

TEEPTRAK module specifications

Table of Contents

1.	Module	3
1.1.	The Role of the Module	4
1.2.	The different versions of DIN modules.....	5
1.3.	General Table of the Currently Used Module Configurations.....	8
2.	Tablets	14
3.	The machines	16
4.	The UDID Number of the Tablets	16
5.	Tracking modes: Single and Multi-machine	17
6.	FCC Warning	19
7.	IC Statement	19



teeptrak

TEEPTRAK Bluetooth 5.0 Module V3

Teepttrak Bluetooth 5.0 Module V3 is a signal convertor perform the coupling function for analog signals on both the input side and the output side. It is used to collect and process the signal from the sensor, and transmit the processed signal to the Teepttrak tablet using Bluetooth.



HS CODE: 84713000
FCC/IC/CE/MIC/RCM
Contains FCC ID: SQGBL654
Contains IC: 3147A-BL654
Japan(MIC): 201-180112

Production description

Origin : France

RF Family/Standard: 802.15.4, Bluetooth

Frequency Range : 2.4GHz

Data Rate: 2Mbps

Power – Output: 8dBm

Rx Sensitivity: -95 dBm

Operating temperature : -25°C – 60°C

Storage temperature : -40°C – 80°C

Power supply : 10V-26V

Weights and Dimensions

Dim : (114x23x111.5mm)

0,2kg

General Product Informations

RoHS Compliant : Y

Compliant - WEEE Category (Waste Electrical and Electronic Equipment): IT & Telecommunications equipment

Is the actual product static sensitive (ESD) : No

IO :

4 x Supplied voltage 3A outputs
8 x 12bit analog inputs
USB UART connection

1. Module

Interpretation of the module's LED signals

The color codes of the module LEDs are associated with a module status and/or operating mode.

Here is a list of the different statuses characterized by their colors:

1. **Red LED:** When lit, indicates that the module is powered (correctly supplied).
The red LED must be constantly lit to indicate that the module is working.
2. **White LED:** When lit for the first time, indicates that the module is receiving a high signal (24V).
The white LED will turn off after receiving a second high signal (24V).
The change in status due to the reception (24V) or non-reception of a signal (0V) will be associated with the white LED turning on and/or off.

Special cases: The white LED remaining lit (white LED constantly lit) is characteristic of at least three cases:

1. Continuous reception of a 24V signal (high signal maintained when using Perftrak cycle time).
 2. The reception or non-reception of a 24V signal or 0V signal (behavior associated with the use of Perftrak Start & Stop, which turns on or off with each change of state). Thus, the white LED will remain lit as long as no change in signal causes it to turn off.
 3. Deleting data from the module via the Perftrak application settings (module setting => Clear data) takes a few minutes and freezes the white LED before turning it off at the end of the deletion session.
-
3. **The blue LED:** When lit, indicates that the module is connected to a Bluetooth device.
When using Teeprtrak solutions, the blue LED indicates connection to the Teeprtrak tablet.

4. **The green LED:** When lit, indicates that the module is configured in "wired" mode and must therefore be connected to the Teeprtrak tablet via a cable.

1.1. The Role of the Module

The role of the module is to collect data in the form of pulses or rising edges (high signals received).

The module has an internal memory that records these pulses with a capacity and pulse collection duration of approximately 6 weeks over a cycle time set at one second (one pulse per second), when using Perfrtrak cycle time (as an example).

The module does not interpret the data, but simply collects and transfers it to the tablet.

A sensor or main signal connected to an input of your choice on the module, from 1.1 to 1.4, allows this collection and recording work to be carried out (it is possible to use inputs 2.1 to 2.4 in the context of automating information about a loss, a process value, or an event such as a split or product change, depending on the settings).

Each "high" signal converted to 24V will represent a passing part (cycle time mode) or operating time (Start & Stop mode) when using the "Perfrtrak" solution.

Any signal returning 0V will be identified as a non-passage of parts or a machine stop state (when using Perfrtrak).

For the Pacetrak solution (automatic mode), the signal will correspond to the counting of a produced part.

The Pacetrak solution only uses automatic signals to count parts in parallel with the manual task tracking performed by the operator at the touch of a button.

For the Qualtrak solution, the signal received will correspond to the counting of a good or bad part.

For the Processtrak solution, the signals received will correspond to the physical values monitored (such as temperature, pressure in bars, volume, humidity, etc.).

The andons are connected to the module, but the activation of certain LEDs depending on a given context (for example, the activation of the red LED when the machine is stopped) does not depend solely on the module but on the data interpreted by the tablet, which will activate or deactivate these LEDs depending on a setting that depends on the product configuration thresholds.

1.2. The different versions of DIN modules.

a. Hard disk (hardware) versions:

The modules we use have different hard disk versions (hardware versions).

Teeptrak currently uses five types of Bluetooth/wired/WiFi modules:

- 10 modules (WiFi modules).
- Modules 24 (small transparent red boxes) for the oldest ones.
- 25 modules, which correspond to the DIN module (4.0).
- 31 modules corresponding to the DIN module (5.0).
- 36 modules corresponding to the DIN module (5.0) with the wired connection option.

As we have just seen, these hard drive versions have their own number (24, 25, 31, and 36), which is unique and clearly identifies them in our database (via these numbers).

These versions are unchangeable by default, insofar as the physical hard drive cannot be remotely modified by "software" updates.

The only way to update the hardware is to simply replace it.

Although the hardware condition is "final" and cannot be changed remotely, it is possible to perform updates on this hardware that will activate new features.

Following the creation and release of new "software versions," you will be able to push these updates directly from our configuration and monitoring interface.

b. Software versions:

Software versions, as mentioned above, correspond to a "core" software base comprising a number of basic software options, adapted both to the version of the application used by the customer and to the type of module (hardware) used.

Software versions are mostly the same for a given piece of hardware, regardless of the application used.

Unlike hardware versions, these different software versions are displayed in letters rather than numbers.

For example, for a classic DIN 5.0 module version and a choice of monitoring by the Perftrak, Pacetrak, Processtrak, or Qualtrak application, the basic software version will be the same, namely "EP."

The hardware and software versions will be displayed as follows (for all solutions used):

Module version: 31

Software version: EP

These software versions are adapted to a hardware version of the module and to several applications used (applications = solutions chosen such as Perftrak or Pacetrak, for example).

The "EP" version is the latest software version released for "31" modules.

However, it is likely that other software versions used by customers will appear, such as the "EM" version that preceded it.

The "EM" and "EP" versions offer the same configuration options, with the difference that "EP" allows the setting of the lighting of the andon LEDs, while "EM" does not.

The "EP" mode should therefore be pushed by default as it corresponds to the latest version of the application and contains the same configuration options as "EM" with the exception of this andon setting.

Several software versions have been developed for the "36" modules in a short period of time.

A 36 module can be associated with "F" software versions, namely "FA," "FB," and "FC" in order of appearance ("FC" being the most recent).

The "FC" mode includes the same configuration options as the other "FA" and "FB" modes, with the difference that it also includes an option for configuring the andons that the other modes do not allow.

As with "EP" mode (the latest software version for module 31), "FC" mode should be pushed by default as it is the most recent and comprehensive.

Depending on the hard drive versions (e.g., 24, 25, 31, and 36), compatible "kernel" software versions are "detected" by the platform and can be selected.

Specifically, when updating a module from the "superadmin" platform, on the "BLE Module" tab => "Tablet Configuration" tab, if you select hardware version "36," a number of compatible software versions will appear, including "FA," "FB," and "FC."

c. "Custom" software versions:

The "Custom" versions correspond to the highest level of configuration and concern the type of tracking chosen, in accordance with a specific version of the solution chosen by the customer.

"Custom" versions include and provide information on three areas in particular:

_The type(s) of hardware used: Some Custom configurations are only compatible with specific hardware, while others are compatible with multiple types of hardware.

_The type(s) of compatible software: Some Custom configurations are only compatible with specific software versions.

_The type of multi-machine or single-machine monitoring: The chosen custom configuration provides information about the monitoring mode at a single measurement point (single machine) or multiple measurement points (multi-machine).

As with the selection of the hardware version, which triggers the automatic detection of compatible software modes, once the software configuration has been selected, the detection of compatible "Custom" versions is triggered automatically.

All selectable custom versions will appear in the list and you will be able to select the most recent custom version and/or the one best suited to the customer's tracking type.

1.3. General Table of the Currently Used Module Configurations

a. Older versions of Bluetooth modules (24 and 25)

Perftrak CT					Perftrak S&S			
Module generation	Tracking type	Hardware	Software	Custom	Tracking type	Hardware	Software	Custom
24	Single machine	24	CL	CT	Monomachine	24	CL	SS
	Multimachine	x	x	x	Multimachine	x	x	x

Perftrak CT					Perftrak S&S			
Module generation	Tracking type	Hardware	Software	Custom	Tracking type	Hardware	Software	Custom

25	Single machine	25	DL	DC	Monomachine	25	DL	DS
	Multimachine	25	DL	DM	Multimachine	25	DL	DM

The crosses indicate that there is no need to configure the module based on the hardware, the choice of application, and the selected tracking mode.

In the example above, module version 24 corresponds to a "CL" software version, which is the base functionality and tracking mode for the "Perftrak" application.

Module version 25 corresponds to a "DL" software version, which corresponds to the core functionality and tracking mode of the "Perftrak" application for this type of module.

However, the "Custom" versions differ because the underlying version of the application is different and requires a version type adapted to the specific tracking features of Start & Stop mode compared to Cycle Time mode.

b. Older versions of Bluetooth and wired modules (31 and 36)

Perftrak CT					Perftrak S&S			
Module generation	Tracking type	Hardware	Software	Custom	Tracking type	Hardware	Software	Custom
31	Single machine	31	EM	E2	Monomachine	31	EM	E3
	Multimachine	31	EM	E1	Multimachine	31	EM	SM
36	Single machine	36	FA	E2	Monomachine	36	FA	E3
	Multimachine	36	FA	E1	Multimachine	36	FA	SM
	Single machine	36	FB	E2	Monomachine	36	FB	E3
	Multimachine	36	FB	E1	Multimachine	36	FB	SM

It should be noted that for the same type of monitoring, some modules use different software versions, which are deliberately displayed ("FA," "FB," and "FC") for similar or different monitoring modes (as a reminder, the latest software version is "FC" [Jan. 10, 2025]).

c. New versions of modules 31 and 36 (including the Andon configuration option)

The "EP" and "FC" versions can be pushed by default, but without the customer wanting to use the Andon configuration option, as these versions include all software updates and associated options.

They are indeed the most recent versions.

With Andon configuration options				
31	Monomachine	31	EP	E2
	Multimachine	31	EP	E1
36	Monomachine	36	FC	E2
	Multimachine	36	FC	E1

d. Specific tracking mode, the custom "ZD" version

In cases where the customer wishes to collect all signals from multiple sensors (machine signals) in the context of monitoring a line comprising several conveyors. It is possible to listen to all module inputs and receive all signals sent to inputs 1.1 to 2.4 in order to increment them all on input 1.

This mode allows the "AND" function to be established by adding all the signals on the different inputs of the module, treating them as if they were received directly on input 1. The mode is configured by selecting the custom "ZD" version.

e. Older versions of the "ZD" module

Tracking mode with signal incrementation of signals on input 1				
Module generation	Tracking type	Hardware	Software	Custom
31	Mono	31	EO	ZD
	Multi	x	x	x
36	Mono	36	FA	ZD
	Multi	x	x	x

The table shows that the software version of the "ZD" mode was "EO" for 31 modules and "FA" (or "FB") for 36 modules.

f. Table of old software and custom versions for the "Pacetrak," "Processtrak," and "Qualtrak" applications

PaceTrak					ProcessTrak				Qualtrak			
Module generation	Tracking type	Hardware	Software	Custom	Tracking type	Hardware	Software	Custom	Tracking type	Hardware	Software	Custom
31	Mono	31	EM	E2	Mono	31	EM	P1	Mono	31	EM	Q2
	Multi	X	X	X	Multi	X	X	X	Multi	X	X	X
36	Mono	36	FA	E2	Mono	36	FA	P1	Mono	36	FA	Q2
	Multi	X	X	X	Multi	X	X	X	Multi	X	X	X
	Mono	36	FB	E2	Mono	36	FB	P1	Mono	36	FB	Q2
	Multi	X	X	X	Multi	X	X	X	Multi	X	X	X

As a reminder, the 36 modules can be either "wired" or "Bluetooth."

g. Wifi modules (10)

Perftrak Light	Perftrak Live
----------------	---------------

Module generation	Tracking type	Hardware	Software	Custom	Tracking type	Hardware	Software	Custom
10	Single machine	10	PA	X	Monomachine	X	X	X
	Multimachine	x	x	x	Multimachine	x	x	x

The WiFi modules (10) are currently incompatible with multimachine mode (currently non-existent).

This is why the multimachine line is fully checked (x.x.x).

Another special feature of these modules is that the "Custom" version is not necessary.

h. General table of new module versions

For Perftrak cycle time (CT) and Start & Stop (S&S) versions:

Perftrak CT					Perftrak S&S			
Module generation	Tracking type	Hardware	Software	Custom	Tracking type	Hardware	Software	Custom

31	Mono	31	EP	E2	Mono	31	EP	E3
	Multi	31	EP	E1	Multi	31	EP	SM
36	Mono	36	FC	E2	Mono	36	FC	E3
	Multi	36	FC	E1	Multi	36	FC	SM

Tracking mode with signal incrementation on input 1				
Module generation	Tracking type	Hardware	Software	Custom
31	Mono	31	EP	ZD
	Multi	x	x	x
36	Mono	36	FC	ZD
	Multi	x	x	x

For Pacetrak, Qualtrak, and Processtrak versions:

PaceTrak				ProcessTrak				Qualtrak			
Tracking type	Hardware	Software	Custom	Tracking type	Hardware	Software	Custom	Tracking type	Hardware	Software	Custom
Mono	31	EP	E2	Mono	31	EP	P1	Mono	31	EP	Q2
Multi	X	X	X	Multi	X	X	X	Multi	X	X	X
Mono	36	FC	E2	Mono	36	FC	P1	Mono	36	FC	Q2
Multi	X	X	X	Multi	X	X	X	Multi	X	X	X

For Perftrak Live & Light versions:

Perftrak Light	Perftrak Live
----------------	---------------

Module generation	Tracking type	Hardware	Software	Custom	Tracking type	Hardware	Software	Custom
10	Mono	10	PA	X	Mono	X	X	X
	Multi	x	x	x	Multi	x	x	x

We will see specifically on the "superdamin" platform where and how to select and launch module updates.

2. Tablets

a. The role of the tablet

From a software perspective, tablets correspond to the names of the stations, lines, or equipment monitored by our solutions.

The role of the tablet is initially to record the data sent in the form of high (24V) and low (0V) signals by the module to which it is paired.

Once the data has been recorded in the tablet's internal memory (via the application installed on the tablet), the tablet must then interpret the high and low signals according to a standard configuration carried out from the www.teeptrak.net platform (and updated on the tablet application), before sending them to the platform.

b. Interpreting signals to qualify data.

As we have seen previously, one of the roles of the tablet is to qualify the data sent by the module.

Following the software configuration carried out from the www.teeptrak.net platform, the tablet will be able to assess the quality of the data received by the module, based on specific settings.

These settings are configured in the product configuration section of the platform, where adjustable time thresholds allow the data to be classified as "normal" when the time between two pulses is not exceeded, or "lost" if this time is exceeded (or abnormally short depending on the application used).

The application therefore focuses on criticality thresholds based on the time difference between two high signals (tracking mode used for Perftrak cycle time, Start & Stop, and Pacetrak in particular).

The Processtrak application interprets the quality of the signals transmitted by the module, based on critical thresholds exceeded and collected by a specific sensor.

The Qualtrak application counts the signals received and classifies them as "good" or "bad" depending on the reception position of these signals on the module.

For example, signals received on input 1.1 may be associated with "good parts" while the same signals received on 1.2 would be identified as "bad parts."

As we can see, the interpretation of the data collected in the form of high and low signals changes depending on the application used and its specific settings.

c. Sending qualified data to the www.teeptrak.net server.

d. The process of creating a virtual tablet.

Virtual tablets are created when the tablet is registered.

After installing the application on the tablet, the user will be required to make a binary choice:

_ Register a tablet: "Registering a tablet" corresponds to the virtual creation of the tablet on the customer's Teepttrak platform, identified by their login and password.

_ Replace a tablet: Replacing a tablet is an operation that allows the entire configuration of a physical tablet to be "recovered" on another tablet. Thus, if a hardware problem arises on a given tablet, rendering it unusable and requiring replacement, all of its configurations and tracking data can be transferred to a new tablet. This operation is performed directly on the new replacement tablet without the need to go through the defective tablet.

In fact, all of the tablet's historical data and configurations are stored in a database, which allows for this type of remote software replacement.

3. The machines

Machines correspond to the names of the equipment tracked by our solutions.

Machines are created virtually when a tablet is registered, at which point one or more machines must be registered on the tablet.

It is necessary to register a tablet in order to add at least one machine (up to 4 machines per tablet for multi-machine mode).

The machine is declared after the tablet has been declared.

The user must name their machine(s), each corresponding to a measurement point, i.e., a sensor or signal electrically connected to the module for monitoring the performance of the equipment.

On each machine, a loss tree and at least one or more products (or manufacturing orders) can be assigned.

4. The UDID Number of the Tablets

The tablet's UDID number is its unique identification number.

This number is generated when the tablet is registered and covers two aspects:

_Hardware, with a series of numbers corresponding to the hard drive identification.

_Software, with the name of the application linked to the tablet registration (e.g., Perftrak Cycle Time or Start&Stop).

When searching for a tablet in a database with many homonyms, the UDID number allows for clear identification of one tablet from another due to its "unique" nature.

5. Tracking modes: Single and Multi-machine

When using Perftrak (cycle time or start&stop only), there are two types of tracking:

_ "Single machine" mode: This performance tracking mode only concerns one measurement point associated with one machine, creating a report for one tablet per machine.

_ "Multimachine" mode: This performance monitoring mode covers several measurement points, each associated with a machine, creating a tablet report for two, three, or four machines.

While it is possible to use one tablet for several measurement points, the reverse (several tablets for a single measurement point) requires a custom installation that is not dependent on Teeprtrak.

Software exists that allows one touchscreen to be duplicated on another, enabling loss data to be entered on two screens.

However, it is important to note that support does not cover these issues or the maintenance of this type of software, as they are external.

In this context, it is preferable, for example, to create a standard operator account on a computer screen or touchscreen tablet, and on the "teeprtrak.net" platform, open the "Loss History" tab to enter the losses displayed.

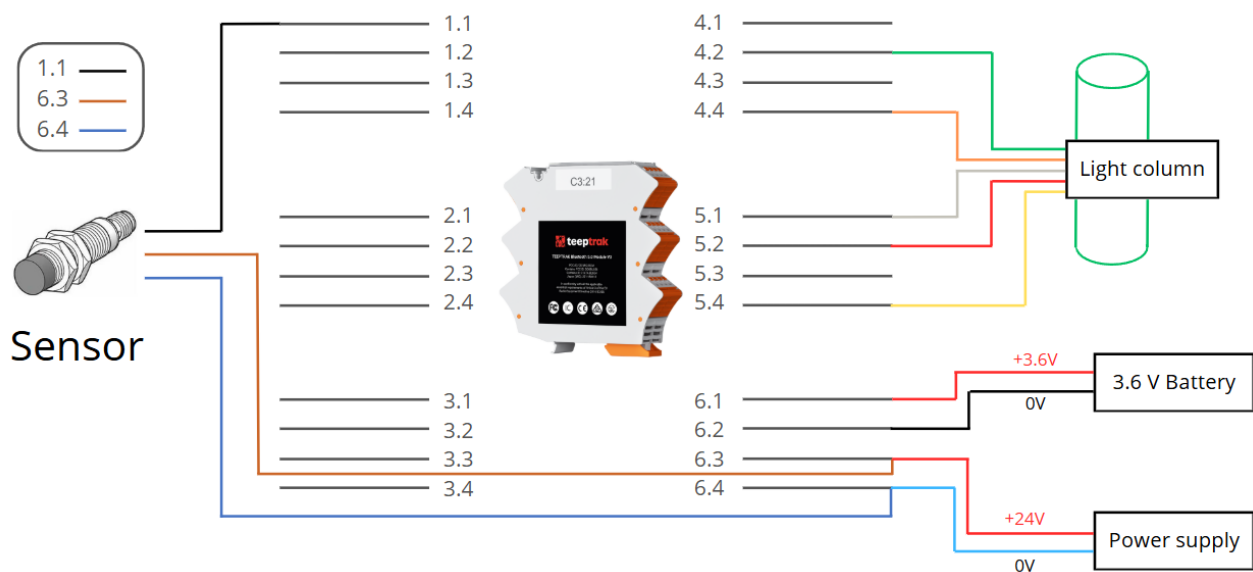
This method allows information to be entered on two screens.

Connection diagrams for the new DIN BT 5.0 module

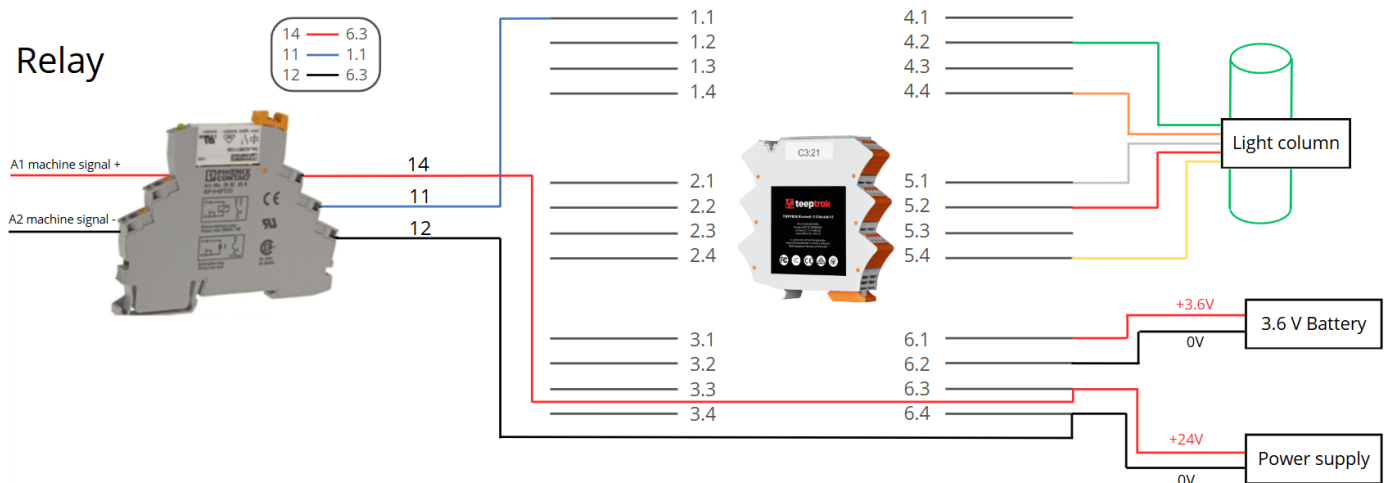
The new DIN BT 5.0 module has a label on the side as shown in the image below:



Installation Diagram:



DIN Module Connection with a Relay:



6. FCC Statement

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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 y turning the equipment off an 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.

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.

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 & your body.

7. IC Statement

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

The time "IC:" before the certification/registration number only signifies that the Industry Canada technical specifications were met.

This product meets the applicable Industry Canada technical specifications.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter. This equipment should be installed and operated with a minimum distance of 20centimeters between the radiator and your body.