

FCC

RF

TEST REPORT

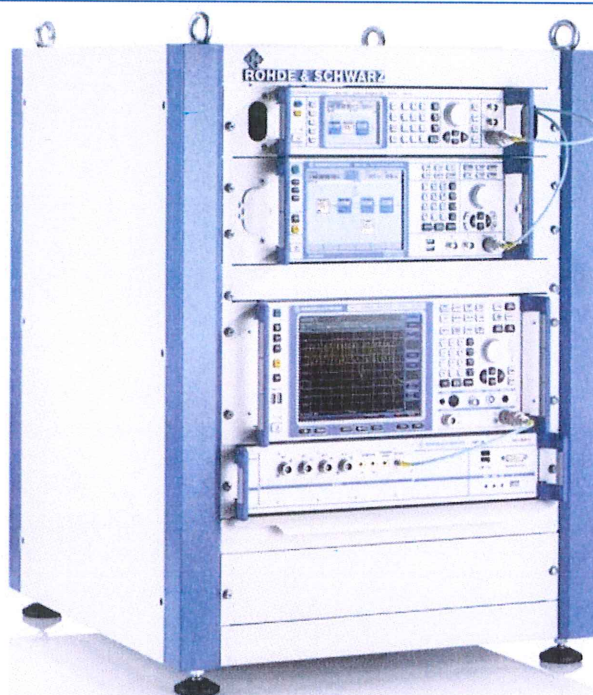
ISSUED BY
Shenzhen BALUN Technology Co., Ltd.



FOR
Mobile Hotspot

ISSUED TO
Yulong Computer Telecommunication Scientific (Shenzhen)
Co., Ltd

Coolpad Information Harbor, High-tech Industrial Park (North), Nanshan
District, Shenzhen, P.R.C.



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Date: Sep. 22, 2018

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Date: Sep. 22, 2018

Report No.: BL-SZ1880381-602
EUT Name: Mobile Hotspot
Model Name: cp331A
Brand Name: coolpad
Test Standard: 47 CFR Part 15 Subpart E
FCC ID: R38YLCP331A

Test Conclusion: Pass
Test Date: Aug. 23, 2018 ~ Aug. 31, 2018
Date of Issue: Sep. 22, 2018

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Revision History

Version	Issue Date	Revisions Content
<u>Rev. 01</u>	<u>Sep. 06, 2018</u>	<u>Initial Issue</u>
<u>Rev. 02</u>	<u>Sep. 22, 2018</u>	<u>Update the Network and Wireless connectivity</u>

TABLE OF CONTENTS

1	ADMINISTRATIVE DATA (GENERAL INFORMATION)	4
1.1	Identification of the Testing Laboratory	4
1.2	Identification of the Responsible Testing Location	4
1.3	Laboratory Condition	4
1.4	Announce	4
2	PRODUCT INFORMATION	5
2.1	Applicant	5
2.2	Manufacturer	5
2.3	Factory	5
2.4	General Description for Equipment under Test (EUT)	5
2.5	Ancillary Equipment	5
2.6	Technical Information	6
2.7	Additional Instructions	7
2.8	Channel List	8
3	SUMMARY OF TEST RESULTS	9
3.1	Test Standards	9
3.2	Verdict	9
4	GENERAL TEST CONFIGURATIONS	10
4.1	Test Environments	10
4.2	Test Equipment List	10
4.3	Measurement Uncertainty	11
4.4	Description of Test Setup	12
5	TEST ITEMS	15
5.1	RF Output Power	15
5.2	Emission Bandwidth and 6 dB Bandwidth	16

5.3	Power Spectral density (PSD).....	16
5.4	Conducted Emission	18
5.5	Conducted Spurious Emission and Band Edge (Authorized-band)	19
5.6	Radiated Spurious Emissions and Band Edge (Restricted-band).....	21
5.7	Frequency Stability.....	26
ANNEX A	TEST RESULT	27
A.1	RF Output Power	27
A.2	Emission Bandwidth & 99% Bandwidth	27
A.3	6 dB Bandwidth	27
A.4	Power Spectral Density	27
A.5	Conducted Emissions	27
A.6	Conducted Spurious Emission and Band Edge (Authorized-band)	27
A.7	Radiated Spurious Emissions and Band Edge (Restricted-band).....	28
A.8	Frequency Stability.....	48
ANNEX B	TEST SETUP PHOTOS	49
ANNEX C	EUT EXTERNAL PHOTOS	49
ANNEX D	EUT INTERNAL PHOTOS	49

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

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	<p>The laboratory has been listed by Industry Canada to perform electromagnetic emission measurements. The recognition numbers of test site are 11524A-1.</p> <p>The laboratory is a testing organization accredited by FCC as a accredited testing laboratory. The designation number is CN1196.</p> <p>The laboratory is a testing organization accredited by American Association for Laboratory Accreditation(A2LA) according to ISO/IEC 17025.The accreditation certificate is 4344.01.</p> <p>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.</p>
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°C to 25°C
Ambient Relative Humidity	45% to 55%
Ambient Pressure	100 kPa to 102 kPa

1.4 Announce

- (1) The test report reference to the report template version v4.3.
- (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	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd
Address	Coolpad Information Harbor, High-tech Industrial Park (North), Nanshan District, Shenzhen, P.R.C.

2.2 Manufacturer

Manufacturer	Yulong Computer Telecommunication Scientific (Shenzhen) Co., Ltd
Address	Coolpad Information Harbor, High-tech Industrial Park (North), Nanshan District, Shenzhen, P.R.C.

2.3 Factory

Factory	N/A
Address	N/A

2.4 General Description for Equipment under Test (EUT)

EUT Name	Mobile Hotspot
Model Name Under Test	cp331A
Series Model Name	N/A
Description of Model name differentiation	N/A
Hardware Version	P1
Software Version	2.0.158.P0.180824.cp331A
Dimensions (Approx.)	N/A

2.5 Ancillary Equipment

Ancillary Equipment 1	USB Cable	
	Length (Approx.)	1.0 m

2.6 Technical Information

Network and Wireless connectivity	3G Network WCDMA/HSDPA/HSUPA Band 2/4 4G Network FDD LTE Band 2/4/12/66/71 WIFI 802.11a,802.11b, 802.11g and 802.11n (HT20/40)
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The requirement for the following technical information of the EUT was tested in this report:

Frequency Range	Band I: 5150 MHz to 5250 MHz, Band IV: 5725 MHz to 5850 MHz
Product Type	<input type="checkbox"/> Mobile <input checked="" type="checkbox"/> Portable <input type="checkbox"/> Fix Location
Modulation technology	OFDM
Modulation Type	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 / 18/12 / 9/ 6 Mbps 802.11n: up to 150 Mbps
Channel Bandwidth	802.11a: 20 MHz 802.11n: 20 MHz, 40 MHz
Antenna System (eg., MIMO, Smart Antenna)	N/A
Categorization as Correlated or Completely Uncorrelated	N/A
Antenna Type	PIFA Antenna
Antenna Gain	Band I: 5150 MHz to 5250 MHz: 0.5 dBi Band IV: 5725 MHz to 5850 MHz: 0 dBi
About the Product	The equipment is Mobile Hotspot, intended for used with information technology equipment.

2.7 Additional Instructions

Mode	<input checked="" type="checkbox"/> 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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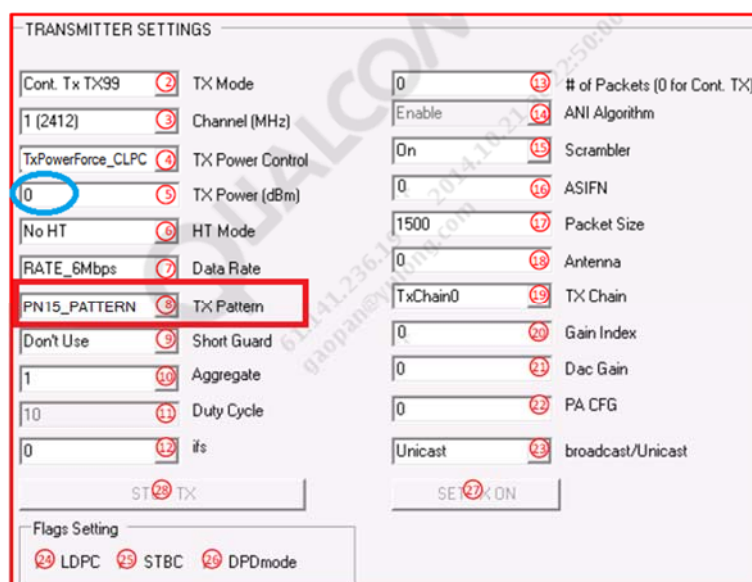
During testing, Channel and Power Controlling Software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product.

Test Software Version	QRCT3
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Band I (5150 - 5250 MHz) Power level setup in software			
Mode	Channel	Frequency (MHz)	Soft Set
11a	CH36	5180	16.0
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	

Band IV (5725 - 5850 MHz) Power level setup in software			
Mode	Channel	Frequency (MHz)	Soft Set
11a	CH149	5745	15.0
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	

Run Software



2.8 Channel List

20 MHz		40 MHz	
Channel Number	Frequency (MHz)	Channel Number	Frequency (MHz)
36	5180	38	5190
40	5200	46	5230
44	5220	151	5755
48	5240	159	5795
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	Frequency (MHz)	Channel Number	Channel	Frequency (MHz)
36	Low	5180	149	Low	5745
44	Mid	5220	157	Mid	5785
48	High	5240	165	High	5825

For 802.11n (HT40)

Band I (5150 - 5250 MHz)			Band IV (5725 - 5850 MHz)		
Channel Number	Channel	Frequency (MHz)	Channel Number	Channel	Frequency (MHz)
38	Low	5190	151	Low	5755
46	High	5230	159	High	5795

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
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
Band Edge (Restricted-band)	11a	6	BPSK	36	165/149
	11n(20 MHz)	6.5		36	165/149
	11n(40 MHz)	13.5		38	159/151

3 SUMMARY OF TEST RESULTS

3.1 Test Standards

No.	Identity	Document Title
1	47 CFR Part 15 Subpart E	Unlicensed National Information Infrastructure Devices
2	KDB Publication 789033 D02v02r01	Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part 15, Subpart E
3	ANSI C63.10-2013	American National Standard for Testing Unlicensed Wireless Devices

3.2 Verdict

No.	Description	FCC Part No.	Test Result	Verdict
1	Antenna Requirement	15.203	--	Pass ^{Note3}
2	RF Output Power	15.407(a)	ANNEX A.1	N/A
3	Emission Bandwidth & 99% Occupied Bandwidth	15.407(a)	ANNEX A.2	N/A
4	6 dB bandwidth	15.407(e)	ANNEX A.3	N/A
5	Power Spectral Density	15.407(a)	ANNEX A.4	N/A
6	Conducted Emission	15.207	ANNEX A.5	N/A
7	Conducted Spurious Emission and Band Edge (Authorized-band)	15.407(b) 15.209	ANNEX A.6	N/A
8	Radiated Spurious Emissions and Band Edge (Restricted-band)	15.407(b)	ANNEX A.7	Pass
9	Frequency Stability	15.407(g)	ANNEX A.8	N/A
10	Receiver Spurious Emissions	--	--	N/A ^{Note1}

Note ¹: 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

Note ²: This report is partial report and refer to report no. I18N00930-RLAN issued by Shenzhen Academy of Information and Communications Technology. This report just test Radiated Spurious Emissions and Band Edge (Restricted-band).

Note ³: Please refer to ANNEX EUT Internal Photo.

4 GENERAL TEST CONFIGURATIONS

4.1 Test Environments

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

Relative Humidity	45% to 55%	
Atmospheric Pressure	100 kPa to 102 kPa	
Temperature	NT (Normal Temperature)	+22°C to +25°C
Working Voltage of the EUT	NV (Normal Voltage)	3.7 V
	LV (Low Voltage)	3.4 V
	HV (High Voltage)	4.2 V

4.2 Test Equipment List

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Spectrum Analyzer	ROHDE&SCHWARZ	FSV-40	101544	2018.06.11	2019.06.10
Switch Unit with OSP-B157	ROHDE&SCHWARZ	OSP120	101270	2018.06.11	2019.06.10
EMI Receiver	KEYSIGHT	N9038A	MY53220118	2017.09.07	2018.09.06
Power Splitter	KMW	DCPD-LDC	1305003215	--	--
Power Sensor	ROHDE&SCHWARZ	NRP-Z21	103971	2018.06.11	2019.06.10
Attenuator (20 dB)	KMW	ZA-S1-201	110617091	--	--
Attenuator (6 dB)	KMW	ZA-S1-61	1305003189	--	--
DC Power Supply	ITECH	IT6720	60010301071 7610007	2018.06.21	2019.06.20
Test Antenna-Loop(9 kHz-30 MHz)	SCHWARZBECK	FMZB 1519	1519-037	2018.06.21	2019.06.20
Test Antenna-Bi-Log(30 MHz-3 GHz)	SCHWARZBECK	VULB 9163	9163-624	2017.11.07	2019.11.08
Test Antenna-Horn(1-18 GHz)	SCHWARZBECK	BBHA 9120D	9120D-1148	2017.07.22	2019.07.21
Test Antenna-Horn(15-26.5 GHz)	SCHWARZBECK	BBHA 9170	9170-305	2018.07.11	2019.07.10
Test Antenna-Horn (18-40 GHz)	A-INFO	LB-180400KF	J211060273	2017.01.07	2019.01.06
Anechoic Chamber	RAINFORD	9m*6m*6m	N/A	2017.02.21	2019.02.20
laptop	Lenovo	X220	4286A17	N/A	N/A
Software	BALUN	BL410R	2.1.1.345	N/A	N/A
RF cable	Balun	Balun1	SRD01	2018.04.25	2018.10.24
RF cable	Balun	Balun2	SRD02	2018.04.25	2018.10.24
RF cable	Balun	EMC1	EMC01	2018.04.25	2018.10.24
RF cable	Huber&suhner	Boa-flex I	N/A	2018.04.25	2018.10.24
RF cable	Huber&suhner	Steel-flex I	N/A	2018.04.25	2018.10.24
EMC Test Software	BALUN	Version: 15.2.0.344			

4.3 Measurement Uncertainty

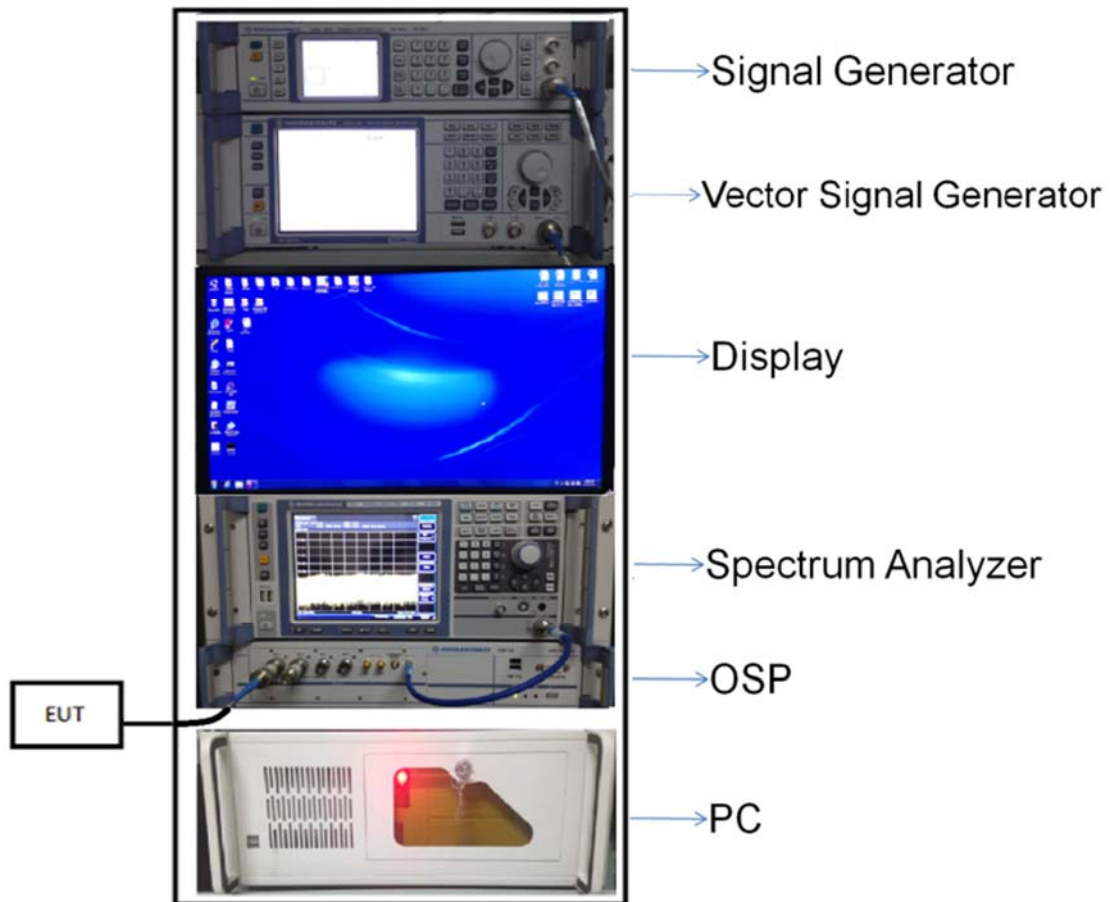
The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2.

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	$\pm 4\%$

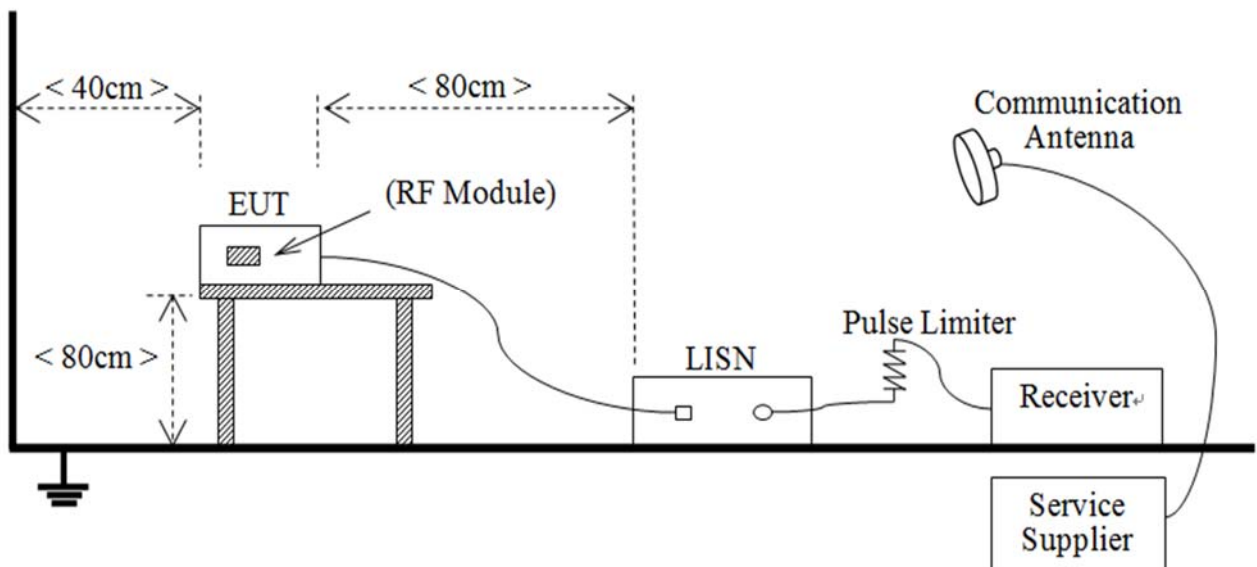
4.4 Description of Test Setup

4.4.1 For Antenna Port Test



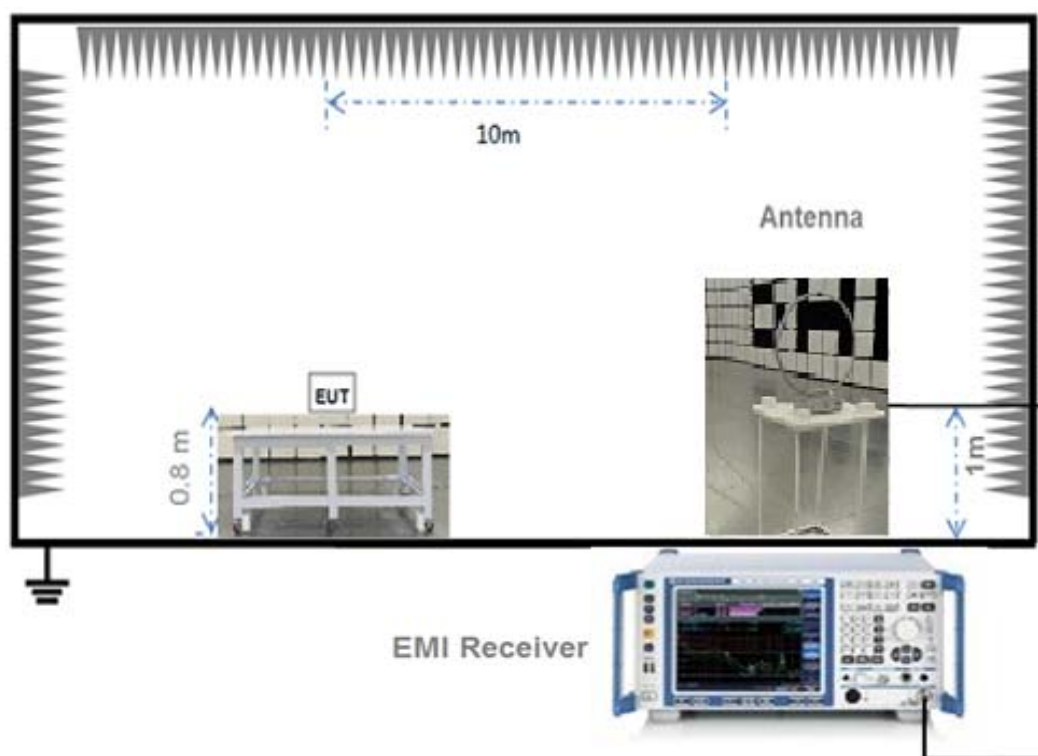
(Diagram 1)

4.4.2 For AC Power Supply Port Test



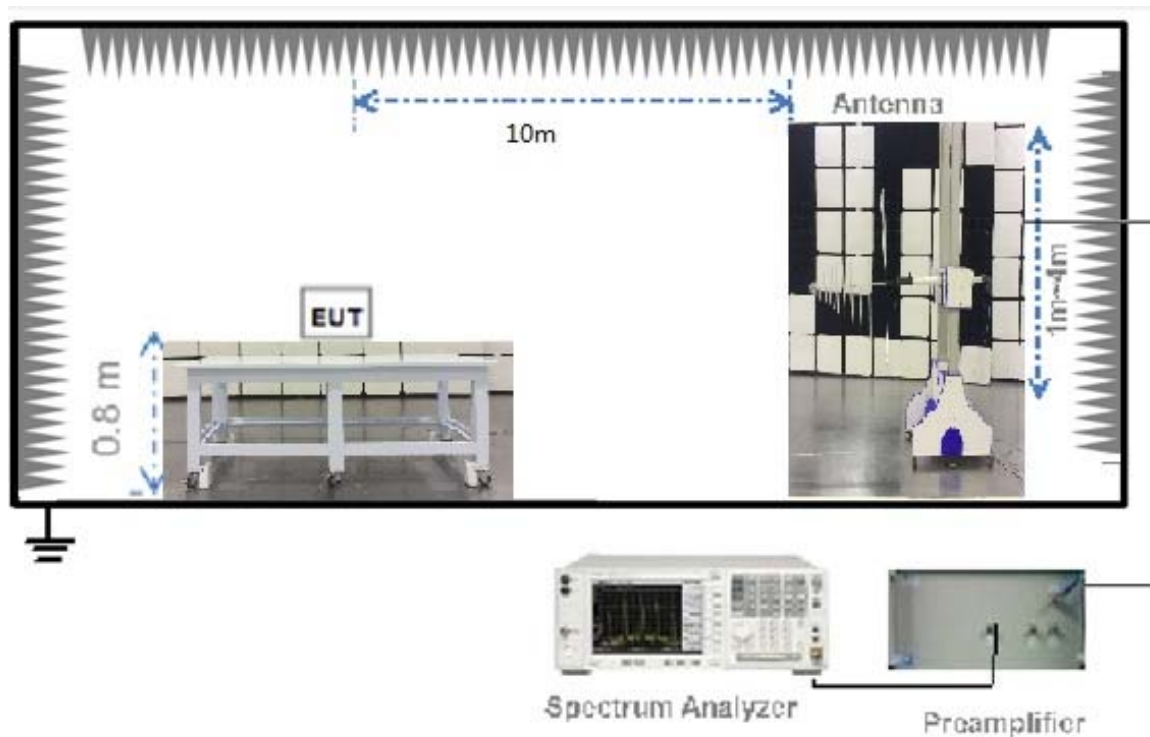
(Diagram 2)

4.4.3 For Radiated Test (Below 30 MHz)



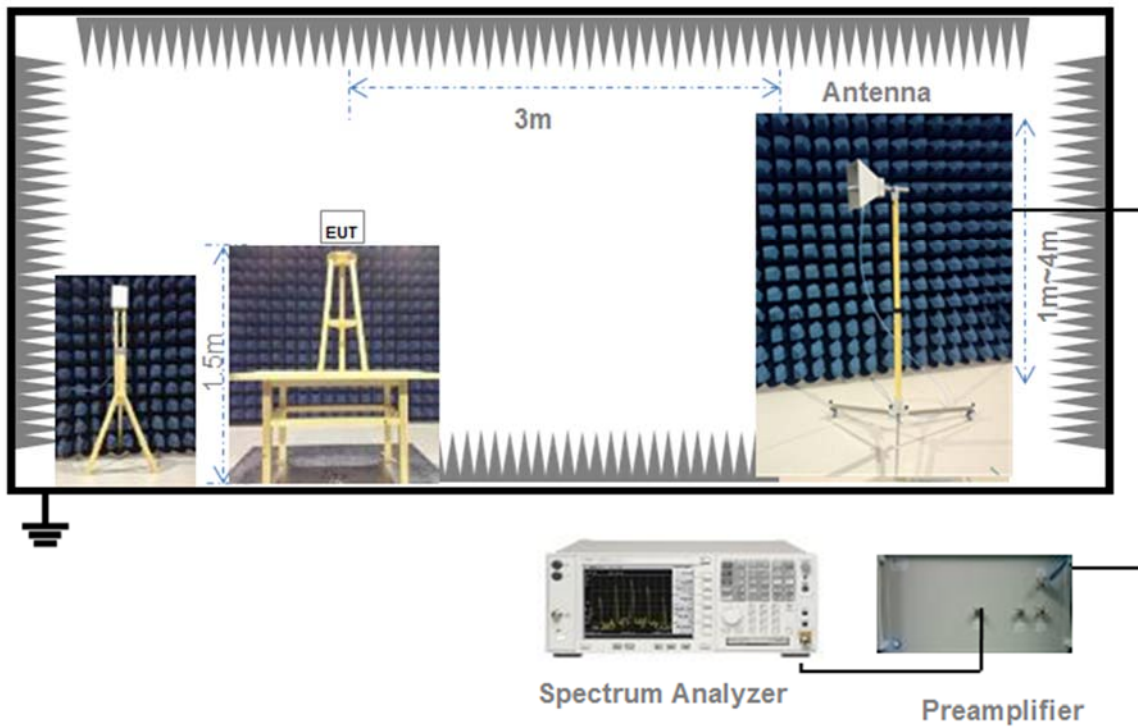
(Diagram 3)

4.4.4 For Radiated Test (30 MHz-1 GHz)



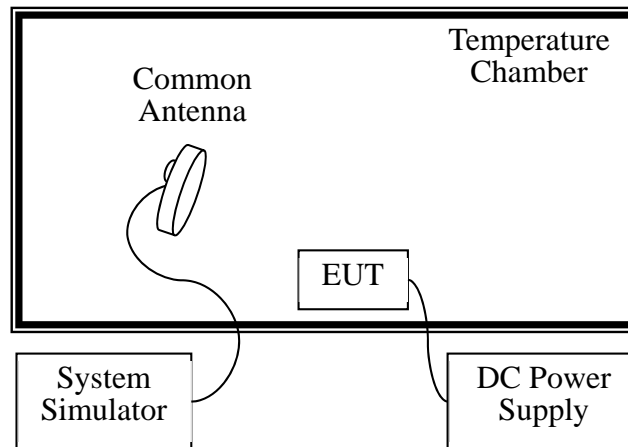
(Diagram 4)

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.

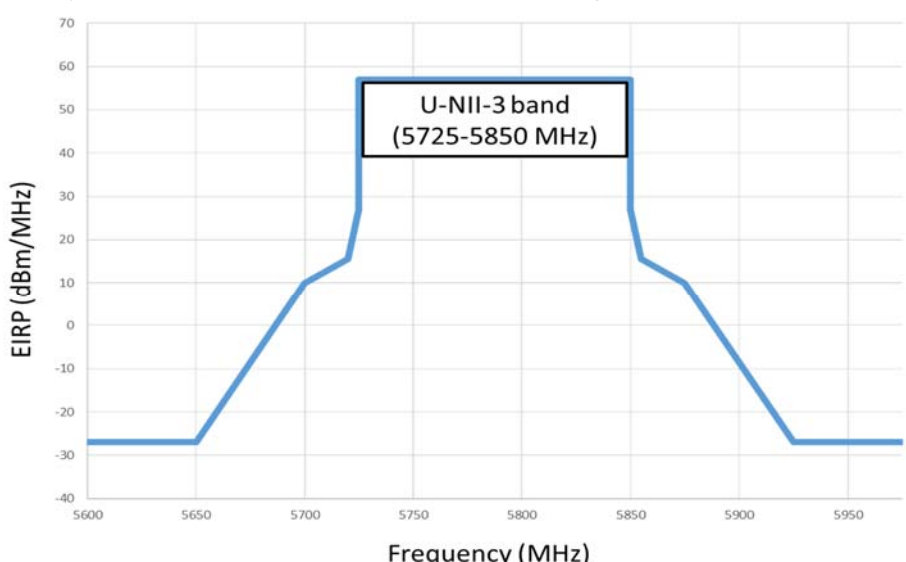
5.4.4 Test Result

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	<p>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.</p> 

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	<p>5715 -5725 MHz: e.i.r.p. -17 dBm</p> <p>5850 -5860 MHz: e.i.r.p. -17 dBm</p> <p>Other un-restricted band: e.i.r.p. -27 dBm</p>

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)

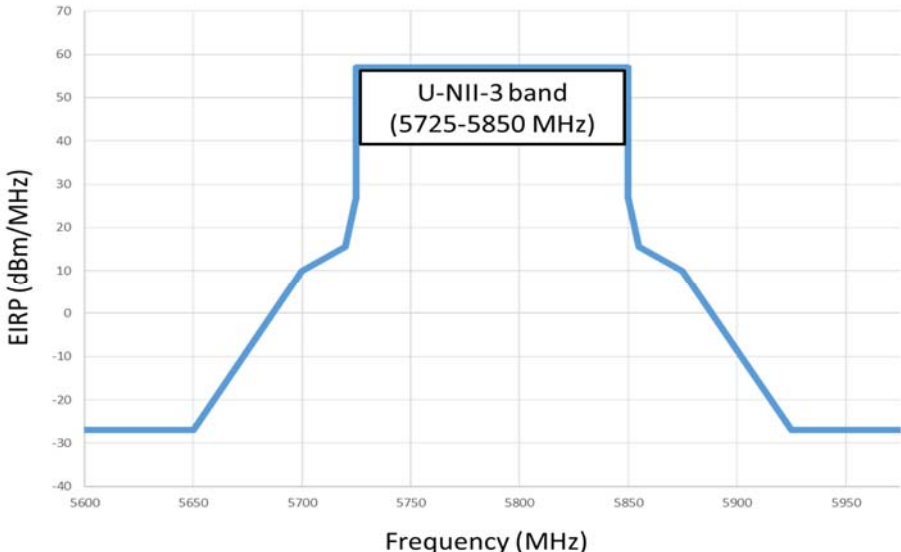
5.6.1 Limit

FCC §15.209 & 15.407(b), RSS-247, 6.2

Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	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

Note¹: The Limit for radiated test was performed according to FCC Part 15C

Note²: 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	<p>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.</p> 

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

Please refer to report no. I18N00930-RLAN issued by Shenzhen Academy of Information and Communications Technology.

A.2 Emission Bandwidth & 99% Bandwidth

Please refer to report no. I18N00930-RLAN issued by Shenzhen Academy of Information and Communications Technology.

A.3 6 dB Bandwidth

Please refer to report no. I18N00930-RLAN issued by Shenzhen Academy of Information and Communications Technology.

A.4 Power Spectral Density

Please refer to report no. I18N00930-RLAN issued by Shenzhen Academy of Information and Communications Technology.

A.5 Conducted Emissions

Please refer to report no. I18N00930-RLAN issued by Shenzhen Academy of Information and Communications Technology.

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

Please refer to report no. I18N00930-RLAN issued by Shenzhen Academy of Information and Communications Technology.

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

Test Data

Cabinet Radiated spurious emission test

Note¹: The symbol of “--” in the table which means not application.

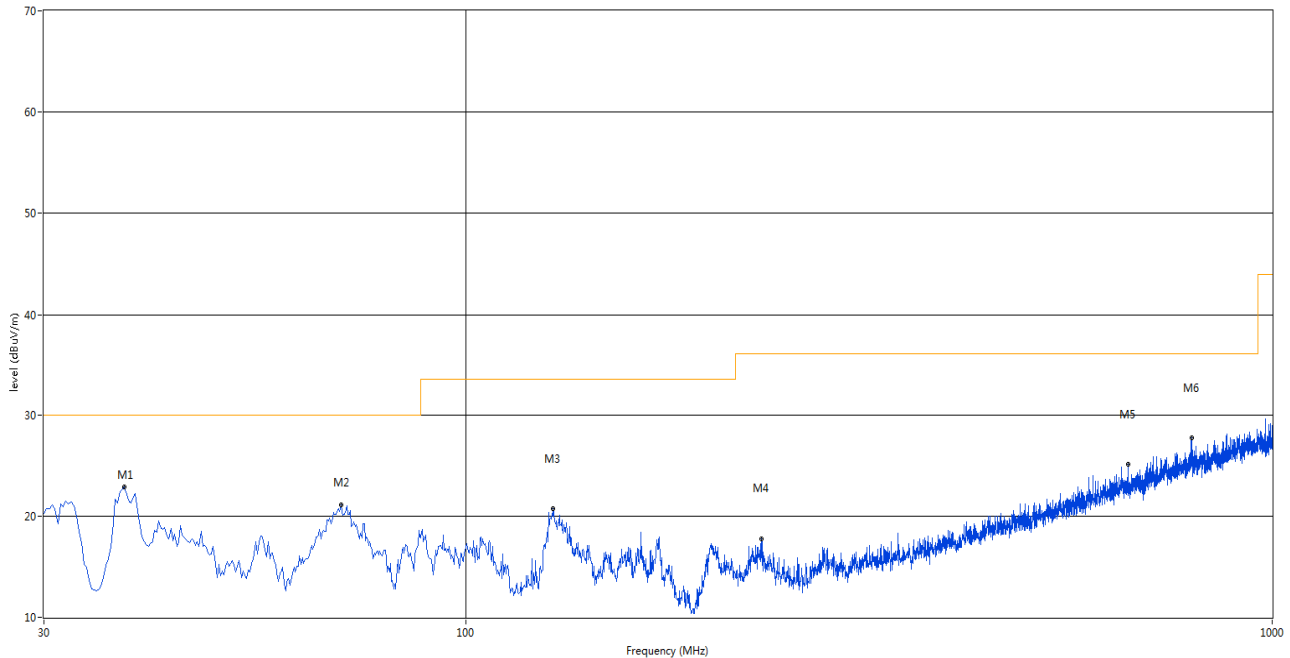
Note²: For the test data above 1 GHz, According the ANSI C63.4, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note³: 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.

Note⁴: The EUT is working in the Normal link mode below 1 GHz.

30 MHz to 1 GHz, ANT V

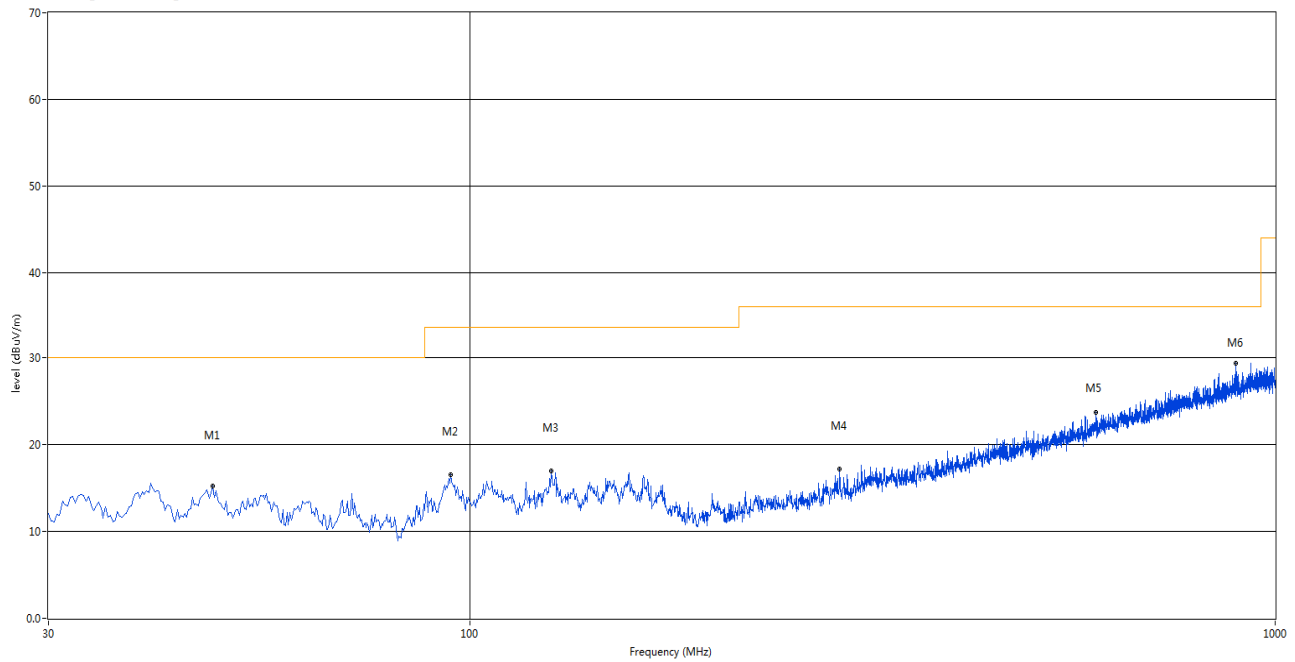
10m RE Test Case_FCC Certification_FCC 15B ClassB 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	37.760	22.91	-20.22	30.0	-7.09	Peak	166.00	100	V	Pass
2	70.012	21.14	-22.47	30.0	-8.86	Peak	97.00	200	V	Pass
3	128.455	20.70	-20.08	33.5	-12.80	Peak	255.00	100	V	Pass
4	232.730	17.78	-20.72	36.0	-18.22	Peak	175.00	100	V	Pass
5	663.410	25.08	-10.53	36.0	-10.92	Peak	0.00	200	V	Pass
6	794.360	27.69	-8.35	36.0	-8.31	Peak	193.00	100	V	Pass

30 MHz to 1 GHz, ANT H

10m RE Test Case_FCC Certification_FCC 15B ClassB 30MHz-1GHz



No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1	47.945	15.27	-20.20	30.0	-14.73	Peak	0.00	200	H	Pass
2	94.747	16.60	-23.34	33.5	-16.90	Peak	0.00	200	H	Pass
3	126.272	16.99	-20.12	33.5	-16.51	Peak	0.00	200	H	Pass
4	288.020	17.23	-18.71	36.0	-18.77	Peak	0.00	200	H	Pass
5	599.148	23.68	-11.83	36.0	-12.32	Peak	167.00	200	H	Pass
6	894.513	29.36	-7.30	36.0	-6.64	Peak	10.00	200	H	Pass

Note 1: The marked spikes near 5.2 GHz and 5.8 GHz with circle should be ignored because they are Fundamental signal.

Note 2: The spurious from 18G-40G is noise only, do not show on the report.

1 GHz to 18 GHz, ANT V Band I 11a Low channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1594.000	40.12	-18.92	54.0	-13.88	AV	138.00	150	Vertical	Pass
1	1594.000	44.80	-18.92	74.0	-29.20	Peak	138.00	150	Vertical	Pass
2**	2792.500	39.69	-12.12	54.0	-14.31	AV	209.00	150	Vertical	Pass
2	2792.500	41.20	-12.12	74.0	-32.80	Peak	209.00	150	Vertical	Pass
3**	4033.000	39.97	-6.96	54.0	-14.03	AV	113.00	150	Vertical	Pass
3	4033.000	44.41	-6.96	74.0	-29.59	Peak	113.00	150	Vertical	Pass
4**	5179.000	93.02	-4.62	--	93.02	AV	176.00	150	Vertical	N/A
4	5179.000	97.56	-4.62	--	-78.44	Peak	176.00	150	Vertical	N/A
5**	7474.375	38.67	-5.48	54.0	-15.33	AV	61.00	150	Vertical	Pass
5	7474.375	44.82	-5.48	74.0	-29.18	Peak	61.00	150	Vertical	Pass
6**	11316.813	42.23	-1.29	54.0	-11.77	AV	249.00	150	Vertical	Pass
6	11316.813	47.73	-1.29	74.0	-26.27	Peak	249.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H Band I 11a Low channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1592.500	41.49	-19.00	54.0	-12.51	AV	192.00	150	Horizontal	Pass
1	1592.500	43.43	-19.00	74.0	-30.57	Peak	192.00	150	Horizontal	Pass
2**	4061.000	40.77	-7.20	54.0	-13.23	AV	0.00	150	Horizontal	Pass
2	4061.000	45.38	-7.20	74.0	-28.62	Peak	0.00	150	Horizontal	Pass
3**	5183.000	96.65	-4.50	--	96.65	AV	31.00	150	Horizontal	N/A
3	5183.000	100.56	-4.50	--	69.56	Peak	31.00	150	Horizontal	N/A
4**	7605.188	39.56	-4.58	54.0	-14.44	AV	245.00	150	Horizontal	Pass
4	7605.188	45.23	-4.58	74.0	-28.77	Peak	245.00	150	Horizontal	Pass
5**	11477.812	42.28	-2.29	54.0	-11.72	AV	327.00	150	Horizontal	Pass
5	11477.812	48.40	-2.29	74.0	-25.60	Peak	327.00	150	Horizontal	Pass
6**	16037.812	43.12	-2.53	54.0	-10.88	AV	360.00	150	Horizontal	Pass
6	16037.812	50.12	-2.53	74.0	-23.88	Peak	360.00	150	Horizontal	Pass

1 GHz to 18 GHz, ANT V Band I 11a Middle channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1459.500	46.18	-18.68	54.0	-7.82	AV	60.00	150	Vertical	Pass
1	1459.500	51.81	-18.68	74.0	-22.19	Peak	60.00	150	Vertical	Pass
2**	2864.000	39.19	-11.93	54.0	-14.81	AV	60.00	150	Vertical	Pass
2	2864.000	41.98	-11.93	74.0	-32.02	Peak	60.00	150	Vertical	Pass
3**	5221.000	93.50	-4.67	--	93.50	AV	203.00	150	Vertical	N/A
3	5221.000	97.87	-4.67	--	-105.13	Peak	203.00	150	Vertical	N/A
4**	7599.437	38.28	-4.64	54.0	-15.72	AV	360.00	150	Vertical	Pass
4	7599.437	46.36	-4.64	74.0	-27.64	Peak	360.00	150	Vertical	Pass
5**	12150.563	42.40	-1.66	54.0	-11.60	AV	250.00	150	Vertical	Pass
5	12150.563	49.03	-1.66	74.0	-24.97	Peak	250.00	150	Vertical	Pass
6**	15795.000	45.43	-1.10	54.0	-8.57	AV	121.00	150	Vertical	Pass
6	15795.000	50.43	-1.10	74.0	-23.57	Peak	121.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H Band I 11a Middle channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1594.000	35.51	-18.92	54.0	-18.49	AV	148.00	150	Horizontal	Pass
1	1594.000	40.61	-18.92	74.0	-33.39	Peak	148.00	150	Horizontal	Pass
2**	2774.500	37.22	-12.22	54.0	-16.78	AV	211.00	150	Horizontal	Pass
2	2774.500	41.29	-12.22	74.0	-32.71	Peak	211.00	150	Horizontal	Pass
3**	5215.000	95.59	-4.71	--	95.59	AV	272.00	150	Horizontal	N/A
3	5215.000	100.99	-4.71	--	-171.01	Peak	272.00	150	Horizontal	N/A
4**	7606.625	40.60	-4.61	54.0	-13.40	AV	62.00	150	Horizontal	Pass
4	7606.625	45.56	-4.61	74.0	-28.44	Peak	62.00	150	Horizontal	Pass
5**	11917.688	41.06	-1.17	54.0	-12.94	AV	281.00	150	Horizontal	Pass
5	11917.688	48.15	-1.17	74.0	-25.85	Peak	281.00	150	Horizontal	Pass
6**	15738.563	44.31	-1.94	54.0	-9.69	AV	349.00	150	Horizontal	Pass
6	15738.563	50.03	-1.94	74.0	-23.97	Peak	349.00	150	Horizontal	Pass

1 GHz to 18 GHz, ANT V Band I 11a High channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1338.500	40.10	-18.52	54.0	-13.90	AV	205.00	150	Vertical	Pass
1	1338.500	42.19	-18.52	74.0	-31.81	Peak	205.00	150	Vertical	Pass
2**	2785.000	36.33	-11.83	54.0	-17.67	AV	205.00	150	Vertical	Pass
2	2785.000	41.22	-11.83	74.0	-32.78	Peak	205.00	150	Vertical	Pass
3**	5243.000	93.44	-4.73	--	93.44	AV	183.00	150	Vertical	N/A
3	5243.000	98.15	-4.73	--	-84.85	Peak	183.00	150	Vertical	N/A
4**	7533.313	38.96	-3.90	54.0	-15.04	AV	1.00	150	Vertical	Pass
4	7533.313	45.27	-3.90	74.0	-28.73	Peak	1.00	150	Vertical	Pass
5**	12150.563	40.74	-1.66	54.0	-13.26	AV	303.00	150	Vertical	Pass
5	12150.563	48.69	-1.66	74.0	-25.31	Peak	303.00	150	Vertical	Pass
6**	15926.250	43.41	-2.74	54.0	-10.59	AV	270.00	150	Vertical	Pass
6	15926.250	49.99	-2.74	74.0	-24.01	Peak	270.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H Band I 11a High channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1555.500	37.59	-18.71	54.0	-16.41	AV	288.00	150	Horizontal	Pass
1	1555.500	40.38	-18.71	74.0	-33.62	Peak	288.00	150	Horizontal	Pass
2**	2868.000	39.87	-11.77	54.0	-14.13	AV	170.00	150	Horizontal	Pass
2	2868.000	41.66	-11.77	74.0	-32.34	Peak	170.00	150	Horizontal	Pass
3**	5243.000	95.52	-4.73	--	95.52	AV	279.00	150	Horizontal	N/A
3	5243.000	100.67	-4.73	--	-178.33	Peak	279.00	150	Horizontal	N/A
4**	7671.312	40.82	-4.28	54.0	-13.18	AV	0.00	150	Horizontal	Pass
4	7671.312	45.20	-4.28	74.0	-28.80	Peak	0.00	150	Horizontal	Pass
5**	11602.875	43.57	-2.24	54.0	-10.43	AV	352.00	150	Horizontal	Pass
5	11602.875	48.19	-2.24	74.0	-25.81	Peak	352.00	150	Horizontal	Pass
6**	15760.874	43.50	-1.72	54.0	-10.50	AV	180.00	150	Horizontal	Pass
6	15760.874	50.95	-1.72	74.0	-23.05	Peak	180.00	150	Horizontal	Pass

1 GHz to 18 GHz, ANT V Band I 11n20 Low channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1555.500	42.66	-18.71	54.0	-11.34	AV	141.00	150	Vertical	Pass
1	1555.500	44.18	-18.71	74.0	-29.82	Peak	141.00	150	Vertical	Pass
2**	2782.500	37.00	-12.08	54.0	-17.00	AV	190.00	150	Vertical	Pass
2	2782.500	40.77	-12.08	74.0	-33.23	Peak	190.00	150	Vertical	Pass
3**	5181.000	95.04	-4.37	--	95.04	AV	177.00	150	Vertical	N/A
3	5181.000	98.39	-4.37	--	-78.61	Peak	177.00	150	Vertical	N/A
4**	7552.000	39.60	-4.08	54.0	-14.40	AV	49.00	150	Vertical	Pass
4	7552.000	45.93	-4.08	74.0	-28.07	Peak	49.00	150	Vertical	Pass
5**	12258.375	43.02	-1.40	54.0	-10.98	AV	85.00	150	Vertical	Pass
5	12258.375	48.37	-1.40	74.0	-25.63	Peak	85.00	150	Vertical	Pass
6**	15739.875	43.58	-1.91	54.0	-10.42	AV	273.00	150	Vertical	Pass
6	15739.875	50.14	-1.91	74.0	-23.86	Peak	273.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H Band I 11n20 Low channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1557.000	39.43	-18.72	54.0	-14.57	AV	360.00	150	Horizontal	Pass
1	1557.000	40.05	-18.72	74.0	-33.95	Peak	360.00	150	Horizontal	Pass
2**	4108.000	40.85	-6.55	54.0	-13.15	AV	290.00	150	Horizontal	Pass
2	4108.000	44.81	-6.55	74.0	-29.19	Peak	290.00	150	Horizontal	Pass
3**	5176.000	96.24	-4.21	--	96.24	AV	275.00	150	Horizontal	N/A
3	5176.000	100.57	-4.21	--	-174.43	Peak	275.00	150	Horizontal	N/A
4**	7478.688	39.56	-5.59	54.0	-14.44	AV	178.00	150	Horizontal	Pass
4	7478.688	45.84	-5.59	74.0	-28.16	Peak	178.00	150	Horizontal	Pass
5**	11624.438	40.85	-2.34	54.0	-13.15	AV	360.00	150	Horizontal	Pass
5	11624.438	48.53	-2.34	74.0	-25.47	Peak	360.00	150	Horizontal	Pass
6**	15813.375	44.91	-1.44	54.0	-9.09	AV	270.00	150	Horizontal	Pass
6	15813.375	50.05	-1.44	74.0	-23.95	Peak	270.00	150	Horizontal	Pass

1 GHz to 18 GHz, ANT V Band I 11n20 Middle channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1621.500	48.32	-18.50	54.0	-5.68	AV	55.00	150	Vertical	Pass
1	1621.500	51.30	-18.50	74.0	-22.70	Peak	55.00	150	Vertical	Pass
2**	2854.000	39.14	-11.55	54.0	-14.86	AV	334.00	150	Vertical	Pass
2	2854.000	40.97	-11.55	74.0	-33.03	Peak	334.00	150	Vertical	Pass
3**	5221.000	93.37	-4.67	--	93.37	AV	167.00	150	Vertical	N/A
3	5221.000	98.05	-4.67	--	-68.95	Peak	167.00	150	Vertical	N/A
4**	7612.375	39.79	-4.45	54.0	-14.21	AV	153.00	150	Vertical	Pass
4	7612.375	44.90	-4.45	74.0	-29.10	Peak	153.00	150	Vertical	Pass
5**	12147.687	42.79	-1.66	54.0	-11.21	AV	153.00	150	Vertical	Pass
5	12147.687	48.44	-1.66	74.0	-25.56	Peak	153.00	150	Vertical	Pass
6**	15491.812	43.23	-1.10	54.0	-10.77	AV	47.00	150	Vertical	Pass
6	15491.812	51.11	-1.10	74.0	-22.89	Peak	47.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H Band I 11n20 Middle channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1596.000	38.33	-18.83	54.0	-15.67	AV	210.00	150	Horizontal	Pass
1	1596.000	41.00	-18.83	74.0	-33.00	Peak	210.00	150	Horizontal	Pass
2**	2784.500	38.24	-11.84	54.0	-15.76	AV	100.00	150	Horizontal	Pass
2	2784.500	40.28	-11.84	74.0	-33.72	Peak	100.00	150	Horizontal	Pass
3**	5222.000	95.02	-4.72	--	95.02	AV	276.00	150	Horizontal	N/A
3	5222.000	100.08	-4.72	--	-175.92	Peak	276.00	150	Horizontal	N/A
4**	7409.688	38.55	-5.23	54.0	-15.45	AV	349.00	150	Horizontal	Pass
4	7409.688	45.67	-5.23	74.0	-28.33	Peak	349.00	150	Horizontal	Pass
5**	11884.625	40.92	-1.15	54.0	-13.08	AV	73.00	150	Horizontal	Pass
5	11884.625	47.98	-1.15	74.0	-26.02	Peak	73.00	150	Horizontal	Pass
6**	15923.625	43.54	-2.72	54.0	-10.46	AV	92.00	150	Horizontal	Pass
6	15923.625	50.05	-2.72	74.0	-23.95	Peak	92.00	150	Horizontal	Pass

1 GHz to 18 GHz, ANT V Band I 11n20 High channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1329.000	43.02	-18.47	54.0	-10.98	AV	213.00	150	Vertical	Pass
1	1329.000	45.36	-18.47	74.0	-28.64	Peak	213.00	150	Vertical	Pass
2**	2825.500	38.23	-12.06	54.0	-15.77	AV	227.00	150	Vertical	Pass
2	2825.500	40.56	-12.06	74.0	-33.44	Peak	227.00	150	Vertical	Pass
3**	5244.000	92.84	-4.90	--	92.84	AV	183.00	150	Vertical	N/A
3	5244.000	97.59	-4.90	--	-85.41	Peak	183.00	150	Vertical	N/A
4**	7483.000	38.76	-5.45	54.0	-15.24	AV	32.00	150	Vertical	Pass
4	7483.000	45.86	-5.45	74.0	-28.14	Peak	32.00	150	Vertical	Pass
5**	11309.625	40.89	-1.35	54.0	-13.11	AV	15.00	150	Vertical	Pass
5	11309.625	48.50	-1.35	74.0	-25.50	Peak	15.00	150	Vertical	Pass
6**	15742.500	45.27	-1.87	54.0	-8.73	AV	0.00	150	Vertical	Pass
6	15742.500	50.29	-1.87	74.0	-23.71	Peak	0.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H Band I 11n20 High channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1594.500	39.95	-18.90	54.0	-14.05	AV	179.00	150	Horizontal	Pass
1	1594.500	41.63	-18.90	74.0	-32.37	Peak	179.00	150	Horizontal	Pass
2**	2847.500	38.74	-11.84	54.0	-15.26	AV	121.00	150	Horizontal	Pass
2	2847.500	40.61	-11.84	74.0	-33.39	Peak	121.00	150	Horizontal	Pass
3**	5245.000	96.62	-4.96	--	96.62	AV	287.00	150	Horizontal	N/A
3	5245.000	100.00	-4.96	--	-187.00	Peak	287.00	150	Horizontal	N/A
4**	7610.937	39.52	-4.42	54.0	-14.48	AV	221.00	150	Horizontal	Pass
4	7610.937	45.96	-4.42	74.0	-28.04	Peak	221.00	150	Horizontal	Pass
5**	11582.750	42.04	-2.43	54.0	-11.96	AV	125.00	150	Horizontal	Pass
5	11582.750	47.69	-2.43	74.0	-26.31	Peak	125.00	150	Horizontal	Pass
6**	15800.250	44.27	-0.98	54.0	-9.73	AV	180.00	150	Horizontal	Pass
6	15800.250	49.94	-0.98	74.0	-24.06	Peak	180.00	150	Horizontal	Pass

1 GHz to 18 GHz, ANT V Band I 11n40 Low channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1552.500	43.92	-18.79	54.0	-10.08	AV	148.00	150	Vertical	Pass
1	1552.500	45.41	-18.79	74.0	-28.59	Peak	148.00	150	Vertical	Pass
2**	2828.500	38.55	-12.12	54.0	-15.45	AV	208.00	150	Vertical	Pass
2	2828.500	40.55	-12.12	74.0	-33.45	Peak	208.00	150	Vertical	Pass
3**	5187.000	91.43	-4.26	--	91.43	AV	174.00	150	Vertical	N/A
3	5187.000	95.26	-4.26	--	-78.74	Peak	174.00	150	Vertical	N/A
4**	8332.562	39.50	-4.00	54.0	-14.50	AV	360.00	150	Vertical	Pass
4	8332.562	45.37	-4.00	74.0	-28.63	Peak	360.00	150	Vertical	Pass
5**	12090.188	43.27	-1.81	54.0	-10.73	AV	155.00	150	Vertical	Pass
5	12090.188	48.43	-1.81	74.0	-25.57	Peak	155.00	150	Vertical	Pass
6**	15512.813	46.20	-1.04	54.0	-7.80	AV	238.00	150	Vertical	Pass
6	15512.813	51.55	-1.04	74.0	-22.45	Peak	238.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H Band I 11n40 Low channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1557.000	36.97	-18.72	54.0	-17.03	AV	280.00	150	Horizontal	Pass
1	1557.000	39.14	-18.72	74.0	-34.86	Peak	280.00	150	Horizontal	Pass
2**	2731.000	38.52	-12.52	54.0	-15.48	AV	0.00	150	Horizontal	Pass
2	2731.000	40.52	-12.52	74.0	-33.48	Peak	0.00	150	Horizontal	Pass
3**	5181.000	94.57	-4.37	--	94.57	AV	269.00	150	Horizontal	N/A
3	5181.000	99.24	-4.37	--	-169.76	Peak	269.00	150	Horizontal	N/A
4**	7547.687	40.01	-3.68	54.0	-13.99	AV	248.00	150	Horizontal	Pass
4	7547.687	45.24	-3.68	74.0	-28.76	Peak	248.00	150	Horizontal	Pass
5**	11336.937	42.18	-1.55	54.0	-11.82	AV	265.00	150	Horizontal	Pass
5	11336.937	47.92	-1.55	74.0	-26.08	Peak	265.00	150	Horizontal	Pass
6**	15512.813	44.87	-1.04	54.0	-9.13	AV	91.00	150	Horizontal	Pass
6	15512.813	51.35	-1.04	74.0	-22.65	Peak	91.00	150	Horizontal	Pass

1 GHz to 18 GHz, ANT V Band I 11n40 High channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1594.500	43.66	-18.90	54.0	-10.34	AV	182.00	150	Vertical	Pass
1	1594.500	46.07	-18.90	74.0	-27.93	Peak	182.00	150	Vertical	Pass
2**	2789.000	37.03	-11.96	54.0	-16.97	AV	137.00	150	Vertical	Pass
2	2789.000	41.68	-11.96	74.0	-32.32	Peak	137.00	150	Vertical	Pass
3**	5233.000	91.05	-4.79	--	91.05	AV	186.00	150	Vertical	N/A
3	5233.000	95.04	-4.79	--	-90.96	Peak	186.00	150	Vertical	N/A
4**	7434.125	40.04	-5.12	54.0	-13.96	AV	135.00	150	Vertical	Pass
4	7434.125	46.10	-5.12	74.0	-27.90	Peak	135.00	150	Vertical	Pass
5**	11349.875	41.60	-1.83	54.0	-12.40	AV	2.00	150	Vertical	Pass
5	11349.875	47.78	-1.83	74.0	-26.22	Peak	2.00	150	Vertical	Pass
6**	15930.188	44.22	-2.76	54.0	-9.78	AV	331.00	150	Vertical	Pass
6	15930.188	51.07	-2.76	74.0	-22.93	Peak	331.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H Band I 11n40 High channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1593.500	40.98	-18.95	54.0	-13.02	AV	201.00	150	Horizontal	Pass
1	1593.500	43.02	-18.95	74.0	-30.98	Peak	201.00	150	Horizontal	Pass
2**	2855.000	38.78	-11.63	54.0	-15.22	AV	63.00	150	Horizontal	Pass
2	2855.000	41.10	-11.63	74.0	-32.90	Peak	63.00	150	Horizontal	Pass
3**	5221.000	94.09	-4.67	--	94.09	AV	267.00	150	Horizontal	N/A
3	5221.000	98.89	-4.67	--	-168.11	Peak	267.00	150	Horizontal	N/A
4**	7602.313	38.90	-4.66	54.0	-15.10	AV	360.00	150	Horizontal	Pass
4	7602.313	45.11	-4.66	74.0	-28.89	Peak	360.00	150	Horizontal	Pass
5**	11492.187	41.77	-2.33	54.0	-12.23	AV	272.00	150	Horizontal	Pass
5	11492.187	48.93	-2.33	74.0	-25.07	Peak	272.00	150	Horizontal	Pass
6**	15636.187	44.35	-2.05	54.0	-9.65	AV	360.00	150	Horizontal	Pass
6	15636.187	50.16	-2.05	74.0	-23.84	Peak	360.00	150	Horizontal	Pass

1 GHz to 18 GHz, ANT V Band IV 11a Low channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1218.500	24.56	-19.03	54.0	-29.44	AV	47.00	150	Vertical	Pass
1	1218.500	45.65	-19.03	74.0	-28.35	Peak	47.00	150	Vertical	Pass
2**	3807.000	34.50	-6.49	54.0	-19.50	AV	232.00	150	Vertical	Pass
2	3807.000	44.25	-6.49	74.0	-29.75	Peak	232.00	150	Vertical	Pass
3**	5740.000	91.38	-4.45	--	91.38	AV	215.00	150	Vertical	N/A
3	5740.000	99.74	-4.45	--	-115.26	Peak	215.00	150	Vertical	N/A
4**	7546.250	35.36	-3.80	54.0	-18.64	AV	221.00	150	Vertical	Pass
4	7546.250	45.53	-3.80	74.0	-28.47	Peak	221.00	150	Vertical	Pass
5**	11644.562	36.94	-2.49	54.0	-17.06	AV	118.00	150	Vertical	Pass
5	11644.562	48.01	-2.49	74.0	-25.99	Peak	118.00	150	Vertical	Pass
6**	15818.625	39.36	-1.62	54.0	-14.64	AV	122.00	150	Vertical	Pass
6	15818.625	50.57	-1.62	74.0	-23.43	Peak	122.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H Band IV 11a Low channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1393.500	25.09	-18.49	54.0	-28.91	AV	34.00	150	Horizontal	Pass
1	1393.500	46.43	-18.49	74.0	-27.57	Peak	34.00	150	Horizontal	Pass
2**	2752.500	30.47	-12.32	54.0	-23.53	AV	359.00	150	Horizontal	Pass
2	2752.500	41.66	-12.32	74.0	-32.34	Peak	359.00	150	Horizontal	Pass
3**	5743.000	92.77	-4.65	--	92.77	AV	47.00	150	Horizontal	N/A
3	5743.000	100.10	-4.65	--	53.10	Peak	47.00	150	Horizontal	N/A
4**	7608.062	35.37	-4.59	54.0	-18.63	AV	355.00	150	Horizontal	Pass
4	7608.062	45.51	-4.59	74.0	-28.49	Peak	355.00	150	Horizontal	Pass
5**	11303.875	37.21	-1.40	54.0	-16.79	AV	49.00	150	Horizontal	Pass
5	11303.875	48.21	-1.40	74.0	-25.79	Peak	49.00	150	Horizontal	Pass
6**	15787.125	40.05	-1.29	54.0	-13.95	AV	311.00	150	Horizontal	Pass
6	15787.125	50.49	-1.29	74.0	-23.51	Peak	311.00	150	Horizontal	Pass

1 GHz to 18 GHz, ANT V Band IV 11a Middle channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1358.500	25.35	-18.51	54.0	-28.65	AV	36.00	150	Vertical	Pass
1	1358.500	51.81	-18.51	74.0	-22.19	Peak	36.00	150	Vertical	Pass
2**	2790.000	30.10	-11.89	54.0	-23.90	AV	0.00	150	Vertical	Pass
2	2790.000	40.65	-11.89	74.0	-33.35	Peak	0.00	150	Vertical	Pass
3**	5781.000	92.13	-4.24	--	92.13	AV	233.00	150	Vertical	N/A
3	5781.000	99.71	-4.24	--	-133.29	Peak	233.00	150	Vertical	N/A
4**	8338.313	35.16	-3.95	54.0	-18.84	AV	169.00	150	Vertical	Pass
4	8338.313	46.58	-3.95	74.0	-27.42	Peak	169.00	150	Vertical	Pass
5**	12152.001	37.53	-1.65	54.0	-16.47	AV	205.00	150	Vertical	Pass
5	12152.001	48.96	-1.65	74.0	-25.04	Peak	205.00	150	Vertical	Pass
6**	15793.688	40.76	-1.13	54.0	-13.24	AV	161.00	150	Vertical	Pass
6	15793.688	50.78	-1.13	74.0	-23.22	Peak	161.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H Band IV 11a Middle channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1412.000	25.22	-18.49	54.0	-28.78	AV	167.00	150	Horizontal	Pass
1	1412.000	48.58	-18.49	74.0	-25.42	Peak	167.00	150	Horizontal	Pass
2**	2759.500	30.21	-12.54	54.0	-23.79	AV	167.00	150	Horizontal	Pass
2	2759.500	53.29	-12.54	74.0	-20.71	Peak	167.00	150	Horizontal	Pass
3**	5783.000	93.07	-4.38	--	93.07	AV	38.00	150	Horizontal	N/A
3	5783.000	100.27	-4.38	--	62.27	Peak	38.00	150	Horizontal	N/A
4**	8180.188	34.74	-4.61	54.0	-19.26	AV	40.00	150	Horizontal	Pass
4	8180.188	45.58	-4.61	74.0	-28.42	Peak	40.00	150	Horizontal	Pass
5**	11650.312	38.42	-2.46	54.0	-15.58	AV	1.00	150	Horizontal	Pass
5	11650.312	47.81	-2.46	74.0	-26.19	Peak	1.00	150	Horizontal	Pass
6**	15798.938	40.34	-1.00	54.0	-13.66	AV	201.00	150	Horizontal	Pass
6	15798.938	50.30	-1.00	74.0	-23.70	Peak	201.00	150	Horizontal	Pass

1 GHz to 18 GHz, ANT V Band IV 11a High channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1680.000	28.45	-18.53	54.0	-25.55	AV	125.00	150	Vertical	Pass
1	1680.000	44.53	-18.53	74.0	-29.47	Peak	125.00	150	Vertical	Pass
2**	2868.000	29.97	-11.77	54.0	-24.03	AV	59.00	150	Vertical	Pass
2	2868.000	45.96	-11.77	74.0	-28.04	Peak	59.00	150	Vertical	Pass
3**	5827.000	92.62	-4.17	--	92.62	AV	226.00	150	Vertical	N/A
3	5827.000	99.73	-4.17	--	-126.27	Peak	226.00	150	Vertical	N/A
4**	7625.312	34.91	-4.82	54.0	-19.09	AV	116.00	150	Vertical	Pass
4	7625.312	45.79	-4.82	74.0	-28.21	Peak	116.00	150	Vertical	Pass
5**	11568.375	36.98	-2.57	54.0	-17.02	AV	138.00	150	Vertical	Pass
5	11568.375	48.46	-2.57	74.0	-25.54	Peak	138.00	150	Vertical	Pass
6**	15789.750	40.33	-1.23	54.0	-13.67	AV	360.00	150	Vertical	Pass
6	15789.750	50.37	-1.23	74.0	-23.63	Peak	360.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H Band IV 11a High channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1554.500	27.36	-18.73	54.0	-26.64	AV	265.00	150	Horizontal	Pass
1	1554.500	39.59	-18.73	74.0	-34.41	Peak	265.00	150	Horizontal	Pass
2**	4160.000	34.63	-6.22	54.0	-19.37	AV	86.00	150	Horizontal	Pass
2	4160.000	45.32	-6.22	74.0	-28.68	Peak	86.00	150	Horizontal	Pass
3**	5828.000	93.42	-4.08	--	93.42	AV	52.00	150	Horizontal	N/A
3	5828.000	100.44	-4.08	--	48.44	Peak	52.00	150	Horizontal	N/A
4**	7516.063	35.22	-4.32	54.0	-18.78	AV	38.00	150	Horizontal	Pass
4	7516.063	46.50	-4.32	74.0	-27.50	Peak	38.00	150	Horizontal	Pass
5**	11060.938	37.19	-2.94	54.0	-16.81	AV	164.00	150	Horizontal	Pass
5	11060.938	49.01	-2.94	74.0	-24.99	Peak	164.00	150	Horizontal	Pass
6**	15791.062	40.32	-1.19	54.0	-13.68	AV	34.00	150	Horizontal	Pass
6	15791.062	50.15	-1.19	74.0	-23.85	Peak	34.00	150	Horizontal	Pass

1 GHz to 18 GHz, ANT V Band IV 11n20 Low channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1376.000	25.00	-18.66	54.0	-29.00	AV	71.00	150	Vertical	Pass
1	1376.000	51.48	-18.66	74.0	-22.52	Peak	71.00	150	Vertical	Pass
2**	4072.000	34.43	-6.83	54.0	-19.57	AV	194.00	150	Vertical	Pass
2	4072.000	44.64	-6.83	74.0	-29.36	Peak	194.00	150	Vertical	Pass
3**	5747.000	91.32	-4.35	--	91.32	AV	229.00	150	Vertical	N/A
3	5747.000	99.23	-4.35	--	-129.77	Peak	229.00	150	Vertical	N/A
4**	7464.312	34.51	-5.85	54.0	-19.49	AV	269.00	150	Vertical	Pass
4	7464.312	45.89	-5.85	74.0	-28.11	Peak	269.00	150	Vertical	Pass
5**	11633.063	37.55	-2.44	54.0	-16.45	AV	177.00	150	Vertical	Pass
5	11633.063	48.10	-2.44	74.0	-25.90	Peak	177.00	150	Vertical	Pass
6**	15620.437	39.72	-1.43	54.0	-14.28	AV	116.00	150	Vertical	Pass
6	15620.437	50.69	-1.43	74.0	-23.31	Peak	116.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H Band IV 11n20 Low channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1596.500	27.62	-18.82	54.0	-26.38	AV	205.00	150	Horizontal	Pass
1	1596.500	40.70	-18.82	74.0	-33.30	Peak	205.00	150	Horizontal	Pass
2**	2793.000	30.10	-12.10	54.0	-23.90	AV	0.00	150	Horizontal	Pass
2	2793.000	40.65	-12.10	74.0	-33.35	Peak	0.00	150	Horizontal	Pass
3**	5746.000	91.68	-4.32	--	91.68	AV	53.00	150	Horizontal	N/A
3	5746.000	100.62	-4.32	--	47.62	Peak	53.00	150	Horizontal	N/A
4**	7557.750	35.71	-4.53	54.0	-18.29	AV	25.00	150	Horizontal	Pass
4	7557.750	45.88	-4.53	74.0	-28.12	Peak	25.00	150	Horizontal	Pass
5**	12049.937	37.14	-1.82	54.0	-16.86	AV	25.00	150	Horizontal	Pass
5	12049.937	48.00	-1.82	74.0	-26.00	Peak	25.00	150	Horizontal	Pass
6**	15801.562	40.04	-1.03	54.0	-13.96	AV	114.00	150	Horizontal	Pass
6	15801.562	50.06	-1.03	74.0	-23.94	Peak	114.00	150	Horizontal	Pass

1 GHz to 18 GHz, ANT V Band IV 11n20 Middle channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1509.000	25.98	-18.55	54.0	-28.02	AV	173.00	150	Vertical	Pass
1	1509.000	50.18	-18.55	74.0	-23.82	Peak	173.00	150	Vertical	Pass
2**	3890.000	34.42	-6.51	54.0	-19.58	AV	5.00	150	Vertical	Pass
2	3890.000	44.78	-6.51	74.0	-29.22	Peak	5.00	150	Vertical	Pass
3**	5789.000	92.40	-4.17	--	92.40	AV	237.00	150	Vertical	N/A
3	5789.000	99.11	-4.17	--	-137.89	Peak	237.00	150	Vertical	N/A
4**	7618.125	35.29	-4.43	54.0	-18.71	AV	152.00	150	Vertical	Pass
4	7618.125	45.94	-4.43	74.0	-28.06	Peak	152.00	150	Vertical	Pass
5**	12065.750	37.28	-1.81	54.0	-16.72	AV	38.00	150	Vertical	Pass
5	12065.750	47.75	-1.81	74.0	-26.25	Peak	38.00	150	Vertical	Pass
6**	15796.312	40.28	-1.06	54.0	-13.72	AV	333.00	150	Vertical	Pass
6	15796.312	50.11	-1.06	74.0	-23.89	Peak	333.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H Band IV 11n20 Middle channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1564.000	25.13	-18.66	54.0	-28.87	AV	73.00	150	Horizontal	Pass
1	1564.000	46.06	-18.66	74.0	-27.94	Peak	73.00	150	Horizontal	Pass
2**	4143.000	34.18	-7.33	54.0	-19.82	AV	181.00	150	Horizontal	Pass
2	4143.000	45.50	-7.33	74.0	-28.50	Peak	181.00	150	Horizontal	Pass
3**	5781.000	92.63	-4.24	--	92.63	AV	36.00	150	Horizontal	N/A
3	5781.000	100.36	-4.24	--	64.36	Peak	36.00	150	Horizontal	N/A
4**	7488.750	35.43	-5.24	54.0	-18.57	AV	113.00	150	Horizontal	Pass
4	7488.750	45.97	-5.24	74.0	-28.03	Peak	113.00	150	Horizontal	Pass
5**	11371.437	37.97	-2.38	54.0	-16.03	AV	0.00	150	Horizontal	Pass
5	11371.437	48.32	-2.38	74.0	-25.68	Peak	0.00	150	Horizontal	Pass
6**	15800.250	40.68	-0.98	54.0	-13.32	AV	154.00	150	Horizontal	Pass
6	15800.250	50.90	-0.98	74.0	-23.10	Peak	154.00	150	Horizontal	Pass

1 GHz to 18 GHz, ANT V Band IV 11n20 High channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1592.500	27.90	-19.00	54.0	-26.10	AV	165.00	150	Vertical	Pass
1	1592.500	46.11	-19.00	74.0	-27.89	Peak	165.00	150	Vertical	Pass
2**	4825.000	36.81	-4.73	54.0	-17.19	AV	75.00	150	Vertical	Pass
2	4825.000	47.32	-4.73	74.0	-26.68	Peak	75.00	150	Vertical	Pass
3**	5821.000	92.40	-4.18	--	92.40	AV	239.00	150	Vertical	N/A
3	5821.000	100.05	-4.18	--	-138.95	Peak	239.00	150	Vertical	N/A
4**	8276.500	34.92	-4.09	54.0	-19.08	AV	170.00	150	Vertical	Pass
4	8276.500	45.58	-4.09	74.0	-28.42	Peak	170.00	150	Vertical	Pass
5**	11549.688	37.12	-2.69	54.0	-16.88	AV	208.00	150	Vertical	Pass
5	11549.688	47.71	-2.69	74.0	-26.29	Peak	208.00	150	Vertical	Pass
6**	15721.500	39.72	-2.36	54.0	-14.28	AV	5.00	150	Vertical	Pass
6	15721.500	50.48	-2.36	74.0	-23.52	Peak	5.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H Band IV 11n20 High channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1420.500	25.53	-18.50	54.0	-28.47	AV	188.00	150	Horizontal	Pass
1	1420.500	47.41	-18.50	74.0	-26.59	Peak	188.00	150	Horizontal	Pass
2**	2751.000	30.65	-12.51	54.0	-23.35	AV	188.00	150	Horizontal	Pass
2	2751.000	46.75	-12.51	74.0	-27.25	Peak	188.00	150	Horizontal	Pass
3**	5821.000	92.45	-4.18	--	92.45	AV	46.00	150	Horizontal	N/A
3	5821.000	99.85	-4.18	--	53.85	Peak	46.00	150	Horizontal	N/A
4**	7494.500	34.93	-5.10	54.0	-19.07	AV	313.00	150	Horizontal	Pass
4	7494.500	45.99	-5.10	74.0	-28.01	Peak	313.00	150	Horizontal	Pass
5**	11319.687	37.58	-1.27	54.0	-16.42	AV	352.00	150	Horizontal	Pass
5	11319.687	48.06	-1.27	74.0	-25.94	Peak	352.00	150	Horizontal	Pass
6**	15522.000	40.99	-1.04	54.0	-13.01	AV	360.00	150	Horizontal	Pass
6	15522.000	50.88	-1.04	74.0	-23.12	Peak	360.00	150	Horizontal	Pass

1 GHz to 18 GHz, ANT V Band IV 11n40 Low channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1556.500	33.52	-18.71	54.0	-20.48	AV	123.00	150	Vertical	Pass
1	1556.500	44.09	-18.71	74.0	-29.91	Peak	123.00	150	Vertical	Pass
2**	4086.000	34.46	-6.98	54.0	-19.54	AV	5.00	150	Vertical	Pass
2	4086.000	45.50	-6.98	74.0	-28.50	Peak	5.00	150	Vertical	Pass
3**	5762.000	90.01	-4.32	--	90.01	AV	233.00	150	Vertical	N/A
3	5762.000	97.01	-4.32	--	-135.99	Peak	233.00	150	Vertical	N/A
4**	7628.188	35.09	-4.73	54.0	-18.91	AV	28.00	150	Vertical	Pass
4	7628.188	45.94	-4.73	74.0	-28.06	Peak	28.00	150	Vertical	Pass
5**	11654.625	37.68	-2.45	54.0	-16.32	AV	146.00	150	Vertical	Pass
5	11654.625	47.80	-2.45	74.0	-26.20	Peak	146.00	150	Vertical	Pass
6**	15785.813	40.14	-1.32	54.0	-13.86	AV	224.00	150	Vertical	Pass
6	15785.813	50.29	-1.32	74.0	-23.71	Peak	224.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H Band IV 11n40 Low channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1594.000	28.00	-18.92	54.0	-26.00	AV	227.00	150	Horizontal	Pass
1	1594.000	41.39	-18.92	74.0	-32.61	Peak	227.00	150	Horizontal	Pass
2**	3974.000	34.26	-6.54	54.0	-19.74	AV	291.00	150	Horizontal	Pass
2	3974.000	44.93	-6.54	74.0	-29.07	Peak	291.00	150	Horizontal	Pass
3**	5752.000	91.46	-4.31	--	91.46	AV	46.00	150	Horizontal	N/A
3	5752.000	98.25	-4.31	--	52.25	Peak	46.00	150	Horizontal	N/A
4**	7608.062	35.57	-4.59	54.0	-18.43	AV	354.00	150	Horizontal	Pass
4	7608.062	46.03	-4.59	74.0	-27.97	Peak	354.00	150	Horizontal	Pass
5**	11357.062	37.77	-2.03	54.0	-16.23	AV	106.00	150	Horizontal	Pass
5	11357.062	48.63	-2.03	74.0	-25.37	Peak	106.00	150	Horizontal	Pass
6**	15781.875	40.50	-1.42	54.0	-13.50	AV	289.00	150	Horizontal	Pass
6	15781.875	50.14	-1.42	74.0	-23.86	Peak	289.00	150	Horizontal	Pass

1 GHz to 18 GHz, ANT V Band IV 11n40 High channel

No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1596.000	30.23	-18.83	54.0	-23.77	AV	223.00	150	Vertical	Pass
1	1596.000	44.83	-18.83	74.0	-29.17	Peak	223.00	150	Vertical	Pass
2**	3811.000	34.07	-6.85	54.0	-19.93	AV	0.00	150	Vertical	Pass
2	3811.000	45.12	-6.85	74.0	-28.88	Peak	0.00	150	Vertical	Pass
3**	5793.000	90.07	-4.17	--	90.07	AV	223.00	150	Vertical	N/A
3	5793.000	97.50	-4.17	--	-125.50	Peak	223.00	150	Vertical	N/A
4**	7544.813	35.44	-3.91	54.0	-18.56	AV	57.00	150	Vertical	Pass
4	7544.813	46.32	-3.91	74.0	-27.68	Peak	57.00	150	Vertical	Pass
5**	11302.438	37.59	-1.42	54.0	-16.41	AV	287.00	150	Vertical	Pass
5	11302.438	47.95	-1.42	74.0	-26.05	Peak	287.00	150	Vertical	Pass
6**	15768.750	39.62	-1.61	54.0	-14.38	AV	280.00	150	Vertical	Pass
6	15768.750	49.88	-1.61	74.0	-24.12	Peak	280.00	150	Vertical	Pass

1 GHz to 18 GHz, ANT H Band IV 11n40 High channel

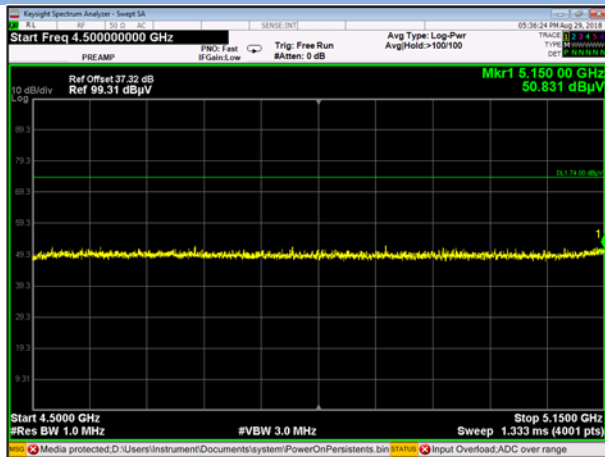
No.	Frequency (MHz)	Results (dBuV/m)	Factor (dB)	Limit (dBuV/m)	Over Limit (dB)	Detector	Table (o)	Height (cm)	ANT	Verdict
1**	1595.000	27.59	-18.88	54.0	-26.41	AV	219.00	150	Horizontal	Pass
1	1595.000	40.33	-18.88	74.0	-33.67	Peak	219.00	150	Horizontal	Pass
2**	4094.000	34.74	-7.03	54.0	-19.26	AV	190.00	150	Horizontal	Pass
2	4094.000	45.05	-7.03	74.0	-28.95	Peak	190.00	150	Horizontal	Pass
3**	5793.000	90.95	-4.17	--	90.95	AV	41.00	150	Horizontal	N/A
3	5793.000	97.71	-4.17	--	56.71	Peak	41.00	150	Horizontal	N/A
4**	7531.875	35.44	-3.94	54.0	-18.56	AV	60.00	150	Horizontal	Pass
4	7531.875	45.55	-3.94	74.0	-28.45	Peak	60.00	150	Horizontal	Pass
5**	11462.000	37.01	-2.39	54.0	-16.99	AV	268.00	150	Horizontal	Pass
5	11462.000	48.39	-2.39	74.0	-25.61	Peak	268.00	150	Horizontal	Pass
6**	15518.063	41.12	-1.00	54.0	-12.88	AV	360.00	150	Horizontal	Pass
6	15518.063	51.56	-1.00	74.0	-22.44	Peak	360.00	150	Horizontal	Pass

A.7.2 Band Edge (Restricted-band)

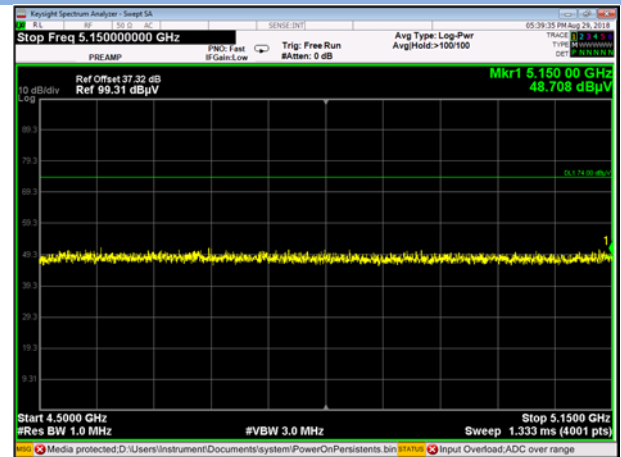
Test Band	Mode	Channel	Verdict
Band I	802.11a	Low	Pass
	802.11n(HT20)	Low	Pass
	802.11n(HT40)	Low	Pass
Band IV	802.11a	Low	Pass
		High	Pass
	802.11n(HT20)	Low	Pass
		High	Pass
	802.11n(HT40)	Low	Pass
		High	Pass

Test Plots

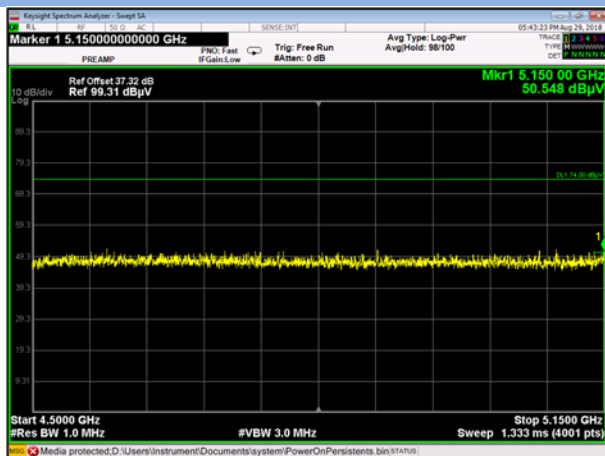
Band I 11a CH36



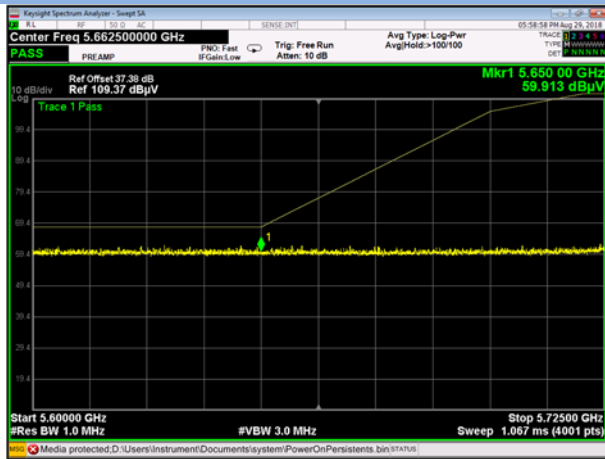
Band I 11n20 CH36



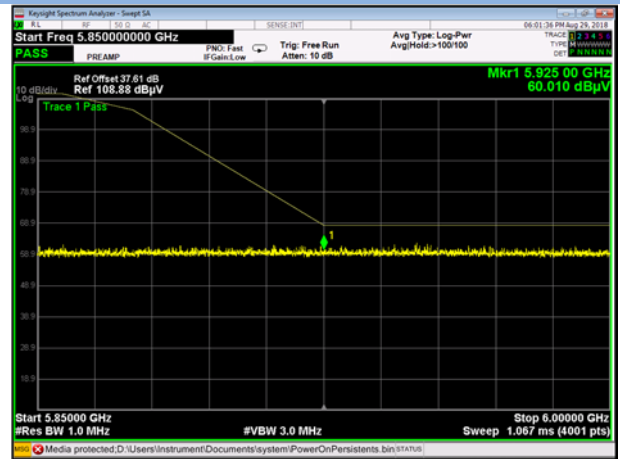
Band I 11n40 CH38



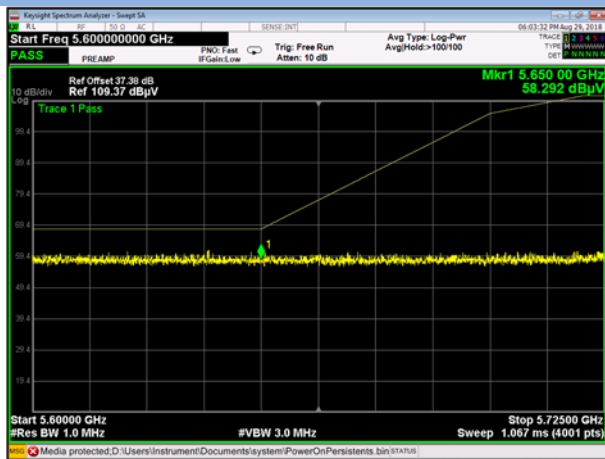
Band IV 11a CH149



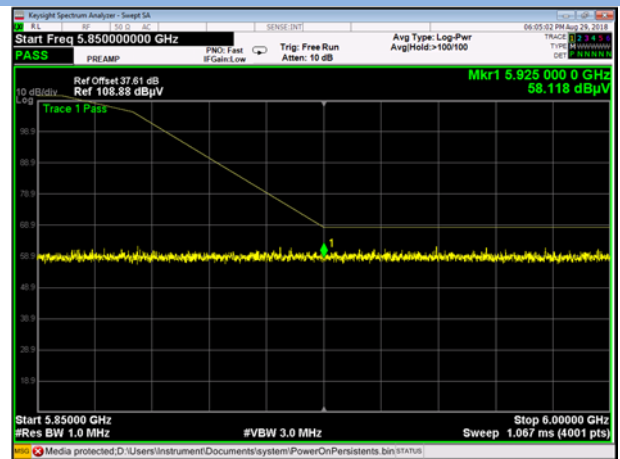
Band IV 11a CH165



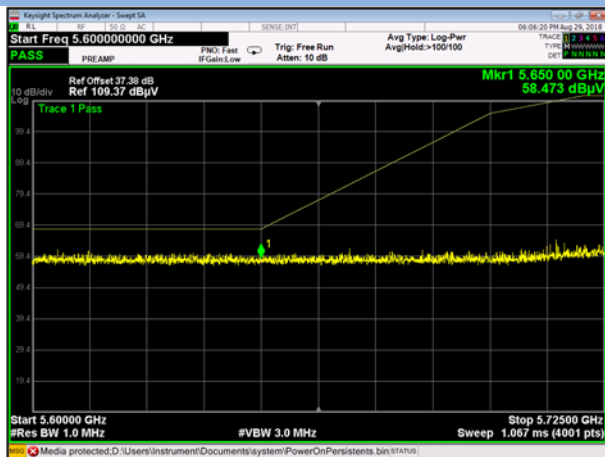
Band IV 11n20 CH149



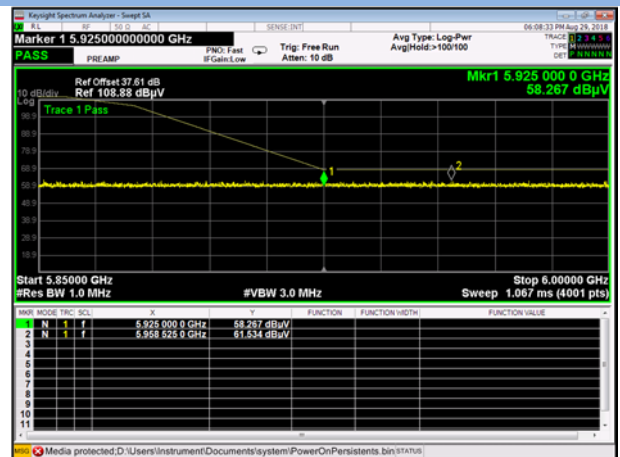
Band IV 11n20 CH165



Band IV 11n40 CH151



Band IV 11n40 CH159



A.8 Frequency Stability

Please refer to report no. I18N00930-RLAN issued by Shenzhen Academy of Information and Communications Technology.

ANNEX B TEST SETUP PHOTOS

Please refer the document “BL-SZ1880381-AR.PDF”.

ANNEX C EUT EXTERNAL PHOTOS

Please refer the ANNEX EUT External Photo

ANNEX D EUT INTERNAL PHOTOS

Please refer the ANNEX EUT Internal Photo

--END OF REPORT--