



Engineering Solutions & Electromagnetic Compatibility Services

FCC & IC Class 2 Permissive Change Report

Harris Corporation
221 Jefferson Ridge Parkway
Lynchburg, VA 24501

Model: P5500 VHF Portable Radio
Model #'s: EX55-PFV1B & EX55-PBV1B

FCC ID: OWDTR-0067-E
IC: 3636B-0067

March 28, 2013

Standards Referenced for this Report	
Part 2: 2012	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
Part 90: 2012	Private Land Mobile Radio Services
TIA-102.CCAA August 2011	Two-Slot Time Division Multiple Access Transceiver Measurement Methods
TIA-102.CCAB October 2011	Two - Slot Time Division Multiple Access Transceiver Performance Recommendations
SRSP-500	Technical Requirements for Land Mobile and Fixed Radio Services Operating in the Bands 138-851.0125 MHz and 862.0000-174 MHz
RSS-119, Issue 11; June 2011	Radio Transmitters and Receivers Operating in the Land Mobile and Fixed Services in the Frequency Range 27.41-960 MHz

Frequency Range (MHz)	Rated Transmit Power (W) (Conducted)	Frequency Tolerance (ppm)	Emission Designator (Transmit Mode)
136 – 174	0.5 – 5.0	0.37	8K10DXW
138 – 174 (IC)	0.5 – 5.0	0.37	8K10DXW

Report Prepared By: Daniel Baltzell

Document Number: 2012376

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These tests are accredited and meet the requirements of ISO/IEC 17025 as verified by ANSI-ASQ National Accreditation Board/ACLASS. Refer to certificate and scope of accreditation AT-1445.

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1 Test Result Summary

Test	FCC Reference	IC Reference	Result
RF Power Output	2.1046(a), 90.541(b), 90.542(a)(6)	RSS-119 5.4	Complies
Spurious Emissions at Antenna Terminals	2.1046(a), 90.541(b), 90.542(a)(6)	RSS-119 5.4	Complies
Occupied Bandwidth/Emission Masks	2.1049(c)(1), 90.543(d)	RSS-119 5.5, 5.8	Complies

2 General Information

The following Class 2 Permissive Change Report is prepared on behalf of Harris Corporation in accordance with the Federal Communications Commission and Industry Canada rules and regulations. The Equipment Under Test (EUT) was the P5500 VHF Radio family; FCC ID: OWDTR-0067-E, IC: 3636B-0067.

The purpose of this Class 2 Permissive Change is to add emission designator 8K10DXW (H-CPM TDMA).

All measurements contained in this application were conducted in accordance with the applicable sections of FCC Rules and Regulations CFR 47 Parts 2 and 90. Calibration checks are performed regularly on the instruments, and all accessories including high pass filter, coaxial attenuator, preamplifier and cables.

2.1 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.

2.2 Related Submittal(s)/Grant(s)

The original FCC certification was granted on January 24, 2012; the original IC family certification was granted on January 31, 2012 and includes Harris model numbers EX55-PFV1B and EX55-PBV1B.

2.3 Grant Notes

Power continuously variable from 0.5 W to 5 W.

2.4 Tested System Details

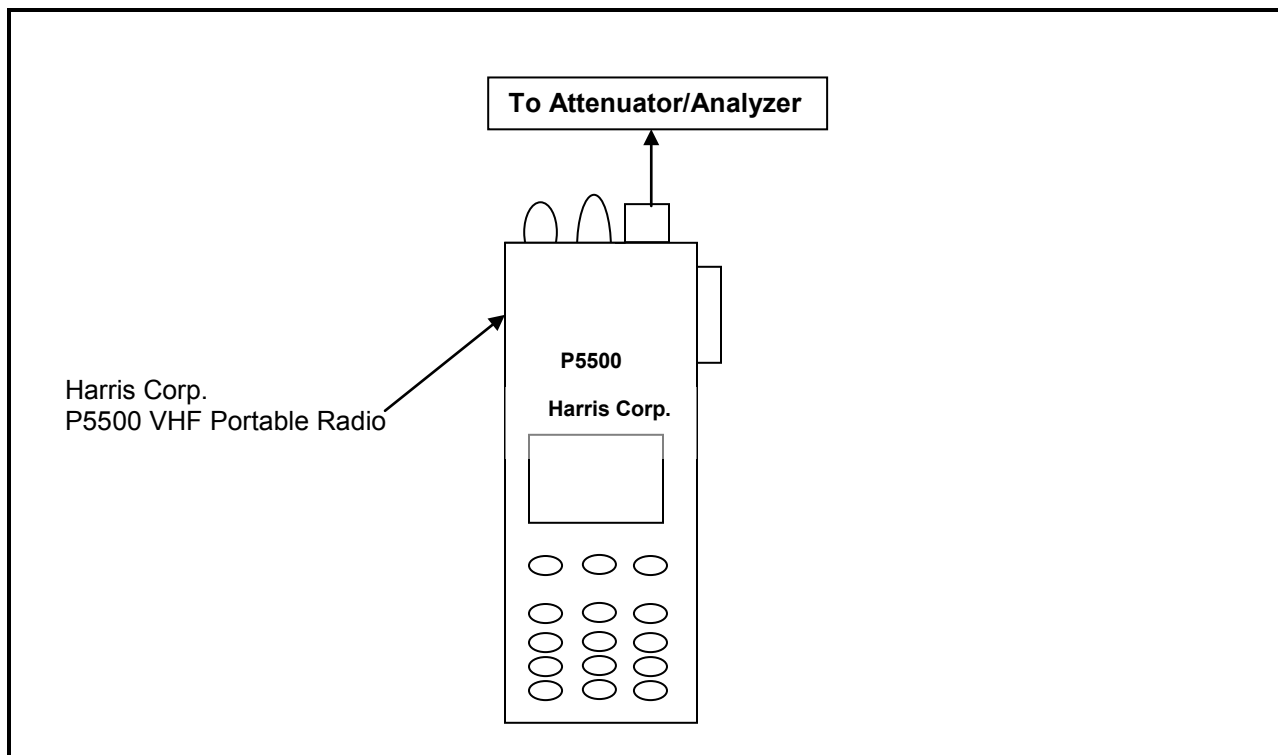
The test sample was received on December 20, 2012, and March 11, 2013. Listed below are the identifiers and descriptions of all equipment, cables, and internal devices used with the EUT for this test, as applicable.

The device was programmed for multiple test patterns using the H-CPM mode. All test patterns were investigated and found to be nearly identical from an emissions perspective.

Table 2-1: Equipment Under Test (EUT)

Part	Manufacturer	Model	PN/SN	FCC ID	RTL Bar Code
P5500 VHF Radio	Harris Corporation	EX55-PFV1B	A4012F000063	OWDTR-0067-E	20874

Figure 2-1: Configuration of Tested System



3 FCC §90.1215(a) and §2.1046(a): Peak Output Power

3.1 Test Procedure

TIA-102.CCAA August 2011, section 2.2.1, TIA-102.CCAB October 2011, section 3.2.1

The EUT was connected via an appropriate 50 ohm attenuator to a signal analyzer. Attenuator loss was accounted for.

3.2 Test Data

Table 3-1: RF Power Output: Modulated Carrier Output Power

Frequency (MHz)	High Power (dBm)	High Power (W)	Low Power (dBm)	Low Power (W)
136.0	37.3	5.4	27.9	0.6
155.0	37.2	5.2	27.6	0.6
174.0	37.1	5.1	27.4	0.5

Table 3-2: RF Power Output (Rated Power)

Frequency (MHz)	High Power Rated (W)
136-174	5

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

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901581	Rohde & Schwarz	1166.1660.50	Spectrum Analyzer	2001006	6/3/13
901537	Weinschel Corp	48-40-34	Attenuator 40 dB, 100W	CB66628	12/14/13

Test Personnel:

Daniel Baltzell
EMC Test Engineer



Signature

March 18, 2013
Date of Test

4 FCC §2.1051: Conducted Spurious Emissions; §90.210: Emissions Masks; RSS-119 §4.2: Transmitter Unwanted Emissions

4.1 Test Procedure

TIA-102.CCAA August 2011, section 2.2.7, TIA-102.CCAB October 2011, section 3.2.7

The transmitter is terminated with a 50 Ω load and interfaced with a signal analyzer. The device uses digital modulation modulated to its maximum extent using a pseudo random data sequence of 9600 bps.

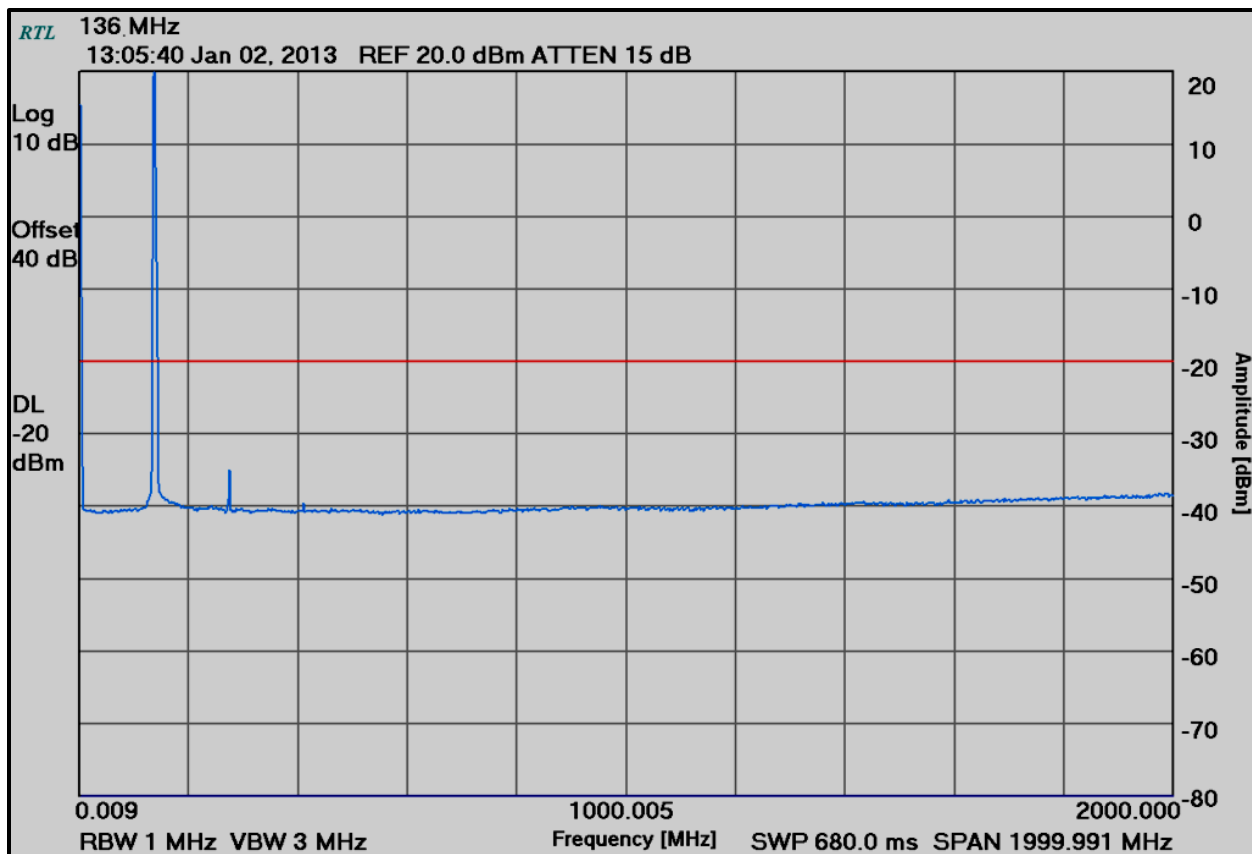
4.2 Test Data

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

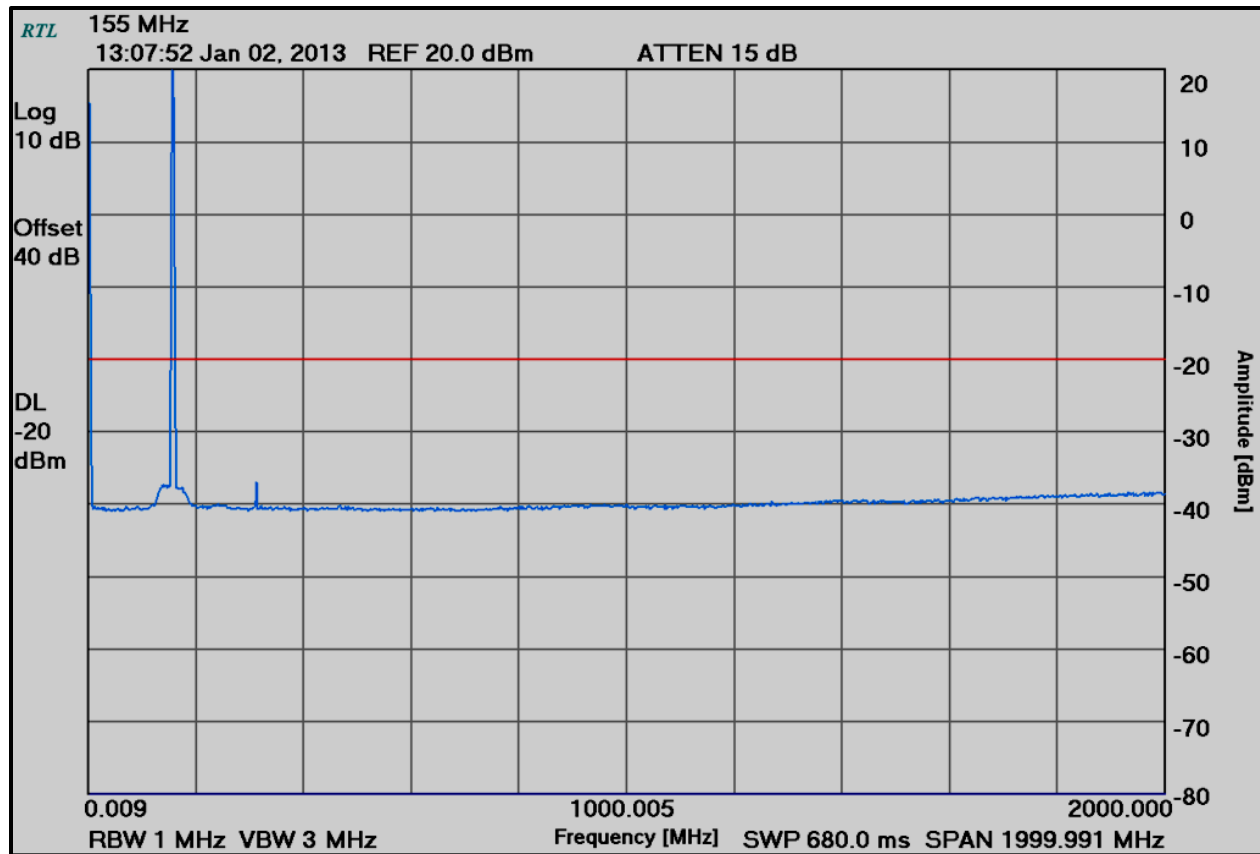
Limit: $P(\text{dBm}) - (50 + 10 \times \text{LOG } P(\text{W}))$

The worst case (unwanted emissions) channels are shown. Per FCC 2.1051, the magnitude of emissions attenuated more than 20 dB below the FCC limit need not be recorded.

Plot 4-1: Conducted Spurious Emissions – H-CPM TDMA; 136.0 MHz



Plot 4-2: Conducted Spurious Emissions – H-CPM TDMA; 155.0 MHz



Plot 4-3: Conducted Spurious Emissions – H-CPM TDMA; 174.0 MHz

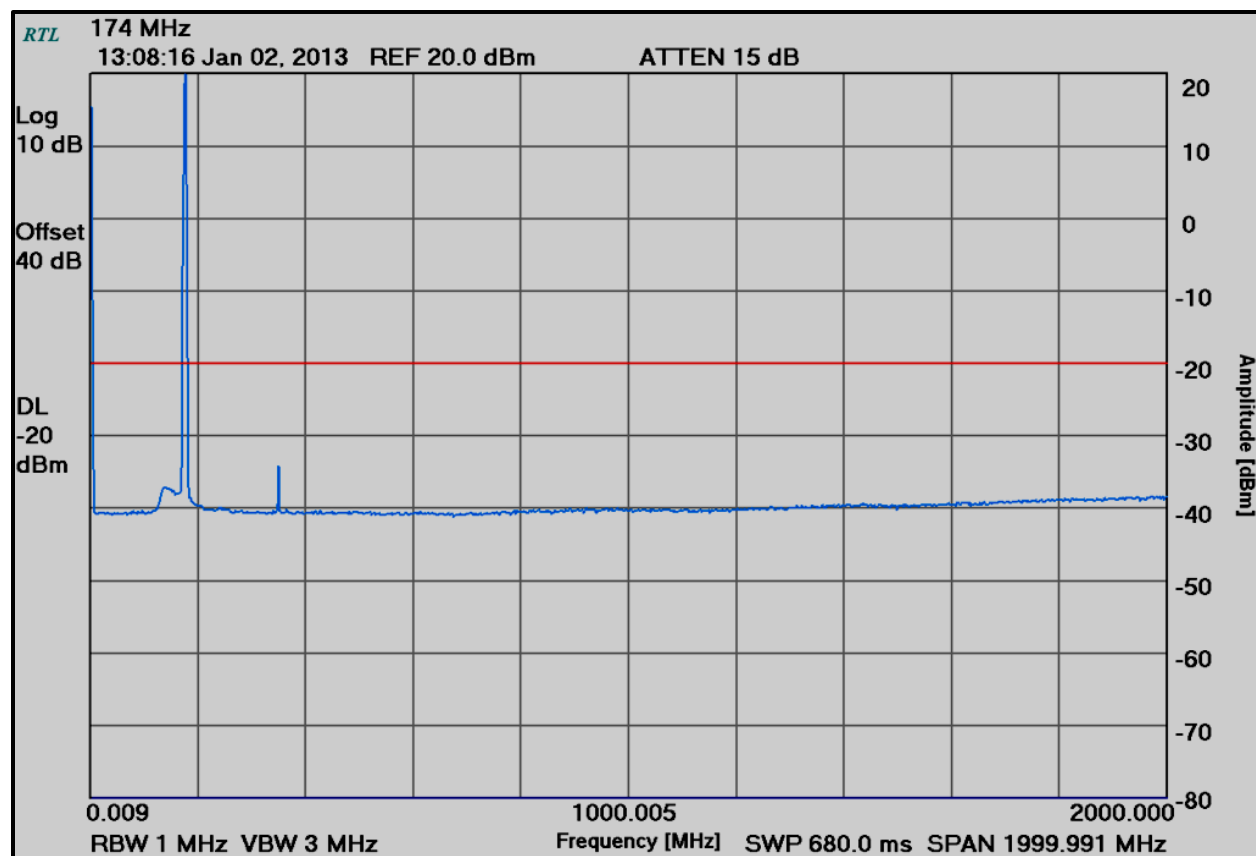


Table 4-1: Test Equipment Used for Testing Spurious Emissions

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901581	Rohde & Schwarz	1166.1660.50	Spectrum Analyzer	2001006	6/3/13
901537	Weinschel Corp	48-40-34	Attenuator, 40 dB, 100W	CB66628	12/14/13

Test Personnel:

Daniel Baltzell
EMC Test Engineer

Signature

January 2, 2013
Date of Test

5 FCC §2.1049(c)(1); §90.210; RSS-119 §5.8: Occupied Bandwidth

5.1 Test Procedure

TIA-102.CCAA August 2011, section 2.2.5, TIA-102.CCAB October 2011, section 3.2.5

Notes: FCC 90.210, RSS-119 and TIA-102.CCAB October 2011 section 3.2.5.1 all specify mask D

FCC §90.210

Applicable Emission Masks		
Frequency Band (MHz)	Mask for Equipment with Audio Low Pass Filter	Mask for Equipment without Audio Low Pass Filter
Below 25 ¹	A or B	A or C
25–50	B	C
72–76	B	C
150–174 ²	B, D, or E	C, D, or E
150 Paging-only	B	C
220–222	F	F
421–512 ²	B, D, or E	C, D, or E
450 Paging-only	B	G
806–809/851–854	B	H
809–824/854–869 ³	B	G
896–901/935–940	I	J
902–928	K	K
929–930	B	G
4940–4990 MHz	L or M	L or M
5850–5925 ⁴		
All other bands	B	C

¹ Equipment using single sideband J3E emission must meet the requirements of Emission Mask A. Equipment using other emissions must meet the requirements of Emission Mask B or C, as applicable.

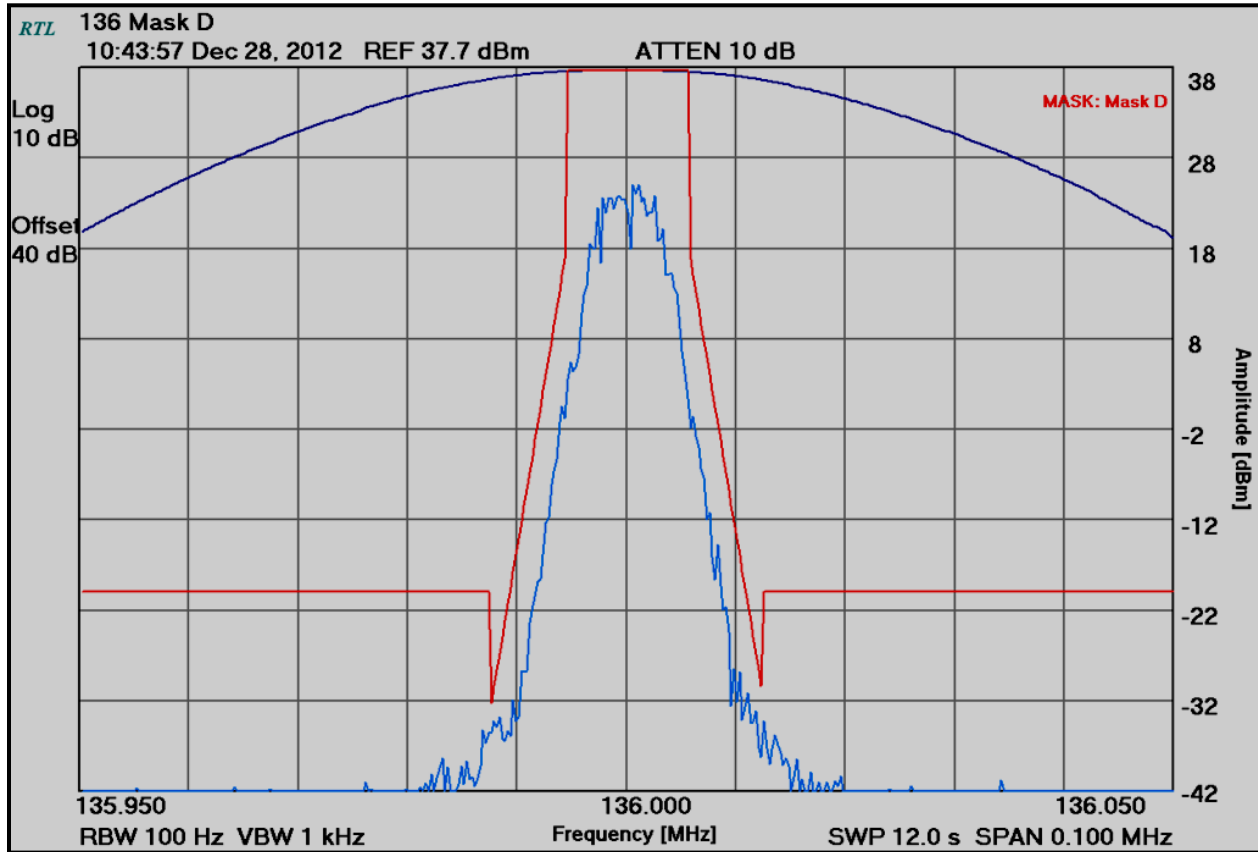
² Equipment designed to operate with a 25 kHz channel bandwidth must meet the requirements of Emission Mask B or C, as applicable. Equipment designed to operate with a 12.5 kHz channel bandwidth must meet the requirements of Emission Mask D, and equipment designed to operate with a 6.25 kHz channel bandwidth must meet the requirements of Emission Mask E.

³ Equipment used in this licensed to EA or non-EA systems shall comply with the emission mask provisions of §90.691.

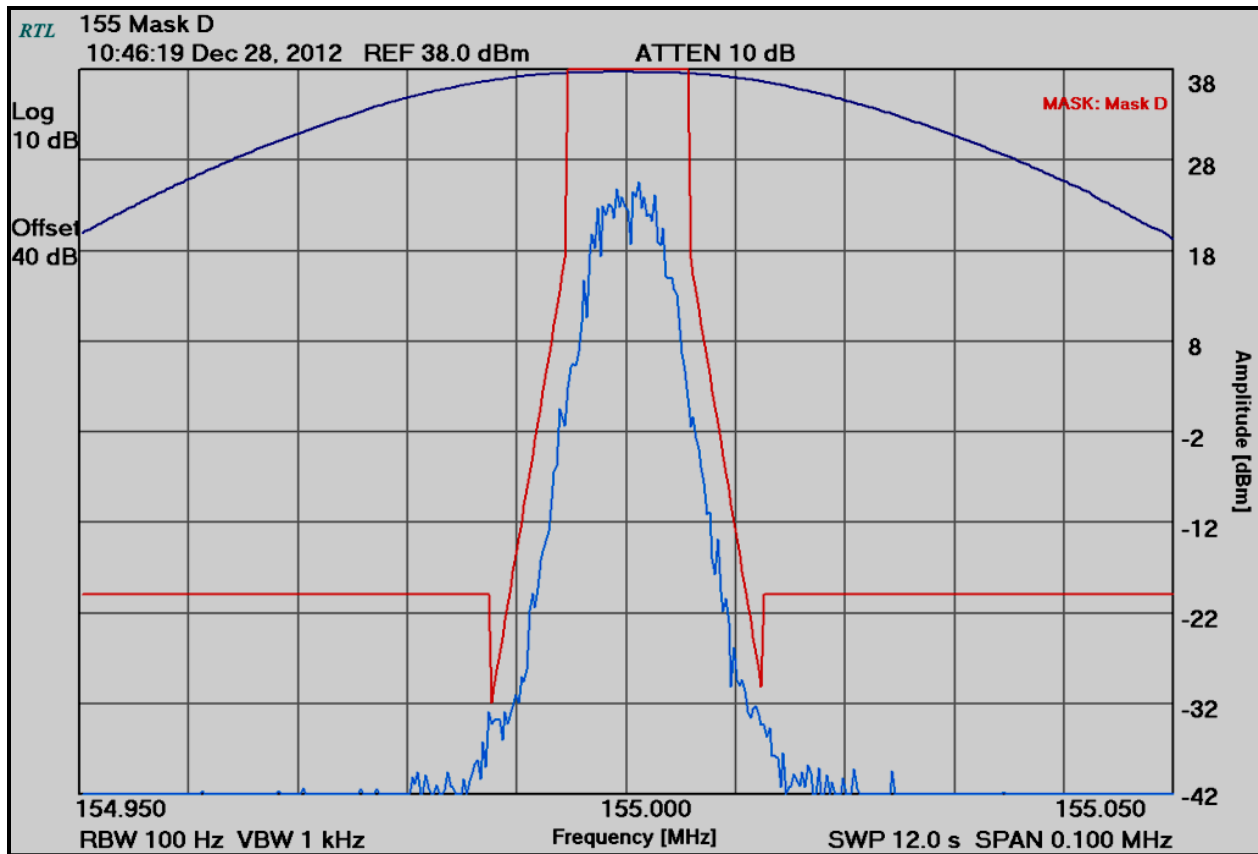
⁴ DSRCS Roadside Unit equipment in the 5850–5925 MHz band is governed under subpart M of this part.

5.2 Test Data

Plot 5-1: Occupied Bandwidth – H-CPM TDMA; 136.0 MHz; Mask D



Plot 5-2: Occupied Bandwidth – H-CPM TDMA; 155.0 MHz; Mask D



Plot 5-3: Occupied Bandwidth – H-CPM TDMA; 174.0 MHz; Mask D

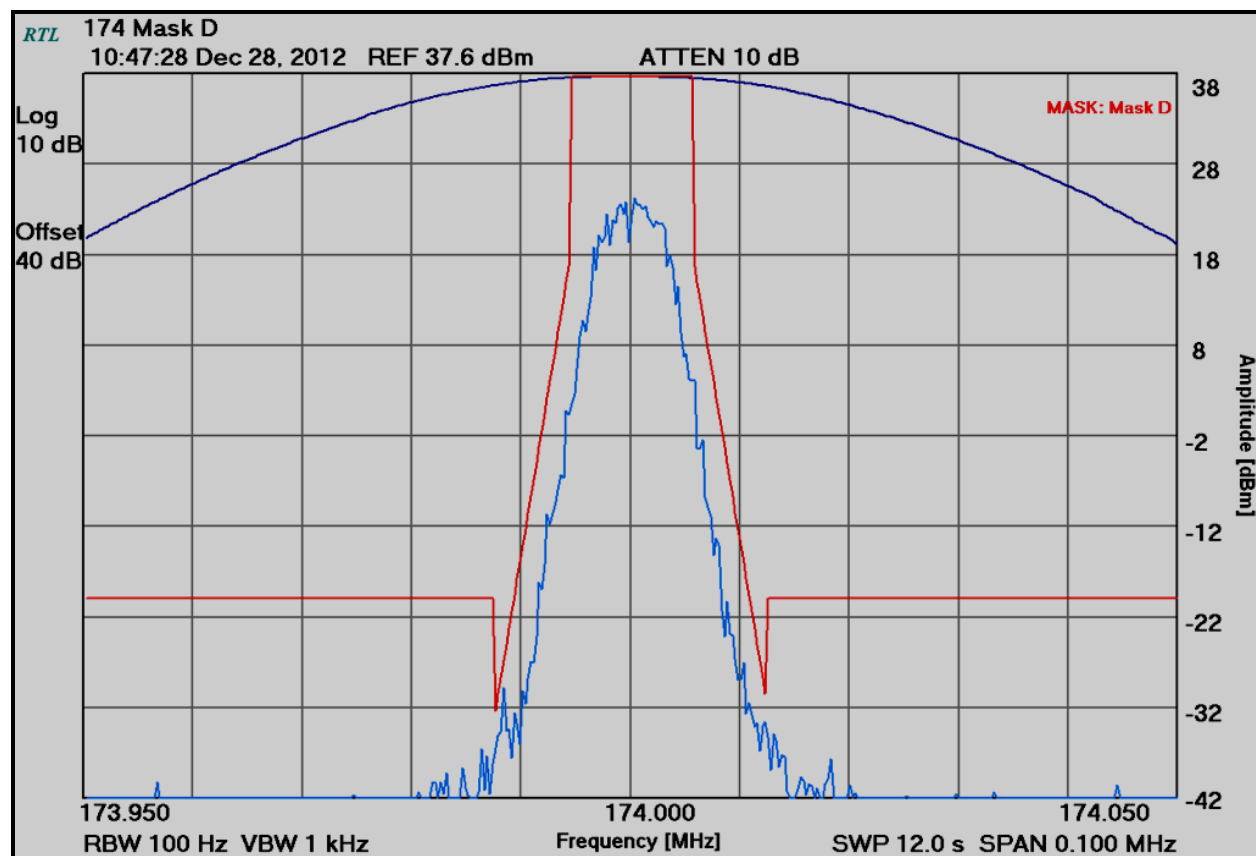


Table 5-1: Test Equipment Used for Testing Occupied Bandwidth

RTL Asset #	Manufacturer	Model	Part Type	Serial Number	Calibration Due Date
901581	Rohde & Schwarz	1166.1660.50	Spectrum Analyzer	2001006	6/3/13
901537	Weinschel Corp	48-40-34	Attenuator, 40 dB, 100W	CB66628	12/14/13
901337	Narda Microline	766-10	Attenuator (DC-4GHz, 10 dB, 20W)	6242	8/17/13

Test Personnel:

Daniel Baltzell
Test Engineer

Daniel W. Baltzell
Signature

December 28, 2012
Date of Test

Rhein Tech Laboratories, Inc.
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Herndon, VA20170
<http://www.rheintech.com>

Client: Harris Corporation
Model: P5500 VHF
ID's: OWDTR-0067-E/3636B-0067
Standards: FCC Part 90/IC RSS-119
Report #: 2012376

6 Conclusion

The data in this Class 2 measurement report shows that the Harris Corporation Model P5500 VHF; FCC ID: OWDTR-0067-E, IC: 3636B-0067, complies with all the applicable requirements of FCC Parts 90 and 2, and Industry Canada RSS-119.