



RADIO TEST REPORT

Report No.:STS2101154W10

Issued for

DTEN Inc

97 E Brokaw Road suite 180 San Jose CA 95112

Product Name:	DTEN onTV
Brand Name:	DTEN
Model Name:	DCA00
Series Model:	N/A
FCC ID:	2AQ7Q-DCA00
Test Standard:	FCC Part 15.407

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TEST RESULT CERTIFICATION

Applicant's Name..... : DTEN Inc

Address : 97 E Brokaw Road suite 180 San Jose CA 95112

Manufacturer's Name : DTEN Inc

Address : 97 E Brokaw Road suite 180 San Jose CA 95112

Product Description

Product Name..... : DTEN onTV

Brand Name : DTEN

Model Name : DCA00

Series Model..... : N/A

Test Standards : FCC Part15.407

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

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

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Date of Test..... :

Date of receipt of test item : 21 Jan. 2021

Date (s) of performance of tests : 21 Jan. 2021 ~ 08 Feb. 2021

Date of Issue..... : 08 Feb. 2021

Test Result..... : **Pass**

Testing Engineer :

(Chris Chen)

Technical Manager :

(Sean she)

Authorized Signatory :

(Vita Li)





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**Revision History**

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	08 Feb. 2021	STS2101154W10	ALL	Initial Issue





1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

§ 15.407, KDB 789033 D02 General U-NII Test Procedures New Rules v02r01

FCC Part 15.407		
FCC standard	Test Item	Results
15.207	AC Conducted Emission	PASS
15.407 (a) /15.407 (e)	26dB/6dB &99% Bandwidth	PASS
15.407(a)	Maximum Conducted Output Power	PASS
15.407(b)/15.205/15.209	Radiated Emission And (bandedge Emissions) Measurement	PASS
15.407(a)	Power Spectral Density	PASS
15.407(c)	Automatically Discontinue Transmission	PASS
15.203/15.204	Antenna Requirement	PASS

NOTE:

- (1) 'N/A' denotes test is not applicable in this Test Report.
- (2) All tests are according to ANSI C63.10-2013.



1.1 TEST FACTORY

SHENZHEN STS TEST SERVICES CO., LTD

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

No.	Item	Uncertainty
1	RF output power, conducted	$\pm 0.68\text{dB}$
2	Unwanted Emissions, conducted	$\pm 2.988\text{dB}$
3	All emissions, radiated 9K-30MHz	$\pm 2.84\text{dB}$
4	All emissions, radiated 30M-1GHz	$\pm 4.39\text{dB}$
5	All emissions, radiated 1G-6GHz	$\pm 5.10\text{dB}$
6	All emissions, radiated >6G	$\pm 5.48\text{dB}$
7	Conducted Emission (9KHz-150KHz)	$\pm 2.79\text{dB}$
8	Conducted Emission (150KHz-30MHz)	$\pm 2.80\text{dB}$



2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF THE EUT

Product Name	DTEN onTV														
Trade Name	DTEN														
Model Name	DCA00														
Series Model	N/A														
Model Difference	N/A														
Product Description	The EUT is a DTEN onTV <table><tr><td>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></td><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></td><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></td><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>Please refer to the Note 3.</td></tr><tr><td>Max.Output Power(Conducted):</td><td>9.44 dBm</td></tr></table> More details of EUT technical specification, please refer to the User Manual.	Operation Frequency:	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		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		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		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	Modulation Type:	802.11a(OFDM): BPSK,QPSK,16-QAM,64-QAM 802.11n(OFDM): BPSK,QPSK,16-QAM,64-QAM 802.11ac(OFDM): BPSK,QPSK,16-QAM,64-QAM,256-QAM	Antenna Designation:	Please refer to the Note 3.	Max.Output Power(Conducted):	9.44 dBm
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Antenna Designation:	Please refer to the Note 3.														
Max.Output Power(Conducted):	9.44 dBm														
Test Channel	Please refer to the Note 2.														
Adapter	Input: 100-240V~50-60Hz, 2.0A Output: 12V, 5A60W														
Hardware version number	DTEN_GO_A311D_MAIN REV P3														
Software version number	S1-006-0.3.1.0-20201023														
Connecting I/O Port(s)	Please refer to the Note 1.														



Note

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

2. **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	106	5530
44	5220	108	5540
46	5230	110	5550
48	5240	112	5560
		116	5580
		118	5590
5.260GHz-5.320GHz		120	5600
Channel	Frequency	122	5610
52	5260	124	5620
54	5270	126	5630
56	5280	128	5640
58	5290	132	5660
60	5300	134	5670
62	5310	136	5680
64	5320	140	5700
5.745GHz-5.825GHz			
Channel	Frequency		
149	5745		
151	5755		
153	5765		
157	5785		
159	5795		
161	5805		
165	5825		

Note:

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

Carrier Frequency Channel

5GHz:

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



For 802.11a/n(HT20)/ac(VHT20)

Channel	Freq.(MHz)	Channel	Freq.(MHz)
100	5500	149	5745
116	5580	157	5785
140	5700	165	5825

For 802.11 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		



3. Emissions Testing of Transmitters with Multiple Outputs in the Same Band.

For devices having two outputs driving a cross-polarized pair of antennas, see Attachment 662911 D02 of this publication for additional guidance.

d) *Unequal antenna gains, with equal transmit powers.* For antenna gains given by $G_1, G_2, \dots, G_N$ dBi

(i) If transmit signals are *correlated*, then Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / NANT]$ dBi [Note the “20”s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

(ii) If all transmit signals are *completely uncorrelated*, then Directional gain = $10 \log[(10^{G_1/10} + 10^{G_2/10} + \dots + 10^{G_N/10}) / NANT]$ dBi

Note: If transmit signals are *correlated*, then Directional gain.

Band 1:

ANT A=5.44 dBi

ANT B=4.48 dBi

Total gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / NANT]$ dBi

$10 * \text{LOG}_{10}((10^{(5.44/20)}) + (10^{(4.48/20)})^2 / 2) = 7.98$

Band 2:

ANT A=3.91 dBi

ANT B=4.48 dBi

Total gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / NANT]$ dBi

$10 * \text{LOG}_{10}((10^{(3.91/20)}) + (10^{(4.48/20)})^2 / 2) = 7.21$

Band 3:

ANT A=3.19 dBi

ANT B=5.06 dBi

Total gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / NANT]$ dBi

$10 * \text{LOG}_{10}((10^{(3.19/20)}) + (10^{(5.06/20)})^2 / 2) = 7.19$

Band 4:

ANT A=4.92 dBi

ANT B=5.49 dBi

Total gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / NANT]$ dBi

$10 * \text{LOG}_{10}((10^{(4.92/20)}) + (10^{(5.49/20)})^2 / 2) = 8.22$

Ant	Brand	Model Name	Ant Type	Connector	Gain (dBi)	NOTE
A	DTEN	DCA00	PIFA Antenna	N/A	Band 1 : ANT A : 5.44dBi ANT B : 4.48dBi MIMO: 7.98dBi Band 2 : ANT A: 3.91dBi ANT B : 4.48dBi MIMO: 7.21dBi Band 3 : ANT A: 3.19dBi ANT B: 5.06dBi MIMO: 7.19dBi Band 4 : ANT A: 4.92dBi ANT B: 5.49dBi MIMO: 8.22dBi	WLAN Ant



2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generated from EUT, the test system was pre-scanning tested based on the consideration of following EUT operation mode or test configuration mode which possibly 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 been tested for all available 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 TEST SOFTWARE AND POWER LEVEL

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level.

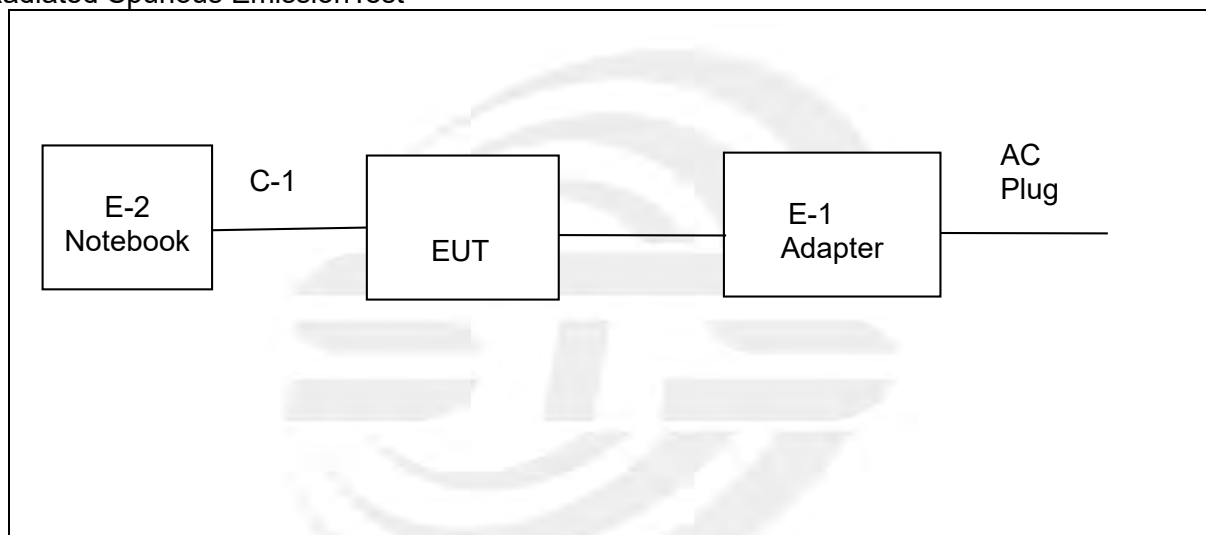
RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	ANT_A Power Class	ANT_B Power Class	Software For Testing
WIFI(5G)	5G WIFI Band1 (5150MHz-5250MHz)	802.11a	ANT A: 5.44 ANT B: 4.48 MIMO: 7.98	8	8	adb
		802.11n(HT20)		6	6	
		802.11n(HT40)		6	6	
		802.11ac(VHT20)		6	6	
		802.11ac(VHT40)		6	6	
		802.11ac(VHT80)		6	6	
RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	ANT_A Power Class	ANT_B Power Class	Software For Testing
WIFI(5G)	5G WIFI Band2 (5250MHz-5350MHz)	802.11a	ANT A: 3.91 ANT B: 4.48 MIMO: 7.21	7	7	adb
		802.11n(HT20)		6	6	
		802.11n(HT40)		6	6	
		802.11ac(VHT20)		6	6	
		802.11ac(VHT40)		6	6	
		802.11ac(VHT80)		6	6	
RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	ANT_A Power Class	ANT_B Power Class	Software For Testing
WIFI(5G)	5G WIFI Band3 (5470MHz-5725MHz)	802.11a	ANT A: 3.19 ANT B: 5.06 MIMO: 7.19	10	10	adb
		802.11n(HT20)		7	7	
		802.11n(HT40)		7	7	
		802.11ac(VHT20)		7	7	
		802.11ac(VHT40)		7	7	
		802.11ac(VHT80)		7	7	



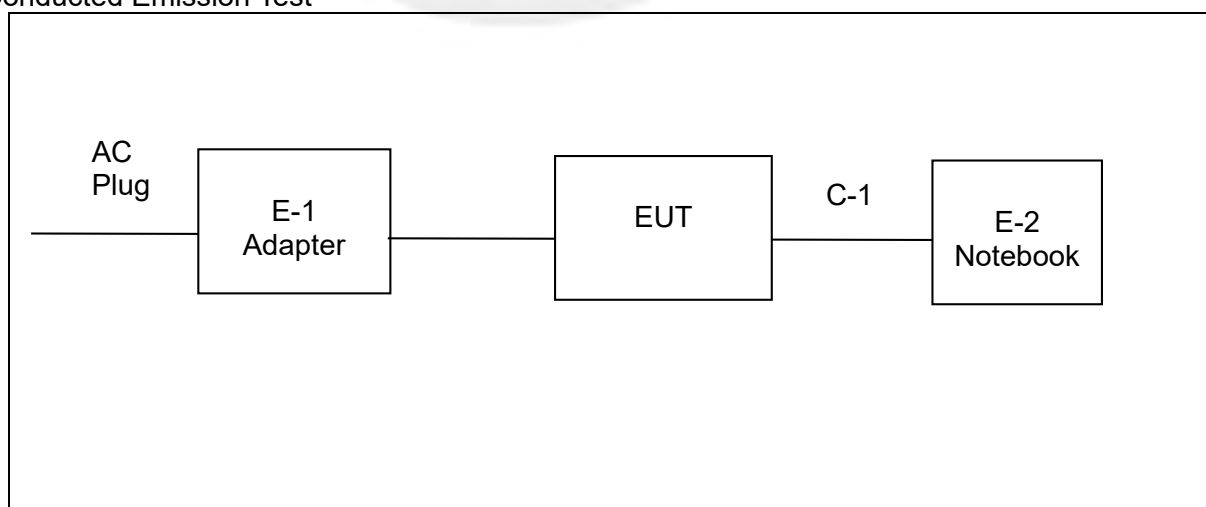
RF Function	Type	Mode Or Modulation type	ANT Gain(dBi)	ANT_A Power Class	ANT_B Power Class	Software For Testing
WIFI(5G)	5G WIFI Band4 (5725MHz-5875MHz)	802.11a	ANT A: 4.92 ANT B: 5.49 MIMO: 8.22	7	7	adb
		802.11n(HT20)		7	7	
		802.11n(HT40)		7	7	
		802.11ac(VHT20)		7	7	
		802.11ac(VHT40)		7	7	
		802.11ac(VHT80)		7	7	

2.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test



Conducted Emission Test





2.5 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.	Length	Note
E-1	Adapter	DTEN	DAP02	N/A	N/A

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Length	Note
E-2	Notebook	LENOVO	ThinkPad E470	N/A	N/A
C-1	LAN Cable	N/A	N/A	120cm	NO

Note:

- (1) For detachable type I/O cable should be specified the length in cm in 『Length』 column.



2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESCI	101427	2020.10.12	2021.10.11
Signal Analyzer	R&S	FSV 40-N	101823	2020.10.10	2021.10.09
Active loop Antenna	ZHINAN	ZN30900C	16035	2019.07.11	2021.07.10
Bilog Antenna	TESEQ	CBL6111D	34678	2020.10.12	2022.10.11
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	2019.10.15	2021.10.14
SHF-EHF Horn Antenna (18G-40GHz)	A-INFO	LB-180400-KF	J211020657	2020.10.12	2022.10.11
Pre-Amplifier (0.1M-3GHz)	EM	EM330	060665	2020.10.12	2021.10.11
Pre-Amplifier (1G-18GHz)	SKET	LNPA-01018G-45	SK2018080901	2020.10.12	2021.10.11
Pre-Amplifier (18G-40GHz)	SKET	LNPA-1840-50	SK2018101801	2020.10.10	2021.10.09
Temperature & Humidity	HH660	Mieo	N/A	2020.10.13	2021.10.12
Turn table	EM	SC100_1	60531	N/A	N/A
Antenna mast	EM	SC100	N/A	N/A	N/A
Test SW	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	2020.10.12	2021.10.11
LISN	R&S	ENV216	101242	2020.10.12	2021.10.11
LISN	EMCO	3810/2NM	23625	2020.10.12	2021.10.11
Temperature & Humidity	HH660	Mieo	N/A	2020.10.13	2021.10.12
Test SW	FARAD	EZ-EMC(Ver.STSLAB-03A1 CE)			



RF Connected Test

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
MIMO Power measurement test Set	Keysight	U2021XA	MY55520005	2020.10.10	2021.10.09
			MY55520006	2020.10.10	2021.10.09
			MY56120038	2020.10.10	2021.10.09
			MY56280002	2020.10.10	2021.10.09
Signal Analyzer	Agilent	N9020A	MY51110105	2020.03.05	2021.03.04
Temperature & Humidity	HH660	Mieo	N/A	2020.10.13	2021.10.12
Test SW	FARAD	LZ-RF /LzRf-3A3			





3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

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

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

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

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of “ * ” marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

The following table is the setting of the receiver

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

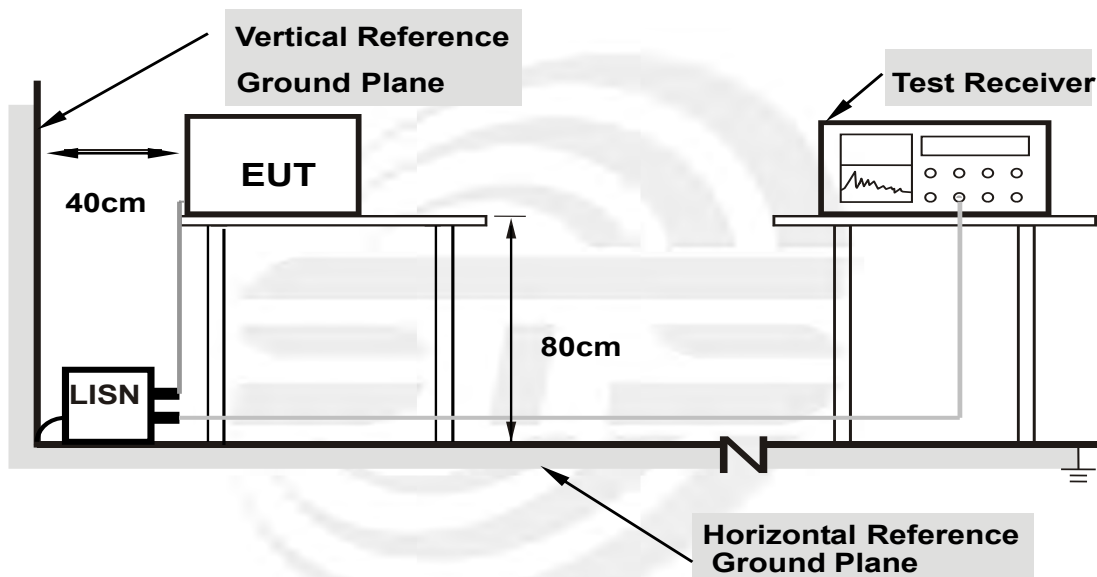
3.1.2 TEST PROCEDURE

- The EUT is 0.8 m from the horizontal ground plane and 0.4 m from the vertical ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments are powered from additional LISN(s). The LISN provides 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- 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.
- 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.
- LISN is at least 80 cm from the nearest part of EUT chassis.
- 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 cm from other units and other metal planes support units.

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

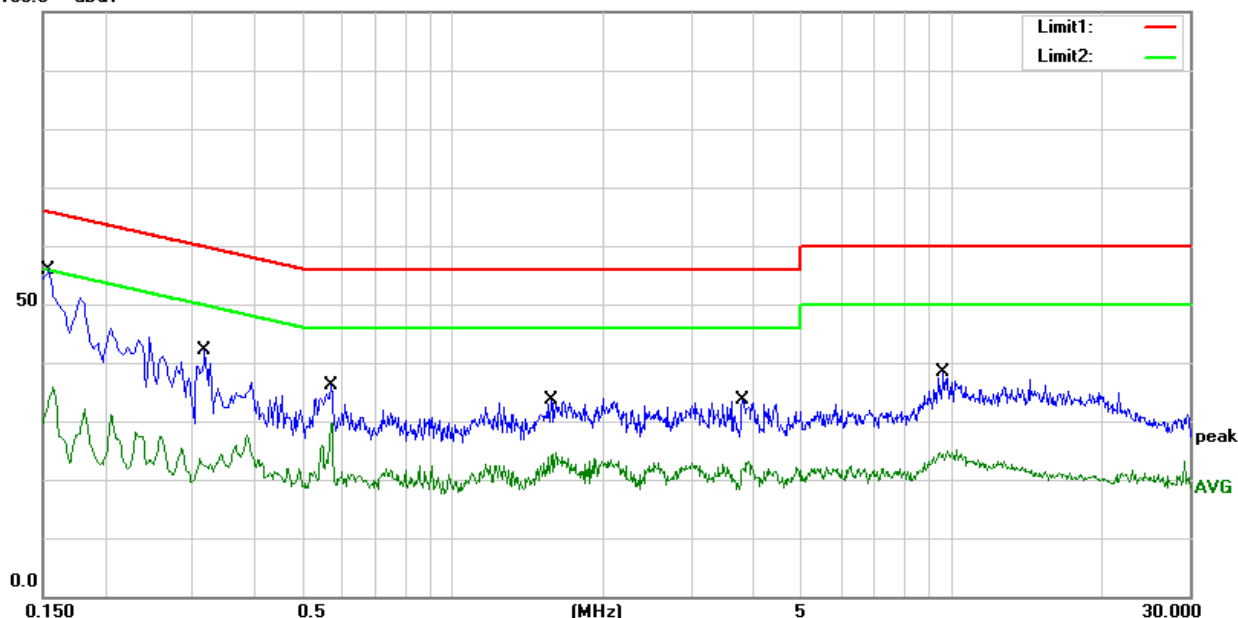
Temperature:	22.1(C)	Relative Humidity:	46%RH
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode :	Mode 25		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1540	35.54	20.23	55.77	65.78	-10.01	QP
2	0.1540	15.53	20.23	35.76	55.78	-20.02	AVG
3	0.3180	21.56	20.68	42.24	59.76	-17.52	QP
4	0.3180	2.53	20.68	23.21	49.76	-26.55	AVG
5	0.5700	15.77	20.40	36.17	56.00	-19.83	QP
6	0.5700	9.30	20.40	29.70	46.00	-16.30	AVG
7	1.5740	13.56	20.10	33.66	56.00	-22.34	QP
8	1.5740	4.50	20.10	24.60	46.00	-21.40	AVG
9	3.8100	13.56	19.96	33.52	56.00	-22.48	QP
10	3.8100	3.23	19.96	23.19	46.00	-22.81	AVG
11	9.6180	18.38	20.11	38.49	60.00	-21.51	QP
12	9.6180	4.69	20.11	24.80	50.00	-25.20	AVG

Remark:

1. All readings are Quasi-Peak and Average values
2. Margin = Result (Result = Reading + Factor) - Limit
3. Factor = LISN factor + Cable loss + Limiter (10dB)

100.0 dBuV



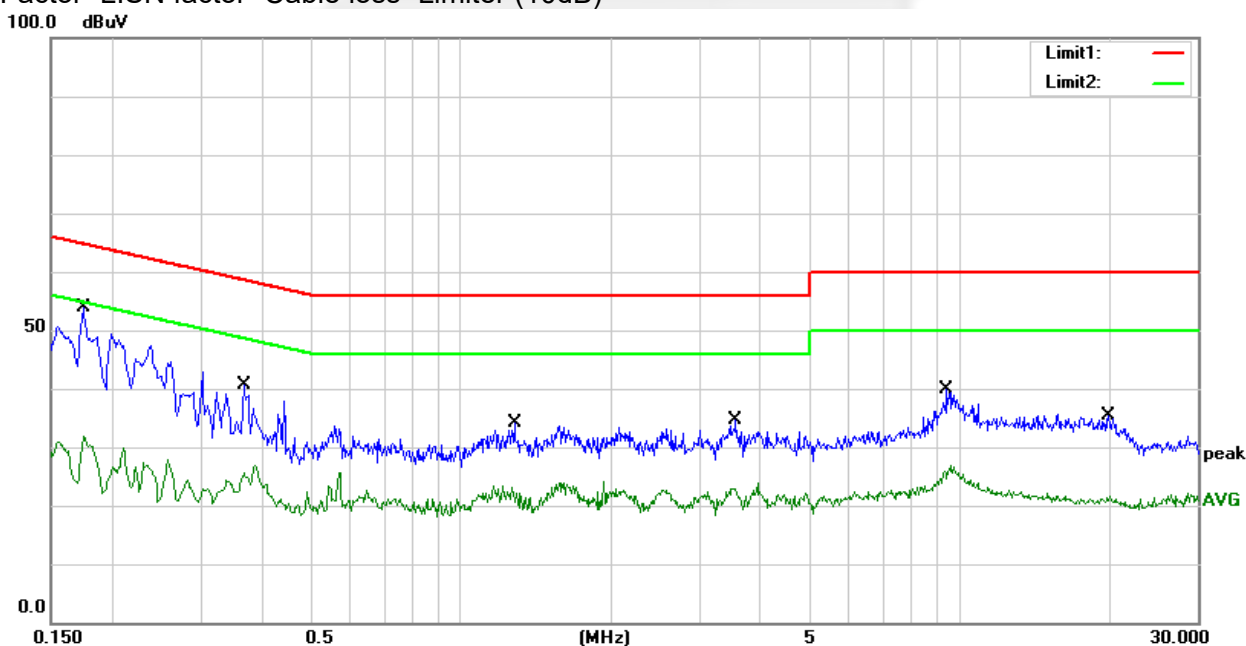


Temperature:	22.1(C)	Relative Humidity:	46%RH
Test Voltage	AC 120V/60Hz	Phase:	N
Test Mode	Mode 25		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1740	33.56	20.24	53.80	64.77	-10.97	QP
2	0.1740	11.56	20.24	31.80	54.77	-22.97	AVG
3	0.3660	20.10	20.57	40.67	58.59	-17.92	QP
4	0.3660	5.18	20.57	25.75	48.59	-22.84	AVG
5	1.2780	13.95	20.13	34.08	56.00	-21.92	QP
6	1.2780	2.05	20.13	22.18	46.00	-23.82	AVG
7	3.5540	14.55	19.96	34.51	56.00	-21.49	QP
8	3.5540	3.02	19.96	22.98	46.00	-23.02	AVG
9	9.4100	19.89	20.09	39.98	60.00	-20.02	QP
10	9.4100	6.70	20.09	26.79	50.00	-23.21	AVG
11	19.8540	14.73	20.62	35.35	60.00	-24.65	QP
12	19.8540	0.93	20.62	21.55	50.00	-28.45	AVG

Remark:

1. All readings are Quasi-Peak and Average values
2. Margin = Result (Result = Reading + Factor) - Limit
3. Factor = LISN factor + Cable loss + Limiter (10dB)





3.2 RADIATED EMISSION AND (BANDEDGE) MEASUREMENT

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

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

Frequencies (MHz)	Field Strength (microvolts/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

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			

Note: In case the emission radiated emission above 1000MHz fall within the restricted band the restricted frequency bands, the peak limit is 74 dBuV/m.

**LIMITS OF EMISSIONS OUTSIDE OF THE FREQUENCY BANDS**

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.

Note: dBuV/m(at 3M) = EIRP(dBm) + 95.3.

Peak Limit = -27dBm/MHz + 95.3 = 68.3 dBuV/m.

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

For Band edge

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

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



3.2.2 TEST PROCEDURE

- a. The measuring distance at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz, and above 1GHz.
- b. The EUT was placed on the top of a rotating table 0.8 m (above 1GHz is 1.5 m) above the ground at a 3 m anechoic chamber test site. The table was rotated 360 degree 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 polarization 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 QuasiPeak detector mode will be re-measured.
- e. If the Peak Mode measured value is compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and no additional QP Mode measurement was performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

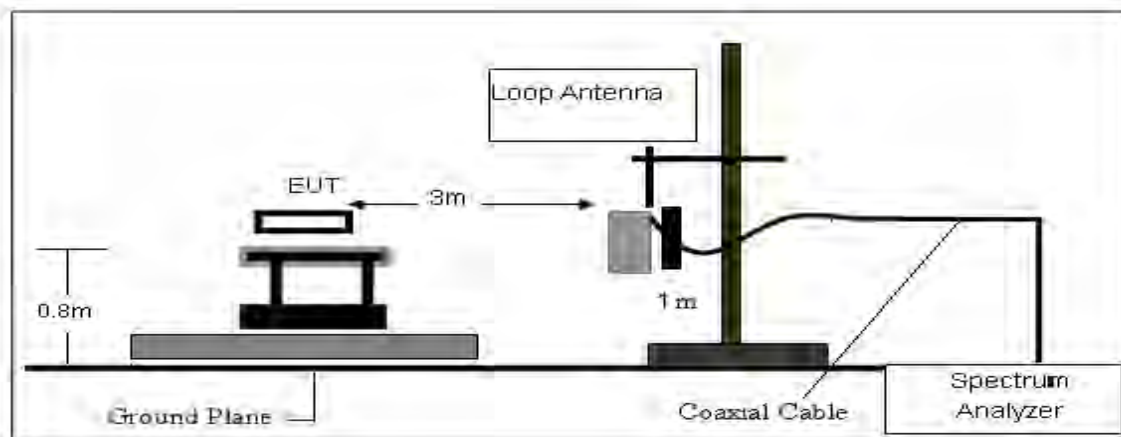
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

3.2.2 DEVIATION FROM TEST STANDARD

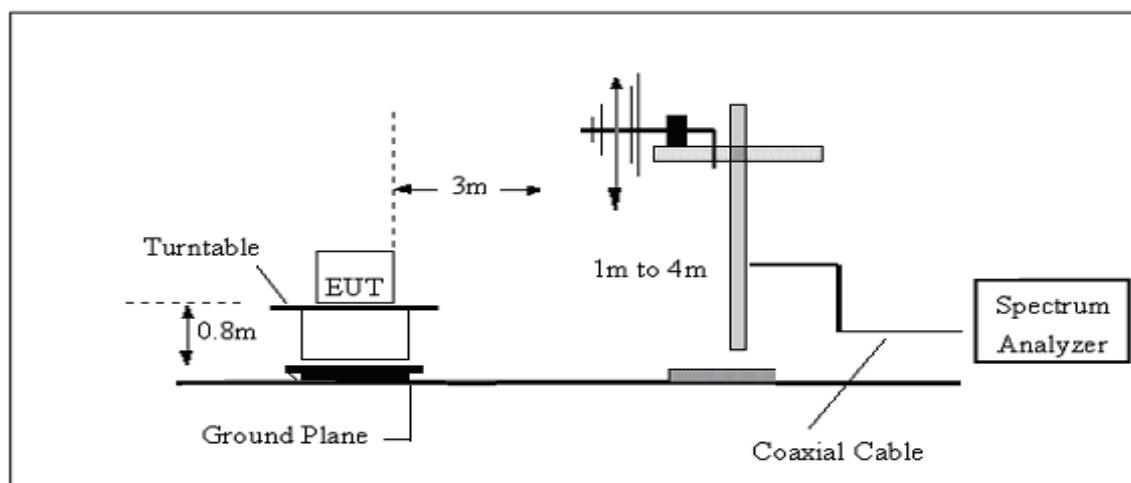
No deviation

3.2.3 TEST SETUP

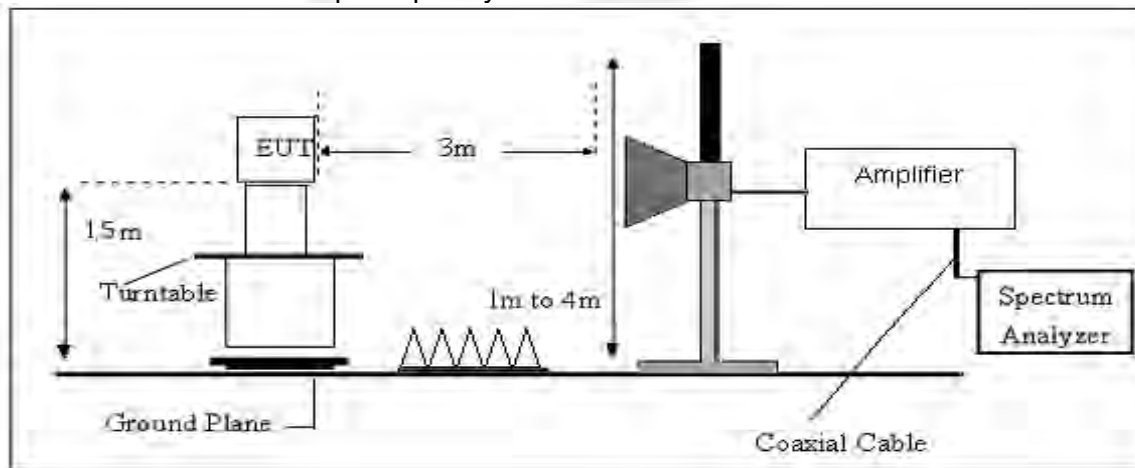
(A) Radiated Emission Test-Up Frequency Below 30MHz



(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

$$\text{Factor} = \text{AF} + \text{CL} - \text{AG}$$

**3.2.6 TEST RESULTS (Between 9KHz – 30 MHz)**

Temperature:	23.1(C)	Relative Humidity:	60%RH
Test Voltage:	AC 120V/60Hz	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 = $40 \log (\text{specific distance/test distance})$ (dB);

Limit line = specific limits(dBuV) + distance extrapolation factor.

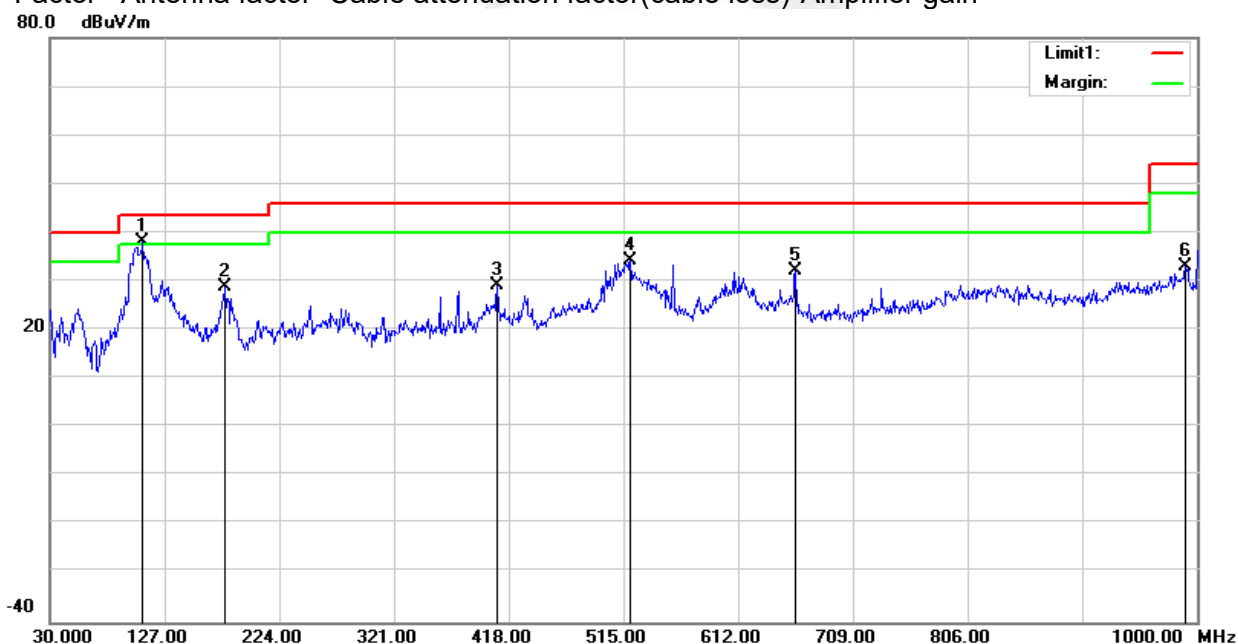
**3.2.7 TEST RESULTS (Between 30MHz – 1GHz)**

Temperature	23.1(C)	Relative Humidity:	60%RH
Test Voltage	AC 120V/60Hz	Polarization:	Horizontal
Test Mode	Mode 1~24(Mode 23 worst mode)		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	108.5700	57.41	-19.22	38.19	43.50	-5.31	QP
2	178.4100	48.77	-20.02	28.75	43.50	-14.75	QP
3	408.3000	39.91	-10.66	29.25	46.00	-16.75	QP
4	520.8200	42.05	-7.79	34.26	46.00	-11.74	QP
5	660.5000	36.99	-4.80	32.19	46.00	-13.81	QP
6	990.3000	30.96	2.05	33.01	54.00	-20.99	QP

Remark:

1. Margin = Result (Result = Reading + Factor) – Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) – Amplifier gain



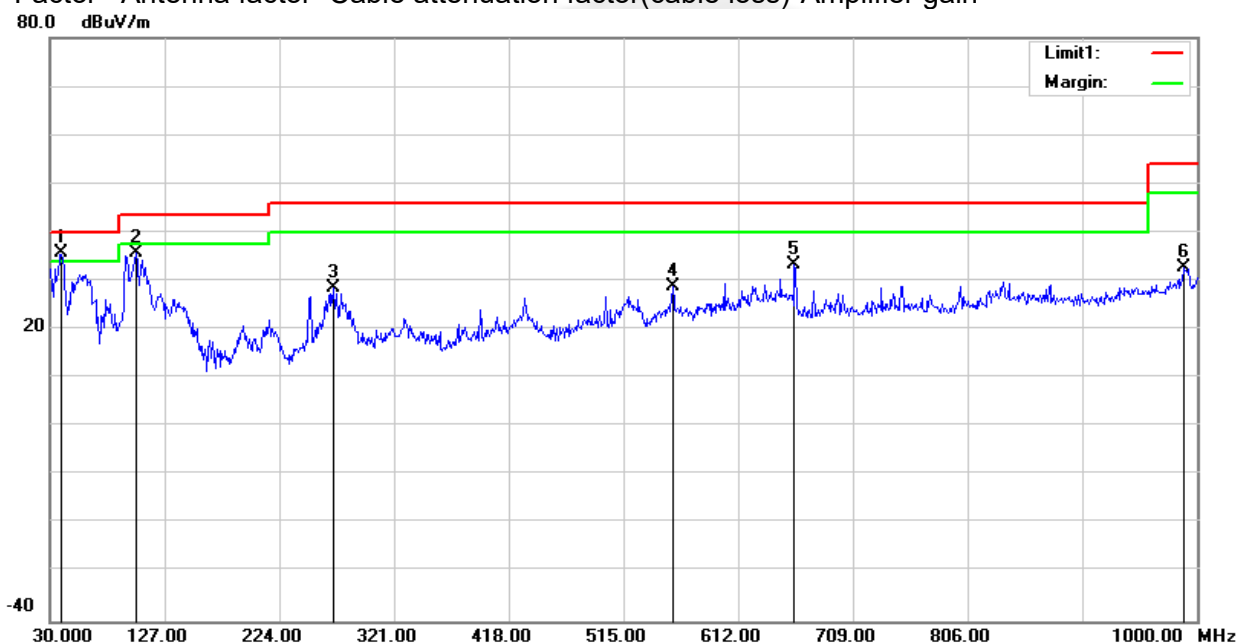


Temperature	23.1(C)	Relative Humidity:	60%RH
Test Voltage	AC 120V/60Hz	Polarization:	Vertical
Test Mode	Mode 1~24(Mode 23 worst mode)		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	39.7000	53.48	-17.88	35.60	40.00	-4.40	QP
2	102.7500	55.68	-19.84	35.84	43.50	-7.66	QP
3	269.5900	43.84	-15.29	28.55	46.00	-17.45	QP
4	556.7100	34.32	-5.58	28.74	46.00	-17.26	QP
5	659.5300	38.15	-4.81	33.34	46.00	-12.66	QP
6	989.3300	30.54	2.09	32.63	54.00	-21.37	QP

Remark:

1. Margin = Result (Result = Reading + Factor) - Limit
2. Factor = Antenna factor + Cable attenuation factor (cable loss) - Amplifier gain



**3.2.8 TEST RESULTS (Above 1000 MHz)****Band I 5150-5250MHz**

Frequency (MHz)	Reading (dBuV)	Amplifier (dB)	Loss (dB)	Antenna Factor (dB/m)	Orrected Factor (dB)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
Channel (802.11ac80/ 5210 MHz)										
3277.81	44.72	44.70	6.70	28.20	-9.80	34.92	68.20	-33.28	Pk	Vertical
3277.81	42.17	44.70	6.70	28.20	-9.80	32.37	54.00	-21.63	AV	Vertical
3274.93	44.84	44.70	6.70	28.20	-9.80	35.04	68.20	-33.16	Pk	Horizontal
3274.93	41.01	44.70	6.70	28.20	-9.80	31.21	54.00	-22.79	AV	Horizontal
4023.32	40.08	44.20	7.90	29.70	-6.60	33.48	68.20	-34.72	Pk	Vertical
4023.32	36.63	44.20	7.90	29.70	-6.60	30.03	54.00	-23.97	AV	Vertical
4016.21	38.78	44.20	7.90	29.70	-6.60	32.18	68.20	-36.02	Pk	Horizontal
4016.21	36.93	44.20	7.90	29.70	-6.60	30.33	54.00	-23.67	AV	Horizontal
7265.80	37.67	43.50	11.40	35.50	3.40	41.07	68.20	-27.13	Pk	Vertical
7265.80	34.47	43.50	11.40	35.50	3.40	37.87	54.00	-16.13	AV	Vertical
7261.56	37.69	43.50	11.40	35.50	3.40	41.09	68.20	-27.11	Pk	Horizontal
7261.56	34.91	43.50	11.40	35.50	3.40	38.31	54.00	-15.69	AV	Horizontal
10419.99	39.68	44.50	13.80	38.80	8.10	47.78	68.20	-20.42	Pk	Vertical
10419.99	37.15	44.50	13.80	38.80	8.10	45.25	54.00	-8.75	AV	Vertical
10420.14	40.11	44.50	13.80	38.80	8.10	48.21	68.20	-19.99	Pk	Horizontal
10420.14	36.18	44.50	13.80	38.80	8.10	44.28	54.00	-9.72	AV	Horizontal
11093.88	33.85	43.60	14.30	39.50	10.20	44.05	68.20	-24.15	Pk	Vertical
11093.88	29.82	43.60	14.30	39.50	10.20	40.02	54.00	-13.98	AV	Vertical
11095.67	33.31	43.60	14.30	39.50	10.20	43.51	68.20	-24.69	Pk	Horizontal
11095.67	29.99	43.60	14.30	39.50	10.20	40.19	54.00	-13.81	AV	Horizontal
13368.72	32.82	42.60	15.90	38.90	12.20	45.02	68.20	-23.18	Pk	Vertical
13368.72	28.81	42.60	15.90	38.90	12.20	41.01	54.00	-12.99	AV	Vertical
13363.38	32.51	42.60	15.90	38.90	12.20	44.71	68.20	-23.49	Pk	Horizontal
13363.38	29.39	42.60	15.90	38.90	12.20	41.59	54.00	-12.41	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 (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
Channel (802.11ac80/ 5290 MHz)										
3279.92	45.10	44.70	6.70	28.20	-9.80	35.30	68.20	-32.90	Pk	Vertical
3279.92	41.65	44.70	6.70	28.20	-9.80	31.85	54.00	-22.15	AV	Vertical
3276.81	43.83	44.70	6.70	28.20	-9.80	34.03	68.20	-34.17	Pk	Horizontal
3276.81	41.77	44.70	6.70	28.20	-9.80	31.97	54.00	-22.03	AV	Horizontal
4010.48	39.70	44.20	7.90	29.70	-6.60	33.10	68.20	-35.10	Pk	Vertical
4010.48	36.28	44.20	7.90	29.70	-6.60	29.68	54.00	-24.32	AV	Vertical
4022.07	39.00	44.20	7.90	29.70	-6.60	32.40	68.20	-35.80	Pk	Horizontal
4022.07	36.05	44.20	7.90	29.70	-6.60	29.45	54.00	-24.55	AV	Horizontal
7275.12	37.57	43.50	11.40	35.50	3.40	40.97	68.20	-27.23	Pk	Vertical
7275.12	33.56	43.50	11.40	35.50	3.40	36.96	54.00	-17.04	AV	Vertical
7271.53	37.67	43.50	11.40	35.50	3.40	41.07	68.20	-27.13	Pk	Horizontal
7271.53	33.86	43.50	11.40	35.50	3.40	37.26	54.00	-16.74	AV	Horizontal
10419.24	40.00	44.50	13.80	38.80	8.10	48.10	68.20	-20.10	Pk	Vertical
10419.24	36.43	44.50	13.80	38.80	8.10	44.53	54.00	-9.47	AV	Vertical
10419.36	38.83	44.50	13.80	38.80	8.10	46.93	68.20	-21.27	Pk	Horizontal
10419.36	35.70	44.50	13.80	38.80	8.10	43.80	54.00	-10.20	AV	Horizontal
11099.16	34.14	43.60	14.30	39.50	10.20	44.34	68.20	-23.86	Pk	Vertical
11099.16	30.46	43.60	14.30	39.50	10.20	40.66	54.00	-13.34	AV	Vertical
11093.68	32.73	43.60	14.30	39.50	10.20	42.93	68.20	-25.27	Pk	Horizontal
11093.68	30.63	43.60	14.30	39.50	10.20	40.83	54.00	-13.17	AV	Horizontal
13359.42	31.88	42.60	15.90	38.90	12.20	44.08	68.20	-24.12	Pk	Vertical
13359.42	29.57	42.60	15.90	38.90	12.20	41.77	54.00	-12.23	AV	Vertical
13373.18	32.27	42.60	15.90	38.90	12.20	44.47	68.20	-23.73	Pk	Horizontal
13373.18	29.29	42.60	15.90	38.90	12.20	41.49	54.00	-12.51	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 (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
Low Channel (802.11ac80/ 5530 MHz)										
3264.03	44.45	44.70	6.70	28.20	-9.80	34.65	68.20	-33.55	Pk	Vertical
3264.03	42.07	44.70	6.70	28.20	-9.80	32.27	54.00	-21.73	AV	Vertical
3263.93	44.83	44.70	6.70	28.20	-9.80	35.03	68.20	-33.17	Pk	Horizontal
3263.93	41.34	44.70	6.70	28.20	-9.80	31.54	54.00	-22.46	AV	Horizontal
4013.96	38.91	44.20	7.90	29.70	-6.60	32.31	68.20	-35.89	Pk	Vertical
4013.96	36.14	44.20	7.90	29.70	-6.60	29.54	54.00	-24.46	AV	Vertical
4020.67	38.67	44.20	7.90	29.70	-6.60	32.07	68.20	-36.13	Pk	Horizontal
4020.67	36.51	44.20	7.90	29.70	-6.60	29.91	54.00	-24.09	AV	Horizontal
7266.95	36.74	43.50	11.40	35.50	3.40	40.14	68.20	-28.06	Pk	Vertical
7266.95	33.69	43.50	11.40	35.50	3.40	37.09	54.00	-16.91	AV	Vertical
7259.10	37.18	43.50	11.40	35.50	3.40	40.58	68.20	-27.62	Pk	Horizontal
7259.10	33.88	43.50	11.40	35.50	3.40	37.28	54.00	-16.72	AV	Horizontal
10416.51	39.01	44.50	13.80	38.80	8.10	47.11	68.20	-21.09	Pk	Vertical
10416.51	36.31	44.50	13.80	38.80	8.10	44.41	54.00	-9.59	AV	Vertical
10416.94	39.47	44.50	13.80	38.80	8.10	47.57	68.20	-20.63	Pk	Horizontal
10416.94	35.75	44.50	13.80	38.80	8.10	43.85	54.00	-10.15	AV	Horizontal
11088.49	32.91	43.60	14.30	39.50	10.20	43.11	68.20	-25.09	Pk	Vertical
11088.49	31.01	43.60	14.30	39.50	10.20	41.21	54.00	-12.79	AV	Vertical
11095.85	32.83	43.60	14.30	39.50	10.20	43.03	68.20	-25.17	Pk	Horizontal
11095.85	30.07	43.60	14.30	39.50	10.20	40.27	54.00	-13.73	AV	Horizontal
13367.10	32.33	42.60	15.90	38.90	12.20	44.53	68.20	-23.67	Pk	Vertical
13367.10	28.57	42.60	15.90	38.90	12.20	40.77	54.00	-13.23	AV	Vertical
13369.32	32.07	42.60	15.90	38.90	12.20	44.27	68.20	-23.93	Pk	Horizontal
13369.32	29.23	42.60	15.90	38.90	12.20	41.43	54.00	-12.57	AV	Horizontal
High Channel (802.11/ 5610 MHz)										
3264.30	45.16	44.70	6.70	28.20	-9.80	35.36	68.20	-32.84	Pk	Vertical
3264.30	40.98	44.70	6.70	28.20	-9.80	31.18	54.00	-22.82	AV	Vertical
3264.42	44.05	44.70	6.70	28.20	-9.80	34.25	68.20	-33.95	Pk	Horizontal
3264.42	41.19	44.70	6.70	28.20	-9.80	31.39	54.00	-22.61	AV	Horizontal
4020.96	39.58	44.20	7.90	29.70	-6.60	32.98	68.20	-35.22	Pk	Vertical
4020.96	35.69	44.20	7.90	29.70	-6.60	29.09	54.00	-24.91	AV	Vertical
4003.51	40.09	44.20	7.90	29.70	-6.60	33.49	68.20	-34.71	Pk	Horizontal
4003.51	35.89	44.20	7.90	29.70	-6.60	29.29	54.00	-24.71	AV	Horizontal
7272.06	36.47	43.50	11.40	35.50	3.40	39.87	68.20	-28.33	Pk	Vertical
7272.06	34.19	43.50	11.40	35.50	3.40	37.59	54.00	-16.41	AV	Vertical
7257.98	37.46	43.50	11.40	35.50	3.40	40.86	68.20	-27.34	Pk	Horizontal
7257.98	33.57	43.50	11.40	35.50	3.40	36.97	54.00	-17.03	AV	Horizontal
10455.88	39.53	44.50	13.80	38.80	8.10	47.63	68.20	-20.57	Pk	Vertical
10455.88	36.90	44.50	13.80	38.80	8.10	45.00	54.00	-9.00	AV	Vertical
10456.02	38.87	44.50	13.80	38.80	8.10	46.97	68.20	-21.23	Pk	Horizontal
10456.02	35.84	44.50	13.80	38.80	8.10	43.94	54.00	-10.06	AV	Horizontal
11091.20	33.10	43.60	14.30	39.50	10.20	43.30	68.20	-24.90	Pk	Vertical
11091.20	30.25	43.60	14.30	39.50	10.20	40.45	54.00	-13.55	AV	Vertical
11093.35	33.88	43.60	14.30	39.50	10.20	44.08	68.20	-24.12	Pk	Horizontal
11093.35	30.20	43.60	14.30	39.50	10.20	40.40	54.00	-13.60	AV	Horizontal
13364.68	31.98	42.60	15.90	38.90	12.20	44.18	68.20	-24.02	Pk	Vertical
13364.68	29.84	42.60	15.90	38.90	12.20	42.04	54.00	-11.96	AV	Vertical
13353.24	31.73	42.60	15.90	38.90	12.20	43.93	68.20	-24.27	Pk	Horizontal
13353.24	29.15	42.60	15.90	38.90	12.20	41.35	54.00	-12.65	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 (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Comment
Channel (802.11ac80/ 5775 MHz)										
3269.80	44.14	44.70	6.70	28.20	-9.80	34.34	68.20	-33.86	Pk	Vertical
3269.80	41.31	44.70	6.70	28.20	-9.80	31.51	54.00	-22.49	AV	Vertical
3275.83	44.39	44.70	6.70	28.20	-9.80	34.59	68.20	-33.61	Pk	Horizontal
3275.83	41.13	44.70	6.70	28.20	-9.80	31.33	54.00	-22.67	AV	Horizontal
4002.32	39.89	44.20	7.90	29.70	-6.60	33.29	68.20	-34.91	Pk	Vertical
4002.32	36.54	44.20	7.90	29.70	-6.60	29.94	54.00	-24.06	AV	Vertical
4011.80	40.00	44.20	7.90	29.70	-6.60	33.40	68.20	-34.80	Pk	Horizontal
4011.80	36.32	44.20	7.90	29.70	-6.60	29.72	54.00	-24.28	AV	Horizontal
7257.99	37.50	43.50	11.40	35.50	3.40	40.90	68.20	-27.30	Pk	Vertical
7257.99	33.94	43.50	11.40	35.50	3.40	37.34	54.00	-16.66	AV	Vertical
7264.23	37.70	43.50	11.40	35.50	3.40	41.10	68.20	-27.10	Pk	Horizontal
7264.23	33.58	43.50	11.40	35.50	3.40	36.98	54.00	-17.02	AV	Horizontal
10414.06	38.89	44.50	13.80	38.80	8.10	46.99	68.20	-21.21	Pk	Vertical
10414.06	36.42	44.50	13.80	38.80	8.10	44.52	54.00	-9.48	AV	Vertical
10414.08	39.89	44.50	13.80	38.80	8.10	47.99	68.20	-20.21	Pk	Horizontal
10414.08	36.21	44.50	13.80	38.80	8.10	44.31	54.00	-9.69	AV	Horizontal
11084.21	33.66	43.60	14.30	39.50	10.20	43.86	68.20	-24.34	Pk	Vertical
11084.21	30.80	43.60	14.30	39.50	10.20	41.00	54.00	-13.00	AV	Vertical
11083.74	33.93	43.60	14.30	39.50	10.20	44.13	68.20	-24.07	Pk	Horizontal
11083.74	30.75	43.60	14.30	39.50	10.20	40.95	54.00	-13.05	AV	Horizontal
13357.87	32.47	42.60	15.90	38.90	12.20	44.67	68.20	-23.53	Pk	Vertical
13357.87	29.29	42.60	15.90	38.90	12.20	41.49	54.00	-12.51	AV	Vertical
13365.74	32.67	42.60	15.90	38.90	12.20	44.87	68.20	-23.33	Pk	Horizontal
13365.74	29.23	42.60	15.90	38.90	12.20	41.43	54.00	-12.57	AV	Horizontal

Remark:

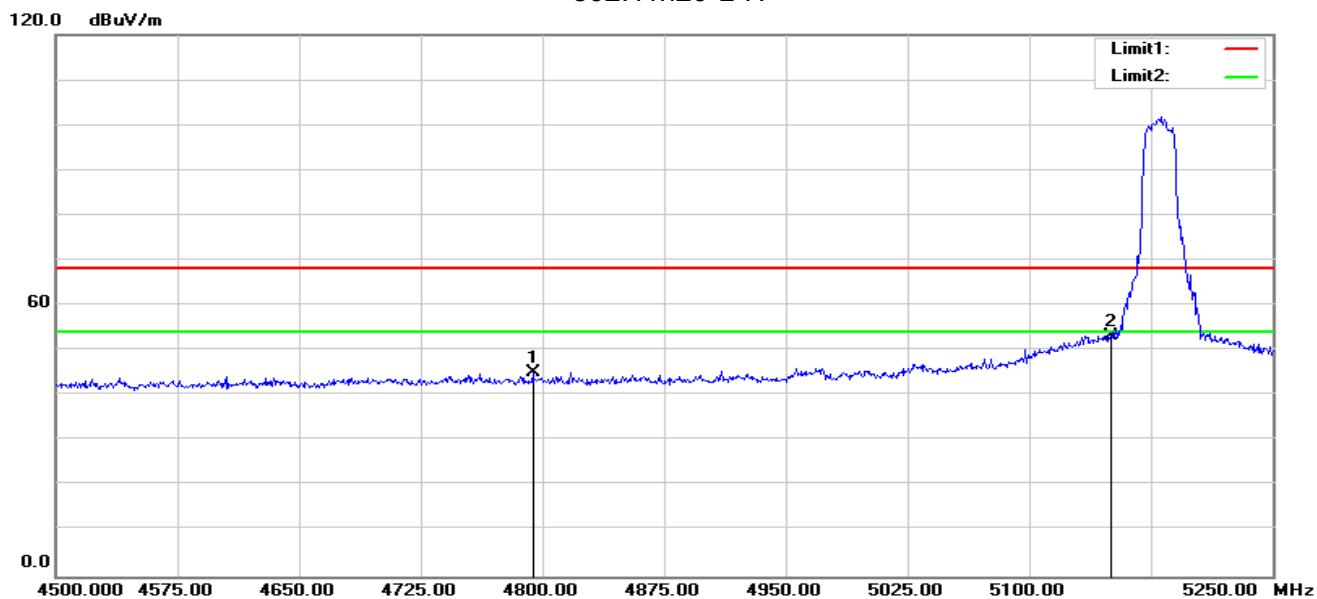
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Scan with 802.11a, 802.11n (HT-20), 802.11n (HT-40), 802.11ac (VHT-20), 802.11ac (VHT-40), 802.11ac (VHT-80) the worst case is 802.11ac (VHT-80).
3. The frequency emission of peak points that did not show above the forms are at least 20dB below 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.



3.2.9 RESTRICTED FREQUENCY BANDS AND BAND EDGE

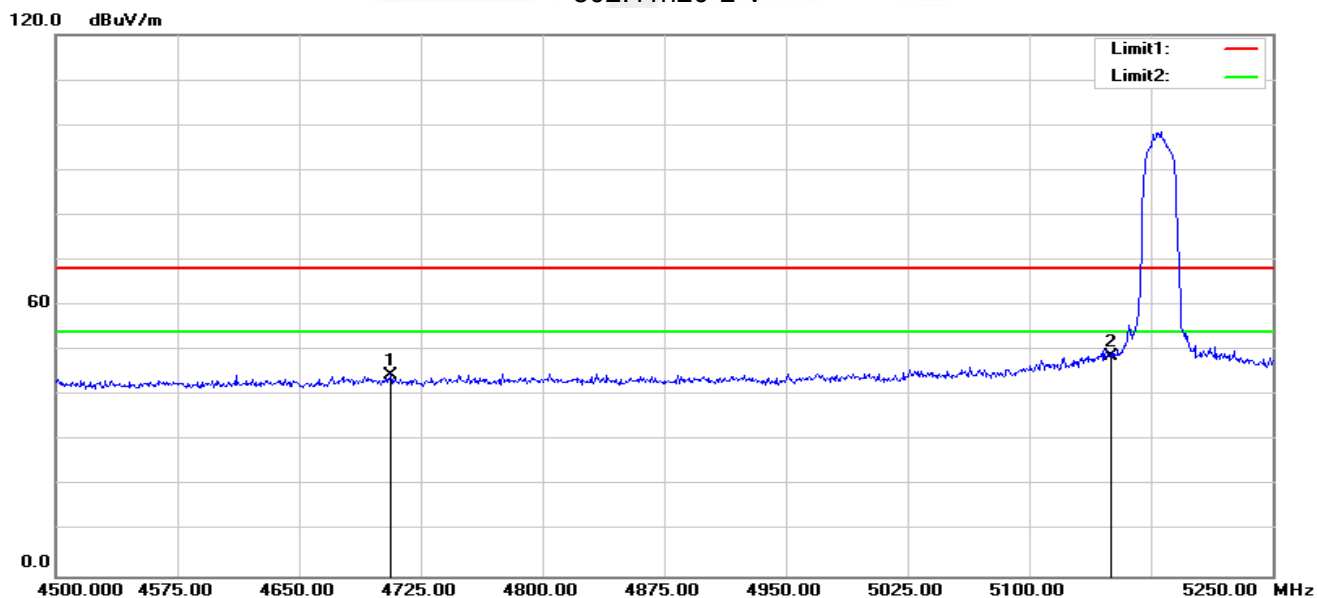
Band I 5150-5250MHz

802.11n20-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4794.000	52.51	-7.23	45.28	68.20	-22.92	peak
2	5150.000	58.90	-5.73	53.17	68.20	-15.03	peak

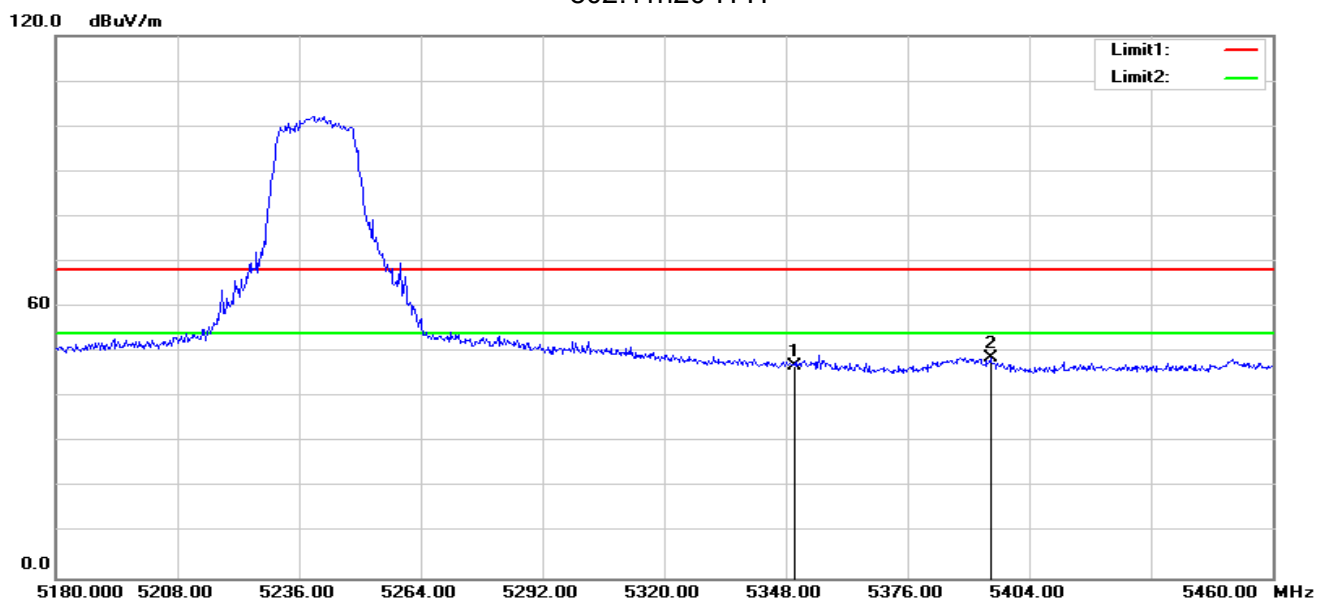
802.11n20-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4706.250	51.88	-7.35	44.53	68.20	-23.67	peak
2	5150.000	54.56	-5.73	48.83	68.20	-19.37	peak

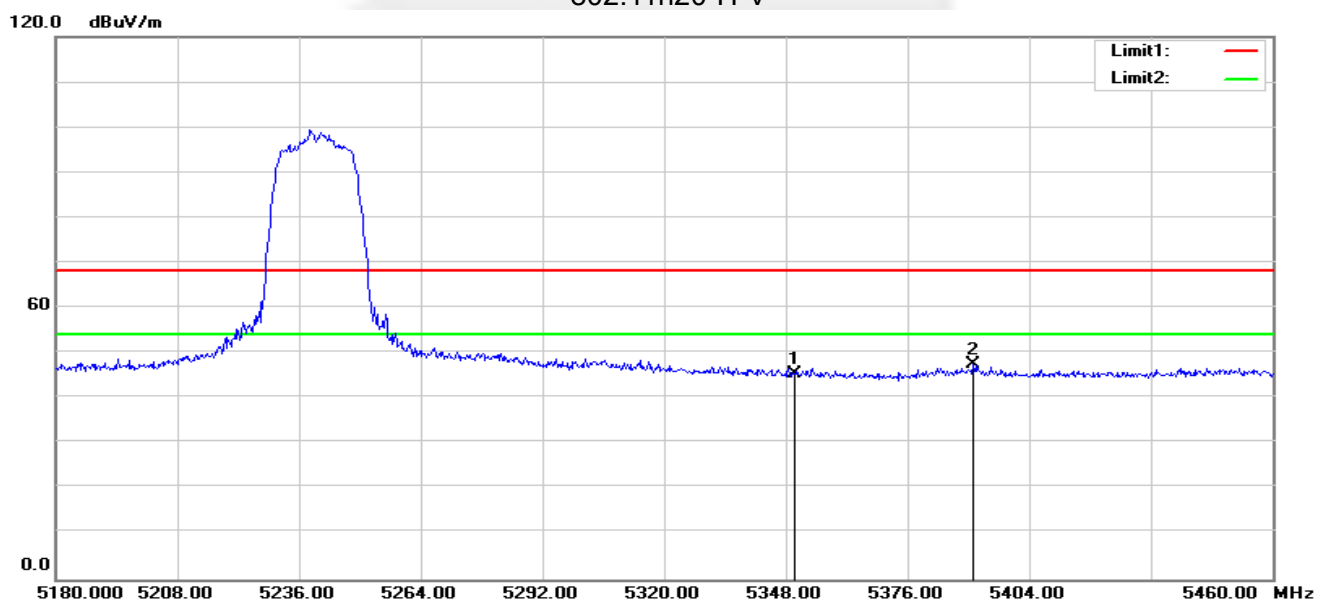


802.11n20-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	52.09	-5.23	46.86	68.20	-21.34	peak
2	5395.040	54.14	-5.24	48.90	68.20	-19.30	peak

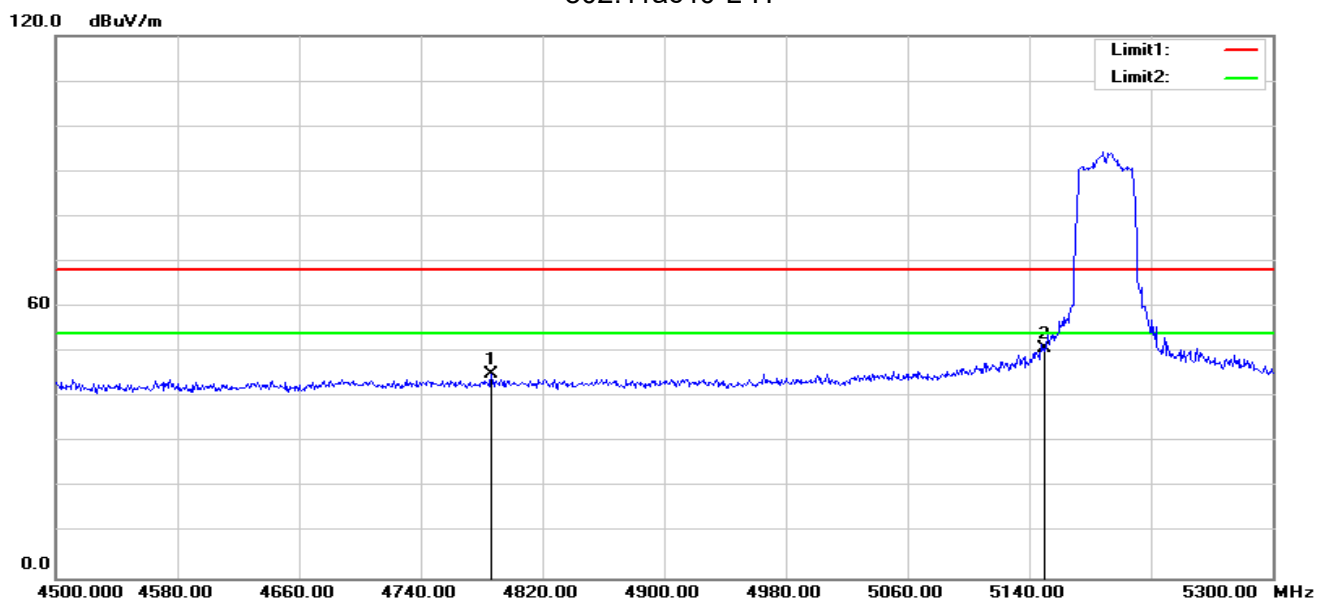
802.11n20-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	50.75	-5.23	45.52	68.20	-22.68	peak
2	5391.120	52.66	-5.25	47.41	68.20	-20.79	peak

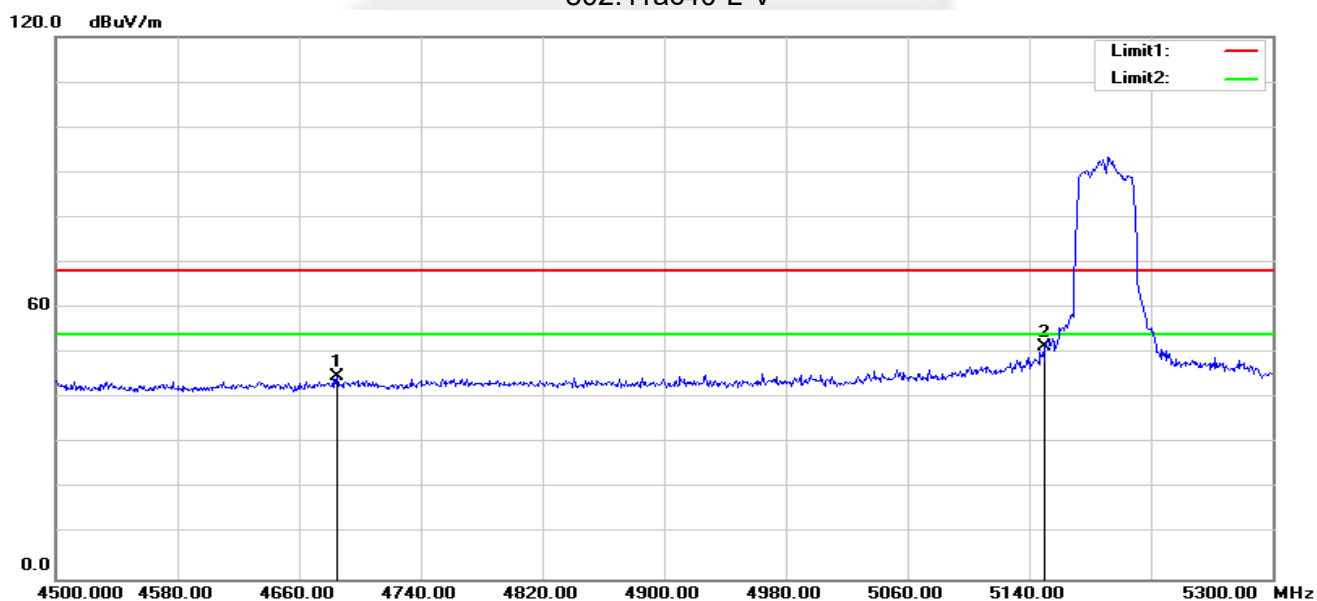


802.11ac40-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4786.400	52.45	-7.24	45.21	68.20	-22.99	peak
2	5150.000	56.71	-5.73	50.98	68.20	-17.22	peak

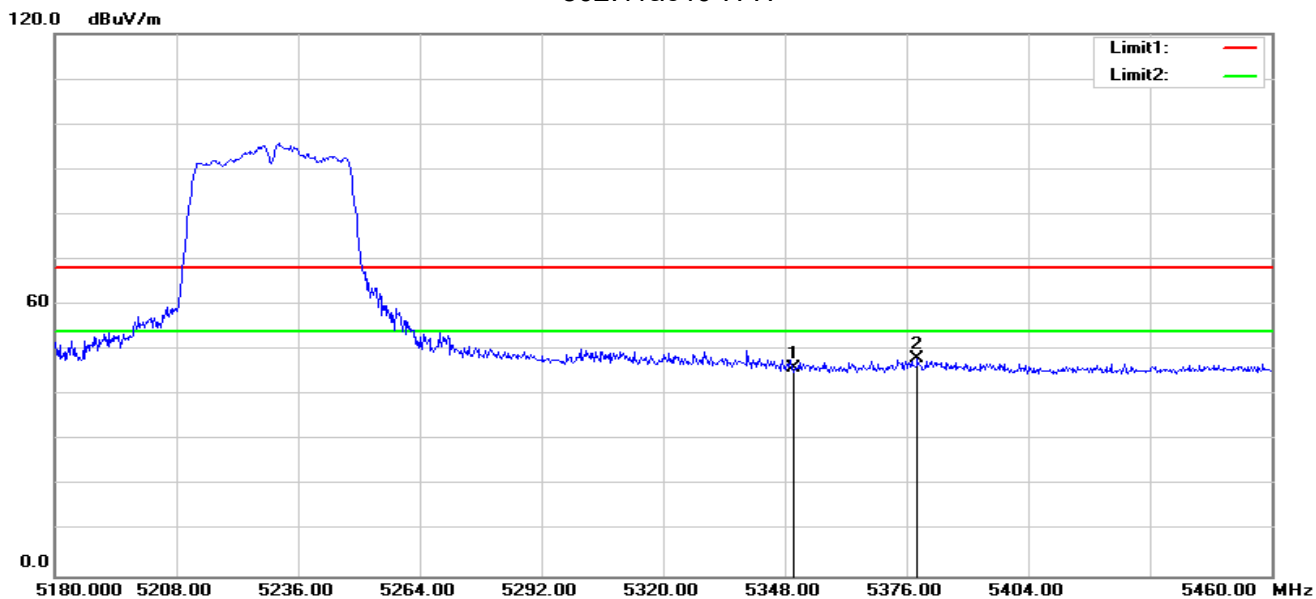
802.11ac40-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4684.800	52.21	-7.44	44.77	68.20	-23.43	peak
2	5150.000	57.18	-5.73	51.45	68.20	-16.75	peak

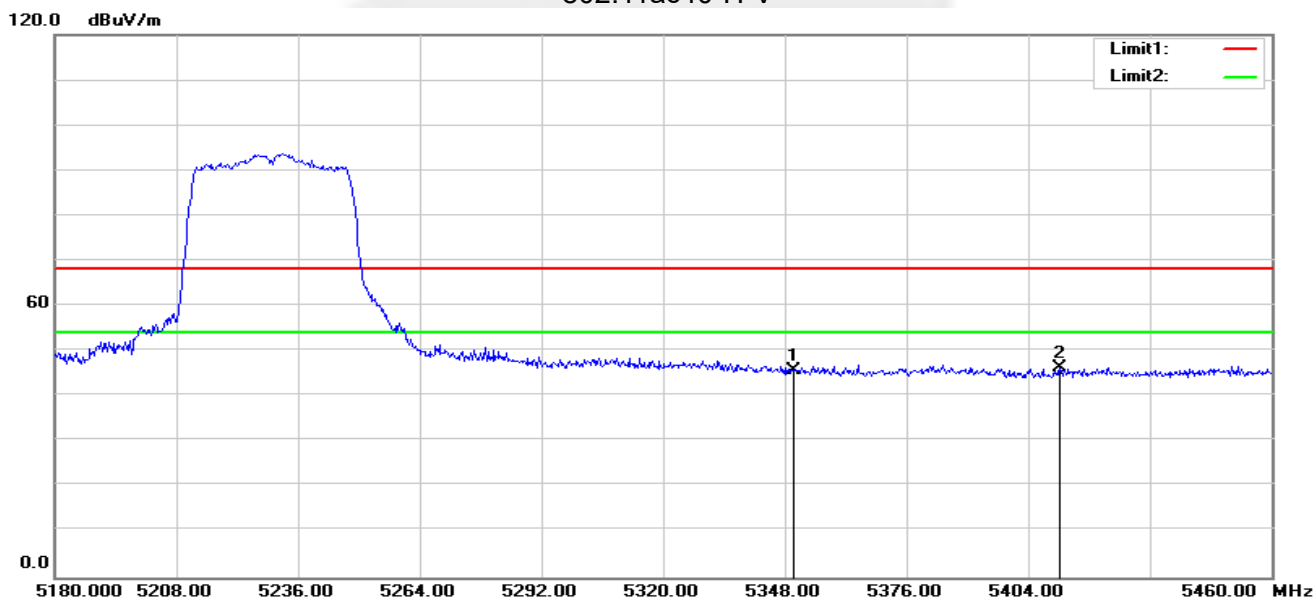


802.11ac40-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	51.35	-5.23	46.12	68.20	-22.08	peak
2	5378.520	53.26	-5.24	48.02	68.20	-20.18	peak

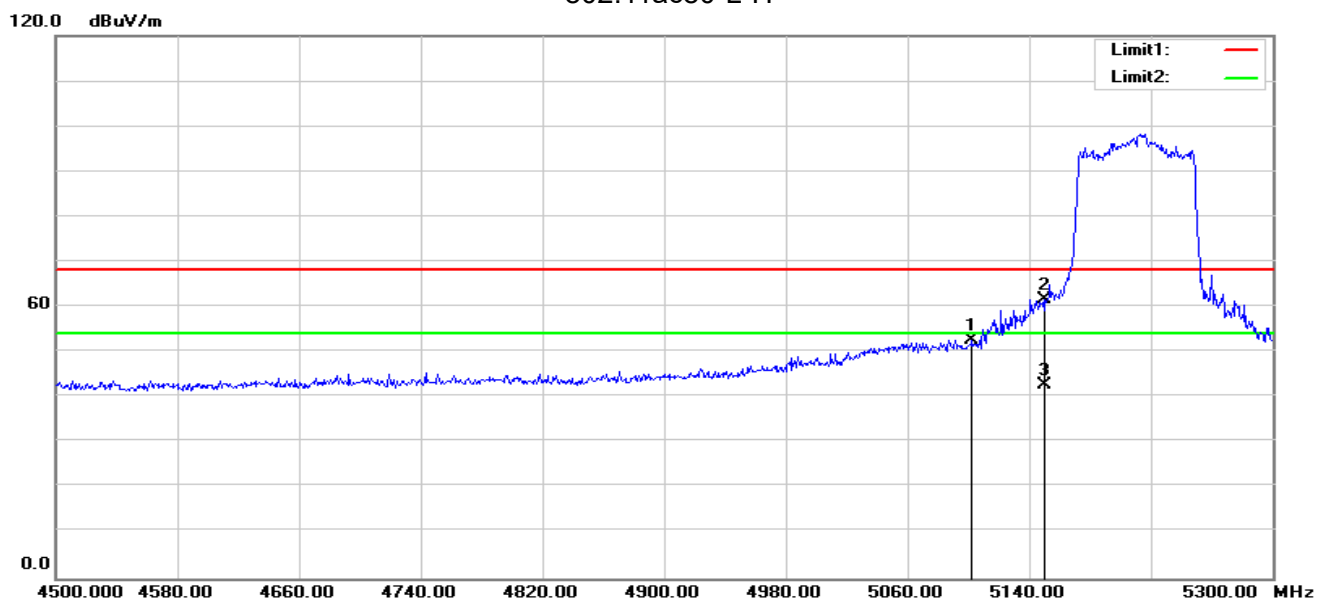
802.11ac40-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	51.05	-5.23	45.82	68.20	-22.38	peak
2	5411.280	51.66	-5.22	46.44	68.20	-21.76	peak

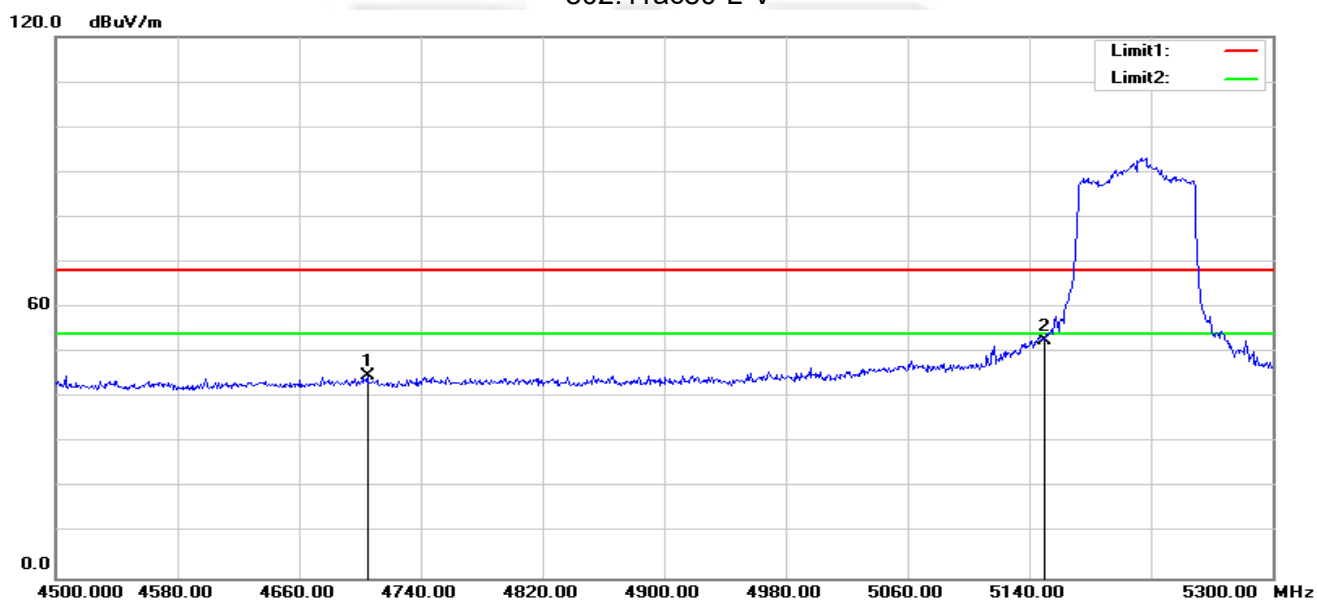


802.11ac80-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5102.400	58.53	-5.74	52.79	68.20	-15.41	peak
2	5150.000	67.32	-5.73	61.59	68.20	-6.61	peak
3	5150.000	48.35	-5.73	42.62	54.00	-11.38	AVG

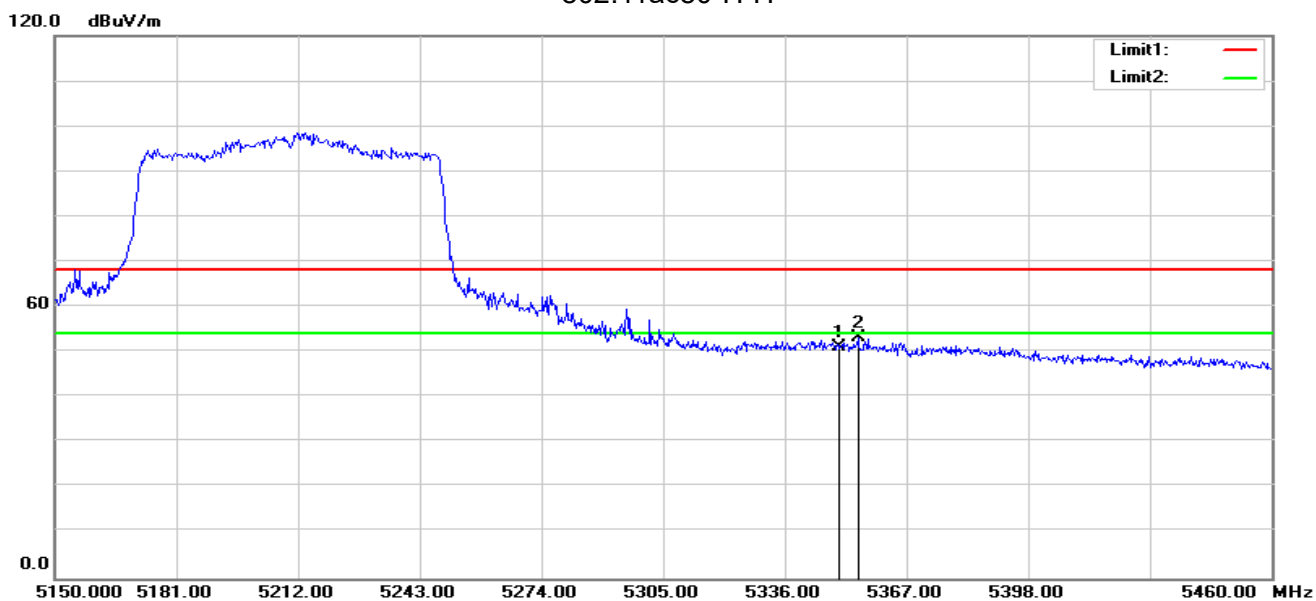
802.11ac80-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4704.800	52.16	-7.35	44.81	68.20	-23.39	peak
2	5150.000	58.28	-5.73	52.55	68.20	-15.65	peak

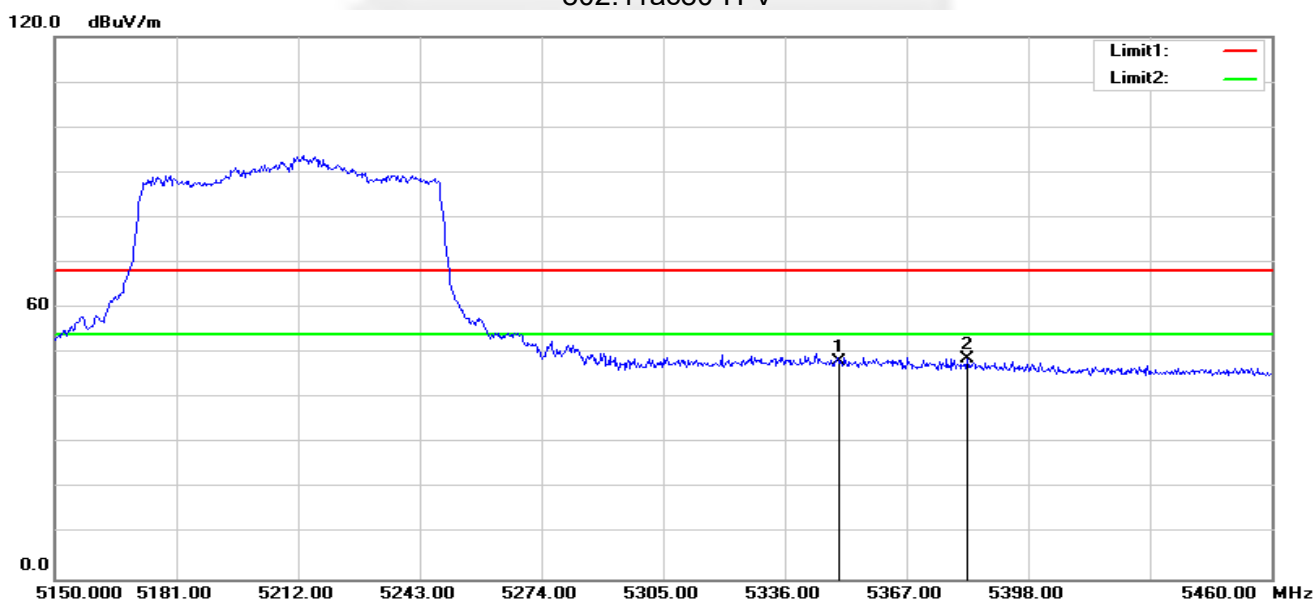


802.11ac80-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	56.39	-5.23	51.16	68.20	-17.04	peak
2	5354.600	58.51	-5.24	53.27	68.20	-14.93	peak

802.11ac80-H-V



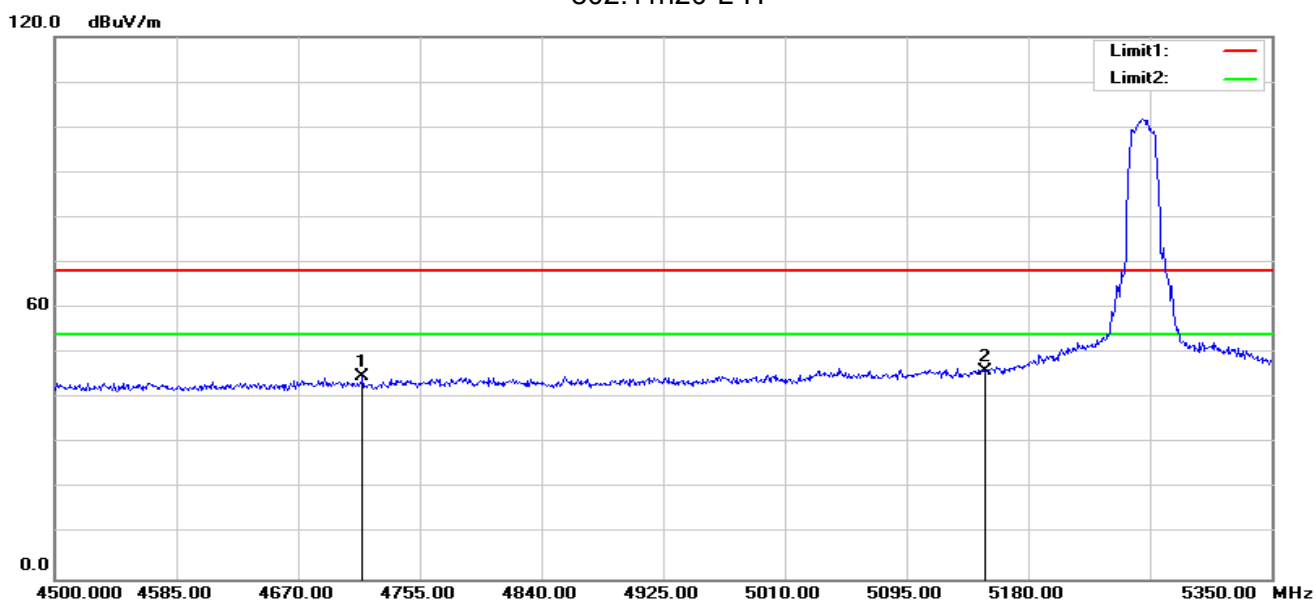
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	53.40	-5.23	48.17	68.20	-20.03	peak
2	5382.500	53.98	-5.24	48.74	68.20	-19.46	peak

Note: All modes have been tested. Only the worst mode shown in the report.



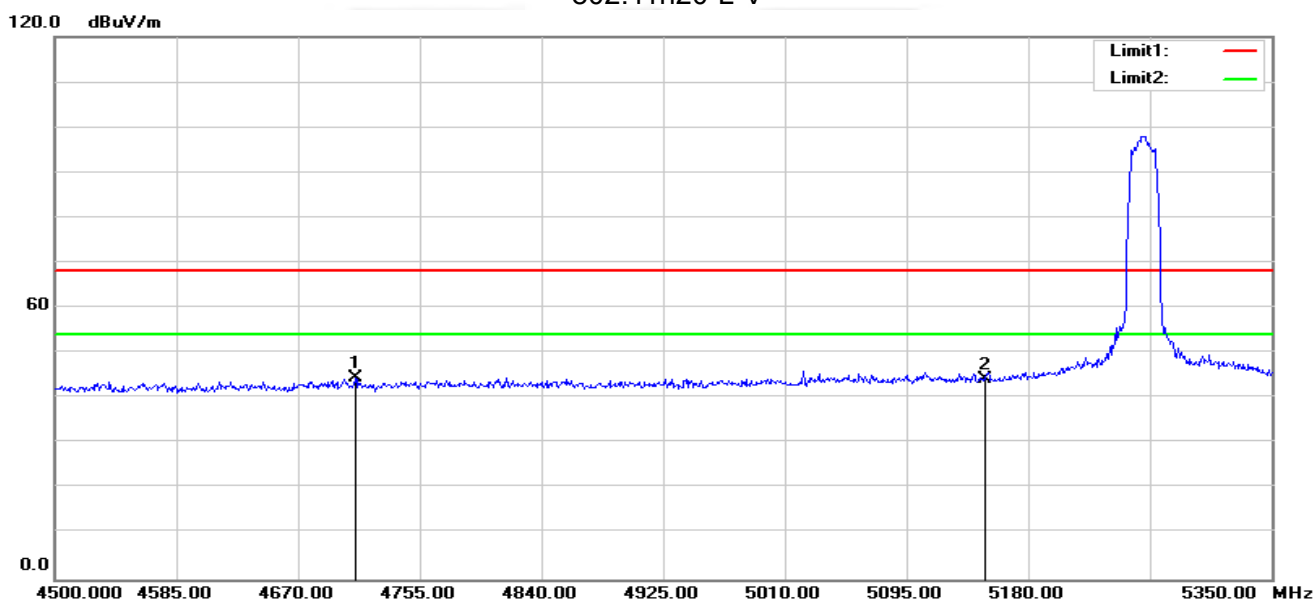
Band II 5250-5350MHz

802.11n20-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4715.050	52.23	-7.34	44.89	68.20	-23.31	peak
2	5150.000	51.89	-5.73	46.16	68.20	-22.04	peak

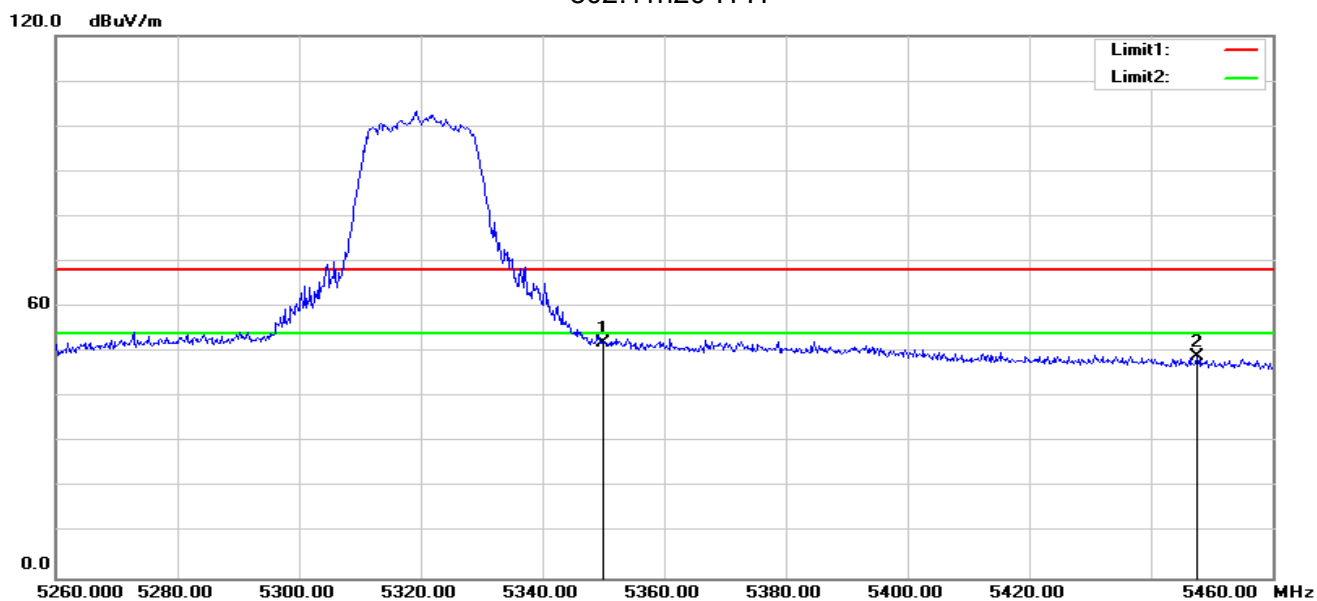
802.11n20-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4709.950	52.02	-7.35	44.67	68.20	-23.53	peak
2	5150.000	50.13	-5.73	44.40	68.20	-23.80	peak

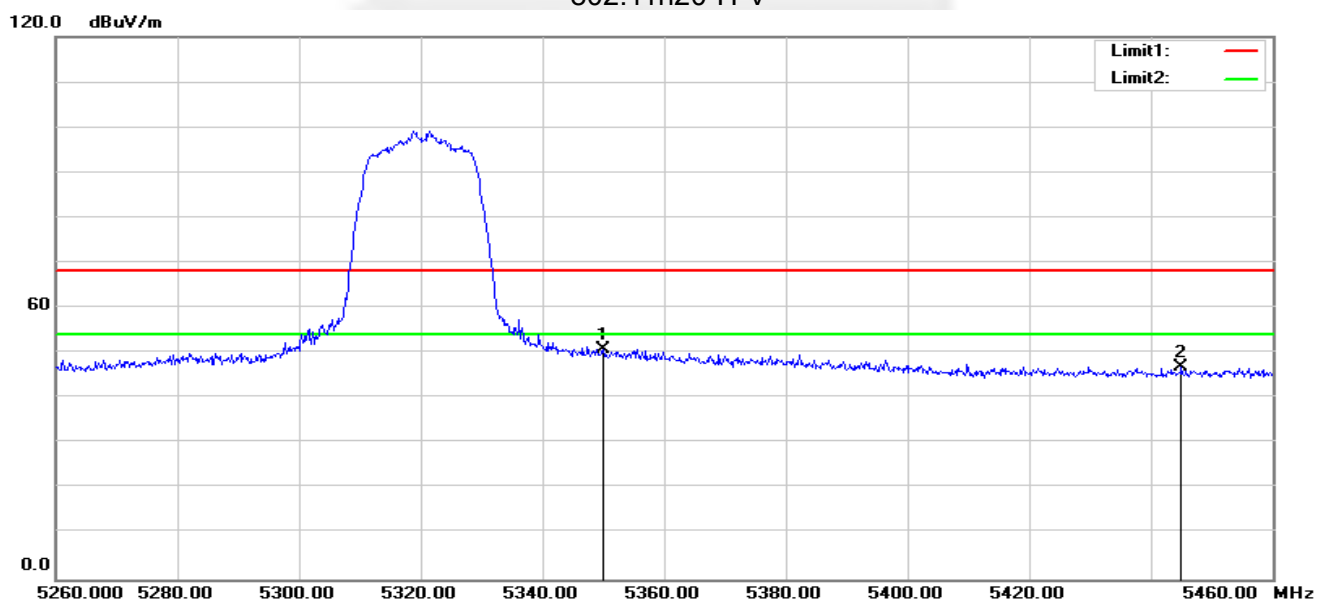


802.11n20-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	57.42	-5.23	52.19	68.20	-16.01	peak
2	5447.600	54.33	-5.14	49.19	68.20	-19.01	peak

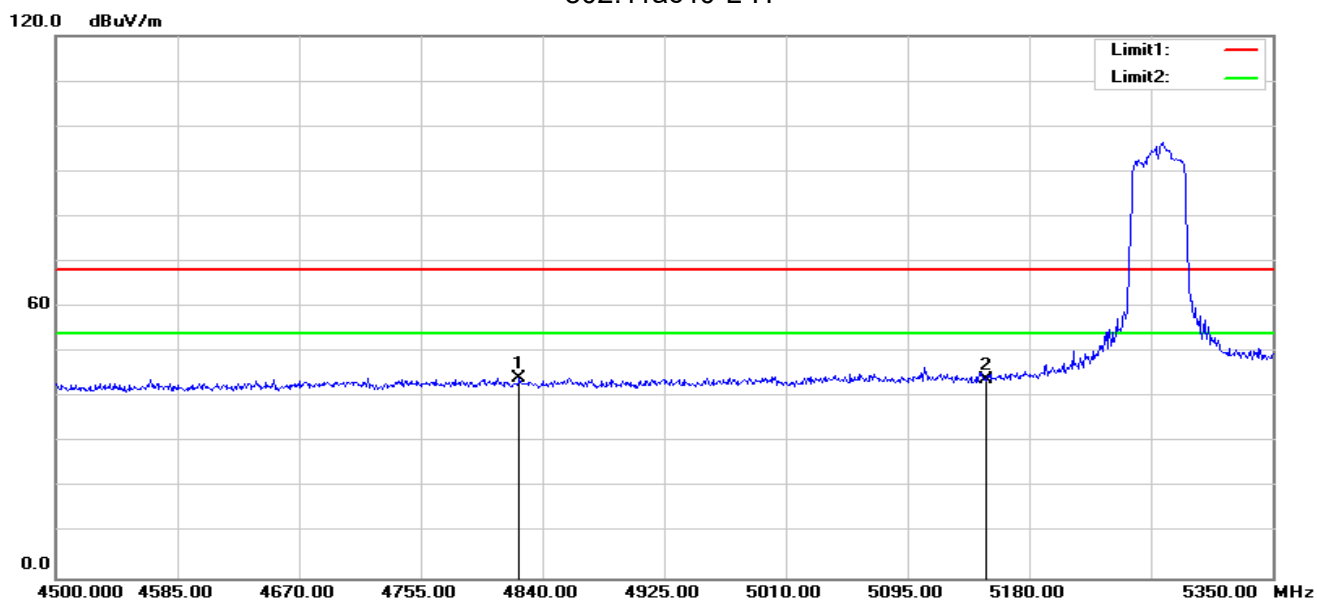
802.11n20-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	56.18	-5.23	50.95	68.20	-17.25	peak
2	5445.000	52.15	-5.14	47.01	68.20	-21.19	peak

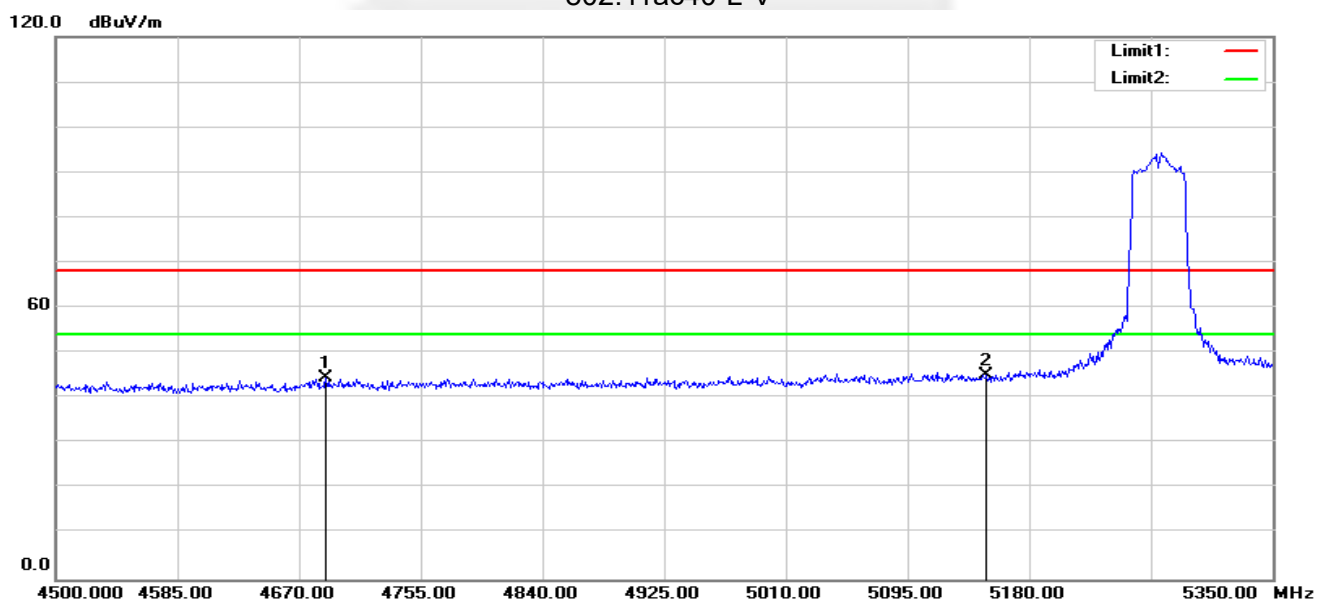


802.11ac40-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4823.850	51.41	-7.13	44.28	68.20	-23.92	peak
2	5150.000	49.79	-5.73	44.06	68.20	-24.14	peak

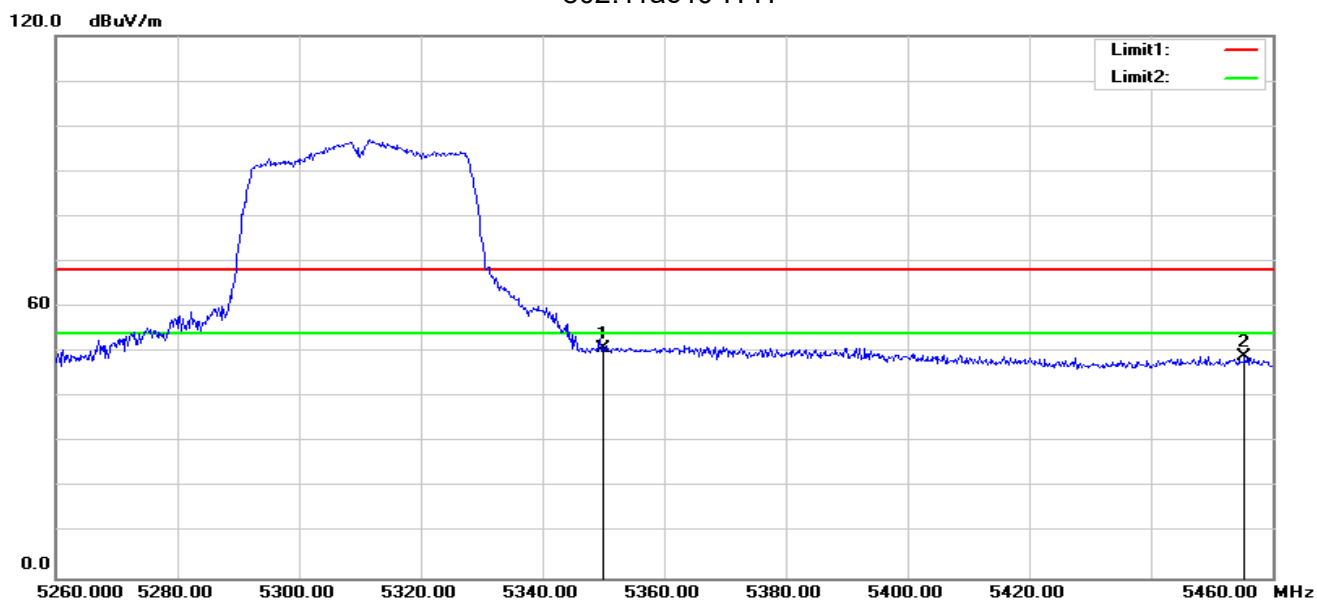
802.11ac40-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4688.700	52.03	-7.42	44.61	68.20	-23.59	peak
2	5150.000	50.75	-5.73	45.02	68.20	-23.18	peak

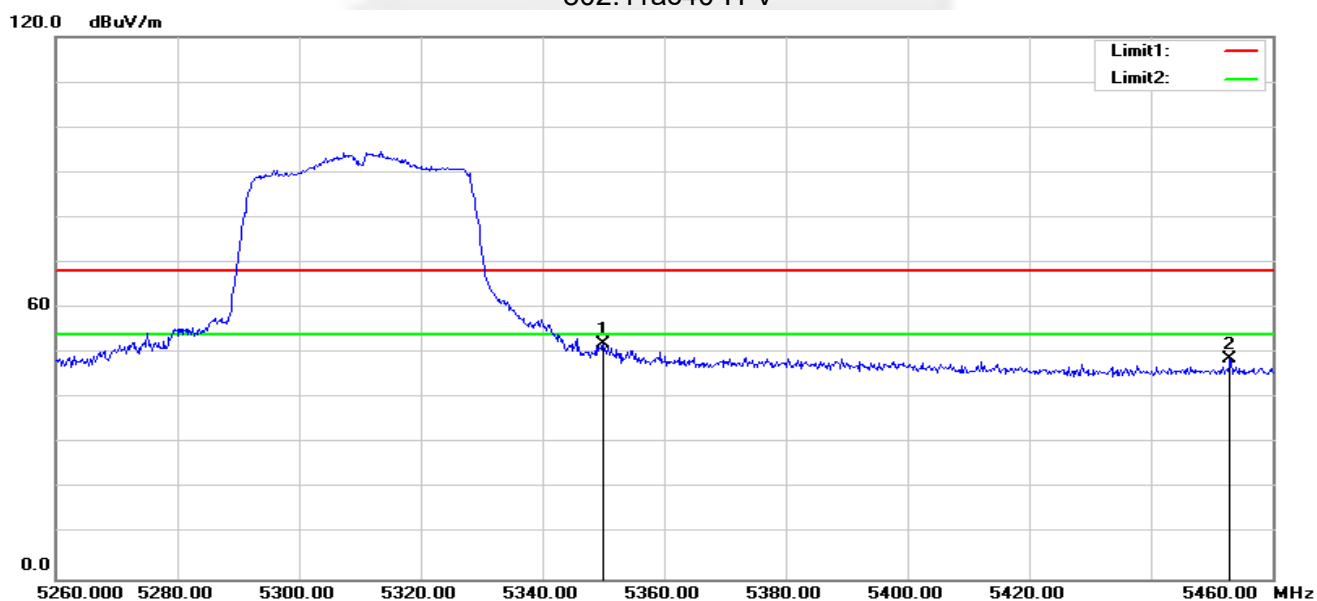


802.11ac40-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	56.05	-5.23	50.82	68.20	-17.38	peak
2	5455.400	54.17	-5.13	49.04	68.20	-19.16	peak

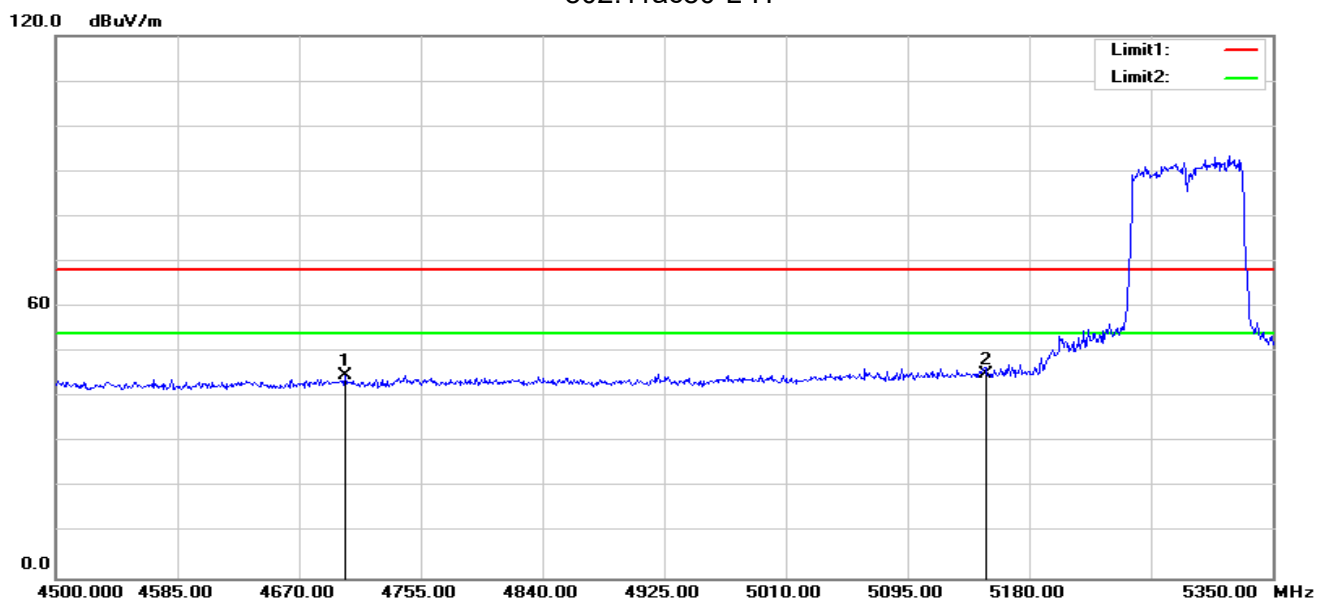
802.11ac40-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	57.31	-5.23	52.08	68.20	-16.12	peak
2	5453.000	53.79	-5.13	48.66	68.20	-19.54	peak

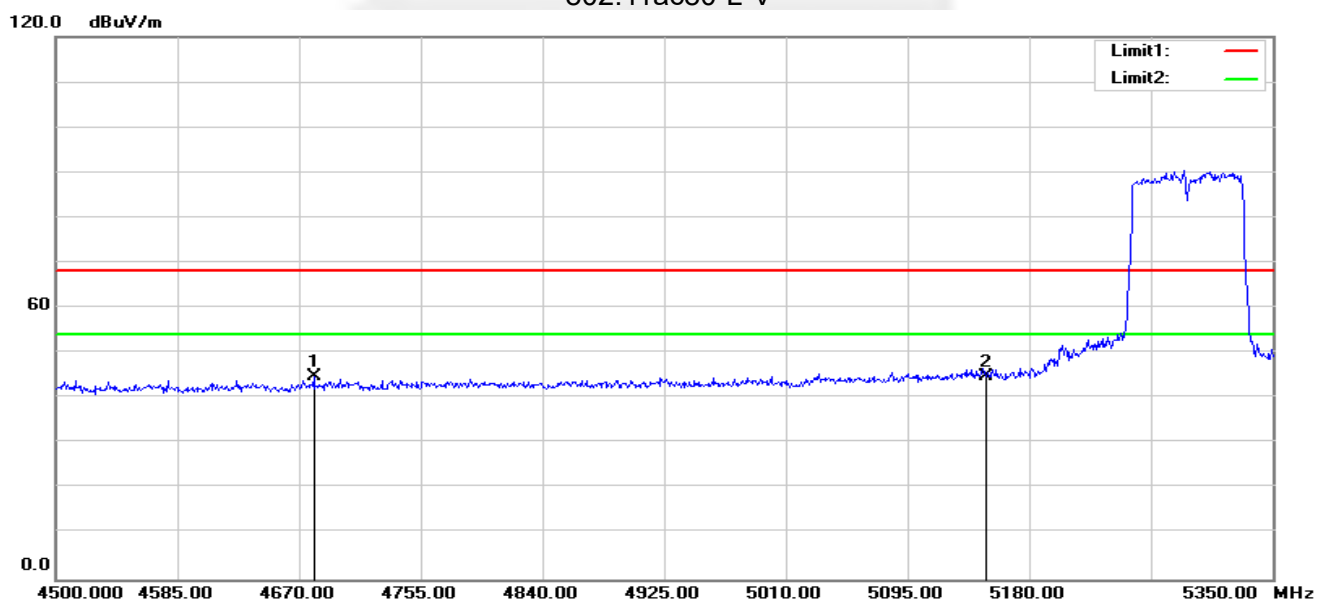


802.11ac80-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4702.300	52.16	-7.36	44.80	68.20	-23.40	peak
2	5150.000	50.95	-5.73	45.22	68.20	-22.98	peak

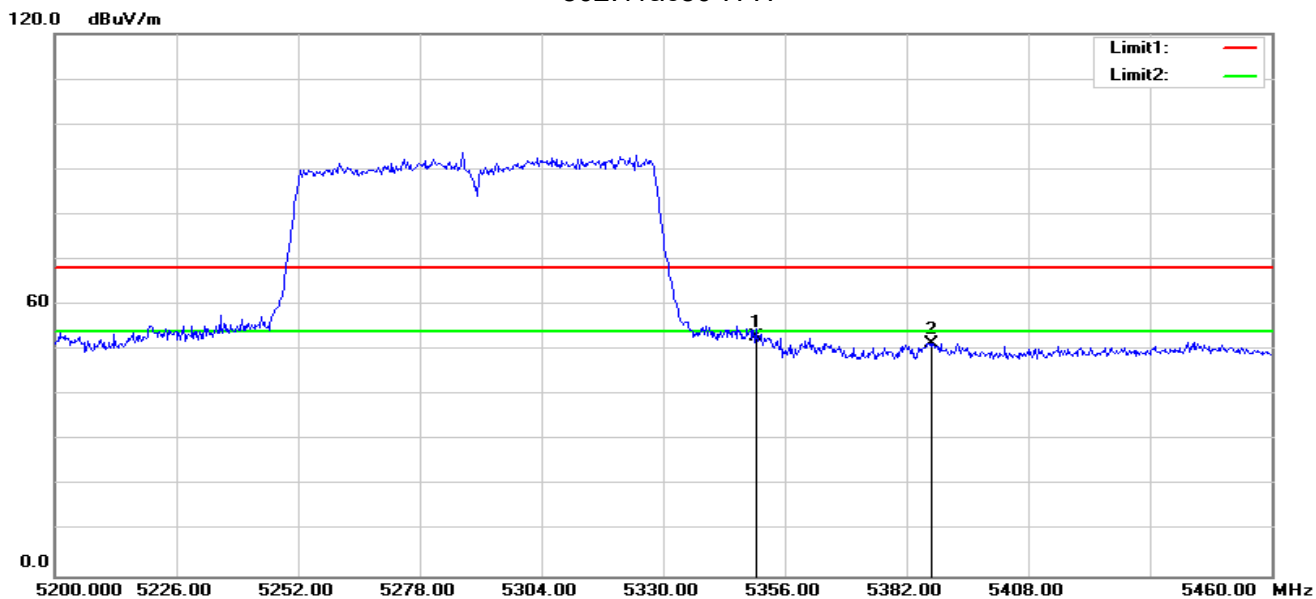
802.11ac80-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4680.200	52.16	-7.46	44.70	68.20	-23.50	peak
2	5150.000	50.63	-5.73	44.90	68.20	-23.30	peak

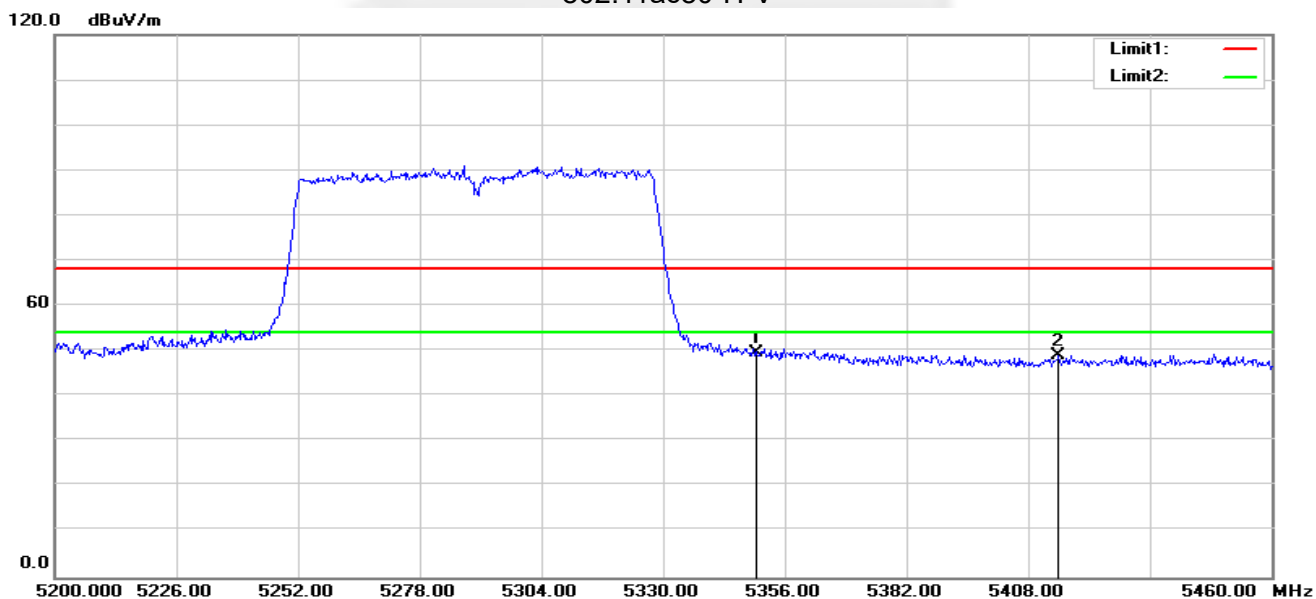


802.11ac80-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	58.14	-5.23	52.91	68.20	-15.29	peak
2	5387.460	56.83	-5.24	51.59	68.20	-16.61	peak

802.11ac80-H-V



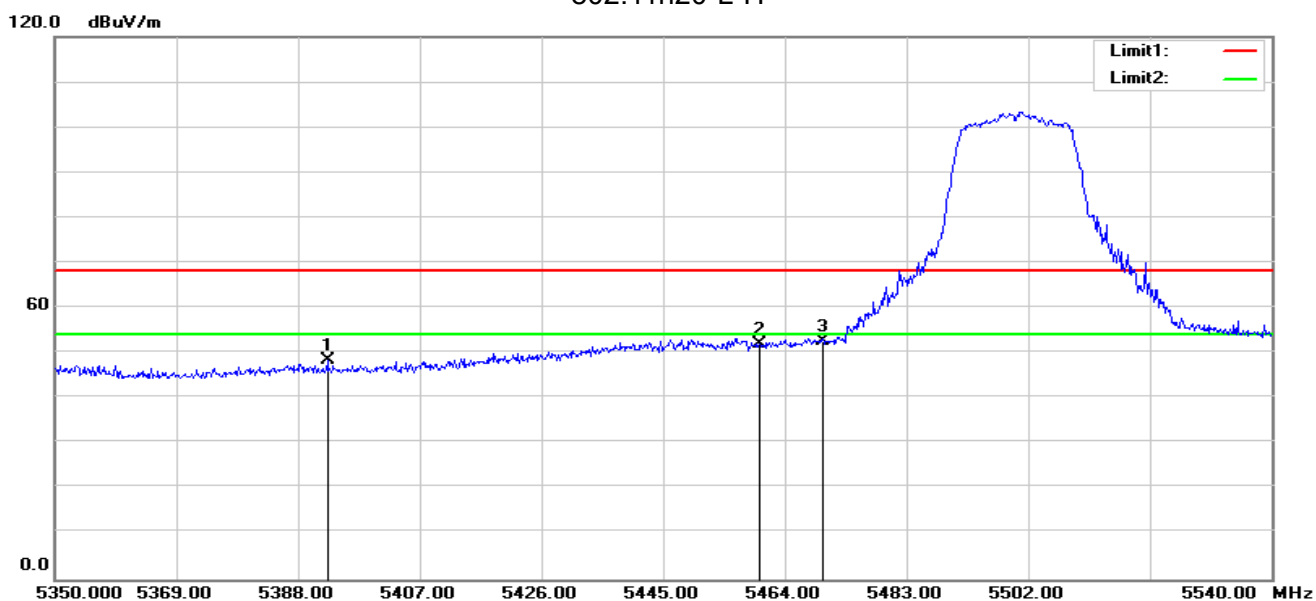
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	54.75	-5.23	49.52	68.20	-18.68	peak
2	5414.500	54.31	-5.22	49.09	68.20	-19.11	peak

Note: All modes have been tested. Only the worst mode shown in the report.



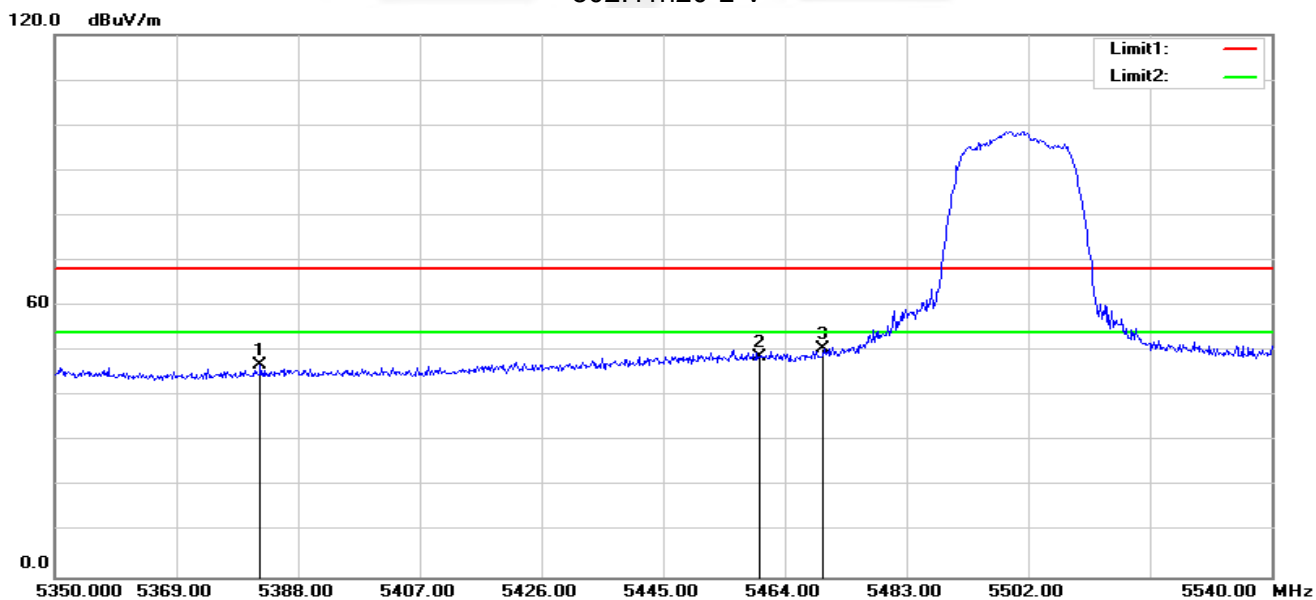
Band III 5470-5725MHz

802.11n20-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5392.560	53.63	-5.25	48.38	68.20	-19.82	peak
2	5460.000	57.07	-5.11	51.96	68.20	-16.24	peak
3	5470.000	57.80	-5.09	52.71	68.20	-15.49	peak

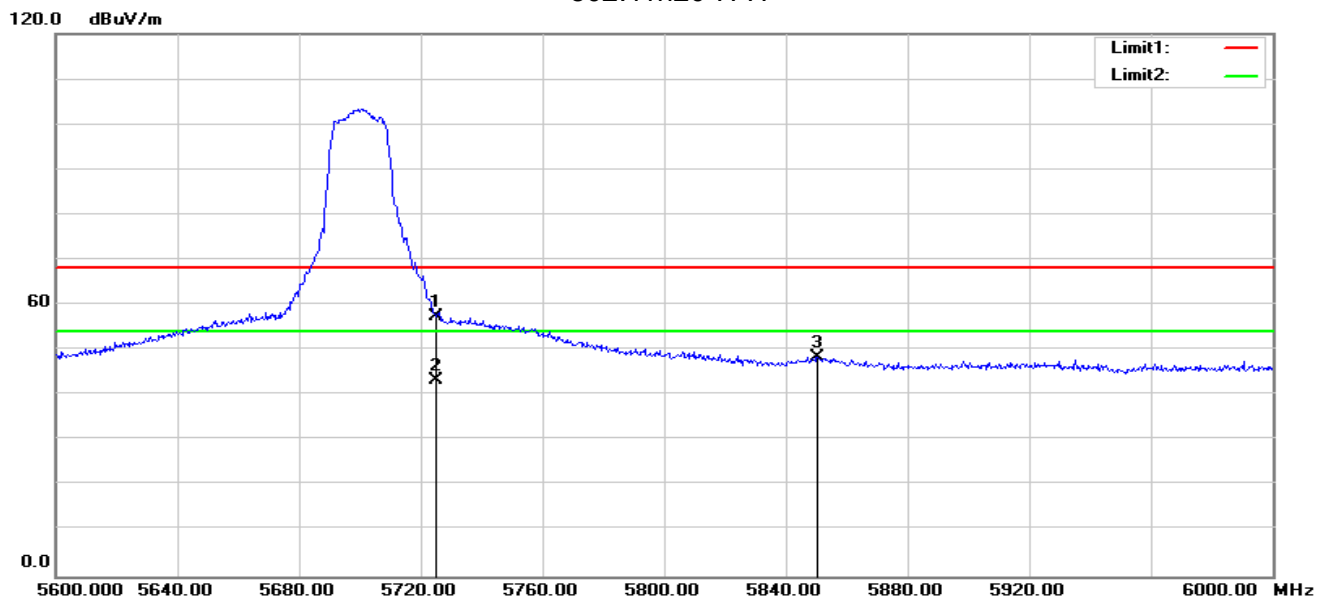
802.11n20-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5382.110	52.07	-5.24	46.83	68.20	-21.37	peak
2	5460.000	53.75	-5.11	48.64	68.20	-19.56	peak
3	5470.000	55.56	-5.09	50.47	68.20	-17.73	peak

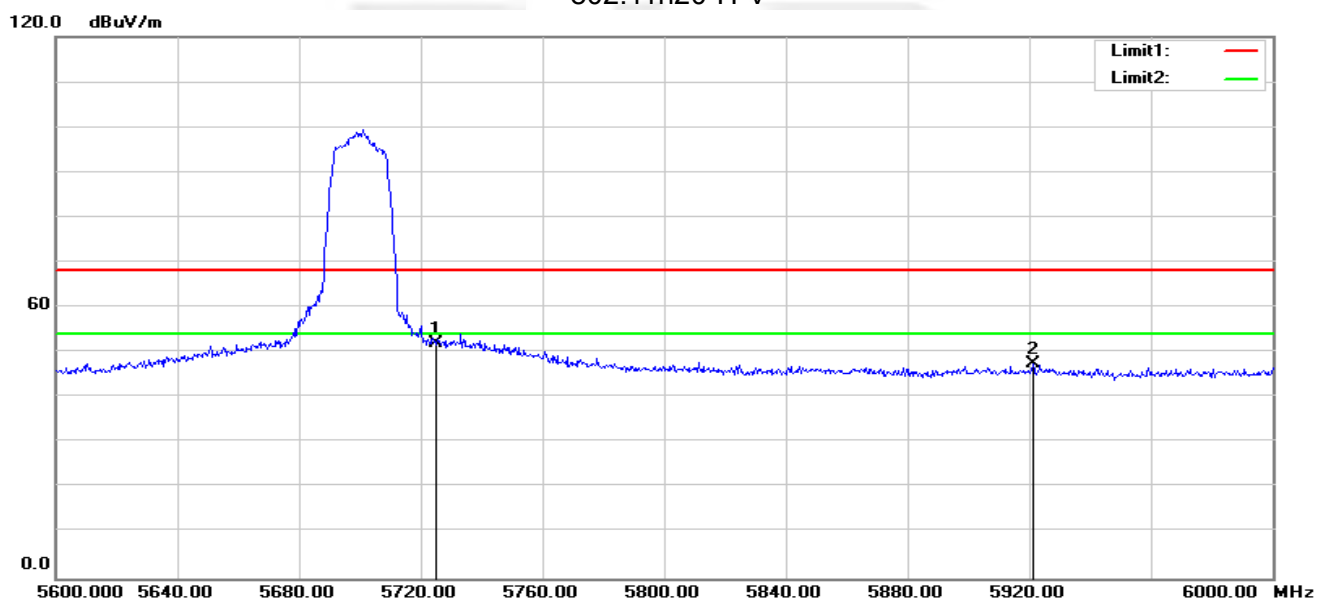


802.11n20-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	61.92	-4.57	57.35	68.20	-10.85	peak
2	5725.000	48.02	-4.57	43.45	54.00	-10.55	AVG
3	5850.400	52.66	-4.10	48.56	68.20	-19.64	peak

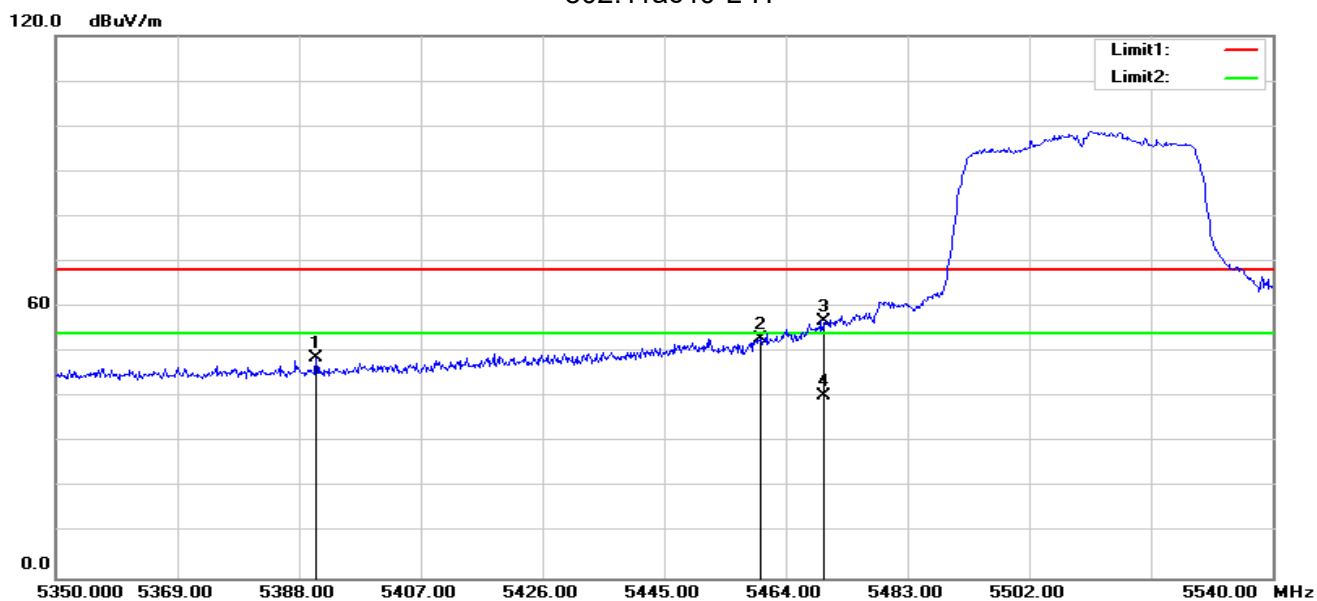
802.11n20-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	56.72	-4.57	52.15	68.20	-16.05	peak
2	5921.200	51.35	-3.92	47.43	68.20	-20.77	peak

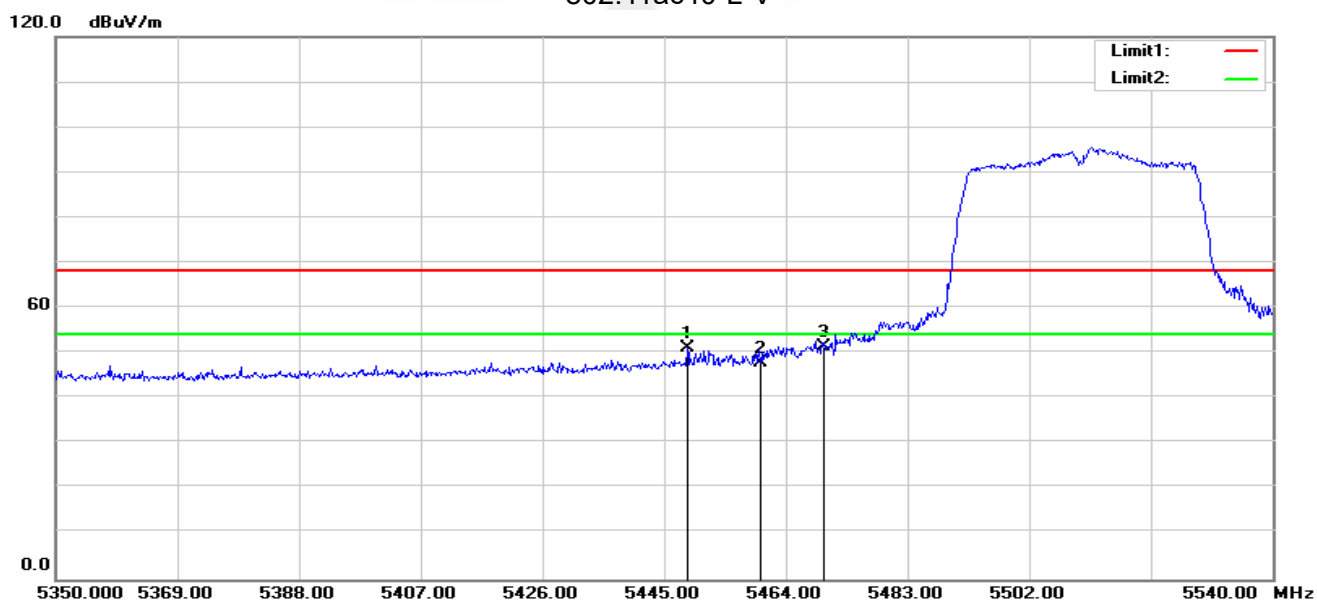


802.11ac40-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5390.660	54.09	-5.25	48.84	68.20	-19.36	peak
2	5460.000	58.13	-5.11	53.02	68.20	-15.18	peak
3	5470.000	61.87	-5.09	56.78	68.20	-11.42	peak
4	5470.000	45.33	-5.09	40.24	54.00	-13.76	AVG

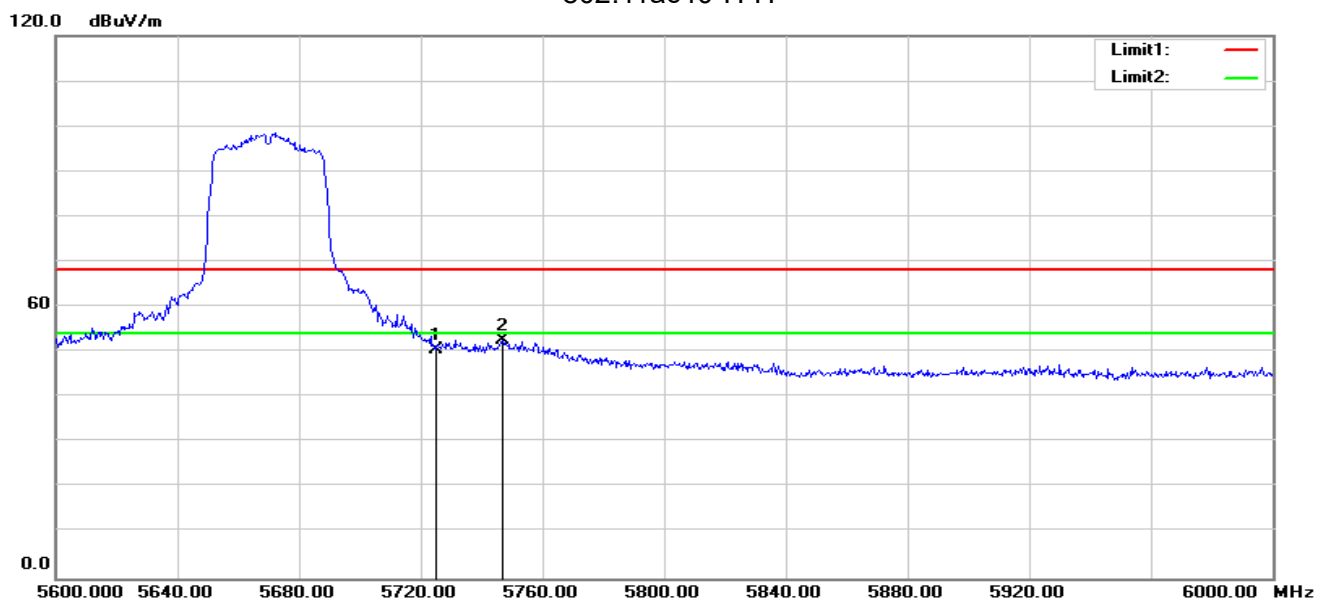
802.11ac40-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5448.610	56.16	-5.14	51.02	68.20	-17.18	peak
2	5460.000	53.08	-5.11	47.97	68.20	-20.23	peak
3	5470.000	56.47	-5.09	51.38	68.20	-16.82	peak

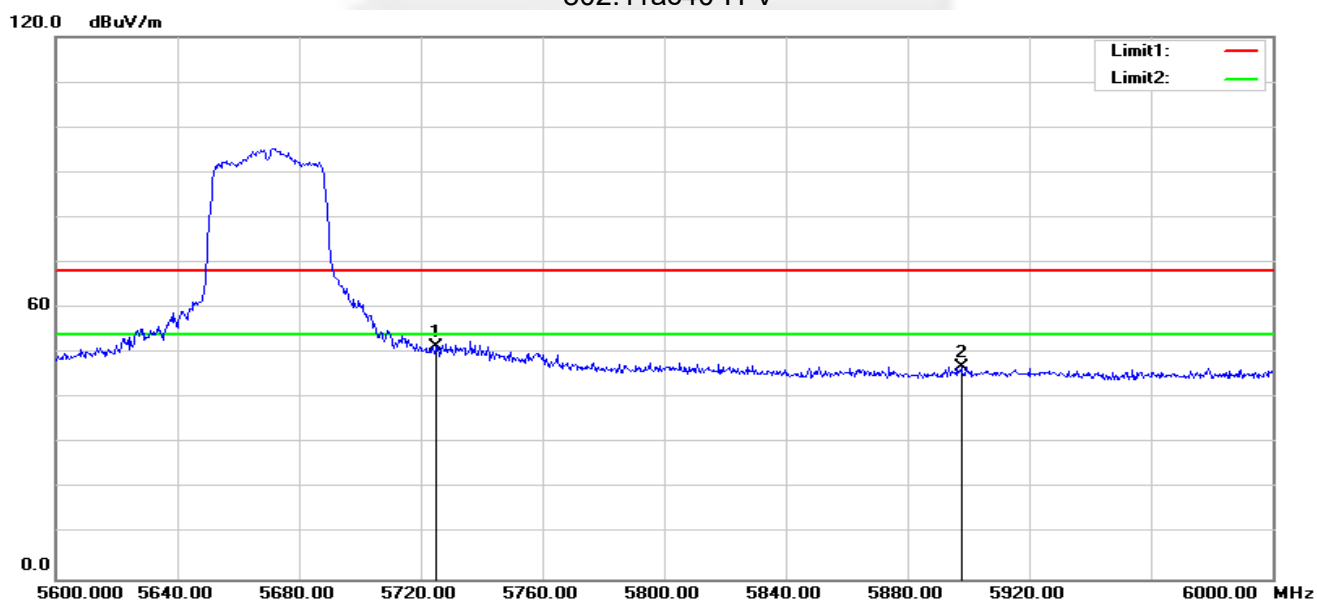


802.11ac40-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	55.24	-4.57	50.67	68.20	-17.53	peak
2	5746.800	57.07	-4.51	52.56	68.20	-15.64	peak

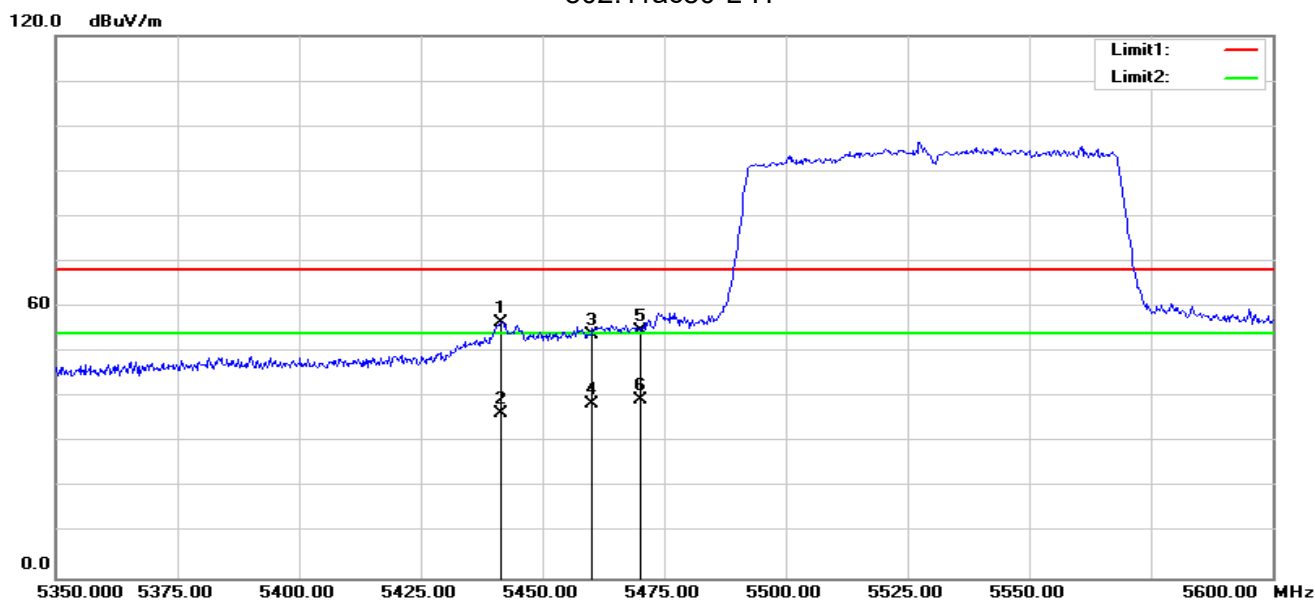
802.11ac40-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	56.13	-4.57	51.56	68.20	-16.64	peak
2	5897.600	50.97	-3.89	47.08	68.20	-21.12	peak

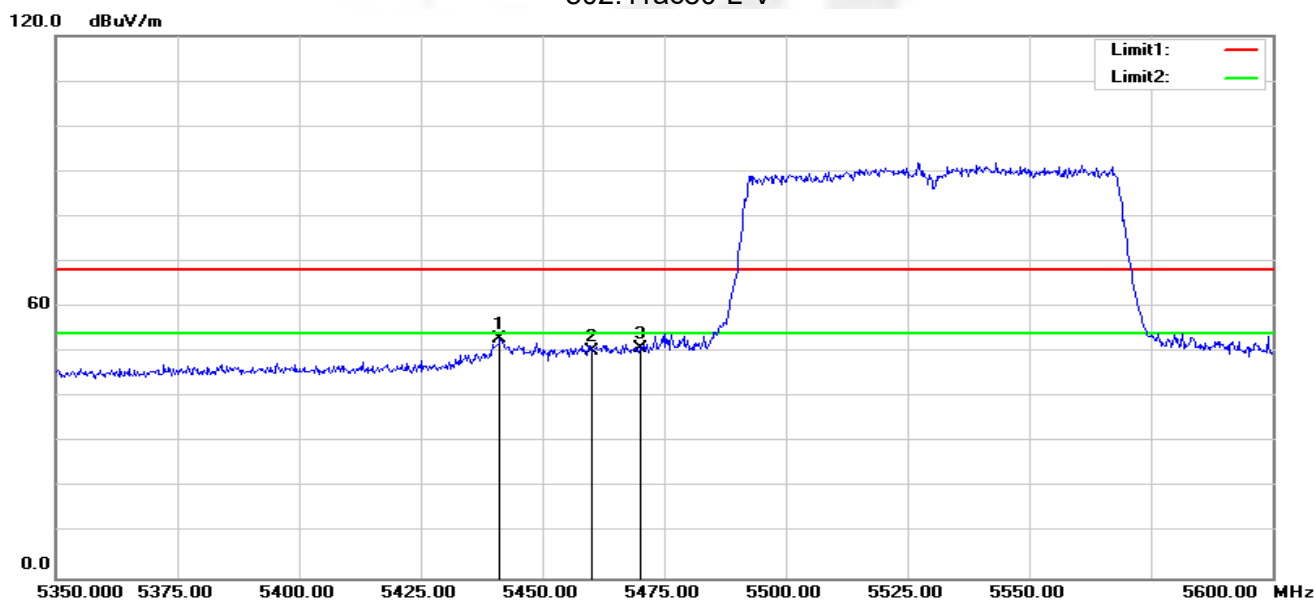


802.11ac80-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5441.500	61.67	-5.16	56.51	68.20	-11.69	peak
2	5441.500	41.67	-5.16	36.51	54.00	-17.49	AVG
3	5460.000	58.88	-5.11	53.77	68.20	-14.43	peak
4	5460.000	43.52	-5.11	38.41	54.00	-15.59	AVG
5	5470.000	59.87	-5.09	54.78	68.20	-13.42	peak
6	5470.000	44.53	-5.09	39.44	54.00	-14.56	AVG

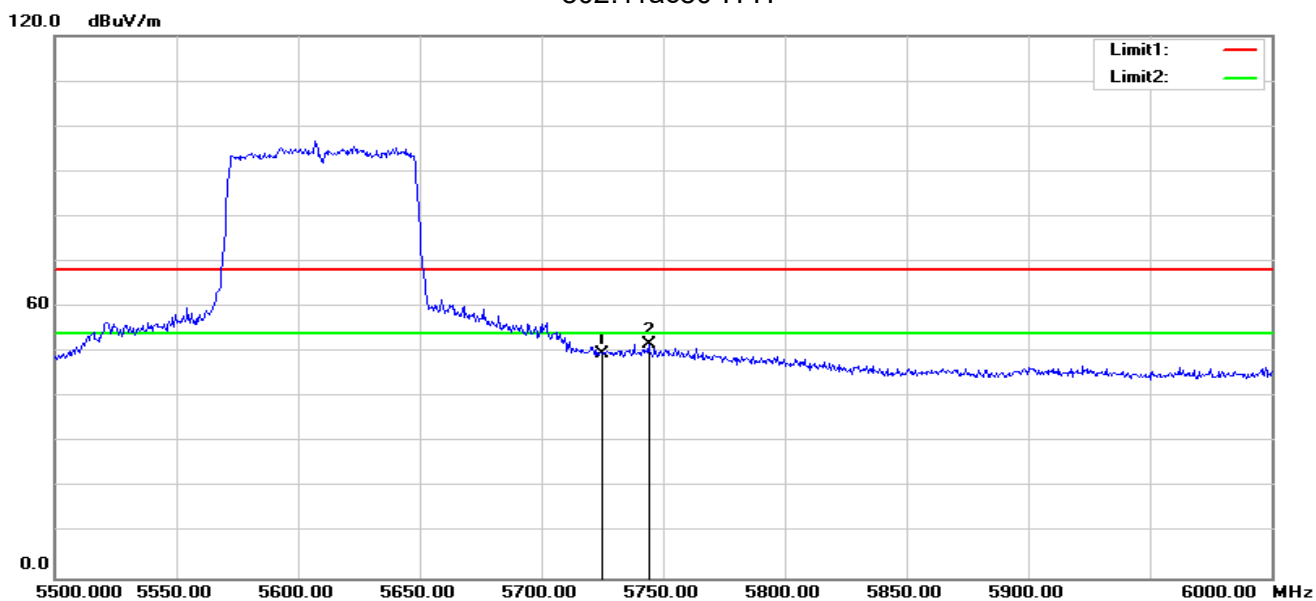
802.11ac80-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5441.250	58.06	-5.16	52.90	68.20	-15.30	peak
2	5460.000	55.23	-5.11	50.12	68.20	-18.08	peak
3	5470.000	55.92	-5.09	50.83	68.20	-17.37	peak

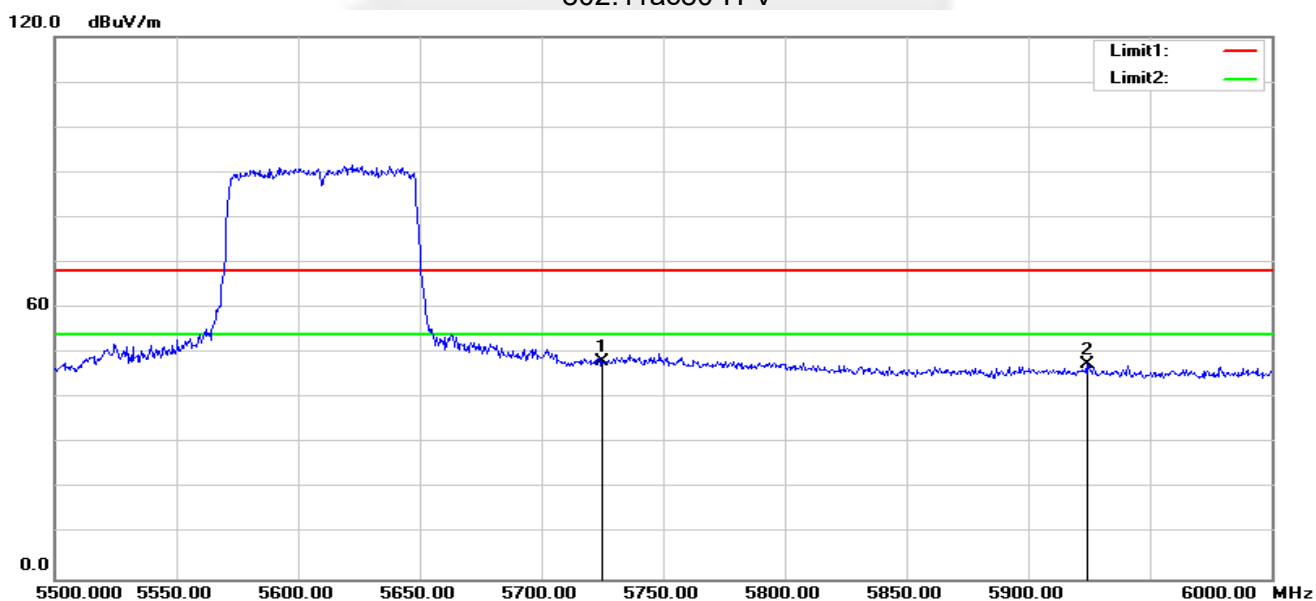


802.11ac80-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	54.16	-4.57	49.59	68.20	-18.61	peak
2	5744.000	56.21	-4.51	51.70	68.20	-16.50	peak

802.11ac80-H-V



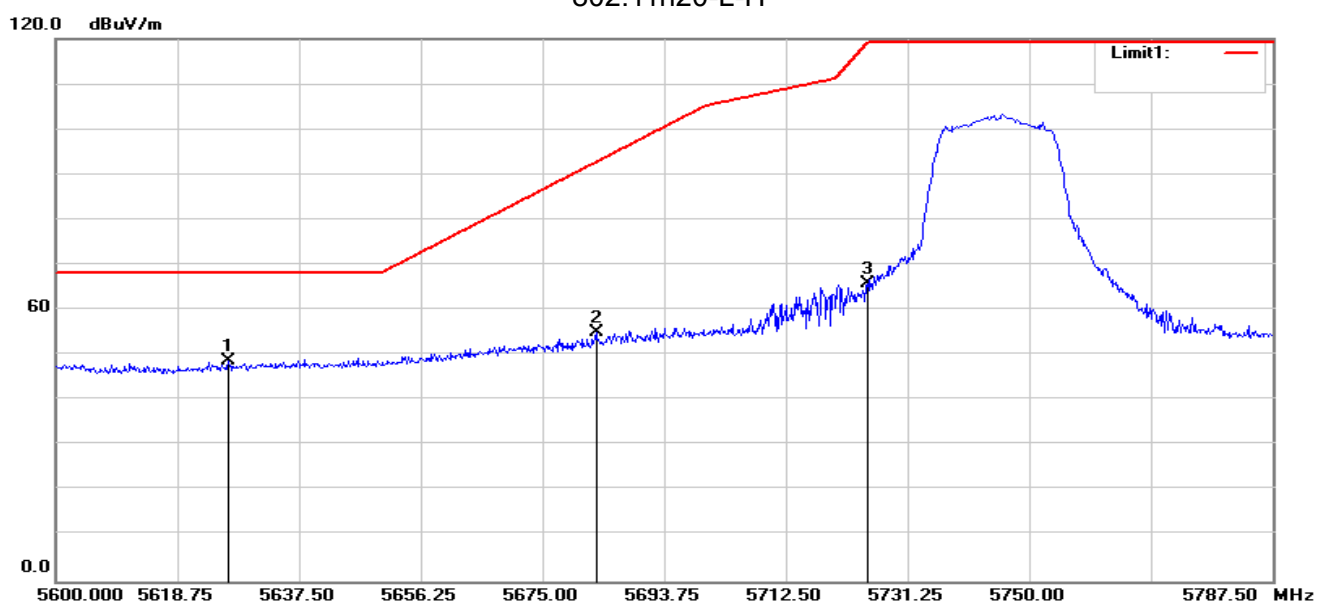
No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	52.66	-4.57	48.09	68.20	-20.11	peak
2	5924.000	51.33	-3.92	47.41	68.20	-20.79	peak

Note: All modes have been tested. Only the worst mode shown in the report.



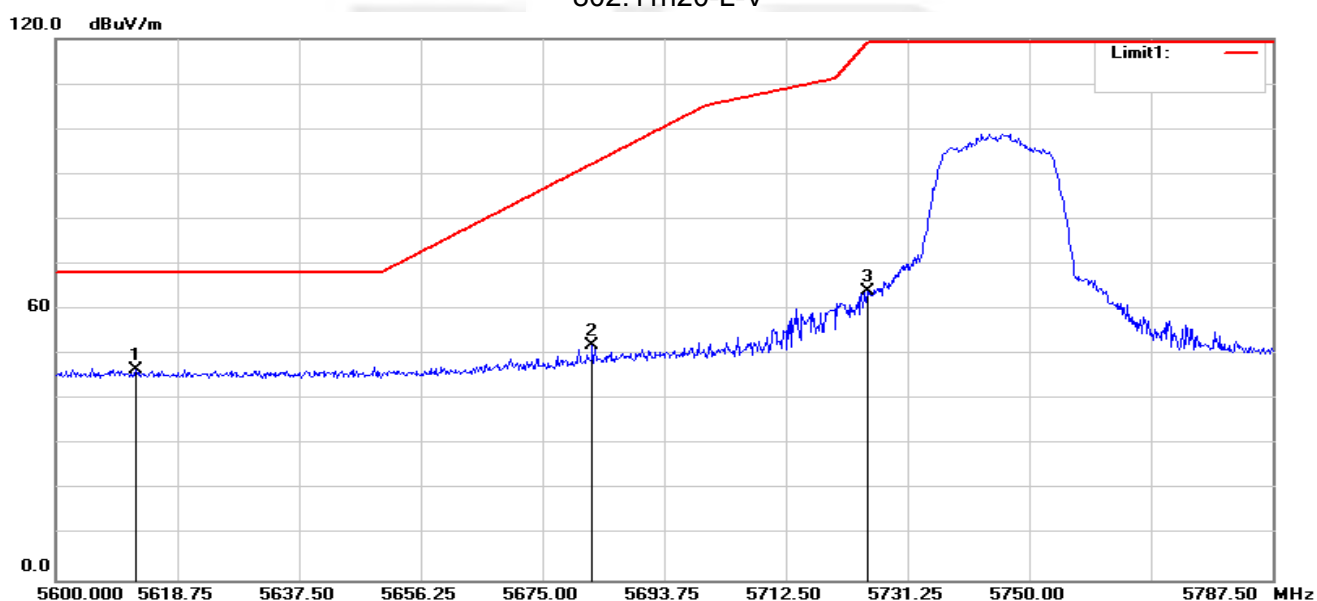
Band IV(5.725-5.85 GHz)

802.11n20-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5626.625	53.44	-4.69	48.75	68.20	-19.45	peak
2	5683.250	59.86	-4.67	55.19	92.81	-37.62	peak
3	5725.000	70.46	-4.57	65.89	119.20	-53.31	peak

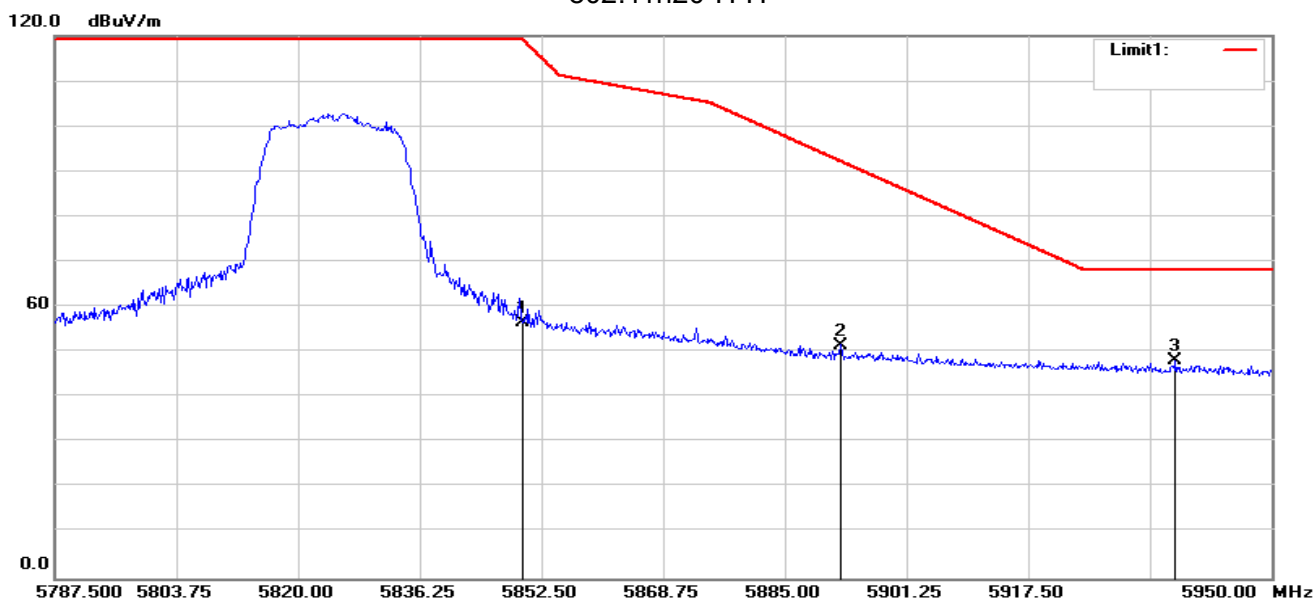
802.11n20-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5612.375	51.34	-4.69	46.65	68.20	-21.55	peak
2	5682.688	56.62	-4.67	51.95	92.39	-40.44	peak
3	5725.000	68.62	-4.57	64.05	119.20	-55.15	peak

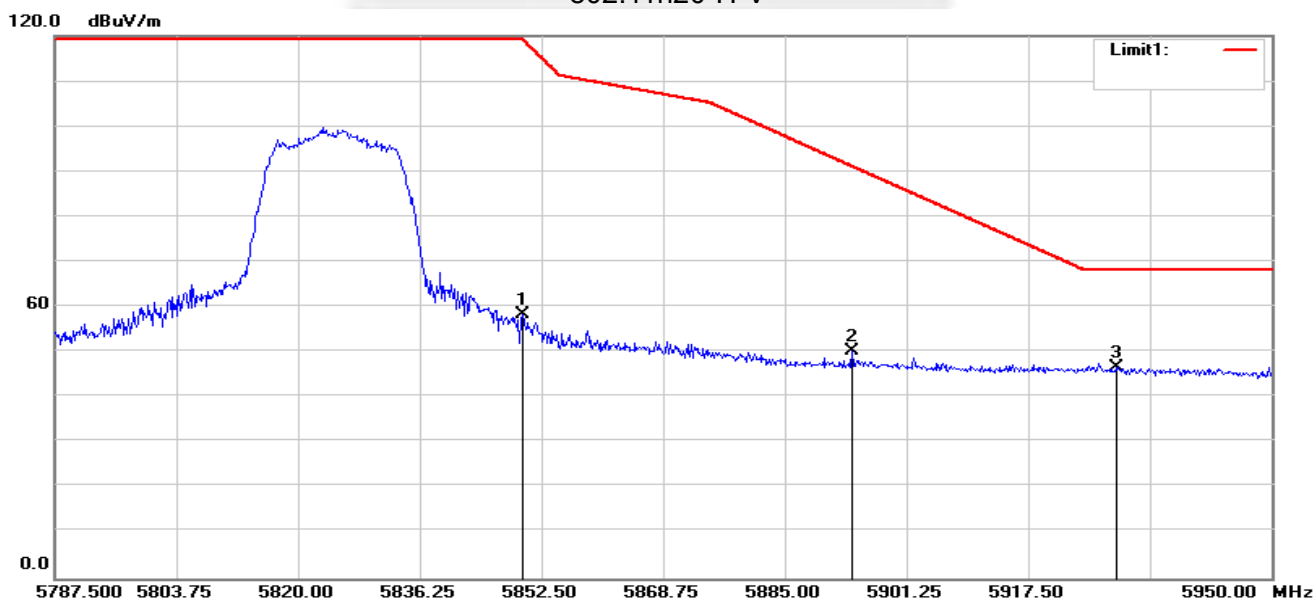


802.11n20-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	60.77	-4.10	56.67	119.20	-62.53	peak
2	5892.475	55.51	-3.91	51.60	92.27	-40.67	peak
3	5937.163	52.03	-3.94	48.09	68.20	-20.11	peak

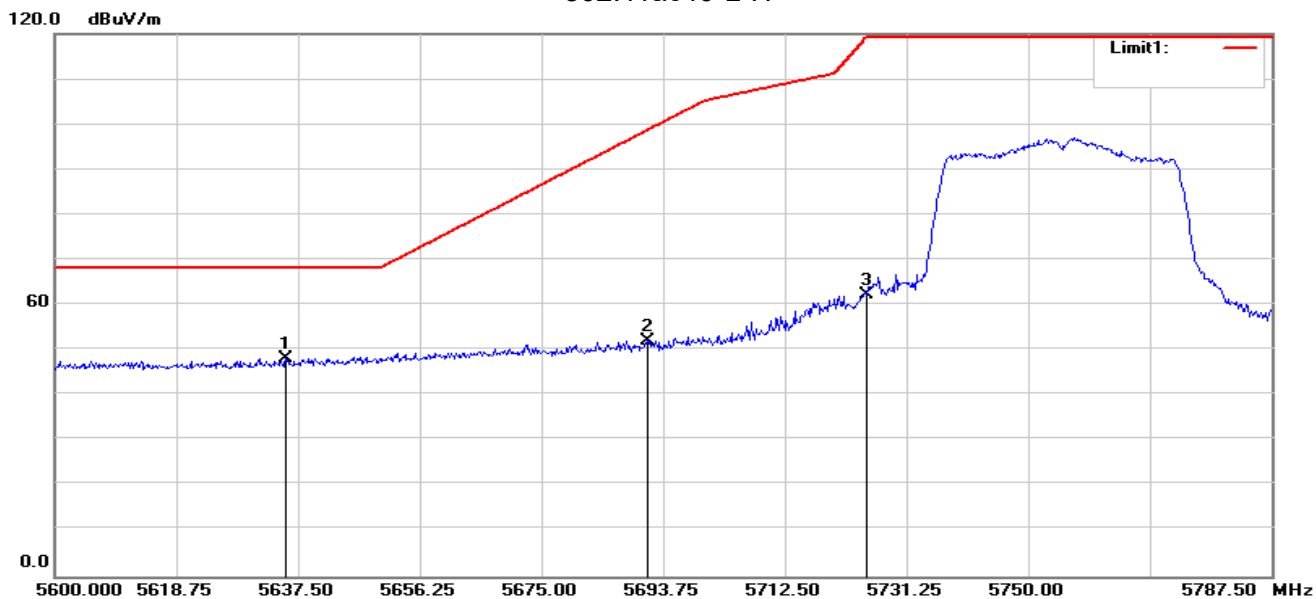
802.11n20-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	62.38	-4.10	58.28	119.20	-60.92	peak
2	5893.938	54.26	-3.91	50.35	91.19	-40.84	peak
3	5929.200	50.66	-3.93	46.73	68.20	-21.47	peak

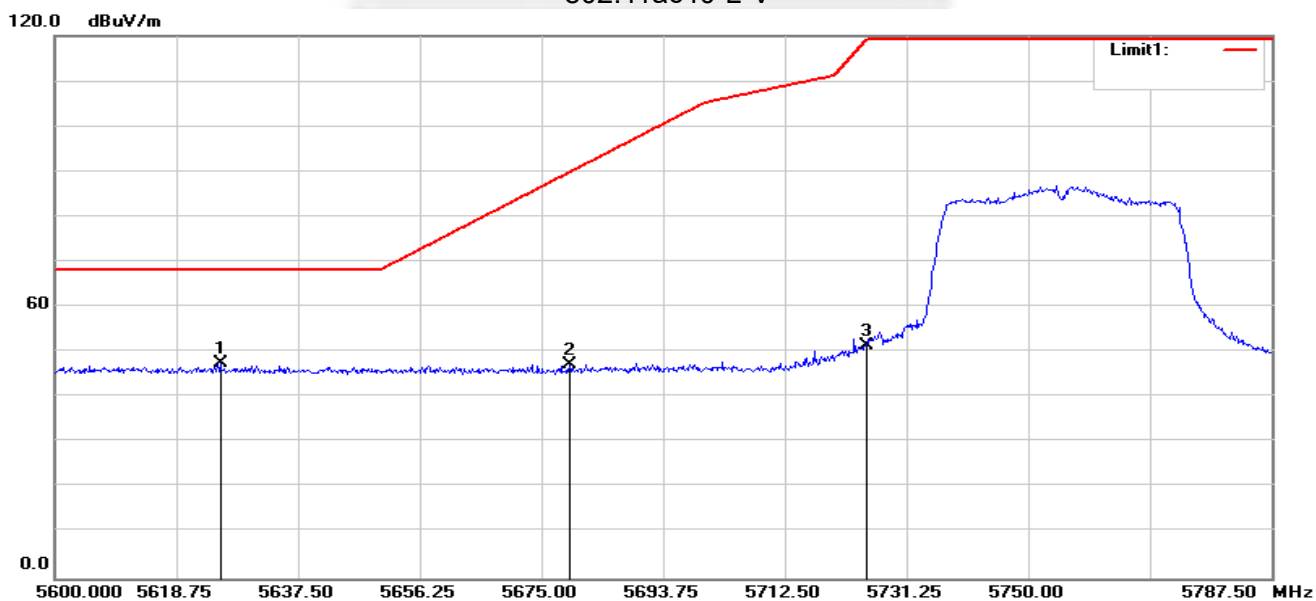


802.11ac40-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5635.625	52.82	-4.68	48.14	68.20	-20.06	peak
2	5691.313	56.76	-4.66	52.10	98.77	-46.67	peak
3	5725.000	66.68	-4.57	62.11	119.20	-57.09	peak

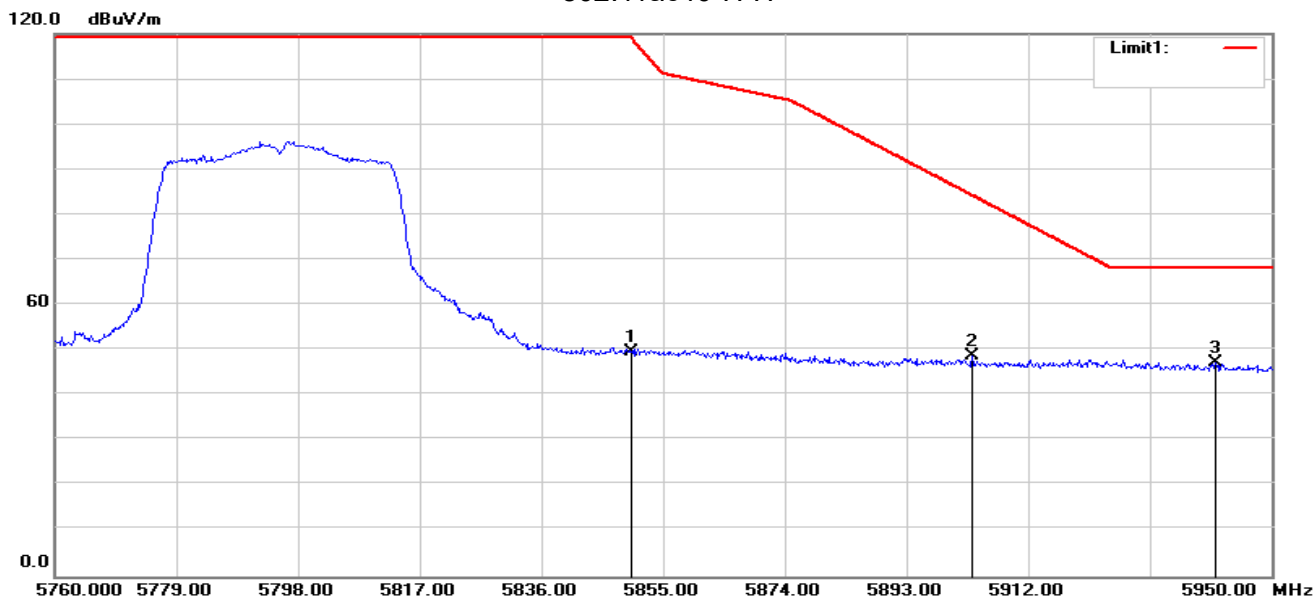
802.11ac40-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5625.500	52.19	-4.69	47.50	68.20	-20.70	peak
2	5679.313	51.92	-4.67	47.25	89.89	-42.64	peak
3	5725.000	56.12	-4.57	51.55	119.20	-67.65	peak

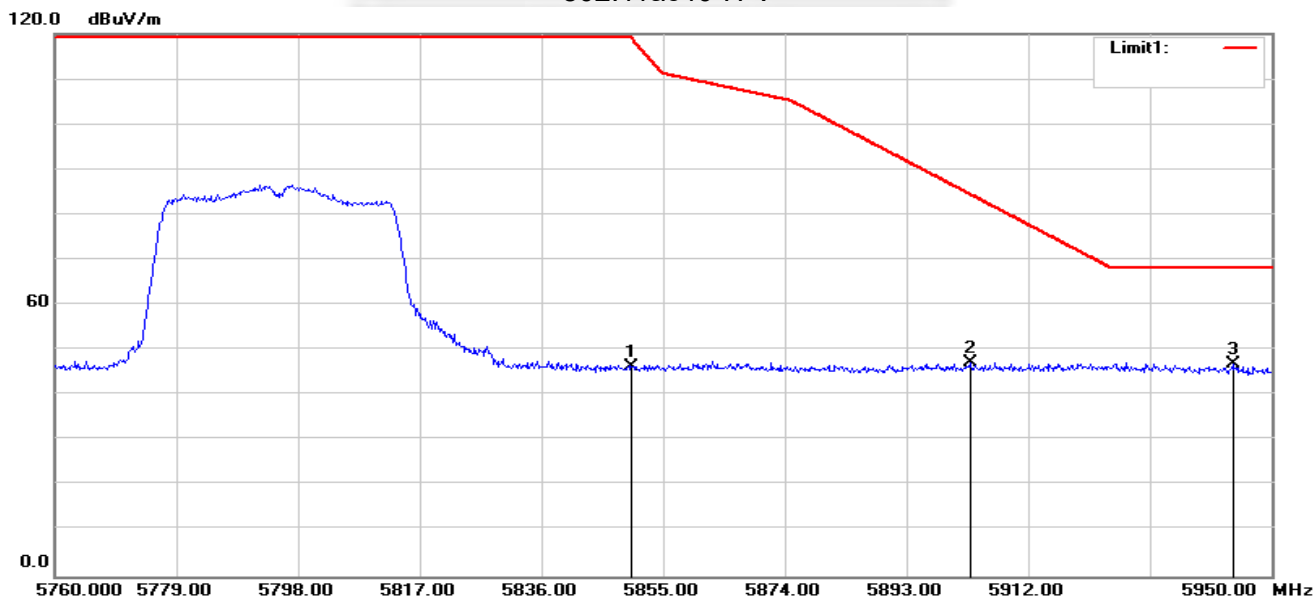


802.11ac40-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	53.74	-4.10	49.64	119.20	-69.56	peak
2	5903.260	52.53	-3.88	48.65	84.29	-35.64	peak
3	5941.260	51.25	-3.95	47.30	68.20	-20.90	peak

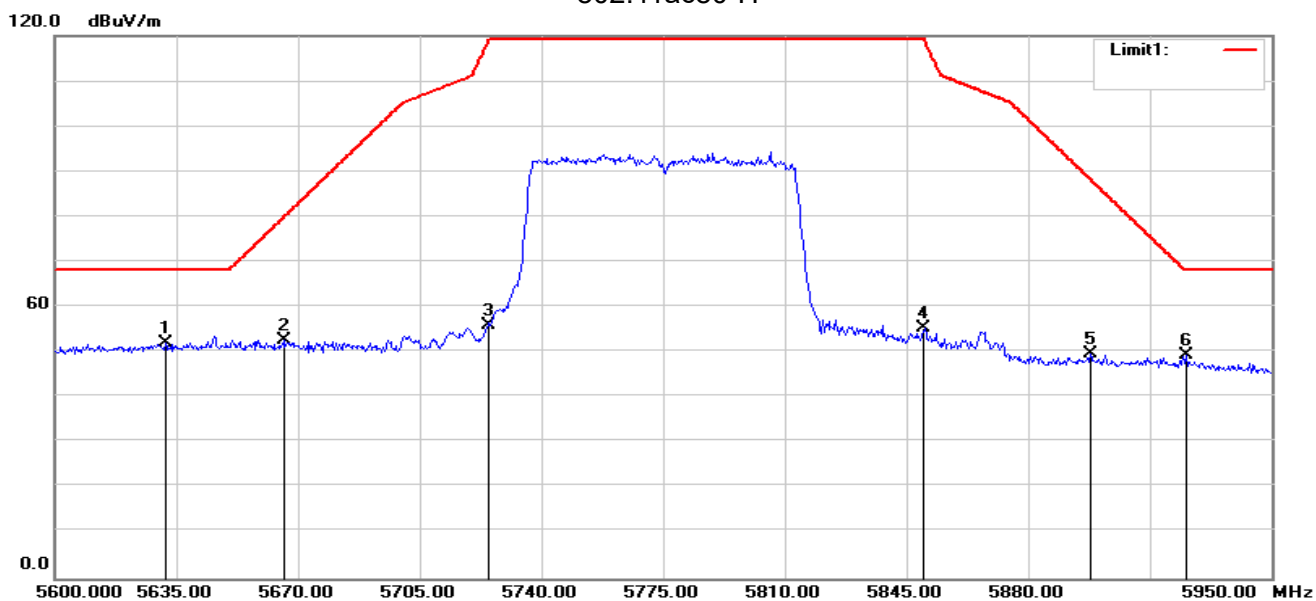
802.11ac40-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	50.34	-4.10	46.24	119.20	-72.96	peak
2	5902.880	51.22	-3.89	47.33	84.57	-37.24	peak
3	5943.920	51.04	-3.95	47.09	68.20	-21.11	peak



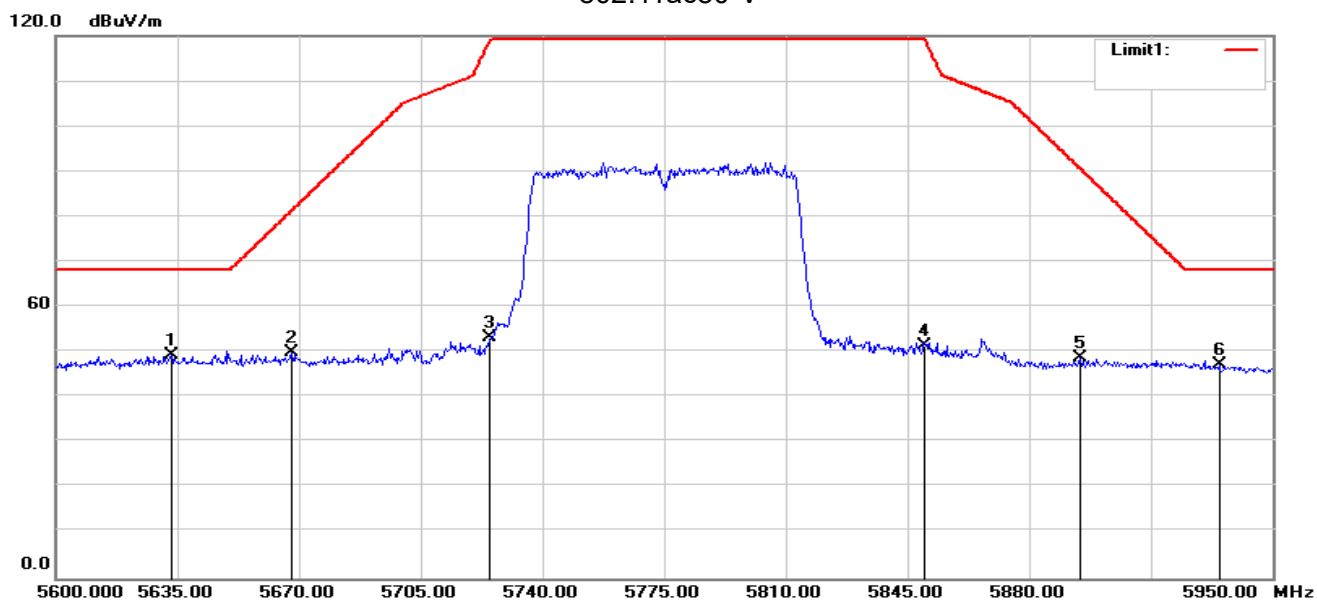
802.11ac80-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5631.850	56.68	-4.69	51.99	68.20	-16.21	peak
2	5666.150	57.47	-4.67	52.80	80.15	-27.35	peak
3	5725.000	60.66	-4.57	56.09	119.20	-63.11	peak
4	5850.000	59.32	-4.10	55.22	119.20	-63.98	peak
5	5897.850	53.56	-3.89	49.67	88.29	-38.62	peak
6	5925.500	53.36	-3.92	49.44	68.20	-18.76	peak



802.11ac80-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5633.250	54.15	-4.69	49.46	68.20	-18.74	peak
2	5667.900	54.53	-4.67	49.86	81.45	-31.59	peak
3	5725.000	57.82	-4.57	53.25	119.20	-65.95	peak
4	5850.000	55.66	-4.10	51.56	119.20	-67.64	peak
5	5894.700	52.52	-3.90	48.62	90.62	-42.00	peak
6	5934.600	51.28	-3.93	47.35	68.20	-20.85	peak

Note: All modes have been tested. Only the worst mode shown in the report.



4. POWER SPECTRAL DENSITY TEST

4.1 LIMIT

1. For mobile and portable client devices in the 5.15-5.25 GHz band, , the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
2. For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
3. For the band 5.725-5.850 GHz, the peak power spectral density shall not exceed 30 dBm in any 500KHz band. If transmitting antenna directional gain is greater than 6 dBi, both the maximum conducted output power and the peak power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

4.2 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 $RBW \geq 1/T$, where T is defined in section II.B.I.a).
- b) Set $VBW \geq 3 RBW$.
- c) If measurement bandwidth of Maximum PSD is specified in 500 kHz, add $10 \log (500\text{kHz}/RBW)$ to the measured result, whereas $RBW (< 500 \text{ kHz})$ 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 $10 \log (1\text{MHz}/RBW)$ to the measured result, whereas $RBW (< 1 \text{ MHz})$ 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 sections 5.c) and 5.d) above, since $RBW=100 \text{ KHZ}$ is available on nearly all spectrum analyzers.

4.3 DEVIATION FROM STANDARD

No deviation.

4.4 TEST SETUP



4.5 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.

4.6 TEST RESULTS

5150-5250MHz								
Frequency	Direct measurement Ant_A Power Density (dBm)	Direct measurement Ant_B Power Density (dBm)	Duty cycle factor	Final Ant_A Power Density (dBm)	Final Ant_B Power Density (dBm)	Power Density Total (dBm)	Limit (dBm)	Result
802.11a								
5180	-2.076	-1.505	0.098	-1.978	-1.407	--	11	PASS
5200	-1.761	-1.776	0.098	-1.663	-1.678	--	11	PASS
5240	-1.882	-1.833	0.098	-1.784	-1.735	--	11	PASS
802.11n20								
5180	-4.979	-4.512	0.091	-4.888	-4.421	-1.638	9.02	PASS
5200	-4.993	-4.890	0.091	-4.902	-4.799	-1.840	9.02	PASS
5240	-5.201	-4.764	0.091	-5.110	-4.673	-1.876	9.02	PASS
802.11n40								
5190	-9.035	-8.591	0.207	-8.828	-8.384	-5.590	9.02	PASS
5230	-9.136	-8.557	0.207	-8.929	-8.350	-5.620	9.02	PASS
802.11ac20								
5180	-8.058	-7.471	0.864	-7.194	-6.607	-3.880	9.02	PASS
5200	-7.821	-7.608	0.864	-6.957	-6.744	-3.839	9.02	PASS
5240	-7.923	-7.345	0.864	-7.059	-6.481	-3.750	9.02	PASS
802.11ac40								
5190	-8.793	-8.448	0.205	-8.588	-8.243	-5.402	9.02	PASS
5230	-8.823	-8.497	0.205	-8.618	-8.292	-5.442	9.02	PASS
802.11ac80								
5210	-18.224	-16.963	1.865	-16.359	-15.098	-12.672	9.02	PASS



5250-5350MHz								
Frequency	Direct measurement Ant_A Power Density (dBm)	Direct measurement Ant_B Power Density (dBm)	Duty cycle factor	Final Ant_A Power Density (dBm)	Final Ant_B Power Density (dBm)	Power Density Total (dBm)	Limit (dBm)	Result
802.11a								
5260	-3.066	-3.046	0.061	-3.005	-2.985	--	11	PASS
5300	-3.304	-3.314	0.061	-3.243	-3.253	--	11	PASS
5320	-3.490	-3.004	0.061	-3.429	-2.943	--	11	PASS
802.11n20								
5260	-4.745	-4.188	0.052	-4.693	-4.136	-1.395	9.79	PASS
5300	-5.219	-4.306	0.052	-5.167	-4.254	-1.676	9.79	PASS
5320	-5.586	-4.479	0.052	-5.534	-4.427	-1.935	9.79	PASS
802.11n40								
5270	-8.850	-7.843	0.206	-8.644	-7.637	-5.101	9.79	PASS
5310	-9.705	-8.149	0.206	-9.499	-7.943	-5.641	9.79	PASS
802.11ac20								
5260	-7.819	-7.100	0.943	-6.876	-6.157	-3.491	9.79	PASS
5300	-7.948	-7.466	0.943	-7.005	-6.523	-3.747	9.79	PASS
5320	-8.115	-7.631	0.943	-7.172	-6.688	-3.913	9.79	PASS
802.11ac40								
5270	-9.396	-8.112	0.217	-9.179	-7.895	-5.480	9.79	PASS
5310	-9.585	-8.494	0.217	-9.368	-8.277	-5.778	9.79	PASS
802.11ac80								
5290	-18.717	-17.403	1.858	-16.859	-15.545	-13.142	9.79	PASS



5470-5725MHz								
Frequency	Direct measurement Ant_A Power Density (dBm)	Direct measurement Ant_B Power Density (dBm)	Duty cycle factor	Final Ant_A Power Density (dBm)	Final Ant_B Power Density (dBm)	Power Density Total (dBm)	Limit (dBm)	Result
802.11a								
5500	-2.027	-2.028	0.085	-1.942	-1.943	--	11	PASS
5580	-2.869	-2.173	0.085	-2.784	-2.088	--	11	PASS
5700	-2.863	-2.711	0.085	-2.778	-2.626	--	11	PASS
802.11n20								
5500	-5.835	-5.602	0.090	-5.745	-5.512	-2.616	9.81	PASS
5580	-6.131	-6.618	0.090	-6.041	-6.528	-3.267	9.81	PASS
5700	-7.272	-6.625	0.090	-7.182	-6.535	-3.836	9.81	PASS
802.11n40								
5510	-8.894	-9.325	0.218	-8.676	-9.107	-5.876	9.81	PASS
5550	-9.153	-9.298	0.218	-8.935	-9.080	-5.996	9.81	PASS
5670	-10.017	-9.939	0.218	-9.799	-9.721	-6.749	9.81	PASS
802.11ac20								
5500	-8.753	-8.453	0.852	-7.901	-7.601	-4.738	9.81	PASS
5580	-9.306	-8.730	0.852	-8.454	-7.878	-5.146	9.81	PASS
5700	-9.672	-9.128	0.852	-8.820	-8.276	-5.529	9.81	PASS
802.11ac40								
5510	-9.135	-8.762	0.216	-8.919	-8.546	-5.718	9.81	PASS
5550	-9.144	-8.277	0.216	-8.928	-8.061	-5.462	9.81	PASS
5670	-10.223	-9.868	0.216	-10.007	-9.652	-6.815	9.81	PASS
802.11ac80								
5530	-20.367	-20.366	1.970	-18.397	-18.396	-15.386	9.81	PASS
5610	-21.104	-20.523	1.970	-19.134	-18.553	-15.823	9.81	PASS



5725-5850MHz										
Frequency	Use RBW 510KHz direct measurement Ant_A Power Density (dBm)	Use RBW 510KHz direct measurement Ant_B Power Density (dBm)	Convert to RBW 500KHz direct measurement Ant_A Power Density (dBm)	Convert to RBW 500KHz direct measurement Ant_B Power Density (dBm)	Duty cycle factor (dB)	Final Ant_A Power Density (dBm)	Final Ant_B Power Density (dBm)	Power Density Total (dBm)	Limit (dBm)	Result
802.11a										
5745	-8.893	-6.844	-8.979	-6.930	0.037	-8.942	-6.893	--	30	PASS
5785	-9.419	-7.864	-9.505	-7.950	0.037	-9.468	-7.913	--	30	PASS
5825	-9.805	-8.349	-9.891	-8.435	0.037	-9.854	-8.398	--	30	PASS
802.11n20										
5745	-12.279	-7.813	-12.365	-7.899	0.052	-12.313	-7.847	-6.519	27.78	PASS
5785	-12.326	-8.027	-12.412	-8.113	0.052	-12.360	-8.061	-6.688	27.78	PASS
5825	-12.774	-8.844	-12.860	-8.930	0.052	-12.808	-8.878	-7.402	27.78	PASS
802.11n40										
5755	-12.331	-10.972	-12.417	-11.058	0.181	-12.236	-10.877	-8.493	27.78	PASS
5795	-13.278	-11.123	-13.364	-11.209	0.181	-13.183	-11.028	-8.963	27.78	PASS
802.11ac20										
5745	-11.976	-10.701	-12.062	-10.787	0.958	-11.104	-9.829	-7.410	27.78	PASS
5785	-12.267	-10.687	-12.353	-10.773	0.958	-11.395	-9.815	-7.524	27.78	PASS
5825	-12.969	-11.857	-13.055	-11.943	0.958	-12.097	-10.985	-8.496	27.78	PASS
802.11ac40										
5755	-12.046	-10.543	-12.132	-10.629	0.204	-11.928	-10.425	-8.101	27.78	PASS
5795	-13.058	-11.335	-13.144	-11.421	0.204	-12.940	-11.217	-8.983	27.78	PASS
802.11ac80										
5775	-23.877	-20.929	-23.963	-21.015	1.931	-22.032	-19.084	-17.302	27.78	PASS

Note: 1. RB conversion formula: $10 \cdot \log(500\text{KHz}/\text{RBW})$

2. Test plots see Attachment A.

3. Band 1 MIMO antenna gain is 7.98dBi, Band 2 MIMO antenna gain is 7.21dBi, Band 3 MIMO antenna gain is 7.19dBi, Band 4 MIMO antenna gain is 8.22dBi, both are greater than 6dBi, the Band 1 MIMO mode limit will be reduced by 1.98dBi, the Band 2 MIMO mode limit will be reduced by 1.21dBi, the Band 3 MIMO mode limit will be reduced by 1.19dBi, the Band 4 MIMO mode limit will be reduced by 2.22dBi.

5. BANDWIDTH MEASUREMENT

5.1 EMISSION BANDWIDTH (EBW) 26 BANDWID PROCEDURES / LIMIT

The following procedure shall be used for measuring 26 bandwidth.

5.1.1 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 $\geq$ 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%.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 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.

**5.1.5 TEST RESULTS**

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5180	20.72	Pass
5200	20.87	Pass
5240	20.87	Pass
802.11n(HT20)		
5180	21.15	Pass
5200	21.20	Pass
5240	21.35	Pass
802.11n(HT40)		
5190	39.43	Pass
5230	39.27	Pass
802.11ac(VHT20)		
5180	21.25	Pass
5200	21.37	Pass
5240	21.26	Pass
802.11ac(VHT40)		
5190	39.24	Pass
5230	39.45	Pass
802.11ac(VHT80)		
5210	81.10	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5260	20.92	Pass
5300	20.97	Pass
5320	20.81	Pass
802.11n(HT20)		
5260	21.30	Pass
5300	20.93	Pass
5320	21.14	Pass
802.11n(HT40)		
5270	39.41	Pass
5310	39.33	Pass
802.11ac(VHT20)		
5260	21.39	Pass
5300	21.04	Pass
5320	21.45	Pass
802.11ac(VHT40)		
5270	39.48	Pass
5310	39.32	Pass
802.11ac(VHT80)		
5290	80.75	Pass



Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5500	20.86	Pass
5580	20.88	Pass
5700	20.92	Pass
802.11n(HT20)		
5500	21.07	Pass
5580	21.26	Pass
5700	21.28	Pass
802.11n(HT40)		
5510	39.28	Pass
5550	39.37	Pass
5670	39.67	Pass
802.11ac(VHT20)		
5500	21.34	Pass
5580	21.33	Pass
5700	21.51	Pass
802.11ac(VHT40)		
5510	39.36	Pass
5550	39.48	Pass
5670	39.53	Pass
802.11ac(VHT80)		
5530	80.93	Pass
5610	81.16	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5745	20.81	Pass
5785	20.82	Pass
5825	20.92	Pass
802.11n(HT20)		
5745	21.15	Pass
5785	21.20	Pass
5825	21.01	Pass
802.11n(HT40)		
5755	39.45	Pass
5795	39.13	Pass
802.11ac(VHT20)		
5745	21.32	Pass
5785	21.41	Pass
5825	21.24	Pass
802.11ac(VHT40)		
5755	39.59	Pass
5795	39.57	Pass
802.11ac(VHT80)		
5775	80.19	Pass

Note: 1. Test plot see Attachment B

2. ANT B Power > ANT A Power, Both ANT A and B have been test, Only show the worst data of ANT B.

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

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

5.2.1 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 $\geq 3 \cdot$ 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.

5.2.2 DEVIATION FROM STANDARD

No deviation.

5.2.3 TEST SETUP



5.2.4 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.

**5.2.5 TEST RESULTS**

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5180	16.507	Pass
5200	16.502	Pass
5240	16.506	Pass
802.11n(HT20)		
5180	17.673	Pass
5200	17.657	Pass
5240	17.679	Pass
802.11n(HT40)		
5190	36.163	Pass
5230	36.140	Pass
802.11ac(VHT20)		
5180	17.797	Pass
5200	17.790	Pass
5240	17.783	Pass
802.11ac(VHT40)		
5190	36.123	Pass
5230	36.148	Pass
802.11ac(VHT80)		
5210	75.844	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5260	16.528	Pass
5300	16.516	Pass
5320	16.492	Pass
802.11n(HT20)		
5260	17.675	Pass
5300	17.667	Pass
5320	17.672	Pass
802.11n(HT40)		
5270	36.132	Pass
5310	36.118	Pass
802.11ac(VHT20)		
5260	17.808	Pass
5300	17.802	Pass
5320	17.787	Pass
802.11ac(VHT40)		
5270	36.119	Pass
5310	36.087	Pass
802.11ac(VHT80)		
5290	75.780	Pass



Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5500	16.528	Pass
5580	16.504	Pass
5700	16.534	Pass
802.11n(HT20)		
5500	17.658	Pass
5580	17.684	Pass
5700	17.683	Pass
802.11n(HT40)		
5510	36.132	Pass
5550	36.128	Pass
5670	36.137	Pass
802.11ac(VHT20)		
5500	17.806	Pass
5580	17.792	Pass
5700	17.803	Pass
802.11ac(VHT40)		
5510	36.123	Pass
5550	36.141	Pass
5670	36.121	Pass
802.11ac(VHT80)		
5530	75.846	Pass
5610	75.840	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5745	16.523	Pass
5785	16.519	Pass
5825	16.545	Pass
802.11n(HT20)		
5745	17.677	Pass
5785	17.672	Pass
5825	17.680	Pass
802.11n(HT40)		
5755	36.150	Pass
5795	36.106	Pass
802.11ac(VHT20)		
5745	17.815	Pass
5785	17.786	Pass
5825	17.820	Pass
802.11ac(VHT40)		
5755	36.136	Pass
5795	36.099	Pass
802.11ac(VHT80)		
5775	75.806	Pass

Note: 1. Test plot see Attachment B

2. ANT B Power > ANT A Power, Both ANT A and B have been test, Only show the worst data of ANT B.

5.3 MINIMUM EMISSION BANDWIDTH(6 DB) PROCEDURES / LIMIT

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

5.3.1 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) $\geq 3 \times$ 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.

5.3.2 DEVIATION FROM STANDARD

No deviation.

5.3.3 TEST SETUP



5.3.4 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.

**5.3.5 TEST RESULTS**

Frequency (MHz)	6dB Bandwidth (MHz)	Pass/Fail
802.11a		
5745	16.32	Pass
5785	16.08	Pass
5825	16.32	Pass
802.11n(HT20)		
5745	17.53	Pass
5785	17.54	Pass
5825	17.55	Pass
802.11n(HT40)		
5755	36.00	Pass
5795	35.75	Pass
802.11ac(VHT20)		
5745	17.68	Pass
5785	17.74	Pass
5825	17.72	Pass
802.11ac(VHT40)		
5755	36.04	Pass
5795	35.75	Pass
802.11ac(VHT80)		
5775	76.43	Pass

Note: 1. Test plot see Attachment C

2. ANT B Power > ANT A Power, Both ANT A and B have been test, Only show the worst data of ANT B.

6. MAXIMUM CONDUCTED OUTPUT POWER

6.1 LIMIT

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

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

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

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

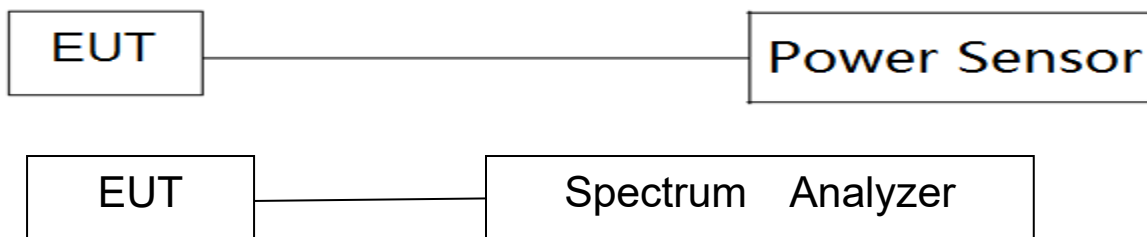
6.2 TEST PROCEDURE

The EUT was directly connected to the Power Sensor&PC

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 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.



6.6 TEST RESULTS

Note: Band 1 MIMO antenna gain is 7.98dBi, Band 2 MIMO antenna gain is 7.21dBi, Band 3 MIMO antenna gain is 7.19dBi, Band 4 MIMO antenna gain is 8.22dBi, both are greater than 6dBi, the Band 1 MIMO mode limit will be reduced by 1.98dBi, the Band 2 MIMO mode limit will be reduced by 1.21dBi, the Band 3 MIMO mode limit will be reduced by 1.19dBi, the Band 4 MIMO mode limit will be reduced by 2.22dBi.

Band I (5.15-5.25GHz)								
Test Channel	Frequency (MHz)	Direct measurement Ant_A AV Power (dBm)	Direct measurement Ant_B_AV Power (dBm)	Duty cycle factor (dB)	Final Ant_A AV Power (dBm)	Final Ant_B AV Power (dBm)	AV Power Total (dBm)	LIMIT (dBm)
802.11a								
36	5180	7.76	8.00	0.098	7.86	8.10	--	23.98
40	5200	7.61	8.09	0.098	7.71	8.19	--	23.98
48	5240	7.62	8.01	0.098	7.72	8.11	--	23.98
802.11n(HT20)								
36	5180	5.17	5.51	0.091	5.26	5.60	8.44	22.00
40	5200	5.12	5.49	0.091	5.21	5.58	8.41	22.00
48	5240	4.81	5.52	0.091	4.90	5.61	8.28	22.00
802.11n(HT40)								
38	5190	3.89	4.05	0.207	4.10	4.26	7.19	22.00
46	5230	3.89	4.17	0.207	4.10	4.38	7.25	22.00
802.11ac(VHT20)								
36	5180	3.80	4.38	0.864	4.66	5.24	7.97	22.00
40	5200	3.76	4.45	0.864	4.62	5.31	7.99	22.00
48	5240	3.89	4.42	0.864	4.75	5.28	8.04	22.00
802.11ac(VHT40)								
38	5190	3.85	4.29	0.205	4.06	4.50	7.29	22.00
46	5230	3.94	4.41	0.205	4.15	4.62	7.40	22.00
802.11ac(VHT80)								
42	5210	3.68	4.83	1.865	5.55	6.70	9.17	22.00



Band II(5.25-5.35GHz)								
Test Channel	Frequency (MHz)	Direct measurement Ant_A AV Power (dBm)	Direct measurement Ant_B_AV Power (dBm)	Duty cycle factor (dB)	Final Ant_A AV Power (dBm)	Final Ant_B AV Power (dBm)	AV Power Total (dBm)	LIMIT (dBm)
802.11a								
52	5260	6.51	6.81	0.061	6.57	6.87	--	23.98
60	5300	6.17	6.97	0.061	6.23	7.03	--	23.98
64	5320	6.08	6.35	0.061	6.14	6.41	--	23.98
802.11n(HT20)								
52	5260	4.94	5.56	0.052	4.99	5.61	8.32	22.77
60	5300	4.71	5.32	0.052	4.76	5.37	8.09	22.77
64	5320	4.34	4.86	0.052	4.39	4.91	7.67	22.77
802.11n(HT40)								
54	5270	3.32	4.28	0.206	3.53	4.49	7.04	22.77
62	5310	2.87	4.19	0.206	3.08	4.40	6.80	22.77
802.11ac(VHT20)								
52	5260	3.86	4.28	0.943	4.80	5.22	8.03	22.77
60	5300	3.54	4.01	0.943	4.48	4.95	7.74	22.77
64	5320	3.39	3.79	0.943	4.33	4.73	7.55	22.77
802.11ac(VHT40)								
54	5270	3.43	4.42	0.217	3.65	4.64	7.18	22.77
62	5310	3.42	4.12	0.217	3.64	4.34	7.01	22.77
802.11ac(VHT80)								
58	5290	3.25	3.78	1.858	5.11	5.64	8.39	22.77



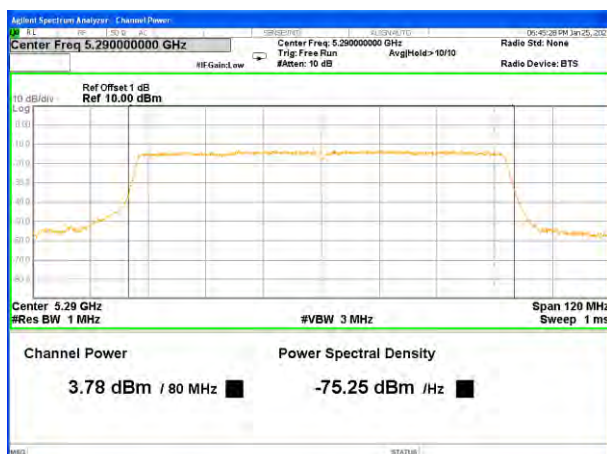
Band III(5.47-5.725GHz)								
Test Channel	Frequency (MHz)	Direct measurement Ant_A AV Power (dBm)	Direct measurement Ant_B_AV Power (dBm)	Duty cycle factor (dB)	Final Ant_A AV Power (dBm)	Final Ant_B AV Power (dBm)	AV Power Total (dBm)	LIMIT (dBm)
802.11a								
100	5500	7.35	7.67	0.085	7.44	7.76	--	23.98
116	5580	6.59	7.66	0.085	6.68	7.75	--	23.98
140	5700	5.85	6.01	0.085	5.94	6.10	--	23.98
802.11n(HT20)								
100	5500	3.96	4.02	0.090	4.05	4.11	7.09	22.79
116	5580	3.01	4.04	0.090	3.10	4.13	6.66	22.79
140	5700	2.47	3.62	0.090	2.56	3.71	6.18	22.79
802.11n(HT40)								
102	5510	3.39	3.68	0.218	3.61	3.90	6.77	22.79
110	5550	3.04	3.05	0.218	3.26	3.27	6.27	22.79
134	5670	2.04	2.20	0.218	2.26	2.42	5.35	22.79
802.11ac(VHT20)								
100	5500	2.81	2.82	0.852	3.66	3.67	6.68	22.79
116	5580	1.86	2.77	0.852	2.71	3.62	6.20	22.79
140	5700	1.52	1.85	0.852	2.37	2.70	5.55	22.79
802.11ac(VHT40)								
102	5510	3.37	3.76	0.216	3.59	3.98	6.80	22.79
110	5550	2.98	3.12	0.216	3.20	3.34	6.28	22.79
134	5670	2.02	2.42	0.216	2.24	2.64	5.45	22.79
802.11ac(VHT80)								
106	5530	4.34	4.57	1.970	6.31	6.54	9.44	22.79
122	5610	4.34	4.48	1.970	6.31	6.45	9.39	22.79



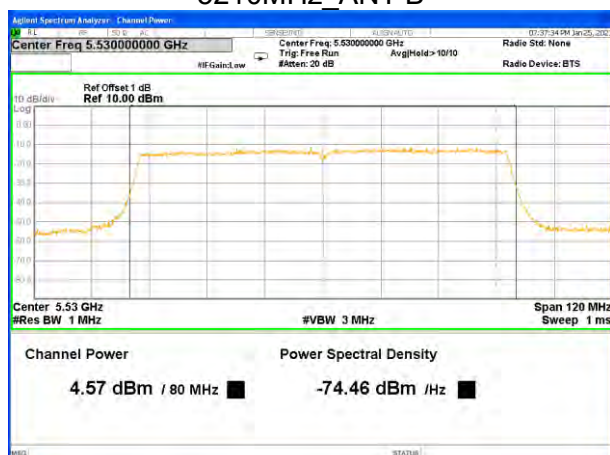
Band IV (5.725-5.85GHz)								
Test Channel	Frequency (MHz)	Direct measurement Ant_A AV Power (dBm)	Direct measurement Ant_B_AV Power (dBm)	Duty cycle factor (dB)	Final Ant_A AV Power (dBm)	Final Ant_B AV Power (dBm)	AV Power Total (dBm)	LIMIT (dBm)
802.11a								
149	5745	1.58	3.09	0.037	1.62	3.13	--	30.00
157	5785	1.82	3.18	0.037	1.86	3.22	--	30.00
165	5825	1.90	3.39	0.037	1.94	3.43	--	30.00
802.11n(HT20)								
149	5745	1.78	3.07	0.052	1.83	3.12	5.535	27.78
157	5785	1.60	3.12	0.052	1.65	3.17	5.489	27.78
165	5825	1.87	3.12	0.052	1.92	3.17	5.602	27.78
802.11n(HT40)								
151	5755	1.23	2.73	0.181	1.41	2.91	5.236	27.78
159	5795	1.41	2.79	0.181	1.59	2.97	5.346	27.78
802.11ac(VHT20)								
149	5745	0.49	1.77	0.958	1.45	2.73	5.145	27.78
157	5785	0.50	1.93	0.958	1.46	2.89	5.242	27.78
165	5825	0.76	1.94	0.958	1.72	2.90	5.358	27.78
802.11ac(VHT40)								
151	5755	1.46	2.70	0.204	1.66	2.90	5.339	27.78
159	5795	1.58	2.52	0.204	1.78	2.72	5.290	27.78
802.11ac(VHT80)								
155	5775	3.41	4.34	1.931	5.34	6.27	8.841	27.78



5210MHz_ANT B



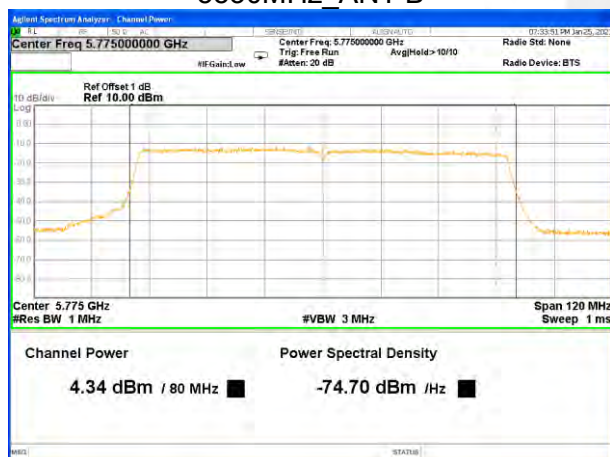
5290MHz_ANT B



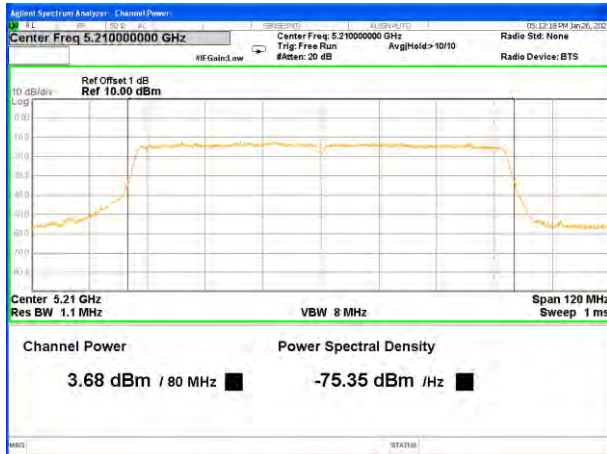
5530MHz_ANT B



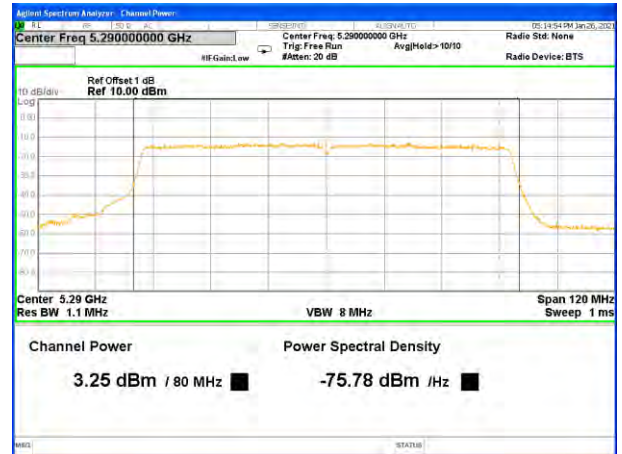
5610MHz_ANT B



5775MHz_ANT B



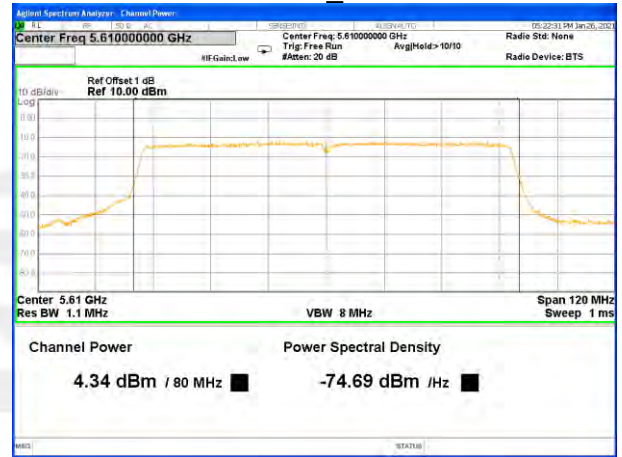
5210MHz_ANT A



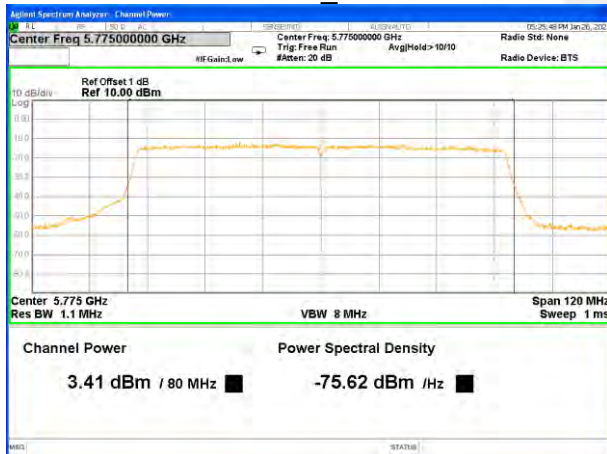
5290MHz_ANT A



5530MHz_ANT A



5610MHz_ANT A



5775MHz_ANT A



Duty cycle

Band1				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	1.408	1.440	97.78%	0.098
n20	1.320	1.348	97.92%	0.091
n40	0.656	0.688	95.35%	0.207
ac20	0.155	0.189	81.96%	0.864
ac40	0.662	0.694	95.39%	0.205
ac80	0.069	0.105	65.09%	1.865
Band2				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	1.408	1.428	98.60%	0.061
n20	1.332	1.348	98.81%	0.052
n40	0.658	0.690	95.36%	0.206
ac20	0.153	0.190	80.47%	0.943
ac40	0.664	0.698	95.13%	0.217
ac80	0.068	0.105	65.19%	1.858
Band3				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	1.412	1.440	98.06%	0.085
n20	1.332	1.360	97.94%	0.090
n40	0.660	0.694	95.10%	0.218
ac20	0.155	0.188	82.18%	0.852
ac40	0.666	0.700	95.14%	0.216
ac80	0.067	0.105	63.53%	1.970
Band4				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	1.412	1.424	99.16%	0.037
n20	1.324	1.340	98.81%	0.052
n40	0.658	0.686	95.92%	0.181
ac20	0.152	0.190	80.21%	0.958
ac40	0.664	0.696	95.40%	0.204
ac80	0.068	0.105	64.10%	1.931



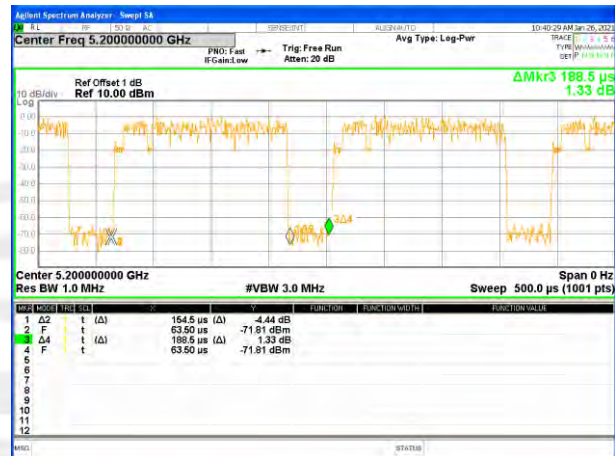
Band 1-a20



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



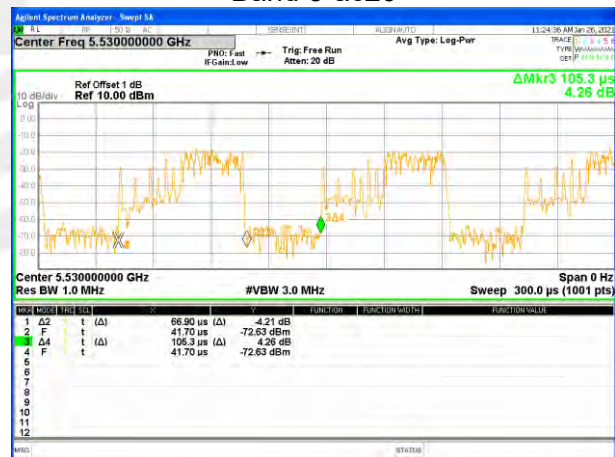
Band 3-n40



Band 3-ac20



Band 3-ac40



Band 3-ac80



Band 4-a20



Band 4-n20



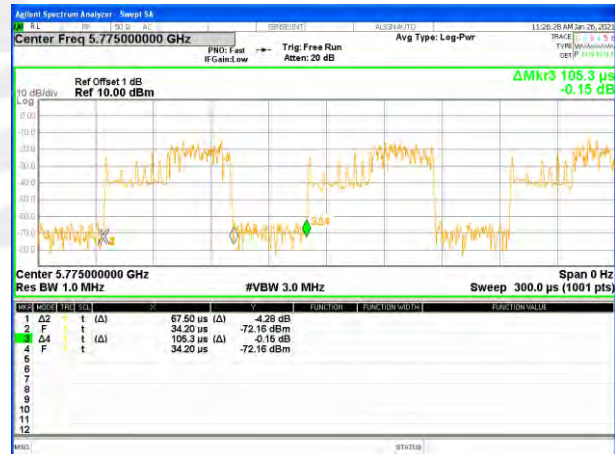
Band 4-n40



Band 4-ac20



Band 4-ac40



Band 4-ac80



7. AUTOMATICALLY DISCONTINUE TRANSMISSION

7.1 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.

7.2 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





8. ANTENNA REQUIREMENT

8.1 STANDARD REQUIREMENT

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

8.2 EUT ANTENNA

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



**APPENDIX - PHOTOS OF TEST SETUP**

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

※※※※※END OF THE REPORT※※※※※

