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FEDERAL COMMUNICATIONS COMMISSION

7435 Oakland Mills Road
Columbia, MD 21046
U.S.A.

Applicant: Microwave Data Systems Inc.
Product: MDS ROR 220 Data Transceiver
Model: MDS-ROR220
FCC ID: E5MDS-ROR220

**Subject: "Modular Approval" request for new 220MHz transceiver design,
proposed FCC identifier E5MDS-ROR220**

Dear Sir/Madam,

Microwave Data Systems is requesting that FCC ID E5MDS-ROR220 is granted Modular Approval. This design is NOT an FCC part 15.247 unlicensed device, but rather a licensed FCC part 90 device.

None of MDS's products are for sale to the general public, and are for Industrial applications only, examples, SCADA applications, traffic control, flow rate applications. Thus MDS has a trained staff of technical personnel that work with our industrial customers to ensure "professional installation" is achieved.

When Modular approval is granted, MDS will perform training on it's staff, inform them of the "Modular Approval" requirements. The antenna and cable interfaces, are a NON standard "MCX" connectors, and the cable interconnects do fulfill the FCC's Modular requirements. All the antennas that will be used with the grant, will be installed by trained/qualified personnel to ensure the strictest compliance with FCC rules.

All supporting manuals and sales literature reflect the regulatory issues. The following text will be placed in the ROR220 installation and user manual, and is being "requested" on the FCC grant.

"This device is only approved for use when installed in devices approved by third-party OEMs, or produced by the Grantee. The antenna(s) to be used with this modular transmitter must be installed to provide a separation distance of at least .58 meters from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provided with antenna installation and transmitter operating conditions for satisfying RF exposure compliance. Professional installation of this product is required."

Per the FCC rules, here are our requirements and our compliance

Several factors should be considered when seeking an equipment authorization for modular transmitters:

- (a) In order to be considered a transmitter module, the device must be a complete RF transmitter, i.e., it must have its own reference oscillator (e.g., VCO), antenna, etc. The only connectors to the module, if any, may be power supply and modulation/data inputs.

MDS COMPLIES and meets these requirements

- (b) Compliance with FCC RF Exposure requirements may, in some instances, limit the output power of a module and/or the final applications in which the approved module may be employed.

Not applicable to this design

- (c) While the applicant for a device into which an authorized module is installed is not required to obtain a new authorization for the module, this does not preclude the possibility that some other form of authorization or testing may be required for the device (e.g., a WLAN into which an authorized module is installed must still be authorized as a PC peripheral, subject to the appropriate equipment authorization).

The enclosures it is intended to be installed will have FCC part 15 unintentional radiator testing prior to shipment

- (d) In the case of a modular transceiver, the modular approval policy only applies to the transmitter portion of such devices. Pursuant to Section 15.101(b), the receiver portion will either be subject to Verification, or it will not be subject to any authorization requirements (unless it is a Scanning Receiver, in which case it is also subject to Certification, pursuant to Section 15.101(a)).

The enclosures it is intended to be installed will have FCC part 15 unintentional radiator testing prior to shipment

- (e) The holder of the grant of equipment authorization (Grantee) of the module is responsible for the compliance of the module in its final configuration, provided that the OEM, integrator, and/or end user has complied with all of the instructions provided by the Grantee which indicate installation and/or operating conditions necessary for compliance.

MDS is aware of this and will comply with the enclosures

In order to obtain a modular transmitter approval, a cover letter requesting modular approval must be submitted and the numbered requirements identified below must be addressed in the application for equipment authorization.

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.

MDS COMPLIES and it passed the FCC testing

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.

MDS COMPLIES, the microprocessor data buffers

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.

MDS COMPLIES, DC switching regulator on board

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.

MDS COMPLIES, the RF connector is a MCX professional installation is required

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)).

MDS COMPLIES, refer to test setup pictures, tested as stand alone unit

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.

MDS COMPLIES, pictures supplied and any enclosure the unit is intended to be installed in will be clearly marked as above.

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.


MDS agrees and supports this

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.

MDS COMPLIES, exposure information is in the user manual

If you have any queries, please do not hesitate to contact me at 585 242-8440:

Yours truly,

Signed:  Name: Dennis McCarthy

Dennis McCarthy

Agency Compliance Engineer

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