Mobile Devices business
iDEN Mobile Devices Operations

RF Test Report

FCC Rule Parts: 90S and 24D
Industry Canada: RSS-Gen, RSS-119, RSS-134

Product Name: i856
FCC ID: IHDT56KC1
IC ID: 109O-KC1

Date: May 22, 2009

Table of Contents

Test Report Details

Tests Performed by:	Motorola EMC Laboratory Plantation, Florida 8000 W. Sunrise Blvd Plantation, Florida 33322 Phone: FAX:
	FCC Registration Number: **91932** Industry Canada Number: **IC109U-1**
Product Type:	Cellular Phone
Signaling Capabilities:	iDEN 800 MHz, iDEN 900 MHz
FCC ID:	IHDT56KC1
IC ID:	109O-KC1

Applicable Standards

All tests and measurements indicated in this document were performed in accordance with the United States Code of Federal Regulations, Title 47 Part 2, Sub-part J, as well as the following parts:

X	Part 90 Subpart S – Private Land Mobile Radio Service.
X	Part 24 Subpart D – Personal Communications Services.
X	RSS-119 – Land Mobile and Fixed Radio Transmitters and Receivers Operating in the Frequency Range 27.41-960 MHz.
X	RSS-134 – 900 MHz Narrowband Personal Communications Services.

Applicable Standards: TIA/EIA-603-A, TIA/EIA-603-B, and ANSI C63.4-2003

Exhibit 6a.1. Part 90/Part 24 Measured Data -- Pursuant 47 CFR. 2.1046; RSS-Gen Section 3, RSS-119 Section 5.4, RSS-134 Section 6.2.

6a.1.1 Land Mobile Transmitter Power

The transmitter is a variable power type used in a SMR trunking system. Output power (as defined in 47 CFR 90.7 and/or §24.132) is dynamically controlled as described in Exhibit 12.

6a.1.2 Maximum Output Power Rating -- Pursuant 47 CFR 2.1033(c)(7), §90.635(d), and §24.132(a)

Maximum output power rating: 640 milliwatts (28.06 dBm), pulse average power. Output power will vary from 0.22 to 640 milliwatts (pulse average power).

Note 1: Nominal output power rating: 600 milliwatts (27.78 dBm) (Pulse average power).

Note 2: These ratings are compliant with the FCC maximum of 100 watts (50 dBm) for Mobile stations operating under Part 90.

Note 3: These ratings are compliant with the FCC maximum of 7 watts ERP for Mobile stations operating under Part 24.

Note 4: The term pulse average power is used to specify the power that would be measured during the intervals of recurrent TDM transmission pulses by an average responding RF power meter. Power expressed in this manner is independent of the TDM duty cycle, and facilitates RF system coverage analysis.

6a.1.3 Operating output power range -- Pursuant 47 CFR 2.1033(c)(6)

Maximum tuned output power will vary over a range of 500 to 640 milliwatts (maximum pulse average power) to a minimum power of 34 dB below maximum tuned output power.

6a.1.4 DC power used by final amplifier device -- Pursuant 47 CFR 2.1033(c)(8)

In order to prevent the malfunctions that can occur due to directly measuring the DC characteristics of the final RF amplifying stage, data was obtained by measuring the entire radio DC current and is reported herein for the entire radio.

The DC current and the RF output power was measured with a special RF/DC test fixture set to supply the radio with the nominal battery voltage of 4V. The characteristics were measured during a transmission pulse and are listed in the Table below.

Characteristics	**800 MHz**		**900 MHz**		**901.5 MHz**	
Power Setting	**minimum**	**maximum**	**minimum**	**maximum**	**minimum**	**maximum**
DC Voltage (Volts)	4.0	4.0	4.0	4.0	4.0	4.0
DC Current (A)	0.90	2.10	0.90	2.28	0.83	2.00
Output Power (mW)	0.22	640	0.22	640	0.22	640

Table 6a.1-1 Characteristics for 800 and 900 MHz SMR bands, and NBPCS Band

6a.2. Modulation Characteristics and Necessary Bandwidth -- Pursuant 47 CFR §2.1047(d), §2.1049, §2.202, §90.210(g), §90.669(a), and §90.691; RSS-Gen Section 3, RSS-119 Section 4.2.

6a.2.1 Emission Designator 18K3D7W - iDEN 800 MHz Band Measured data

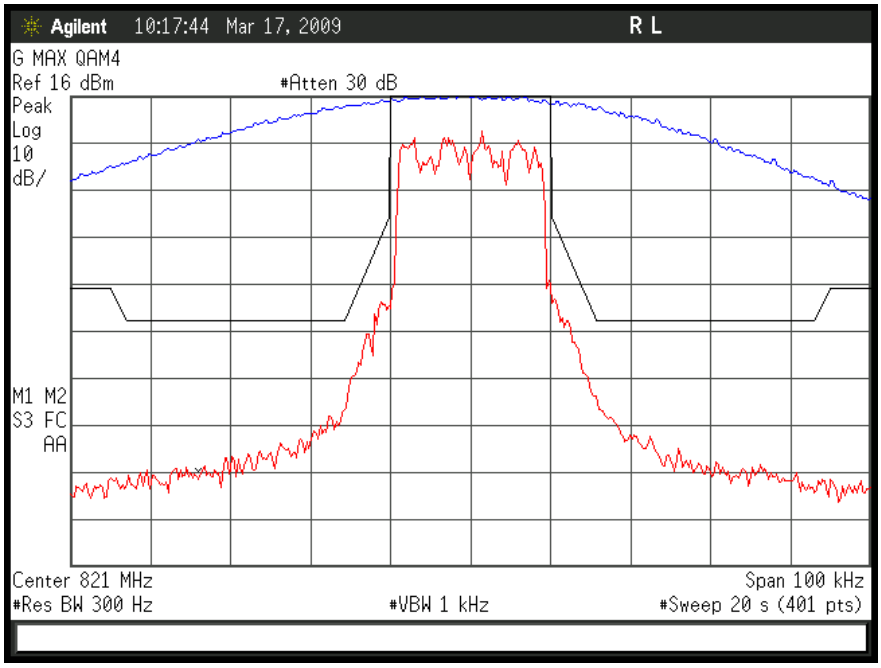


Figure 6a.2.1-1. iDEN 800 MHz Band, Quad-QPSK, Maximum Power, Emission Mask G

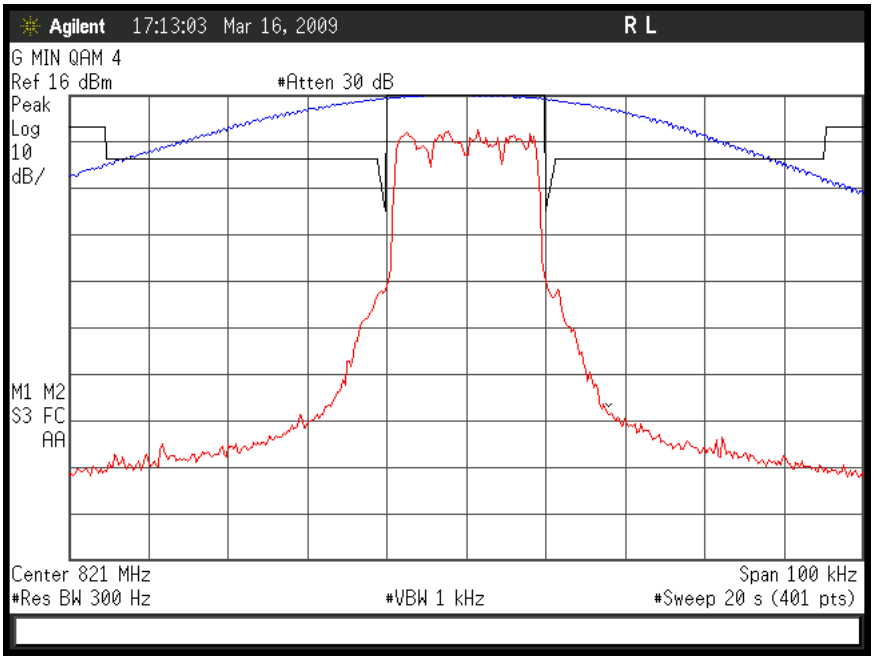


Figure 6a.2.1-2. iDEN 800 MHz Band, Quad-QPSK, Minimum Power, Emission Mask G

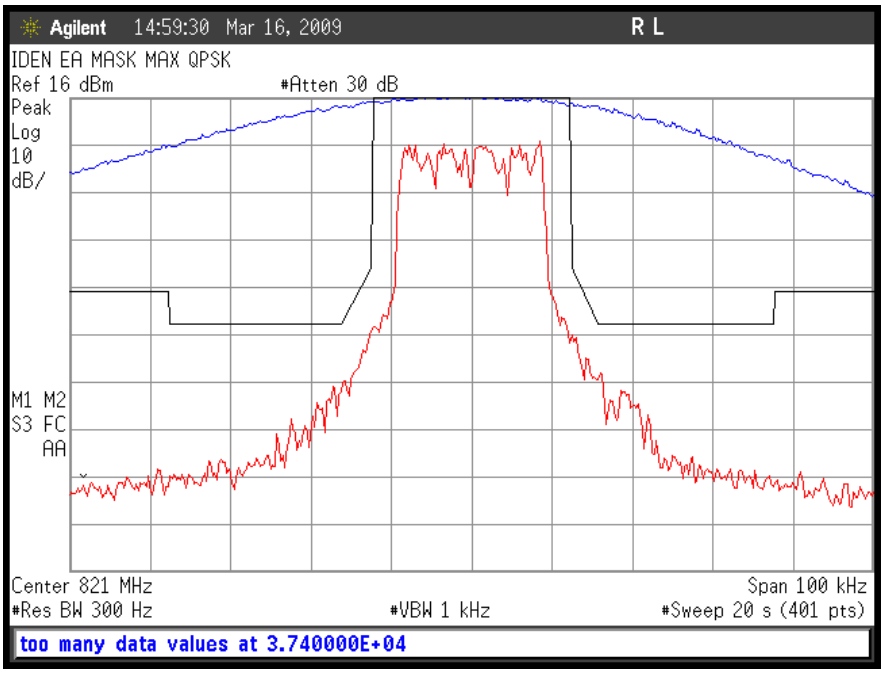


Figure 6a.2.1-3. iDEN 800 MHz Band, Quad-QPSK, Maximum Power, EA Emission Mask

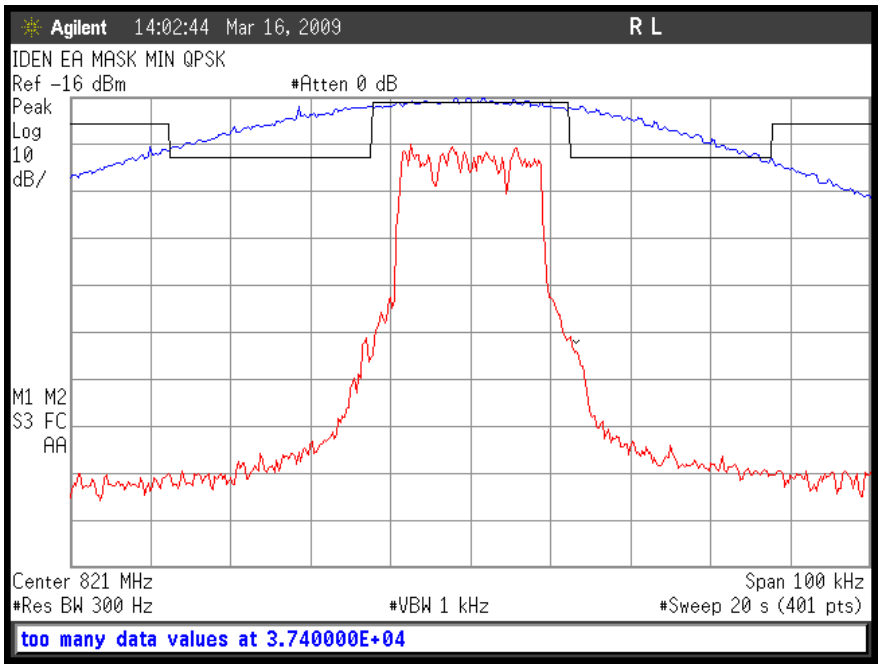


Figure 6a.2.1-4. iDEN 800 MHz Band, Quad-QPSK, Minimum Power, EA Emission Mask

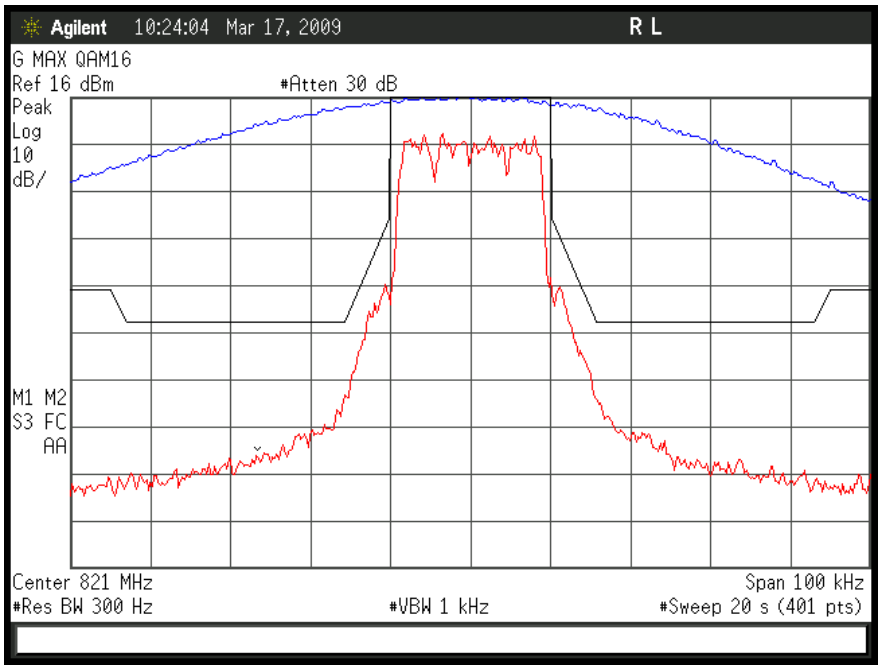


Figure 6a.2.1-5. iDEN 800 MHz Band, Quad-16QAM, Maximum Power, Emission Mask G

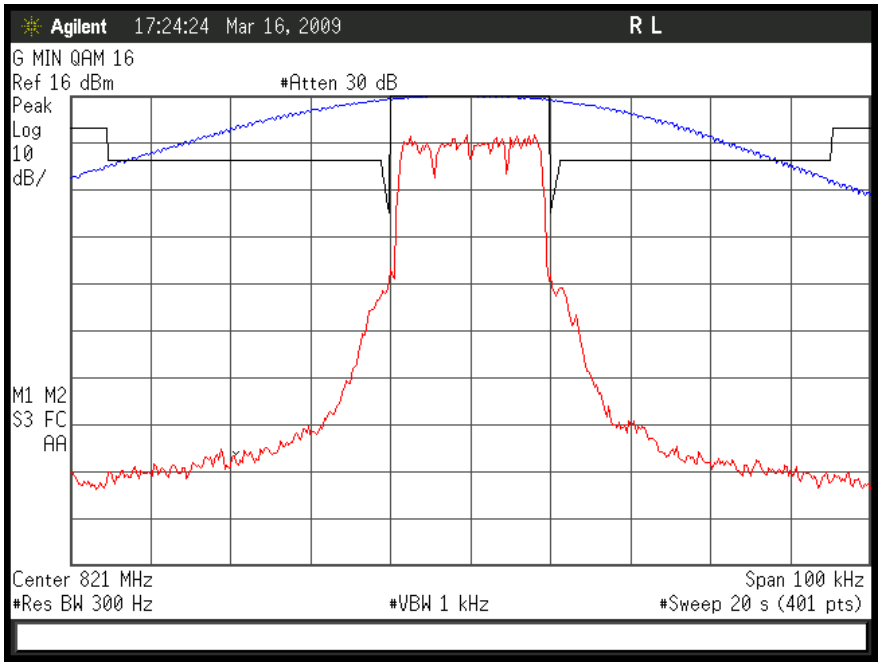


Figure 6a.2.1-6. iDEN 800 MHz Band, Quad-16QAM, Minimum Power, Emission Mask G

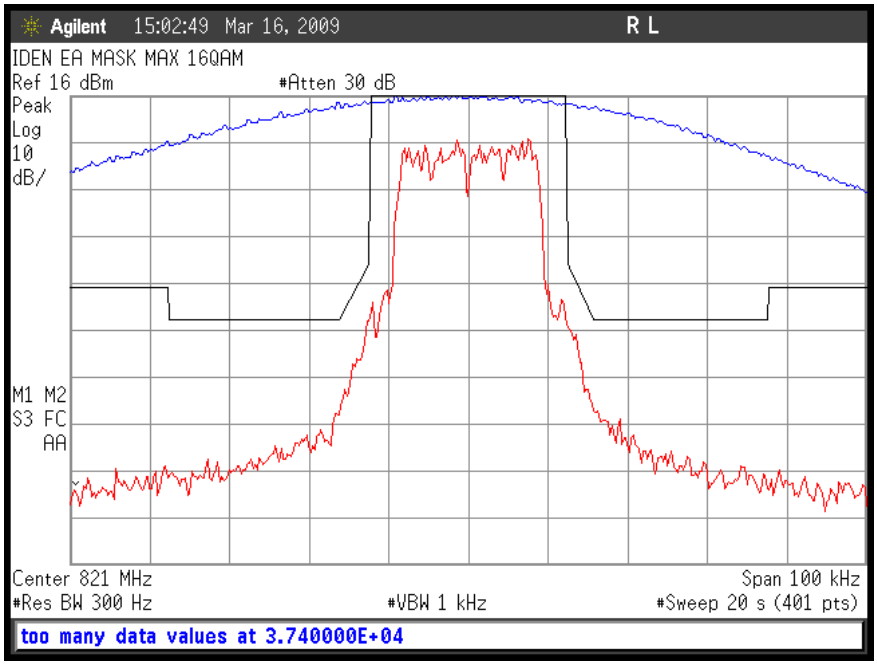


Figure 6a.2.1-7. iDEN 800 MHz Band, Quad-16QAM, Maximum Power, EA Emission Mask

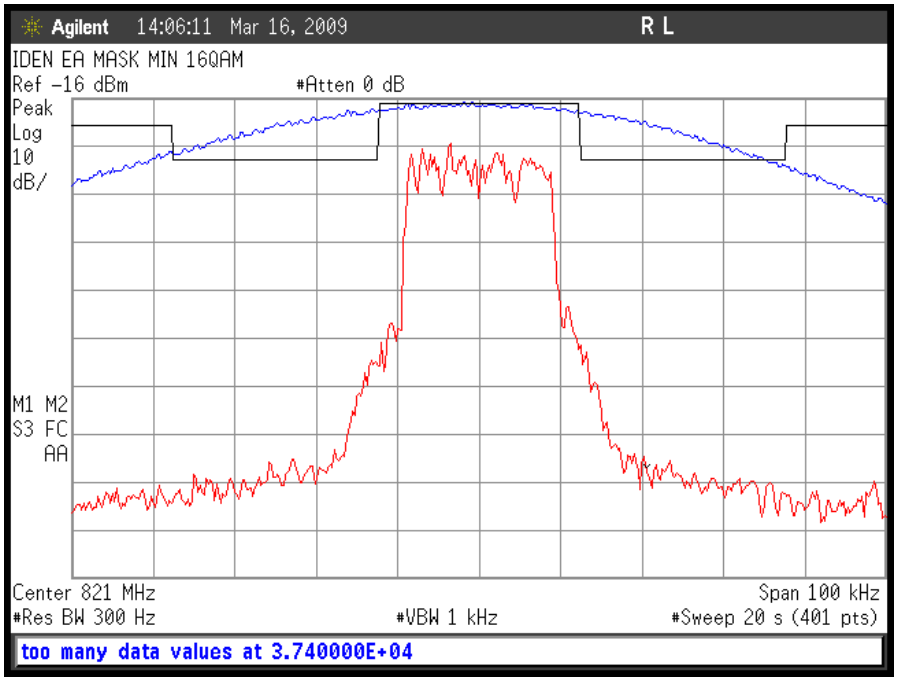


Figure 6a.2.1-8. iDEN 800 MHz Band, Quad-16QAM, Minimum Power, EA Emission Mask

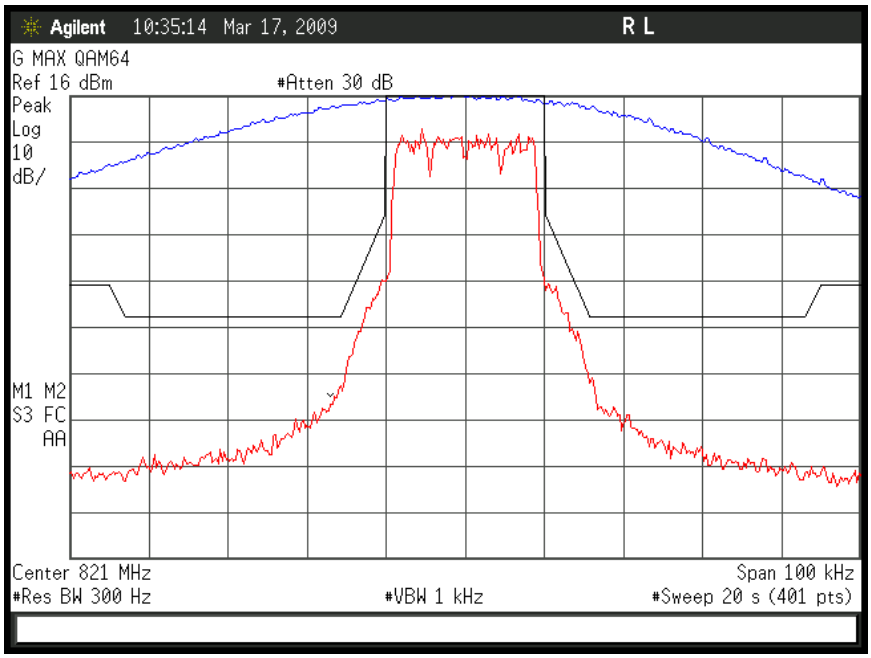


Figure 6a.2.1-9. iDEN 800 MHz Band, Quad-64QAM, Maximum Power, Emission Mask G

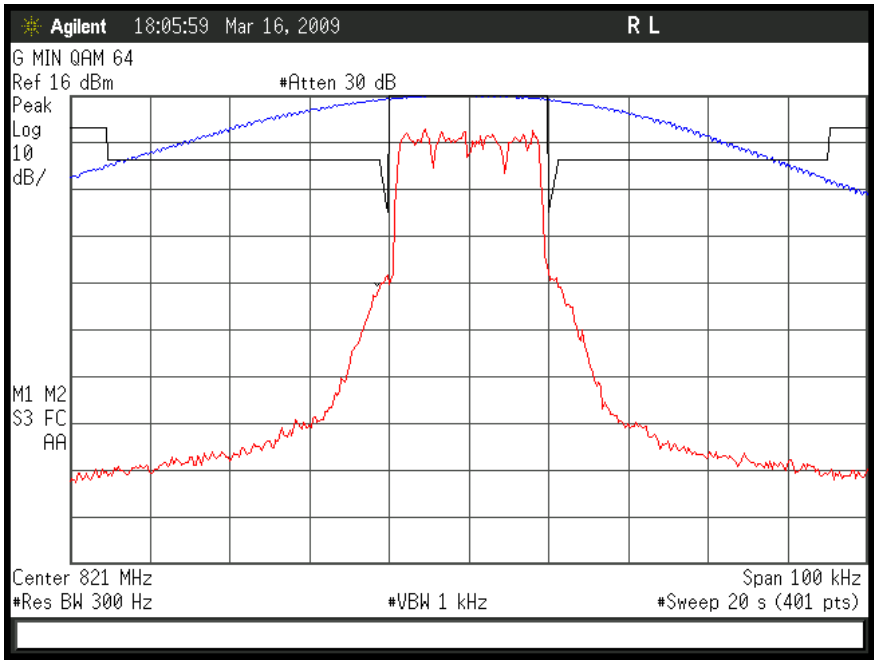


Figure 6a.2.1-10. iDEN 800 MHz Band, Quad-64QAM, Minimum Power, Emission Mask G

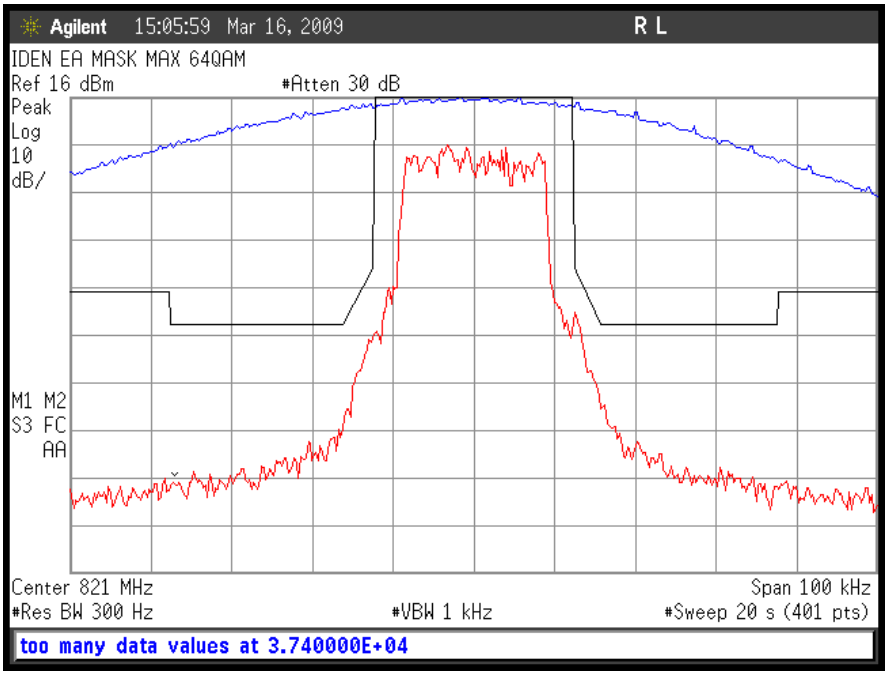


Figure 6a.2.1-11. iDEN 800 MHz Band, Quad-64QAM, Maximum Power, EA Emission Mask

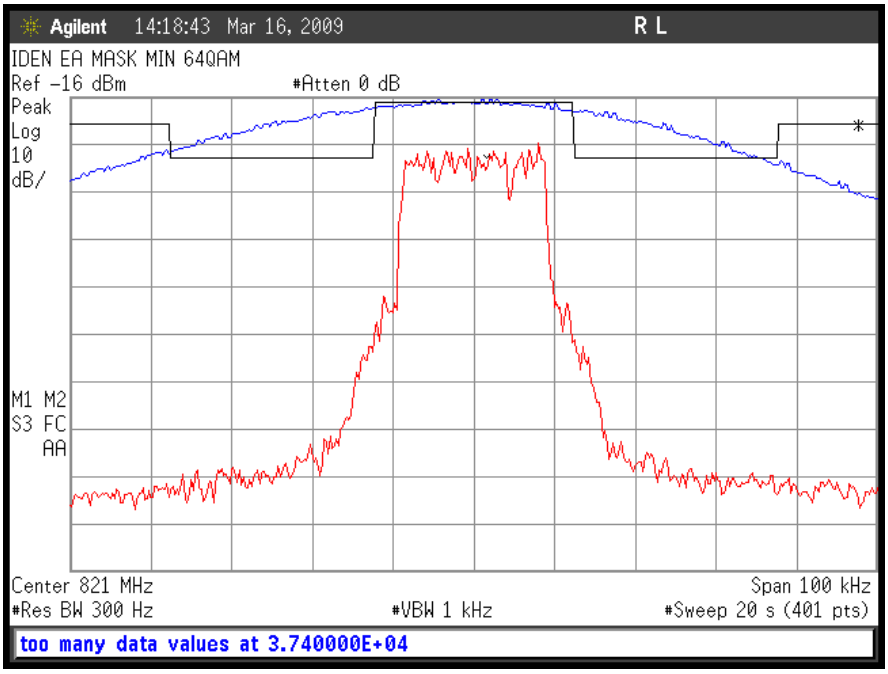


Figure 6a.2.1-12. iDEN 800 MHz Band, Quad-64QAM, Minimum Power, EA Emission Mask

6a.2.2. Emission Designator 18K3D7W - iDEN 900 MHz Band Measured Data

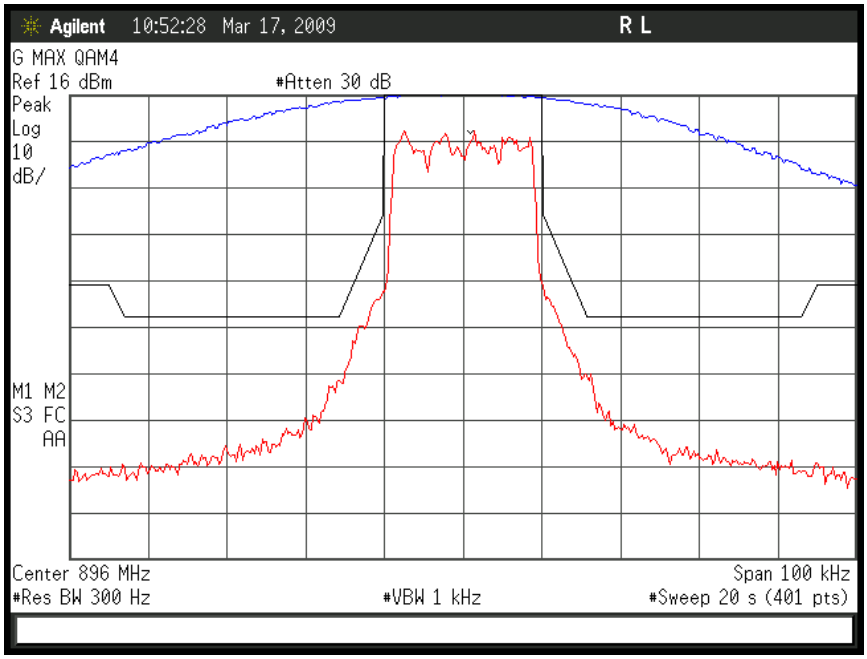


Figure 6a.2.2-1. iDEN 900 MHz Band, Quad-QPSK, Maximum Power, Emission Mask G

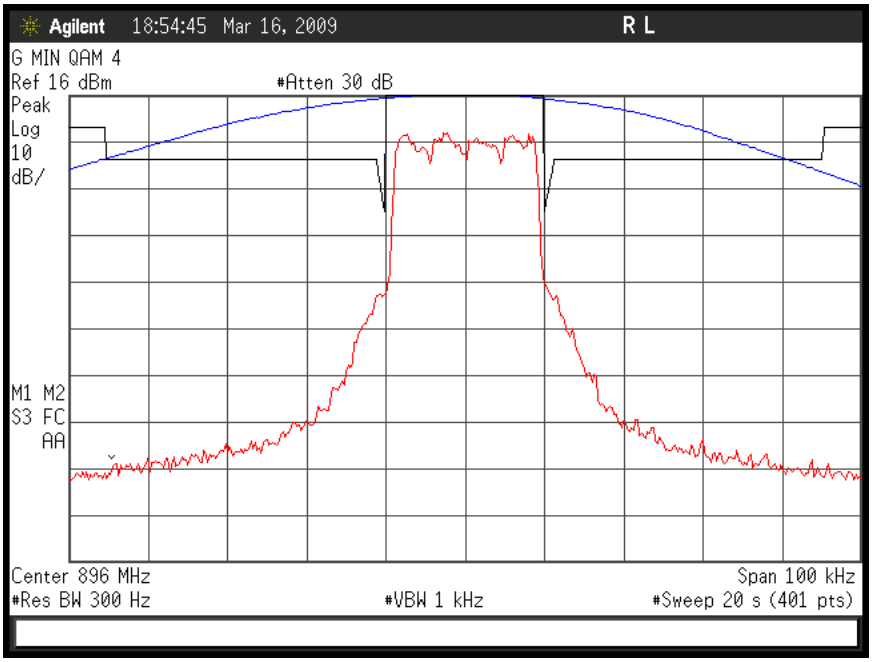


Figure 6a.2.2-2. iDEN 900 MHz Band, Quad-QPSK, Minimum Power, Emission Mask G

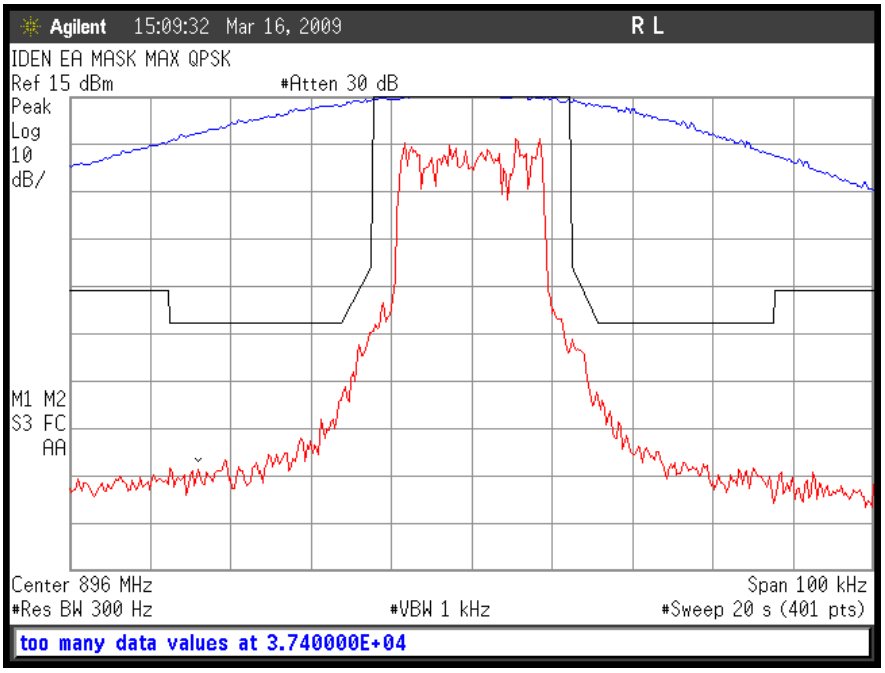


Figure 6a.2.2-3. iDEN 900 MHz Band, Quad-QPSK, Maximum Power, EA Emission Mask

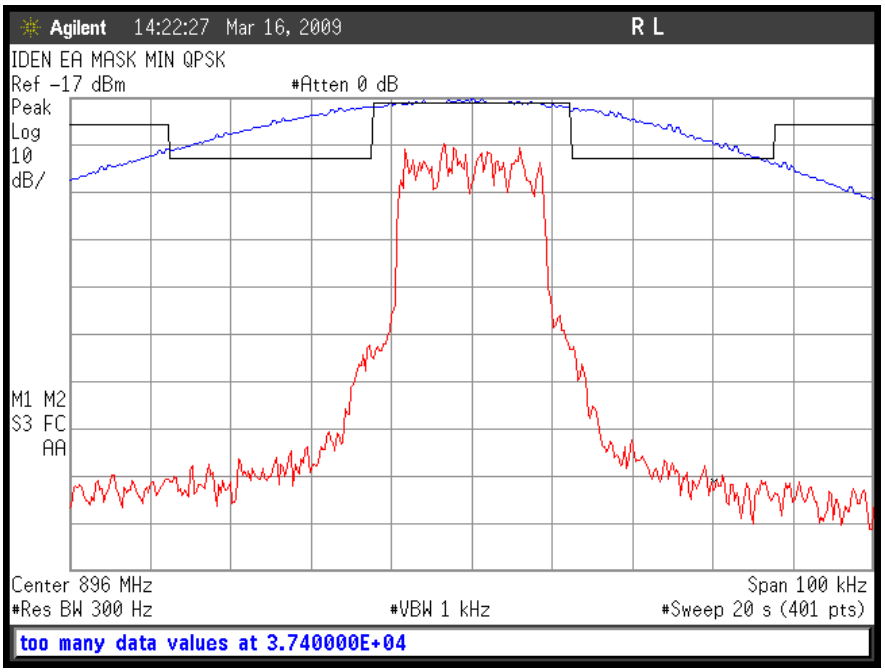


Figure 6a.2.2-4. iDEN 900 MHz Band, Quad-QPSK, Minimum Power, EA Emission Mask

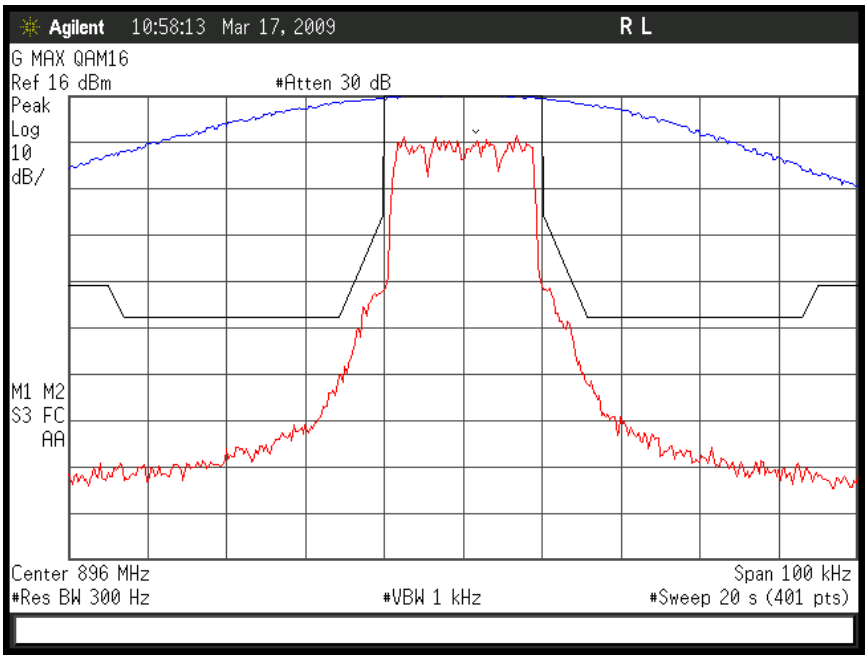


Figure 6a.2.2-5. iDEN 900 MHz Band, Quad-16QAM, Maximum Power, Emission Mask G

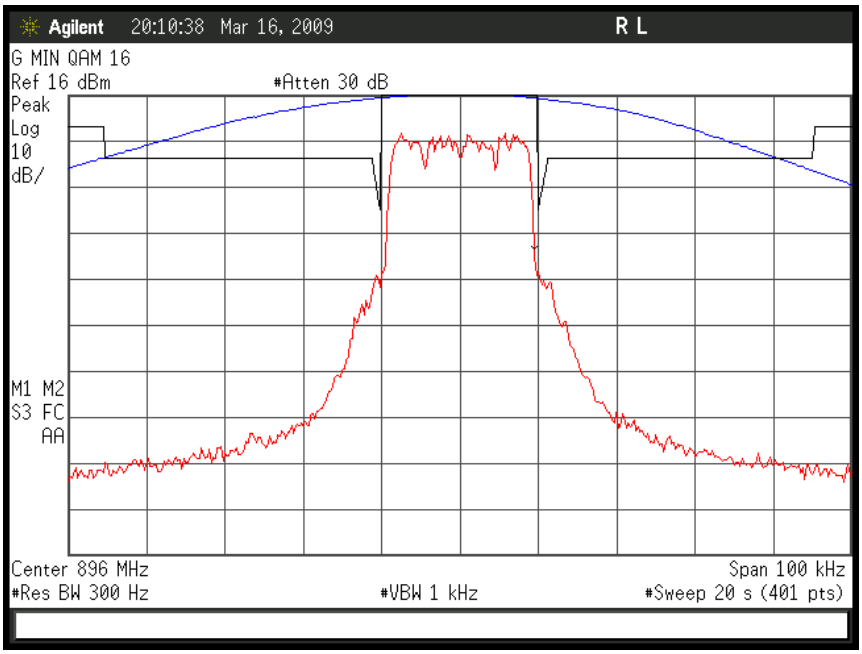


Figure 6a.2.2-6. iDEN 900 MHz Band, Quad-16QAM, Minimum Power, Emission Mask G

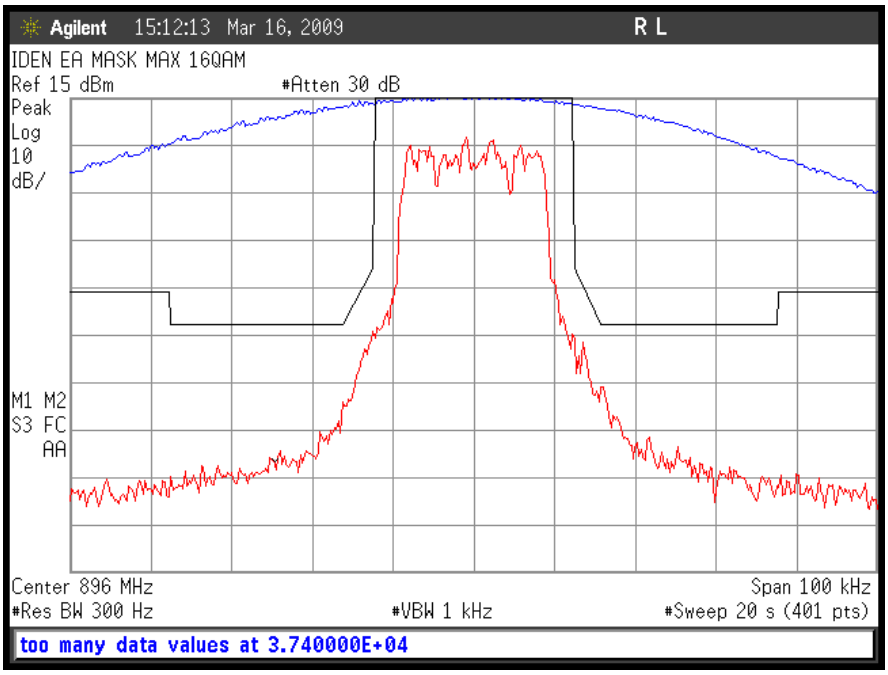


Figure 6a.2.2-7. iDEN 900 MHz Band, Quad-16QAM, Maximum Power, EA Emission Mask

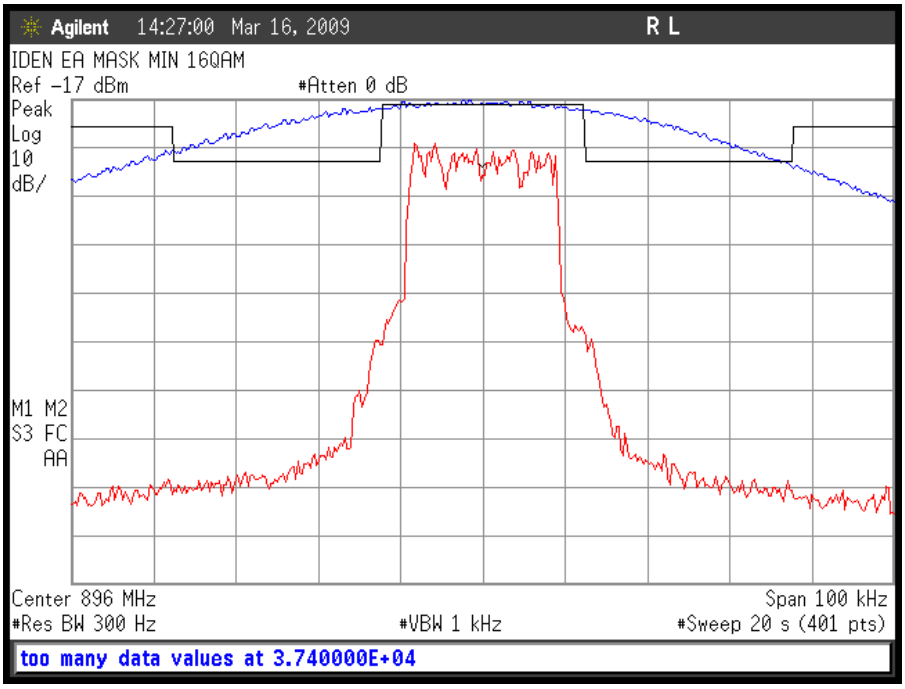


Figure 6a.2.2-8. iDEN 900 MHz Band, Quad-16QAM, Minimum Power, EA Emission Mask

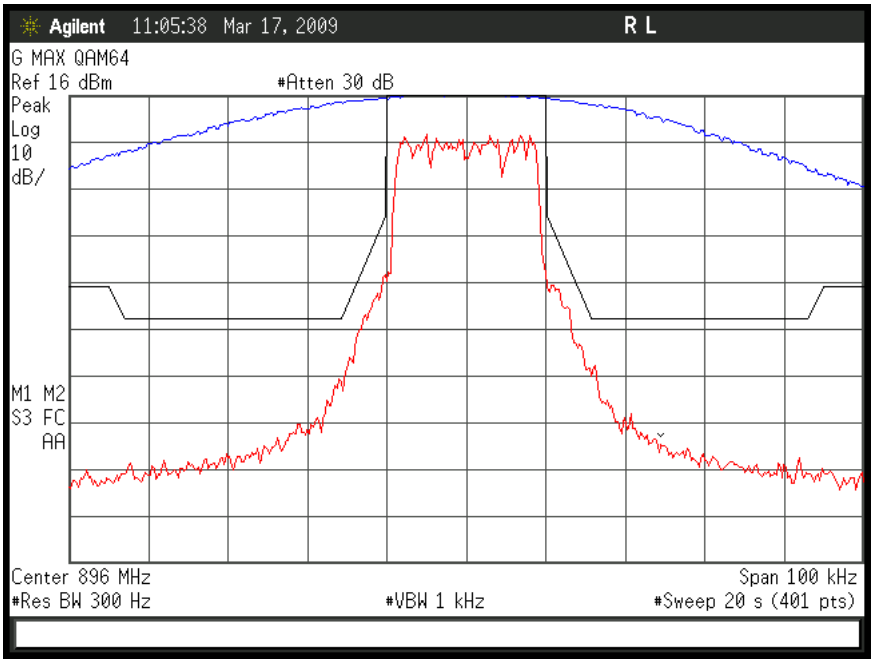


Figure 6a.2.2-9. iDEN 900 MHz Band, Quad-64QAM, Maximum Power, Emission Mask G

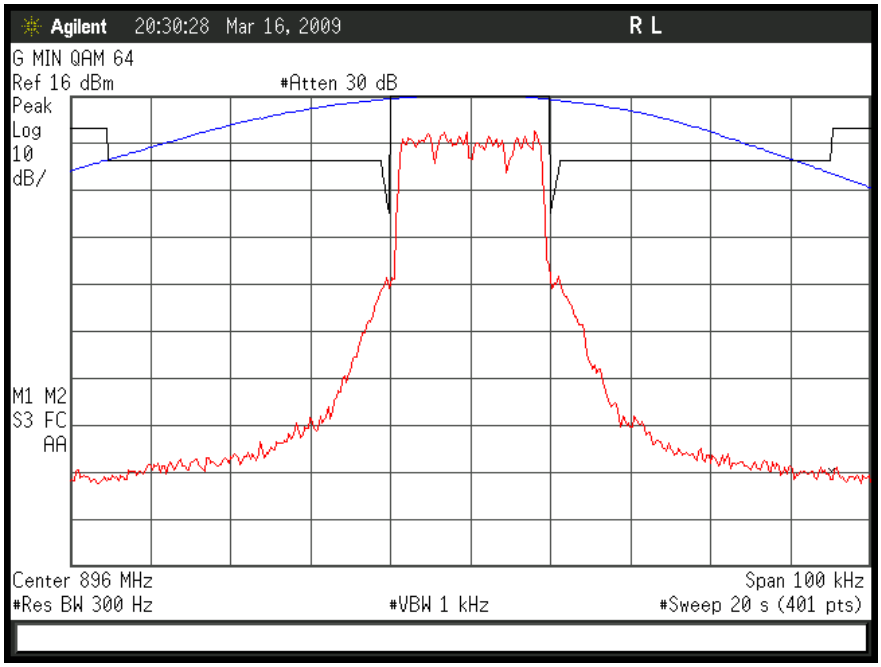


Figure 6a.2.2-10. iDEN 900 MHz Band, Quad-64QAM, Minimum Power, Emission Mask G

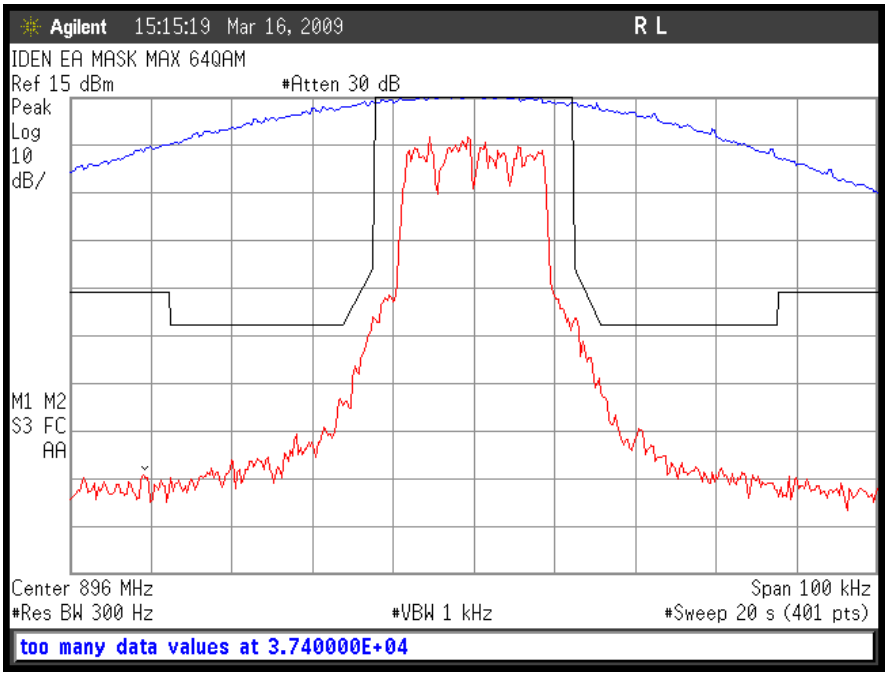


Figure 6a.2.2-11. iDEN 900 MHz Band, Quad-64QAM, Maximum Power, EA Emission Mask

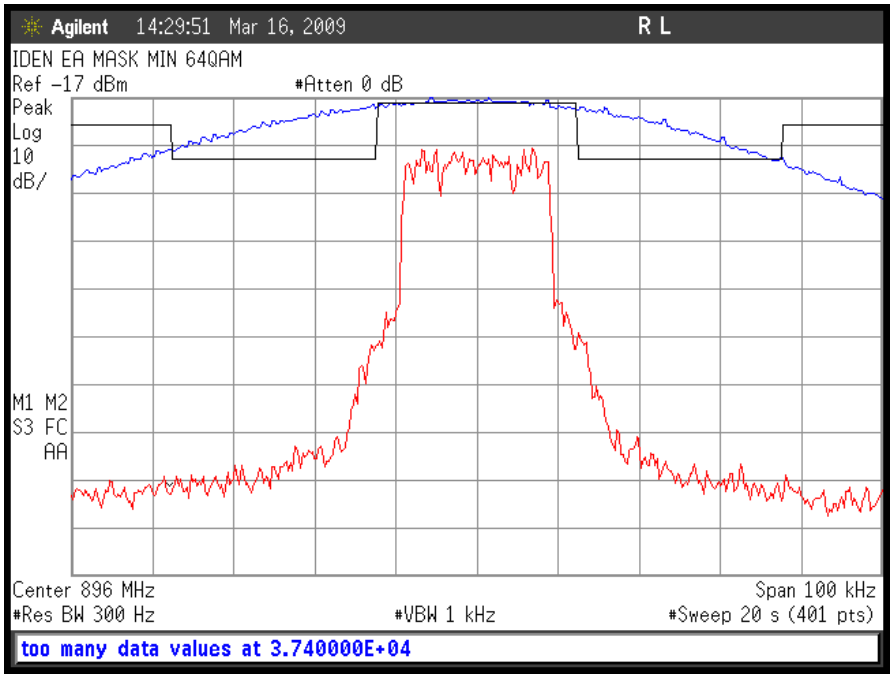


Figure 6a.2.2-12. iDEN 900 MHz Band, Quad-64QAM, Minimum Power, EA Emission Mask

6b.2. Modulation Characteristics and Necessary Bandwidth -- Pursuant 47 CFR 2.1033(c)(13), §2.1047(d), §2.1049, §2.202, §24.131, and §24.133(a)(1); RSS-Gen Section 3, RSS-134 Section 6.3.

6b.2.1 Emission Designator 18K3D7W - NBPCS iDEN Measured data

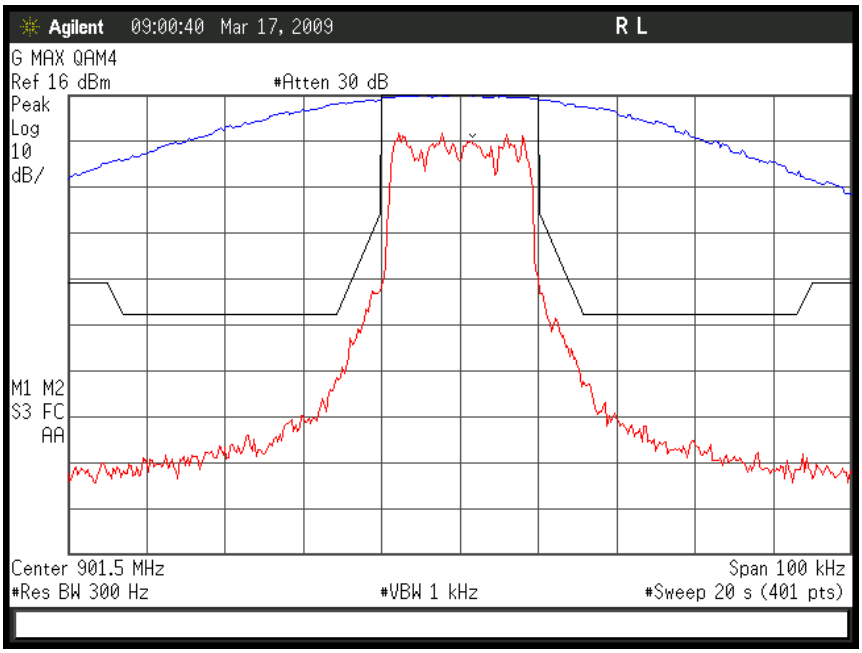


Figure 6b.2.1-1 iDEN NBPCS Band, Occupied Bandwidth, Quad-QPSK, Maximum Power.

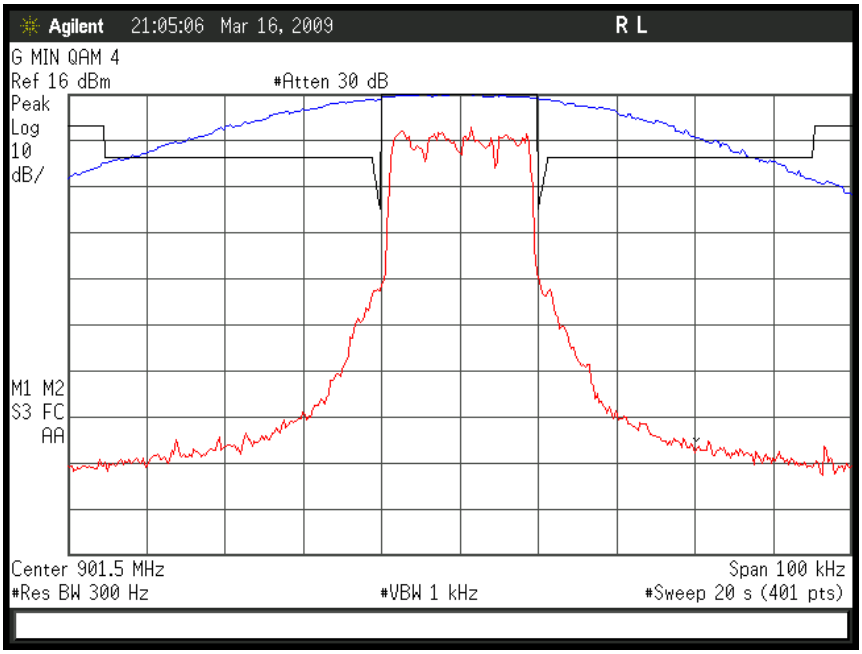


Figure 6b.2.1-2. iDEN NBPCS Band, Occupied Bandwidth, Quad-QPSK, Minimum Power

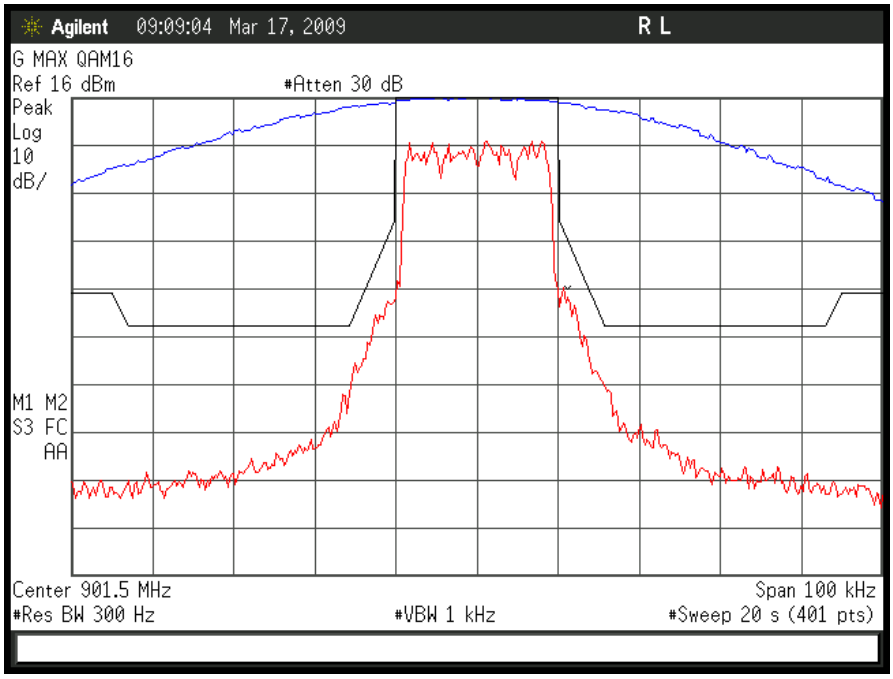


Figure 6b.2.1-3 iDEN NBPCS Band, Occupied Bandwidth, Quad-16QAM, Maximum Power.

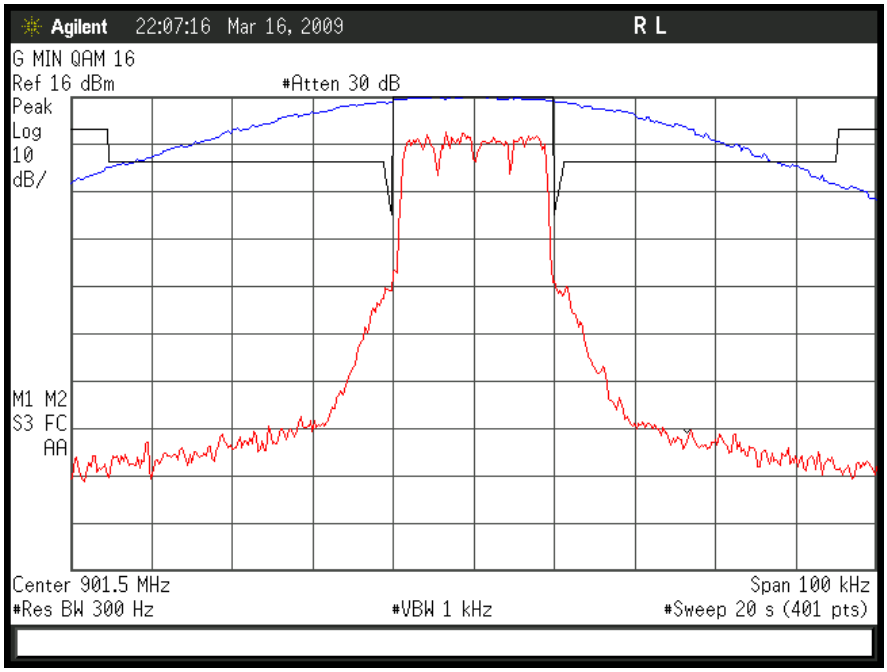


Figure 6b.2.1-4. iDEN NBPCS Band, Occupied Bandwidth, Quad-16QAM, Minimum Power

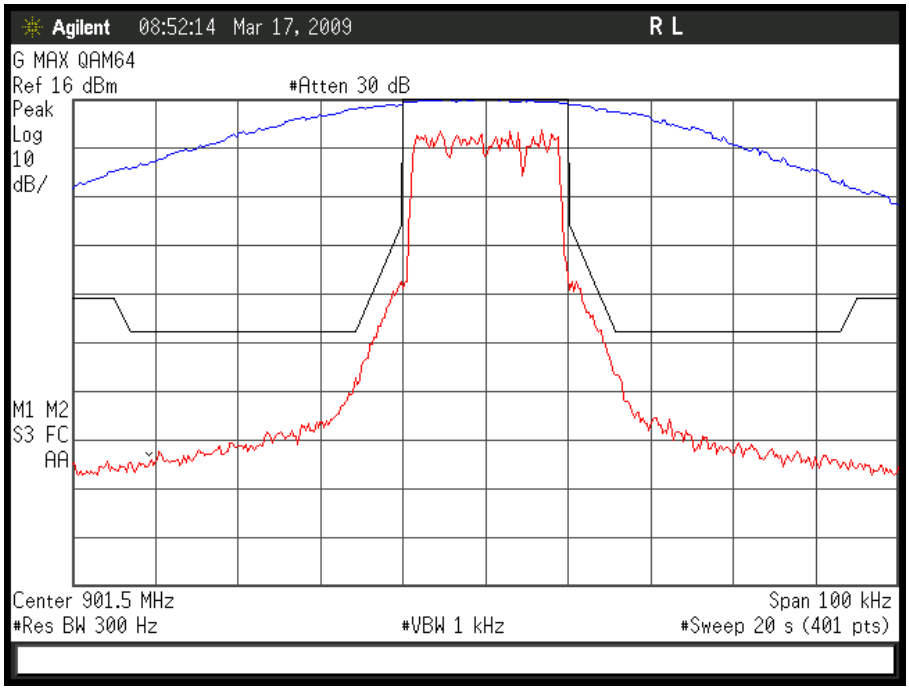


Figure 6b.2.1-5 iDEN NBPCS Band, Occupied Bandwidth, Quad-64QAM, Maximum Power.

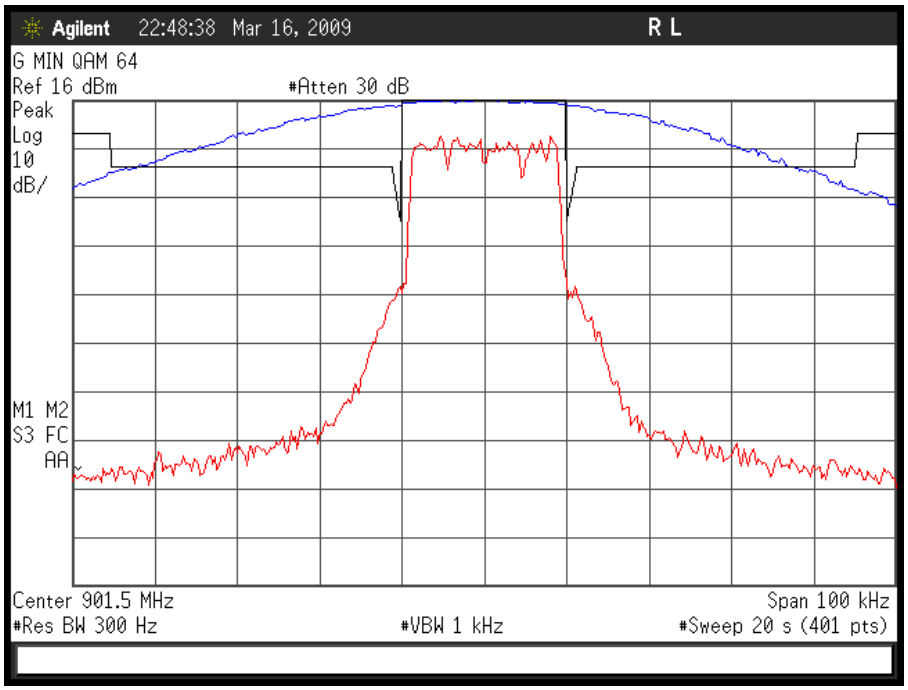


Figure 6b.2.1-6. iDEN NBPCS Band, Occupied Bandwidth, Quad-64QAM, Minimum Power

6a.3 Radiated Spurious Emissions -- Pursuant 47 CFR 2.1053, §2.1057, §90.210(g)(3), §90.691(a)(2); §90.699(a); RSS-Gen Section 3, RSS-119 Section 5.8, RSS-134 Section 6.4.

6a.3.1 800-900 MHz SRM Bands.

FCC Limits

Per 90.210(g)(3) and 90.691(a)(2), radiated spurious emissions shall be attenuated below the maximum level of emission of the carrier frequency in accordance with the following formula:

- 43 + 10 log10 (P)
  (Thus the effective limit is -*13 dBm* for any transmitter power level).

NOTE 1: Spurious emissions are dependent on the linearity of the Power Amplifier and are independent of modulation type or TDM interleaving. Thus emissions were tested with the radio set to Quad-16QAM at both maximum and minimum radio output power settings.

NOTE 2: An asterisk (*) in the data indicates the spurious emission was greater than 20 dB below the specification limit, or could not otherwise be detected due to noise limitations or ambient signal levels.

NOTE 3: Spurious emission levels were measured with the non-detachable antenna mounted on the radio product, as in intended use. Measurement setup is described in Exhibit 7.3.

NOTE 4: Spurious emissions are dependent on the linearity of the Power Amplifier (U500) and are independent of modulation type or TDM interleaving. Thus, for the Land Mobile Band, emissions were tested with the radio set to Quad-16QAM.

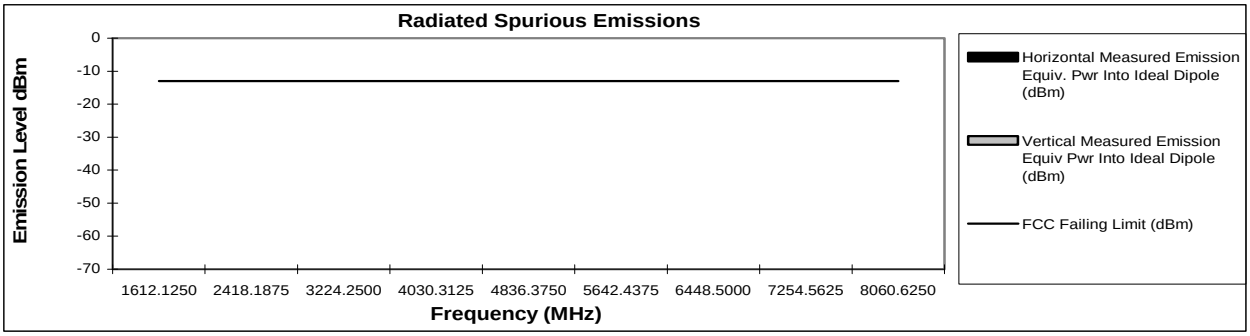
NOTE 5: Emissions resulting from intermodulation products possible due to the simultaneous operation of the Part 90 SMR and Bluetooth transmitters were investigated and those of significance are shown in the graphs below. All were compliant with the applicable Part 90 emissions requirements.

Transmit Radiated Spurious Emissions: i856 @ 10 Meters

Tx Power: 0.64 Watts

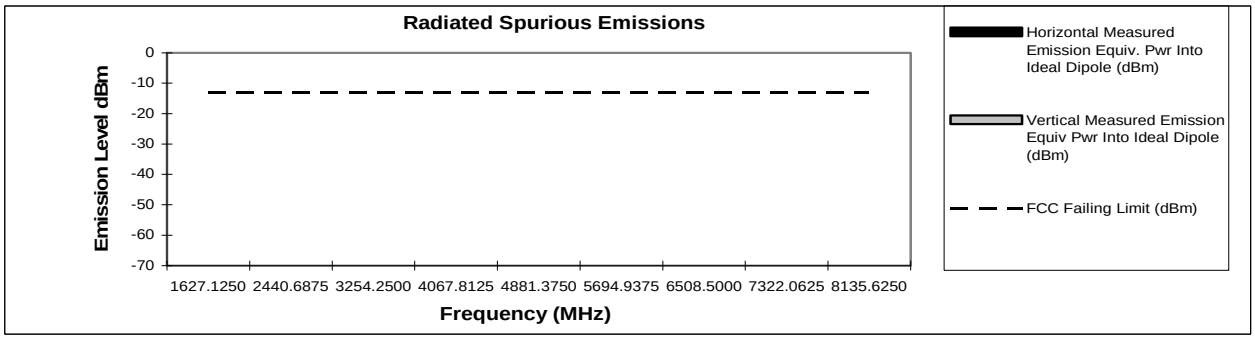
806.0625 MHz **Channel Spacing 25kHz | S/N 364VKF7VWZ**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1612.1250	-13	*	*
2418.1875	-13	*	*
3224.2500	-13	*	*
4030.3125	-13	*	*
4836.3750	-13	*	*
5642.4375	-13	*	*
6448.5000	-13	*	*
7254.5625	-13	*	*
8060.6250	-13	*	*



813.5625 MHz **Channel Spacing 25kHz | S/N 364VKF7VWZ**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1627.1250	-13	*	*
2440.6875	-13	*	*
3254.2500	-13	*	*
4067.8125	-13	*	*
4881.3750	-13	*	*
5694.9375	-13	*	*
6508.5000	-13	*	*
7322.0625	-13	*	*
8135.6250	-13	*	*



* Indicates the spurious emission could not be detected due to noise limitations or ambients.

The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

Motorola Plantation EMC Lab – Test Performed by: Curt Mc Lennan **May 2, 2009**
FCC Registration: 91932 / Industry Canada: IC109U-1

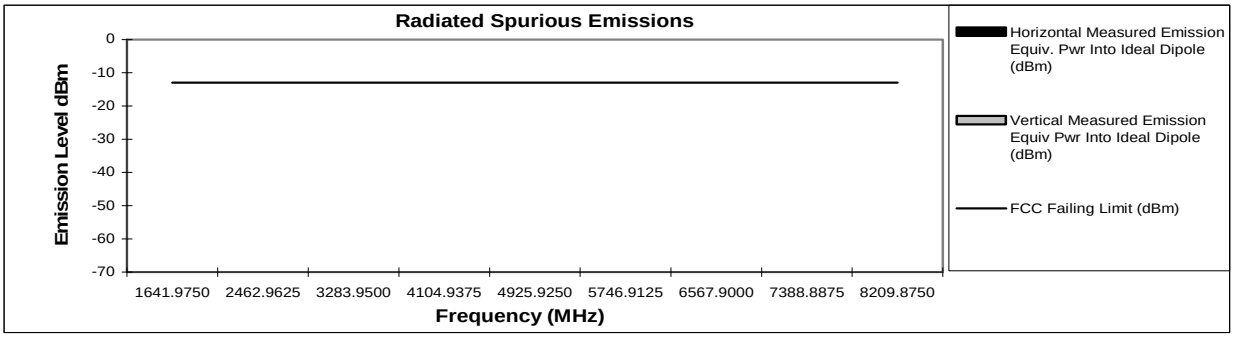
Table 6a.3.1-1. Spurious emissions at 806.0625 MHz and 813.5625 MHz (Maximum Power).

Transmit Radiated Spurious Emissions: i856 @ 10 Meters

Tx Power: 0.64 Watts

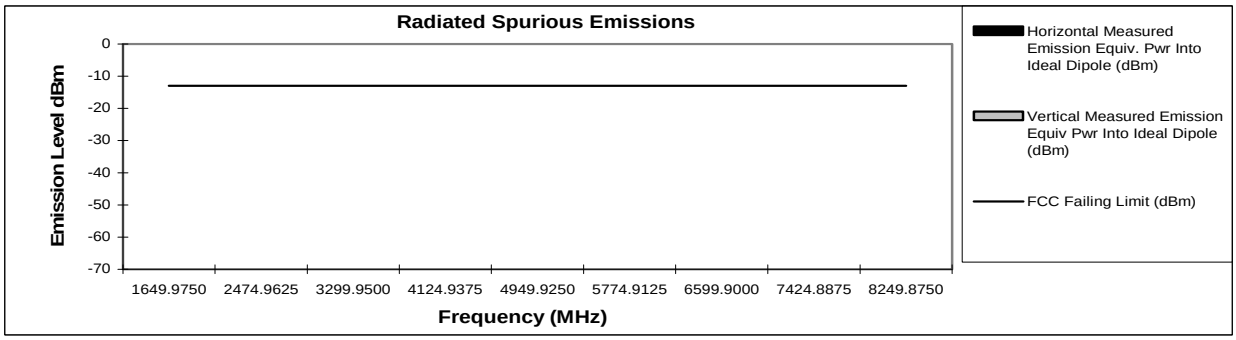
820.9875 MHz **Channel Spacing 25kHz | S/N 364VKF7VWZ**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1641.9750	-13	*	*
2462.9625	-13	*	*
3283.9500	-13	*	*
4104.9375	-13	*	*
4925.9250	-13	*	*
5746.9125	-13	*	*
6567.9000	-13	*	*
7388.8875	-13	*	*
8209.8750	-13	*	*



824.9875 MHz **Channel Spacing 25kHz | S/N 364VKF7VWZ**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1649.9750	-13	*	*
2474.9625	-13	*	*
3299.9500	-13	*	*
4124.9375	-13	*	*
4949.9250	-13	*	*
5774.9125	-13	*	*
6599.9000	-13	*	*
7424.8875	-13	*	*
8249.8750	-13	*	*



* Indicates the spurious emission could not be detected due to noise limitations or ambients.

The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

Motorola Plantation EMC Lab – Test Performed by: Curt Mc Lennan **May 2, 2009**

FCC Registration: 91932 / Industry Canada: IC109U-1

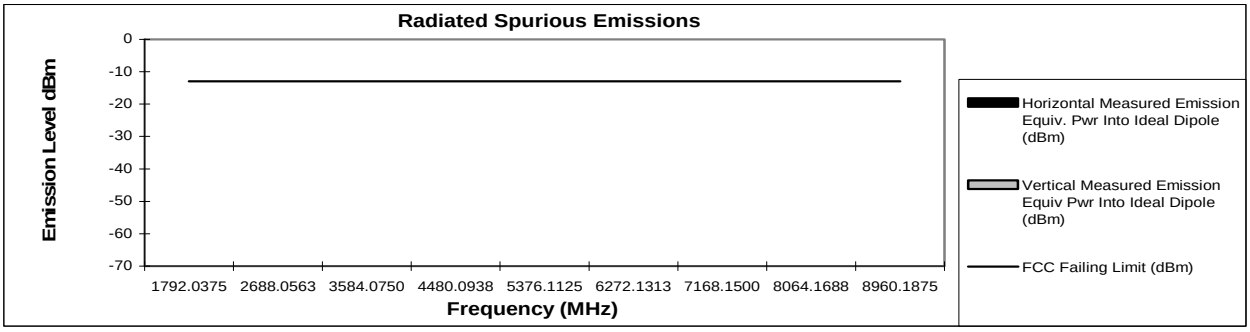
Table 6a.3.1-2. Spurious emissions at 820.9875 and 824.9875 MHz (Maximum Power).

Transmit Radiated Spurious Emissions: i856 @ 10 Meters

Tx Power: 0.64 Watts

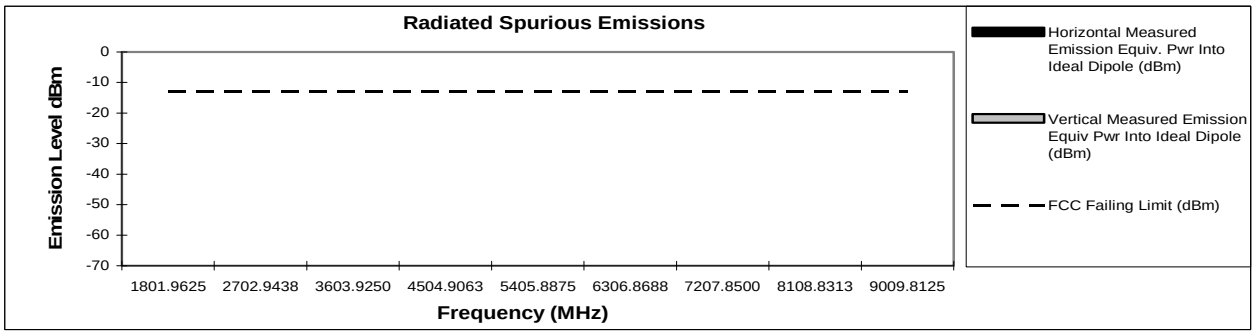
896.01875 MHz **Channel Spacing 25kHz | S/N 364VKF7VWZ**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1792.0375	-13	*	*
2688.0563	-13	*	*
3584.0750	-13	*	*
4480.0938	-13	*	*
5376.1125	-13	*	*
6272.1313	-13	*	*
7168.1500	-13	*	*
8064.1688	-13	*	*
8960.1875	-13	*	*



900.98125 MHz **Channel Spacing 25kHz | S/N 364VKF7VWZ**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1801.9625	-13	*	*
2702.9438	-13	*	*
3603.9250	-13	*	*
4504.9063	-13	*	*
5405.8875	-13	*	*
6306.8688	-13	*	*
7207.8500	-13	*	*
8108.8313	-13	*	*
9009.8125	-13	*	*



* Indicates the spurious emission could not be detected due to noise limitations or ambients.

The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

Motorola Plantation EMC Lab – Test Performed by: Frank Baader **May 4, 2009**
FCC Registration: 91932 / Industry Canada: IC109U-1

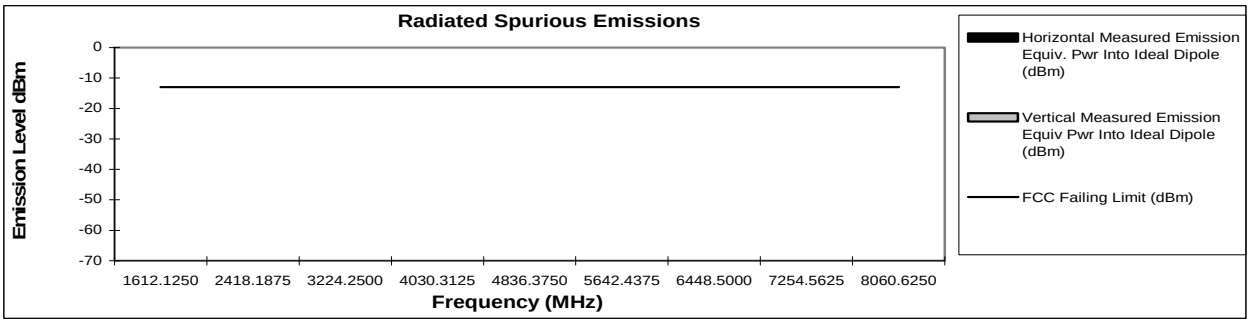
Table 6a.3.1-3. Spurious emissions at 896.01875 and 900.98125 MHz (Maximum Power).

Transmit Radiated Spurious Emissions: i856 @ 10 Meters

Tx Power: 34dB Cutback Mode Watts

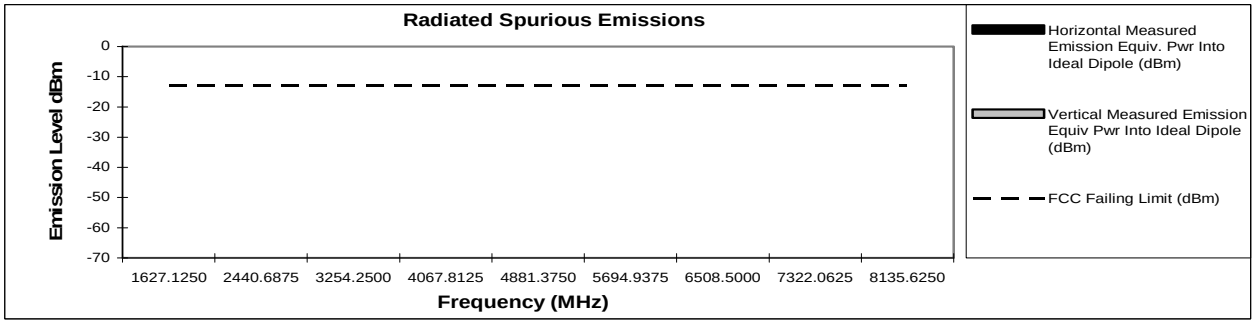
806.0625 MHz **Channel Spacing 25kHz | S/N 364VKF7VWZ**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1612.1250	-13	*	*
2418.1875	-13	*	*
3224.2500	-13	*	*
4030.3125	-13	*	*
4836.3750	-13	*	*
5642.4375	-13	*	*
6448.5000	-13	*	*
7254.5625	-13	*	*
8060.6250	-13	*	*



813.5625 MHz **Channel Spacing 25kHz | S/N 364VKF7VWZ**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1627.1250	-13	*	*
2440.6875	-13	*	*
3254.2500	-13	*	*
4067.8125	-13	*	*
4881.3750	-13	*	*
5694.9375	-13	*	*
6508.5000	-13	*	*
7322.0625	-13	*	*
8135.6250	-13	*	*



* Indicates the spurious emission could not be detected due to noise limitations or ambients.

The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

Motorola Plantation EMC Lab – Test Performed by: Curt Mc Lennan **May 4, 2009**
FCC Registration: 91932 / Industry Canada: IC109U-1

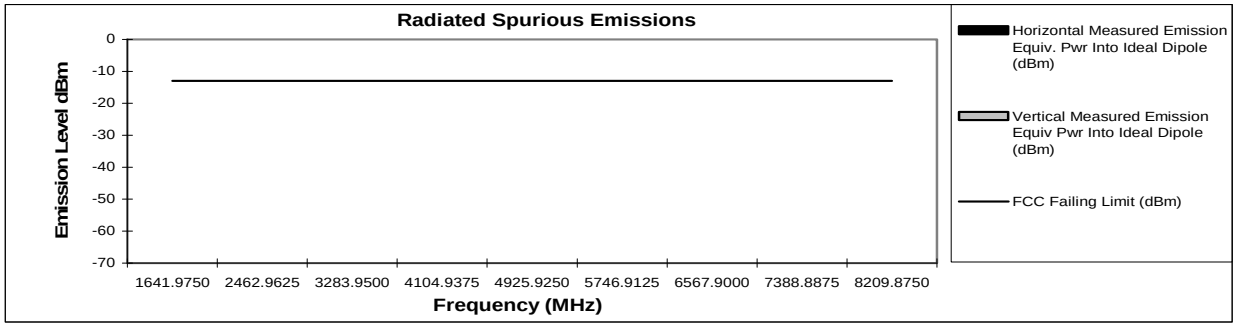
Table 6a.3.1-4. Spurious emissions at 806.0625 MHz and 813.5625 MHz (-34 dB Cutback Power).

Transmit Radiated Spurious Emissions: i856 @ 10 Meters

Tx Power: 34dB Cutback Mode Watts

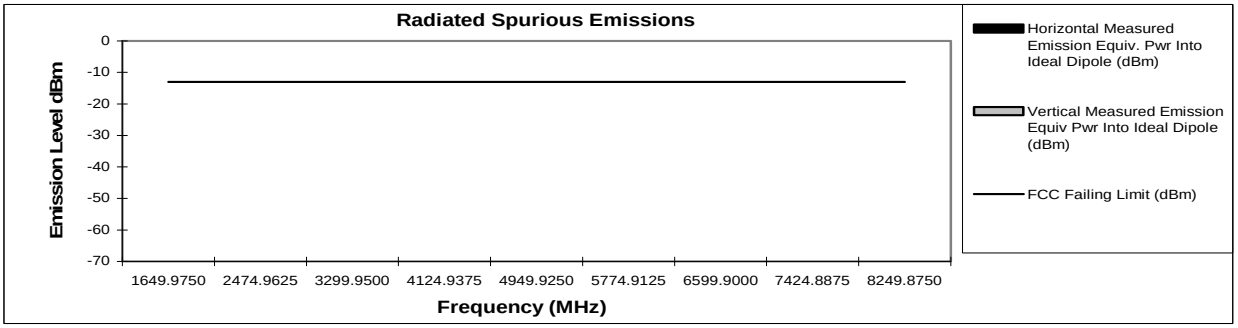
820.9875 MHz **Channel Spacing 25kHz | S/N 364VKF7VWZ**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1641.9750	-13	*	*
2462.9625	-13	*	*
3283.9500	-13	*	*
4104.9375	-13	*	*
4925.9250	-13	*	*
5746.9125	-13	*	*
6567.9000	-13	*	*
7388.8875	-13	*	*
8209.8750	-13	*	*



824.9875 MHz **Channel Spacing 25kHz | S/N 364VKF7VWZ**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1649.9750	-13	*	*
2474.9625	-13	*	*
3299.9500	-13	*	*
4124.9375	-13	*	*
4949.9250	-13	*	*
5774.9125	-13	*	*
6599.9000	-13	*	*
7424.8875	-13	*	*
8249.8750	-13	*	*



* Indicates the spurious emission could not be detected due to noise limitations or ambients.

The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

Motorola Plantation EMC Lab – Test Performed by: Curt Mc Lennan **May 4, 2009**
FCC Registration: 91932 / Industry Canada: IC109U-1

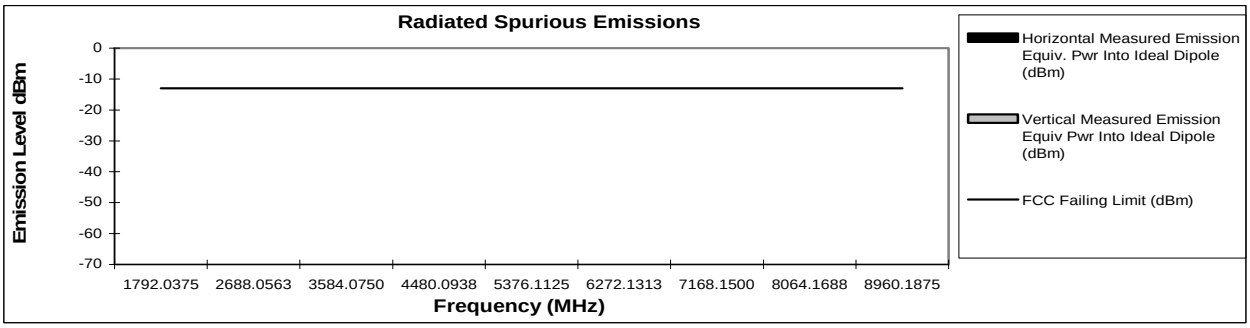
Table 6a.3.1-5. Spurious emissions at 820.9875 and 824.9875 MHz (- 34 dB Cutback Power).

Transmit Radiated Spurious Emissions: i856 @ 10 Meters

Tx Power: 34dB Cutback Mode Watts

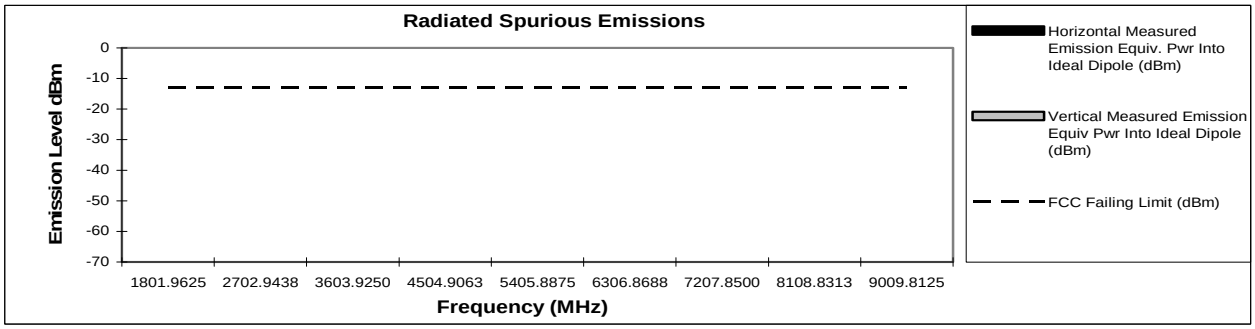
896.01875 MHz **Channel Spacing 25kHz | S/N 364VKF7VWZ**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1792.0375	-13	*	*
2688.0563	-13	*	*
3584.0750	-13	*	*
4480.0938	-13	*	*
5376.1125	-13	*	*
6272.1313	-13	*	*
7168.1500	-13	*	*
8064.1688	-13	*	*
8960.1875	-13	*	*



900.98125 MHz **Channel Spacing 25kHz | S/N 364VKF7VWZ**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1801.9625	-13	*	*
2702.9438	-13	*	*
3603.9250	-13	*	*
4504.9063	-13	*	*
5405.8875	-13	*	*
6306.8688	-13	*	*
7207.8500	-13	*	*
8108.8313	-13	*	*
9009.8125	-13	*	*



* Indicates the spurious emission could not be detected due to noise limitations or ambients.

The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

Motorola Plantation EMC Lab – Test Performed by: Curt Mc Lennan **May 4, 2009**
FCC Registration: 91932 / Industry Canada: IC109U-1

Table 6a.3.1-6. Spurious emissions at 896.01875 and 900.98125 MHz (- 34 dB Cutback Power).

6b.3 Radiated Spurious Emissions -- Pursuant 47 CFR 2.1053, §2.1057, and §24.133(a)(1)(ii)

6b3.1 900 MHz NBPCS Band.

FCC Limits

Per 47 CFR 24.133(a)(1), radiated spurious emissions shall be attenuated below the *lesser* of the attenuations given below:

- $43 + 10 \log_{10} (P)$ (in dBm).
- 80 dB

For this product, the applicable attenuation limit is *-13 dBm.*

NOTE 1: Spurious emissions are dependent on the linearity of the Power Amplifier and are independent of modulation type or TDM interleaving. Thus emissions were tested with the radio set to Quad-16QAM at both maximum and minimum radio output power settings.

NOTE 2: An asterisk (*) in the data indicates the spurious emission was greater than 20 dB below the specification limit, or could not otherwise be detected due to noise limitations or ambient signal levels.

NOTE 3: Spurious emission levels were measured with the non-detachable antenna mounted on the radio product, as in intended use. Measurement setup is described in Exhibit 7.3.

NOTE 4: Spurious emissions are dependent on the linearity of the Power Amplifier (U500) and are independent of modulation type or TDM interleaving. Thus, for the Land Mobile Band, emissions were tested with the radio set to Quad-16QAM.

NOTE 5: Emissions resulting from intermodulation products possible due to the simultaneous operation of the Part 24 NBPCS band and Bluetooth transmitters were investigated and those of significance are shown in the graphs below. All were compliant with the applicable Part 24 emissions requirements.

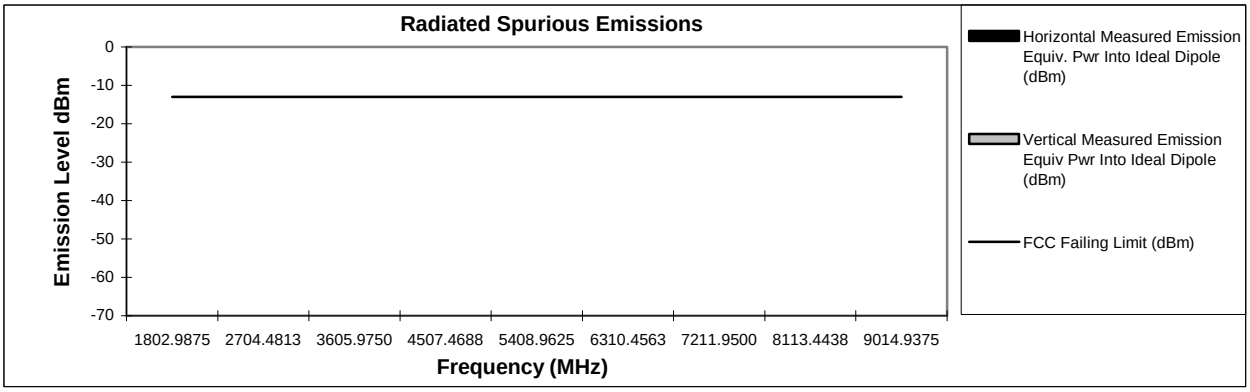
Motorola Inc. **FCC ID:IHDT56KC1**

Transmit Radiated Spurious Emissions: i856 @ 10 Meters

Tx Power: 0.64 Watts

901.49375 MHz **Channel Spacing 25kHz | S/N 364VKF7VWZ**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1802.9875	-13	*	*
2704.4813	-13	*	*
3605.9750	-13	*	*
4507.4688	-13	*	*
5408.9625	-13	*	*
6310.4563	-13	*	*
7211.9500	-13	*	*
8113.4438	-13	*	*
9014.9375	-13	*	*



* Indicates the spurious emission could not be detected due to noise limitations or ambients.

The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

Motorola Plantation EMC Lab – Test Performed by: Frank Baader **May 4, 2009**
FCC Registration: 91932 / Industry Canada: IC109U-1

Table 6b3.1-1. Spurious emissions at 900.49375 MHz (Maximum Power).

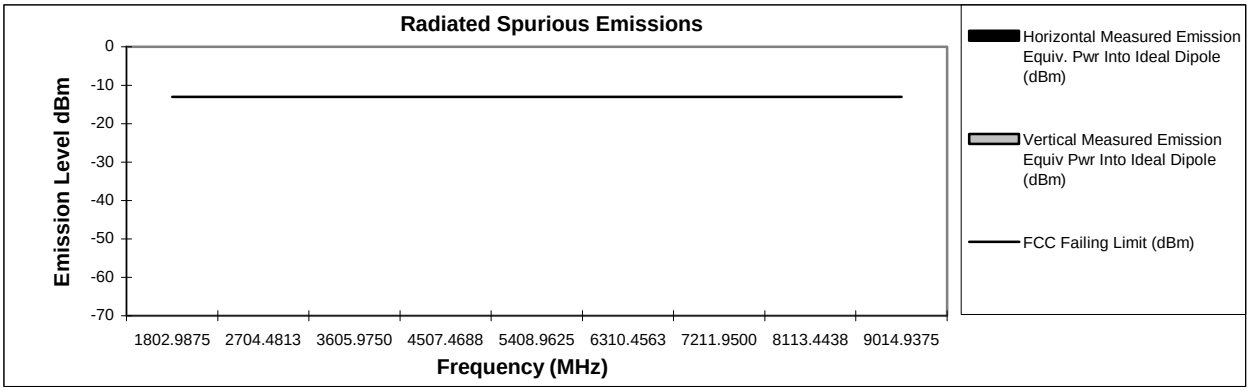
Motorola Inc. **FCC ID:IHDT56KC1**

Transmit Radiated Spurious Emissions: i856 @ 10 Meters

Tx Power: 34dB Cutback Mode Watts

901.49375 MHz **Channel Spacing 25kHz | S/N 364VKF7VWZ**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1802.9875	-13	*	*
2704.4813	-13	*	*
3605.9750	-13	*	*
4507.4688	-13	*	*
5408.9625	-13	*	*
6310.4563	-13	*	*
7211.9500	-13	*	*
8113.4438	-13	*	*
9014.9375	-13	*	*



* Indicates the spurious emission could not be detected due to noise limitations or ambients.

The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

Motorola Plantation EMC Lab – Test Performed by: Curt Mc Lennan **May 4, 2009**
FCC Registration: 91932 / Industry Canada: IC109U-1

Table 6b3.1- 2. Spurious emissions at 900.49375 MHz (-34 dB Cutback Power).

6a.4 Power Line Conducted Spurious Voltage -- Pursuant 47 CFR 15.207; RSS-Gen Section 3.

Conducted voltage limits:

-Per 47 CFR 15.207

This radio product can transmit in 800 and 900 MHz SMR bands while resting in a battery charger that is connected to the AC power line. Each figure contains two measurement traces in addition to the two applicable limit lines (black traces), the higher being applicable to measurements utilizing a quasi-peak detector and the lower being applicable to measurements utilizing an average detector. The upper data trace (light blue) portrays the amplitude of the voltage measured during sweeping with a peak detector while the lower trace (light green) represents the amplitude of the voltage measured using an average detector. These detectors facilitated the measurement process. Measurements with a quasi-peak detector lie between these bounds.

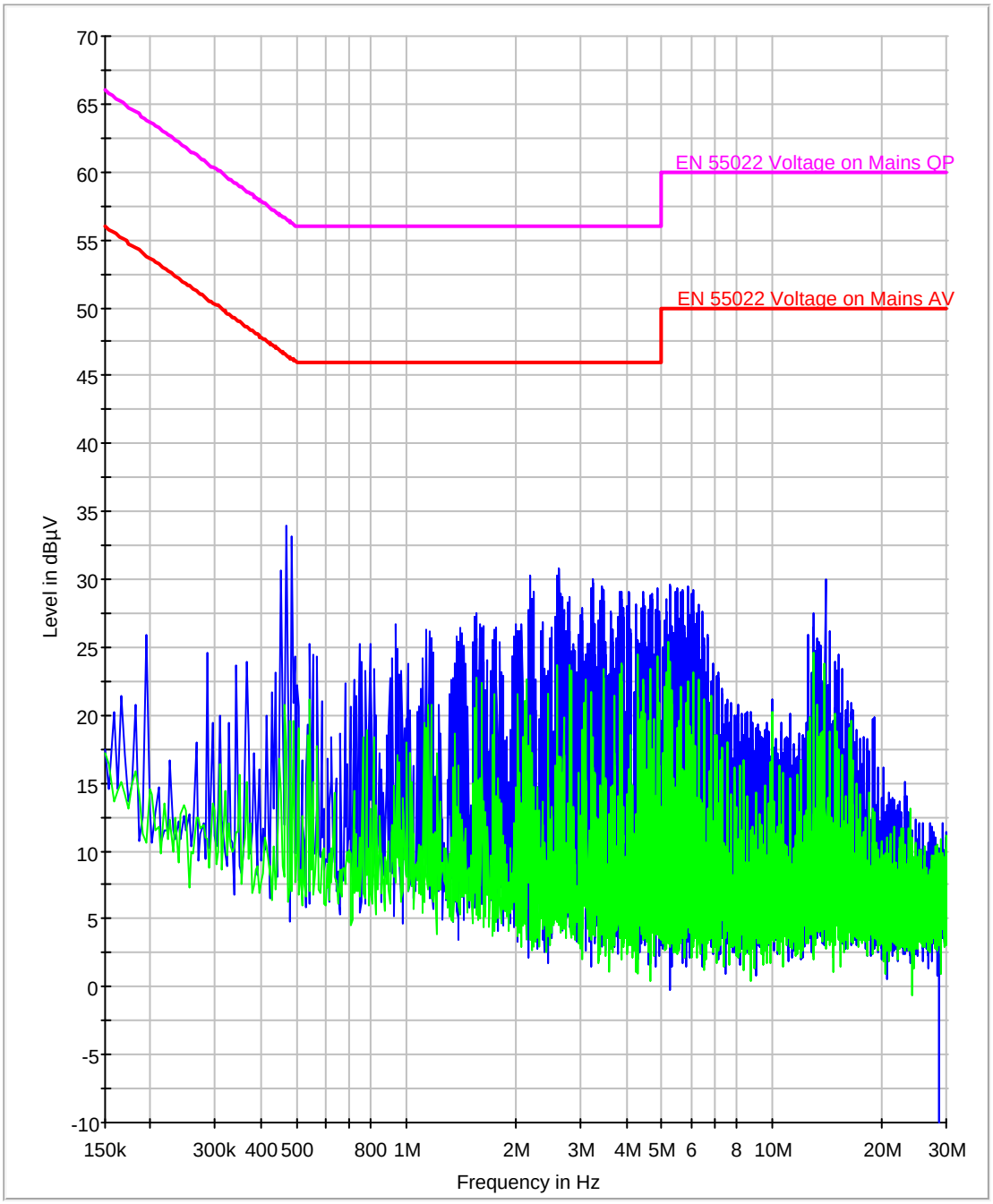


Figure 6a.4-1: iDEN 800 MHz SMR Band Phase Line and Neutral Line Voltage with a Peak and Average Detector N (Green) L1 (Blue)

Frequency							
<= 500kHz	QP value	QP Limit	QP Margin	Avg. Value	Avg. Limit	Avg. Margin	Ph
158000	20.20	65.77	45.57	9.00	55.77	46.77	L1
166000	19.70	65.54	45.84	8.20	55.54	47.34	L1
182000	18.90	65.08	46.18	7.20	55.08	47.88	L1
194000	17.30	64.74	47.44	6.90	54.74	47.84	L1
286000	18.60	62.09	43.49	4.90	52.09	47.19	L1
310000	16.90	61.40	44.50	4.20	51.40	47.20	L1
158000	19.70	65.77	46.07	8.50	55.77	47.27	N
166000	18.80	65.54	46.74	8.40	55.54	47.14	N
182000	17.20	65.08	47.88	7.30	55.08	47.78	N
194000	15.60	64.74	49.14	6.40	54.74	48.34	N
286000	13.30	62.09	48.79	3.80	52.09	48.29	N
310000	11.70	61.40	49.70	3.40	51.40	48.00	N

Table 6a.4-1: Line Voltage Data- Quasi-Peak and Average

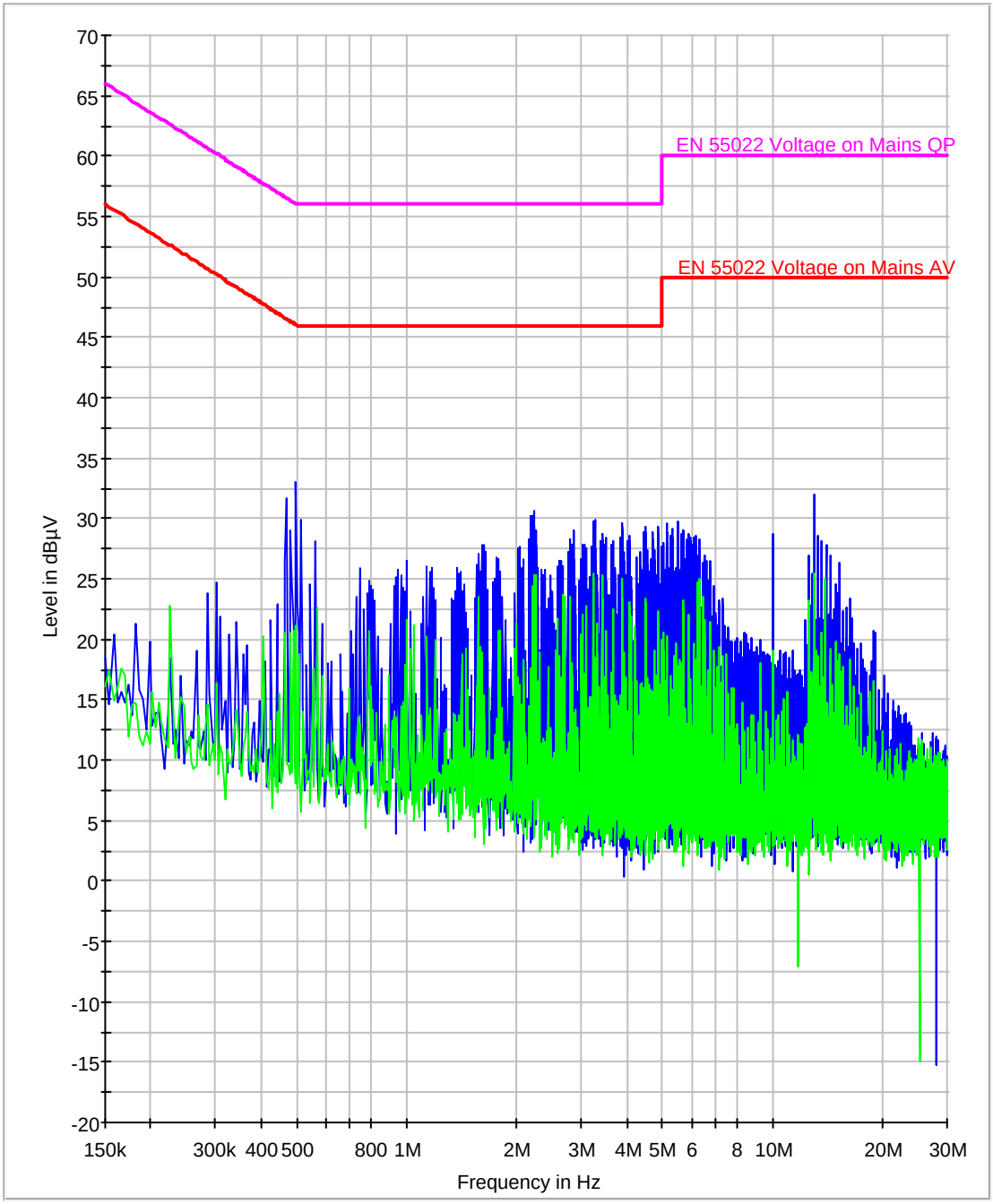


Figure 6a.4-2: iDEN 900 MHz SMR Band Phase Line and Neutral Line Voltage with a Peak and Average Detector N (Green) L1 (Blue)

Frequency							
<= 500kHz	QP value	QP Limit	QP Margin	Avg. Value	Avg. Limit	Avg. Margin	Ph
286000	18.70	62.09	43.39	5.00	52.09	47.09	L1
302000	18.20	61.63	43.43	4.50	51.63	47.13	L1
310000	17.10	61.40	44.30	4.60	51.40	46.80	L1
326000	16.00	60.94	44.94	4.00	50.94	46.94	L1
342000	19.60	60.48	40.88	5.00	50.48	45.48	L1
366000	19.60	59.79	40.19	4.80	49.79	44.99	L1
286000	13.20	62.09	48.89	4.00	52.09	48.09	N
302000	13.10	61.63	48.53	4.10	51.63	47.53	N
310000	12.30	61.40	49.10	3.90	51.40	47.50	N
326000	10.20	60.94	50.74	3.30	50.94	47.64	N
342000	12.10	60.48	48.38	3.30	50.48	47.18	N
366000	12.10	59.79	47.69	3.00	49.79	46.79	N

Table 6a.4-2: Line Voltage Data- Quasi-Peak and Average

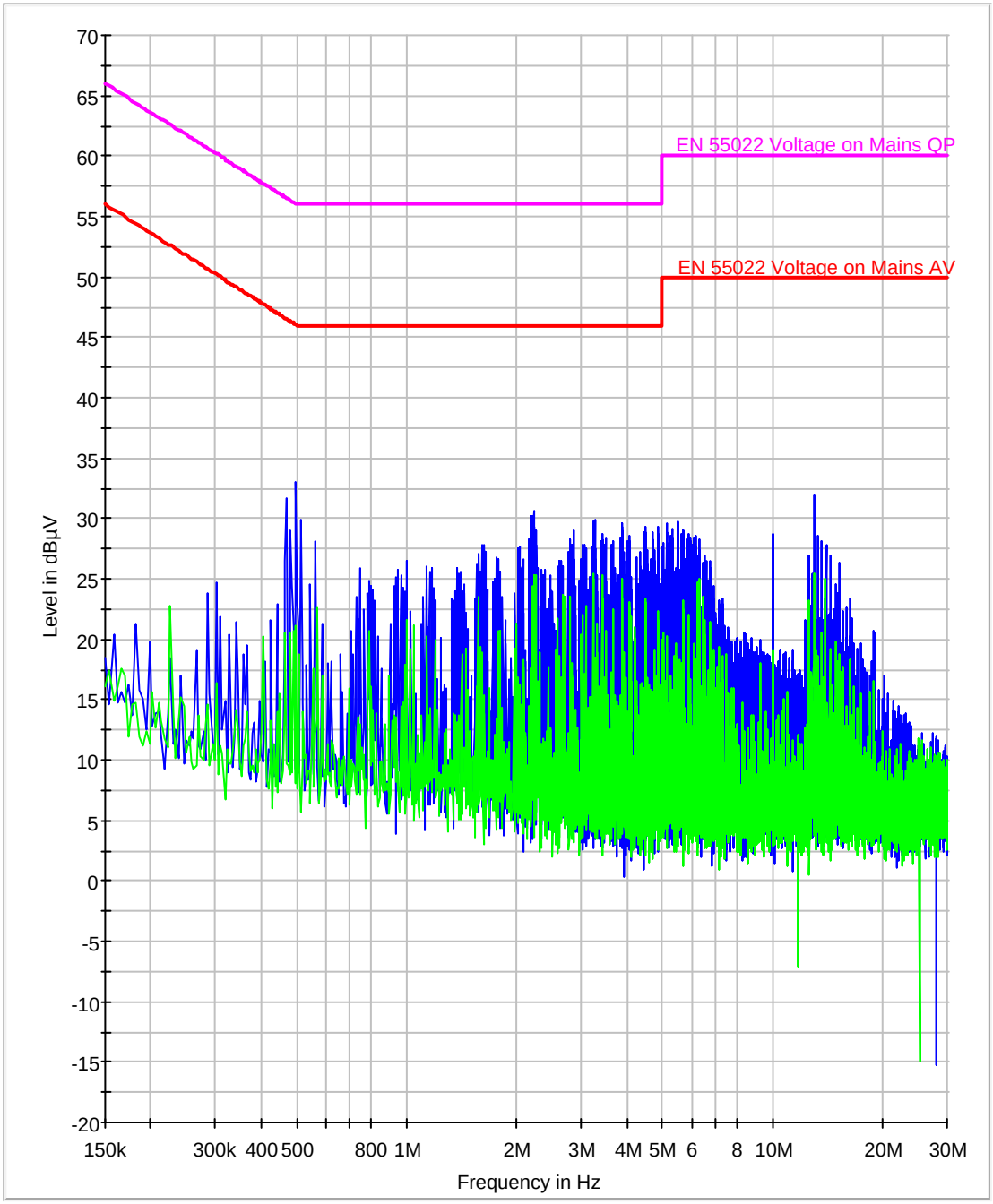


Figure 6a.4-3: iDEN NBPCS Phase Line and Neutral Line Voltage with a Peak and Average Detector N (Green) L1 (Blue)

Frequency							
<= 500kHz	QP value	QP Limit	QP Margin	Avg. Value	Avg. Limit	Avg. Margin	Ph
286000	18.70	62.09	43.39	5.00	52.09	47.09	L1
302000	18.20	61.63	43.43	4.50	51.63	47.13	L1
310000	17.10	61.40	44.30	4.60	51.40	46.80	L1
326000	16.00	60.94	44.94	4.00	50.94	46.94	L1
342000	19.60	60.48	40.88	5.00	50.48	45.48	L1
366000	19.60	59.79	40.19	4.80	49.79	44.99	L1
286000	13.20	62.09	48.89	4.00	52.09	48.09	N
302000	13.10	61.63	48.53	4.10	51.63	47.53	N
310000	12.30	61.40	49.10	3.90	51.40	47.50	N
326000	10.20	60.94	50.74	3.30	50.94	47.64	N
342000	12.10	60.48	48.38	3.30	50.48	47.18	N
366000	12.10	59.79	47.69	3.00	49.79	46.79	N

Table 6a.4-3: Line Voltage Data- Quasi-Peak and Average

6a.5 Land Mobile Frequency Stability -- Pursuant to 47 CFR 2.1055(a)(1), §2.1055(d)(2), and §24.135; RSS-Gen Section 3.2, RSS-119 Section 5.3, RSS-134 Section 7.

Frequency stability measurements were made as described in paragraph 7.4. Because of the transmitter's dependence on the stability of the base station oscillator, it is not possible to provide stability data for this transmitter as is commonly supplied for certification per 47 CFR 2.1055 for a radio with a locally stabilized oscillator. The following data was collected in a setup comprising of a base station simulator and it represents the absolute frequency error of the transceiver under test versus the base station frequency reference.

Frequency Stability (in ppm) at 813.5125 MHz, Voltage = 4V_{DC}		
TEMP (ºC)	**Frequency Error (Hz)**	**Error (ppm)**
-30	249	0.306
-20	374	0.460
-10	308	0.379
0	240	0.295
10	90	0.111
20	55	0.068
30	143	0.176
40	285	0.350
50	345	0.424
60	277	0.340

Table 6a.5-1. Transmitter Frequency Stability vs. Temperature in 800 MHz SMR Band.

Frequency Stability in PPM at 899.98125 MHz, Voltage = $4V_{DC}$		
TEMP (ºC)	**Frequency Error (Hz)**	**Error (ppm)**
-30	288	0.320
-20	407	0.452
-10	304	0.337
0	265	0.294
10	76	0.084
20	65	0.072
30	179	0.199
40	299	0.332
50	351	0.390
60	251	0.279

Table 6a.5-2. Transmitter Frequency Stability vs. Temperature in 900 MHz SMR Band.

Frequency Stability in PPM at 900.98125 MHz, Voltage = $4V_{DC}$		
TEMP (ºC)	**Frequency Error (Hz)**	**Error (ppm)**
-30	295	0.327
-20	447	0.496
-10	288	0.319
0	307	0.340
10	94	0.104
20	69	0.076
30	180	0.200
40	311	0.345
50	346	0.384
60	310	0.344

Table 6a.5-3. Transmitter Frequency Stability vs. Temperature in 900 MHz NBPCS Band.

Frequency Stability in PPM at 813.5125 MHz, Temperature = 25°C		
Power Supply Output Voltage	**Frequency Error in Hz**	**PPM**
3.55	186	0.229
3.6	132	0.162
3.7	151	0.186
3.8	146	0.179
3.9	155	0.191
4.0	159	0.195
4.1	168	0.206
4.2	174	0.214

Table 6a.5-4. Transmitter Frequency Stability vs. Voltage in 800 MHz SMR Band.

Frequency Stability in PPM at 900.98125 MHz, Temperature = 25°C		
Power Supply Output Voltage	**Frequency Error in Hz**	**PPM**
3.55	199	0.221
3.6	205	0.228
3.7	202	0.224
3.8	204	0.226
3.9	209	0.232
4.0	211	0.234
4.1	230	0.255
4.2	216	0.240

Table 6a.5-5. Transmitter Frequency Stability vs. Voltage in 900 MHz SMR Band.

Frequency Stability in PPM at 900.98125 MHz, Temperature = 25°C		
Power Supply Output Voltage	**Frequency Error in Hz**	**PPM**
3.55	209	0.232
3.6	222	0.246
3.7	204	0.226
3.8	199	0.221
3.9	199	0.221
4.0	202	0.224
4.1	200	0.222
4.2	204	0.226

Table 6a.5-6. Transmitter Frequency Stability vs. Voltage in 900 MHz NBPCS Band.

6a.6 Effective Radiated Power (ERP) -- Pursuant 47 CFR 2.1046 and §24.132(b); RSS-Gen Section 3.2, RSS-119 Section 5.4, RSS-134 Section 6.2.

The ERP characteristic was measured while a radio was set to transmit a test mode signal at the maximum rated output power (±5%) and was vertically mounted on a non-conducting platform/turntable in a spherical RF Anechoic Chamber. The power at the receive antenna was recorded on a power meter with the unit rotating about the z-axis. The azimuth of receiving antenna is rotated 180 degrees while the UUT is rotating producing a spiral antenna measurement. For this ERP test, the phi cuts were taken in 15 degree increments or slices and the theta spins used about 200 measurements per rotation. ERP data is extracted from the phi= 90 degree cut. The power recorded from the meter is then corrected to compensate for path loss, cable losses, and amplifier and antenna gains at the given frequencies resulting in absolute radiated power.

The following calculations show how the reported scaled max ERP was determined.

For 800 MHz SMR band operation,

$$Measured\ MaxERP, dBm = 10 * \log(measured\ output\ power, mW) + measured\ \ antenna\ gain, dBd$$

= 26.46 dBm

The resulting max ERP was converted to mW:

$$MeasuredMaxERP, mW = 10^{\left(\frac{Measured\ MaxERP, dBm}{10}\right)}$$

= 442.59 mW

Since the measured max ERP was not determined at the production maximum output power, a simple scaling is performed to 640 mW:

$$Scaled\ MaxERP, mW = Measured\ MaxERP, mW * \left(\frac{640mW}{measured\ output\ power, mW}\right)$$

= 491.25 mW

For 900 MHz SMR band operation,

$$Measured\ MaxERP, dBm = 10 * \log(measured\ output\ power, mW) + measured\ \ antenna\ gain, dBd$$

$$= 27.49\ \text{dBm}$$

The resulting max ERP was converted to mW:

$$MeasuredMaxERP, mW = 10^{\left(\frac{Measured\ MaxERP, dBm}{10}\right)}$$

$$= 561.05\ \text{mW}$$

Since the measured ERP was not determined at the production maximum output power, a simple scaling is performed to 640 mW:

$$Scaled\ MaxERP, mW = Measured\ MaxERP, mW * \left(\frac{640mW}{measured\ output\ power, mW}\right)$$

$$= 608.13\ \text{mW}$$

For 900 MHz NBPCS band operation,

$$Measured\ MaxERP, dBm = 10 * \log(measured\ output\ power, mW) + measured\ antenna\ gain, dBd$$

$$= 27.49\ \text{dBm}$$

The resulting max ERP was converted to mW:

$$MeasuredMaxERP, mW = 10^{\left(\frac{Measured\ MaxERP, dBm}{10}\right)}$$

$$= 561.05\ \text{mW}$$

Since the measured ERP was not determined at the production maximum output power, a simple scaling is performed to 640 mW:

$$Scaled\ MaxERP, mW = Measured\ MaxERP, mW * \left(\frac{640mW}{measured\ output\ power, mW}\right)$$

$$= 608.13\ mW$$