# Table of Contents

**Network-as-a-Service Runbook**

***<ATP Template>***

**<NaaS Operator’s Name>**

**

*<Release Date>*

[Table of Contents 1](#_Toc42634225)

[1 Document Control 3](#_Toc42634226)

[2 About Design Template 4](#_Toc42634227)

[2.1 Document Purpose 4](#_Toc42634228)

[3 Executive Summary 4](#_Toc42634229)

[4 Introduction 5](#_Toc42634230)

[5 Hardware Acceptance Test 5](#_Toc42634231)

[5.1 Cabinets 5](#_Toc42634232)

[5.2 Power Cables 6](#_Toc42634233)

[5.3 Antennas and Feeders 8](#_Toc42634234)

[5.4 Power-On Check of the Base Station 10](#_Toc42634235)

[6 Operation and Maintenance Test 12](#_Toc42634236)

[6.1 Login Management 12](#_Toc42634237)

[6.2 Cell Management 14](#_Toc42634238)

[6.3 Alarm Management Test 15](#_Toc42634239)

[6.4 Query the current Fault Alarm 15](#_Toc42634240)

[6.5 Web Service 16](#_Toc42634241)

[7 Commissioning Report 17](#_Toc42634242)

[8 Batteries & Power System 17](#_Toc42634243)

[9 Civil works 19](#_Toc42634244)

[10 Service Test 20](#_Toc42634245)

[11 Installation Photo Documentation 22](#_Toc42634246)

[12 Punchlist 23](#_Toc42634247)

[13 Annex A 25](#_Toc42634248)

# Document Control

- Revision Control sheet allows to maintain a record of changes made on the document.

|  |  |  |  |
| --- | --- | --- | --- |
| Version N° | Issue Date | Status | Reasons for Change |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Table 1. Revision History

# About Acceptance Test Template

## Document Purpose

*This ATP Template contains step by step procedures commonly used in any rollout NaaS Operators can adapt it at their own need*

The purpose of the commissioning and ATP process is to install a new site and bring it into commercial service. It is a multi-step process that involves checking hardware, programming software, and validating the site with field tests. It ultimately verifies field performance as a customer would experience.

Before starts:

The Hardware Acceptance Test is ready when all Implementation activities have been completed and is carried out on a per site basis.

Site acceptance is achieved when:

* ALL equipment installed has been checked by the Field Supervisors to ensure that the site fulfils the agreed site acceptance criteria.
* Integration verification results indicate that the deployed equipment in the site is operational and stable.
* In some cases, live traffic and services may not be allowed in the new equipment until the customer is satisfied that the new site is ready for commercial service.
* The field supervisor is responsible for making sure that all reported problems found during site acceptance have been resolved to the satisfaction of the customer.

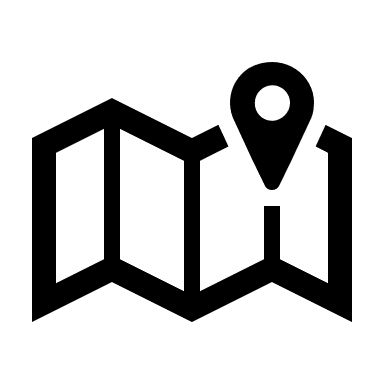
An official Site Acceptance Certificate document should be issued and is signed by the NaaS Operators Representatives Such as Deployment Manager.

* The results of all tests are included as the scope of this document.
* All non-compliances (**Customer Punch List**) are recorded and tracked until resolved by responsible parties.
* For radio network deployments, the Network Planning Organization maybe required to perform a Field Drive Test to measure and assess the coverage, capacity and Quality of Service (QoS) of the site (not int the scope of this document).

# Site Data

|  |  |  |  |
| --- | --- | --- | --- |
| **Site Name** |  | **Site ID** |  |
| **Site Address** |  | **Coordinates** |  |
| **Region** |  | **City** |  |
| **NE Name** |  | **NE ID** |  |
| **O&M IP** |  | **Gateway IP** |  |

# Site Location

****

***Insert Site Location MAP***



***Insert Satellite Image***

# Hardware Acceptance Test

## Cabinets

|  |  |  |  |
| --- | --- | --- | --- |
| **Objective**  Verify that the cabinets and modules are properly installed. | | | |
| **Prerequisites**  The cabinets and modules are installed. | | | |
| **Test Procedure** | **Expected result** | **Result** | **Test Result** |
| Check whether the equipment is installed properly. | * The door , side door, front/rear door, and other accessories are properly installed. * The identifiers on the cabinets are correct, clear, and complete. * The doors of the cabinets are easy to open and close. |  | □Pass □Fail □NA |
| Check whether the appearance of the cabinet is in good condition | * The surfaces of the cabinets are tidy and clean (no pollution or fingerprints). * The paint on the cabinets is in good condition. * There is no dust, residual cable ties, and other sundries inside the cabinets (including the dead angle). * The paint on the cabinet components is in good condition. * The cabinets are solid and good-looking. |  | □Pass □Fail □NA |
| Check the cabinet bolts installation | * The expansion bolts between each support and floor are properly installed in the sequence of flat washer, spring washer, and expansion bolt from the inside to the outside. * The installation hole on the support agrees with the expansion bolt. |  | □Pass □Fail □NA |
| Remarks | | | |
| Test result and signature Representative NaaS Operator Representative    Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |

## Power Cables

|  |  |  |  |
| --- | --- | --- | --- |
| Objective Check that the installation of power supply and the power cables meet the engineering requirements. | | | |
| PrerequisitesThe power cables are connected.The engineering diagram is ready. | | | |
| Test procedure | Expected result | **Result/Value** | **Test result** |
| Check the materials, quality, and connection of power cables of the cabinet and the equipment. | The power cables are integral copper cables without joints in the middle. The power cables are securely connected as required.  The insulating tape on the connectors must be installed properly.  The cable labels must clear and complete. |  | □Pass □Fail □NA |
| Check the core diameters and connecting terminals of the power cables. | The core diameters of all power cables meet the design requirements (25 mm2). The connecting terminals are secured and in good contact |  | □Pass □Fail □NA |
| Check the input and output power. | The input and output power meet the engineering requirement (-48 VDC +/- 5%) |  | □Pass □Fail □NA |
| Drop voltage at RBS port power input max 0.2 VDC |  | □Pass □Fail □NA |
| Check all the grounding cable route from its equipment to the busbar | All the grounding cables must be installed from up to bottom route |  | □Pass □Fail □NA |
| Check all the grounding screws and bolts are fastened tightly | All the grounding screws and bolts must fasten tightly |  | □Pass □Fail □NA |
| Remarks None | | | |
| Test result and signature Representative NaaS Operator Representative    Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |

## Antennas and Feeders

|  |  |  |  |
| --- | --- | --- | --- |
| Objective Check that the installation of sectoral antennas and feeders complies with the engineering requirements. | | | |
| PrerequisitesThe antennas and feeders are installed.The design files and an angle display are ready. | | | |
| Test procedure | Expected result | **Result/Value** | **Test result** |
| Check whether the installation locations of antennas comply with the requirements specified in the design files. In addition, check whether the antennas are within the protection range of the lightning arrester. | Both antennas and feeders are firmly installed with each joint secured. |  | □Pass □Fail □NA |
| Measure the azimuth angels’ of antenna. | The azimuth angles of antennas comply with the requirements specified in the design files. The error of the azimuth angle should be not more than 5 degrees. | Plan:  Sector 0:  Sector 1:  Sector 2:  Actual:  Sector 0:  Sector 1:  Sector 2: | □Pass □Fail □NA |
| Measure the antenna down tilt. | The down tilt of the antenna complies with the requirements specified in the design files. The error of directional down tilt should be not more than 0.5 degrees. | Plan:  Sector 0:  Sector 1:  Sector 2:  Actual:  Sector 0:  Sector 1:  Sector 2: | □Pass □Fail □NA |
| Measure all sectoral antennas height from ground level | The height of all sectoral antennas match with the planned engineering parameter | Plan:  Sector 0:  Sector 1:  Sector 2:  Actual:  Sector 0:  Sector 1:  Sector 2: | □Pass □Fail □NA |
| Check is there any obstacles on the front of sectoral antennas. | There are no obstacles on the front of all sectoral antennas. All the sectoral antennas must meet line of sight (LOS) requirement. | Sector 0:  Sector 1:  Sector 2: | □Pass □Fail □NA |
| Check the waterproof treatment of joints and waterproof curves of all sectoral antennas | The waterproof treatment of joints complies with the specified requirements. Waterproof tapes are first wrapped from inside to outside. Then, the electrical insulating tapes are wrapped. The waterproof curves treatment is applied to the engineering requirements. |  | □Pass □Fail □NA |
| Check the grounding positions and layout of CPRI cable and measure the minimum bending radius of CPRI cable. | The CPRI are correctly routed in compliance with the engineering requirements. No obvious bending and no bare copper exposed. The minimum bending radius of CPRI is not less than the 20 times the diameter of the CPRI optical. |  | □Pass □Fail □NA |
| Check the appearance of feeders and jumpers. In addition, check the labels of cables. | Feeders and jumpers are arranged in good order. Both ends of the cables are clearly and correctly labeled. |  | □Pass □Fail □NA |
| Check the label of all the sectoral antennas | All sectoral antennas must be labeled with its sector name |  | □Pass □Fail □NA |
| Check whether the antenna mountings are matched with the engineering requirements | The antenna mounting must matched with the engineering requirement such as tower leg form and technical site survey result. |  | □Pass □Fail □NA |
| Remarks None | | | |
| Test result and signature Representative NaaS Operator Representative    Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |

## Power-On Check of the Base Station

|  |  |  |  |
| --- | --- | --- | --- |
| Objective Verify that the BTS is provided with power supply, and the Base Band and Radio Unit can be normally powered on. | | | |
| Networking Diagram for the Test None. | | | |
| PrerequisitesThe hardware installation of the Base Band and Radio Unit is complete and correct.The cable connection of the Base Band and Radio Unit is complete and correct. The power switch of the Base Band is set to OFF. | | | |
| Procedure | Expected Result | **Result** | **Test result** |
| 1. Do as follows to conduct the power-on check of the Base Band:Open the power switch of the Base Band.Observe the RUN indicator.  * If the RUN indicator is normal, the Base Band power-on check is finished. Then, conduct the Radio Unit power-on check. * If the RUN indicator is abnormal, go to the next step. | The Base Band is normally powered on, and the RUN indicator is normal. |  | □Pass □Fail □NA |
| 2. Close the power switch of the Base Band to power off the Base Band. |  |  | □Pass □Fail □NA |
| Repeat the Base Band power-on check. |  |  | □Pass □Fail □NA |
| Do as follows to conduct the power-on check of the Radio Unit:Open the external power switch of the Radio Unit.Observe the RUN indicator inside the Radio Unit maintenance cavity.  * If the RUN indicator is normal, the Radio Unit is normally powered on. Then, go to the next step. * If the RUN indicator is abnormal, the power cable is not securely connected or there are other faults. Troubleshoot the fault and then repeat the step. | The green indicator of the Radio Unit is ON |  | □Pass □Fail □NA |
| Log in BTS through the OM system of the BTS. Run the DSP BRD**;** command to check the states of the Base Band and Radio Unit. | The corresponding boards are in the normal state. | Refer to commissioning report (5) point 11 | □Pass □Fail □NA |
| If the test result is abnormal, troubleshoot the fault and then power on the Base Band and Radio Unit again. If the test result is normal, the test is finished. |  |  | □Pass □Fail □NA |
| Remarks The Radio Unit has no power switch, and it can be powered on and off through an external power switch. | | | |
| Test result and signature Representative NaaS Operator Representative    Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |

# Operation and Maintenance Test

## Login Management

|  |  |  |  |
| --- | --- | --- | --- |
| Objective Check whether a user responsible for network maintenance has the basic authority. | | | |
| Network diagram None | | | |
| PrerequisitesThe BTS has passed the system commissioning and is operational.The tester has the user name and password to log in to the system.The tester is familiar with the maintenance IP address of the BTS to be tested. The IP address of the BTS to be tested is pinged. | | | |
| Test procedure | Expected result | **Result/Value** | **Test result** |
| Run the IE Explorer. |  |  | □Pass □Fail □NA |
| Enter the BTS’s local IP in the IE explorer. (1) Choose the language |  |  | □Pass □Fail □NA |
| Enter the wrong user name and password to log in the BTS.In the **User Login** dialog box, enter the wrong user name or password again.(2) Click **Login**. | The login fails. The Local Maintenance Terminal indicating that you have entered a wrong user name or password is displayed. |  | □Pass □Fail □NA |
| Enter the correct user name and password to log in the BTS.In the **User Login** dialog box, enter the correct user name and password again.Click **Login**. | The login succeeds. The **Navigation Tree** window in Local Maintenance System is displayed. |  | □Pass □Fail □NA |
| Remarks | | | |
| Test result and signature Representative NaaS Operator Representative    Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |

## Cell Management

|  |  |  |  |
| --- | --- | --- | --- |
| Objective Verify that the sectors of the BTS can be managed by the OM system. | | | |
| Networking Diagram for the Test | | | |
| PrerequisitesThe BTS system commissioning is finished, and the operation is normal.The Operation and Maintenance system of the BTS has logged in to the Base Band that connects to the tested Radio Unit.The BTS is successfully put into the management of the OM system. | | | |
| Procedure | Expected Result | **Result** | **Test result** |
| Execute CLI command to query the sector state and query the sector state through the OM system。 | The sector state can be queried |  | □Pass □Fail □NA |
| Execute CLI command to activate the sector. | The sector state can be activated |  | □Pass □Fail □NA |
| Execute CLI command to query the sector state and query the sector state through the OM system. | The activation state of a sector can be queried. |  | □Pass □Fail □NA |
| Execute CLI command to deactivate the sector. | The sector state can be deactivated |  | □Pass □Fail □NA |
| Execute CLI command to query the sector state and query the sector state through the OM system. | The deactivation state of a sector can be queried. |  | □Pass □Fail □NA |
| Remarks | | | |
| Test result and signature Representative NaaS Operator Representative    Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |

## Alarm Management Test

## Query the current Fault Alarm

|  |  |  |  |
| --- | --- | --- | --- |
| Objective Check whether the information of Alarm of the Manual Deactivation of Carriers can be queried through the WEBUI after alarms are generated. | | | |
| Network diagram None | | | |
| PrerequisitesThe BTS has passed the system commissioning and is operational.You can log in to the Base Band to be tested through the local network port.The OM system is operational and is correctly connected to the BS.The BTS is configured with the BBI Board. | | | |
| Test procedure | Expected result | **Result** | **Test result** |
| Run CLI commands to deactivate cell, then the alarm will be generated.Run CLI commands to deactivate cell.Log in the Base Band in Local Maintenance System and open the alarm window. | The Alarm of the Manual Deactivation of Cell Fault Alarm on the service port can be viewed. |  | □Pass □Fail □NA |
| View the information in the alarm window.Double-click the alarm that is just generated.View the information on this alarm in the displayed Alarm Detailed Informationdialog box.Click Close in the Alarm Details dialog box. The Alarm Details dialog box is closed. | The following information can be queried:   * Alarm ID * Alarm name * Alarm severity * Occurrence time * Recovery time * Fault locating * Alarm type |  | □Pass □Fail □NA |
| Remarks | | | |
| Test result and signature Representative NaaS Operator Representative    Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |

## Web Service

|  |  |  |  |
| --- | --- | --- | --- |
| Objective Check whether the web service is supported in a LTE network. | | | |
| Network diagram None | | | |
| PrerequisitesThe LTE system is operational.The UE enters the network, and the service flows are established.The connection between the host and the UE is established. The host obtains the IP address.The WEB server works properly, and the DNS configuration is ready. | | | |
| Test procedure | Expected result | **Result** | **Test result** |
| Browse website on the host. | The browsing is fluent. |  | □Pass □Fail □NA |
| Remarks To attach emphasis, only key data configurations are described in the prerequisites. Basic data configuration is not described in this document. | | | |
| Test result and signature Representative NaaS Operator Representative    Signature:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | | | |

# Commissioning Report

|  |  |  |  |
| --- | --- | --- | --- |
| **NO** | **Items** | **Status** | **Remark** |
| 1 | DISPLAY ETH PORT STATUS | □Pass □Fail □NA | *attach capture* |
| 2 | DISPLAY VLANMAP | □Pass □Fail □NA | *attach capture* |
| 3 | DISPLAY CONFIGURED IPS | □Pass □Fail □NA | *attach capture* |
| 4 | DISPLAY STATUS SCTPLINK | □Pass □Fail □NA | *attach capture* |
| 5 | DISPLAY IPPATH | □Pass □Fail □NA | *attach capture* |
| 6 | DISPLAY O&M STATUS CHANNEL | □Pass □Fail □NA | *attach capture* |
| 7 | DISPLAY IP ROUTES | □Pass □Fail □NA | *attach capture* |
| 8 | DISPLAY S1INTERFACE STATUS | □Pass □Fail □NA | *attach capture* |
| 9 | DISPLAY SECTORS | □Pass □Fail □NA | *attach capture* |
| 10 | DISPLAY CELLS | □Pass □Fail □NA | *attach capture* |
| 11 | DISPLAY BOARD STATUS | □Pass □Fail □NA | *attach capture* |
| 12 | DISPLAY BOARD VERSIONS | □Pass □Fail □NA | *attach capture* |
| 13 | DISPLAY SOFTWARE VERSION | □Pass □Fail □NA | *attach capture* |
| 14 | DISPLAY ALARMS | □Pass □Fail □NA | *attach capture* |
| 15 | ENGINEERING ALARM | □Pass □Fail □NA | *attach capture* |
| 18 | DISPLAY VSWR | □Pass □Fail □NA | *attach capture* |
| 19 | PING = USE IP SOURCE AND DESTINATION FROM LST SCTPLINK | □Pass □Fail □NA | *attach capture* |
| 20 | PING = USE IP SOURCE AND DESTINATION FROM LST IPPATH | □Pass □Fail □NA | *attach capture* |
| 21 | PING = USE IP SOURCE AND DESTINATION FROM LST OMCH | □Pass □Fail □NA | *attach capture* |
| 22 | BROWSING TEST CAPTURE | □Pass □Fail □NA | *attach capture* |

# Batteries & Power System

|  |  |  |  |
| --- | --- | --- | --- |
| **NO** | **Items** | **Status** | **Remark/Value** |
|  | **Rectifier Cabinet** |  |  |
| 1 | RBS power cables routed properly | □OK □NOK □NA | *with photo* |
| 2 | RBS power cables are labeled | □OK □NOK □NA | *with photo* |
| 3 | RBS power cables terminated correctly | □OK □NOK □NA | *with photo* |
| 4 | Breakers are properly labeled | □OK □NOK □NA | *with photo* |
| 5 | Rectifier occupancy max 83% (N+1 module ) at peak including for charge battery | □OK □NOK □NA | *with photo* |
| 6 | Breakers are properly connected according to XL specification | □OK □NOK □NA | *with photo* |
| 7 | Cable distribution meet with current carrying capacity and XL specification | □OK □NOK □NA | *with photo* |
| 8 | End cable termination connected to MCB must use very less\*) | □OK □NOK □NA |  |
| 9 | Jumpering MCB line (if any) must be connected properly refer to XL specification | □OK □NOK □NA | *with photo* |
| 10 | Cooling system at peak level meet the BTUH calculation | □OK □NOK □NA |  |
| 11 | ACPDB occupancy at peak (including charge battery) max 90% | □OK □NOK □NA | *with photo* |
| 12 | Change Over Switch (COS) occupancy at peak (including charge battery) max 90% | □OK □NOK □NA | *with photo* |
| 13 | PLN occupancy at peak (including charge battery) max 95% | □OK □NOK □NA | *with photo* |
| 14 | Genset occupancy at peak (including charge battery) max 70% of its kVA | □OK □NOK □NA |  |
| 15 | All rack equipment must be connected to respective grounding bar | □OK □NOK □NA | *with photo* |
|  | **Batteries** | □OK □NOK □NA |  |
| 16 | Batteries undamaged | □OK □NOK □NA | *with photo* |
| 17 | Batteries installed & secured according properly | □OK □NOK □NA | *with photo* |
| 18 | Protective covers correctly installed batteries pole | □OK □NOK □NA | *with photo* |
| 19 | Temperature sensor installed properly | □OK □NOK □NA | *with photo* |
| 20 | Spacers pasted between batteries to ensure air flow | □OK □NOK □NA |  |
| 21 | Battery back up test (1 hr test including LTE load),end volt not less than -48VDC | □OK □NOK □NA | *with photo* |
| 22 | Battery installed must be same brand, type & capacity in one rectifier system | □OK □NOK □NA | *with photo* |
|  | **Incoming Voltage (outdoor cabinet)** |  |  |
| 23 | L1 (Between 180 - 250 VAC) | □OK □NOK □NA | *with photo* |
| 24 | L2 (Between 180 - 250 VAC) | □OK □NOK □NA | *with photo* |
| 25 | L3 (Between 180 - 250 VAC) | □OK □NOK □NA | *with photo* |
|  | **Incoming Voltage (indoor cabinet)** |  |  |
| 26 | DC Voltage (Between -48 to -60 VDC) | □OK □NOK □NA | *with photo* |

# Civil works

|  |  |  |  |
| --- | --- | --- | --- |
| **NO** | **Items** | **Status** | **Remark/Value** |
|  | **Outdoor Foundation** |  |  |
| 1 | Foundation is constructed as per The CME-ENG Drawing | □OK □NOK □NA |  |
| 2 | Inspection has been done to the concrete foundation and No Crack were found | □OK □NOK □NA |  |
| 3 | Concrete Grade ≥ K225 | □OK □NOK □NA | *test lab report* |
| 4 | Concrete Hammer Test Reports for 7 days are available and the test results are accepted | □OK □NOK □NA | *with photo* |
|  | **RBS/Radio Unit and Bracket Mounting Installation** | □OK □NOK □NA |  |
| 5 | Antenna RBS/Radio Unit position heigh : \_\_ /\_\_\_\_ mtr. | □OK □NOK □NA | *with photo* |
| 6 | Cable Tray 400mm Horizontal and Vertical Cable Tray and support are provided (complete fixed with Dynabolts to wall/floor). Hot Galvanize | □OK □NOK □NA | *with photo* |
| 7 | Antenna support is at 0' perpendicular from ground | □OK □NOK □NA |  |
| 8 | Antenna mounting position is correct. All bracket mounting, pole and accessories are completed. All bolts & nuts are tightened as per the requirements | □OK □NOK □NA | *with photo* |
|  | **Grounding Cable Condition** | □OK □NOK □NA |  |
| 9 | Grounding cable connection is secure | □OK □NOK □NA | *with photo* |
| 10 | The bracket grounding cable holder has isolation | □OK □NOK □NA | *with photo* |
| 11 | The grounding cable doesn't contact with tower body | □OK □NOK □NA | *with photo* |
| 12 | Connection between grounding all equipment in the tower (antenna RBS, Minilink, Radio Unit) and the main grounding cable already installed | □OK □NOK □NA | *with photo* |
| 13 | Connection in the grounding bar is good with no corrosion | □OK □NOK □NA | *with photo* |
| 14 | Outdoor Cabin grounding should be connected to grounding perimeter | □OK □NOK □NA | *with photo* |
| 15 | Equipment Grounding Conductor, BC50 mm2 | □OK □NOK □NA | *with photo* |
| 16 | Equipment Grounding Resistance <1 Ohm | □OK □NOK □NA | *with photo* |
|  | a. Indoor (at grounding bar) = …….… Ohm acceptable ? | □OK □NOK □NA |  |
|  | b. Outdoor (at cable ladder) = ……….Ohm acceptable ? | □OK □NOK □NA |  |
| 19 | Additional grounding bar must be provided (if existing grounding bar full/NA) | □OK □NOK □NA | *with photo* |

# Service Test

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| SITE : | | SITE CONFIG: | | DATE: |
| Cell No. | Test Item | Pass | Fail | Remarks |
| Cell 1 | Browsing | **□** | **□** | Capture evidence |
| Speed Test | **□** | **□** | Capture evidence |
| CSFB | **□** | **□** | Capture evidence |
| VoLTE | **□** | **□** | Capture evidence |
| Cell 2 | Browsing | **□** | **□** | Capture evidence |
| Speed Test | **□** | **□** | Capture evidence |
| CSFB | **□** | **□** |  |
|  | VoLTE | **□** | **□** | Capture evidence |
| Cell 3 | Browsing | **□** | **□** | Capture evidence |
| Speed Test | **□** | **□** | Capture evidence |
| CSFB | **□** | **□** |  |
|  | VoLTE | **□** | **□** | Capture evidence |

# Installation Photo Documentation

# Punchlist

|  |  |
| --- | --- |
| Site ID |  |
| Site Name |  |

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Description** |  |  |
| **PIC** | **Date Cleared\*\*** |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |