

21 October, 2011

Federal Communications Commission
Authorization and Evaluation Branch
7435 Oakland Mills Road
Columbia, MD 21046

Subject: Request for unlicensed Modular Transmitter Approval for FCC ID: ZTL-RFSC1

Dear Application Examiner:

Monnit Corporation hereby requests FCC Equipment Authorization and Evaluation branch to approve Monnit Corporation's Model RFSC1, a digital wireless sensor platform, FCC ID: ZTL-RFSC1, modular approval for a 25 channel DTS device. This letter addresses the information required by points one through eight of 47 CFR 15.212.

1. "The modular transmitter must have its own RF shielding." The transmitter radio section of the RFSC1 module consists of RF shielding that is RF/EMI suppression tape. The properties of this material include a conductive grid printed with metallic ink. The grid size is 0.1 inch square; affecting all energies below 80 GHz. The shielding material comes with a 1.9 mil acrylic-based adhesive which adheres the shield to the top and sides of the transmitter radio section. The PCB is an integral part of the shield, being designed with solid ground planes under and surrounding the transmitter. Also, to ensure that the sides remain covered, an additional layer of acrylic-like adhesive is applied to the shield to firmly secure it in place. This permanently attaches the shield to the module. The host manufacture is instructed to not tamper with or remove the shield.

The shield is applied by Monnit Corporation exclusively. Its placement methodology and material properties have been specified according to good engineering practices to provide an effective conducting surface to reduce unwanted electric fields entering or exiting the RF section. This shielding method has been tested to completely comply with the requirement to prevent the transmitter from RF coupling with the host platform.

2. "The modular transmitter must have buffered modulation/data inputs." The RFSC1 has buffered data inputs that pass through an embedded processor. RF modulation and controls are fully managed by this embedded processor. The firmware does not allow the end user to access RF modulation / data rate control settings of the RF circuitry. Therefore no change in input data or control signals can affect the RF data rate or type. This method insures compliance with Part 15 requirements under conditions of excessive data rates or over modulation.

3. "The modular transmitter must have its own power supply regulation." The RFSC1 receives power from the following options: a battery pack, or an external supply. Both options are limited to 2.0 – 3.6VDC. Therefore, batteries types and external supplies are limited to providing these values. In order to comply with the requirement that all voltages be regulated, we have included an over-voltage detection and under-voltage lockout circuit which ceases RF transmission when the input voltages exceed the stated limits by 10% maximum.

4. "The modular transmitter antenna must comply with the antenna and transmission system requirements of section 15.203, and 15.204(c)." The modular device complies with all FCC antenna requirements. The RFSC1 offers a wire and U.FL style RF connector interface. This requires either a permanently attached antenna, or will be offered with a UFL to RP-SMA cable that is a non-standard attachment method. Both methods meet FCC requirements. A list of usable antennas is included in the users manual and provided in the antenna report included with the certification submission.

5. "The modular transmitter must be tested in a stand-alone configuration." As described in the technical report exhibit and the test set up photos of the test report included in the filing for FCC equipment authorization, the RFSC1 module was tested as a stand-alone device. Please see the report included with the certification submission.

450 South Simmons Way • Suite 670
Kaysville • UT • 84037

 801-561-5555 •  801-561-5575
www.monnit.com

6. “The modular transmitter must be equipped with either a permanently affixed label or must be capable of electronically displaying the FCC identification number.” The FCC ID and model number is labeled on every modular device. FCC ID label and location exhibit has been included which shows the exact location of the label. Since the FCC ID number will not be visible when the module is installed inside the host device, another label with the same FCC ID is applied to the exterior of the final enclosure. Some examples of these additional labels have also been included in this submission.

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.” The RFSC1 complies with all specific rules such as modulation scheme, modulation type, bandwidth, antenna requirements, power supply regulation, and suppression of spurious emissions and so on. A detailed user manual is provided with every RFSC1 which instructs the user to maintain compliance as per the requirements of the Commission. The manual also cautions the user not to make any changes or modifications not approved by the party responsible for compliance. Please see the operating description exhibit for further details to understand how the RFSC1 complies with specific rules and operating requirements as per FCC.

8. “The modular transmitter must comply with any applicable RF exposure requirements in its final configuration.” The RFSC1 is compliant with all applicable RF exposure requirements and is operated in a manner that ensures the public is not exposed to radio frequency in excess of Federal Communication Commission’s guidelines. Please see the RF exposure exhibit.

Best Regards

Brad Walters
President/CEO