



# JUPITER™ SYSTEM

## HT2000W Satellite Modem User Guide

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# Understanding safety alert messages

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Safety alert messages call attention to potential safety hazards and tell you how to avoid them. These messages are identified by the signal words DANGER, WARNING, CAUTION, or NOTICE, as illustrated below. To avoid possible property damage, personal injury, or in some cases possible death, read and comply with all safety alert messages.

## Messages concerning personal injury

The signal words DANGER, WARNING, and CAUTION indicate hazards that could result in personal injury or in some cases death, as explained below. Each of these signal words indicates the severity of the potential hazard.



DANGER indicates a potentially hazardous situation which, if not avoided, *will* result in death or serious injury.

---



WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.

---



CAUTION indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

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## Messages concerning property damage

A NOTICE concerns property damage only.



NOTICE is used for advisory messages concerning possible property damage, product damage or malfunction, data loss, or other unwanted results – but *not* personal injury.

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## Safety symbols

The generic safety alert symbol



calls attention to a potential personal injury hazard. It appears next to the DANGER, WARNING, and CAUTION signal words as part of the signal word label. Other symbols may appear next to DANGER, WARNING, or CAUTION to indicate a specific type of hazard (for example, fire or electric shock). If other hazard symbols are used in this document they are identified in this section.

### ***Additional symbols***

This document uses the following hazard symbols:



Indicates a safety message that concerns a potential electric shock hazard.

# Satellite modem overview

This user guide describes the features and operation of the HT2000W satellite modem, which provides Internet access by satellite. In this user guide, *satellite modem* and *modem* both refer to the HT2000W satellite modem.

## Description

The HT2000W satellite modem connects to a satellite network to provide Internet service. The modem connects to a computer or local area network (LAN) via one of its four (4) Ethernet ports and/or its two (2) wireless networks. [Figure 1](#) shows the front and back of the HT2000W.

After your HT2000W satellite modem has been installed, you can use your computer's web browser to access the Internet or an intranet.



Figure 1: HT2000W front and back

## NOTICE

- Do not press the reset/rescue button on the HT2000W unless a customer service representative tells you to do so.
  - The USB port is provided to support a future modem feature. Hughes does not recommend plugging anything into this port at this time. Hughes will inform you when this feature is available.
- 

## Operating environment

Observe the following requirements for the modem's operating environment.

### ***Ventilation and heat sources***

The modem must be adequately ventilated and kept away from sources of heat.

## NOTICE

- Do not block any of the modem's ventilation openings.
  - Leave 6 inches of space around the top and sides of the modem to ensure adequate ventilation and prevent overheating.
  - Do not place the modem near a heat source, such as direct sunlight, a radiator, a heat register or vent, oven, stove, amplifier, or other apparatus that produces heat.
-

## ***Operating position***

Operate the HT2000W modem only in an upright, vertical position, resting on its built-in base, as shown in [Figure 2](#). Any other position could result in insufficient ventilation, overheating, and malfunction.



Figure 2: Modem operating position

## **Computer requirements**

The computer that connects to the satellite modem should meet the minimum requirements specified by the computer operating system manufacturer and the following networking and browser requirements.

### ***Networking and Internet browser requirements***

- Ethernet port
- Ethernet network interface card (NIC) installed on your computer
- Ethernet cable
- A web browser with proxy settings disabled

## Contact information

If you need operational, warranty, or repair support, who you should contact depends on where you purchased your satellite modem. Please contact a customer care representative in accordance with your service agreement.

## Power supply information

### NOTICE

- Always use the power supply provided with the satellite modem. The modem's performance may suffer if the wrong power supply is used.
- Connect the power supply to a grounded outlet. A suitable surge protector is recommended to protect the satellite modem from possible damage due to power surges.
- Always connect the DC power cord to the HT2000W rear panel before applying power to the power supply. If you apply power to the power supply and then connect the DC power cord, the satellite modem may not perform properly and could be damaged.
- Observe the power standards and requirements of the country where it is installed.



### CAUTION



If there is any reason to remove power from the satellite modem, always unplug the AC power cord from the power source (power outlet, power strip, or surge protector). Do not remove the DC power cord from the modem's rear panel. Doing so could result in an electrical shock or damage the modem.

When you re-apply power to the modem, plug the AC power cord into the power source.

---

## Connecting the modem power cord

The HT2000W power cord connector uses a locking mechanism to ensure it stays snugly connected to the modem. Make sure the connector is oriented correctly when plugging it into the DC IN port; **the flat side of the plug should face the modem's side panel nearest to the port.**

Figure 3 explains how to correctly orient the power cord connector. When connecting the power cord, you *must* push the connector into the DC IN port until it clicks. This indicates the power cord is locked into the modem.



Figure 3: Aligning the power cord connector

## Disconnecting the modem power cord

The power cord connector has a hard plastic sleeve (marked with two arrows) that you must slide backward when removing the cord from the modem. Sliding the sleeve backward disengages the connector's locking mechanism. See Figure 4.

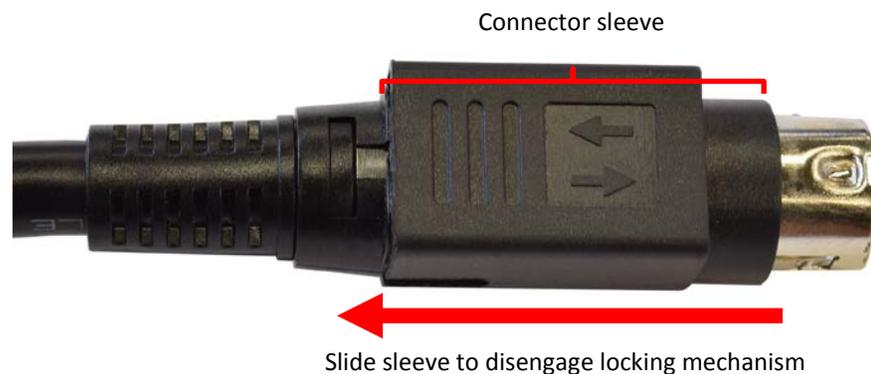


Figure 4: Power cord connector

When removing the power cord, brace the modem with one hand. Use your other hand to slide the power connector sleeve toward you (away from the modem) and pull the power cord from the DC IN port. See [Figure 5](#).

**Important:** If the power cord does not easily disconnect from the DC IN port, *do not force it*. Doing so could damage the modem.



Figure 5: Disconnecting the power cord from the modem

# System Control Center

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The System Control Center is a set of screens and links you can use to monitor your service and troubleshoot the satellite modem in the event of a problem. The System Control Center provides access to system status, configuration information, and online documentation.

Access the System Control Center through a web browser on a computer connected to the satellite modem. Use the System Control Center to find system information for configuring networks or to check system performance if the satellite modem does not seem to be functioning properly.

## Accessing the System Control Center

To access the System Control Center website, first connect a computer with a web browser to the satellite modem's LAN port. The System Control Center is hosted on the modem, so your computer does not have to be connected to the Internet to access the site.

To open the System Control Center, double-click the System Control Center shortcut on your computer's desktop, or follow these steps:

1. Open a web browser.
2. In the browser address bar, type `192.168.0.1` and press **Enter**.

## System Control Center home page

The System Control Center home page contains numerous links to satellite modem features and important information regarding operation of your satellite modem.

[Figure 6](#) shows the System Control Center home page. **Your home page may look slightly different depending on your service provider.**

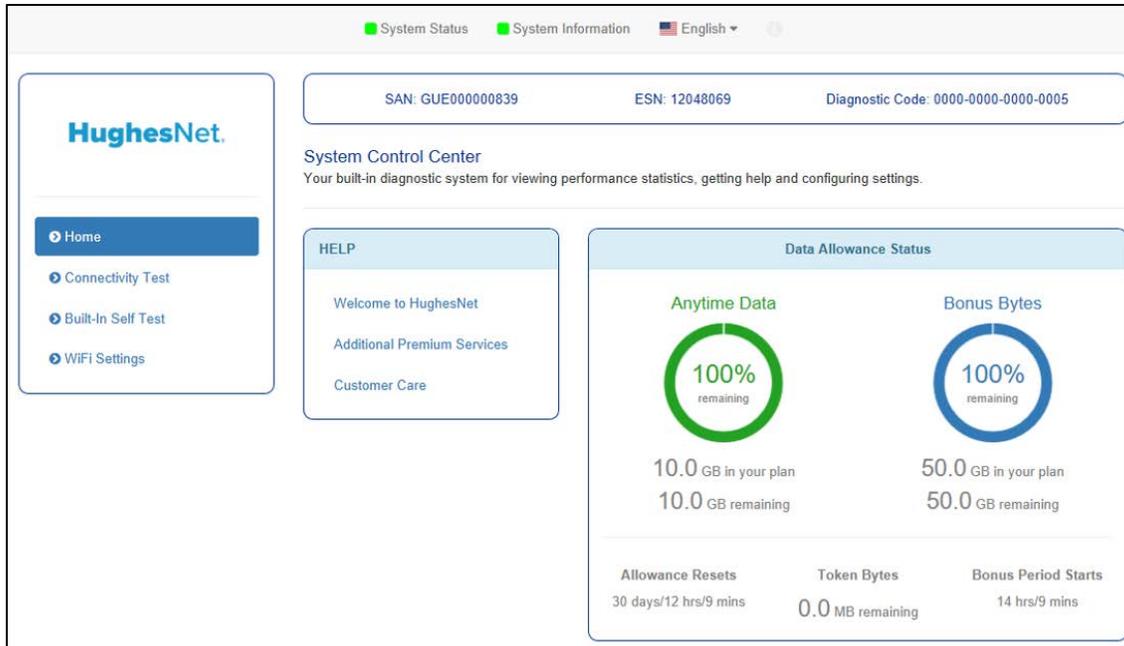


Figure 6: System Control Center

### Indicator links

At the top of each System Control Center page are two indicators followed by a text link (Figure 7), as well as a language selection drop-down.

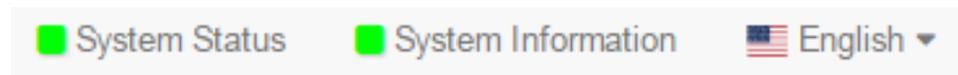


Figure 7: Indicators and links

Each text link navigates to a page in the System Control Center. Table 1 describes the destination page for each link.

Table 1: Destination pages

Indicator	Destination	Description
System Status	System Status page	Gives important information about the satellite modem's operational status.
System Information	System Information page	General information screen that identifies software and hardware versions and other important satellite connection information.

The System Status indicator also changes color to indicate the operational status of the satellite modem.

- Red: The system has a problem.
- Yellow: The system is operational, but under a degraded condition.
- Green: The system is functioning within normal parameters.

### **Parameters bar**

The parameters bar appears at the top of all System Control Center screens as shown in [Figure 8](#). This bar displays three important fields of information:

- SAN – Site account number (SAN), which identifies the installation site.
- ESN – Electronic serial number assigned to the modem.
- Diagnostic Code – Used to troubleshoot problems.



Figure 8: Parameters bar

### **Side panel**

The following links appear on the left side panel of each System Control Center screen as shown in [Figure 9](#).

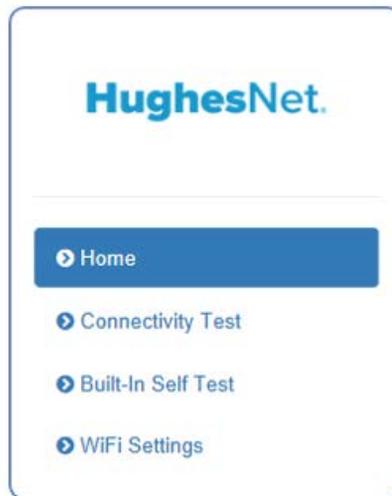


Figure 9: Side panel links

#### **Home**

Opens the System Control Center home page.

#### **Connectivity Test**

Opens the Connectivity Test page, which you can use to test the connection between the satellite modem and the NOC.

#### **Built-In Self Test**

Checks the internal operation of the modem.

## WiFi Settings

Allows the user to customize certain aspects of the modem's Wi-Fi functionality.

**Note:** Some of these links may not appear because they are not enabled by the service provider.

## System Status page

The System Status page lists parameter information vital to the proper operation of the HT2000W. Available system status values (as shown in [Figure 10](#)) may vary, depending on how your satellite modem is configured.

SAN: --			ESN: 12000207			Diagnostic Code: Not Available		
<b>System Summary</b>								
State Code			0.0.0 -- Fully operational			✓		
Summary Operational State			Up			✓		
Data Allowance Remaining			1.799 GB			✓		
<b>System Status</b>								
Satellite Receive Status			Up			✓		
Satellite Transmit Status			Up			✓		
LAN Status			Up 1G FD			✓		
IP Gateway Association State			Associated (Data IPGW - ALB14HNSIGW11A001)			✓		
TCP Acceleration			Up			✓		
Web Acceleration			Up			✓		
Suspension State			Not Suspended			✓		
Software Download Status			Up to date			✓		
<b>WAN Info</b>								
Satellite Receive Signal Strength			169					
Data Packets Received			140					
Control Packets Received			90267					
Bursts Transmitted			3394					
Packets Transmitted			208					
<b>LAN Info</b>								
Packets Received			8619					
Packets Transmitted			10265					

Figure 10: System Status page

## System Information page

The System Information page (shown in [Figure 11](#)) provides system information for the satellite modem, such as identification information, software versions, and satellite information.

SAN: --		ESN: 12000207	Diagnostic Code: Not Available
<b>Identification</b>			
System Assigned Identifier (SAI)			12685
Chassis Part Number			1505215
Radio Serial Number			501229201287
Radio Part Number			1502938
LAN MAC Address			00:80:AE:EE:74:ED
<b>Software</b>		<b>Satellite</b>	
Application Software	3.4.2.24	Satellite Name	EchoStar-17-NAD
Fallback Software	3.4.2.4	Gateway ID	2
		Beam ID	14
		Outroute ID	18

Figure 11: System Information page

## Connectivity test

To test your connectivity:

1. Click the **Connectivity Test** link on the side panel. The Terminal/Gateway Connectivity Test panel appears in the center of the screen.
2. Click **Start the test**, as shown in [Figure 12](#).

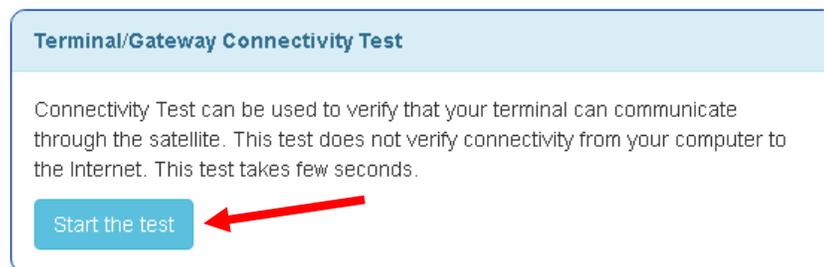


Figure 12: Starting the connectivity test

3. A progress bar appears in the Terminal/Gateway Connectivity Test panel, indicating the test has started.

- When the test completes, the results appear in the center panel. [Figure 13](#) shows the results of the test.

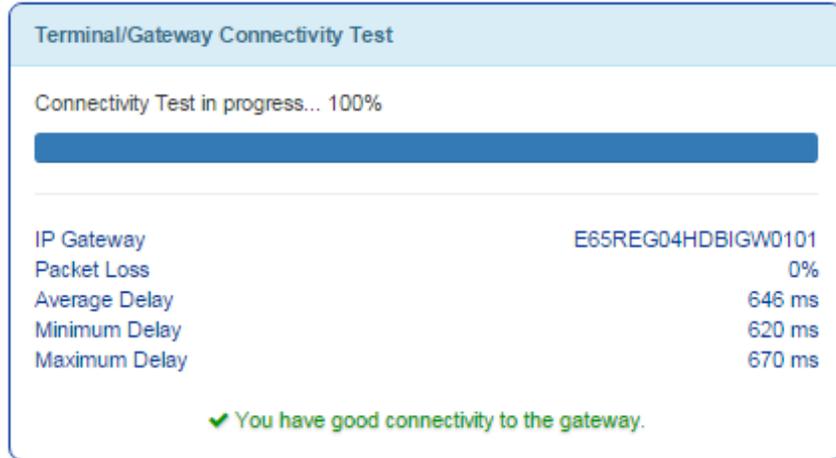


Figure 13: Connectivity test results

## Built-in self test

Use the **Built-In Self Test** link on the side panel to check the connectivity of the satellite modem. To initiate the test:

- Click the **Built-In Self Test** link on the side panel.
- The test results appear in the BIST Results panel, as shown in [Figure 14](#).

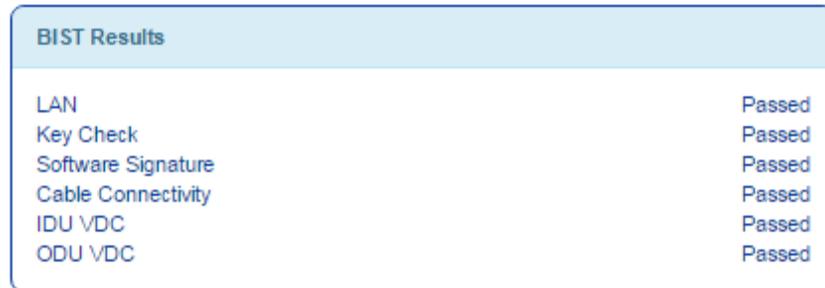


Figure 14: Built-In Self Test screen

**Note:** If the Built-In Self Test fails, contact Customer Care at 1-866-347-3292 for assistance.

## Chapter 3

# Wi-Fi Configuration

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## Getting Connected for the First Time

### ***Connecting via Ethernet***

1. Using the provided Ethernet cable, connect one end of the cable to one of the open LAN ports on the rear of the HT2000W, connect the other end to your PC's Ethernet port.
2. Ensure lights are blinking on the LAN port you have connected your PC to. If lights are not blinking, ensure that the connector on the cable is fully seated in the LAN port.
3. You are now connected to your HT2000W.

### ***Connecting via Wi-Fi with WPA Password***

1. On the rear of the HT2000W is a label containing the default SSID (Wi-Fi Network Name) for both 2.4GHz and 5GHz networks, as well as the password to connect to the Internet.
2. On your Wi-Fi enabled device, choose either the 2.4GHz or 5GHz network name in your Wi-Fi setup utility. Enter the password noted from the rear of the unit when prompted.
3. You are now connected to your HT2000W.

### ***Connecting via Wi-Fi with WPS setup***

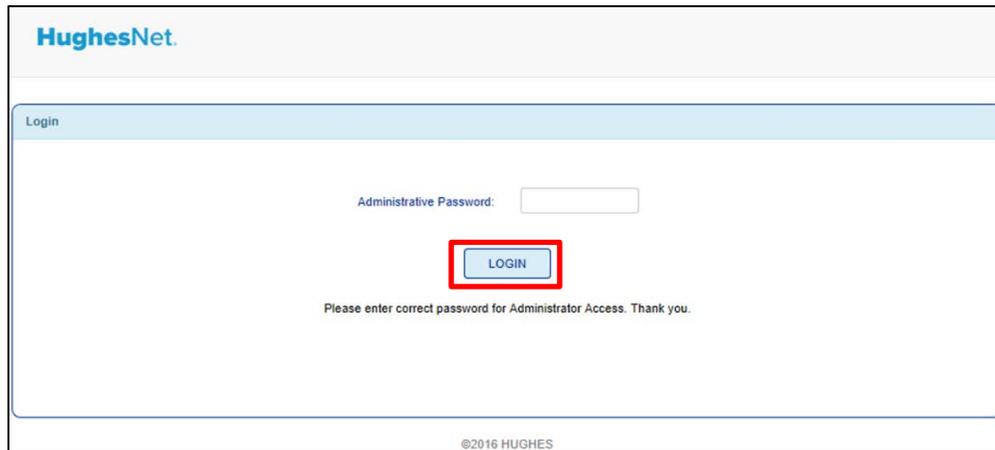
WPS setup is supported only on Windows and Android devices.

1. Put your device into WPS pairing mode (this step varies by device).
2. Once your device tells you to, press the WPS button on the HT2000W.
3. Your device should then connect to the HT2000W's wireless network automatically.
4. You are now connected to your HT2000W.

## Basic Setup

### **Logging into your HT2000W's Wi-Fi configuration page**

1. Connect to your HT2000W.
2. Open your internet browser and navigate to <http://192.168.42.1>.
3. You will be presented with a login screen, the default password is "admin."
4. Click **Login**.



HughesNet.

Login

Administrative Password:

**LOGIN**

Please enter correct password for Administrator Access. Thank you.

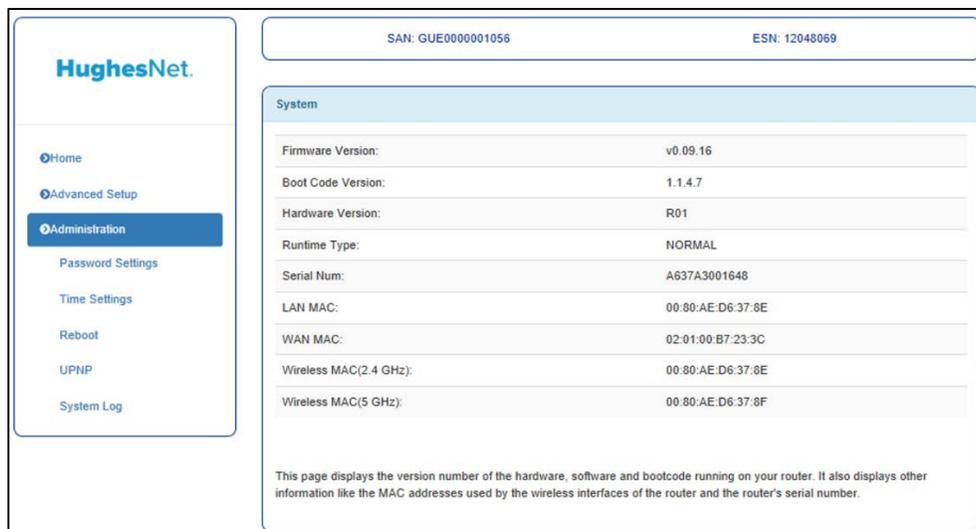
@2016 HUGHES

Figure 15: Wi-Fi login page

### **Changing the administrator password**

We recommend you change this immediately upon installation. Choose a password that is easy to remember but cannot be easily guessed.

1. Login to your HT2000W's Wi-Fi configuration page.
2. On the left panel, select Administration.



HughesNet.

Home  
Advanced Setup  
**Administration**  
Password Settings  
Time Settings  
Reboot  
UPNP  
System Log

SAN: GUE000001056 ESN: 12048069

System

Firmware Version:	v0.09.16
Boot Code Version:	1.1.4.7
Hardware Version:	R01
Runtime Type:	NORMAL
Serial Num:	A637A3001648
LAN MAC:	00:80:AE:D6:37:8E
WAN MAC:	02:01:00:B7:23:3C
Wireless MAC(2.4 GHz):	00:80:AE:D6:37:8E
Wireless MAC(5 GHz):	00:80:AE:D6:37:8F

This page displays the version number of the hardware, software and bootcode running on your router. It also displays other information like the MAC addresses used by the wireless interfaces of the router and the router's serial number.

Figure 16: Administration main page

3. New options will appear in the left panel, select Password Settings.

The screenshot shows the HughesNet Administration interface. On the left is a navigation menu with the following items: Home, Advanced Setup, Administration, Password Settings (highlighted), Time Settings, Reboot, UPNP, and System Log. The main content area is titled 'Password Settings' and contains three input fields: 'Current Password', 'New Password', and 'Re-Enter Password for Verification'. Below these fields are two buttons: 'SAVE SETTINGS' and 'CANCEL'. At the top of the main area, the SAN ID 'GUE0000001056' and ESN '12048069' are displayed. A note at the bottom of the form states: 'This page allows you to change the administrative password for the router. This is the password that you use to modify any router configurations.'

Figure 17: Password Settings page

4. Type in your old password, followed by your new password, typed twice for verification.
5. Click Save Settings.
6. Once finished applying changes, you will be logged out, and your new password must be used to log in.

### ***Changing your Wi-Fi networks' names and security settings***

Out of the box, your HT2000W is setup to work with the Wi-Fi settings listed on the rear label. Should you wish to change these, you can easily do so.

1. Login to your HT2000W Wi-Fi configuration page.

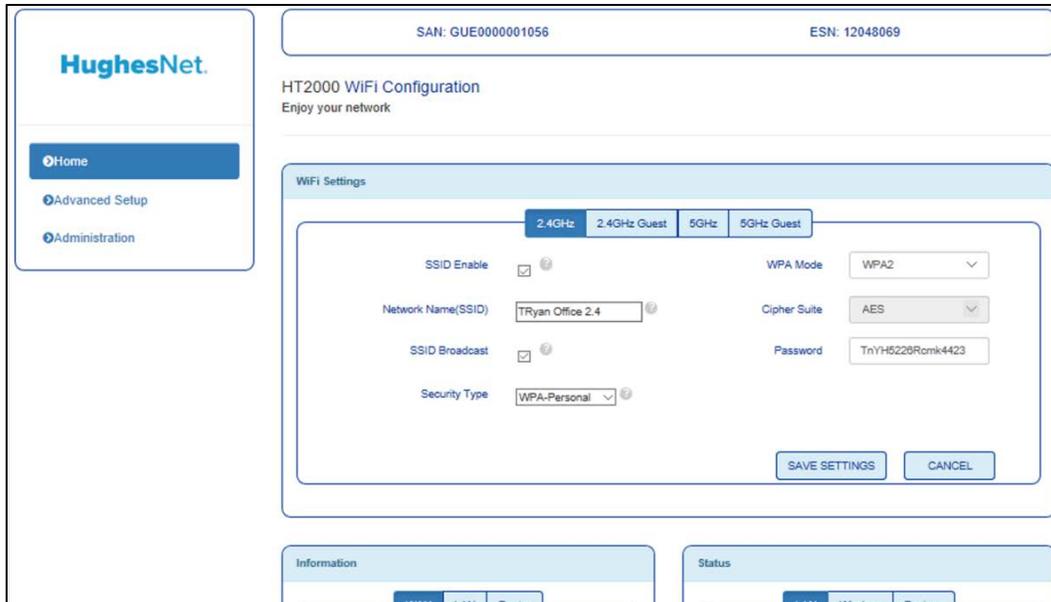


Figure 18: Wi-Fi Configuration main page

2. The default screen will be Wi-Fi settings. The settings listed for both 2.4GHz and 5GHz networks are as follows:
  - SSID Enable – Enable/Disable this SSID. Default is on.
  - Network Name (SSID) – Choose the name of your network. Default value is the same as displayed on the rear label.
  - SSID Broadcast – When un-checked, this option allows you to hide your network from appearing when searching for Wi-Fi networks on your devices. You can still access this network, but must use the hidden network option on the device you are trying to connect.
  - Security Type – Choose WPA-Personal, WPA-Enterprise, or No Password. We recommend not operating your HT2000W without a Wi-Fi password. Default is WPA-Personal.
  - WPA Mode – Choose WPA mode. WPA2 by default, some legacy devices only support WPA, you can change this to WPA/WPA2 for such devices.
  - Cipher Suite – This cannot be changed, but is to inform you of the cipher suite being used.
  - Pre-shared Key – This is your Wi-Fi password. This will overwrite the default password on the rear label.

### ***Enabling Guest Networks***

Guest networks allow your guests to access the internet without being granted access to other network resources. By default, these are disabled.

1. Login to your HT2000W Wi-Fi configuration page.
2. On the main page, you will see tabs for “2.4GHz Guest” and “5GHz Guest.” Click the frequency you wish to set up, you may set up guest networks on both bands if you wish.

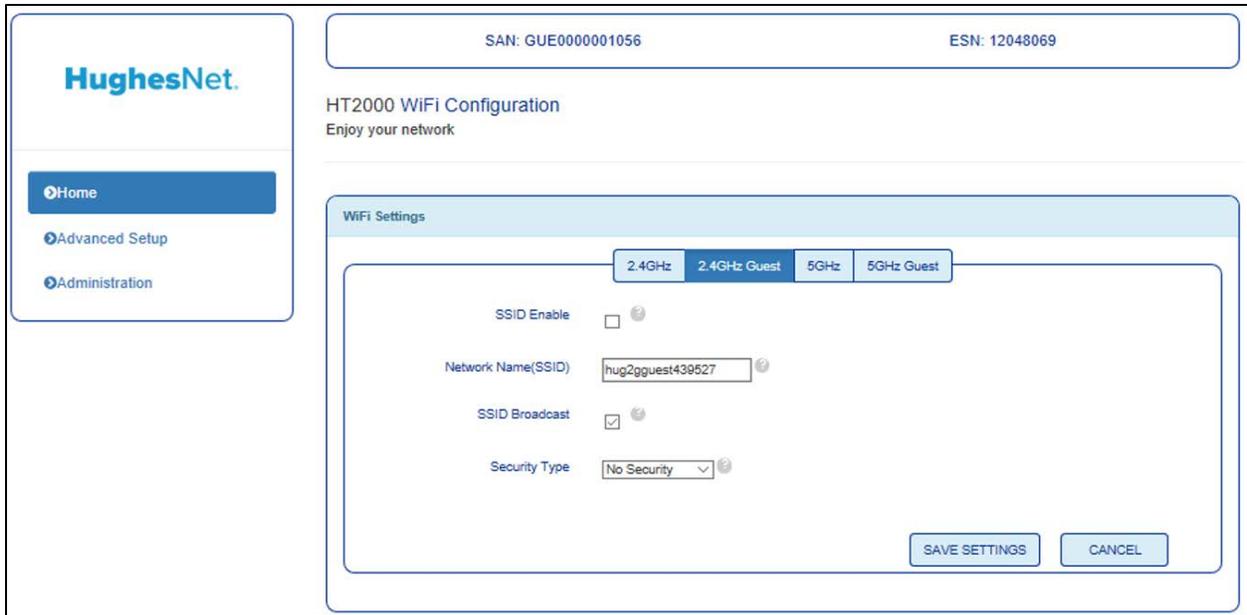


Figure 19: Wi-Fi guest network configuration page

3. Guest network configuration options are as follows:
  - SSID Enable – This box must be checked in order to enable the guest network. Default is unchecked.
  - Network Name (SSID) – Choose the name for your guest network. Default is guest, you cannot keep this name the same for both 2.4GHz and 5GHz networks.
  - SSID Broadcast – When un-checked, this option allows you to hide your network from appearing when searching for Wi-Fi networks on your devices. You can still access this network, but must use the hidden network option on the device you are trying to connect.
  - Security Type – Choose your preferred security type. Default is No Security, but we recommend changing this to WPA-Personal should you activate guest networks.

### ***Rebooting your HT2000W***

If you experience any issues with your HT2000W try rebooting your unit.

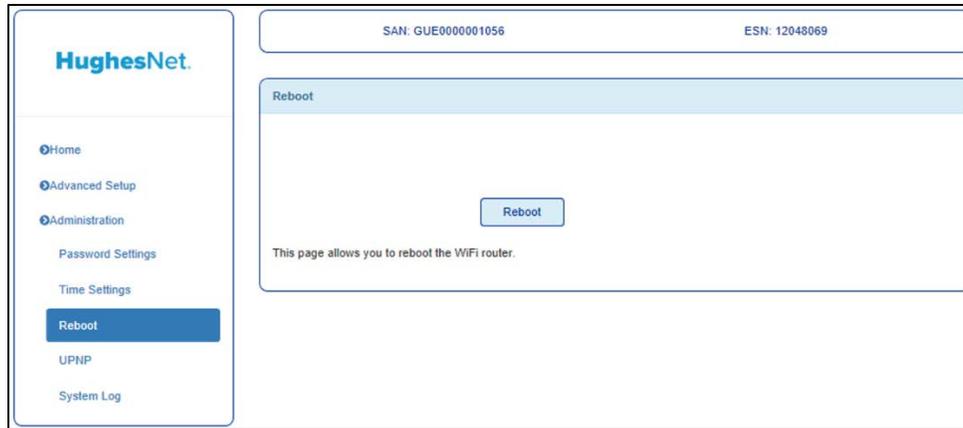


Figure 20: Modem reboot page

1. Login to your HT2000W's Wi-Fi configuration page.
2. On the left panel, select Administration.
3. Click the Reboot option on the left panel.
4. Click the Reboot button on the page.
5. Click OK on the confirmation dialog.

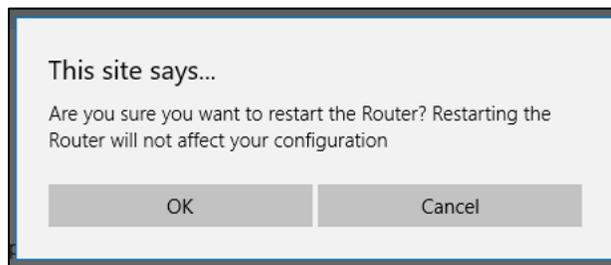


Figure 21: Reboot confirmation page

6. Your unit will now reboot.

## Advanced Settings

Advanced settings are all found under the Advanced Setup page in the left panel. Advance settings allow for finer control over your network.

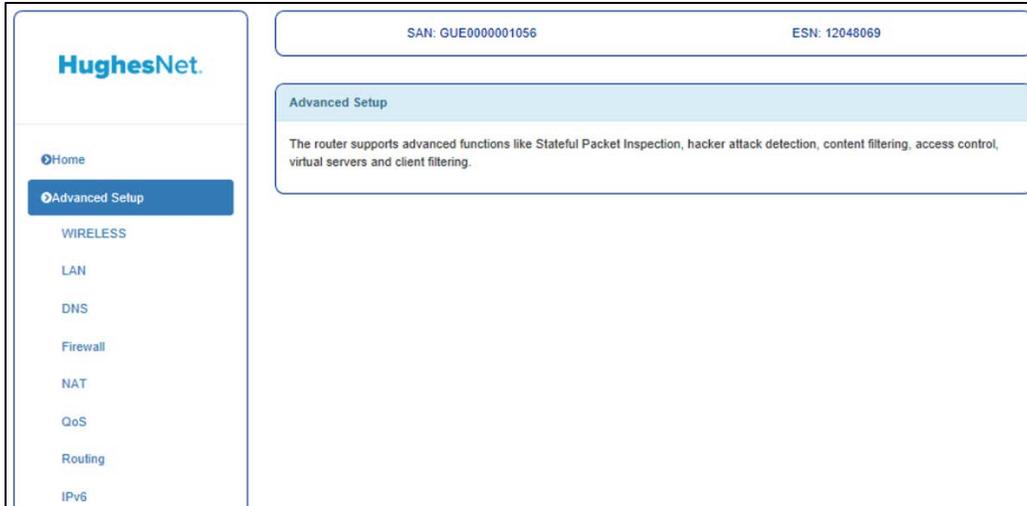


Figure 22: Advanced Setup main page

## Wireless

### Main Page

On the main page you can customize the following settings:

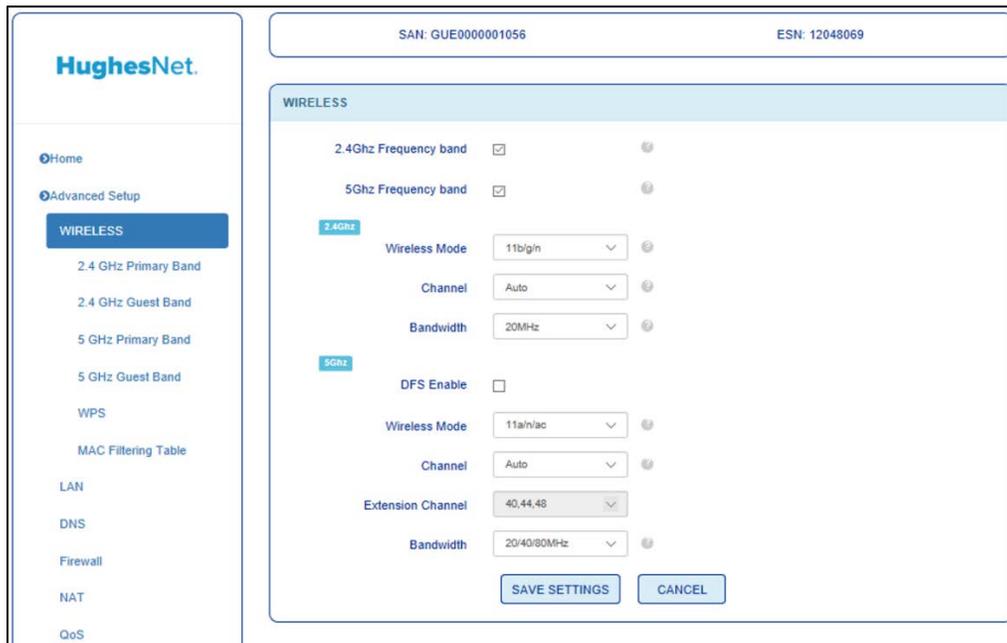


Figure 23: Wireless main page

1. Wireless Mode – Choose which protocols each band will use in operation. On 2.4GHz you can select just on protocol (b/g/n) or allow automatic control. On 5GHz you can choose a only, n only, an/ mix, or a/n/ac mix.

Channel – Choose the wireless channel you prefer to use. For best performance, it is recommended you leave this on Auto.

Bandwidth – Choose your channel bandwidth. You can select either 20MHz only, 20/40, or 20/40/80 (Only on 5GHz). By default your HT2000W will choose the maximum bandwidth based on local interference.

DFS Enable – 5GHz only option, this allows support of Dynamic Frequency Switching channels. These channels are in the UNII-2 spectrum where weather radar operates. Should a weather radar signal be detected, your router will change channels to a non UNII-2 channel.

## 2.4/5GHz Primary/Guest Network Pages

Here you can change the same settings available on the router’s home page.

The screenshot displays the HughesNet router's configuration interface. On the left is a navigation menu with 'Home' and 'Advanced Setup' selected. Under 'WIRELESS', '2.4 GHz Primary Band' is highlighted. The main content area is titled '2.4Ghz Frequency band' and contains the following settings:

- SSID Enable:
- Wireless Network Name (SSID): TRyan Office 2.4
- SSID Broadcast:
- Security: WPA-Personal
- Personal (tab selected):
  - WPA mode: WPA2
  - Cipher suite: AES
  - Password: TnYH5228Rcmk4423

At the bottom of the settings panel are 'SAVE SETTINGS' and 'CANCEL' buttons. The top of the page shows 'SAN: GUE0000001056' and 'ESN: 12048069'.

Figure 24: 2.4GHz Primary Band

## WPS

Here you can manage your WPS settings. WPS, enabled by default, allows for simple push button or PIN-based setup. This page allows you to enable/disable WPS, use the PIN-based method to connect, as well as activate the push button method, as if you had pressed the WPS button the front of your HT2000W.

The screenshot displays the HughesNet WPS configuration interface. At the top, the router's SAN (GUE0000001056) and ESN (12048069) are shown. The main content area is titled 'WPS' and features a 'Wi-Fi Protected Setup (WPS)' checkbox that is checked. Below this, a paragraph explains that WPS is an industry standard for simplifying security setup. An 'Apply Changes' button is provided. The page is divided into two sections: '1) Personal Information Number (PIN) Method' and '2) Push Button Configuration (PBC) Method'. The PIN method section includes instructions to enter a PIN from the client device and click 'Enroll', with a corresponding text input field and 'Enroll' button. A note states that for security, AP PIN should not be enabled, with an unchecked 'AP PIN' checkbox and an 'Apply Changes' button. The PBC method section includes instructions to push and hold the PBC button for 3 seconds or click 'Start PBC', with a 'Start PBC' button. A final note mentions that users can also press the physical 'WPS' button on the router box. The left sidebar contains navigation links: Home, Advanced Setup, WIRELESS (with sub-links for 2.4 GHz and 5 GHz Primary and Guest Bands), WPS (highlighted), MAC Filtering Table, LAN, DNS, Firewall, NAT, QoS, Routing, IPv6, and Administration.

Figure 25: WPS

## MAC Filtering Table

MAC filtering allows you to specify only certain MAC addresses that can connect to your router. This option is disabled when WPS is enabled.

SAN: GUE0000001056 ESN: 12048069

MAC Filtering Table does not work when WPS is enabled

Enable MAC Filtering  Yes  No

Access Rule for registered MAC address  Allow  Deny

ID	MAC Address
1	00 00 00 00 00 00
2	00 00 00 00 00 00
3	00 00 00 00 00 00
4	00 00 00 00 00 00
5	00 00 00 00 00 00
6	00 00 00 00 00 00
7	00 00 00 00 00 00

Figure 26: MAC Filtering Table

## LAN

### Main Page

On the main page for LAN you can change the following settings:

SAN: GUE0000001056 ESN: 12048069

LAN

**LAN IP**

IP Address 192 168 42 1

IP Subnet Mask 255 255 255 0

**DHCP Server**

Lease Time Half Hour

**IP Address Pool**

Start IP 192 168 42 100

End IP 192 168 42 140

SAVE SETTINGS CANCEL

This page allows you to set the IP address of the router's LAN bridge interface along with its subnet mask.

You may also set the "Lease Time" for the DHCP server. This time tells client devices how often they would have to renew their DHCP lease with the router's DHCP server.

This page also provides a mechanism to set the pool of local LAN IP addresses for the use of the router's DHCP server. The DHCP server will assign IP addresses to DHCP clients (mobile devices) from this pool. Please note that changing these values affects how many mobile devices can connect to the router at the same time.

Figure 27: LAN main page

1. LAN IP – IP address of your HT2000W. If you change this, you will need to navigate to the new address to make any further settings changes.
2. IP Subnet Mask – Subnet mask used on all devices.
3. Lease Time – How long DHCP leases are maintained for devices connected to your HT2000W.
4. IP address pool – Range of addresses connecting devices can be assigned.

### LAN DHCP

This page can be used to reserve IP addresses for specific MAC addresses. Fill in the left side with a device’s MAC address and the right side with the IP you wish to permanently assign that device.

The screenshot shows the HughesNet LAN DHCP configuration interface. At the top, it displays 'SAN: GUE0000001056' and 'ESN: 12048069'. The main heading is 'Lan DHCP' with a sub-heading 'DHCP Reservation (up to 10 computers)'. Below this is a table with 10 rows for reservations. Each row contains a number (1-10), a MAC address input field, an IP address input field (split into four parts: 192, 168, 42, 0), and a 'Clean' button. Below the table is a 'COPY TO' section with a dropdown menu showing '2c:6e:85:58:fb:d3', a 'COPY TO' button, and a dropdown menu showing '1'. At the bottom of the table area are 'SAVE SETTINGS' and 'CANCEL' buttons. A footer note states: 'This page allows you to reserve a local LAN IP address for a specific device. Please follow the user manual of your device to find its MAC address. Once you have the MAC address, you may enter the address on this page and then enter the IP address that you would like to be assigned to that device. You may use the "Clean" button to clear all text fields in a particular row (to delete a previously added entry).'

Figure 28: LAN DHCP

## DNS

### Main Page

This page allows you to change your DNS server that any DHCP clients will utilize. By default, you will obtain this from your ISP.

Figure 29: DNS main page

## Firewall

### Main Page

This page allows you to quickly enable/disable all firewall features.

Figure 30: Firewall main page

## Parental Controls

Here you can set rules for certain client devices. Clicking **Add Rule** will allow you to create a new rule for one or a range of IP addresses.

The screenshot shows the HughesNet web interface for Parental Controls. At the top, it displays the router's SAN (GUE0000001056) and ESN (12048069). The left sidebar contains navigation options: Home, Advanced Setup, WIRELESS, LAN, DNS, Firewall, Parental Controls (highlighted), URL Blocking, Intrusion Detection, DMZ, and IPV6. The main content area is titled "Parental Controls" and includes a "Filtering Function" checkbox. Below this is a "Normal Filtering Table (up to 10 computers)" with a table header: Client Device, Rule Enabled, Client Service, Schedule Rule, and Configure. An "Add Rule" button is prominently displayed. At the bottom of the main area are "SAVE SETTINGS" and "CANCEL" buttons. A descriptive paragraph explains that the page allows adding rules to block specific traffic, and another paragraph notes that after clicking "Add Rule", users can name the rule and specify a LAN device.

Figure 31: Parental Controls

## URL Blocking

This page allows you to list specific URLs to disallow. These will be valid for all users.

The screenshot shows the HughesNet web interface for URL Blocking. At the top, it displays the router's SAN (GUE0000001056) and ESN (12048069). The left sidebar contains navigation options: Home, Advanced Setup, WIRELESS, LAN, DNS, Firewall, Parental Controls, URL Blocking (highlighted), Intrusion Detection, DMZ, IPV6, NAT, QoS, Routing, and IPV6. The main content area is titled "URL Blocking" and features a table with 10 rows, each labeled "Site 1" through "Site 10". Each row has a "No." column and a "URL / Keyword" column with an input field. Below the table is a "CLEAR ALL" button. At the bottom of the main area are "SAVE SETTINGS" and "CANCEL" buttons. A descriptive paragraph at the bottom explains that the page allows specifying particular URLs to be blocked, including wildcard URLs like "x.a.com".

Figure 32: URL Blocking

## Intrusion Detection

This page allows you to enable/disable SPI and Anti-DoS filtering as well as discarding all pings coming from your WAN interface.

The screenshot shows the HughesNet router's web interface. On the left is a navigation menu with options: Home, Advanced Setup, WIRELESS, LAN, DNS, Firewall, Parental Controls, URL Blocking, and Intrusion Detection (highlighted in blue). The main content area is titled "Intrusion Detection" and includes the following settings:

- SAN: GUE0000001056
- ESN: 12048069
- Intrusion Detection Feature**
- SPI and Anti-DoS firewall protection:  (disabled)
- Discard Ping To WAN Interface:  (disabled)
- Buttons: SAVE SETTINGS, CANCEL

Figure 33: Intrusion Detection

## DMZ

This page allows you to add one device to the demilitarized zone, or DMZ for short. A device in the DMZ will not abide by firewall rules.

The screenshot shows the HughesNet router's web interface. On the left is a navigation menu with options: Home, Advanced Setup, WIRELESS, LAN, DNS, Firewall, Parental Controls, URL Blocking, Intrusion Detection, and DMZ (highlighted in blue). The main content area is titled "DMZ" and includes the following settings:

- SAN: GUE0000001056
- ESN: 12048069
- DMZ function:  (disabled)
- Client PC IP Address: 192 . 168 . 42 . 0
- Buttons: SAVE SETTINGS, CANCEL
- Text: "This page allows you to specify a device on the LAN side as the DMZ host. A DMZ host is typically used to secure the LAN side from attacks by malicious users on the Internet. If the DMZ host is enabled, all traffic going to/from the Internet will first pass through this host, where untrusted connections or requests from the Internet will be dropped, thereby protecting your LAN from cyber attacks."

Figure 34: DMZ

## IPv6

This page allows you to make port forwarding rules for IPv6.

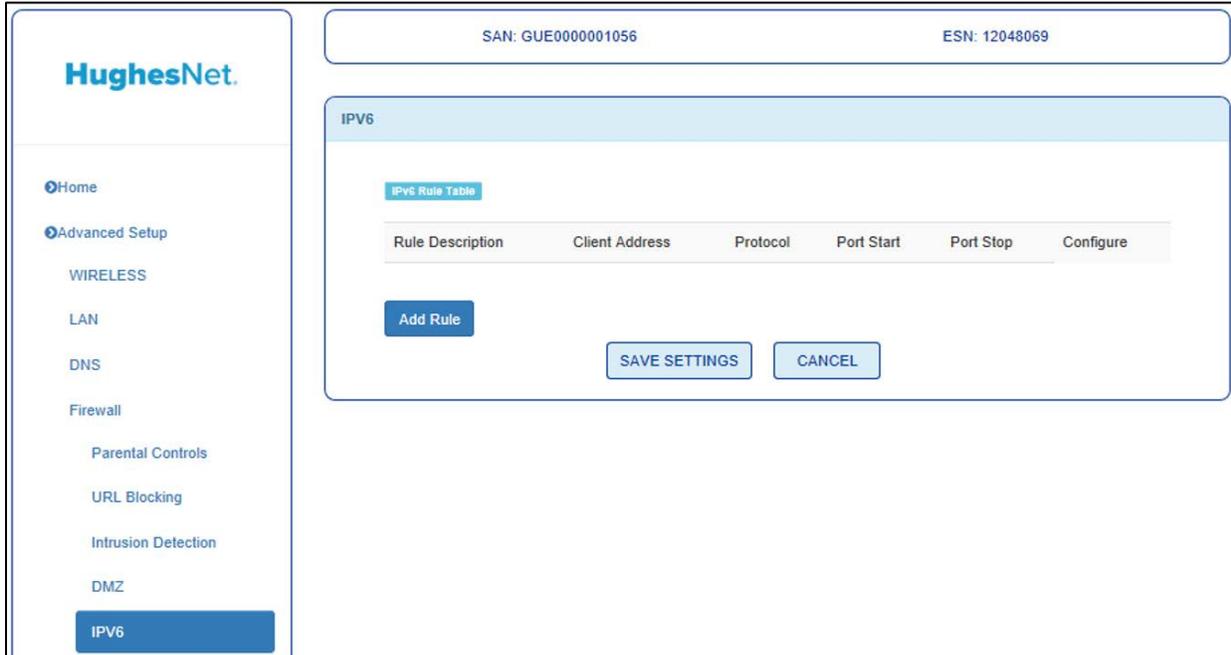


Figure 35: IPv6

## NAT

### Main Page

This page allows to you enable/disable NAT functions.

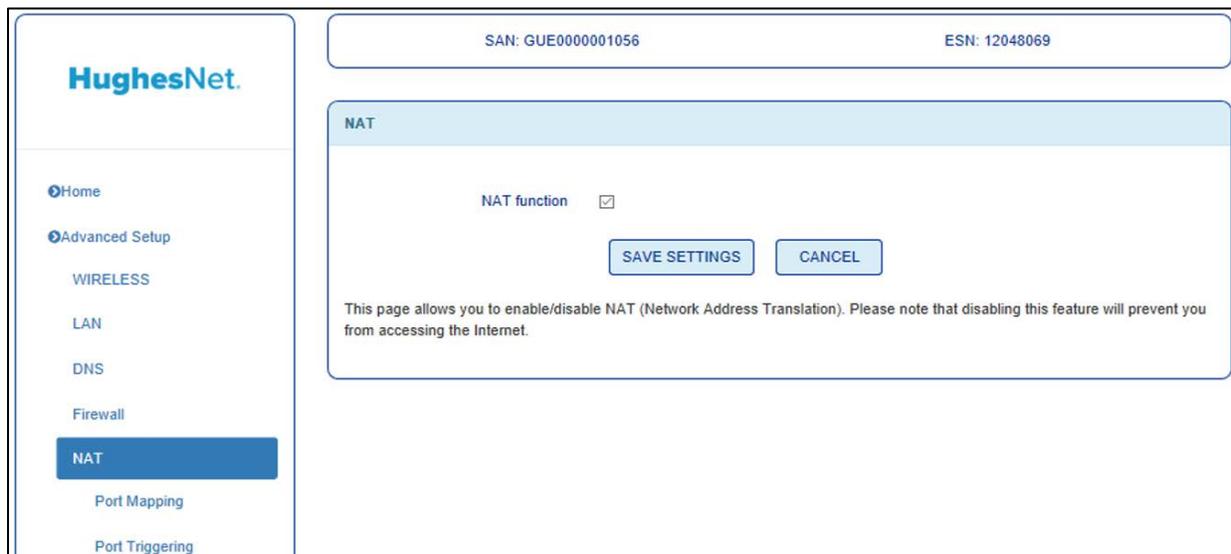


Figure 36: NAT main page

## Port Mapping

This page allows you to make custom NAT port forwarding rules.

San: GUE0000001056 ESN: 12048069

Traffic Mapping

Port Mapping

No.	LAN IP Address	Protocol Type	Public Port	LAN Port	Enable
1	192.168.42	TCP			<input type="checkbox"/>
2	192.168.42	TCP			<input type="checkbox"/>
3	192.168.42	TCP			<input type="checkbox"/>
4	192.168.42	TCP			<input type="checkbox"/>
5	192.168.42	TCP			<input type="checkbox"/>
6	192.168.42	TCP			<input type="checkbox"/>
7	192.168.42	TCP			<input type="checkbox"/>
8	192.168.42	TCP			<input type="checkbox"/>
9	192.168.42	TCP			<input type="checkbox"/>
10	192.168.42	TCP			<input type="checkbox"/>

-- select one -- Copy to 1

SAVE SETTINGS CANCEL

This page can be used to specify a public port to LAN port mapping for NAT (Network Address Translation) purposes. The public WAN port will be used to receive traffic coming from the Internet. This traffic will then be redirected to the client device of your choice (specified using the LAN IP address of the device) at the specified LAN port.

You may use the "Clean" button to clear all the fields in a particular row.

Figure 37: Port Mapping

## Port Triggering

This page allows you setup port triggering options, specifying ports on WAN that will only be active when a specific range of ports on LAN is active.

San: GUE0000001056 ESN: 12048069

Port Triggering

Note: The range of the Trigger Ports is from: 1 to 65535.

No.	Trigger Port Range	Trigger Protocol	Public Port Range	Public Protocol	Enabled
1		Both		Both	<input type="checkbox"/>
2		Both		Both	<input type="checkbox"/>
3		Both		Both	<input type="checkbox"/>
4		Both		Both	<input type="checkbox"/>
5		Both		Both	<input type="checkbox"/>
6		Both		Both	<input type="checkbox"/>
7		Both		Both	<input type="checkbox"/>
8		Both		Both	<input type="checkbox"/>
9		Both		Both	<input type="checkbox"/>
10		Both		Both	<input type="checkbox"/>

-- select one -- Copy to 1

SAVE SETTINGS CANCEL

Figure 38: Port Triggering

# QoS

## Main Page

This page allows you to enable/disable QoS as well as bias each priority level of traffic.

The screenshot shows the HughesNet QoS configuration page. At the top, it displays the device ID 'SAN: GUE0000001056' and 'ESN: 12048069'. The page title is 'QoS'. A 'QoS function' checkbox is currently unchecked. Below this, a section titled 'Different Forwarding Groups' contains explanatory text: 'This page allows you to enable/disable QoS functionality on the router by using the "QoS Function" checkbox. Traffic can be classified into 4 priorities described on the page as High, Medium, Normal and Low. Please note that the combined bandwidth for the 4 priorities should be 100%. The "Allow More" checkbox can be used to allow/disallow additional bandwidth for a particular queue (i.e. more bandwidth then available only if not being used by other queues). Please note that the priority queues and other settings on this page are for uplink traffic (going from the router towards the Internet) only.'

Priority	Guarantee Minimal Bandwidth	Allow More
High	<input type="text" value="25"/> %	<input checked="" type="checkbox"/>
Medium	<input type="text" value="25"/> %	<input checked="" type="checkbox"/>
Normal	<input type="text" value="25"/> %	<input checked="" type="checkbox"/>
Low	<input type="text" value="25"/> %	<input checked="" type="checkbox"/>

At the bottom of the configuration area, there are two buttons: 'SAVE SETTINGS' and 'CANCEL'.

Figure 39: QoS main page

## Traffic Mapping

This page allows you to setup QoS rules. Rules can be made to follow either specific devices, external or internal IP addresses, as well as ports.

The screenshot shows the HughesNet web interface for Traffic Mapping. The left sidebar includes navigation links for Home, Advanced Setup, WIRELESS, LAN, DNS, Firewall, NAT, QoS, and Administration. The 'Traffic Mapping' link is highlighted. The main content area displays the 'Traffic Mapping' section with a header showing SAN: GUE0000001056 and ESN: 12048069. Below the header, there are two tables: 'VoIP Rule' and 'User Rule'. The 'VoIP Rule' table has columns for Index, Rule Name, Traffic Type, and Details. The 'User Rule' table has columns for Index, Rule Name, Traffic Type, Priority, and Configure. There is an 'Add traffic class' button and explanatory text about how rules are configured.

Figure 40: Traffic Mapping

## Routing

### Main Page

This page shows you the current routing table.

The screenshot shows the HughesNet web interface for the Routing main page. The left sidebar includes navigation links for Home, Advanced Setup, WIRELESS, LAN, DNS, Firewall, NAT, QoS, and Administration. The 'Routing' link is highlighted. The main content area displays the 'Routing' section with a header showing SAN: GUE0000001056 and ESN: 12048069. Below the header, there is a 'List Routing Table' button and a table with columns for Network Address, Netmask, Gateway, Hop, and Interface. The table lists several routes, including 0.0.0.0, 100.100.26.160, 192.168.0.0, 192.168.42.0, 192.168.43.0, and 239.0.0.0. There is also a 'List Routing Table' button and explanatory text.

Figure 41: Routing main page

## Static Route

This page allows you to design a static network route. Click edit to configure a route.

The screenshot displays the HughesNet Static Route configuration interface. At the top, the device ID is SAN: GUE0000001056 and the ESN is 12048069. The page title is 'Static Route'. Below the title, there is a status section with radio buttons for 'Disable' and 'Enable', where 'Enable' is selected. A message prompts the user to enter configuration parameters. A table lists 20 static routes, each with an index, status (off), network address (0.0.0.0), subnet mask (0.0.0.0), gateway (0.0.0.0), and interface (WAN). Each row has 'Edit' and 'Delete' buttons. At the bottom, there are buttons for 'Add Static Route', 'SAVE SETTINGS', and 'CANCEL'.

Index	Status	Network Address	Subnet Mask	Gateway	Interface	Configure
1	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
2	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
3	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
4	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
5	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
6	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
7	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
8	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
9	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
10	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
11	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
12	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
13	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
14	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
15	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
16	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
17	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
18	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
19	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete
20	off	0.0.0.0	0.0.0.0	0.0.0.0	WAN	Edit Delete

Figure 42: Static Route

# IPv6

## Main Page

This page allows you to enable/disable IPv6 as well as provide the IPv6 prefix to use.

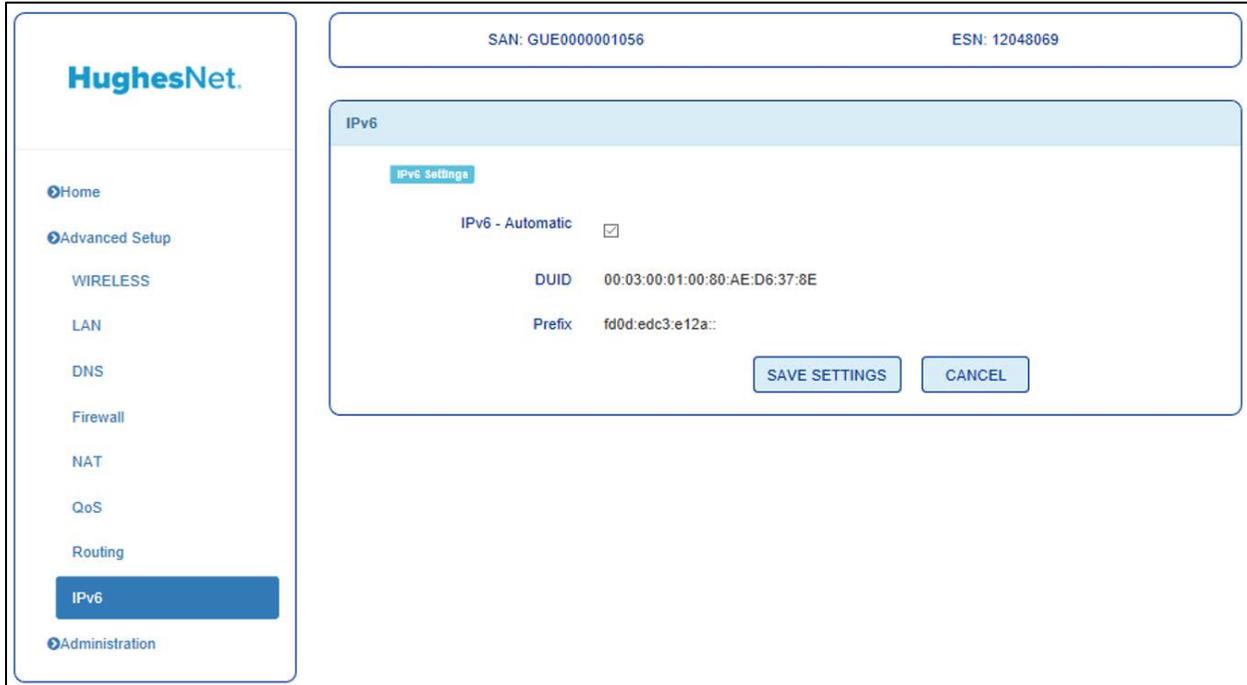


Figure 43: IPv6 main page

### Front-panel LEDs

The satellite modem has six LEDs on the front panel, as shown in [Figure 23](#). By their appearance (on, off, or blinking) the LEDs indicate the modem's operating status. The front-panel LEDs are white when lit.

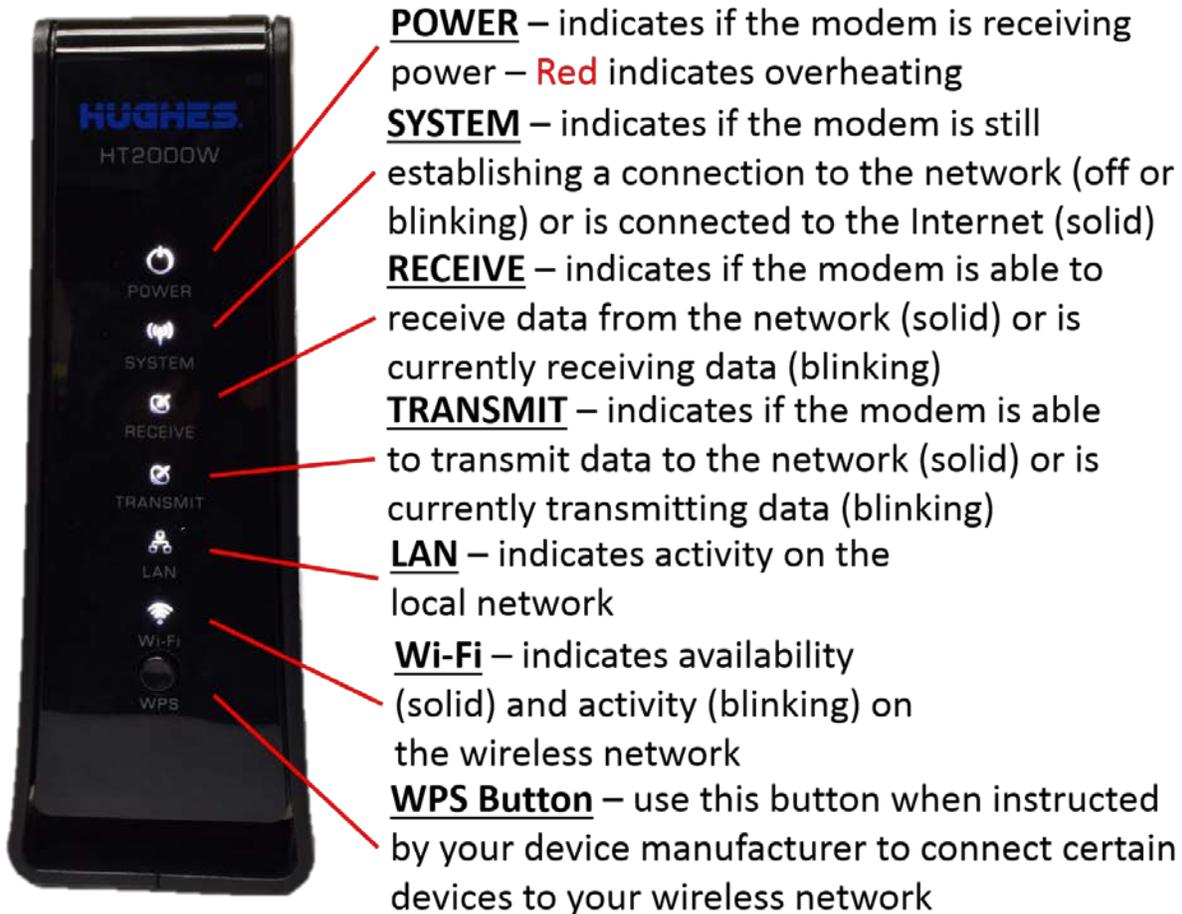


Figure 44: Front-panel LEDS

[Table 2](#) on page 40 explains what the modem status is when the LEDs are on, off, or blinking. *On* means the LED is continuously lit. *Blinking* means the LED is usually on, but intermittently turns off briefly.

Table 2: Router status LEDs

LEDS	Appearance	Status
Power	On Red color**	Power is on and the modem is functioning normally **Indicates alarm condition.
	Blinking	Operating with fallback.bin (backup) version of software
	Off*	No power
System	On	Connection established with the NOC
	Off	Condition preventing full operation
Receive	On	OK - Receive path is operational
	Blinking	Receiving data
	Off*	Condition preventing receipt of data
Transmit	On	OK - Transmit path is operational
	Blinking, mostly on	Transmitting data
	Blinking, mostly off	Ranging (The modem is measuring the distance to the satellite to calibrate transmit timing and transmit power).
	Off*	Condition preventing transmission
LAN	On	Satellite modem is connected to a computer network card or Ethernet device
	Blinking	Transmitting and/or receiving data
	Off*	No device is connected to the LAN port or the device connected to the LAN port is not working properly.
Wi-Fi	Blinking	One or both of the Wi-Fi bands are on and broadcasting. The LED will blink faster when a user is connected to and using one or both of the Wi-Fi bands.
	Off	Both the 2.4 and 5 GHz Wi-Fi bands are disabled.

## LAN port LEDs

The LEDs on the LAN (Ethernet) port on the modem's rear panel indicate link status and speed, as shown in [Figure 24](#).

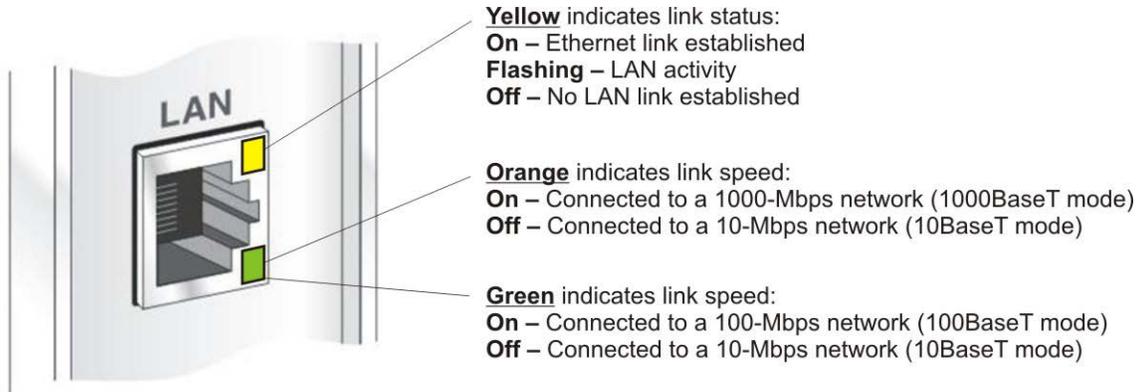


Figure 45: LAN port LEDs



# Appendix A

## Specifications

### HT2000W modem specifications

The specifications for the HT2000W modem are listed in [Table 3](#).

Table 3: HT2000W modem specifications

Item	Specifications
Weight	1.071lb (0.486 kg)
Height	7.28 inches (184.92 mm)
Width	2.766 inches (70.26 mm)
Depth	5.822 inches (147.88 mm)
Operating temperature range	41 °F to 104 °F (5 °C to 40 °C)  Above 5,000 ft (1,524 m) altitude, the maximum temperature is reduced by 1 °C per 1,000 ft (305 m).
Operating humidity range	5% to 90% non-condensing
Altitude	Up to 15,000 ft (4,572 m)
Cooling method	Convection
Protocol support	TCP/IP (Transmission Control Protocol / Internet Protocol) protocol suite
Supported frequency ranges	Ka-band or Ku-band
Network interface ports	RJ-45 Ethernet LAN port supporting 10BaseT, 100BaseT or 1000BaseT operation



# Standards compliance

The HT2000W satellite modem has been certified to comply with the standards listed in [Table 4](#). Additional information follows the table.

Table 4: HT2000W standards compliance

Category	Standard
Safety	UL60950-1 for the USA CAN/CSA-C22.2 No. 60950-1 for Canada IEC60950-1 for International (CB Scheme Certification) EN60950-1 for the EU
Electromagnetic Interference (EMI)	FCC Part 15 for the USA ICES-003 for Canada
Electromagnetic Compatibility (EMC)	EN301-489-1 and EN 301-489-12 for the EU
RF Spectrum	EN301-459, EN301-360, EN301-428 for the EU FCC Part 25 for the USA
Telecommunications	TIA IPoS

## Repairs in Canada

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should not attempt to make electrical ground connections themselves, but should contact the appropriate electrical inspection authority, or electrician, as appropriate.

## Electromagnetic interference (EMI)

This product conforms to EMI standards of the U.S. FCC, and Canadian CSA, as detailed in the following sections. The installation and maintenance procedures in the installation guide must be followed to ensure compliance with these regulations.

## **FCC Part 15**

This section applies to the HT2000W satellite modem. Standards to which conformity is declared: FCC Part 15

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 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.

For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

This device is restricted for indoor use.

### **IMPORTANT NOTE:**

FCC 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 20 cm between the radiator & your body.

Responsible party's name: Hughes Network System, LLC Address: 11717 Exploration Lane, Germantown, MD 20876

Telephone: 1 (866) 347-3292

Trade name: HUGHES

Type of equipment: Two-way Hughes system

Model number: HT2000W

### **NOTICE**

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 when the equipment is operated in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual 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 or more of the following measures:

- Reorient or relocate the receiving antenna.
  - Increase the separation distance between the equipment and the 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.
- 

### **Canada Class B warning**

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

### **Class II Radio Equipment (per R&TTE Directive 1999/5/EC)**

CE 0682 

#### **Restrictions for European Union**

Use of this product within the frequency band 29.25 GHz to 29.5 GHz requires licensure within the targeted EU Member state prior to being put into service.

No restrictions within the band 29.5 GHz to 30.0 GHz for this product.

#### **Identified European countries**

This product may be operated in the following European countries:

AT	BE	CY
CZ	DK	EE
FI	FR	DE
GR	HU	IE
IT	LV	LT
LU	MT	NL
PL	PT	SK
SI	ES	SE
GB	IS	LI
NO	CH	BG
RO		

#### **Statement on compliance with the R&TTE Directive 1999/5/EC**

English	Hereby, Hughes declares that this Class II Radio Equipment is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
Finnish	Hughes, vakuuttaa täten että Luokka II radiolaitteet tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Dutch	Hierbij verklaart Hughes dat het toestel Klasse II radioapparatuur in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG
	Bij deze verklaart Hughes dat deze Klasse II radioapparatuur voldoet aan de essentiële eisen en aan de overige relevante bepalingen van Richtlijn 1999/5/EC.
French	Par la présente Hughes déclare que l'appareil II Radio Équipement de classe est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE
	Par la présente, Hughes déclare que ce II Radio Équipement de classe est conforme aux exigences essentielles et aux autres dispositions de la directive 1999/5/CE qui lui sont applicables
Swedish	Härmed intygar Hughes att denna Klass II radioutrustning står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.
Danish	Undertegnede Hughes erklærer herved, at følgende udstyr Klasse II Radio Equipment overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF
German	Hiermit erklärt Hughes, dass sich dieser/diese/dieses Klasse II Funkanlagen in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet". (BMWi)

	Hiermit erklärt Hughes die Übereinstimmung des Gerätes Klasse II Funkanlagen mit den grundlegenden Anforderungen und den anderen relevanten Festlegungen der Richtlinie 1999/5/EG. (Wien)
Greek	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ Hughes ΔΗΛΩΝΕΙ ΟΤΙ Class II Radio Equipment] ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ
Italian	Con la presente Hughes dichiara che questo Classe II apparecchiature radio è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Spanish	Por medio de la presente Hughes declara que el Clase II Radio Equipment cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE
Portuguese	Hughes declara que este II Radio Equipment classe está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.



# Acronyms and abbreviations

---

## **B**

---

BIST – Built-in self test

## **C**

---

CSR – Customer service representative

## **D**

---

DHCP – Dynamic Host Configuration Protocol

## **E**

---

ESN – Electronic serial number

EMI – Electromagnetic interference

## **F**

---

FAP – Fair access policy

## **H**

---

HTTP – Hypertext Transfer Protocol

## **I**

---

IP – Internet Protocol

## **L**

---

LAN – Local area network

LED – Light emitting diode

## **N**

---

NetBEUI – Extended User Interface (network transfer protocol) Networking requirements

NIC – Network interface controller

NOC – Network Operations Center

## **S**

---

SAN – Site account number

## **T**

---

TCP – Transmission Control Protocol

## **U**

---

USB – Universal Serial Bus

## **V**

---

VAR – Valued-added reseller



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