

TCB
TÜV America Inc
10040 Mesa Rim Road
San Diego CA 92121

RE: FCC ID: MCQ-50M879 submittal as modular device

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 entire RF section of the product is protected by a metal shield. This shield is a one piece metal "clam shell" design that slides over the RF section of the PCB (see Figure 5). The PCB is inserted into the "open" end of the shield. The reverse SMA antenna connectors fit through holes in the "closed" end of the shield. There are three solder tabs on each side (top and bottom) of the shield that are aligned such that when the clam shell is closed, each pair of tabs will fit through one of three mounting holes in the PCB. As each tab pair enters the PCB mounting hole, they will slide past each other (forming a lap joint) and will be soldered to the PCB. The shield is tied to ground through the three tab pairs and an interference fit between the antenna SMA connectors and the holes in the "closed end of the shield.

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.

The transmitter has buffered modulation / data inputs.

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 transmitter has its own power supply regulation.

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 transmitter complies with the antenna requirements of Section 15.203 & 15.204(c). The antenna connection implements a unique "reverse thread" sma connector. The antenna that ships with the product was the one tested with it. The professional installation provision of section 15.203 does not apply.

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)).

The transmitter was tested in a stand-alone configuration and complies with the Part 15 emission requirements. The power lines and I/O lines do not contain ferrites. The power lines are length typical of actual use. The support equipment connected during testing was unmodified.

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.

FCC ID is on the product label. Labeling instructions for the end user are in the product manual.

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 transmitter complies with all applicable requirements.

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.

The transmitter complies with RF Exposure requirements as stated in the "Declaration of Compliance to RF Exposure Limits for Humans" letter. The manual instructs the user to maintain 20 cm separation from antenna.