

XR3000

Release 1.0

User Guide

Notices

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Safety Information



Do not proceed beyond a hazard notice until the indicated conditions are fully understood and met.

A **CAUTION** notice denotes a hazardous situation that, if not avoided, could result in minor or moderate injury.

A **WARNING** notice denotes a hazardous situation that, if not avoided, could result in death or serious injury.

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Documentation conventions

The following documentation conventions are used in this guide:

Describing interactions with the UI

You can interact with products by using different input methods: keyboard, mouse, touch, and more. So in most parts of the user documentation, generic verbs have been used that work with any input method. In cases where input-neutral verbs do not work, mouse-specific verbs are used as the first choice, followed by touch-specific verbs as the second choice.

See the following table for examples on how you can interpret the different input methods.

Input-neutral	Mouse	Touch
Select Modify .	Click Modify .	Tap Modify .
Select Accounts > Other accounts > Add an account .	Click Accounts > Other accounts > Add an account .	Tap Accounts > Other accounts > Add an account .
To open the document in Outline view, select View > Outline .	To open the document in Outline view, click View > Outline .	To open the document in Outline view, tap View > Outline .
Select Protocols .	Click the Protocols tab.	Tap Protocols .
-NA-	Double-click the Client wizard.	Double-tap the Client wizard.
Open the Packages context menu.	Right-click Packages to open the shortcut menu.	Long tap Packages to open the shortcut menu.

Deprecated words

The following words have been replaced with new words, considering the audience profile, our modern approach to voice and style, and our emphasis to use input-neutral terms that support all input methods.

Old usage...	New usage...
shortcut menu, right-click menu	context menu
click, right-click	select
drag and drop	drag

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Initial configuration

This section describes the initial configuration of the XR3000.

First time log in

There are three methods you can use to log in and access the XR3000:

Console:	Directly through the console port, using the supplied Micro-USB cable
DHCP:	By allowing the XR3000 to obtain a DHCP address
Static:	From a static IP address on the host PC

Each method is described below.

Logging in through the console:

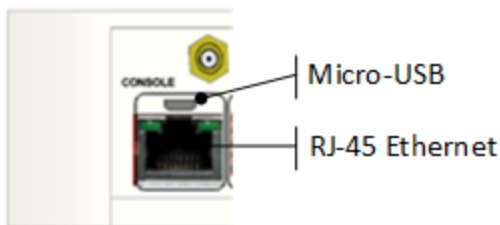
NOTE

If you want to use the Micro-USB connector on the console port, you may need to install a virtual COM port (VCP driver) on the host PC. Many modern operating systems already have a native driver for the console port. If yours does not, you can download a VCP driver from the following location:

<http://www.silabs.com/products/development-tools/software/usb-to-uart-bridge-vcp-drivers>

For Windows host PCs, download the Universal Windows Driver version of the VCP driver installer.

1. Connect a console cable from the host PC to the XR3000 console port.



2. On the host PC, open a PC terminal emulator session for the console port.
3. Configure the terminal settings as follows:

Baud rate	115200
Data	8 bit
Parity	None
Stop	1 bit
Flow control	None

4. Insert the AC line cord into the input connector of the desktop power supply.
5. Plug desktop power supply output connector into unit 12 VDC input jack.

The unit will automatically power up -- you do not need to press the power button.
During the boot process, various messages will display on the serial console while the bootloader and Linux come up.

- At the Linux prompt, log in using the following credentials:

User name	ksuser
Password	keysight

Logging in through a DHCP address:

- Connect an Ethernet cable from a switch to port 1 on the XR3000.
- Insert the AC line cord into input connector of the desktop power supply.
- Plug the desktop power supply output connector into unit 12 VDC input jack.
The unit will automatically power up -- you do not need to press the power button.
- Check your DHCP server for the IP address issued to the XR3000.
The default hostname is `xr3k-XXXX` where the `XXXX` is the last 4 digits of the serial number
- Open an SSH session to the XR3000 IP address.
- At the Linux prompt, log in using the following credentials:

User name	ksuser
Password	keysight

Logging in through a static address:

- Connect an Ethernet cable from the host PC to port 1 on the XR3000.
- On the host PC, configure the PC with a static IP address on the Ethernet interface in the 192.168.0.0/24 subnet.
- Insert the AC line cord into the input connector of the desktop power supply.
- Plug the desktop power supply output connector into the XR3000 12 VDC input jack.
The unit will automatically power up -- you do not need to press the power button.
- SSH to the XR3000 default IP address: 192.168.0.10.
- At the Linux prompt, log in using the following credentials:

User name	ksuser
Password	keysight

Setting the password

You can use the `passwd` command to change the password for the username that you are logged in as.

The default password for both usernames is `keysight`.

```
ksuser@xr3k-0015:~$ passwd
Changing password for ksuser.
```

```
Current password:  
New password:  
Retype new password:
```

Setting the hostname

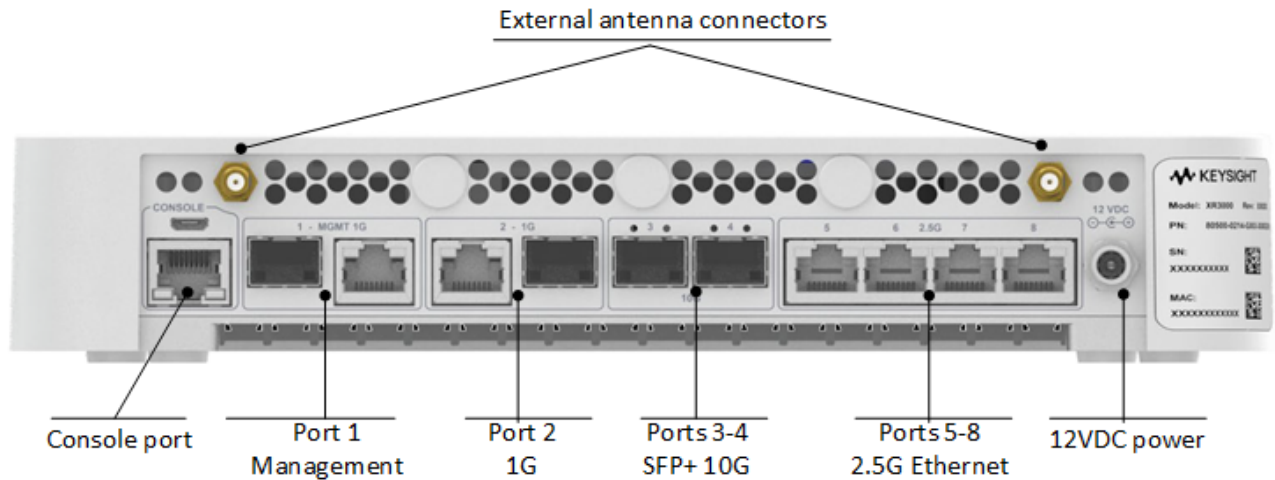
The default hostname is `xr3k-XXXX` where the `XXXX` is the last 4 digits of the unit's serial number.

You can use the `changeHostname` command to change the hostname:

```
ksuser@xr3k-0015:~$ changeHostname <new_hostname>
```

Configuring networking

The XR3000 supports 1Gbps, 2.5 Gbps, 10Gbps and Wifi-6 interfaces.



Configuring wired networking

The section describes how to configuring the wired interfaces.

1. To configure the interfaces, run the `interfaceConfigure` script.
2. At the prompt, select the interface you want to configure.

```
# ksuser@xr3k-0015:~$ interfaceConfigure
1 : p01_1g (enp2s0f1)
2 : p02_1g (enp2s0f0)
...
8 : p08_25g (enp7s0)
e : EXIT
Please select an interface to configure: 1
Chosen interface is: enp2s0f1
```

3. Configure the address method on the interface.

```
Interface chosen: enp2s0f1
1 : IPv4 Only
2 : IPv6 Only
3 : Both IPv4 and IPv6
e : EXIT
Config interface as: 1
```

4. Optionally, configure the MTU on the interface.

```
Would you like to configure the IPv4 MTU size on this interface? (y/N):
```

5. Configure the address source on the interface.

```
Interface enp2s0f1 currently configured for dhcp IPv4.

1 : dhcp
2 : static
e : EXIT
Config enp2s0f1 interface as: 1
```

6. After the final prompt, the script applies your configuration.

```
Restartng the netplan configurations.
Stopping
Done
```

You can use the `ip a` command to verify the interface configuration.

Run the script again for each interface you want to configure.

Configuring wireless networking

1. Run the `wifiConnect` command to scan for available APs and configure the Wifi-6 interface.

```
ksuser@xr3k-0010: ~$ wifiConnect
running wifiConnect for interface wlp17s0
```

2. Select the access point SSID that you want to use.

```
Quick scanning for Access Points...
0: <HIDDEN> 6e:d7:9a:82:85:e6 (x1)
...
12: Hawkeye (x4)
13: Hawkeye-B's LAN (x1)
14: Hawkeye-ENT (x4)
15: Hawkeye-EnGenius-5GHz (x1)
...
n: RESCAN
Please select an access point SSID: 14
```

3. Select the Desired BSSID.

```
Chosen ssid: Hawkeye-ENT
0 : 34:8a:12:94:04:01 -- Channel= 11, signal level=-79 dBm
1: 34:8a:12:93:94:c1 -- Channel= 1, signal level=-79 dBm
2: 34:8a:12:94:04:11 -- Channel= 36, signal level=-85 dBm
3: 34:8a:12:93:94:d1 -- Channel= 36, signal level=-89 dBm
a: ANY
Please select an access point BSSID: a
selected bssid: ANY (using 0: 34:8a:12:94:04:01 for parameters)
```

4. Enter the username and password or pre-shared key to complete the configuration.

```
Selected AP params:
SSID=Hawkeye-ENT
BSSID=34:8a:12:94:04:01
```

```

Primary Channel: 11
Signal Strength: -79 dBm
Max Data Rate: 144.4 Mbps
RSN version: 1
Group Cipher: CCMP
Pairwise Ciphers: [ CCMP ]
Auth Suites: [ IEEE-802.1X|PMK/RSN|PMK ]

Generating configuration...
Enter Username: devtester
Enter Password: *****
Configuring connection...
Connecting...

```

Utilizing interfaceConfigure command to setup your XR3000

This section covers the steps to configure XR3000 by using the `interfaceConfigure` command. The initial questions, which you must answer each time you run the `interfaceConfigure` command are discussed in this section. This section also explains the following use cases:

- IPv4 DHCP (Dynamic Host Configuration Protocol) interface with custom MTU
- IPv4 Static interface with default MTU

Initial questions when you run the interfaceConfigure command

The Hawkeye Server Interface is the local interface you must use to communicate with the Hawkeye Server. This interface will be configured with a static route to the server.

```

The Hawkeye Server Interface is p01_1g(enp2s0f1), would you like to change it? (y/N): y
1 : p01_1g (enp2s0f1)
2 : p02_1g (enp2s0f0)
3 : p03_10g (enp3s0f0)
4 : p04_10g (enp3s0f1)
5 : p05_25g (enp4s0)
6 : p06_25g (enp5s0)
7 : p07_25g (enp6s0)
8 : p08_25g (enp7s0)
9 : wifi (wlp17s0)

```

Select the interface to the Hawkeye Server.

The next question prompts you to select an interface to configure or enter `e` to exit the script if you only wanted to change the Hawkeye Server interface.

```

1 : p01_1g (enp2s0f1)
2 : p02_1g (enp2s0f0)
3 : p03_10g (enp3s0f0)
4 : p04_10g (enp3s0f1)
5 : p05_25g (enp4s0)
6 : p06_25g (enp5s0)
7 : p07_25g (enp6s0)
8 : p08_25g (enp7s0)

```

```
9 : wifi (wlp17s0)
e : EXIT
```

Select an interface to configure: 4

USE CASE 1: Configure an interface as IPv4 DHCP with custom MTU

1. When prompted to select if the previously chosen interface should be configured for IPv4, IPv6, or both, select one of the following:

```
Chosen interface is: p04_10g (enp3s0f1)
1 : IPv4 Only
2 : IPv6 Only
3 : Both IPv4 and IPv6
e : EXIT
Config interface as: 1
```

2. Now configure the Custom MTU size to 7500.

```
Would you like to configure the IPv4 MTU size on this interface? (y/N): y
Enter new IPv4 MTU (9000): 7500
Good MTU size entered: 7500
```

3. The system will tell you if the interface is currently configured as DHCP or Static and prompt you for what you would like to make it now. In this case, you should select 1 to continue utilizing DHCP addressing.

```
Interface enp3s0f1 is currently configured for dhcp IPv4.
1 : dhcp
2 : static
e : EXIT
Config enp3s0f1 interface as: 1
```

4. Next, you will be asked about using the interface under configuration as the default route for the system. you select no, system will show with the current interface that holds the default route and will prompt you to confirm it to continue.

```
Would you like p04_10g(enp3s0f1) to be the default route interface for IPv4? (Y/n): n
The current DEFAULT route interface is p01_1g(enp2s0f1)
Would you like p01_1g(enp2s0f1) to continue to be the default route? (Y/n): y
```

5. Lastly, you must confirm if you want to configure any other interfaces before exiting the script.

```
Would you like to configure another interface? (Y/n): n
```

USE CASE 2: Configure an interface as IPv4 Static with default MTU

1. In the next prompt, you must select if the previously chosen interface should be configured for IPv4, IPv6 or Both.

```
Chosen interface is: p05_25g (enp4s0)
1 : IPv4 Only
2 : IPv6 Only
3 : Both IPv4 and IPv6
e : EXIT
Config interface as: 1
```

2. To utilize the default MTU size of 1500 you must answer (N) in the following question.

```
Would you like to configure the IPv4 MTU size on this interface? (y/N): N
```

3. The system will tell you if the interface is currently configured as DHCP or Static and prompt you for what you would like to make it now. In this case, 2 is selected to configure the interface for STATIC addressing.

```
Interface enp4s0 currently configured for dhcp IPv4.
```

```
1 : dhcp
2 : static
e : EXIT
Config enp4s0 interface as: 2
Enter static IPv4 address: 192.168.172.85
Good IPv4 Address entered: 192.168.172.85
Enter Netmask (255.255.255.0):
Good Netmask entered: 255.255.255.0
```

4. After configuring the IP address and Netmask for your static network config, specify if you want to enter a gateway (next hop address) for this network. This will be used to create any needed static routes and to configure a system default route.

```
Would you like to enter an IPv4 gateway (next hop address)? (Y/n):y
Enter IPv4 gateway (next hop address): 192.168.172.1
```

5. Next, add search domains. These will be used when looking up non FQDN host names.

```
No Search Domains for interface enp4s0
Would you like to enter a Search Domain? (y/N): y
Enter new Search Domain: mycompany.com
Would you like to enter another Search Domain? (y/N): y
Enter new Search Domain: it.mycompany.com
Would you like to enter another Search Domain? (y/N):
1 : mycompany.com
2 : it.mycompany.com
n : No
Would you like to order your Search Domains (Select number of first Domain or n for No):
n
```

6. Add DNS servers.

```
No DNS servers for interface enp4s0
Would you like to enter an IPv4 DNS server? (y/N): y
Enter IPv4 DNS server (8.8.8.8): 1.1.1.1
Would you like to enter another IPv4 DNS server? (y/N): n
```

7. Finally, you can make the current interface as the default route for the entire system.

```
Would you like p05_25g(enp4s0) to be the default route interface for IPv4? (Y/n): y
Lastly, you are asked if you want to configure any other interfaces before exiting the script.
Would you like to configure another interface? (Y/n): n
```

Connecting to the Hawkeye server

Use the `probeConfigure` command to connect the XR3000 to the Hawkeye server that will control it.

1. Execute the `probeConfigure` command.

```
ksuser@xr3k-0015:~$ probeConfigure
```

2. Press Enter to skip the Probe/Host Name prompt.

```
Probe/Host Name (xr3k-0001):
```

3. Specify the hostname of the Hawkeye server:

```
Hawkeye Server (hawkeye-server):<hawkeye_server_hostname>
```

4. Choose whether to require the Hawkeye server to supply valid SSL certificates to the XR3000:

```
Require valid server certificates? (y/N):
```

By default, a Hawkeye server uses a self-signed SSL certificate.

- If the Hawkeye server is still using the default self-signed certificate, enter n (no).
- If the default certificate has been replaced with a valid certificate from a Certificate Authority (CA), enter y (yes). The XR3000 will require a valid certificate from the server to connect to it.

Once the `probeConfigure` is complete, the XR3000 connects to the Hawkeye server. If any updates are available from the server, the XR3000 downloads and applies them. The XR3000 may restart after the updates.

At this point, the XR3000 is ready for use. You can use the Probes page on the Hawkeye server to confirm that the XR3000 is connected to it.

Advanced administration

Advanced networking

The XR3000 supports a single interface with a default route and additional interfaces with only a route for their subnets. If you need to use advanced routing, you can enable an admin account that allows you to use Linux networking commands to create more a complex routing configuration.

IMPORTANT

Any changes you make using the admin user account will not be supported by Keysight. If you use the admin account to change the system configuration and then experience routing and connectivity issues, Keysight Support will ask you to re-image the XR3000 to return it to its factory default settings and before performing any further troubleshooting.

To enable the admin user account:

1. Run the `enable_ksadmin` command as `ksuser` (see [CLI commands below](#)).
The XR3000 prompts you to acknowledge that this account will allow you to make unsupported changes.
2. Acknowledge the prompt.
3. The admin user account is created with the following credentials:

User name	ksadmin
Password	keysight

Logging in under this account will grant you admin rights to the XR3000.

CLI commands

The XR3000 supports the following commands:

Command	Options	Description
<code>probeStatus</code>	<code>-v</code>	Check the status of the XR3000. The <code>-v</code> (verbose) option shows output including status of individual components of the total system.
<code>collectLogs</code>	<code>-a</code>	Collect all the open log files and snapshots of the probe's configuration.
<code>probeReboot</code>		Reboot the XR3000.
<code>probeShutdown</code>		Turn off the XR3000. The device will need to be power cycled to restart.
<code>systemInformation</code>		Display the serial number, UUID, BIOS vendor, and BIOS version.
<code>ksTcpdump</code>	all tcpdump options	<code>ksusers tcpdump</code> .

<code>changeHostname</code> <code><NewHostName></code>		Change the hostname of the XR3000.
<code>linkstat</code>	<code>-v</code>	Show the status of the Ethernet link.
<code>interfaceConfigure</code>		Configure the Ethernet interfaces on the XR3000.
<code>wifiConnect</code>		Configure the wireless interface.
<code>wifiScan</code>		Scans for all available wireless networks and presents a list of SSIDs, BSSIDs, and other available information about those APs.
<code>enable_ksadmin</code>		<p>Enables the <code>ksadmin</code> account which can be used when unsupported routing configurations are required.</p> <p>IMPORTANT Any changes you make using the admin user account will not be supported by Keysight. If you use the admin account to change the system configuration and then experience routing and connectivity issues, Keysight Support will ask you to re-image the XR3000 to return it to its factory default settings and before performing any further troubleshooting.</p>

Rackmounting

The rackmounting kit is optional.

The rackmount kit contains the following items:

Qty	Description
1	Rack Bracket Assembly
2	Cables, USB3-A to Micro USB3-B
4	Screws, M4 x 30mm Socket Head
6	Cable Ties, 99mm
3	Cable Ties, 300mm

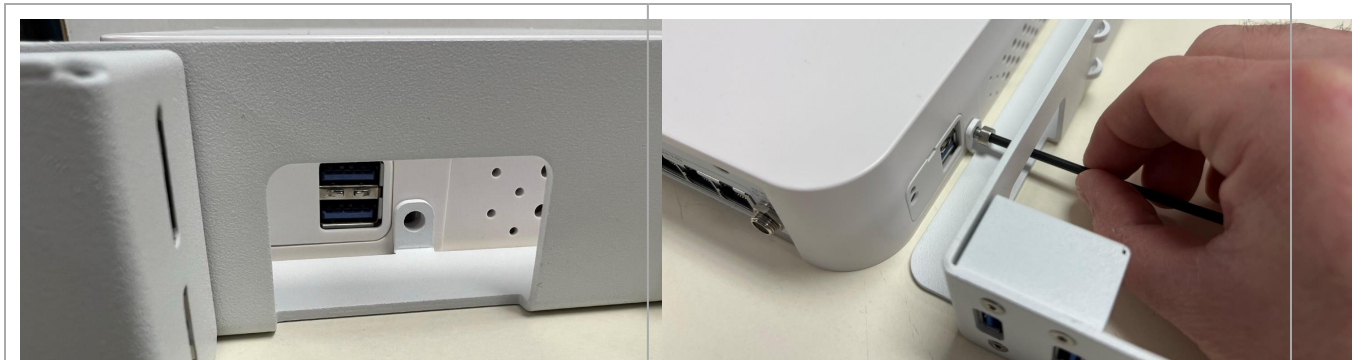
1. Insert the XR3000

Insert the XR3000 into the rackmount bracket, oriented as shown.



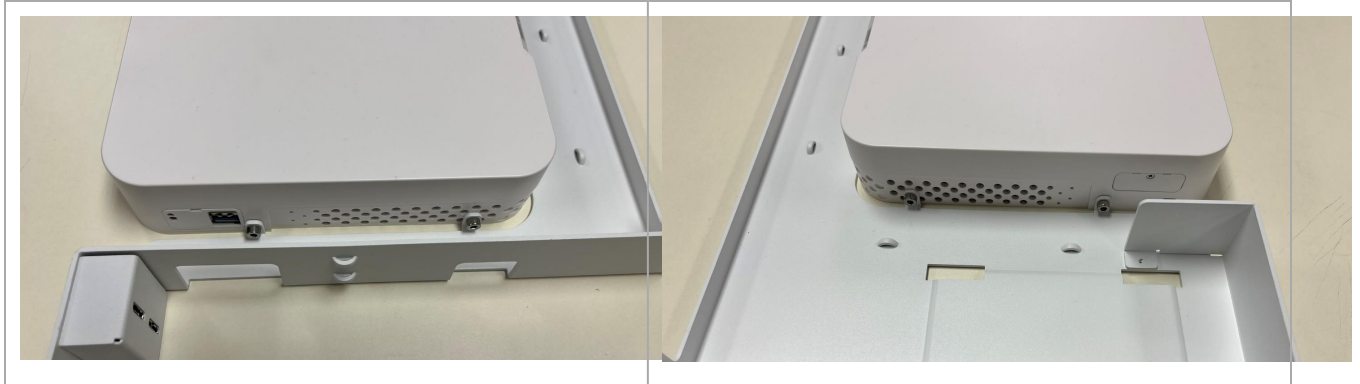
2. Align the mounting holes

Align the mounting holes in the XR3000 system with the holes located in the tabs on the rackmount bracket. Insert a screw into one of the mounting holes and snug. Do not overtighten.



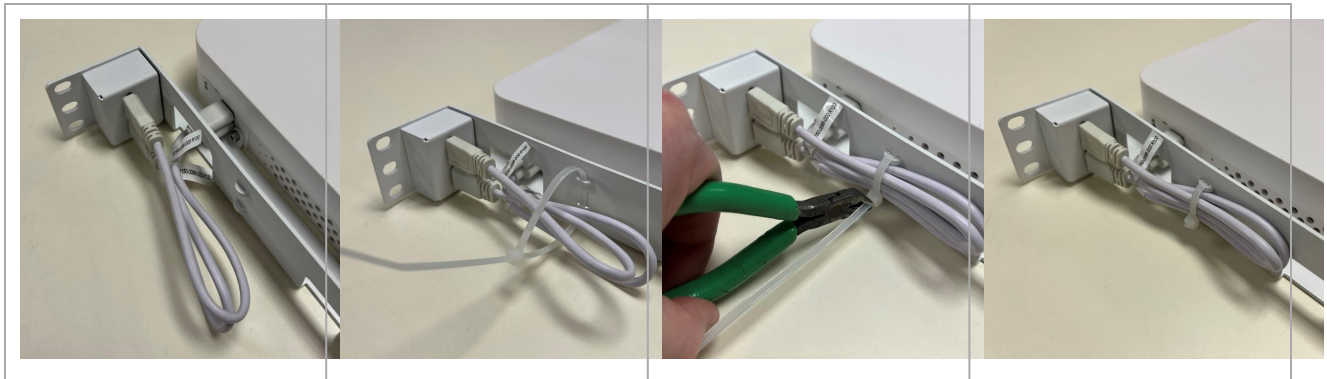
3. Insert remaining screws

Insert the remaining screws into the mounting holes and snug. Do not overtighten.



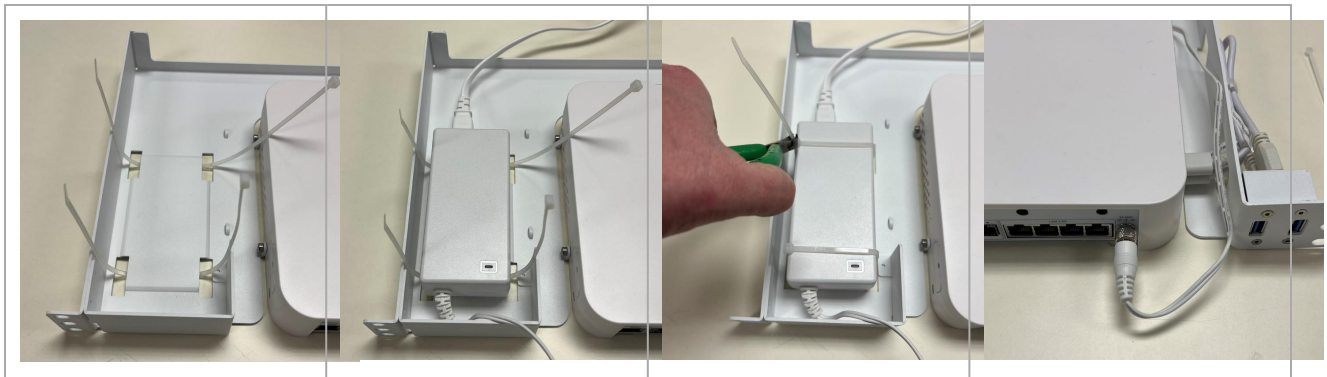
4. Install the USB cables

Install the USB cables between the USB 3.0 Micro B connections on the rackmount bracket and the USB 3.0 Type A connections on the XR3000 system. Secure the cables in place with a 300mm cable tie passed through the cable tie mounts on the rackmount bracket and snip off the excess.



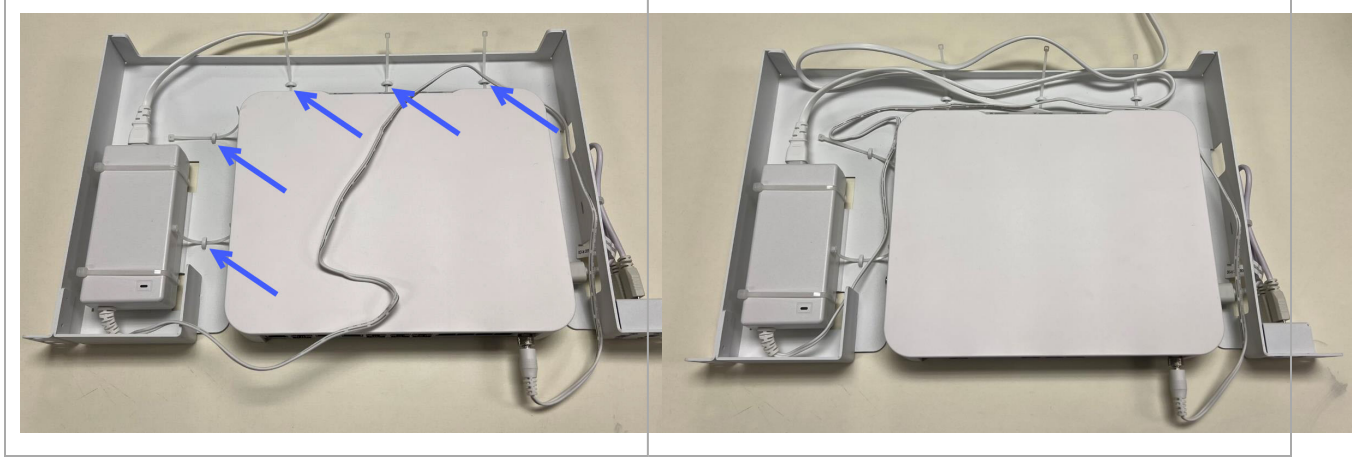
5. Install the power supply

Route two 300mm cable ties underneath the PSU standoff on the rackmount bracket. Place the PSU on the standoff with the cables oriented as shown. Secure the PSU to the rackmount bracket with the cable ties and snip off the excess. Screw power cable into the XR3000.



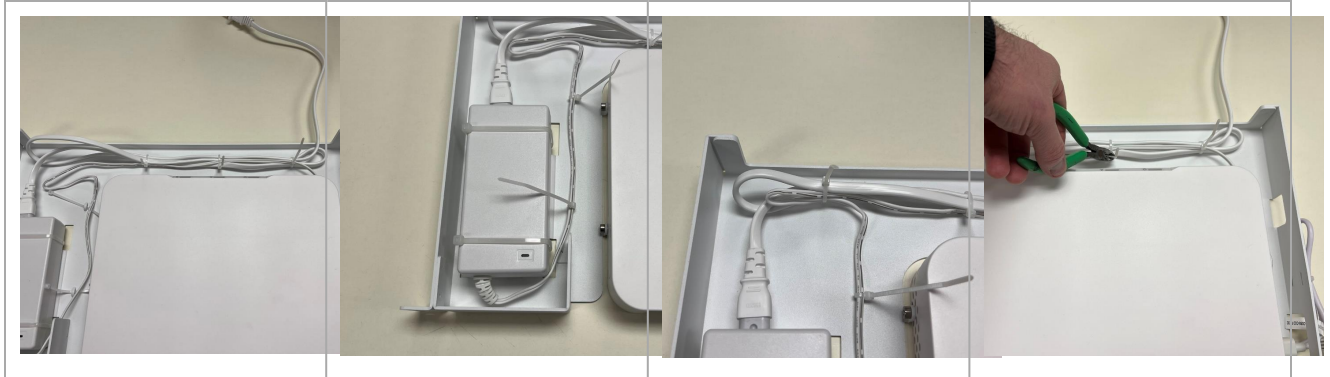
6. Insert cable ties

Route five 99mm cable ties through the cable tie mounts on the rackmount bracket where shown. Bundle the PSU cables and route them around the rackmount bracket as shown.



7. Secure the PSU cables

Secure the PSU cables with the cable ties. If necessary, bundle any excess cable slack and secure with the remaining 99mm cable tie. Snip off the excess.



Wall mounting

The wall mounting kit is optional.



1. Attach the mounts

Attach the mounts to the XR3000.



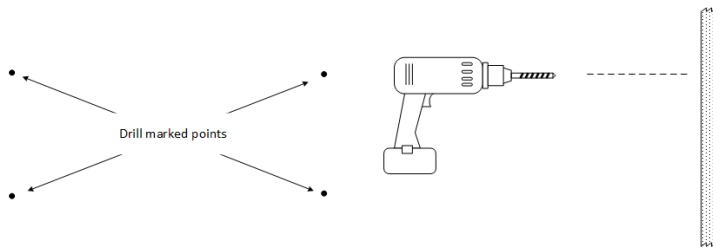
2. Mark the mounts

Position the XR3000 on the wall where you want to mount it and mark the location of the mounting holes on the wall.



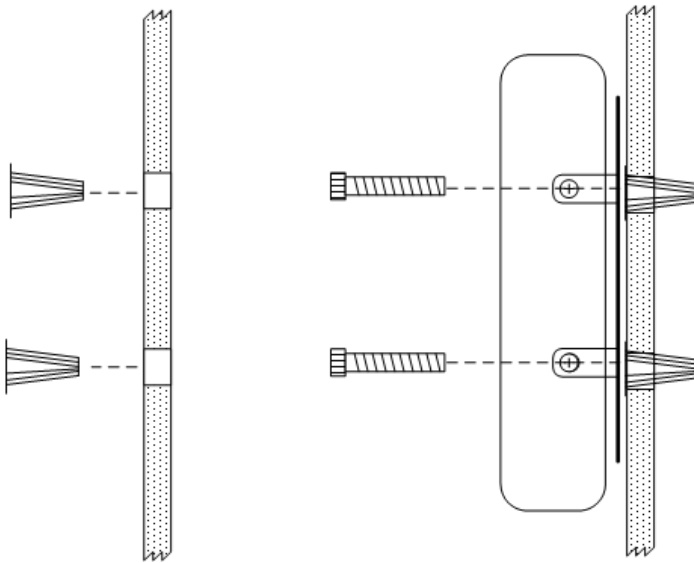
3. Drill the holes

Drill the holes for the mounts.



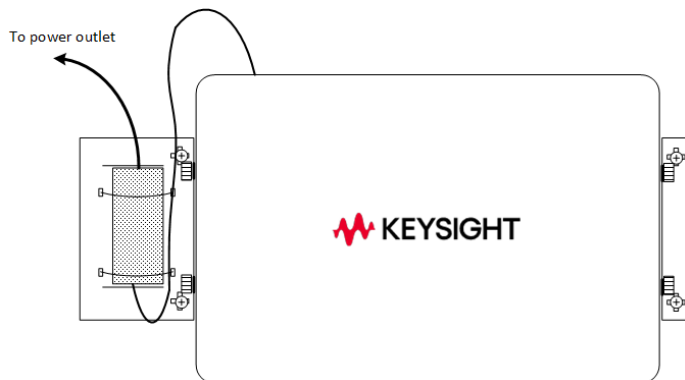
4. Insert the wall anchors

Insert the wall anchors into the drilled holes. Position the XR3000 on wall and screw the mounts to the wall anchors.



5. Attach the power supply

Attach the power supply to the wall mount bracket with the supplied cable ties. Plug the input power cord into wall socket and the output power cord into the Power socket on the XR3000.



Compliance Specifications

Physical, Thermal, and Power Specifications

Description	Specifications
Physical	<ul style="list-style-type: none"> - 1RU rack-mountable unit (hardware included) - Dimensions: (H) 50mm x (W) 220mm x (D)150mm - Weight: 1.5 kg (3.3 lbs.)
Thermal	<ul style="list-style-type: none"> - Operating temperature: 0°C to 40°C (32°F to 104°F) - Operating humidity: 10 to 85% (RH), non-condensing - Storage temperature: -40°C to 70°C (-4°F to 158°F) short term, packaged - Storage humidity: 5 to 93% (RH), non-condensing, short-term, packaged
External AC Adapter Power Ratings	<ul style="list-style-type: none"> - AC Input: 100-240Vac, 1.8A, 50/60Hz (x2) - DC Output: 12V DC, 5A; Max power consumption: 60W

Regulatory and Environmental Specifications

Regulatory Compliance	Specifications
Safety	<ul style="list-style-type: none"> - EN 62368-1 / BS EN 62368-1 / IEC 62368-1 - UL 62368-1 / CSA C22.2 No. 62368-1
EMC (Emissions and Immunity)	<ul style="list-style-type: none"> - FCC Part 15B, Class B - ICES-003(B)/NMB-003(B) - EN 55032, EN 55035, 61000-3-2, 61000-3-3 - AS/NZS CISPR 32, VCCI -CISPR 32 - KS C 9832, KS C 9835
RF (Radio Frequency)	Wi-Fi 802.11 a/b/g/n/ac/ax 2.4GHz and 5.2GHz, 5.3GHz, 5.6GHz, 5.8GHz, 6.2GHz
Countries / Regions Regulatory Approvals	<ul style="list-style-type: none"> - CE (Europe) - UL (USA, Canada) - RCM (Australia, New Zealand) - UKCA (United Kingdom) - KCC (Korea) - VCCI (Japan)
Environmental	<ul style="list-style-type: none"> - RoHS Directive 2011/65/EU; Annex II, Directive (EU) 2015/863 - WEEE Directive 2012/19/EU - China RoHS

RF Specifications

Type of Equipment: **Gateway Router**

Equipment Accessories and description:

- AC Power Adapter (with power cord):
 - Mfr: FSP, Model FSP060-DHAN3;
 - Input: AC 100-240V~, 1.8A, 50-60 Hz
 - Output: 12.0V DC, 5.0A, 60.0W
 - Cable Out: Non-shielded, 1.5m, with one ferrite core bonded
- USB Cable: Shielded, 1.0m
- Antennas (Main and Aux):
 - Mfr.: Wieson, Model: ARY121-0009-002-H0
 - Antenna Type: Dipole
 - Peak Gain:
 - 2.89dBi at 2.4 GHz (2400-2483.5 MHz)
 - 2.92dBi at 5.2 GHz (5150-5250 MHz)
 - 1.70dBi at 5.3 GHz (5250-5350 MHz)
 - 2.28 dBi at 5.6 GHz (5470-5725 MHz)
 - 3.09 dBi at 5.8 GHz (5725-5850 MHz)
 - 2.62 dBi at 6.2 GHz (5945~6425 MHz)

Equipment frequency range: (2.4 GHz)

- 802.11b/g/n/ax-20 MHz: 2412-2472 MHz
- 802.11 n/ax-40 MHz: 2422-2462 MHz

Equipment frequency range: (5.2 GHz, 5.3 GHz, 5.6 GHz)

- 802.11a/n/ax-20 MHz: 5180-5320 MHz, 5500-5700 MHz
- 802.11n/ax-40 MHz: 5190-5310 MHz, 5510-5670 MHz
- 802.11ac/ax-80 MHz: 5210-5290 MHz, 5530-5610 MHz
- 802.11ac/ax-160 MHz: 5250 MHz, 5570 MHz

Equipment frequency range: (5.8 GHz)

- 802.11a/n/ax-20 MHz: 5745-5825 MHz
- 802.11n/ax-40 MHz: 5755-5795 MHz
- 802.11ac/ax-80 MHz: 5775 MHz

Equipment frequency range: (6.2 GHz)

- 802.11ax-20 MHz: 5955-6415 MHz
- 802.11ax-40 MHz: 5965-6405 MHz
- 802.11ax-80 MHz: 5985-6385 MHz
- 802.11ax-160 MHz: 6025-6345 MHz

Type of Modulation:

- 802.11b : DSS, DBPSK, DQPSK, CCK
- 802.11a/g/n/ac/ax: OFDM, OFDMA, BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM

Max. RF power transmitted : (2.4 GHz):

- Measured Power: 16.52 dBm
- RF Output power: 19.41 dBm (includes Antenna Gain = 2.89 dBi) [RF Output Power = Measured Power + Antenna Gain]

Max. RF power transmitted : (5 GHz):

- Measured Power: 17.24 dBm
- RF Output power: 19.52 dBm (includes Antenna Gain = 2.28 dBi) [RF Output Power = Measured Power + Antenna Gain]

Max. RF power transmitted : (6.2 GHz):

- Measured Power: 17.49 dBm
- RF Output power: 20.11 dBm (includes Antenna Gain = 2.62 dBi) [RF Output Power = Measured Power + Antenna Gain]

HW Information: XR3000

Statements:

European Union

Hereby, Keysight Technologies, Inc., declares that this **Gateway Router XR3000** is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

XR3000 User Guide URL: <https://www.keysight.com/us/en/support.html>

This device operates in the 5150 – 5350 MHz frequency range and is restricted to indoor use only. Outdoor operation in this range is prohibited.

RF Exposure warning

This device meets the EU requirements (2014/53/EU) of the limitation of exposure of the general public to electromagnetic fields by way of health protection.

The device complies with RF specifications when the device is used at 20 cm from your body.

United Kingdom

Hereby, Keysight Technologies, Inc., declares that this **Gateway Router XR3000** is in compliance with the essential requirements and other relevant provisions of Radio Equipment Regulations 2017.

XR3000 User Guide URL: <https://www.keysight.com/us/en/support.html>

This device operates in the 5150 – 5350 MHz frequency range and is restricted to indoor use only. Outdoor operation in this range is prohibited.

RF Exposure warning

This device meets the EU requirements (2014/53/EU) of the limitation of exposure of the general public to electromagnetic fields by way of health protection.

The device complies with RF specifications when the device is used at 20 cm from your body.

USA (FCC)

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT

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 or more 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.*

CAUTION:

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

RF exposure warning

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.

SLAVE EQUIPMENT:

This device is slave equipment, the device is not radar detection and not ad-hoc operation in the DFS band.

This radio transmitter Contains **FCC ID: PD9AX210NG** has been approved by FCC to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Wieson	ARY121-0009-002-H0 (Main)	Dipole Antenna	2.89 dBi for 2.4 GHz
2	Wieson	ARY121-0009-002-H0 (Aux)	Dipole Antenna	2.89 dBi for 2.4 GHz
3	Wieson	ARY121-0009-002-H0 (Main)	Dipole Antenna	3.09 dBi for 5 GHz
4	Wieson	ARY121-0009-002-H0 (Aux)	Dipole Antenna	3.09 dBi for 5 GHz
5	Wieson	ARY121-0009-002-H0 (Main)	Dipole Antenna	2.62 dBi for 6.2 GHz
6	Wieson	ARY121-0009-002-H0 (Aux)	Dipole Antenna	2.62 dBi for 6.2 GHz

Note: The antenna connector is Reverse SMA type.

Statement acknowledging device restrictions:

- Prohibited for control of or communications with unmanned aircraft systems, including drones.
- FCC regulations restrict the operation of this device to indoor use only.

- Operation prohibited on oil platforms, cars, trains, boats, and aircrafts, except that operation of this device is permitted in large aircraft while flying above 10,000 ft.

CANADA (ISED)

(English)

Canada, ISED notice:

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference.*
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.*

(French)

Canada, ISED avis:

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- 1) L'appareil ne doit pas produire de brouillage;*
- 2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.*

(EMC) ICES-003 Compliance Label: (Issue 7)

CAN ICES-003(B)/NMB-003(B)

(English)

Radio Frequency (RF) Exposure Information

The radiated output power of the Wireless Device is below the Innovation, Science and Economic Development Canada radio frequency exposure limits. The Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized.

This device has also been evaluated and shown compliant with the IC RF Exposure limits under mobile exposure conditions. (antennas are greater than 20 cm from a person's body).

(French)

Informations concernant l'exposition aux fréquences radio (RF)

La puissance de sortie émise par l'appareil de sans fil est inférieure à la limite d'exposition aux fréquences radio d'Innovation, Sciences et Développement économique Canada. Utilisez l'appareil de sans fil de façon à minimiser les contacts humains lors du fonctionnement normal.

Ce périphérique a également été évalué et démontré conforme aux limites d'exposition aux RF d'IC dans des conditions d'exposition à des appareils mobiles (antennes sont supérieures à 20 cm à partir du corps d'une personne).

(English)

The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems

The maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall comply with the e.i.r.p. limit; and

The maximum antenna gain permitted for devices in the band 5725-5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate. High-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

(French)

Mise en garde: le dispositif destiné à fonctionner dans la bande 5150–5250 MHz est destiné uniquement à une utilisation en intérieur afin de réduire le risque de brouillage préjudiciable causé par les systèmes mobiles à satellites dans le même canal;

le gain maximal d'antenne permis pour les dispositifs utilisant les bandes 5250-5350 MHz et 5470-5725 MHz doit se conformer à la limite de p.i.r.e.;

le gain maximal d'antenne permis (pour les dispositifs utilisant la bande 5725-5825 MHz) doit se conformer à la limite de p.i.r.e. spécifiée pour l'exploitation point à point et non point à point, selon le cas.

De plus, les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5250-5350 MHz et 5650-5850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

(English)

The device for operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems

(French)

Mise en garde: le dispositif destiné à fonctionner dans la bande 5150–5250 MHz est destiné uniquement à une utilisation en intérieur afin de réduire le risque de brouillage préjudiciable causé par les systèmes mobiles à satellites dans le même canal;

(English)

*This radio transmitter Contains **IC: 1000M-AX210NG** has been approved by Innovation, Science and Economic Development Canada to operate with the antenna types listed below with the maximum permissible gain and required antenna impedance for each antenna type indicated. Antenna types not included in this list, having a gain greater than the maximum gain indicated for that type, are strictly prohibited for use with this device.*

(French)

Cet émetteur radio Contains **IC: 1000M-AX210NG** a été approuvé par d'Innovation, Sciences et Développement économique Canada pour fonctionner avec les types d'antennes énumérés ci-dessous avec le gain maximal admissible et impédance d'antenne requise pour chaque type d'antenne indiqué. Types d'antennes n'est pas inclus dans cette liste, ayant un gain supérieur au gain maximal indiqué pour ce type, sont strictement interdits pour une utilisation avec cet appareil.

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Wieson	ARY121-0009-002-H0 (Main)	Dipole Antenna	2.89 dBi for 2.4 GHz
2	Wieson	ARY121-0009-002-H0 (Aux)	Dipole Antenna	2.89 dBi for 2.4 GHz
3	Wieson	ARY121-0009-002-H0 (Main)	Dipole Antenna	3.09 dBi for 5 GHz
4	Wieson	ARY121-0009-002-H0 (Aux)	Dipole Antenna	3.09 dBi for 5 GHz
5	Wieson	ARY121-0009-002-H0 (Main)	Dipole Antenna	2.62 dBi for 6.2 GHz
6	Wieson	ARY121-0009-002-H0 (Aux)	Dipole Antenna	2.62 dBi for 6.2 GHz

(English)

Under Innovation, Science and Economic Development Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Innovation, Science and Economic Development Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication.

(French)

En vertu de la réglementation de d'Innovation, Sciences et Développement économique Canada, cet émetteur de radio ne peuvent fonctionner en utilisant une antenne d'un type et maximum (ou moins) Gain approuvé pour l'émetteur par d'Innovation, Sciences et Développement économique Canada. pour réduire risque d'interférence aux autres utilisateurs, le type d'antenne et son gain doivent être choisis de sorte que la puissance isotrope rayonnée équivalente (PIRE) ne dépasse pas ce qui est nécessaire pour la réussite de communication.

(English)

- Operation shall be limited to indoor use only; and
- Operation on oil platforms, cars, trains, boats and aircraft shall be prohibited except for on large aircraft flying above 10,000 ft.

(French)

- Le fonctionnement doit être limité à une utilisation en intérieur uniquement ; et
- L'exploitation sur les plates-formes pétrolières, les voitures, les trains, les bateaux et les aéronefs est interdite, sauf pour les gros aéronefs volant au-dessus de 10 000 ft.



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This information is subject to change without notice.

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