

RE: FCC ID: E5MDS-TRM450

1. The device appears to be a modular transceiver. However, this device also appears to be able to be used solely by itself (not in a host). Is this device a module used in a host as a final product or can it be used without a host (i.e. not a module in the sense of modular approvals? Please explain.

This is only going to be used in our OEM customers unit. It is a module and will only be installed into another enclosure which will have the FCC identifier clearly marked on the outside as required for the FCC rules. We have already discussed this with our customer and they are aware of the rules.

2. J300 and J301 on the internal photos and on the schematics appear to be the antenna terminal connection points. The photo shows a soldered coax connection. Will this point always be a soldered coax or will the option for a PCB-PCB pressure contact coax connector be the primary antenna connection? Please explain.

Response: The soldered coax was used for testing due to the delivery delay of the Surface mount 50 ohm PCB mating connector. What will be used is a Radiall UMP style compression fit RF connector.

There also had to be a way to test the transceiver as a stand alone unit not directly attached to the interface test PCB. This test interface board is not being sold as part of the module unit. It was clearly only a test method.

3. Please note that part 90 devices are ERP. The manual states, "total composite power could exceed 90 watts EIRP". Please make documentation consistent and reference the same units.

Response: I will make sure that our internal MDS publications department is aware of this and update the manual to reflect the ERP not EIRP. This was just a typo I am sure. Kevin in our pubs department is on this distribution list to ensure the manual is updated.

4. Please note that while ERP values can be calculated for part 15 devices, they are not calculated for licensed devices. In your sample calculations you use  $(E_d)^2 / (30G)$  as the base formula. Please note that for licensed devices this is not appropriate as ERP for licensed devices must be measured (see section 2.2.17 and 2.2.17.2 of TIA 603). Please also note the  $43+10\log P$  will typically give -13dBm and  $50+10\log P$  will typically be -20dBm as both a conducted and radiated spurious limit. While the radiated spurious emissions are still most likely compliant, it must be measured using the proper test method of TIA603. Please report the measured ERP of the fundamental as required by the FCC for comparison of radiated spurious emissions.

Response: Pages 44 – 47 of 51 of the test data was measured with the calculated field strength, from the -20 or -13 dBm, and is only used to determine which harmonics will require substitution method. Any harmonic not being more than 20-dB below the limit are then re-check with the substitution method (refer to the FCC e-mail uploaded).

5. Please note that if this was one transceiver operating over the full range of 412 to 470MHz with no circuitry changes then the three frequencies chosen in the report may be sufficient. However, this application is for three distinct device models that cover the range (albeit the only difference is the helical filters and VCO components). Because of the component and filter variances and because each model operates over a 20MHz range, three frequencies of each device (range) is expected. Without testing at the low mid and upper of each frequency range, it cannot be known how these component and filter variances affect the over all band in which they operate. Please provide the required measurements of low mid and upper frequencies per device per band at least for power and bandwidth measurements.

Response: As for this question, we CE mark tested this product with RFI, a notified body test house in the United Kingdom and they agreed after reviewing the design, that all 3 units are so identical and they tested the units as one device "low med high, one of each band". If you care to see the design or test data, I would be glad to send you any supporting documentation from RFI.

6. The temperature and voltage stability data shows 0Hz drift for both temperature and voltage. Please verify that this is the actual reported drift and not an error in decimal roll off or data entry.

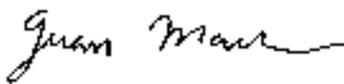
Response: This is the actual reported drift.

7. Please provide an MPE report for this device.

Response: As for MPE test data, MDS has NEVER had to support, pay for any type of testing on a part 90 device. We currently have many transceivers part 90 FCC granted, both using the FCC for filing and TIMCO (TCB). Because all of our transceivers are for professional installation, industrial use only. I would also be glad to send you some of our part 90 device test reports showing that none of them ever had MPE testing. Per Tim Harrington all push to talk transmitter over 1.5 Watts will require Sar evaluation. He stated no exposure requirements for other part 90 transmitters other then the SMR service.

Anything else please let me know.

Regards,



Juan Martinez  
Sr. EMC Engineer