

# PROJECT

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*EE&SM(E)-I*  
*CPWD*  
*WING*  
*ORGANISATION*  
*LOCATION*

*Generated by GElectrical*  
*Website: <https://manuvarkey.github.io/GElectrical/>*

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## Elements

### A1 - Assembly

SL.No.	Description	Value	Unit
1	Reference	A1	
2	Name	ASSEMBLY	
3	Text 1		
4	Text 2		
5	Text 3		
6	Sub-elements	A1-T1	

### A1-T1 - Transformer

SL.No.	Description	Value	Unit
1	Reference	A1-T1	
2	Name	IS1180, EEL2	
3	Sn	1.0	MVA
4	Un (HV)	11.0	kV
5	Un (LV)	0.415	kV
6	Usc (Real)	0.7	%
7	Usc	5.0	%
8	Uosc (Real)	0.7	%
9	Uosc	5.0	%
10	Zm0/Z0	10.0	%
11	R0m/X0m	0.0	
12	Fraction of U0 on HV side	0.1	
13	Shift Degree	30.0	deg
14	Vector Group	Dyn	
15	Pfe	1.153	kW
16	Io	2.4	%
17	HV Symbol	D	
18	LV Symbol	Yn	

### A2 - Assembly

SL.No.	Description	Value	Unit
1	Reference	A2	
2	Name	ASSEMBLY	
3	Text 1		
4	Text 2		
5	Text 3		
6	Sub-elements	A2-B1, A2-Q1, A2-Q2, A2-Q3	

### A2-B1 - Bus Bar

SL.No.	Description	Value	Unit
1	Reference	A2-B1	
2	In	630	A

SL.No.	Description	Value	Unit
3	Isc	25.0	kA
4	#P(T)	1	
5	#P(B)	3	
6	Bay Width	12	pt

## A2-Q1 - Circuit Breaker

SL.No.	Description	Value	Unit
1	Reference	A2-Q1	
2	Type	CB	
3	Poles	TPN	
4	Un	0.415	kV
5	In	200	A
6	In_set	10	A
7	Im	10	xIn
8	Isc	10	kA
9	I <sub>on</sub>	-1	A
10	I <sub>om</sub>	-1	A
11	Closed ?	True	

## A2-Q2 - Circuit Breaker

SL.No.	Description	Value	Unit
1	Reference	A2-Q2	
2	Type	CB	
3	Poles	TPN	
4	Un	0.415	kV
5	In	200	A
6	In_set	10	A
7	Im	10	xIn
8	Isc	10	kA
9	I <sub>on</sub>	-1	A
10	I <sub>om</sub>	-1	A
11	Closed ?	True	

## A2-Q3 - Circuit Breaker

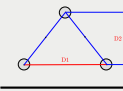
SL.No.	Description	Value	Unit
1	Reference	A2-Q3	
2	Type	CB	
3	Poles	TPN	
4	Un	0.415	kV
5	In	200	A
6	In_set	10	A
7	Im	10	xIn
8	Isc	10	kA
9	I <sub>on</sub>	-1	A
10	I <sub>om</sub>	-1	A

SL.No.	Description	Value	Unit
11	Closed ?	True	

## G1 - External Grid

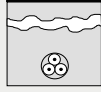
SL.No.	Description	Value	Unit
1	Reference	G1	
2	Name	EXTERNAL GRID	
3	Vm	1	pu
4	Vm<	0	degree
5	Vn	11	kV
6	Ssc_max	500	MVA
7	Ssc_min	100	MVA
8	R/X max	0.2	
9	R/X min	0.05	
10	R0/X0 max	0.2	
11	R0/X0 min	0.1	
12	X0/X max	3	
13	X0/X min	1	
14	In Service ?	True	

## W1 - Line (Custom Geometry)

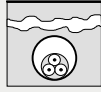
SL.No.	Description	Value	Unit
1	Reference	W1	
2	Name	KSEB Feeder	
3	Length	1	km
4	R	0.431	Ohm/km
5	X	0.322	Ohm/km
6	C	11.431	nF/km
7	R0n	0.579	Ohm/km
8	X0n	1.653	Ohm/km
9	R0g	0.579	Ohm/km
10	X0g	1.653	Ohm/km
11	Tf	250	degC
12	Imax	0.3	kA
13	Isc phase (1s)	8.145	kA
14	Isc cpe (1s)	0.0	kA
15	DF	1	
16	Designation	ACSR Raccoon (80)	
17	# Parallel Lines	1	
18	In Service ?	True	
19	Line type	 OH Line - 3 phase with earth return Triangular arrangement	
2	Conductor material	Aluminium	
3	Phase nominal cross-sectional area	80.0	sq.mm.
4	Conductor Diameter	12.27	mm

SL.No.	Description	Value	Unit
5	D1	0.9	m
6	D2	0.6	m
7	Soil resistivity	100	Ohm.m
8	Line Working Temperature	70	degC
9	Additional DF	1	

### W2 - LV Cable (IEC)

SL.No.	Description	Value	Unit
1	Reference	W2	
2	Name		
3	Length	0.3	km
4	R	0.308	Ohm/km
5	X	0.08	Ohm/km
6	C	290.0	nF/km
7	R <sub>0n</sub>	0.846	Ohm/km
8	X <sub>0n</sub>	0.32	Ohm/km
9	R <sub>0g</sub>	6.973	Ohm/km
10	X <sub>0g</sub>	0.74	Ohm/km
11	T <sub>f</sub>	250	degC
12	I <sub>max</sub>	0.192	kA
13	I <sub>sc</sub> phase (1s)	11.346	kA
14	I <sub>sc</sub> cpe (1s)	4.755	kA
15	DF	0.6	
16	Designation	3.5x120 A2XFY	
17	# Parallel Lines	5	
18	In Service ?	True	
19	Conductor material	Aluminium	
20	Insulation	XLPE/EPR	
21	Phase nominal cross-sectional area	120.0	sq.mm.
22	Neutral cross-sectional area	0.583	xSph
23	Type	3ph	
24	CPE Conductor	Cable armour	
25	Armour material	Steel	
26	Armour nominal cross-sectional area	92.0	sq.mm.
27	Laying type	 Reference method D2 - Multi-core cable in the ground	
7	Laying arrangement	Cables touching	
8	# of cables in group	4	
9	# of Layers	1	
10	Ground temperature	20	degC
11	Soil thermal resistivity	2.5	K.m/W
12	Additional DF	1	

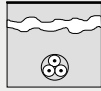
## W3 - LV Cable (IEC)

Sl.No.	Description	Value	Unit
1	Reference	W3	
2	Name		
3	Length	0.3	km
4	R	0.308	Ohm/km
5	X	0.08	Ohm/km
6	C	290.0	nF/km
7	R <sub>0n</sub>	0.846	Ohm/km
8	X <sub>0n</sub>	0.32	Ohm/km
9	R <sub>0g</sub>	6.973	Ohm/km
10	X <sub>0g</sub>	0.74	Ohm/km
11	T <sub>f</sub>	250	degC
12	I <sub>max</sub>	0.174	kA
13	I <sub>sc</sub> phase (1s)	11.346	kA
14	I <sub>sc</sub> cpe (1s)	4.755	kA
15	DF	1	
16	Designation	3.5x120 A2XFY	
17	# Parallel Lines	2	
18	In Service ?	True	
19	Conductor material	Aluminium	
20	Insulation	XLPE/EPR	
21	Phase nominal cross-sectional area	120.0	sq.mm.
22	Neutral cross-sectional area	0.583	xSph
23	Type	3ph	
24	CPE Conductor	Cable armour	
25	Armour material	Steel	
26	Armour nominal cross-sectional area	92.0	sq.mm.
27	Laying type	 Reference method D1 - Multi-core cable in ducts in the ground	
6	Laying arrangement	Ducts touching	
7	# of cables in group	1	
8	# of layers	1	
9	Ground temperature	20	degC
10	Soil thermal resistivity	2.5	K.m/W
11	Additional DF	1	

## W4 - LV Cable (IEC)

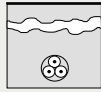
Sl.No.	Description	Value	Unit
1	Reference	W4	
2	Name		
3	Length	0.3	km
4	R	0.308	Ohm/km
5	X	0.08	Ohm/km



SL.No.	Description	Value	Unit
6	C	290.0	nF/km
7	R <sub>0n</sub>	0.846	Ohm/km
8	X <sub>0n</sub>	0.32	Ohm/km
9	R <sub>0g</sub>	6.973	Ohm/km
10	X <sub>0g</sub>	0.74	Ohm/km
11	T <sub>f</sub>	250	degC
12	I <sub>max</sub>	0.192	kA
13	I <sub>sc</sub> phase (1s)	11.346	kA
14	I <sub>sc</sub> cpe (1s)	4.755	kA
15	DF	0.75	
16	Designation	3.5×120 A2XFY	
17	# Parallel Lines	2	
18	In Service ?	True	
19	Conductor material	Aluminium	
20	Insulation	XLPE/EPR	
21	Phase nominal cross-sectional area	120.0	sq.mm.
22	Neutral cross-sectional area	0.583	xSph
23	Type	3ph	
24	CPE Conductor	Cable armour	
25	Armour material	Steel	
26	Armour nominal cross-sectional area	92.0	sq.mm.
27	Laying type	 Reference method D2 - Multi-core cable in the ground	
7	Laying arrangement	Cables touching	
8	# of cables in group	2	
9	# of layers	1	
10	Ground temperature	20	degC
11	Soil thermal resistivity	2.5	K.m/W
12	Additional DF	1	

#### W5 - LV Cable (IEC)

SL.No.	Description	Value	Unit
1	Reference	W5	
2	Name		
3	Length	0.05	km
4	R	0.308	Ohm/km
5	X	0.08	Ohm/km
6	C	290.0	nF/km
7	R <sub>0n</sub>	0.846	Ohm/km
8	X <sub>0n</sub>	0.32	Ohm/km
9	R <sub>0g</sub>	6.973	Ohm/km
10	X <sub>0g</sub>	0.74	Ohm/km
11	T <sub>f</sub>	250	degC
12	I <sub>max</sub>	0.192	kA

SL.No.	Description	Value	Unit
13	Isc phase (1s)	11.346	kA
14	Isc cpe (1s)	4.755	kA
15	DF	0.75	
16	Designation	3.5×120 A2XFY	
17	# Parallel Lines	2	
18	In Service ?	True	
19	Conductor material	Aluminium	
20	Insulation	XLPE/EPR	
21	Phase nominal cross-sectional area	120.0	sq.mm.
22	Neutral cross-sectional area	0.583	xSph
23	Type	3ph	
24	CPE Conductor	Cable armour	
25	Armour material	Steel	
26	Armour nominal cross-sectional area	92.0	sq.mm.
27	Laying type	 Reference method D2 - Multi-core cable in the ground	
7	Laying arrangement	Cables touching	
8	# of cables in group	2	
9	# of layers	1	
10	Ground temperature	20	degC
11	Soil thermal resistivity	2.5	K·m/W
12	Additional DF	1	

## X1 - Load 3ph

SL.No.	Description	Value	Unit
1	Reference	X1	
2	Name		
3	Rated power	100.0	kW
4	PF	0.8	
5	DF	1	
6	Inductive ?	True	
7	In Service ?	True	
8	Load Profile	Office Load	

## X2 - Load 1ph

SL.No.	Description	Value	Unit
1	Reference	X2	
2	Name		
3	Rated power	25.0	kVA
4	PF	0.8	
5	DF	1	
6	Phase	A	
7	Inductive ?	True	
8	In Service ?	True	

SL.No.	Description	Value	Unit
9	Load Profile	Hostel Load	

## X3 - Load 3ph

SL.No.	Description	Value	Unit
1	Reference	X3	
2	Name		
3	Rated power	150.0	kW
4	PF	0.8	
5	DF	1	
6	Inductive ?	True	
7	In Service ?	True	
8	Load Profile	Residential load	

## Bill of Quantities

### Lines

SL.No.	Reference	Name	Designation	Type	# Parallel Lines	Length	I <sub>max</sub>	Derating Factor	In Service ?	% Loading	% P loss	Item Class
						km	kA			%	%	
1	W1	KSEB Feeder	ACSR Raccoon (80)	Over Head	1	1	0.3	1	True	5.7	0.1	Line (Custom Geometry)
2	W2		3.5x120 A2XFY	Under Ground	5	0.3	0.192	0.6	True	82.1	3.9	LV Cable (IEC)
3	W3		3.5x120 A2XFY	Under Ground	2	0.3	0.174	1	True	43.8	3.7	LV Cable (IEC)
4	W4		3.5x120 A2XFY	Under Ground	2	0.3	0.192	0.75	True	79.1	5.5	LV Cable (IEC)
5	W5		3.5x120 A2XFY	Under Ground	2	0.05	0.192	0.75	True	53.0	0.6	LV Cable (IEC)

### Loads

SL.No.	Reference	Name	Rated power	PF	S <sub>a</sub>	S <sub>b</sub>	S <sub>c</sub>	In Service ?	Load Profile	Item Class
			kVA		kVA	kVA	kVA			
1	X1		100.0	0.8 lag				True	Office load	Load 3ph
2	X2		25.0	0.8 lag	20.0+j15.0	0+j0	0+j0	True	Hostel load	Load 1ph
3	X3		150.0	0.8 lag				True	Residential load	Load 3ph

### Switches

SL.No.	Reference	Type	Poles	Un	In	Closed
				kV	A	
1	A2-Q1	CB	TPN	0.415	200	True

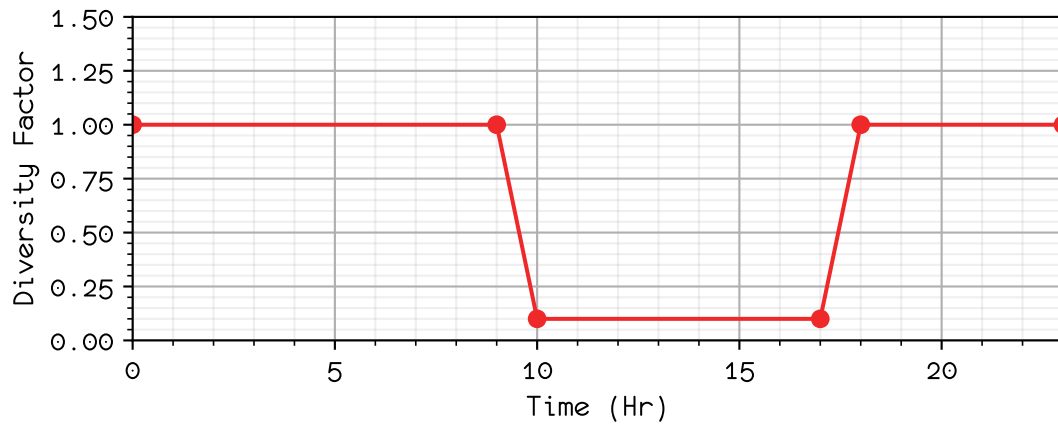
SL.No.	Reference	Type	Poles	Un	In	Closed
2	A2-Q2	CB	TPN	0.415	200	True
3	A2-Q3	CB	TPN	0.415	200	True

## Nodes

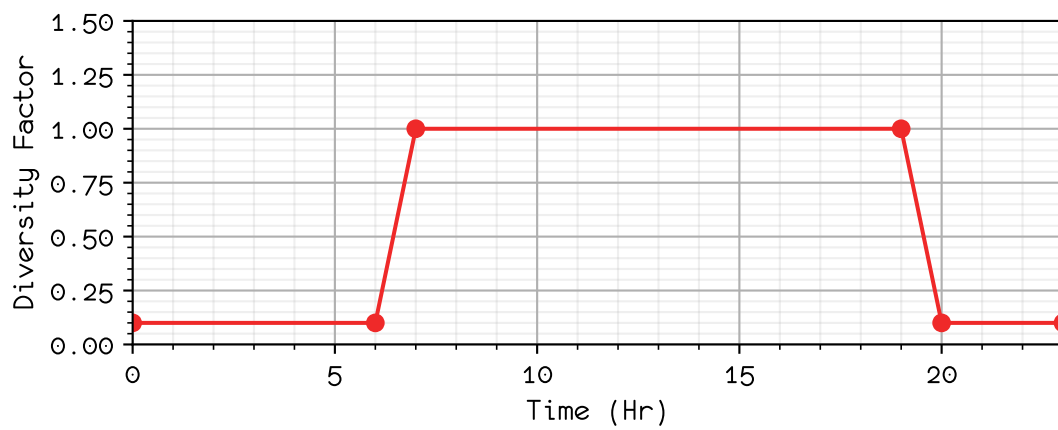
Node ID	Vn	$\Delta V$	Isc (sym, max)	Isc (sym, min)	Isc (L-G, max)	Isc (L-G, min)
	kV	%	kA	kA	kA	kA
1	11.0	0.01	26.2432	5.2486	15.7459	5.2436
2	11.0	0.15	9.2255	3.5892	5.2605	2.8682
3	0.415	1.38	27.1184	21.2378	28.0725	22.9503
4	0.415	5.45	10.2159	5.5706	1.6155	0.7723
5	0.415	5.45	10.2159	5.5706	1.6155	0.7723
6	0.415	5.45	10.2159	5.5706	1.6155	0.7723
7	0.415	5.45	10.2159	5.5706	1.6155	0.7723
8	0.415	8.3	3.5238	1.7575	0.4679	0.2222
9	0.415	9.38	3.5238	1.7575	0.4679	0.2222
10	0.415	8.78	3.1724	1.5764	0.4184	0.1986

## Load Profiles

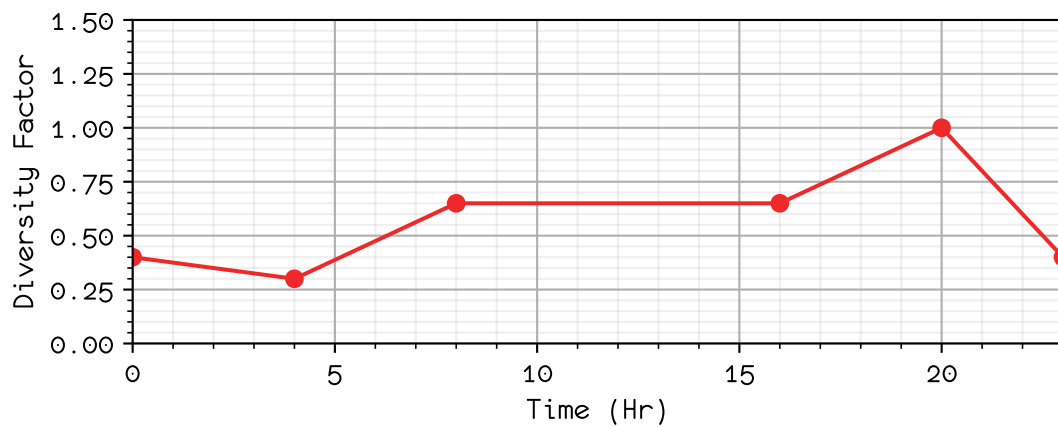
### Hostel load



### Office load



### Residential load



## Analysis

### Analysis options

SL.No.	Description	Value	Unit
1	Run diagnostics	True	
2	Enable assymetric power flow calculation	True	
3	Run time series power flow	True	
4	Run symmetric short circuit calculation	True	
5	Run line to ground short circuit calculation	True	
6	Export results of simulation	True	
7	Grid voltage tolerance	6.0	%
8	Grid Frequency	50	Hz
9	Fault resistance	0.0	Ohm
10	Fault reactance	0.0	Ohm

### Analysis results

#### 1 - Network Node

SL.No.	Description	Value	Unit
1	Vn	11.0	kV
2	$\Delta V_a$ , $\Delta V_b$ , $\Delta V_c$	$\Delta V_a$ : [0.0, 0.0, 0.0] $\Delta V_b$ : [0.0, 0.0, 0.0] $\Delta V_c$ : [-0.0, -0.0, -0.01]	%, %, %
3	$\Delta V$	$\Delta V$ : [0.01, 0.0, 0.0]	%
4	$\Delta V$ (max)	0.01	%
5	Isc (sym, max)	26.2432	kA
6	Isc (sym, min)	5.2486	kA
7	Isc (L-G, max)	15.7459	kA
8	Isc (L-G, min)	5.2436	kA

#### 10 - Network Node

SL.No.	Description	Value	Unit
1	Vn	0.415	kV
2	$\Delta V_a$ , $\Delta V_b$ , $\Delta V_c$	$\Delta V_a$ : [8.78, 5.37, 2.79] $\Delta V_b$ : [6.73, 4.06, 1.01] $\Delta V_c$ : [6.49, 3.9, 0.8]	%, %, %
3	$\Delta V$	$\Delta V$ : [8.78, 5.37, 2.79]	%
4	$\Delta V$ (max)	8.78	%
5	Isc (sym, max)	3.1724	kA
6	Isc (sym, min)	1.5764	kA
7	Isc (L-G, max)	0.4184	kA
8	Isc (L-G, min)	0.1986	kA

## 2 - Network Node

SL.No.	Description	Value	Unit
1	Vn	11.0	kV
2	$\Delta V_a$ , $\Delta V_b$ , $\Delta V_c$	$\Delta V_a$ : [0.15, 0.1, 0.06] $\Delta V_b$ : [0.13, 0.08, 0.04] $\Delta V_c$ : [0.12, 0.08, 0.03]	%, %, %
3	$\Delta V$	$\Delta V$ : [0.15, 0.1, 0.06]	%
4	$\Delta V$ (max)	0.15	%
5	Isc (sym, max)	9.2255	kA
6	Isc (sym, min)	3.5892	kA
7	Isc (L-G, max)	5.2605	kA
8	Isc (L-G, min)	2.8682	kA

## 3 - Network Node

SL.No.	Description	Value	Unit
1	Vn	0.415	kV
2	$\Delta V_a$ , $\Delta V_b$ , $\Delta V_c$	$\Delta V_a$ : [1.38, 0.9, 0.59] $\Delta V_b$ : [1.07, 0.69, 0.3] $\Delta V_c$ : [1.05, 0.68, 0.29]	%, %, %
3	$\Delta V$	$\Delta V$ : [1.38, 0.9, 0.59]	%
4	$\Delta V$ (max)	1.38	%
5	Isc (sym, max)	27.1184	kA
6	Isc (sym, min)	21.2378	kA
7	Isc (L-G, max)	28.0725	kA
8	Isc (L-G, min)	22.9503	kA

## 4 - Network Node

SL.No.	Description	Value	Unit
1	Vn	0.415	kV
2	$\Delta V_a$ , $\Delta V_b$ , $\Delta V_c$	$\Delta V_a$ : [5.45, 3.47, 2.48] $\Delta V_b$ : [3.53, 2.19, 0.71] $\Delta V_c$ : [3.3, 2.03, 0.5]	%, %, %
3	$\Delta V$	$\Delta V$ : [5.45, 3.47, 2.48]	%
4	$\Delta V$ (max)	5.45	%
5	Isc (sym, max)	10.2159	kA
6	Isc (sym, min)	5.5706	kA
7	Isc (L-G, max)	1.6155	kA
8	Isc (L-G, min)	0.7723	kA

## 5 - Network Node

SL.No.	Description	Value	Unit
1	Vn	0.415	kV
2	$\Delta V_a$ , $\Delta V_b$ , $\Delta V_c$	$\Delta V_a$ : [5.45, 3.47, 2.48] $\Delta V_b$ : [3.53, 2.19, 0.71] $\Delta V_c$ : [3.3, 2.03, 0.5]	%, %, %
3	$\Delta V$	$\Delta V$ : [5.45, 3.47, 2.48]	%
4	$\Delta V$ (max)	5.45	%
5	Isc (sym, max)	10.2159	kA



SL.No.	Description	Value	Unit
6	Isc (sym, min)	5.5706	kA
7	Isc (L-G, max)	1.6155	kA
8	Isc (L-G, min)	0.7723	kA

## 6 - Network Node

SL.No.	Description	Value	Unit
1	Vn	0.415	kV
2	$\Delta V_a$ , $\Delta V_b$ , $\Delta V_c$	$\Delta V_a$ : [5.45, 3.47, 2.48] $\Delta V_b$ : [3.53, 2.19, 0.71] $\Delta V_c$ : [3.3, 2.03, 0.5]	%, %, %
3	$\Delta V$	$\Delta V$ : [5.45, 3.47, 2.48]	%
4	$\Delta V$ (max)	5.45	%
5	Isc (sym, max)	10.2159	kA
6	Isc (sym, min)	5.5706	kA
7	Isc (L-G, max)	1.6155	kA
8	Isc (L-G, min)	0.7723	kA

## 7 - Network Node

SL.No.	Description	Value	Unit
1	Vn	0.415	kV
2	$\Delta V_a$ , $\Delta V_b$ , $\Delta V_c$	$\Delta V_a$ : [5.45, 3.47, 2.48] $\Delta V_b$ : [3.53, 2.19, 0.71] $\Delta V_c$ : [3.3, 2.03, 0.5]	%, %, %
3	$\Delta V$	$\Delta V$ : [5.45, 3.47, 2.48]	%
4	$\Delta V$ (max)	5.45	%
5	Isc (sym, max)	10.2159	kA
6	Isc (sym, min)	5.5706	kA
7	Isc (L-G, max)	1.6155	kA
8	Isc (L-G, min)	0.7723	kA

## 8 - Network Node

SL.No.	Description	Value	Unit
1	Vn	0.415	kV
2	$\Delta V_a$ , $\Delta V_b$ , $\Delta V_c$	$\Delta V_a$ : [8.3, 5.1, 2.75] $\Delta V_b$ : [6.28, 3.79, 0.97] $\Delta V_c$ : [6.03, 3.63, 0.76]	%, %, %
3	$\Delta V$	$\Delta V$ : [8.3, 5.1, 2.75]	%
4	$\Delta V$ (max)	8.3	%
5	Isc (sym, max)	3.5238	kA
6	Isc (sym, min)	1.7575	kA
7	Isc (L-G, max)	0.4679	kA
8	Isc (L-G, min)	0.2222	kA

## 9 - Network Node

SL.No.	Description	Value	Unit
1	Vn	0.415	kV

SL.No.	Description	Value	Unit
2	$\Delta V_a$ , $\Delta V_b$ , $\Delta V_c$	$\Delta V_a$ : [9.38, 5.93, 3.69] $\Delta V_b$ : [7.31, 4.6, 1.88] $\Delta V_c$ : [7.06, 4.44, 1.67]	%, %, %
3	$\Delta V$	$\Delta V$ : [9.38, 5.93, 3.69]	%
4	$\Delta V$ (max)	9.38	%
5	Isc (sym, max)	3.5238	kA
6	Isc (sym, min)	1.7575	kA
7	Isc (L-G, max)	0.4679	kA
8	Isc (L-G, min)	0.2222	kA

## 9 - Network Node

SL.No.	Description	Value	Unit
1	Vn	0.415	kV
2	$\Delta V_a$ , $\Delta V_b$ , $\Delta V_c$	$\Delta V_a$ : [9.38, 5.93, 3.69] $\Delta V_b$ : [7.31, 4.6, 1.88] $\Delta V_c$ : [7.06, 4.44, 1.67]	%, %, %
3	$\Delta V$	$\Delta V$ : [9.38, 5.93, 3.69]	%
4	$\Delta V$ (max)	9.38	%
5	Isc (sym, max)	3.5238	kA
6	Isc (sym, min)	1.7575	kA
7	Isc (L-G, max)	0.4679	kA
8	Isc (L-G, min)	0.2222	kA

## A1-T1 - Transformer

SL.No.	Description	Value	Unit
1	$P_a$ HV, $Q_a$ HV, $P_b$ HV, $Q_b$ HV, $P_c$ HV, $Q_c$ HV	$P_a$ HV: [0.0845, 0.0526, 0.0293] $Q_a$ HV: [0.0689, 0.0462, 0.0294] $P_b$ HV: [0.0677, 0.0417, 0.0143] $Q_b$ HV: [0.0673, 0.045, 0.0277] $P_c$ HV: [0.0776, 0.0482, 0.0233] $Q_c$ HV: [0.0536, 0.0361, 0.0156]	MW, MVar, MW, MVar, MW, MVar
2	$P_a$ LV, $Q_a$ LV, $P_b$ LV, $Q_b$ LV, $P_c$ LV, $Q_c$ LV	$P_a$ LV: [-0.0288, -0.0521, -0.0838] $Q_a$ LV: [-0.0212, -0.0375, -0.0592] $P_b$ LV: [-0.0139, -0.0412, -0.0673] $Q_b$ LV: [-0.0197, -0.0365, -0.0582] $P_c$ LV: [-0.0288, -0.0521, -0.0838] $Q_c$ LV: [-0.0212, -0.0375, -0.0592]	MW, MVar, MW, MVar, MW, MVar
3	% Loading	max: 34.0, min: 13.4, avg: 21.7	%
4	P Loss	P Loss: [0.0017, 0.0014, 0.0012]	MW
5	P Loss (max)	0.0017	MW
6	% Loading (max) (max)	34.0	%

## A2-B1 - Bus Bar

SL.No.	Description	Value	Unit
1	Vn	0.415	kV
2	$\Delta V_a$ , $\Delta V_b$ , $\Delta V_c$	$\Delta V_a$ : [5.45, 3.47, 2.48] $\Delta V_b$ : [3.53, 2.19, 0.71] $\Delta V_c$ : [3.3, 2.03, 0.5]	%, %, %
3	$\Delta V$	$\Delta V$ : [5.45, 3.47, 2.48]	%

SL.No.	Description	Value	Unit
4	$\Delta V$ (max)	5.45	%
5	Isc (sym, max)	10.2159	kA
6	Isc (sym, min)	5.5706	kA
7	Isc (L-G, max)	1.6155	kA
8	Isc (L-G, min)	0.7723	kA

## G1 - External Grid

SL.No.	Description	Value	Unit
1	Pa, Pb, Pc, Qa, Qb, Qc	Pa: [0.0846, 0.0527, 0.0293] Pb: [0.0678, 0.0417, 0.0143] Pc: [0.0777, 0.0482, 0.0233] Qa: [0.0689, 0.0461, 0.0293] Qb: [0.0672, 0.0449, 0.0276] Qc: [0.0535, 0.036, 0.0155]	MW, MW, MW, MVar, MVar, MVar

## W1 - Line (Custom Geometry)

SL.No.	Description	Value	Unit
1	Pa from, Qa from, Pb from, Qb from, Pc from, Qc from	Pa from: [0.0846, 0.0527, 0.0293] Qa from: [0.0689, 0.0461, 0.0293] Pb from: [0.0678, 0.0417, 0.0143] Qb from: [0.0672, 0.0449, 0.0276] Pc from: [0.0678, 0.0417, 0.0143] Qc from: [0.0672, 0.0449, 0.0276]	MW, MVar, MW, MVar, MW, MVar
2	% Loading	max: 5.7, min: 2.2, avg: 3.7	%
3	% P Loss	% P Loss: [0.1, 0.1, 0.1]	%
4	% P Loss (max)	0.1	%
5	% Loading (max) (max)	5.7	%

## W2 - LV Cable (IEC)

SL.No.	Description	Value	Unit
1	Pa from, Qa from, Pb from, Qb from, Pc from, Qc from	Pa from: [0.0912, 0.0571, 0.0357] Qa from: [0.0646, 0.0411, 0.0263] Pb from: [0.0682, 0.0419, 0.0149] Qb from: [0.0491, 0.0304, 0.0111] Pc from: [0.0682, 0.0419, 0.0149] Qc from: [0.0491, 0.0304, 0.0111]	MW, MVar, MW, MVar, MW, MVar
2	% Loading	max: 82.1, min: 32.3, avg: 51.4	%
3	% P Loss	% P Loss: [3.9, 2.5, 1.5]	%
4	% P Loss (max)	3.9	%
5	% Loading (max) (max)	82.1	%

## W3 - LV Cable (IEC)

SL.No.	Description	Value	Unit
1	Pa from, Qa from, Pb from, Qb from, Pc from, Qc from	Pa from: [0.0279, 0.0163, 0.0027] Qa from: [0.0203, 0.0119, 0.002] Pb from: [0.0279, 0.0163, 0.0027] Qb from: [0.0203, 0.0119, 0.002] Pc from: [0.0279, 0.0163, 0.0027] Qc from: [0.0203, 0.0119, 0.002]	MW, MVar, MW, MVar, MW, MVar
2	% Loading	max: 43.8, min: 4.1, avg: 25.2	%

SL.No.	Description	Value	Unit
3	% P Loss	% P Loss: [3.7, 2.1, 0.3]	%
4	% P Loss (max)	3.7	%
5	% Loading (max) (max)	43.8	%

## W4 - LV Cable (IEC)

SL.No.	Description	Value	Unit
1	Pa from, Qa from, Pb from, Qb from, Pc from, Qc from	Pa from: [0.0424, 0.0247, 0.0122] Qa from: [0.0306, 0.0181, 0.009] Pb from: [0.0423, 0.0247, 0.0122] Qb from: [0.0306, 0.0181, 0.009] Pc from: [0.0423, 0.0247, 0.0122] Qc from: [0.0306, 0.0181, 0.009]	MW, MVar, MW, MVar, MW, MVar
2	% Loading	max: 79.1, min: 22.6, avg: 46.1	%
3	% P Loss	% P Loss: [5.5, 3.2, 1.6]	%
4	% P Loss (max)	5.5	%
5	% Loading (max) (max)	79.1	%

## W5 - LV Cable (IEC)

SL.No.	Description	Value	Unit
1	Pa from, Qa from, Pb from, Qb from, Pc from, Qc from	Pa from: [0.0268, 0.0158, 0.0027] Qa from: [0.02, 0.0118, 0.002] Pb from: [0.0268, 0.0158, 0.0027] Qb from: [0.02, 0.0118, 0.002] Pc from: [0.0268, 0.0158, 0.0027] Qc from: [0.02, 0.0118, 0.002]	MW, MVar, MW, MVar, MW, MVar
2	% Loading	max: 53.0, min: 5.0, avg: 30.5	%
3	% P Loss	% P Loss: [0.6, 0.4, 0.1]	%
4	% P Loss (max)	0.6	%
5	% Loading (max) (max)	53.0	%

## X1 - Load 3ph

SL.No.	Description	Value	Unit
1	P, Q	P: [0.08, 0.047, 0.008] Q: [0.06, 0.0352, 0.006]	MW, MVar

## X2 - Load 1ph

SL.No.	Description	Value	Unit
1	Pa, Pb, Pc, Qa, Qb, Qc	Pa: [0.02, 0.014, 0.002] Pb: [0.0, 0.0, 0.0] Pc: [0.0, 0.0, 0.0] Qa: [0.015, 0.0105, 0.0015] Qb: [0.0, 0.0, 0.0] Qc: [0.0, 0.0, 0.0]	MW, MW, MW, MVar, MVar, MVar

## X3 - Load 3ph

SL.No.	Description	Value	Unit
1	P, Q	P: [0.12, 0.0715, 0.036] Q: [0.09, 0.0536, 0.027]	MW, MVar