

MODULAR APPROVAL LETTER

June 25, 2013

Modular Approval Letter

Product: RFID Reader

FCC ID: ZWF-TR00144

To Whom It May Concern:

In accordance with Section 15.212 (b), Illumina, Inc. believes it has met all of the requirements set out in that document for the granting of limited single modular approval. Specifically, the criteria set out in that 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 Model TR-001-44 has its own shielding covering all critical RF components. This can be seen in the photographs included in the accompanying test report.

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 module TR-001-44 has buffered data inputs integrated in the TRF7960 chip.

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 TR-001-44 module incorporates its own supply regulation. The component TRF7960 has internal regulators that source the RF output stage.

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 Class II permissive change. The "professional installation" provision of Section 15.203 may not be applied to modules.

The TR-001-44 has an integrated trace antenna on the PCBA. The antenna has been verified at the time of initial authorization.

5. The modular transmitter must be tested in a stand-alone configuration, i.e., the module must not be inside another device during the 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)).

TR-001-44 was tested in a stand-alone configuration see test setup photos.

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 TR-001-44 is fitted with their own labels, including the FCC ID number. User manual has instructions for host device.

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 Section 15.231(e), in which case there are separate field strength level and timing requirements. Compliance with these requirements must be assured.

The modules have been tested to comply with all rules under Part 15. The compliance is assured by the design of the device and the user is unable to intervene to cause the device to operate incorrectly.

8. The modular transmitter must comply with any applicable RF exposure requirements. For example, FCC Rules 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 TR-001-44 module is compliant with all RF exposure requirements for RF low power devices. Information is included in the user manual.

Sincerely,

A handwritten signature in black ink, reading "Carol Escano". The signature is fluid and cursive, with the first name "Carol" and last name "Escano" clearly distinguishable. It is positioned above a horizontal line.

Carol Escano
Sr. Quality Engineer