Certification Test Report

FCC ID: ONTJETIR11EPCUS
IC: 10491A-JETR11EPCUS

FCC Rule Part: 15.247
IC Radio Standards Specification: RSS-210

ACS Report Number: 12-2094.W06.1A

Manufacturer: Esprit Model
Model: JETIR11EPCUS

Test Begin Date: **August 1, 2012**
Test End Date: **November 10, 2012**

Report Issue Date: November 27, 2012

FOR THE SCOPE OF ACCREDITATION UNDER CERTIFICATE NUMBER AT-1533

This report must not be used by the client to claim product certification, approval, or endorsement by ACLASS, ANSI, or any agency of the Federal Government.

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This report contains 42 pages

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1 GENERAL

1.1 Purpose

The purpose of this report is to demonstrate compliance with Part 15 Subpart C of the FCC's Code of Federal Regulations and Industry Canada's Radio Standards Specification RSS-210.

1.2 Manufacturer Information

Esprit Model, Inc.
1240 Clearmont St. NW
Palm Bay, FL 32905, USA

1.3 Product description

The JETIR11EPCUS is a 2.4 GHz wireless transceiver for remote controlled toys. The unit provides 11 channels for servo connection. The JETIR11EPCUS comports two coaxial antennas which alternate based on the received signal strength on each antenna.

Band of Operation: 2405 MHz - 2475 MHz
Number of Channels: 15
Mode of Operation: FH/DSSS
Modulation Format: O-QPSK
Antenna Type/Gain: Coaxial Wire Antenna, 2.1 dBi
Operating Voltage: 5 VDC

Model Numbers: JETIR11EPCUS

Model Variants: The JETIR11EPCUS is one of multiple Esprit Model transceivers with identical printed circuit boards design. The additional model variants differ by the amount of servo channels and I/O ports available . The model variants are listed below.

Table 1.3-1: Model Variants

Model Variants	Description	Complete Test
JETIR11EPCUS	11 Servo Channels, Extra Power Leads, Plastic Enclosure	Yes
JETIR9US	9 Servo Channels, , Plastic Enclosure	----
JETIR7US	7 Servo Channels, Plastic Enclosure	----
JETIR6LUS	6 Servo Channels, Heat Shrink Enclosure	----
JETIR6iUS	6 Servo Channels, Heat Shrink Enclosure, Truncated Antenna Coaxial Cable	----

Test Sample Serial Number(s): ACS#1 (Radiated), ACS#2 (RF Conducted)

Test Sample Condition: The samples were in good conditions with no observable physical damages.

1.4 Test Methodology and Considerations

The unit was powered using a DC bench power supply set to 5V. The EUT was evaluated for RF conducted and radiated emissions for both antenna paths. When applicable, the data is provided for the worst case configuration.

Preliminary radiated emission measurements were performed on the JETIR11EPCUS, JETIR6LUS and JETIR6iUS model variants to address the enclosure, coaxial cable and amount of I/O port configuration variations. The JETIR11EPCUS was confirmed to be the model variant leading to the highest emissions. Additional radiated emissions measurements were performed with the JETIR11EPCUS set in three orthogonal orientations and the final measurements were executed for the orientation leading to the highest emissions.

The RF conducted measurements were performed with a temporary connector at the antenna ports. The power settings used for the evaluation are listed below:

2405 MHz: 12
2440 MHz: 12
2475 MHz: 14

The EUT was also evaluated for unintentional emissions. The results are documented separately in a Verification test report.

2 TEST FACILITIES

2.1 Location

The radiated and conducted emissions test sites are located at the following address:

Advanced Compliance Solutions, Inc.
3998 FAU Blvd, Suite 310
Boca Raton, Florida 33431
Phone: (561) 961-5585
Fax: (561) 961-5587
www.acstestlab.com

FCC Test Firm Registration #: 587595
Industry Canada Lab Code: 4175C

2.2 Laboratory Accreditations/Recognitions/Certifications

ACS is accredited to ISO/IEC 17025 by ANSI-ASQ National Accreditation Board under their ACLASS program and has been issued certificate number AT-1533 in recognition of this accreditation. Unless otherwise specified, all test methods described within this report are covered under the ISO/IEC 17025 scope of accreditation.

2.3 Radiated & Conducted Emissions Test Site Description

2.3.1 Semi-Anechoic Chamber Test Site

The EMC radiated test facility consists of an RF-shielded enclosure. The interior dimensions of the indoor semi-anechoic chamber are approximately 48 feet (14.6 m) long by 36 feet (10.8 m) wide by 24 feet (7.3 m) high and consist of rigid, 1/8 inch (0.32 cm) steel-clad, wood core modular panels with steel framing. In the shielded enclosure, the faces of the panels are galvanized and the chamber is self-supporting. 8-foot RF absorbing cones are installed on 4 walls and the ceiling. The steel-clad ground plane is covered with vinyl floor.

The turntable is driven by pneumatic motor, which is capable of supporting a 2000 lb. load. The turntable is flushed with the chamber floor which it is connected to, around its circumference, with a continuous metallic loaded spring. An EMCO Model 1050 Multi-device Controller controls the turntable position.

A pneumatic motor is used to control antenna polarizations and height relative to the ground. The height information is displayed on the control unit EMCO Model 1050.

The control room is an RF shielded enclosure attached to the semi-anechoic chamber with two bulkhead panels for connecting RF, and control cables. The dimension of the room is 7.3 m x 4.9 m x 3 m high and the entrance doors of both control and conducted rooms are 3 feet (0.91 m) by 7 feet (2.13 m).

A diagram of the Semi-Anechoic Chamber Test Site is shown in Figure 2.3.1-1 below:

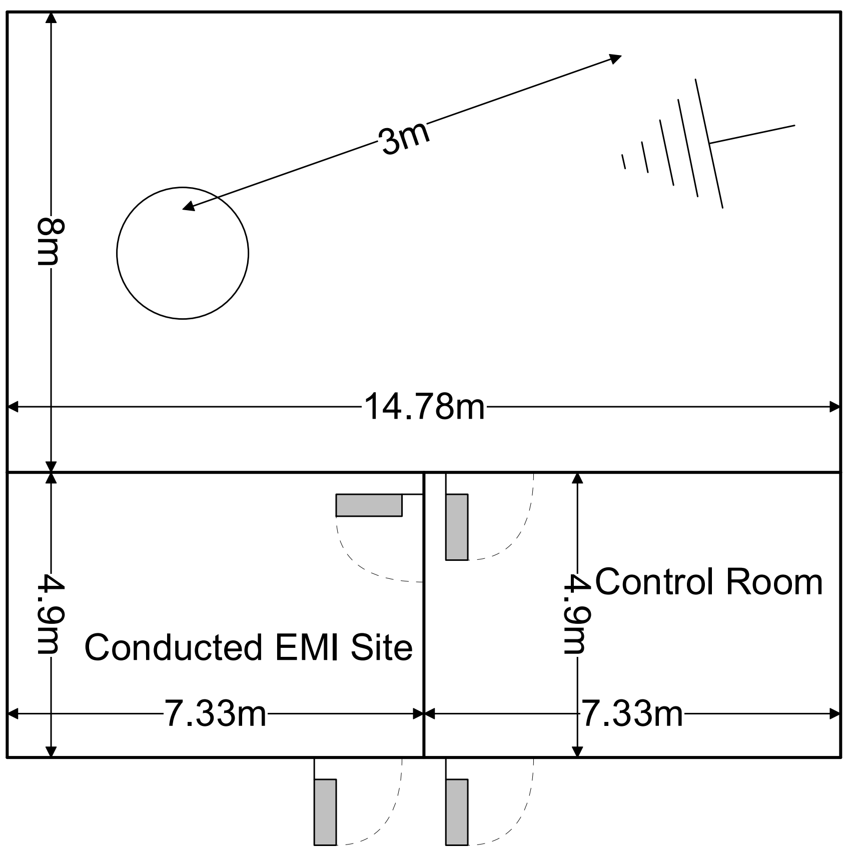


Figure 2.3.1-1: Semi-Anechoic Chamber Test Site

2.3.2 Conducted Emissions Test Site Description

The dimensions of the shielded conducted room are 7.3 x 4.9 x 3 m^3. As per ANSI C63.4 2003 requirements, the data were taken using two LISNs; a Solar Model 8028-50 50 Ω/50 µH and an EMCO Model 3825, which are installed as shown in Photograph 3. For 220 V, 50 Hz, a Polarad LISN (S/N 879341/048) is used in conjunction with a 1 kVA, 50 Hz/220 V EDGAR variable frequency generator, Model 1001B, to filter conducted noise from the generator.

A diagram of the room is shown below in figure 2.3.2-1:

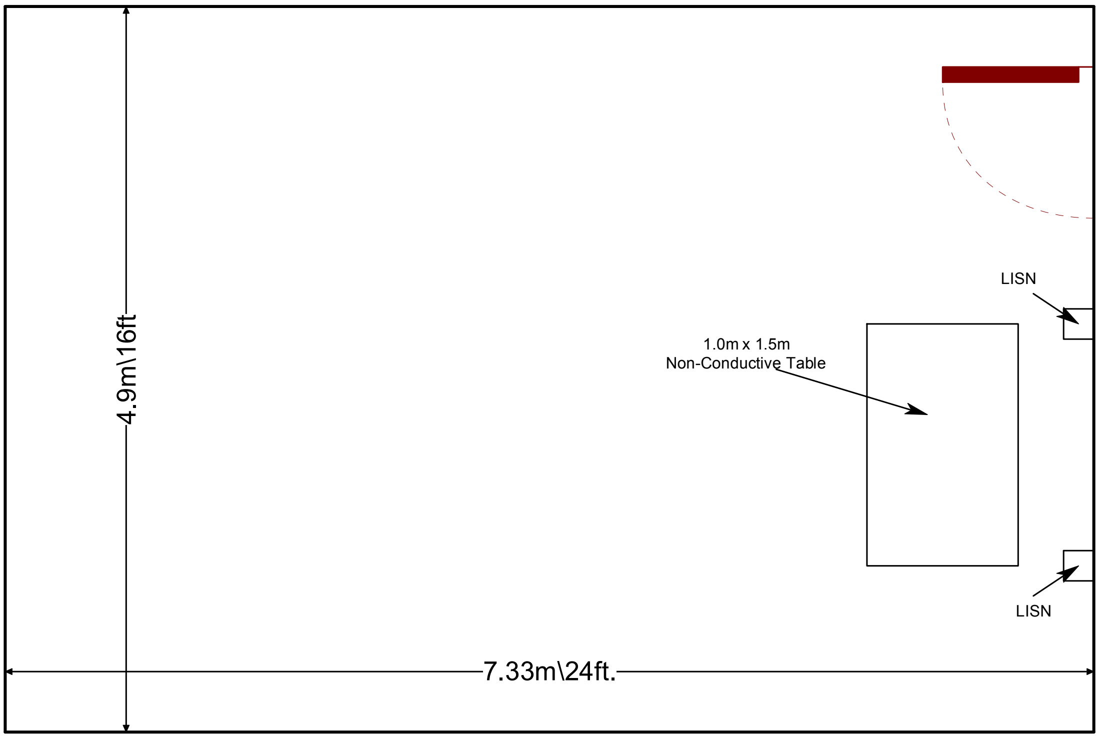


Figure 2.3.2-1: AC Mains Conducted EMI Site

3 APPLICABLE STANDARD REFERENCES

The following standards were used:

- ANSI C63.4-2003: Method of Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the 9KHz to 40GHz
- US Code of Federal Regulations (CFR): Title 47, Part 2, Subpart J: Equipment Authorization Procedures, 2012
- US Code of Federal Regulations (CFR): Title 47, Part 15, Subpart C: Radio Frequency Devices, Intentional Radiators, 2012
- FCC Public Notice DA 00-705 - Filing and Measurement Guidelines for Frequency Hopping Spread Spectrum Systems, March 30, 2000
- Industry Canada Radio Standards Specification: RSS-210 - Low-power License-exempt Radiocommunication Devices (All Frequency Bands): Category I Equipment, Issue 8 December 2010.
- Industry Canada Radio Standards Specification: RSS-GEN – General Requirements and Information for the Certification of Radiocommunication Equipment, Issue 3, December 2010.

4 LIST OF TEST EQUIPMENT

The calibration interval of test equipment is annually or the manufacturer's recommendations. Where the calibration interval deviates from the annual cycle based on the instrument manufacturer's recommendations, it shall be stated below.

Table 4-1: Test Equipment

AssetID	Manufacturer	Model #	Equipment Type	Serial #	Last Calibration Date	Calibration Due Date
523	Agilent	E7405	Spectrum Analyzers	MY45103293	1/5/2011	1/5/2013
524	Chase	CBL6111	Antennas	1138	1/7/2011	1/7/2013
2006	EMCO	3115	Antennas	2573	3/2/2011	3/2/2013
2008	COM-Power	AH-826	Antennas	81009	NCR	NCR
2011	Hewlett-Packard	HP 8447D	Amplifiers	2443A03952	1/2/2012	1/2/2013
2037	ACS Boca	Chamber EMI Cable Set	Cable Set	2037	1/2/2012	1/2/2013
2044	QMI	N/A	Cables	2044	1/2/2012	1/2/2013
2070	Mini Circuits	VHF-8400+	Filter	2070	1/19/2012	1/19/2013
2072	Mini Circuits	VHF-3100+	Filter	30737	1/19/2012	1/19/2013
2075	Hewlett Packard	8495B	Attenuators	2626A11012	1/2/2012	1/2/2013
2076	Hewlett Packard	HP5061-5458	Cables	2076	1/2/2012	1/2/2013
2082	Teledyne Storm Products	90-010-048	Cables	2082	5/31/2012	5/31/2013
2086	Merrimac	FAN-6-10K	Attenuators	23148-83-1	12/30/2011	12/30/2012
2089	Agilent Technologies, Inc.	83017A	Amplifiers	3123A00214	12/22/2011	12/22/2012
2091	Agilent Technologies, Inc.	8573A	Spectrum Analyzers	2407A03233	12/12/2011	12/12/2013
2095	ETS Lindgren	TILE4! - Version 4.2.A	Software	85242	NCR	NCR

NCR=No Calibration Required

5 SUPPORT EQUIPMENT

Table 5-1: Ancillary and Supporting Equipment

Item	Equipment Type	Manufacturer	Model Number	Serial Number
1	7 x Servo Motors	Hitec	HS-225BB	N/A
2	4 x Servo Motors	Hitec	HS-225BB	N/A
3	DC Power Supply	MPJA	HY5003	003700278

Table 5-2: EUT Test Setup Cable Configuration

Item #	Description	Length (m)	From - To	Shielded/ Unshielded
A	Twisted Power Cable	0.12	EUT – RC Power Cable	Unshielded
B	7 x RC Servo Cables	0.32	7 x Servo Motors - EUT	Unshielded
C	4 x RC Servo Cables	0.32	4 x Servo Motors - EUT	Unshielded
D	RC Extension Cable	2.25	Twisted Pair – RC Extension Cable	Unshielded
E	Banana Power Cable	0.15	RC Extension Cable - Power Supply	Unshielded
F	Power Cable	2.5	Power Supply – AC Mains	Unshielded

6 EQUIPMENT UNDER TEST SETUP BLOCK DIAGRAM

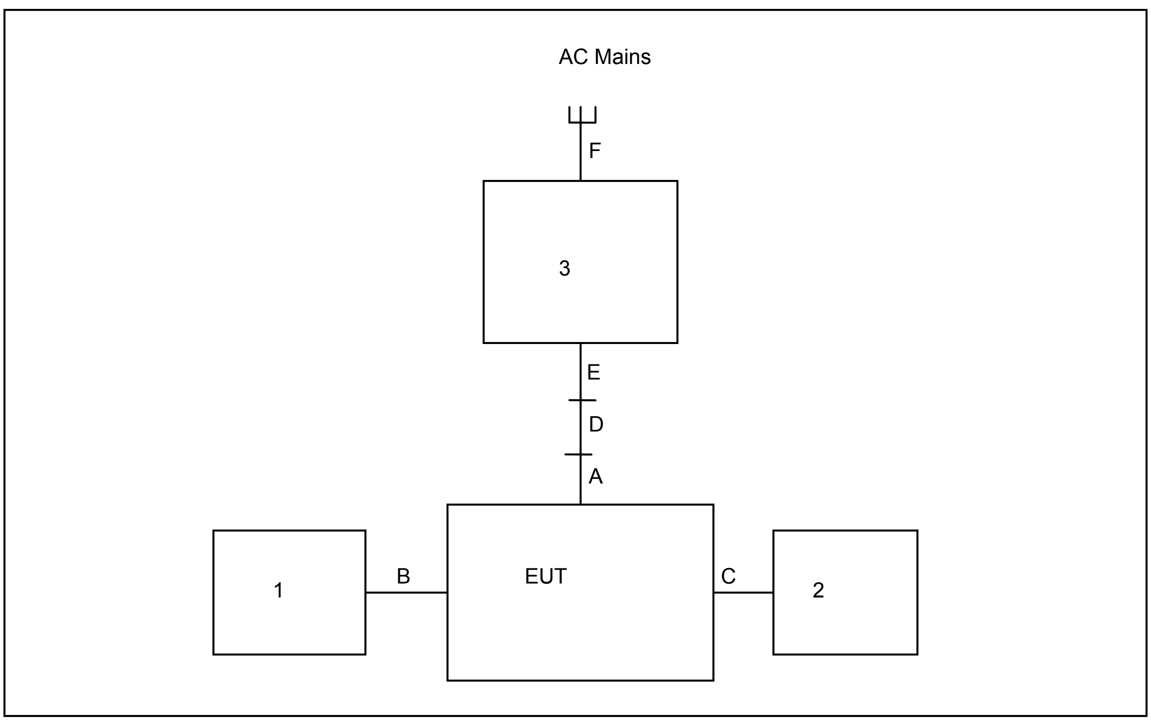


Figure 6-1: Radiated Emissions Setup

7 SUMMARY OF TESTS

Along with the tabular data shown below, plots were taken of all signals deemed important enough to document.

7.1 Antenna Requirement – FCC: Section 15.203

The JETIR11EPCUS uses two 2.1 dBi antennas which are directly soldered to the transceiver board, thus meeting the requirements of 15.203.

7.2 Peak Output Power - FCC Section 15.247(b)(1) IC: RSS-210 A8.4(2)

7.2.1 Measurement Procedure (Conducted Method)

The RF output port of the EUT was directly connected to the input of the spectrum analyzer. The display values were corrected for cable and external attenuation.

7.2.2 Measurement Results

Results are shown below.

Antenna Path 1

Table 7.2.2-1: RF Output Power

Frequency (MHz)	Power (dBm)
2405	13.840
2440	13.530
2475	8.138

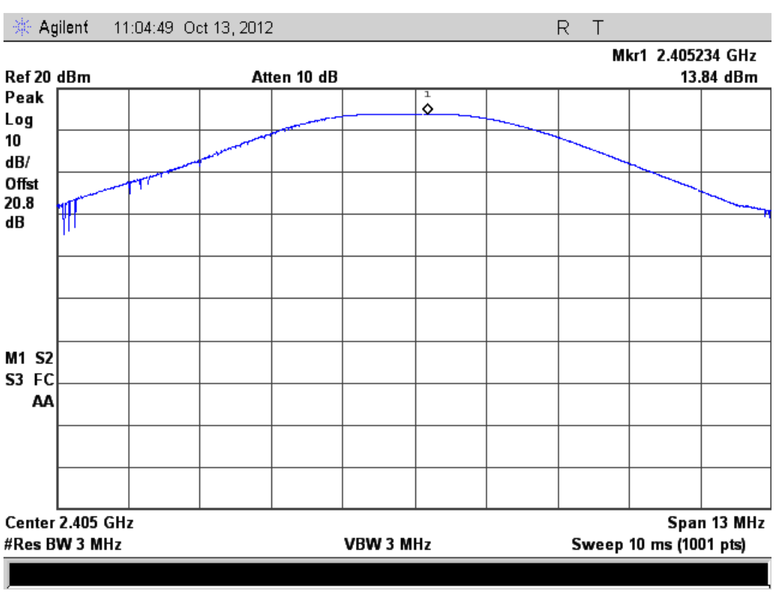


Figure 7.2.2-1: RF Output Power - Low Channel

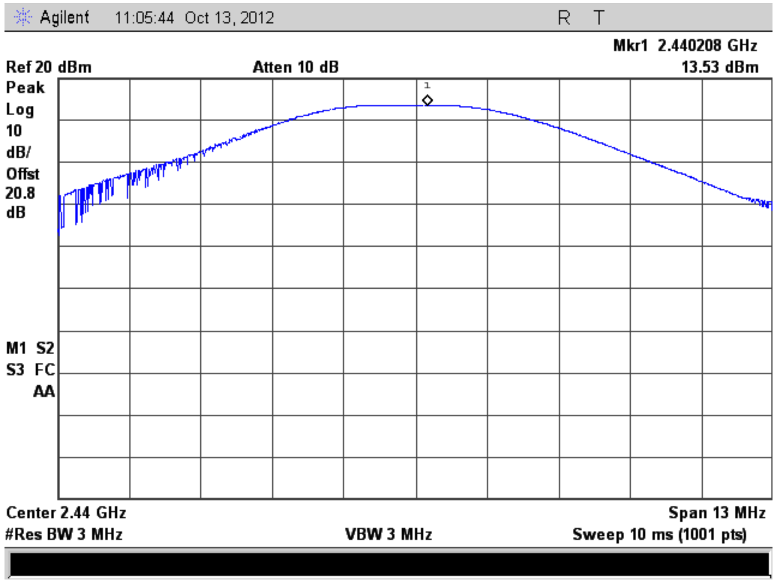


Figure 7.2.2-2: RF Output Power - Middle Channel

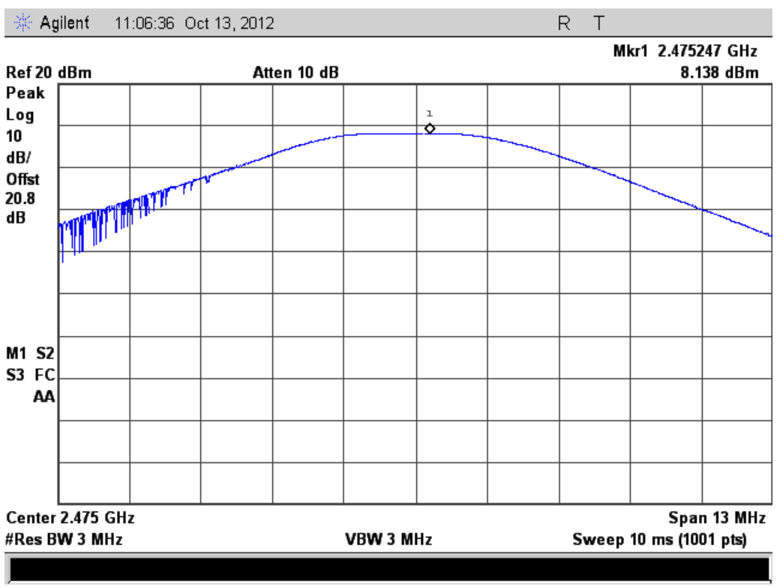


Figure 7.2.2-3: RF Output Power - High Channel

Antenna Path 2

Table 7.2.2-2: RF Output Power

Frequency (MHz)	Power (dBm)
2405	13.890
2440	13.560
2475	8.108

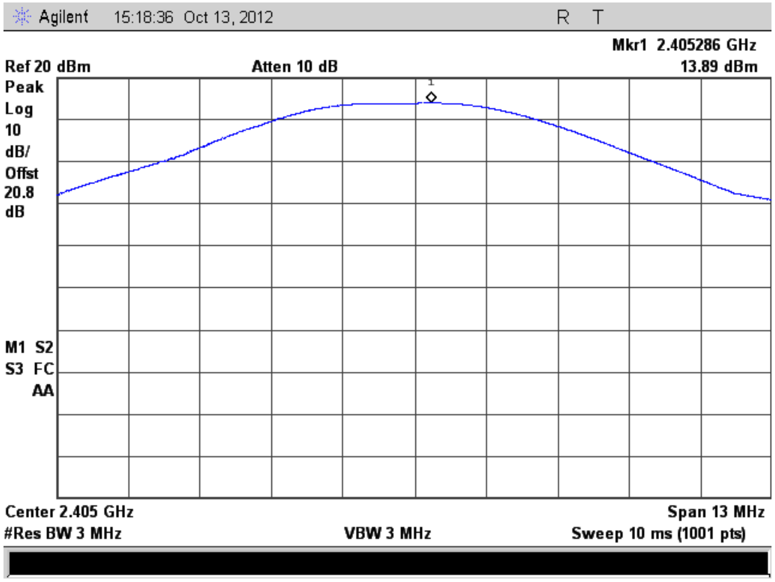


Figure 7.2.2-4: RF Output Power - Low Channel

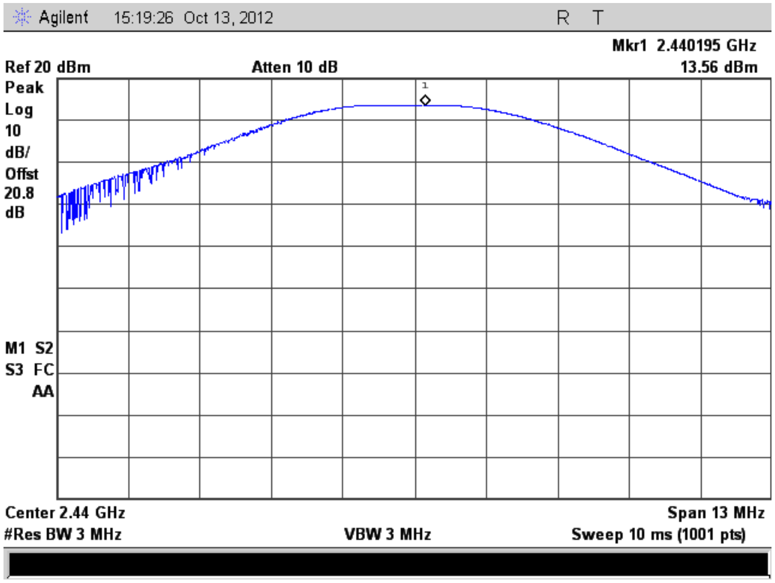


Figure 7.2.2-5: RF Output Power - Middle Channel

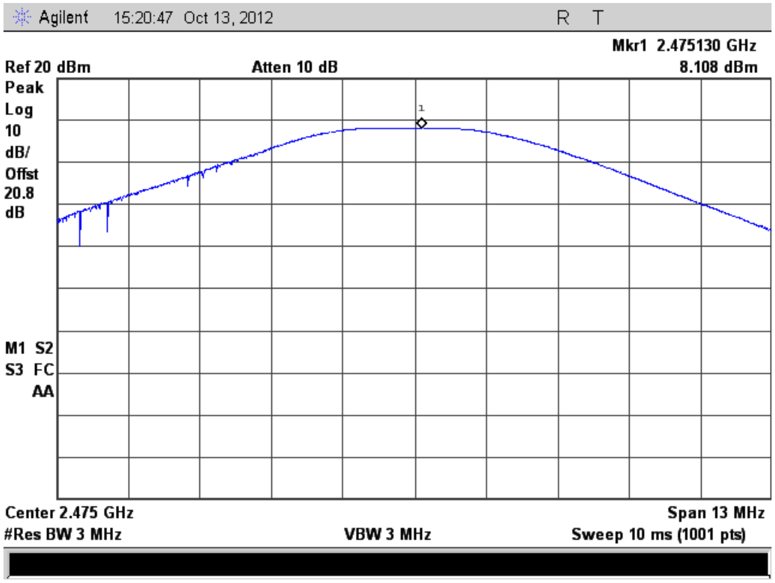


Figure 7.2.2-6: RF Output Power - High Channel

7.3 Channel Usage Requirements

7.3.1 Carrier Frequency Separation – FCC: Section 15.247(a)(1) IC: RSS-210 A8.1(b)

7.3.1.1 Measurement Procedure

The RF output port of the EUT was directly connected to the input of the spectrum analyzer. The span of the spectrum analyzer was set wide enough to capture two adjacent peaks and the RBW and VBW were set to ≥ 1% of the span.

7.3.1.2 Measurement Results

Results are shown below.

Antenna Path 1

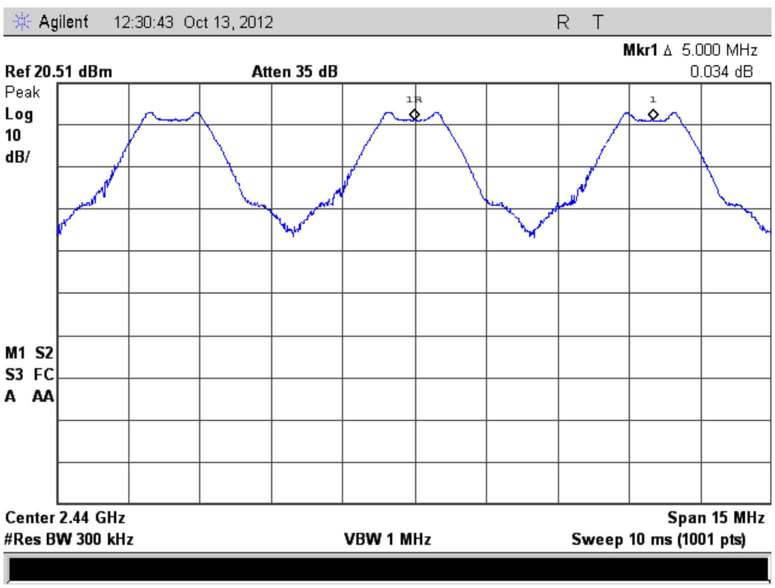


Figure 7.3.1.2-1: Carrier Frequency Separation

Antenna Path 2

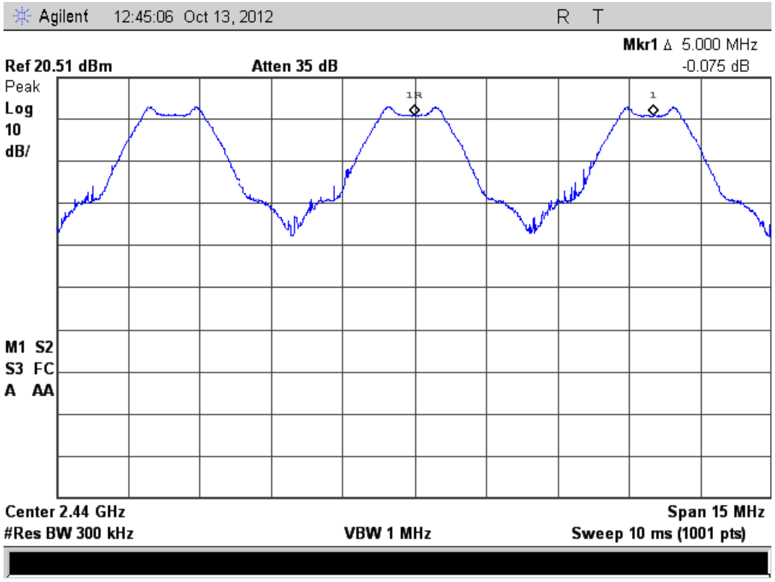


Figure 7.3.1.2-2: Carrier Frequency Separation

7.3.2 Number of Hopping Channels – FCC: Section 15.247(a)(1)(iii) IC: RSS-210 A8.1(d)

7.3.2.1 Measurement Procedure

The RF output port of the EUT was directly connected to the input of the spectrum analyzer through suitable attenuation. The span of the spectrum analyzer was set wide enough to capture the number of hopping channels. The peak detector max hold function was enabled for the measurements.

7.3.2.2 Measurement Results

Results are shown below.

Antenna Path 1

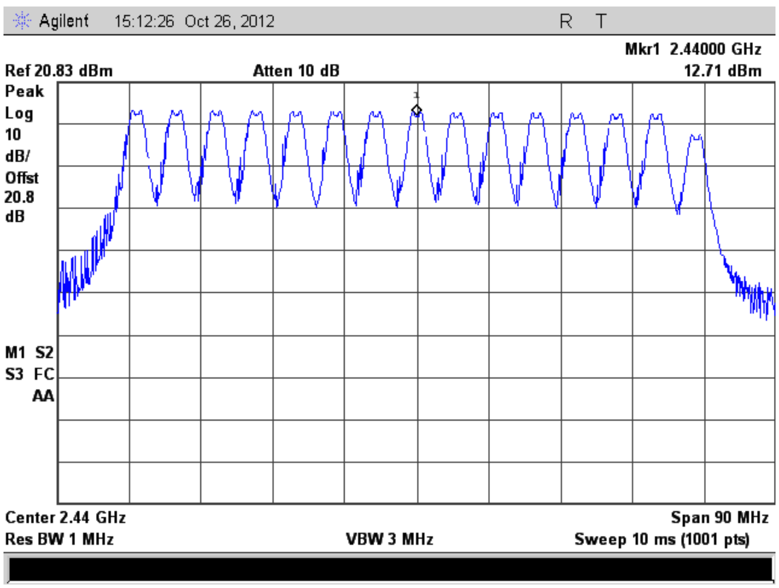


Figure 7.3.2.2-1: Number of Hopping Channels

Antenna Path 2

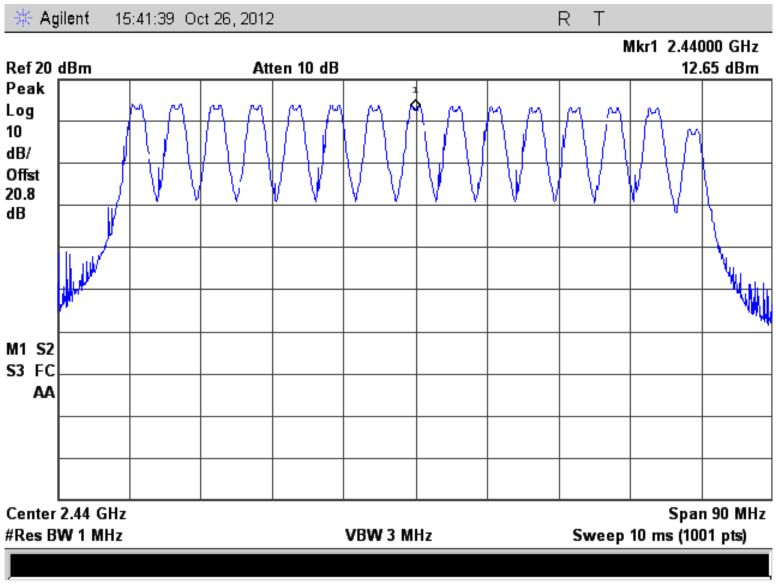


Figure 7.3.2.2-2: Number of Hopping Channels

7.3.3 Channel Dwell Time – FCC: Section 15.247(a)(1)(iii) IC: RSS-210 A8.1(d)

7.3.3.1 Measurement Procedure

The RF output port of the EUT was directly connected to the input of the spectrum analyzer. The span of the spectrum analyzer was set 0 Hz centered on a hopping channel. The RBW was set to 1 MHz and the sweep time adjusted to capture the entire dwell time per channel with peak detector max hold function.

7.3.3.2 Measurement Results

Results are shown below.

Table 7.3.3.2-1 Dwell Time on a 6 Second Cycle

Number of Hops Per Sec. (NHPS)	Number of Hops per Channel Per Sec. (NHPCPS)	Number of hops on a 6 s Cycle (NHPC)	Measured Dwell Times (ms)	Dwell Times on a 6 s Cycle (ms)	Limit (ms)	Status
100	6.67	40	2.030	81.20	400	PASS

*Notes:

NHPS = (100 /sec)/ (NT+NR) (where NT and NR are the number of transmit and receive packets, respectively)
NHPCPS = NHPS/15
NHPC = NHPCPS * 6s
Dwell Time per Cycle = NHPC* Measured Dwell Time

Antenna Path 1

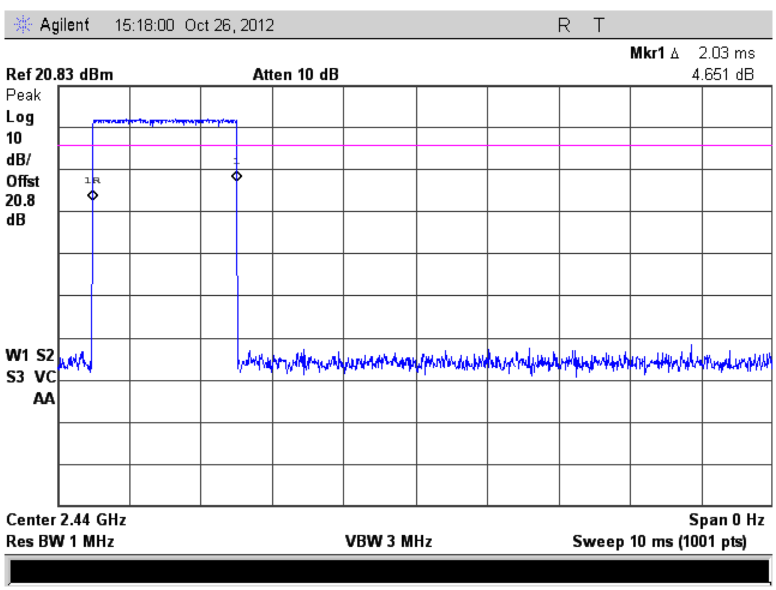


Figure 7.3.3.2-1: Channel Dwell Time

Antenna Path 2

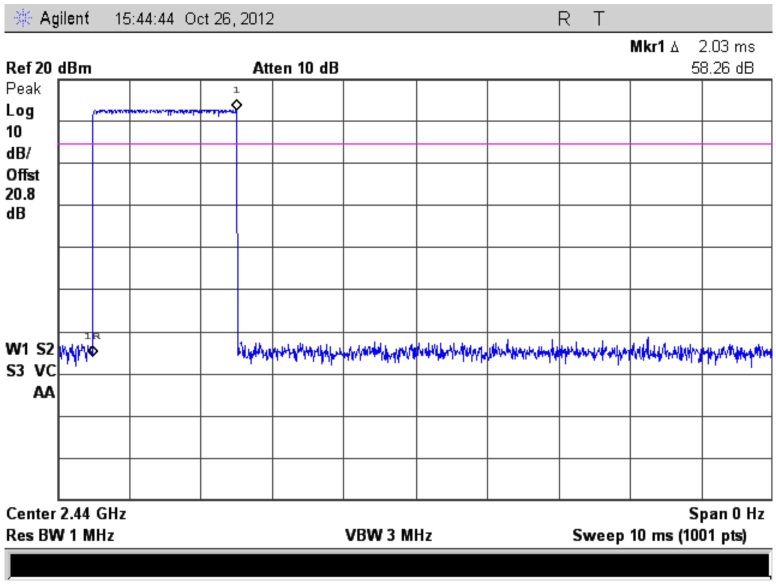


Figure 7.3.3.2-2: Channel Dwell Time

7.3.4 20dB / 99% Bandwidth - FCC: Section 15.247(a)(1)(i) IC: RSS-210 A8.1(a)

7.3.4.1 Measurement Procedure

The RF output port of the EUT was directly connected to the input of the spectrum analyzer. The spectrum analyzer span was set to 2 to 3 times the estimated bandwidth of the emission. The RBW was to ≥ 1% of the estimated emission bandwidth. The trace was set to max hold with a peak detector active. The Delta function of the analyzer was utilized to determine the 20 dB bandwidth of the emission.

The 99% occupied bandwidth was measured with the spectrum analyzer span set to fully display the emission, including the emissions skirts. The RBW was to 1% of the span. . The occupied 99% bandwidth was measured by using a delta marker at the lower and upper frequencies leading to 0.5% of the total power.

7.3.4.2 Measurement Results

Results are shown below.

Antenna Path 1

Table 7.3.4.2-1: 20dB / 99% Bandwidth

Frequency [MHz]	20dB Bandwidth [kHz]	99% Bandwidth [kHz]
2405	2620	2480
2440	2620	2520
2475	2625	2580

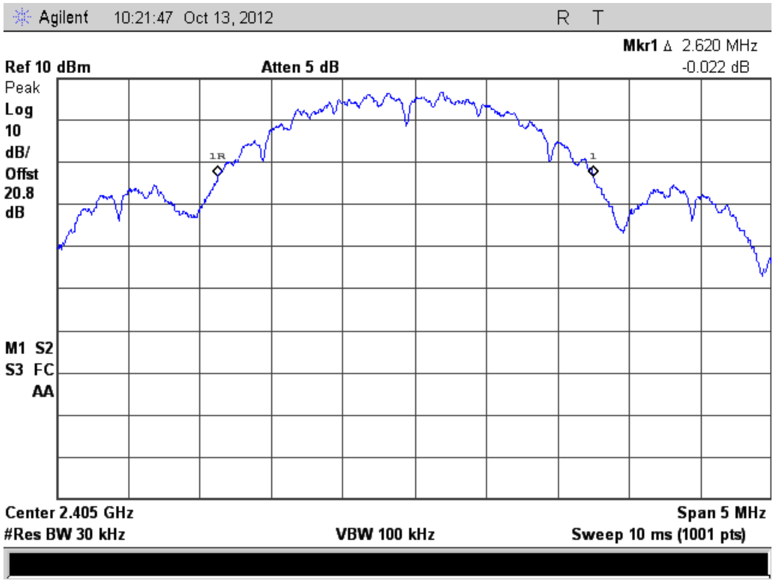


Figure 7.3.4.2-1: 20dB BW Low Channel

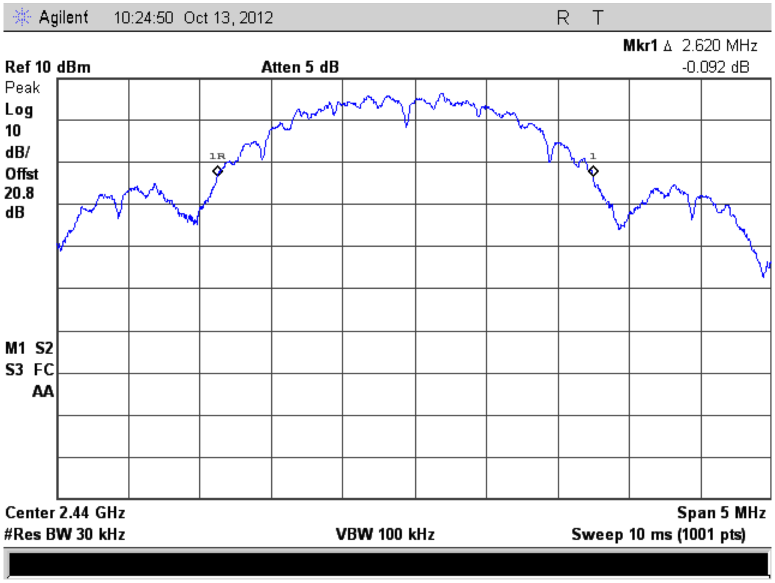


Figure 7.3.4.2-2: 20dB BW Middle Channel

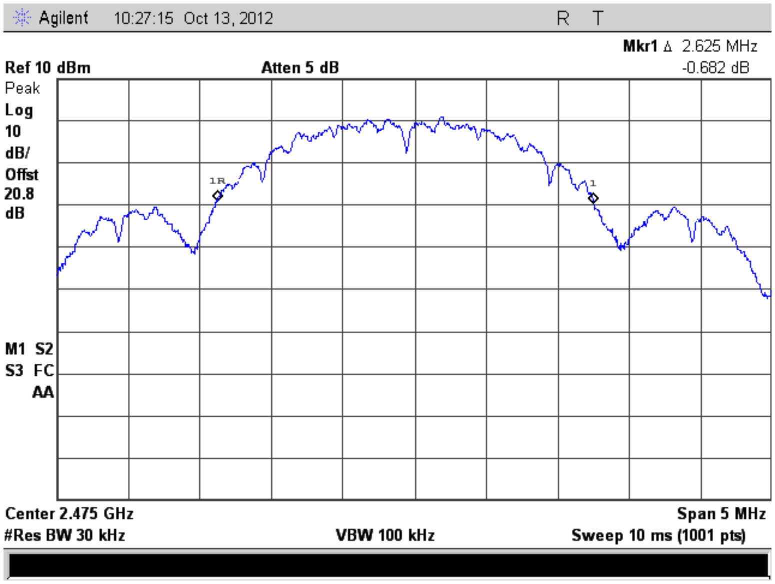


Figure 7.3.4.2-3: 20dB BW High Channel

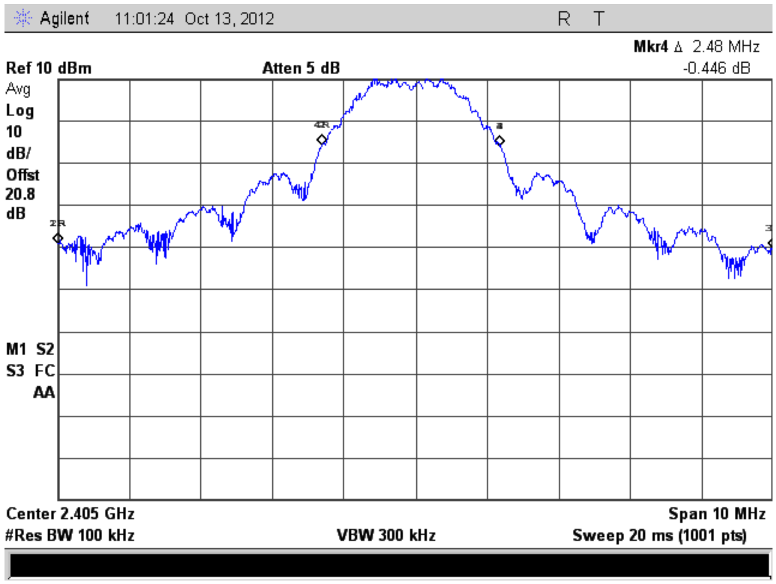


Figure 7.3.4.2-4: 99% OBW Low Channel

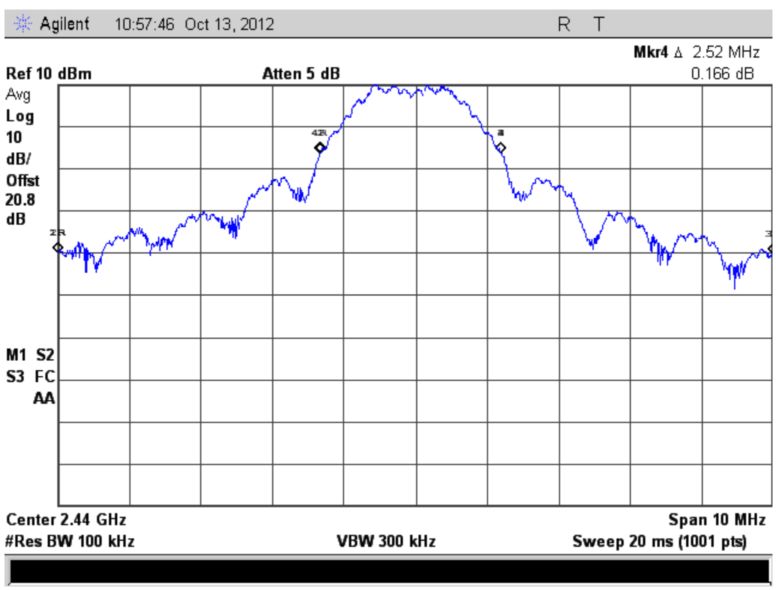


Figure 7.3.4.2-5: 99% OBW Middle Channel

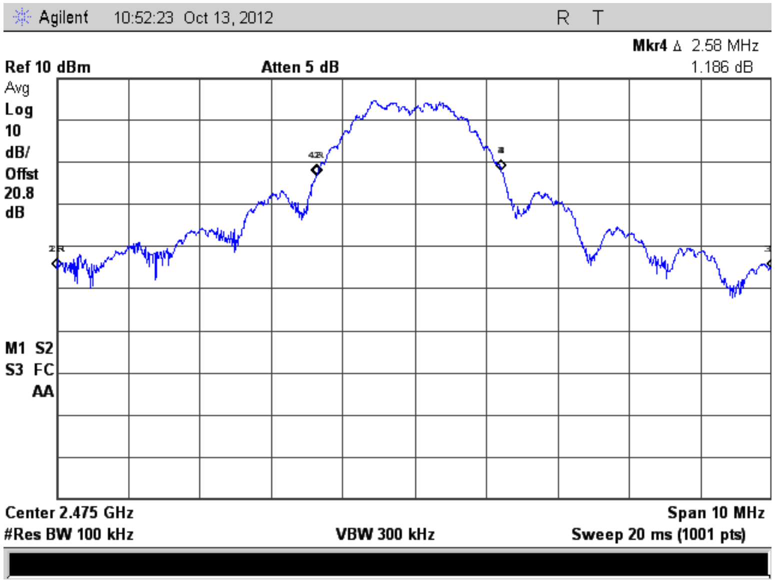


Figure 7.3.4.2-6: 99% OBW High Channel

Antenna Path 2

Table 7.3.4.2-2: 20dB / 99% Bandwidth

Frequency [MHz]	20dB Bandwidth [kHz]	99% Bandwidth [kHz]
2405	2620	2490
2440	2620	2500
2475	2625	2580

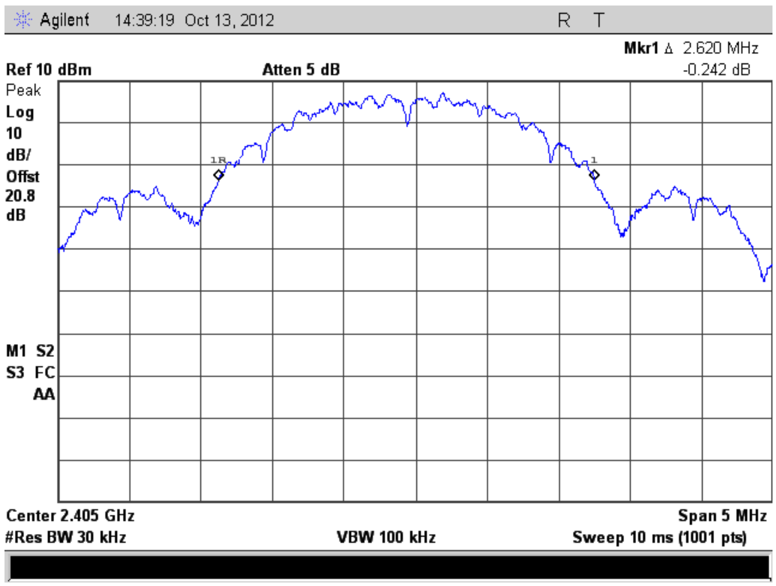


Figure 7.3.4.2-7: 20dB BW Low Channel

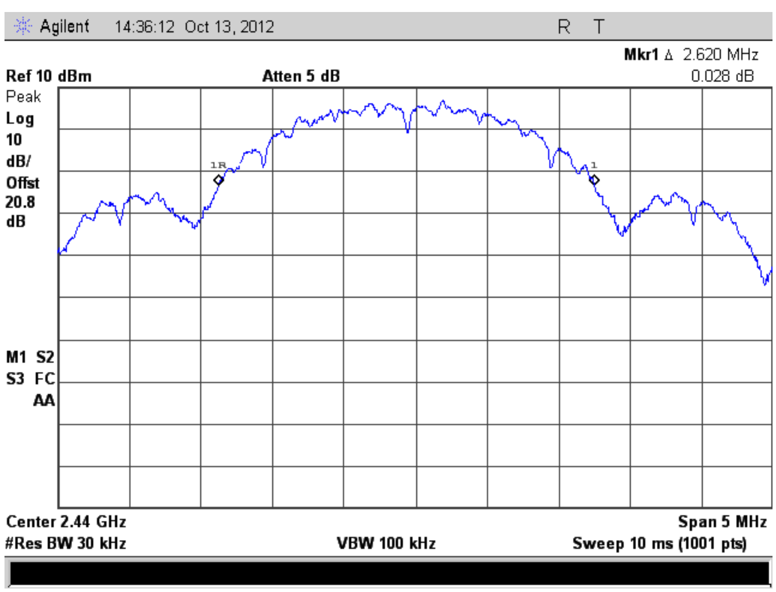


Figure 7.3.4.2-8: 20dB BW Middle Channel

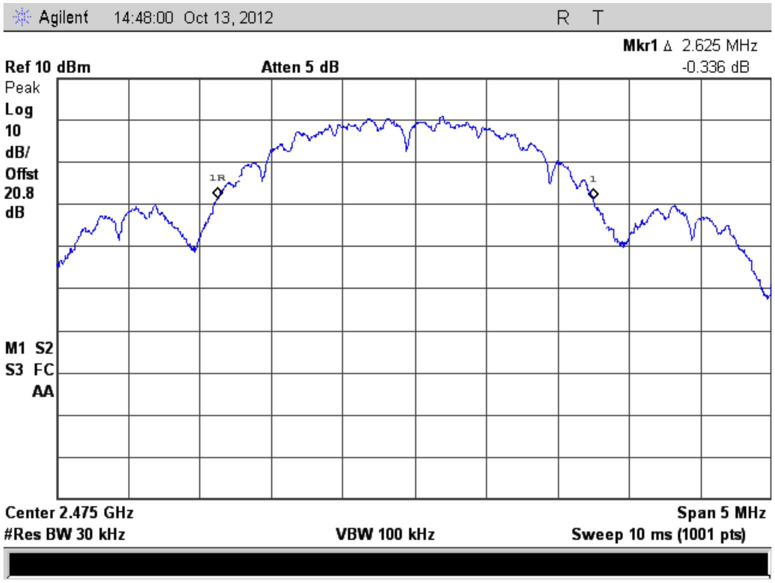


Figure 7.3.4.2-9: 20dB BW High Channel

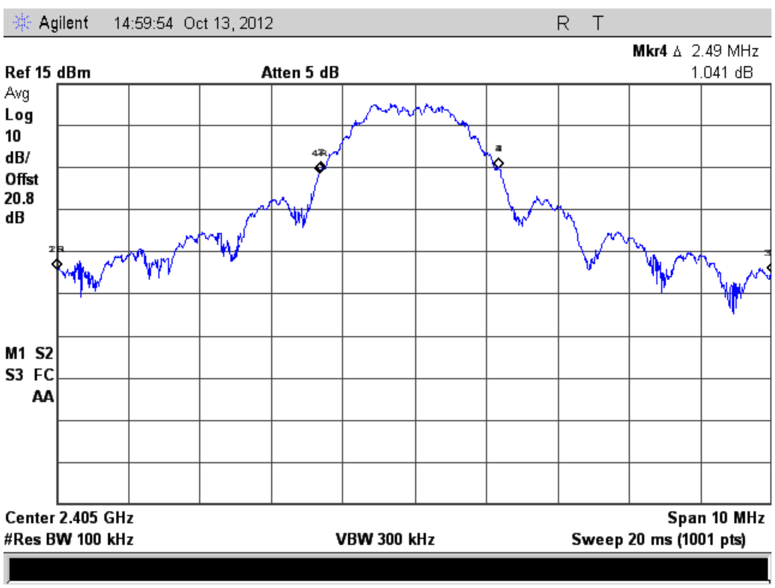


Figure 7.3.4.2-10: 99% OBW Low Channel

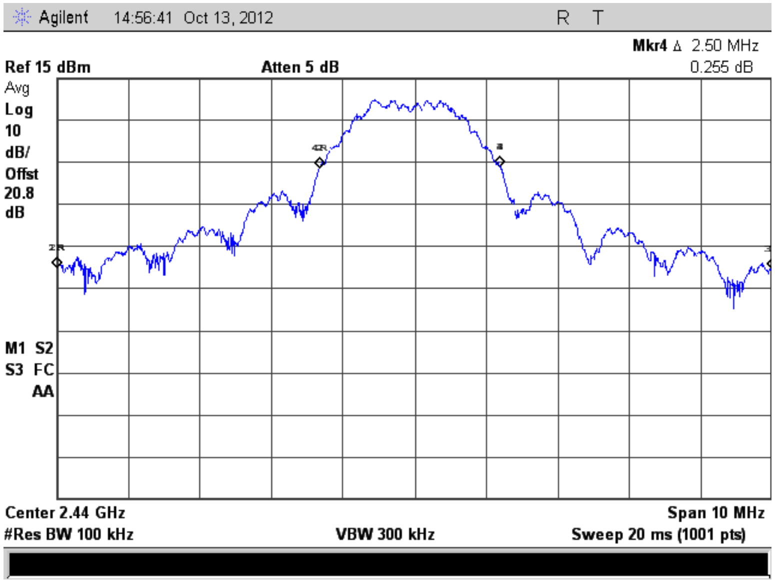


Figure 7.3.4.2-11: 99% OBW Middle Channel

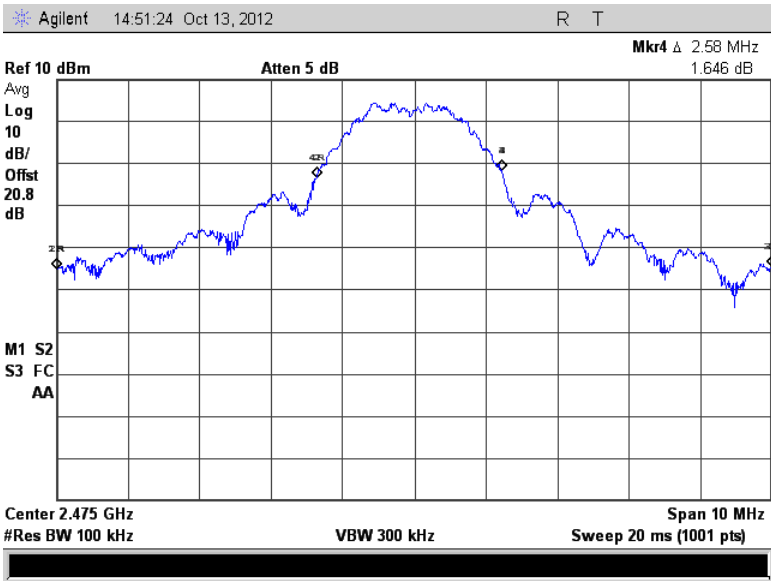


Figure 7.3.4.2-12: 99% OBW High Channel

7.4 Band-Edge Compliance and Spurious Emissions-FCC 15.247(d) IC:RSS-210 A8.5

7.4.1 Band-Edge Compliance of RF Conducted Emissions

7.4.1.1 Measurement Procedure

The RF output port of the EUT was connected to the input of the spectrum analyzer through suitable attenuation. The EUT was investigated at the lowest and highest channel available to determine band-edge compliance. For each measurement the spectrum analyzer's RBW was set to 100 kHz, which is ≥ 1% of the span, and the VBW was set to >= 300 kHz.

7.4.1.2 Measurement Results

Results are shown below.

Antenna Path 1

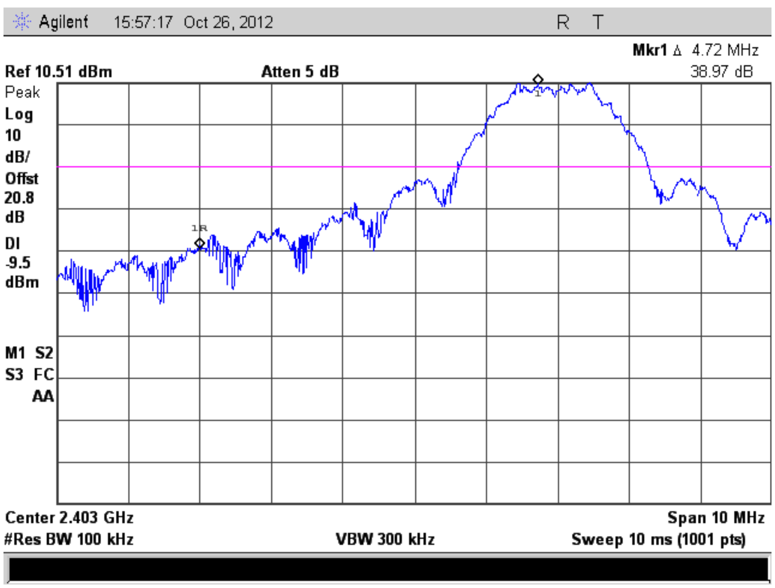


Figure 7.4.1.2-1: Lower Band-edge – Continuous Mode

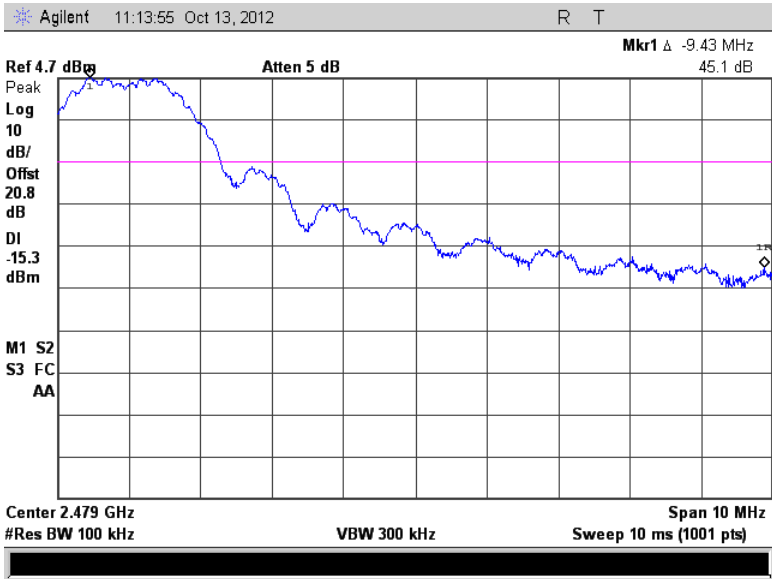


Figure 7.4.1.2-2: Upper Band-edge – Continuous Mode

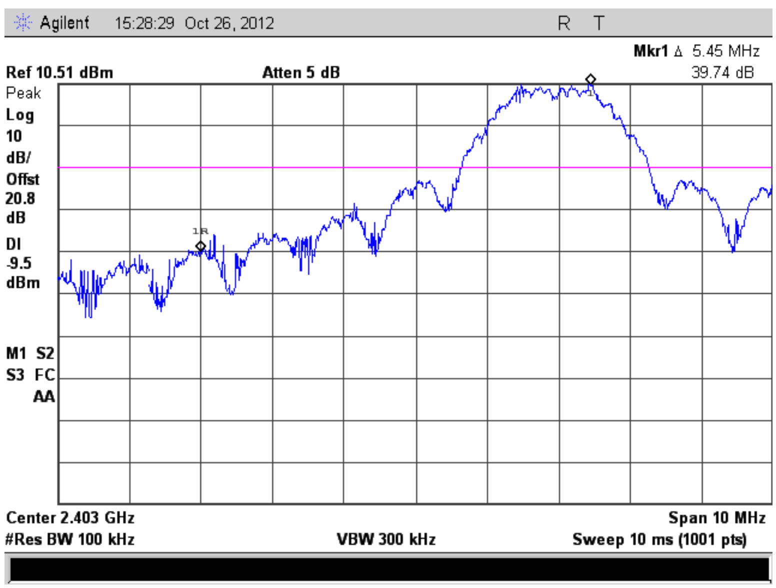


Figure 7.4.1.2-3: Lower Band-edge – Hopping Mode

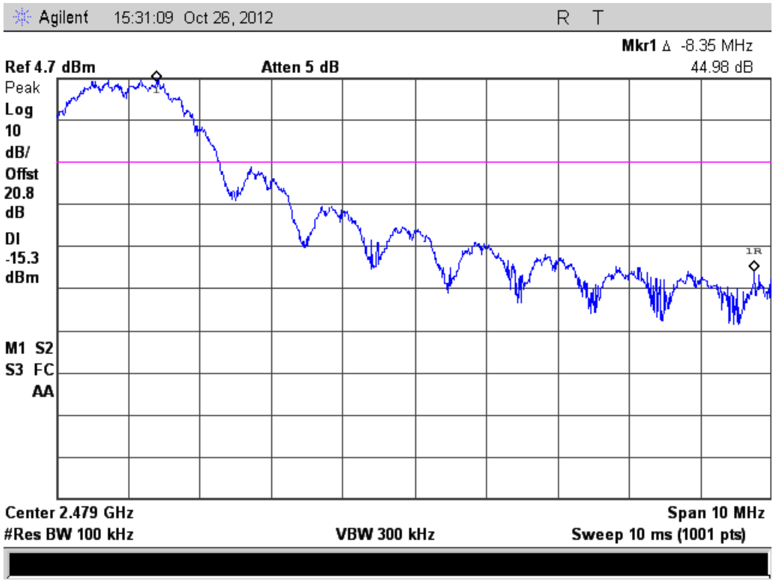


Figure 7.4.1.2-4: Upper Band-edge – Hopping Mode

Antenna Path 2

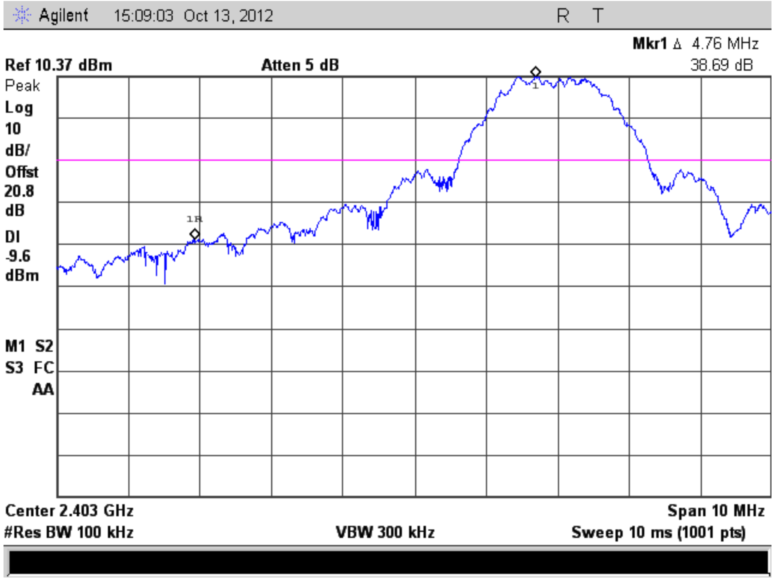


Figure 7.4.1.2-5: Lower Band-edge – Continuous Mode

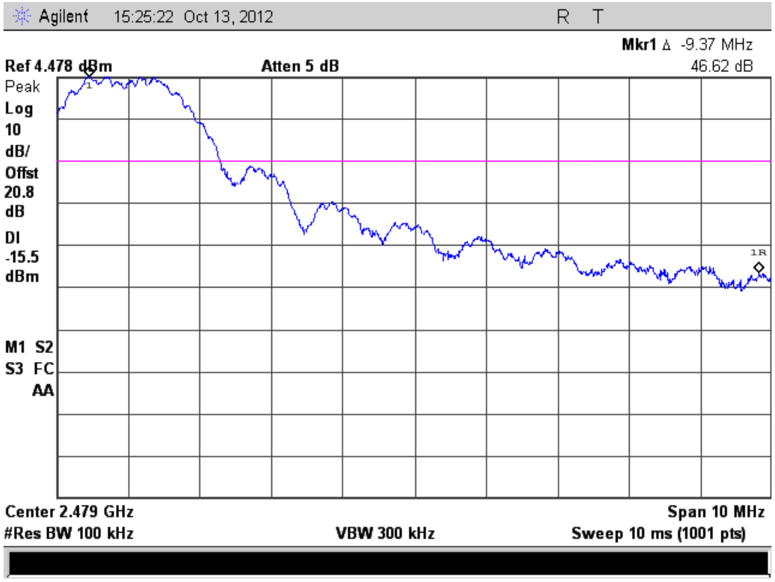


Figure 7.4.1.2-6: Upper Band-edge – Continuous Mode

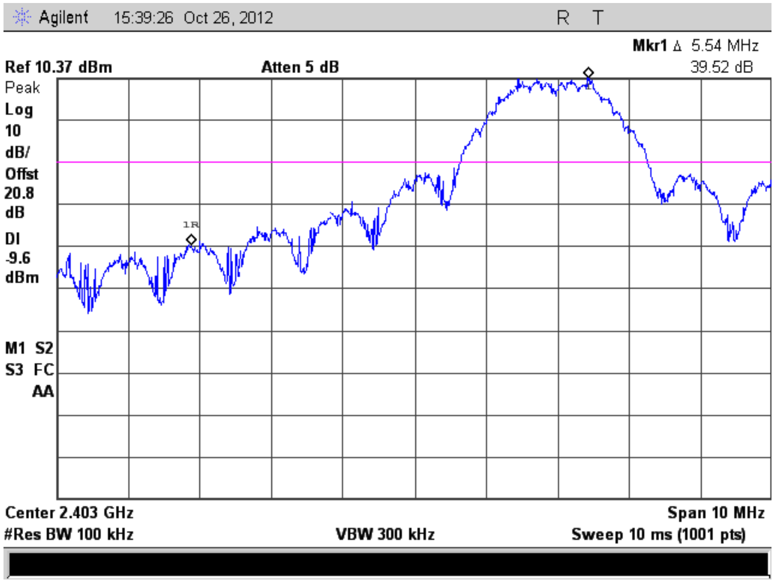


Figure 7.4.1.2-7: Lower Band-edge – Hopping Mode

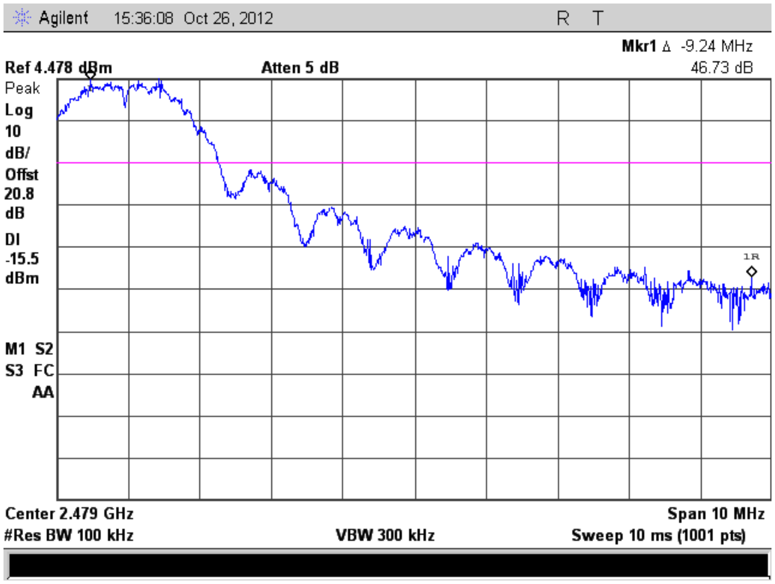


Figure 7.4.1.2-8: Upper Band-edge – Hopping Mode

7.4.2 RF Conducted Spurious Emissions

7.4.2.1 Measurement Procedure

The RF output port of the EUT was connected to the spectrum analyzer input using a 20 dB attenuator. The EUT was investigated for conducted spurious emissions from 30MHz to 26 GHz, 10 times the highest fundamental frequency. Measurements were made at the low, center and high channels of the EUT. For each measurement, the spectrum analyzer's RBW was set to 100 kHz. A peak detector function was used with the trace set to max hold. The levels were corrected for cable and attenuator losses.

7.4.2.2 Measurement Results

Results are shown below.

Antenna Path 1

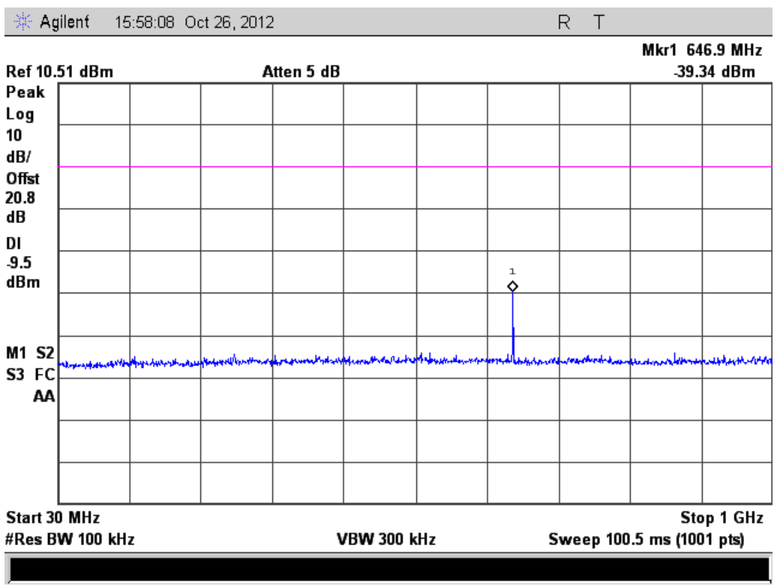


Figure 7.4.2.2-1: 30 MHz – 1 GHz – Low Channel

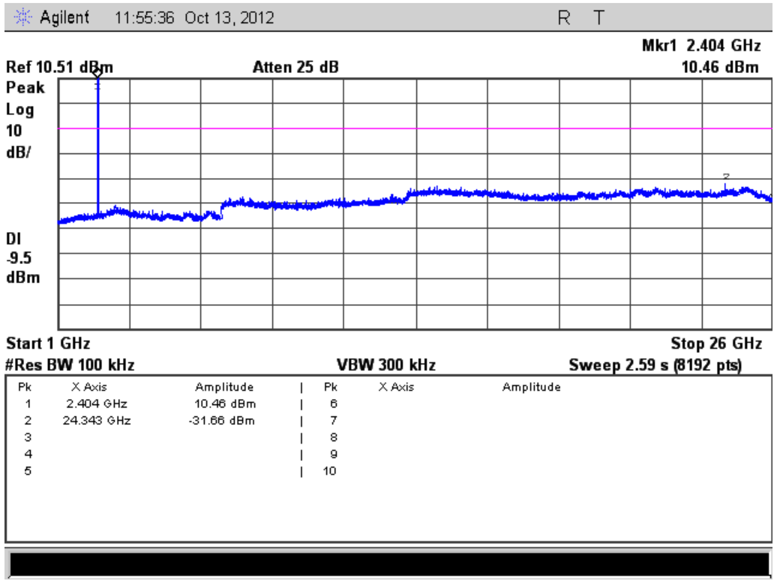


Figure 7.4.2.2-2: 1 GHz –26 GHz – Low Channel

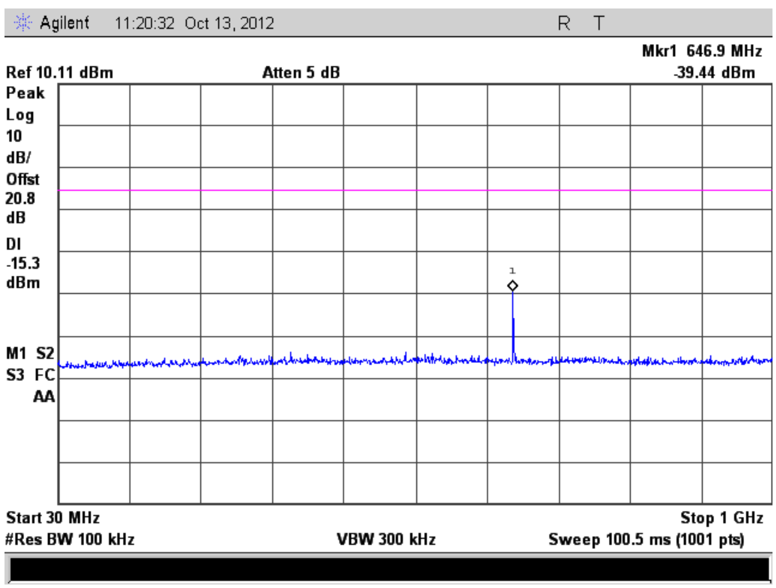


Figure 7.4.2.2-3: 30 MHz – 1 GHz – Middle Channel

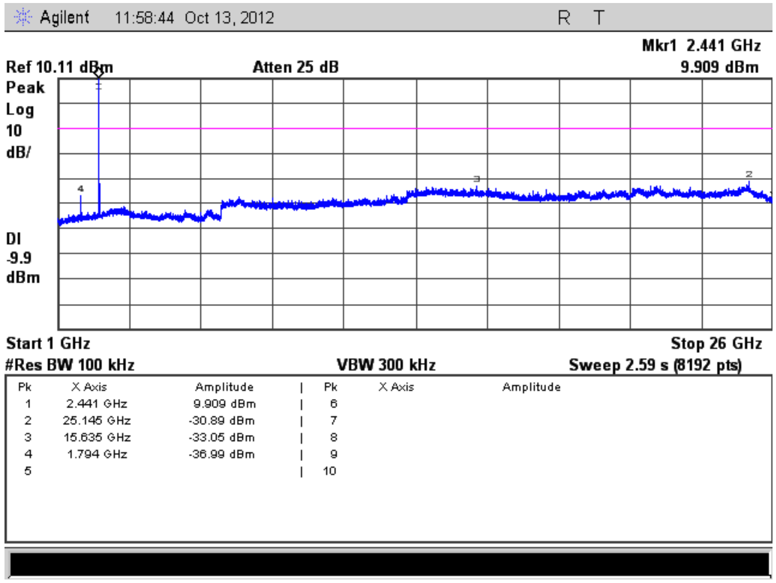


Figure 7.4.2.2-4: 1 GHz –26 GHz – Middle Channel

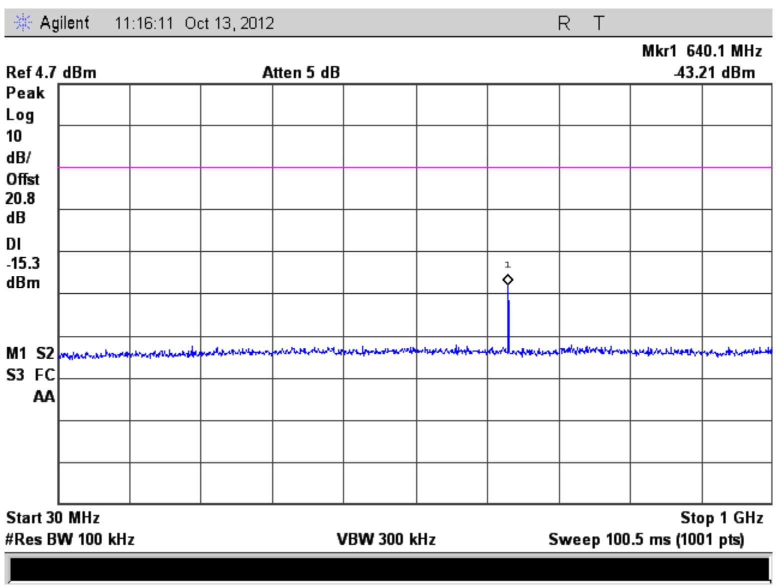
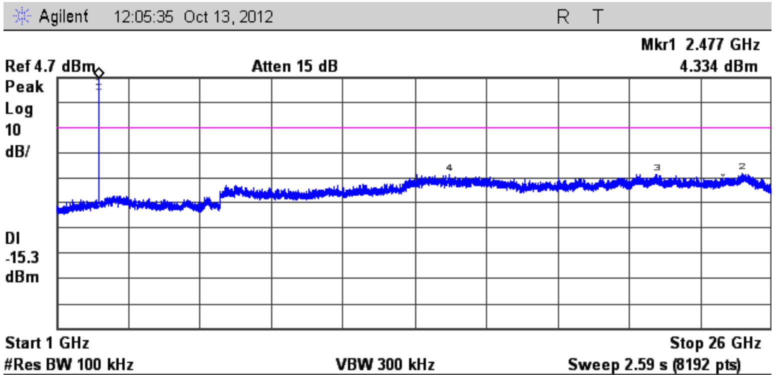


Figure 7.4.2.2-5: 30 MHz – 1 GHz – High Channel



Pk	X Axis	Amplitude	Pk	X Axis	Amplitude
1	2.477 GHz	4.334 dBm	6		
2	24.959 GHz	-33.38 dBm	7		
3	21.956 GHz	-33.83 dBm	8		
4	14.680 GHz	-34.1 dBm	9		
5			10		

Figure 7.4.2.2-6: 1 GHz –26 GHz – High Channel

Antenna Path 2

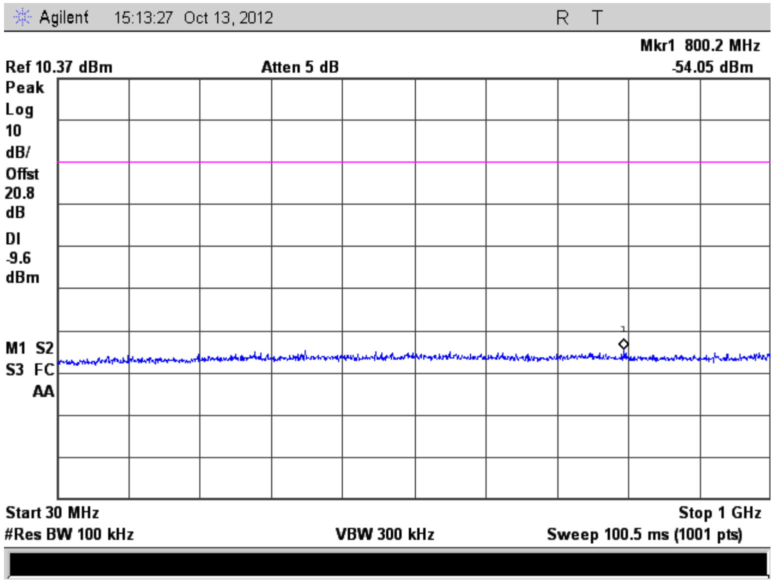


Figure 7.4.2.2-7: 30 MHz – 1 GHz – Low Channel

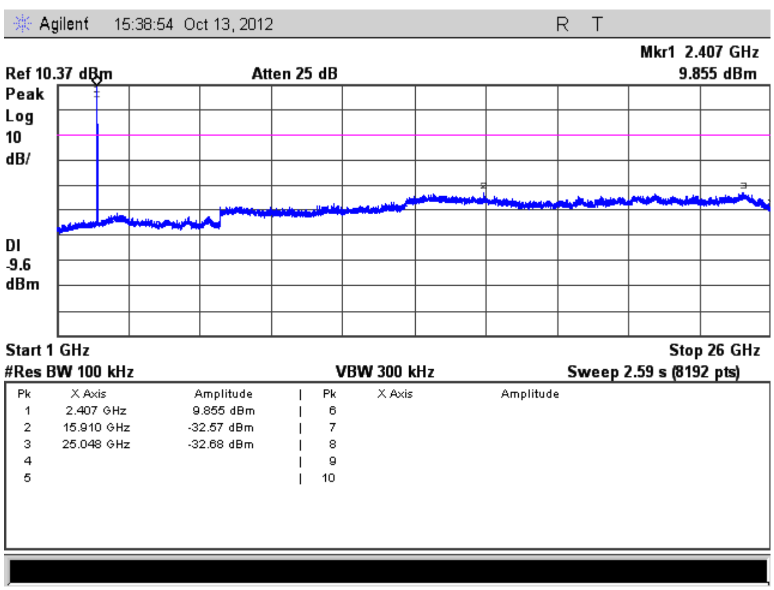


Figure 7.4.2.2-8: 1 GHz –26 GHz – Low Channel

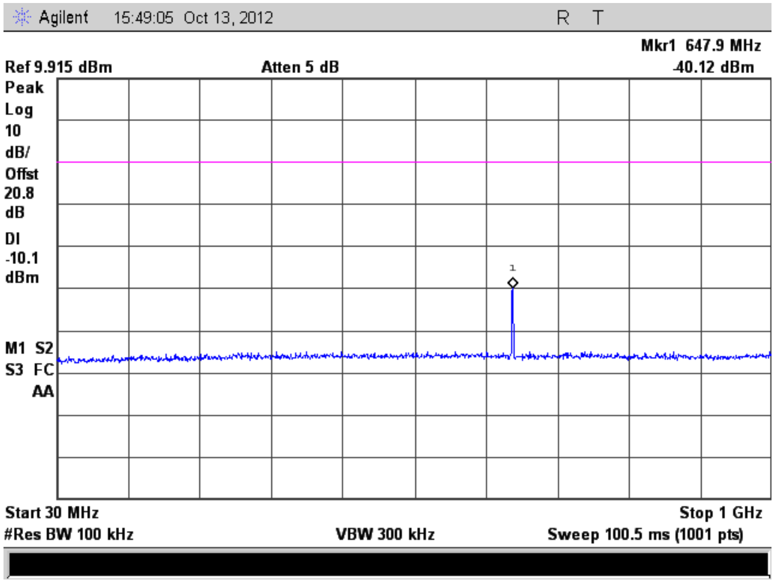


Figure 7.4.2.2-9: 30 MHz – 1 GHz – Middle Channel

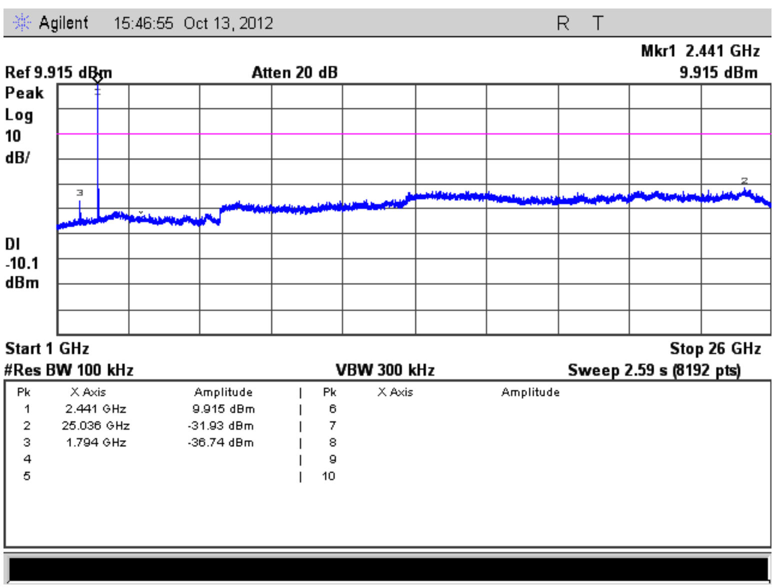


Figure 7.4.2.2-10: 1 GHz –26 GHz – Middle Channel

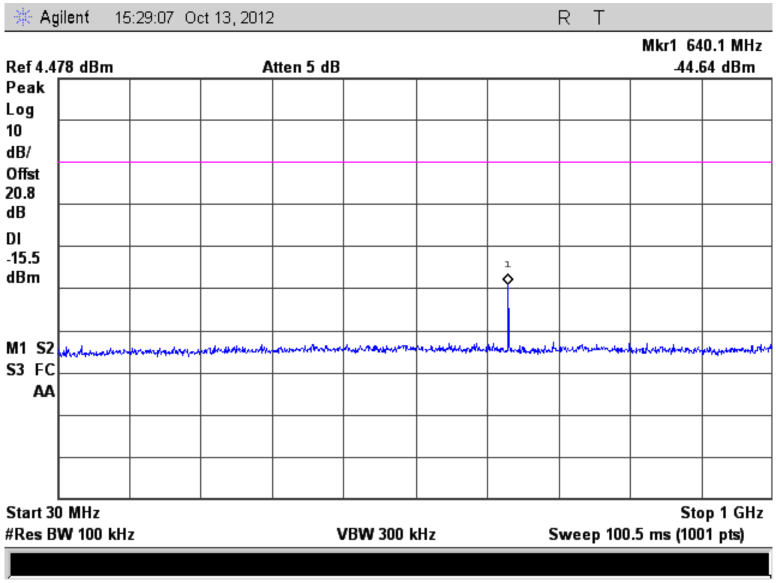


Figure 7.4.2.2-11: 30 MHz – 1 GHz – High Channel

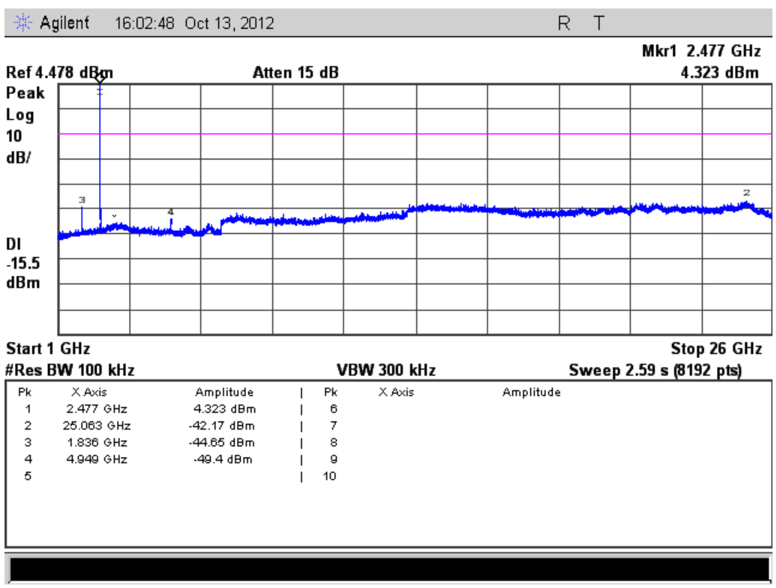


Figure 7.4.2.2-12: 1 GHz –26 GHz – High Channel

7.4.3 Radiated Spurious Emissions - FCC Section 15.205 IC: RSS-Gen 7.2.5

7.4.3.1 Measurement Procedure

Radiated emissions tests were made over the frequency range of 30 MHz to 26 GHz, 10 times the highest fundamental frequency.

The EUT was rotated through 360° and the receive antenna height was varied from 1m to 4m so that the maximum radiated emissions level would be detected. For frequencies below 1000MHz, quasi-peak measurements were made using a resolution bandwidth RBW of 120 kHz and a video bandwidth VBW of 300 kHz. For frequencies above 1000 MHz, peak and average measurements made with RBW and VBW of 1 MHz and 3 MHz respectively.

The EUT was caused to generate a continuous carrier signal on the hopping channel. The average measurements were corrected using the logarithm of the dwell time over 100 ms period.

7.4.3.2 Measurement Results

Radiated spurious emissions found in the band of 30MHz to 26 GHz are reported in the tables below.

Antenna Path 1

Table 7.4.3.2-1: Radiated Spurious Emissions Tabulated Data

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Low Channel 2405 MHz										
2390	81.58	59.08	H	-8.42	73.16	16.81	74.0	54.0	0.8	37.2
2390	78.03	55.53	V	-8.42	69.61	13.26	74.0	54.0	4.4	40.7
4810	62.93	56.01	H	-1.29	61.64	20.87	74.0	54.0	12.4	33.1
4810	59.59	52.21	V	-1.29	58.30	17.07	74.0	54.0	15.7	36.9
12025	49.02	38.57	H	11.58	60.60	16.30	83.5	63.5	22.9	47.2
12025	51.48	41.51	V	11.58	63.06	19.24	83.5	63.5	20.4	44.3
Middle Channel 2440 MHz										
4880	61.07	54.05	H	-1.10	59.97	19.10	74.0	54.0	14.0	34.9
4880	57.59	50.37	V	-1.10	56.49	15.42	74.0	54.0	17.5	38.6
7320	61.48	53.33	H	3.54	65.02	23.02	74.0	54.0	9.0	31.0
7320	68.10	60.71	V	3.54	71.64	30.40	74.0	54.0	2.4	23.6
12200	50.32	39.64	H	11.69	62.01	17.48	83.5	63.5	21.5	46.0
12200	49.29	38.21	V	11.69	60.98	16.05	83.5	63.5	22.5	47.4
High Channel 2475 MHz										
2483.5	79.59	61.32	H	-8.03	71.56	19.44	74.0	54.0	2.4	34.6
2483.5	76.16	57.87	V	-8.03	68.13	15.99	74.0	54.0	5.9	38.0
4950	53.96	45.54	H	-0.92	53.04	10.77	74.0	54.0	21.0	43.2
4950	51.73	42.28	V	-0.92	50.81	7.51	74.0	54.0	23.2	46.5
7425	50.98	40.15	H	3.91	54.89	10.21	74.0	54.0	19.1	43.8
7425	53.98	44.51	V	3.91	57.89	14.57	74.0	54.0	16.1	39.4

* Notes:

1. A duty cycle correction factor of 20*log(2.03/100) dB ≈ -33.85 dB corresponding to the logarithm of the dwell time over 100 ms was added to the average values.
2. The limits above 10 GHz are corrected for 1m measurements using the distance factor of 20*log(3/1) dB ≈ 9.54 dB.
3. All emissions above 12200 MHz were attenuated below the limits and the noise floor of the measurement equipment.

Antenna Path 2

Table 7.4.3.2-2: Radiated Spurious Emissions Tabulated Data

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Low Channel 2405 MHz										
2390	75.49	54.40	H	-8.42	67.07	12.13	74.0	54.0	6.9	41.9
2390	77.52	55.79	V	-8.42	69.10	13.52	74.0	54.0	4.9	40.5
4810	64.18	57.06	H	-1.29	62.89	21.92	74.0	54.0	11.1	32.1
4810	60.83	53.37	V	-1.29	59.54	18.23	74.0	54.0	14.5	35.8
12025	49.31	37.77	H	11.58	60.89	15.50	83.5	63.5	22.6	48.0
12025	50.41	40.67	V	11.58	61.99	18.40	83.5	63.5	21.5	45.1
Middle Channel 2440 MHz										
4880	59.69	52.47	H	-1.10	58.59	17.52	74.0	54.0	15.4	36.5
4880	57.00	49.47	V	-1.10	55.90	14.52	74.0	54.0	18.1	39.5
7320	62.04	54.22	H	3.54	65.58	23.91	74.0	54.0	8.4	30.1
7320	67.49	60.03	V	3.54	71.03	29.72	74.0	54.0	3.0	24.3
12200	50.33	40.06	H	11.69	62.02	17.90	83.5	63.5	21.5	45.6
12200	49.75	38.45	V	11.69	61.44	16.29	83.5	63.5	22.1	47.2
High Channel 2475 MHz										
2483.5	76.44	58.38	H	-8.03	68.41	16.50	74.0	54.0	5.6	37.5
2483.5	77.29	59.89	V	-8.03	69.26	18.01	74.0	54.0	4.7	36.0
4950	54.87	46.75	H	-0.92	53.95	11.98	74.0	54.0	20.1	42.0
4950	52.77	44.47	V	-0.92	51.85	9.70	74.0	54.0	22.2	44.3
7425	51.04	40.43	H	3.91	54.95	10.49	74.0	54.0	19.0	43.5
7425	54.31	44.36	V	3.91	58.22	14.42	74.0	54.0	15.8	39.6

* Notes:

1. A duty cycle correction factor of 20*log(2.03/100) dB ≈ -33.85 dB corresponding to the logarithm of the dwell time over 100 ms was added to the average values.
2. The limits above 10 GHz are corrected for 1m measurements using the distance factor of 20*log(3/1) dB ≈ 9.54 dB.
3. All emissions above 12200 MHz were attenuated below the limits and the noise floor of the measurement equipment.

7.4.3.3 Sample Calculation:

$R_C = R_U + CF_T$

Where:

CF_T	=	Total Correction Factor (AF+CA+AG)-DC (Average Measurements Only)
R_U	=	Uncorrected Reading
R_C	=	Corrected Level
AF	=	Antenna Factor
CA	=	Cable Attenuation
AG	=	Amplifier Gain
DC	=	Duty Cycle Correction Factor

Duty Cycle Correction Factor
DC = 20*log(2.03/100) = -33.85 dB

Example Calculation: Peak
Corrected Level: 81.58+ (-8.42) = 73.16dBμV/m
Margin: 74 dBuV/m – 73.16dBμV/m = 0.8dB

Example Calculation: Average
Corrected Level: 59.08 + (-8.42) – 33.85= 16.81dBμV/m
Margin: 54 dBuV/m – 16.81dBμV/m = 37.2dB

8 CONCLUSION

In the opinion of ACS, Inc., the JETIR11EPCUS manufactured by Esprit Model meets the requirements of FCC Part 15 subpart C and Industry Canada's Radio Standards Specification RSS-210.

END REPORT