



Engineering and Testing for EMC and Safety Compliance



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Class II Permissive Change Report

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Model: P7200 700/800 MHz Portable Radio
FCC ID: BV8P7200

March 10, 2010

Standards Referenced for this Report	
Part 2: 2008	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
Part 90: 2008	Private Land Mobile Radio Services
ANSI TIA-603-C-2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards
ANSI/TIA/EIA – 102.CAAA; 2004	Digital C4FM/CQPSK Transceiver Measurement Methods

Frequency Range	Maximum Measured Output Power (W) Conducted	Measured Frequency Tolerance (ppm)	Emission Designator *
763-775 MHz	2.8	0.4	12K1F9W (4-Level TDMA voice/data)
793-805 MHz	2.8	0.4	12K1F9W (4-Level TDMA voice/data)
806-824 MHz	3.2	1.5	12K1F9W (4-Level TDMA voice/data)
763-775 MHz	2.8	0.4	8K40F9W (NBOTP)
793-805 MHz	2.8	0.4	8K40F9W (NBOTP)
806-824 MHz	3.2	1.5	8K40F9W (NBOTP)

* These emission designators are being added under this Class II Permissive Change request

Report Prepared by Test Engineer: Daniel W. Baltzell

Document Number: 2009225

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Frequency Range (MHz)	Measured Output Power (W) Conducted	Frequency Tolerance (ppm)	Modulation	Mode	Emission Designator
809-824	3.24	1.5	Analog FM (SMR)	OCF Trunked/Conventional	16K3F9W
806-824	3.24	1.5	Analog FM (SMR)	OCF Trunked/Conventional	16K0F3E
806-809, 821-824	3.24	1.5	Analog FM (NPSPAC)	OCF Trunked/Conventional	14K0F3E
851-869	2.7	1.5	Analog FM (SMR)	OCF Talkaround	16K0F3E
851-854, 866-869	2.7	1.5	Analog FM (NPSPAC)	OCF Talkaround on NPSPAC channels	14K0F3E
806-809, 821-824	3.20	1.5	2-level (digitized data/voice)	NPSPAC Trunked/Conventional	11K9F1D/E
806-824	3.20	1.5	2-level (digitized data/voice)	SMR Trunked/Conventional	14K2F1D/E
851-854, 866-869	2.7	1.5	2-level (digitized data/voice)	NPSPAC T/A	11K9F1D/E
851-869	2.7	1.5	2-level (digitized data/voice)	SMR T/A	14K2F1D/E
806-824	3.31	1.5	P25 (digitized data/voice)	Trunked or Conventional	8K40F1D/E
851-869	2.7	1.5	P25 (digitized data/voice)	Talkaround	8K40F1D/E
806-809, 821-824	3.24	1.5	OTP	NPSPAC Trunked	13K2F9W
806-824	3.20	1.5	OTP	SMR Trunked	13K2F9W
763-767, 773-775**	2.82	0.4	P25 (digitized data/voice)	Talkaround	8K40F1D/E
793-797, 803-805**	2.82	0.4	P25 (digitized data/voice)	Trunked or Conventional	8K40F1D/E
793-797, 803-805**	2.88	0.4	OTP	Trunked	13K2F9W
763-767, 773-775**	1.86	0.4	Analog FM (12.5 kHz channel spacing)	Talkaround	11K0F3E
793-797, 803-805**	1.91	0.4	Analog FM (12.5 kHz channel spacing)	Trunked or Conventional	11K0F3E

** Though not part of this Class 2 Permissive Change, the frequencies for these line items have been adjusted to reflect the allocations in place at the time of this filing per KDB 634817 and FCC correspondence 81712.

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1 General Information

The following Certification Report is prepared on behalf of **Harris Corporation** in accordance with the Federal Communications Commission. The Equipment Under Test (EUT) was the **P7200 700/800 MHz Portable Radio, FCC ID: BV8P7200**. The test results reported in this document relate only to the item that was tested.

All measurements contained in this application were conducted in accordance with the applicable FCC Rules and Regulations in CFR 47. Calibration checks are performed regularly on the instruments, and all accessories including high pass filter, coaxial attenuator, preamplifier and cables.

1.1 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the parking lot of Rhein Tech Laboratories, Inc., 360 Herndon Parkway, Suite 1400, Herndon, Virginia, 20170. This site has been fully described in a report submitted to and approved by the Federal Communications Commission to perform AC line conducted and radiated emissions testing.

1.2 Related Submittal(s)/Grant(s)

This is a Class II Permissive Change which adds emission designators, 8K40F9W for the Narrow Band OpenSky Trunking Protocol (NBOTP) and 12K1F9W. The original grant was issued September 20, 2005, with Class II Permissive Change grants issued September 27, 2006, October 13, 2007, and November 6, 2008.

2 Tested System Details

The test sample was received on September 3, 2009. Listed below are the identifiers and descriptions of all equipment, cables, and internal devices used with the EUT for this test, as applicable.

Table 2-1: Test System Details

Model Tested	P7200 700/800 MHz Portable Radio
Frequency Band	763-775; 793-805; 806-824 MHz
Modulation Type	4-level Frequency Shift Keying (FSK)
Channel Step Size	12.5 kHz
Channel Bandwidth	25 kHz
Primary Power	7.5 VDC battery
Rated Transmitter Output Power	3 W
Duty Cycle	100% maximum

Table 2-2: Equipment Under Test (EUT)

Part	Manufacturer	Model	PN/SN	FCC ID	RTL Bar Code
P7200 700/800 MHz Portable Radio	Harris Corp.	P7200	A4004100A565	BV8P7200	19196

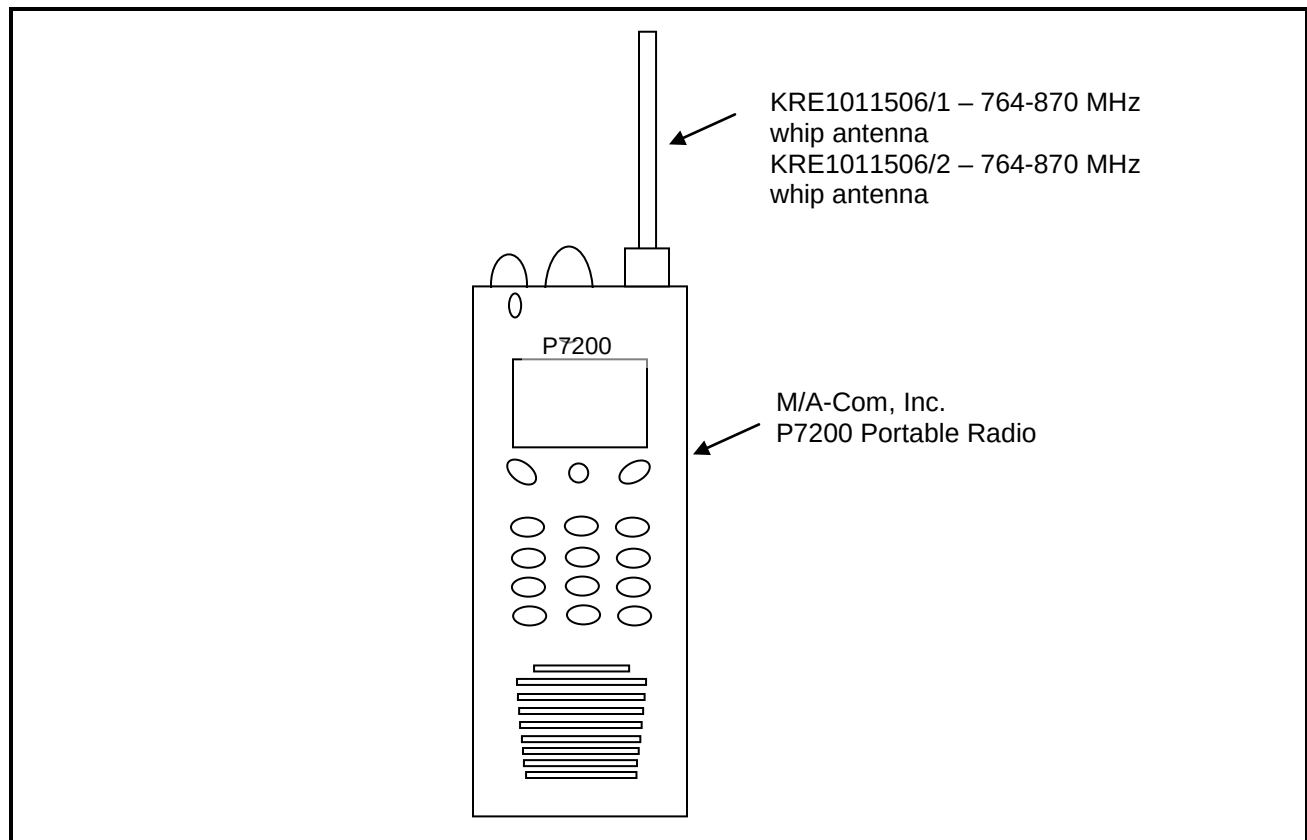


Figure 2-1: Configuration of Tested System

3 FCC Rules and Regulations Part 2 §2.1033(c)(8) Voltages and Currents Through The Final Amplifying Stage

Nominal DC Voltage: 7.5 VDC

Current: 0.9 AMPS

4 FCC Rules and Regulations Part 90 §90.1215(a) and Part 2 §2.1046(a): Peak Output Power

4.1 Test Procedure

ANSI TIA-603-2004, section 2.2.1.

The EUT was connected to a coaxial attenuator having a 50 Ω load impedance.

4.2 Test Data

Table 4-1: RF Power Output: Carrier Output Power – NBOTP – High Power

Frequency (MHz)	RF Power Measured (Watt)*
764.0125	2.8
767.1025	2.8
775.9875	2.8
794.0125	2.8
797.1025	2.8
805.9875	2.8
806.0125	3.2
816.3625	3.1
823.9875	3.1

* Measurement accuracy: +/-0.02 dB (logarithmic mode)

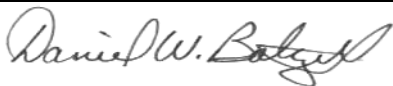
Table 4-2: RF Power Output (Rated Power)

Rated Power
3.0

Table 4-3: Test Equipment for Testing RF Power Output - Conducted

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901356	Agilent Technologies	E9323A	Power Sensor	31764-264	11/5/09
901184	Agilent Technologies	E4416A	EPM-P Power Meter, single channel	GB41050573	11/5/09
901138	Weinschel Corp.	48-40-34 DC-18GHz	Attenuator, 100W 40dB	BK5883	12/3/09

Test Personnel:

Daniel W. Baltzell		November 1, 2009
Test Engineer	Signature	Date Of Tests

5 FCC Rules and Regulations Part 2 §2.1051: Spurious Emissions at Antenna Terminals; Part 90 §90.210: Emissions Masks

5.1 Test Procedure

ANSI TIA-603-C-2004, Section 2.2.13.

The transmitter is terminated with a 50 Ω load and interfaced with a spectrum analyzer. The device uses digital modulation modulated to its maximum extent using a pseudo random data sequence of 9600 bps for NBOTP (Narrow Band OpenSky Trunking Protocol) mode, and 19200 bps for OTP (OpenSky Trunking Protocol) mode.

5.2 Test Data

Frequency range of measurement per Part 2.1057: 9 kHz to 10x F_c .

Limit: $P(\text{dBm}) - (43 + 10 \times \text{LOG } P(\text{W}))$

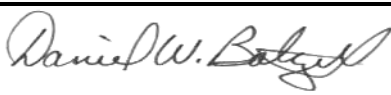
The worst case (unwanted emissions) channels are shown. The magnitude of emissions attenuated more than 20 dB below the FCC limit need not be recorded.

No emissions were found within 20 dBc of the limit.

Table 5-1: Test Equipment for Testing Conducted Spurious Emissions

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901215	Hewlett Packard	8596EM	EMC Analyzer (9 kHz – 12.8 GHz)	3826A00144	10/23/09
901138	Weinschel Corp.	48-40-34 DC-18GHz	Attenuator, 100W 40dB	BK5883	12/3/09
901517	Insulated Wire Inc.	KPS-1503-360-KPS-09302008	RF cable 36"	NA	10/17/09
900948	Weinschel Corporation	47-10-43	Attenuator DC-18 GHz 10 dB 50W	BH1487	12/3/09
901132	Par Electronics	806-902 (25W)	UHF Notch Filter	N/A	3/10/12

Test Personnel:

Daniel W. Baltzell		September 27, 2009
Test Engineer	Signature	Date Of Tests

6 FCC Rules and Regulations Part 2 §2.1053(a): Field Strength of Spurious Radiation; Part 90 §90.543(b): Out of Band Emissions Limit; RSS-119 §5.8

Occupied Bandwidth - Compliance with the emission masks

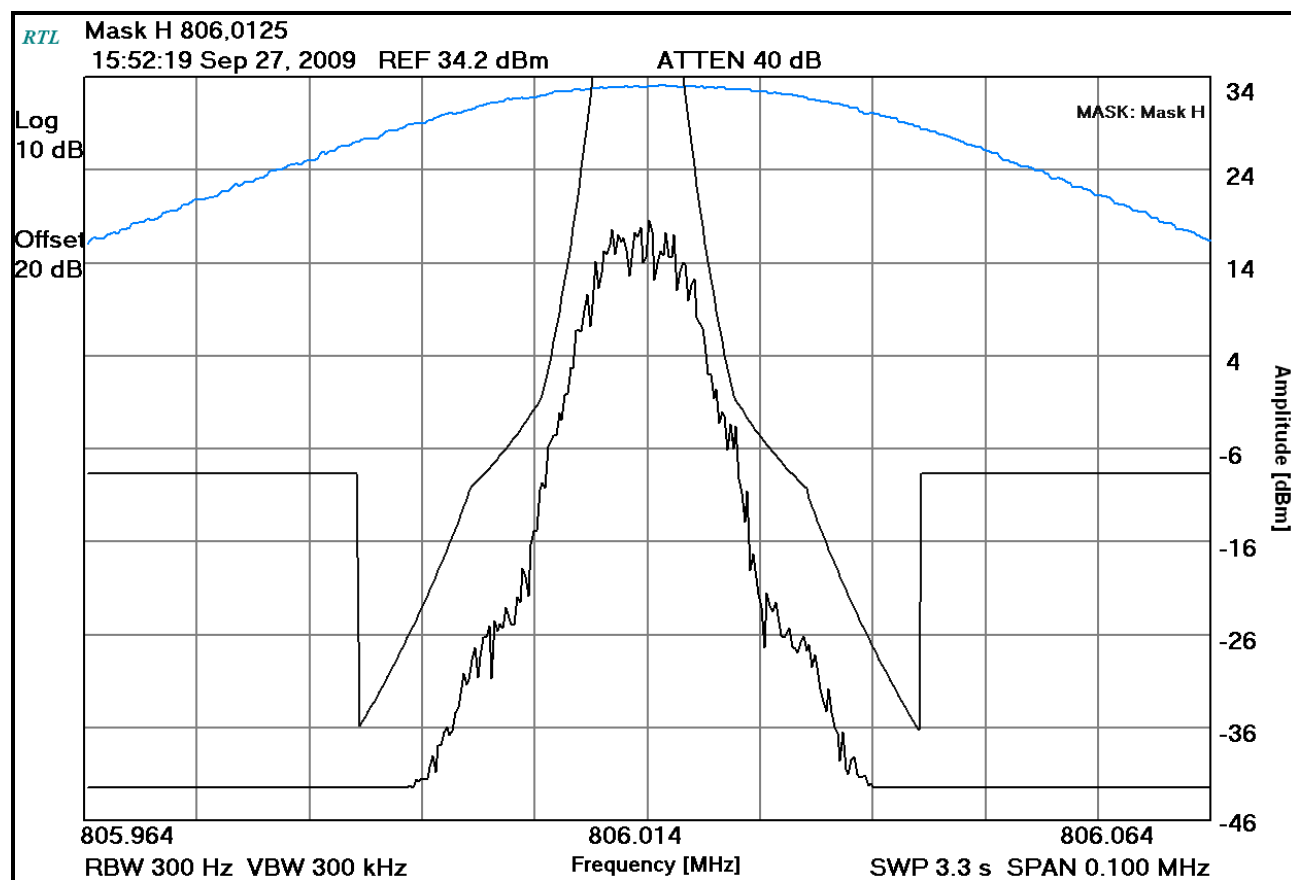
6.1 Test Procedure

ANSI/TIA/EIA-603-2002, section 2.2.11 and TIA/EIA-102.CAAA-2002 section 2.2.5

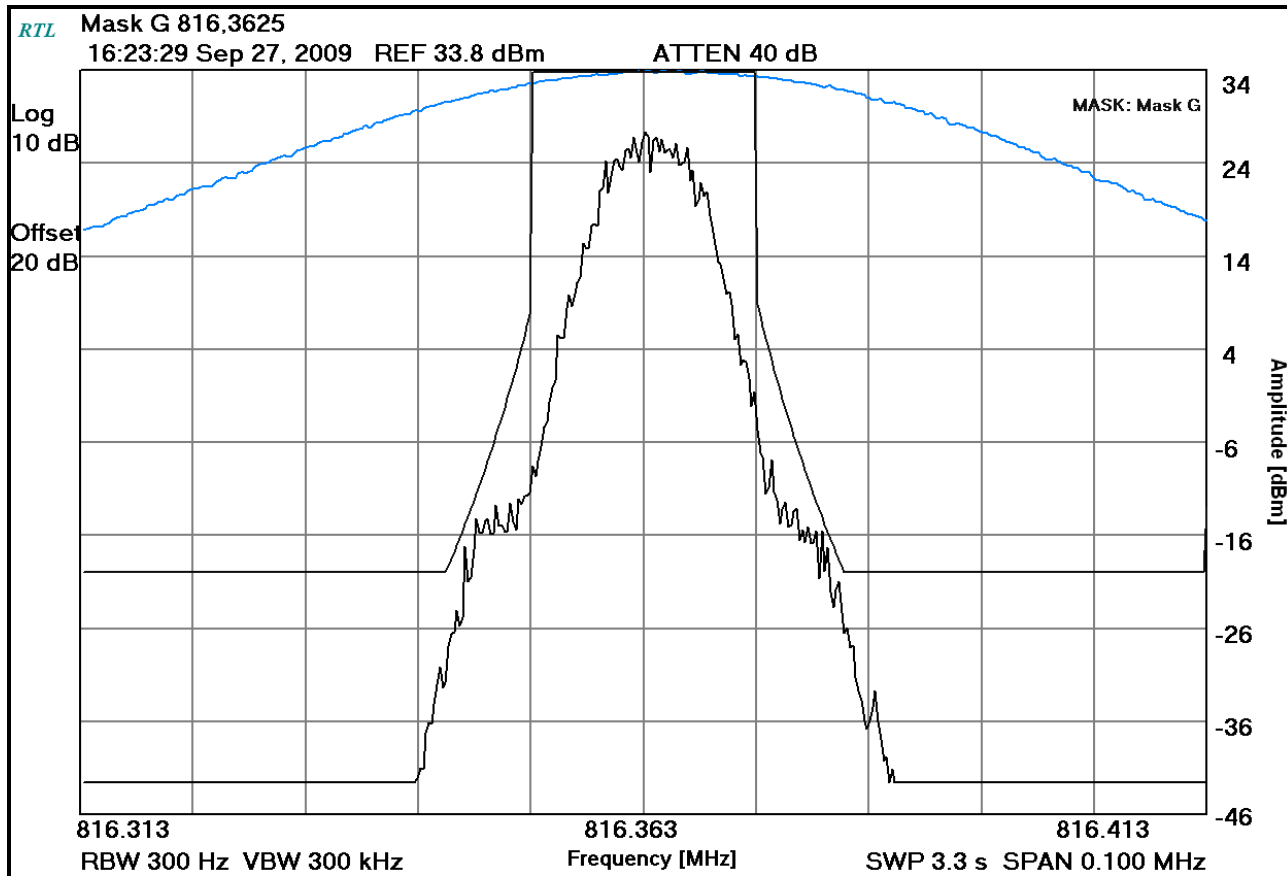
Device with digital modulation: Modulated to its maximum extent using a pseudo random data sequence – 19,200 bps for OTP mode, and 9600 bps for P25 and EDACS modes.

6.2 Test Data

Plot 6-1: Occupied Bandwidth - 806.0125 MHz; Mask H



Plot 6-2: Occupied Bandwidth - 816.3625; Mask G



Plot 6-3: Occupied Bandwidth; 823.9875 MHz; Mask G

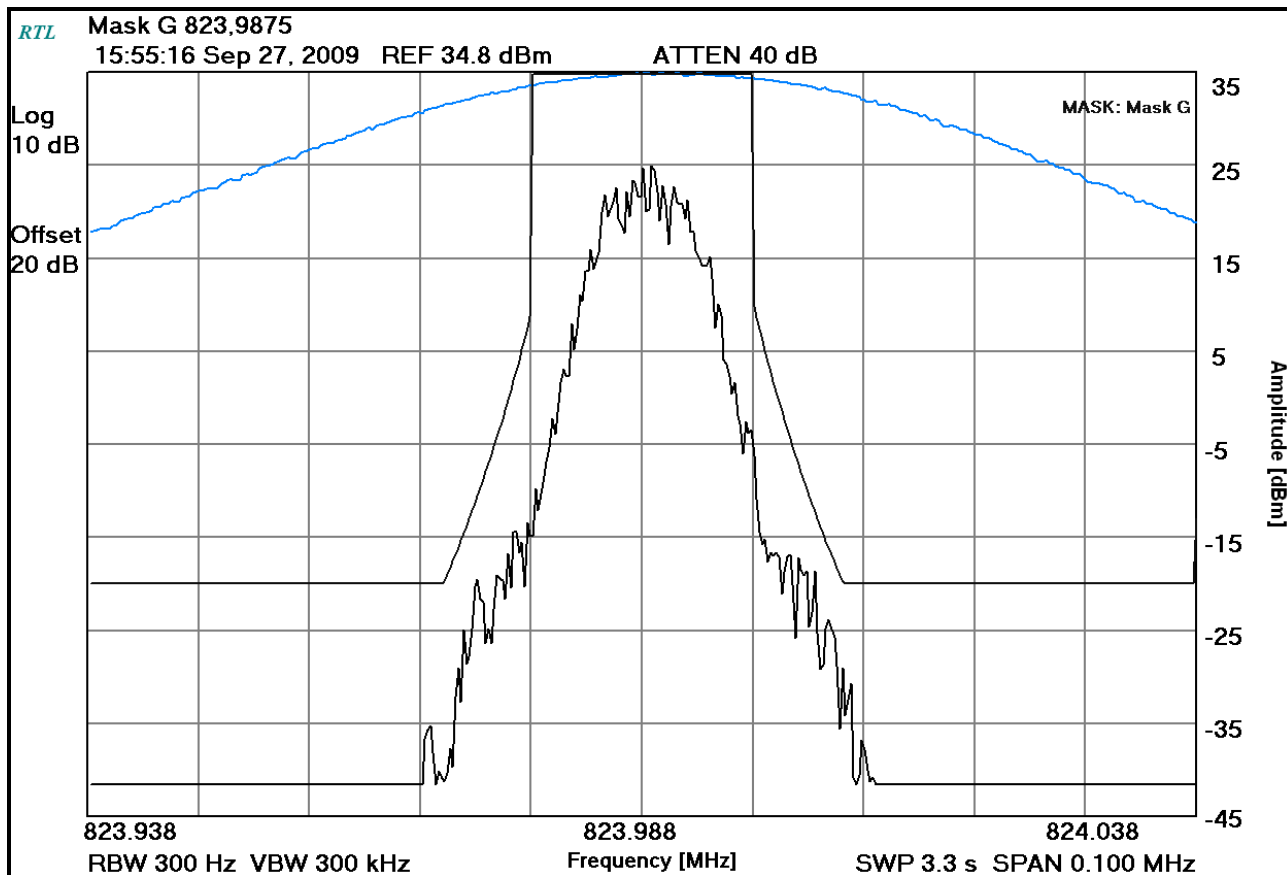
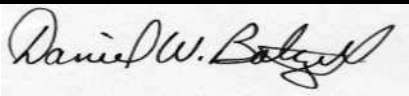


Table 6-1: Test Equipment for Testing Occupied Bandwidth

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901215	Hewlett Packard	8596EM	Spectrum Analyzer (9kHz-12.8GHz)	3826A00144	10/23/09
901520	M/A Com	2082-6174-20	Attenuator, 20 dB	N/A	7/29/10

Test Personnel:

Dan Baltzell		September 27, 2009
Test Engineer	Signature	Date Of Tests

7 FCC Rules and Regulations Part 90 §90.543(a): Emission Limitations: ACP Requirements

Transmitters designed to operate in the 764-776 MHz and 794-806 MHz frequency bands must meet the emission limitations of this section.

7.1 Test Procedure

Device with digital modulation: modulated to its maximum extent using a pseudo-random data sequence – 9600 bps.

For a mobile transmitter designed to operate with a 12.5 kHz channel bandwidth, the ACP shall be in accordance with the following table:

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACCP (dBc)
9.375	6.25	-40
15.625	6.25	-60
21.875	6.25	-60
37.5	25	-60
62.5	25	-65
87.5	25	-65
150	100	-65
250	100	-65
350	100	-65
$400 < f_d \leq 12 \text{ MHz}$	30(s)	-75
$12 \text{ MHz} < f_d \leq \text{paired receive band}$	30(s)	-75
In the paired receive band	30(s)	-100

For a base transmitter designed to operate with a 25 kHz channel bandwidth, the ACP shall be in accordance with the following table:

Offset from Center Frequency (kHz)	Measurement Bandwidth (kHz)	Maximum ACCP (dBc)
15.625	6.25	-40
21.875	6.25	-60
37.5	25	-60
62.5	25	-65
87.5	25	-65
150	100	-65
250	100	-65
350	100	-65
$400 < f_d \leq 12 \text{ MHz}$	30(s)	-75
$12 \text{ MHz} < f_d \leq \text{paired receive band}$	30(s)	-75
In the paired receive band	30(s)	-100

FCC Rules and Regulations Part 90 §90.543(b)

Setting Reference Level - Part 90 §90.543(b)(1): Set transmitter to maximum output power. Using a spectrum analyzer capable of ACP measurements, set the measurement bandwidth to the channel size. For example, for a 6.25 kHz transmitter set the measurement bandwidth to 6.25 kHz. Set the frequency offset of the measurement bandwidth to zero and adjust the center frequency of the instrument to the assigned center frequency to measure the average power level of the transmitter. Record this power level in dBm as the "reference power level".

Measuring the power level at the frequency offset <400 kHz - Part 90 §90.543(b)(2): Using a spectrum analyzer capable of ACP measurements, set the measurement bandwidth and frequency offset from the assigned center frequency as shown in the table above. Any value of resolution bandwidth may be used as long as it does not exceed 2 percent of the specified measurement bandwidth. Measure the power level in dBm. These measurements should be made at maximum power. Calculate ACP by subtracting the reference power level measured in above from the measurements made in this step. The absolute value of the calculated ACP must be greater than or equal to the absolute value of the ACP given in the table for each condition above.

Measuring the power level at the frequency offset >400 kHz - Part 90 §90.543(b)(3): Set a spectrum analyzer to 30 kHz resolution bandwidth, 1 MHz video bandwidth and average, sample, or RMS detection. Set the reference level of the spectrum analyzer to the RMS value of the transmitter power. Sweep above and below the carrier frequency to the limits defined in the tables. Calculate ACP by subtracting the reference power level measured in the first step above from the measurements made in this step. The absolute value of the calculated ACP must be greater than or equal to the absolute value of the ACP given in the table for each condition above.

7.2 Test Data

Table 7-1: Adjacent Channel Power 763-775 MHz

			764.0125 MHz	764.0125 MHz	767.1025 MHz	767.1025 MHz	775.9875 MHz	775.9875 MHz
Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP Low Offset (dBc)	Max ACP High Offset (dBc)	Max ACP Low Offset (dBc)	Max ACP High Offset (dBc)	Max ACP Low Offset (dBc)	Max ACP High Offset (dBc)
(+/-)15.625	6.25	-40	-43.8	-44.1	-42.8	-51.3	-46.6	-48.3
(+/-)21.875	6.25	-60	-67.8	-67.3	-63.6	-70.8	-64.3	-67.1
(+/-)37.5	25	-60	-72.0	-73.7	-70.0	-72.8	-70.9	-71.5
(+/-)62.5	25	-65	-77.2	-77.0	-76.6	-77.7	-74.1	-74.0
(+/-)87.5	25	-65	-77.7	-80.6	-79.1	-80.7	-77.8	-77.5
(+/-)150	100	-65	-78.0	-78.9	-78.3	-75.8	-74.6	-74.5
(+/-)250	100	-65	-77.5	-77.9	-79.9	-79.8	-79.4	-79.5
(+/-)350	100	-65	-80.4	-80.4	-80.1	-80.8	-81.8	-81.4

Table 7-2: Adjacent Channel Power Swept 763-775 MHz

			764.0125 MHz	767.1025 MHz	775.9875 MHz
Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-83.9	-84.5	-85.7
12 MHz to receive band	30(s)	-75	-87.4	-87.8	-91.0
In receive band	30(s)	-100	-105.5	-107.8	-104.1

Table 7-3: Adjacent Channel Power 793-805 MHz

			794.0125 MHz	794.0125 MHz	797.1025 MHz	797.1025 MHz	805.9875 MHz	805.9875 MHz
Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP Low Offset (dBc)	Max ACP High Offset (dBc)	Max ACP Low Offset (dBc)	Max ACP High Offset (dBc)	Max ACP Low Offset (dBc)	Max ACP High Offset (dBc)
(+/-)15.625	6.25	-40	-46.8	-50.3	-41.3	-57.2	-51.0	-44.3
(+/-)21.875	6.25	-60	-71.2	-64.2	-63.4	-71.6	-67.4	-62.9
(+/-)37.5	25	-60	-74.4	-77.0	-72.5	-73.5	-73.7	-74.9
(+/-)62.5	25	-65	-75.4	-76.7	-77.1	-77.1	-76.1	-78.6
(+/-)87.5	25	-65	-79.6	-78.7	-76.8	-79.6	-79.9	-79.5
(+/-)150	100	-65	-77.0	-77.5	-76.7	-77.7	-78.2	-79.5
(+/-)250	100	-65	-80.1	-80.8	-78.8	-79.8	-78.9	-77.2
(+/-)350	100	-65	-81.7	-82.2	-81.2	-80.5	-80.2	-78.1

Table 7-4: Adjacent Channel Power Swept 793-805 MHz

			794.0125 MHz	797.1025 MHz	805.9875 MHz
Offset from Center Frequency (kHz)	Measurement BW (kHz)	Max ACP (dBc)	Max ACP (dBc)	Max ACP (dBc)	Max ACP (dBc)
>400 to 12 MHz	30(s)	-75	-90.0	-89.5	-85.0
12 MHz to receive band	30(s)	-75	-93.6	-95.5	-90.8
In receive band	30(s)	-100	-101.6	-109.1	-106.3

Table 7-5: Test Equipment for Testing ACP Requirements

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
Telogy 95448	Agilent Technologies	E4448A	Spectrum Analyzer	MY46180621	5/29/11
901520	M/A Com	2082-6174-20	20 dB Attenuator	N/A	7/29/10
900948	Weinschel Corporation	47-10-43	Attenuator DC-18 GHz 10 dB 50W	BH1487	12/3/09

Test Personnel:

Dan Baltzell		September 27 & November 1, 2009
Test Engineer	Signature	Dates Of Tests

8 FCC Rules and Regulations Part 90 §90.210(g) and Part 2 §2.543(c & e): Field Strength of Spurious Radiation

8.1 Test Procedure

ANSI TIA-603-C-2004, section 2.2.12.

The device uses digital modulation modulated to its maximum extent using a pseudo-random data sequence of 9600 bps for NBOTP (Narrow Band OpenSky Trunking Protocol) mode, and 19200 bps for OTP (OpenSky Trunking Protocol) mode.

The spurious emissions levels were measured and the device under test was replaced by a substitution antenna connected to a signal generator. This maximized signal generator level was then corrected by subtracting the cable loss from the substitution antenna to the signal generator, and the gain of the antenna was further corrected to a half wave dipole.

8.2 Test Data

8.2.1 CFR 47 Part 90.210 Requirements

The worst-case emissions test data are shown. The magnitude of emissions attenuated more than 20 dB below the FCC limit need not be recorded.

Limit: $P(\text{dBm}) - (43 + 10 \times \log P(\text{W}))$

Table 8-1: Field Strength of Spurious Radiation: 767.1025 MHz (8K40F9W)

$$\text{Limit} = 43 + 10 \log (2.897) = 47.6 \text{ dBc}$$

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBd)	EIRP (dBc)	Margin (dB)
1534.2050	73.9	-25.3	6.9	5.0	61.8	-14.2
2301.3075	43.9	-51.3	8.5	6.7	87.7	-40.1
3068.4100	39.6	-53.6	9.9	7.5	90.7	-43.0
3835.5125	44.1	-44.0	11.1	7.4	82.3	-34.6
4602.6150	32.7	-51.3	12.2	8.4	89.7	-42.1
5369.7175	28.8	-53.1	13.5	8.3	93.0	-45.4
6136.8200	28.0	-52.8	14.1	9.0	92.5	-44.9
6903.9225	30.3	-50.0	14.7	9.3	89.9	-42.3
7671.0250	31.0	-42.9	15.4	8.8	84.2	-36.6

Table 8-2: Field Strength of Spurious Radiation: 797.1025 MHz (8K40F9W)

$$\text{Limit} = 43 + 10 \log (2.864) = 47.6 \text{ dBc}$$

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBd)	EIRP (dBc)	Margin (dB)
1594.2050	76.5	-22.5	7.1	5.2	59.1	-11.5
2391.3075	42.4	-54.6	8.8	6.9	91.1	-43.5
3188.4100	30.8	-60.9	10.3	7.5	98.3	-50.8
3985.5125	35.8	-50.2	11.4	7.4	88.8	-41.2
4782.6150	28.3	-56.5	12.1	8.4	94.8	-47.3
5579.7175	27.2	-56.6	13.3	8.4	96.1	-48.5
6376.8200	26.5	-56.1	14.2	9.2	95.7	-48.1
7173.9225	29.5	-48.5	15.1	9.1	89.0	-41.4
7971.0250	31.1	-46.4	16.3	8.9	88.3	-40.7

Table 8-3: Field Strength of Spurious Radiation: 816.3625 MHz (8K40F9W)

$$\text{Limit} = 43 + 10 \log (2.4) = 46.8 \text{ dBc}$$

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBd)	EIRP (dBc)	Margin (dB)
1632.7250	57.4	-37.6	7.2	5.3	73.3	-26.5
2449.0875	38.4	-56.7	8.8	7.0	92.2	-45.4
3265.4500	44.9	-46.6	10.7	7.5	83.6	-36.8
4081.8125	44.2	-40.4	11.3	7.5	78.0	-31.2
4898.1750	43.5	-41.9	12.9	8.4	80.2	-33.4
5714.5375	30.5	-54.6	13.6	8.5	93.5	-46.7
6530.9000	29.3	-54.7	14.6	9.3	93.8	-47.0
7347.2625	27.5	-50.1	15.4	8.9	90.4	-43.6
8163.6250	30.5	-45.0	16.0	9.0	85.8	-39.0

Table 8-4: Field Strength of Spurious Radiation in the band 1559-1610 MHz

Limit = -70dBW/MHz EIRP wideband; -80 dBW/MHz EIRP discrete

Frequency (MHz)	Spectrum Analyzer Level (dBuV)	Signal Generator Level (dBm)	Cable Loss to Transmit Antenna (dB)	Antenna Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)
1588.025	41.4	-65.3	1.6	7.4	-59.6	-50.0	-9.5
1589.022	28.0	-78.6	1.5	7.4	-72.7	-50.0	-22.7
1594.205	41.2	-65.7	1.6	7.4	-59.9	-50.0	-9.9
1602.350	27.4	-77.7	1.7	5.2	-74.2	-50.0	-24.2

Table 8-5: Test Equipment for Testing Field Strength of Spurious Radiation

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901215	Hewlett Packard	8596EM	Spectrum Analyzer (9 kHz - 12.8 GHz)	3826A00144	10/23/09
900928	Hewlett Packard	83752A	Synthesized Sweeper, (0.01 - 20 GHz)	3610A00866	2/9/10
900791	Chase	CBL6111B	Bilog Antenna (30 MHz – 2000 MHz)	N/A	12/12/10
900772	EMCO	3161-02	Horn Antenna (2 - 4 GHz)	9804-1044	6/14/10
900321	EMCO	3161-03	Horn Antenna (4.0 - 8.2 GHz)	9508-1020	6/14/10
900323	EMCO	3160-07	Horn Antenna (8.2 - 12.4 GHz)	9605-1054	6/14/10
901262	ETS	3160-9	Double ridged Guide Antenna (1 - 18 GHz)	6748	5/1/11
901426	Insulated Wire Inc.	KPS-1503-3600-KPS	RF cable, 30'	NA	10/17/09
901516	Insulated Wire, Inc.	KPS-1503-2400-KPS-09302008	RF cable, 20'	NA	10/17/09
901517	Insulated Wire Inc.	KPS-1503-360-KPS-09302008	RF cable 36"	NA	10/17/09
901365	MITEQ	JS4-00102600-41-5P	Amplifier, 0.1-26 GHz, 30dB gain	N/A	3/4/10

Test Personnel:

Daniel W. Baltzell		September 30, 2009
Test Engineer	Signature	Date Of Test

9 FCC Rules and Regulations Part 2 §2.202: Necessary Bandwidth and Emission Bandwidth

Type of Emission: F9W

Digital Voice and Data: 9600 BPS

Calculations:

$$B(n) = (R/\log_2(S) + 2DK)$$

8K40F9W:

where

R = 9.6 kilobits per second [raw data rate]

S = 4 [4-level FSK]

D = 2.77 [Peak FM Deviation]

K = 0.65

B(n) = 8.4 kHz

FCC Emission Designator: 8K40F9W

Digital voice and data – 25 kHz separation

19,200 BPS

Calculation:

$$B(n) = (R/\log_2(S) + 2DK) \quad (\log_2 \text{ is Log base 2})$$

where,

R = 19.2 kilobits per second (raw data rate)

S = 4 (4 level FSK)

D = 3.75KHz (FM deviation)

K = .334 (K is calculated as a best fit quadratic to occupied BW measurements; where $K = -0.256*d^2 + 1.066*d - 0.576$, and where d = normalized deviation of factor of 1.2)

Therefore,

B(n) = 12.1 or 12K1

FCC emission designator: 12K1F9W

10 Conclusion

The data in this measurement report shows that the **Harris Corporation Model P7200 700/800 MHz Portable Radio, FCC ID: BV8P7200**, complies with all the applicable requirements of FCC Parts 90, 15 and 2.