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Report No.: SHEM121200187202

Page: 1 of 106

FCC Part 15C TEST REPORT

Application No.:	SHEM1212001872RF
Applicant:	Signeo International Limited
FCC ID:	N5J-SOULP910B
IC:	10303A-SOULP910B
Equipment Under Test (EUT):	
NOTE: The following sample(s) submitted was/were identified on behalf of the client as	
EUT Name:	Portable Wireless Entertainment System
Brand Name:	Not supplied by the client
Model No:	P910B
Fundamental Frequency :	2412-2464 MHz, 5736-5814MHz and 5180-5240MHz*
Test Frequency:	2412-2464 MHz, 5736-5814MHz
Standards:	FCC PART 15 SUBPART C, Section 15.247:2012 RSS-210 Issue 8 (December 2010) RSS-Gen Issue 3 (December 2010)
Date of Receipt:	Dec.31, 2012
Date of Test:	Feb.26, 2013 to Apr.13, 2013
Date of Issue:	Apr.22, 2013
Test Result :	PASS *

In the configuration tested, the EUT complied with the standards specified above.

For 5180-5240MHz band please reference report SHEM120700187204.



Apr. 2013

Tony Wu

E&E Section Manager

SGS-CSTC (Shanghai) Co., Ltd.

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. All test results in this report can be traceable to National or International Standards.

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Version

Revision Record				
Version	Chapter	Date	Modifier	Remark
00	/	Apr.22, 2013	/	Original

Authorized for issue by:				
Engineer		Zenger Zhang _____ Print Name		Zenger Zhang _____ _____
Clerk		Amy Wang _____ Print Name		Amy Wang _____ _____
Reviewer		Keny Xu _____ Print Name		Keny Xu _____ _____



3 Test Summary

TEST ITEM	FCC REFERENCE	IC REFERENCE	Test Procedure	RESULT
Power line conducted emission	15.207	RSS-Gen Issue 8 Clause 7.2.4	ANSI C63.4,2009	Pass
Radiated emission	15.205 & 15.209	RSS-Gen Issue 8 Clause 7.2.5	ANSI C63.4,2009	Pass
Minimum 6dB Bandwidth	15.247(a)(2)	RSS-210 Issue 8 Annex 8	KDB 558074	Pass
Maximum peak output power	15.247(b)	RSS-210 Issue 8 Annex 8	KDB 558074	Pass
Power spectrum density	15.247(e)	RSS-210 Issue 8 Annex 8	KDB 558074	Pass
RF Conducted Spurious Emissions	15.247(d)	RSS-210 Issue 8 Annex 8	KDB 558074	Pass
Radiated Emission BandEdge	15.247(d)	RSS-210 Issue 8 Annex 8	KDB 558074	Pass
Emission outside the Frequency band	15.247(d)	RSS-210 Issue 8 Annex 8	KDB 558074	Pass
Occupied bandwidth	---	RSS-Gen Issue 3 Clause 4.6.1	RSS-Gen Issue 3 Clause 4.6.1	Tested



4 Contents

	Page
1 COVER PAGE	1
2 VERSION	1
2 VERSION	2
3 TEST SUMMARY	3
4 CONTENTS	4
5 GENERAL INFORMATION	5
5.1 CLIENT INFORMATION	5
5.2 DETAILS OF E.U.T.	5
5.3 ACCESSORIES OF PRODUCT:	5
5.4 DESCRIPTION OF SUPPORT UNITS	6
5.5 TEST LOCATION	6
5.6 TEST FACILITY	6
6 TEST INSTRUMENTS	7
7 TEST PROCEDURE & MEASUREMENT DATA	9
7.1 E.U.T. OPERATION	9
7.2 CONDUCTED EMISSION TEST	9
7.3 RADIATED SPURIOUS EMISSION TEST	12
7.4 6dB BANDWIDTH	28
7.5 PEAK OUTPUT POWER MEASUREMENT	35
7.6 PEAK POWER SPECTRAL DENSITY	43
7.7 RADIATED EMISSION BAND EDGE	51
7.8 CONDUCTED SPURIOUS EMISSION TEST	84
7.9 OCCUPIED BANDWIDTH TEST	101
8 TEST SETUP PHOTOGRAPHS	108
9 EUT CONSTRUCTIONAL DETAILS	108

5 General Information

5.1 Client Information

Applicant :	Signeo International Limited
Applicant Address:	6/F, Enterprise Square Three, 39 Wang Chiu Road, Kowloon Bay, Hong Kong
Manufacturer:	Not supplied by the client
Manufacturer Address:	Not supplied by the client
Factory:	Not supplied by the client

5.2 Details of E.U.T.

EUT Name:	Portable Wireless Entertainment System	
Brand Name:	Not supplied by the client	
Model No:	P910B	
Power Supply:	AC 100V-240V	
Frequency Band Channels :	2.4GHz Band	
	Channel Description:	
	Channel of Transmitter	Frequency(MHz)
	Low	2412
	Mid	2438
	High	2464
	5.8GHz Band	
	Channel Description:	
	Channel of Transmitter	Frequency(MHz)
	Low	5736
	Mid	5762
	High	5814
Modulation Type:	QPSK	
Antenna Type:	Integral antenna(Antenna Gain 2.0dBi)	

5.3 Accessories of Product:

Adapter:	Manufacturer:	N/A	
	Model No.:	GM150-2400600	
	Rated Input:	AC 100V-240V 50-60Hz 2.5A	
	Rated Output:	DC24.0V 6A	
	Cable length:	AC port:	180cm (3 wires)
		DC port:	150 cm



5.4 Description of Support Units

Description	Manufacturer	Model No.	Serial No.	Supplied By
iPhone	Apple	A1332	N/A	SGS
Speaker	Guangdong Shantou Zhongwang Electronics Co., Ltd.	CT-338	N/A	SGS
USB memory	Kingston	8G	N/A	SGS

5.5 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd.
No.588 West Jindu Road, Songjiang District, Shanghai, China. 201612.

Tel: +86 21 6191 5666 Fax: +86 21 6191 5678

5.6 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **CNAS (No. CNAS L0599)**

CNAS has accredited SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration Laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing. Date of expiry: 2014-07-26.

- **FCC – Registration No.: 402683**

SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered and fully described in a report filed with the Federal Communications Commission (FCC). The acceptance letter from the FCC is maintained in our files. Registration No.: 402683, Expiry Date: 2015-02-22.

- **Industry Canada (IC) – IC Assigned Code: 8617A**

The 3m Semi-anechoic chamber of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 8617A. Expiry Date: 2014-09-20.

- **VCCI (Member No.: 3061)**

The 3m Semi-anechoic chamber and Shielded Room of SGS-CSTC Standards Technical Services (Shanghai) Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-3868 and C-4336 respectively. Date of Registration: 2012-05-29. Date of Expiry: 2015-05-28.



6 Test Instruments

☒ **Conducted Emission**

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2012-04-13	2013-04-12
2	Line impedance stabilization network (LISN)	SCHWARZBECK	NSLK8127	8127-490	2012-11-15	2013-11-14
3	Line impedance stabilization network (LISN)	ETS	3816/2	00034161	2012-11-15	2013-11-14

☒ **Radiated Spurious Emission**

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	EMI test receiver	Rohde & Schwarz	ESU40	100109	2012-06-02	2013-06-01
2	Antenna	SCHWARZBECK	VULB9168	9168-313	2012-11-15	2013-11-14
3	CONTROLLER	INNCO	CO200	474	2012-11-15	2013-11-14
4	Antenna	SCHWARZBECK	BBHA9120D	9120D-679	2012-11-15	2013-11-14
5	Antenna	SCHWARZBECK	BBHA9170	9170-373	2012-11-15	2013-11-14
6	Low noise amplifier	LNA6900	TESEQ	71033	2012-11-15	2013-11-14

☒ **RF Conducted Test**

Item	Test Equipment	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due date
1	EMI test receiver	Rohde & Schwarz	ESU40	100109	2012-06-03	2013-06-01
2	Horn Antenna	SCHWARZBECK	BBHA9120D	9120D-679	2012-06-03	2013-06-01
3	Horn Antenna	Rohde & Schwarz	HF906	100284	2012-06-03	2013-06-01
4	ANTENNA	SCHWARZBECK	VULB9168	9168-313	2012-06-03	2013-06-01
5	Horn Antenna	SCHWARZBECK	BBHA 9170	BBHA91703 73	2012-11-15	2013-11-14
6	Ultra broadband antenna	Rohde & Schwarz	HL562	100227	2012-10-09	2013-10-08
7	Atmosphere pressure meter	Shanghai ZhongXuan Electronic Co.,Ltd	BY—2009P	--	2012-10-09	2013-10-08
8	CLAMP METER	FLUKE	316	86080010	2012-06-03	2013-06-01
9	Thermo-Hygrometer	ZHICHEN	ZC1-2	01050033	2012-10-09	2013-10-08



10	High-low temperature cabinet	Shanghai YuanZhen	GW2050	--	2012-06-03	2013-06-01
11	Tunable Notch Filter	Wainwright instruments Gmbh	WRCT1800. 0/ 2000.0- 0.2/40-5SSK	11	2012-06-03	2013-06-01
12	Tunable Notch Filter	Wainwright instruments Gmbh	WRCT800.0/ 880.0- 0.2/40-5SSK	9	2012-06-03	2013-06-01
13	High pass Filter	FSCW	HP 12/2800- 5AA2	19A45-02	2012-06-03	2013-06-01
14	Low nosie amplifier	TESEQ	LNA6900	70133	2012-06-03	2013-06-01
15	EMI test receiver	Rohde & Schwarz	ESCS30	100086	2012-06-03	2013-06-01
16	Line impedance stabilization network	SCHWARZBECK	NSLK8127	8127-490	2012-06-03	2013-06-01

7 Test Procedure & Measurement Data

7.1 E.U.T. Operation

Input voltage: AC 120V

Operating Environment:

Temperature: 25.0 °C

Humidity: 45 % RH

Atmospheric Pressure: 1013 mbar

EUT Operation: The EUT has been tested under operating condition.

Test program was used to control the EUT for staying in continuous transmitting mode is programmed.

For 2412-2464MHz Band Channel low (2412MHz) mid(2438MHz) high(2464MHz)

For 5736-5814MHz Band Channel low (5736MHz) mid(5762MHz) high(5814MHz)

7.2 Conducted Emission Test

Test Requirement: FCC Part15 15.207

RSS-Gen Issue 8 Clause 7.2.4

Standard Applicable According to section 15.207, frequency 150KHz to 30MHz shall not exceed the limit table as below.

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15-0.5	66 to 56 *	56 to 46 *
0.5-5	56	46
5-30	60	50

EUT Setup

1.The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.4-2009.

2.EUT is charged with PC. The AC Power adaptor of PC was plugged in LISN. The rear of the EUT and peripherals were placed flush with the rear of the tabletop.

3.The LISN was connected with 120V AC/60Hz power source.

Measurement Result

Operation mode: Transmitter conducted to Receiver by wireless.

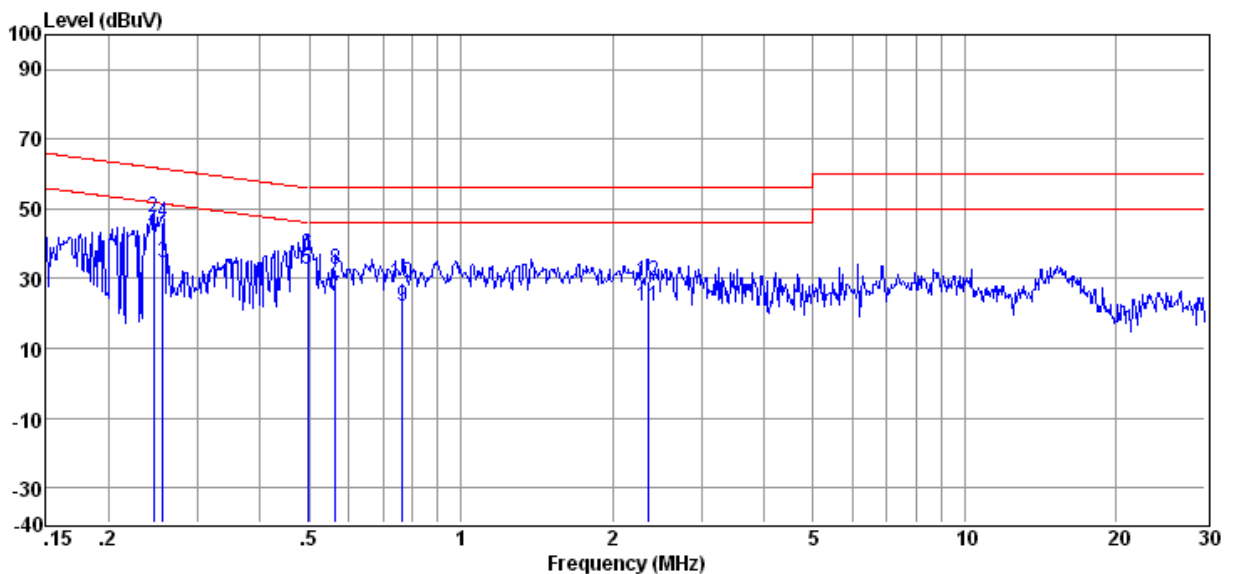
Pre-scan was performed with peak detected on all ports, Quasi-peak & average measurements were performed at the frequencies at which maximum peak emission level were detected.

Please see the attached Quasi-peak and Average test results.

Level = Read Level + LISN/ISN Factor + Cable Loss.

Test Mode: Tri Band mode

Test Port: AC Live Line

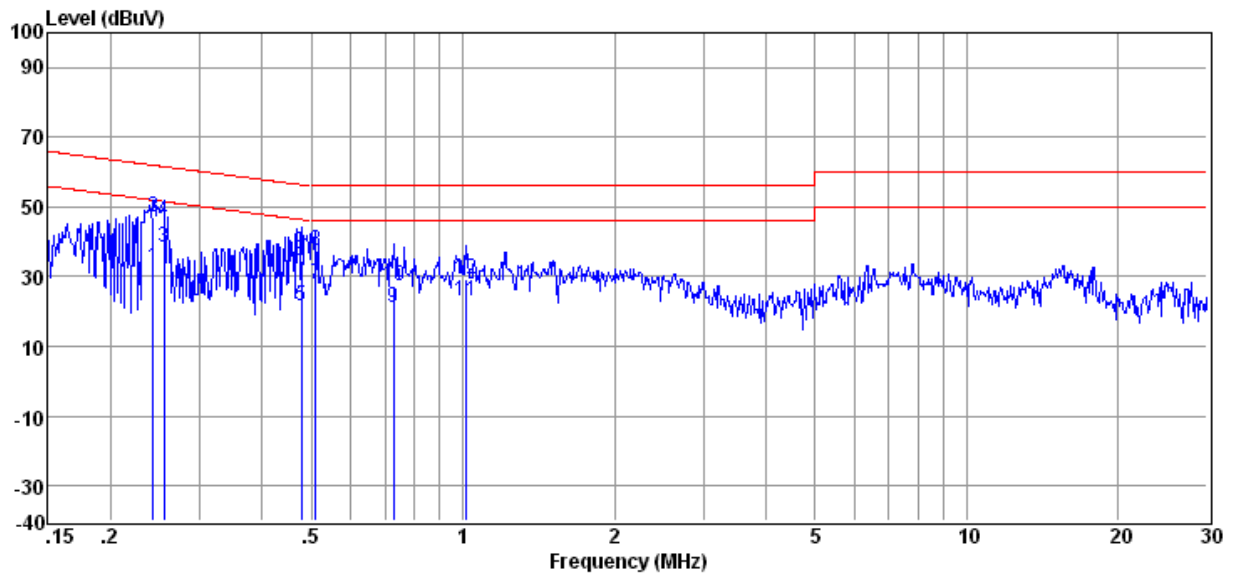


Freq (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
0.246	42.20	0.12	0.10	42.42	51.91	-9.49	Average	LINE
0.246	47.54	0.12	0.10	47.76	61.91	-14.15	QP	LINE
0.256	34.35	0.12	0.10	34.57	51.56	-16.99	Average	LINE
0.256	45.89	0.12	0.10	46.11	61.56	-15.45	QP	LINE
0.497	32.46	0.20	0.10	32.76	46.05	-13.29	Average	LINE
0.497	36.65	0.20	0.10	36.95	56.05	-19.10	QP	LINE
0.564	24.54	0.20	0.10	24.84	46.00	-21.16	Average	LINE
0.564	32.30	0.20	0.10	32.60	56.00	-23.40	QP	LINE
0.767	21.81	0.20	0.10	22.11	46.00	-23.89	Average	LINE
0.767	28.63	0.20	0.10	28.93	56.00	-27.07	QP	LINE
2.358	21.77	0.30	0.11	22.18	46.00	-23.82	Average	LINE
2.358	28.64	0.30	0.11	29.05	56.00	-26.95	QP	LINE



Test Mode: Tri Band mode

Test Port: AC Neutral Line



Freq (MHz)	Read Level (dBμV)	LISN Factor (dB)	Cable Loss (dB)	Level (dBμV)	Limit Line (dBμV)	Over Limit (dB)	Detector	Phase
0.243	32.64	0.11	0.10	32.85	52.00	-19.15	Average	NEUTRAL
0.243	46.64	0.11	0.10	46.85	62.00	-15.15	QP	NEUTRAL
0.255	38.07	0.12	0.10	38.29	51.60	-13.31	Average	NEUTRAL
0.255	45.97	0.12	0.10	46.19	61.60	-15.41	QP	NEUTRAL
0.479	21.45	0.19	0.10	21.74	46.36	-24.62	Average	NEUTRAL
0.479	34.31	0.19	0.10	34.60	56.36	-21.76	QP	NEUTRAL
0.510	27.67	0.20	0.10	27.97	46.00	-18.03	Average	NEUTRAL
0.510	37.08	0.20	0.10	37.38	56.00	-18.62	QP	NEUTRAL
0.727	20.97	0.20	0.10	21.27	46.00	-24.73	Average	NEUTRAL
0.727	27.14	0.20	0.10	27.44	56.00	-28.56	QP	NEUTRAL
1.016	22.52	0.20	0.10	22.82	46.00	-23.18	Average	NEUTRAL
1.016	28.94	0.20	0.10	29.24	56.00	-26.76	QP	NEUTRAL

7.3 Radiated Spurious Emission Test

Test Requirement: FCC Part15 247(d) and FCC Part 15.209

RSS-Gen Issue 8 Clause 7.2.5

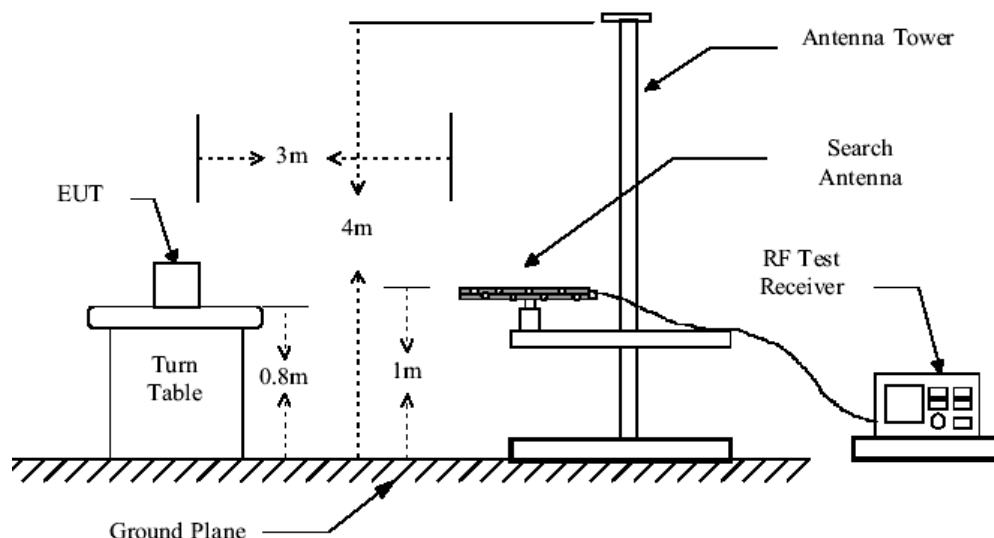
Standard Applicable: According to section 15.247(c), all other emissions outside these bands shall not exceed the general radiated emission limits specified in section 15.209(a). And according to section 15.33(a)(1), for an intentional radiator operates below 10GHz, the frequency range of measurements: to the tenth harmonic of the highest fundamental frequency or to 40GHz, which is lower.

Measurement Procedure:

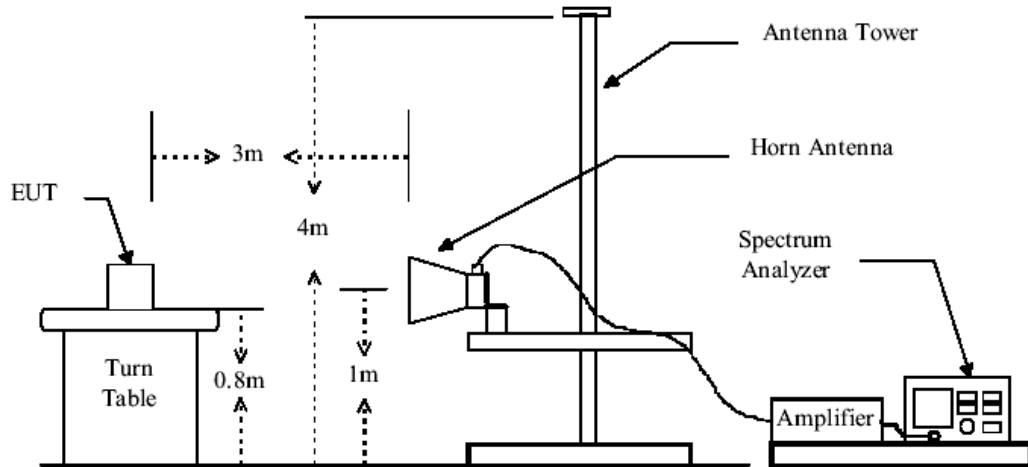
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Pre-test with the Horizontal, Vertical and other status towards to the test antenna. To find the worst status.
3. The turn table shall rotate 360 degrees to determine the position of maximum emission level.
4. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emissions.
Test instrumentation resolution bandwidth 120 kHz and Quasi-Peak detector applies (30 MHz - 1000 MHz). 1MHz resolution bandwidth and Peak detector apply (1000 MHz – 40GHz)
Above 1GHz
(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. Repeat above procedures until all frequency measured were complete.

Radiated Test Set-up:

Radiated Emission Test Set-up, Frequency Below 1000MHz



Radiated Emission Test Set-up Frequency Over 1GHz



Low noise amplifier was used below 1GHz, High pass Filter was used above 1GHz.



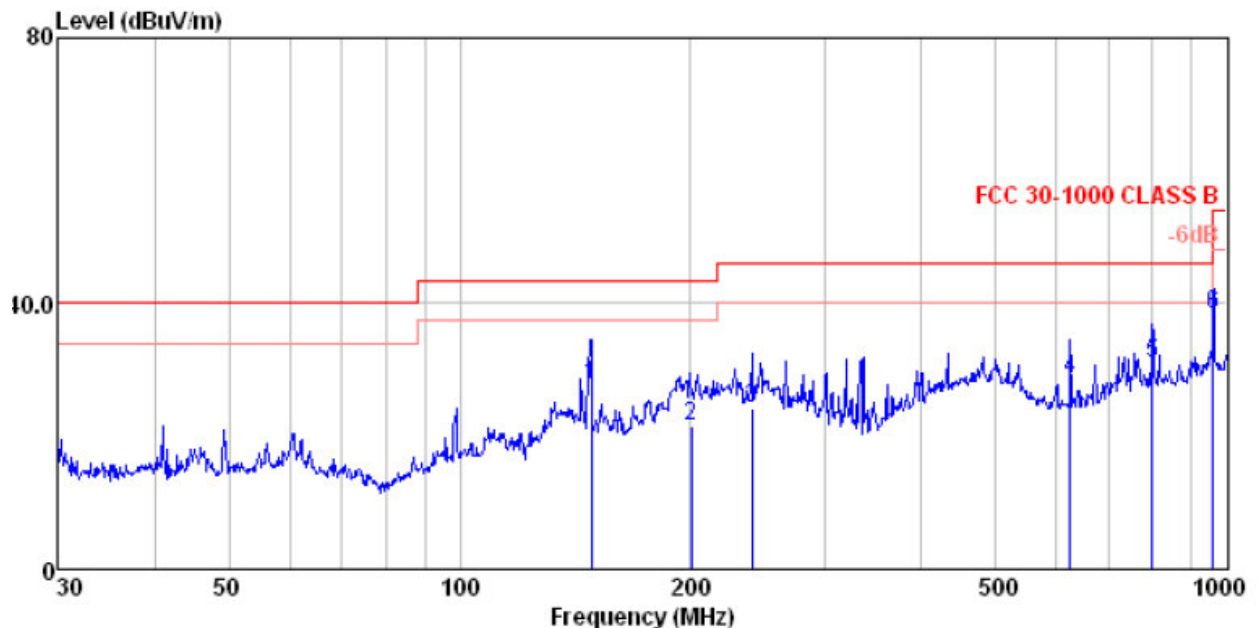
Tests results:

From the pre-test the worst status is the EUT Horizontal towards to the antenna. Below is the worst test results.

Operation Mode:2.4GHz Band

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

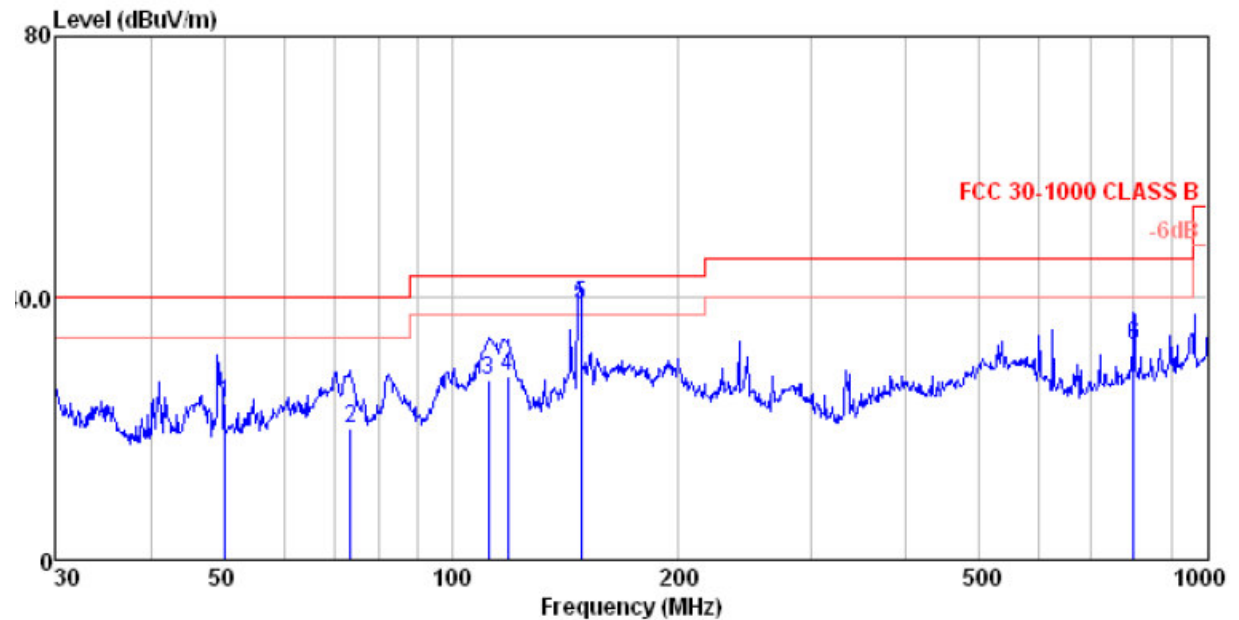
Antenna:Horizontal



	Read	Antenna	Cable	Preamp		Limit	Over	
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	148.37	38.70	12.60	1.26	24.70	27.86	43.50	-15.64 QP
2	200.31	35.28	9.30	1.51	24.60	21.49	43.50	-22.01 QP
3	240.33	36.67	10.40	1.69	24.50	24.26	46.00	-21.74 QP
4	625.08	30.28	19.70	2.98	24.20	28.76	46.00	-17.24 QP
5	799.16	29.31	22.19	3.45	24.00	30.95	46.00	-15.05 QP
6	958.85	34.27	23.97	3.82	23.76	38.30	46.00	-7.70 QP

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Antenna:Vertical



	Read	Antenna	Cable	Preamp		Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	50.20	35.21	12.79	0.65	24.70	23.95	40.00	-16.05 QP
2	73.65	33.99	10.07	0.83	24.70	20.19	40.00	-19.81 QP
3	112.13	40.85	10.12	1.10	24.70	27.37	43.50	-16.13 QP
4	118.60	41.31	10.19	1.13	24.70	27.93	43.50	-15.57 QP
5	148.28	49.90	12.60	1.26	24.70	39.06	43.50	-4.44 QP
6	799.25	30.68	22.49	3.45	24.00	32.62	46.00	-13.38 QP



1GHz~25GHz Peak and Average Spurious Emissions Measurement

EUT mode: Antenna A

Test Antenna: Horizontal

Test Channel: Low

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2139.75	48.07	-6.02	42.05	54	11.95	peak
2	4818.75	46.73	1.21	47.94	54	6.06	peak
3	7568.25	40.90	11.47	52.37	54	1.63	peak
4	9624.50	37.82	15.28	53.10	54	0.90	peak
5	11387.00	40.57	12.80	53.37	54	0.63	peak

Test Antenna: Vertical

Test Channel: Low

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1998.75	43.72	-6.24	37.48	54	16.52	peak
2	4818.75	46.53	1.21	47.74	54	6.26	peak
3	7568.25	41.70	11.47	53.17	54	0.83	peak
4	9565.75	38.75	15.36	54.11	74	19.89	peak
5	9567.27	32.11	15.35	47.46	54	6.54	AVG
6	12009.75	41.68	12.25	53.93	54	0.07	peak

Test Antenna: Horizontal

Test Channel: Middle

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1082.25	48.10	-12.74	35.36	54	18.64	peak
2	4877.50	44.14	1.89	46.03	54	7.97	peak
3	7615.25	41.13	11.48	52.61	54	1.39	peak
4	10000.50	38.34	14.67	53.01	54	0.99	peak
5	12033.25	41.35	12.19	53.54	54	0.46	peak



Test Antenna: Vertical

Test Channel: Middle

Mark	Frequenc y (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2128.00	47.19	-6.04	41.15	54	12.85	peak
2	4877.50	45.37	1.89	47.26	54	6.74	peak
3	7603.50	39.84	11.47	51.31	54	2.69	peak
4	10071.00	38.14	14.59	52.73	54	1.27	peak
5	11293.00	39.69	12.95	52.64	54	1.36	peak

Test Antenna: Horizontal

Test Channel: High

Mark	Frequenc y (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2128.00	46.98	-6.04	40.94	54	13.06	peak
2	4924.50	46.59	1.89	48.48	54	5.52	peak
3	5817.50	42.36	7.50	49.86	54	4.14	peak
4	7580.00	41.06	11.47	52.53	54	1.47	peak
5	9824.25	37.11	14.96	52.07	54	1.93	peak

Test Antenna: Vertical

Test Channel: High

Mark	Frequenc y (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4924.50	46.12	1.89	48.01	54	5.99	peak
2	7638.75	40.30	11.47	51.77	54	2.23	peak
3	9859.50	37.54	14.89	52.43	54	1.57	peak
4	12056.75	40.58	12.13	52.71	54	1.29	peak

EUT mode: Antenna B

Test Antenna: Horizontal

Test Channel: Low

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2151.50	50.92	-6.01	44.91	54	9.09	peak
2	5817.50	42.85	7.50	50.35	54	3.65	peak
3	7591.75	42.38	11.48	53.86	74	20.14	peak
4	7592.69	29.94	11.47	41.41	54	12.59	AVG
5	9939.93	32.99	14.77	47.76	54	6.24	AVG
6	9941.75	39.31	14.76	54.07	74	19.93	peak
7	11920.52	35.13	12.34	47.47	54	6.53	AVG
8	11927.5	42.25	12.33	54.58	74	19.42	peak

Test Antenna: Vertical

Test Channel: Low

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2128.00	43.38	-6.04	37.34	54	16.66	peak
2	5817.50	41.11	7.50	48.61	54	5.39	peak
3	7627.00	40.05	11.47	51.52	54	2.48	peak
4	8484.75	39.83	12.12	51.95	54	2.05	peak
5	9930.00	37.83	14.78	52.61	54	1.39	peak

Test Antenna: Horizontal

Test Channel: Middle

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1082.25	48.10	-12.74	35.36	54	18.64	peak
2	4877.50	44.14	1.89	46.03	54	7.97	peak
3	7615.25	41.13	11.48	52.61	54	1.39	peak
4	10000.50	38.34	14.67	53.01	54	0.99	peak
5	12033.25	41.35	12.19	53.54	54	0.46	peak

Test Antenna: Vertical

Test Channel: Middle

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2128.00	47.19	-6.04	41.15	54	12.85	peak
2	4877.50	45.37	1.89	47.26	54	6.74	peak
3	7603.50	39.84	11.47	51.31	54	2.69	peak
4	10071.00	38.14	14.59	52.73	54	1.27	peak
5	11293.00	39.69	12.95	52.64	54	1.36	peak

Test Antenna: Horizontal

Test Channel: High

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2128.00	46.98	-6.04	40.94	54	13.06	peak
2	4924.50	46.59	1.89	48.48	54	5.52	peak
3	5817.50	42.36	7.50	49.86	54	4.14	peak
4	7580.00	41.06	11.47	52.53	54	1.47	peak
5	9824.25	37.11	14.96	52.07	54	1.93	peak

Test Antenna: Vertical

Test Channel: High

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4924.50	46.12	1.89	48.01	54	5.99	peak
2	7638.75	40.30	11.47	51.77	54	2.23	peak
3	9859.50	37.54	14.89	52.43	54	1.57	peak
4	12056.75	40.58	12.13	52.71	54	1.29	peak

Remark: No other radiation has been found

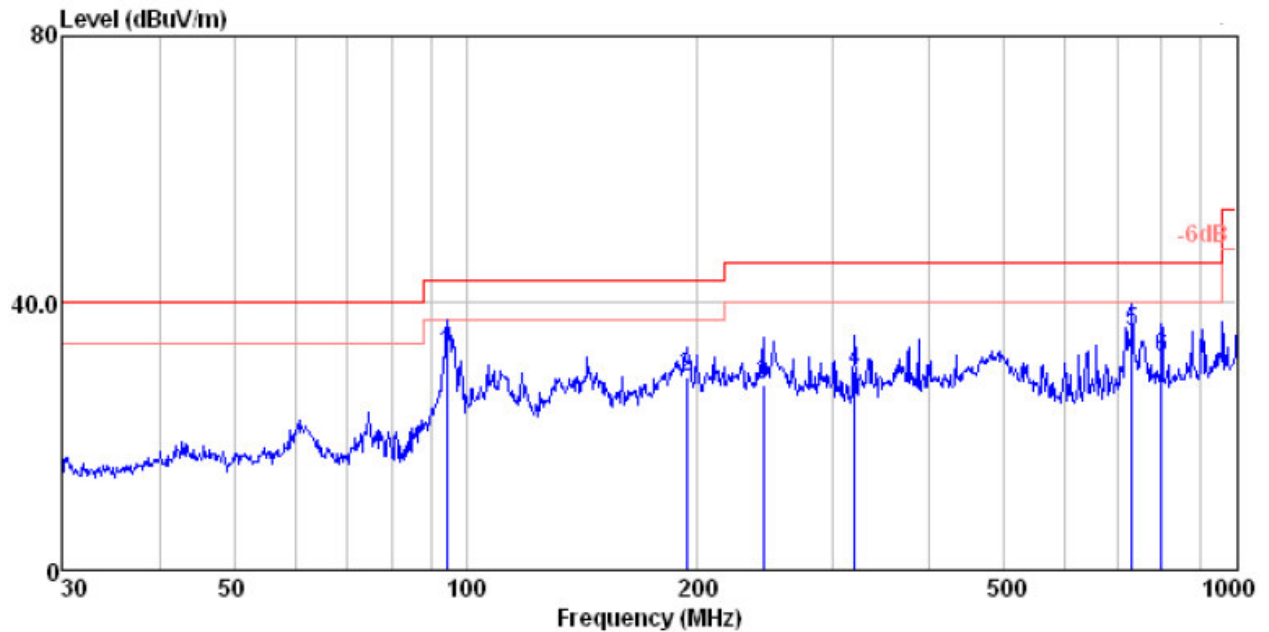
Test Level = Receiver Reading + Antenna Factor + Cable Loss – Preamplifier Factor.

Remark: No any other emissions level which are attenuated less than 20dB below the limit.

According to 15.31(o), The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part. Hence there no other emissions have been reported.

Operation Mode:5.8GHz Band

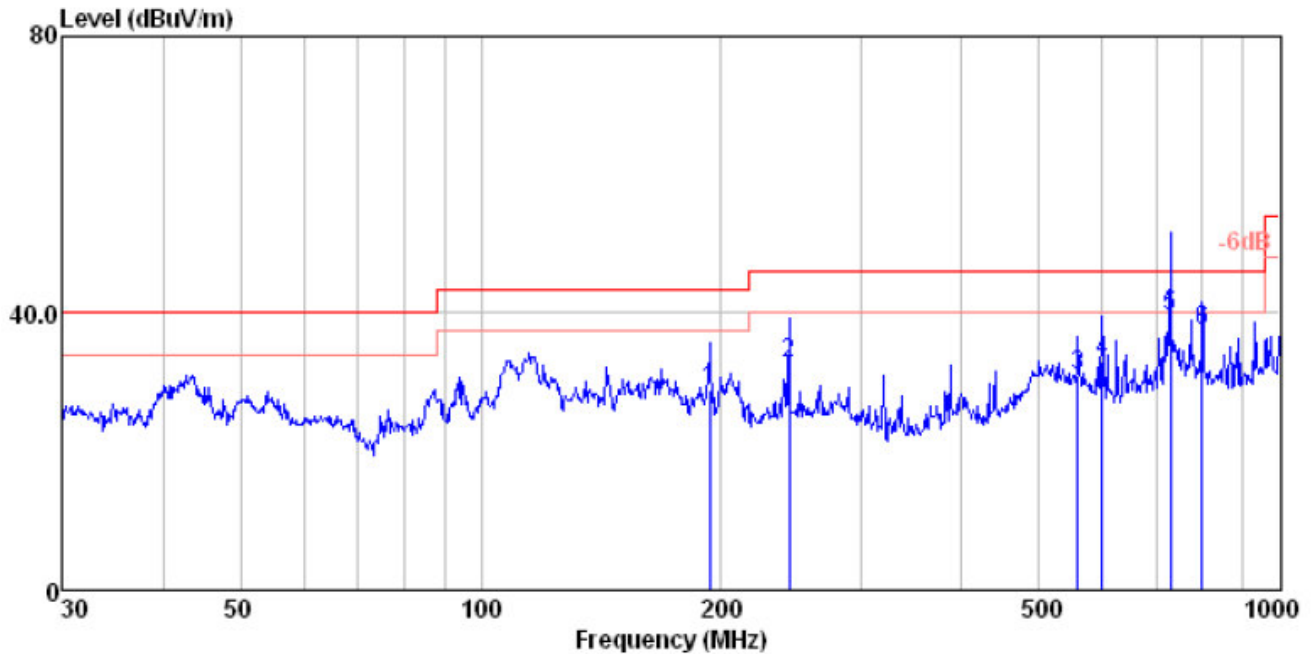
30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement Horizontal



	ReadAntenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	94.43	47.50	8.81	0.99	24.70	32.60	43.50	-10.90 QP
2	193.09	42.55	9.58	1.48	24.60	29.01	43.50	-14.49 QP
3	243.38	40.26	10.43	1.70	24.50	27.89	46.00	-18.11 QP
4	319.94	39.25	12.96	2.02	24.50	29.73	46.00	-16.27 QP
5 q	731.92	35.28	21.21	3.26	24.07	35.68	46.00	-10.32 QP
6	798.98	30.28	22.19	3.45	24.00	31.92	46.00	-14.08 QP

30MHz~1GHz Spurious Emissions .Quasi-Peak Measurement

Horizontal



	ReadAntenna	Cable	Preamp			Limit	Over	
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	193.09	42.57	9.58	1.48	24.60	29.03	43.50	-14.47 QP
2	243.38	45.26	10.43	1.70	24.50	32.89	46.00	-13.11 QP
3	558.73	34.26	18.14	2.78	24.27	30.91	46.00	-15.09 QP
4	599.32	35.25	19.18	2.91	24.20	33.14	46.00	-12.86 QP
5 q	729.36	39.24	21.17	3.26	24.08	39.59	46.00	-6.41 QP
6	798.98	35.58	22.48	3.45	24.00	37.51	46.00	-8.49 QP



1GHz~40GHz Peak and Average Spurious Emissions Measurement

EUT mode: Antenna A

Test Antenna: Horizontal

Test Channel: Low

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	3822.00	42.81	-2.79	40.02	54	13.98	peak
2	11472.00	43.35	9.22	52.57	54	1.43	peak
3	13733.00	45.87	9.55	55.42	74	18.58	peak
4	13735.74	36.79	9.57	46.36	54	7.64	AVG
5	17109.34	33.68	14.65	48.33	54	5.67	AVG
6	17116.00	44.72	14.64	59.36	74	14.64	peak

Test Antenna: Vertical

Test Channel: Low

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	3428.00	47.96	-6.49	41.47	54	12.53	peak
2	11471.90	41.50	9.22	50.72	54	3.28	AVG
3	11472.00	63.38	9.22	72.60	74	1.40	peak
4	13767.00	46.43	9.63	56.06	74	17.94	peak
5	13767.50	34.02	9.63	43.65	54	10.35	AVG
6	17208.50	35.52	14.62	50.14	54	3.86	AVG
7	17218.00	49.04	14.61	63.65	74	10.35	peak

Test Antenna: Horizontal

Test Channel: Middle

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	3839.00	42.75	-2.74	40.01	54	13.99	peak
2	7868.00	40.12	7.74	47.86	54	6.14	peak
3	11523.00	40.97	9.16	50.13	54	3.87	peak
4	16990.26	33.98	14.67	48.65	54	5.35	AVG
5	16997.00	45.49	14.68	60.17	74	13.83	peak

Test Antenna: Vertical

Test Channel: Middle

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	3839.00	42.83	-2.74	40.09	54	13.91	peak
2	7800.00	41.29	7.74	49.03	54	4.97	peak
3	11523.00	41.24	9.16	50.40	54	3.60	peak
4	13835.00	45.26	9.70	54.96	74	19.04	peak
5	13844.10	39.88	9.72	49.60	54	4.40	AVG

Test Antenna: Horizontal

Test Channel: High

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	3411.00	49.63	-6.51	43.12	54	10.88	peak
2	7902.00	40.39	7.74	48.13	54	5.87	peak
3	9534.00	38.28	11.86	50.14	54	3.86	peak
4	13866.74	39.89	9.79	49.68	54	4.32	AVG
5	13869.00	45.16	9.80	54.96	74	19.04	peak
6	16895.00	44.90	14.47	59.37	74	14.63	peak
7	16897.82	35.05	14.48	49.53	54	4.47	AVG

Test Antenna: Vertical

Test Channel: High

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	3873.00	43.73	-2.64	41.09	54	12.91	peak
2	9585.00	37.98	11.78	49.76	54	4.24	peak
3	13869.00	46.58	9.80	56.38	74	17.62	peak
4	13876.18	39.59	9.82	49.41	54	4.59	AVG
5	16860.74	39.61	14.4	46.01	54	7.99	AVG
6	16861.00	45.24	14.4	59.64	74	14.36	peak

EUT mode: Antenna B

Test Antenna: Horizontal

Test Channel: Low

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	3822.00	43.71	-2.79	40.92	54	13.08	peak
2	11471.92	42.63	9.22	51.85	54	2.15	AVG
3	11472.00	63.05	9.22	72.27	74	1.73	peak
4	13869.00	47.13	9.80	56.93	74	17.07	peak
5	13870.54	35.21	9.80	45.01	54	8.99	AVG
6	17150.00	44.87	14.64	59.51	74	14.49	peak
7	17155.70	33.72	14.63	48.35	54	5.65	AVG

Test Antenna: Vertical

Test Channel: Low

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	3822.00	43.15	-2.79	40.36	54	13.64	peak
2	11471.94	43.04	9.22	52.26	54	1.74	AVG
3	11472.00	62.92	9.22	72.14	74	1.86	peak
4	13812.08	35.29	9.74	45.03	54	8.97	AVG
5	13818.00	46.21	9.75	55.96	74	18.04	peak
6	17208.58	30.41	14.62	45.03	54	8.97	AVG
7	17218.00	46.81	14.61	61.42	74	12.58	peak

Test Antenna: Horizontal

Test Channel: Middle

Mark	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	3839.00	43.32	-2.74	40.58	54	13.42	peak
2	9432.00	38.38	11.64	50.02	54	3.98	peak
3	15207.34	39.89	10.10	49.99	54	4.01	AVG
4	15212.00	46.19	10.12	56.31	74	17.69	peak
5	16912.00	45.71	14.51	60.22	74	13.78	peak



6	16920.62	33.89	14.53	48.42	54	5.58	AVG
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Test Antenna: Vertical

Test Channel: Middle

Mark	Frequenc y (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1935.00	45.10	-7.64	37.46	54	16.54	peak
2	7596.00	40.10	7.73	47.83	54	6.17	peak
3	9466.00	38.39	11.79	50.18	54	3.82	peak
4	15229.00	46.20	10.15	56.35	74	17.65	peak
5	15231.54	40.08	10.15	50.23	54	3.77	AVG

Test Antenna: Horizontal

Test Channel: High

Mark	Frequenc y (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	3873.00	44.33	-2.64	41.69	54	12.31	peak
2	9483.00	38.67	11.84	50.51	54	3.49	peak
3	11897.00	39.99	8.93	48.92	54	5.08	peak
4	15327.84	40.67	10.32	50.99	54	3.01	AVG
5	15331.00	46.48	10.32	56.80	74	17.20	peak

Test Antenna: Vertical

Test Channel: High

Mark	Frequenc y (MHz)	Reading (dBuV)	Factor (dB)	Emission (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	3445.00	55.85	-6.48	49.37	54	4.63	peak
2	9398.00	38.33	11.52	49.85	54	4.15	peak
3	12084.00	40.83	8.64	49.47	54	4.53	peak
4	16953.72	33.81	14.60	48.41	54	5.59	AVG
5	16963.00	44.85	14.61	59.46	74	14.54	peak

Remark: No other radiation has been found

Test Level = Receiver Reading + Antenna Factor + Cable Loss – Preamplifier Factor.

Remark: No any other emissions level which are attenuated less than 20dB below the limit.

According to 15.31(o), The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part. Hence there no other emissions have been reported.



7.4 6dB Bandwidth

Test Requirement: FCC Part15 247(a)(2)

Standard Applicable: According to section 15.247(a)(2), Systems using digital modulation techniques may operate in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands. The minimum 6dB bandwidth shall be at least 500KHz.

Measurement Procedure:

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW=100KHz, VBW =3* RBW, Span=30/ 50MHz, Sweep=auto
4. Mark the peak frequency and -6dB (upper and lower) frequency.
5. Repeat above procedures until all frequency measured were complete.

Measurement Result:

For 2412-2464MHz Band Antenna A:

CH	Frequency (MHz)	Bandwidth (MHz)	Limit Bandwidth (KHz)	Result
LOW	2412	10.35	500	PASS
MID	2438	10.35	500	PASS
HIGH	2464	10.32	500	PASS

For 2412-2464MHz Band Antenna B:

CH	Frequency (MHz)	Bandwidth (MHz)	Limit Bandwidth (KHz)	Result
LOW	2412	10.35	500	PASS
MID	2438	10.35	500	PASS
HIGH	2464	10.29	500	PASS

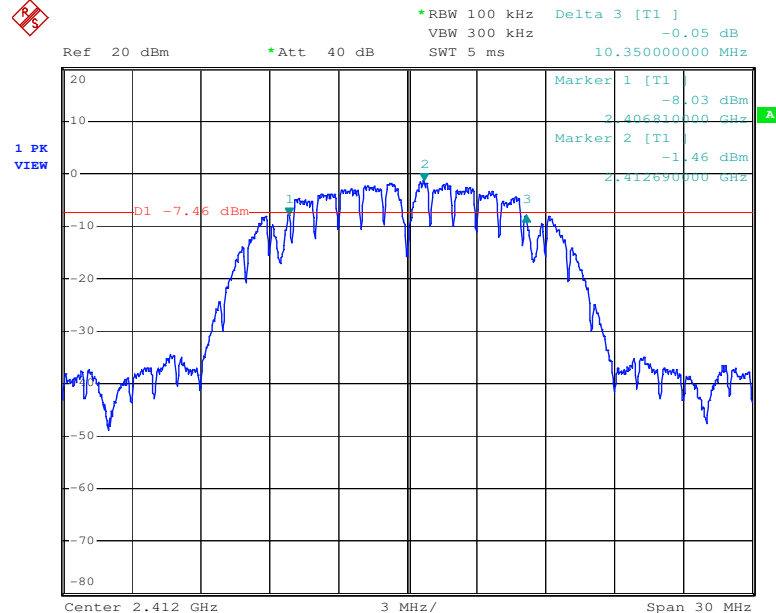
For 5736-5814MHz Band Antenna A:

CH	Frequency (MHz)	Bandwidth (MHz)	Limit Bandwidth (KHz)	Result
LOW	5736	11.31	500	PASS
MID	5762	11.25	500	PASS
HIGH	5814	11.31	500	PASS

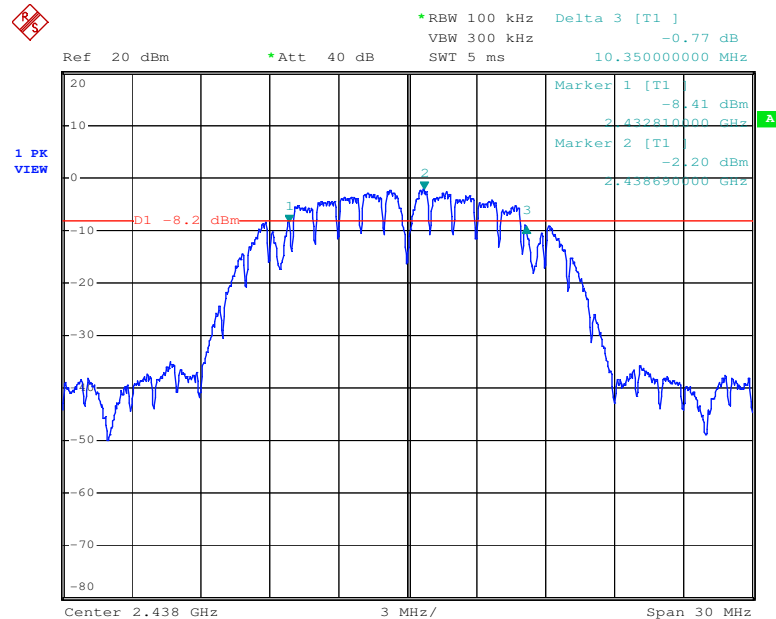
For 5736-5814MHz Band Antenna B:

CH	Frequency (MHz)	Bandwidth (MHz)	Limit Bandwidth (KHz)	Result
LOW	5736	11.31	500	PASS
MID	5762	11.37	500	PASS
HIGH	5814	11.31	500	PASS

6dB Band Width: Antenna A CH 2412MHz

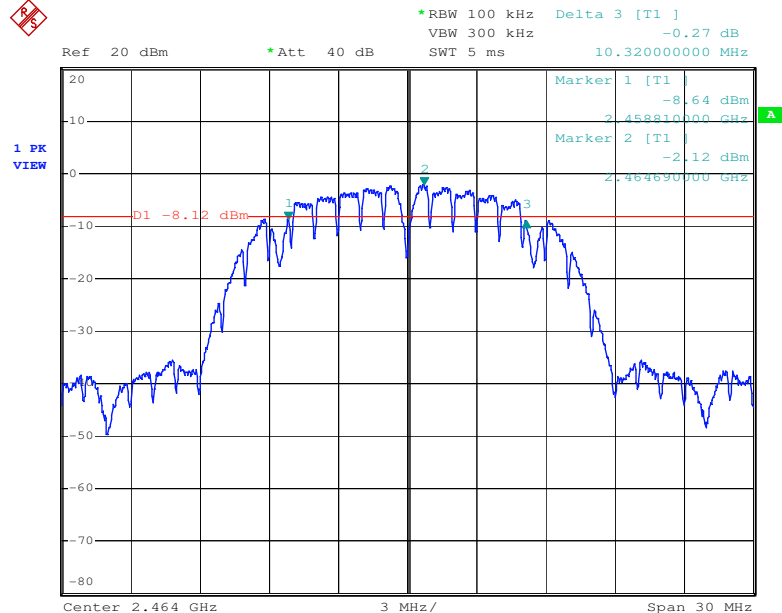


6dB Band Width Antenna A CH 2438MHz:

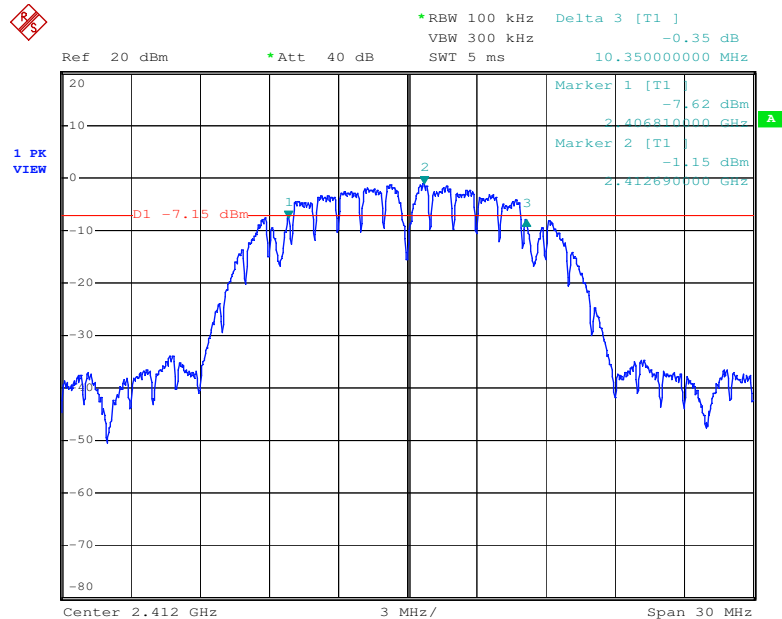




6dB Band Width Antenna A CH 2464MHz:

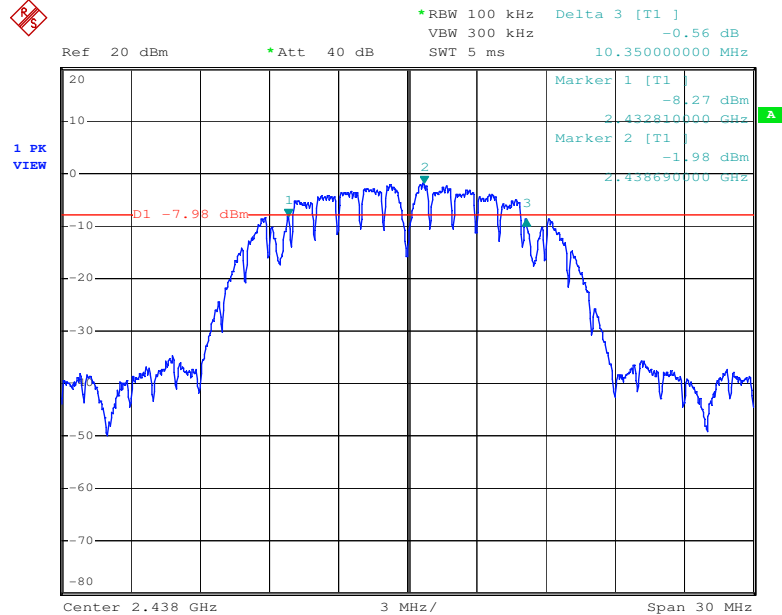


6dB Band Width: Antenna B CH 2412MHz

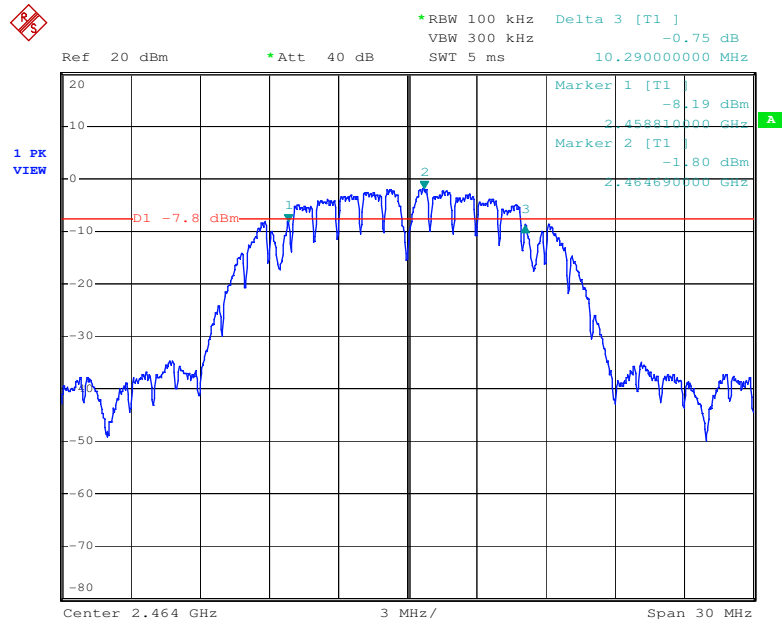




6dB Band Width Antenna B CH 2438MHz:

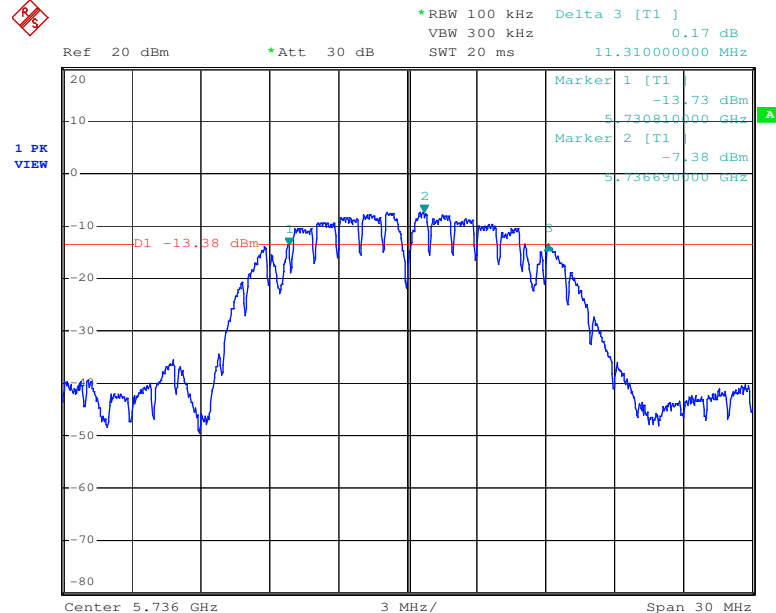


6dB Band Width Antenna B CH 2464MHz:

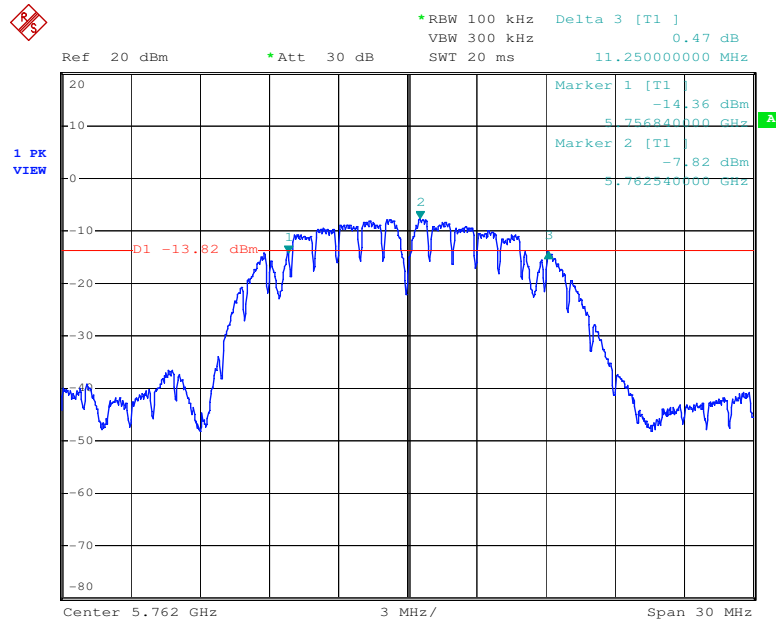




6dB Band Width Antenna A CH 5736MHz:

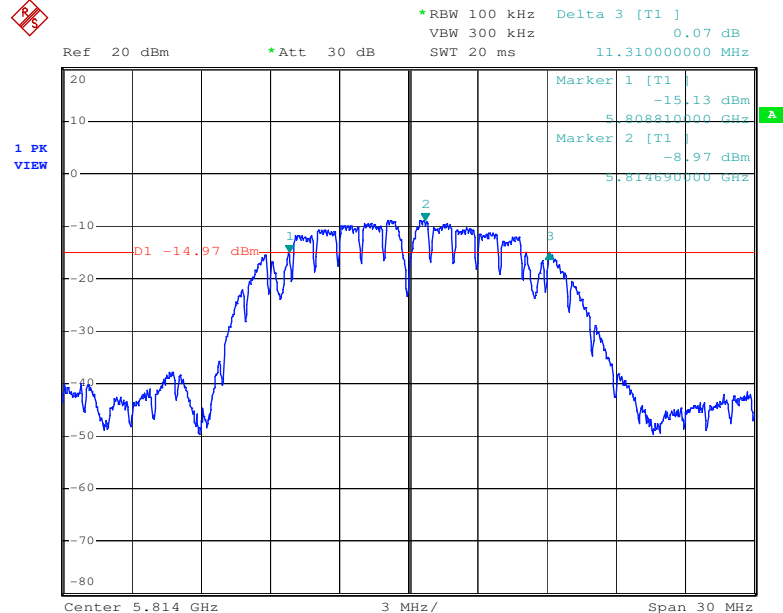


6dB Band Width Antenna A CH 5762MHz:

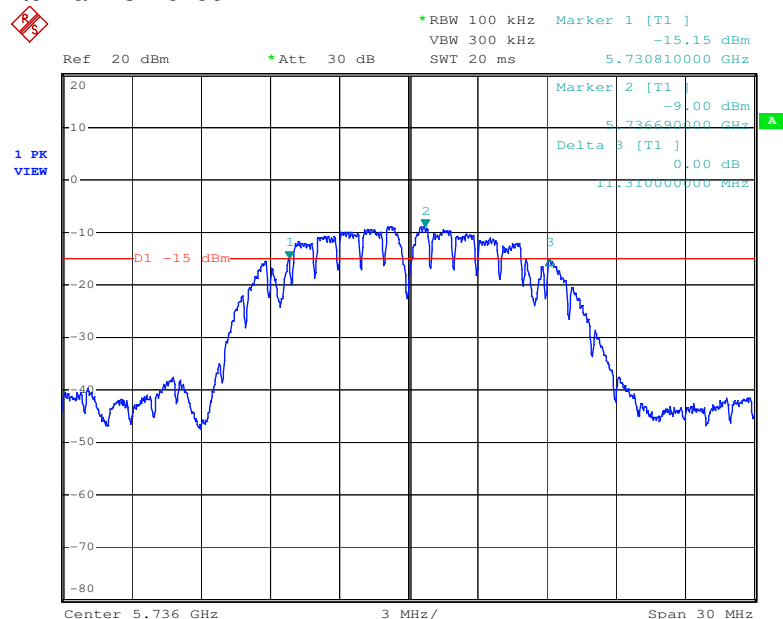




6dB Band Width Antenna A CH 5814MHz:

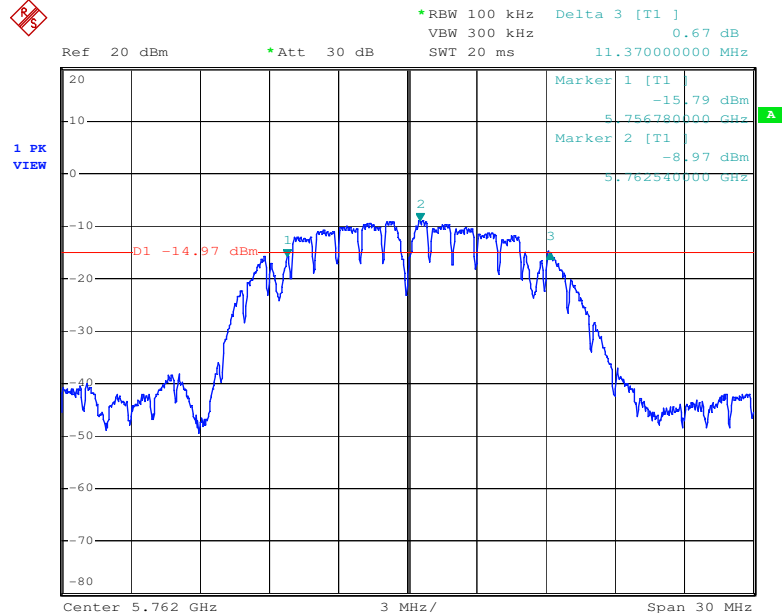


6dB Band Width Antenna B CH 5736MHz:

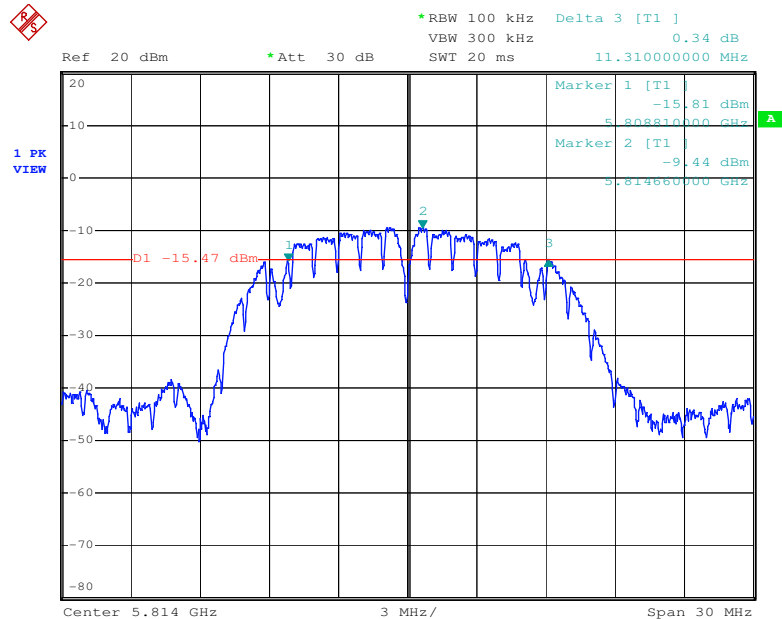




6dB Band Width Antenna B CH 5762MHz:



6dB Band Width Antenna B CH 5814MHz:



7.5 Peak Output Power Measurement

- Test Requirement:** FCC Part 15 15.247(a)(2),(b)
RSS-210 Issue 8 Annex 8
- Standard Applicable:** According to section 15.247(a)(2),(b)
(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
- Measurement Procedure**
1. Place the EUT on the table and set it in transmitting mode.
 2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum.
 3. Set the occur band to the entire emission bandwidth of the signal.
 4. Record the max.channel power reading
- Repeat above procedures until all the frequency measured were complete.

Measurement Result:

For Antenna A 2412-2464MHz Band:

CH	Frequency (MHz)	Reading Peak Power (dBm)	Cable Loss (dB)	Output Peak Power (dBm)	Peak Power Limit (dBm)	Result
Low	2412	16.91	1.5	18.41	30	PASS
Middle	2438	16.59	1.5	18.09	30	PASS
High	2464	16.79	1.5	18.29	30	PASS

For Antenna B 2412-2464MHz Band:

CH	Frequency (MHz)	Reading Peak Power (dBm)	Cable Loss (dB)	Output Peak Power (dBm)	Peak Power Limit (dBm)	Result
Low	2412	17.17	1.5	18.67	30	PASS
Middle	2438	17.00	1.5	18.50	30	PASS
High	2464	16.81	1.5	18.31	30	PASS

For Antenna A 5736-5814MHz Band:

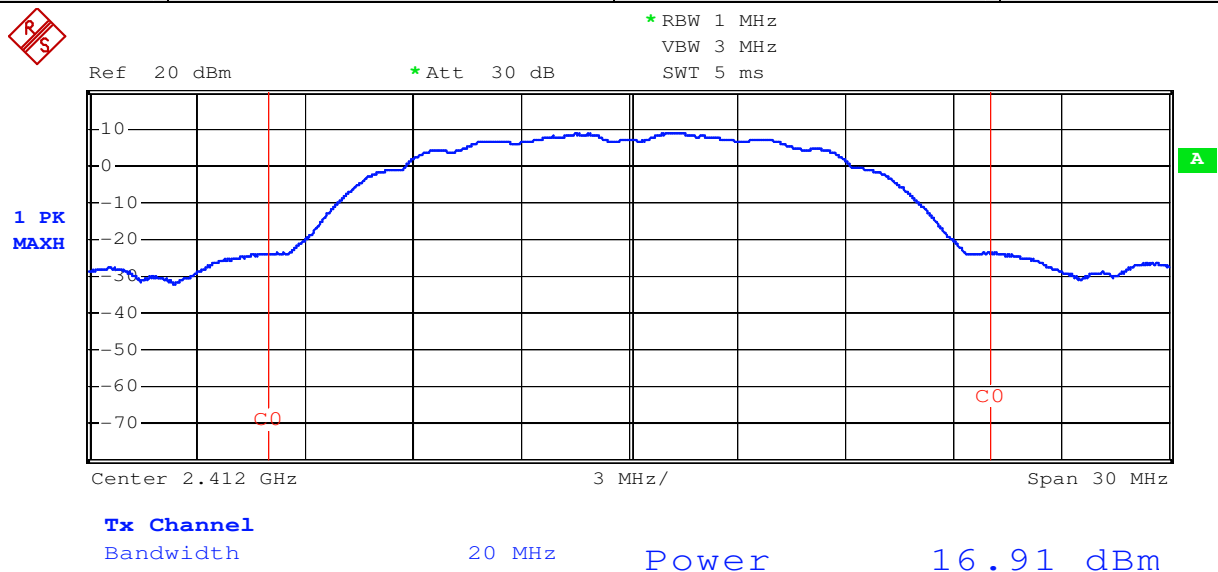
CH	Frequency (MHz)	Reading Peak Power (dBm)	Cable Loss (dB)	Output Peak Power (dBm)	Peak Power Limit (dBm)	Result
Low	5736	11.80	1.9	13.70	30	PASS
Middle	5762	11.47	1.9	13.37	30	PASS
High	5814	10.33	1.9	12.23	30	PASS

For Antenna B 5736-5814MHz Band:

CH	Frequency (MHz)	Reading Peak Power (dBm)	Cable Loss (dB)	Output Peak Power (dBm)	Peak Power Limit (dBm)	Result
Low	5736	9.99	1.9	11.89	30	PASS
Middle	5762	10.61	1.9	12.51	30	PASS
High	5814	9.94	1.9	11.84	30	PASS

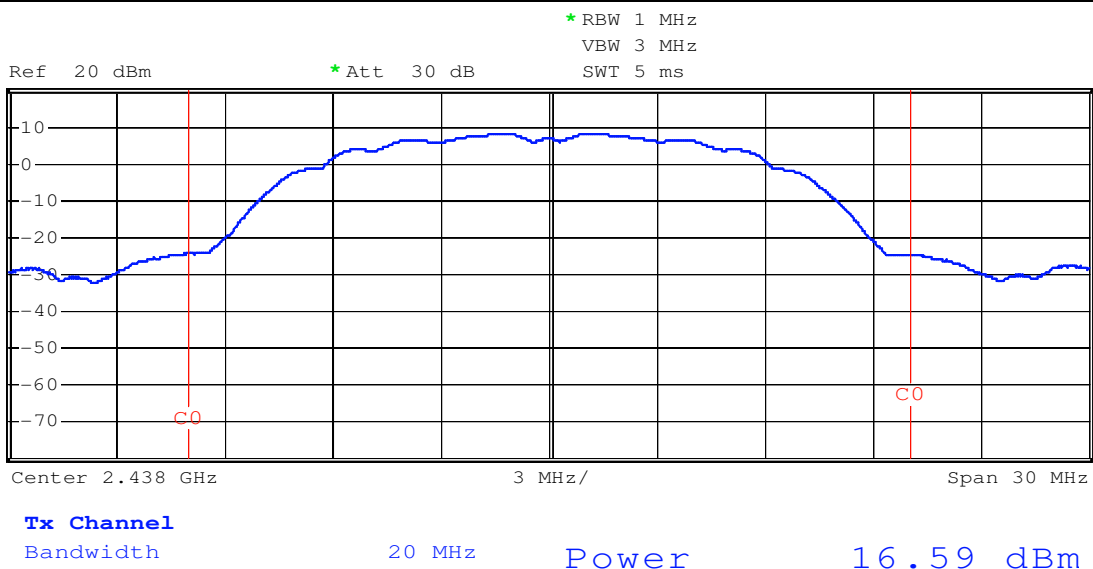
Test result plot as follows:

Test mode:	2.4GHz Band Antenna A	Test channel:	Low
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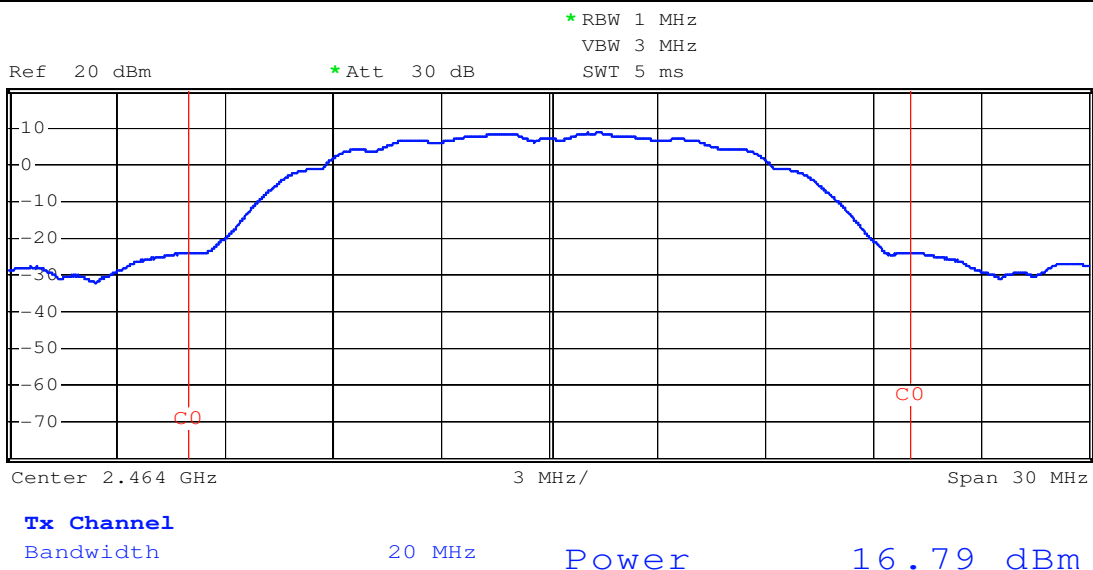




Test mode:	2.4GHz Band Antenna A	Test channel:	Middle
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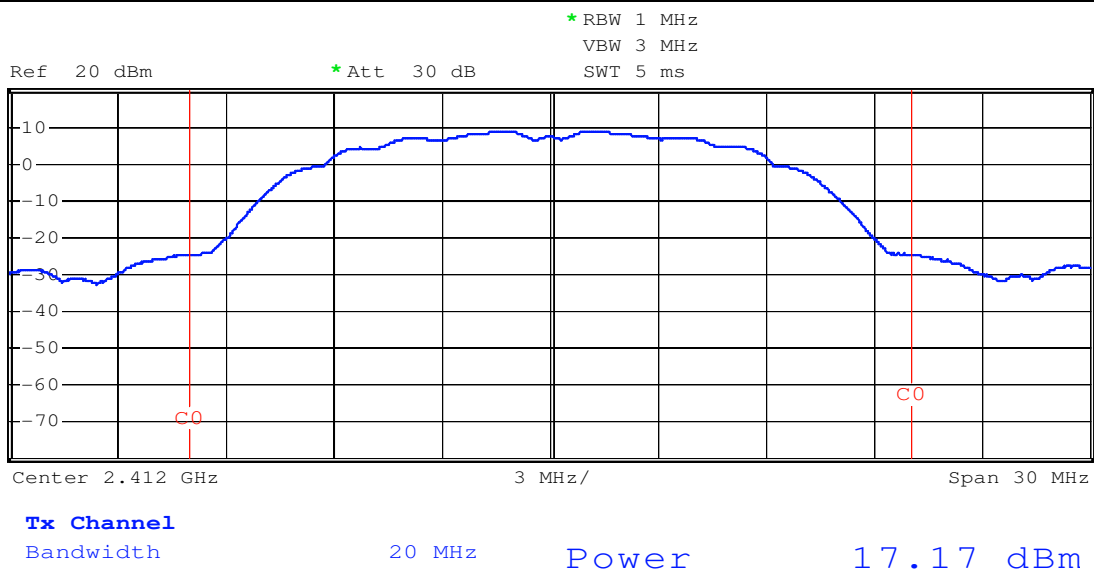


Test mode:	2.4GHz Band Antenna A	Test channel:	High
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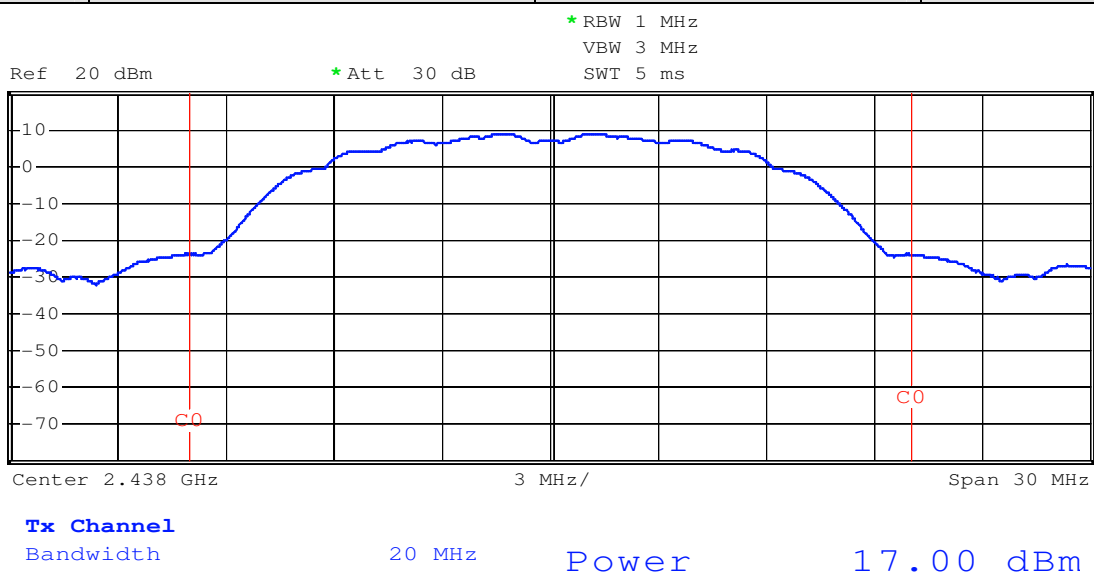




Test mode:	2.4GHz Band Antenna B	Test channel:	Lowest
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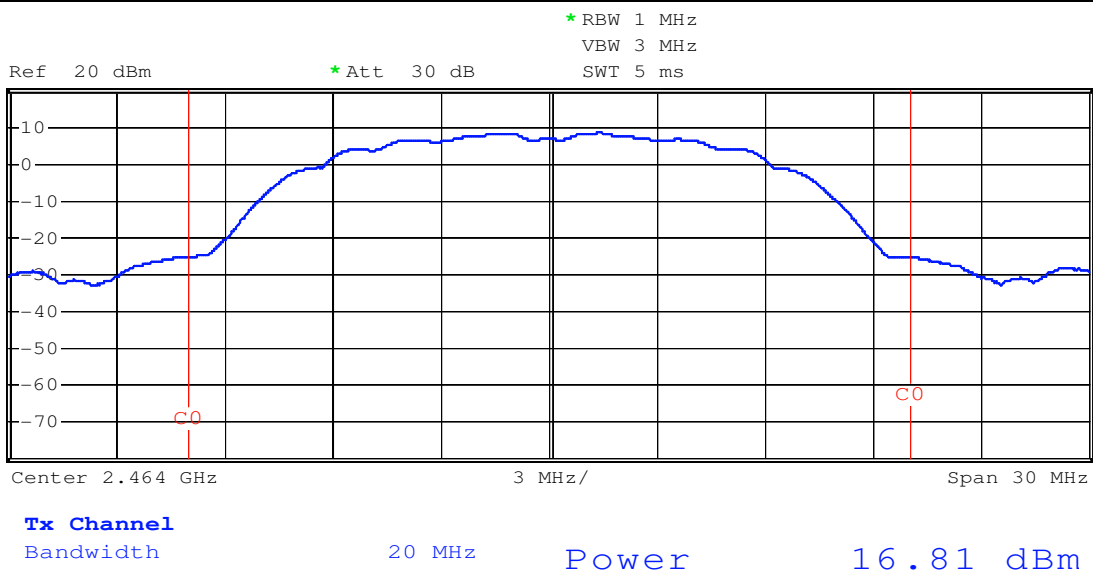


Test mode:	2.4GHz Band Antenna B	Test channel:	Middle
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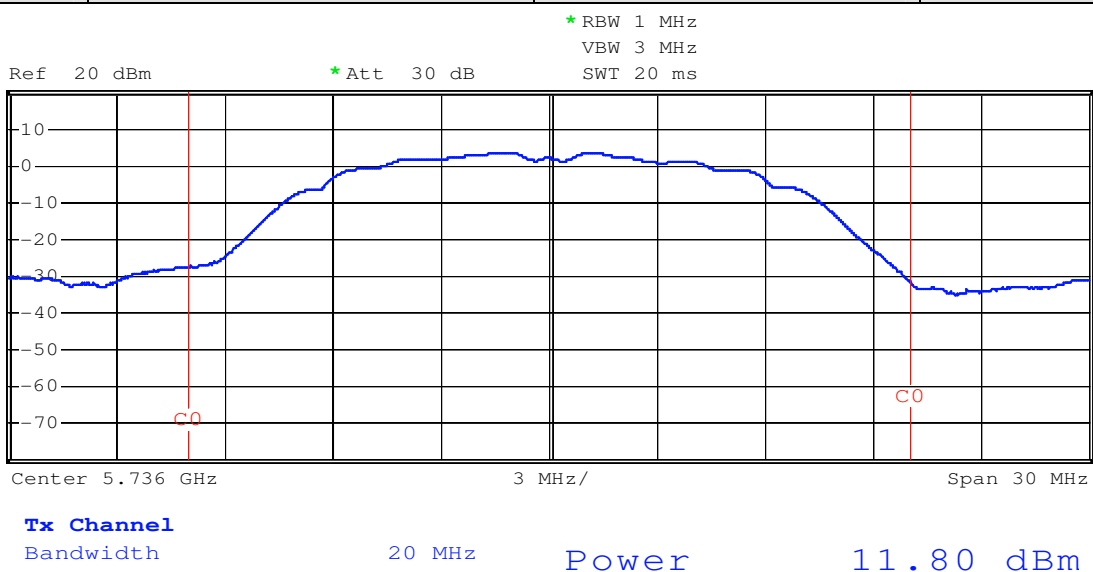




Test mode:	2.4GHz Band Antenna B	Test channel:	High
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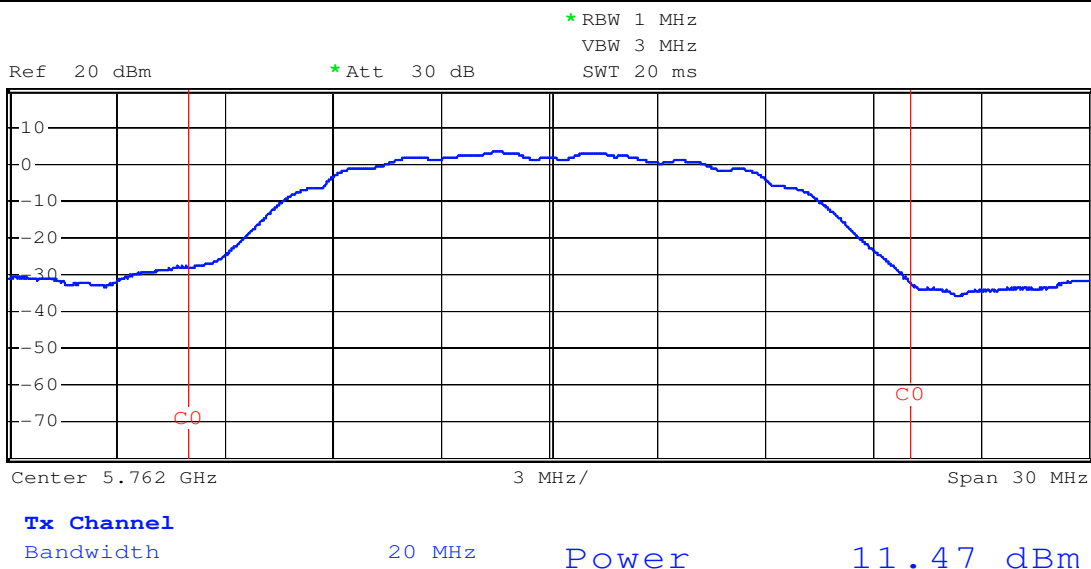


Test mode:	5.8GHz Band Antenna A	Test channel:	Lowest
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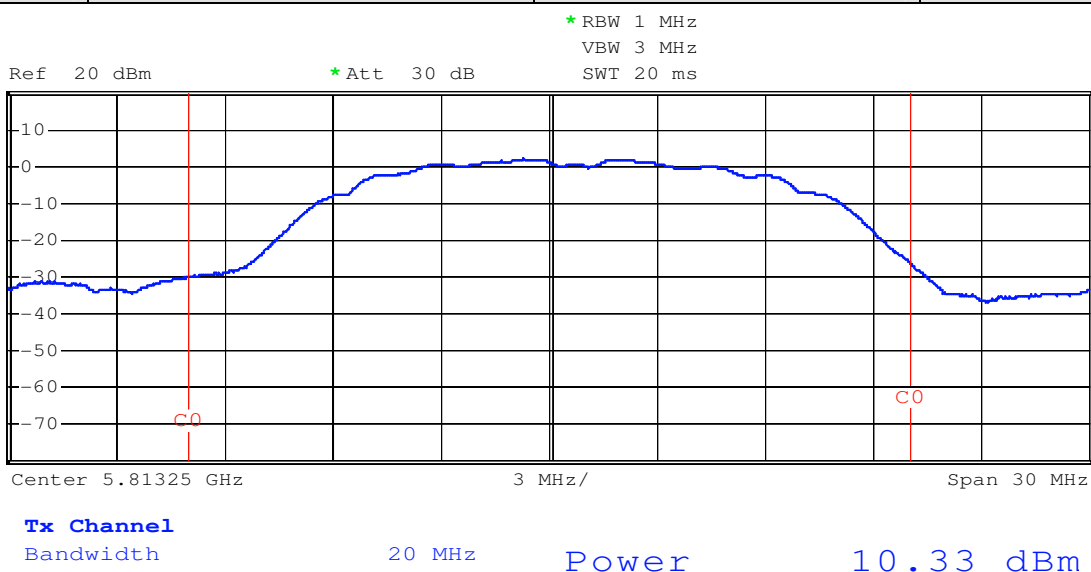




Test mode:	5.8GHz Band Antenna A	Test channel:	Middle
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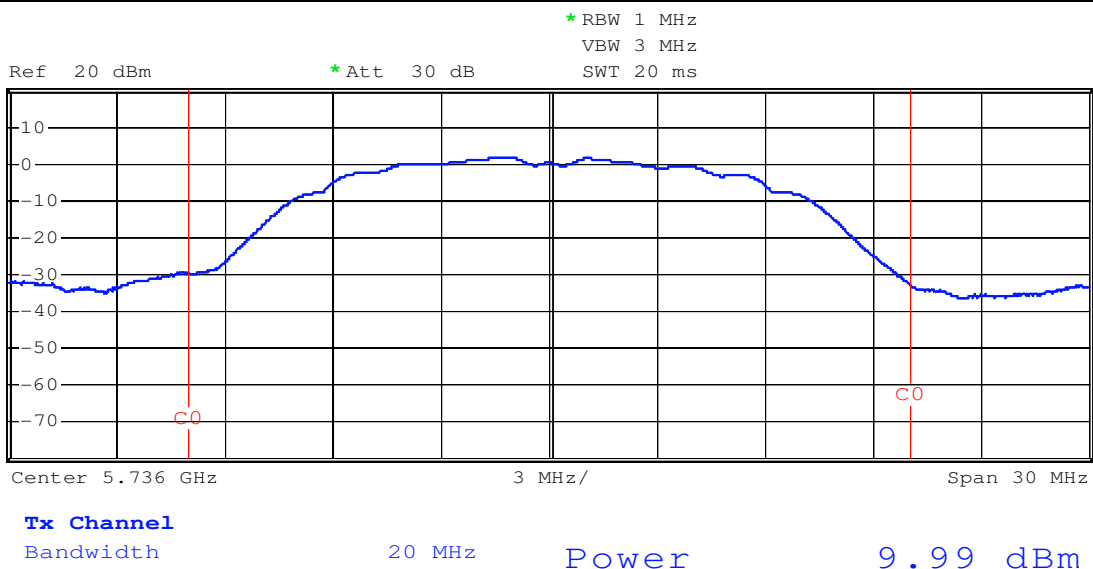


Test mode:	5.8GHz Band Antenna A	Test channel:	High
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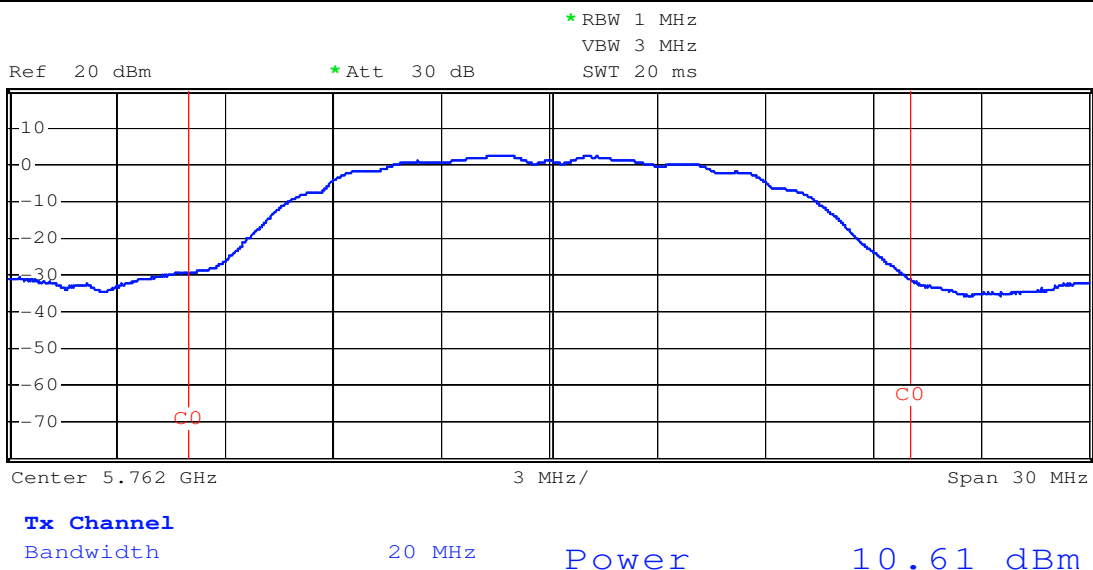




Test mode:	5.8GHz Band Antenna B	Test channel:	Lowest
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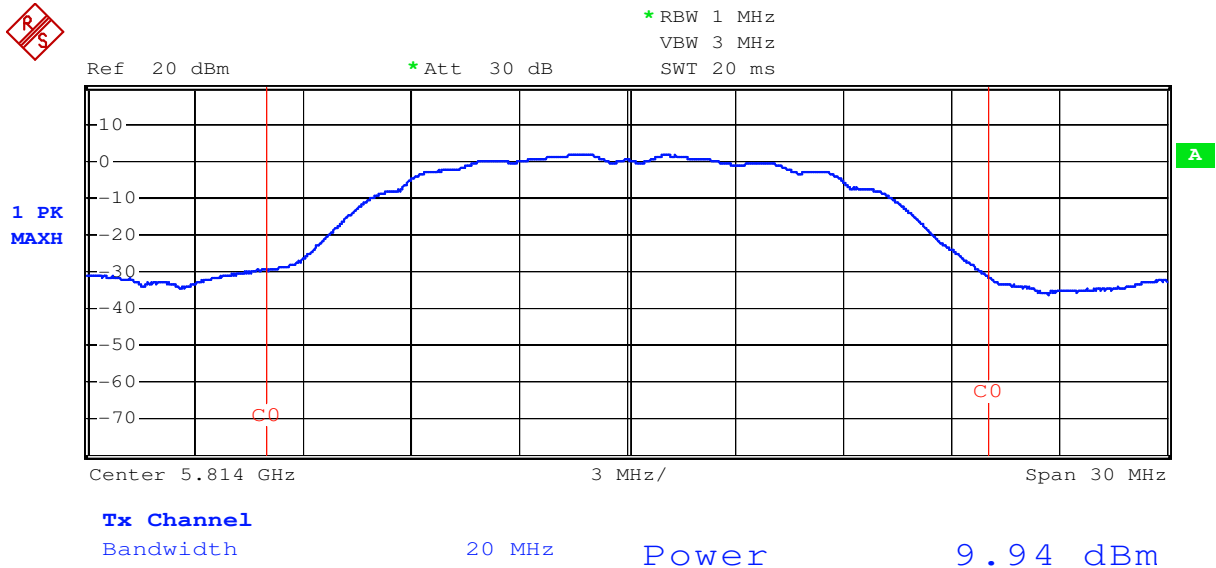


Test mode:	5.8GHz Band Antenna B	Test channel:	Middle
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Test mode:	5.8GHz Band Antenna B	Test channel:	High
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7.6 Peak Power Spectral Density

Test Requirement: FCC Part15 247(e)

RSS-210 Issue 8 Annex 8

Standard Applicable:

According to section 15.247(e), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dB in any 3KHz band during any time in terval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph(b) of this section. The same method of determining the conducted output power shall be used to determine the powr spectral density.

Measurement Procedure:

The EUT was tested according to DTS test procedure of KDB 55874 for compliance to FCC 47CFR 15.247 requiremnts.

Set RBW=3KHz, Set VBW=10KHz, Span=3MHz, Sweep time=100s, Set detector=Peak detector.

Test Result:

Pass

Measurement Result:

For Antenna A 2.4GHz Band

CH	Frequency (MHz)	Reading (dBm)	Cable Loss (dB)	RF Power Density (dBm)	Limit (dBm)	Result
LOW	2412	-2.87	1.5	-1.37	8	PASS
MID	2438	-3.32	1.5	-1.82	8	PASS
HIGH	2464	-3.06	1.5	-1.56	8	PASS

For Antenna B 2.4GHz Band

CH	Frequency (MHz)	Reading (dBm)	Cable Loss (dB)	RF Power Density (dBm)	Limit (dBm)	Result
LOW	2412	-2.26	1.5	-0.76	8	PASS
MID	2438	-3.15	1.5	-1.65	8	PASS
HIGH	2464	-2.77	1.5	-1.27	8	PASS

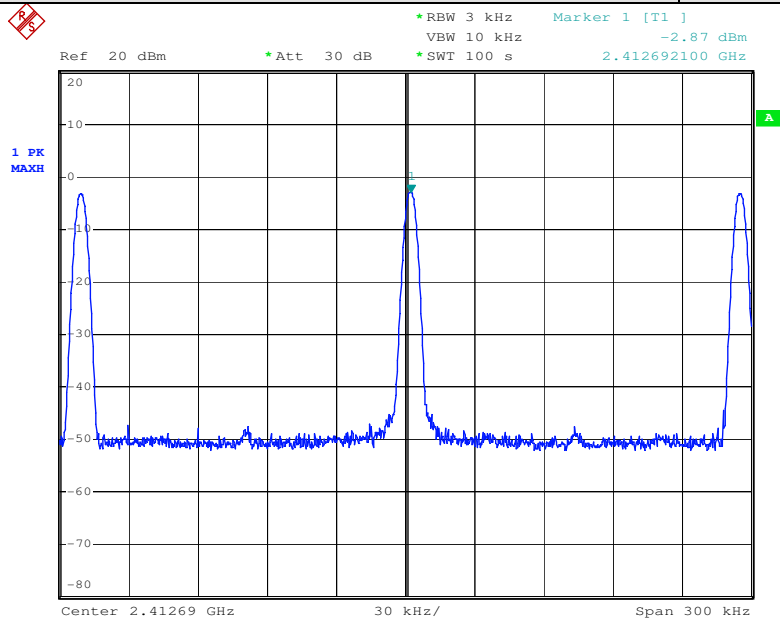
For Antenna A 5.8GHz Band

CH	Frequency (MHz)	Reading (dBm)	Cable Loss (dB)	RF Power Density (dBm)	Limit (dBm)	Result
LOW	5736	-7.99	1.9	-6.09	8	PASS
MID	5762	-8.47	1.9	-6.57	8	PASS
HIGH	5814	-9.56	1.9	-7.66	8	PASS

For Antenna B 5.8GHz Band

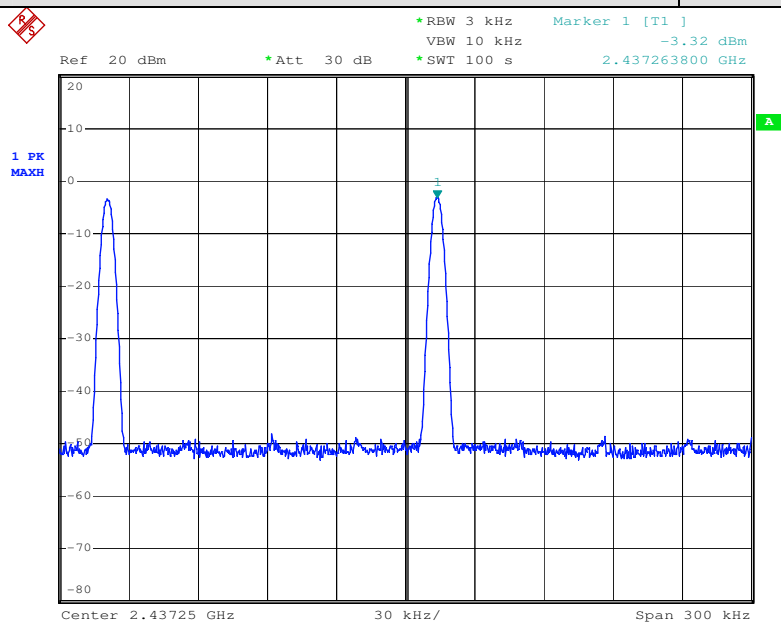
CH	Frequency (MHz)	Reading (dBm)	Cable Loss (dB)	RF Power Density (dBm)	Limit (dBm)	Result
LOW	5736	-9.86	1.9	-7.96	8	PASS
MID	5762	-9.20	1.9	-7.30	8	PASS
HIGH	5814	-10.04	1.9	-8.14	8	PASS

Test mode:	2.4GHz Band Antenna A	Test channel:	Low
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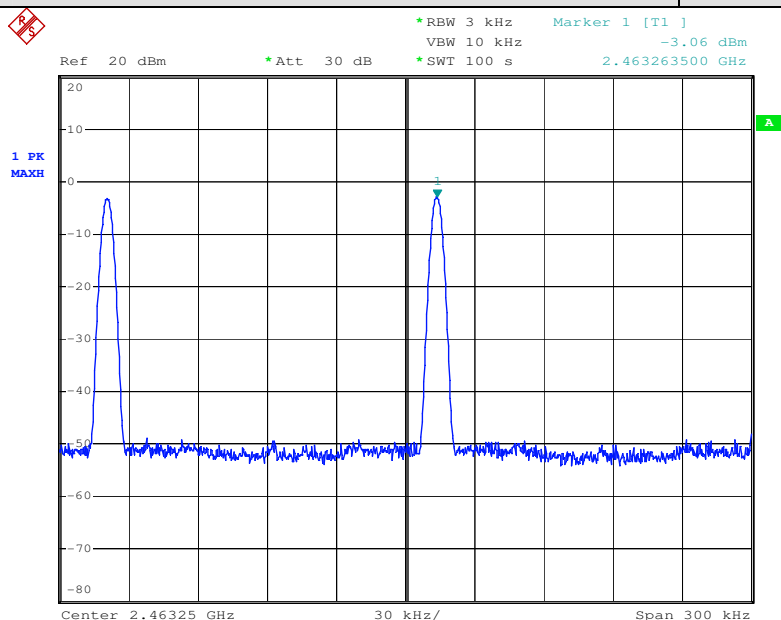




Test mode:	2.4GHz Band Antenna A	Test channel:	Middle
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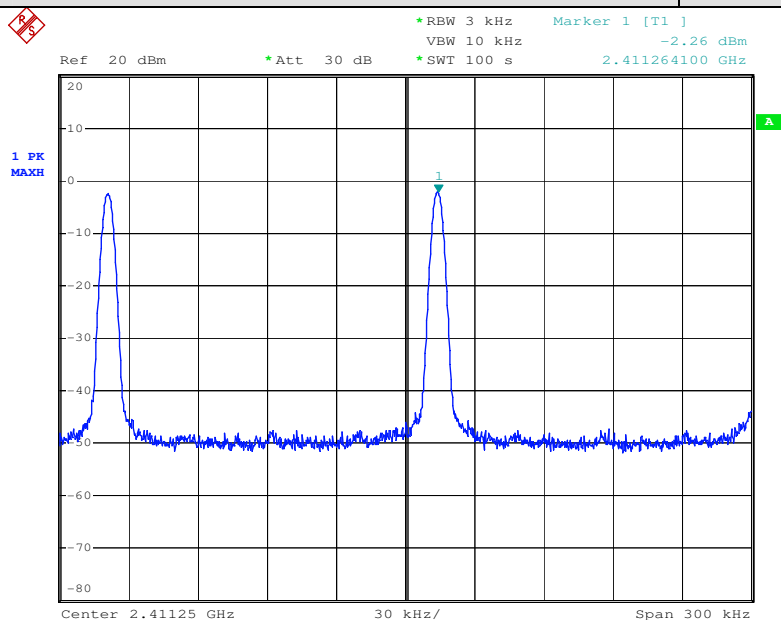


Test mode:	2.4GHz Band Antenna A	Test channel:	High
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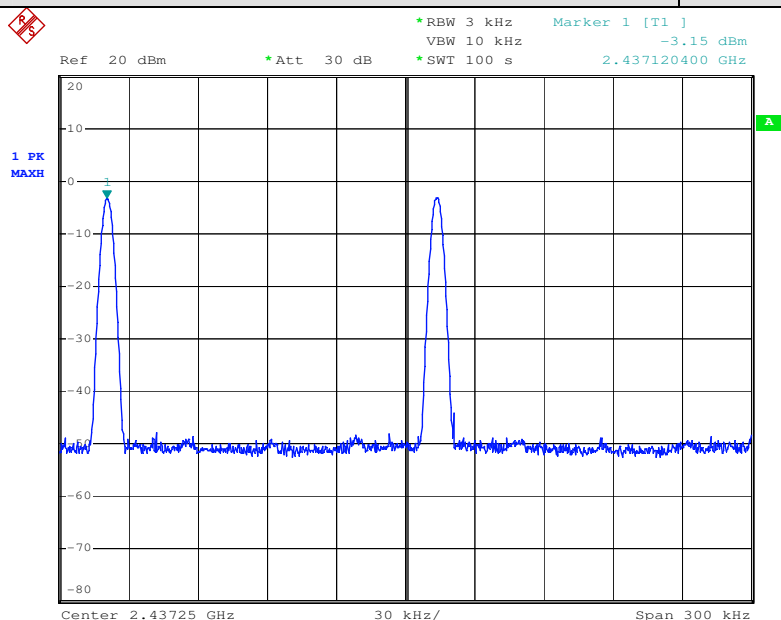




Test mode:	2.4GHz Band Antenna B	Test channel:	Low
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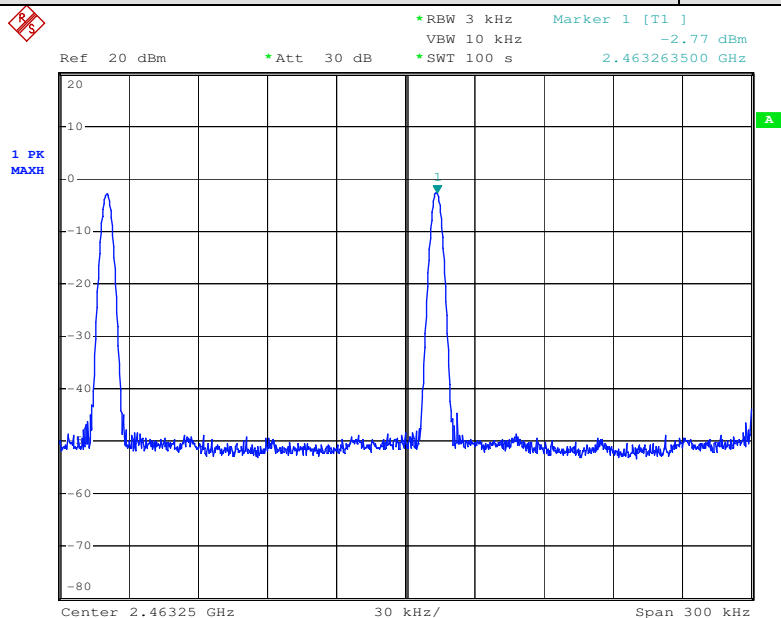


Test mode:	2.4GHz Band Antenna B	Test channel:	Middle
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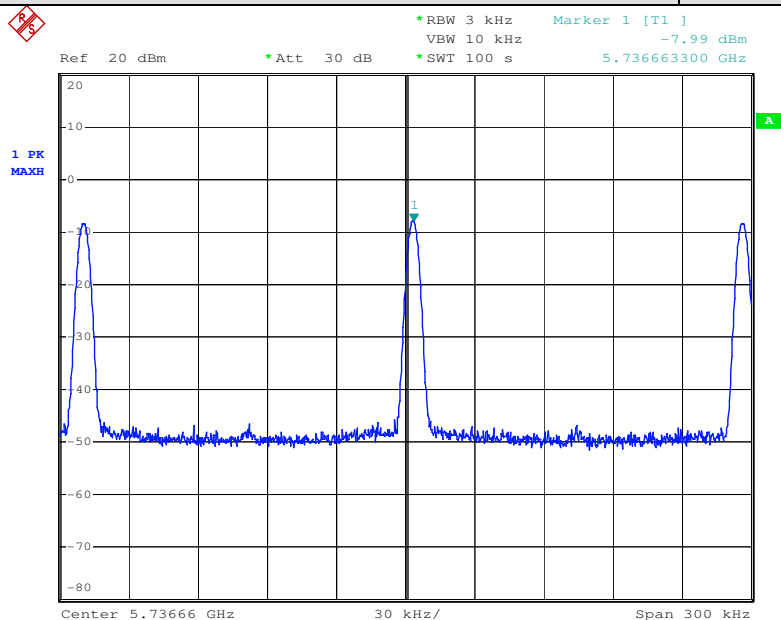




Test mode:	2.4GHz Band Antenna B	Test channel:	High
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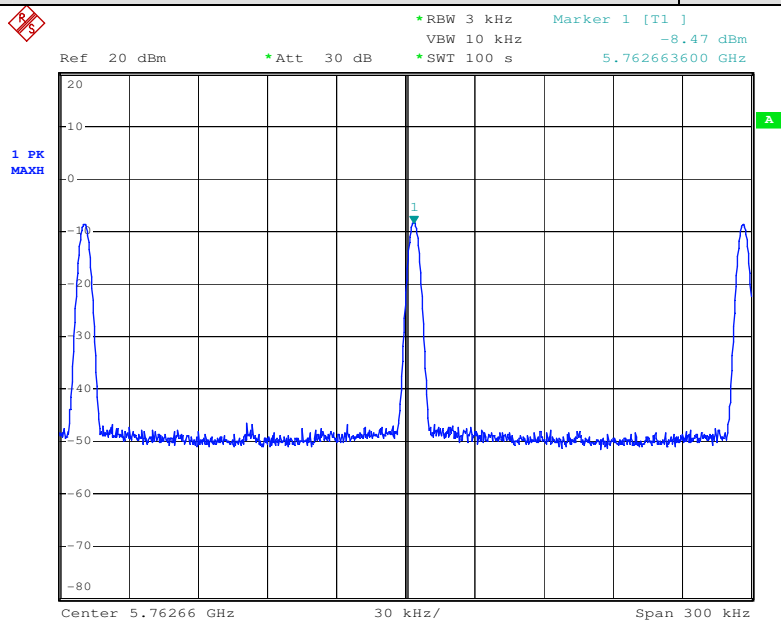


Test mode:	5.8GHz Band Antenna A	Test channel:	Low
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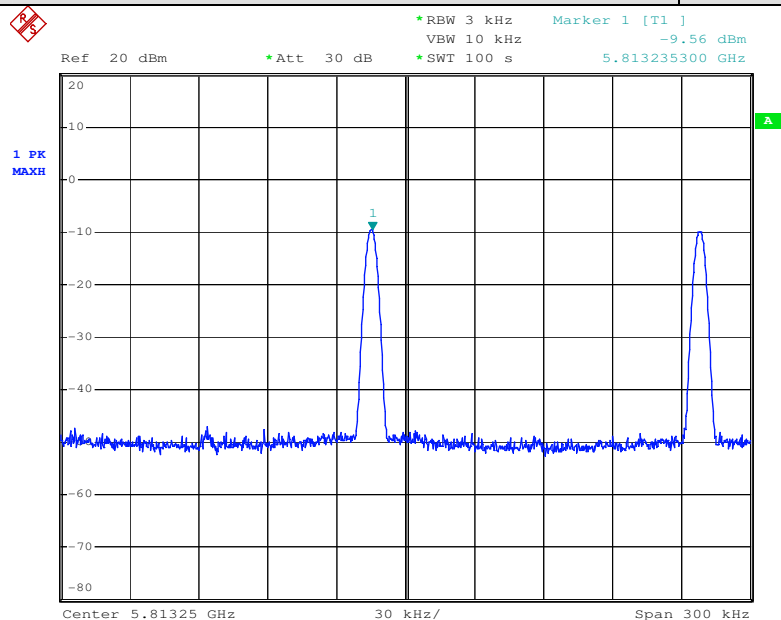




Test mode:	5.8GHz Band Antenna A	Test channel:	Middle
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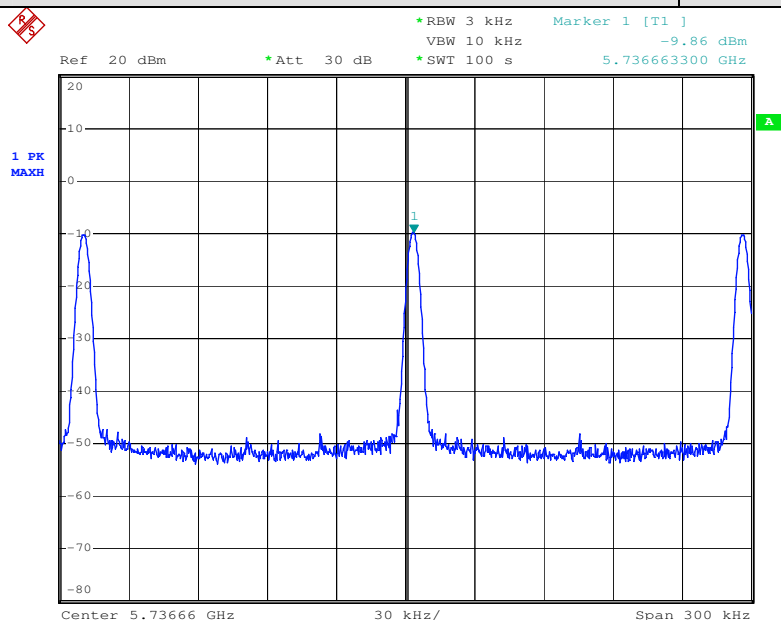


Test mode:	5.8GHz Band Antenna A	Test channel:	High
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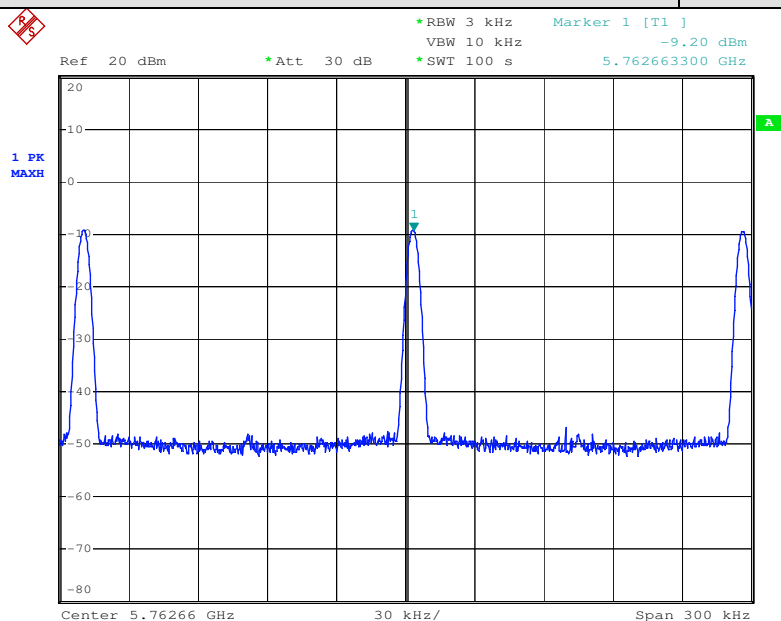




Test mode:	5.8GHz Band Antenna B	Test channel:	Low
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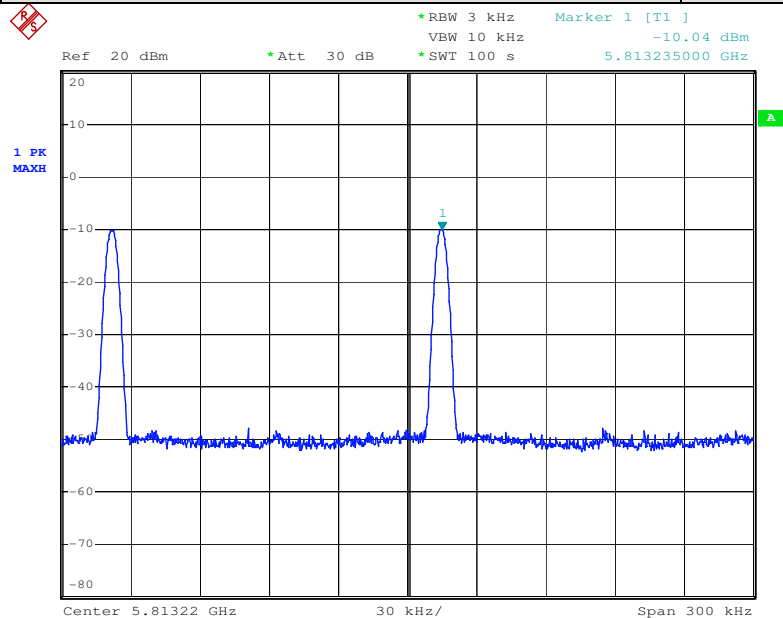


Test mode:	5.8GHz Band Antenna B	Test channel:	Middle
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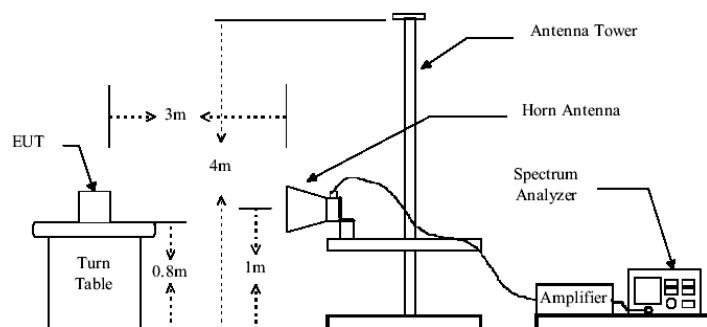
Test mode:	5.8GHz Band Antenna B	Test channel:	High
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7.7 Radiated Emission Band Edge

Test Requirement:	FCC Part15 247(c) RSS-210 Issue 8 Annex 8
Standard Applicable:	According to section 15.247(c),in any 100KHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in operating,the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power,In addition,radiated emissions which fall in the restricted bands,as defined in section 15.205(a),must also comply with the radiated emission limits specified in 15.209(a).
Measurement Distance:	3m (Semi-Anechoic Chamber)
Limit:	40.0 dBμV/m between 30MHz & 88MHz; 43.5 dBμV/m between 88MHz & 216MHz; 46.0 dBμV/m between 216MHz & 960MHz; AV 54.0 dBμV/m PK 74.0dBμV/m above 960MHz.
Measurement Procedure:	The EUT was setup according to ANSI 63.10,2009 and tested according to DTS test procedure of KDB558074 for compliance to FCC 47 CFR 15.247 requirements.The EUT is placed on a turn table which is 0.8 m above ground.The turn table is rotated 360 degrees to determine to the position of the maximum emission level.The EUT was positioned such that the distance from antenna to the EUT was 3 menters.The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level This is repeated for both horizontal and vertical polarization of the antenna.In order to find the maximum emission,all of the interface cables were manipulated according to ANSIC 63.10:2009 on radiated measurement. Spectrum analyzer parameters setting as shown below: (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

Radiated Emission Test Set-up Frequency Over 1GHz



The field strength is calculated by adding the Antenna Factor, Preamplifier Factor & Cable Factor. The basic equation with a sample calculation is as follows:

$$\text{Final Test Level} = \text{Receiver Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Preamplifier Factor}$$

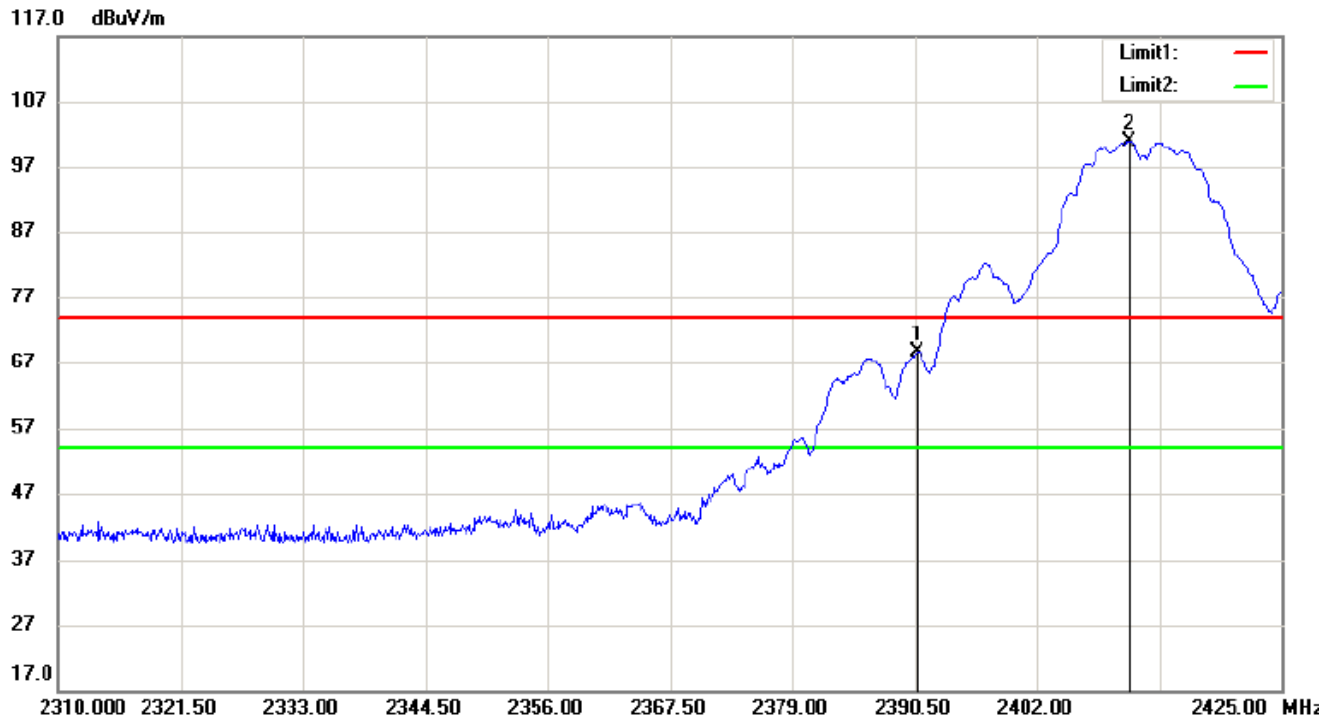
Radiated Bandedge Measurement Result:

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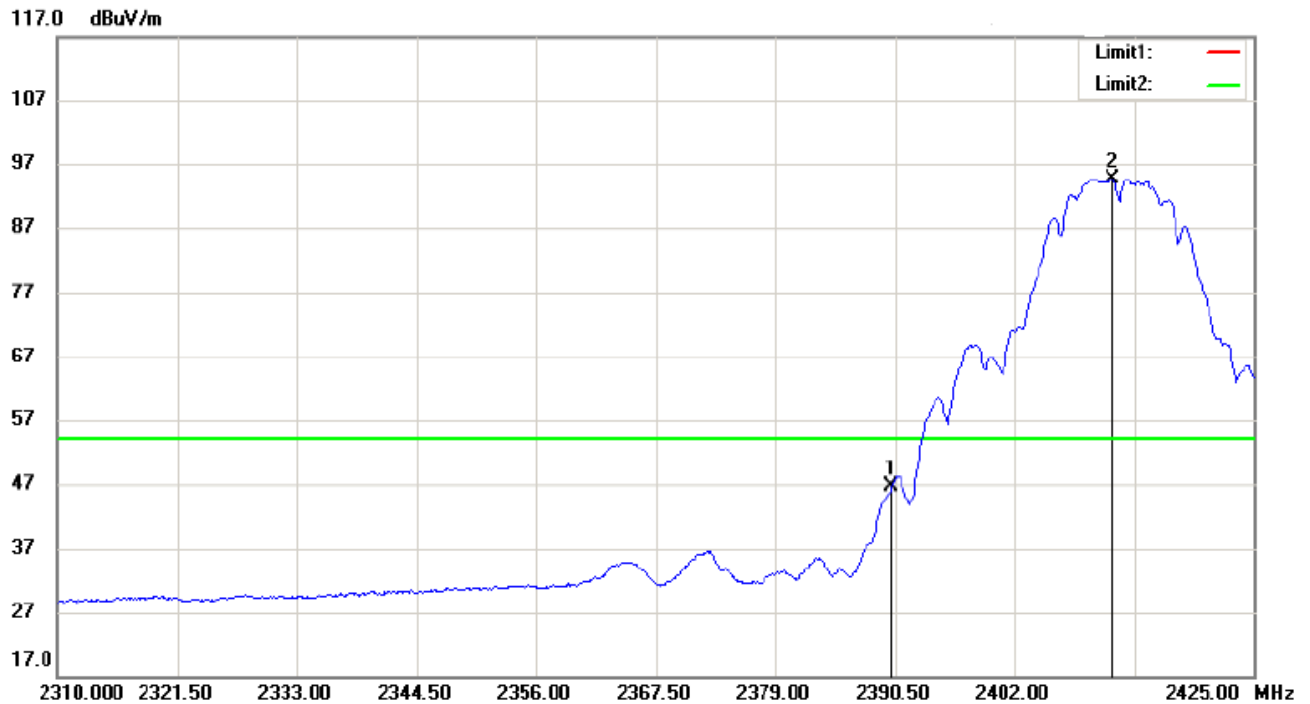
Test mode:	2.4GHz Band Antenna A	Test channel:	Lowest
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Horizontal, Peak Detector:



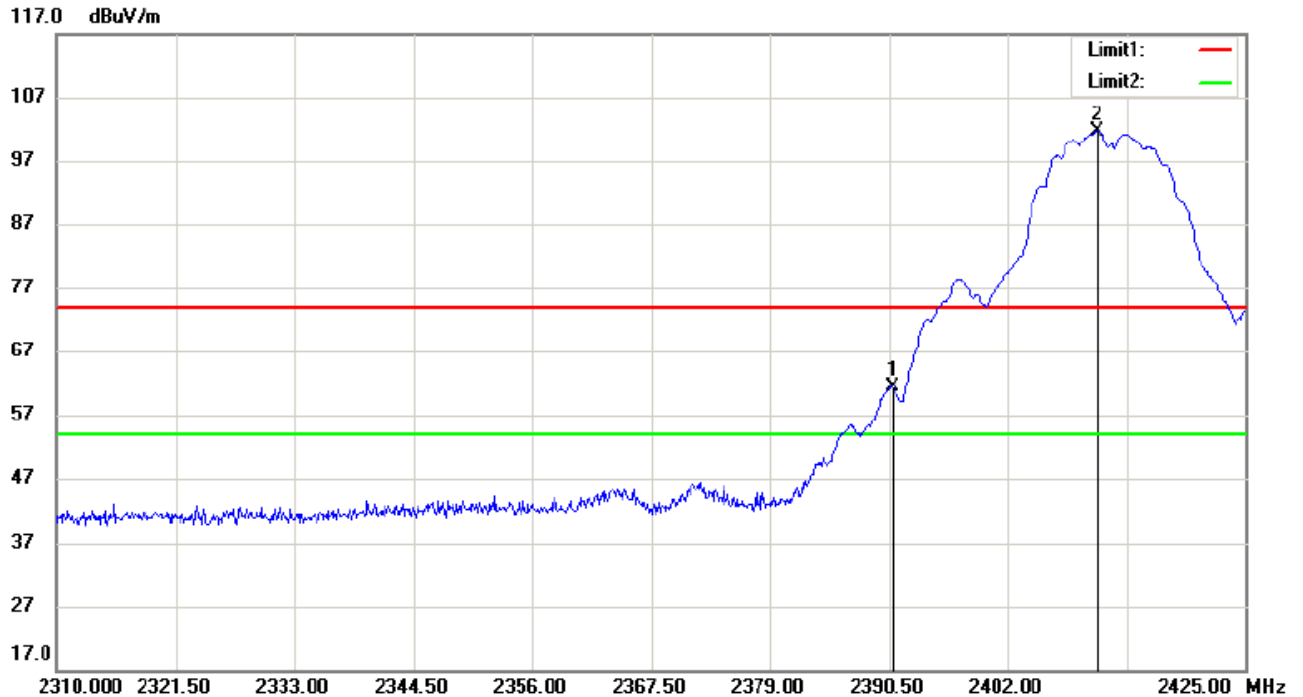
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.730	75.15	peak	-6.55	68.60	74.00	-5.40
2	2410.625	107.49	peak	-6.52	100.97	74.00	26.97

Horizontal, Average Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.155	53.10	peak	-6.55	46.55	54.00	-7.45
2	2411.430	101.15	peak	-6.51	94.64	54.00	40.64

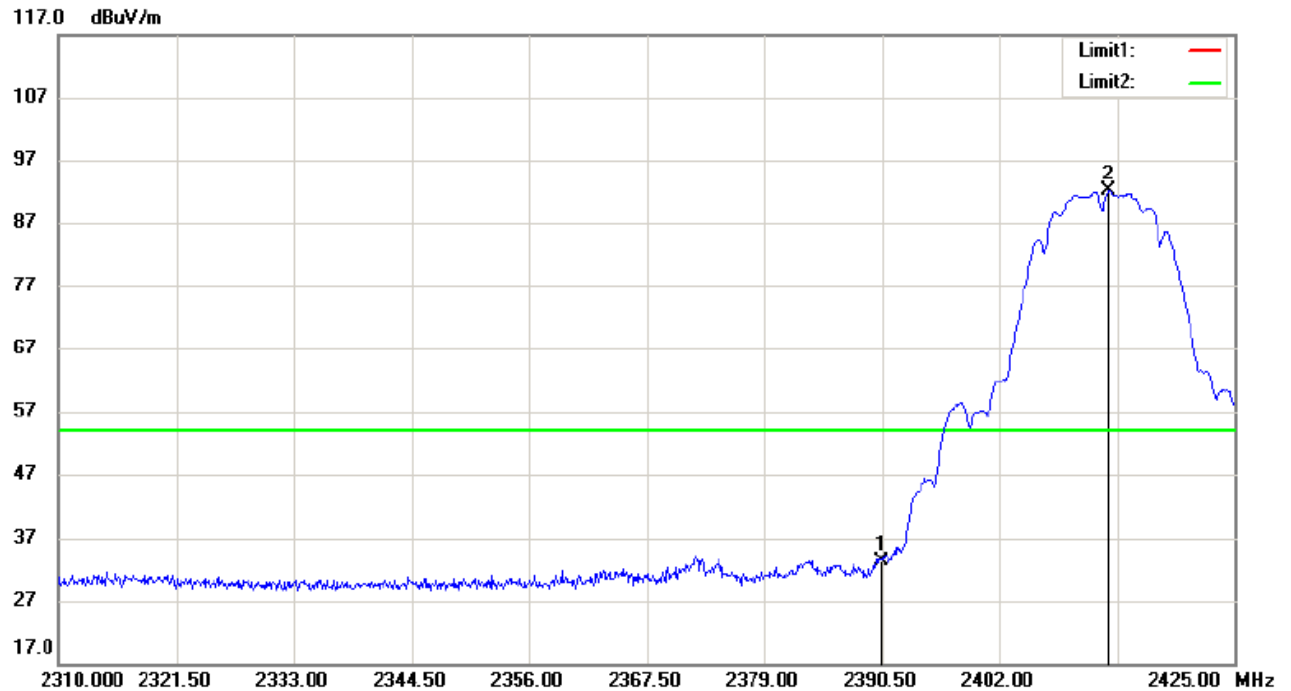
Vertical , Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.845	68.05	peak	-6.55	61.50	74.00	-12.50
2	2410.625	108.22	peak	-6.52	101.70	74.00	27.70



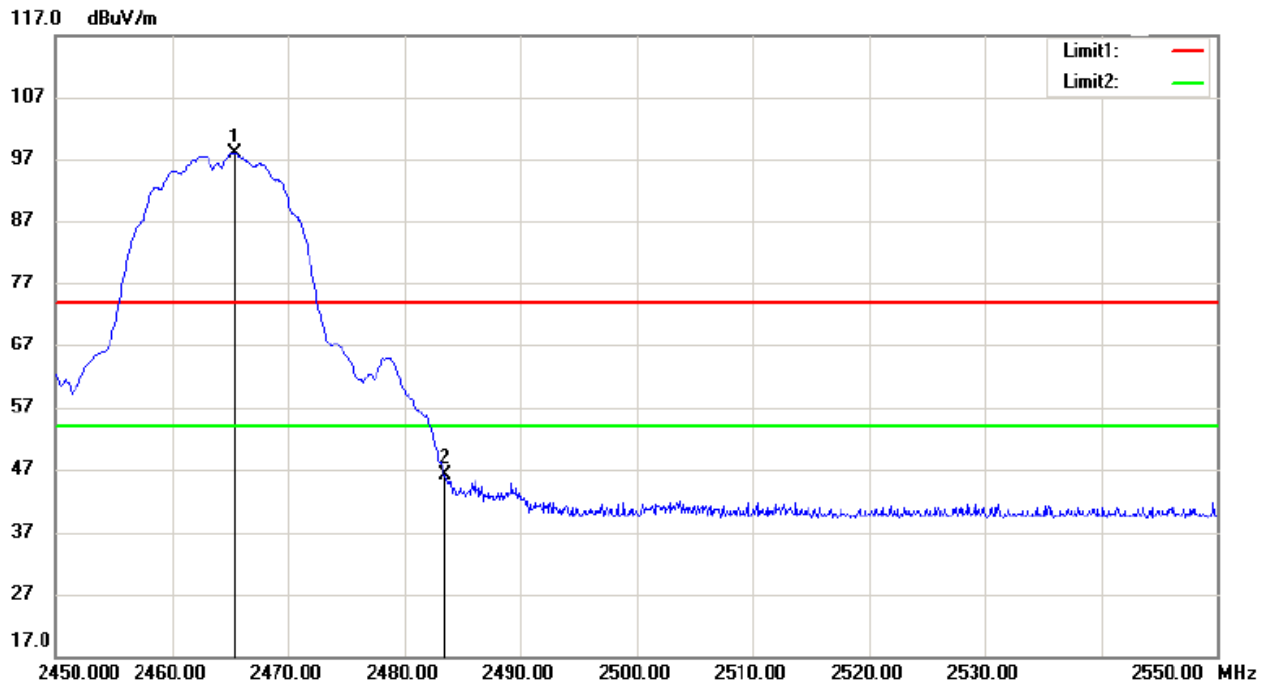
Vertical , Average Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.385	40.05	peak	-6.55	33.50	54.00	-20.50
2	2412.695	98.55	peak	-6.52	92.03	54.00	38.03

Test mode:	2.4GHz Band Antenna A	Test channel:	Hight
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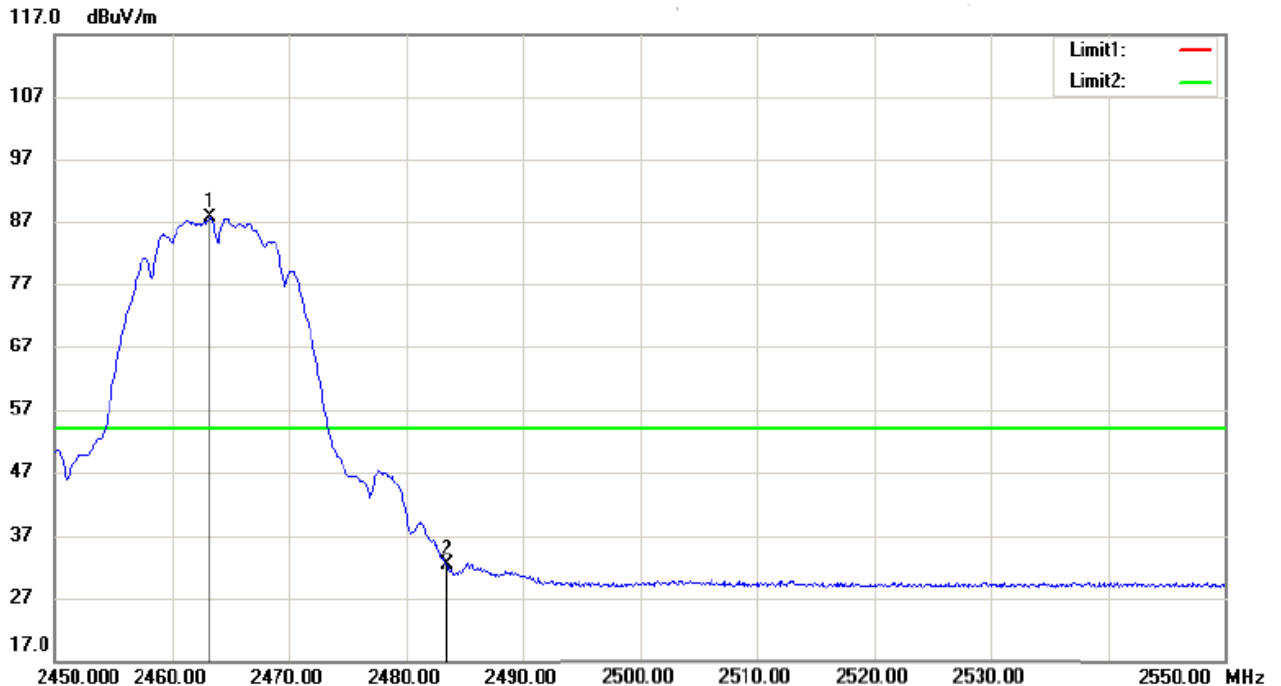
Horizontal, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2465.400	104.35	peak	-6.45	97.90	74.00	23.90
2	2483.500	52.51	peak	-6.41	46.10	74.00	-27.90

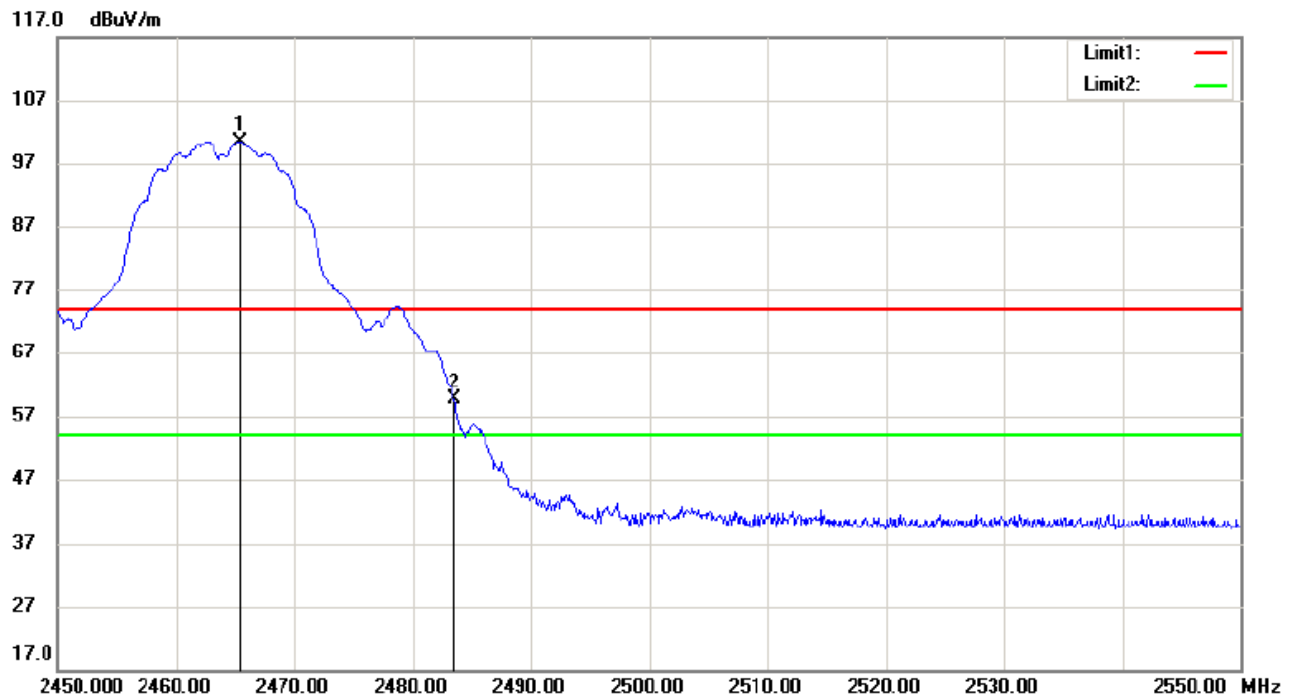


Horizontal, Average Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2463.300	94.05	peak	-6.45	87.60	54.00	33.60
2	2483.500	38.67	peak	-6.41	32.26	54.00	-21.74

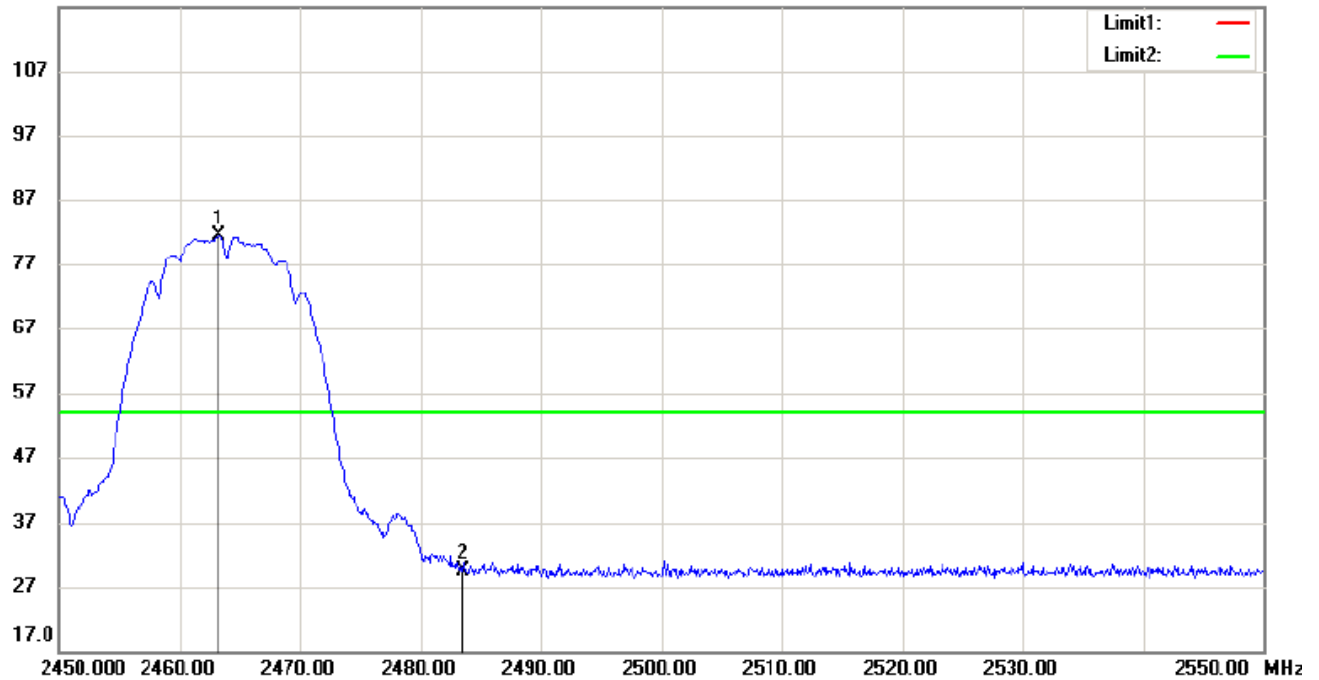
Vertical, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2465.400	106.85	peak	-6.45	100.40	74.00	26.40
2	2483.500	65.97	peak	-6.41	59.56	74.00	-14.44

Vertical, Average Detector:

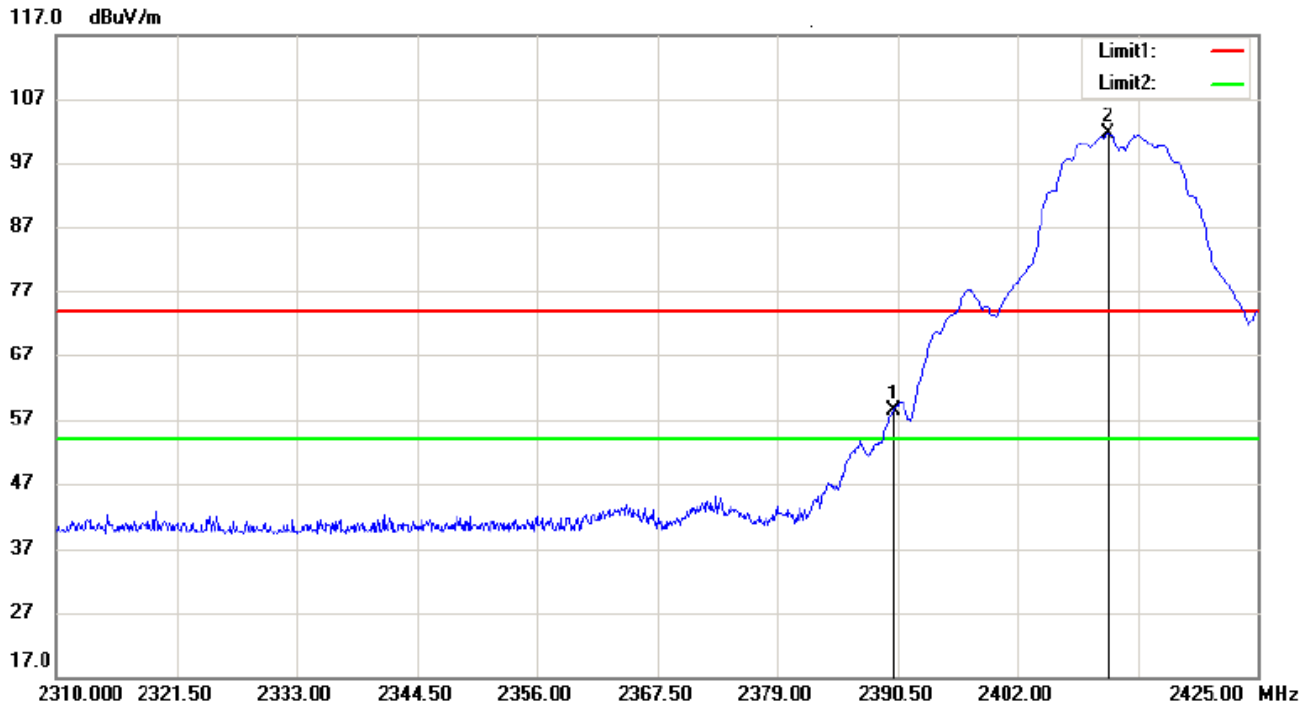
117.0 dBuV/m



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2463.300	87.82	peak	-6.45	81.37	54.00	27.37
2	2483.500	35.97	peak	-6.41	29.56	54.00	-24.44

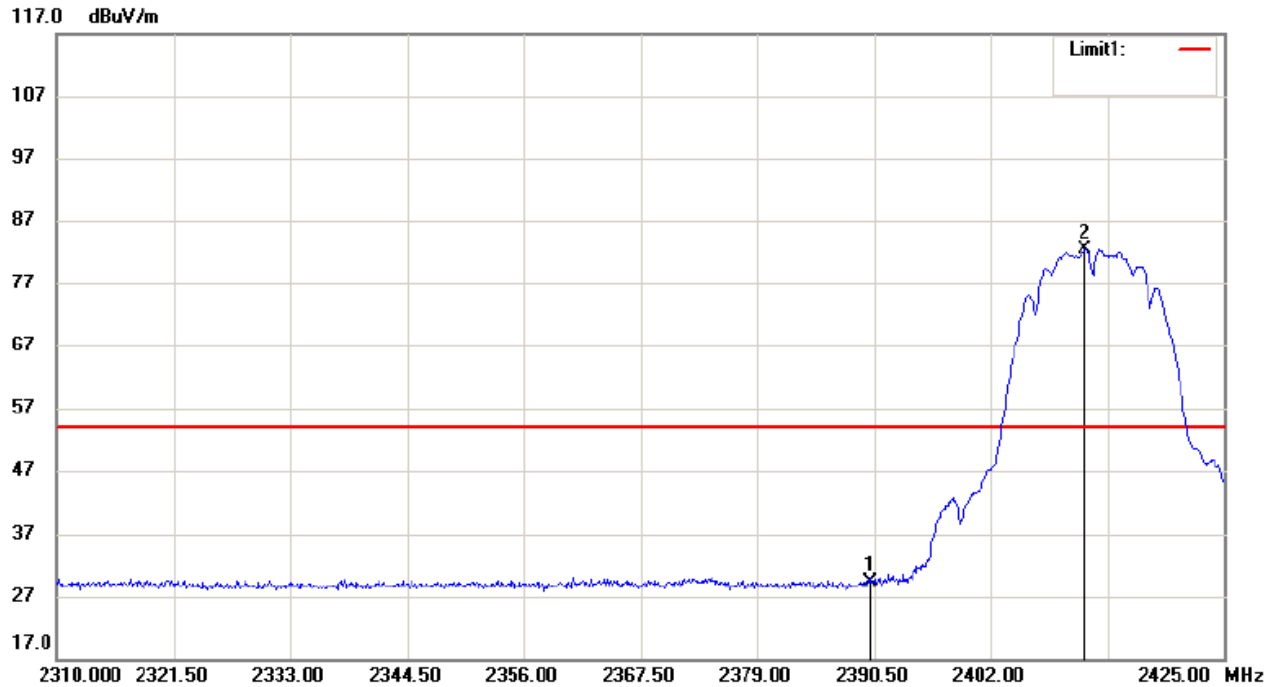
Test mode:	2.4GHz Band Antenna B	Test channel:	Lowest
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Horizontal, Peak Detector:



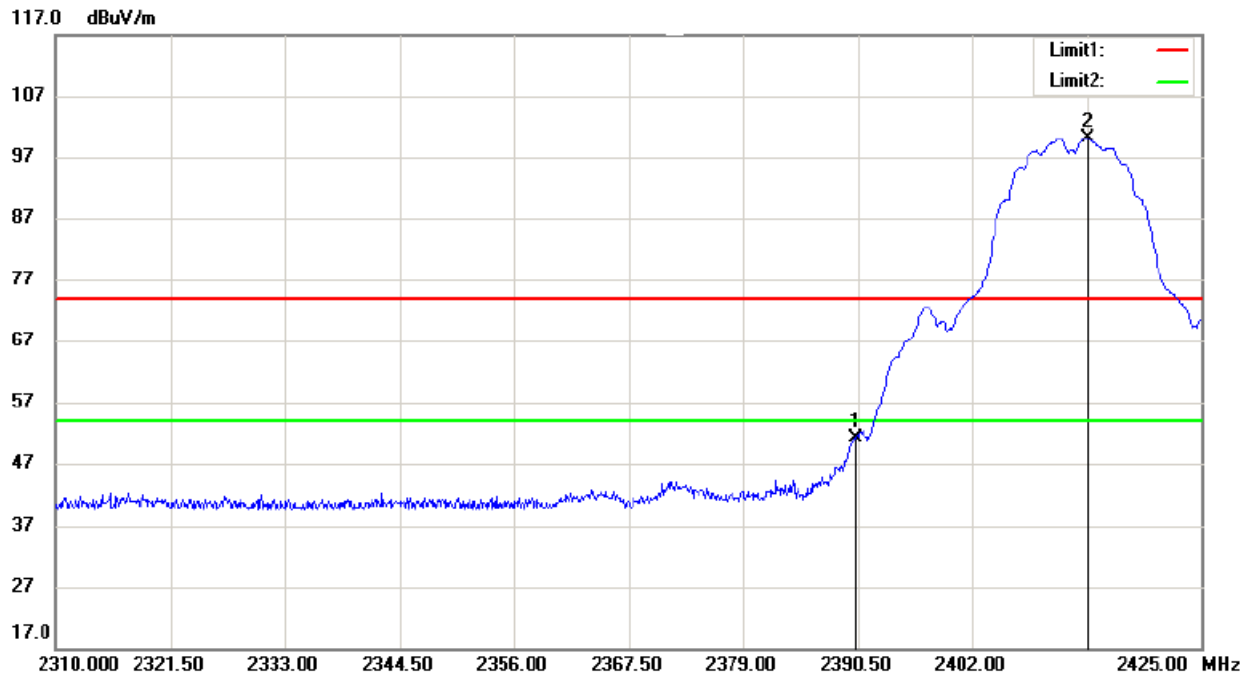
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.155	64.96	peak	-6.55	58.41	74.00	-15.59
2	2410.625	108.09	peak	-6.52	101.57	74.00	27.57

Horizontal, Average Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.155	35.87	peak	-6.55	29.32	54.00	-24.68
2	2411.315	88.78	peak	-6.51	82.27	54.00	28.27

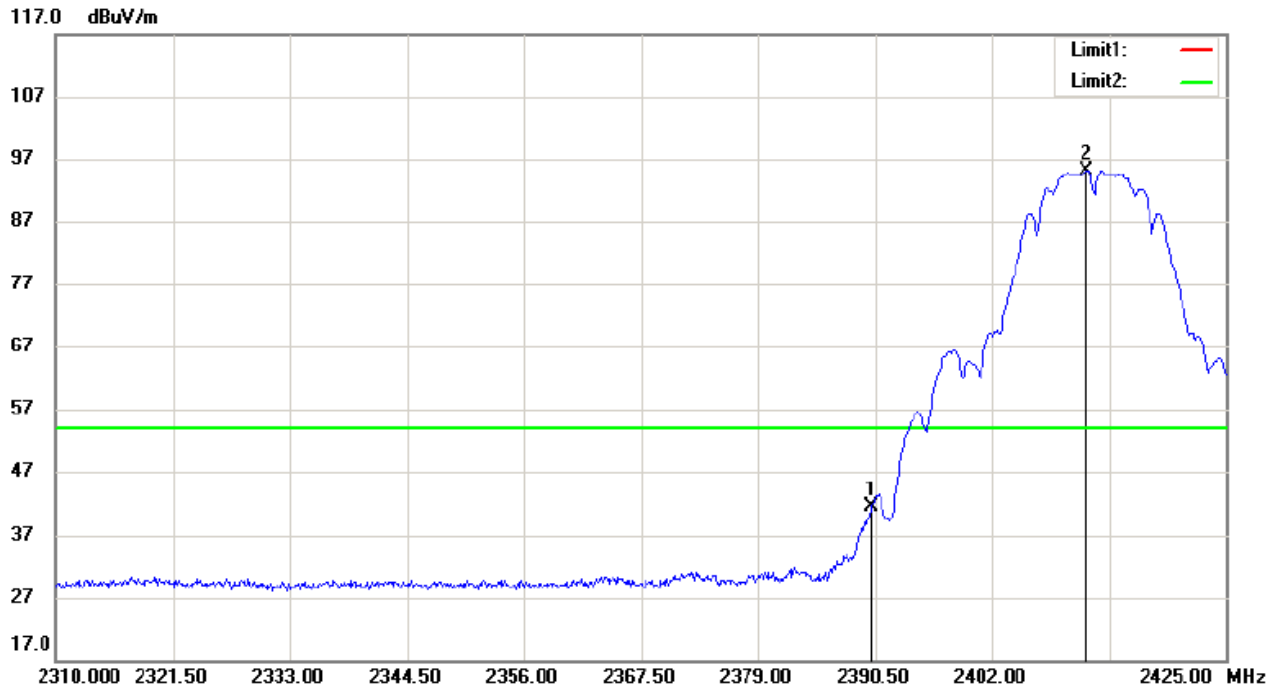
Vertical, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.270	57.66	peak	-6.55	51.11	74.00	-22.89
2	2413.500	106.67	peak	-6.52	100.15	74.00	26.15



Vertical, Average Detector:

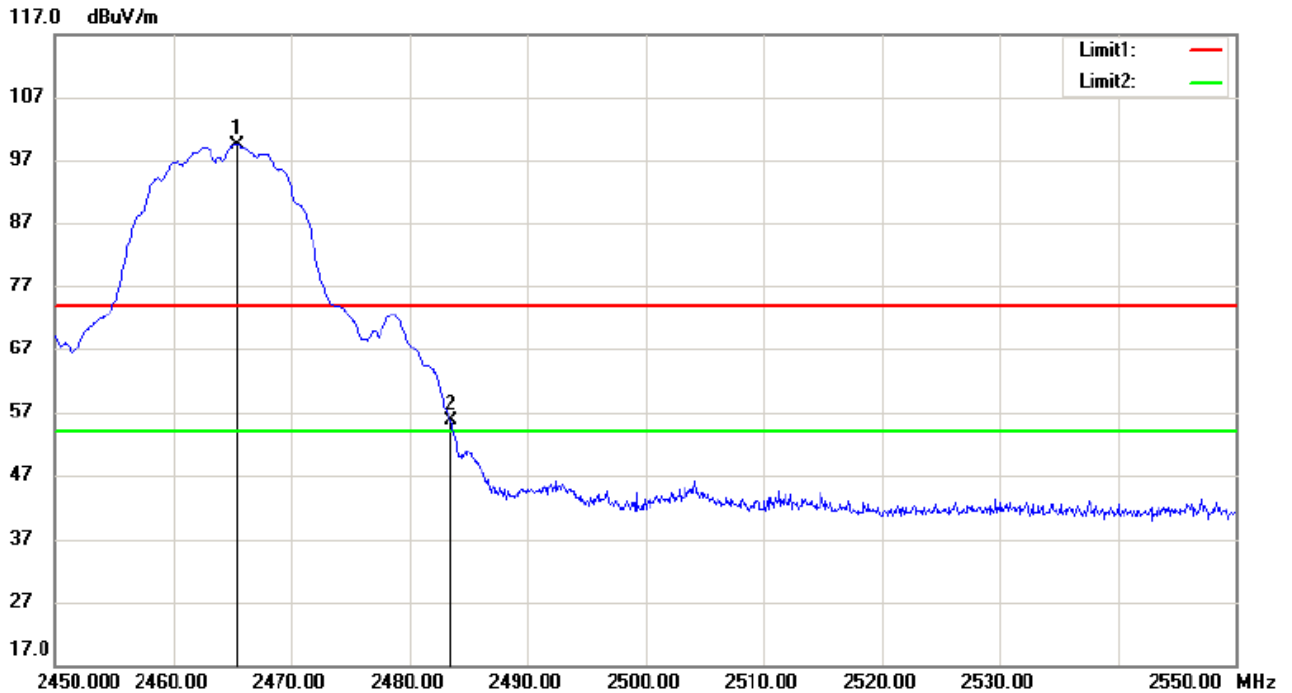


Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2390.155	47.91	peak	-6.55	41.36	54.00	-12.64
2	2411.315	101.69	peak	-6.51	95.18	54.00	41.18



Test mode:	2.4GHz Band Antenna B	Test channel:	Highest
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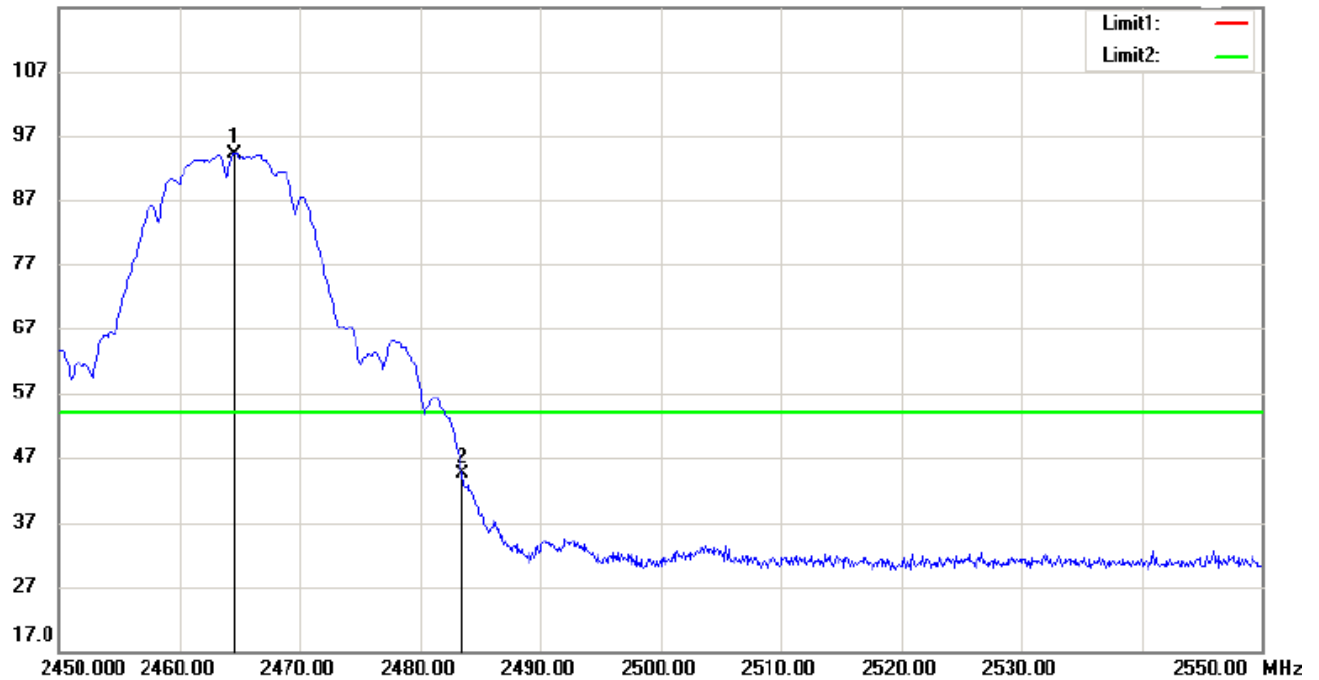
Horizontal, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2465.400	105.89	peak	-6.45	99.44	74.00	25.44
2	2483.500	62.03	peak	-6.41	55.62	74.00	-18.38

Horizontal, Average Detector:

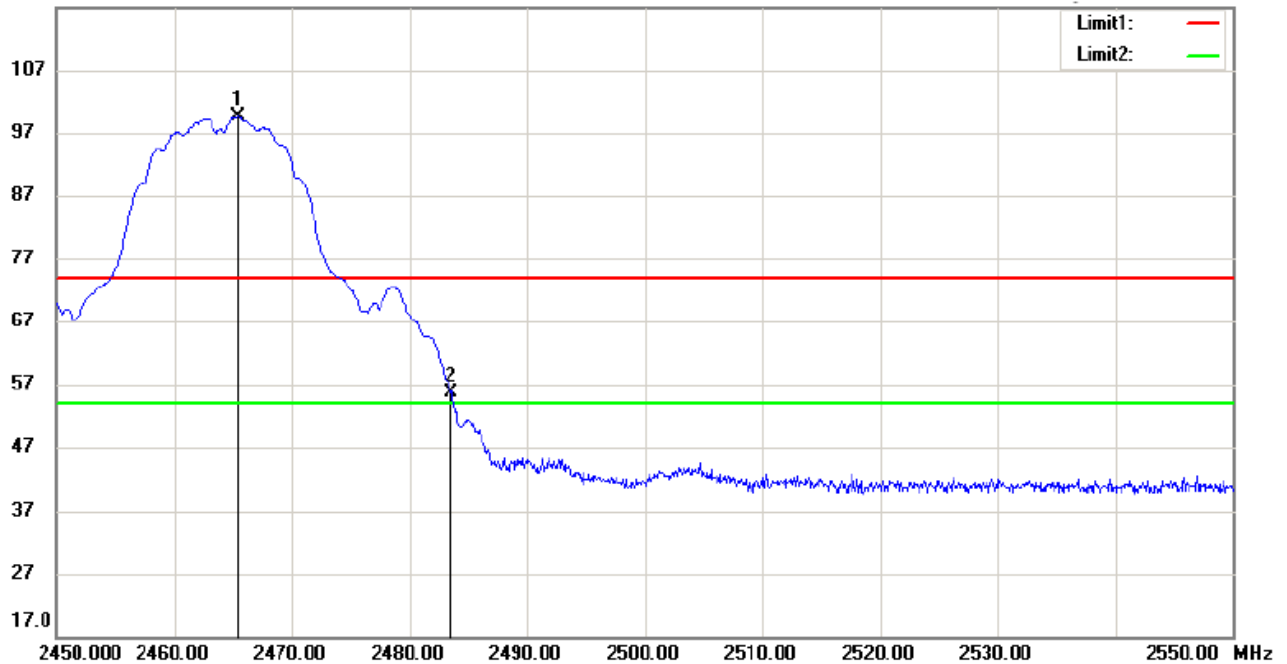
117.0 dBuV/m



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2464.600	100.55	AVG	-6.45	94.10	54.00	40.10
2	2483.500	50.87	AVG	-6.41	44.46	54.00	-9.54

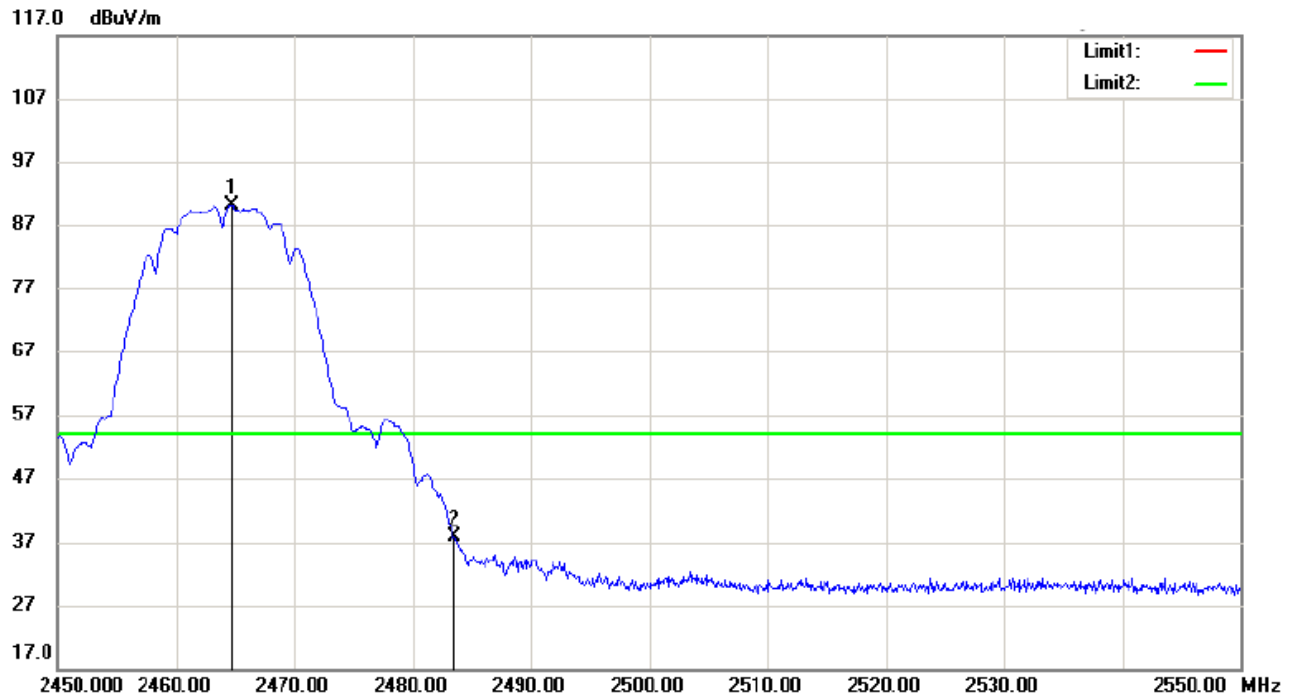
Vertical, Peak Detector:

117.0 dBuV/m



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2465.400	105.99	peak	-6.45	99.54	74.00	25.54
2	2483.500	62.11	peak	-6.41	55.70	74.00	-18.30

Vertical, Average Detector:

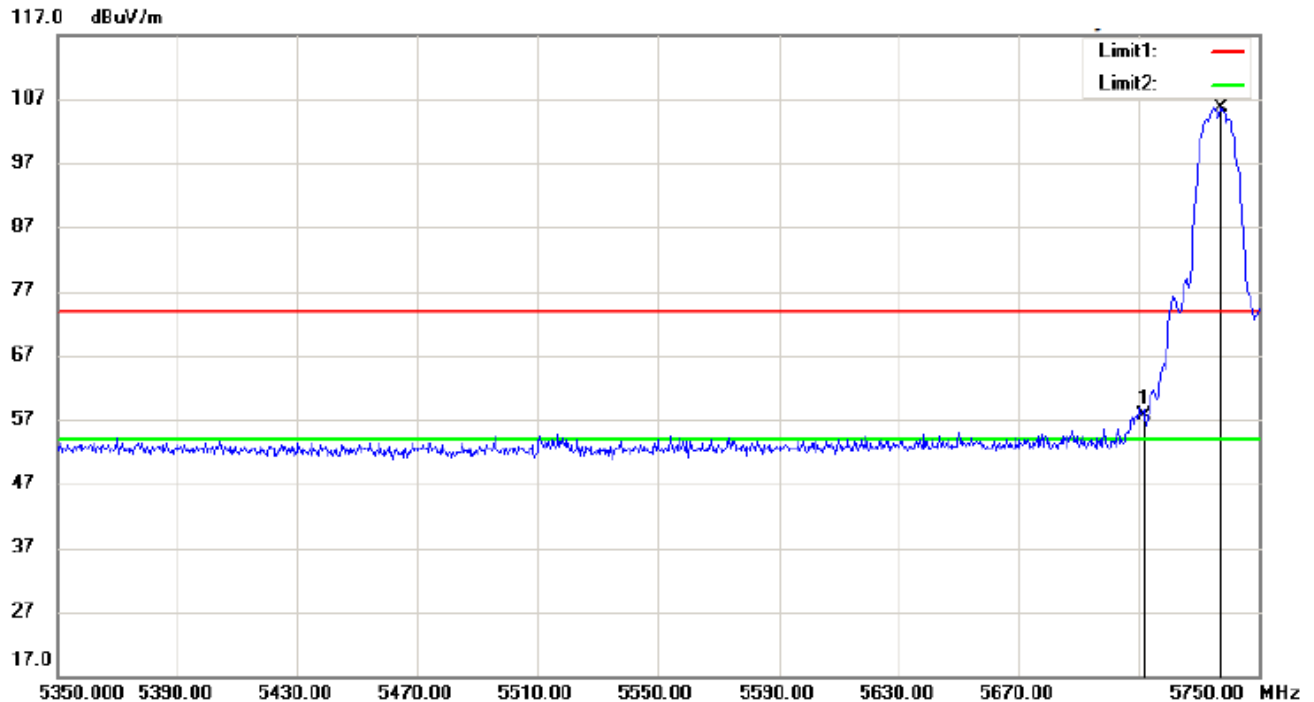


Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	2464.700	96.57	peak	-6.45	90.12	54.00	36.12
2	2483.500	44.26	peak	-6.41	37.85	54.00	-16.15



Test mode:	5.8GHz Band Antenna A	Test channel:	Low
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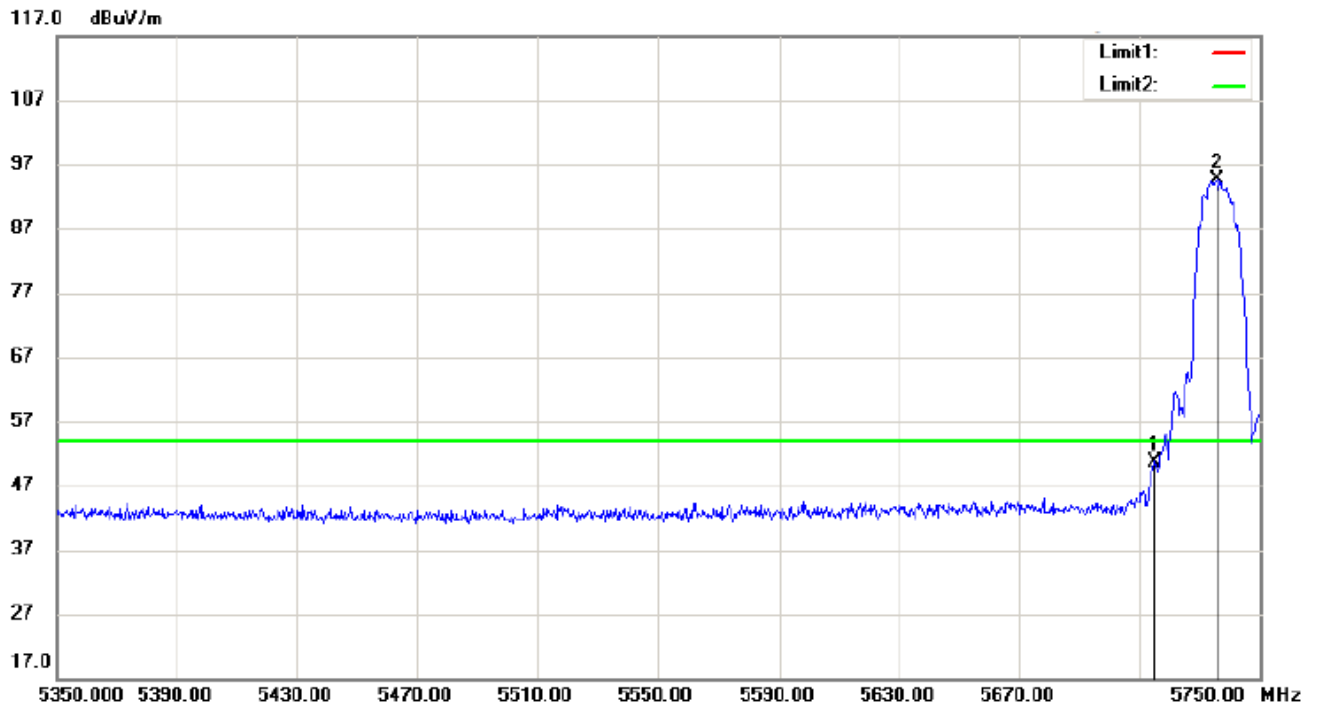
Horizontal, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	5712.000	56.01	peak	1.50	57.51	74.00	-16.49
2	5737.600	104.06	peak	1.57	105.63	74.00	31.63

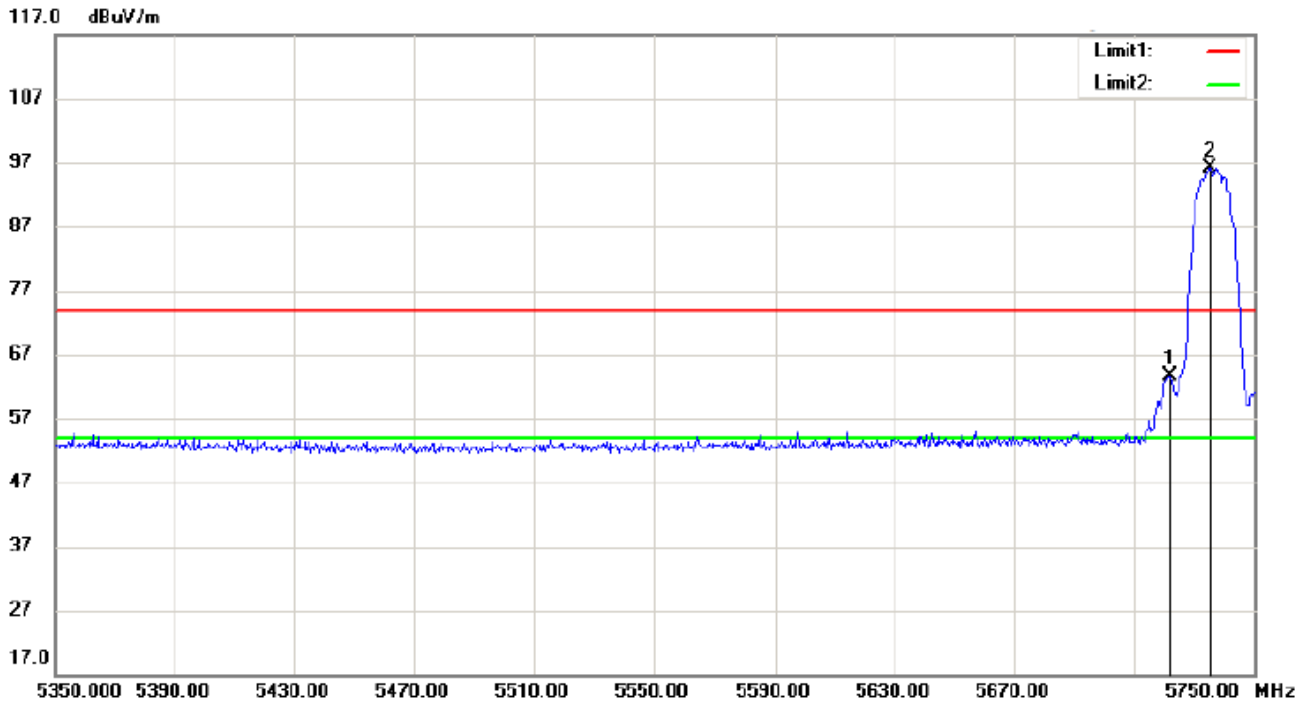


Horizontal, Average Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	5715.200	49.10	peak	1.52	50.62	54.00	-3.38
2	5735.600	92.95	peak	1.56	94.51	54.00	40.51

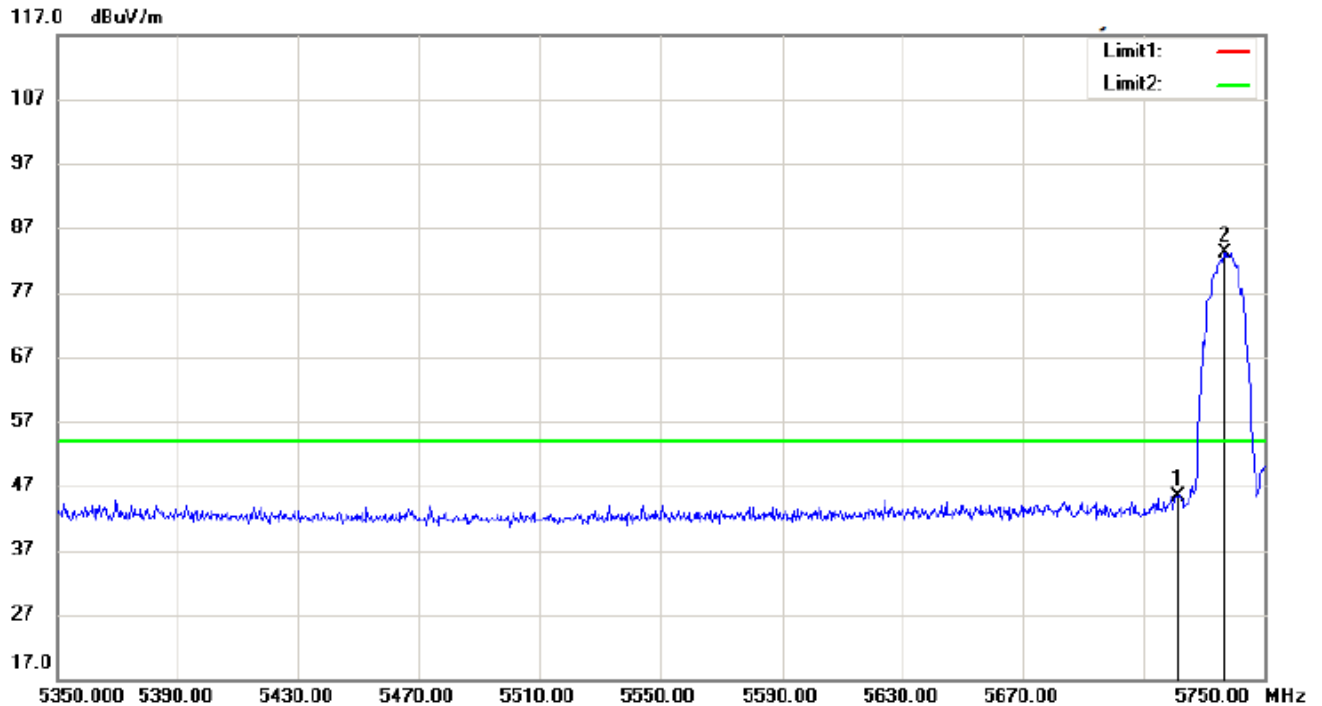
Vertical , Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	5722.000	62.14	peak	1.53	63.67	74.00	-10.33
2	5735.200	94.60	peak	1.56	96.16	74.00	22.16



Vertical , Average Detector:

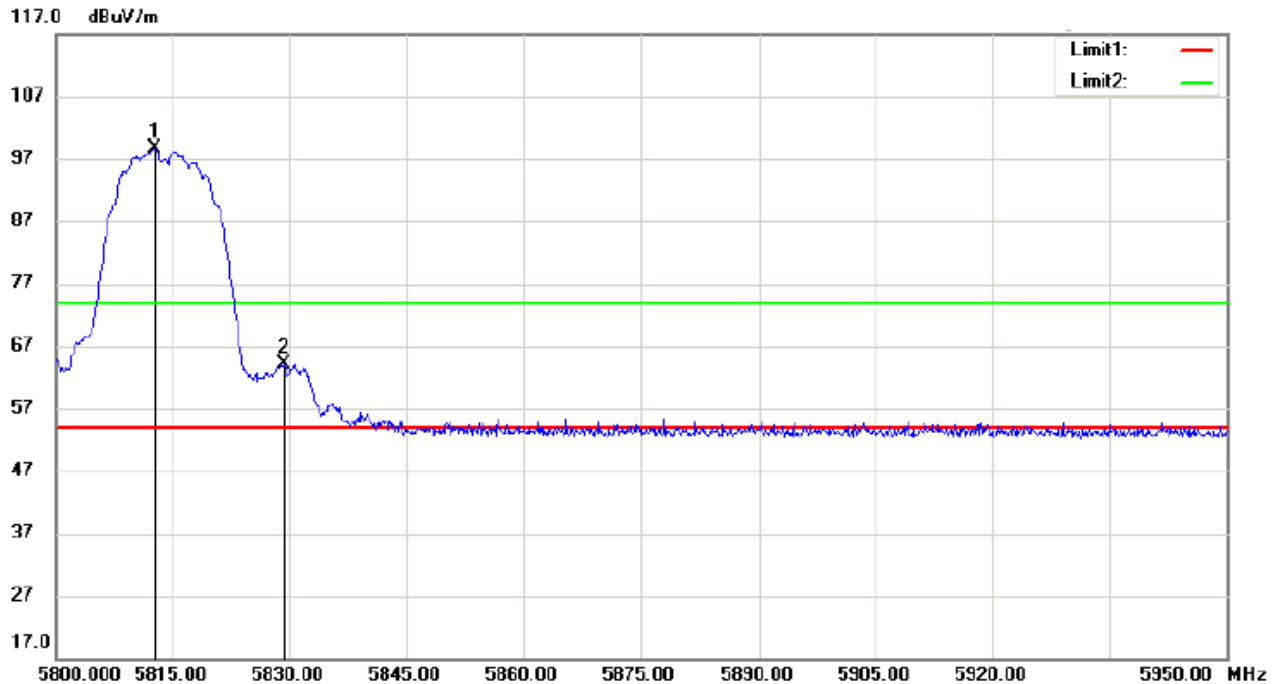


Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	5721.600	43.83	peak	1.53	45.36	54.00	-8.64
2	5736.800	81.55	peak	1.56	83.11	54.00	29.11



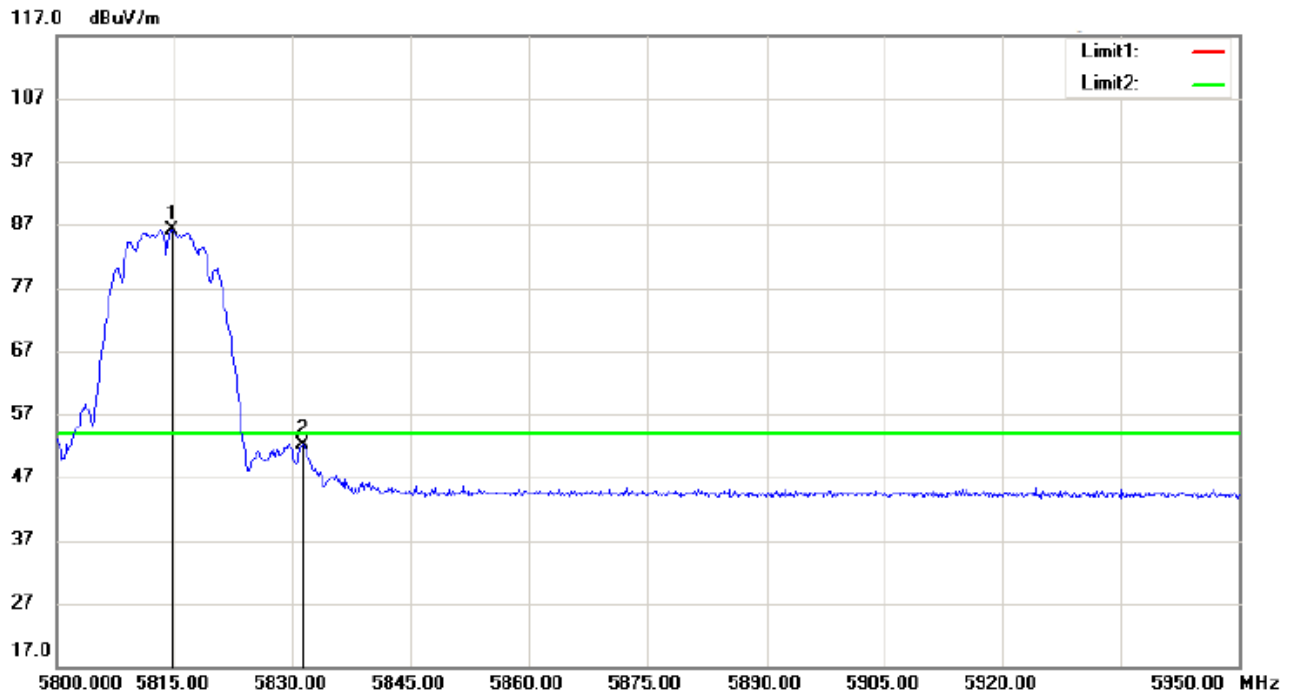
Test mode:	5.8GHz Band Antenna A	Test channel:	Hight
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Horizontal, Peak Detector:



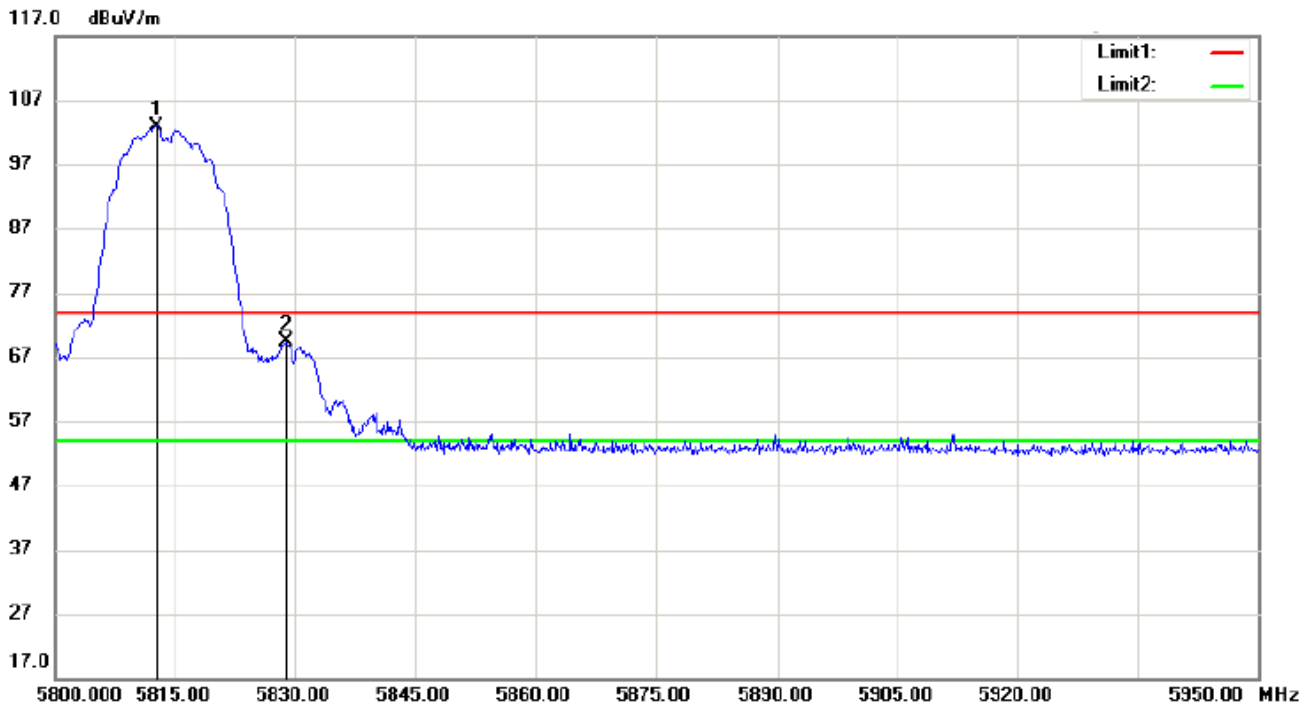
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	5812.600	96.86	peak	1.73	98.59	74.00	24.59
2	5829.250	62.37	peak	1.76	64.13	74.00	-10.13

Horizontal, Average Detector:



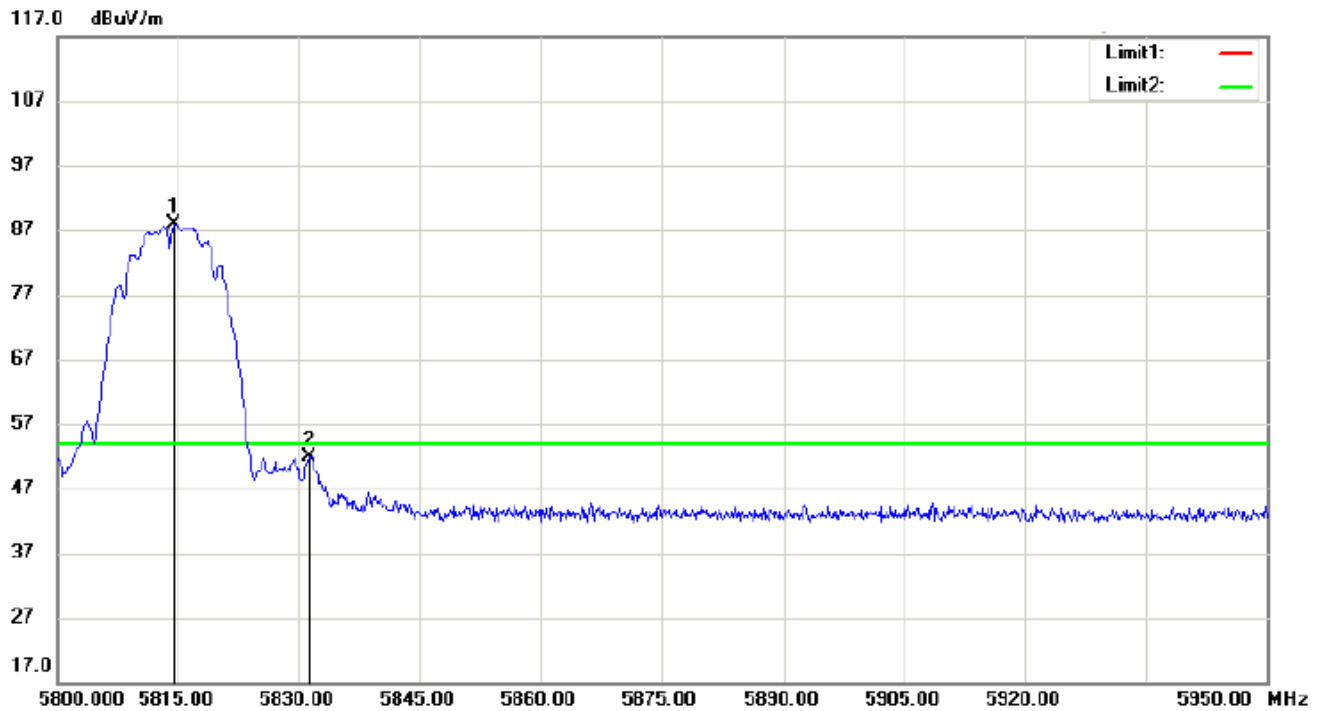
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	5814.700	84.47	peak	1.73	86.20	54.00	32.20
2	5831.350	50.44	peak	1.76	52.20	54.00	-1.80

Vertical, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	5812.600	101.11	peak	1.73	102.84	74.00	28.84
2	5828.800	67.55	peak	1.76	69.31	74.00	-4.69

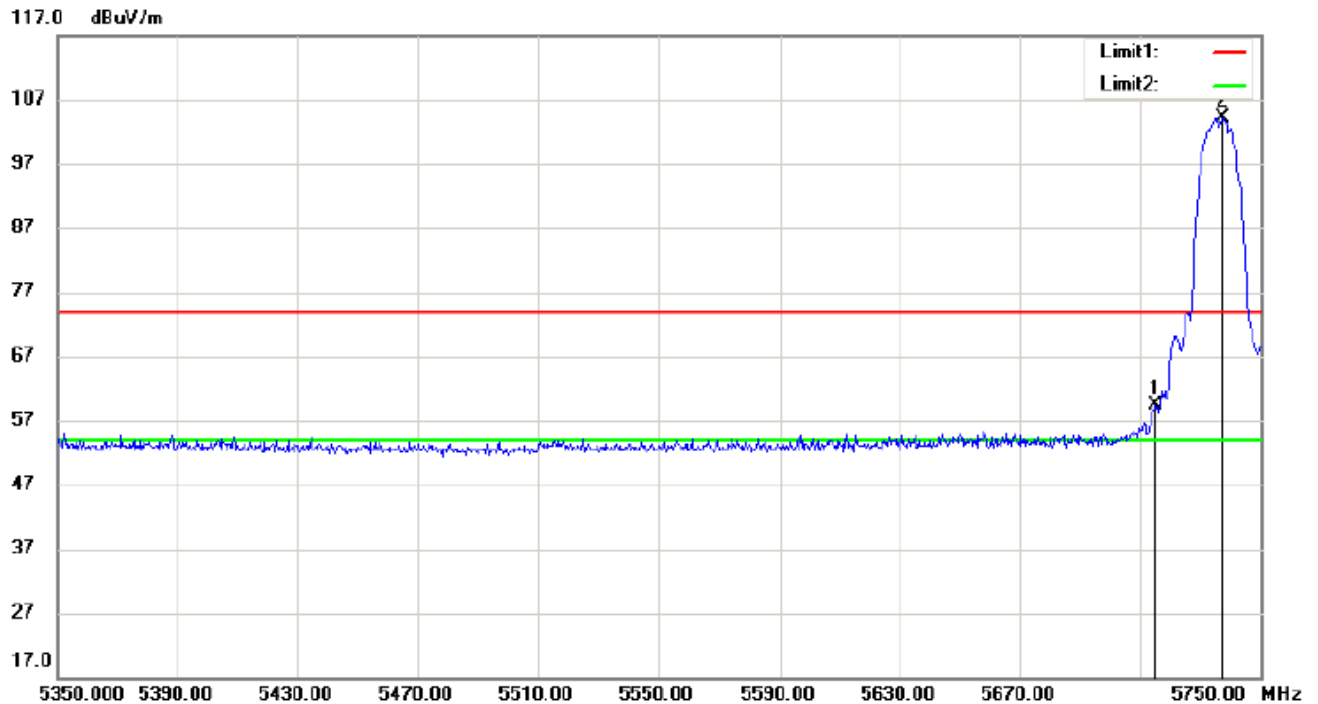
Vertical, Average Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	5814.550	86.22	peak	1.73	87.95	54.00	33.95
2	5831.350	50.03	peak	1.76	51.79	54.00	-2.21

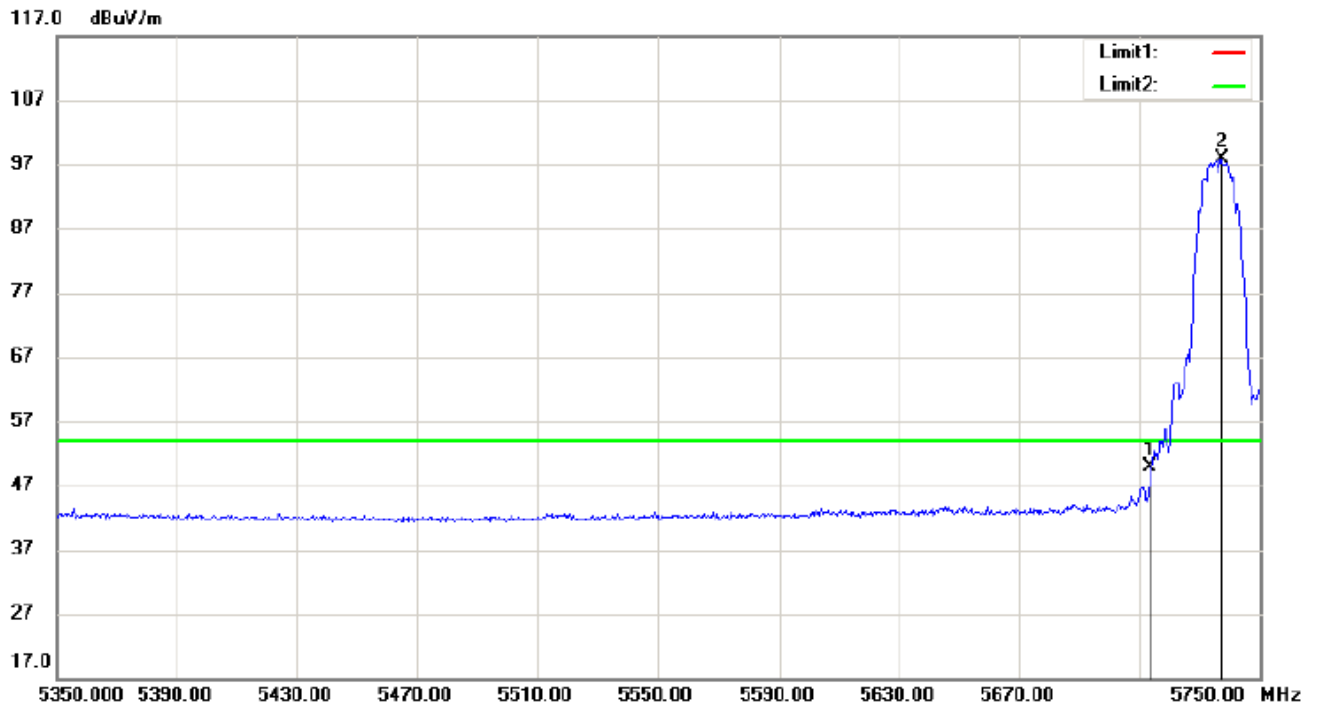
Test mode:	5.8GHz Band Antenna B	Test channel:	Low
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Horizontal, Peak Detector:



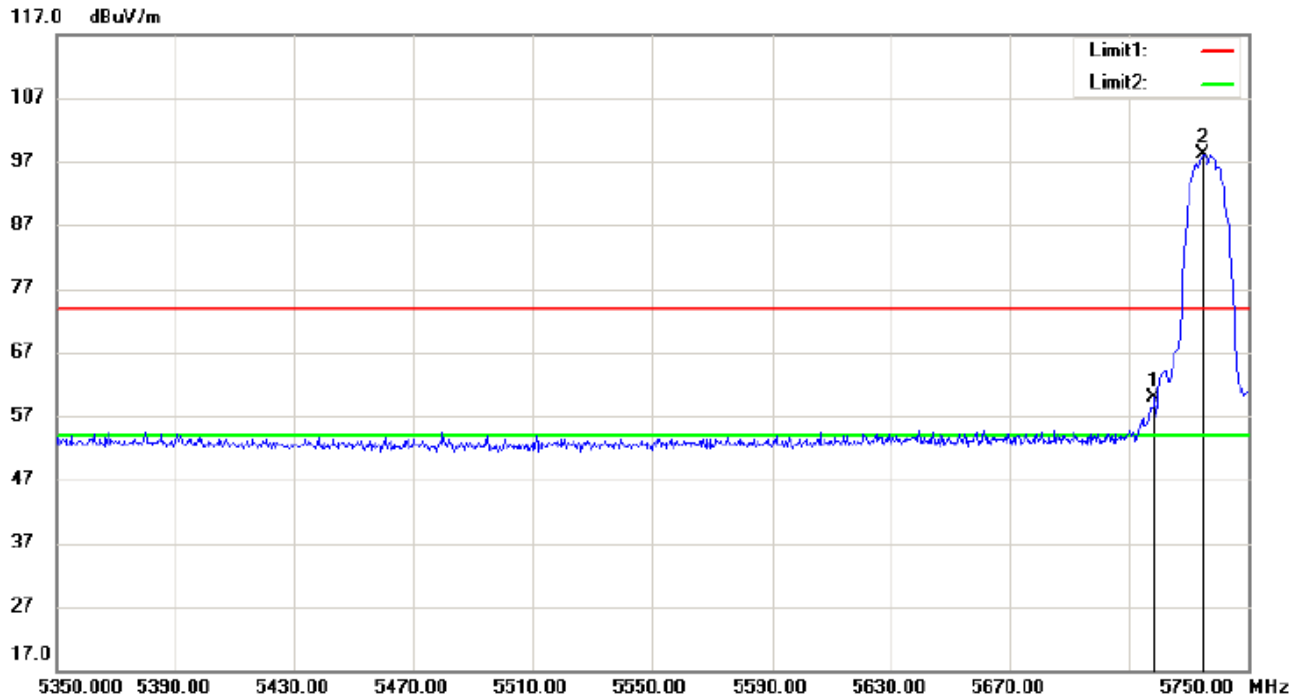
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	5715.200	57.77	peak	1.52	59.29	74.00	-14.71
2	5737.600	102.54	peak	1.57	104.11	74.00	30.11

Horizontal, Average Detector:



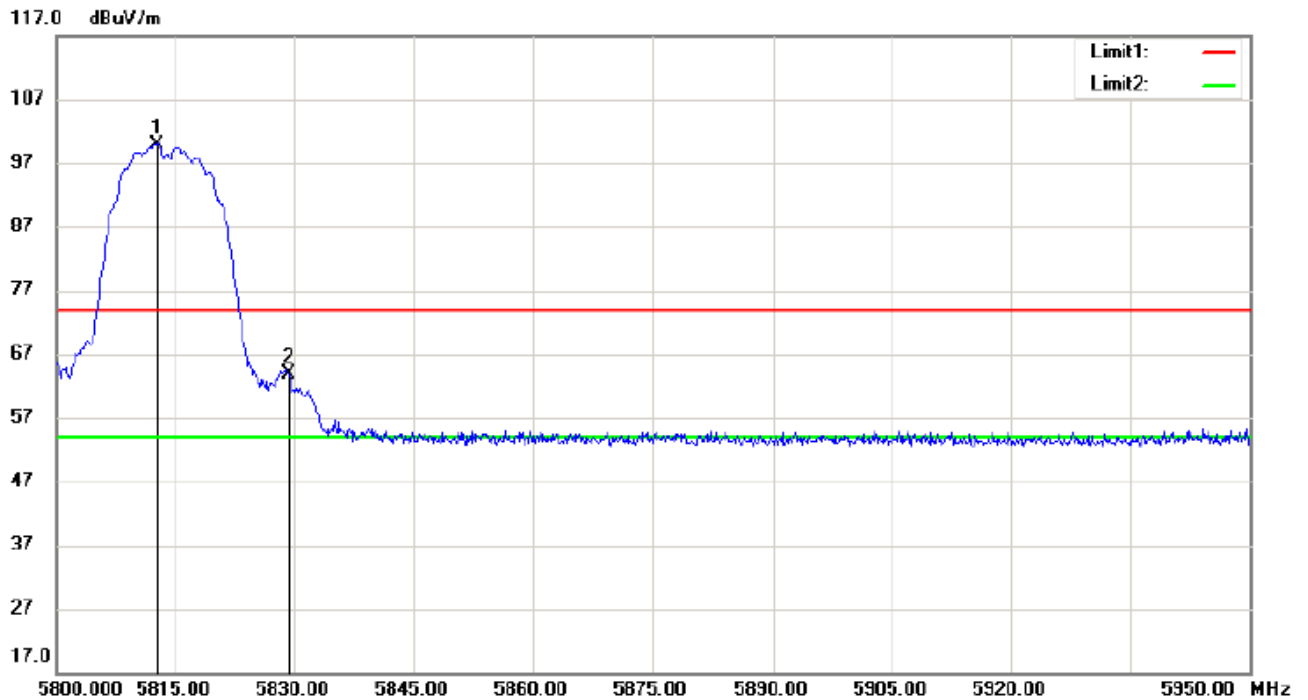
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	5713.600	48.28	peak	1.51	49.79	54.00	-4.21
2	5737.200	96.24	peak	1.56	97.80	54.00	43.80

Vertical, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	5718.400	58.31	peak	1.53	59.84	74.00	-14.16
2	5734.800	96.60	peak	1.55	98.15	74.00	24.15

Vertical, Average Detector:

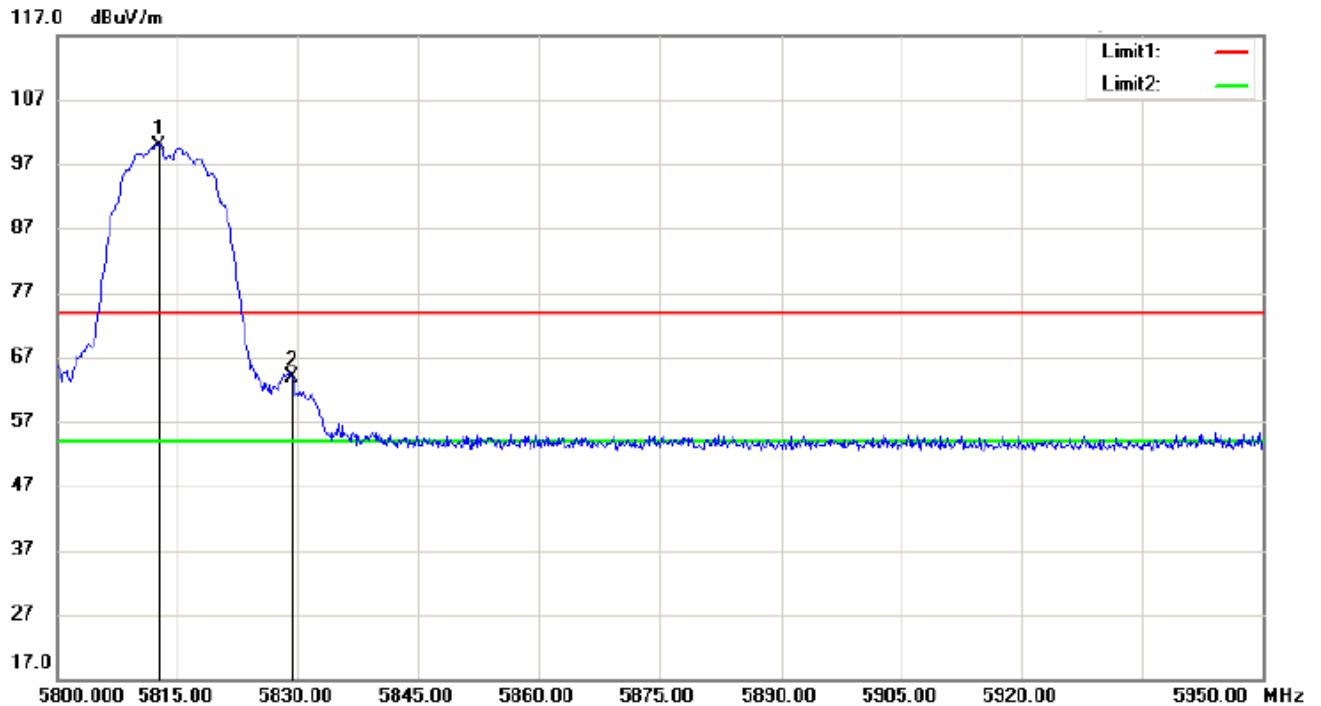


Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	5812.600	98.27	peak	1.73	100.00	74.00	26.00
2	5829.250	62.11	peak	1.76	63.87	74.00	-10.13



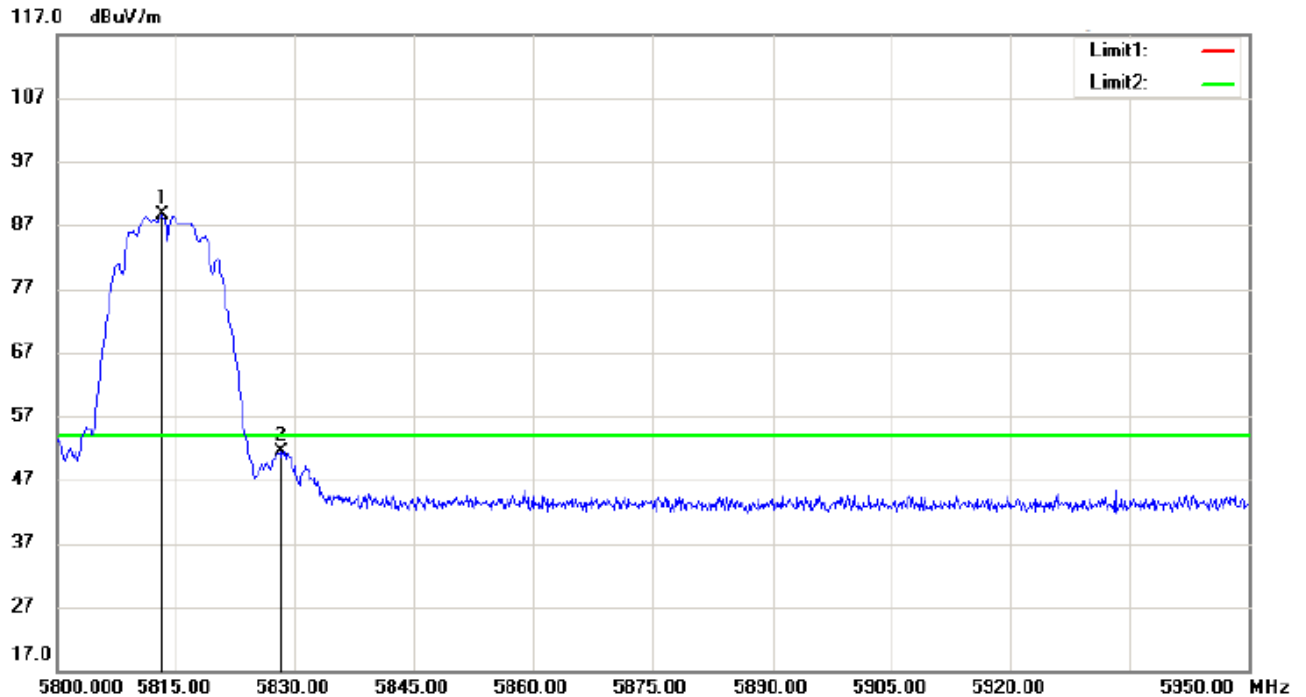
Test mode:	5.8GHz Band Antenna B	Test channel:	High
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Horizontal, Peak Detector:



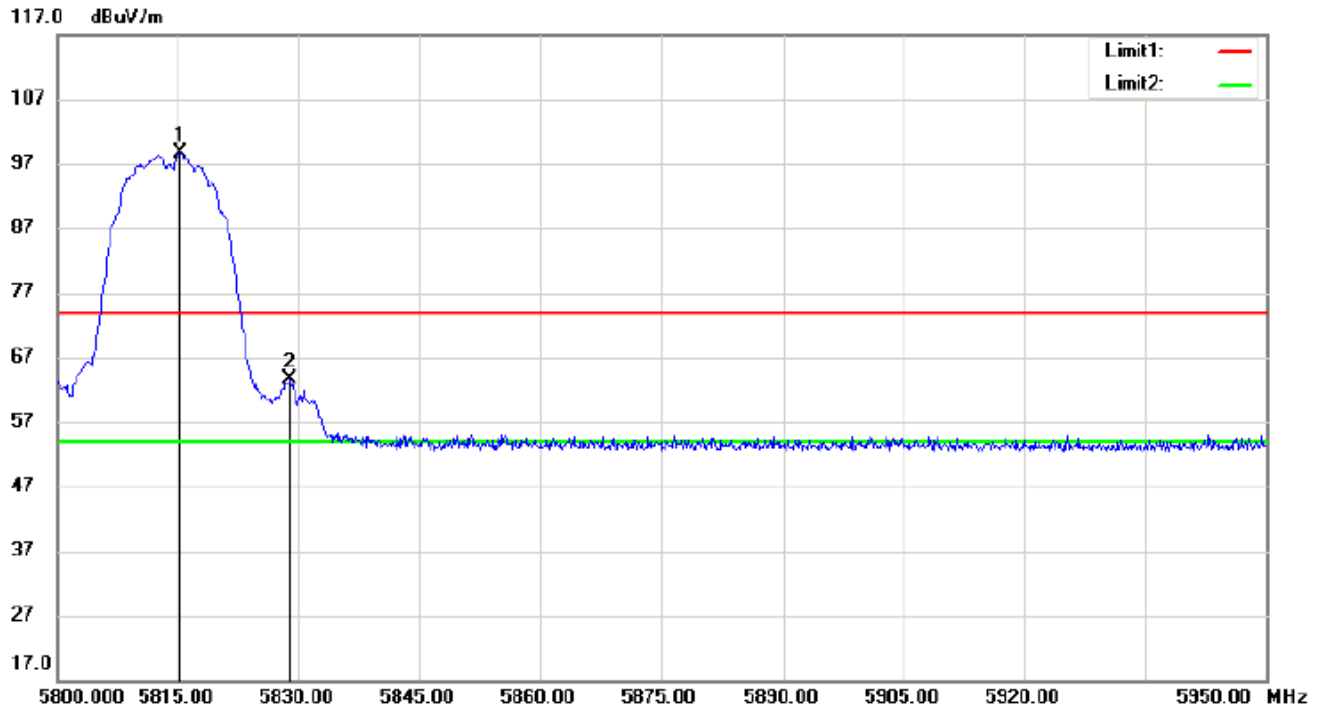
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	5812.600	98.27	peak	1.73	100.00	74.00	26.00
2	5829.250	62.11	peak	1.76	63.87	74.00	-10.13

Horizontal, Average Detector:



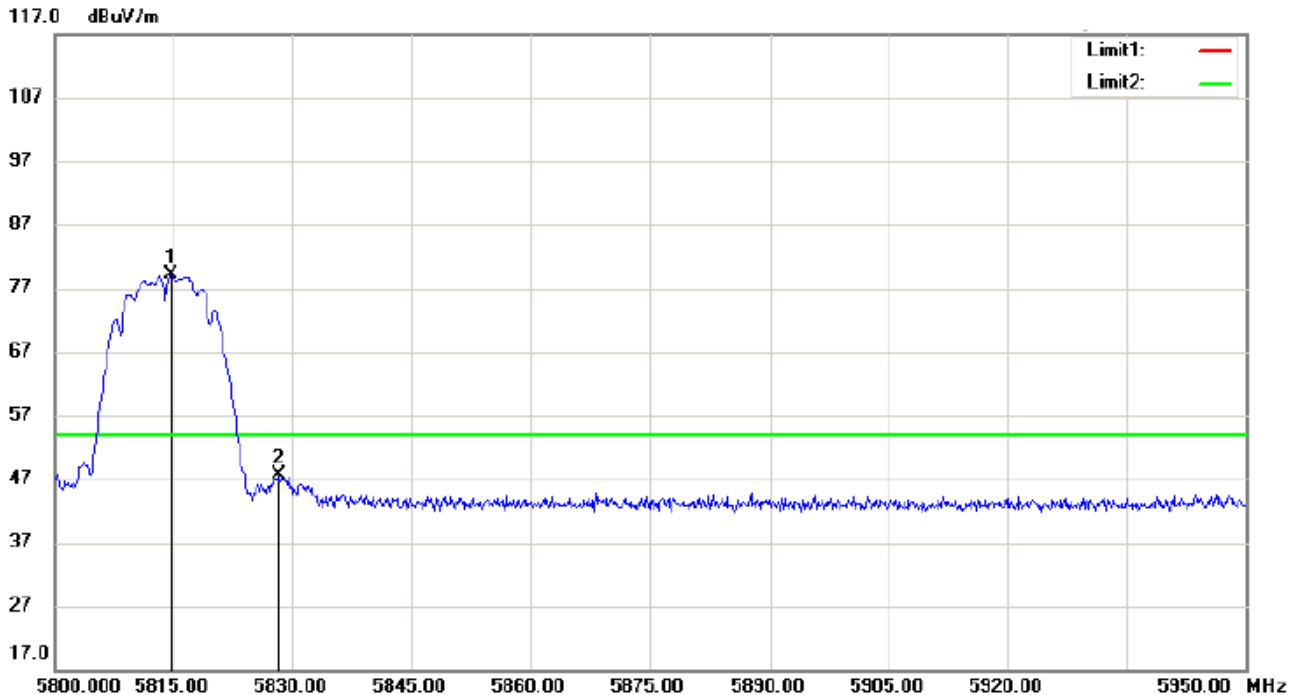
Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	5813.200	86.87	peak	1.73	88.60	54.00	34.60
2	5828.200	49.66	peak	1.76	51.42	54.00	-2.58

Vertical, Peak Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	5815.300	96.82	peak	1.74	98.56	74.00	24.56
2	5828.950	61.91	peak	1.76	63.67	74.00	-10.33

Vertical, Average Detector:



Mk.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	5814.700	77.33	peak	1.73	79.06	54.00	25.06
2	5828.350	45.82	peak	1.76	47.58	54.00	-6.42

Remark: No any other emission which fall in restricted bands can be detected and be reported.

Test Level = Receiver Reading + Antenna Factor + Cable Loss- Preamplifier Factor

All frequencies within the “Restricted bands” have been evaluated to compliance. Section 15.205 Restricted bands of operation.

7.8 Conducted Spurious Emission Test

Test Requirement: FCC Part15 247(c)

RSS-210 Issue 8 Annex 8

Standard Applicable:

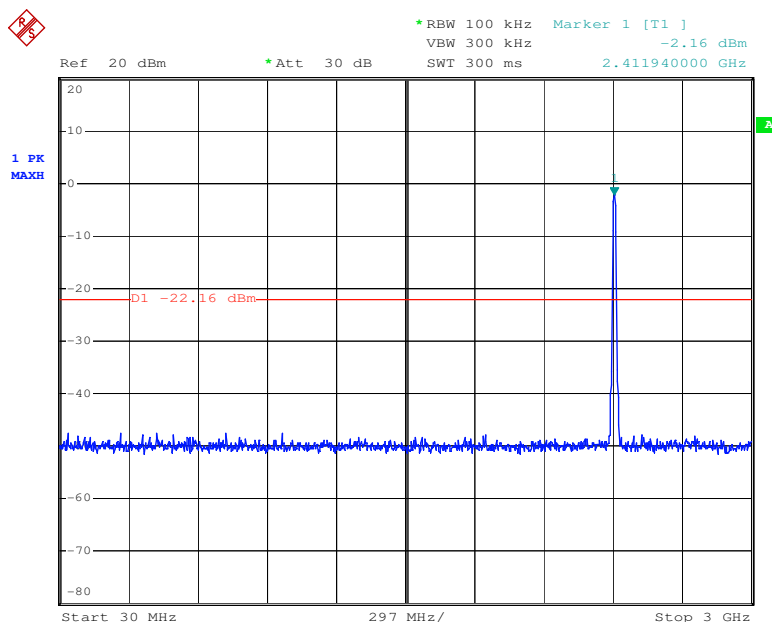
According to section 15.247(c), in any 100KHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100KHz bandwidth within the band that contains the highest level of the desired power. In addition, radiated emissions which fall in the restricted bands, as defined in section 15.205(a), must also comply with the radiated emission limits specified in 15.209(a).

Measurement Procedure:

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = operating frequency.
4. Set the spectrum analyzer as RBW=100KHz VBW=300KHz, Sweep = auto
6. Repeat above procedures until all frequency measured were complete.

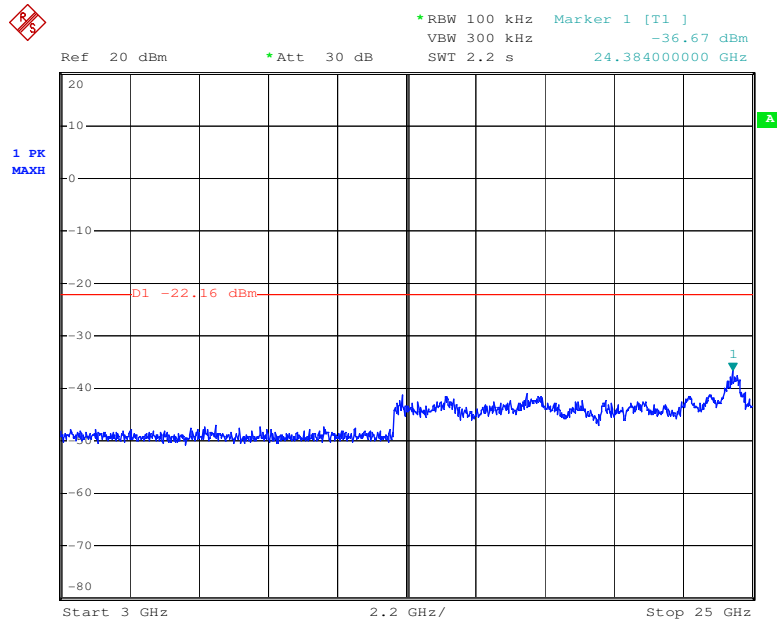
Measurement Result:

Test mode:	2.4GHz Band Antenna A	Test channel:	Low
30MHz-3GHz			





3GHz-25GHz



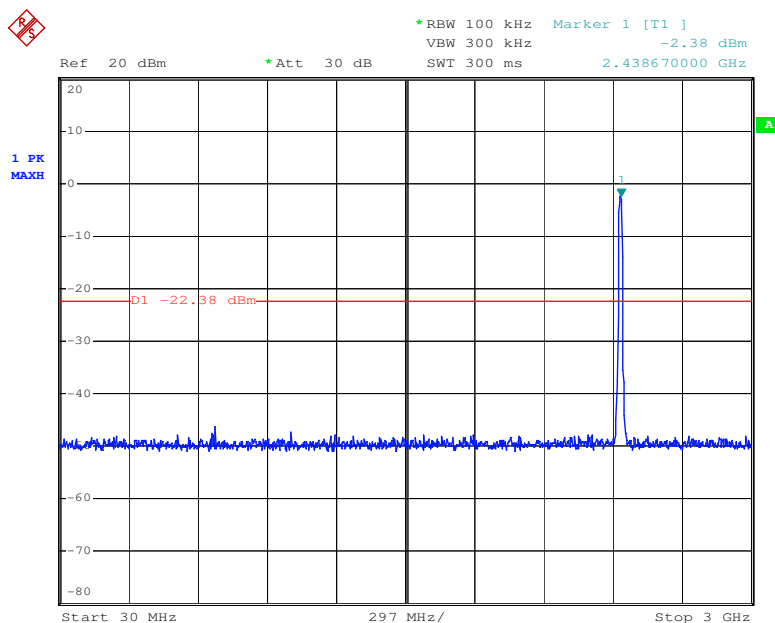
Band Edge



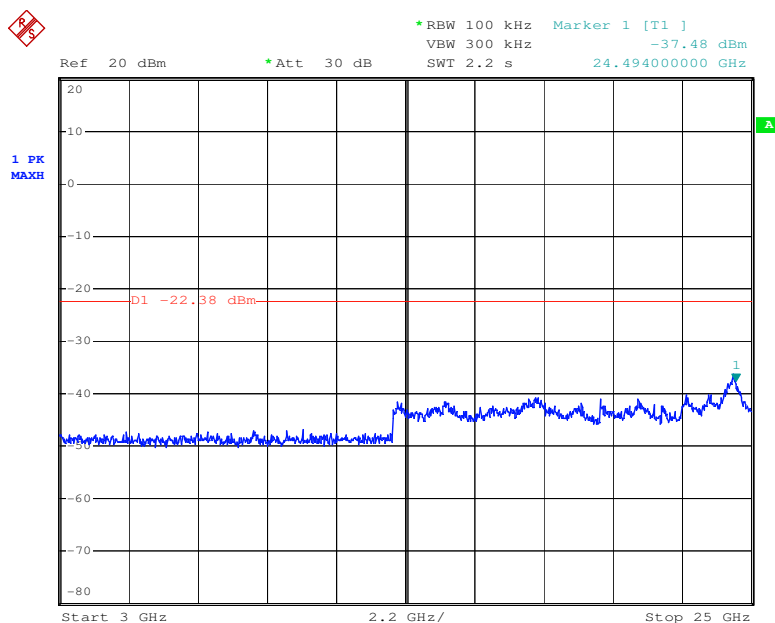


Test mode:	2.4GHz Band Antenna A	Test channel:	Middle
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30MHz-3GHz



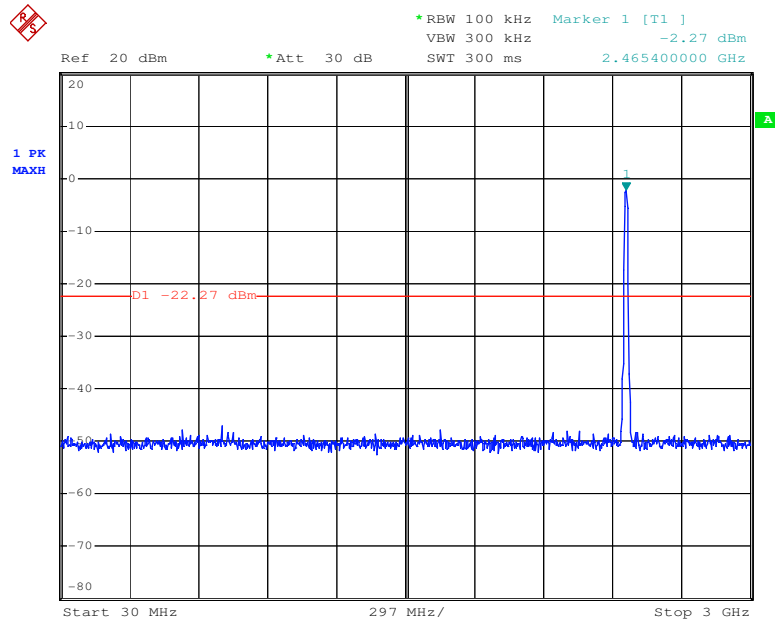
3GHz-25GHz



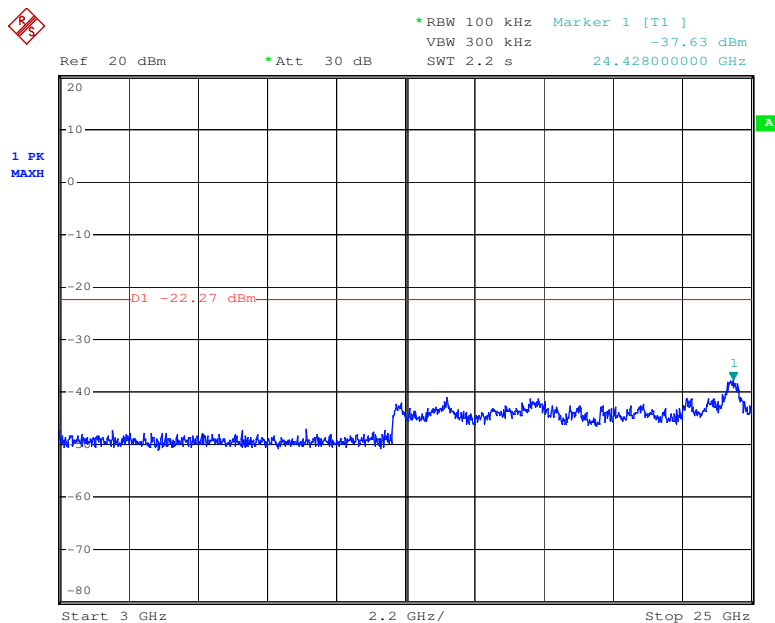


Test mode:	2.4GHz Band Antenna A	Test channel:	High
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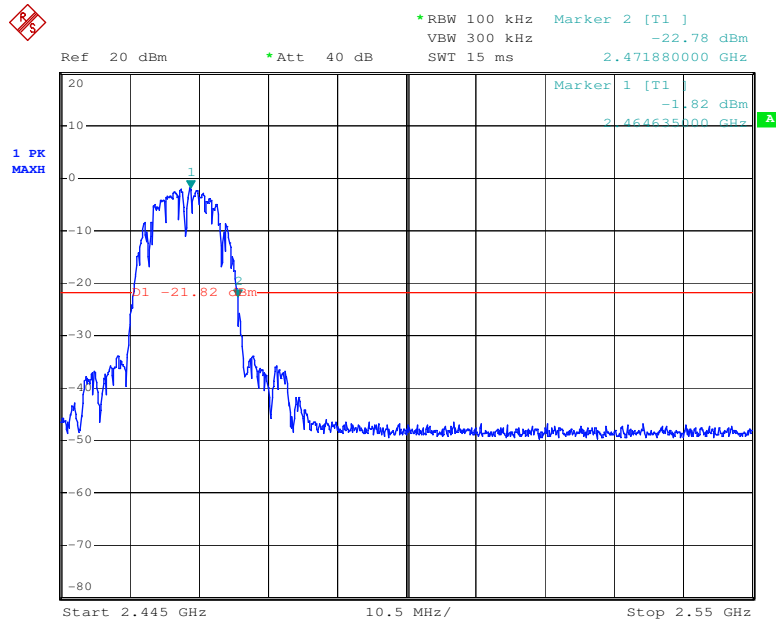
30MHz-3GHz



3GHz-25GHz

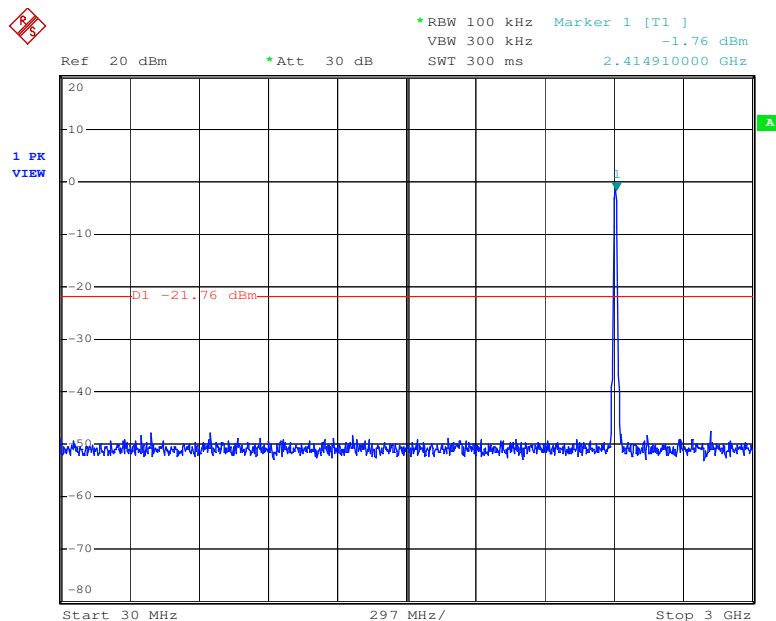


Band Edge

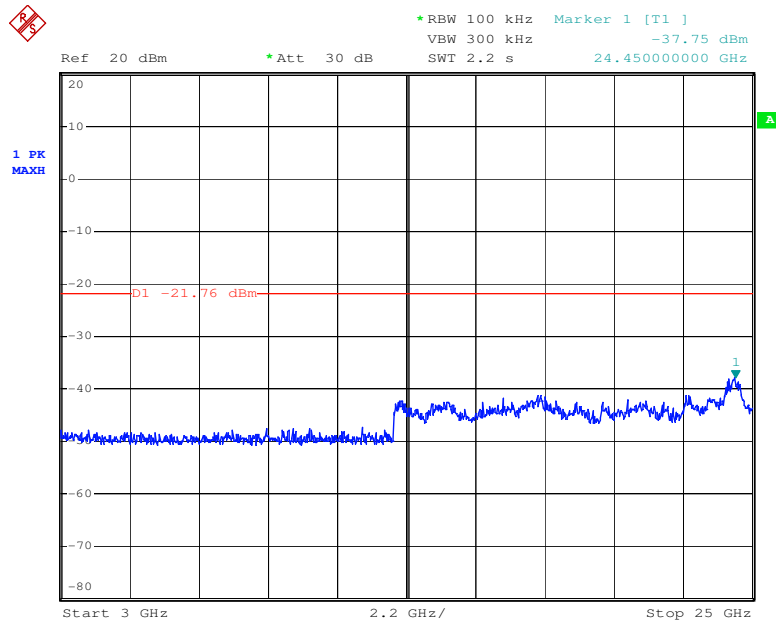


Test mode:	2.4GHz Band Antenna B	Test channel:	Low
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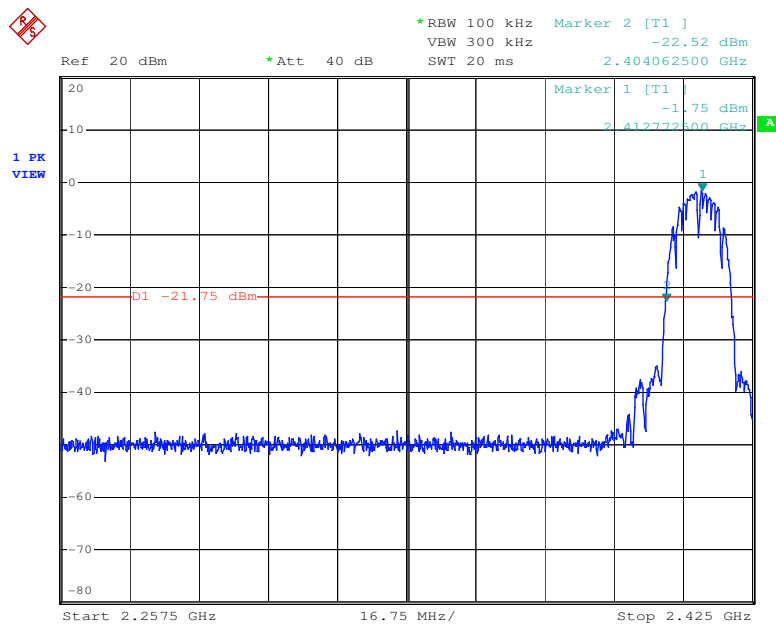
30MHz-3GHz



3GHz-25GHz



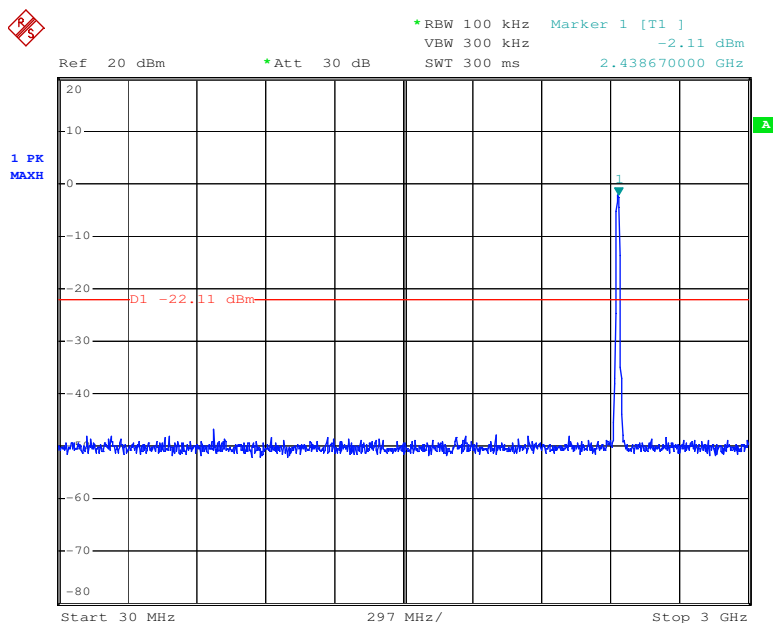
Band Edge



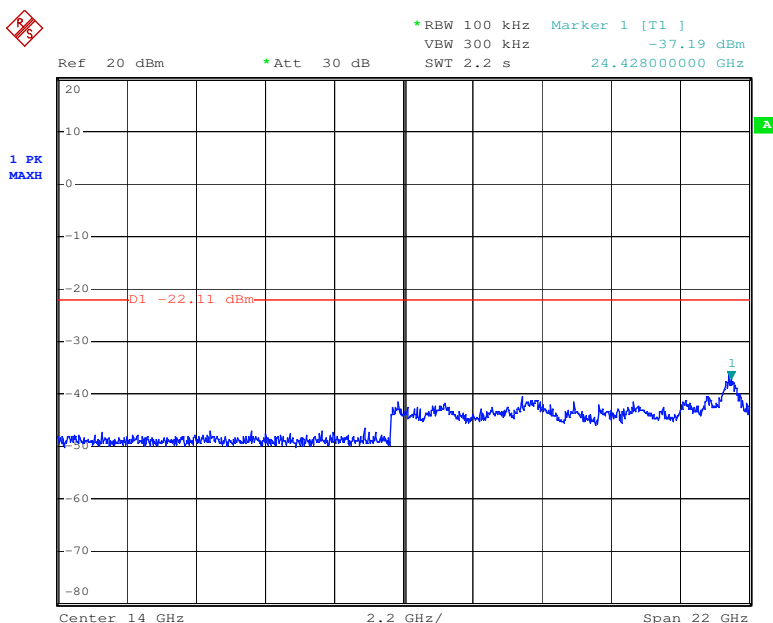


Test mode:	2.4GHz Band Antenna B	Test channel:	Middle
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30MHz-3GHz



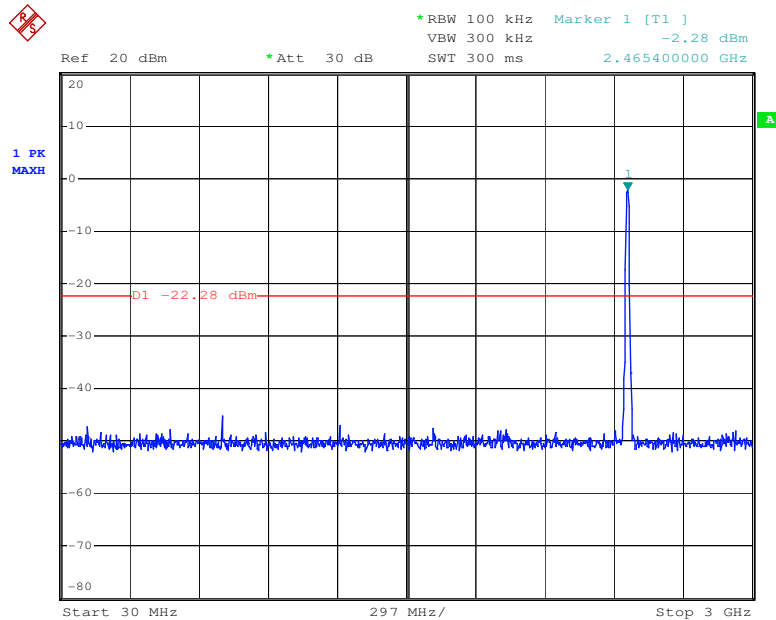
3GHz-25GHz



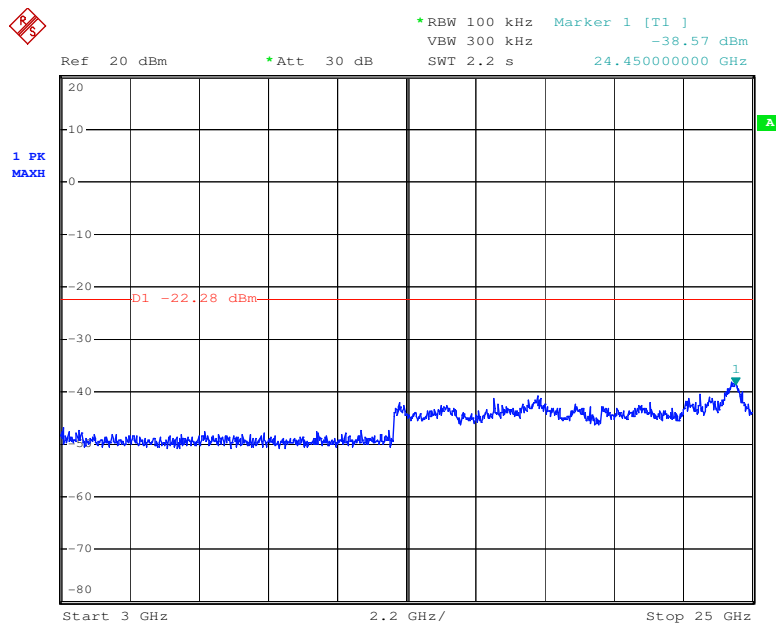


Test mode:	2.4GHz Band Antenna B	Test channel:	High
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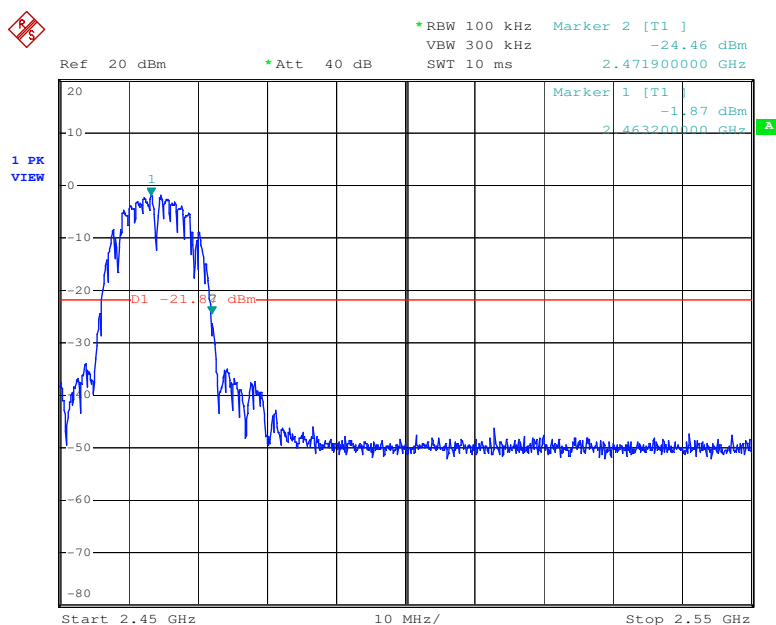
30MHz-3GHz



3GHz-25GHz

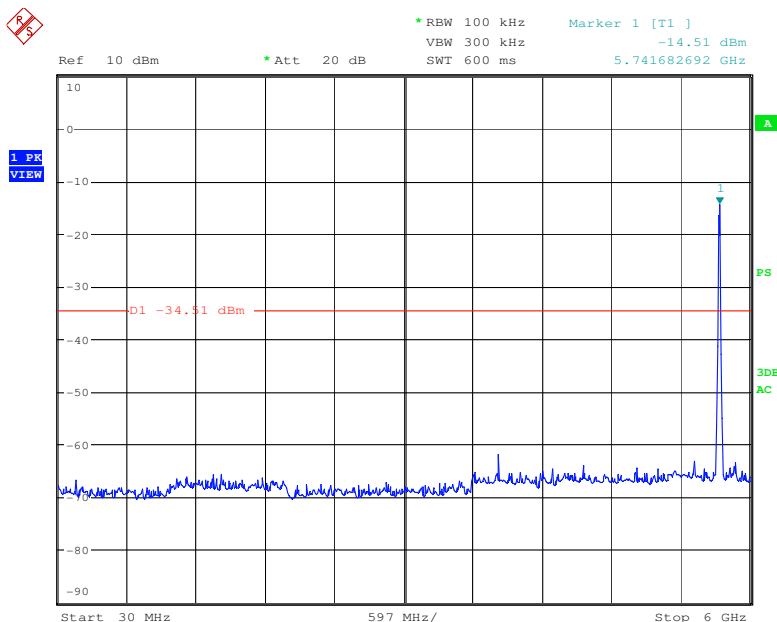


Band Edge



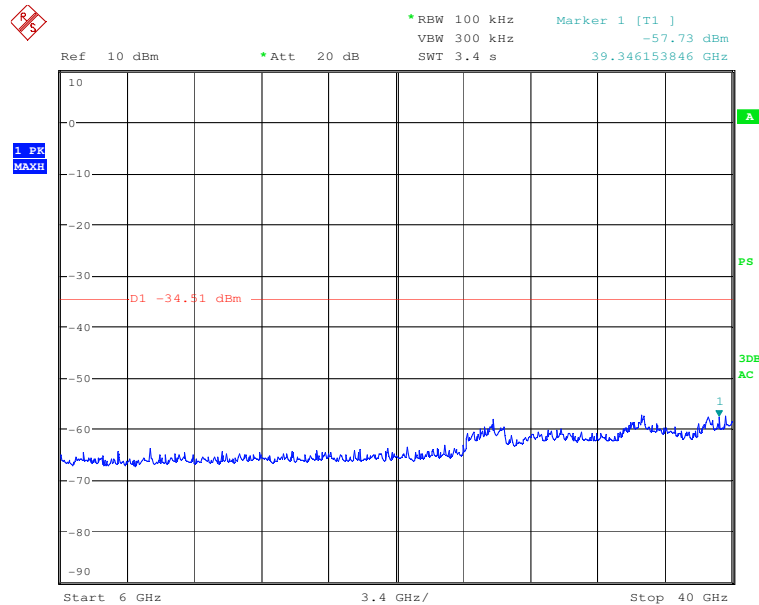
Test mode:	5.8GHz Band Antenna A	Test channel:	Low
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30MHz-6GHz

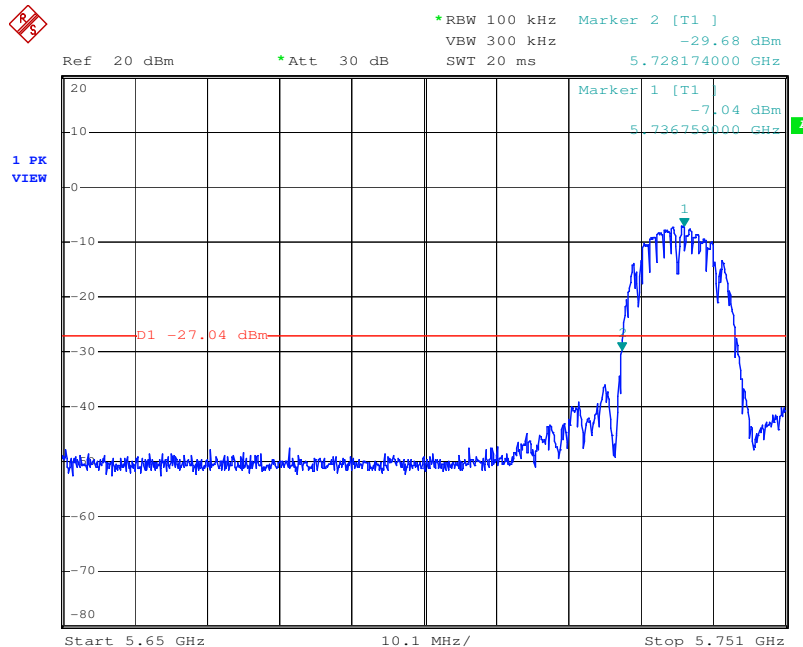




6GHz-40GHz



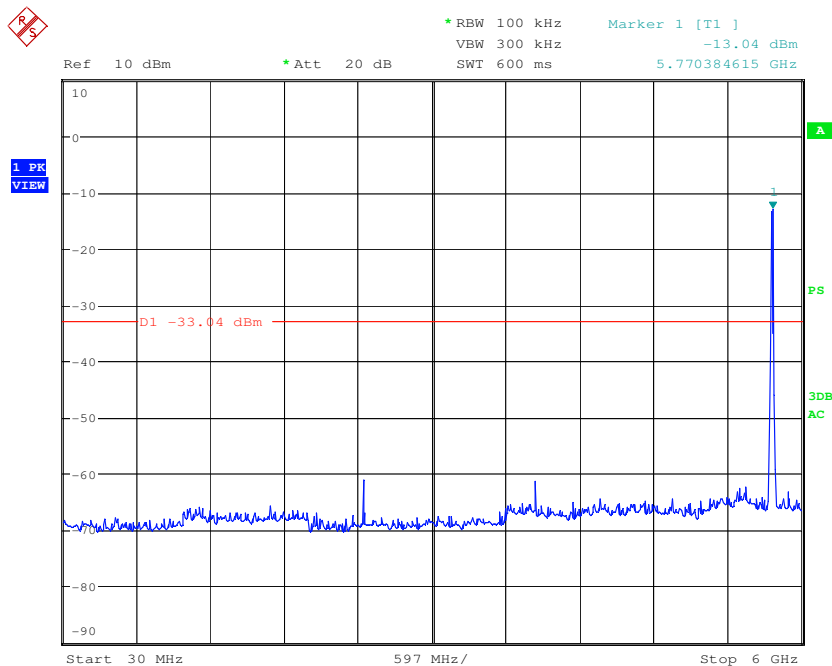
Band Edge



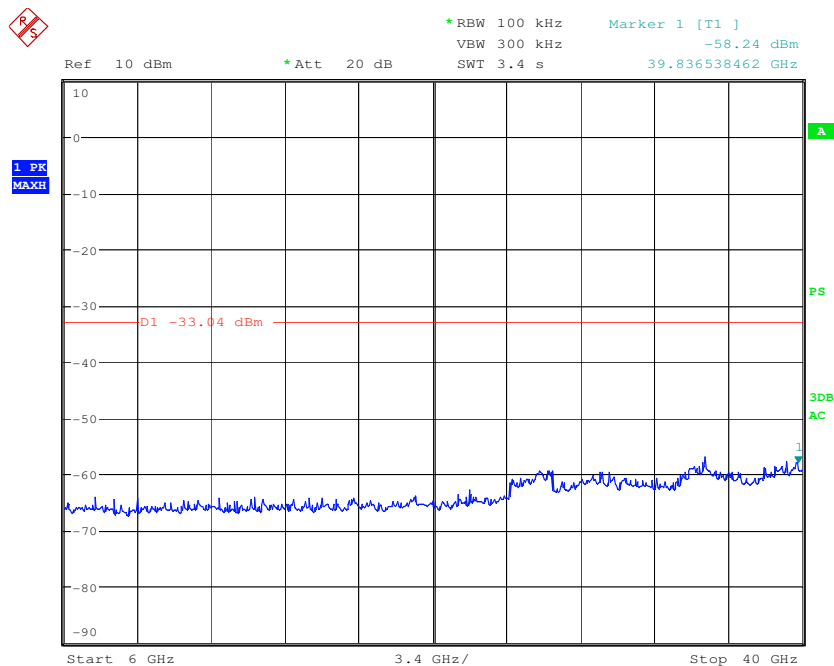


Test mode:	5.8GHz Band Antenna A	Test channel:	Middle
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30MHz-6GHz



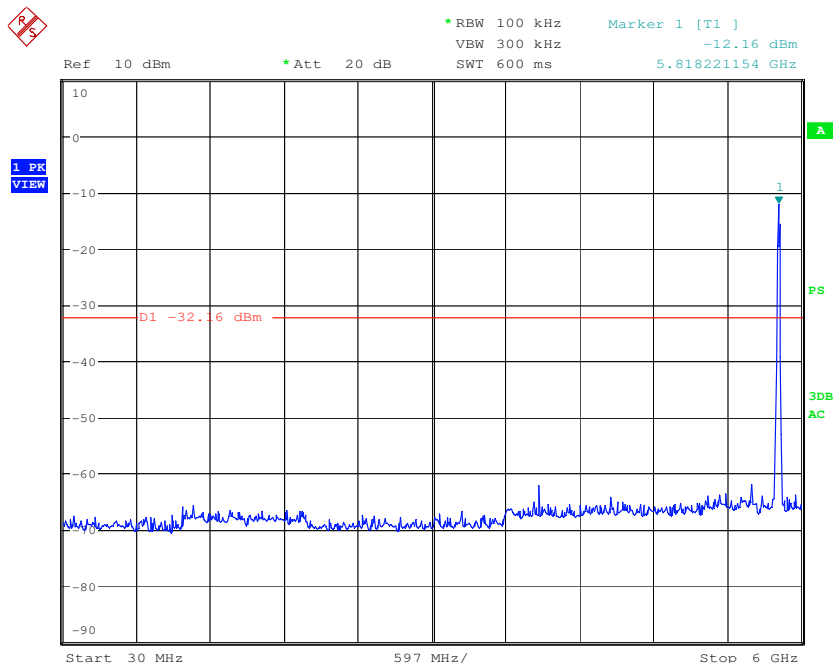
6GHz-40GHz



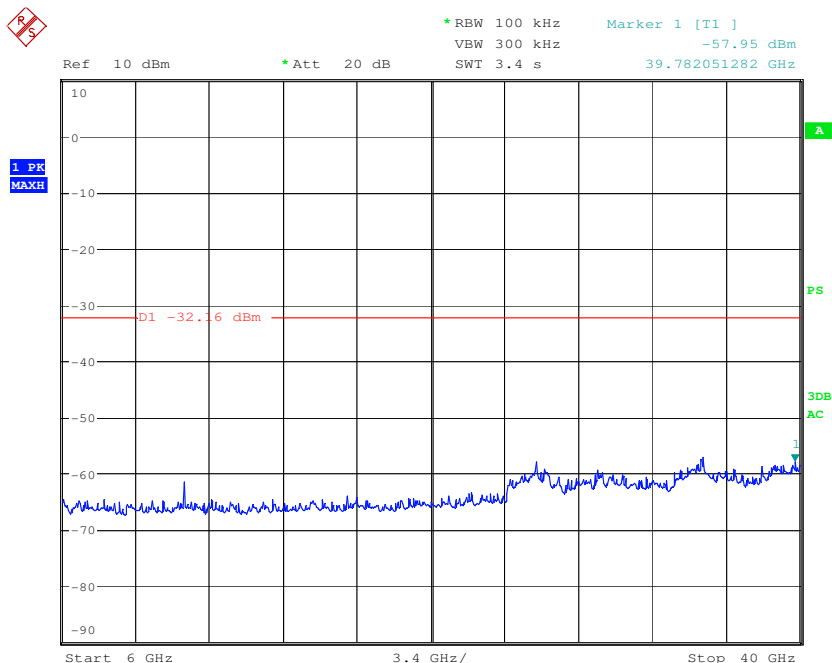


Test mode:	5.8GHz Band Antenna A	Test channel:	High
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30MHz-6GHz

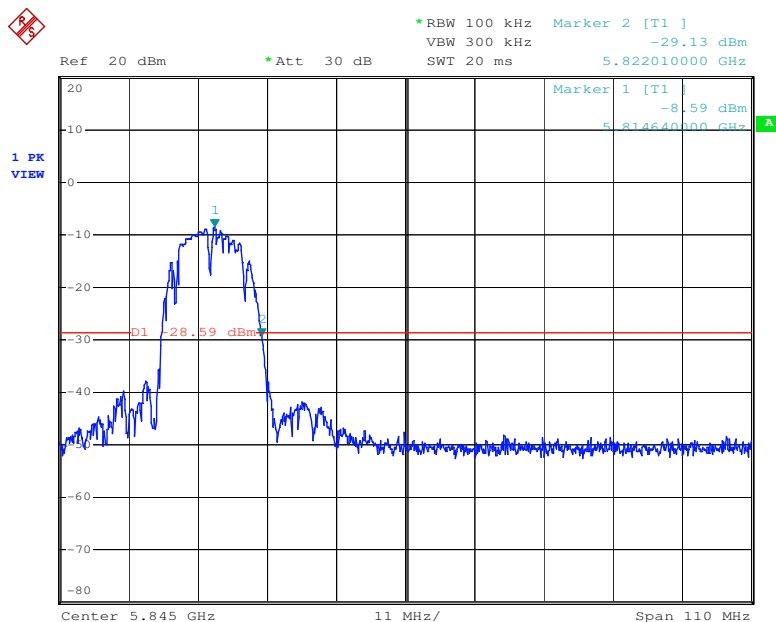


6GHz-40GHz



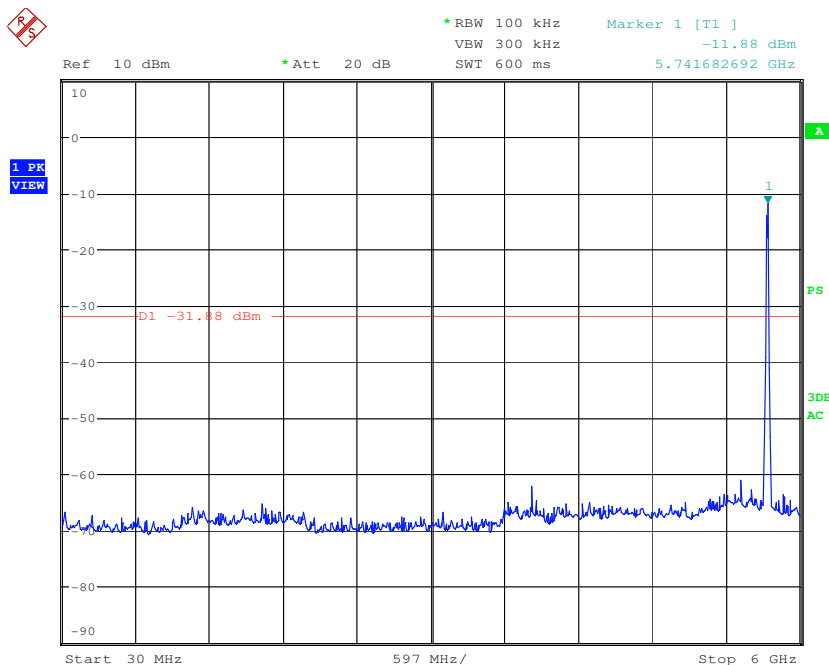


Band Edge

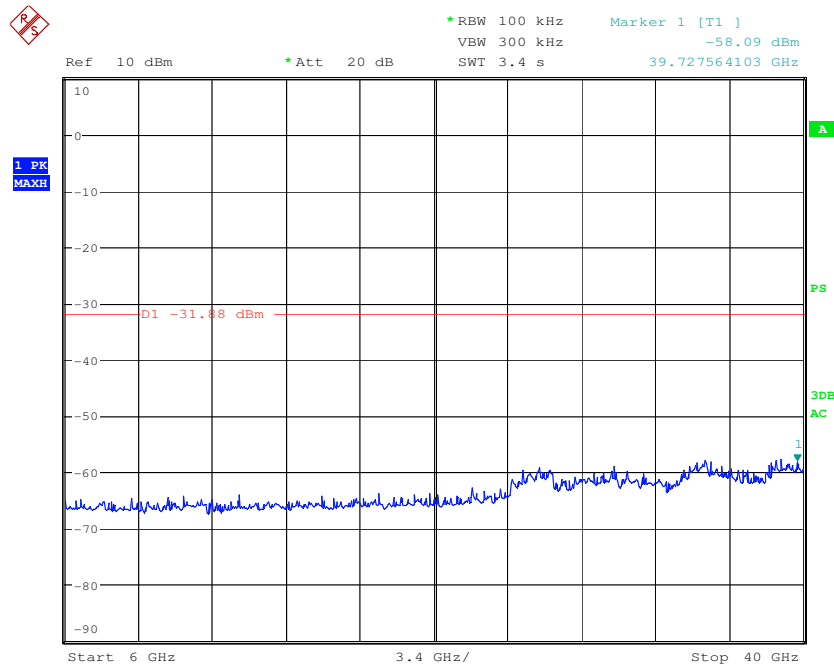


Test mode:	5.8GHz Band Antenna B	Test channel:	Low
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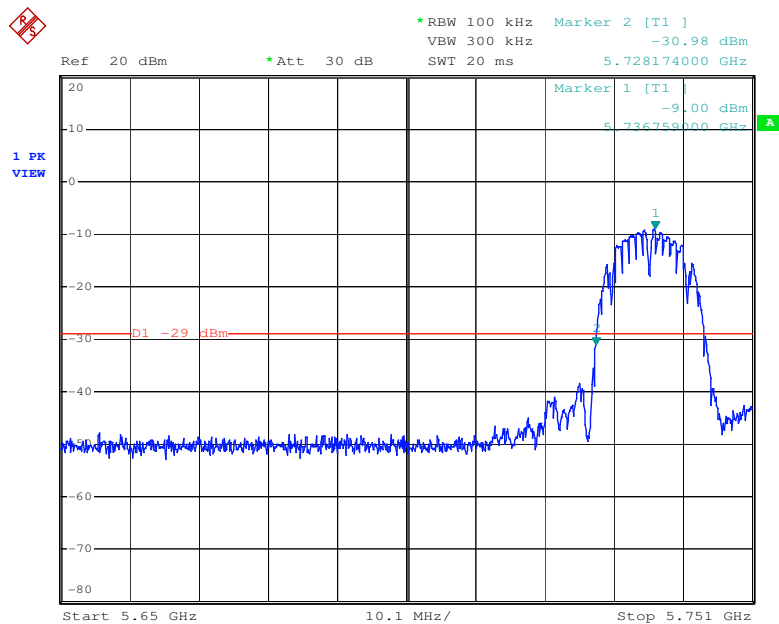
30MHz-6GHz



6GHz-40GHz



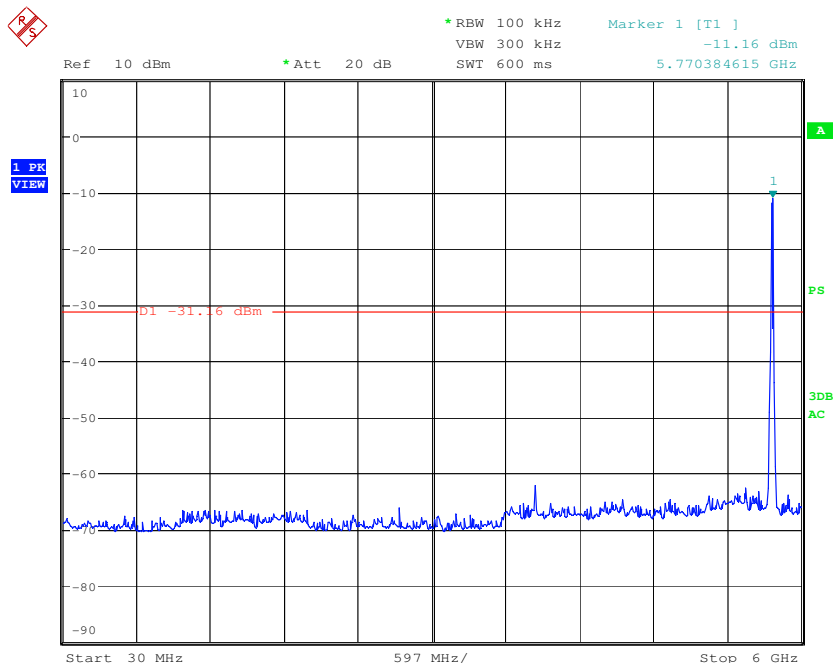
Band Edge



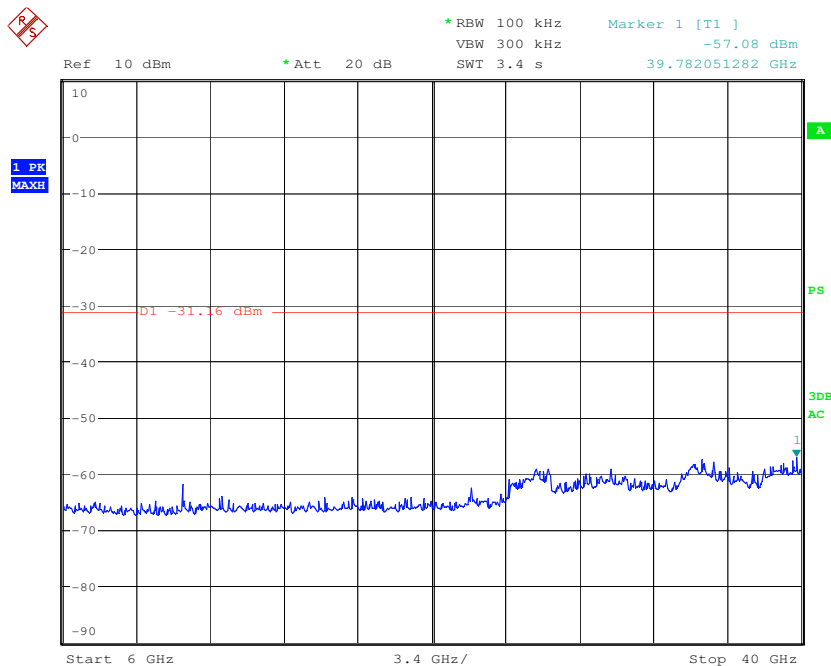


Test mode:	5.8GHz Band Antenna B	Test channel:	Middle
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30MHz-6GHz

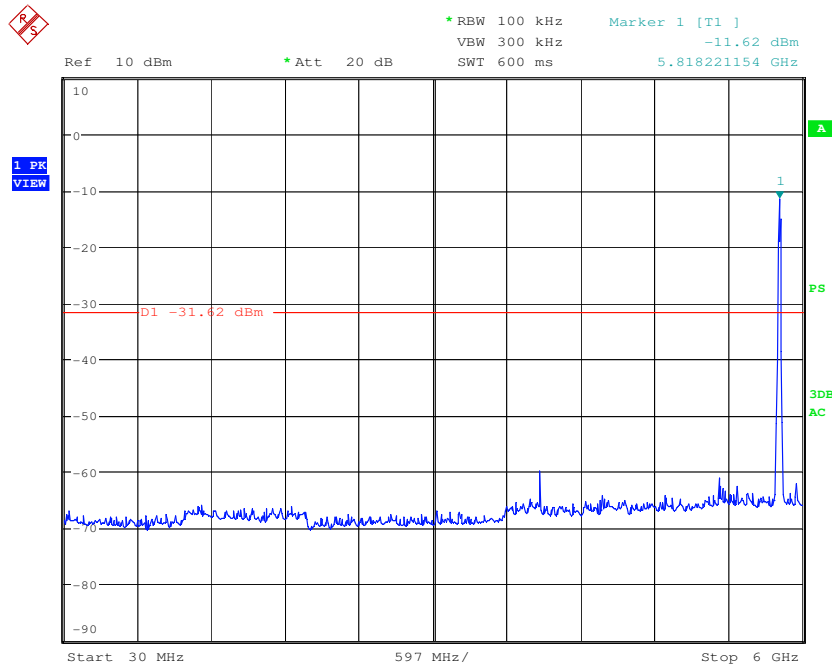


6GHz-40GHz

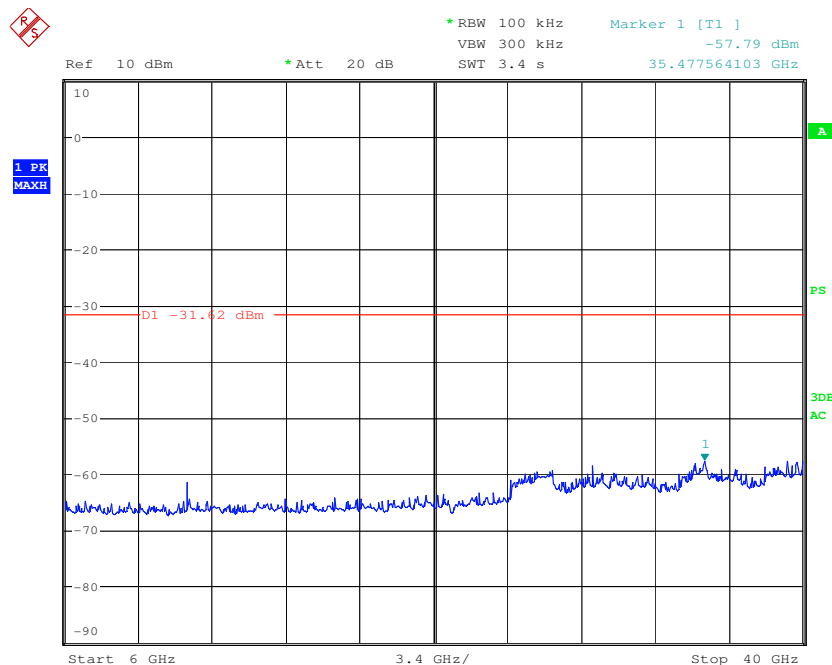


Test mode:	5.8GHz Band Antenna B	Test channel:	High
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30MHz-6GHz

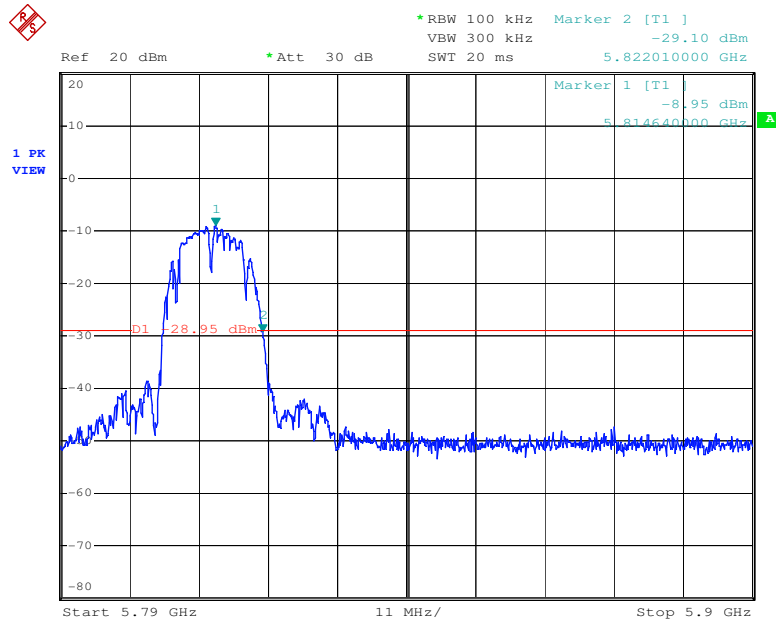


6GHz-40GHz





Band Edge



7.9 Occupied Bandwidth Test

Test Requirement:	RSS-Gen Issue 3 Clause 4.6.1
Standard Applicable	According to the section RSS-Gen Issue 3 Clause 4.6.1
EUT Setup	The occupied bandwidth per RSS-Gen Issue 3 Clause 4.6.1 was measured using the Spectrum Analyzer with the resolutions set at 100kHz, the video bandwidth set at 300kHz.

Measurement Result:

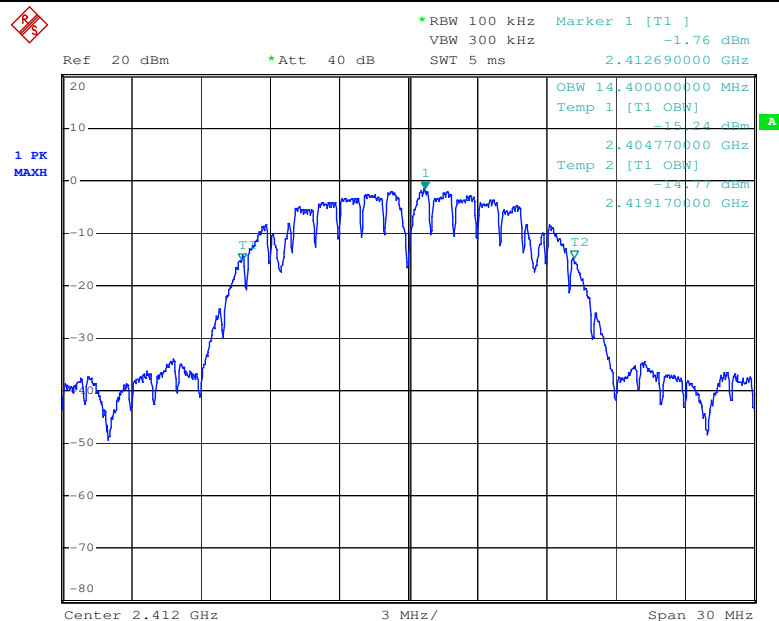
For 2412-2464MHz Band

Test Antenna	Channel	Frequency (MHz)	Bandwidth (MHz)
Antenna A	Low	2412	14.40
	Middle	2438	14.40
	High	2464	14.37
Antenna B	Low	2412	14.40
	Middle	2438	14.43
	High	2464	14.37

For 5736-5814MHz Band

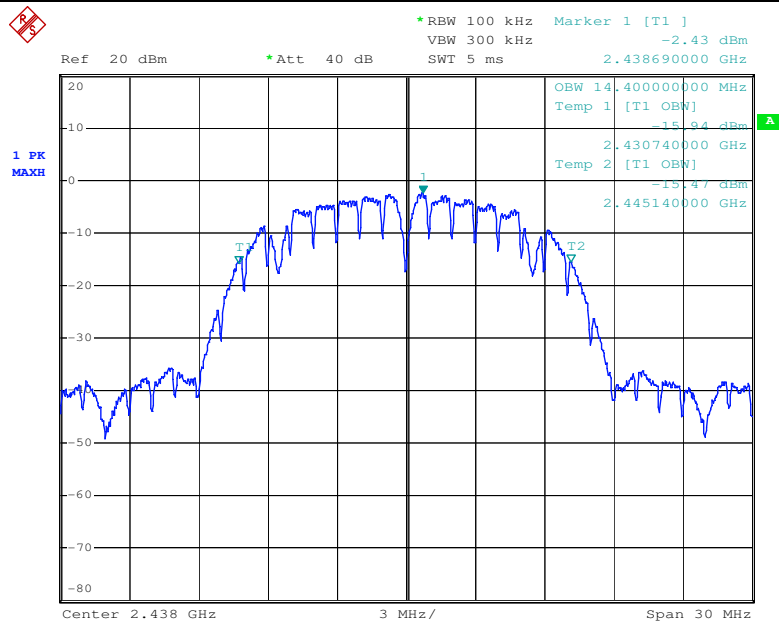
Test Antenna	Channel	Frequency (MHz)	Bandwidth (MHz)
Antenna A	Low	5736	14.04
	Middle	5762	14.07
	High	2814	14.07
Antenna B	Low	5736	14.07
	Middle	5762	14.07
	High	2814	14.07

Test mode:	2.4GHz Band Antenna A	Test channel:	Low
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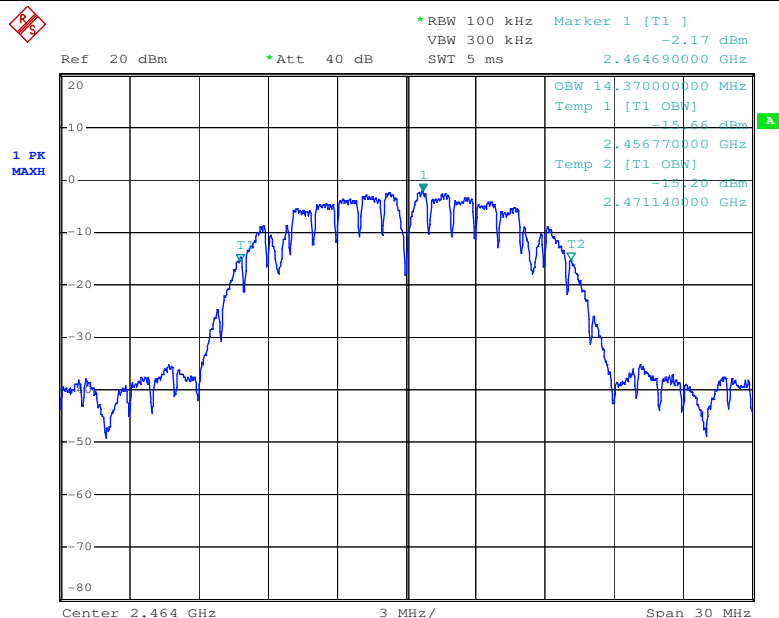




Test mode:	2.4GHz Band Antenna A	Test channel:	Middle
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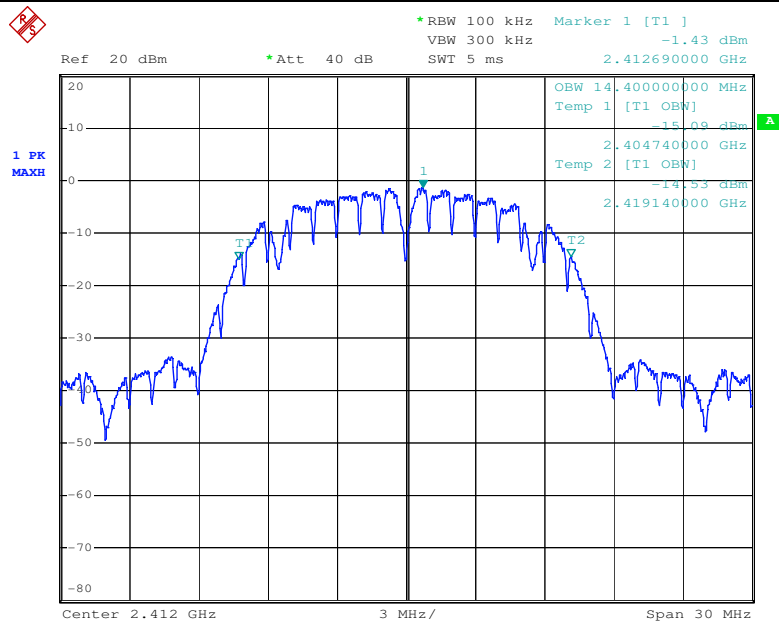


Test mode:	2.4GHz Band Antenna A	Test channel:	High
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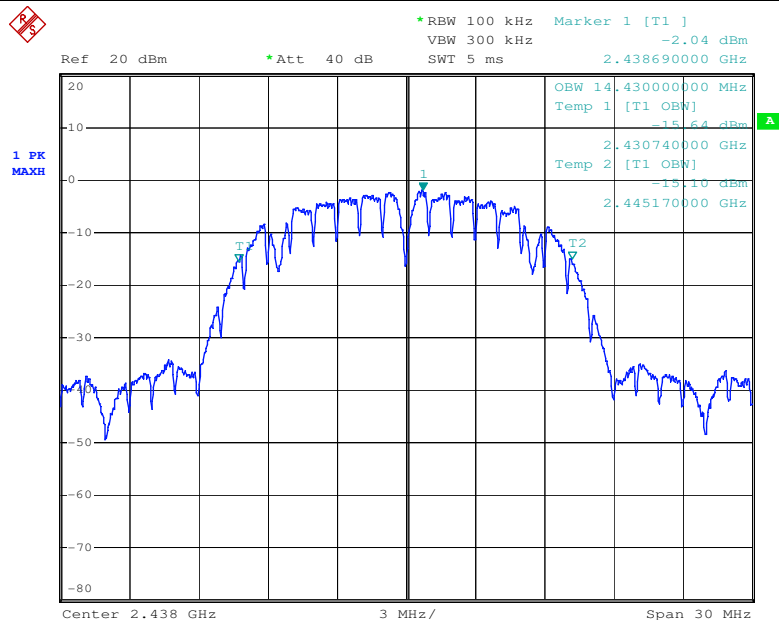




Test mode:	2.4GHz Band Antenna B	Test channel:	Low
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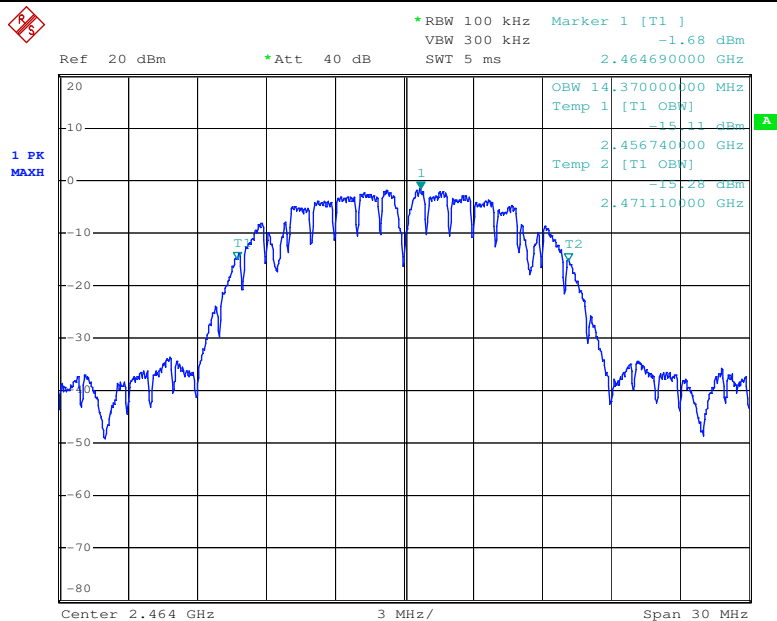


Test mode:	2.4GHz Band Antenna B	Test channel:	Middle
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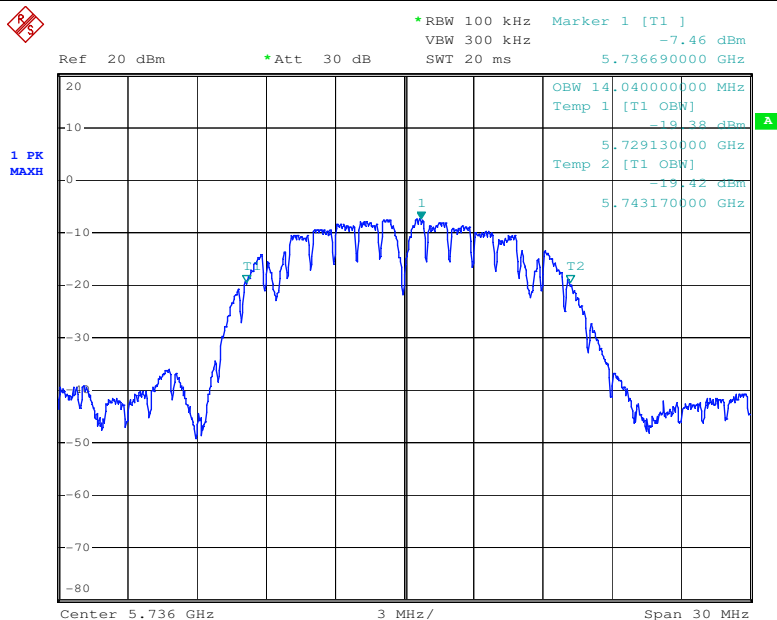




Test mode:	2.4GHz Band Antenna B	Test channel:	High
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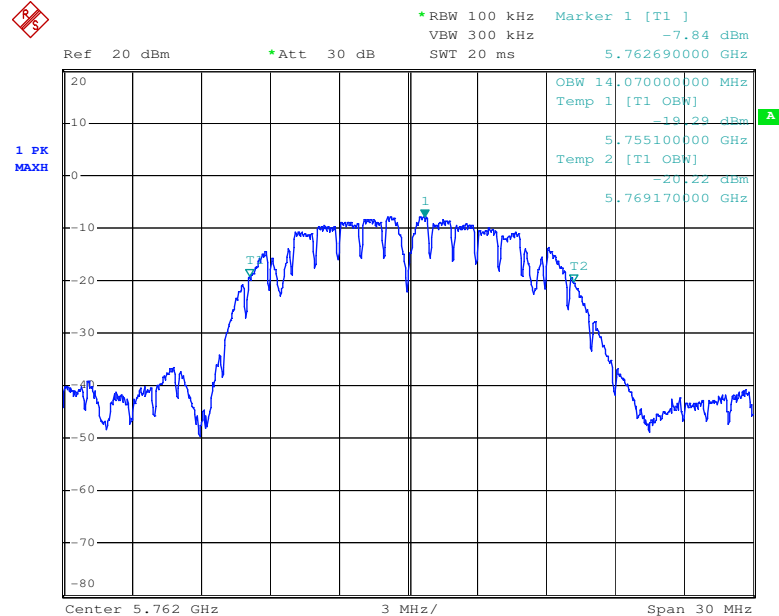


Test mode:	5.8GHz Band Antenna A	Test channel:	Low
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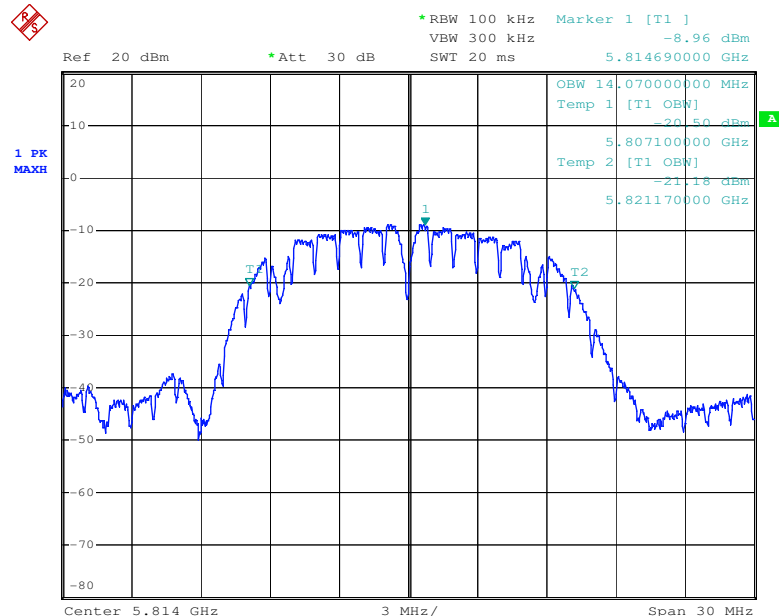




Test mode:	5.8GHz Band Antenna A	Test channel:	Middle
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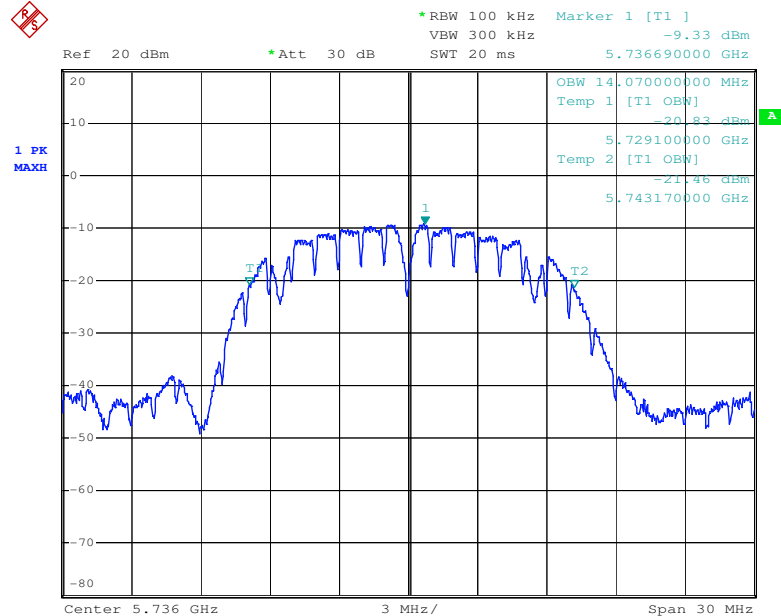


Test mode:	5.8GHz Band Antenna A	Test channel:	High
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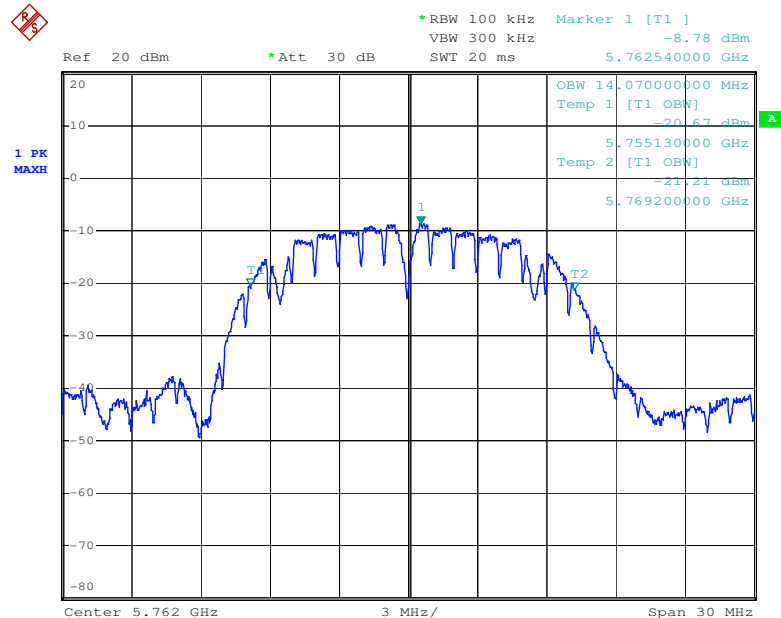




Test mode:	5.8GHz Band Antenna B	Test channel:	Low
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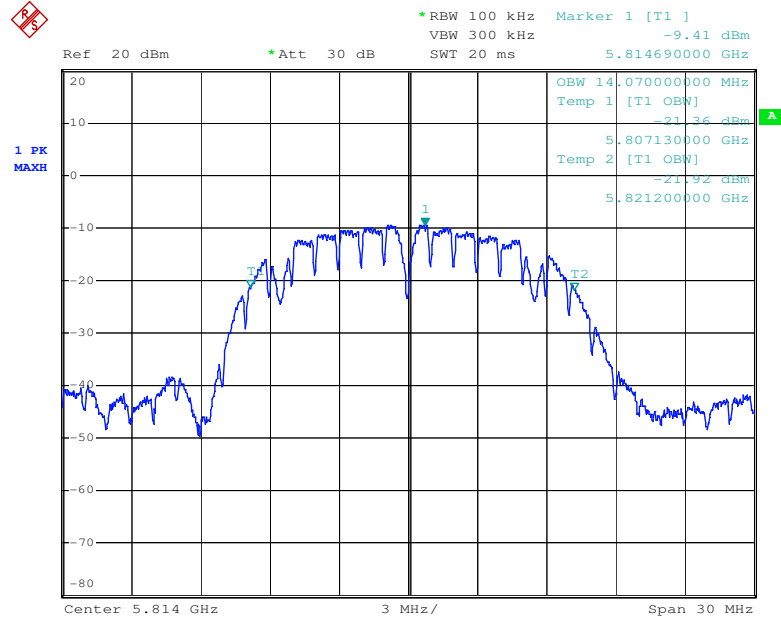


Test mode:	5.8GHz Band Antenna B	Test channel:	Middle
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Test mode:	5.8GHz Band Antenna B	Test channel:	High
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8 Test Setup Photographs

Refer to the <P910B _Test Setup photos>.

9 EUT Constructional Details

Refer to the < P910B _External Photos > & < P910B _Internal Photos >.

End of Report