



RADIO TEST REPORT

Report No.: SHATBL2110016W04

Applicant:
SBOT Technologies LLC

Address:
230 W 39th St, 8th FL, New York, NY, USA, 10018

Product Name : Smart shopping cart model 2

Brand Name : Caper

Model Name : Caper-V011.0

Series Model : N/A

Test Standard : FCC Part15.407

FCC ID : 2A3Q4CAPER-V011

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TEST RESULT CERTIFICATION

Applicant's name.....: SBOT Technologies LLC
Address.....: 230 W 39th St, 8th FL, New York, NY, USA, 10018
Manufacture's Name.....: SBOT Technologies LLC
Address.....: 230 W 39th St, 8th FL, New York, NY, USA, 10018
Product description
Product Name.....: Smart shopping cart model 2
Brand Name.....: Caper
Model Name.....: Caper-V011.0
Series Model.....: N/A
Test Standards.....: FCC Part15.407
Test procedure.....: ANSI C63.10-2013

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

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Date of Test

Date (s) of performance of tests.....: 01 Nov. 2021 ~ 12 Nov. 2021

Date of Issue.....: 13 Nov. 2021

Test Result.....: Pass

Report Prepared by :

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Terry yang

(Terry yang)



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Revision History

Rev.	Issue Date	Report NO.	Effect Page	Contents
00	13 Nov. 2021	SHATBL2110016W04	ALL	Initial Issue



. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

§ 15.407, KDB789033 D02 General U-NII Test Procedures New Rules v02r01

FCC Part15.407		
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	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

GENERAL DESCRIPTION OF THE EUT

Product Name	Smart shopping cart model 2	
Trade Name	Caper	
Model Name	Caper-V011.0	
Series Model	N/A	
Model Difference	N/A	
Product Description	The EUT is a Smart shopping cart model 2	
	Operation Frequency:	IEEE 802.11a/ n/ac(HT20) 5.180GHz-5.240GHz IEEE 802.11n/ac(HT40) 5.190GHz-5.230GHz IEEE 802.11ac(HT80) 5.210GHz
		IEEE 802.11a/ n/ac(HT20)5.745GHz-5.825GHz IEEE 802.11a/ n/ac(HT40)5.755GHz-5.795GHz IEEE 802.11ac(HT80) 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 2.
	Max.Output Power(Conducted):	18.04dBm
	Duty Cycle:	>98%
	More details of EUT technical specification, please refer to the User's Manual.	
Test Channel	Please refer to the Note 1.	
Adapter	Input:100-240V,50-60Hz,2.5A	
	Output:24V,6.25A	
Battery	Rated Voltage:18 V	
	Charge Limit:8A Capacity:57600mAh	
Hardware version number	V1.2	
Software versionnumber	7.1.2	
Connecting I/O Port(s)	Please refer to the User's Manual	

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

1. Operation Frequency of channel			
5.180GHz-5.240GHz		5.745GHz-5.825GHz	
Channel	Frequency	Channel	Frequency
36	5180	149	5745
38	5190	151	5755
40	5200	153	5765
42	5210	157	5785
44	5220	159	5795
46	5230	161	5805
48	5240	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/ac (HT20)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
36	5180	149	5745
44	5220	157	5785
48	5240	165	5825

For 802.11n/ac (HT40)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
38	5190	151	5755
46	5230	159	5795

For 802.11ac (HT80)			
Channel	Freq.(MHz)	Channel	Freq.(MHz)
42	5210	155	5775

2.	Ant	Brand	Model Name	Ant Type	Connector	Gain (dBi)	NOTE
	1	N/A	Caper-V011.0	FPC	N/A	2dBi	WLAN ANT

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&CH44&CH48	6 Mbps
Mode 2	TX IEEE 802.11a HT20 CH149&CH157&CH165	6 Mbps
Mode 3	TX IEEE 802.11n HT20 CH36&CH44&CH48	MCS 0
Mode 4	TX IEEE 802.11 HT20 CH149&CH157&CH165	MCS 0
Mode 5	TX IEEE 802.11acVHT20 CH36&CH44&CH48	MCS 0
Mode 6	TX IEEE 802.11acVHT20 CH149&CH157&CH165	MCS 0
Mode 7	TX IEEE 802.11n HT40 CH38&CH46	MCS 0
Mode 8	TX IEEE 802.11n HT40 CH151&CH159	MCS 0
Mode 9	TX IEEE 802.11acVHT40 CH38&CH46	MCS 0
Mode 10	TX IEEE 802.11acVHT40 CH151&CH159	MCS 0
Mode 11	TX IEEE 802.11ac VHT80 CH42	MCS 0
Mode 12	TX IEEE 802.11ac VHT80 CH155	MCS 0

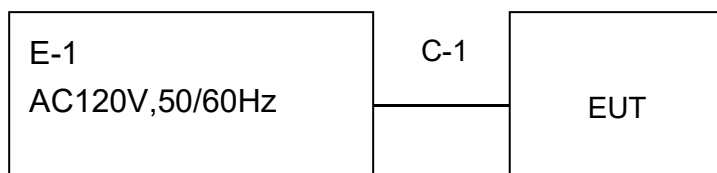
- Note: (1) The measurements are performed at the highest, middle, lowest available channels.
(2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported
(3) We have been tested for all available U.S. voltage and frequencies (For 120V, 50/60Hz and 240V, 50/60Hz) for which the device is capable of operation.

AC Conducted Emission

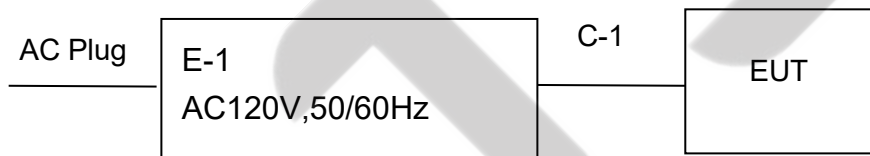
Test Case	
AC Conducted Emission	Mode13: Keeping TX

BLOCKDIGRAMSHOWINGTHECONFIGURATIONOFSYSTEMTESTED

Radiated Spurious Emission Test



Conducted Emission Test



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.	Series No.	Note
N/A	N/A	N/A	N/A	N/A	N/A

Support units

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-2	Notebook	Lenovo	DESKTOP-USDEO09	00326-10000-00000-AA636	N/A
C-1	USB Cable	N/A	100cm	N/A	N/A

Note:

- (1) The support equipment was authorized by Declaration of Confirmation.
- (2) For detachable type I/O cable should be specified the length in cm in 『Length』 column.

2.5 LABORATORY INFORMATION

Company Name:	Shanghai ATBL Technology Co., Ltd.
Address:	Building 8, No. 160 Basheng Road, Waigaoqiao Free Trade Zone, Pudong New Area, Shanghai
Telephone:	+86(0)21-51298625
The FCC Registration Number (FRN):	0031025281
A2LA Number:	6184.01
CNAS Number:	CNAS L14531

2.6 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	$\pm 0.958\text{dB}$
2	Conducted spurious emissions	$\pm 2.988\text{dB}$
3	All emissions, radiated 30MHz-1GHz	$\pm 2.50\text{dB}$
4	All emissions, radiated 1GHz-18GHz	$\pm 3.51\text{dB}$
5	Occupied bandwidth	$\pm 23.20\text{dB}$
6	Power spectral density	$\pm 0.886\text{dB}$

2.7EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Management number	Calibrated until
Test Receiver	R&S	ESCI	100469	SHATBL-E003	2022.07.13
Spectrum Analyzer	Agilent	N9020A	MY50200811	SHATBL-E017	2022.07.13
Bilog Antenna	SCHWARZBECK	VLUB 9168	01174	SHATBL-E008	2023.09.27
Horn Antenna	SCHWARZBECK	BBHA 9120D	02014	SHATBL-E009	2023.09.27
Pre-Amplifier (0.1M-3GHz)	JPT	JPA-10M1G35	21010100035001	SHATBL-E005	2022.10.07
Pre-Amplifier (1G-18GHz)	JPT	JPA0118-55-303A	1910001800055000	SHATBL-E006	2022.07.13
Temperature & Humidity	DeLi	DeLi	N/A	SHATBL-E016	2022.10.07
Antenna/Turntable Controller	Brilliant	N/A	N/A	SHATBL-E007	N/A
Test SW	FALA	EMC-RI(Ver.4A2)		SHATBL-E046	N/A

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	ESPI	101679	SHATBL-E012	2022.07.13
LISN	R&S	ENV216	101300	SHATBL-E013	2022.07.13
LISN	R&S	ENV216	100333	SHATBL-E041	2022.03.08
Temperature & Humidity	DeLi	DeLi	N/A	SHATBL-E015	2022.10.07
Test SW	FALA	EZ-EMC(Ver.EMC-CON3A1.1)		SHATBL-E044	N/A

Kind of Equipment	Manufacturer	Type No.	Serial No.	Management number	Calibrated until
MIMO Power measurement test Set	DARE	RPR3006W	16I00054SN016	SHATBL-W006	2022.10.07
			RPR6W-20001005	SHATBL-W013	2022.10.07
Signal Analyzer	Agilent	N9020A	MY57300196	SHATBL-W004	2022.10.07
Signal Generator	Agilent	N5182B	MY46240556	SHATBL-W005	2022.10.07
Wireless Communications Test Set	R&S	CMW500	101331	SHATBL-W007	2022.10.07
Temperature & Humidity	Deli	deli	N/A	SHATBL-W011	2022.10.07
Attenuator	Agilent	8494B	DC-18G	SHATBL-W009	2022.10.07
Attenuator	Agilent	8496B	DC-18G	SHATBL-W010	2022.10.07
power splitter	MNK	MPD-DC/6-2S	62315 G51	SHATBL-W015	2022.10.07
			62315 G52	SHATBL-W016	2022.10.07
Filter	Chengdu kangmaiwei	ZBSF-C2400-2483.5-T3	N/A	SHATBL-W021	N/A
		ZBSF-C5150-5350-T5	N/A	SHATBL-W022	2022.01.26
		ZBSF-C5725-5850-T5	N/A	SHATBL-W024	N/A
Constant temperature and humidity box	KSON	THS-B6C-150	6159K	SHATBL-W019	2022.10.07
Test SW	FALA	LZ-RF(Ver.LzRF-03A3.1)		SHATBL-W020	N/A

EMC EMISSION TEST

CONDUCTED EMISSION MEASUREMENT

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

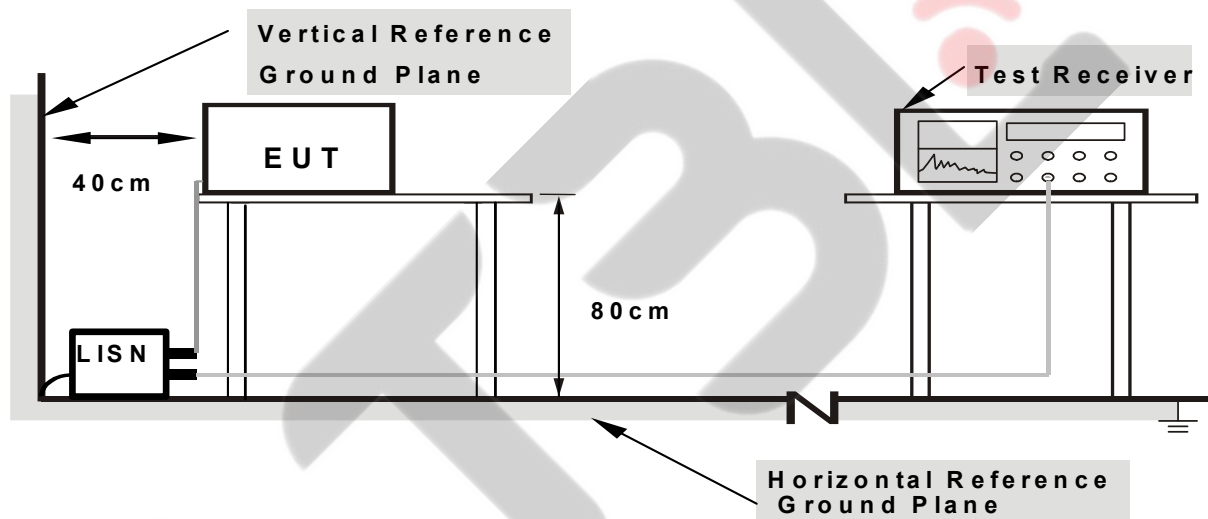
TEST PROCEDURE

- The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- Interconnecting cables that hang closer than 40 cm to the groundplane 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 at least 80 cm from nearest part of EUT chassis.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

DEVIATION FROM TEST STANDARD

No deviation

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

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.

TEST RESULTS

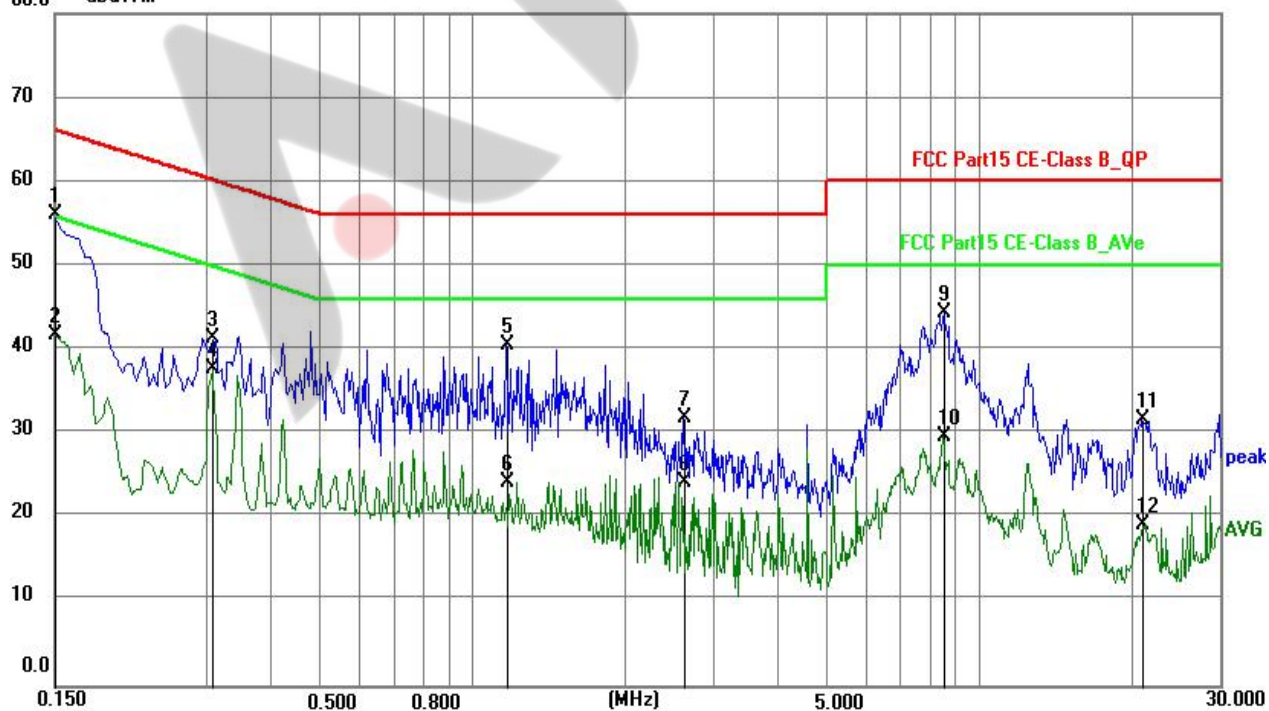
Temperature:	26 °C	Relative Humidity:	54%
Test Voltage:	AC 120V/60Hz	Phase:	L
Test Mode :	Mode 13		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
0.1500	45.93	10.14	56.07	66.00	-9.93	QP
0.1500	31.75	10.14	41.89	56.00	-14.11	AVG
0.3074	31.40	10.08	41.48	60.04	-18.56	QP
0.3074	27.79	10.08	37.87	50.04	-12.17	AVG
1.1669	30.71	9.95	40.66	56.00	-15.34	QP
1.1669	14.38	9.95	24.33	46.00	-21.67	AVG
2.6114	22.00	9.99	31.99	56.00	-24.01	QP
2.6114	14.22	9.99	24.21	46.00	-21.79	AVG
8.5692	34.26	10.22	44.48	60.00	-15.52	QP
8.5692	19.44	10.22	29.66	50.00	-20.34	AVG
21.1467	20.80	10.92	31.72	60.00	-28.28	QP
21.1467	8.23	10.92	19.15	50.00	-30.85	AVG

Remark:

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

80.0 dBuV/m



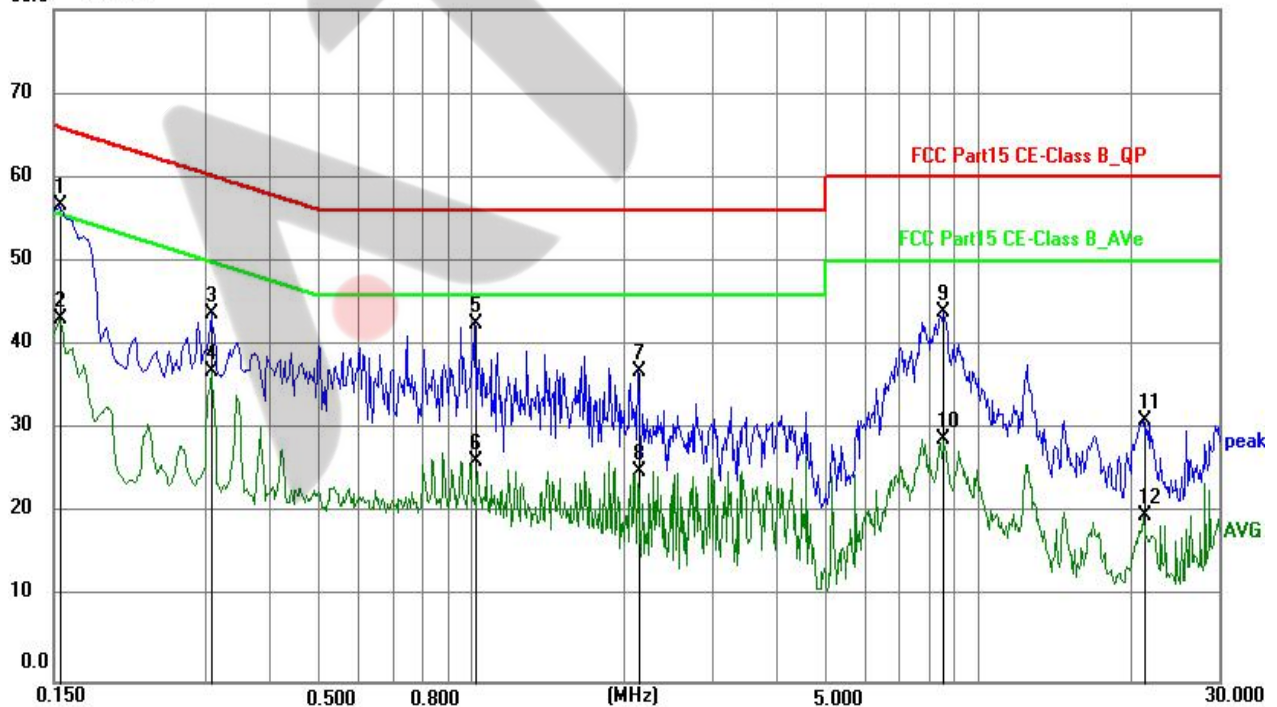
Temperature:	26 °C	Relative Humidity:	54%
Test Voltage	AC 120V/60Hz	Phase:	N
Test Mode	Mode 13		

Frequency (MHz)	Reading (dBuV)	Correct Factor(dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
0.1544	46.29	10.45	56.74	65.76	-9.02	QP
0.1544	32.83	10.45	43.28	55.76	-12.48	AVG
0.3074	33.40	10.33	43.73	60.04	-16.31	QP
0.3074	26.65	10.33	36.98	50.04	-13.06	AVG
1.0182	32.50	10.15	42.65	56.00	-13.35	QP
1.0182	16.23	10.15	26.38	46.00	-19.62	AVG
2.1433	26.73	10.22	36.95	56.00	-19.05	QP
2.1433	14.96	10.22	25.18	46.00	-20.82	AVG
8.5692	33.97	10.16	44.13	60.00	-15.87	QP
8.5692	18.72	10.16	28.88	50.00	-21.12	AVG
21.3270	20.59	10.61	31.20	60.00	-28.80	QP
21.3270	9.17	10.61	19.78	50.00	-30.22	AVG

Remark:

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

80.0 dBuV/m



RADIATED EMISSION AND (BANDEDGE) MEASUREMENT

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

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

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

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

Notes:

- (1) The limit for radiated test was performed according to FCC PART 15E.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

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

For Band edge

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

- The measuring distance of at 3 m shall be used for measurements at frequency 0.009MHz up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- The EUT was placed on the top of a rotating table 0.8 meters (above 1GHz is 1.5 m) above the ground at a 3 meter anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The height of the equipment shall be 0.8 m (above 1GHz is 1.5 m); the height of the test antenna shall vary between 1 m to 4 m. Horizontal and vertical polarizations of the antenna are set to make the measurement.
- The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then QuasiPeak detector mode re-measured.
- If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
- For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

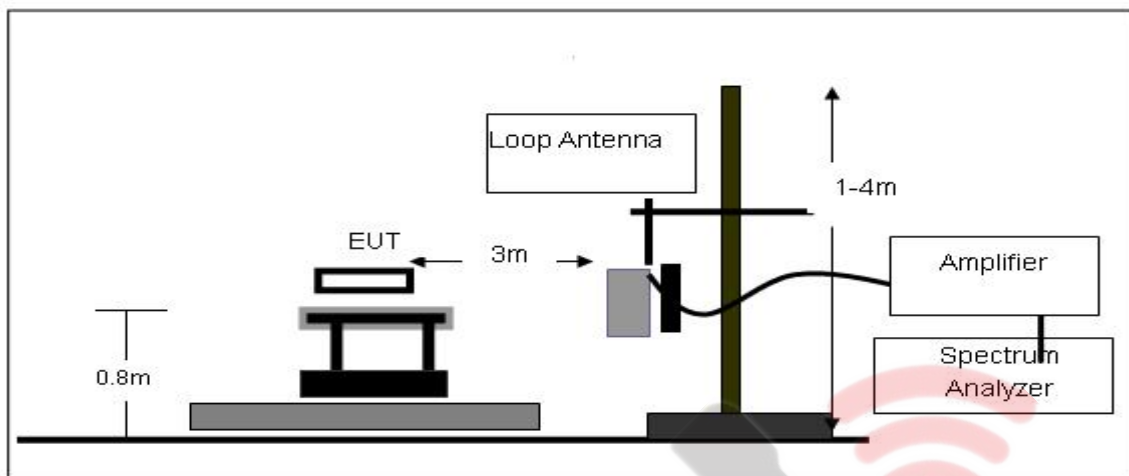
Both horizontal and vertical antenna polarities were tested and performed test to three orthogonal axis. The worst case emissions were reported

DEVIATION FROM TEST STANDARD

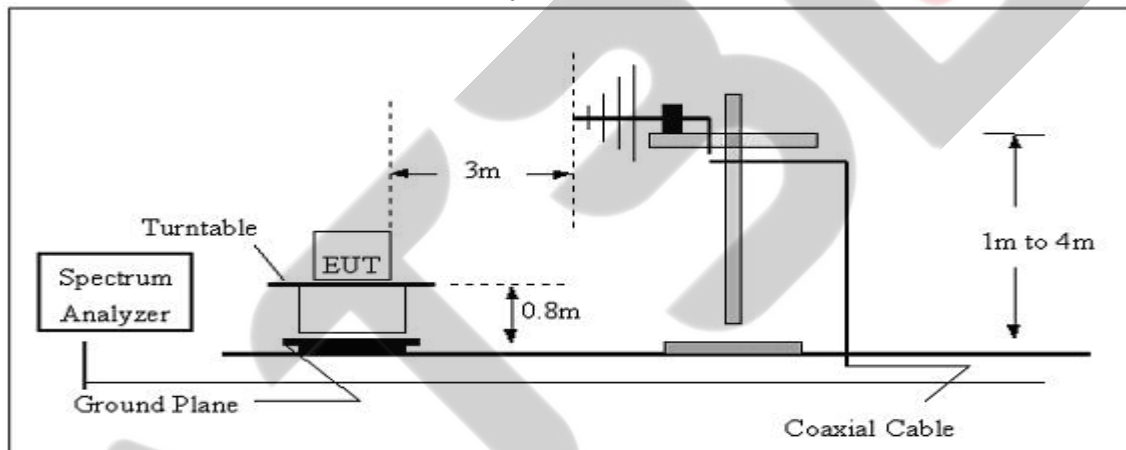
No deviation

TESTSETUP

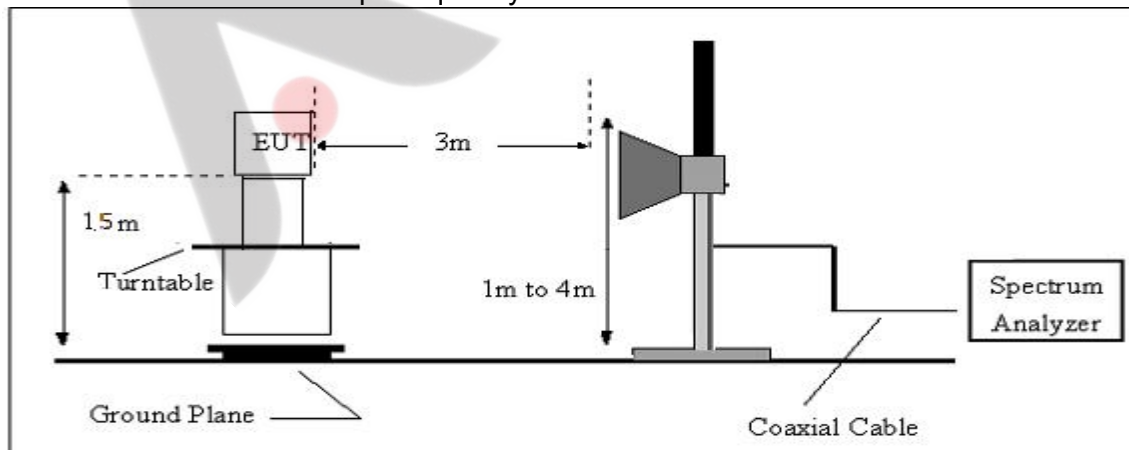
(A) Radiated Emission Test-Up Frequency Below 30MHz



(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

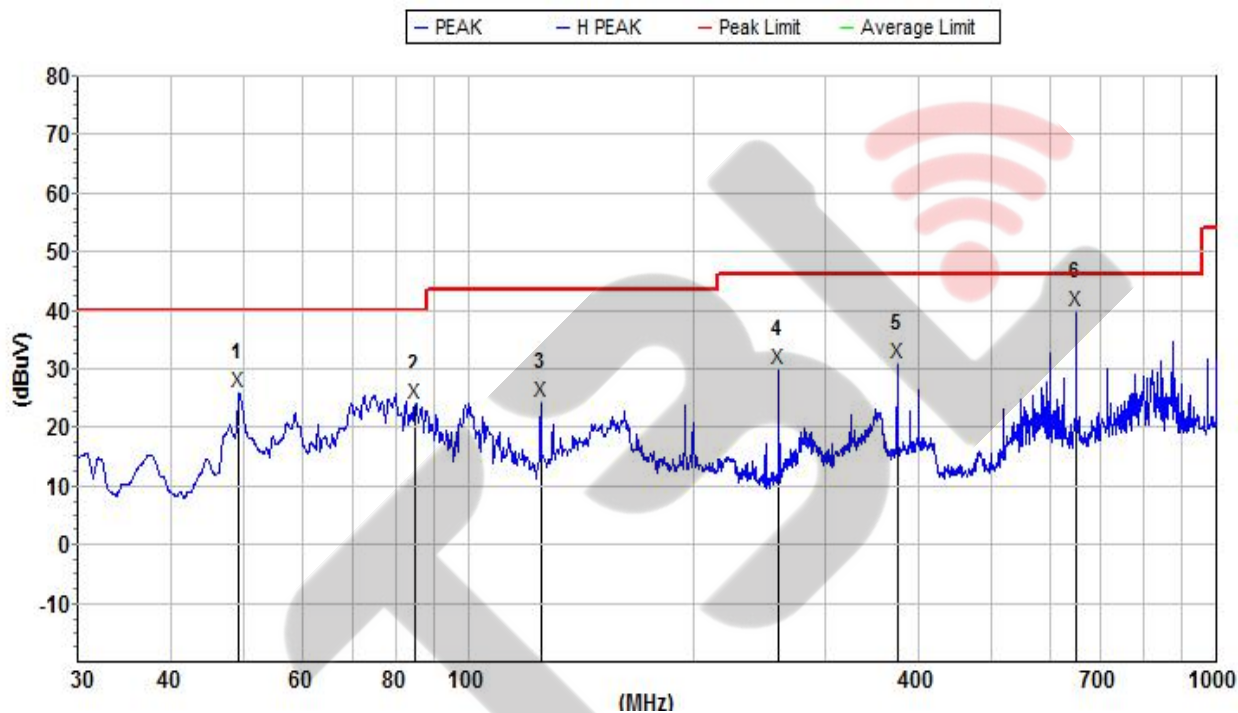
Frequency	FS	RA	AF	CL	AG	Factor
(MHz)	(dBμV/m)	(dBμV/m)	(dB)	(dB)	(dB)	(dB)
300	40	58.1	12.2	1.6	31.9	-18.1

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

3.2.7 TEST RESULTS(Between 30MHz – 1GHz)

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	Mode 3(Mode3 worst mode)		

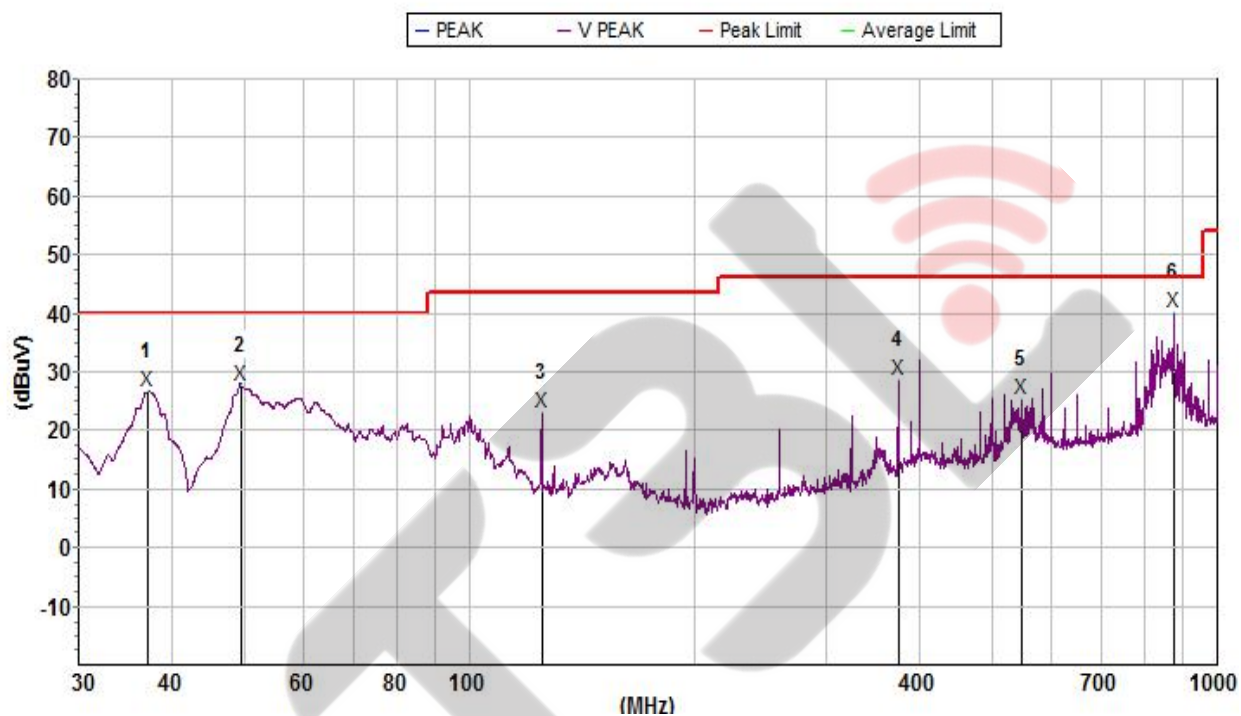
Low Channel (802.11 n20/ 5180 MHz)



Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin (dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
1	49.359419	26.1	40.0	13.9	13.6	32.6	0.8	H
2	84.701941	24.1	40.0	15.9	9.4	32.9	1.0	H
3	125.006589	24.3	43.5	19.2	12.5	32.9	1.4	H
4	259.688742	30.1	46.0	15.9	11.8	32.8	2.6	H
5	374.622581	31.1	46.0	14.9	13.6	32.4	2.7	H
6	649.659681	40.0	46.0	6.0	16.2	32.3	3.4	H

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	Mode 3(Mode3 worst mode)		

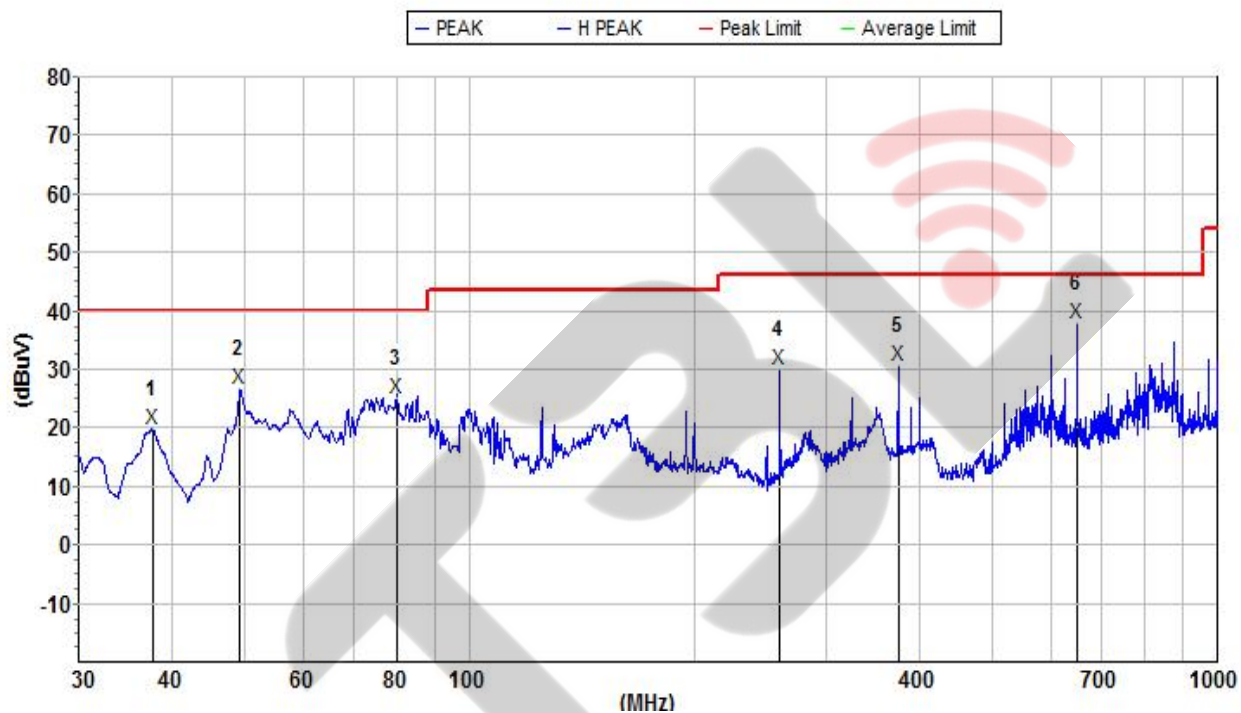
Low Channel
(802.11n20/5180MHz)



Mk.	Freq.(MHz)	Level(d BuV/m)	Limit(dB uV/m)	Margin (dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L .(dB)	Pol.
1	37.220165	26.8	40.0	13.2	13.7	32.3	0.8	V
2	49.619725	27.7	40.0	12.3	13.6	32.6	0.8	V
3	125.006589	23.2	43.5	20.3	12.5	32.9	1.4	V
4	374.622581	28.6	46.0	17.4	14.3	32.4	2.7	V
5	549.019455	25.5	46.0	20.5	17.4	32.4	3.1	V
6	873.713746	40.1	46.0	5.9	21.3	31.8	3.6	V

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	Mode 3(Mode3 worst mode)		

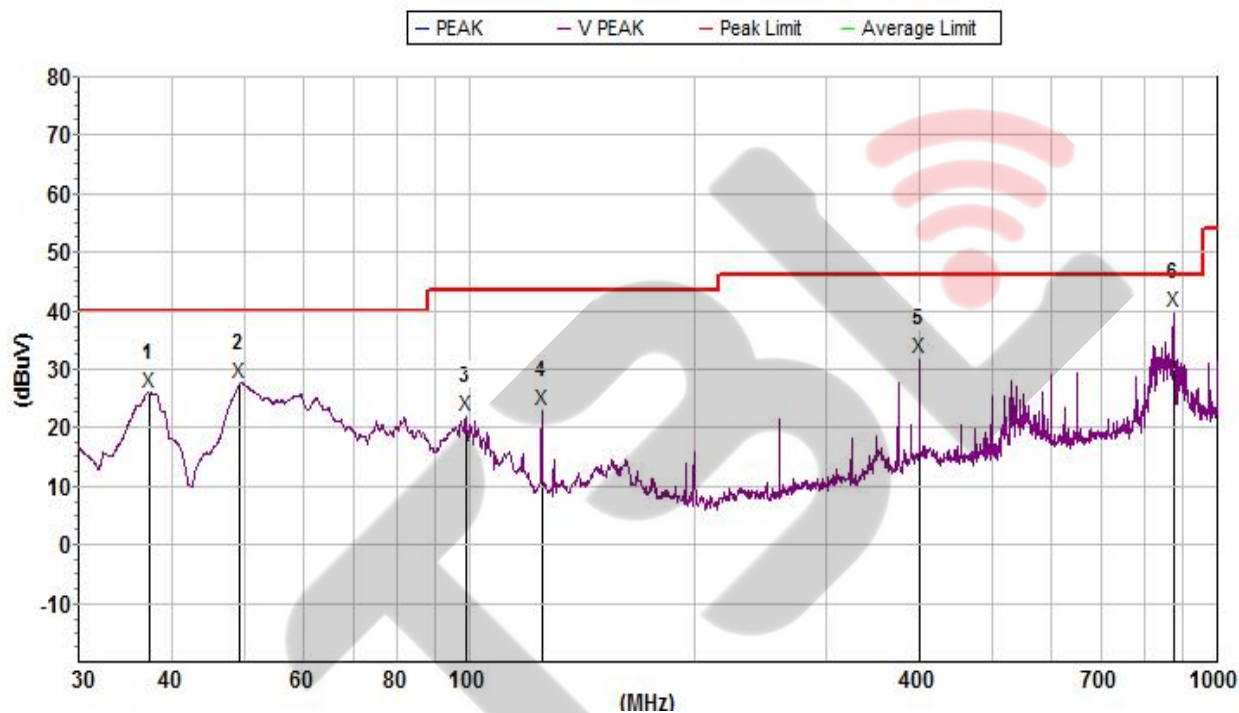
Mid Channel (802.11 n20/ 5220 MHz)



Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin (dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
1	37.745902	19.9	40.0	20.1	13.8	32.3	0.8	H
2	49.359419	26.7	40.0	13.3	13.6	32.6	0.8	H
3	79.800282	25.1	40.0	14.9	9.3	32.9	0.9	H
4	259.688742	30.0	46.0	16.0	11.8	32.8	2.6	H
5	374.622581	30.7	46.0	15.3	13.6	32.4	2.7	H
6	649.659681	37.9	46.0	8.1	16.2	32.3	3.4	H

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	Mode 3(Mode3 worst mode)		

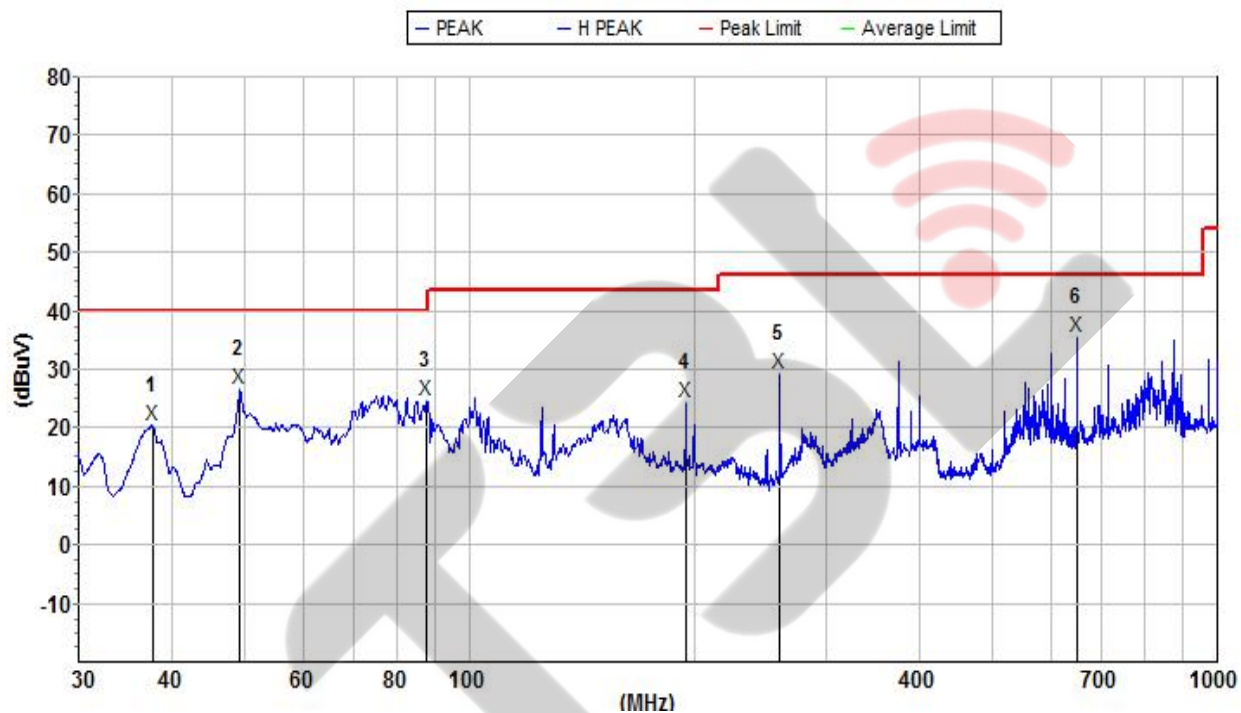
Mid Channel (802.11 n20/ 5220 MHz)



Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin (dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
1	37.285480	26.1	40.0	13.9	13.7	32.3	0.8	V
2	49.359419	27.7	40.0	12.3	13.6	32.6	0.8	V
3	98.832556	22.2	43.5	21.3	10.1	32.9	1.4	V
4	125.006589	23.1	43.5	20.4	12.5	32.9	1.4	V
5	399.730428	31.9	46.0	14.1	14.7	32.3	2.7	V
6	873.713746	39.9	46.0	6.1	21.3	31.8	3.6	V

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	Mode 3(Mode3 worst mode)		

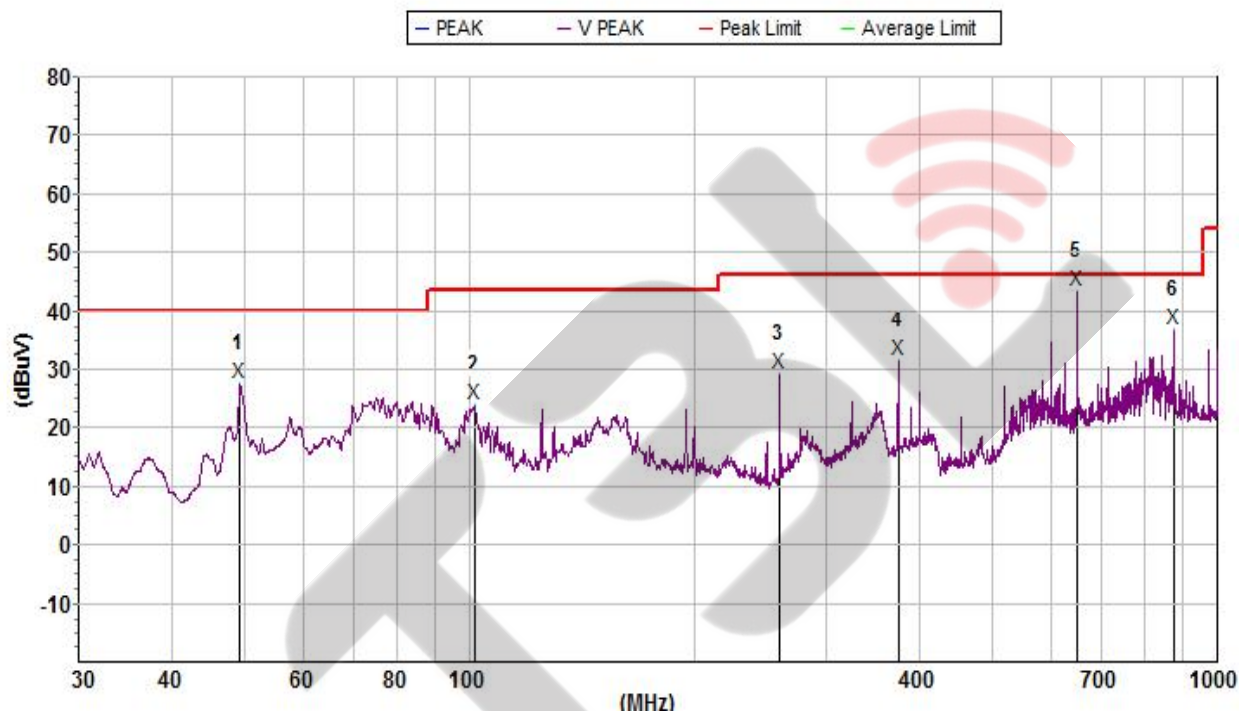
High Channel (802.11 n20/ 5240 MHz)



Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin (dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
1	37.745902	20.6	40.0	19.4	13.8	32.3	0.8	H
2	49.359419	26.6	40.0	13.4	13.6	32.6	0.8	H
3	87.571081	24.9	40.0	15.1	9.4	32.9	1.1	H
4	194.794668	24.5	43.5	19.0	10.2	32.8	2.2	H
5	259.688742	29.4	46.0	16.6	11.8	32.8	2.6	H
6	649.659681	35.6	46.0	10.4	16.2	32.3	3.4	H

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	Mode 3(Mode3 worst mode)		

High Channel
(802.11n20/5240MHz)



Mk.	Freq.(MHz)	Level(dBuV/m)	Limit(dBuV/m)	Margin (dB)	Ant.F/G.(dB/m)	Amp.G.(dB)	Cbl.L.(dB)	Pol.
1	49.359419	27.6	40.0	12.4	13.6	32.6	0.8	V
2	101.644307	24.0	43.5	19.5	10.3	32.9	1.4	V
3	259.688742	29.2	46.0	16.8	11.8	32.8	2.6	V
4	374.622581	31.5	46.0	14.5	14.3	32.4	2.7	V
5	649.659681	43.5	46.0	2.5	19.4	32.3	3.4	V
6	873.713746	36.9	46.0	9.1	21.3	31.8	3.6	V

Note:

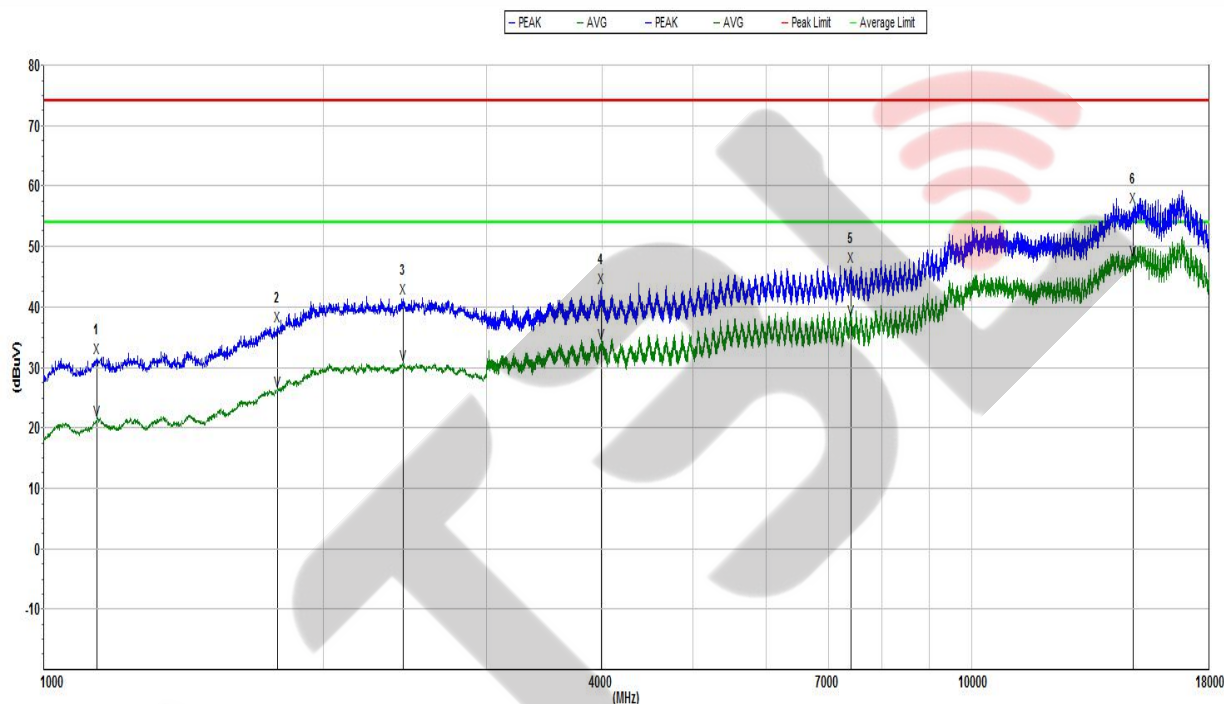
1. Factor=Ant.Factor+cable loss-Amp.Gain .
2. Level contains the factor; Margin=Limit-Level.

3.2.8 TEST RESULTS(Above 1000 MHz)

Band I 5150-5250MHz

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	Mode 3(Mode3 worst mode)		

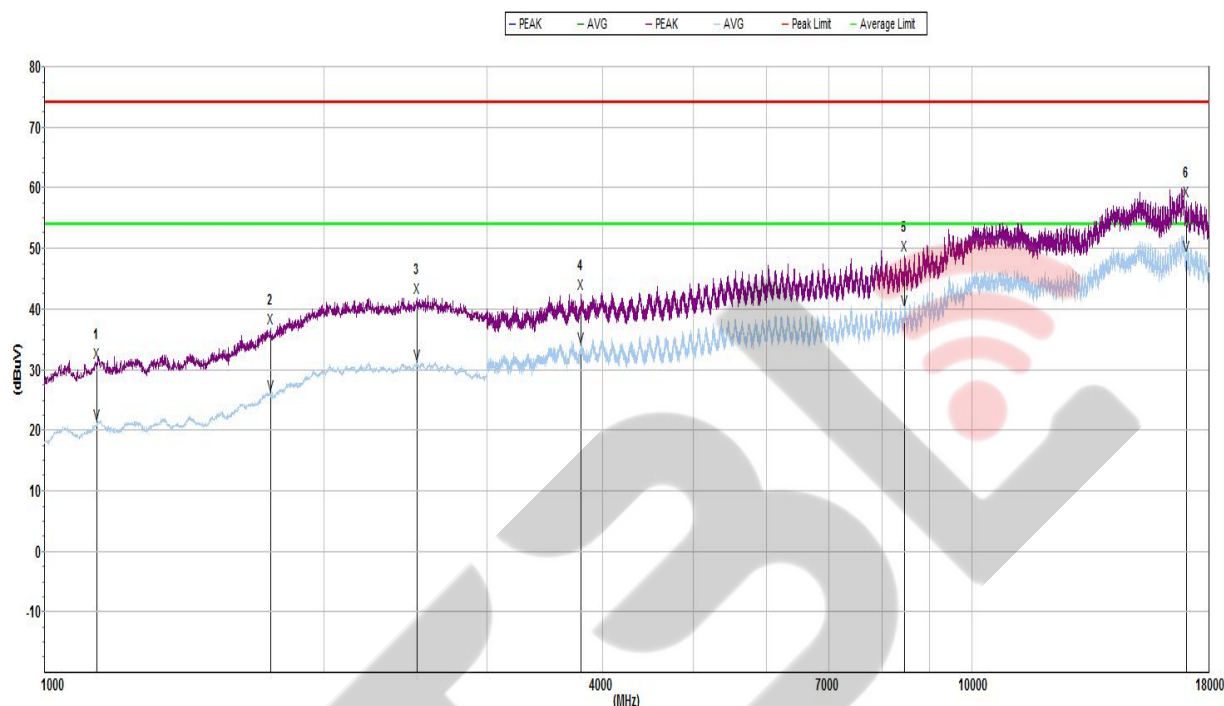
Low Channel
(802.11n20/5180MHz)



Mk.	Freq.(MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
PK								
1	1142.000000	31.6	74.0	42.4	20.7	57.3	2.2	H
2	1787.000000	36.9	74.0	37.1	21.7	53.2	2.6	H
3	2442.000000	41.5	74.0	32.5	22.8	50.2	2.8	H
4	3984.000000	43.3	74.0	30.7	24.3	50.1	3.3	H
5	7403.250000	46.7	74.0	27.3	25.7	48.8	4.6	H
6	14907.750000	56.6	74.0	17.4	30.4	46.9	6.3	H
AVG								
1	1142.000000	21.3	54.0	32.7	20.7	57.3	2.2	H
2	1787.000000	26.1	54.0	27.9	21.7	53.2	2.6	H
3	2442.000000	30.5	54.0	23.5	22.8	50.2	2.8	H
4	3984.000000	34.0	54.0	20.0	24.3	50.1	3.3	H
5	7403.250000	38.0	54.0	16.0	25.7	48.8	4.6	H
6	14907.750000	47.9	54.0	6.1	30.4	46.9	6.3	H

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	Mode 3(Mode3 worst mode)		

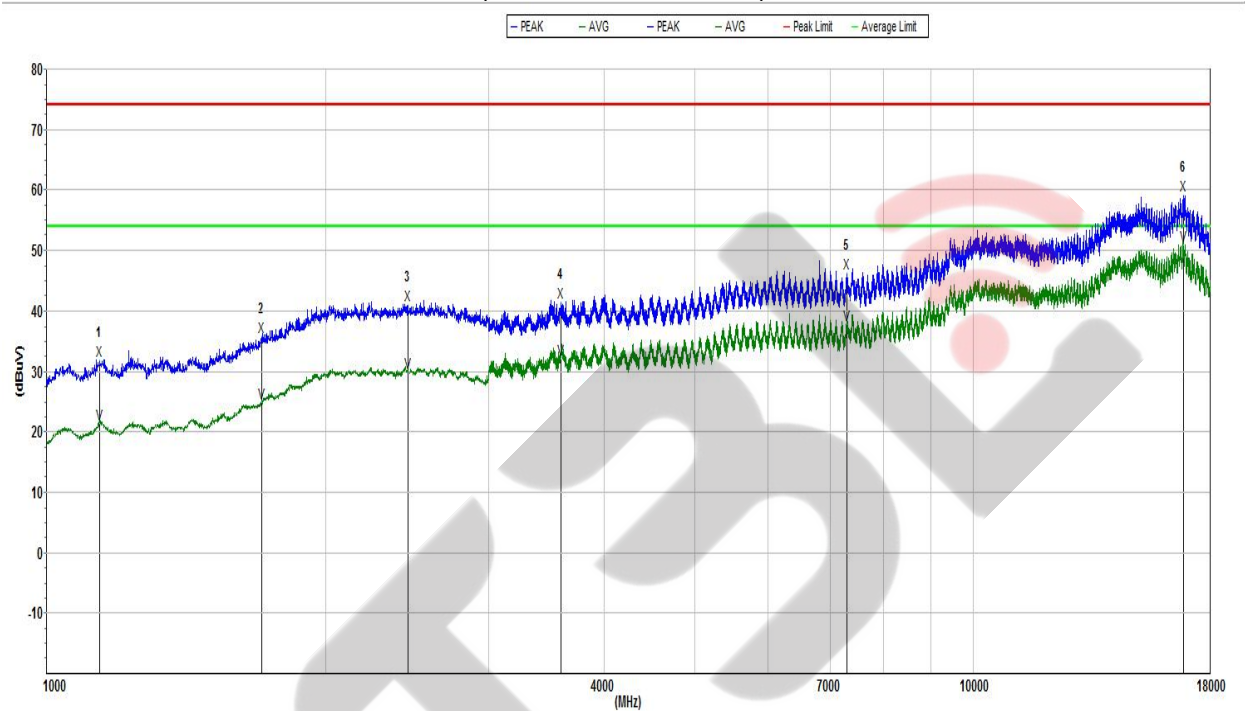
Low Channel
(802.11n20/5180MHz)



Mk.	Freq.(MHz)	Level (dBuV /m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
PK								
1	1140.000000	31.3	74.0	42.7	20.7	57.3	2.2	V
2	1752.000000	36.9	74.0	37.1	21.6	53.7	2.6	V
3	2523.000000	41.9	74.0	32.1	23.4	50.3	2.8	V
4	3789.750000	42.5	74.0	31.5	24.7	50.3	3.2	V
5	8458.500000	48.9	74.0	25.1	27.1	48.6	5.1	V
6	17040.750000	57.8	74.0	16.2	31.6	47.3	6.9	V
AVG								
1	1140.000000	21.1	54.0	32.9	20.7	57.3	2.2	V
2	1752.000000	26.0	54.0	28.0	21.6	53.7	2.6	V
3	2523.000000	30.9	54.0	23.1	23.4	50.3	2.8	V
4	3789.750000	33.8	54.0	20.2	24.7	50.3	3.2	V
5	8458.500000	39.9	54.0	14.1	27.1	48.6	5.1	V
6	17040.750000	48.9	54.0	5.1	31.6	47.3	6.9	V

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	Mode 3(Mode3 worst mode)		

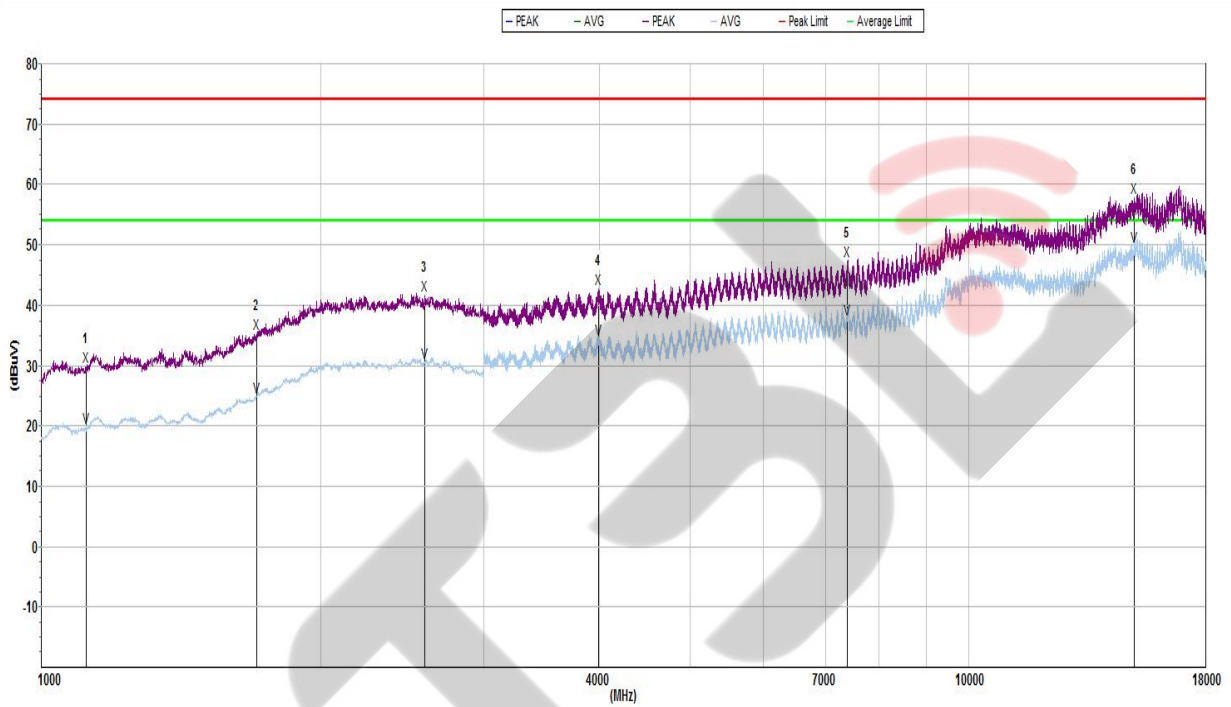
Mid Channel
(802.11n20/5220MHz)



Mk.	Freq.(MHz)	Level (dBuV /m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
PK								
1	1141.000000	31.8	74.0	42.2	20.7	57.3	2.2	H
2	1708.000000	35.8	74.0	38.2	21.4	54.3	2.6	H
3	2455.000000	41.0	74.0	33.0	22.8	50.2	2.8	H
4	3591.000000	41.5	74.0	32.5	24.2	50.4	3.2	H
5	7302.000000	46.4	74.0	27.6	25.7	48.8	4.5	H
6	16832.250000	59.2	74.0	14.8	30.9	47.4	6.8	H
AVG								
1	1141.000000	21.3	54.0	32.7	20.7	57.3	2.2	H
2	1708.000000	24.9	54.0	29.1	21.4	54.3	2.6	H
3	2455.000000	29.9	54.0	24.1	22.8	50.2	2.8	H
4	3591.000000	32.1	54.0	21.9	24.2	50.4	3.2	H
5	7302.000000	37.8	54.0	16.2	25.7	48.8	4.5	H
6	16832.250000	50.8	54.0	3.2	30.9	47.4	6.8	H

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	Mode 3(Mode3 worst mode)		

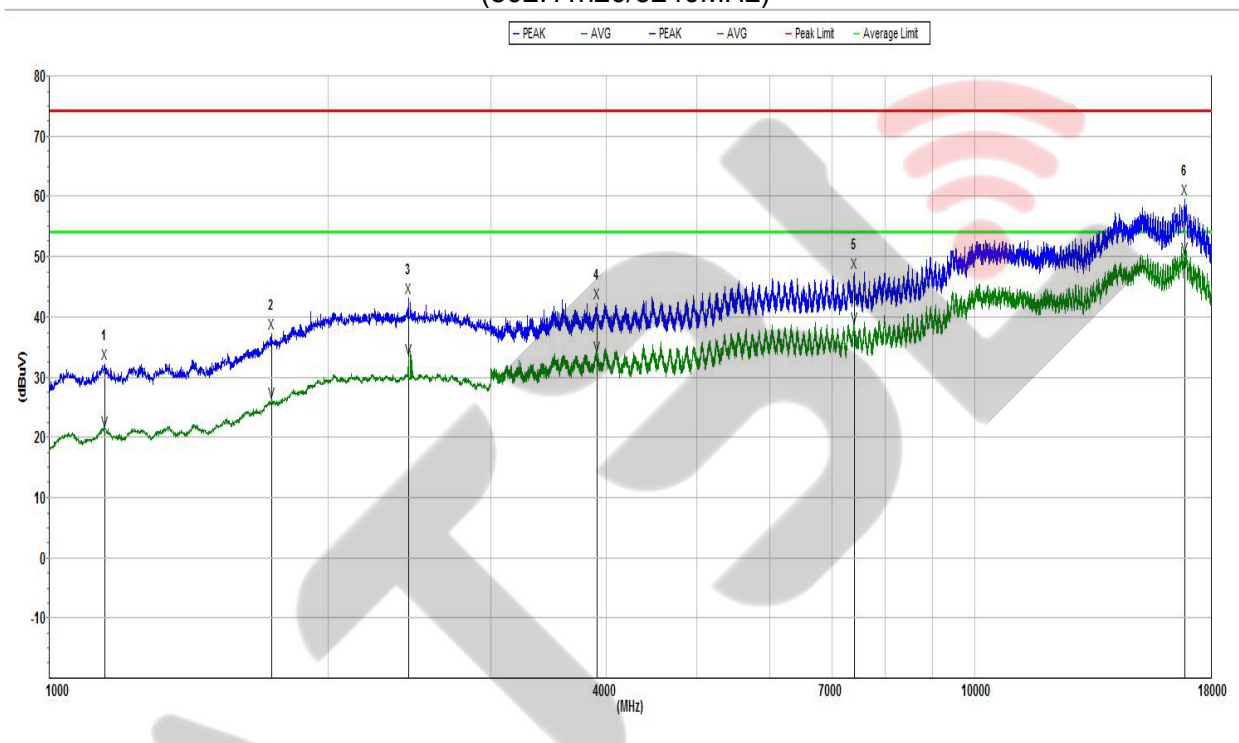
Mid Channel
(802.11n20/5220MHz)



Mk.	Freq.(MHz)	Level (dBuV /m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
PK								
1	1118.000000	29.9	74.0	44.1	20.5	57.3	2.2	V
2	1706.000000	35.3	74.0	38.7	21.5	54.3	2.6	V
3	2590.000000	41.6	74.0	32.4	23.6	50.5	2.9	V
4	3988.500000	42.7	74.0	31.3	24.8	50.1	3.3	V
5	7388.250000	47.3	74.0	26.7	26.5	48.8	4.6	V
6	15082.500000	58.0	74.0	16.0	31.1	46.9	6.3	V
AVG								
1	1118.000000	19.8	54.0	34.2	20.5	57.3	2.2	V
2	1706.000000	24.8	54.0	29.2	21.5	54.3	2.6	V
3	2590.000000	30.6	54.0	23.4	23.6	50.5	2.9	V
4	3988.500000	34.4	54.0	19.6	24.8	50.1	3.3	V
5	7388.250000	37.7	54.0	16.3	26.5	48.8	4.6	V
6	15082.500000	49.8	54.0	4.2	31.1	46.9	6.3	V

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	Mode 3(Mode3 worst mode)		

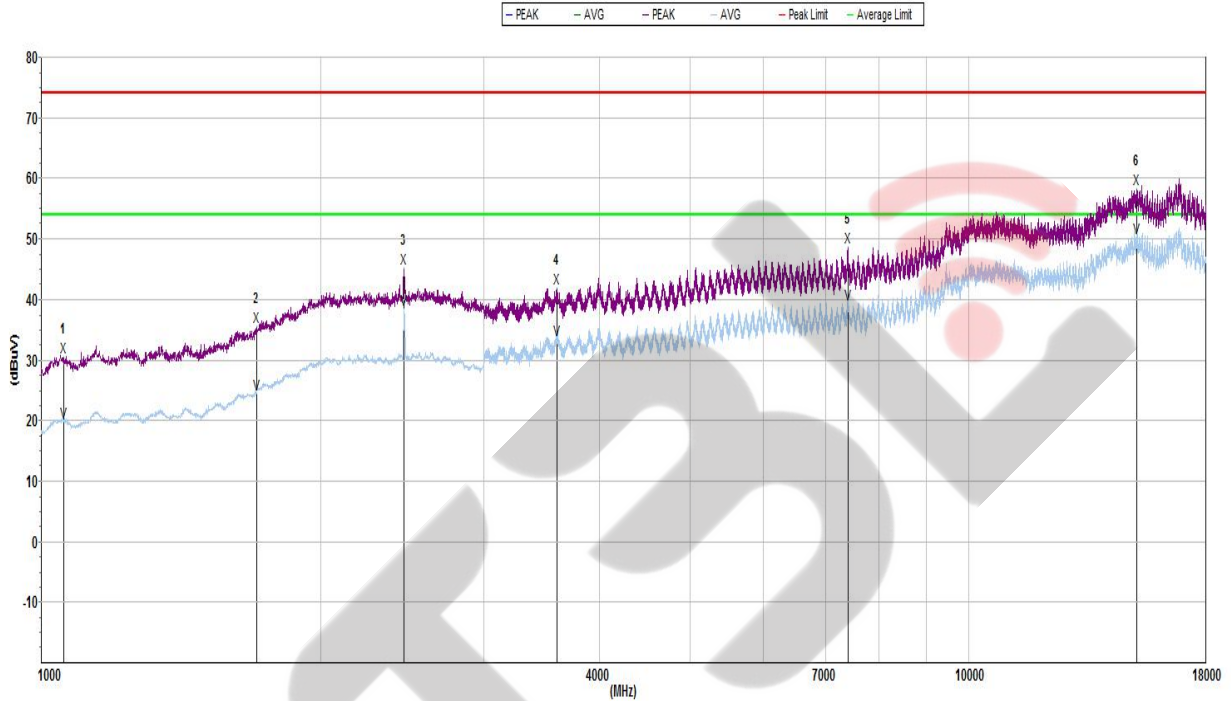
High Channel
(802.11n20/5240MHz)



Mk.	Freq.(MHz)	Level (dBuV /m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
PK								
1	1149.000000	32.4	74.0	41.6	20.8	57.3	2.2	H
2	1738.000000	37.3	74.0	36.7	21.5	53.9	2.6	H
3	2444.000000	43.3	74.0	30.7	22.8	50.2	2.8	H
4	3906.750000	42.3	74.0	31.7	24.3	50.2	3.2	H
5	7401.000000	47.4	74.0	26.6	25.7	48.8	4.6	H
6	16833.000000	59.6	74.0	14.4	30.9	47.4	6.8	H
AVG								
1	1149.000000	21.2	54.0	32.8	20.8	57.3	2.2	H
2	1738.000000	25.9	54.0	28.1	21.5	53.9	2.6	H
3	2444.000000	33.1	54.0	20.9	22.8	50.2	2.8	H
4	3906.750000	33.6	54.0	20.4	24.3	50.2	3.2	H
5	7401.000000	38.5	54.0	15.5	25.7	48.8	4.6	H
6	16833.000000	50.0	54.0	4.0	30.9	47.4	6.8	H

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	Mode 3(Mode3 worst mode)		

High Channel
(802.11n20/5240MHz)

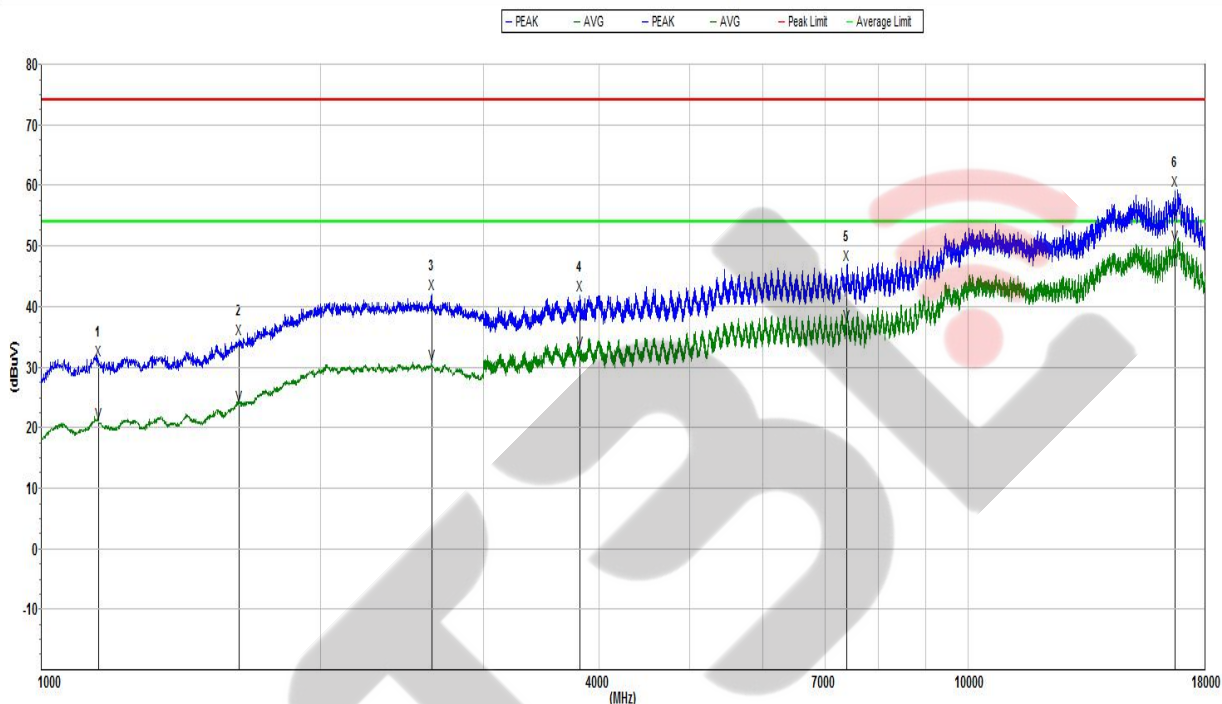


Mk.	Freq.(MHz)	Level (dBuV /m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
PK								
1	1057.000000	30.6	74.0	43.4	20.2	57.3	2.2	V
2	1707.000000	35.6	74.0	38.4	21.5	54.3	2.6	V
3	2461.000000	45.3	74.0	28.7	23.3	50.2	2.8	V
4	3595.500000	41.9	74.0	32.1	24.6	50.4	3.2	V
5	7410.000000	48.6	74.0	25.4	26.5	48.8	4.6	V
6	15178.500000	58.4	74.0	15.6	31.1	47.1	6.4	V
AVG								
1	1057.000000	19.8	54.0	34.2	20.2	57.3	2.2	V
2	1707.000000	24.5	54.0	29.5	21.5	54.3	2.6	V
3	2461.000000	38.4	54.0	15.6	23.3	50.2	2.8	V
4	3595.500000	33.5	54.0	20.5	24.6	50.4	3.2	V
5	7410.000000	39.2	54.0	14.8	26.5	48.8	4.6	V
6	15178.500000	50.3	54.0	3.7	31.1	47.1	6.4	V

Band IV(5.725-5.850) GHz

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	Mode 3(Mode3 worst mode)		

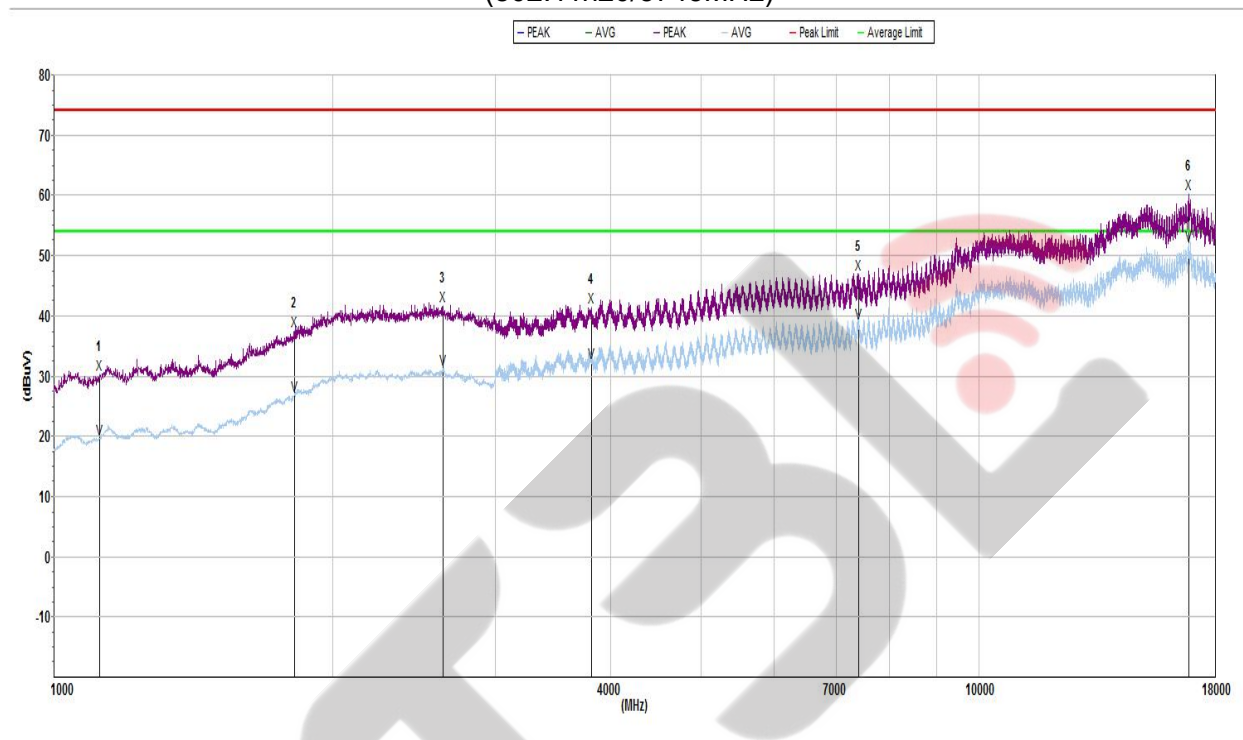
Low Channel (802.11n20/5745MHz)



Mk.	Freq.(MHz)	Level (dBuV/ m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
PK								
1	1154.000000	31.1	74.0	42.9	20.8	57.3	2.2	H
2	1636.000000	34.7	74.0	39.3	21.3	55.3	2.5	H
3	2638.000000	42.2	74.0	31.8	23.2	50.6	2.9	H
4	3809.250000	41.9	74.0	32.1	24.3	50.3	3.2	H
5	7397.250000	47.0	74.0	27.0	25.7	48.8	4.6	H
6	16721.250000	59.3	74.0	14.7	30.9	47.6	6.8	H
AVG								
1	1154.000000	21.0	54.0	33.0	20.8	57.3	2.2	H
2	1636.000000	23.8	54.0	30.2	21.3	55.3	2.5	H
3	2638.000000	30.5	54.0	23.5	23.2	50.6	2.9	H
4	3809.250000	32.7	54.0	21.3	24.3	50.3	3.2	H
5	7397.250000	37.2	54.0	16.8	25.7	48.8	4.6	H
6	16721.250000	50.2	54.0	3.8	30.9	47.6	6.8	H

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	Mode 3(Mode3 worst mode)		

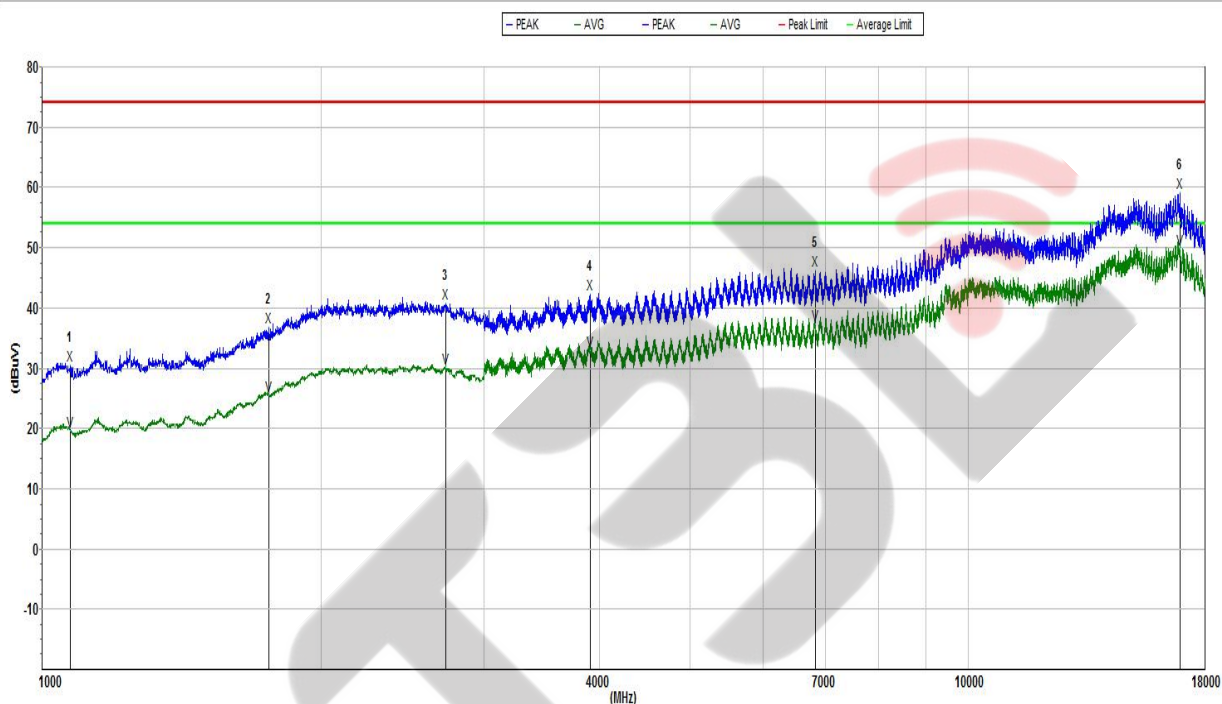
Low Channel
(802.11n20/5745MHz)



Mk.	Freq.(MHz)	Level (dBuV /m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
PK								
1	1121.000000	30.4	74.0	43.6	20.5	57.3	2.2	V
2	1820.000000	37.5	74.0	36.5	21.7	52.7	2.6	V
3	2635.000000	41.8	74.0	32.2	23.7	50.6	2.9	V
4	3808.500000	41.5	74.0	32.5	24.7	50.3	3.2	V
5	7413.000000	47.0	74.0	27.0	26.5	48.8	4.6	V
6	16833.000000	60.3	74.0	13.7	31.4	47.4	6.8	V
AVG								
1	1121.000000	19.6	54.0	34.4	20.5	57.3	2.2	V
2	1820.000000	26.8	54.0	27.2	21.7	52.7	2.6	V
3	2635.000000	31.1	54.0	22.9	23.7	50.6	2.9	V
4	3808.500000	32.3	54.0	21.7	24.7	50.3	3.2	V
5	7413.000000	38.9	54.0	15.1	26.5	48.8	4.6	V
6	16833.000000	51.8	54.0	2.2	31.4	47.4	6.8	V

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	Mode 3(Mode3 worst mode)		

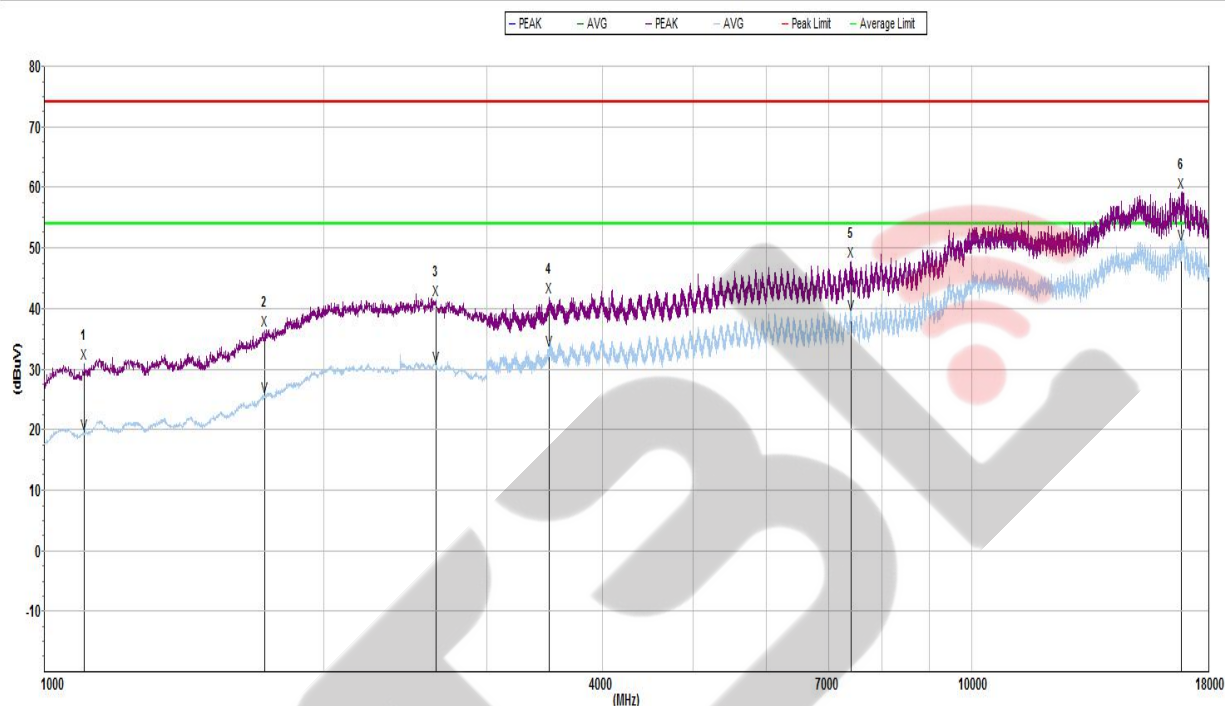
Mid Channel
(802.11n20/5785MHz)



Mk.	Freq.(MHz)	Level (dBuV /m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
PK								
1	1073.000000	30.6	74.0	43.4	20.5	57.3	2.2	H
2	1756.000000	36.8	74.0	37.2	21.6	53.6	2.6	H
3	2726.000000	40.9	74.0	33.1	23.4	50.9	2.9	H
4	3907.500000	42.3	74.0	31.7	24.3	50.2	3.2	H
5	6829.500000	46.3	74.0	27.7	25.5	48.9	4.3	H
6	16921.500000	59.3	74.0	14.7	31.0	47.3	6.8	H
AVG								
1	1073.000000	19.7	54.0	34.3	20.5	57.3	2.2	H
2	1756.000000	25.5	54.0	28.5	21.6	53.6	2.6	H
3	2726.000000	30.1	54.0	23.9	23.4	50.9	2.9	H
4	3907.500000	32.9	54.0	21.1	24.3	50.2	3.2	H
5	6829.500000	37.3	54.0	16.7	25.5	48.9	4.3	H
6	16921.500000	49.9	54.0	4.1	31.0	47.3	6.8	H

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	Mode 3(Mode3 worst mode)		

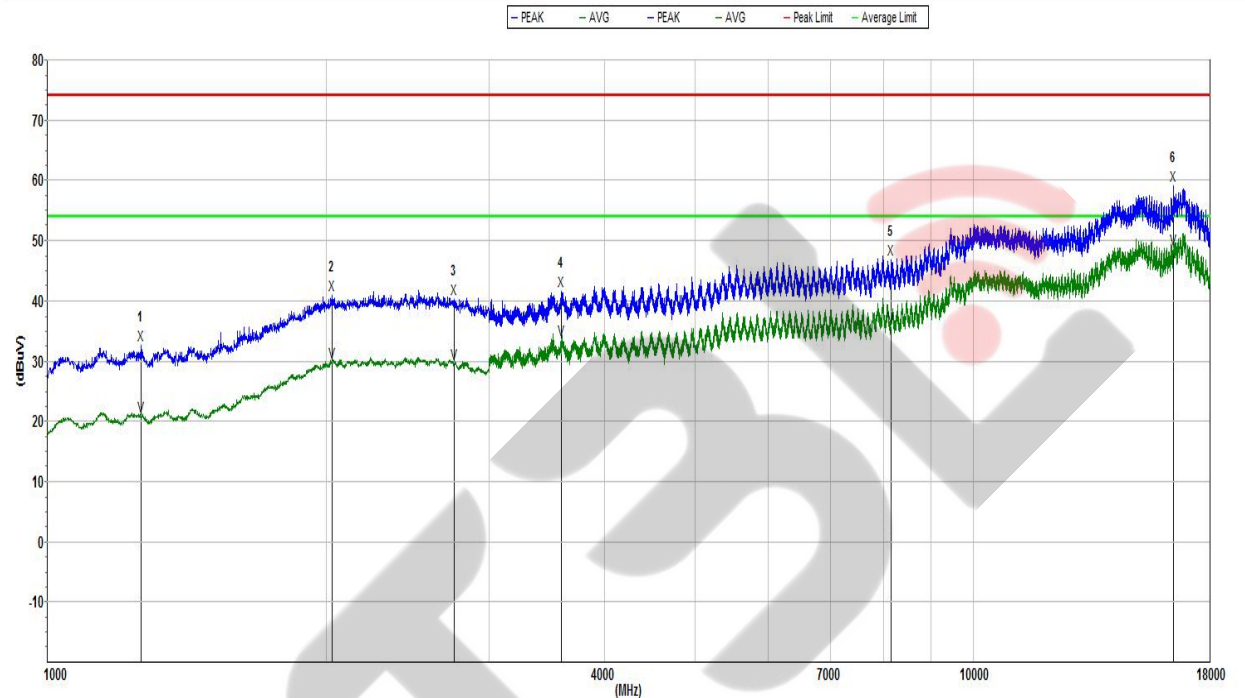
Mid Channel
(802.11n20/5785MHz)



Mk.	Freq.(MHz)	Level (dBuV /m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
PK								
1	1105.000000	31.0	74.0	43.0	20.4	57.3	2.2	V
2	1730.000000	36.5	74.0	37.5	21.5	54.0	2.6	V
3	2644.000000	41.5	74.0	32.5	23.7	50.7	2.9	V
4	3504.750000	41.9	74.0	32.1	24.6	50.5	3.1	V
5	7405.500000	47.8	74.0	26.2	26.5	48.8	4.6	V
6	16828.500000	59.3	74.0	14.7	31.4	47.4	6.8	V
AVG								
1	1105.000000	19.3	54.0	34.7	20.4	57.3	2.2	V
2	1730.000000	25.6	54.0	28.4	21.5	54.0	2.6	V
3	2644.000000	30.5	54.0	23.5	23.7	50.7	2.9	V
4	3504.750000	33.1	54.0	20.9	24.6	50.5	3.1	V
5	7405.500000	39.0	54.0	15.0	26.5	48.8	4.6	V
6	16828.500000	50.6	54.0	3.4	31.4	47.4	6.8	V

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Horizontal
Test Mode	Mode 3(Mode3 worst mode)		

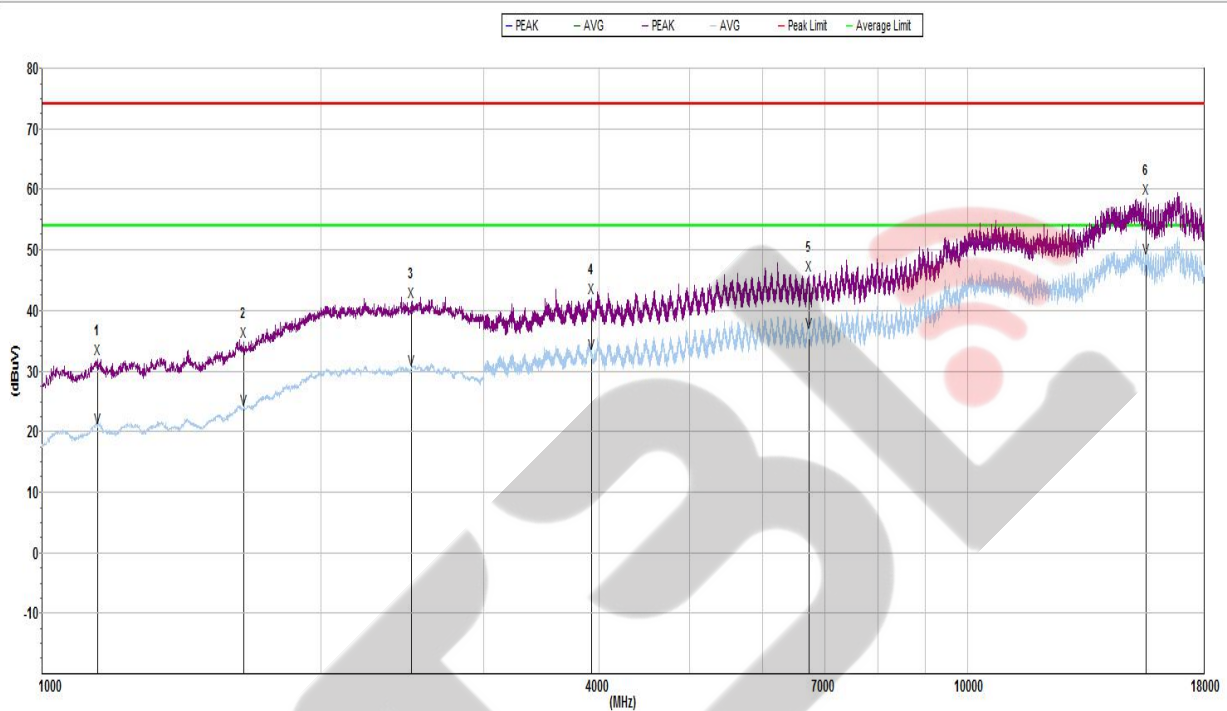
High Channel
(802.11n20/5825MHz)



Mk.	Freq.(MHz)	Level (dBuV /m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L .(dB)	Pol.
PK								
1	1264.000000	32.7	74.0	41.3	20.7	57.3	2.3	H
2	2032.000000	41.0	74.0	33.0	21.9	50.1	2.7	H
3	2750.000000	40.4	74.0	33.6	23.5	51.0	2.9	H
4	3591.000000	41.6	74.0	32.4	24.2	50.4	3.2	H
5	8153.250000	47.0	74.0	27.0	26.2	48.6	5.0	H
6	16448.250000	59.2	74.0	14.8	30.8	47.9	6.7	H
AVG								
1	1264.000000	21.0	54.0	33.0	20.7	57.3	2.3	H
2	2032.000000	29.9	54.0	24.1	21.9	50.1	2.7	H
3	2750.000000	29.7	54.0	24.3	23.5	51.0	2.9	H
4	3591.000000	33.6	54.0	20.4	24.2	50.4	3.2	H
5	8153.250000	35.9	54.0	18.1	26.2	48.6	5.0	H
6	16448.250000	48.6	54.0	5.4	30.8	47.9	6.7	H

Temperature	26 °C	Relative Humidity	56%
Test Voltage	AC 120V/60Hz	Polarization	Vertical
Test Mode	Mode 3(Mode3 worst mode)		

High Channel
(802.11n20/5825MHz)



Mk.	Freq.(MHz)	Level (dBuV /m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
PK								
1	1149.000000	32.1	74.0	41.9	20.8	57.3	2.2	V
2	1652.000000	35.0	74.0	39.0	21.3	55.1	2.5	V
3	2504.000000	41.4	74.0	32.6	23.4	50.2	2.8	V
4	3920.250000	42.1	74.0	31.9	24.7	50.2	3.2	V
5	6733.500000	45.9	74.0	28.1	26.0	48.9	4.3	V
6	15566.250000	58.6	74.0	15.4	31.2	47.8	6.5	V
AVG								
1	1149.000000	20.8	54.0	33.2	20.8	57.3	2.2	V
2	1652.000000	23.7	54.0	30.3	21.3	55.1	2.5	V
3	2504.000000	30.3	54.0	23.7	23.4	50.2	2.8	V
4	3920.250000	33.0	54.0	21.0	24.7	50.2	3.2	V
5	6733.500000	36.4	54.0	17.6	26.0	48.9	4.3	V
6	15566.250000	48.7	54.0	5.3	31.2	47.8	6.5	V

Note:

- Factor=Ant.Factor+cable loss-Amp.Gain .
- Level contains the factor; Margin=Limit-Level.

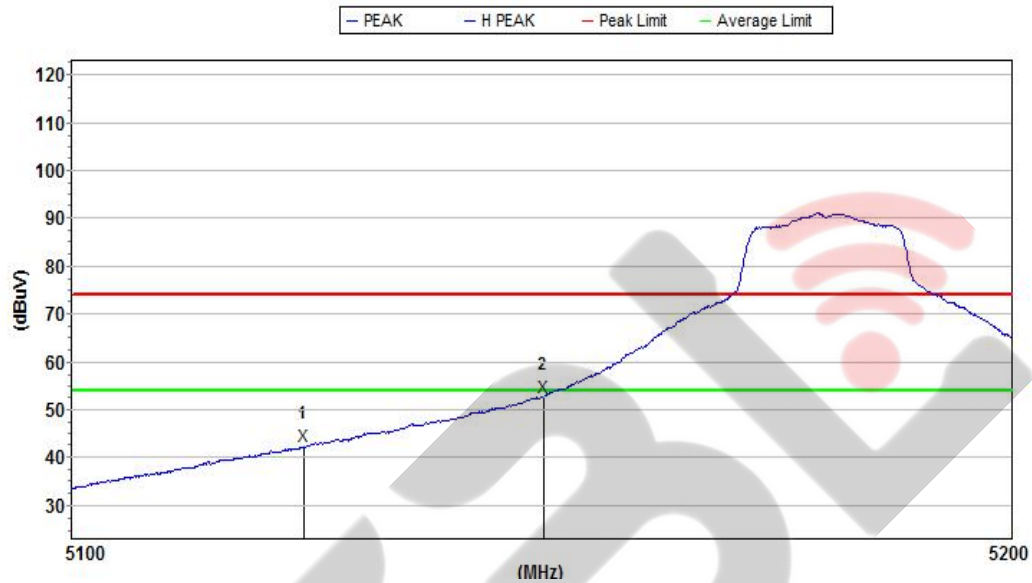
3. 802.11b, 802.11g, 802.11n (HT-20), 802.11n (HT-40) mode all have been tested, the worst case is 802.11b, only show the worst case.

4. Other 18G-40G Emission detected are more than 20dB below the limit.

3.2.9 TEST RESULTS (Band edgeRequirements)

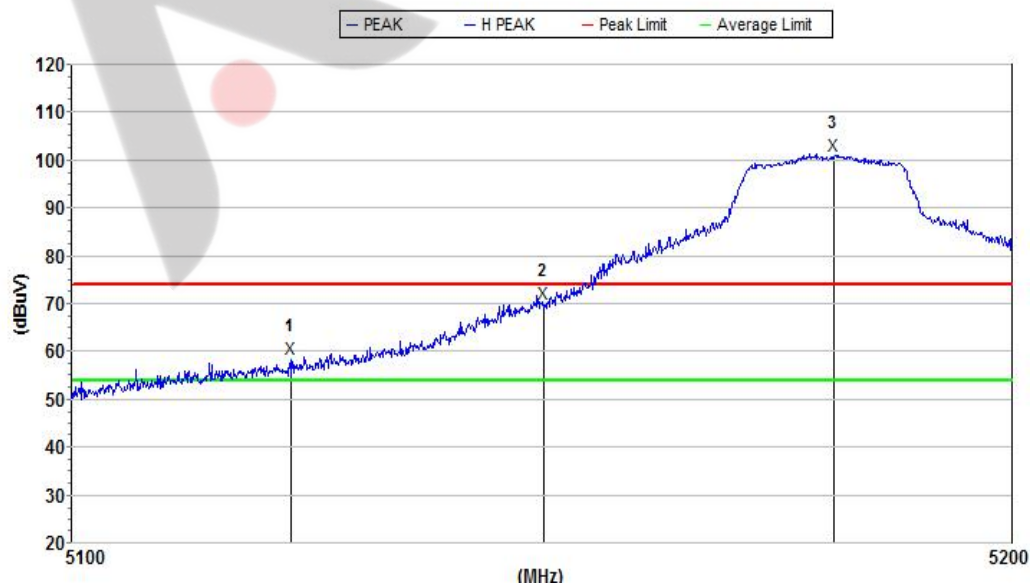
Band I (5.15-5.25)GHz

802.11 n20/ 5180 MHz- Horizontal



Mk.	Freq.(MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Avg:								
1	5124.519717	42.3	54.0	11.7	24.8	49.2	3.7	H
2	5150.000000	52.7	54.0	1.3	24.8	49.2	3.7	H

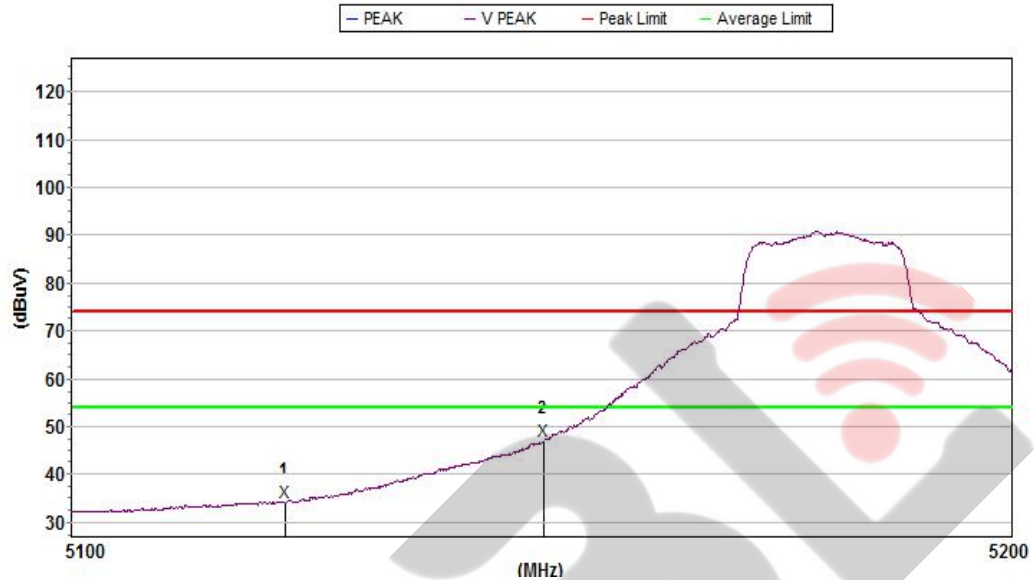
802.11 n20/ 5180 MHz- Horizontal



Mk.	Freq.(MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								

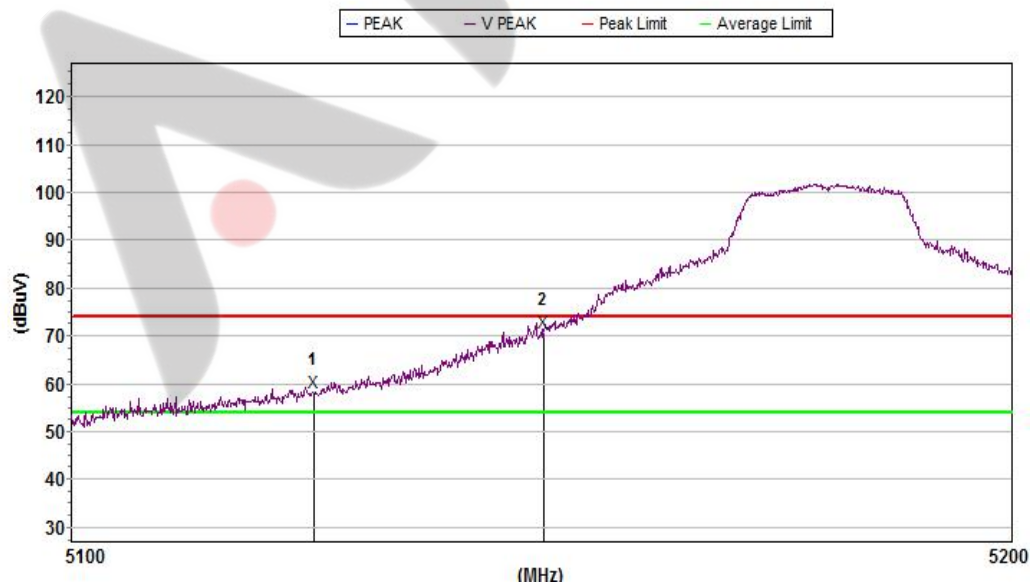
1	5123.126790	58.6	74.0	15.4	24.8	49.2	3.7	H
2	5150.000000	69.9	74.0	4.1	24.8	49.2	3.7	H

802.11 n20/ 5180 MHz- Vertical



Mk.	Freq.(MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Avg:								
1	5122.529936	34.4	54.0	19.6	25.7	49.2	3.7	V
2	5150.000000	47.2	54.0	6.8	25.6	49.2	3.7	V

802.11 n20/ 5180 MHz- Vertical



Mk.	Freq.(MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								
1	5125.614426	58.3	74.0	15.7	25.7	49.2	3.7	V
2	5150.000000	70.6	74.0	3.4	25.6	49.2	3.7	V

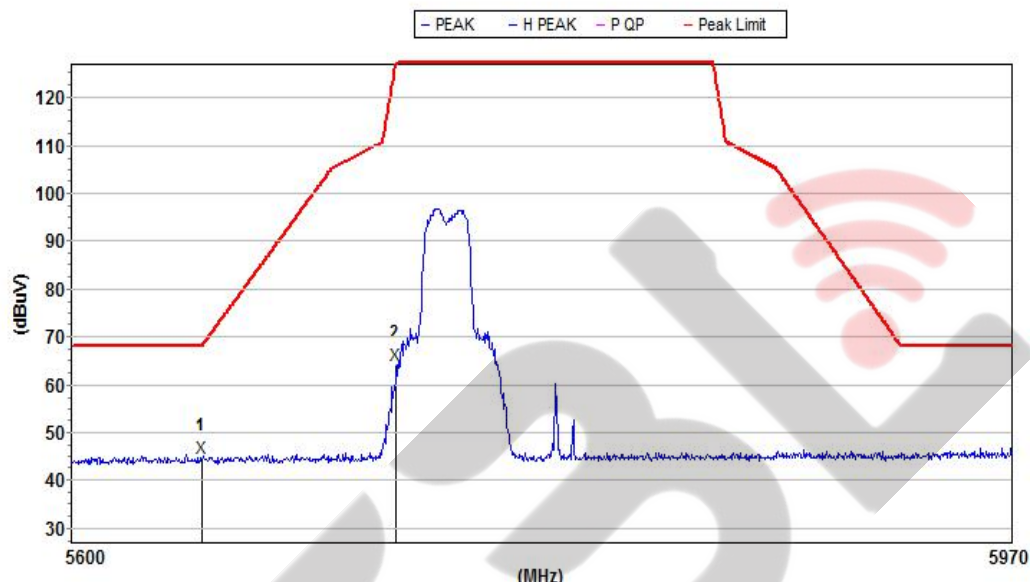
Note:

1. 802.11a , 802.11n (HT-20), 802.11n (HT-40) , 802.11ac (VHT-20), 802.11ac(VHT-40) , 802.11ac(VHT-80)mode all have been tested, the worst case is 802.11n20, only show the worst case.

2. 802.11b, 802.11g, 802.11n (HT-20), 802.11n (HT-40) mode all have been tested, the worst case is 802.11b, only show the worst case.

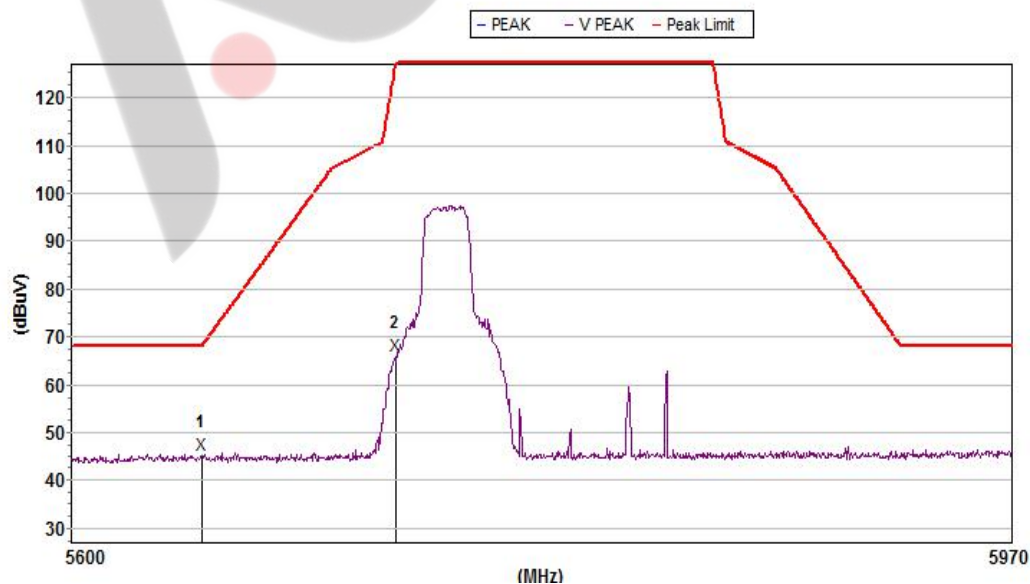
Band IV(5.725-5.85 GHz)

802.11 n20/ 5745 MHz- Horizontal



Mk.	Freq.(MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak:								
1	5650.000000	44.9	68.2	23.3	25.0	49.0	4.0	H
2	5725.000000	64.1	127.2	63.1	25.0	49.0	4.0	H

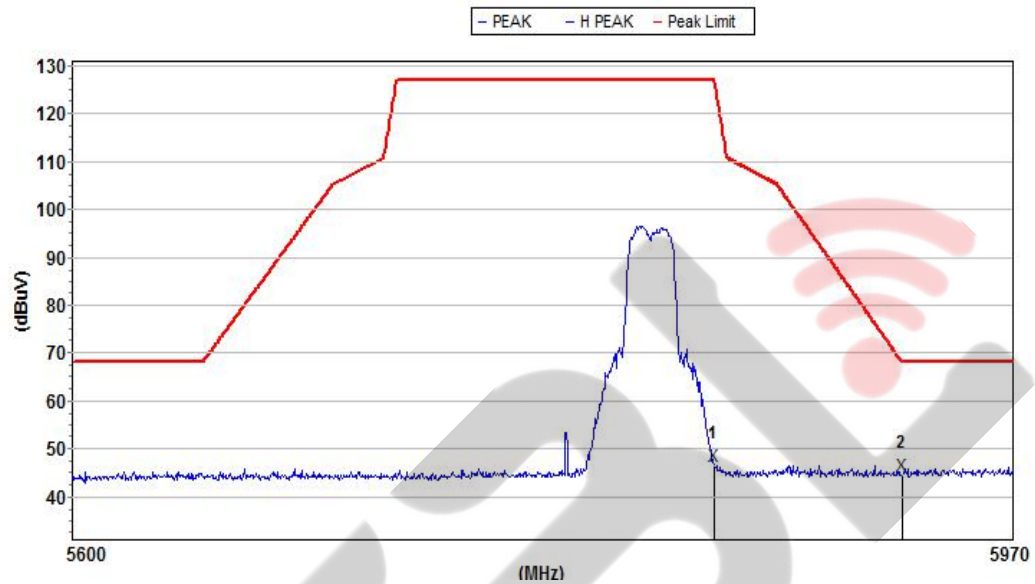
802.11 n20/ 5745 MHz- Vertical



Mk.	Freq.(MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								

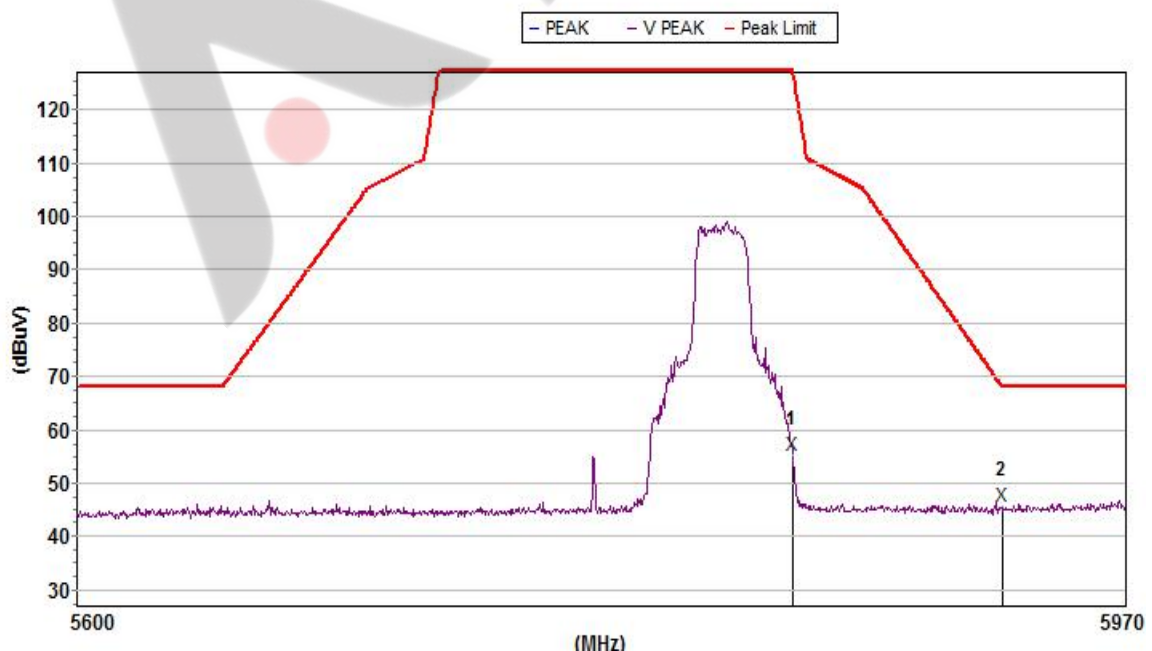
1	5650.000000	45.3	68.2	22.9	25.4	49.0	4.0	V
2	5725.000000	66.3	127.2	60.9	25.4	49.0	4.0	V

802.11 n20/ 5825 MHz- Horizontal



Mk.	Freq.(MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Avg:								
1	5850.000000	46.5	127.2	80.7	25.1	49.0	4.1	H
2	5925.000000	44.4	68.2	23.8	25.1	48.9	4.1	H

802.11 n20/ 5825 MHz- Vertical



Mk.	Freq.(MHz)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Ant.F/G. (dB/m)	Amp.G. (dB)	Cbl.L. (dB)	Pol.
Peak								

1	5850.000000	55.3	127.2	71.9	25.5	49.0	4.1	V
2	5925.000000	45.6	68.2	22.6	25.6	48.9	4.1	V

Note: 802.11a , 802.11n (HT-20), 802.11n (HT-40) , 802.11ac (VHT-20), 802.11ac(VHT-40) ,

802.11ac(VHT-80)mode all have been tested, the worst case is 802.11n20, only show the worst case.

4.POWER SPECTRAL DENSITY TEST

4.1LIMIT

- 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 any500KHz 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 D02 General UNII Test Procedures New Rules v01r03.

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

- a) Set $RBW \geq 1/T$, 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.

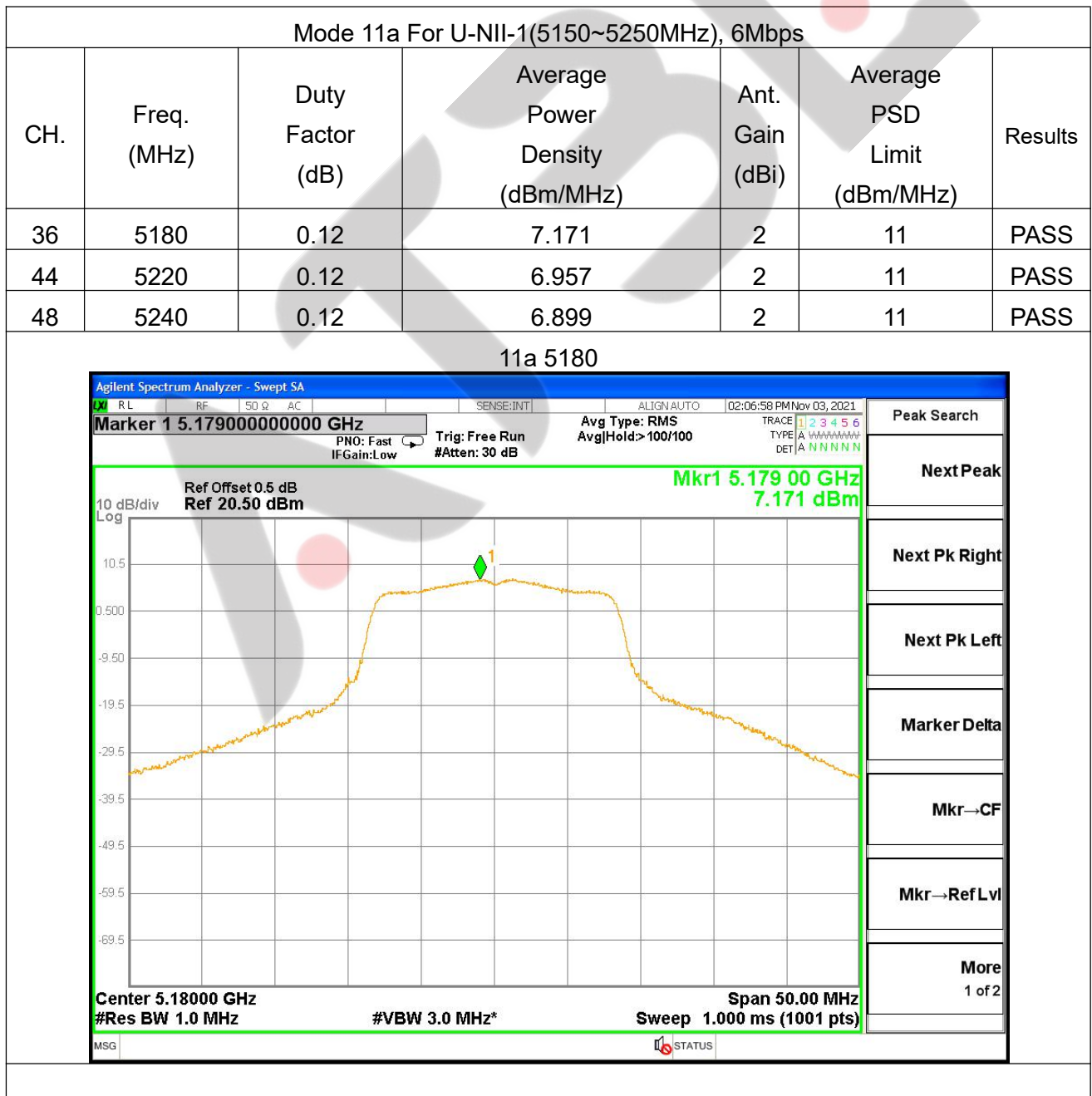
4.4 TEST SETUP



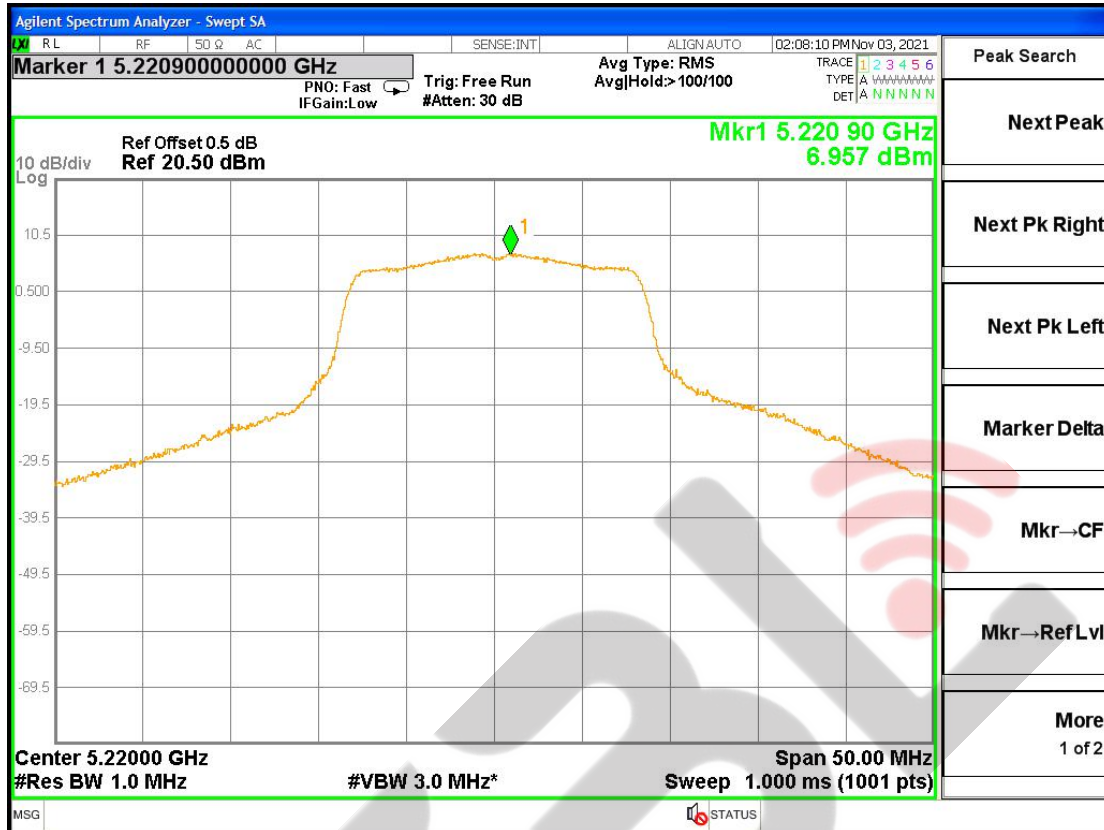
4.5 EUT OPERATION CONDITIONS

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.

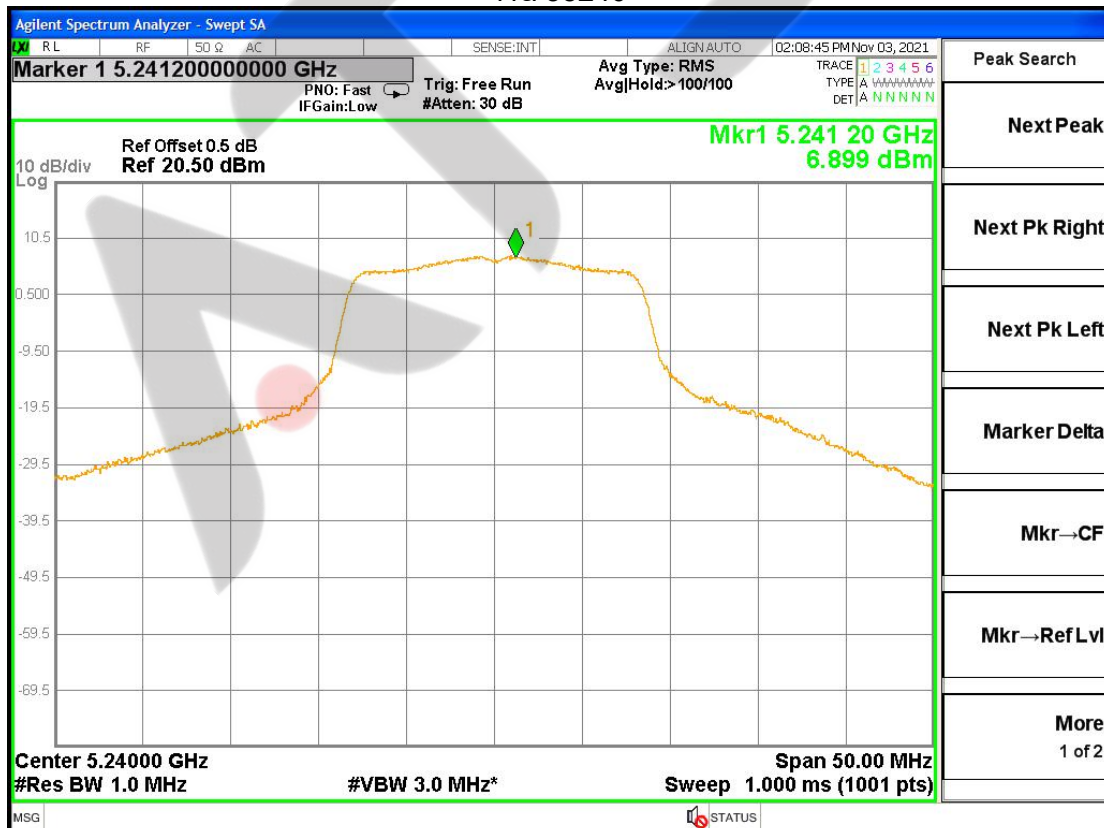
4.6 TEST RESULTS



11a 5220



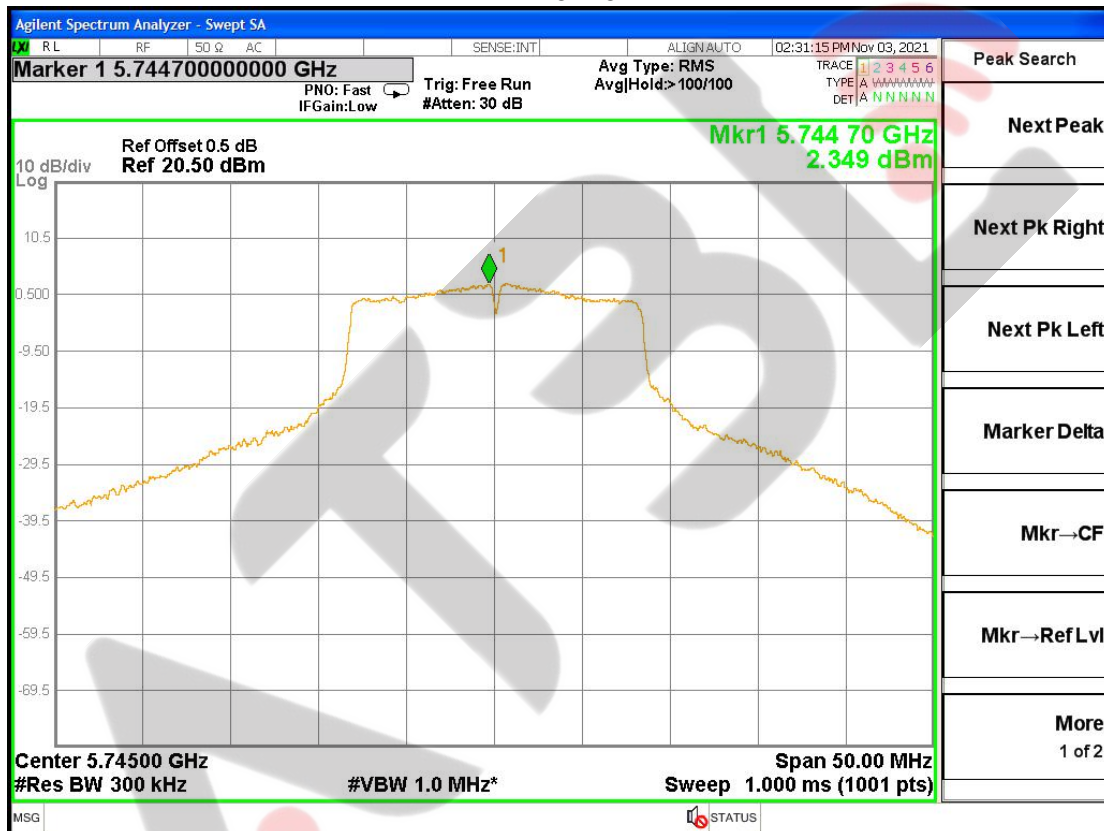
11a 35240



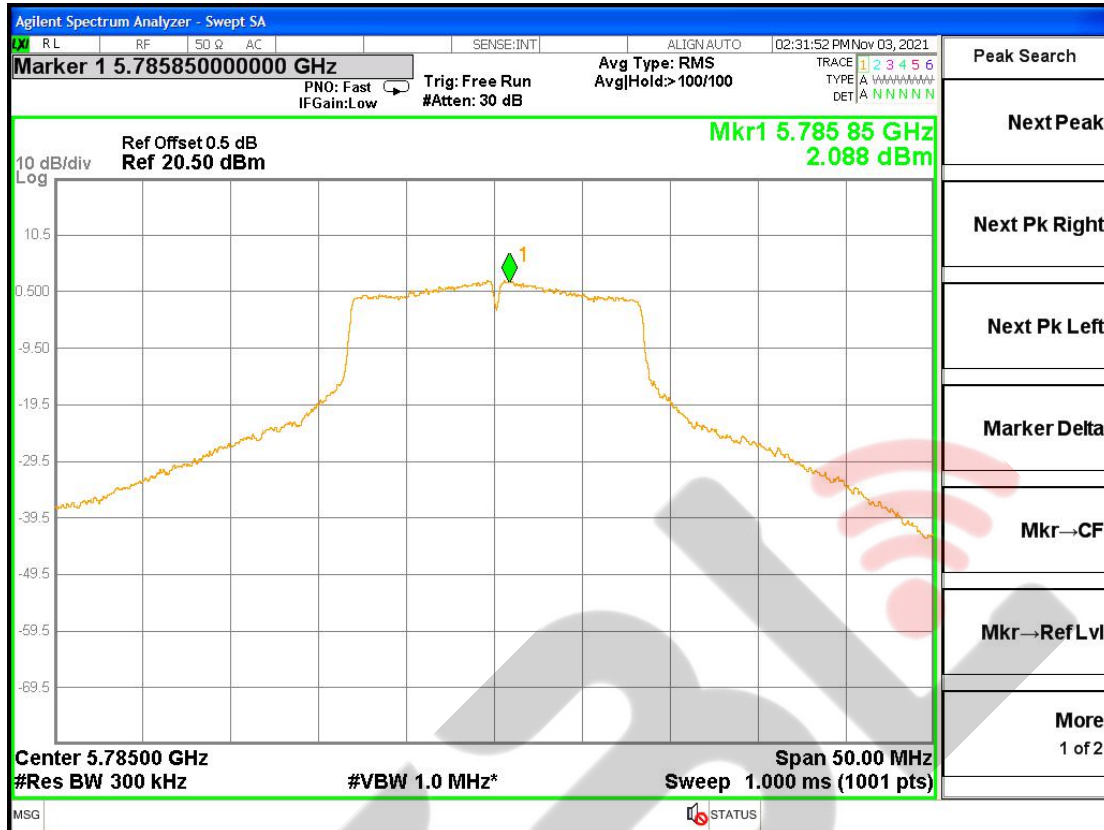
Mode 11a For U-NII-3(5725~5850MHz) , 6Mbps

CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Ant. Gain (dBi)	Average PSD Limit (dBm/MHz)	Results
149	5745	0.12	2.349	2	30	PASS
157	5785	0.12	2.088	2	30	PASS
165	5825	0.12	1.755	2	30	PASS

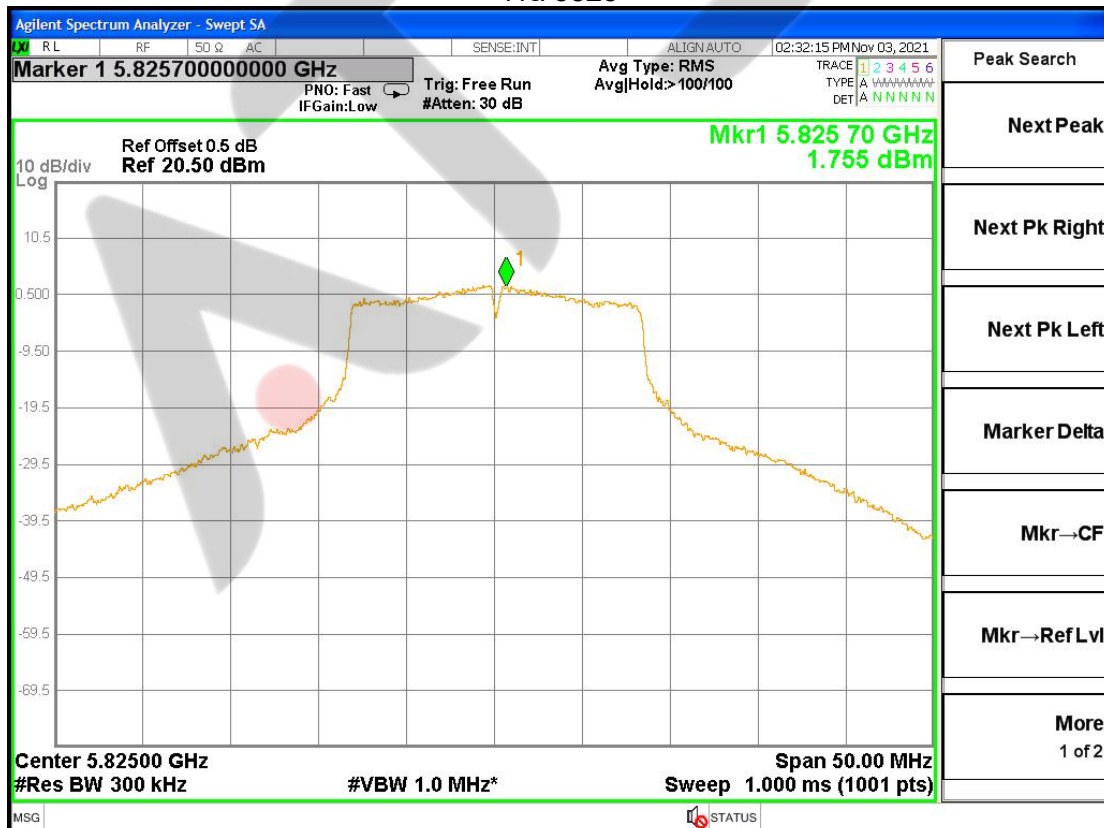
11a 5745



11a 5785



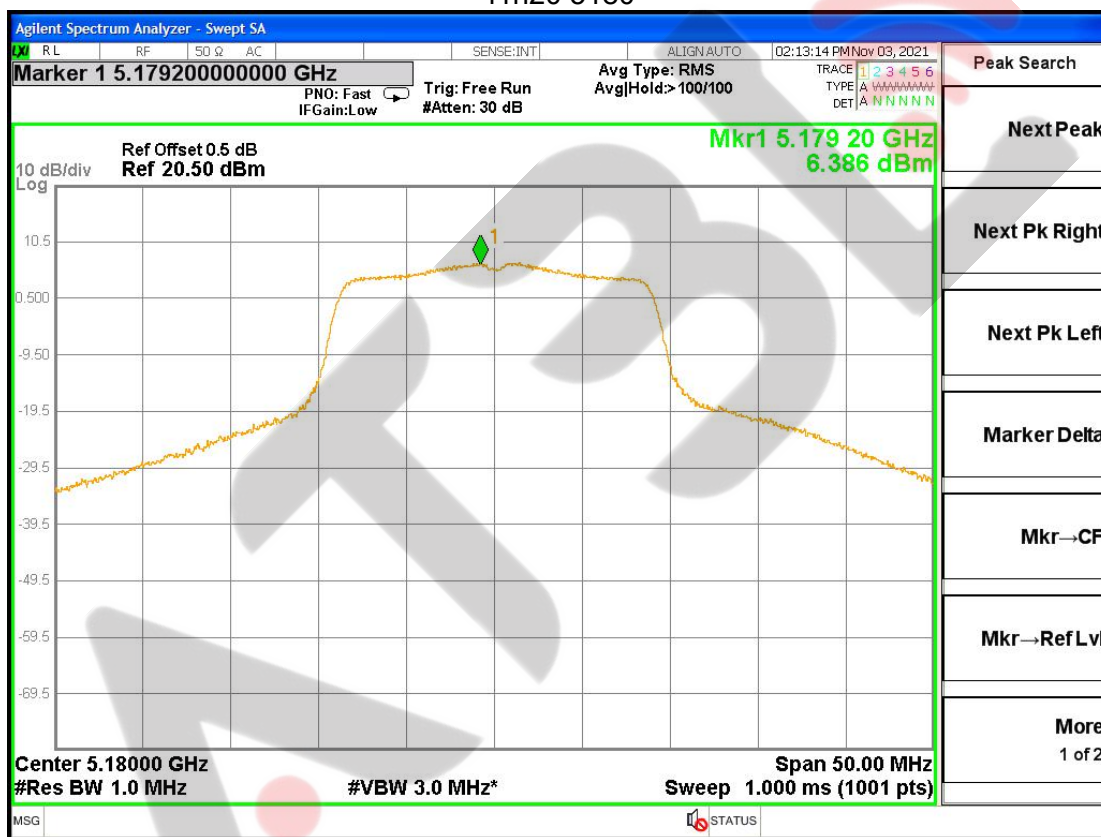
11a 5825



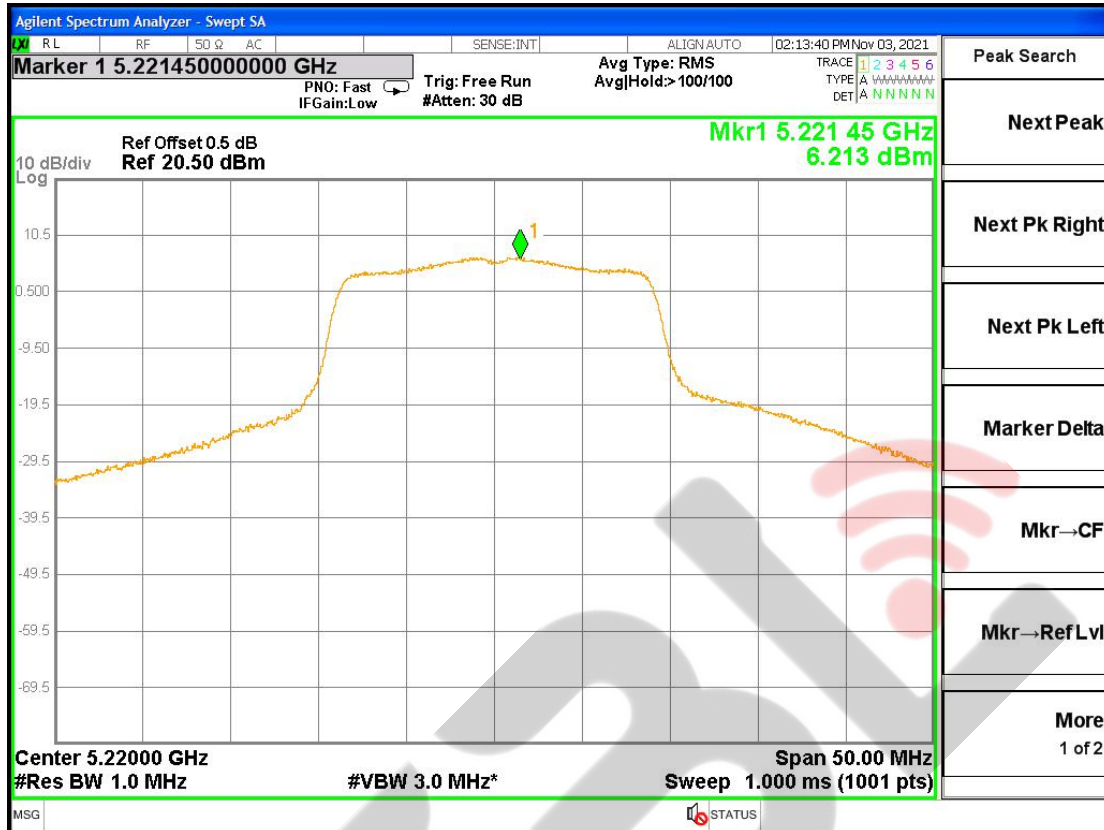
Mode 11n20 For U-NII-1(5150~5250MHz) , MCS0

CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Ant. Gain (dBi)	Average PSD Limit (dBm/MHz)	Results
36	5180	0.16	6.386	2	11	PASS
44	5220	0.16	6.213	2	11	PASS
48	5240	0.16	6.635	2	11	PASS

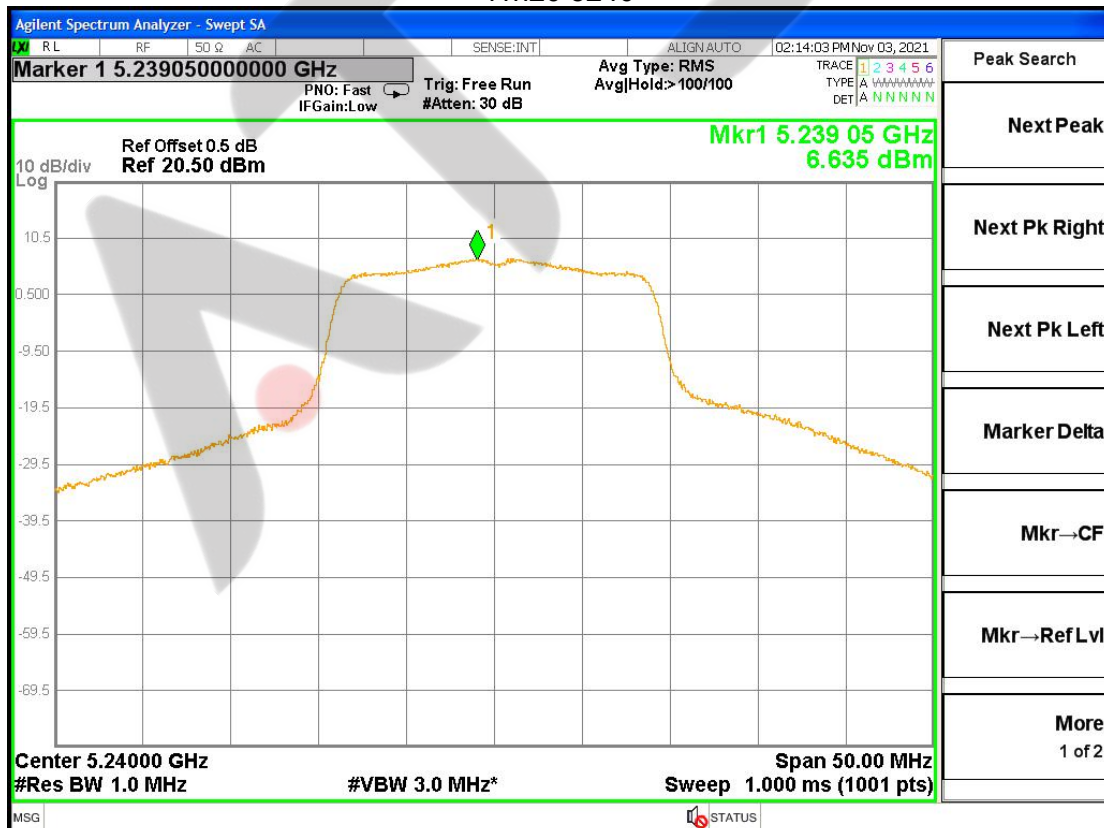
11n20 5180



11n20 5220



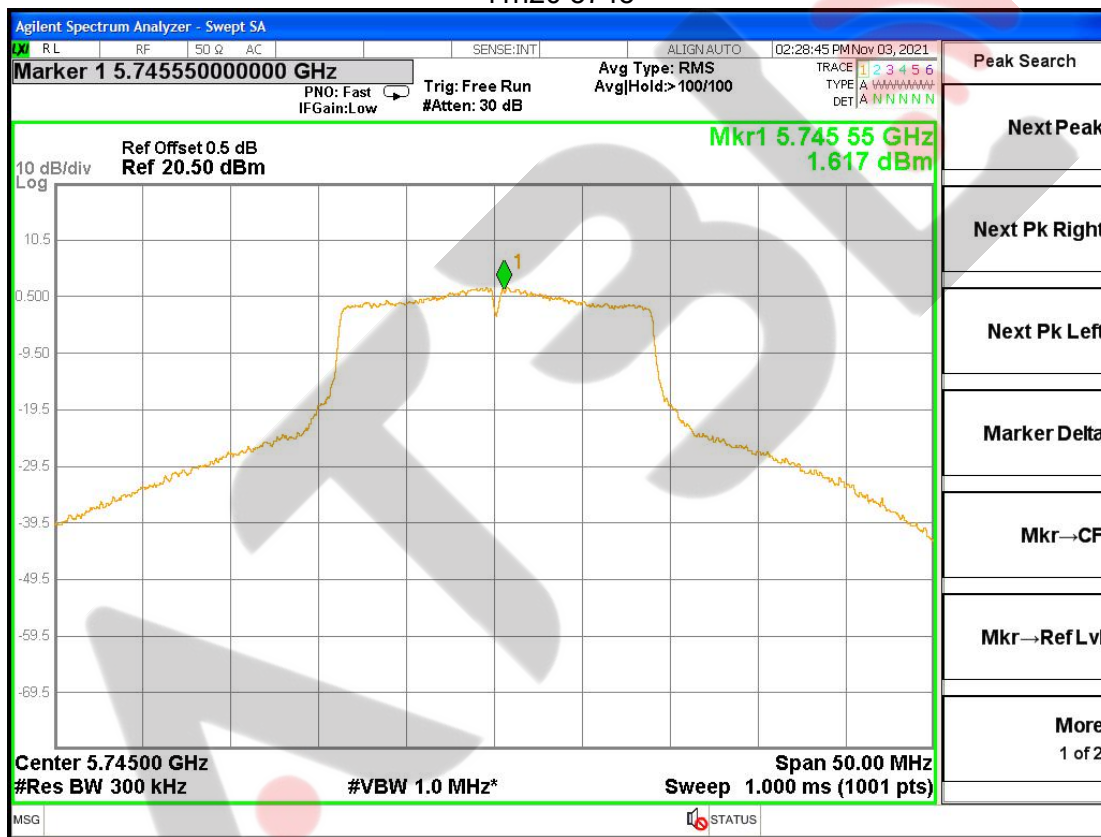
11n20 5240



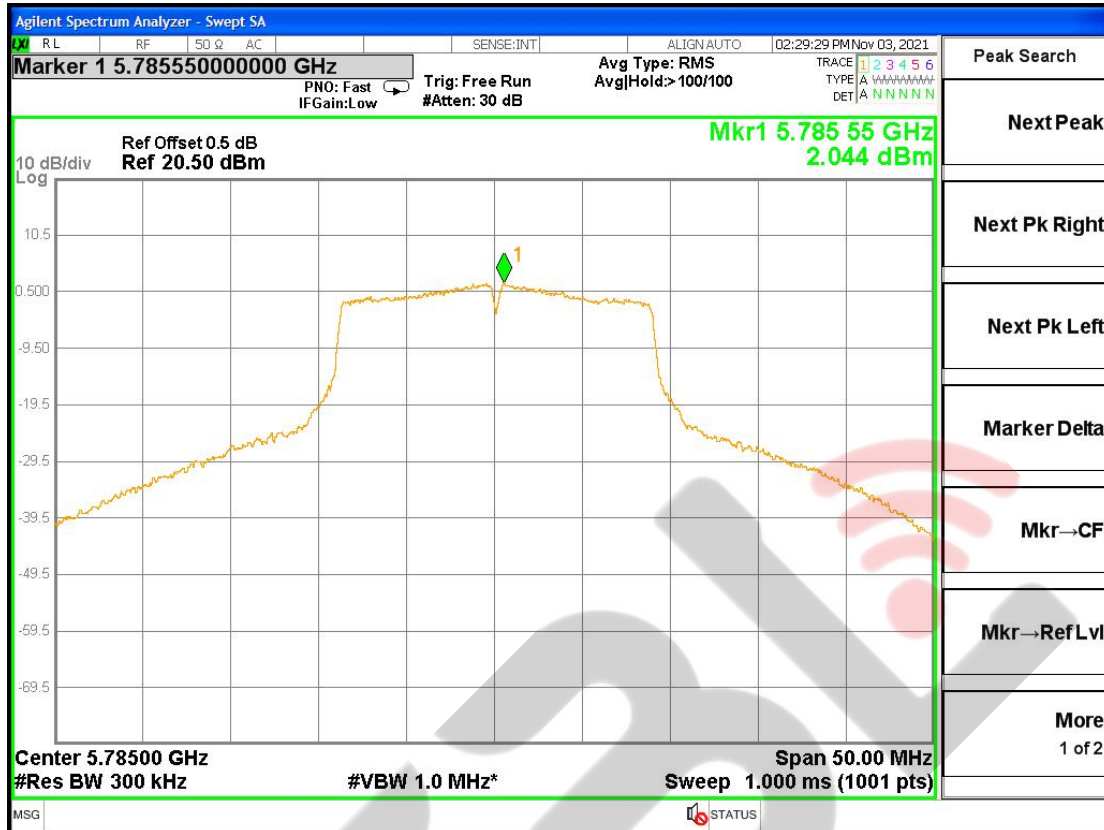
Mode 11n20 For U-NII-3(5725~5850MHz) , MCS0

CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Ant. Gain (dBi)	Average PSD Limit (dBm/MHz)	Results
149	5745	0.16	1.617	2	30	PASS
157	5785	0.16	2.044	2	30	PASS
165	5825	0.16	1.279	2	30	PASS

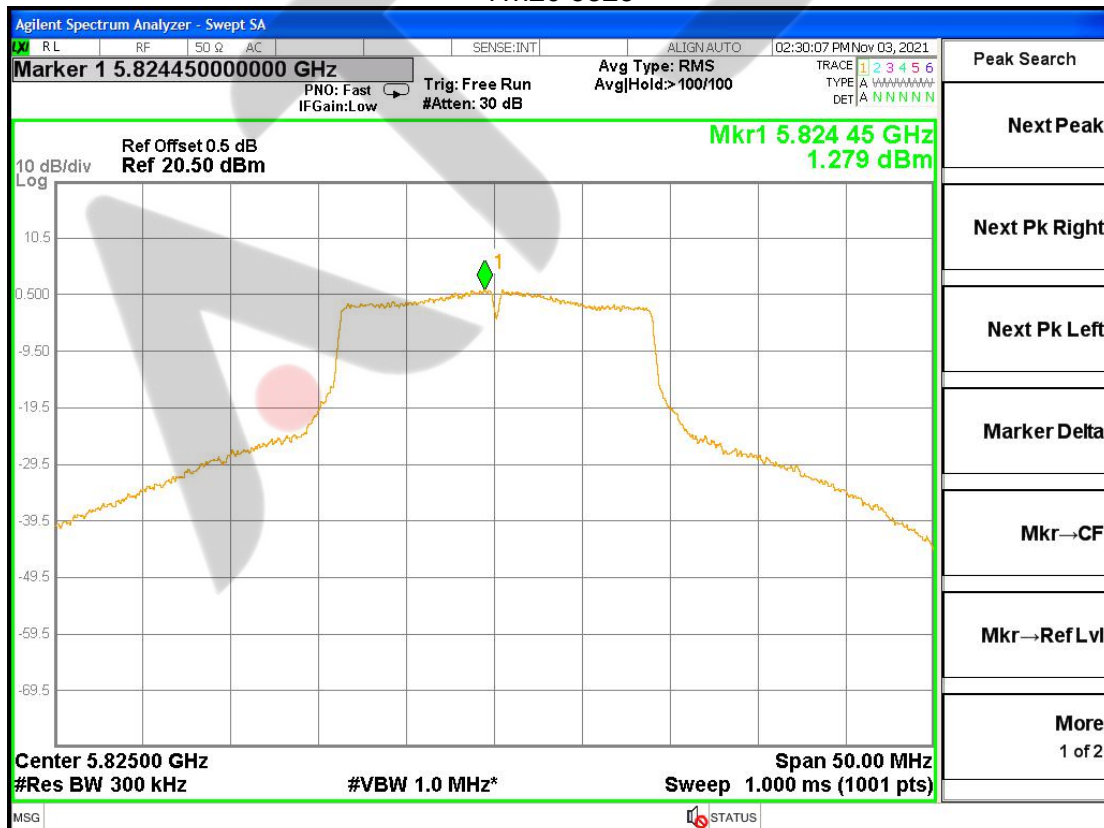
11n20 5745



11n20 5785

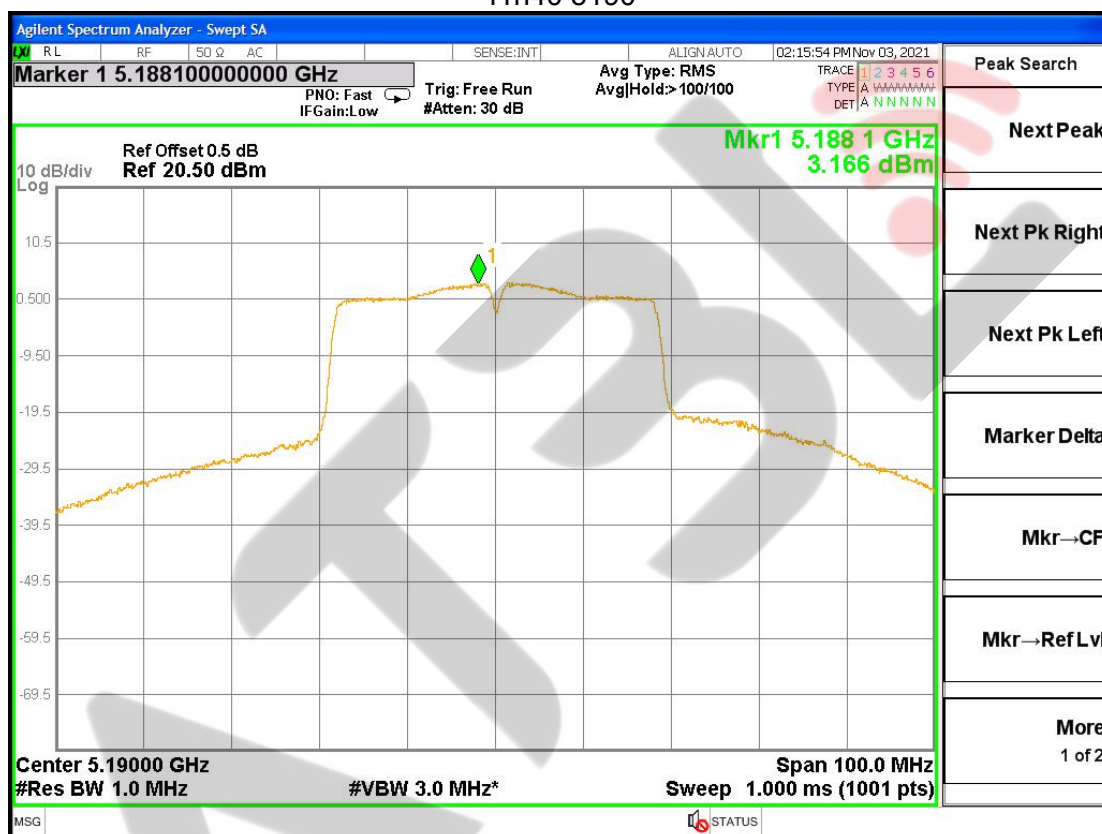


11n20 5825

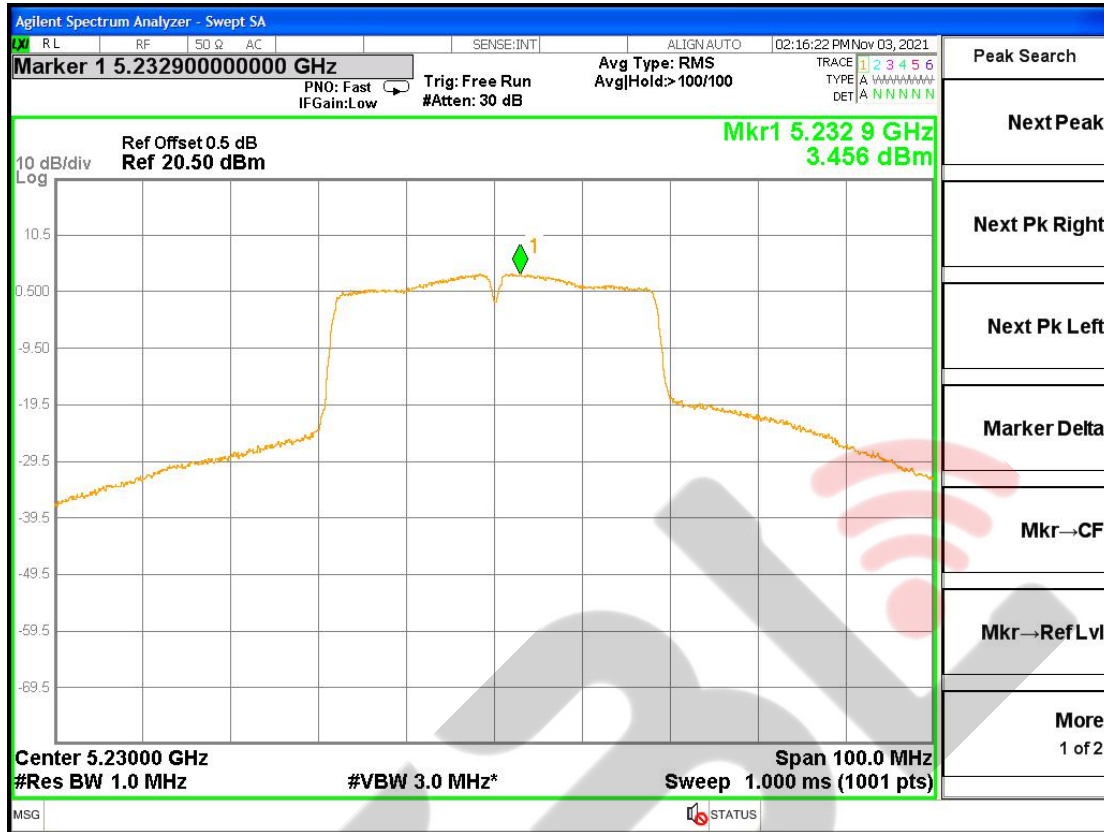


Mode 11n40 For U-NII-1(5150~5250MHz) , MCS0						
CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Ant. Gain (dBi)	Average PSD Limit (dBm/MHz)	Results
38	5190	0.29	3.166	2	11	PASS
46	5230	0.29	3.456	2	11	PASS

11n40 5190

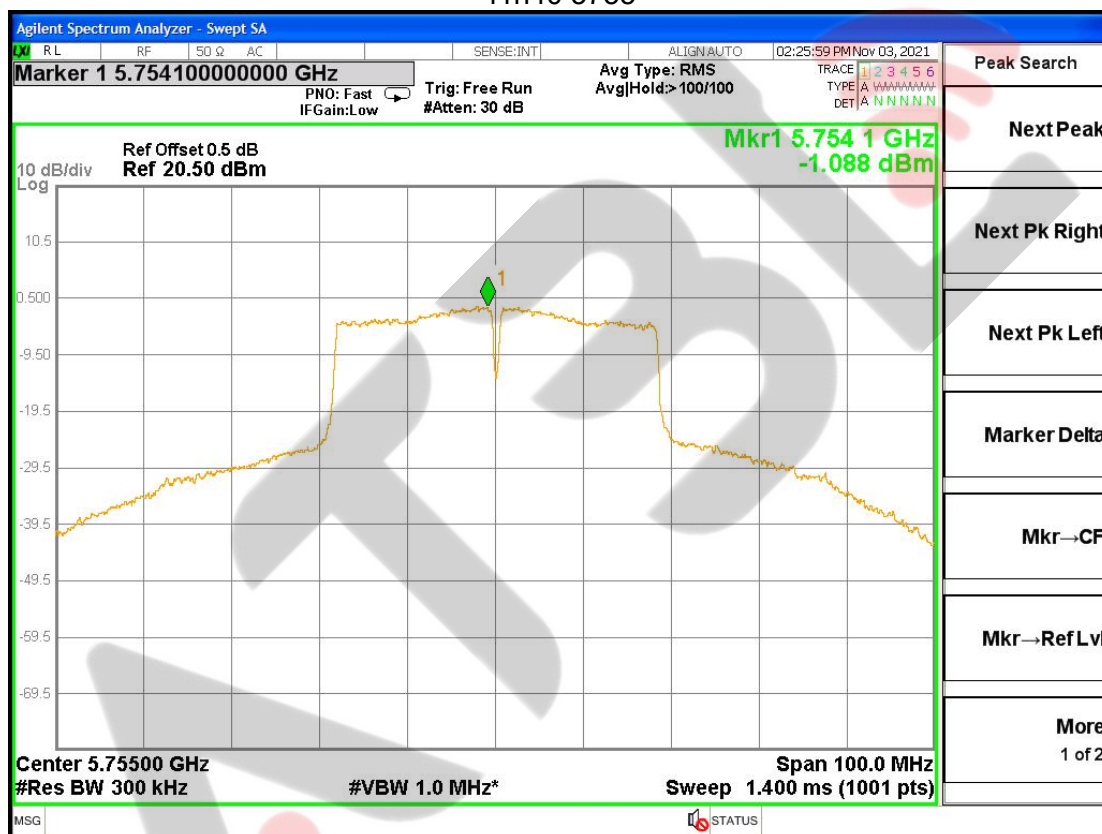


11n40 5230

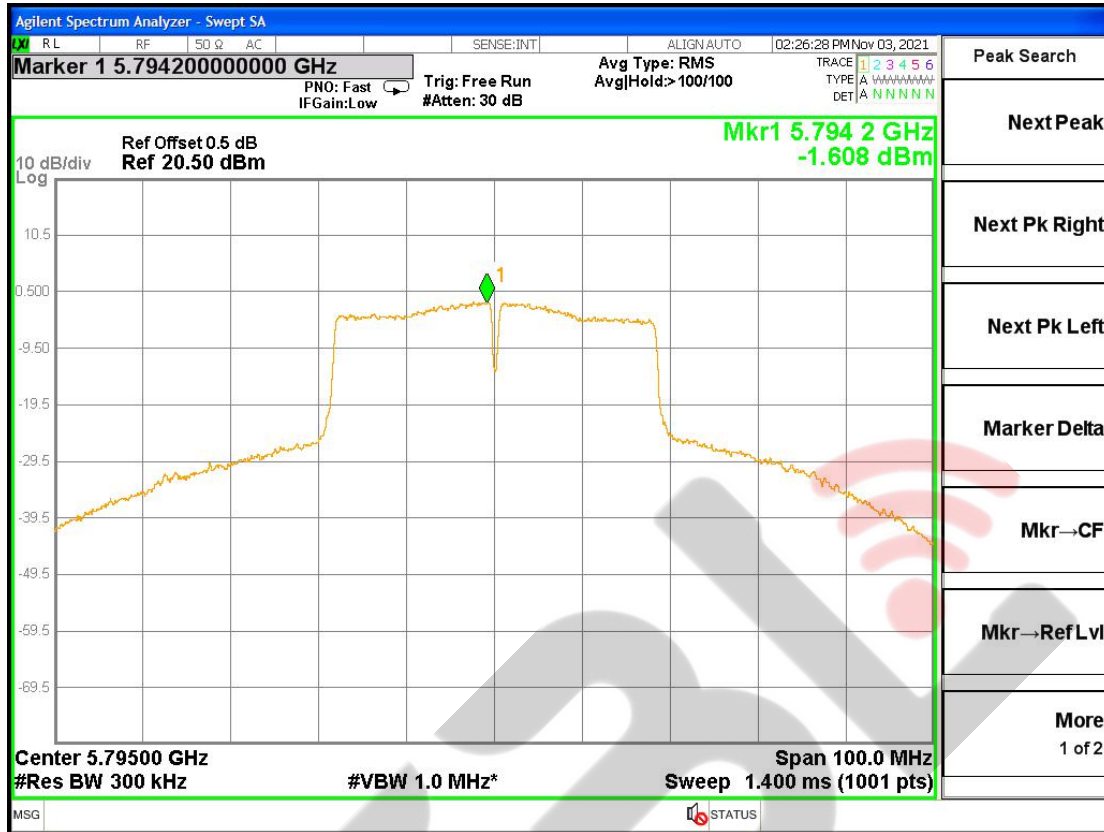


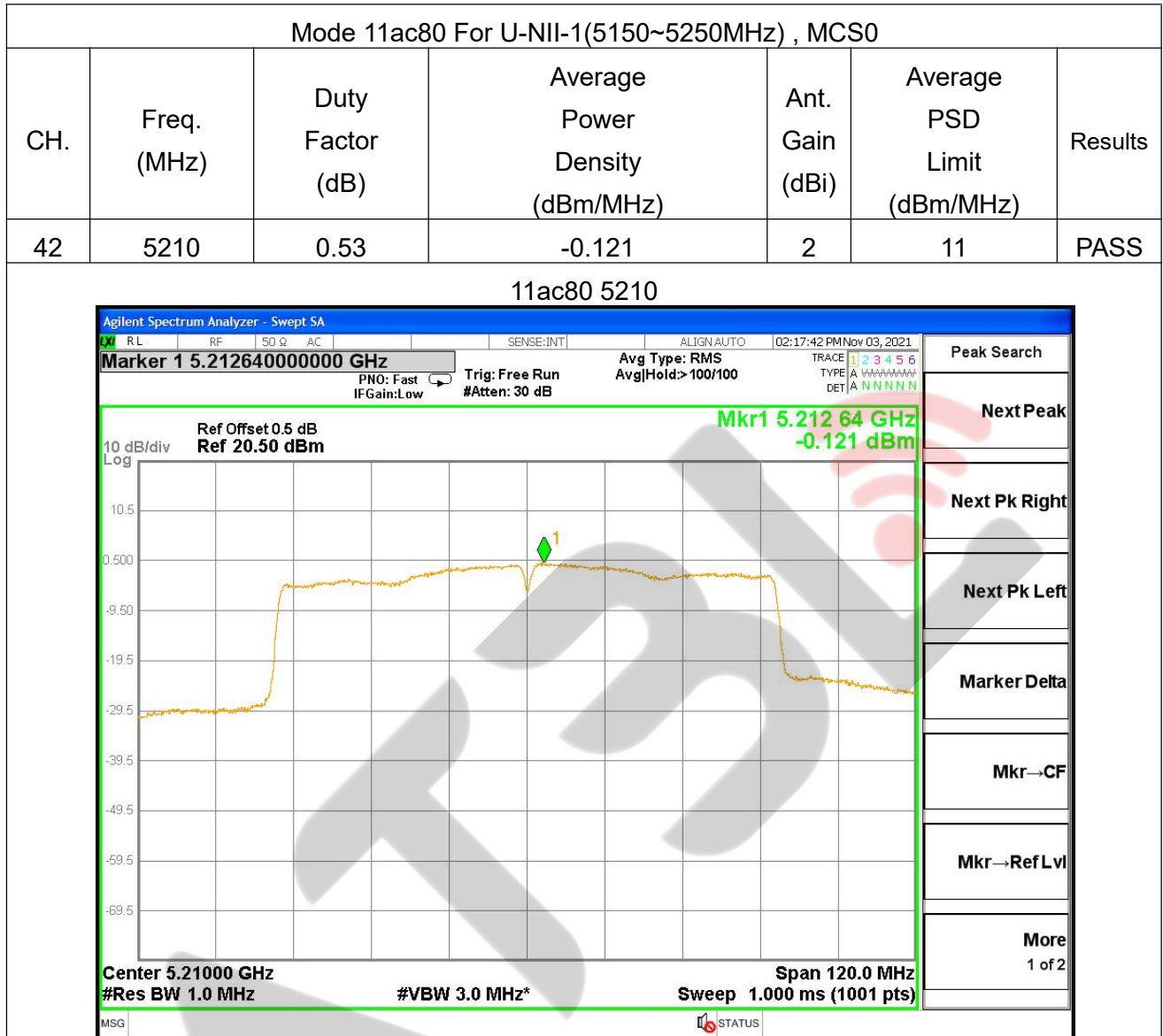
Mode 11n40 For U-NII-3(5725~5850MHz) , MCS0						
CH.	Freq. (MHz)	Duty Factor (dB)	Average Power Density (dBm/MHz)	Ant. Gain (dBi)	Average PSD Limit (dBm/MHz)	Results
151	5755	0.29	-1.088	2	30	PASS
159	5795	0.29	-1.608	2	30	PASS

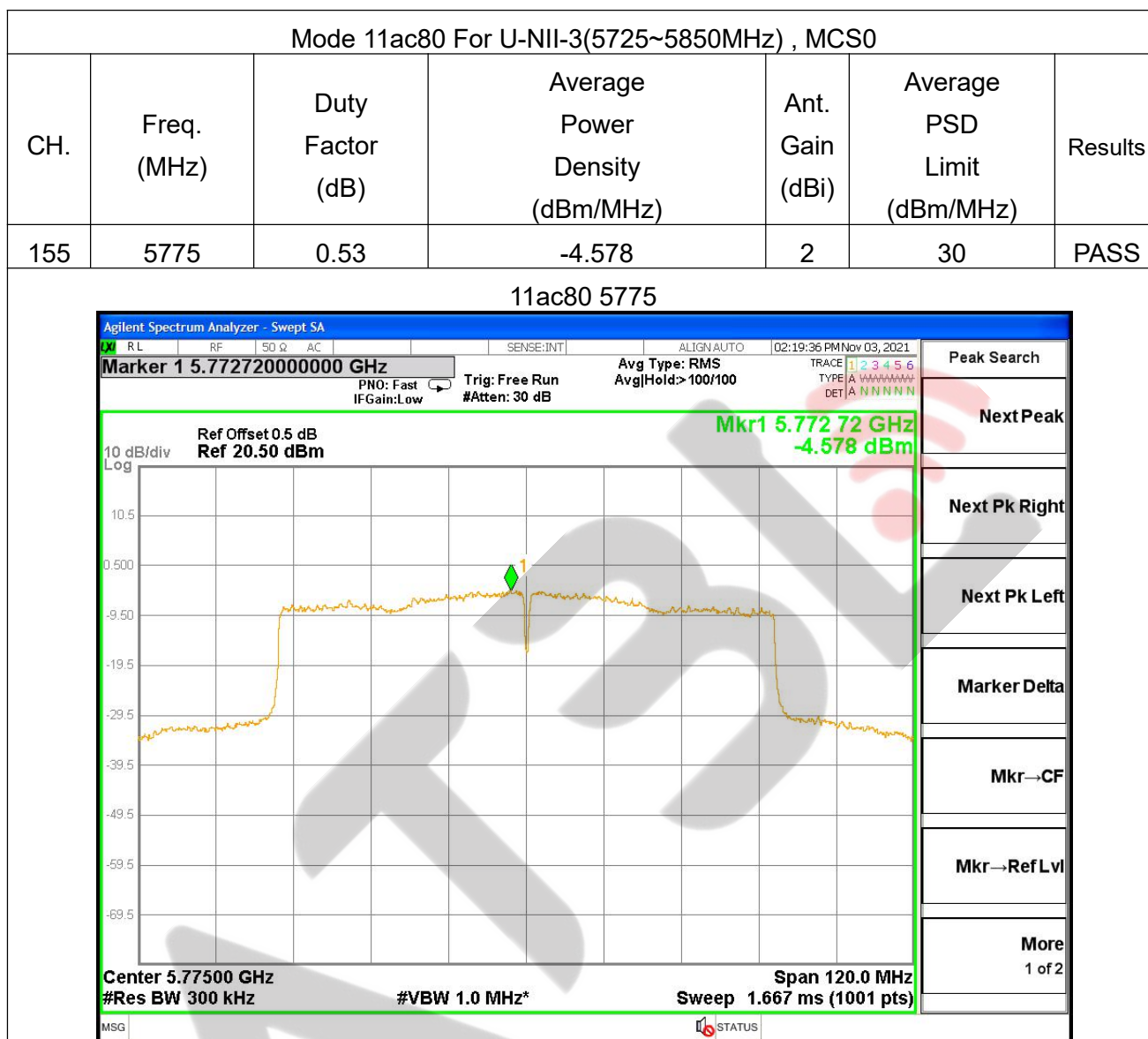
11n40 5755



11n40 5795







5.BANDWIDTH MEASUREMENT

5.1EMISSION BANDWIDTH (EBW) 26 BANDWID PROCEDURES / LIMIT

See list of measuring instruments of this test report.

5.1.1TEST 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%.

5.1.2DEVIATION FROM STANDARD

No deviation.

5.1.3TEST SETUP



5.1.4EUT OPERATION CONDITIONS

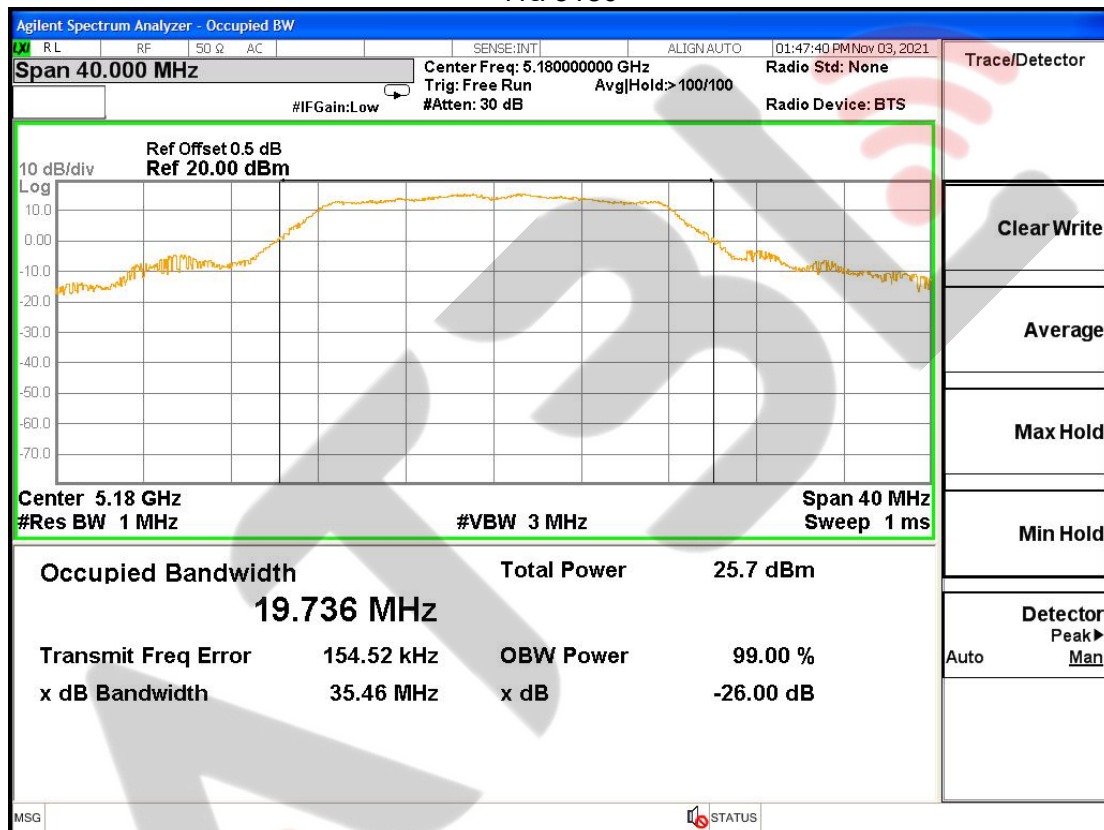
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5 TEST RESULTS

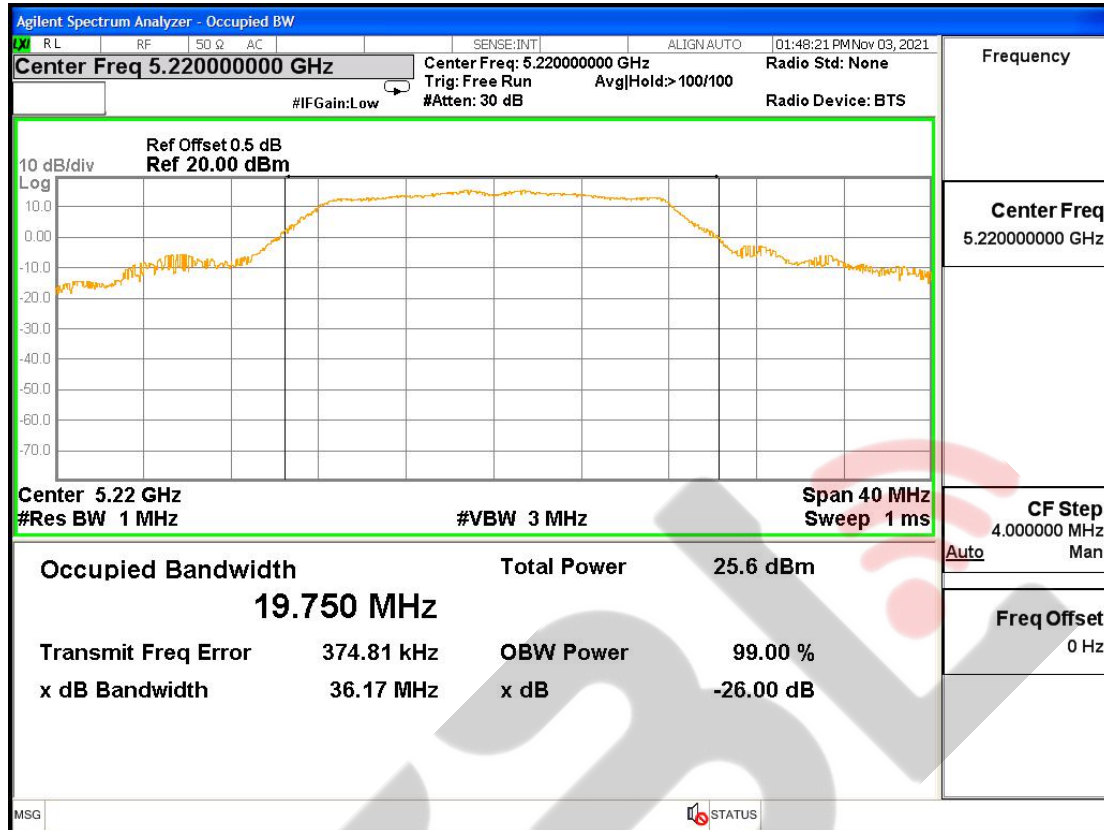
Mode 11a For U-NII-1(5150~5250MHz), 6Mbps

CH.	Freq. (MHz)	26dB Bandwidth (MHz)	Results
36	5180	35.46	PASS
44	5220	36.17	PASS
48	5240	35.35	PASS

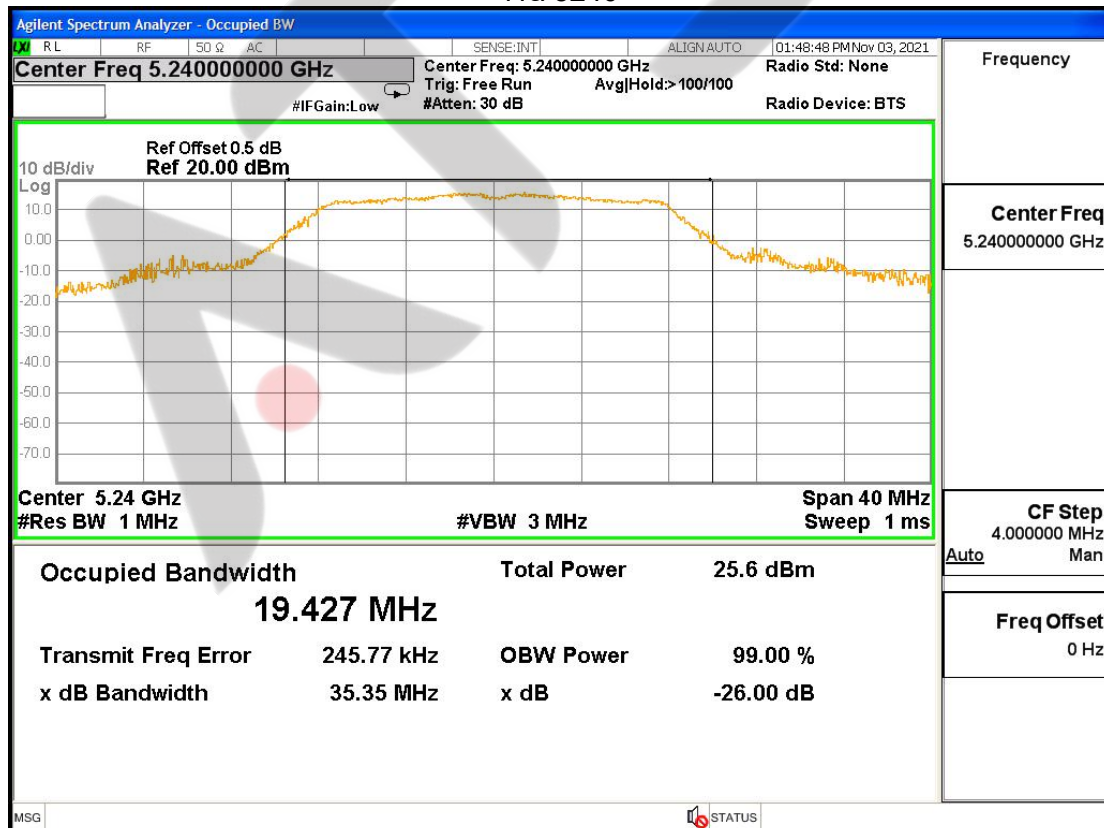
11a 5180



11a 5220



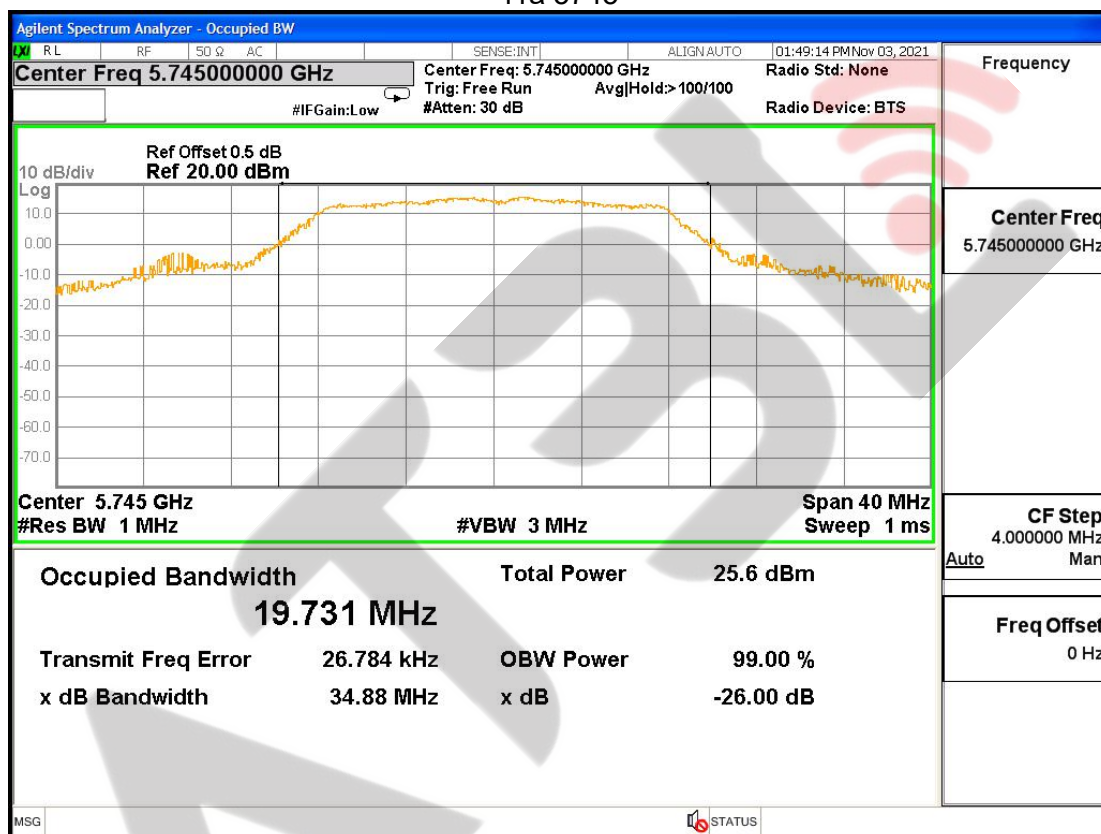
11a 5240



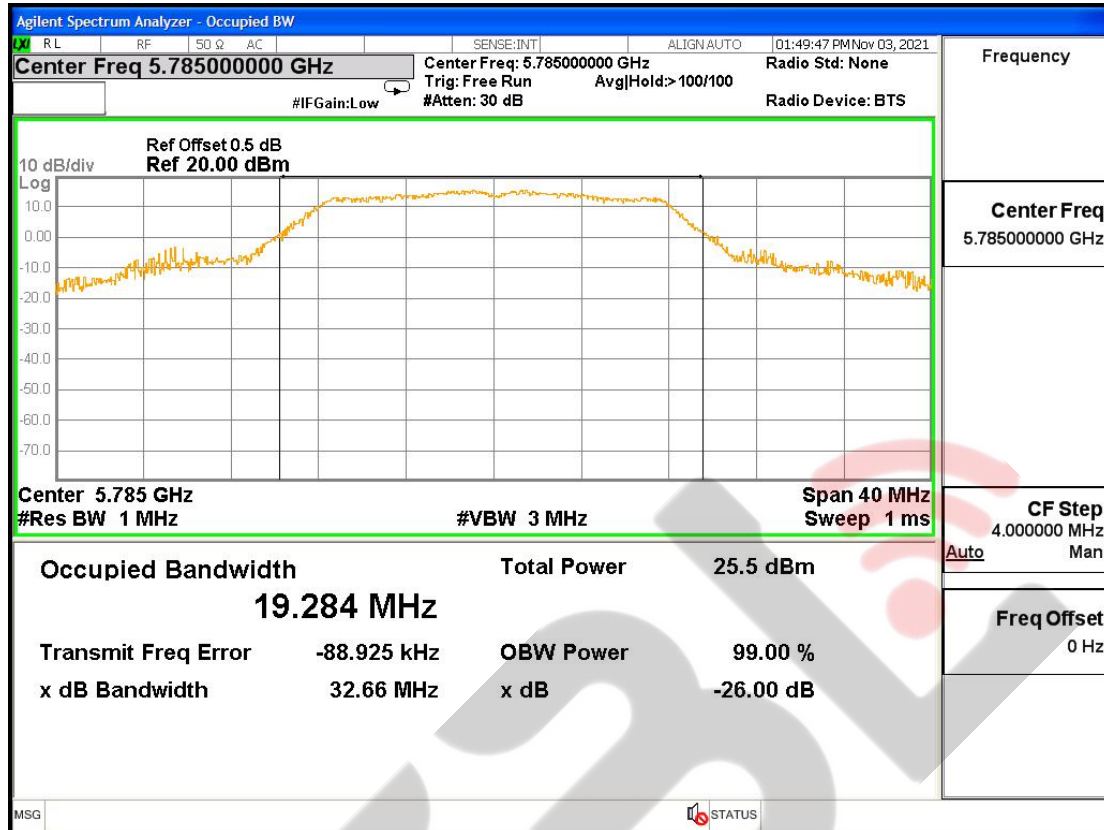
Mode 11a For U-NII-3(5725~5850MHz), 6Mbps

CH.	Freq. (MHz)	26dB Bandwidth (MHz)	Results
149	5745	34.88	PASS
157	5785	32.66	PASS
165	5825	32.74	PASS

11a 5745



11a 5785



11a 5825

