

27 August 2008

Federal Communications Commission,  
Equipment Authorization Branch,  
7435 Oakland Mills Road,  
Columbia, MD 21046  
USA.

Dear Sir/Madam

Limited Modular approval is being sought for the device with proposed  
FCC ID: NI8OM240

Although the device meets seven of the eight modular approval requirements (Public Notice DA00-1407) we do not wish meet requirement 4 as we will be using the unit in our own housing with a standard TNC connector and therefore with to comply with the professional installation requirements of 15.203

The device meets the seven of the eight modular approval requirements as follows.

*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 module has a shield over the entire RF circuitry and does not relay on any additional shielding. The module has been tested on a jig that allows standalone operation and does not provide additional shielding.

*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*

- All incoming data to the module passes through a data buffer where it is divided up into packets as required and processed for transmission. The modulation levels and clock rates used for modulation are completely independent of the rates and levels of the incoming data stream.



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*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 radio has 3.3 and 5 volt inputs. A voltage monitoring system checks these rails and prevents transmission if they outside specification. This ensures that the transmitter is always running within specification. We have had correspondence with the FCC on this topic and have been told that this approach is acceptable (Tracking Number 127266).

*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.*

- This requirement will not be met in this case as we wish to be able to use the module in our own housing and comply with the professional installation provision of section 15.203 and therefore limited modular approval is being sought. Although the Module uses a unique connector (MMCX) the module itself will be fitted in the companies (Trio Datacom) housings that have standard connectors on the outside (TNC). The final unit will only be supplied to industry customers for professional installation with approved antennas and will not be available to the general public. Modules certified with limited modular approval will only be fitted into the companies own products and not sold on their own.

*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)).*

- For testing the module is mounted on a board without shielding indented for standalone testing.
- Testing to 15.207 AC line requirements has been performed.

- The module has been designed to mount directly on to a supporting PCB and this is the way it has been tested with the test jig.
- No additional accessories or peripherals have been used with the module and tests have been performed with commercially available equipment (Laptop/Power supply).

*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 module has its own label with FCC ID number.
- The user manual contains the following text for the case where the module is installed in another device and the module text is not visible:

**When this OEM module is housed inside another unit, the unit must be labeled with the following notice :“This unit contains a device with FCC ID: NI8OM240 and IC: 4630A-OM240.This device complies with part 15 of the FCC rules. Operation of this device is subject to the following conditions:(1) this device may not cause harmful interference, and (2) this must accept any interference received, including interference that may cause any undesired operation.”**

*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.*

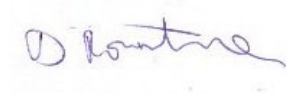
- A copy of the user manual is attached.

*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.*

- RF Exposure information is included in the user manual supplied with this application

Yours sincerely,

A handwritten signature in blue ink, appearing to read "D Rowntree", is positioned above the printed name.

David Rowntree  
Senior Design Engineer