

NOTICE

Important Safety Instructions for the 6100 Series

Note: Before you start working with your 6100 device, you need to first read the important safety information provided in this notice. This document provides information that may supplement or add safety information to the user guide of your product. Keep this information close at hand. You can obtain a copy of the complete user guide for your product at the following link: www.radiodetection.com.

Introducing the 6100 Series

The 6100 is a handheld device designed for installing and activating multiplay services over copper/G.fast/ADSL2+/VDSL2, and Ethernet, between the service provider and the subscriber premises. It verifies that the customer’s modem/router, equipment and inside wiring are operating correctly. The unit also verifies the location of faults during the installation and repair of voice and DSL circuits.

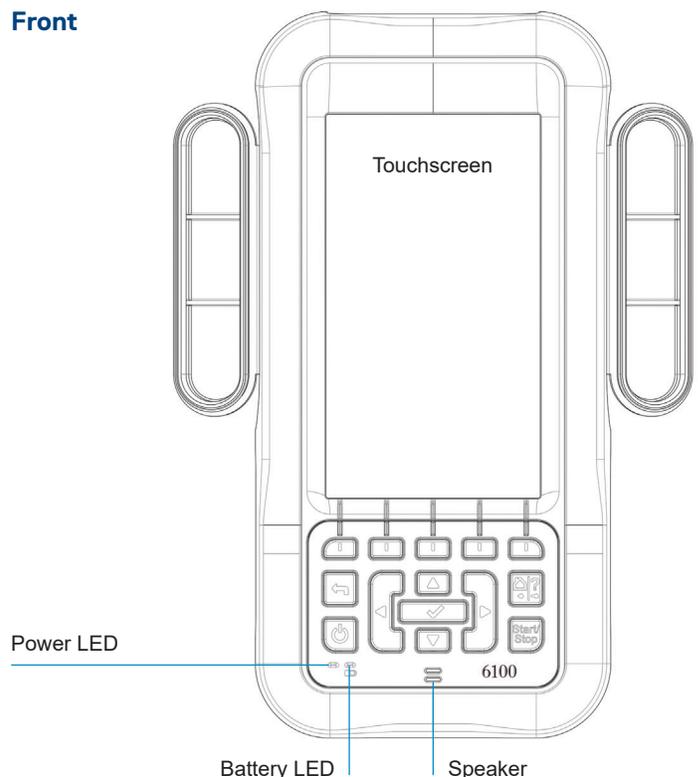
Typical applications

- Automatic Pair Quality Test toward remote test head or far end device (FED)
- Multimeter tests
- Noise tests including power influence and PSD
- Frequency tests including balance, load coils, and tracing tone
- Fault location tests including TDR and RFL
- SmartR™ features including Pair Detective and FaultMapper
- Supports vectoring and G.INP for operators looking to mitigate self-FEXT (far end crosstalk) and promote DSL stability
- ADSL2+, VDSL2, and G.fast testing
- Optional ADSL2+ and VDSL2 bonding support
- Supports Ping, FTP, and Traceroute tests with optional support for Web Browser, VoIP testing, and IPTV analysis
- Ethernet testing for qualifying FTTx service at the customer premises
- Configurable pass/fail results for automated testing
- Proves IPv4 and IPv6 data flow between the network and the end equipment

Using the 6100

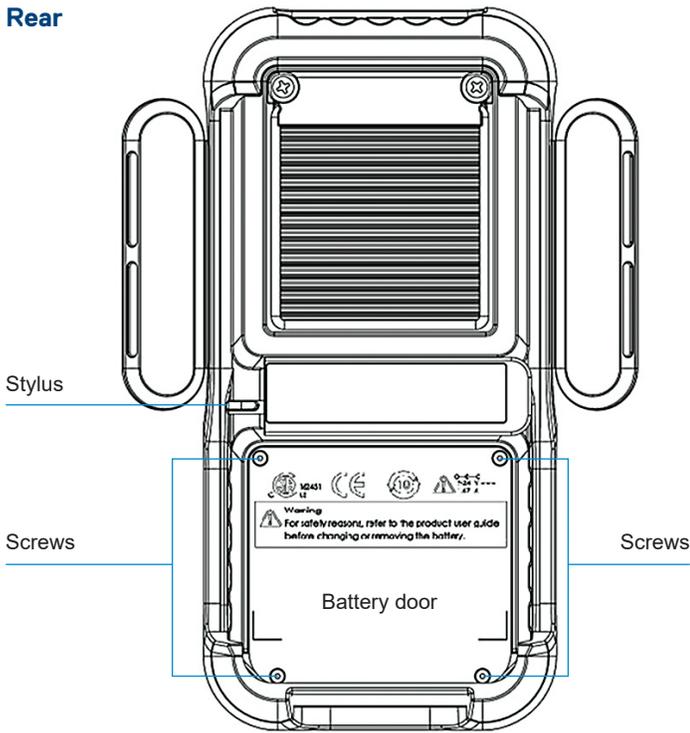
If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired. The 6100 is equipped with a series of interfaces shown in the following views:

Front

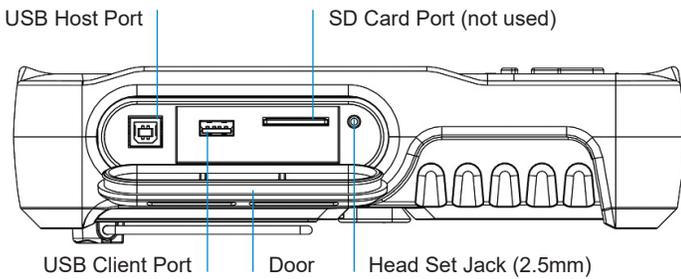


Note: The 6100 enclosure may become warm during normal use.

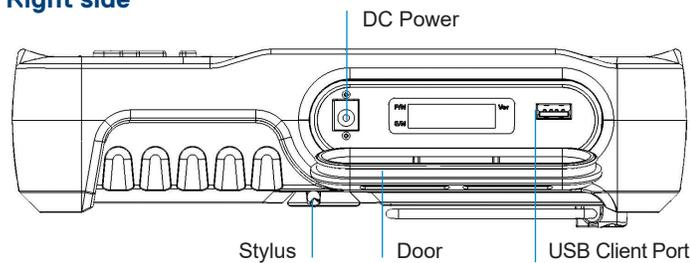
Rear



Left side

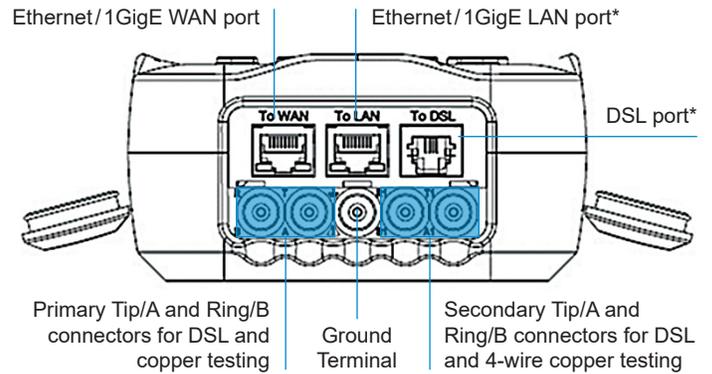


Right side

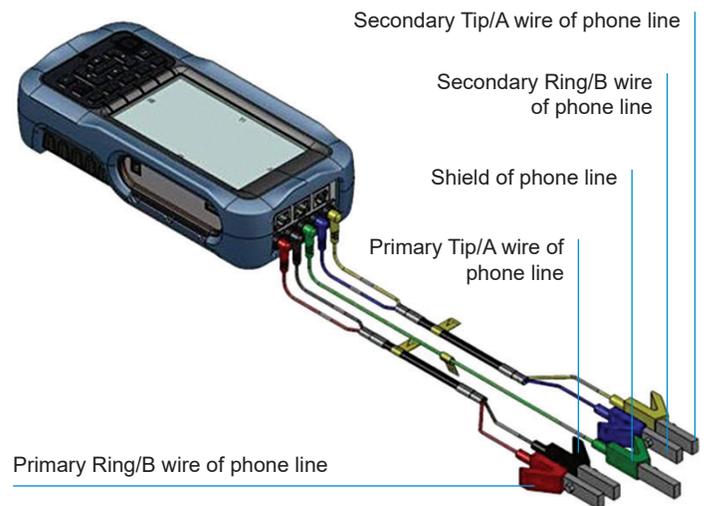


Cable Connections

The graphics below show the connections on the 6100 products.



*6100-Gfast models only



WARNING

- A 50 to 500 Vcc limited power source may be present on connector T/R/G (A/B/E), T1/R1/G (A1/B1/E) when the unit is testing isolation resistance. Use with caution.
- These connections are intended for the express purpose of electrical testing of common telephone line conductors, within the ranges specified in the Technical Specifications found on the Radiodetection web site. The device is not intended to be used on telephone lines having voltages greater than 280 VAC or 400 VDC, and it is also not intended to be used on power distribution circuits.

CAUTION

The unit is protected against damage caused by fault voltages that may be present on lines under test. Do not connect the unit if the maximum expected fault voltage is greater than 500 volts.

Note: In the 6100-Gfast-Bond model, to test an ADSL1/2/2+ Annex B interface, the 6100 uses the second pair (pins 2-5) in the DSL WAN RJ11 connector. When connecting the unit to a wall socket with a modem cable that uses the first pair (pins 3-4), use the red cable (pair 2) of the provided ACC-BD-RJ test cable, RJ14 to dual RJ-11, and an RJ11 female adapter ACC-RJ11-ADPTR.

Getting started with the 6100 Series

Turning the Unit On/Off

When you turn the unit on, you may use it immediately under normal conditions.

To turn the unit on:

Press  to start. The unit initializes for a few seconds and displays the Home pane.

There are two ways to turn off the 6100:

- *Suspend*: the next time you turn your unit on, you will quickly return to your work environment.
- *Shutdown*: completely cuts power to the unit; the unit will perform a complete restart routine the next time you use it. You should perform a shutdown if you do not intend to use your unit for a few hours or more.

To enter suspend mode:

Press  for about 2 seconds. The 6100 will stay in suspend mode for 2 hours, after which it will automatically shut down. This prevents complete battery discharge and ensures maximum battery performance.

To perform a shutdown:

Hold down  for about 4 seconds. The shutdown process starts.

Note: In both previous cases, if the power adapter is connected, the 6100 will go through either a fake suspend or fake shutdown in order to facilitate charging.

Using Menus and Keypad

You can access various tools from the keypad or menu. Menu options may differ depending on your unit configuration.

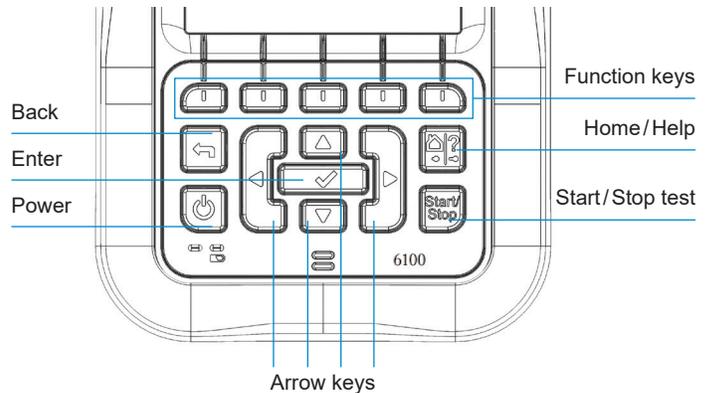
The Home menu is where you can access Copper Test, DSL/IP Tests, System Settings and Wi-Fi Test (6100-Gfast models only). Each test has a sub menu.

- To navigate through the items, use the arrow keys.
- To confirm a choice or enter a menu, press .
- To cancel an action or return to the previous item or pane, press .
- To return to the home pane, press .
- Press  once to return to the Main test menu or twice to return to the Home pane.

Note: Pressing  while a test is running will also stop the test and return to the main menu screen.

Note: You can also select an option directly by pressing the function keys corresponding to the on-screen buttons at the bottom of the screen. Alternatively, any reference to pushing buttons on the keypad can be replaced in most cases by clicking/tapping the touchscreen.

Keypad



On-board Help

On-board help is available at any time. Most test operations pause while you view help, but will resume automatically when you exit help.

To access help about the current function at any time:

Press and hold the  key.

Safety Information

WARNING

You can access various tools from the keypad or menu. Menu options may differ depending on your unit configuration.

- The use of controls, adjustments and procedures, namely for operation and maintenance, other than those specified herein may result in hazardous radiation exposure or impair the protection provided by this unit.
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
- Use only accessories (such as the car outlet adapter and batteries) designed for your unit and approved by Radiodetection. The car outlet adapter contains a replaceable fuse. Replace the damaged fuse ONLY with a fuse of the same type: 3AG, UL/CE certified or equivalent, 16 VDC, 5 A, with an I²t between 40 A²s and 80 A²s. For a complete list of accessories available for your unit, refer to its technical specifications.
- Use only the listed and certified AC adapter provided by Radiodetection with your unit. It provides reinforced insulation between primary and secondary, and is suitably rated for the country where the unit is sold.

IMPORTANT

- When you see the  symbol on your unit, make sure that you refer to the instructions provided in your user documentation. Ensure that you understand and meet the required conditions before using your product.
- Other safety instructions relevant for your product are located throughout this documentation, depending on the action to perform. Make sure you read them carefully when they apply to your situation.

Electrical Safety Information

WARNING

The AC adapter/charger provided with this unit (18 W/9 V) is specifically designed to work with your 6100.

- If you need to ensure that the unit is completely turned off, disconnect the power cable and remove the batteries. For more information on how to remove the batteries, see the section below about replacing the batteries.
- Do not throw batteries into fire or water and do not short-circuit the battery electrical contacts. Do not disassemble.
- **RISK OF EXPLOSION IF BATTERY IS REPLACED BY AN INCORRECT TYPE.**
- Use only the certified power cord that is suitably rated for the country where the unit is used.
- On the AC/DC adapter, replacing detachable mains supply cords with inadequately rated cords, may result in overheating of the cord and create a fire risk.
- Never connect the unit to the AC mains when it is used outdoors.
- Operation of any electrical instrument around flammable gases or fumes constitutes a major safety hazard.
- To avoid electrical shock, do not operate the unit if any part of the outer surface (covers, panels, etc.) is damaged.
- Only authorized personnel should carry out adjustments, maintenance, or repair of opened units under voltage. A person qualified in first aid must also be present. Do not replace any components while the power cable and batteries are connected.
- Unless otherwise specified, all interfaces are intended for connection to Safety Extra Low Voltage (SELV) circuits only.
- Use only the listed and certified AC adapter/charger provided by Radiodetection with your 6100 unit. It provides reinforced insulation between primary and secondary, and is suitably rated for the country where the unit is sold.
- When you use the unit outdoors, ensure that it is protected from liquids, dust, direct sunlight, precipitation, and full wind pressure.

CAUTION

- When using the 6100 while connected to the AC/DC adapter/charger, make sure you do not position the equipment so that it is difficult to disconnect the adapter/charger from the AC mains.
- Your unit uses smart Lithium Polymer batteries with built-in protection that have been especially designed for Radiodetection. For this reason, they can only be replaced with batteries of the same type and model. The use of other batteries may damage your unit and compromise your safety

IMPORTANT

Recycle or dispose of used batteries properly, in accordance with local regulations. Do not dispose of them in ordinary garbage receptacles. See your Operation Manual for more information.

Equipment Ratings

Temperature ranges	
Operation	0 °C to 40 °C (32 °F to 104 °F)
Storage	
without battery	- 40 °C to 70 °C (- 40 °F to 158 °F)
with battery (shipping)	- 20 °C to 60 °C (- 68 °F to 140 °F)
with battery (long periods)	- 20 °C to 40 °C (- 68 °F to 104 °F)
Relative humidity ^a	
Unit:	≤ 95 % non-condensing
AC adapter:	0 % to 80 % non-condensing
Maximum operating altitude	
3000 m (9840 ft)	
Pollution degree	
Battery power:	3 ^b
AC adapter power:	2 ^c
Overvoltage category	
Unit:	I
AC adapter:	II
Input power ^d	
Unit:	9-24 V; 1.67 A
AC adapter:	100 - 240 Vac; 50/60 Hz; 4.16 A
Measurement category	Not rated for measurement categories II, III or IV

- Measured in 0 °C to 31 °C (32 °F to 87.8 °F) range, decreasing linearly to 50 % at 40 °C (104 °F).
- Equipment is normally protected against exposure to direct sunlight, precipitation and full wind pressure.
- For indoor use only.
- Not exceeding ± 10 % of the nominal voltage.

Other Safety Symbols on Your Unit

One or more of the following symbols may also appear on the 6100 or its power supply:

 Direct current

 Alternating current

General Maintenance

Note: For more information on the maintenance of your 6100 device, refer to the user guide at www.radiodetection.com.

The 6100 has been designed to be a rugged and lightweight piece of test equipment. The 6100 LCD display should only be cleaned using a soft, lint-free cloth and an anti-static cleaning solution. Ordinary detergents and other cleaning solutions may cloud or scratch the surface and should be avoided.

To help ensure long, trouble-free operation:

- Keep the unit free of dust.
- Clean the unit casing and front panel with a cloth slightly dampened with water.
- Store unit at room temperature in a clean and dry area. Keep the unit out of direct sunlight.
- Avoid high humidity or significant temperature fluctuations.
- Avoid unnecessary shocks and vibrations.
- If any liquids are spilled on or into the unit, turn off the power immediately and let the unit dry completely.

Battery

The 6100 is equipped with a Lithium Polymer battery.

When fully charged, the battery should provide between 3 and 10 hours of power depending on factors such as: type of tests performed, display backlight level, and connected accessories.

When the battery level is very low, tests cannot be performed. Plug in the AC/DC adapter for continued operation and to recharge the battery.

Note: Using the unit while charging will significantly reduce the charge speed.

Note: Using the unit while charging can affect the measurement performance.

Depending on the grounding, AC power voltage level in your area, and type of charger used, charging the unit may trigger a high voltage warning buzzer. Unplug the AC/DC adapter to confirm if the trigger is influenced from the charger or a real high voltage on the line.

For optimal charging, stop all tests and disconnect the measurement cables from the line and/or ground to continue charging the battery using the AC/DC adapter.

WARNING

- Recharge the battery using only the 6100 and with the battery properly installed in the unit.
- Never open the battery back panel of the 6100 without reading the Replacing the Battery section below.

Unit Temperature Handling

When the battery temperature reaches $\geq 55\text{ }^{\circ}\text{C}$, a warning message will appear. Tests stop automatically when the battery temperature reaches $60\text{ }^{\circ}\text{C}$.

Storing the Battery

If you need to store your 6100 for an extended period of time, place it at room temperature in a clean and dry area, and ensure the unit's battery is charged at around 50 % of its capacity. Every three months during the storage period, verify the battery level and recharge the battery when necessary, so its charge level remains around 50 % of the total capacity. This will ensure that you get the optimum performance out of the battery.

If the battery capacity remains low or outside the previously stated values, it should be replaced. This could occur after 3 years depending on the usage. If your current battery capacity is lower than 8000 mAh, replace the battery.

Replacing the Battery

Battery replacement should only be done by a qualified technician with the appropriate tools on an electronic bench or similar environment.

To replace the battery:

1. Remove all 4 screws of the battery back panel using a 1.5 mm Allen key. Put aside the screws and the panel keeping the inside foam seal clean.
2. Pull out the old battery using your fingers. Flipping the unit, battery-side down, will ease removal. Do not use tools in order to prevent damage to the battery envelope. Pull out the electrical connector. Put aside the old battery.

3. Remove the new battery from its package. Keep the package for future use. Plug in the electrical connector ensuring the pins are correctly aligned. Place the new battery in the 6100.
4. Inspect the inside rib around the 6100 battery compartment to make sure it is free from any debris. Remove any debris using a dry cloth. Replace the battery back panel. Replace the 4 screws with a moderate torque so the foam seal is evenly compressed without damaging the screws.

WARNING

Only use a Radiodetection battery. Batteries from other suppliers could result in personal injuries and/or serious damage to the 6100. See Contacting Technical Support for information on contacting Radiodetection.

Battery Charging and Replacing

Charging the 6100 battery can take up to 5 hours. This battery was custom made for your unit; replacement batteries must be ordered from Radiodetection.

Contacting Technical and Sales Support

Visit <https://support.radiodetection.com>

or email rd_support@spx.com

or call

UK: +44 (0) 117 976 7776

USA/Ca: +1 (877) 247 3797

Europe: +31 (0) 314 66 47 00 (Benelux)

+49 (0) 28 51 92 37 20 (Germany)

+33 (0) 2 32 89 93 60 (France)

Asia: +852 2110 8160 (Asia Pacific)

+86 (0) 10 8146 3372 (China)

Aus: +61 (0) 2 9707 3222

For detailed information about technical support, and for a list of other worldwide locations, visit:

www.radiodetection.com.

Regulatory Information

USA Electromagnetic Interference Regulatory Statement

Electronic test and measurement equipment is exempt from FCC part 15, subpart B compliance in the United States of America. However, Radiodetection makes reasonable efforts to ensure compliance to the applicable standards.

The limits set by these standards are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the user documentation, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Modifications not expressly approved by the manufacturer could void the user's authority to operate the equipment.

Canada Electromagnetic Interference Regulatory Statement

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. Operation of this equipment in a residential area is likely to cause harmful interference.

Cet équipement génère, utilise et peut émettre de l'énergie radio-fréquence et, s'il n'est pas installé et utilisé conformément à la documentation de l'utilisateur, il peut occasionner une interférence néfaste aux communications radio. L'utilisation de cet équipement dans une zone résidentielle est susceptible d'occasionner une interférence néfaste.

Caution: This equipment is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.

Attention: Cet appareil n'est pas destiné à être utilisé dans des environnements résidentiels et peut ne pas assurer la protection adéquate à la réception radioélectrique dans ce type d'environnements.

This is a class A, group 1 product.

Ceci est un produit de classe A, groupe 1.

Class A equipment: Equipment that is, by virtue of its characteristics, highly unlikely to be used in a residential environment, including a home business shall be classified as class A and shall comply with the class A limits specified in the applicable ICES

standard. Characteristics considered in this assessment include price, marketing and advertising methodology, the degree to which the functional design inhibits applications suitable to residential environments, or any combination of features that would effectively preclude the use of such equipment in a residential environment.

Classe A: Matériel qui, en raison de ses caractéristiques, ne sera fort probablement pas utilisé dans un milieu domiciliaire ni par des entreprises établies à domicile. Parmi les caractéristiques considérées dans cette évaluation, il y a le prix, les méthodes de commercialisation et de publicité, la mesure dans laquelle les fonctions de l'appareil font qu'il ne se prête pas à des applications convenant au milieu domiciliaire ou toute combinaison de ces caractéristiques qui aurait pour conséquence d'en prévenir effectivement l'utilisation à domicile. Utilisé également pour indiquer les limites d'émission correspondantes qui s'appliquent à un tel matériel.

Class B equipment: Equipment that cannot be classified as Class A shall comply with the Class B limits specified in the applicable ICES standard.

Classe B: Matériel qui ne peut pas être inclus dans la classe A. Utilisé également pour indiquer les limites d'émission correspondantes qui s'appliquent à un tel matériel.

Group 1 equipment: group 1 contains all equipment which is not classified as group 2 equipment, and includes equipment such as laboratory and scientific equipment, industrial process, measurement and control equipment. Group 2 equipment: group 2 contains all ISM RF equipment in which radio-frequency energy in the frequency range 9 kHz to 400 GHz is intentionally generated and used or only used locally, in the form of electromagnetic radiation, inductive and/or capacitive coupling, for the treatment of material for inspection/analysis purposes, or for transfer of electromagnetic energy.

Appareils du groupe 1: le groupe 1 réunit tous les appareils compris dans le domaine d'application de la présente Norme, qui ne sont pas classés comme étant des appareils du groupe 2. Le groupe 1 inclut les appareils scientifiques et de laboratoire, les processus industriels, appareils de mesure ou de contrôle.
Appareils du groupe 2 : le groupe 2 réunit tous les appareils ISM à fréquences radioélectriques dans lesquels de l'énergie à fréquences radioélectriques dans la plage de fréquences comprises entre 9 kHz et 400 GHz est produite et utilisée volontairement

ou uniquement utilisée localement sous forme de rayonnement électromagnétique, de couplage inductif et/ou capacitif, pour le traitement de la matière, à des fins d'examen ou d'analyse ou pour le transfert d'énergie électromagnétique.

Supplier's Declaration of Conformity (SDoC)

Please contact Radiodetection for SDoC information.

EU and UK Electromagnetic Compatibility Regulatory Statement

Warning: This is a class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures. Your product is suitable for use in industrial electromagnetic environments.

Wireless Regulatory Documentation

You may connect an external Wi-Fi/Bluetooth dongle to your unit to benefit from wireless features.

Refer to the user documentation of the external dongle for the relevant wireless regulatory documentation.

Simplified EU and UK Declaration of Conformity

Where applicable Radiodetection hereby declares that the radio equipment type "Wideband Data Transmission" is in compliance with European Directive 2014/53/EU. The full text of the EU declaration of conformity is available at: www.radiodetection.com.

For a list of the importers of the 1205CXB into Europe, please visit: www.radiodetection.com/en/european-importers

Recycling information

This symbol  on the product means that you should recycle or dispose of your product (including electric and electronic accessories) properly, in accordance with local regulations. Do not dispose of it in ordinary garbage receptacles.

See the Operation Manual for complete recycling / disposal procedures and contact information.