Certification Test Report

FCC ID: ONTJETIREX12US
IC: 10491A-JETIREX12US

FCC Rule Part: 15.247
IC Radio Standards Specification: RSS-247

ACS Report Number: 15.2048.W06.1A

Manufacturer: Esprit Model
Models: JETIREX12US, JETIREX10US, JETIREX7US

Test Begin Date: **May 28, 2015**
Test End Date: **June 19, 2015**

Report Issue Date: July 21, 2015

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 ANAB, ANSI, or any agency of the Federal Government.

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This report contains 48 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-247.

1.2 Manufacturer Information

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

1.3 Product description

The JETIREX12US, JETIREX10US, JETIREX7US are 2.4 GHz wireless transceivers for remote controlled toys. The JETIREX12US, JETIREX10US, JETIREX7US comport two coaxial antennas which alternate based on the received signal strength on each antenna.

Band of Operation: 2405 MHz - 2480 MHz
Number of Channels: 16
Mode of Operation: FH/DSSS
Modulation Format: O-QPSK
Antenna Type/Gain: Coaxial Wire Antenna, 2.1 dBi
Operating Voltage: 5 VDC

Model Numbers: JETIREX12US, JETIREX10US, JETIREX7US

Model Variants: The Jeti Duplex EX REX family includes multiple Esprit Model transceivers with identical printed circuit board designs. The model variants differ by the amount of servo channels supported. The model variants are listed below.

Table 1.3-1: Model Variants

Model Variants	Description	Complete Test
JETIREX12US	Jeti Duplex EX REX 12 2.4GHz Receiver w/Telemetry (US)	Yes
JETIREX10US	Jeti Duplex EX REX 10 2.4GHz Receiver w/Telemetry (US) Depopulation of the auxiliary external power cable assembly Depopulation of servo output connectors and software restriction to support a total of 10 servo output channels	-------
JETIREX7US	Jeti Duplex EX REX 7 2.4GHz Receiver w/Telemetry (US) Depopulation of the auxiliary external power cable assembly Depopulation of servo output connectors and software restriction to support a total of 7 servo output channels	-------

Test Sample Serial Number(s): ACS#15 (Radiated), ACS#3 (RF conducted)

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

1.4 Test Methodology and Considerations

The Jeti Duplex REX products are intended to be integrated into battery operated remote controlled toys only. The units do not connect to the AC Mains and are therefore exempted from the power line conducted emissions requirements. For the evaluation, the equipment was powered using a DC benchtop power supply set to 5VDC.

Complete measurements were performed on the JETIREX12US model which was deemed representative of the worst case. Limited radiated measurements were performed on the JETIREX10US and JETIREX7US models.

For the radiated emissions, preliminary measurements were for the EUT set in three orthogonal orientations on the table top. The results are reported for the orientation leading to the highest emissions.

The RF conducted measurements were performed with a temporary connector at the antenna ports. 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.

The power settings used for the evaluation were configured as listed below:

Channel 11 (2405 MHz): 7
Channel 18 (2440 MHz): 7
Channel 25 (2475 MHz): 12
Channel 26 (2480 MHz): 15

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 #: 475089
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 ANAB 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:

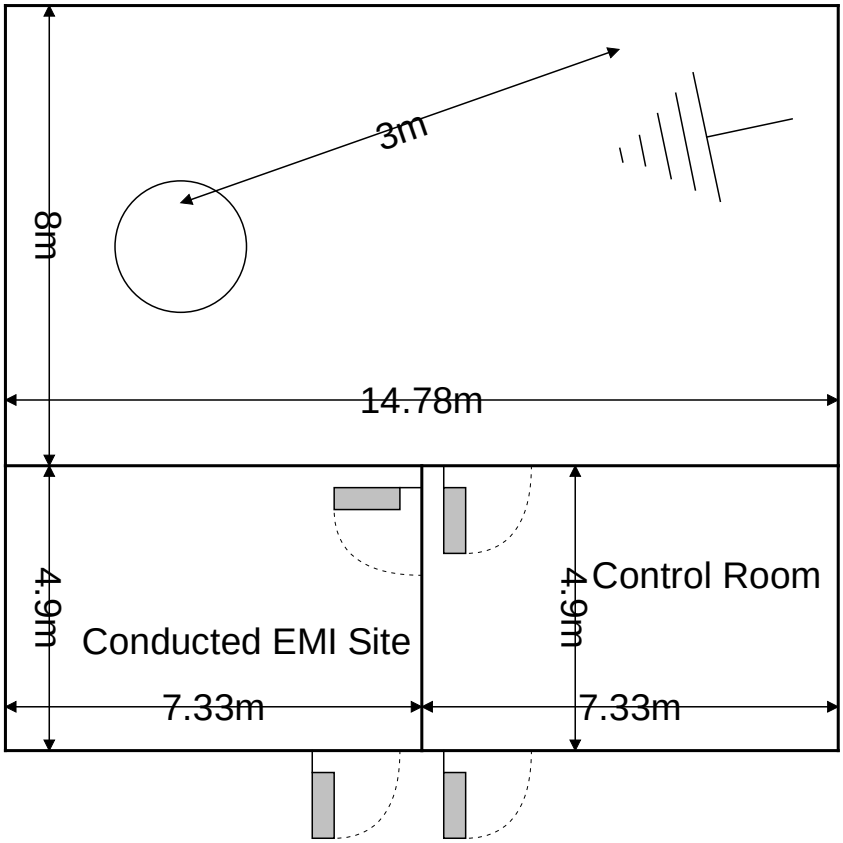

Figure 2.3.1-1: Semi-Anechoic Chamber Test Site

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:

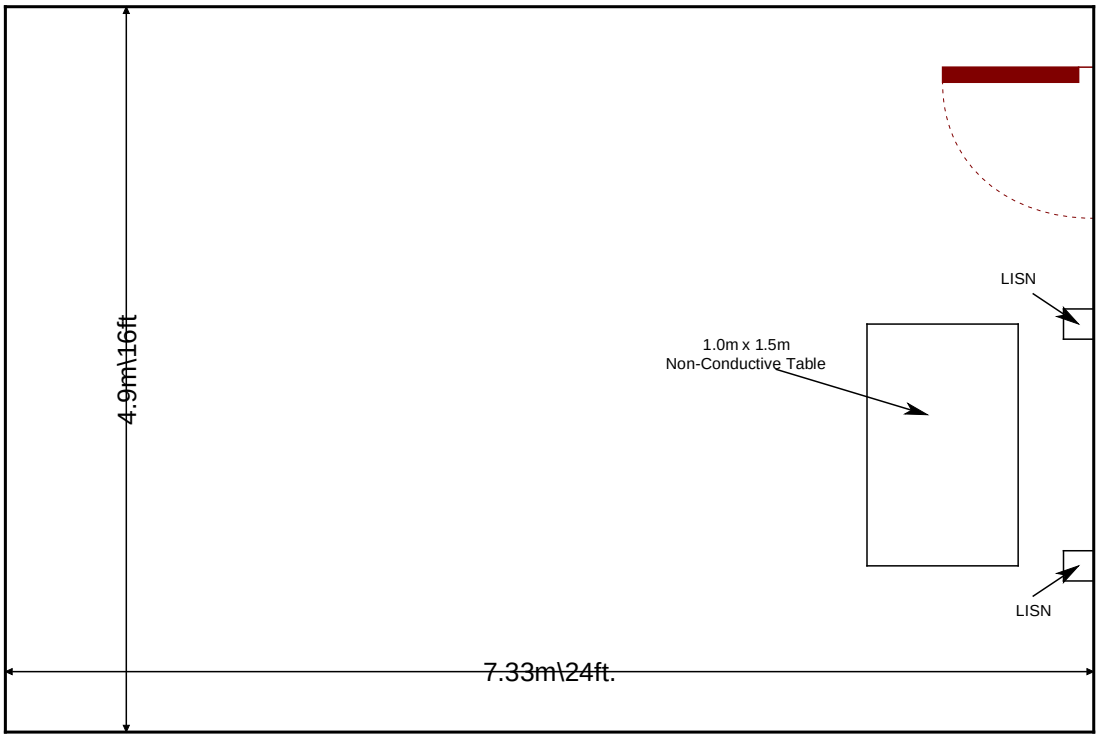

Figure 2.3.2-1: AC Mains Conducted EMI Site

3 APPLICABLE STANDARD REFERENCES

The following standards were used:

- ANSI C63.10-2009: American National Standard for Testing Unlicensed Wireless Devices
- ANSI C63.10-2013[1]: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices
- US Code of Federal Regulations (CFR): Title 47, Part 2, Subpart J: Equipment Authorization Procedures, 2015
- US Code of Federal Regulations (CFR): Title 47, Part 15, Subpart C: Radio Frequency Devices, Intentional Radiators, 2015
- Industry Canada Radio Standards Specification: RSS-247 — Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices, Issue 1, May 2015.
- Industry Canada Radio Standards Specification: RSS-GEN – General Requirements for Compliance of Radio Apparatus, Issue 4, November 2014.

[1] ANSI C63.10-2013: American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices – Reference for Industry Canada only

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
78	EMCO	6502	Antennas	9104-2608	2/13/2015	2/13/2017
523	Agilent	E7405	Spectrum Analyzers	MY45103293	12/26/2014	12/26/2016
2002	EMCO	3108	Antennas	2147	11/22/2013	11/22/2015
2004	EMCO	3146	Antennas	1385	11/22/2013	11/22/2015
2006	EMCO	3115	Antennas	2573	4/14/2015	4/14/2017
2008	COM-Power	AH-826	Antennas	81009	NCR	NCR
2011	Hewlett-Packard	HP 8447D	Amplifiers	2443A03952	12/31/2014	12/31/2015
2037	ACS Boca	Chamber EMI Cable Set	Cable Set	2037	2/17/2015	2/17/2016
2044	QMI	N/A	Cables	2044	12/31/2014	12/31/2015
2070	Mini Circuits	VHF-8400+	Filter	2070	12/31/2014	12/31/2015
2072	Mini Circuits	VHF-3100+	Filter	30737	12/31/2014	12/31/2015
2082	Teledyne Storm Products	90-010-048	Cables	2082	4/22/2015	4/22/2016
2086	Merrimac	FAN-6-10K	Attenuators	23148-83-1	12/31/2014	12/31/2015
2089	Agilent Technologies, Inc.	83017A	Amplifiers	3123A00214	12/12/2014	12/12/2015
2095	ETS Lindgren	TILE4! - Version 4.2.A	Software	85242	NCR	NCR
2111	Aeroflex Inmet	40AH2W-20	Attenuator	2111	7/25/2014	7/25/2015
RE619	Rhode & Schwarz	ESU	Spectrum Analyzers	1302.6005K26 Ser. 100190	11/5/2014	11/5/2016

NCR=No Calibration Required

5 SUPPORT EQUIPMENT

Table 5-1: Ancillary and Supporting Equipment

Item	Equipment Type	Manufacturer	Model Number	Serial Number
1	Servo Motors	Hitec	HS-225BB	N/A
2	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	Two Wire Power Lead	2.2	EUT to Power Supply	Unshielded
B	4 x RC Servo Cables	0.32	4 Servo Motors to EUT	Unshielded
C	8 x RC Servo Cables	0.32	8 Servo Motors to EUT	Unshielded
D	Programming Cable	0.32	Not Terminated	Unshielded
E	Power Cable	2.5	Power Supply to AC Mains	Unshielded

6 EQUIPMENT UNDER TEST SETUP BLOCK DIAGRAM

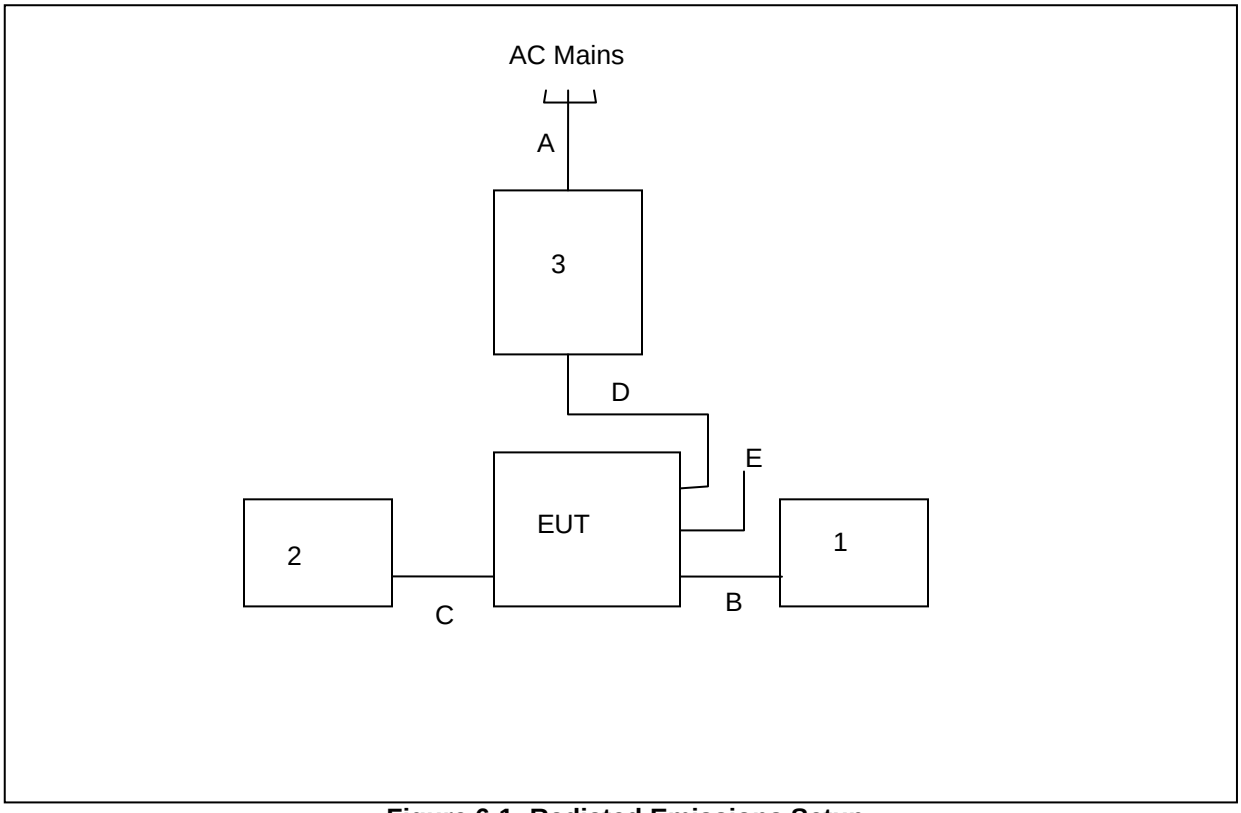

Figure 6-1: Radiated Emissions Setup

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 Jeti Duplex REX products use 2.1 dBi coaxial wire antennas which are directly soldered to the PCB. They equipment meets the requirement of FCC Section 15.203.

7.2 Peak Output Power - FCC Section 15.247(b)(1) IC: RSS-247 5.4(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	18.91
2440	18.83
2480	5.64

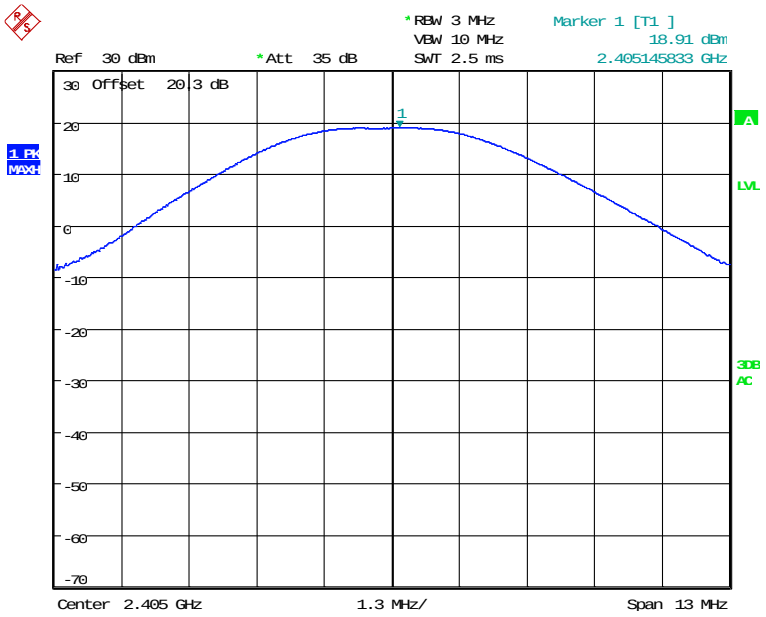

Figure 7.2.2-1: RF Output Power - Low Channel

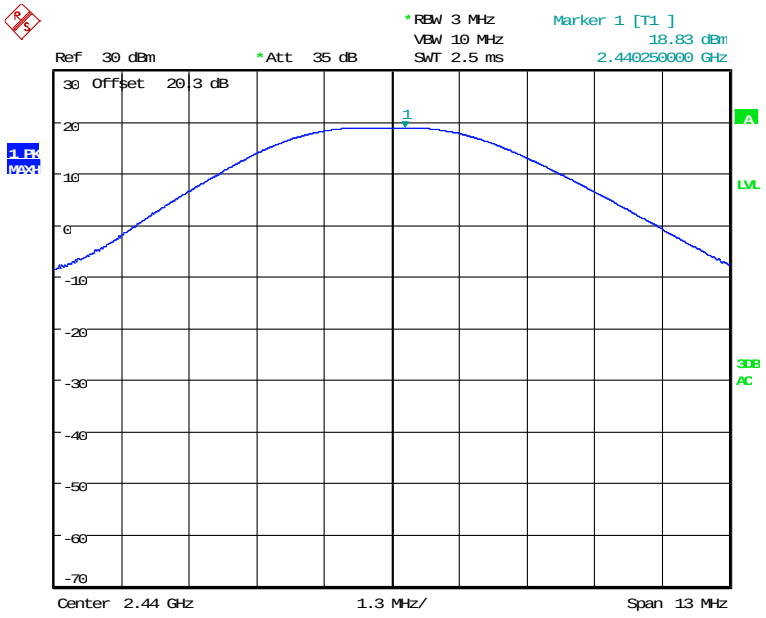

Figure 7.2.2-2: RF Output Power - Middle Channel

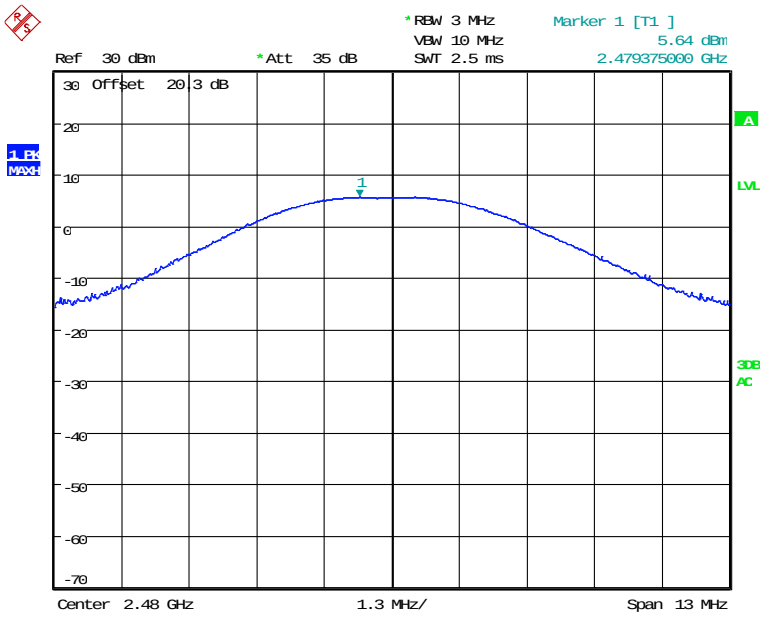

Figure 7.2.2-3: RF Output Power - High Channel

Antenna Path 2

Table 7.2.2-2: RF Output Power

Frequency (MHz)	Power (dBm)
2405	18.65
2440	18.81
2480	4.85

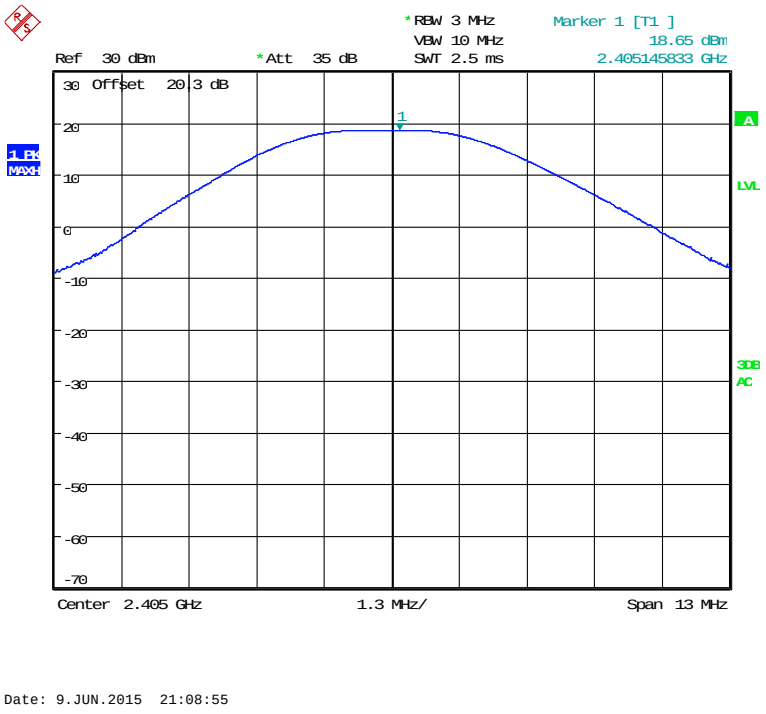

Figure 7.2.2-4: RF Output Power - Low Channel

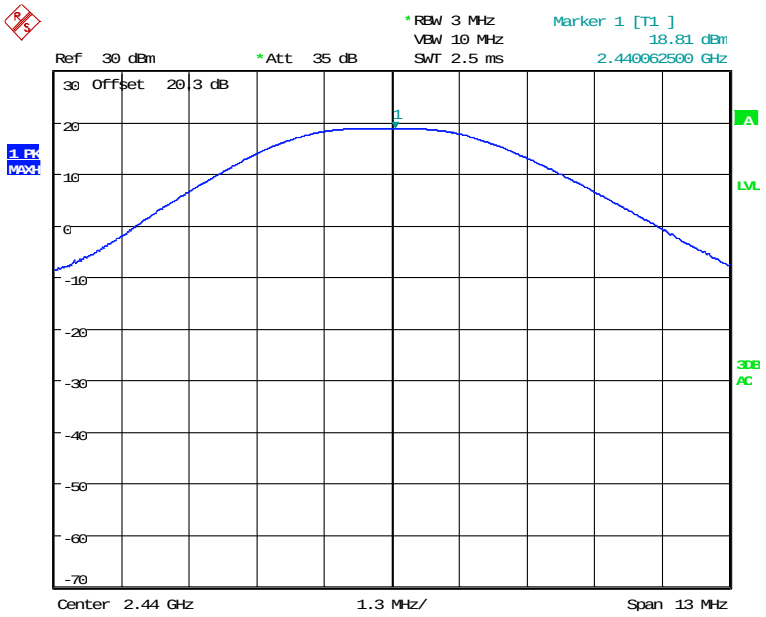

Figure 7.2.2-5: RF Output Power - Middle Channel

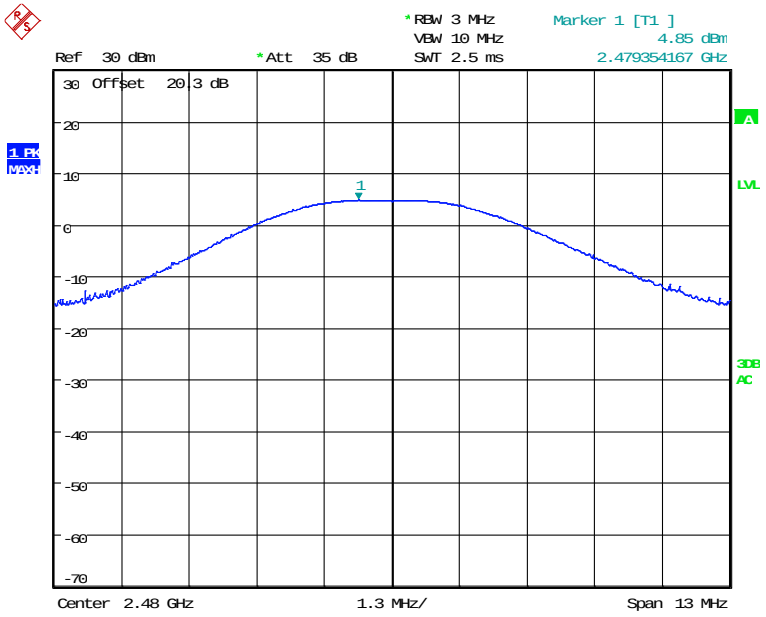

Figure 7.2.2-6: RF Output Power - High Channel

7.3 Channel Usage Requirements

7.3.1 Carrier Frequency Separation – FCC: Section 15.247(a)(1) IC: RSS-247 5.1(2)

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 approximately 30% of the channel spacing.

7.3.1.2 Measurement Results

Results are shown below.

Antenna Path 1

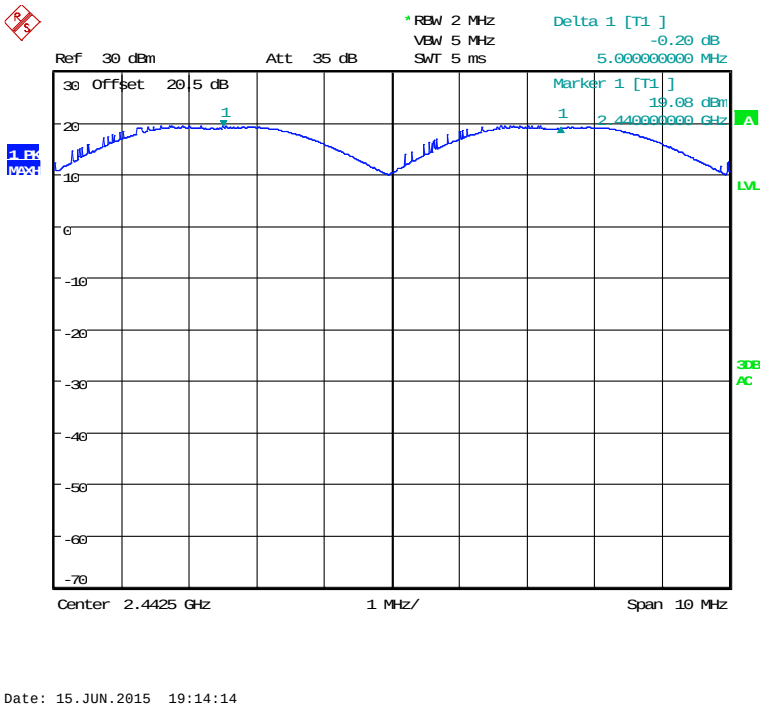

Figure 7.3.1.2-1: Carrier Frequency Separation

Antenna Path 2

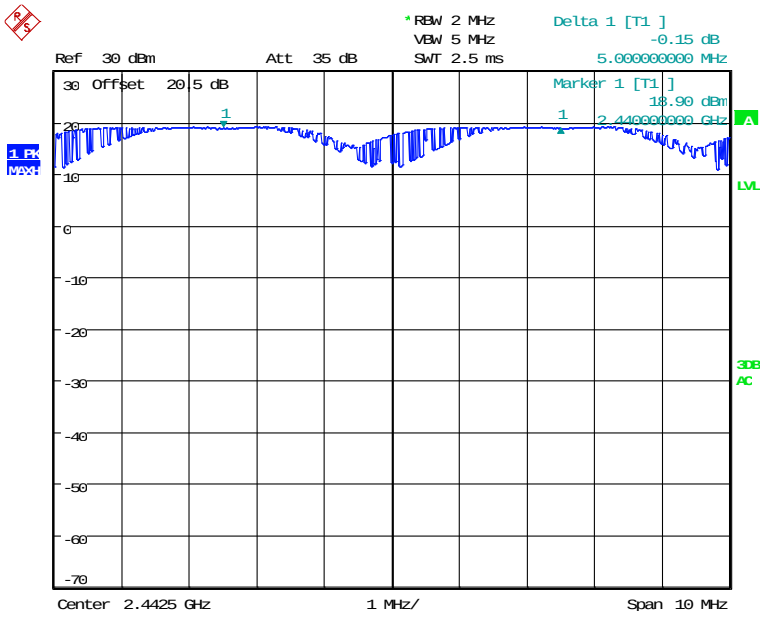

Figure 7.3.1.2-2: Carrier Frequency Separation

7.3.2 Number of Hopping Channels – FCC: Section 15.247(a)(1)(iii) IC: RSS-247 5.1(4)

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

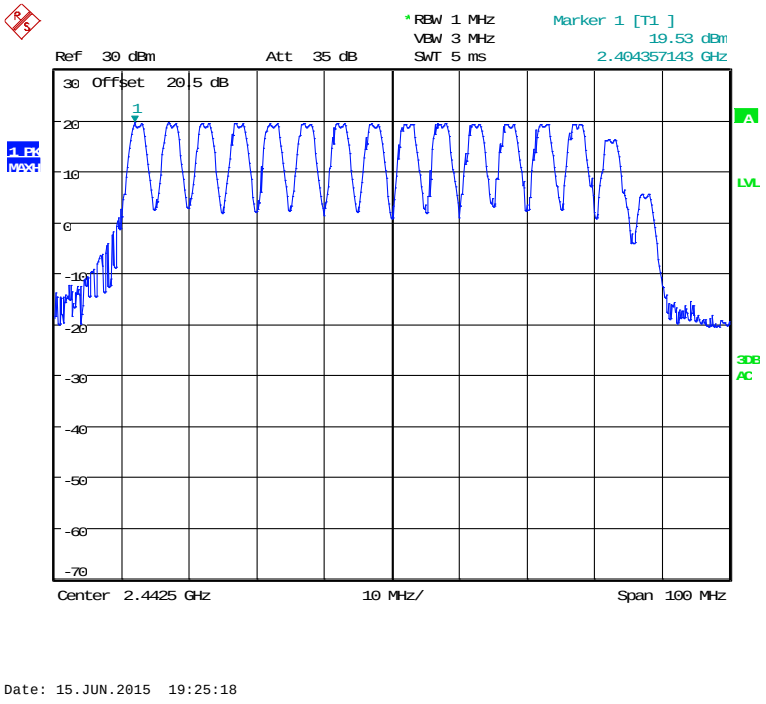

Figure 7.3.2.2-1: Number of Hopping Channels

Antenna Path 2

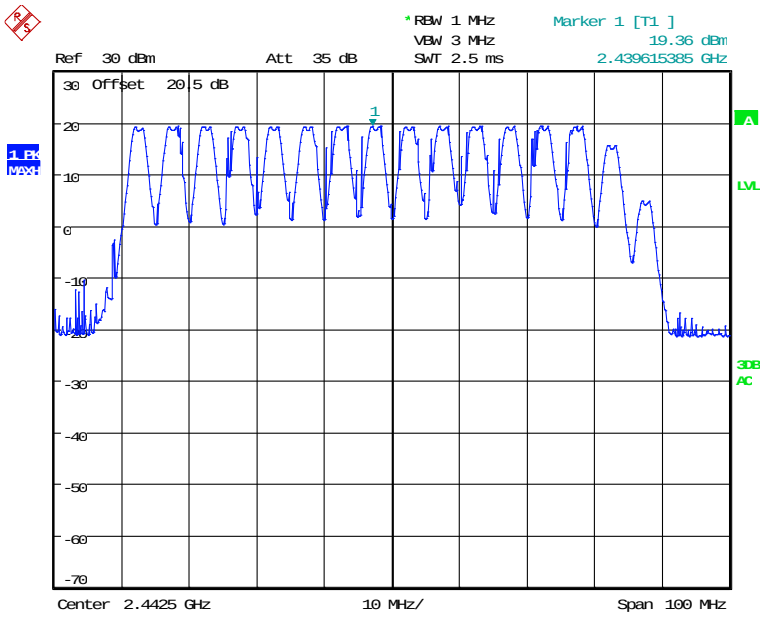

Figure 7.3.2.2-2: Number of Hopping Channels

7.3.3 Channel Dwell Time – FCC: Section 15.247(a)(1)(iii) IC: RSS-247 5.1(4)

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 6.4 Second Cycle

Number of Hops Per Sec. (NHPS)	Number of Hops per Channel Per Sec. (NHPCPS)	Number of hops on a 6.4 s Cycle (NHPC)	Measured Dwell Times (ms)	Dwell Times on a 6.4 s Cycle (ms)	Limit (ms)	Status
100	6.25	40	1.997	79.88	400	PASS
100	6.25	40	2.000	80.00	400	PASS

Antenna Path 1

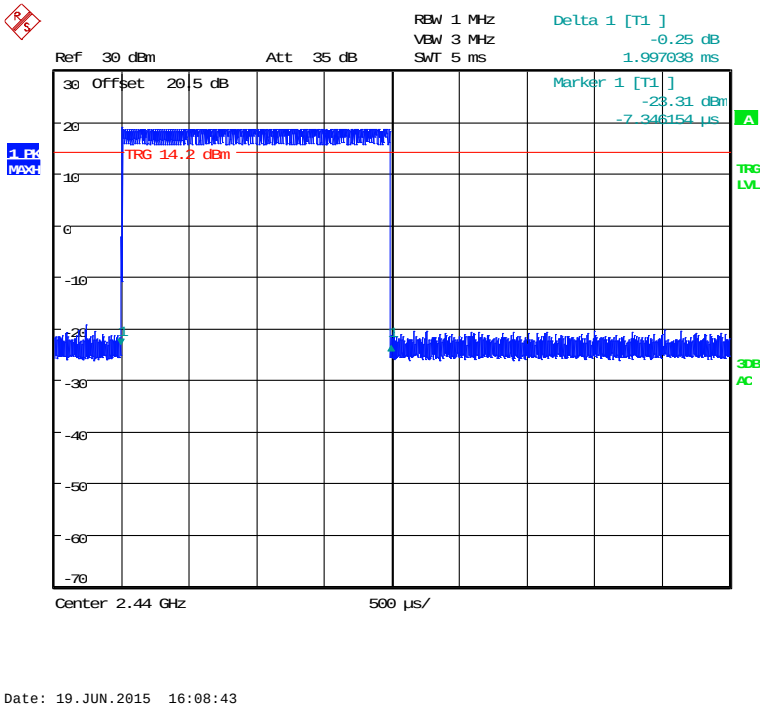

Figure 7.3.3.2-1: Channel Dwell Time

Antenna Path 2

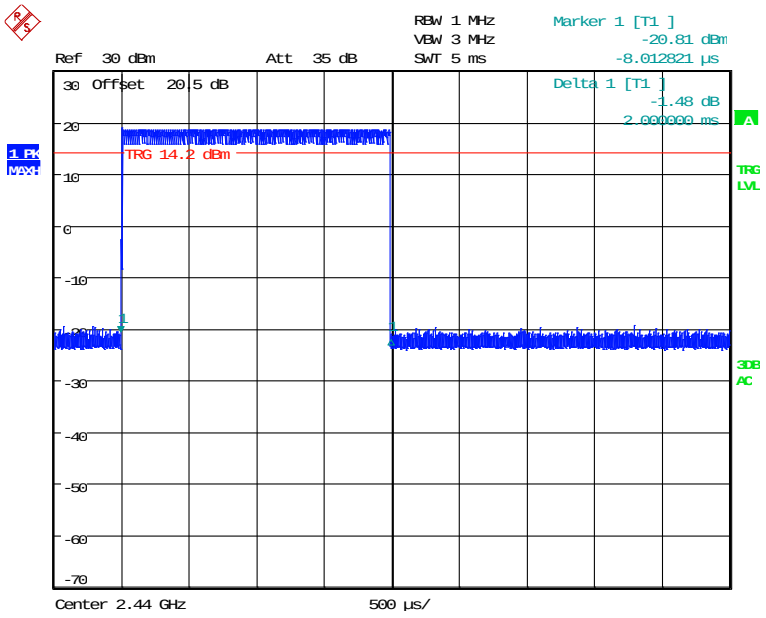

Figure 7.3.3.2-2: Channel Dwell Time

7.3.4 20dB / 99% Bandwidth - FCC: Section 15.247(a)(1)(i) IC: RSS-247 5.1(1)

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 5 times the estimated bandwidth of the emission. The RBW was to 1% to 5% 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. The RBW was to 1% to 5% of the approximated bandwidth. The occupied 99% bandwidth was measured using the automated OBW measurement function of the analyzer.

7.3.4.2 Measurement Results

Results are shown below.

Table 7.3.4.2-1: 20dB / 99% Bandwidth

Frequency [MHz]	20dB Bandwidth [kHz]	99% Bandwidth [kHz]
2405	2596.2	2467.9
2440	2612.2	2467.9
2480	2628.2	2804.5

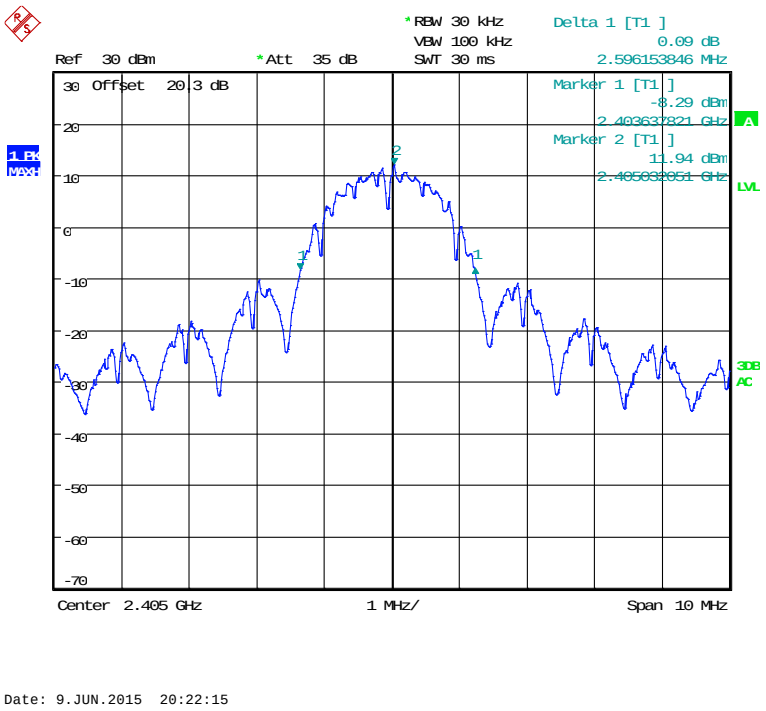

Figure 7.3.4.2-1: 20dB BW Low Channel

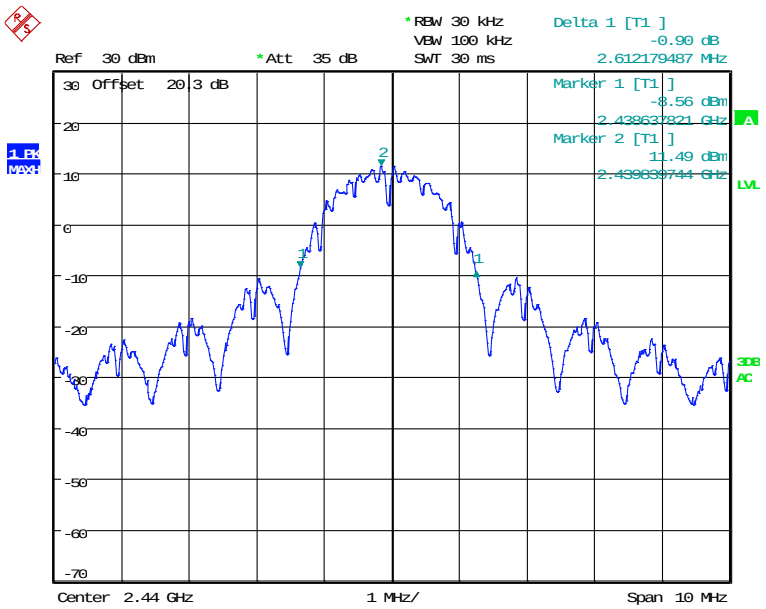

Figure 7.3.4.2-2: 20dB BW Middle Channel

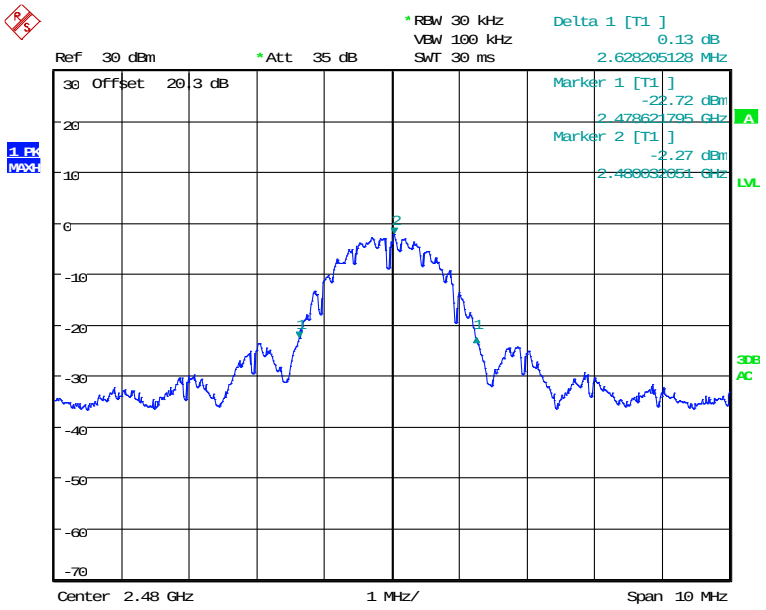

Figure 7.3.4.2-3: 20dB BW High Channel

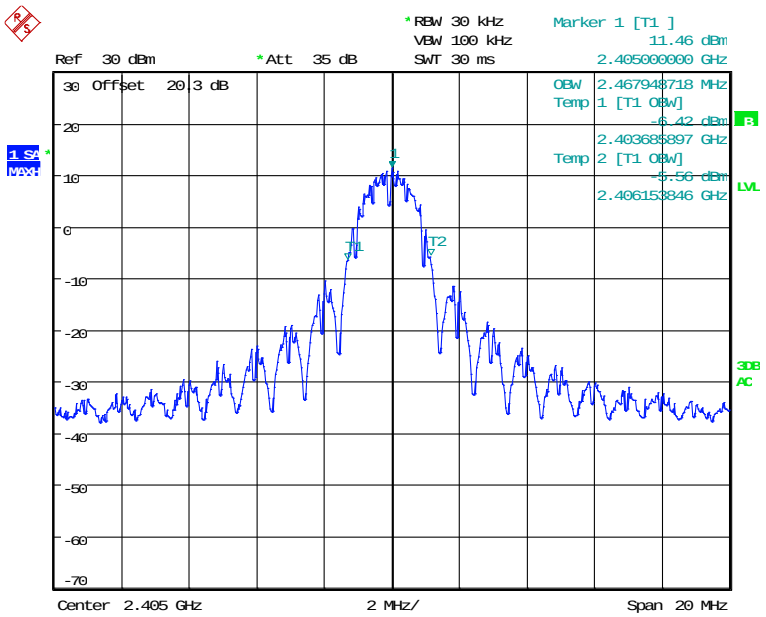

Figure 7.3.4.2-4: 99% OBW Low Channel

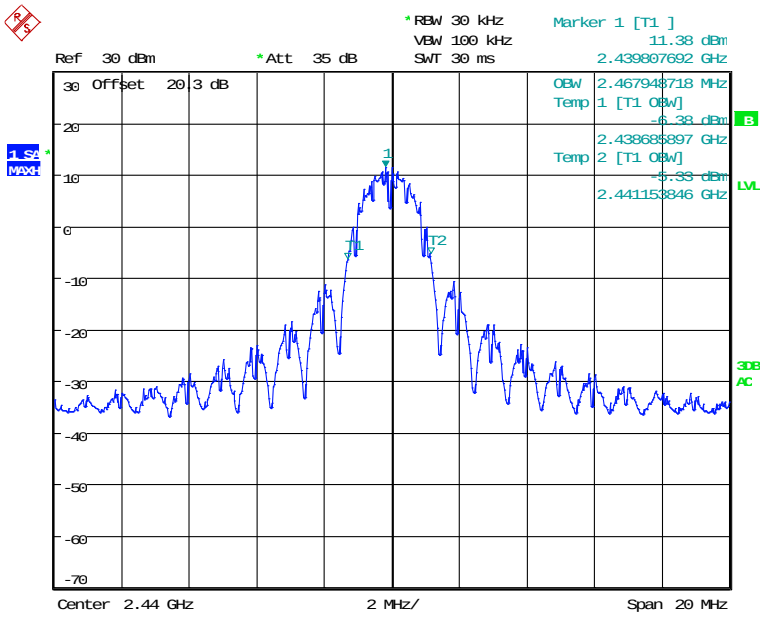

Figure 7.3.4.2-5: 99% OBW Middle Channel

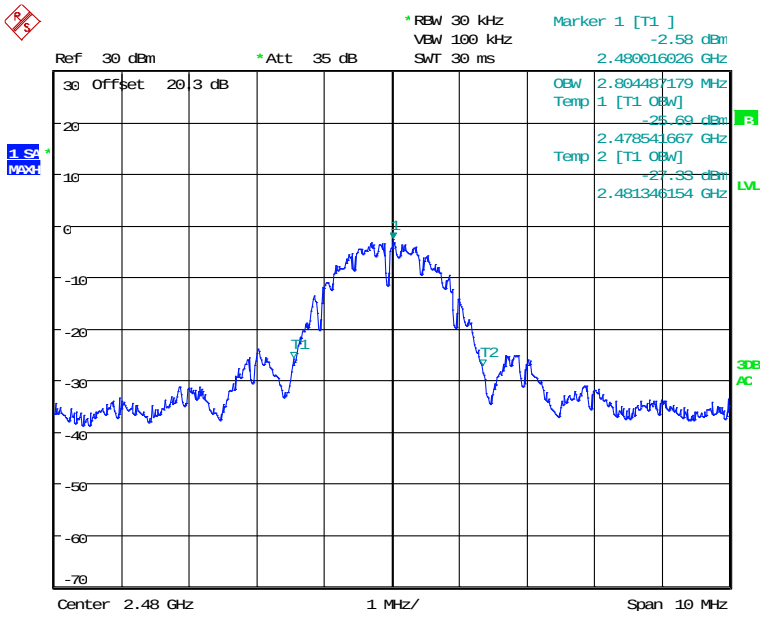

Figure 7.3.4.2-6: 99% OBW High Channel

7.4 Band-Edge Compliance and Spurious Emissions-FCC 15.247(d) IC:RSS-247 5.5

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, and the VBW was set to >= 300 kHz.

7.4.1.2 Measurement Results

Results are shown below.

Antenna Path 1

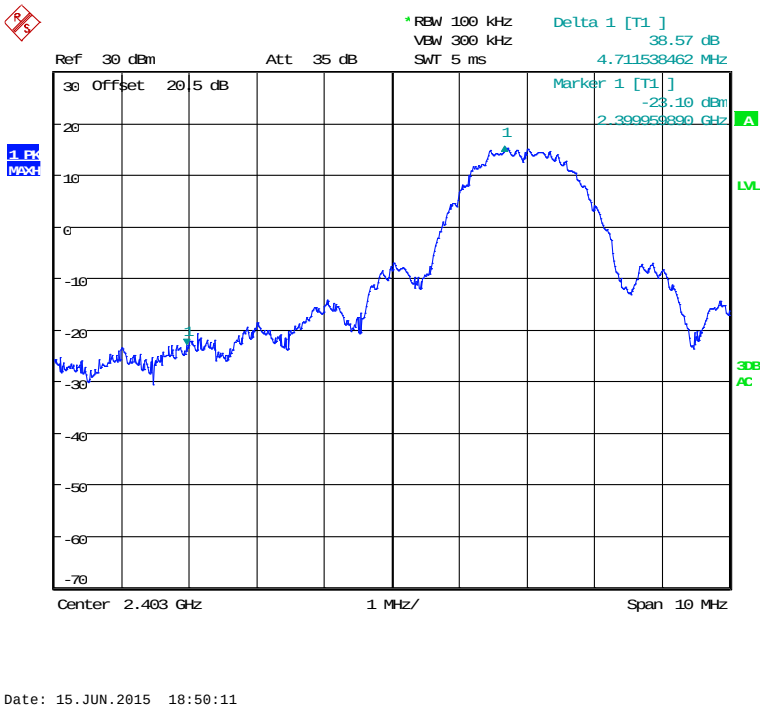

Figure 7.4.1.2-1: Lower Band-edge – 2405 MHz

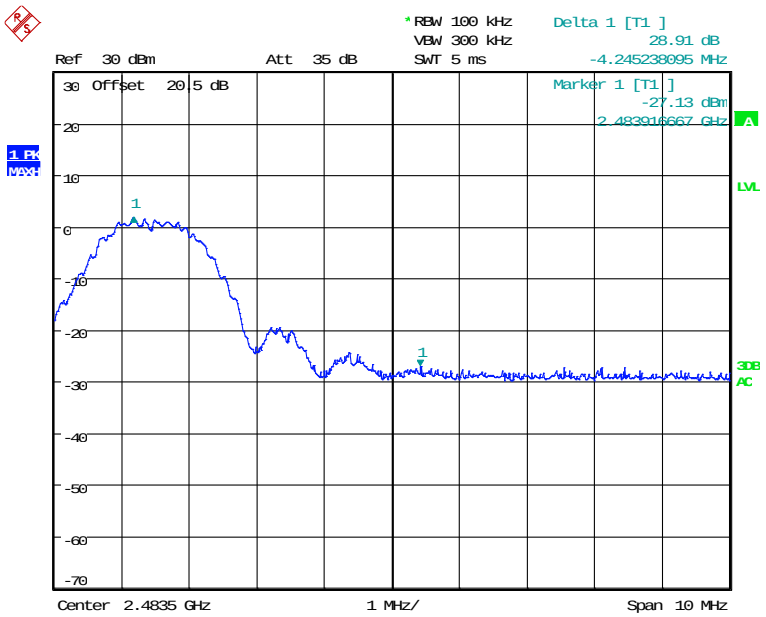

Figure 7.4.1.2-2: Upper Band-edge – 2480 MHz

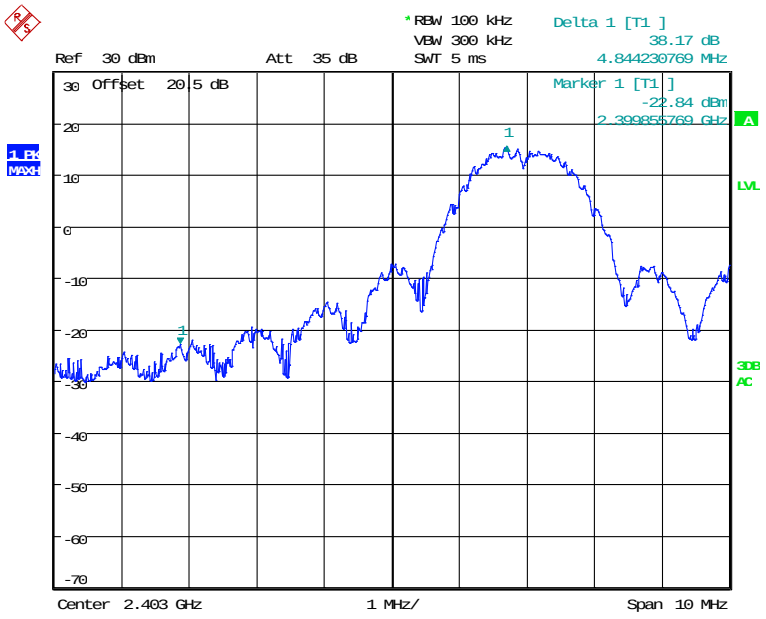

Figure 7.4.1.2-3: Lower Band-edge – Hopping Mode

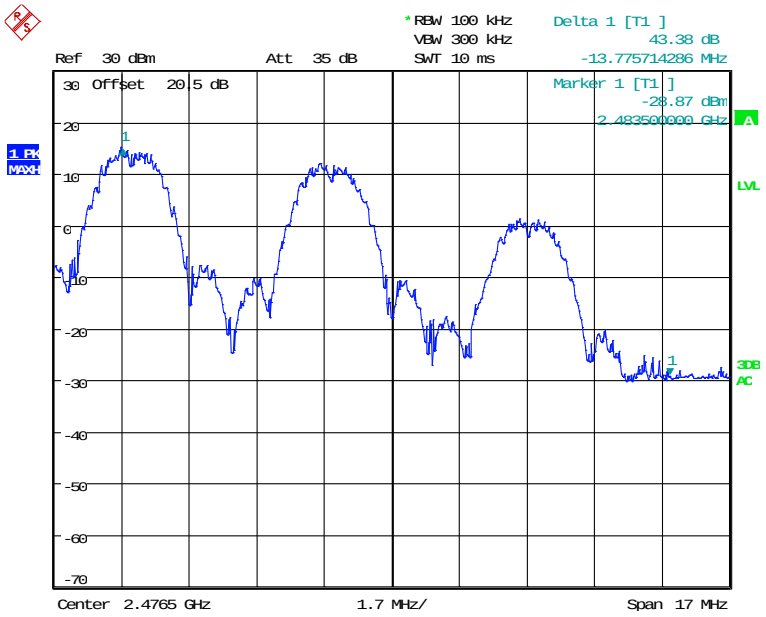

Figure 7.4.1.2-4: Upper Band-edge – Hopping Mode

Antenna Path 2

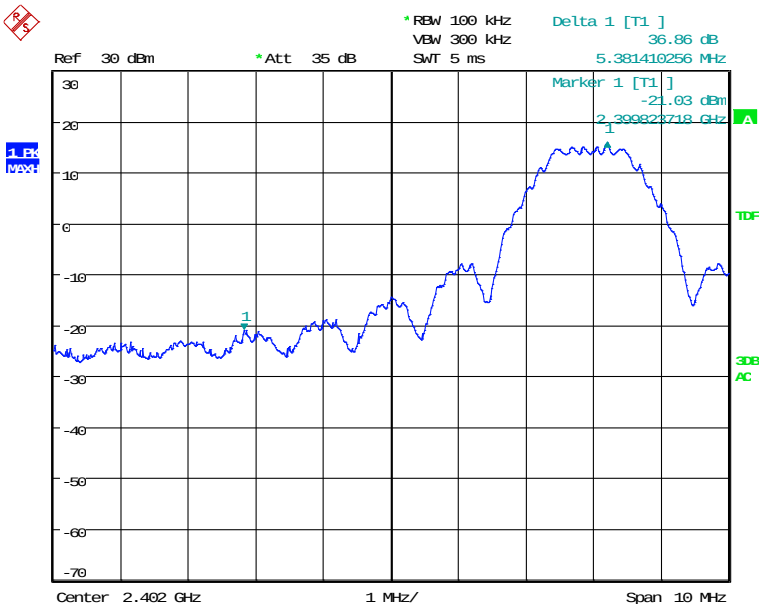

Figure 7.4.1.2-5: Lower Band-edge – 2405 MHz

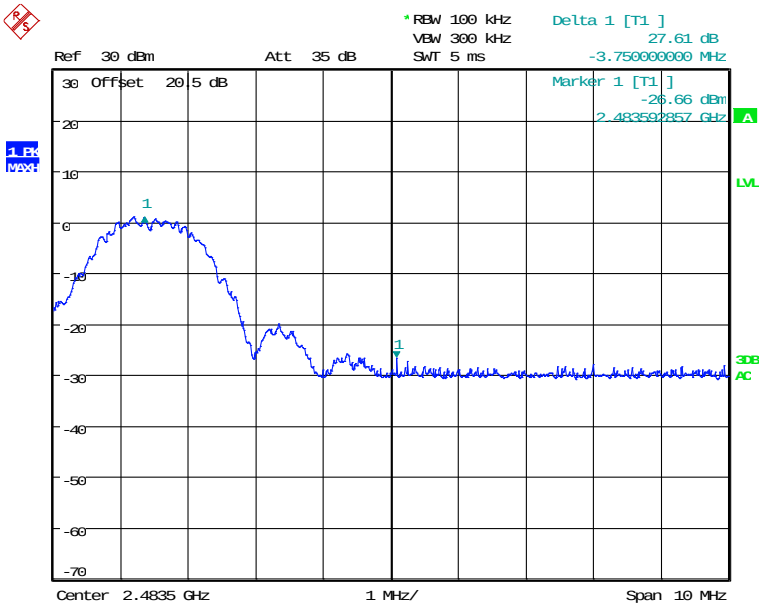

Figure 7.4.1.2-6: Upper Band-edge – 2480 MHz

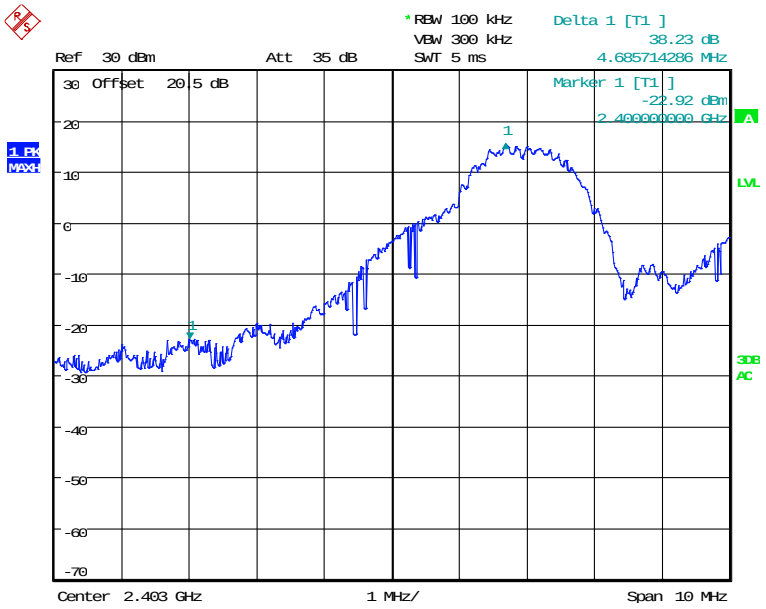

Figure 7.4.1.2-7: Lower Band-edge – Hopping Mode

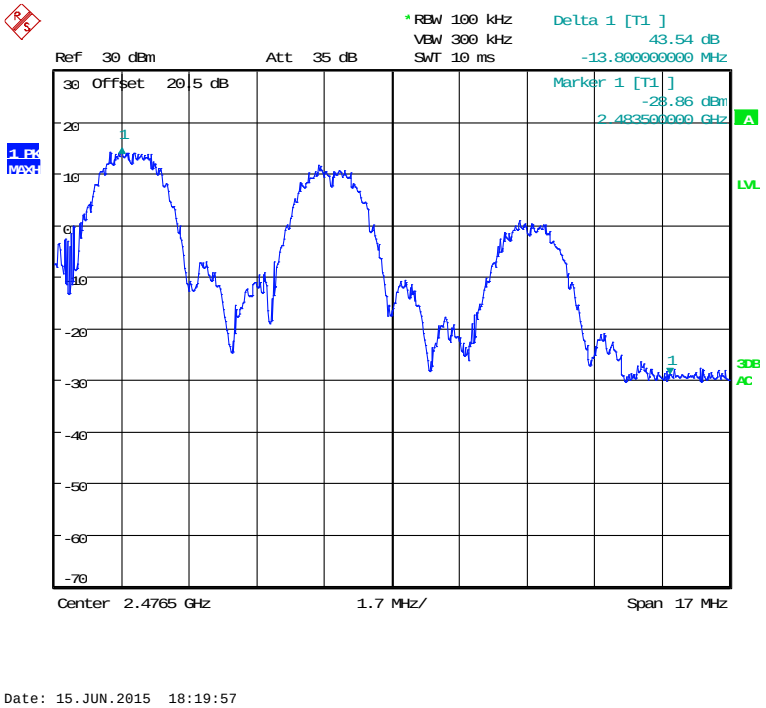

Figure 7.4.1.2-8: Upper Band-edge – Hopping Mode

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 30 MHz 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

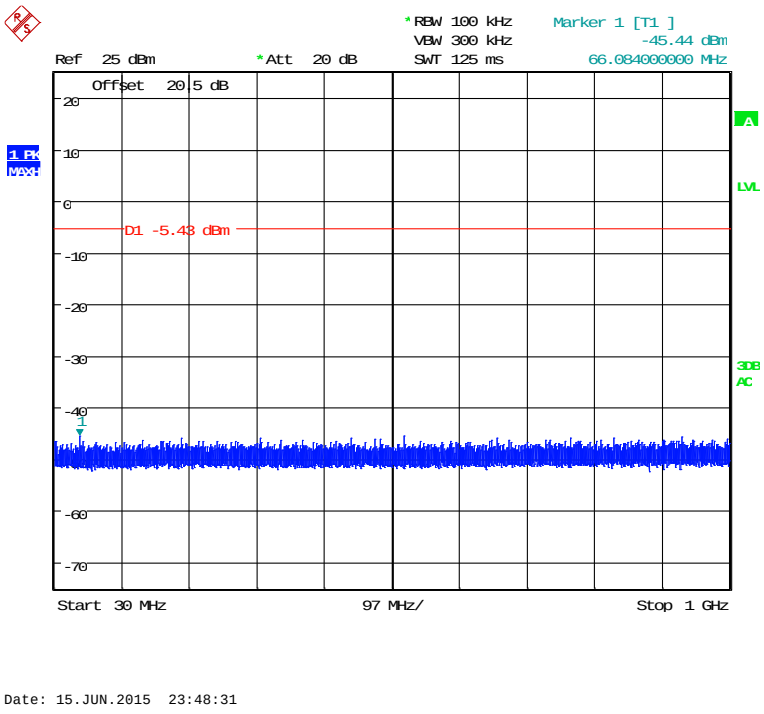

Figure 7.4.2.2-1: 30 MHz – 1 GHz – Low Channel

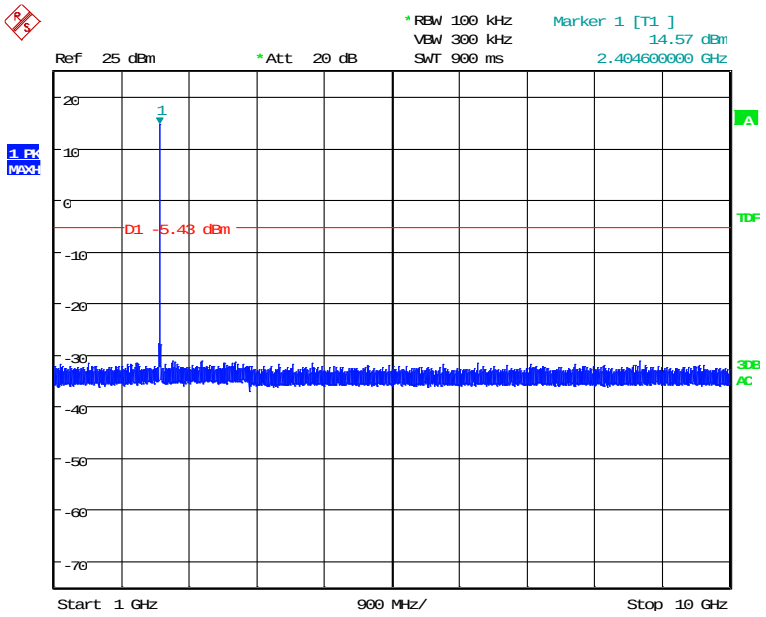

Figure 7.4.2.2-2: 1 GHz –10 GHz – Low Channel

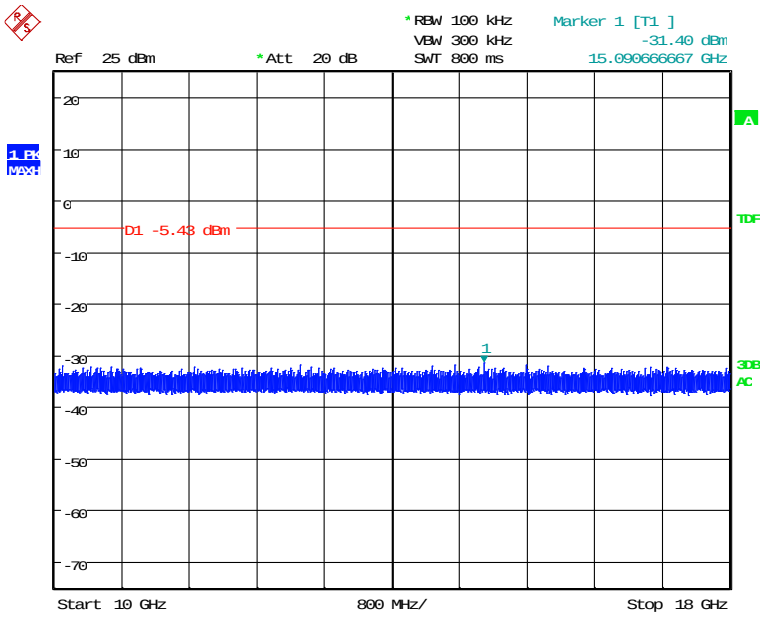

Figure 7.4.2.2-3: 10 GHz –18 GHz – Low Channel

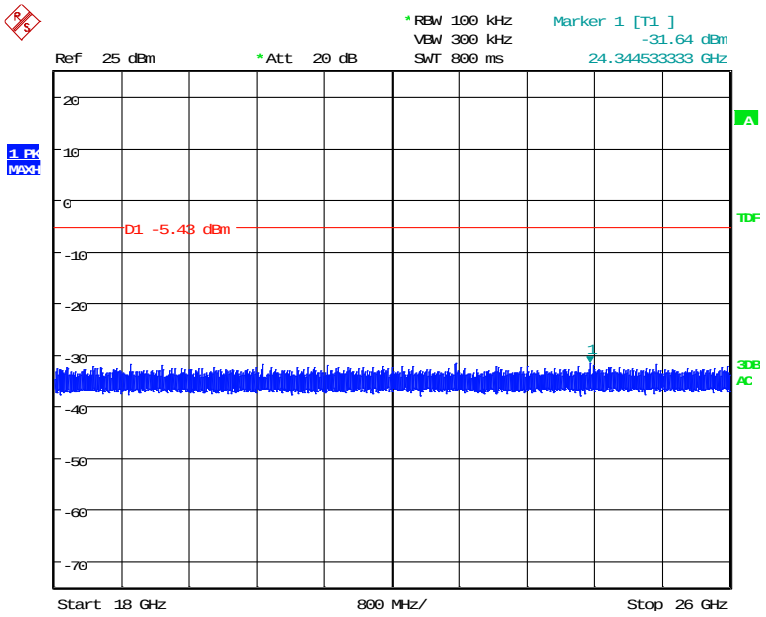

Figure 7.4.2.2-4: 18 GHz –26 GHz – Low Channel

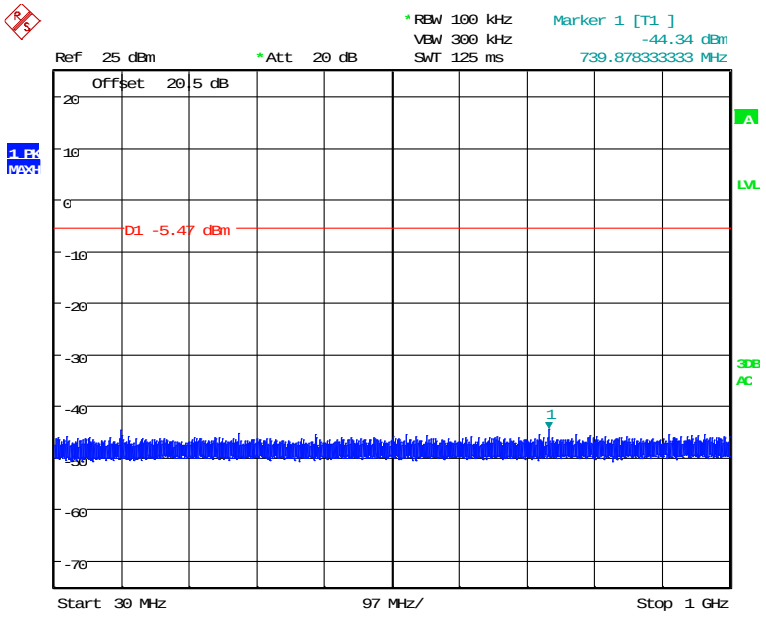

Figure 7.4.2.2-5: 30 MHz – 1 GHz – Middle Channel

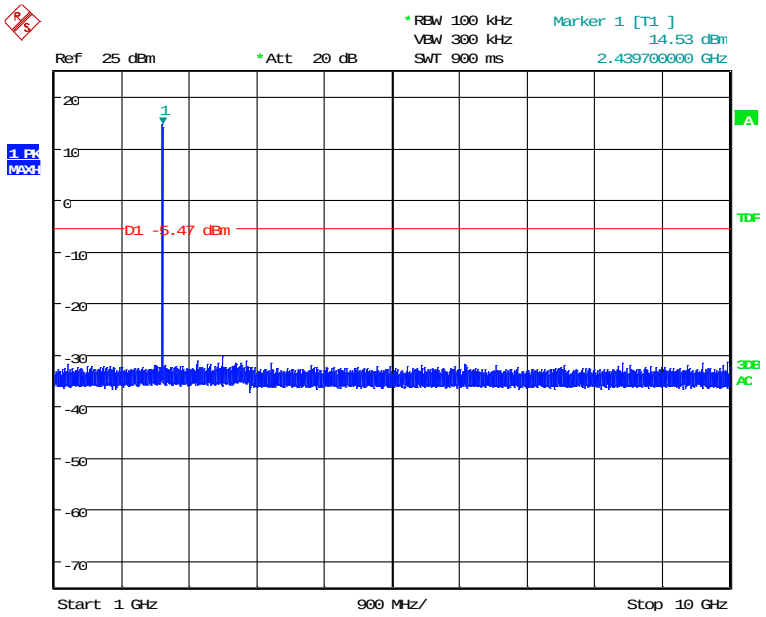

Figure 7.4.2.2-6: 1 GHz –10 GHz – Middle Channel

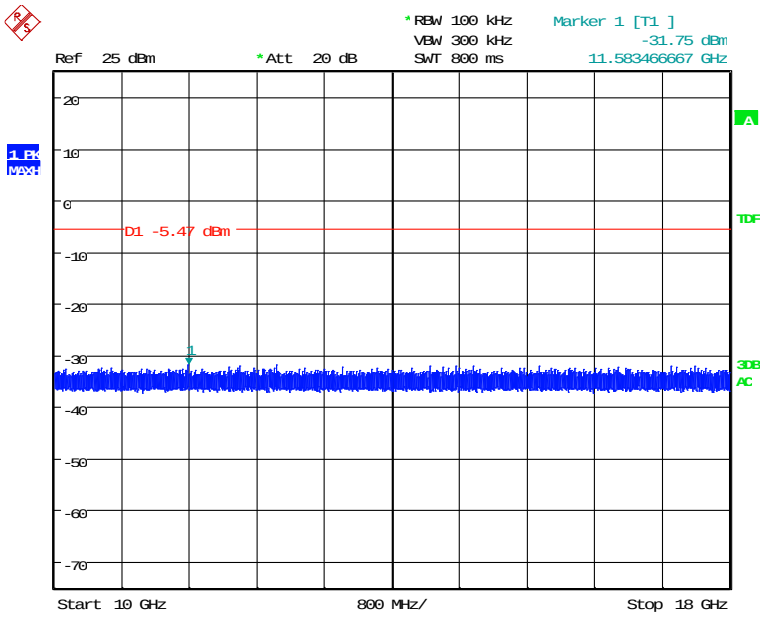

Figure 7.4.2.2-7: 10 GHz –18 GHz – Middle Channel

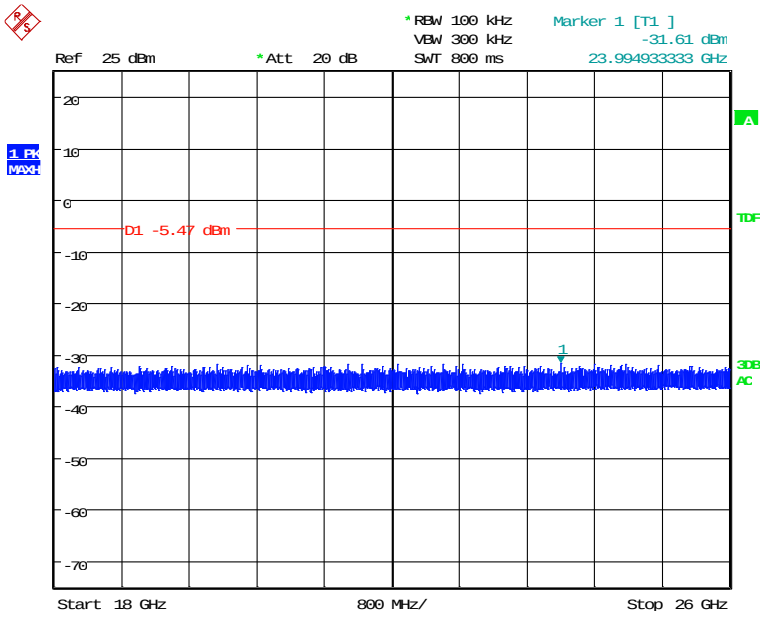

Figure 7.4.2.2-8: 18 GHz –26 GHz – Middle Channel

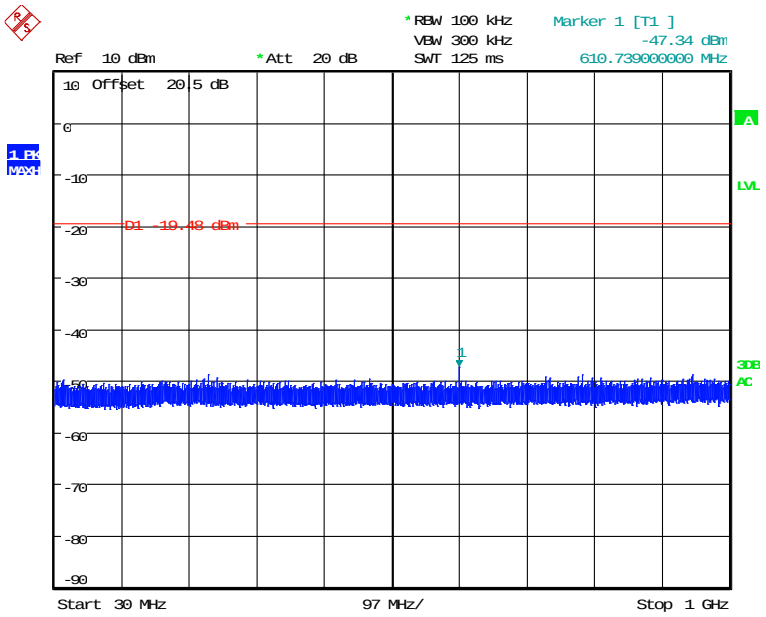

Figure 7.4.2.2-9: 30 MHz – 1 GHz – High Channel

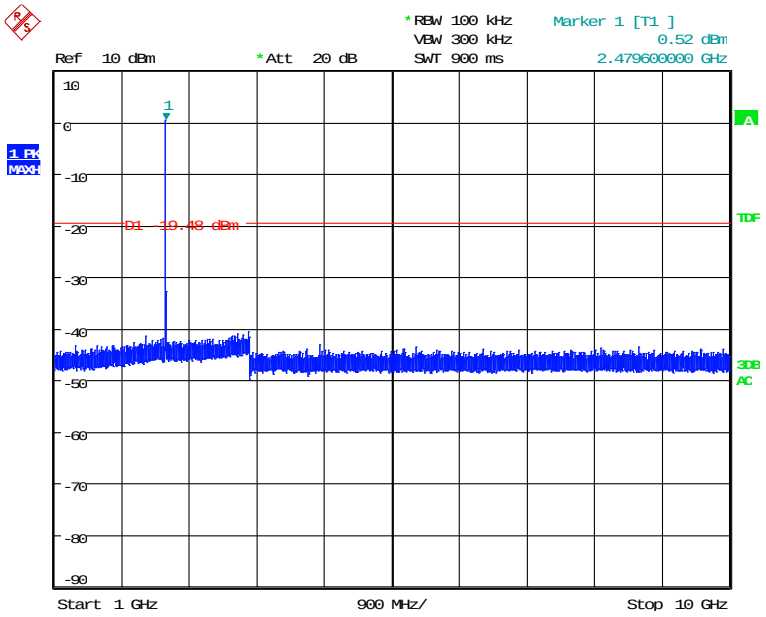

Figure 7.4.2.2-10: 1 GHz –10 GHz – High Channel

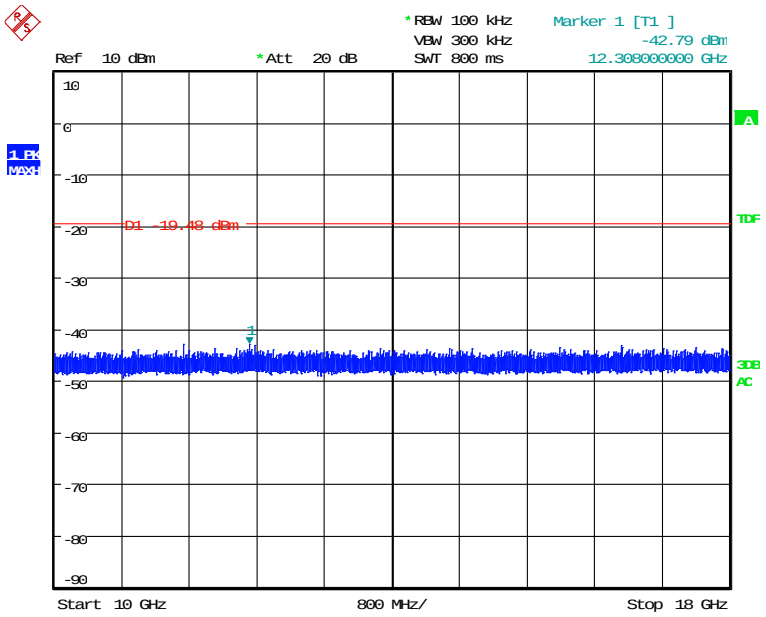

Figure 7.4.2.2-11: 10 GHz –18 GHz – High Channel

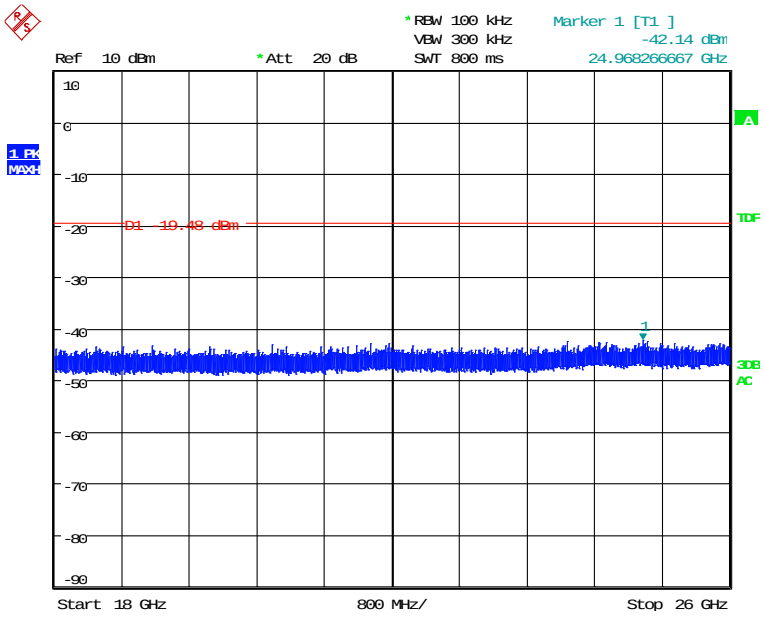

Figure 7.4.2.2-12: 18 GHz –26 GHz – High Channel

Antenna Path 2

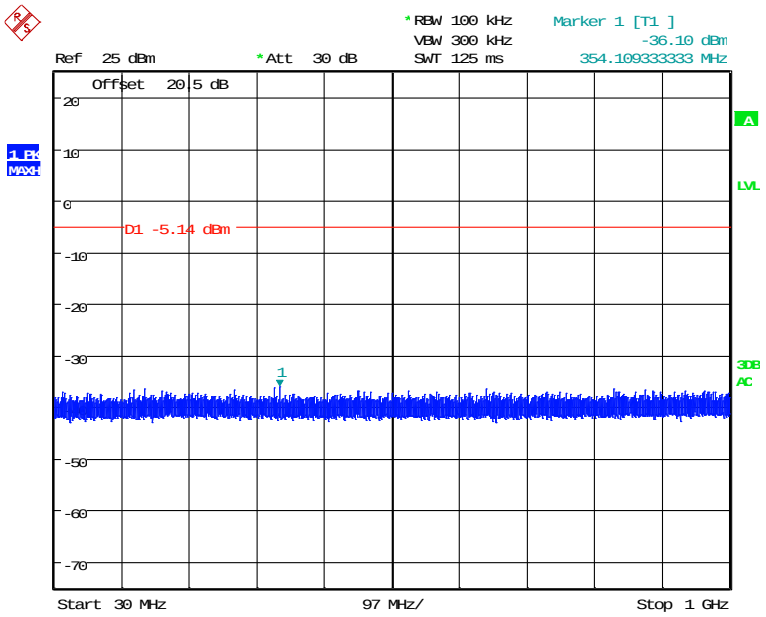

Figure 7.4.2.2-13: 30 MHz – 1 GHz – Low Channel

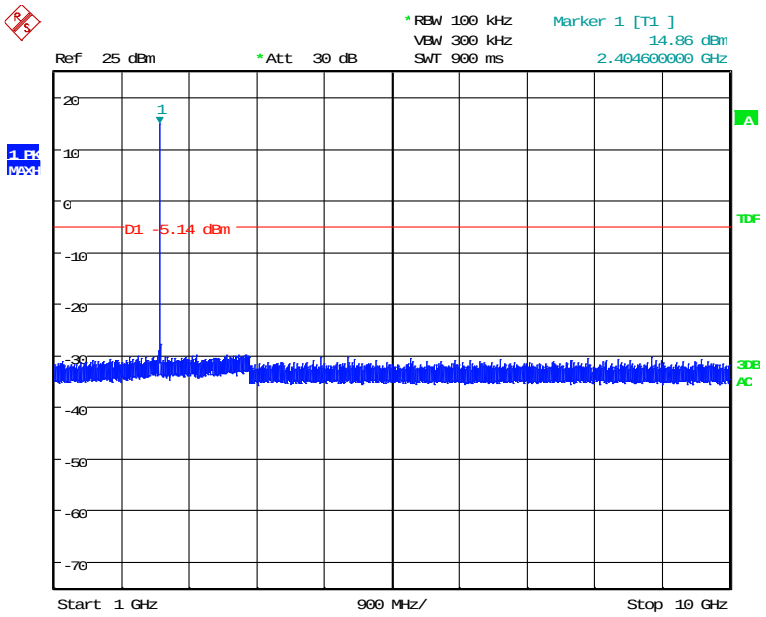

Figure 7.4.2.2-14: 1 GHz –10 GHz – Low Channel

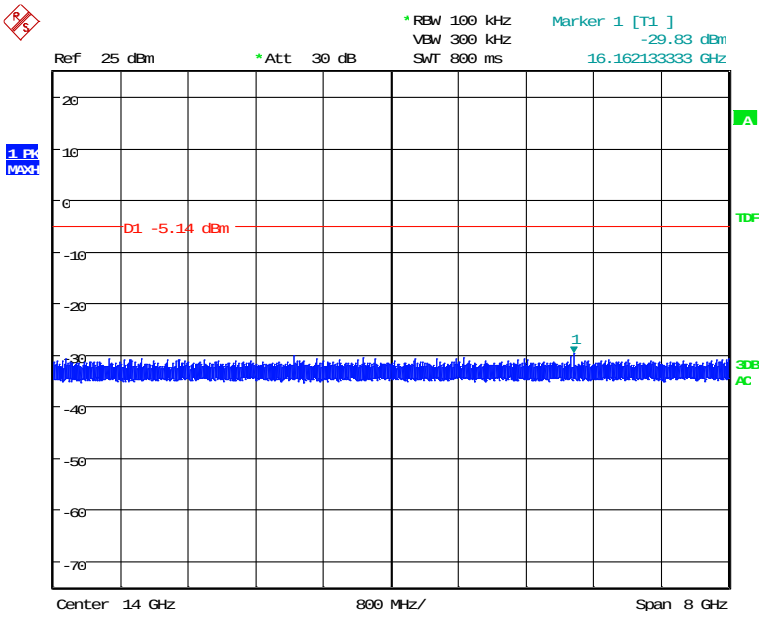

Figure 7.4.2.2-15: 10 GHz –18 GHz – Low Channel

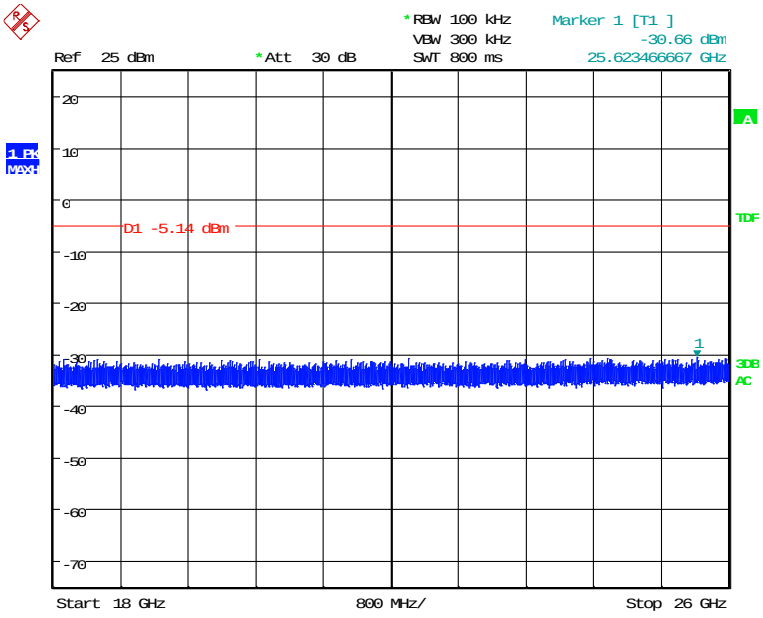

Figure 7.4.2.2-16: 18 GHz –26 GHz – Low Channel

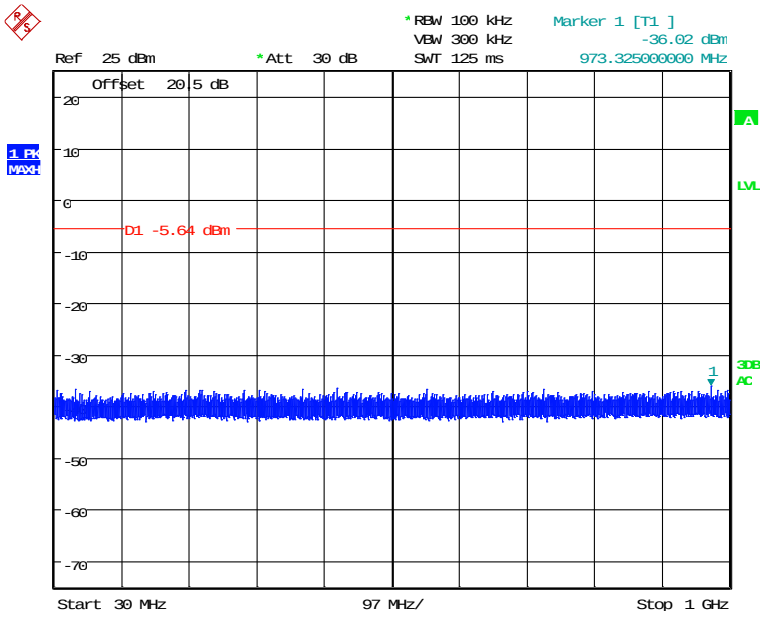

Figure 7.4.2.2-17: 30 MHz – 1 GHz – Middle Channel

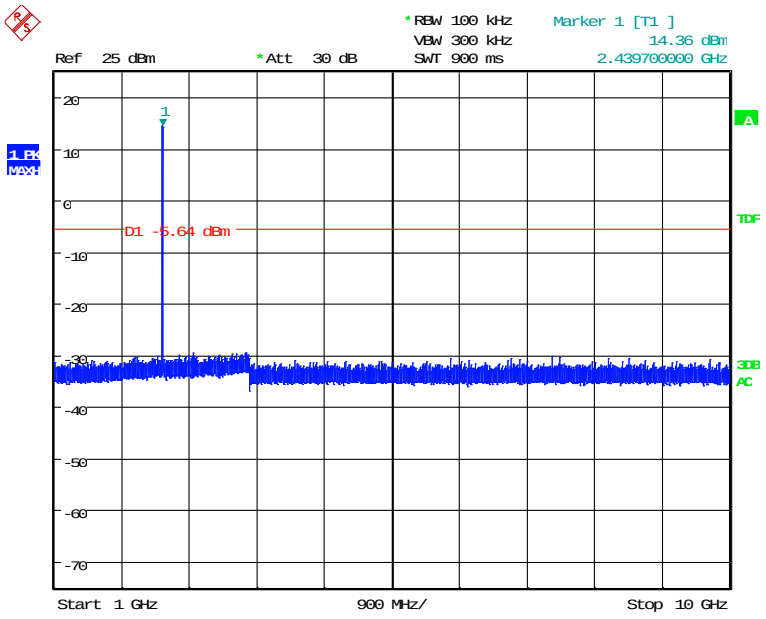

Figure 7.4.2.2-18: 1 GHz –10 GHz – Middle Channel

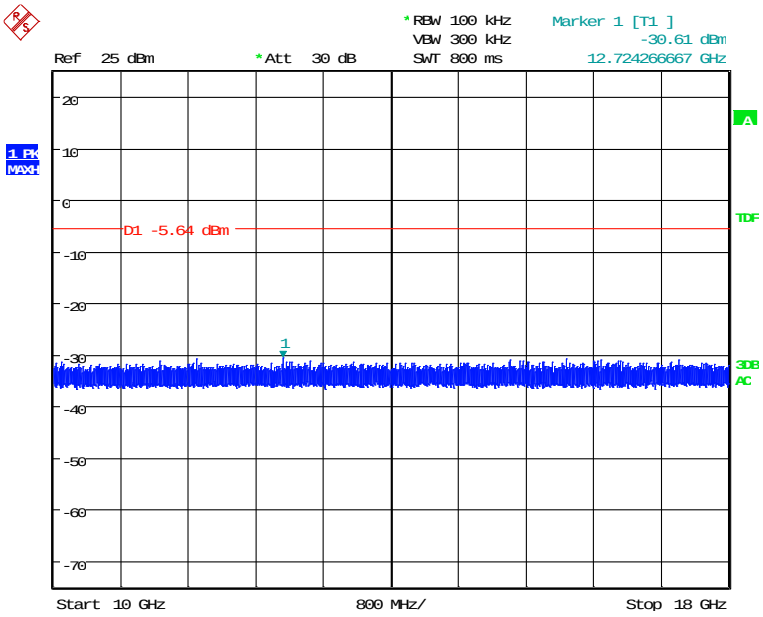

Figure 7.4.2.2-19: 10 GHz –18 GHz – Middle Channel

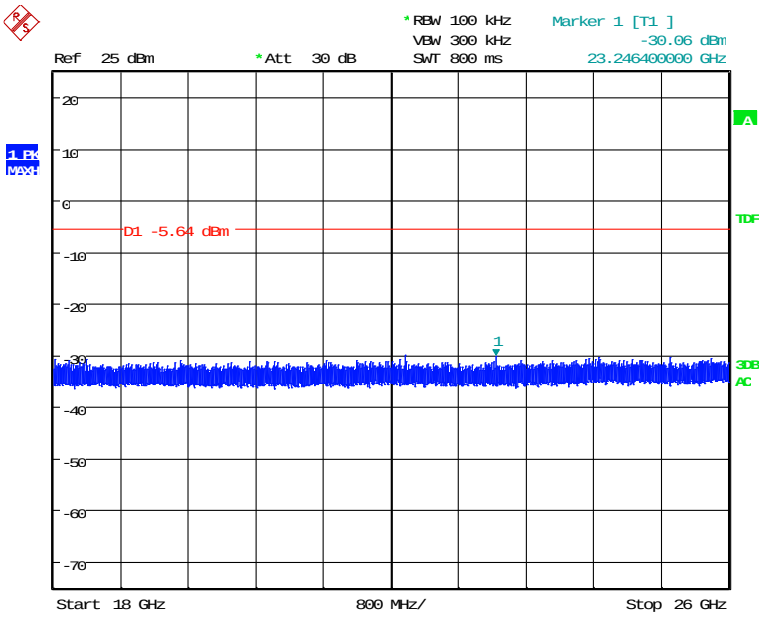

Figure 7.4.2.2-20: 18 GHz –26 GHz – Middle Channel

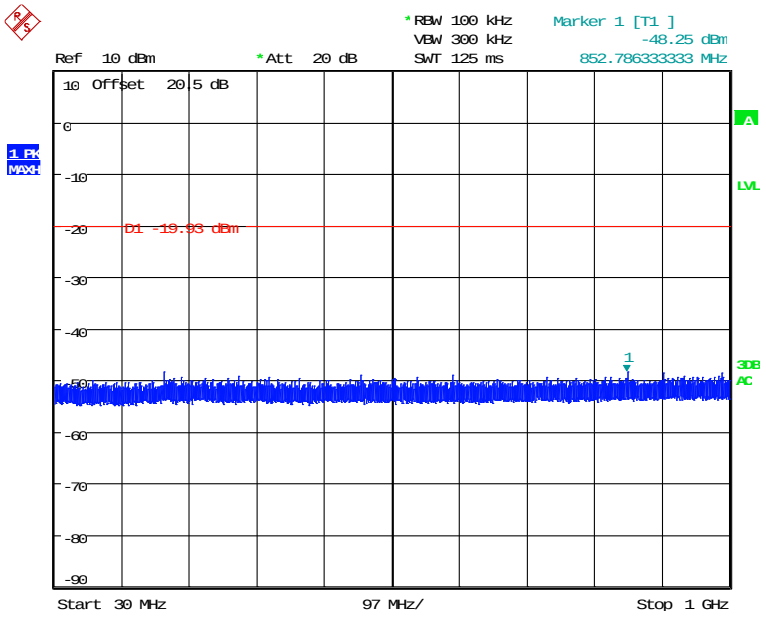

Figure 7.4.2.2-21: 30 MHz – 1 GHz – High Channel

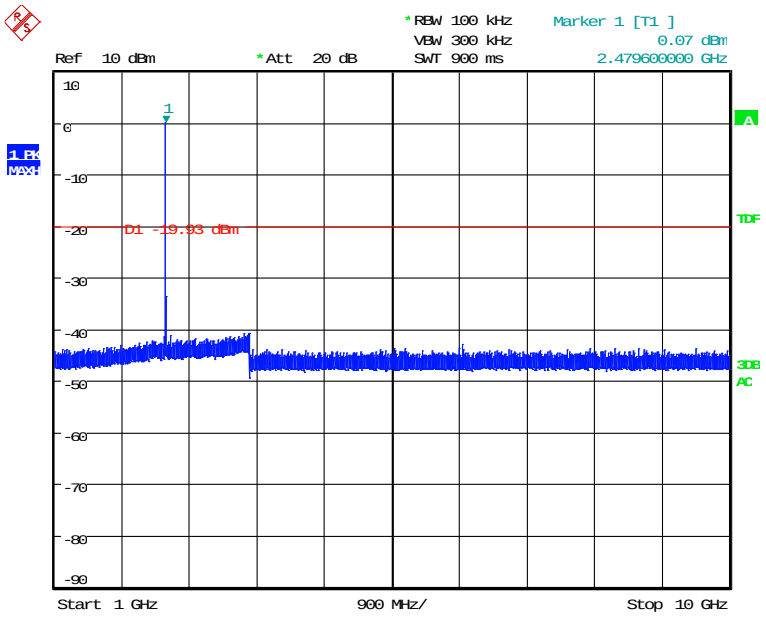

Figure 7.4.2.2-22: 1 GHz –10 GHz – High Channel

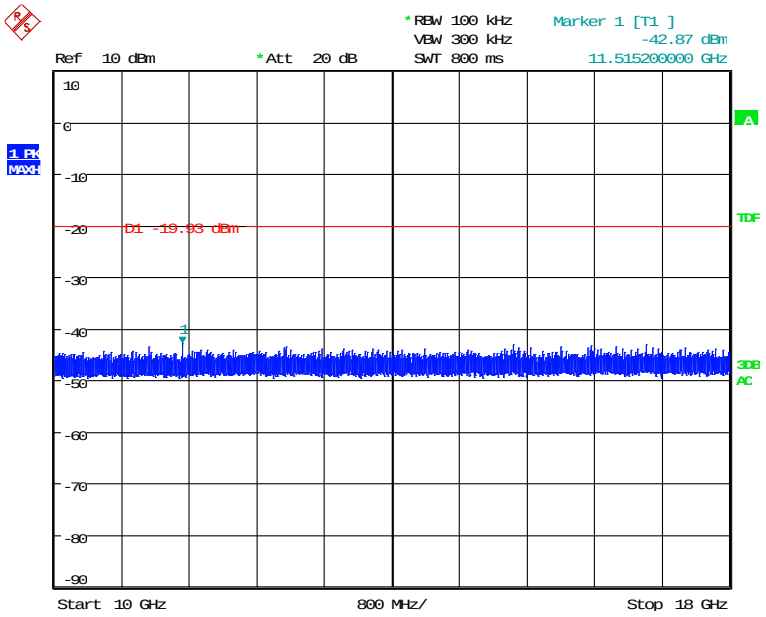

Figure 7.4.2.2-23: 10 GHz –18 GHz – High Channel

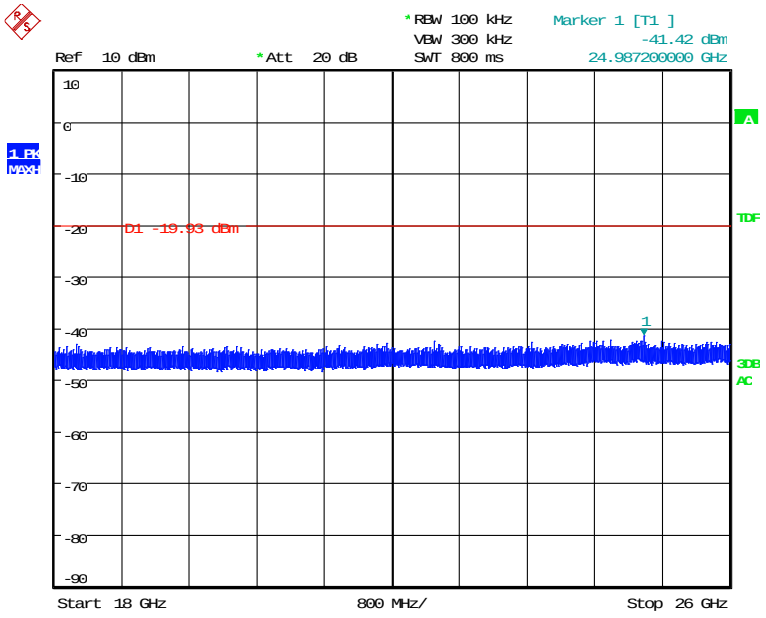

Figure 7.4.2.2-24: 18 GHz –26 GHz – High Channel

7.4.3 Radiated Spurious Emissions into Restricted Frequency Bands - FCC 15.205, 15.209; IC: RSS-210 2.2, RSS-Gen 8.9, 8.10

7.4.3.1 Measurement Procedure

Radiated emissions tests were made over the frequency range of 9 kHz to 26 GHz, 10 times the highest fundamental frequency. Each emission found to be in a restricted band as defined by Section 15.205, including any emission at the operational band-edge, was compared to the radiated emission limits as defined in Section 15.209.

For measurements below 30 MHz, the receive antenna height was set to 1m and the EUT was rotated through 360 degrees. The resolution bandwidth was set to 200 Hz below 150 kHz and to 9 kHz above 150 kHz.

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 measurements were made with RBW and VBW of 1 MHz and 3 MHz respectively. Average measurements were performed in the linear amplitude scale with VBW of 30 Hz.

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

7.4.3.2 Measurement Results

Radiated band-edge and spurious emissions found in the band of 9 kHz to 26 GHz are reported in the tables below.

Table 7.4.3.2-1: Radiated Spurious Emissions Tabulated Data – Antenna Path 1

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	67.45	60.11	H	-7.89	59.56	18.24	74.0	54.0	14.4	35.8
2390	67.51	60.05	V	-7.89	59.62	18.18	74.0	54.0	14.4	35.8
4810	58.75	51.07	H	0.44	59.19	17.53	74.0	54.0	14.8	36.5
4810	56.31	48.81	V	0.44	56.75	15.27	74.0	54.0	17.2	38.7
12025	68.73	61.61	H	13.18	81.91	40.81	83.5	63.5	1.6	22.7
12025	63.00	55.54	V	13.18	76.18	34.74	83.5	63.5	7.3	28.8
19240	58.83	50.45	H	12.83	71.66	29.30	83.5	63.5	11.8	34.2
19240	54.82	46.04	V	12.83	67.65	24.89	83.5	63.5	15.9	38.6
Middle Channel = 2440 MHz										
4880	53.95	46.15	H	0.66	54.61	12.83	74.0	54.0	19.4	41.2
4880	53.89	45.91	V	0.66	54.55	12.59	74.0	54.0	19.4	41.4
7320	63.19	56.02	H	5.36	68.55	27.40	74.0	54.0	5.5	26.6
7320	58.29	50.58	V	5.36	63.65	21.96	74.0	54.0	10.4	32.0
12200	63.82	56.67	H	13.30	77.12	35.99	83.5	63.5	6.4	27.5
12200	58.77	51.23	V	13.30	72.07	30.55	83.5	63.5	11.4	32.9
19520	55.07	47.48	H	13.04	68.11	26.54	83.5	63.5	15.4	37.0
19520	50.63	42.15	V	13.04	63.67	21.21	83.5	63.5	19.8	42.3
High Channel = 2480 MHz										
2483.5	76.07	66.71	H	-7.48	68.59	25.25	74.0	54.0	5.4	28.7
2483.5	78.92	69.58	V	-7.48	71.44	28.12	74.0	54.0	2.6	25.9
4960	49.13	38.40	H	0.91	50.04	5.34	74.0	54.0	24.0	48.7
4960	47.40	36.18	V	0.91	48.31	3.12	74.0	54.0	25.7	50.9

Notes

- **All emissions above 19.52 GHz were attenuated below the limits and the noise floor of the measurement equipment.**
- **The average measurements were further corrected using a duty cycle correction factor corresponding to 20*log(2/100) = 33.98 dB.**

Table 7.4.3.2-2: Radiated Spurious Emissions Tabulated Data – Antenna Path 2

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	68.78	60.81	H	-7.89	60.89	18.94	74.0	54.0	13.1	35.1
2390	65.11	56.75	V	-7.89	57.22	14.88	74.0	54.0	16.8	39.1
4810	58.28	51.11	H	0.44	58.72	17.57	74.0	54.0	15.3	36.4
4810	56.33	48.56	V	0.44	56.77	15.02	74.0	54.0	17.2	39.0
12025	66.14	58.78	H	13.18	79.32	37.98	83.5	63.5	4.2	25.5
12025	61.08	53.41	V	13.18	74.26	32.61	83.5	63.5	9.2	30.9
19240	56.00	48.13	H	12.83	68.83	26.98	83.5	63.5	14.7	36.5
19240	52.51	43.72	V	12.83	65.34	22.57	83.5	63.5	18.2	40.9
Middle Channel = 2440 MHz										
4880	52.76	44.53	H	0.66	53.42	11.21	74.0	54.0	20.6	42.8
4880	53.55	44.78	V	0.66	54.21	11.46	74.0	54.0	19.8	42.5
7320	61.04	53.69	H	5.36	66.40	25.07	74.0	54.0	7.6	28.9
7320	57.84	49.88	V	5.36	63.20	21.26	74.0	54.0	10.8	32.7
12200	52.68	43.65	H	13.30	65.98	22.97	83.5	63.5	17.5	40.5
12200	49.29	38.49	V	13.30	62.59	17.81	83.5	63.5	20.9	45.7
19520	58.04	48.82	H	13.04	71.08	27.88	83.5	63.5	12.4	35.6
19520	53.03	43.27	V	13.04	66.07	22.33	83.5	63.5	17.4	41.2
High Channel = 2480 MHz										
2483.5	73.44	63.84	H	-7.48	65.96	22.38	74.0	54.0	8.0	31.6
2483.5	70.92	61.34	V	-7.48	63.44	19.88	74.0	54.0	10.6	34.1
4960	47.58	35.43	H	0.91	48.49	2.37	74.0	54.0	25.5	51.6
4960	46.61	34.08	V	0.91	47.52	1.02	74.0	54.0	26.5	53.0

Notes

- **All emissions above 19.52 GHz were attenuated below the limits and the noise floor of the measurement equipment.**
- **The average measurements were further corrected using a duty cycle correction factor corresponding to 20*log(2/100) = 33.98 dB.**

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(2/100) = -33.98 dB

Example Calculation: Peak
Corrected Level: 67.5 + (-7.89) = 59.61 dBµV/m
Margin: 74 dBuV/m – 59.61 dBµV/m = 14.4 dB

Example Calculation: Average
Corrected Level: 60.11 + (-7.89) – 33.98 = 18.24 dBµV/m
Margin: 54 dBuV/m – 18.24 dBµV/m = 35.8 dB

8 CONCLUSION

In the opinion of ACS, Inc., the JETIREX12US, JETIREX10US, JETIREX7US manufactured by Esprit Model meets the requirements of FCC Part 15 subpart C and Industry Canada's Radio Standards Specification RSS-247.

END REPORT