

FCC/ ISED

RF

TEST REPORT

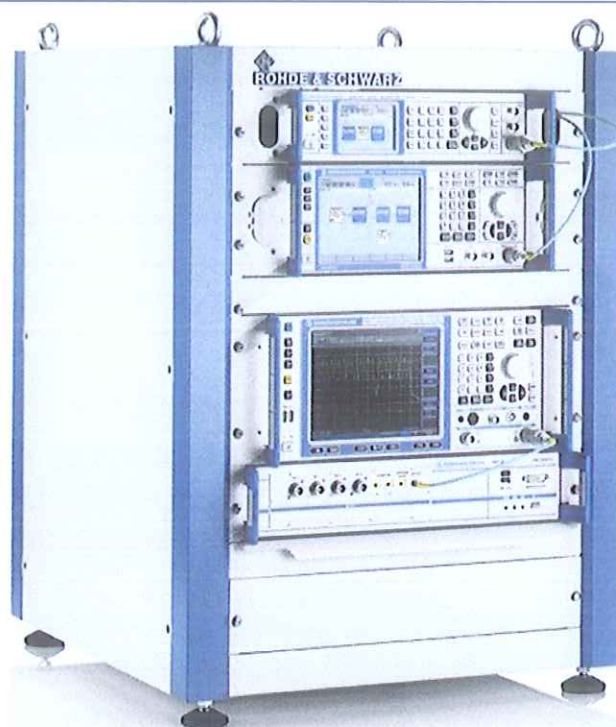
ISSUED BY
Shenzhen BALUN Technology Co., Ltd.



FOR
15.6" Android Terminal

ISSUED TO
LBARCO LTD

33F 16 Xinzhan Rd Banqiao District New Taipei, 220 Taiwan



Prepared by:

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Date Nov. 17, 2016

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Date Nov. 17, 2016

Report No.: BL-SZ1690367-603

EUT Type: 15.6" Android Terminal

Model Name: PXP15

Brand Name: Barco

Test Standard: 47 CFR Part 15 Subpart E
RSS-Gen (Issue 4, November 2014)
RSS-247 (Issue 1, May 2015)

FCC ID: SXE-PXP1501

ISED Number: 9393B-PXP1501

Test conclusion: Pass

Test Date: Nov. 02, 2016 ~ Nov. 07, 2016

Date of Issue: Nov. 17, 2016

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Revision History

Version	Issue Date	Revisions Content
Rev. 01	Nov. 17, 2016	Initial Issue
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1 ADMINISTRATIVE DATA (GENERAL INFORMATION)

1.1 Identification of the Testing Laboratory

Company Name	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Phone Number	+86 755 6685 0100
Fax Number	+86 755 6182 4271

1.2 Identification of the Responsible Testing Location

Test Location	Shenzhen BALUN Technology Co., Ltd.
Address	Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China
Accreditation Certificate	The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 11524A-1. The laboratory has been listed by US Federal Communications Commission to perform electromagnetic emission measurements. The recognition numbers of test site are 832625. The laboratory is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L6791.
Description	All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055

1.3 Laboratory Condition

Ambient Temperature	20 to 25°C
Ambient Relative Humidity	45% - 55%
Ambient Pressure	100 kPa - 102 kPa

1.4 Announce

- (1) The test report reference to the report template version v2.7.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
- (5) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.
- (6) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

2 PRODUCT INFORMATION

2.1 Applicant

Applicant	BARCO LTD
Address	33F 16 Xinzhan Rd Banqiao District New Taipei, 220 Taiwan

2.2 Manufacturer

Manufacturer	Shenzhen Saintway Technology Co., Ltd.
Address	7F, Block 1, Yinjing Building, Liuxian 2nd Road, Bao'an 71st District , Shenzhen 518100 Guangdong, China

2.3 Factory

Factory	Shenzhen Saintway Technology Co., Ltd.
Address	7F, Block 1, Yinjing Building, Liuxian 2nd Road, Bao'an 71st District , Shenzhen 518100 Guangdong, China

2.4 General Description for Equipment under Test (EUT)

EUT Type	15.6" Android Terminal
Model Name	PXP15
Hardware Version	N/A
Software Version	N/A
Network and Wireless connectivity	Bluetooth 4.0 Low Energy (BLE), WIFI 802.11a,802.11b, 802.11g and 802.11n (HT20), 802.11ac, NFC

2.5 Ancillary Equipment

Ancillary Equipment 1	Adapter	
	Brand Name	N/A
	Model No.	MDS-090AAS19 B
	Serial No.	N/A
	Rated Input	100-240 V~, 1.5-0.75 A, 50/60 Hz
	Rated Output	19 V=, 4.74 A
Ancillary Equipment 2	Power Line	
	Length (Approx.)	0.5 m
Ancillary Equipment 3	Remote Control	

2.6 Technical Information

Frequency Range	Band I: 5150 MHz to 5250 MHz, Band IV: 5725 MHz to 5850 MHz
Modulation technology	OFDM
Modulation Type	256QAM, 64QAM, 16QAM, BPSK, QPSK
Product Type	Indoor for IC standard Mobile and portable for FCC standard
Transfer Rate (Mbps) (Single RF path)	802.11a: 54/ 48/ 36 / 24 / 18 / 9/ 6 Mbps 802.11n: up to 150 Mbps 802.11ac: up to VHT-MCS9
Channel Bandwidth	802.11a: 20 MHz 802.11n: 20 MHz, 40 MHz 802.11ac: 20 MHz, 40 MHz, 80 MHz
Maximum Output Power	Band I: 13.45 dBm Band IV: 10.04 dBm
Antenna Type	PIFA Antenna
Antenna Gain	Band I: 5150 MHz to 5250 MHz: 2 dBi Band IV: 5725 MHz to 5850 MHz: 2 dBi
About the Product	The equipment is 15.6" Android Terminal, intended for used with information technology equipment.

2.7 Additional Instructions

Mode	☒ Special software is used. The software provided by client to enable the EUT under transmission condition continuously at specific channel frequencies individually.
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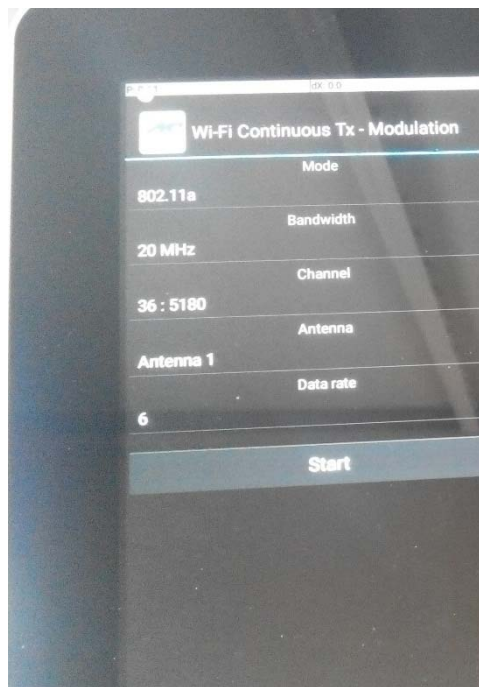
EUT Software Settings:

Band I (5150 - 5250 MHz) Power level setup in software			
Test Software Version	RFtesttool		
Mode	Channel	Frequency (MHz)	Soft Set
11a	CH36	5180	TX LEVEL is built-in set parameters and cannot be changed and selected.
11a	CH44	5220	
11a	CH48	5240	
11n (HT20)	CH36	5180	
11n (HT20)	CH44	5220	
11n (HT20)	CH48	5240	
11n (HT40)	CH38	5190	
11n (HT40)	CH46	5230	
11ac (HT80)	CH42	5210	

Band IV (5725 - 5850 MHz) Power level setup in software

Test Software Version	RFtesttool		
Mode	Channel	Frequency (MHz)	Soft Set
11a	CH149	5745	TX LEVEL is built-in set parameters and cannot be changed and selected.
11a	CH157	5785	
11a	CH165	5825	
11n (HT20)	CH149	5745	
11n (HT20)	CH157	5785	
11n (HT20)	CH165	5825	
11n (HT40)	CH151	5755	
11n (HT40)	CH159	5795	
11ac (HT80)	CH155	5775	

Run Software



2.8 Channel List

20 MHz		40 MHz		80 MHz	
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
36	5180	38	5190	42	5210
40	5200	46	5230	155	5775
44	5220	151	5755		
48	5240	159	5790		
149	5745				
153	5765				
157	5785				
161	5805				
165	5825				

Note: Until further notice, devices subject to this section shall not be capable of transmitting in the band 5600-5650 MHz. This restriction is for the protection of weather radars operating in this band.

The Lowest frequency, the middle frequency and the highest frequency of channel were selected to perform the test, and the selected channel see below:

For 802.11a/n(HT20)

Band I (5150 - 5250 MHz)			Band IV (5725 - 5850 MHz)		
Channel Number	Channel Number	Channel Number	Channel Number	Channel	Frequency (MHz)
36	149	149	149	Low	5260
44	157	157	157	Mid	5300
48	165	165	165	High	5320

For 802.11n (HT40)

Band I (5150 - 5250 MHz)			Band IV (5725 - 5850 MHz)		
Channel Number	Channel Number	Channel Number	Channel Number	Channel	Frequency (MHz)
38	151	151	151	Low	5270
46	159	159	159	High	5310

For 802.11ac(HT80)

Band I (5150 - 5250 MHz)			Band IV (5470 - 5725 MHz)		
Channel Number	Channel Number	Channel Number	Channel Number	Channel	Frequency (MHz)
42	155	155	155	Low	5290

Note: Preliminary tests were performed in different data rate in above table to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate	Modulation Type	Band I	Band IV
				Channel	Channel
RF Output Power	11a	6	BPSK	48/44/36	165/157/149
	11n(20 MHz)	6.5		48/44/36	165/157/149
	11n(40 MHz)	13.5		46/38	159/151
	11ac(80 MHz)	MCS0		42	155
Emission Bandwidth & 99% Occupied Bandwidth	11a	6	BPSK	48/44/36	165/157/149
	11n(20 MHz)	6.5		48/44/36	165/157/149
	11n(40 MHz)	13.5		46/38	159/151
	11ac(80 MHz)	VHT-MCS0		42	155
6 dB bandwidth	11a	6	BPSK	N/A	165/157/149
	11n(20 MHz)	6.5		N/A	165/157/149
	11n(40 MHz)	13.5		N/A	159/151
	11ac(80 MHz)	MCS0		N/A	155
Power Spectral Density	11a	6	BPSK	48/44/36	165/157/149
	11n(20 MHz)	6.5		48/44/36	165/157/149
	11n(40 MHz)	13.5		46/38	159/151
	11ac(80 MHz)	MCS0		42	155
Conducted Spurious Emission and Band Edge (Authorized-band)	11a	6	BPSK	48/44/36	165/157/149
	11n(20 MHz)	6.5		48/44/36	165/157/149
	11n(40 MHz)	13.5		46/38	159/151
	11ac(80 MHz)	MCS0		42	155
Radiated Spurious Emissions	11a	6	BPSK	48/44/36	165/157/149
	11n(20 MHz)	6.5		48/44/36	165/157/149
	11n(40 MHz)	13.5		46/38	159/151
	11ac(80 MHz)	MCS0		42	155
Band Edge (Restricted-band)	11a	6	BPSK	48/36	165/149
	11n(20 MHz)	6.5		48/36	165/149
	11n(40 MHz)	13.5		46/38	159/151
	11ac(80 MHz)	MCS0		42	155
Frequency Stability	Unmodulated	N/A	N/A	36	N/A

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15 Subpart E (10-1-15 Edition)	Unlicensed National Information Infrastructure Devices
2	KDB Publication 789033 D02v01r03	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E
3	RSS-Gen (Issue 4, Nov. 2014)	General Requirements for Compliance of Radio Apparatus
4	RSS-247 (Issue 1, May 2015)	Digital Transmission Systems (DTSS), Frequency Hopping Systems(FHSS) and Licence-Exemp Local Area Network (LE-LAN) Devices
5	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

3.2 Verdict

No.	Description	FCC Part No.	RSS Part No.	Test Result	Verdict
1	Antenna Requirement	15.203	RSS-247, 6.2	--	Pass ^{Note1}
2	RF Output Power	15.407(a)	RSS-247, 6.2	ANNEX A.1	Pass
3	Emission Bandwidth & 99% Occupied Bandwidth	15.407(a)	RSS-247, 6.2	ANNEX A.2	Pass
4	6 dB bandwidth	15.407(e)	RSS-247, 6.2	ANNEX A.3	Pass
5	Power Spectral Density	15.407(a)	RSS-247, 6.2	ANNEX A.4	Pass
6	Conducted Emission	15.207	RSS-GEN, 8.8	ANNEX A.5	Pass
7	Conducted Spurious Emission and Band Edge (Authorized-band)	15.407(b) 15.209	RSS-247, 6.2	ANNEX A.6	Pass
8	Radiated Spurious Emissions and Band Edge (Restricted-band)	15.407(b)	RSS-247, 6.2	ANNEX A.7	Pass
9	Frequency Stability	15.407(g)	--	ANNEX A.8	Pass
10	Receiver Spurious Emissions	--	RSS-Gen, 7.1.2	--	N/A ^{Note2}

Note 1: The EUT has a permanently and irreplaceable attached antenna, which complies with the requirement FCC 15.203.

Note 2: Only radio communication receivers operating in stand-alone mode within the band 30-960 MHz, as well as scanner receivers, are subject to Industry Canada requirements, so this test is not applicable

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

During the measurement, the normal environmental conditions were within the listed ranges:

Relative Humidity	45% - 55%	
Atmospheric Pressure	100 kPa - 102 kPa	
Temperature	NT (Normal Temperature)	+22°C to +25°C
	LT (Low Temperature)	-10°C
	HT (High Temperature)	+40°C
Working Voltage of the EUT	NV (Normal Voltage)	19 V
	LV (Low Voltage)	9 V
	HV (High Voltage)	36 V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	ROHDE&SCHWARZ	FSV-30	103118	2016.07.13	2017.07.12
Vector Signal Generator	ROHDE&SCHWARZ	SMBV100A	177746	2016.07.13	2017.07.12
Signal Generator	ROHDE&SCHWARZ	SMB100A	260592	2016.07.13	2017.07.12
Switch Unit with OSP-B157	ROHDE&SCHWARZ	OSP120	101270	2016.07.13	2017.07.12
Spectrum Analyzer	AGILENT	E4440A	MY45304434	2016.10.15	2017.10.14
EMI Receiver	ROHDE&SCHWARZ	ESRP	101036	2016.07.05	2017.07.04
LISN	SCHWARZBECK	NSLK 8127	8127-687	2016.07.05	2017.07.04
Bluetooth Tester	ROHDE&SCHWARZ	CBT	101005	2016.07.13	2017.07.12
Power Splitter	KMW	DCPD-LDC	1305003215	--	--
Power Sensor	ROHDE&SCHWARZ	NRP-Z21	103971	2016.07.13	2017.07.12
Attenuator (20 dB)	KMW	ZA-S1-201	110617091	--	--
Attenuator (6 dB)	KMW	ZA-S1-61	1305003189	--	--
DC Power Supply	ROHDE&SCHWARZ	HMP2020	018141664	2016.07.13	2017.07.12
Temperature Chamber	ANGELANTIONI SCIENCE	NTH64-40A	1310	2016.07.13	2017.07.12
Test Antenna-Loop(9 kHz-30 MHz)	SCHWARZBECK	FMZB 1519	1519-037	2015.07.22	2017.07.21
Test Antenna-Bi-Log(30 MHz-3 GHz)	SCHWARZBECK	VULB 9163	9163-624	2015.07.22	2017.07.21
Test Antenna-Horn(1-18 GHz)	SCHWARZBECK	BBHA 9120D	9120D-1148	2015.07.22	2017.07.21
Test Antenna-Horn(15-26.5 GHz)	SCHWARZBECK	BBHA 9170	9170-305	2015.07.22	2017.07.21
Test Antenna-Rod	SCHWARZBECK	VAMP 9243	9243-556	2015.07.22	2017.07.21
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2015.02.28	2017.02.27
Anechoic Chamber	EMC	21.1m*11.6	N/A	2016.08.09	2018.08.08

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
	TECHNOLOGY LTD	m*7.35m			
Shielded Enclosure	ChangNing	CN-130701	130703	--	--

4.3 MEASUREMENT UNCERTAINTY

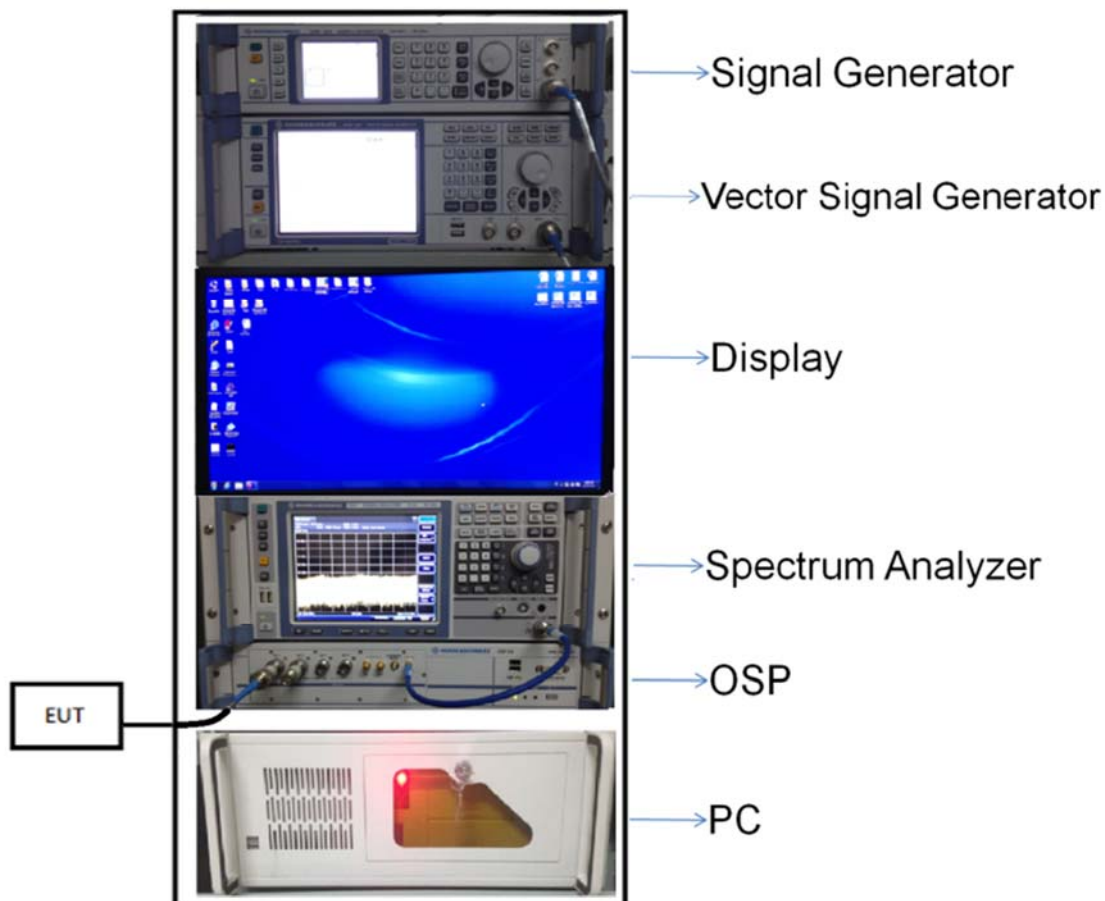
The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Occupied Channel Bandwidth	$\pm 4\%$
RF output power, conducted	± 1.4 dB
Power Spectral Density, conducted	± 2.5 dB
Unwanted Emissions, conducted	± 2.8 dB
All emissions, radiated	± 5.4 dB
Temperature	$\pm 1^{\circ}\text{C}$
Humidity	$\pm 4\%$

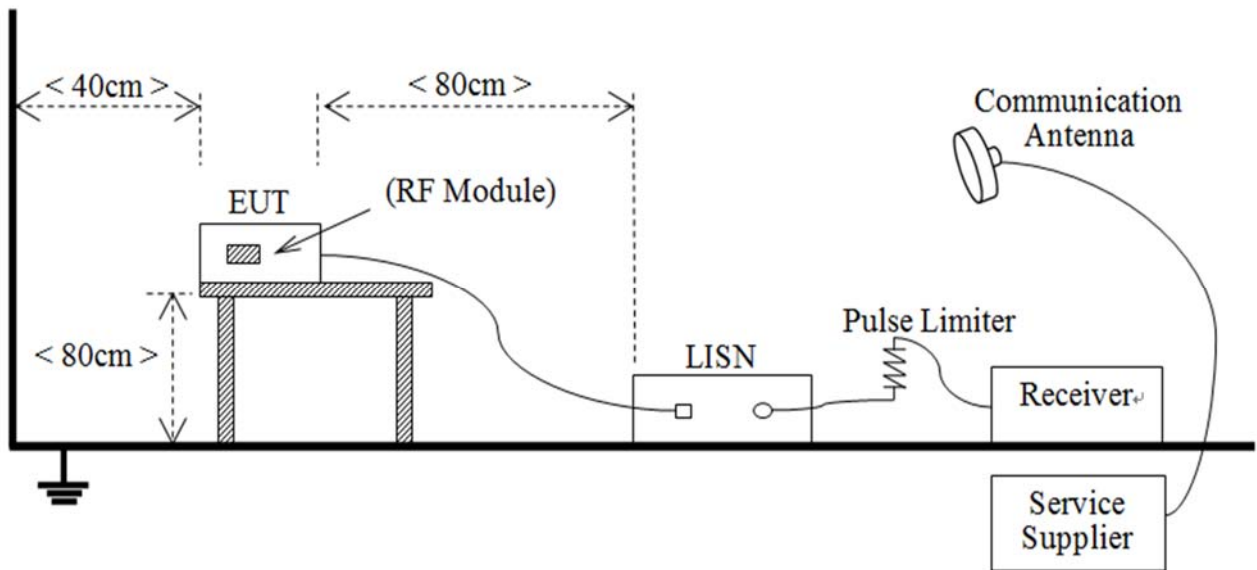
4.4 Description of Test Setup

4.4.1 For Antenna Port Test



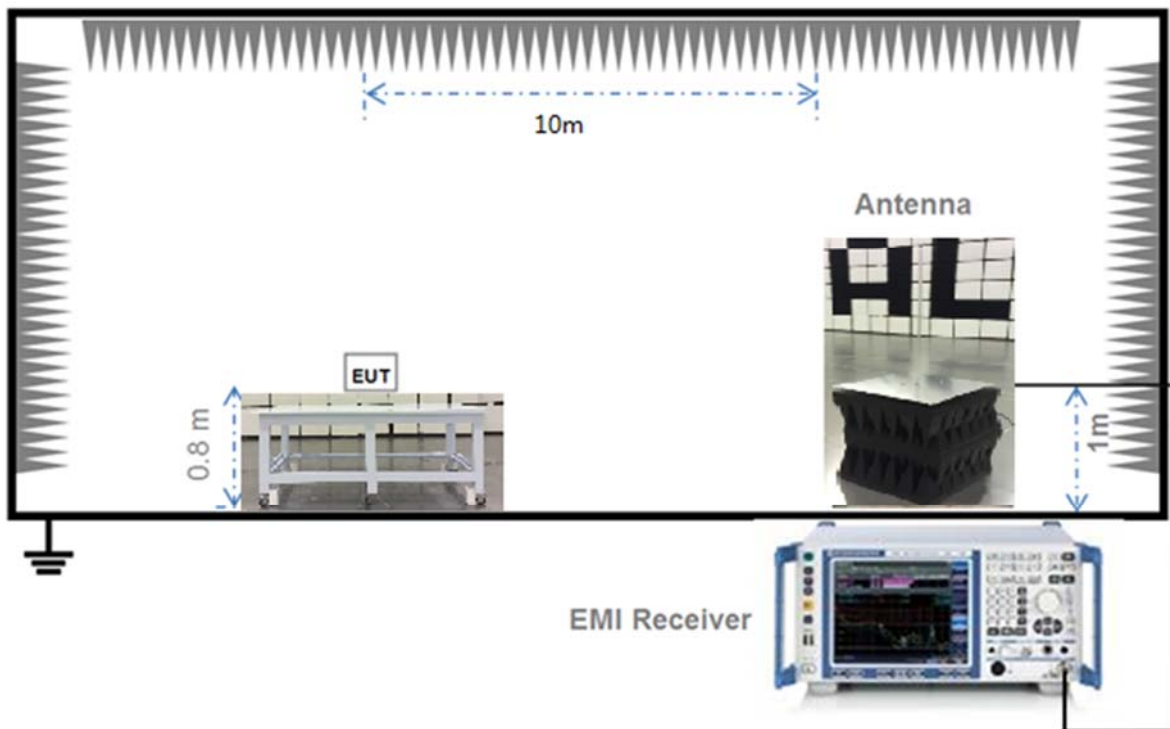
(Diagram 1)

4.4.2 For AC Power Supply Port Test



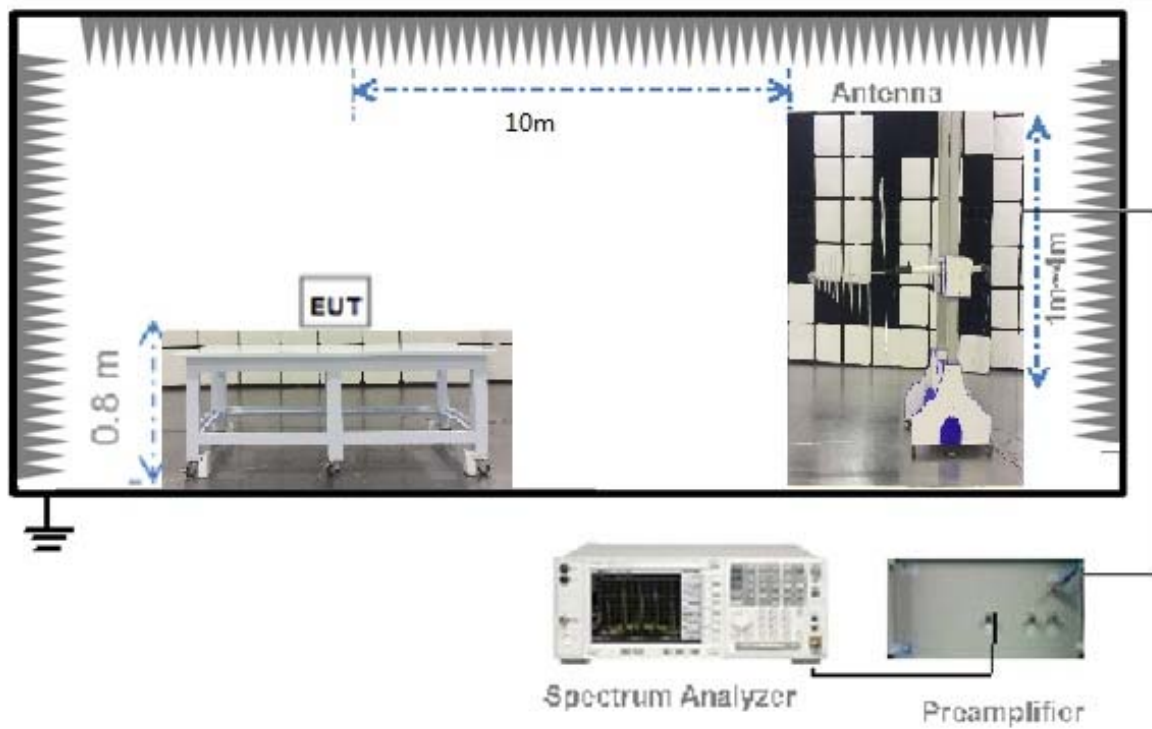
(Diagram 2)

4.4.3 For Radiated Test (Below 30 MHz)



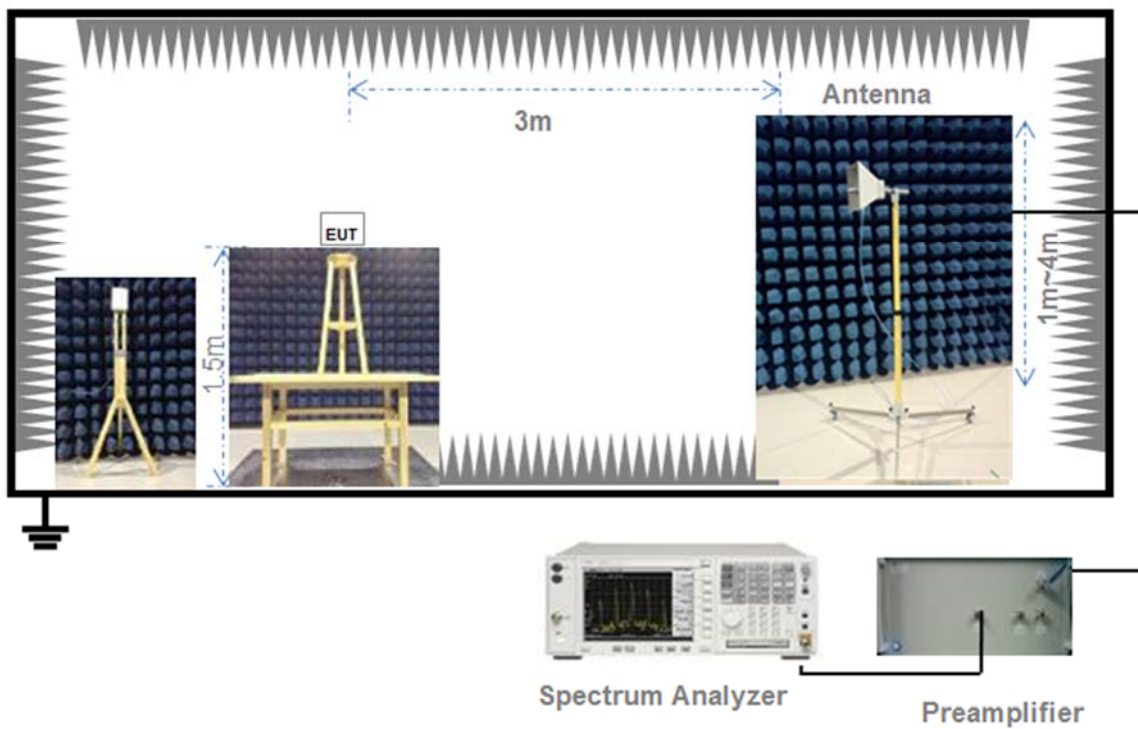
(Diagram 3)

4.4.4 For Radiated Test (30 MHz-1 GHz)



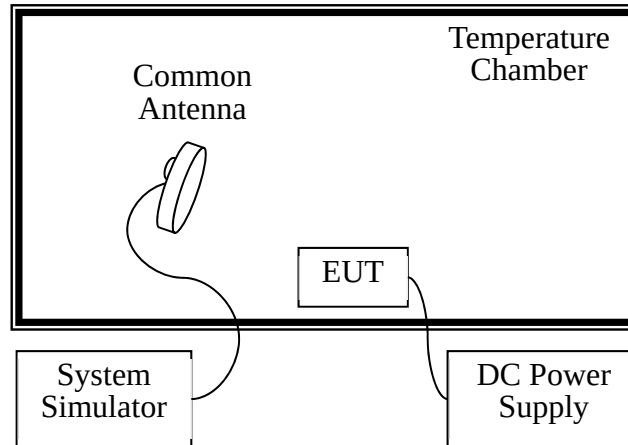
(Diagram 4)

4.4.5 For Radiated Test (Above 1 GHz)



(Diagram 5)

4.4.6 For Frequency Stability Test



(Diagram 6)

5 TEST ITEMS

5.1 RF Output Power

5.1.1 Test Limit

FCC §15.407(a)

The maximum conducted output power should not exceed:

Frequency Band (MHz)	Limit
5150-5250	250 mW
5250-5350	250 mW or 11 dBm + 10log B, whichever is less.
5470-5725	250 mW or 11 dBm + 10log B, whichever is less.
5725-5850	1 W
Note: Where "B" is the 26 dB emissions bandwidth in MHz.	

RSS-247, 6.2

The maximum conducted output power shall not exceed:

Frequency Band (MHz)	Limit
5150-5250	N/A
5250-5350	250 mW or 11 dBm + 10log B, whichever is less.
5470-5725	250 mW or 11 dBm + 10log B, whichever is less.
5725-5850	1 W
Note: Where "B" is the 99% emissions bandwidth in MHz.	

The maximum e.i.r.p. shall not exceed:

Frequency Band (MHz)	Limit
5150-5250	200 mW or 10 dBm + 10log B, whichever is less.
5250-5350	1W or 17 dBm + 10log B, whichever is less.
5470-5725	1W or 17 dBm + 10log B, whichever is less.
5725-5850	N/A
Note: Where "B" is the 99% emissions bandwidth in MHz.	

5.1.2 Test Setup

The section 4.4.1 (Diagram 1) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

5.1.3 Test Procedure

The maximum peak conducted output power may be measured using a broadband Average RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the emission bandwidth and utilize a fast-responding diode detector.

The E.I.R.P used radiated test method. At a test site that has been validated using the procedures of ANSI C63.4 or the latest CISPR 16-1-4 for measurements above 1 GHz, so as to simulate a near free-space environment.

5.1.4 Test Result

Please refer to ANNEX A.1.

5.2 Emission Bandwidth and 6 dB Bandwidth

5.2.1 Limit

FCC §15.407(a), RSS-247, 6.2

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

5.2.2 Test Setup

The test setup photo please refer to 4.4.1 (Diagram 1) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

5.2.3 Test Procedure

Emission bandwidth

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set VBW $\geq 3 \times$ RBW,
3. Detector = Peak.
4. Trace mode = Max hold.
5. Measure the maximum width of the emission that is 26 dB down from the peak of the emission.

Occupied Bandwidth

1. Set Span = 1.5 times to 5.0 times the OBW
2. Set RBW = 1% to 5% of the OBW.
3. Set VBW $\geq 3 \times$ RBW, Detector = Peak.
4. Trace mode = Max hold.
5. Use the 99% power bandwidth function of the instrument.

6 dB bandwidth

1. Set RBW = 100 kHz, VBW = 300 kHz.
2. Detector = Peak. Trace mode = Max hold.
3. Allow the trace to stabilize.
4. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

5.2.4 Test Result

Please refer to ANNEX A.2 and ANNEX A.3.

5.3 Power Spectral density (PSD)

5.3.1 Limit

FCC §15.407(a)

The maximum power spectral density should not exceed:

Frequency Band (MHz)	Limit
5150-5250	11 dBm/MHz
5250-5350	11 dBm/MHz
5470-5725	11 dBm/MHz
5725-5850	30 dBm/500kHz

RSS-247, 6.2

The maximum power spectral density should not exceed:

Frequency Band (MHz)	Limit
5150-5250	N/A
5250-5350	11 dBm/MHz
5470-5725	11 dBm/MHz
5725-5850	30 dBm/500kHz

The e.i.r.p. spectral density should not exceed:

Frequency Band (MHz)	Limit
5150-5250	10 dBm/MHz
5250-5350	N/A
5470-5725	N/A
5725-5850	N/A

5.3.2 Test Setup

The section 4.4.1 (Diagram 1) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

5.3.3 Test Procedure

Set the spectrum analyzer or EMI receiver span to view the entire emission bandwidth.

1. Set RBW = 510 kHz/1 MHz, VBW $\geq 3 \times$ RBW, Sweep time = Auto, Detector = RMS.
2. Allow the sweeps to continue until the trace stabilizes.
3. Use the peak marker function to determine the maximum amplitude level.
4. The E.I.R.P spectral density used radiated test method. At a test site that has been validated using the procedures of ANSI C63.4 or the latest CISPR 16-1-4 for measurements above 1 GHz, so as to simulate a near free-space environment.

5.3.4 Test Result

Please refer to ANNEX A.4.

5.4 Conducted Emission

5.4.1 Limit

FCC §15.207, RSS-GEN, 8.8

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dB μ V)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

5.4.2 Test Setup

The section 4.4.2 (Diagram 2) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

5.4.3 Test Procedure

The maximum conducted interference is searched using Peak (PK), if the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. Refer to recorded points and plots below.

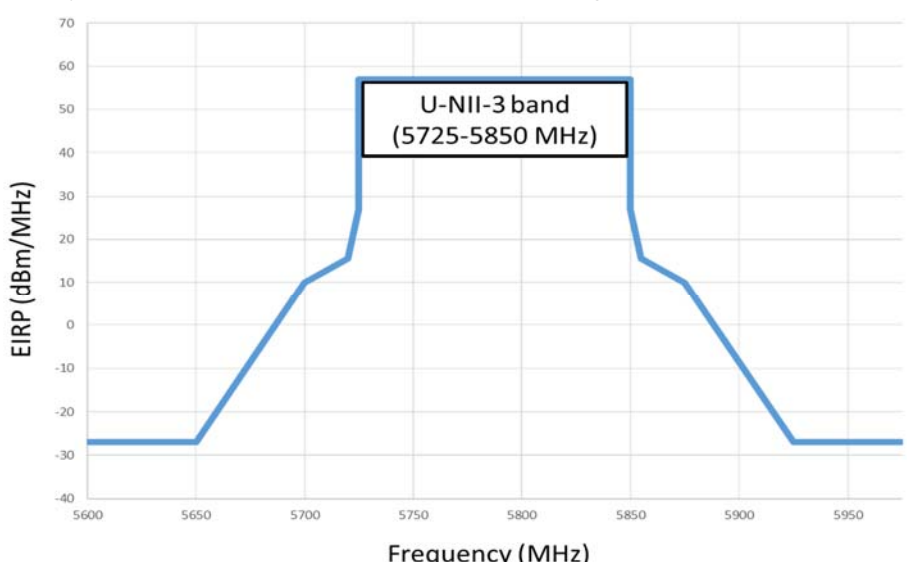
5.4.4 Test Result

Please refer to ANNEX A.5.

5.5 Conducted Spurious Emission and Band Edge (Authorized-band)

5.5.1 Limit

FCC §15.407(b)

Un-restricted band emissions	
Frequency Band (MHz)	Limit
5150 - 5250	Outside of the 5.15-5.35 GHz band: e.i.r.p. -27 dBm
5250 - 5350	Outside of the 5.15-5.35 GHz band: e.i.r.p. -27 dBm
5470 - 5725	Outside of the 5.47-5.725 GHz band: e.i.r.p. -27 dBm
5725 - 5850	All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.  The graph illustrates the EIRP limit for the U-NII-3 band (5725-5850 MHz). The y-axis represents EIRP in dBm/MHz, ranging from -40 to 70. The x-axis represents Frequency in MHz, ranging from 5600 to 5950. The limit is -27 dBm/MHz for frequencies below 5650 MHz and above 5950 MHz. Between 5650 MHz and 5850 MHz, the limit increases linearly from -27 dBm/MHz to 27 dBm/MHz at the band edge (5850 MHz). A label 'U-NII-3 band (5725-5850 MHz)' is placed within the graph area.

RSS-247, 6.2

Un-restricted band emissions	
Frequency Band (MHz)	Limit
5150 - 5250	Outside of the 5.15-5.35 GHz band: e.i.r.p. -27 dBm, However, any unwanted emissions that fall into the band 5250-5350 MHz must be 26 dBc, when measured using a resolution bandwidth between 1 and 5% of the occupied bandwidth, above 5.25 GHz.
5250 - 5350	Outside of the 5.15-5.35 GHz band: e.i.r.p. -27 dBm. And any emissions within the band 5150-5250 MHz shall meet the power spectral density limits of 10 dBm/MHz, The device shall be labelled "for indoor use only."
5470 - 5725	Outside of the 5.47-5.725 GHz band: e.i.r.p. -27 dBm
5725 - 5850	5715 -5725 MHz: e.i.r.p. -17 dBm 5850 -5860 MHz: e.i.r.p. -17 dBm Other un-restricted band: e.i.r.p. -27 dBm

5.5.2 Test Setup

See section 4.4.2 (Diagram 2) for test setup description for the antenna port. The photo of test setup please refer to ANNEX B.

5.5.3 Test Procedure

Use the following spectrum analyzer settings:

Span = wide enough to capture the peak level of the in-band emission and all spurious emissions (e.g., harmonics) from the lowest frequency generated in the EUT up through the 10th harmonic. Typically, several plots are required to cover this entire span.

RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

Allow the trace to stabilize

5.5.4 Test Result

Please refer to ANNEX A.6.

5.6 Radiated Spurious Emissions and Band Edge (Restricted-band)

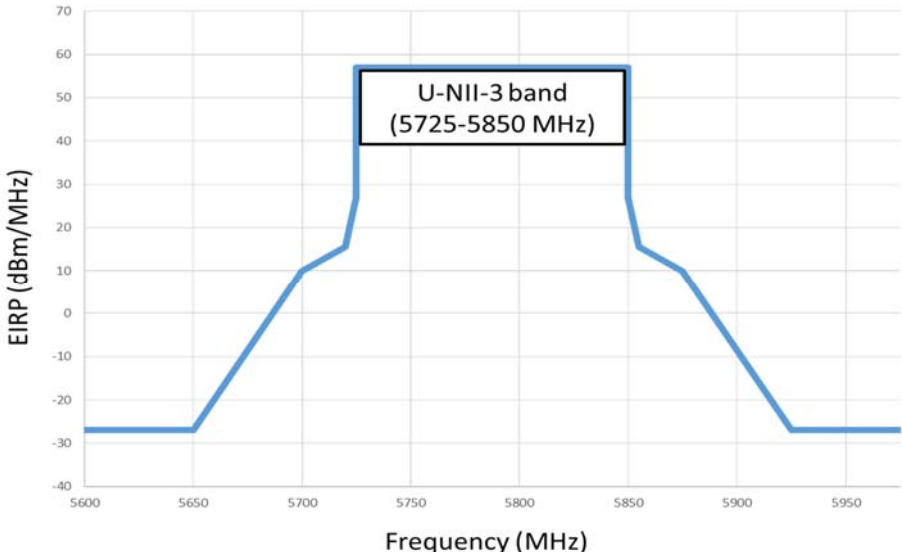
5.6.1 Limit

FCC §15.209 & 15.407(b), RSS-247, 6.2

Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

Note 1: The Limit for radiated test was performed according to FCC Part 15C

Note 2: The tighter limit applies at the band edge.

Un-restricted band emissions	
Out Operating Band (MHz)	Limit
5150 - 5250	e.i.r.p. -27 dBm (68.2 dBuV/m@3m)
5250 - 5350	e.i.r.p. -27 dBm (68.2 dBuV/m@3m)
5470 - 5725	e.i.r.p. -27 dBm (68.2 dBuV/m@3m)
5725 - 5850	All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge. 

Note: The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength.

5.6.2 Test Setup

The section 4.4.3-4.4.5 (Diagram 3 - Diagram 5) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

5.6.3 Test Procedure

Since the emission limits are specified in terms of radiated field strength levels, measurements performed to demonstrate compliance have traditionally relied on a radiated test configuration. Radiated measurements remain the principal method for demonstrating compliance to the specified limits; however antenna-port conducted measurements are also now acceptable to demonstrate compliance (see below for details). When radiated measurements are utilized, test site requirements and procedures for maximizing and measuring radiated emissions that are described in ANSI C63.10 shall be followed.

Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.

General Procedure for conducted measurements in restricted bands

- a) Measure the conducted output power (in dBm) using the detector specified (see guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).
- b) Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see guidance on determining the applicable antenna gain)
- c) Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).
- d) For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all chains in linear terms (e.g., Watts, mW).
- e) Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

$$E = \text{EIRP} - 20\log D + 104.8$$

where:

E = electric field strength in dB μ V/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

- f) Compare the resultant electric field strength level to the applicable limit.
- g) Perform radiated spurious emission test.

Quasi-Peak measurement procedure

The specifications for measurements using the CISPR quasi-peak detector can be found in Publication 16 of the International Special Committee on Radio Frequency Interference (CISPR) of the International Electrotechnical Commission.

As an alternative to CISPR quasi-peak measurement, compliance can be demonstrated to the applicable emission limits using a peak detector.

Peak power measurement procedure

Peak emission levels are measured by setting the instrument as follows:

- a) RBW = as specified in Table 1.
- b) VBW $\geq 3 \times$ RBW.
- c) Detector = Peak.
- d) Sweep time = auto.
- e) Trace mode = max hold.
- f) Allow sweeps to continue until the trace stabilizes. (Note that the required measurement time may be longer for low duty cycle applications).

Table 1—RBW as a function of frequency

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

If the peak-detected amplitude can be shown to comply with the average limit, then it is not necessary to perform a separate average measurement.

Trace averaging across on and off times of the EUT transmissions followed by duty cycle correction

If continuous transmission of the EUT (i.e., duty cycle ≥ 98 percent) cannot be achieved and the duty cycle is constant (i.e., duty cycle variations are less than ± 2 percent), then the following procedure shall be used:

- a) The EUT shall be configured to operate at the maximum achievable duty cycle.
- b) Measure the duty cycle, x , of the transmitter output signal as described in section 6.0.
- c) RBW = 1 MHz (unless otherwise specified).
- d) VBW $\geq 3 \times$ RBW.
- e) Detector = RMS, if $\text{span}/(\# \text{ of points in sweep}) \leq (\text{RBW}/2)$. Satisfying this condition may require increasing the number of points in the sweep or reducing the span. If this condition cannot be satisfied, then the detector mode shall be set to peak.
- f) Averaging type = power (i.e., RMS).
 - 1) As an alternative, the detector and averaging type may be set for linear voltage averaging.
 - 2) Some instruments require linear display mode in order to use linear voltage averaging. Log or dB averaging shall not be used.
- g) Sweep time = auto.
- h) Perform a trace average of at least 100 traces.
- i) A correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle. The correction factor is computed as follows:
 - 1) If power averaging (RMS) mode was used in step f), then the applicable correction factor is $10 \log(1/x)$, where x is the duty cycle.
 - 2) If linear voltage averaging mode was used in step f), then the applicable correction factor is $20 \log(1/x)$, where x is the duty cycle.
 - 3) If a specific emission is demonstrated to be continuous (≥ 98 percent duty cycle) rather than turning on and off with the transmit cycle, then no duty cycle correction is required for that emission.

NOTE: Reduction of the measured emission amplitude levels to account for operational duty factor is not permitted. Compliance is based on emission levels occurring during transmission - not on an average across on and off times of the transmitter.

Determining the applicable transmit antenna gain

A conducted power measurement will determine the maximum output power associated with a restricted band emission; however, in order to determine the associated EIRP level, the gain of the transmitting antenna (in dBi) must be added to the measured output power (in dBm).

Since the out-of-band characteristics of the EUT transmit antenna will often be unknown, the use of a conservative antenna gain value is necessary. Thus, when determining the EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2 dBi, whichever is greater. However, for devices that operate in multiple frequency bands while using the same transmit antenna, the highest gain of the antenna within the operating band nearest in frequency to the restricted band emission being measured may be used in lieu of the overall highest gain when the emission is at a frequency that is within 20 percent of the nearest band edge frequency, but in no case shall a value less than 2 dBi be used.

See KDB 662911 for guidance on calculating the additional array gain term when determining the effective antenna gain for a EUT with multiple outputs occupying the same or overlapping frequency ranges in the same band.

Radiated spurious emission test

An additional consideration when performing conducted measurements of restricted band emissions is that unwanted emissions radiating from the EUT cabinet, control circuits, power leads, or intermediate circuit elements will likely go undetected in a conducted measurement configuration. To address this concern, a radiated test shall be performed to ensure that emissions emanating from the EUT cabinet (rather than the antenna port) also comply with the applicable limits.

For these cabinet radiated spurious emission measurements the EUT transmit antenna may be replaced with a termination matching the nominal impedance of the antenna. Procedures for performing radiated measurements are specified in ANSI C63.10. All detected emissions shall comply with the applicable limits.

The measurement frequency range is from 30 MHz to the 10th harmonic of the fundamental frequency. The Turn Table is actuated to turn from 0° to 360°, and both horizontal and vertical polarizations of the Test Antenna are used to find the maximum radiated power. Mid channels on all channel bandwidth verified. Only the worst RB size/offset presented.

The power of the EUT transmitting frequency should be ignored.

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

Use the following spectrum analyzer settings:

Span = wide enough to fully capture the emission being measured

RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz

VBW $\geq$ RBW

Sweep = auto

Detector function = peak

Trace = max hold

5.6.4 Test Result

Please refer to ANNEX A.7 and Please refer to ANNEX A.9

5.7 Frequency Stability

5.7.1 Limit

FCC §15.407(g)

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

5.7.2 Test Setup

The section 4.4.6 (Diagram 6) test setup description was used for this test. The photo of test setup please refer to ANNEX B.

5.7.3 Test Procedure

The EUT is installed in an environment test chamber with external power source.

Set the chamber to operate at 50 centigrade and external power source to output at nominal voltage of EUT.

A sufficient stabilization period at each temperatures is used prior to each frequency measurement.

When temperature is stabled, measure the frequency stability.

The test shall be performed under -30 to 50 centigrade and 85 to 115 percent of the nominal voltage.

Change setting of chamber and external power source to complete all conditions.

5.7.4 Test Result

Please refer to ANNEX A.8.

ANNEX A TEST RESULT

A.1 RF Output Power

Note 1: For FCC standard, if transmitting antennas of directional gain greater than 6 dBi are used, all band maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note 2: For IC standard, the band IV (5725 - 5850 MHz) maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Test Data

Conducted Power

Band I (5150 - 5250 MHz)						
Mode	Channel	Frequency (MHz)	Conducted Power (dBm)	Conducted Power (mW)	FCC Limit (mW)	Verdict
11a	CH36	5180	12.60	18.20	250.00	Pass
11a	CH44	5220	12.76	18.88	250.00	Pass
11a	CH48	5240	13.08	20.32	250.00	Pass
11n (HT20)	CH36	5180	12.41	17.42	250.00	Pass
11n (HT20)	CH44	5220	12.79	19.01	250.00	Pass
11n (HT20)	CH48	5240	13.10	20.42	250.00	Pass
11n (HT40)	CH38	5190	12.91	19.54	250.00	Pass
11n (HT40)	CH46	5230	13.45	22.13	250.00	Pass
11ac (HT80)	CH42	5210	12.36	17.22	250.00	Pass

Band IV (5725 - 5850 MHz)						
Mode	Channel	Frequency (MHz)	Conducted Power (dBm)	Conducted Power (mW)	FCC/IC Limit (W)	Verdict
11a	CH149	5745	10.04	10.09	1.00	Pass
11a	CH157	5785	8.79	7.57	1.00	Pass
11a	CH165	5825	8.96	7.87	1.00	Pass
11n (HT20)	CH149	5745	9.51	8.93	1.00	Pass
11n (HT20)	CH157	5785	8.88	7.73	1.00	Pass
11n (HT20)	CH165	5825	8.65	7.33	1.00	Pass
11n (HT40)	CH151	5755	9.69	9.31	1.00	Pass
11n (HT40)	CH159	5795	9.06	8.05	1.00	Pass
11ac (HT80)	CH155	5775	9.17	8.26	1.00	Pass

EIRP Power

Band I (5150 - 5250 MHz)								
Note: The limit is 200 mW or 10 dBm + 10log B, whichever is less. Where "B" is the 99% emissions bandwidth in MHz (Please refer to the section A.2).								
Mode	Channel	Frequency (MHz)	EIRP Power (dBm)	EIRP Power (mW)	99% EBW (MHz)	10 dBm + 10log B (mW)	IC Limit (mW)	Verdict
11a	CH36	5180	14.60	28.84	17.95	179.47	179.47	Pass
11a	CH44	5220	14.76	29.92	17.95	179.47	179.47	Pass
11a	CH48	5240	15.08	32.21	17.95	179.47	179.47	Pass
11n (HT20)	CH36	5180	14.41	27.61	17.81	178.24	178.24	Pass
11n (HT20)	CH44	5220	14.79	30.13	18.87	188.80	188.80	Pass
11n (HT20)	CH48	5240	15.1	32.36	18.87	188.80	188.80	Pass
11n (HT40)	CH38	5190	14.91	30.97	36.60	365.59	250.00	Pass
11n (HT40)	CH46	5230	15.45	35.08	36.60	365.59	250.00	Pass
11ac (HT80)	CH42	5210	14.36	27.29	75.80	758.58	250.00	Pass

A.2 Emission Bandwidth & 99% Bandwidth

Note: Test plots please refer to the document “Annex No.: BL-SZ1690367-603 Data Part 1.pdf”.

Test Data

Band I (5150 - 5250 MHz)				
Mode	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	CH36	5180	19.54	17.95
11a	CH44	5220	21.00	17.95
11a	CH48	5240	19.92	17.95
11n (HT20)	CH36	5180	20.68	17.81
11n (HT20)	CH44	5220	20.90	18.87
11n (HT20)	CH48	5240	20.66	18.87
11n (HT40)	CH38	5190	38.72	36.60
11n (HT40)	CH46	5230	38.62	36.60
11ac (HT80)	CH42	5210	79.00	75.80

Band IV (5725 - 5850 MHz)				
Mode	Channel	Frequency (MHz)	26 dB Bandwidth (MHz)	99% Bandwidth (MHz)
11a	CH149	5745	20.82	18.12
11a	CH157	5785	21.06	18.18
11a	CH165	5825	20.84	18.06
11n (HT20)	CH149	5745	20.92	18.99
11n (HT20)	CH157	5785	20.86	19.04
11n (HT20)	CH165	5825	20.90	18.93
11n (HT40)	CH151	5755	38.44	36.60
11n (HT40)	CH159	5795	38.58	36.70
11ac (HT80)	CH155	5775	79.55	75.90

A.3 6 dB Bandwidth

Note: Test plots please refer to the document “Annex No.: BL-SZ1690367-603 Data Part 2.pdf”.

Test Data

Band IV (5725 - 5850 MHz)					
Mode	Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limit (kHz)	Verdict
11a (HT20)	CH149	5745	16.62	500	Pass
11a (HT20)	CH157	5785	16.42	500	Pass
11a (HT20)	CH165	5825	16.67	500	Pass
11n (HT20)	CH149	5745	17.72	500	Pass
11n (HT20)	CH157	5785	17.92	500	Pass
11n (HT20)	CH165	5825	17.87	500	Pass
11n (HT40)	CH151	5755	36.42	500	Pass
11n (HT40)	CH159	5795	36.42	500	Pass
11ac (HT80)	CH155	5775	76.47	500	Pass

A.4 Power Spectral Density

Note: Test plots please refer to the document “Annex No.: BL-SZ1690367-603 Data Part 3.pdf”.

Test Data

Note 1: The RBW used in Band IV is 1 MHz, and the PSD factor is: $10 \cdot \log(500 \text{ kHz/RBW}) = -3 \text{ dBm}$.

Band I (5150 - 5250 MHz)					
Mode	Channel	Frequency (MHz)	PSD (dBm/MHz)	FCC Limit(dBm/MHz)	Verdict
11a	CH36	5180	0.77	11	Pass
11a	CH44	5220	0.93	11	Pass
11a	CH48	5240	1.28	11	Pass
11n (HT20)	CH36	5180	0.27	11	Pass
11n (HT20)	CH44	5220	0.75	11	Pass
11n (HT20)	CH48	5240	1.05	11	Pass
11n (HT40)	CH38	5190	-2.26	11	Pass
11n (HT40)	CH46	5230	-1.31	11	Pass
11ac (HT80)	CH42	5210	-6.05	11	Pass

Band IV (5725 - 5850 MHz)						
Mode	Channel	Frequency (MHz)	PSD (dBm/MHz)	PSD (dBm/500kHz)	FCC/IC Limit (dBm/500 kHz)	Verdict
11a	CH149	5745	-1.79	-4.79	30	Pass
11a	CH157	5785	-3.62	-6.62	30	Pass
11a	CH165	5825	-3.70	-6.70	30	Pass
11n (HT20)	CH149	5745	-3.27	-6.27	30	Pass
11n (HT20)	CH157	5785	-3.15	-6.15	30	Pass
11n (HT20)	CH165	5825	-3.23	-6.23	30	Pass
11n (HT40)	CH151	5755	-6.22	-9.22	30	Pass
11n (HT40)	CH159	5795	-6.70	-9.70	30	Pass
11ac (HT80)	CH155	5775	-9.49	-12.49	30	Pass

EIRP PSD

Band I (5150 - 5250 MHz)					
Mode	Channel	Frequency (MHz)	PSD (dBm/MHz)	IC Limit (dBm/MHz)	Verdict
11a	CH36	5180	2.77	10	Pass
11a	CH44	5220	2.93	10	Pass
11a	CH48	5240	3.28	10	Pass
11n (HT20)	CH36	5180	2.27	10	Pass
11n (HT20)	CH44	5220	2.75	10	Pass
11n (HT20)	CH48	5240	3.05	10	Pass
11n (HT40)	CH38	5190	-0.26	10	Pass
11n (HT40)	CH46	5230	0.69	10	Pass
11ac (HT80)	CH42	5210	-4.05	10	Pass

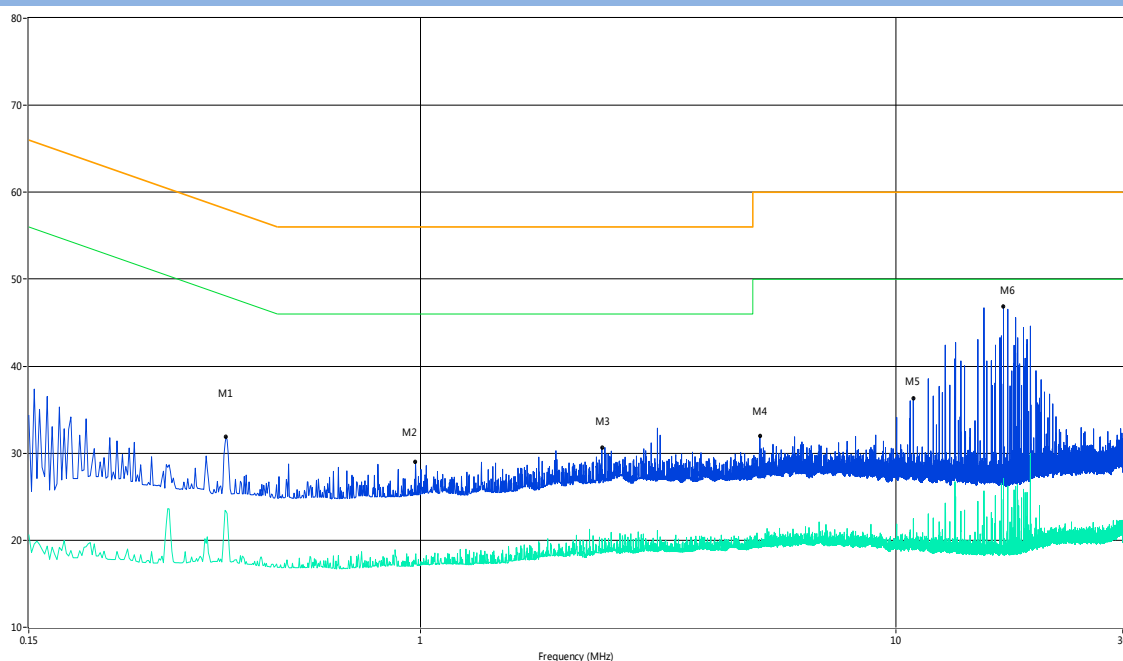
A.5 Conducted Emissions

Note 1: The EUT is working in the Normal link mode.

Note 2: Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 60 Hz and 240 VAC, 50 Hz) for which the device is capable of operation. So, The configuration 120 VAC, 60 Hz and 240 VAC, 50 Hz were tested respectively, but only the worst configuration (120 VAC, 60 Hz) shown here.

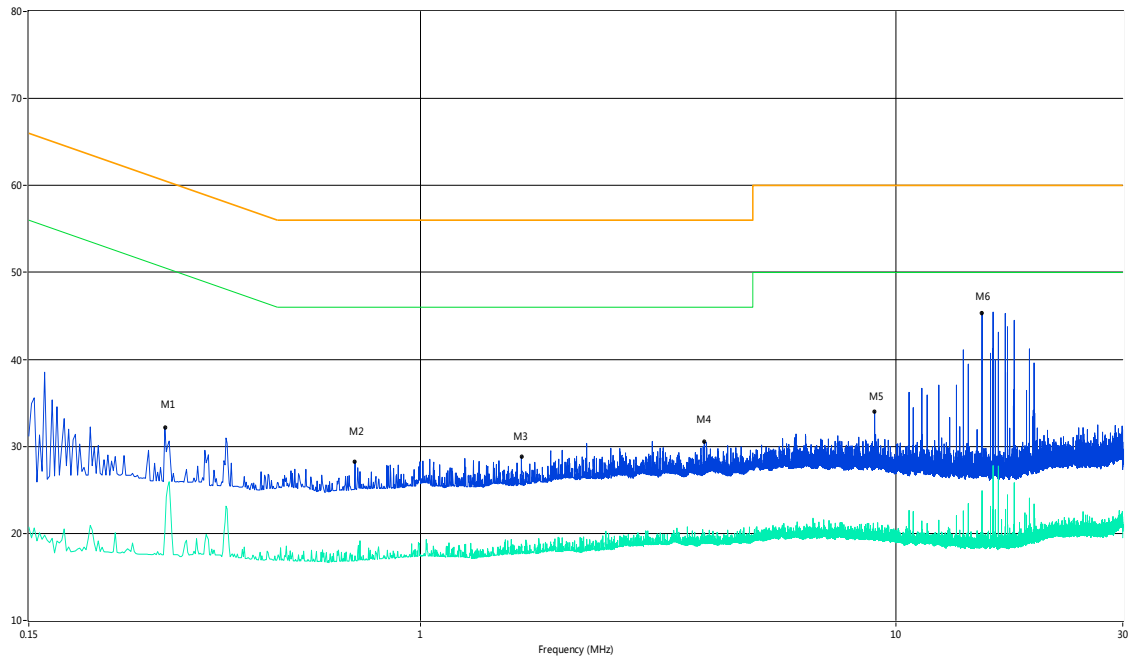
Test Data and Plots

PHASE L



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.390	31.9	11.00	58.1	26.20	Peak	L Line	Pass
1**	0.390	23.3	11.00	48.1	24.80	AV	L Line	Pass
2	0.976	29.0	11.00	56.0	27.00	Peak	L Line	Pass
2**	0.976	18.3	11.00	46.0	27.70	AV	L Line	Pass
3	2.408	30.6	11.00	56.0	25.40	Peak	L Line	Pass
3**	2.408	20.2	11.00	46.0	25.80	AV	L Line	Pass
4	5.176	32.0	11.00	60.0	28.00	Peak	L Line	Pass
4**	5.176	19.8	11.00	50.0	30.20	AV	L Line	Pass
5	10.880	36.3	11.00	60.0	23.70	Peak	L Line	Pass
5**	10.880	22.5	11.00	50.0	27.50	AV	L Line	Pass
6	16.838	46.9	11.00	60.0	13.10	Peak	L Line	Pass
6**	16.838	27.1	11.00	50.0	22.90	AV	L Line	Pass

PHASE N



No.	Frequency (MHz)	Results (dBuV)	Factor (dB)	Limit (dBuV)	Margin (dB)	Detector	Line	Verdict
1	0.290	32.1	11.00	60.5	28.40	Peak	N Line	Pass
1**	0.290	20.2	11.00	50.5	30.30	AV	N Line	Pass
2	0.728	28.3	11.00	56.0	27.70	Peak	N Line	Pass
2**	0.728	17.4	11.00	46.0	28.60	AV	N Line	Pass
3	1.630	28.8	11.00	56.0	27.20	Peak	N Line	Pass
3**	1.630	18.8	11.00	46.0	27.20	AV	N Line	Pass
4	3.952	30.6	11.00	56.0	25.40	Peak	N Line	Pass
4**	3.952	20.1	11.00	46.0	25.90	AV	N Line	Pass
5	9.022	34.0	11.00	60.0	26.00	Peak	N Line	Pass
5**	9.022	20.3	11.00	50.0	29.70	AV	N Line	Pass
6	15.172	45.3	11.00	60.0	14.70	Peak	N Line	Pass
6**	15.172	24.9	11.00	50.0	25.10	AV	N Line	Pass

A.6 Conducted Spurious Emission and Band Edge (Authorized-band)

Note 1: Test plots please refer to the document “Annex No.: BL-SZ1690367-603 Data Part 4.pdf”.

Test Band	Mode	Channel	Verdict
Band I	802.11a	Low	Pass
		Middle	Pass
		High	Pass
	802.11n(HT20)	Low	Pass
		Middle	Pass
		High	Pass
	802.11n(HT40)	Low	Pass
		High	Pass
	802.11ac(HT80)	Low	Pass
Band IV	802.11a	Low	Pass
		Middle	Pass
		High	Pass
	802.11n(HT20)	Low	Pass
		Middle	Pass
		High	Pass
	802.11n(HT40)	Low	Pass
		High	Pass
	802.11ac(HT80)	Low	Pass

A.7 Radiated Spurious Emissions and Band Edge (Restricted-band)

A.7.1 Radiated Spurious Emissions

Antenna-port Conducted test data

$$E = \text{EIRP} - 20\log D + 104.8$$

where:

E = electric field strength in dB μ V/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

EIRP= Measure Conducted output power Value (dBm) + Maximum transmit antenna gain (dBi) + The appropriate maximum ground reflection factor (dB)

Test Data(Test frequency: 9 KHz – 25 GHz)

The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.35 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

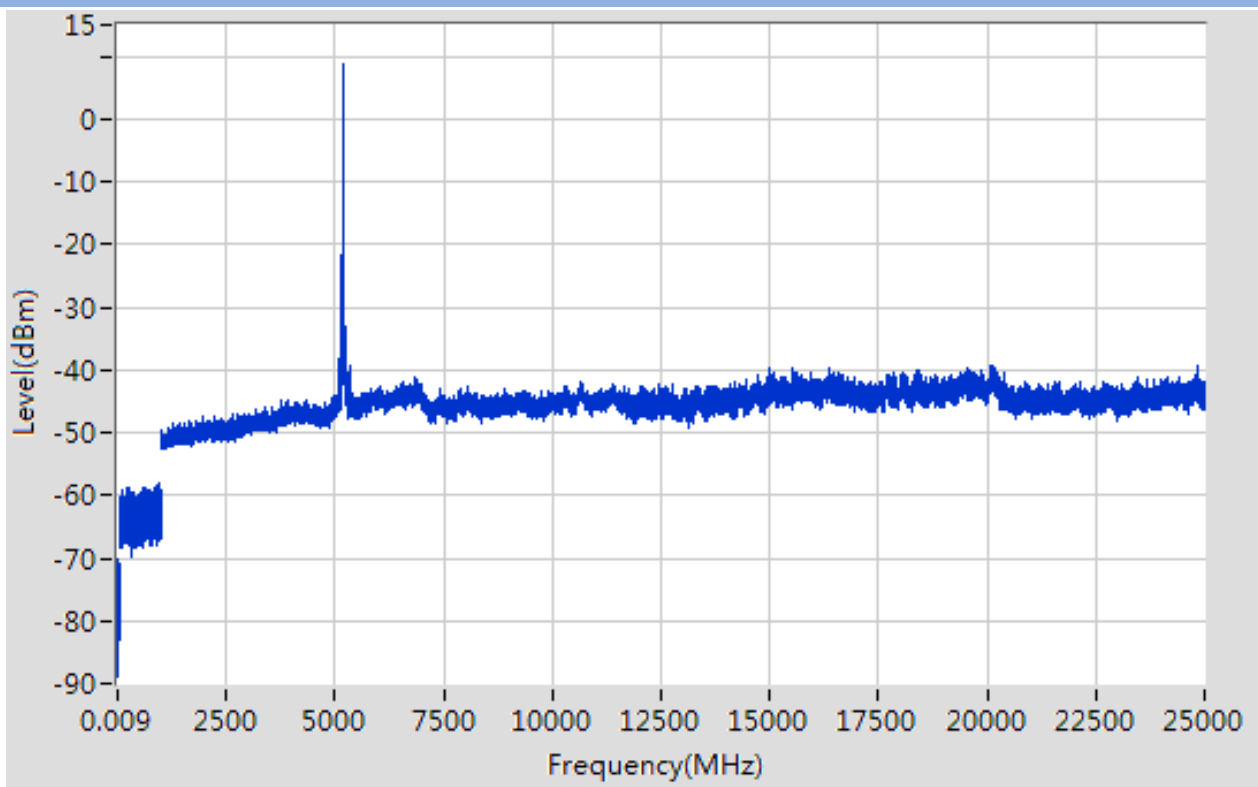
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band I 11a CH36

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Remark	Verdict
0.009	-78.91	6	3	2	QP	24.35	68.20	43.85	Note 2	Pass
25.579	-70.19	6	3	2	QP	33.07	69.54	36.47	--	Pass
944.294	-58.12	4.7	3	2	QP	43.84	68.20	24.36	--	Pass
5182.837	8.79	0	3	2	PK	106.05	N/A	N/A	Note 1	N/A
	6.60		3	2	AV	103.86	N/A	N/A		N/A
6843.196	-41.35	0	3	2	PK	55.91	68.20	12.29	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
10656.254	-41.87	0	3	2	PK	55.39	74.00	18.61	--	Pass
	-54.62		3	2	AV	42.64	54.00	11.36	--	Pass
20100.632	-39.19	0	3	2	PK	58.07	74.00	15.93	--	Pass
	-59.03		3	2	AV	38.23	54.00	15.77	--	Pass

Test Plots

Band I 11a CH36, SPURIOUS 9 KHz to 25 GHz



The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.35 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

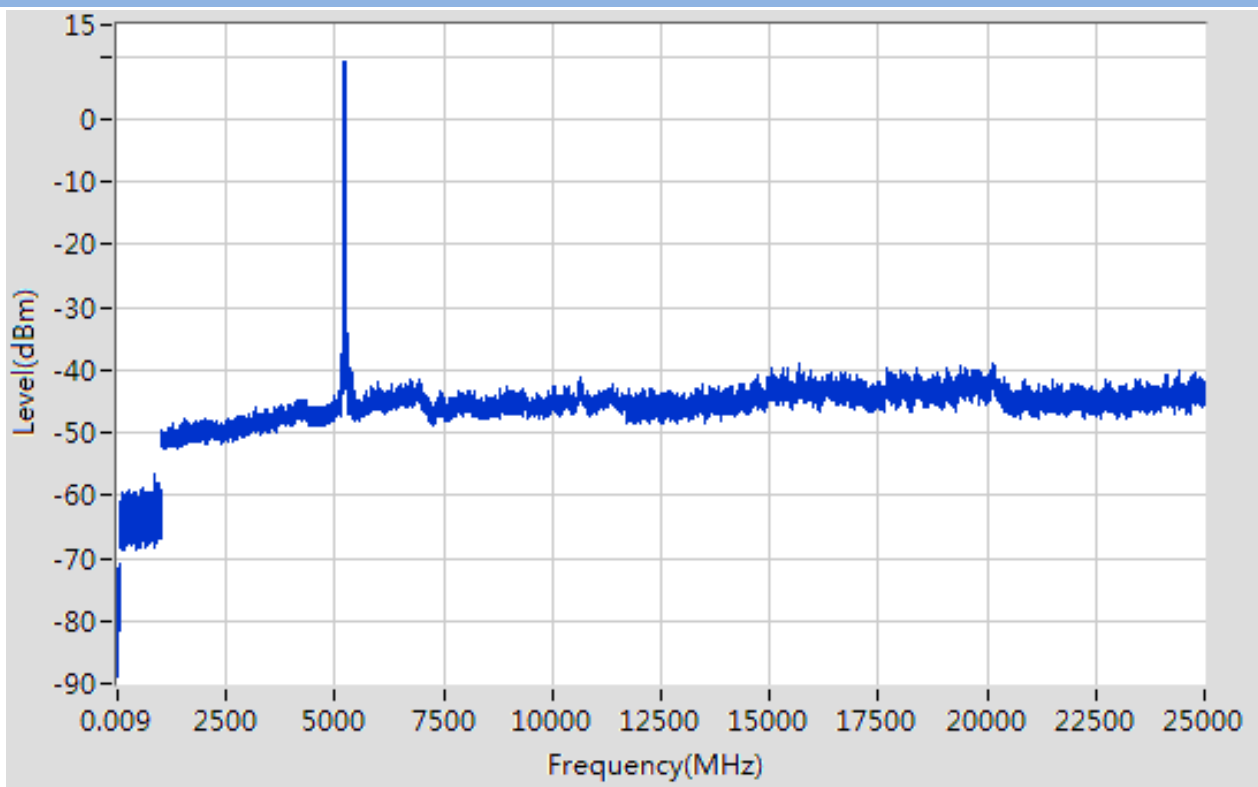
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band I 11a CH44

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Verdict
0.009	-78.59	6	3	2	QP	24.67	68.20	43.53	Note 2	Pass
29.01	-71.02	6	3	2	QP	32.24	68.20	35.96	Note 2	Pass
829.582	-56.66	4.7	3	2	QP	45.30	68.20	22.90	Note 2	Pass
5223.845	9.11	0	3	2	PK	106.37	N/A	N/A	Note 1	N/A
	6.92		3	2	AV	104.18	N/A	N/A		N/A
6931.217	-41.38	0	3	2	PK	55.88	68.20	12.32	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
10654.253	-41.25	0	3	2	PK	56.01	74.00	17.99	--	Pass
	-58.62		3	2	AV	38.64	54.00	15.36	--	Pass
20116.633	-38.8	0	3	2	PK	58.46	74.00	15.54	--	Pass
	-58.03		3	2	AV	39.23	54.00	14.77	--	Pass

Test Plots

Band I 11a CH44, SPURIOUS 9 KHz to 25 GHz



The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.35 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

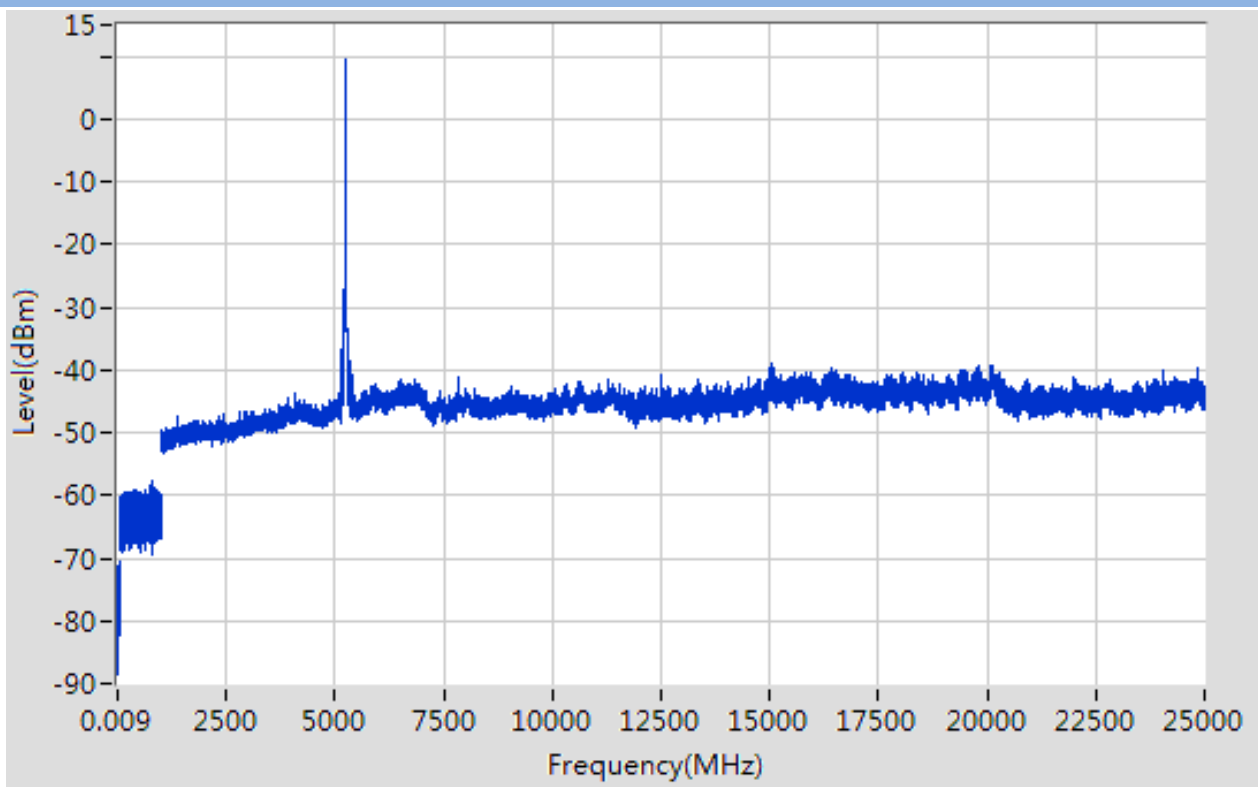
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band I 11a CH48

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Verdict
0.013	-77.96	6	3	2	QP	25.30	68.20	42.90	Note 2	Pass
29.12	-70.61	6	3	2	QP	32.65	68.20	35.55	Note 2	Pass
789.378	-57.8	4.7	3	2	QP	44.16	68.20	24.04	Note 2	Pass
5238.848	9.4	0	3	2	PK	106.66	N/A	N/A	Note 1	N/A
	7.21		3	2	AV	104.47	N/A	N/A		N/A
7853.431	-41.29	0	3	2	PK	55.97	68.20	12.23	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
11267.691	-41.64	0	3	2	PK	55.62	74.00	18.38	--	Pass
	N/A		3	2	AV	N/A	54.00	N/A	Note 3	Pass
15039.251	-39.04	0	3	2	PK	58.22	68.20	9.98	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A

Test Plots

Band I 11a CH48, SPURIOUS 9 KHz to 25 GHz



The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.35 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

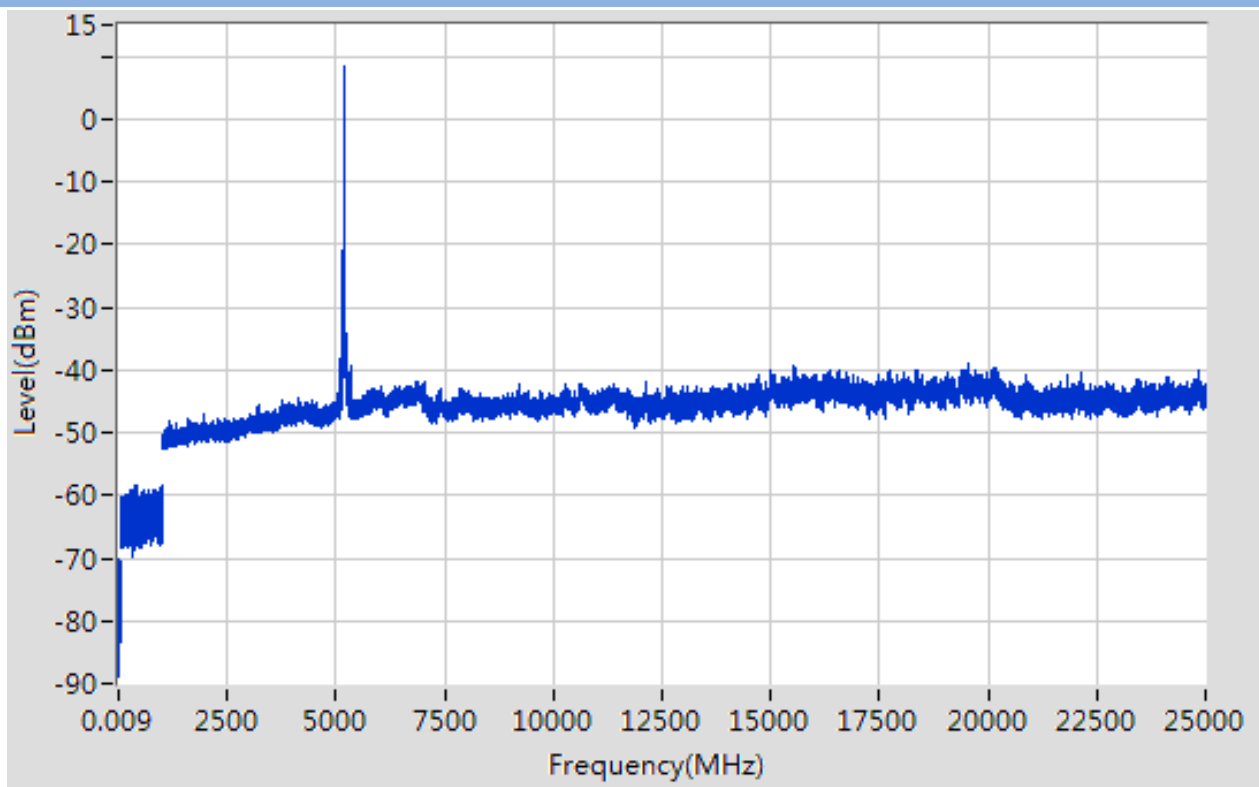
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band I 11n20 CH36

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Verdict
0.01	-78.49	6	3	2	QP	24.77	68.20	43.43	Note 2	Pass
26.229	-70.28	6	3	2	QP	32.98	68.20	35.22	Note 2	Pass
390.637	-58.39	4.7	3	2	QP	43.57	68.20	24.63	Note 2	Pass
5178.836	8.25	0	3	2	PK	105.51	N/A	N/A	Note 1	N/A
	6.06		3	2	AV	103.32	N/A	N/A		N/A
6875.204	-41.9	0	3	2	PK	55.36	68.20	12.84	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
11369.764	-42.1	0	3	2	PK	55.16	74.00	18.84	--	Pass
	-60.62		3	2	AV	36.64	54.00	17.36	--	Pass
19541.59	-38.85	0	3	2	PK	58.41	74.00	15.59	--	Pass
	-59.63		3	2	AV	37.63	54.00	16.37	--	Pass

Test Plots

Band I 11n20 CH36, SPURIOUS 9 KHz to 25 GHz



The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.35 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

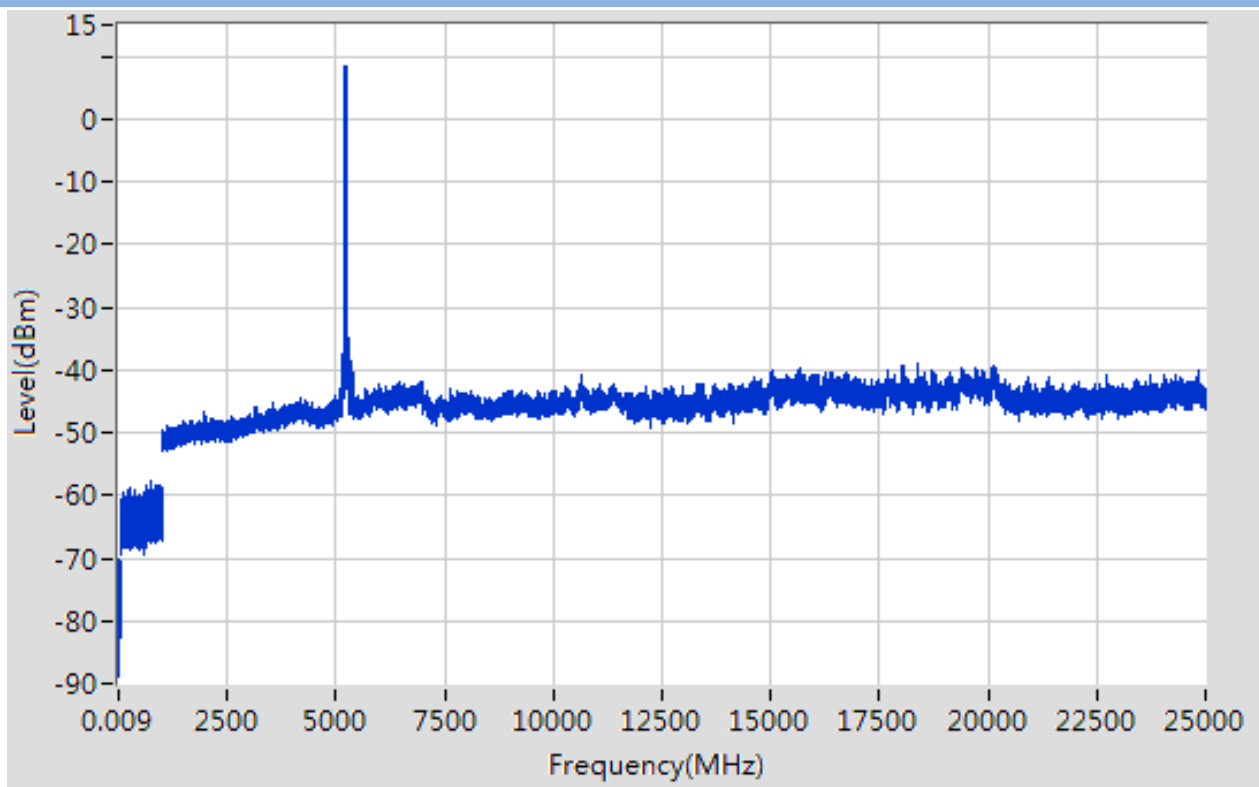
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band I 11n20 CH44

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Verdict
0.011	-78.87	6	3	2	QP	24.39	68.20	43.81	Note 2	Pass
26.209	-70.04	6	3	2	QP	33.22	68.20	34.98	Note 2	Pass
760.975	-57.86	4.7	3	2	QP	44.10	68.20	24.10	Note 2	Pass
5225.845	8.56	0	3	2	PK	105.82	N/A	N/A	Note 1	N/A
	6.37		3	2	AV	103.63	N/A	N/A		N/A
6969.225	-41.73	0	3	2	PK	55.53	68.20	12.67	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
10658.256	-40.87	0	3	2	PK	56.39	74.00	17.61	--	Pass
	-57.78		3	2	AV	39.48	54.00	14.52	--	Pass
18403.504	-39.12	0	3	2	PK	58.14	74.00	15.86	--	Pass
	-58.25		3	2	AV	39.01	54.00	14.99	--	Pass

Test Plots

Band I 11n20 CH44, SPURIOUS 9 KHz to 25 GHz



The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.35 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

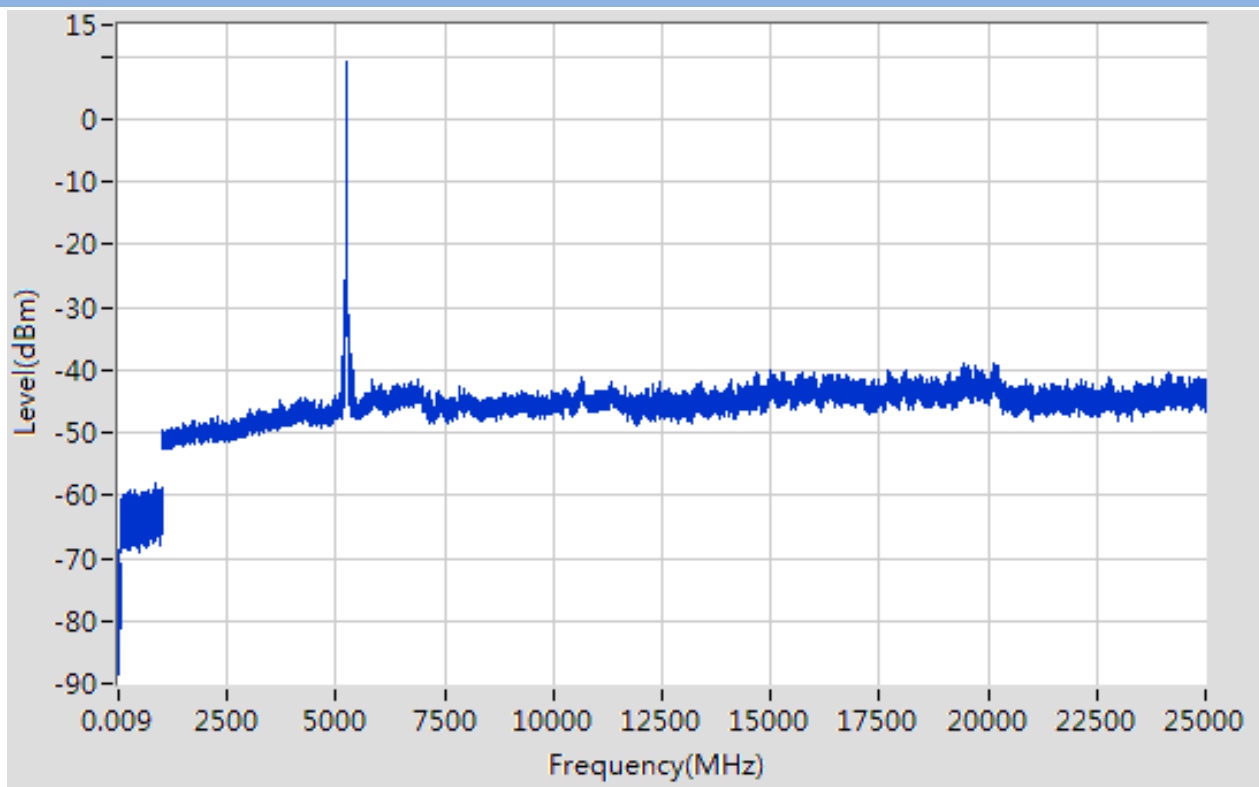
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band I 11n20 CH48

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Verdict
0.01	-77.86	6	3	2	QP	25.40	68.20	42.80	Note 2	Pass
22.097	-68.63	6	3	2	QP	34.63	68.20	33.57	Note 2	Pass
830.683	-58.11	4.7	3	2	QP	43.85	68.20	24.35	Note 2	Pass
5241.848	9.05	0	3	2	PK	106.31	N/A	N/A	Note 1	N/A
	6.86		3	2	AV	104.12	N/A	N/A		N/A
6903.21	-41.42	0	3	2	PK	55.84	68.20	12.36	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
10649.249	-41.29	0	3	2	PK	55.97	74.00	18.03	--	Pass
	-58.21		3	2	AV	39.05	54.00	14.95	--	Pass
20102.632	-38.99	0	3	2	PK	58.27	74.00	15.73	--	Pass
	-60.25		3	2	AV	37.01	54.00	16.99	--	Pass

Test Plots

Band I 11n20 CH48, SPURIOUS 9 KHz to 25 GHz



The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.35 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

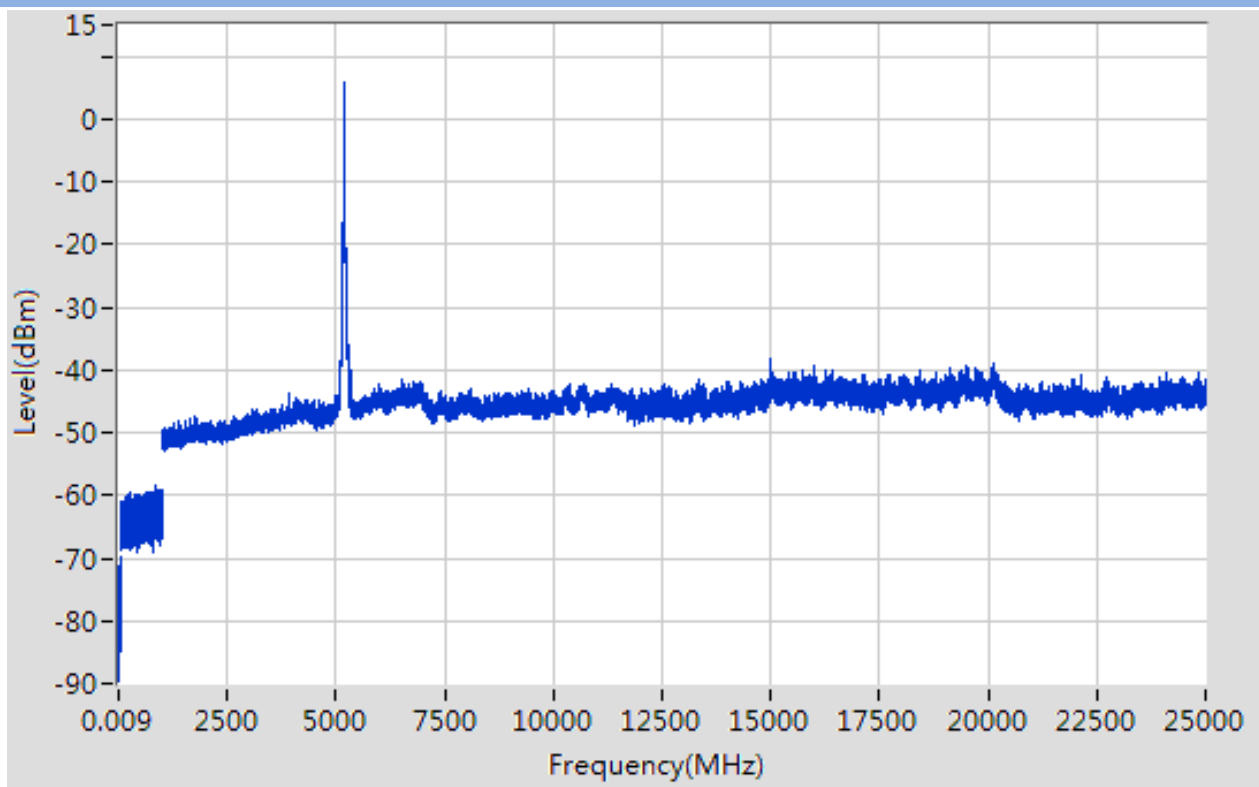
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band I 11n40 CH38

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Verdict
0.009	-78.47	6	3	2	QP	24.79	68.20	43.41	Note 2	Pass
27.679	-69.64	6	3	2	QP	33.62	68.20	34.58	Note 2	Pass
872.487	-58.34	4.7	3	2	QP	43.62	68.20	24.58	Note 2	Pass
5184.837	5.82	0	3	2	PK	103.08	N/A	N/A	Note 1	N/A
	3.63		3	2	AV	100.89	N/A	N/A		N/A
6499.116	-41.61	0	3	2	PK	55.65	68.20	12.55	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
11320.729	-42.18	0	3	2	PK	55.08	74.00	18.92	--	Pass
	N/A		3	2	AV	N/A	54.00	N/A	Note 3	Pass
15014.249	-38.27	0	3	2	PK	58.99	68.20	9.21	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A

Test Plots

Band I 11n40 CH38, SPURIOUS 9 KHz to 25 GHz



The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.35 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

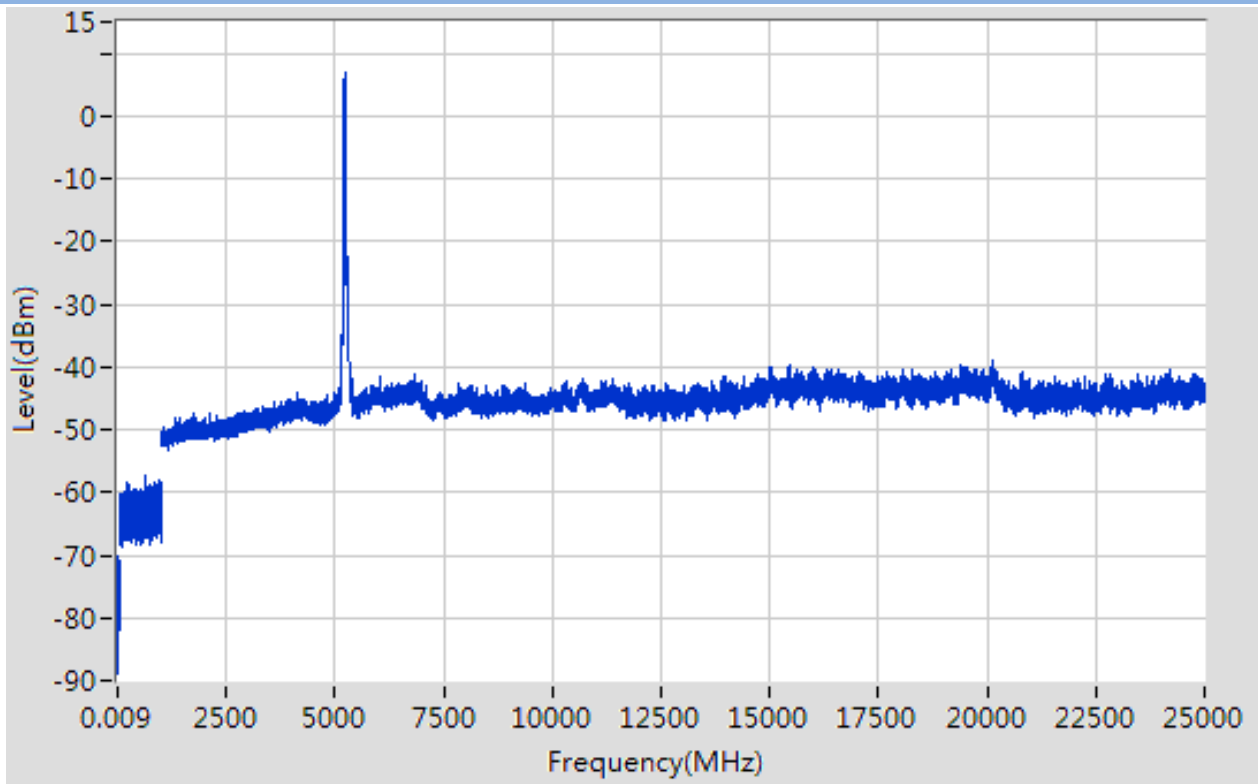
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band I 11n40 CH46

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Verdict
0.009	-79.1	6	3	2	QP	24.16	68.20	44.04	Note 2	Pass
0.3	-70.02	6	3	2	QP	33.24	68.20	34.96	Note 2	Pass
659.865	-57.41	4.7	3	2	QP	44.55	68.20	23.65	Note 2	Pass
5224.845	6.9	0	3	2	PK	104.16	N/A	N/A	Note 1	N/A
	4.71		3	2	AV	101.97	N/A	N/A		N/A
6853.198	-41.04	0	3	2	PK	56.22	68.20	11.98	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
10692.28	-41.99	0	3	2	PK	55.27	74.00	18.73	--	Pass
	-56.21		3	2	AV	41.05	54.00	12.95	--	Pass
20115.633	-39.11	0	3	2	PK	58.15	74.00	15.85	--	Pass
	-60.95		3	2	AV	36.31	54.00	17.69	--	Pass

Test Plots

Band I 11n40 CH46, SPURIOUS 9 KHz to 25 GHz



The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.35 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

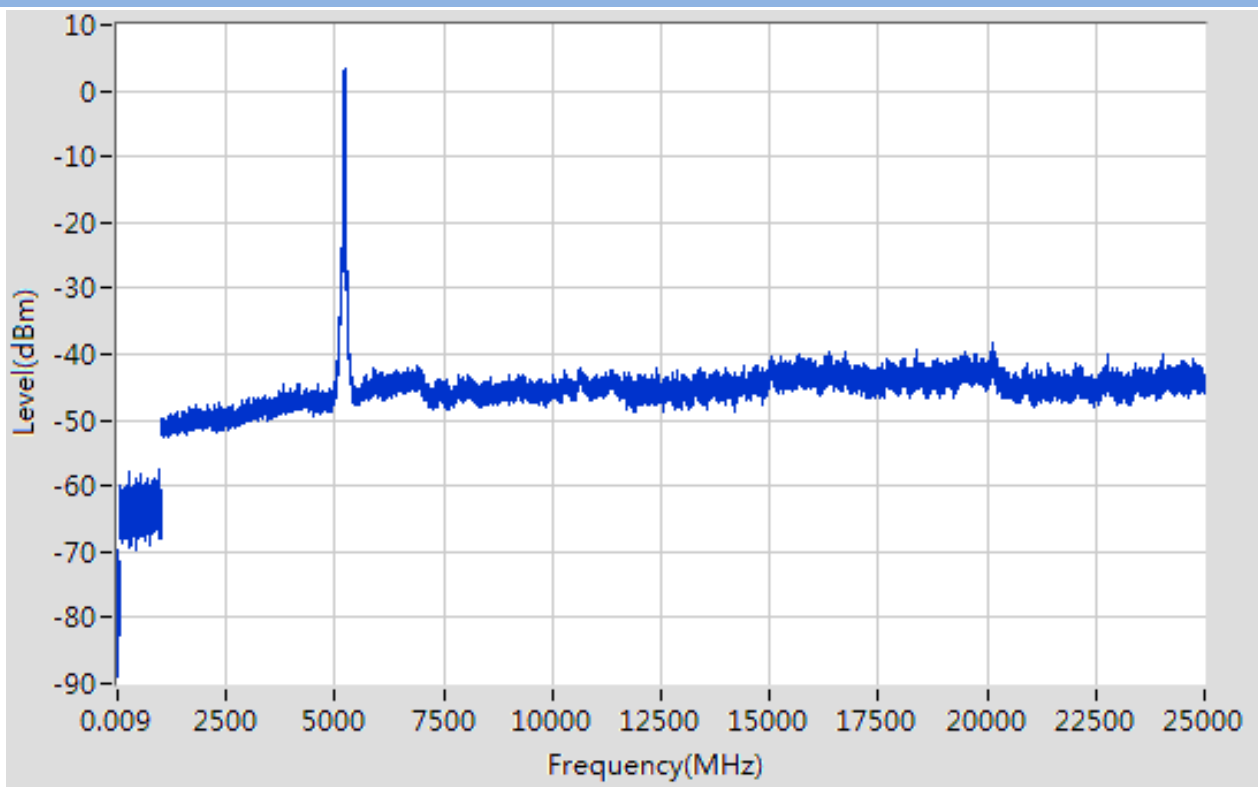
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band I 11ac80 CH42

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Verdict
0.009	-78.13	6	3	2	QP	25.13	68.20	43.07	Note 2	Pass
24.168	-69.83	6	3	2	QP	33.43	68.20	34.77	Note 2	Pass
950.695	-57.49	4.7	3	2	QP	44.47	68.20	23.73	Note 2	Pass
5239.848	3.27	0	3	2	PK	100.53	N/A	N/A	Note 1	N/A
	1.08		3	2	AV	98.34	N/A	N/A		N/A
6869.202	-41.83	0	3	2	PK	55.43	68.20	12.77	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
10629.235	-42.11	0	3	2	PK	55.15	74.00	18.85	--	Pass
	-60.36		3	2	AV	36.90	54.00	17.10	--	Pass
20141.635	-38.37	0	3	2	PK	58.89	74.00	15.11	--	Pass
	-59.12		3	2	AV	38.14	54.00	15.86	--	Pass

Test Plots

Band I 11ac80 CH42, SPURIOUS 9 KHz to 25 GHz



The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.5 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

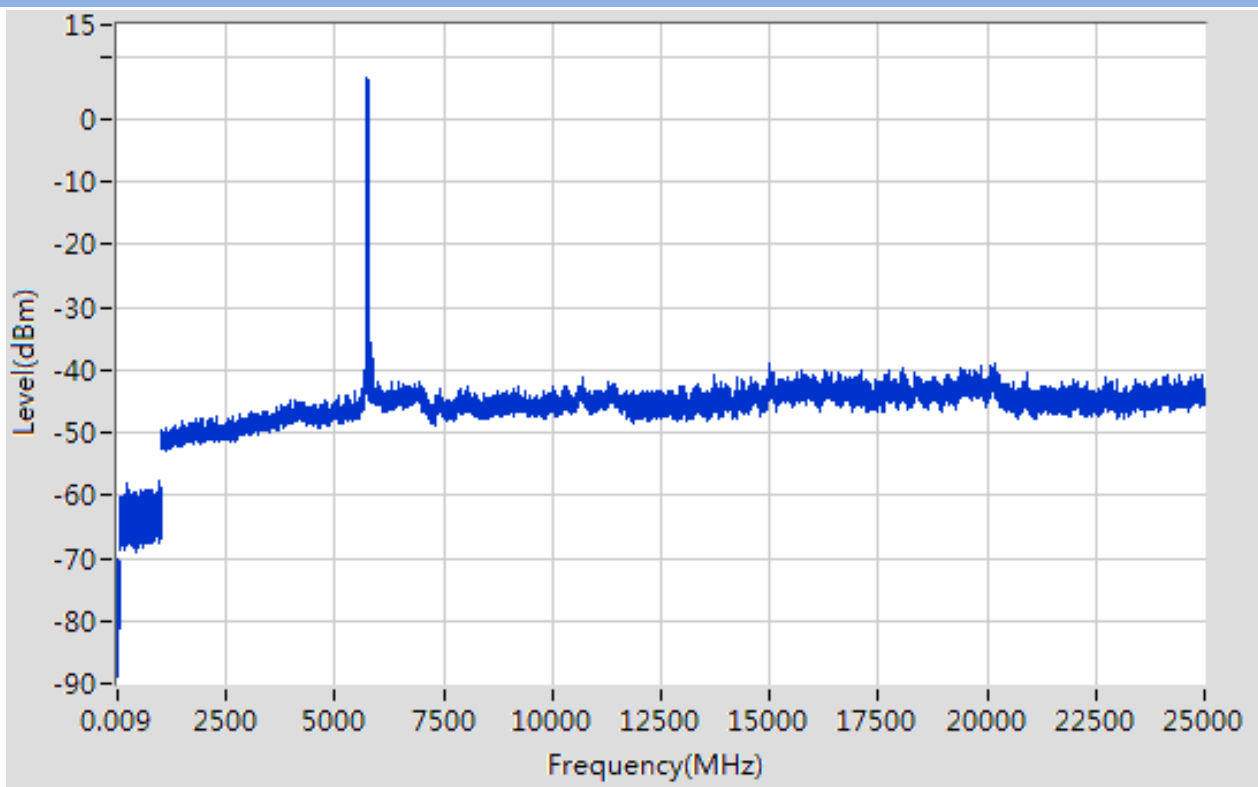
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band IV 11a CH149

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Verdict
0.011	-78.96	6	3	2	QP	24.30	68.20	43.90	Note 2	Pass
23.008	-70.21	6	3	2	QP	33.05	68.20	35.15	Note 2	Pass
937.394	-57.61	4.7	3	2	QP	44.35	68.20	23.85	Note 2	Pass
5740.948	6.39	0	3	2	PK	103.65	N/A	N/A	Note 1	N/A
	4.20		3	2	AV	101.46	N/A	N/A		N/A
6947.22	-41.86	0	3	2	PK	55.40	68.20	12.80	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
10680.272	-41.17	0	3	2	PK	56.09	74.00	17.91	--	Pass
	N/A		3	2	AV	N/A	54.00	N/A	Note 3	Pass
14989.247	-38.83	0	3	2	PK	58.43	68.20	9.77	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A

Test Plots

Band IV 11a CH149 SPURIOUS 9 KHz to 25 GHz



The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.5 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

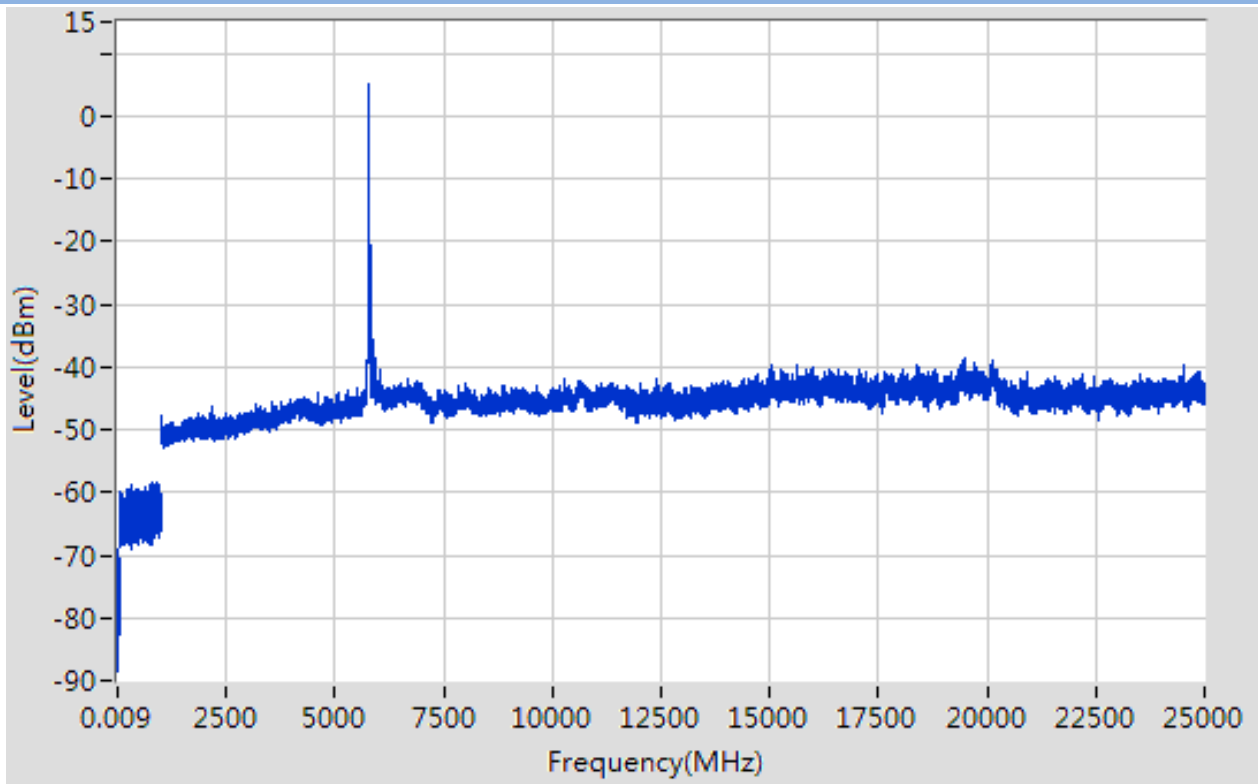
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band IV 11a CH157

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Verdict
0.01	-79.3	6	3	2	QP	23.96	68.20	44.24	Note 2	Pass
0.41	-69.04	6	3	2	QP	34.22	68.20	33.98	Note 2	Pass
800.979	-58.25	4.7	3	2	QP	43.71	68.20	24.49	Note 2	Pass
5787.958	5.21	0	3	2	PK	102.47	N/A	N/A	Note 1	N/A
	3.02		3	2	AV	100.28	N/A	N/A		N/A
6027.006	-40.38	0	3	2	PK	56.88	68.20	11.32	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
10300	-42.08	0	3	2	PK	55.18	68.20	13.02	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
19489.586	-38.75	0	3	2	PK	58.51	74.00	15.49	--	Pass
	-58.62		3	2	AV	38.64	54.00	15.36	--	Pass

Test Plots

Band IV 11a CH157, SPURIOUS 9 KHz to 25 GHz



The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.5 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

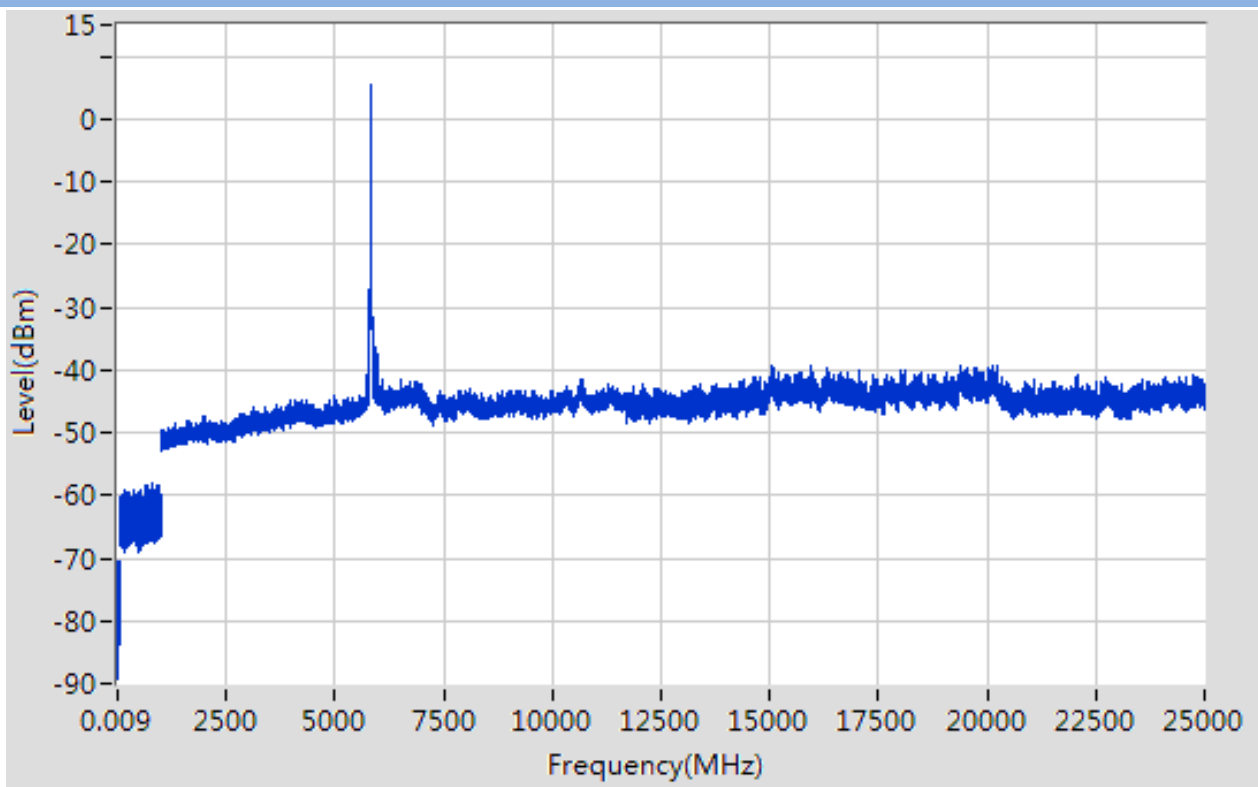
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band IV 11a CH165

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Verdict
0.01	-78.81	6	3	2	QP	24.45	68.20	43.75	Note 2	Pass
21.357	-70.57	6	3	2	QP	32.69	68.20	35.51	Note 2	Pass
790.678	-58.12	4.7	3	2	QP	43.84	68.20	24.36	Note 2	Pass
5818.964	5.31	0	3	2	PK	102.57	N/A	N/A	Note 1	N/A
	3.12		3	2	AV	100.38	N/A	N/A		N/A
6513.119	-41.37	0	3	2	PK	55.89	68.20	12.31	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
10647.248	-41.45	0	3	2	PK	55.81	74.00	18.19	--	Pass
	-56.21		3	2	AV	41.05	54.00	12.95	--	Pass
20101.632	-39.32	0	3	2	PK	57.94	74.00	16.06	--	Pass
	-60.23		3	2	AV	37.03	54.00	16.97	--	Pass

Test Plots

Band IV 11a CH165, SPURIOUS 9 KHz to 25 GHz



The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.5 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

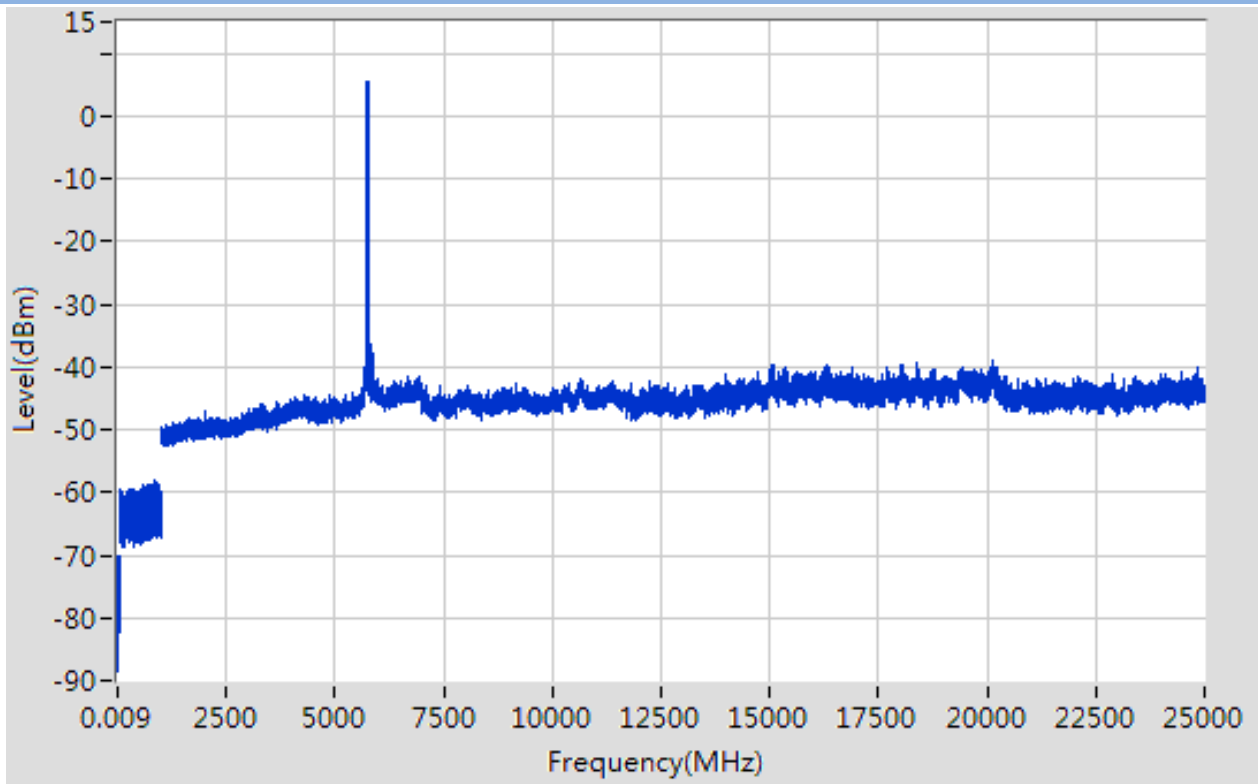
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band IV 11n20 CH149

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Verdict
0.013	-79.07	6	3	2	QP	24.19	68.20	44.01	Note 2	Pass
26.299	-70.02	6	3	2	QP	33.24	68.20	34.96	Note 2	Pass
867.286	-58.08	4.7	3	2	QP	43.88	68.20	24.32	Note 2	Pass
5741.948	5.42	0	3	2	PK	102.68	N/A	N/A	Note 1	N/A
	3.23		3	2	AV	100.49	N/A	N/A		N/A
6675.157	-41.66	0	3	2	PK	55.60	68.20	12.60	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
10637.241	-42.01	0	3	2	PK	55.25	74.00	18.75	--	Pass
	-60.25		3	2	AV	37.01	54.00	16.99	--	Pass
20113.633	-38.97	0	3	2	PK	58.29	74.00	15.71	--	Pass
	-57.35		3	2	AV	39.91	54.00	14.09	--	Pass

Test Plots

Band IV 11n20 CH149, SPURIOUS 9 KHz to 25 GHz



The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.5 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

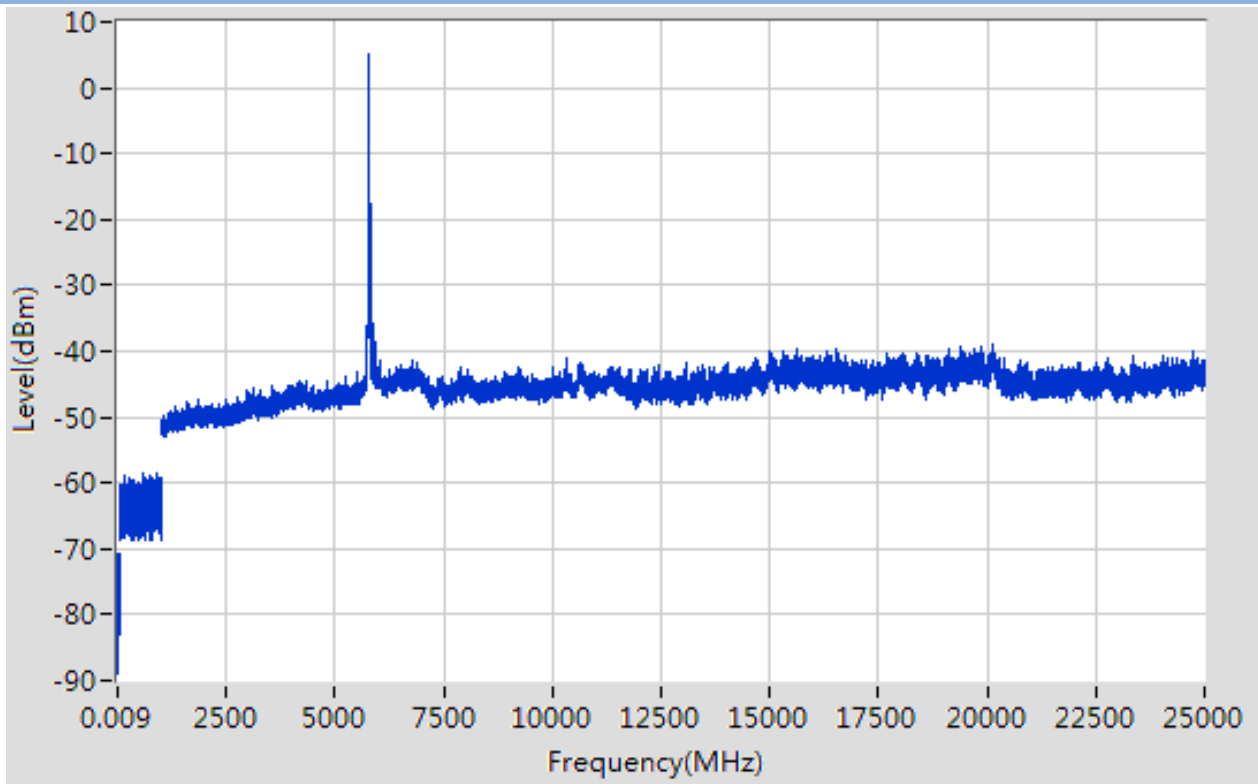
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band IV 11n20 CH157

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Verdict
0.009	-78.61	6	3	2	QP	24.65	68.20	43.55	Note 2	Pass
22.417	-70.75	6	3	2	QP	32.51	68.20	35.69	Note 2	Pass
882.688	-58.38	4.7	3	2	QP	43.58	68.20	24.62	Note 2	Pass
5786.957	4.97	0	3	2	PK	102.23	N/A	N/A	Note 1	N/A
	2.78		3	2	AV	100.04	N/A	N/A		N/A
6798.186	-41.47	0	3	2	PK	55.79	68.20	12.41	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
10318.013	-41.15	0	3	2	PK	56.11	68.20	12.09	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
20104.632	-39.12	0	3	2	PK	58.14	74.00	15.86	--	Pass
	-58.46		3	2	AV	38.80	54.00	15.20	--	Pass

Test Plots

Band IV 11n20 CH157, SPURIOUS 9 KHz to 25 GHz



The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.5 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

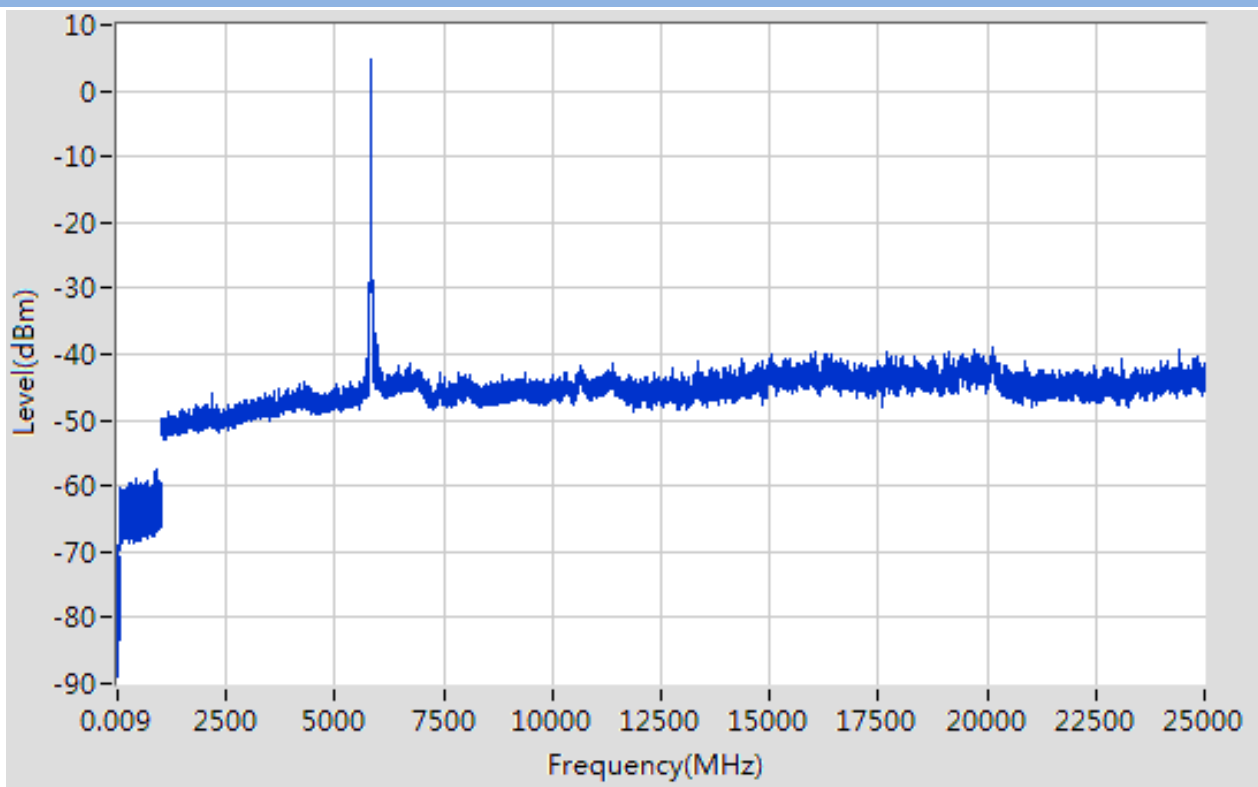
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band IV 11n20 CH165

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Verdict
0.009	-78.32	6	3	2	QP	24.94	68.20	43.26	Note 2	Pass
25.318	-68.88	6	3	2	QP	34.38	68.20	33.82	Note 2	Pass
887.488	-57.6	4.7	3	2	QP	44.36	68.20	23.84	Note 2	Pass
5828.966	4.8	0	3	2	PK	102.06	N/A	N/A	Note 1	N/A
	2.61		3	2	AV	99.87	N/A	N/A		N/A
6740.172	-41.52	0	3	2	PK	55.74	68.20	12.46	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
11377.77	-41.45	0	3	2	PK	55.81	74.00	18.19	--	Pass
	-59.75		3	2	AV	37.51	54.00	16.49	--	Pass
20119.633	-38.85	0	3	2	PK	58.41	74.00	15.59	--	Pass
	-57.15		3	2	AV	40.11	54.00	13.89	--	Pass

Test Plots

Band IV 11n20 CH165, SPURIOUS 9 KHz to 25 GHz



The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.5 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

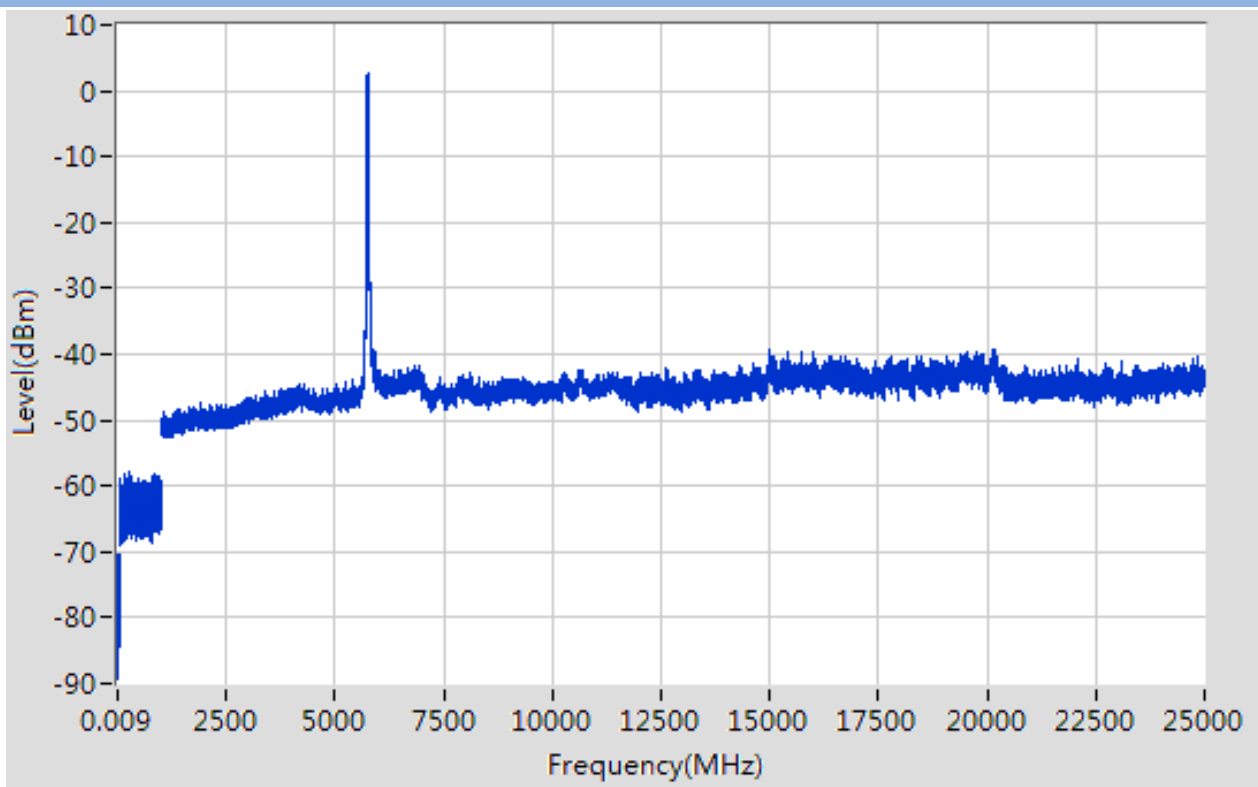
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band IV 11n40 CH151

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Verdict
0.009	-78.14	6	3	2	QP	25.12	68.20	43.08	Note 2	Pass
28.79	-70.36	6	3	2	QP	32.90	68.20	35.30	Note 2	Pass
251.723	-57.98	4.7	3	2	QP	43.98	46.00	2.02	Note 2	Pass
5750.95	2.79	0	3	2	PK	100.05	N/A	N/A	Note 1	N/A
	0.60		3	2	AV	97.86	N/A	N/A		N/A
6850.198	-41.65	0	3	2	PK	55.61	68.20	12.59	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
10613.224	-42.52	0	3	2	PK	54.74	74.00	19.26	--	Pass
	-60.25		3	2	AV	37.01	54.00	16.99	--	Pass
20140.635	-39.13	0	3	2	PK	58.13	74.00	15.87	--	Pass
	-58.26		3	2	AV	39.00	54.00	15.00	--	Pass

Test Plots

Band IV 11n40 CH151, SPURIOUS 9 KHz to 25 GHz



The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.5 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

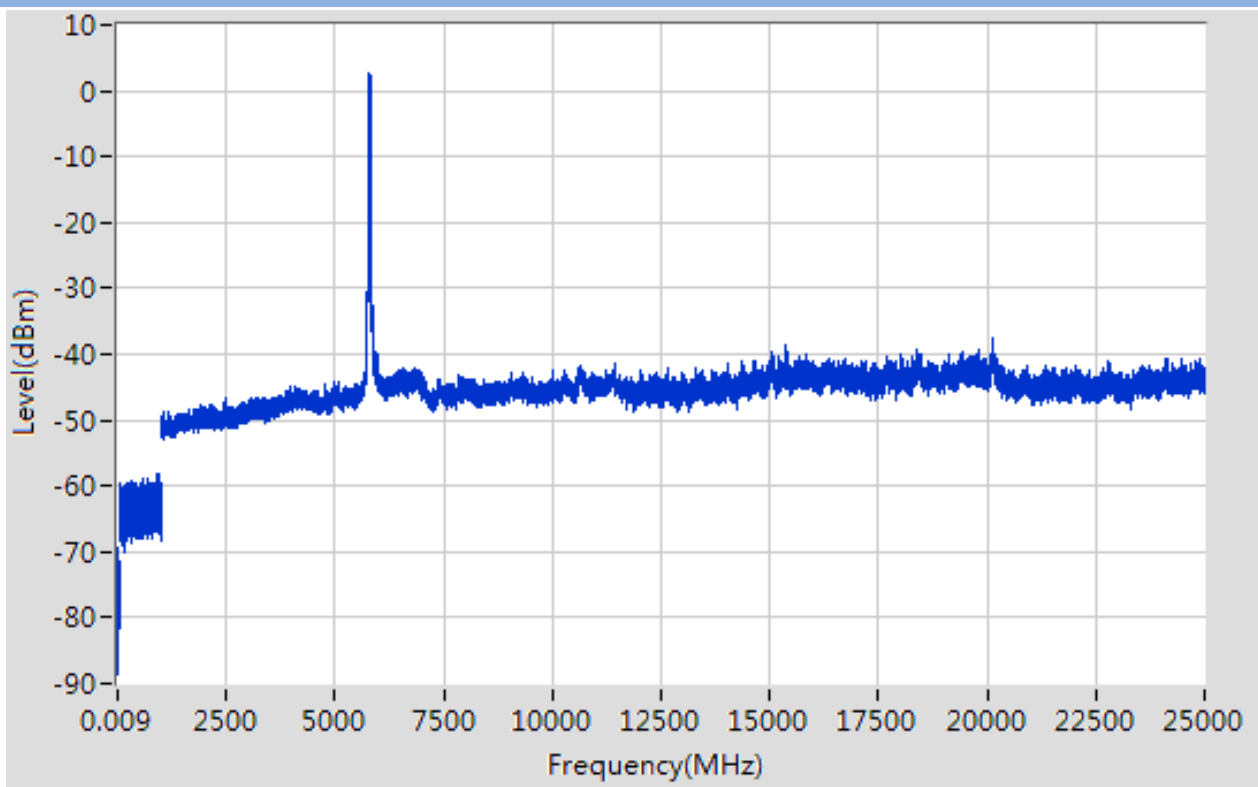
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band IV 11n40 CH159

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Verdict
0.009	-77.01	6	3	2	QP	26.25	68.20	41.95	Note 2	Pass
22.708	-69.52	6	3	2	QP	33.74	68.20	34.46	Note 2	Pass
884.388	-58.25	4.7	3	2	QP	43.71	68.20	24.49	Note 2	Pass
5789.958	2.75	0	3	2	PK	100.01	N/A	N/A	Note 1	N/A
	0.56		3	2	AV	97.82	N/A	N/A		N/A
6822.191	-42.16	0	3	2	PK	55.10	68.20	13.10	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
11420.801	-41.48	0	3	2	PK	55.78	74.00	18.22	--	Pass
	-59.25		3	2	AV	38.01	54.00	15.99	--	Pass
20135.634	-37.58	0	3	2	PK	59.68	74.00	14.32	--	Pass
	-58.66		3	2	AV	38.60	54.00	15.40	--	Pass

Test Plots

Band IV 11n40 CH159, SPURIOUS 9 KHz to 25 GHz



The EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2dBi, whichever is greater.

And the maximum in-band gain of the antenna is 4.5 dBi

Note 1: The frequency is fundamental signal which can be ignored.

Note 2: Which frequency is not within a restricted band, and its limit line is resolved to 15.407b

Note 3: Average measurement was not performed if peak level went lower than the average limit.

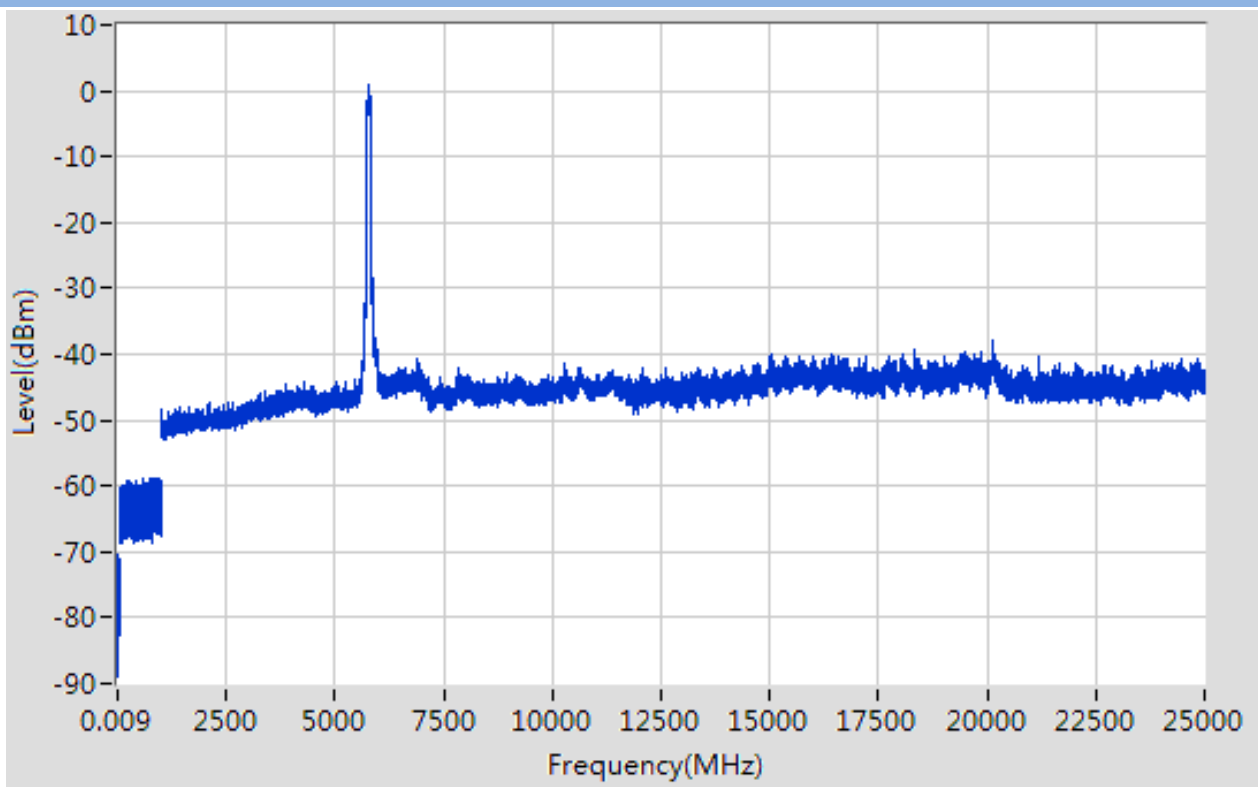
Note 4: The harmonic (2th, 3th, 3th,...etc.) and other spurious are not reported, because those levels are lower than average limit line and background noise.

Band IV 11ac80 CH155

Frequency (MHz)	Value (dBm)	Ground Reflection Factor (dB)	D(m)	Max gain(dBi)	Detector	E (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Verdict
0.011	-78.31	6	3	2	QP	24.95	68.20	43.25	Note 2	Pass
22.588	-70.32	6	3	2	QP	32.94	68.20	35.26	Note 2	Pass
838.283	-58.71	4.7	3	2	QP	43.25	68.20	24.95	Note 2	Pass
5789.958	0.93	0	3	2	PK	98.19	N/A	N/A	Note 1	N/A
	-1.26		3	2	AV	96.00	N/A	N/A		N/A
6881.205	-40.81	0	3	2	PK	56.45	68.20	11.75	Note 2	Pass
	N/A		3	2	AV	N/A	N/A	N/A	--	N/A
10672.266	-42.19	0	3	2	PK	55.07	74.00	18.93	--	Pass
	-56.95		3	2	AV	40.31	54.00	13.69	--	Pass
20128.634	-37.8	0	3	2	PK	59.46	74.00	14.54	--	Pass
	-56.84		3	2	AV	40.42	54.00	13.58	--	Pass

Test Plots

Band IV 11ac80 CH155, SPURIOUS 9 KHz to 25 GHz



Cabinet Radiated spurious emission test

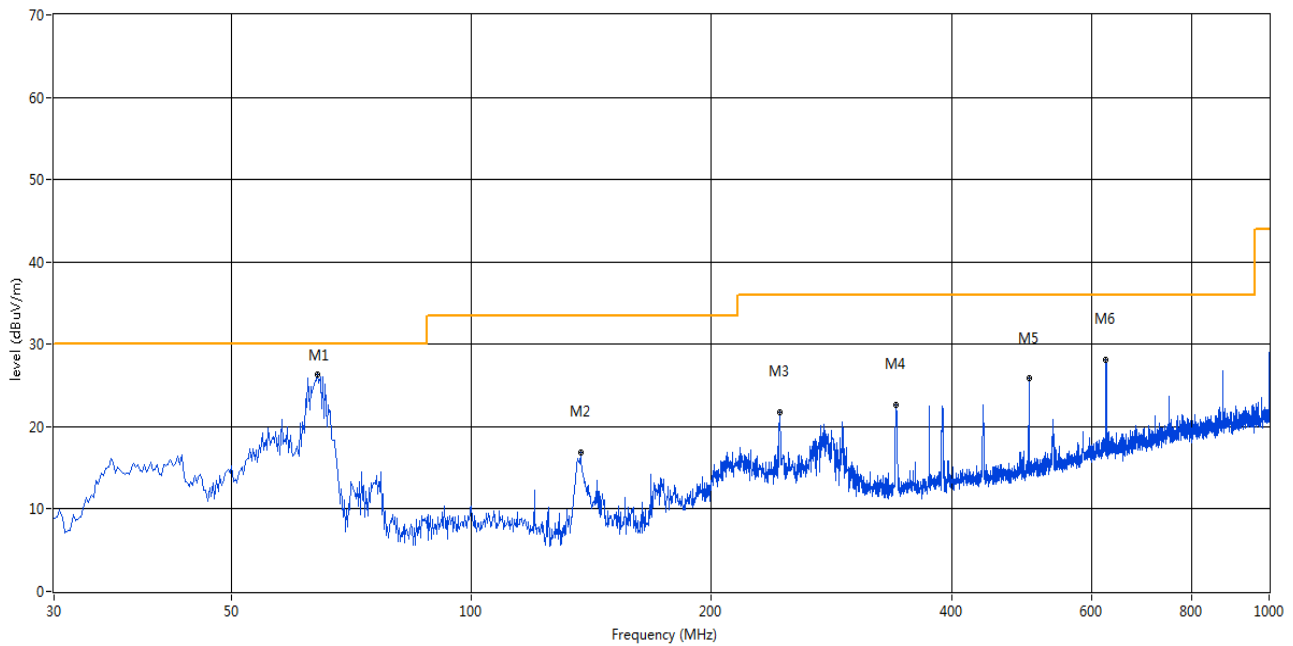
Note 1: The symbol of "--" in the table which means not application.

Note 2: For the test data above 1 GHz, According the ANSI C63.4, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note 3: The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

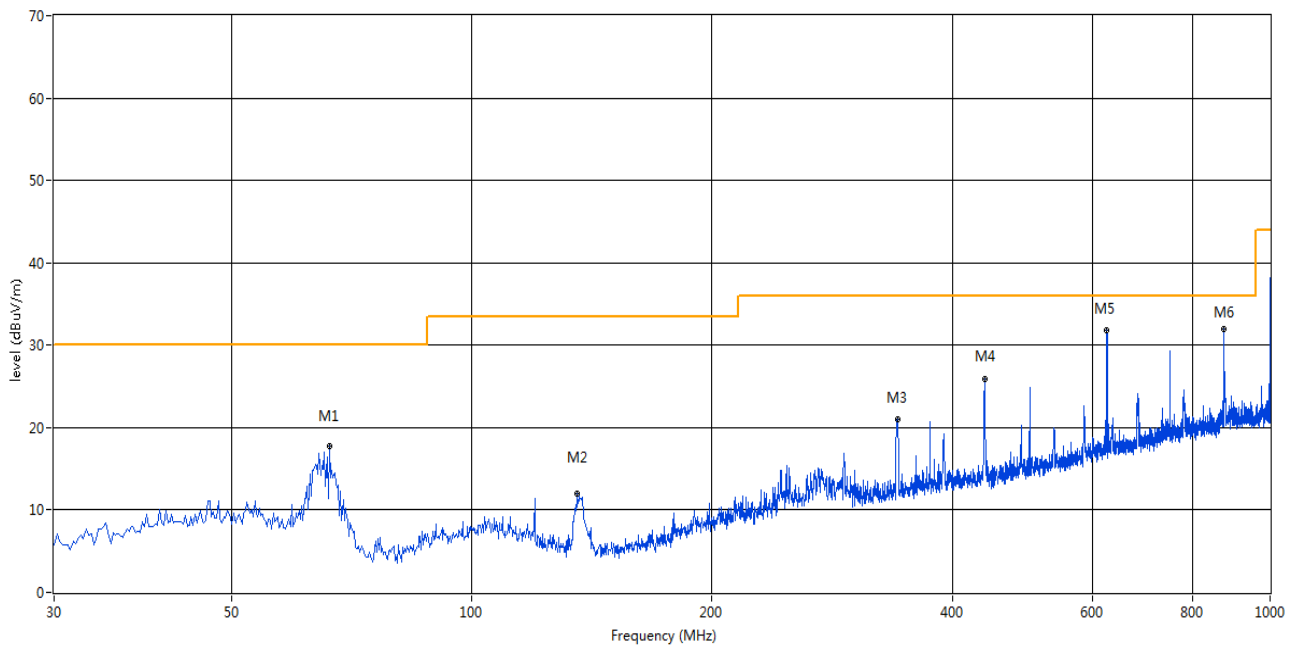
Note 4: The EUT is working in the Normal link mode below 1 GHz.

30 MHz to 1 GHz, ANT V



Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Table (o)	Height (cm)	ANT	Verdict
64.192	26.35	--	--	-16.19	--	30.0	--	3.65	63.00	100	Vertical	Pass
137.185	16.85	--	--	-19.57	--	33.5	--	16.65	1.00	100	Vertical	Pass
243.885	21.77	--	--	-14.84	--	36.0	--	14.23	126.00	100	Vertical	Pass
341.127	22.62	--	--	-11.71	--	36.0	--	13.38	5.00	100	Vertical	Pass
499.965	25.85	--	--	-9.12	--	36.0	--	10.15	3.00	100	Vertical	Pass
624.852	28.08	--	--	-6.92	--	36.0	--	7.92	1.00	100	Vertical	Pass

30 MHz to 1 GHz, ANT H



Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Margin (dB)	Table (o)	Height (cm)	ANT	Verdict
66.375	17.76	--	--	-16.74	--	30.0	--	12.24	239.00	100	Horizontal	Pass
135.730	11.96	--	--	-19.62	--	33.5	--	21.54	2.00	100	Horizontal	Pass
341.370	21.07	--	--	-11.75	--	36.0	--	14.93	6.00	100	Horizontal	Pass
439.098	25.90	--	--	-10.28	--	36.0	--	10.10	4.00	100	Horizontal	Pass
624.852	32.75	--	--	-6.92	--	36.0	--	3.25	5.00	100	Horizontal	Pass
874.870	32.92	--	--	-2.89	--	36.0	--	3.08	73.00	100	Horizontal	Pass

Note: The frequency 25 GHz ~ 40 GHz are noise floor and was not seen in this report.

1 GHz to 25 GHz, ANT V 802.11a band1 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1111.97	45.34	-4.80	74	28.66	Peak	45.8	150	Vertical	Pass
2	1475.88	39.94	-4.26	74	34.06	Peak	332.6	150	Vertical	Pass
3	1713.32	44.11	-3.72	74	29.89	Peak	30.9	150	Vertical	Pass
4	6595.26	46.05	15.08	74	27.95	Peak	288.7	150	Vertical	Pass
5	16150.58	44.55	20.65	74	29.45	Peak	173.4	150	Vertical	Pass
6	18812.81	48.62	8.96	74	25.38	Peak	246.2	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11a band1 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2418.58	41.24	-4.67	74	32.76	Peak	44.7	150	Horizontal	Pass
2	2684.32	44.86	2.45	74	29.14	Peak	211.6	150	Horizontal	Pass
3	5547.45	49.34	11.63	74	24.66	Peak	29.2	150	Horizontal	Pass
4	6000.00	45.02	17.43	74	28.98	Peak	283.1	150	Horizontal	Pass
5	16951.33	45.53	20.10	74	28.47	Peak	347	150	Horizontal	Pass
6	19908.49	46.33	9.12	74	27.67	Peak	54.2	150	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11a band1 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1076.48	39.96	-6.23	74	34.04	Peak	315.3	150	Vertical	Pass
2	1441.89	43.11	-4.44	74	30.89	Peak	351.5	150	Vertical	Pass
3	1599.85	43.87	-4.11	74	30.13	Peak	157.2	150	Vertical	Pass
4	9549.09	43.86	20.39	74	30.14	Peak	168.2	150	Vertical	Pass
5	14819.47	43.37	9.03	74	30.64	Peak	288.3	150	Vertical	Pass
6	18604.83	47.65	13.09	74	26.36	Peak	249.5	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11a band1 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1685.32	40.14	-5.23	74	33.86	Peak	233.3	150	Horizontal	Pass
2	3302.70	43.88	8.89	74	30.13	Peak	47.9	150	Horizontal	Pass
3	3878.12	49.77	14.73	74	24.23	Peak	136.6	150	Horizontal	Pass
4	8257.49	46.03	19.72	74	27.97	Peak	215.3	150	Horizontal	Pass
5	15391.43	48.68	9.22	74	25.32	Peak	45.6	150	Horizontal	Pass
6	23063.23	46.65	14.00	74	27.35	Peak	99.2	150	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11a band1 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1234.44	43.37	-5.31	74	30.63	Peak	234.4	150	Vertical	Pass
2	1457.89	42.81	-4.11	74	31.19	Peak	209.7	150	Vertical	Pass
3	1824.79	42.25	-4.20	74	31.75	Peak	249.9	150	Vertical	Pass
4	6348.17	44.51	17.43	74	29.49	Peak	14.4	150	Vertical	Pass
5	12989.19	46.63	11.76	74	27.37	Peak	274	150	Vertical	Pass
6	22204.66	47.93	12.37	74	26.08	Peak	32.8	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11a band1 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1333.67	42.93	-1.98	74	31.07	Peak	157.3	150	Horizontal	Pass
2	3146.85	47.73	0.52	74	26.27	Peak	321.8	150	Horizontal	Pass
3	3986.01	45.34	14.35	74	28.66	Peak	254.6	150	Horizontal	Pass
4	6134.78	41.95	14.51	74	32.05	Peak	14.1	150	Horizontal	Pass
5	12626.46	46.44	9.49	74	27.56	Peak	334.9	150	Horizontal	Pass
6	21955.08	47.24	11.22	74	26.76	Peak	132.5	150	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11n20 band1 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1220.45	44.81	-5.19	74	29.19	Peak	41.1	150	Vertical	Pass
2	1380.41	42.54	-4.38	74	31.46	Peak	161.6	150	Vertical	Pass
3	1604.35	42.69	-3.83	74	31.31	Peak	244.5	150	Vertical	Pass
4	7022.05	44.60	18.92	74	29.40	Peak	208.6	150	Vertical	Pass
5	14257.90	45.19	9.68	74	28.81	Peak	153.7	150	Vertical	Pass
6	24970.05	44.83	11.92	74	29.17	Peak	29.4	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11n20 band1 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2484.52	41.47	-4.34	74	32.53	Peak	186.2	150	Horizontal	Pass
2	2880.12	46.93	1.37	74	27.07	Peak	117.6	150	Horizontal	Pass
3	3854.15	50.02	10.70	74	23.98	Peak	254	150	Horizontal	Pass
4	11492.10	46.01	16.95	74	27.99	Peak	56.4	150	Horizontal	Pass
5	17315.31	45.08	9.31	74	28.92	Peak	141.2	150	Horizontal	Pass
6	18053.66	46.93	9.19	74	27.08	Peak	354.7	150	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11n20 band1 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1370.91	40.77	-5.22	74	33.23	Peak	261.4	150	Vertical	Pass
2	1580.36	43.23	-4.52	74	30.77	Peak	150.4	150	Vertical	Pass
3	1930.77	42.95	-3.08	74	31.05	Peak	355.9	150	Vertical	Pass
4	8167.64	44.93	20.20	74	29.07	Peak	247.4	150	Vertical	Pass
5	14257.90	45.40	8.57	74	28.60	Peak	282.9	150	Vertical	Pass
6	22404.33	44.01	11.74	74	29.99	Peak	299.3	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11n20 band1 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1883.12	44.26	-2.65	74	29.74	Peak	333.2	150	Horizontal	Pass
2	2770.23	46.16	9.01	74	27.84	Peak	26.5	150	Horizontal	Pass
3	5172.83	52.34	11.56	74	21.66	Peak	130.3	150	Horizontal	Pass
4	9391.85	48.43	15.28	74	25.57	Peak	35.7	150	Horizontal	Pass
5	17284.11	47.02	11.04	74	26.98	Peak	97.1	150	Horizontal	Pass
6	24770.38	44.24	9.55	74	29.76	Peak	198.2	150	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11n20 band1 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1346.91	43.39	-5.24	74	30.61	Peak	211.9	150	Vertical	Pass
2	1487.88	43.01	-4.45	74	30.99	Peak	152.1	150	Vertical	Pass
3	1693.83	44.57	-3.73	74	29.43	Peak	12.5	150	Vertical	Pass
4	8066.56	43.39	13.58	74	30.61	Peak	115	150	Vertical	Pass
5	14164.31	51.05	9.55	74	22.95	Peak	225.6	150	Vertical	Pass
6	24500.83	48.18	9.03	74	25.82	Peak	25.7	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11n20 band1 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1183.82	44.09	-4.44	74	29.92	Peak	276.9	150	Horizontal	Pass
2	3173.83	42.84	1.69	74	31.16	Peak	172.7	150	Horizontal	Pass
3	4765.24	49.91	14.03	74	24.09	Peak	73.9	150	Horizontal	Pass
4	10020.80	42.05	16.85	74	31.95	Peak	277.5	150	Horizontal	Pass
5	12514.14	45.64	13.27	74	28.37	Peak	184.5	150	Horizontal	Pass
6	19039.93	45.50	9.50	74	28.50	Peak	212.2	150	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11n40 band1 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1126.97	41.13	-4.77	74	32.87	Peak	8.5	150	Vertical	Pass
2	1471.38	43.05	-4.41	74	30.95	Peak	164.8	150	Vertical	Pass
3	1984.25	40.49	-3.74	74	33.52	Peak	248.1	150	Vertical	Pass
4	9594.01	50.90	19.10	74	23.10	Peak	101.9	150	Vertical	Pass
5	17949.67	43.82	9.74	74	30.18	Peak	291.5	150	Vertical	Pass
6	19229.62	45.74	12.97	74	28.26	Peak	47.6	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11n40 band1 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1189.81	42.87	-4.06	74	31.14	Peak	210	150	Horizontal	Pass
2	3443.56	44.02	2.26	74	29.98	Peak	231	150	Horizontal	Pass
3	4795.21	47.47	10.09	74	26.53	Peak	237.9	150	Horizontal	Pass
4	10436.36	43.15	20.50	74	30.86	Peak	240	150	Horizontal	Pass
5	13571.55	47.00	9.77	74	27.00	Peak	95.9	150	Horizontal	Pass
6	19748.75	43.36	8.90	74	30.64	Peak	139.8	150	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11n40 band1 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1124.47	41.25	-4.98	74	32.75	Peak	104.8	150	Vertical	Pass
2	1552.86	40.41	-4.65	74	33.59	Peak	82.4	150	Vertical	Pass
3	1972.76	45.36	-3.70	74	28.64	Peak	287.8	150	Vertical	Pass
4	6786.19	44.14	20.22	74	29.86	Peak	20.7	150	Vertical	Pass
5	16608.15	46.24	9.08	74	27.76	Peak	183.8	150	Vertical	Pass
6	21745.42	46.64	11.19	74	27.36	Peak	208.3	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11n40 band1High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1637.36	40.92	-0.86	74	33.08	Peak	55.5	150	Horizontal	Pass
2	3065.93	45.59	8.98	74	28.41	Peak	33.2	150	Horizontal	Pass
3	4066.93	50.05	15.81	74	23.96	Peak	249.9	150	Horizontal	Pass
4	10627.29	45.22	20.52	74	28.78	Peak	95	150	Horizontal	Pass
5	17148.92	43.34	9.51	74	30.66	Peak	156.3	150	Horizontal	Pass
6	18043.26	46.13	11.24	74	27.87	Peak	214.6	150	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11ac80 band1 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1277.43	40.69	-5.26	74	33.31	Peak	295.8	150	Vertical	Pass
2	1541.87	43.97	-4.30	74	30.03	Peak	281.5	150	Vertical	Pass
3	1709.82	44.07	-2.60	74	29.93	Peak	93.8	150	Vertical	Pass
4	7639.77	44.19	15.28	74	29.81	Peak	122.1	150	Vertical	Pass
5	16223.38	44.86	8.65	74	29.14	Peak	33.5	150	Vertical	Pass
6	19329.45	48.83	13.34	74	25.17	Peak	131.6	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11ac80 band1 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2150.85	46.87	-1.78	74	27.13	Peak	154.3	150	Horizontal	Pass
2	2602.40	47.77	2.36	74	26.23	Peak	300.2	150	Horizontal	Pass
3	4162.84	48.00	14.56	74	26.00	Peak	32.1	150	Horizontal	Pass
4	8684.28	43.30	17.01	74	30.70	Peak	358.3	150	Horizontal	Pass
5	12705.08	45.78	9.60	74	28.22	Peak	31.9	150	Horizontal	Pass
6	21106.49	46.49	11.76	74	27.51	Peak	218.3	150	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11a band4 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1094.98	40.61	-6.30	74	33.39	Peak	88	150	Vertical	Pass
2	1451.39	41.46	-4.36	74	32.54	Peak	295.5	150	Vertical	Pass
3	1678.83	41.87	-4.17	74	32.13	Peak	190.9	150	Vertical	Pass
4	8437.19	44.91	15.55	74	29.09	Peak	205.8	150	Vertical	Pass
5	17627.29	46.05	11.34	74	27.95	Peak	348.1	150	Vertical	Pass
6	18698.42	46.93	11.19	74	27.07	Peak	1.3	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11a band4 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2032.97	42.25	-0.86	74	31.75	Peak	327.4	150	Horizontal	Pass
2	2874.13	45.41	9.60	74	28.59	Peak	256.8	150	Horizontal	Pass
3	5151.85	49.60	12.97	74	24.40	Peak	331.3	150	Horizontal	Pass
4	10133.11	47.06	16.31	74	26.94	Peak	84.4	150	Horizontal	Pass
5	13602.75	45.99	9.42	74	28.01	Peak	349.7	150	Horizontal	Pass
6	21096.51	47.98	9.18	74	26.02	Peak	221.1	150	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11a band4 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1263.93	42.53	-4.76	74	31.47	Peak	52.9	150	Vertical	Pass
2	1449.89	43.30	-4.44	74	30.70	Peak	213.7	150	Vertical	Pass
3	1929.27	41.85	-2.48	74	32.15	Peak	44.6	150	Vertical	Pass
4	9380.62	42.86	20.21	74	31.14	Peak	11.6	150	Vertical	Pass
5	17024.13	50.44	9.79	74	23.56	Peak	77.6	150	Vertical	Pass
6	23193.01	48.64	10.93	74	25.36	Peak	235.2	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11a band4 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1391.61	42.65	-2.36	74	31.35	Peak	219.9	150	Horizontal	Pass
2	2832.17	45.67	9.70	74	28.33	Peak	103.7	150	Horizontal	Pass
3	4660.34	46.17	11.04	74	27.83	Peak	178.6	150	Horizontal	Pass
4	9346.92	40.92	20.21	74	33.08	Peak	345.3	150	Horizontal	Pass
5	15838.60	47.23	9.18	74	26.77	Peak	37.3	150	Horizontal	Pass
6	21805.32	44.97	10.30	74	29.03	Peak	311.2	150	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11a band4 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1155.96	42.15	-5.53	74	31.85	Peak	347	150	Vertical	Pass
2	1475.38	42.39	-4.32	74	31.62	Peak	155.5	150	Vertical	Pass
3	1841.79	46.82	-4.25	74	27.18	Peak	219.1	150	Vertical	Pass
4	9335.69	46.23	14.52	74	27.77	Peak	155.2	150	Vertical	Pass
5	14330.70	45.15	10.41	74	28.85	Peak	168.9	150	Vertical	Pass
6	24291.18	46.58	10.18	74	27.42	Peak	194	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11a band4 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1801.20	44.52	-4.81	74	29.49	Peak	139.2	150	Horizontal	Pass
2	2800.20	44.94	0.63	74	29.06	Peak	87.6	150	Horizontal	Pass
3	4978.02	46.04	11.22	74	27.97	Peak	134.6	150	Horizontal	Pass
4	6662.65	47.52	14.82	74	26.48	Peak	178	150	Horizontal	Pass
5	14455.49	43.86	20.64	74	30.14	Peak	81	150	Horizontal	Pass
6	21935.11	44.55	8.28	74	29.45	Peak	152	150	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11n20 band4 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1345.41	42.41	-5.86	74	31.59	Peak	303.5	150	Vertical	Pass
2	1447.89	40.48	-4.53	74	33.52	Peak	239.9	150	Vertical	Pass
3	1925.77	42.59	-2.77	74	31.41	Peak	167.1	150	Vertical	Pass
4	10604.83	43.14	14.19	74	30.86	Peak	144.3	150	Vertical	Pass
5	13789.93	49.25	9.96	74	24.76	Peak	302.4	150	Vertical	Pass
6	21396.01	44.29	11.72	74	29.71	Peak	333.4	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11n20 band4 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1055.94	44.05	-4.03	74	29.95	Peak	178.2	150	Horizontal	Pass
2	3491.51	46.01	-0.20	74	27.99	Peak	262.3	150	Horizontal	Pass
3	5922.08	49.25	10.88	74	24.76	Peak	319.2	150	Horizontal	Pass
4	7729.62	44.23	20.52	74	29.77	Peak	353.4	150	Horizontal	Pass
5	12853.99	47.59	10.80	74	26.41	Peak	346.9	150	Horizontal	Pass
6	24480.87	48.91	12.37	74	25.09	Peak	288.6	150	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11n20 band4 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1114.97	40.89	-4.80	74	33.11	Peak	85.4	150	Vertical	Pass
2	1473.88	44.62	-4.30	74	29.38	Peak	283.1	150	Vertical	Pass
3	1756.31	42.76	-4.14	74	31.24	Peak	92.3	150	Vertical	Pass
4	10997.92	45.57	20.04	74	28.43	Peak	90.7	150	Vertical	Pass
5	17024.13	45.30	8.73	74	28.70	Peak	330.8	150	Vertical	Pass
6	23183.03	47.00	11.56	74	27.00	Peak	211.6	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11n20 band4 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1019.98	41.13	-2.43	74	32.87	Peak	103.8	150	Horizontal	Pass
2	2540.46	44.67	1.94	74	29.34	Peak	76	150	Horizontal	Pass
3	5850.15	46.35	15.70	74	27.65	Peak	130.1	150	Horizontal	Pass
4	6168.47	47.50	19.67	74	26.50	Peak	148	150	Horizontal	Pass
5	12682.61	43.62	11.28	74	30.38	Peak	235.2	150	Horizontal	Pass
6	22094.84	44.53	12.97	74	29.47	Peak	21.7	150	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11n20 band4 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1274.43	42.21	-4.56	74	31.79	Peak	243.4	150	Vertical	Pass
2	1582.35	41.32	-4.41	74	32.68	Peak	196.4	150	Vertical	Pass
3	1677.83	43.05	-4.08	74	30.95	Peak	40.4	150	Vertical	Pass
4	8717.97	50.97	13.69	74	23.03	Peak	296	150	Vertical	Pass
5	17908.07	46.03	9.02	74	27.97	Peak	88.7	150	Vertical	Pass
6	19049.92	43.86	8.34	74	30.14	Peak	203.2	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11n20 band4High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1685.32	43.29	-0.74	74	30.71	Peak	357.5	150	Horizontal	Pass
2	2566.43	44.80	8.96	74	29.20	Peak	99.5	150	Horizontal	Pass
3	4594.41	48.12	15.55	74	25.88	Peak	134.1	150	Horizontal	Pass
4	10436.36	43.94	17.01	74	30.06	Peak	122.6	150	Horizontal	Pass
5	14497.09	46.03	9.31	74	27.97	Peak	209.3	150	Horizontal	Pass
6	24401.00	44.84	11.43	74	29.16	Peak	70.1	150	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11n40 band4 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1016.50	41.38	-5.16	74	32.62	Peak	158.3	150	Vertical	Pass
2	1533.87	41.62	-4.31	74	32.38	Peak	124.9	150	Vertical	Pass
3	1961.76	46.10	-3.27	74	27.90	Peak	229.6	150	Vertical	Pass
4	10818.22	50.20	14.81	74	23.81	Peak	180.5	150	Vertical	Pass
5	17700.08	42.02	8.67	74	31.98	Peak	172.2	150	Vertical	Pass
6	21326.12	43.75	10.86	74	30.25	Peak	204.7	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11n40 band4 Low Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2398.60	41.07	-2.62	74	32.93	Peak	4.1	150	Horizontal	Pass
2	2702.30	43.70	2.39	74	30.30	Peak	37	150	Horizontal	Pass
3	3797.20	46.65	13.64	74	27.35	Peak	171.2	150	Horizontal	Pass
4	10851.91	41.17	16.95	74	32.83	Peak	118.5	150	Horizontal	Pass
5	14632.28	46.78	11.79	74	27.22	Peak	89	150	Horizontal	Pass
6	22324.46	46.33	10.98	74	27.67	Peak	289.9	150	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11n40 band4 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1061.99	42.84	-5.28	74	31.16	Peak	130.8	150	Vertical	Pass
2	1467.88	41.45	-4.33	74	32.55	Peak	186.7	150	Vertical	Pass
3	1744.31	42.68	-4.34	74	31.32	Peak	205.3	150	Vertical	Pass
4	6617.72	43.36	16.92	74	30.64	Peak	97.1	150	Vertical	Pass
5	13373.96	47.73	9.56	74	26.27	Peak	185	150	Vertical	Pass
6	19169.72	45.63	8.39	74	28.37	Peak	18.7	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11n40 band4 High Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	2362.64	41.15	-4.49	74	32.85	Peak	304.7	150	Horizontal	Pass
2	2728.27	44.84	9.09	74	29.16	Peak	323	150	Horizontal	Pass
3	4132.87	50.83	10.66	74	23.17	Peak	200.9	150	Horizontal	Pass
4	10368.97	50.22	14.82	74	23.78	Peak	182.8	150	Horizontal	Pass
5	13644.34	45.84	9.08	74	28.16	Peak	239.7	150	Horizontal	Pass
6	21575.71	46.73	8.97	74	27.28	Peak	233.2	150	Horizontal	Pass

1 GHz to 25 GHz, ANT V 802.11ac80 band4 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1102.47	41.00	-6.20	74	33.00	Peak	320.3	150	Vertical	Pass
2	1404.90	44.74	-4.39	74	29.26	Peak	284.6	150	Vertical	Pass
3	1774.81	43.32	-3.72	74	30.68	Peak	84.8	150	Vertical	Pass
4	9504.16	44.35	19.89	74	29.65	Peak	108.9	150	Vertical	Pass
5	14216.31	46.49	9.04	74	27.51	Peak	27	150	Vertical	Pass
6	18116.06	43.30	10.98	74	30.70	Peak	197.2	150	Vertical	Pass

1 GHz to 25 GHz, ANT H 802.11nac80 band4 Middle Channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Margin (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	1961.04	43.89	-0.36	74	30.11	Peak	7.5	150	Horizontal	Pass
2	2790.21	46.43	2.16	74	27.58	Peak	301.5	150	Horizontal	Pass
3	4762.24	45.75	14.83	74	28.25	Peak	52.1	150	Horizontal	Pass
4	10121.88	43.10	15.98	74	30.91	Peak	91.8	150	Horizontal	Pass
5	16368.97	48.42	9.05	74	25.58	Peak	274.4	150	Horizontal	Pass
6	21006.66	46.89	10.30	74	27.12	Peak	9.3	150	Horizontal	Pass

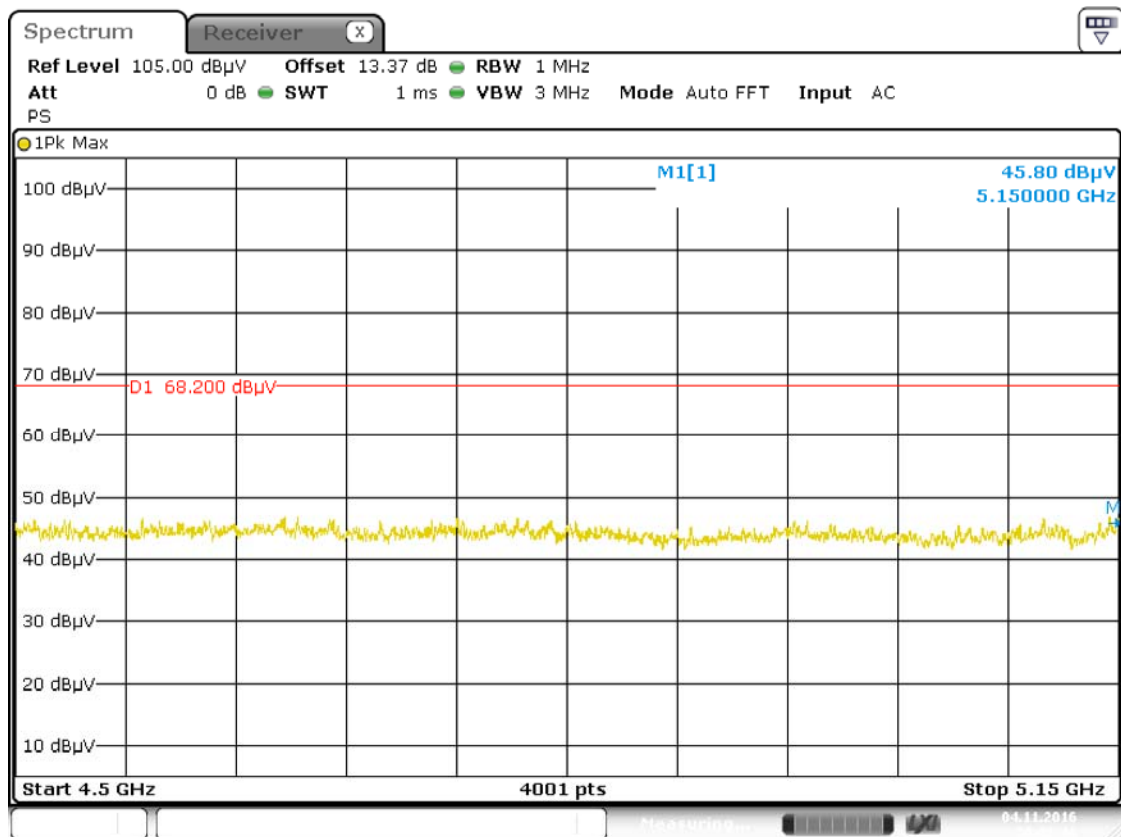
A.7.2 Band Edge (Restricted-band)

Test data

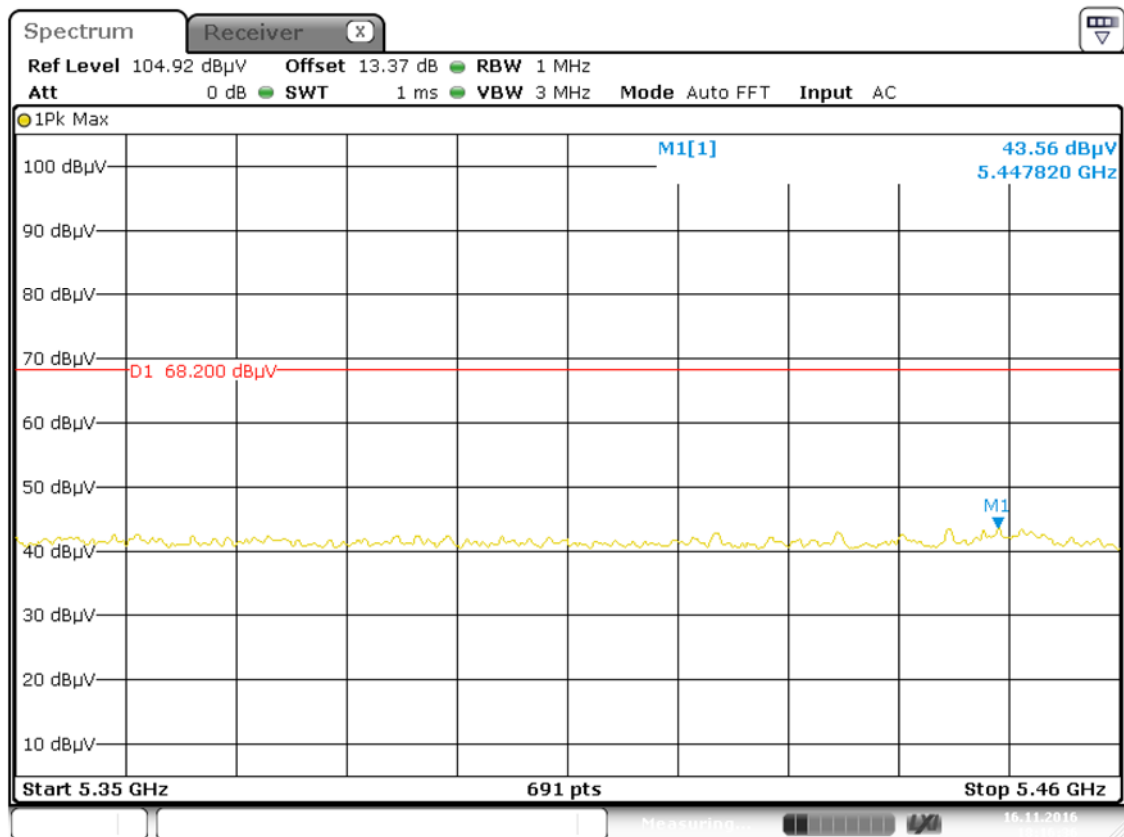
Test Band	Mode	Channel	Verdict
Band I	802.11a	Low	Pass
		High	Pass
	802.11n(HT20)	Low	Pass
		High	Pass
	802.11n(HT40)	Low	Pass
		High	Pass
Band IV	802.11a	Low	Pass
		High	Pass
	802.11n(HT20)	Low	Pass
		High	Pass
	802.11n(HT40)	Low	Pass
		High	Pass
	802.11ac(HT80)	Low	Pass
		High	Pass

Test Plots

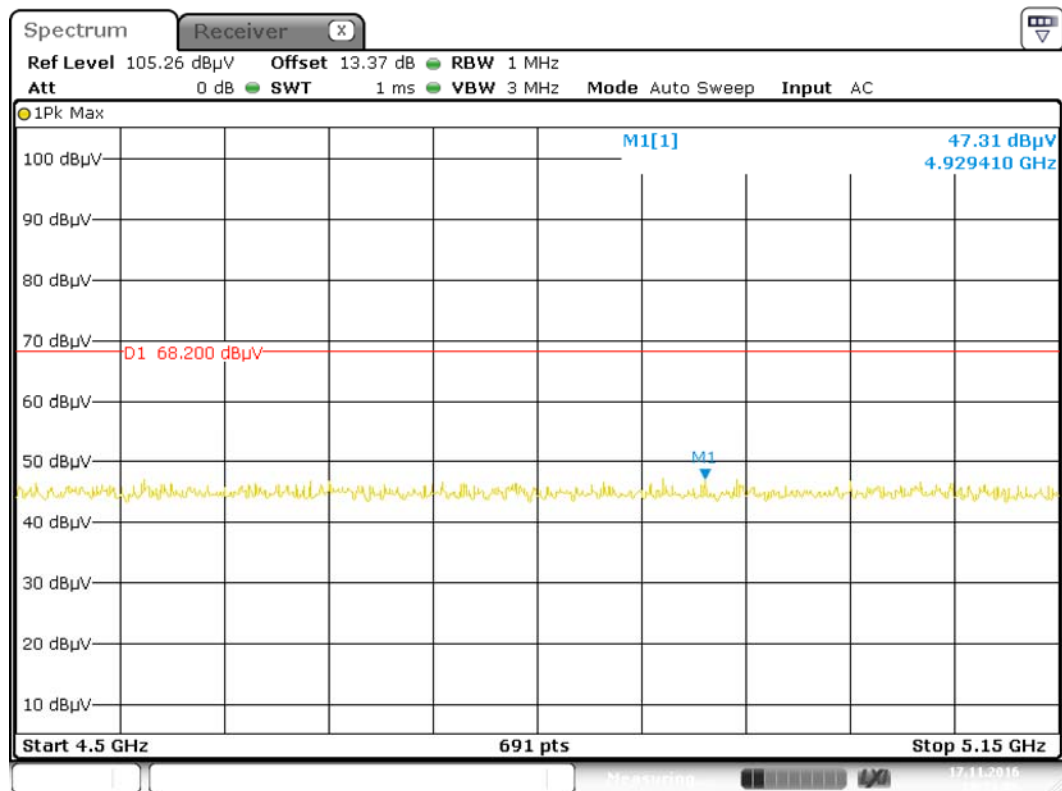
Band I 11a CH36



Band I 11a CH48

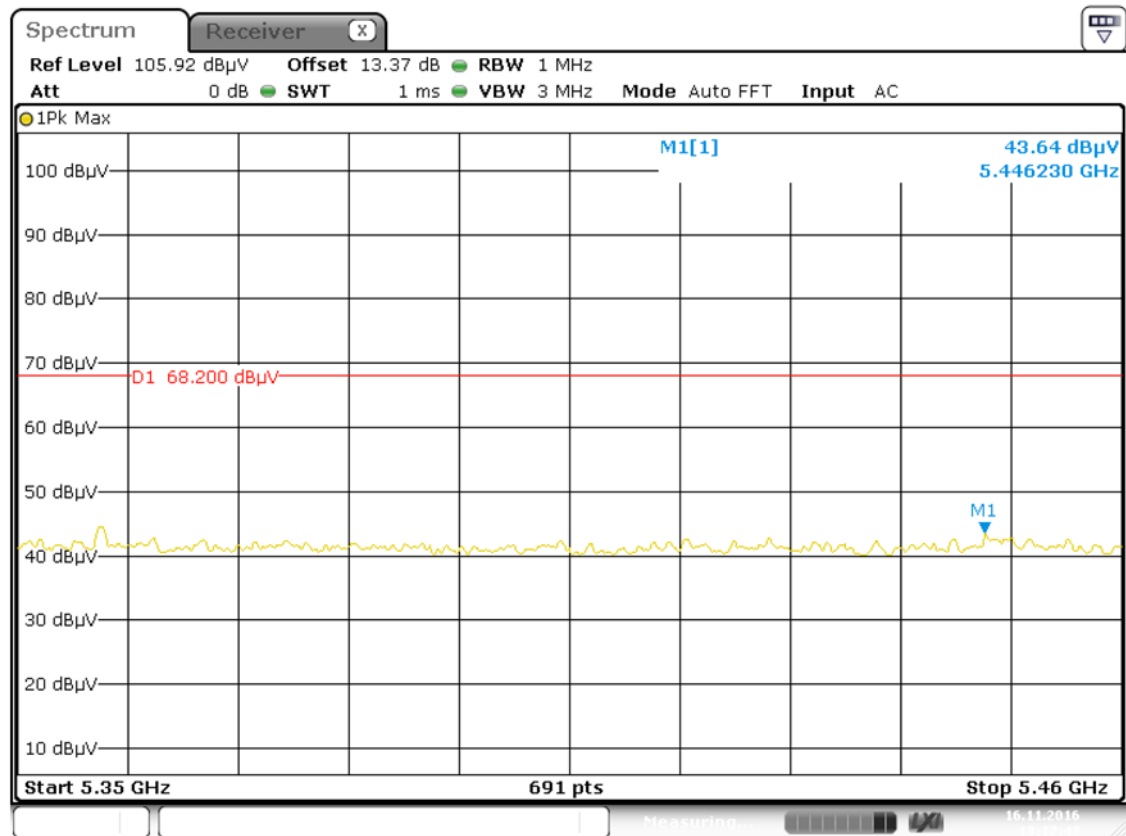


Band I 11n(HT20) CH36

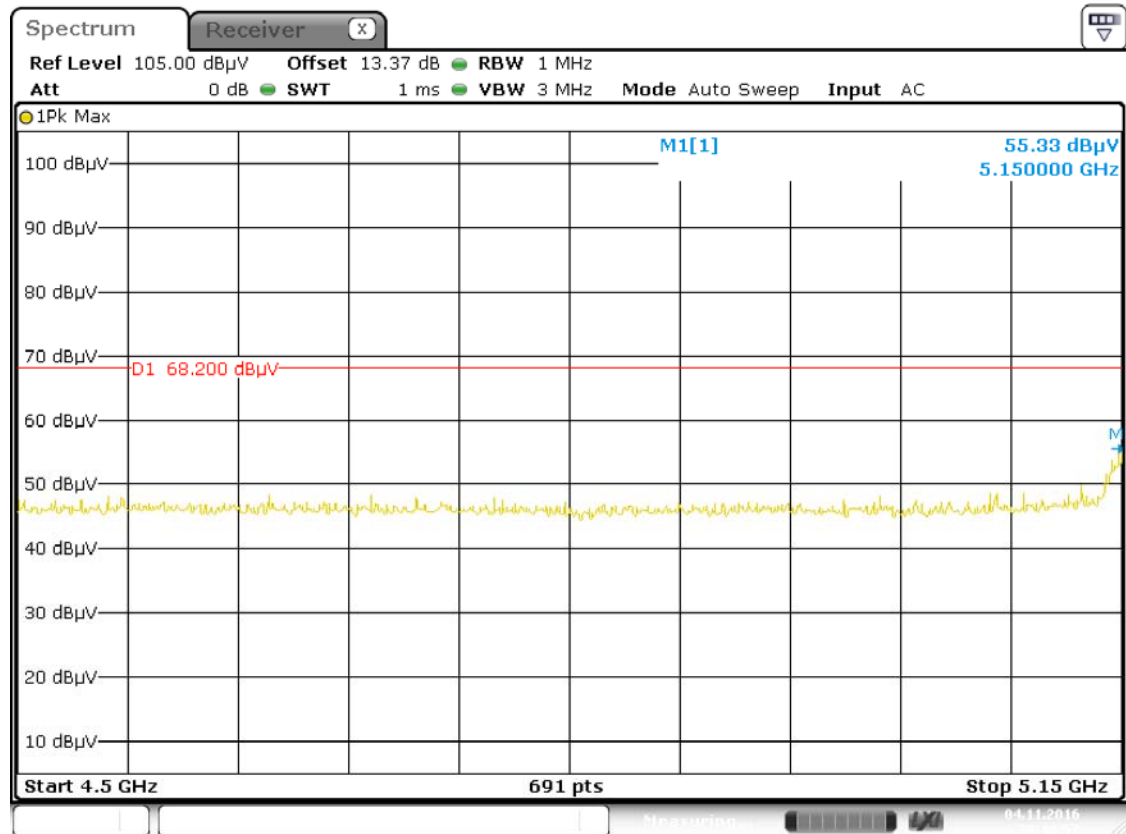


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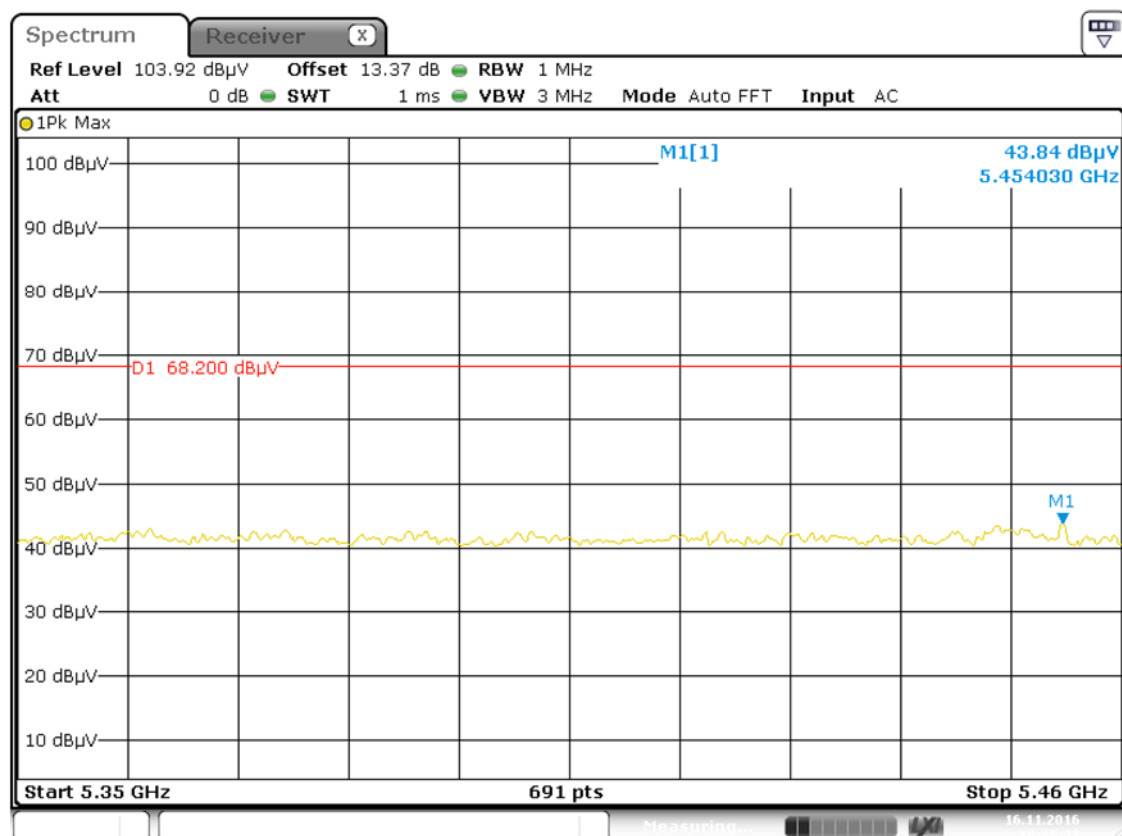
Band I 11n(HT20) CH48



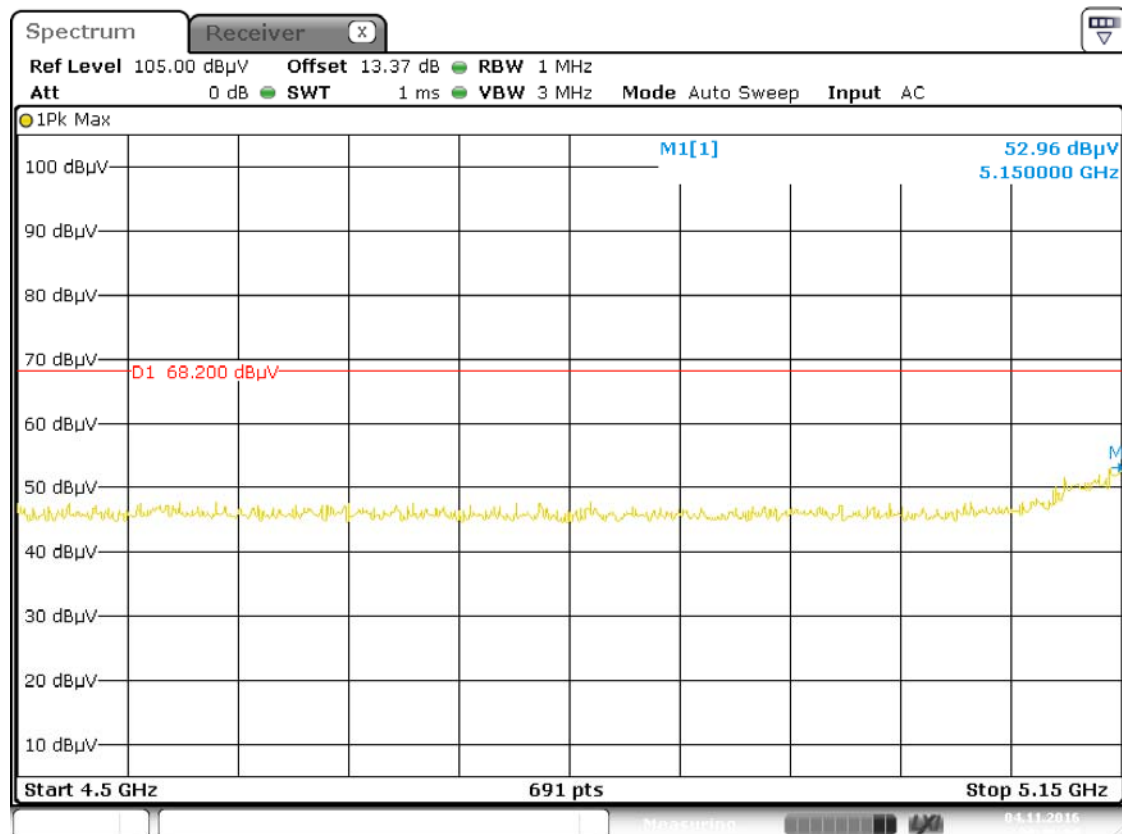
Band I 11n(HT40) CH38



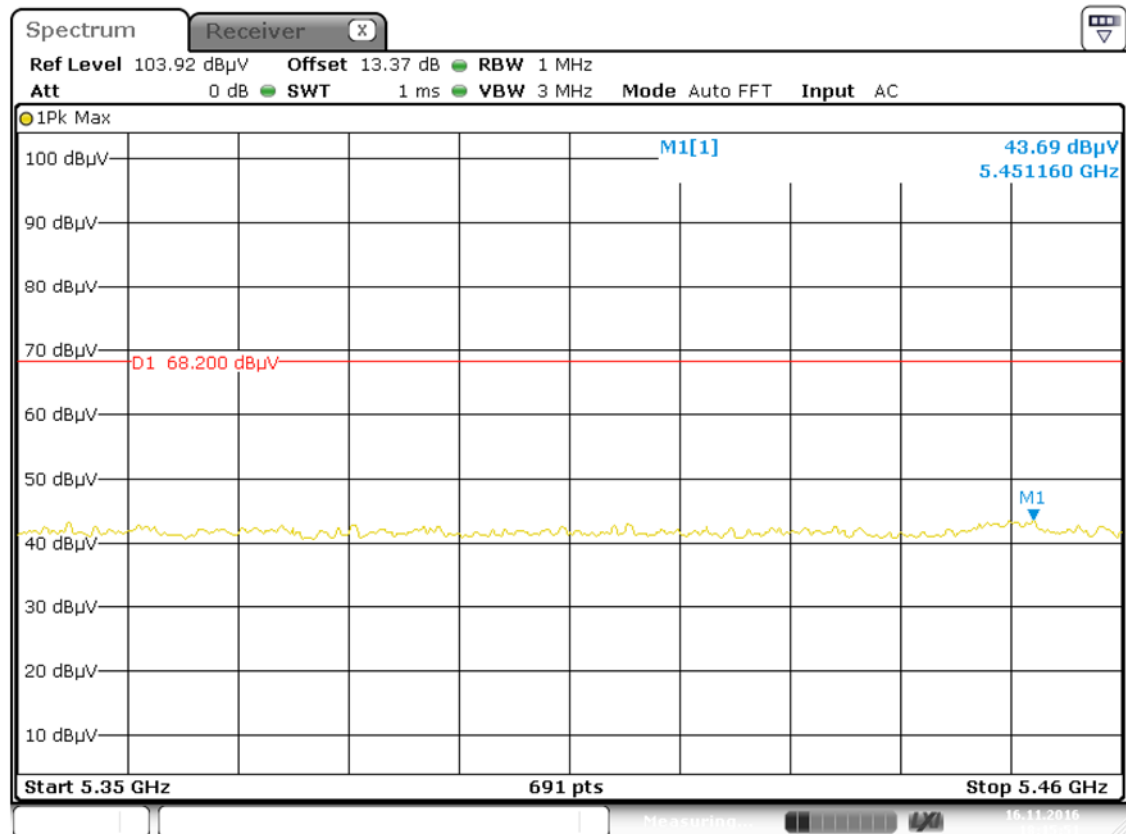
Band I 11n(HT40) CH46



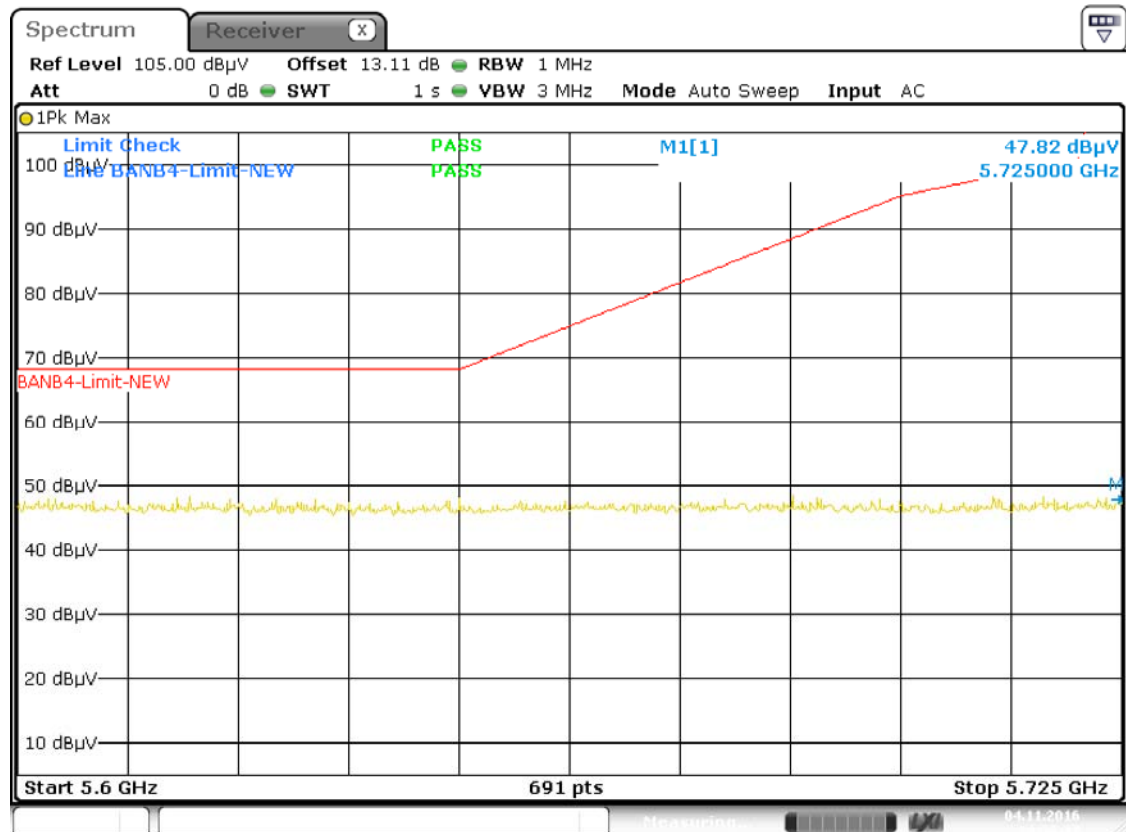
Left Band I 11ac(HT80) CH42



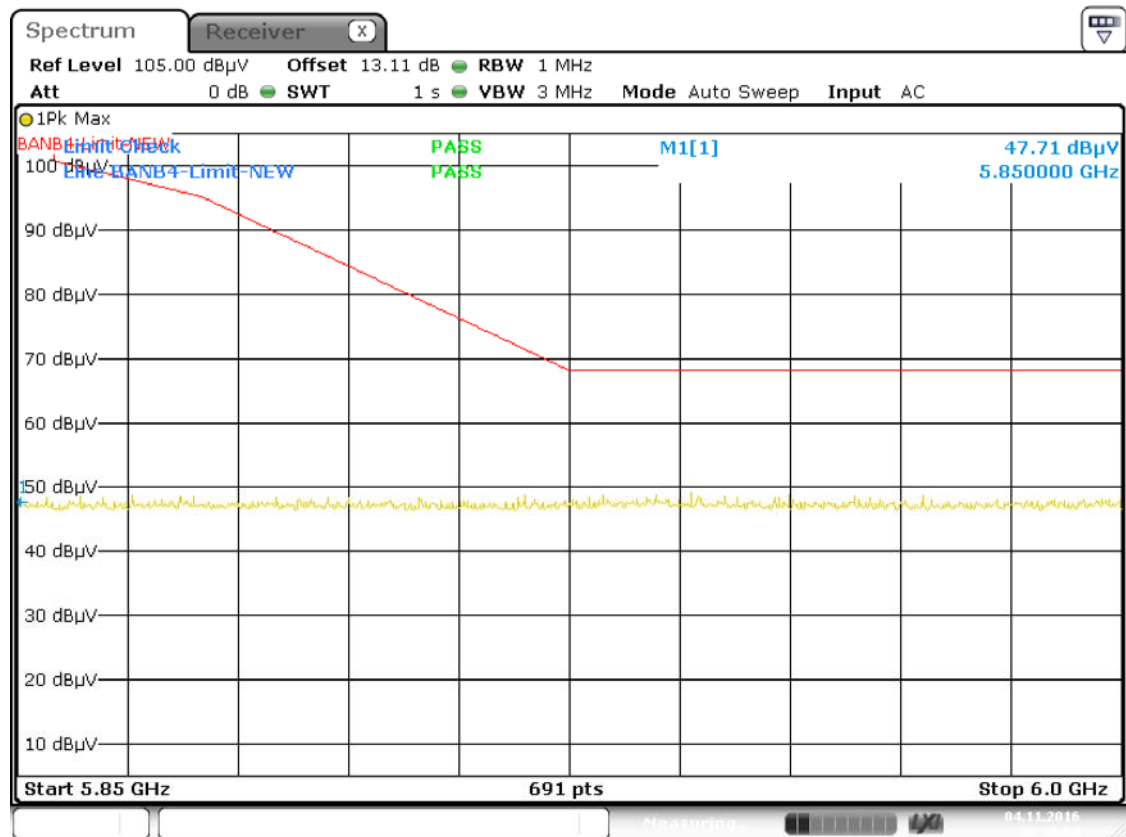
Right Band I 11ac(HT80) CH42



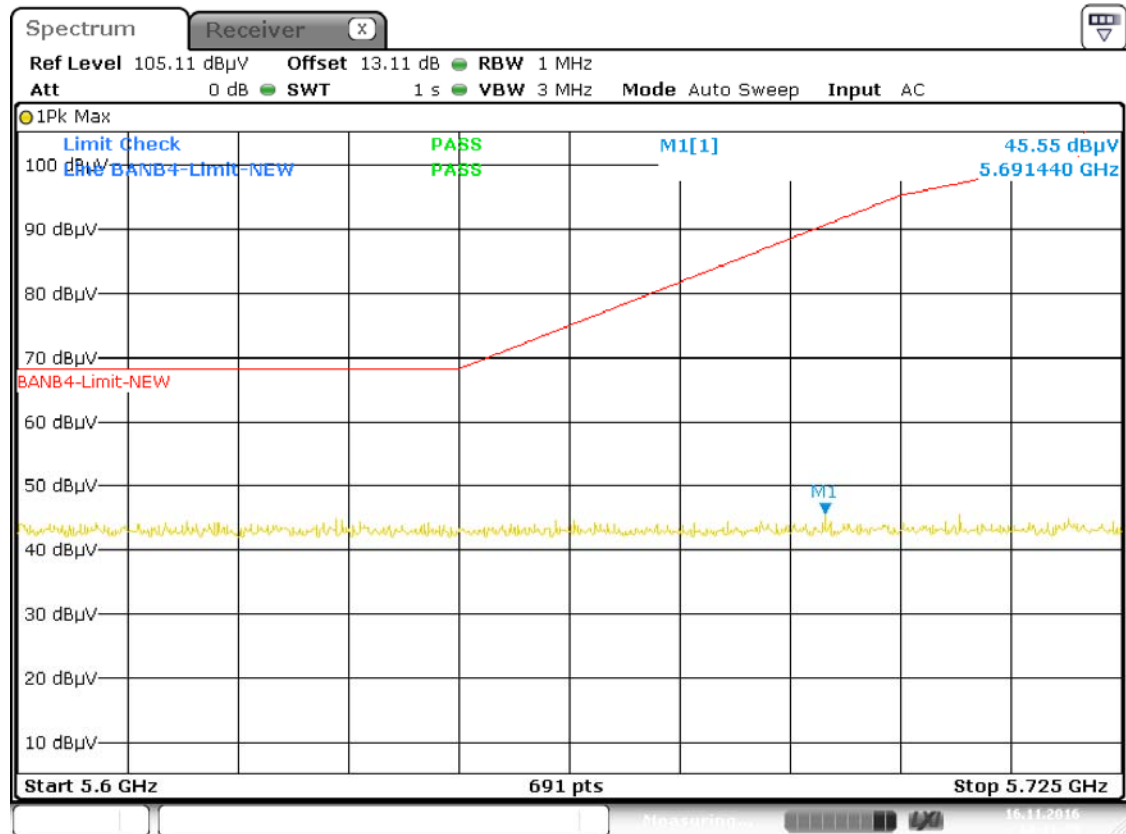
Band IV 11a CH149



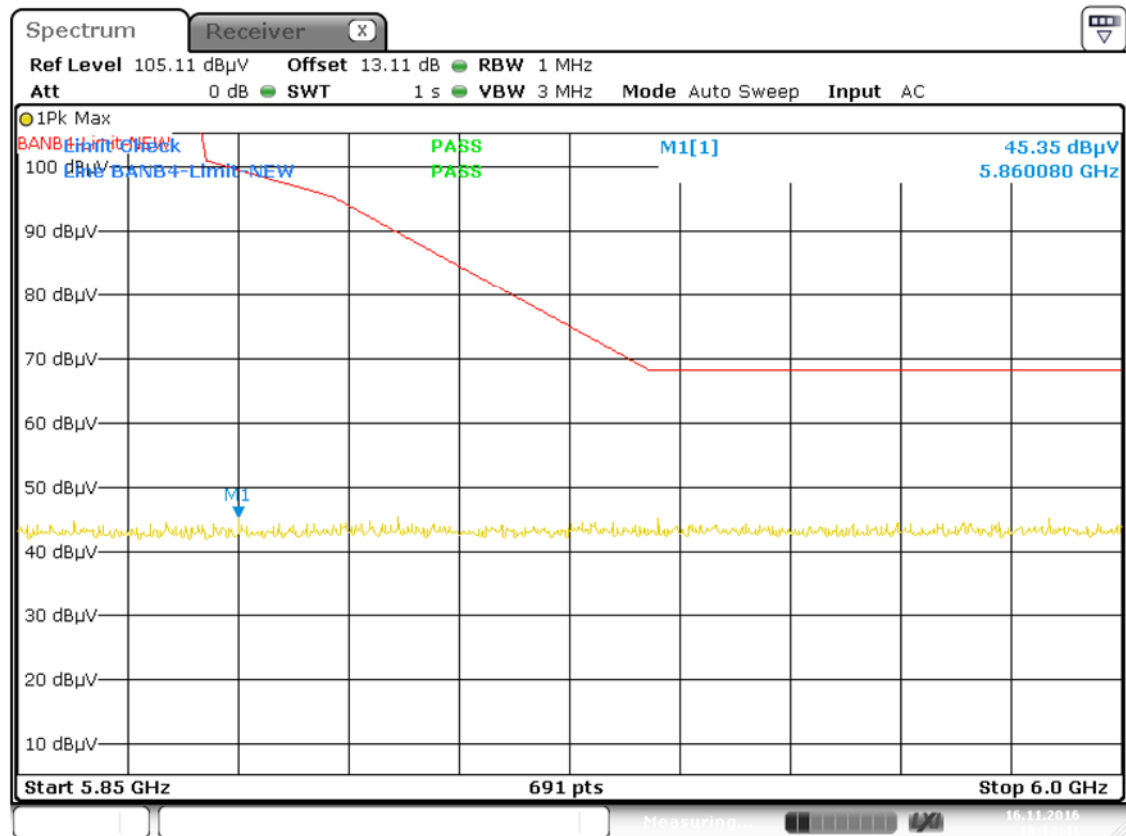
Band IV 11a CH165



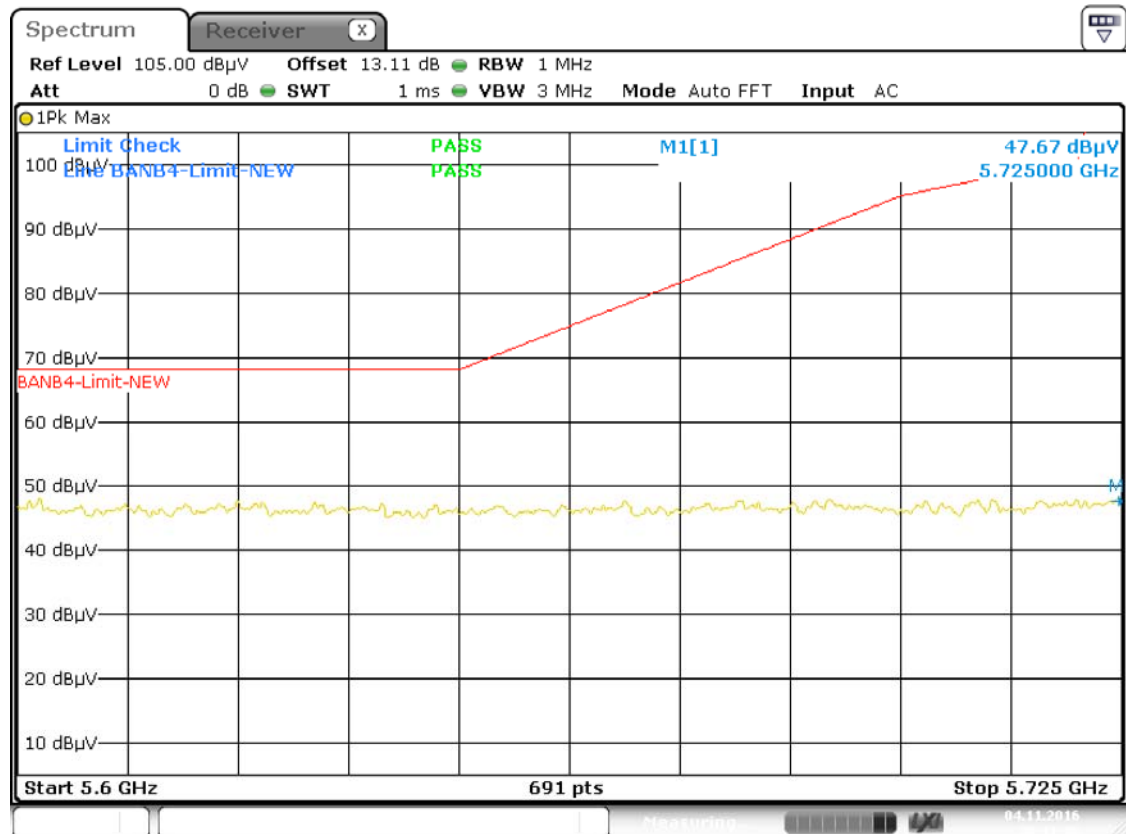
Band IV 11n(HT20) CH149



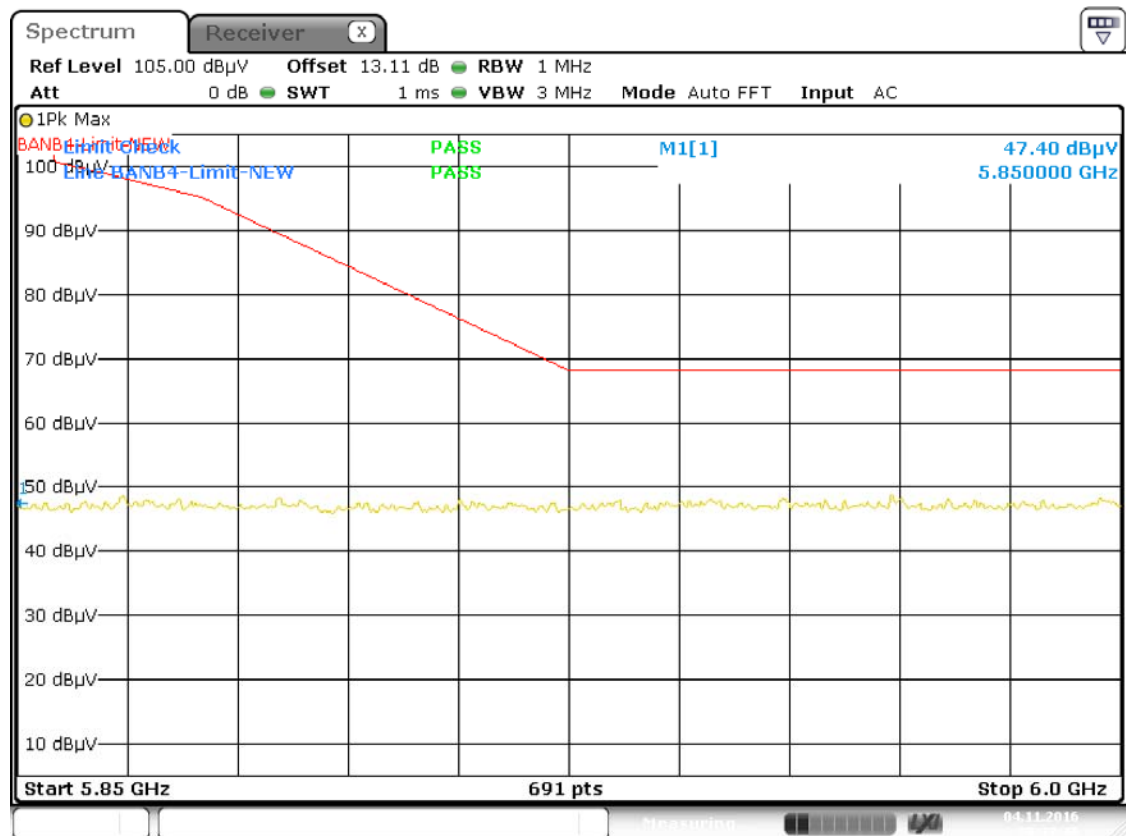
Band IV 11n(HT20) CH165



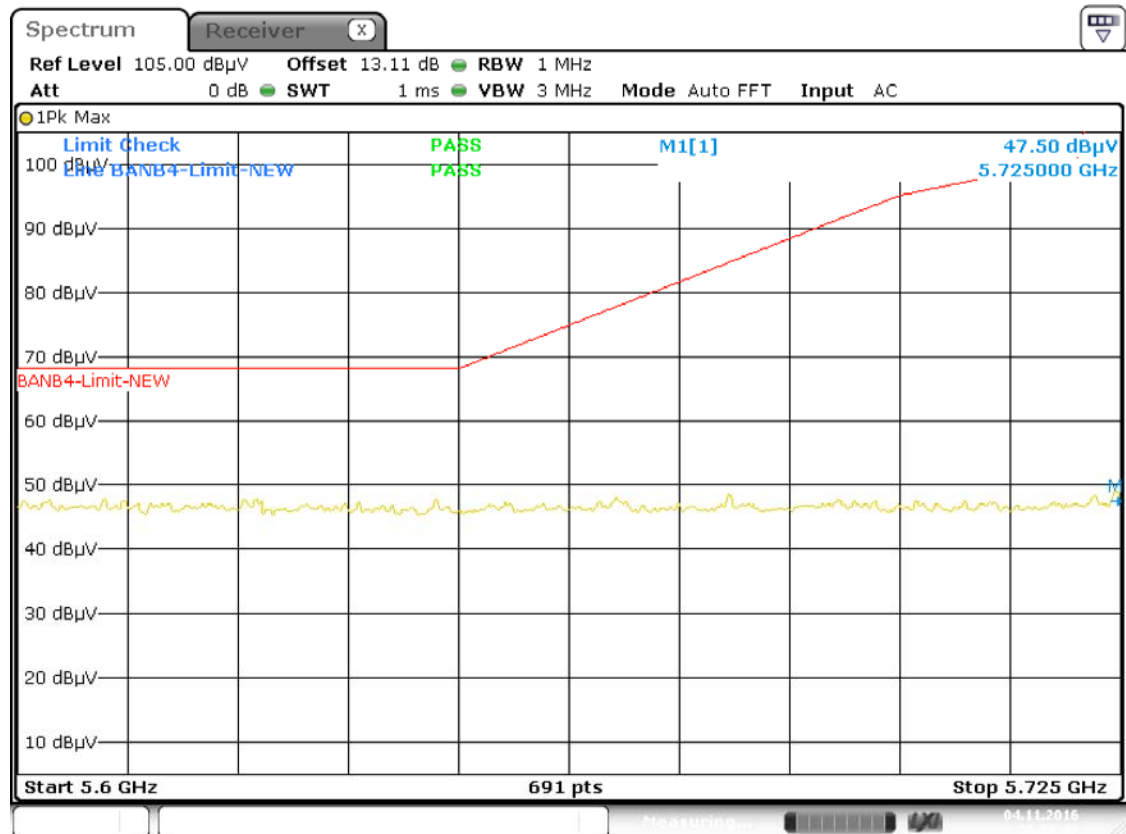
Band IV 11nHT40) CH151



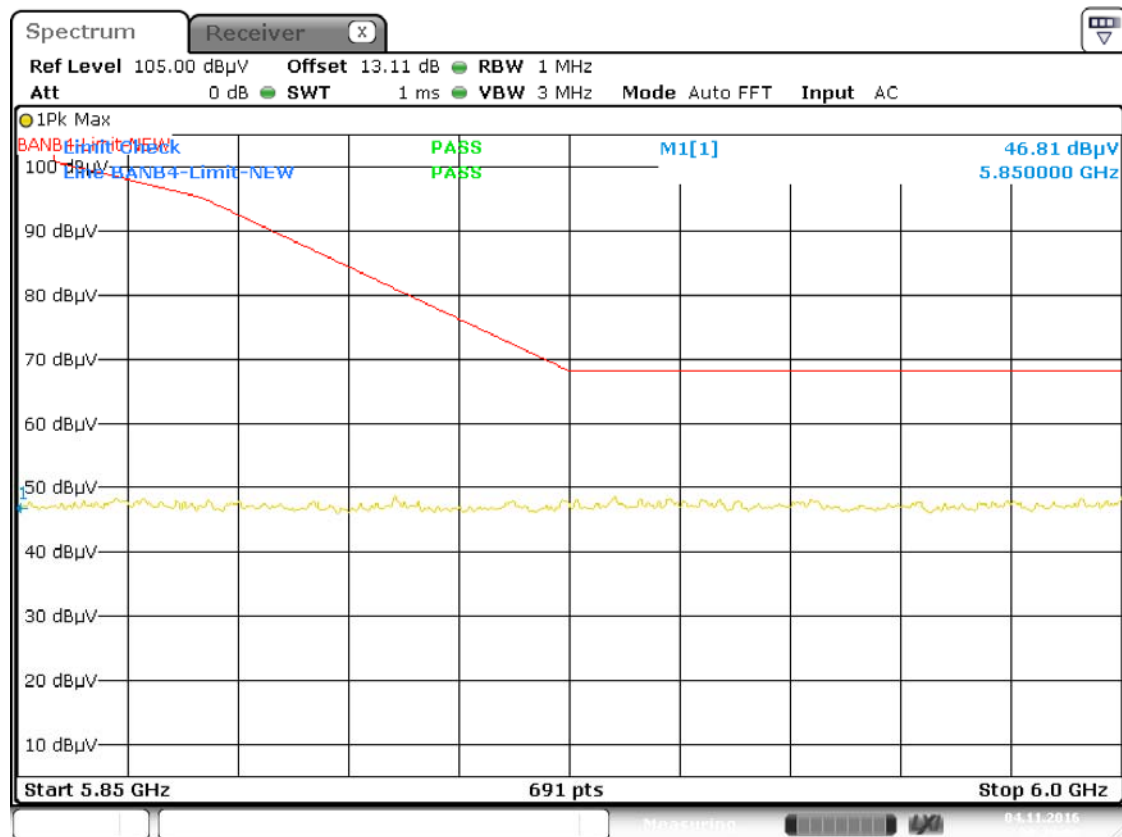
Band IV 11n(HT40) CH159



Left Band IV11ac(HT80) CH155

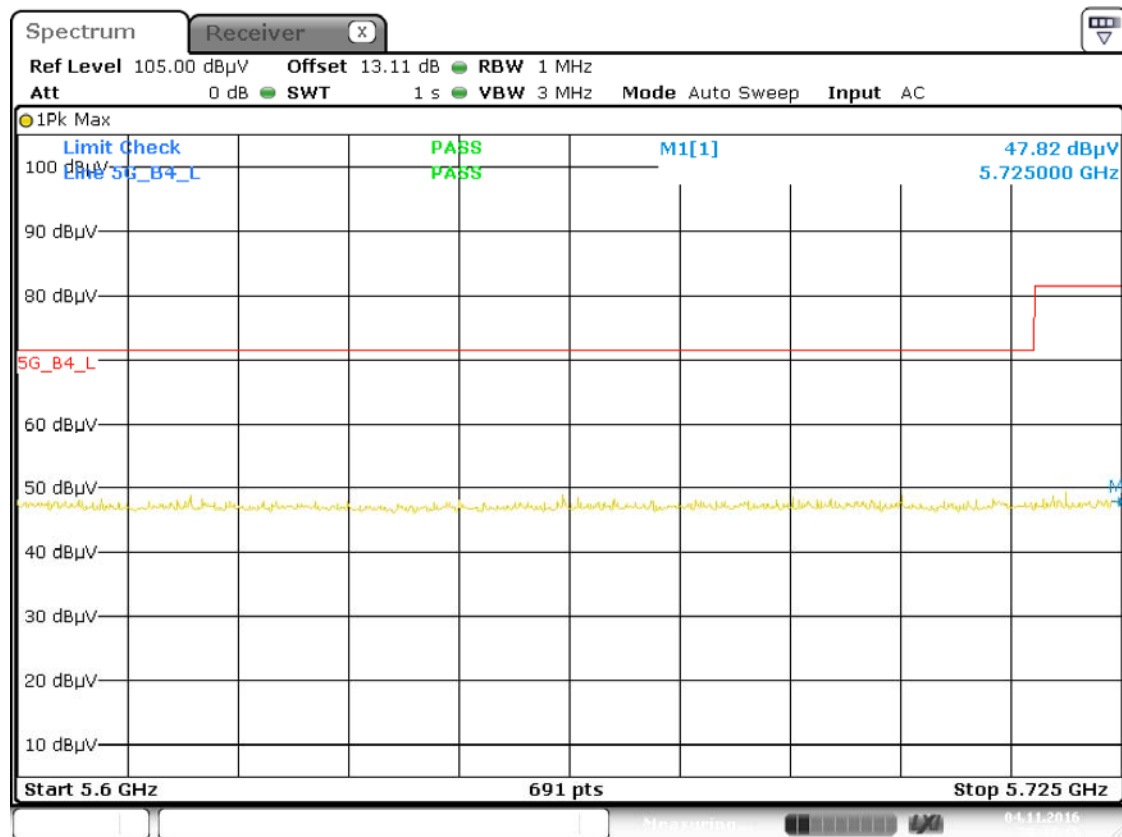


Right Band IV11ac(HT80) CH155

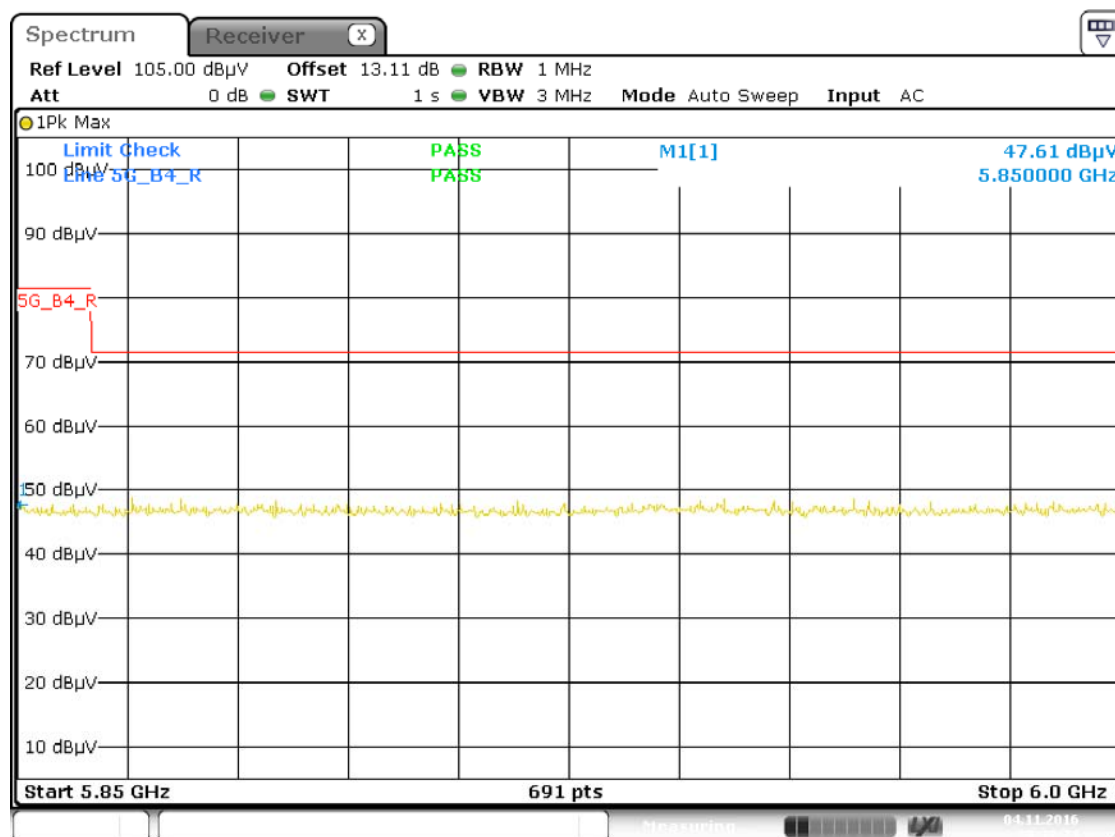


For ISED Band IV

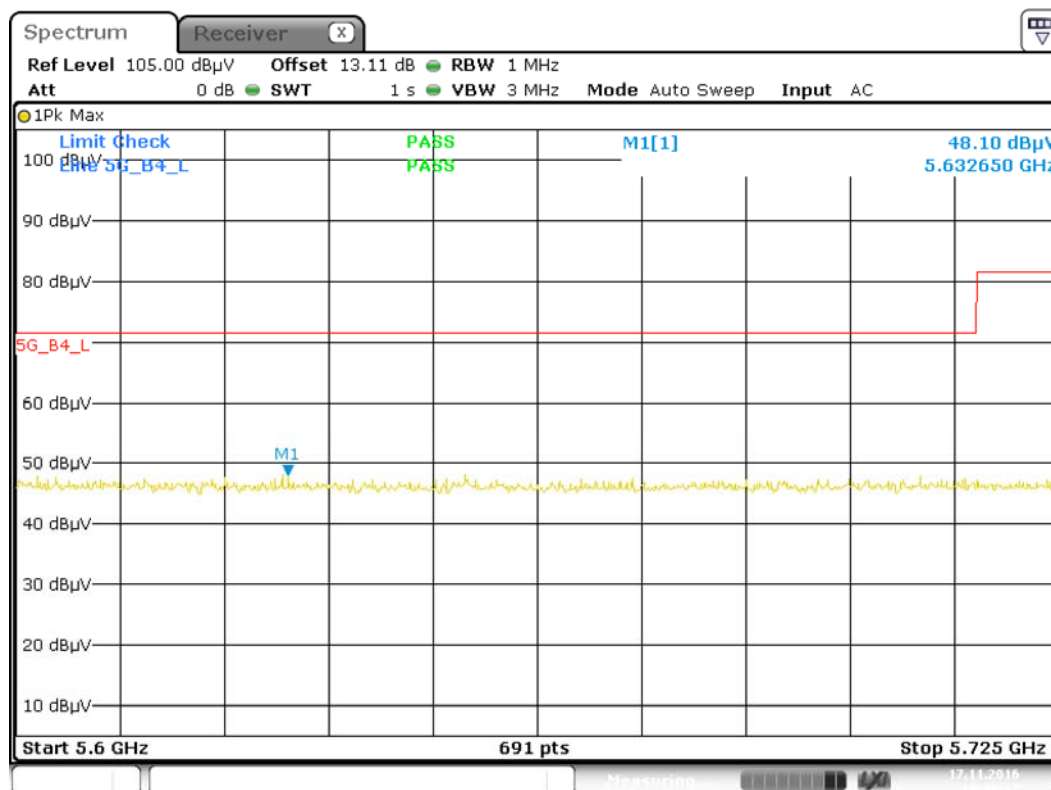
Band IV 11a CH149



Band IV 11a CH165

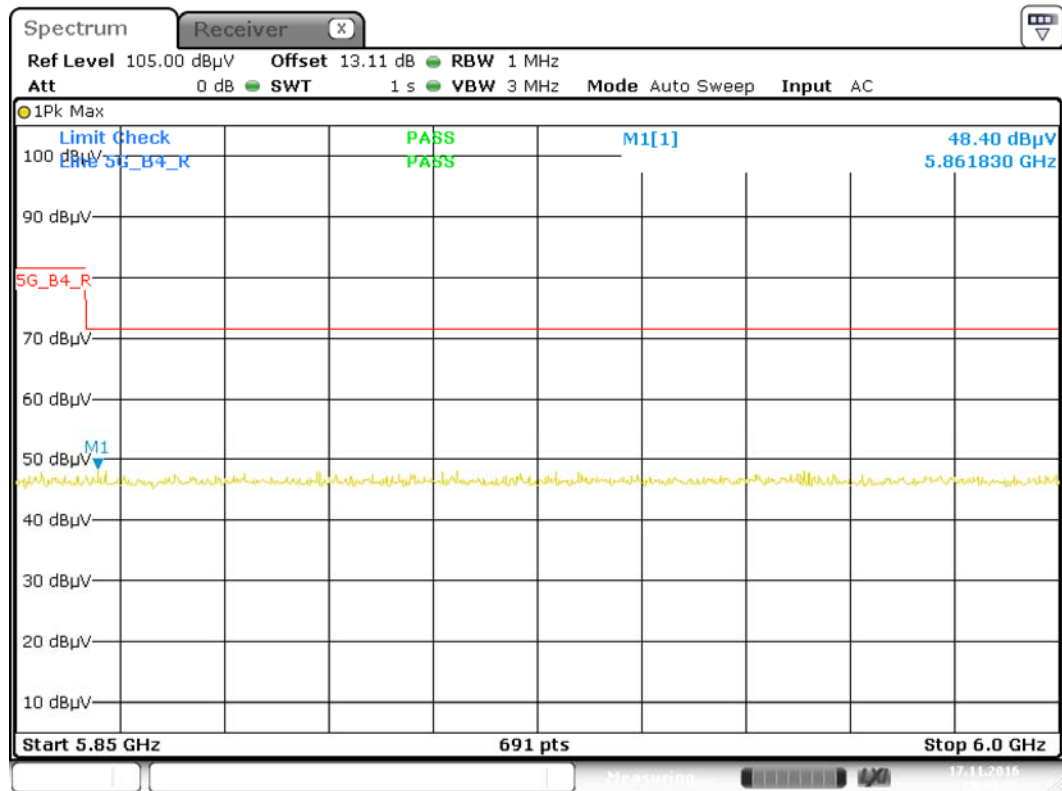


Band IV 11n(HT20) CH149

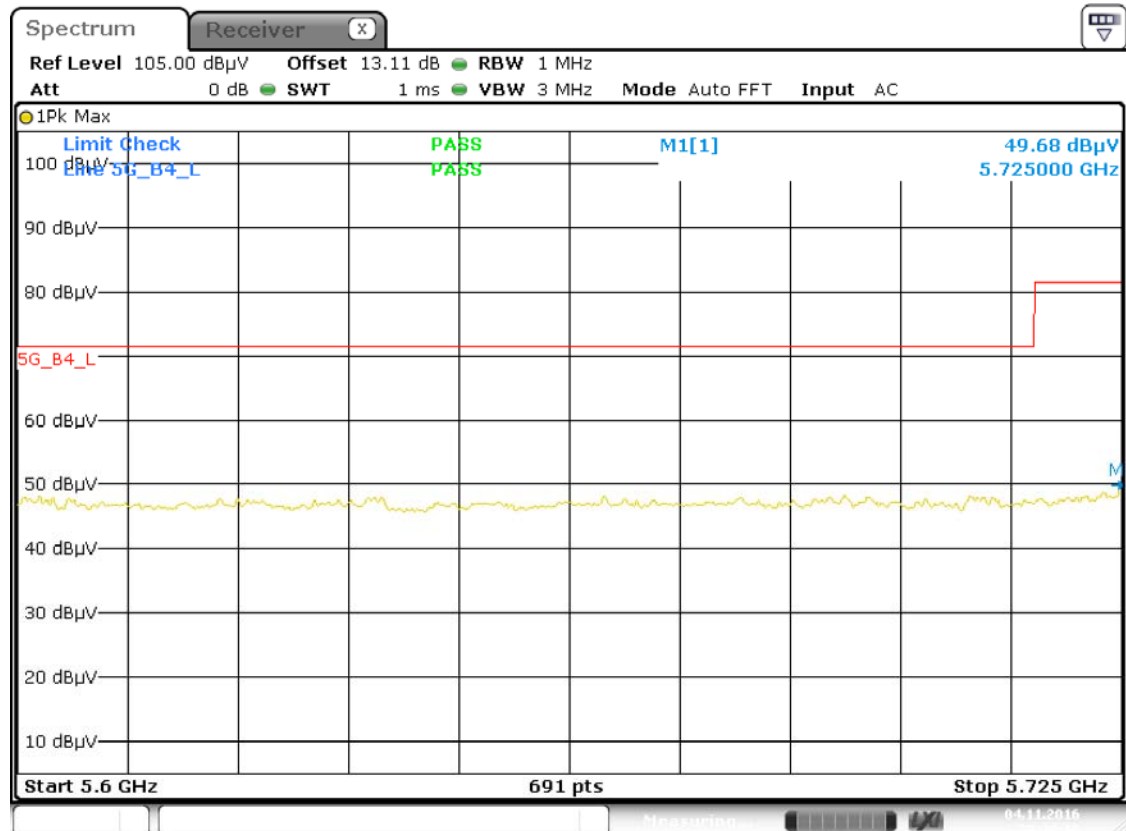


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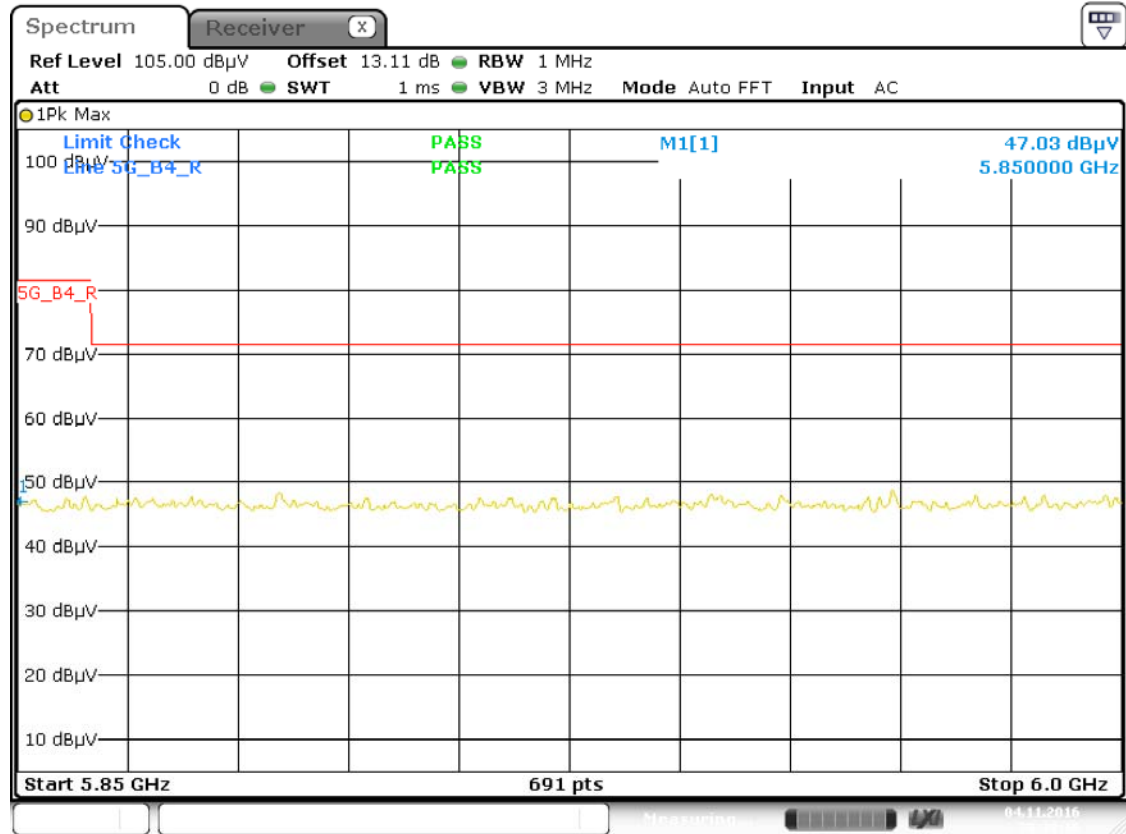
Band IV 11n(HT20) CH165



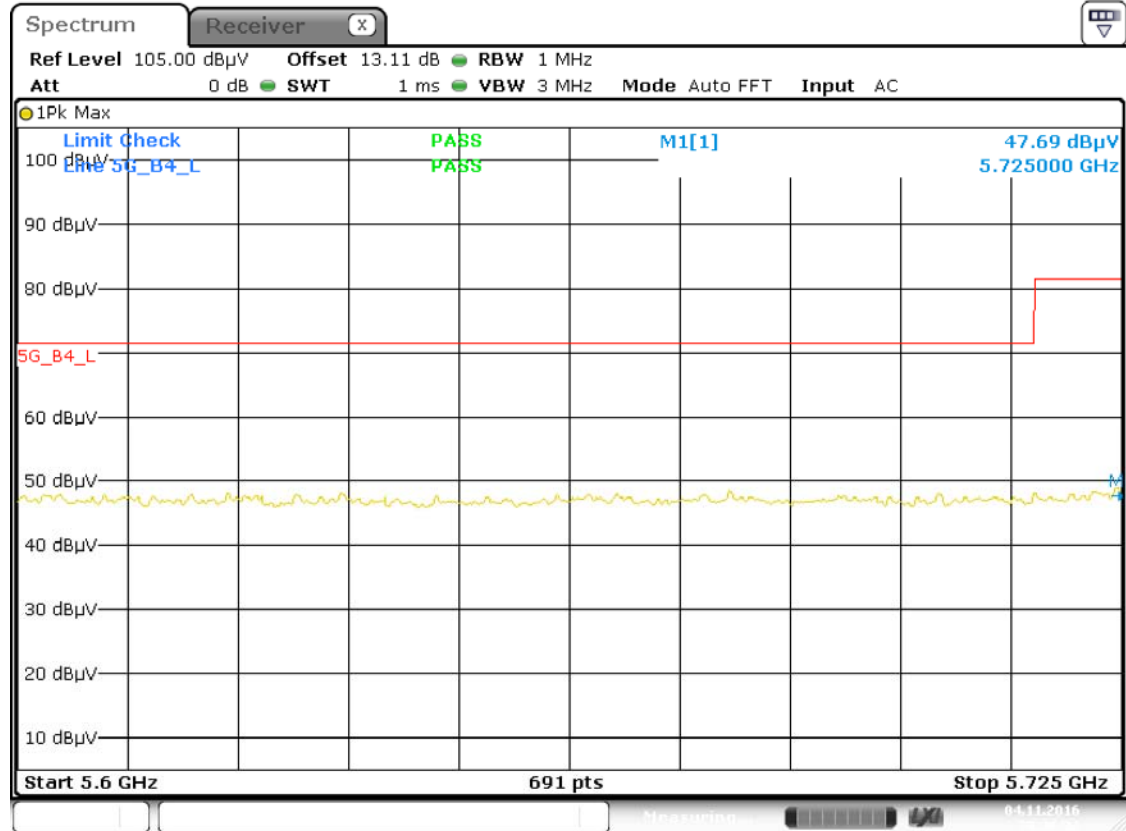
Band IV 11nHT40) CH151



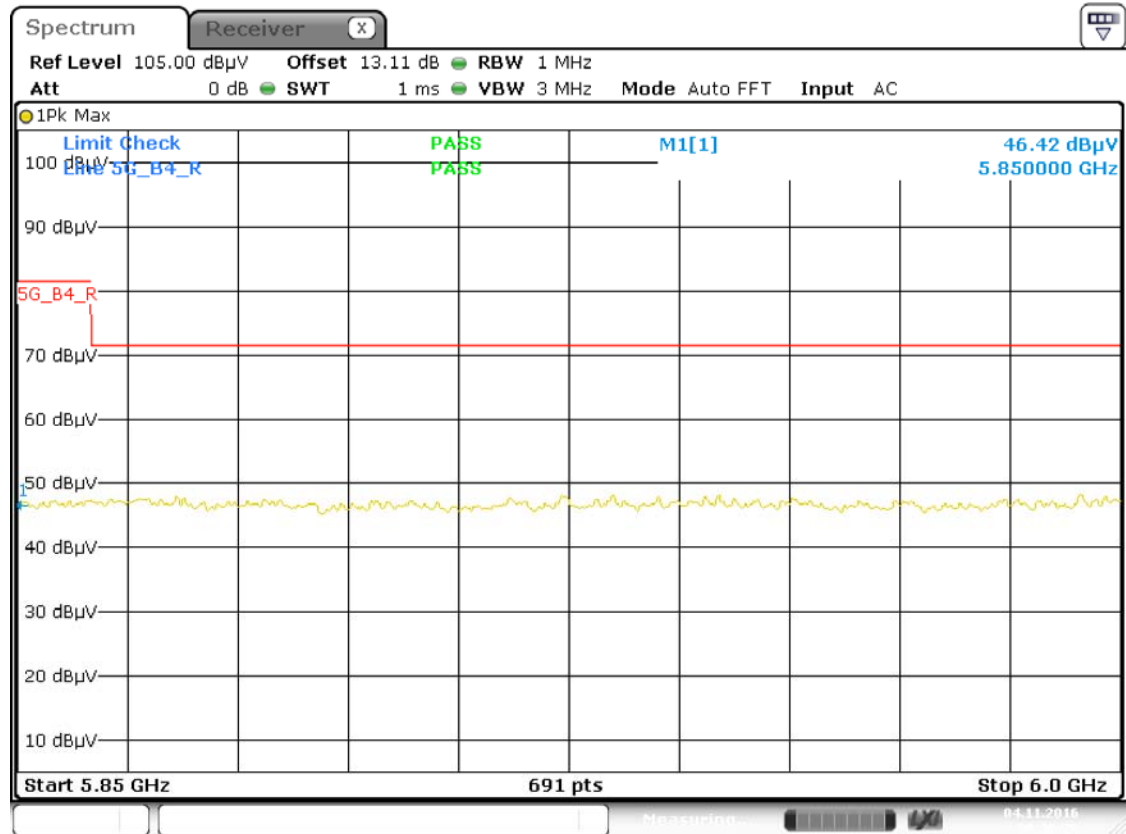
Band IV 11n(HT40) CH159



Left Band IV11ac(HT80) CH155



Right Band IV11ac(HT80) CH155



A.8 Frequency Stability

Measurement Data (the worst channel)

Voltage vs. Frequency Stability (5180 MHz)

Test Conditions		Test Frequency (MHz)	0 Minute		2 Minute		5 Minute		10Minute	
TEMP. (°C)	Voltage (VDC)		Measurement Frequency (MHz)	Max. Deviation (ppm)	Measurement Frequency (MHz)	Max. Deviation (ppm)	Measurement Frequency (MHz)	Max. Deviation (ppm)	Measurement Frequency (MHz)	Max. Deviation (ppm)
20	9	5180	5179.95708	-8.29	5180.04988	9.63	5180.00919	7.80	5179.99403	-1.15
	19	5180	5180.00499	0.96	5179.96038	-7.65	5180.04940	6.63	5180.02356	4.55
	36	5180	5180.04821	9.31	5180.01168	2.26	5180.00581	1.78	5180.00134	0.26

Temperature vs. Frequency Stability (5180 MHz)

Test Conditions		Test Frequency (MHz)	0 Minute		2 Minute		5 Minute		10Minute	
Voltage (VDC)	TEMP. (°C)		Measurement Frequency (MHz)	Max. Deviation (ppm)	Measurement Frequency (MHz)	Max. Deviation (ppm)	Measurement Frequency (MHz)	Max. Deviation (ppm)	Measurement Frequency (MHz)	Max. Deviation (ppm)
19	-10	5180	5179.97703	-4.44	5180.02136	4.12	5179.98161	-3.55	5180.02983	5.76
	-5	5180	5180.02088	4.03	5179.96980	-5.83	5180.01654	3.19	5179.97372	-5.07
	0	5180	5180.02252	4.35	5180.04294	8.29	5180.00758	1.46	5180.03416	6.59
	10	5180	5180.03929	7.58	5180.03222	6.22	5180.01766	3.41	5179.97015	-5.76
	15	5180	5179.95759	-8.19	5179.96322	-7.10	5179.99389	-1.18	5180.04733	9.14
	20	5180	5180.01190	2.30	5180.04659	8.99	5180.02156	4.16	5180.03415	6.59
	30	5180	5180.04409	8.51	5180.04258	8.22	5180.03262	6.30	5180.02983	5.76
	35	5180	5179.95931	-7.85	5180.00508	0.98	5179.98031	-3.80	5180.03938	7.60
	40	5180	5180.00455	0.88	5180.00707	1.37	5180.03783	7.30	5180.03160	6.10

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ1690367-AR.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the document “BL- SZ1690367-AW.PDF”.

ANNEX D EUT INTERNAL PHOTOS

Please refer the document “BL- SZ1690367-AI.PDF”.

--END OF REPORT--