From: Les Payne [les@dnbenginc.com]
Sent: Friday, June 06, 2003 2:49 PM
To: 'Mike Kuo'; 'Anne Liang'
Cc: 'Jim Lukes (E-mail)'; 'Erik Tanner (E-mail)'
Subject: RE: IP MobileNet Inc, FCC ID:MI7-IPM4748, AN03T2870

Greetings Mike answer are in RED below. IPMobileNet would like to conference call to resolve any open issues this afternoon.

-----Original Message-----
From: Mike Kuo [mailto:MKUO@CCSEMC.com]
Sent: Wednesday, June 04, 2003 6:07 PM
To: 'Les Payne'; Anne Liang; Mike Kuo
Cc: Jim Lukes (E-mail); Erik Tanner (E-mail)
Subject: RE: IP MobileNet Inc, FCC ID:MI7-IPM4748, AN03T2870

Hi Les:

Reply to question #1: Please provide the spectrum plots with RBW greater than the occupied bandwidth. Please do not use calculation to justify the real output power.

The real output power is a specified. normaly, you would use a CW signal to determine maximum output power. This transmitter cannot generate a straight CW signal. It can only generate a modulated data signal as referenced in all of our plots. What we did to confirm maximum output power for you was to connect the unit to a power meter and verify the output power. readings using a power meter were 1 db above the readings referenced on the plots in the report.

Reply to question #2: O.K.

Reply to question #3: Your statement does not agree with the test block diagram. What is the data rate used during the tests ? Please provide the spectrum plots with CW modulation and with data modulation.

Reference answer in number one above.

Reply to question #4: The statement used to justify radiated spurious emissions is not acceptable. Through out the FCC/TCB training, FCC has made it very clear that substitution measurement procedures per TIA/EIA 603 procedures shall be used for licensed transmitter. 15.209 worst case is not a issue in this case. Please provide radiated spurious emission test data per TIA/EIA 603.

This is top confirm that the substitution method per TIA/EIA 603 was used for these measurements. New Plot supplied

Reply to question #5: The limits for section 90.214 is T1:25kHz; t2:12.5kHz,; t3:25kHz. Please indicate your measured value on the plots so the max. freq. difference can be verified.

I am in the process of drawing in the limits to the plots that were supplied and I should have them to you shortly.

Best Regards

Mike Kuo

-----Original Message-----

From: Les Payne [mailto:les@dnbenginc.com]
Sent: Wednesday, June 04, 2003 1:27 PM
To: Anne Liang (E-mail); Mike Kuo (E-mail)
Cc: Jim Lukes (E-mail); Erik Tanner (E-mail)
Subject: FW: IP MobileNet Inc, FCC ID:MI7-IPM4748, AN03T2870

Greetings Mike,

Please review answers to questions below. If you require any additional information please let me know.

Kindest regards Les

Question #1: The rated output power of this device is 40W but the measured output power at nominal voltage is 31.62W.

13.8Vdc for all tests supplied by a clean dc source.

The rated output power for this radio is 40 W, and was producing 40 watts during testing. The measurement noted on page 30 of the test results was taken with a spectrum analyzer using a marker measurement with the resolution bandwidth set to 3 kHz. The radio was modulated at 4.6 to 5.0 kHz. There for the power over the occupied bandwidth would be 44.7 (@ 477 MHz) plus 10log(4.6kHz/3kHz) or 44.7 dBm + 1.85 dB = 46.55 dBm or 45 watts.

Please indicate the nominal voltage used during the output power measurement and provide additional output power measurement with DC voltage varied +/- 15%.

13.8 Nominal VDC

Temp (C)	Voltage	Frequency (MHz)	Deviation (kHz)	Output Power
20	11.7	470.909	0	31.5W
20	13.8	470.909	0	31.6W
20	15.9	470.909	0	31.6W

Question #2:What is the channel spacing of this device used ?

Channel spacing is 25 kHz

Question #3:Occup. BW \ Emission Mask tests: As indicated in page 28 (test block diagram) of test report, there is not data modulation used during

the tests. Please provide additional occupied BW plots with max. data transmission.

EUT was transmitting in accordance with the manufacturer and communications was monitored. Plots as supplied are transmitting worst case transmissions

Question #4: Radiated spurious emission tests: 15.209 limits are used as referenced technical limits. This is FCC Part 90 device and 15.209 is for Part 15 subpart C device which is not applicable to this device. In addition, for all licensed transmitter devices, radiated spurious emission shall be made with substitution method per TIA /EIA 603 measurement guideline. Substitution method is not a filed strength measurement. Please provide additional radiated spurious emission measurement with substitution method.

The 15.209 limits were used because there were no descernible radiated spurious emissions observed above the ground floor of the spectrum analyzer. Since the 15.209 limits are the "worst case" limits it was deemed appropriate. This has been acceptable to the FCC in the past.

Question #5: Transient frequency behavior test (90.214): please provide the test procedure that was used while doing the tests. The test data plots provided do not have any reference level. Please indicate what is t1/t2/t3 setting and reference level.

The Transient frequency behavior test is performed per TIA/EIA 603. Test conditions: The RF port of the EUT is connected to a combiner which combines an audio signal (1kHz, +- 5 kHz deviation) from an audio source the combined signal is connected to the input port of a spectrum analyzer. The audio monitor output of the spectrum analyzer is connected to CH1 of an Oscilloscope. Channel 2 of the Oscilloscope is connected to the TX high test point of the EUT.

The transient time under investigation is to be the transistion time of the TX high to complete silence of the 1 kHz to (attack) and the transition time of the TX high to complete recovery of the 1 kHz tone for release time.

T1 = +- 25 kHz 10 ms
T2 = +- 12.5 kHz 25 ms
T3 = +- 25 kHz 10 ms