RADIO TEST REPORT

Report No:STS1909080W04

Issued for

Rapsodo Pte Ltd

Block 67, Ayer Rajah Crescent, #04-10, Singapore 139950

Product Name:	Rapsodo 2.4/5GHz Wifi Module
Brand Name:	Rapsodo
Model Name:	RAP-6356S
Series Model:	N/A
FCC ID:	2AH3O-AP6356S
Test Standard:	FCC Part 15.407

TEST RESULT CERTIFICATION

Applicant's Name................. : Rapsodo Pte Ltd

Address .... : Block 67, Ayer Rajah Crescent, #04-10, Singapore 139950

Manufacture's Name............ : Rapsodo Pte Ltd

Address .... : Block 67, Ayer Rajah Crescent, #04-10, Singapore 139950

Product Description

Product Name........................ : Rapsodo 2.4/5GHz Wifi Module

Brand Name .... : Rapsodo

Model Name .... : RAP-6356S

Series Model.......................... : N/A

Test Standards .... : FCC Part15.407

Test Procedure............................ ANSI C63.10-2013

This device described above has been tested by STS, the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test...:

Date (s) of performance of tests ....: 20 Sept. 2019 ~ 29 Oct. 2019

Date of Issue..: 31 Oct. 2019

Test Result...: **Pass**

Testing Engineer   :

(Chris Chen)

Technical Manager   :

(Sunday Hu)

Authorized Signatory :

(Vita Li)

Table of Contents   **Page**

Table of Contents | Page

Revision History

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	31 Oct. 2019	STS1909080W04	ALL	Initial Issue

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:
§ 15.407,KDB 789033 D02 General U-NII Test Procedures New Rules v02r01

FCC Part 15.407		
FCC standard	Test Item	Results
15.207	AC Conducted Emission	PASS
§ 15.407 (2) (26 dB) / § 15.407 (e) (6 dB)/ § 15.407 (a) (99%)	26dB/6dB &99% Bandwidth	PASS
15.407(a) (1).(2).(3).(4).(5)	Maximum Conducted Output Power	PASS
15.407(b)& 15.209	Radiated Emission And (bandedge Emissions) Measurement	PASS
15.407(b)7	Conducted Emission And (bandedge Emissions) Measurement	PASS
15.407(a) (1).(2).(3).(4).(5)	Power Spectral Density	PASS
15.407(c)	Automatically Discontinue Transmission	PASS
15.203/15.204	Antenna Requirement	PASS

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

(2)all tests are according to ANSI C63.10-2013

1.1 TEST FACTORY

Shenzhen STS Test Services Co., Ltd.
Add. : 1/F., Building B, Zhuoke Science Park, No.190, Chongqing Road,
Fuyong Street, Bao'an District, Shenzhen, Guangdong, China
FCC test Firm Registration Number: 625569
A2LA Certificate No.: 4338.01;

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** $\pm$ **U**, where expended uncertainty **U** is based on a standard uncertainty multiplied by a coverage factor of **k=2**, providing a level of confidence of approximately **95** %.

No.	Item	Uncertainty
1	RF output power, conducted	±0.71dB
2	Unwanted Emissions, conducted	±0.63dB
3	All emissions, radiated 30-200MHz	±3.43dB
4	All emissions, radiated 200MHz-1GHz	±3.57dB
5	All emissions, radiated>1G	±4.13dB
6	Conducted Emission (9KHz-150KHz)	±3.18dB
7	Conducted Emission (150KHz-30MHz)	±2.70dB

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	Rapsodo 2.4/5GHz Wifi Module
Trade Name	Rapsodo
Model Name	RAP-6356S
Series Model	N/A
Model Difference	N/A
Product Description	The EUT is a Rapsodo 2.4/5GHz Wifi Module

The EUT is a Rapsodo 2.4/5GHz Wifi Module

Operation Frequency:	IEEE 802.11a/ n(HT20)/ac(VHT20): 5.180GHz-5.240GHz IEEE 802.11n(HT40)/ac(VHT40): 5.190GHz-5.310GHz IEEE 802.11ac(VHT80): 5.210GHz
	EEE 802.11a/ n(HT20)/ac(VHT20): 5.260GHz-5.320GHz IEEE 802.11n(HT40)/ac(VHT40): 5.270GHz-5.310GHz IEEE 802.11ac(VHT80) 5.290GHz
	EEE 802.11a/ n(HT20)/ac(VHT20): 5.500GHz-5.700GHz IEEE 802.11n(HT40)/ac(VHT40): 5.510GHz-5.670GHz IEEE 802.11ac(VHT80) 5.530GHz-5.610GHz
	IEEE 802.11a/ n(HT20)/ac(VHT20): 5.745GHz-5.825GHz IEEE 802.11n(HT40)/ac(VHT40): 5.755GHz-5.795GHz IEEE 802.11ac(VHT80): 5.775GHz
Modulation Type:	802.11a(OFDM): BPSK,QPSK,16-QAM,64-QAM 802.11n(OFDM): BPSK,QPSK,16-QAM,64-QAM 802.11ac(OFDM): BPSK,QPSK,16-QAM,64-QAM,256-QAM
Antenna Designation:	See Note 2
Max.Output Power(Conducted):	11.78dBm
Duty Cycle:	>98%

More details of EUT technical specification, please refer to the User's Manual.

Test Channel	Please refer to the Note 2.
Power Rating	Input: DC 3.3 V
Hardware version number	AP6356S
Software version number	fw_bcm4356a2_ag_mfg.bin
Connecting I/O Port(s)	Please refer to the User's Manual

Note:For a more detailed features description, please refer to the manufacturer's specifications or the User's Manual.

1.

Operation Frequency of channel			
5.180GHz-5.240GHz		5.500GHz-5.720GHz	
Channel	Frequency	Channel	Frequency
36	5180	100	5500
38	5190	102	5510
40	5200	104	5520
42	5210	108	5540
44	5220	110	5550
46	5230	112	5560
48	5240	116	5580
		118	5590
5.260GHz-5.320GHz		120	5600
Channel	Frequency	124	5620
52	5260	126	5630
54	5270	128	5640
56	5280	132	5660
58	5290	134	5670
60	5300	136	5680
62	5310	140	5700
64	5320		
5.745GHz-5.825GHz			
Channel	Frequency		
149	5745		
151	5755		
153	5765		
157	5785		
159	5795		
161	5805		
165	5825		

Note:
In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:
Carrier Frequency Channel
5GHz:

For 802.11a/n(HT20) /ac (VHT20)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
36	5180	52	5260
40	5200	60	5300
48	5240	64	5320

For 802.11a/n(HT20) /ac (VHT20)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
100	5500	149	5745
116	5580	157	5785
140	5700	165	5825

For 802.11n(HT40) /ac (VHT40)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
38	5190	54	5270
46	5230	62	5310

For 802.11n(HT40) /ac (VHT40)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
102	5510	151	5755
110	5550	159	5795
134	5670		

For 802.11ac (VHT80)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
42	5210	58	5290

For 802.11ac (VHT80)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
106	5530	155	5775
122	5610		

2. KDB 662911 D01 Multiple Transmitter Output v02r01

2) Directional Gain Calculations for In-Band Measurements

a) Basic methodology with NANT transmit antennas, each with the same directional gain GANT dBi, being driven by NANT transmitter outputs of equal power. Directional gain is to be computed as follows:

(i) If any transmit signals are correlated with each other,

Directional gain = GANT + 10 log(NANT) dBi

(ii) If all transmit signals are completely uncorrelated with each other,

Directional gain = GANT

${ Directional gain}

Ant	Brand	Model Name	Ant Type	Connector	Gain (dBi)	NOTE
A	Rapsodo	RAP-6356S	PIFA Antenna	N/A	Antenna number: 2Antenna A gain : 4.5dBiAntenna B gain : 4.5dBiMIMO technology Directional gain=7.51dBi	WLAN Ant

2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Worst Mode	Description	Data Rate
Mode 1	TX IEEE 802.11a HT20 CH36&CH40&CH48	6 Mbps
Mode 2	TX IEEE 802.11a HT20 CH52&CH60&CH64	6 Mbps
Mode 3	TX IEEE 802.11a HT20 CH100&CH116&CH140	6 Mbps
Mode 4	TX IEEE 802.11a HT20 CH149&CH157&CH165	6 Mbps
Mode 5	TX IEEE 802.11n HT20 CH36&CH40&CH48	MCS 0
Mode 6	TX IEEE 802.11ac VHT20 CH36&CH40&CH48	NSS1 MCS0
Mode 7	TX IEEE 802.11n HT20 CH52&CH60&CH64	MCS 0
Mode 8	TX IEEE 802.11ac VHT20 CH52&CH60&CH64	NSS1 MCS0
Mode 9	TX IEEE 802.11n HT20 CH100&CH116&CH140	MCS 0
Mode 10	TX IEEE 802.11ac VHT20 CH100&CH116&CH140	NSS1 MCS0
Mode 11	TX IEEE 802.11n HT20 CH149&CH157&CH165	MCS 0
Mode 12	TX IEEE 802.11ac VHT20 CH149&CH157&CH165	NSS1 MCS0
Mode 13	TX IEEE 802.11n HT40 CH38&CH46	MCS 0
Mode 14	TX IEEE 802.11ac VHT40 CH38&CH46	NSS1 MCS0
Mode 15	TX IEEE 802.11n HT40 CH54 &CH62	MCS 0
Mode 16	TX IEEE 802.11ac VHT40 CH54 &CH62	NSS1 MCS0
Mode 17	TX IEEE 802.11n HT40 CH102&CH110&CH134	MCS 0
Mode 18	TX IEEE 802.11ac VHT40 CH102&CH110&CH134	NSS1 MCS0
Mode 19	TX IEEE 802.11n HT40 CH151&CH159	MCS 0
Mode 20	TX IEEE 802.11ac VHT40 CH151&CH159	NSS1 MCS0
Mode 21	TX IEEE 802.11ac VHT80 CH42	NSS1 MCS0
Mode 22	TX IEEE 802.11ac VHT80 CH58	NSS1 MCS0
Mode 23	TX IEEE 802.11ac VHT80 CH106&122	NSS1 MCS0
Mode 24	TX IEEE 802.11ac VHT80 CH155	NSS1 MCS0

Note: (1) The measurements are performed at the highest, middle, lowest available channels.

(2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

(3) We have be tested for all avaiable U.S. voltage and frequencies(For 120V,50/60Hz and 240V, 50/60Hz) for which the device is capable of operation.

AC Conducted Emission

Test Case	
AC Conducted Emission	Mode 25: Keeping TX + WLAN Link

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious EmissionTest
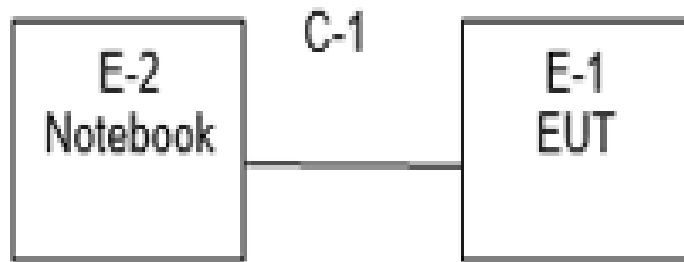
Conducted Emission Test
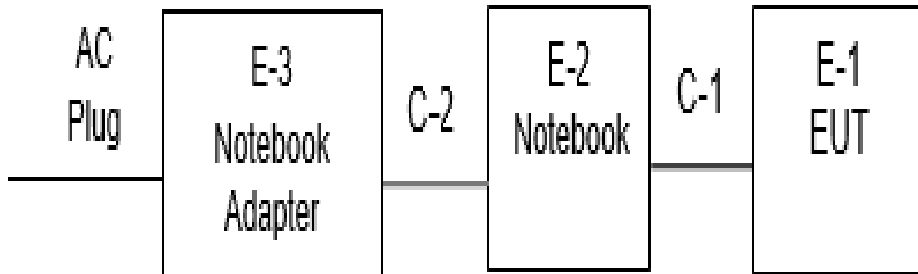
2.4 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Necessary accessories

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
E-3	Adapter	N/A	N/A	N/A	N/A
C-2	DC Cable	N/A	110cm	N/A	N/A

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
E-2	Notebook	DELL	VOSTRO.3800	N/A	N/A
C-1	USB Cable	N/A	100cm	N/A	N/A

Note:

(1)   The support equipment was authorized by Declaration of Confirmation.
(2)   For detachable type I/O cable should be specified the length in cm in 『Length』 column.
(3)   "YES" is means "shielded" "with core"; "NO" is means "unshielded" "without core".

2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
EMI Test Receiver	R&S	ESCI	101427	2019.07.29	2020.07.28
Signal Analyzer	Agilent	N9020A	MY51110105	2019.03.02	2020.03.01
Active loop Antenna	ZHINAN	ZN30900C	16035	2018.03.11	2021.03.10
Bilog Antenna	TESEQ	CBL6111D	34678	2017.11.02	2020.11.01
Horn Antenna	SCHWARZBECK	BBHA 9120D(1201)	9120D-1343	2018.10.19	2021.10.18
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	J211020657	2018.03.11	2021.03.10
Pre-Amplifier(0.1 M-3GHz)	EM	EM330	060665	2019.10.09	2020.10.08
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2019.10.09	2020.10.08
Temperature & Humidity	HH660	Mieo	N/A	2019.10.09	2020.10.08
turn table	EM	SC100_1	60531	N/A	N/A
Antenna mast	EM	SC100	N/A	N/A	N/A
Test SW	BULUN	BL410-E/18.905			

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2019.07.29	2020.07.28
LISN	R&S	ENV216	101242	2019.10.09	2020.10.08
LISN	EMCO	3810/2NM	23625	2019.10.09	2020.10.08
Temperature & Humidity	HH660	Mieo	N/A	2019.10.12	2020.10.11
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 CE)			

RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
USB RF power sensor	DARE	RPR3006W	15I00041SNO03	2019.10.09	2020.10.08
Signal Analyzer	Agilent	N9020A	MY49100060	2019.10.09	2020.10.08
Temperature & Humidity	HH660	Mieo	N/A	2019.10.12	2020.10.11
Test SW	FARAD	LZ-RF /LzRf-3A3			

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits   (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class B (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	56.00	46.00	CISPR
5.0 -30.0	60.00	50.00	CISPR

0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

d. LISN at least 80 cm from nearest part of EUT chassis.

e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 TEST SETUP
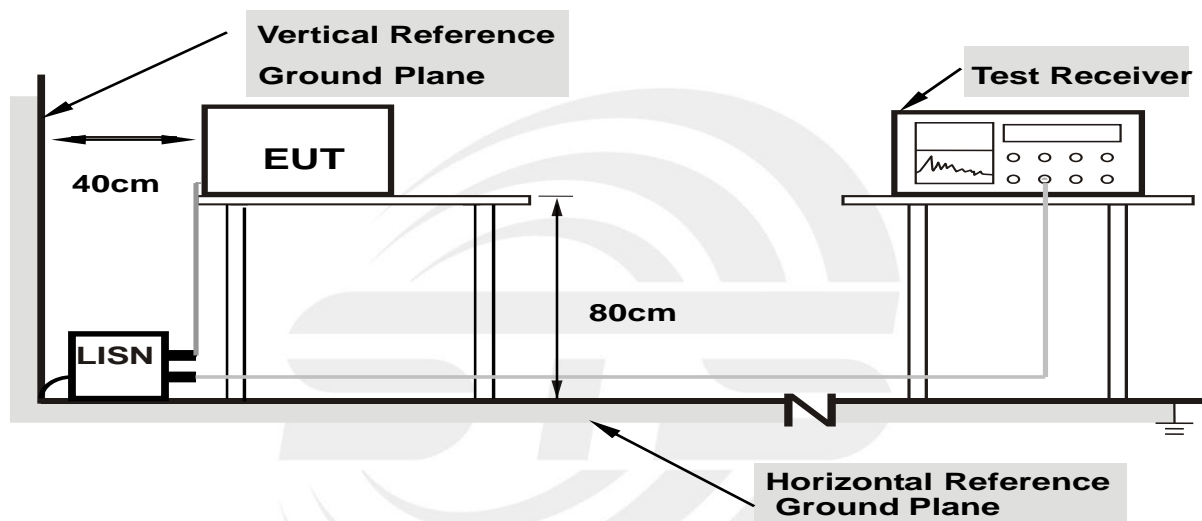
Note: 1.Support units were connected to second LISN.

2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.1.6 TEST RESULTS

Temperature:	24(C)	Relative Humidity:	59.8%RH
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode：	Mode 25		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1540	36.14	20.59	56.73	65.78	-9.05	QP
2	0.1540	20.42	20.59	41.01	55.78	-14.77	AVG
3	0.1820	34.65	20.56	55.21	64.39	-9.18	QP
4	0.1820	18.19	20.56	38.75	54.39	-15.64	AVG
5	0.2620	31.36	20.19	51.55	61.37	-9.82	QP
6	0.2620	14.98	20.19	35.17	51.37	-16.20	AVG
7	0.3220	29.42	20.05	49.47	59.66	-10.19	QP
8	0.3220	12.19	20.05	32.24	49.66	-17.42	AVG
9	2.0020	28.13	19.93	48.06	56.00	-7.94	QP
10	2.0020	11.55	19.93	31.48	46.00	-14.52	AVG
11	4.0100	24.35	20.29	44.64	56.00	-11.36	QP
12	4.0100	9.74	20.29	30.03	46.00	-15.97	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result =Reading + Factor)–Limit
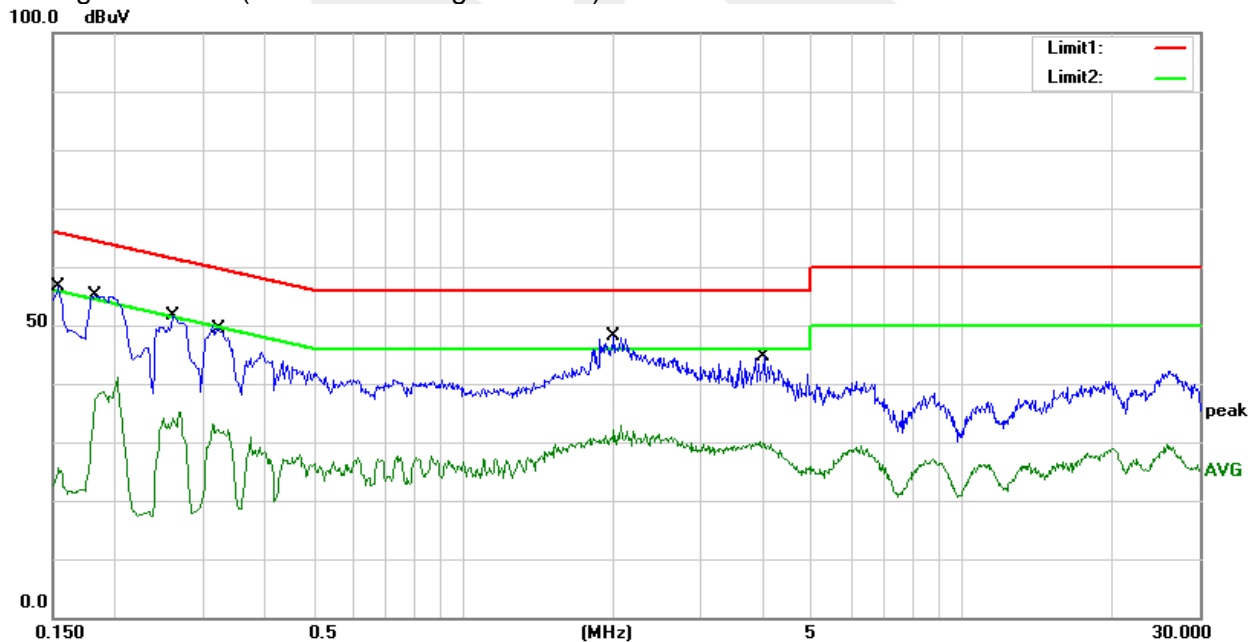
Temperature:	24(C)	Relative Humidity:	59.8%RH
Test Voltage	AC 120V/60Hz	Phase:	N
Test Mode	Mode 25		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1820	37.58	20.56	58.14	64.39	-6.25	QP
2	0.1820	21.03	20.56	41.59	54.39	-12.80	AVG
3	0.3660	22.67	20.13	42.80	58.59	-15.79	QP
4	0.3660	8.77	20.13	28.90	48.59	-19.69	AVG
5	0.6180	20.52	20.10	40.62	56.00	-15.38	QP
6	0.6180	6.06	20.10	26.16	46.00	-19.84	AVG
7	2.0580	24.69	19.94	44.63	56.00	-11.37	QP
8	2.0580	10.76	19.94	30.70	46.00	-15.30	AVG
9	8.2820	16.55	20.44	36.99	60.00	-23.01	QP
10	8.2820	6.41	20.44	26.85	50.00	-23.15	AVG
11	19.0420	18.65	21.36	40.01	60.00	-19.99	QP
12	19.0420	7.63	21.36	28.99	50.00	-21.01	AVG

Remark:
1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result =Reading + Factor)–Limit
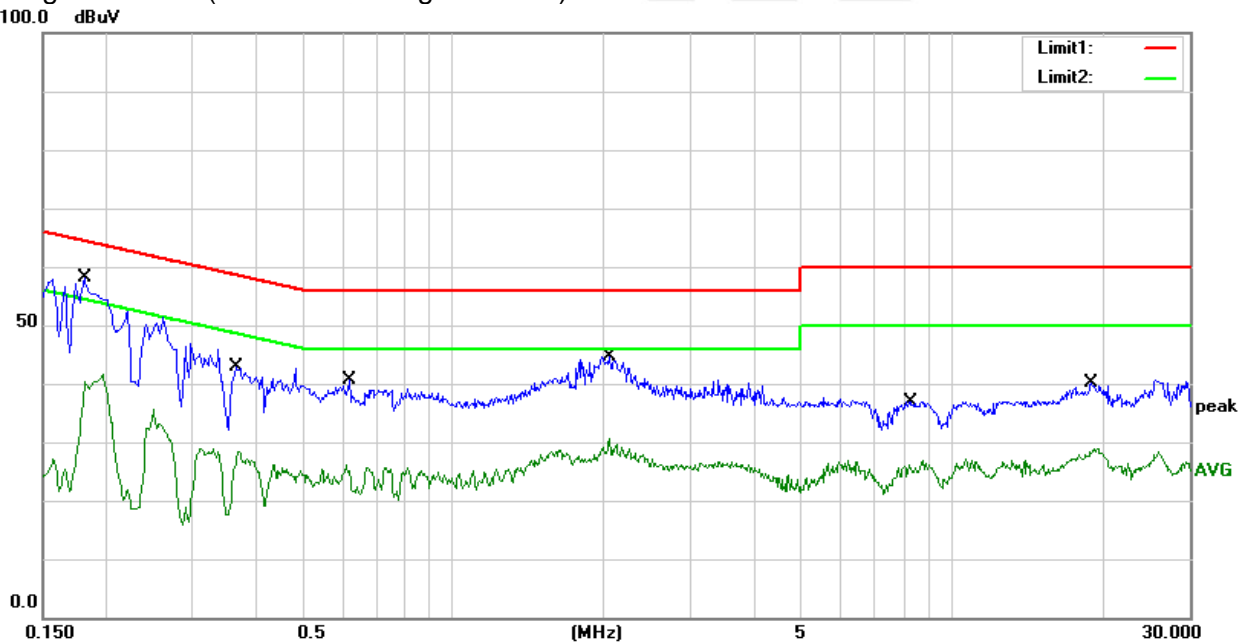
3.2 RADIATED EMISSION AND (BANDEDGE) MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

In case the emission fall within the restricted band specified on 15.407(b)7& 15.205/209(a), then the (a); limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
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

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	68.2	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15E.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak
Start Frequency	1000 MHz(Peak/AV)
Stop Frequency	10th carrier harmonic(Peak/AV)
RB / VB (emission in restricted band)	1 MHz / 1 MHz, AV=1 MHz /3 MHz

For Band edge

Spectrum Parameter	Setting
Detector	Peak
RB / VB (emission in restricted band)	1 MHz / 1 MHz, AV=1 MHz /3 MHz

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~90kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	90kHz~110kHz / RB 200Hz for QP
Start ~ Stop Frequency	110kHz~490kHz / RB 200Hz for PK & AV
Start ~ Stop Frequency	490kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

3.2.2 TEST PROCEDURE

a. The measuring distance of at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.

b. The EUT was placed on the top of a rotating table 0.8 meters(above 1GHz is 1.5 m) above the ground at a 3 meter anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The height of the equipment shall be 0.8 m(above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. Horizontal and vertical polarizations of the antenna are set to make the measurement

d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.

e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.

f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

Both horizontal and vertical antenna polarities were tested and performed test to three orthogonal axis. The worst case emissions were reported

3.2.2 DEVIATION FROM TEST STANDARD

No deviation

3.2.3 TEST SETUP

（A）Radiated Emission Test-Up Frequency Below 30MHz
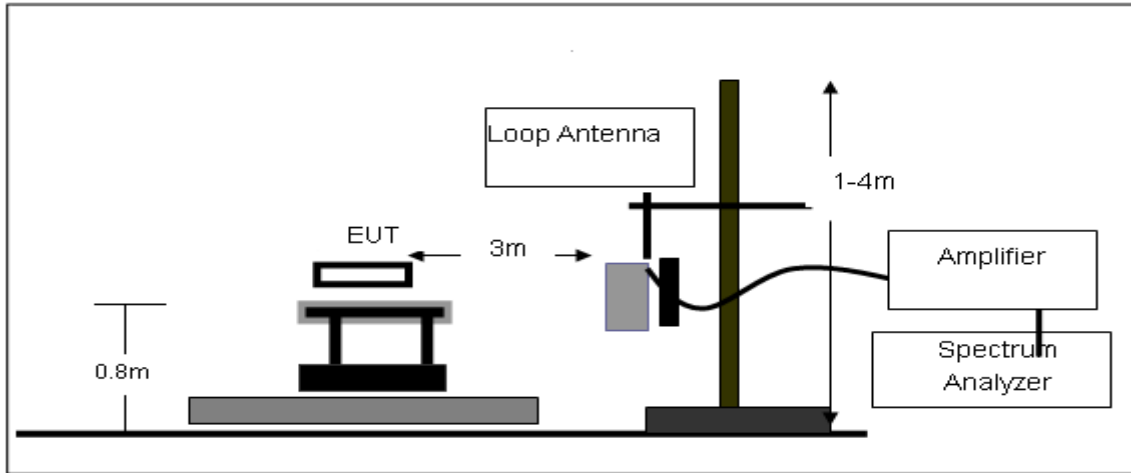
（B）Radiated Emission Test-Up Frequency 30MHz~1GHz
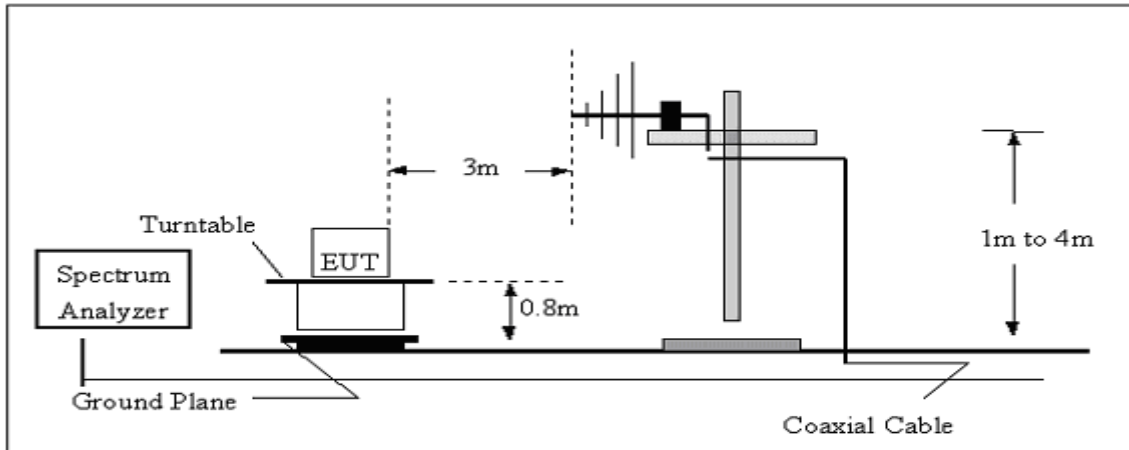
（C）Radiated Emission Test-Up Frequency Above 1GHz
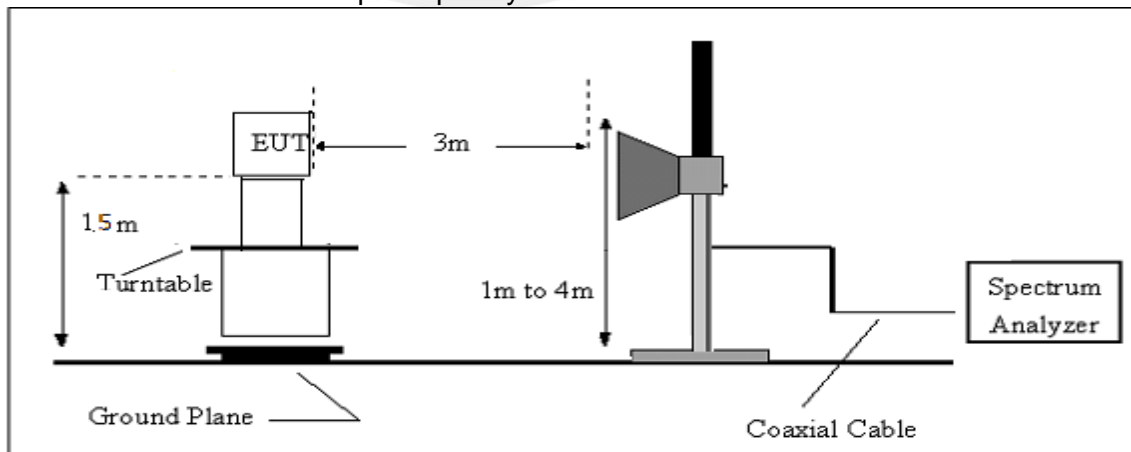
3.2.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.5 FIELD STRENGTH CALCULATION

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

FS = RA + AF + CL - AG

Where

FS = Field Strength

CL = Cable Attenuation Factor (Cable Loss)

RA = Reading Amplitude

AG = Amplifier Gain

AF = Antenna Factor

For example

Frequency	FS	RA	AF	CL	AG	Factor
(MHz)	(dBμV/m)	(dBμV/m)	(dB)	(dB)	(dB)	(dB)
300	40	58.1	12.2	1.6	31.9	-18.1

Factor=AF+CL-AG

3.2.6 TEST RESULTS (Between 9KHz – 30 MHz)

Temperature：	25.3(C)	Relative Humidtity:	62%RH
Test Voltage ：	DC 3.3V	Polarization :	--
Test Mode ：	TX Mode		

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =40 log (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor.

3.2.7 TEST RESULTS (Between 30MHz – 1GHz)

Temperature	25.3(C)	Relative Humidtity:	62%RH
Test Voltage	DC 3.3V	Polarization：	Horizontal
Test Mode	Mode 1~24(Mode 6 worst mode)		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	71.7100	61.08	-24.56	36.52	40.00	-3.48	QP
2	95.9600	60.15	-20.67	39.48	43.50	-4.02	QP
3	191.0200	60.46	-21.01	39.45	43.50	-4.05	QP
4	335.5500	51.28	-13.54	37.74	46.00	-8.26	QP
5	575.1400	43.07	-5.68	37.39	46.00	-8.61	QP
6	875.8400	35.82	-0.61	35.21	46.00	-10.79	QP

Remark:
1. Margin = Result (Result =Reading + Factor)–Limit
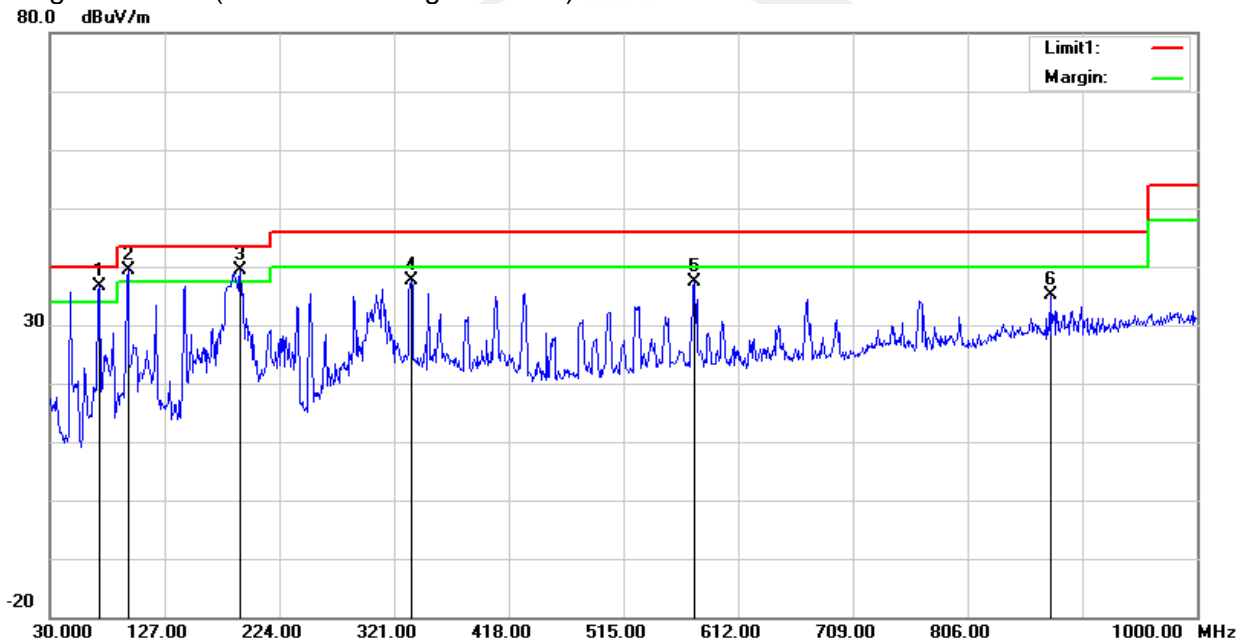
Temperature	25.3(C)	Relative Humidtity:	62%RH
Test Voltage	DC 3.3V	Polarization:	Vertical
Test Mode	Mode 1~24(Mode 6 worst mode)		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	71.7100	60.88	-24.56	36.32	40.00	-3.68	QP
2	94.9900	59.25	-20.78	38.47	43.50	-5.03	QP
3	191.0200	59.83	-21.01	38.82	43.50	-4.68	QP
4	250.1900	53.82	-16.10	37.72	46.00	-8.28	QP
5	575.1400	44.43	-5.68	38.75	46.00	-7.25	QP
6	875.8400	40.13	-0.61	39.52	46.00	-6.48	QP

Remark:
1. Margin = Result (Result =Reading + Factor)–Limit
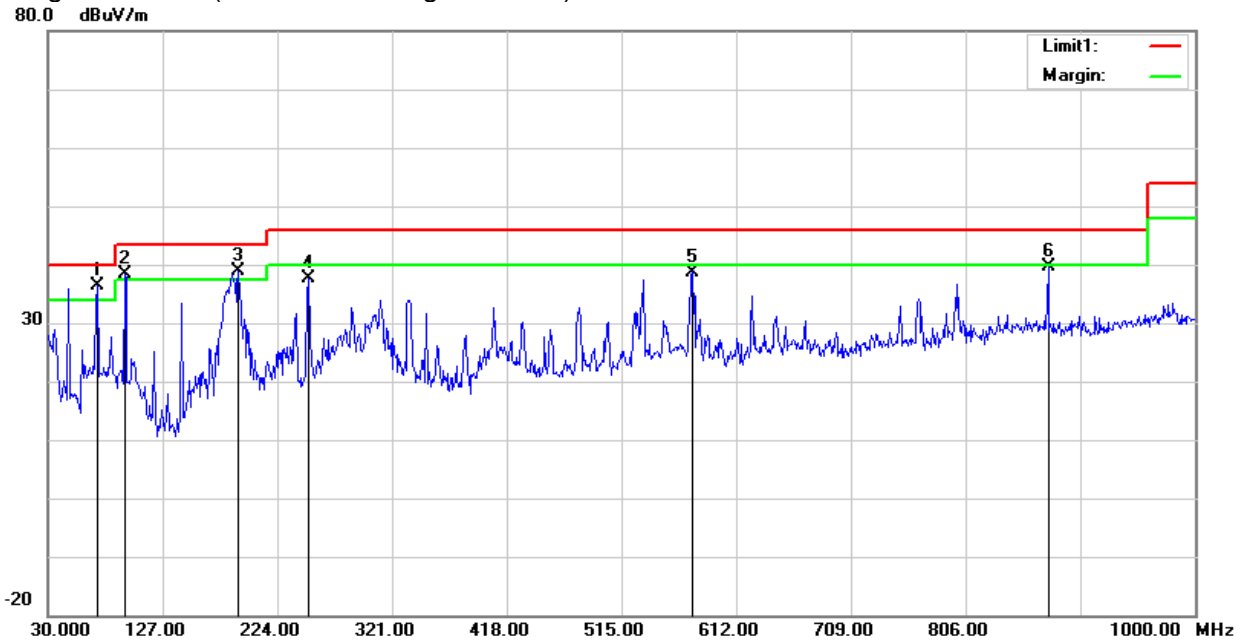
3.2.8 TEST RESULTS (Above 1000 MHz)

Band I 5150-5250MHz

Frequency (MHz)	Reading (dBuV)	Amplifier （dB）	Loss （dB）	Antenna Factor （dB/m）	Orrected Factor （dB）	Emission Level (dBμV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
Low Channel (802.11a/ 5180 MHz)										
3256.06	44.88	44.70	6.70	28.20	-9.80	35.08	68.20	-33.12	Pk	Vertical
3256.06	41.77	44.70	6.70	28.20	-9.80	31.97	54.00	-22.03	AV	Vertical
3245.54	44.95	44.70	6.70	28.20	-9.80	35.15	68.20	-33.05	Pk	Horizontal
3245.54	41.39	44.70	6.70	28.20	-9.80	31.59	54.00	-22.41	AV	Horizontal
3986.03	39.73	44.20	7.90	29.70	-6.60	33.13	68.20	-35.07	Pk	Vertical
3986.03	36.40	44.20	7.90	29.70	-6.60	29.80	54.00	-24.20	AV	Vertical
3985.65	38.79	44.20	7.90	29.70	-6.60	32.19	68.20	-36.01	Pk	Horizontal
3985.65	36.41	44.20	7.90	29.70	-6.60	29.81	54.00	-24.19	AV	Horizontal
7228.46	37.74	43.50	11.40	35.50	3.40	41.14	68.20	-27.06	Pk	Vertical
7228.46	34.36	43.50	11.40	35.50	3.40	37.76	54.00	-16.24	AV	Vertical
7230.30	36.66	43.50	11.40	35.50	3.40	40.06	68.20	-28.14	Pk	Horizontal
7230.30	33.74	43.50	11.40	35.50	3.40	37.14	54.00	-16.86	AV	Horizontal
10360.33	38.76	44.50	13.80	38.80	8.10	46.86	68.20	-21.34	Pk	Vertical
10360.33	36.44	44.50	13.80	38.80	8.10	44.54	54.00	-9.46	AV	Vertical
10360.20	39.85	44.50	13.80	38.80	8.10	47.95	68.20	-20.25	Pk	Horizontal
10360.20	36.42	44.50	13.80	38.80	8.10	44.52	54.00	-9.48	AV	Horizontal
11018.37	34.07	43.60	14.30	39.50	10.20	44.27	68.20	-23.93	Pk	Vertical
11018.37	29.80	43.60	14.30	39.50	10.20	40.00	54.00	-14.00	AV	Vertical
11031.20	33.90	43.60	14.30	39.50	10.20	44.10	68.20	-24.10	Pk	Horizontal
11031.20	29.70	43.60	14.30	39.50	10.20	39.90	54.00	-14.10	AV	Horizontal
13296.06	32.85	42.60	15.90	38.90	12.20	45.05	68.20	-23.15	Pk	Vertical
13296.06	29.96	42.60	15.90	38.90	12.20	42.16	54.00	-11.84	AV	Vertical
13281.15	31.53	42.60	15.90	38.90	12.20	43.73	68.20	-24.47	Pk	Horizontal
13281.15	30.00	42.60	15.90	38.90	12.20	42.20	54.00	-11.80	AV	Horizontal

Mid Channel (802.11a/ 5200 MHz)										
3261.89	45.26	44.70	6.70	28.20	-9.80	35.46	68.20	-32.74	Pk	Vertical
3261.89	41.89	44.70	6.70	28.20	-9.80	32.09	54.00	-21.91	AV	Vertical
3257.67	44.88	44.70	6.70	28.20	-9.80	35.08	68.20	-33.12	Pk	Horizontal
3257.67	41.36	44.70	6.70	28.20	-9.80	31.56	54.00	-22.44	AV	Horizontal
3985.71	39.80	44.20	7.90	29.70	-6.60	33.20	68.20	-35.00	Pk	Vertical
3985.71	37.14	44.20	7.90	29.70	-6.60	30.54	54.00	-23.46	AV	Vertical
3990.17	40.09	44.20	7.90	29.70	-6.60	33.49	68.20	-34.71	Pk	Horizontal
3990.17	36.79	44.20	7.90	29.70	-6.60	30.19	54.00	-23.81	AV	Horizontal
7222.73	36.44	43.50	11.40	35.50	3.40	39.84	68.20	-28.36	Pk	Vertical
7222.73	34.09	43.50	11.40	35.50	3.40	37.49	54.00	-16.51	AV	Vertical
7228.48	37.48	43.50	11.40	35.50	3.40	40.88	68.20	-27.32	Pk	Horizontal
7228.48	33.98	43.50	11.40	35.50	3.40	37.38	54.00	-16.62	AV	Horizontal
10400.26	39.84	44.50	13.80	38.80	8.10	47.94	68.20	-20.26	Pk	Vertical
10400.26	36.59	44.50	13.80	38.80	8.10	44.69	54.00	-9.31	AV	Vertical
10400.09	38.68	44.50	13.80	38.80	8.10	46.78	68.20	-21.42	Pk	Horizontal
10400.09	36.97	44.50	13.80	38.80	8.10	45.07	54.00	-8.93	AV	Horizontal
11017.88	33.03	43.60	14.30	39.50	10.20	43.23	68.20	-24.97	Pk	Vertical
11017.88	30.14	43.60	14.30	39.50	10.20	40.34	54.00	-13.66	AV	Vertical
11020.89	33.68	43.60	14.30	39.50	10.20	43.88	68.20	-24.32	Pk	Horizontal
11020.89	30.55	43.60	14.30	39.50	10.20	40.75	54.00	-13.25	AV	Horizontal
13283.22	32.80	42.60	15.90	38.90	12.20	45.00	68.20	-23.20	Pk	Vertical
13283.22	29.99	42.60	15.90	38.90	12.20	42.19	54.00	-11.81	AV	Vertical
13299.53	32.30	42.60	15.90	38.90	12.20	44.50	68.20	-23.70	Pk	Horizontal
13299.53	28.77	42.60	15.90	38.90	12.20	40.97	54.00	-13.03	AV	Horizontal

High Channel (802.11a/ 5240 MHz)										
3259.05	43.80	44.70	6.70	28.20	-9.80	34.00	68.20	-34.20	Pk	Vertical
3259.05	42.15	44.70	6.70	28.20	-9.80	32.35	54.00	-21.65	AV	Vertical
3261.29	44.84	44.70	6.70	28.20	-9.80	35.04	68.20	-33.16	Pk	Horizontal
3261.29	41.13	44.70	6.70	28.20	-9.80	31.33	54.00	-22.67	AV	Horizontal
3994.44	39.71	44.20	7.90	29.70	-6.60	33.11	68.20	-35.09	Pk	Vertical
3994.44	36.37	44.20	7.90	29.70	-6.60	29.77	54.00	-24.23	AV	Vertical
3999.11	40.09	44.20	7.90	29.70	-6.60	33.49	68.20	-34.71	Pk	Horizontal
3999.11	35.91	44.20	7.90	29.70	-6.60	29.31	54.00	-24.69	AV	Horizontal
7219.02	37.52	43.50	11.40	35.50	3.40	40.92	68.20	-27.28	Pk	Vertical
7219.02	33.82	43.50	11.40	35.50	3.40	37.22	54.00	-16.78	AV	Vertical
7222.09	36.45	43.50	11.40	35.50	3.40	39.85	68.20	-28.35	Pk	Horizontal
7222.09	33.67	43.50	11.40	35.50	3.40	37.07	54.00	-16.93	AV	Horizontal
10480.18	39.97	44.50	13.80	38.80	8.10	48.07	68.20	-20.13	Pk	Vertical
10480.18	37.15	44.50	13.80	38.80	8.10	45.25	54.00	-8.75	AV	Vertical
10479.98	40.13	44.50	13.80	38.80	8.10	48.23	68.20	-19.97	Pk	Horizontal
10479.98	36.49	44.50	13.80	38.80	8.10	44.59	54.00	-9.41	AV	Horizontal
11028.08	33.72	43.60	14.30	39.50	10.20	43.92	68.20	-24.28	Pk	Vertical
11028.08	30.74	43.60	14.30	39.50	10.20	40.94	54.00	-13.06	AV	Vertical
11029.52	33.37	43.60	14.30	39.50	10.20	43.57	68.20	-24.63	Pk	Horizontal
11029.52	30.12	43.60	14.30	39.50	10.20	40.32	54.00	-13.68	AV	Horizontal
13295.77	32.81	42.60	15.90	38.90	12.20	45.01	68.20	-23.19	Pk	Vertical
13295.77	29.62	42.60	15.90	38.90	12.20	41.82	54.00	-12.18	AV	Vertical
13283.98	31.97	42.60	15.90	38.90	12.20	44.17	68.20	-24.03	Pk	Horizontal
13283.98	29.18	42.60	15.90	38.90	12.20	41.38	54.00	-12.62	AV	Horizontal

Remark:

1.Factor = Antenna Factor + Cable Loss – Pre-amplifier.

2. Scan with 802.11a,802.11n (HT-20),802.11n (HT-40), 802.11ac (VHT-20),802.11ac (VHT-40), 802.11ac (VHT-80) the worst case is 802.11a.

3. The frequency emission of peak points that did not show above the forms are at least 20dB below

the limit, the frequency emission is mainly from the environment noise.

4. Pre-scan both the SISO and MIMO mode, only the worst-case results were reported.

Band II 5250-5350MHz

Frequency (MHz)	Reading (dBuV)	Amplifier （dB）	Loss （dB）	Antenna Factor （dB/m）	Orrected Factor （dB）	Emission Level (dBµV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
Low Channel (802.11a/ 5180 MHz)										
3247.60	44.08	44.70	6.70	28.20	-9.80	34.28	68.20	-33.92	Pk	Vertical
3247.60	41.27	44.70	6.70	28.20	-9.80	31.47	54.00	-22.53	AV	Vertical
3256.99	45.23	44.70	6.70	28.20	-9.80	35.43	68.20	-32.77	Pk	Horizontal
3256.99	41.77	44.70	6.70	28.20	-9.80	31.97	54.00	-22.03	AV	Horizontal
3985.13	40.06	44.20	7.90	29.70	-6.60	33.46	68.20	-34.74	Pk	Vertical
3985.13	36.47	44.20	7.90	29.70	-6.60	29.87	54.00	-24.13	AV	Vertical
3984.73	39.05	44.20	7.90	29.70	-6.60	32.45	68.20	-35.75	Pk	Horizontal
3984.73	36.54	44.20	7.90	29.70	-6.60	29.94	54.00	-24.06	AV	Horizontal
7232.94	37.60	43.50	11.40	35.50	3.40	41.00	68.20	-27.20	Pk	Vertical
7232.94	34.37	43.50	11.40	35.50	3.40	37.77	54.00	-16.23	AV	Vertical
7233.87	37.58	43.50	11.40	35.50	3.40	40.98	68.20	-27.22	Pk	Horizontal
7233.87	34.71	43.50	11.40	35.50	3.40	38.11	54.00	-15.89	AV	Horizontal
10360.28	39.70	44.50	13.80	38.80	8.10	47.80	68.20	-20.40	Pk	Vertical
10360.28	36.23	44.50	13.80	38.80	8.10	44.33	54.00	-9.67	AV	Vertical
10360.27	39.25	44.50	13.80	38.80	8.10	47.35	68.20	-20.85	Pk	Horizontal
10360.27	36.04	44.50	13.80	38.80	8.10	44.14	54.00	-9.86	AV	Horizontal
11025.87	32.91	43.60	14.30	39.50	10.20	43.11	68.20	-25.09	Pk	Vertical
11025.87	30.80	43.60	14.30	39.50	10.20	41.00	54.00	-13.00	AV	Vertical
11017.07	34.08	43.60	14.30	39.50	10.20	44.28	68.20	-23.92	Pk	Horizontal
11017.07	31.10	43.60	14.30	39.50	10.20	41.30	54.00	-12.70	AV	Horizontal
13297.22	32.10	42.60	15.90	38.90	12.20	44.30	68.20	-23.90	Pk	Vertical
13297.22	28.71	42.60	15.90	38.90	12.20	40.91	54.00	-13.09	AV	Vertical
13286.19	32.96	42.60	15.90	38.90	12.20	45.16	68.20	-23.04	Pk	Horizontal
13286.19	29.13	42.60	15.90	38.90	12.20	41.33	54.00	-12.67	AV	Horizontal
Mid Channel (802.11a/ 5200 MHz)										
3254.52	44.11	44.70	6.70	28.20	-9.80	34.31	68.20	-33.89	Pk	Vertical
3254.52	41.37	44.70	6.70	28.20	-9.80	31.57	54.00	-22.43	AV	Vertical
3262.34	44.10	44.70	6.70	28.20	-9.80	34.30	68.20	-33.90	Pk	Horizontal
3262.34	41.33	44.70	6.70	28.20	-9.80	31.53	54.00	-22.47	AV	Horizontal
3999.58	39.39	44.20	7.90	29.70	-6.60	32.79	68.20	-35.41	Pk	Vertical
3999.58	36.46	44.20	7.90	29.70	-6.60	29.86	54.00	-24.14	AV	Vertical
3998.55	38.74	44.20	7.90	29.70	-6.60	32.14	68.20	-36.06	Pk	Horizontal
3998.55	35.67	44.20	7.90	29.70	-6.60	29.07	54.00	-24.93	AV	Horizontal
7231.11	36.56	43.50	11.40	35.50	3.40	39.96	68.20	-28.24	Pk	Vertical

Mid Channel (802.11a/ 5200 MHz)										
3254.52	44.11	44.70	6.70	28.20	-9.80	34.31	68.20	-33.89	Pk	Vertical
3254.52	41.37	44.70	6.70	28.20	-9.80	31.57	54.00	-22.43	AV	Vertical
3262.34	44.10	44.70	6.70	28.20	-9.80	34.30	68.20	-33.90	Pk	Horizontal
3262.34	41.33	44.70	6.70	28.20	-9.80	31.53	54.00	-22.47	AV	Horizontal
3999.58	39.39	44.20	7.90	29.70	-6.60	32.79	68.20	-35.41	Pk	Vertical
3999.58	36.46	44.20	7.90	29.70	-6.60	29.86	54.00	-24.14	AV	Vertical
3998.55	38.74	44.20	7.90	29.70	-6.60	32.14	68.20	-36.06	Pk	Horizontal
3998.55	35.67	44.20	7.90	29.70	-6.60	29.07	54.00	-24.93	AV	Horizontal
7231.11	36.56	43.50	11.40	35.50	3.40	39.96	68.20	-28.24	Pk	Vertical
7231.11	33.56	43.50	11.40	35.50	3.40	36.96	54.00	-17.04	AV	Vertical
7228.03	37.81	43.50	11.40	35.50	3.40	41.21	68.20	-26.99	Pk	Horizontal
7228.03	33.98	43.50	11.40	35.50	3.40	37.38	54.00	-16.62	AV	Horizontal
10400.09	39.34	44.50	13.80	38.80	8.10	47.44	68.20	-20.76	Pk	Vertical
10400.09	36.44	44.50	13.80	38.80	8.10	44.54	54.00	-9.46	AV	Vertical
10400.21	39.15	44.50	13.80	38.80	8.10	47.25	68.20	-20.95	Pk	Horizontal
10400.21	35.78	44.50	13.80	38.80	8.10	43.88	54.00	-10.12	AV	Horizontal
11029.61	33.77	43.60	14.30	39.50	10.20	43.97	68.20	-24.23	Pk	Vertical
11029.61	30.21	43.60	14.30	39.50	10.20	40.41	54.00	-13.59	AV	Vertical
11019.82	32.96	43.60	14.30	39.50	10.20	43.16	68.20	-25.04	Pk	Horizontal
11019.82	30.18	43.60	14.30	39.50	10.20	40.38	54.00	-13.62	AV	Horizontal
13286.08	32.16	42.60	15.90	38.90	12.20	44.36	68.20	-23.84	Pk	Vertical
13286.08	29.96	42.60	15.90	38.90	12.20	42.16	54.00	-11.84	AV	Vertical
13284.59	32.23	42.60	15.90	38.90	12.20	44.43	68.20	-23.77	Pk	Horizontal
13284.59	29.41	42.60	15.90	38.90	12.20	41.61	54.00	-12.39	AV	Horizontal

High Channel (802.11a/ 5240 MHz)										
3256.25	44.78	44.70	6.70	28.20	-9.80	34.98	68.20	-33.22	Pk	Vertical
3256.25	41.19	44.70	6.70	28.20	-9.80	31.39	54.00	-22.61	AV	Vertical
3259.68	45.09	44.70	6.70	28.20	-9.80	35.29	68.20	-32.91	Pk	Horizontal
3259.68	41.31	44.70	6.70	28.20	-9.80	31.51	54.00	-22.49	AV	Horizontal
3996.06	39.01	44.20	7.90	29.70	-6.60	32.41	68.20	-35.79	Pk	Vertical
3996.06	35.93	44.20	7.90	29.70	-6.60	29.33	54.00	-24.67	AV	Vertical
3994.84	39.95	44.20	7.90	29.70	-6.60	33.35	68.20	-34.85	Pk	Horizontal
3994.84	37.01	44.20	7.90	29.70	-6.60	30.41	54.00	-23.59	AV	Horizontal
7228.55	36.93	43.50	11.40	35.50	3.40	40.33	68.20	-27.87	Pk	Vertical
7228.55	33.99	43.50	11.40	35.50	3.40	37.39	54.00	-16.61	AV	Vertical
7219.88	36.52	43.50	11.40	35.50	3.40	39.92	68.20	-28.28	Pk	Horizontal
7219.88	34.78	43.50	11.40	35.50	3.40	38.18	54.00	-15.82	AV	Horizontal
10480.31	39.85	44.50	13.80	38.80	8.10	47.95	68.20	-20.25	Pk	Vertical
10480.31	36.06	44.50	13.80	38.80	8.10	44.16	54.00	-9.84	AV	Vertical
10480.10	39.75	44.50	13.80	38.80	8.10	47.85	68.20	-20.35	Pk	Horizontal
10480.10	36.18	44.50	13.80	38.80	8.10	44.28	54.00	-9.72	AV	Horizontal
11031.38	33.59	43.60	14.30	39.50	10.20	43.79	68.20	-24.41	Pk	Vertical
11031.38	30.54	43.60	14.30	39.50	10.20	40.74	54.00	-13.26	AV	Vertical
11035.04	33.39	43.60	14.30	39.50	10.20	43.59	68.20	-24.61	Pk	Horizontal
11035.04	30.24	43.60	14.30	39.50	10.20	40.44	54.00	-13.56	AV	Horizontal
13295.86	32.84	42.60	15.90	38.90	12.20	45.04	68.20	-23.16	Pk	Vertical
13295.86	29.18	42.60	15.90	38.90	12.20	41.38	54.00	-12.62	AV	Vertical
13284.39	32.50	42.60	15.90	38.90	12.20	44.70	68.20	-23.50	Pk	Horizontal
13284.39	29.76	42.60	15.90	38.90	12.20	41.96	54.00	-12.04	AV	Horizontal

Remark:

1.Factor = Antenna Factor + Cable Loss – Pre-amplifier.

2. Scan with 802.11a,802.11n (HT-20),802.11n (HT-40), 802.11ac (VHT-20),802.11ac (VHT-40), 802.11ac (VHT-80) the worst case is 802.11a.

3. The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.

4.Pre-scan both the SISO and MIMO mode, only the worst-case results were reported

Band III 5470-5725MHz

Frequency (MHz)	Reading (dBuV)	Amplifier （dB）	Loss （dB）	Antenna Factor （dB/m）	Orrected Factor （dB）	Emission Level (dBμV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
Low Channel (802.11a/ 5180 MHz)										
3249.93	44.90	44.70	6.70	28.20	-9.80	35.10	68.20	-33.10	Pk	Vertical
3249.93	41.84	44.70	6.70	28.20	-9.80	32.04	54.00	-21.96	AV	Vertical
3262.83	43.84	44.70	6.70	28.20	-9.80	34.04	68.20	-34.16	Pk	Horizontal
3262.83	42.18	44.70	6.70	28.20	-9.80	32.38	54.00	-21.62	AV	Horizontal
3980.76	38.99	44.20	7.90	29.70	-6.60	32.39	68.20	-35.81	Pk	Vertical
3980.76	36.28	44.20	7.90	29.70	-6.60	29.68	54.00	-24.32	AV	Vertical
3985.59	39.64	44.20	7.90	29.70	-6.60	33.04	68.20	-35.16	Pk	Horizontal
3985.59	36.38	44.20	7.90	29.70	-6.60	29.78	54.00	-24.22	AV	Horizontal
7232.73	37.25	43.50	11.40	35.50	3.40	40.65	68.20	-27.55	Pk	Vertical
7232.73	34.54	43.50	11.40	35.50	3.40	37.94	54.00	-16.06	AV	Vertical
7229.63	37.23	43.50	11.40	35.50	3.40	40.63	68.20	-27.57	Pk	Horizontal
7229.63	34.69	43.50	11.40	35.50	3.40	38.09	54.00	-15.91	AV	Horizontal
10360.12	39.13	44.50	13.80	38.80	8.10	47.23	68.20	-20.97	Pk	Vertical
10360.12	35.76	44.50	13.80	38.80	8.10	43.86	54.00	-10.14	AV	Vertical
10360.16	39.16	44.50	13.80	38.80	8.10	47.26	68.20	-20.94	Pk	Horizontal
10360.16	35.89	44.50	13.80	38.80	8.10	43.99	54.00	-10.01	AV	Horizontal
11019.99	33.14	43.60	14.30	39.50	10.20	43.34	68.20	-24.86	Pk	Vertical
11019.99	30.01	43.60	14.30	39.50	10.20	40.21	54.00	-13.79	AV	Vertical
11026.33	33.83	43.60	14.30	39.50	10.20	44.03	68.20	-24.17	Pk	Horizontal
11026.33	30.11	43.60	14.30	39.50	10.20	40.31	54.00	-13.69	AV	Horizontal
13297.03	31.93	42.60	15.90	38.90	12.20	44.13	68.20	-24.07	Pk	Vertical
13297.03	29.80	42.60	15.90	38.90	12.20	42.00	54.00	-12.00	AV	Vertical
13283.80	31.69	42.60	15.90	38.90	12.20	43.89	68.20	-24.31	Pk	Horizontal
13283.80	29.73	42.60	15.90	38.90	12.20	41.93	54.00	-12.07	AV	Horizontal

Mid Channel (802.11a/ 5200 MHz)										
3259.95	44.18	44.70	6.70	28.20	-9.80	34.38	68.20	-33.82	Pk	Vertical
3259.95	41.40	44.70	6.70	28.20	-9.80	31.60	54.00	-22.40	AV	Vertical
3253.05	45.04	44.70	6.70	28.20	-9.80	35.24	68.20	-32.96	Pk	Horizontal
3253.05	41.75	44.70	6.70	28.20	-9.80	31.95	54.00	-22.05	AV	Horizontal
3996.26	39.14	44.20	7.90	29.70	-6.60	32.54	68.20	-35.66	Pk	Vertical
3996.26	36.18	44.20	7.90	29.70	-6.60	29.58	54.00	-24.42	AV	Vertical
3980.94	39.68	44.20	7.90	29.70	-6.60	33.08	68.20	-35.12	Pk	Horizontal
3980.94	35.95	44.20	7.90	29.70	-6.60	29.35	54.00	-24.65	AV	Horizontal
7231.68	37.08	43.50	11.40	35.50	3.40	40.48	68.20	-27.72	Pk	Vertical
7231.68	34.49	43.50	11.40	35.50	3.40	37.89	54.00	-16.11	AV	Vertical
7224.05	37.41	43.50	11.40	35.50	3.40	40.81	68.20	-27.39	Pk	Horizontal
7224.05	34.07	43.50	11.40	35.50	3.40	37.47	54.00	-16.53	AV	Horizontal
10400.07	38.93	44.50	13.80	38.80	8.10	47.03	68.20	-21.17	Pk	Vertical
10400.07	36.15	44.50	13.80	38.80	8.10	44.25	54.00	-9.75	AV	Vertical
10400.07	40.03	44.50	13.80	38.80	8.10	48.13	68.20	-20.07	Pk	Horizontal
10400.07	35.72	44.50	13.80	38.80	8.10	43.82	54.00	-10.18	AV	Horizontal
11024.99	33.10	43.60	14.30	39.50	10.20	43.30	68.20	-24.90	Pk	Vertical
11024.99	30.31	43.60	14.30	39.50	10.20	40.51	54.00	-13.49	AV	Vertical
11020.52	33.97	43.60	14.30	39.50	10.20	44.17	68.20	-24.03	Pk	Horizontal
11020.52	30.48	43.60	14.30	39.50	10.20	40.68	54.00	-13.32	AV	Horizontal
13289.76	32.93	42.60	15.90	38.90	12.20	45.13	68.20	-23.07	Pk	Vertical
13289.76	28.55	42.60	15.90	38.90	12.20	40.75	54.00	-13.25	AV	Vertical
13284.06	33.01	42.60	15.90	38.90	12.20	45.21	68.20	-22.99	Pk	Horizontal
13284.06	29.88	42.60	15.90	38.90	12.20	42.08	54.00	-11.92	AV	Horizontal

High Channel (802.11a/ 5240 MHz)										
3248.40	44.03	44.70	6.70	28.20	-9.80	34.23	68.20	-33.97	Pk	Vertical
3248.40	41.82	44.70	6.70	28.20	-9.80	32.02	54.00	-21.98	AV	Vertical
3250.01	45.16	44.70	6.70	28.20	-9.80	35.36	68.20	-32.84	Pk	Horizontal
3250.01	41.48	44.70	6.70	28.20	-9.80	31.68	54.00	-22.32	AV	Horizontal
3997.21	38.83	44.20	7.90	29.70	-6.60	32.23	68.20	-35.97	Pk	Vertical
3997.21	36.71	44.20	7.90	29.70	-6.60	30.11	54.00	-23.89	AV	Vertical
3981.58	38.75	44.20	7.90	29.70	-6.60	32.15	68.20	-36.05	Pk	Horizontal
3981.58	35.73	44.20	7.90	29.70	-6.60	29.13	54.00	-24.87	AV	Horizontal
7227.58	37.18	43.50	11.40	35.50	3.40	40.58	68.20	-27.62	Pk	Vertical
7227.58	34.73	43.50	11.40	35.50	3.40	38.13	54.00	-15.87	AV	Vertical
7223.25	36.80	43.50	11.40	35.50	3.40	40.20	68.20	-28.00	Pk	Horizontal
7223.25	34.08	43.50	11.40	35.50	3.40	37.48	54.00	-16.52	AV	Horizontal
10480.26	38.82	44.50	13.80	38.80	8.10	46.92	68.20	-21.28	Pk	Vertical
10480.26	36.58	44.50	13.80	38.80	8.10	44.68	54.00	-9.32	AV	Vertical
10480.03	39.16	44.50	13.80	38.80	8.10	47.26	68.20	-20.94	Pk	Horizontal
10480.03	36.06	44.50	13.80	38.80	8.10	44.16	54.00	-9.84	AV	Horizontal
11022.63	32.86	43.60	14.30	39.50	10.20	43.06	68.20	-25.14	Pk	Vertical
11022.63	30.38	43.60	14.30	39.50	10.20	40.58	54.00	-13.42	AV	Vertical
11029.56	33.77	43.60	14.30	39.50	10.20	43.97	68.20	-24.23	Pk	Horizontal
11029.56	29.78	43.60	14.30	39.50	10.20	39.98	54.00	-14.02	AV	Horizontal
13296.29	32.58	42.60	15.90	38.90	12.20	44.78	68.20	-23.42	Pk	Vertical
13296.29	28.57	42.60	15.90	38.90	12.20	40.77	54.00	-13.23	AV	Vertical
13297.31	32.78	42.60	15.90	38.90	12.20	44.98	68.20	-23.22	Pk	Horizontal
13297.31	29.63	42.60	15.90	38.90	12.20	41.83	54.00	-12.17	AV	Horizontal

Remark:

1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

2. Scan with 802.11a,802.11n (HT-20),802.11n (HT-40), 802.11ac (VHT-20),802.11ac (VHT-40), 802.11ac (VHT-80) the worst case is 802.11a.

3. The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.

4. Pre-scan both the SISO and MIMO mode, only the worst-case results were reported

Band IV(5.725-5.850) GHz

Frequency (MHz)	Reading (dBuV)	Amplifier （dB）	Loss （dB）	Antenna Factor （dB/m）	Orrected Factor （dB）	Emission Level (dBµV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
Low Channel (802.11a/ 5180 MHz)										
3255.58	44.74	44.70	6.70	28.20	-9.80	34.94	68.20	-33.26	Pk	Vertical
3255.58	41.56	44.70	6.70	28.20	-9.80	31.76	54.00	-22.24	AV	Vertical
3250.35	44.98	44.70	6.70	28.20	-9.80	35.18	68.20	-33.02	Pk	Horizontal
3250.35	42.22	44.70	6.70	28.20	-9.80	32.42	54.00	-21.58	AV	Horizontal
3995.54	38.87	44.20	7.90	29.70	-6.60	32.27	68.20	-35.93	Pk	Vertical
3995.54	37.12	44.20	7.90	29.70	-6.60	30.52	54.00	-23.48	AV	Vertical
3985.46	39.08	44.20	7.90	29.70	-6.60	32.48	68.20	-35.72	Pk	Horizontal
3985.46	35.65	44.20	7.90	29.70	-6.60	29.05	54.00	-24.95	AV	Horizontal
7216.93	36.95	43.50	11.40	35.50	3.40	40.35	68.20	-27.85	Pk	Vertical
7216.93	34.38	43.50	11.40	35.50	3.40	37.78	54.00	-16.22	AV	Vertical
7231.47	37.79	43.50	11.40	35.50	3.40	41.19	68.20	-27.01	Pk	Horizontal
7231.47	33.46	43.50	11.40	35.50	3.40	36.86	54.00	-17.14	AV	Horizontal
10360.07	39.74	44.50	13.80	38.80	8.10	47.84	68.20	-20.36	Pk	Vertical
10360.07	37.05	44.50	13.80	38.80	8.10	45.15	54.00	-8.85	AV	Vertical
10360.41	40.14	44.50	13.80	38.80	8.10	48.24	68.20	-19.96	Pk	Horizontal
10360.41	35.93	44.50	13.80	38.80	8.10	44.03	54.00	-9.97	AV	Horizontal
11020.95	32.93	43.60	14.30	39.50	10.20	43.13	68.20	-25.07	Pk	Vertical
11020.95	30.17	43.60	14.30	39.50	10.20	40.37	54.00	-13.63	AV	Vertical
11020.65	33.35	43.60	14.30	39.50	10.20	43.55	68.20	-24.65	Pk	Horizontal
11020.65	31.16	43.60	14.30	39.50	10.20	41.36	54.00	-12.64	AV	Horizontal
13280.73	32.76	42.60	15.90	38.90	12.20	44.96	68.20	-23.24	Pk	Vertical
13280.73	30.01	42.60	15.90	38.90	12.20	42.21	54.00	-11.79	AV	Vertical
13295.66	31.68	42.60	15.90	38.90	12.20	43.88	68.20	-24.32	Pk	Horizontal
13295.66	29.75	42.60	15.90	38.90	12.20	41.95	54.00	-12.05	AV	Horizontal

Mid Channel (802.11a/ 5200 MHz)										
3247.58	43.86	44.70	6.70	28.20	-9.80	34.06	68.20	-34.14	Pk	Vertical
3247.58	41.18	44.70	6.70	28.20	-9.80	31.38	54.00	-22.62	AV	Vertical
3256.22	44.77	44.70	6.70	28.20	-9.80	34.97	68.20	-33.23	Pk	Horizontal
3256.22	41.39	44.70	6.70	28.20	-9.80	31.59	54.00	-22.41	AV	Horizontal
3992.93	38.90	44.20	7.90	29.70	-6.60	32.30	68.20	-35.90	Pk	Vertical
3992.93	35.85	44.20	7.90	29.70	-6.60	29.25	54.00	-24.75	AV	Vertical
3981.51	38.64	44.20	7.90	29.70	-6.60	32.04	68.20	-36.16	Pk	Horizontal
3981.51	36.12	44.20	7.90	29.70	-6.60	29.52	54.00	-24.48	AV	Horizontal
7227.20	37.48	43.50	11.40	35.50	3.40	40.88	68.20	-27.32	Pk	Vertical
7227.20	34.29	43.50	11.40	35.50	3.40	37.69	54.00	-16.31	AV	Vertical
7226.54	37.82	43.50	11.40	35.50	3.40	41.22	68.20	-26.98	Pk	Horizontal
7226.54	34.58	43.50	11.40	35.50	3.40	37.98	54.00	-16.02	AV	Horizontal
10400.16	38.86	44.50	13.80	38.80	8.10	46.96	68.20	-21.24	Pk	Vertical
10400.16	36.62	44.50	13.80	38.80	8.10	44.72	54.00	-9.28	AV	Vertical
10400.35	39.78	44.50	13.80	38.80	8.10	47.88	68.20	-20.32	Pk	Horizontal
10400.35	37.05	44.50	13.80	38.80	8.10	45.15	54.00	-8.85	AV	Horizontal
11026.62	33.99	43.60	14.30	39.50	10.20	44.19	68.20	-24.01	Pk	Vertical
11026.62	30.98	43.60	14.30	39.50	10.20	41.18	54.00	-12.82	AV	Vertical
11021.36	33.28	43.60	14.30	39.50	10.20	43.48	68.20	-24.72	Pk	Horizontal
11021.36	31.12	43.60	14.30	39.50	10.20	41.32	54.00	-12.68	AV	Horizontal
13286.09	32.29	42.60	15.90	38.90	12.20	44.49	68.20	-23.71	Pk	Vertical
13286.09	29.34	42.60	15.90	38.90	12.20	41.54	54.00	-12.46	AV	Vertical
13289.84	32.31	42.60	15.90	38.90	12.20	44.51	68.20	-23.69	Pk	Horizontal
13289.84	29.74	42.60	15.90	38.90	12.20	41.94	54.00	-12.06	AV	Horizontal

High Channel (802.11a/ 5240 MHz)										
3249.44	44.35	44.70	6.70	28.20	-9.80	34.55	68.20	-33.65	Pk	Vertical
3249.44	41.93	44.70	6.70	28.20	-9.80	32.13	54.00	-21.87	AV	Vertical
3265.23	44.72	44.70	6.70	28.20	-9.80	34.92	68.20	-33.28	Pk	Horizontal
3265.23	42.00	44.70	6.70	28.20	-9.80	32.20	54.00	-21.80	AV	Horizontal
3995.86	38.75	44.20	7.90	29.70	-6.60	32.15	68.20	-36.05	Pk	Vertical
3995.86	35.70	44.20	7.90	29.70	-6.60	29.10	54.00	-24.90	AV	Vertical
3995.87	39.06	44.20	7.90	29.70	-6.60	32.46	68.20	-35.74	Pk	Horizontal
3995.87	36.22	44.20	7.90	29.70	-6.60	29.62	54.00	-24.38	AV	Horizontal
7223.53	37.43	43.50	11.40	35.50	3.40	40.83	68.20	-27.37	Pk	Vertical
7223.53	34.39	43.50	11.40	35.50	3.40	37.79	54.00	-16.21	AV	Vertical
7232.72	37.54	43.50	11.40	35.50	3.40	40.94	68.20	-27.26	Pk	Horizontal
7232.72	34.19	43.50	11.40	35.50	3.40	37.59	54.00	-16.41	AV	Horizontal
10480.38	39.96	44.50	13.80	38.80	8.10	48.06	68.20	-20.14	Pk	Vertical
10480.38	36.06	44.50	13.80	38.80	8.10	44.16	54.00	-9.84	AV	Vertical
10480.10	39.03	44.50	13.80	38.80	8.10	47.13	68.20	-21.07	Pk	Horizontal
10480.10	36.56	44.50	13.80	38.80	8.10	44.66	54.00	-9.34	AV	Horizontal
11018.61	33.09	43.60	14.30	39.50	10.20	43.29	68.20	-24.91	Pk	Vertical
11018.61	30.22	43.60	14.30	39.50	10.20	40.42	54.00	-13.58	AV	Vertical
11020.24	32.81	43.60	14.30	39.50	10.20	43.01	68.20	-25.19	Pk	Horizontal
11020.24	30.40	43.60	14.30	39.50	10.20	40.60	54.00	-13.40	AV	Horizontal
13281.62	32.33	42.60	15.90	38.90	12.20	44.53	68.20	-23.67	Pk	Vertical
13281.62	29.63	42.60	15.90	38.90	12.20	41.83	54.00	-12.17	AV	Vertical
13295.29	32.39	42.60	15.90	38.90	12.20	44.59	68.20	-23.61	Pk	Horizontal
13295.29	29.18	42.60	15.90	38.90	12.20	41.38	54.00	-12.62	AV	Horizontal

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Scan with 802.11a,802.11n (HT-20),802.11n (HT-40), 802.11ac (VHT-20),802.11ac (VHT-40), 802.11ac (VHT-80) the worst case is 802.11a.
3. The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.
4. Pre-scan both the SISO and MIMO mode, only the worst-case results were reported.
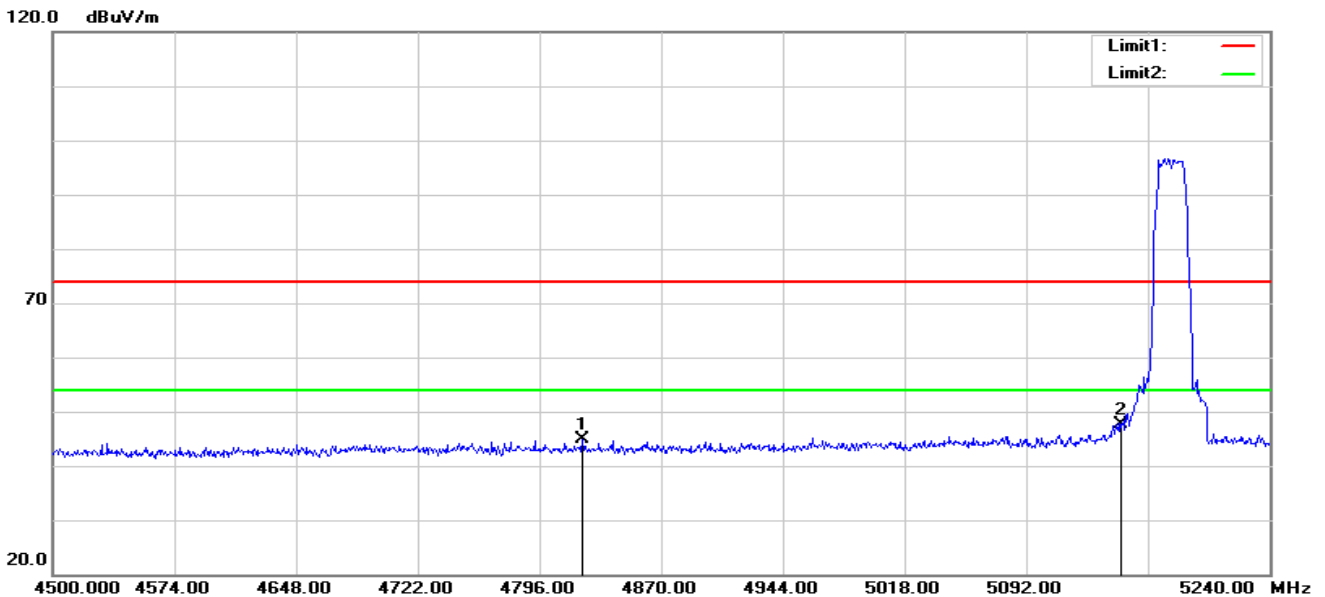
3.2.9 Band Edge

Band I 5150-5250MHz

802.11a Low

Horizontal
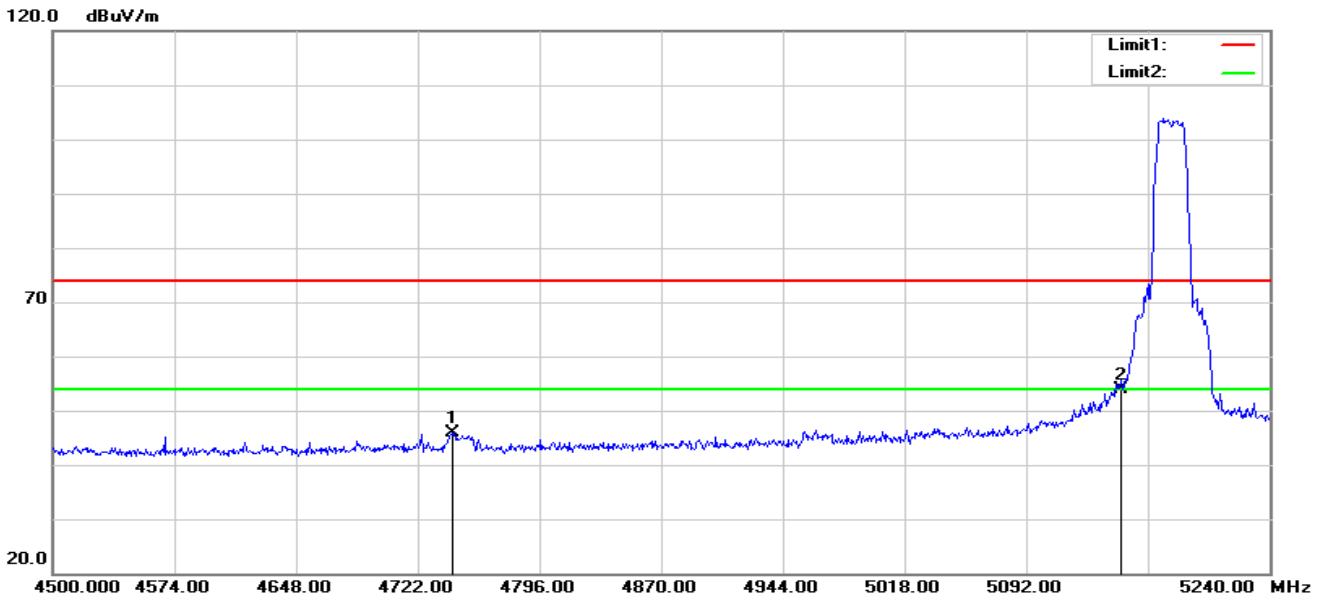
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4743.460	53.08	-7.30	45.78	74.00	-28.22	peak
2	5150.000	59.60	-5.73	53.87	74.00	-20.13	peak

Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4821.900	51.95	-7.14	44.81	74.00	-29.19	peak
2	5150.000	53.38	-5.73	47.65	74.00	-26.35	peak

802.11a High
Horizontal
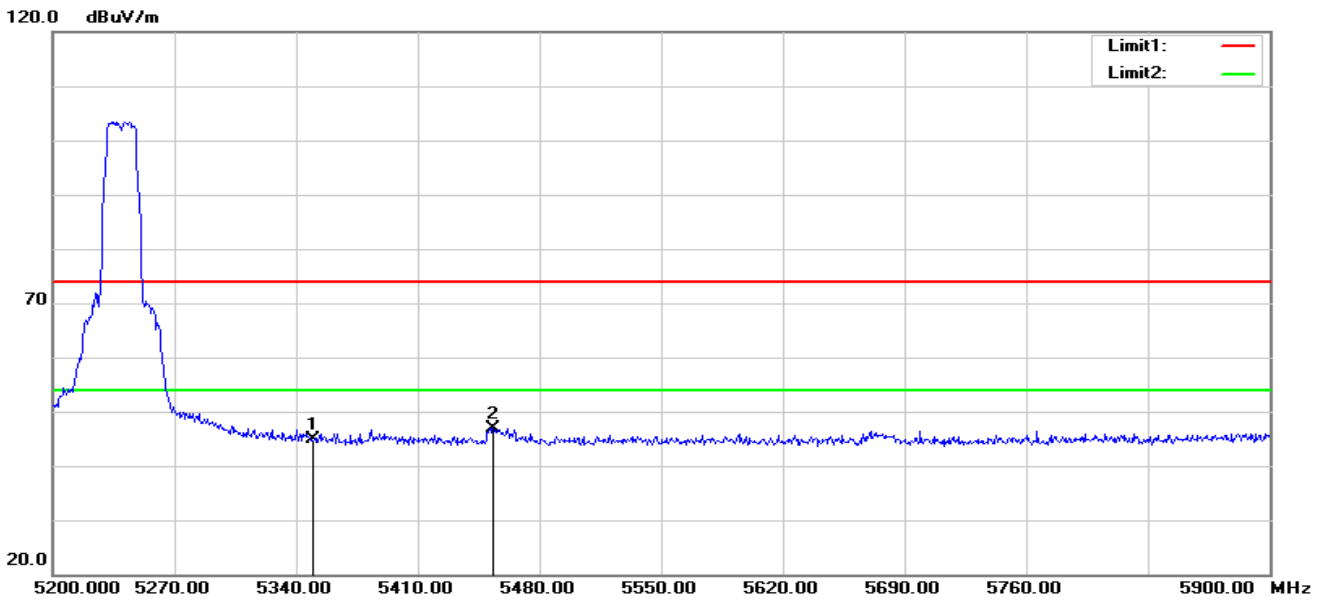
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	50.19	-5.23	44.96	74.00	-29.04	peak
2	5453.400	52.07	-5.13	46.94	74.00	-27.06	peak

Vertical
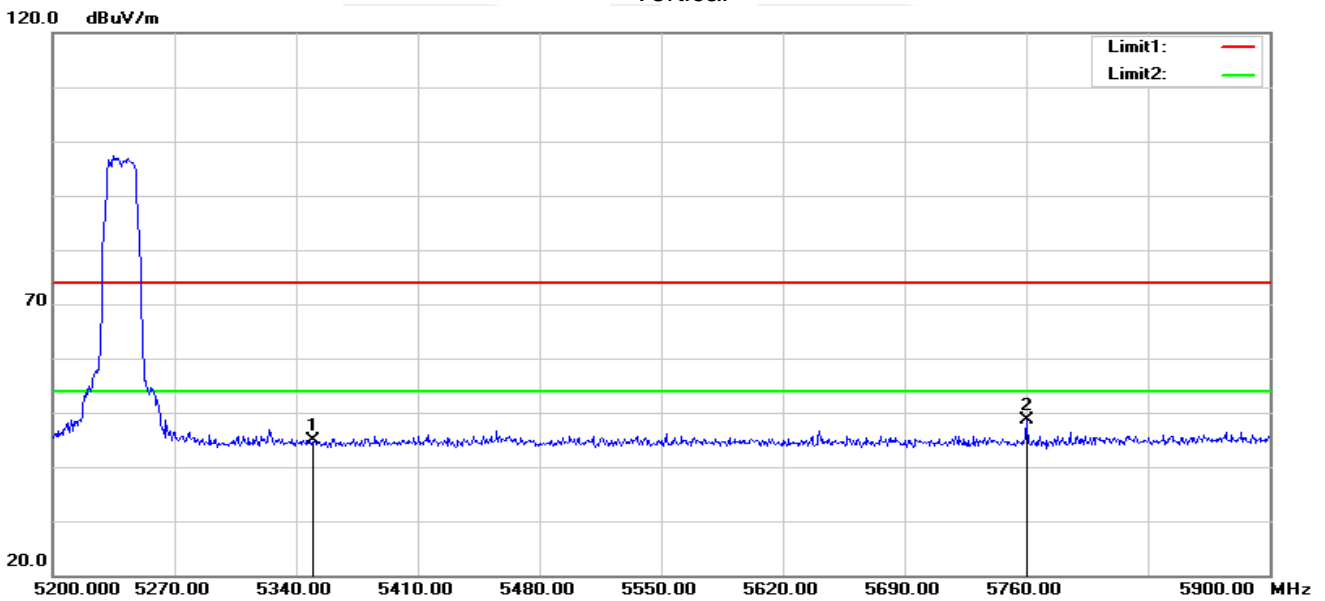
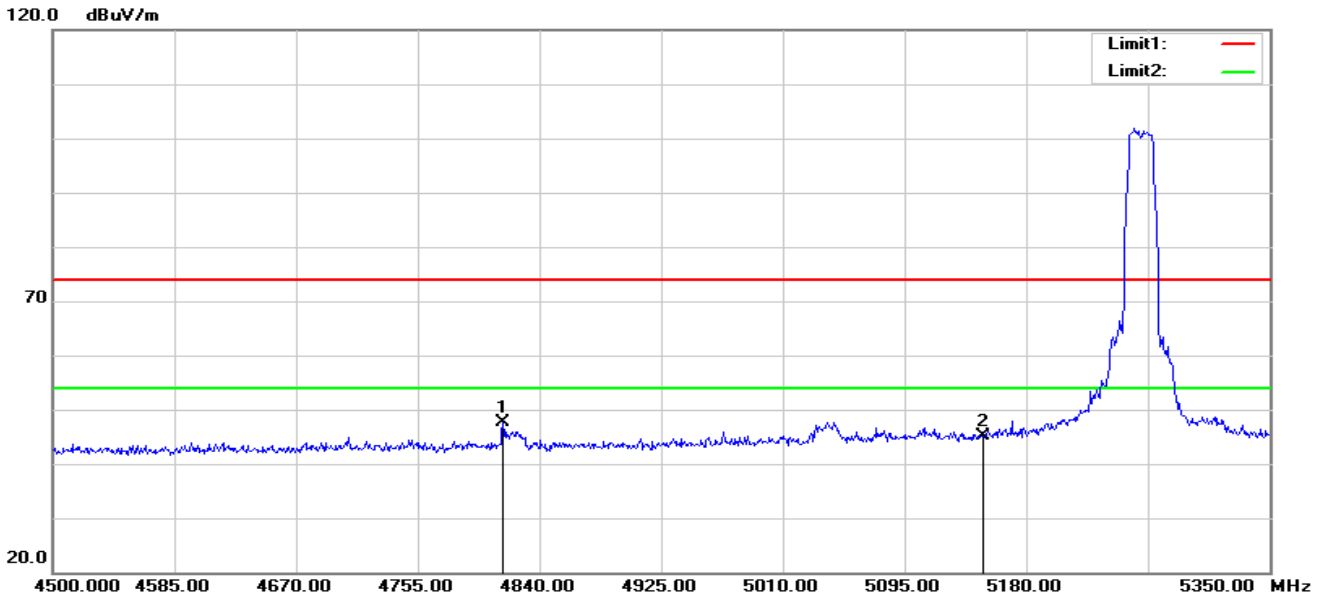| No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	50.03	-5.23	44.80	74.00	-29.20	peak
2	5760.000	53.06	-4.45	48.61	74.00	-25.39	peak

Note: 1.802.11a,802.11n (HT-20),802.11n (HT-40), 802.11ac (VHT-20),802.11ac (VHT-40), 802.11ac (VHT-80) all has been tested, the worst case is 802.11a,only shown the worst case.
2. Pre-scan both the SISO and MIMO mode, only the worst-case results were reported.

Band II 5250-5350MHz

802.11a Low
Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4814.500	54.75	-7.16	47.59	74.00	-26.41	peak
2	5150.000	50.82	-5.73	45.09	74.00	-28.91	peak

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	4640.250	53.71	-7.67	46.04	74.00	-27.96	peak
2	5150.000	50.39	-5.73	44.66	74.00	-29.34	peak

802.11a High
Horizontal
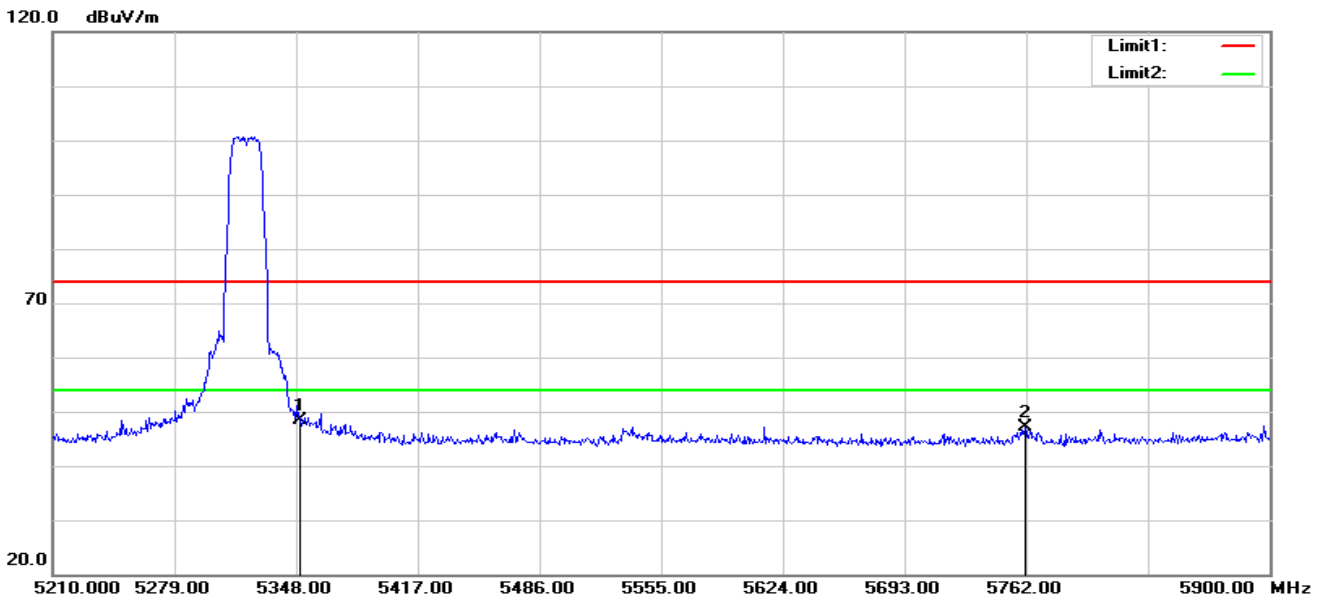
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	53.68	-5.23	48.45	74.00	-25.55	peak
2	5761.310	51.65	-4.45	47.20	74.00	-26.80	peak

Vertical
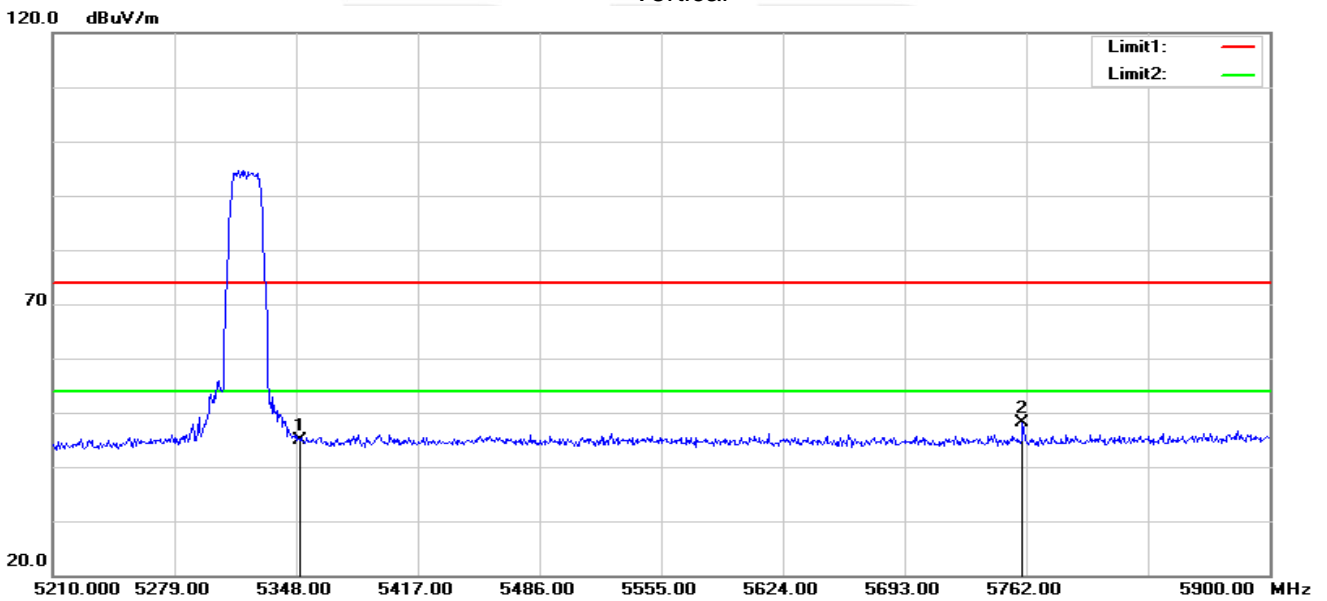
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5350.000	50.05	-5.23	44.82	74.00	-29.18	peak
2	5759.930	52.57	-4.45	48.12	74.00	-25.88	peak

Note: 1.802.11a,802.11n (HT-20),802.11n (HT-40), 802.11ac (VHT-20),802.11ac (VHT-40), 802.11ac (VHT-80) all has been tested, the worst case is 802.11a,only shown the worst case.
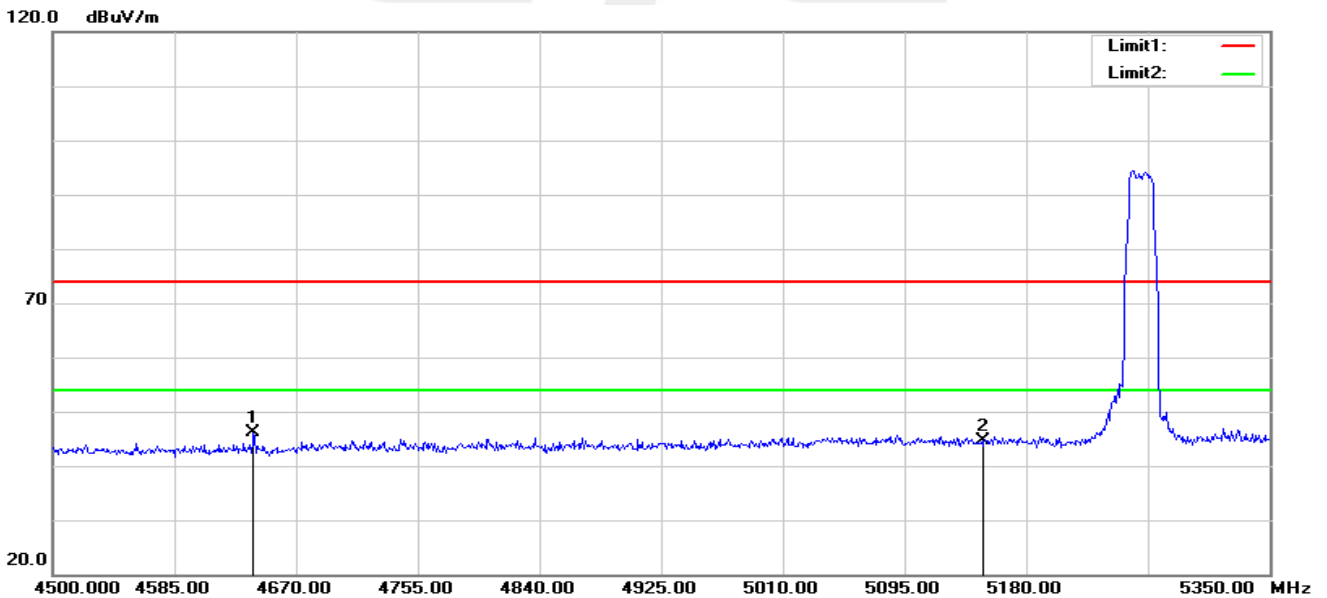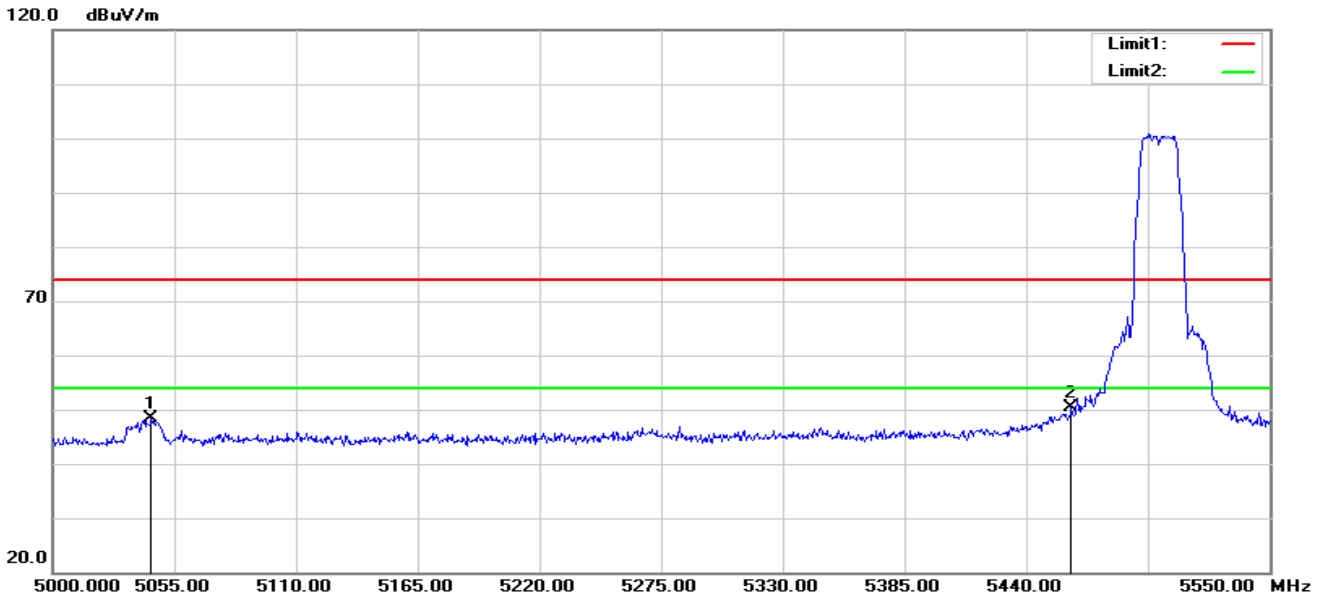2. Pre-scan both the SISO and MIMO mode, only the worst-case results were reported.

Band III 5470-5725MHz

802.11a Low
Horizontal

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5044.550	54.27	-5.99	48.28	74.00	-25.72	peak
2	5460.000	55.51	-5.11	50.40	74.00	-23.60	peak

Vertical

No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5316.800	52.42	-5.22	47.20	74.00	-26.80	peak
2	5460.000	51.17	-5.11	46.06	74.00	-27.94	peak

802.11a High
Horizontal
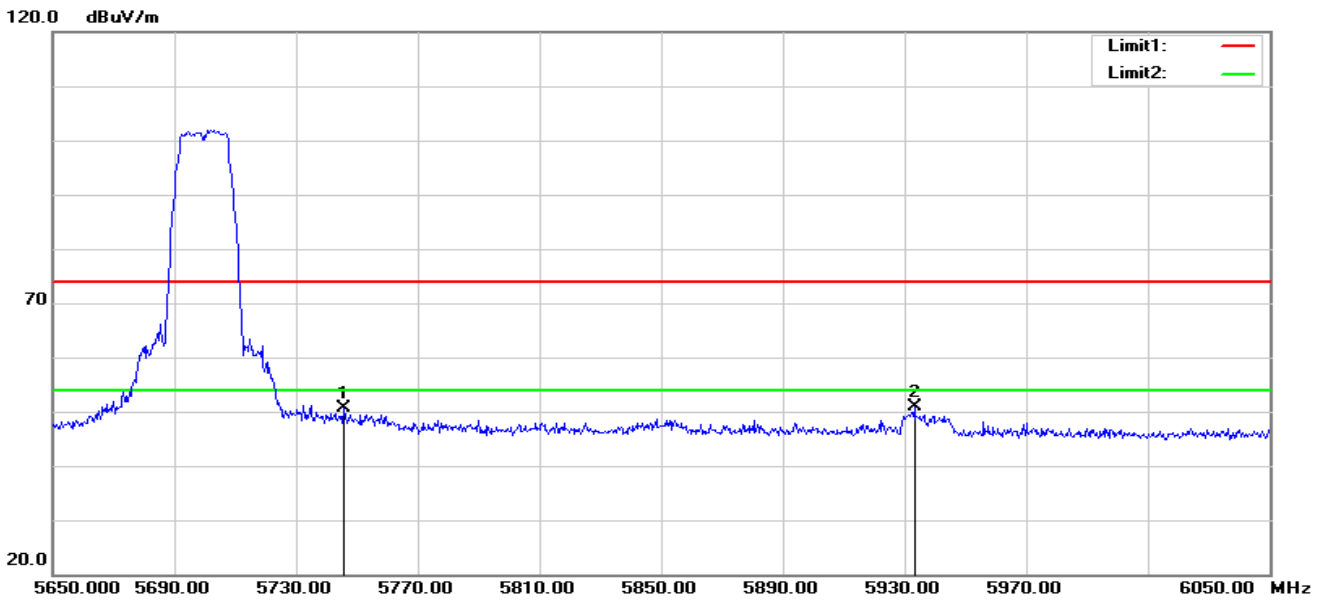
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5745.600	55.24	-4.51	50.73	74.00	-23.27	peak
2	5933.200	54.81	-3.94	50.87	74.00	-23.13	peak

Vertical
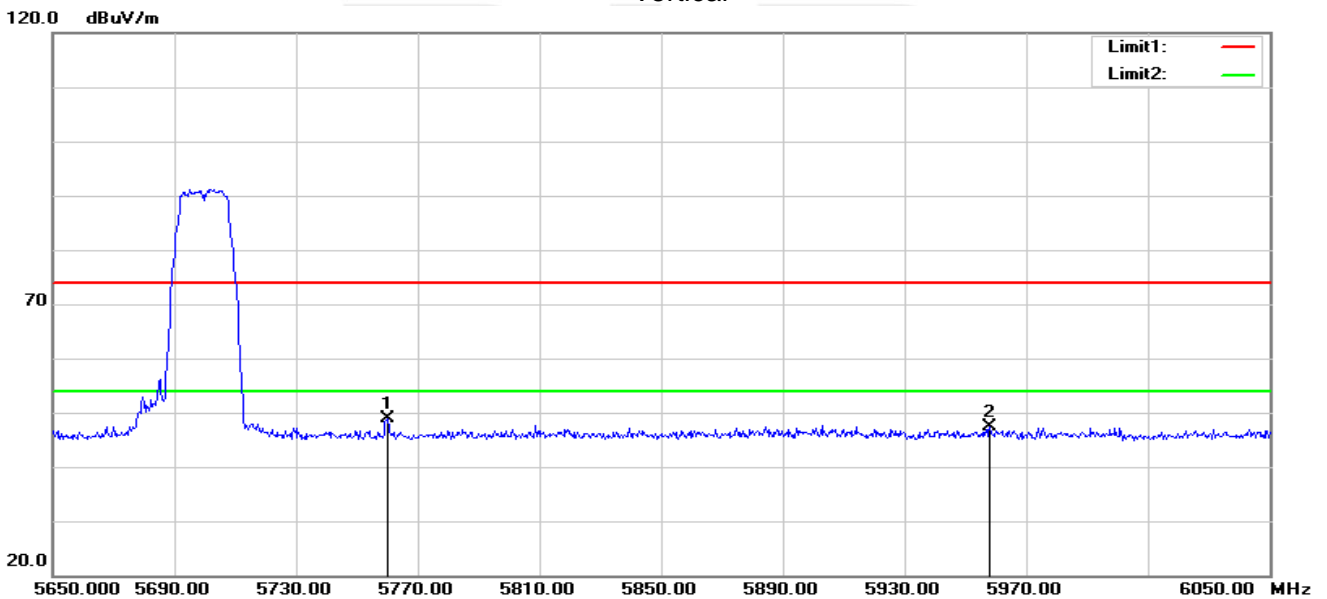
No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
1	5760.000	53.21	-4.45	48.76	74.00	-25.24	peak
2	5958.000	51.45	-3.98	47.47	74.00	-26.53	peak

Note: 1.802.11a,802.11n (HT-20),802.11n (HT-40), 802.11ac (VHT-20),802.11ac (VHT-40), 802.11ac (VHT-80) all has been tested, the worst case is 802.11a,only shown the worst case.

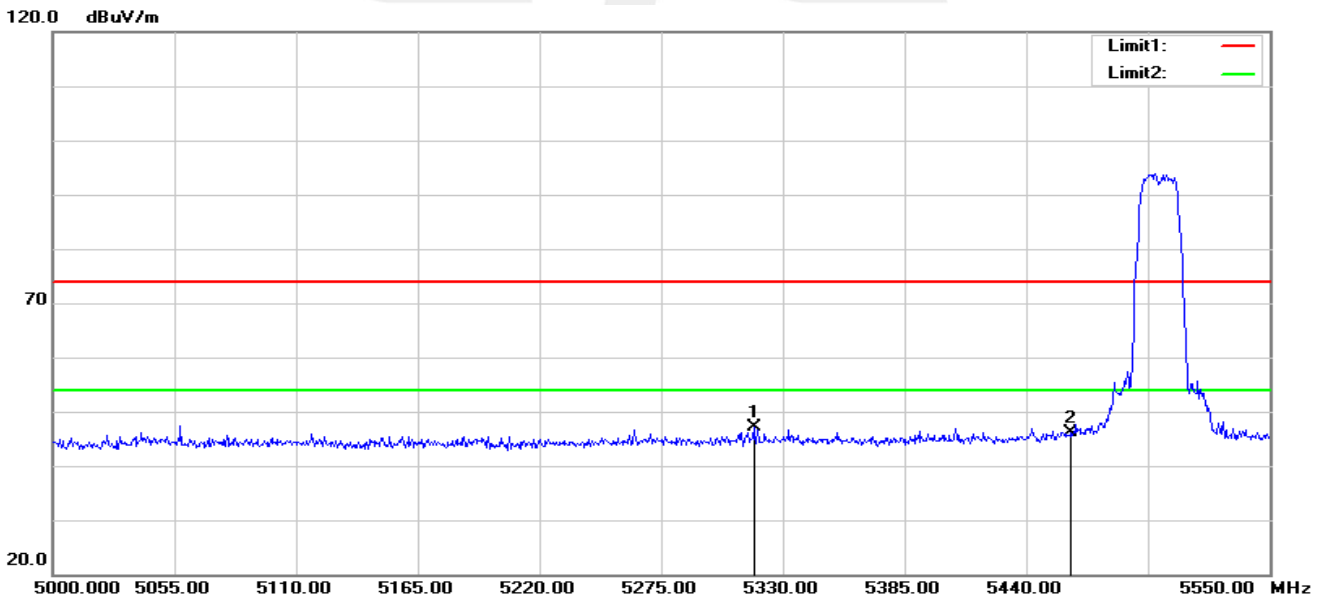2. Pre-scan both the SISO and MIMO mode, only the worst-case results were reported.

Band IV(5.725-5.85 GHz)

Note: The main frequency is too far away from the restricted band and does not require testing.

4. Conducted Spurious Emissions and bandedge

4.1 LIMIT

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) 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.

4.2 TEST PROCEDURE

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	30 MHz to 10th carrier harmonic
RB / VB (emission in restricted band)	1000 KHz/3000 KHz
Trace-Mode:	Max hold

.   For Band edge

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	Lower Band Edge: 5700 to 5725 MHz
	Upper Band Edge: 5850 to 5870 MHz
RB / VB (emission in restricted band)	1000 KHz/3000 KHz
Trace-Mode:	Max hold

4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP

Spectrum Analyzer   **EUT**
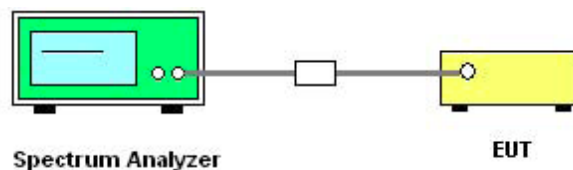
The EUT which is powered by the Battery, is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading.
Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 1000 kHz. In order to make an accurate measurement, set the span greater than RBW.

4.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

4.6 TEST RESULTS

Data See Attachment A

5. POWER SPECTRAL DENSITY TEST

5.1 LIMIT

1. For mobile and portable client devices in the 5.15-5.25 GHz band, , the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

2. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

3. For the band 5.725-5.850 GHz, the peak power spectral density shall not exceed 30 dBm in any 500KHz band. If transmitting antenna directional gain is greater than 6 dBi, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

5.2 TEST PROCEDURE

1. The setting follows Method SA-1 of FCC KDB D02 General UNII Test Procedures New Rules v01r03.

For devices operating in the band, the rules specify a measurement bandwidth of 500 kHz. Many spectrum analyzers do not have 500 kHz RBW, thus a narrower RBW may need to be used. The rules permit the use of a RBWs less than 1 MHz, or 500 kHz, "provided that the measured power is integrated over the full reference bandwidth" to show the total power over the specified measurement bandwidth (*i.e.,* 1 MHz, or 500 kHz). If measurements are performed using a reduced resolution bandwidth (< 1 MHz, or < 500 kHz) and integrated over 1 MHz, or 500 KHz bandwidth, the following adjustments to the procedures apply:

a) Set RBW ≥ 1/T, where T is defined in section II.B.l.a).

b) Set VBW ≥ 3 RBW.

c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add 10 log (500kHz/RBW) to the measured result, whereas RBW (< 500 kHz) is the reduced resolution bandwidth of the spectrum analyzer set during measurement.

d) If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10 log (1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

Note: As a practical matter, it is recommended to use reduced RBW of 100 kHz for the sections5.c) and 5.d) above, since RBW=100 KHZ is available on nearly all spectrum analyzers.

5.3 DEVIATION FROM STANDARD
No deviation.
5.4 TEST SETUP


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EUT ————————————— SPECTRUM ANALYZER
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5.5 EUT OPERATION CONDITIONS
The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

5.6 TEST RESULTS

5150-5250MHz									
Frequency	Ant_A Power DensitydBm)	Ant_B Power Density(dBm)	Ant_A Duty cycle factor	Ant_B Duty cycle factor	Ant_A Power Density(dBm)	Ant_B Power Density(dBm)	Power Density Total(dBm)	Limit	Result
802.11a									
5180	4.386	4.136	0.24	0.24	4.626	4.376	--	11	PASS
5200	4.003	3.897	0.24	0.24	4.243	4.137	--	11	PASS
5240	4.611	4.391	0.24	0.24	4.851	4.631	--	11	PASS
802.11n20									
5180	4.229	4.367	0.39	0.41	4.619	4.777	7.709	9.49	PASS
5200	4.006	4.002	0.39	0.41	4.396	4.412	7.414	9.49	PASS
5240	5.569	5.482	0.39	0.41	5.959	5.892	8.936	9.49	PASS
802.11n40									
5190	0.135	2.234	0.82	0.81	0.955	3.044	5.134	9.49	PASS
5230	-0.109	1.967	0.82	0.81	0.711	2.777	4.876	9.49	PASS
802.11ac20									
5180	4.148	4.237	0.42	0.39	4.568	4.627	7.608	9.49	PASS
5200	4.237	4.320	0.42	0.39	4.657	4.710	7.694	9.49	PASS
5240	5.149	5.027	0.42	0.39	5.569	5.417	8.504	9.49	PASS
802.11ac40									
5190	-0.276	-0.269	0.82	0.82	0.544	0.551	3.558	9.49	PASS
5230	0.229	0.128	0.82	0.82	1.049	0.948	4.009	9.49	PASS
802.11ac80									
5210	-3.672	-3.406	1.54	1.55	-2.132	-1.856	1.018	9.49	PASS

5250-5350MHz									
Frequency	Ant_A Power DensitydBm)	Ant_B Power Density(dBm)	Ant_A Duty cycle factor	Ant_B Duty cycle factor	Ant_A Power Density(dBm)	Ant_B Power Density(dBm)	Power Density Total(dBm)	Limit	Result
802.11a									
5260	2.684	2.164	0.24	0.24	2.924	2.404	--	11	PASS
5300	2.719	1.813	0.24	0.24	2.959	2.053	--	11	PASS
5320	3.467	2.527	0.24	0.24	3.707	2.767	--	11	PASS
802.11n20									
5260	3.245	2.534	0.39	0.41	3.635	2.944	6.314	9.49	PASS
5300	2.824	2.298	0.39	0.41	3.214	2.708	5.979	9.49	PASS
5320	3.306	2.654	0.39	0.41	3.696	3.064	6.402	9.49	PASS
802.11n40									
5270	0.636	2.712	0.82	0.81	1.456	3.522	5.621	9.49	PASS
5310	0.640	2.683	0.82	0.81	1.460	3.493	5.605	9.49	PASS
802.11ac20									
5260	3.850	3.146	0.39	0.41	4.240	3.556	6.922	9.49	PASS
5300	3.182	2.195	0.39	0.41	3.572	2.605	6.126	9.49	PASS
5320	3.721	2.864	0.39	0.41	4.111	3.274	6.723	9.49	PASS
802.11ac40									
5270	0.405	0.512	0.82	0.81	1.225	1.322	4.284	9.49	PASS
5310	0.675	0.497	0.82	0.81	1.495	1.307	4.412	9.49	PASS
802.11ac80									
5290	-3.157	-4.038	1.54	1.55	-1.617	-2.488	0.980	9.49	PASS

Frequency	Ant_A Power Densityd Bm)	Ant_B Power Density(d Bm)	Ant_A Duty cycle factor	Ant_B Duty cycle factor	Ant_A Power Density(dBm)	Ant_B Power Density(dBm)	Power Density Total(dB m)	Limit	Result
5470-5725MHz									
802.11a									
5500	5.227	4.326	0.24	0.24	5.467	4.566	--	11	PASS
5580	4.826	3.750	0.24	0.24	5.066	3.990	--	11	PASS
5700	3.885	2.764	0.24	0.24	4.125	3.004	--	11	PASS
802.11n20									
5500	5.036	4.032	0.39	0.41	5.426	4.442	7.972	9.49	PASS
5580	4.758	3.764	0.39	0.41	5.148	4.174	7.699	9.49	PASS
5700	3.666	2.680	0.39	0.41	4.056	3.090	6.610	9.49	PASS
802.11n40									
5510	3.140	2.237	0.39	0.41	3.530	2.647	6.121	9.49	PASS
5550	5.006	4.001	0.39	0.41	5.396	4.411	7.942	9.49	PASS
5670	2.458	1.512	0.39	0.41	2.848	1.922	5.420	9.49	PASS
802.11ac20									
5500	5.233	4.305	0.39	0.41	5.623	4.715	8.203	9.49	PASS
5580	5.131	4.138	0.39	0.41	5.521	4.548	8.072	9.49	PASS
5700	3.989	3.007	0.39	0.41	4.379	3.417	6.935	9.49	PASS
802.11ac40									
5510	1.827	0.768	0.39	0.41	2.217	1.178	4.739	9.49	PASS
5550	0.732	-0.326	0.39	0.41	1.122	0.084	3.644	9.49	PASS
5670	-0.182	-1.234	0.39	0.41	0.208	-0.824	2.733	9.49	PASS
802.11ac80									
5530	0.277	-0.816	0.82	0.81	1.097	-0.006	3.591	9.49	PASS
5610	-2.390	-3.421	0.82	0.81	-1.570	-2.611	0.951	9.49	PASS

Frequency	Ant_A Power DensitydB m)	Ant_B Power Density(dBm)	Ant_A Duty cycle factor	Ant_B Duty cycle factor	Ant_A Power Density(dBm)	Ant_B Power Density(dBm)	Power Density Total(dB m)	Limit	Result
5725-5850MHz
802.11a
5745	1.192	0.390	0.24	0.25	1.432	0.640	--	30	PASS
5785	1.045	0.625	0.24	0.25	1.285	0.875	--	30	PASS
5825	0.601	-0.217	0.24	0.25	0.841	0.033	--	30	PASS
802.11n20
5745	0.977	0.194	0.39	0.39	1.367	0.584	4.003	28.49	PASS
5785	1.039	0.432	0.39	0.39	1.429	0.822	4.146	28.49	PASS
5825	0.519	0.238	0.39	0.39	0.909	0.628	3.781	28.49	PASS
802.11n40
5755	-3.610	-4.789	0.82	0.82	-2.790	-3.969	-0.329	28.49	PASS
5795	-3.879	-4.905	0.82	0.82	-3.059	-4.085	-0.531	28.49	PASS
802.11ac20
5745	1.306	0.659	0.4	0.39	1.706	1.049	4.400	28.49	PASS
5785	0.951	0.264	0.4	0.39	1.351	0.654	4.027	28.49	PASS
5825	1.047	0.381	0.4	0.39	1.447	0.771	4.132	28.49	PASS
802.11ac40
5755	-2.605	-3.598	0.8	0.8	-1.805	-2.798	0.737	28.49	PASS
5795	-3.748	-4.837	0.8	0.8	-2.948	-4.037	-0.448	28.49	PASS
802.11ac80
5775	-4.683	-5.782	1.55	1.54	-3.133	-4.242	-0.642	28.49	PASS

Test plot see Attachment B

6. BANDWIDTH MEASUREMENT

6.1 EMISSION BANDWIDTH (EBW) 26 BANDWID PROCEDURES / LIMIT

See list of measuring instruments of this test report.

6.1.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01
2. Set RBW = approximately 1% of the emission bandwidth.
3. Set the VBW > =RBW.
4. Detector = Peak.
5. Trace mode = max hold.
6. Measure the maximum width of the emission that is 26 dB down from the peak of the emission.
Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement
as needed until the RBW/EBW ratio is approximately 1%.

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP
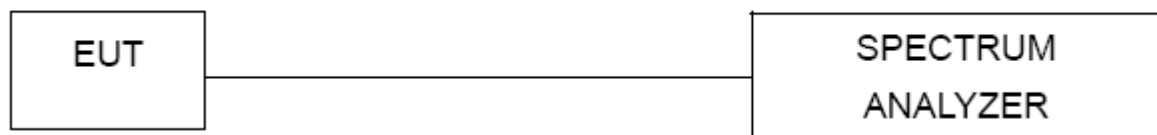
6.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special
operating condition is specified in the follows during the testing.

6.1.5 TEST RESULTS

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5180	21.43	Pass
5200	21.37	Pass
5240	21.38	Pass
802.11n(HT20)		
5180	21.65	Pass
5200	21.47	Pass
5240	21.52	Pass
802.11n(HT40)		
5180	40.15	Pass
5200	39.86	Pass
802.11ac(VHT20)		
5180	21.74	Pass
5200	21.75	Pass
5240	21.55	Pass
802.11ac(VHT40)		
5180	40.03	Pass
5200	40.03	Pass
802.11ac(VHT80)		
5210	81.75	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5260	21.44	Pass
5300	21.35	Pass
5320	21.36	Pass
802.11n(HT20)		
5260	21.46	Pass
5300	21.58	Pass
5320	21.60	Pass
802.11n(HT40)		
5270	40.02	Pass
5310	40.02	Pass
802.11ac(VHT20)		
5260	21.52	Pass
5300	21.54	Pass
5320	21.57	Pass
802.11ac(VHT40)		
5270	40.36	Pass
5310	39.98	Pass
802.11ac(VHT80)		
5290	81.99	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5500	21.43	Pass
5580	21.35	Pass
5700	21.46	Pass
802.11n(HT20)		
5500	21.57	Pass
5580	21.46	Pass
5700	21.48	Pass
802.11n(HT40)		
5510	39.95	Pass
5550	39.92	Pass
5670	40.06	Pass
802.11ac(VHT20)		
5500	21.61	Pass
5580	21.58	Pass
5700	21.55	Pass
802.11ac(VHT40)		
5510	39.98	Pass
5550	40.04	Pass
5670	40.00	Pass
802.11ac(VHT80)		
5530	81.42	Pass
5610	81.87	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5745	21.47	Pass
5785	21.38	Pass
5825	21.59	Pass
802.11n(HT20)		
5745	21.66	Pass
5785	21.64	Pass
5825	21.69	Pass
802.11n(HT40)		
5755	39.82	Pass
5795	39.96	Pass
802.11ac(VHT20)		
5745	21.49	Pass
5785	21.77	Pass
5825	21.72	Pass
802.11ac(VHT40)		
5755	40.06	Pass
5795	39.87	Pass
802.11ac(VHT80)		
5775	81.64	Pass

Test plot see Attachment C

6.2 OCCUPIED BANDWIDTH (99%) TEST APPLIED PROCEDURES / LIMIT

The following procedure shall be used for measuring (99 %) power bandwidth:

6.2.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures v02r01.

The following procedure shall be used for measuring (99 %) power bandwidth:

1. Set center frequency to the nominal EUT channel center frequency.

2. Set span = 1.5 times to 5.0 times the OBW.

3. Set RBW = 1 % to 5 % of the OBW

4. Set VBW ≥ 3 · RBW

5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.

6. Use the 99 % power bandwidth function of the instrument (if available).

7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

6.2.2 DEVIATION FROM STANDARD

No deviation.

6.2.3 TEST SETUP
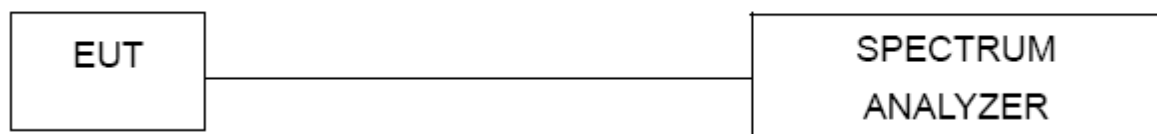
6.2.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.2.5 TEST RESULTS

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5180	16.72	Pass
5200	16.71	Pass
5240	16.70	Pass
802.11n(HT20)		
5180	17.87	Pass
5200	17.87	Pass
5240	17.88	Pass
802.11n(HT40)		
5180	36.31	Pass
5200	36.31	Pass
802.11ac(VHT20)		
5180	17.87	Pass
5200	17.87	Pass
5240	17.84	Pass
802.11ac(VHT40)		
5180	36.31	Pass
5200	36.32	Pass
802.11ac(VHT80)		
5210	75.91	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5260	16.72	Pass
5300	16.70	Pass
5320	16.71	Pass
802.11n(HT20)		
5260	17.84	Pass
5300	17.87	Pass
5320	17.87	Pass
802.11n(HT40)		
5270	36.31	Pass
5310	36.32	Pass
802.11ac(VHT20)		
5260	17.86	Pass
5300	17.86	Pass
5320	17.87	Pass
802.11ac(VHT40)		
5270	36.29	Pass
5310	36.33	Pass
802.11ac(VHT80)		
5290	75.81	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5500	16.71	Pass
5580	16.73	Pass
5700	16.74	Pass
802.11n(HT20)		
5500	17.88	Pass
5580	17.88	Pass
5700	17.87	Pass
802.11n(HT40)		
5510	36.31	Pass
5550	36.30	Pass
5670	36.30	Pass
802.11ac(VHT20)		
5500	17.86	Pass
5580	17.84	Pass
5700	17.88	Pass
802.11ac(VHT40)		
5510	36.30	Pass
5550	36.30	Pass
5670	36.26	Pass
802.11ac(VHT80)		
5530	75.79	Pass
5610	75.82	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5745	16.71	Pass
5785	16.72	Pass
5825	16.74	Pass
802.11n(HT20)		
5745	17.89	Pass
5785	17.87	Pass
5825	17.88	Pass
802.11n(HT40)		
5755	36.30	Pass
5795	36.29	Pass
802.11ac(VHT20)		
5745	17.85	Pass
5785	17.87	Pass
5825	17.88	Pass
802.11ac(VHT40)		
5755	36.28	Pass
5795	36.32	Pass
802.11ac(VHT80)		
5775	75.86	Pass

Test plot See Attachment C

6.3 MINIMUM EMISSION BANDWIDTH(6 DB) PROCEDURES / LIMIT

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.725-5.85 GHz. The following procedure shall be used for measuring this bandwidth:

6.3.1 TEST PROCEDURE

1. The testing follows FCC KDB 789033 D02 General UNII Test Procedures v02r01.

a) Set RBW = 100 kHz.

b) Set the video bandwidth (VBW) ≥ 3 × RBW.

c) Detector = Peak.

d) Trace mode = max hold.

e) Sweep = auto couple.

f) Allow the trace to stabilize.

g) 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.

6.3.2 DEVIATION FROM STANDARD

No deviation.

6.3.3 TEST SETUP

6.3.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.3.5 TEST RESULTS

Frequency (MHz)	6dB Bandwidth (MHz)	Pass/Fail
802.11a		
5745	16.36	Pass
5785	16.37	Pass
5825	16.38	Pass
802.11n(HT20)		
5745	17.61	Pass
5785	17.61	Pass
5825	17.60	Pass
802.11n(HT40)		
5755	36.37	Pass
5795	36.37	Pass
802.11ac(VHT20)		
5745	17.61	Pass
5785	17.63	Pass
5825	17.59	Pass
802.11ac(VHT40)		
5755	36.36	Pass
5795	36.36	Pass
802.11ac(VHT80)		
5775	76.39	Pass

Test plots see Attachment D

7. MAXIMUM CONDUCTED OUTPUT POWER

7.1 LIMIT

For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz,If transmitting antennas of directional gain greater than 6 dBi are used.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used.

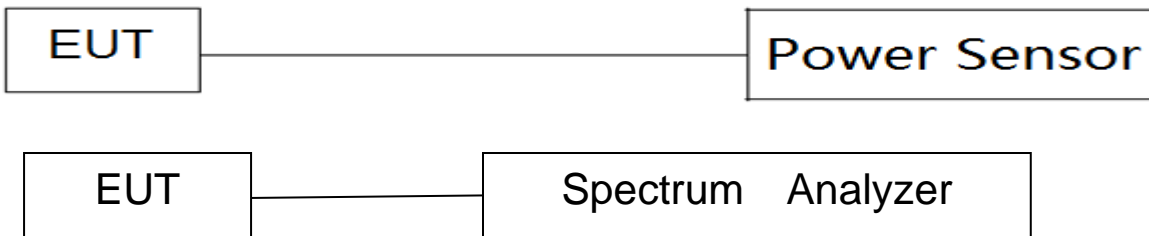| FCC Part15 (15.407) , Subpart E				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.407(a) (1) (iv)	Peak Output Power	0.25 watt	5150-5250	PASS
		The lesser of 250 mW or 11 dBm + 10 log (26 dB emission bandwidth)	5250-5350 5470-5725	
15.407(a) (3)		1 watt	5725-5825	

7.2 TEST PROCEDURE
The EUT was directly connected to the Power Sensor&PC

7.3 DEVIATION FROM STANDARD
No deviation.

7.4 TEST SETUP

7.5 EUT OPERATION CONDITIONS
The EUT tested system was configured as the statements of 5 Unless otherwise a special operating condition is specified in the follows during the testing.

7.6 TEST RESULTS

Band I (5.15-5.25GHz)

Test Channel	Frequency (MHz)	Ant_A AV Power (dBm)	Ant B_AV Power (dBm)	Ant_A Duty cycle factor(dB)	Ant_B Duty cycle factor(dB)	Ant_A AV Power (dBm)	Ant_B AV Power (dBm)	AV Power Total(dBm)	LIMIT (dBm)
Band I (5.15-5.25GHz)									
802.11a									
36	5180	11.62	11.58	0.26	0.26	11.88	11.84	--	23.98
40	5200	11.69	11.59	0.26	0.26	11.95	11.85	--	23.98
48	5240	11.78	11.68	0.26	0.26	12.04	11.94	--	23.98
802.11n(HT20)									
36	5180	11.39	11.43	0.26	0.23	11.65	11.66	14.67	22.47
40	5200	11.52	11.52	0.26	0.23	11.78	11.75	14.78	22.47
48	5240	11.64	11.47	0.26	0.23	11.90	11.70	14.81	22.47
802.11n(HT40)									
38	5190	10.30	13.29	0.56	0.57	10.86	13.86	15.62	22.47
46	5230	10.28	13.24	0.56	0.57	10.84	13.81	15.58	22.47
802.11ac(HT20)									
36	5180	11.36	11.48	0.27	0.28	11.63	11.76	14.71	22.47
40	5200	11.53	11.55	0.27	0.28	11.80	11.83	14.83	22.47
48	5240	11.61	11.50	0.27	0.28	11.88	11.78	14.84	22.47
802.11ac(HT40)									
38	5190	9.34	9.36	0.56	0.58	9.90	9.94	12.93	22.47
46	5230	9.59	9.50	0.56	0.58	10.15	10.08	13.13	22.47
802.11ac(HT80)									
42	5210	7.06	7.10	0.57	0.63	7.63	7.73	10.69	22.47

Note:

1. For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 0.25 W. the MIMO antenna gain is 7.51dBi greater than 6dBi, the limit will reduce 1.51dBi, so, the MIMO mode limit is 22.47dBm.

Test Channel	Frequency (MHz)	Ant_A AV Power (dBm)	Ant B_AV Power (dBm)	Ant_A Duty cycle factor(dB)	PK Power Total(dBm)	AV Power (dBm)	AV Power B(dBm)	AV Power Total(dBm)	LIMIT (dBm)
				Band II(5.25-5.35GHz)					
				802.11a					
52	5260	9.76	9.28	0.24	0.24	10.00	9.52	--	23.98
60	5300	9.86	8.89	0.24	0.24	10.10	9.13	--	23.98
64	5320	9.63	8.89	0.24	0.24	9.87	9.13	--	23.98
				802.11n(HT20)					
52	5260	9.72	9.12	0.26	0.26	9.98	9.38	12.70	22.47
60	5300	9.61	8.98	0.26	0.26	9.87	9.24	12.58	22.47
64	5320	9.67	8.71	0.26	0.26	9.93	8.97	12.49	22.47
				802.11n(HT40)					
54	5270	8.78	10.84	0.57	0.55	9.35	11.39	13.50	22.47
62	5310	8.73	10.87	0.57	0.57	9.30	11.44	13.51	22.47
				802.11ac(HT20)					
52	5260	9.73	9.00	0.27	0.27	10.00	9.27	12.66	22.47
60	5300	9.75	8.74	0.27	0.27	10.02	9.01	12.55	22.47
64	5320	9.55	8.81	0.27	0.27	9.82	9.08	12.48	22.47
				802.11ac(HT40)					
54	5270	9.61	9.66	0.55	0.55	10.16	10.21	13.20	22.47
62	5310	9.56	9.32	0.55	0.55	10.11	9.87	13.00	22.47
				802.11ac(HT80)					
58	5290	7.18	8.08	1.08	1.08	8.26	9.16	11.74	22.47

Note:

1. For mobile and portable client devices in the 5.25-5.35 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 0.25 W. the MIMO antenna gain is 7.51dBi greater than 6dBi, the limit will reduce 1.51dBi, so, the MIMO mode limit is 22.47dBm.

Test Channel	Frequency (MHz)	Ant_A AV Power (dBm)	Ant B_AV Power (dBm)	Ant_A Duty cycle factor(dB)	PK Power Total(dBm)	AV Power (dBm)	AV Power B(dBm)	AV Power Total(dBm)	LIMIT (dBm)
				Band III(5.47-5.725GHz)					
				802.11a					
100	5500	10.31	9.26	0.27	0.27	10.58	9.53	--	23.98
116	5580	9.34	8.48	0.27	0.27	9.61	8.75	--	23.98
140	5700	8.55	7.59	0.27	0.27	8.82	7.86	--	23.98
				802.11n(HT20)					
100	5500	10.13	9.15	0.26	0.26	10.39	9.41	12.94	22.47
116	5580	9.40	8.38	0.26	0.26	9.66	8.64	12.19	22.47
140	5700	8.43	7.55	0.26	0.26	8.69	7.81	11.28	22.47
				802.11n(HT40)					
102	5510	8.67	7.50	0.57	0.57	9.24	8.07	11.70	22.47
110	5550	8.78	7.49	0.57	0.57	9.35	8.06	11.76	22.47
134	5670	8.79	7.56	0.57	0.57	9.36	8.13	11.80	22.47
				802.11ac(HT20)					
100	5500	10.17	9.20	0.25	0.25	10.42	9.45	12.97	22.47
116	5580	9.37	8.25	0.25	0.25	9.62	8.50	12.11	22.47
140	5700	8.53	7.52	0.25	0.25	8.78	7.77	11.31	22.47
				802.11ac(HT40)					
102	5510	9.60	6.06	0.55	0.55	10.15	6.61	11.74	22.47
110	5550	9.52	6.13	0.55	0.55	10.07	6.68	11.71	22.47
134	5670	9.54	6.01	0.55	0.55	10.09	6.56	11.68	22.47
				802.11ac(HT80)					
106	5530	8.28	7.12	1.08	1.08	9.36	8.20	11.83	22.47
122	5610	7.74	6.65	1.08	1.08	8.82	7.73	11.32	22.47

Note:

1. For mobile and portable client devices in the 5.47-5.725 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 0.25 W, the MIMO antenna gain is 7.51dBi greater than 6dBi, the limit will reduce 1.51dBi, so, the MIMO mode limit is 22.47dBm.
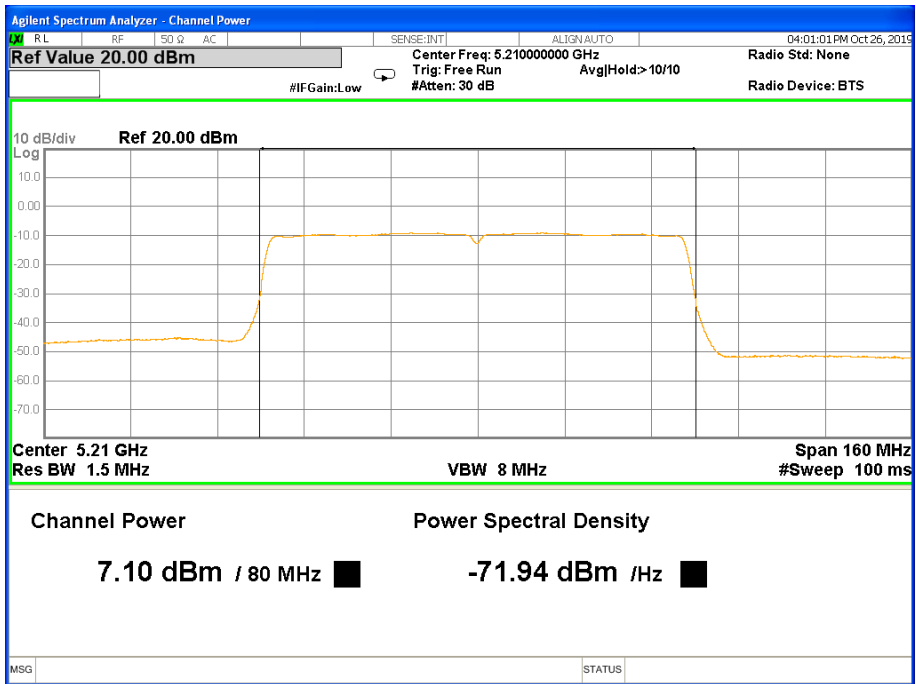
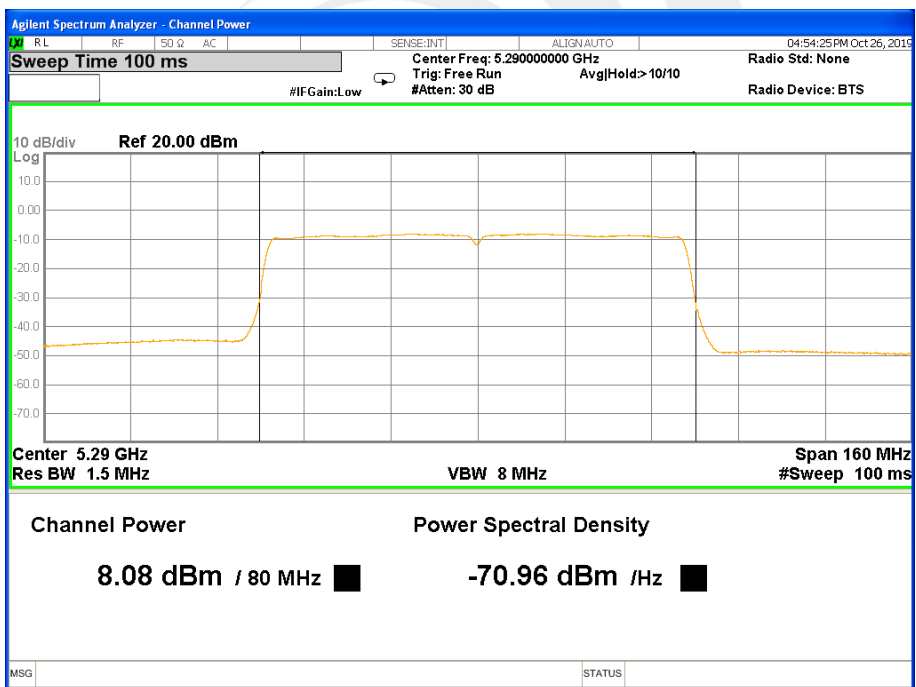| Test Channel	Frequency (MHz)	Ant_A AV Power (dBm)	Ant B_AV Power (dBm)	Ant_A Duty cycle factor(dB)	PK Power Total(dBm)	AV Power (dBm)	AV Power B(dBm)	AV Power Total(dBm)	LIMIT (dBm)
Band IV (5.725-5.85GHz)									
802.11a									
149	5745	6.98	6.21	0.26	0.26	7.24	6.47	--	30
157	5785	6.75	6.19	0.26	0.26	7.01	6.45	--	30
165	5825	6.86	6.08	0.26	0.26	7.12	6.34	--	30
802.11n(HT20)									
149	5745	6.84	6.07	0.25	0.25	7.09	6.32	9.732	30
157	5785	6.78	6.12	0.25	0.25	7.03	6.37	9.723	30
165	5825	6.46	6.17	0.25	0.25	6.71	6.42	9.578	30
802.11n(HT40)									
151	5755	4.62	3.67	0.57	0.57	5.19	4.24	7.751	30
159	5795	4.44	3.60	0.57	0.57	5.01	4.17	7.621	30
802.11ac(HT20)									
149	5745	6.83	6.09	0.28	0.28	7.11	6.37	9.766	30
157	5785	6.76	6.08	0.28	0.28	7.04	6.36	9.724	30
165	5825	6.71	6.02	0.28	0.28	6.99	6.30	9.669	30
802.11ac(HT40)									
151	5755	4.67	3.72	0.53	0.53	5.20	4.25	7.761	30
159	5795	4.55	3.77	0.53	0.53	5.08	4.30	7.718	30
802.11ac(HT80)									
155	5775	5.65	4.96	1.02	1.02	6.67	5.98	9.349	30

Note:

1. For the band 5.745-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 1 W.

Shenzhen STS Test Services Co., Ltd.

1/F., Building B, Zhuoke Science Park, No.190,Chongqing Road, Fuyong Street, Bao'an District, Shenzhen, Guangdong,China
Tel: 0755-36886288 Fax: 0755-36886277 Http://www.stsapp.com   E-mail: sts@stsapp.com
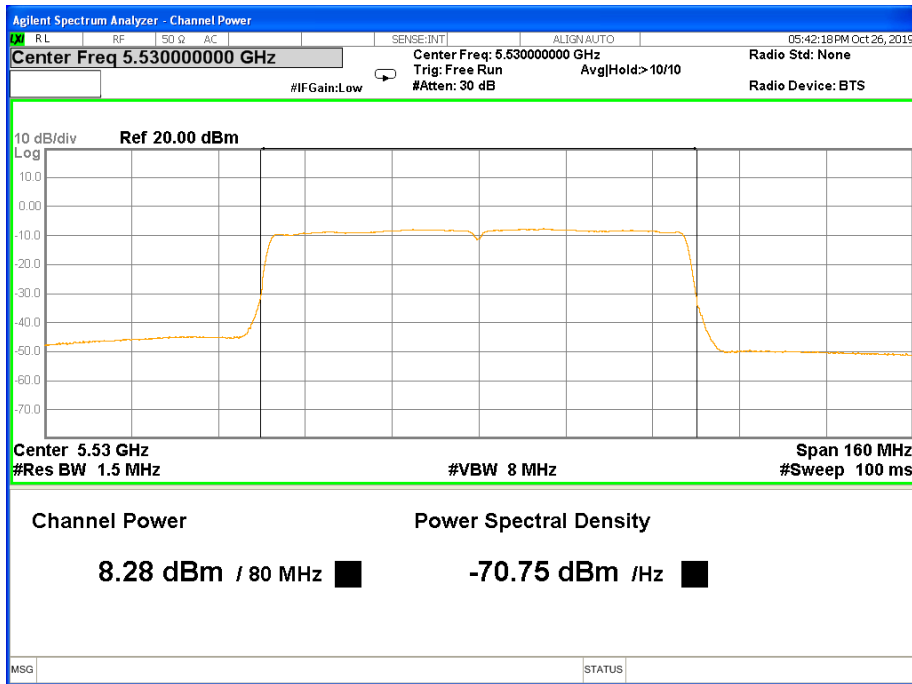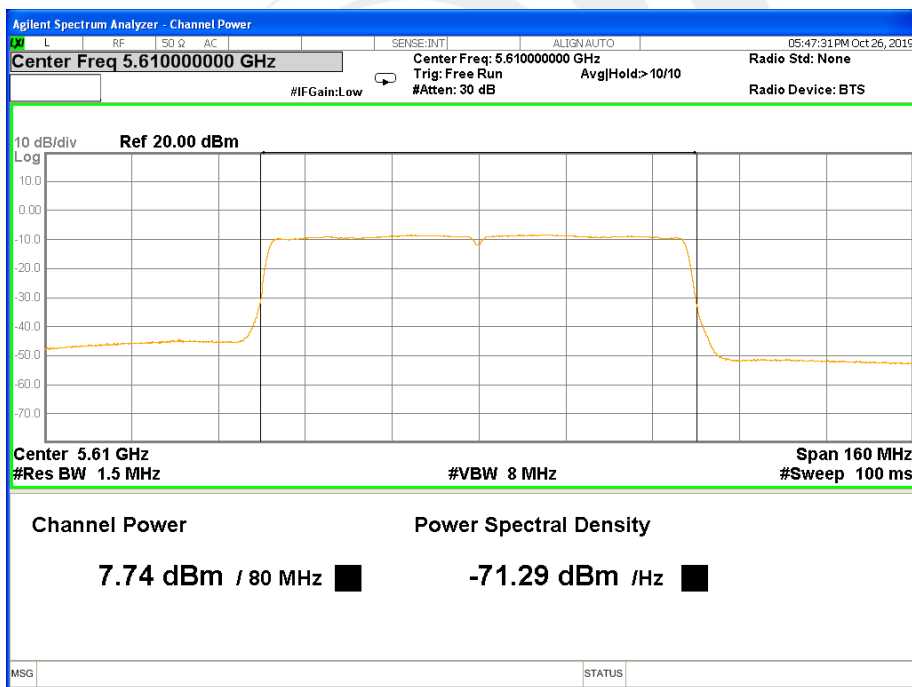
802.11ac VHT80(5210MHz)
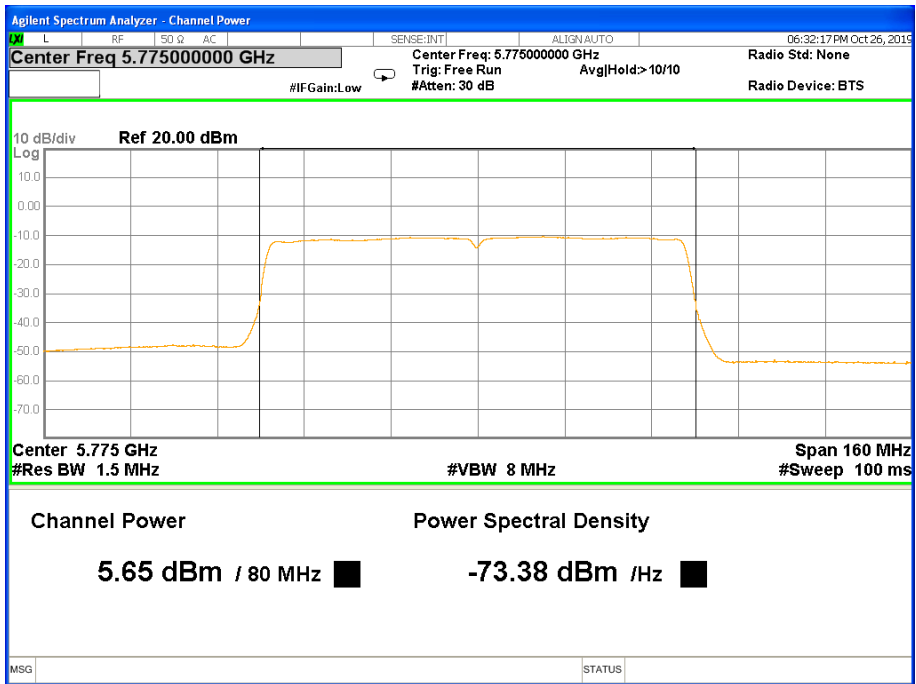

802.11ac VHT80(5290MHz)

802.11ac VHT80(5530MHz)

802.11ac VHT80(5610MHz)

802.11ac VHT80(5775MHz)

8. AUTOMATICALLY DISCONTINUE TRANSMISSION

8.1 LIMIT OF AUTOMATICALLY DISCONTINUE TRANSMISSION

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signaling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals. Applicants shall include in their application for equipment authorization to describe how this requirement is met.

8.2 TEST RESULT OF AUTOMATICALLY DISCONTINUE TRANSMISSION

During no any information transmission, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission

9. ANTENNA REQUIREMENT

9.1 STANDARD REQUIREMENT

15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

9.2 EUT ANTENNA

The EUT antenna is PIFA Antenna Antenna. It comply with the standard requirement.

APPENDIX - PHOTOS OF TEST SETUP

Note: See test photos in setup photo document for the actual connections between Product and support equipment.

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