5.55    -62.35  Branch      1      1  C B1L1W
       B1L2W             B1L1W                  0.00      0.00  Branch      1      1  C B1L2W

*Bus B1L2W              0.208 kV, Zone     1, Area     1
       E/Z =      5.404 kA (        1.95 MVA)  At   -62.15DEG, X/R =     1.89
       Z1 =   25.052677 +j  48.042707 pu,  Z0 =  21.884523 +j  40.156225 pu
       1.6*ISYM=      8.646   IASYM Based on X/R ratio =    5.694

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       B1L1W             B1L2W                  5.40    -62.15  Branch      1      1  C B1L2W

*Bus B2HW               0.480 kV, Zone     1, Area     1
       E/Z =     17.223 kA (       14.32 MVA)  At   -39.10DEG, X/R =     0.81
       Z1 =    4.134566 +j   3.944721 pu,  Z0 =   7.989915 +j   5.323638 pu
       1.6*ISYM=     27.557   IASYM Based on X/R ratio =   17.252

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       MSA-W             B2HW                  17.22    -39.10  Branch      1      1  C B2HW

*Bus B2L1W              0.208 kV, Zone     1, Area     1
       E/Z =      5.474 kA (        1.97 MVA)  At   -61.96DEG, X/R =     1.88
       Z1 =   25.418637 +j  47.916671 pu,  Z0 =  20.676369 +j  38.434584 pu
       1.6*ISYM=      8.758   IASYM Based on X/R ratio =    5.761

       Contributions In kA
       Bus      to       Bus                      kA     Angle  Device   Zone   Area  Branch
       TX BTR2W L        B2L1W                  5.47    -61.96  Branch      1      1  C B2L1W
       B2L2W             B2L1W                  0.00      0.00  Branch      1      1  C B2L2W
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First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus B2L2W 0.208 kV, Zone 1, Area 1
E/Z = 5.328 kA (1.92 MVA) At -61.77DEG, X/R = 1.86
Z1 = 26.022714 +j 48.777490 pu, Z0 = 21.884523 +j 40.156225 pu
1.6*ISYM= 8.524 IASYM Based on X/R ratio = 5.601

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
B2L1W		B2L2W	5.33	-61.77	Branch	1	1	C B2L2W

*Bus B3HW 0.480 kV, Zone 1, Area 1
E/Z = 14.017 kA (11.65 MVA) At -34.70DEG, X/R = 0.69
Z1 = 5.360903 +j 4.305606 pu, Z0 = 10.442598 +j 6.045406 pu
1.6*ISYM= 22.427 IASYM Based on X/R ratio = 14.025

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		B3HW	14.02	-34.70	Branch	1	1	C B3HW

*Bus B3L1W 0.208 kV, Zone 1, Area 1
E/Z = 5.436 kA (1.96 MVA) At -61.76DEG, X/R = 1.86
Z1 = 25.903655 +j 48.250663 pu, Z0 = 20.676369 +j 38.434584 pu
1.6*ISYM= 8.698 IASYM Based on X/R ratio = 5.715

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR3W L		B3L1W	5.44	-61.76	Branch	1	1	C B3L1W
B3L2W		B3L1W	0.00	0.00	Branch	1	1	C B3L2W

*Bus B3L2W 0.208 kV, Zone 1, Area 1
E/Z = 5.292 kA (1.91 MVA) At -61.57DEG, X/R = 1.85
Z1 = 26.507732 +j 49.111482 pu, Z0 = 21.884523 +j 40.156225 pu
1.6*ISYM= 8.467 IASYM Based on X/R ratio = 5.558

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
B3L1W		B3L2W	5.29	-61.57	Branch	1	1	C B3L2W

*Bus G-1 0.480 kV, Zone 1, Area 1
E/Z = 10.249 kA (8.52 MVA) At -39.70DEG, X/R = 0.83
Z1 = 6.564585 +j 6.268788 pu, Z0 = 13.960678 +j 9.953198 pu
1.6*ISYM= 16.398 IASYM Based on X/R ratio = 10.268

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
M ELEV1		G-1	0.20	-76.71	Motor	1	1	
M ELEV2		G-1	0.20	-76.71	Motor	1	1	
1EDH-B1W		G-1	9.93	-38.30	Branch	1	1	C G-1

*Bus GEN W 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.00 MVA) At 0.00DEG, X/R = 2.58
Z1 = ********** +j ********** pu, Z0 = ********** +j ********** pu
1.6*ISYM= 0.000 IASYM Based on X/R ratio = 0.000

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1ATSW		GEN W	0.00	0.00	Branch	1	1	C GEN-W 1ATSW
2ATSW		GEN W	0.00	0.00	Branch	1	1	C GEN-W 2ATSW
LB		GEN W	0.00	0.00	Branch	1	1	C LB

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First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus IDF-2AW 0.208 kV, Zone 1, Area 1
E/Z = 1.511 kA (0.54 MVA) At -28.39DEG, X/R = 0.54
Z1 = 92.909797 +j 64.745589 pu, Z0 = 298.994889 +j 132.545989 pu
1.6*ISYM= 2.418 IASYM Based on X/R ratio = 1.511

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MDFW		IDF-2AW	1.51	-28.39	Branch	1	1	C IDF-2AW

*Bus LB 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.00 MVA) At 0.00DEG, X/R = 2.58
Z1 = ********** +j ********** pu, Z0 = ********** +j ********** pu
1.6*ISYM= 0.000 IASYM Based on X/R ratio = 0.000

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN W		LB	0.00	0.00	Branch	1	1	C LB

*Bus MDFW 0.208 kV, Zone 1, Area 1
E/Z = 6.521 kA (2.35 MVA) At -59.20DEG, X/R = 1.68
Z1 = 23.006484 +j 39.354956 pu, Z0 = 19.381028 +j 30.983321 pu
1.6*ISYM= 10.433 IASYM Based on X/R ratio = 6.770

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1BW L		MDFW	6.52	-59.20	Branch	1	1	C MDFW
IDF-2AW		MDFW	0.00	0.00	Branch	1	1	C IDF-2AW

*Bus MSA-W 0.480 kV, Zone 1, Area 1
E/Z = 40.025 kA (33.28 MVA) At -80.15DEG, X/R = 5.76
Z1 = 0.455555 +j 2.862068 pu, Z0 = 0.631868 +j 3.158333 pu
1.6*ISYM= 64.040 IASYM Based on X/R ratio = 52.318

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A2HW		MSA-W	0.00	0.00	Branch	1	1	C A2HW
TX GWP L		MSA-W	39.54	-80.18	Branch	1	1	C MSA-W
TX BTR1W H		MSA-W	0.00	0.00	Branch	1	1	C TX BTR1W
B1HW		MSA-W	0.00	0.00	Branch	1	1	C B1HW
TX BTR2W H		MSA-W	0.00	0.00	Branch	1	1	C TX BTR2W
B2HW		MSA-W	0.00	0.00	Branch	1	1	C B2HW
TX BTR3W H		MSA-W	0.00	0.00	Branch	1	1	C TX BTR3W
B3HW		MSA-W	0.00	0.00	Branch	1	1	C B3HW
A3HW		MSA-W	0.00	0.00	Branch	1	1	C A3HW
TX ATR3W H		MSA-W	0.00	0.00	Branch	1	1	C TX ATR3W
TX ATR2W H		MSA-W	0.00	0.00	Branch	1	1	C TX ATR2W
A1HW		MSA-W	0.00	0.00	Branch	1	1	C A1HW
TX ATR1W H		MSA-W	0.00	0.00	Branch	1	1	C TX ATR1W
AC-1W		MSA-W	0.00	0.00	Branch	1	1	C AC-1W
AC-2W		MSA-W	0.00	0.00	Branch	1	1	C AC-2W
AC-3W		MSA-W	0.00	0.00	Branch	1	1	C AC-3W
RHW		MSA-W	0.00	0.00	Branch	1	1	C RHW
1ATSW		MSA-W	0.00	0.00	Branch	1	1	C MSA-W 1ATSW
2ATSW		MSA-W	0.49	-77.69	Branch	1	1	C MSA-W 2ATSW

Project Name: Disney Campus
Comment: West - Ground Fault - Low Voltage Momentary Report

First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

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*Bus RHW                 0.480 kV, Zone     1, Area     1
       E/Z =      4.360 kA (        3.62 MVA)  At   -23.96DEG, X/R =     0.44
       Z1 =   18.977150 +j   9.042546 pu,  Z0 =  37.674905 +j  15.519289 pu
       1.6*ISYM=      6.976   IASYM Based on X/R ratio =    4.360

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       MSA-W             RHW                     4.36    -23.96  Branch      1      1  C RHW

*Bus TX 2ETR-1AW H       0.480 kV, Zone     1, Area     1
       E/Z =      4.166 kA (        3.46 MVA)  At   -23.49DEG, X/R =     0.43
       Z1 =   19.929502 +j   9.272031 pu,  Z0 =  39.579635 +j  15.978398 pu
       1.6*ISYM=      6.666   IASYM Based on X/R ratio =    4.166

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1AW L     TX 2ETR-1AW H           0.00      0.00  Branch      1      1  TX 2ETR-1AW
       2EH-A1W           TX 2ETR-1AW H           4.17    -23.49  Branch      1      1  C TX 2ETR-1AW

*Bus TX 2ETR-1AW L       0.208 kV, Zone     1, Area     1
       E/Z =      1.487 kA (        0.54 MVA)  At   -55.57DEG, X/R =     1.46
       Z1 =  117.000410 +j 164.798078 pu,  Z0 =  82.508096 +j 132.196075 pu
       1.6*ISYM=      2.380   IASYM Based on X/R ratio =    1.524

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1AW H     TX 2ETR-1AW L           1.49    -55.57  Branch      1      1  TX 2ETR-1AW
       2EL-A1W           TX 2ETR-1AW L           0.00      0.00  Branch      1      1  C 2EL-A1W

*Bus TX 2ETR-1BW H       0.480 kV, Zone     1, Area     1
       E/Z =      5.936 kA (        4.94 MVA)  At   -15.42DEG, X/R =     0.28
       Z1 =   14.719701 +j   4.680819 pu,  Z0 =  29.160110 +j   6.795923 pu
       1.6*ISYM=      9.498   IASYM Based on X/R ratio =    5.936

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1BW L     TX 2ETR-1BW H           0.00      0.00  Branch      1      1  TX 2ETR-1BW
       2EH-B1W           TX 2ETR-1BW H           5.94    -15.41  Branch      1      1  C TX 2ETR-1BW

*Bus TX 2ETR-1BW L       0.208 kV, Zone     1, Area     1
       E/Z =      0.839 kA (        0.30 MVA)  At   -56.08DEG, X/R =     1.49
       Z1 =  198.831426 +j 290.517946 pu,  Z0 = 156.487364 +j 242.958101 pu
       1.6*ISYM=      1.342   IASYM Based on X/R ratio =    0.861

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 2ETR-1BW H     TX 2ETR-1BW L           0.84    -56.08  Branch      1      1  TX 2ETR-1BW
       2EL-B1W           TX 2ETR-1BW L           0.00      0.00  Branch      1      1  C 2EL-B1W

*Bus TX 3ETR-1AW H       0.480 kV, Zone     1, Area     1
       E/Z =      3.333 kA (        2.77 MVA)  At   -18.44DEG, X/R =     0.33
       Z1 =   25.731509 +j   9.186182 pu,  Z0 =  51.230159 +j  15.862105 pu
       1.6*ISYM=      5.334   IASYM Based on X/R ratio =    3.333

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1AW L     TX 3ETR-1AW H           0.00      0.00  Branch      1      1  TX 3ETR-1AW
       3EH-B1W           TX 3ETR-1AW H           3.33    -18.44  Branch      1      1  C TX 3ETR-1AW
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Project Name: Disney Campus
Comment: West - Ground Fault - Low Voltage Momentary Report

First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

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*Bus TX 3ETR-1AW L       0.208 kV, Zone     1, Area     1
       E/Z =      1.470 kA (        0.53 MVA)  At   -54.60DEG, X/R =     1.41
       Z1 =  122.802417 +j 164.712229 pu,  Z0 =  82.508096 +j 132.196075 pu
       1.6*ISYM=      2.353   IASYM Based on X/R ratio =    1.502

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1AW H     TX 3ETR-1AW L           1.47    -54.60  Branch      1      1  TX 3ETR-1AW
       3EL-A1W           TX 3ETR-1AW L           0.00      0.00  Branch      1      1  C 3EL-A1W

*Bus TX 3ETR-1BW H       0.480 kV, Zone     1, Area     1
       E/Z =      8.767 kA (        7.29 MVA)  At   -25.97DEG, X/R =     0.49
       Z1 =    8.079388 +j   4.947736 pu,  Z0 =  20.842984 +j   8.126516 pu
       1.6*ISYM=     14.028   IASYM Based on X/R ratio =    8.768

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1BW L     TX 3ETR-1BW H           0.00      0.00  Branch      1      1  TX 3ETR-1BW
       3EH-B1W           TX 3ETR-1BW H           8.77    -25.97  Branch      1      1  C TX 3ETR-1BW

*Bus TX 3ETR-1BW L       0.208 kV, Zone     1, Area     1
       E/Z =      1.543 kA (        0.56 MVA)  At   -57.13DEG, X/R =     1.55
       Z1 =  105.150296 +j 160.473783 pu,  Z0 =  82.508096 +j 132.196075 pu
       1.6*ISYM=      2.470   IASYM Based on X/R ratio =    1.590

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX 3ETR-1BW H     TX 3ETR-1BW L           1.54    -57.13  Branch      1      1  TX 3ETR-1BW
       3EL-B1W           TX 3ETR-1BW L           0.00      0.00  Branch      1      1  C 3EL-B1W

*Bus TX ATR1W H          0.480 kV, Zone     1, Area     1
       E/Z =     34.225 kA (       28.45 MVA)  At   -70.71DEG, X/R =     2.86
       Z1 =    0.940573 +j   3.129261 pu,  Z0 =   1.601902 +j   3.692721 pu
       1.6*ISYM=     54.760   IASYM Based on X/R ratio =   38.640

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR1W L        TX ATR1W H              0.00      0.00  Branch      1      1  TX ATR1W
       MSA-W             TX ATR1W H             34.23    -70.71  Branch      1      1  C TX ATR1W

*Bus TX ATR1W L          0.208 kV, Zone     1, Area     1
       E/Z =      5.713 kA (        2.06 MVA)  At   -62.56DEG, X/R =     1.93
       Z1 =   23.844523 +j  46.321068 pu,  Z0 =  19.468214 +j  36.712942 pu
       1.6*ISYM=      9.141   IASYM Based on X/R ratio =    6.034

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR1W H        TX ATR1W L              5.71    -62.56  Branch      1      1  TX ATR1W
       A1L1W             TX ATR1W L              0.00      0.00  Branch      1      1  C A1L1W

*Bus TX ATR2W H          0.480 kV, Zone     1, Area     1
       E/Z =     33.425 kA (       27.79 MVA)  At   -71.18DEG, X/R =     2.93
       Z1 =    0.940573 +j   3.196060 pu,  Z0 =   1.601902 +j   3.826317 pu
       1.6*ISYM=     53.479   IASYM Based on X/R ratio =   37.934

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR2W L        TX ATR2W H              0.00      0.00  Branch      1      1  TX ATR2W
       MSA-W             TX ATR2W H             33.42    -71.18  Branch      1      1  C TX ATR2W
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Project Name: Disney Campus
Comment: West - Ground Fault - Low Voltage Momentary Report

First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

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*Bus TX ATR2W L          0.208 kV, Zone     1, Area     1
       E/Z =      5.709 kA (        2.06 MVA)  At   -62.59DEG, X/R =     1.93
       Z1 =   23.844523 +j  46.387867 pu,  Z0 =  19.468214 +j  36.712942 pu
       1.6*ISYM=      9.134   IASYM Based on X/R ratio =    6.030

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR2W H        TX ATR2W L              5.71    -62.59  Branch      1      1  TX ATR2W
       A2L1W             TX ATR2W L              0.00      0.00  Branch      1      1  C A2L1W

*Bus TX ATR3W H          0.480 kV, Zone     1, Area     1
       E/Z =      8.564 kA (        7.12 MVA)  At   -43.34DEG, X/R =     0.94
       Z1 =    7.730829 +j   7.871951 pu,  Z0 =  15.182350 +j  13.178106 pu
       1.6*ISYM=     13.702   IASYM Based on X/R ratio =    8.597

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR3W L        TX ATR3W H              0.00      0.00  Branch      1      1  TX ATR3W
       MSA-W             TX ATR3W H              8.56    -43.34  Branch      1      1  C TX ATR3W

*Bus TX ATR3W L          0.208 kV, Zone     1, Area     1
       E/Z =      5.185 kA (        1.87 MVA)  At   -59.82DEG, X/R =     1.72
       Z1 =   30.634779 +j  51.063758 pu,  Z0 =  19.468214 +j  36.712942 pu
       1.6*ISYM=      8.296   IASYM Based on X/R ratio =    5.398

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX ATR3W H        TX ATR3W L              5.18    -59.82  Branch      1      1  TX ATR3W
       A3L1W             TX ATR3W L              0.00      0.00  Branch      1      1  C A3L1W

*Bus TX BTR1W H          0.480 kV, Zone     1, Area     1
       E/Z =     34.225 kA (       28.45 MVA)  At   -70.71DEG, X/R =     2.86
       Z1 =    0.940573 +j   3.129261 pu,  Z0 =   1.601902 +j   3.692721 pu
       1.6*ISYM=     54.760   IASYM Based on X/R ratio =   38.640

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX BTR1W L        TX BTR1W H              0.00      0.00  Branch      1      1  TX BTR1W
       MSA-W             TX BTR1W H             34.23    -70.71  Branch      1      1  C TX BTR1W

*Bus TX BTR1W L          0.208 kV, Zone     1, Area     1
       E/Z =      5.713 kA (        2.06 MVA)  At   -62.56DEG, X/R =     1.93
       Z1 =   23.844523 +j  46.321068 pu,  Z0 =  19.468214 +j  36.712942 pu
       1.6*ISYM=      9.141   IASYM Based on X/R ratio =    6.034

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX BTR1W H        TX BTR1W L              5.71    -62.56  Branch      1      1  TX BTR1W
       B1L1W             TX BTR1W L              0.00      0.00  Branch      1      1  C B1L1W

*Bus TX BTR2W H          0.480 kV, Zone     1, Area     1
       E/Z =     24.307 kA (       20.21 MVA)  At   -60.26DEG, X/R =     1.75
       Z1 =    1.910610 +j   3.864044 pu,  Z0 =   3.541969 +j   5.162286 pu
       1.6*ISYM=     38.892   IASYM Based on X/R ratio =   25.361

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX BTR2W L        TX BTR2W H              0.00      0.00  Branch      1      1  TX BTR2W
       MSA-W             TX BTR2W H             24.31    -60.26  Branch      1      1  C TX BTR2W
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Project Name: Disney Campus
Comment: West - Ground Fault - Low Voltage Momentary Report

First Cycle Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

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*Bus TX BTR2W L          0.208 kV, Zone     1, Area     1
       E/Z =      5.628 kA (        2.03 MVA)  At   -62.16DEG, X/R =     1.89
       Z1 =   24.814559 +j  47.055851 pu,  Z0 =  19.468214 +j  36.712942 pu
       1.6*ISYM=      9.005   IASYM Based on X/R ratio =    5.930

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX BTR2W H        TX BTR2W L              5.63    -62.16  Branch      1      1  TX BTR2W
       B2L1W             TX BTR2W L              0.00      0.00  Branch      1      1  C B2L1W

*Bus TX BTR3W H          0.480 kV, Zone     1, Area     1
       E/Z =     21.228 kA (       17.65 MVA)  At   -56.82DEG, X/R =     1.53
       Z1 =    2.395628 +j   4.198036 pu,  Z0 =   4.512002 +j   5.830270 pu
       1.6*ISYM=     33.965   IASYM Based on X/R ratio =   21.840

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX BTR3W L        TX BTR3W H              0.00      0.00  Branch      1      1  TX BTR3W
       MSA-W             TX BTR3W H             21.23    -56.82  Branch      1      1  C TX BTR3W

*Bus TX BTR3W L          0.208 kV, Zone     1, Area     1
       E/Z =      5.589 kA (        2.01 MVA)  At   -61.95DEG, X/R =     1.88
       Z1 =   25.299578 +j  47.389843 pu,  Z0 =  19.468214 +j  36.712942 pu
       1.6*ISYM=      8.942   IASYM Based on X/R ratio =    5.882

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX BTR3W H        TX BTR3W L              5.59    -61.95  Branch      1      1  TX BTR3W
       B3L1W             TX BTR3W L              0.00      0.00  Branch      1      1  C B3L1W

*Bus TX GWP L            0.480 kV, Zone     1, Area     1
       E/Z =     42.503 kA (       35.34 MVA)  At   -81.83DEG, X/R =     6.97
       Z1 =    0.400739 +j   2.784267 pu,  Z0 =   0.405006 +j   2.835049 pu
       1.6*ISYM=     68.006   IASYM Based on X/R ratio =   57.670

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       GWP               TX GWP L               42.00    -81.87  Util        1      1
       MSA-W             TX GWP L                0.50    -78.51  Branch      1      1  C MSA-W

*Bus TX STR-1BW H        0.480 kV, Zone     1, Area     1
       E/Z =     24.043 kA (       19.99 MVA)  At   -59.68DEG, X/R =     1.71
       Z1 =    1.952435 +j   3.866490 pu,  Z0 =   3.672323 +j   5.222473 pu
       1.6*ISYM=     38.468   IASYM Based on X/R ratio =   25.017

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX STR-1BW L      TX STR-1BW H            0.00      0.00  Branch      1      1  TX STR-1BW
       1EDH-B1W          TX STR-1BW H           24.04    -59.68  Branch      1      1  C TX STR-1BW

*Bus TX STR-1BW L        0.208 kV, Zone     1, Area     1
       E/Z =      6.789 kA (        2.45 MVA)  At   -60.59DEG, X/R =     1.77
       Z1 =   21.715015 +j  38.643494 pu,  Z0 =  16.798096 +j  29.560394 pu
       1.6*ISYM=     10.863   IASYM Based on X/R ratio =    7.095

       Contributions In kA
       Bus      to       Bus                       kA     Angle  Device   Zone   Area  Branch
       TX STR-1BW H      TX STR-1BW L            6.79    -60.59  Branch      1      1  TX STR-1BW
       MDFW              TX STR-1BW L            0.00      0.00  Branch      1      1  C MDFW
```

Ground Fault

Low Voltage Interrupting Report

Project Name: Disney Campus
Comment: West - Ground Fault - Low Voltage Interrupting Report

Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus 1ATSW 0.480 kV, Zone 1, Area 1
E/Z = 24.793 kA (20.613 MVA) At -50.16DEG, X/R = 1.57
Z1 = 2.403335 +j 3.458864 pu, Z0 = 4.521132 +j 4.288479 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
2EH-B1W		1ATSW	0.00	0.00	Branch	1	1	C 2EH-B1W
MSA-W		1ATSW	24.79	-50.16	Branch	1	1	C MSA-W 1ATSW

*Bus 1ATSW 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.000 MVA) At 0.00DEG, X/R = 0.49
Z1 = ********** +j ********** pu, Z0 = ********** +j ********** pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN W		1ATSW	0.00	0.00	Branch	1	1	C GEN-W 1ATSW
1ATSW		1ATSW	0.00	0.00	Branch	1	1	C 1ATSW

*Bus 1EDH-B1W 0.480 kV, Zone 1, Area 1
E/Z = 29.654 kA (24.654 MVA) At -72.28DEG, X/R = 3.28
Z1 = 0.996754 +j 3.561528 pu, Z0 = 1.727689 +j 4.516132 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1BW H		1EDH-B1W	0.00	0.00	Branch	1	1	C TX STR-1BW
G-1		1EDH-B1W	0.32	-76.88	Branch	1	1	C G-1
3EH-B1W		1EDH-B1W	0.00	0.00	Branch	1	1	C 3EH-B1W
2ATSW		1EDH-B1W	29.33	-72.23	Branch	1	1	C 1EDH-B1W

*Bus 1ELA1W 0.208 kV, Zone 1, Area 1
E/Z = 0.808 kA (0.291 MVA) At -36.31DEG, X/R = 1.24
Z1 = 245.395236 +j 201.884939 pu, Z0 = 339.291436 +j 206.306452 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
2EL-A1W		1ELA1W	0.81	-36.31	Branch	1	1	C 1ELA1W

*Bus 2ATSW 0.480 kV, Zone 1, Area 1
E/Z = 31.574 kA (26.250 MVA) At -73.43DEG, X/R = 3.50
Z1 = 0.885687 +j 3.402701 pu, Z0 = 1.500826 +j 4.192847 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1EDH-B1W		2ATSW	0.33	-76.98	Branch	1	1	C 1EDH-B1W
MSA-W		2ATSW	31.25	-73.40	Branch	1	1	C MSA-W 2ATSW

*Bus 2ATSW 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.000 MVA) At 0.00DEG, X/R = 0.49
Z1 = ********** +j ********** pu, Z0 = ********** +j ********** pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN W		2ATSW	0.00	0.00	Branch	1	1	C GEN-W 2ATSW
2ATSW		2ATSW	0.00	0.00	Branch	1	1	C 2ATSW

Project Name: Disney Campus
Comment: West - Ground Fault - Low Voltage Interrupting Report

Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus 2EH-A1W 0.480 kV, Zone 1, Area 1
E/Z = 4.682 kA (3.893 MVA) At -25.41DEG, X/R = 1.11
Z1 = 17.474261 +j 8.933002 pu, Z0 = 34.662876 +j 15.236856 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
2EH-B1W		2EH-A1W	4.68	-25.41	Branch	1	1	C 2EH-A1W
TX 2ETR-1AW H		2EH-A1W	0.00	0.00	Branch	1	1	C TX 2ETR-1AW

*Bus 2EH-B1W 0.480 kV, Zone 1, Area 1
E/Z = 14.995 kA (12.467 MVA) At -37.67DEG, X/R = 1.27
Z1 = 4.834129 +j 4.341790 pu, Z0 = 9.382706 +j 6.054340 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
2EH-A1W		2EH-B1W	0.00	0.00	Branch	1	1	C 2EH-A1W
1ATSW		2EH-B1W	14.99	-37.67	Branch	1	1	C 2EH-B1W
TX 2ETR-1BW H		2EH-B1W	0.00	0.00	Branch	1	1	C TX 2ETR-1BW

*Bus 2EL-A1W 0.208 kV, Zone 1, Area 1
E/Z = 1.455 kA (0.524 MVA) At -54.43DEG, X/R = 1.72
Z1 = 121.122683 +j 165.773881 pu, Z0 = 90.746331 +j 134.084231 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1AW L		2EL-A1W	1.45	-54.43	Branch	1	1	C 2EL-A1W
1ELA1W		2EL-A1W	0.00	0.00	Branch	1	1	C 1ELA1W

*Bus 2EL-B1W 0.208 kV, Zone 1, Area 1
E/Z = 0.816 kA (0.294 MVA) At -54.26DEG, X/R = 1.72
Z1 = 209.246366 +j 291.525703 pu, Z0 = 177.310957 +j 244.910163 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1BW L		2EL-B1W	0.82	-54.26	Branch	1	1	C 2EL-B1W

*Bus 3EH-B1W 0.480 kV, Zone 1, Area 1
E/Z = 13.203 kA (10.977 MVA) At -35.44DEG, X/R = 1.23
Z1 = 5.637640 +j 4.625190 pu, Z0 = 11.009409 +j 6.643474 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1EDH-B1W		3EH-B1W	13.20	-35.44	Branch	1	1	C 3EH-B1W
TX 3ETR-1AW H		3EH-B1W	0.00	0.00	Branch	1	1	C TX 3ETR-1AW
TX 3ETR-1BW H		3EH-B1W	0.00	0.00	Branch	1	1	C TX 3ETR-1BW

*Bus 3EL-A1W 0.208 kV, Zone 1, Area 1
E/Z = 1.438 kA (0.518 MVA) At -53.48DEG, X/R = 1.68
Z1 = 126.938183 +j 165.704515 pu, Z0 = 90.746331 +j 134.084231 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1AW L		3EL-A1W	1.44	-53.48	Branch	1	1	C 3EL-A1W

*Bus 3EL-B1W 0.208 kV, Zone 1, Area 1
E/Z = 1.509 kA (0.544 MVA) At -55.91DEG, X/R = 1.79
Z1 = 109.286062 +j 161.466069 pu, Z0 = 90.746331 +j 134.084231 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1BW L		3EL-B1W	1.51	-55.91	Branch	1	1	C 3EL-B1W

Project Name: Disney Campus
Comment: West - Ground Fault - Low Voltage Interrupting Report

Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus A1HW 0.480 kV, Zone 1, Area 1
E/Z = 6.094 kA (5.067 MVA) At -24.09DEG, X/R = 1.10
Z1 = 13.584990 +j 6.708024 pu, Z0 = 26.884451 +j 10.786806 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		A1HW	6.09	-24.09	Branch	1	1	C A1HW

*Bus A1L1W 0.208 kV, Zone 1, Area 1
E/Z = 5.553 kA (2.001 MVA) At -62.35DEG, X/R = 2.16
Z1 = 24.451744 +j 47.213613 pu, Z0 = 20.676369 +j 38.434584 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR1W L		A1L1W	5.55	-62.35	Branch	1	1	C A1L1W
A1L2W		A1L1W	0.00	0.00	Branch	1	1	C A1L2W

*Bus A1L2W 0.208 kV, Zone 1, Area 1
E/Z = 5.403 kA (1.947 MVA) At -62.15DEG, X/R = 2.14
Z1 = 25.055821 +j 48.074433 pu, Z0 = 21.884523 +j 40.156225 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A1L1W		A1L2W	5.40	-62.15	Branch	1	1	C A1L2W

*Bus A2HW 0.480 kV, Zone 1, Area 1
E/Z = 5.735 kA (4.768 MVA) At -27.13DEG, X/R = 1.12
Z1 = 14.071149 +j 7.838176 pu, Z0 = 27.856767 +j 13.047098 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		A2HW	5.74	-27.13	Branch	1	1	C A2HW

*Bus A2L1W 0.208 kV, Zone 1, Area 1
E/Z = 5.549 kA (1.999 MVA) At -62.38DEG, X/R = 2.16
Z1 = 24.451744 +j 47.280412 pu, Z0 = 20.676369 +j 38.434584 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR2W L		A2L1W	5.55	-62.38	Branch	1	1	C A2L1W
A2L2W		A2L1W	0.00	0.00	Branch	1	1	C A2L2W

*Bus A2L2W 0.208 kV, Zone 1, Area 1
E/Z = 5.399 kA (1.945 MVA) At -62.18DEG, X/R = 2.14
Z1 = 25.055821 +j 48.141231 pu, Z0 = 21.884523 +j 40.156225 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A2L1W		A2L2W	5.40	-62.18	Branch	1	1	C A2L2W

*Bus A3HW 0.480 kV, Zone 1, Area 1
E/Z = 5.384 kA (4.476 MVA) At -26.69DEG, X/R = 1.12
Z1 = 15.043465 +j 8.191346 pu, Z0 = 29.801401 +j 13.753438 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		A3HW	5.38	-26.69	Branch	1	1	C A3HW

Project Name: Disney Campus
Comment: West - Ground Fault - Low Voltage Interrupting Report

Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus A3L1W 0.208 kV, Zone 1, Area 1
E/Z = 5.052 kA (1.820 MVA) At -59.70DEG, X/R = 1.98
Z1 = 31.242000 +j 51.956303 pu, Z0 = 20.676369 +j 38.434584 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR3W L		A3L1W	5.05	-59.70	Branch	1	1	C A3L1W
A3L2W		A3L1W	0.00	0.00	Branch	1	1	C A3L2W

*Bus A3L2W 0.208 kV, Zone 1, Area 1
E/Z = 4.927 kA (1.775 MVA) At -59.58DEG, X/R = 1.98
Z1 = 31.846077 +j 52.817122 pu, Z0 = 21.884523 +j 40.156225 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
A3L1W		A3L2W	4.93	-59.58	Branch	1	1	C A3L2W

*Bus AC-1W 0.480 kV, Zone 1, Area 1
E/Z = 16.293 kA (13.545 MVA) At -58.25DEG, X/R = 1.90
Z1 = 2.985561 +j 5.373715 pu, Z0 = 5.685592 +j 8.118177 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		AC-1W	16.29	-58.25	Branch	1	1	C AC-1W

*Bus AC-2W 0.480 kV, Zone 1, Area 1
E/Z = 10.849 kA (9.020 MVA) At -53.60DEG, X/R = 1.69
Z1 = 5.007051 +j 7.357653 pu, Z0 = 9.728572 +j 12.086053 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		AC-2W	10.85	-53.60	Branch	1	1	C AC-2W

*Bus AC-3W 0.480 kV, Zone 1, Area 1
E/Z = 8.858 kA (7.365 MVA) At -51.91DEG, X/R = 1.62
Z1 = 6.354711 +j 8.680278 pu, Z0 = 12.423893 +j 14.731303 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		AC-3W	8.86	-51.91	Branch	1	1	C AC-3W

*Bus B1HW 0.480 kV, Zone 1, Area 1
E/Z = 34.125 kA (28.371 MVA) At -70.75DEG, X/R = 3.04
Z1 = 0.943717 +j 3.160987 pu, Z0 = 1.601903 +j 3.692721 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		B1HW	34.13	-70.75	Branch	1	1	C B1HW

*Bus B1L1W 0.208 kV, Zone 1, Area 1
E/Z = 5.553 kA (2.001 MVA) At -62.35DEG, X/R = 2.16
Z1 = 24.451744 +j 47.213613 pu, Z0 = 20.676369 +j 38.434584 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR1W L		B1L1W	5.55	-62.35	Branch	1	1	C B1L1W
B1L2W		B1L1W	0.00	0.00	Branch	1	1	C B1L2W

Project Name: Disney Campus
Comment: West - Ground Fault - Low Voltage Interrupting Report

Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus B1L2W 0.208 kV, Zone 1, Area 1
E/Z = 5.403 kA (1.947 MVA) At -62.15DEG, X/R = 2.14
Z1 = 25.055821 +j 48.074433 pu, Z0 = 21.884523 +j 40.156225 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
B1L1W		B1L2W	5.40	-62.15	Branch	1	1	C B1L2W

*Bus B2HW 0.480 kV, Zone 1, Area 1
E/Z = 17.205 kA (14.304 MVA) At -39.16DEG, X/R = 1.29
Z1 = 4.137710 +j 3.976447 pu, Z0 = 7.989915 +j 5.323638 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		B2HW	17.20	-39.16	Branch	1	1	C B2HW

*Bus B2L1W 0.208 kV, Zone 1, Area 1
E/Z = 5.473 kA (1.972 MVA) At -61.96DEG, X/R = 2.13
Z1 = 25.421781 +j 47.948396 pu, Z0 = 20.676369 +j 38.434584 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR2W L		B2L1W	5.47	-61.96	Branch	1	1	C B2L1W
B2L2W		B2L1W	0.00	0.00	Branch	1	1	C B2L2W

*Bus B2L2W 0.208 kV, Zone 1, Area 1
E/Z = 5.327 kA (1.919 MVA) At -61.78DEG, X/R = 2.12
Z1 = 26.025858 +j 48.809216 pu, Z0 = 21.884523 +j 40.156225 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
B2L1W		B2L2W	5.33	-61.78	Branch	1	1	C B2L2W

*Bus B3HW 0.480 kV, Zone 1, Area 1
E/Z = 14.005 kA (11.644 MVA) At -34.76DEG, X/R = 1.22
Z1 = 5.364047 +j 4.337331 pu, Z0 = 10.442598 +j 6.045406 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W		B3HW	14.01	-34.76	Branch	1	1	C B3HW

*Bus B3L1W 0.208 kV, Zone 1, Area 1
E/Z = 5.435 kA (1.958 MVA) At -61.76DEG, X/R = 2.11
Z1 = 25.906799 +j 48.282388 pu, Z0 = 20.676369 +j 38.434584 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR3W L		B3L1W	5.44	-61.76	Branch	1	1	C B3L1W
B3L2W		B3L1W	0.00	0.00	Branch	1	1	C B3L2W

*Bus B3L2W 0.208 kV, Zone 1, Area 1
E/Z = 5.291 kA (1.906 MVA) At -61.58DEG, X/R = 2.10
Z1 = 26.510876 +j 49.143208 pu, Z0 = 21.884523 +j 40.156225 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
B3L1W		B3L2W	5.29	-61.58	Branch	1	1	C B3L2W

Project Name: Disney Campus
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Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus G-1 0.480 kV, Zone 1, Area 1
E/Z = 10.169 kA (8.455 MVA) At -39.40DEG, X/R = 1.33
Z1 = 6.894658 +j 6.300073 pu, Z0 = 13.960678 +j 9.953198 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
M ELEV1		G-1	0.14	-76.77	Motor	1	1	
M ELEV2		G-1	0.14	-76.77	Motor	1	1	
1EDH-B1W		G-1	9.95	-38.41	Branch	1	1	C G-1

*Bus GEN W 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.000 MVA) At 0.00DEG, X/R = 0.49
Z1 = ********** +j ********** pu, Z0 = ********** +j ********** pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
1ATSW		GEN W	0.00	0.00	Branch	1	1	C GEN-W 1ATSW
2ATSW		GEN W	0.00	0.00	Branch	1	1	C GEN-W 2ATSW
LB		GEN W	0.00	0.00	Branch	1	1	C LB

*Bus IDF-2AW 0.208 kV, Zone 1, Area 1
E/Z = 1.511 kA (0.544 MVA) At -28.39DEG, X/R = 1.14
Z1 = 92.926434 +j 64.793797 pu, Z0 = 298.994889 +j 132.545989 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
MDFW		IDF-2AW	1.51	-28.39	Branch	1	1	C IDF-2AW

*Bus LB 0.480 kV, Zone 1, Area 1
E/Z = 0.000 kA (0.000 MVA) At 0.00DEG, X/R = 0.49
Z1 = ********** +j ********** pu, Z0 = ********** +j ********** pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
GEN W		LB	0.00	0.00	Branch	1	1	C LB

*Bus MDFW 0.208 kV, Zone 1, Area 1
E/Z = 6.518 kA (2.348 MVA) At -59.20DEG, X/R = 1.95
Z1 = 23.023121 +j 39.403165 pu, Z0 = 19.381028 +j 30.983321 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1BW L		MDFW	6.52	-59.20	Branch	1	1	C MDFW
IDF-2AW		MDFW	0.00	0.00	Branch	1	1	C IDF-2AW

Project Name: Disney Campus
Comment: West - Ground Fault - Low Voltage Interrupting Report

Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus MSA-W 0.480 kV, Zone 1, Area 1
E/Z = 39.884 kA (33.159 MVA) At -80.16DEG, X/R = 5.84
Z1 = 0.458699 +j 2.893793 pu, Z0 = 0.631868 +j 3.158333 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
A2HW	MSA-W	0.00	0.00	Branch	1	1	C A2HW
TX GWP L	MSA-W	39.54	-80.18	Branch	1	1	C MSA-W
TX BTR1W H	MSA-W	0.00	0.00	Branch	1	1	C TX BTR1W
B1HW	MSA-W	0.00	0.00	Branch	1	1	C B1HW
TX BTR2W H	MSA-W	0.00	0.00	Branch	1	1	C TX BTR2W
B2HW	MSA-W	0.00	0.00	Branch	1	1	C B2HW
TX BTR3W H	MSA-W	0.00	0.00	Branch	1	1	C TX BTR3W
B3HW	MSA-W	0.00	0.00	Branch	1	1	C B3HW
A3HW	MSA-W	0.00	0.00	Branch	1	1	C A3HW
TX ATR3W H	MSA-W	0.00	0.00	Branch	1	1	C TX ATR3W
TX ATR2W H	MSA-W	0.00	0.00	Branch	1	1	C TX ATR2W
A1HW	MSA-W	0.00	0.00	Branch	1	1	C A1HW
TX ATR1W H	MSA-W	0.00	0.00	Branch	1	1	C TX ATR1W
AC-1W	MSA-W	0.00	0.00	Branch	1	1	C AC-1W
AC-2W	MSA-W	0.00	0.00	Branch	1	1	C AC-2W
AC-3W	MSA-W	0.00	0.00	Branch	1	1	C AC-3W
RHW	MSA-W	0.00	0.00	Branch	1	1	C RHW
1ATSW	MSA-W	0.00	0.00	Branch	1	1	C MSA-W 1ATSW
2ATSW	MSA-W	0.34	-78.07	Branch	1	1	C MSA-W 2ATSW

*Bus RHW 0.480 kV, Zone 1, Area 1
E/Z = 4.359 kA (3.624 MVA) At -23.98DEG, X/R = 1.09
Z1 = 18.980294 +j 9.074271 pu, Z0 = 37.674905 +j 15.519289 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
MSA-W	RHW	4.36	-23.98	Branch	1	1	C RHW

*Bus TX 2ETR-1AW H 0.480 kV, Zone 1, Area 1
E/Z = 4.165 kA (3.463 MVA) At -23.51DEG, X/R = 1.09
Z1 = 19.932646 +j 9.303756 pu, Z0 = 39.579635 +j 15.978398 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1AW L	TX 2ETR-1AW H	0.00	0.00	Branch	1	1	TX 2ETR-1AW
2EH-A1W	TX 2ETR-1AW H	4.17	-23.51	Branch	1	1	C TX 2ETR-1AW

*Bus TX 2ETR-1AW L 0.208 kV, Zone 1, Area 1
E/Z = 1.487 kA (0.536 MVA) At -55.58DEG, X/R = 1.77
Z1 = 117.003554 +j 164.829803 pu, Z0 = 82.508096 +j 132.196075 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1AW H	TX 2ETR-1AW L	1.49	-55.58	Branch	1	1	TX 2ETR-1AW
2EL-A1W	TX 2ETR-1AW L	0.00	0.00	Branch	1	1	C 2EL-A1W

*Bus TX 2ETR-1BW H 0.480 kV, Zone 1, Area 1
E/Z = 5.935 kA (4.934 MVA) At -15.44DEG, X/R = 1.04
Z1 = 14.722845 +j 4.712544 pu, Z0 = 29.160110 +j 6.795923 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1BW L	TX 2ETR-1BW H	0.00	0.00	Branch	1	1	TX 2ETR-1BW
2EH-B1W	TX 2ETR-1BW H	5.94	-15.44	Branch	1	1	C TX 2ETR-1BW

Project Name: Disney Campus
Comment: West - Ground Fault - Low Voltage Interrupting Report

Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus TX 2ETR-1BW L 0.208 kV, Zone 1, Area 1
E/Z = 0.839 kA (0.302 MVA) At -56.08DEG, X/R = 1.80
Z1 = 198.834570 +j 290.549672 pu, Z0 = 156.487364 +j 242.958101 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 2ETR-1BW H		TX 2ETR-1BW L	0.84	-56.08	Branch	1	1	TX 2ETR-1BW
2EL-B1W		TX 2ETR-1BW L	0.00	0.00	Branch	1	1	C 2EL-B1W

*Bus TX 3ETR-1AW H 0.480 kV, Zone 1, Area 1
E/Z = 3.333 kA (2.771 MVA) At -18.46DEG, X/R = 1.06
Z1 = 25.748146 +j 9.234390 pu, Z0 = 51.230159 +j 15.862105 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1AW L		TX 3ETR-1AW H	0.00	0.00	Branch	1	1	TX 3ETR-1AW
3EH-B1W		TX 3ETR-1AW H	3.33	-18.46	Branch	1	1	C TX 3ETR-1AW

*Bus TX 3ETR-1AW L 0.208 kV, Zone 1, Area 1
E/Z = 1.470 kA (0.530 MVA) At -54.60DEG, X/R = 1.73
Z1 = 122.819054 +j 164.760437 pu, Z0 = 82.508096 +j 132.196075 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1AW H		TX 3ETR-1AW L	1.47	-54.60	Branch	1	1	TX 3ETR-1AW
3EL-A1W		TX 3ETR-1AW L	0.00	0.00	Branch	1	1	C 3EL-A1W

*Bus TX 3ETR-1BW H 0.480 kV, Zone 1, Area 1
E/Z = 8.760 kA (7.283 MVA) At -26.02DEG, X/R = 1.12
Z1 = 8.096025 +j 4.995944 pu, Z0 = 20.842984 +j 8.126516 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1BW L		TX 3ETR-1BW H	0.00	0.00	Branch	1	1	TX 3ETR-1BW
3EH-B1W		TX 3ETR-1BW H	8.76	-26.02	Branch	1	1	C TX 3ETR-1BW

*Bus TX 3ETR-1BW L 0.208 kV, Zone 1, Area 1
E/Z = 1.543 kA (0.556 MVA) At -57.13DEG, X/R = 1.85
Z1 = 105.166933 +j 160.521991 pu, Z0 = 82.508096 +j 132.196075 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX 3ETR-1BW H		TX 3ETR-1BW L	1.54	-57.13	Branch	1	1	TX 3ETR-1BW
3EL-B1W		TX 3ETR-1BW L	0.00	0.00	Branch	1	1	C 3EL-B1W

*Bus TX ATR1W H 0.480 kV, Zone 1, Area 1
E/Z = 34.125 kA (28.371 MVA) At -70.75DEG, X/R = 3.04
Z1 = 0.943717 +j 3.160987 pu, Z0 = 1.601902 +j 3.692721 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR1W L		TX ATR1W H	0.00	0.00	Branch	1	1	TX ATR1W
MSA-W		TX ATR1W H	34.13	-70.75	Branch	1	1	C TX ATR1W

*Bus TX ATR1W L 0.208 kV, Zone 1, Area 1
E/Z = 5.712 kA (2.058 MVA) At -62.57DEG, X/R = 2.17
Z1 = 23.847667 +j 46.352793 pu, Z0 = 19.468214 +j 36.712942 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR1W H		TX ATR1W L	5.71	-62.57	Branch	1	1	TX ATR1W
A1L1W		TX ATR1W L	0.00	0.00	Branch	1	1	C A1L1W

Project Name: Disney Campus
Comment: West - Ground Fault - Low Voltage Interrupting Report

Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus TX ATR2W H 0.480 kV, Zone 1, Area 1
E/Z = 33.329 kA (27.709 MVA) At -71.22DEG, X/R = 3.11
Z1 = 0.943717 +j 3.227785 pu, Z0 = 1.601902 +j 3.826317 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR2W L		TX ATR2W H	0.00	0.00	Branch	1	1	TX ATR2W
MSA-W		TX ATR2W H	33.33	-71.22	Branch	1	1	C TX ATR2W

*Bus TX ATR2W L 0.208 kV, Zone 1, Area 1
E/Z = 5.708 kA (2.056 MVA) At -62.59DEG, X/R = 2.17
Z1 = 23.847667 +j 46.419592 pu, Z0 = 19.468214 +j 36.712942 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR2W H		TX ATR2W L	5.71	-62.59	Branch	1	1	TX ATR2W
A2L1W		TX ATR2W L	0.00	0.00	Branch	1	1	C A2L1W

*Bus TX ATR3W H 0.480 kV, Zone 1, Area 1
E/Z = 8.559 kA (7.116 MVA) At -43.37DEG, X/R = 1.38
Z1 = 7.733973 +j 7.903676 pu, Z0 = 15.182350 +j 13.178106 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR3W L		TX ATR3W H	0.00	0.00	Branch	1	1	TX ATR3W
MSA-W		TX ATR3W H	8.56	-43.37	Branch	1	1	C TX ATR3W

*Bus TX ATR3W L 0.208 kV, Zone 1, Area 1
E/Z = 5.184 kA (1.868 MVA) At -59.83DEG, X/R = 1.99
Z1 = 30.637923 +j 51.095483 pu, Z0 = 19.468214 +j 36.712942 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX ATR3W H		TX ATR3W L	5.18	-59.83	Branch	1	1	TX ATR3W
A3L1W		TX ATR3W L	0.00	0.00	Branch	1	1	C A3L1W

*Bus TX BTR1W H 0.480 kV, Zone 1, Area 1
E/Z = 34.125 kA (28.371 MVA) At -70.75DEG, X/R = 3.04
Z1 = 0.943717 +j 3.160987 pu, Z0 = 1.601902 +j 3.692721 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR1W L		TX BTR1W H	0.00	0.00	Branch	1	1	TX BTR1W
MSA-W		TX BTR1W H	34.13	-70.75	Branch	1	1	C TX BTR1W

*Bus TX BTR1W L 0.208 kV, Zone 1, Area 1
E/Z = 5.712 kA (2.058 MVA) At -62.57DEG, X/R = 2.17
Z1 = 23.847667 +j 46.352793 pu, Z0 = 19.468214 +j 36.712942 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR1W H		TX BTR1W L	5.71	-62.57	Branch	1	1	TX BTR1W
B1L1W		TX BTR1W L	0.00	0.00	Branch	1	1	C B1L1W

*Bus TX BTR2W H 0.480 kV, Zone 1, Area 1
E/Z = 24.260 kA (20.169 MVA) At -60.31DEG, X/R = 2.02
Z1 = 1.913754 +j 3.895770 pu, Z0 = 3.541969 +j 5.162286 pu

Contributions In kA

Bus	to	Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR2W L		TX BTR2W H	0.00	0.00	Branch	1	1	TX BTR2W
MSA-W		TX BTR2W H	24.26	-60.31	Branch	1	1	C TX BTR2W

Project Name: Disney Campus
Comment: West - Ground Fault - Low Voltage Interrupting Report

Interrupting Results S L-GND
Driving Point Voltage (P.U.) = 1.00000

*Bus TX BTR2W L 0.208 kV, Zone 1, Area 1
E/Z = 5.627 kA (2.027 MVA) At -62.16DEG, X/R = 2.14
Z1 = 24.817703 +j 47.087577 pu, Z0 = 19.468214 +j 36.712942 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR2W H	TX BTR2W L	5.63	-62.16	Branch	1	1	TX BTR2W
B2L1W	TX BTR2W L	0.00	0.00	Branch	1	1	C B2L1W

*Bus TX BTR3W H 0.480 kV, Zone 1, Area 1
E/Z = 21.193 kA (17.620 MVA) At -56.87DEG, X/R = 1.83
Z1 = 2.398772 +j 4.229762 pu, Z0 = 4.512002 +j 5.830270 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR3W L	TX BTR3W H	0.00	0.00	Branch	1	1	TX BTR3W
MSA-W	TX BTR3W H	21.19	-56.87	Branch	1	1	C TX BTR3W

*Bus TX BTR3W L 0.208 kV, Zone 1, Area 1
E/Z = 5.588 kA (2.013 MVA) At -61.95DEG, X/R = 2.13
Z1 = 25.302722 +j 47.421569 pu, Z0 = 19.468214 +j 36.712942 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX BTR3W H	TX BTR3W L	5.59	-61.95	Branch	1	1	TX BTR3W
B3L1W	TX BTR3W L	0.00	0.00	Branch	1	1	C B3L1W

*Bus TX GWP L 0.480 kV, Zone 1, Area 1
E/Z = 42.354 kA (35.213 MVA) At -81.84DEG, X/R = 7.04
Z1 = 0.402792 +j 2.814197 pu, Z0 = 0.405006 +j 2.835049 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
GWP	TX GWP L	42.00	-81.87	Util	1	1	
MSA-W	TX GWP L	0.35	-78.89	Branch	1	1	C MSA-W

*Bus TX STR-1BW H 0.480 kV, Zone 1, Area 1
E/Z = 23.963 kA (19.922 MVA) At -59.72DEG, X/R = 1.99
Z1 = 1.969071 +j 3.914698 pu, Z0 = 3.672323 +j 5.222473 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1BW L	TX STR-1BW H	0.00	0.00	Branch	1	1	TX STR-1BW
1EDH-B1W	TX STR-1BW H	23.96	-59.72	Branch	1	1	C TX STR-1BW

*Bus TX STR-1BW L 0.208 kV, Zone 1, Area 1
E/Z = 6.786 kA (2.445 MVA) At -60.60DEG, X/R = 2.04
Z1 = 21.731652 +j 38.691702 pu, Z0 = 16.798096 +j 29.560394 pu

Contributions In kA

Bus	to Bus	kA	Angle	Device	Zone	Area	Branch
TX STR-1BW H	TX STR-1BW L	6.79	-60.60	Branch	1	1	TX STR-1BW
MDFW	TX STR-1BW L	0.00	0.00	Branch	1	1	C MDFW

Breaker Settings

East Building

Disney GC3 East Building
Adjustable Breaker Settings
3/10/2006

Adjustable Breaker Name	Manufacturer	Type	Style	Sensor/ Frame	Plug/ Tap	LTPU				LT Delay		STPU					Inst			Ground Trip			
						Name	Setting	Mult	Trip (A)	Name	Band	Name	Setting	Trip (A)	Band	I2t	Setting	Override	Trip (A)	Pickup	Trip (A)	Delay	I2t
B MSA-E MAIN	GE	MVT-Plus	ICCB	3000	3000	LT Pickup	1		3000	LT Delay (s)	3	ST Pickup	4.5	13500	Max	Out	9	Pickup	27000	0.3	900	Int	Out
B 1ATSE	GE	Spectra RMS	MCCB SE	150A (125AT)	125	LT Pickup	1	1	125	LT Delay	Fixed	ST Pickup	Max	875	Fixed	In	Max	Pickup	1562.5				Out
B 2ATSE	GE	Spectra RMS	MCCB SF	250	250	LT Pickup	1		250	LT Delay	Fixed	ST Pickup	Max	1250	Fixed	In	Max	Pickup	2500				Out
B 3EH-A1E	GE	Spectra RMS	MCCB SE	100A (100AT)	100	LT Pickup	1	1	100	LT Delay	Fixed	ST Pickup	Max	660	Fixed	In	Max	Pickup	1250				Out
B A1HE	GE	Spectra RMS	MCCB SE	150A (150AT)	150	LT Pickup	1	1	150	LT Delay	Fixed	ST Pickup	Max	1110	Fixed	In	Max	Pickup	1875				Out
B A2HE	GE	Spectra RMS	MCCB SE	150A (125AT)	125	LT Pickup	1	1	125	LT Delay	Fixed	ST Pickup	Max	875	Fixed	In	Max	Pickup	1562.5				Out
B A3HE	GE	Spectra RMS	MCCB SE	150A (125AT)	125	LT Pickup	1	1	125	LT Delay	Fixed	ST Pickup	Max	875	Fixed	In	Max	Pickup	1562.5				Out
B AC-1E						LTPU				LT Band		STPU						Pickup					
B AC-2E						LTPU				LT Band		STPU						Pickup					
B AC-3E						LTPU				LT Band		STPU						Pickup					
B ATR1E	GE	Spectra RMS	MCCB SG	400	400	LT Pickup	1	1	400	LT Delay	Fixed	ST Pickup	Max	2000	Fixed	In	Max	Pickup	4048				Out
B ATR2E	GE	Spectra RMS	MCCB SG	400	400	LT Pickup	1	1	400	LT Delay	Fixed	ST Pickup	Max	2000	Fixed	In	Max	Pickup	4048				Out
B ATR3E	GE	Spectra RMS	MCCB SG	400	400	LT Pickup	1	1	400	LT Delay	Fixed	ST Pickup	Max	2000	Fixed	In	Max	Pickup	4048				Out
B B1HE	GE	Spectra RMS	MCCB SE	150A (150AT)	150	LT Pickup	1	1	150	LT Delay	Fixed	ST Pickup	Max	1110	Fixed	In	Max	Pickup	1875				Out
B B2HE	GE	Spectra RMS	MCCB SE	150A (125AT)	125	LT Pickup	1	1	125	LT Delay	Fixed	ST Pickup	Max	875	Fixed	In	Max	Pickup	1562.5				Out
B B3HE	GE	Spectra RMS	MCCB SE	150A (125AT)	125	LT Pickup	1	1	125	LT Delay	Fixed	ST Pickup	Max	875	Fixed	In	Max	Pickup	1562.5				Out
B BTR1E	GE	Spectra RMS	MCCB SG	400	400	LT Pickup	1	1	400	LT Delay	Fixed	ST Pickup	Max	2000	Fixed	In	Max	Pickup	4048				Out
B BTR2E	GE	Spectra RMS	MCCB SG	400	400	LT Pickup	1	1	400	LT Delay	Fixed	ST Pickup	Max	2000	Fixed	In	Max	Pickup	4048				Out
B BTR3E	GE	Spectra RMS	MCCB SG	400	400	LT Pickup	1	1	400	LT Delay	Fixed	ST Pickup	Max	2000	Fixed	In	Max	Pickup	4048				Out
B ELEV1	GE	Spectra RMS	MCCB SF	250	125	LT Pickup	1		125	LT Delay	Fixed	ST Pickup	5	475	Fixed	In	5	Pickup	975				Out
B ELEV2	GE	Spectra RMS	MCCB SF	250	125	LT Pickup	1		125	LT Delay	Fixed	ST Pickup	Max	625	Fixed	In	Max	Pickup	1250				Out
B G-1	GE	Spectra RMS	MCCB SF	250	200	LT Pickup	1		200	LT Delay	Fixed	ST Pickup	Max	1000	Fixed	In	Max	Pickup	2000				Out
B GEN-E 1ATSE						LTPU				LT Band		STPU						Pickup					
B GEN-E 2ATSE						LTPU				LT Band		STPU						Pickup					
B LB						LTPU				LT Band		STPU						Pickup					
B MSA-E 1ATSE	GE	Spectra RMS	MCCB SE	150A (125AT)	125	LT Pickup	1	1	125	LT Delay	Fixed	ST Pickup	Max	875	Fixed	In	Max	Pickup	1562.5				Out
B MSA-E 2ATSE	GE	Spectra RMS	MCCB SG	400	400	LT Pickup	1	1	400	LT Delay	Fixed	ST Pickup	Max	2000	Fixed	In	Max	Pickup	4048				Out
B RHE	GE	Spectra RMS	MCCB SE	150A (150AT)	150	LT Pickup	1	1	150	LT Delay	Fixed	ST Pickup	Max	1110	Fixed	In	Max	Pickup	1875				Out
B TX ATR1E	GE	Spectra RMS	MCCB SF	250	225	LT Pickup	1		225	LT Delay	Fixed	ST Pickup	Max	1125	Fixed	In	Max	Pickup	2250				Out
B TX ATR2E	GE	Spectra RMS	MCCB SF	250	225	LT Pickup	1		225	LT Delay	Fixed	ST Pickup	Max	1125	Fixed	In	Max	Pickup	2250				Out
B TX ATR3E	GE	Spectra RMS	MCCB SF	250	225	LT Pickup	1		225	LT Delay	Fixed	ST Pickup	Max	1125	Fixed	In	Max	Pickup	2250				Out
B TX BTR1E	GE	Spectra RMS	MCCB SF	250	225	LT Pickup	1		225	LT Delay	Fixed	ST Pickup	Max	1125	Fixed	In	Max	Pickup	2250				Out
B TX BTR2E	GE	Spectra RMS	MCCB SF	250	225	LT Pickup	1		225	LT Delay	Fixed	ST Pickup	Max	1125	Fixed	In	Max	Pickup	2250				Out
B TX BTR3E	GE	Spectra RMS	MCCB SF	250	225	LT Pickup	1		225	LT Delay	Fixed	ST Pickup	Max	1125	Fixed	In	Max	Pickup	2250				Out
B TX STR-1AE	GE	Spectra RMS	MCCB SF	250	150	LT Pickup	1		150	LT Delay	Fixed	ST Pickup	Max	750	Fixed	In	Max	Pickup	1500				Out

Disney GC3 East Building
Thermal Magnetic Breakers
3/10/2006

Thermal Magnetic Breaker	Manufacturer	Type	Style	Frame	Trip	Instantaneous	
						Setting	Trip (A)
B 2EL-A1E BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B 2EL-A1E MAIN	GE	Q Line	THQB	100A(60-100AT)	60		
B 2EL-B1E	GE	Q Line	THQB	100A(60-100AT)	60		
B 2EL-B1E BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B 3EH-1AE BRANCH	GE	E150	THED(100A480V)	150A(15-50AT)	15		
B 3EL-A1E BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B 3EL-A1E MAIN	GE	Q Line	THQB	100A(60-100AT)	100		
B 3EL-B1E BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B 3EL-B1E MAIN	GE	Q Line	THQB	100A(60-100AT)	100		
B A1HE-BRANCH	GE	Record Plus	FBN	100A (20AT)	20		
B A1L1E BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B A1L2E BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B A2HE-BRANCH	GE	Record Plus	FBV	100A (20AT)	20		
B A2L1E BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B A2L2E-BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B A3HE-BRANCH	GE	Record Plus	FBV	100A (20AT)	20		
B A3L1E BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B A3L2E BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B B1HE-BRANCH	GE	E150	TEY	100A (20A)	20		
B B1L1E BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B B1L2E-BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B B2HE-BRANCH	GE	E150	TEY	100A (20A)	20		
B B2L1E BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B B2L2E BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B B3HE-BRANCH	GE	E150	TEY	100A (20A)	20		
B B3L1E BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B B3L2E-BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B IDF-2BE	GE	Q Line	THQB	100A(60-100AT)	100		
B IDF-2BR BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B MDFE BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B MDFE MAIN	GE	Q Line	TQD	225A(100-225AT)	225		
B RHE-BRANCH	GE	Record Plus	FBN	100A (15AT)	15		
B TX 2ETR-1AE	GE	Record Plus	FBV	100A (25AT)	25		
B TX 2ETR-1BE	GE	Record Plus	FBV	100A (25AT)	25		
B TX 3ETR-1AE	GE	E150	THED(100A480V)	150A(60-80AT)	70		
B TX 3ETR-1BE	GE	E150	THED(100A480V)	150A(60-80AT)	70		

West Building

Disney GC3 West Building
Adjustable Breaker Settings
3/10/2006

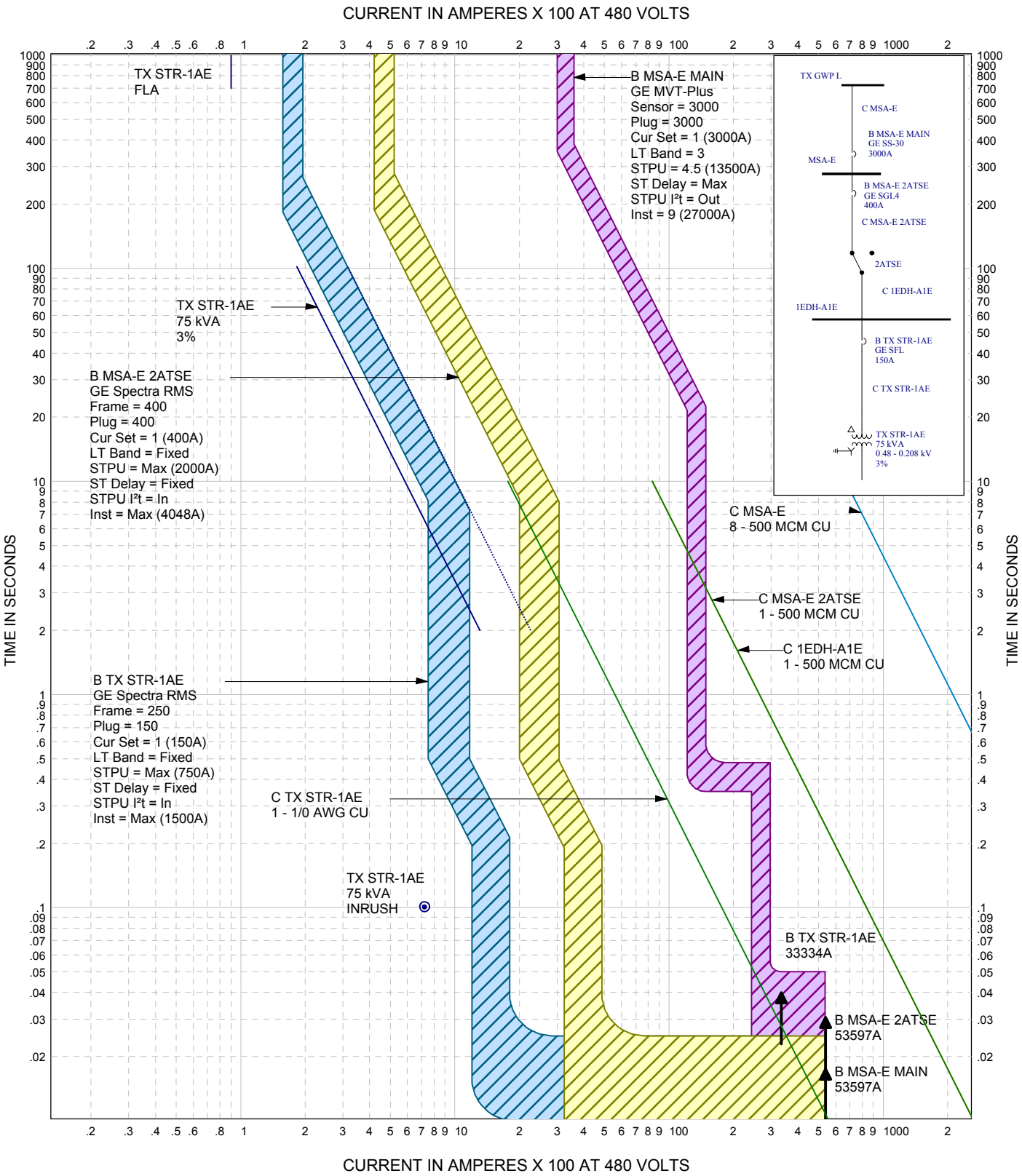
Adjustable Breaker Name	Manufacturer	Type	Style	Sensor/ Frame	Plug/ Tap	LTPU				LT Delay		STPU					Inst			Ground Trip			
						Name	Setting	Mult	Trip (A)	Name	Band	Name	Setting	Trip (A)	Band	I2t	Setting	Override	Trip (A)	Pickup	Trip (A)	Delay	I2t
B MSA-W MAIN	GE	MVT-Plus	ICCB	3000	3000	LT Pickup	1		3000	LT Delay (s)	3	ST Pickup	4.5	13500	Max	Out	9	Pickup	27000	0.3	900	Int	Out
B 1ATSW	GE	Spectra RMS	MCCB SE	150A (125AT)	125	LT Pickup	1	1	125	LT Delay	Fixed	ST Pickup	Max	875	Fixed	In	Max	Pickup	1562.5				Out
B 2ATSW	GE	Spectra RMS	MCCB SF	250	250	LT Pickup	1		250	LT Delay	Fixed	ST Pickup	Max	1250	Fixed	In	Max	Pickup	2500				Out
B 3EH-B1W	GE	Spectra RMS	MCCB SF	250	200	LT Pickup	1		200	LT Delay	Fixed	ST Pickup	Max	1000	Fixed	In	Max	Pickup	2000				Out
B A1HW	GE	Spectra RMS	MCCB SE	150A (150AT)	150	LT Pickup	1	1	150	LT Delay	Fixed	ST Pickup	Max	1110	Fixed	In	Max	Pickup	1875				Out
B A2HW	GE	Spectra RMS	MCCB SE	150A (125AT)	125	LT Pickup	1	1	125	LT Delay	Fixed	ST Pickup	Max	875	Fixed	In	Max	Pickup	1562.5				Out
B A3HW	GE	Spectra RMS	MCCB SE	150A (125AT)	125	LT Pickup	1	1	125	LT Delay	Fixed	ST Pickup	Max	875	Fixed	In	Max	Pickup	1562.5				Out
B AC-1W						LTPU				LT Band		STPU						Pickup					
B AC-2W						LTPU				LT Band		STPU						Pickup					
B AC-3W						LTPU				LT Band		STPU						Pickup					
B ATR1W	GE	Spectra RMS	MCCB SG	400	400	LT Pickup	1	1	400	LT Delay	Fixed	ST Pickup	Max	2000	Fixed	In	Max	Pickup	4048				Out
B ATR2W	GE	Spectra RMS	MCCB SG	400	400	LT Pickup	1	1	400	LT Delay	Fixed	ST Pickup	Max	2000	Fixed	In	Max	Pickup	4048				Out
B ATR3W	GE	Spectra RMS	MCCB SG	400	400	LT Pickup	1	1	400	LT Delay	Fixed	ST Pickup	Max	2000	Fixed	In	Max	Pickup	4048				Out
B B1HW	GE	Spectra RMS	MCCB SF	250	225	LT Pickup	1		225	LT Delay	Fixed	ST Pickup	Max	1125	Fixed	In	Max	Pickup	2250				Out
B B1HW-BRNCH2	GE	Spectra RMS	MCCB SE	60A (40AT)	40	LT Pickup	1	1	40	LT Delay	Fixed	ST Pickup	Max	256	Fixed	In	Max	Pickup	500				Out
B B2HW	GE	Spectra RMS	MCCB SE	150A (125AT)	125	LT Pickup	1	1	125	LT Delay	Fixed	ST Pickup	Max	875	Fixed	In	Max	Pickup	1562.5				Out
B B3HW	GE	Spectra RMS	MCCB SE	150A (125AT)	125	LT Pickup	1	1	125	LT Delay	Fixed	ST Pickup	Max	875	Fixed	In	Max	Pickup	1562.5				Out
B BTR1W	GE	Spectra RMS	MCCB SG	400	400	LT Pickup	1	1	400	LT Delay	Fixed	ST Pickup	Max	2000	Fixed	In	Max	Pickup	4048				Out
B BTR2W	GE	Spectra RMS	MCCB SG	400	400	LT Pickup	1	1	400	LT Delay	Fixed	ST Pickup	Max	2000	Fixed	In	Max	Pickup	4048				Out
B BTR3W	GE	Spectra RMS	MCCB SG	400	400	LT Pickup	1	1	400	LT Delay	Fixed	ST Pickup	Max	2000	Fixed	In	Max	Pickup	4048				Out
B ELEV1	GE	Spectra RMS	MCCB SF	250	125	LT Pickup	1		125	LT Delay	Fixed	ST Pickup	5	475	Fixed	In	5	Pickup	975				Out
B ELEV2	GE	Spectra RMS	MCCB SF	250	125	LT Pickup	1		125	LT Delay	Fixed	ST Pickup	Max	625	Fixed	In	Max	Pickup	1250				Out
B G-1	GE	Spectra RMS	MCCB SF	250	200	LT Pickup	1		200	LT Delay	Fixed	ST Pickup	Max	1000	Fixed	In	Max	Pickup	2000				Out
B GEN-W 1ATSW						LTPU				LT Band		STPU						Pickup					
B GEN-W 2ATSW						LTPU				LT Band		STPU						Pickup					
B LB						LTPU				LT Band		STPU						Pickup					
B MSA-W 1ATSW	GE	Spectra RMS	MCCB SE	150A (125AT)	125	LT Pickup	1	1	125	LT Delay	Fixed	ST Pickup	Max	875	Fixed	In	Max	Pickup	1562.5				Out
B MSA-W 2ATSW	GE	Spectra RMS	MCCB SG	400	400	LT Pickup	1	1	400	LT Delay	Fixed	ST Pickup	Max	2000	Fixed	In	Max	Pickup	4048				Out
B RHW	GE	Spectra RMS	MCCB SE	150A (150AT)	150	LT Pickup	1	1	150	LT Delay	Fixed	ST Pickup	Max	1110	Fixed	In	Max	Pickup	1875				Out
B RHW-BRANCH	GE	Spectra RMS	MCCB SE	30A (15AT)	15	LT Pickup	1	1	15	LT Delay	Fixed	ST Pickup	Max	90	Fixed	In	Max	Pickup	187.5				Out
B TX ATR1W	GE	Spectra RMS	MCCB SF	250	225	LT Pickup	1		225	LT Delay	Fixed	ST Pickup	Max	1125	Fixed	In	Max	Pickup	2250				Out
B TX ATR2W	GE	Spectra RMS	MCCB SF	250	225	LT Pickup	1		225	LT Delay	Fixed	ST Pickup	Max	1125	Fixed	In	Max	Pickup	2250				Out
B TX ATR3W	GE	Spectra RMS	MCCB SF	250	225	LT Pickup	1		225	LT Delay	Fixed	ST Pickup	Max	1125	Fixed	In	Max	Pickup	2250				Out
B TX BTR1W	GE	Spectra RMS	MCCB SF	250	225	LT Pickup	1		225	LT Delay	Fixed	ST Pickup	5	855	Fixed	In	5	Pickup	1755				Out
B TX BTR2W	GE	Spectra RMS	MCCB SF	250	225	LT Pickup	1		225	LT Delay	Fixed	ST Pickup	Max	1125	Fixed	In	Max	Pickup	2250				Out
B TX BTR3W	GE	Spectra RMS	MCCB SF	250	225	LT Pickup	1		225	LT Delay	Fixed	ST Pickup	Max	1125	Fixed	In	Max	Pickup	2250				Out
B TX STR-1BW	GE	Spectra RMS	MCCB SF	250	150	LT Pickup	1		150	LT Delay	Fixed	ST Pickup	Max	750	Fixed	In	Max	Pickup	1500				Out

Disney GC3 West Building
Thermal Magnetic Breakers
3/10/2006

Thermal Magnetic Breaker	Manufacturer	Type	Style	Frame	Trip	Instantaneous	
						Setting	Trip (A)
B 1ELA1W BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B 1ELA1W-MAIN	GE	Q Line	THQB	100A(60-100AT)	60		
B 2EL-A1W BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B 2EL-A1W MAIN	GE	Q Line	THQB	100A(60-100AT)	100		
B 2EL-B1W	GE	Q Line	THQB	100A(60-100AT)	60		
B 2EL-B1W BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B 3EH-B1W BRANCH	GE	E150	THED(100A480V)	150A(15-50AT)	20		
B 3EL-A1W BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B 3EL-A1W MAIN	GE	Q Line	THQB	100A(60-100AT)	100		
B 3EL-B1W BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B 3EL-B1W MAIN	GE	Q Line	THQB	100A(60-100AT)	100		
B A1HW-BRANCH	GE	E150	TEY	100A (20A)	20		
B A1L1W BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B A1L2W BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B A2HW-BRANCH	GE	E150	TEY	100A (20A)	20		
B A2L1W BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B A2L2W-BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B A3HW-BRANCH	GE	E150	TEY	100A (20A)	20		
B A3L1W BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B A3L2W BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B B1HW-BRANCH	GE	E150	THED (277V)	150A(15-30AT)	20		
B B1L1W BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B B1L2W-BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B B2HW-BRANCH	GE	Record Plus	FBN	100A (20AT)	20		
B B2L1W BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B B2L2W BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B B3HW-BRANCH	GE	Record Plus	FBN	100A (20AT)	20		
B B3L1W BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B B3L2W-BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B IDF-2AW	GE	Q Line	THQB	100A(60-100AT)	100		
B IDF-2AW BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B MDFW BRANCH	GE	Q Line	THQB	100A (15-50AT)	20		
B MDFW MAIN	GE	Q Line	TQD	225A(100-225AT)	225		
B TX 2ETR-1AW	GE	E150	TEY	100A (70A)	70		
B TX 2ETR-1BW	GE	Record Plus	FBV	100A (25AT)	25		
B TX 3ETR-1AW	GE	E150	THED(100A480V)	150A(60-80AT)	70		
B TX 3ETR-1BW	GE	E150	THED(100A480V)	150A(60-80AT)	70		

Time Current Curves

East Building



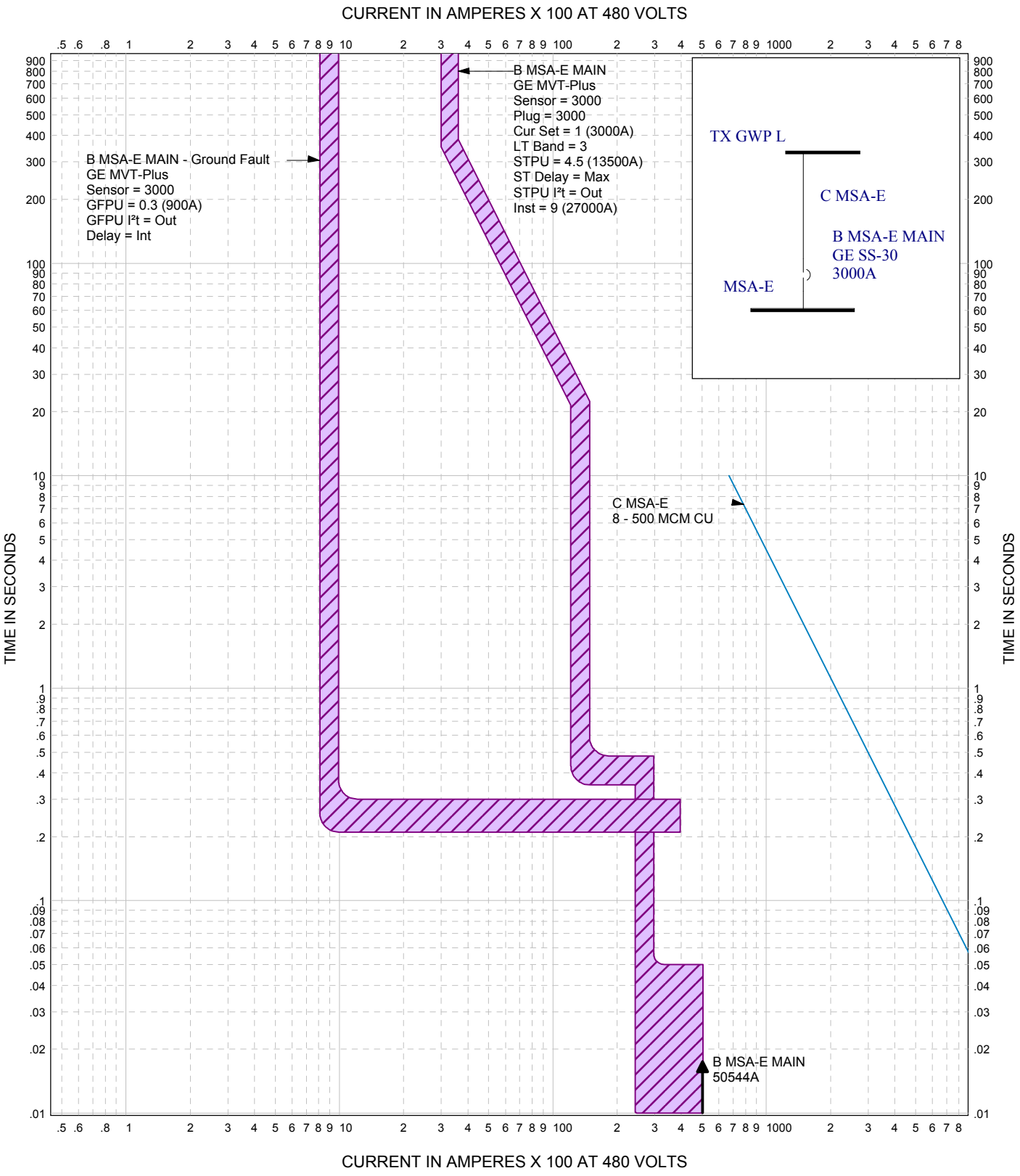
GE Energy - I & FS	***EasyPower*** ® **TIME-CURRENT CURVES**	GWP to 1EDH-A1E

Disney GC3 Campus

Breaker Settings: MSA-E main, Feeder 2ATSE, Feeder Tx STR-1AE

FAULT: Phase
DATE: Mar 10, 2006
BY: Joe Dietrich
REVISION: 0

DISNEY EAST



GE Energy - I & FS	***EasyPower*** ® **TIME-CURRENT CURVES**	GWP to 1EDH-A1E GF

Disney GC3 Campus

Breaker Settings: MSA-E main

Ground Fault Setting Included

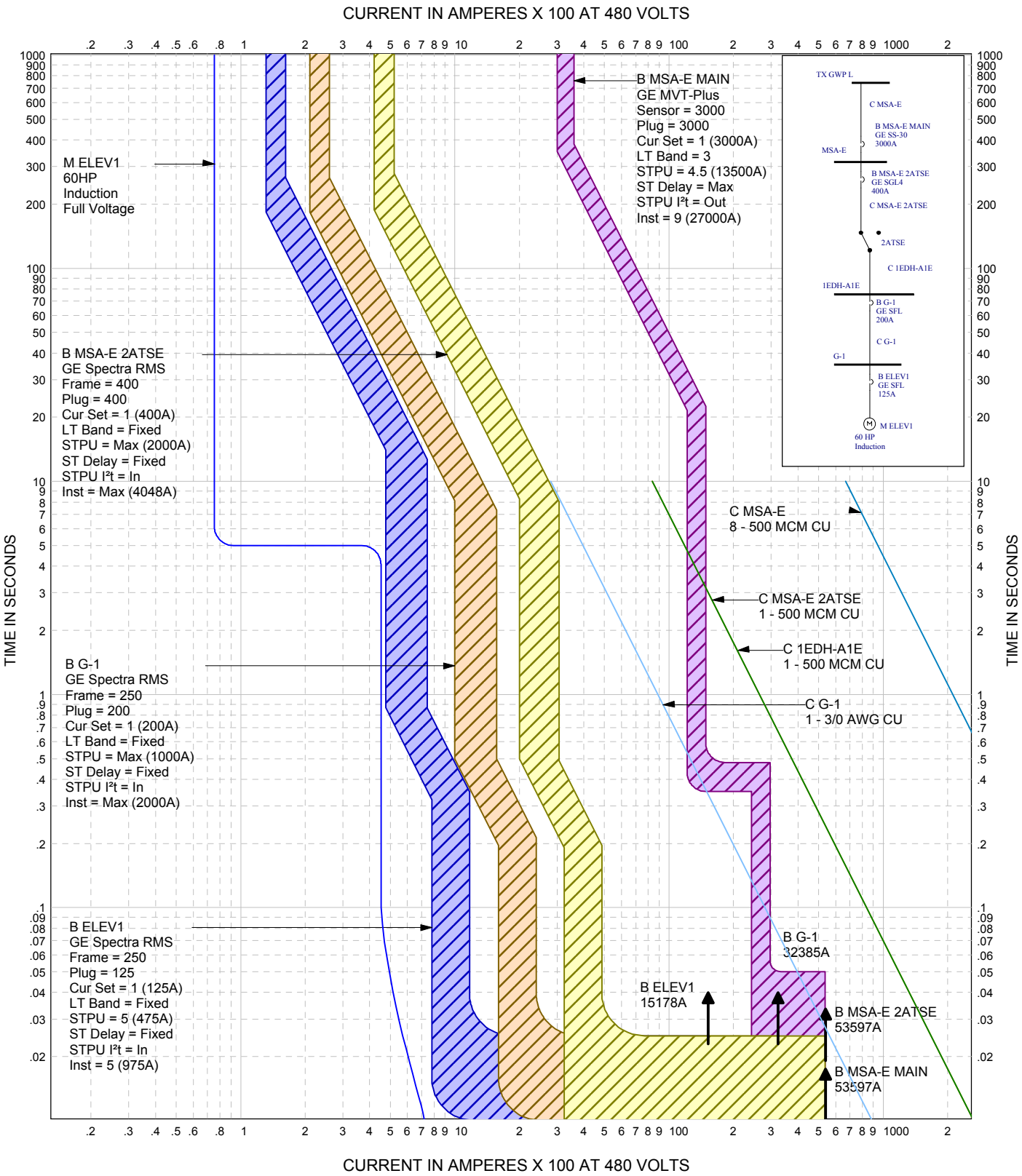
FAULT: Phase

DATE: Mar 10, 2006

BY: Joe Dietrich

REVISION: 0

DISNEY EAST



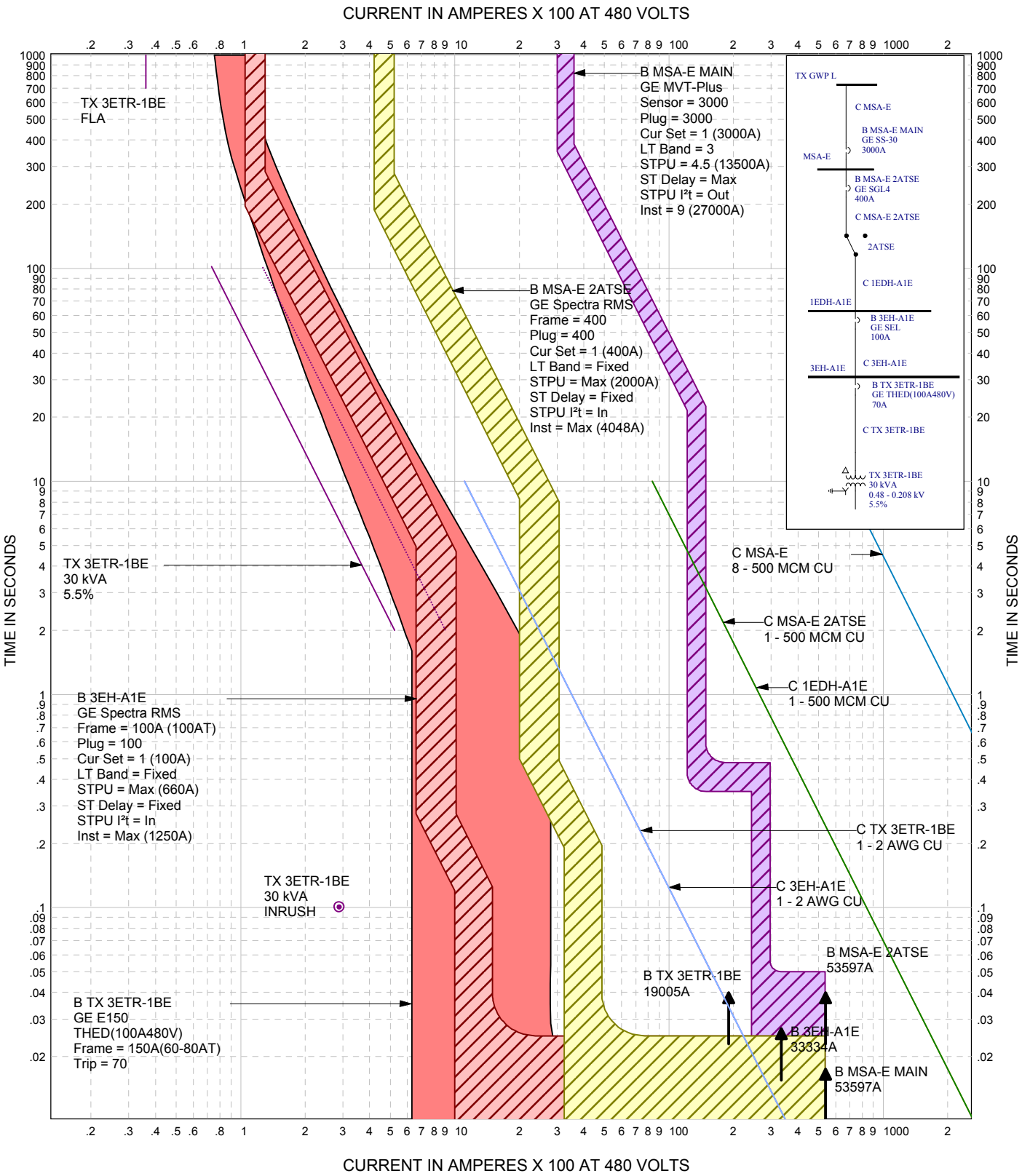
GE Energy - I & FS	***EasyPower*** ® **TIME-CURRENT CURVES**	GWP to Elev1

Disney GC3 Campus

Breaker Settings: MSA-E main, Feeder 2ATSE, Feeder G-1, Feeder Elev1

FAULT: Phase
DATE: Mar 10, 2006
BY: Joe Dietrich
REVISION: 0

DISNEY EAST



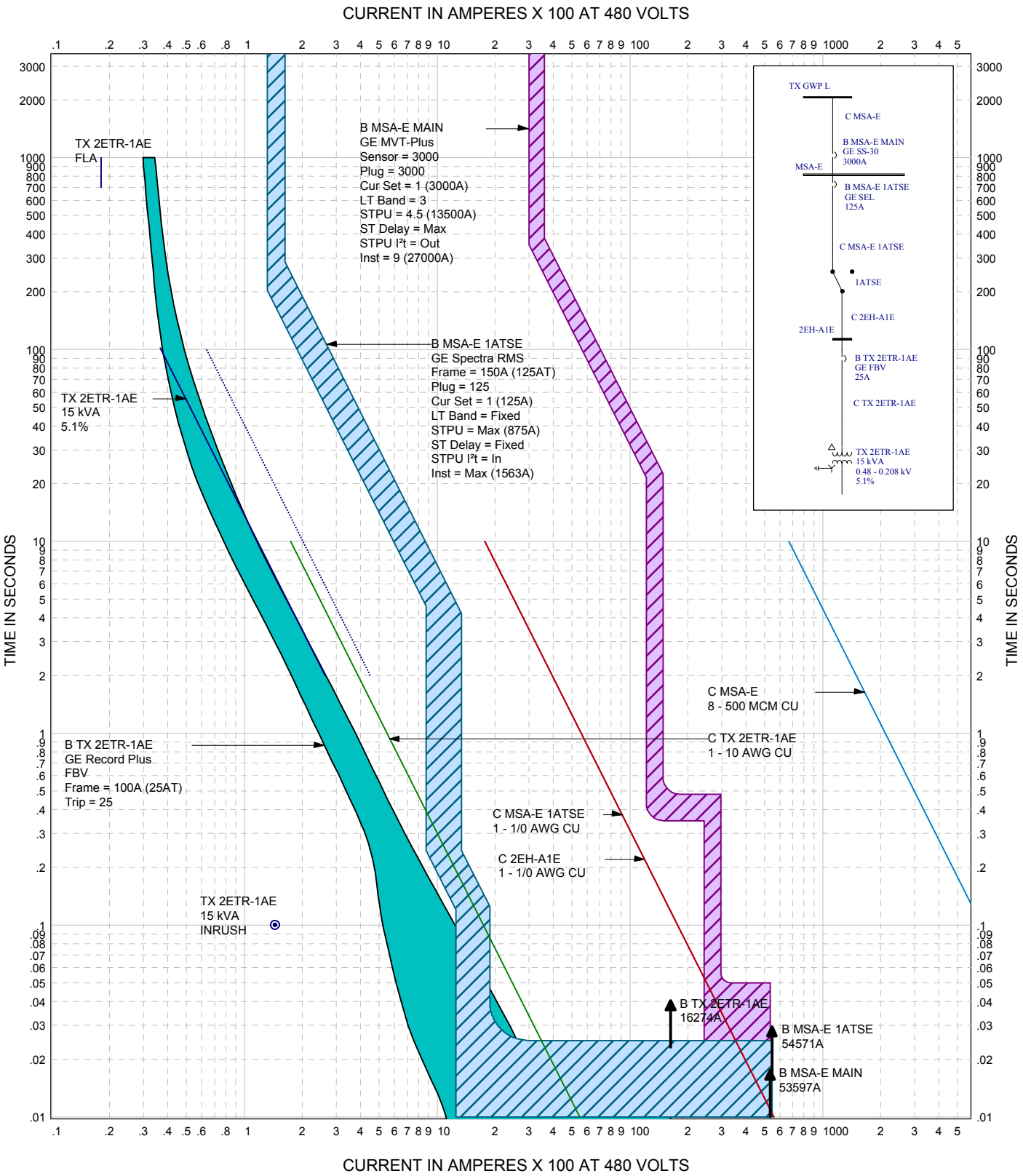
GE Energy - I & FS	***EasyPower*** ® **TIME-CURRENT CURVES**	GWP to 3EH-A1E

Disney GC3 Campus

Breaker Settings: MSA-E main, Feeder 2ATSE, Feeder 3EH-A1E, Feeder Tx 3ETR-1BE

FAULT: Phase
DATE: Mar 10, 2006
BY: Joe Dietrich
REVISION: 0

DISNEY EAST



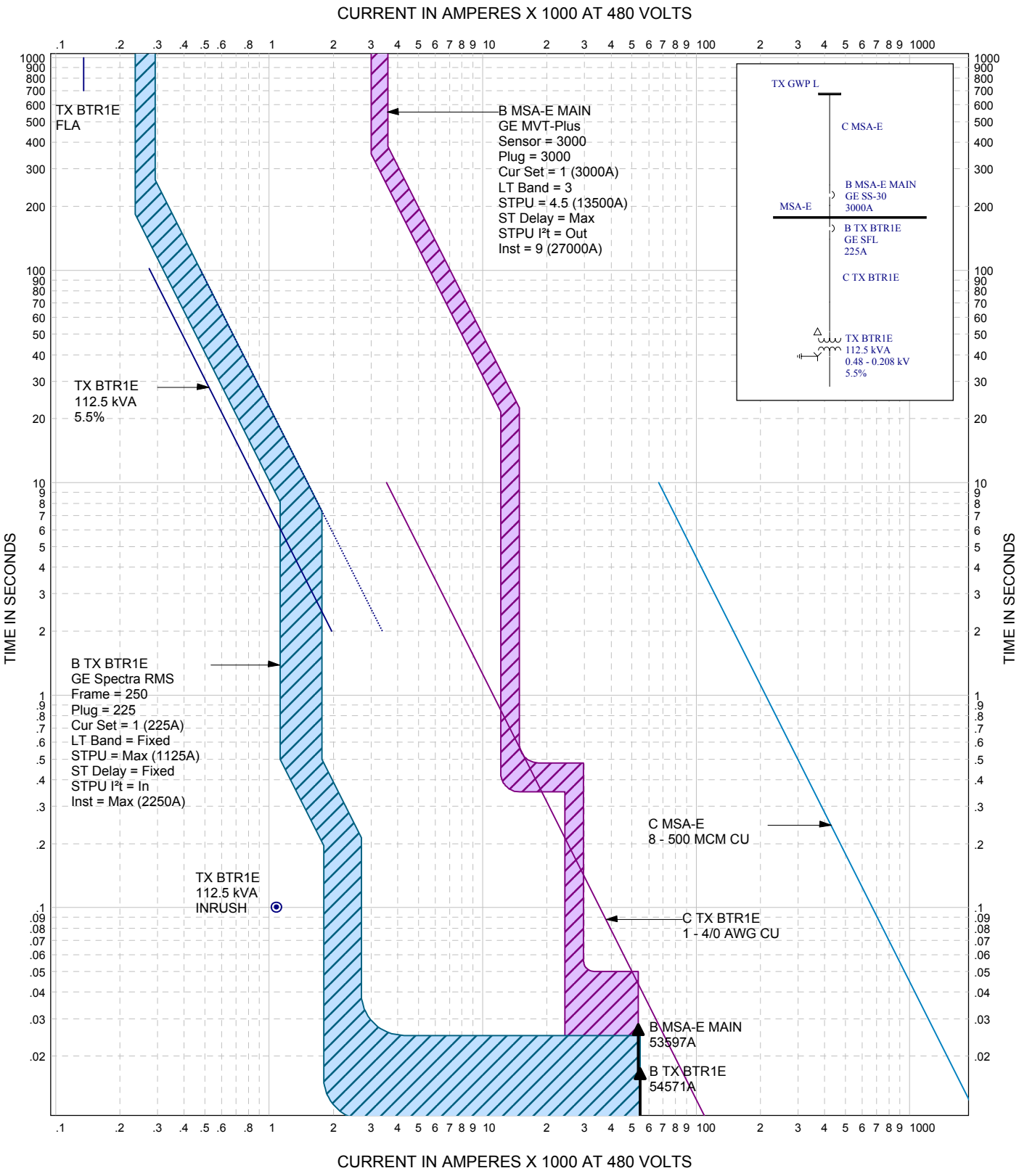
GE Energy - I & FS	***EasyPower*** ® **TIME-CURRENT CURVES**	GWP to 2EH-A1E

Disney GC3 Campus

Breaker Settings: MSA-E main, Feeder 1ATSE, Feeder Tx 2ETR-1AE

FAULT: Phase
DATE: Mar 10, 2006
BY: Joe Dietrich
REVISION: 0

DISNEY EAST



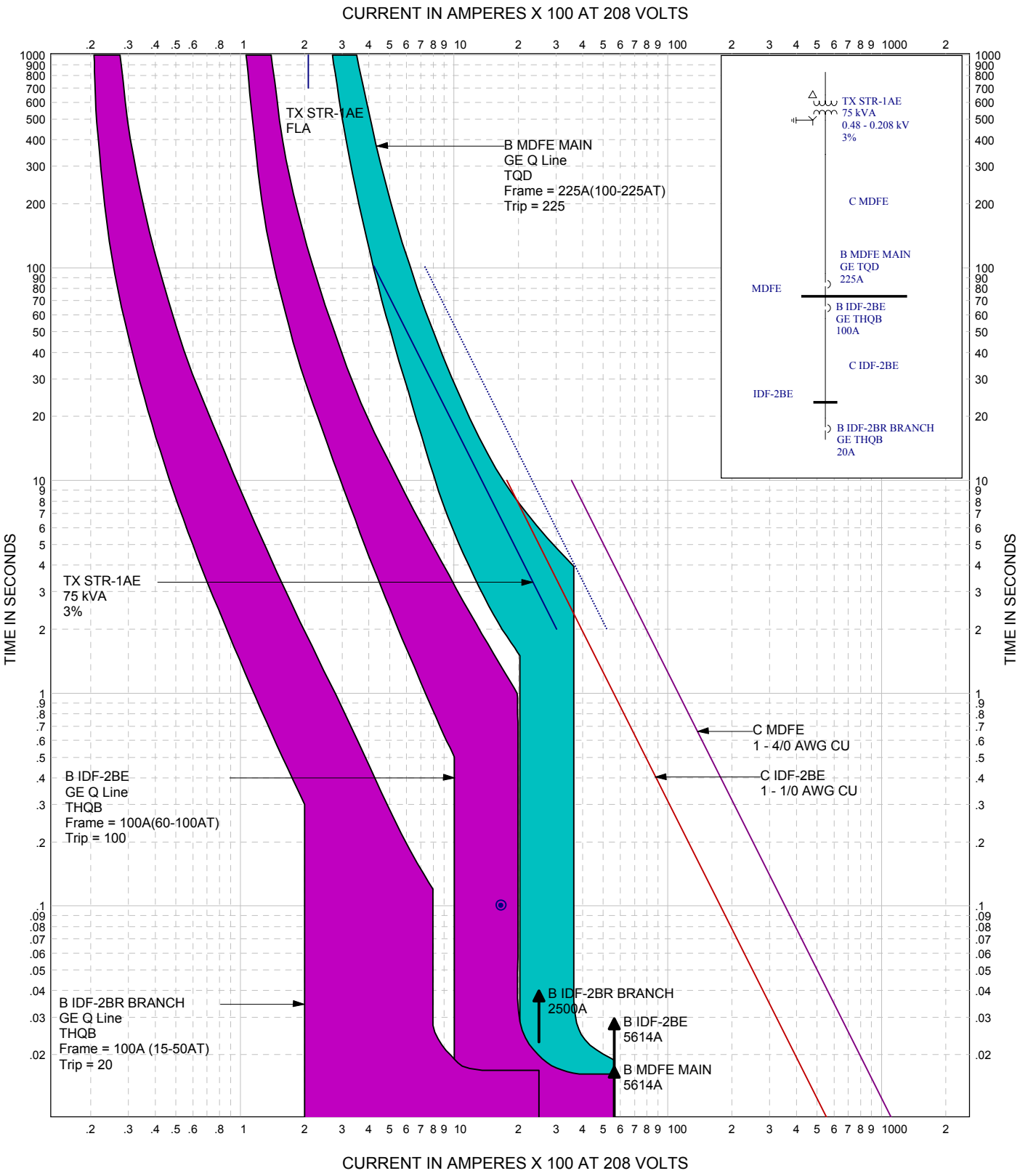
GE Energy - I & FS	***EasyPower*** ® **TIME-CURRENT CURVES**	112.5 kVA Tx

Disney GC3 Campus

Breaker Settings: MSA-E Main, 122.5kVA Transformer

FAULT: Phase
DATE: Mar 10, 2006
BY: Joe Dietrich
REVISION: 0

DISNEY EAST



GE Energy - I & FS	***EasyPower*** ® **TIME-CURRENT CURVES**	MDFE to IDF-2BE

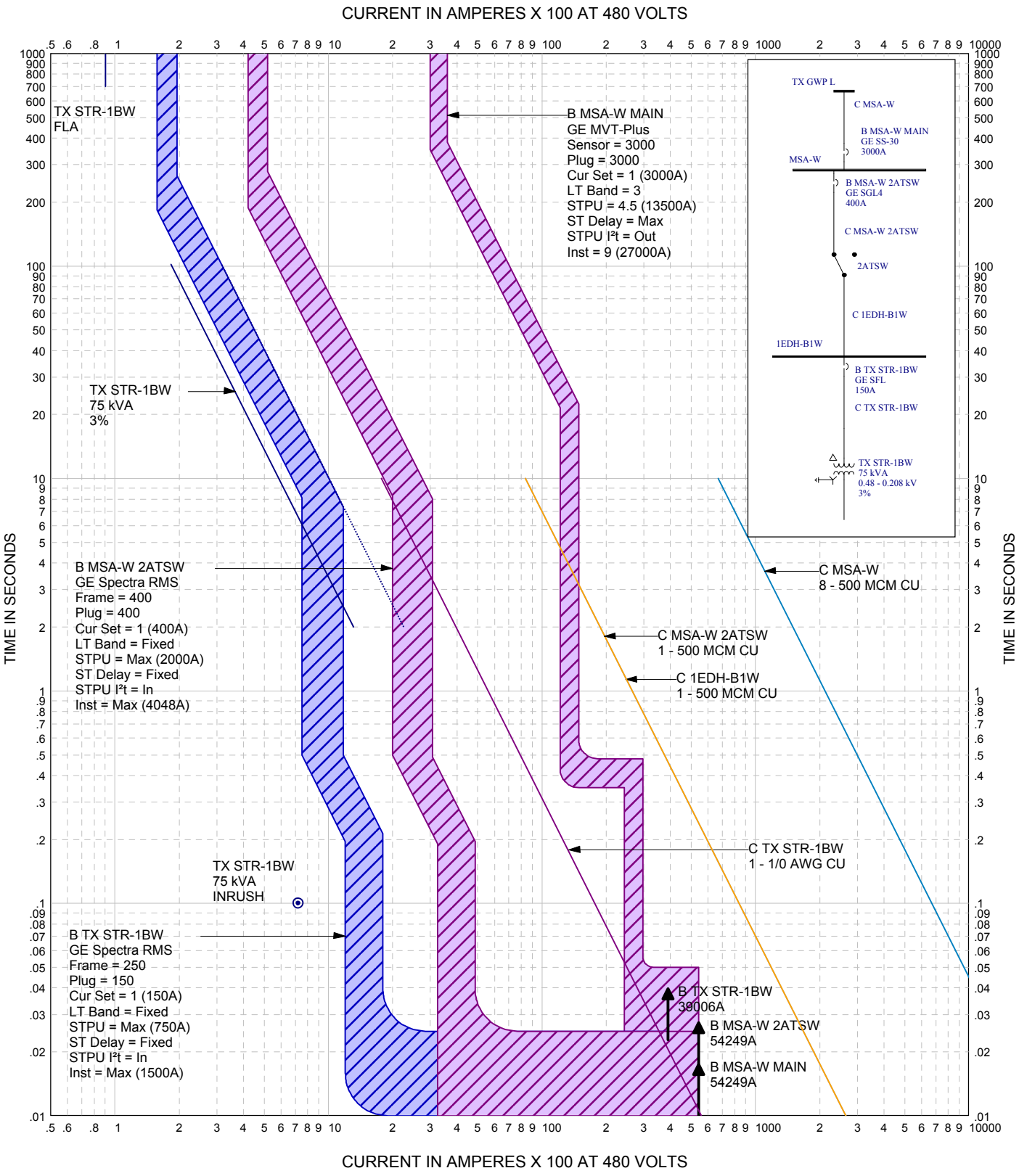
Disney GC3 Campus

Breaker Settings: MDFE Main, Feeder IDF-2BE, branch IDF-2BR BRANCH

FAULT: Phase
DATE: Mar 10, 2006
BY: Joe Dietrich
REVISION: 0

DISNEY EAST

West Building



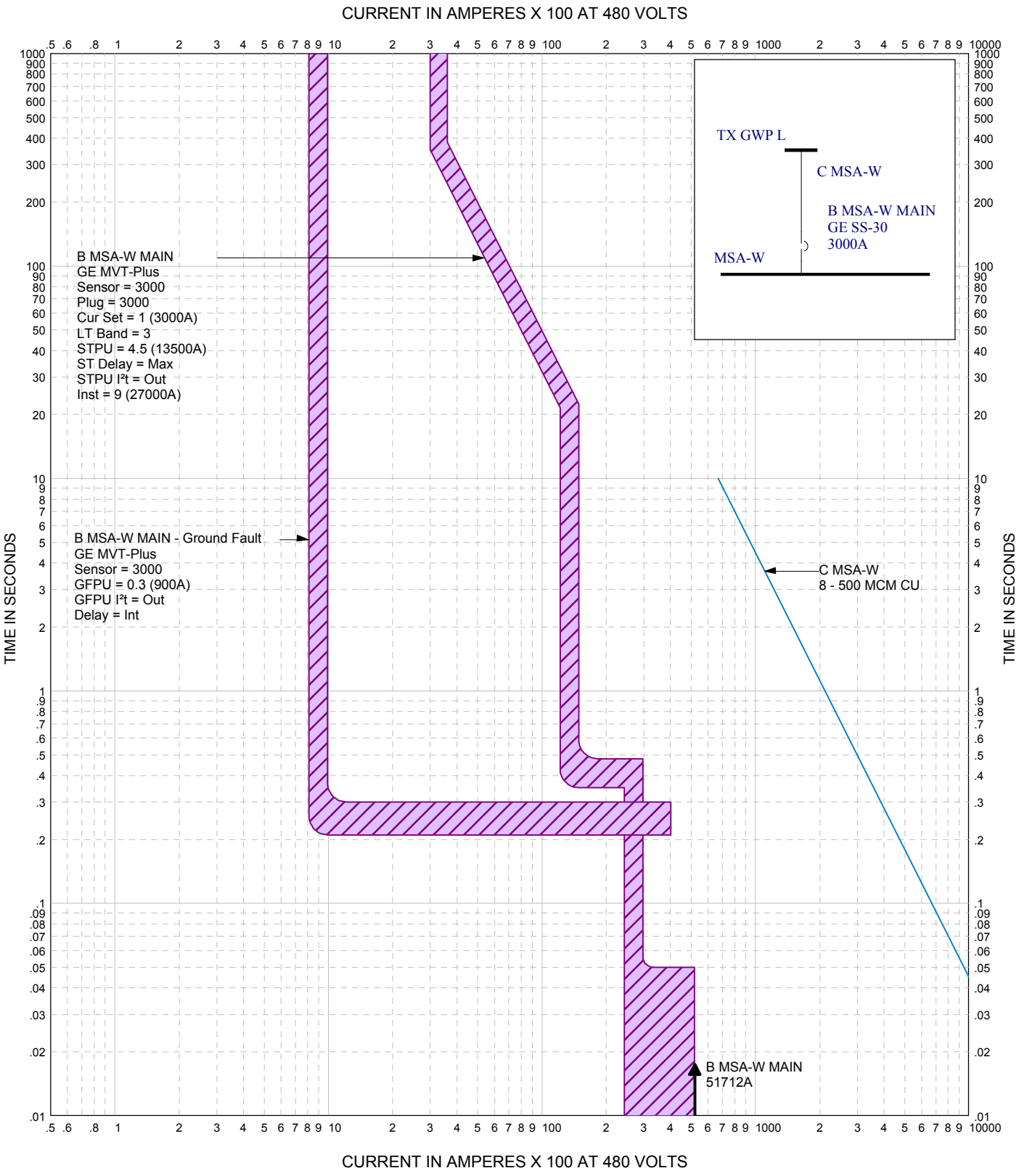
GE Energy - I & FS	***EasyPower*** ® **TIME-CURRENT CURVES**	GWP to 1EDH-B1W

Disney GC3 Campus

Breaker Settings: MSA-W Main, Feeder 2ATSW, Feeder Tx STR-1BW

FAULT: Phase
DATE: Mar 10, 2006
BY: Joe Dietrich
REVISION: 0

DISNEY WEST



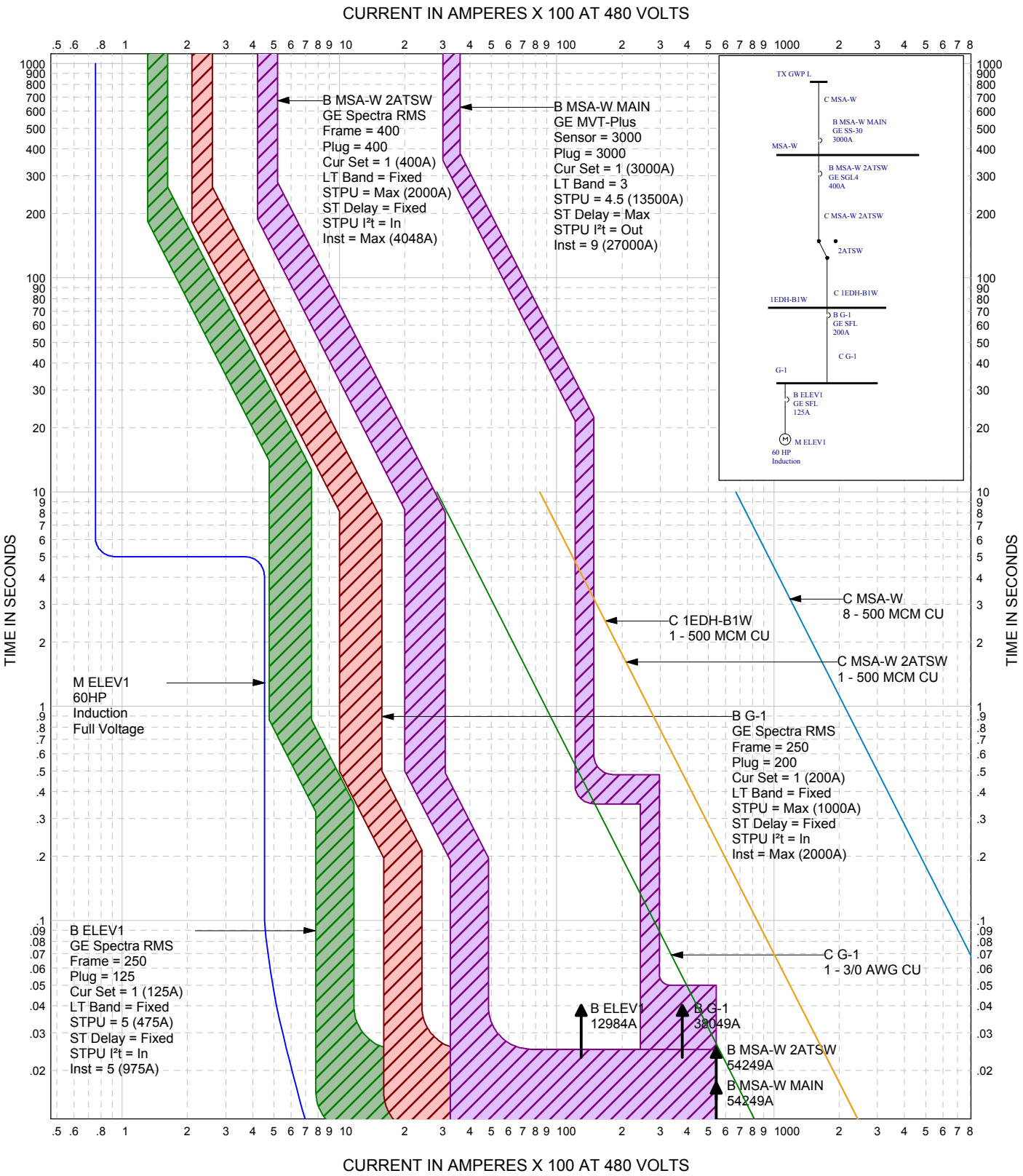
GE Energy - I & FS	***EasyPower*** ® **TIME-CURRENT CURVES**	GWP to 1EDH-B1W GF

Disney GC3 Campus

Breaker Settings: MSA-W Main
Ground Fault Setting Included

FAULT: Ground
DATE: Mar 10, 2006
BY: Joe Dietrich
REVISION: 0

DISNEY WEST



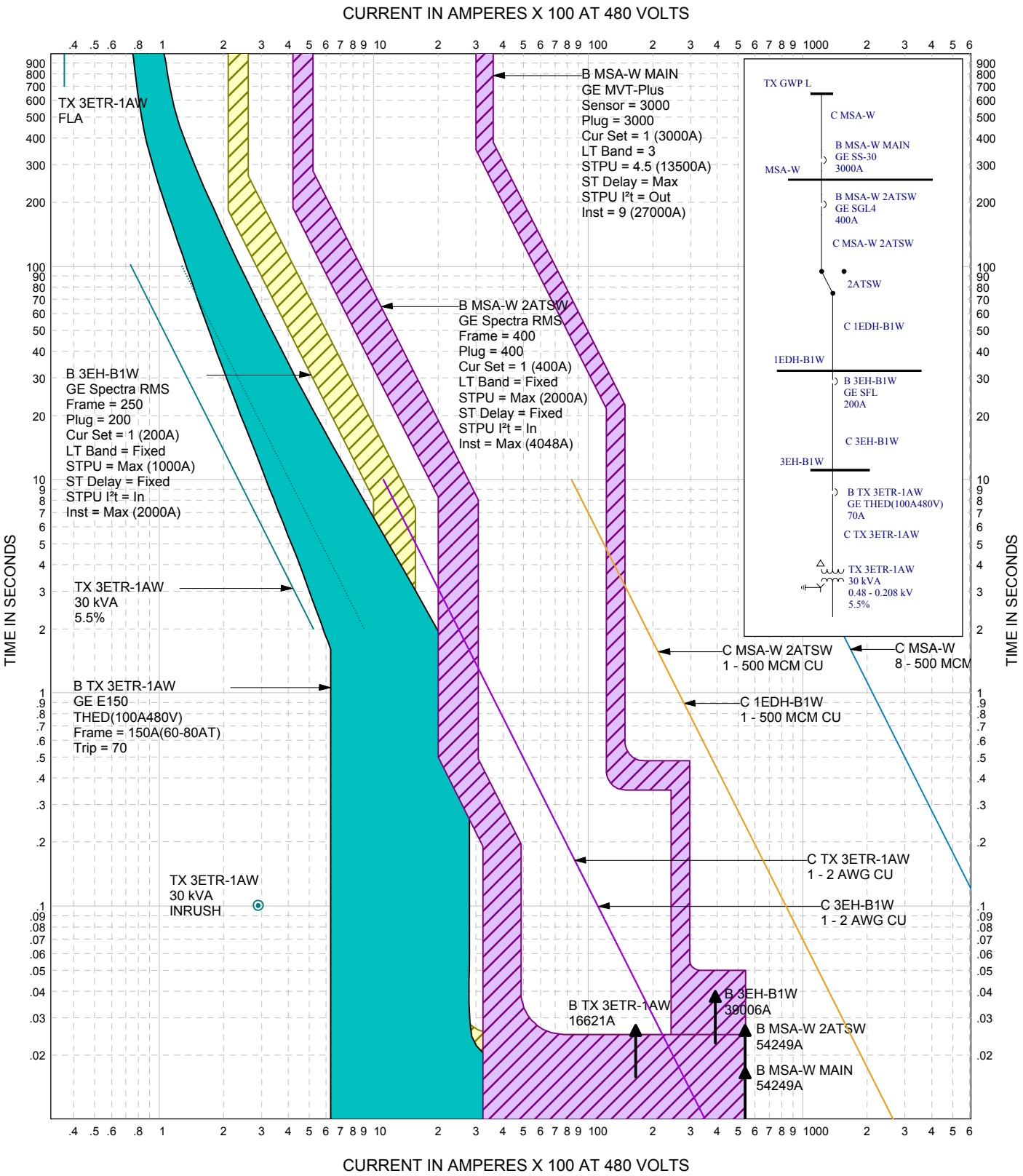
GE Energy - I & FS	***EasyPower*** ® **TIME-CURRENT CURVES**	GWP to Elev 1

Disney GC3 Campus

Breaker Settings: MSA-W Main, Feeder 2ATSW, Feeder G-1, Elev 1

FAULT: Phase
DATE: Mar 10, 2006
BY: Joe Dietrich
REVISION: 0

DISNEY WEST



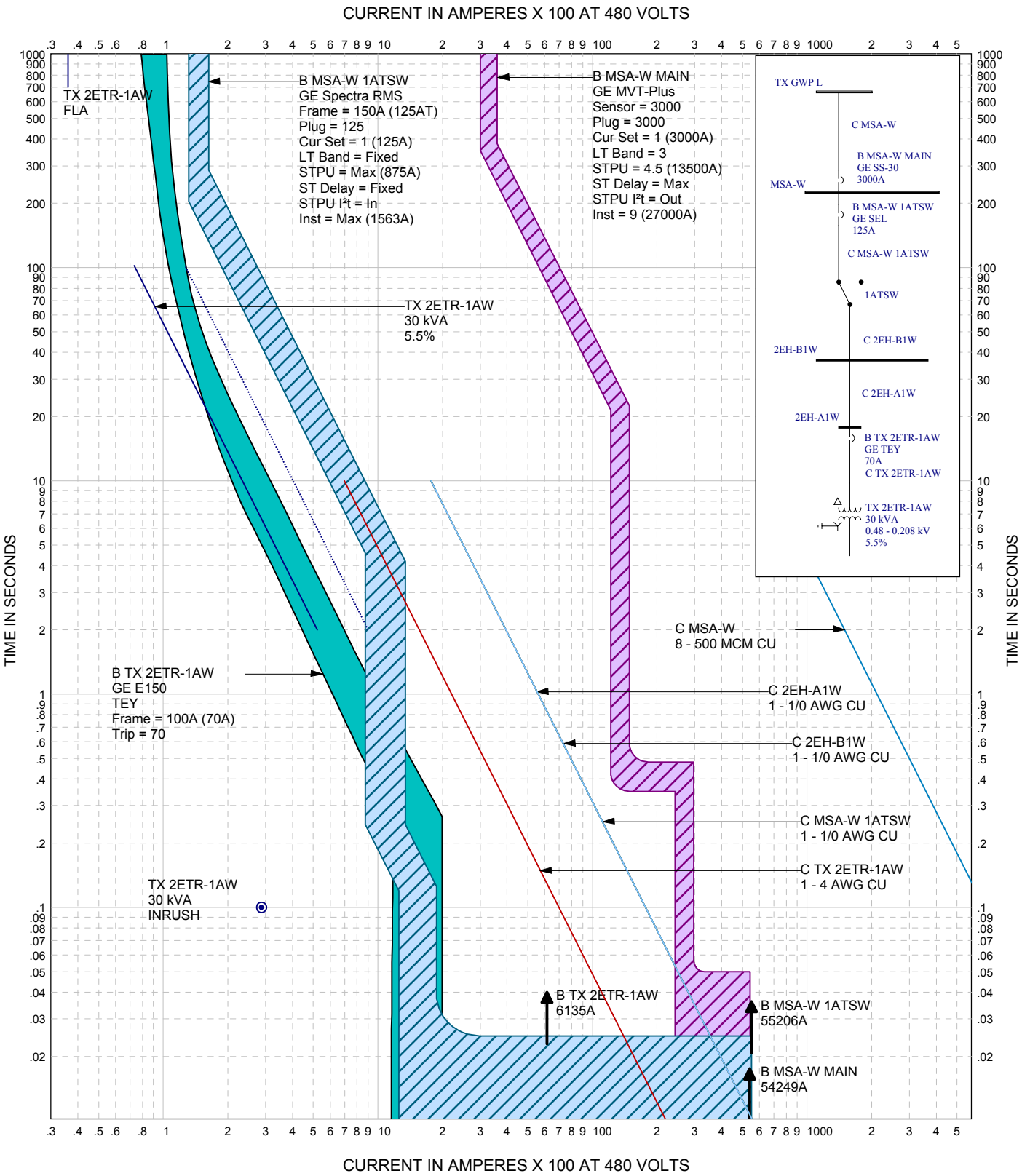
GE Energy - I & FS	***EasyPower*** ® **TIME-CURRENT CURVES**	GWP to 3EH-B1W

Disney GC3 Campus

Breaker Settings: MSA-W Main, Feeder 2ATSW, Feeder 3EH-B1W, Feeder Tx 3ETR-1AW

FAULT: Phase
DATE: Mar 10, 2006
BY: Joe Dietrich
REVISION: 0

DISNEY WEST



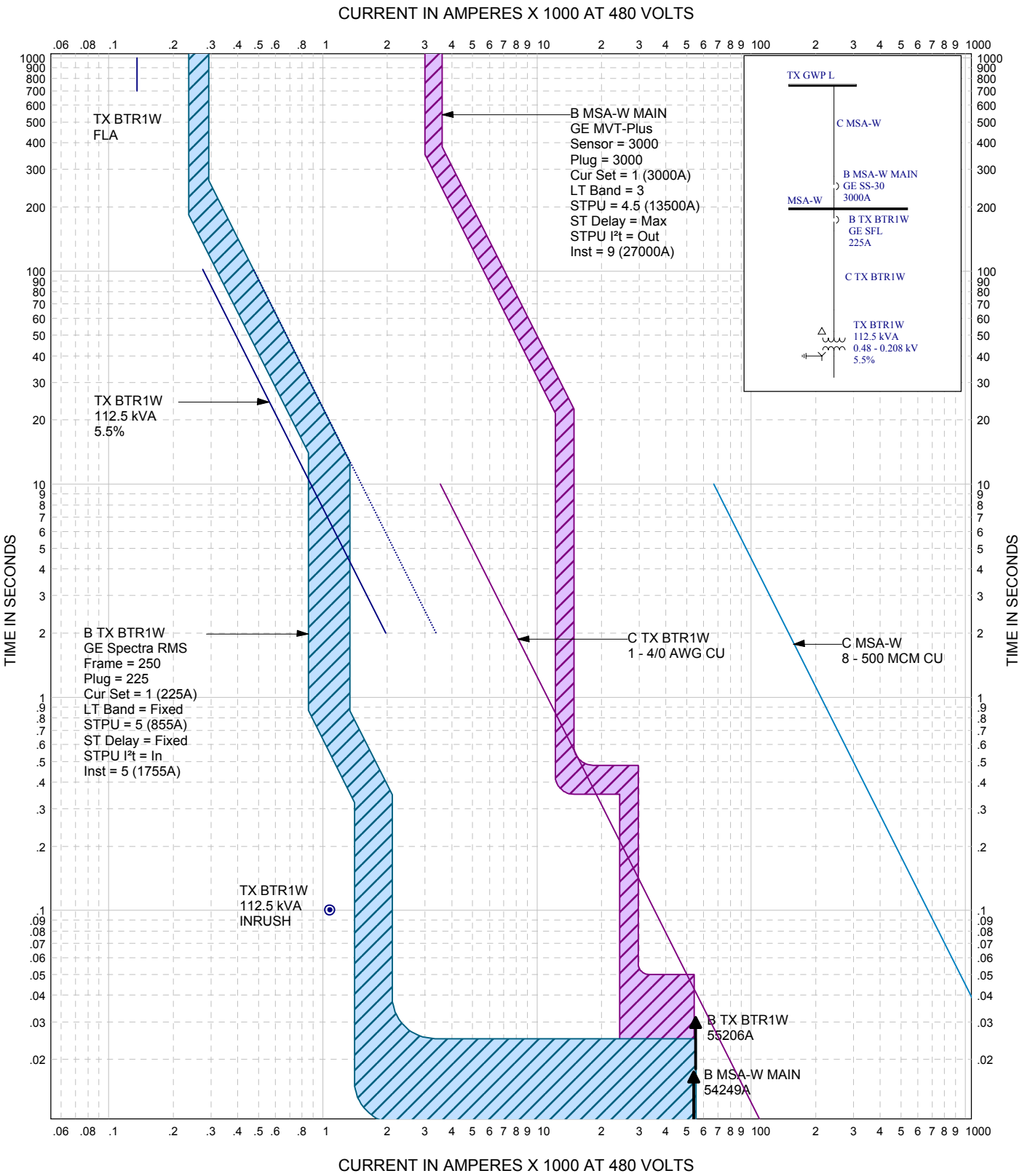
GE Energy - I & FS	***EasyPower*** ® **TIME-CURRENT CURVES**	GWP to 2EH-A1W

Disney GC3 Campus

Breaker Settings: MSA-W main, Feeder 1ATSW, Feeder Tx 2ETR-1AW

FAULT: Phase
DATE: Mar 10, 2006
BY: Joe Dietrich
REVISION: 0

DISNEY WEST



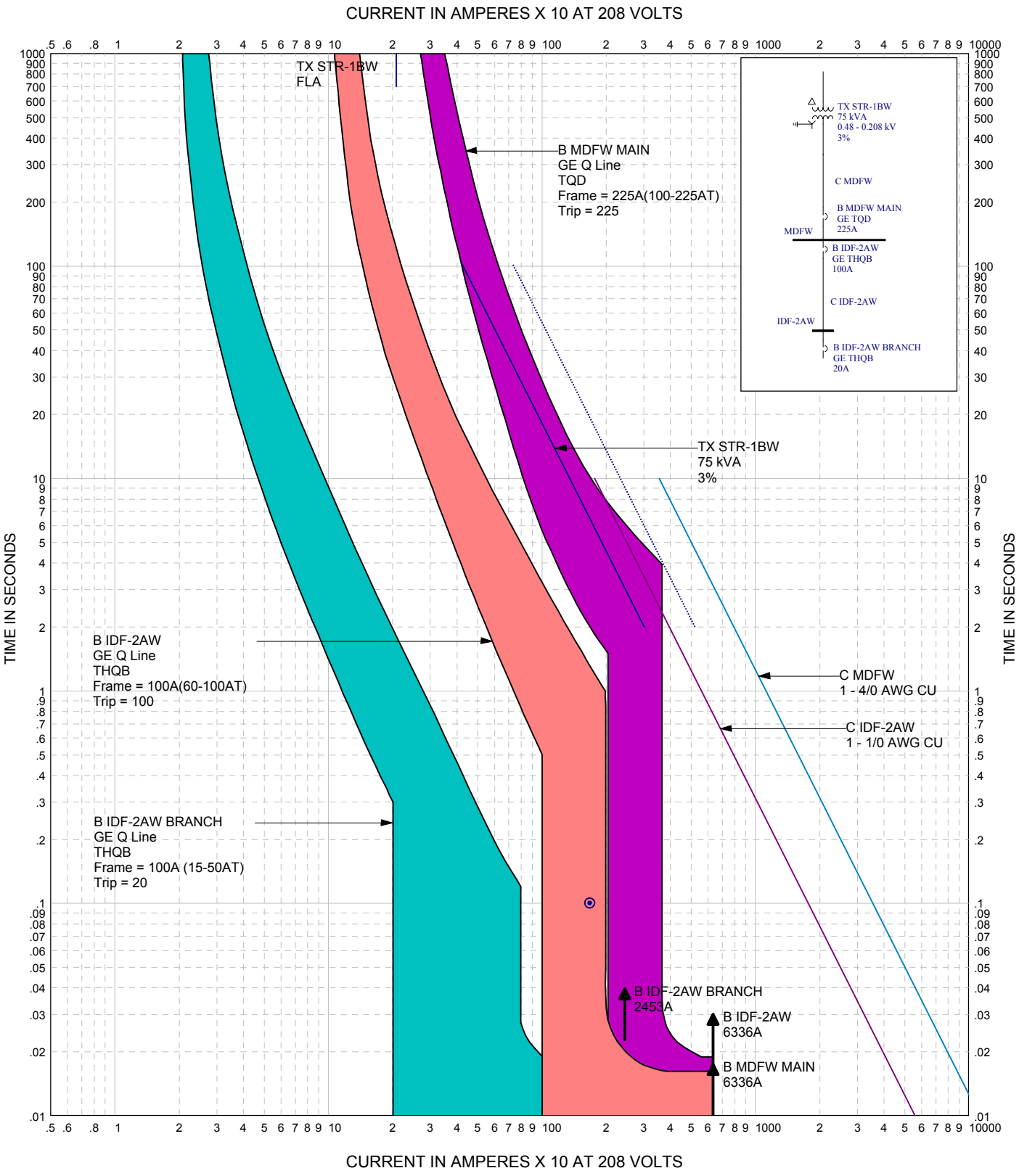
GE Energy - I & FS	***EasyPower*** ® **TIME-CURRENT CURVES**	112.5kVA Tx

Disney GC3 Campus

Breaker Settings: MSA-W main, Feeder 112.5kVA Transformer

FAULT: Phase
DATE: Mar 10, 2006
BY: Joe Dietrich
REVISION: 0

DISNEY WEST



GE Energy - I & FS	***EasyPower*** ® **TIME-CURRENT CURVES**	TX STR-1BW

Disney GC3 Campus

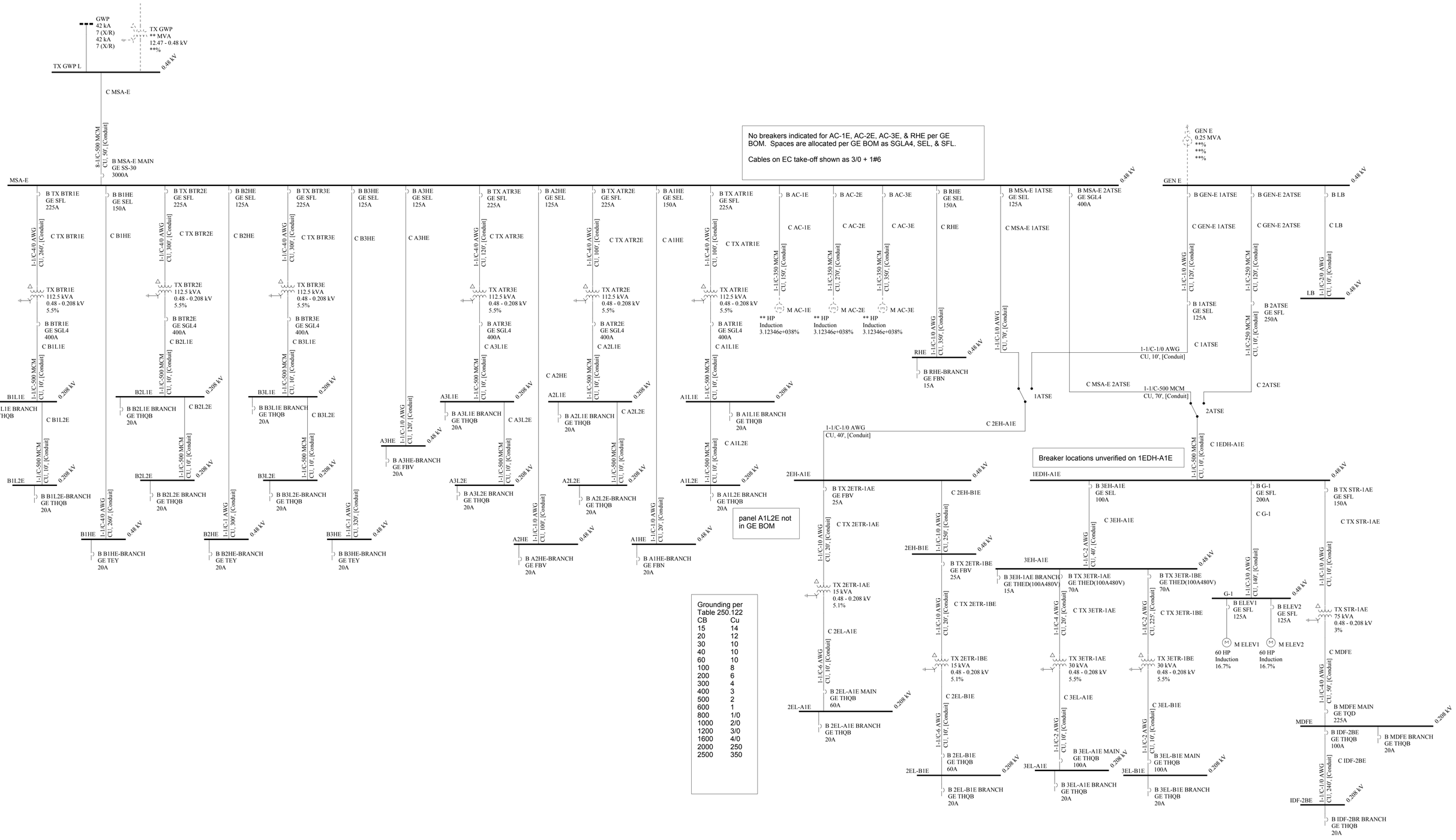
Breaker Settings: MDFW-Main, Feeder IDF-2AW, Feeder IDF-2AW Branch

FAULT: Phase
DATE: Mar 10, 2006
BY: Joe Dietrich
REVISION: 0

DISNEY WEST

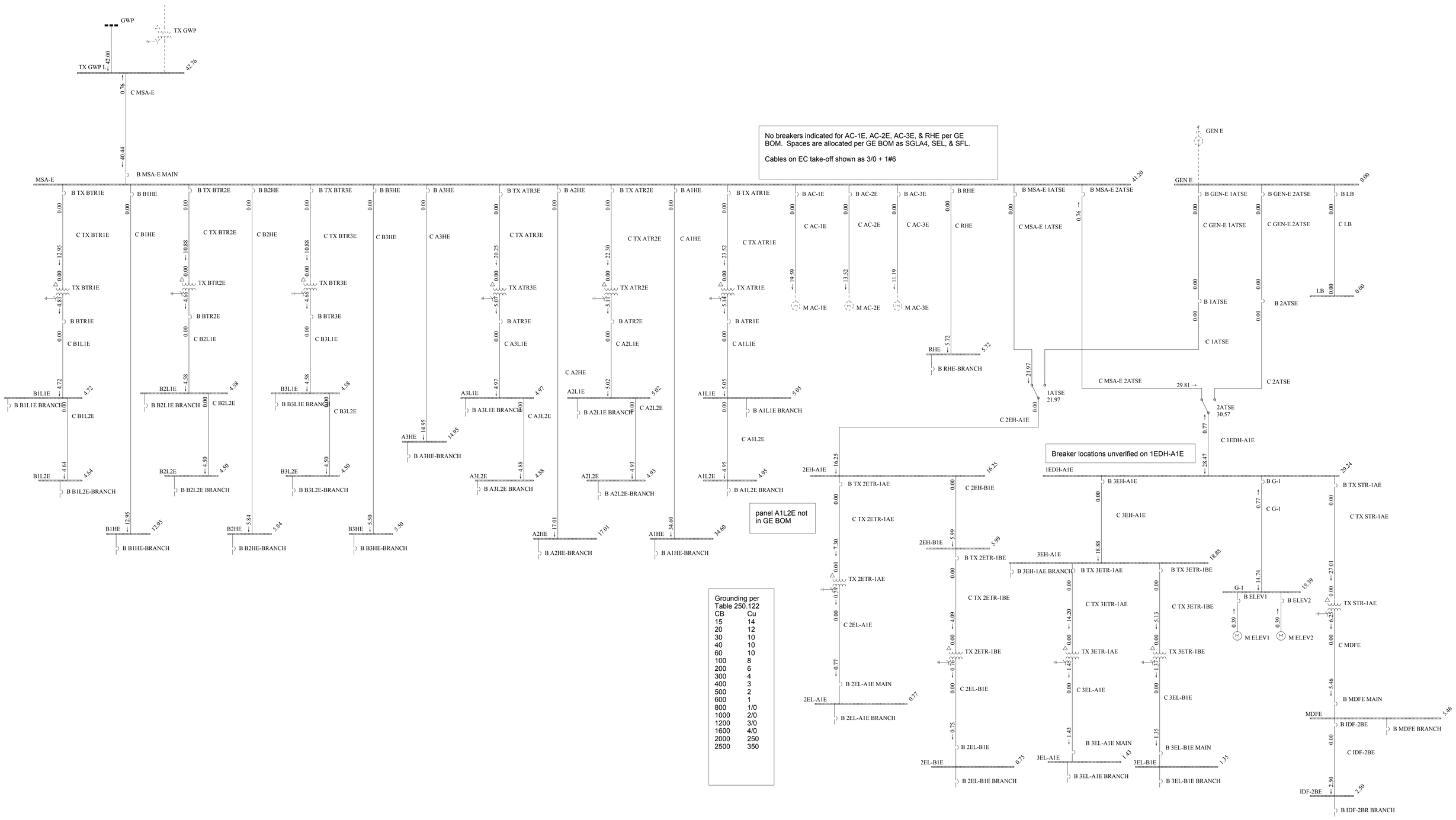
Single Line Diagrams

East Building



DISNEY CORE SERVICES - EAST BUILDING
SINGLE LINE DIAGRAM - BASE
GE ENERGY - I & FS MARCH 10, 2006

Printed by EasyPower

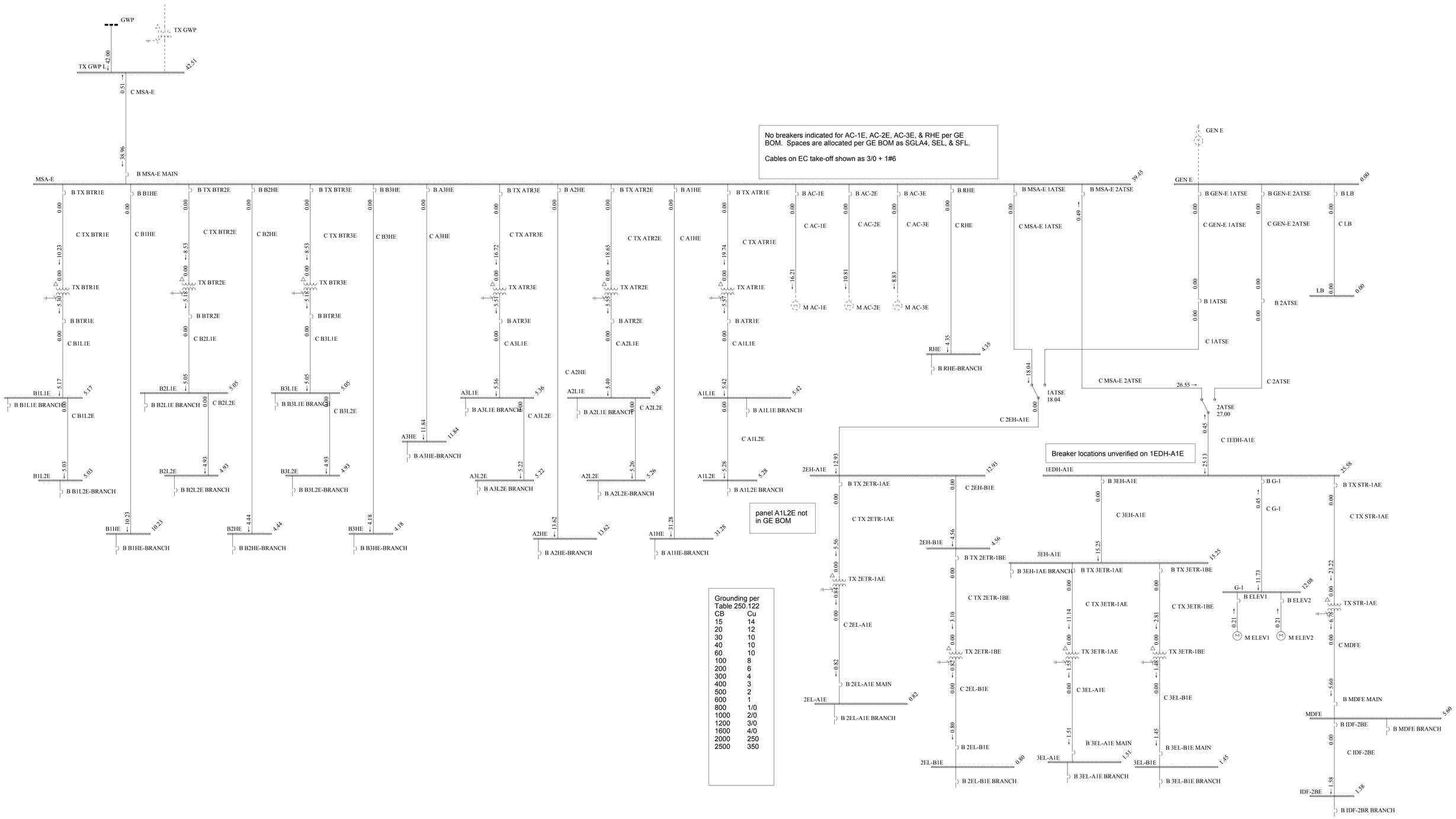


Grounding per Table 250.122

CB	Cu
15	14
20	12
30	10
40	10
60	10
100	8
200	6
300	4
400	3
500	2
600	1
800	1/0
1000	2/0
1200	3/0
1600	4/0
2000	250
2500	350

DISNEY CORE SERVICES - EAST BUILDING
SINGLE LINE DIAGRAM - 3 Phase Fault
GE ENERGY - I & FS MARCH 10, 2006

Printed by EasyPower



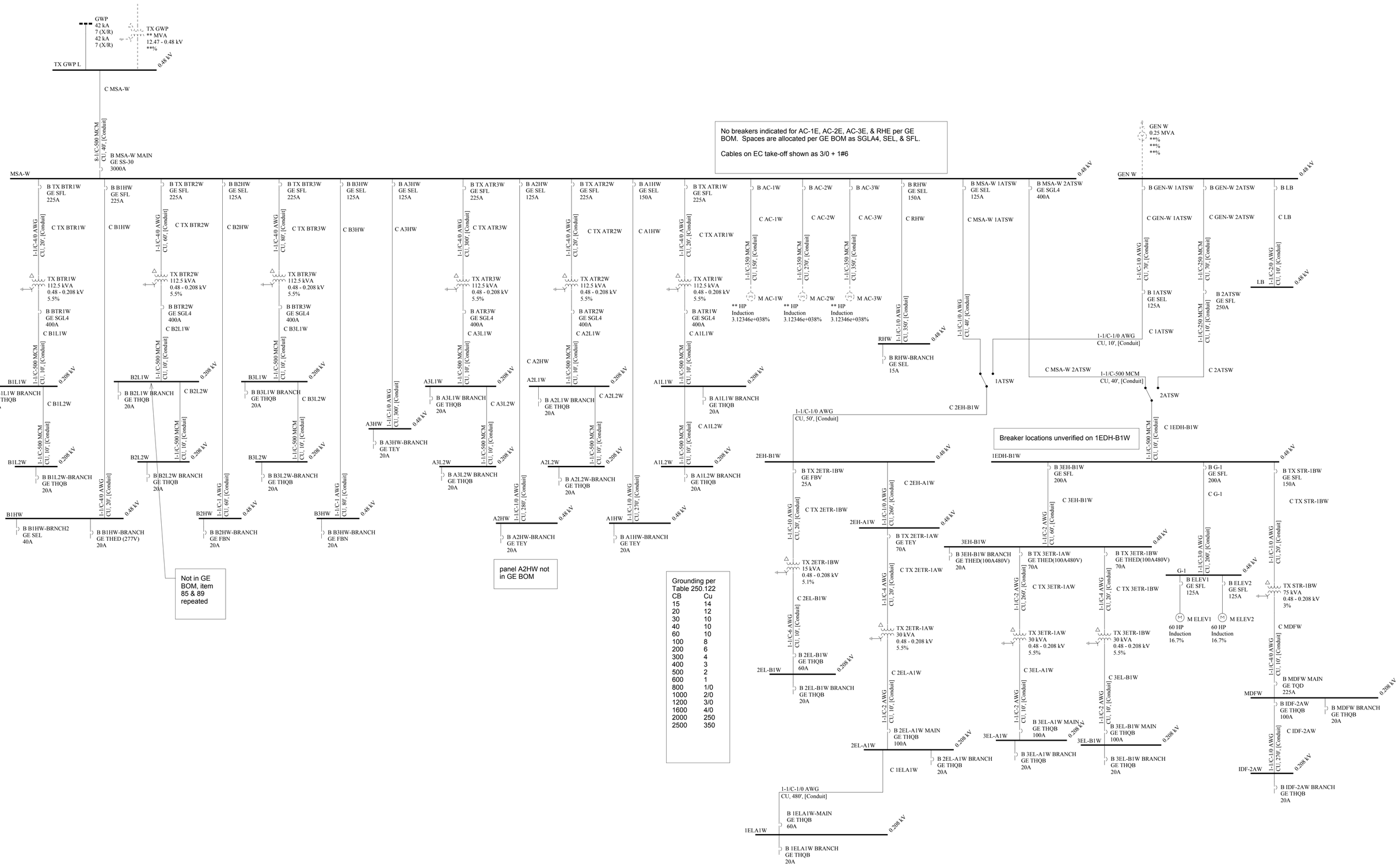
Grounding per Table 250.122

CB	Cu
15	14
20	12
30	10
40	10
60	10
100	8
200	6
300	4
400	3
500	2
600	1
800	1/0
1000	2/0
1200	3/0
1600	4/0
2000	250
2500	350

DISNEY CORE SERVICES - EAST BUILDING
SINGLE LINE DIAGRAM - Ground Fault
GE ENERGY - I & FS MARCH 10, 2006

Printed by EasyPower

West Building

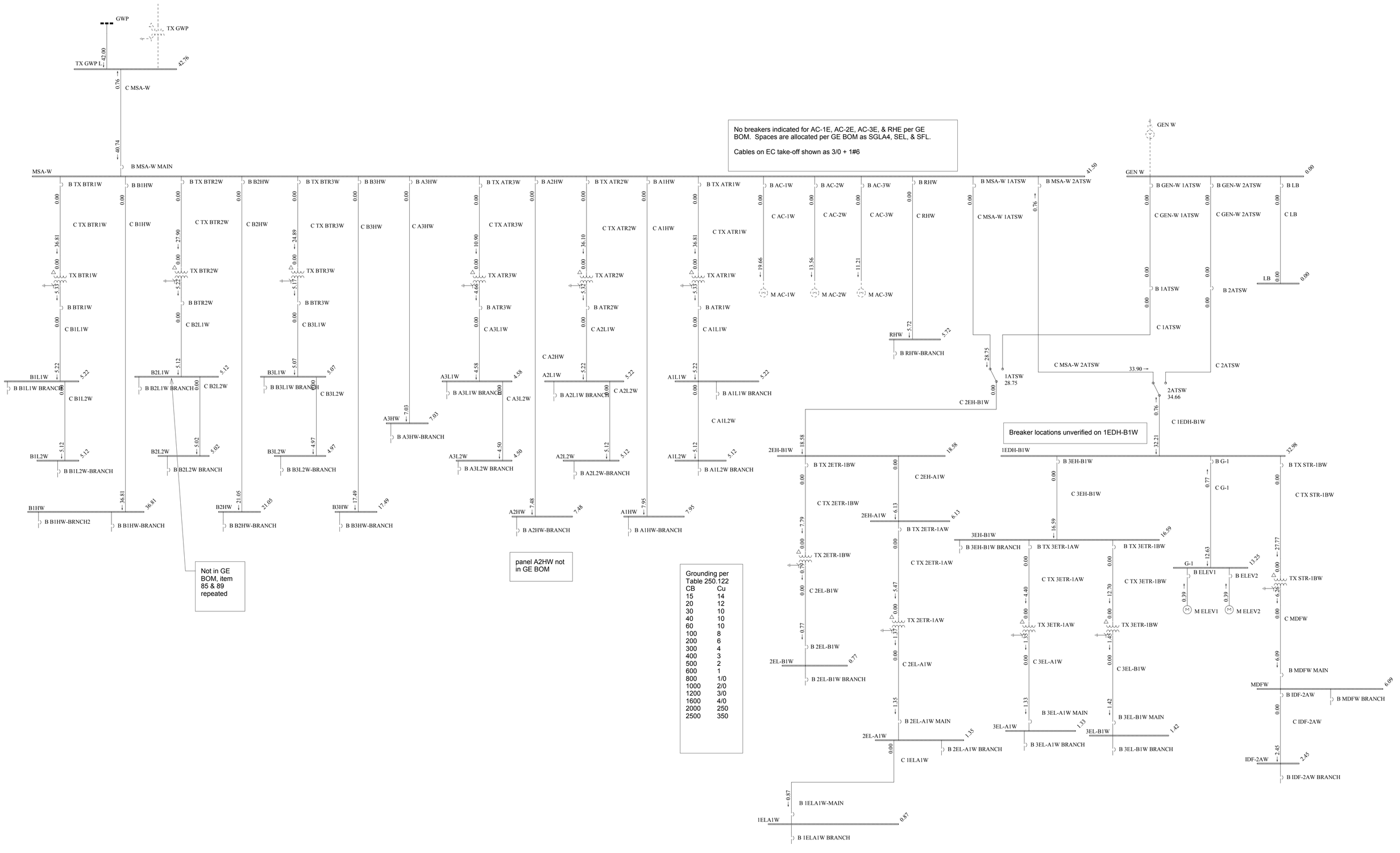


Grounding per Table 250.122

CB	Cu
15	14
20	12
30	10
40	10
60	10
100	8
200	6
300	4
400	3
500	2
600	1
800	1/0
1000	2/0
1200	3/0
1600	4/0
2000	250
2500	350

DISNEY CORE SERVICES - WEST BUILDING
SINGLE LINE DIAGRAM - BASE
GE ENERGY - I & FS MARCH 10, 2006

Printed by EasyPower

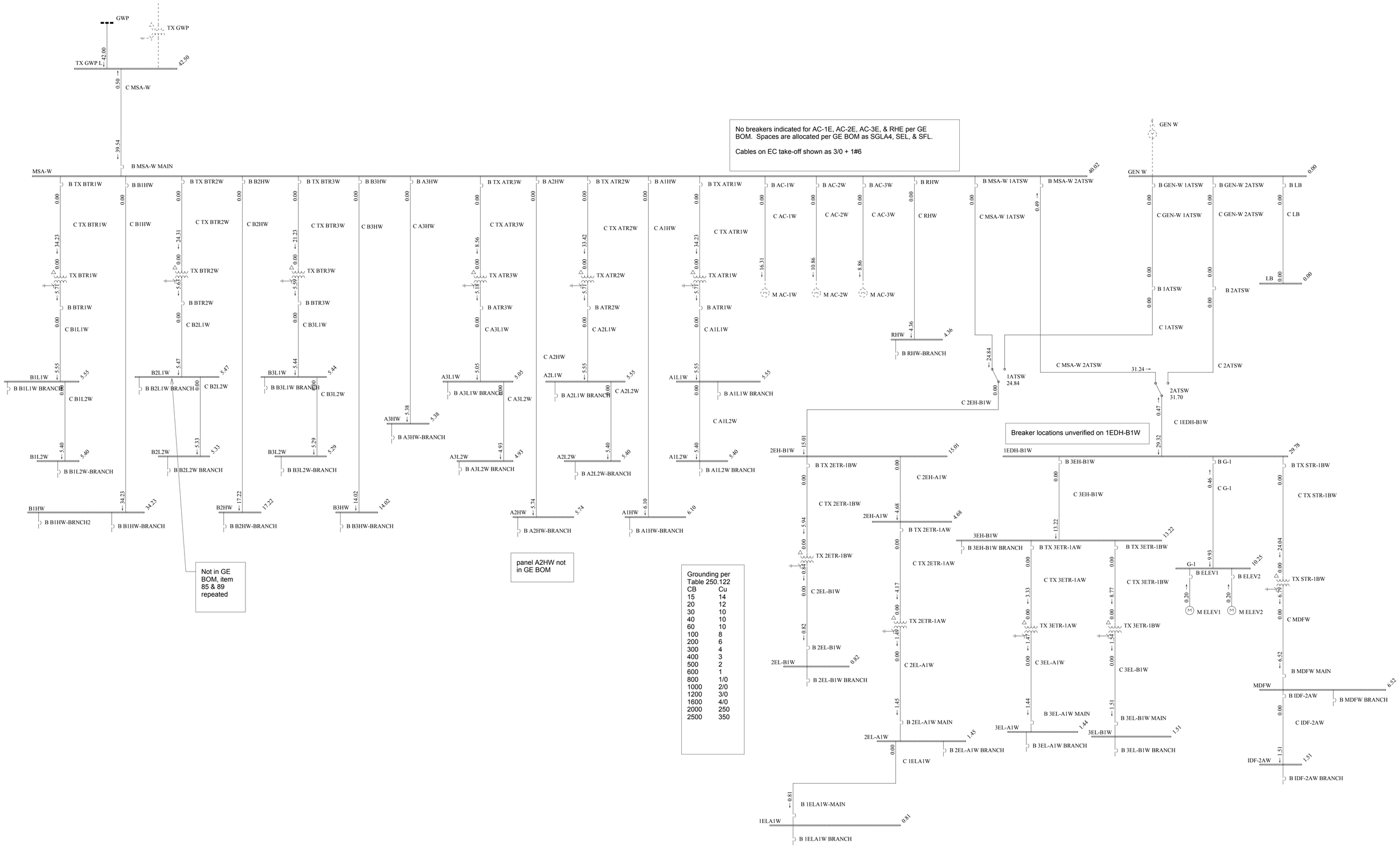


Grounding per Table 250.122

CB	Cu
15	14
20	12
30	10
40	10
60	10
100	8
200	6
300	4
400	3
500	2
600	1
800	1/0
1000	2/0
1200	3/0
1600	4/0
2000	250
2500	350

DISNEY CORE SERVICES - WEST BUILDING
SINGLE LINE DIAGRAM - 3 Phase Fault
GE ENERGY - I & FS MARCH 10, 2006

Printed by EasyPower



Grounding per Table 250.122

CB	Cu
15	14
20	12
30	10
40	10
60	10
100	8
200	6
300	4
400	3
500	2
600	1
800	1/0
1000	2/0
1200	3/0
1600	4/0
2000	250
2500	350

DISNEY CORE SERVICES - WEST BUILDING
SINGLE LINE DIAGRAM - Ground Fault
GE ENERGY - I & FS MARCH 10, 2006

Printed by EasyPower