5G NR Small Cell
SCU2050 User Guide
(Model:
NR xCell 60156A
NR xCell 60156B
NR xCell 60156C
SCU2000
SCU2000 N79
SCU2050)

ASKEY COMPUTER CORPORATION
September 2023

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Revision History

Version	Date	Description

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Security Information

For the safety of installation engineers and to protect the equipment from damage, please read all safety warnings carefully. If you have any questions about these warnings, please contact the Askey support team before installing or powering up the base station.

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Chapter 1 Introduction

1.1 Specification

Table 1. SCU2050 General Specification

Item	Description
Model Name	NR xCell 60156A
Band	N77/N48
Bandwidth	N77: 40/50/60/70/80/90/100MHz N48: 20/30/40MHz
Max. TX Power	24dBm per port
Coverage	LOS 70m radius for common usage
Antenna	Internal/External 2x2 MIMO
EIRP	N77: 33.47dBm N48: 34.53dBm
LED	1 LED
Backhaul	10G SFP+/2.5G WAN
Power Supply	AC90~264V
Power Consumption	<70 W
Active Users	16~64UE
Data Rates	750Mbps/200Mbps
Installation	Wall/Pole mount
IP Grade	IP65
Dimensions	W270 x H355 x D100mm
Weight	<7kG
Operating Temperature	-20°C – 55°C
Operating Humidity	90% maximum, non-condensing

1.2 What's in the Box

The Askey SCU2050 box contains:

- Outdoor GPS Antenna
- PSU

The following optional items are available:

- Mounting Accessories (Optional)
- SFP+ module (Optional)

laser class 1 optical transceiver shall be used only.

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1.3 IO interfaces and Connections

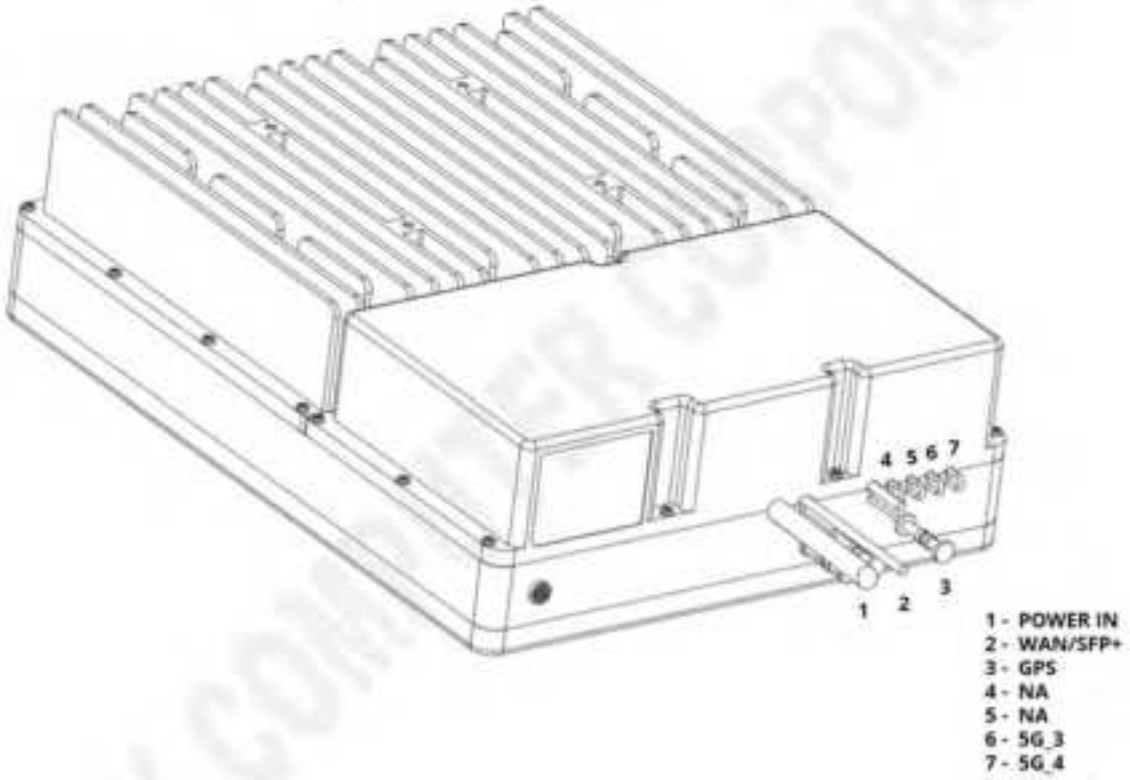
This section will guide you through the interfaces and functions of SCU2050.

1.3.1 IO Interface Outside

SCU2050 has a single multicolored LED used to indicate the device connectivity status. Please review Section 2.3 LED status for the LED guide when attempting to troubleshoot the solution.

The LTE_1 & LTE_2 port are not used in SCU2050, so the two ports are plugged with rubber by default.

Figure 1. IO Interfaces Outside (Default mode)



Note that if you open the back cover and change the internal connection, these IO interfaces outside will also be adjusted accordingly.

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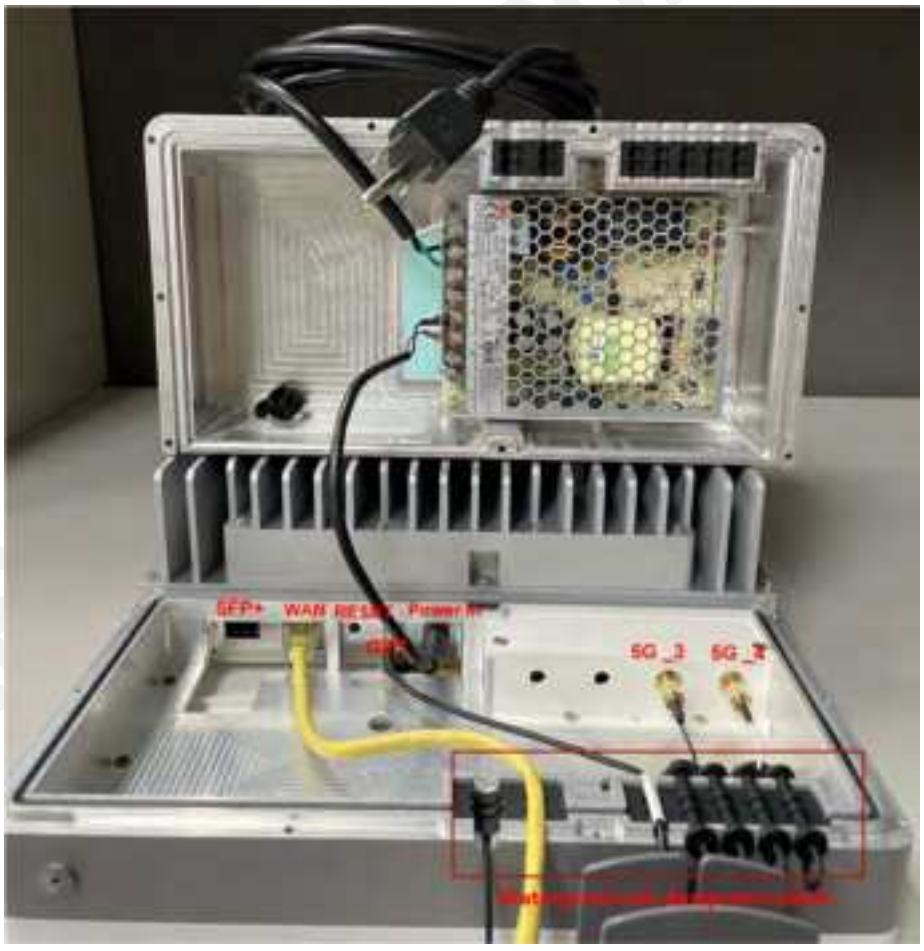
Table 2. SCU2050 IO Interface

Item	Description
POWER IN	The Power IN port is used to power SCU2050 when connected to POWER supply.
WAN/SFP+	This port is used for Ethernet cable or fiber. It allows you to connect an Ethernet cable/fiber to establish communication between SCU2050 and switch/router.
GPS	The GPS antenna port provides access to an interface for the external GPS antenna cable.
LTE_1	Not used, and plugged with rubber by default
LTE_2	Not used, and plugged with rubber by default
5G ANT1	ANT1 for External 3.3-5GHz 5G antenna connection
5G ANT2	ANT2 for External 3.3-5GHz 5G antenna connection

1.3.2 IO Interface Inside

For your safety, please **do unplug the power cord** first before you open the back cover.

Figure 2. IO Interfaces Inside



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Before you lock the back cover, please make sure that all cables, including Ethernet cable (or fiber), power cable, GPS cable, or your external antenna cables are connected through the waterproof and dustproof rubber to **ensure the IP65 performance**.

If there is the rubber port without a cable, be sure to **plug it with the rubber**, otherwise the device will not be dustproof and waterproof when placed outdoors.

1.3.3 How to switch to the external Antenna

About the RF Antenna, there are two different scenarios,

- Internal antenna. Using the embedded antennas in the housing (Default mode).
- External antenna.
  - ✓ If you would like to use the external antennas, you need to open the back cover with a screwdriver first, and then unplug the SMA cables originally connected to the 5G_3 port and 5G_4 port. Please refer to Figure 3.
  - ✓ After that you need to connect the external antenna to the 5G_3 port and 5G_4 port.
  - ✓ Finally, please make sure that the antenna cables are connected from the waterproof and dustproof rubber on the housing to ensure the IP65 function of the SCU2050.

Please perform this operation when the power is off.

The external antennas you choose must be the SMA head.

Figure 3. Switch to the External Antenna

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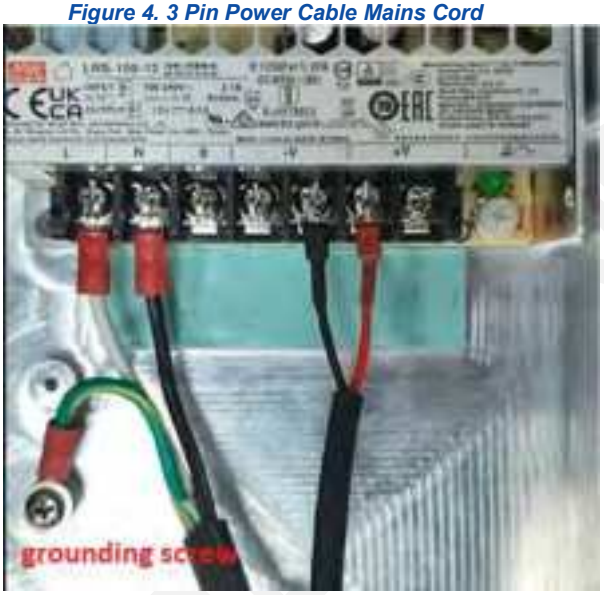
1.3.4 How to connect power module

For the power module inside SCU2050, there are 2 kind of power cable mains cords (choose one of two), please note the connection.

1.3.4.2.1 Pin Power Cable Mains Cord

The ground wire is connected to the adjacent grounding screw, as below,

Figure 4. 3 Pin Power Cable Mains Cord



1.4.4.2 2 Pin Power Cable Mains Cord

The ground wire is an additional wire, with one end connected to the Power module and the other end connected to the adjacent grounding screw, as below,

Figure 5. 2 Pin Power Cable Mains Cord

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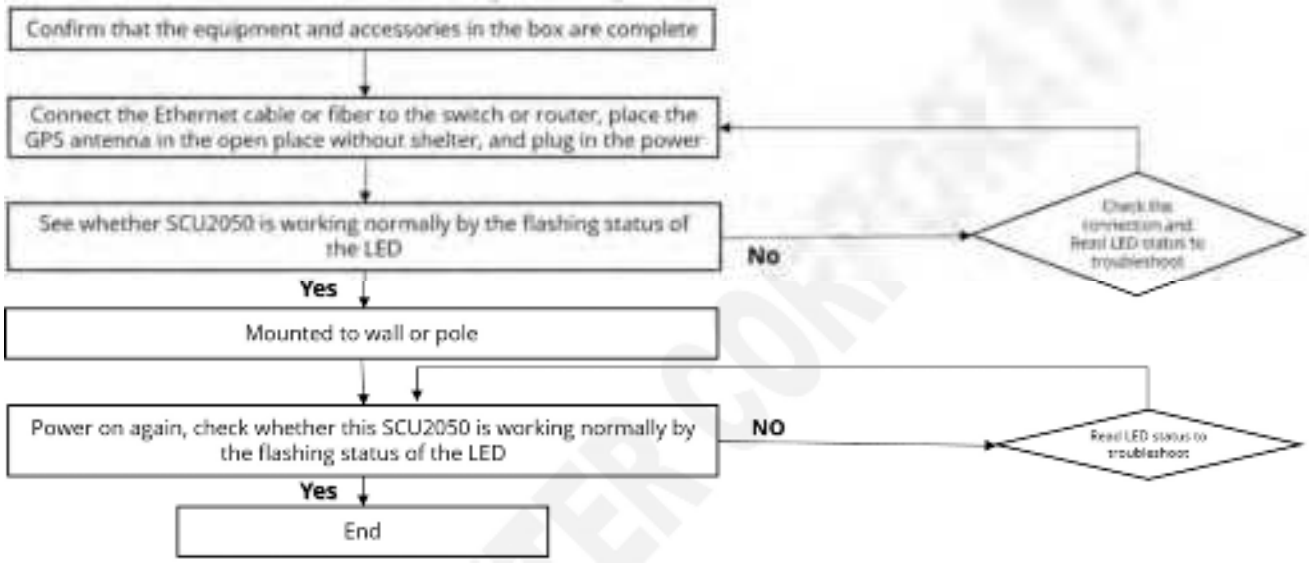
Chapter 2 Setup

2.1 Setup Procedure

This part outlines the procedures needed to set up SCU2050.

Figure 6. Setup Procedure



2.2 Cable Connection

Connect the Ethernet cable or fiber, power cable and GPS antenna correctly.
Noted:

- If using fiber transmission. SFP+ module and fiber are needed. The highest operating temperature specification of 10G SFP+ module must be workable at minimum 85°C.

Figure 7. Cable Connection (Default mode)

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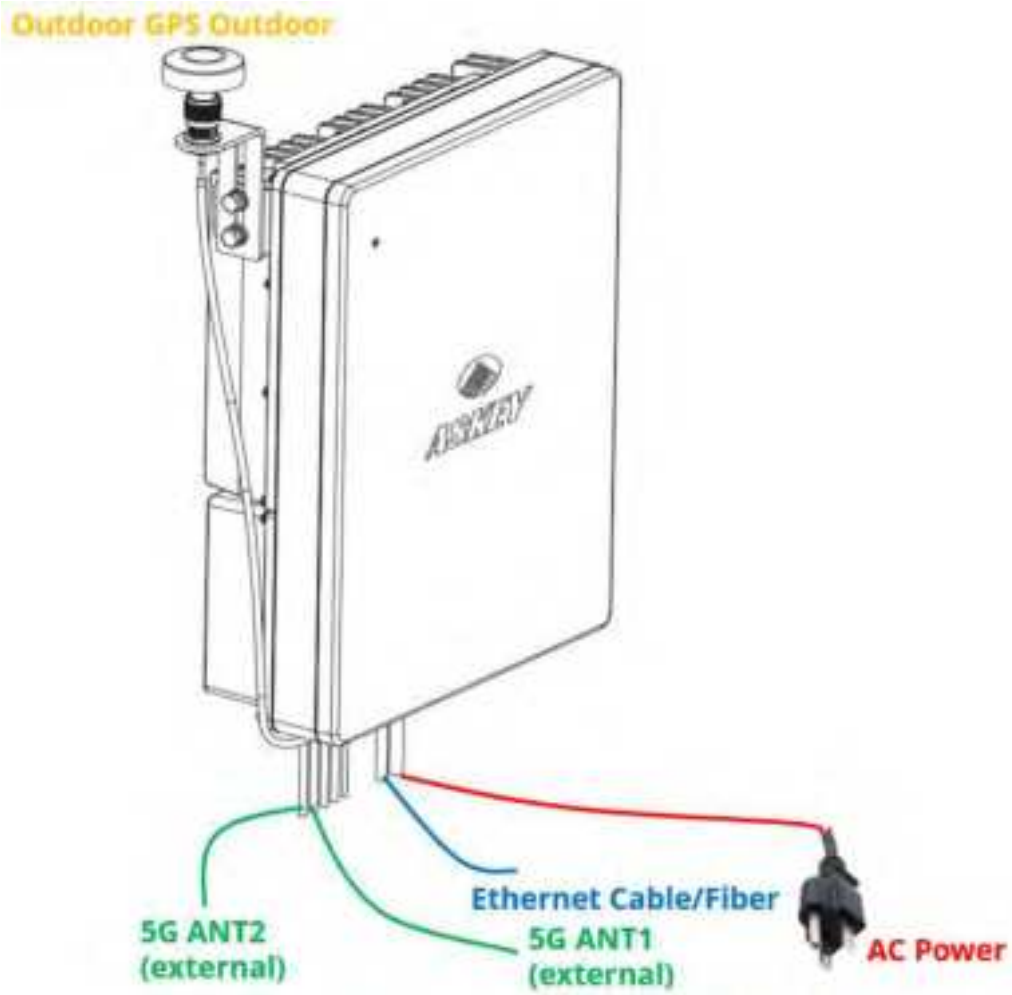

If you are interested in the internal connection, please refer to the Figure 3.

2.3 LED Status

After all the connections are connected and the SCU2050 is powered on, please check the status of LED on the device. The LED will flash according to the LED description provided in Table 4.

If the SCU2050 is operating as expected, continue to Section 2.4. If the SCU2050 is not functioning properly and you have to carefully check all steps.

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Table 3. LED Status Overview

Item	Description	LED	User instruction
1	Power On	**Solid Red**	
2	Network is initializing	**Blue Blink (Light on for 3 seconds, light off for 3 seconds)**	1. The small cell is acquiring IP address, please wait. 2. If the LED stays at this stage for more than 5mins, please check the Ethernet cable is firmly connected at both ends, and the switch, router, or internet gateway is turned on.
3	GPS Sync Progressing	**Green Blink (Light on for 1 seconds, light off for 3 seconds)**	1. The small cell is syncing and acquiring GPS signal, please wait. 2. If the LED stays at this stage for more than 10mins, the small cell has failed to acquire minimally required GPS signal, please try to move your GPS antenna closer to the window. 3. If the issue persists, please call Customer Service. **Note**: First GPS sync lock may take 45 minutes
4	OAM Configuring	**Blue Blink (Light on for 1 seconds, light off for 3 seconds)**	1. The network management server is provisioning the small cell, please wait. 2. If the LED stays at this stage for more than 10 minutes, the small cell has not received all required or correct provisioning parameters from HeMS. Please try reboot your device again. 3. If the issue persists, please call Customer Service.
5	5G Service is initializing	**Blue Blink (Light on for 1 seconds, light off for 1 seconds)**	1. The small cell is syncing with 5G network, please wait. 2. If the LED stays at this stage for more than 10 minutes, the small cell is still trying to connect to HeNB Gateway, please check the LAN/ firewall setting or contact your network administrator. 3. If the issue persists, please call Customer Service.
6	5G Service Ready	**Solid Blue**	5G service is ready in the small cell.
7	5G Service In Progress	**Green Blink (Light on for 1 seconds, light off for 1 seconds)**	UE is connecting to 5G small cell, service is in progress.

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8	Overheating	**Red Blink (Light on for 3 seconds, light off for 3 seconds)**	The small cell is overheating, please place this device in a cool area where the temperature is between -4~131 degrees Fahrenheit.
9	Software Upgrade	**Fast Blue Blink**	We are upgrading the software in the small cell, please wait.
10	GPS no signal	**Red Blink (Light on for 1 seconds, light off for 1 seconds)**	1. The small cell has tried to acquire GPS signal for 10 minutes, but failed to acquire minimally required GPS signal. Please try to move your GPS antenna closer to the window. 2. If the issue persists, please call Customer Service.
11	Setting static ip	**Fast Green Blink**	We are setting static ip 192.168.8.101

2.4 Installation

There are mainly 2 ways for SCU2050 installation - wall mount and pole mount. This section will guide you through all the installation ways for SCU2050.

The bracket kit package includes the following parts,

Table 4. Bracket Kit Package

Item	Pic	Qty.
SUB_BRACKET		1
PMS_M6x14L		6
BRACKET_D		1
BRACKET_E		1
HEX_BOLTS_M12x170L		2

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M12_WASHER		2
M12 Nut		2

2.4.1 Wall Mount

Installation steps,

Step 1,

- Place the bracket onto SCU2050, aligning it with the screw positions, and tighten the M6 screws
- (4 pieces), as shown in the figure 7.

Step 2,

- Place the Sub Bracket on the wall. Mark and drill 4 screw holes on the wall (Figure 8).
- Use a tool to insert 4 screw anchors (M6) into the drilled holes on the wall (Figure 8).
- Align the Sub Bracket screw holes with the screw anchor positions and secure them to the wall by tightening the screws (Figure 8).

Step 3,

- Secure Bracket D from SCU2050 onto the Sub Bracket. (Figure 9).
- End.

Only skilled person can remove the chassis covers to access the inside of the system." or similar.

Ensure to connect the power cord to a socket outlet with earning connection "or equivalent.

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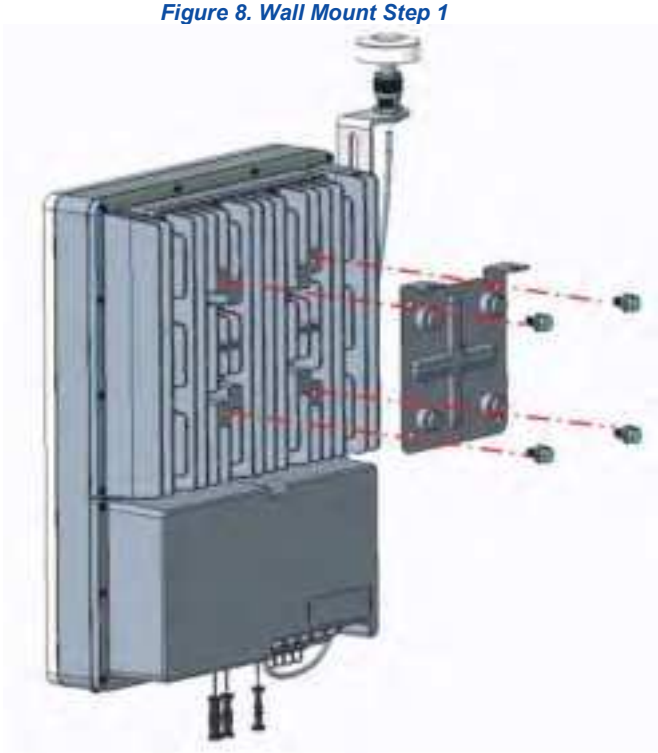
Figure 8. Wall Mount Step 1



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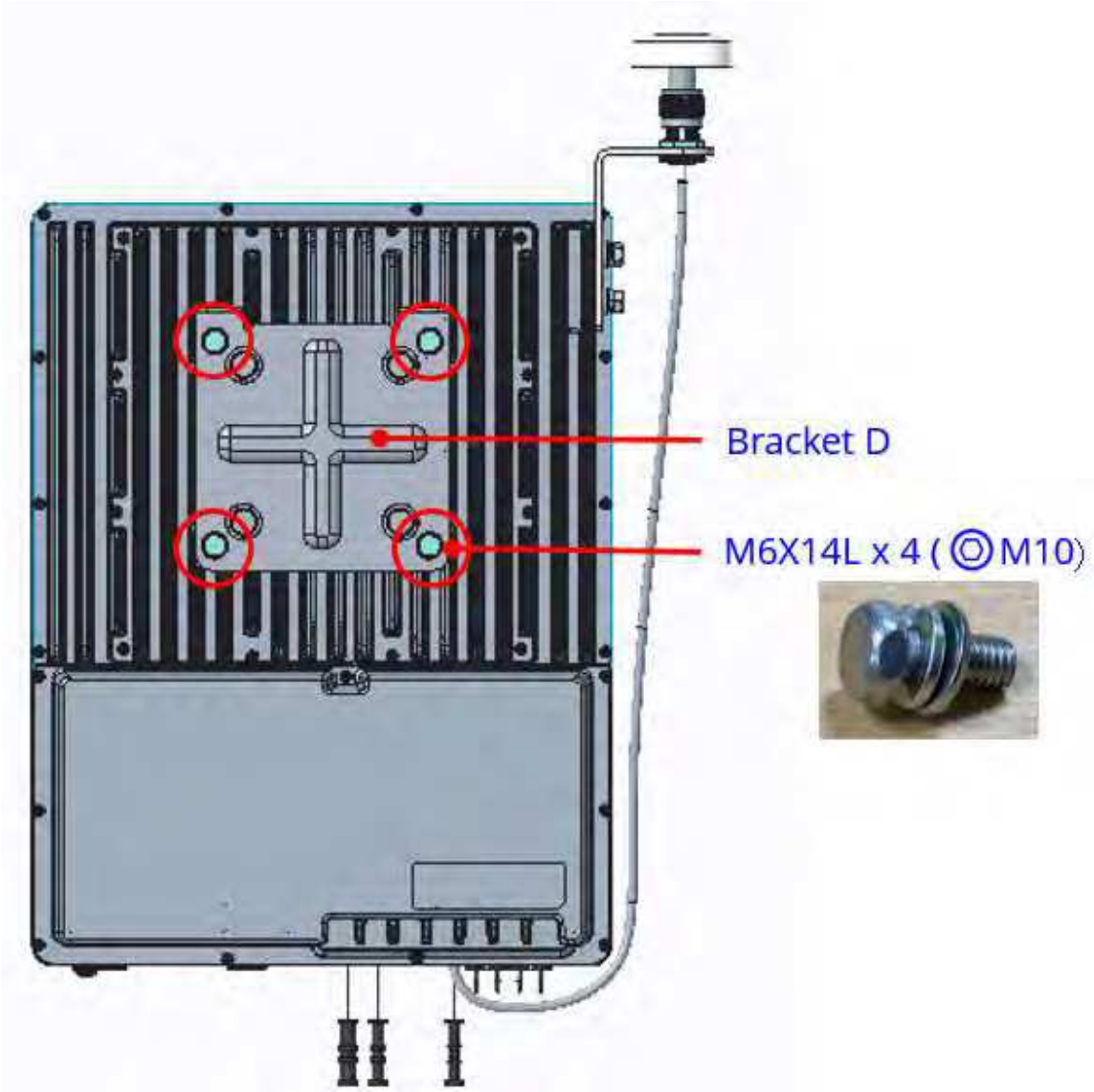
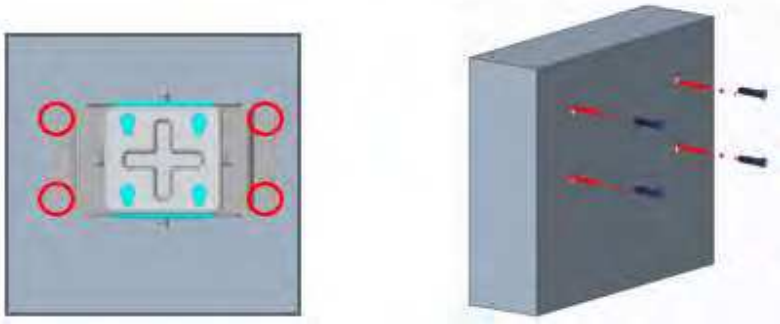


Figure 9. Wall Mount Step 2



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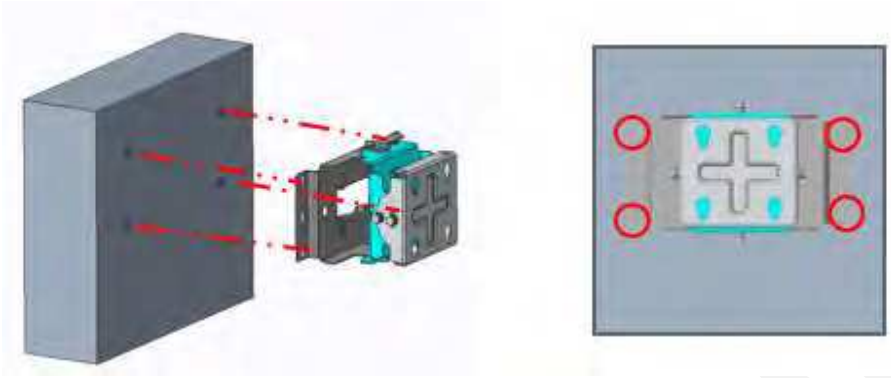
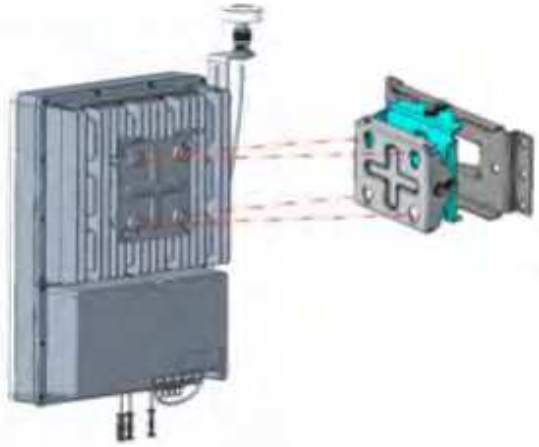


Figure 10. Wall Mount Step 3



2.4.2 Pole Mount

Installation steps,

Step 1,

- Place the bracket onto SCU2050, aligning it with the screw positions, and tighten the M6 screws (4 pieces), as shown in the figure 10.

Step 2,

- Take out the Sub_Bracket, align it with the Bracket E, and fasten the two pieces together using M12 screws (2 pieces) threaded onto the pole (Figure 11).

Step 3,

- Secure SCU2130 to the mounting bracket, and Secure SCU2130 with M16 screws (Figure 12).
- Thread the locating pin on Bracket D through the hanging hole on the SUB Bracket (passing through the larger circular hole and locking it down) (Figure 12).

Figure 11. Pole Mount Step 1

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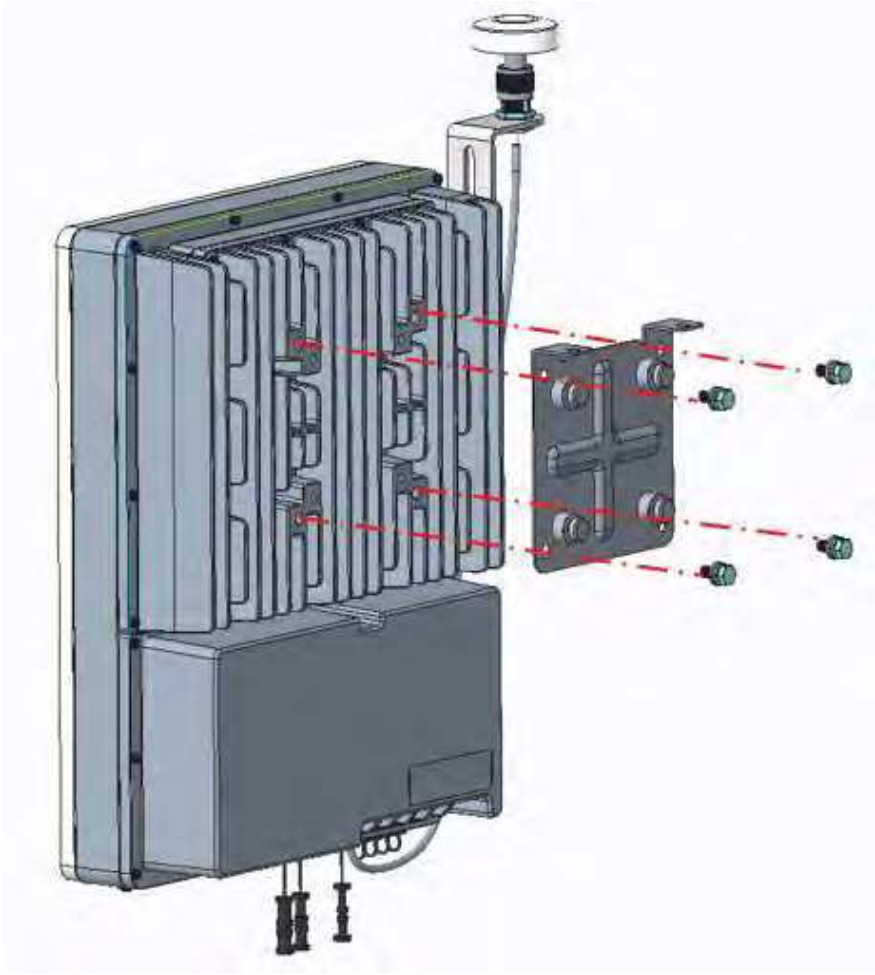

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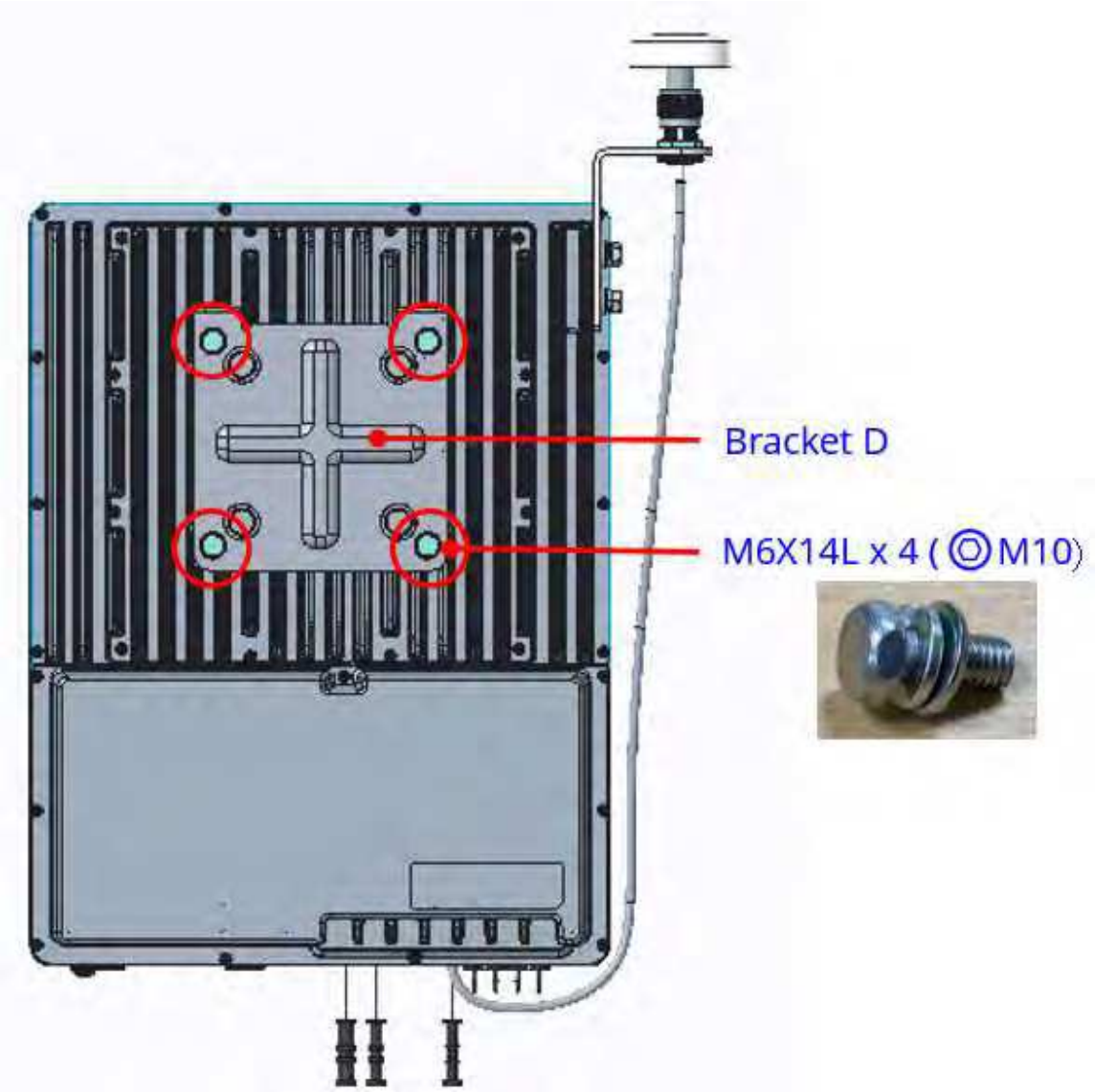

Figure 12. Pole Mount Step 2

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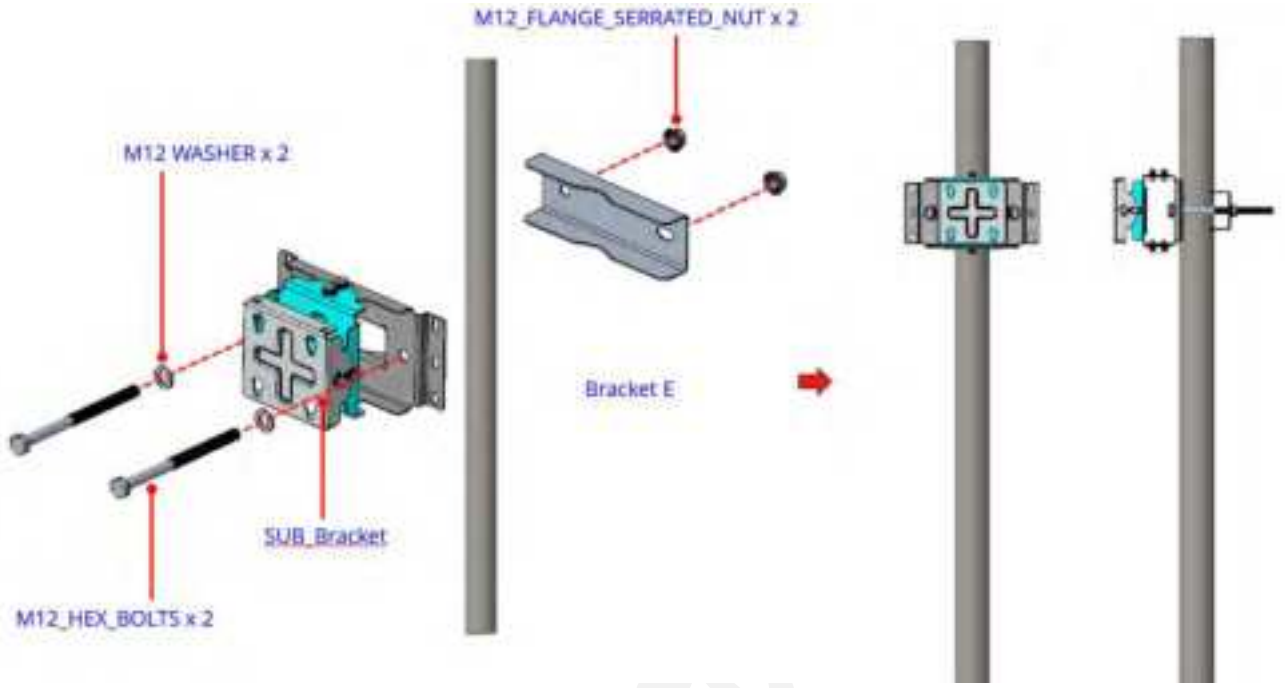
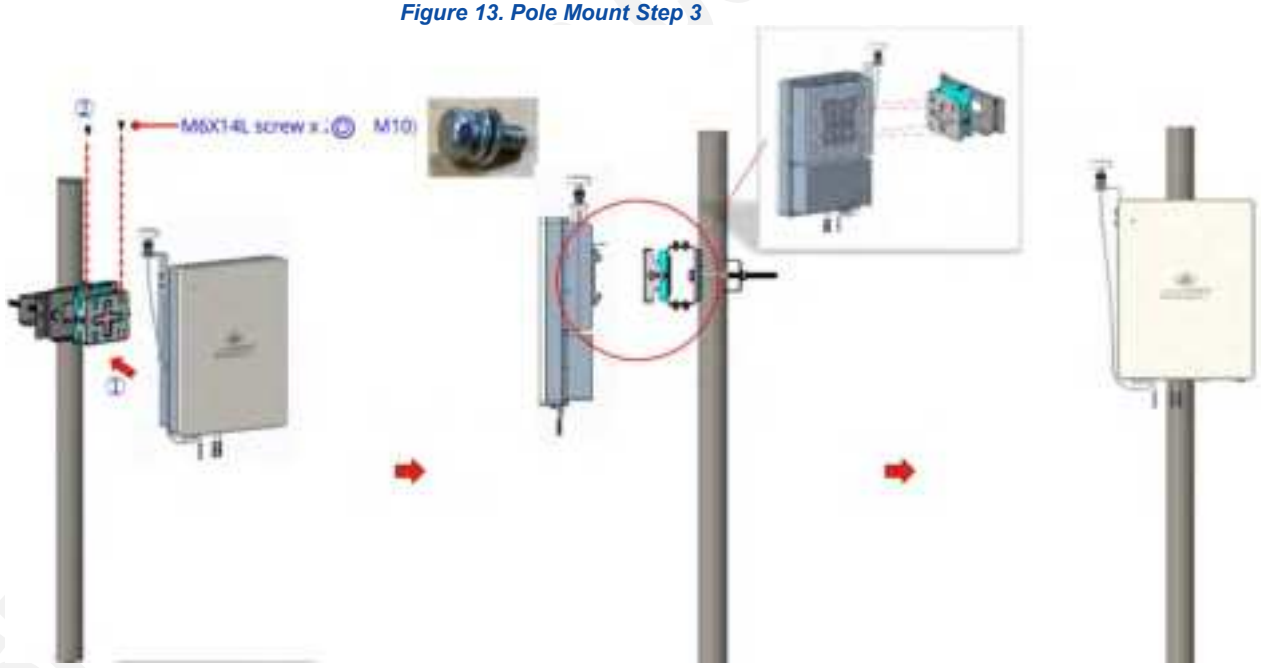


Figure 13. Pole Mount Step 3



2.5 Route the Cables

After finishing the installation, please connect various cables to the SCU2050 according to Section 2.2, and route the cables in a standard way to keep them looking good. Power on the SCU2050 again, and check the SCU2050 work properly by the status of LED.

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Chapter 3 The Askey 5G NR Small Cell Admin Website

This section contains detailed information regarding the Askey 5G NR Small Cell Admin Website, where you can see the device status and make changes in the configurations.

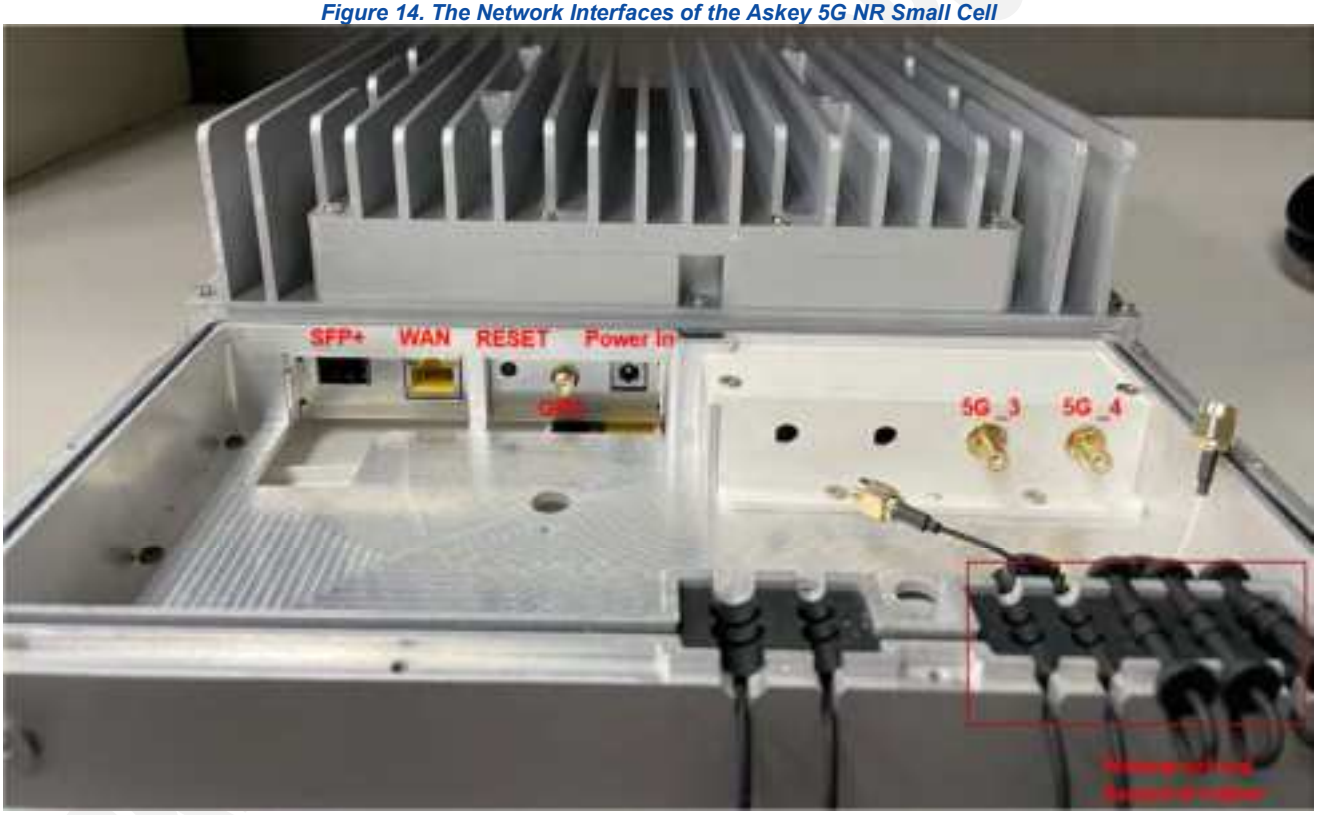
To access the Askey 5G NR Small Cell Admin Website by following these steps:

1.Use a PC/NB connected to the same network as the Askey 5G NR Small Cell

2.Open a browser and enter the IPv4 address of the Askey 5G NR Small Cell as the following URL: **http://<ip address>**, or **https://<ip address>**

The two primary network ports, WAN and SFP+ in the below Figure, are used to connect the Small Cell backhaul. All the default IP addressing modes are DHCP, and you can change to the Static IP mode on the **Settings: Network** page.

Figure 14. The Network Interfaces of the Askey 5G NR Small Cell



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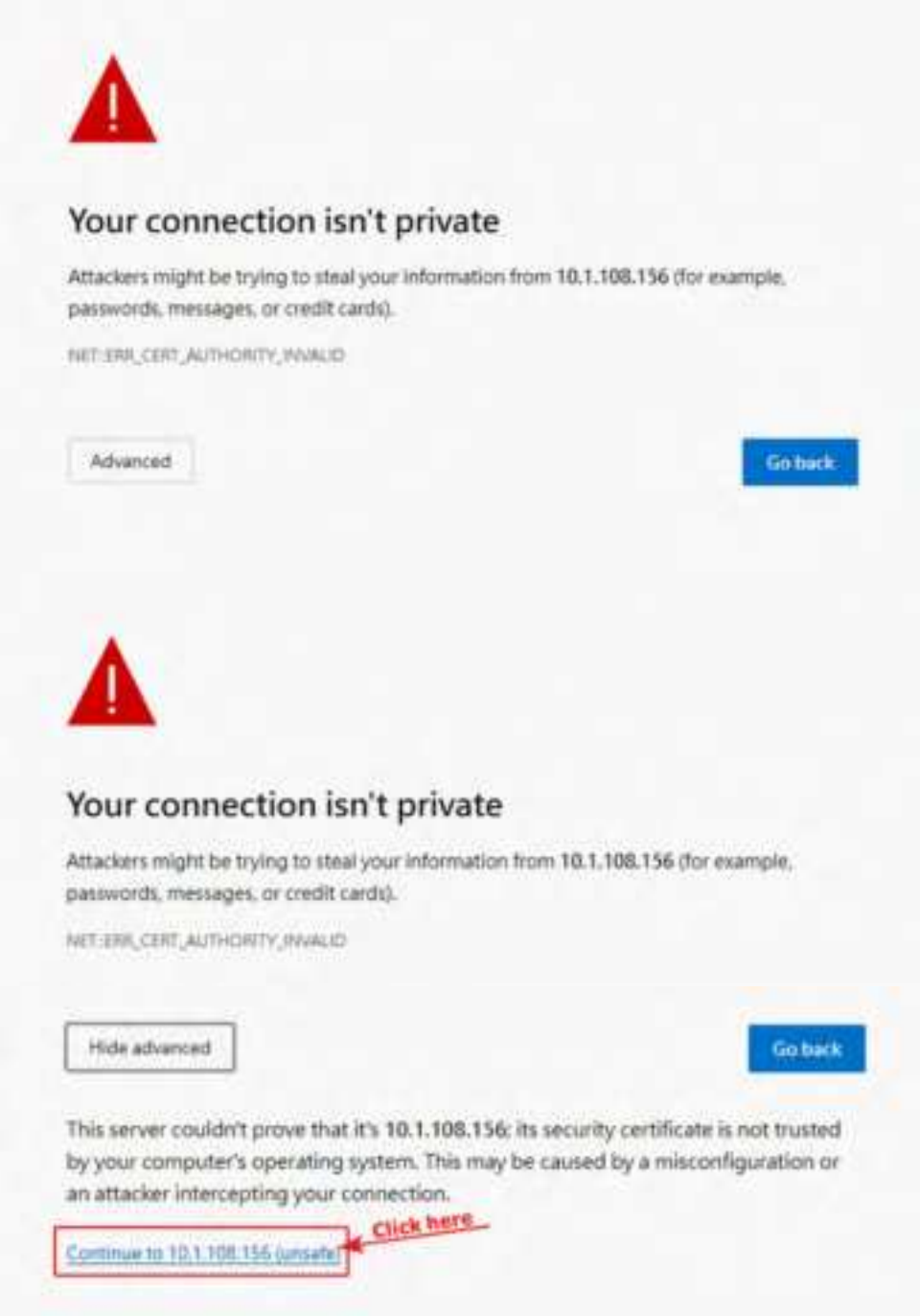
The browser might display a warning message for the HTTPS access as the following illustration because the HTTPS server uses a self-signed certificate not signed by the Certificate Chain of Trust. Please click the "**Advanced**" button and continue surfing the website.

Figure 15. Access the Askey 5G NR Small Cell Admin Website via HTTPS



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3.1 Admin Website Overview

3.1.1 Sign In

The homepage of the Admin Website will just be a login form. Please input the default administrator password.

The default password is "**AskNodeB" + last 4 digits of the MAC (WAN)** (e.g., AskNodeBFFFF).

The password is case-sensitive. Letters in the last four digits of the MAC ID should be **UPPER** case.

Figure 16. The Askey 5G NR Small Cell Admin Website Sign-In Form

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After the successful login, the Admin Website gives you the device information of the Askey 5G NR Small Cell.

Figure 17. The Askey 5G NR Small Cell Admin Website Overview

The page shows basic device information such as the Operational Status, IP Address, MAC address, the software version, the GPS fixed location, and the Map illustration.

The quick reference icons on the upper right of the Welcome page indicate service status, GPS status, number of connected devices, and sign-in status as the following illustrators.

Please note: The screenshot of this page is of another indoor model SCE2120, for display only, if you are using SCU2050, the web page will display the information of SCU2050.

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Figure 18. The Askey 5G NR Small Cell Quick Reference Icons

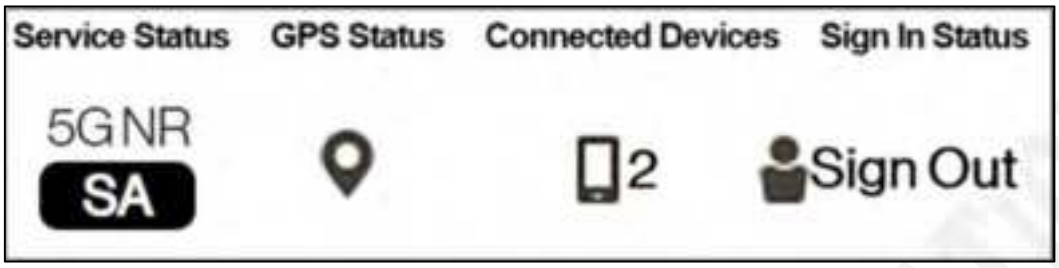


Figure 19. The Askey 5G NR Small Cell Service Status

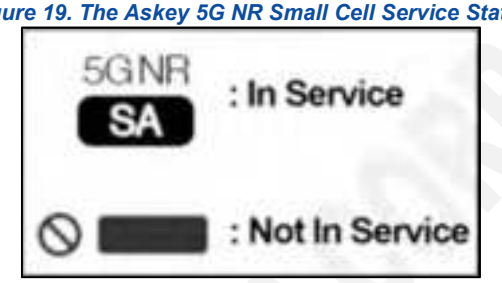
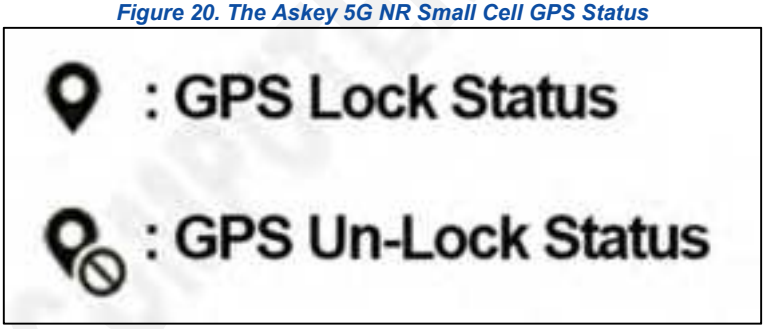


Figure 20. The Askey 5G NR Small Cell GPS Status



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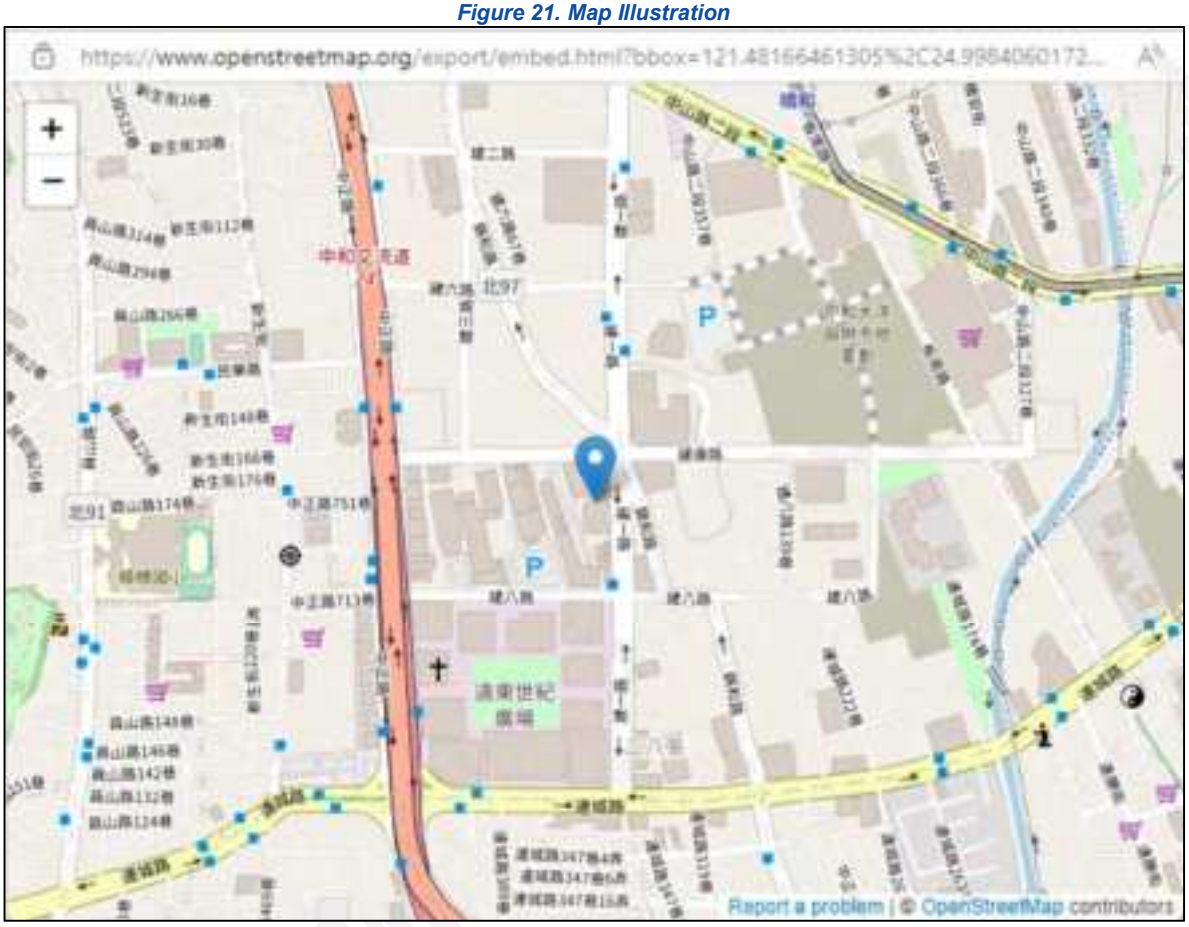
The GPS coordinates will be displayed at the bottom of the page if the GPS location is acquired. You can click the "**GPS Detail**" link to surf the GPS information page or click the "**Map**" to open the map illustration generated by ©**OpenStreetMap** as the following:

Figure 21. Map Illustration



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3.2 Home

The Homepage provides all the Askey 5G NR Small Cell information.

Figure 22. The Askey 5G NR Small Cell Home Page

Please note: The screenshot of this page is of another indoor model SCU2050, for display only, if you are using SCU2050, the web page will display the information of SCU2050.

Table 5. The Askey 5G NR Small Cell Home Page

Items	Descriptions
Operational Status	The current operational status of the Askey 5G NR Small Cell.
IP Address	The Internet Protocol (IP) address of the Askey 5G NR Small Cell for the WAN, SFP+, and DBG ports (no DBG port for SCU2050), or Bridge interface (for NSA mode).
MAC Address	The MAC address associated with the device which can also be found on a sticker attached to the Askey 5G NR Small Cell.
Software Version	The current software version of the Askey 5G NR Small Cell includes the model name and access mode.
Location	It is the physical location of the Askey 5G NR Small Cell as reported by GPS.
Map	Clicking this link plots the location of the Askey 5G NR Small Cell on an Open Street Map. The Open Street Map link is available only if the GPS Status is “Location Acquired”.

3.3 Connected Devices

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The connected devices page shows the current connected users.

Figure 23. The Askey 5G NR Small Cell Connected Devices Page

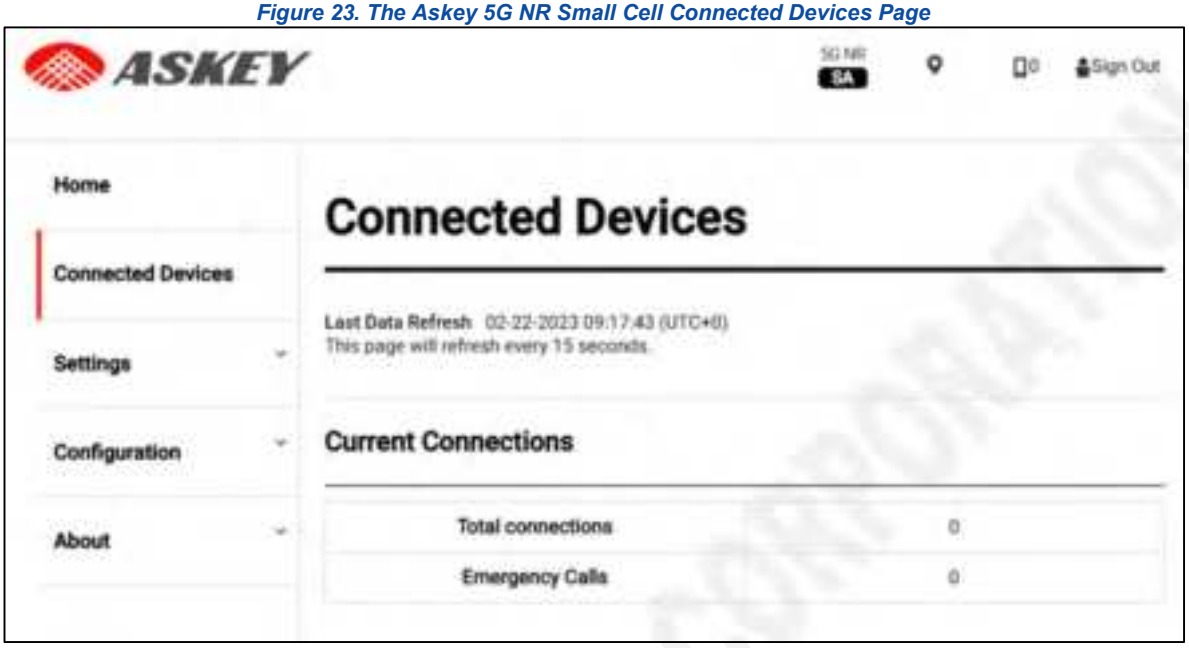

Table 6. The Askey 5G NR Small Cell Connected Devices

Item	Description
Last Data Refresh	The local time when this page was last refreshed.
Total Connections	The number of wireless devices (phone, tablets, or other data devices) currently connected to the Askey 5G NR Small Cell with an active call or data session.
Emergency Calls	The number of wireless devices currently connected to the Askey 5G NR Small Cell with an active call to emergency services.

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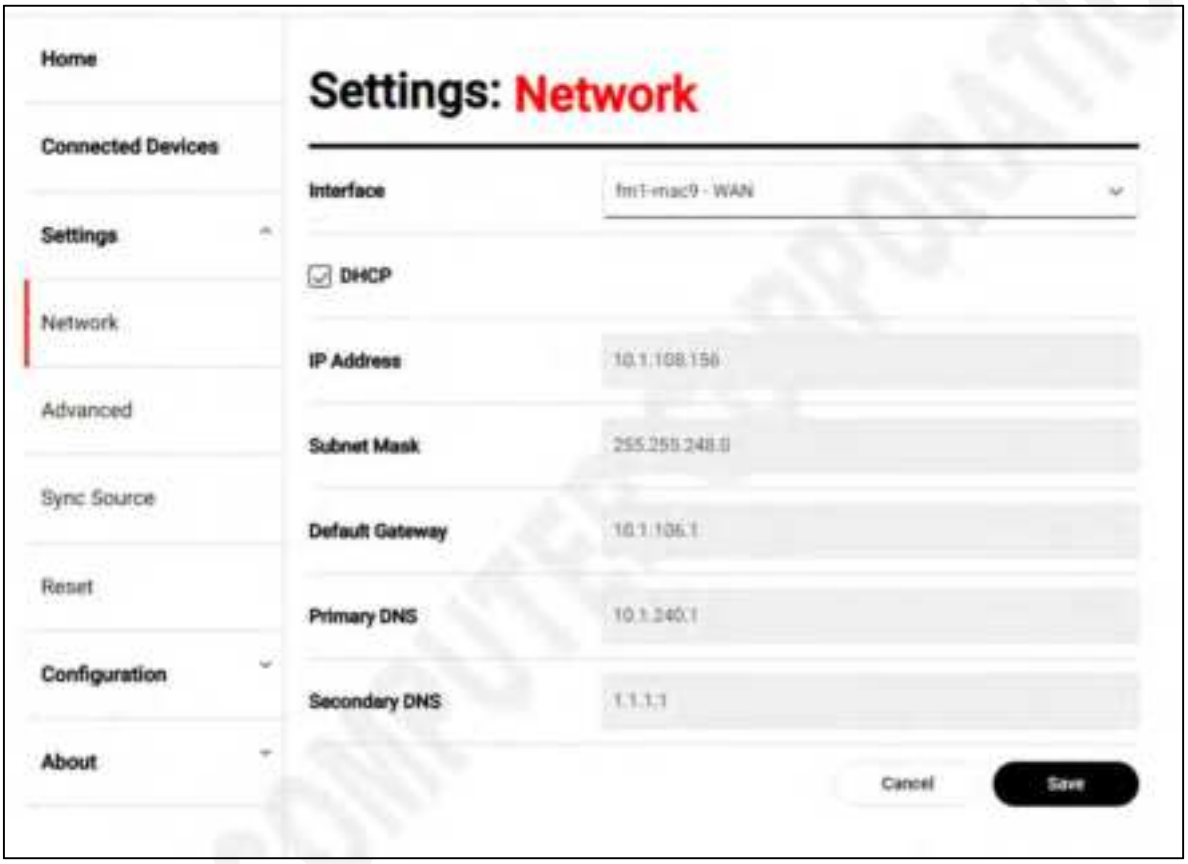
3.4 Settings

3.4.1 Network

From the Askey 5G NR Small Cell Network page, you can check and modify the detailed network settings. The settings will be effective immediately without rebooting.

Figure 24. The Askey 5G NR Small Cell Network Page



If the device has the multiple network interfaces, you can choose the interface by clicking the select bar as the following illustration:

Figure 25. The Askey 5G NR Small Cell Network Page for 2nd Interface

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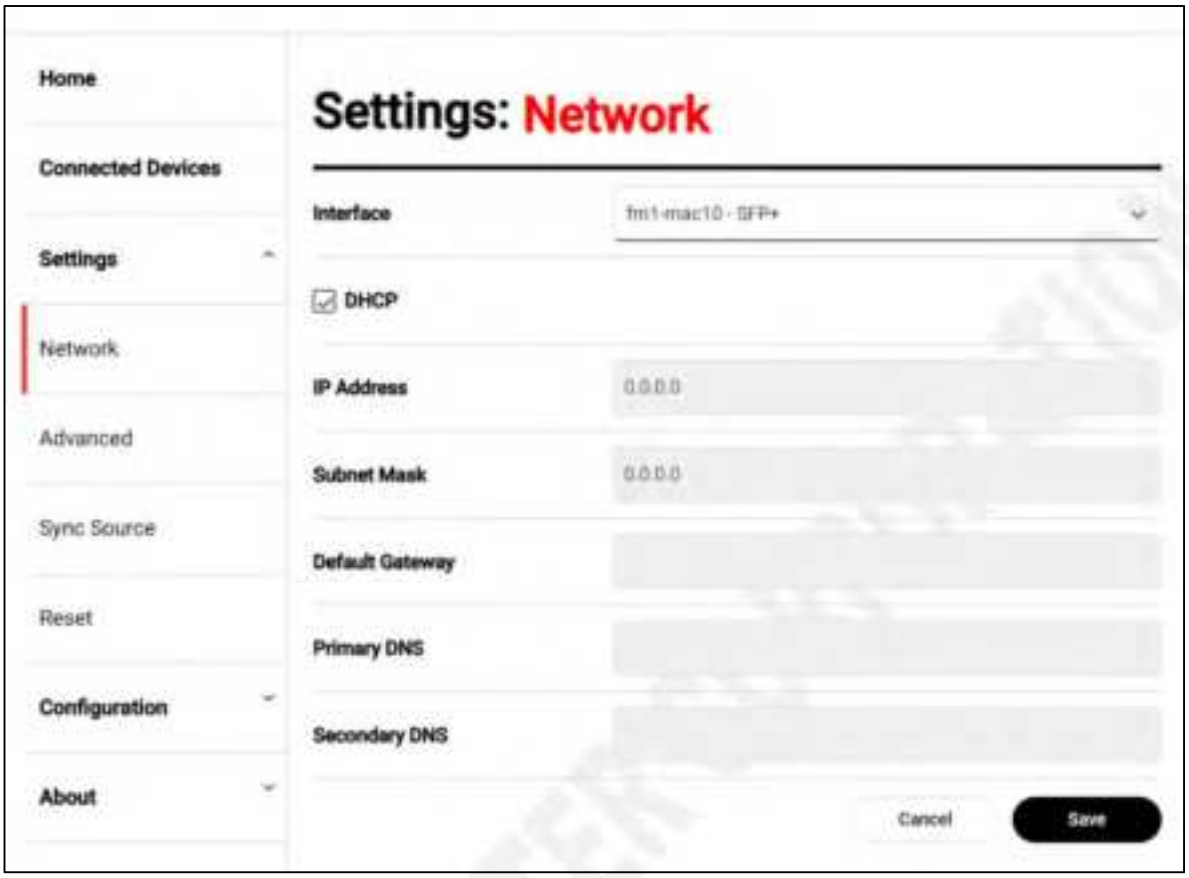

When the DHCP checkbox is disabled, you can manually set the network configurations for the specific interface. Click the IP Address or Subnet Mask item will pop up a dialog window to edit the multiple static IP addresses.

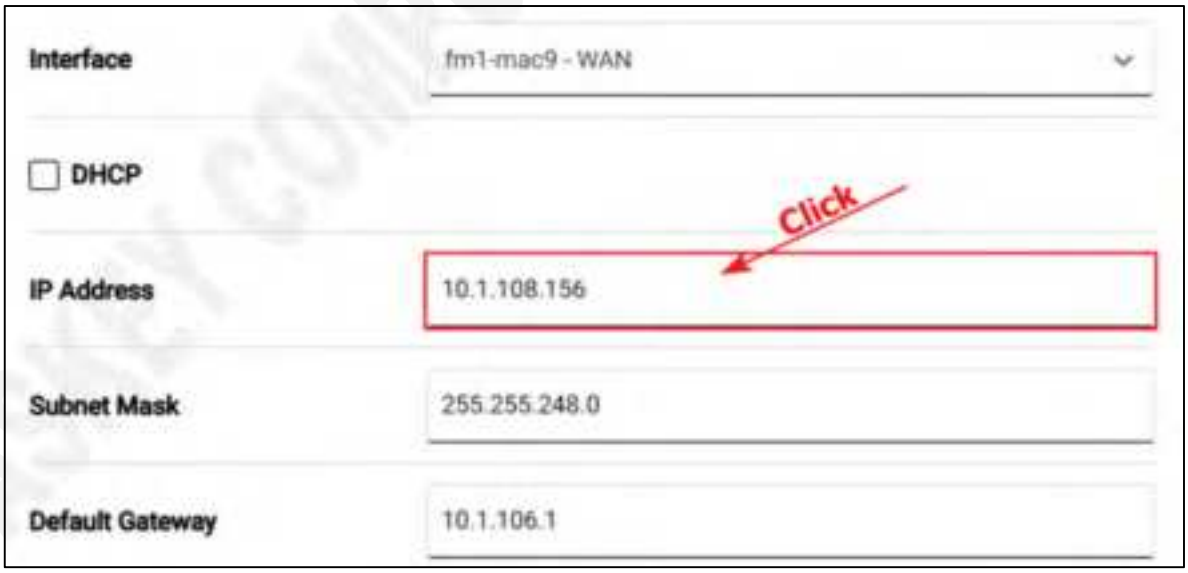

Figure 26. The Multiple Static IP Addresses Dialog Window

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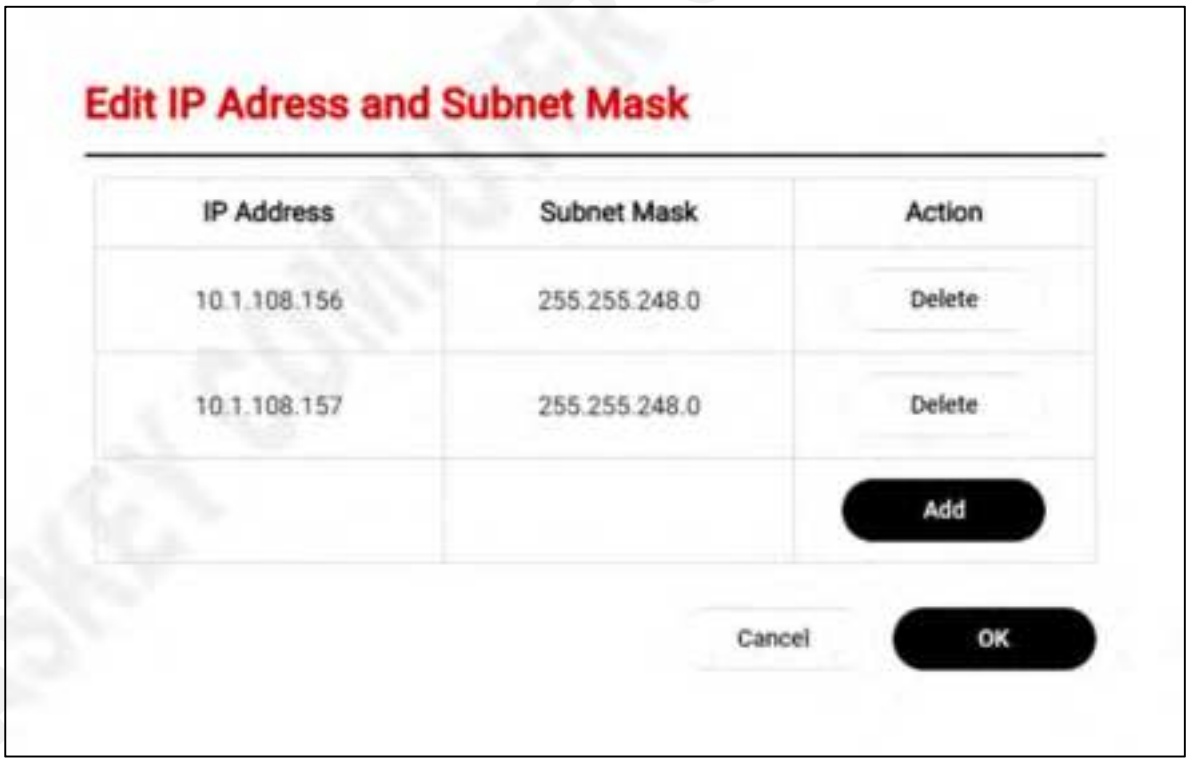
The IP address and subnet mask value can be modified directly on the dialog window, and remove the item by clicking the Delete button. If you want to add a new item, click the Add button and edit the configuration.



All IP addresses and Subnet Mask will display by the comma-separated format on the Admin Website. Click the Save button to activate the multiple IP addresses without rebooting.

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Figure 27. The Askey 5G NR Small Cell Network Page with the multiple IP addresses

After the setting is changed successfully, you can use the browser to access the Admin Website by the new alternate static IP address.

Figure 28. The Askey 5G NR Small Cell Admin Website with the alternate static IP address

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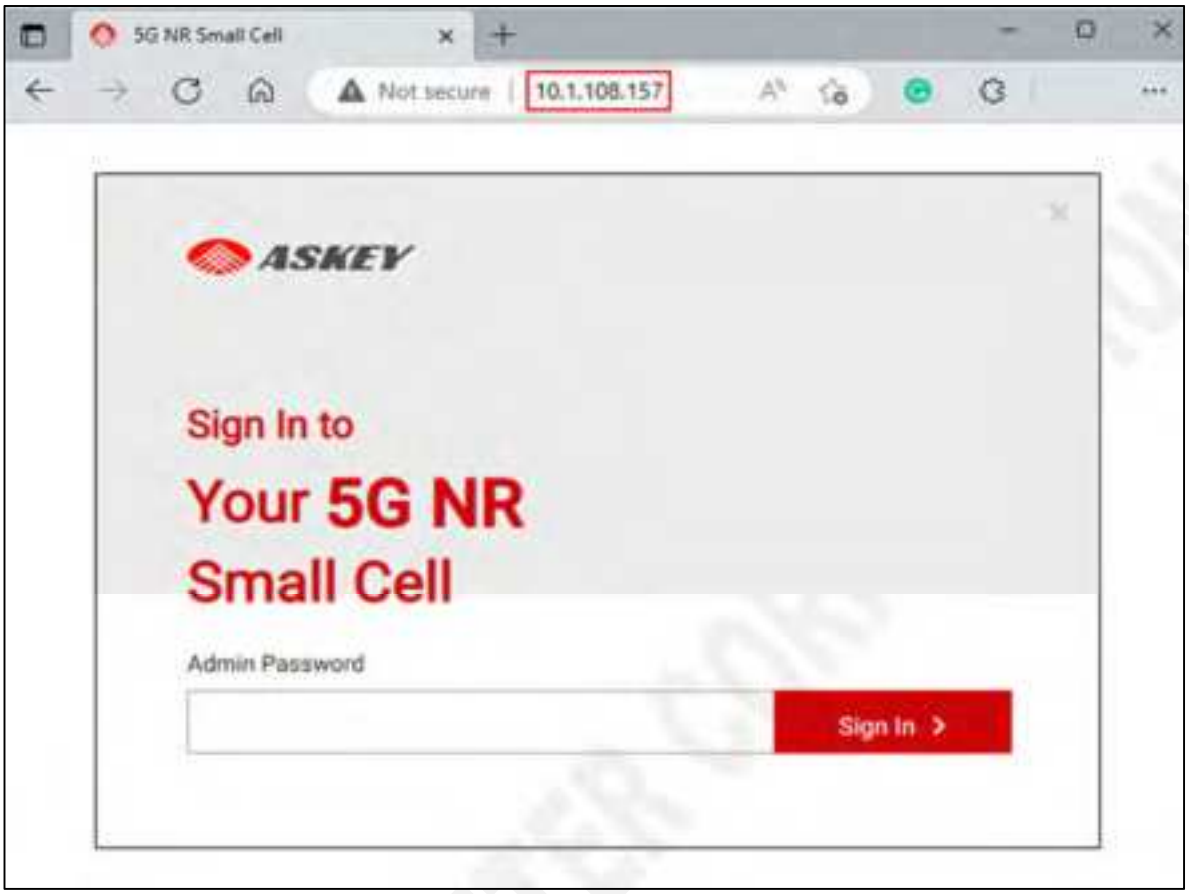

Table 7. The Askey 5G NR Small Cell Network

Item	Description
DHCP	This is a checkbox item. When it is checked (default), the DHCP is enabled, and the local DHCP server shall provide the IP configurations to the device. The user may uncheck this box to specify the multiple static IP configuration.
Default Gateway	If the DHCP is enabled, this field is read-only. It shows the DHCP-allocated default gateway IP address. If the DHCP is disabled, this field is read-write and indicates the user-defined Default Gateway IP address.
IP Address	If the DHCP is enabled, this field is read-only. It shows the DHCP-allocated IPv4 address. If the DHCP is disabled, this field is read-write and indicates the user-defined IPv4 address. It supports multiple combinations of the static IP address and Subnet Mask.
Subnet Mask	If the DHCP is enabled, this field is read-only. It shows the DHCP-allocated Subnet Mask. If the DHCP is disabled, this field is read-write and shows the user-defined Subnet Mask. It supports multiple combinations of the static IP address and Subnet Mask.
Primary DNS	If the DHCP is enabled, this field is read-only. It shows the DHCP-allocated Primary DNS Server's IP address. If the DHCP is disabled, this field is read-write and shows the user-defined Primary DNS Server's IP address.
Secondary DNS	If the DHCP is enabled, this field is read-only. It shows the DHCP-allocated Secondary DNS Server's IP address. If the DHCP is disabled, this field is read-write and indicates the user-defined Secondary DNS Server's IP address.

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3.4.2 Advanced

The Askey 5G NR Small Cell Advanced page provides all cells' information and sync status.

Figure 29. The Askey 5G NR Small Cell Advanced Page

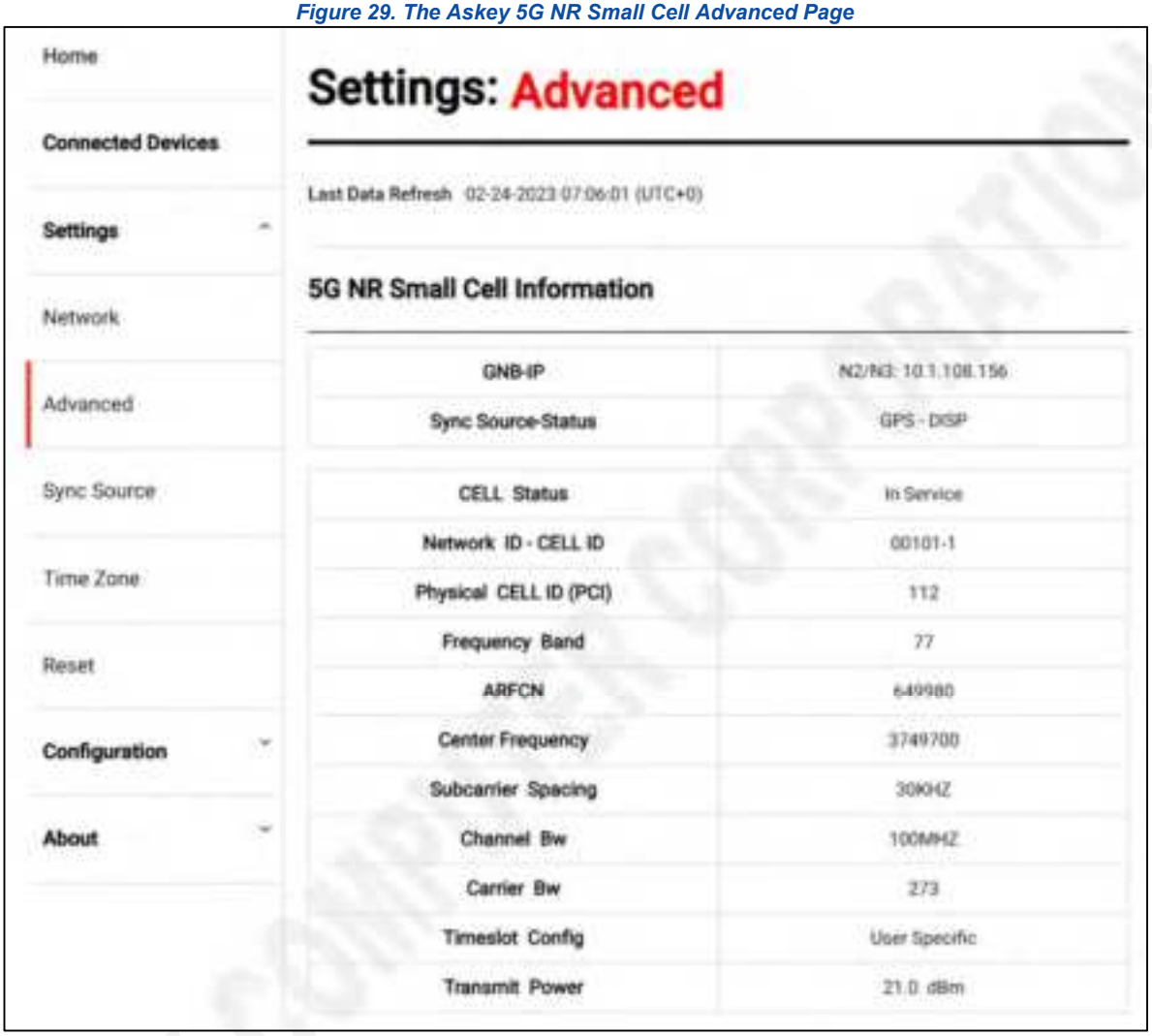

Table 8. The Askey 5G NR Small Cell Advanced

Item	Description
Last Data Refresh	The local time when this page was last refreshed.
5G NR Small Cell Information	This table shows the detailed information for The Askey 5G NR Small Cell. Where: •GNB-IP: The IP address of gNodeB •Sync Source-Status: The sync source and sync state
Serving Cell information	If the gNB processes are running, it will show the information of the serving cell(s). Additionally, the transmit power will show the correct value when the cell status is in-service.

3.4.3 Sync Source

The Askey 5G NR Small Cell Sync Source page provides the current sync state and the sync status for each

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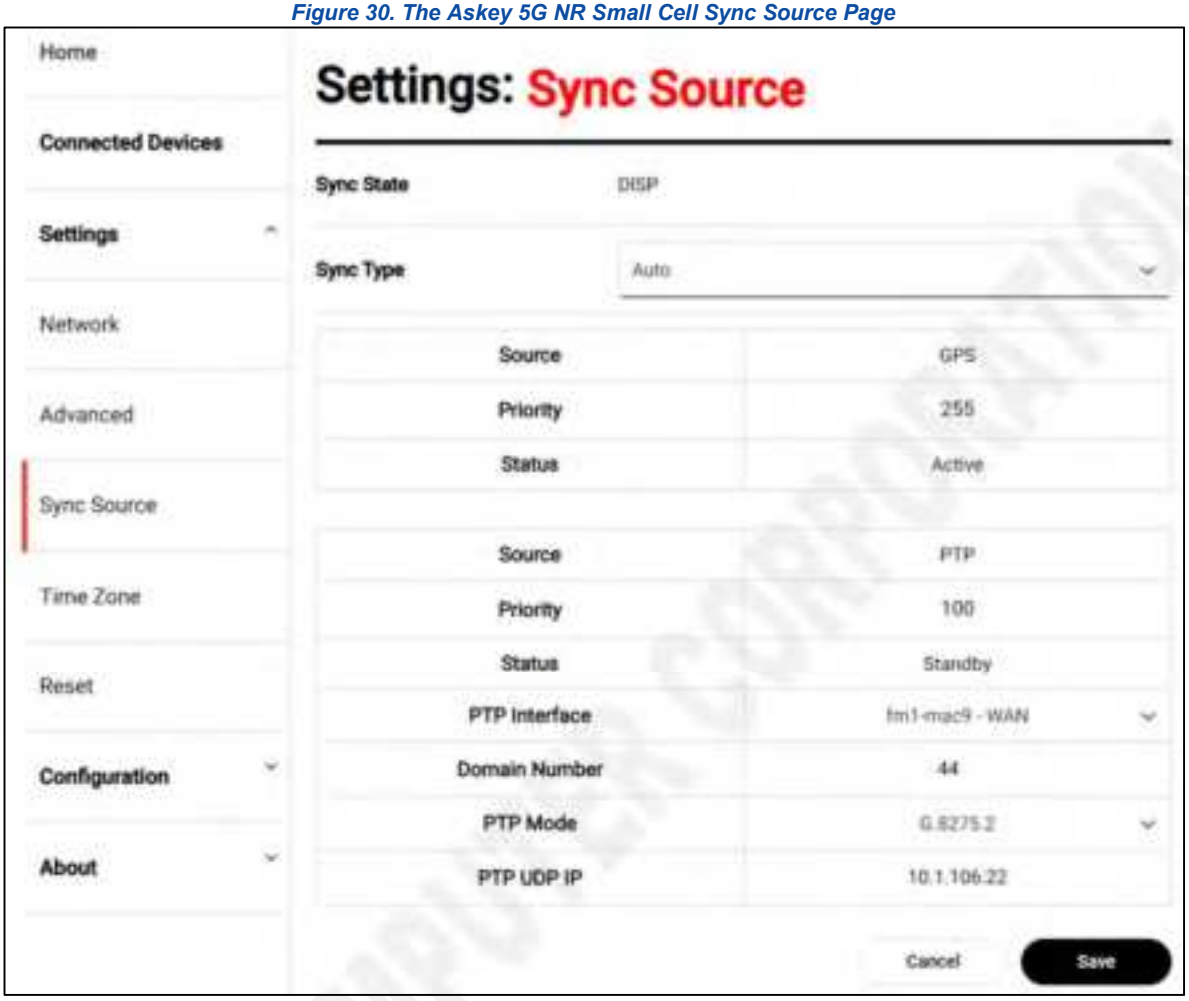
sync source. It also allows the user to modify the sync type, priority, and detailed PTP configurations.

Figure 30. The Askey 5G NR Small Cell Sync Source Page



The sync type can be Auto or Manual. If the type is Manual, you should specify GPS or PTP as the sync source.

The PTP Mode will be G.8275.1 or G.8275.2. If the mode is G.8275.2, it should also specific the PTP UDP IP.

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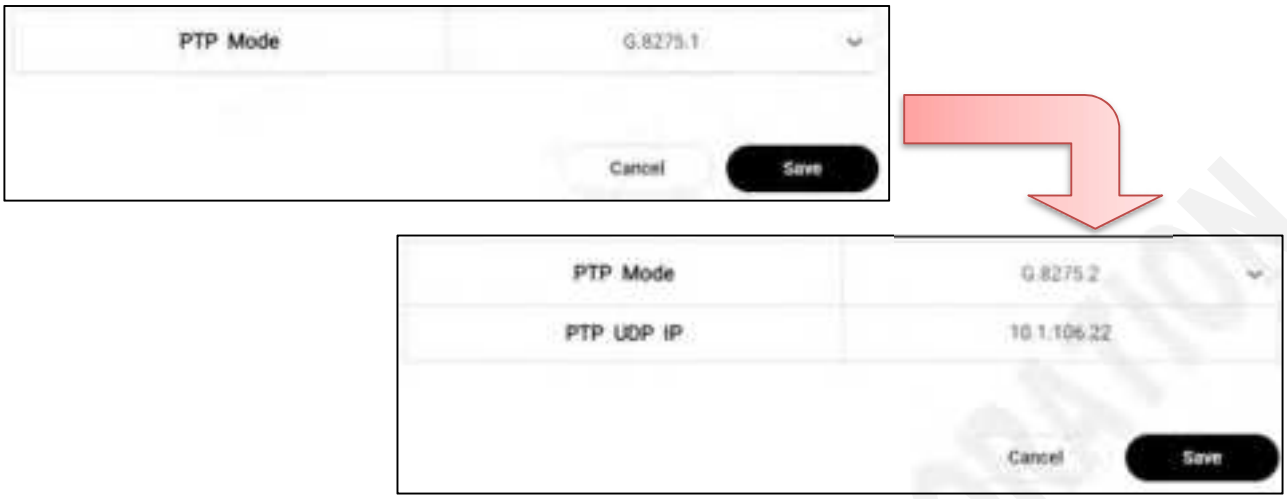

Table 9. The Askey 5G NR Small Cell Sync Source

Item	Description
Sync State	It indicates the current sync state. It should be **INIT**, **HARD_SYNC**, **DISP**, **RESYNC**, or **HOLDOVER**. The cell processes will start until the sync state is **DISP.**
Sync Type / Sync Source	It indicates the sync source choice mechanism. The **Auto** type will try the multiple sync sources based on the priority value. For the **Manual** type, it should specific the sync source be **GPS** or **PTP**. (For the small cell with network bridge mode, the sync source is only **GPS**)
Priority	If the sync type is Auto, the higher priority value will be tested earlier. The priority value should be the integer from **1** to **255.**
Status	It indicates the sync status for source GPS or PTP. The status will be **Standby** or **Active**.
PTP Interface	It indicates which network interface the gNB connects to the PTP server.
Domain Number	Specific the PTP clock domain by an integer in the range of **0** to **127**.
PTP Mode / PTP UDP IP	It indicates the current PTP mode, which supports **G.8275.1** and **G.8275.2**. If the mode is **G.8275.2**, it should also specify the **PTP UDP IP**.

3.4.4 Time Zone

The Askey 5G NR Small Cell Time Zone page allows the user to adjust the Time Zone Offset for the data refresh time on the Admin Website

Figure 31. The Askey 5G NR Small Cell Time Zone Page

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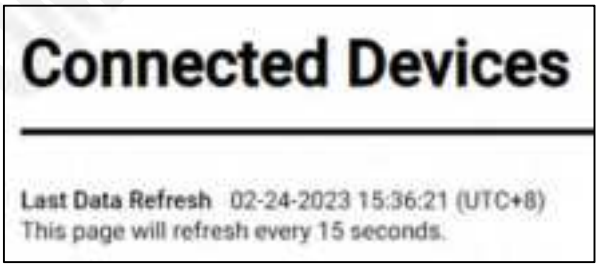
The default time zone offset is +0 (UTC). If the page will refresh automatically, the last data refresh will be displayed on the page as the following illustration:

The Time Zone Offset can adjust as an integer number that ranges from -12 to 14 and activates without rebooting.



3.4.5 Reset

The Askey 5G NR Small Cell Reset page allows the user remotely restart or factory reset the 5G NR Small Cell.

Figure 32. The Askey 5G NR Small Cell Reset Page

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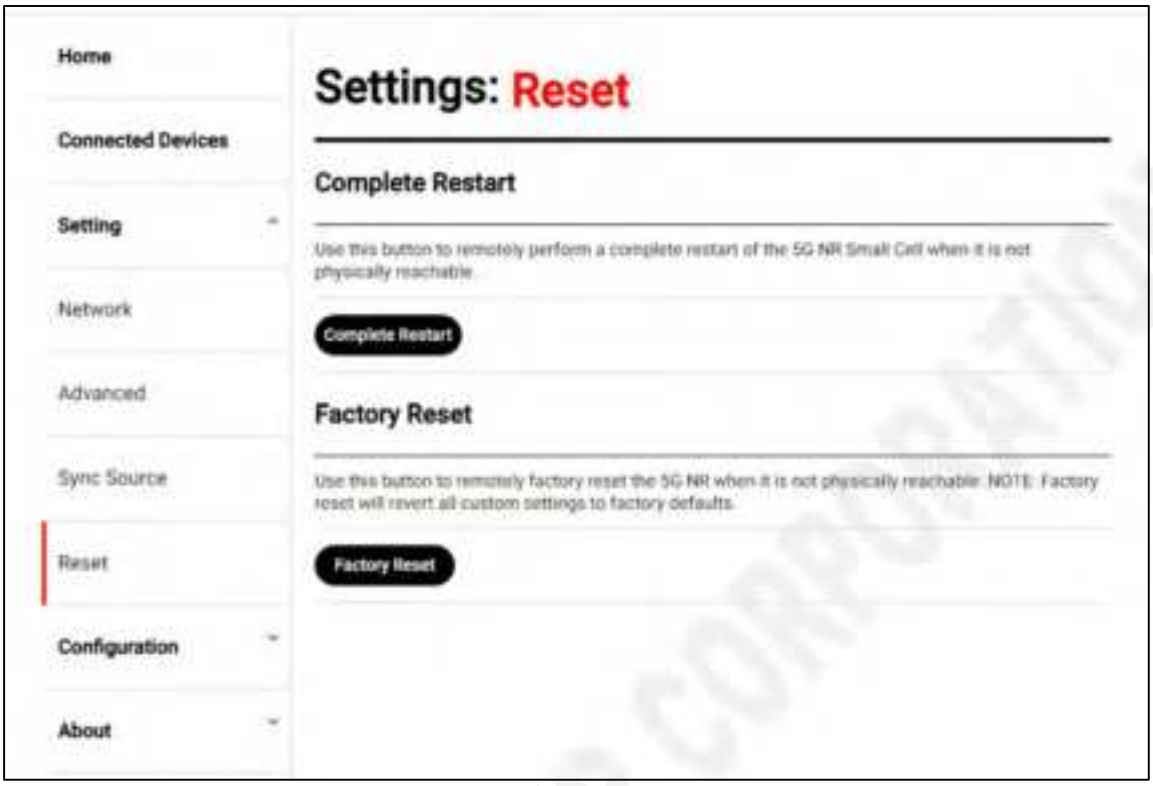

Factory reset will revert the custom settings to factory default settings. The admin website will pop up the following prompt message when clicking the Factory Reset button:

Figure 33. Factory Reset Warning Message

If the network setting of the Askey 5G NR Small Cell is wrong or you cannot get the current IPv4 address, such that you cannot access the Admin Website by IPv4. You can use the MAC to IPv6 link-local address to access the Admin Website by the URL **http://[IPv6 Link-Local Address]**/ in the same LAN. Please check the topic "**Access the Admin Website by IPv6 Link-Local Address**" in chapter 4. Or, if the Askey 5G NR Small Cell is near you, you can hold the reset button for more than 15 seconds and release, it will trigger the device to perform the factory reset. The following illustration is the reset button location of the device. After

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performing the factory reset, the Askey 5G NR Small Cell will get the IPv4 address from the DHCP server.

Figure 34 The Reset button in SCU2050

3.5 Configuration

3.5.1 Dashboard

This Askey 5G NR Small Cell Dashboard page shows the integrated small cell information, including the service and location data.

Figure 35. The Askey 5G NR Small Cell Dashboard Page

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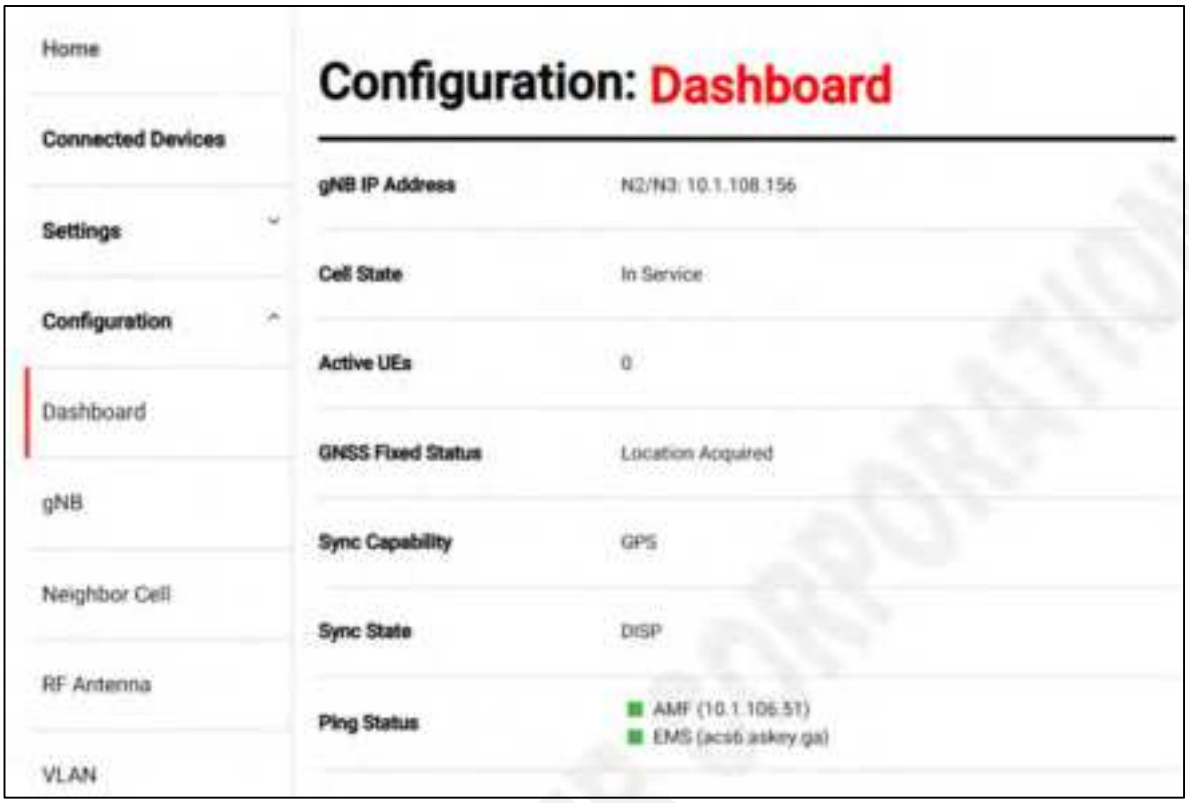

Table 10. The Askey 5G NR Small Cell Dashboard

Items	Descriptions
gNB IP Address	The IP address of gNodeB. Support separately specifying the gNB local interface with AMF (N2 interface) and the UPF (N3 interface) on the gNB configuration page. The IP address is the same value for the N2 and N3 interfaces by default.
Cell State	The current state of the small cell. It will be **Not In-Service** or **In-Service**
Active UEs	The number of wireless devices (phone, tablets, or other data devices) currently connected to the Askey 5G NR Small Cell
GNSS Fixed Status	The fixed status of GNSS. It will be **Searching signal** or **Location Acquired**
Sync Capability	The sync capability of the device
Sync State	It indicates the current sync state. It should be **INIT**, **HARD_SYNC**, **DISP**, **RESYNC**, or **HOLDOVER**. The cell processes will start until the sync state is **DISP**
Ping Status	Check whether the network connection status of the following server by ping command (ICMP): **AMF**, **EMS**, **KPI**, and **SAS**

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3.5.2 gNB

The Askey 5G NR Small Cell gNB page shows the principal configurations of CU and DU. There are some items different between SA and NSA mode. These items on Web GUI will be read-only in the remote provision method except for gNB IP because the value of gNB IP address may be one of the physical network interfaces or VLAN interfaces.

Figure 36. The Askey 5G NR Small Cell gNB Page

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You can change the local provision method by clicking the option **Local** in the Provision Method. After modifying the configurations, you can **save** these configurations by clicking the Save button. If there are some wrong settings, such that the cell cannot provide the 5G NR service, you can click the Default button to restore the **default** setting.

Figure 37. The Local Provision Method in gNB Configuration

After saving these configurations, the Admin Web will trigger to restart the device such that these configurations are effective. The gNB IP address is the same value for the N2 and N3 interfaces by default. You can click the check box to specify the gNB IP for N3 interface.

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According the following figure, you should check whether the gNB IP is correct based on the network setting and whether the cable connects to the WAN port, SFP+ port, or one of the VLAN IP addresses.

Figure 38. Askey OAM Architecture

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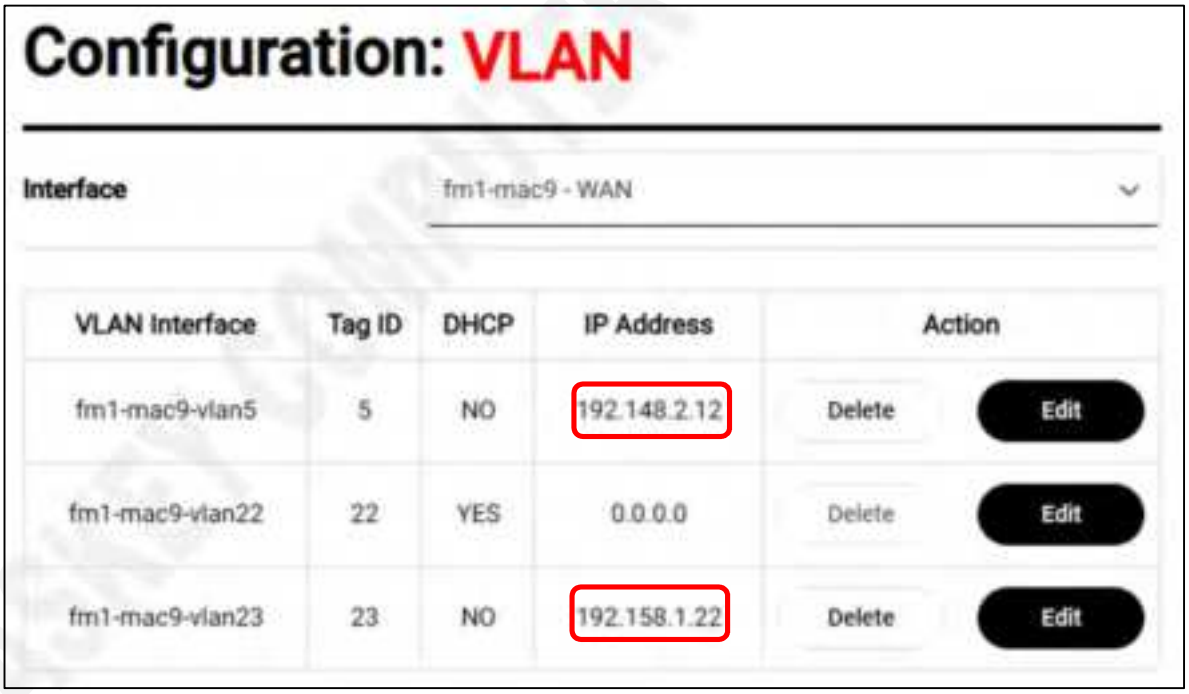

Table 11. The Askey 5G NR Small Cell CU Configuration

Items	Descriptions
Provision Method	The Provision Method should be **Remote** or **Local**. 1. The **Remote** provision method means that the remote server, e.g., ACS, will provision the

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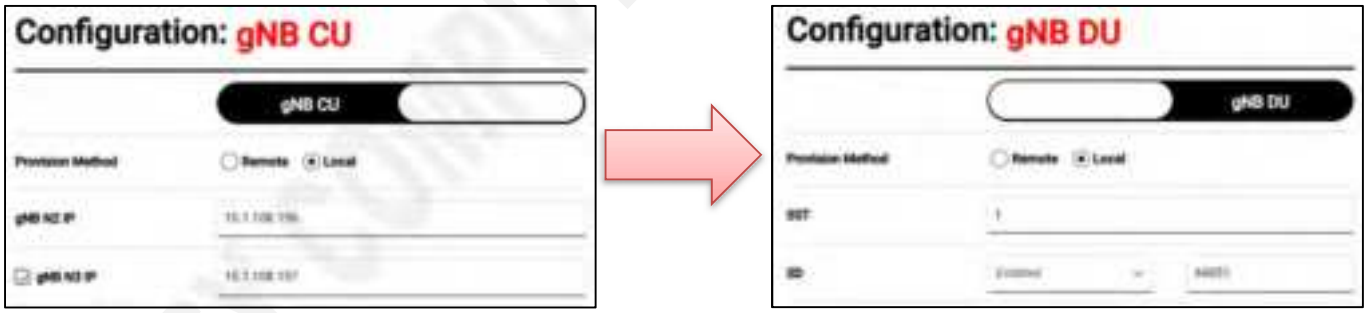
	primary gNB configurations to the 5G NR Small Cell. 2. The **Local** provision method means that the 5G NR Small Cell will apply all the configurations in the local files. Users can modify the primary gNB configurations on the Admin Web GUI.
gNB N2 IP/gNB N3 IP	The IP address of gNodeB. It should be the IP address of WAN port, SFP+ port, or one of the VLAN interfaces. Support separately specifying the gNB local interface with AMF (N2 interface) and the UPF (N3 interface) on the gNB configuration page. The IP address is the same value for the N2 and N3 interfaces by default.
Site(gNB) ID	It identifies a gNB within a PLMN.
gNB ID Length	The number of bits for encoding the gNB ID.
Cell ID	The physical-layer Cell ID of the signal. The number format
TAC	Tracking Area Code, an element of the tracking area identity (TAI) that serves to uniquely identify the Tracking Area.
MCC	Mobile Country Code
MNC	Mobile Network Code
AMF IP	The Access and Mobility Management Function IP address to carry the signaling traffic
UE Inact Timer	Duration while UE has not received or transmitted any user data
Encrypt Algo	NEA (Encryption Algorithm for 5G). It supports the **NEA0**, **NEA1**, **NEA2**, and **NEA3**
Integrity Algo	EIA (EPS Integrity Algorithm). It supports the **NIA1**, **NIA2**, and **NIA3**

You can click the upper button to switch the configuration from gNB CU to gNB DU, and vice versa.

Figure 39. The Askey 5G NR Small Cell Switch CU or DU Configuration



There are many items in the DU configuration tab; they can be split by Common Items, Bandwidth Profile, NR ARFCN Profile, and Time Slot Profile.

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Figure 40. The Askey 5G NR Small Cell DU Configuration – Common Items

Please note: The screenshot of this page is of another indoor model SCE2120 which supports N77 band, for display only, if you are using SCU2050 which does not support N77 now, the web page will not display N77 info.

Table 12. The Askey 5G NR Small Cell DU Configuration – Common

Items	Descriptions
SST	Slice/Service Type, refers to the expected Network Slice behavior in terms of features and services
SD	Slice Differentiator, complements the SST to differentiate amongst multiple Network Slices of the same SST. The SD value can be disabled for the standardized S-NSSAI that has only SST.
NR Band	Frequency bands for 5G New Radio. The value is automatically detected and cannot be updated. If the value is wrong, please click the **Default** button below the page
Physical Cell ID	Physical Cell identifier, is used to distinguish cells on the radio side. The value must be small than 512.
Uplink Layer	The channel over which a symbol on the antenna port is conveyed can be inferred from the channel over which another symbol on the same antenna port is conveyed.

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UL Dmrs-AdditionalPosition	Position for additional demodulation reference signal (**DMRS**) in uplink. For the timeslot profile **DSUUU(2:3)**, the recommended value is "**Position 1**" and "**Position 2**" for other timeslot profiles.
QRxLevMin	Minimum required RX level in the cell (dBm)
QQualMin	Minimum required quality level in the cell (dB)

In the bandwidth and NR ARFCN configurations, the Admin Website provides the supported item for each NR band. After choosing the profile option, the recommended values will be filled in the related items. For the more configurations, you can read the Chapter "The Recommend NR ARFCN Configuration" in the bottom of this document.

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Figure 41. The Askey 5G NR Small Cell DU Configuration – NR ARFCN

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Table 13. The Askey 5G NR Small Cell DU Configuration – Bandwidth and NR ARFCN

Items	Descriptions
Bandwidth Profile	N78 supports 20/30/40/50/60/70/80/90/100MHz
ARFCN Profile	It provides the recommended ARFCN configuration
DL NR ARFCN	The downlink NR ARFCN of the whole bandwidth
UL NR ARFCN	The uplink NR ARFCN of the whole bandwidth
DL CenterFreq	The downlink center frequency value in KHz
UL CenterFreq	The uplink center frequency value in KHz
DL AbsFreqPointA	The downlink absolute frequency point A configuration in KHz
UL AbsFreqPointA	The uplink absolute frequency point A configuration in KHz
DL AbsArfcnPointA	The downlink absolute ARFCN point A configuration
UL AbsArfcnPointA	The uplink absolute ARFCN point A configuration
AbsFreqSsb	The absolute frequency SSB configuration in KHz
AbsArfcnSsb	The absolute ARFCN SSB configuration

For the Time Slot Format, the Admin Website provides some typical profiles and the recommended value of the related items. You can click the profile option, and the recommended values will be filled in the related items.

Figure 42. The Askey 5G NR Small Cell DU Configuration – Time Slot Profile

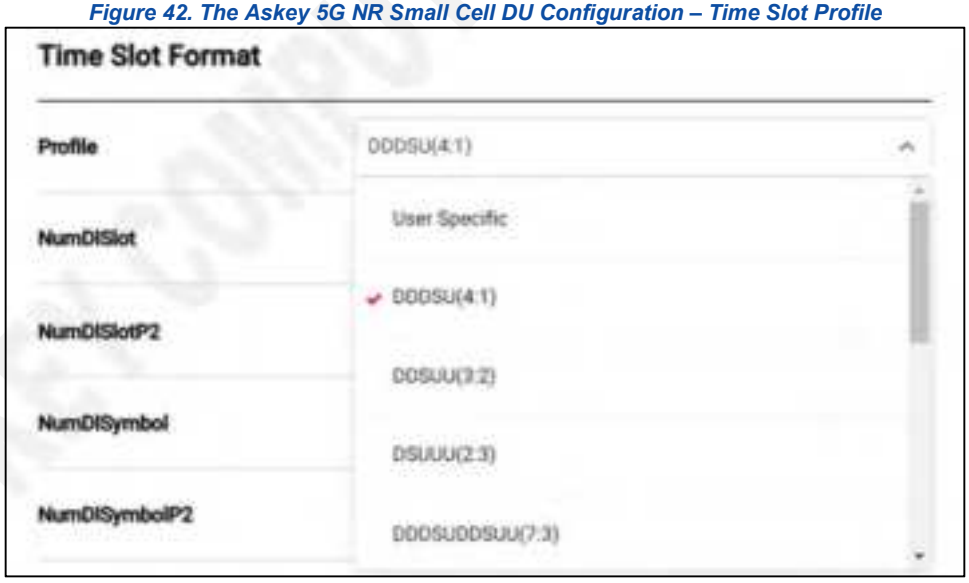

Figure 43. The Askey 5G NR Small Cell DU Configuration – Time Slot Parameters

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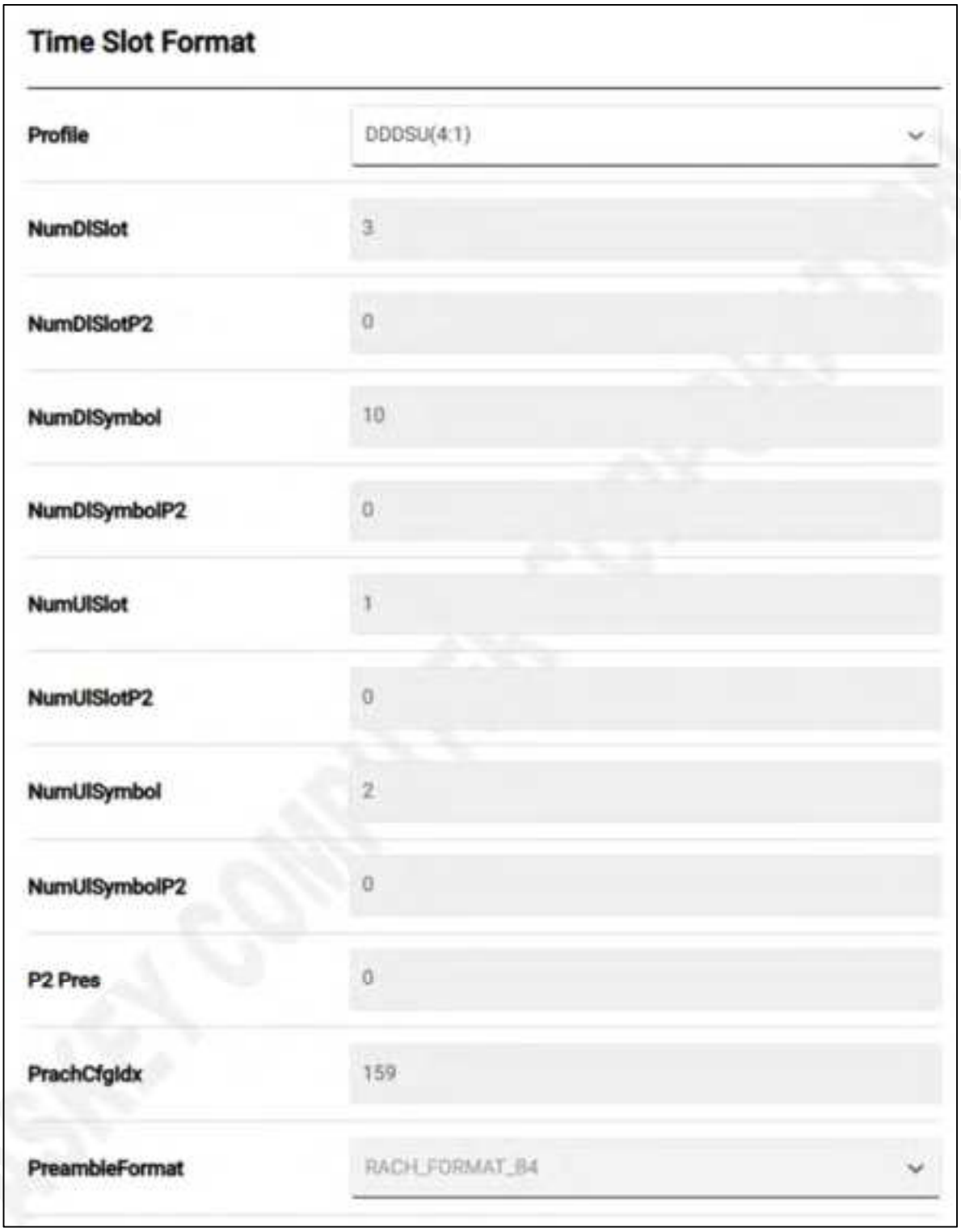

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Table 14. The Askey 5G NR Small Cell DU Configuration – Time Slot Format

Items	Descriptions
Profile	List the common time slot patterns and provide the default value for detailed setting
numDlSlot	The number of downlink slots
numDlSlot2	The number of P2 downlink slots
numDlSymbol	The number of downlink symbols for slot format
numDlSymbolP2	The number of P2 downlink symbols for slot format
numUlSlot	The number of uplink slots
numUlSlotP2	The number of P2 uplink slots
numUlSymbol	The number of uplink symbols for slot format
numUlSymbolP2	The number of P2 uplink symbols for slot format
p2Pres	The Pattern 2 (P2) presence value
PrachCfgIdx	The PRACH configuration index value
PreambleFormat	Long preamble: Format 0, 1, 2, and 3 Short preamble: Format A1, A2, A3, B1, B2, B3, B4, C0, and C2

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In the NR ARFCN and Time Slot Format configurations, the detailed items will be read-only for the pre-defined profile. If the user want to modify the detailed items, the profile should be selected to “User Specific”

3.5.3 Neighbor Cell

The Askey 5G NR Small Cell Neighbor Cell displays the related gNB information, and you can modify some items in the local provision. You can also manually add the neighbor cell on the page's bottom. These items will be read-only if the device is under remote provisioning.

Figure 44. The Askey 5G NR Small Cell Neighbor Cell Page

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Please note: The screenshot of this page is of another indoor model SCE2120 which supports N77 band, for display only, if you are using SCU2050 which does not support N77 now, the web page will not display N77 info.

If the XN Enable is checked, you can choose the server or client side for Xn handover. You should also provide the XN neighbor IP address as the following illustration:

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You can add the neighbor cell by clicking the Add button in the Action column and fill the neighbor data on the popup window.

Figure 45. The Askey 5G NR Small Cell Neighbor Cell Page – Add Neighbor Cell

The gNB ID, gNB ID Length, and Cell ID cannot all be the same value as another neighbor cell. It should be noted that the Askey 5G NR Small Cell currently doesn't support the inter handover if the Neighbor NR Band or the AbsArfcnPointA is not the same as the gNB.

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The max number of neighbor cells is 4, and you can perform the delete or edit action to adjust the neighbor cells.

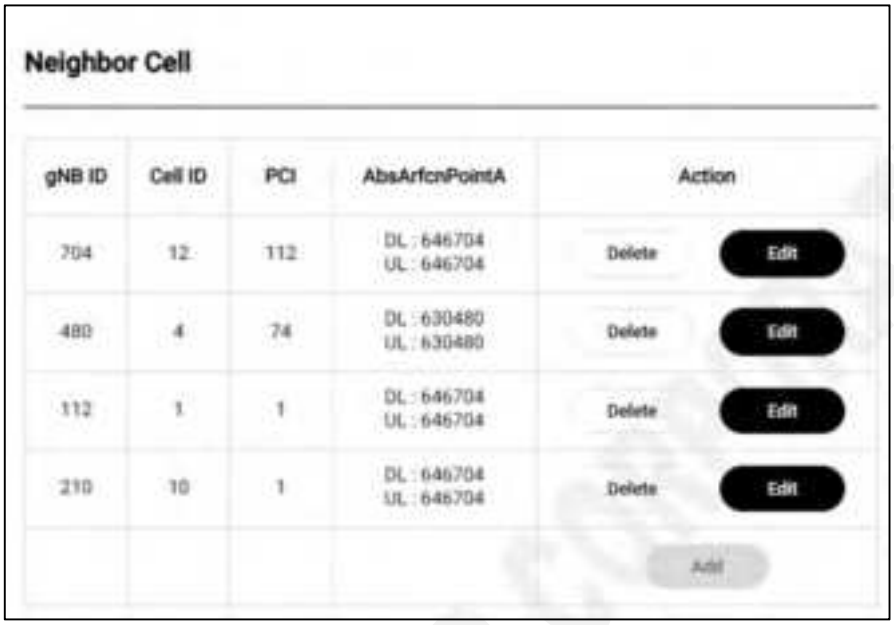

Table 15. The Askey 5G NR Small Cell Neighbor Cell Configuration

Items	Descriptions
NeighborCell AbsArfcnSsb	The absolute ARFCN point A configuration of the neighbor cell
A3 RSRP Offset	The Reference Signal Received Power (RSRP) offset of event A3. The number range is -30 to 30 (dB).
A3 Hysteresis	The hysteresis value of event A3. The number range is 0 to 30 (dB).
A3 Timer To Trigger	The timer helps to avoid irregular measurement and handover. Support the following items: MS0, MS40, MS64, MS80, MS100, MS128, MS160, MS256, MS320, MS480, MS512, MS640, MS1024, MS1280, MS2560, MS5120
XN Enable	If checked, the device will enable the Xn handover. It needs to choose the server or client side for Xn handover
XN Neighbor IP	The IP address of the peer gNB on the Xn interface

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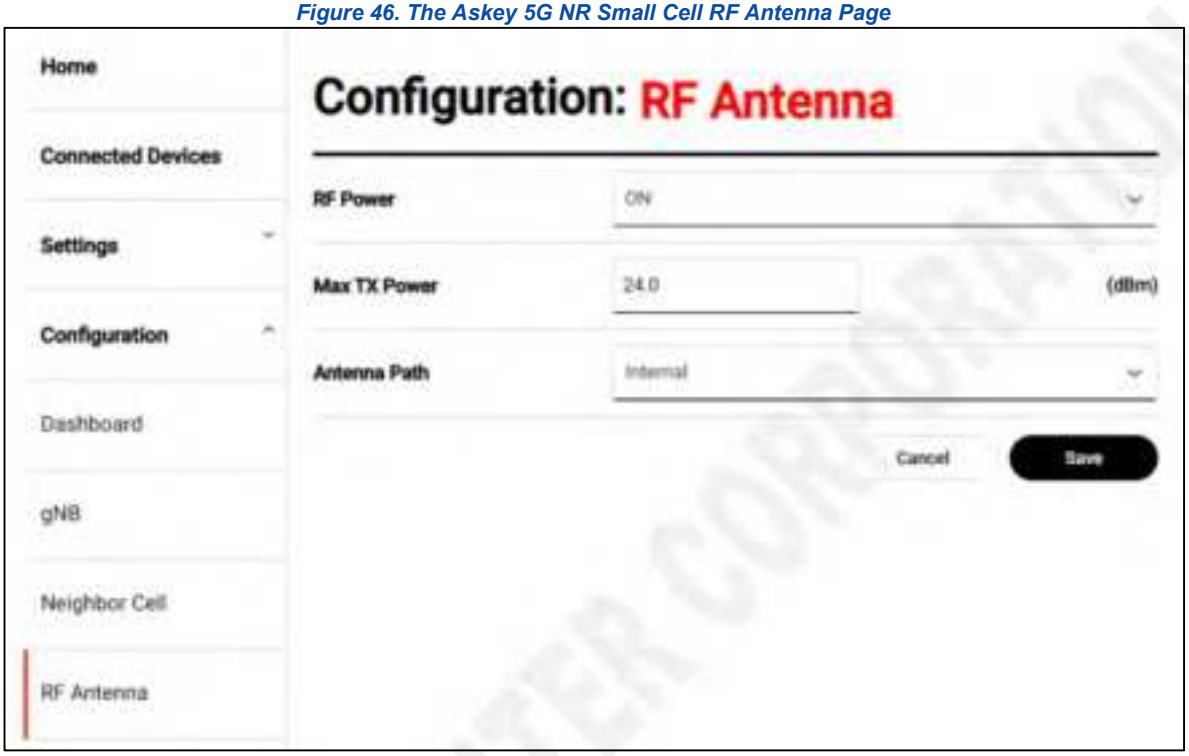
3.5.4 RF Antenna

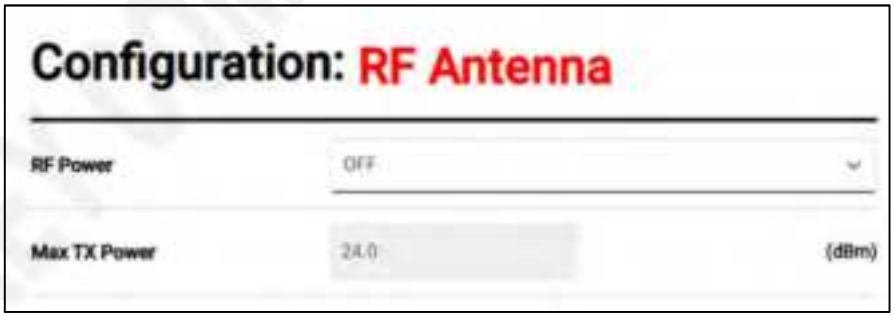
The Askey 5G NR Small Cell RF Antenna page allows users to modify the max TX power and the RF antenna path.

Figure 46. The Askey 5G NR Small Cell RF Antenna Page

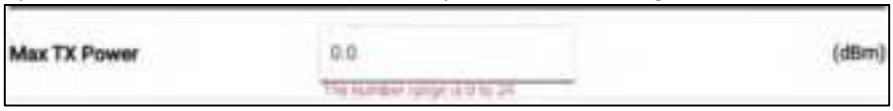


Please note: For SCU2050, whether you use the internal antenna or the external antenna, the **Antenna Path must select internal** here, do not switch to external.

After the cell state is in service, you can turn off the RF power. In the meantime, the MAX TX power will be read-only.



This max TX power is the number in one decimal place, and the range is from 0.0 to 24.0



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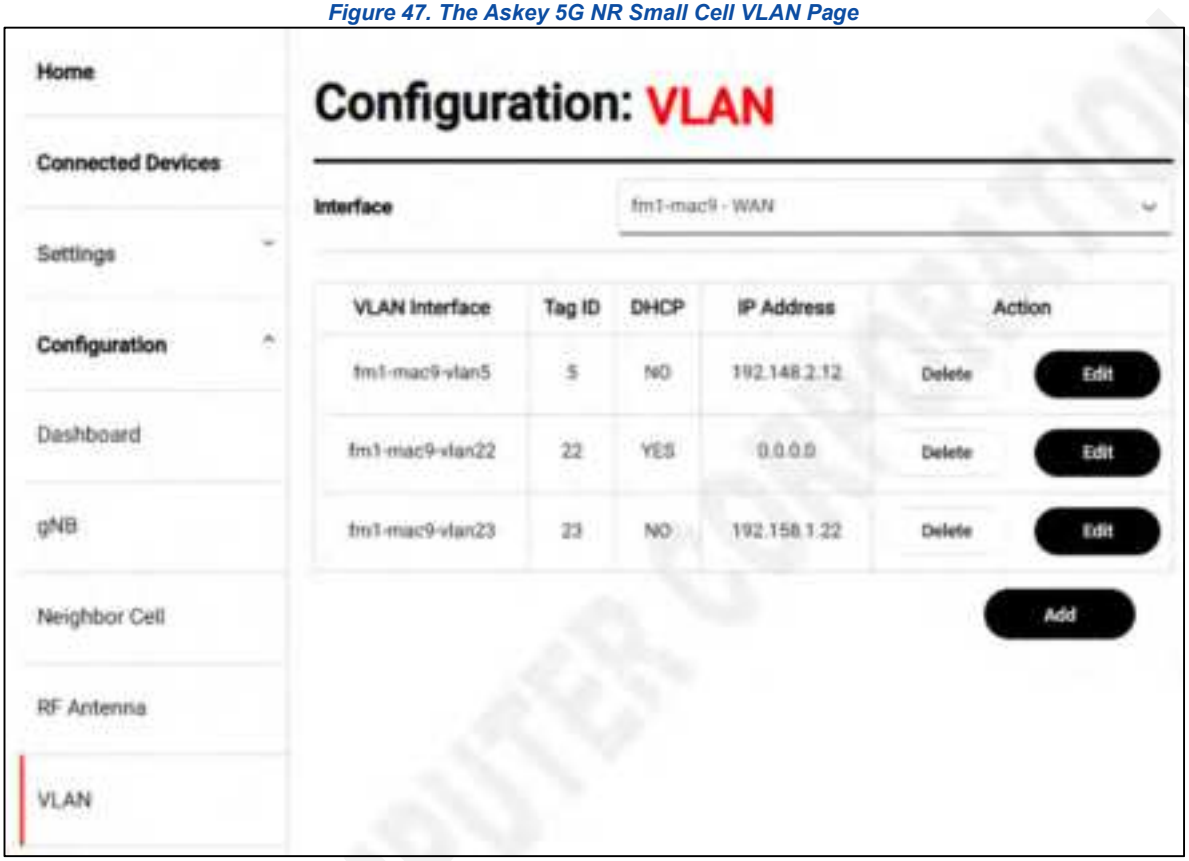
3.5.5 VLAN

This Askey 5G NR Small Cell VLAN page allows users to create, read, update and delete the VLAN (Virtual Local Area Network) configurations.

Figure 47. The Askey 5G NR Small Cell VLAN Page



At first, you should choose which physical network interface the VLAN attaches. When the interface is changed, the related VLAN configurations attached on the physical network interface will be displayed on the page.

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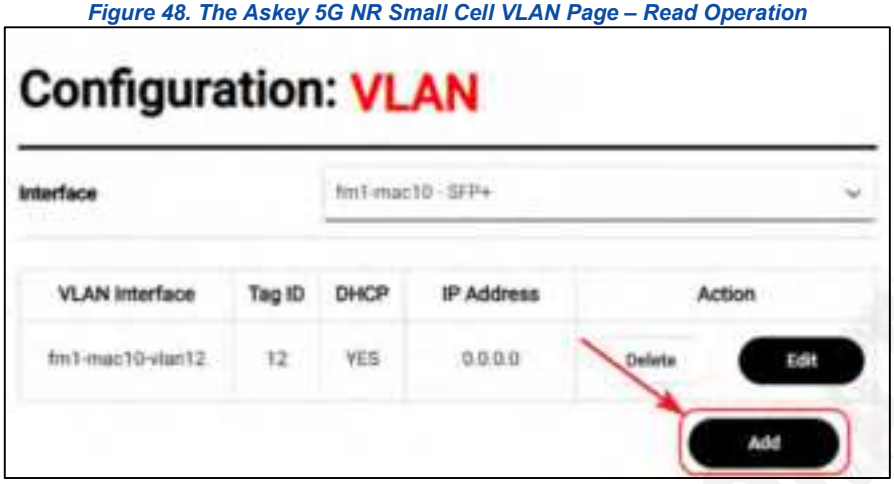
Figure 48. The Askey 5G NR Small Cell VLAN Page – Read Operation



Click the Add button will prompt a window to create a new VLAN attached to the physical network interface. The DNS configurations are optional for the VLAN with static IP. If the DHCP is enabled, add the ignore default route option Ignore Routes.

Figure 49. The Askey 5G NR Small Cell VLAN Page – Create Operation

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Click the **Edit** button in the VLAN list will prompt a window to update the specified VLAN configuration.

Figure 50. The Askey 5G NR Small Cell VLAN Page – Update Operation

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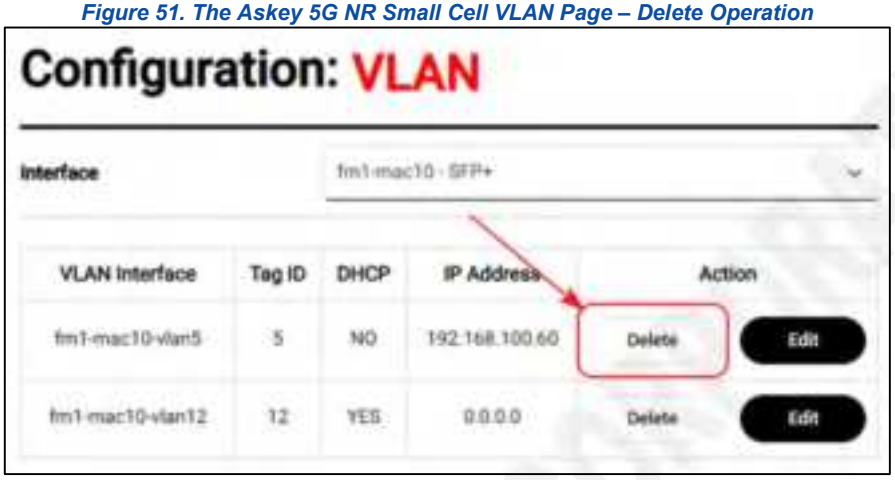
In addition, if the VLAN tag ID has existed in the create operation, it will become an update operation that will update the previous VLAN configuration with the tag ID.

Click the Delete button in the VLAN list will delete the specified VLAN configuration. It doesn't need to restart the device for the delete operation.

Figure 51. The Askey 5G NR Small Cell VLAN Page – Delete Operation



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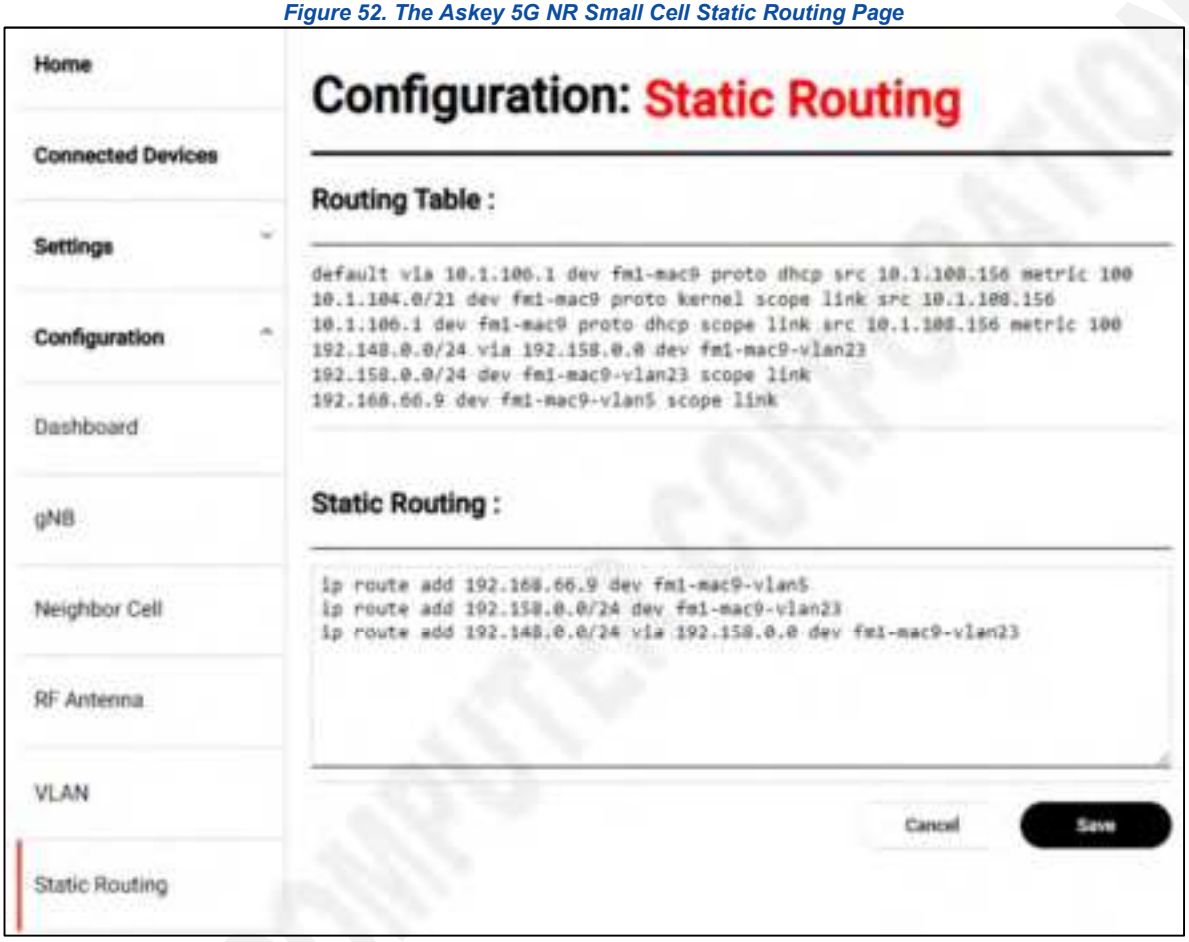
3.5.6 Static Routing

This Askey 5G NR Small Cell Static Routing page shows the current routing table and allows users to define the static routing rules. The commands in the static routing rules need to be started with “ip route”; otherwise, the command will be ignored.

Figure 52. The Askey 5G NR Small Cell Static Routing Page



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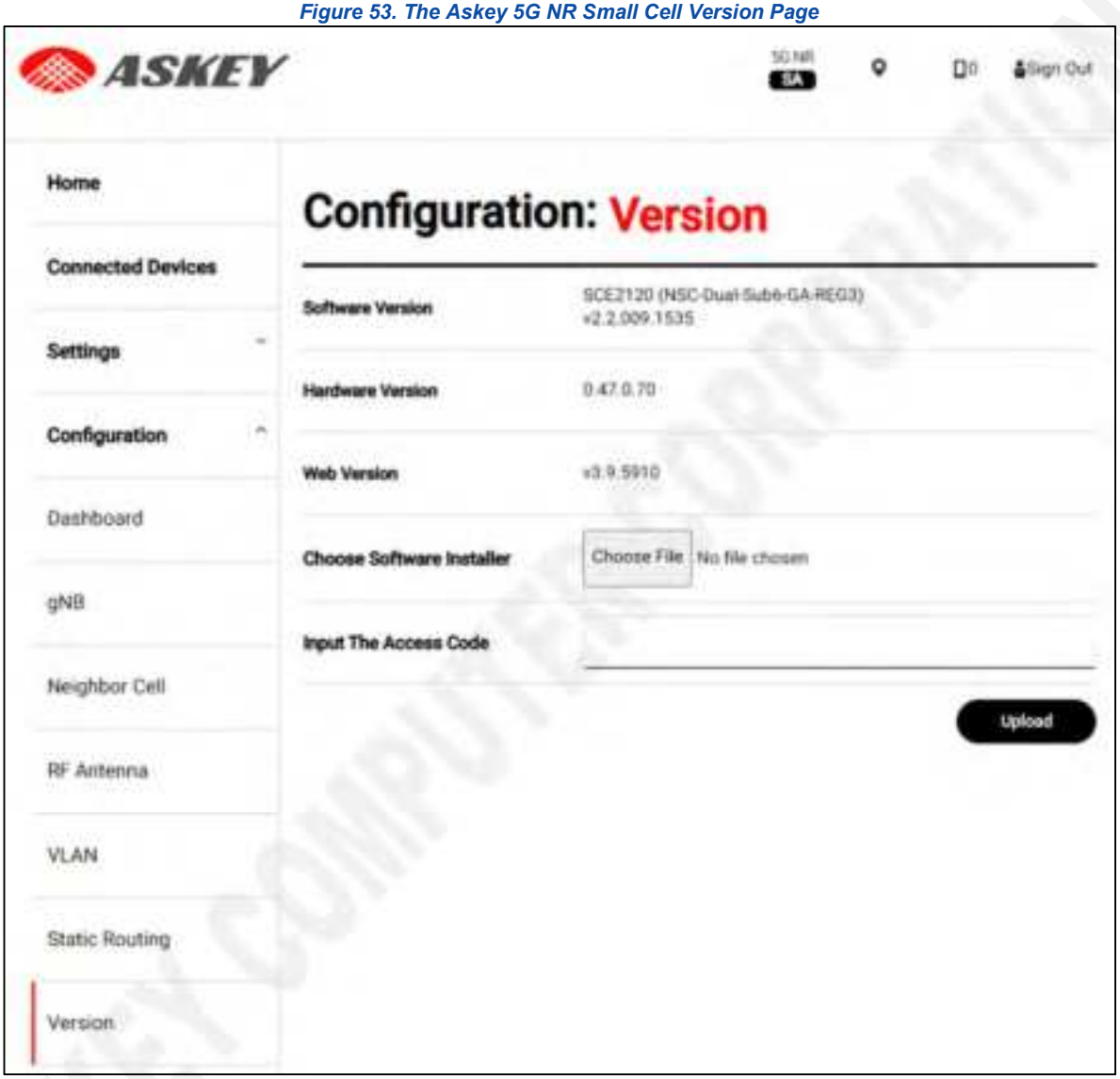
3.5.7 Version

This Askey 5G NR Small Cell Version page shows the current software, hardware, and web version. In Addition, you can upload an encoded installer with matched access code to perform a local upgrade of the Askey 5G NR Small Cell.

Figure 53. The Askey 5G NR Small Cell Version Page



Please note: The screenshot of this page is of another indoor model SCU2050 of ours, for display only, if you are using SCU2050, the web page will display the information of SCU2050.

Firstly, you need to choose the encrypted software installer and input the access code provided by Askey. The installer will be uploaded to the DUT after clicking the Upload button.

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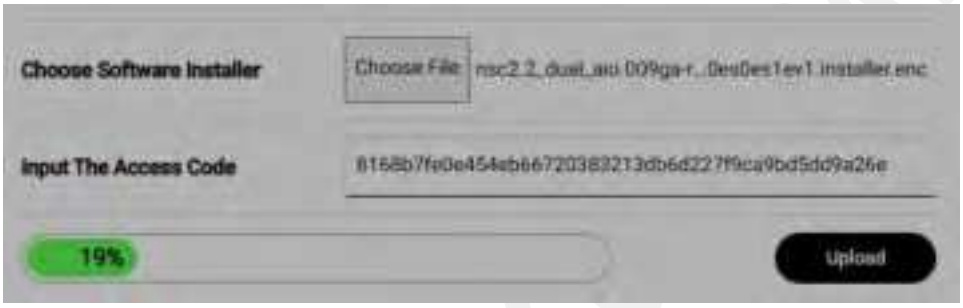
There is a progress bar to indicate the upload processing progress. When the progress is 100%, the API server will concatenate the chunked upload files and check the access code.



If the access code is wrong, the Admin Website will provide a warning message as the following illustration. Please check the access code and upload it again with the correct code.

If the access code is correct, the Admin Website will pop-up a message as the following illustration to indicate the upload is successful and the Askey 5G NR Small Cell will start to upgrade the software.

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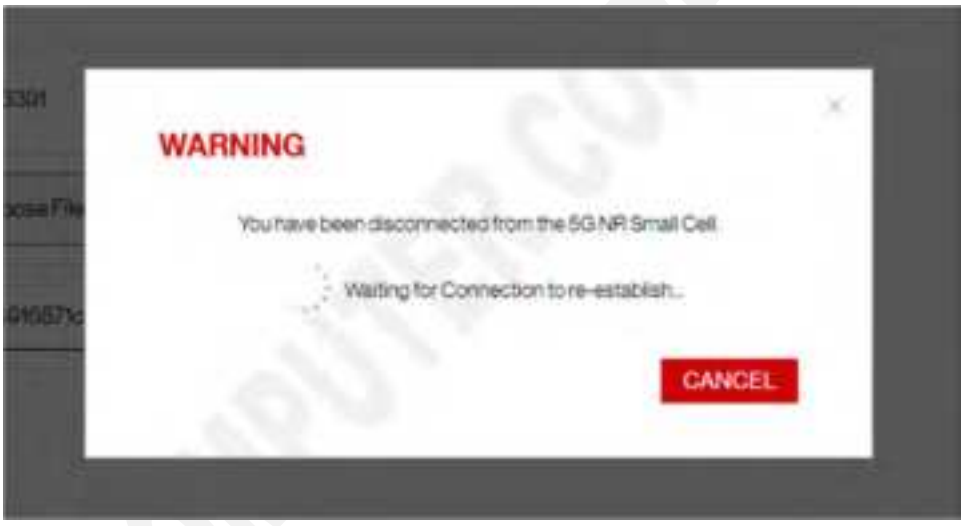
In the meantime, the API server is decoding the installer and perform the local upgrade. Therefore if you click the “OK” button, the Web GUI cannot do other operations as in the following illustration. After finishing the upgrade, the Admin Website will provide another message as the following illustration



Finally, when the Admin Website provides the following message, the Askey 5G NR Small Cell startup procedure is finished. Click the “OK” button will redirect to the login form to access the Admin Website.

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3.6 About

3.6.1 GPS

This Askey 5G NR Small Cell GPS Page shows the GPS status, including GPS Satellite ID, signal quantities, description, etc.

Figure 54. The Askey 5G NR Small Cell GPS Page

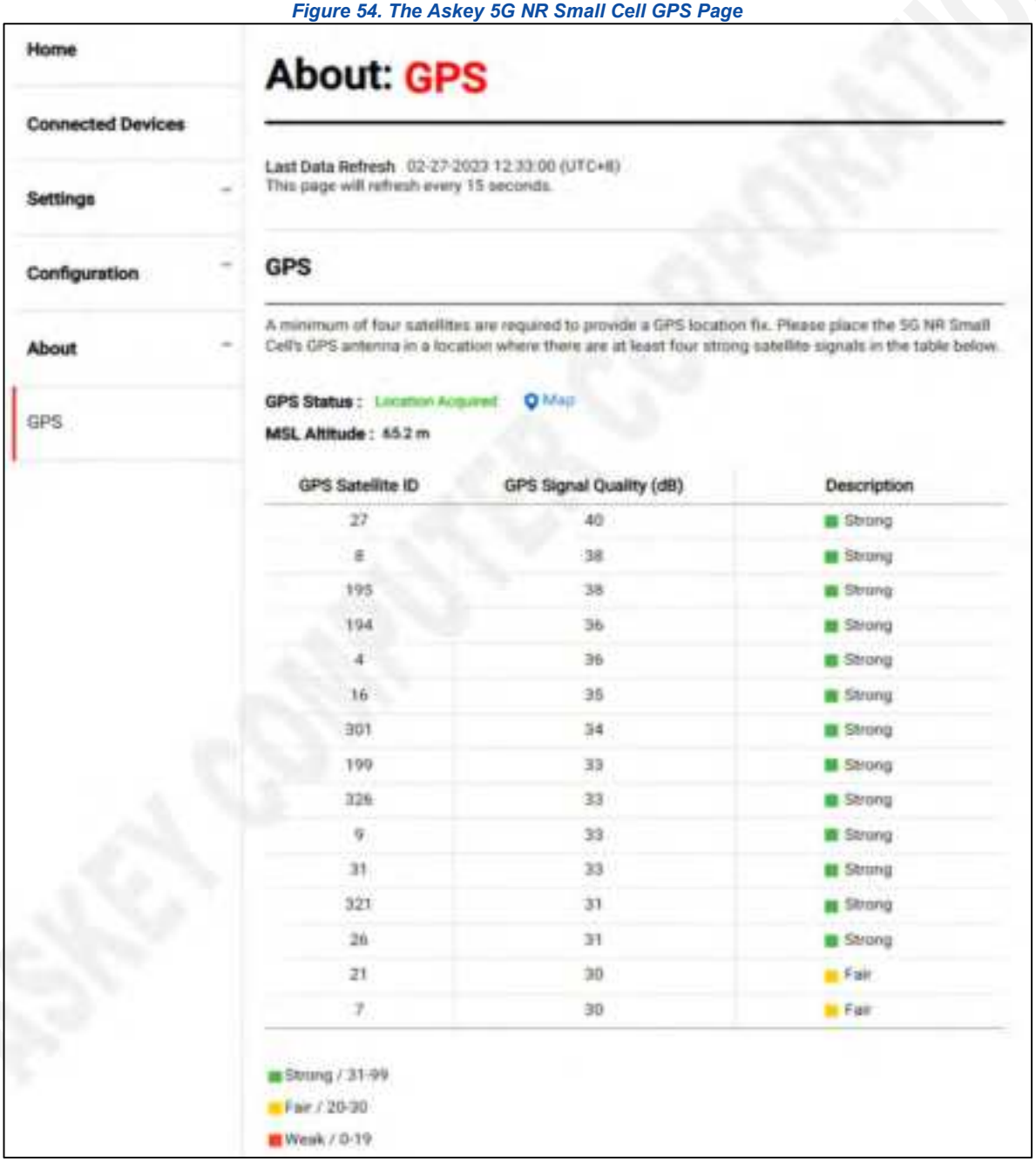

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Table 16. The Askey 5G NR Small Cell GPS

Items	Descriptions
Last Data Refresh	The local time when this page was last refreshed.
Last Data Refresh	The local time when this page was last refreshed.
GPS Status	This indicates if The Askey 5G NR Small Cell has acquired GPS signals or not. The Askey 5G NR Small Cell will not come into service if the status does not say "Location Acquired".
GPS Satellite ID	The list of GPS satellites identifies how many satellites are currently being detected along with each satellite's unique identifier.
GPS Satellite Quality (dB)	This value describes the signal-to-noise ratio for the GPS signal. A higher value means better quality. If the description is either Fair or Weak, you should consider repositioning the unit or GPS antenna. If the signal quality does not improve, an external GPS antenna may be required.
Description	Describes the quality level of the satellite signal as either: Strong, Fair or, Weak. Refer to the legend for the mapping.

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Chapter 4 The Askey 5G NR Small Cell Support Utilities

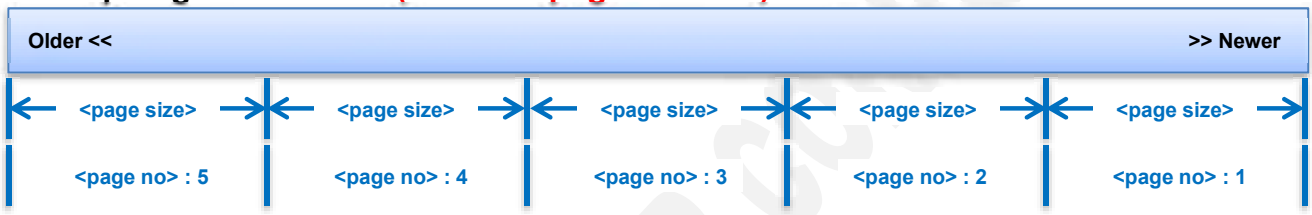
4.1 Small Cell Log Download Mechanism

You can download the runtime or backup log files by the following HTTPS linking URL and send them back to the Askey Small Cell team to analyze.

PS:

1. **Please don't modify the downloaded file name**
2. **Please don't download two log files at the same time**

Backup Log Illustration: (The max page size is 3)



The Askey 5G NR Small Cell

Runtime Log:

https://<ip address>/api/logs/TwpEceURn15qxDYSW88IJddB7LAsiOr64HNg

Backup Log:

https://<ip address>/api/logs/TwpEceURn15qxDYSW88IJddB7LAsiOr64HNg/<page size>

https://<ip address>/api/logs/TwpEceURn15qxDYSW88IJddB7LAsiOr64HNg/<page size>/<page no>

Examples:

https://10.1.108.15/api/logs/TwpEceURn15qxDYSW88IJddB7LAsiOr64HNg
➔ Runtime log:
askeylog_280375459184643_20221025-092816_nsc.tgz.enc

https://10.1.108.15/api/logs/TwpEceURn15qxDYSW88IJddB7LAsiOr64HNg/3
➔ Backup log (page size 3, page no 1):
askeylog_280375459184643_20221025-092825_nsc_last_01-03.tgz.enc

https://10.1.108.15/api/logs/TwpEceURn15qxDYSW88IJddB7LAsiOr64HNg/3/3
➔ Backup log (page size 3, page no 3):
askeylog_280375459184643_20221025-092902_nsc_ last_07-09.tgz.enc

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4.2 Access the Admin Website by IPv6 Link-Local Address

If the network setting of the Askey 5G NR Small Cell is wrong or you cannot get the current IP address, you cannot access the Admin Website by IPv4. You can use the MAC to IPv6 Converter (https://nettools.club/mac2ipv6) to get the link-local address of the Askey 5G NR Small Cell. After that, you can access the Admin Website by the URL http://[IPv6 Link-Local Address]/ in the same LAN.

For example, if the MAC address is “FE:FF:FF:A6:00:03”, you can get the following result by converter.

Then, you can access the Admin Website by the URL http://[fe80::fcff:ffff:fea6:3]/ in the same LAN. If you access the Admin Website by the method for the first time, It may need more than one time refresh to finish the IPv6 Neighbor Discovery.

4.3 The Recommend NR ARFCN Configuration

5G Sub6G Band N48 (Only for SCE2120)

NR ARFCN Profile	40 MHz 3.57G	30 MHz 3.56G	20 MHz 3.62G		
DL Earfcn	637992	637656	641652		
UL Earfcn	637992	637656	641652		
DL CenterFreq	3569880	3564840	3624780		
UL CenterFreq	3569880	3564840	3624780		
DL AbsArfcnPointA	636720	636720	641040		
UL AbsArfcnPointA	636720	636720	641040		
DL AbsFreqPointA	3550800	3550800	3615600		
UL AbsFreqPointA	3550800	3550800	3615600		

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AbsArfcnSsb	637248	636960	641280		
AbsFreqSsb	3558720	3554400	3619200		

5G Sub6G Band N77, 100MHz Bandwidth (Only for SCE2120)

NR ARFCN Profile		3.75G	3.675G			
DL Earfcn		649980	647772			
UL Earfcn		649980	647772			
DL CenterFreq		3749700	3716580			
UL CenterFreq		3749700	3716580			
DL AbsArfcnPointA		646704	644496			
UL AbsArfcnPointA		646704	644496			
DL AbsFreqPointA		3700560	3667440			
UL AbsFreqPointA		3700560	3667440			
AbsArfcnSsb		647232	645024			
AbsFreqSsb		3708480	3675360			

5G Sub6G Band N77, 90MHz Bandwidth (Only for SCE2120)

NR ARFCN Profile	3.75G	3.75G	3.6G	4.05G	
DL Earfcn	649644	649836	640044	669996	
UL Earfcn	649644	649836	640044	669996	
DL CenterFreq	3744660	3747540	3600660	4049940	
UL CenterFreq	3744660	3747540	3600660	4049940	
DL AbsArfcnPointA	646704	646896	637104	667056	
UL AbsArfcnPointA	646704	646896	637104	667056	
DL AbsFreqPointA	3700560	3703440	3556560	4005840	
UL AbsFreqPointA	3700560	3703440	3556560	4005840	

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AbsArfcnSsb	647232	647424	637632	667584	
AbsFreqSsb	3708480	3711360	3564480	4013760	

5G Sub6G Band N77, 80MHz Bandwidth (Only for SCE2120)

NR ARFCN Profile	4.05G				
DL Earfcn	669996				
UL Earfcn	669996				
DL CenterFreq	4049940				
UL CenterFreq	4049940				
DL AbsArfcnPointA	667392				
UL AbsArfcnPointA	667392				
DL AbsFreqPointA	4010880				
UL AbsFreqPointA	4010880				
AbsArfcnSsb	667968				
AbsFreqSsb	4019520				

5G Sub6G Band N77, 70MHz Bandwidth (Only for SCE2120)

NR ARFCN Profile	3.587G				
DL Earfcn	639180				
UL Earfcn	639180				
DL CenterFreq	3587700				
UL CenterFreq	3587700				
DL AbsArfcnPointA	636912				
UL AbsArfcnPointA	636912				
DL AbsFreqPointA	3553680				
UL AbsFreqPointA	3553680				

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AbsArfcnSsb	637440				
AbsFreqSsb	3561600				

5G Sub6G Band N77, 60MHz Bandwidth (Only for SCE2120)

NR ARFCN Profile	3.675G	3.6966G	4.05G		
DL Earfcn	645000	646440	670008		
UL Earfcn	645000	646440	670008		
DL CenterFreq	3675000	3696600	4050120		
UL CenterFreq	3675000	3696600	4050120		
DL AbsArfcnPointA	643056	644496	668064		
UL AbsArfcnPointA	643056	644496	668064		
DL AbsFreqPointA	3645840	3667440	4020960		
UL AbsFreqPointA	3645840	3667440	4020960		
AbsArfcnSsb	643584	645024	669312		
AbsFreqSsb	3653760	3675360	4039680		

5G Sub6G Band N77, 50MHz Bandwidth (Only for SCE2120)

NR ARFCN Profile	3.587G				
DL Earfcn	639180				
UL Earfcn	639180				
DL CenterFreq	3587700				
UL CenterFreq	3587700				
DL AbsArfcnPointA	637584				
UL AbsArfcnPointA	637584				
DL AbsFreqPointA	3563760				
UL AbsFreqPointA	3563760				

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AbsArfcnSsb	638112				
AbsFreqSsb	3571680				

5G Sub6G Band N77, 40MHz Bandwidth (Only for SCE2120)

NR ARFCN Profile	3.75G	4.05G			
DL Earfcn	649896	670008			
UL Earfcn	649896	670008			
DL CenterFreq	3748440	4050120			
UL CenterFreq	3748440	4050120			
DL AbsArfcnPointA	648624	668736			
UL AbsArfcnPointA	648624	668736			
DL AbsFreqPointA	3729360	4031040			
UL AbsFreqPointA	3729360	4031040			
AbsArfcnSsb	649152	669312			
AbsFreqSsb	3737280	4039680			

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5G Sub6G Band N78, 100MHz Bandwidth

NR ARFCN Profile	3.75G	3.675G			
DL Earfcn	649980	647772			
UL Earfcn	649980	647772			
DL CenterFreq	3749700	3716580			
UL CenterFreq	3749700	3716580			
DL AbsArfcnPointA	646704	644496			
UL AbsArfcnPointA	646704	644496			
DL AbsFreqPointA	3700560	3667440			
UL AbsFreqPointA	3700560	3667440			
AbsArfcnSsb	647232	645024			
AbsFreqSsb	3708480	3675360			

5G Sub6G Band N78, 90MHz Bandwidth

NR ARFCN Profile	3.75G	3.75G	3.6G	3.75G	
DL Earfcn	649644	649836	640044	649980	
UL Earfcn	649644	649836	640044	649980	
DL CenterFreq	3744660	3747540	3600660	3749700	
UL CenterFreq	3744660	3747540	3600660	3749700	
DL AbsArfcnPointA	646704	646896	637104	647040	
UL AbsArfcnPointA	646704	646896	637104	647040	
DL AbsFreqPointA	3700560	3703440	3556560	3705600	
UL AbsFreqPointA	3700560	3703440	3556560	3705600	
AbsArfcnSsb	647232	647424	637632	647616	
AbsFreqSsb	3708480	3711360	3564480	3714240	

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5G Sub6G Band N78, 80MHz Bandwidth

NR ARFCN Profile	3.75G				
DL Earfcn	649980				
UL Earfcn	649980				
DL CenterFreq	3749700				
UL CenterFreq	3749700				
DL AbsArfcnPointA	647376				
UL AbsArfcnPointA	647376				
DL AbsFreqPointA	3710640				
UL AbsFreqPointA	3710640				
AbsArfcnSsb	648576				
AbsFreqSsb	3728640				

5G Sub6G Band N78, 70MHz Bandwidth

NR ARFCN Profile	3.587G				
DL Earfcn	639180				
UL Earfcn	639180				
DL CenterFreq	3587700				
UL CenterFreq	3587700				
DL AbsArfcnPointA	636912				
UL AbsArfcnPointA	636912				
DL AbsFreqPointA	3553680				
UL AbsFreqPointA	3553680				
AbsArfcnSsb	637440				
AbsFreqSsb	3561600				

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5G Sub6G Band N78, 60MHz Bandwidth

NR ARFCN Profile	3.675G	3.6966G	3.75G		
DL Earfcn	645000	646440	649992		
UL Earfcn	645000	646440	649992		
DL CenterFreq	3675000	3696600	3749880		
UL CenterFreq	3675000	3696600	3749880		
DL AbsArfcnPointA	643056	644496	648048		
UL AbsArfcnPointA	643056	644496	648048		
DL AbsFreqPointA	3645840	3667440	3720720		
UL AbsFreqPointA	3645840	3667440	3720720		
AbsArfcnSsb	643584	645024	648576		
AbsFreqSsb	3653760	3675360	3728640		

5G Sub6G Band N78, 50MHz Bandwidth

NR ARFCN Profile	3.587G				
DL Earfcn	639180				
UL Earfcn	639180				
DL CenterFreq	3587700				
UL CenterFreq	3587700				
DL AbsArfcnPointA	637584				
UL AbsArfcnPointA	637584				
DL AbsFreqPointA	3563760				
UL AbsFreqPointA	3563760				
AbsArfcnSsb	638112				
AbsFreqSsb	3571680				

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5G Sub6G Band N78, 40MHz Bandwidth

NR ARFCN Profile	3.75G	3.75G			
DL Earfcn	649896	649992			
UL Earfcn	649896	649992			
DL CenterFreq	3748440	3749880			
UL CenterFreq	3748440	3749880			
DL AbsArfcnPointA	648624	648720			
UL AbsArfcnPointA	648624	648720			
DL AbsFreqPointA	3729360	3730800			
UL AbsFreqPointA	3729360	3730800			
AbsArfcnSsb	649152	649248			
AbsFreqSsb	3737280	3738720			

5G Sub6G Band N78, 30MHz Bandwidth

NR ARFCN Profile	3.75G	3.75G			
DL Earfcn	650136	650004			
UL Earfcn	650136	650004			
DL CenterFreq	3752040	3750060			
UL CenterFreq	3752040	3750060			
DL AbsArfcnPointA	649200	649068			
UL AbsArfcnPointA	649200	649068			
DL AbsFreqPointA	3738000	3736020			
UL AbsFreqPointA	3738000	3736020			
AbsArfcnSsb	649728	649632			
AbsFreqSsb	3745920	3744480			

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5G Sub6G Band N78, 20MHz Bandwidth

NR ARFCN Profile	3.75G				
DL Earfcn	650004				
UL Earfcn	650004				
DL CenterFreq	3750060				
UL CenterFreq	3750060				
DL AbsArfcnPointA	649392				
UL AbsArfcnPointA	649392				
DL AbsFreqPointA	3740880				
UL AbsFreqPointA	3740880				
AbsArfcnSsb	649632				
AbsFreqSsb	3744480				

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Federal Communication Commission Interference Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

FOR MOBILE DEVICE USAGE (>20cm/low power)

Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.

This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Professional installation instruction

1. Installation personal

This product is designed for specific application and needs to be installed by a qualified personal who has RF and related rule knowledge. The general user shall not attempt to install or change the setting.

2. Installation location

The product shall be installed at a location where the radiating antenna can be kept 20cm from nearby person in normal operation condition to meet regulatory RF exposure requirement.

3. External antenna

Use only the antennas which have been approved by the applicant. The non-approved antenna(s) may produce unwanted spurious or excessive RF transmitting power which may lead to the violation of FCC limit and is prohibited.

4. Installation procedure

Please refer to user's manual for the detail.

5. Warning

Please carefully select the installation position and make sure that the final output power does not exceed the limit set force in relevant rules. The violation of the rule could lead to serious federal penalty.

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