



ATTN: Director of Certification

Re: FCC ID#: R3J-VANRF2012

Request for Limited Modular Authority

Dear Director,

We (Crucial Innovation LLC/Retül) request **limited modular** approval for our product based on the following responses to Section 15.212 as follows. This **limited modular** approval pertains to a device that is **only used** in Crucial Innovation LLC/Retül products and is *not available, nor intended to be used, in any non-Crucial Innovation LLC/Retül product(s)*.

(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.

(i) – Crucial/Retül response: The MC13224RV2 chip is shielded with an ‘over-the-chip’ EMI can during assembly.

(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.

(ii) - Crucial/Retül response: The MC13224RV2 chip has FIFO data buffering and data flow controls.

(iii) The modular transmitter must have its own power supply regulation.

(iii) - Crucial/Retül response: A discrete regulator is onboard the modular transmitter PCBA.

(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.

(iv) - Crucial/Retül response: The antenna is soldered to the modular transmitter PCBA and therefore is permanently affixed. There is no provision for an external power amplifier.



(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)).

(v) - Crucial/Retül response: The modular transmitter was tested in a stand-alone configuration and successfully passed all tests.

(vi) The modular transmitter must be equipped with either a permanently affixed label or must be capable of electronically displaying its FCC identification number.

(vi) - Crucial/Retül response: Permanently affixed FCC/IC specific label(ing) is on all relevant equipment and in a visible area.

(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.

(vii) - Crucial/Retül response: The operational frequency and output power are set during production in firmware and cannot be changed by the end user. Specific information pertaining to this device is included for customer reference in printed and electronic media format.

(viii) The modular transmitter must comply with any applicable RF exposure requirements in its final configuration.

(viii) - Crucial/Retül response: Our modular transmitter was tested and has a Maximum Permissible Exposure (MPE) value of 0.0158 W/m²

Sincerely:



10/17/13

CEO: Cliff N. Simms - Crucial Innovation LLC/Retül