SITE TEST PROCEDURES DOC

SITE TEST PROCEDURES DOCUMENT OUTLINE

SCOPE

IDENTIFICATION

SITE INSTALLATION CHECK LIST

- Site
- On Tower Installations
- Site main infrastructure
- Site equipment
- Electricity
- Lightning and Grounding

OPERATION TEST PROCEDURES

- Site Operation Test Procedure
  - *Site Grounding Test*
  - *Electricity System*
  - *Alert System*
  - *Generator Operation on Site*

EQUIPMENT CRANE HANDLING

APPROVAL

1. SCOPE

1.1. Identification

This document establishes the test procedures for the operation of XXXXXX site in the Border Pass project **XXXXXXXXX** , herein referred to as the “Site”.

It is obligatory to read and understand (site – overview and maintenance technical manual document) the safety instructions before starting any kind of work on the site.

2. INTRODUCTION

The Intelligence & Surveillance System consists of four (4) Radar Intelligence Site Systems, providing radar coverage around the QQQQQQQ region. These sites will provide radar and optical data that will be integrated into a unified presentation at the Command & Control System (CCS) and additional presentation at the headquarter center XXXXXXXX.

The Surveillance System is comprised of the following sites:

- SITE #1
- SITE #2
- SITE #3
- SITE #4
- Headquarter Base Command and Control System (CCS)

CAUTION

1. **All the systems work on 220V included the AC supply.**
2. **Only approved electrician can operate the electrical system included the generator.**
3. **When operating the lifting system there should be two people with climbing gear for emergency problems.**
4. **Make sure to shut off the site main supplies before climbing on the tower and coordinate it with the control room.**

Figure 2-1. System Layout

The system function is based on the connectivity between the sites to the central command & control and in addition the participation of the following sensors elements:

- Mobile independent investigation and detection measures assembled on special vehicles.
- Unmanned Air Vehicle (UAV) for longer ranged detection.
- Hovering machine to perform a wide variety of surveillance, intelligence, and border control support missions.

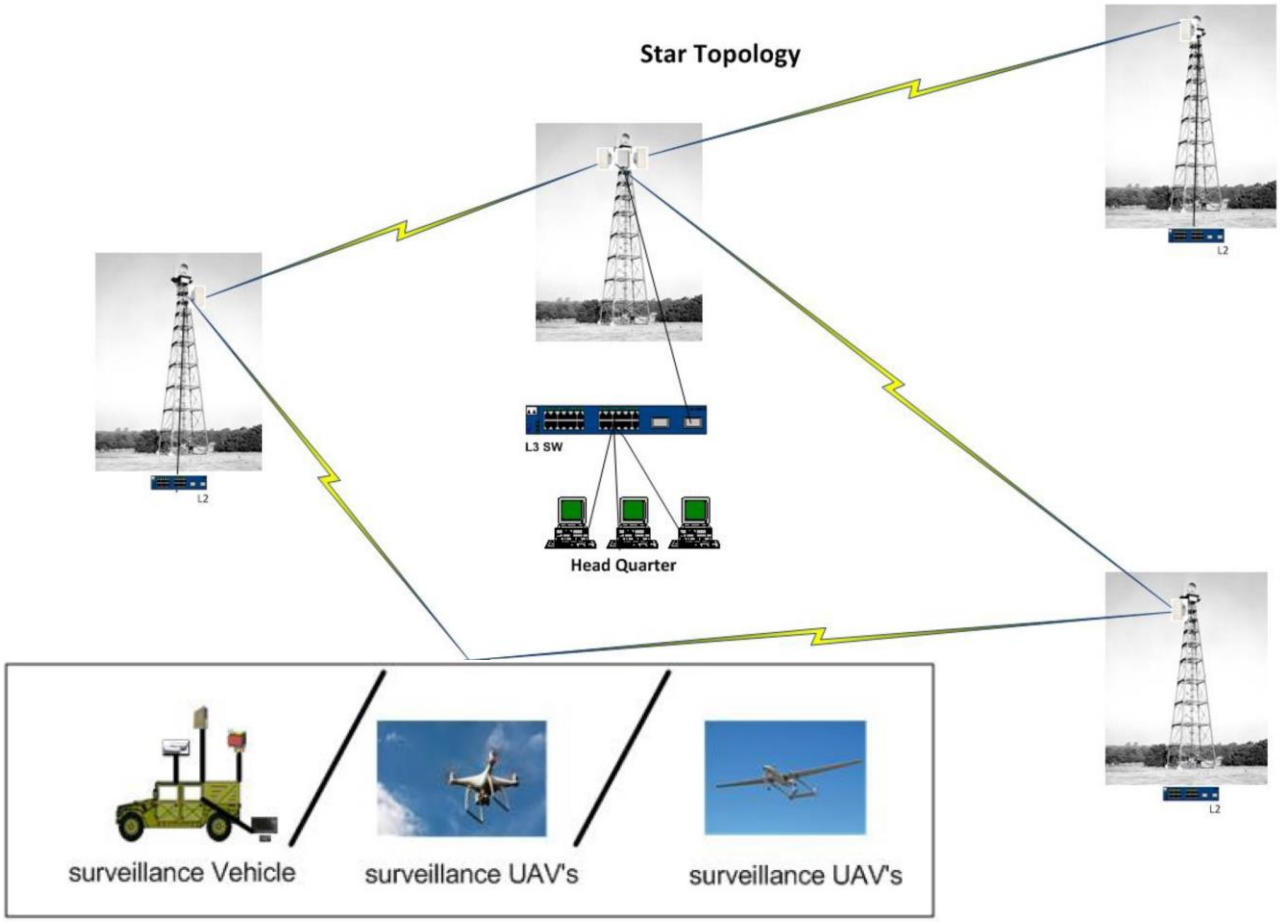


Figure 2-2. Networking Type – Star Topology

Typical site is composed of the following sub-systems:

a. Equie1

b. Equipe2

c. CCTV cameras

d. Microwave Network – EQUIP3 Communication subsystem

e. Outdoor cabinet containing the hardware to integrate and process site systems outputs

f. Generator to be operated locally and remote-controlled operation

g. Site environment sensors (fence and gate)

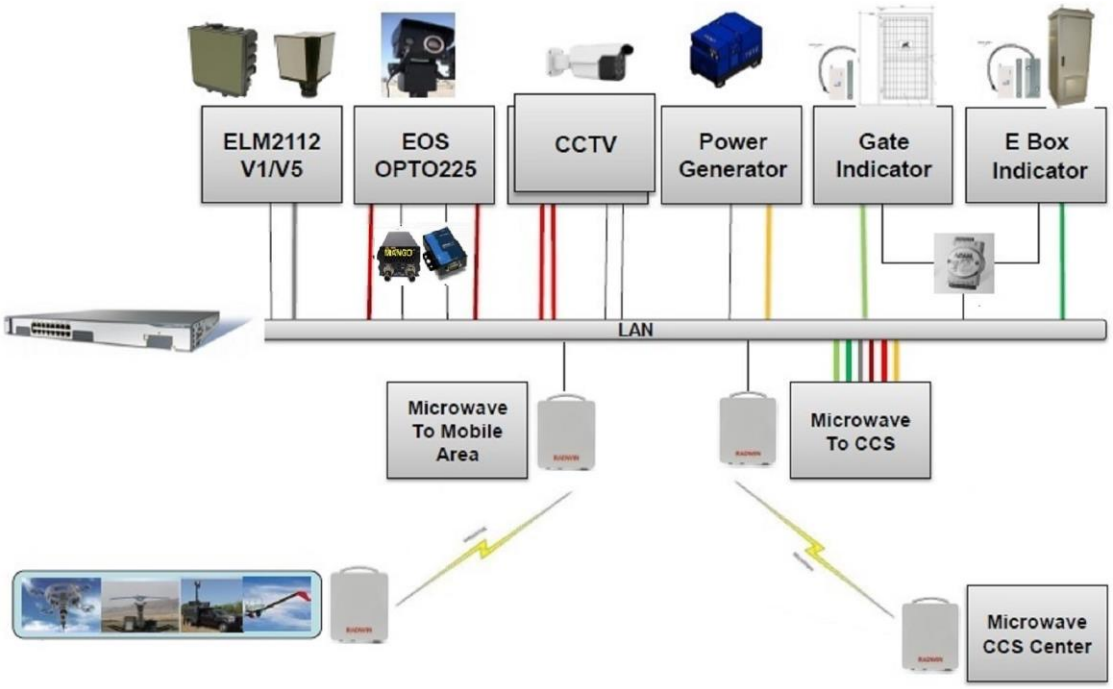


Figure 2-3. Radar Site Connectivity General Arrangement

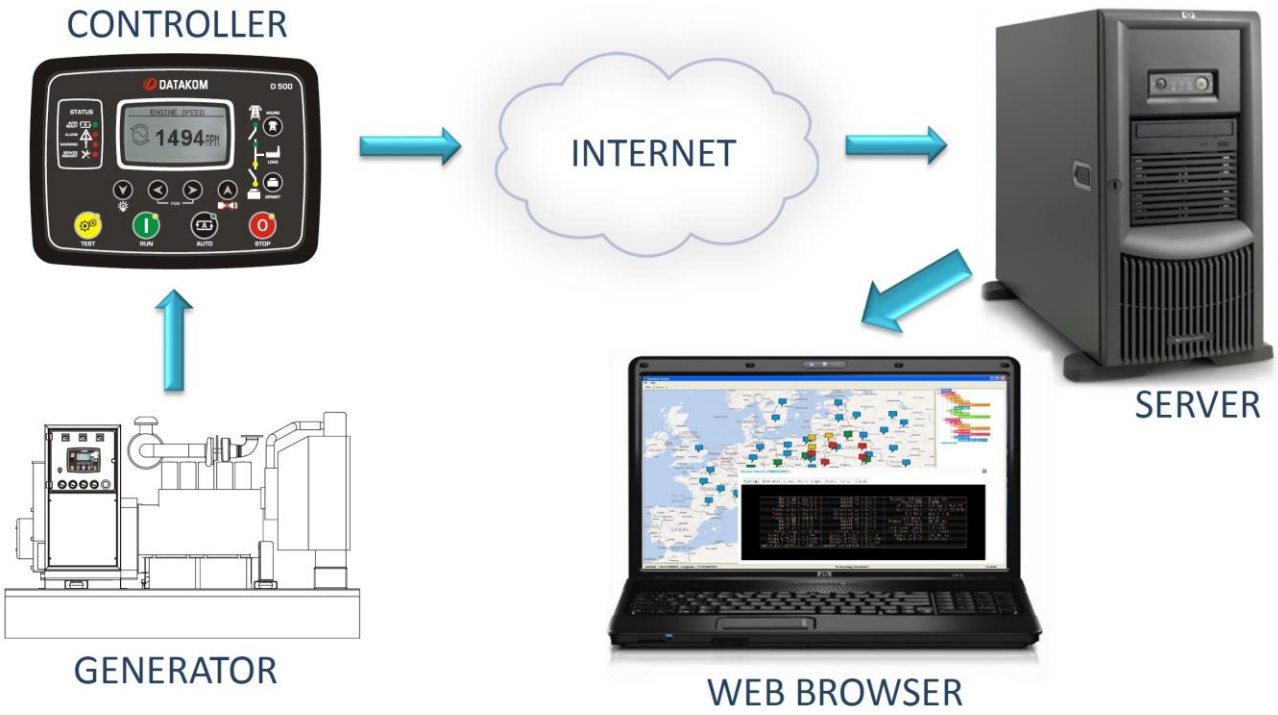


Figure 2-4. Power Generator Operation

3. OVERALL SITE INSTALLATION CHECKLIST

3.1. Site

Site number: 4

Site name: ccccccc

Date of establishment: 01\10\2017

Tower height: 54m

3.2. On Tower Installations

#	Item	Status
1	Lightning Rod – 54m + 2.5m	
2	Grounding cable from lightning rod to grounding system	
3	Aviation Warning Light – 54m	
4	Lifting arm with pulley – 54m	
5	Observation camera Equip2 + Adapter – 54m	
6	Equip1V5+ Adapter – 53m	
7	Service platform – 52.5m	
8	Equip3 Antenna – 52m (P2P x2 , P2MP x3)	
9	Climbing Ladder – all along	
10	Safety steel cable + adaptors and Accessories – all along	
11	CCTV Cameras 3 units – 6m	
12	LED Reflectors 100W (With volume detection Sensor) 2 units – 4m	

3.3. Site main infrastructure

#	Item	Status
1	Site Fence + pedestrian Gate	
2	Electricity pit	
3	Grounding pit	
4	Gravel toping	
5	Underground pipes between electricity pit and equipment pad	
6	Underground pipes between equipment pad and generator pad	

3.4. Site equipment

#	Item	Status
1	Gate Sensor	
2	FG Wilson F9.5-1 Generator	
3	Generator compact modular enclosure	
4	External Fuel tank	
5	Main Switch box in the electricity pit	
6	Outdoor Cabinet	

3.5. Electricity

#	Item			Status
1	**Main Power:** the electricity feeds come from underground connection between the site main switch and the road nearby the site.			
2	**Backup Power:** FG Wilson F9.5-1 Generator			
3	**Power connection size:** 1*36A			
	Cables cross section:			
	i	**Main feed**	3*10 sq/mm XLPE N2XY between the site main electricity switch and the equipment cabinet	
	ii	**Generator feed**	3*10 sq/mm XLPE N2XY, between the generator and the equipment cabinet	
	iii	**Generator battery charge**	3*2.5 sq/mm XLPE N2XY, between the generator and the equipment cabinet	
	iv	**LED reflector**	3*2.5 sq/mm XLPE N2XY, between reflectors and equipment cabinet.	
	v	**Aviation warning light**	3*2.5 sq/mm XLPE N2XY between aviation warning light and equipment cabinet.	

3.6. Lightning and Grounding

#	Item		Status
1	**Lightning protection system includes:**		
	1.1	5m Lightning arrestor 2” pole with bronze cone, will go up about 2.5m above the top of the tower	
	1.2	Main grounding cable 1*95 sq/mm from lightning arrestor to foundation grounding	
2	**Foundation grounding system includes:**		
	2.1	Foundation Bottom grounding ring made of hot deep galvanized strip 30*3 mm	
	2.2	Foundation upper grounding ring made of hot deep galvanized strip 30*3 mm	
	2.3	Connection strips and “pig tails” 3 hot deep galvanized strips 30*3 mm that connect between the rings and go up above the tower leg foundations	
3	**Site grounding**		
	3.1	4 units of grounding electrodes, 3 meter each one in every corner of the site.	
	3.2	Grounding pit for testing and controlling	
	3.3	Copper wire 50 sq/mm to connect between the electrodes	
	3.4	Grounding tails that connected to the site components:	
	i	Equipment cabinet	
	ii	Generator	
	iii	Fuel tank	
	iv	Electricity pit	
	v	Fence poles (4 corners)	
4	**Communication Connection** The site is connected by microwave Equip3 P2P (Point to Point) antennas and equipment, between the site and the HQ (Head Quarter command and control center), and between the RN site and YAVI site.		

#	Item		Status
	Installation Details:		
	Link Distance: 2.17 Km		
	RN ↔ HQ		
	From RN to HQ:		
	Installation height:	46m	
	Azimuth to HQ:	9.5 degrees	
	Elevation angle to HQ:	- 1 degrees	
	From HQ To RN:		
	Installation height:	25m	
	Azimuth to RN:	189.5 degrees	
	Elevation angle to RN:	+ 1 degrees	
	RN ↔ YAVI		
	Link Distance: 6.95 Km		
	From RN to YAVI:		
	Installation height:	50m	
	Azimuth to YAVI:	98 degrees	
	Elevation angle to YAVI:	0 degrees	
	From YAVI to RN:		
	Installation height:	21m	
	Azimuth to RN:	278 degrees	
	Elevation angle to RN:	0 degrees	
	RN P2MP:		
	Installation height:	52m	
	Down Tilt:	4 degrees	
	Sector 1 (107) Heading (Central Beam):	225 degrees	
	Sector 2 (108) Heading (Central Beam):	315 degrees	
	Sector 3 (109) Heading (Central Beam):	135 degrees	

4. OPERATION TEST PROCEDURE

4.1. Forward

This manual refers to the 4 sites in QQQQQ (Border Pass (site 1), (site 2), (Site 3), (Site 4)).

Personal attendance: Technicians which are authorized to work in electrical work and have undergone training in high altitude work procedures and certification from SUPPLIER are allowed to go over the procedures listed below and approve the site for operation.

CAUTION

1. **All the systems work on 220V included the AC supply.**
2. **Only approved electrician can operate the electrical system included the generator.**
3. **When operating the lifting system there should be two people with climbing gear for emergency problems.**
4. **Make sure to shut off the site main supplies before climbing on the tower and coordinate it with the control room.**

4.2.Site Operation Test Procedure

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
4.2.1.	**Site Grounding Test**					
1.	Information	Site ground check is carried out only by qualified electrician.	Check			
2.	Information	Extensive grounding tests performance will be carried out in accordance with the law in Argentina	Check			
3.	Testing Action	Sites of this type are to be checked for grounding in routine inspection every six months therefore it will be declared as half yearly maintenance procedure.	OK			
4.	Testing Action	The electrician is required to check: Ground Base maintenance: • Strengthening screws. • The Board cleanliness. • Complete lookup and adapter grounding cables in general and in particular.	OK			
5.	Testing Action	Electrical extensions check: Checking LOOP TESTER when the desired result on the site is < 0.9 Ohm.	OK			
6.	Testing Action	Checking ground extension: Testing ground with ground tester in the Ground PIT dedicated for ground test location in the site's corner.	OK			
7.	Testing Action	Must hold routine tests folder for correct and surveillance of the site	OK			

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

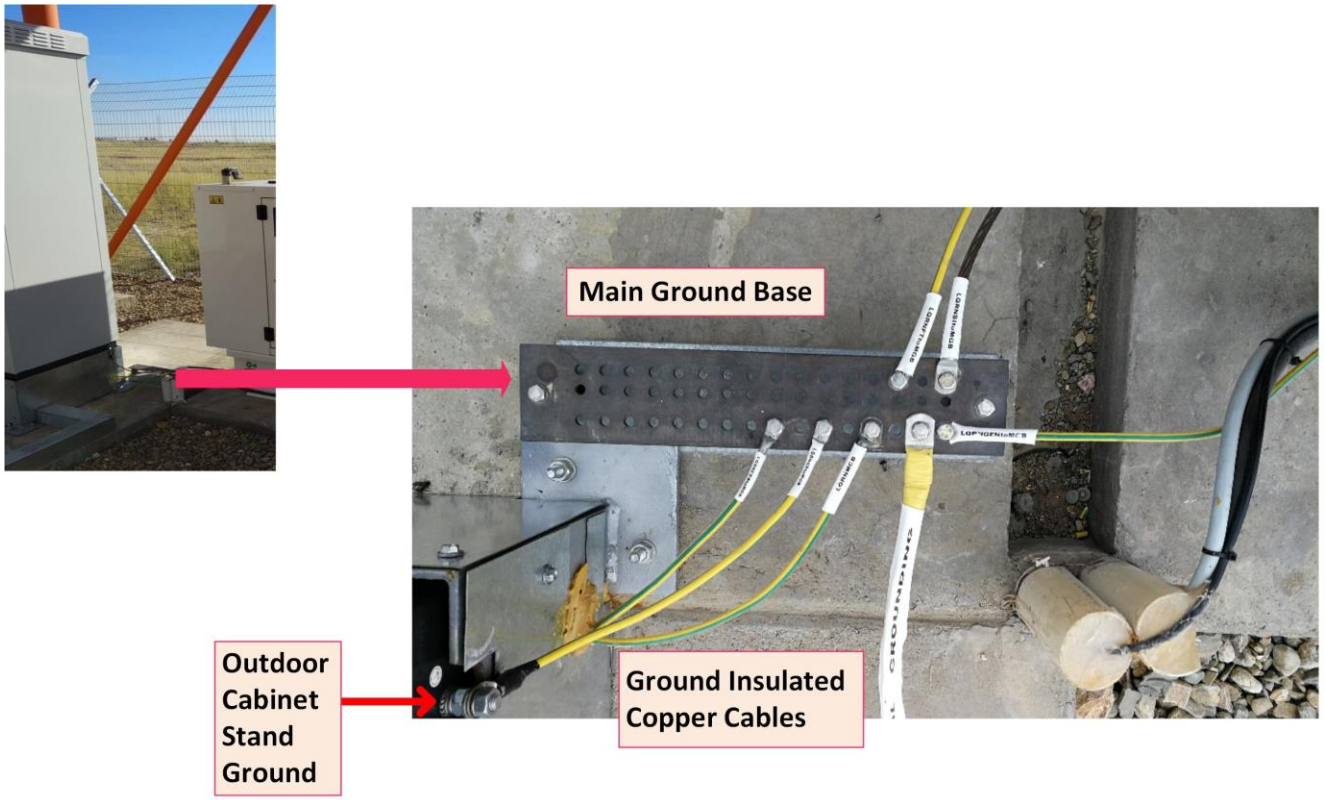


Figure 4-1. Ground Cables Connection Tower Position

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

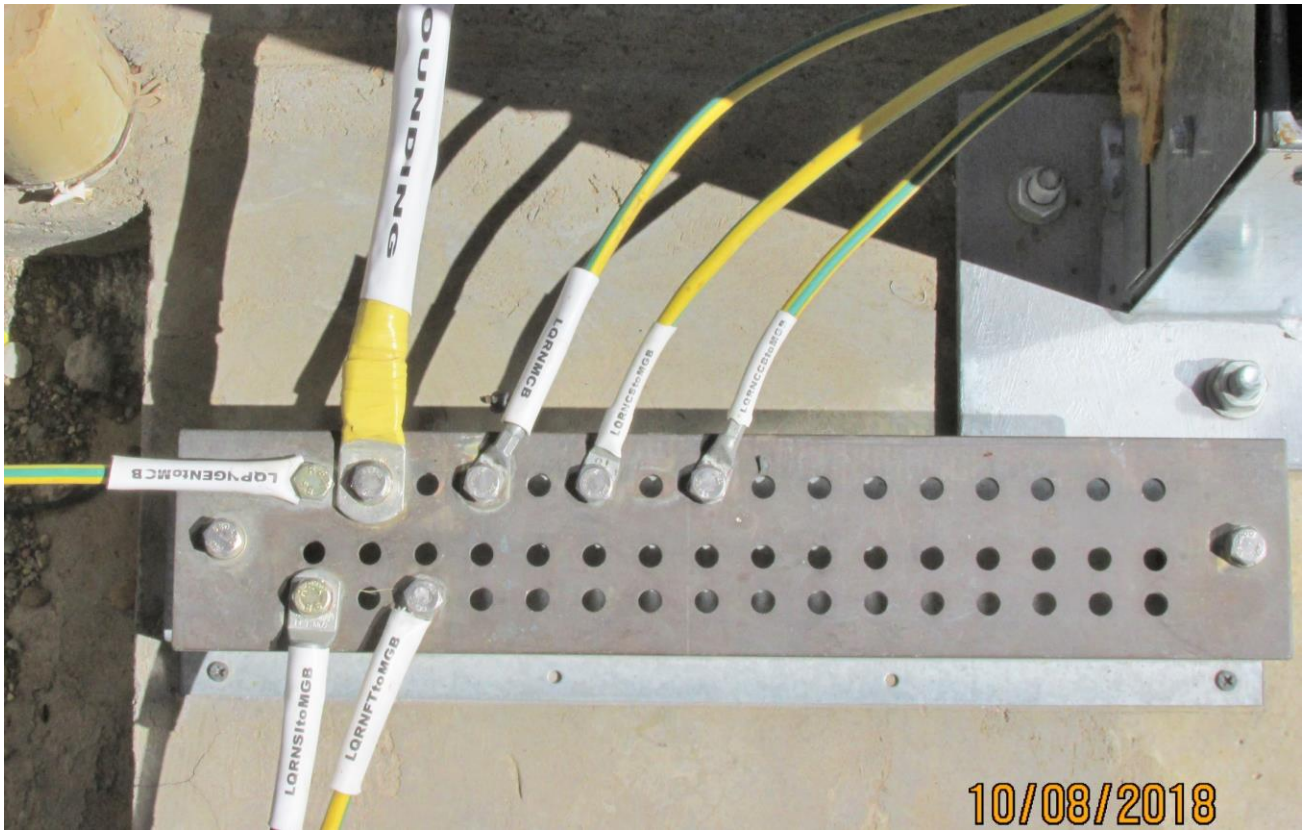


Figure 4-2. Main Ground Base Connections – Close-up View

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

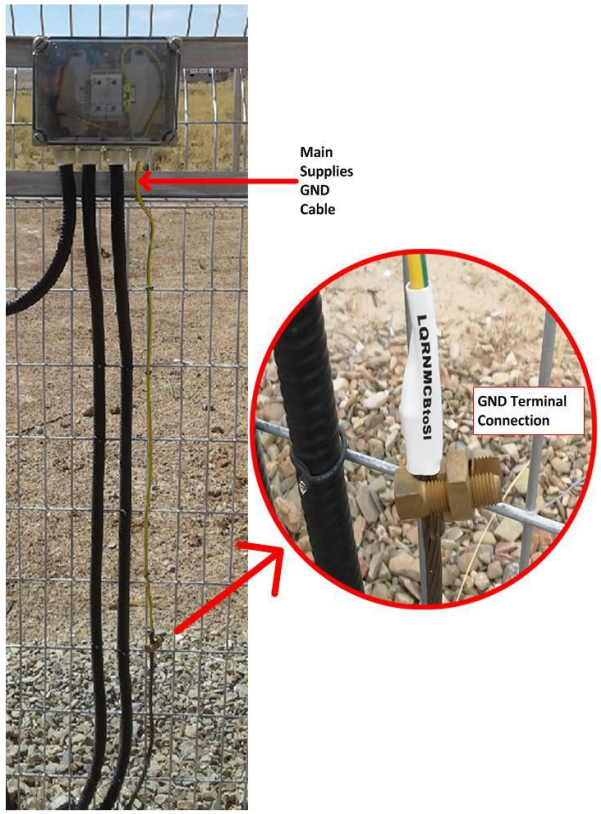


Figure 4-3. Site Main Supplies PIT Ground Terminal

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

LQRNFOUtoSI - grounding connection between the foundation grounding and the site grounding;

LQRNLRtoFOU - grounding connection between the lightning rod and foundation grounding;

Figure 4-4. Foundation Ground to Site Ground Connection

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

LQRNGENtoSI - grounding connection between the generator and the MGB;

LQRNFTtoSI - grounding connection between the fuel tank and the MGB;

LQRNSItoMGB - grounding connection between the site grounding and the MGB

Figure 4-5. GENSET and Fuel Tank Ground Connection to Main Ground Base

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

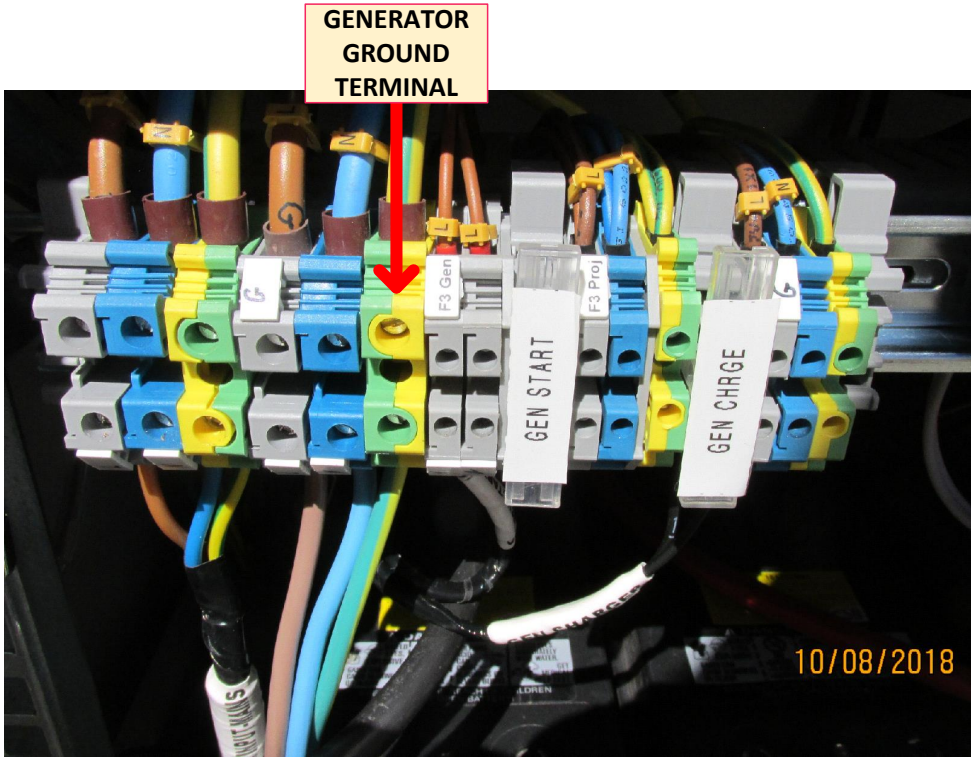
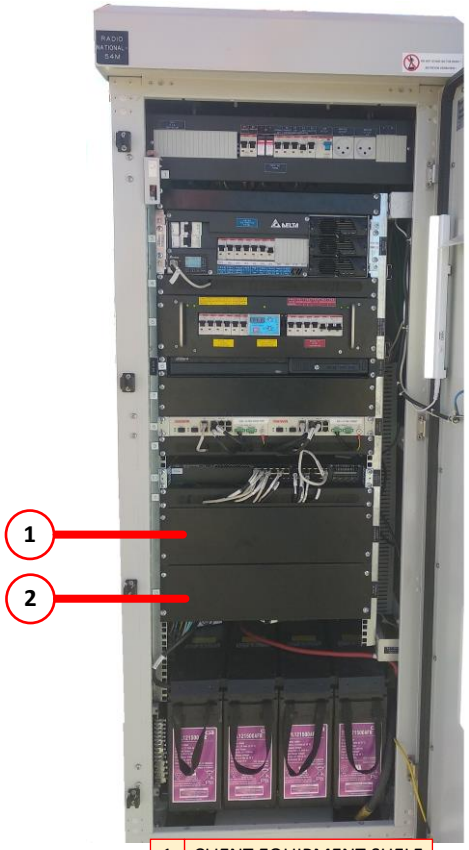


Figure 4-6. Generator Ground Terminal

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
4.2.2.	**Electricity System**					
1.	Preparation Action	1.In site main supply Electricity PIT, verify CB set to OFF position – no supply to system 2.Open Outdoor Cabinet door and verify all circuit breakers set to OFF position. 3.Leave door open during test performance. 4.Open Terminal Block shelf cover 5.Open Client Equipment shelf cover See Figure 4-7 items (1) & (2)				

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail



1	CLIENT EQUIPMENT SHELF
2	TERMINAL BLOCK SHELF

Figure 4-7. Outdoor Cabinet Shelfs

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
2.	Visual check	Verify visually cabinet assembly perfection, all signs are placed properly installed on shelfs panels.				
3.	Site Main Supply	Ensure connection of the main supply line to site in the electricity PIT input terminal (See Figure 4-8): Check with DVM presence of 220VAC in the breaker input terminals	220 ±10V			
4.	Testing Action	In site Electricity PIT set main circuit breaker to ON position (See Figure 4-8): Check with DVM presence of 220VAC in the breaker output terminals	220 ±10V			

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

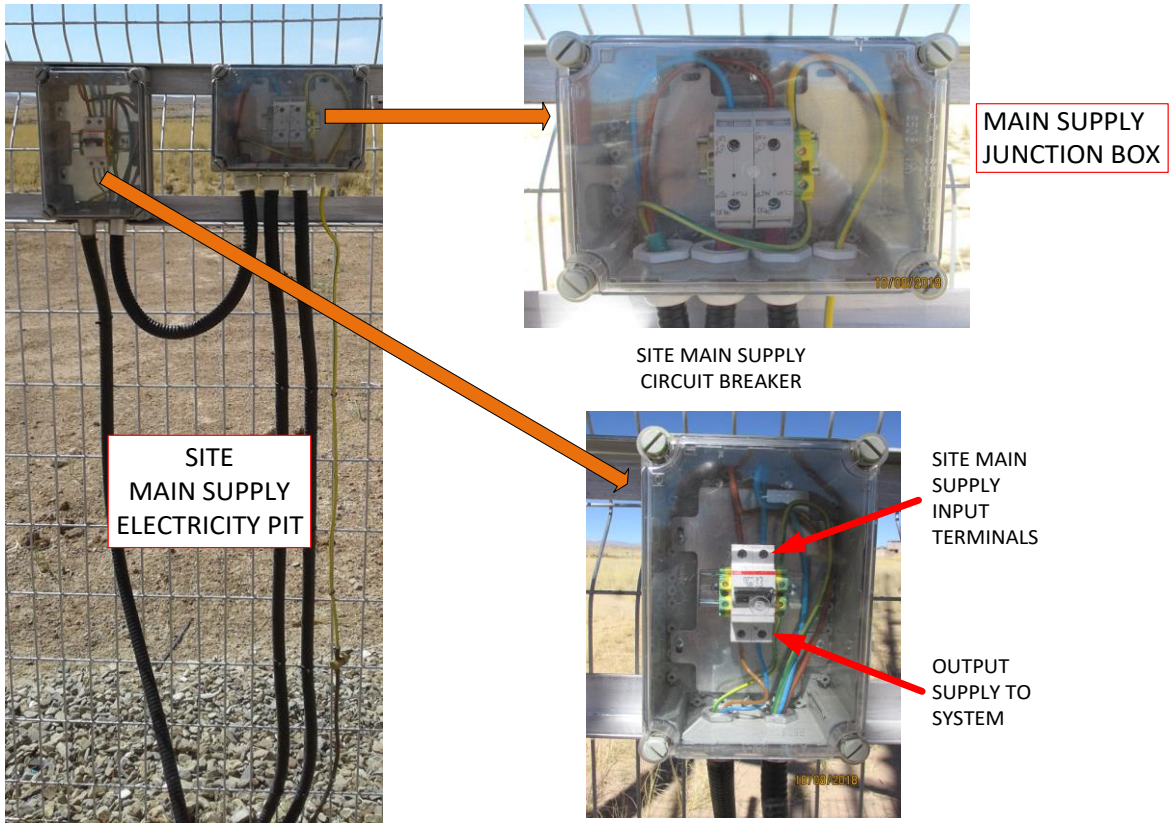


Figure 4-8. Site Main Supply Connection

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
5.	Testing Action	In the cabinet Terminal Block shelf rail mounted check with DVM presence of 220VAC in the input terminals “L” and “N” as shown in Figure 4-9	220 ±10V			

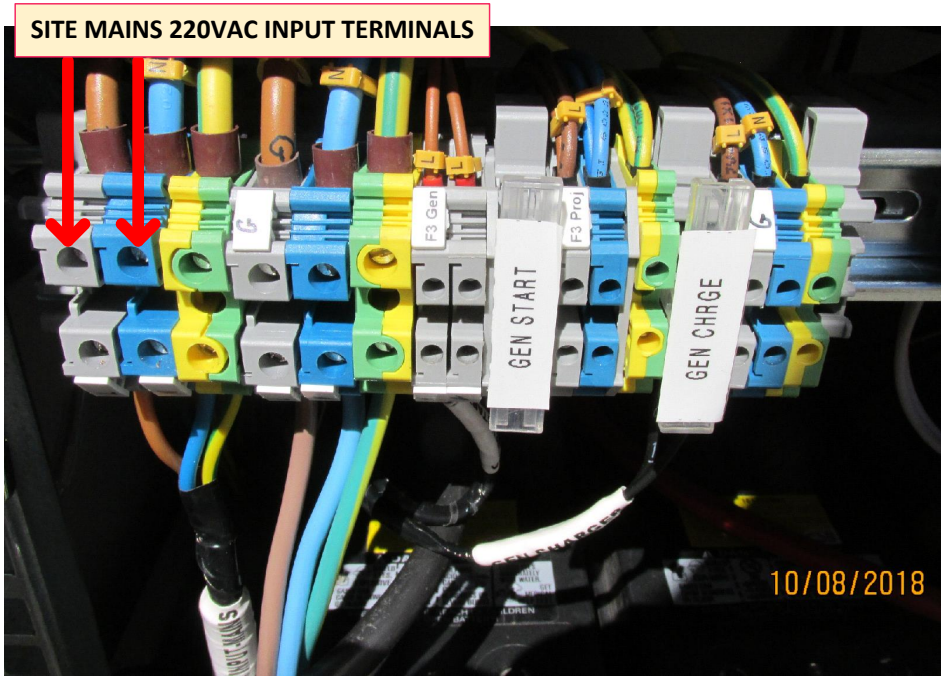


Figure 4-9. Outdoor Cabinet Terminal Shelf – Main Supply Terminals

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
6.	Cabinet Input Main Supply	In the cabinet Panel AC shelf, set to ON the following circuit breakers: (See Figure 4-10) EH MAINS; LR5 OUTLET; F5 OUTLET In the AC Block shelf outlet terminals check with DVM presence of 220VAC	220 ±10V			
7.	Testing Action	In the cabinet Panel AC shelf, set to ON the circuit breaker F1 INTERNAL LIGHT. (See Figure 4-10)	Cabinet light functions			

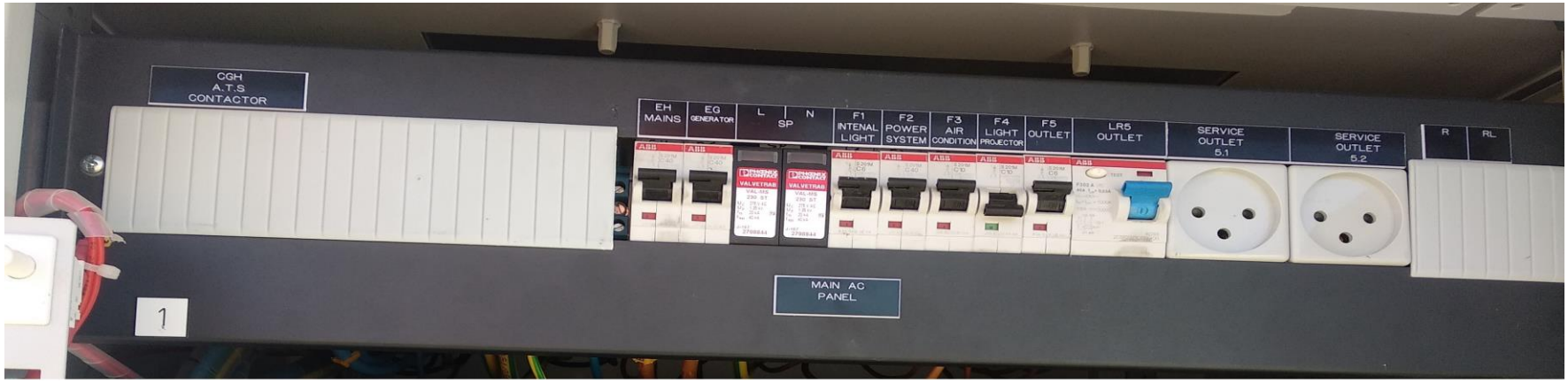


Figure 4-10. Outdoor Cabinet – AC Panel Circuits Breakers Rail

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

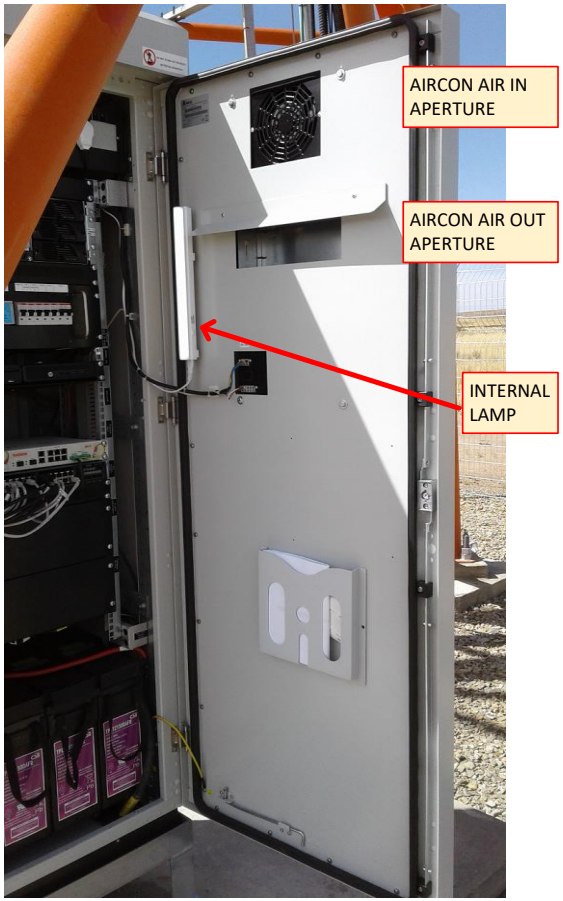


Figure 4-11. Outdoor Cabinet – Internal General View

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
8.	Testing Action	In the cabinet Panel AC shelf, set to ON the circuit breaker F3 AIRCON and verify aircon functions and air streams direction are correct. See Figure 4-11	OK			
9.	Testing Action	In the cabinet Panel AC shelf, set to ON the circuit breaker F4 LIGHT PROJECTOR Verify the following: 1.Projector on tower functions as person moves in site area for 90 seconds (person stands for 90 seconds as light goes on) and extinguished. 2.Check with DVM voltage 220VAC in the Generator Charger (See Figure 4-12)	OK 220 ±10V			

????????????????? photocopy of charger location in generator

Figure 4-12. GENSET – Batteries Charger

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
10.	48VDC Output	In the cabinet Panel AC shelf, set to ON the circuit breaker F2 POWER SYSTEM. Verify visually the status indications of the DPR 2900 rectifiers units in the Power Supply AC to DC shelf are lit as shown in Figure 4-13, and the ORION controller functions	OK			

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

RECTIFIERS DPR2900

ORION CONTROLLER

Status LEDS

LED "OK" - Lit if the rectifier works properly.
LED "NL" - Output current indicator led is turned OFF if the rectifier is loaded normally (5-100%).
The led is lit yellow or blinks if the rectifier is not loaded or if it is overloaded.
LED "COM" - Status of the communication with ORION controller – lit green.

Figure 4-13. Outdoor Cabinet – AC to DC Shelf

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
11.	Testing Action	In the DC to DC shelf, verify the indication lamp L48 is lit as shown in Figure 4-14	OK			

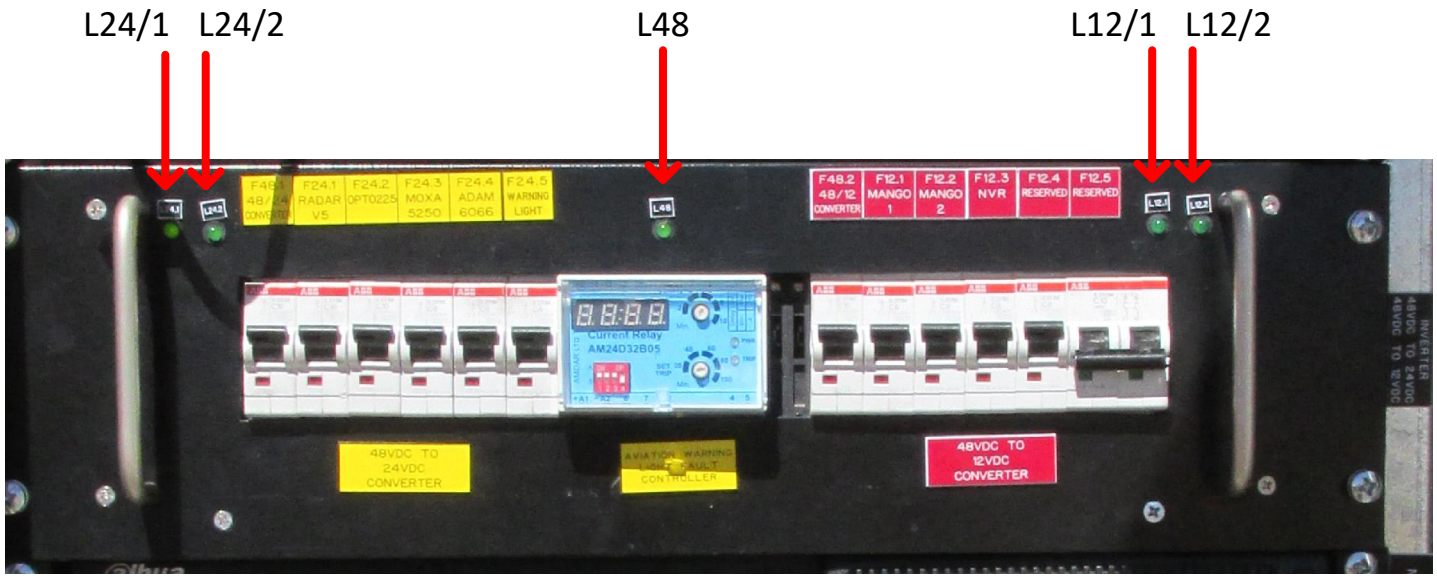


Figure 4-14. Outdoor Cabinet – DC to DC Shelf

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
12.	Testing Action	In the AC to DC shelf set the circuit breakers F48/6 and F48/7 to ON. (See Figure 4-15) In the EQUIP3 shelf verify the following: 1.Verify the IDU device PTP is operated, see Figure 4-16 and Figure 4-17 (Presence of 48VDC in PRIMARY cable plug of P2P unit, left side location) 2.Verify the IDU device PTMP is not operated, see Figure 4-16. (Presence of 0VDC in PRIMARY cable plug of P2MP unit, right side location)	OK OK			

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

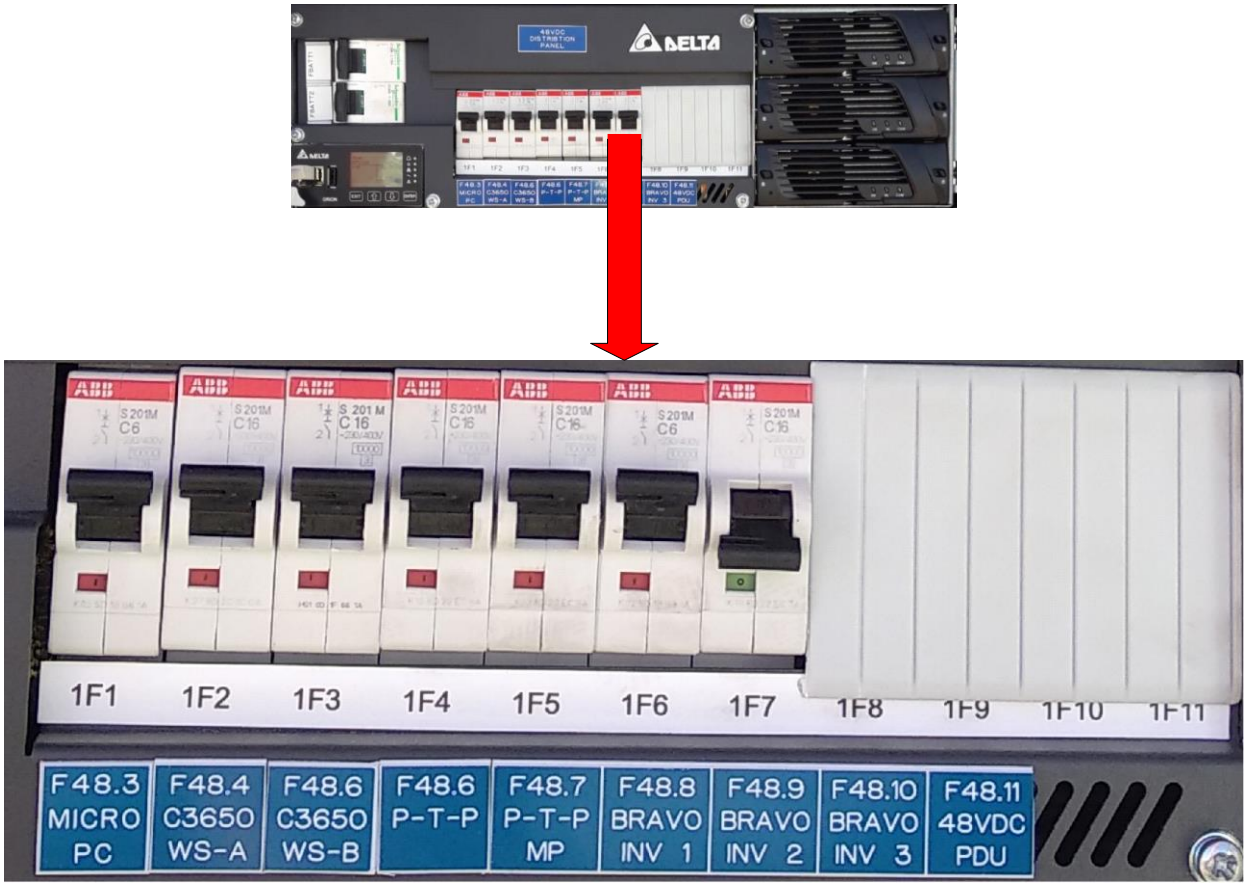
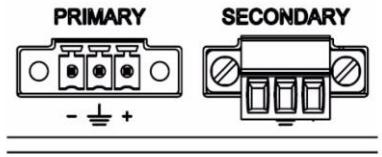


Figure 4-15. Outdoor Cabinet – AC to DC Shelf Circuit Breakers Rail

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

Figure 4-16. Outdoor Cabinet – EQUIP3 IDU Shelf



The connectors are 3 pin in line female,
with polarities (left to right) minus, ground, plus.

Function	Pin
+	Right
Chassis	Center
–	Left

Figure 4-17. Equip3 IDU-H DC Power Terminal

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
13.	Testing Action	In the AC to DC shelf set the circuit breaker F48/3 to ON. In the DVR + Micro PC shelf - verify the unit main switch led background is lit - See Figure 4-18	OK			

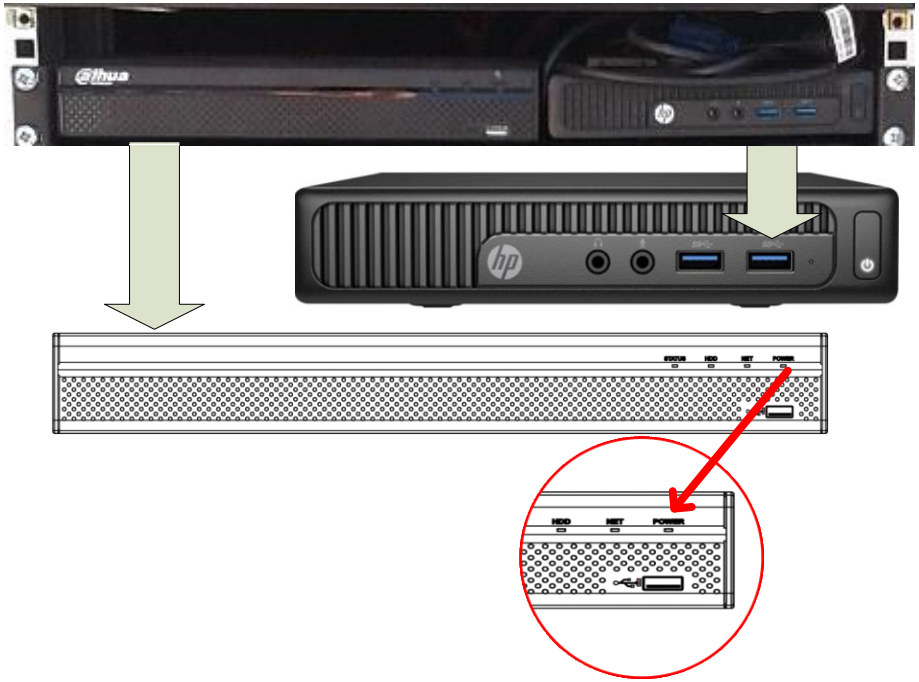


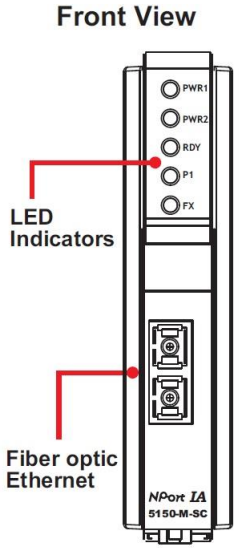
Figure 4-18. Outdoor Cabinet – Micro PC

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
14.	Testing Action	In the AC to DC shelf set to ON the F48/4 circuit breaker Verify the SWITCH WS-CISCO power led lit	OK			
15.	Testing Action	Set to OFF above circuit breaker and verify the switch power led extinguished	OK			
16.	Testing Action	In the AC to DC shelf set to ON the F48/5 circuit breaker Verify the SWITCH WS-CISCO power led lit	OK			
17.	Testing Action	Set both above circuit breakers to ON and verify the switch functions	OK			
18.	Testing Action	In the AC to DC shelf set to ON the circuit breaker BATT Check with DVM voltage 50VDC in the cabinet batteries compartment the Battery Charger terminals as shown in Figure 4-19.	50 ±5V			

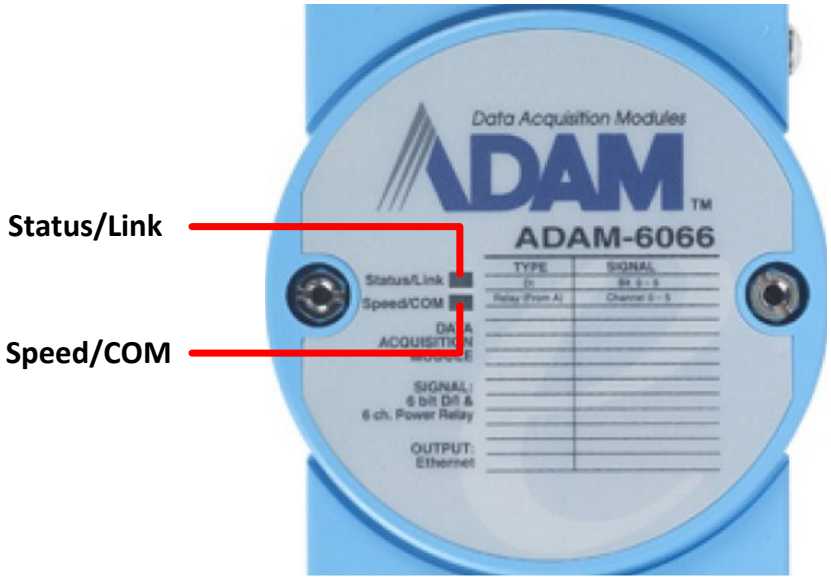
No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

Figure 4-19. Outdoor Cabinet – Batteries Charger

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
19.	24VDC Output	In the cabinet panel DC to DC shelf, set to ON the circuit breaker F48/1 Verify the indication lamps L24/1, L24/2 are lit as shown in Figure 4-14	OK			
20.	Testing Action	In the cabinet panel DC to DC shelf, set to ON the circuit breaker F24.4 ADAM In the cabinet Client equipment shelf, ensure ADAM controller functions as specified in Figure 4-20	OK			
21.	Testing Action	In the cabinet panel DC to DC shelf, set to ON the circuit breakers: F24.1 RADAR V5; F24.2 OPTO225; F24.3 MOXA;	OK			
22.	Testing Action	In the cabinet Terminal Block shelf rail mounted terminal check with DVM presence of 0VDC (zero voltage) in the following terminals: (-24V black terminal) to terminals 24.1 and 24.2 Voltage 0VDC	OK			

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
23.	Testing Action	In the cabinet Client Equipment Block shelf verify MOXA unit LED indicators are not lit. 	OK			

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail



Status: Red indicator. Blanking when ADAM module is running
Link: Green indicator. Led is on when the Ethernet communication is connected.
Speed: Red indicator. Led is on when Ethernet speed is 100 Mbps.
COM: Green indicator. Led is on whenever ADAM transmit or receive data on Ethernet

Figure 4-20. Outdoor Cabinet Client Shelf – ADAM Indication Leds

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

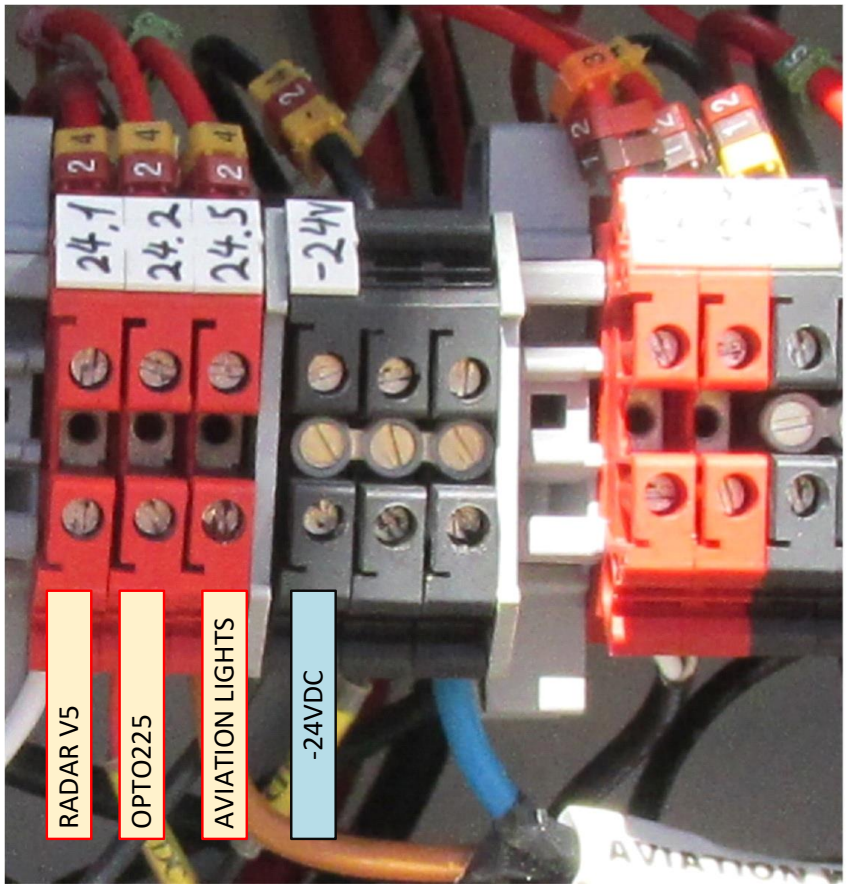


Figure 4-21. Outdoor Cabinet Terminal Shelf – 24VDC External Units Terminals

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
24.	Setting up test buildup	Apply the instructions specified in the Technical Overview Manual chapter 8 for operate ADAM application	OK			
25.	Setting up test buildup	Set the ADAM state so as to apply activation of the following RL controls: (See Figure 4-22) DO 0 - EQUIPE 1 DO 1 - EQUIP2 DO 2 - MOXA DO 5 – P2MP	OK			

Figure 4-22. ADAM App Screen – Controls Outputs Formatting States

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
26.	Testing Action	In the cabinet Terminal Block shelf rail mounted terminal check with DVM presence of 24VDC in the following terminals: (-24V black terminal) to terminals 24.1, 24.2	24 ±2V			
27.	Testing Action	In the cabinet Client Equipment Block shelf verify MOXA unit LED indicators PWR1 & PWR2 are lit red.	OK			
28.	Testing Action	In the EQUIP3 shelf verify the following: 1.Verify the IDU device PTMP is operated, see Figure 4-16. (Presence of 48VDC in PRIMARY cable plug of P2MP unit, right side location)	OK			
29.	Testing Action	In the cabinet panel DC to DC shelf, set to ON the circuit breaker F24.6 AMDAR In the cabinet Panel DC to DC shelf, verify in the AMDAR unit indications lit	OK			

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
30.	Testing Action	In the tower, ensure Aviation Lights are lit ON in tower top.	OK			
.	12VDC Output	In the cabinet panel DC to DC shelf, set to ON the circuit breaker F48/2 Verify the indication lamps L12/1, L12/2 are lit as shown in Figure 4-14	OK			
.	Testing Action	In the cabinet Panel DC / DC shelf, set to ON the circuit breakers: F12.1 MANGO 1 and F12.2 MANGO 2 In the cabinet Client Equipment Block shelf verify MANGO units front panel indicator PWR are not lit. See Figure 4-23	OK			

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

Figure 4-23. Mango Unit Panel

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
33.	Testing Action	In the cabinet Terminal Block shelf rail mounted terminal check with DVM presence of 12VDC in the following terminals: (-12V black terminal) to terminals 12.3, 12.4, and 12.5 respectively as shown in Figure 4-24				
		1. NVR terminals 12.3	12 ±2V			
		2.Reserve (#2) terminals 12.4	12 ±2V			
		3.Reserve (#3) terminals 12.5	12 ±2V			

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

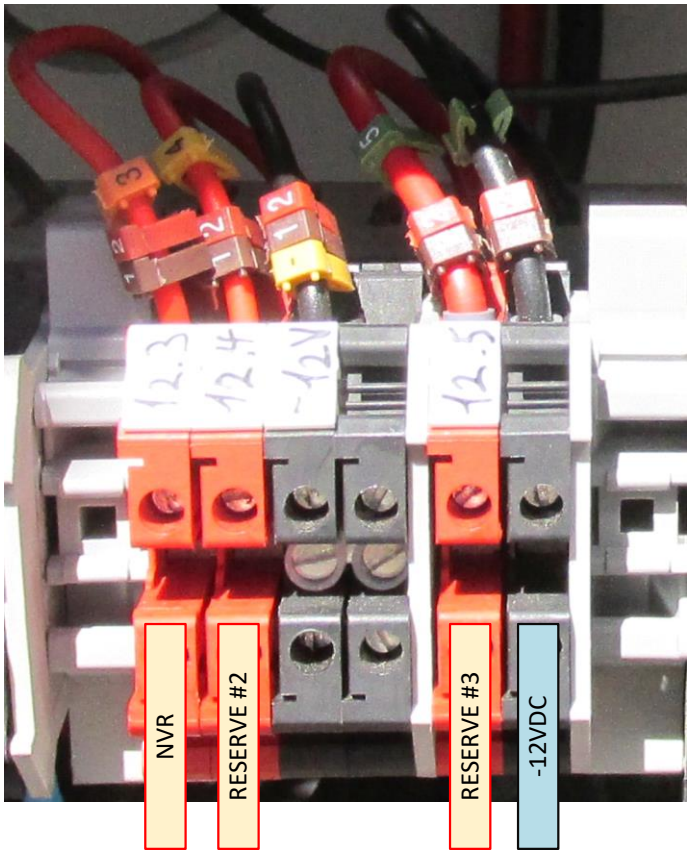


Figure 4-24. Outdoor Cabinet Terminal Shelf – 12VDC Reserve Terminals

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
34	Testing Action	Set the ADAM state so as to apply activation of the following RL controls: (See Figure 4-22) DO 3 - MANGO 1 DO 4 - MANGO 2	OK			
35	Testing Action	In the cabinet Client Equipment Block shelf verify MANGO units front panel indicator PWR are lit within one-minute delay from above activation. See Figure 4-23	OK			
36	Testing Action	Verify PING command validation to the MANGO units See site IP Mapping table.	OK			

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
4.2.3.	**ADAM Alert System**					
1.	Setting up test buildup	Apply the instructions specified in the Technical Overview Manual chapter 8	OK			
2.	Testing Action	Ensure in the Microcomputer monitor the display of the ADAM application as illustrated in Figure 4-22. In the form frame identify the following events feedback activation:				
		DI 0 – active when cabinet door open	OK			
		DI 1 – active when no AC supply at all (shut off EH + EG circuit breakers)	OK			
		DI 2 – active when temperature high	OK			
		DI 3 – active when VDC low	OK			
		DI 4 – active when Aviation Warning Lights are off (shutoff F48/1 circuit breaker)	OK			
		DI 5 – active when Gate Open terminals shorted	OK			

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
4.2.4.	**Generator Operation on Site**					
1.	Preparation Action	1.Ensure Generator functions and set in AUTO state (as default steady state) as shown in Figure 4-25 2.In the cabinet Panel AC shelf, verify the following circuit breakers are set in ON: EH MAINS; EG GEN	OK			

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

Figure 4-25. Generator in AUTO – READY State LEDS Indicators

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
2.	Testing Action	1. In the cabinet Panel AC shelf, set to OFF the CB EH (cabinet main supply) 2. Wait up to 5 minutes (See Figure 4-26) 3. Site generator starts running automatically 4. Wait more up to 5 minutes 5. Verify indication lights in cabinets DC to DC shelf panel as shown in Figure 4-14 6. Verify Generator state is displayed as RUN state in the controller display as shown in Figure 4-27.	OK			

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

Figure 4-26. Generator in Motor Startup Period – LCD Display

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

Figure 4-27. Generator AUTO – RUN State Display

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail
3.	Testing Action	In the cabinet Terminal Block shelf rail mounted check with DVM presence of 220VAC in the input terminals “L” and “N” as shown in Figure 4-28	220 ±10V			
4.	Testing Action	1.In the cabinet Panel AC shelf, re-set to ON the CB EH (cabinet main supply) 2.Verify generator readiness to sources swapping function (See Figure 4-29) 3. Wait up to 5 minutes 4. Site generator stop running automatically (See Figure 4-30)	OK			
5.	Testing Action	1. Wait more up to 5 minutes 2.Verify Generator state is displayed as AUTO state	OK			

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

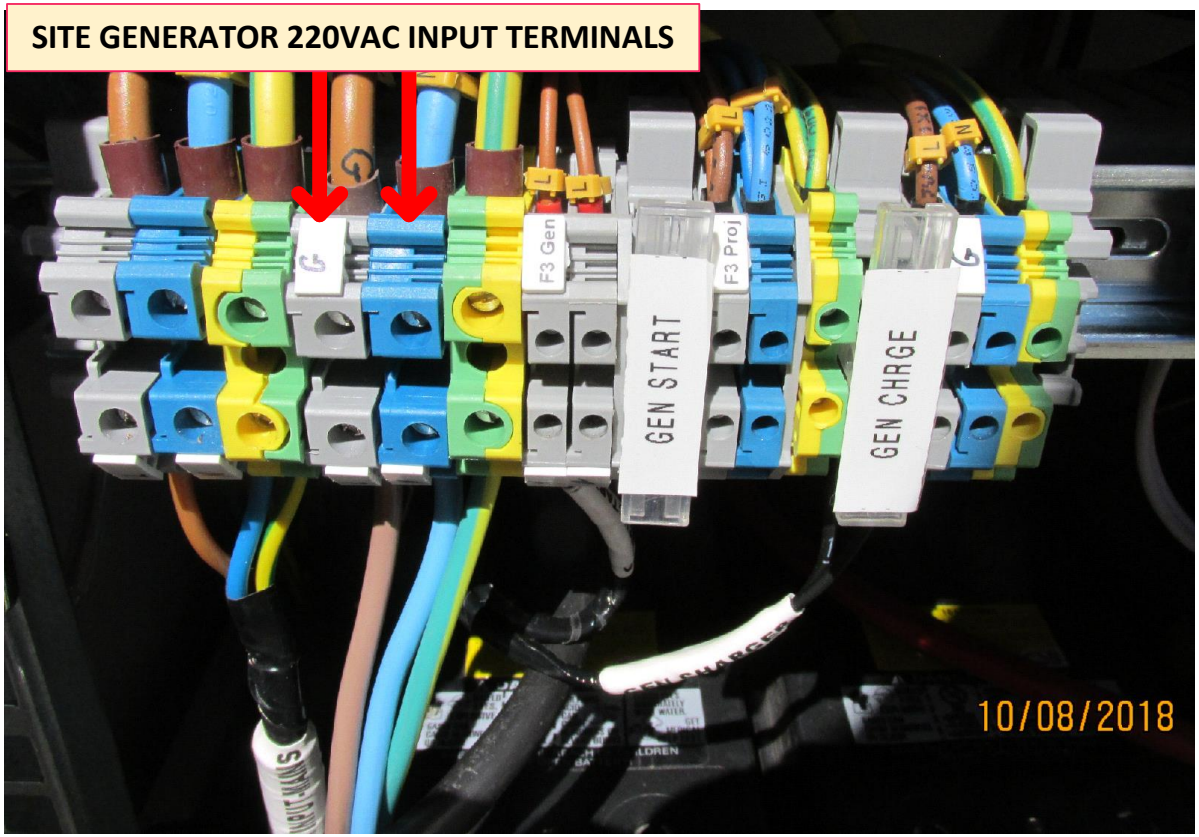


Figure 4-28. Outdoor Cabinet Terminal Shelf – Generator Supply Terminals

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

Figure 4-29. Generator in AUTO RUN Mode – Mains Supplies Available LEDS Indications

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

Figure 4-30. Generator Motor Stop LCD Display

No.	Type	Action	Expected Results	Obtained Results	Remarks	Pass/ Fail

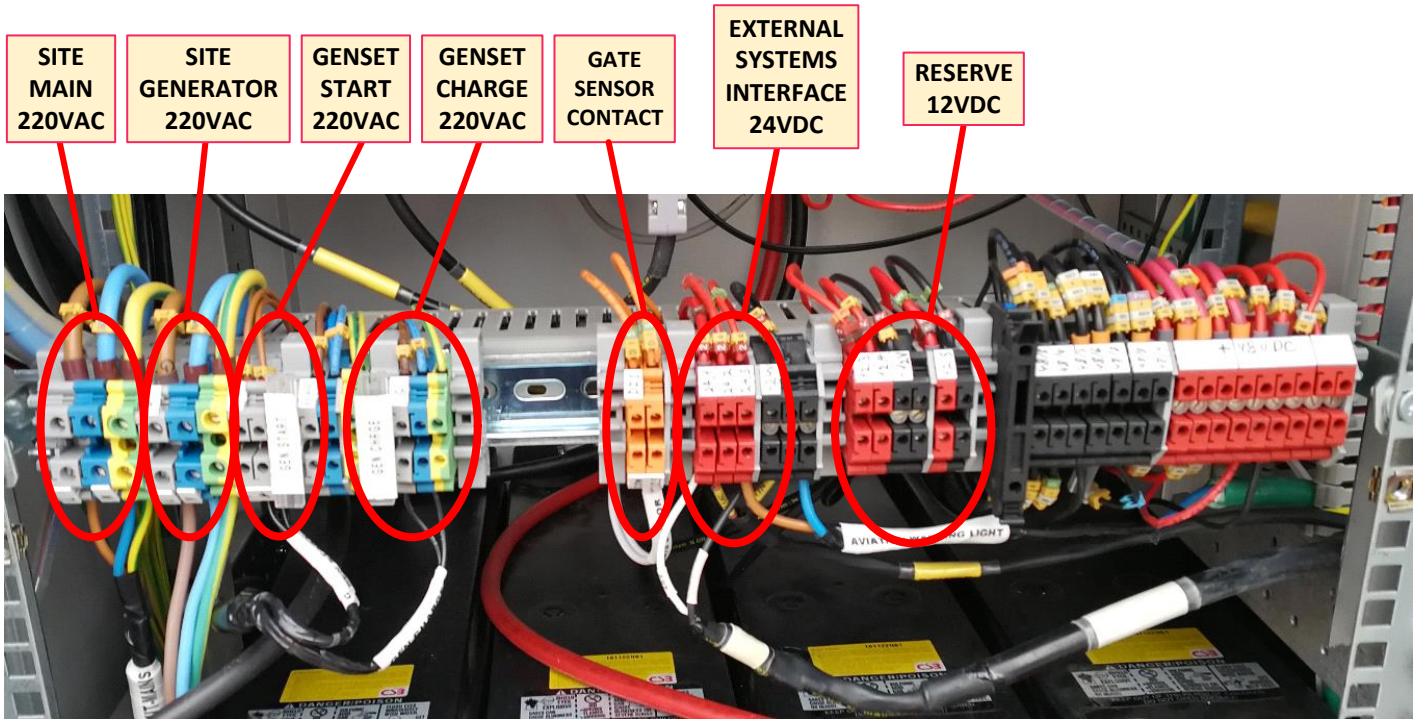


Figure 4-31. Outdoor Cabinet Terminal Shelf – General Layout

4.3. Equipment Crane Handling

CAUTION

Before starting the lifting process please check:

- **There are 1 or 2 climbers at the top of the tower and at least 1 person at ground level.**
- **Rope used for the lifting process is intact and safe for use.**
- **All personal around the site are wearing protective helmets.**

#	Check Description	Result
1.	Get the rope to the lifting arm located at the top of the tower.	
2.	Take both ends of the rope (floor level) and get them out of the site perimeter.	
3.	3. Stand outside the site in front the tower side where the lifting arm is installed.	
4.	Connect the rope with a shackle as visualized in the picture illustrated in the Technical Overview Manual.	
5.	Attach the equipment to the interior rope.	
6.	Pull the exterior rope slowly keeping the equipment as far as needed from the tower.	
7.	The person on top of the tower shall lift the equipment and only then release it from the rope at the work platform.	
8.	Release the rope slowly and attach the next equipment following the same process.	

Upon finishing of the lifting process:

- Check that the rope used for the lifting process remained intact and safe for use.
- All personal are down on ground level safe.
- The barrier beam at the top of the tower is closed.