HERMON LABORATORIES

ELECTRICAL TESTING
0839.01

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TEST REPORT

ACCORDING TO: FCC part 27

FOR:

Airspan Networks (Israel) Ltd.

Subscriber unit

Model: ProST 1.4G TDD V-p

Table of contents

1 Applicant information

Client name:	Airspan Networks Inc.
Address:	777 Yamato Rd, Suite 310, Boca Raton 33431, Florida, USA
Telephone:	+1 561 893 8686
Fax:	+1 561 893 8671
E-mail:	zlevi@airspan.com
Contact name:	Mr. Zion Levi

2 Equipment under test attributes

Product name:	Subscriber unit
Product type:	Transceiver
Model(s):	ProST 1.4G TDD V-p
Serial number:	48FF88C5C948
Hardware version:	A0
Software release:	V7.9.12.0
Receipt date	4/3/2011

3 Manufacturer information

Manufacturer name:	Airspan Networks Inc.
Address:	777 Yamato Rd, Suite 310, Boca Raton 33431, Florida, USA
Telephone:	+1 561 893 8686
Fax:	+1 561 893 8671
E-Mail:	zlevi@airspan.com
Contact name:	Mr. Zion Levi

4 Test details

Project ID:	21822
Location:	Hermon Laboratories Ltd. Harakevet Industrial Zone, Binyamina 30500, Israel
Test started:	4/3/2011
Test completed:	4/5/2011
Test specification(s):	FCC part 27

5 Tests summary

Test	Status
Transmitter characteristics	
Section 27.50(e)(1), (2), Peak output power at RF antenna connector	Pass
Section 2.1091, 27.52, RF safety	Pass, Exhibit provided in Application
Section 27.53(j), Spurious emissions at RF antenna connector	Pass
Section 27.53(j), Band edge emissions at RF antenna connector	Pass
Section 27.53(j), Radiated spurious emissions	Pass, refer to test report AIRRAD_FCC.19957_ProST
Section 27.54, Frequency stability	Pass, refer to test report AIRRAD_FCC.19957_ProST
Section 2.1049, Occupied bandwidth	Pass

This report presents the test results for additional frequency channels for Application for certification, FCC ID:PIDASMAX145.
The test results relate only to the items tested. Pass/ fail decision was based on nominal values.

	Name and Title	Date	Signature
Tested by:	Mrs. E. Pittl, test engineer Mr. S. Samokha, test engineer	April 5, 2011	
Reviewed by:	Mrs. M. Cherniavsky, certification engineer	May 1, 2011	
Approved by:	Mr. M. Nikishin, EMC and Radio group manager	May 2, 2011	

6 EUT description

6.1 General information

The EUT, subscriber premises radio, model names ProST 1.4G TDD, is a part of a WiMAX broadband fixed cellular wireless access system. The system provides a radio link between an end-user (a subscriber) and a network to give high-speed data access. The ProST transceiver/receiver (up to 64 QAM modulation, data rate up to 37Mbps) uses OFDM and operates in TDD duplexing mode. The ProST 1.4G TDD is equipped with a 10 dBi internal or 18 dBi external antennas.

6.2 Ports and lines

Port type	Port description	Connected from	Connected to	Qty.	Cable type	Cable length	Indoor / outdoor
Power	DC Power	EUT	SDA (+ DATA)	1	UTP	10	Outdoor
Signal	RS-232	EUT (Maintance only)	Laptop	1	UTP	0.2	Outdoor
RF	Antenna	EUT	50 Ohm termination	1	Shielded	NA	NA

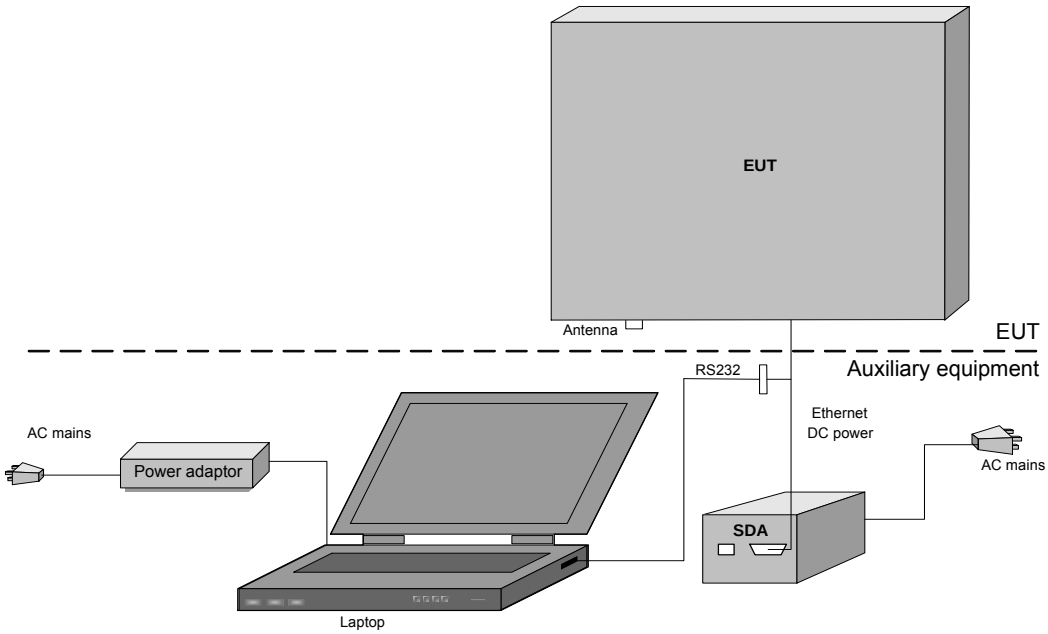
6.3 Support and test equipment

Description	Manufacturer	Model number	Serial number
Laptop	IBM	X31	99-TXWYC
Laptop adaptor	Lenovo	92P1014	Z1ZD2N74T2LSN74T2LS
SDA	Airspan	SDA-4S/VL type 2	753D6A0086

6.4 Changes made in the EUT

No changes were implemented in the EUT.

6.5 Test configuration



6.6 Transmitter characteristics

Type of equipment		
V	Stand-alone (Equipment with or without its own control provisions)	
	Combined equipment (Equipment where the radio part is fully integrated within another type of equipment)	
	Plug-in card (Equipment intended for a variety of host systems)	

Intended use		**Condition of use**
V	fixed	Always at a distance more than 2 m from all people
	mobile	Always at a distance more than 20 cm from all people
	portable	May operate at a distance closer than 20 cm to human body

Assigned frequency range	1390 – 1395 MHz; 1432 - 1435 MHz
Operating frequency	1391 - 1394 MHz; 1432.75 – 1434.25 MHz
RF channel spacing	1.5 MHz, 2.5 MHz, 3.5 MHz, 5 MHz
Maximum rated output power	At transmitter 50 Ω RF output connector: 24.94 dBm

Is transmitter output power variable?		No		
	V	Yes		continuous variable
			V	stepped variable with stepsize: 0.5 dB
				minimum RF power: -30 dBm
				maximum RF power: 24.94 dBm

Antenna connection					
unique coupling	**V**	standard connector	Integral	**V**	with temporary RF connector
					without temporary RF connector

Antenna/s technical characteristics

Type	Manufacturer	Model number	Gain (maximum)
Internal	MARS Antennas	MA-WC15-AS10	10 dBi
External	Foshan Sanshui Shing Road Antenna Co., Ltd.	TDJ-SA1500-18-65	18 dBi

Transmitter 99% power bandwidth	Transmitter aggregate data rate/s, MBps	Type of modulation
1.5 MHz	0.6285	BPSK
	1.2570	QPSK
	3.7695	16QAM
	5.6550	64QAM
2.5 MHz	1.0475	BPSK
	2.095	QPSK
	6.2825	16QAM
	9.425	64QAM
3.5 MHz	1.466	BPSK
	2.933	QPSK
	8.795	16QAM
	13.195	64QAM
5 MHz	2.095	BPSK
	4.19	QPSK
	12.565	16QAM
	18.85	64QAM

Type of multiplexing	OFDM
Modulating test signal (baseband)	PRBS
Maximum transmitter duty cycle in normal use	100%

Transmitter power source						
		Nominal rated voltage		Battery type		
V	DC	**Nominal rated voltage**	48 VDC via SDA			
	AC mains	**Nominal rated voltage**	120 V	Frequency	60 Hz	

Common power source for transmitter and receiver	**V** yes	no

Test specification:	**Section 27.50(e)(1), (2), Peak output power**		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	**Verdict:**	PASS
Date:	4/4/2011		
Temperature: 23 ºC	**Air Pressure:** 1011 hPa	**Relative Humidity:** 53 %	**Power Supply:** 120 VAC
Remarks:			

7 Transmitter tests according to 47CFR part 27 requirements

7.1 Peak output power test

7.1.1 General

This test was performed to measure the peak output power at RF antenna connector. Specification test limits are given in Table 7.1.1.

Table 7.1.1 Peak output power limits for Fixed Base Station

Assigned frequency range, MHz	Maximum peak output power, EIRP	
	W	dBm
1390.0 – 1395.0	100	50.0
1432.0 – 1435.0	2000	63.0

7.1.2 Test procedure

7.1.2.1 The EUT was set up as shown in Figure 7.1.1, energized and its proper operation was checked.
7.1.2.2 The EUT was adjusted to produce maximum available to the end user RF output power.
7.1.2.3 The peak output power was measured with power meter as provided in Table 7.1.2.

Figure 7.1.1 Peak output power test setup

Test specification:	**Section 27.50(e)(1), (2), Peak output power**		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	**Verdict:**	PASS
Date:	4/4/2011		
Temperature: 23 ºC	**Air Pressure:** 1011 hPa	**Relative Humidity:** 53 %	**Power Supply:** 120 VAC
Remarks:			

Table 7.1.2 Peak output power test results

ASSIGHED FREQUENCY RANGE: 1390.0 – 1395.0 MHz
DETECTOR USED: Power Meter RMS
MODULATION: BPSK, 64QAM
MODULATING SIGNAL: PRBS
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
ANTENNA GAIN: 18 dBi
DUTY CYCLE: 80 %

Carrier frequency, MHz	Power meter reading, dBm	External attenuation, dB	Cable loss, dB	RF output power*, EIRP dBm	Limit, EIRP, dBm	Margin, dB	Verdict
EBW 1.5 MHz							
BPSK							
1391.0	23.81	Included	Included	41.81	50.0	-8.19	Pass
64QAM							
1391.0	24.49	Included	Included	42.49	50.0	-7.51	Pass
BPSK							
1394.0	24.20	Included	Included	42.20	50.0	-7.80	Pass
64QAM							
1394.0	24.94	Included	Included	42.94	50.0	-7.06	Pass
EBW 2.5 MHz							
BPSK							
1391.25	23.46	Included	Included	41.46	50.0	-8.54	Pass
64QAM							
1391.25	24.60	Included	Included	42.60	50.0	-7.40	Pass
BPSK							
1393.750	24.61	Included	Included	42.61	50.0	-7.39	Pass
64QAM							
1393.750	24.72	Included	Included	42.72	50.0	-7.28	Pass
EBW 3.5 MHz							
BPSK							
1392.5	24.61	Included	Included	42.61	50.0	-7.39	Pass
64QAM							
1392.5	24.62	Included	Included	42.62	50.0	-7.38	Pass
EBW 5 MHz							
BPSK							
1392.5	24.45	Included	Included	42.45	50.0	-7.55	Pass
64QAM							
1392.5	24.67	Included	Included	42.67	50.0	-7.33	Pass

* - RF output power, EIRP (dBm) = Power meter reading, dBm + Antenna gain, dBi

Test specification:	**Section 27.50(e)(1), (2), Peak output power**		
Test procedure:	47 CFR, Section 2.1046; TIA/EIA-603-C, Section 2.2.1		
Test mode:	Compliance	**Verdict:**	PASS
Date:	4/4/2011		
Temperature: 23 ºC	**Air Pressure:** 1011 hPa	**Relative Humidity:** 53 %	**Power Supply:** 120 VAC
Remarks:			

Table 7.1.2 Peak output power test results (continued)

ASSIGHED FREQUENCY RANGE:	1432.0 – 1435.0 MHz
DETECTOR USED:	Power Meter RMS
MODULATION:	BPSK, 64QAM
MODULATING SIGNAL:	PRBS
TRANSMITTER OUTPUT POWER SETTINGS:	Maximum
EBW:	1.5 MHz
ANTENNA GAIN:	18 dBi
DUTY CYCLE:	80 %

Carrier frequency, MHz	Power meter reading, dBm	External attenuation, dB	Cable loss, dB	RF output power*, EIRP dBm	Limit, EIRP, dBm	Margin, dB	Verdict
BPSK							
1432.75	24.50	Included	Included	42.50	63.0	-20.50	Pass
64QAM							
1432.75	24.30	Included	Included	42.30	63.0	-20.70	Pass
BPSK							
1434.25	24.47	Included	Included	42.47	63.0	-20.53	Pass
64QAM							
1434.25	24.30	Included	Included	42.30	63.0	-20.70	Pass

* - RF output power, EIRP (dBm) = Power meter reading, dBm + Antenna gain, dBi

Reference numbers of test equipment used

HL 3301	HL 3302	HL 3787					

Full description is given in Appendix A.

Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	4/5/2011		
Temperature: 23 ºC	Air Pressure: 1013 hPa	Relative Humidity: 49 %	Power Supply: 120 VAC
Remarks:			

7.2 Occupied bandwidth test

7.2.1 General

This test was performed to measure transmitter occupied bandwidth. Specification test limits are given in Table 7.2.1.

Table 7.2.1 Occupied bandwidth limits

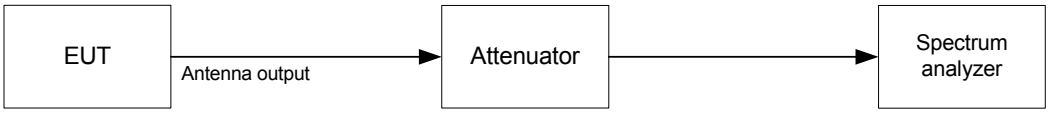
Assigned frequency, MHz	Modulation envelope reference points*, dBc	Maximum allowed bandwidth, kHz
1390.0 – 1395.0	26	NA
1432.0 – 1435.0	26	NA

* - Modulation envelope reference points are provided in terms of attenuation below the unmodulated carrier.

7.2.2 Test procedure

7.2.2.1 The EUT was set up as shown in Figure 7.2.1, energized and its proper operation was checked.
7.2.2.2 The EUT was set to transmit the unmodulated carrier and the reference peak power level was measured.
7.2.2.3 The EUT was set to transmit the normally modulated carrier.
7.2.2.4 The transmitter occupied bandwidth was measured with spectrum analyzer as a frequency delta between the reference points on modulation envelope and provided in Table 7.2.2 and the associated plots.

Figure 7.2.1 Occupied bandwidth test setup



Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	4/5/2011		
Temperature: 23 ºC	Air Pressure: 1013 hPa	Relative Humidity: 49 %	Power Supply: 120 VAC
Remarks:			

Table 7.2.2 Occupied bandwidth test results

DETECTOR USED: Peak hold
MODULATION ENVELOPE REFERENCE POINTS: 26 dBc
MODULATION: BPSK

Carrier frequency, MHz	Emission Bandwidth, kHz	Occupied bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
1391.00	1500	1467	NA	NA	NA
1394.00		1458	NA	NA	NA
1432.75		1467	NA	NA	NA
1434.25		1467	NA	NA	NA
1391.25	2500	2385	NA	NA	NA
1393.75		2395	NA	NA	NA
1392.50	3500	3374	NA	NA	NA
1392.50	5000	4840	NA	NA	NA

DETECTOR USED: Peak hold
MODULATION ENVELOPE REFERENCE POINTS: 26 dBc
MODULATION: 64 QAM

Carrier frequency, MHz	Emission Bandwidth, kHz	Occupied bandwidth, kHz	Limit, kHz	Margin, kHz	Verdict
1391.00	1500	1464	NA	NA	NA
1394.00		1458	NA	NA	NA
1432.75		1467	NA	NA	NA
1434.25		1467	NA	NA	NA
1391.25	2500	2395	NA	NA	NA
1393.75		2395	NA	NA	NA
1392.50	3500	3374	NA	NA	NA
1392.50	5000	4830	NA	NA	NA

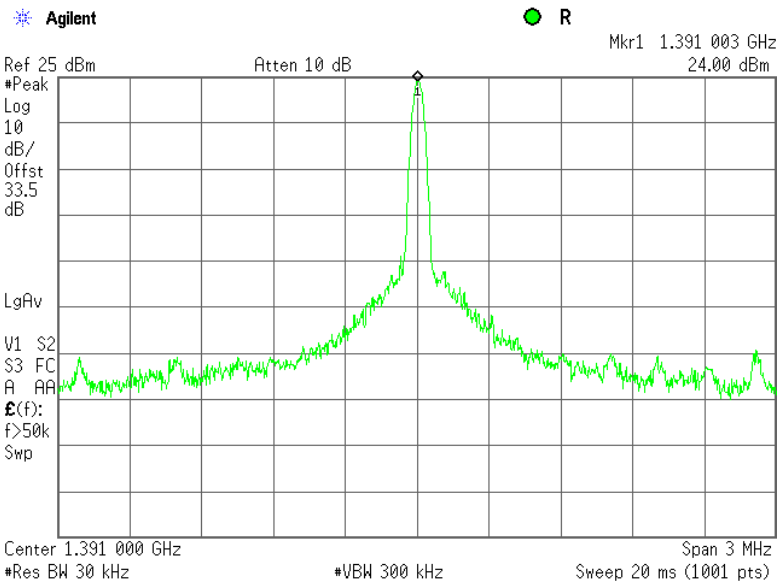
Reference numbers of test equipment used

HL 1906	HL 2951	HL 3301	HL 3302	HL 3763	HL 3787	HL 3818	

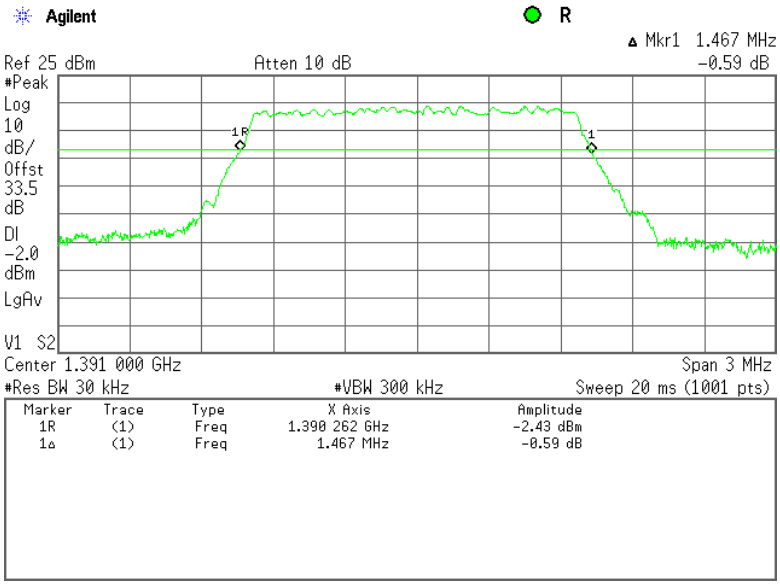
Full description is given in Appendix A.

Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	4/5/2011		
Temperature: 23 ºC	Air Pressure: 1013 hPa	Relative Humidity: 49 %	Power Supply: 120 VAC
Remarks:			

Plot 7.2.1 Occupied bandwidth test result at 1391.0 MHz reference level, unmodulated, 1.5 MHz EBW

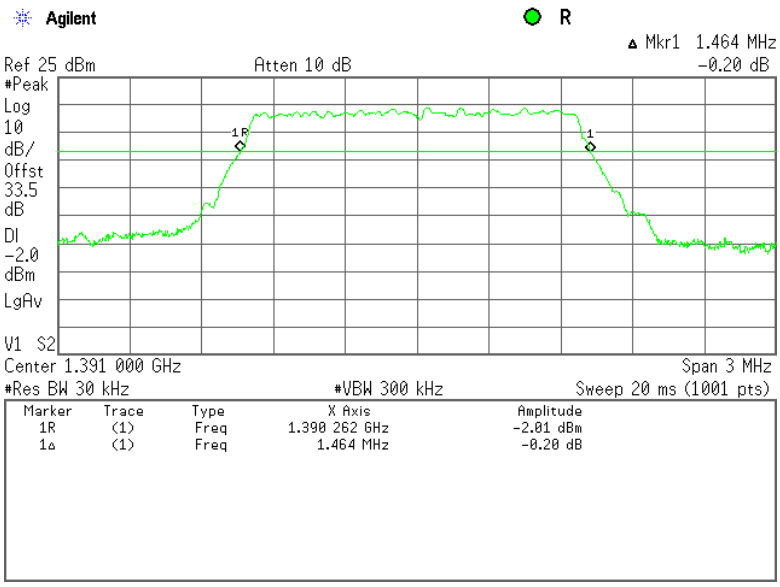


Plot 7.2.2 Occupied bandwidth test result at 1391.0 MHz, 1.5 MHz EBW, BPSK

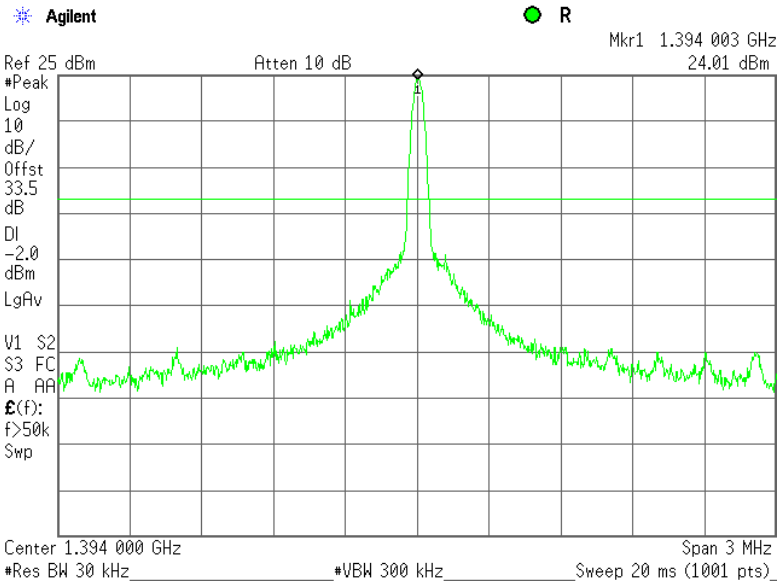


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	4/5/2011		
Temperature: 23 ºC	Air Pressure: 1013 hPa	Relative Humidity: 49 %	Power Supply: 120 VAC
Remarks:			

Plot 7.2.3 Occupied bandwidth test result at 1391.0 MHz, 1.5 MHz EBW, 64QAM

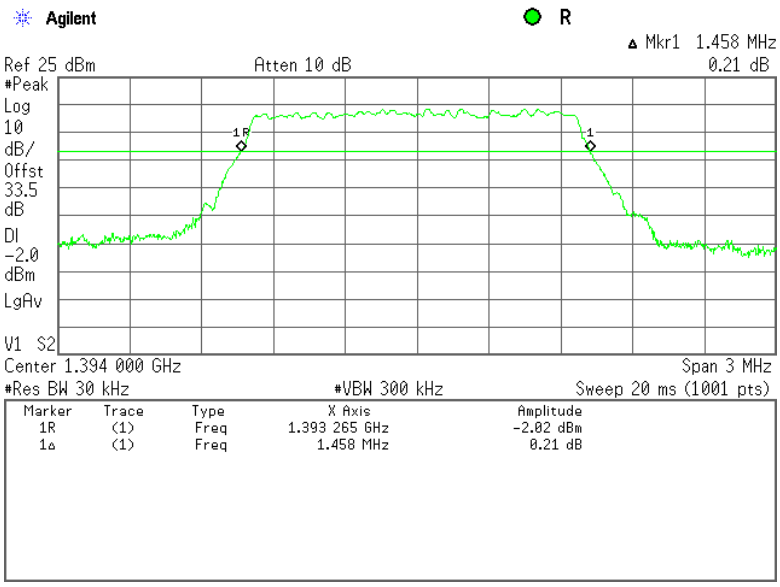


Plot 7.2.4 Occupied bandwidth test result at 1394.0 MHz reference level, unmodulated, 1.5 MHz EBW

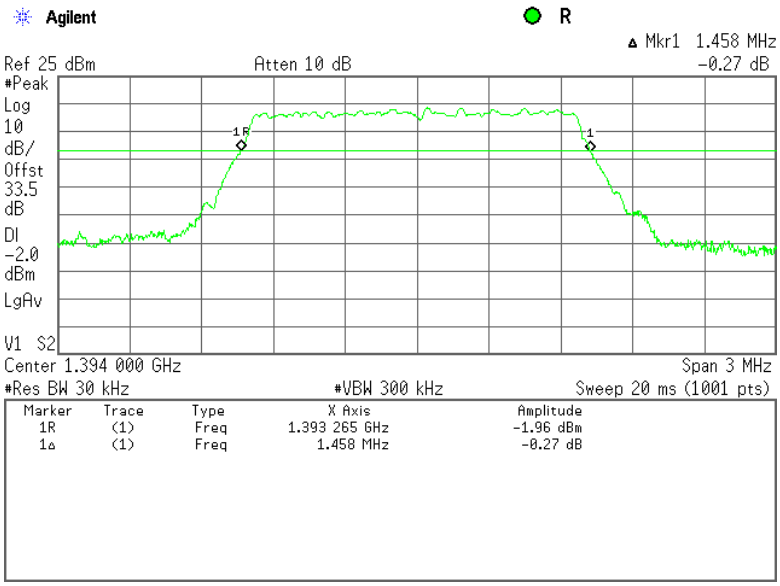


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	4/5/2011		
Temperature: 23 ºC	Air Pressure: 1013 hPa	Relative Humidity: 49 %	Power Supply: 120 VAC
Remarks:			

Plot 7.2.5 Occupied bandwidth test result at 1394 MHz, 1.5 MHz EBW, BPSK

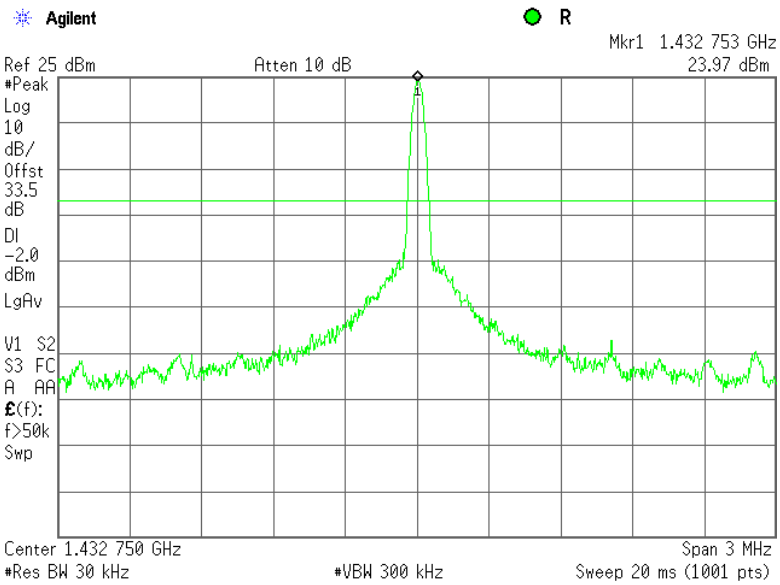


Plot 7.2.6 Occupied bandwidth test result 1394 MHz, 1.5 MHz EBW, 64QAM

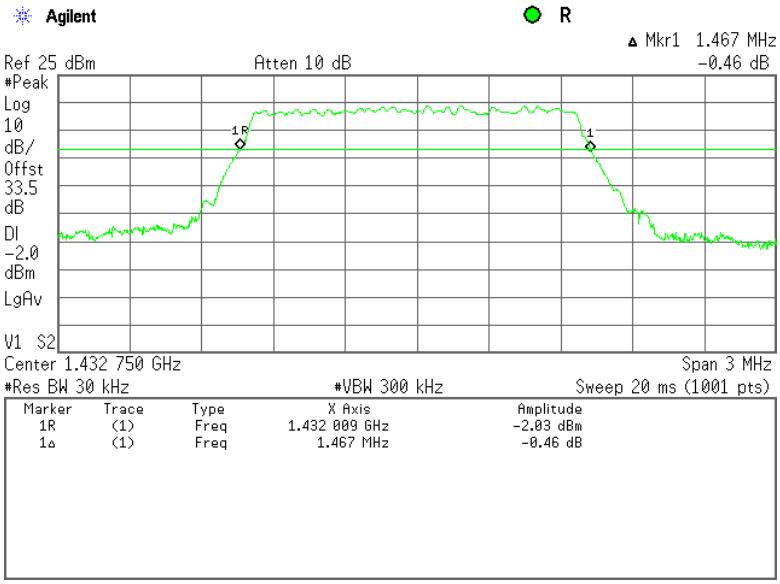


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	4/5/2011		
Temperature: 23 ºC	Air Pressure: 1013 hPa	Relative Humidity: 49 %	Power Supply: 120 VAC
Remarks:			

Plot 7.2.7 Occupied bandwidth test result at 1432.75 MHz reference level, unmodulated, 1.5 MHz EBW

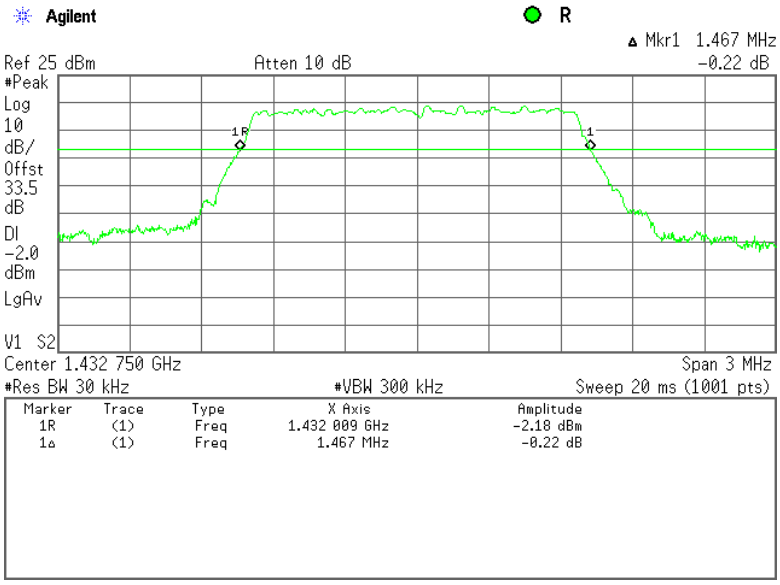


Plot 7.2.8 Occupied bandwidth test result at 1432.75 MHz, 1.5 MHz EBW, BPSK

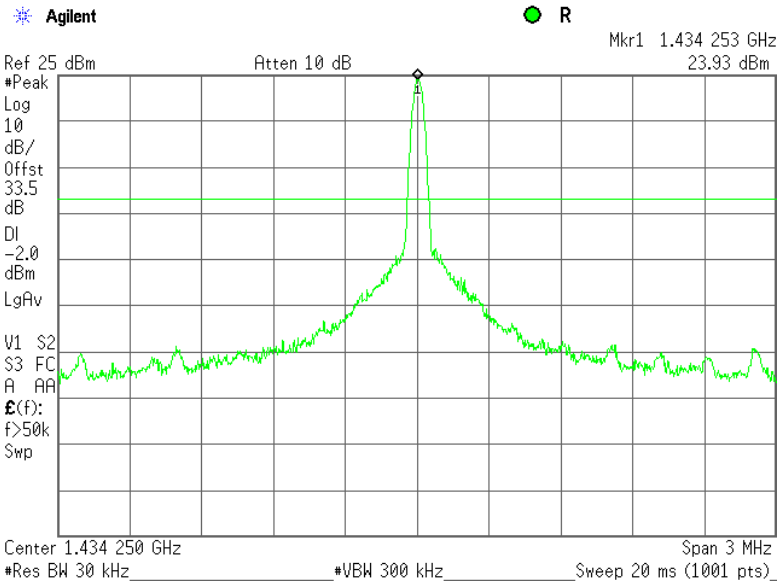


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	4/5/2011		
Temperature: 23 ºC	Air Pressure: 1013 hPa	Relative Humidity: 49 %	Power Supply: 120 VAC
Remarks:			

Plot 7.2.9 Occupied bandwidth test result at 1432.75 MHz, 1.5 MHz EBW, 64QAM

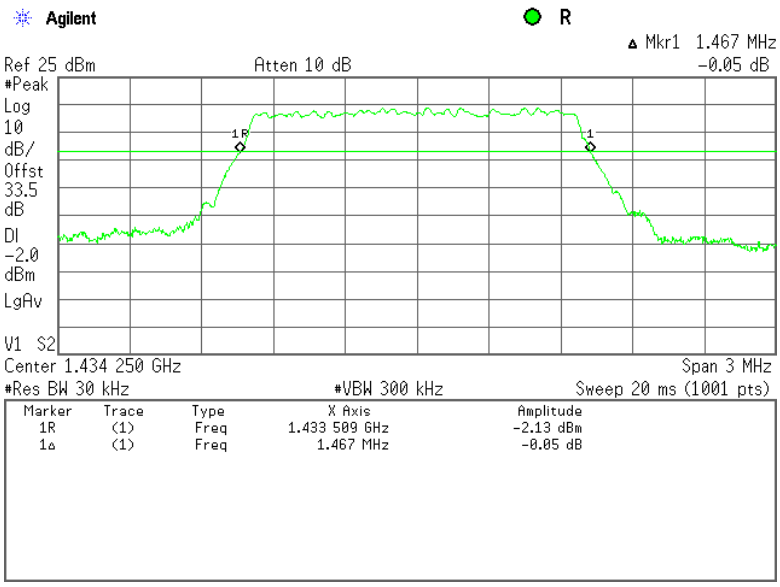


Plot 7.2.10 Occupied bandwidth test result at 1434.25 MHz reference level, unmodulated, 1.5 MHz EBW

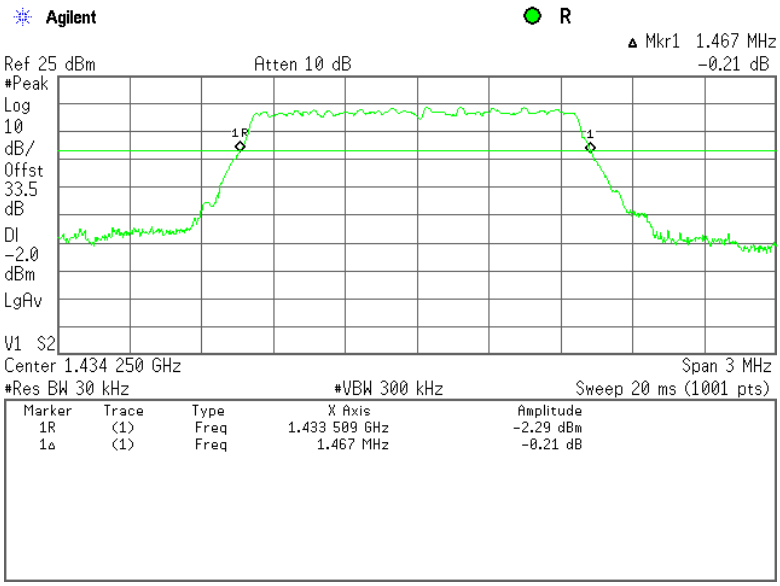


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	4/5/2011		
Temperature: 23 ºC	Air Pressure: 1013 hPa	Relative Humidity: 49 %	Power Supply: 120 VAC
Remarks:			

Plot 7.2.11 Occupied bandwidth test result at 1434.25 MHz, 1.5 MHz EBW, BPSK

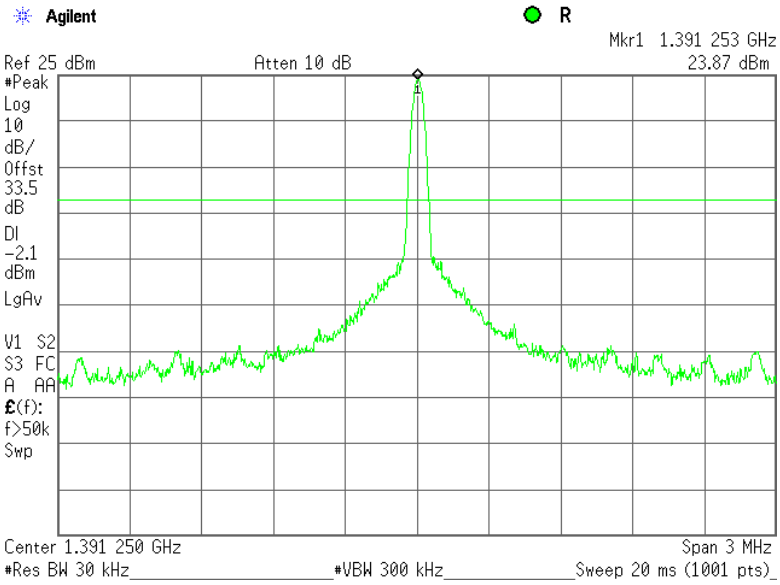


Plot 7.2.12 Occupied bandwidth test result at 1434.25 MHz, 1.5 MHz EBW, 64QAM

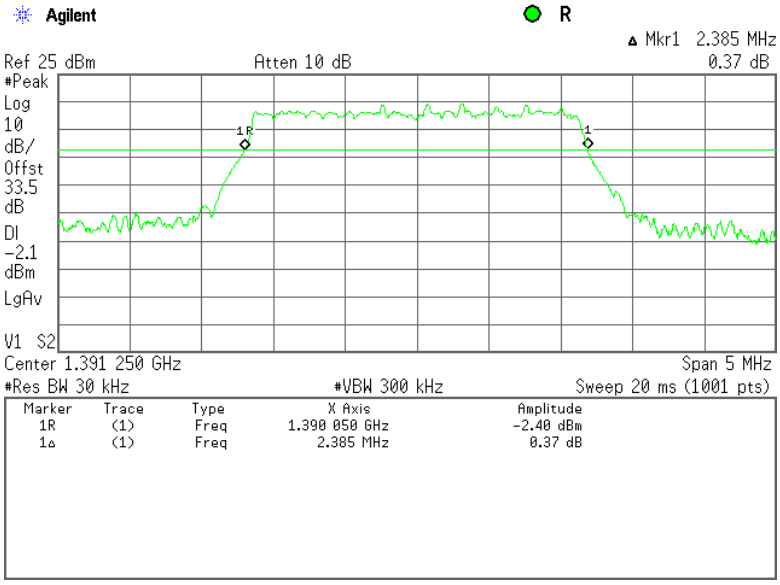


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	4/5/2011		
Temperature: 23 ºC	Air Pressure: 1013 hPa	Relative Humidity: 49 %	Power Supply: 120 VAC
Remarks:			

Plot 7.2.13 Occupied bandwidth test result at 1391.25 MHz reference level, unmodulated, 2.5 MHz EBW

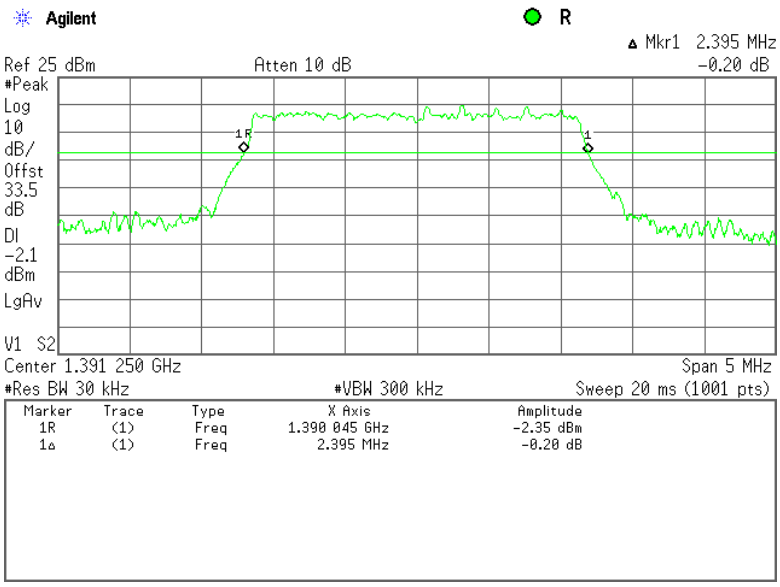


Plot 7.2.14 Occupied bandwidth test result at 1391.25 MHz, 2.5 MHz EBW, BPSK

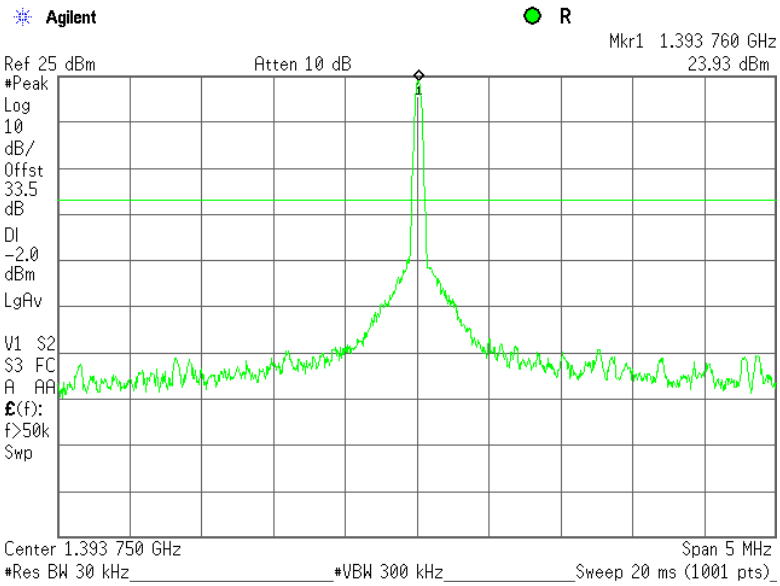


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	4/5/2011		
Temperature: 23 ºC	Air Pressure: 1013 hPa	Relative Humidity: 49 %	Power Supply: 120 VAC
Remarks:			

Plot 7.2.15 Occupied bandwidth test result at 1391.25 MHz, 2.5 MHz EBW, 64QAM

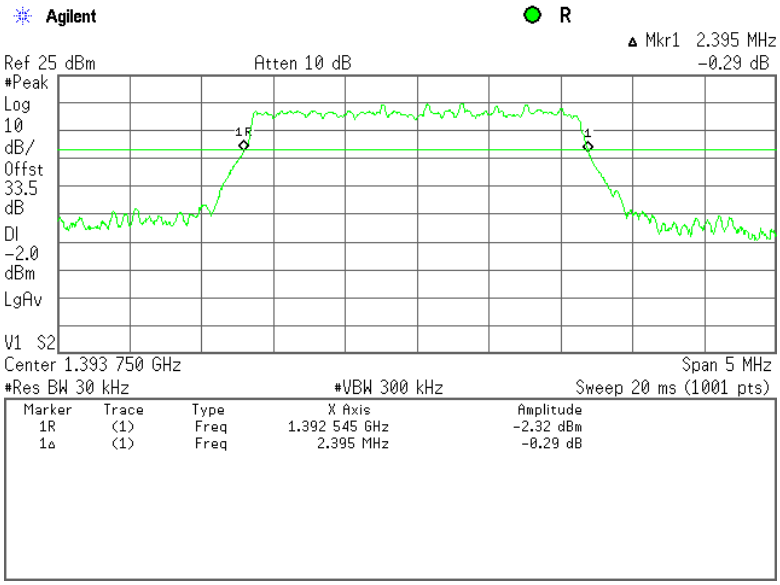


Plot 7.2.16 Occupied bandwidth test result at 1393.75 MHz reference level, unmodulated, 2.5 MHz EBW

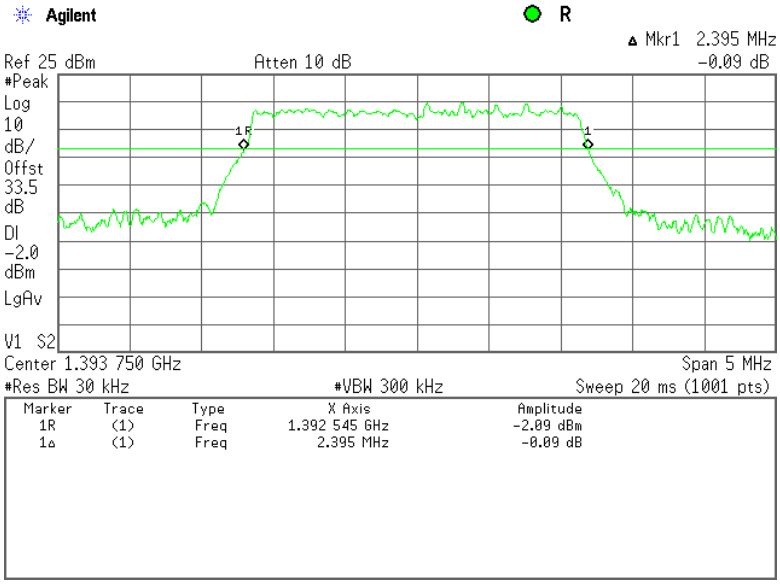


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	4/5/2011		
Temperature: 23 ºC	Air Pressure: 1013 hPa	Relative Humidity: 49 %	Power Supply: 120 VAC
Remarks:			

Plot 7.2.17 Occupied bandwidth test result at 1393.75 MHz, 2.5 MHz EBW, BPSK

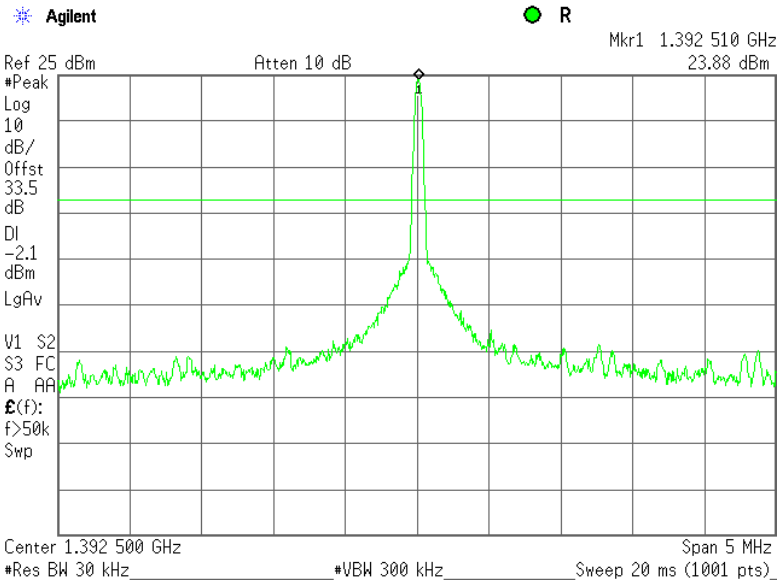


Plot 7.2.18 Occupied bandwidth test result at 1393.75 MHz, 2.5 MHz EBW, 64QAM

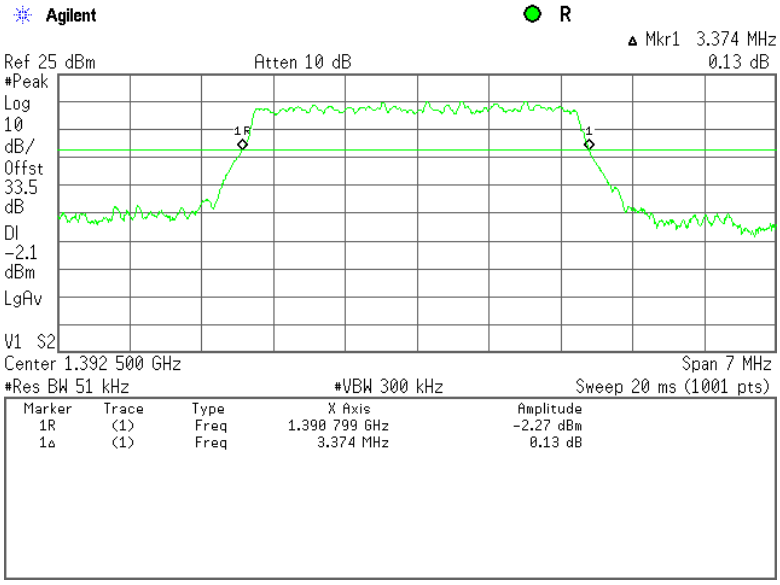


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	4/5/2011		
Temperature: 23 ºC	Air Pressure: 1013 hPa	Relative Humidity: 49 %	Power Supply: 120 VAC
Remarks:			

Plot 7.2.19 Occupied bandwidth test result at 1392.5 MHz reference level, unmodulated, 3.5 MHz EBW

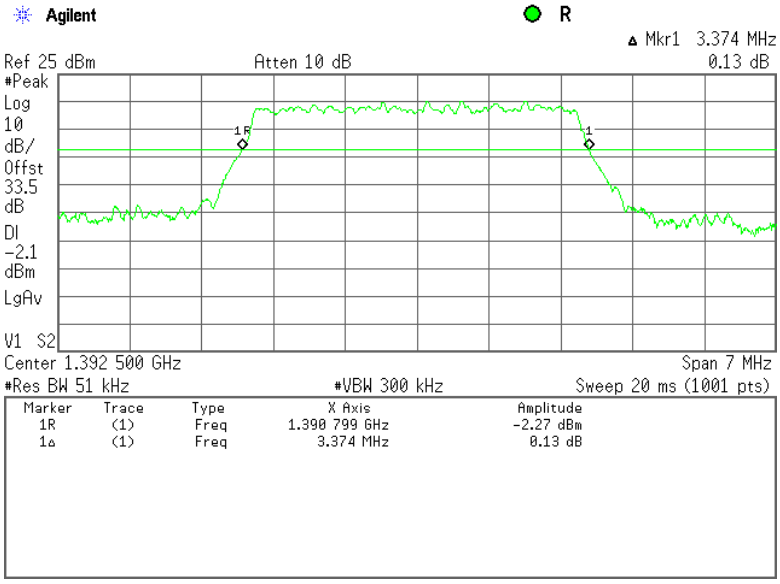


Plot 7.2.20 Occupied bandwidth test result at 1392.5 MHz, 3.5 MHz EBW, BPSK

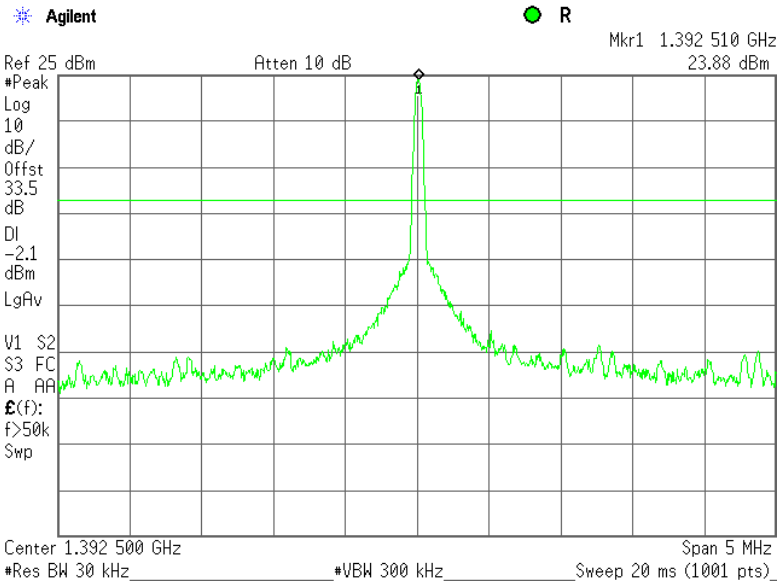


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	4/5/2011		
Temperature: 23 ºC	Air Pressure: 1013 hPa	Relative Humidity: 49 %	Power Supply: 120 VAC
Remarks:			

Plot 7.2.21 Occupied bandwidth test result at 1392.5 MHz, 3.5 MHz EBW, 64QAM

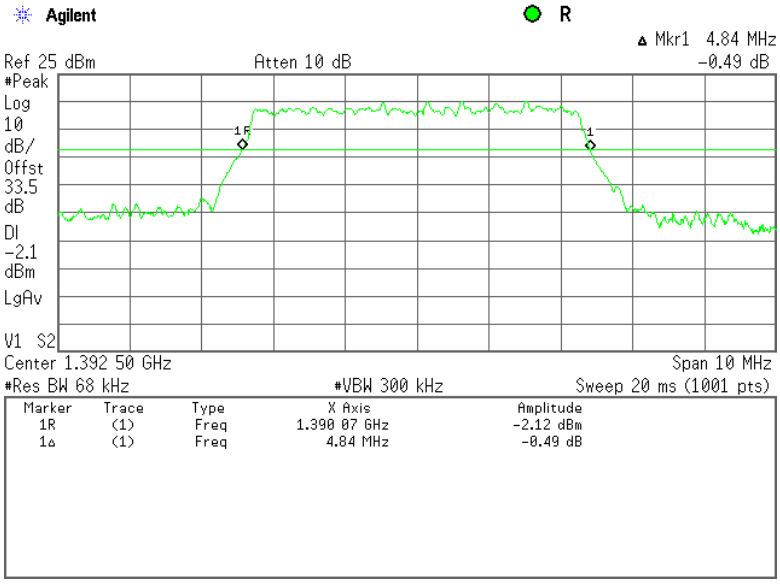


Plot 7.2.22 Occupied bandwidth test result at 1392.5 MHz reference level, unmodulated, 5 MHz EBW

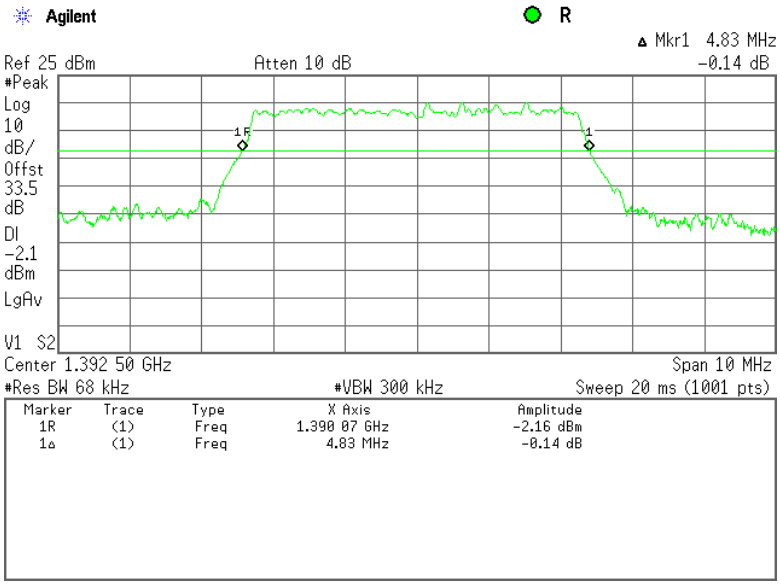


Test specification:	Section 2.1049, Occupied bandwidth		
Test procedure:	47 CFR, Section 2.1049		
Test mode:	Compliance	Verdict:	PASS
Date:	4/5/2011		
Temperature: 23 ºC	Air Pressure: 1013 hPa	Relative Humidity: 49 %	Power Supply: 120 VAC
Remarks:			

Plot 7.2.23 Occupied bandwidth test result at 1392.5 MHz, 5 MHz EBW, BPSK



Plot 7.2.24 Occupied bandwidth test result at 1392.5 MHz, 5 MHz EBW, 64QAM



Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

7.3 Spurious emissions at RF antenna connector test

7.3.1 General

This test was performed to measure spurious emissions at RF antenna connector. Specification test limits are given in Table 7.3.1.

Table 7.3.1 Spurious emission limits

Frequency, MHz	Attenuation below carrier, dBc	ERP of spurious, dBm
0.009 – 10th harmonic*	43+10logP**	-13.0

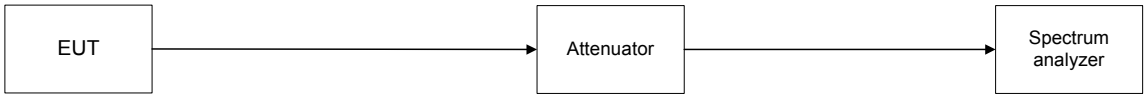
* - spurious emission limits do not apply to the in band emission of the authorized bandwidth
** - P is transmitter output power in Watts

7.3.2 Test procedure

7.3.2.1 The EUT was set up as shown in Figure 7.3.1, energized and its proper operation was checked.
7.3.2.2 The EUT was adjusted to produce maximum available for end user RF output power.
7.3.2.3 The spurious emission was measured with spectrum analyzer as provided in Table 7.3.2, Table 7.3.3 and the associated plots.

Conducted spurious emissions were tested with EUT configured to transmit at 1.5 MHz EBW and 64QAM modulation assuming that this configuration produced the maximum RF power density.
However, the ranges 1387.0 – 1390.0 MHz, 1395-1398 MHz, 1429-1432 MHz, 1435-1438 MHz were tested with 1.5 MHz, 2.5 MHz, 3.5 MHz, 5.0 MHz EBW and 64 QAM; BPSK types of modulation.

Figure 7.3.1 Spurious emission test setup



Test specification:	**Section 27.53(j), Conducted spurious emissions**		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	**Verdict:**	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	**Air Pressure:** 1011 hPa	**Relative Humidity:** 48 %	**Power Supply:** 120 V AC
Remarks:			

Table 7.3.2 Spurious emission test results

ASSIGNED FREQUENCY RANGE: 1390.0 – 1395.0 MHz; 1432.0 – 1435.0 MHz
INVESTIGATED FREQUENCY RANGE: 0.009 – 14500 MHz
DETECTOR USED: Peak / RMS at bandedges
VIDEO BANDWIDTH: ≥ Resolution bandwidth
MODULATING SIGNAL: PRBS
TRANSMITTER OUTPUT POWER SETTINGS: Maximum
EMISSION BANDWIDTH 1.5 MHz

Frequency, MHz	SA reading, dBm	Attenuator, dB	Cable loss, dB	RBW, kHz	Spurious emission, dBm	Limit, dBm	Margin, dB*	Verdict
Low frequency 1391.0 MHz								
BPSK								
1387-1388	-45.09	Included	Included	1000	-45.09	-13	-32.09	Pass
1388-1389	-37.78	Included	Included	1000	-37.78	-13	-24.78	Pass
1389-1390	-24.28	Included	Included	1000	-24.28	-13	-11.28	Pass
64QAM								
1387-1388	-32.21	Included	Included	1000	-32.21	-13	-19.21	Pass
1388-1389	-29.64	Included	Included	1000	-29.64	-13	-16.64	Pass
1389-1390	-19.32	Included	Included	1000	-19.32	-13	-6.32	Pass
High frequency 1394 MHz								
BPSK								
1395-1396	-22.12	Included	Included	1000	-22.12	-13	-8.12	Pass
1396-1397	-30.37	Included	Included	1000	-30.37	-13	-17.37	Pass
1397-1398	-31.80	Included	Included	1000	-31.80	-13	-19.80	Pass
64QAM								
1395-1396	-21.42	Included	Included	1000	-21.42	-13	-8.42	Pass
1396-1397	-30.17	Included	Included	1000	-30.17	-13	-17.17	Pass
1397-1398	-32.09	Included	Included	1000	-32.09	-13	-19.09	Pass
Low frequency 1432.75 MHz								
BPSK								
1429-1430	-33.16	Included	Included	1000	-33.16	-13	-20.16	Pass
1430-1431	-29.15	Included	Included	1000	-29.15	-13	-16.15	Pass
1431-1432	-13.56	Included	Included	1000	-13.56	-13	-0.56	Pass
64QAM								
1429-1430	-32.58	Included	Included	1000	-32.58	-13	-19.58	Pass
1430-1431	-28.44	Included	Included	1000	-28.44	-13	-15.44	Pass
1431-1432	-13.48	Included	Included	1000	-13.48	-13	-0.48	Pass
High frequency 1434.25 MHz								
BPSK								
1435-1436	-18.84	Included	Included	1000	-18.84	-13	-6.84	Pass
1436-1437	-30.94	Included	Included	1000	-30.94	-13	-17.94	Pass
1437-1438	-32.57	Included	Included	1000	-32.57	-13	-19.57	Pass
64QAM								
1435-1436	-18.39	Included	Included	1000	-18.39	-13	-6.39	Pass
1436-1437	-30.94	Included	Included	1000	-30.94	-13	-17.94	Pass
1437-1438	-32.67	Included	Included	1000	-32.67	-13	-19.67	Pass

*****- Margin = Spurious emission – specification limit.

Reference numbers of test equipment used

HL 1906	HL 2951	HL 3301	HL 3302	HL 3763	HL 3787	HL 3818	

Full description is given in Appendix A.

Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

Table 7.3.3 Spurious emission test results

ASSIGNED FREQUENCY RANGE: 1390.0 – 1395.0 MHz
INVESTIGATED FREQUENCY RANGE: 0.009 – 14500 MHz
DETECTOR USED: Peak / RMS at bandedges
VIDEO BANDWIDTH: ≥ Resolution bandwidth
MODULATING SIGNAL: PRBS
TRANSMITTER OUTPUT POWER SETTINGS: Maximum

EMISSION BANDWIDTH 2.5 MHz

Frequency, MHz	SA reading, dBm	Attenuator, dB	Cable loss, dB	RBW, kHz	Spurious emission, dBm	Limit, dBm	Margin, dB*	Verdict
Low frequency 1391.25 MHz								
BPSK								
1387-1388	-30.71	Included	Included	1000	-30.71	-13	-17.71	Pass
1388-1389	-22.37	Included	Included	1000	-22.37	-13	-9.37	Pass
1389-1390	-15.02	Included	Included	1000	-15.02	-13	-2.02	Pass
64QAM								
1387-1388	-31.53	Included	Included	1000	-31.53	-13	-18.53	Pass
1388-1389	-23.61	Included	Included	1000	-23.61	-13	-10.61	Pass
1389-1390	-15.40	Included	Included	1000	-15.40	-13	-2.40	Pass
High frequency 1393.75 MHz								
BPSK								
1395-1396	-15.73	Included	Included	1000	-15.73	-13	-2.73	Pass
1396-1397	-26.57	Included	Included	1000	-26.57	-13	-13.57	Pass
1397-1398	-31.37	Included	Included	1000	-31.37	-13	-18.37	Pass
64QAM								
1395-1396	-15.70	Included	Included	1000	-15.70	-13	-2.70	Pass
1396-1397	-26.31	Included	Included	1000	-26.31	-13	-13.31	Pass
1397-1398	-31.03	Included	Included	1000	-31.03	-13	-18.03	Pass
EMISSION BANDWIDTH 3.5 MHz								
Frequency 1392.5 MHz								
BPSK								
1387-1388	-31.26	Included	Included	1000	-31.26	-13	-18.26	Pass
1388-1389	-22.83	Included	Included	1000	-22.83	-13	-9.83	Pass
1389-1390	-20.88	Included	Included	1000	-20.88	-13	-7.88	Pass
1395-1396	-23.29	Included	Included	1000	-23.29	-13	-10.29	Pass
1396-1397	-27.10	Included	Included	1000	-27.10	-13	-14.10	Pass
1397-1398	-31.50	Included	Included	1000	-31.50	-13	-18.50	Pass
64 QAM								
1387-1388	-32.61	Included	Included	1000	-32.61	-13	-19.61	Pass
1388-1389	-24.22	Included	Included	1000	-24.22	-13	-11.22	Pass
1389-1390	-22.35	Included	Included	1000	-22.35	-13	-9.35	Pass
1395-1396	-24.94	Included	Included	1000	-24.94	-13	-11.94	Pass
1396-1397	-28.82	Included	Included	1000	-28.82	-13	-15.82	Pass
1397-1398	-32.24	Included	Included	1000	-32.24	-13	-19.24	Pass

Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

Table 7.3.3 Spurious emission test results (continued)

ASSIGNED FREQUENCY RANGE: 1390.0 – 1395.0 MHz
INVESTIGATED FREQUENCY RANGE: 0.009 – 14500 MHz
DETECTOR USED: Peak / RMS at bandedges
VIDEO BANDWIDTH: ≥ Resolution bandwidth
MODULATING SIGNAL: PRBS
TRANSMITTER OUTPUT POWER SETTINGS: Maximum

EMISSION BANDWIDTH 5 MHz								
Frequency 1392.5 MHz								
BPSK								
1387-1388	-20.88	Included	Included	1000	-20.88	-13	-7.88	Pass
1388-1389	-20.76	Included	Included	1000	-20.76	-13	-7.76	Pass
1389-1390	-14.56	Included	Included	1000	-14.56	-13	-1.56	Pass
1395-1396	-15.05	Included	Included	1000	-15.05	-13	-2.05	Pass
1396-1397	-22.89	Included	Included	1000	-22.89	-13	-9.89	Pass
1397-1398	-26.18	Included	Included	1000	-26.18	-13	-13.18	Pass
64 QAM								
1387-1388	-20.56	Included	Included	1000	-20.56	-13	-7.56	Pass
1388-1389	-20.32	Included	Included	1000	-20.32	-13	-7.32	Pass
1389-1390	-14.04	Included	Included	1000	-14.04	-13	-1.04	Pass
1395-1396	-15.00	Included	Included	1000	-15.00	-13	-2.00	Pass
1396-1397	-22.42	Included	Included	1000	-22.42	-13	-9.42	Pass
1397-1398	-25.77	Included	Included	1000	-25.77	-13	-12.77	Pass

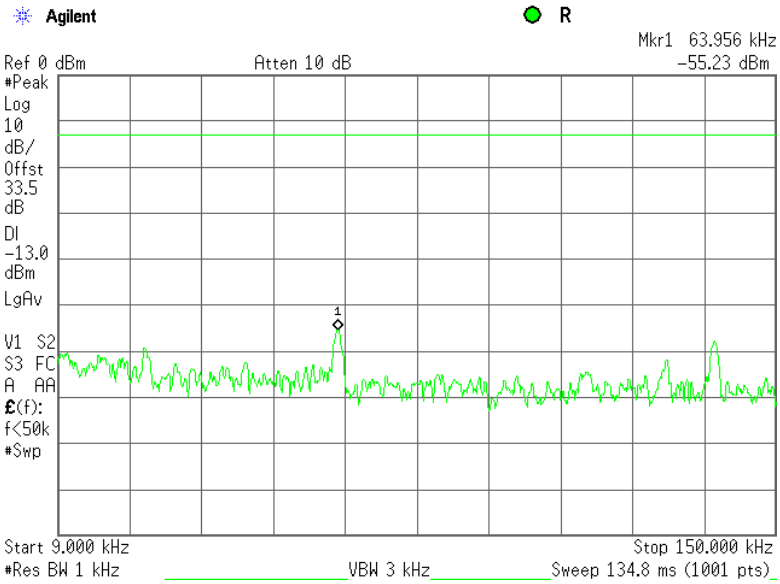
Reference numbers of test equipment used

HL 1906	HL 2951	HL 3301	HL 3302	HL 3763	HL 3787	HL 3818	

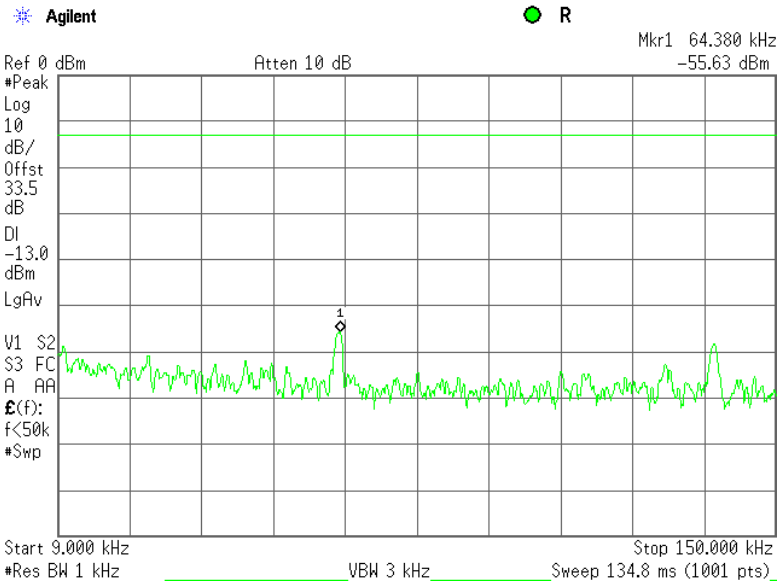
Full description is given in Appendix A.

Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.1 Spurious emission measurements in 9 – 150 kHz range at low carrier frequency

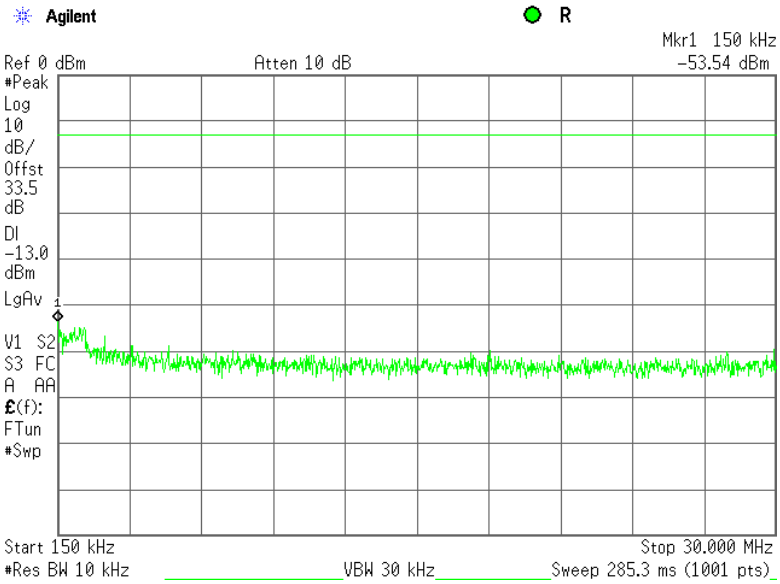


Plot 7.3.2 Spurious emission measurements in 9 – 150 kHz range at high carrier frequency

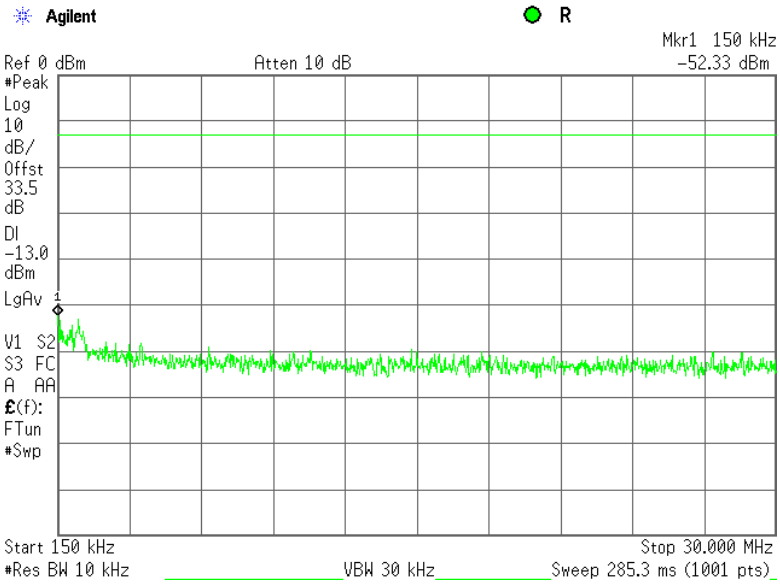


Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.3 Spurious emission measurements in 0.15 – 30.0 MHz range at low carrier frequency

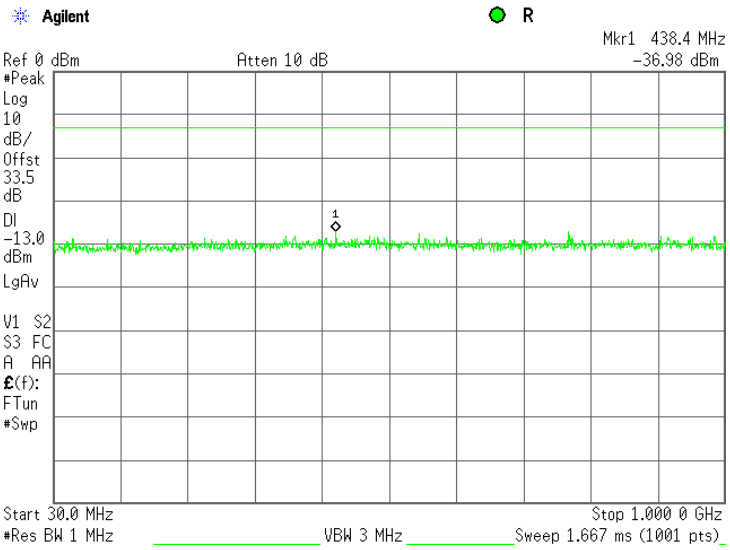


Plot 7.3.4 Spurious emission measurements in 0.15 – 30.0 MHz range at high carrier frequency

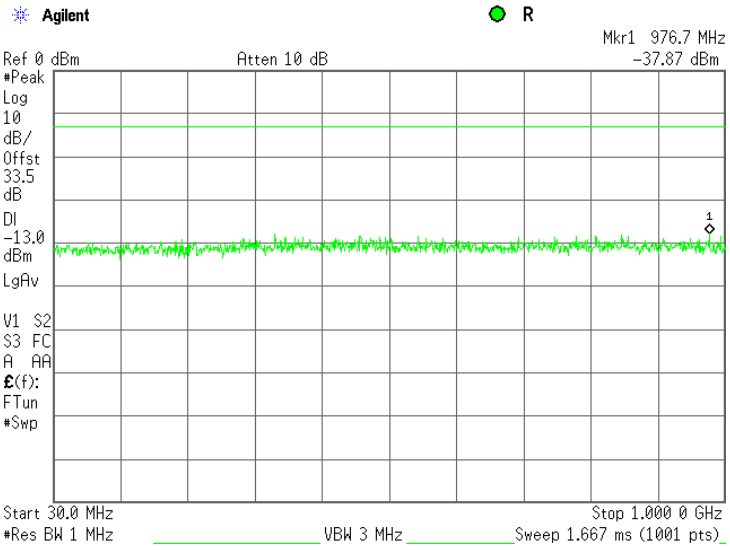


Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.5 Spurious emission measurements in 30.0 – 1000 MHz range at low carrier frequency

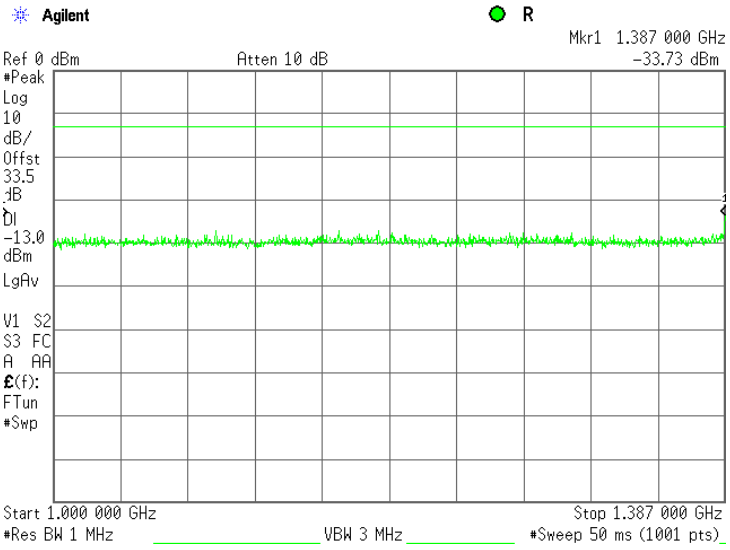


Plot 7.3.6 Spurious emission measurements in 30.0 – 1000 MHz range at high carrier frequency

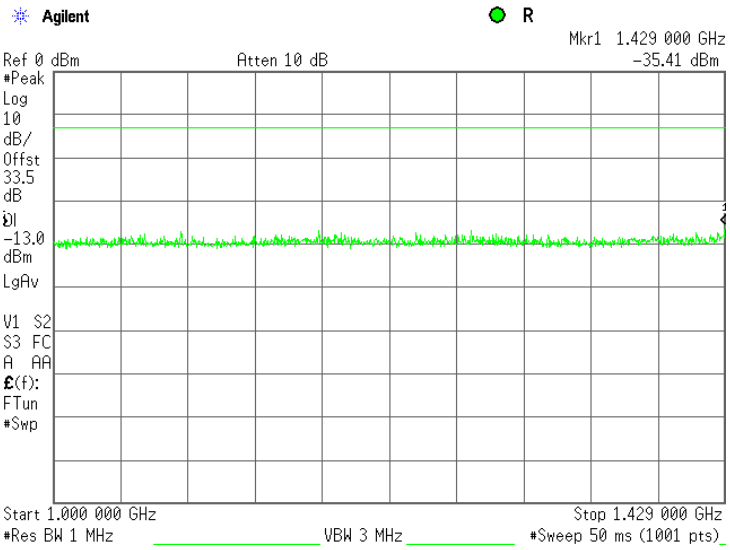


Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.7 Spurious emission measurements in 1000 – 1387 MHz range at low carrier frequency

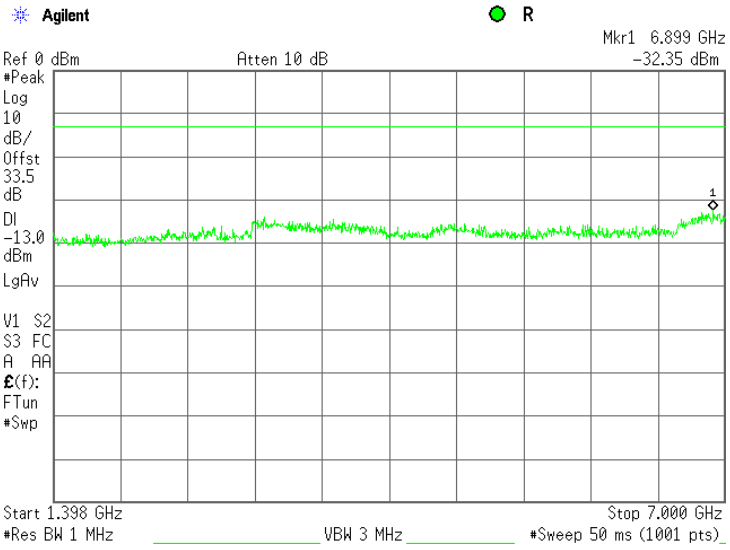


Plot 7.3.8 Spurious emission measurements in 1000 – 1429 MHz at high carrier frequency

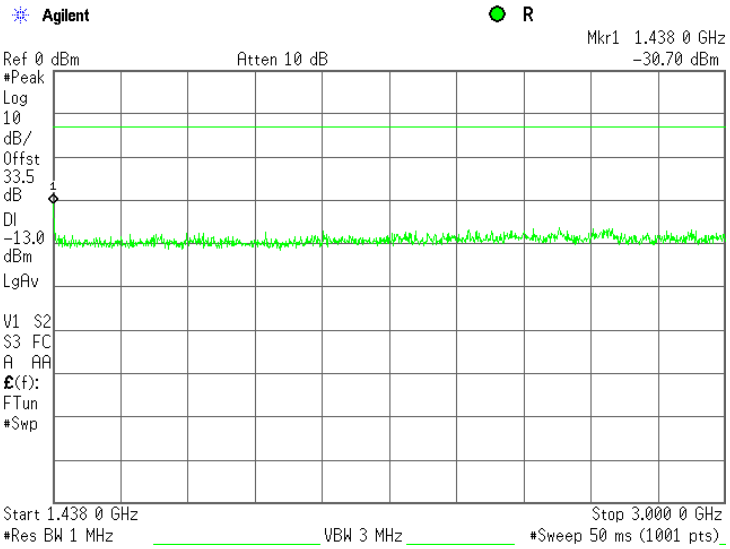


Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.9 Spurious emission measurements in 1398 – 7000 MHz range at low carrier frequency

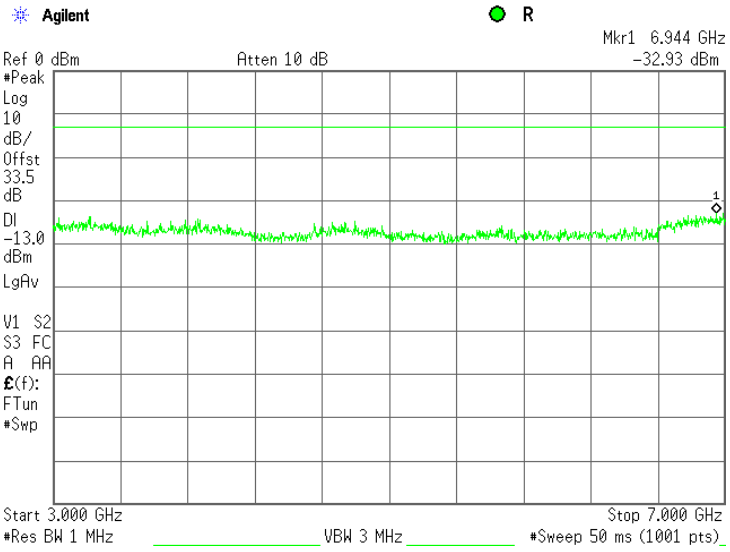


Plot 7.3.10 Spurious emission measurements in 1438 – 3000 MHz range at high carrier frequency

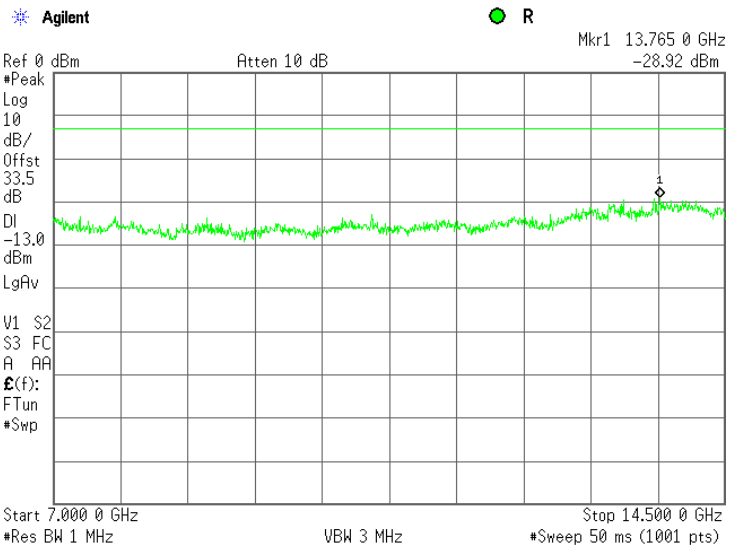


Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.11 Spurious emission measurements in 3000 – 7000 MHz range at high carrier frequency

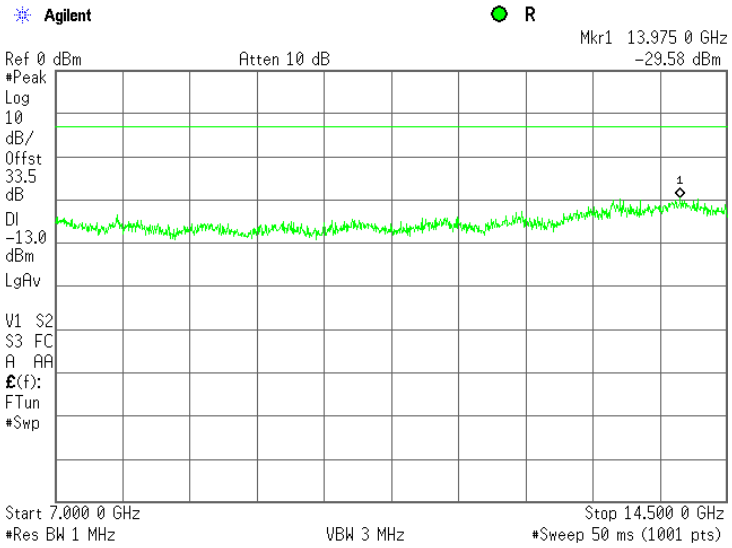


Plot 7.3.12 Spurious emission measurements in 7000 – 14500 MHz at low carrier frequency



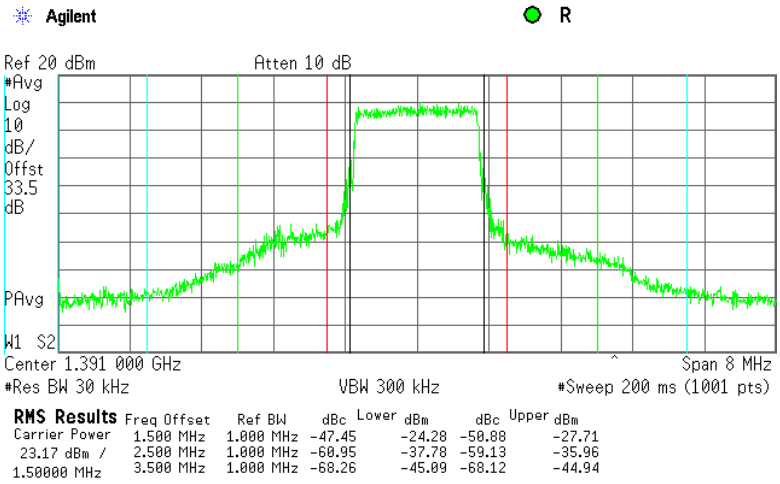
Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.13 Spurious emission measurements in 7000-14500 MHz at high carrier frequency

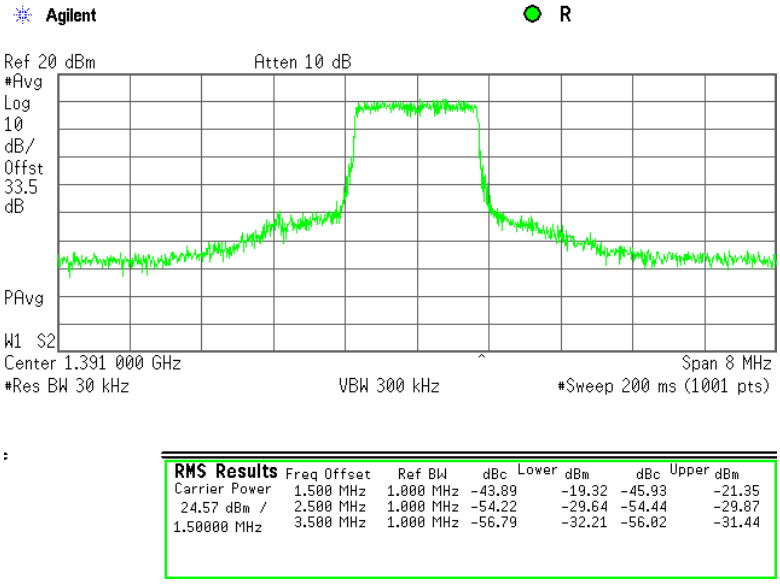


Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.14 Spurious emission measurements in 1387 – 1390 MHz at low carrier frequency, 1.5 MHz EBW, BPSK

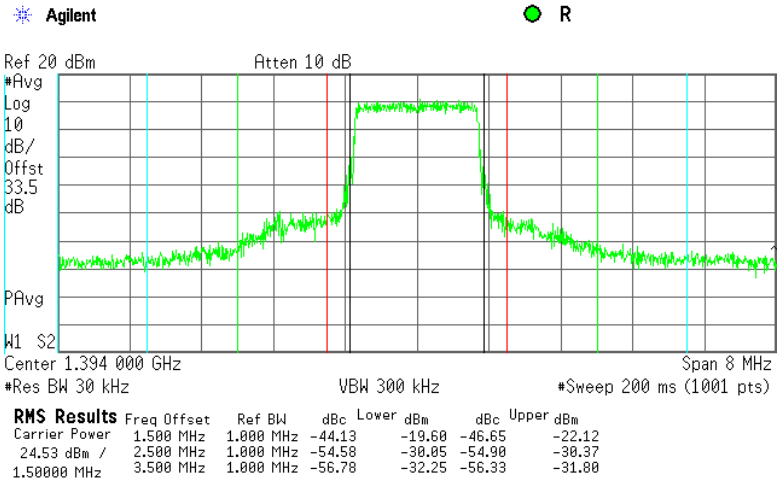


Plot 7.3.15 Spurious emission measurements in 1387 – 1390 MHz at low carrier frequency, 1.5 MHz EBW, 64QAM

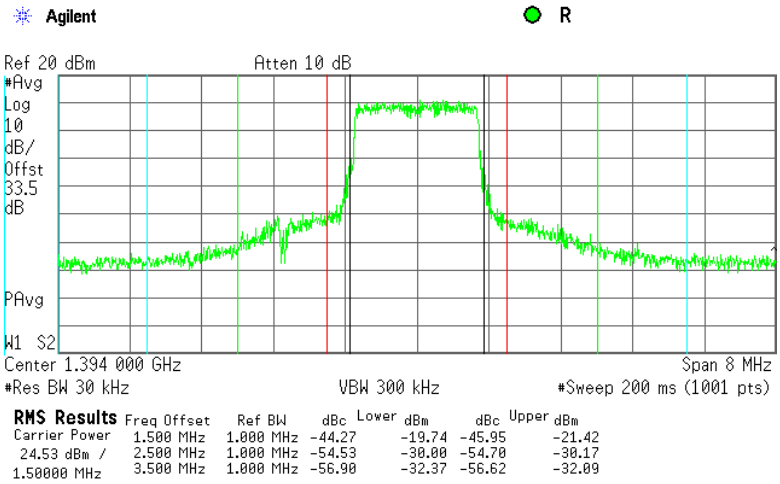


Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.16 Spurious emission measurements in 1395 – 1398 MHz at high carrier frequency, 1.5 MHz EBW, BPSK

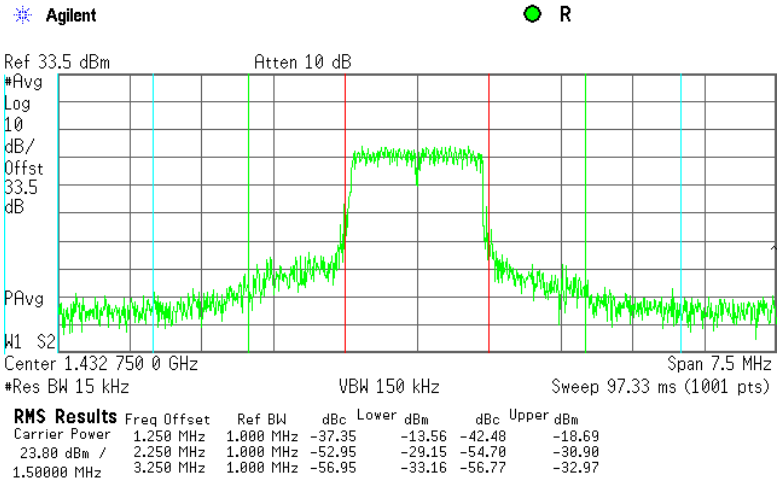


Plot 7.3.17 Spurious emission measurements in 1395 – 1398 MHz at high carrier frequency, 1.5 MHz EBW, 64QAM

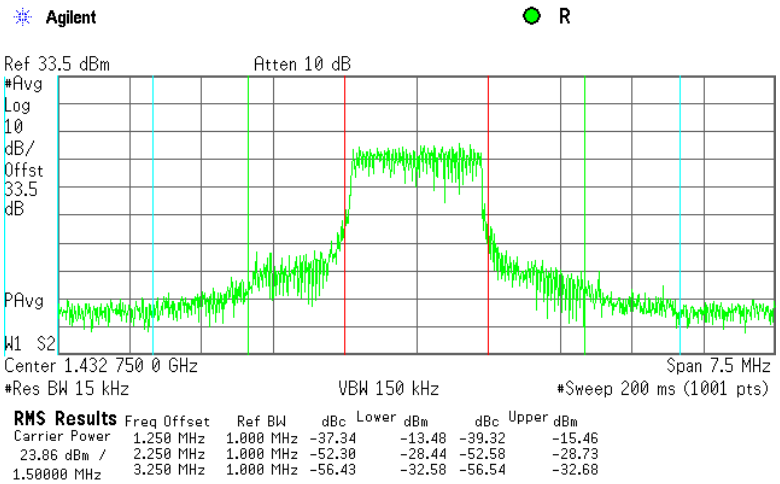


Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.18 Spurious emission measurements in 1429 – 1432 MHz at low carrier frequency, 1.5 MHz EBW, BPSK

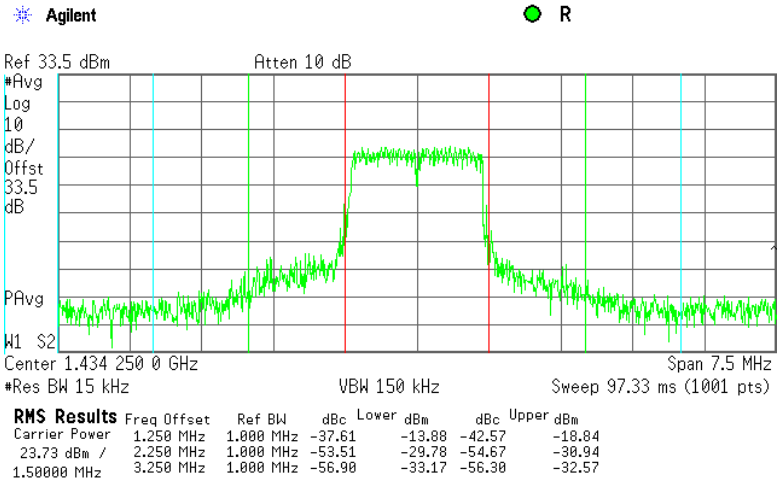


Plot 7.3.19 Spurious emission measurements in 1429 – 1432 MHz at low carrier frequency, 1.5 MHz EBW, 64 QAM

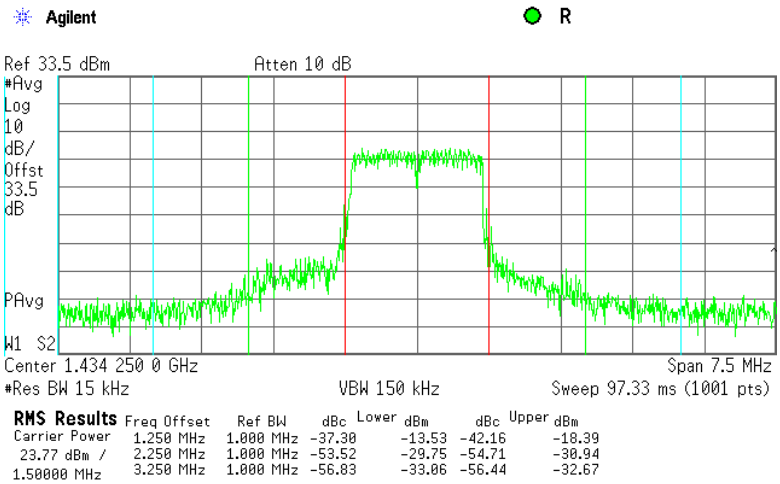


Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.20 Spurious emission measurements in 1435 – 1438 MHz at high carrier frequency, 1.5 MHz EBW, BPSK

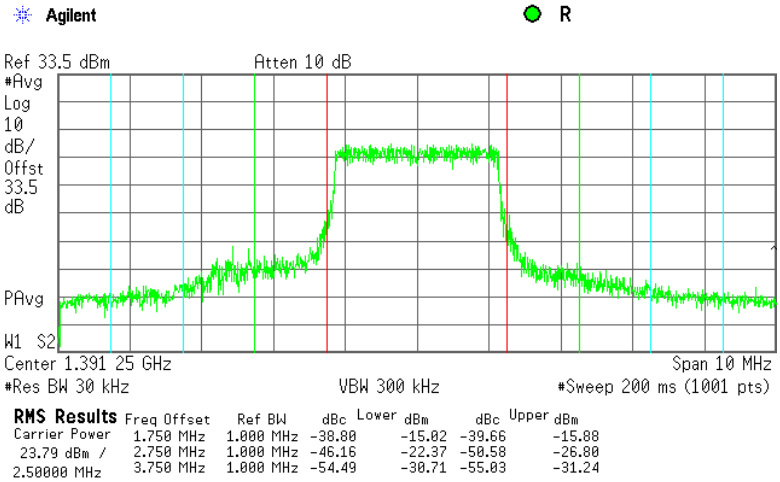


Plot 7.3.21 Spurious emission measurements in 1435 – 1438 MHz at high carrier frequency, 1.5 MHz EBW, 64QAM

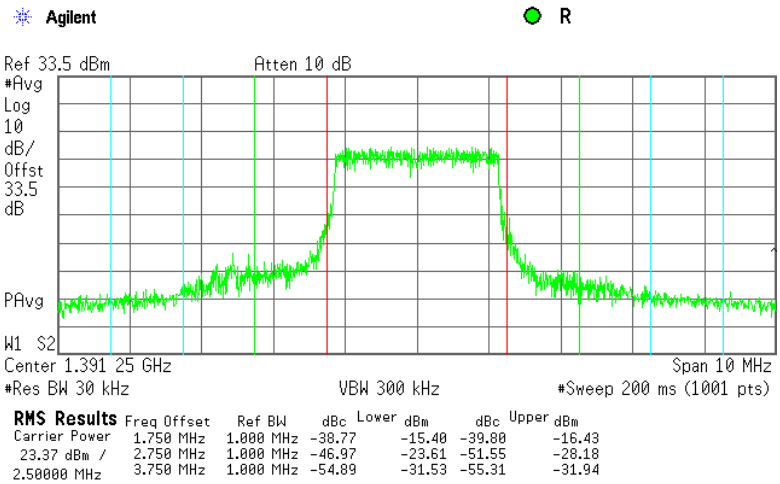


Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.22 Spurious emission measurements in 1387 – 1390 MHz at low carrier frequency, 2.5 MHz EBW, BPSK

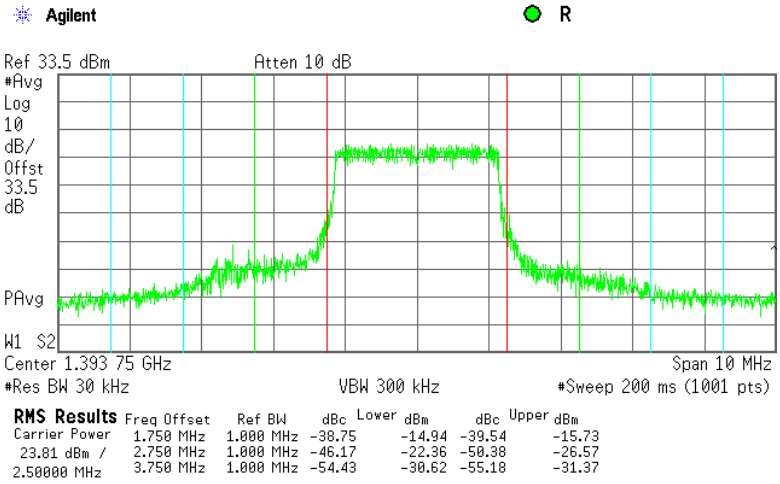


Plot 7.3.23 Spurious emission measurements in 1387 – 1390 MHz at low carrier frequency, 2.5 MHz EBW, 64 QAM

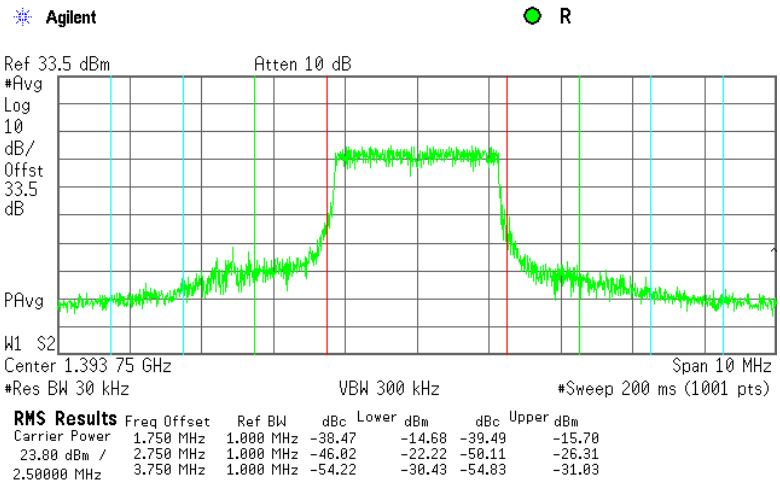


Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.24 Spurious emission measurements in 1395 – 1398 MHz at high carrier frequency, 2.5 MHz EBW, BPSK

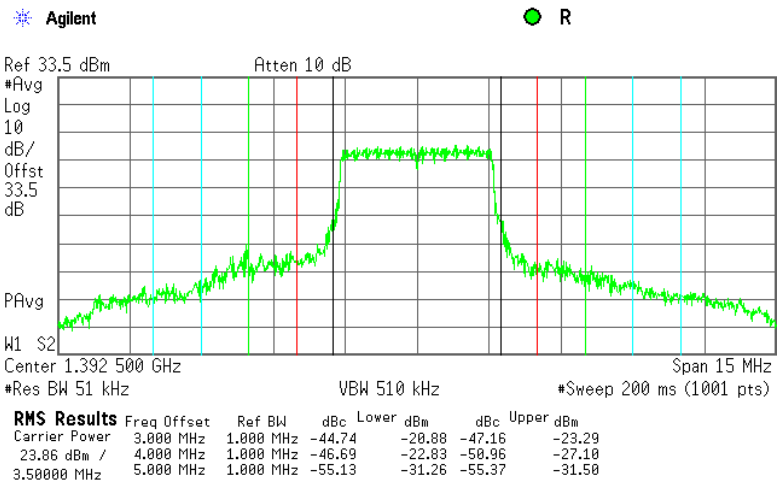


Plot 7.3.25 Spurious emission measurements in 1395 – 1398 MHz at high carrier frequency, 2.5 MHz EBW, 64 QAM

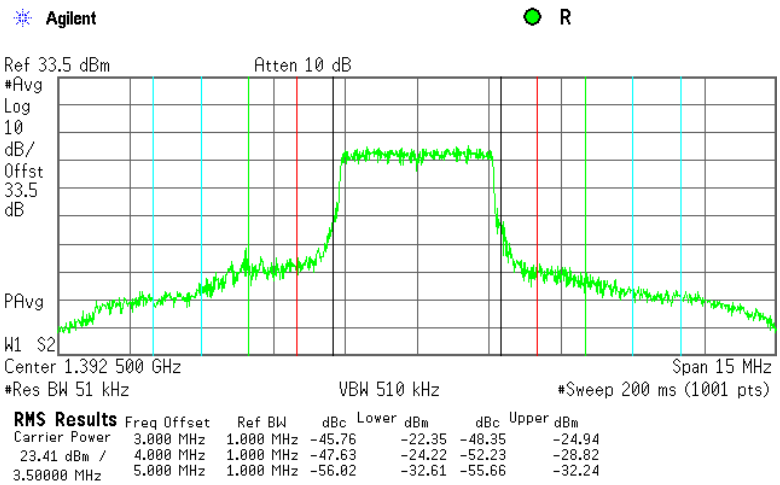


Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.26 Spurious emission measurements in 1387 – 1390 MHz and 1395 - 1398 MHz at carrier frequency, 3.5 MHz EBW, BPSK

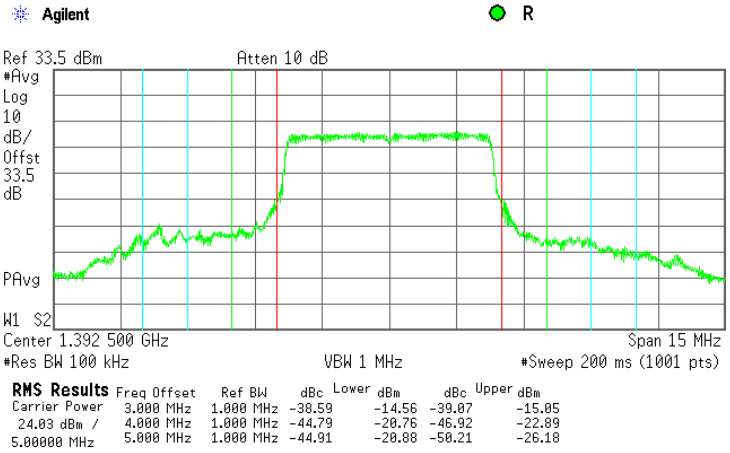


Plot 7.3.27 Spurious emission measurements in 1387 – 1390 MHz and 1395 - 1398 MHz at carrier frequency, 3.5 MHz EBW, 64 QAM

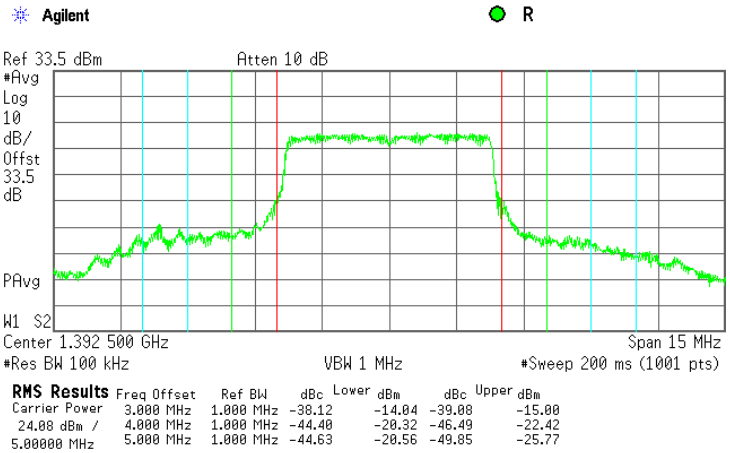


Test specification:	Section 27.53(j), Conducted spurious emissions		
Test procedure:	47 CFR, Sections 2.1051; TIA/EIA-603-C, Section 2.2.13		
Test mode:	Compliance	Verdict:	PASS
Date:	4/3/2011 - 4/4/2011		
Temperature: 23 ºC	Air Pressure: 1011 hPa	Relative Humidity: 48 %	Power Supply: 120 V AC
Remarks:			

Plot 7.3.28 Spurious emission measurements in 1387 – 1390 MHz and 1395 - 1398 MHz at carrier frequency, 5 MHz EBW, 64 BPSK



Plot 7.3.29 Spurious emission measurements in 1387 – 1390 MHz and 1395 - 1398 MHz at carrier frequency, 5 MHz EBW 64 QAM



8 APPENDIX A Test equipment and ancillaries used for tests

HL No	Description	Manufacturer	Model	Ser. No.	Last Cal.	Due Cal.
1906	Power Divider, 0.5-18.0 GHz, 80 W	Omni Spectra	2090-6204-00	1906	01-Dec-10	01-Dec-12
2951	Cable, RF, 18 GHz, 0.9 m, SMA-SMA	Gore	10020014	NA	04-Oct-10	04-Oct-11
3301	Power Meter, P-series, 50 MHz to 40 GHz	Agilent Technologies	N1911A	MY45101057	13-Dec-10	13-Dec-11
3302	Power sensor, P-Series, 50 MHz to 40 GHz, -35/30 to 20 dBm	Agilent Technologies	N1922A	MY45240586	13-Dec-10	13-Dec-11
3442	Precision Fixed Attenuator, 50 Ohm, 5 W, 20 dB, DC to 18 GHz	Mini-Circuits	BW-S20W5+	NA	07-Mar-11	07-Mar-12
3763	Precision Fixed Attenuator, 50 Ohm, 5 W, 20 dB, DC to 18 GHz	Mini-Circuits	BW-S20W5+	NA	07-Dec-10	07-Dec-11
3787	Precision Fixed Attenuator, 50 Ohm, 5 W, 10 dB, DC to 18 GHz	Mini-Circuits	BW-S10W5+	NA	07-Dec-10	07-Dec-11
3818	PSA Series Spectrum Analyzer, 3 Hz- 44 GHz	Agilent Technologies	E4446A	MY48250288	25-Sep-09	25-Sep-11

9 APPENDIX B Measurement uncertainties

Expanded uncertainty at 95% confidence in Hermon Labs EMC measurements

Test description	Expanded uncertainty
Transmitter tests	
Carrier power conducted at antenna connector	± 1.7 dB
Carrier power radiated (substitution method)	± 4.5 dB
Occupied bandwidth	±8%
Conducted emissions at RF antenna connector	9 kHz to 2.9 GHz: ± 2.6 dB 2.9 GHz to 6.46 GHz: ± 3.5 dB 6.46 GHz to 13.2 GHz: ± 4.3 dB 13.2 GHz to 22.0 GHz: ± 5.0 dB 22.0 GHz to 26.8 GHz: ± 5.5 dB 26.8 GHz to 40.0 GHz: ± 4.8 dB
Spurious emissions radiated 30 MHz – 40 GHz (substitution method)	± 4.5 dB
Frequency error	30 – 300 MHz: ± 50.5 Hz (1.68 ppm) 300 – 1000 MHz: ± 168 Hz (0.56 ppm)
Transient frequency behaviour	187 Hz ± 13.9 %
Duty cycle, timing (Tx ON / OFF) and average factor measurements	± 1.0 %

Hermon Laboratories is accredited by A2LA for calibration according to present requirements of ISO/IEC 17025 and NCSL Z540-1. The accreditation is granted to perform calibration of parameters that are listed in the Scope of Hermon Laboratories Accreditation.

Hermon Laboratories calibrates its reference and transfer standards by calibration laboratories accredited to ISO/IEC 17025 by a mutually recognized Accreditation Body or by a recognized national metrology institute. All reference and transfer standards used in the calibration system are traceable to national or international standards.

In-house calibration of all test and measurement equipment is performed on a regular basis according to Hermon Laboratories calibration procedures, manufacturer calibration/verification procedures or procedures defined in the relevant standards. The Hermon Laboratories test and measurement equipment is calibrated within the tolerances specified by the manufacturers and/or by the relevant standards.

10 APPENDIX C Test laboratory description

Tests were performed at Hermon Laboratories Ltd., which is a fully independent, private, EMC, safety, environmental and telecommunication testing facility.
Hermon Laboratories is listed by the Federal Communications Commission (USA) for all parts of Code of Federal Regulations 47 (CFR 47), Registration Numbers 90624 for OATS and 90623 for the anechoic chamber; by Industry Canada for electromagnetic emissions (file numbers IC 2186A-1 for OATS, IC 2186A-2 for anechoic chamber, IC 2186A-3 for full-anechoic chamber for RE measurements above 1 GHz), certified by VCCI, Japan (the registration numbers are R-808 for OATS, R-1082 for anechoic chamber, G-27 for full-anechoic chamber for RE measurements above 1 GHz, C-845 for conducted emissions site, T-1606 for conducted emissions at telecommunication ports), has a status of a Telefication - Listed Testing Laboratory, Certificate No. L138/00. The laboratory is accredited by American Association for Laboratory Accreditation (USA) according to ISO/IEC 17025 for electromagnetic compatibility, product safety, telecommunications testing and environmental simulation (for exact scope please refer to Certificate No. 839.01). The FCC Designation Number is US1003.

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Person for contact: Mr. Alex Usoskin, CEO.

11 APPENDIX D Specification references

FCC 47CFR part 27: 2010	Miscellaneous wireless communications services
FCC 47CFR part 1: 2010	Practice and procedure
FCC 47CFR part 2: 2010	Frequency allocations and radio treaty matters; general rules and regulations
ANSI C63.2: 1996	American National Standard for Instrumentation-Electromagnetic Noise and Field Strength, 10 kHz to 40 GHz-Specifications.
ANSI C63.4: 2003	American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz.
ANSI/TIA/EIA-603-C:2004	Land Mobile FM or PM Communications Equipment Measurement and Performance Standards

12 APPENDIX E Test equipment correction factors

Cable loss
Cable coaxial, Gore, 18 GHz, 0.9 m, SMA-SMA, S/N 10020014
HL 2951

Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB	Frequency, MHz	Cable loss, dB
10	0.07	5750	0.77	12000	1.23
30	0.06	6000	0.78	12250	1.25
100	0.09	6250	0.81	12500	1.26
250	0.15	6500	0.83	12750	1.26
500	0.21	6750	0.84	13000	1.30
750	0.27	7000	0.85	13250	1.30
1000	0.31	7250	0.88	13500	1.30
1250	0.36	7500	0.88	13750	1.29
1500	0.38	7750	0.93	14000	1.23
1750	0.42	8000	0.92	14250	1.32
2000	0.44	8250	0.94	14500	1.27
2250	0.47	8500	0.99	14750	1.27
2500	0.50	8750	0.97	15000	1.34
2750	0.52	9000	1.01	15250	1.36
3000	0.54	9250	1.05	15500	1.35
3250	0.57	9500	1.08	15750	1.36
3500	0.58	9750	1.10	16000	1.43
3750	0.61	10000	1.09	16250	1.38
4000	0.63	10250	1.09	16500	1.42
4250	0.66	10500	1.07	16750	1.49
4500	0.68	10750	1.10	17000	1.53
4750	0.70	11000	1.09	17250	1.59
5000	0.71	11250	1.09	17500	1.65
5250	0.74	11500	1.13	17750	1.82
5500	0.77	11750	1.12	18000	2.09

13 APPENDIX F Abbreviations and acronyms

A	ampere
AC	alternating current
A/m	ampere per meter
AM	amplitude modulation
AVRG	average (detector)
CBW	channel bandwidth
cm	centimeter
dB	decibel
dBm	decibel referred to one milliwatt
dB(μV)	decibel referred to one microvolt
dB(μV/m)	decibel referred to one microvolt per meter
dB(μA)	decibel referred to one microampere
dBΩ	decibel referred to one Ohm
DC	direct current
EBW	emission bandwidth
EIRP	equivalent isotropically radiated power
ERP	effective radiated power
EUT	equipment under test
F	frequency
GHz	gigahertz
GND	ground
H	height
HL	Hermon laboratories
Hz	hertz
k	kilo
kHz	kilohertz
LO	local oscillator
m	meter
MHz	megahertz
min	minute
mm	millimeter
ms	millisecond
μs	microsecond
NA	not applicable
NB	narrow band
NT	not tested
OATS	open area test site
Ω	Ohm
QP	quasi-peak
PM	pulse modulation
PS	power supply
RE	radiated emission
RF	radio frequency
rms	root mean square
Rx	receive
s	second
T	temperature
Tx	transmit
V	volt
VA	volt-ampere

END OF DOCUMENT