RADIO TEST REPORT

Report No:STS1912045W04

Issued for

Prentke Romich Company

1022 Heyl Rd. Wooster, Ohio 44691, USA

Product Name:	Accent 1400
Brand Name:	Accent
Model Name:	ACN1400-30
Series Model:	N/A
FCC ID:	2AD9PA-ACN140030PRC
IC:	23408-ACN140030
Test Standard:	FCC Part 15.407
	RSS-247 Issue 2, February 2017

Shenzhen STS Test Services Co., Ltd.
A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ,
Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China
TEL: +86-755 3688 6288 FAX: +86-755 3688 6277 E-mail:sts@stsapp.com

TEST RESULT CERTIFICATION

Applicant's Name	:	Prentke Romich Company
Address	:	1022 Heyl Rd. Wooster, Ohio 44691, USA
Manufacture's Name	:	Prentke Romich Company
Address	:	1022 Heyl Rd. Wooster, Ohio 44691, USA

Product Description

Product Name	:	Accent 1400
Brand Name	:	Accent
Model Name	:	ACN1400-30
Series Model	:	N/A
Test Standards	:	FCC Part15.407
		RSS-247 Issue 2, February 2017
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&IC requirements. And it is applicable only to the tested sample identified in the report.
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Date of Test	:	
Date of receipt of test item	:	12 Dec. 2019
Date (s) of performance of tests	:	12 Dec. 2019 ~ 31 Dec. 2019
Date of Issue	:	02 Jan. 2019
Test Result	:	**Pass**

Testing Engineer : Chris Chen
(Chris Chen)

Technical Manager : Sunday Hu
(Sunday Hu)

Authorized Signatory : Vita Li
(Vita Li)

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Revision History

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	02 Jan. 2019	STS1912045W04	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 RSS-247 Issue 2, February 2017		
FCC standard	Test Item	Results
15.207 RSS-Gen Issue 5, Amendment 1, March 2019	AC Conducted Emission& Receiver AC power-line conducted emissions	PASS
§ 15.407 (2) (26 dB) / § 15.407 (e) (6 dB)/ § 15.407 (a) (99%) RSS-Gen Issue 5, Amendment 1, March 2019	26dB/6dB &99% Bandwidth	PASS
15.407(a) (1).(2).(3).(4).(5) RSS-247 Issue 2, February 2017	Maximum Conducted Output Power	PASS
15.407(b)& 15.209 RSS-247 Issue 2, February 2017 RSS-Gen Issue 5, Amendment 1, March 2019	Radiated Spurious Emission, Receiver radiated emissions And (bandedge Emissions) Measurement	PASS
15.407(b)7 RSS-247 Issue 2, February 2017	Conducted Emission And (bandedge Emissions) Measurement	PASS
15.407(a) (1).(2).(3).(4).(5) RSS-247 Issue 2, February 2017	Power Spectral Density	PASS
15.407(c)	Automatically Discontinue Transmission	PASS
15.203/15.204 RSS-Gen Issue 5, Amendment 1, March 2019	Antenna Requirement	PASS
RSS-Gen Issue 5, Amendment 1, March 2019	Frequency Stability	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. : A 1/F, Building B, Zhuoke Science Park, No.190 Chongqing Road, HepingShequ, Fuyong Sub-District, Bao'an District, Shenzhen, Guang Dong, China
FCC test Firm Registration Number: 625569
IC test Firm Registration Number: 12108A
A2LA Certificate No.: 4338.01

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y** ± **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	±0.68dB
2	Unwanted Emissions, conducted	±2.988dB
3	All emissions, radiated 30-1GHz	±6.7dB
4	All emissions, radiated 1G-6GHz	±5.5dB
5	All emissions, radiated>6G	±5.8dB
6	Conducted Emission (9KHz-150KHz)	±4.43dB
7	Conducted Emission (150KHz-30MHz)	±5dB

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

<table>
<tr><td>Product Name</td><td>Accent 1400</td></tr>
<tr><td>Trade Name</td><td>Accent</td></tr>
<tr><td>Model Name</td><td>ACN1400-30</td></tr>
<tr><td>Series Model</td><td>N/A</td></tr>
<tr><td>Model Difference</td><td>N/A</td></tr>
<tr><td>Product Description</td><td>The EUT is a Accent 1400
<table>
<tr><td rowspan="4">Operation Frequency:</td><td>IEEE 802.11a/ n(HT20)/ac(VHT20):
5.180GHz-5.240GHz
IEEE 802.11n(HT40)/ac(VHT40):
5.190GHz-5.230GHz
IEEE 802.11ac(VHT80): 5.210GHz</td></tr>
<tr><td>IEEE 802.11a/ n(HT20)/ac(VHT20):
5.260GHz-5.320GHz
IEEE 802.11 n(HT40)/ac(VHT40):
5.270GHz-5.310GHz
IEEE 802.11ac(VHT80): 5.290GHz</td></tr>
<tr><td>IEEE 802.11a/ n(HT20)/ac(VHT20):
5.500GHz-5.700GHz
IEEE 802.11 n(HT40)/ac(VHT40):
5.510GHz-5.670GHz
IEEE 802.11ac(VHT80): 5.530GHz-5.610GHz</td></tr>
<tr><td>IEEE 802.11a/ n(HT20)/ac(VHT20):
5.745GHz-5.825GHz
IEEE 802.11a/ n(HT40)/ac(VHT40):
5.755GHz-5.795GHz
IEEE 802.11ac(VHT80): 5.775GHz</td></tr>
<tr><td>Modulation Type:</td><td>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</td></tr>
<tr><td>Antenna Designation:</td><td>See Note 2</td></tr>
<tr><td>Max.Output Power(Conducted):</td><td>15.736dBm</td></tr>
</table>
More details of EUT technical specification, please refer to the User's Manual.</td></tr>
<tr><td>Test Channel</td><td>Please refer to the Note 2.</td></tr>
<tr><td>Adapter</td><td>Input: AC 100~240V, 1500mA, 50/60Hz
Output: DC 18V, 3330mA</td></tr>
<tr><td>Battery</td><td>Rated Voltage: 7.4V
Charge Limit: 8.4V
Capacity: 9200mAh</td></tr>
<tr><td>Hardware version number</td><td>A1400-30_MB_VERC</td></tr>
</table>

Software version number	Windows 10 Pro 64-bit
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 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:

1. IC not support Band 5600MHz-5650MHz.
2. 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 802.11 n(HT40)/ac(VHT40)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
38	5190	54	5270
46	5230	62	5310

For 802.11 n(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 GA NT dBi, being driven by NANT transmitter outputs of equal power. Directional gain is to be co mputed 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

ANT A=0 dBi
ANT B=0 dBi
GANT + 10 log(NANT) dBi
Directional gain= 0 +10log2=3.01dBi

Ant	Brand	Model Name	Ant Type	Connector	Gain (dBi)	NOTE
A	Accent	ACN1400-30	PIFA Antenna	N/A	Antenna number: 2 Antenna A gain : 0dBi Antenna B gain : 0dBi MIMO technology Directional gain=3.01dBi	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 HT20 CH36&CH40&CH48	NSS1 MCS0
Mode 7	TX IEEE 802.11n HT20 CH52&CH60&CH64	MCS 0
Mode 8	TX IEEE 802.11ac HT20 CH52&CH60&CH64	NSS1 MCS0
Mode 9	TX IEEE 802.11n HT20 CH100&CH116&CH140	MCS 0
Mode 10	TX IEEE 802.11ac HT20 CH100&CH116&CH140	NSS1 MCS0
Mode 11	TX IEEE 802.11n HT20 CH149&CH157&CH165	MCS 0
Mode 12	TX IEEE 802.11ac HT20 CH149&CH157&CH165	NSS1 MCS0
Mode 13	TX IEEE 802.11n HT40 CH38&CH46	MCS 0
Mode 14	TX IEEE 802.11ac HT40 CH38&CH46	NSS1 MCS0
Mode 15	TX IEEE 802.11n HT40 CH54 &CH62	MCS 0
Mode 16	TX IEEE 802.11ac HT40 CH54 &CH62	NSS1 MCS0
Mode 17	TX IEEE 802.11n HT40 CH102&CH110&CH134	MCS 0
Mode 18	TX IEEE 802.11ac HT40 CH102&CH110&CH134	NSS1 MCS0
Mode 19	TX IEEE 802.11n HT40 CH151&CH159	MCS 0
Mode 20	TX IEEE 802.11ac HT40 CH151&CH159	NSS1 MCS0
Mode 21	TX IEEE 802.11ac HT80 CH42	NSS1 MCS0
Mode 22	TX IEEE 802.11ac HT80 CH58	NSS1 MCS0
Mode 23	TX IEEE 802.11ac HT80 CH106&122	NSS1 MCS0
Mode 24	TX IEEE 802.11ac HT80 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.

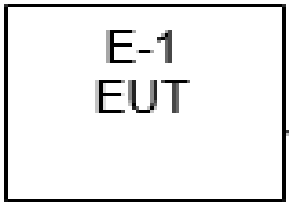
(3) We have be tested for all avaiable U.S. voltage and frequencies(For 120V,50/60Hz and 240V, 50/60Hz) for which the device is capable of operation.

AC Conducted Emission

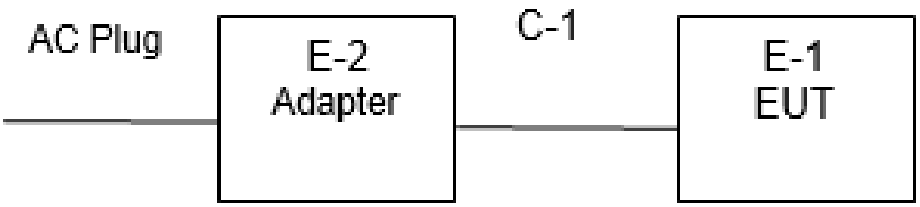
Test Case	
AC Conducted Emission	Mode 25: Keeping TX + WLAN Link

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-2	Adapter	MEGMEET	MANGO60S-18BB-PRC	N/A	N/A
C-1	DC Cable	N/A	100cm	N/A	N/A

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Serial No.	Note
N/A	N/A	N/A	N/A	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.

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	2019.10.12	2020.10.11
Temperature & Humidity	HH660	Mieo	N/A	2019.10.12	2020.10.11
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			
	FARAD	EZ-EMC(Ver.STSLAB-03A1 RE)			

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

3.1CONDUCTED 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

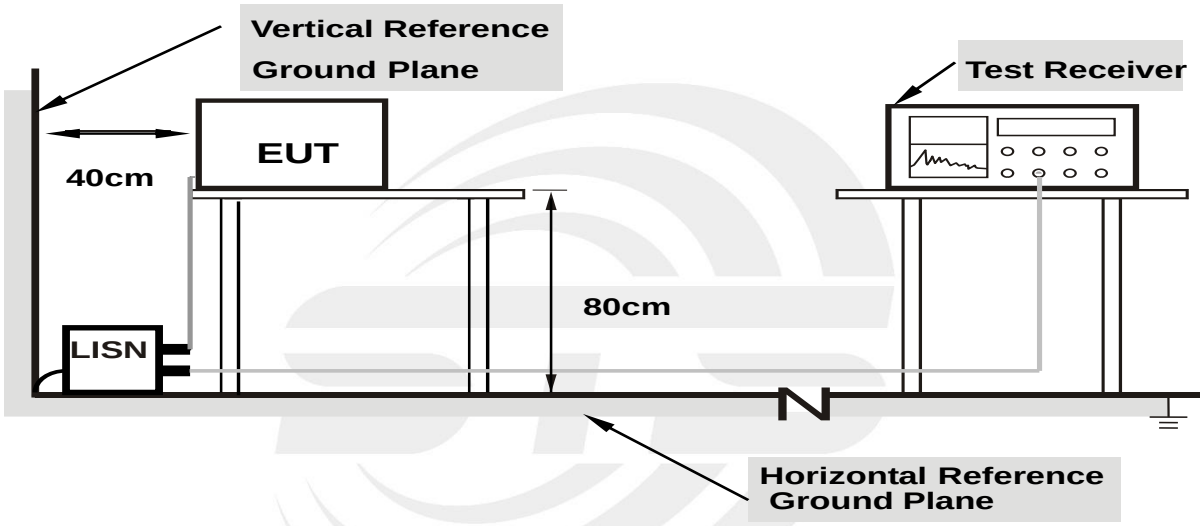
3.1.2 TEST PROCEDURE

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

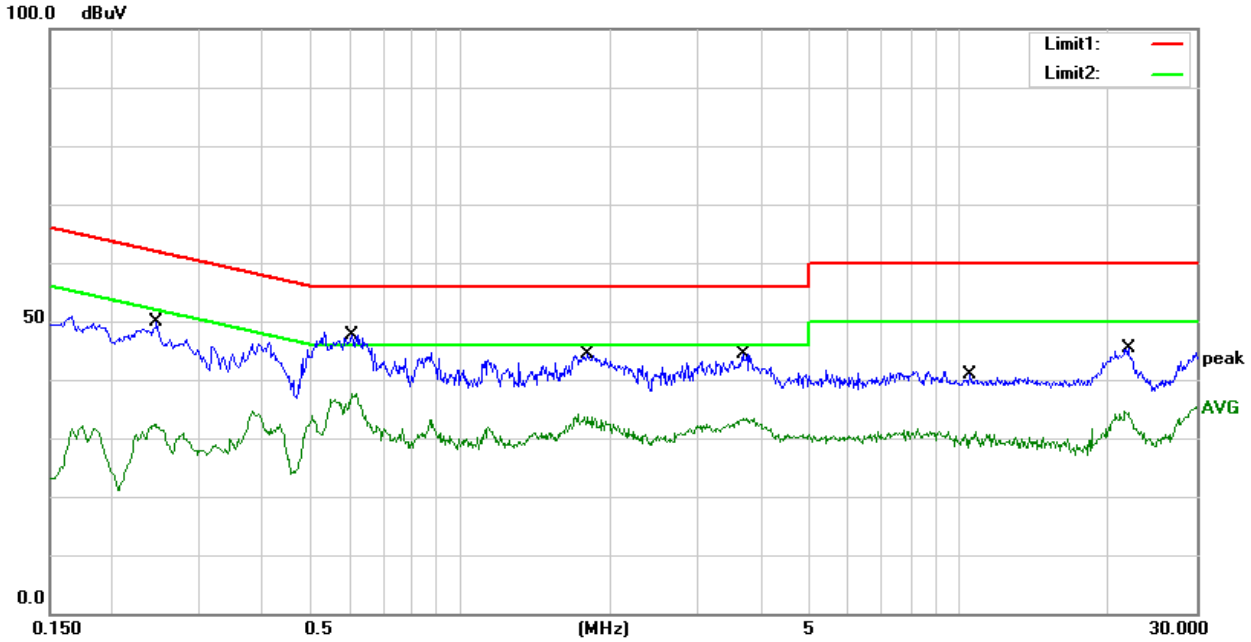
The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.1.6 TEST RESULTS

Temperature:	23.1(C)	Relative Humidity:	46%RH
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode：	Mode 25/TX		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.2460	29.79	19.96	49.75	61.89	-12.14	QP
2	0.2460	12.40	19.96	32.36	51.89	-19.53	AVG
3	0.6060	27.85	19.89	47.74	56.00	-8.26	QP
4	0.6060	17.72	19.89	37.61	46.00	-8.39	AVG
5	1.8060	24.55	19.73	44.28	56.00	-11.72	QP
6	1.8060	14.33	19.73	34.06	46.00	-11.94	AVG
7	3.6860	24.57	19.76	44.33	56.00	-11.67	QP
8	3.6860	13.71	19.76	33.47	46.00	-12.53	AVG
9	10.5140	20.69	20.11	40.80	60.00	-19.20	QP
10	10.5140	10.97	20.11	31.08	50.00	-18.92	AVG
11	21.8860	25.12	20.17	45.29	60.00	-14.71	QP
12	21.8860	14.52	20.17	34.69	50.00	-15.31	AVG

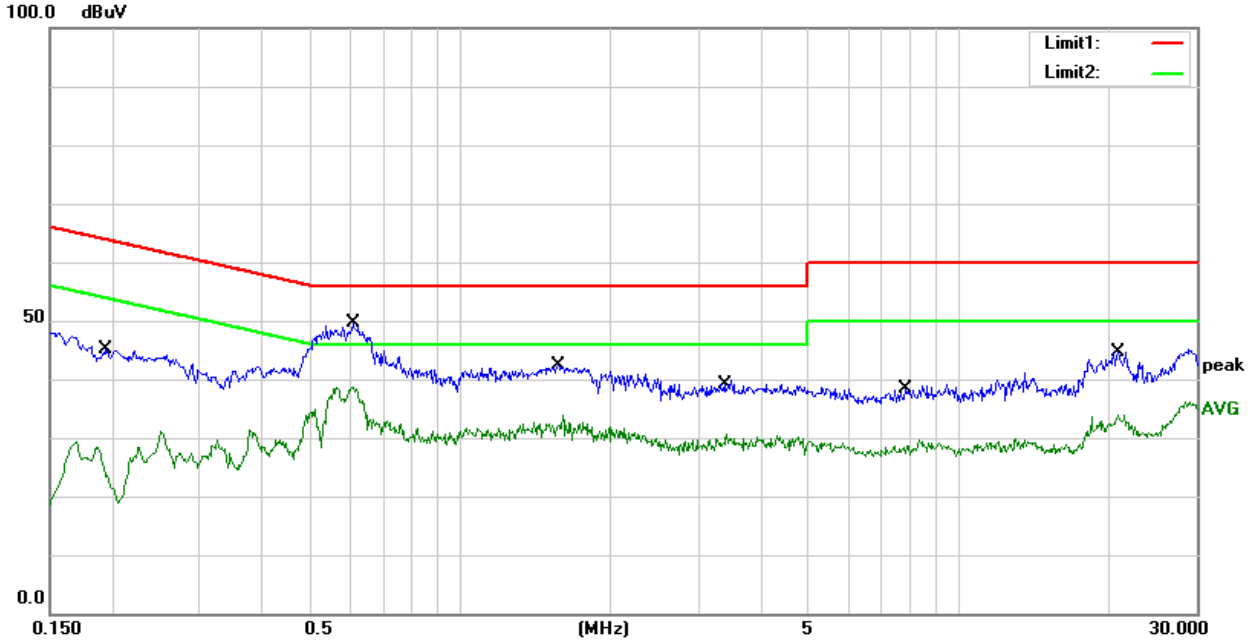
Remark:
1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result =Reading + Factor)–Limit



Temperature:	23.1(C)	Relative Humidity:	46%RH
Test Voltage	AC 120V/60Hz	Phase:	N
Test Mode	Mode 25/TX		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1940	25.27	19.75	45.02	63.86	-18.84	QP
2	0.1940	9.51	19.75	29.26	53.86	-24.60	AVG
3	0.6100	29.63	19.89	49.52	56.00	-6.48	QP
4	0.6100	18.81	19.89	38.70	46.00	-7.30	AVG
5	1.5620	22.35	19.74	42.09	56.00	-13.91	QP
6	1.5620	14.02	19.74	33.76	46.00	-12.24	AVG
7	3.3820	19.42	19.76	39.18	56.00	-16.82	QP
8	3.3820	10.57	19.76	30.33	46.00	-15.67	AVG
9	7.8180	18.48	19.88	38.36	60.00	-21.64	QP
10	7.8180	8.86	19.88	28.74	50.00	-21.26	AVG
11	20.8660	24.40	20.23	44.63	60.00	-15.37	QP
12	20.8660	13.59	20.23	33.82	50.00	-16.18	AVG

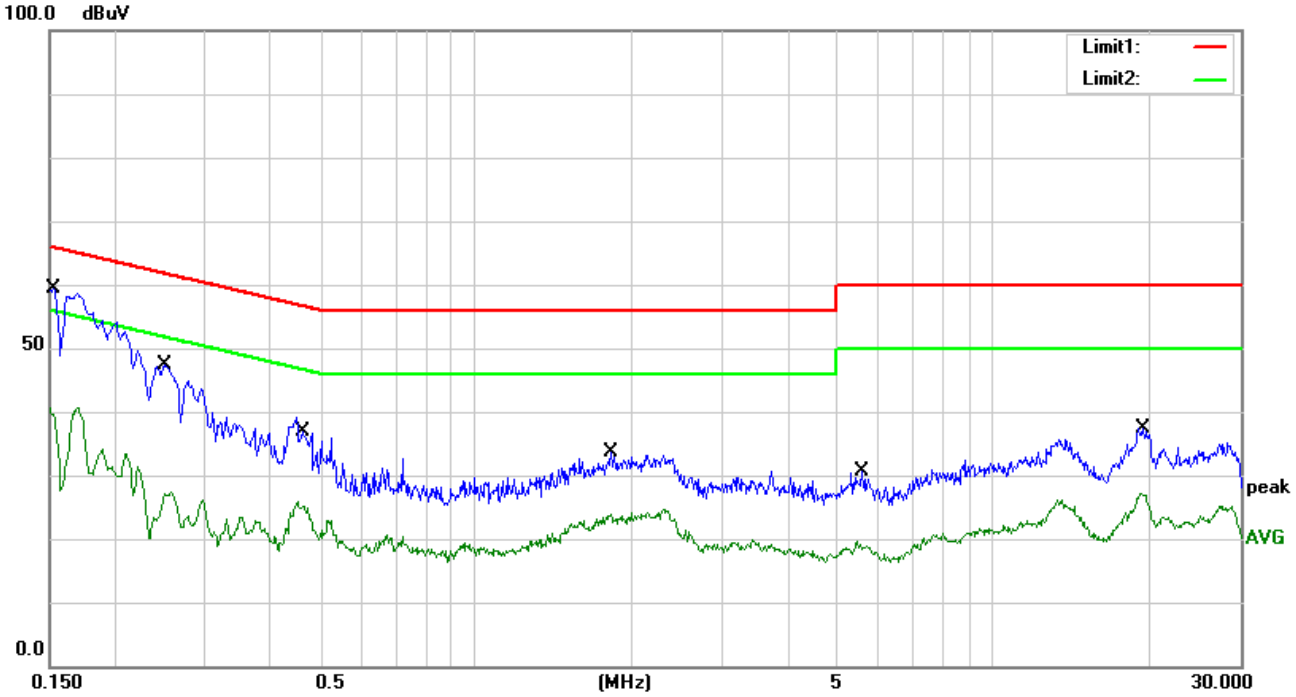
Remark:
1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result =Reading + Factor)–Limit



Temperature:	26.4(C)	Relative Humidity:	56%RH
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode:	RX Mode		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1524	38.66	20.59	59.25	65.87	-6.62	QP
2	0.1524	20.10	20.59	40.69	55.87	-15.18	AVG
3	0.2500	27.22	20.23	47.45	61.76	-14.31	QP
4	0.2500	11.24	20.23	31.47	51.76	-20.29	AVG
5	0.4620	16.78	20.12	36.90	56.66	-19.76	QP
6	0.4620	5.81	20.12	25.93	46.66	-20.73	AVG
7	1.8260	13.68	19.84	33.52	56.00	-22.48	QP
8	1.8260	4.10	19.84	23.94	46.00	-22.06	AVG
9	5.5900	10.16	20.36	30.52	60.00	-29.48	QP
10	5.5900	-0.68	20.36	19.68	50.00	-30.32	AVG
11	19.4820	16.06	21.38	37.44	60.00	-22.56	QP
12	19.4820	5.85	21.38	27.23	50.00	-22.77	AVG

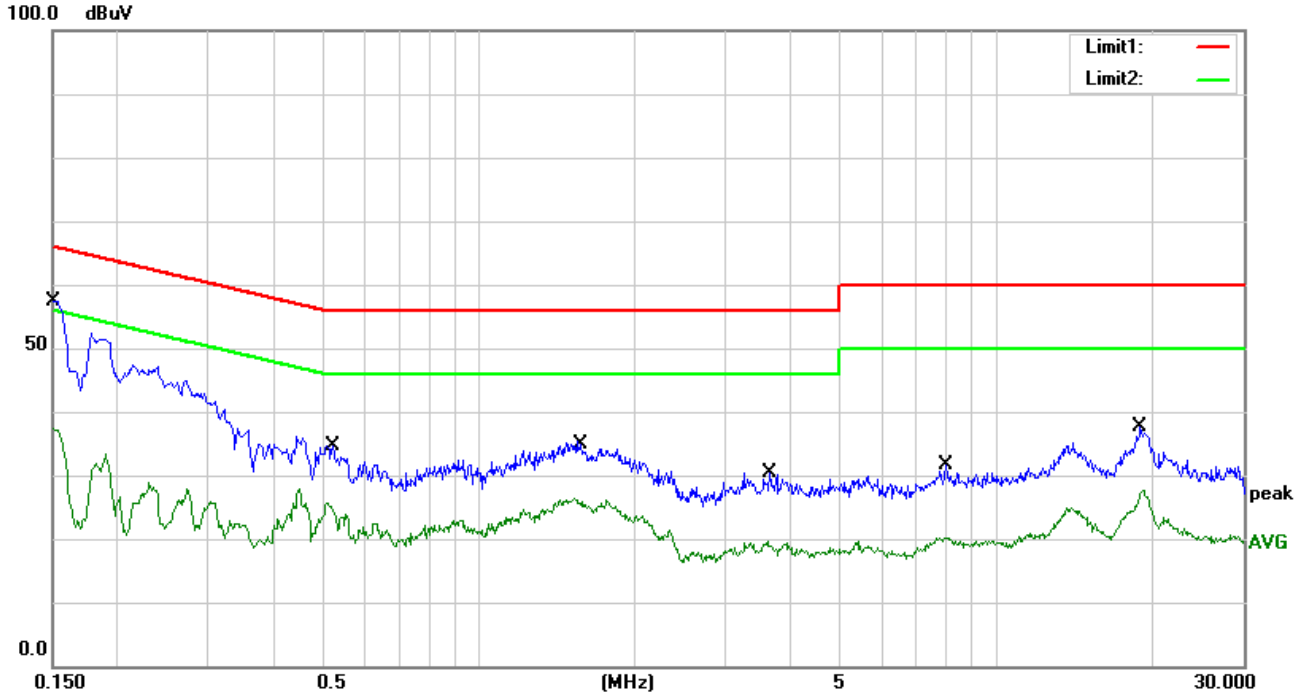
Remark:
1. All readings are Quasi-Peak and Average values.
2. Margin = Result (Result =Reading + Factor)–Limit



Temperature:	26.4(C)	Relative Humidity:	56%RH
Test Voltage	AC 120V/60Hz	Phase:	N
Test Mode	RX Mode		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1500	36.88	20.59	57.47	66.00	-8.53	QP
2	0.1500	16.75	20.59	37.34	56.00	-18.66	AVG
3	0.5220	14.66	19.99	34.65	56.00	-21.35	QP
4	0.5220	5.62	19.99	25.61	46.00	-20.39	AVG
5	1.5700	15.06	19.71	34.77	56.00	-21.23	QP
6	1.5700	6.61	19.71	26.32	46.00	-19.68	AVG
7	3.6500	10.05	20.25	30.30	56.00	-25.70	QP
8	3.6500	-0.62	20.25	19.63	46.00	-26.37	AVG
9	8.0100	11.30	20.42	31.72	60.00	-28.28	QP
10	8.0100	-0.19	20.42	20.23	50.00	-29.77	AVG
11	18.9260	16.34	21.34	37.68	60.00	-22.32	QP
12	18.9260	6.22	21.34	27.56	50.00	-22.44	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; 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).

LIMITS OF RESTRICTED FREQUENCY BANDS

FCC:

FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (GHz)
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41			

IC:

FREQUENCY (MHz)	FREQUENCY (MHz)	FREQUENCY (GHz)
0.090 - 0.110	149.9 - 150.05	9.0 - 9.2
0.495 - 0.505	156.52475 - 156.52525	9.3 - 9.5
2.1735 - 2.1905	156.7 - 156.9	10.6 - 12.7
3.020 - 3.026	162.0125 - 167.17	13.25 - 13.4
4.125 - 4.128	167.72 - 173.2	14.47 - 14.5
4.17725 - 4.17775	240 – 285	15.35 - 16.2
4.20725 - 4.20775	322 - 335.4	17.7 - 21.4
5.677 - 5.683	399.9 - 410	22.01 - 23.12
6.215 - 6.218	608 - 614	23.6 - 24.0
6.26775 - 6.26825	960 - 1427	31.2 - 31.8
6.31175 - 6.31225	1435 - 1626.5	36.43 - 36.5
8.291 - 8.294	1645.5 - 1646.5	Above 38.6
8.362 - 8.366	1660 - 1710	
8.37625 - 8.38675	1718.8 - 1722.2	
8.41425 - 8.41475	2200 - 2300	
12.29 - 12.293	2310 - 2390	
12.51975 - 12.52025	2483.5 - 2500	
12.57675 - 12.57725	2655 - 2900	
13.36 - 13.41	3260 – 3267	
16.42 - 16.423	3332 - 3339	
16.69475 - 16.69525	3345.8 - 3358	
16.80425 - 16.80475	3500 - 4400	
25.5 - 25.67	4500 - 5150	
37.5 - 38.25	5350 - 5460	
73 - 74.6	7250 - 7750	
74.8 - 75.2	8025 – 8500	
108 – 138		

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:

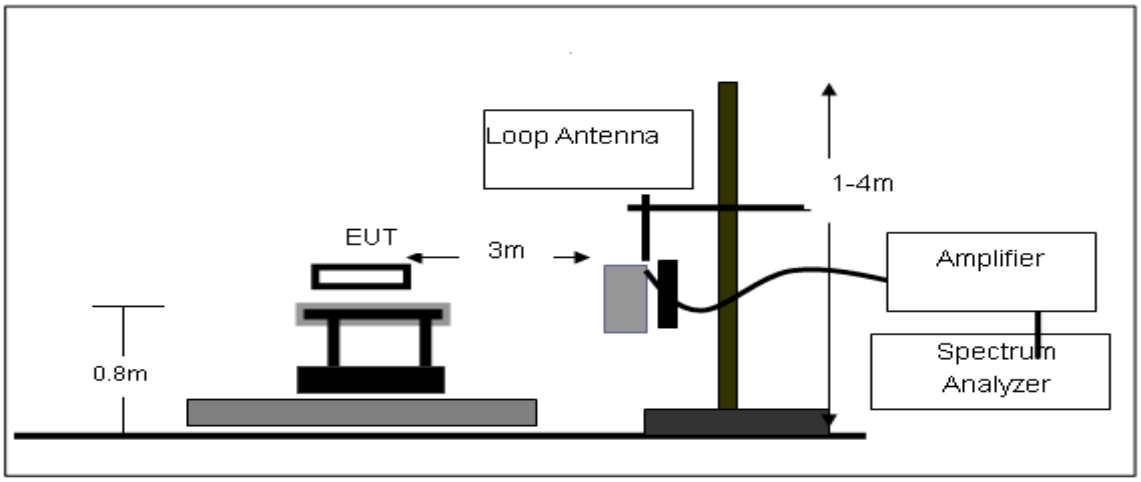
Both horizontal and vertical antenna polarities were tested and performed test to three orthogonal axis. The worst case emissions were reported

3.2.2 DEVIATION FROM TEST STANDARD

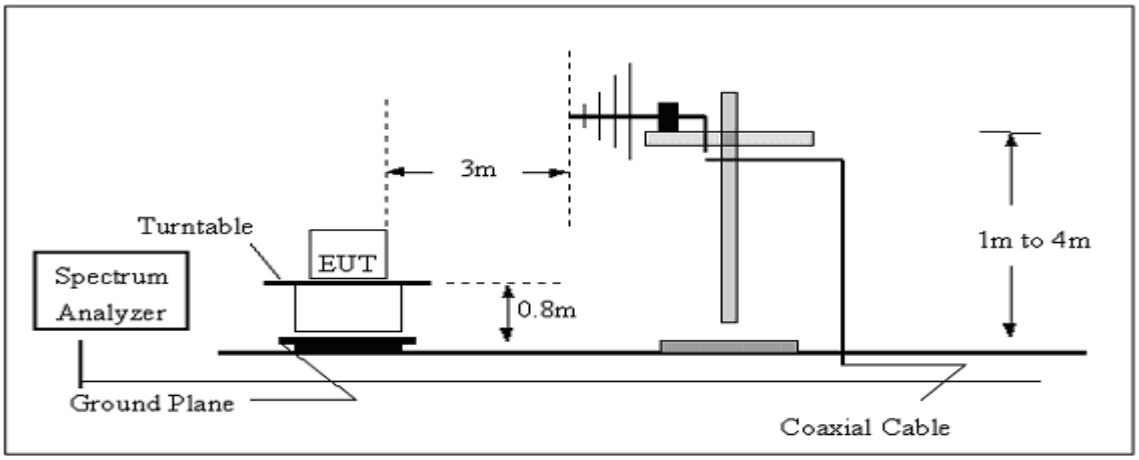
No deviation

3.2.3 TEST SETUP

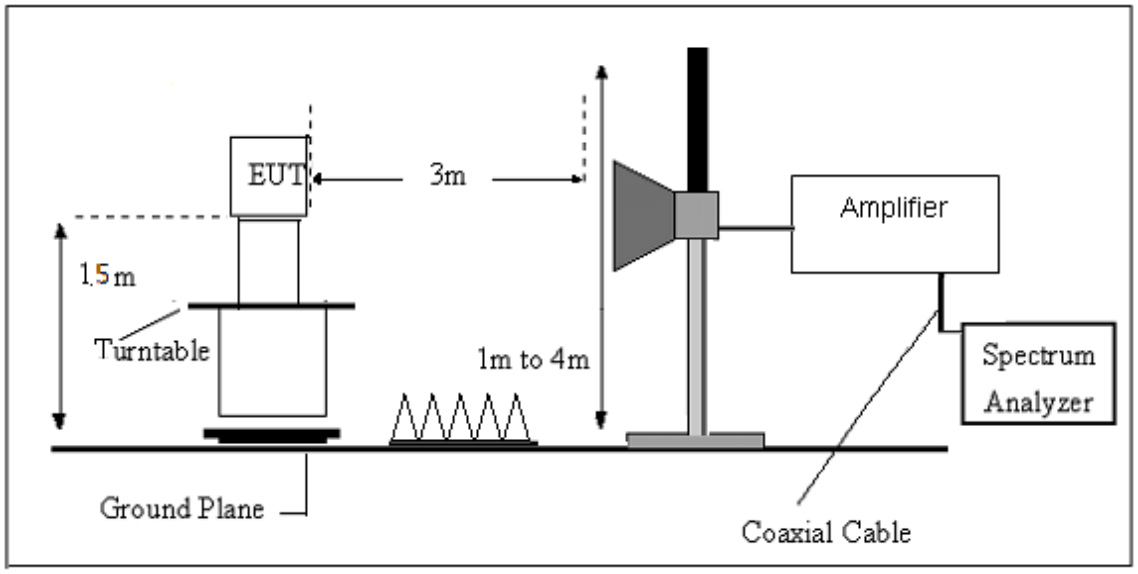
(A) Radiated Emission Test-Up Frequency Below 30MHz



(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:	22.7(C)	Relative Humidtity:	61%RH
Test Voltage:	DC 7.4V from battery	Polarization :	--
Test Mode:	TX Mode		

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

Note:

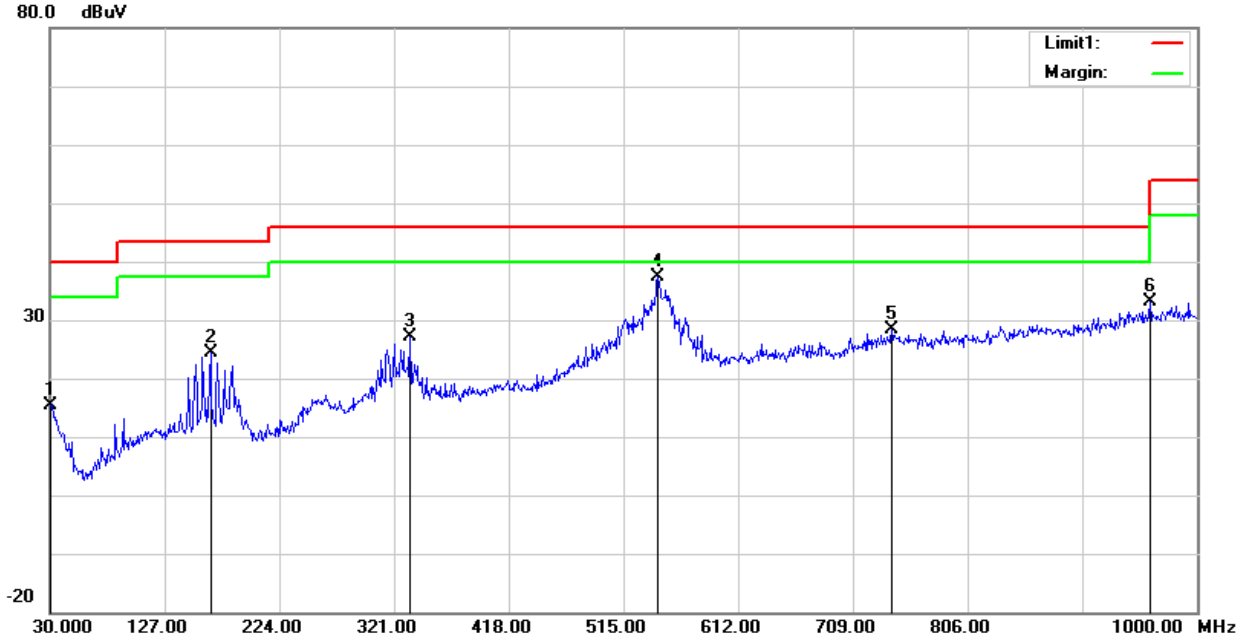
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
Distance extrapolation factor =40 log (specific distance/test distance)(dB);
Limit line = specific limits(dBuv) + distance extrapolation factor.

3.2.7 TEST RESULTS (Between 30MHz – 1GHz)

Temperature	22.7(C)	Relative Humidtity:	61%RH
Test Voltage	DC 7.4V from battery	Polarization:	Horizontal
Test Mode	TX Mode 1~24(Mode 10 worst mode)		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	30.9700	28.80	-13.35	15.45	40.00	-24.55	QP
2	165.8000	43.71	-19.40	24.31	43.50	-19.19	QP
3	334.5800	40.58	-13.56	27.02	46.00	-18.98	QP
4	544.1000	43.74	-6.41	37.33	46.00	-8.67	QP
5	741.9800	30.44	-2.12	28.32	46.00	-17.68	QP
6	960.2300	31.41	1.76	33.17	54.00	-20.83	QP

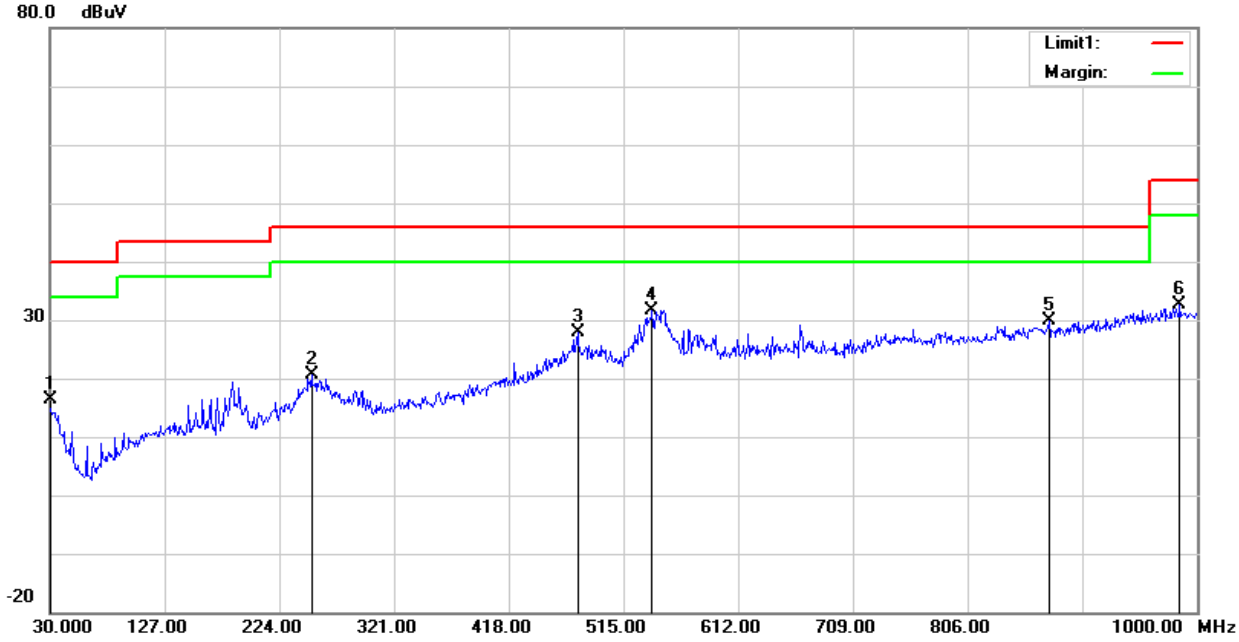
Remark:
1. Margin = Result (Result =Reading + Factor)–Limit



Temperature	22.7(C)	Relative Humidtity:	61%RH
Test Voltage	DC 7.4V from battery	Polarization:	Vertical
Test Mode	TX Mode 1~24(Mode 10 worst mode)		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	30.0000	29.16	-12.85	16.31	40.00	-23.69	QP
2	251.1600	36.47	-15.95	20.52	46.00	-25.48	QP
3	476.2000	36.57	-8.78	27.79	46.00	-18.21	QP
4	539.2500	38.57	-6.90	31.67	46.00	-14.33	QP
5	874.8700	30.50	-0.59	29.91	46.00	-16.09	QP
6	985.4500	30.40	2.33	32.73	54.00	-21.27	QP

Remark:
1. Margin = Result (Result =Reading + Factor)–Limit

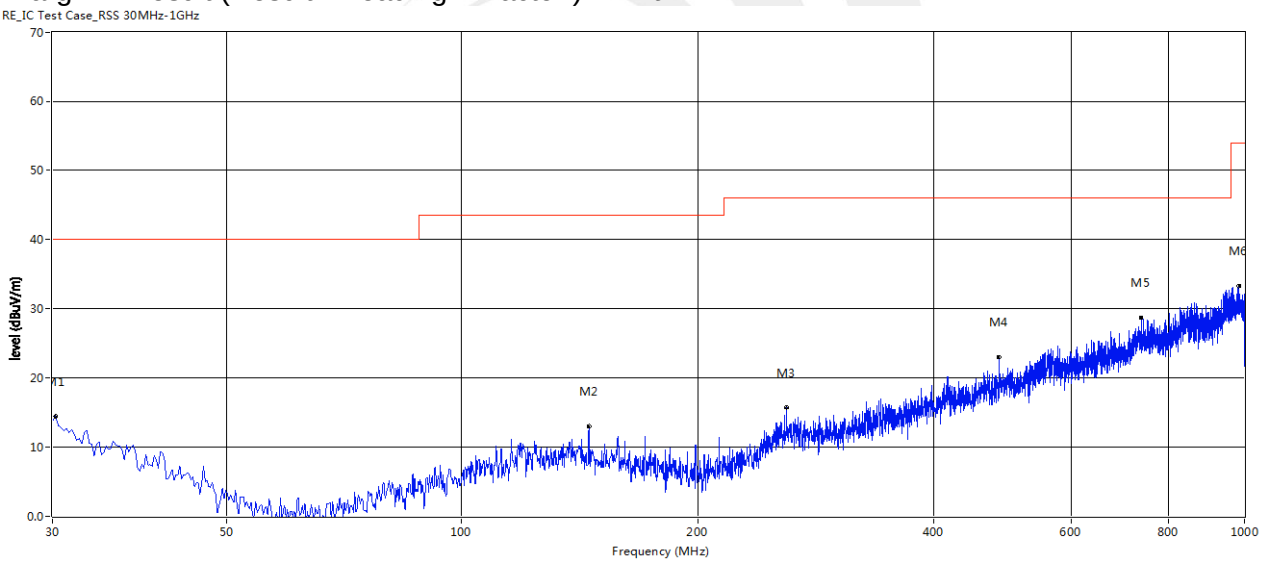


Temperature	22.7(C)	Relative Humidtity:	61%RH
Test Voltage	DC 7.4V from battery	Polarization:	Horizontal
Test Mode	RX Mode 1~24(Mode 10 worst mode)		

Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
30.000	13.77	--	--	-12.01	--	40.0	--	-26.23	Horizontal	Pass
145.188	12.93	--	--	-16.88	--	43.5	--	-30.57	Horizontal	Pass
259.890	15.74	--	--	-12.81	--	46.0	--	-30.26	Horizontal	Pass
484.930	23.06	--	--	-6.09	--	46.0	--	-22.94	Horizontal	Pass
737.857	28.68	--	--	0.72	--	46.0	--	-17.32	Horizontal	Pass
982.297	33.28	--	--	5.88	--	54.0	--	-20.72	Horizontal	Pass

Remark:

1. Margin = Result (Result =Reading + Factor)–Limit

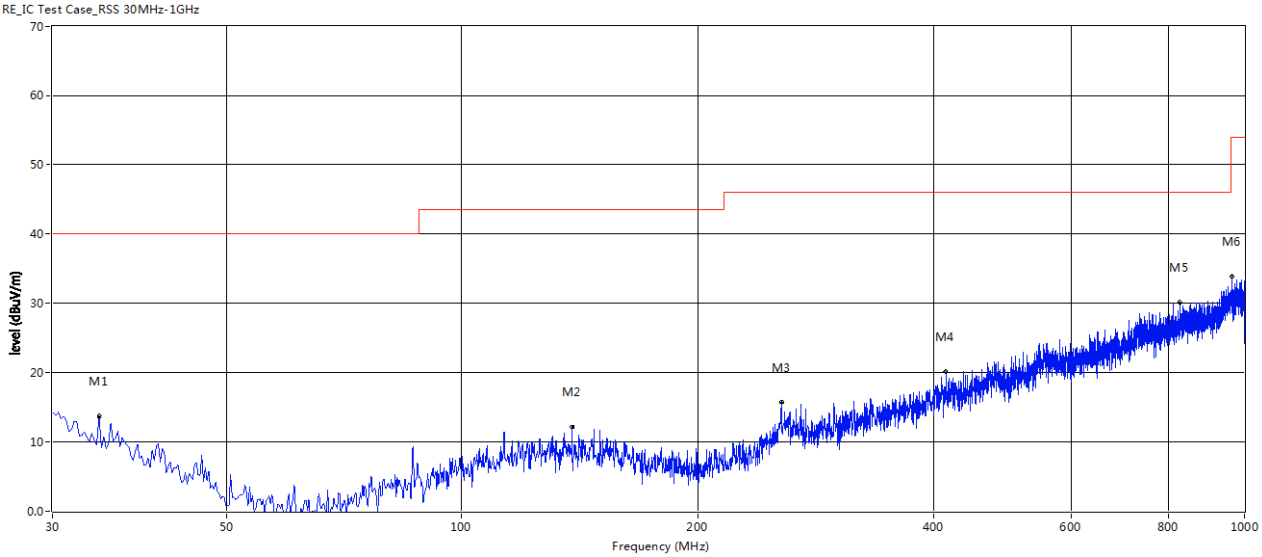


Temperature	22.7(C)	Relative Humidtity:	61%RH
Test Voltage	DC 7.4V from battery	Polarization:	Vertical
Test Mode	RX Mode 1~24(Mode 10 worst mode)		

Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
34.365	13.74	--	--	-14.15	--	40.0	--	-26.26	Vertical	Pass
138.155	12.14	--	--	-16.62	--	43.5	--	-31.36	Vertical	Pass
255.768	15.68	--	--	-13.31	--	46.0	--	-30.32	Vertical	Pass
415.090	20.16	--	--	-7.97	--	46.0	--	-25.84	Vertical	Pass
826.370	30.16	--	--	1.94	--	46.0	--	-15.84	Vertical	Pass
963.140	33.84	--	--	5.19	--	54.0	--	-20.16	Vertical	Pass

Remark:

1. Margin = Result (Result =Reading + Factor)–Limit



3.2.8 TEST RESULTS (Above 1000 MHz)

TX Mode

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
802.11ac(VHT80)/ 5210 MHz										
3265.27	44.79	44.70	6.70	28.20	-9.80	34.99	68.20	-33.21	Pk	Vertical
3265.27	40.98	44.70	6.70	28.20	-9.80	31.18	54.00	-22.82	AV	Vertical
3249.09	44.63	44.70	6.70	28.20	-9.80	34.83	68.20	-33.37	Pk	Horizontal
3249.09	41.07	44.70	6.70	28.20	-9.80	31.27	54.00	-22.73	AV	Horizontal
3999.15	39.06	44.20	7.90	29.70	-6.60	32.46	68.20	-35.74	Pk	Vertical
3999.15	36.93	44.20	7.90	29.70	-6.60	30.33	54.00	-23.67	AV	Vertical
3993.17	39.31	44.20	7.90	29.70	-6.60	32.71	68.20	-35.49	Pk	Horizontal
3993.17	35.83	44.20	7.90	29.70	-6.60	29.23	54.00	-24.77	AV	Horizontal
7220.88	37.14	43.50	11.40	35.50	3.40	40.54	68.20	-27.66	Pk	Vertical
7220.88	33.79	43.50	11.40	35.50	3.40	37.19	54.00	-16.81	AV	Vertical
7235.23	37.76	43.50	11.40	35.50	3.40	41.16	68.20	-27.04	Pk	Horizontal
7235.23	34.70	43.50	11.40	35.50	3.40	38.10	54.00	-15.90	AV	Horizontal
10359.95	39.40	44.50	13.80	38.80	8.10	47.50	68.20	-20.70	Pk	Vertical
10359.95	36.41	44.50	13.80	38.80	8.10	44.51	54.00	-9.49	AV	Vertical
10360.26	39.65	44.50	13.80	38.80	8.10	47.75	68.20	-20.45	Pk	Horizontal
10360.26	35.89	44.50	13.80	38.80	8.10	43.99	54.00	-10.01	AV	Horizontal
11018.09	34.04	43.60	14.30	39.50	10.20	44.24	68.20	-23.96	Pk	Vertical
11018.09	31.02	43.60	14.30	39.50	10.20	41.22	54.00	-12.78	AV	Vertical
11030.37	33.55	43.60	14.30	39.50	10.20	43.75	68.20	-24.45	Pk	Horizontal
11030.37	30.13	43.60	14.30	39.50	10.20	40.33	54.00	-13.67	AV	Horizontal
13284.55	31.83	42.60	15.90	38.90	12.20	44.03	68.20	-24.17	Pk	Vertical
13284.55	28.77	42.60	15.90	38.90	12.20	40.97	54.00	-13.03	AV	Vertical
13286.34	32.54	42.60	15.90	38.90	12.20	44.74	68.20	-23.46	Pk	Horizontal
13286.34	28.91	42.60	15.90	38.90	12.20	41.11	54.00	-12.89	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 802.11ac (VHT-80).
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
802.11ac(VHT80)/ 5290 MHz										
3257.83	45.15	44.70	6.70	28.20	-9.80	35.35	68.20	-32.85	Pk	Vertical
3257.83	41.23	44.70	6.70	28.20	-9.80	31.43	54.00	-22.57	AV	Vertical
3255.24	44.60	44.70	6.70	28.20	-9.80	34.80	68.20	-33.40	Pk	Horizontal
3255.24	41.23	44.70	6.70	28.20	-9.80	31.43	54.00	-22.57	AV	Horizontal
3992.75	39.48	44.20	7.90	29.70	-6.60	32.88	68.20	-35.32	Pk	Vertical
3992.75	36.46	44.20	7.90	29.70	-6.60	29.86	54.00	-24.14	AV	Vertical
3998.51	38.70	44.20	7.90	29.70	-6.60	32.10	68.20	-36.10	Pk	Horizontal
3998.51	36.17	44.20	7.90	29.70	-6.60	29.57	54.00	-24.43	AV	Horizontal
7217.13	37.72	43.50	11.40	35.50	3.40	41.12	68.20	-27.08	Pk	Vertical
7217.13	34.45	43.50	11.40	35.50	3.40	37.85	54.00	-16.15	AV	Vertical
7227.90	37.65	43.50	11.40	35.50	3.40	41.05	68.20	-27.15	Pk	Horizontal
7227.90	34.84	43.50	11.40	35.50	3.40	38.24	54.00	-15.76	AV	Horizontal
10360.23	39.57	44.50	13.80	38.80	8.10	47.67	68.20	-20.53	Pk	Vertical
10360.23	36.79	44.50	13.80	38.80	8.10	44.89	54.00	-9.11	AV	Vertical
10360.12	38.71	44.50	13.80	38.80	8.10	46.81	68.20	-21.39	Pk	Horizontal
10360.12	35.89	44.50	13.80	38.80	8.10	43.99	54.00	-10.01	AV	Horizontal
11024.13	33.65	43.60	14.30	39.50	10.20	43.85	68.20	-24.35	Pk	Vertical
11024.13	29.92	43.60	14.30	39.50	10.20	40.12	54.00	-13.88	AV	Vertical
11032.27	33.06	43.60	14.30	39.50	10.20	43.26	68.20	-24.94	Pk	Horizontal
11032.27	31.17	43.60	14.30	39.50	10.20	41.37	54.00	-12.63	AV	Horizontal
13286.36	31.81	42.60	15.90	38.90	12.20	44.01	68.20	-24.19	Pk	Vertical
13286.36	29.39	42.60	15.90	38.90	12.20	41.59	54.00	-12.41	AV	Vertical
13293.47	31.97	42.60	15.90	38.90	12.20	44.17	68.20	-24.03	Pk	Horizontal
13293.47	29.27	42.60	15.90	38.90	12.20	41.47	54.00	-12.53	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 802.11ac (VHT-80).
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 (802.11ac(VHT80)/ 5530 MHz)										
3261.74	44.26	44.70	6.70	28.20	-9.80	34.46	68.20	-33.74	Pk	Vertical
3261.74	40.94	44.70	6.70	28.20	-9.80	31.14	54.00	-22.86	AV	Vertical
3249.96	44.80	44.70	6.70	28.20	-9.80	35.00	68.20	-33.20	Pk	Horizontal
3249.96	41.86	44.70	6.70	28.20	-9.80	32.06	54.00	-21.94	AV	Horizontal
3992.32	39.92	44.20	7.90	29.70	-6.60	33.32	68.20	-34.88	Pk	Vertical
3992.32	36.59	44.20	7.90	29.70	-6.60	29.99	54.00	-24.01	AV	Vertical
3983.74	39.43	44.20	7.90	29.70	-6.60	32.83	68.20	-35.37	Pk	Horizontal
3983.74	36.18	44.20	7.90	29.70	-6.60	29.58	54.00	-24.42	AV	Horizontal
7235.68	37.73	43.50	11.40	35.50	3.40	41.13	68.20	-27.07	Pk	Vertical
7235.68	34.31	43.50	11.40	35.50	3.40	37.71	54.00	-16.29	AV	Vertical
7232.62	36.86	43.50	11.40	35.50	3.40	40.26	68.20	-27.94	Pk	Horizontal
7232.62	34.69	43.50	11.40	35.50	3.40	38.09	54.00	-15.91	AV	Horizontal
10360.28	38.82	44.50	13.80	38.80	8.10	46.92	68.20	-21.28	Pk	Vertical
10360.28	36.29	44.50	13.80	38.80	8.10	44.39	54.00	-9.61	AV	Vertical
10360.33	39.23	44.50	13.80	38.80	8.10	47.33	68.20	-20.87	Pk	Horizontal
10360.33	35.98	44.50	13.80	38.80	8.10	44.08	54.00	-9.92	AV	Horizontal
11018.29	34.09	43.60	14.30	39.50	10.20	44.29	68.20	-23.91	Pk	Vertical
11018.29	30.11	43.60	14.30	39.50	10.20	40.31	54.00	-13.69	AV	Vertical
11017.66	33.01	43.60	14.30	39.50	10.20	43.21	68.20	-24.99	Pk	Horizontal
11017.66	31.10	43.60	14.30	39.50	10.20	41.30	54.00	-12.70	AV	Horizontal
13298.46	32.02	42.60	15.90	38.90	12.20	44.22	68.20	-23.98	Pk	Vertical
13298.46	29.61	42.60	15.90	38.90	12.20	41.81	54.00	-12.19	AV	Vertical
13295.85	32.44	42.60	15.90	38.90	12.20	44.64	68.20	-23.56	Pk	Horizontal
13295.85	29.86	42.60	15.90	38.90	12.20	42.06	54.00	-11.94	AV	Horizontal

High Channel (802.11ac(VHT80)/ 5610 MHz)										
3254.00	43.85	44.70	6.70	28.20	-9.80	34.05	68.20	-34.15	Pk	Vertical
3254.00	40.91	44.70	6.70	28.20	-9.80	31.11	54.00	-22.89	AV	Vertical
3265.11	44.55	44.70	6.70	28.20	-9.80	34.75	68.20	-33.45	Pk	Horizontal
3265.11	41.82	44.70	6.70	28.20	-9.80	32.02	54.00	-21.98	AV	Horizontal
3981.55	38.71	44.20	7.90	29.70	-6.60	32.11	68.20	-36.09	Pk	Vertical
3981.55	35.83	44.20	7.90	29.70	-6.60	29.23	54.00	-24.77	AV	Vertical
3987.70	39.52	44.20	7.90	29.70	-6.60	32.92	68.20	-35.28	Pk	Horizontal
3987.70	35.87	44.20	7.90	29.70	-6.60	29.27	54.00	-24.73	AV	Horizontal
7232.30	37.56	43.50	11.40	35.50	3.40	40.96	68.20	-27.24	Pk	Vertical
7232.30	33.88	43.50	11.40	35.50	3.40	37.28	54.00	-16.72	AV	Vertical
7217.18	37.09	43.50	11.40	35.50	3.40	40.49	68.20	-27.71	Pk	Horizontal
7217.18	34.51	43.50	11.40	35.50	3.40	37.91	54.00	-16.09	AV	Horizontal
10480.14	38.85	44.50	13.80	38.80	8.10	46.95	68.20	-21.25	Pk	Vertical
10480.14	35.84	44.50	13.80	38.80	8.10	43.94	54.00	-10.06	AV	Vertical
10480.13	39.07	44.50	13.80	38.80	8.10	47.17	68.20	-21.03	Pk	Horizontal
10480.13	37.12	44.50	13.80	38.80	8.10	45.22	54.00	-8.78	AV	Horizontal
11020.42	33.93	43.60	14.30	39.50	10.20	44.13	68.20	-24.07	Pk	Vertical
11020.42	31.14	43.60	14.30	39.50	10.20	41.34	54.00	-12.66	AV	Vertical
11029.30	32.92	43.60	14.30	39.50	10.20	43.12	68.20	-25.08	Pk	Horizontal
11029.30	30.21	43.60	14.30	39.50	10.20	40.41	54.00	-13.59	AV	Horizontal
13292.00	32.33	42.60	15.90	38.90	12.20	44.53	68.20	-23.67	Pk	Vertical
13292.00	29.04	42.60	15.90	38.90	12.20	41.24	54.00	-12.76	AV	Vertical
13288.86	33.03	42.60	15.90	38.90	12.20	45.23	68.20	-22.97	Pk	Horizontal
13288.86	29.21	42.60	15.90	38.90	12.20	41.41	54.00	-12.59	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 802.11ac (VHT-80).
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

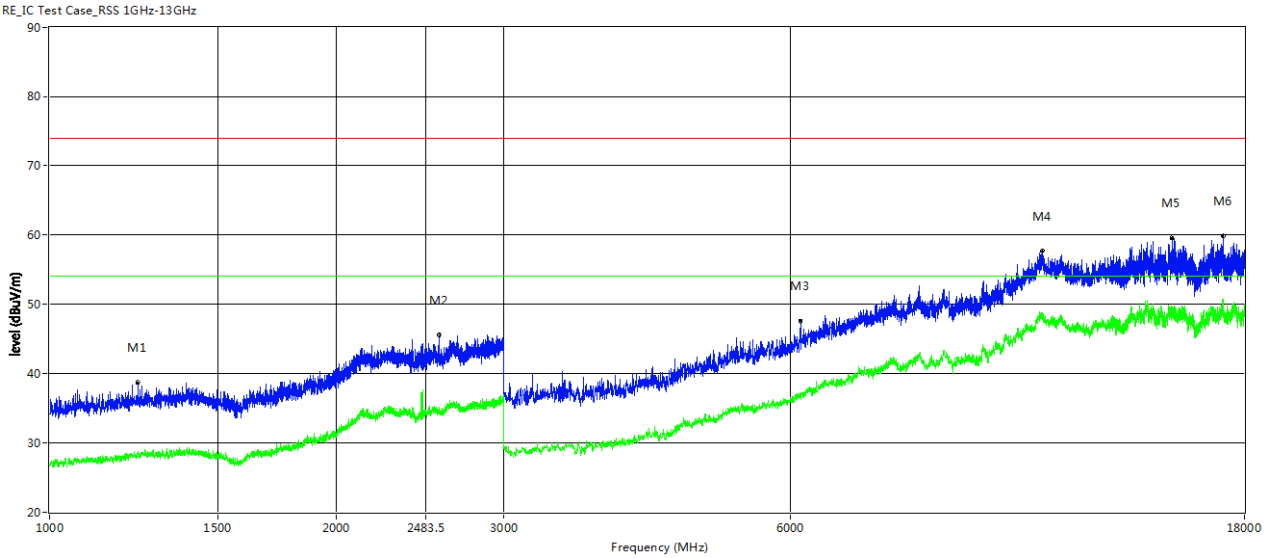
Band IV(5.725-5.850) GHz

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
802.11ac(VHT80)/ 5775 MHz										
3263.95	44.44	44.70	6.70	28.20	-9.80	34.64	68.20	-33.56	Pk	Vertical
3263.95	41.76	44.70	6.70	28.20	-9.80	31.96	54.00	-22.04	AV	Vertical
3263.69	44.10	44.70	6.70	28.20	-9.80	34.30	68.20	-33.90	Pk	Horizontal
3263.69	41.08	44.70	6.70	28.20	-9.80	31.28	54.00	-22.72	AV	Horizontal
3981.41	39.30	44.20	7.90	29.70	-6.60	32.70	68.20	-35.50	Pk	Vertical
3981.41	36.78	44.20	7.90	29.70	-6.60	30.18	54.00	-23.82	AV	Vertical
3989.41	39.21	44.20	7.90	29.70	-6.60	32.61	68.20	-35.59	Pk	Horizontal
3989.41	35.86	44.20	7.90	29.70	-6.60	29.26	54.00	-24.74	AV	Horizontal
7236.11	36.84	43.50	11.40	35.50	3.40	40.24	68.20	-27.96	Pk	Vertical
7236.11	34.69	43.50	11.40	35.50	3.40	38.09	54.00	-15.91	AV	Vertical
7224.08	36.91	43.50	11.40	35.50	3.40	40.31	68.20	-27.89	Pk	Horizontal
7224.08	33.99	43.50	11.40	35.50	3.40	37.39	54.00	-16.61	AV	Horizontal
10360.13	39.22	44.50	13.80	38.80	8.10	47.32	68.20	-20.88	Pk	Vertical
10360.13	36.62	44.50	13.80	38.80	8.10	44.72	54.00	-9.28	AV	Vertical
10360.37	40.03	44.50	13.80	38.80	8.10	48.13	68.20	-20.07	Pk	Horizontal
10360.37	36.52	44.50	13.80	38.80	8.10	44.62	54.00	-9.38	AV	Horizontal
11025.23	33.00	43.60	14.30	39.50	10.20	43.20	68.20	-25.00	Pk	Vertical
11025.23	30.77	43.60	14.30	39.50	10.20	40.97	54.00	-13.03	AV	Vertical
11028.28	33.24	43.60	14.30	39.50	10.20	43.44	68.20	-24.76	Pk	Horizontal
11028.28	31.15	43.60	14.30	39.50	10.20	41.35	54.00	-12.65	AV	Horizontal
13299.55	31.55	42.60	15.90	38.90	12.20	43.75	68.20	-24.45	Pk	Vertical
13299.55	28.70	42.60	15.90	38.90	12.20	40.90	54.00	-13.10	AV	Vertical
13291.46	31.71	42.60	15.90	38.90	12.20	43.91	68.20	-24.29	Pk	Horizontal
13291.46	29.96	42.60	15.90	38.90	12.20	42.16	54.00	-11.84	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 802.11ac (VHT-80).
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

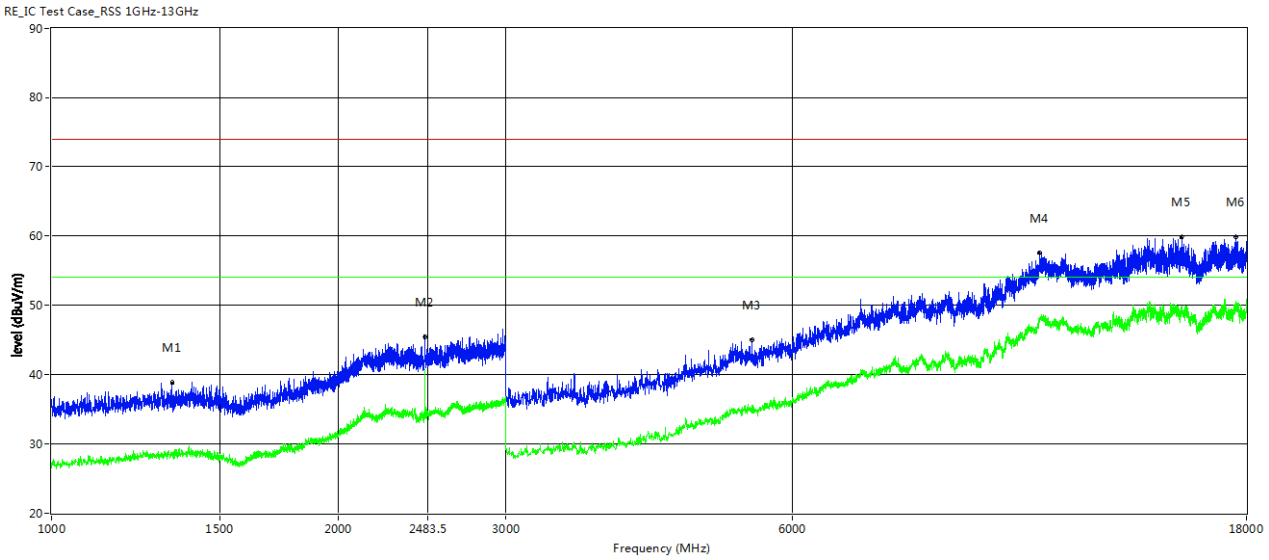
RX Mode

Band 1-RSE-H



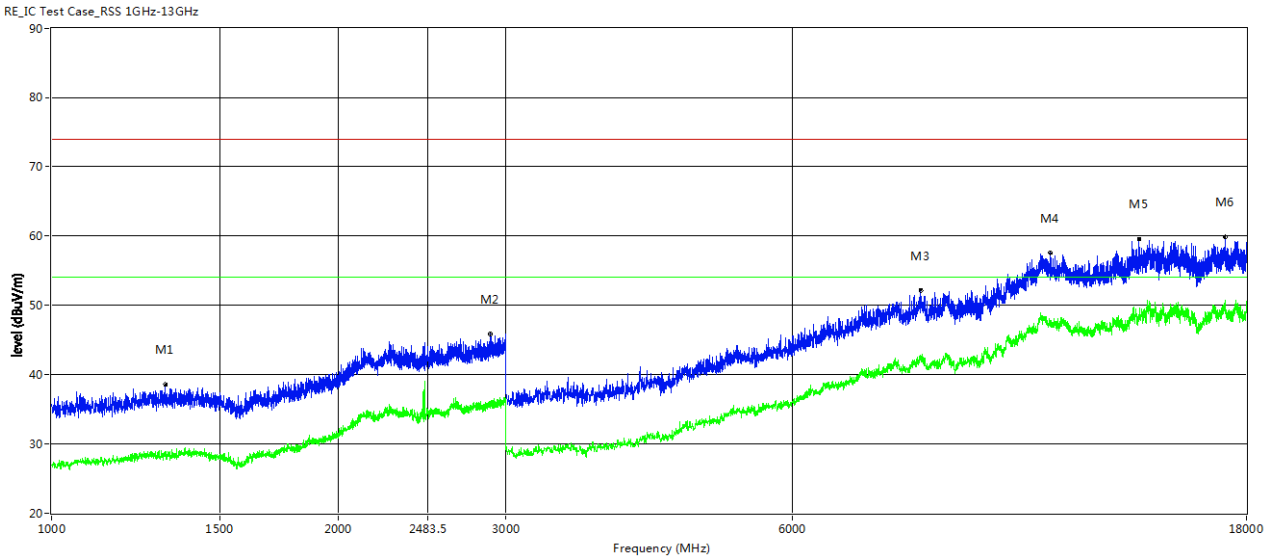
Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1238.000	38.75	--	28.26	-0.98	74.0	--	54.0	-25.74	Horizontal	Pass
2561.500	45.53	--	34.04	4.18	74.0	--	54.0	-19.96	Horizontal	Pass
6147.500	47.63	--	37.15	-2.31	74.0	--	54.0	-16.85	Horizontal	Pass
11032.500	57.72	--	47.82	8.76	74.0	--	54.0	-6.18	Horizontal	Pass
15101.250	59.63	--	49.21	10.32	74.0	--	54.0	-4.79	Horizontal	Pass
17085.000	59.90	--	49.06	10.38	74.0	--	54.0	-4.94	Horizontal	Pass

Band 1-RSE-V



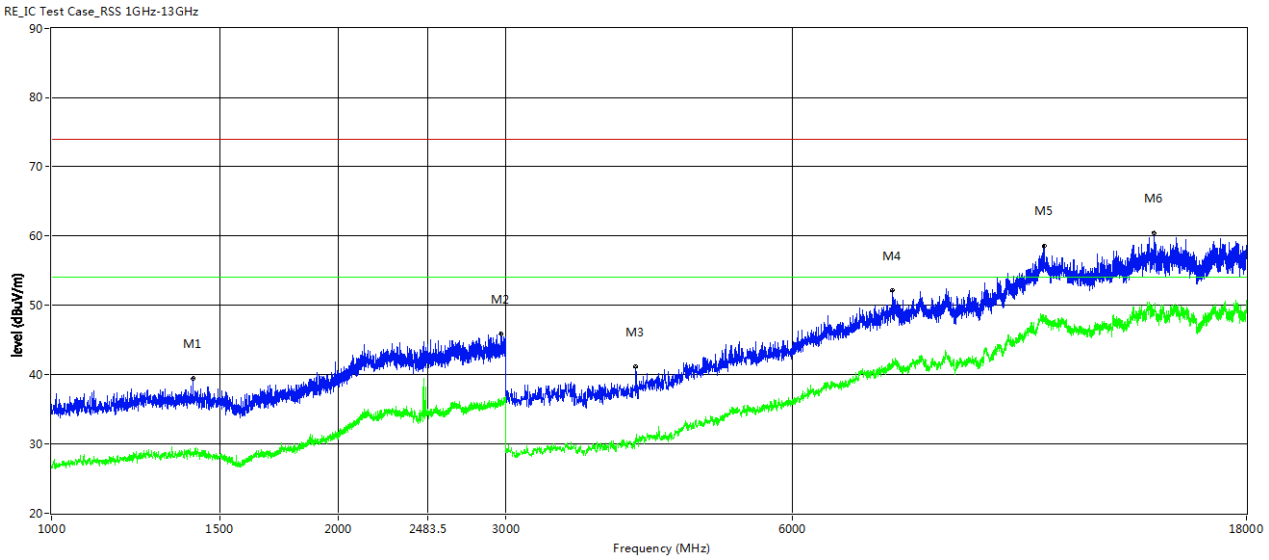
Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1337.500	38.91	--	28.30	-0.83	74.0	--	54.0	-25.70	Vertical	Pass
2464.500	45.50	--	39.89	4.02	74.0	--	54.0	-14.11	Vertical	Pass
5437.500	44.96	--	35.49	-4.86	74.0	--	54.0	-18.51	Vertical	Pass
10912.500	57.60	--	47.57	8.63	74.0	--	54.0	-6.43	Vertical	Pass
15390.000	59.92	--	48.95	10.86	74.0	--	54.0	-5.05	Vertical	Pass
17518.750	59.87	--	50.22	10.63	74.0	--	54.0	-3.78	Vertical	Pass

Band 2-RSE-H



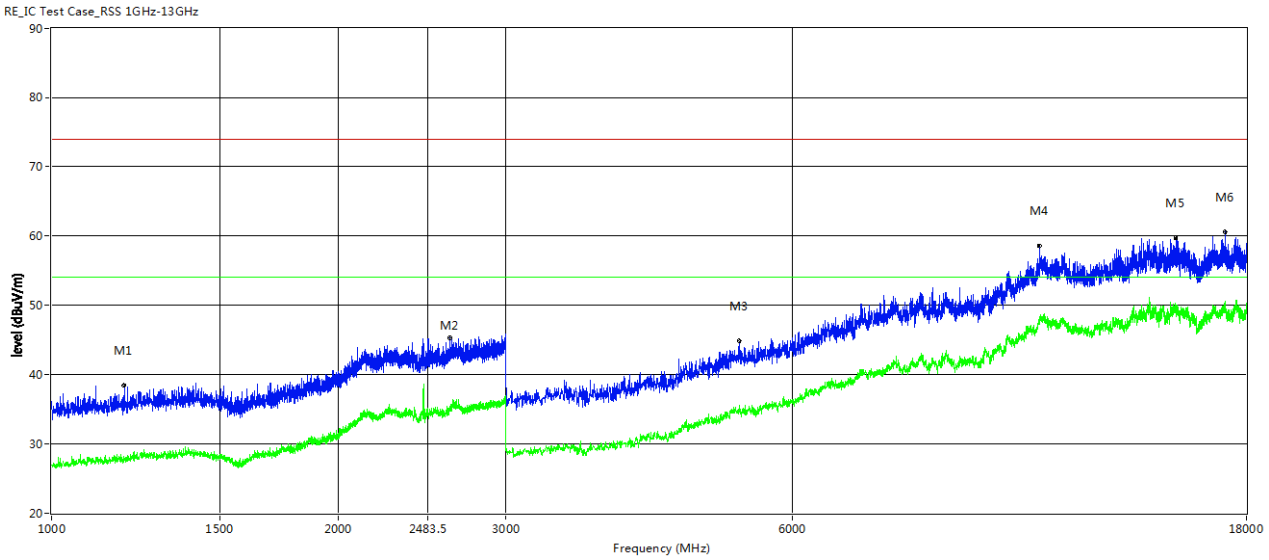
Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1315.000	38.51	--	28.22	-0.89	74.0	--	54.0	-25.78	Horizontal	Pass
2889.000	45.92	--	35.86	5.61	74.0	--	54.0	-18.14	Horizontal	Pass
8180.000	52.19	--	42.92	3.28	74.0	--	54.0	-11.08	Horizontal	Pass
11187.500	57.54	--	47.49	8.44	74.0	--	54.0	-6.51	Horizontal	Pass
13872.500	59.58	--	48.25	10.18	74.0	--	54.0	-5.75	Horizontal	Pass
17077.500	59.87	--	50.27	10.32	74.0	--	54.0	-3.73	Horizontal	Pass

Band 2-RSE-V



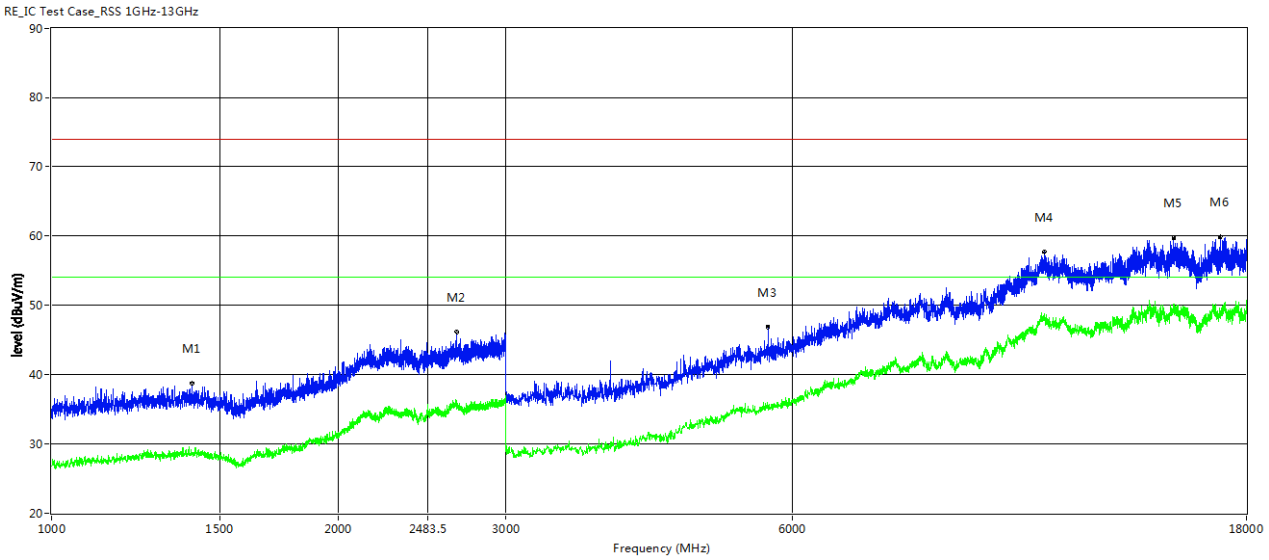
Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1408.000	39.42	--	28.82	-0.65	74.0	--	54.0	-25.18	Vertical	Pass
2962.500	45.82	--	35.82	5.95	74.0	--	54.0	-18.18	Vertical	Pass
4107.500	41.09	--	30.65	-9.83	74.0	--	54.0	-23.35	Vertical	Pass
7637.500	52.08	--	41.67	2.52	74.0	--	54.0	-12.33	Vertical	Pass
11020.000	58.51	--	48.10	8.81	74.0	--	54.0	-5.90	Vertical	Pass
14390.000	60.36	--	48.88	11.36	74.0	--	54.0	-5.12	Vertical	Pass

Band 3-RSE-H



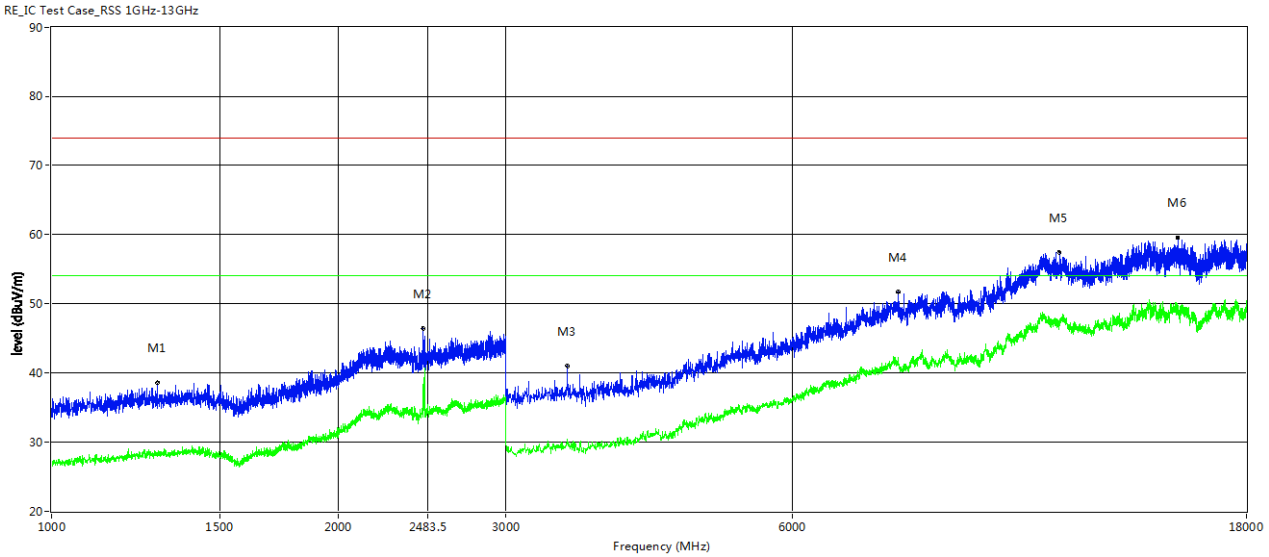
Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1191.500	38.37	--	27.85	-1.24	74.0	--	54.0	-26.15	Horizontal	Pass
2619.000	45.29	--	34.80	4.20	74.0	--	54.0	-19.20	Horizontal	Pass
5272.500	44.83	--	35.58	-4.97	74.0	--	54.0	-18.42	Horizontal	Pass
10912.500	58.55	--	48.23	8.63	74.0	--	54.0	-5.77	Horizontal	Pass
15158.750	59.75	--	49.33	10.74	74.0	--	54.0	-4.67	Horizontal	Pass
17072.500	60.59	--	49.99	10.29	74.0	--	54.0	-4.01	Horizontal	Pass

Band 3-RSE-V



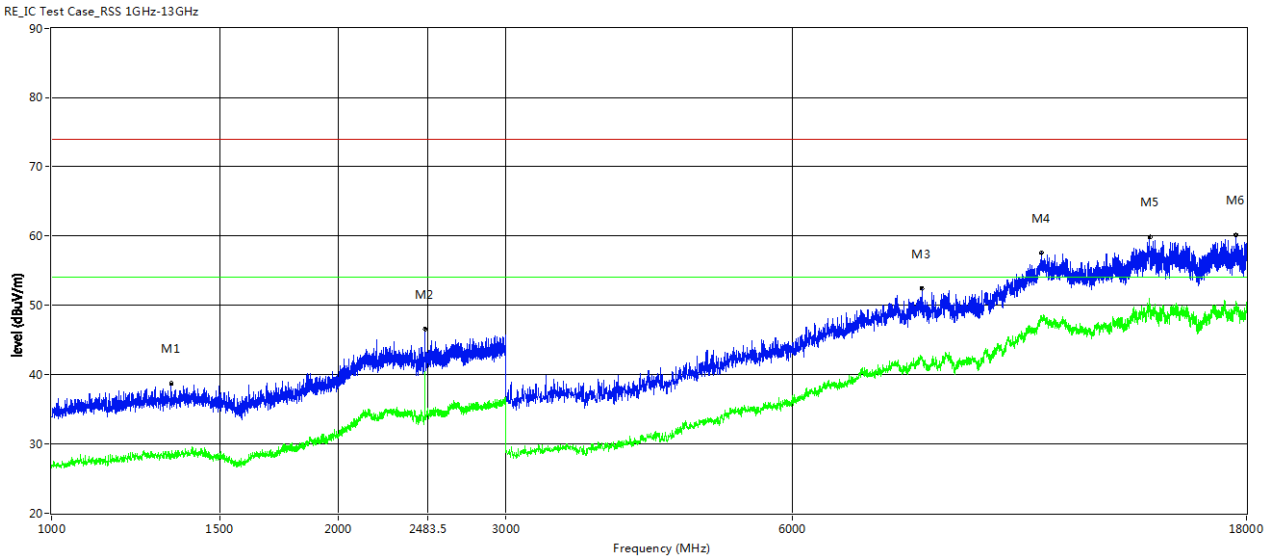
Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1404.000	38.69	--	28.81	-0.65	74.0	--	54.0	-25.19	Vertical	Pass
2663.500	46.09	--	35.14	4.50	74.0	--	54.0	-18.86	Vertical	Pass
5657.500	46.90	--	34.90	-4.05	74.0	--	54.0	-19.10	Vertical	Pass
11040.000	57.75	--	48.12	8.74	74.0	--	54.0	-5.88	Vertical	Pass
15071.250	59.78	--	49.06	10.33	74.0	--	54.0	-4.94	Vertical	Pass
16872.500	59.84	--	48.45	9.65	74.0	--	54.0	-5.55	Vertical	Pass

Band 4-RSE-H



Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1290.500	38.51	--	28.13	-0.93	74.0	--	54.0	-25.87	Horizontal	Pass
2456.000	46.50	--	38.39	4.05	74.0	--	54.0	-15.61	Horizontal	Pass
3477.500	41.05	--	29.64	-11.48	74.0	--	54.0	-24.36	Horizontal	Pass
7747.500	51.73	--	41.37	2.60	74.0	--	54.0	-12.63	Horizontal	Pass
11442.500	57.48	--	47.05	8.48	74.0	--	54.0	-6.95	Horizontal	Pass
15245.000	59.63	--	49.53	10.56	74.0	--	54.0	-4.47	Horizontal	Pass

Band 4-RSE-V



Frequency (MHz)	Peak Level (dBuV/m)	Q-peak Level (dBuV/m)	Average Level (dBuV/m)	Factor (dB)	PK Limit (dBuV/m)	QP Limit (dBuV/m)	AV Limit (dBuV/m)	Over Limit (dB)	ANT	Verdict
1334.500	38.70	--	28.56	-0.84	74.0	--	54.0	-25.44	Vertical	Pass
2464.500	46.55	--	39.65	4.02	74.0	--	54.0	-14.35	Vertical	Pass
8212.500	52.37	--	42.08	3.32	74.0	--	54.0	-11.92	Vertical	Pass
10965.000	57.52	--	47.78	8.78	74.0	--	54.0	-6.22	Vertical	Pass
14231.250	59.85	--	49.75	11.36	74.0	--	54.0	-4.25	Vertical	Pass
17517.500	60.07	--	49.68	10.64	74.0	--	54.0	-4.32	Vertical	Pass

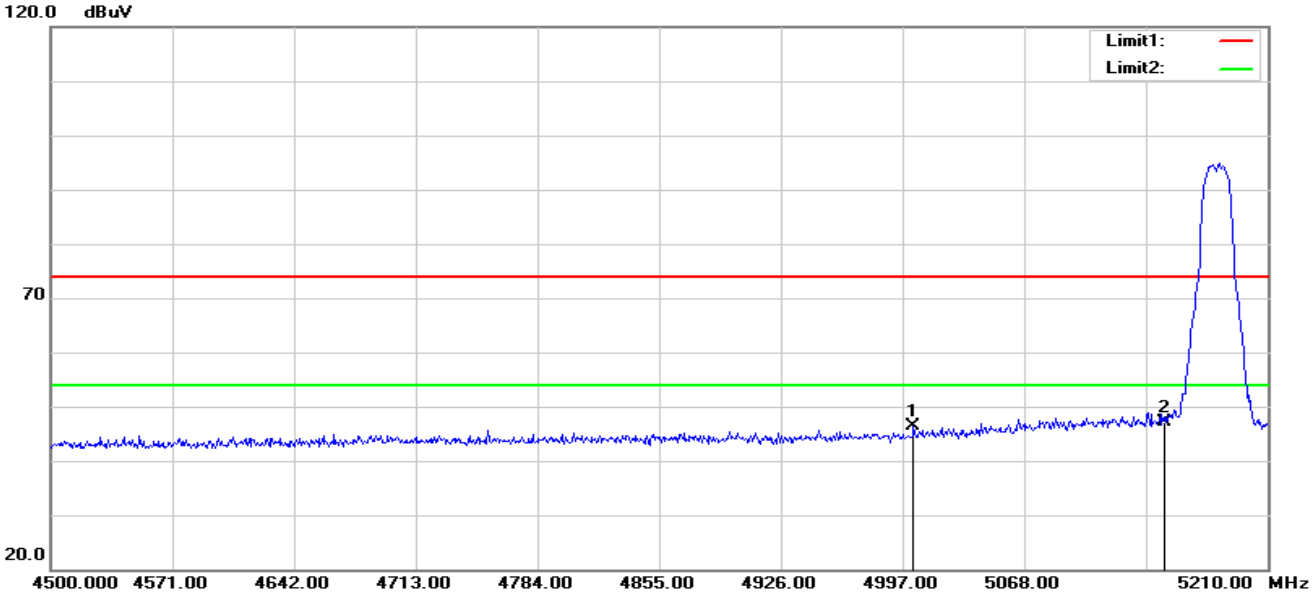
Note: All mode has been tested, only shown the worst case in this report.

3.2.9 Band Edge

Band I 5150-5250MHz

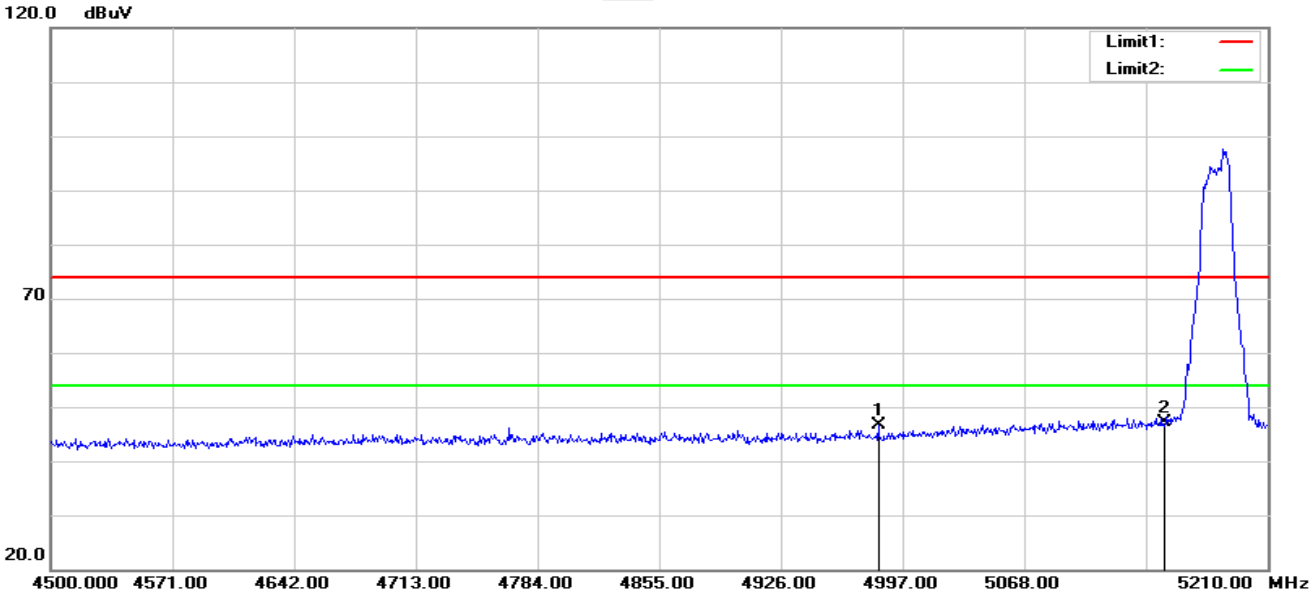
Ant B/802.11a Low

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	5003.390	52.50	-6.18	46.32	74.00	-27.68	peak
2	5150.000	52.82	-5.73	47.09	74.00	-26.91	peak

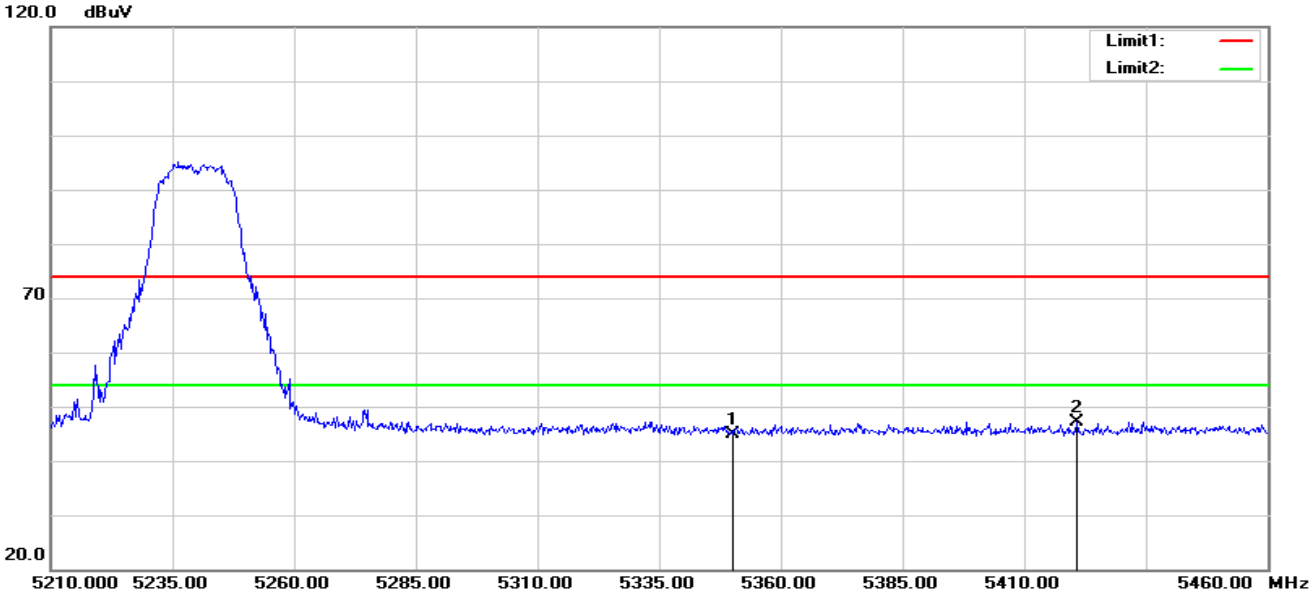
Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	4982.800	52.92	-6.30	46.62	74.00	-27.38	peak
2	5150.000	52.82	-5.73	47.09	74.00	-26.91	peak

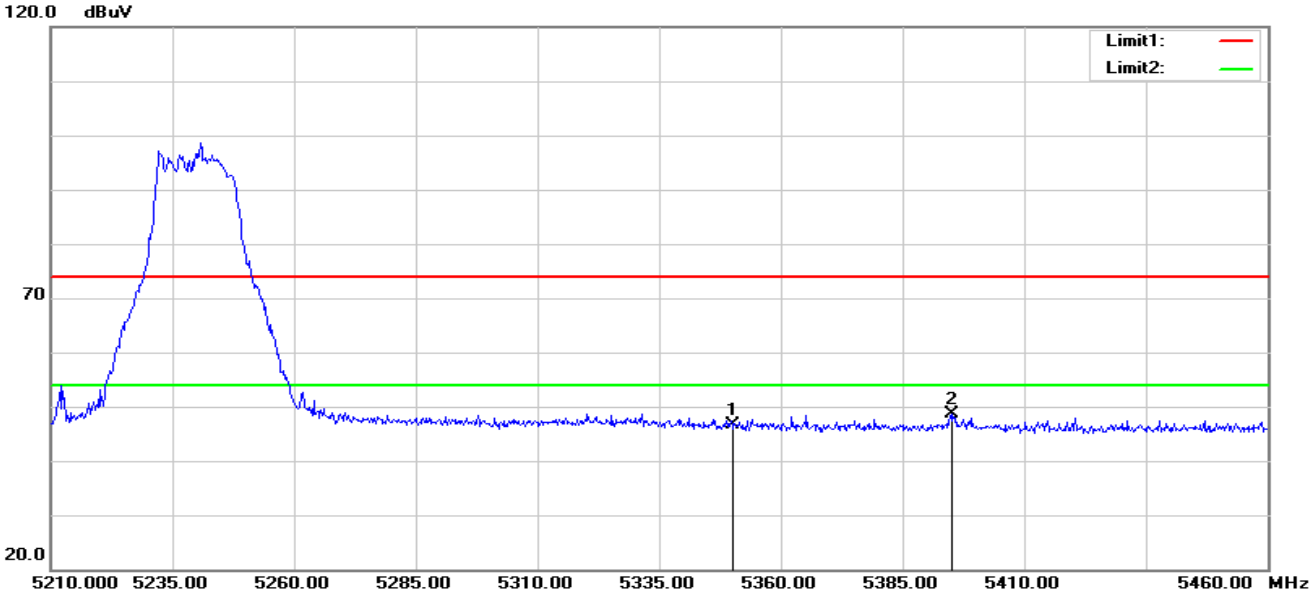
Ant B/802.11a High

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	5350.000	50.22	-5.23	44.99	74.00	-29.01	peak
2	5420.750	52.36	-5.20	47.16	74.00	-26.84	peak

Vertical



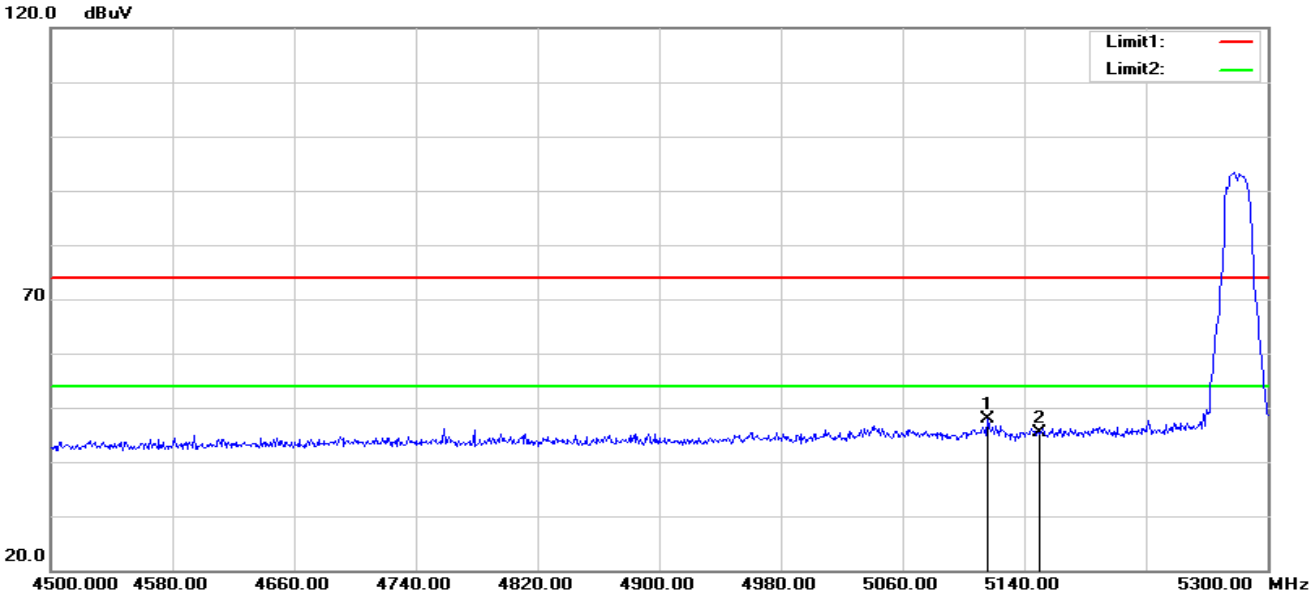
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	5350.000	51.90	-5.23	46.67	74.00	-27.33	peak
2	5395.250	53.82	-5.24	48.58	74.00	-25.42	peak

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

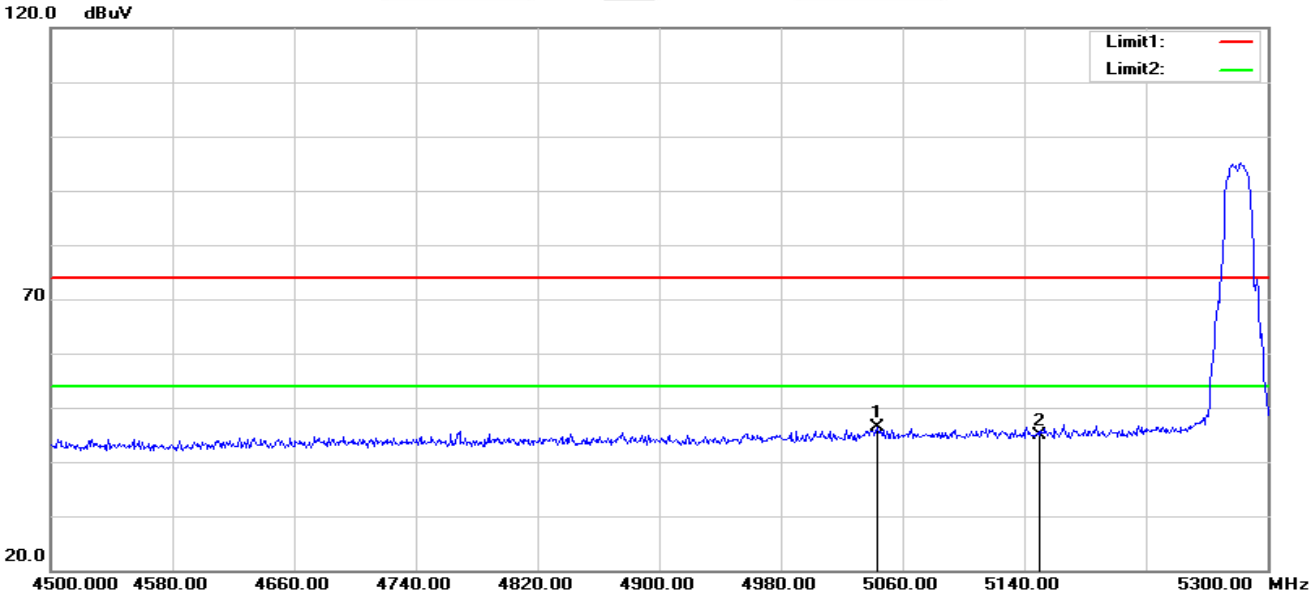
Ant B/802.11a Low

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	5116.000	53.61	-5.74	47.87	74.00	-26.13	peak
2	5150.000	51.03	-5.73	45.30	74.00	-28.70	peak

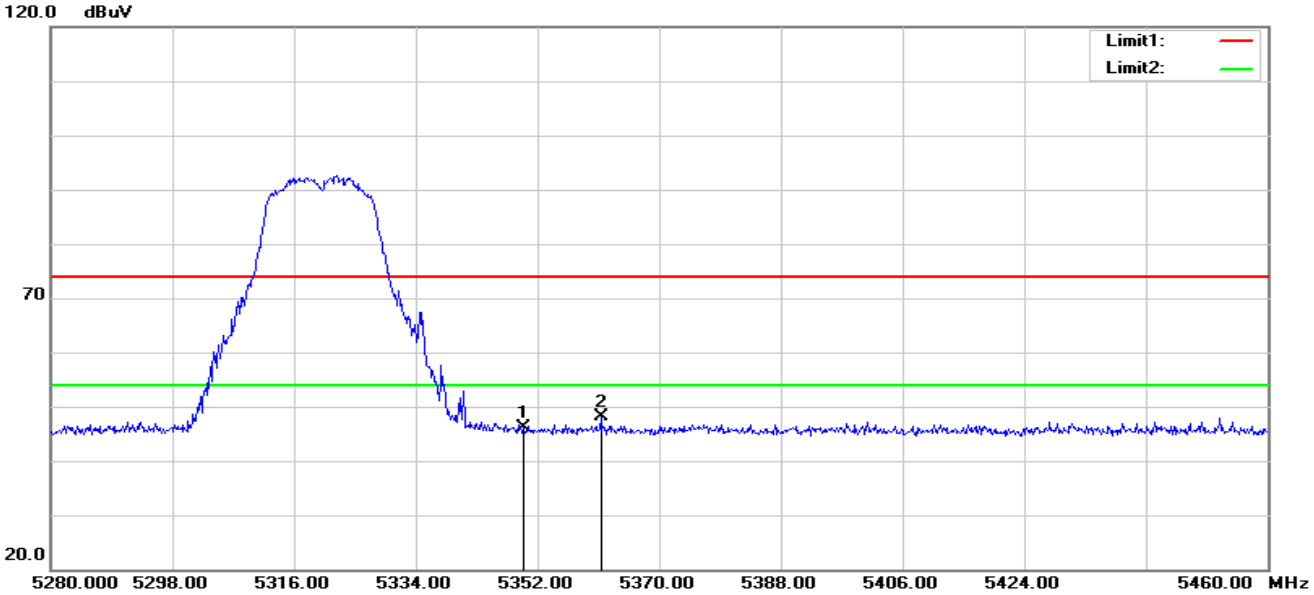
Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	5043.200	52.41	-6.00	46.41	74.00	-27.59	peak
2	5150.000	50.70	-5.73	44.97	74.00	-29.03	peak

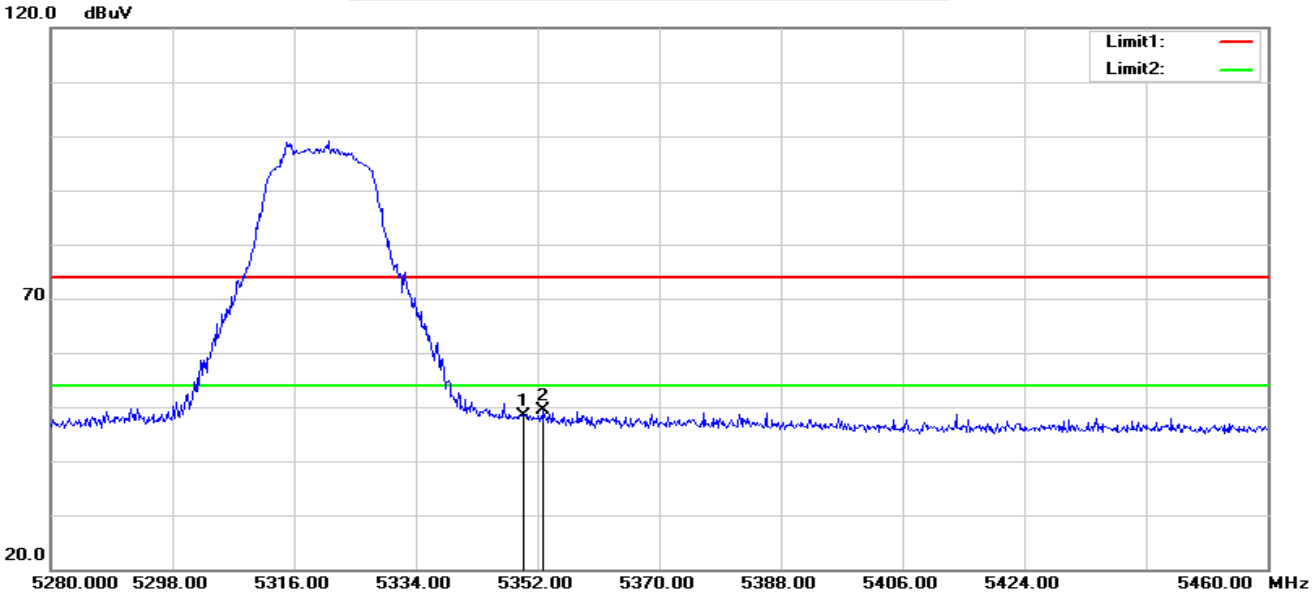
Ant B/802.11a High

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	5350.000	51.43	-5.23	46.20	74.00	-27.80	peak
2	5361.360	53.46	-5.23	48.23	74.00	-25.77	peak

Vertical



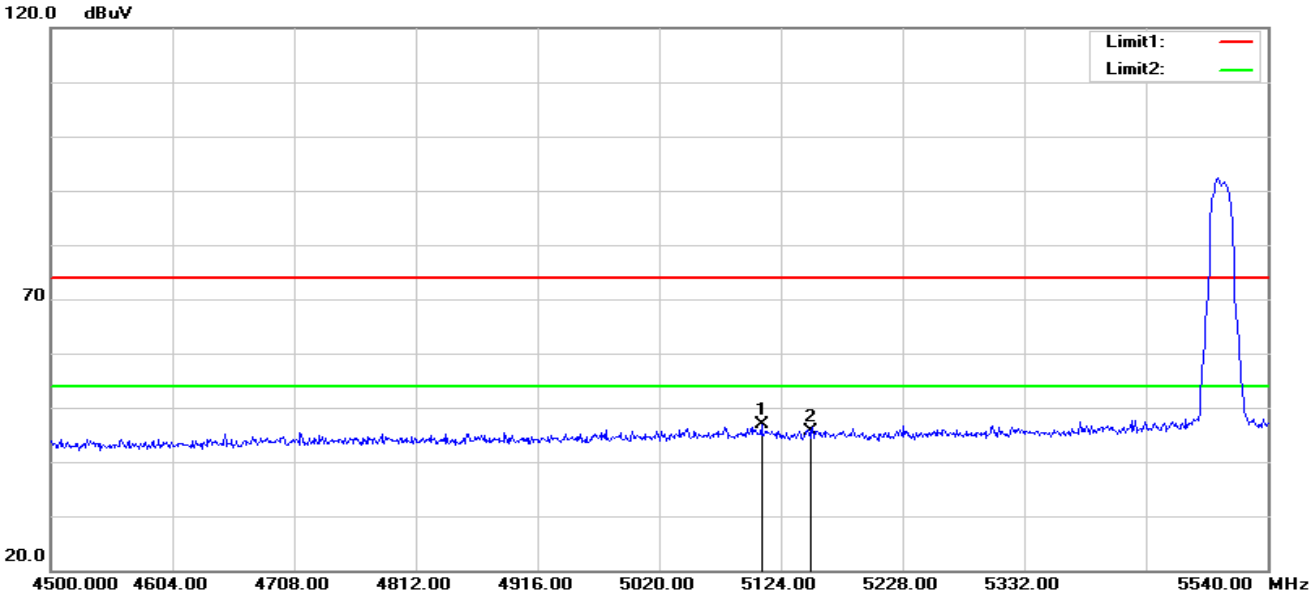
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	5350.000	53.66	-5.23	48.43	74.00	-25.57	peak
2	5352.900	54.60	-5.23	49.37	74.00	-24.63	peak

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

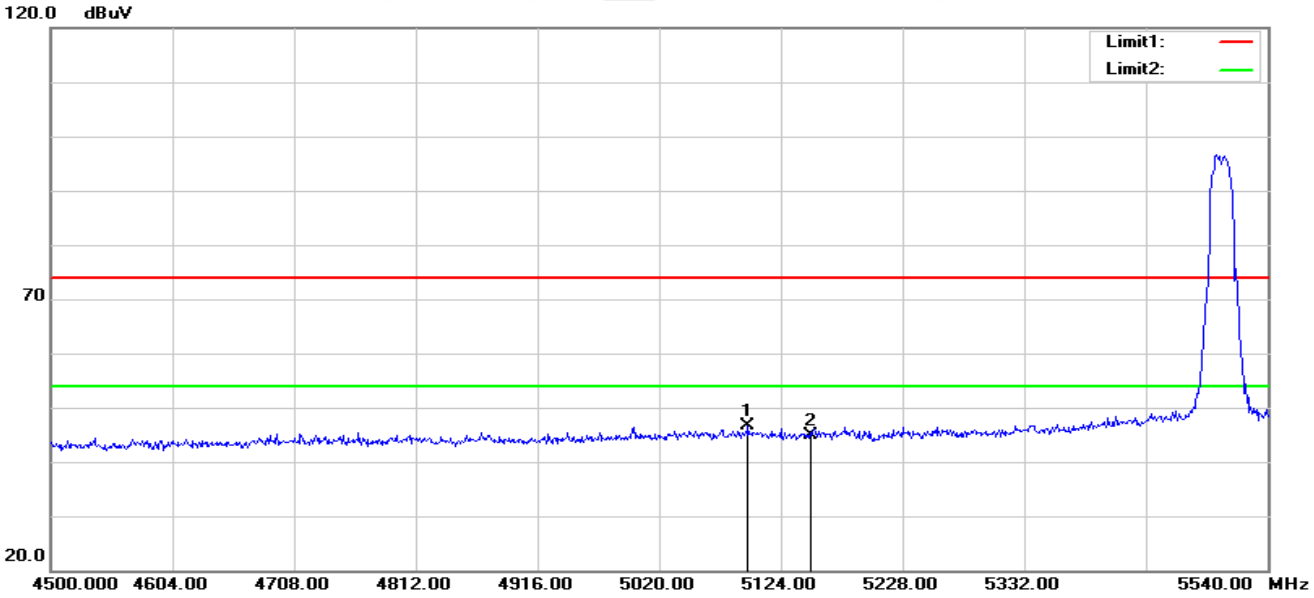
Ant B/802.11a Low

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	5107.360	52.53	-5.74	46.79	74.00	-27.21	peak
2	5150.000	51.43	-5.73	45.70	74.00	-28.30	peak

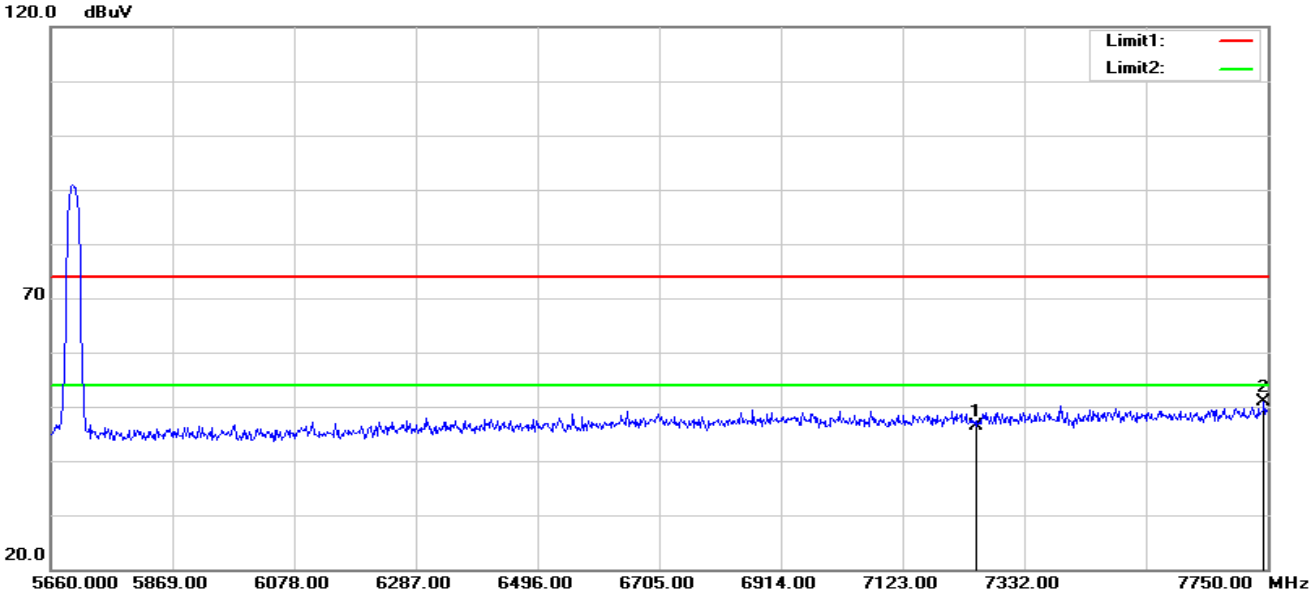
Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	5095.920	52.34	-5.76	46.58	74.00	-27.42	peak
2	5150.000	50.65	-5.73	44.92	74.00	-29.08	peak

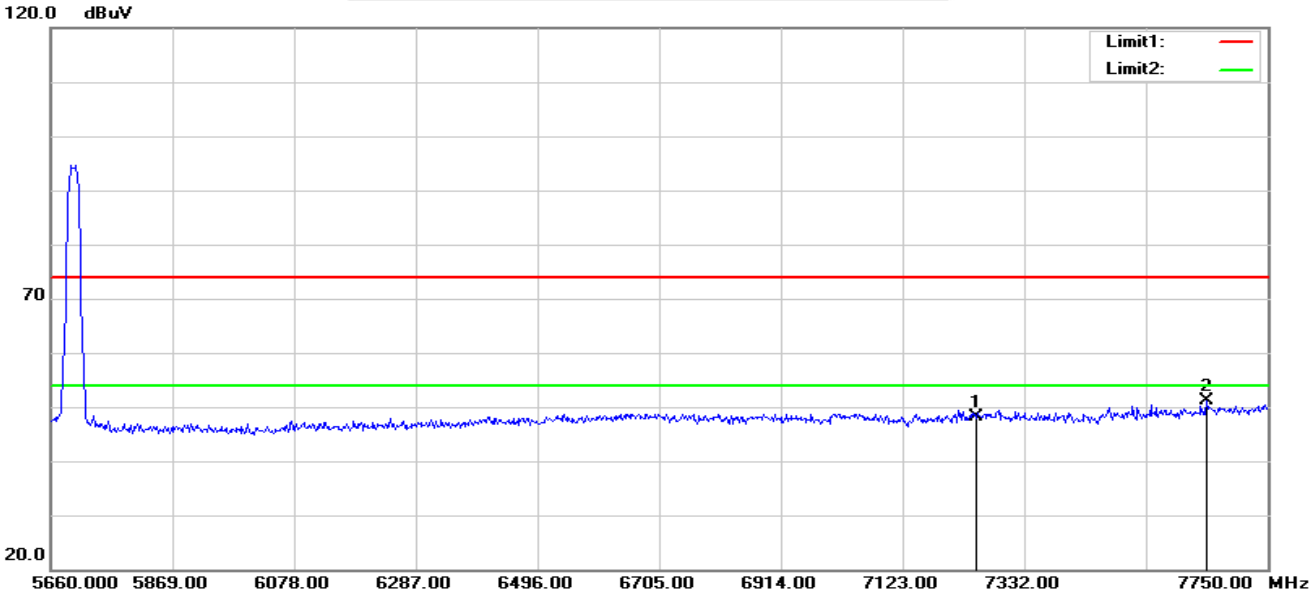
Ant B/802.11a High

Horizontal



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB)	(dBuV)	(dBuV)	(dB)	
1	7250.000	45.71	0.72	46.43	74.00	-27.57	peak
2	7743.730	48.89	1.90	50.79	74.00	-23.21	peak

Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	Factor(dB)	(dBuV)	(dBuV)	(dB)	
1	7250.000	47.38	0.72	48.10	74.00	-25.90	peak
2	7645.500	49.22	1.79	51.01	74.00	-22.99	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

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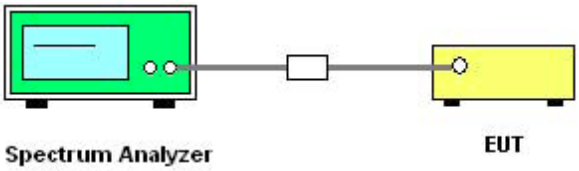
For Band edge

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



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

FCC:

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.

IC:

1. For the 5.15-5.25 GHz, The e.i.r.p. spectral density shall not exceed 10 dBm in any 1.0 MHz band.
2. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.
3. The output power spectral density shall not exceed 30 dBm in any 500 kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the output power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed point-to-pointoperations exclude the use of point-to-multipoint systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

5.2 TEST PROCEDURE

1. The setting follows Method SA-1 of FCC KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.

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.

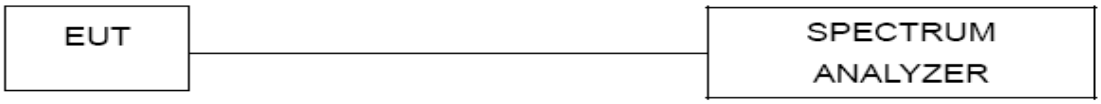
e) Care must be taken to ensure that the measurements are performed during a period of continuous transmission or are corrected upward for duty cycle.

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



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	0.56	1.66	0.20	0.20	0.761	1.855	--	11	PASS
5200	-0.28	2.35	0.20	0.20	-0.079	2.546	--	11	PASS
5240	-0.62	1.03	0.20	0.20	-0.417	1.232	--	11	PASS
802.11n20									
5180	0.19	0.75	0.16	0.16	0.353	0.906	3.649	11	PASS
5200	-0.55	0.51	0.16	0.16	-0.389	0.672	3.184	11	PASS
5240	-1.20	0.53	0.16	0.16	-1.040	0.686	2.918	11	PASS
802.11n40									
5190	-2.68	-1.49	0.70	0.70	-1.975	-0.788	1.669	11	PASS
5230	-4.17	-1.72	0.70	0.70	-3.469	-1.019	0.937	11	PASS
802.11ac20									
5180	0.02	0.78	0.16	0.16	0.180	0.935	3.584	11	PASS
5200	-0.44	0.60	0.16	0.16	-0.282	0.761	3.281	11	PASS
5240	-1.33	0.30	0.16	0.16	-1.170	0.456	2.729	11	PASS
802.11ac40									
5190	-2.95	-1.97	0.71	0.71	-2.240	-1.260	1.288	11	PASS
5230	-3.79	-2.58	0.71	0.71	-3.084	-1.870	0.576	11	PASS
802.11ac80									
5210	-6.38	-4.87	0.70	0.70	-5.680	-4.167	-1.848	11	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	-0.99	0.26	0.21	0.21	-0.783	0.466	--	11	PASS
5300	-0.72	-0.03	0.21	0.21	-0.506	0.177	--	11	PASS
5320	-1.77	0.30	0.21	0.21	-1.563	0.511	--	11	PASS
802.11n20									
5260	-1.94	-0.56	0.17	0.17	-1.767	-0.392	1.985	11	PASS
5300	-0.71	0.64	0.17	0.17	-0.538	0.812	3.200	11	PASS
5320	-1.32	-0.07	0.17	0.17	-1.145	0.104	2.535	11	PASS
802.11n40									
5270	-4.66	-2.88	0.70	0.70	-3.961	-2.175	0.033	11	PASS
5310	-4.52	-3.38	0.70	0.70	-3.822	-2.679	-0.203	11	PASS
802.11ac20									
5260	-1.28	-0.32	0.17	0.17	-1.105	-0.147	2.411	11	PASS
5300	-1.57	0.01	0.17	0.17	-1.398	0.182	2.474	11	PASS
5320	-1.63	-0.41	0.17	0.17	-1.459	-0.240	2.203	11	PASS
802.11ac40									
5270	-4.65	-2.76	0.71	0.71	-3.944	-2.048	0.117	11	PASS
5310	-4.06	-2.86	0.71	0.71	-3.351	-2.151	0.301	11	PASS
802.11ac80									
5290	-7.24	-5.92	0.71	0.71	-6.528	-5.208	-2.808	11	PASS

5470-5725MHz									
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									
5500	-1.92	-0.84	0.21	0.21	-1.711	-0.629	--	11	PASS
5580	-1.80	-1.14	0.21	0.21	-1.592	-0.925	--	11	PASS
5700	-1.59	-0.09	0.21	0.21	-1.377	0.119	--	11	PASS
802.11n20									
5500	-2.10	-1.06	0.17	0.17	-1.930	-0.891	1.631	11	PASS
5580	-2.12	-0.75	0.17	0.17	-1.945	-0.575	1.804	11	PASS
5700	-1.96	-0.31	0.17	0.17	-1.787	-0.144	2.122	11	PASS
802.11n40									
5510	-4.21	-3.85	0.70	0.70	-3.506	-3.145	-0.311	11	PASS
5550	-2.59	-0.96	0.70	0.70	-1.885	-0.258	2.015	11	PASS
5670	-4.87	-3.30	0.70	0.70	-4.172	-2.600	-0.305	11	PASS
802.11ac20									
5500	3.54	-1.32	0.16	0.16	3.700	-1.158	4.928	11	PASS
5580	3.48	-1.09	0.16	0.16	3.640	-0.932	4.940	11	PASS
5700	3.73	-0.16	0.16	0.16	3.890	-0.004	5.376	11	PASS
802.11ac40									
5510	-4.63	-3.80	0.68	0.68	-3.945	-3.120	-0.503	11	PASS
5550	-4.47	-3.66	0.68	0.68	-3.785	-2.980	-0.354	11	PASS
5670	-4.63	-3.09	0.68	0.68	-3.948	-2.407	-0.099	11	PASS
802.11ac80									
5530	-4.84	-3.47	0.70	0.70	-4.140	-2.774	-0.393	11	PASS
5610	-7.52	-6.14	0.70	0.70	-6.823	-5.435	-3.063	11	PASS

5725-5850MHz									
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									
5745	-0.32	0.65	0.64	0.64	0.321	1.293	--	30	PASS
5785	-0.66	0.73	0.64	0.64	-0.019	1.368	--	30	PASS
5825	-0.89	0.78	0.64	0.64	-0.248	1.417	--	30	PASS
802.11n20									
5745	-1.01	0.38	0.67	0.67	-0.341	1.043	3.416	30	PASS
5785	-0.90	0.97	0.67	0.67	-0.231	1.636	3.812	30	PASS
5825	-1.46	0.52	0.67	0.67	-0.790	1.183	3.317	30	PASS
802.11n40									
5755	-4.05	-2.48	0.69	0.69	-3.358	-1.788	0.508	30	PASS
5795	-4.12	-2.53	0.69	0.69	-3.437	-1.846	0.441	30	PASS
802.11ac20									
5745	-0.10	0.66	0.67	0.67	0.578	1.333	3.983	30	PASS
5785	-0.70	0.47	0.67	0.67	-0.025	1.143	3.609	30	PASS
5825	-1.50	0.58	0.67	0.67	-0.823	1.255	3.350	30	PASS
802.11ac40									
5755	-3.74	-2.55	0.67	0.67	-3.075	-1.886	0.570	30	PASS
5795	-4.03	-2.49	0.67	0.67	-3.357	-1.825	0.486	30	PASS
802.11ac80									
5775	-6.62	-5.71	0.58	0.58	-6.048	-5.130	-2.554	30	PASS

Band I (5.15-5.25GHz)										
Test Channel	Frequency (MHz)	Ant_A Power Density(dBm)	Ant_B Power Density(dBm)	Duty factor(dB)	Ant_A Power Density(dBm)	Ant_B Power Density(dBm)	Power Density Total(dBm)	Ant Gain(dBi)	EIRP Power Density Total(dBm)	LIMIT (dBm)
802.11a										
36	5180	0.56	1.66	0.20	0.36	1.46	--	0.00	--	10
40	5200	-0.28	2.35	0.20	-0.48	2.15	--	0.00	--	10
48	5240	-0.62	1.03	0.20	-0.82	0.83	--	0.00	--	10
802.11n(HT20)										
36	5180	0.19	0.75	0.16	0.03	0.59	3.33	3.01	6.34	10
40	5200	-0.55	0.51	0.16	-0.71	0.35	2.86	3.01	5.87	10
48	5240	-1.20	0.53	0.16	-1.36	0.37	2.60	3.01	5.61	10
802.11n(HT40)										
38	5190	-2.68	-1.49	0.70	-3.38	-2.19	0.27	3.01	3.28	10
46	5230	-4.17	-1.72	0.70	-4.87	-2.42	-0.46	3.01	2.55	10
802.11ac(VHT20)										
36	5180	0.02	0.78	0.16	-0.14	0.62	3.26	3.01	6.27	10
40	5200	-0.44	0.60	0.16	-0.60	0.44	2.96	3.01	5.97	10
48	5240	-1.33	0.30	0.16	-1.49	0.14	2.41	3.01	5.42	10
802.11ac(VHT40)										
38	5190	-2.95	-1.97	0.71	-3.66	-2.68	-0.13	3.01	2.88	10
46	5230	-3.79	-2.58	0.71	-4.50	-3.29	-0.84	3.01	2.17	10
802.11ac(VHT80)										
42	5210	-6.38	-4.87	0.70	-7.08	-5.57	-3.25	3.01	-0.24	10

Test plots see Attachment B

6. BANDWIDTH MEASUREMENT

6.1 EMISSION BANDWIDTH (EBW) 26 BANDWID PROCEDURES / LIMIT

The following procedure shall be used for measuring 26 bandwidth.

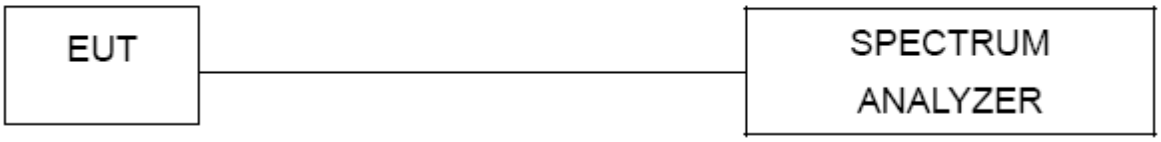
6.1.1 TEST PROCEDURE

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	22.30	Pass
5200	22.22	Pass
5240	23.07	Pass
802.11n(HT20)		
5180	23.59	Pass
5200	22.75	Pass
5240	22.47	Pass
802.11n(HT40)		
5190	38.75	Pass
5230	45.74	Pass
802.11ac(VHT20)		
5180	23.12	Pass
5200	22.59	Pass
5240	22.58	Pass
802.11ac(VHT40)		
5190	44.11	Pass
5230	46.43	Pass
802.11ac(VHT80)		
5210	86.47	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5260	22.99	Pass
5300	22.19	Pass
5320	22.26	Pass
802.11n(HT20)		
5260	22.71	Pass
5300	22.97	Pass
5320	22.56	Pass
802.11n(HT40)		
5270	44.32	Pass
5310	44.65	Pass
802.11ac(VHT20)		
5260	23.58	Pass
5300	22.24	Pass
5320	23.09	Pass
802.11ac(VHT40)		
5270	38.33	Pass
5310	45.01	Pass
802.11ac(VHT80)		
5290	77.72	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5500	22.60	Pass
5580	22.89	Pass
5700	23.70	Pass
802.11n(HT20)		
5500	23.79	Pass
5580	22.90	Pass
5700	22.60	Pass
802.11n(HT40)		
5510	45.46	Pass
5550	44.86	Pass
5670	43.99	Pass
802.11ac(VHT20)		
5500	21.24	Pass
5580	21.57	Pass
5700	21.52	Pass
802.11ac(VHT40)		
5510	45.37	Pass
5550	45.33	Pass
5670	44.45	Pass
802.11ac(VHT80)		
5530	84.62	Pass
5610	84.96	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5745	22.84	Pass
5785	19.45	Pass
5825	22.89	Pass
802.11n(HT20)		
5745	22.54	Pass
5785	19.37	Pass
5825	22.51	Pass
802.11n(HT40)		
5755	44.94	Pass
5795	44.34	Pass
802.11ac(VHT20)		
5745	22.25	Pass
5785	23.08	Pass
5825	22.43	Pass
802.11ac(VHT40)		
5755	37.95	Pass
5795	44.14	Pass
802.11ac(VHT80)		
5775	77.60	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.

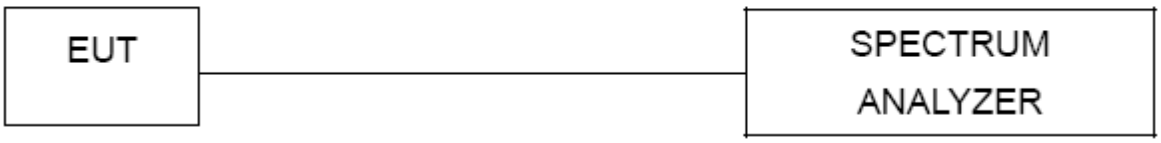
6. Use the 99 % power bandwidth function of the instrument (if available).

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	16.45	Pass
5200	16.46	Pass
5240	16.45	Pass
802.11n(HT20)		
5180	17.62	Pass
5200	17.63	Pass
5240	17.61	Pass
802.11n(HT40)		
5190	35.90	Pass
5230	36.12	Pass
802.11ac(VHT20)		
5180	17.61	Pass
5200	17.62	Pass
5240	17.62	Pass
802.11ac(VHT40)		
5190	36.13	Pass
5230	36.16	Pass
802.11ac(VHT80)		
5210	75.11	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5260	16.44	Pass
5300	16.43	Pass
5320	16.46	Pass
802.11n(HT20)		
5260	17.64	Pass
5300	17.61	Pass
5320	17.61	Pass
802.11n(HT40)		
5270	36.14	Pass
5310	36.08	Pass
802.11ac(VHT20)		
5260	17.64	Pass
5300	17.64	Pass
5320	17.62	Pass
802.11ac(VHT40)		
5270	35.79	Pass
5310	36.10	Pass
802.11ac(VHT80)		
5290	74.34	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5500	16.47	Pass
5580	16.48	Pass
5700	16.47	Pass
802.11n(HT20)		
5500	17.63	Pass
5580	17.63	Pass
5700	17.62	Pass
802.11n(HT40)		
5510	36.12	Pass
5550	36.10	Pass
5670	36.12	Pass
802.11ac(VHT20)		
5500	17.62	Pass
5580	17.62	Pass
5700	17.56	Pass
802.11ac(VHT40)		
5510	36.15	Pass
5550	36.10	Pass
5670	36.11	Pass
802.11ac(VHT80)		
5530	75.02	Pass
5610	75.06	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5745	16.45	Pass
5785	16.38	Pass
5825	16.45	Pass
802.11n(HT20)		
5745	17.61	Pass
5785	17.52	Pass
5825	17.63	Pass
802.11n(HT40)		
5755	36.13	Pass
5795	36.12	Pass
802.11ac(VHT20)		
5745	17.61	Pass
5785	17.61	Pass
5825	17.62	Pass
802.11ac(VHT40)		
5755	35.76	Pass
5795	36.12	Pass
802.11ac(VHT80)		
5775	72.59	Pass

Test plot See Attachment C

6.3 MINIMUM EMISSION BANDWIDTH(6 DB) PROCEDURES / LIMIT

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.

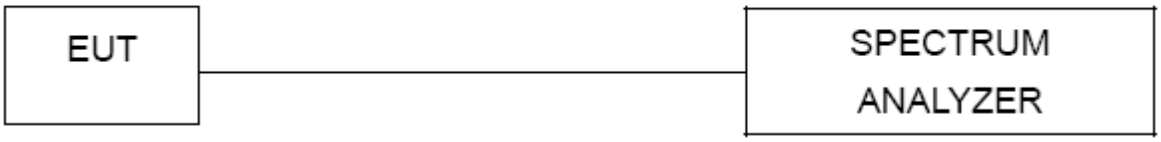
f) Allow the trace to stabilize.

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	14.99	Pass
5785	14.05	Pass
5825	15.68	Pass
802.11n(HT20)		
5745	15.92	Pass
5785	15.10	Pass
5825	15.09	Pass
802.11n(HT40)		
5755	35.08	Pass
5795	35.06	Pass
802.11ac(VHT20)		
5745	15.94	Pass
5785	14.13	Pass
5825	15.71	Pass
802.11ac(VHT40)		
5755	35.04	Pass
5795	35.03	Pass
802.11ac(VHT80)		
5775	62.66	Pass

Test plots see Attachment D

7. MAXIMUM CONDUCTED OUTPUT POWER

7.1 LIMIT

FCC:

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	

IC:

For devices in the 5.15-5.25 GHz band, the maximum e.i.r.p. shall not exceed 200 mW or 10 + 10 $\log_{10}$B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, The maximum conducted output power shall not exceed 250 mW or 11 + 10 $\log_{10}$B, dBm, whichever is less. The power spectral density shall not exceed 11 dBm in any 1.0 MHz band.

The maximum conducted output power shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the output power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed point-to-pointoperations exclude the use of point-to-multipoint systems, omnidirectional applications and multiple collocated transmitters transmitting the same information.

RSS-247 Issue 2, February 2017				
Section	Test Item	Limit	Frequency Range (MHz)	Result
6.2.1.1	Peak Output Power	200 mW or 10 + 10 $\log_{10}$B, dBm, whichever power is less. B is the 99% emission bandwidth in megahertz	5150-5250	PASS
6.2.2.1 6.2.3.1		The lesser of 250 mW or 11 dBm + 10 log (26 dB emission bandwidth)	5250-5350 5470-5725	
6.2.4.1		1 watt	5725-5825	

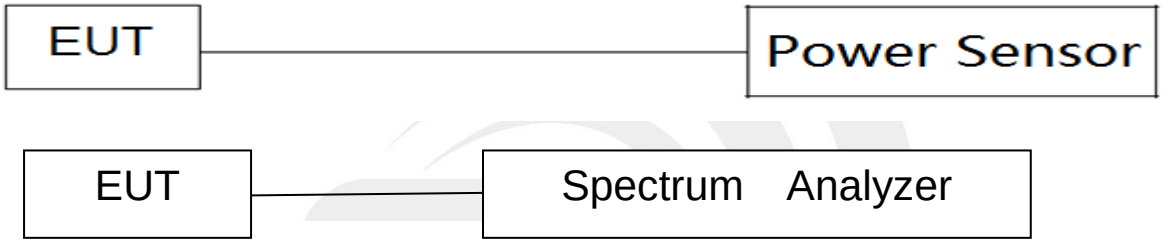
7.2 TEST PROCEDURE

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

Note:

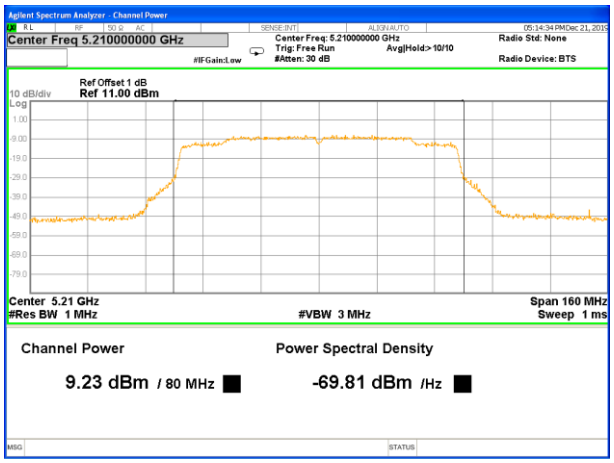
1. For mobile and portable client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 0.25 W.
2. For mobile and portable client devices in the 5.25-5.35 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed the lesser of 0.25 W.
3. 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.
4. 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.

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)
802.11a									
36	5180	3.41	5.08	0.20	0.20	3.61	5.28	--	23.98
40	5200	3.28	5.03	0.20	0.20	3.48	5.23	--	23.98
48	5240	2.83	5.18	0.20	0.20	3.03	5.38	--	23.98
802.11n(HT20)									
36	5180	3.34	5.06	0.16	0.16	3.50	5.22	7.45	23.98
40	5200	3.11	4.96	0.16	0.16	3.27	5.12	7.30	23.98
48	5240	2.84	5.10	0.16	0.16	3.00	5.26	7.29	23.98
802.11n(HT40)									
38	5190	2.80	4.60	0.70	0.70	3.50	5.30	7.50	23.98
46	5230	2.05	4.36	0.70	0.70	2.75	5.06	7.07	23.98
802.11ac(VHT20)									
36	5180	3.39	5.08	0.16	0.16	3.55	5.24	7.49	23.98
40	5200	3.20	4.98	0.16	0.16	3.36	5.14	7.35	23.98
48	5240	2.78	5.06	0.16	0.16	2.94	5.22	7.24	23.98
802.11ac(VHT40)									
38	5190	2.91	4.56	0.71	0.71	3.62	5.27	7.53	23.98
46	5230	2.17	4.28	0.71	0.71	2.88	4.99	7.07	23.98
802.11ac(VHT80)									
42	5210	9.23	10.15	0.70	0.70	9.93	10.85	13.42	23.98

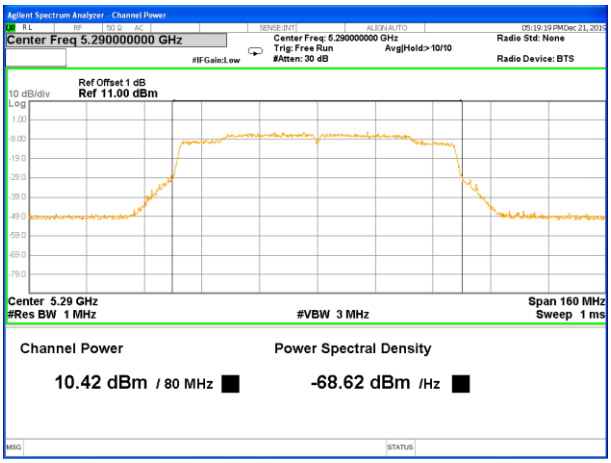
Band II(5.25-5.35GHz)									
Test Channel	Frequency (MHz)	Ant_A AV Power (dBm)	Ant B_AV Power (dBm)	Ant_A Duty cycle factor(dB)	Ant_B Duty cycle factor(dB)	AV Power (dBm)	AV Power B(dBm)	AV Power Total(dBm)	LIMIT (dBm)
802.11a									
52	5260	3.48	5.57	0.21	0.21	3.69	5.78	--	23.98
60	5300	3.52	5.49	0.21	0.21	3.73	5.70	--	23.98
64	5320	3.71	5.44	0.21	0.21	3.92	5.65	--	23.98
802.11n(HT20)									
52	5260	3.42	5.44	0.17	0.17	3.59	5.61	7.73	23.98
60	5300	3.48	5.39	0.17	0.17	3.65	5.56	7.72	23.98
64	5320	3.53	5.36	0.17	0.17	3.70	5.53	7.72	23.98
802.11n(HT40)									
54	5270	2.81	4.96	0.70	0.70	3.51	5.66	7.73	23.98
62	5310	3.01	4.84	0.70	0.70	3.71	5.54	7.73	23.98
802.11ac(VHT20)									
52	5260	3.39	5.47	0.17	0.17	3.56	5.64	7.73	23.98
60	5300	3.45	5.39	0.17	0.17	3.62	5.56	7.71	23.98
64	5320	3.61	5.39	0.17	0.17	3.78	5.56	7.77	23.98
802.11ac(VHT40)									
54	5270	2.74	4.87	0.71	0.71	3.45	5.58	7.65	23.98
62	5310	2.99	4.89	0.71	0.71	3.70	5.60	7.76	23.98
802.11ac(VHT80)									
58	5290	9.17	10.42	0.71	0.71	9.88	11.13	13.56	23.98

Band III(5.47-5.725GHz)									
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)	AV Power (dBm)	AV Power B(dBm)	AV Power Total(dBm)	LIMIT (dBm)
802.11a									
100	5500	3.61	4.81	0.21	0.21	3.82	5.02	--	23.98
116	5580	3.58	4.78	0.21	0.21	3.79	4.99	--	23.98
140	5700	3.90	5.52	0.21	0.21	4.11	5.73	--	23.98
802.11n(HT20)									
100	5500	3.51	4.81	0.17	0.17	3.68	4.98	7.39	23.98
116	5580	3.54	4.83	0.17	0.17	3.71	5.00	7.41	23.98
140	5700	3.83	5.58	0.17	0.17	4.00	5.75	7.97	23.98
802.11n(HT40)									
102	5510	2.94	4.21	0.70	0.70	3.64	4.91	7.33	23.98
110	5550	2.98	4.41	0.70	0.70	3.68	5.11	7.46	23.98
134	5670	3.03	4.77	0.70	0.70	3.73	5.47	7.70	23.98
802.11ac(VHT20)									
100	5500	3.54	4.84	0.16	0.16	3.70	5.00	7.41	23.98
116	5580	3.48	4.85	0.16	0.16	3.64	5.01	7.39	23.98
140	5700	3.73	5.59	0.16	0.16	3.89	5.75	7.93	23.98
802.11ac(VHT40)									
102	5510	2.96	4.40	0.68	0.68	3.64	5.08	7.43	23.98
110	5550	2.91	4.53	0.68	0.68	3.59	5.21	7.49	23.98
134	5670	3.02	4.71	0.68	0.68	3.70	5.39	7.64	23.98
802.11ac(VHT80)									
106	5530	8.67	10.20	0.70	0.70	9.37	10.90	13.21	23.98
122	5610	8.80	9.35	0.70	0.70	9.50	10.05	12.79	23.98

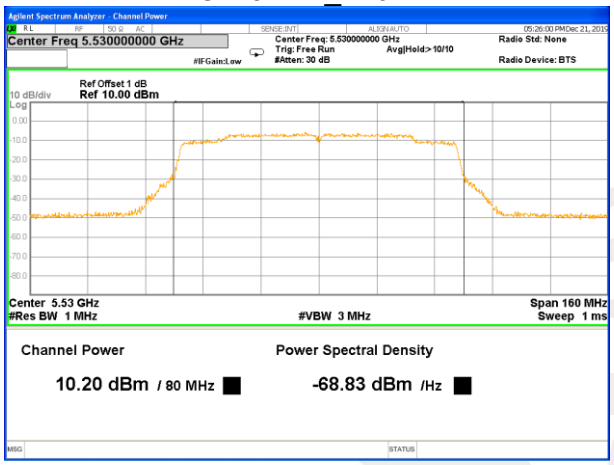
Band IV (5.725-5.85GHz)									
Test Channel	Frequency (MHz)	Ant_A AV Power (dBm)	Ant B_AV Power (dBm)	Ant_A Duty cycle factor(dB)	Ant_B Duty cycle factor(dB)	AV Power (dBm)	AV Power B(dBm)	AV Power Total(dBm)	LIMIT (dBm)
802.11a									
149	5745	3.74	5.20	0.64	0.64	4.38	5.84	--	30
157	5785	3.32	5.25	0.64	0.64	3.96	5.89	--	30
165	5825	3.58	5.46	0.64	0.64	4.22	6.10	--	30
802.11n(HT20)									
149	5745	3.67	5.01	0.67	0.67	4.34	5.68	8.069	30
157	5785	3.29	5.05	0.67	0.67	3.96	5.72	7.936	30
165	5825	3.39	5.38	0.67	0.67	4.06	6.05	8.176	30
802.11n(HT40)									
151	5755	3.11	4.49	0.69	0.69	3.80	5.18	7.552	30
159	5795	2.78	4.52	0.69	0.69	3.47	5.21	7.434	30
802.11ac(VHT20)									
149	5745	3.69	5.10	0.67	0.67	4.36	5.77	8.136	30
157	5785	3.25	5.10	0.67	0.67	3.92	5.77	7.956	30
165	5825	3.54	5.31	0.67	0.67	4.21	5.98	8.198	30
802.11ac(VHT40)									
151	5755	3.17	4.51	0.67	0.67	3.84	5.18	7.569	30
159	5795	2.70	4.50	0.67	0.67	3.37	5.17	7.370	30
802.11ac(VHT80)									
155	5775	11.66	12.59	0.58	0.58	12.24	13.17	15.736	30



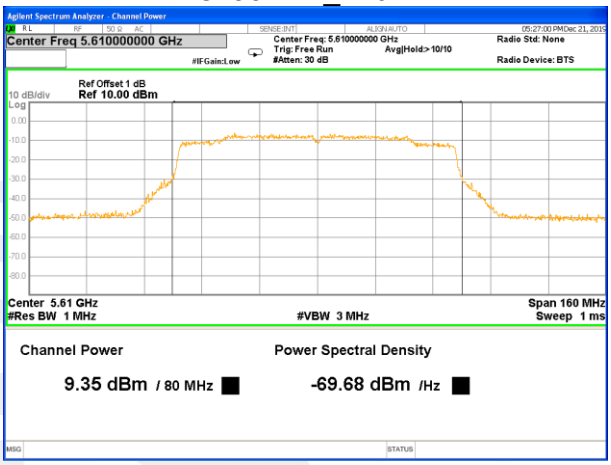
5210MHz_Ant B



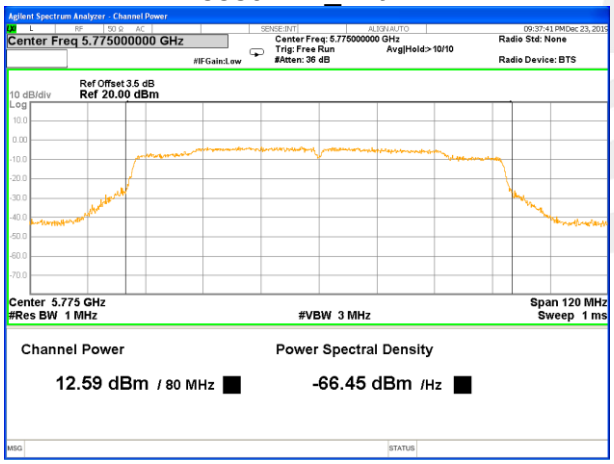
5290MHz_Ant B



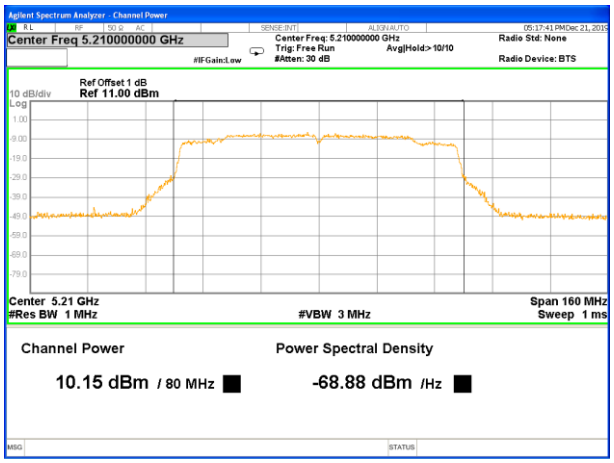
5530MHz_Ant B



5610MHz_Ant B



5775MHz_Ant B



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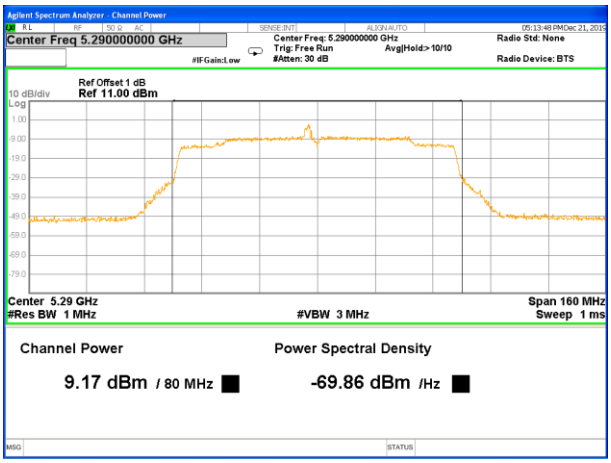
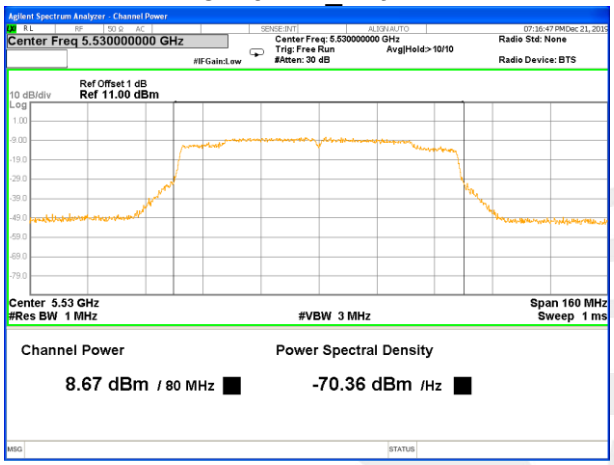


5290MHz_Ant A



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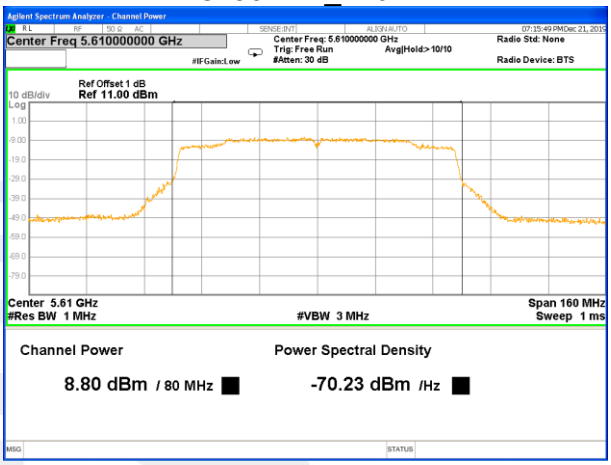
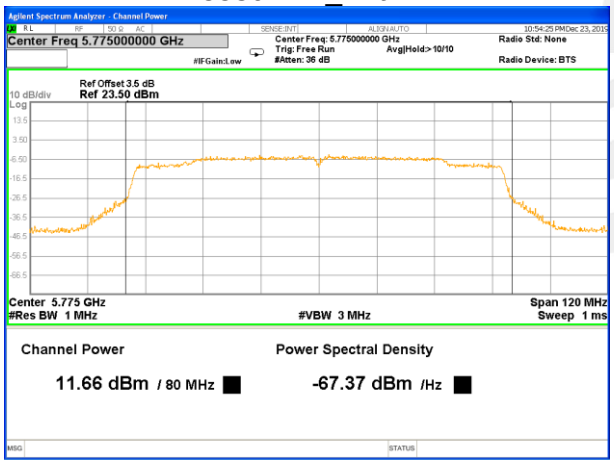


5610MHz_Ant A



5775MHz_Ant A

EIRP Power

Band I (5.15-5.25GHz)-EIRP										
Test Channel	Frequency (MHz)	Ant_A AV Power (dBm)	Ant B_AV Power (dBm)	Duty factor(dB)	Ant_A AV Power (dBm)	Ant B_AV Power (dBm)	AV Power Total(dBm)	Ant Gain(dBi)	EIRP Power Total(dBm)	LIMIT (dBm)
802.11a										
36	5180	3.41	5.08	0.20	3.21	4.88	--	0.00	--	23.01
40	5200	3.28	5.03	0.20	3.08	4.83	--	0.00	--	23.01
48	5240	2.83	5.18	0.20	2.63	4.98	--	0.00	--	23.01
802.11n(HT20)										
36	5180	3.34	5.06	0.16	3.18	4.90	7.13	3.01	10.14	23.01
40	5200	3.11	4.96	0.16	2.95	4.80	6.98	3.01	9.99	23.01
48	5240	2.84	5.10	0.16	2.68	4.94	6.97	3.01	9.98	23.01
802.11n(HT40)										
38	5190	2.80	4.60	0.70	2.10	3.90	6.10	3.01	9.11	23.01
46	5230	2.05	4.36	0.70	1.35	3.66	5.67	3.01	8.68	23.01
802.11ac(VHT20)										
36	5180	3.39	5.08	0.16	3.23	4.92	7.17	3.01	10.18	23.01
40	5200	3.20	4.98	0.16	3.04	4.82	7.03	3.01	10.04	23.01
48	5240	2.78	5.06	0.16	2.62	4.90	6.92	3.01	9.93	23.01
802.11ac(VHT40)										
38	5190	2.91	4.56	0.71	2.20	3.85	6.11	3.01	9.12	23.01
46	5230	2.17	4.28	0.71	1.46	3.57	5.65	3.01	8.66	23.01
802.11ac(VHT80)										
42	5210	9.23	10.15	0.70	8.53	9.45	12.02	3.01	15.03	23.01

Duty cycle

5150-5250MHz				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	2.064	2.160	95.56%	0.20
n20	1.926	1.998	96.40%	0.16
n40	0.945	1.110	85.14%	0.70
ac20	1.932	2.004	96.41%	0.16
ac40	0.951	1.119	84.99%	0.71
ac80	0.468	0.549	85.21%	0.70

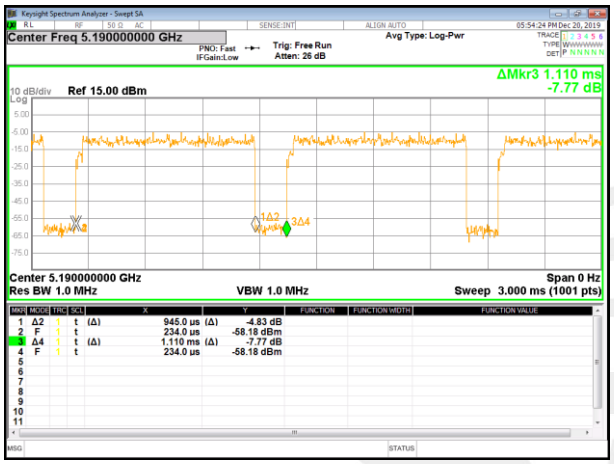
5250-5350MHz				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	2.060	2.160	95.37%	0.21
n20	1.920	1.995	96.24%	0.17
n40	0.945	1.110	85.14%	0.70
ac20	1.930	2.005	96.26%	0.17
ac40	0.951	1.119	84.99%	0.71
ac80	0.466	0.549	84.92%	0.71

5470-5725MHz				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	2.060	2.160	95.37%	0.21
n20	1.920	1.995	96.24%	0.17
n40	0.945	1.110	85.14%	0.70
ac20	1.932	2.005	96.36%	0.16
ac40	0.957	1.119	85.52%	0.68
ac80	0.468	0.550	85.04%	0.70

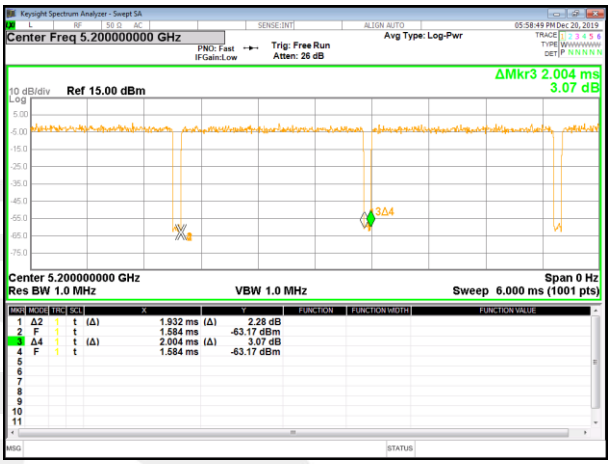
5725-5850MHz				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	2.070	2.400	86.25%	0.64
n20	1.950	2.274	85.75%	0.67
n40	0.945	1.107	85.37%	0.69
ac20	1.932	2.256	85.64%	0.67
ac40	0.957	1.116	85.75%	0.67
ac80	0.480	0.548	87.59%	0.58

Band 1-a20

Band 1-n20



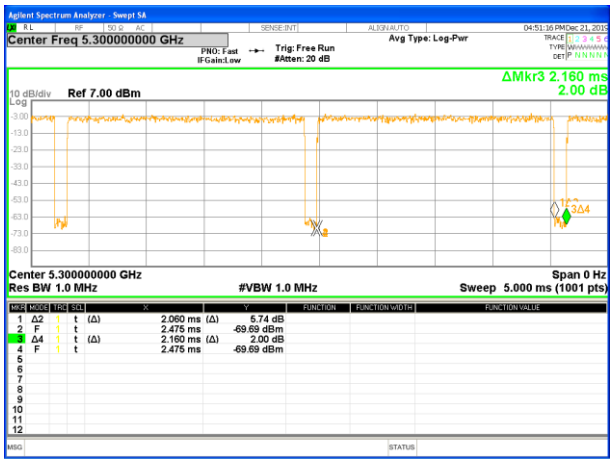
Band 1-n40



Band 1-ac20

Band 1-ac40

Band 1-ac80



Band 2-a20

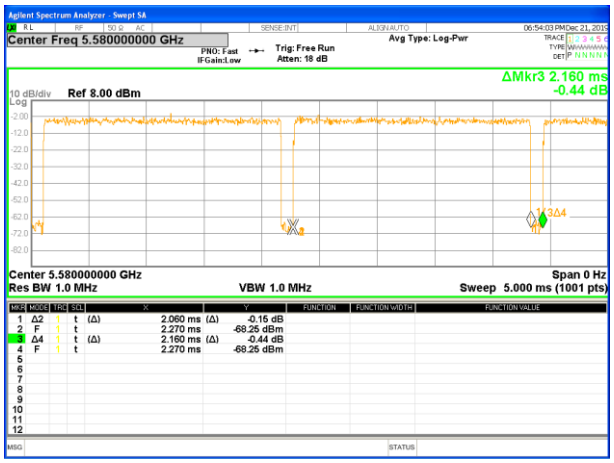
Band 2-n20

Band 2-n40

Band 2-ac20

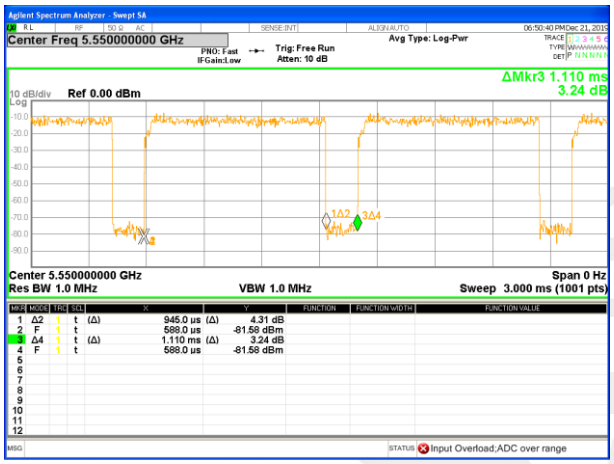
Band 2-ac40

Band 2-ac80

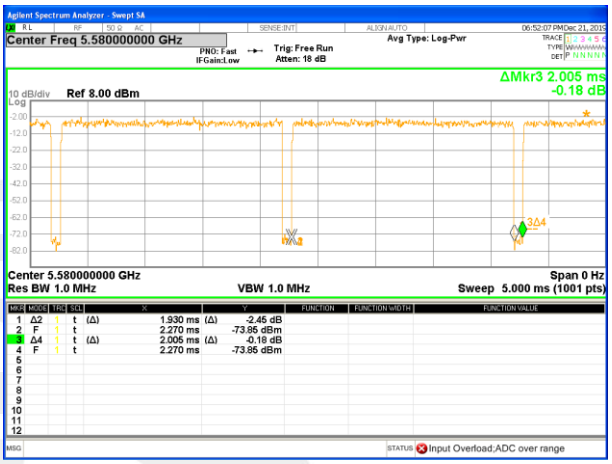


Band 3-a20

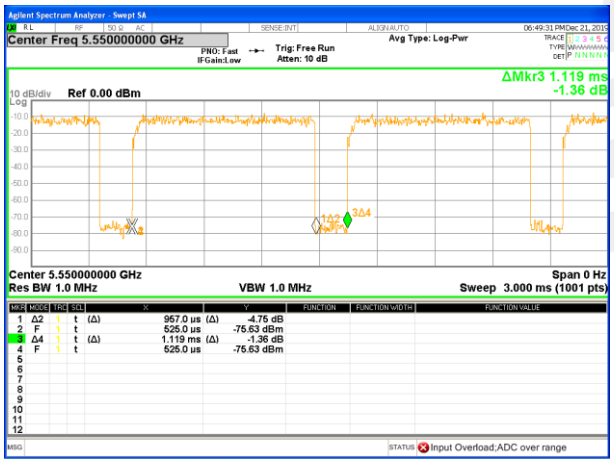
Band 3-n20



Band 3-n40



Band 3-ac20



Band 3-ac40

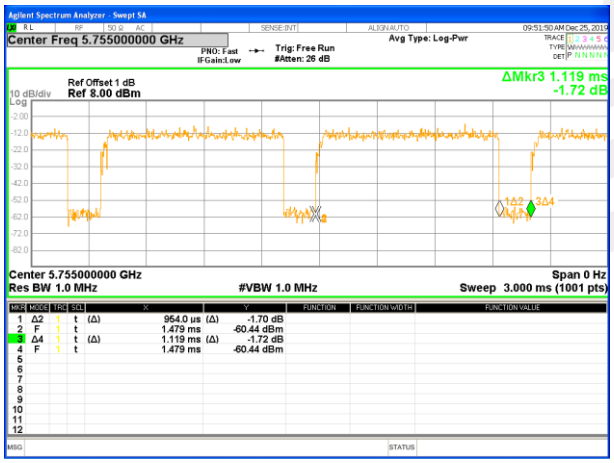
Band 3-ac80

Band 4-a20

Band 4-n20

Band 4-n40

Band 4-ac20



Band 4-ac40

Band 4-ac80

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 and RSS GEN requirement: For intentional device, according to 15.203 and RSS GEN: 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.

10. FREQUENCY STABILITY

10.1 LIMITS OF FREQUENCY STABILITY MEASUREMENT

The frequency tolerance of the carrier signal shall be maintained within +/-0.02% of the operating frequency over a temperature variation of -30 degrees to 50 degrees C at normal supply voltage,and for a variation in primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees.

10.2 TEST PROCEDURE

1. The EUT was placed inside the environmental test chamber and powered by nominal DC voltage.
2. Turn the EUT on and couple its output to spectrum analyzer.
3. Turn the EUT off and set the chamber to the highest temperature specified.
4. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize,turn the EUT on and measure the operating frequency after 2,5,and 10 minutes.
5. Repeat step 2 and 3 with the temperature chamber set to the lowest temperature.
6. The test chamber was allowed to stabilize at +20 degree C for a minimum of 30 minutes.The supply voltage was then adjusted on the EUT from 85% to 115% and the frequency record.

10.3 TEST RESULT

Band 1

Channel 40 (5200MHz)

Voltage vs. Frequency Stability

Voltage(V)	Measurement Frequency(MHz)
8.51	5200.0028
7.4	5200.0026
6.29	5200.0019
Max.Deviation(MHz)	0.0028
Max.Deviation(ppm)	0.54

Rated working voltage: DC 7.4V

Temperature vs. Frequency Stability

Temperature(℃)	Measurement Frequency(MHz)
-30	5200.0031
-20	5200.0024
-10	5200.0024
0	5200.0023
10	5200.0025
20	5200.0024
30	5200.0028
40	5200.0025
50	5200.0022
Max.Deviation(MHz)	0.0031
Max.Deviation(ppm)	0.60

Band 2

Channel 60 (5300MHz)

Voltage vs. Frequency Stability

Voltage(V)	Measurement Frequency(MHz)
8.51	5300.0037
7.4	5300.0031
6.29	5300.0033
Max.Deviation(MHz)	0.0037
Max.Deviation(ppm)	0.70

Rated working voltage: DC 7.4V

Temperature vs. Frequency Stability

Temperature(℃)	Measurement Frequency(MHz)
-30	5300.0042
-20	5300.0034
-10	5300.0038
0	5300.0034
10	5300.0040
20	5300.0041
30	5300.0036
40	5300.0041
50	5300.0037
Max.Deviation(MHz)	0.0042
Max.Deviation(ppm)	0.79

Band 3

Channel 116 (5580MHz)

Voltage vs. Frequency Stability

Voltage(V)	Measurement Frequency(MHz)
8.51	5580.0031
7.4	5580.0023
6.29	5580.0030
Max.Deviation(MHz)	0.0031
Max.Deviation(ppm)	0.56

Rated working voltage: DC 7.4V

Temperature vs. Frequency Stability

Temperature(℃)	Measurement Frequency(MHz)
-30	5580.0041
-20	5580.0037
-10	5580.0036
0	5580.0038
10	5580.0032
20	5580.0039
30	5580.0038
40	5580.0032
50	5580.0031
Max.Deviation(MHz)	0.0041
Max.Deviation(ppm)	0.73

Band 4

Channel 157 (5785MHz)

Voltage vs. Frequency Stability

Voltage(V)	Measurement Frequency(MHz)
8.51	5785.0039
7.4	5785.0033
6.29	5785.0037
Max.Deviation(MHz)	0.0039
Max.Deviation(ppm)	0.67

Rated working voltage: DC 7.4V

Temperature vs. Frequency Stability

Temperature(℃)	Measurement Frequency(MHz)
-30	5785.0033
-20	5785.0023
-10	5785.0025
0	5785.0032
10	5785.0029
20	5785.0028
30	5785.0032
40	5785.0032
50	5785.0028
Max.Deviation(MHz)	0.0033
Max.Deviation(ppm)	0.57

APPENDIX - PHOTOS OF TEST SETUP

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

※※※※※END OF THE REPORT※※※※※