



Certificate #4338.01

RADIO TEST REPORT

Report No.:STS2102030W11

Issued for

Hemisphere GNSS Inc.

8515 E. Anderson Drive, Scottsdale, AZ 85255, USA

Product Name:	Panel PC
Brand Name:	
Model Name:	IronTwo
Series Model:	N/A
FCC ID:	ZC8IRONTWO
Test Standard:	FCC Part 15.407

Any reproduction of this document must be done in full. No single part of this document may be reproduced without permission from STS, all test data presented in this report is only applicable to presented test sample.

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..... : Hemisphere GNSS Inc.

Address : 8515 E. Anderson Drive, Scottsdale, AZ 85255, USA

Manufacturer's Name : Winmate Inc.

Address : 9F, No.111-6, Shing-De Rd., San-Chung District, New Taipei City
24158, Taiwan.

Product Description

Product Name..... : Panel PC

Brand Name :  Hemisphere

Model Name : IronTwo

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.

This report shall not be reproduced except in full, without the written approval of STS, this document only be altered or revised by STS, personal only, and shall be noted in the revision of the document.

Date of Test..... :

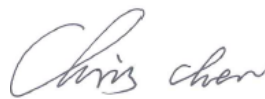
Date of receipt of test item : 24 Feb. 2021

Date (s) of performance of tests : 24 Feb. 2021 ~ 19 Apr. 2021

Date of Issue..... : 19 Apr. 2021

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

Testing Engineer :



(Chris Chen)

Technical Manager :



(Sean she)

Authorized Signatory :



(Vita Li)





Table of Contents	Page
1 . SUMMARY OF TEST RESULTS	6
1.1 TEST FACTORY	7
1.2 MEASUREMENT UNCERTAINTY	7
2 . GENERAL INFORMATION	8
2.1 GENERAL DESCRIPTION OF THE EUT	8
2.2 DESCRIPTION OF TEST MODES	11
2.3 TEST SOFTWARE AND POWER LEVEL	12
2.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	13
2.5 DESCRIPTION OF NECESSARY ACCESSORIES AND SUPPORT UNITS	13
2.6 EQUIPMENTS LIST FOR ALL TEST ITEMS	14
3 . EMC EMISSION TEST	15
3.1 CONDUCTED EMISSION MEASUREMENT	15
3.2 RADIATED EMISSION AND (BANDEGE) MEASUREMENT	17
4. POWER SPECTRAL DENSITY TEST	54
4.1 LIMIT	54
4.2 TEST PROCEDURE	54
4.3 DEVIATION FROM STANDARD	55
4.4 TEST SETUP	55
4.5 EUT OPERATION CONDITIONS	55
4.6 TEST RESULTS	55
5. BANDWIDTH MEASUREMENT	61
5.1 EMISSION BANDWIDTH (EBW) 26 BANDWID PROCEDURES / LIMIT	61
5.2 OCCUPIED BANDWIDTH (99%) TEST APPLIED PROCEDURES / LIMIT	64
5.3 MINIMUM EMISSION BANDWIDTH(6 DB) PROCEDURES / LIMIT	67
6. MAXIMUM CONDUCTED OUTPUT POWER	69
6.1 LIMIT	69
6.2 TEST PROCEDURE	69
6.3 DEVIATION FROM STANDARD	69
6.4 TEST SETUP	69
6.5 EUT OPERATION CONDITIONS	69
6.6 TEST RESULTS	70
7. AUTOMATICALLY DISCONTINUE TRANSMISSION	82
7.1 LIMIT OF AUTOMATICALLY DISCONTINUE TRANSMISSION	82
7.2 TEST RESULT OF AUTOMATICALLY DISCONTINUE TRANSMISSION	82



Table of Contents	Page
8. ANTENNA REQUIREMENT	83
8.1 STANDARD REQUIREMENT	83
8.2 EUT ANTENNA	83
APPENDIX - PHOTOS OF TEST SETUP	84



**Revision History**

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	19 Apr. 2021	STS2102030W11	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	N/A
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 expanded 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	Panel PC	
Trade Name		
Model Name	IronTwo	
Series Model	N/A	
Model Difference	N/A	
Product Description	The EUT is a Panel PC	
	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
		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 Section 3.
	Max.Output Power (Conducted):	16.62 dBm
More details of EUT technical specification, please refer to the User Manual.		
Test Channel	Please refer to the Section 2.	
Power Rating	Input: 9-36Vdc	
Hardware version number	IP30A-300	
Software version number	19.51.15.3	
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. The EUT not support MIMO mode.



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			
Channel	Frequency		
52	5260	120	5600
54	5270	122	5610
56	5280	124	5620
58	5290	126	5630
60	5300	128	5640
62	5310	132	5660
64	5320	134	5670
		136	5680
		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. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1		IronTwo	dipole	N/A	ANT A: 5.47dBi, ANT B: 5.47dBi	WIFI Antenna

Note: The antenna information refer the manufacturer provide report, applicable only to the tested sample identified in the report.



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) The battery is fully-charged during the radiated and RF conducted test.



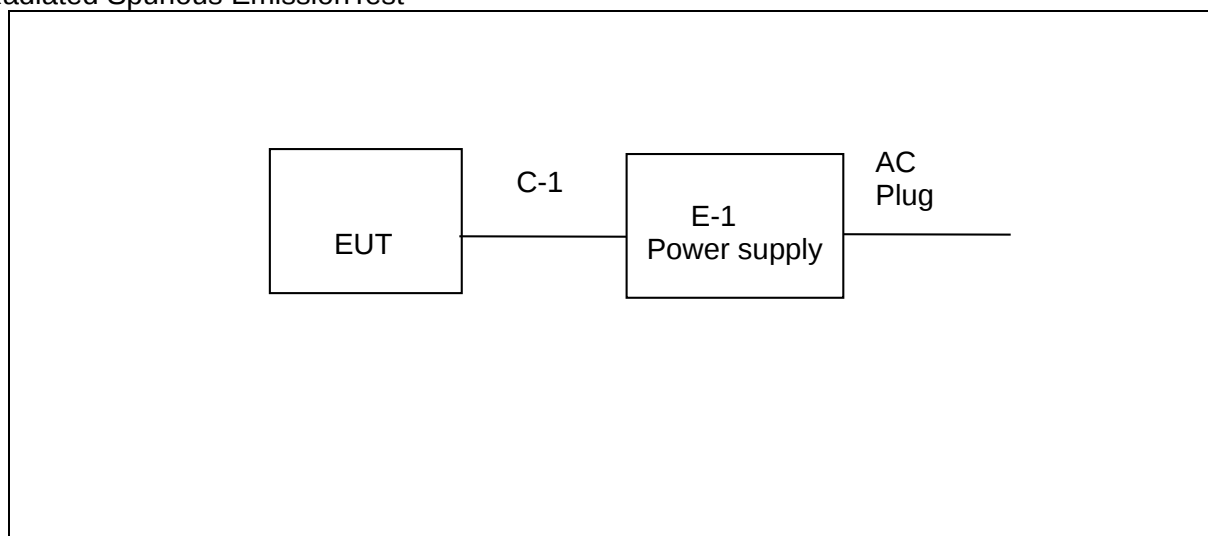
2.3 TEST SOFTWARE AND POWER LEVEL

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: 5.47 ANT B: 5.47	15	15	DRTU
		802.11n(HT20)		15	15	
		802.11n(HT40)		11	11	
		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 Band2 (5250MHz-5350MHz)	802.11a	ANT A: 5.47 ANT B: 5.47	8	8	DRTU
		802.11n(HT20)		8	8	
		802.11n(HT40)		10	10	
		802.11ac(VHT80)		10	10	
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: 5.47 ANT B: 5.47	9	9	DRTU
		802.11n(HT20)		9	9	
		802.11n(HT40)		9	9	
		802.11ac(VHT80)		8	8	
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: 5.47 ANT B: 5.47	17	17	DRTU
		802.11n(HT20)		17	17	
		802.11n(HT40)		17	17	
		802.11ac(VHT80)		12	12	

2.4 BLOCK DIAGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious 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
N/A	N/A	N/A	N/A	N/A	N/A

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Length	Note
E-1	Power supply	Agilent	E3642A	N/A	N/A
C-1	DC Cable	N/A	N/A	120cm	N/A

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)			

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	2021.03.04	2022.03.03
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

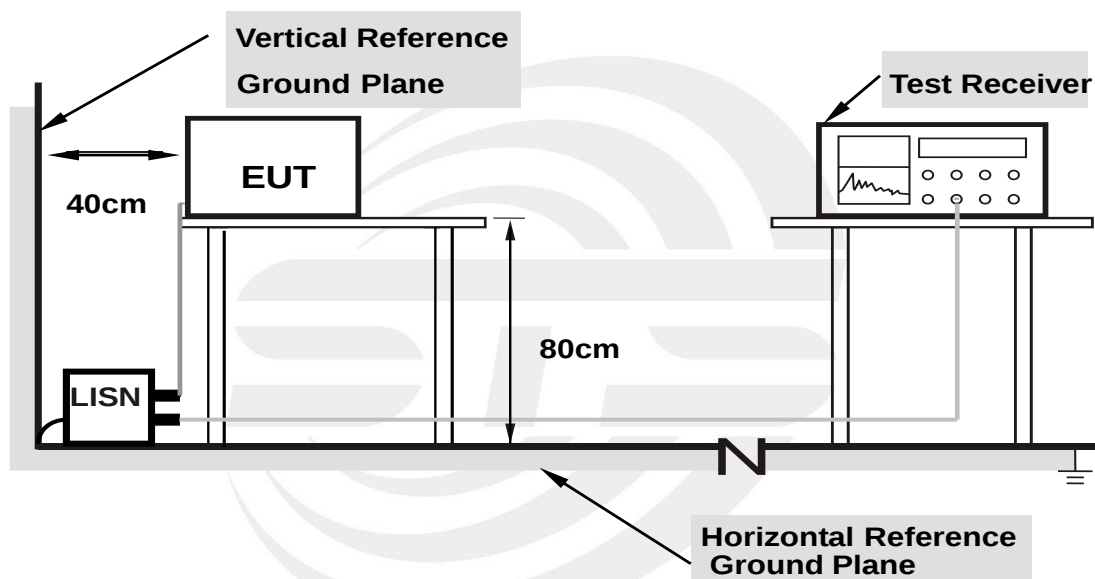
3.1.2 TEST PROCEDURE

- 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:	N/A	Relative Humidity:	N/A
Test Voltage:	N/A	Phase:	L/N
Test Mode :	N/A		

Note: EUT is only power by DC Power, So it is not applicable for this test.

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 (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

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: $\text{dBuV/m(at 3M)} = \text{EIRP(dBm)} + 95.2$.

Peak Limit = $-27\text{dBm/MHz} + 95.2 = 68.2 \text{ dBuV/m}$.

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:

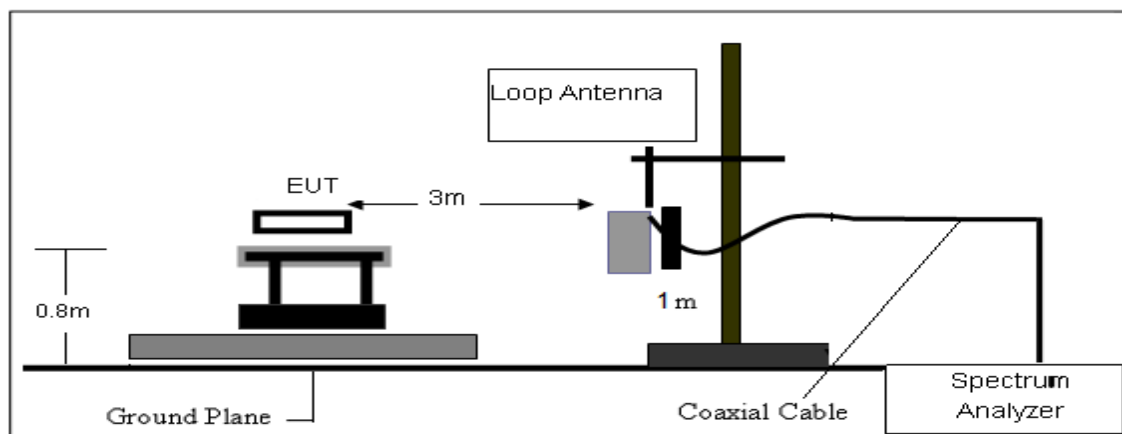
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

3.2.2 DEVIATION FROM TEST STANDARD

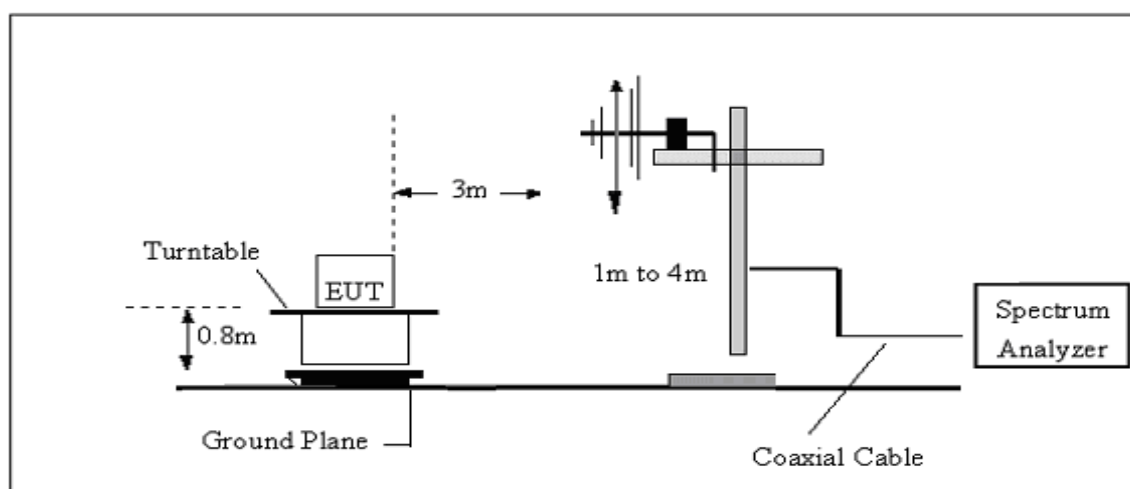
No deviation

3.2.3 TEST SETUP

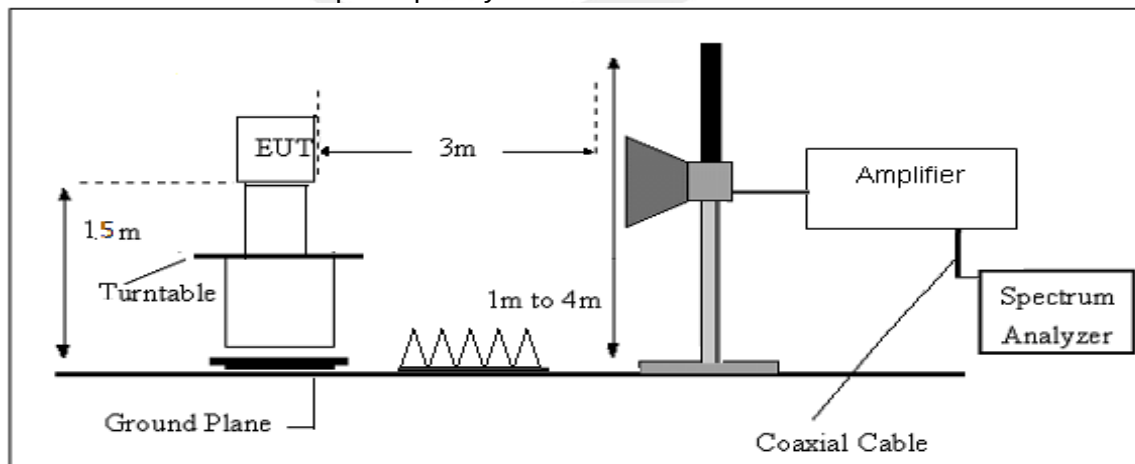
(A) Radiated Emission Test-Up Frequency Below 30MHz



(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:	DC 20V	Polarization :	--
Test Mode:	TX Mode		

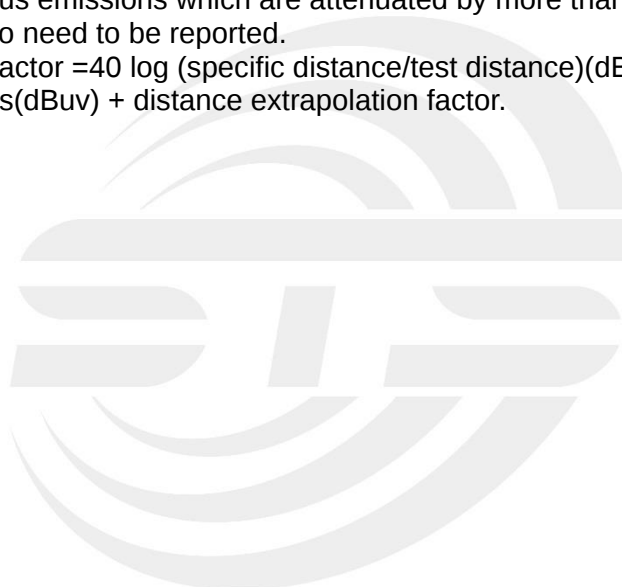
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

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 = $40 \log (\text{specific distance/test distance})(\text{dB})$;

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



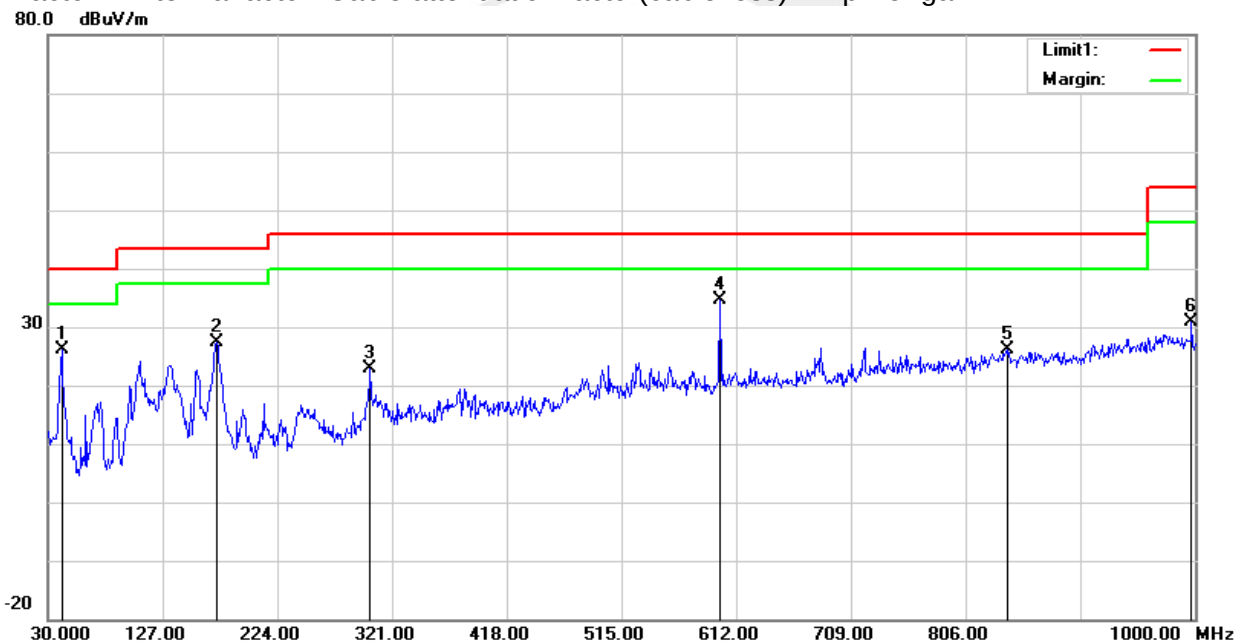
**3.2.7 TEST RESULTS (Between 30MHz – 1GHz)**

Temperature	23.1(C)	Relative Humidity:	60%RH
Test Voltage	DC 20V	Polarization:	Horizontal
Test Mode	Mode 1~24(Mode 24 worst mode)		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	41.6400	45.01	-18.93	26.08	40.00	-13.92	QP
2	172.5900	47.31	-19.93	27.38	43.50	-16.12	QP
3	302.5700	37.54	-14.72	22.82	46.00	-23.18	QP
4	598.4200	40.55	-5.85	34.70	46.00	-11.30	QP
5	840.9200	26.39	-0.38	26.01	46.00	-19.99	QP
6	997.0900	28.75	2.04	30.79	54.00	-23.21	QP

Remark:

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





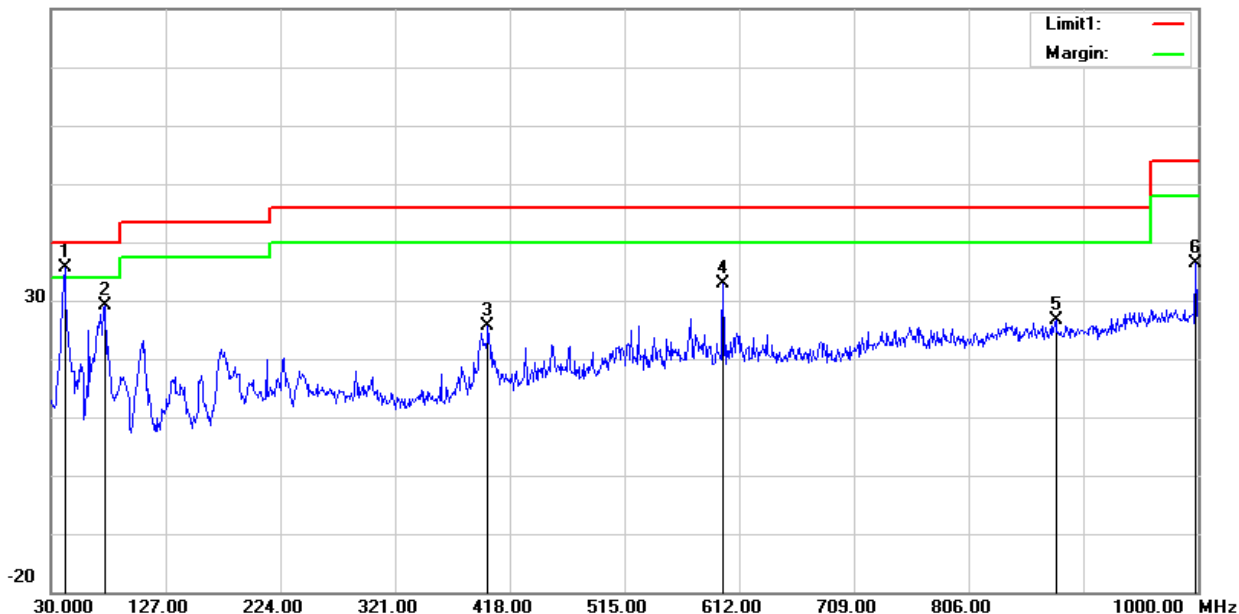
Temperature	23.1(C)	Relative Humidity:	60%RH
Test Voltage	DC 20V	Polarization:	Vertical
Test Mode	Mode 1~24(Mode 24 worst mode)		

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	41.6400	54.64	-18.93	35.71	40.00	-4.29	QP
2	75.5900	52.85	-23.78	29.07	40.00	-10.93	QP
3	399.5700	36.89	-11.16	25.73	46.00	-20.27	QP
4	598.4200	38.75	-5.85	32.90	46.00	-13.10	QP
5	879.7200	27.19	-0.66	26.53	46.00	-19.47	QP
6	998.0600	34.34	2.04	36.38	54.00	-17.62	QP

Remark:

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

80.0 dBuV/m





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
Low Channel (802.11n20/ 5180 MHz)										
3246.04	45.09	44.70	6.70	28.20	-9.80	35.29	68.20	-32.91	Pk	Vertical
3246.04	41.88	44.70	6.70	28.20	-9.80	32.08	54.00	-21.92	AV	Vertical
3251.44	44.83	44.70	6.70	28.20	-9.80	35.03	68.20	-33.17	Pk	Horizontal
3251.44	41.96	44.70	6.70	28.20	-9.80	32.16	54.00	-21.84	AV	Horizontal
3995.76	39.70	44.20	7.90	29.70	-6.60	33.10	68.20	-35.10	Pk	Vertical
3995.76	35.97	44.20	7.90	29.70	-6.60	29.37	54.00	-24.63	AV	Vertical
3990.49	39.39	44.20	7.90	29.70	-6.60	32.79	68.20	-35.41	Pk	Horizontal
3990.49	35.68	44.20	7.90	29.70	-6.60	29.08	54.00	-24.92	AV	Horizontal
7217.17	37.69	43.50	11.40	35.50	3.40	41.09	68.20	-27.11	Pk	Vertical
7217.17	33.90	43.50	11.40	35.50	3.40	37.30	54.00	-16.70	AV	Vertical
7232.43	37.25	43.50	11.40	35.50	3.40	40.65	68.20	-27.55	Pk	Horizontal
7232.43	34.85	43.50	11.40	35.50	3.40	38.25	54.00	-15.75	AV	Horizontal
10359.97	39.41	44.50	13.80	38.80	8.10	47.51	68.20	-20.69	Pk	Vertical
10359.97	35.89	44.50	13.80	38.80	8.10	43.99	54.00	-10.01	AV	Vertical
10360.13	40.14	44.50	13.80	38.80	8.10	48.24	68.20	-19.96	Pk	Horizontal
10360.13	36.34	44.50	13.80	38.80	8.10	44.44	54.00	-9.56	AV	Horizontal
11032.32	33.28	43.60	14.30	39.50	10.20	43.48	68.20	-24.72	Pk	Vertical
11032.32	30.85	43.60	14.30	39.50	10.20	41.05	54.00	-12.95	AV	Vertical
11019.53	34.14	43.60	14.30	39.50	10.20	44.34	68.20	-23.86	Pk	Horizontal
11019.53	30.86	43.60	14.30	39.50	10.20	41.06	54.00	-12.94	AV	Horizontal
13294.62	31.73	42.60	15.90	38.90	12.20	43.93	68.20	-24.27	Pk	Vertical
13294.62	29.27	42.60	15.90	38.90	12.20	41.47	54.00	-12.53	AV	Vertical
13287.42	33.01	42.60	15.90	38.90	12.20	45.21	68.20	-22.99	Pk	Horizontal
13287.42	28.97	42.60	15.90	38.90	12.20	41.17	54.00	-12.83	AV	Horizontal
Mid Channel (802.11n20/ 5200 MHz)										
3263.26	44.40	44.70	6.70	28.20	-9.80	34.60	68.20	-33.60	Pk	Vertical
3263.26	41.04	44.70	6.70	28.20	-9.80	31.24	54.00	-22.76	AV	Vertical
3264.65	44.32	44.70	6.70	28.20	-9.80	34.52	68.20	-33.68	Pk	Horizontal
3264.65	41.96	44.70	6.70	28.20	-9.80	32.16	54.00	-21.84	AV	Horizontal
3982.10	39.86	44.20	7.90	29.70	-6.60	33.26	68.20	-34.94	Pk	Vertical
3982.10	36.50	44.20	7.90	29.70	-6.60	29.90	54.00	-24.10	AV	Vertical
3982.89	38.78	44.20	7.90	29.70	-6.60	32.18	68.20	-36.02	Pk	Horizontal
3982.89	36.07	44.20	7.90	29.70	-6.60	29.47	54.00	-24.53	AV	Horizontal
7228.95	37.82	43.50	11.40	35.50	3.40	41.22	68.20	-26.98	Pk	Vertical
7228.95	34.32	43.50	11.40	35.50	3.40	37.72	54.00	-16.28	AV	Vertical
7229.80	36.98	43.50	11.40	35.50	3.40	40.38	68.20	-27.82	Pk	Horizontal
7229.80	33.57	43.50	11.40	35.50	3.40	36.97	54.00	-17.03	AV	Horizontal
10400.02	39.23	44.50	13.80	38.80	8.10	47.33	68.20	-20.87	Pk	Vertical
10400.02	35.90	44.50	13.80	38.80	8.10	44.00	54.00	-10.00	AV	Vertical
10400.20	39.81	44.50	13.80	38.80	8.10	47.91	68.20	-20.29	Pk	Horizontal
10400.20	35.87	44.50	13.80	38.80	8.10	43.97	54.00	-10.03	AV	Horizontal
11027.50	32.77	43.60	14.30	39.50	10.20	42.97	68.20	-25.23	Pk	Vertical
11027.50	30.02	43.60	14.30	39.50	10.20	40.22	54.00	-13.78	AV	Vertical
11023.04	33.87	43.60	14.30	39.50	10.20	44.07	68.20	-24.13	Pk	Horizontal
11023.04	31.06	43.60	14.30	39.50	10.20	41.26	54.00	-12.74	AV	Horizontal
13294.14	32.01	42.60	15.90	38.90	12.20	44.21	68.20	-23.99	Pk	Vertical
13294.14	28.67	42.60	15.90	38.90	12.20	40.87	54.00	-13.13	AV	Vertical
13285.03	32.30	42.60	15.90	38.90	12.20	44.50	68.20	-23.70	Pk	Horizontal
13285.03	29.25	42.60	15.90	38.90	12.20	41.45	54.00	-12.55	AV	Horizontal



High Channel (802.11n20/ 5240 MHz)										
3261.24	41.36	44.70	6.70	28.20	-9.80	31.56	68.20	-36.64	Pk	Vertical
3253.48	43.79	44.70	6.70	28.20	-9.80	33.99	54.00	-20.01	AV	Vertical
3253.48	41.78	44.70	6.70	28.20	-9.80	31.98	68.20	-36.22	Pk	Horizontal
3981.52	38.66	44.70	6.70	28.20	-9.80	28.86	54.00	-25.14	AV	Horizontal
3981.52	35.88	44.20	7.90	29.70	-6.60	29.28	68.20	-38.92	Pk	Vertical
3988.78	40.06	44.20	7.90	29.70	-6.60	33.46	54.00	-20.54	AV	Vertical
3988.78	36.53	44.20	7.90	29.70	-6.60	29.93	68.20	-38.27	Pk	Horizontal
7229.55	37.82	44.20	7.90	29.70	-6.60	31.22	54.00	-22.78	AV	Horizontal
7229.55	34.80	43.50	11.40	35.50	3.40	38.20	68.20	-30.00	Pk	Vertical
7225.88	36.55	43.50	11.40	35.50	3.40	39.95	54.00	-14.05	AV	Vertical
7225.88	34.82	43.50	11.40	35.50	3.40	38.22	68.20	-29.98	Pk	Horizontal
10480.09	38.89	43.50	11.40	35.50	3.40	42.29	54.00	-11.71	AV	Horizontal
10480.09	36.13	44.50	13.80	38.80	8.10	44.23	68.20	-23.97	Pk	Vertical
10480.13	39.12	44.50	13.80	38.80	8.10	47.22	54.00	-6.78	AV	Vertical
10480.13	37.10	44.50	13.80	38.80	8.10	45.20	68.20	-23.00	Pk	Horizontal
11028.93	33.79	44.50	13.80	38.80	8.10	41.89	54.00	-12.11	AV	Horizontal
11028.93	30.64	43.60	14.30	39.50	10.20	40.84	68.20	-27.36	Pk	Vertical
11028.55	33.04	43.60	14.30	39.50	10.20	43.24	54.00	-10.76	AV	Vertical
11028.55	30.16	43.60	14.30	39.50	10.20	40.36	68.20	-27.84	Pk	Horizontal
13291.03	32.59	43.60	14.30	39.50	10.20	42.79	54.00	-11.21	AV	Horizontal
13291.03	29.86	42.60	15.90	38.90	12.20	42.06	68.20	-26.14	Pk	Vertical
13282.56	31.82	42.60	15.90	38.90	12.20	44.02	54.00	-9.98	AV	Vertical
13282.56	29.05	42.60	15.90	38.90	12.20	41.25	68.20	-26.95	Pk	Horizontal
13293.24	28.90	42.60	15.90	38.90	12.20	41.10	54.00	-12.90	AV	Horizontal

Remark:

- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- Scan with 802.11a, 802.11n (HT-20), 802.11n (HT-40), 802.11ac (VHT-20), 802.11ac (VHT-40), 802.11ac (VHT-80) all have been tested the ANT A and ANT B, the worst case is 802.11n (HT-20) of the ANT A.
- 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.

**Band II 5250-5350MHz**

Frequency (MHz)	Reading	Amplifier	Loss	Antenna Factor	Orrected Factor	Emission Level	Limit (dBuV/m)	Margin	Detector	Comment
	(dBuV)	(dB)	(dB)	(dB/m)	(dB)	(dBμV/m)		(dB)		
(802.11ac80/ 5290 MHz)										
3273.45	44.87	44.70	6.70	28.20	-9.80	35.07	68.20	-33.13	Pk	Vertical
3273.45	40.75	44.70	6.70	28.20	-9.80	30.95	54.00	-23.05	AV	Vertical
3277.21	43.81	44.70	6.70	28.20	-9.80	34.01	68.20	-34.19	Pk	Horizontal
3277.21	41.81	44.70	6.70	28.20	-9.80	32.01	54.00	-21.99	AV	Horizontal
4016.51	39.63	44.20	7.90	29.70	-6.60	33.03	68.20	-35.17	Pk	Vertical
4016.51	37.15	44.20	7.90	29.70	-6.60	30.55	54.00	-23.45	AV	Vertical
4006.74	40.07	44.20	7.90	29.70	-6.60	33.47	68.20	-34.73	Pk	Horizontal
4006.74	36.12	44.20	7.90	29.70	-6.60	29.52	54.00	-24.48	AV	Horizontal
7263.59	37.29	43.50	11.40	35.50	3.40	40.69	68.20	-27.51	Pk	Vertical
7263.59	34.37	43.50	11.40	35.50	3.40	37.77	54.00	-16.23	AV	Vertical
7264.46	36.82	43.50	11.40	35.50	3.40	40.22	68.20	-27.98	Pk	Horizontal
7264.46	34.26	43.50	11.40	35.50	3.40	37.66	54.00	-16.34	AV	Horizontal
10580.28	38.72	44.50	13.90	38.80	8.20	46.92	68.20	-21.28	Pk	Vertical
10580.28	36.34	44.50	13.90	38.80	8.20	44.54	54.00	-9.46	AV	Vertical
10580.21	40.04	44.50	13.90	38.80	8.20	48.24	68.20	-19.96	Pk	Horizontal
10580.21	37.01	44.50	13.90	38.80	8.20	45.21	54.00	-8.79	AV	Horizontal
11091.50	32.77	43.60	14.30	39.50	10.20	42.97	68.20	-25.23	Pk	Vertical
11091.50	30.83	43.60	14.30	39.50	10.20	41.03	54.00	-12.97	AV	Vertical
11088.10	33.77	43.60	14.30	39.50	10.20	43.97	68.20	-24.23	Pk	Horizontal
11088.10	30.87	43.60	14.30	39.50	10.20	41.07	54.00	-12.93	AV	Horizontal
13364.93	32.46	42.60	15.90	38.90	12.20	44.66	68.20	-23.54	Pk	Vertical
13364.93	29.24	42.60	15.90	38.90	12.20	41.44	54.00	-12.56	AV	Vertical
13361.64	32.88	42.60	15.90	38.90	12.20	45.08	68.20	-23.12	Pk	Horizontal
13361.64	29.06	42.60	15.90	38.90	12.20	41.26	54.00	-12.74	AV	Horizontal

Remark:

- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- Scan with 802.11a,802.11n (HT-20),802.11n (HT-40), 802.11ac (VHT-20),802.11ac (VHT-40), 802.11ac (VHT-80) all have been tested the ANT A and ANT B, the worst case is 802.11ac (VHT-80) of the ANT A.
- 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.

**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)										
3272.19	45.18	44.70	6.70	28.20	-9.80	35.38	68.20	-32.82	Pk	Vertical
3272.19	41.98	44.70	6.70	28.20	-9.80	32.18	54.00	-21.82	AV	Vertical
3276.01	45.19	44.70	6.70	28.20	-9.80	35.39	68.20	-32.81	Pk	Horizontal
3276.01	41.28	44.70	6.70	28.20	-9.80	31.48	54.00	-22.52	AV	Horizontal
4007.25	39.98	44.20	7.90	29.70	-6.60	33.38	68.20	-34.82	Pk	Vertical
4007.25	36.69	44.20	7.90	29.70	-6.60	30.09	54.00	-23.91	AV	Vertical
4005.96	39.44	44.20	7.90	29.70	-6.60	32.84	68.20	-35.36	Pk	Horizontal
4005.96	36.74	44.20	7.90	29.70	-6.60	30.14	54.00	-23.86	AV	Horizontal
7258.72	37.01	43.50	11.40	35.50	3.40	40.41	68.20	-27.79	Pk	Vertical
7258.72	34.03	43.50	11.40	35.50	3.40	37.43	54.00	-16.57	AV	Vertical
7255.94	36.72	43.50	11.40	35.50	3.40	40.12	68.20	-28.08	Pk	Horizontal
7255.94	34.64	43.50	11.40	35.50	3.40	38.04	54.00	-15.96	AV	Horizontal
10404.11	39.97	44.50	13.80	38.80	8.10	48.07	68.20	-20.13	Pk	Vertical
10404.11	35.86	44.50	13.80	38.80	8.10	43.96	54.00	-10.04	AV	Vertical
10407.90	39.16	44.50	13.80	38.80	8.10	47.26	68.20	-20.94	Pk	Horizontal
10407.90	36.64	44.50	13.80	38.80	8.10	44.74	54.00	-9.26	AV	Horizontal
11060.20	33.31	43.60	14.30	39.50	10.20	43.51	68.20	-24.69	Pk	Vertical
11060.20	30.59	43.60	14.30	39.50	10.20	40.79	54.00	-13.21	AV	Vertical
11060.41	34.04	43.60	14.30	39.50	10.20	44.24	68.20	-23.96	Pk	Horizontal
11060.41	30.33	43.60	14.30	39.50	10.20	40.53	54.00	-13.47	AV	Horizontal
13354.70	32.14	42.60	15.90	38.90	12.20	44.34	68.20	-23.86	Pk	Vertical
13354.70	28.78	42.60	15.90	38.90	12.20	40.98	54.00	-13.02	AV	Vertical
13358.29	32.44	42.60	15.90	38.90	12.20	44.64	68.20	-23.56	Pk	Horizontal
13358.29	28.73	42.60	15.90	38.90	12.20	40.93	54.00	-13.07	AV	Horizontal
High Channel (802.11ac80/ 5610 MHz)										
3326.80	43.91	44.70	6.70	28.20	-9.80	34.11	68.20	-34.09	Pk	Vertical
3326.80	40.92	44.70	6.70	28.20	-9.80	31.12	54.00	-22.88	AV	Vertical
3321.84	44.00	44.70	6.70	28.20	-9.80	34.20	68.20	-34.00	Pk	Horizontal
3321.84	41.24	44.70	6.70	28.20	-9.80	31.44	54.00	-22.56	AV	Horizontal
4072.59	39.38	44.20	7.90	29.70	-6.60	32.78	68.20	-35.42	Pk	Vertical
4072.59	36.91	44.20	7.90	29.70	-6.60	30.31	54.00	-23.69	AV	Vertical
4069.31	40.01	44.20	7.90	29.70	-6.60	33.41	68.20	-34.79	Pk	Horizontal
4069.31	37.07	44.20	7.90	29.70	-6.60	30.47	54.00	-23.53	AV	Horizontal
7375.20	36.74	43.50	11.40	35.50	3.40	40.14	68.20	-28.06	Pk	Vertical
7375.20	34.16	43.50	11.40	35.50	3.40	37.56	54.00	-16.44	AV	Vertical
7364.21	37.34	43.50	11.40	35.50	3.40	40.74	68.20	-27.46	Pk	Horizontal
7364.21	34.54	43.50	11.40	35.50	3.40	37.94	54.00	-16.06	AV	Horizontal
10551.88	39.22	44.50	13.80	38.80	8.10	47.32	68.20	-20.88	Pk	Vertical
10551.88	36.68	44.50	13.80	38.80	8.10	44.78	54.00	-9.22	AV	Vertical
10553.34	39.38	44.50	13.80	38.80	8.10	47.48	68.20	-20.72	Pk	Horizontal
10553.34	36.03	44.50	13.80	38.80	8.10	44.13	54.00	-9.87	AV	Horizontal
11220.43	33.21	43.60	14.30	39.50	10.20	43.41	68.20	-24.79	Pk	Vertical
11220.43	29.89	43.60	14.30	39.50	10.20	40.09	54.00	-13.91	AV	Vertical
11220.30	34.08	43.60	14.30	39.50	10.20	44.28	68.20	-23.92	Pk	Horizontal
11220.30	30.04	43.60	14.30	39.50	10.20	40.24	54.00	-13.76	AV	Horizontal
13547.65	31.55	42.60	15.90	38.90	12.20	43.75	68.20	-24.45	Pk	Vertical
13547.65	28.85	42.60	15.90	38.90	12.20	41.05	54.00	-12.95	AV	Vertical
13563.41	32.86	42.60	15.90	38.90	12.20	45.06	68.20	-23.14	Pk	Horizontal
13563.41	29.88	42.60	15.90	38.90	12.20	42.08	54.00	-11.92	AV	Horizontal

Remark:

- Factor = Antenna Factor + Cable Loss – Pre-amplifier.
- Scan with 802.11a,802.11n (HT-20),802.11n (HT-40), 802.11ac (VHT-20),802.11ac (VHT-40), 802.11ac (VHT-80) all have been tested the ANT A and ANT B, the worst case is 802.11ac (VHT-80) of the ANT A.
- 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.

**Band IV(5.725-5.850) GHz**

Frequency (MHz)	Reading	Amplifier	Loss	Antenna Factor	Orrected Factor	Emission Level	Limit (dBuV/m)	Margin	Detector	Comment
	(dBuV)	(dB)	(dB)	(dB/m)	(dB)	(dBµV/m)		(dB)		
(802.11ac80/ 5775 MHz)										
3272.82	44.39	44.70	6.70	28.20	-9.80	34.59	68.20	-33.61	Pk	Vertical
3272.82	41.73	44.70	6.70	28.20	-9.80	31.93	54.00	-22.07	AV	Vertical
3272.85	45.01	44.70	6.70	28.20	-9.80	35.21	68.20	-32.99	Pk	Horizontal
3272.85	40.96	44.70	6.70	28.20	-9.80	31.16	54.00	-22.84	AV	Horizontal
4008.53	39.51	44.20	7.90	29.70	-6.60	32.91	68.20	-35.29	Pk	Vertical
4008.53	37.12	44.20	7.90	29.70	-6.60	30.52	54.00	-23.48	AV	Vertical
4007.41	39.30	44.20	7.90	29.70	-6.60	32.70	68.20	-35.50	Pk	Horizontal
4007.41	36.19	44.20	7.90	29.70	-6.60	29.59	54.00	-24.41	AV	Horizontal
7270.55	37.10	43.50	11.40	35.50	3.40	40.50	68.20	-27.70	Pk	Vertical
7270.55	34.18	43.50	11.40	35.50	3.40	37.58	54.00	-16.42	AV	Vertical
7265.83	37.52	43.50	11.40	35.50	3.40	40.92	68.20	-27.28	Pk	Horizontal
7265.83	33.66	43.50	11.40	35.50	3.40	37.06	54.00	-16.94	AV	Horizontal
10566.06	39.83	44.50	13.90	38.80	8.20	48.03	68.20	-20.17	Pk	Vertical
10566.06	36.41	44.50	13.90	38.80	8.20	44.61	54.00	-9.39	AV	Vertical
10557.78	39.91	44.50	13.90	38.80	8.20	48.11	68.20	-20.09	Pk	Horizontal
10557.78	35.74	44.50	13.90	38.80	8.20	43.94	54.00	-10.06	AV	Horizontal
11550.16	34.07	43.60	14.30	39.50	10.20	44.27	68.20	-23.93	Pk	Vertical
11550.16	29.68	43.60	14.30	39.50	10.20	39.88	54.00	-14.12	AV	Vertical
11550.12	34.04	43.60	14.30	39.50	10.20	44.24	68.20	-23.96	Pk	Horizontal
11550.12	31.05	43.60	14.30	39.50	10.20	41.25	54.00	-12.75	AV	Horizontal
13367.68	32.84	42.60	15.90	38.90	12.20	45.04	68.20	-23.16	Pk	Vertical
13367.68	29.79	42.60	15.90	38.90	12.20	41.99	54.00	-12.01	AV	Vertical
13357.56	31.75	42.60	15.90	38.90	12.20	43.95	68.20	-24.25	Pk	Horizontal
13357.56	28.84	42.60	15.90	38.90	12.20	41.04	54.00	-12.96	AV	Horizontal

Remark:

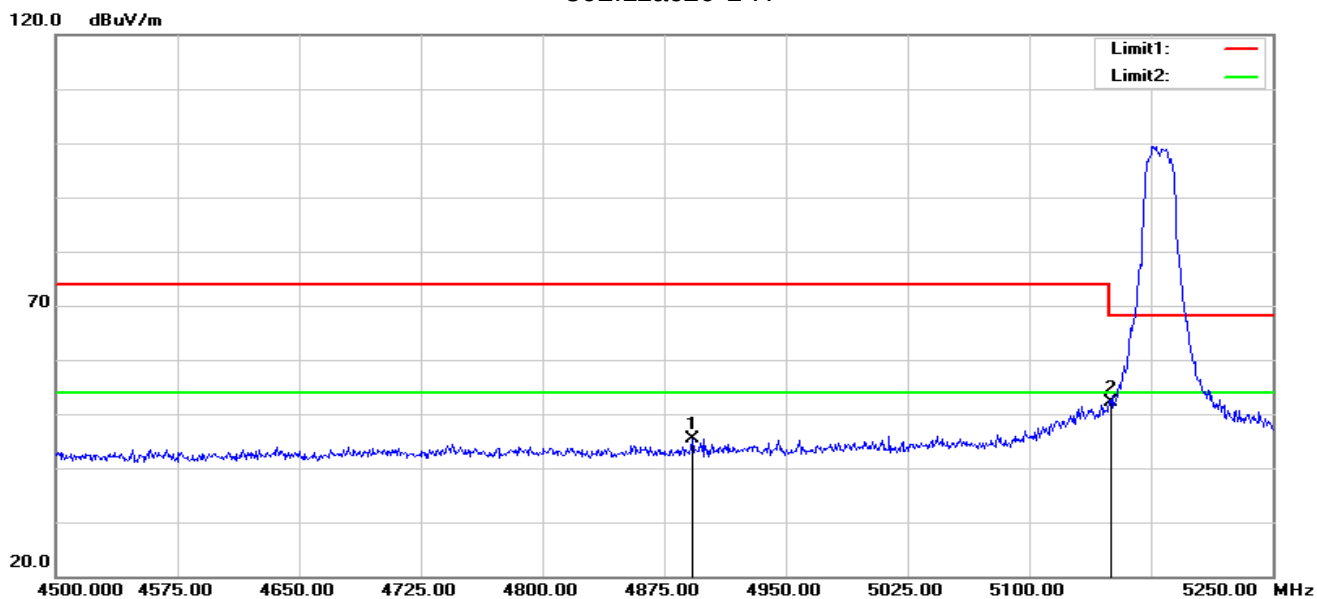
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Scan with 802.11a, 802.11n (HT-20), 802.11n (HT-40), 802.11ac (VHT-20), 802.11ac (VHT-40), 802.11ac (VHT-80) all have been tested the ANT A and ANT B, the worst case is 802.11ac (VHT-80) of the ANT A.
3. The frequency emission of peak points that did not show above the forms are at least 20dB below the limit, the frequency emission is mainly from the environment noise.



3.2.9 RESTRICTED FREQUENCY BANDS AND BAND EDGE

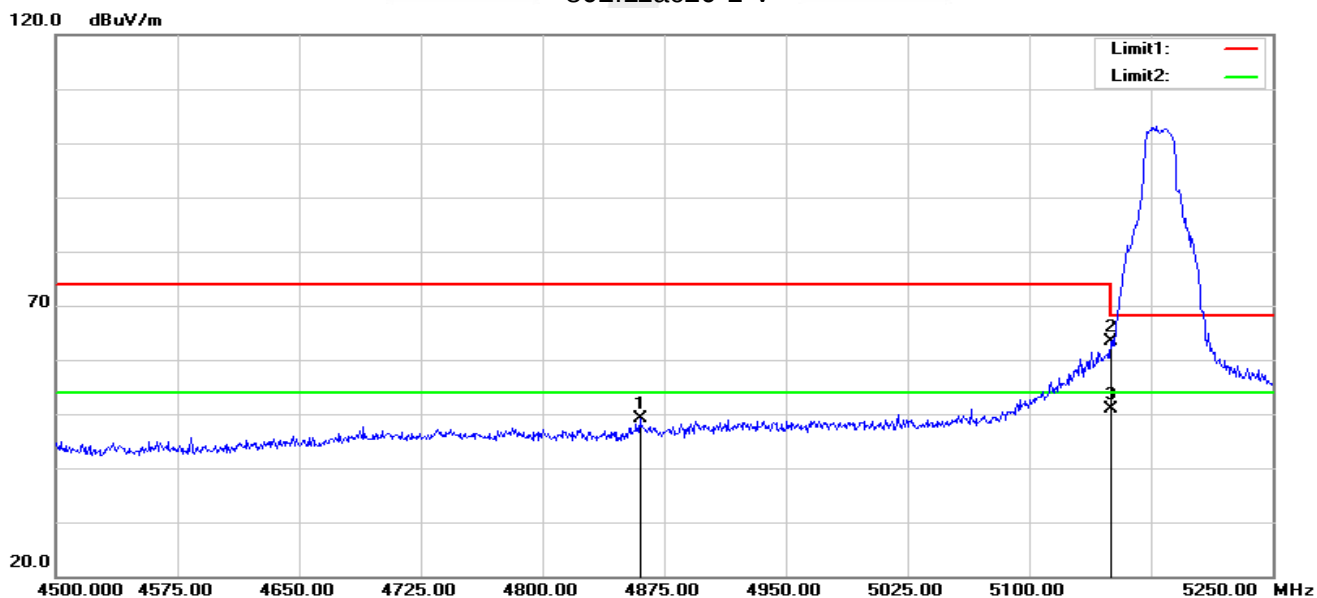
Band I 5150-5250MHz

802.11ac20-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4892.250	52.23	-6.87	45.36	74.00	-28.64	peak
2	5150.000	57.79	-5.73	52.06	68.20	-16.14	peak

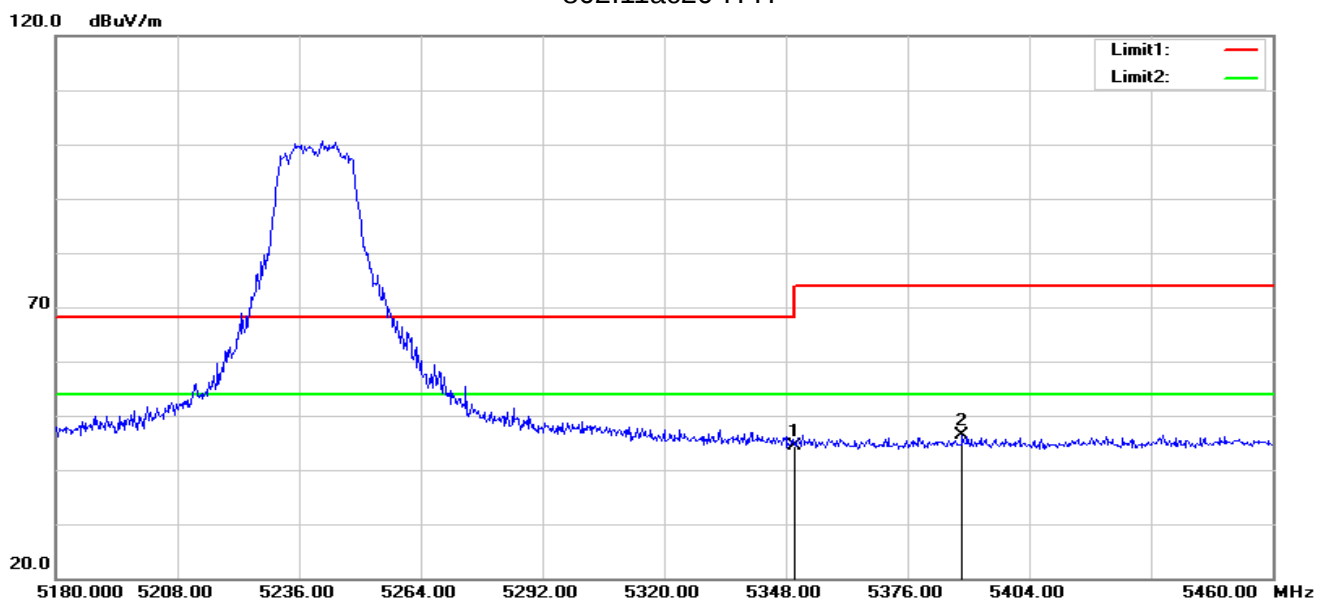
802.11ac20-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4860.000	56.12	-6.99	49.13	74.00	-24.87	peak
2	5150.000	68.99	-5.73	63.26	68.20	-4.94	peak
3	5150.000	56.50	-5.73	50.77	54.00	-3.23	AVG

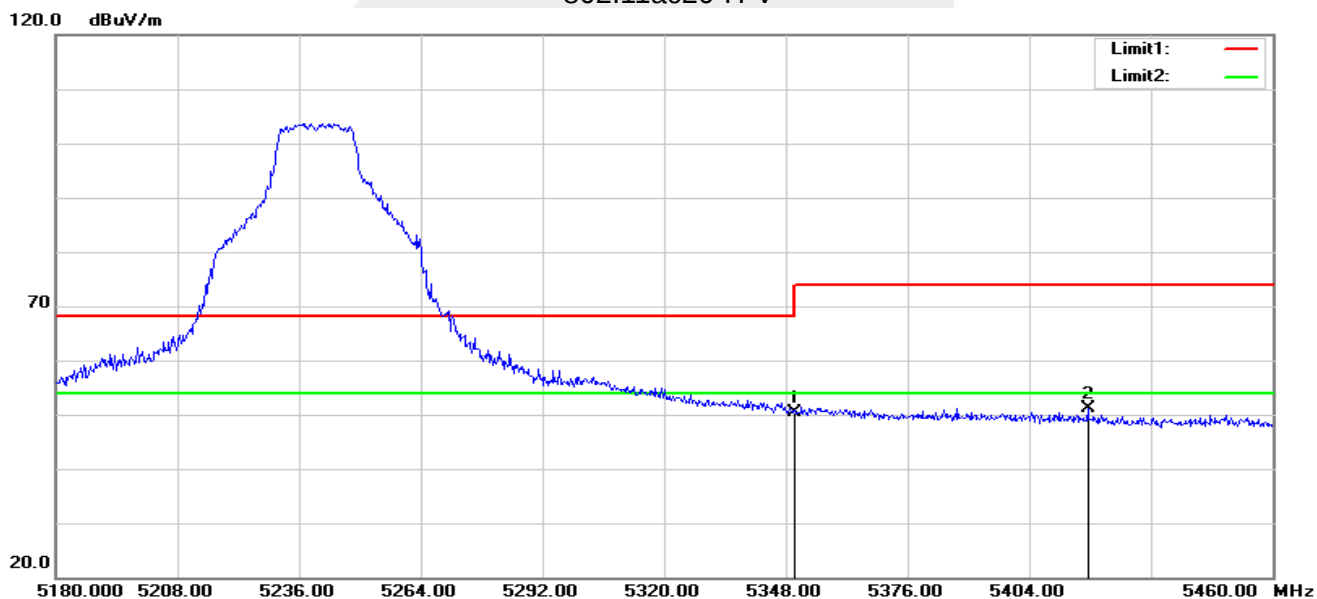


802.11ac20-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	49.64	-5.23	44.41	68.20	-23.79	peak
2	5388.600	51.51	-5.25	46.26	74.00	-27.74	peak

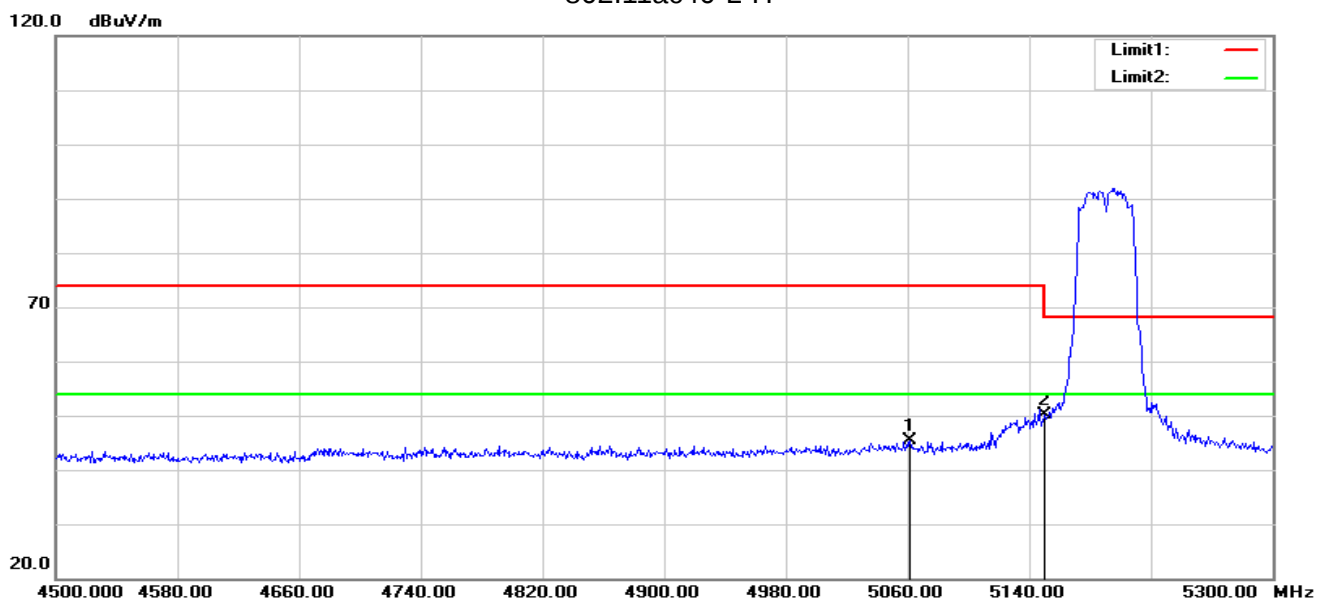
802.11ac20-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	55.50	-5.23	50.27	68.20	-17.93	peak
2	5417.440	56.37	-5.21	51.16	74.00	-22.84	peak

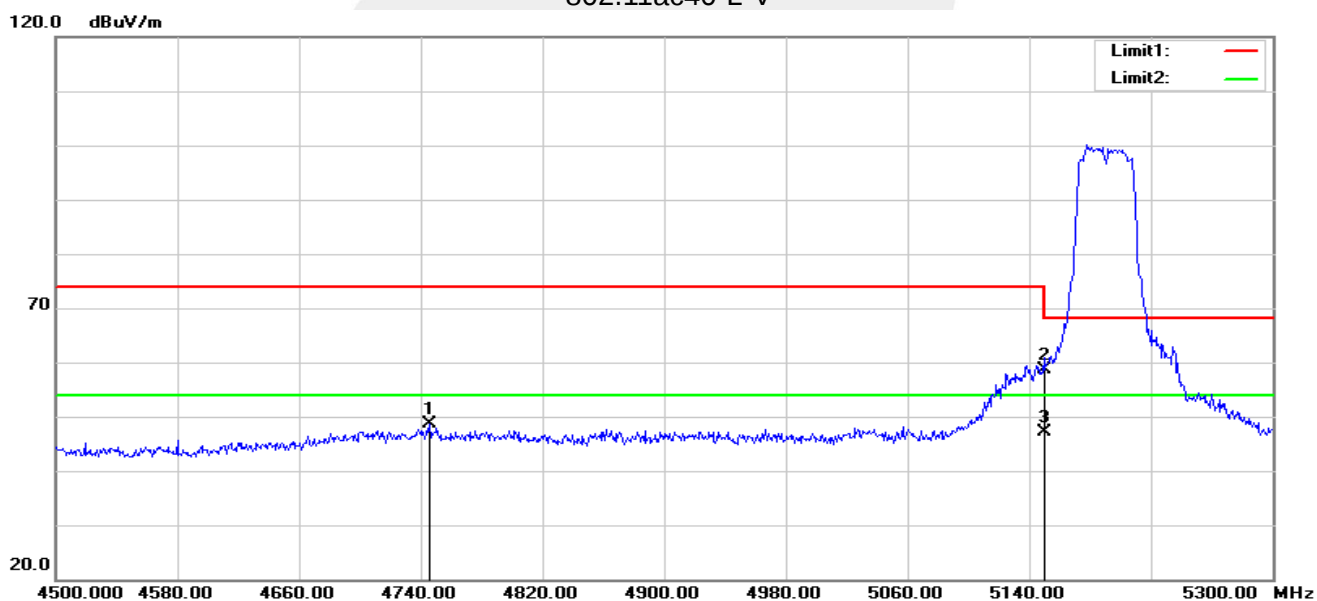


802.11ac40-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5061.600	51.30	-5.91	45.39	74.00	-28.61	peak
2	5150.000	55.80	-5.73	50.07	68.20	-18.13	peak

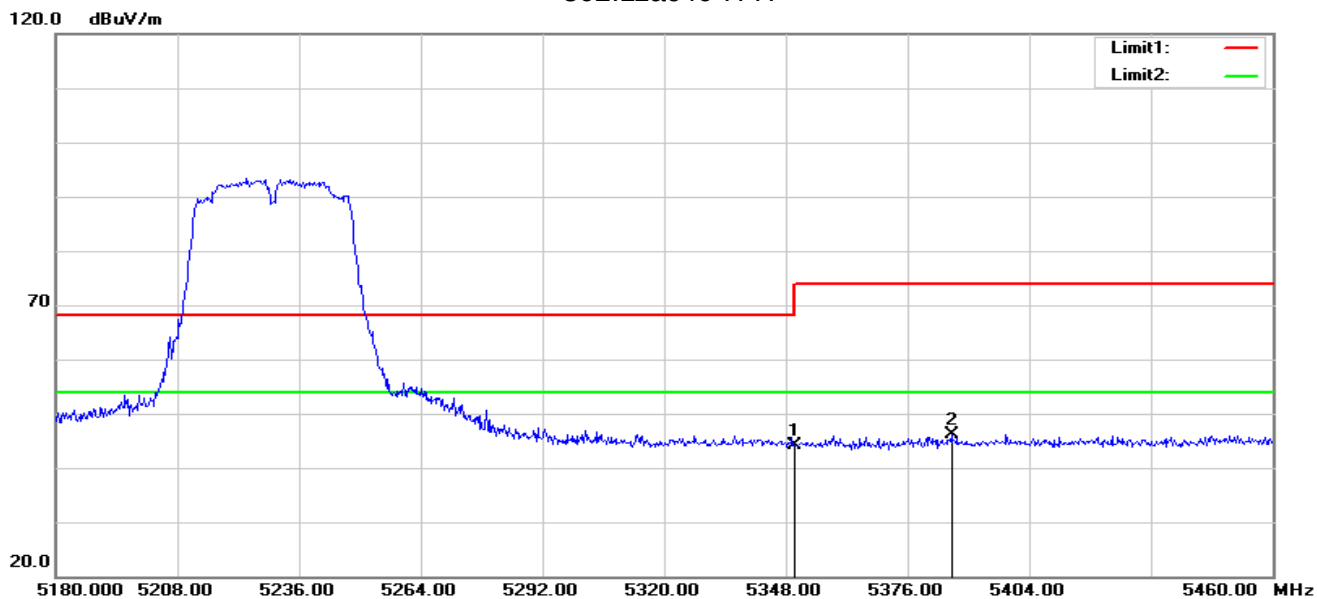
802.11ac40-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4745.600	55.99	-7.30	48.69	74.00	-25.31	peak
2	5150.000	64.46	-5.73	58.73	68.20	-9.47	peak
3	5150.000	52.84	-5.73	47.11	54.00	-6.89	AVG

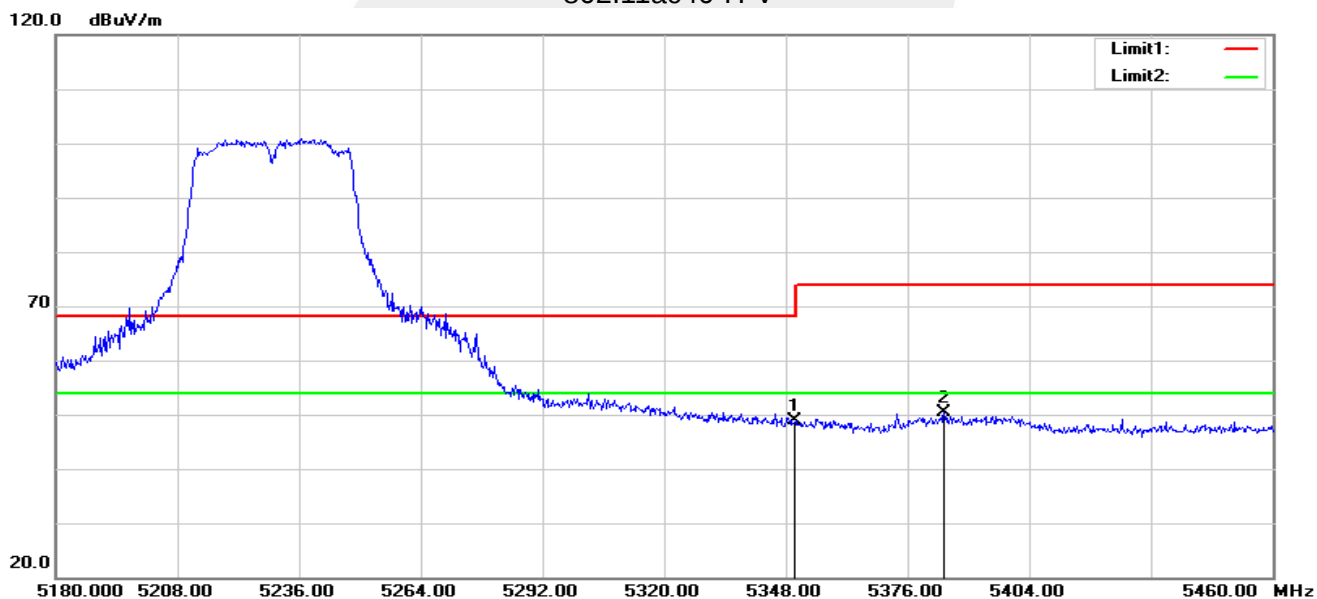


802.11ac40-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	49.41	-5.23	44.18	68.20	-24.02	peak
2	5386.080	51.35	-5.24	46.11	74.00	-27.89	peak

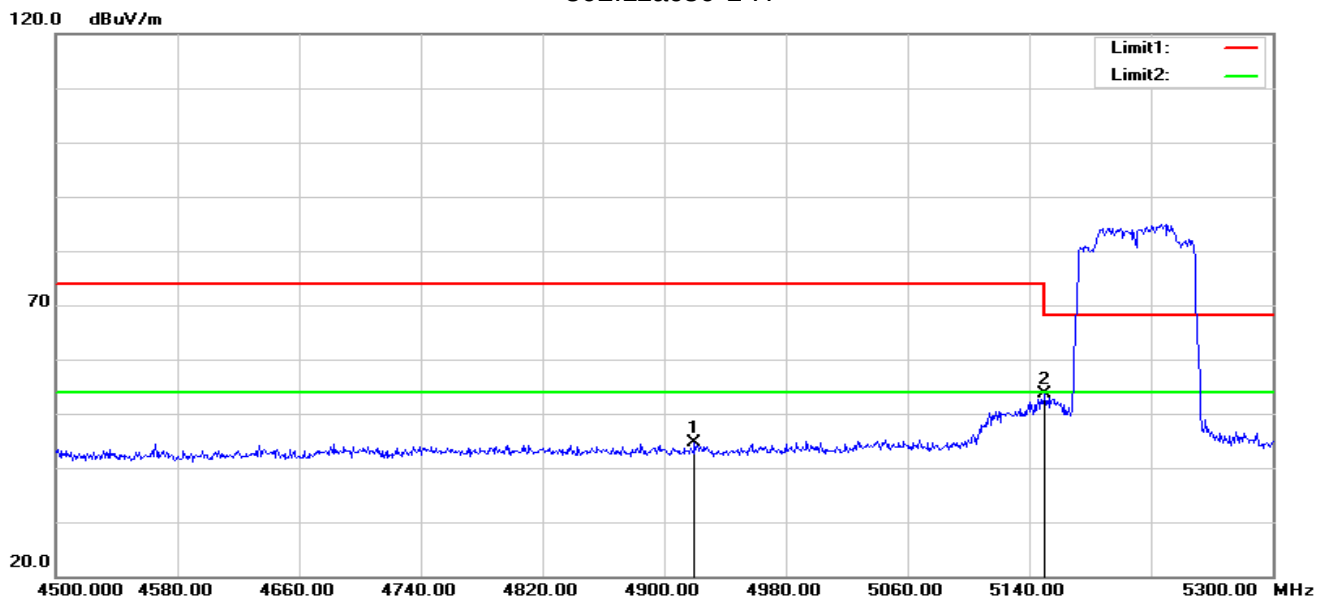
802.11ac40-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	54.04	-5.23	48.81	68.20	-19.39	peak
2	5384.400	55.61	-5.24	50.37	74.00	-23.63	peak

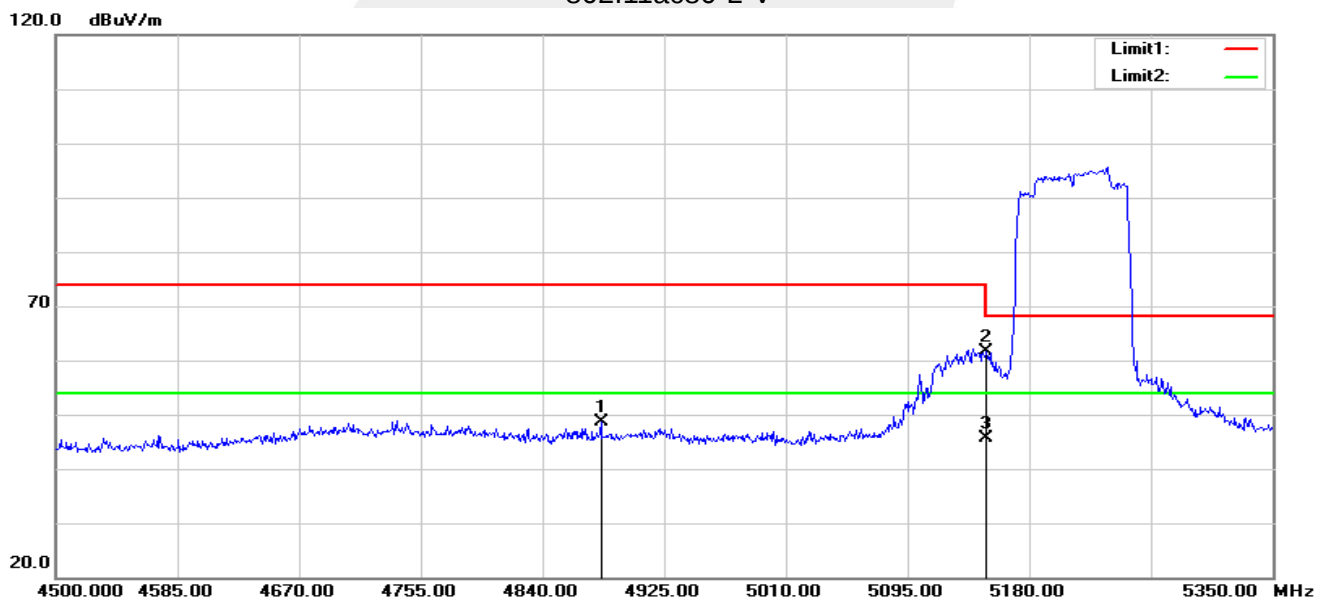


802.11ac80-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4920.000	51.32	-6.71	44.61	74.00	-29.39	peak
2	5150.000	59.24	-5.73	53.51	68.20	-14.69	peak

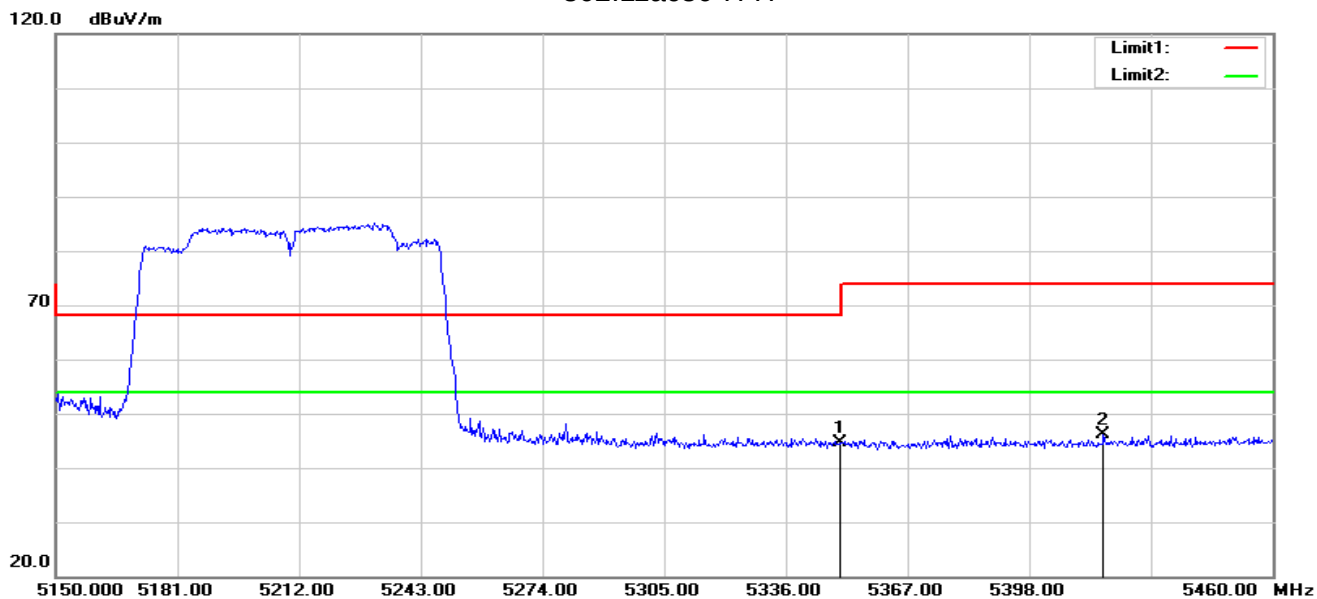
802.11ac80-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4880.800	55.46	-6.91	48.55	74.00	-25.45	peak
2	5150.000	67.24	-5.73	61.51	68.20	-6.69	peak
3	5150.000	51.24	-5.73	45.51	54.00	-8.49	AVG

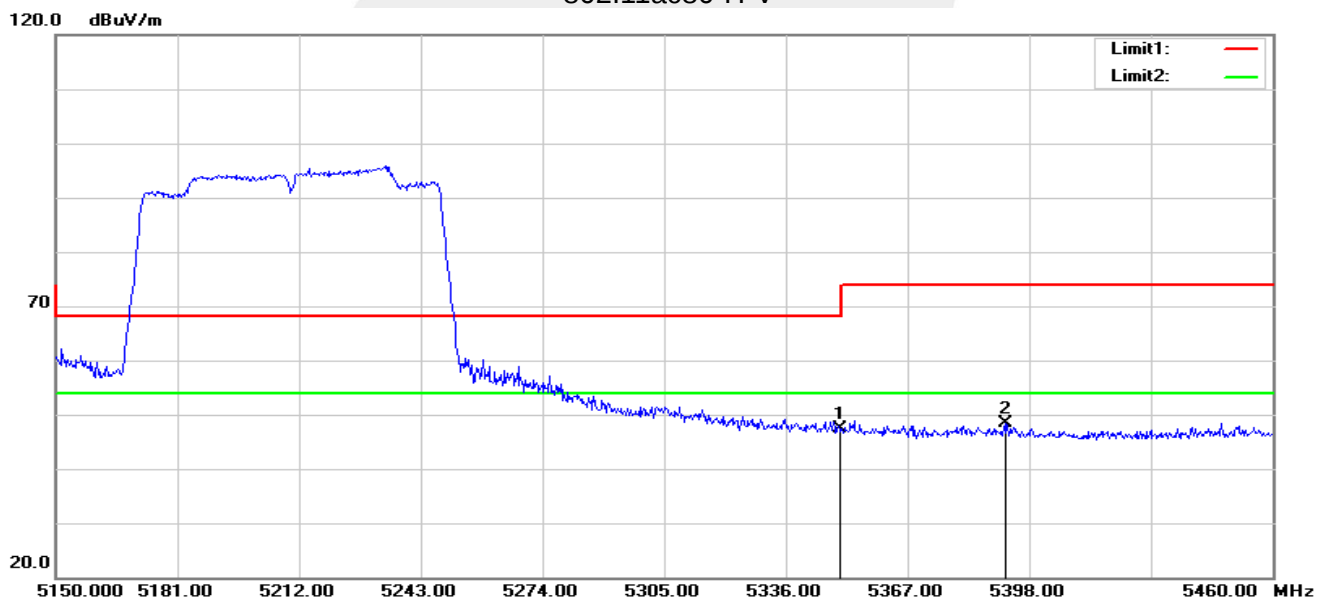


802.11ac80-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	49.91	-5.23	44.68	68.20	-23.52	peak
2	5416.910	51.40	-5.21	46.19	74.00	-27.81	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	52.49	-5.23	47.26	68.20	-20.94	peak
2	5391.800	53.51	-5.25	48.26	74.00	-25.74	peak

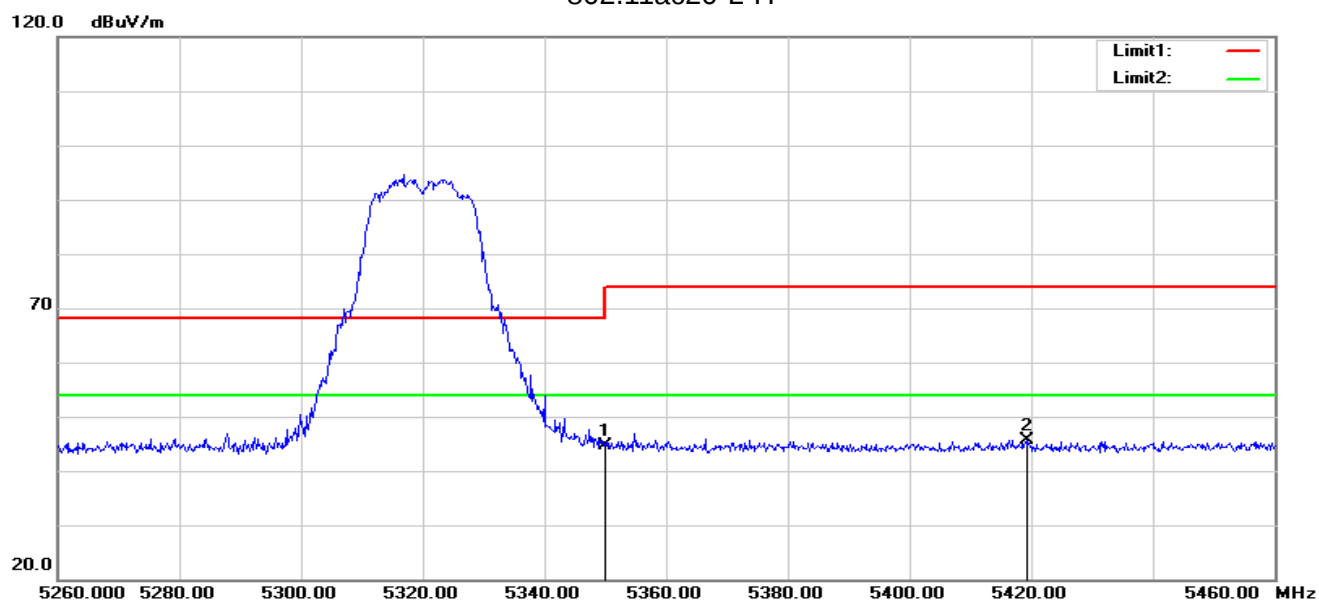
Note:

1. All modes have been tested. Only the worst mode shown in the report.
2. ANT A Power> ANT B Power, Both ANT A and B have been test, Only show the worst data of ANT A .



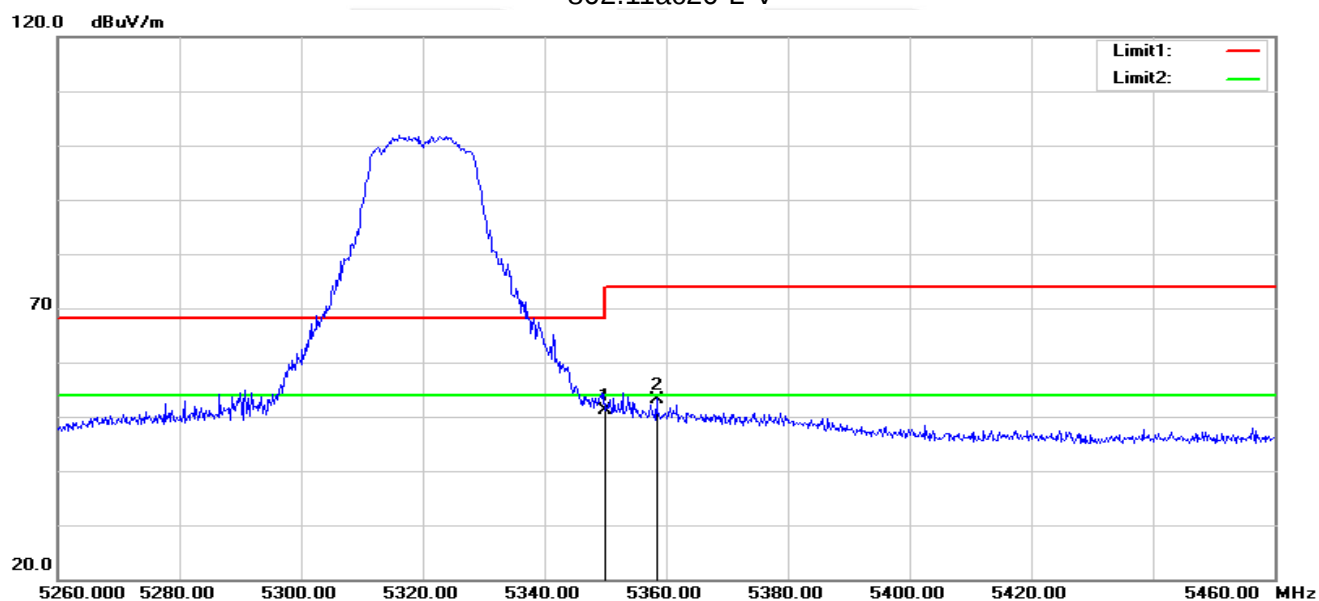
Band II 5250-5350MHz

802.11ac20-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	49.81	-5.23	44.58	68.20	-23.62	peak
2	5419.200	50.84	-5.20	45.64	74.00	-28.36	peak

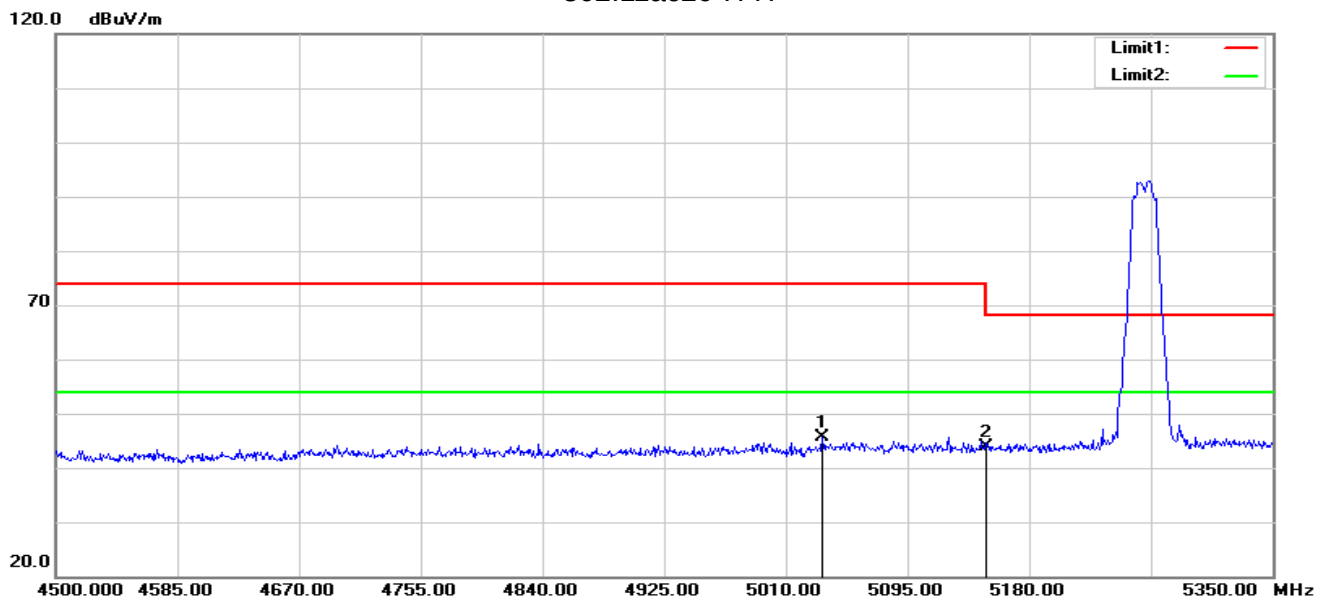
802.11ac20-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	56.35	-5.23	51.12	68.20	-17.08	peak
2	5358.400	58.48	-5.23	53.25	74.00	-20.75	peak

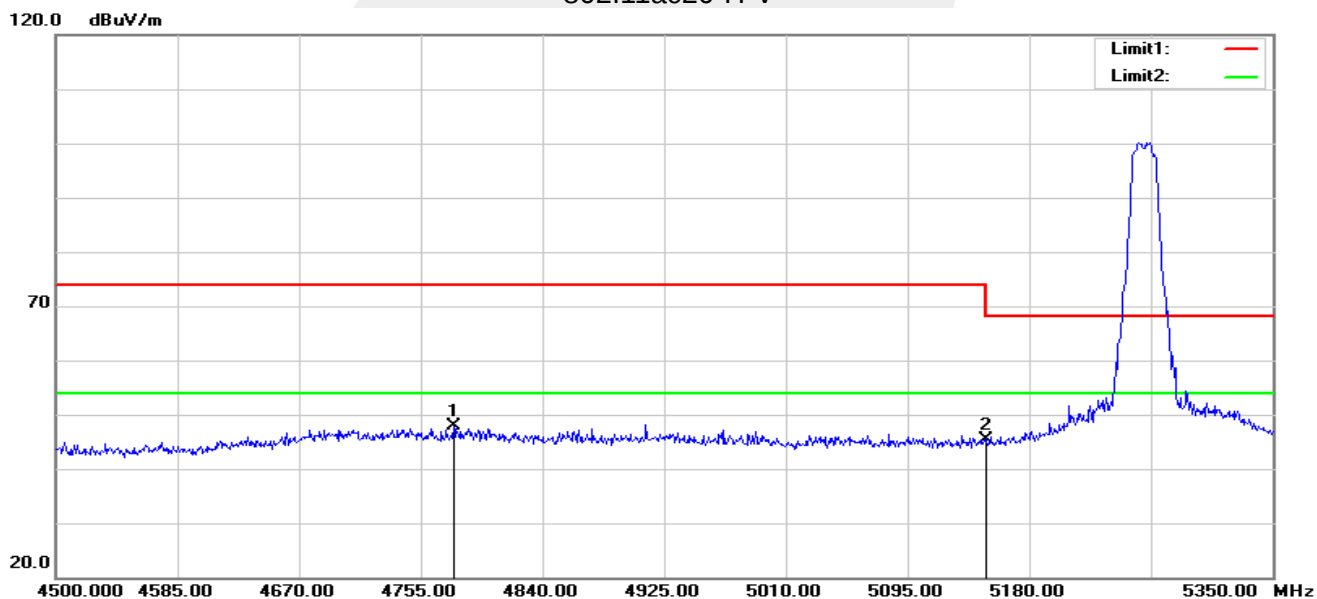


802.11ac20-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5035.500	51.62	-6.03	45.59	74.00	-28.41	peak
2	5150.000	49.60	-5.73	43.87	68.20	-24.33	peak

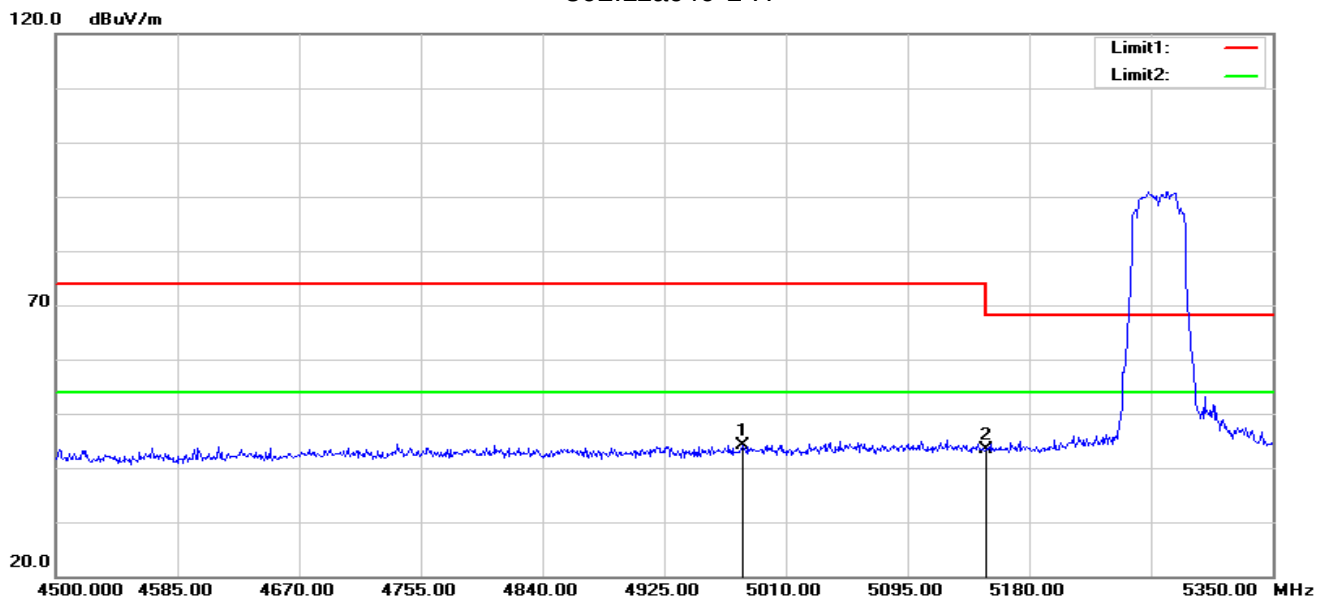
802.11ac20-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4777.950	55.05	-7.25	47.80	74.00	-26.20	peak
2	5150.000	51.20	-5.73	45.47	68.20	-22.73	peak

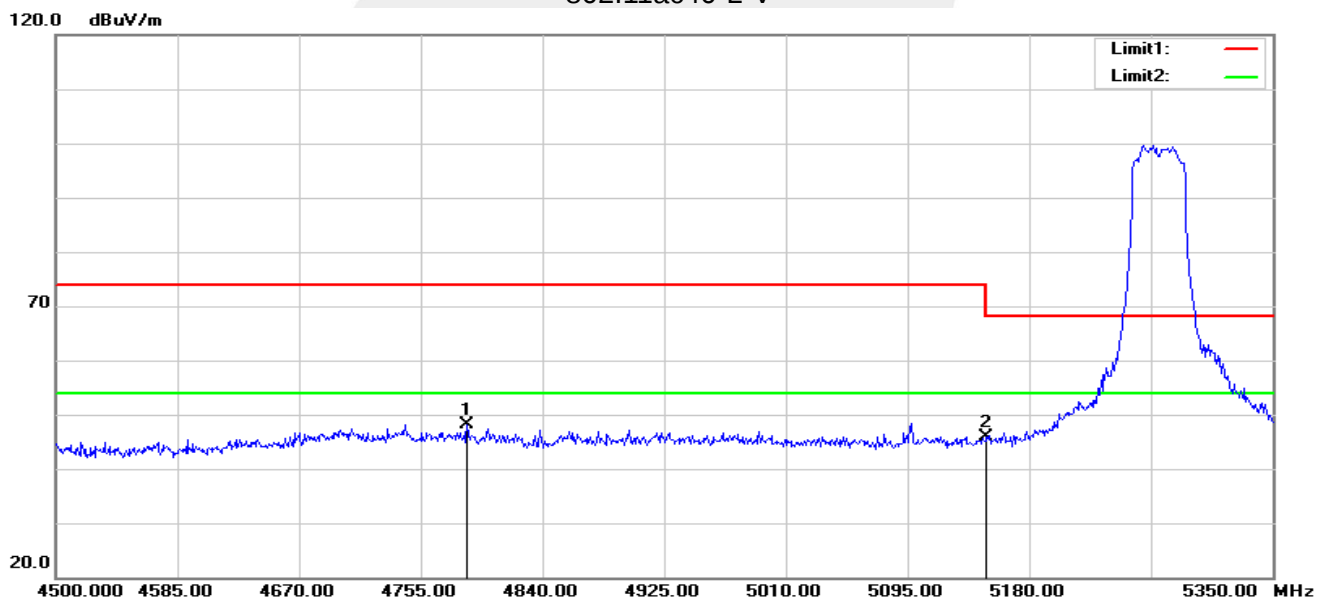


802.11ac40-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4980.250	50.47	-6.32	44.15	74.00	-29.85	peak
2	5150.000	49.07	-5.73	43.34	68.20	-24.86	peak

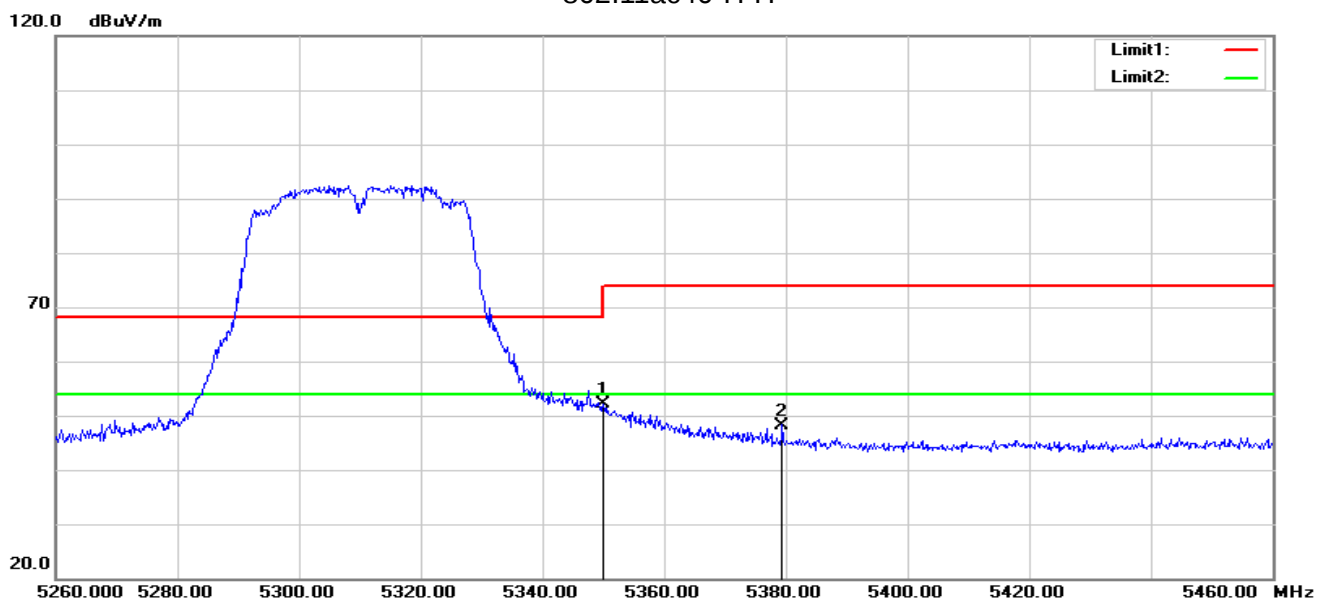
802.11ac40-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4787.300	55.43	-7.24	48.19	74.00	-25.81	peak
2	5150.000	51.57	-5.73	45.84	68.20	-22.36	peak

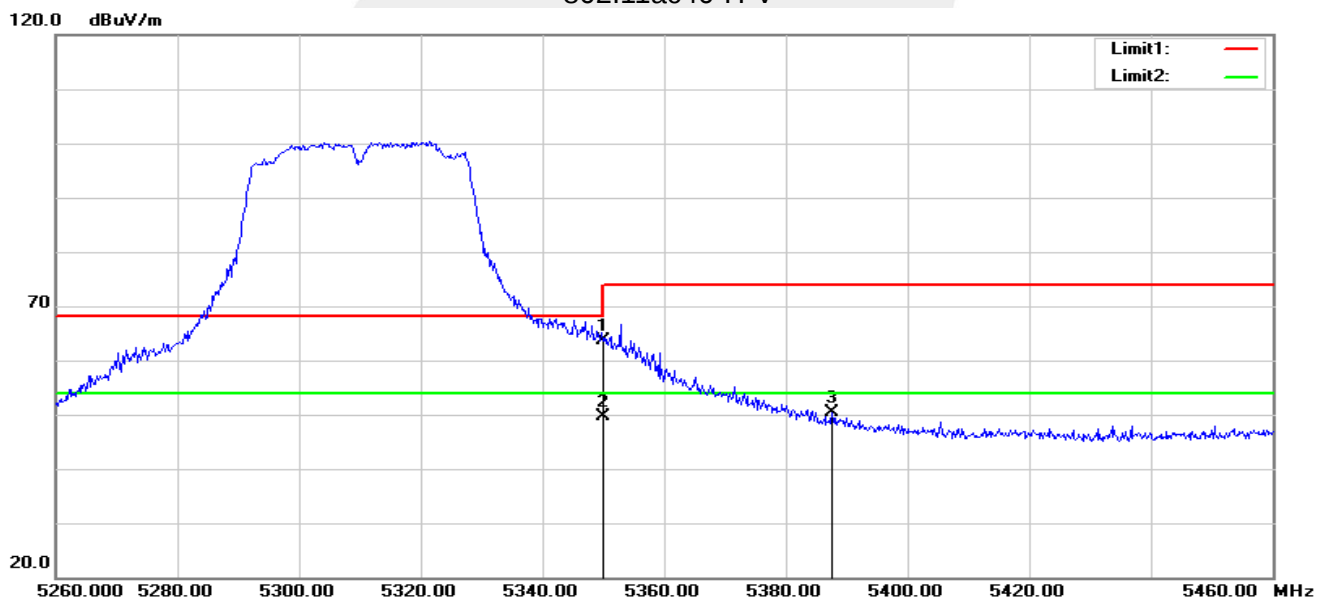


802.11ac40-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	57.33	-5.23	52.10	68.20	-16.10	peak
2	5379.400	53.50	-5.25	48.25	74.00	-25.75	peak

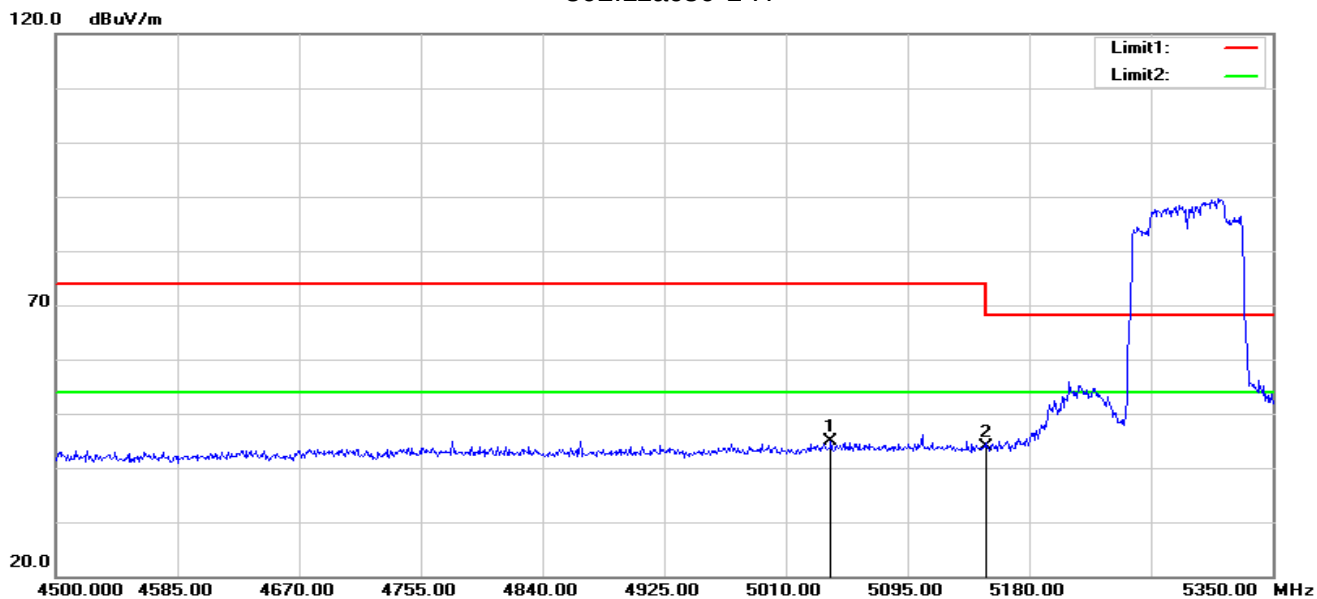
802.11ac40-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	68.75	-5.23	63.52	68.20	-4.68	peak
2	5350.000	54.82	-5.23	49.59	54.00	-4.41	AVG
3	5387.600	55.64	-5.25	50.39	74.00	-23.61	peak

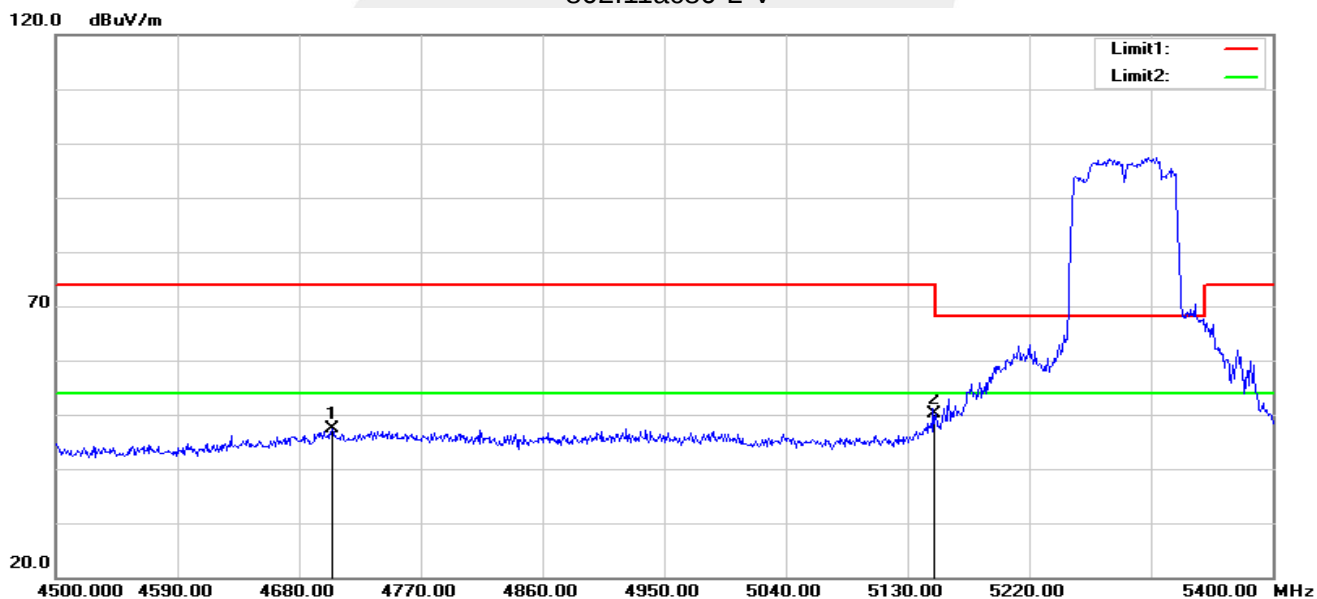


802.11ac80-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5041.450	50.95	-6.01	44.94	74.00	-29.06	peak
2	5150.000	49.72	-5.73	43.99	68.20	-24.21	peak

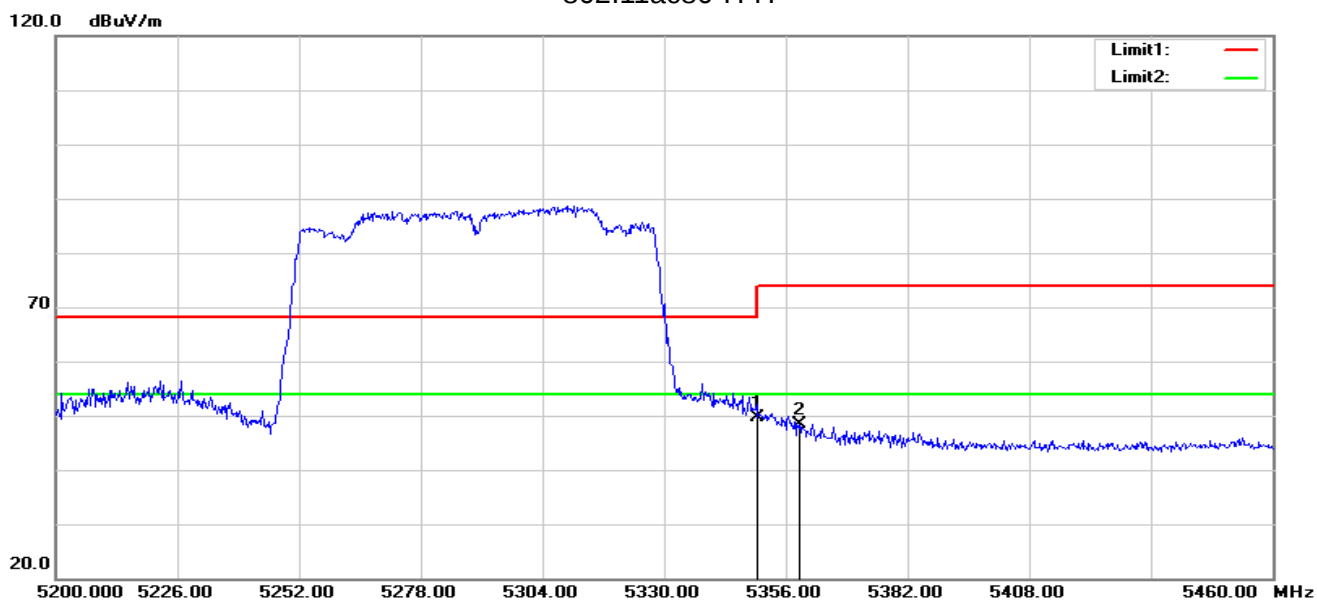
802.11ac80-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	4704.300	54.65	-7.35	47.30	74.00	-26.70	peak
2	5150.000	55.83	-5.73	50.10	68.20	-18.10	peak

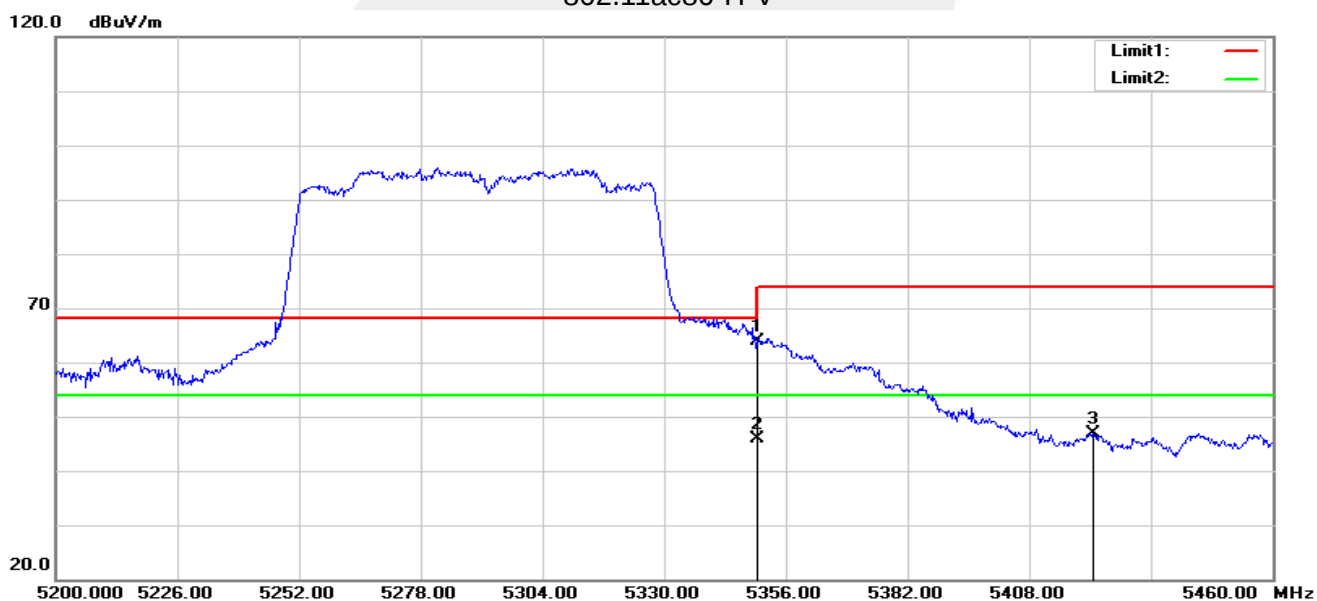


802.11ac80-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5350.000	54.86	-5.23	49.63	68.20	-18.57	peak
2	5358.860	53.61	-5.23	48.38	74.00	-25.62	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	69.17	-5.23	63.94	68.20	-4.26	peak
2	5350.000	51.17	-5.23	45.94	54.00	-8.06	AVG
3	5421.520	52.12	-5.20	46.92	74.00	-27.08	peak

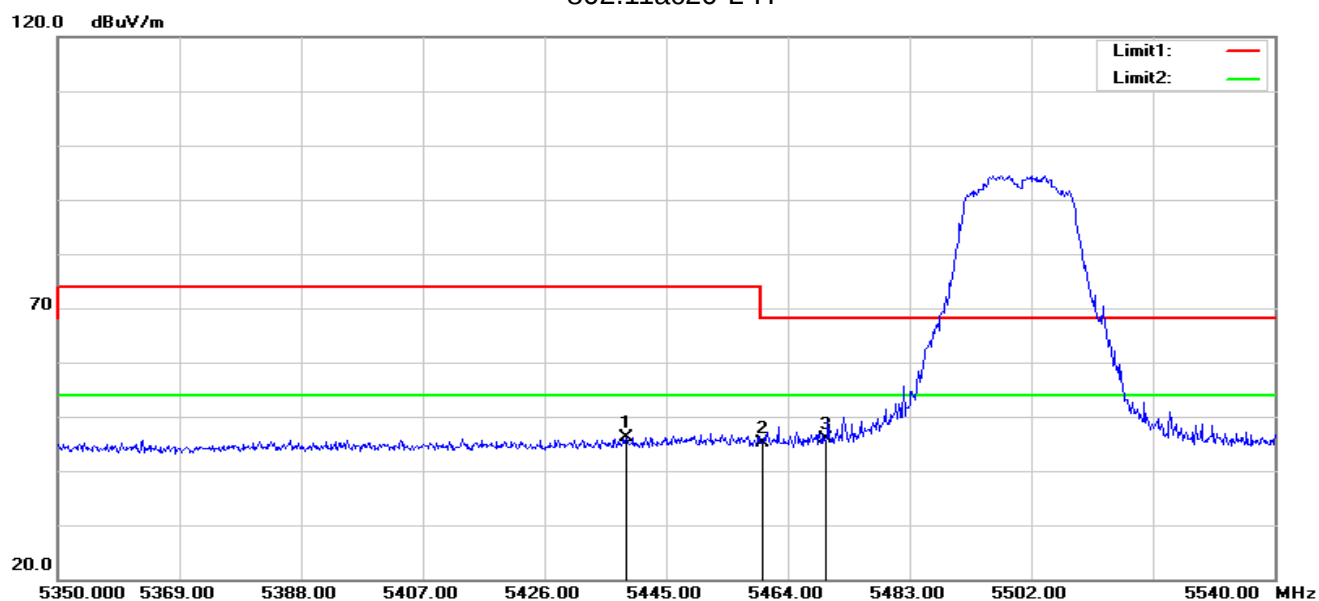
Note:

1. All modes have been tested. Only the worst mode shown in the report.
2. ANT A Power> ANT B Power, Both ANT A and B have been test, Only show the worst data of ANT A.



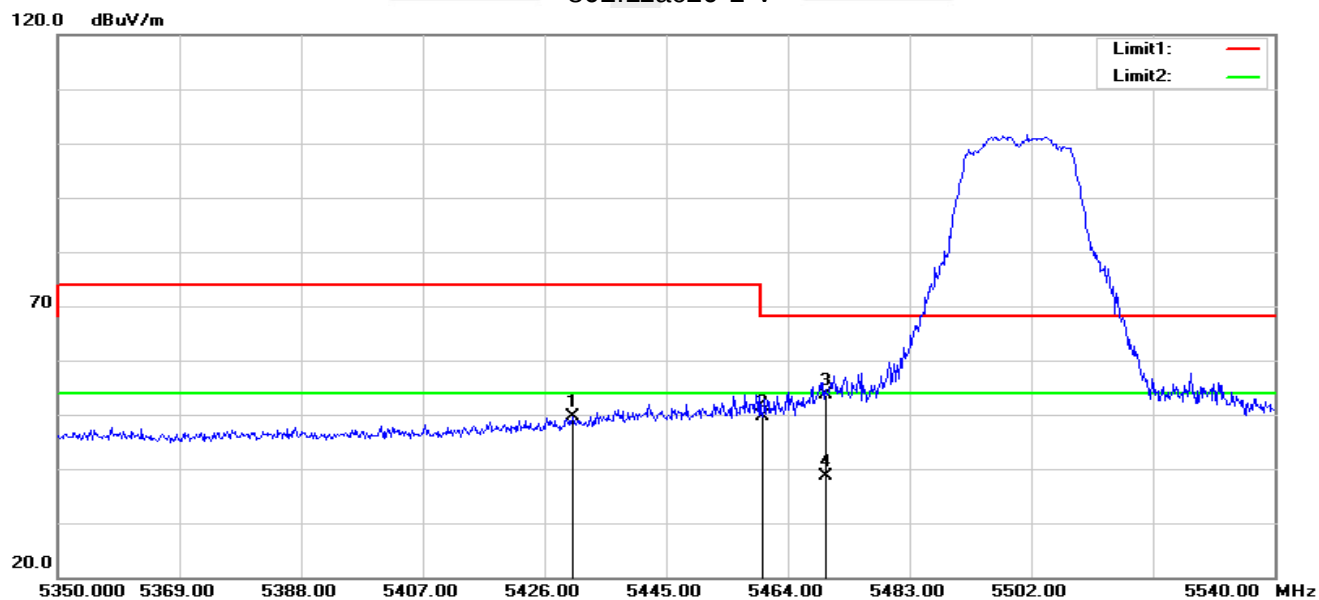
Band III 5470-5725MHz

802.11ac20-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5438.730	51.41	-5.16	46.25	74.00	-27.75	peak
2	5460.000	50.20	-5.11	45.09	68.20	-23.11	peak
3	5470.000	51.05	-5.09	45.96	68.20	-22.24	peak

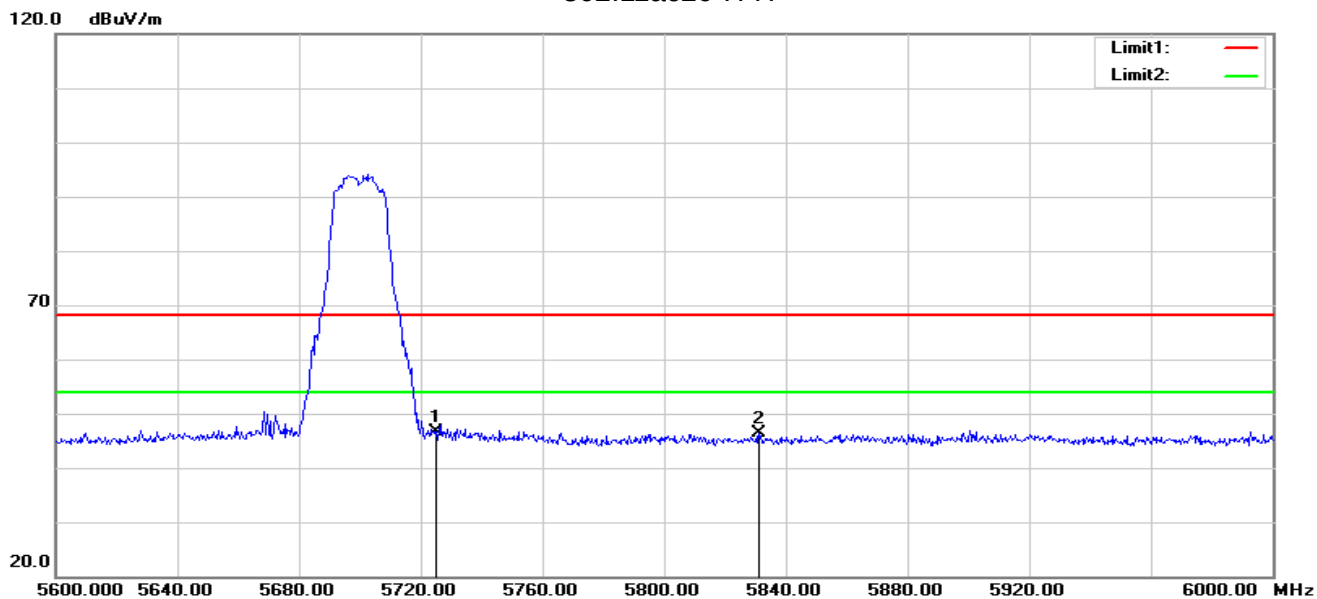
802.11ac20-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5430.370	54.86	-5.18	49.68	74.00	-24.32	peak
2	5460.000	54.72	-5.11	49.61	68.20	-18.59	peak
3	5470.000	58.70	-5.09	53.61	68.20	-14.59	peak
4	5470.000	43.65	-5.09	38.56	54.00	-15.44	AVG

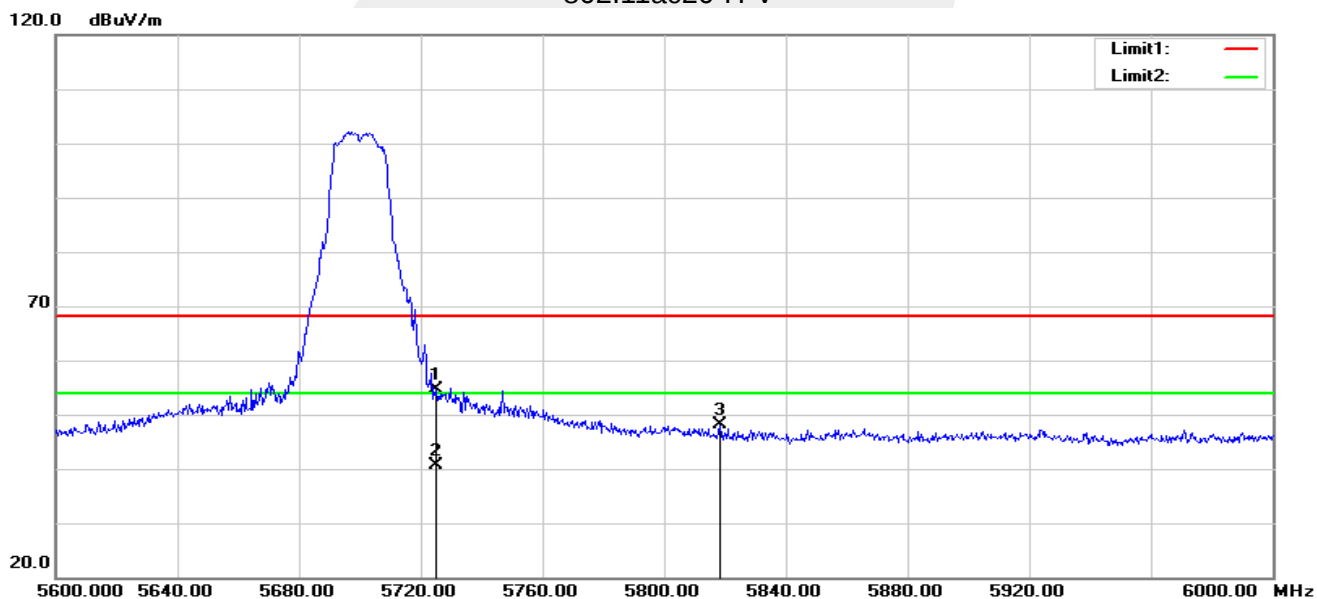


802.11ac20-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	51.25	-4.57	46.68	68.20	-21.52	peak
2	5831.200	50.56	-4.18	46.38	68.20	-21.82	peak

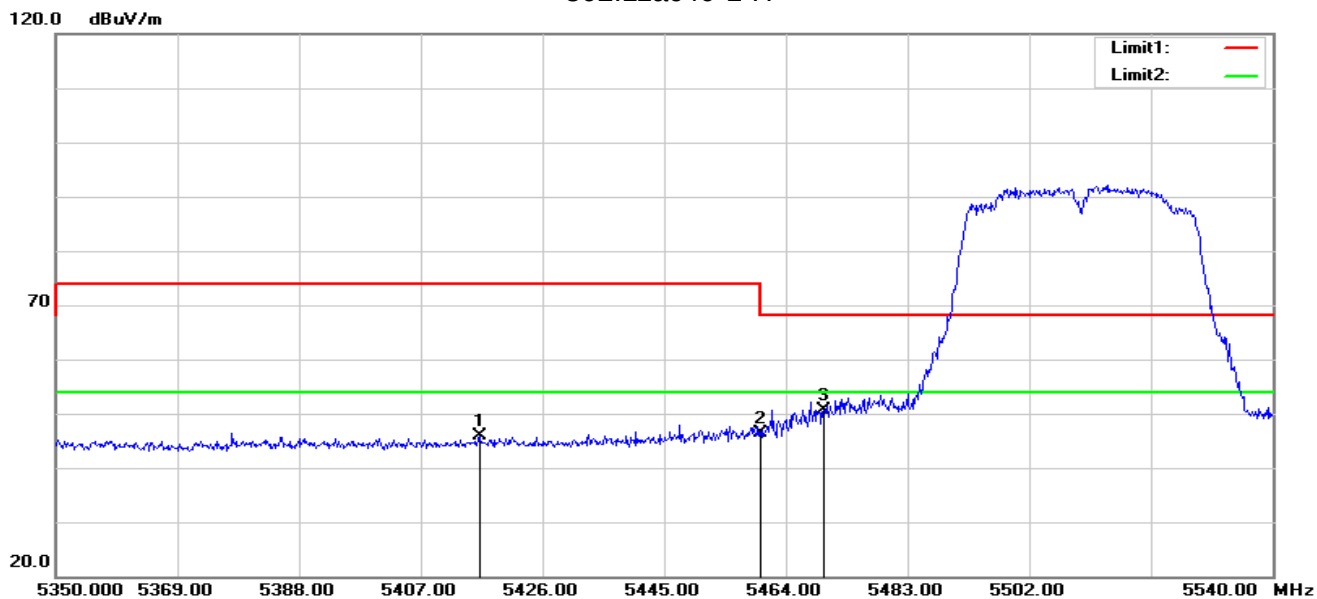
802.11ac20-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	59.18	-4.57	54.61	68.20	-13.59	peak
2	5725.000	45.18	-4.57	40.61	54.00	-13.39	AVG
3	5818.400	52.38	-4.24	48.14	68.20	-20.06	peak

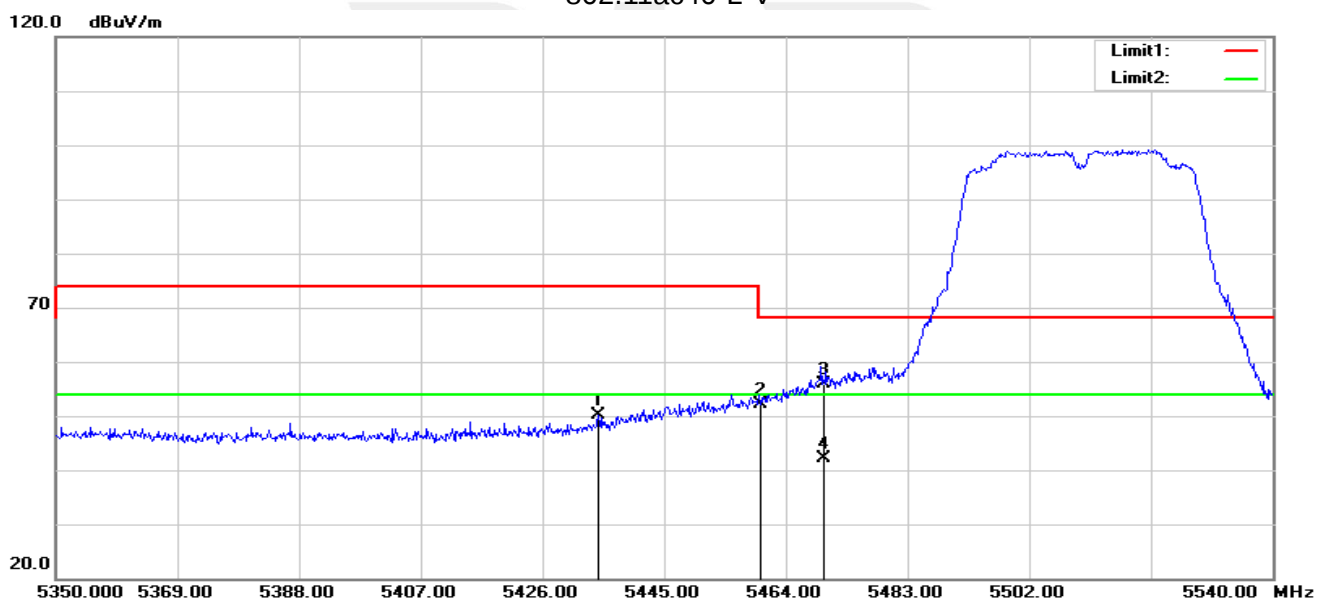


802.11ac40-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5416.120	51.13	-5.22	45.91	74.00	-28.09	peak
2	5460.000	51.60	-5.11	46.49	68.20	-21.71	peak
3	5470.000	55.79	-5.09	50.70	68.20	-17.50	peak

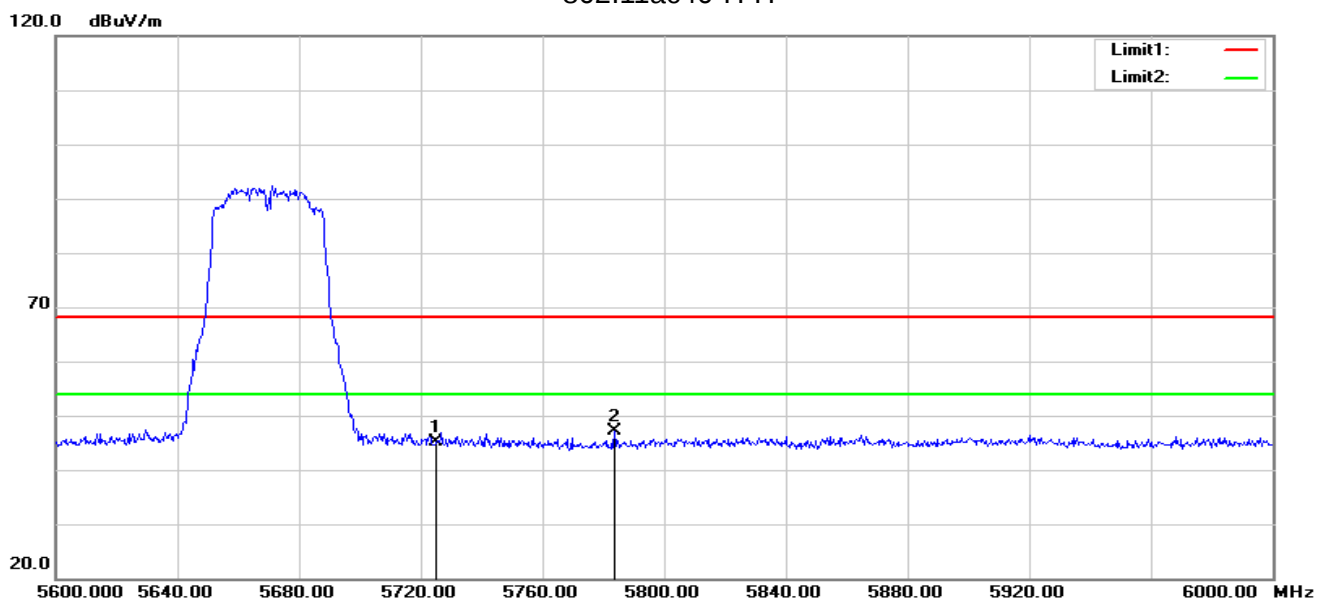
802.11ac40-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5434.740	55.18	-5.17	50.01	74.00	-23.99	peak
2	5460.000	57.31	-5.11	52.20	68.20	-16.00	peak
3	5470.000	60.93	-5.09	55.84	68.20	-12.36	peak
4	5470.000	47.33	-5.09	42.24	54.00	-11.76	AVG

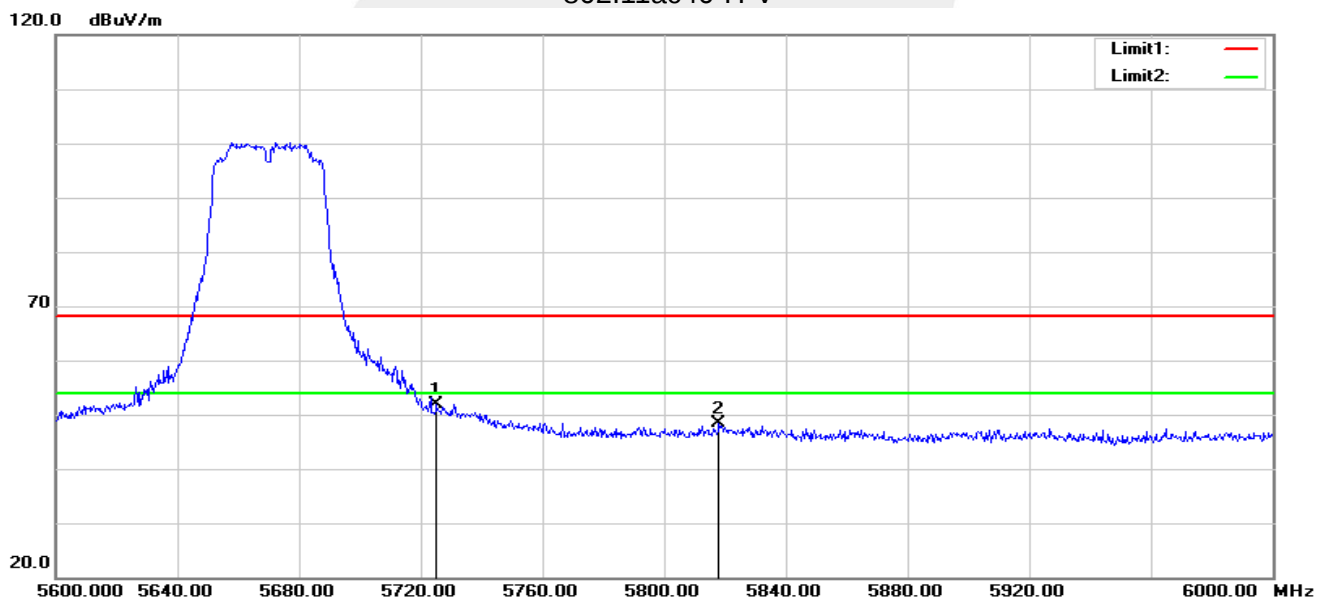


802.11ac40-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	49.71	-4.57	45.14	68.20	-23.06	peak
2	5783.600	51.45	-4.38	47.07	68.20	-21.13	peak

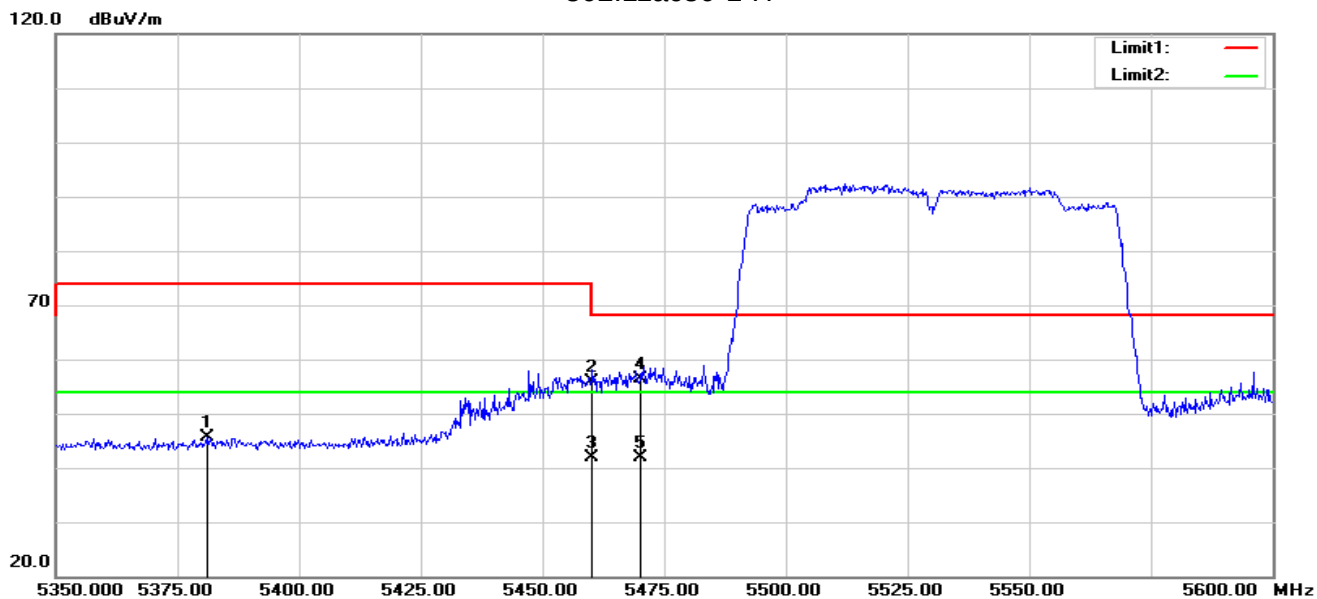
802.11ac40-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	56.39	-4.57	51.82	68.20	-16.38	peak
2	5818.000	52.52	-4.24	48.28	68.20	-19.92	peak

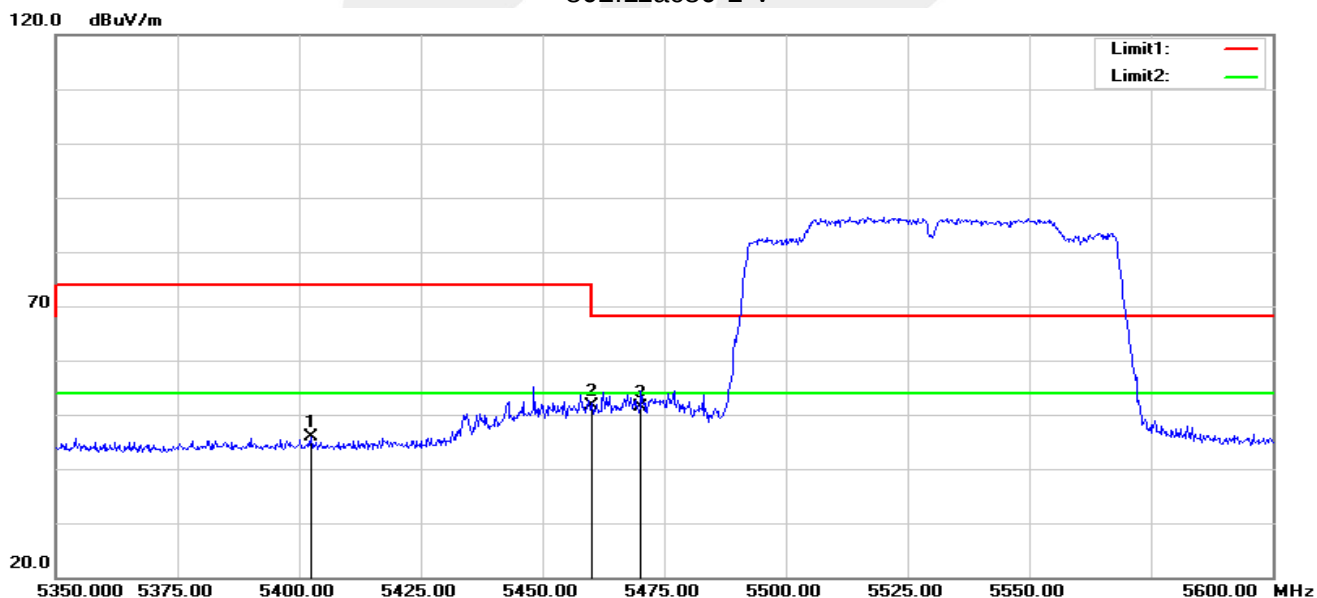


802.11ac80-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5381.000	50.86	-5.25	45.61	74.00	-28.39	peak
2	5460.000	61.04	-5.11	55.93	68.20	-12.27	peak
3	5460.000	46.91	-5.11	41.80	54.00	-12.20	AVG
4	5470.000	61.35	-5.09	56.26	68.20	-11.94	peak
5	5470.000	47.02	-5.09	41.93	54.00	-12.07	AVG

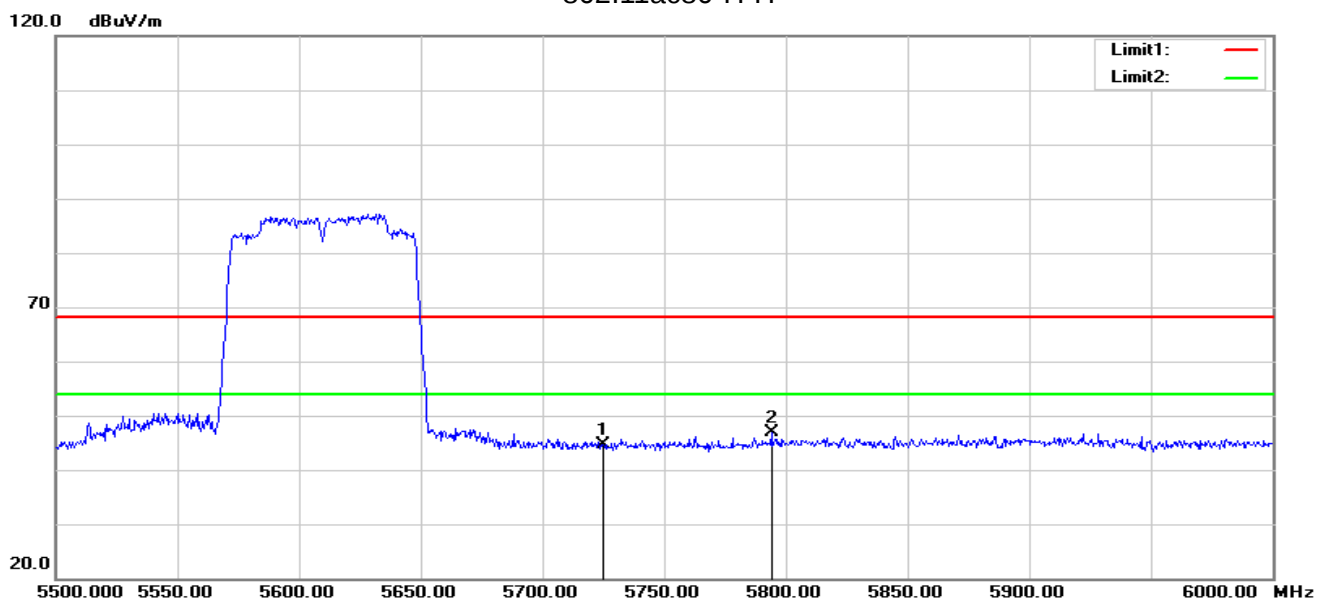
802.11ac80-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5402.500	51.19	-5.25	45.94	74.00	-28.06	peak
2	5460.000	56.84	-5.11	51.73	68.20	-16.47	peak
3	5470.000	56.50	-5.09	51.41	68.20	-16.79	peak

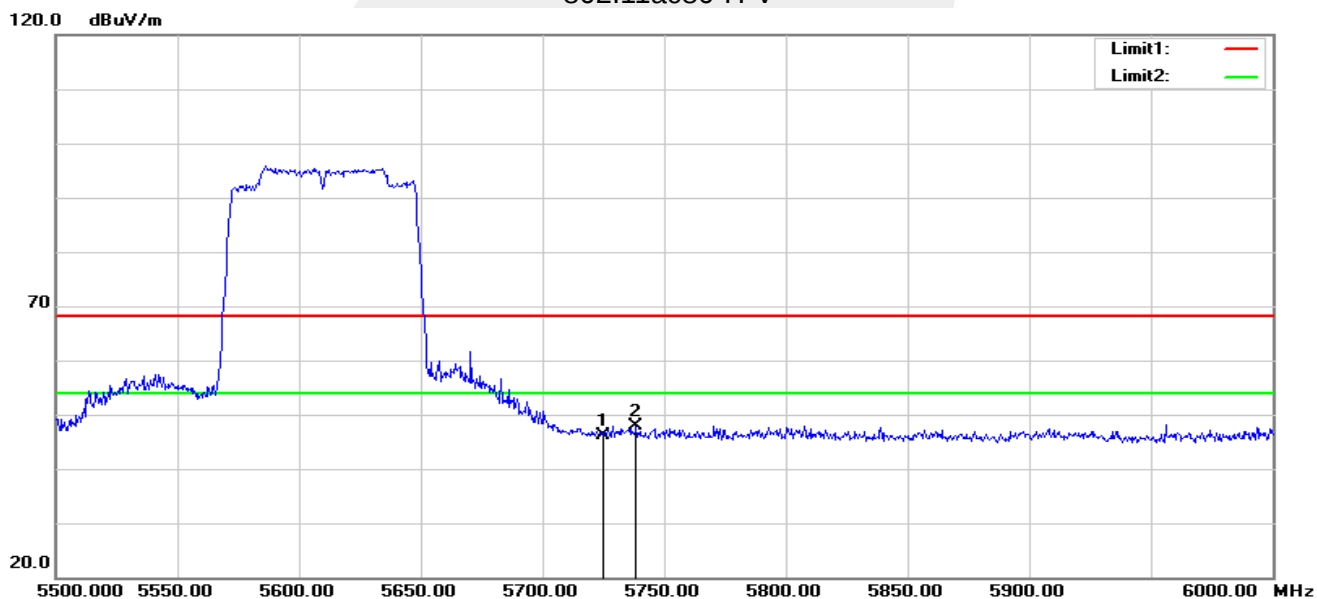


802.11ac80-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5725.000	49.23	-4.57	44.66	68.20	-23.54	peak
2	5794.000	51.21	-4.34	46.87	68.20	-21.33	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	50.65	-4.57	46.08	68.20	-22.12	peak
2	5738.500	52.52	-4.53	47.99	68.20	-20.21	peak

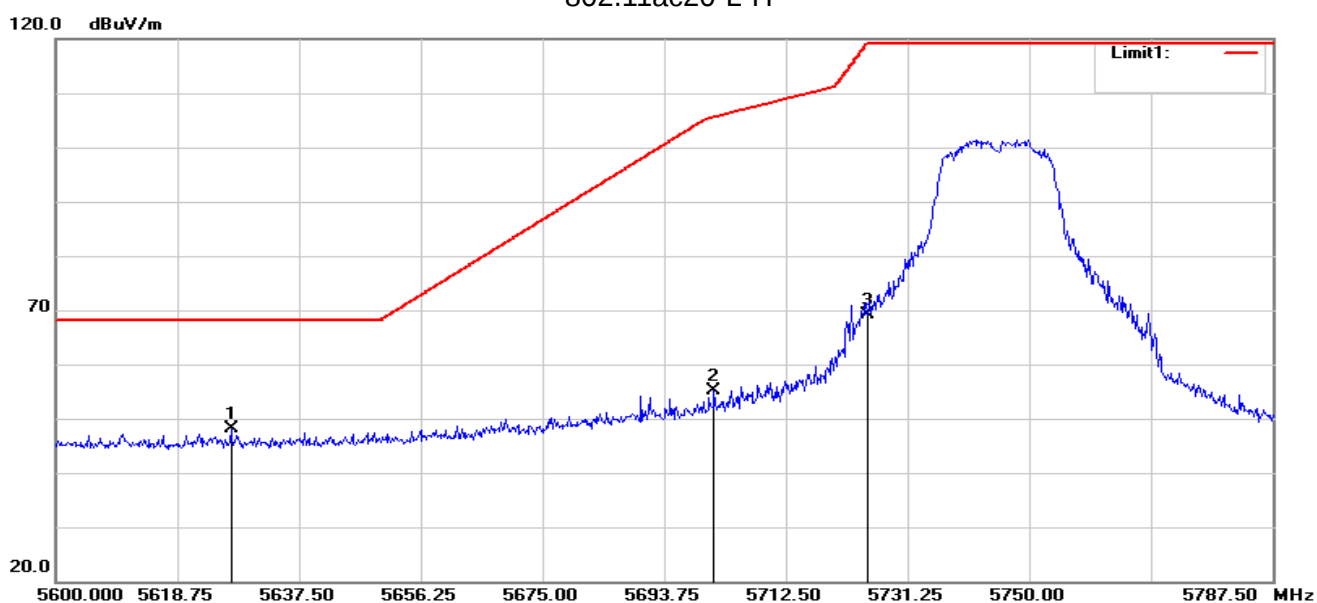
Note:

1. All modes have been tested. Only the worst mode shown in the report.
2. ANT A Power> ANT B Power, Both ANT A and B have been test, Only show the worst data of ANT A .



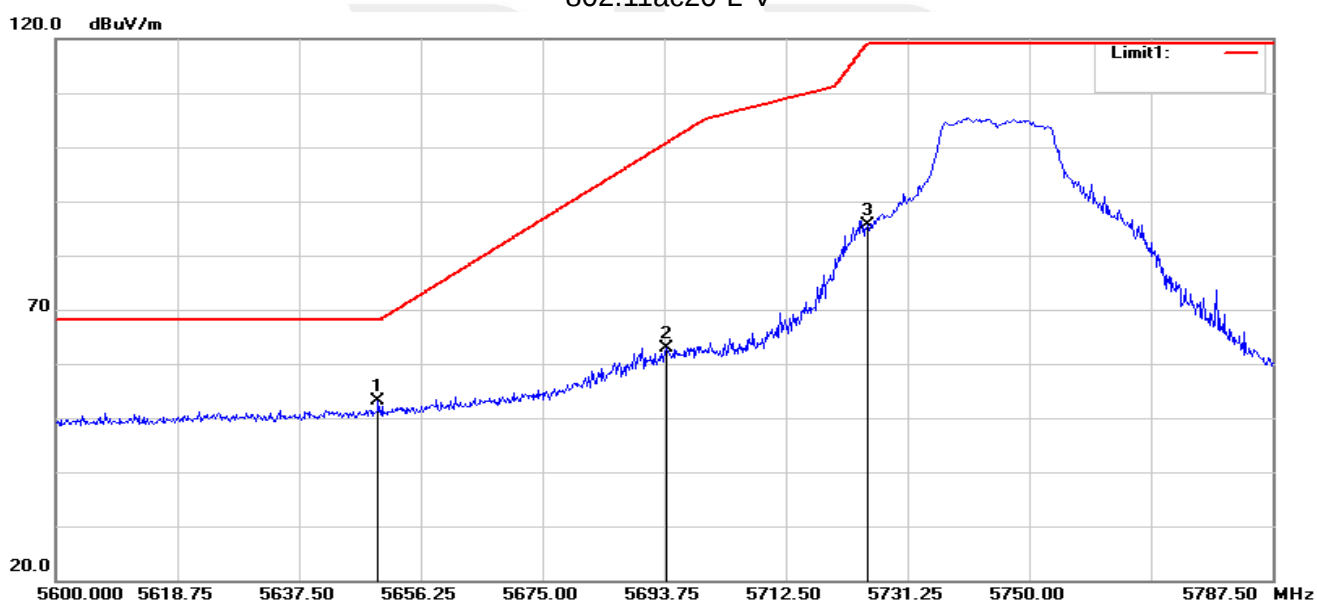
Band IV(5.725-5.85 GHz)

802.11ac20-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5627.000	52.71	-4.69	48.02	68.20	-20.18	peak
2	5701.438	59.85	-4.66	55.19	105.60	-50.41	peak
3	5725.000	73.75	-4.57	69.18	122.20	-53.02	peak

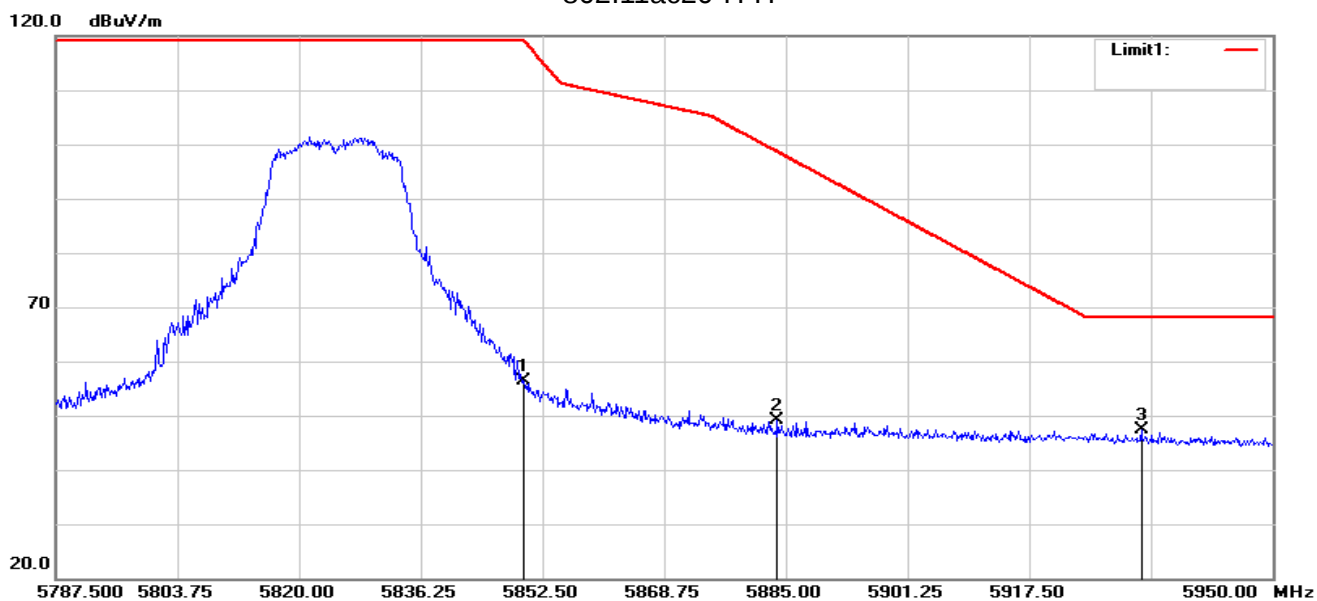
802.11ac20-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5649.688	57.91	-4.68	53.23	68.20	-14.97	peak
2	5694.125	67.49	-4.66	62.83	100.85	-38.02	peak
3	5725.000	90.24	-4.57	85.67	122.20	-36.53	peak

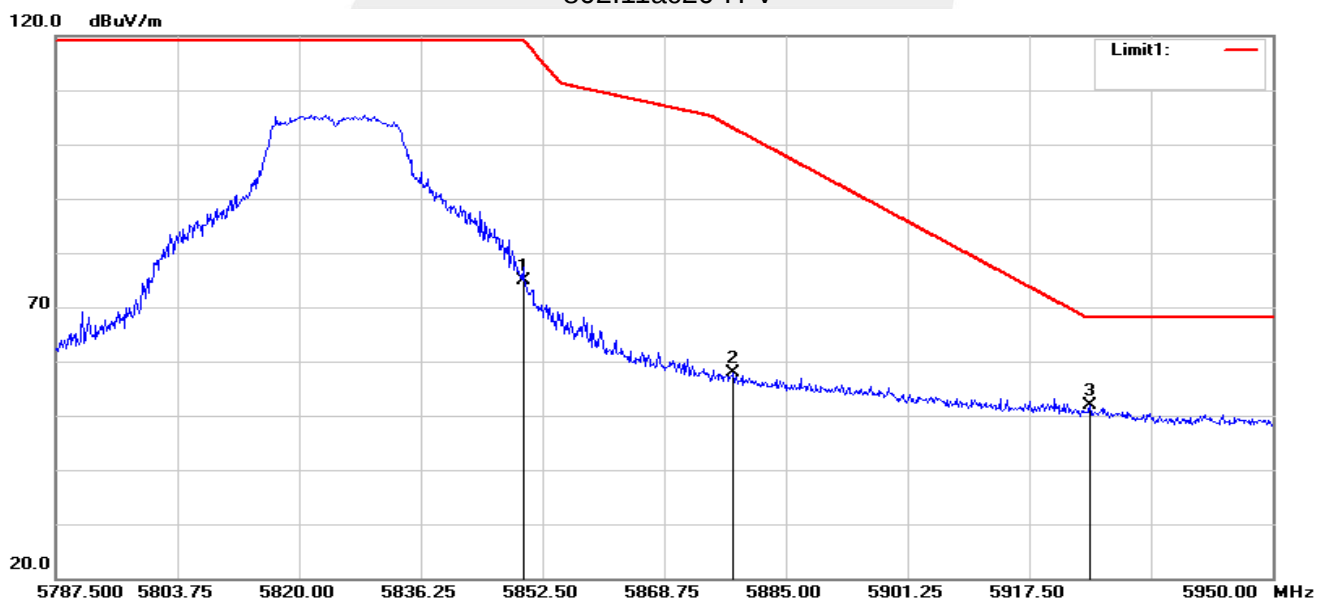


802.11ac20-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	60.60	-4.10	56.50	122.20	-65.70	peak
2	5883.863	52.98	-3.96	49.02	98.64	-49.62	peak
3	5932.450	51.40	-3.94	47.46	68.20	-20.74	peak

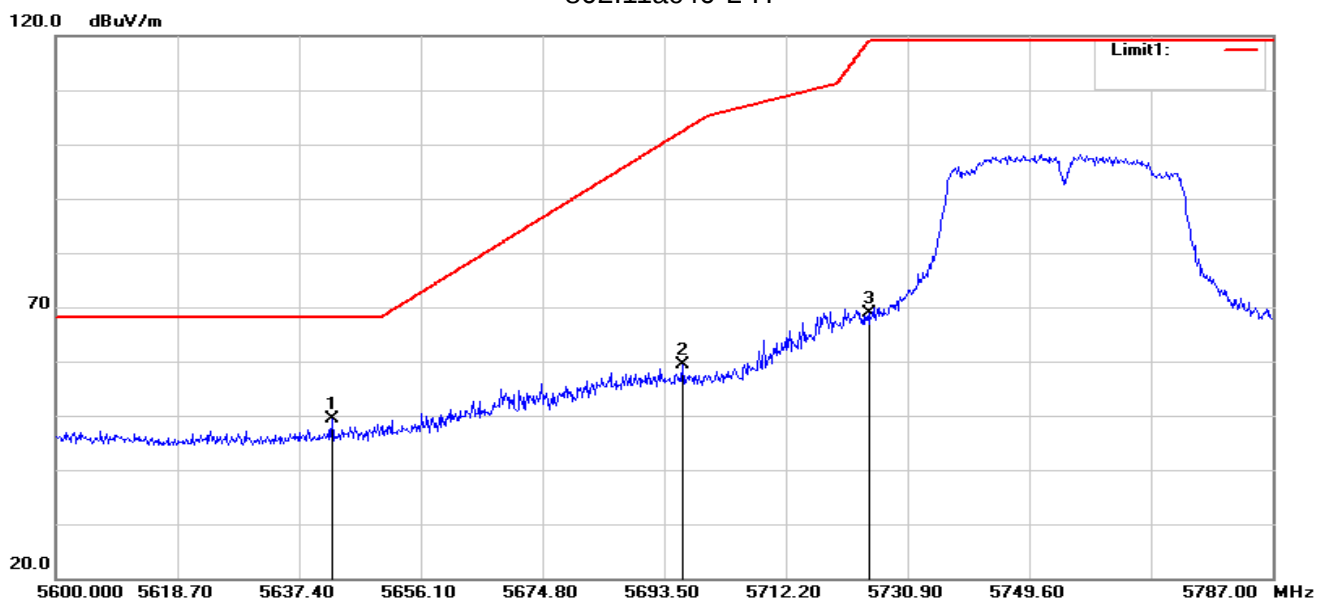
802.11ac20-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	79.02	-4.10	74.92	122.20	-47.28	peak
2	5878.012	61.92	-3.98	57.94	102.97	-45.03	peak
3	5925.625	55.71	-3.92	51.79	68.20	-16.41	peak

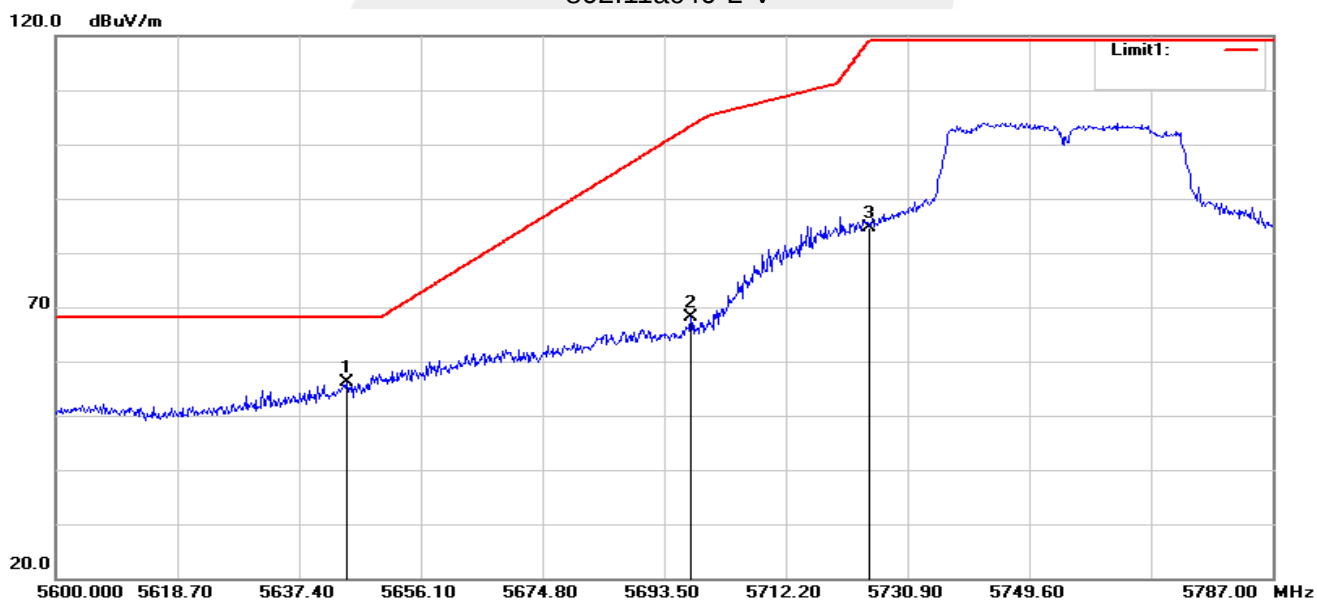


802.11ac40-L-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5642.449	54.11	-4.68	49.43	68.20	-18.77	peak
2	5696.305	63.99	-4.67	59.32	102.47	-43.15	peak
3	5725.000	73.57	-4.57	69.00	122.20	-53.20	peak

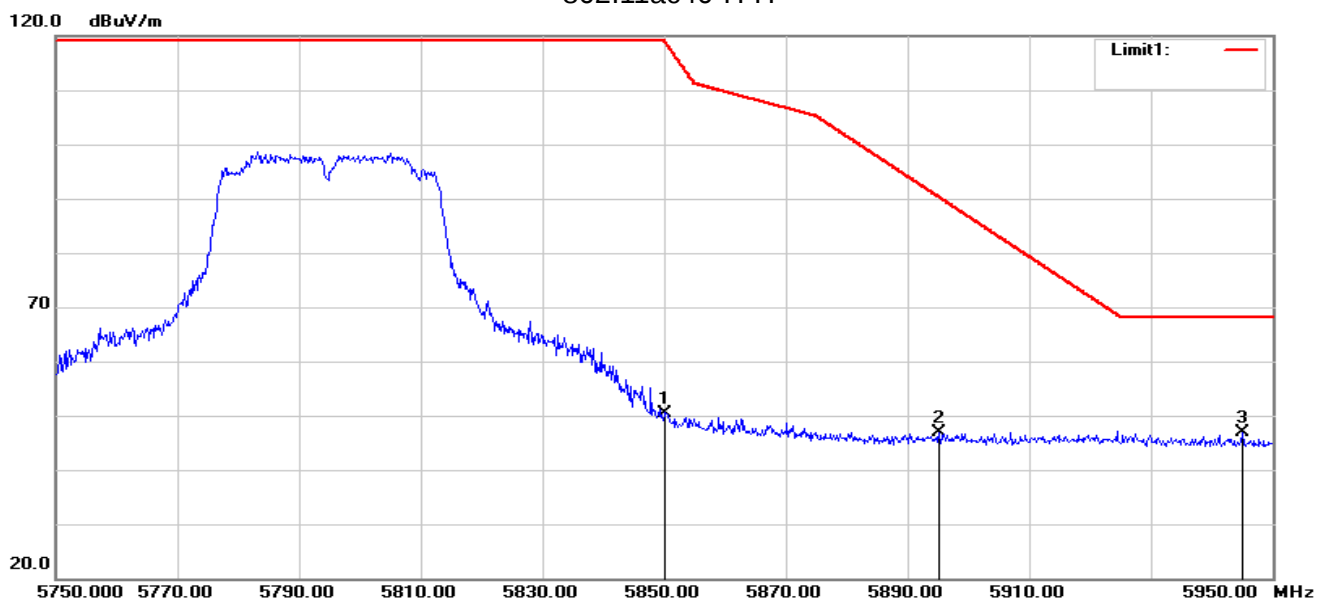
802.11ac40-L-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5644.693	60.78	-4.68	56.10	68.20	-12.10	peak
2	5697.614	72.72	-4.66	68.06	103.43	-35.37	peak
3	5725.000	89.32	-4.57	84.75	122.20	-37.45	peak

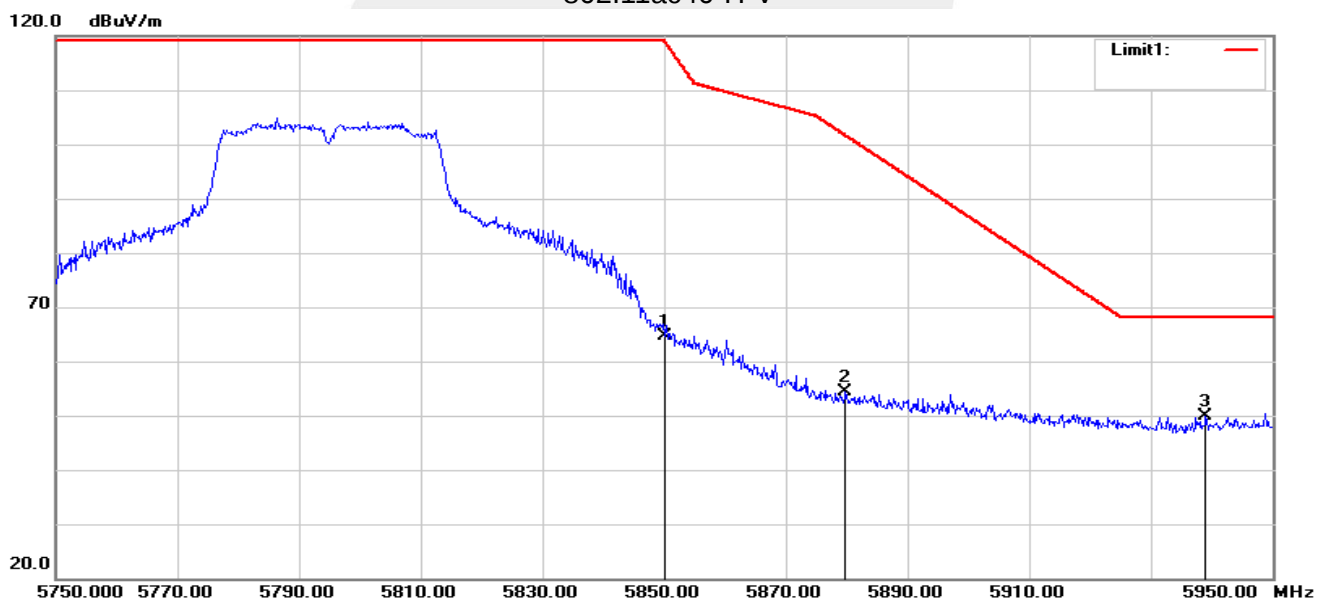


802.11ac40-H-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	54.60	-4.10	50.50	122.20	-71.70	peak
2	5895.200	50.82	-3.90	46.92	90.25	-43.33	peak
3	5945.000	50.77	-3.96	46.81	68.20	-21.39	peak

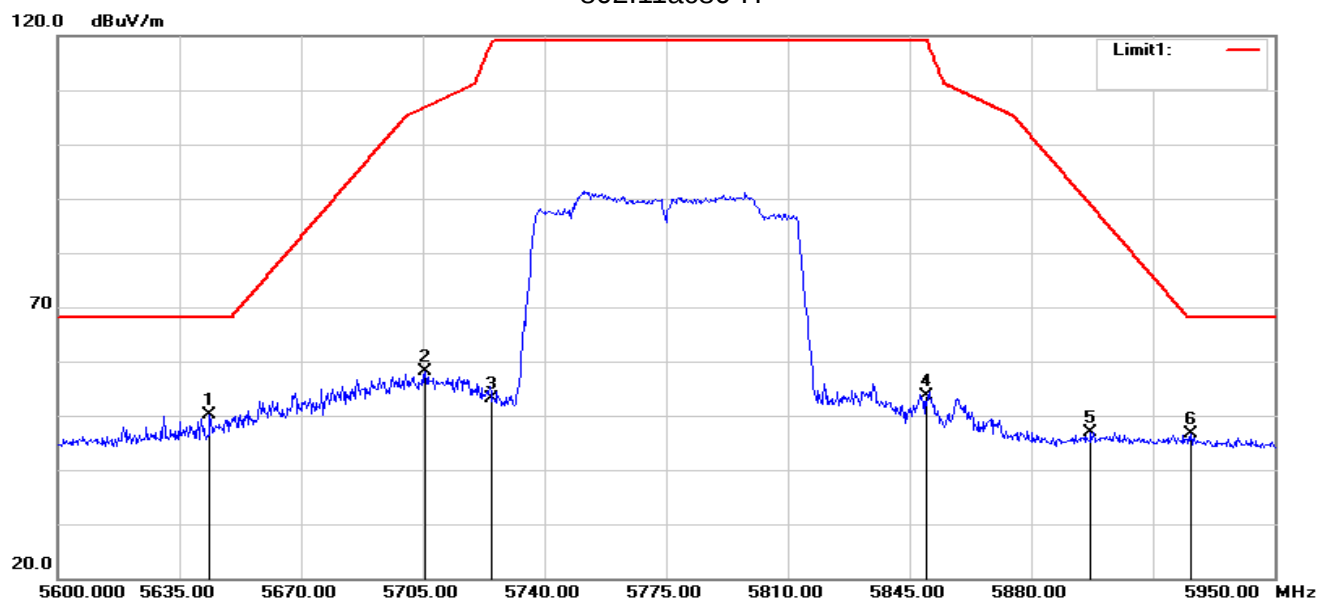
802.11ac40-H-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5850.000	68.77	-4.10	64.67	122.20	-57.53	peak
2	5879.800	58.38	-3.97	54.41	101.65	-47.24	peak
3	5939.000	53.75	-3.95	49.80	68.20	-18.40	peak



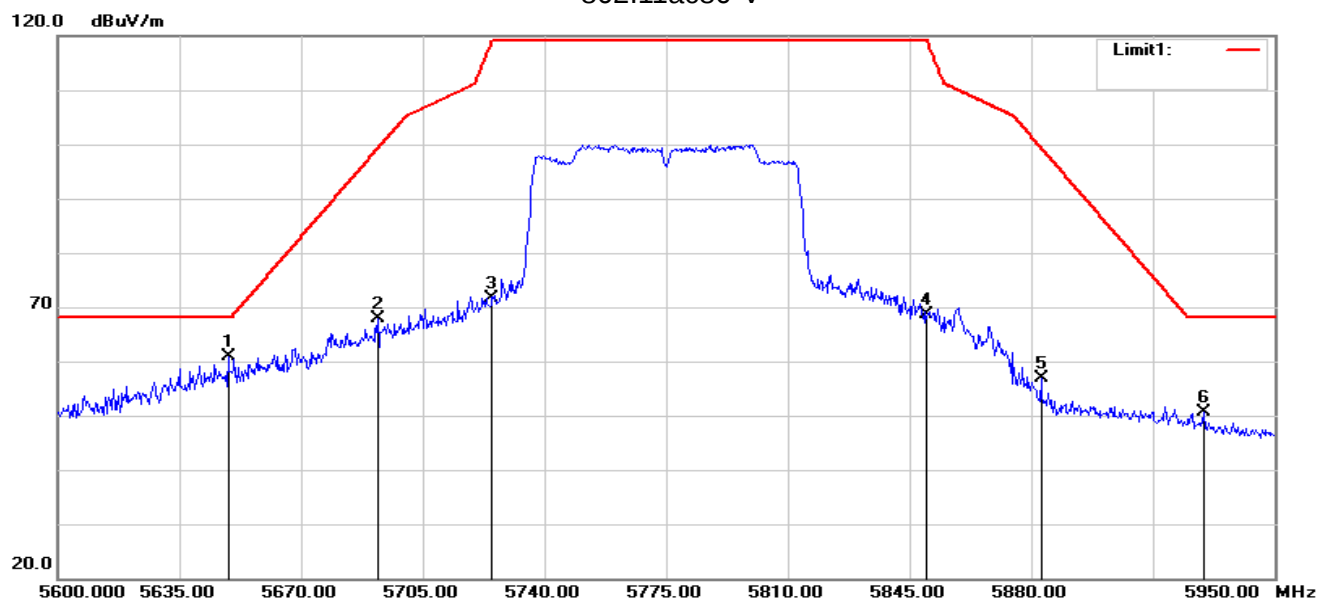
802.11ac80-H



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5643.750	54.83	-4.68	50.15	68.20	-18.05	peak
2	5705.700	62.67	-4.64	58.03	106.80	-48.77	peak
3	5725.000	57.80	-4.57	53.23	122.20	-68.97	peak
4	5850.000	57.75	-4.10	53.65	122.20	-68.55	peak
5	5897.150	50.83	-3.89	46.94	88.81	-41.87	peak
6	5925.850	50.45	-3.93	46.52	68.20	-21.68	peak



802.11ac80-V



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
1	5649.000	65.56	-4.68	60.88	68.20	-7.32	peak
2	5692.050	72.63	-4.66	67.97	99.32	-31.35	peak
3	5725.000	76.14	-4.57	71.57	122.20	-50.63	peak
4	5850.000	72.79	-4.10	68.69	122.20	-53.51	peak
5	5882.800	60.85	-3.96	56.89	99.43	-42.54	peak
6	5929.700	54.63	-3.93	50.70	68.20	-17.50	peak

Note:

1. All modes have been tested. Only the worst mode shown in the report.
2. ANT A Power> ANT B Power, Both ANT A and B have been test, Only show the worst data of ANT A.



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 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 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 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

ANT A					
5150-5250MHz					
Frequency	Direct measurement Power Density (dBm)	Duty cycle factor (dB)	Final Power Density (dBm)	Limit (dBm)	Result
802.11a					
5180	2.039	0.195	2.234	11	PASS
5200	1.735	0.195	1.930	11	PASS
5240	3.487	0.195	3.682	11	PASS
802.11n20					
5180	1.362	0.145	1.507	11	PASS
5200	1.881	0.145	2.026	11	PASS
5240	3.616	0.145	3.761	11	PASS
802.11n40					
5190	-5.718	0.650	-5.068	11	PASS
5230	-4.564	0.650	-3.914	11	PASS
802.11ac20					
5180	1.550	0.154	1.704	11	PASS
5200	1.589	0.154	1.743	11	PASS
5240	2.982	0.154	3.136	11	PASS
802.11ac40					
5190	-6.065	0.671	-5.394	11	PASS
5230	-3.941	0.671	-3.270	11	PASS
802.11ac80					
5210	-11.804	0.654	-11.150	11	PASS



5250-5350MHz					
Frequency	Direct measurement Power Density (dBm)	Duty cycle factor (dB)	Final Power Density (dBm)	Limit (dBm)	Result
802.11a					
5260	-3.750	0.185	-3.565	11	PASS
5300	-3.601	0.185	-3.416	11	PASS
5320	-3.366	0.185	-3.181	11	PASS
802.11n20					
5260	-4.548	0.133	-4.415	11	PASS
5300	-3.688	0.133	-3.555	11	PASS
5320	-3.505	0.133	-3.372	11	PASS
802.11n40					
5270	-5.648	0.636	-5.012	11	PASS
5310	-5.445	0.636	-4.809	11	PASS
802.11ac20					
5260	-4.173	0.165	-4.008	11	PASS
5300	-3.544	0.165	-3.379	11	PASS
5320	-3.513	0.165	-3.348	11	PASS
802.11ac40					
5270	-5.760	0.683	-5.077	11	PASS
5310	-5.232	0.683	-4.549	11	PASS
802.11ac80					
5290	-8.275	0.635	-7.640	11	PASS

5470-5725MHz					
Frequency	Direct measurement Power Density (dBm)	Duty cycle factor (dB)	Final Power Density (dBm)	Limit (dBm)	Result
802.11a					
5500	-2.818	0.175	-2.643	11	PASS
5580	-3.719	0.175	-3.544	11	PASS
5700	-2.998	0.175	-2.823	11	PASS
802.11n20					
5500	-3.430	0.134	-3.296	11	PASS
5580	-4.040	0.134	-3.906	11	PASS
5700	-3.591	0.134	-3.457	11	PASS
802.11n40					
5510	-7.316	0.650	-6.666	11	PASS
5550	-7.373	0.650	-6.723	11	PASS
5670	-7.919	0.650	-7.269	11	PASS
802.11ac20					
5500	-3.043	0.143	-2.900	11	PASS
5580	-3.682	0.143	-3.539	11	PASS
5700	-3.824	0.143	-3.681	11	PASS
802.11ac40					
5510	-6.849	0.666	-6.183	11	PASS
5550	-8.106	0.666	-7.440	11	PASS
5670	-7.101	0.666	-6.435	11	PASS
802.11ac80					
5530	-9.961	0.656	-9.305	11	PASS
5610	-10.108	0.656	-9.452	11	PASS



5725-5850MHz						
Frequency	Use RBW 510KHz direct measurement Direct measurement Power Density (dBm)	Convert to RBW 500KHz direct measurement Power Density (dBm)	Duty cycle factor (dB)	Final Power Density (dBm)	Limit (dBm)	Result
802.11a						
5745	0.462	0.376	0.196	0.572	30	PASS
5785	0.296	0.210	0.196	0.406	30	PASS
5825	-0.266	-0.352	0.196	-0.156	30	PASS
802.11n20						
5745	-0.011	-0.097	0.133	0.036	30	PASS
5785	0.137	0.051	0.133	0.184	30	PASS
5825	-0.635	-0.721	0.133	-0.588	30	PASS
802.11n40						
5755	-4.165	-4.251	0.671	-3.580	30	PASS
5795	-3.604	-3.690	0.671	-3.019	30	PASS
802.11ac20						
5745	0.178	0.092	0.155	0.247	30	PASS
5785	0.537	0.451	0.155	0.606	30	PASS
5825	-0.588	-0.674	0.155	-0.519	30	PASS
802.11ac40						
5755	-3.276	-3.362	0.679	-2.683	30	PASS
5795	-4.091	-4.177	0.679	-3.498	30	PASS
802.11ac80						
5775	-10.810	-10.896	0.621	-10.275	30	PASS



ANT B

5150-5250MHz					
Frequency	Direct measurement Power Density (dBm)	Duty cycle factor (dB)	Final Power Density (dBm)	Limit (dBm)	Result
802.11a					
5180	2.480	0.195	2.675	11	PASS
5200	3.134	0.195	3.329	11	PASS
5240	3.235	0.195	3.430	11	PASS
802.11n20					
5180	2.464	0.145	2.609	11	PASS
5200	2.499	0.145	2.644	11	PASS
5240	3.061	0.145	3.206	11	PASS
802.11n40					
5190	-4.357	0.650	-3.707	11	PASS
5230	-4.330	0.650	-3.680	11	PASS
802.11ac20					
5180	2.598	0.154	2.752	11	PASS
5200	2.291	0.154	2.445	11	PASS
5240	2.682	0.154	2.836	11	PASS
802.11ac40					
5190	-4.771	0.671	-4.100	11	PASS
5230	-4.914	0.671	-4.243	11	PASS
802.11ac80					
5210	-10.843	0.654	-10.189	11	PASS

5250-5350MHz					
Frequency	Direct measurement Power Density (dBm)	Duty cycle factor (dB)	Final Power Density (dBm)	Limit (dBm)	Result
802.11a					
5260	-4.552	0.185	-4.367	11	PASS
5300	-4.212	0.185	-4.027	11	PASS
5320	-4.178	0.185	-3.993	11	PASS
802.11n20					
5260	-4.158	0.133	-4.025	11	PASS
5300	-4.317	0.133	-4.184	11	PASS
5320	-4.577	0.133	-4.444	11	PASS
802.11n40					
5270	-6.013	0.636	-5.377	11	PASS
5310	-6.099	0.636	-5.463	11	PASS
802.11ac20					
5260	-4.011	0.165	-3.846	11	PASS
5300	-4.695	0.165	-4.530	11	PASS
5320	-4.520	0.165	-4.355	11	PASS
802.11ac40					
5270	-6.302	0.683	-5.619	11	PASS
5310	-6.502	0.683	-5.819	11	PASS
802.11ac80					
5290	-8.755	0.635	-8.120	11	PASS



5470-5725MHz					
Frequency	Direct measurement Power Density (dBm)	Duty cycle factor (dB)	Final Power Density (dBm)	Limit (dBm)	Result
802.11a					
5500	-3.307	0.175	-3.132	11	PASS
5580	-2.780	0.175	-2.605	11	PASS
5700	-3.215	0.175	-3.040	11	PASS
802.11n20					
5500	-2.390	0.134	-2.256	11	PASS
5580	-3.360	0.134	-3.226	11	PASS
5700	-3.069	0.134	-2.935	11	PASS
802.11n40					
5510	-6.511	0.650	-5.861	11	PASS
5550	-7.150	0.650	-6.500	11	PASS
5670	-6.330	0.650	-5.680	11	PASS
802.11ac20					
5500	-3.269	0.143	-3.126	11	PASS
5580	-2.802	0.143	-2.659	11	PASS
5700	-3.394	0.143	-3.251	11	PASS
802.11ac40					
5510	-6.739	0.666	-6.073	11	PASS
5550	-6.163	0.666	-5.497	11	PASS
5670	-6.963	0.666	-6.297	11	PASS
802.11ac80					
5530	-10.769	0.656	-10.113	11	PASS
5610	-10.483	0.656	-9.827	11	PASS



5725-5850MHz						
Frequency	Use RBW 510KHz direct measurement Direct measurement Power Density (dBm)	Convert to RBW 500KHz direct measurement Power Density (dBm)	Duty cycle factor (dB)	Final Power Density (dBm)	Limit (dBm)	Result
802.11a						
5745	0.012	-0.074	0.196	0.122	30	PASS
5785	1.376	1.290	0.196	1.486	30	PASS
5825	0.460	0.374	0.196	0.570	30	PASS
802.11n20						
5745	0.159	0.073	0.133	0.206	30	PASS
5785	0.630	0.544	0.133	0.677	30	PASS
5825	0.256	0.170	0.133	0.303	30	PASS
802.11n40						
5755	-2.788	-2.874	0.671	-2.203	30	PASS
5795	-2.760	-2.846	0.671	-2.175	30	PASS
802.11ac20						
5745	0.471	0.385	0.155	0.540	30	PASS
5785	1.004	0.918	0.155	1.073	30	PASS
5825	-0.057	-0.143	0.155	0.012	30	PASS
802.11ac40						
5755	-2.612	-2.698	0.679	-2.019	30	PASS
5795	-2.854	-2.940	0.679	-2.261	30	PASS
802.11ac80						
5775	-10.810	-10.896	0.621	-10.275	30	PASS

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

2. Test plots see Attachment A.

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	24.96	Pass
5200	25.63	Pass
5240	25.90	Pass
802.11n(HT20)		
5180	24.93	Pass
5200	24.17	Pass
5240	25.42	Pass
802.11n(HT40)		
5190	46.81	Pass
5230	50.89	Pass
802.11ac(VHT20)		
5180	24.25	Pass
5200	24.76	Pass
5240	25.83	Pass
802.11ac(VHT40)		
5190	43.79	Pass
5230	50.35	Pass
802.11ac(VHT80)		
5210	81.09	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5260	23.56	Pass
5300	25.47	Pass
5320	25.27	Pass
802.11n(HT20)		
5260	24.04	Pass
5300	25.61	Pass
5320	25.98	Pass
802.11n(HT40)		
5270	42.50	Pass
5310	45.67	Pass
802.11ac(VHT20)		
5260	25.36	Pass
5300	25.66	Pass
5320	25.99	Pass
802.11ac(VHT40)		
5270	43.91	Pass
5310	47.59	Pass
802.11ac(VHT80)		
5290	80.59	Pass



Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5500	23.50	Pass
5580	22.97	Pass
5700	25.62	Pass
802.11n(HT20)		
5500	23.75	Pass
5580	22.52	Pass
5700	25.93	Pass
802.11n(HT40)		
5510	42.16	Pass
5550	42.03	Pass
5670	45.10	Pass
802.11ac(VHT20)		
5500	22.76	Pass
5580	22.78	Pass
5700	25.50	Pass
802.11ac(VHT40)		
5510	43.55	Pass
5550	42.71	Pass
5670	45.57	Pass
802.11ac(VHT80)		
5530	81.07	Pass
5610	81.90	Pass

Frequency (MHz)	26dB Bandwidth (MHz)	Pass/Fail
802.11a		
5745	25.74	Pass
5785	24.24	Pass
5825	23.94	Pass
802.11n(HT20)		
5745	25.81	Pass
5785	25.18	Pass
5825	23.90	Pass
802.11n(HT40)		
5755	45.01	Pass
5795	44.86	Pass
802.11ac(VHT20)		
5745	25.91	Pass
5785	25.31	Pass
5825	24.34	Pass
802.11ac(VHT40)		
5755	49.01	Pass
5795	45.71	Pass
802.11ac(VHT80)		
5775	80.84	Pass

Note: 1. Test plot see Attachment B

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

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	16.52	Pass
5200	16.58	Pass
5240	16.61	Pass
802.11n(HT20)		
5180	17.69	Pass
5200	17.69	Pass
5240	17.76	Pass
802.11n(HT40)		
5190	36.16	Pass
5230	36.25	Pass
802.11ac(VHT20)		
5180	17.68	Pass
5200	17.74	Pass
5240	17.73	Pass
802.11ac(VHT40)		
5190	36.07	Pass
5230	36.25	Pass
802.11ac(VHT80)		
5210	75.39	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5260	16.48	Pass
5300	16.67	Pass
5320	16.60	Pass
802.11n(HT20)		
5260	17.66	Pass
5300	17.73	Pass
5320	17.78	Pass
802.11n(HT40)		
5270	36.08	Pass
5310	36.16	Pass
802.11ac(VHT20)		
5260	17.69	Pass
5300	17.75	Pass
5320	17.81	Pass
802.11ac(VHT40)		
5270	36.10	Pass
5310	36.15	Pass
802.11ac(VHT80)		
5290	75.35	Pass



Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5500	16.48	Pass
5580	16.47	Pass
5700	16.62	Pass
802.11n(HT20)		
5500	17.64	Pass
5580	17.62	Pass
5700	17.73	Pass
802.11n(HT40)		
5510	36.13	Pass
5550	36.07	Pass
5670	36.11	Pass
802.11ac(VHT20)		
5500	17.62	Pass
5580	17.61	Pass
5700	17.77	Pass
802.11ac(VHT40)		
5510	36.05	Pass
5550	36.06	Pass
5670	36.14	Pass
802.11ac(VHT80)		
5530	75.34	Pass
5610	75.44	Pass

Frequency (MHz)	99% Bandwidth (MHz)	Pass/Fail
802.11a		
5745	16.63	Pass
5785	16.55	Pass
5825	16.53	Pass
802.11n(HT20)		
5745	17.75	Pass
5785	17.70	Pass
5825	17.63	Pass
802.11n(HT40)		
5755	36.09	Pass
5795	36.09	Pass
802.11ac(VHT20)		
5745	17.78	Pass
5785	17.69	Pass
5825	17.66	Pass
802.11ac(VHT40)		
5755	36.18	Pass
5795	36.12	Pass
802.11ac(VHT80)		
5775	75.36	Pass

Note: 1. Test plot see Attachment B

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

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	15.89	Pass
5785	15.12	Pass
5825	15.29	Pass
802.11n(HT20)		
5745	15.12	Pass
5785	15.02	Pass
5825	15.02	Pass
802.11n(HT40)		
5755	35.09	Pass
5795	35.08	Pass
802.11ac(VHT20)		
5745	15.09	Pass
5785	15.10	Pass
5825	14.96	Pass
802.11ac(VHT40)		
5755	35.11	Pass
5795	35.06	Pass
802.11ac(VHT80)		
5775	75.13	Pass

Note: 1. Test plot see Attachment C

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

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	

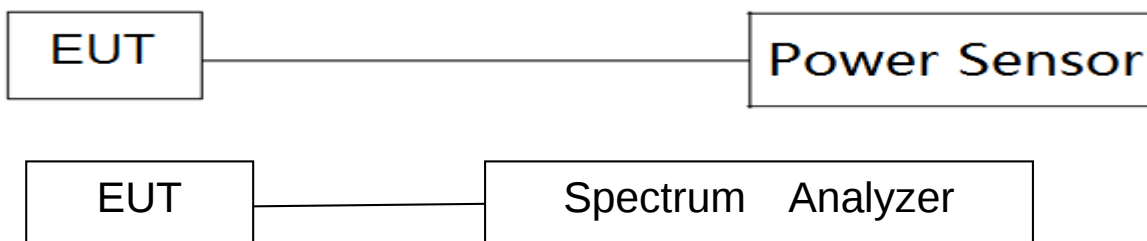
6.2 TEST PROCEDURE

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**

ANT A					
Band I (5.15-5.25GHz)					
Test Channel	Frequency (MHz)	Direct measurement AV Power (dBm)	Duty cycle factor (dB)	Final AV Power (dBm)	LIMIT (dBm)
802.11a					
36	5180	14.43	0.195	14.62	23.98
40	5200	14.67	0.195	14.86	23.98
48	5240	14.76	0.195	14.95	23.98
802.11n(HT20)					
36	5180	14.59	0.145	14.73	23.98
40	5200	14.74	0.145	14.88	23.98
48	5240	14.27	0.145	14.41	23.98
802.11n(HT40)					
38	5190	9.99	0.650	10.64	23.98
46	5230	10.17	0.650	10.82	23.98
802.11ac(VHT20)					
36	5180	14.64	0.154	14.79	23.98
40	5200	14.66	0.154	14.81	23.98
48	5240	14.68	0.154	14.83	23.98
802.11ac(VHT40)					
38	5190	9.92	0.671	10.59	23.98
46	5230	10.10	0.671	10.77	23.98
802.11ac(VHT80)					
42	5210	12.15	0.654	12.80	23.98



Band II(5.25-5.35GHz)					
Test Channel	Frequency (MHz)	Direct measurement AV Power (dBm)	Duty cycle factor (dB)	Final AV Power (dBm)	LIMIT (dBm)
802.11a					
52	5260	7.12	0.185	7.31	23.98
60	5300	7.83	0.185	8.02	23.98
64	5320	7.90	0.185	8.09	23.98
802.11n(HT20)					
52	5260	7.09	0.133	7.22	23.98
60	5300	7.48	0.133	7.61	23.98
64	5320	8.09	0.133	8.22	23.98
802.11n(HT40)					
54	5270	8.90	0.636	9.54	23.98
62	5310	8.92	0.636	9.56	23.98
802.11ac(VHT20)					
52	5260	6.09	0.165	6.26	23.98
60	5300	7.73	0.165	7.90	23.98
64	5320	7.97	0.165	8.14	23.98
802.11ac(VHT40)					
54	5270	8.68	0.683	9.36	23.98
62	5310	9.02	0.683	9.70	23.98
802.11ac(VHT80)					
58	5290	15.26	0.635	15.90	23.98

Band III(5.47-5.725GHz)					
Test Channel	Frequency (MHz)	Direct measurement AV Power (dBm)	Duty cycle factor (dB)	Final AV Power (dBm)	LIMIT (dBm)
802.11a					
100	5500	8.19	0.175	8.36	23.98
116	5580	8.78	0.175	8.95	23.98
140	5700	7.95	0.175	8.12	23.98
802.11n(HT20)					
100	5500	8.48	0.134	8.61	23.98
116	5580	8.58	0.134	8.71	23.98
140	5700	7.80	0.134	7.93	23.98
802.11n(HT40)					
102	5510	7.29	0.650	7.94	23.98
110	5550	8.54	0.650	9.19	23.98
134	5670	7.77	0.650	8.42	23.98
802.11ac(VHT20)					
100	5500	8.45	0.143	8.59	23.98
116	5580	8.63	0.143	8.77	23.98
140	5700	7.83	0.143	7.97	23.98
802.11ac(VHT40)					
102	5510	7.67	0.666	8.34	23.98
110	5550	8.10	0.666	8.77	23.98
134	5670	7.82	0.666	8.49	23.98
802.11ac(VHT80)					
106	5530	12.72	0.656	13.38	23.98
122	5610	12.49	0.656	13.15	23.98



Band IV (5.725-5.85GHz)					
Test Channel	Frequency (MHz)	Direct measurement AV Power (dBm)	Duty cycle factor (dB)	Final AV Power (dBm)	LIMIT (dBm)
802.11a					
149	5745	14.85	0.196	15.05	30.00
157	5785	14.72	0.196	14.92	30.00
165	5825	14.46	0.196	14.66	30.00
802.11n(HT20)					
149	5745	14.51	0.133	14.64	30.00
157	5785	14.53	0.133	14.66	30.00
165	5825	14.02	0.133	14.15	30.00
802.11n(HT40)					
151	5755	14.50	0.671	15.17	30.00
159	5795	14.16	0.671	14.83	30.00
802.11ac(VHT20)					
149	5745	14.75	0.155	14.90	30.00
157	5785	14.60	0.155	14.75	30.00
165	5825	14.43	0.155	14.58	30.00
802.11ac(VHT40)					
151	5755	14.53	0.679	15.21	30.00
159	5795	14.22	0.679	14.90	30.00
802.11ac(VHT80)					
155	5775	16.00	0.621	16.62	30.00



ANT B

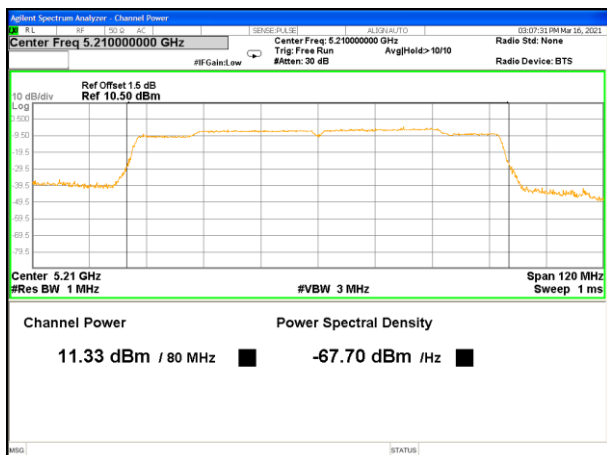
Band I (5.15-5.25GHz)					
Test Channel	Frequency (MHz)	Direct measurement AV Power (dBm)	Duty cycle factor (dB)	Final AV Power (dBm)	LIMIT (dBm)
802.11a					
36	5180	13.23	0.195	13.42	23.98
40	5200	14.06	0.195	14.25	23.98
48	5240	14.06	0.195	14.25	23.98
802.11n(HT20)					
36	5180	13.01	0.145	13.15	23.98
40	5200	13.53	0.145	13.67	23.98
48	5240	14.18	0.145	14.32	23.98
802.11n(HT40)					
38	5190	8.40	0.650	9.05	23.98
46	5230	9.52	0.650	10.17	23.98
802.11ac(VHT20)					
36	5180	13.00	0.154	13.15	23.98
40	5200	13.34	0.154	13.49	23.98
48	5240	13.91	0.154	14.06	23.98
802.11ac(VHT40)					
38	5190	9.18	0.671	9.85	23.98
46	5230	9.41	0.671	10.08	23.98
802.11ac(VHT80)					
42	5210	11.33	0.654	11.98	23.98

Band II(5.25-5.35GHz)					
Test Channel	Frequency (MHz)	Direct measurement AV Power (dBm)	Duty cycle factor (dB)	Final AV Power (dBm)	LIMIT (dBm)
802.11a					
52	5260	7.40	0.185	7.59	23.98
60	5300	7.20	0.185	7.39	23.98
64	5320	7.03	0.185	7.22	23.98
802.11n(HT20)					
52	5260	7.38	0.133	7.51	23.98
60	5300	7.11	0.133	7.24	23.98
64	5320	6.97	0.133	7.10	23.98
802.11n(HT40)					
54	5270	8.61	0.636	9.25	23.98
62	5310	8.36	0.636	9.00	23.98
802.11ac(VHT20)					
52	5260	7.38	0.165	7.55	23.98
60	5300	7.60	0.165	7.77	23.98
64	5320	6.92	0.165	7.09	23.98
802.11ac(VHT40)					
54	5270	8.66	0.683	9.34	23.98
62	5310	8.36	0.683	9.04	23.98
802.11ac(VHT80)					
58	5290	14.32	0.635	14.96	23.98

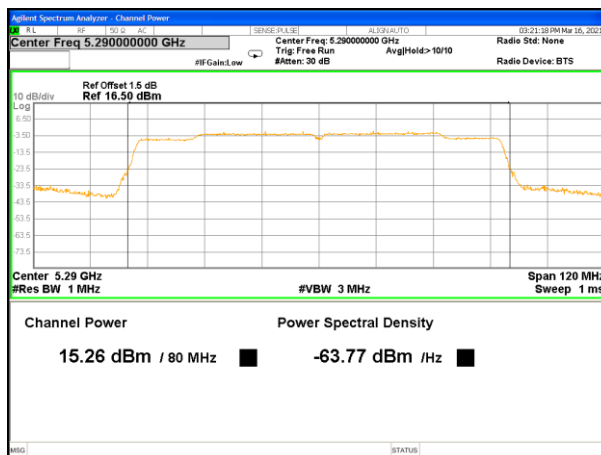


Band III(5.47-5.725GHz)					
Test Channel	Frequency (MHz)	Direct measurement AV Power (dBm)	Duty cycle factor (dB)	Final AV Power (dBm)	LIMIT (dBm)
802.11a					
100	5500	7.65	0.175	7.82	23.98
116	5580	6.77	0.175	6.94	23.98
140	5700	7.54	0.175	7.71	23.98
802.11n(HT20)					
100	5500	7.55	0.134	7.68	23.98
116	5580	6.92	0.134	7.05	23.98
140	5700	7.42	0.134	7.55	23.98
802.11n(HT40)					
102	5510	7.38	0.650	8.03	23.98
110	5550	6.99	0.650	7.64	23.98
134	5670	6.85	0.650	7.50	23.98
802.11ac(VHT20)					
100	5500	7.51	0.143	7.65	23.98
116	5580	6.85	0.143	6.99	23.98
140	5700	7.30	0.143	7.44	23.98
802.11ac(VHT40)					
102	5510	6.96	0.666	7.63	23.98
110	5550	7.06	0.666	7.73	23.98
134	5670	7.30	0.666	7.97	23.98
802.11ac(VHT80)					
106	5530	12.14	0.656	12.80	23.98
122	5610	11.94	0.656	12.60	23.98

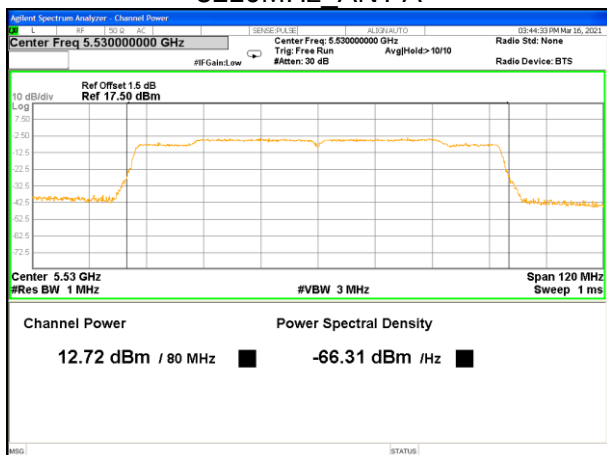
Band IV (5.725-5.85GHz)					
Test Channel	Frequency (MHz)	Direct measurement AV Power (dBm)	Duty cycle factor (dB)	Final AV Power (dBm)	LIMIT (dBm)
802.11a					
149	5745	13.83	0.196	14.03	30.00
157	5785	13.00	0.196	13.20	30.00
165	5825	13.29	0.196	13.49	30.00
802.11n(HT20)					
149	5745	13.98	0.133	14.11	30.00
157	5785	13.02	0.133	13.15	30.00
165	5825	12.92	0.133	13.05	30.00
802.11n(HT40)					
151	5755	12.25	0.671	12.92	30.00
159	5795	12.80	0.671	13.47	30.00
802.11ac(VHT20)					
149	5745	13.95	0.155	14.10	30.00
157	5785	12.23	0.155	12.38	30.00
165	5825	13.13	0.155	13.28	30.00
802.11ac(VHT40)					
151	5755	13.29	0.679	13.97	30.00
159	5795	12.94	0.679	13.62	30.00
802.11ac(VHT80)					
155	5775	15.51	0.621	16.13	30.00



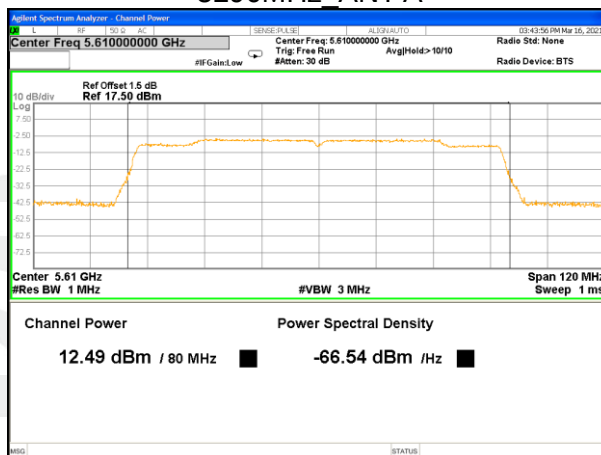
5210MHz ANT A



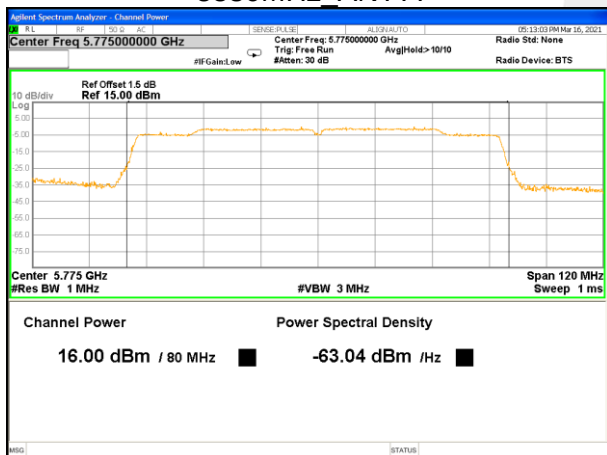
5290MHz ANT A



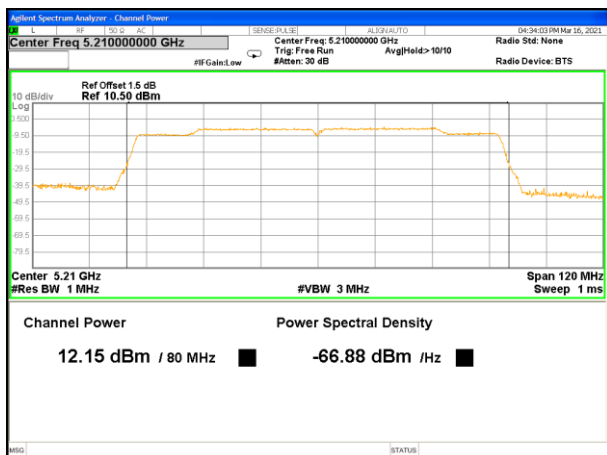
5530MHz ANT A



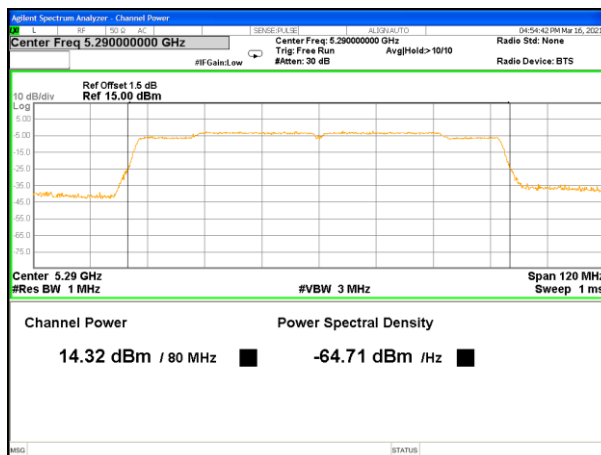
5610MHz ANT A



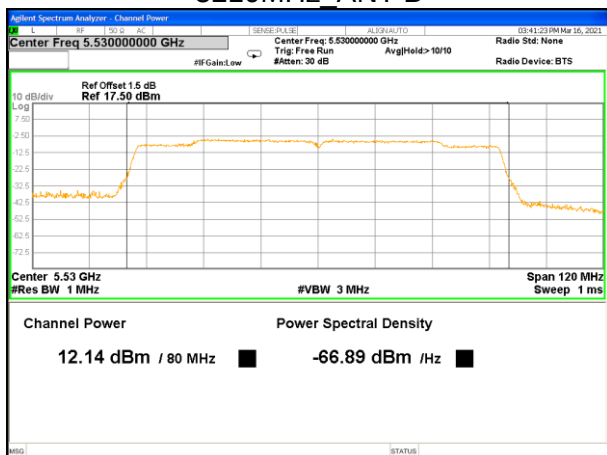
5775MHz ANT A



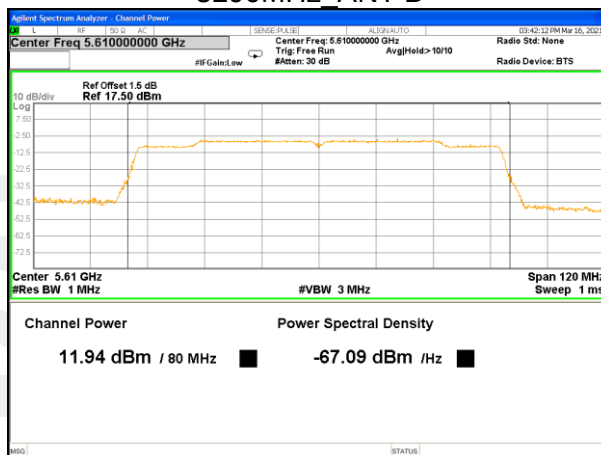
5210MHz ANT B



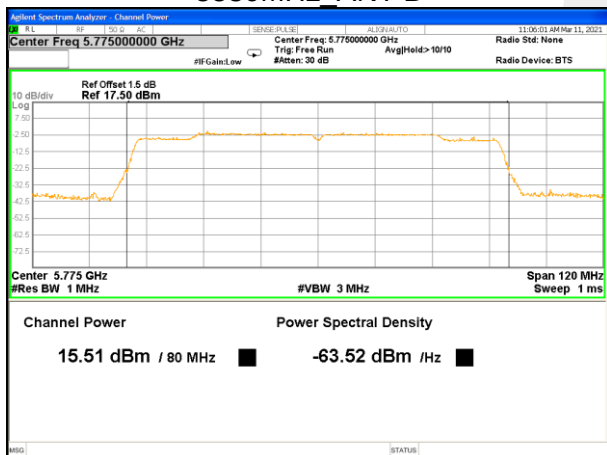
5290MHz ANT B



5530MHz ANT B



5610MHz ANT B



5775MHz ANT B

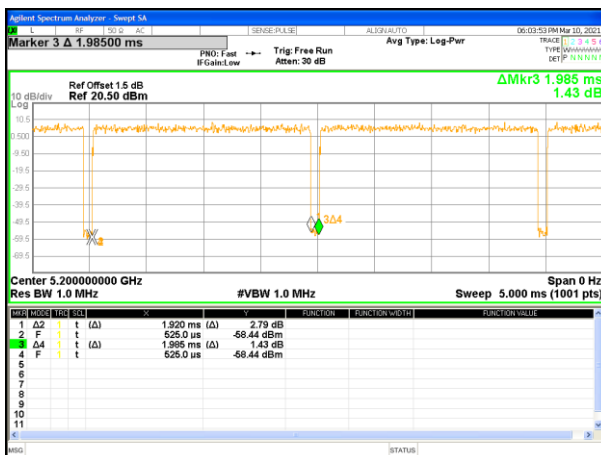


Duty cycle

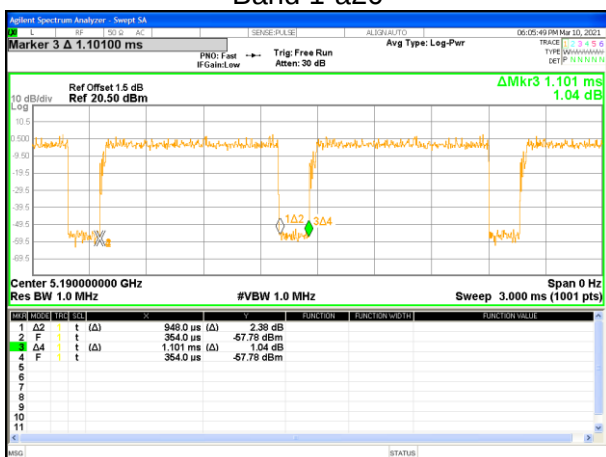
Band1				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	2.070	2.165	95.61%	0.195
n20	1.920	1.985	96.73%	0.145
n40	0.948	1.101	86.10%	0.650
ac20	1.935	2.005	96.51%	0.154
ac40	0.951	1.110	85.68%	0.671
ac80	0.468	0.544	86.03%	0.654
Band2				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	2.065	2.155	95.82%	0.185
n20	1.930	1.990	96.98%	0.133
n40	0.951	1.101	86.38%	0.636
ac20	1.935	2.010	96.27%	0.165
ac40	0.951	1.113	85.44%	0.683
ac80	0.470	0.544	86.40%	0.635
Band3				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	2.070	2.155	96.06%	0.175
n20	1.920	1.980	96.97%	0.134
n40	0.948	1.101	86.10%	0.650
ac20	1.935	2.000	96.75%	0.143
ac40	0.960	1.119	85.79%	0.666
ac80	0.466	0.542	85.98%	0.656
Band4				
Mode	Ton(ms)	Tp(ms)	Duty cycle(%)	Duty factor(dB)
a	2.060	2.155	95.59%	0.196
n20	1.925	1.985	96.98%	0.133
n40	0.951	1.110	85.68%	0.671
ac20	1.930	2.000	96.50%	0.155
ac40	0.957	1.119	85.52%	0.679
ac80	0.468	0.540	86.67%	0.621



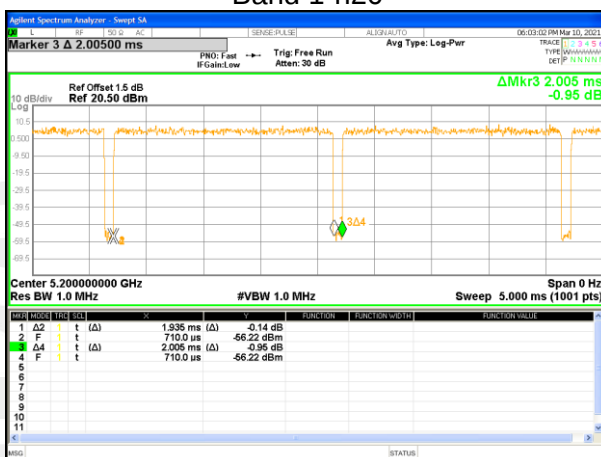
Band 1-a20



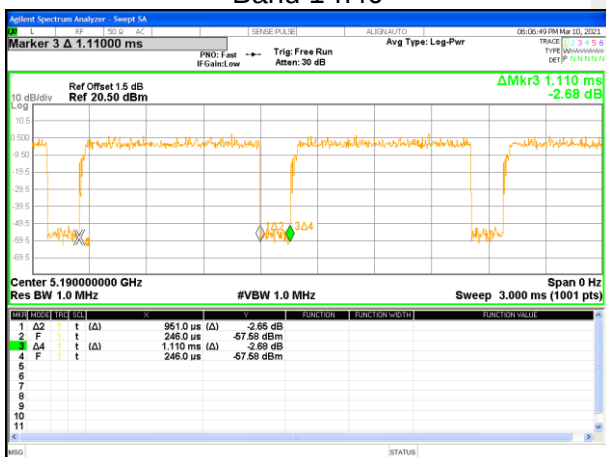
Band 1-n20



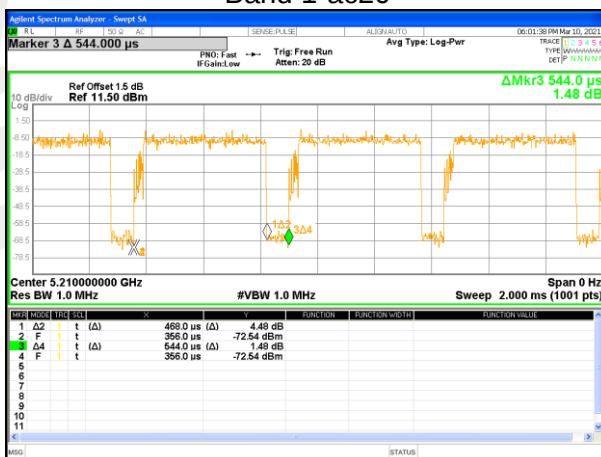
Band 1-n40



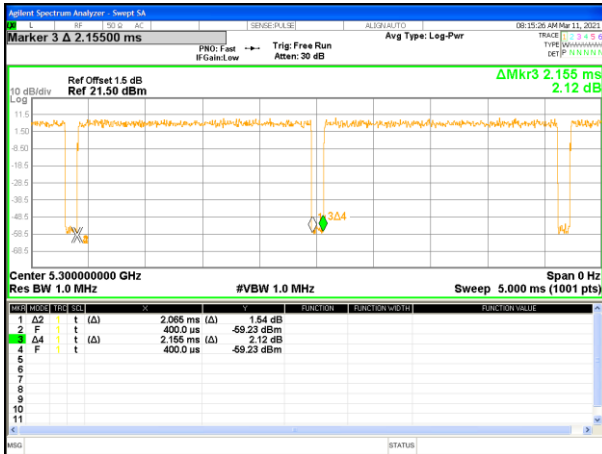
Band 1-ac20



Band 1-ac40



Band 1-ac80



Band 2-a20



Band 2-n20



Band 2-n40



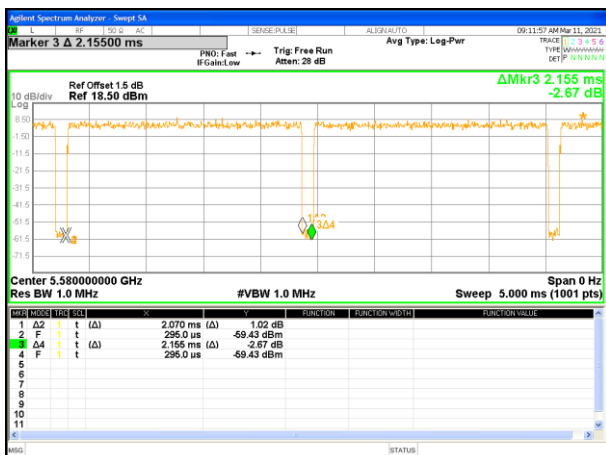
Band 2-ac20



Band 2-ac40



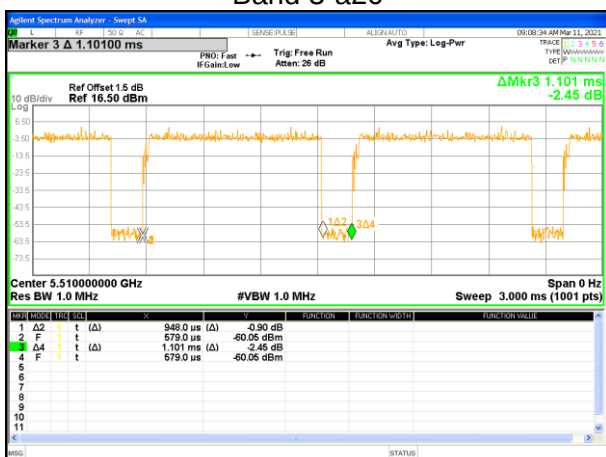
Band 2-ac80



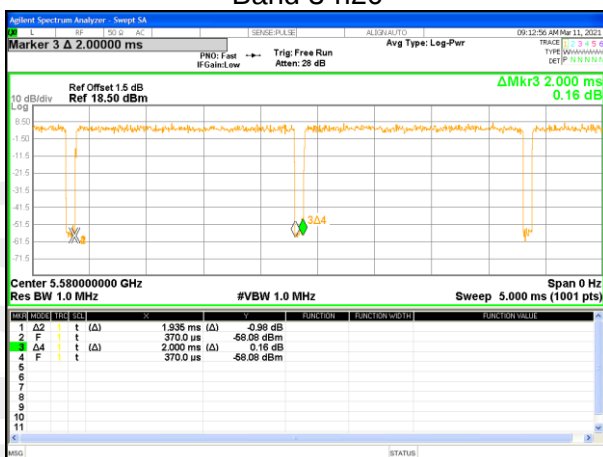
Band 3-a20



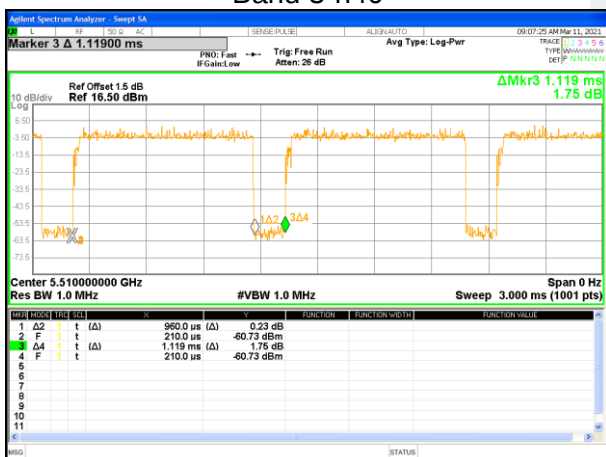
Band 3-n20



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 dipole Antenna. It comply with the standard requirement.

Antenna Photo





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※※※※※

