FortiExtender 212F

QuickStart Guide

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F:RTINET.

October 10, 2023

Packing List

FortiExtender-212F

LTE/GNSS All-in-One Antennas
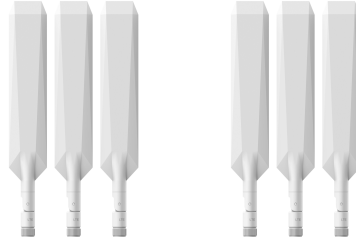
Mounting Kit

Anchors and Screws
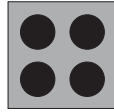
Rubber Feet
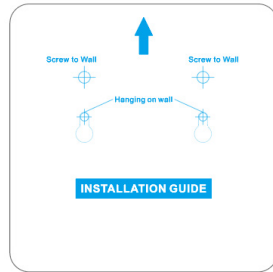
Drill Template Sticker

QuickStart Guide

FortiExtender 212F

QuickStart Guide

Product Description

FortiExtender 212F is a wireless Internet WAN connection device featuring one 1-Gb/100-Mb WAN connection and four 1-Gb/100-Mb LAN connections.

Model	Modem
FEX-212F	2 x EM7565 CAT12 LTE module

Notes:
- 2 x LTE CAT12 modules (2 x 600 Mbps downlink and 2 x 150 Mbps uplink. Region: North America, Europe, and APEC continents).
- FEX-212F only support MicroSIM (3FF) SIM cards, which are not included. You must purchase your own SIM cards.

Ports, LEDs, and Buttons

USB 2.0 Port

WAN Port & LED

LAN Ports (1–4)& LEDs
Port 4 is PoE PD LAN (802.3at)

POE PD

CONSOLE   WAN   1   2   3   4   12VDC

Console Port
Note: To access the device from
its console port, you must set
the baud rate to 115200.

12VDC/2.5A Input (optional)
(Use 12V/2.5A power adapter with ID 2.1 mm plug.)

Module 1 Antenna Connector

Module 2 Antenna Connector

Module 1 SIM Cards 1 & 2

Bluetooth Button

Bluetooth LED

MODULE1

MODULE2

BLUETOOTH

Module 2 SIM Cards 1 & 2

SIM Slot Cover

Reset/Default Button

Module 1 Antenna
Wireless Icon

Module 2 Antenna
Wireless Icon

LED Behavior

LED	Behavior and Description
WAN & LAN Port LEDs	• Green Steady: 1-Gb network connected. • Green Flashing: 1-Gb network activity. • Amber Steady: 100-Mb network connected. • Amber Flashing: 100-Mb network activity. • Off: No network is connected.
Bluetooth LED	• Green Steady: Bluetooth configuration window is open (The windows opens when the Bluetooth button is pressed. It closes in 30 seconds if no configuration is performed.) • Blue Flashing: Bluetooth configuration is in progress. • Blue Steady: Bluetooth configuration is completed. The LED turns off in 5 seconds. • Off: No Bluetooth configuration is allowed.

Control Button Usage

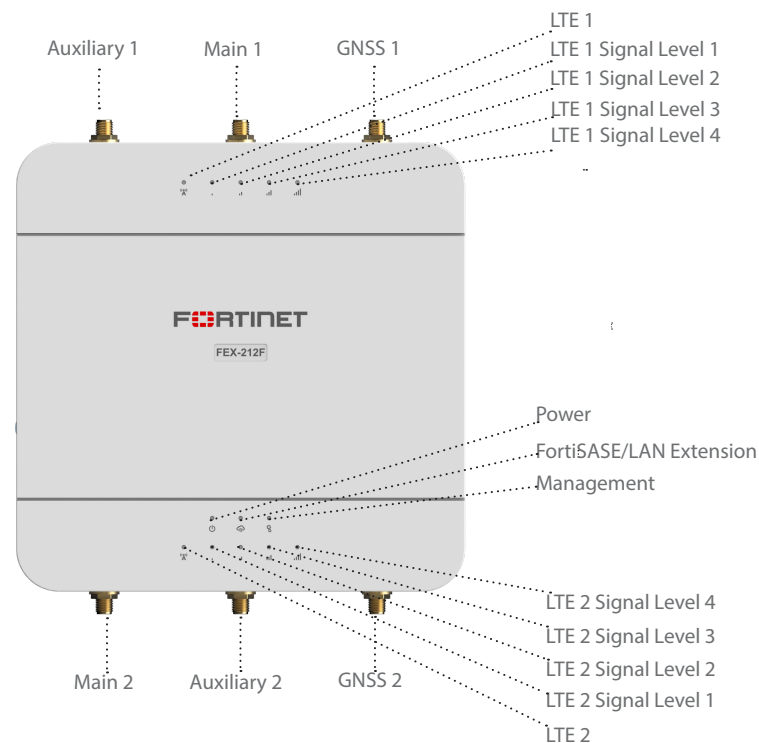| Button	Operating Instructions
Reset/Default Button	• Press and hold for less than 5 seconds: Reset/Reboot the device. • Press and hold for more than 5 seconds: Restore the device to its factory default settings.
Bluetooth Button	• Press and hold for less than 5 seconds: Ignored. • Press and hold for more than 5 seconds: Turns on the Bluetooth LED and opens the Bluetooth configuration window. (Note: The "window" closes if no Bluetooth configuration activity occurs within 30 seconds. Re-pressing the button has no effect while Bluetooth configuration is in progress or if it is completed within 5 minutes.)

RF Connectors & System LEDs

Auxiliary 1   Main 1   GNSS 1

LTE 1
LTE 1 Signal Level 1
LTE 1 Signal Level 2
LTE 1 Signal Level 3
LTE 1 Signal Level 4

FEX-212F

Power
FortiSASE/LAN Extension
Management

Main 2   Auxiliary 2   GNSS 2

LTE 2 Signal Level 4
LTE 2 Signal Level 3
LTE 2 Signal Level 2
LTE 2 Signal Level 1
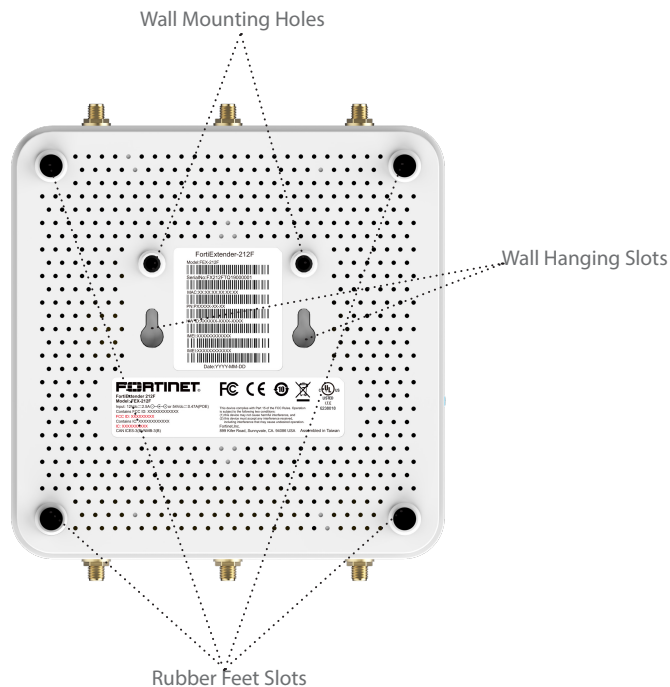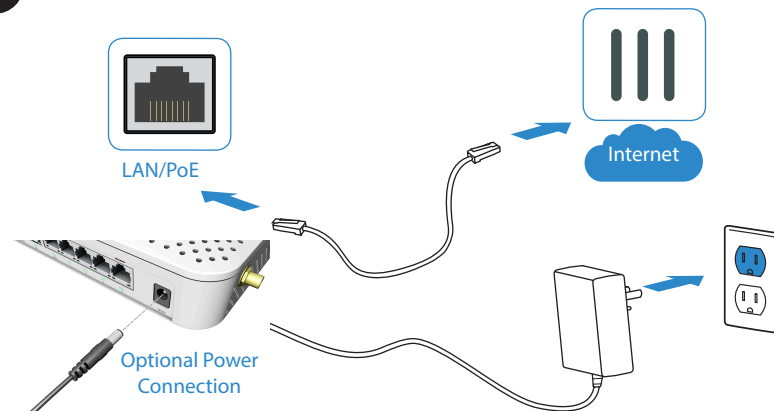LTE 2

The following tables describe the use of RF connectors and the system LEDs on top of the FEX-212F casing.

LED	Description
Power	• Green Steady: System has booted up and is working properly. • Green Flashing: System is booting up. • Amber: System is in error state. • OFF: System is powered off.
Management	• Blue Steady: System is managed by FortiGate or FortiExtender Cloud. • Blue Flashing: System is connecting to a managing device. • OFF: System is running in stand-alone mode, not connected to any FortiGate device.
FortiSASE/LAN Extension	• Blue Steady: System is connected to FortiSASE/LAN Extension. • Blue Flashing (at one-second intervals): System is connecting to FortiSASE/LAN Extension. • Blue Flashing Rapidly (at less-than-one-second intervals): System is experiencing an error in connecting to FortiSASE/LAN Extension. • OFF: System is not configured for FortiSASE/LAN Extension.
Bluetooth	• Green: Bluetooth configuration window opens upon pressing the Bluetooth button. It closes in 30 seconds if no configuration occurs. • Blue Flashing: Bluetooth configuration is in progress. • Blue Steady: Bluetooth configuration is completed. The LED turns off in 5 seconds. • OFF: No Bluetooth configuration is allowed.

LEDs	Description
LTE 1/2 LED	• Green Steady: The module is connected to wireless carrier in LTE mode and is working properly. • Flashing Green: The LTE modem is booting up and is connecting to wireless carrier. • Rapid Flashing Green: The system has discovered the LTE module, but is experiencing an SIM or firmware error. • OFF: The LTE module is powered off, or no LTE modem is detected.
LTE Signal Strength LEDs	• 1 On: < 25%. • 1 & 2 On : 25% - 50%. • 1, 2 & 3 On: 50% - 75%. • 1, 2, 3, & 4 On: > 75%.

Wall Mounting Holes

Wall Hanging Slots

Rubber Feet Slots

1 Basic Connections

LAN/PoE

Internet

Optional Power Connection

1. Insert one end of an Ethernet cable into the LAN 4/PoE PD port on the device.
2. Insert the other end of the Ethernet cable into the PoE LAN port of your FortiGate appliance, or to a WAN port of your FortiGate through a power injector. Ensure that the FortiGate interface provides DHCP server service to issue an IP address to FortiExtender when connected to LAN Port 4 of FortiExtender.
3. Optionally, if you are not using PoE, connect the device to a power outlet using a power adapter.

Warning:

You must provide adequate grounding to the PoE injector of the FortiExtender unit, if required, in compliance with your local electrical code or regulations.
This device complies with IEEE 802.3at PoE specification. Do not use a PoE injector that is not IEEE 802.3at compliant as it might damage your device.

2 Assembly

1. Snap off the plastic cosmetic cover between the front LEDs, unscrew the SIM socket dust cover fastening screw, and then remove the dust cover.
2. Insert your MicroSIM (3FF) SIM card(s) into the SIM socket(s).
3. Observe the following guidelines:
   - If installing one SIM card, insert the card into either SIM socket.
   - If installing two SIM cards, use SIM1 as the primary socket and SIM2 as the secondary.
4. Insert the SIM card(s) into the SIM socket(s). (Note: For Module 1, make sure that the cards are facing down with the cut corner on the left; for Module 2, make sure that the cards are facing up with the cut corner on the right.)
5. Replace the SIM socket dust cover, tighten the dust cover screw, replace the plastic cover, and then attach the antennas.

3FF - Micro SIM
15mm x 12mm x 0.76mm

15mm

12mm
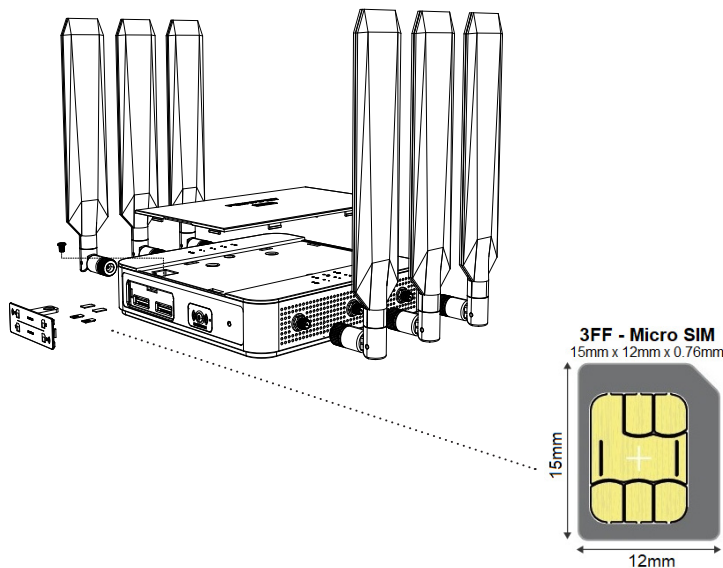
3 IP Configuration

After you have connected the FortiExtender network interfaces, the device automatically attempts to obtain an IP address from a DHCP server. If you do not use DHCP, you can configure a static IP address.

To configure a static IP address:

1. Use an Ethernet cable to connect one of the LAN ports to the Ethernet port of your computer.
2. Set the computer Ethernet port to DHCP mode, and connect it to port1, port2, or port3.
3. Open your web browser and point to the default FortiExtender web GUI address: http://192.168.200.99
4. In both the username and password fields, type **admin** and press the Enter key on your keyboard. (**Note:** If you are logging in to the device for the first time, you will be prompted to change the default password. We strongly recommend that you change the password right away.)
5. Go to Networking>Interface, where you'll see all the system interfaces.
6. Select a desired interface, set it to "static" mode, configure the static IP address, and click Save.

④ Installation

The FortiExtender device is designed for placement near a window (desk or wall mount) to achieve the best LTE signal strength. Refer to the diagram below for proper placement and mounting.

Place on top of a desk or flat surface

1. Attach the rubber feet to the four corners on the bottom of the unit.
2. Place the unit on the desk or flat surface.
3. Secure the unit in place with a Kensington lock.
4. Attach the antennas.

Hang on a wall

1. Peel off the drill template sticker, and stick it onto the wall in a desired location.
2. Use the template to mark and drill the pilot holes.
3. Insert the anchors into the holes.
4. Insert the screws into the anchors and tighten, leaving around a 5-mm gap between the screw head and the wall.
5. Position the device so that the mounting holes line up with the screws.
6. Place the mounting slots over the screws and slide the device down until the screws fit into the slots.

> **Tip:**
> Use bear claw screws. The screw heads of bear claw screws have a built-in gap that fits well with the hanging holes. You can purchase bear claw screws from a local or online hardware store.

Fasten onto a wall

1. Peel off the drill template sticker, and stick it onto the wall in a desired location.
2. Use the template to mark and drill the pilot holes.
3. Insert the anchors into the holes.
4. Snap off the plastic cover over the LEDs on the front to reveal the long screw holes.
5. Insert the long screws through the device from front to back.
6. Insert the long screws into the anchors on the wall and tighten.
7. Replace the cover over the LEDs on the front. Refer to the illustrations on the next page.
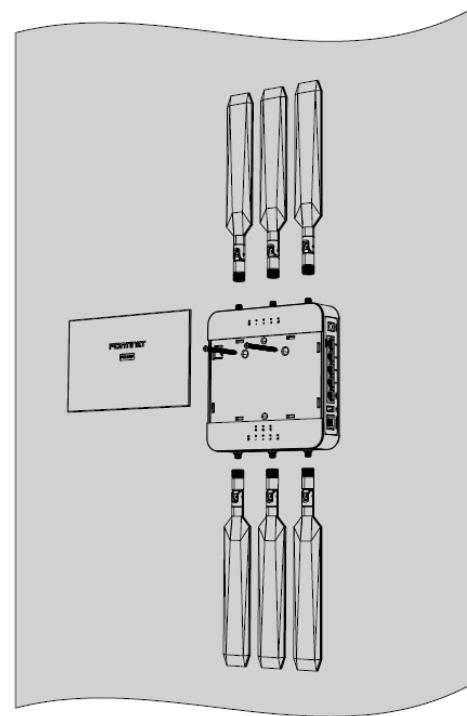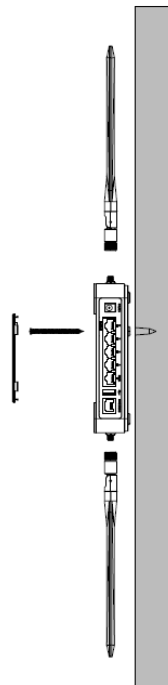
Cautions and Warnings

Environmental specifications

Ambient operating temperature: 0°C to 40°C

Refer to specific Product Model Data Sheet for Environmental Specifications (Operating Temperature, Storage Temperature, Humidity, and Altitude)

Référez à la Fiche Technique de ce produit pour les caractéristiques environnementales (Température de fonctionnement, température de stockage, humidité et l'altitude).

Safety

Caution: This equipment is to be used in a Network Environment 0 per IECTR 62101. This product is connected only to PoE networks without routing to the outside plant.

Attention: Ce matériel doit être utilisé dans un Environnement Réseau 0 par IECTR 62101. Ce produit est uniquement connecté aux réseaux PoE sans installation externe de routage.

This product is intended to be supplied by a Listed Direct Plug-In Power Unit marked LPS or Class 2 and rated 12VDC, 2.5A or by 54 VDC from PoE source.

Le produit doit être alimenté par un bloc d'alimentation à courant continu homologué UL de 12VDC, 2.5A nominal marqué LPS ou Class 2 ou par une source d'alimentation par Ethernet de 54 VDC (PoE).

Regulatory Notices

Federal Communication Commission (FCC)—USA

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

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installation. This equipment generates, uses, and can radiate radio frequency energy, and if it is not installed and used in accordance with the instruction manual, it 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.

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

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Industry Canada Equipment Standard for Digital Equipment (ICES)—Canada

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.

Innovation, Science and Economic Development (ISED)—Canada

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.

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.

This equipment complies with ISED radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

Cet équipement est conforme aux limites d'exposition aux rayonnements ISED établies pour un environnement non contrôlé. Cet équipement doit être installé et utilisé avec un minimum de 20cm de distance entre la source de rayonnement et votre corps.

This radio transmitter (IC: 7280B-3701M01/Model: FEX-212F) has been approved by ISED 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.

Le présent émetteur radio (IC: 7280B-3701M01/Model: FEX-212F) a été approuvé par ISED pour fonctionner avec les types d'antenne énumérés ci-dessous et ayant un gain admissible maximal et l'impédance requise pour chaque type d'antenne. Les types d'antenne non inclus dans cette liste, ou dont le gain est supérieur au gain maximal indiqué, sont strictement interdits pour l'exploitation de l'émetteur.

This device and its antennas(s) must not be co-located or operating in conjunction with any other antenna or transmitter except in accordance with IC multi-transmitter product procedures.

Cet appareil et son antenne (s) ne doit pas être co-localisés ou fonctionnement en association avec une autre antenne ou transmetteur.

Antenna Type	Connector	Antenna Gain (dBi)	Remark
FPC	N/A	2400 MHz—2500 MHz: 3.5	Bluetooth
Dipole	SMA	617—960 MHz: 1.64 1447—1510 MHz: 1.92 1560—1609 MHz: 2.27 1710—2690 MHz: 3.80 3550—3700 MHz:-0.94 3700—4200 MHz: 3.35 4400—5000 MHz: 3.63 5150—5850 MHz: 4.94 5925—7150 MHz: 4.80	WWAN

European Conformity (CE)—EU

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

$C\epsilon$

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

Simplified EU Declaration of Conformity

This declaration is only valid for Fortinet products (including combinations of software, firmware and hardware) provided by Fortinet or Fortinet's authorized partners to the end-customer directly for use within the EU or countries that have implemented the EU Directives and/or spectrum regulation. Any Fortinet products not obtained directly from Fortinet or Fortinet's authorized partners may not comply with EU Directives and Fortinet makes no assurances for such products.

Български
Този продукт е в съответствие с Директива 2014/53/ЕС.

Česky
Tento produkt je v souladu se směrnicí 2014/53/EU.

Dansk
Dette produkt er i overensstemmelse med direktiv 2014/53/EU.

Deutsch
Dieses Produkt entspricht der Richtlinie 2014/53/EU.

Eesti
See toode vastab direktiivile 2014/53/EL.

English
This product is in compliance with Directive 2014/53/EU.

Español
Este producto cumple con la Directiva 2014/53/UE.

Ελληνική
Το προϊόν αυτό συμμορφώνεται με την Οδηγία 2014/53/ΕΕ.

Français
Ce produit est conforme à la Directive 2014/53/UE.

Hrvatski
Ovaj proizvod je u skladu s Direktivom 2014/53/EU.

Italiano
Questo prodotto è conforme alla Direttiva 2014/53/EU.

Latviski
Questo prodotto è conforme alla Direttiva 2014/53/EU.

Lietuvių
Šis gaminys atitinka direktyvą 2014/53/ES.

Malti
Dan il-prodott huwa konformi mad-Direttiva 2014/53/UE.

Magyar
Ez a termék megfelel a 2014/53/EU irányelvnek.

Nederlands
Dit product is in overeenstemming met Richtlijn 2014/53/EU.

Norsk
Dette produktet er i samsvar med direktiv 2014/53/EU.

Polski
Ten produkt jest zgodny z dyrektywą 2014/53/UE.

Português
Este produto está em conformidade com a Diretiva 2014/53/UE.

Rumunski
Acest produs este în conformitate cu Directiva 2014/53/UE.

Slovensky
Tento produkt je v súlade so smernicou 2014/53/EÚ.

Slovensko
Ta izdelek je v skladu z Direktivo 2014/53/EU.

Suomi
Tämä tuote on direktiivin 2014/53/EU mukainen.

Svenska
Denna produkt överensstämmer med direktiv 2014/53/EU.

Note: The full declaration of conformity for this product is available at the link below:
https://site.fortinet.com/ProductRegulatory/EU

Compliance with 2014/53/EU Radio Equipment Directive (RED)

In accordance with Article 10.8(a) and 10.8(b) of the RED, the following table provides information on the frequency bands used and the maximum RF transmit power of the product for sale in the EU:

Radio	Frequency Range	Maximum Transmit Power
Bluetooth	2402 MHz—2480 MHz	10 dBm (EIRP)
WCDMA	Band 1: 1920 MHz—1980 MHz (Uplink); 2110 MHz—2170 MHz (Downlink) Band 8: 880 MHz—915 MHz (Uplink); 925 MHz-960 MHz (Downlink)	25.7 dBm (Conducted)
LTE	Band 1: 1920 MHz—1980 MHz (Uplink); 2110 MHz—2170 MHz (Downlink) Band 3: 1710 MHz—1785 MHz (Uplink); 1805 MHz—1880 MHz (Downlink) Band 7: 2500 MHz—2570 MHz (Uplink); 2620 MHz—2690 MHz (Downlink) Band 8: 880 MHz—915 MHz (Uplink); 925 MHz—960 MHz (Downlink) Band 20: 832 MHz—862 MHz (Uplink); 791 MHz—821 MHz (Downlink) Band 28: 703 MHz—748 MHz (Uplink); 758 MHz—803 MHz (Downlink) Band 32: 1452 MHz—1496 MHz (Downlink) Band 42: 3400 MHz—3600 MHz (Uplink); 3400 MHz—3600 MHz (Downlink) Band 43: 3600 MHz—3800 MHz (Uplink); 3600 MHz—3800 MHz (Downlink) Band 46: 5150 MHz—5925 MHz (Downlink)	25.7 dBm (Conducted)

UK Conformity Assessed (UKCA) – United Kingdom

The product transmits within the frequency ranges and less than or equal to the power listed below:

Standard	Frequency Range	Maximum Transmit Power
Bluetooth	2402–2480 MHz	10 dBm (EIRP)
WCDMA	Band 1: 1920-1980MHz(Uplink); 2110-2170MHz(Downlink) Band 8: 880-915MHz(Uplink);925-960MHz(Downlink)	25.7dBm (Conducted)
LTE	Band 1: 1920-1980MHz(Uplink); 2110-2170MHz(Downlink) Band 3: 1710-1785MHz(Uplink); 1805-1880MHz(Downlink) Band 7: 2500-2570MHz(Uplink); 2620-2690MHz(Downlink) Band 8: 880-915MHz(Uplink);925-960MHz(Downlink) Band 20: 832-862MHz(Uplink); 791-821MHz(Downlink) Band 28: 703-748MHz(Uplink); 758-803MHz(Downlink) Band 32: 1452-1496MHz(Downlink) Band 42: 3400-3600MHz(Uplink); 3400-3600MHz(Downlink) Band 43: 3600-3800MHz(Uplink); 3600-3800MHz(Downlink) Band 46: 5150-5925MHz(Downlink)	25.7dBm (Conducted)

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

This product is in compliance with Statutory Instrument 1206 Radio Equipment Regulations 2017

The full Declaration of Conformity for this product is available at the link below:
https://site.fortinet.com/ProductRegulatory/UK

Agência Nacional de Telecomunicações (ANATEL) – Brazil

Este equipamento não tem direito à proteção contra interferência prejudicial e não pode causar interferência em sistemas devidamente autorizados.

Para maiores informações, consulte o site da ANATEL http://www.gov.br/anatel/pt-br/

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