Test Report

FCC ID: 2ALT6-ERM200

Product Name:	ERM200
Trademark:	N/A
Model Name :	ERM200
Prepared For : Address :	Enseo Inc 1680 Prospect Dr #100, Richardson, TX 75081
Prepared By : Address :	Shenzhen BCTC Technology Co., Ltd. No.101,Yousong Road,Longhua New District, Shenzhen,China
Test Date:	Mar. 14– Mar. 24, 2017
Date of Report :	Mar. 24, 2017
Report No.:	BCTC-FY170200062-1E

VERIFICATION OF COMPLIANCE

Applicant's name	**Enseo Inc**
Address	1680 Prospect Dr #100, Richardson, TX 75081
Manufacture's Name	**GLOBALSCALE TECHNOLOGIES,INC.**
Address	5F, No.2 Building, Minxing Industrial Park, Minkang Road, Minzhi Street, Baoan District, Shenzhen, Guangdong, China
Product description	
Product name	ERM200
Model Name:	ERM200
Standards	FCC Part15.407 ANSI C63.10-2013 KDB789033 D02 General U-NII Test Procedures New Rules v01r03

This device described above has been tested by BCTC, and 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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Test Result **Pass**

Testing Engineer	:	Eric Yang
Reviewer (Supervisor)	:	Jade Yang
Approved & Authorized Signer(Manager)	:	Carson Zhang

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1.TEST SUMMARY

Test Items	Test Requirement	Result
Conducted Emissions	RSS-GEN 15.207	PASS
Radiated Emissions	RSS-GEN 15.407(b), 15.209	PASS
26dB bandwidth and 99%dB Bandwidth	RSS-247 15.403(i) 15.407(e)	PASS
Minimum 6 dB bandwidth	15.407(e)	PASS
Power density	RSS-247 15.407 (a)	PASS
Maximum Peak Output Power	RSS-247 15.407 (a)	PASS
Emissions from out of band	RSS-247 15.407 (b)	PASS
Transmission in case of Absence of Information	RSS-247 15.407(c)	PASS
Frequency Stability	RSS-247 15.407(g)	PASS
Antenna Requirement	15.203	PASS

NOTE:

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

(2) For all test, the setup authorization of the prototype testing software comes from the customer. (including output power and other parameters)

2.GENERAL PRODUCT INFORMATION

2.1. Product Function

Refer to Technical Construction Form and User Manual.

2.2. Description of Device (EUT)

Product Name:	ERM200
Model No.:	ERM200
Trade Name:	N/A
Operation Frequency:	5180-5240 5745-5825MHz(5G 802.11a/n/ac(HT20)) 5190-5230，5755-5795MHz(802.11n/ac(HT40)) 5210, 5775MHz(802.11ac(HT80))
Channel numbers:	See channel list
Modulation technology:	64QAM, 16QAM, QPSK, BPSK for OFDM
Data Rate	802.11 a: 6,9,12,18,24,36,48,54Mbps; 802.11n(HT20):MCS0-MCS15; 802.11n(HT40):MCS0-MCS15; 802.11AC: NSS1,MCS0-MCS9,NSS2,MCS0-MCS9;
Antenna Type:	FPCB antenna
Antenna gain:	1.0dBi
Power supply:	DC 5V

Channel List for 802.11a/n/ac(20)			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	44	5220
40	5200	48	5240

Channel List for 802.11a/n/ac(20)			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
149	5745	161	5805
153	5765	165	5825
157	5785		

Channel List for 802.11n/ac(40)			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230

Channel List for 802.11n/ac(40)			
Channel	Frequency (MHz)	Channel	Frequency (MHz)
151	5755	159	5795

Channel List for 802.11ac(80)	
Channel	Frequency (MHz)
42	5210

Channel List for 802.11ac(80)	
Channel	Frequency (MHz)
155	5775

2.3. Independent Operation Modes

The basic operation modes are:

These is Digital Transmission system (DTS) and have modulation OFDM, DSSS, DBPSK, DQPSK, CCK, 16QAM, 64QAM. According exploratory test, EUT will have maximum output power in those data rate (802.11a/n: MCS0), so those data rate were used for all test. The equipment enables high-speed access without wires to network assets. This adapter uses the IEEE 802.11 protocol to enable wireless communications between the host and Wireless rooter.

802.11a/n/ac(20)

Frequency	Band 1	Band 4
Low	5180MHz	5745MHz
Middle	5200MHz	5785MHz
High	5240MHz	5825MHz

802.11n/ac(40)

Frequency	Band 1	Band 4
Low	5190MHz	5755MHz
Middle	-	-
High	5230MHz	5795MHz

802.11ac(80)

Frequency	Band 1	Band 4
	5210MHz	5775MHz

Note1: Directional Gain=1dBi+10log(2)=4.01dBi
Note2: The EUT 802.11n/ac is support MIMO mode.

2.4. Test Sites

2.4.1. Test Facilities

Lab Qualifications : FCC Registration No.:187086
IC Registered No.:12655A

2.5. List of Test and Measurement Instruments

Radiation Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	Agilent	E4407B	MY45108040	2016.08.27	2017.08.26
2	Test Receiver (9kHz-7GHz)	R&S	ESPI	101318	2016.08.27	2017.08.26
3	Bilog Antenna (30MHz-1GHz)	R&S	VULB 9168	VULB91 68-438	2016.08.27	2017.08.26
4	Horn Antenna (1GHz-18GHz)	SCHWARZBECK	BBHA9120D	1201	2016.09.03	2017.09.03
5	Horn Antenna (14GHz-40GHz)	SCHWARZBECK	BBHA 9170	9170-181	2016.09.03	2017.09.03
6	Amplifier (9KHz-6GHz)	SCHWARZBECK	BBV9744	9744-0037	2016.08.27	2017.08.26
7	Amplifier (1GHz-18GHz)	SCHWARZBECK	BBV9718	9718-309	2016.08.27	2017.08.26
8	Amplifier (18GHz-40GHz)	SCHWARZBECK	BBV 9721	9721-205	2016.08.27	2017.08.26
9	Loop Antenna (9KHz-30MHz)	SCHWARZBECK	FMZB1519B	00014	2016.09.03	2017.09.03
10	RF cables1 (9kHz-1GHz)	R&S	R203	R20X	2016.08.27	2017.08.26
11	RF cables2 (1GHz-40GHz)	R&S	R204	R21X	2016.08.27	2017.08.26
12	Antenna connector	Florida RF Labs	N/A	RF 01#	2016.08.27	2017.08.26
13	Power Metter	ANRITSU	ML2487A	6K00001568	2016.08.27	2017.08.26
14	Power Sensor (AV)	ANRITSU	ML2491A	030989	2016.08.27	2017.08.26
15	Signal Analyzer 9kHz-26.5GHz	Agilent	N9010A	MY48030494	2016.08.27	2017.08.26
16	Test Receiver 20kHz-40GHz	R&S	ESU 40	100376	2016.08.27	2017.08.26
17	D.C. Power Supply	LongWei	PS-305D	010964729	2016.08.27	2017.08.26

Conduction Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Test Receiver	R&S	ESCI	1166.5950K03-101165-ha	2016.08.27	2017.08.26
2	LISN	SCHWARZBECK	NSLK8127	8127739	2016.08.27	2017.08.26
3	LISN	R&S	NSLK8126	8126487	2016.08.27	2017.08.26
4	RF cables	R&S	R204	R20X	2016.08.27	2017.08.26
5	Attenuator	R&S	ESH3-Z2	143206	2016.08.27	2017.08.26

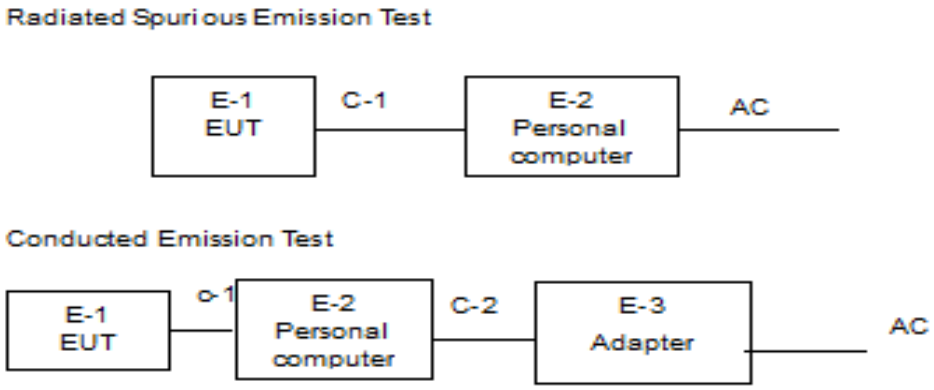
3. TEST SET-UP AND OPERATION MODES

3.1. Principle of Configuration Selection

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the Operating Instructions.

3.2. Block Diagram of Test Set-up

System Diagram of Connections between EUT and Simulators



(EUT: ERM200)

3.3. Auxiliary Equipment

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	ERM200	N/A	ERM200	N/A	EUT
E-2	Personal computer	Lenovo	S2	N/A	N/A
E-3	Adapter	Lenovo	SA10E75793	N/A	N/A

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	0.5M	USB cable unshielded
C-2	NO	NO	1.5M	DC cable unshielded

3.4. Countermeasures to Achieve EMC Compliance

None.

4. EMISSION TEST RESULTS

4.1. Conducted Emission Measurement

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

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quasi -peak	Average	
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

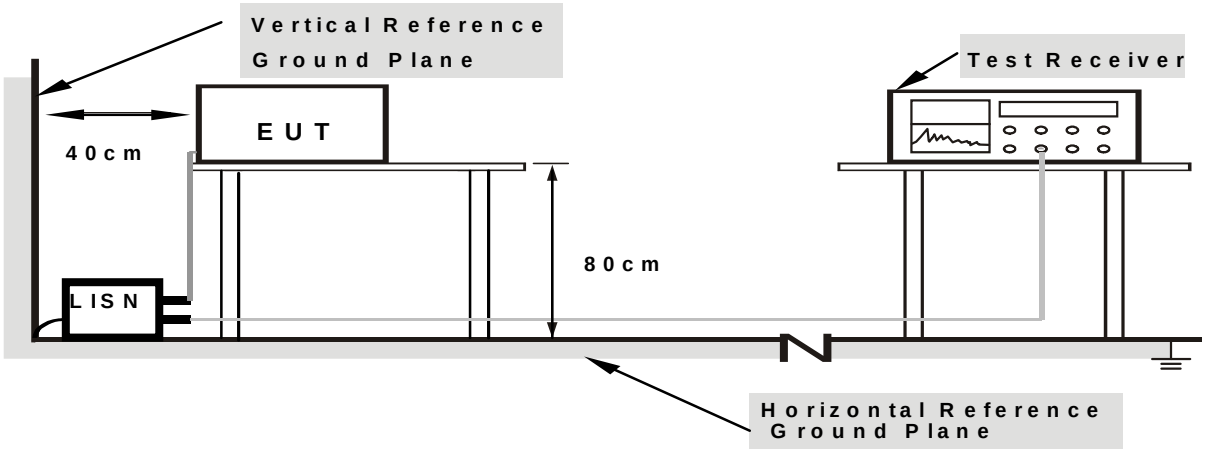
4.1.1. TEST PROCEDURE

a. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.2. DEVIATION FROM TEST STANDARD

No deviation

4.1.3. TEST SETUP



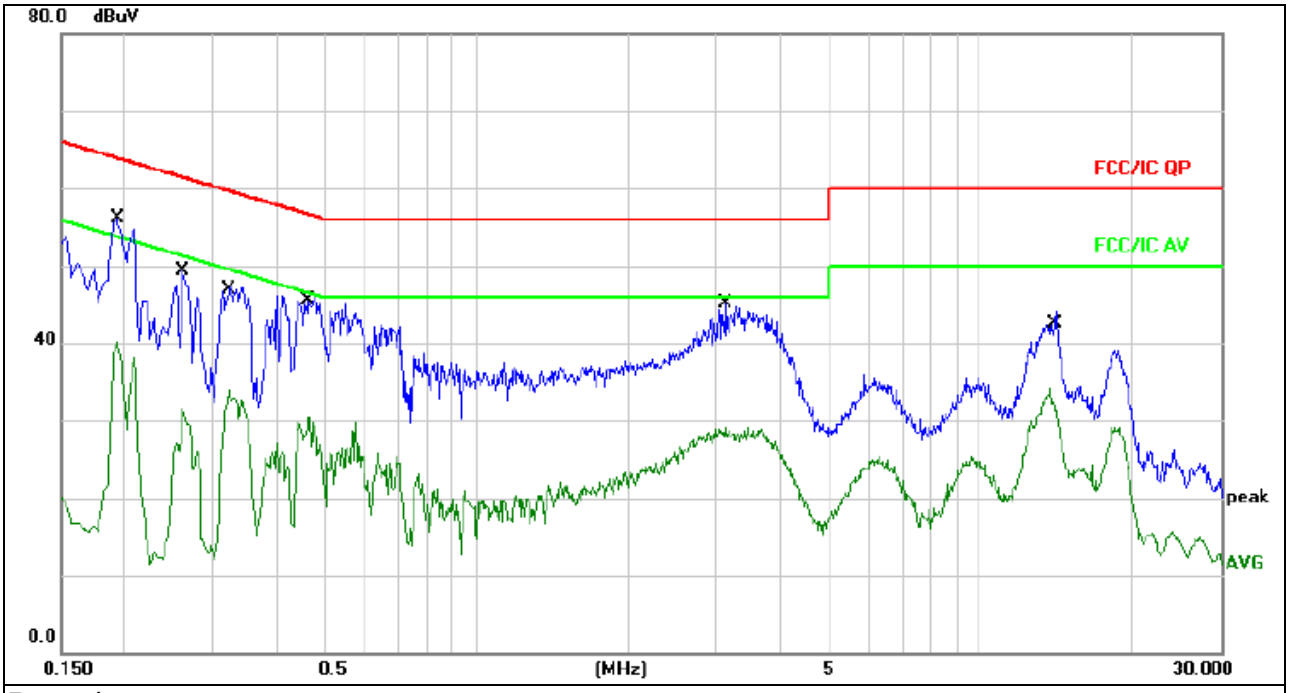
Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

4.1.4. 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.
We pretest all adapter's emission, only the adapter 1's data was worst and the data was recording in the report.
The data only show the worst mode.
If peak level comply with Quasi-Peak limit, then the Quasi-Peak level is deemed to comply with Quasi-Peak limit.
We pretest AC 120V and AC 240V, the worst voltage was AC 120V and the data recording in the report.

4.1.5. TEST RESULTS

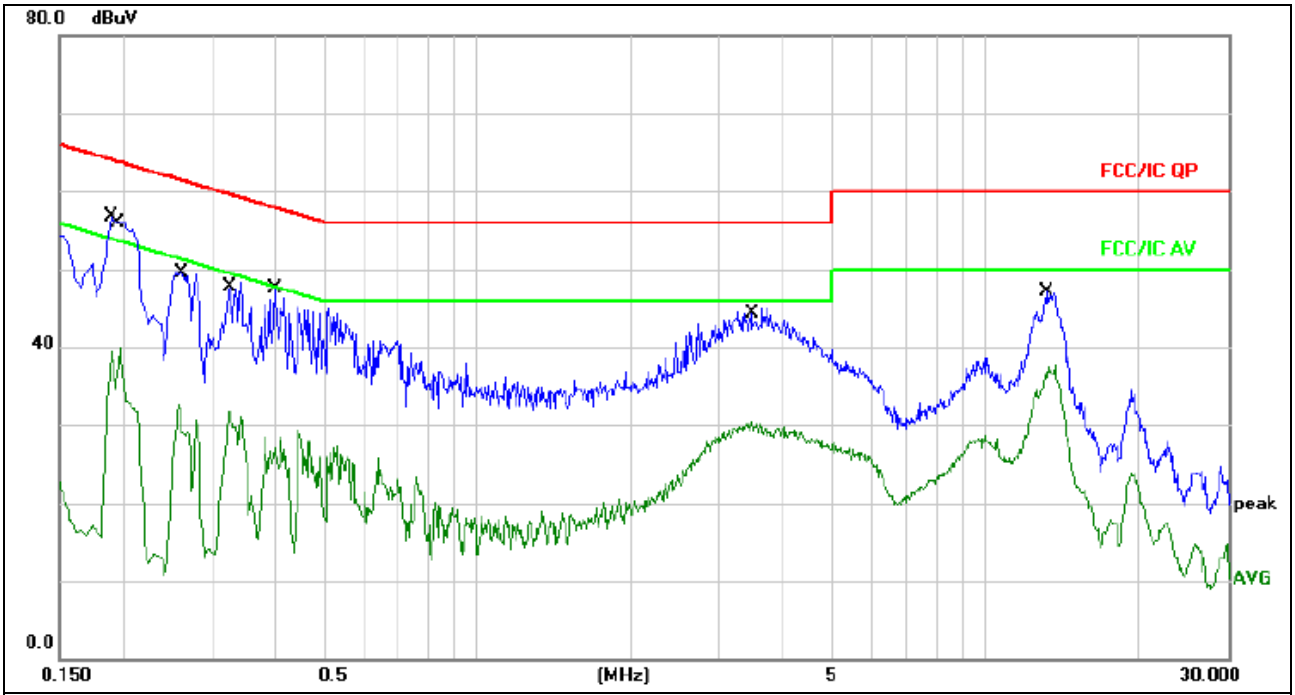
EUT:	ERM200	Model Name :	ERM200
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	L
Test Voltage :	DC 5V from PC	Test Mode:	Link Mode



Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1940	46.41	9.65	56.06	63.86	-7.80	QP	
2		0.1940	30.46	9.65	40.11	53.86	-13.75	AVG	
3		0.2620	39.58	9.66	49.24	61.36	-12.12	QP	
4		0.2620	21.75	9.66	31.41	51.36	-19.95	AVG	
5		0.3200	37.64	9.66	47.30	59.70	-12.40	QP	
6		0.3200	22.93	9.66	32.59	49.70	-17.11	AVG	
7		0.4660	36.21	9.68	45.89	56.58	-10.69	QP	
8		0.4660	20.87	9.68	30.55	46.58	-16.03	AVG	
9		3.1299	35.40	9.72	45.12	56.00	-10.88	QP	
10		3.1299	19.36	9.72	29.08	46.00	-16.92	AVG	
11		13.7738	34.17	9.84	44.01	60.00	-15.99	QP	
12		13.7738	24.26	9.84	34.10	50.00	-15.90	AVG	

EUT:	ERM200	Model Name :	ERM200
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	N
Test Voltage :	DC 5V from PC	Test Mode:	Link Mode



Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1900	47.00	9.65	56.65	64.03	-7.38	QP	
2		0.1980	30.17	9.65	39.82	53.69	-13.87	AVG	
3		0.2580	40.08	9.66	49.74	61.49	-11.75	QP	
4		0.2580	22.96	9.66	32.62	51.49	-18.87	AVG	
5		0.3220	38.70	9.66	48.36	59.65	-11.29	QP	
6		0.3220	22.01	9.66	31.67	49.65	-17.98	AVG	
7		0.3980	37.73	9.67	47.40	57.89	-10.49	QP	
8		0.3980	18.92	9.67	28.59	47.89	-19.30	AVG	
9		3.4780	35.22	9.73	44.95	56.00	-11.05	QP	
10		3.4780	20.80	9.73	30.53	46.00	-15.47	AVG	
11		13.2620	37.21	9.84	47.05	60.00	-12.95	QP	
12		13.2620	27.79	9.84	37.63	50.00	-12.37	AVG	

4.2. Radiated Emission Measurement

4.2.1. Radiated Emission Limits (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(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)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

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

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

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

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

Receiver Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 120kHz for QP

4.2.2. TEST PROCEDURE

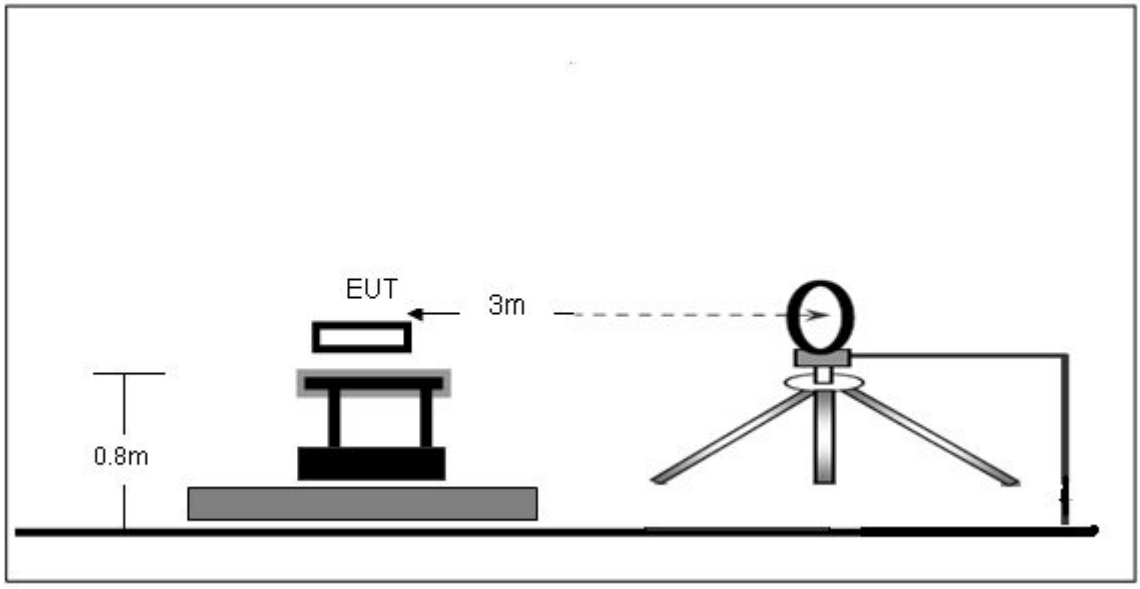
a. The measuring distance of at 3 m shall be used for measurements at frequency up to 25GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 1.5 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.
g. For the radiated emission test above 1GHz:
Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response.
The measurement antenna may have to be higher or lower than the EUT, depending on the radiation pattern of the emission and staying aimed at the emission source for receiving the maximum signal. The final measurement antenna elevation shall be that which maximizes the emissions. The measurement antenna elevation for maximum emissions shall be restricted to a range of heights of from 1 m to 4 m above the ground or reference ground plane.
Note:
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported
We pretest AC 120V and AC 240V, the worst voltage was AC 120V and the data recording in the report.

4.2.3. DEVIATION FROM TEST STANDARD

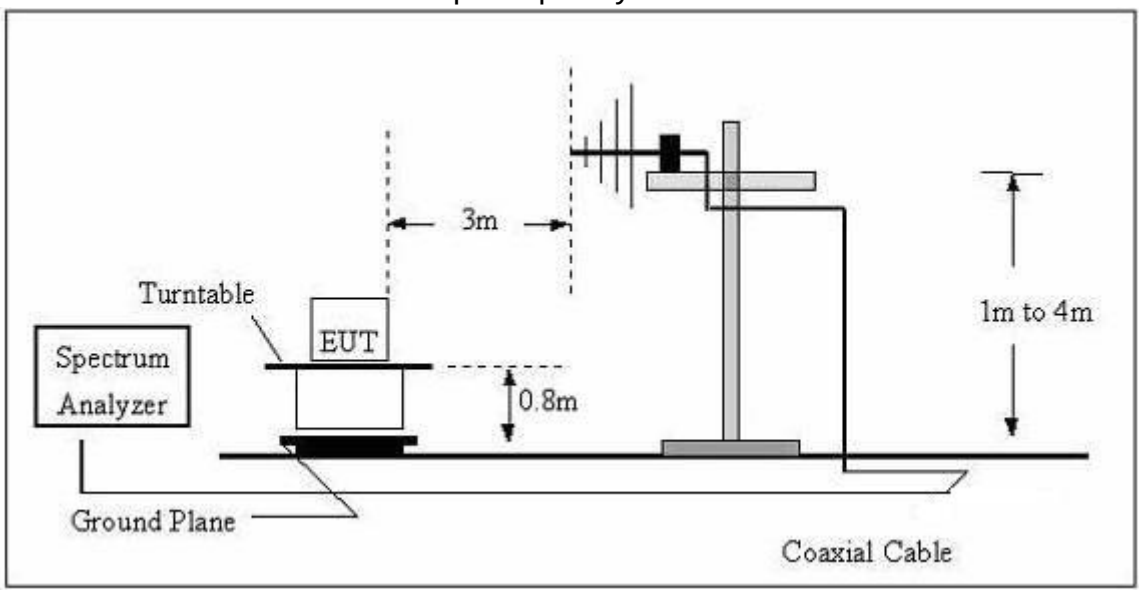
No deviation

4.2.4. TEST SETUP

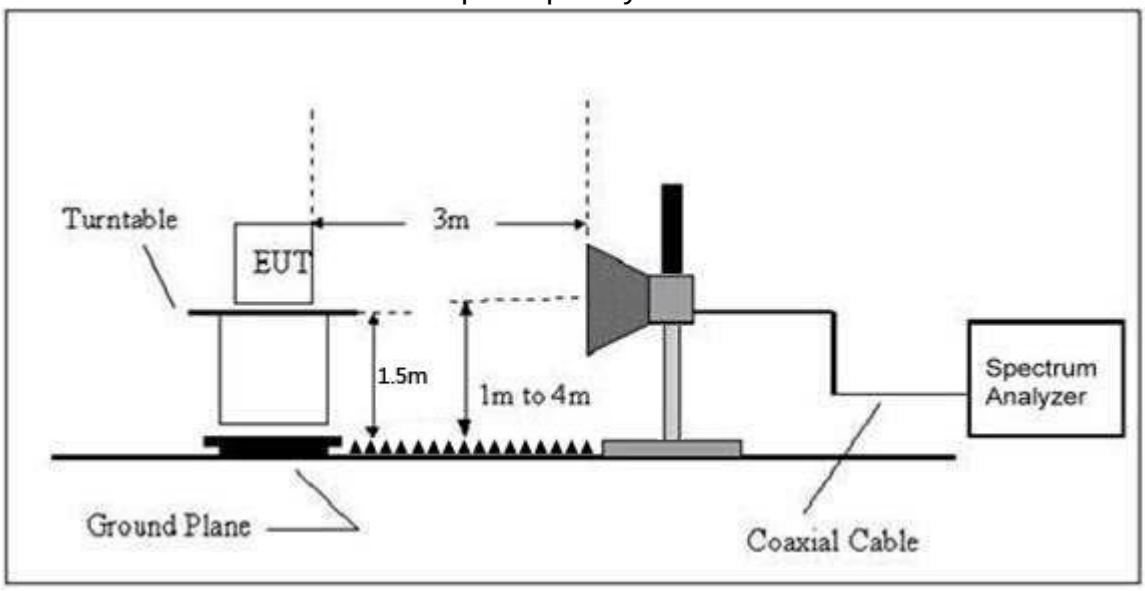
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



4.2.5. 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.

We pretest all adapter's emission, only the adapter 1's data was worst and the data was recording in the report.

The data only show the worst mode.

Radiated Spurious Emission (Below 30MHz)

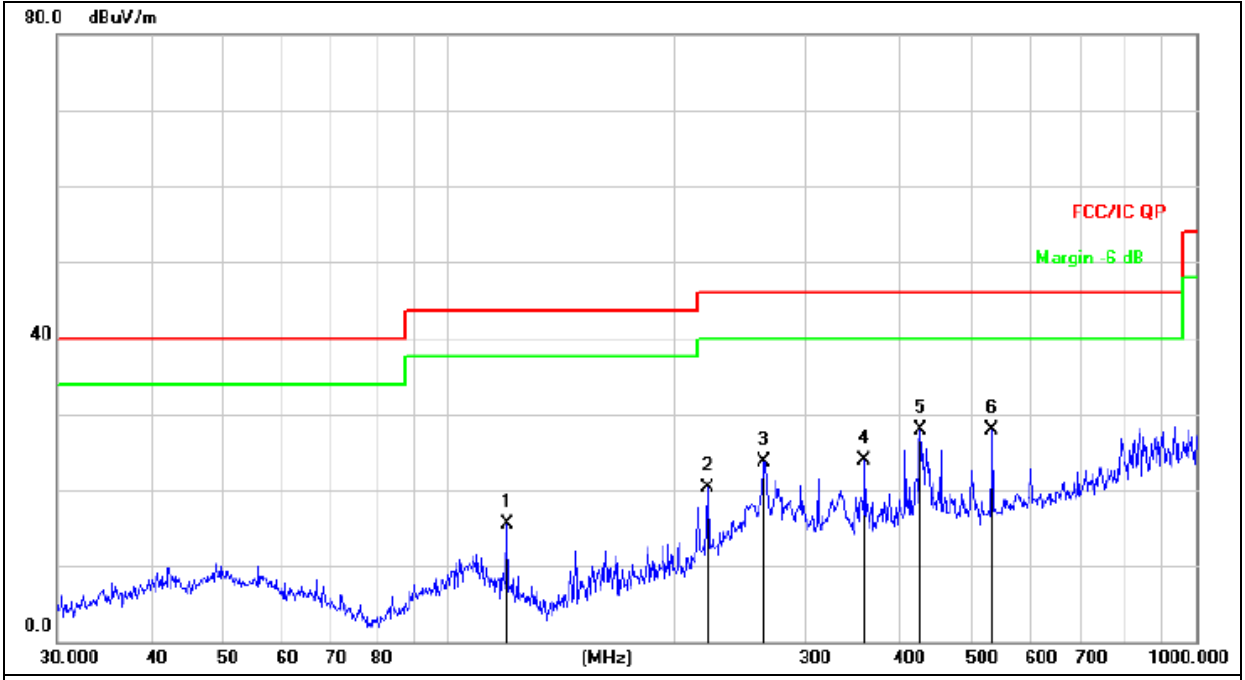
EUT：	ERM200	Model Name ：	ERM200
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Polarization :	---
Test Voltage ：	DC 5V from PC		
Test Mode ：	TX		

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

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

Radiated Spurious Emission (Between 30MHz – 1GHz)

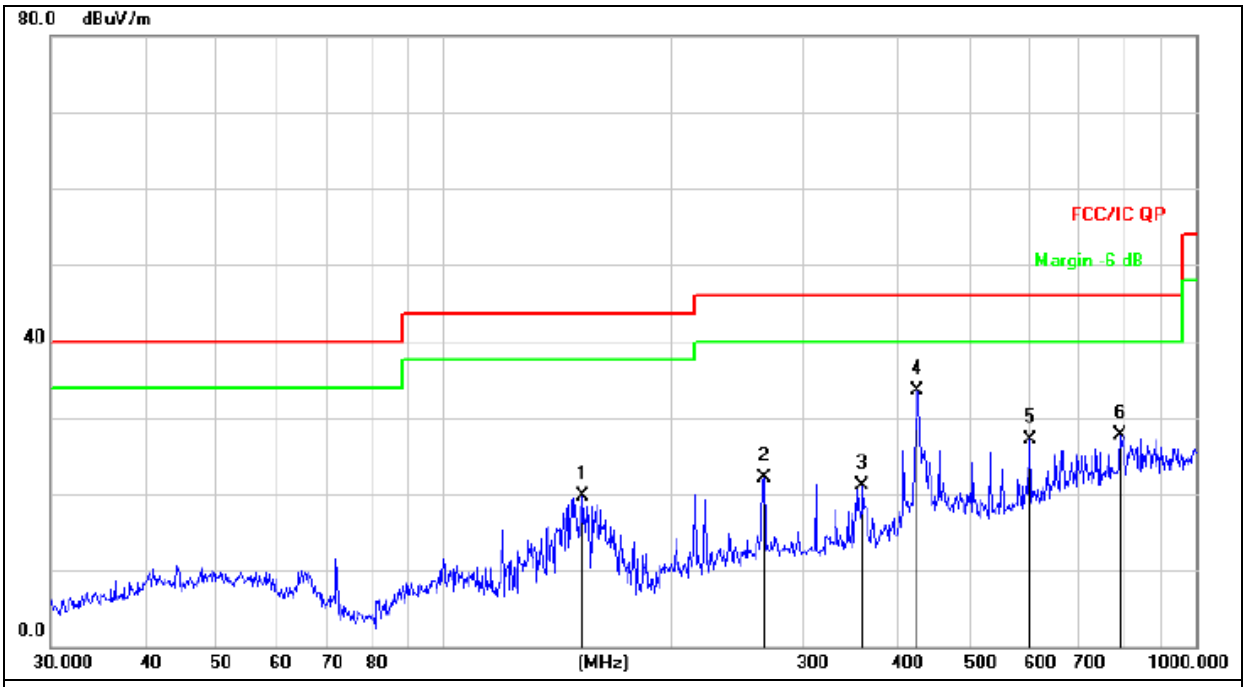
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Polarization：	Horizontal
Test Voltage ：	DC 5V from PC		
Test Mode ： (Worst)	Link Mode		



Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		119.8556	33.48	-18.07	15.41	43.50	-28.09	QP
2		222.1698	35.45	-15.20	20.25	46.00	-25.75	QP
3		263.8190	36.91	-13.28	23.63	46.00	-22.37	QP
4		360.4476	34.38	-10.40	23.98	46.00	-22.02	QP
5		428.0193	36.66	-8.70	27.96	46.00	-18.04	QP
6	*	533.8321	34.40	-6.40	28.00	46.00	-18.00	QP

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Polarization：	Vertical
Test Voltage ：	DC 5V from PC		
Test Mode ： (Worst)	Link Mode		



Remark:
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		153.2004	39.23	-19.45	19.78	43.50	-23.72	QP
2		266.6089	35.24	-13.18	22.06	46.00	-23.94	QP
3		360.4476	31.48	-10.40	21.08	46.00	-24.92	QP
4	*	426.5210	42.16	-8.73	33.43	46.00	-12.57	QP
5		601.4265	31.55	-4.47	27.08	46.00	-18.92	QP
6		793.3960	28.98	-1.24	27.74	46.00	-18.26	QP

Radiated Spurious Emission (Above 1GHz)
802.11a band 1

	Freq.	Receiver Reading	Detector	Polar	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limit	Result
	(MHz)	(dBμV)	(PK/QP/Ave)	(H/V)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	
Lower Channel 5180MHz	10360.00	58.75	PK	H	36.36	10.20	27.10	59.69	74.00	Pass
	10360.00	48.45	Ave	H	36.36	10.20	27.10	49.39	54.00	Pass
	15540.00	59.26	PK	H	36.40	10.55	27.50	60.91	74.00	Pass
	15540.00	48.47	Ave	H	36.40	10.55	27.50	50.12	54.00	Pass
	10360.00	57.58	PK	V	36.63	10.20	27.10	58.25	74.00	Pass
	10360.00	48.85	Ave	V	36.63	10.20	27.10	49.52	54.00	Pass
	15540.00	58.45	PK	V	36.40	10.55	27.50	60.10	74.00	Pass
	15540.00	47.24	Ave	V	36.40	10.55	27.50	48.89	54.00	Pass
Middle Channel 5200MHz	10400.00	56.87	PK	H	36.38	10.20	27.10	57.79	74.00	Pass
	10400.00	45.63	Ave	H	36.38	10.20	27.10	46.55	54.00	Pass
	15600.00	58.22	PK	H	36.45	10.55	27.50	59.82	74.00	Pass
	15600.00	45.95	Ave	H	36.45	10.55	27.50	47.55	54.00	Pass
	10400.00	57.46	PK	V	36.68	10.20	27.10	58.08	74.00	Pass
	10400.00	47.75	Ave	V	36.68	10.20	27.10	48.37	54.00	Pass
	15600.00	58.69	PK	V	36.50	10.55	27.50	60.24	74.00	Pass
	15600.00	47.48	Ave	V	36.50	10.55	27.50	49.03	54.00	Pass
Upper Channel 5240MHz	10480.00	56.44	PK	H	36.65	10.35	27.34	57.48	74.00	Pass
	10480.00	46.25	Ave	H	36.65	10.35	27.34	47.29	54.00	Pass
	15720.00	58.36	PK	H	36.74	10.78	27.95	60.35	74.00	Pass
	15720.00	47.74	Ave	H	36.74	10.78	27.95	49.73	54.00	Pass
	10480.00	57.25	PK	V	36.65	10.35	27.34	58.29	74.00	Pass
	10480.00	45.48	Ave	V	36.65	10.35	27.34	46.52	54.00	Pass
	15720.00	59.56	PK	V	36.74	10.78	27.95	61.55	74.00	Pass
	15720.00	47.78	Ave	V	36.74	10.78	27.95	49.77	54.00	Pass

Remark:
Emission Level = Antenna Factor + Cable Loss – Pre-amplifier.
Margin = Emission Level - Limit
Other harmonics emissions are lower than 20dB below the allowable limit.

802.11a band 4

	Freq.	Receiver Reading	Detector	Polar	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limit	Result
	(MHz)	(dBμV)	(PK/QP/Ave)	(H/V)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	
Lower Channel 5745MHz	11490.00	56.35	PK	H	37.15	10.55	28.12	57.87	74.00	Pass
	11490.00	47.74	Ave	H	37.15	10.55	28.12	49.26	54.00	Pass
	17235.00	57.65	PK	H	37.44	10.84	28.43	59.48	74.00	Pass
	17235.00	46.75	Ave	H	37.44	10.84	28.43	48.58	54.00	Pass
	11490.00	56.47	PK	V	37.15	10.55	28.12	57.99	74.00	Pass
	11490.00	46.35	Ave	V	37.15	10.55	28.12	47.87	54.00	Pass
	17235.00	56.48	PK	V	37.44	10.84	28.43	58.31	74.00	Pass
	17235.00	46.52	Ave	V	37.44	10.84	28.43	48.35	54.00	Pass
Middle Channel 5785MHz	11570.00	57.51	PK	H	33.95	6.89	29.36	59.81	74.00	Pass
	11570.00	48.05	Ave	H	33.95	6.89	29.36	50.35	54.00	Pass
	17355.00	58.12	PK	H	35.25	7.10	27.22	57.19	74.00	Pass
	17355.00	48.52	Ave	H	35.25	7.10	27.22	47.59	54.00	Pass
	11570.00	57.44	PK	V	33.95	6.89	29.36	59.74	74.00	Pass
	11570.00	47.83	Ave	V	33.95	6.89	29.36	50.13	54.00	Pass
	17355.00	59.01	PK	V	35.25	7.10	27.22	58.08	74.00	Pass
	17355.00	47.57	Ave	V	35.25	7.10	27.22	46.64	54.00	Pass
Upper Channel 5825MHz	11650.00	57.65	PK	H	37.29	10.96	28.56	59.88	57.12	Pass
	11650.00	46.32	Ave	H	37.29	10.96	28.56	48.55	46.04	Pass
	17475.00	59.46	PK	H	37.65	11.15	28.75	61.71	59.77	Pass
	17475.00	47.28	Ave	H	37.65	11.15	28.75	49.53	48.12	Pass
	11650.00	58.71	PK	V	37.29	10.96	28.56	60.94	58.43	Pass
	11650.00	47.33	Ave	V	37.29	10.96	28.56	49.56	46.91	Pass
	17475.00	59.29	PK	V	37.65	11.15	28.75	61.54	59.21	Pass
	17475.00	46.89	Ave	V	37.65	11.15	28.75	49.14	48.24	Pass

Remark:
Emission Level = Receiver Reading + Antenna Factor + Cable Loss – Pre-amplifier.
Margin = Emission Level - Limit
Other harmonics emissions are lower than 20dB below the allowable limit.

802.11n20 band 1

	Freq.	Receiver Reading	Detector	Polar	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limit	Result
	(MHz)	(dBμV)	(PK/QP/Ave)	(H/V)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	
Lower Channel 5180MHz	10360.00	57.81	PK	H	33.36	6.20	29.10	59.75	74.00	Pass
	10360.00	47.78	Ave	H	33.36	6.20	29.10	49.72	54.00	Pass
	15540.00	59.46	PK	H	34.40	6.55	26.50	58.11	74.00	Pass
	15540.00	48.75	Ave	H	34.40	6.55	26.50	47.40	54.00	Pass
	10360.00	57.65	PK	V	33.36	6.20	29.10	59.59	74.00	Pass
	10360.00	48.05	Ave	V	33.45	6.20	29.10	49.90	54.00	Pass
	15540.00	58.87	PK	V	34.40	6.55	26.50	57.52	74.00	Pass
	15540.00	48.96	Ave	V	34.40	6.55	26.50	47.61	54.00	Pass
Middle Channel 5200MHz	10400.00	56.50	PK	H	33.65	6.45	29.36	58.66	74.00	Pass
	10400.00	47.52	Ave	H	33.65	6.45	29.36	49.68	54.00	Pass
	15600.00	59.01	PK	H	34.72	6.84	26.68	57.81	74.00	Pass
	15600.00	47.53	Ave	H	34.72	6.84	26.68	46.33	54.00	Pass
	10400.00	57.31	PK	V	33.65	6.45	29.36	59.47	74.00	Pass
	10400.00	47.76	Ave	V	33.65	6.45	29.36	49.92	54.00	Pass
	15600.00	58.77	PK	V	34.72	6.84	26.68	57.57	74.00	Pass
	15600.00	47.82	Ave	V	34.72	6.84	26.38	46.32	54.00	Pass
Upper Channel 5240MHz	10480.00	56.69	PK	H	33.89	6.82	30.55	60.17	74.00	Pass
	10480.00	46.94	Ave	H	33.89	6.82	30.55	50.42	54.00	Pass
	15720.00	59.00	PK	H	35.12	6.95	27.85	58.68	74.00	Pass
	15720.00	47.83	Ave	H	35.12	6.95	27.85	47.51	54.00	Pass
	10480.00	57.69	PK	V	33.89	6.82	30.55	61.17	74.00	Pass
	10480.00	45.85	Ave	V	33.89	6.82	30.55	49.33	54.00	Pass
	15720.00	59.05	PK	V	35.12	6.95	27.85	58.73	74.00	Pass
	15720.00	47.98	Ave	V	35.12	6.95	27.85	47.66	54.00	Pass

Remark:
Emission Level = Antenna Factor + Cable Loss – Pre-amplifier.
Margin = Emission Level - Limit
Other harmonics emissions are lower than 20dB below the allowable limit.

802.11n20 band 4

	Freq.	Receiver Reading	Detector	Polar	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limit	Result
	(MHz)	(dBμV)	(PK/QP/Ave)	(H/V)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	
Lower Channel 5745MHz	11490.00	56.97	PK	H	34.26	6.45	29.23	58.39	74.00	Pass
	11490.00	47.47	Ave	H	33.26	6.45	29.23	49.89	54.00	Pass
	17235.00	58.68	PK	H	34.83	6.96	26.88	57.69	74.00	Pass
	17235.00	47.88	Ave	H	34.83	6.96	26.88	46.89	54.00	Pass
	11490.00	56.65	PK	V	34.25	6.48	29.46	58.34	74.00	Pass
	11490.00	46.35	Ave	V	33.25	6.48	29.46	49.04	54.00	Pass
	17235.00	58.92	PK	V	34.83	6.96	26.88	57.93	74.00	Pass
	17235.00	48.07	Ave	V	34.83	6.96	26.88	47.08	54.00	Pass
Middle Channel 5785MHz	11570.00	57.67	PK	H	33.95	6.89	29.36	59.97	74.00	Pass
	11570.00	46.91	Ave	H	33.95	6.89	29.36	49.21	54.00	Pass
	17355.00	58.28	PK	H	35.25	7.10	27.22	57.35	74.00	Pass
	17355.00	48.65	Ave	H	35.25	7.10	27.22	47.72	54.00	Pass
	11570.00	57.6	PK	V	33.95	6.89	29.36	59.9	74.00	Pass
	11570.00	47.46	Ave	V	33.95	6.89	29.36	49.76	54.00	Pass
	17355.00	59.17	PK	V	35.25	7.10	27.22	58.24	74.00	Pass
	17355.00	47.7	Ave	V	35.25	7.10	27.22	46.77	54.00	Pass
Upper Channel 5825MHz	11650.00	58.26	PK	H	34.35	7.15	30.15	61.21	74.00	Pass
	11650.00	46.84	Ave	H	34.35	7.15	30.15	49.79	54.00	Pass
	17475.00	59.93	PK	H	35.75	7.45	28.54	60.17	74.00	Pass
	17475.00	48.12	Ave	H	35.75	7.45	28.54	48.36	54.00	Pass
	11650.00	58.56	PK	V	34.35	7.15	30.15	61.51	74.00	Pass
	11650.00	47.02	Ave	V	34.35	7.15	30.15	49.97	54.00	Pass
	17475.00	59.37	PK	V	35.75	7.45	28.54	59.61	74.00	Pass
	17475.00	48.37	Ave	V	35.75	7.45	28.54	48.61	54.00	Pass

Remark:
Emission Level = Antenna Factor + Cable Loss – Pre-amplifier.
Margin = Emission Level - Limit
Other harmonics emissions are lower than 20dB below the allowable limit.

802.11ac band 1

	Freq.	Receiver Reading	Detector	Polar	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limit	Result
	(MHz)	(dBμV)	(PK/QP/Ave)	(H/V)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	
Lower Channel 5180MHz	10360.00	58.75	PK	H	36.36	10.20	27.10	59.69	74.00	Pass
	10360.00	48.45	Ave	H	36.36	10.20	27.10	49.39	54.00	Pass
	15540.00	59.26	PK	H	36.40	10.55	27.50	60.91	74.00	Pass
	15540.00	48.47	Ave	H	36.40	10.55	27.50	50.12	54.00	Pass
	10360.00	57.58	PK	V	36.63	10.20	27.10	58.25	74.00	Pass
	10360.00	48.85	Ave	V	36.63	10.20	27.10	49.52	54.00	Pass
	15540.00	58.45	PK	V	36.40	10.55	27.50	60.10	74.00	Pass
	15540.00	47.24	Ave	V	36.40	10.55	27.50	48.89	54.00	Pass
Middle Channel 5200MHz	10400.00	56.87	PK	H	36.38	10.20	27.10	57.79	74.00	Pass
	10400.00	45.63	Ave	H	36.38	10.20	27.10	46.55	54.00	Pass
	15600.00	58.22	PK	H	36.45	10.55	27.50	59.82	74.00	Pass
	15600.00	45.95	Ave	H	36.45	10.55	27.50	47.55	54.00	Pass
	10400.00	57.46	PK	V	36.68	10.20	27.10	58.08	74.00	Pass
	10400.00	47.75	Ave	V	36.68	10.20	27.10	48.37	54.00	Pass
	15600.00	58.69	PK	V	36.50	10.55	27.50	60.24	74.00	Pass
	15600.00	47.48	Ave	V	36.50	10.55	27.50	49.03	54.00	Pass
Upper Channel 5240MHz	10480.00	56.44	PK	H	36.65	10.35	27.34	57.48	74.00	Pass
	10480.00	46.25	Ave	H	36.65	10.35	27.34	47.29	54.00	Pass
	15720.00	58.36	PK	H	36.74	10.78	27.95	60.35	74.00	Pass
	15720.00	47.74	Ave	H	36.74	10.78	27.95	49.73	54.00	Pass
	10480.00	57.25	PK	V	36.65	10.35	27.34	58.29	74.00	Pass
	10480.00	45.48	Ave	V	36.65	10.35	27.34	46.52	54.00	Pass
	15720.00	59.56	PK	V	36.74	10.78	27.95	61.55	74.00	Pass
	15720.00	47.78	Ave	V	36.74	10.78	27.95	49.77	54.00	Pass

Remark:
Emission Level = Antenna Factor + Cable Loss – Pre-amplifier.
Margin = Emission Level - Limit
Other harmonics emissions are lower than 20dB below the allowable limit.

802.11ac band 4

	Freq.	Receiver Reading	Detector	Polar	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limit	Result
	(MHz)	(dBμV)	(PK/QP/Ave)	(H/V)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	
Lower Channel 5745MHz	11490.00	56.35	PK	H	37.15	10.55	28.12	57.87	74.00	Pass
	11490.00	47.74	Ave	H	37.15	10.55	28.12	49.26	54.00	Pass
	17235.00	57.65	PK	H	37.44	10.84	28.43	59.48	74.00	Pass
	17235.00	46.75	Ave	H	37.44	10.84	28.43	48.58	54.00	Pass
	11490.00	56.47	PK	V	37.15	10.55	28.12	57.99	74.00	Pass
	11490.00	46.35	Ave	V	37.15	10.55	28.12	47.87	54.00	Pass
	17235.00	56.48	PK	V	37.44	10.84	28.43	58.31	74.00	Pass
	17235.00	46.52	Ave	V	37.44	10.84	28.43	48.35	54.00	Pass
Middle Channel 5785MHz	11570.00	57.51	PK	H	33.95	6.89	29.36	59.81	74.00	Pass
	11570.00	48.05	Ave	H	33.95	6.89	29.36	50.35	54.00	Pass
	17355.00	58.12	PK	H	35.25	7.10	27.22	57.19	74.00	Pass
	17355.00	48.52	Ave	H	35.25	7.10	27.22	47.59	54.00	Pass
	11570.00	57.44	PK	V	33.95	6.89	29.36	59.74	74.00	Pass
	11570.00	47.83	Ave	V	33.95	6.89	29.36	50.13	54.00	Pass
	17355.00	59.01	PK	V	35.25	7.10	27.22	58.08	74.00	Pass
	17355.00	47.57	Ave	V	35.25	7.10	27.22	46.64	54.00	Pass
Upper Channel 5825MHz	11650.00	57.65	PK	H	37.29	10.96	28.56	59.88	57.12	Pass
	11650.00	46.32	Ave	H	37.29	10.96	28.56	48.55	46.04	Pass
	17475.00	59.46	PK	H	37.65	11.15	28.75	61.71	59.77	Pass
	17475.00	47.28	Ave	H	37.65	11.15	28.75	49.53	48.12	Pass
	11650.00	58.71	PK	V	37.29	10.96	28.56	60.94	58.43	Pass
	11650.00	47.33	Ave	V	37.29	10.96	28.56	49.56	46.91	Pass
	17475.00	59.29	PK	V	37.65	11.15	28.75	61.54	59.21	Pass
	17475.00	46.89	Ave	V	37.65	11.15	28.75	49.14	48.24	Pass

Remark:
Emission Level = Receiver Reading + Antenna Factor + Cable Loss – Pre-amplifier.
Margin = Emission Level - Limit
Other harmonics emissions are lower than 20dB below the allowable limit.

18G~40GHz

802.11a band 1

	Freq.	Receiver Reading	Detector	Polar	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limit	Result
	(MHz)	(dBμV)	(PK/QP/Ave)	(H/V)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	
Lower Channel 5180MHz	20720.00	43.22	PK	H	36.36	10.20	27.10	44.16	74.00	Pass
	25900.00	42.45	PK	H	36.50	10.55	27.50	44.00	74.00	Pass
	31080.00	41.61	PK	H	37.65	11.15	28.75	43.86	74.00	Pass
	20720.00	43.52	PK	V	36.36	10.20	27.10	44.46	74.00	Pass
	25900.00	42.85	PK	V	36.50	10.55	27.50	44.40	74.00	Pass
	31080.00	42.41	PK	V	37.65	11.15	28.75	44.66	74.00	Pass
Middle Channel 5200MHz	20800.00	43.87	PK	H	36.36	10.20	27.10	44.81	74.00	Pass
	26000.00	43.63	PK	H	36.50	10.55	27.50	45.18	74.00	Pass
	31200.00	42.22	PK	H	37.65	11.15	28.75	44.47	74.00	Pass
	20800.00	42.46	PK	V	36.36	10.20	27.10	43.40	74.00	Pass
	26000.00	42.75	PK	V	36.50	10.55	27.50	44.30	74.00	Pass
	31200.00	42.69	PK	V	37.65	11.15	28.75	44.94	74.00	Pass
Upper Channel 5240MHz	20960.00	42.73	PK	H	36.37	10.22	27.12	43.70	74.00	Pass
	26200.00	43.61	PK	H	36.57	10.57	27.51	45.12	74.00	Pass
	31440.00	42.46	PK	H	37.66	11.16	28.76	44.72	74.00	Pass
	20960.00	43.45	PK	V	36.37	10.22	27.12	44.42	74.00	Pass
	26200.00	41.89	PK	V	36.57	10.57	27.51	43.40	74.00	Pass
	31440.00	42.55	PK	V	37.66	11.16	28.76	44.81	74.00	Pass

Remark:
Emission Level = Receiver Reading + Antenna Factor + Cable Loss – Pre-amplifier.
Margin = Emission Level - Limit
Other harmonics emissions are lower than 20dB below the allowable limit.
If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

802.11a band 4

	Freq.	Receiver Reading	Detector	Polar	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limit	Result
	(MHz)	(dBμV)	(PK/QP/Ave)	(H/V)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	
Lower Channel 5745MHz	22980.00	43.36	PK	H	37.15	10.55	28.12	44.88	74.00	Pass
	28725.00	42.42	PK	H	37.15	10.82	28.42	44.51	74.00	Pass
	34470.00	41.48	PK	H	37.68	11.18	28.78	43.76	74.00	Pass
	22980.00	43.25	PK	V	37.15	10.55	28.12	44.77	74.00	Pass
	28725.00	42.36	PK	V	37.15	10.82	28.42	44.45	74.00	Pass
	34470.00	42.14	PK	V	37.68	11.18	28.78	44.42	74.00	Pass
Middle Channel 5785MHz	23140.00	43.28	PK	H	37.15	10.55	28.12	44.80	74.00	Pass
	28925.00	42.36	PK	H	37.15	10.82	28.42	44.45	74.00	Pass
	34710.00	42.42	PK	H	37.68	11.18	28.78	44.70	74.00	Pass
	23140.00	42.25	PK	V	37.15	10.55	28.12	43.77	74.00	Pass
	28925.00	42.31	PK	V	37.15	10.82	28.42	44.40	74.00	Pass
	34710.00	42.27	PK	V	37.68	11.18	28.78	44.55	74.00	Pass
Upper Channel 5825MHz	23300.00	42.85	PK	H	37.15	10.55	28.12	44.37	74.00	Pass
	29125.00	42.67	PK	H	37.15	10.82	28.42	44.76	74.00	Pass
	34950.00	42.48	PK	H	37.68	11.18	28.78	44.76	74.00	Pass
	23300.00	43.39	PK	V	37.15	10.55	28.12	44.91	74.00	Pass
	29125.00	41.97	PK	V	37.15	10.82	28.42	44.06	74.00	Pass
	34950.00	42.26	PK	V	37.68	11.18	28.78	44.54	74.00	Pass

Remark:
Emission Level = Receiver Reading + Antenna Factor + Cable Loss – Pre-amplifier.
Margin = Emission Level - Limit
Other harmonics emissions are lower than 20dB below the allowable limit.
If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

802.11n20 band 1

	Freq.	Receiver Reading	Detector	Polar	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limit	Result
	(MHz)	(dBμV)	(PK/QP/Ave)	(H/V)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	
Lower Channel 5180MHz	20720.00	42.36	PK	H	36.36	10.20	27.10	43.30	74.00	Pass
	25900.00	42.42	PK	H	36.50	10.55	27.50	43.97	74.00	Pass
	31080.00	42.18	PK	H	37.65	11.15	28.75	44.43	74.00	Pass
	20720.00	43.25	PK	V	36.36	10.20	27.10	44.19	74.00	Pass
	25900.00	43.33	PK	V	36.50	10.55	27.50	44.88	74.00	Pass
	31080.00	42.36	PK	V	37.65	11.15	28.75	44.61	74.00	Pass
Middle Channel 5200MHz	20800.00	42.76	PK	H	36.36	10.20	27.10	43.70	74.00	Pass
	26000.00	43.05	PK	H	36.50	10.55	27.50	44.60	74.00	Pass
	31200.00	42.24	PK	H	37.65	11.15	28.75	44.49	74.00	Pass
	20800.00	42.47	PK	V	36.36	10.20	27.10	43.41	74.00	Pass
	26000.00	42.65	PK	V	36.50	10.55	27.50	44.20	74.00	Pass
	31200.00	42.77	PK	V	37.65	11.15	28.75	45.02	74.00	Pass
Upper Channel 5240MHz	20960.00	43.09	PK	H	36.37	10.22	27.12	44.06	74.00	Pass
	26200.00	43.19	PK	H	36.57	10.57	27.51	44.70	74.00	Pass
	31440.00	42.24	PK	H	37.66	11.16	28.76	44.50	74.00	Pass
	20960.00	43.74	PK	V	36.37	10.22	27.12	44.71	74.00	Pass
	26200.00	41.12	PK	V	36.57	10.57	27.51	42.63	74.00	Pass
	31440.00	42.23	PK	V	37.66	11.16	28.76	44.49	74.00	Pass

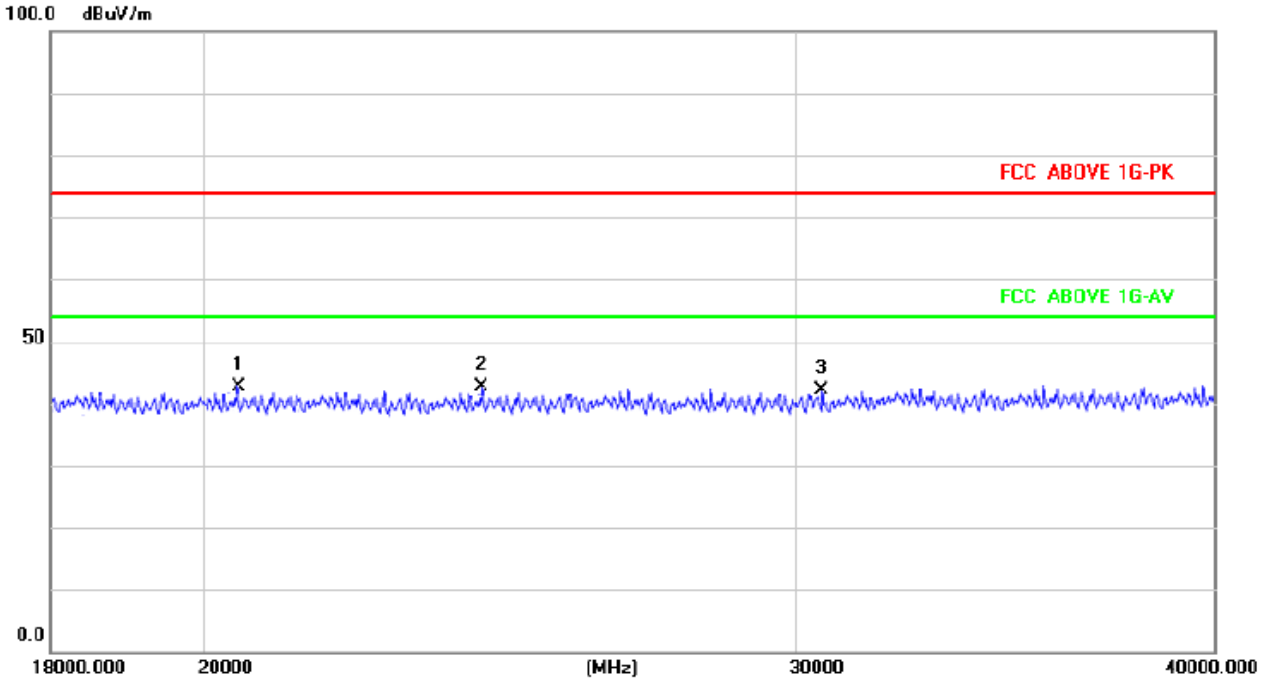
Remark:
Emission Level = Receiver Reading + Antenna Factor + Cable Loss – Pre-amplifier.
Margin = Emission Level - Limit
Other harmonics emissions are lower than 20dB below the allowable limit.
If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

802.11n20 band 4

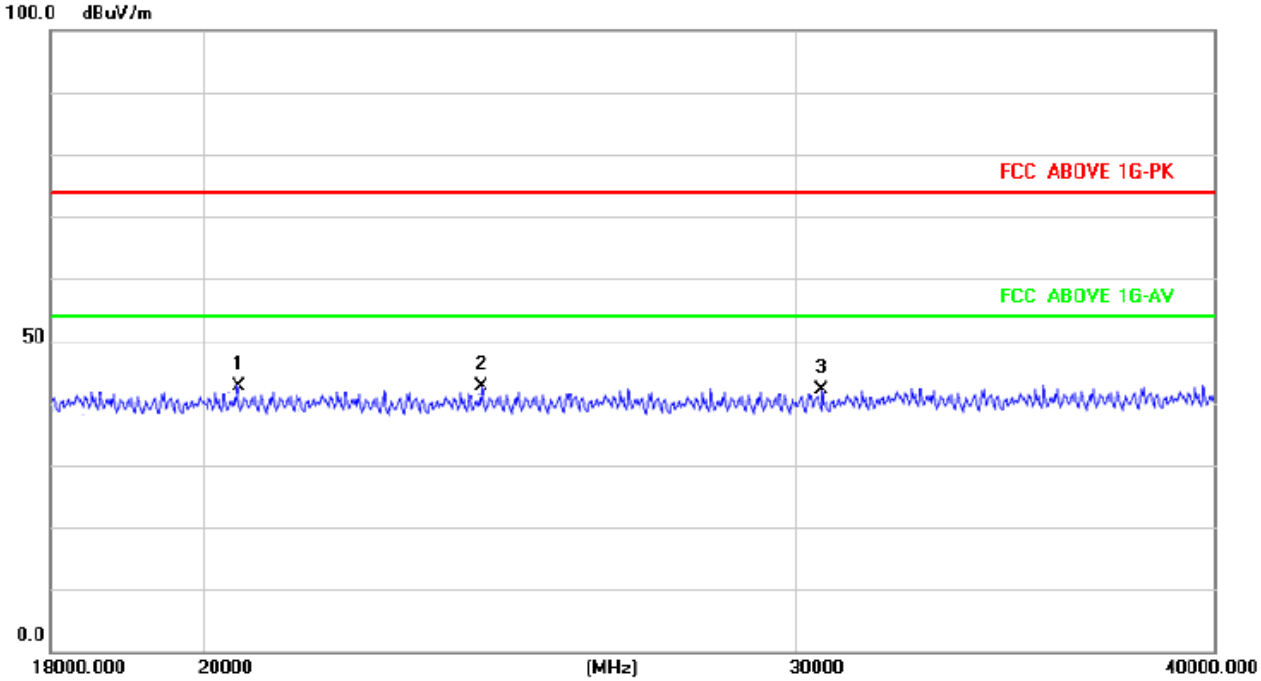
	Freq.	Receiver Reading	Detector	Polar	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limit	Result
	(MHz)	(dBμV)	(PK/QP/Ave)	(H/V)	(dB)	(dB)	(dB)	(dBμV/m)	(dBμV/m)	
Lower Channel 5745MHz	22980.00	42.14	PK	H	37.15	10.55	28.12	43.66	74.00	Pass
	28725.00	41.89	PK	H	37.15	10.82	28.42	43.98	74.00	Pass
	34470.00	42.26	PK	H	37.68	11.18	28.78	44.54	74.00	Pass
	22980.00	43.22	PK	V	37.15	10.55	28.12	44.74	74.00	Pass
	28725.00	43.11	PK	V	37.15	10.82	28.42	45.20	74.00	Pass
	34470.00	42.36	PK	V	37.68	11.18	28.78	44.64	74.00	Pass
Middle Channel 5785MHz	23140.00	42.79	PK	H	37.15	10.55	28.12	44.31	74.00	Pass
	28925.00	43.34	PK	H	37.15	10.82	28.42	45.43	74.00	Pass
	34710.00	42.82	PK	H	37.68	11.18	28.78	45.10	74.00	Pass
	23140.00	42.88	PK	V	37.15	10.55	28.12	44.40	74.00	Pass
	28925.00	42.79	PK	V	37.15	10.82	28.42	44.88	74.00	Pass
	34710.00	43.17	PK	V	37.68	11.18	28.78	45.45	74.00	Pass
Upper Channel 5825MHz	23300.00	43.34	PK	H	37.15	10.55	28.12	44.86	74.00	Pass
	29125.00	43.28	PK	H	37.15	10.82	28.42	45.37	74.00	Pass
	34950.00	42.29	PK	H	37.68	11.18	28.78	44.57	74.00	Pass
	23300.00	43.74	PK	V	37.15	10.55	28.12	45.26	74.00	Pass
	29125.00	42.87	PK	V	37.15	10.82	28.42	44.96	74.00	Pass
	34950.00	43.02	PK	V	37.68	11.18	28.78	45.30	74.00	Pass

Remark:
Emission Level = Receiver Reading + Antenna Factor + Cable Loss – Pre-amplifier.
Margin = Emission Level - Limit
Other harmonics emissions are lower than 20dB below the allowable limit.
If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.

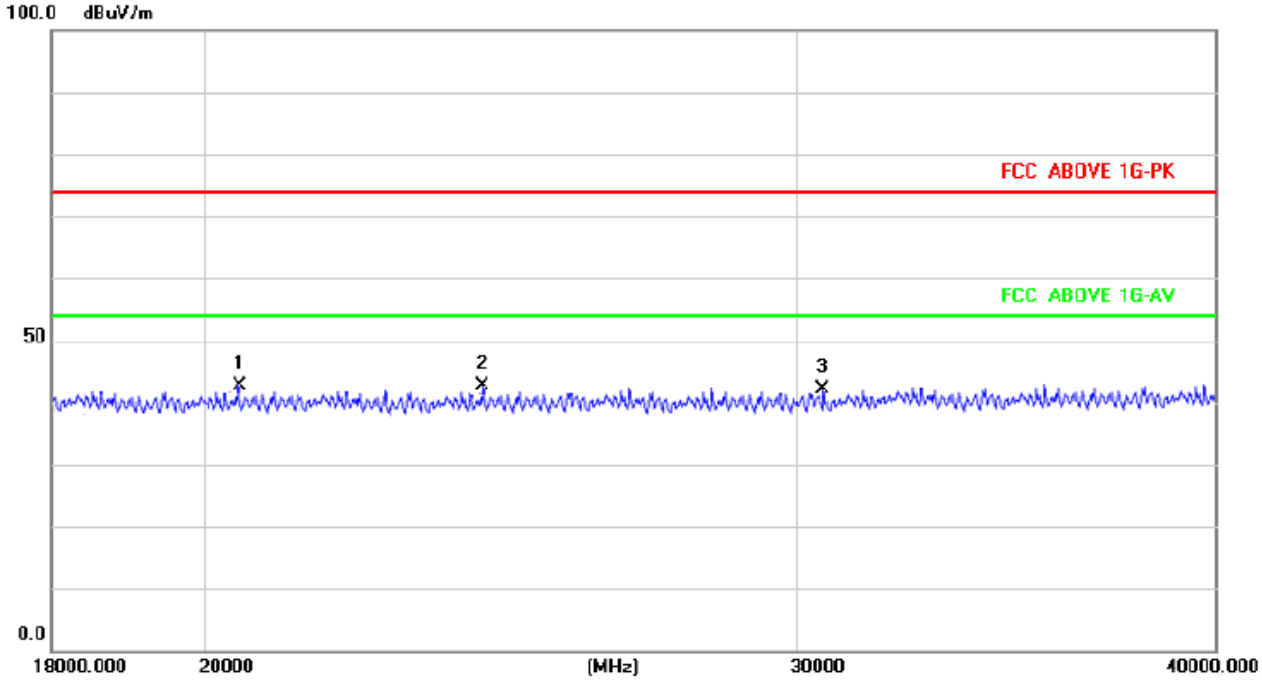
802.11a band 1
5180MHz Horizontal



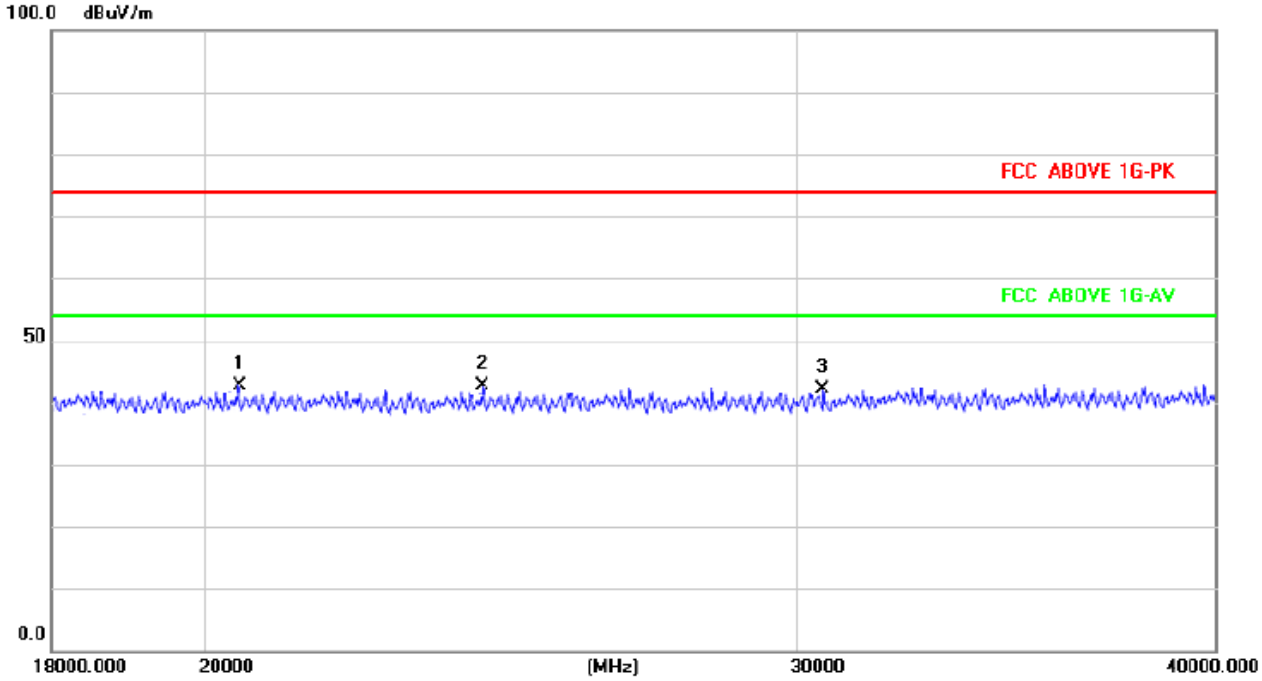
5180MHz Vertical



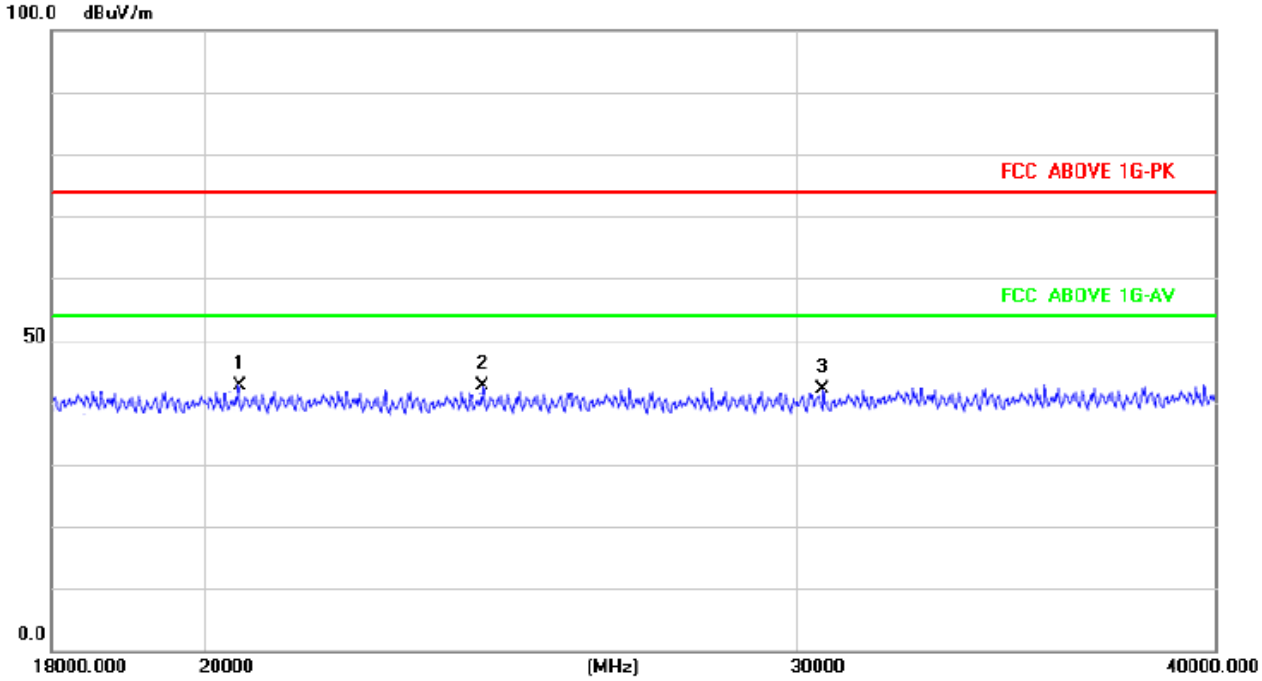
5200MHz Horizontal



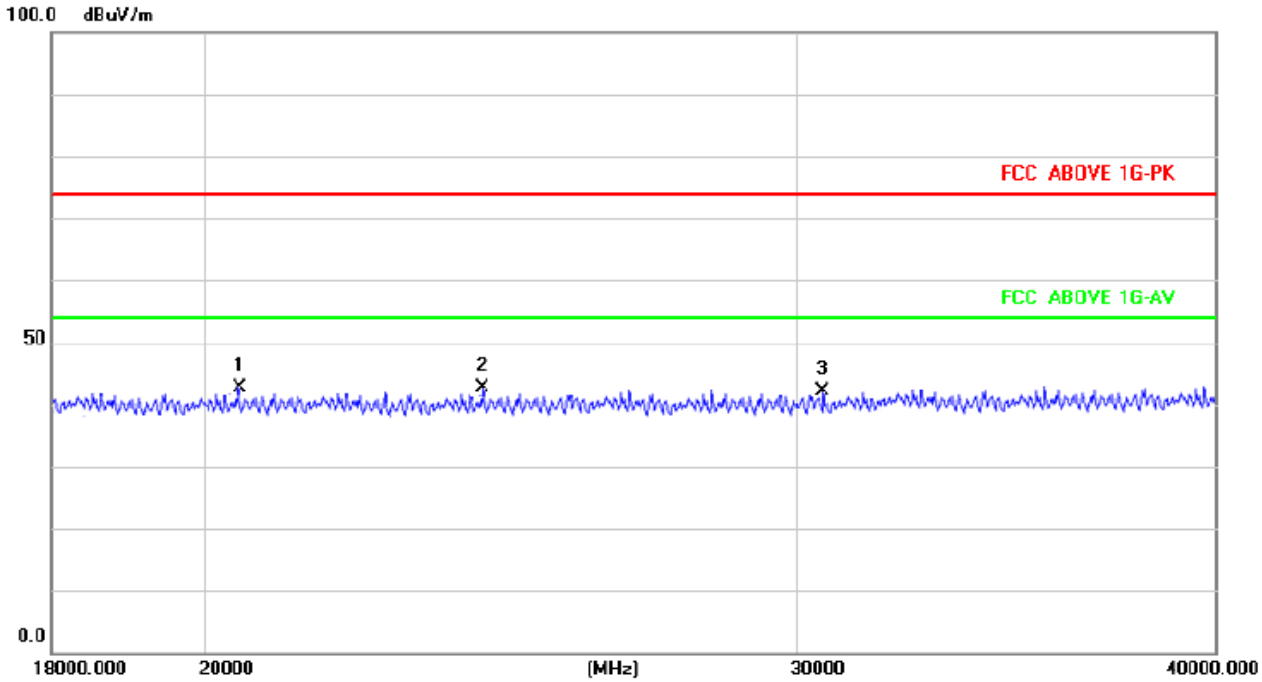
5200MHz Vertical



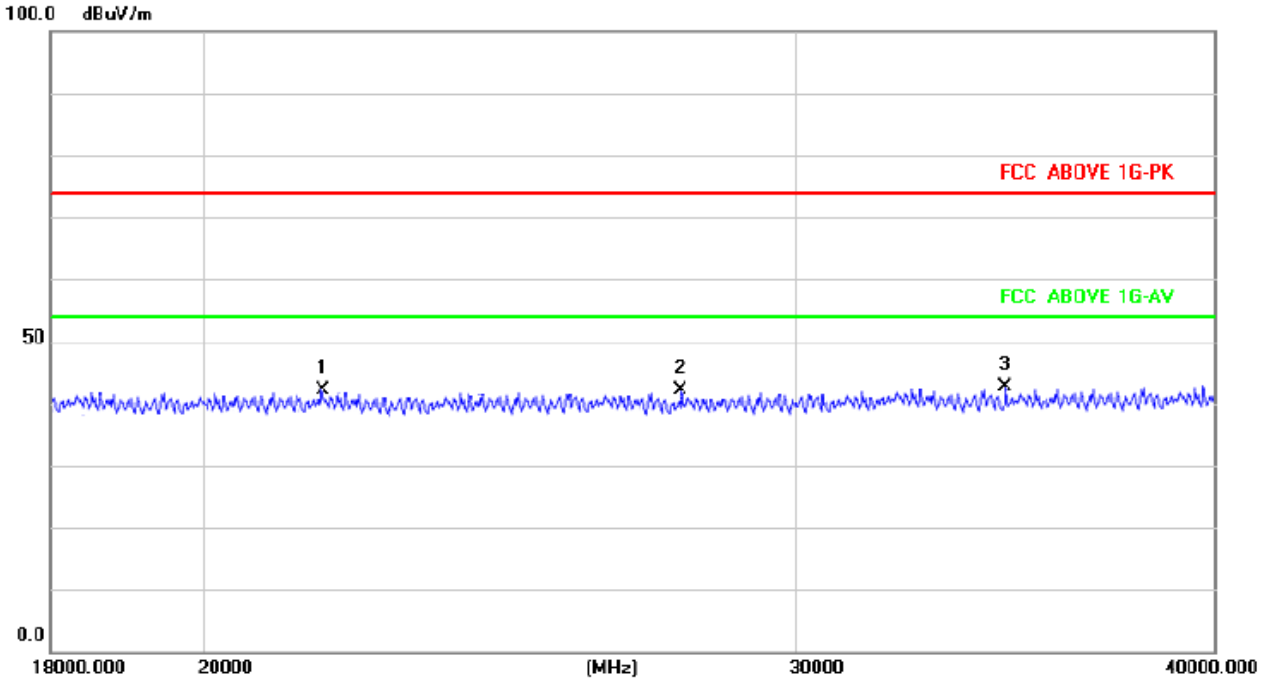
5240MHz Horizontal



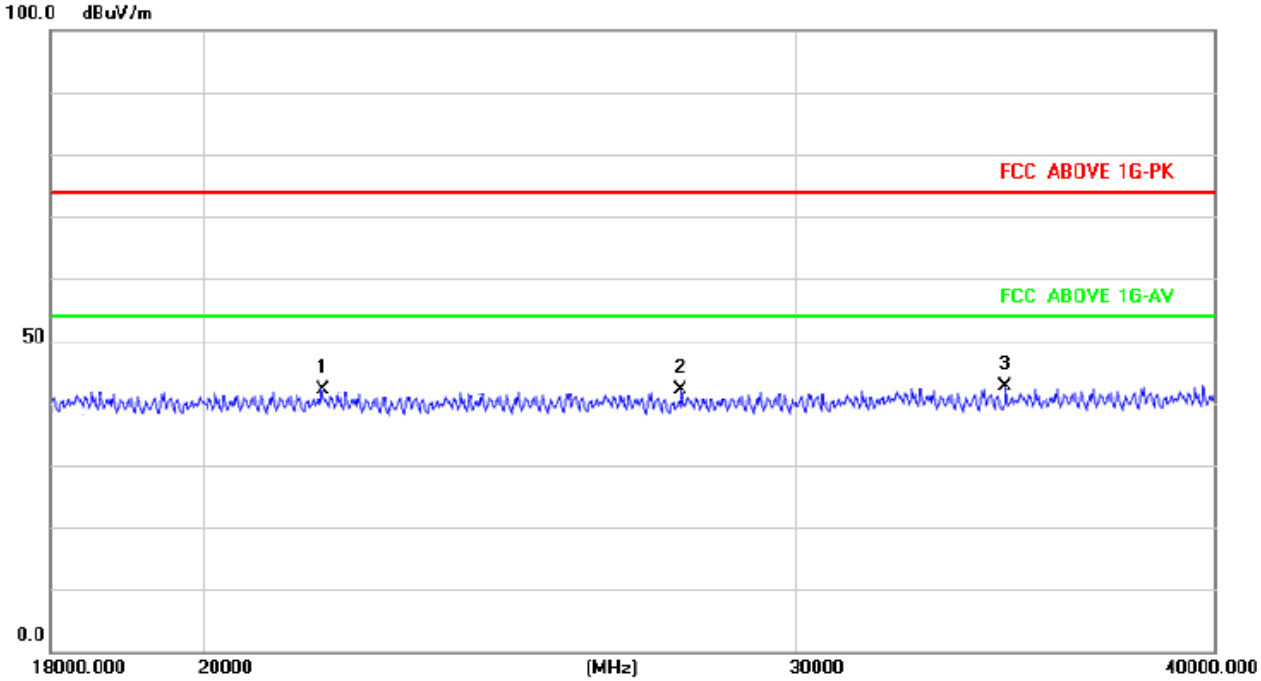
5240MHz Vertical



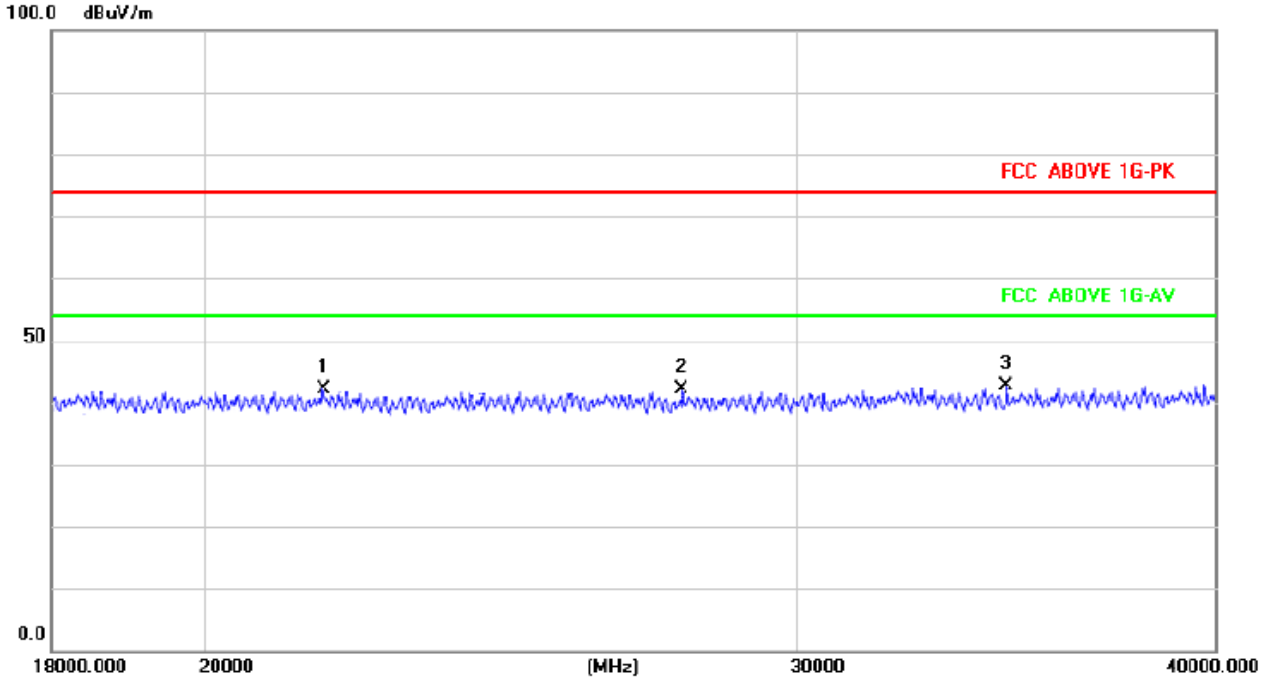
802.11n20 band 4
5745MHz Horizontal



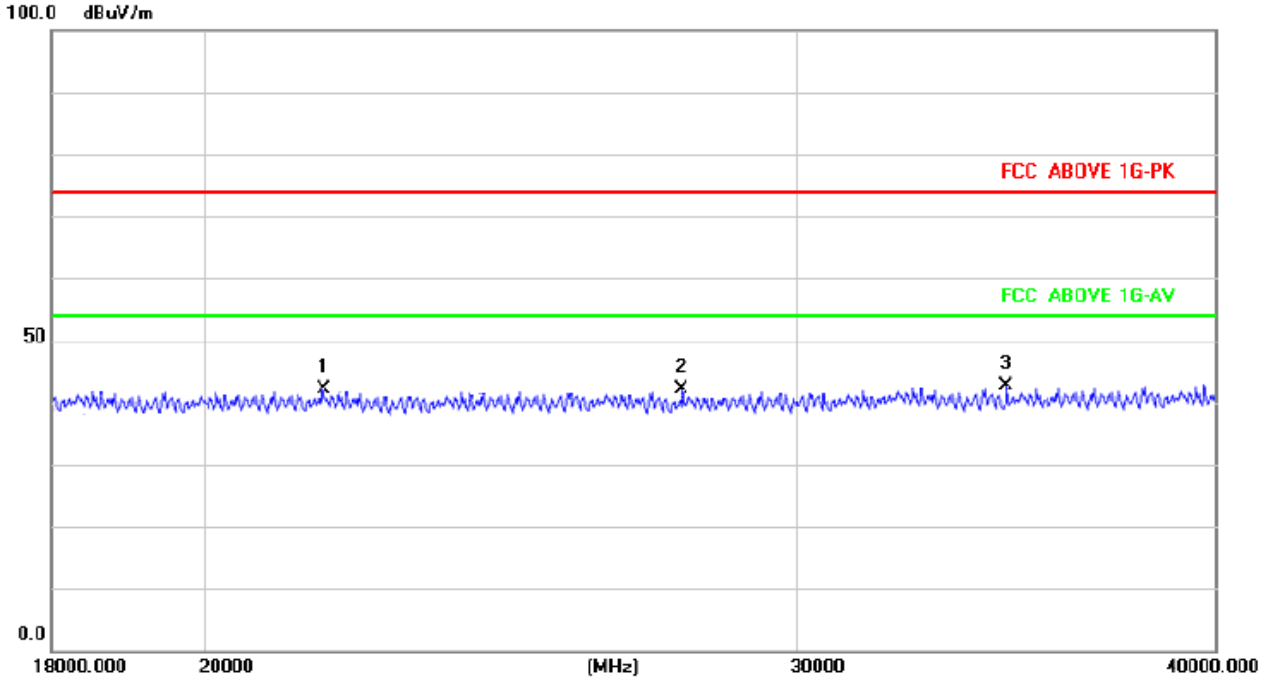
5745MHz Vertical



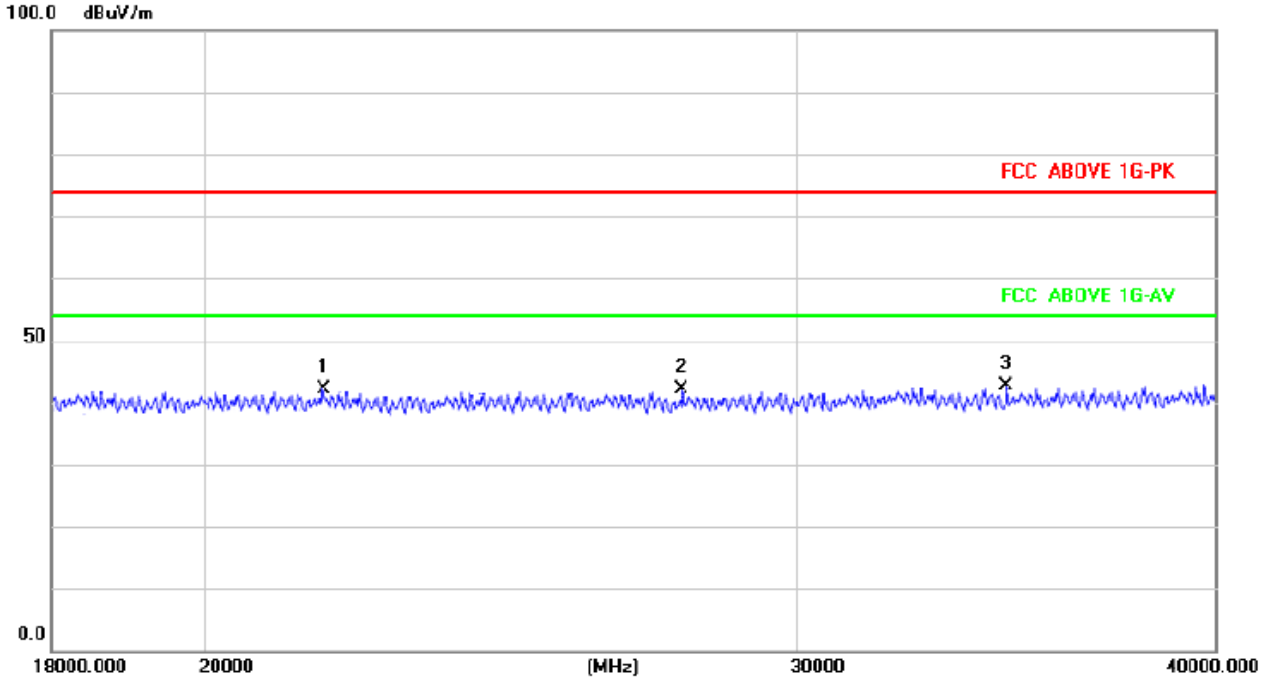
5785MHz Horizontal



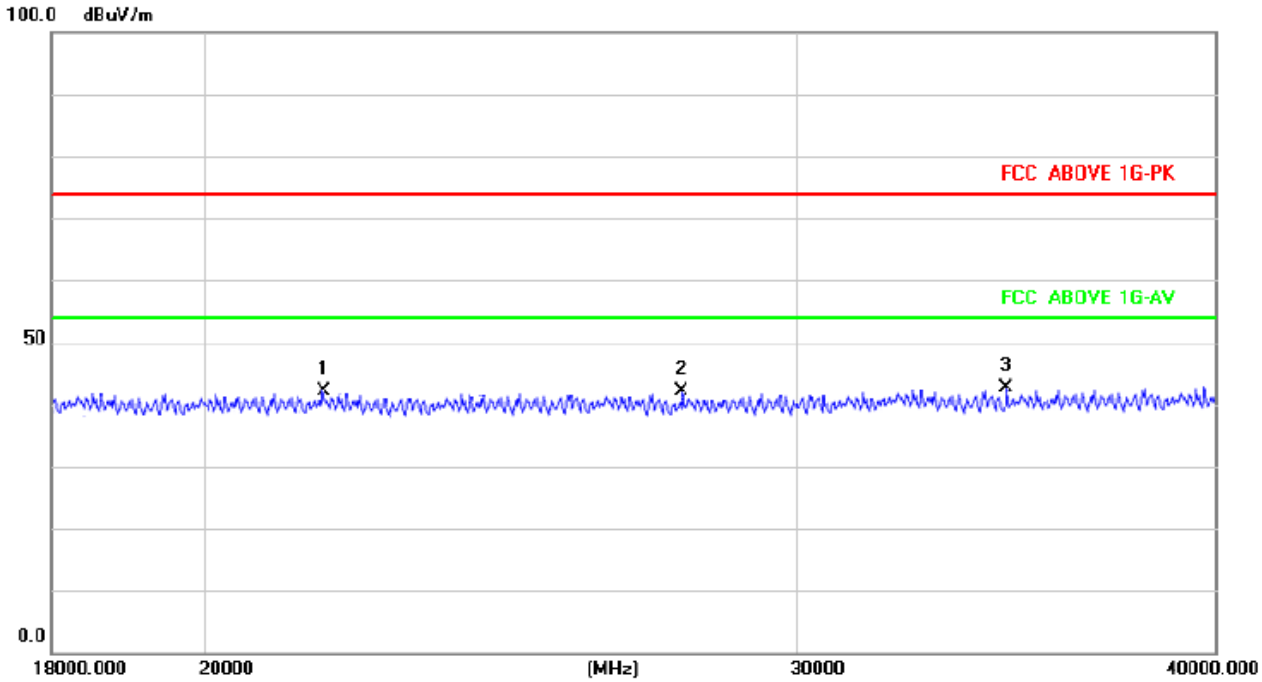
5785MHz Vertical



5825MHz Horizontal



5825MHz Vertical



NOTE: We pretest All the modulation modes, the worst data recording in the report.

5. BAND EDGE COMPLIANCE TEST

5.1. 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.

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

5.2. TEST PROCEDURE

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW of spectrum analyzer to 1 MHz with a convenient frequency span.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

5.3. Test Data

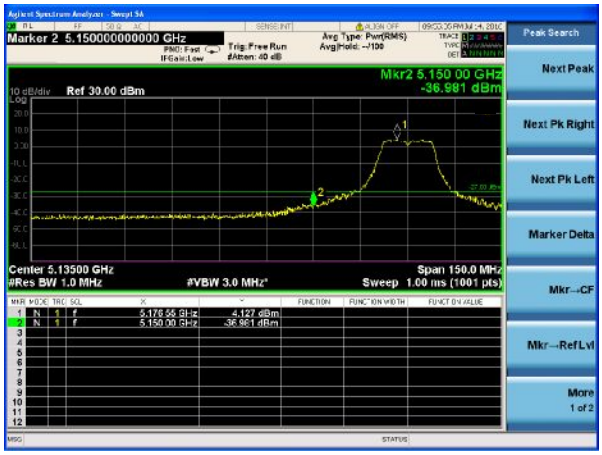
Please see data as below:

NOTE: Represent the value of antenna 1 and 2, The worst data is Antenna 1, only shown Antenna 1 Plot.

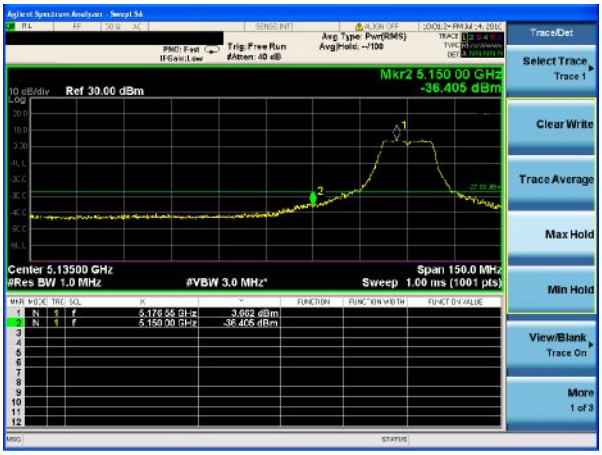
Antenna 1

5.15~5.25 GHz

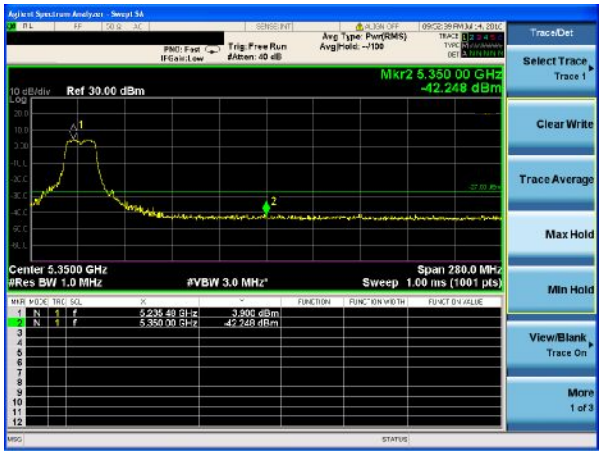
(802.11a) Band Edge, Left Side



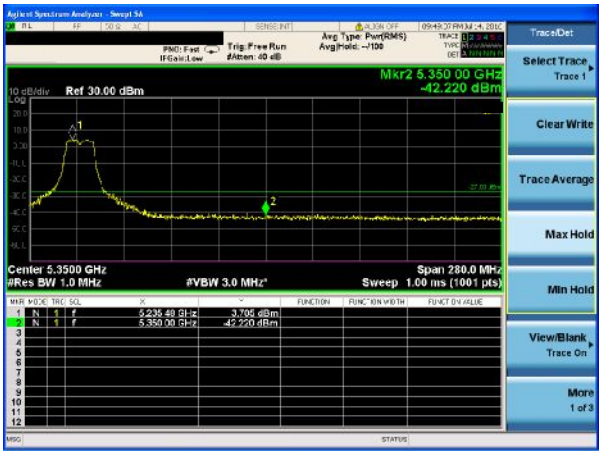
(802.11n20) Band Edge, Left Side



(802.11a) Band Edge, Right Side



(802.11n20) Band Edge, Right Side

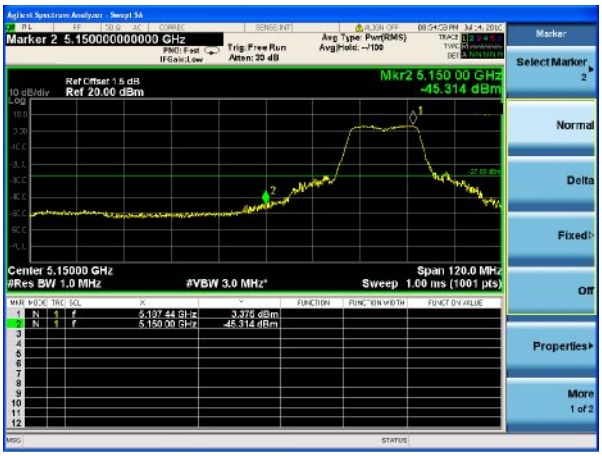


Antenna 1

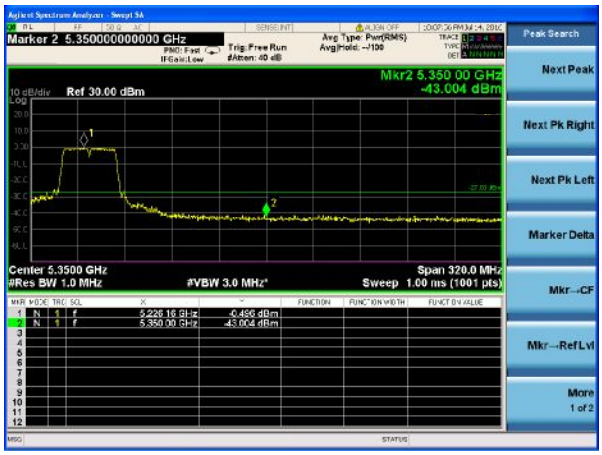
5.15~5.25 GHz

(802.11n40) Band Edge, Left Side

(802.11ac20) Band Edge, Left Side



(802.11n40) Band Edge, Right Side

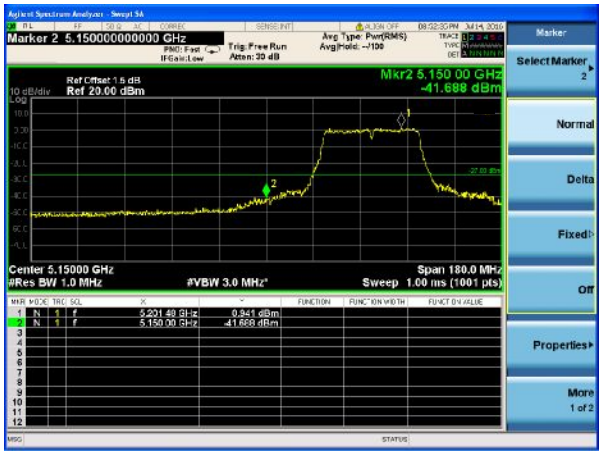


(802.11ac20) Band Edge, Right Side

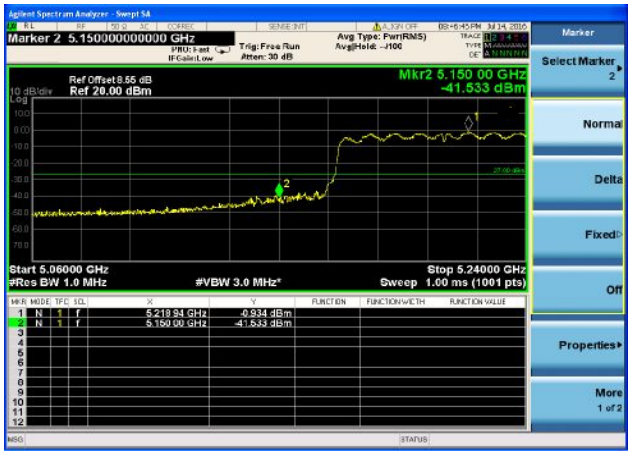
Antenna 1

5.15~5.25 GHz

(802.11ac40) Band Edge, Left Side



(802.11ac80) Band Edge, Left Side



(802.11ac40) Band Edge, Right Side

(802.11ac80) Band Edge, Right Side

Antenna 1

5.725-5.85 GHz

(802.11a) Band Edge, Left Side

(802.11n20) Band Edge, Left Side

(802.11a) Band Edge, Right Side

(802.11n20) Band Edge, Right Side

Antenna 1

5.725-5.85 GHz

(802.11n40) Band Edge, Left Side

(802.11ac20) Band Edge, Left Side

(802.11n40) Band Edge, Right Side

(802.11ac20) Band Edge, Right Side

Antenna 1

5.725-5.85 GHz

(802.11ac40) Band Edge, Left Side

(802.11ac80) Band Edge, Left Side

(802.11ac40) Band Edge, Right Side

(802.11ac80) Band Edge, Right Side

6. 26DB AND 99% BANDWIDTH TEST

6.1. Applied procedures / limit

The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test. If the device cannot be connected directly, alternative techniques acceptable to the Commission may be used. Measurements in the 5.725-5.85 GHz band are made over a reference bandwidth of 500 kHz or the 26 dB emission bandwidth of the device, whichever is less. Measurements in the 5.15-5.25 GHz, 5.25-5.35 GHz, and the 5.47-5.725 GHz bands are made over a bandwidth of 1 MHz or the 26 dB emission bandwidth of the device, whichever is less. A narrower resolution bandwidth can be used, provided that the measured power
is integrated over the full reference bandwidth.

6.2. TEST PROCEDURE

a) Set RBW = approximately 1% of the emission bandwidth.
b) Set the VBW > RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Measure the maximum width of the emission that is 26 dB down from the maximum 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%.
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.

6.3. Test result

26dB bandwith

Mode	Channel	Frequency (MHz)	99% bandwidth(MHz)		26dB bandwidth (MHz)		Result
			ANT 1	ANT 2	ANT 1	ANT 2	
802.11a	CH36	5180	16.789	16.648	21.11	21.06	Pass
	CH40	5200	16.774	16.569	21.00	21.00	Pass
	CH48	5240	16.754	16.699	20.95	20.86	Pass
802.11 n20	CH36	5180	17.840	17.674	21.79	21.74	Pass
	CH40	5200	17.829	17.784	21.82	21.81	Pass
	CH48	5240	17.824	17.816	21.73	21.75	Pass
802.11 n40	CH 38	5190	36.220	36.216	42.58	42.56	Pass
	CH 46	5230	36.208	36.207	42.32	42.33	Pass
802.11 AC20	CH36	5180	17.831	17.831	21.56	21.52	Pass
	CH40	5200	17.831	17.826	21.88	21.78	Pass
	CH48	5240	17.834	17.832	21.65	21.63	Pass
802.11 AC40	CH 38	5190	36.221	36.212	42.46	42.41	Pass
	CH 46	5230	36.205	36.201	42.37	42.33	Pass
802.11 AC80	CH 42	5210	75.182	75.164	80.73	80.71	Pass

NOTE: Represent the value of antenna 1 and 2, The worst data is Antenna 1, only shown Antenna 1 Plot.

Antenna 1

(802.11a) -26dB&99% Bandwidth plot on channel 36

(802.11n20) -26dB&99% Bandwidth plot on channel 36

(802.11a) -26dB&99% Bandwidth plot on channel 40

(802.11n20) -26dB&99% Bandwidth plot on channel 40

(802.11a) -26dB&99% Bandwidth plot on channel 48

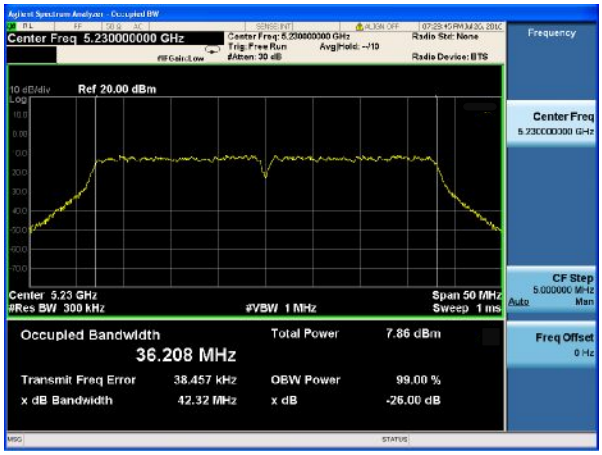
(802.11n20) -26dB&99% Bandwidth plot on channel 48

Antenna 1

(802.11n40) -26dB&99% Bandwidth plot on channel 38

(802.11ac20) -26dB&99% Bandwidth plot on channel 36

(802.11n40) -26dB&99% Bandwidth plot on channel 46



(802.11ac20) -26dB&99% Bandwidth plot on channel 40

(802.11ac20) -26dB&99% Bandwidth plot on channel 48

Antenna 1

(802.11ac40) -26dB&99% Bandwidth plot on channel 38

(802.11ac80) -26dB&99% Bandwidth plot on channel 42

(802.11ac40) -26dB&99% Bandwidth plot on channel 46

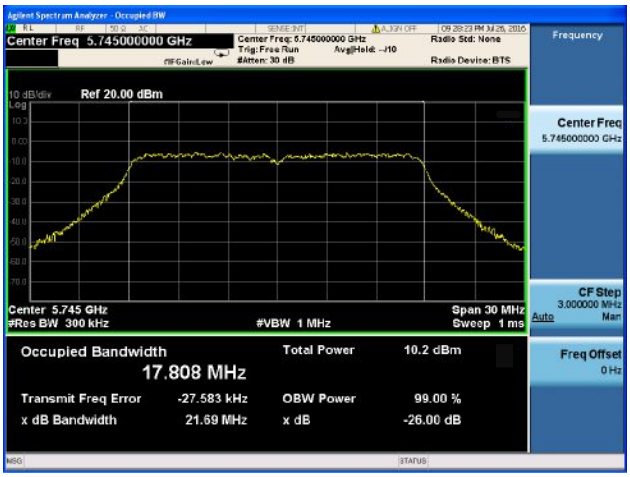
Mode	Channel	Frequency (MHz)	99% bandwidth(MHz)		26dB bandwidth (MHz)		Result
			ANT 1	ANT 2	ANT 1	ANT 2	
802.11a	CH149	5745	16.775	16.755	21.22	21.19	Pass
	CH157	5785	16.776	16.762	21.10	21.04	Pass
	CH165	5825	16.758	16.746	21.03	21.00	Pass
802.11 n20	CH149	5745	17.808	17.798	21.69	21.59	Pass
	CH157	5785	17.810	17.803	21.60	21.75	Pass
	CH165	5825	17.820	17.816	21.81	21.72	Pass
802.11 n40	CH 151	5755	36.207	36.198	42.21	42.16	Pass
	CH 159	5795	36.199	36.186	42.42	42.35	Pass
802.11 AC20	CH149	5745	17.821	17.816	21.74	21.65	Pass
	CH157	5785	17.820	17.819	21.56	21.27	Pass
	CH165	5825	17.820	17.815	21.81	21.59	Pass
802.11 AC40	CH 151	5755	36.207	36.200	42.21	42.11	Pass
	CH 159	5795	36.226	36.219	42.49	42.37	Pass
802.11 AC80	CH 155	5775	75.203	75.178	81.05	81.00	Pass

NOTE: Represent the value of antenna 1 and 2, The worst data is Antenna 1, only shown Antenna 1 Plot.

Antenna 1

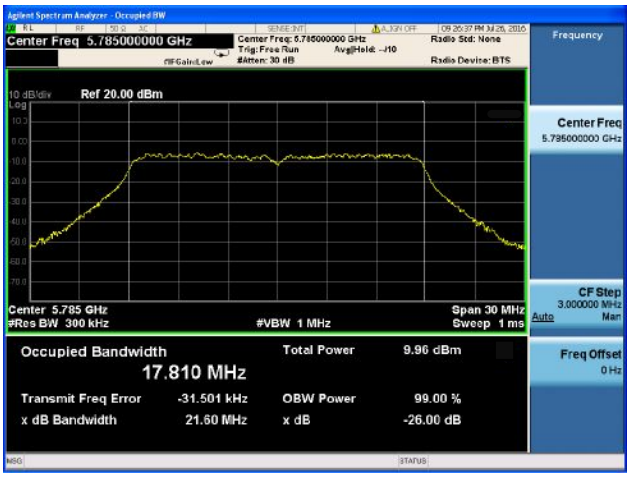
(802.11a) -26dB&99% Bandwidth plot on channel 149

(802.11n20) -26dB&99% Bandwidth plot on channel 149

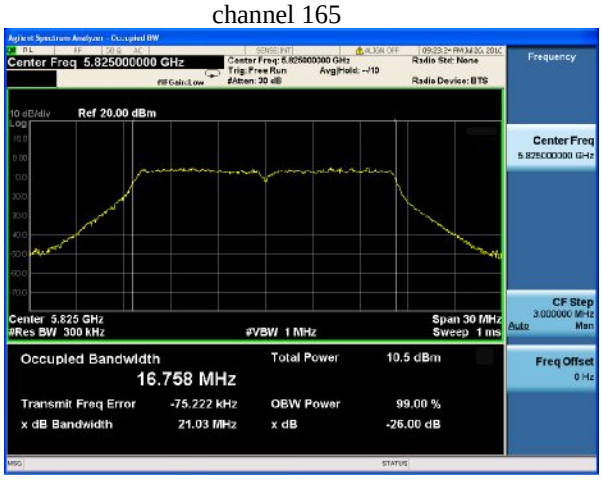


(802.11a) -26dB&99% Bandwidth plot on channel 157

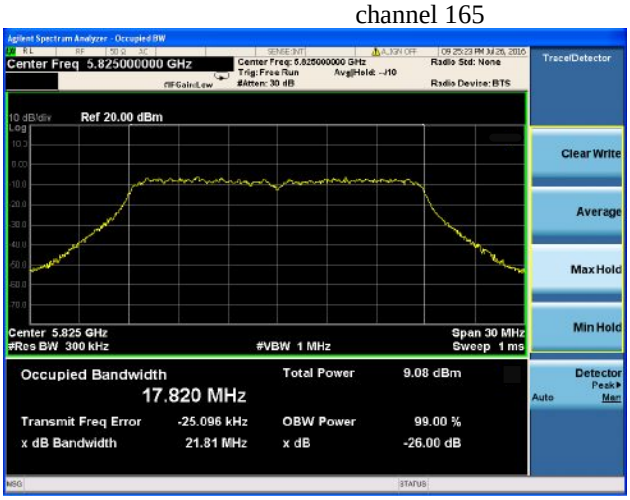
(802.11n20) -26dB&99% Bandwidth plot on channel 157



(802.11a) -26dB&99% Bandwidth plot on channel 165



(802.11n20) -26dB&99% Bandwidth plot on channel 165



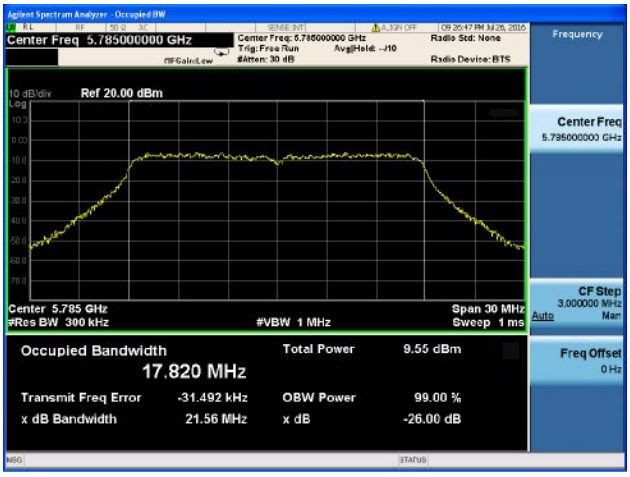
Antenna 1

(802.11n40) -26dB&99% Bandwidth plot on channel 151

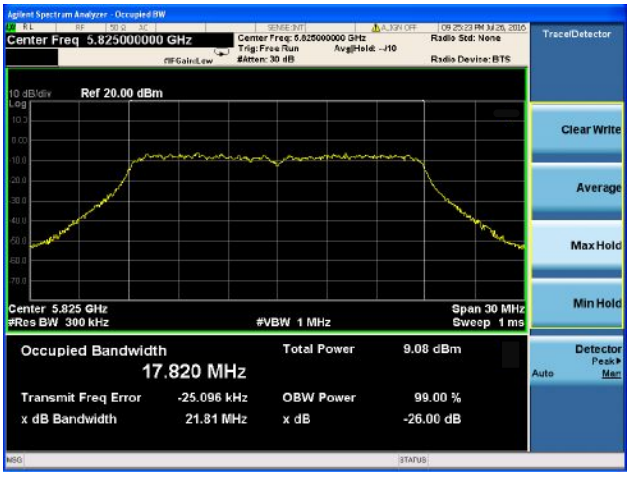
(802.11ac20) -26dB&99% Bandwidth plot on channel 149

(802.11n40) -26dB&99% Bandwidth plot on channel 159

(802.11ac20) -26dB&99% Bandwidth plot on channel 157



(802.11ac20) -26dB&99% Bandwidth plot on channel 165



Antenna 1

(802.11ac40) -26dB&99% Bandwidth plot on channel 151

(802.11ac80) -26dB&99% Bandwidth plot on channel 155

(802.11ac40) -26dB&99% Bandwidth plot on channel 159

7. MINIMUM 6 DB BANDWIDTH

7.1. Applied procedures / limit

According to FCC §15.407(e)
(e) Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

7.2. TEST PROCEDURE

Section 15.407(e) specifies the minimum 6 dB emission bandwidth of at least 500 KHz for the band 5.715-5.85 GHz. The following procedure shall be used for measuring this bandwidth:
a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3 × RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.3. Test result

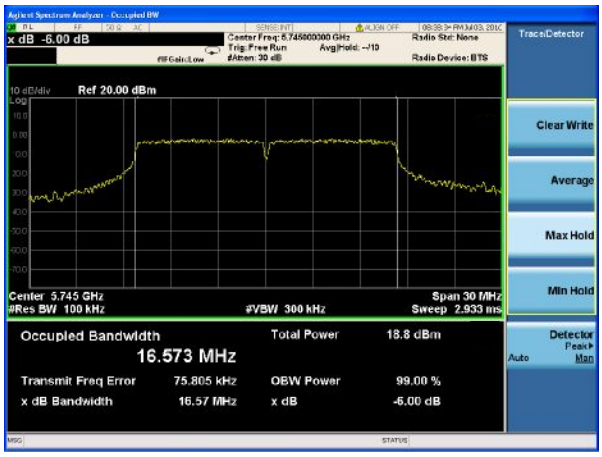
6dB bandwith

Mode	Channel	Frequency (MHz)	-6dB bandwidth (MHz)		Limit (KHz)	Result
			ANT A	ANT B		
802.11a	149	5745	16.57	16.53	500	Pass
	157	5785	16.57	16.55	500	Pass
	165	5825	16.57	16.51	500	Pass
802.11 n20	149	5745	17.78	17.73	500	Pass
	157	5785	17.76	17.74	500	Pass
	165	5825	17.80	17.77	500	Pass
802.11 n40	151	5755	36.47	36.54	500	Pass
	159	5795	36.48	36.42	500	Pass
802.11 AC20	149	5745	17.71	17.61	500	Pass
	157	5785	17.72	17.59	500	Pass
	165	5825	17.73	17.64	500	Pass
802.11 AC40	149	5745	36.53	36.42	500	Pass
	157	5785	36.53	36.53	500	Pass
802.11 AC80	155	5775	75.43	75.42	500	Pass

NOTE: Represent the value of antenna 1 and 2, The worst data is Antenna 1, only shown Antenna 1 Plot.

Antenna 1

(802.11a) -6dB Bandwidth plot on channel 149

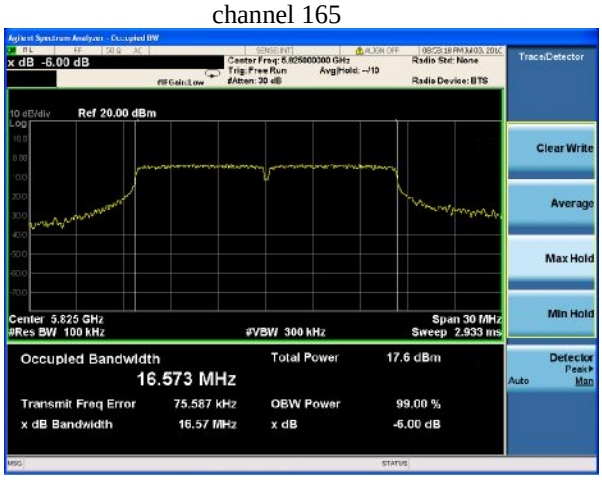


(802.11n20) -6dB Bandwidth plot on channel 149

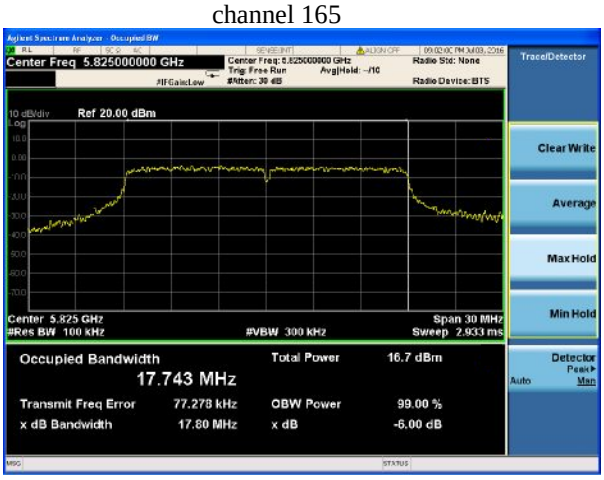
(802.11a) -6dB Bandwidth plot on channel 157

(802.11n20) -6dB Bandwidth plot on channel 157

(802.11a) -6dB Bandwidth plot on channel 165



(802.11n20) -6dB Bandwidth plot on channel 165



Antenna 1

(802.11n40) -6dB Bandwidth plot on channel 151

(802.11ac20) -6dB Bandwidth plot on channel 149

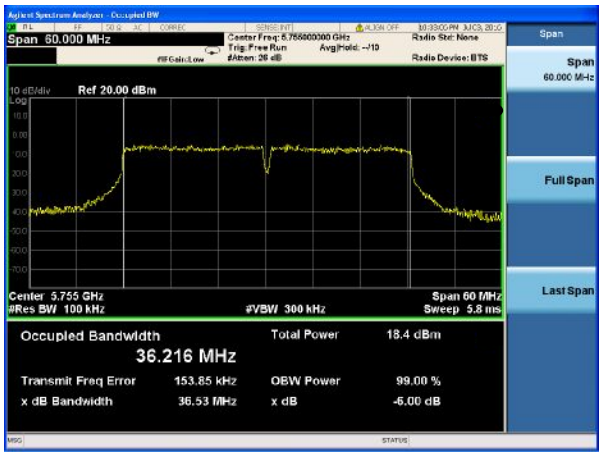
(802.11n40) -6dB Bandwidth plot on channel 159

(802.11ac20) -6dB Bandwidth plot on channel 157

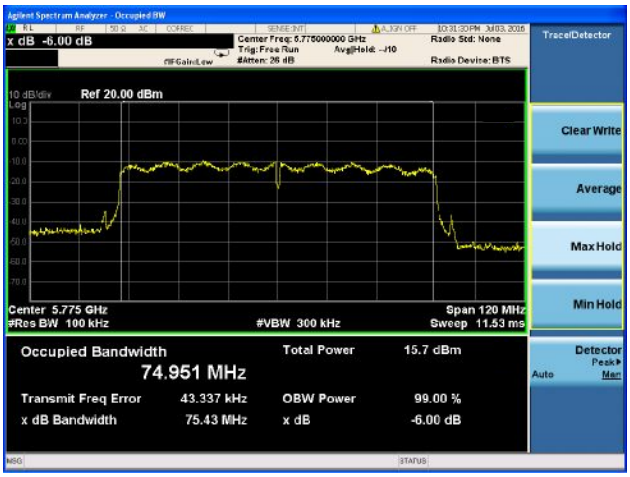
(802.11ac20) -6dB Bandwidth plot on channel 165

Antenna 1

(802.11ac40) -6dB Bandwidth plot on channel 151



(802.11ac80) -6dB Bandwidth plot on channel 155



(802.11ac40) -6dB Bandwidth plot on channel 159

8. OUTPUT POWER TEST

8.1. Limits

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.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

8.2. Test setup

1. The maximum average conducted output power can be measured using Method PM-G (Measurement using a gated RF average power meter):
2. Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Since the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

a. The Transmitter output (antenna port) was connected to the power meter.

b. Turn on the EUT and power meter and then record the power value.

c. Repeat above procedures on all channels needed to be tested.

8.3. Test result

Test Channel	Frequency	Maximum output (PK) (dBm)		Total Power (PK)	LIMIT	Result
	(MHz)	ANT 1	ANT 2	dBm	dBm	
TX 802.11a Mode						
CH36	5180	15.72	15.27	-	23.98	Pass
CH40	5200	15.69	15.12	-	23.98	Pass
CH48	5240	15.35	15.18	-	23.98	Pass
TX 802.11 n20M Mode						
CH36	5180	14.570	14.280	17.438	23.98	Pass
CH40	5200	14.760	14.170	17.485	23.98	Pass
CH48	5240	14.080	14.070	17.085	23.98	Pass
TX 802.11 n40M Mode						
CH38	5190	13.870	13.150	16.535	23.98	Pass
CH46	5230	13.570	13.070	16.337	23.98	Pass
TX 802.11 AC20M Mode						
CH36	5180	14.840	14.270	17.575	23.98	Pass
CH40	5200	14.540	14.060	17.317	23.98	Pass
CH48	5240	14.250	14.110	17.191	23.98	Pass
TX 802.11 AC40M Mode						
CH38	5190	13.140	13.010	16.086	23.98	Pass
CH46	5230	13.110	13.100	16.115	23.98	Pass
TX 802.11 AC80M Mode						
CH42	5210	12.530	12.420	15.486	23.98	Pass

Test Channel	Frequency	Maximum output (PK) (dBm)		Total Power (PK)	LIMIT	Result
	(MHz)	ANT 1	ANT 2	dBm	dBm	
TX 802.11a Mode						
CH 149	5745	15.15	15.36	-	30	Pass
CH 157	5785	15.29	15.11	-	30	Pass
CH 165	5825	15.38	15.37	-	30	Pass
TX 802.11 n20M Mode						
CH 149	5745	14.31	14.13	17.231	30	Pass
CH 157	5785	14.37	14.29	17.340	30	Pass
CH 165	5825	14.22	14.44	17.342	30	Pass
TX 802.11 n40M Mode						
CH 151	5755	12.28	12.14	15.221	30	Pass
CH 159	5795	12.16	12.03	15.106	30	Pass
TX 802.11 AC20M Mode						
CH 149	5745	14.14	14.05	17.106	30	Pass
CH 157	5785	14.21	14.09	17.161	30	Pass
CH 165	5825	14.22	14.15	17.195	30	Pass
TX 802.11 AC40M Mode						
CH 151	5755	12.58	12.25	15.428	30	Pass
CH 159	5795	12.34	12.28	15.320	30	Pass
TX 802.11 AC80M Mode						
CH 155	5775	12.02	12.1	15.070	30	Pass

9. PEAK POWER SPECTRAL DENSITY TEST

9.1. Limits

In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

In addition, the maximum power spectral density shall not exceed 30 dBm in any 500 kHz band.

9.2. Test setup

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules v01.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to

Spectrum.

4. For U-NII1, U-NII-2A, U-NII-2C Band:

Set RBW=1MHz, VBW=3MHz, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)

For U-NII-3 Band:

Set RBW=510 kHz, VBW=3*RBW, where span is enough to capture the entire bandwidth, Sweep time = Auto (601 pts), detector = sample, traces 100 sweeps of video averaging. (SA-2 with the omission of procedure x, the integration with 26dB EBW bandwidth)

5. User the cursor on spectrum to peak search the highest level of trace
6. Record the max. reading and add 10 log(1/duty cycle).

9.3. Test data

Test data as below

Mode	Frequency	Measured Power Density (dBm)		Total power density (dBm)	Calculate power density (dBm)(Note 1)		Limit (dBm)	Result
		ANT 1	ANT 2		ANT 1	ANT 2		
802.11 a	5185	1.532	1.162	-	1.532	1.162	11	PASS
	5200	1.5	1.215	-	1.5	1.215	11	PASS
	5240	1.935	1.6215	-	1.935	1.6215	11	PASS
802.11 n20	5185	1.253	1.034	4.155	4.155		11	PASS
	5200	1.178	1.151	4.175	4.175		11	PASS
	5240	1.778	1.268	4.541	4.541		11	PASS
802.11 n40	5190	-2.749	-2.834	0.219	0.219		11	PASS
	5230	-4.17	-3.061	-0.570	-0.57		11	PASS
802.11 AC20	5185	1.13	1.11	4.130	4.130		11	PASS
	5200	1.29	1.2	4.256	4.256		11	PASS
	5240	1.912	1.266	4.611	4.611		11	PASS
802.11 AC40	5190	-2.872	-3.065	0.043	0.043		11	PASS
	5230	-2.62	-3.11	0.152	0.152		11	PASS
802.11 AC80	5210 MHz	-1.785	-1.855	1.190	1.190		11	PASS

NOTE: Represent the value of antenna 1 and 2, The worst data is Antenna 1, only shown Antenna 1 Plot.

Antenna 1

(802.11a) PSD plot on channel 149

(802.11n20) PSD plot on channel 149

(802.11a) PSD plot on channel 157

(802.11n20) PSD plot on channel 157

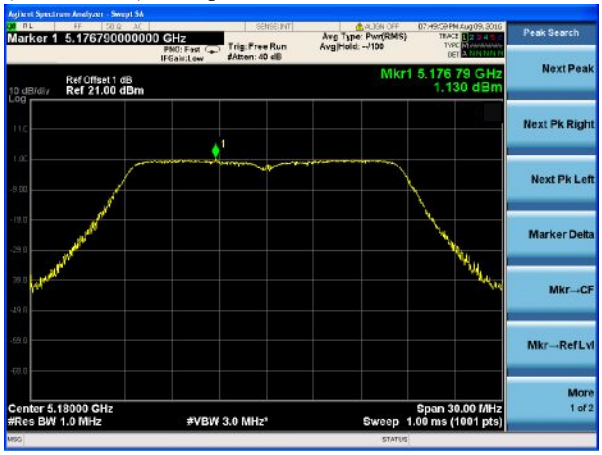
(802.11a) PSD plot on channel 165

(802.11n20) PSD plot on channel 165

Antenna 1

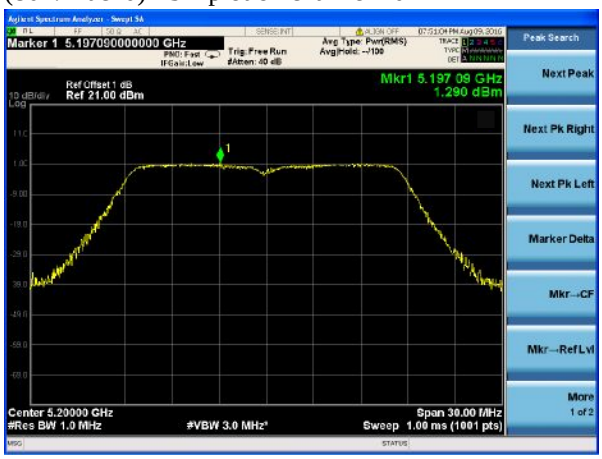
(802.11n40) PSD plot on channel 38

(802.11ac20) PSD plot on channel 36

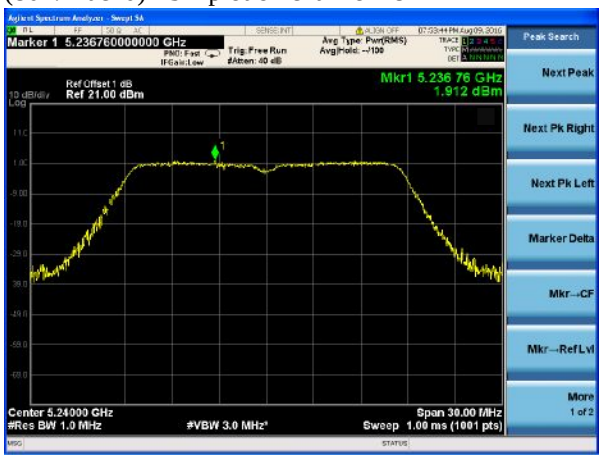


(802.11n40) PSD plot on channel 46

(802.11ac20) PSD plot on channel 40



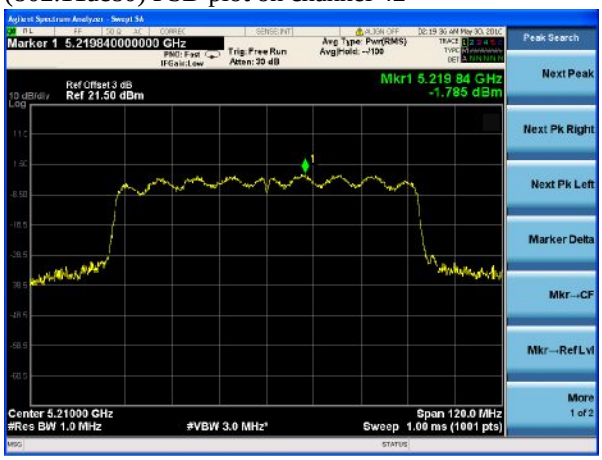
(802.11ac20) PSD plot on channel 48



Antenna 1

(802.11ac40) PSD plot on channel 38

(802.11ac80) PSD plot on channel 42



(802.11ac40) PSD plot on channel 46

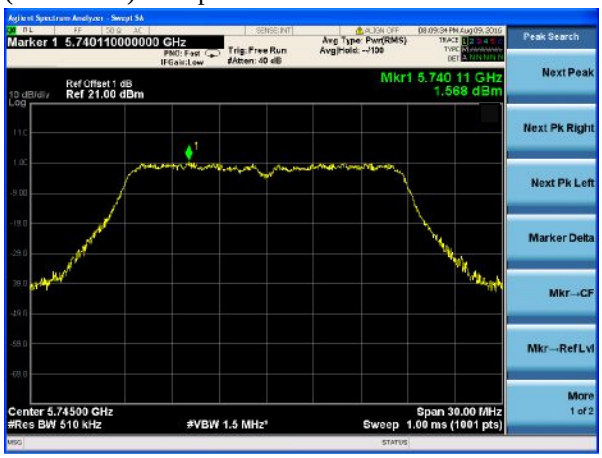
Mode	Frequency	Measured Power Density (dBm)		Total power density (dBm)	Calculate power density (dBm)(Note 1)		Limit (dBm)	Result
		ANT A	ANT B		ANT A	ANT B		
802.11 a	5745 MHz	1.662	1.562	-	1.662	1.562	30	PASS
	5785 MHz	0.727	1.25	-	0.727	1.25	30	PASS
	5825 MHz	-0.121	-0.226	-	-0.121	-0.226	30	PASS
802.11 n20	5745 MHz	1.568	1.316	4.454	4.454		30	PASS
	5785 MHz	1.029	1.006	4.028	4.028		30	PASS
	5825 MHz	0.071	1.032	3.588	3.588		30	PASS
802.11 n40	5755 MHz	-3.637	-3.667	-0.64	-0.64		30	PASS
	5795 MHz	-4.17	-4.22	-1.185	-1.18		30	PASS
802.11 AC20	5745 MHz	1.007	1.06	4.044	4.044		30	PASS
	5785 MHz	1.205	1.156	4.191	4.191		30	PASS
	5825 MHz	0.515	0.365	3.451	3.451		30	PASS
802.11 AC40	5755 MHz	-3.365	-3.662	-0.50	-0.50		30	PASS
	5795 MHz	-4.136	-4.165	-1.14	-1.14		30	PASS
802.11 AC80	5775 MHz	-3.703	-3.921	-0.80	-0.80		30	PASS

NOTE: Represent the value of antenna 1 and 2, The worst data is Antenna 1, only shown Antenna 1 Plot.

Antenna 1

(802.11a) PSD plot on channel 149

(802.11n20) PSD plot on channel 149



(802.11a) PSD plot on channel 157

(802.11n20) PSD plot on channel 157

(802.11a) PSD plot on channel 165

(802.11n20) PSD plot on channel 165

Antenna 1

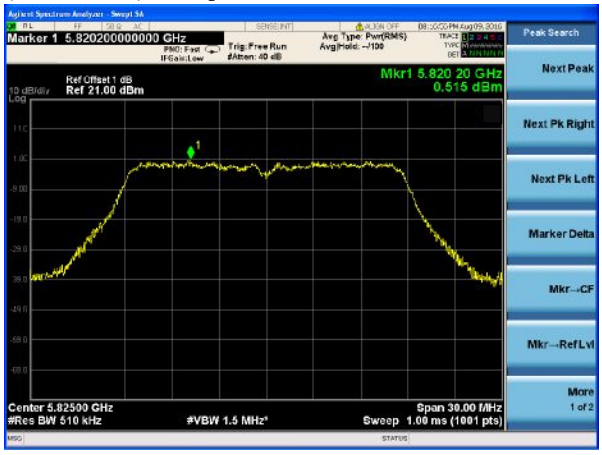
(802.11n40) PSD plot on channel 151

(802.11ac20) PSD plot on channel 149

(802.11n40) PSD plot on channel 159

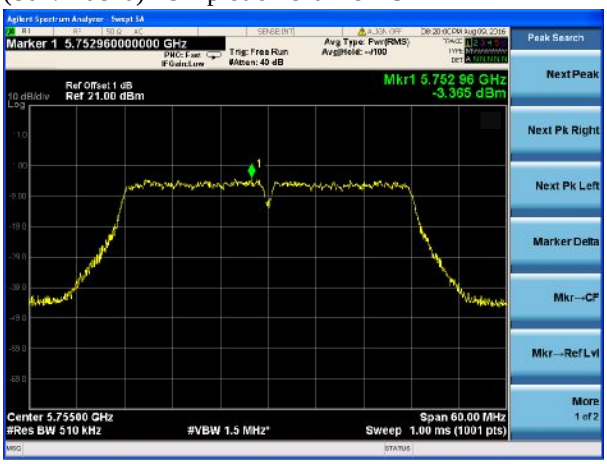
(802.11ac20) PSD plot on channel 157

(802.11ac20) PSD plot on channel 165



Antenna 1

(802.11ac40) PSD plot on channel 151



(802.11ac80) PSD plot on channel 155

(802.11ac40) PSD plot on channel 159

10. DUTY CYCLE TEST SIGNAL

Pre-analysis Check: While conducting average power measurement, duty cycle of each mode shall be checked to ensure its duty cycle in order to compensate for the loss due to insufficient ratio of duty cycle.

All duty cycle is pre-scanned, and result as obtained below shows only the most representative ones where duty cycle is conducted as the given transmission with given virtual operation that expresses the percentage.

Formula:

Duty Cycle = Ton / (Ton+Toff)

Measurement Procedure:

1. Set span = Zero
2. RBW = 8MHz
3. VBW = 8MHz,
4. Detector = Peak

Duty Cycle:

Operation Mode	Duty Cycle	Duty Fator (dB) 10 * log (1/ Duty cycle)
802.11a	100%	0
802.11n(HT20)	100%	0
802.11ac	100%	0
802.11n(HT40)	100%	0
802.11ac(HT40)	100%	0
802.11ac(HT80)	100%	0

11. FREQUENCY STABILITY

11.1. Limits

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the user's manual.

11.2. Test setup

1. The EUT was placed inside temperature chamber and powered and powered by nominal DC voltage.
2. Set EUT as normal operation.
3. Turn the EUT on and couple its output to spectrum.
4. Turn the EUT off and set the chamber to the highest temperature specified.
5. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize, turn the EUT and measure the operating frequency.
6. Repeat step with the temperature chamber set to the lowest temperature.

11.3. Test data

Temperature：	25 ℃	Relative Humidity：	56%
Pressure：	1015 hPa	Test Voltage ：	DC 5V
Test Mode ：	Ant.1 TX		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5180.01189	5180	0.01189	-2.2954
		V max (V)	5.75	5180.01053	5180	0.01053	-2.0328
		V min (V)	4.25	5180.01137	5180	0.01137	-2.1950
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5180.00369	5180	0.00369	-0.7124
		T (°C)	-10	5180.00265	5180	0.00265	-0.5116
		T (°C)	0	5180.01682	5180	0.01682	-3.2471
		T (°C)	10	5180.01167	5180	0.01167	-2.2529
		T (°C)	20	5180.01196	5180	0.01196	-2.3089
		T (°C)	30	5180.01271	5180	0.01271	-2.4537
		T (°C)	40	5180.01216	5180	0.01216	-2.3475
		T (°C)	50	5180.01236	5180	0.01236	-2.3861
		T (°C)	60	5180.01347	5180	0.01347	-2.6004
		T (°C)	70	5180.01692	5180	0.01692	-3.2664
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5190MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5190.01105	5190	0.01105	-2.1291
		V max (V)	5.75	5190.00795	5190	0.00795	-1.5318
		V min (V)	4.25	5190.01168	5190	0.01168	-2.2505
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5190MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5190.00264	5190	0.00264	-0.5087
		T (°C)	-10	5190.00167	5190	0.00167	-0.3218
		T (°C)	0	5190.01639	5190	0.01639	-3.1580
		T (°C)	10	5190.01183	5190	0.01183	-2.2794
		T (°C)	20	5190.01114	5190	0.01114	-2.1464
		T (°C)	30	5190.01251	5190	0.01251	-2.4104
		T (°C)	40	5190.01211	5190	0.01211	-2.3333
		T (°C)	50	5190.01236	5190	0.01236	-2.3815
		T (°C)	60	5190.01408	5190	0.01408	-2.7129
		T (°C)	70	5190.01521	5190	0.01521	-2.9306
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5200.02264	5200	0.02264	-4.3538
		V max (V)	5.75	5200.02165	5200	0.02165	-4.1635
		V min (V)	4.25	5200.02259	5200	0.02259	-4.3442
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5200.00603	5200	0.00603	-1.1596
		T (°C)	-10	5200.00147	5200	0.00147	-0.2827
		T (°C)	0	5200.01257	5200	0.01257	-2.4173
		T (°C)	10	5200.01145	5200	0.01145	-2.2019
		T (°C)	20	5200.01752	5200	0.01752	-3.3692
		T (°C)	30	5200.02116	5200	0.02116	-4.0692
		T (°C)	40	5200.02054	5200	0.02054	-3.9500
		T (°C)	50	5200.02468	5200	0.02468	-4.7462
		T (°C)	60	5200.02273	5200	0.02273	-4.3712
		T (°C)	70	5200.02253	5200	0.02253	-4.3327
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5210MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5210.02269	5210	0.02269	-4.3551
		V max (V)	5.75	5210.02163	5210	0.02163	-4.1516
		V min (V)	4.25	5210.02252	5210	0.02252	-4.3225
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5210MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5210.00236	5210	0.00236	-0.4530
		T (°C)	-10	5210.00419	5210	0.00419	-0.8042
		T (°C)	0	5210.01653	5210	0.01653	-3.1727
		T (°C)	10	5210.01181	5210	0.01181	-2.2668
		T (°C)	20	5210.01752	5210	0.01752	-3.3628
		T (°C)	30	5210.02116	5210	0.02116	-4.0614
		T (°C)	40	5210.02054	5210	0.02054	-3.9424
		T (°C)	50	5210.02566	5210	0.02566	-4.9251
		T (°C)	60	5210.02273	5210	0.02273	-4.3628
		T (°C)	70	5210.02325	5210	0.02325	-4.4626
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5230MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5230.02275	5230	0.02275	-4.3499
		V max (V)	5.75	5230.02169	5230	0.02169	-4.1472
		V min (V)	4.25	5230.02219	5230	0.02219	-4.2428
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5230MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5230.00317	5230	0.00317	-0.6061
		T (°C)	-10	5230.00617	5230	0.00617	-1.1797
		T (°C)	0	5230.01752	5230	0.01752	-3.3499
		T (°C)	10	5230.01136	5230	0.01136	-2.1721
		T (°C)	20	5230.01747	5230	0.01747	-3.3403
		T (°C)	30	5230.02260	5230	0.02260	-4.3212
		T (°C)	40	5230.02058	5230	0.02058	-3.9350
		T (°C)	50	5230.02518	5230	0.02518	-4.8145
		T (°C)	60	5230.02273	5230	0.02273	-4.3461
		T (°C)	70	5230.02236	5230	0.02236	-4.2753
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5240.00165	5240	0.00165	-0.3149
		V max (V)	5.75	5240.00118	5240	0.00118	-0.2252
		V min (V)	4.25	5240.00681	5240	0.00681	-1.2996
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5240.01182	5240	0.01182	-2.2557
		T (°C)	-10	5240.00367	5240	0.00367	-0.7004
		T (°C)	0	5240.01182	5240	0.01182	-2.2557
		T (°C)	10	5240.01219	5240	0.01219	-2.3263
		T (°C)	20	5240.01167	5240	0.01167	-2.2271
		T (°C)	30	5240.01362	5240	0.01362	-2.5992
		T (°C)	40	5240.01229	5240	0.01229	-2.3454
		T (°C)	50	5240.01215	5240	0.01215	-2.3187
		T (°C)	60	5240.00336	5240	0.00336	-0.6412
		T (°C)	70	5240.01216	5240	0.01216	-2.3206
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5745.01131	5745	0.01131	-1.9687
		V max (V)	5.75	5745.00883	5745	0.00883	-1.5370
		V min (V)	4.25	5745.01042	5745	0.01042	-1.8138
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5745.01016	5745	0.01016	-1.7685
		T (°C)	-10	5745.01045	5745	0.01045	-1.8190
		T (°C)	0	5745.01366	5745	0.01366	-2.3777
		T (°C)	10	5745.01027	5745	0.01027	-1.7876
		T (°C)	20	5745.01155	5745	0.01155	-2.0104
		T (°C)	30	5745.01236	5745	0.01236	-2.1514
		T (°C)	40	5745.01315	5745	0.01315	-2.2889
		T (°C)	50	5745.01249	5745	0.01249	-2.1741
		T (°C)	60	5745.01311	5745	0.01311	-2.2820
		T (°C)	70	5745.01467	5745	0.01467	-2.5535
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5755MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5755.01247	5755	0.01247	-2.1668
		V max (V)	5.75	5755.00977	5755	0.00977	-1.6977
		V min (V)	4.25	5755.01144	5755	0.01144	-1.9878
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5755MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5755.00232	5755	0.00232	-0.4031
		T (°C)	-10	5755.00145	5755	0.00145	-0.2520
		T (°C)	0	5755.01347	5755	0.01347	-2.3406
		T (°C)	10	5755.01029	5755	0.01029	-1.7880
		T (°C)	20	5755.01166	5755	0.01166	-2.0261
		T (°C)	30	5755.01252	5755	0.01252	-2.1755
		T (°C)	40	5755.01217	5755	0.01217	-2.1147
		T (°C)	50	5755.01243	5755	0.01243	-2.1599
		T (°C)	60	5755.01314	5755	0.01314	-2.2832
		T (°C)	70	5755.01475	5755	0.01475	-2.5630
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5775MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5775.01125	5775	0.01125	-1.9481
		V max (V)	5.75	5775.00943	5775	0.00943	-1.6329
		V min (V)	4.25	5775.01152	5775	0.01152	-1.9948
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5775MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5775.00224	5775	0.00224	-0.3879
		T (°C)	-10	5775.00145	5775	0.00145	-0.2511
		T (°C)	0	5775.01361	5775	0.01361	-2.3567
		T (°C)	10	5775.01025	5775	0.01025	-1.7749
		T (°C)	20	5775.01193	5775	0.01193	-2.0658
		T (°C)	30	5775.01264	5775	0.01264	-2.1887
		T (°C)	40	5775.01312	5775	0.01312	-2.2719
		T (°C)	50	5775.01237	5775	0.01237	-2.1420
		T (°C)	60	5775.01318	5775	0.01318	-2.2823
		T (°C)	70	5775.01426	5775	0.01426	-2.4693
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5785.02264	5785	0.02264	-3.9136
		V max (V)	5.75	5785.02165	5785	0.02165	-3.7424
		V min (V)	4.25	5785.02259	5785	0.02259	-3.9049
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5785.00163	5785	0.00163	-0.2818
		T (°C)	-10	5785.00414	5785	0.00414	-0.7156
		T (°C)	0	5785.01352	5785	0.01352	-2.3371
		T (°C)	10	5785.01138	5785	0.01138	-1.9672
		T (°C)	20	5785.01169	5785	0.01169	-2.0207
		T (°C)	30	5785.02189	5785	0.02189	-3.7839
		T (°C)	40	5785.02024	5785	0.02024	-3.4987
		T (°C)	50	5785.01561	5785	0.01561	-2.6984
		T (°C)	60	5785.02532	5785	0.02532	-4.3768
		T (°C)	70	5785.02157	5785	0.02157	-3.7286
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5795MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5795.02278	5795	0.02278	-3.9310
		V max (V)	5.75	5795.02195	5795	0.02195	-3.7877
		V min (V)	4.25	5795.02229	5795	0.02229	-3.8464
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5795MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5795.00168	5795	0.00168	-0.2899
		T (°C)	-10	5795.00369	5795	0.00369	-0.6368
		T (°C)	0	5795.01375	5795	0.01375	-2.3727
		T (°C)	10	5795.01126	5795	0.01126	-1.9431
		T (°C)	20	5795.01159	5795	0.01159	-2.0000
		T (°C)	30	5795.02115	5795	0.02115	-3.6497
		T (°C)	40	5795.02064	5795	0.02064	-3.5617
		T (°C)	50	5795.01563	5795	0.01563	-2.6972
		T (°C)	60	5795.02542	5795	0.02542	-4.3865
		T (°C)	70	5795.02157	5795	0.02157	-3.7222
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5825.00236	5825	0.00236	-0.4052
		V max (V)	5.75	5825.00178	5825	0.00178	-0.3056
		V min (V)	4.25	5825.00667	5825	0.00667	-1.1451
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5825.01147	5825	0.01147	-1.9691
		T (°C)	-10	5825.00375	5825	0.00375	-0.6438
		T (°C)	0	5825.01081	5825	0.01081	-1.8558
		T (°C)	10	5825.01123	5825	0.01123	-1.9279
		T (°C)	20	5825.01176	5825	0.01176	-2.0189
		T (°C)	30	5825.01024	5825	0.01024	-1.7579
		T (°C)	40	5825.01246	5825	0.01246	-2.1391
		T (°C)	50	5825.01362	5825	0.01362	-2.3382
		T (°C)	60	5825.00354	5825	0.00354	-0.6077
		T (°C)	70	5825.01414	5825	0.01414	-2.4275
Limits				± 20 ppm			
Result				Complies			

Temperature：	25 ℃	Relative Humidity：	56%
Pressure：	1015 hPa	Test Voltage ：	DC 5V
Test Mode ：	Ant.2 TX		

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5180.01234	5180	0.01234	-2.3822
		V max (V)	5.75	5180.00756	5180	0.00756	-1.4595
		V min (V)	4.25	5180.01134	5180	0.01134	-2.1892
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5180MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5180.00154	5180	0.00154	-0.2973
		T (°C)	-10	5180.00178	5180	0.00178	-0.3436
		T (°C)	0	5180.01563	5180	0.01563	-3.0174
		T (°C)	10	5180.01142	5180	0.01142	-2.2046
		T (°C)	20	5180.01162	5180	0.01162	-2.2432
		T (°C)	30	5180.01258	5180	0.01258	-2.4286
		T (°C)	40	5180.01212	5180	0.01212	-2.3398
		T (°C)	50	5180.01243	5180	0.01243	-2.3996
		T (°C)	60	5180.01319	5180	0.01319	-2.5463
		T (°C)	70	5180.01424	5180	0.01424	-2.7490
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5190MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5190.01325	5190	0.01325	-2.5530
		V max (V)	5.75	5190.00782	5190	0.00782	-1.5067
		V min (V)	4.25	5190.01231	5190	0.01231	-2.3719
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5190MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5190.01234	5190	0.01234	-2.3776
		T (°C)	-10	5190.00825	5190	0.00825	-1.5896
		T (°C)	0	5190.01487	5190	0.01487	-2.8651
		T (°C)	10	5190.01075	5190	0.01075	-2.0713
		T (°C)	20	5190.01132	5190	0.01132	-2.1811
		T (°C)	30	5190.01241	5190	0.01241	-2.3911
		T (°C)	40	5190.01214	5190	0.01214	-2.3391
		T (°C)	50	5190.01245	5190	0.01245	-2.3988
		T (°C)	60	5190.01318	5190	0.01318	-2.5395
		T (°C)	70	5190.01469	5190	0.01469	-2.8304
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5200.02310	5200	0.02310	-4.4423
		V max (V)	5.75	5200.02162	5200	0.02162	-4.1577
		V min (V)	4.25	5200.02212	5200	0.02212	-4.2538
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5200MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5200.00524	5200	0.00524	-1.0077
		T (°C)	-10	5200.00634	5200	0.00634	-1.2192
		T (°C)	0	5200.01841	5200	0.01841	-3.5404
		T (°C)	10	5200.01137	5200	0.01137	-2.1865
		T (°C)	20	5200.01257	5200	0.01257	-2.4173
		T (°C)	30	5200.01113	5200	0.01113	-2.1404
		T (°C)	40	5200.02047	5200	0.02047	-3.9365
		T (°C)	50	5200.02564	5200	0.02564	-4.9300
		T (°C)	60	5200.02347	5200	0.02347	-4.5135
		T (°C)	70	5200.02269	5200	0.02269	-4.3635
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5210MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5210.02169	5210	0.02169	-4.1631
		V max (V)	5.75	5210.02072	5210	0.02072	-3.9770
		V min (V)	4.25	5210.01853	5210	0.01853	-3.5566
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5210MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5210.00213	5210	0.00213	-0.4088
		T (°C)	-10	5210.00622	5210	0.00622	-1.1939
		T (°C)	0	5210.01728	5210	0.01728	-3.3167
		T (°C)	10	5210.01145	5210	0.01145	-2.1977
		T (°C)	20	5210.01235	5210	0.01235	-2.3704
		T (°C)	30	5210.02124	5210	0.02124	-4.0768
		T (°C)	40	5210.02051	5210	0.02051	-3.9367
		T (°C)	50	5210.02545	5210	0.02545	-4.8848
		T (°C)	60	5210.02237	5210	0.02237	-4.2937
		T (°C)	70	5210.02252	5210	0.02252	-4.3225
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5230MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5230.02236	5230	0.02236	-4.2753
		V max (V)	5.75	5230.02145	5230	0.02145	-4.1013
		V min (V)	4.25	5230.01219	5230	0.01219	-2.3308
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5230MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5230.00214	5230	0.00214	-0.4092
		T (°C)	-10	5230.01012	5230	0.01012	-1.9350
		T (°C)	0	5230.01652	5230	0.01652	-3.1587
		T (°C)	10	5230.01145	5230	0.01145	-2.1893
		T (°C)	20	5230.01653	5230	0.01653	-3.1606
		T (°C)	30	5230.02416	5230	0.02416	-4.6195
		T (°C)	40	5230.02151	5230	0.02151	-4.1128
		T (°C)	50	5230.02562	5230	0.02562	-4.8987
		T (°C)	60	5230.02277	5230	0.02277	-4.3537
		T (°C)	70	5230.02256	5230	0.02256	-4.3136
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5240.00132	5240	0.00132	-0.2519
		V max (V)	5.75	5240.00126	5240	0.00126	-0.2405
		V min (V)	4.25	5240.00458	5240	0.00458	-0.8740
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5240MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5240.01239	5240	0.01239	-2.3645
		T (°C)	-10	5240.00357	5240	0.00357	-0.6813
		T (°C)	0	5240.01134	5240	0.01134	-2.1641
		T (°C)	10	5240.01246	5240	0.01246	-2.3779
		T (°C)	20	5240.01136	5240	0.01136	-2.1679
		T (°C)	30	5240.01324	5240	0.01324	-2.5267
		T (°C)	40	5240.01234	5240	0.01234	-2.3550
		T (°C)	50	5240.01124	5240	0.01124	-2.1450
		T (°C)	60	5240.00316	5240	0.00316	-0.6034
		T (°C)	70	5240.01132	5240	0.01132	-2.1603
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5745.01133	5745	0.01133	-1.9721
		V max (V)	5.75	5745.00453	5745	0.00453	-0.7885
		V min (V)	4.25	5745.01287	5745	0.01287	-2.2402
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5745MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5745.00122	5745	0.00122	-0.2124
		T (°C)	-10	5745.00142	5745	0.00142	-0.2472
		T (°C)	0	5745.01344	5745	0.01344	-2.3394
		T (°C)	10	5745.01016	5745	0.01016	-1.7685
		T (°C)	20	5745.01213	5745	0.01213	-2.1114
		T (°C)	30	5745.01314	5745	0.01314	-2.2872
		T (°C)	40	5745.01271	5745	0.01271	-2.2124
		T (°C)	50	5745.01134	5745	0.01134	-1.9739
		T (°C)	60	5745.01483	5745	0.01483	-2.5814
		T (°C)	70	5745.01542	5745	0.01542	-2.6841
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5755MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5755.01214	5755	0.01214	-2.1095
		V max (V)	5.75	5755.00783	5755	0.00783	-1.3606
		V min (V)	4.25	5755.01132	5755	0.01132	-1.9670
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5755MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5755.00222	5755	0.00222	-0.3858
		T (°C)	-10	5755.00142	5755	0.00142	-0.2467
		T (°C)	0	5755.01341	5755	0.01341	-2.3301
		T (°C)	10	5755.01126	5755	0.01126	-1.9566
		T (°C)	20	5755.01203	5755	0.01203	-2.0904
		T (°C)	30	5755.01234	5755	0.01234	-2.1442
		T (°C)	40	5755.01112	5755	0.01112	-1.9322
		T (°C)	50	5755.01241	5755	0.01241	-2.1564
		T (°C)	60	5755.01313	5755	0.01313	-2.2815
		T (°C)	70	5755.01471	5755	0.01471	-2.5560
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5775MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5775.01122	5775	0.01122	-1.9429
		V max (V)	5.75	5775.00963	5775	0.00963	-1.6675
		V min (V)	4.25	5775.01172	5775	0.01172	-2.0294
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5775MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5775.00247	5775	0.00247	-0.4277
		T (°C)	-10	5775.00232	5775	0.00232	-0.4017
		T (°C)	0	5775.01312	5775	0.01312	-2.2719
		T (°C)	10	5775.01045	5775	0.01045	-1.8095
		T (°C)	20	5775.01127	5775	0.01127	-1.9515
		T (°C)	30	5775.01194	5775	0.01194	-2.0675
		T (°C)	40	5775.01318	5775	0.01318	-2.2823
		T (°C)	50	5775.01243	5775	0.01243	-2.1524
		T (°C)	60	5775.01408	5775	0.01408	-2.4381
		T (°C)	70	5775.01421	5775	0.01421	-2.4606
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5785.02225	5785	0.02225	-3.8462
		V max (V)	5.75	5785.02145	5785	0.02145	-3.7079
		V min (V)	4.25	5785.02253	5785	0.02253	-3.8946
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5785MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5785.00164	5785	0.00164	-0.2835
		T (°C)	-10	5785.00435	5785	0.00435	-0.7519
		T (°C)	0	5785.01374	5785	0.01374	-2.3751
		T (°C)	10	5785.01136	5785	0.01136	-1.9637
		T (°C)	20	5785.01151	5785	0.01151	-1.9896
		T (°C)	30	5785.02143	5785	0.02143	-3.7044
		T (°C)	40	5785.02044	5785	0.02044	-3.5333
		T (°C)	50	5785.01563	5785	0.01563	-2.7018
		T (°C)	60	5785.02512	5785	0.02512	-4.3423
		T (°C)	70	5785.02152	5785	0.02152	-3.7200
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5795MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5795.02251	5795	0.02251	-3.8844
		V max (V)	5.75	5795.02159	5795	0.02159	-3.7256
		V min (V)	4.25	5795.02246	5795	0.02246	-3.8758
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5795MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5795.00164	5795	0.00164	-0.2830
		T (°C)	-10	5795.00478	5795	0.00478	-0.8248
		T (°C)	0	5795.01314	5795	0.01314	-2.2675
		T (°C)	10	5795.01134	5795	0.01134	-1.9569
		T (°C)	20	5795.01158	5795	0.01158	-1.9983
		T (°C)	30	5795.02147	5795	0.02147	-3.7049
		T (°C)	40	5795.02023	5795	0.02023	-3.4909
		T (°C)	50	5795.01575	5795	0.01575	-2.7179
		T (°C)	60	5795.02562	5795	0.02562	-4.4211
		T (°C)	70	5795.02150	5795	0.02150	-3.7101
Limits				± 20 ppm			
Result				Complies			

Voltage vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
T nom (°C)	20	V nom (V)	5.00	5825.00197	5825	0.00197	-0.3382
		V max (V)	5.75	5825.00139	5825	0.00139	-0.2386
		V min (V)	4.25	5825.00724	5825	0.00724	-1.2429
Limits				± 20 ppm			
Result				Complies			

Temperature vs. Frequency Stability

TEST CONDITIONS				Reference Frequency：5825MHz			
				f	fc	Max. Deviation (MHz)	Max. Deviation (ppm)
V nom (V)	5	T (°C)	-20	5825.02011	5825	0.02011	-3.4524
		T (°C)	-10	5825.00451	5825	0.00451	-0.7742
		T (°C)	0	5825.01085	5825	0.01085	-1.8627
		T (°C)	10	5825.01120	5825	0.01120	-1.9227
		T (°C)	20	5825.02076	5825	0.02076	-3.5639
		T (°C)	30	5825.01527	5825	0.01527	-2.6215
		T (°C)	40	5825.01530	5825	0.01530	-2.6266
		T (°C)	50	5825.01169	5825	0.01169	-2.0069
		T (°C)	60	5825.00427	5825	0.00427	-0.7330
		T (°C)	70	5825.01094	5825	0.01094	-1.8781
Limits				± 20 ppm			
Result				Complies			

12. TRANSMISSION IN THE ABSENCE OF DATA

12.1. Limits

According to §15.407(c)

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 a description of how this requirement is met.

12.2. Test result

No non-compliance noted:

Refer to the theory of operation.

13. ANTENNA REQUIREMENT

13.1. 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.

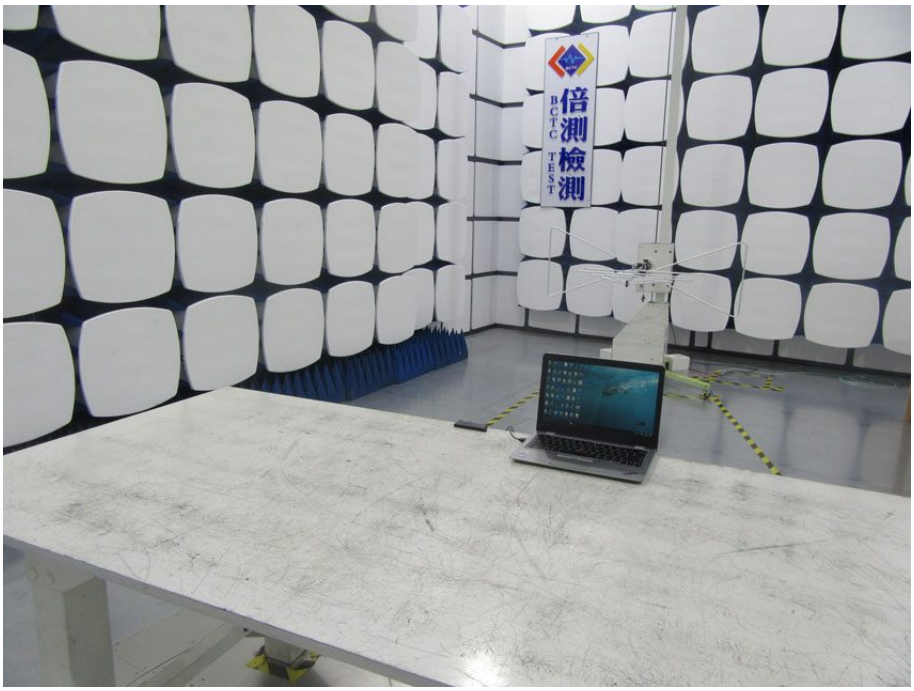
13.2. EUT ANTENNA

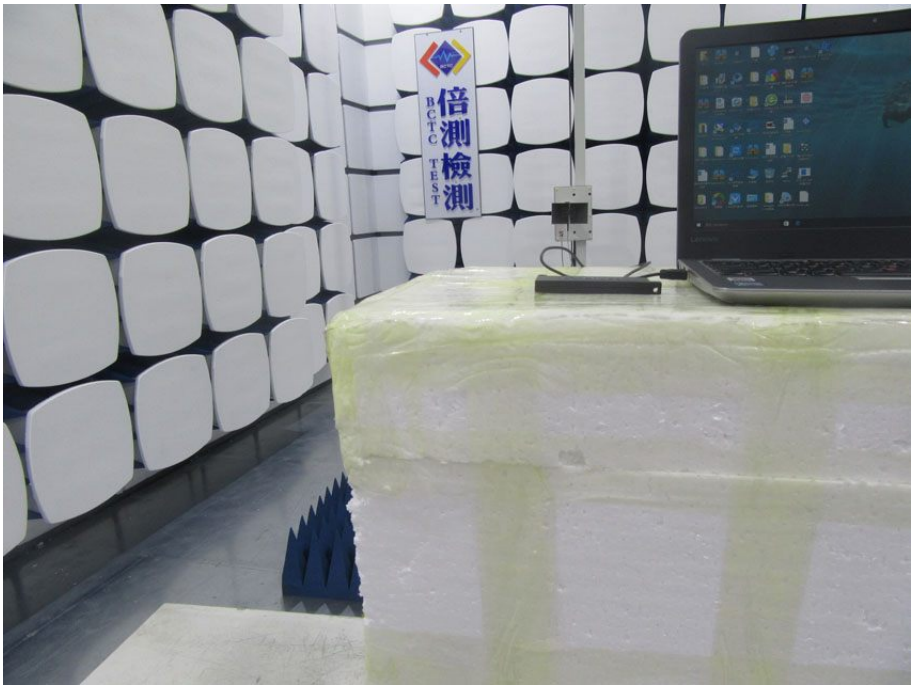
The EUT antenna is FPCB antenna, It comply with the standard requirement.

14. PHOTOGRAPHS OF TEST SET-UP

Conducted Emission

Radiated Emission Test





15. EUT PHOTO

------END------