

TempTrackr™ Wireless System Kit

Quick Setup Guide and Operation Manual

The TempTrackr™ Multipoint Starter kit includes:

- Three or Six wireless temperature sensors
- One wireless interrogation unit
- One dipole interrogation antenna
- One RS232/RS485 cable
- One software CD with the TempTrackr™ Wireless Interrogation Software

Please contact SenGenuity if any item is either missing or damaged. The wireless interrogation unit needs to be powered by a 5V±5% DC power-supply. All temperature sensors are interrogated by one interrogation antenna. The TempTrackr™ Starter Kit can be setup in three simple steps:

1. Install and Configure TempTrackr™ Wireless Interrogation Software
2. Setup and connect wireless interrogation unit
3. Setup, locate and calibrate wireless sensors



Step 1

Step 1: Install and configure TempTrackr™ Wireless Interrogation Software

Insert Interrogation Software CD into PC/Laptop drive. The installation process should begin automatically. If this does not happen, please access the CD drive using Windows Explorer and double-click the “setup.exe” icon as shown in Figure 1.

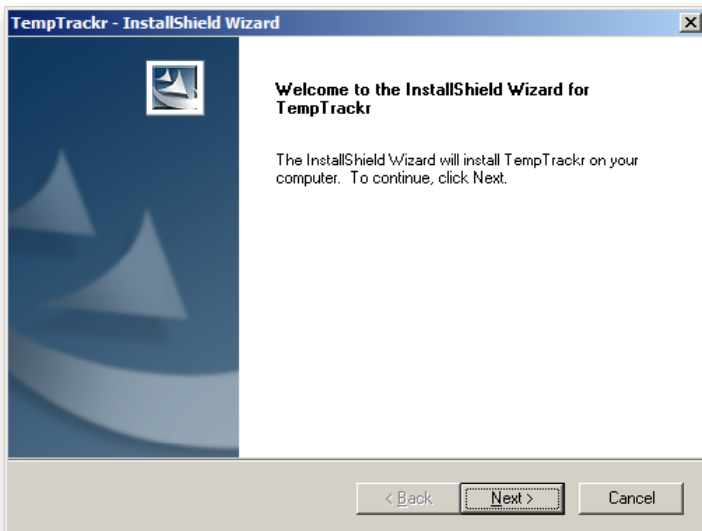


Figure 1: InstallShield Window for TempTrackr™

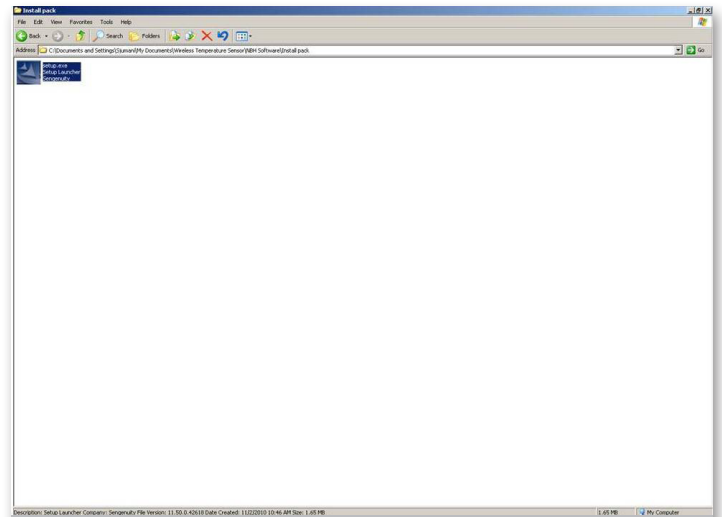


Figure 2: Accessing the setup.exe icon via Windows Explorer

Step 1: continued...

Please use the InstallShield Wizard, shown in Figure 2, to complete the installation process. Successful installation will result in the creation of a directory called TempTrackr in the path C:\Program Files\Sengenuity\TempTrackr.

Start the Software from the Windows Start Menu or by double-clicking the WSR-T2 icon from the directory in which the software has been installed.

Step 1: continued...

The software will apply regulatory restrictions based on your geographic region. The FCC complaint version of the kit will include software that conforms to FCC requirements. The CE compliant version of the kit will include software that conforms to CE requirements:

- FCC requirements impose the following restrictions on the reader:
 - The reader will read sensors only once every 30s.
 - The reader will only make use of one antenna. The other two antenna ports are deactivated on FCC compliant readers.
- CE requirements restrict the reader to only operate in the 433 MHz ISM-Band. This means that you will only be able to read one sensor with a CE compliant reader.

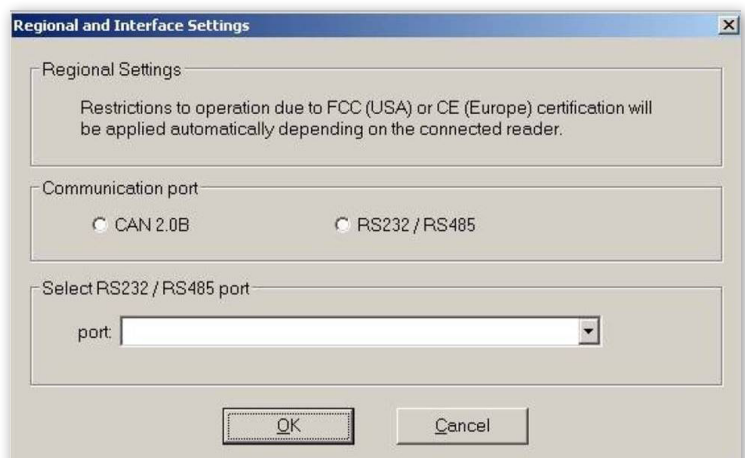


Figure 3: Regional setting for regulatory compliance

Step 2

Step 2: Setup and connect wireless interrogation unit

Please select the communication interface (CAN or RS232/RS485) to communicate with the wireless interrogation unit. If you select the RS232/RS485 option, please select the appropriate communication port on your PC/Laptop. Most kits will include an RS232/RS485 cable and will not include a CAN adapter and cable. Therefore please select the RS232/RS485 option when setting up the kit.

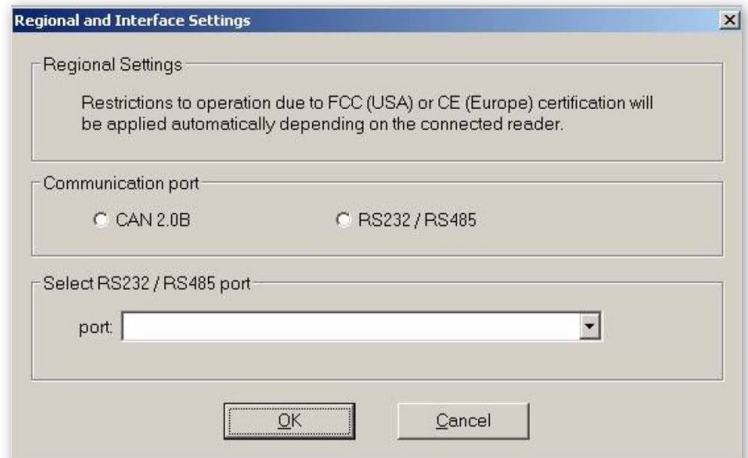


Figure 4: Communication Interface



Figure 5: Wireless Interrogation unit connected to Antenna and RS232/RS485 cable

Step 2: continued...

As shown in Figure 5, connect the wireless interrogation unit to RS232/RS485 cable. The Dipole Antenna should have already been connected to the reader when it was delivered to you. If you receive a reader with the antenna NOT connected please do not use it if you are in the United States. You WILL be in violation of FCC regulations. Please contact SenGenuity to arrange for a replacement kit to be sent to you.

Step 2: continued...

Connect the Wireless Interrogation Unit to a power supply (5V±5% DC; 350mA) as shown in Figure 6. You can now connect the RS232/ RS485 cable to your PC/laptop.

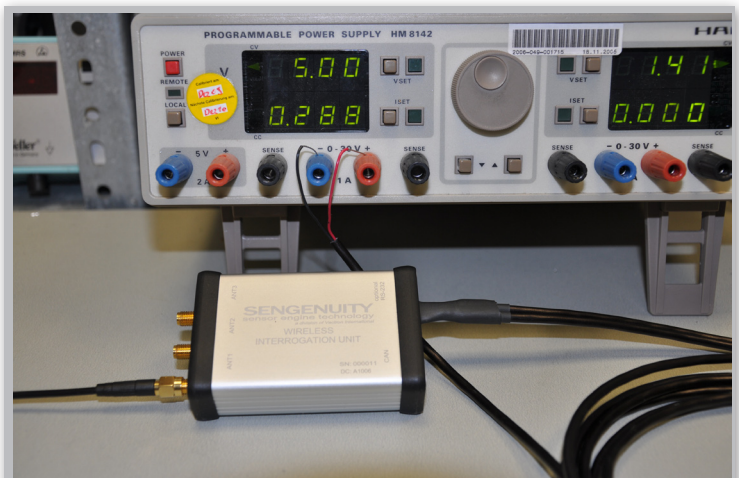


Figure 6: Wireless Interrogation unit connected to Power Supply

Step 3

Step 3: Setup, Locate and Calibrate Wireless Sensors

Place the sensors at designated target locations. Figure 7 shows a wireless temperature sensor. Please note the orientation of the antenna in the inset (picture of sensor without the cap) to correctly interpret Figure 8.

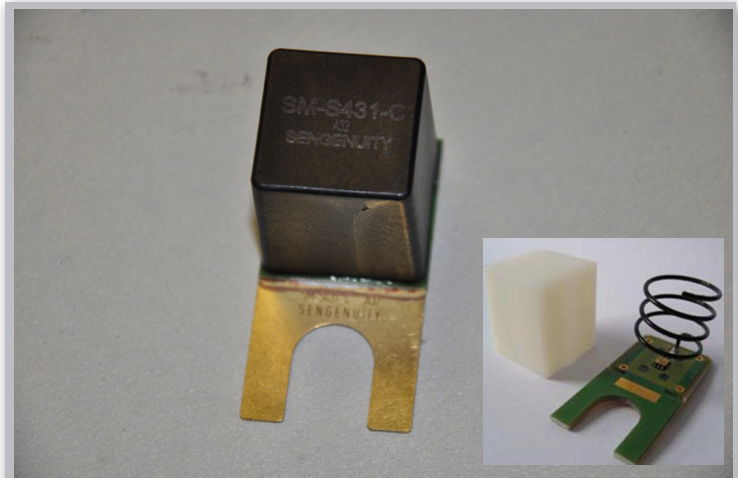


Figure 7: Wireless Temperature Sensor

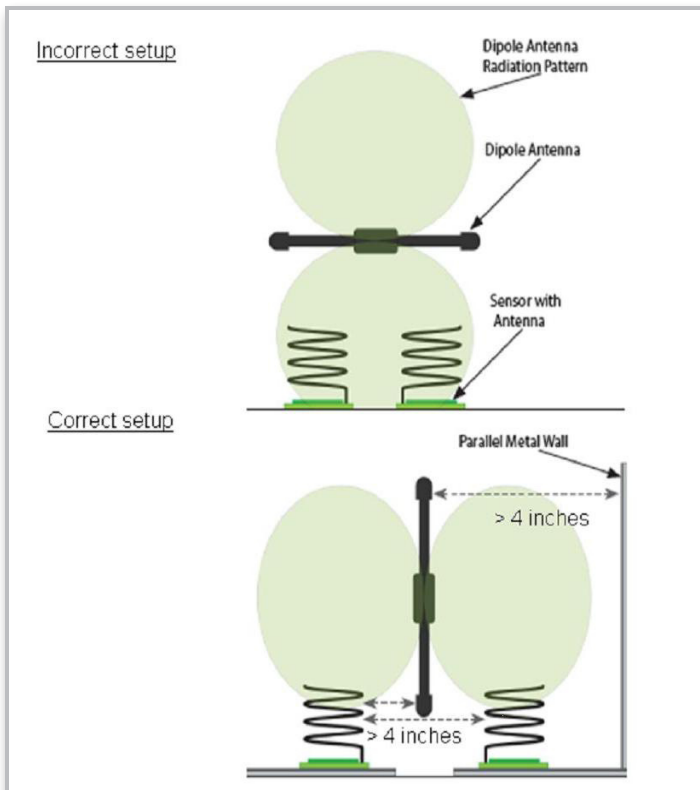


Figure 8: Incorrect and Correct Setup

Step 3: continued...

There are some important guidelines that should be followed when locating the sensors:

- The **minimum** distance between two sensors must be 4 inches (~10 cm).
- The **minimum** distance between any given sensor and the interrogation antenna **must** be 12 inches (~31 cm).
- The **maximum** interrogation distance between the interrogation antenna and the sensor is heavily influenced by the local RF environment. In general, that the distance between the interrogator and the sensor should not exceed 79 inches (~200 cm).
- Ensure that the sensors are placed within the lobes of the dipole radiation pattern. Figure 8 shows sensor positions that will most likely not work and also shows sensor positions that will work.
- Ensure that the distance between Interrogator Antenna and nearest parallel metal wall >4" (~10 cm).

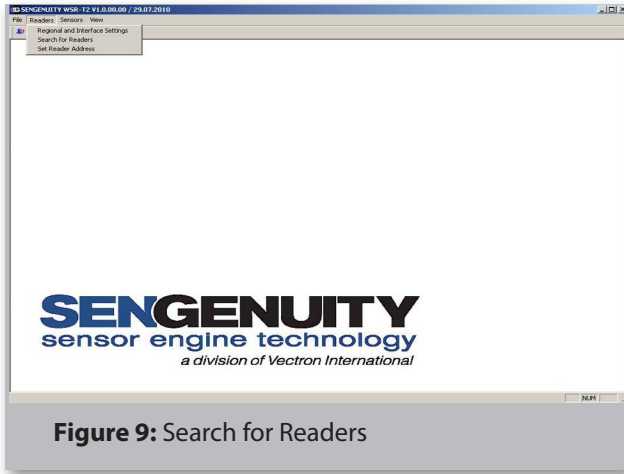


Figure 9: Search for Readers

Step 3: continued...

Once the physical setup is complete, determine the address of the wireless interrogation unit by selecting "Search for Readers" under the Readers menu as shown in Figure 9.

Step 3: continued...

Most likely the Reader Address, as shown in Figure 10, will be '1'. This feature becomes relevant only when you have more than one reader. Please note the reader address for sensor calibration.

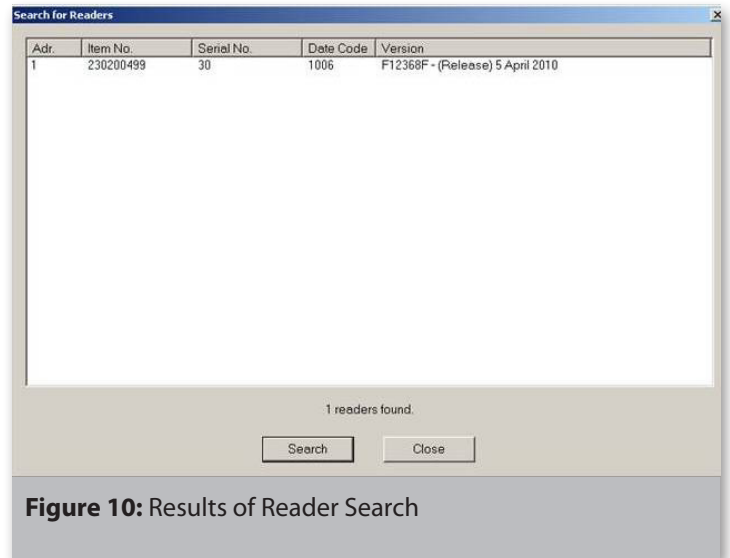


Figure 10: Results of Reader Search

Step 3: continued...

Select "Calibrate" from the Sensors Menu to obtain the Calibration Screen. Sensors are identified by model numbers that reflect nominal the frequency of each sensor. Since the six sensor frequencies can be interrogated by three antennas, the Calibration Screen allows the user to select from 18 antenna and sensor combinations. However, as shown in Figure 11, the FCC compliant version allows the user to only use Antenna 1 (antenna ports 2 and 3 are deactivated). This is a regulatory requirement. The user can select up to 6 sensors to be calibrated from the list of available sensors in the Calibration Screen. Alternately, the CE compliant version allows the user to only select sensors that operate in the 433MHz band.

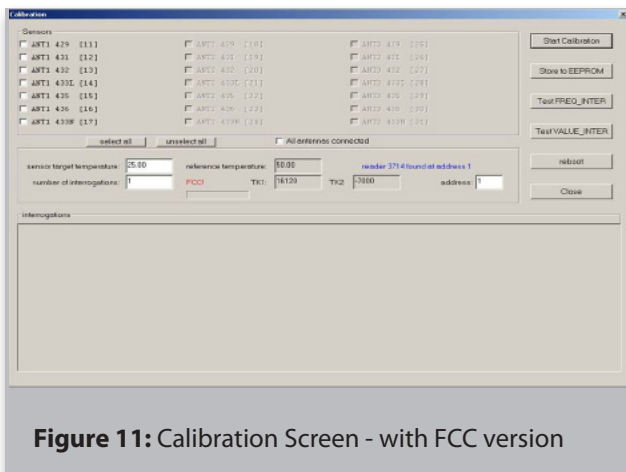


Figure 11: Calibration Screen - with FCC version

Step 3: continued...

Calibration procedure:

- Enter the reader address in the address field
- Enter the current Sensor Temperature
- Press Test VALUE_INTER

Figure 12 shows the screen you will see if these steps have successfully been executed (this figure shows two sensors in the process of being calibrated).

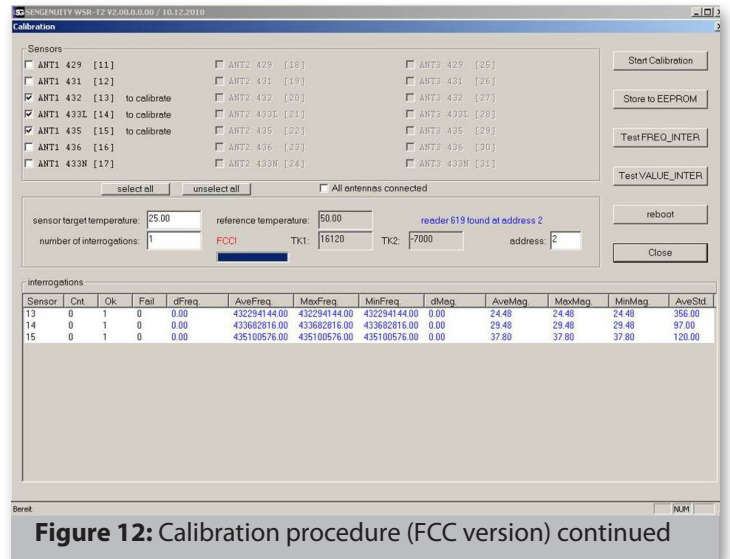


Figure 12: Calibration procedure (FCC version) continued

Step 3: continued...

Calibration procedure continued:

- Press Start Calibration
- Press Store to EEPROM, otherwise the calibration will be lost if the reader is powered off
- Press Test VALUE_INTER again

Figure 13 shows the results of a successful calibration.

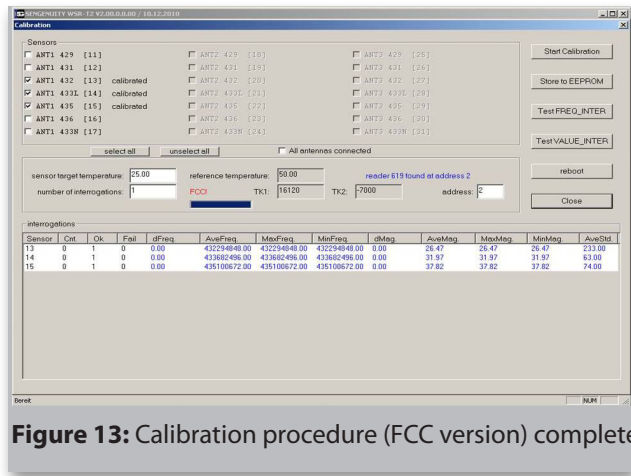


Figure 13: Calibration procedure (FCC version) complete

Step 3: continued...

Select the "Measure" option under the "Sensors" menu. The wireless interrogation software can track up to 6 sensors. The kit that you have will either have three or six sensors. You can specify which sensor should be displayed in each of the six tiles shown in Figure 14. To do this, you would have to specify the reader address (typically '1') and the sensor -antenna combination.

You can store these settings in a 'settings file' by pressing the ... button in the setting section and specifying a file name. The software and the system are now ready to track temperature.

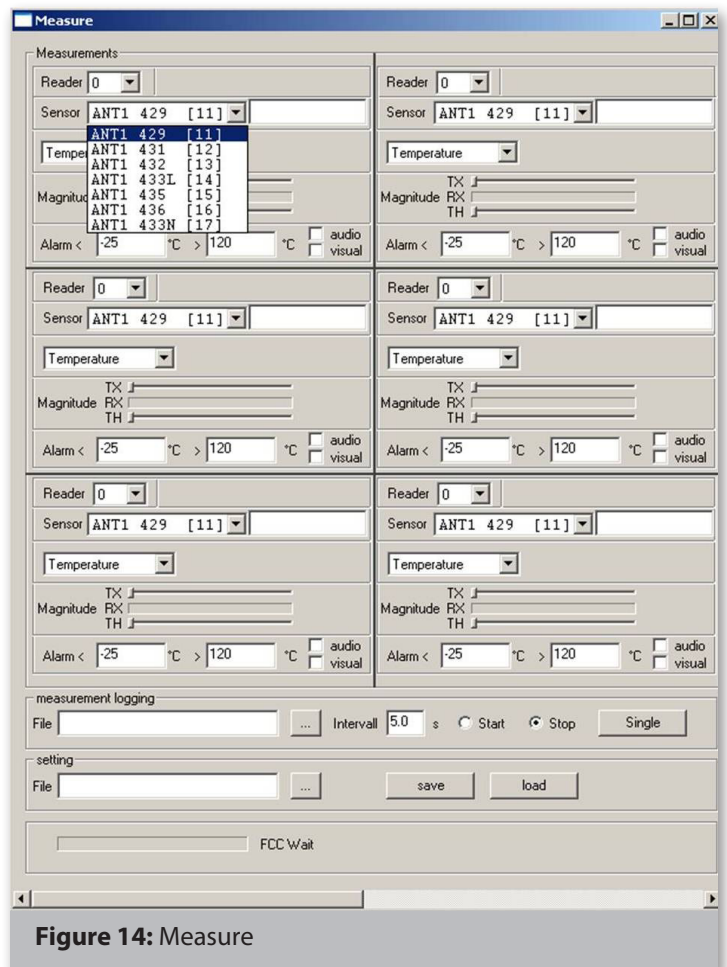


Figure 14: Measure

Safety Precautions and Warnings

In compliance to Agency certification and requirements for operating safety warning instructions, SenGenuity is providing the following information for the safe operation of the TempTrackr™ Wireless Multipoint System Kit and Wireless Interrogation Unit. This information applies to all models/configurations of the TempTrackr™ Wireless Multipoint System system and stand-alone Wireless Interrogation Units (Model WSR-T2), used either as a SenGenuity-furnished turn-key system or when integrated into users' equipment. The individual components of the TempTrackr™ Wireless Multipoint System have been certified for EMC compatibility using various national/country certification directives and standards, and will be affixed with an appropriate certification ID (e.g. FCC, IC ID, CE marking etc.)¹. These certifications apply only with a certain operating configuration of the device (e.g. transmit power level, duty cycle etc.) in order to comply with the associated functional requirements for compliance. For a compliant product, which is so labeled, the configuration will be fixed as required (e.g. through user software) at the time of shipment when customers are ordering a compliant product so-labeled.

¹ The TempTrackr™ system has been tested to meet various U.S. and International EMC RF radiation/emissions compliance requirements (U.S. FCC, Canadian, European standards). Registered ID's may vary by product model but generally appear on the product labels as:

FCC ID X3ITEMPTRACKR

IC: 8085B-TEMPTRACKR

USERS ARE CAUTIONED THAT ANY ATTEMPT TO ALTER THE PRODUCT CONFIGURATION EITHER THROUGH HARDWARE OR SOFTWARE MODIFICATION WILL RENDER THE PRODUCT NONCOMPLIANT AND WILL VOID SenGenuity's WARRANTY PROVISIONS IN THE TERMS & CONDITIONS OF SALE.

CAUTION

(Statements legally required under country laws or certification agencies)

U.S. Federal Communication 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 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.

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.

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.

Industry Canada Compliance

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. This device has been designed to operate with antennas having a maximum gain of XdBi. Antennas having a gain greater than XdBi are strictly prohibited for use with this device. The required antenna impedance is 50 ohms. 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 permitted for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent amplificateur de puissance radiofréquence peut être utilisé seulement avec un émetteur avec lequel il a été certifié par Industrie Canada. Le numéro d'identification d'Industrie Canada pour l'émetteur avec lequel l'amplificateur est autorisé à fonctionner est IC : XX...X-YY...Y.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

Le présent émetteur radio (identifier le dispositif par son numéro de certification ou son numéro de modèle s'il fait partie du matériel de catégorie I) a été approuvé par Industrie Canada 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

Le présent appareil est conforme aux CNR d'Industrie 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, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.