

**E-ZONE GUARDIAN**  
P.O. BOX 774  
CEDAR HILL, TEXAS 75106-0774

May 16, 2012

Federal Communications Commission  
Authorization and Evaluation Division

Request for modular transmitter approval regarding application for certification of FCC ID O4UEZ12031.

Pursuant to Public Notice DA 00-1407, we hereby request approval of the modular transmitter equipment design accompanying this application. Requirements for modular transmitter equipment authorization and how each requirement has been met are listed below:

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 E-Zone RF Module is delivered with a metallic shield covering all RF components. Inside this shield and over the two Active RF Integrated Circuits are 3M absorbent pads for additional suppression of the second harmonics.**
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 requirements under conditions of excessive data rates or over-modulation. **Provision for this requirement is contained within the Texas Instruments supplied firmware used to program the CC2531 radio.**
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. **This requirement is met due to the internal power supply regulation provided in both the TI CC2531 and TI CC2591 circuits used. Input voltage variation has been shown to not affect the output power.**
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. **Units are supplied with a unique female-female cable ending in a reverse polarity SMA connector mating the provided antenna.**



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 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)). **All testing was done with these requirements in mind and compliance is shown by the resulting photographs and measured data.**

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. **A label meeting this requirement is documented and accompanies this application as Exhibit Type: Vendor FCC Label with File Name: EZ ExteriorLabel.pdf and will be placed upon each E-Zone RF Module delivered as a production unit.**

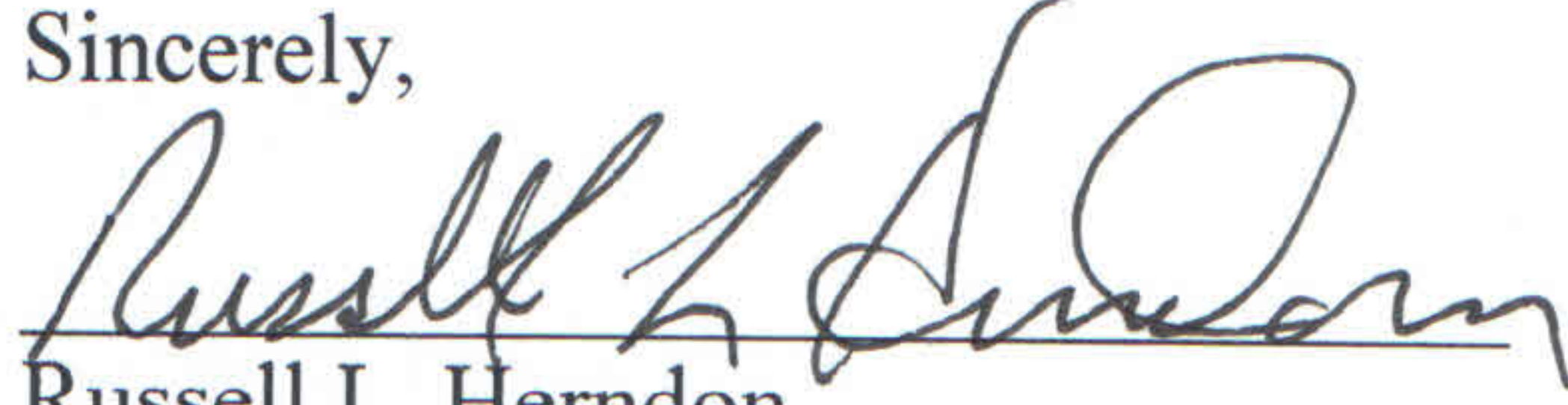
7. The modular transmitter must comply with any specific rule or operating requirements applicable to the transmitter and the manufacturer must provide adequate instructions along with the module to explain any such requirements. A copy of these instructions must be included in the application for equipment 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. **Because the timing requirements are set, fixed and non-adjustable by the end user and were set to meet the requirements of this section, they are both met by internal controls, (i.e., firmware within the microprocessor) and by instructions provided in the operations manual.**

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. Both testing and user/operator instructions have been incorporated to insure compliance with this section.

Sincerely,

A handwritten signature in black ink, appearing to read "Russell L. Herndon", written over a horizontal line.

Russell L. Herndon

d/b/a/ E-Zone Guardian