8.7.5 Data

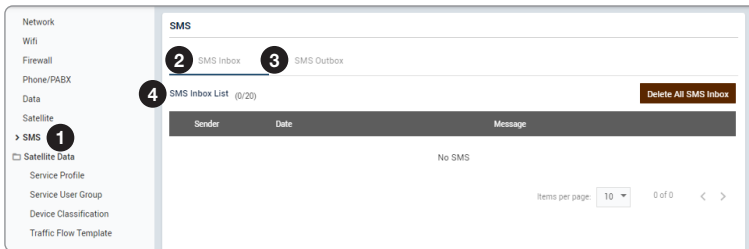
No.	Item	Description
①	Data	Sets the data settings.
②	Routing Config	Selects the data route type (None, Satellite Only, WAN Only). Click the **Apply** button to apply the settings to the system.
③	Port/Protocol Forwarding	Displays the port/protocol forwarding list. • Plus icon: To create new ports, click the plus icon. Then the pop-up window is opened. Enter the details, then click the **Update** button. The created ports are displayed on the list. - Enable: Select the check box. - Internal IP: Enter the internal IP. - Link: Select the link from the drop-down list. - Specifier: Select the specifier from the drop-down list. - Protocol: Select the protocol from the drop-down list. - Internal Port: Enter the internal port. - External Port:Enter the external port.

8.7.6 Satellite

No.	Item	Description
①	Satellite	By default, the terminal is set up to automatically find the most appropriate satellite to connect to ("Auto" mode). However, if you are located in an area with more than one BGAN satellite available, you can select the satellite you prefer to use when registering on the BGAN network.
②	Select Satellite	Select the satellite you prefer to use.
		If you select Auto (the default setting) the Aptus LX System automatically uses the most appropriate satellite.
		If you have selected a satellite your Aptus LX system will only try to establish a connection to the selected satellite. This means that if the antenna is outside the coverage area for that satellite, the Aptus LX system will not be able to register with the BGAN network.
		Click the **Apply** button to apply the settings to the system. The AptusLX terminates all ongoing connections and deregisters from the current satellite before it registers on the new satellite (or If you have any ongoing calls or data sessions, they will be terminated when you click the **Apply** button.)
③	Tracking Status	When a satellite is selected, the antenna status is changed from Seeking Status to Tracking Status.
		Seeking Status: The antenna is searching for the BGAN signal.
		Tracking Status: The antenna has found and locked to the BGAN signal. The antenna is now tracking the BGAN signal. The blue line shows Signal Strength (dBHz) and the green line shows Signal Quality Scores.

8.7.7 SMS

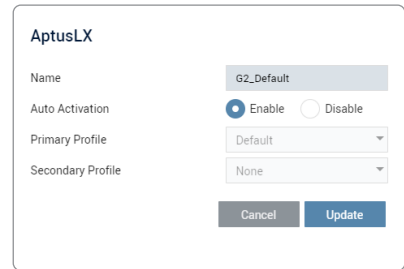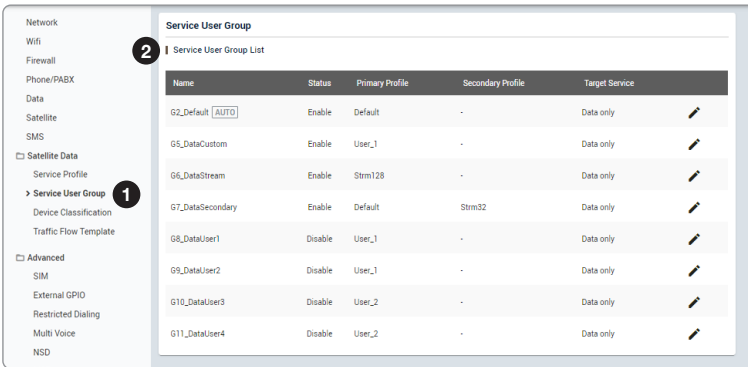| No.	Item	Description
①	SMS	The BGAN system provides a Short Messaging Service (SMS) for sending and receiving SMS messages (Standard 3G, up to 160 characters per SMS) to and from the terminal.
②	SMS Inbox	All received SMS messages are stored in the inbox. Unread messages are marked with a New icon. Click **Delete ALL SMS Inbox** to delete all messages in the Inbox.
③	SMS Outbox	All sent messages are stored in the outbox. If sending is successful, it is displayed as Success, and if it is unsuccessful, it is displayed as Fail. You can click the recipent number to re-send the message. Click **Delete ALL SMS Outbox** to delete all messages in the Inbox.
④	SMS Inbox/ Outbox List	Click the number in the Inbox / Outbox list, a pop-up window will appear for sending SMS. Also, you can send SMS by clicking the letter icon at the bottom right of the dashboard page.

8.7.8 Service Profile

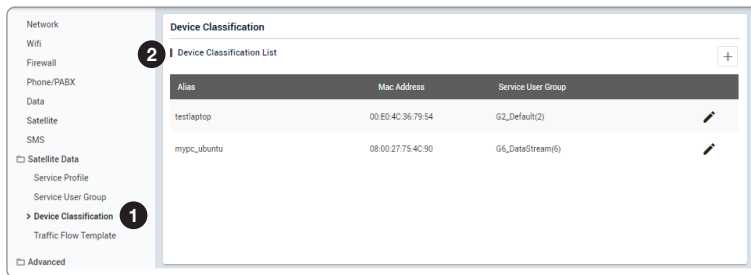| No.	Item	Description
①	Service Profile	A profile is a collection of Quality of Service (QoS) settings and other settings defining the mode in which data is transmitted on an interface. For example, a profile is used to define whether a connection should be a Standard or Streaming connection. You can select between a number of predefined profiles or define your own profiles for your data transmission.

②	Profile List	Displays service profile list and information.
		
		When you set up a network user group, you select the profiles to use for that network user group. You select a Primary profile and optionally one Secondary profile.
		
		• Edit button: to edit the profile, click the edit button. Then the pop-up window is opened. Enter the details, then click the **Update** button.
		  - Name: displays the name of profile.
		  - Traffic Class: Select the Traffic class from the drop-down list.
		    NOTE: For best performance, choose the right traffic class for your application. In general, Standard IP (Background) is best suited for TCP/IP applications, and Streaming IP is best suited for UDP traffic, e.g. live video or audio.
		    · Subscribed: this function is not available.
		    · Conversational: this function is not available.
		    · Streaming: is real-time one-way communication. It is primarily used for video and audio.
		    · Interactive: this function is not available.
		    · Background: is used for data which is not delay-sensitive, such as Email SMS, download of databases and reception of measurement records.
		  - Max Bitrate Downlink: Select the maximum download bit rate allowed for this profile from the drop-down list.
		  - Max Bitrate Uplink: Select the maximum upload bit rate allowed for this profile from the drop-down list.
		  - Guranteed Bitrate Downlink: Select the guaranteed download bit rate needed for this profile from the drop-down list.
		  - Guranteed Bitrate Uplink: Select guaranteed upload bit rate needed for this profile from the drop-down list.
		  - Limit Data: Enter the maximum usage that can be used within the connected data session.
		    In background: 1~1000000 Mbytes (0: unlimited)
		    In streaming: 1 ~ 43200 minutes (0: unlimited)

No.	Item	Description
②	Profile List	- Use Usim Default APN: Set whether to use the default APN value of USIM or not (Enable/Disable). The APN is taken from the SIM card. This is the recommended option, unless you have special requirements. - Use Defined APN: When you want to use a user-defined APN value, enter the APN value. APNs are provided from the Airtime Provider.

8.7.9 Service User Group

No.	Item	Description
①	Service User Group	The system can be organized in service user groups with different setup and different access rights. Each service user group has a service profile that determines how the users connect to the Inmarsat BGAN network. The network user groups can allow or restrict certain services for different users. NOTE: For F4-A250-S, the maximum Streaming bit rate is 128 kbps.

②	Service User Group List	Displays service user group list and information.
		 • Edit button: to edit the profile, click the edit button. Then the pop-up window is opened. Enter the details, then click the **Update** button.
		   - Name: Enter the name of service user group.
		   - Auto Activation: Set whether to use this group automatically or not (Enable/Disable).
		   - Primary Profile: Select the target primary profile from the drop-down list. This profile is used by this service user group as a first choice, when possible.
		   - Secondary Profile: Select the target secondary profile from the drop-down list.

8.7.10 Device Classification

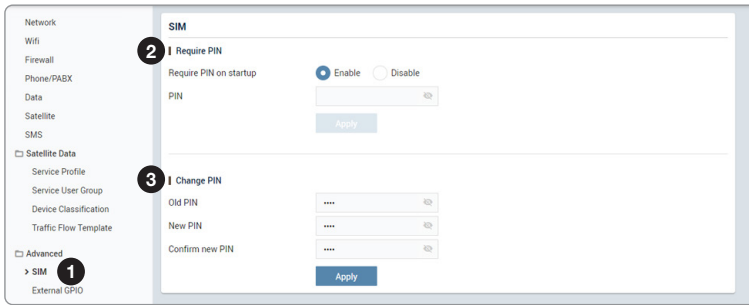| No.	Item	Description
①	Device Classification	Register the MAC address of the device for using the data service, and assign a service user group to the device.

②	Device Classification List	Displays device classification list and information.
		
		• Edit button: to edit the profile, click the edit button. Then the pop-up window is opened. Enter the details, then click the **Update** button. Click **Delete** button to delete it in the list.
		   - Alias: Enter the device name for the data service.
		   - Mac Address: Enter the mac address.
		   - Service User Group: Select the service user group from the drop-down list.

8.7.11 Traffic Flow Template (TFT)

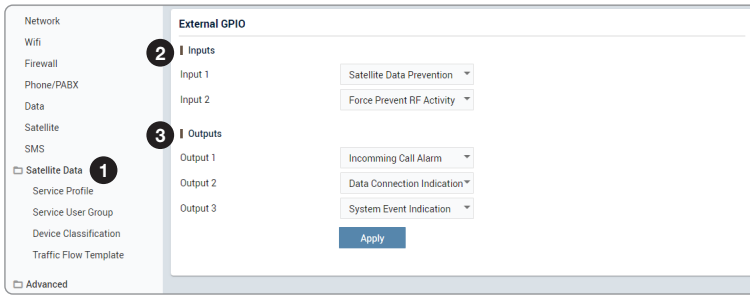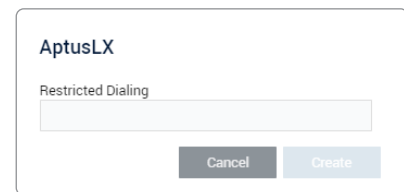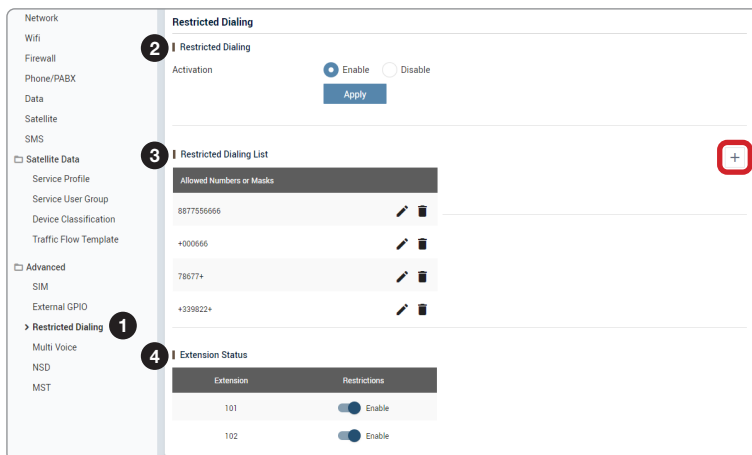| No.	Item	Description
①	Traffic Flow Template	Traffic Flow Template (TFT) is to assign different priorities to different types of traffic in order to optimize performance. When more than one type of traffic is needed, you must use both a primary and a secondary profile. For the BGAN core network and the terminal to classify packets received from the external network into the proper profile, you need a traffic flow filter. When using a secondary profile, assign that the system transmits/receives by filtering traffic for specific addresses, protocols, and ports.
②	Uplink/Downlink TFT List	Displays Uplink/Downlink TFT list and information. • Edit button: to edit the profile, click the edit button. Then the pop-up window is opened. Enter the details, then click the **Update** button. - Packet Filter Identifier: Displays the filter ID. - Target Route Service Profile: Select the target route service frofile from the drop-down list. - Remote Address: Enter the remote address. (for Downlink TFT: source address, for Uplink TFT: target address) - Subnet Mask: This is an IPv4 IP address and subnet mask. - Protocol Number: This number is uniquely assigned for the protocol being used. TCP is set to 6, and UDP is set to 17. The protocol number determines which protocol is used by the traffic flow filter. - Source Port Range: Enter from and to. - Destination Port Range: Enter from and to. - Type of Service /Type of Service Mask: Set this value to a number between 0 and 255. Type of Service (TOS) is an 8-bit field in a packet header, with associated mask, that is used to define Quality of Service.

8.7.12 SIM

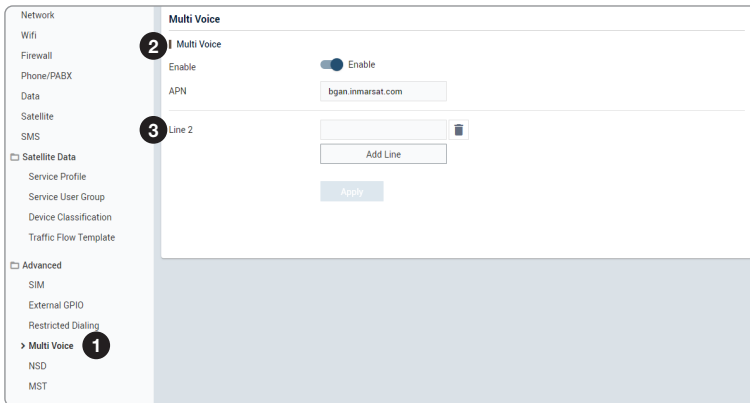| No.	Item	Description
①	SIM	Sets the use of a PIN to access the terminal.
②	Require PIN	Select Enable or Disable to use a PIN. • Enable: You must enter a PIN before you can change settings or make calls or data sessions. • Disable: You can access and use the terminal without entering a PIN. Click the **Apply** button to apply the settings to the system. The new PIN settings will take effect at next power on.
③	Change PIN	Changes the PIN used to access the terminal. • Old PIN: Type in the Old PIN. • New PIN: Type in the New PIN and retype. • Confirm New PIN: Retype in the New PIN. Click the **Apply** button to apply the settings to the system. The new PIN settings will take effect at next power on.

8.7.13 External GPIO

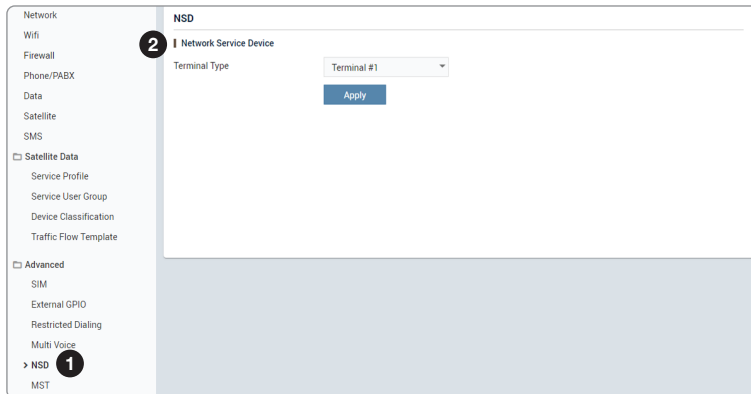| No.	Item	Description
①	External GPIO	Select the external General Purpose Inputs/Outputs (GPIO) settings from the drop-down list.
②	Inputs	Select the input settings from the drop-down list.
③	Outputs	Select the outputs settings from the drop-down list.

8.7.14 Restricted Dialing

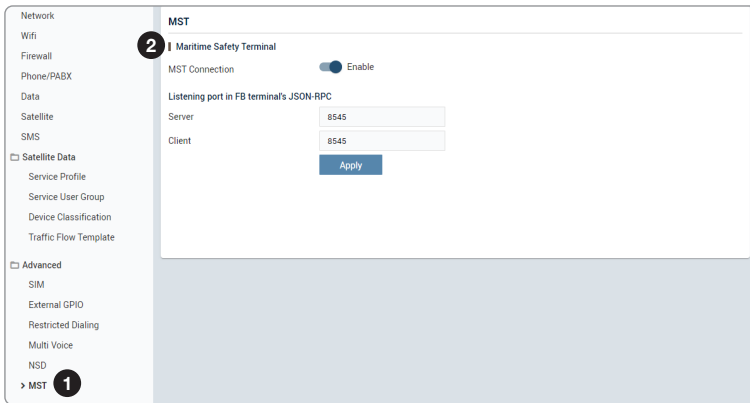| No.	Item	Description
①	Restricted Dialing	Set up the terminal for restricted dialing.
②	Restricted Dialing	Set whether to use restricted dialing or not (Enable/Disable). Click the **Apply** button to apply the settings to the system.
③	Restricted Dialing List	Displays the restricted dialing list. • Plus icon: To create a new restricted dialing rule, click the plus icon. Then the pop-up window is opened. Enter the allowed numbers or masks in the entry box. The numbers or masks must be max. 32 digits. The masks may start or end with + that positions the first or last part of a phone number, and it covers all numbers. No other special characters are allowed. See the example below. <table><tr><th>Mask (+)</th><th>Numbers Accepted</th></tr><tr><td>+123456789</td><td>Any number ending with 123456789 ex) 00123456789</td></tr><tr><td>123456789+</td><td>Any number starting with 123456789 ex) 12345678900</td></tr><tr><td>+123456789+</td><td>Any number including 123456789 in the middle ex) 0012345678900</td></tr></table> Click the **Update** button. The created dialing rule is displayed on the list.
④	Extension Status	Set whether outgoing calls of each extension should be limited to the numbers or not (Enable/Disable).

8.7.15 Multi Voice

No.	Item	Description
①	Multi Voice	Normally, the BGAN system only supports one call at a time per FB system. If you wish to have more simultaneous voice calls, you can add multi-voice to your airtime subscription.
②	Multi Voice	Sets the multi-voice service funcion. • Activate: Sets the multi-voice service by toggling the activation button (Enable/Disable). • APN: The VoIP APN used for Multi-voice automatically appears in the APN field. You can type in another APN if necessary. You find the Multi-voice APN name in your subscription documentation.
③	Line	Add voice service line by clicking **Add Line** button. When you subscribe to the optional Multivoice service and enable it in your system, you can have up to 9 concurrent calls.

8.7.16 NSD

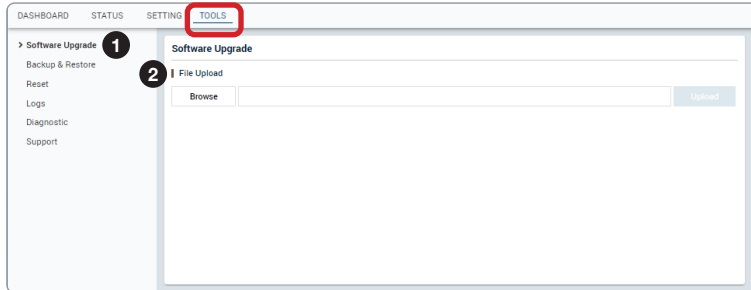| No.	Item	Description
①	NSD	A Network Service Device (NSD) is an Ehernet hardware device, identified by its unique MAC address. When a network device with dynamic IP address is connected to the terminal, it is automatically listed in the Terminal Type list.
②	Network Service Device	Select the terminal type from the drop-down list. Click the **Apply** button to apply the settings to the system.

8.7.17 MST

No.	Item	Description
①	MST	Sets the Maritime Service Terminal (MST).
②	Maritime Service Terminal	Sets the maritime service funcion. • MST Connection: Sets the maritime service by toggling the activation button (Enable/Disable). • Server: Enter the server ID. • Client: Enter the client ID.

8.8 Tools

This menu sets and displays the Software Upgrade, Backup & Restore, Reset, Logs, Diagnostic, and Support function.

8.8.1 Software Upgrade

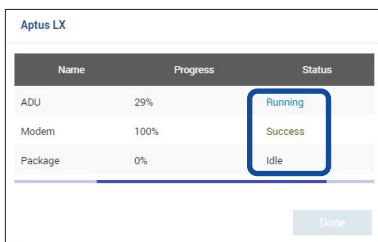| No.	Item	Description
①	Software Upgrade	Upgrades antenna software firmware.
②	Config	Browse and select the package firmware file to upload and click the **Upload** button. The update may take a few minutes to complete. The upload time may vary due to a variety of factors such as the speeds of your network. Uploading an incorrect firmware file may cause serious damage to your antenna and BDU. Refer to the following "Package Update Procedures" page for more details.

Package Update Procedures:

1. Browse and select the upgrade package file to upload. Click on the **Upload** button to transfer the Firmware package file (*.bin) to the BDU module.
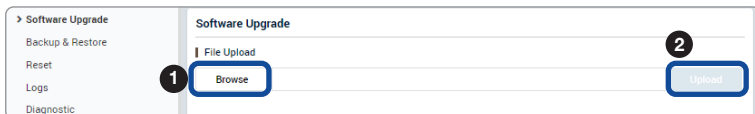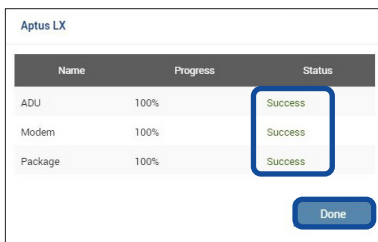

2. The antenna firmware state will appear in the pop-up window. Check the current version and the new version. Click the **Upgrade** button.
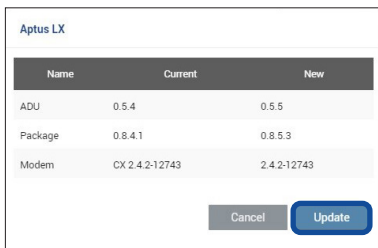
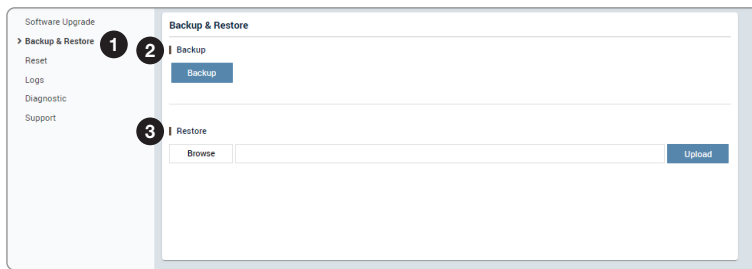3. During the upgrade process, the window will display process status.

4. If the firmware is successfully upgraded, it will display as **Success**. Click the **Done** button to close the pop-up window.

8.8.2 Backup & Restore

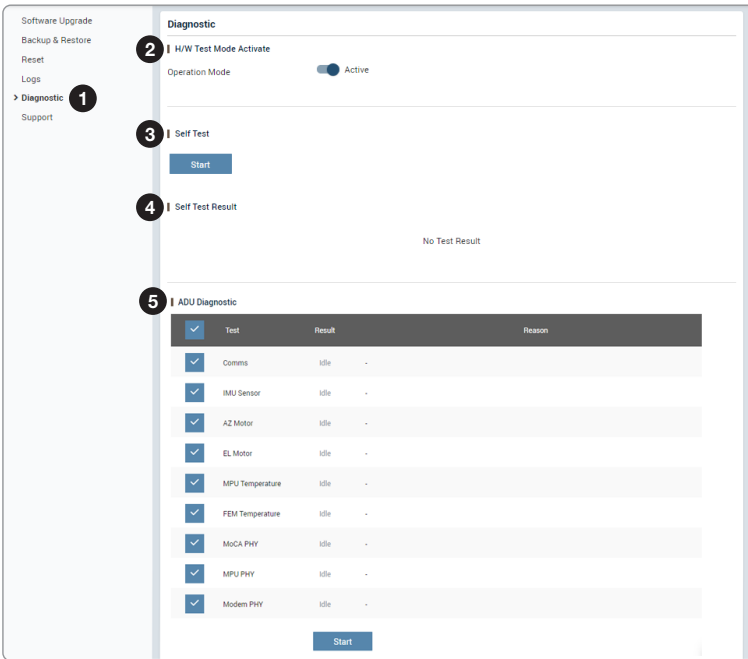| No.	Item	Description
①	Backup & Restore	Backs up user configuration files to PC and Restores the antenna settings.
②	Backup	Saves user configuration files to PC. Click the **Backup** button to apply the settings to the system.
③	Restore	Restores the antenna setting by using the setting files saved from the PC. Click the **Restore** button to apply the settings to the system.

8.8.3 Reset
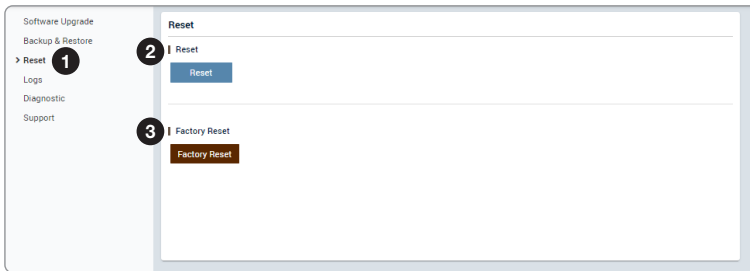
No.	Item	Description
①	Reset	Resets the antenna system and factory reset.
②	Reset	Click the **Reset** button to reset the antenna system. The user configuration is not reinitialized.
③	Factory Reset	Click the **Factory Reset** button to initialize the antenna system. The user configuration is initialized.

8.8.4 Logs
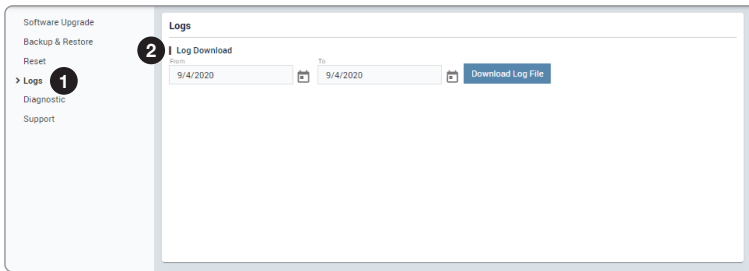
No.	Item	Description
①	Logs	Downloads the antenna log data.
②	Logs	Displays the antenna log list. • Download Log File: Any log data (.gz) within a month can be downloaded. Click the Download Log File button.

8.8.5 Diagnostic

| No.	Item	Description
①	Diagnostic	Executes antenna diagnosis test to check the antenna status.
②	H/W (Hardware) Test Mode Activate	Sets the hardware test function by toggling the activation button (Active/Inactive).
③	Self Test	The activation button must be selected to the "Active" in the previous step. Click the **Start** button to run the self-test.
④	Self Test Result	Displays the self-test result.
⑤	ADU Diagnostic	Executes the ADU diagnosis test to check each part of ADU status. Select the ADU part to test by toggling the activation button (Enable/Disable). Click the **Start** button to run the test.

WARNING

While selecting the **Active** button in the H/W Test Mode Activate menu, the system is in the hardware test mode. Select the **Inactive** button for normal operation.

Diagnosis Procedures:

1. Select the checkbox (full diagnosis test or single diagnosis test) before modifying the settings. Click on the **Start** button to run the diagnostic test.
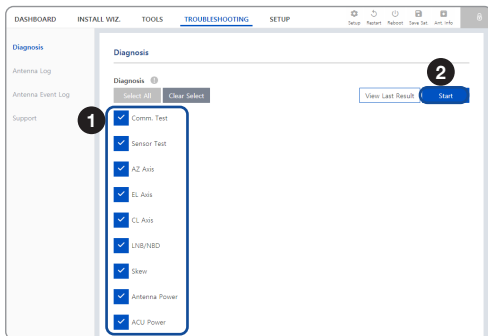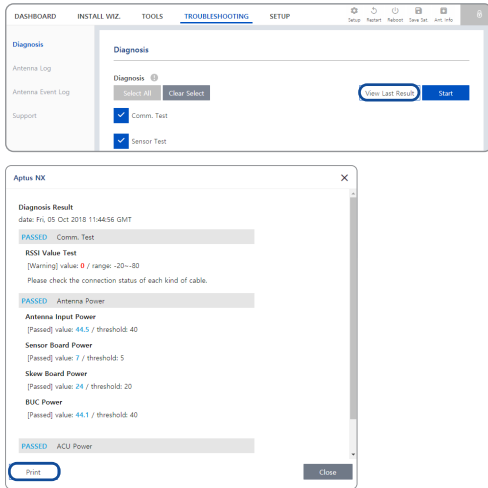

2. Once the diagnosis starts, the page will indicate test status. It should take a few minutes to complete the test.
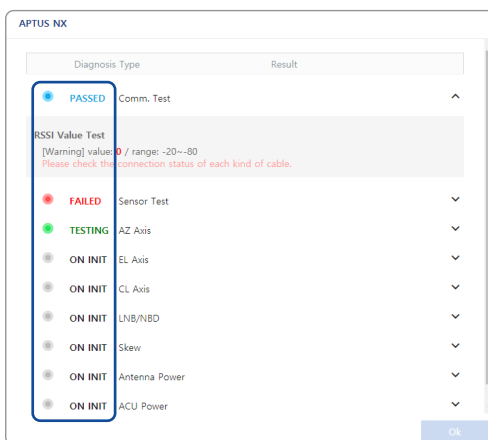
3. After the diagnosis is completed the system shows the diagnosis results of each item. You can save the results to the BDU by clicking the **Save Report** button and print this page by clicking the **Print** button.
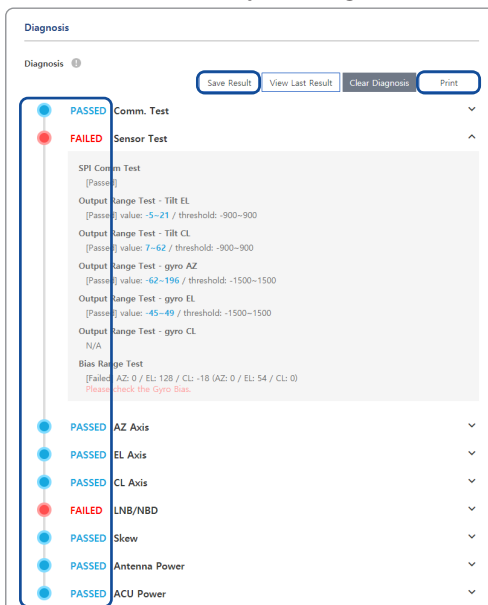
4. When you want to check the recently saved diagnosis results, click the **View Last Report** button. The pop-up page of the diagnosis results, including the save date and time, will appear. You can print this page by clicking the **Print** button.

No.	Item	Description
①	Diagnosis Code	Displays the diagnosis code. **Code / Test table:** Code 101: The data communication between the antenna and the BDU is tested. Code 102: The azimuth axis is tested. Code 103: The elevation axis is tested. Code 104: The cross-level axis is tested. Code 105: Not Available Code 106: Not Available Code 107: The rate sensor is tested. Code 108: Not Available Code 109: Not Available Code 110: The LNB / NBD is tested. Code 111: The LNB pol motor is tested. Code 112: Not Available Code 113: The antenna power is tested. Code 114: The BDU power is tested. Code 115: Not Available Code 116: The home sensor is tested.
②	Diagnosis Result	• An example of diagnosis result: 1 - - - O O 7 O O 10 ← **Diagnosis Result of Code 101~110** - O 13 14 O O ← **Diagnosis Result of Code 111~116** - **' - ' : The test was passed.** Code 102, 103, 104 and 111 were passed. - **Last 1 or 2 digits of diagnosis code : The test was failed.** Code 101, 107, 110, 113 and 114 were failed. - **' O ' : The test was not performed.** Code 105, 106, 108, 109, 112, 115 and 116 were not performed.

8.8.6 Support

No.	Item	Description
①	Support	Downloads the User Guide.
②	Manual	The user guide file (.pdf) can be downloaded. Click the **Download** button.

Chapter 9. Specification

9.1 Technical Specification

Above Decks Unit (ADU)		
ADU Height		295 mm (11.61")
ADU Diameter		Ø291 mm (11.45")
ADU Weight		4.5 kg (9.92 lbs) (TBD)
Rx	Frequency	1518.0 ~ 1559.0 MHz L-Band
	Gain	10.8 dB
Tx	Frequency	1626.5 ~ 1675.0 MHz L-Band
	Gain	11.3 dB
RF Output power		34.1 dBm
Polarization		RHCP (Rx and Tx)
G/T		-15.5 dB/K
EIRP		15.1 dBW
Axial Ratio		<4 dB
Antenna Motion		-25 ~ 115°
Ship's Motion	Roll	± 30° / 4 s
	Pitch	± 15° / 3 s
	Yaw	± 10° / 5 s
	Turning Rate	36°/sec and 12°/s²
	Headway	30 knots
GNSS		GPS, GLONASS, Galileo
ADU to BDU Cable (Antenna Cable)		Single RF Cable
Input Power		48 V DC supplied from BDU over RF Cable
Below Decks Unit (BDU)		
BDU Size		315 x 190 x 42 mm (12.4" x 7.48" x 1.655")
BDU Weight		1.5 kg (3.3 lbs) (Stand-alone Type)
LED Indicator		3 LEDs for Power, Tracking, Event
Wi-Fi		802.11 b/g Frequency : 2400 MHz - 2483.5 MHz Output Power : below 30 dBm (10 mW/MHz in Korea, Japan) Max. Antenna gain: 2 dBi
SIM	1 ea, 2FF Push-Push type with locking structure	User Authentication
Ethernet	4 ea, RJ45 Female	TCP/ IP Connection, including 2 Port PoE
RF Interface	1 ea, TNC Female	Sub-System Connection to ADU
Analog	1 ea, RJ14 Female	Analog Phone

GPIO	1 ea, (10 pins)	General Purpose I/O
Wi-Fi	1 ea, SMA Female	External Wi-Fi Antenna
On/Off switch	1 ea, Power Switch	System Power Switch
Reset	1 ea	System Reset
Ground	1 ea	Grounding
BDU Power Input	10.8 ~ 30 V DC, 120 W	

9.2 Environmental Specification

Test		Intellian Standard	
Temperature (ADU)	Operational	IEC-60945 (-25°C to +55°C / Power On)	
	Survival	IEC-60945 (-40°C to +80°C / Powered On and a non-functional state)	
	Storage	IEC-60945 (-40°C to +85°C / Power off)	
Temperature (BDU)	Operational	IEC-60945 (-25°C to +55°C)	
	Survival	IEC-60945 (-40°C to +80°C)	
	Storage	IEC-60945 (-40°C to +85°C)	
Humidity	IEC-60068-2-30 Upper test Temp.: +40°C (-3), Humidity 98% Lower test Temp.: +15°C (+3), Humidity 71% ~ 78%		
Vibration	Operational	IEC-60945 Random 1.05 g RMS	
	Survival	IEC-60721-3-6 Class 6M3 Random 1.7 g RMS	
Shock (ADU)	Operational	Half sine, 20g / 11ms	
Shock (BDU)	Operational	IEC-60068-2-27 10g/11ms, 20g/7ms	
	Survival (Transient)	IEC-60721-3-6 Class 6M3 (10g/11ms, 30g/6ms, 50g/3ms)	
	Survival (Bump)	IEC-60721-3-6 Class 6M3 (25g/6ms)	
Salt Mist	Saline solution: 5% NaCl, PH 6.5 to 7.2 at 20°C ± 2°C Storage period: 7 Days (IEC-60945)		
Wind Load	200 km/hr		
Ingress Rating (ADU)	IP56 (Water Proofing: IEC-60529)		

Chapter 10. Warranty

10.1 Warranty Policy

Intellian systems are warranted against defects in parts and workmanship, these warranties cover THREE (3) YEAR of parts and TWO (2) YEAR of factory repair labor to return the system to its original operational specification.

Warranty periods commence from the date of shipment from Intellian facility, or date of installation which is come sooner. Providing maximum 6 months Warranty additionally if submission of authorized form which is described installation occurs within 6 months from the shipment date.

Intellian Technologies warranty does not apply to product that has been damaged and subjected to accident, abuse, misuse, non-authorized modification, incorrect and/or non-authorized service, or to a product on which the serial number has been altered, mutilated or removed. Intellian Technologies, will (at its sole discretion) repair or replace during the warranty period any product which is proven to be defective in materials or workmanship, in accordance with the relevant product warranty policy. All products returned to Intellian Technologies, during the warranty period must be accompanied by a Service Case reference number issued by the dealer/distributor from Intellian Technologies, and (where applicable) a copy of the purchase receipt as a proof of purchase date, prior to shipment. Alternatively, you may bring the product to an authorized Intellian Technologies, dealer/distributor for repair.

Chapter 11. Appendix

11.1 Appendix A. Tightening Torque Specification

The material qualities of screws are standardized. Refer to the tightening torque N-m according to ISO 898/1.

Bolt Size	Tightening Torque (N-m)	
	A2-70 (6.8)	A4-80 (8.8)
M4	1.5	2
M5	3	4
M6	5.1	6.8
M8	12.2	16.6
M10	25.2	33.1
M12	43.9	58.3
M16	114	139

(Example Picture)

Torque [N-m]