Test Report

FCC ID: ZNPWD-R1200U

Product Name:	Dual Band WiFi Repeater
Trademark:	N/A
Model Name :	WD-R1200U WD-R1201U, WD-R1202U, WD-R1203U
Prepared For : Address :	Shenzhen Century Xinyang Tech Co., Ltd 3F, North Building, Bantian High-tech industrial Zone, No. 2 of Bell Road, Longgang, Shenzhen, Guangdong, China
Prepared By : Address :	Shenzhen BCTC Testing Co., Ltd. BCTC Building & 1-2F, East of B Building, Pengzhou Industrial, Fuyuan 1st Road, Qiaotou Community, Fuyong Street, Bao'an District, Shenzhen, China
Test Date:	Jun. 10, 2019 to Jun. 25, 2019
Date of Report :	Jun. 25, 2019
Report No.:	BCTC-LH190500195-2E

VERIFICATION OF COMPLIANCE

Applicant's name	**Shenzhen Century Xinyang Tech Co., Ltd**
Address.....	3F, North Building, Bantian High-tech industrial Zone, No. 2 of Bell Road, Longgang, Shenzhen, Guangdong, China
Manufacture's Name	**Shenzhen Century Xinyang Tech Co., Ltd**
Address.....	3F, North Building, Bantian High-tech industrial Zone, No. 2 of Bell Road, Longgang, Shenzhen, Guangdong, China
Product description	
Product name	Dual Band WiFi Repeater
Model Name:	WD-R1200U
Standards	FCC Part15.407
	ANSI C63.10-2013
	KDB789033 D02 General U-NII Test Procedures New Rules v02r01

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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Prepared by(Engineer):	Cai Fang Zhong	Cai Fang Zhong
Reviewer(Supervisor):	Eric Yang	Eric Yang
Approved(Manager):	Zero Zhou	Zero Zhou

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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:	Dual Band WiFi Repeater
Model No.:	WD-R1200U WD-R1201U, WD-R1202U, WD-R1203U
Model Difference	The product is different for model number and outlook color.
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:	External antenna
Antenna gain:	2dBi
Power supply:	AC100-240V 50/60Hz

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=2dBi+10log(2)=5.01dBi
Note2: The EUT 802.11n/ac is support MIMO mode.

2.4. Test Sites

2.4.1. Test Facilities

Lab Qualifications : FCC Test Firm Registration Number: 712850
Test site MRA number: CN1212
IC Registered No.: 23583

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	MY45109572	Jul. 09, 2018	Jul. 08, 2019
2	Test Receiver (9kHz-7GHz)	R&S	ESRP	101154	Jul. 09, 2018	Jul. 08, 2019
3	Bilog Antenna (30MHz-3GHz)	SCHWARZBECK	VULB9163	VULB9163-942	Jul. 09, 2018	Jul. 08, 2019
4	Horn Antenna (1GHz-18GHz)	SCHWARZBECK	BBHA9120D	1541	Jul. 09, 2018	Jul. 08, 2019
5	Horn Antenna (18GHz-40GHz)	SCHWARZBECK	BBHA9170	822	Aug. 14, 2018	Aug. 13, 2019
6	Amplifier (9KHz-6GHz)	SCHWARZBECK	BBV9744	9744-0037	Jul. 09, 2018	Jul. 08, 2019
7	Amplifier (0.5GHz-18GHz)	SCHWARZBECK	BBV9718	9718-309	Jul. 09, 2018	Jul. 08, 2019
8	Amplifier (18GHz-40GHz)	MITEQ	TTA1840-35-HG	2034381	Aug. 12, 2018	Aug. 11, 2019
9	Loop Antenna (9KHz-30MHz)	SCHWARZBECK	FMZB1519B	014	Aug. 12, 2018	Aug. 11, 2019
10	RF cables1 (9kHz-30MHz)	Huber+Suhnar	9kHz-30MHz	B1702988-0008	Aug. 12, 2018	Aug. 11, 2019
11	RF cables2 (30MHz-1GHz)	Huber+Suhnar	30MHz-1GHz	1486150	Aug. 12, 2018	Aug. 11, 2019
12	RF cables3 (1GHz-40GHz)	Huber+Suhnar	1GHz-40GHz	1607106	Aug. 06, 2018	Aug. 05, 2019
13	Power Metter	Keysight	E4419	\	Aug. 06, 2018	Aug. 05, 2019
14	Power Sensor (AV)	Keysight	E9300A	\	Aug. 06, 2018	Aug. 05, 2019
15	Signal Analyzer 20kHz-26.5GHz	KEYSIGHT	N9020A	MY49100060	Aug. 06, 2018	Aug. 05, 2019
16	Test Receiver 9kHz-40GHz	R&S	FSP40	100550	Aug. 06, 2018	Aug. 05, 2019
17	D.C. Power Supply	LongWei	TPR-6405D	\	\	\
18	Software	Frad	EZ-EMC	FA-03A2 RE	\	\

Conduction Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Test Receiver	R&S	ESR3	102075	Jul. 09, 2018	Jul. 08, 2019
2	LISN	SCHWARZBECK	NSLK8127	8127739	Jul. 09, 2018	Jul. 08, 2019
3	LISN	R&S	ENV216	101375	Jul. 09, 2018	Jul. 08, 2019
4	RF cables	Huber+Suhnar	9kHz-30MHz	B1702988-0008	Jul. 09, 2018	Jul. 08, 2019
5	Software	Frad	EZ-EMC	EMC-CON 3A1	\	\

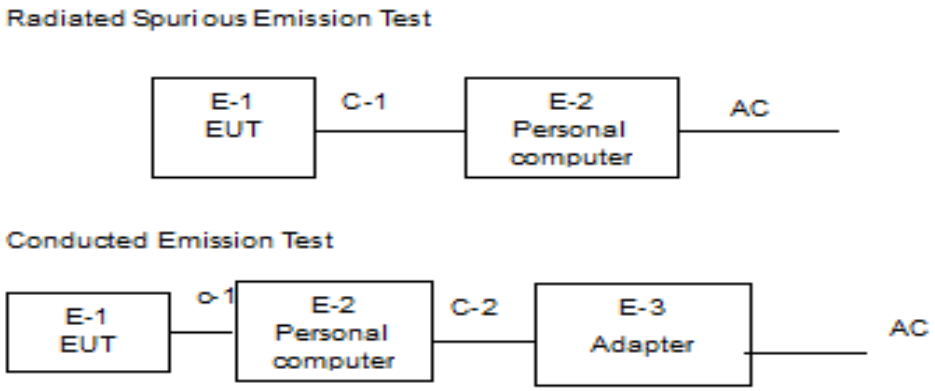
3. TEST SET-UP AND OPERATION MODES

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: Dual Band WiFi Repeater)

3.3. Auxiliary Equipment

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Dual Band WiFi Repeater	N/A	WD-R1200U	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

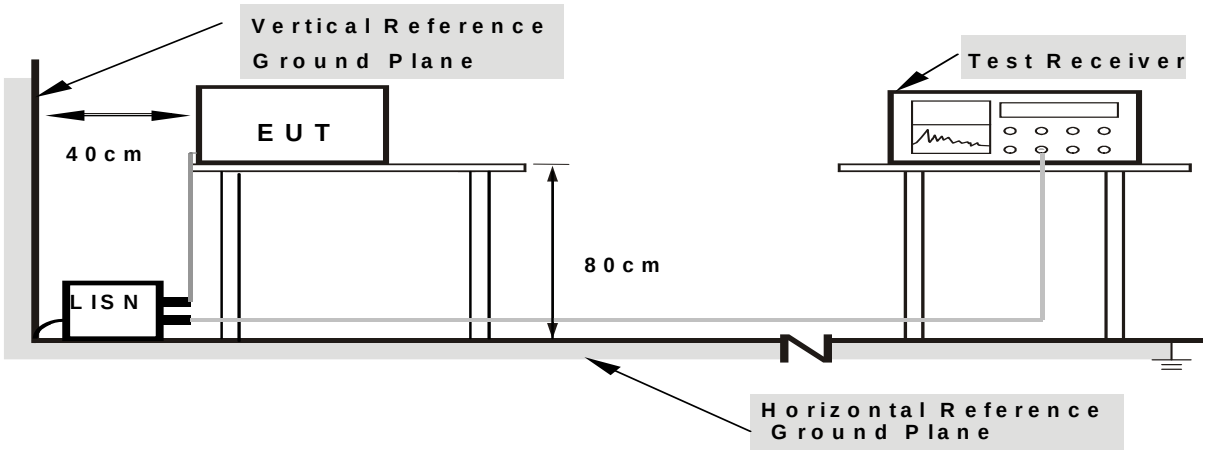
4.1.1. TEST PROCEDURE

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



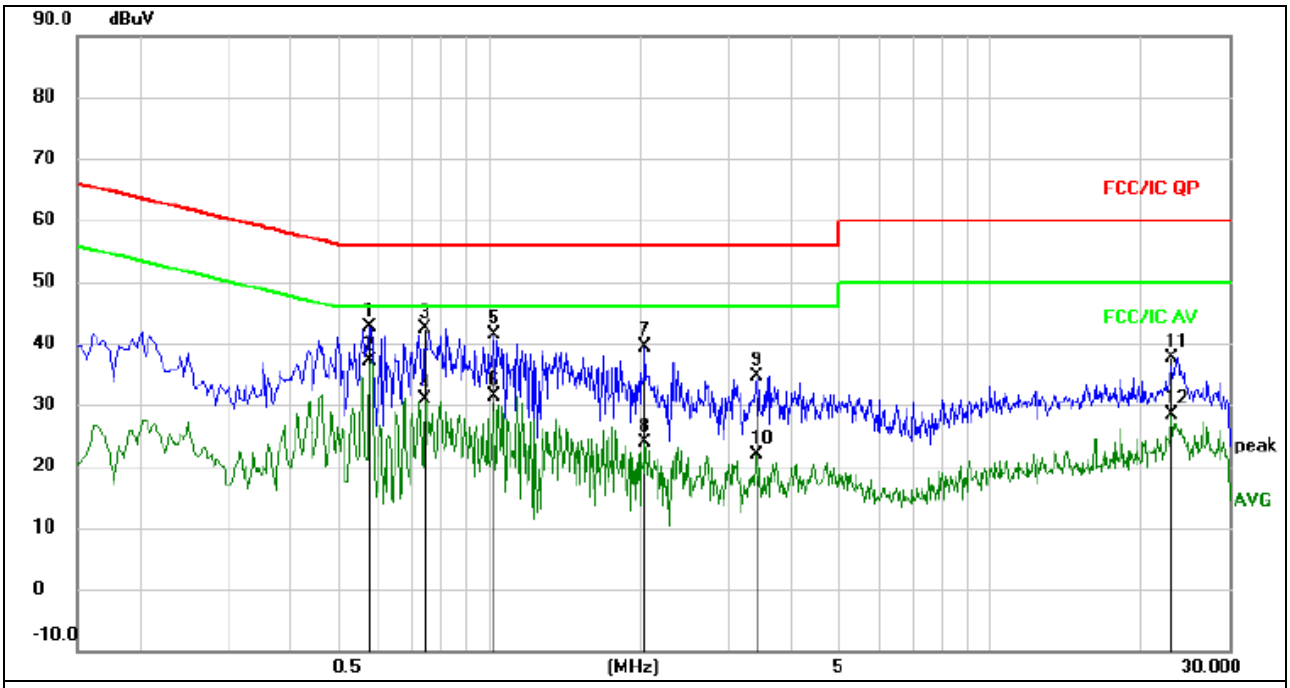
Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

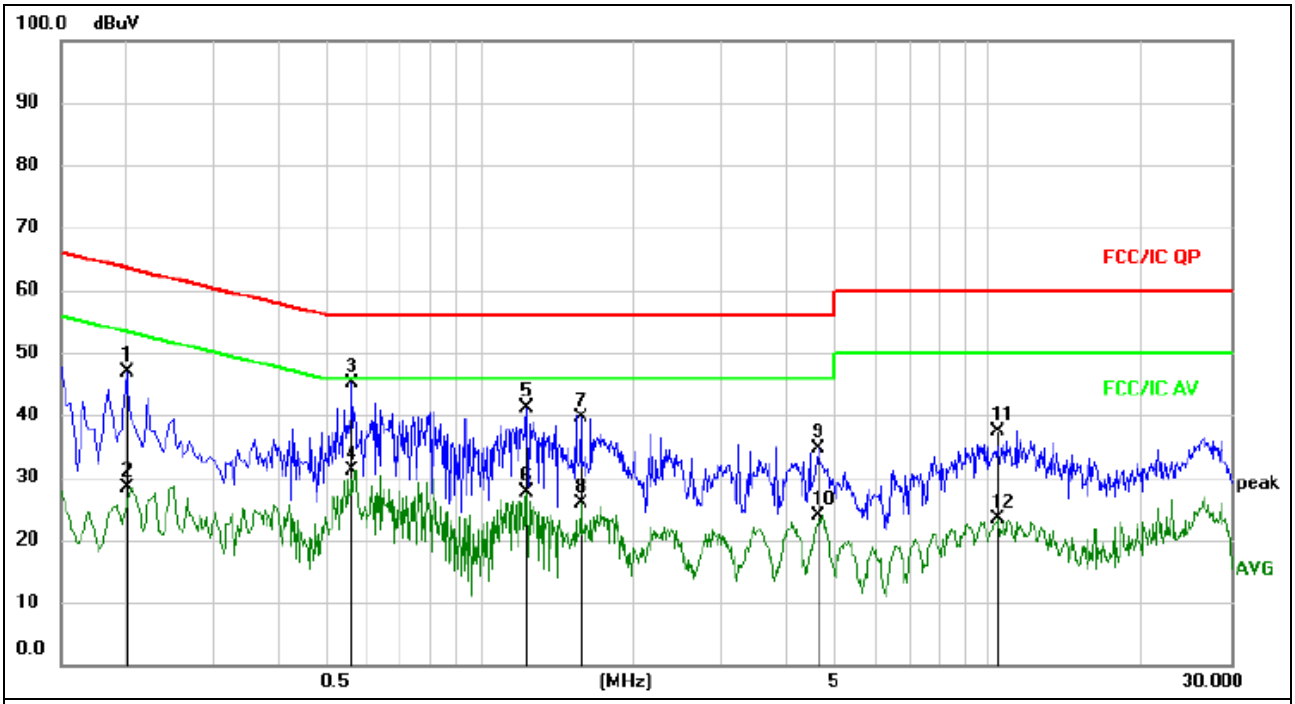
EUT:	Dual Band WiFi Repeater	Model Name :	WD-R1200U
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Test Mode:	Link Mode



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		dBuV	dBuV	dB	Detector	Comment
1		0.5762	32.72	9.90	42.62	56.00	-13.38	QP	
2	*	0.5762	27.13	9.90	37.03	46.00	-8.97	AVG	
3		0.7430	32.63	9.64	42.27	56.00	-13.73	QP	
4		0.7430	21.18	9.64	30.82	46.00	-15.18	AVG	
5		1.0211	31.73	9.57	41.30	56.00	-14.70	QP	
6		1.0211	21.77	9.57	31.34	46.00	-14.66	AVG	
7		2.0441	29.81	9.59	39.40	56.00	-16.60	QP	
8		2.0441	14.27	9.59	23.86	46.00	-22.14	AVG	
9		3.3994	25.05	9.69	34.74	56.00	-21.26	QP	
10		3.3994	12.15	9.69	21.84	46.00	-24.16	AVG	
11		23.0181	27.77	9.76	37.53	60.00	-22.47	QP	
12		23.0181	18.63	9.76	28.39	50.00	-21.61	AVG	

EUT:	Dual Band WiFi Repeater	Model Name :	WD-R1200U
Temperature:	26 ℃	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	N
Test Voltage :	AC 120V/60Hz	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		dBuV	dBuV	dB	Detector	Comment
1		0.2017	37.35	9.46	46.81	63.54	-16.73	QP	
2		0.2017	18.82	9.46	28.28	53.54	-25.26	AVG	
3	*	0.5611	35.41	9.84	45.25	56.00	-10.75	QP	
4		0.5611	21.34	9.84	31.18	46.00	-14.82	AVG	
5		1.2357	31.63	9.57	41.20	56.00	-14.80	QP	
6		1.2357	18.11	9.57	27.68	46.00	-18.32	AVG	
7		1.5766	29.95	9.58	39.53	56.00	-16.47	QP	
8		1.5766	16.19	9.58	25.77	46.00	-20.23	AVG	
9		4.6223	24.80	9.77	34.57	56.00	-21.43	QP	
10		4.6223	14.10	9.77	23.87	46.00	-22.13	AVG	
11		10.4524	27.58	9.69	37.27	60.00	-22.73	QP	
12		10.4524	13.64	9.69	23.33	50.00	-26.67	AVG	

4.2. Radiated Emission Measurement

4.2.1 Applicable Standard

According to FCC Part 15.407(d) and 15.209

4.2.2 Conformance Limit

According to FCC Part 15.407(b)(7): radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

According to FCC Part15.205, Restricted bands

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
10.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	(2)
13.36-13.41			

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.

Restricted Frequency(MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)	Measurement Distance
0.009~0.490	2400/F(KHz)	20 log (uV/m)	300
0.490~1.705	2400/F(KHz)	20 log (uV/m)	30
1.705~30.0	30	29.5	30
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

Limits of Radiated Emission Measurement(Above 1000MHz)

Frequency(MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Remark :1. Emission level in dBuV/m=20 log (uV/m)

2. Measurement was performed at an antenna to the closed point of EUT distance of meters.

3. Distance extrapolation factor =40log(Specific distance/ test distance)(dB);

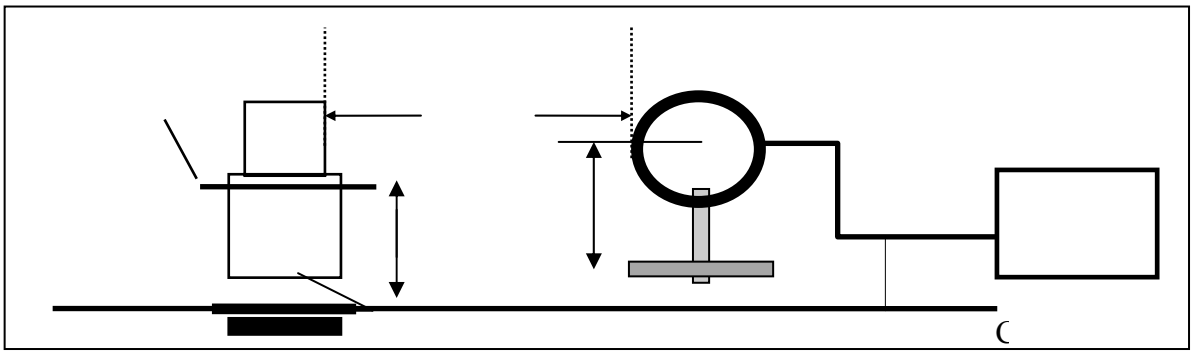
Limit line=Specific limits(dBuV) + distance extrapolation factor.

4.2.3 Measuring Instruments

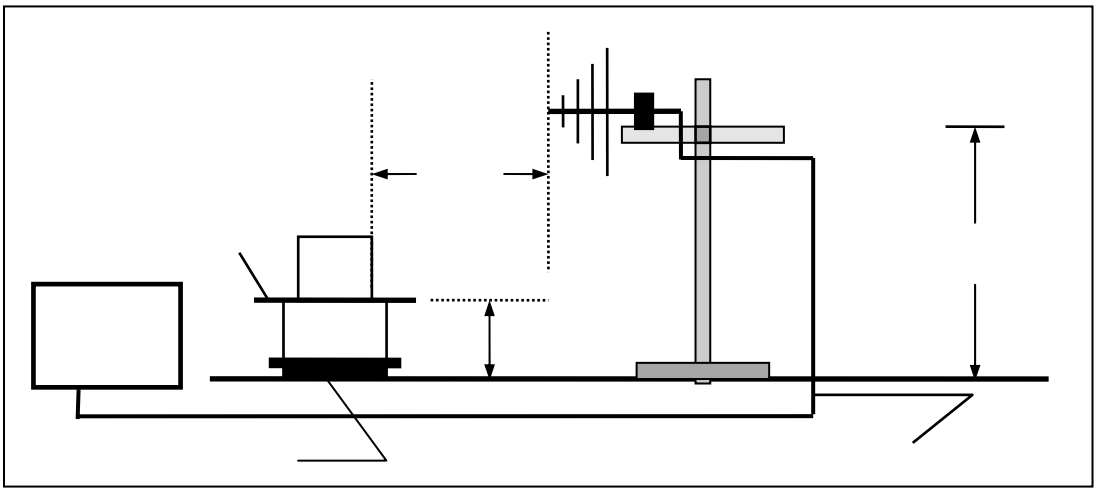
The Measuring equipment is listed in the section 6.3 of this test report.

4.2.4 Test Configuration

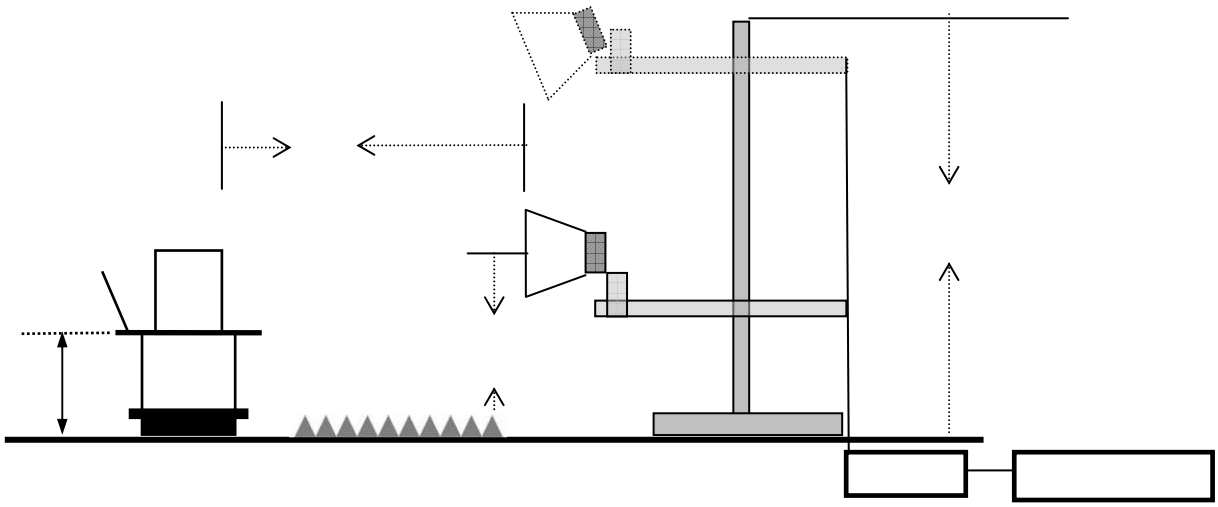
(a) For radiated emissions below 30MHz



(b) For radiated emissions from 30MHz to 1000MHz



(c) For radiated emissions above 1000MHz



4.2.5 Test Procedure

The test site semi-anechoic chamber has met the requirement of NSA tolerance 4 dB according to the standards: ANSI C63.10-2013. The test distance is 3m.The setup is according to the requirements in Section 13.1.4.1 of ANSI C63.10-2013 and CAN/CSA-CEI/IEC CISPR 22.
This test is required for any spurious emission that falls in a Restricted Band, as defined in Section 15.205.
It must be performed with the highest gain of each type of antenna proposed for use with the EUT.
Use the following spectrum analyzer settings:

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

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.

b. The EUT was placed on the top of a rotating table 0.8 m for below 1GHz and 1.5m for above 1GHz the ground at a 3 meter. 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 0.8 m for below 1GHz and 1.5m for above 1GHz; 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.

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

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Average	1 MHz	10 Hz

Note: for the frequency ranges below 30 MHz, a narrower RBW is used for these ranges but the measured value should add a RBW correction factor (RBWCF) where RBWCF [dB] =10*lg(100 [kHz]/narrower RBW [kHz]). , the narrower RBW is 1 kHz and RBWCF is 20 dB for the frequency 9 kHz to 150 kHz, and the
narrower RBW is 10 kHz and RBWCF is 10 dB for the frequency 150 kHz to 30 MHz.

Radiated Spurious Emission (Below 30MHz)

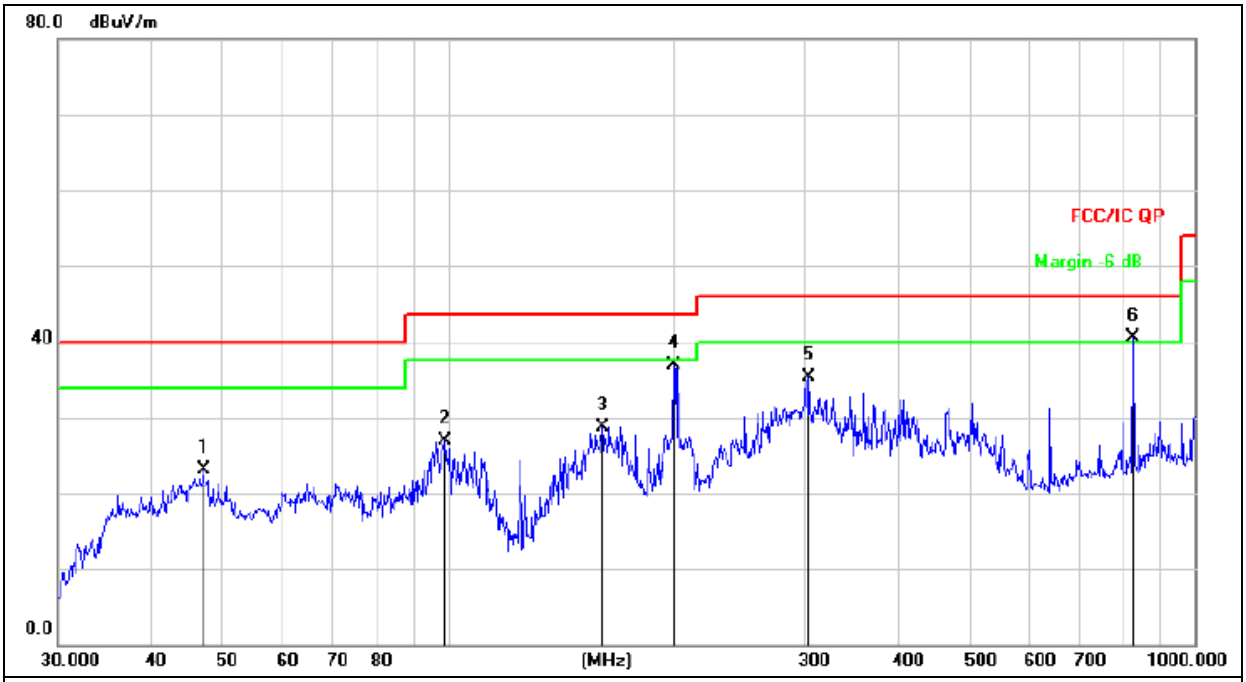
EUT：	Dual Band WiFi Repeater	Model Name ：	WD-R1200U
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Polarization :	---
Test Voltage ：	AC 120V/60Hz		
Test Mode ：	TX		

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)

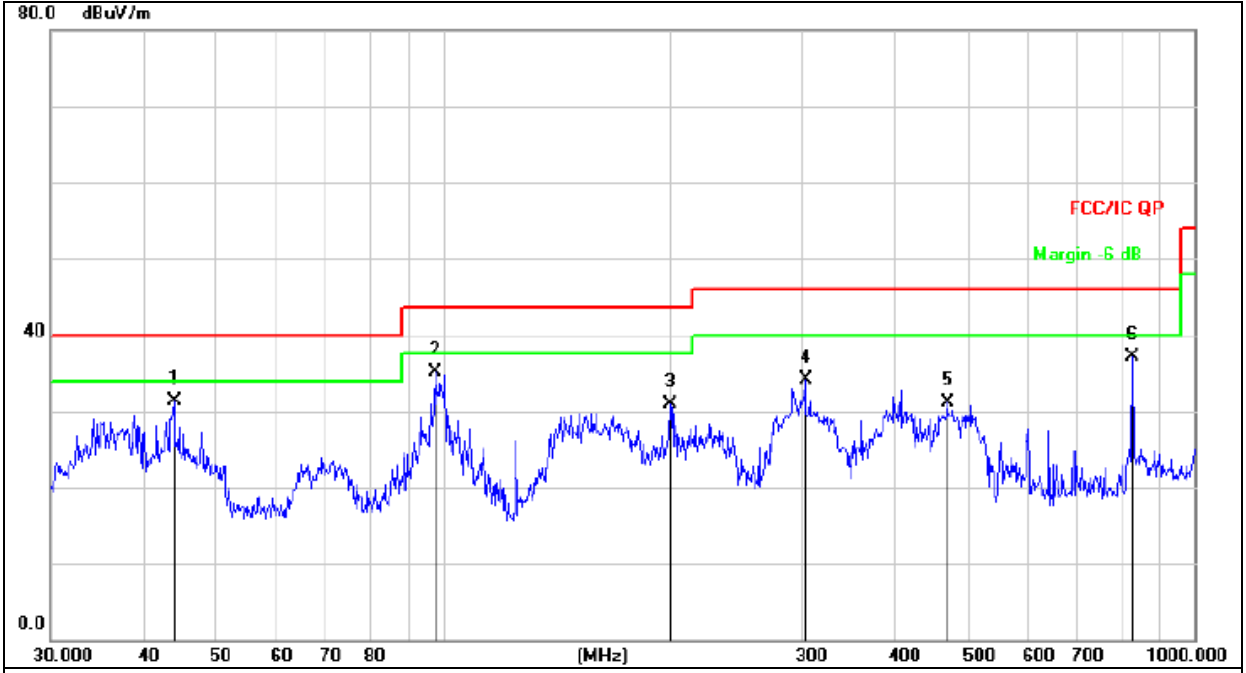
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Polarization：	Horizontal
Test Voltage ：	AC 120V/60Hz		
Test Mode ： (Worst)	Link Mode		



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		46.9947	38.04	-15.02	23.02	40.00	-16.98	QP
2		99.1795	43.34	-16.43	26.91	43.50	-16.59	QP
3		160.9088	47.44	-18.80	28.64	43.50	-14.86	QP
4		200.6879	53.11	-16.28	36.83	43.50	-6.67	QP
5		304.6099	48.84	-13.47	35.37	46.00	-10.63	QP
6	*	827.4932	43.54	-3.02	40.52	46.00	-5.48	QP

Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010 hPa	Polarization：	Vertical
Test Voltage ：	AC 120V/60Hz		
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		43.8119	46.41	-15.20	31.21	40.00	-8.79	QP
2	*	97.4560	51.77	-16.74	35.03	43.50	-8.47	QP
3		200.6879	47.13	-16.28	30.85	43.50	-12.65	QP
4		303.5437	47.60	-13.50	34.10	46.00	-11.90	QP
5		468.8761	40.61	-9.58	31.03	46.00	-14.97	QP
6		827.4932	40.17	-3.02	37.15	46.00	-8.85	QP

Radiated Spurious Emission (Above 1GHz)

For the frequency band 5150-5250MHz
Harmonics and Spurious Emissions

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low channel （ 5180 MHz）									
Vertical	10360	57.39	8.47	37.88	44.51	59.23	74.00	-14.77	Pk
Vertical	10360	40.02	8.47	37.88	44.51	41.86	54.00	-12.14	AV
Vertical	15540	50.76	10.12	38.80	44.10	55.58	74.00	-18.42	Pk
Vertical	15540	34.92	10.12	38.80	42.70	41.14	54.00	-12.86	AV
Horizontal	1036	57.03	8.47	38.64	44.50	59.64	74.00	-14.36	Pk
Horizontal	1036	38.75	8.47	38.64	44.50	41.36	54.00	-12.64	AV
Horizontal	15540	50.14	10.12	38.38	44.10	54.54	74.00	-19.46	Pk
Horizontal	15540	37.23	10.12	38.38	44.10	41.63	54.00	-12.37	AV
Middle channel （ 5200 MHz）									
Vertical	10400	56.33	8.47	37.88	44.51	58.17	74.00	-15.83	Pk
Vertical	10400	40.52	8.47	37.88	44.51	42.36	54.00	-11.64	AV
Vertical	15600	49.91	10.12	38.80	44.10	54.73	74.00	-19.27	Pk
Vertical	15600	34.32	10.12	38.80	42.70	40.54	54.00	-13.46	AV
Horizontal	10400	56.36	8.47	38.64	44.50	58.97	74.00	-15.03	Pk
Horizontal	10400	40.02	8.47	38.64	44.50	42.63	54.00	-11.37	AV
Horizontal	15600	51.16	10.12	38.38	44.10	55.56	74.00	-18.44	Pk
Horizontal	15600	38.20	10.12	38.38	44.10	42.60	54.00	-11.40	AV
High channel （ 5240 MHz）									
Vertical	10480	56.72	8.47	37.88	44.51	58.56	74.00	-15.44	Pk
Vertical	10480	40.64	8.47	37.88	44.51	42.48	54.00	-11.52	AV
Vertical	15720	49.44	10.12	38.80	44.10	54.26	74.00	-19.74	Pk
Vertical	15720	34.21	10.12	38.80	42.70	40.43	54.00	-13.57	AV
Horizontal	10480	57.24	8.47	38.64	44.50	59.85	74.00	-14.15	Pk
Horizontal	10480	38.59	8.47	38.64	44.50	41.20	54.00	-12.80	AV
Horizontal	15720	49.84	10.12	38.38	44.10	54.24	74.00	-19.76	Pk
Horizontal	15720	38.27	10.12	38.38	44.10	42.67	54.00	-11.33	AV

Note:
1. This EUT was tested in 802.11a/n/ac(HT20), n/ac(HT40), ac(HT80) mode and 802.11a the worst case position data was reported.
2. Tested the frequency to 40GHz, the amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
3.PK value is lower than the Average value limit, So average didn't record.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

For the frequency band 5725-5850MHz
Harmonics and Spurious Emissions

Polar	Frequency	Meter Reading	Cable loss	Antenna Factor	Preamp Factor	Emission Level	Limits	Margin	Detector Type
(H/V)	(MHz)	(dBuV)	(dB)	dB/m	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
Low channel （ 5745 MHz）									
Vertical	11490	58.94	9.63	37.88	44.51	61.94	74.00	-12.06	Pk
Vertical	11490	38.43	9.63	37.88	44.51	41.43	54.00	-12.57	AV
Vertical	17235	50.76	11.34	38.80	44.10	56.80	74.00	-17.20	Pk
Vertical	17235	34.49	11.34	38.80	42.70	41.93	54.00	-12.07	AV
Horizontal	11490	58.97	9.63	38.64	44.50	62.74	74.00	-11.26	Pk
Horizontal	11490	39.49	9.63	38.64	44.50	43.26	54.00	-10.74	AV
Horizontal	17235	50.05	11.34	38.38	44.10	55.67	74.00	-18.33	Pk
Horizontal	17235	37.45	11.34	38.38	44.10	43.07	54.00	-10.93	AV
Middle channel （ 5785 MHz）									
Vertical	11570	57.83	9.63	37.88	44.51	60.83	74.00	-13.17	Pk
Vertical	11570	38.83	9.63	37.88	44.51	41.83	54.00	-12.17	AV
Vertical	17355	50.47	11.34	38.8	44.10	56.51	74.00	-17.49	Pk
Vertical	17355	34.36	11.34	38.8	42.70	41.80	54.00	-12.20	AV
Horizontal	11570	58.90	9.63	38.64	44.50	62.67	74.00	-11.33	Pk
Horizontal	11570	39.36	9.63	38.64	44.50	43.13	54.00	-10.87	AV
Horizontal	17355	51.02	11.34	38.38	44.10	56.64	74.00	-17.36	Pk
Horizontal	17355	36.48	11.34	38.38	44.10	42.10	54.00	-11.90	AV
High channel （ 5825 MHz）									
Vertical	11650	57.43	9.63	37.88	44.51	60.43	74.00	-13.57	Pk
Vertical	11650	39.01	9.63	37.88	44.51	42.01	54.00	-11.99	AV
Vertical	17475	51.66	11.34	38.8	44.10	57.70	74.00	-16.30	Pk
Vertical	17475	34.78	11.34	38.8	42.70	42.22	54.00	-11.78	AV
Horizontal	11650	59.01	9.63	38.64	44.50	62.78	74.00	-11.22	Pk
Horizontal	11650	39.54	9.63	38.64	44.50	43.31	54.00	-10.69	AV
Horizontal	17475	50.81	11.34	38.38	44.10	56.43	74.00	-17.57	Pk
Horizontal	17475	36.25	11.34	38.38	44.10	41.87	54.00	-12.13	AV

Note:
1. This EUT was tested in 802.11a/n/ac(HT20), n/ac(HT40), ac(HT80) mode and 802.11a the worst case position data was reported.
2. Tested the frequency to 40GHz, the amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
3.PK value is lower than the Average value limit, So average didn't record.
Emission level (dBuV/m) = 20 log Emission level (uV/m).
Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

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.

(2) For transmitters operating in the 5.725-5.85 GHz band: All emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an e.i.r.p. of −17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an e.i.r.p. of −27 dBm/MHz.

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:

Out of Band edge

Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5150	-32.993	-27
Highest	Above 5350	-42.220	-27
Note:the data just list the worst cases			

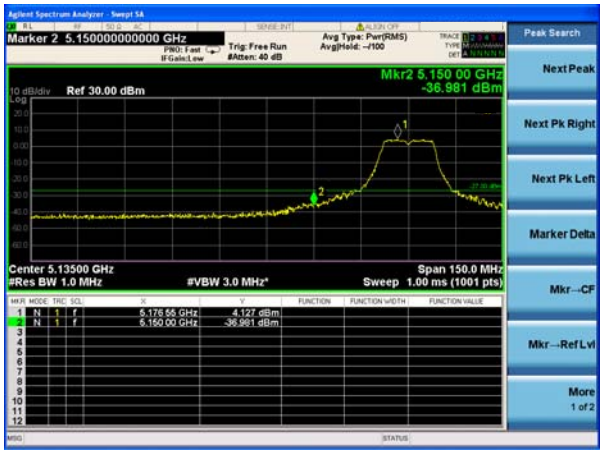
Test CH.	Test Segment	Result	Limit
	MHz	dBm/MHz	dBm/MHz
Lowest	Below 5715	-29.753	-27
	5715 to 5725	-20.800	-17
Highest	5850 to 5860	-25.228	-17
	Above 5860	-28.945	-27
Note:the data just list the worst cases			

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

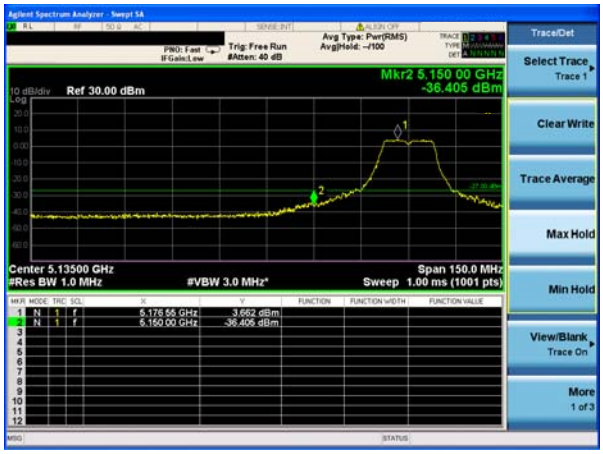
Antenna 1

5.15~5.25 GHz

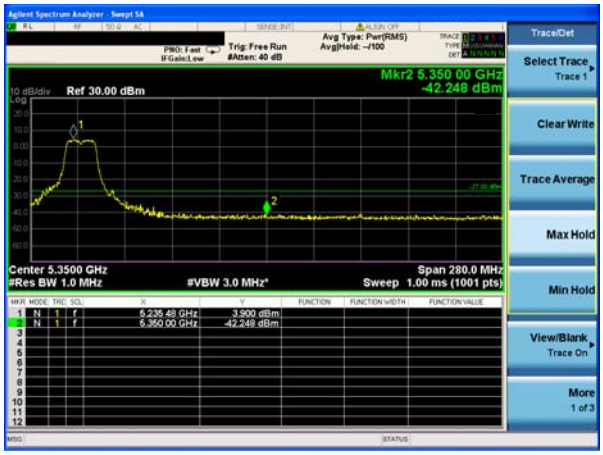
(802.11a) Band Edge, Left Side



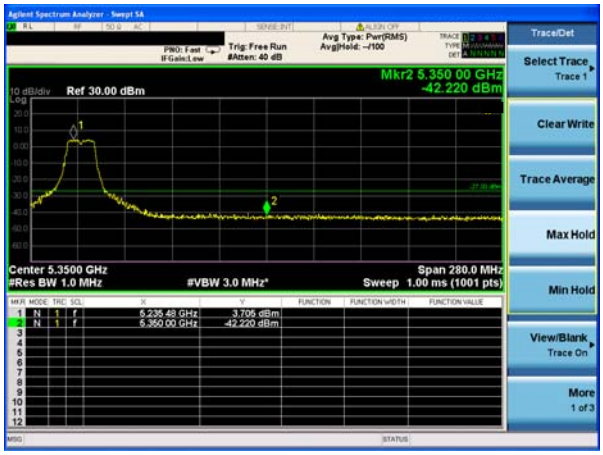
(802.11n20) Band Edge, Left Side



(802.11a) Band Edge, Right Side



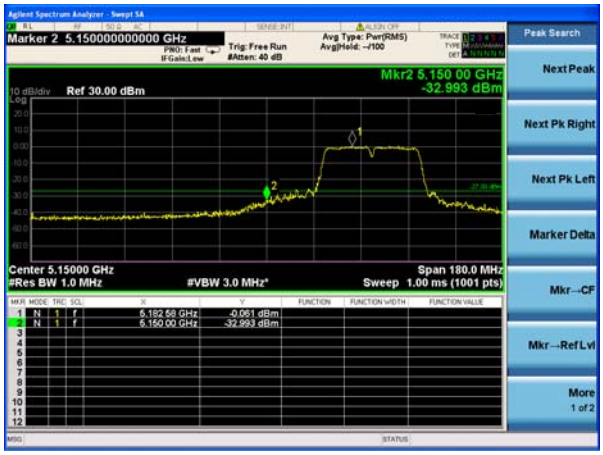
(802.11n20) Band Edge, Right Side



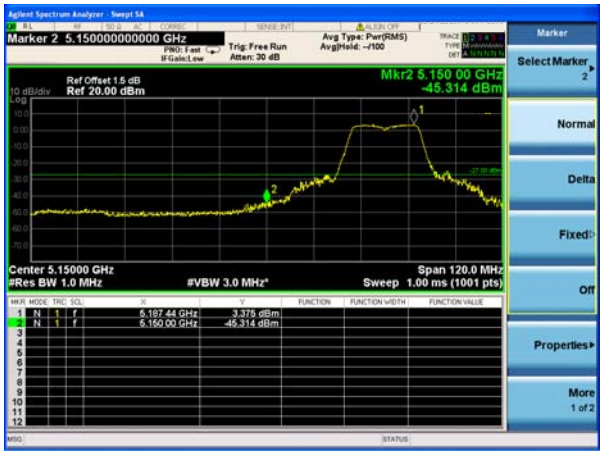
Antenna 1

5.15~5.25 GHz

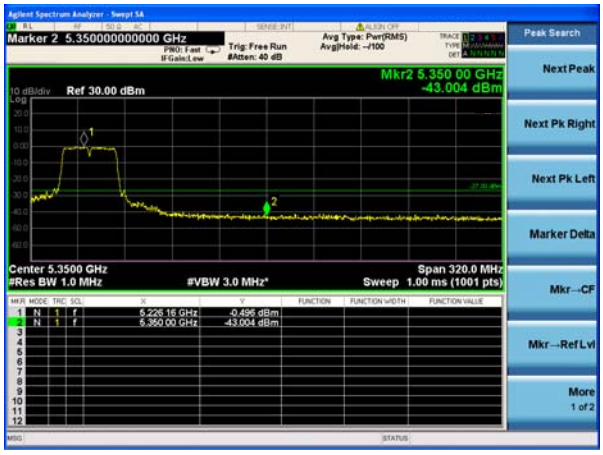
(802.11n40) Band Edge, Left Side



(802.11ac20) Band Edge, Left Side



(802.11n40) Band Edge, Right Side

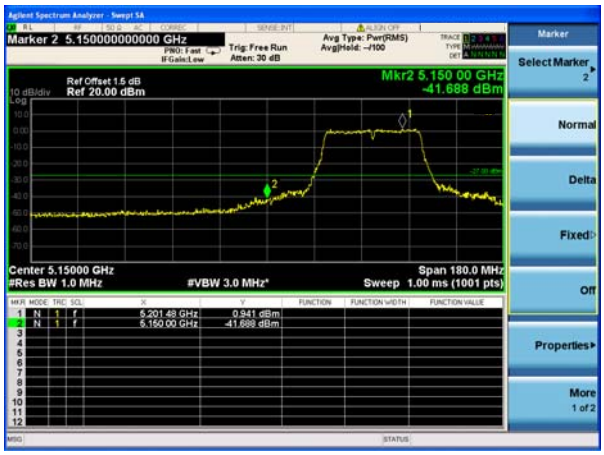


(802.11ac20) Band Edge, Right Side

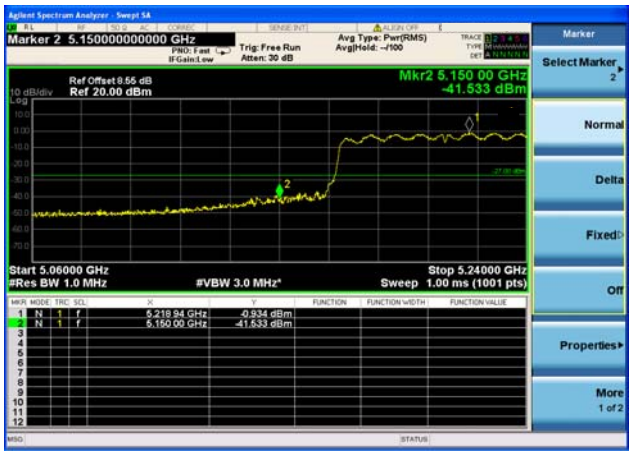
Antenna 1

5.15~5.25 GHz

(802.11ac40) Band Edge, Left Side

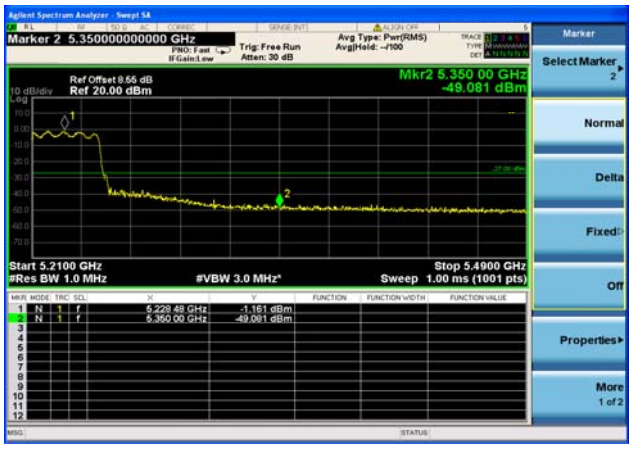


(802.11ac80) Band Edge, Left Side



(802.11ac40) Band Edge, Right Side

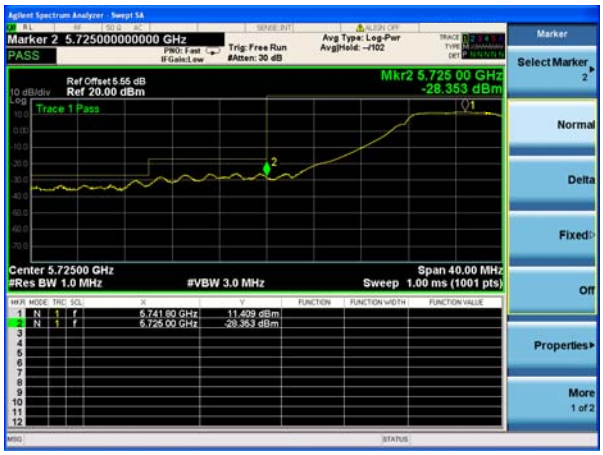
(802.11ac80) Band Edge, Right Side



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

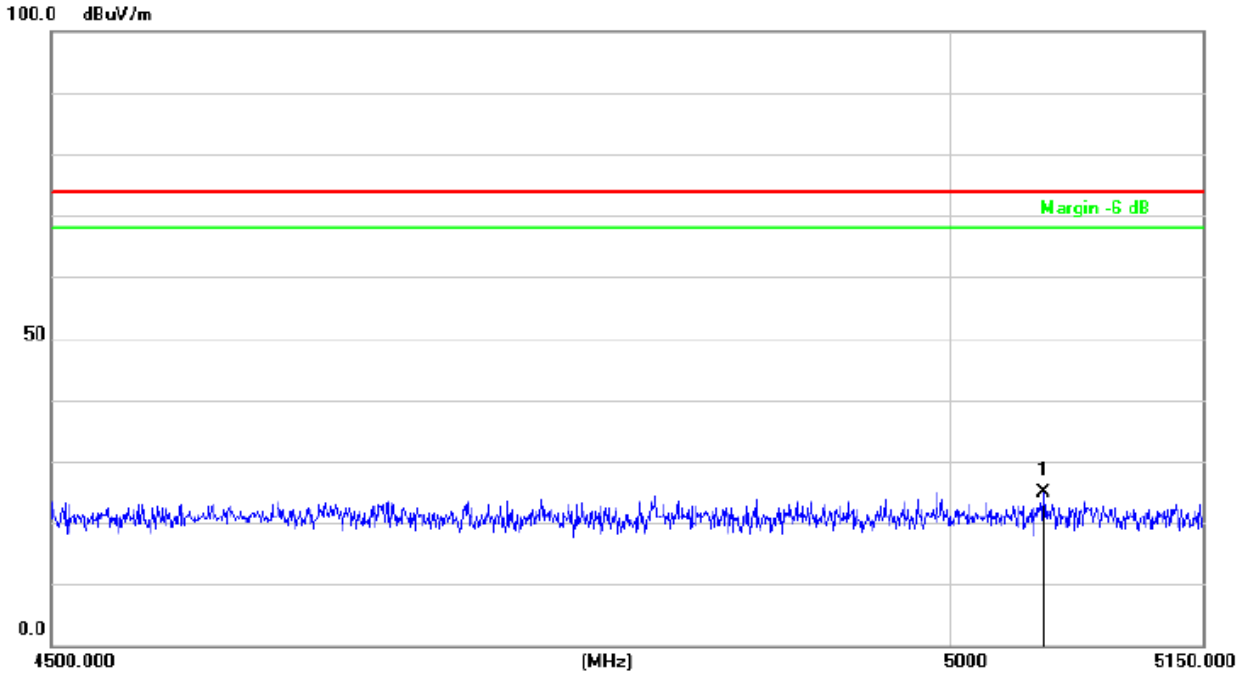
(802.11ac80) Band Edge, Left Side

(802.11ac40) Band Edge, Right Side

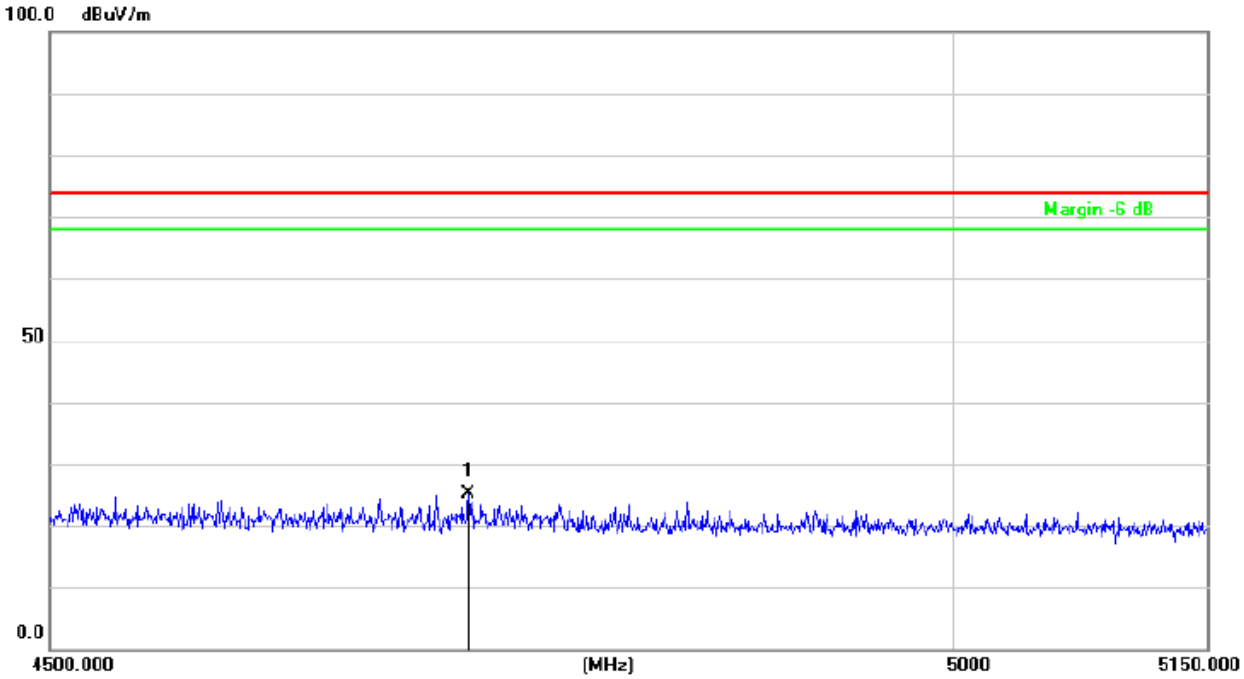
(802.11ac80) Band Edge, Right Side

Radiated bandedge

802.11 a
For the frequency band 5150-5250MHz



Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type	Polarization
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
5105.63	29.82	-5.03	24.79	74.00	-49.21	PK	Horizontal
Remark: Factor = Antenna Factor + Correct Factor. Correct Factor= Cable Loss – Pre-amplifier							

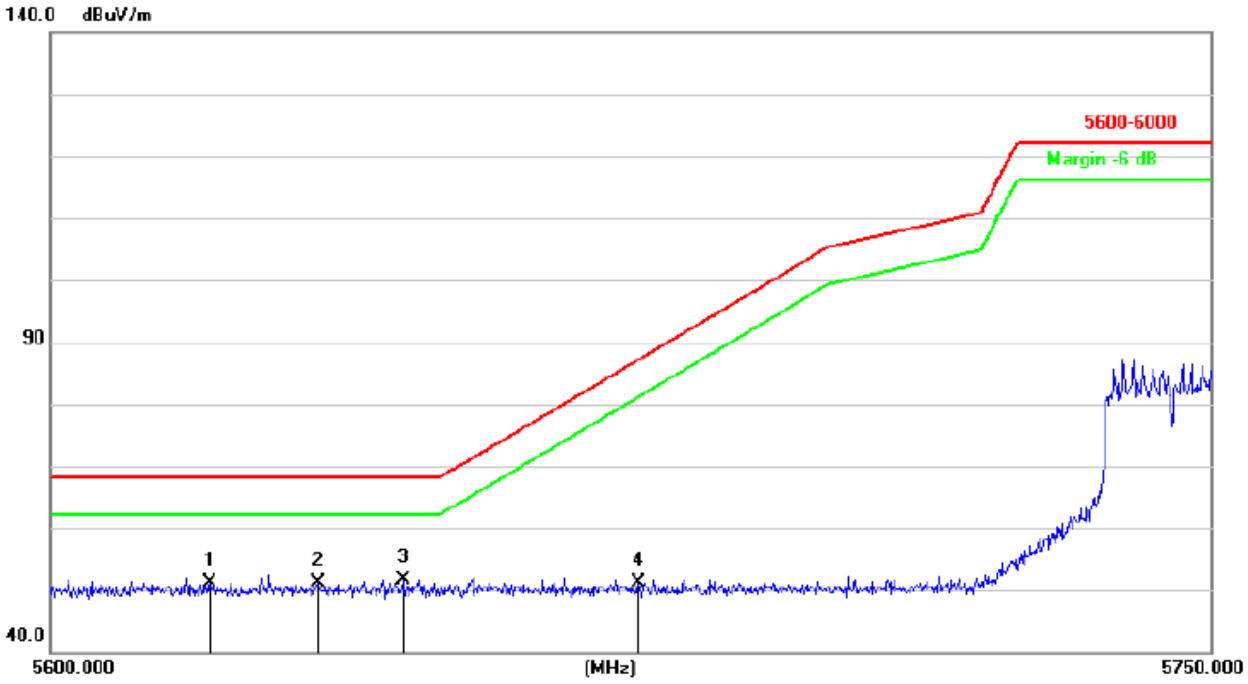


Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type	Polarization
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
4725.550	30.11	-5.06	25.05	74.00	-48.95	PK	Vertical
Remark: Factor = Antenna Factor + Correct Factor. Correct Factor= Cable Loss – Pre-amplifier							

Note:
1. This EUT was tested in 802.11a/n/ac(HT20), n/ac(HT40), ac(HT80) mode and 802.11a the worst case position data was reported.

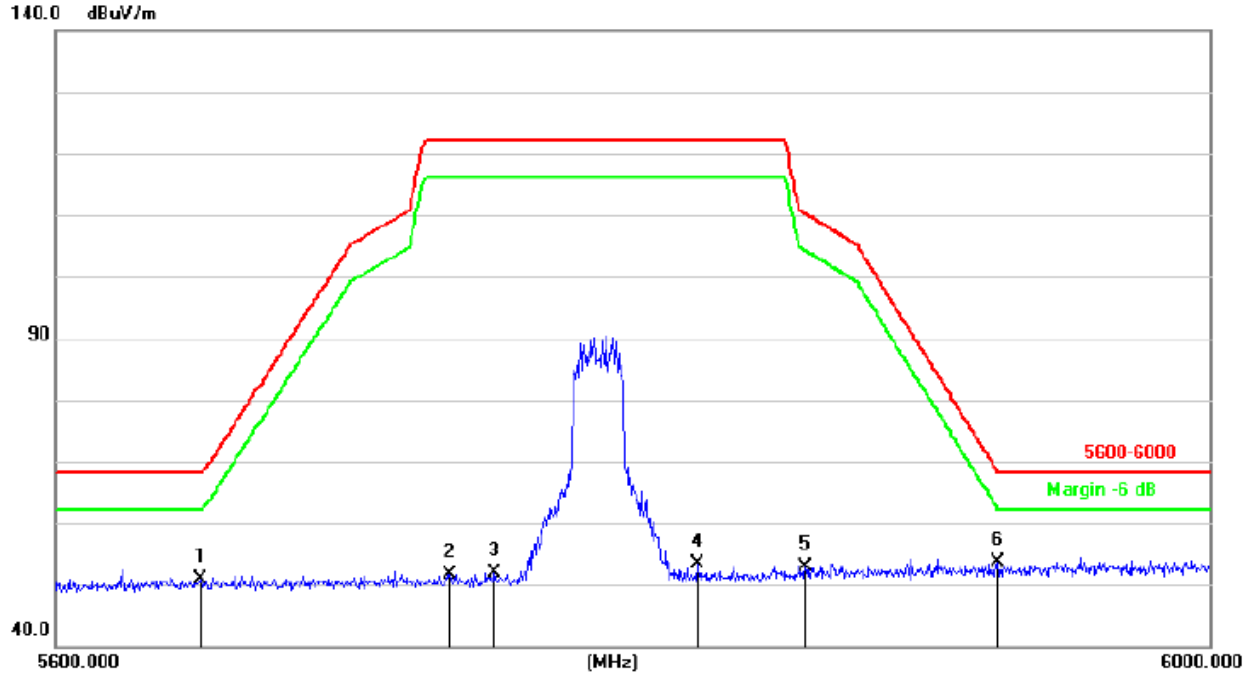
802.11n(HT20)
For the frequency band 5725-5850MHz

Low Channel



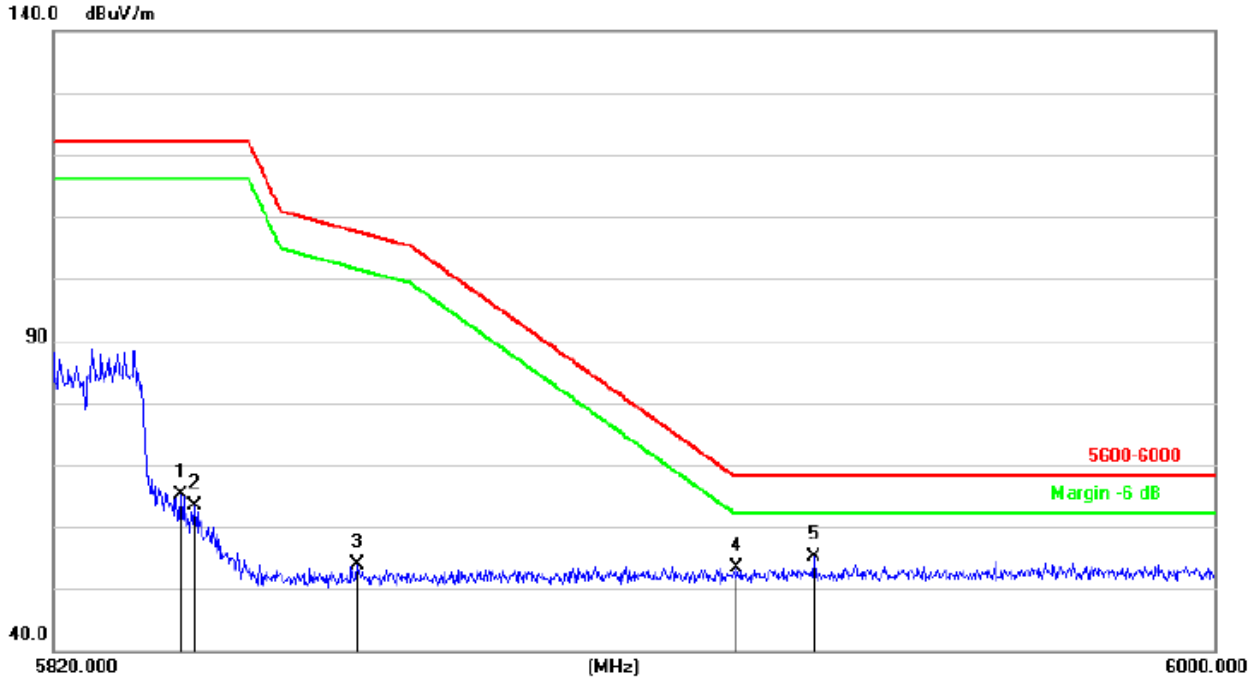
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		5620.550	48.68	2.35	51.03	68.20	-17.17	peak
2		5634.350	48.81	2.41	51.22	68.20	-16.98	peak
3	*	5645.300	49.08	2.45	51.53	68.20	-16.67	peak
4		5675.600	48.59	2.58	51.17	87.18	-36.01	peak

Middle Channel



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		5649.200	48.34	2.47	50.81	68.20	-17.39	peak
2		5734.000	48.90	2.83	51.73	122.2	-70.47	peak
3		5749.200	48.99	2.89	51.88	122.2	-70.32	peak
4		5819.200	50.10	3.19	53.29	122.2	-68.91	peak
5		5857.200	49.58	3.35	52.93	110.1	-57.25	peak
6	*	5924.800	49.88	3.64	53.52	68.35	-14.83	peak

High Channel



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV/m	dB/m	dB	Detector
1		5839.620	61.89	3.28	65.17	122.2	-57.03	peak
2		5841.780	60.00	3.29	63.29	122.2	-58.91	peak
3		5866.800	50.43	3.39	53.82	107.4	-53.67	peak
4		5925.480	49.64	3.64	53.28	68.20	-14.92	peak
5	*	5937.360	51.45	3.69	55.14	68.20	-13.06	peak

Note:
1. This EUT was tested in 802.11a/n/ac(HT20), n/ac(HT40), ac(HT80) mode and 802.11n(HT20) the worst case position data was reported.

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 ≥ 3 · RBW
5. Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
6. Use the 99 % power bandwidth function of the instrument (if available).
7. If the instrument does not have a 99 % power bandwidth function, the trace data points are recovered and directly summed in power units. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 % of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5 % of the total is reached; that frequency is recorded as the upper frequency. The 99% occupied bandwidth is the difference between these two frequencies.

6.3. 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

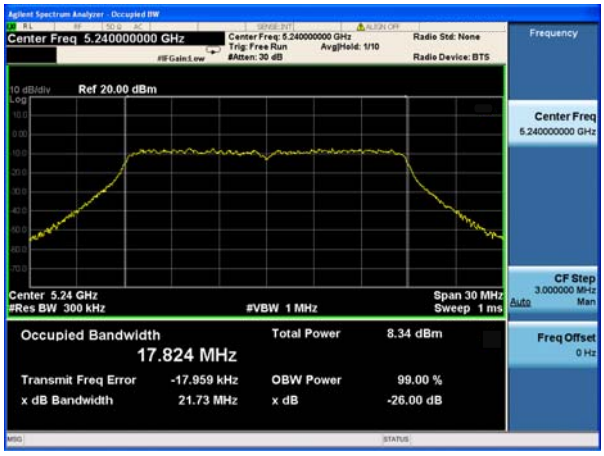
(802.11n20) -26dB&99% Bandwidth plot on channel 36

(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

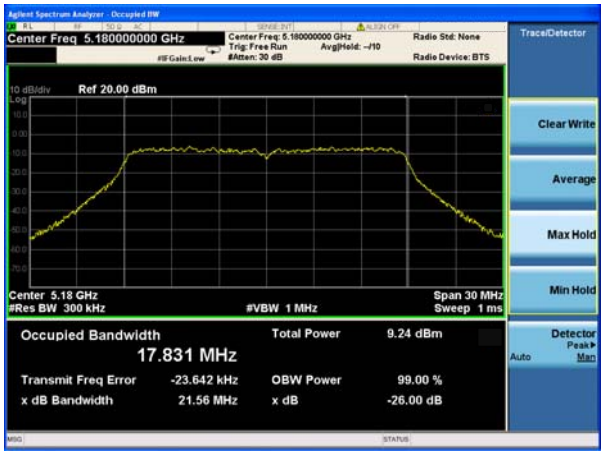
(802.11n20) -26dB&99% Bandwidth plot on channel 48



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

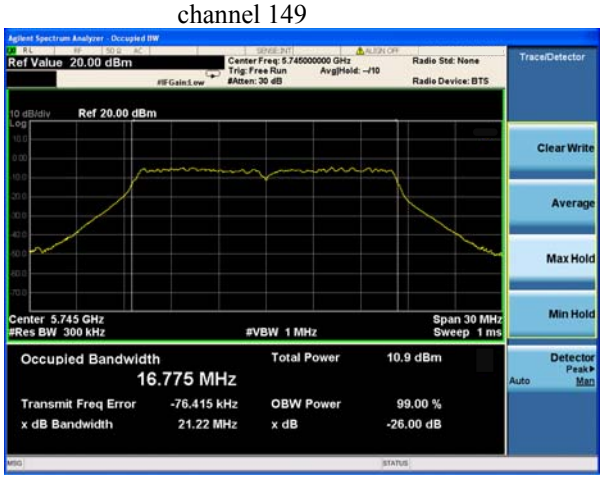
(802.11ac40) -26dB&99% Bandwidth plot on channel 46

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

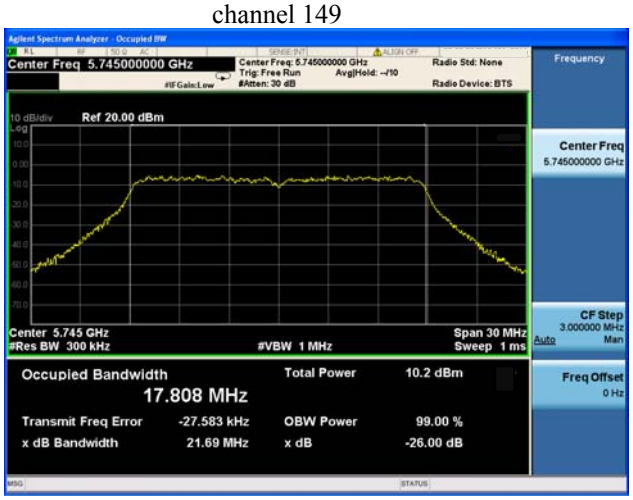
NOTE: Represent the value of antenna 1 and 2, The worst data is Antenna 1, only shown Antenna 1 Plot.

Antenna 1

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



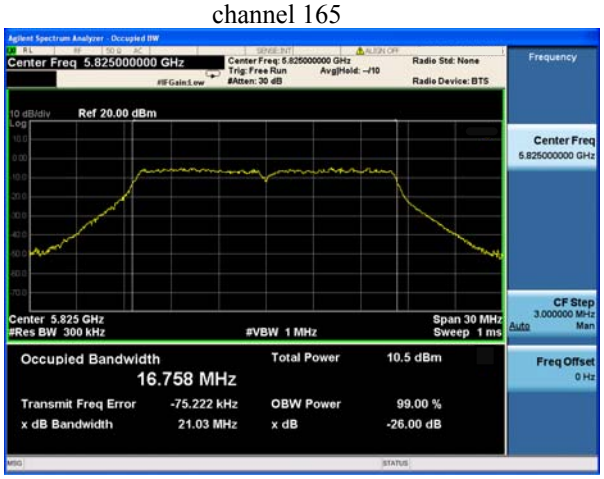
(802.11n20) -26dB&99% Bandwidth plot on channel 149



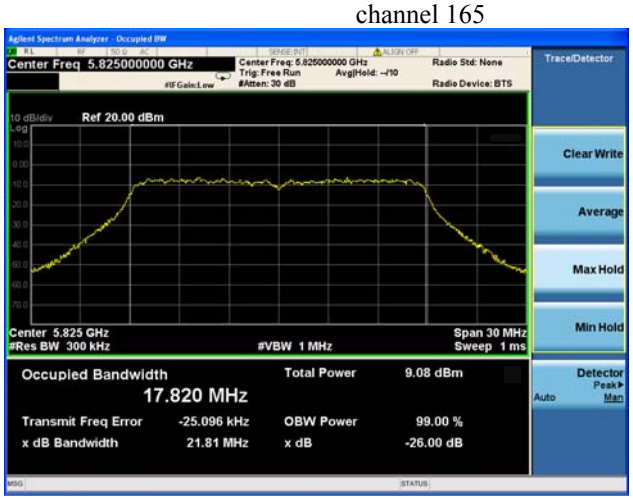
(802.11a) -26dB&99% Bandwidth plot on channel 157

(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

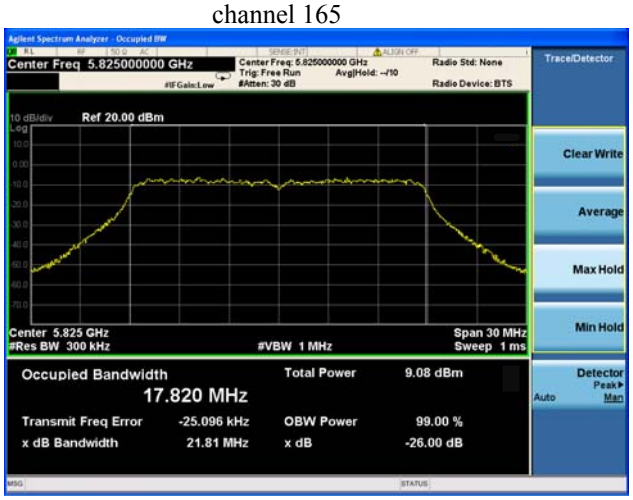
(802.11n40) -26dB&99% Bandwidth plot on channel 151

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

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

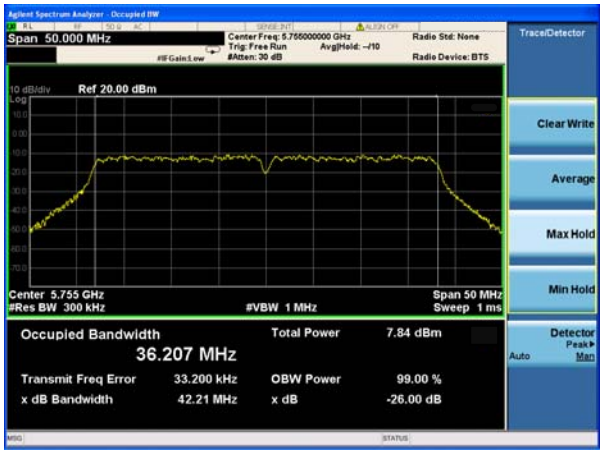
(802.11ac20) -26dB&99% Bandwidth plot on channel 157

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



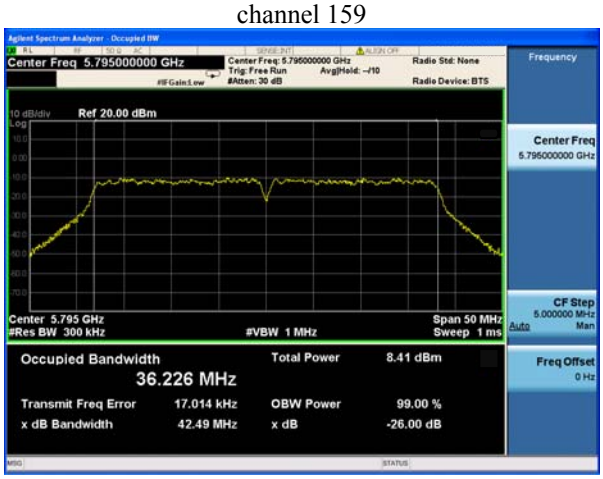
Antenna 1

(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

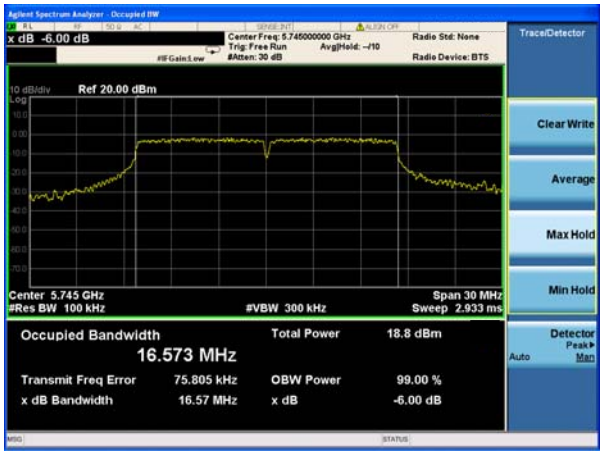
6dB bandwith

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

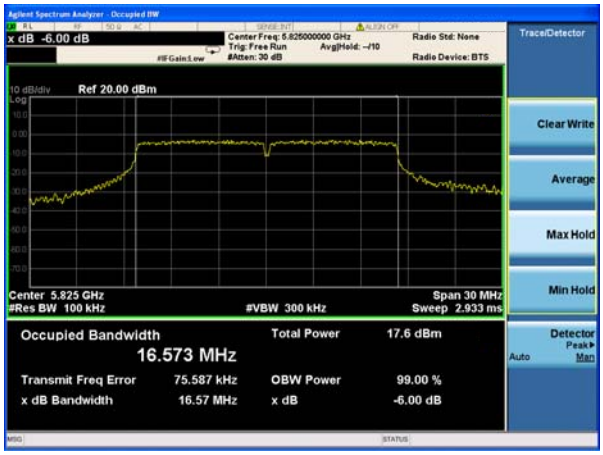


(802.11n20) -6dB Bandwidth plot on channel 149

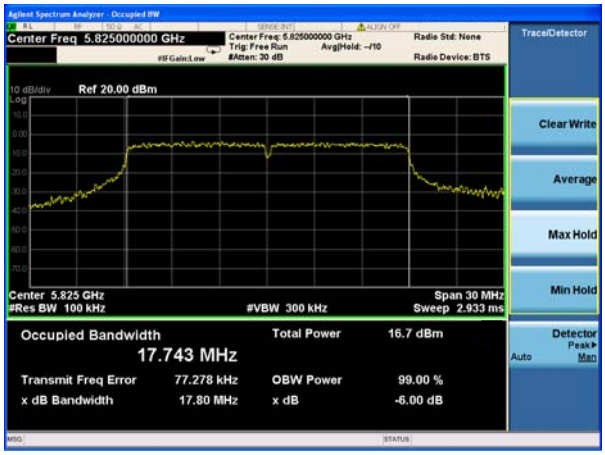
(802.11a) -6dB Bandwidth plot on channel 157

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

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

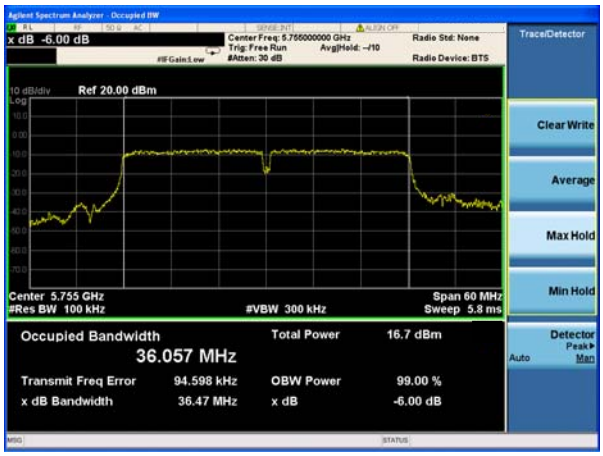


(802.11n20) -6dB Bandwidth plot on channel 165

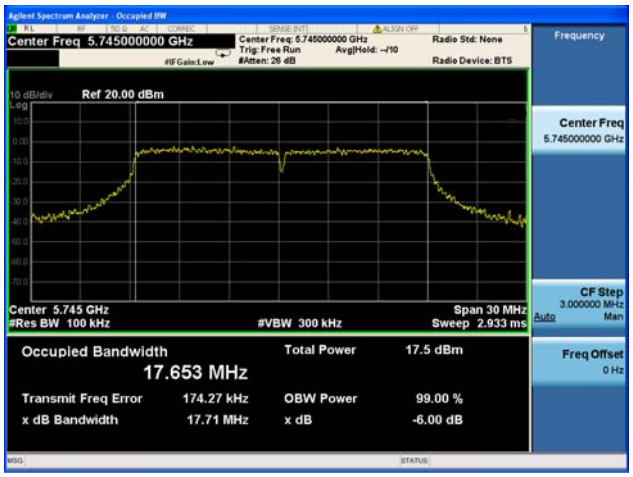


Antenna 1

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



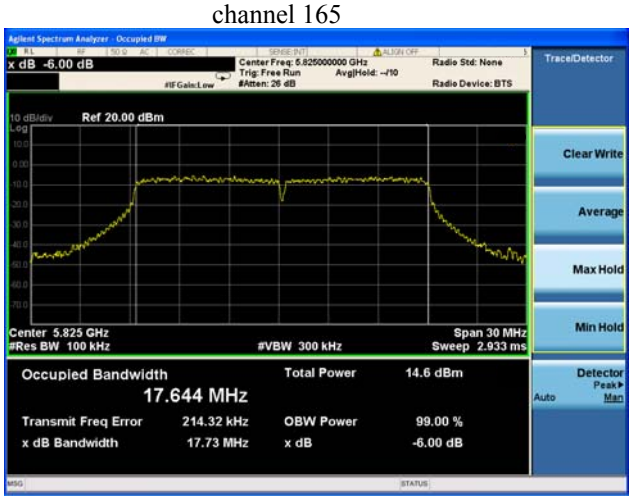
(802.11ac20) -6dB Bandwidth plot on channel 149



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

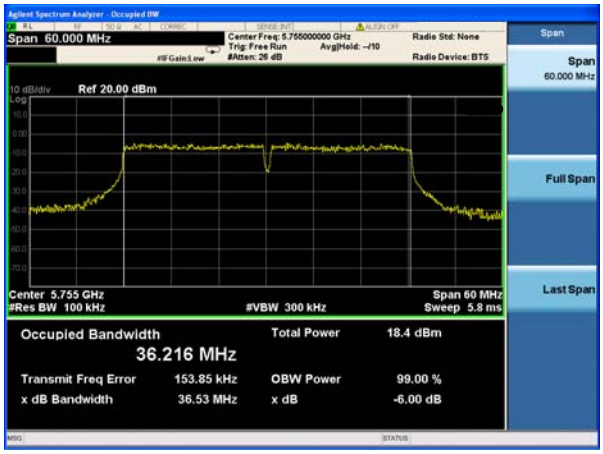
(802.11ac20) -6dB Bandwidth plot on channel 157

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



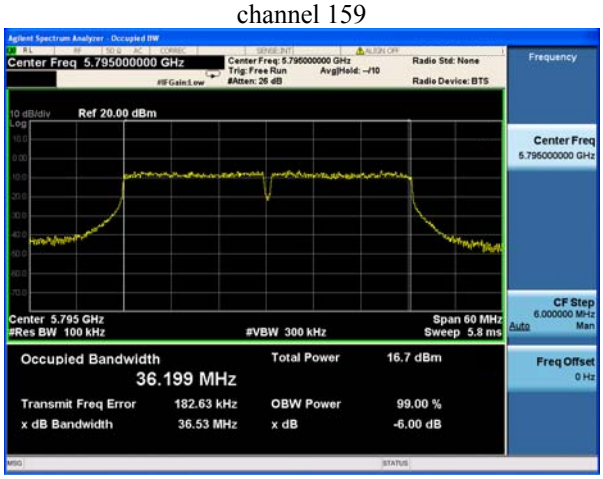
Antenna 1

(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	13.72	13.68	–	23.98	Pass
CH40	5200	13.69	13.47	–	23.98	Pass
CH48	5240	13.35	13.42	–	23.98	Pass
TX 802.11 n20M Mode						
CH36	5180	13.570	13.280	16.438	23.98	Pass
CH40	5200	13.760	13.170	16.485	23.98	Pass
CH48	5240	14.080	13.070	16.615	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	13.840	13.270	16.575	23.98	Pass
CH40	5200	13.540	13.060	16.317	23.98	Pass
CH48	5240	13.250	13.110	16.191	23.98	Pass
TX 802.11 AC40M Mode						
CH38	5190	12.140	12.010	15.086	23.98	Pass
CH46	5230	12.110	12.100	15.115	23.98	Pass
TX 802.11 AC80M Mode						
CH42	5210	10.530	10.420	13.486	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	14.15	13.36	–	30	Pass
CH 157	5785	14.29	13.11	–	30	Pass
CH 165	5825	13.38	13.37	–	30	Pass
TX 802.11 n20M Mode						
CH 149	5745	13.31	13.13	16.231	30	Pass
CH 157	5785	13.37	13.29	16.340	30	Pass
CH 165	5825	13.22	13.44	16.342	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	13.14	13.05	16.106	30	Pass
CH 157	5785	13.21	13.09	16.161	30	Pass
CH 165	5825	13.22	13.15	16.195	30	Pass
TX 802.11 AC40M Mode						
CH 151	5755	11.58	11.25	14.428	30	Pass
CH 159	5795	11.34	11.28	14.320	30	Pass
TX 802.11 AC80M Mode						
CH 155	5775	10.02	10.1	13.070	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

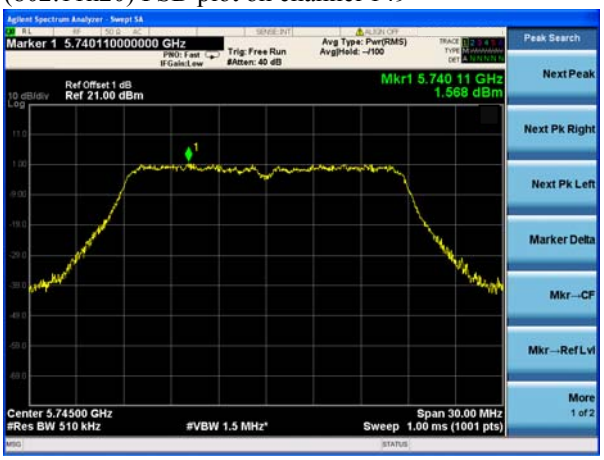
Test data as below

Mode	Frequency	Measured Power Density (dBm/MHz)		Total power density (dBm/MHz)	Calculate power density (dBm/MHz)(Note 1)		Limit (dBm/MH	Result
		ANT 1	ANT 2		ANT 1	ANT 2		
802.11 a	5185	1.532	1.264	-	-	-	11	PASS
	5200	1.500	1.251	-	-	-	11	PASS
	5240	1.935	1.119	-	-	-	11	PASS
802.11 n20	5185	1.253	2.386	4.867	4.867		11	PASS
	5200	1.178	1.569	4.388	4.388		11	PASS
	5240	1.778	1.717	4.758	4.758		11	PASS
802.11 n40	5190	-2.749	-1.780	0.773	0.773		11	PASS
	5230	-4.170	-3.936	-1.041	-1.041		11	PASS
802.11 AC20	5185	1.130	1.036	4.094	4.094		11	PASS
	5200	1.290	0.763	4.045	4.045		11	PASS
	5240	1.912	1.404	4.676	4.676		11	PASS
802.11 AC40	5190	-2.872	-3.761	-0.283	-0.283		11	PASS
	5230	-2.620	-3.323	0.053	0.053		11	PASS
802.11 AC80	5210 MHz	-1.400	-1.094	1.766	1.766		11	PASS

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

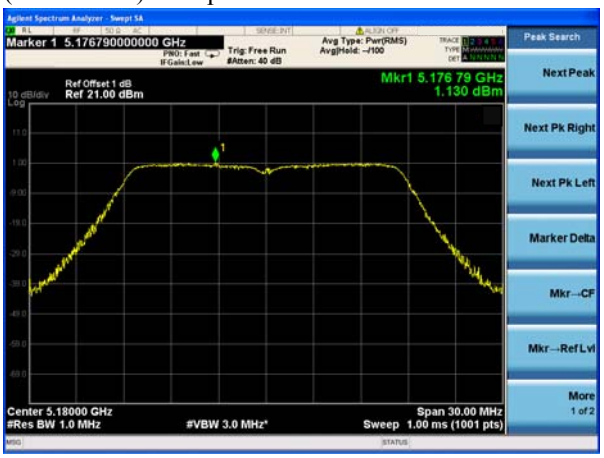
(802.11a) PSD plot on channel 165

(802.11n20) PSD plot on channel 165

Antenna 1

(802.11n40) PSD plot on channel 38

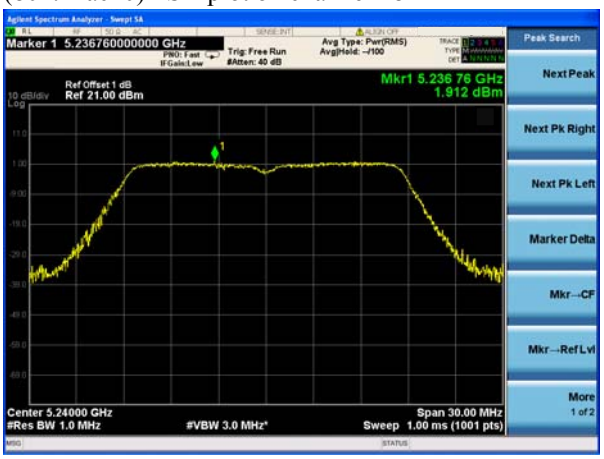
(802.11ac20) PSD plot on channel 36



(802.11n40) PSD plot on channel 46

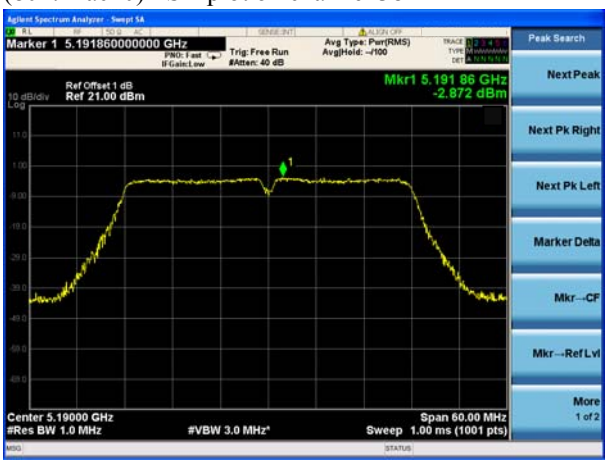
(802.11ac20) PSD plot on channel 40

(802.11ac20) PSD plot on channel 48



Antenna 1

(802.11ac40) PSD plot on channel 38

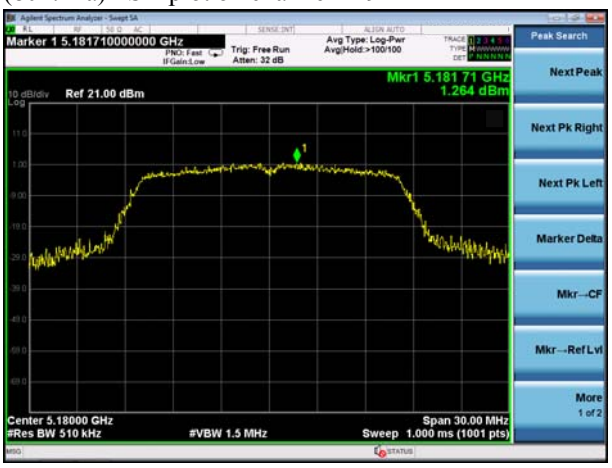


(802.11ac80) PSD plot on channel 42

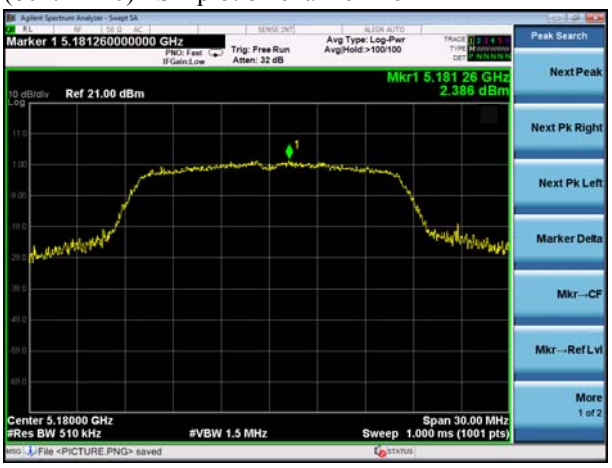
(802.11ac40) PSD plot on channel 46

Antenna 2

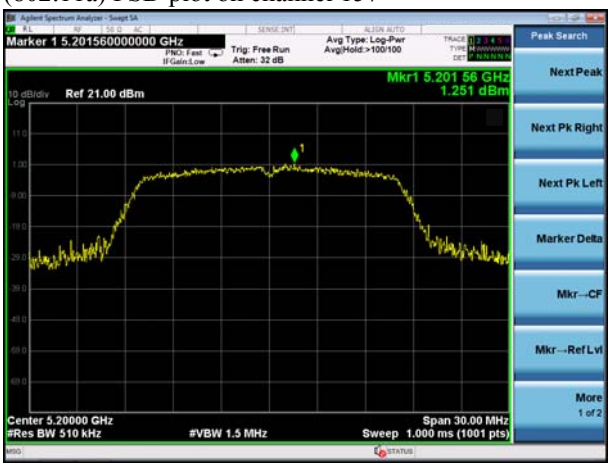
(802.11a) PSD plot on channel 149



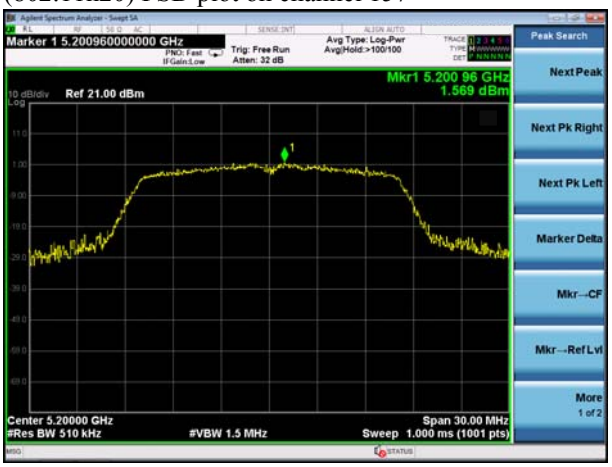
(802.11n20) PSD plot on channel 149



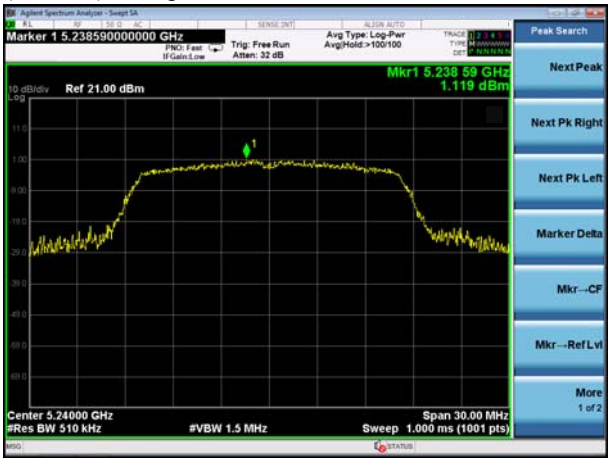
(802.11a) PSD plot on channel 157



(802.11n20) PSD plot on channel 157



(802.11a) PSD plot on channel 165



(802.11n20) PSD plot on channel 165

Antenna 2

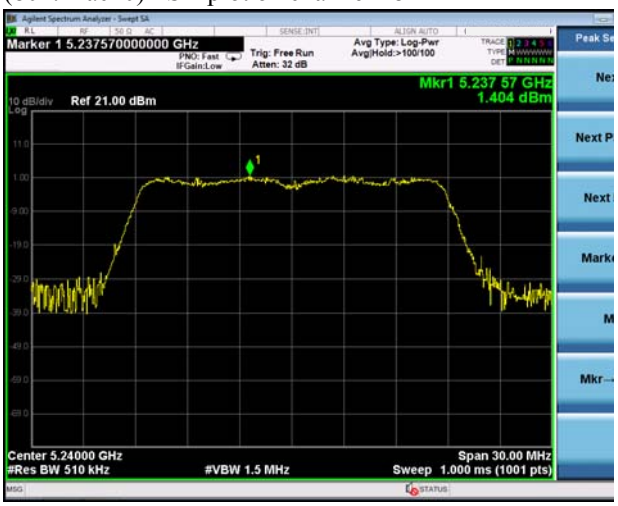
(802.11n40) PSD plot on channel 38

(802.11ac20) PSD plot on channel 36

(802.11n40) PSD plot on channel 46

(802.11ac20) PSD plot on channel 40

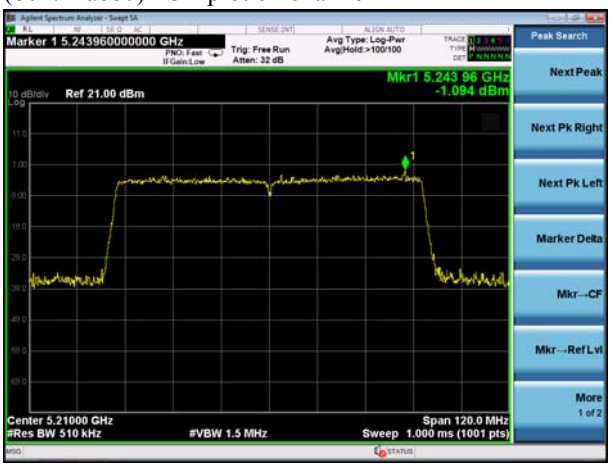
(802.11ac20) PSD plot on channel 48



Antenna 2

(802.11ac40) PSD plot on channel 38

(802.11ac80) PSD plot on channel 42



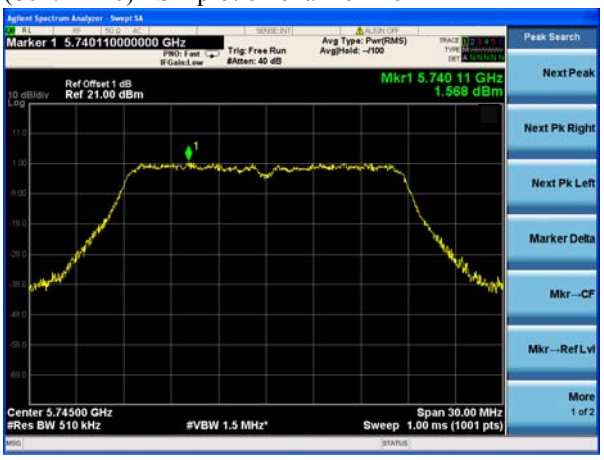
(802.11ac40) PSD plot on channel 46

Mode	Frequency	Measured Power Density (dBm/500kHz)		Total power density (dBm/500kHz)	Calculate power density (dBm/500kHz)(Note 1)		Limit (dBm/500kH	Result
		ANT A	ANT B		ANT A	ANT B		
802.11 a	5745 MHz	1.662	1.273	-	-	-	30	PASS
	5785 MHz	0.727	0.668	-	-	-	30	PASS
	5825 MHz	-0.121	0.582	-	-	-	30	PASS
802.11 n20	5745 MHz	1.568	1.370	4.480	4.480		30	PASS
	5785 MHz	1.029	1.508	4.285	4.285		30	PASS
	5825 MHz	0.071	1.378	3.784	3.784		30	PASS
802.11 n40	5755 MHz	-3.637	-1.839	0.365	0.365		30	PASS
	5795 MHz	-4.170	-3.791	-0.966	-0.966		30	PASS
802.11 AC20	5745 MHz	1.007	-0.402	3.370	3.370		30	PASS
	5785 MHz	1.205	-0.373	3.498	3.498		30	PASS
	5825 MHz	0.515	-0.131	3.214	3.214		30	PASS
802.11 AC40	5755 MHz	-3.365	-4.076	-0.696	-0.696		30	PASS
	5795 MHz	-4.136	-4.301	-1.207	-1.207		30	PASS
802.11 AC80	5775 MHz	-4.156	-3.921	-1.027	-1.027		30	PASS

Antenna 1

(802.11a) PSD plot on channel 149

(802.11n20) PSD plot on channel 149

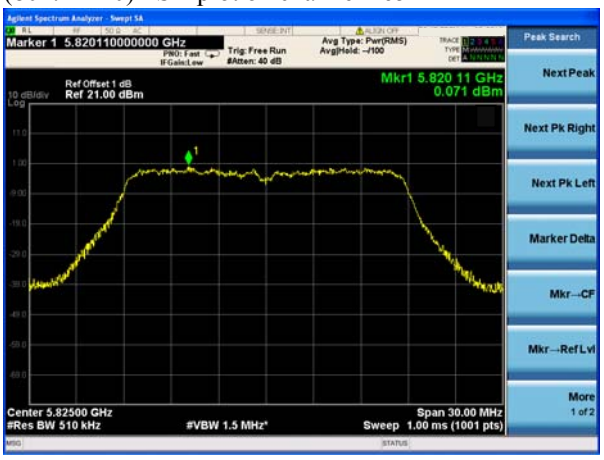


(802.11a) PSD plot on channel 157

(802.11n20) PSD plot on channel 157

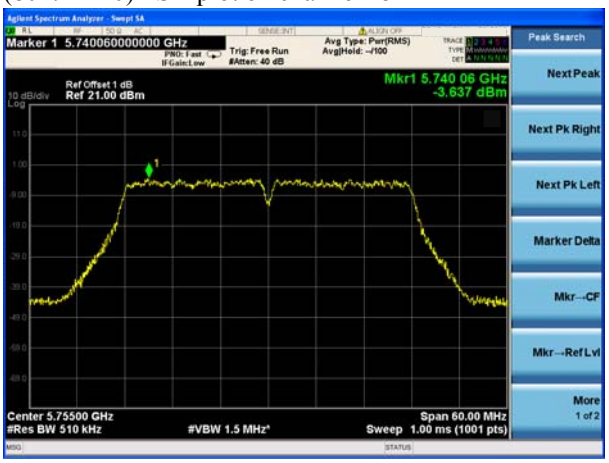
(802.11a) PSD plot on channel 165

(802.11n20) PSD plot on channel 165

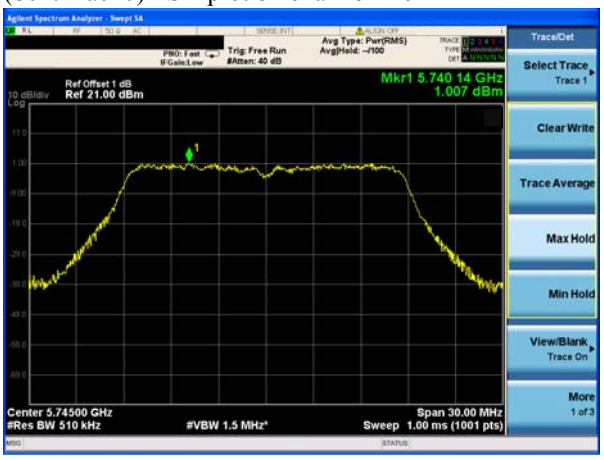


Antenna 1

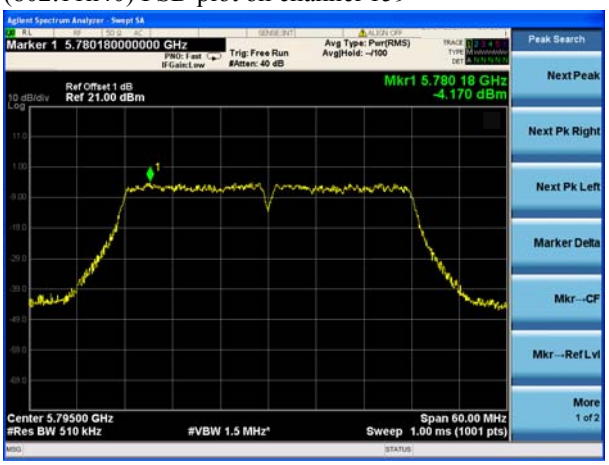
(802.11n40) PSD plot on channel 151



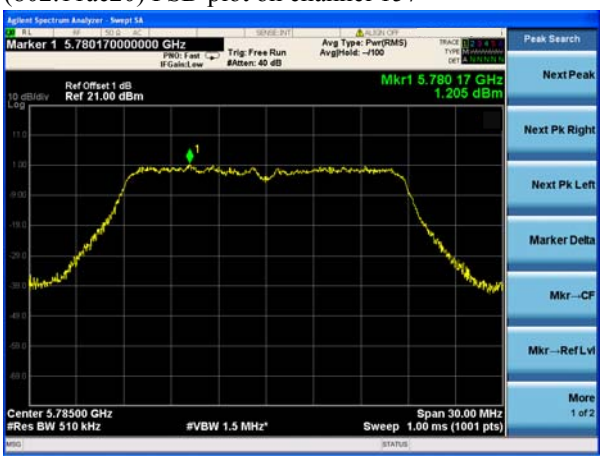
(802.11ac20) PSD plot on channel 149



(802.11n40) PSD plot on channel 159



(802.11ac20) PSD plot on channel 157

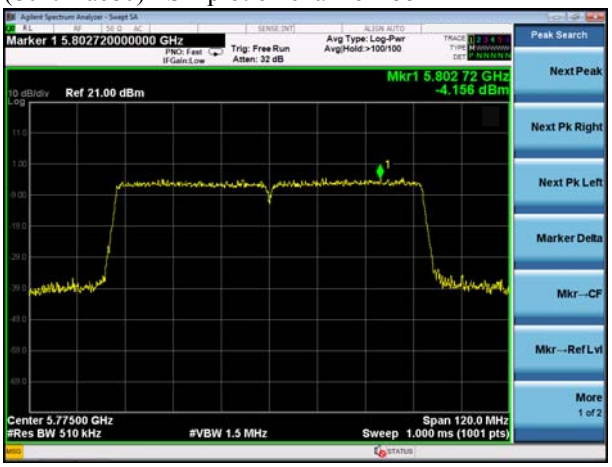


(802.11ac20) PSD plot on channel 165

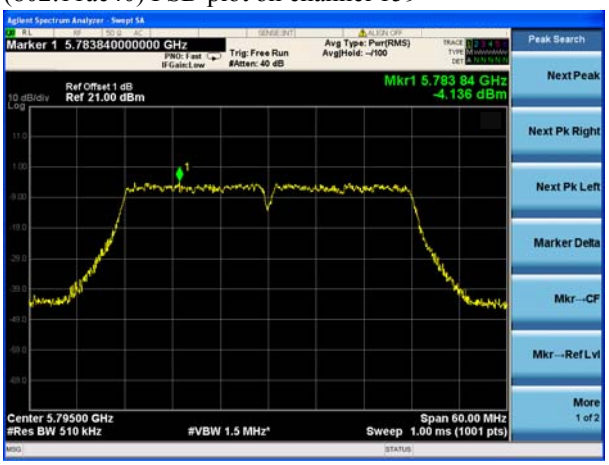
Antenna 1

(802.11ac40) PSD plot on channel 151

(802.11ac80) PSD plot on channel 155

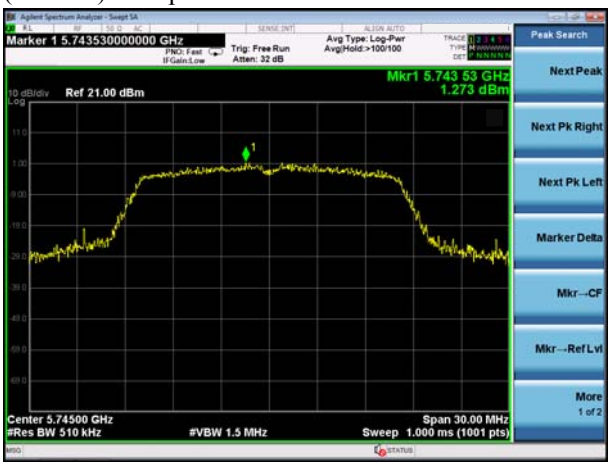


(802.11ac40) PSD plot on channel 159

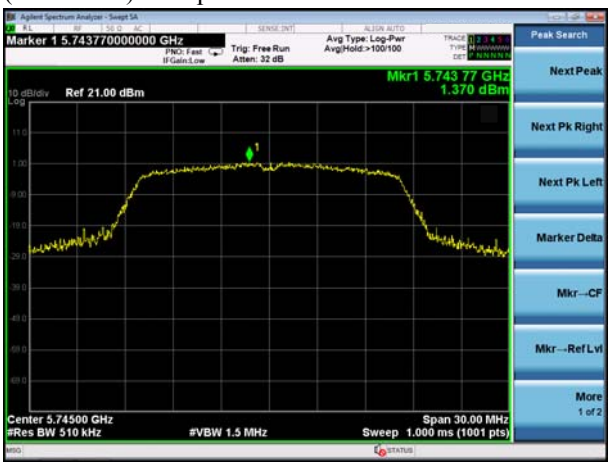


Antenna 2

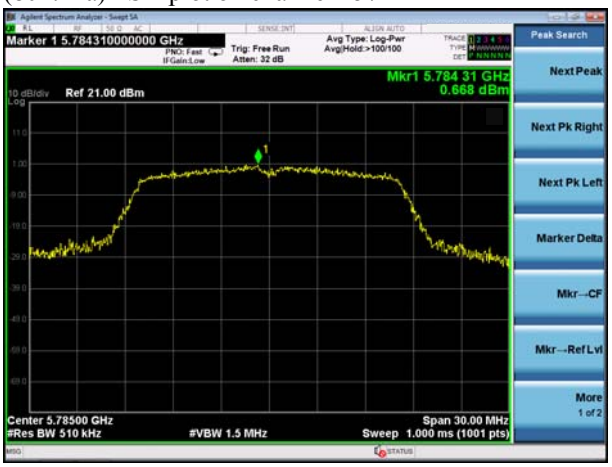
(802.11a) PSD plot on channel 149



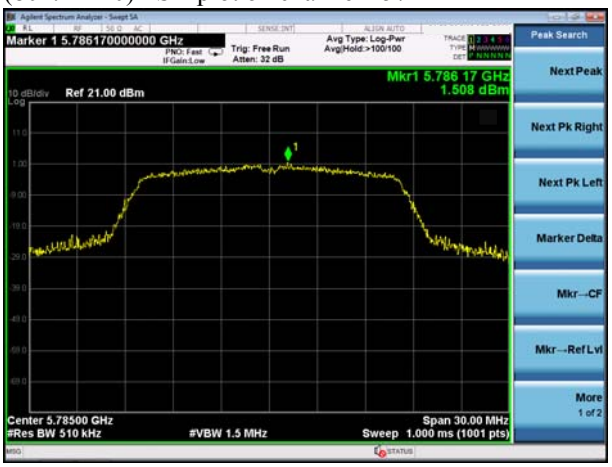
(802.11n20) PSD plot on channel 149



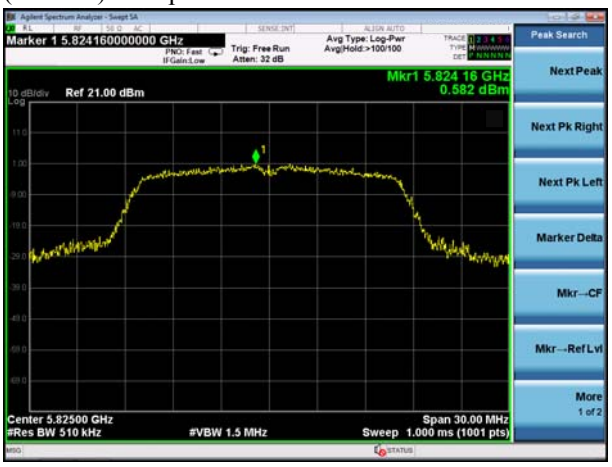
(802.11a) PSD plot on channel 157



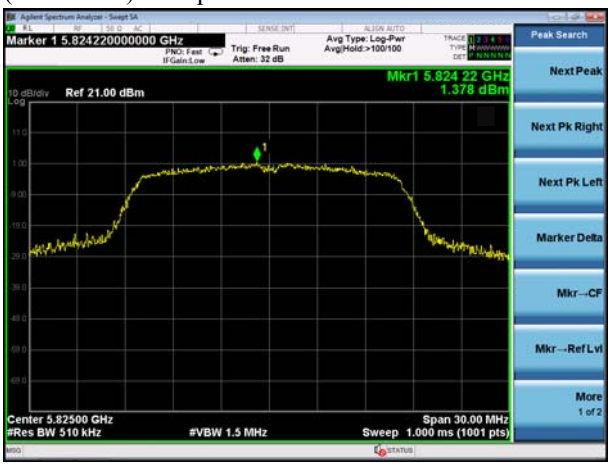
(802.11n20) PSD plot on channel 157



(802.11a) PSD plot on channel 165



(802.11n20) PSD plot on channel 165



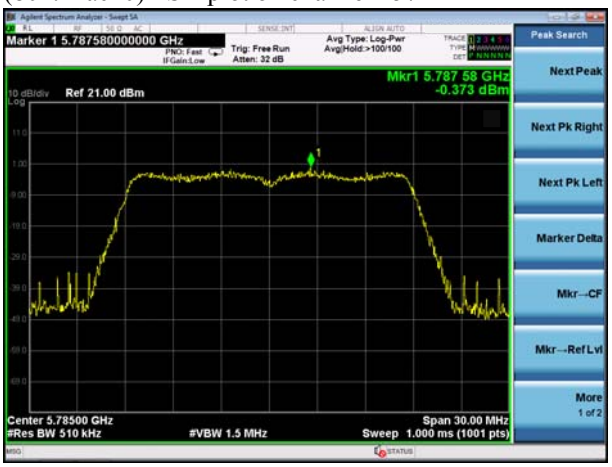
Antenna 2

(802.11n40) PSD plot on channel 151

(802.11ac20) PSD plot on channel 149

(802.11n40) PSD plot on channel 159

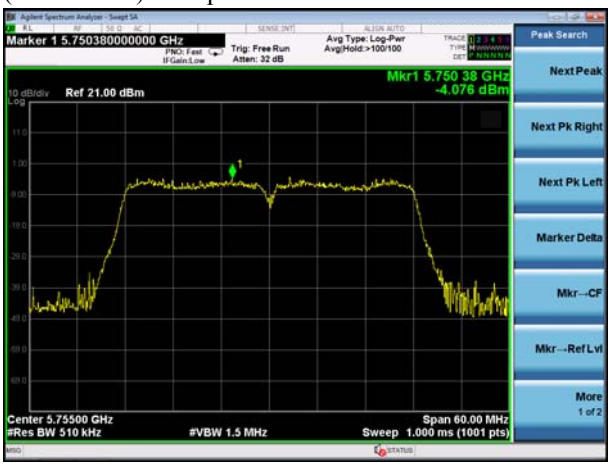
(802.11ac20) PSD plot on channel 157



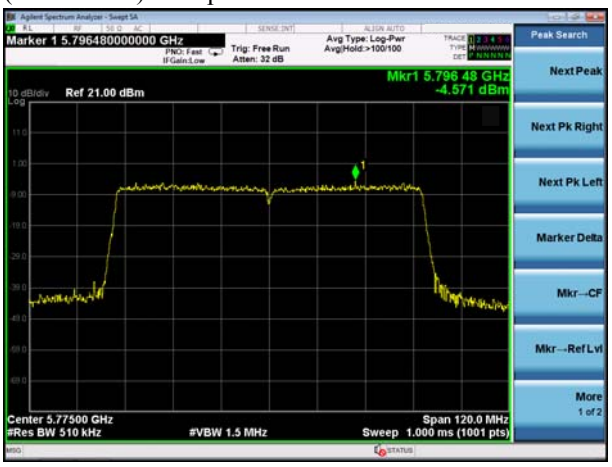
(802.11ac20) PSD plot on channel 165

Antenna 2

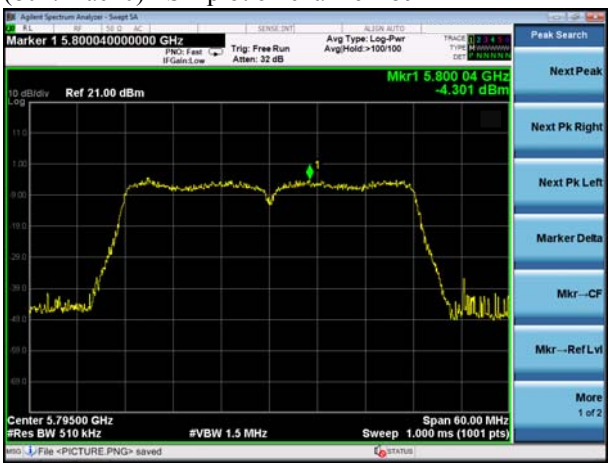
(802.11ac40) PSD plot on channel 151



(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	5180.01132	5180	0.01132	-2.1853
		T (°C)	20	5180.01196	5180	0.01196	-2.3089
		T (°C)	30	5180.01271	5180	0.01271	-2.4537
		T (°C)	40	5180.01211	5180	0.01211	-2.3378
		T (°C)	50	5180.01234	5180	0.01234	-2.3822
		T (°C)	60	5180.01349	5180	0.01349	-2.6042
		T (°C)	70	5180.01695	5180	0.01695	-3.2722
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	5200.01105	5200	0.01105	-2.1250
		V max (V)	5.75	5200.00795	5200	0.00795	-1.5288
		V min (V)	4.25	5200.01168	5200	0.01168	-2.2462
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	5200.00264	5200	0.00264	-0.5077
		T (°C)	-10	5200.00167	5200	0.00167	-0.3212
		T (°C)	0	5200.01639	5200	0.01639	-3.1519
		T (°C)	10	5200.01183	5200	0.01183	-2.2750
		T (°C)	20	5200.01114	5200	0.01114	-2.1423
		T (°C)	30	5200.01251	5200	0.01251	-2.4058
		T (°C)	40	5200.01211	5200	0.01211	-2.3288
		T (°C)	50	5200.01236	5200	0.01236	-2.3769
		T (°C)	60	5200.01408	5200	0.01408	-2.7077
		T (°C)	70	5200.00530	5200	0.00530	-1.0192
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	5240.02264	5240	0.02264	-4.3206
		V max (V)	5.75	5240.02165	5240	0.02165	-4.1317
		V min (V)	4.25	5240.02259	5240	0.02259	-4.3111
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	5240.00603	5240	0.00603	-1.1508
		T (°C)	-10	5240.00147	5240	0.00147	-0.2805
		T (°C)	0	5240.01257	5240	0.01257	-2.3989
		T (°C)	10	5240.01145	5240	0.01145	-2.1851
		T (°C)	20	5240.01752	5240	0.01752	-3.3435
		T (°C)	30	5240.02116	5240	0.02116	-4.0382
		T (°C)	40	5240.02054	5240	0.02054	-3.9198
		T (°C)	50	5240.02468	5240	0.02468	-4.7099
		T (°C)	60	5240.02273	5240	0.02273	-4.3378
		T (°C)	70	5240.02253	5240	0.02253	-4.2996
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	5745.01134	5745	0.01134	-1.9739
		V max (V)	5.75	5745.00882	5745	0.00882	-1.5352
		V min (V)	4.25	5745.01045	5745	0.01045	-1.8190
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	5745.01014	5745	0.01014	-1.7650
		T (°C)	-10	5745.01042	5745	0.01042	-1.8138
		T (°C)	0	5745.01335	5745	0.01335	-2.3238
		T (°C)	10	5745.01021	5745	0.01021	-1.7772
		T (°C)	20	5745.01134	5745	0.01134	-1.9739
		T (°C)	30	5745.01252	5745	0.01252	-2.1793
		T (°C)	40	5745.01317	5745	0.01317	-2.2924
		T (°C)	50	5745.01243	5745	0.01243	-2.1636
		T (°C)	60	5745.01314	5745	0.01314	-2.2872
		T (°C)	70	5745.01462	5745	0.01462	-2.5448
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：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			

Note: This EUT was tested in 802.11a/n/ac(HT20), n/ac(HT40), ac(HT80) mode and 802.11a the worst case position data was reported.

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：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：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：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：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. ANTENNA REQUIREMENT

12.1. 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.

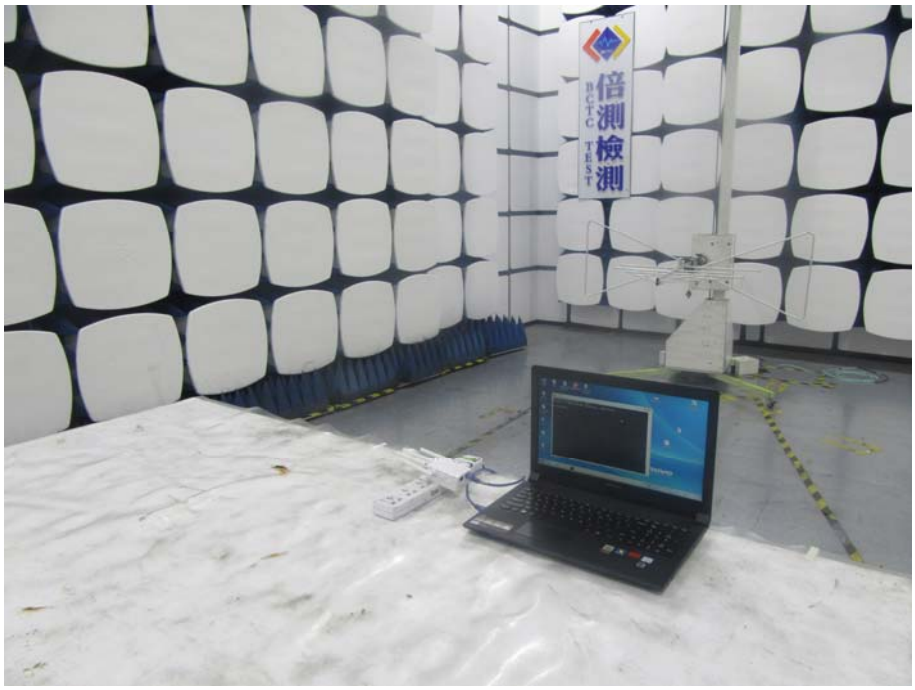
12.2. EUT ANTENNA

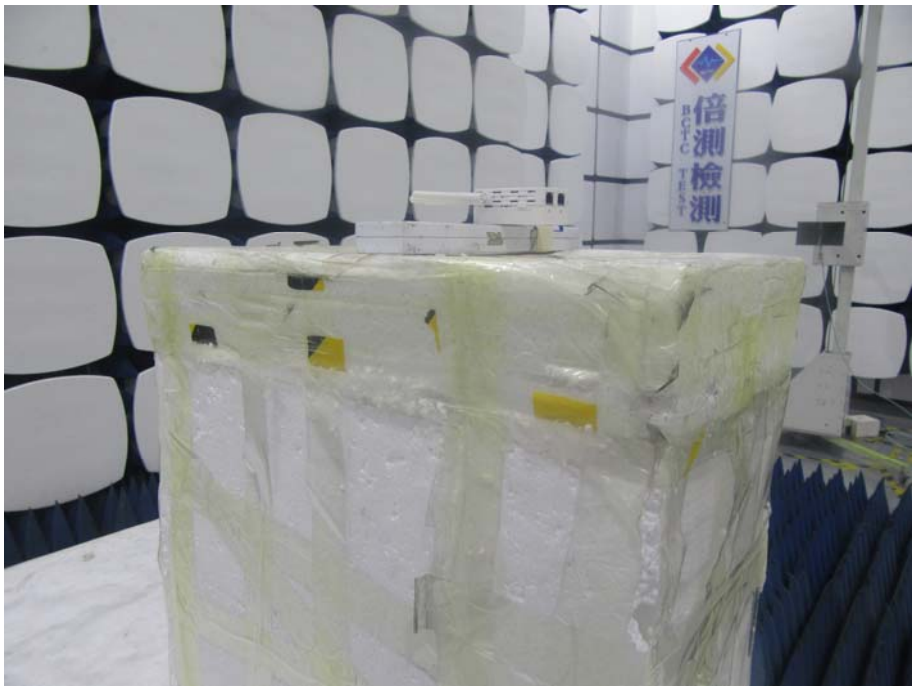
The EUT antenna is External antenna, It comply with the standard requirement.

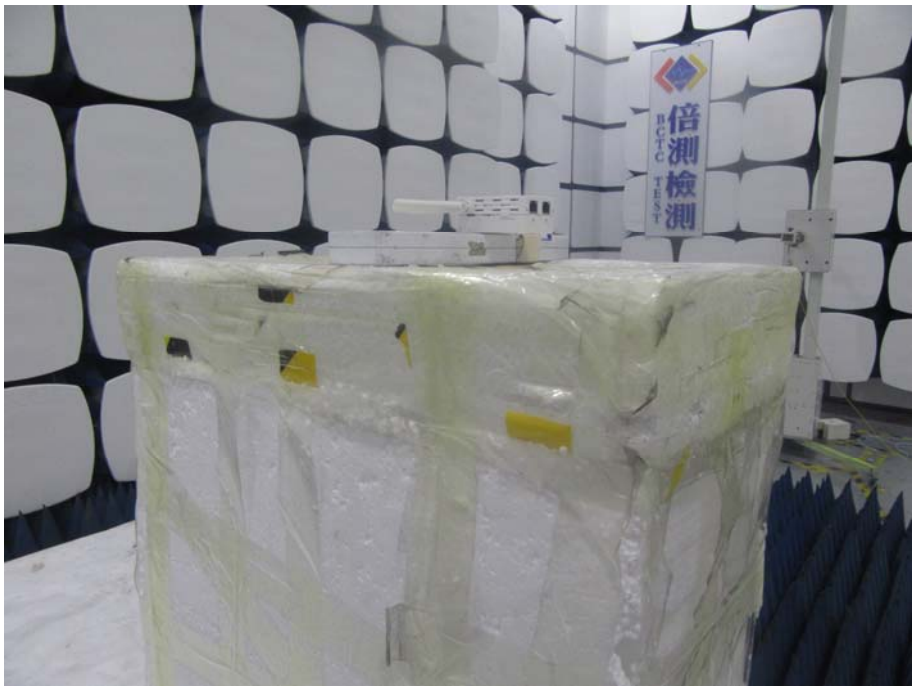
13. PHOTOGRAPHS OF TEST SET-UP

Conducted Emission

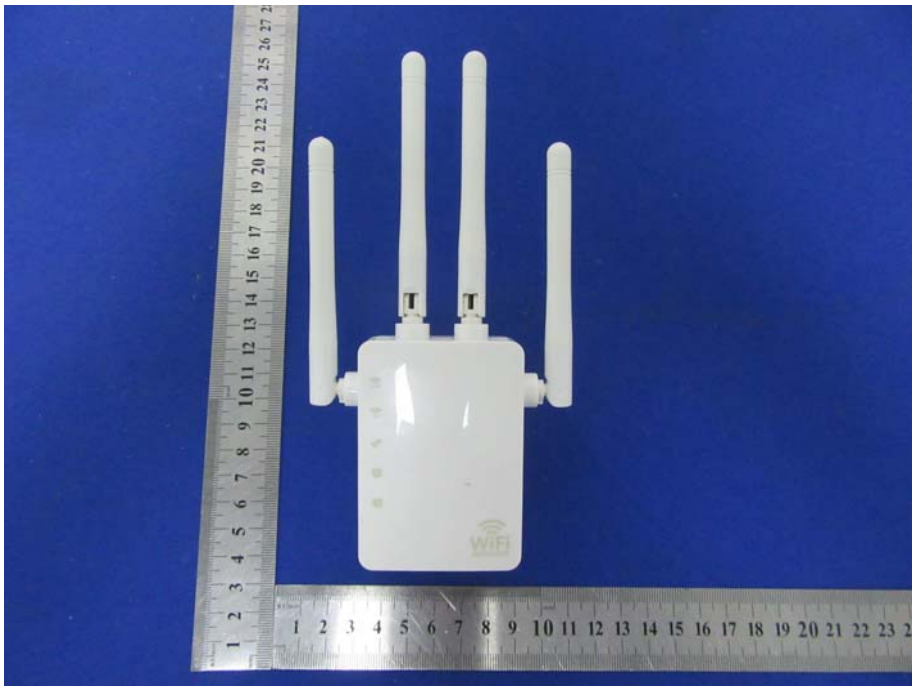
Radiated Emission Test

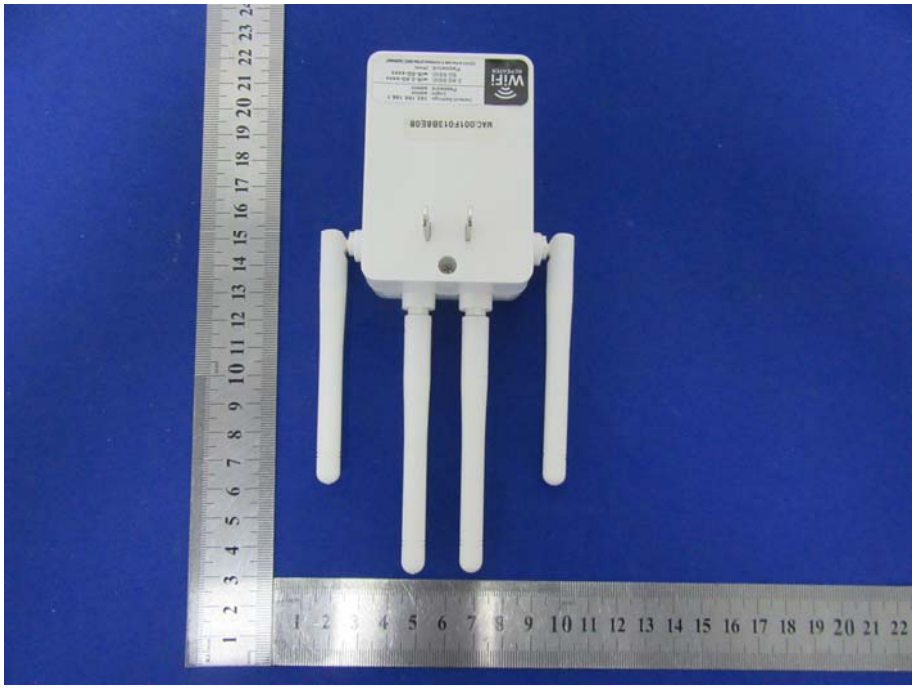





倍测检测
BCTC TEST

14. EUT PHOTO





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