Re: FCC ID MI7-IPMNIP8
Applicant: IP Mobilenet Inc
Correspondence Reference Number: 21551
731 Confirmation Number: EA622763

EMC

Q >>1) Justification for 20 KHz BW requested under "tech specs".

A >> 1) Please see attachment labeled Bandwidth.PDF

Q >>2) Confirmation that a 40 dB attenuator was used between EUT and the spectrum analyzer for the conducted power, occupied BW and conducted spurs tests. Also please confirm that the "correction factor" mentioned on page 17 of the test report relates to the attenuation.

A >>2) YES on all accounts – a 40dB dB attenuator was used between EUT and the spectrum analyzer for the conducted power, occupied BW and conducted spurs tests. The "correction factor" mentioned on page 17 of the test report DOES relate to the attenuation.

Q >> 3) A statement clarifying maximum conducted power. The table on page 17 of the test reports shows power up to 22.4 W for 115% DC voltage condition. Other places in the report mention 15.85 W as the maximum power. Is the unit expected to operate under 115% DC voltage condition?

A >> 3) No, the unit is not expected to operate under 115% DC voltage condition. IPMN published specs state nominal voltage to be 13.8 VDC and allow +/-10% variation.

Q >> 4) The unit appears to fail the conducted spurious test. The FCC limit should be 50 + 10logP or 62 dB of attenuation per 90.210(g).

A >> 4) According to section 90.210(g) paragraph (3) " On any frequency removed from the center of the authorized bandwidth by more than 250% of the authorized bandwidth: at least 43 + 10log(P) dB". This is from CFR book dated October 1, 2000.
The authorized bandwidth for the transmitter is 20 kHz and 250% of the authorized bandwidth is 50 kHz. All of the conducted and radiated spurious emissions of the transmitter were removed from the center frequency by more than 50 kHz and were attenuated at least 43 + 10log(P) dB or 55 dB.

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Q >> 5) Details of the data stream and data rate used for occupied BW testing.

A >> 5) The test signal is based on the PING application. Random data representing ASCII characters is utilized. Test sequences are of sufficient length (500 bytes) to insure that random data is transmitted.

Q >> 6) New radiated spurious data. Please note that the attenuation requirement for spurious emissions is 50+ 10Log(P). This is referenced to the desired signal yielding dBc. The attenuation specification is not XX uV/M, or derived from absolute value of the field strength. The dBc is determined from a substitution method such as described in the ANSI/TIA/EIA-603-1992 document.
What is needed is a determination of the actual power levels necessary to reproduce these field strength levels. Those power levels (from a signal generator source and a dipole antenna replacing the EUT) are then compared to the power output of the transmitter to determine dBc. That is the basis of the "substitution method".
Note that pursuant to Section 2.1057(c), emissions more than 20 dB below the specification do not need to be reported.

A >> 6) See attached data labeled Spurious.PDF

Q >> 7) DC currents and voltages in the final amplifier stage, per CFR47 2.1033(c).

A >> 7) The final stage of the power amplifier draws 4.8A at 13.8 VDC.

Q >> 8) Statement showing compliance with 90.203(e). Please provide details about how the frequency channel is set and controlled.

A >> 8) The frequency is set using the Windows program IPMsg, written by IPMN. IPMsg is used by service technicians to program the microprocessor that controls the synthesizer, which determines the frequency of the radio, programming is password protected. The synthesizer programming data is sent to the synthesizer every time the transceiver changes mode from transmit to receive and vise versa. The lock status of the synthesizer is monitored by the microprocessor. The end user is not given access to the IPMsg program and cannot change frequency.

MPE
Q >> 1) Revised installation manual or statement to be inserted providing instruction to the installer how to assure a minimum separation to the vehicle roof edge of 39 inches.

A >> 1) See attached. Pages 2 and 8 contain notes on keeping away from the antennas. Attachment labeled MR-Guide.PDF