



Zebra Enterprise Solutions

Date: August 2, 2010

Federal Communications Commission
Equipment Authorization Division
Application Processing Branch
7435 Oakland Mills Road
Columbia, Maryland 21046

Subject: Limited Modular Approval (LMA) Attestation for WhereTag IV Module,
FCC ID: XWX-TFF2005

Gentlemen,

We have the following attestation to the eight requirements described by FCC public notice

DA00-1407 26th June 2000 "Part 15 Unlicensed Modular Transmitter Approval".

Specifically, the criteria set out in this document are addressed below in **bold**.

1. The modular transmitter must have its own RF shielding. This is intended to ensure that the module does not have to rely upon the shielding provided by the device into which it is installed in order for all modular transmitter emissions to comply with Part 15 limits. It is also intended to prevent coupling between the RF circuitry of the module and any wires or circuits in the device into which the module is installed. Such coupling may result in non-compliant operation.

**The WhereTag IV Module radio board does not have a RF shield.
There is no provision on the PCB to install one.**

2. The modular transmitter must have buffered modulation/data inputs (if such inputs are provided) to ensure that the module will comply with Part 15

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x requirements under conditions of excessive data rates or over-modulation.

There is no direct input to the modulator on the WhereTag IV Module G2C547 ASIC. Data can only be input into the chip via the low data rate serial port or SPI bus.

3. The modular transmitter must have its own power supply regulation. This is intended to ensure that the module will comply with Part 15 requirements regardless of the design of the power supplying circuitry in the device into which the module is installed.

The electronics on WhereTag IV Module operates on 3 different voltage domains: VDD_AO, VDD_1V3, and V_Bat. VDD_AO is 1.2V and it is always on. This voltage is generated by the G2C547 ASIC. It is regulated and derived from V_Bat. VDD_1.3V is regulated and derived from V_Bat. This voltage is the supply for the CPU and baseband processor in the G2C547 ASIC. V_bat is the lithium battery voltage. This voltage is the supply for the RF power amplifier in the G2C547 ASIC.

4. The modular transmitter must comply with the antenna requirements of Section 15.203 and 15.204(c). The antenna must either be permanently attached or employ a “unique” antenna coupler (at all connections between the module and the antenna, including the cable). Any antenna used with the module must be approved with the module, either at the time of initial authorization or through a Class II permissive change. The “professional installation” provision of Section 15.203 may not be applied to modules.

The WhereTag IV Module radio board has two antenna options. Option 1 uses the integral Inverted-F antenna. Option 2 uses an integral external antenna with a U.FL connector.

5. The modular transmitter must be tested in a stand-alone configuration, i.e., the module must not be inside another device during testing. This is intended to demonstrate that the module is capable of complying with Part 15 emission limits regardless of the device into which it is eventually installed. Unless the transmitter module will be battery powered, it must comply with the AC line conducted requirements found in Section 15.207. AC or DC power lines and



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data input/output lines connected to the module must not contain ferrites, unless they will be marketed with the module (see Section 15.27(a)). The length of these lines shall be length typical of actual use or, if that length is unknown, at least 10 centimeters to insure that there is no coupling between the case of the module and supporting equipment. Any accessories, peripherals, or support equipment connected to the module during testing shall be unmodified or commercially available (see Section 15.31(i)).

The WhereTag IV Module was tested as a stand-alone configuration. The device is battery powered.

6. The modular transmitter must be labeled with its own FCC ID number, and, if the FCC ID is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label can use wording such as the following: “Contains Transmitter Module FCC ID: XYZMODEL1” or “Contains FCC ID: XYZMODEL1.” Any similar wording that expresses the same meaning may be used. The Grantee may either provide such a label, an example of which must be included in the application for equipment authorization, or, must provide adequate instructions along with the module which explain this requirement. In the latter case, a copy of these instructions must be included in the application for equipment authorization.

The WhereTag IV Module is fitted with its own label, including the FCC ID number.

7. The modular transmitter must comply with any specific rule or operating requirements applicable to the transmitter and the manufacturer must provide adequate instructions along with the module to explain any such requirements. A copy of these instructions must be included in the application for equipment authorization. For example, there are very strict operational and timing requirements that must be met before a transmitter is authorized for operation under Section 15.231. For instance, data transmission is prohibited, except for operation under Section 15.231(e), in which case there are separate field strength level and timing requirements. Compliance with these requirements must be assured.

The WhereTag IV Module has been tested to comply with all rules under Part 15.



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8. The modular transmitter must comply with any applicable RF exposure requirements. For example, FCC Rules in Sections 2.1091, 2.1093 and specific Sections of Part 15, including 15.319(i), 15.407(f), 15.253(f) and 15.255(g), require that Unlicensed PCS, UNII and millimeter wave devices perform routine environmental evaluation for RF Exposure to demonstrate compliance. In addition, spread spectrum transmitters operating under Section 15.247 are required to address RF Exposure compliance in accordance with Section 15.247(b)(4). Modular transmitters approved under other Sections of Part 15, when necessary, may also need to address certain RF Exposure concerns, typically by providing specific installation and operating instructions for users, installers and other interested parties to ensure compliance.

Information is included in the test report. The device is considered to be a portable application.

We also will retain control over the final installation of the WhereTag IV Module and assure compliance of the end product. The WhereTag IV Module will be only installed in devices produced by Zebra Enterprise Solutions Corp..

Sincerely,

Name: Guzvaldo Medina
Title: Senior Compliance Engineer
Company: Zebra Enterprise Solutions Corp.