

Friday, June 18, 2010

To whom it may concern:

This letter is an application by OFI, Inc. for limited modular approval of the OFI No. 3063 control circuit board assembly (S9C-3063) according to FCC 15.212.

<b>FCC 15.212 Requirements:</b>	<b>Manufacturer Attestation</b>
<p>15.212 Modular transmitters.</p> <p>(a) Single modular transmitters consist of a completely self-contained radio frequency transmitter device that is typically incorporated into another product, host or device. Split modular transmitters consist of two components: a radio front end with antenna (or radio devices) and a transmitter control element (or specific hardware on which the software that controls the radio operation resides). All single or split modular transmitters are approved with an antenna. All of the following requirements apply, except as provided in paragraph (b) of this section.</p>	<p>S9C-3063 is a single modular transmitter</p> <p><i>Two single modular transmitters are co-located in the same module: a 13.56 MHz near-field RFID reader and a 2.4 GHz 802.15.4 transceiver.</i></p>
(1) Single modular transmitters must meet the following requirements to obtain a modular transmitter approval.	
(i) The radio elements of the modular transmitter must have their own shielding. The physical crystal and tuning capacitors may be located external to the shielded radio elements	<p>The 2.4 GHz 802.15.4 transceiver has its own shielding enclosing all radio elements including the crystal and tuning capacitors.</p> <p>The 13.56 MHz near-field RFID reader is not shielded due to ineffectiveness of a shield at these frequencies. <i>This module shall be used only in products designed by OFI and subject to further investigation according to FCC Part 15B therefore excessive unintended emissions due to interactions between the 13.56MHz RFID reader module and incorporating product can be avoided.</i></p>
(ii) 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.	<p>The 2.4 GHz 802.15.4 transceiver has no modulation inputs, and has buffered data inputs.</p> <p>The 13.56 MHz near-field RFID reader has no modulation inputs, and has buffered data inputs.</p>
(iii) The modular transmitter must have its own power supply regulation.	<p>The 2.4 GHz 802.15.4 transceiver has its own power supply regulation.</p> <p>The 13.56 MHz near-field RFID reader does not have its own power supply regulation and relies on suitable regulated power being supplied.</p> <p><i>External power supply regulation is a condition of use as stated in the user guide. This module shall be used only in products designed by OFI, therefore a regulated power supply meeting the requirements stated in the user guide is assured.</i></p>
(iv) The modular transmitter must comply with the antenna and transmission system requirements of §§ 15.203, 15.204(b) 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). The ‘professional installation’ provision of § 15.203 is not applicable to modules but can apply to limited modular approvals under paragraph (b) of this section.	<p>The 2.4 GHz 802.15.4 transceiver has an integral PCB trace antenna and has no antenna connector.</p> <p>The 13.56 MHz near-field RFID reader has integral PCB trace antennas and has no antenna connector.</p>

(v) The modular transmitter must be tested in a stand-alone configuration, i.e., the module must not be inside another device during testing for compliance with part 15 requirements. Unless the transmitter module will be battery powered, it must comply with the AC line conducted requirements found in § 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 § 15.27(a)). The length of these lines shall be the 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 and commercially available (see § 15.31(i)).	The module was tested in a stand-alone configuration. <i>During testing, unless otherwise required for a particular test, both co-located transmitters were simultaneously active.</i>
(vi) The modular transmitter must be equipped with either a permanently affixed label or must be capable of electronically displaying its FCC identification number.	The module is permanently marked with its FCC identification number.
(A) If using a permanently affixed label, the modular transmitter must be labeled with its own FCC identification number, and, if the FCC identification number 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 module user guide contains the necessary end-product marking requirements.
(B) If the modular transmitter uses an electronic display of the FCC identification number, the information must be readily accessible and visible on the modular transmitter or on the device in which it is installed. If the module is installed inside another device, then the outside of the device into which the module is installed must display a label referring to the enclosed module. This exterior label can use wording such as the following: “Contains FCC certified transmitter module(s).” Any similar wording that expresses the same meaning may be used. The user manual must include instructions on how to access the electronic display. A copy of these instructions must be included in the application for equipment authorization.	The module does not have an electronic display.
(vii) The modular transmitter must comply with any specific rules or operating requirements that ordinarily apply to a complete 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.	The module user guide contains all of the required instructions.
(viii) The modular transmitter must comply with any applicable RF exposure requirements in its final configuration	The module user guide includes application limitations that prohibit the module being used in a product designed to be used such that the radiating structure(s) of the device is/are within 20 centimeters of the body of the user, and shall in any case be tested for compliance with any applicable RF exposure requirements. <i>FCC Rules 2.1091 and 2.1093 therefore do not apply. This module shall be used only in products designed by OFI, therefore compliance with this limitation is assured.</i>

<p>(b) A limited modular approval may be granted for single or split modular transmitters that do not comply with all of the above requirements, e.g., shielding, minimum signaling amplitude, buffered modulation/data inputs, or power supply regulation, if the manufacturer can demonstrate by alternative means in the application for equipment authorization that the modular transmitter meets all the applicable part 15 requirements under the operating conditions in which the transmitter will be used. Limited modular approval also may be granted in those instances where compliance with RF exposure rules is demonstrated only for particular product configurations. The applicant for certification must state how control of the end product into which the module will be installed will be maintained such that full compliance of the end product is always ensured.</p>	<p>Limited modular approval is requested subject to the application limitations in the user guide. This module shall be sold only as a component of products designed by or for OFI, therefore compliance with the following conditions is assured:</p> <ul style="list-style-type: none"> <li>- an external regulated power supply meeting the requirements stated in the user guide shall be provided,</li> <li>- end-product compliance with FCC 15b to ensure no excessive unintended emissions as a result of interactions between the 13.56MHz RFID reader and other end-product components,</li> <li>- end-product is not a portable or mobile device designed for use within 20cm of the user, and in any case complying with any applicable RF exposure requirements.</li> </ul>
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