

March 11, 2002

Federal Communications Commission
Equipment Authorization Division
7435 Oakland Mills Road
Columbia, MD 21046

FCC ID: TCB Approval E5M-INET900

Applicant: Microwave Data Systems, Incorporated
Correspondence Reference Number: 3626
731 Confirmation Number: TC363980
Date of Original Email: 03/01/2002

To Whom It May Concern:

Thank you for your email of the 1st of March 2002. We are pleased to respond to the questions raised in your email. For the sake of completeness, we have reproduced the issues raised along with our responses.

FCC Issue 1:

The Test Report data shows a channel spacing of 333 kHz and channel separation of 317 kHz. The bandwidth is greater than the channel spacing, which is not compliant with the provisions of Section 15.247(a)(1) of the Rules. Explain this non-compliance.

MDS Response 1:

The MDS INET, as indicated in the application and test report, operates in two modes 2-level or 4-level. Test data has been provided, where required under Part 15.247, for both modes of operation. The actual data channel separation for the MDS iNET900 radio is 316.5kHz. The 20 dB occupied bandwidth for the 4-level is less than the channel spacing and the INET in that configuration complies with all the requirements under section 15.247.

The test data provided for the 2-level 20 db occupied bandwidth would lead one to believe that the MDS INET900 is non compliant in that mode. The attached re-run plot of the 20 dB occupied bandwidth for the 2-level mode of the original MDS INET900 test unit clearly shows that the MDS INET900 is also compliant in the 2-level mode. The only explanation we can offer for the original non-compliance is that conceivably during the process of setting the MDS INET900 in the 2-level mode a mis-configuration in the deviation register must have occurred. End users do not have the ability to adjust these registers.

To ensure that there are no such issues with any other measurements all measurements specific to the 2 –level mode and occupied bandwidth (20 dB bandwidth, Band-edge Compliance) were re-run with random data. Full compliance was further revalidated. These plots are also attached.

Figures...

Figure 1 (20 dB Bandwidth: 256 kbps/2-level @ 902.5 MHz)



MICROWAVE DATA SYSTEMS INC.
902-928 MHz OEM Radio Transceiver
Channel: 9 Tx. Frequency: 902.5 MHz
Modulation: 2 Level @ 256 kbps
Frequency Hopping Spread Spectrum
20 dB Bandwidth

Date: March 8, 2002
Tested by: Hung Trinh

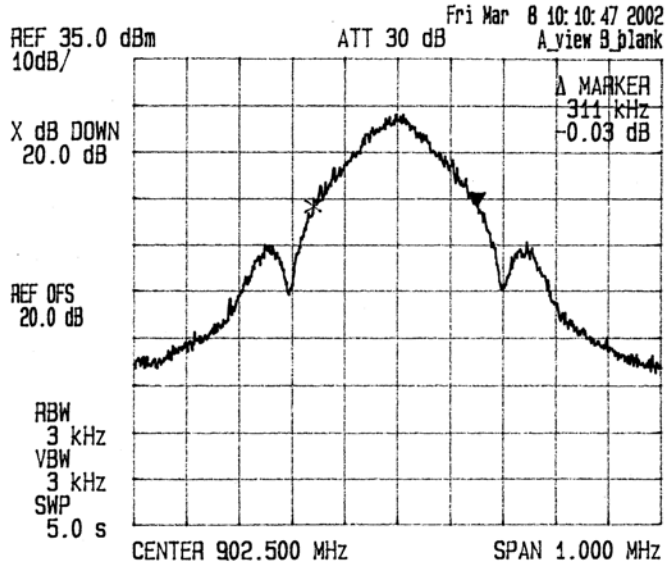


Figure 2 (20 dB Bandwidth: 256 kbps/2-level @ 915.16 MHz)



MICROWAVE DATA SYSTEMS INC.
902-928 MHz OEM Radio Transceiver
Channel: 40, Tx. Frequency: 915.16 MHz
Modulation: 2 Level @ 256 kbps
Frequency Hopping Spread Spectrum
20 dB Bandwidth

Date: March 27, 2002
Tested by: Hung Trinh

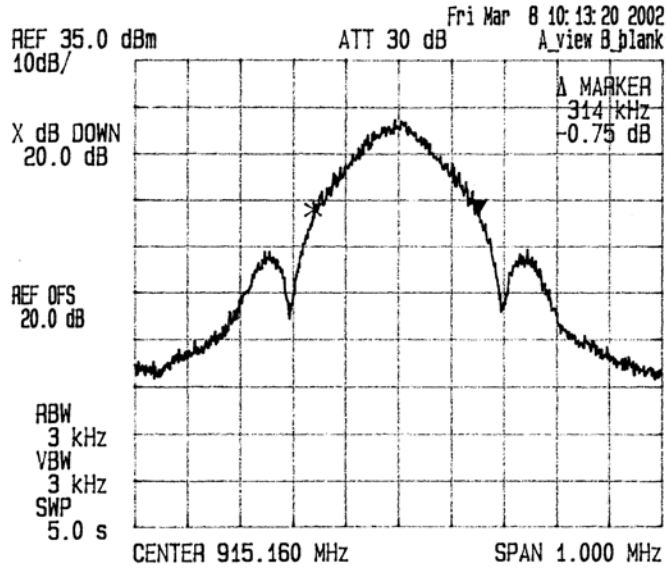


Figure 3 (20 dB Bandwidth: 256 kbps/2-level @ 927.504 MHz)



MICROWAVE DATA SYSTEMS INC.
902-928 MHz OEM Radio Transceiver
Channel: 79, Tx. Frequency: 927.504 MHz
Modulation: 2 Level @ 256 kbps
Frequency Hopping Spread Spectrum
20 dB Bandwidth

Date: March 8, 2002
Tested by: Hung Trinh

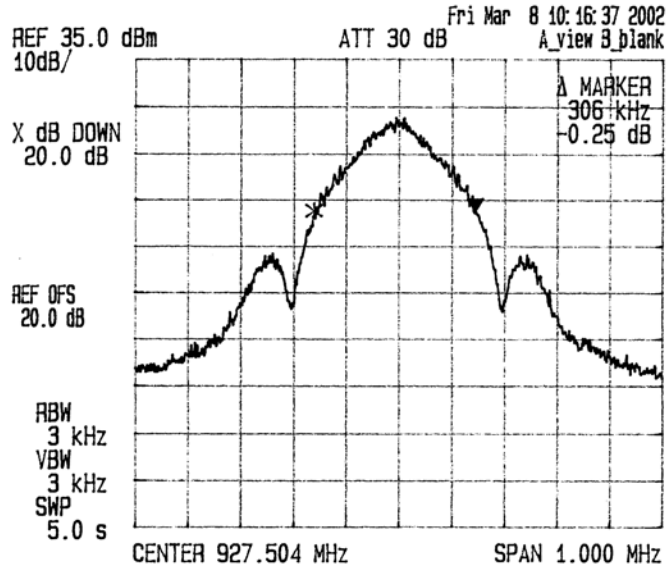


Figure 4 (Low Band Edge Compliance with fixed carrier: 256 kbps/2-level)



MICROWAVE DATA SYSTEMS INC.
902-928 MHz OEM Radio Transceiver
Channel: 0 Tx. Frequency: 902.5 MHz
Modulation: 2 Level @ 256 kbps
Frequency Hopping Spread Spectrum
Low Band Edge Compliance of RF Conducted Emissions

Date: March 9, 2002
Tested by: Hung Trinh

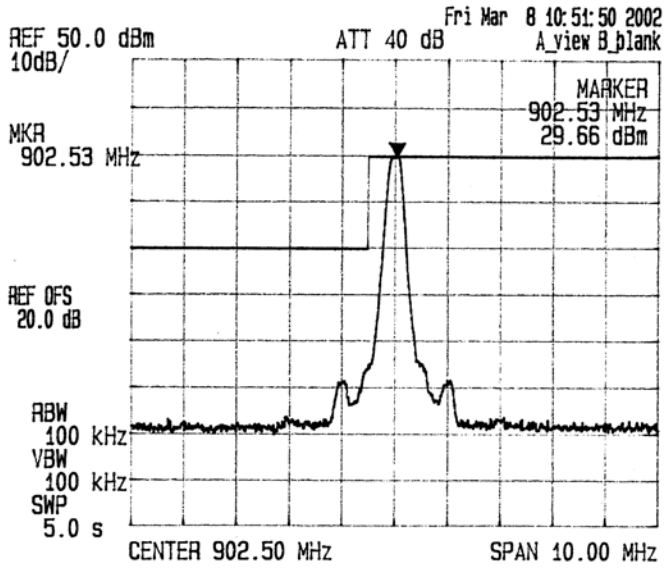


Figure 5 (Low Band Edge Compliance with hopping: 256 kbps/2-level)



MICROWAVE DATA SYSTEMS INC.
902-928 MHz OEM Radio Transceiver
Channel: 2 Tx. Frequency: 902.5 MHz
Modulation: 2 Level @ 256 kbps
Frequency Hopping Spread Spectrum
Low Band Edge Compliance of RF Conducted Emissions

Date: March 8, 2002
Tested by: Hung Trinh

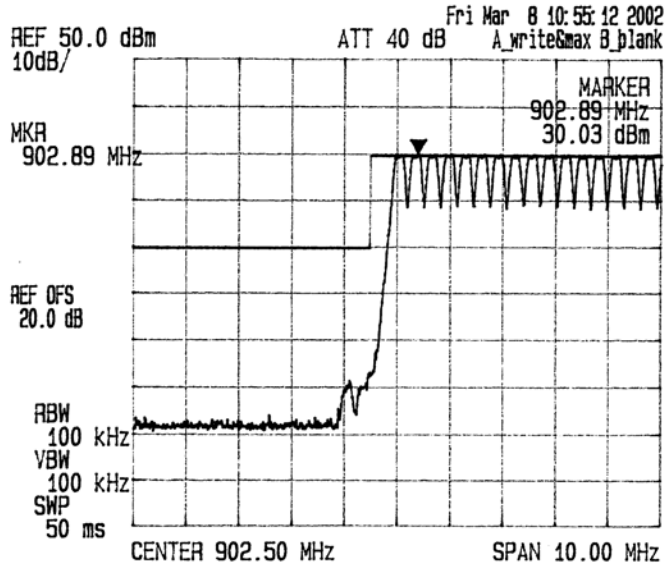


Figure 6 (High Band Edge Compliance with fixed carrier: 256 kbps/2-level)



MICROWAVE DATA SYSTEMS INC.
902-928 MHz OEM Radio Transceiver
Channel: 79 Tx. Frequency: 927.53 MHz
Modulation: 2 Level @ 256 kbps
Frequency Hopping Spread Spectrum
High Band Edge Compliance of RF Conducted Emissions

Date: March 28, 2002
Tested by: Hung Trinh

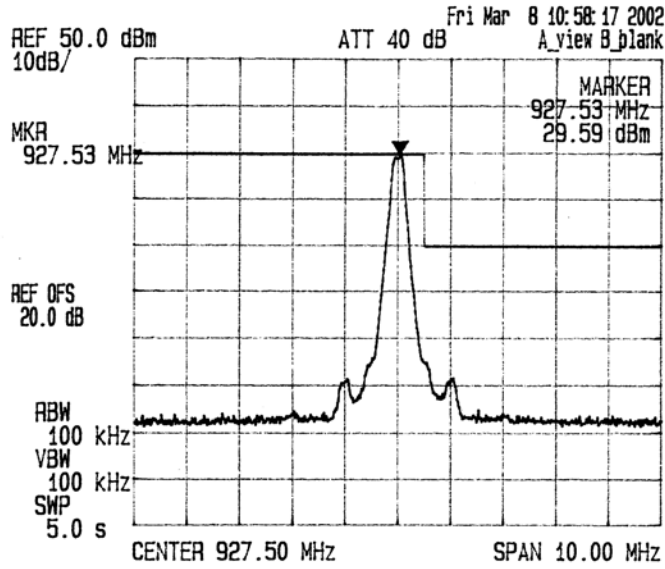
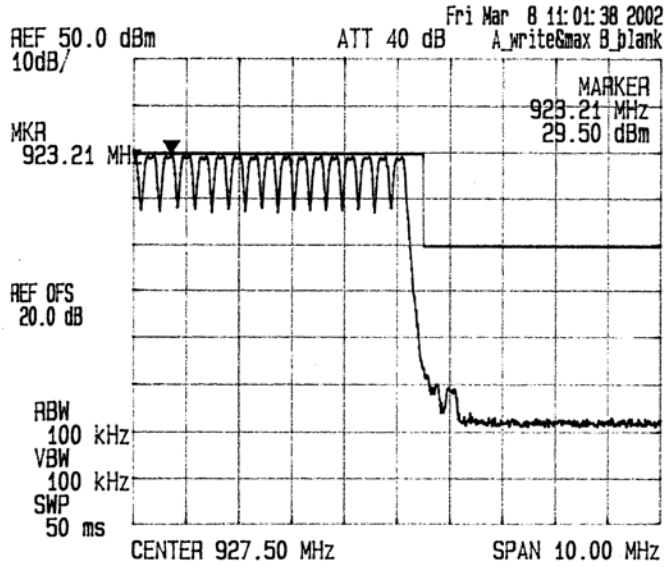


Figure 7 (High Band Edge Compliance with hopping: 256 kbps/2-level)



MICROWAVE DATA SYSTEMS INC.
902-928 MHz OEM Radio Transceiver
Channel 75 Tx Frequency: 927.50 MHz
Modulation: 2 Level @ 256 kbps
Frequency Hopping Spread Spectrum
High Band Edge Compliance of RF Conducted Emissions

Date: March 8, 2002
Tested by: Hung Trinh



FCC Issue 2:

The Test report states that there are 80 hopping channels. However there is no data or spectral plots to support this. Upload spectrum plots showing compliance with the number of hopping channels.

MDS Response 2:

Enclosed are spectral plots showing the MDS iNET900 hopping on 80 channels.

Figure 8 (Number of Hopping Frequencies: 902-915 MHz)

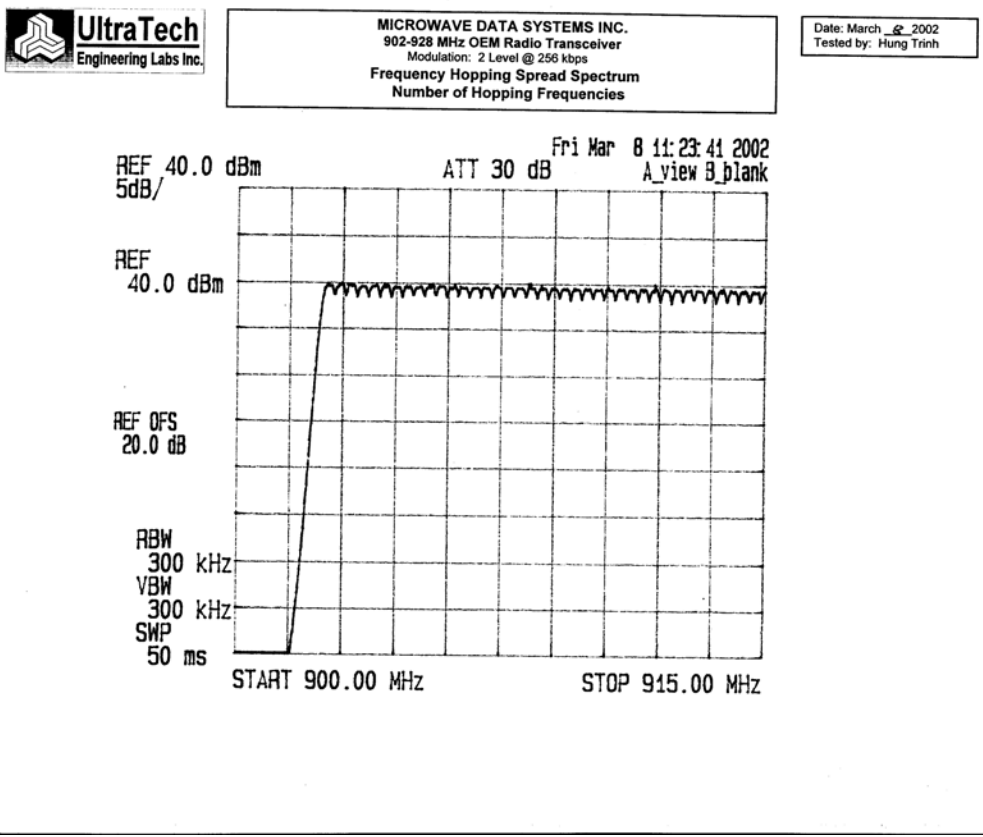
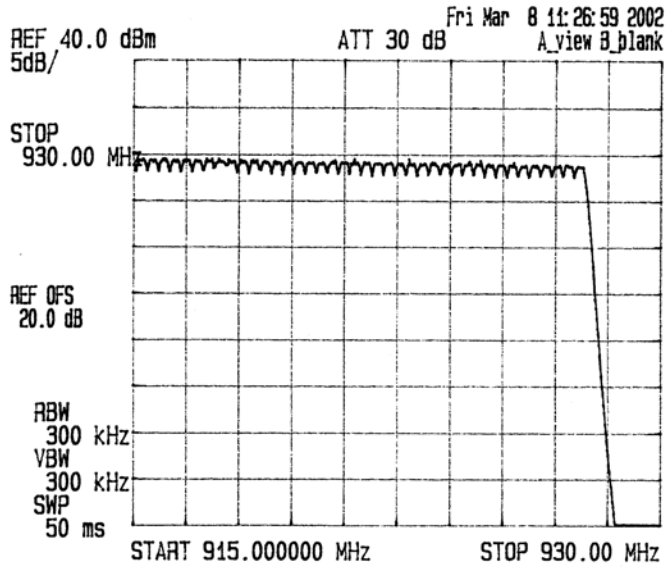


Figure 9 (Number of Hopping Frequencies: 915-928 MHz)



MICROWAVE DATA SYSTEMS INC.
902-928 MHz OEM Radio Transceiver
Modulation: 2 Level @ 256 kbps
Frequency Hopping Spread Spectrum
Number of Hopping Frequencies

Date: March 8, 2002
Tested by: Hung Trinh



FCC Issue 3:

The band frequencies are listed in the Grant. The Grant should have the lowest and highest fundamental frequency that the device transmits. Correct the Grant.

MDS Response 3:

MDS supports the FCC recommendation to have the highest and lowest fundamental frequencies listed on the Grant. Those frequencies are 902.5 MHz and 927.5035 MHz.

FCC Issue 4:

The Grant condition states that this is a Limited Modular Approval for use in the manufacturers products only. Please remove from the Grant conditions any reference to module or limited modular approach. Typically the only mention of modules is "Modular Approval" when all conditions of A00-1407 have been met.

FCC Issue 5:

This is a fixed device. You treated it like a mobile device. Correct the Grant condition to indicate that this is a fixed device and RF exposure requirements are determined at the time of licensing.


MDS Response 4 and 5:

The observations noted in FCC requests 4 and 5 have been fully addressed by redrafting the grant notes as below. We further believe that this draft not only addresses the concerns expressed under 4 and 5 but also is in accordance with FCC Public Notice DA 00-1407 of June 26th 2000 and previous grants by the bureau.

Antennas used for this transmitter must be professionally installed on fixed mounted outdoor structures. Users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance. This transmitter can only be used in enclosures designed by Microwave Data Systems, Inc. such that compliance of the end product is assured.

Finally, we hope that our responses are to the FCC's satisfaction. We would expect the FCC's kind consideration for an immediate restoration of our grant.

Sincerely,

Signed:  Name: Dennis McCarthy

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