



FCC Part 15E Test Report

FCC ID: OYRE380AC

Product Name:	Wireless AP
Trademark:	COMFAST
Model Name :	CF-E380AC CF-WR630AC, CF-WR635AC, CF-WR650AC, CF-WR670AC, CF-E355AC, CF-E370AC, CF-WA350, CF-WA800, CF-WA850, CF-WA900, CF-WA950, CF-T8000, CF-E550AC, CF-E560AC, CF-E314N, CF-E211A, CF-E212AC, CF-E110N, CF-E120A
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Test Date:	May 04 - May 25, 2017
Date of Report :	May 25, 2017
Report No.:	BCTC-LH170501698-1E



VERIFICATION OF COMPLIANCE

Applicant's name Shenzhen Four Seas Global Link Network Technology Co., Ltd
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Manufacture's Name Shenzhen Four Seas Global Link Network Technology Co., Ltd
Address..... Room 607-610, Block B, TAOJINDI Electronic Business Incubation Base, Tenglong Road, Longhua District, Shenzhen, China

Product description

Product name.....: Wireless AP

Trademark: COMFAST
CF-E380AC

Model Name: CF-WR630AC, CF-WR635AC, CF-WR650AC, CF-WR670AC, CF-E355AC, CF-E370AC, CF-WA350, CF-WA800, CF-WA850, CF-WA900, CF-WA950, CF-T8000, CF-E550AC, CF-E560AC, CF-E314N, CF-E211A, CF-E212AC, CF-E110N, CF-E120A

Test procedure.....: FCC Part15.407
ANSI C63.10-2013

Standards KDB789033 D02 General UNII Test Procedures New Rules v01r02

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**

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1.TEST SUMMARY

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

Note: N/A means not applicable.



2.GENERAL PRODUCT INFORMATION

2.1. Product Function

Refer to Technical Construction Form and User Manual.

2.2. Description of Device (EUT)

Product Name:	Wireless AP
Model No.:	CF-E380AC CF-WR630AC, CF-WR635AC, CF-WR650AC, CF-WR670AC, CF-E355AC, CF-E370AC, CF-WA350, CF-WA800, CF-WA850, CF-WA900, CF-WA950, CF-T8000, CF-E550AC, CF-E560AC, CF-E314N, CF-E211A, CF-E212AC, CF-E110N, CF-E120A
Model Difference	The product's different for model number and appearance color.
Trade Name:	COMFAST
Operation Frequency:	802.11a/n20/ac20: 5180-5240MHz, 802.11n40/ac40:5190-5230MHz 802.11a/n20/ac20: 5745-5825MHz, 802.11n40/ac40:5755-5795MHz 802.11ac HT80:5210MHz, 5775MHz
Channel numbers:	See channel list
Modulation technology:	64QAM, 16QAM, QPSK, BPSK for OFDM
Data speed (IEEE 802.11a):	6Mbps, 9Mbps, 12Mbps, 18Mbps, 24Mbps, 36Mbps, 48Mbps,54Mbps
Data speed (IEEE 802.11n):	Up to 1750Mbps
Antenna Type:	internal antenna*2
Antenna gain:	3.0dBi
Power supply:	DC 48V from adapter
Adapter	Model:G0720-480-050 I/P:AC 100-240V 50/60Hz O/P: DC 48V 0.5A
Hardware version	---
Software version	---

Channel list

802.11a/n20/ac 20

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	40	5200	44	5220
48	5240	149	5745	153	5765
157	5785	161	5805	165	5825



802.11n40/ac40

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	46	5230		
151	5755	159	5795		

802.11ac 80

Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	155	5775		

2.3. Independent Operation Modes

The basic operation modes are:

Pretest Mode	Description
Mode 1	802.11a CH36/CH40/ CH48/CH149/CH157/CH165
Mode 2	802.11n(HT20) CH36/CH40/CH48/CH149/CH157/CH165
Mode 3	802.11n(HT40) CH38/CH46/CH151/CH159
Mode 4	802.11ac(HT20) CH36/CH40/CH48/CH149/CH157/CH165
Mode 5	802.11ac(HT40) CH38/CH46/CH151/CH159
Mode 6	802.11ac(HT80) CH42/ CH155
Mode 7	Link Mode

For Radiated Emission	
Final Test Mode	Description
Mode 1	802.11a CH36/CH40/ CH48/CH149/CH157/CH165
Mode 2	802.11n(HT20) CH36/CH40/CH48/CH149/CH157/CH165
Mode 3	802.11n(HT40) CH38/CH46/CH151/CH159
Mode 4	802.11ac(HT20) CH36/CH40/CH48/CH149/CH157/CH165
Mode 5	802.11ac(HT40) CH38/CH46/CH151/CH159
Mode 6	802.11ac(HT80) CH42/ CH155

Note:

- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported
- (3) According to ANSI C63.10 standards, the test results are both the “worst case” and “worst setup”
MCS0 for 802.a , MCS0 for 802.11n(HT20), MCS1 for 802.11n(H40), MCS0 for 802.11ac(H80).

2.4. Test Sites

2.4.1. Test Facilities

Lab Qualifications : FCC Registration No.:187086



2.5. List of Test and Measurement Instruments

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

Radiation test, Band-edge test and 6db bandwidth 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

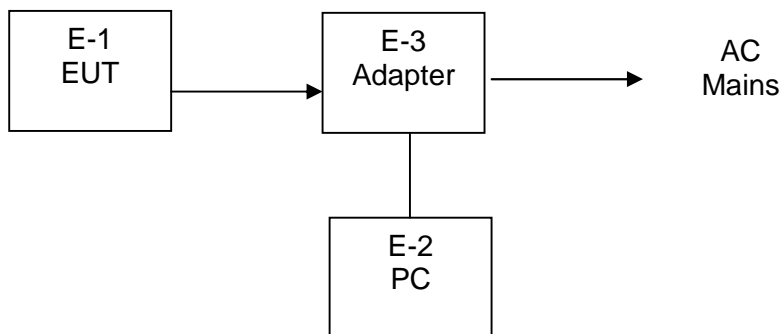
3. TEST SET-UP AND OPERATION MODES

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

Radiated & Conducted Emission Test



3.3. Special Accessories and Auxiliary Equipment

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Wireless AP	N/A	Wireless AP	N/A	EUT
E-2	PC (Provide by test lab)	ASUS	AWT8000	N/A	I/P: AC 100-240V 50/60Hz
E-3	Adapter	N/A	G0720-480-050		

Item	Shielded Type	Ferrite Core	Length	Note
C1	NO	NO	1.0m	USB cable

3.4. Countermeasures to Achieve EMC Compliance

None.

3.5. Test Operation Mode and Test Software

None.



4. EMISSION TEST RESULTS

4.1. Conducted Emission Measurement

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

FREQUENCY (MHz)	Class B (dBuV)		Standard
	Quasi -peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	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

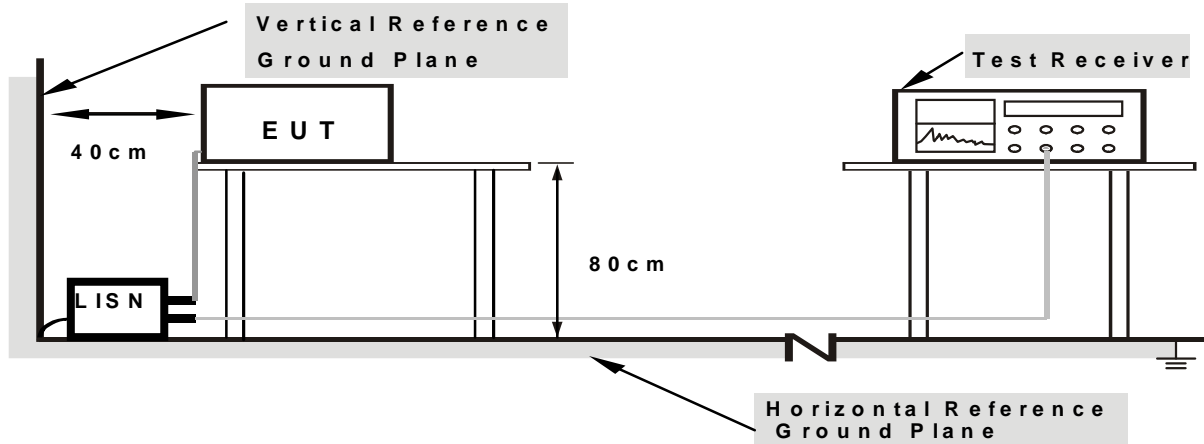
4.1.1. TEST PROCEDURE

- 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.

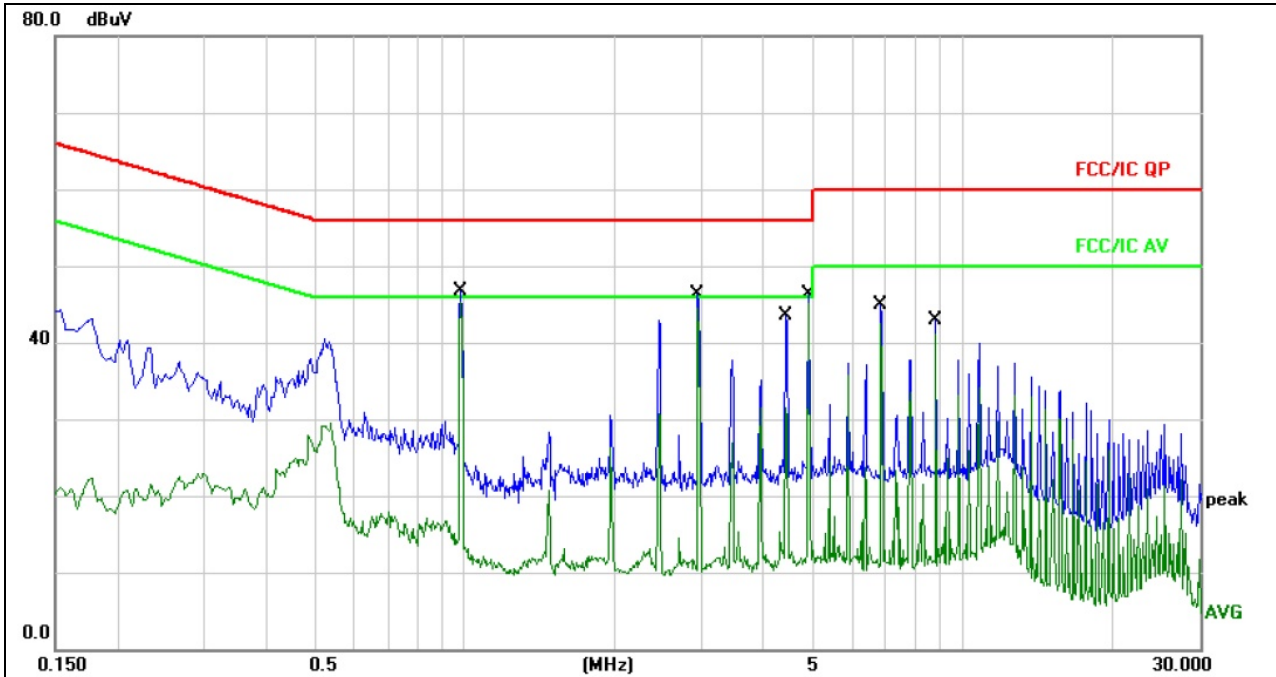
If peak level comply with Quasi-Peak limit, then the Quasi-Peak level is deemed to comply with Quasi-Peak limit.

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



Temperature:	25 °C	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	L
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 4



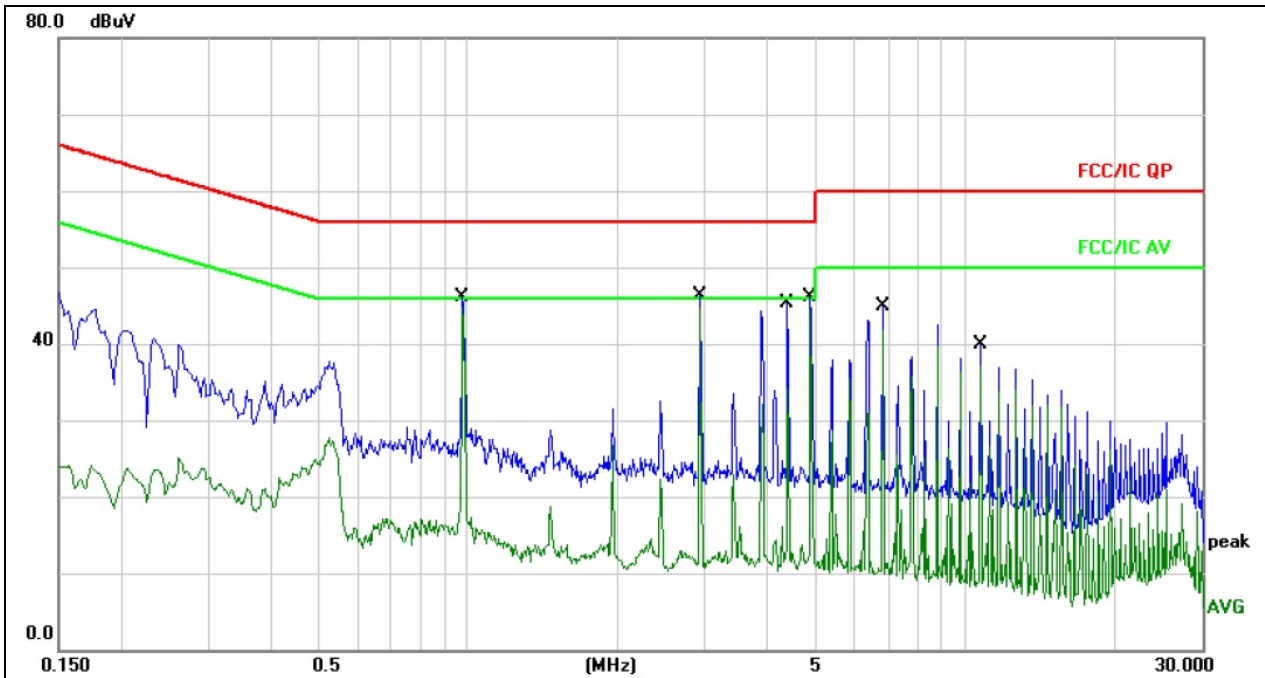
Remark:

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

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.9820	36.48	10.16	46.64	56.00	-9.36	QP	
2 *	0.9820	35.10	10.16	45.26	46.00	-0.74	AVG	
3	2.9460	36.04	10.19	46.23	56.00	-9.77	QP	
4	2.9460	34.34	10.19	44.53	46.00	-1.47	AVG	
5	4.4180	33.30	10.16	43.46	56.00	-12.54	QP	
6	4.4180	21.35	10.16	31.51	46.00	-14.49	AVG	
7	4.9140	36.20	10.15	46.35	56.00	-9.65	QP	
8	4.9140	34.88	10.15	45.03	46.00	-0.97	AVG	
9	6.8740	34.85	10.10	44.95	60.00	-15.05	QP	
10	6.8740	32.31	10.10	42.41	50.00	-7.59	AVG	
11	8.8380	32.72	10.12	42.84	60.00	-17.16	QP	
12	8.8380	30.95	10.12	41.07	50.00	-8.93	AVG	



Temperature:	25 °C	Relative Humidity:	54%
Pressure:	1010hPa	Phase :	N
Test Voltage :	AC 120V/60Hz	Test Mode:	Mode 4



Remark:

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

No. Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measurement dBuV	Limit dBuV	Over dB	Detector	Comment
1	0.9780	35.99	10.16	46.15	56.00	-9.85	QP	
2 *	0.9780	34.61	10.16	44.77	46.00	-1.23	AVG	
3	2.9300	36.11	10.19	46.30	56.00	-9.70	QP	
4	2.9300	34.49	10.19	44.68	46.00	-1.32	AVG	
5	4.3980	35.07	10.16	45.23	56.00	-10.77	QP	
6	4.3980	23.97	10.16	34.13	46.00	-11.87	AVG	
7	4.8820	36.01	10.15	46.16	56.00	-9.84	QP	
8	4.8820	34.30	10.15	44.45	46.00	-1.55	AVG	
9	6.8380	34.74	10.10	44.84	60.00	-15.16	QP	
10	6.8380	31.57	10.10	41.67	50.00	-8.33	AVG	
11	10.7460	29.84	10.13	39.97	60.00	-20.03	QP	
12	10.7460	27.06	10.13	37.19	50.00	-12.81	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)	Class B (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 EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

Above 1GHz test procedure as below:

- g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber and change form table 0.8 meter to 1.5 meter.
- h Test the EUT in the lowest channel ,the middle channel ,the Highest channel

Note:

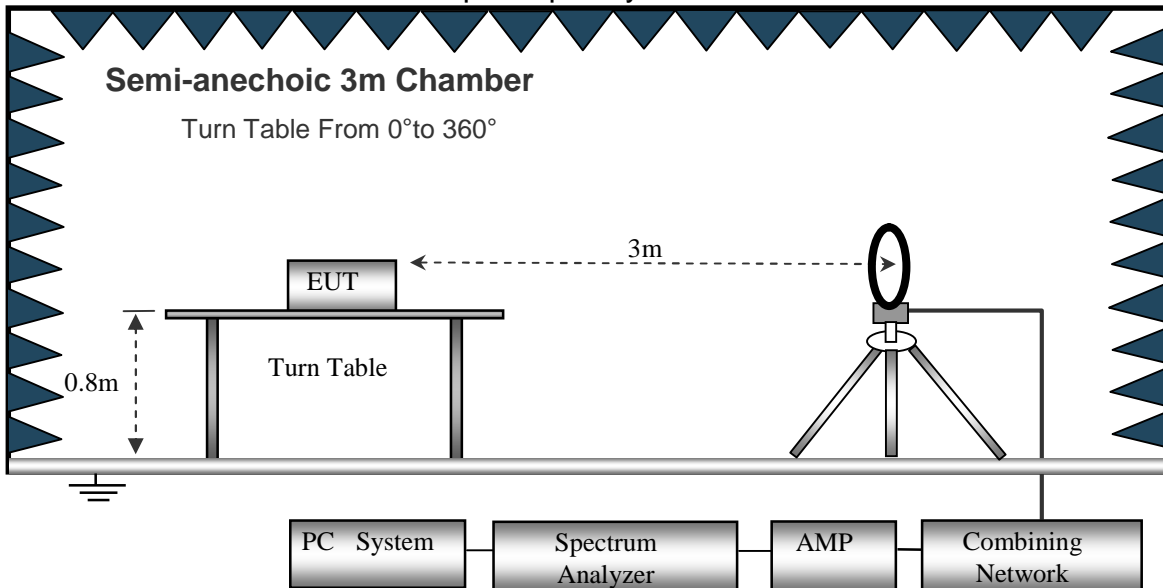
Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported

4.2.3. DEVIATION FROM TEST STANDARD

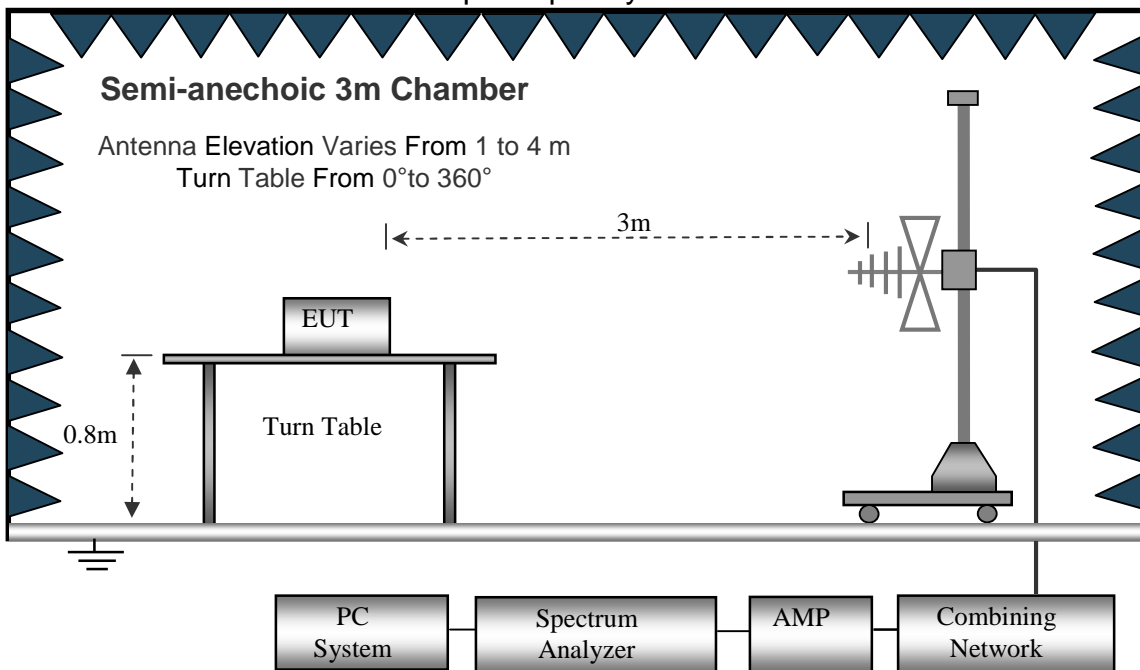
No deviation

4.2.4. TEST SETUP

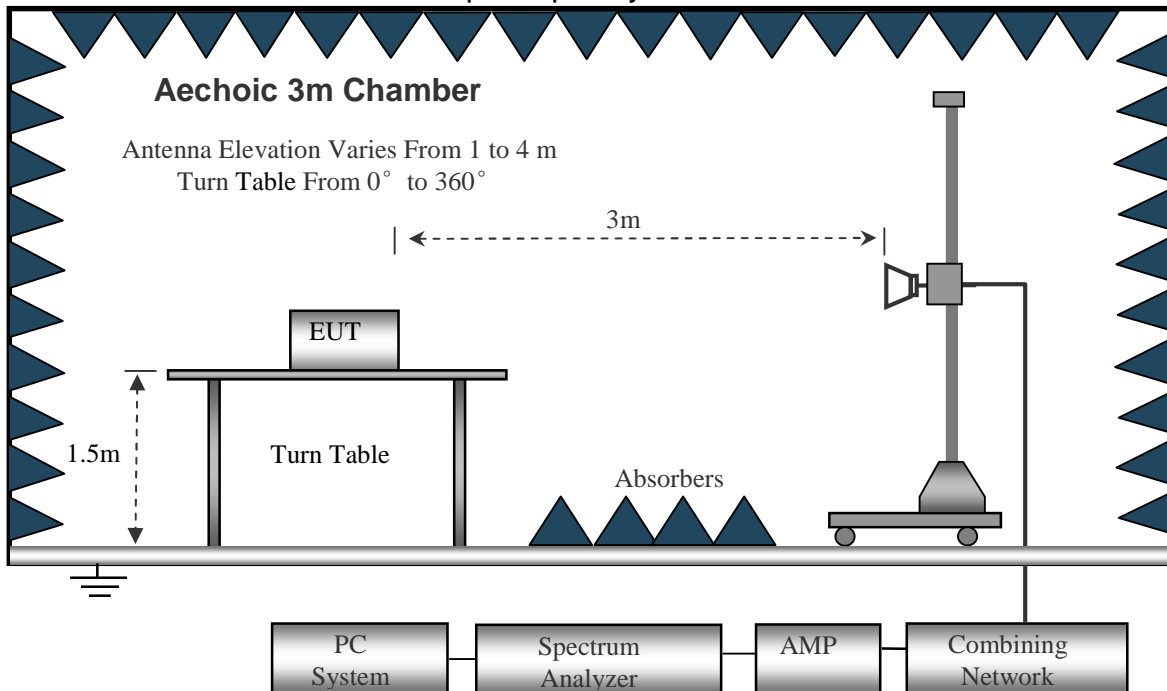
(A) Radiated Emission Test-Up Frequency Below 30MHz



(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.

For 802.11a, only the SISO mode was supported. And basing on the pre-scan, only the data for worst case configuration (ant 1 active) was listed below.

For 80211n and AC, both SISO and MIMO were supported. And basing on the pre-scan, only the data for worst case configuration (MIMO mode) was listed below.



Radiated Spurious Emission (Below 30MHz)

Temperature :	20 °C	Relative Humidity :	48%
Pressure :	1010 hPa	Polarization :	---
Test Voltage :	DC 48V from adapter input AC 120V/60Hz		
Test Mode :	TX		

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

Note:

The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

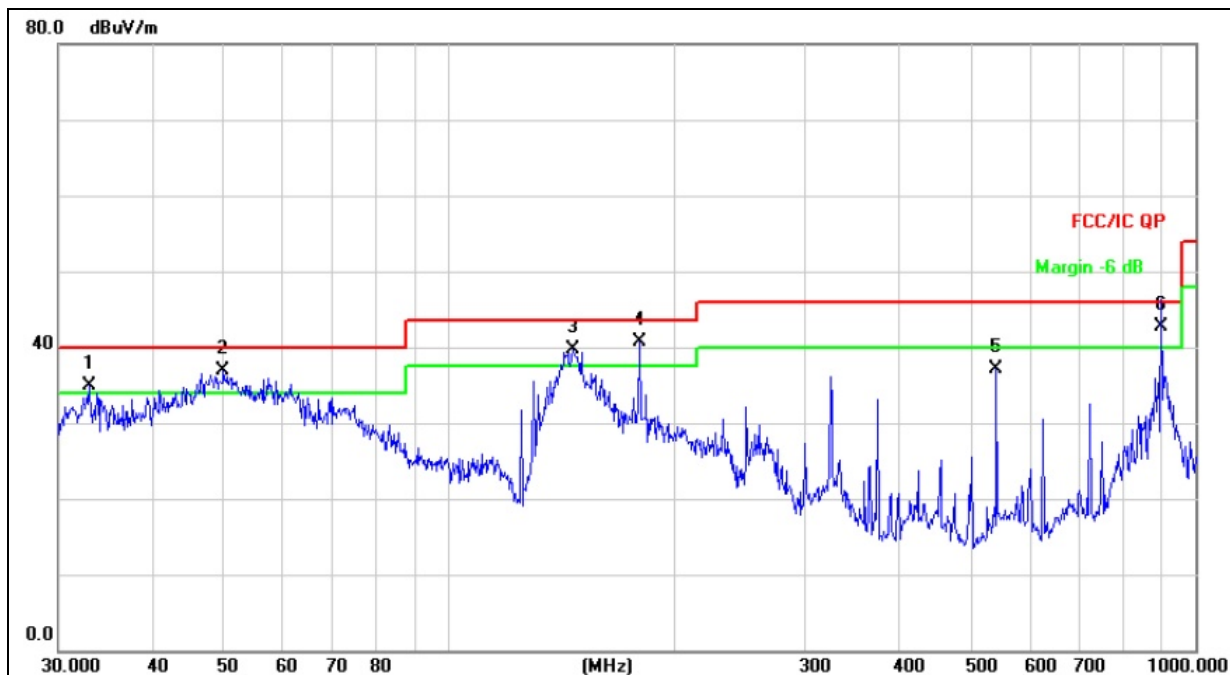
Distance extrapolation factor = $40 \log (\text{specific distance}/\text{test distance})$ (dB);

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



Radiated Spurious Emission (Between 30MHz – 1GHz)

Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Polarization :	Horizontal
Test Voltage :	DC 48V from adapter input AC 120V/60Hz		
Test Mode : (Worst)	Link Mode		



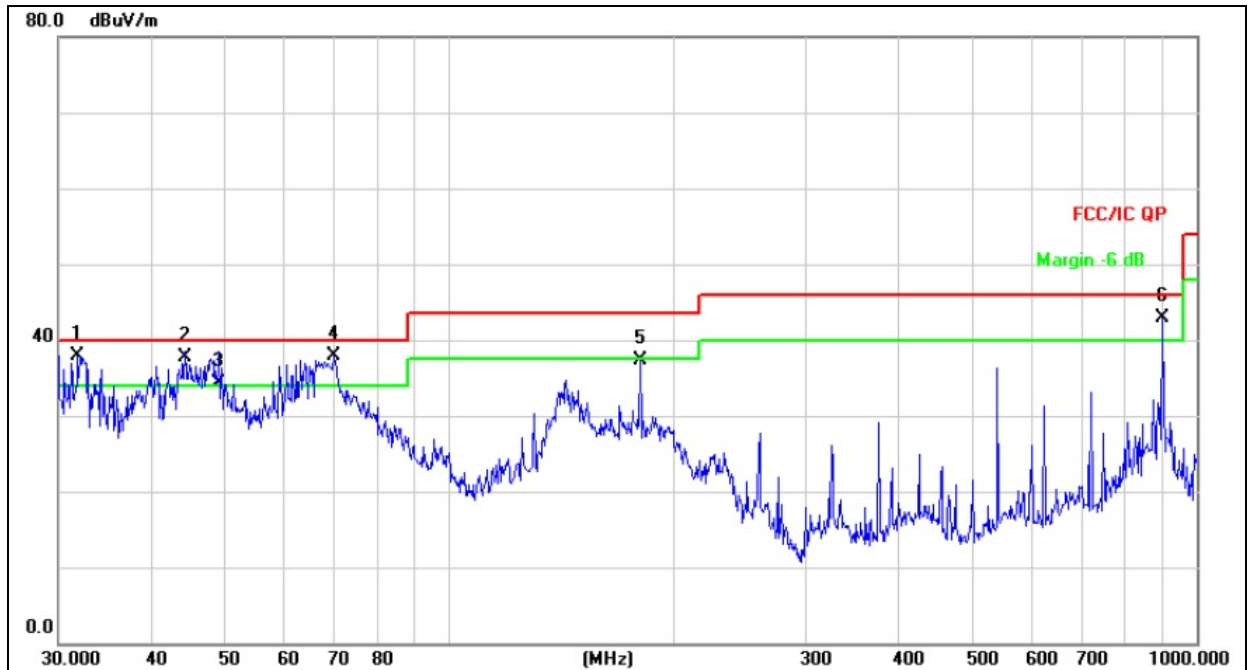
Remark:

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

No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB/m	Measure- ment dBuV/m	Limit dBuV/m	Over dB	Detector
1	!	32.9791	43.39	-8.39	35.00	40.00	-5.00	QP
2	!	49.8814	47.11	-10.27	36.84	40.00	-3.16	QP
3	!	146.3735	52.80	-13.05	39.75	43.50	-3.75	QP
4	*	180.0165	54.98	-14.34	40.64	43.50	-2.86	QP
5		541.3725	44.43	-7.35	37.08	46.00	-8.92	QP
6	!	900.1474	44.13	-1.45	42.68	46.00	-3.32	QP



Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010 hPa	Polarization :	Vertical
Test Voltage :	DC 48V from adapter input AC 120V/60Hz		
Test Mode : (Worst)	Link Mode		



Remark:

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

No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	Detector
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	*	31.8427	46.24	-8.27	37.97	40.00	-2.03	QP
2	!	44.2751	47.00	-9.38	37.62	40.00	-2.38	QP
3	!	49.1865	44.52	-10.16	34.36	40.00	-5.64	QP
4	!	70.0902	52.44	-14.57	37.87	40.00	-2.13	QP
5		180.0165	51.71	-14.34	37.37	43.50	-6.13	QP
6	!	900.1473	44.33	-1.45	42.88	46.00	-3.12	QP



Radiated Spurious Emission (Above 1GHz)

Polar (H/V)	Frequency	Meter Reading	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
802.11a Band 1 Operation frequency:5180									
V	10360.00	57.71	39.55	17.85	26.83	62.84	74.00	-11.16	PK
V	10360.00	38.55	39.55	17.85	26.83	43.68	54.00	-10.32	AV
V	15540.00	52.72	38.33	18.63	28.21	61.23	74.00	-12.77	PK
V	15540.00	35.02	38.33	18.63	28.21	43.53	54.00	-10.47	AV
V	25450.00	37.39	37.23	20.36	30.35	50.87	74.00	-23.13	PK
H	10360.00	58.22	39.55	17.85	26.83	63.35	74.00	-10.65	PK
H	10360.00	39.02	39.55	17.85	26.83	44.15	54.00	-9.85	AV
H	15540.00	52.91	38.33	18.63	28.21	61.42	74.00	-12.58	PK
H	15540.00	34.24	38.33	18.63	28.21	42.75	54.00	-11.25	AV
H	25450.00	37.37	37.23	20.36	30.35	50.85	74.00	-23.15	PK
802.11a Band 1 Operation frequency:5200									
V	10400.00	58.04	39.61	17.89	26.89	63.21	74.00	-10.79	PK
V	10400.00	39.23	39.61	17.89	26.89	44.40	54.00	-9.60	AV
V	15600.00	53.11	38.47	18.67	28.27	61.58	74.00	-12.42	PK
V	15600.00	34.80	38.47	18.67	28.27	43.27	54.00	-10.73	AV
V	25450.00	37.88	37.23	20.36	30.35	51.36	74.00	-22.64	PK
H	10400.00	57.36	39.61	17.89	26.89	62.53	74.00	-11.47	PK
H	10400.00	38.10	39.61	17.89	26.89	43.27	54.00	-10.73	AV
H	15600.00	52.72	38.47	18.67	28.27	61.19	74.00	-12.81	PK
H	15600.00	34.36	38.47	18.67	28.27	42.83	54.00	-11.17	AV
H	25450.00	38.26	37.23	20.36	30.35	51.74	74.00	-22.26	PK
802.11a Band 1 Operation frequency:5240									
V	10480.00	57.23	39.69	17.93	26.94	62.41	74.00	-11.59	PK
V	10480.00	38.96	39.69	17.93	26.94	44.14	54.00	-9.86	AV
V	15720.00	52.65	38.53	18.73	28.32	61.17	74.00	-12.83	PK
V	15720.00	34.55	38.53	18.73	28.32	43.07	54.00	-10.93	AV
V	25450.00	37.66	37.23	20.36	30.35	51.14	74.00	-22.86	PK
H	10480.00	57.12	39.69	17.93	26.94	62.30	74.00	-11.70	PK
H	10480.00	39.56	39.69	17.93	26.94	44.74	54.00	-9.26	AV
H	15720.00	52.56	38.53	18.73	28.32	61.08	74.00	-12.92	PK
H	15720.00	34.45	38.53	18.73	28.32	42.97	54.00	-11.03	AV
H	25450.00	36.57	37.23	20.36	30.35	50.05	74.00	-23.95	PK
<p>Remark:</p> <p>1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit</p> <p>2. If peak below the average limit, the average emission was no test.</p> <p>3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.</p>									



Polar (H/V)	Frequency	Meter Reading	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
802.11n(HT20) Band 1 Operation frequency:5180									
V	10360.00	57.37	39.55	17.85	26.83	62.50	74.00	-11.50	PK
V	10360.00	38.33	39.55	17.85	26.83	43.46	54.00	-10.54	AV
V	15540.00	52.42	38.33	18.63	28.21	60.93	74.00	-13.07	PK
V	15540.00	34.82	38.33	18.63	28.21	43.33	54.00	-10.67	AV
V	25450.00	37.82	37.23	20.36	30.35	51.30	74.00	-22.70	PK
H	10360.00	57.89	39.55	17.85	26.83	63.02	74.00	-10.98	PK
H	10360.00	39.79	39.55	17.85	26.83	44.92	54.00	-9.08	AV
H	15540.00	52.61	38.33	18.63	28.21	61.12	74.00	-12.88	PK
H	15540.00	34.05	38.33	18.63	28.21	42.56	54.00	-11.44	AV
H	25450.00	37.16	37.23	20.36	30.35	50.64	74.00	-23.36	PK
802.11n(HT20) Band 1 Operation frequency:5200									
V	10400.00	57.71	39.61	17.89	26.89	62.88	74.00	-11.12	PK
V	10400.00	39.01	39.61	17.89	26.89	44.18	54.00	-9.82	AV
V	15600.00	52.81	38.47	18.67	28.27	61.28	74.00	-12.72	PK
V	15600.00	34.60	38.47	18.67	28.27	43.07	54.00	-10.93	AV
V	25450.00	37.61	37.23	20.36	30.35	51.09	74.00	-22.91	PK
H	10400.00	58.04	39.61	17.89	26.89	63.21	74.00	-10.79	PK
H	10400.00	38.89	39.61	17.89	26.89	44.06	54.00	-9.94	AV
H	15600.00	52.42	38.47	18.67	28.27	60.89	74.00	-13.11	PK
H	15600.00	34.16	38.47	18.67	28.27	42.63	54.00	-11.37	AV
H	25450.00	37.01	37.23	20.36	30.35	50.49	74.00	-23.51	PK
802.11n(HT20) Band 1 Operation frequency:5240									
V	10480.00	57.46	39.69	17.93	26.94	62.64	74.00	-11.36	PK
V	10480.00	38.11	39.69	17.93	26.94	43.29	54.00	-10.71	AV
V	15720.00	52.86	38.53	18.73	28.32	61.38	74.00	-12.62	PK
V	15720.00	34.69	38.53	18.73	28.32	43.21	54.00	-10.79	AV
V	25450.00	37.85	37.23	20.36	30.35	51.33	74.00	-22.67	PK
H	10480.00	57.35	39.69	17.93	26.94	62.53	74.00	-11.47	PK
H	10480.00	38.72	39.69	17.93	26.94	43.90	54.00	-10.10	AV
H	15720.00	52.77	38.53	18.73	28.32	61.29	74.00	-12.71	PK
H	15720.00	34.59	38.53	18.73	28.32	43.11	54.00	-10.89	AV
H	25450.00	37.70	37.23	20.36	30.35	51.18	74.00	-22.82	PK
<p>Remark:</p> <p>1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit</p> <p>2. If peak below the average limit, the average emission was no test.</p> <p>3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.</p>									



Polar (H/V)	Frequency	Meter Reading	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
802.11ac(HT20) Band 1 Operation frequency:5180									
V	10360.00	57.49	39.55	17.85	26.83	62.62	74.00	-11.38	PK
V	10360.00	38.41	39.55	17.85	26.83	43.54	54.00	-10.46	AV
V	15540.00	52.53	38.33	18.63	28.21	61.04	74.00	-12.96	PK
V	15540.00	34.89	38.33	18.63	28.21	43.40	54.00	-10.60	AV
V	25450.00	37.90	37.23	20.36	30.35	51.38	74.00	-22.62	PK
H	10360.00	58.01	39.55	17.85	26.83	63.14	74.00	-10.86	PK
H	10360.00	39.87	39.55	17.85	26.83	45.00	54.00	-9.00	AV
H	15540.00	52.72	38.33	18.63	28.21	61.23	74.00	-12.77	PK
H	15540.00	34.12	38.33	18.63	28.21	42.63	54.00	-11.37	AV
H	25450.00	37.24	37.23	20.36	30.35	50.72	74.00	-23.28	PK
802.11ac(HT20) Band 1 Operation frequency:5200									
V	10400.00	57.83	39.61	17.89	26.89	63.00	74.00	-11.00	PK
V	10400.00	39.09	39.61	17.89	26.89	44.26	54.00	-9.74	AV
V	15600.00	52.92	38.47	18.67	28.27	61.39	74.00	-12.61	PK
V	15600.00	34.67	38.47	18.67	28.27	43.14	54.00	-10.86	AV
V	25450.00	37.69	37.23	20.36	30.35	51.17	74.00	-22.83	PK
H	10400.00	58.16	39.61	17.89	26.89	63.33	74.00	-10.67	PK
H	10400.00	38.97	39.61	17.89	26.89	44.14	54.00	-9.86	AV
H	15600.00	52.53	38.47	18.67	28.27	61.00	74.00	-13.00	PK
H	15600.00	34.23	38.47	18.67	28.27	42.70	54.00	-11.30	AV
H	25450.00	37.09	37.23	20.36	30.35	50.57	74.00	-23.43	PK
802.11ac(HT20) Band 1 Operation frequency:5240									
V	10480.00	57.58	39.69	17.93	26.94	62.76	74.00	-11.24	PK
V	10480.00	38.19	39.69	17.93	26.94	43.37	54.00	-10.63	AV
V	15720.00	52.97	38.53	18.73	28.32	61.49	74.00	-12.51	PK
V	15720.00	34.76	38.53	18.73	28.32	43.28	54.00	-10.72	AV
V	25450.00	37.93	37.23	20.36	30.35	51.41	74.00	-22.59	PK
H	10480.00	57.47	39.69	17.93	26.94	62.65	74.00	-11.35	PK
H	10480.00	38.80	39.69	17.93	26.94	43.98	54.00	-10.02	AV
H	15720.00	52.88	38.53	18.73	28.32	61.40	74.00	-12.60	PK
H	15720.00	34.66	38.53	18.73	28.32	43.18	54.00	-10.82	AV
H	25450.00	37.78	37.23	20.36	30.35	51.26	74.00	-22.74	PK
<p>Remark:</p> <p>1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit</p> <p>2. If peak below the average limit, the average emission was no test.</p> <p>3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.</p>									



Polar (H/V)	Frequency	Meter Reading	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
802.11n(HT40) Band 1 Operation frequency:5190									
V	10380.00	57.42	39.55	17.85	26.83	62.55	74.00	-11.45	PK
V	10380.00	38.36	39.55	17.85	26.83	43.49	54.00	-10.51	AV
V	15570.00	52.46	38.33	18.63	28.21	60.97	74.00	-13.03	PK
V	15570.00	33.84	38.33	18.63	28.21	42.35	54.00	-11.65	AV
V	25450.00	37.86	37.23	20.36	30.35	51.34	74.00	-22.66	PK
H	10380.00	57.94	39.55	17.85	26.83	63.07	74.00	-10.93	PK
H	10380.00	38.83	39.55	17.85	26.83	43.96	54.00	-10.04	AV
H	15570.00	52.65	38.33	18.63	28.21	61.16	74.00	-12.84	PK
H	15570.00	35.08	38.33	18.63	28.21	43.59	54.00	-10.41	AV
H	25450.00	37.13	37.23	20.36	30.35	50.61	74.00	-23.39	PK
802.11n(HT40) Band 1 Operation frequency:5230									
V	10460.00	57.40	39.69	17.93	26.94	62.58	74.00	-11.42	PK
V	10460.00	38.75	39.69	17.93	26.94	43.93	54.00	-10.07	AV
V	15690.00	52.81	38.53	18.73	28.32	61.33	74.00	-12.67	PK
V	15690.00	33.62	38.53	18.73	28.32	42.14	54.00	-11.86	AV
V	25450.00	37.65	37.23	20.36	30.35	51.13	74.00	-22.87	PK
H	10460.00	57.40	39.69	17.93	26.94	62.58	74.00	-11.42	PK
H	10460.00	38.75	39.69	17.93	26.94	43.93	54.00	-10.07	AV
H	15690.00	52.81	38.53	18.73	28.32	61.33	74.00	-12.67	PK
H	15690.00	34.62	38.53	18.73	28.32	43.14	54.00	-10.86	AV
H	25450.00	38.04	37.23	20.36	30.35	51.52	74.00	-22.48	PK
802.11ac(HT80) Band 1 Operation frequency:5210									
V	10420.00	57.08	39.61	17.89	26.89	62.25	74.00	-11.75	PK
V	10420.00	38.92	39.61	17.89	26.89	44.09	54.00	-9.91	AV
V	15630.00	52.46	38.47	18.67	28.27	60.93	74.00	-13.07	PK
V	15630.00	34.18	38.47	18.67	28.27	42.65	54.00	-11.35	AV
V	25450.00	37.89	37.23	20.36	30.35	51.37	74.00	-22.63	PK
H	10420.00	57.08	39.61	17.89	26.89	62.25	74.00	-11.75	PK
H	10420.00	38.92	39.61	17.89	26.89	44.09	54.00	-9.91	AV
H	15630.00	52.46	38.47	18.67	28.27	60.93	74.00	-13.07	PK
H	15630.00	34.18	38.47	18.67	28.27	42.65	54.00	-11.35	AV
H	25450.00	37.49	37.23	20.36	30.35	50.97	74.00	-23.03	PK
<p>Remark:</p> <p>1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit</p> <p>2. If peak below the average limit, the average emission was no test.</p> <p>3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.</p>									



Polar (H/V)	Frequency	Meter Reading	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
802.11ac(HT40) Band 1 Operation frequency:5190									
V	10380.00	57.36	39.55	17.85	26.83	62.49	74.00	-11.51	PK
V	10380.00	38.32	39.55	17.85	26.83	43.45	54.00	-10.55	AV
V	15570.00	52.40	38.33	18.63	28.21	60.91	74.00	-13.09	PK
V	15570.00	33.80	38.33	18.63	28.21	42.31	54.00	-11.69	AV
V	25450.00	37.82	37.23	20.36	30.35	51.30	74.00	-22.70	PK
H	10380.00	57.88	39.55	17.85	26.83	63.01	74.00	-10.99	PK
H	10380.00	38.79	39.55	17.85	26.83	43.92	54.00	-10.08	AV
H	15570.00	52.59	38.33	18.63	28.21	61.10	74.00	-12.90	PK
H	15570.00	35.04	38.33	18.63	28.21	43.55	54.00	-10.45	AV
H	25450.00	37.09	37.23	20.36	30.35	50.57	74.00	-23.43	PK
802.11ac(HT40) Band 1 Operation frequency:5230									
V	10460.00	57.34	39.69	17.93	26.94	62.52	74.00	-11.48	PK
V	10460.00	38.71	39.69	17.93	26.94	43.89	54.00	-10.11	AV
V	15690.00	52.75	38.53	18.73	28.32	61.27	74.00	-12.73	PK
V	15690.00	33.58	38.53	18.73	28.32	42.10	54.00	-11.90	AV
V	25450.00	37.61	37.23	20.36	30.35	51.09	74.00	-22.91	PK
H	10460.00	57.34	39.69	17.93	26.94	62.52	74.00	-11.48	PK
H	10460.00	38.71	39.69	17.93	26.94	43.89	54.00	-10.11	AV
H	15690.00	52.75	38.53	18.73	28.32	61.27	74.00	-12.73	PK
H	15690.00	34.58	38.53	18.73	28.32	43.10	54.00	-10.90	AV
H	25450.00	38.00	37.23	20.36	30.35	51.48	74.00	-22.52	PK
<p>Remark:</p> <p>1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit</p> <p>2. If peak below the average limit, the average emission was no test.</p> <p>3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.</p>									



Polar (H/V)	Frequency	Meter Reading	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
802.11a Band 4 Operation frequency:5745									
V	11490.00	57.51	39.73	18.19	27.31	63.28	74.00	-10.72	PK
V	11490.00	38.42	39.73	18.19	27.31	44.19	54.00	-9.81	AV
V	17235.00	53.55	38.59	18.92	28.41	62.29	74.00	-11.71	PK
V	17235.00	33.90	38.59	18.92	28.41	42.64	54.00	-11.36	AV
V	25450.00	37.43	37.23	20.36	30.35	50.91	74.00	-23.09	PK
H	11490.00	58.03	39.73	18.19	27.31	63.80	74.00	-10.20	PK
H	11490.00	38.89	39.73	18.19	27.31	44.66	54.00	-9.34	AV
H	17235.00	53.74	38.59	18.92	28.41	62.48	74.00	-11.52	PK
H	17235.00	34.13	38.59	18.92	28.41	42.87	54.00	-11.13	AV
H	25450.00	37.20	37.23	20.36	30.35	50.68	74.00	-23.32	PK
802.11a Band 4 Operation frequency:5785									
V	11570.00	57.85	39.76	18.25	27.39	63.73	74.00	-10.27	PK
V	11570.00	39.10	39.76	18.25	27.39	44.98	54.00	-9.02	AV
V	17355.00	53.94	38.62	19.16	28.48	62.96	74.00	-11.04	PK
V	17355.00	33.68	38.62	19.16	28.48	42.70	54.00	-11.30	AV
V	25450.00	37.72	37.23	20.36	30.35	51.20	74.00	-22.80	PK
H	11570.00	57.17	39.76	18.25	27.39	63.05	74.00	-10.95	PK
H	11570.00	38.98	39.76	18.25	27.39	44.86	54.00	-9.14	AV
H	17355.00	53.55	38.62	19.16	28.48	62.57	74.00	-11.43	PK
H	17355.00	34.24	38.62	19.16	28.48	43.26	54.00	-10.74	AV
H	25450.00	38.10	37.23	20.36	30.35	51.58	74.00	-22.42	PK
802.11a Band 4 Operation frequency:5825									
V	11650.00	57.60	39.79	18.32	27.42	63.55	74.00	-10.45	PK
V	11650.00	38.20	39.79	18.32	27.42	44.15	54.00	-9.85	AV
V	17475.00	53.99	38.66	19.24	28.53	63.10	74.00	-10.90	PK
V	17475.00	33.77	38.66	19.24	28.53	42.88	54.00	-11.12	AV
V	25450.00	37.96	37.23	20.36	30.35	51.44	74.00	-22.56	PK
H	11650.00	57.49	39.79	18.32	27.42	63.44	74.00	-10.56	PK
H	11650.00	38.81	39.79	18.32	27.42	44.76	54.00	-9.24	AV
H	17475.00	52.90	38.66	19.24	28.53	62.01	74.00	-11.99	PK
H	17475.00	33.67	38.66	19.24	28.53	42.78	54.00	-11.22	AV
H	25450.00	37.87	37.23	20.36	30.35	51.35	74.00	-22.65	PK
<p>Remark:</p> <p>1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit</p> <p>2. If peak below the average limit, the average emission was no test.</p> <p>3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.</p>									



Polar (H/V)	Frequency	Meter Reading	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
802.11n(HT20) Band 4 Operation frequency:5745									
V	11490.00	57.58	39.73	18.19	27.31	63.35	74.00	-10.65	PK
V	11490.00	38.47	39.73	18.19	27.31	44.24	54.00	-9.76	AV
V	17235.00	53.62	38.59	18.92	28.41	62.36	74.00	-11.64	PK
V	17235.00	34.95	38.59	18.92	28.41	43.69	54.00	-10.31	AV
V	25450.00	37.99	37.23	20.36	30.35	51.47	74.00	-22.53	PK
H	11490.00	58.10	39.73	18.19	27.31	63.87	74.00	-10.13	PK
H	11490.00	38.94	39.73	18.19	27.31	44.71	54.00	-9.29	AV
H	17235.00	53.81	38.59	18.92	28.41	62.55	74.00	-11.45	PK
H	17235.00	34.17	38.59	18.92	28.41	42.91	54.00	-11.09	AV
H	25450.00	37.27	37.23	20.36	30.35	50.75	74.00	-23.25	PK
802.11n(HT20) Band 4 Operation frequency:5785									
V	11570.00	57.92	39.76	18.25	27.39	63.80	74.00	-10.20	PK
V	11570.00	38.14	39.76	18.25	27.39	44.02	54.00	-9.98	AV
V	17355.00	54.01	38.62	19.16	28.48	63.03	74.00	-10.97	PK
V	17355.00	34.73	38.62	19.16	28.48	43.75	54.00	-10.25	AV
V	25450.00	37.78	37.23	20.36	30.35	51.26	74.00	-22.74	PK
H	11570.00	58.25	39.76	18.25	27.39	64.13	74.00	-9.87	PK
H	11570.00	39.03	39.76	18.25	27.39	44.91	54.00	-9.09	AV
H	17355.00	53.62	38.62	19.16	28.48	62.64	74.00	-11.36	PK
H	17355.00	34.28	38.62	19.16	28.48	43.30	54.00	-10.70	AV
H	25450.00	38.16	37.23	20.36	30.35	51.64	74.00	-22.36	PK
802.11n(HT20) Band 4 Operation frequency:5825									
V	11650.00	57.68	39.79	18.32	27.42	63.63	74.00	-10.37	PK
V	11650.00	38.25	39.79	18.32	27.42	44.20	54.00	-9.80	AV
V	17475.00	54.06	38.66	19.24	28.53	63.17	74.00	-10.83	PK
V	17475.00	34.82	38.66	19.24	28.53	43.93	54.00	-10.07	AV
V	25450.00	38.02	37.23	20.36	30.35	51.50	74.00	-22.50	PK
H	11650.00	57.56	39.79	18.32	27.42	63.51	74.00	-10.49	PK
H	11650.00	38.86	39.79	18.32	27.42	44.81	54.00	-9.19	AV
H	17475.00	53.97	38.66	19.24	28.53	63.08	74.00	-10.92	PK
H	17475.00	34.72	38.66	19.24	28.53	43.83	54.00	-10.17	AV
H	25450.00	38.94	37.23	20.36	30.35	52.42	74.00	-21.58	PK

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



Polar (H/V)	Frequency	Meter Reading	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
802.11ac(HT20) Band 4 Operation frequency:5745									
V	11490.00	57.52	39.73	18.19	27.31	63.29	74.00	-10.71	PK
V	11490.00	38.43	39.73	18.19	27.31	44.20	54.00	-9.80	AV
V	17235.00	53.56	38.59	18.92	28.41	62.30	74.00	-11.70	PK
V	17235.00	34.91	38.59	18.92	28.41	43.65	54.00	-10.35	AV
V	25450.00	37.95	37.23	20.36	30.35	51.43	74.00	-22.57	PK
H	11490.00	58.04	39.73	18.19	27.31	63.81	74.00	-10.19	PK
H	11490.00	38.90	39.73	18.19	27.31	44.67	54.00	-9.33	AV
H	17235.00	53.75	38.59	18.92	28.41	62.49	74.00	-11.51	PK
H	17235.00	34.13	38.59	18.92	28.41	42.87	54.00	-11.13	AV
H	25450.00	37.23	37.23	20.36	30.35	50.71	74.00	-23.29	PK
802.11ac(HT20) Band 4 Operation frequency:5785									
V	11570.00	57.86	39.76	18.25	27.39	63.74	74.00	-10.26	PK
V	11570.00	38.10	39.76	18.25	27.39	43.98	54.00	-10.02	AV
V	17355.00	53.95	38.62	19.16	28.48	62.97	74.00	-11.03	PK
V	17355.00	34.69	38.62	19.16	28.48	43.71	54.00	-10.29	AV
V	25450.00	37.74	37.23	20.36	30.35	51.22	74.00	-22.78	PK
H	11570.00	58.19	39.76	18.25	27.39	64.07	74.00	-9.93	PK
H	11570.00	38.99	39.76	18.25	27.39	44.87	54.00	-9.13	AV
H	17355.00	53.56	38.62	19.16	28.48	62.58	74.00	-11.42	PK
H	17355.00	34.24	38.62	19.16	28.48	43.26	54.00	-10.74	AV
H	25450.00	38.12	37.23	20.36	30.35	51.60	74.00	-22.40	PK
802.11ac(HT20) Band 4 Operation frequency:5825									
V	11650.00	57.62	39.79	18.32	27.42	63.57	74.00	-10.43	PK
V	11650.00	38.21	39.79	18.32	27.42	44.16	54.00	-9.84	AV
V	17475.00	54.00	38.66	19.24	28.53	63.11	74.00	-10.89	PK
V	17475.00	34.78	38.66	19.24	28.53	43.89	54.00	-10.11	AV
V	25450.00	37.98	37.23	20.36	30.35	51.46	74.00	-22.54	PK
H	11650.00	57.50	39.79	18.32	27.42	63.45	74.00	-10.55	PK
H	11650.00	38.82	39.79	18.32	27.42	44.77	54.00	-9.23	AV
H	17475.00	53.91	38.66	19.24	28.53	63.02	74.00	-10.98	PK
H	17475.00	34.68	38.66	19.24	28.53	43.79	54.00	-10.21	AV
H	25450.00	38.90	37.23	20.36	30.35	52.38	74.00	-21.62	PK

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



Polar (H/V)	Frequency	Meter Reading	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
802.11n(HT40) Band 4 Operation frequency:5755									
V	11510.00	57.35	39.73	18.19	27.31	63.12	74.00	-10.88	PK
V	11510.00	38.32	39.73	18.19	27.31	44.09	54.00	-9.91	AV
V	17265.00	53.40	38.59	18.92	28.41	62.14	74.00	-11.86	PK
V	17265.00	32.80	38.59	18.92	28.41	41.54	54.00	-12.46	AV
V	25450.00	37.80	37.23	20.36	30.35	51.28	74.00	-22.72	PK
H	11510.00	57.87	39.73	18.19	27.31	63.64	74.00	-10.36	PK
H	11510.00	38.78	39.73	18.19	27.31	44.55	54.00	-9.45	AV
H	17265.00	53.59	38.59	18.92	28.41	62.33	74.00	-11.67	PK
H	17265.00	34.03	38.59	18.92	28.41	42.77	54.00	-11.23	AV
H	25450.00	37.07	37.23	20.36	30.35	50.55	74.00	-23.45	PK
802.11n(HT40) Band 4 Operation frequency:5795									
V	11590.00	57.69	39.76	18.25	27.39	63.57	74.00	-10.43	PK
V	11590.00	38.99	39.76	18.25	27.39	44.87	54.00	-9.13	AV
V	17385.00	53.79	38.62	19.16	28.48	62.81	74.00	-11.19	PK
V	17385.00	33.59	38.62	19.16	28.48	42.61	54.00	-11.39	AV
V	25450.00	37.59	37.23	20.36	30.35	51.07	74.00	-22.93	PK
H	11590.00	58.02	39.76	18.25	27.39	63.90	74.00	-10.10	PK
H	11590.00	37.87	39.76	18.25	27.39	43.75	54.00	-10.25	AV
H	17385.00	53.40	38.62	19.16	28.48	62.42	74.00	-11.58	PK
H	17385.00	34.14	38.62	19.16	28.48	43.16	54.00	-10.84	AV
H	25450.00	37.97	37.23	20.36	30.35	51.45	74.00	-22.55	PK
802.11ac(HT80) Band 4 Operation frequency:5775									
V	11550.00	57.44	39.76	18.25	27.39	63.32	74.00	-10.68	PK
V	11550.00	38.10	39.76	18.25	27.39	43.98	54.00	-10.02	AV
V	17325.00	53.84	38.62	19.16	28.48	62.86	74.00	-11.14	PK
V	17325.00	34.68	38.62	19.16	28.48	43.70	54.00	-10.30	AV
V	25450.00	37.83	37.23	20.36	30.35	51.31	74.00	-22.69	PK
H	11550.00	57.33	39.76	18.25	27.39	63.21	74.00	-10.79	PK
H	11550.00	38.70	39.76	18.25	27.39	44.58	54.00	-9.42	AV
H	17325.00	53.75	38.62	19.16	28.48	62.77	74.00	-11.23	PK
H	17325.00	32.57	38.62	19.16	28.48	41.59	54.00	-12.41	AV
H	25450.00	36.73	37.23	20.36	30.35	50.21	74.00	-23.79	PK

Remark:

1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.



Polar (H/V)	Frequency	Meter Reading	Pre-amplifier	Cable Loss	Antenna Factor	Emission Level	Limits	Margin	Detector Type
	(MHz)	(dBuV)	(dB)	(dB)	(dB/m)	(dBuV/m)	(dBuV/m)	(dB)	
802.11ac(HT40) Band 4 Operation frequency:5755									
V	11510.00	57.29	39.73	18.19	27.31	63.06	74.00	-10.94	PK
V	11510.00	38.28	39.73	18.19	27.31	44.05	54.00	-9.95	AV
V	17265.00	53.34	38.59	18.92	28.41	62.08	74.00	-11.92	PK
V	17265.00	32.76	38.59	18.92	28.41	41.50	54.00	-12.50	AV
V	25450.00	37.76	37.23	20.36	30.35	51.24	74.00	-22.76	PK
H	11510.00	57.81	39.73	18.19	27.31	63.58	74.00	-10.42	PK
H	11510.00	38.74	39.73	18.19	27.31	44.51	54.00	-9.49	AV
H	17265.00	53.53	38.59	18.92	28.41	62.27	74.00	-11.73	PK
H	17265.00	33.99	38.59	18.92	28.41	42.73	54.00	-11.27	AV
H	25450.00	37.03	37.23	20.36	30.35	50.51	74.00	-23.49	PK
802.11ac(HT40) Band 4 Operation frequency:5795									
V	11590.00	57.63	39.76	18.25	27.39	63.51	74.00	-10.49	PK
V	11590.00	38.95	39.76	18.25	27.39	44.83	54.00	-9.17	AV
V	17385.00	53.73	38.62	19.16	28.48	62.75	74.00	-11.25	PK
V	17385.00	33.55	38.62	19.16	28.48	42.57	54.00	-11.43	AV
V	25450.00	37.55	37.23	20.36	30.35	51.03	74.00	-22.97	PK
H	11590.00	57.96	39.76	18.25	27.39	63.84	74.00	-10.16	PK
H	11590.00	37.83	39.76	18.25	27.39	43.71	54.00	-10.29	AV
H	17385.00	53.34	38.62	19.16	28.48	62.36	74.00	-11.64	PK
H	17385.00	34.10	38.62	19.16	28.48	43.12	54.00	-10.88	AV
H	25450.00	37.93	37.23	20.36	30.35	51.41	74.00	-22.59	PK
<p>Remark:</p> <p>1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit</p> <p>2. If peak below the average limit, the average emission was no test.</p> <p>3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.</p>									



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

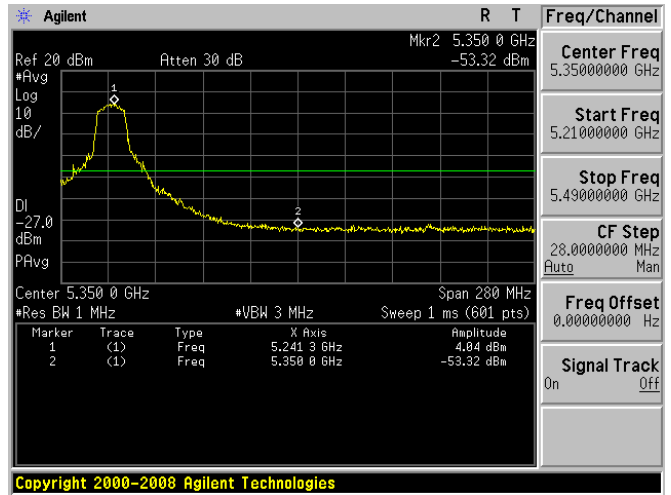
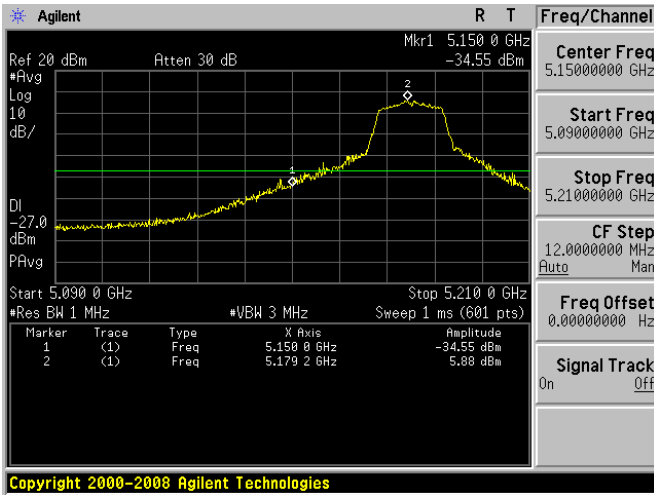
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
 2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then 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.
- we test all antennas, the antenna 1 was worst mode and the data recording in the report.

5.3. Test Data

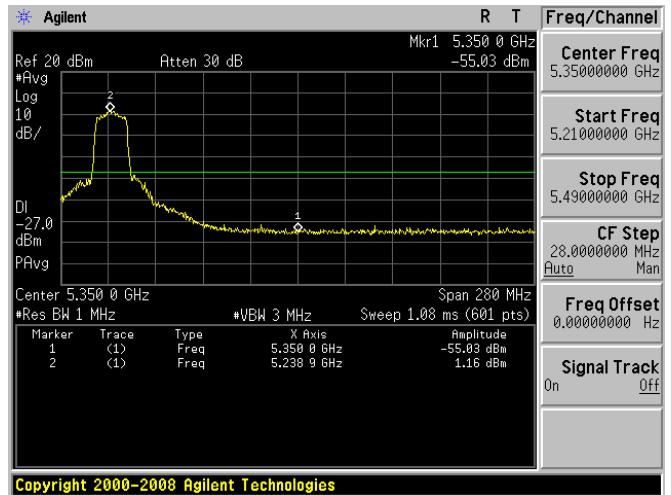
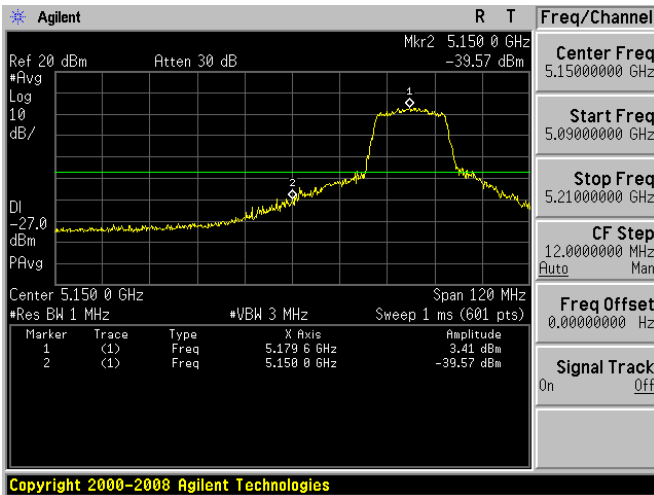
Please see data as below:



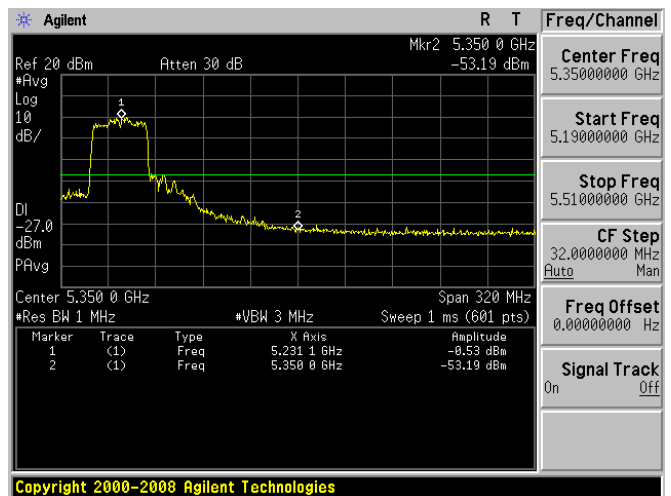
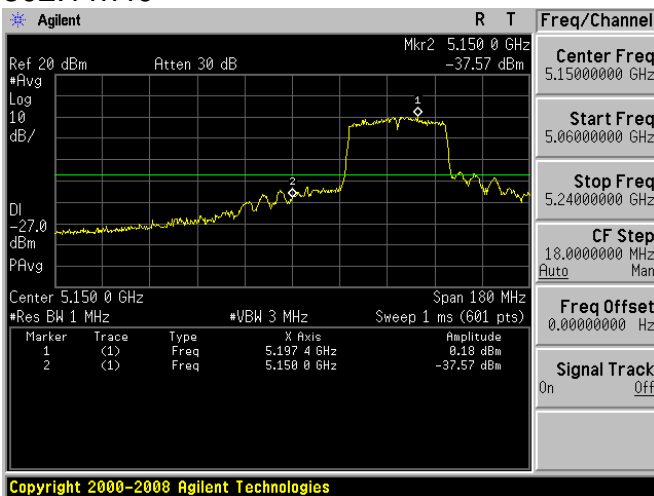
Band 1 ANT1
802.11a



802.11n20

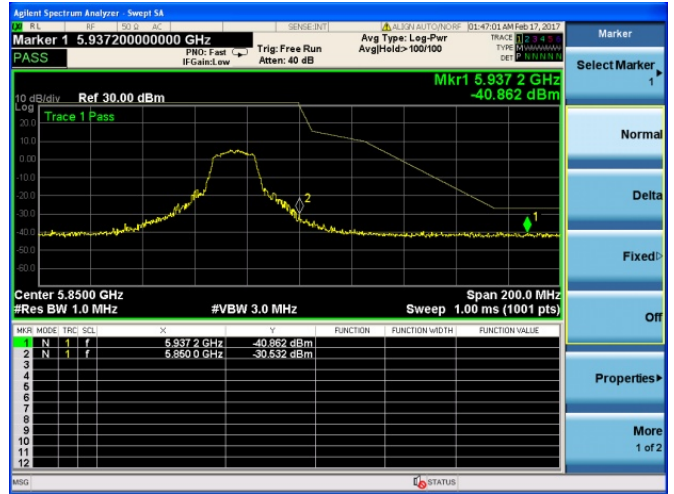
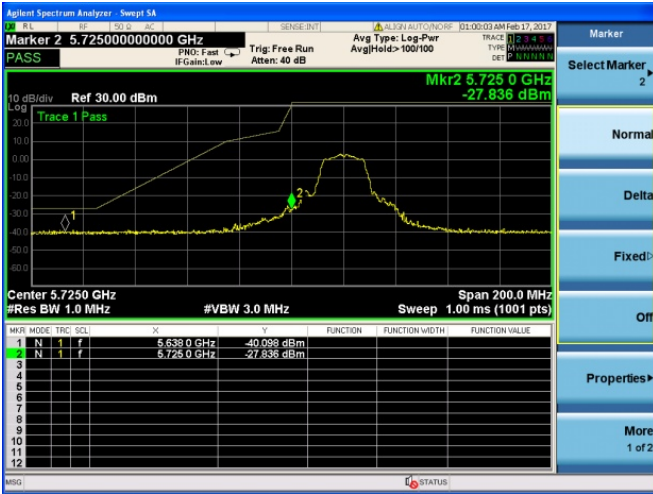


802.11n40

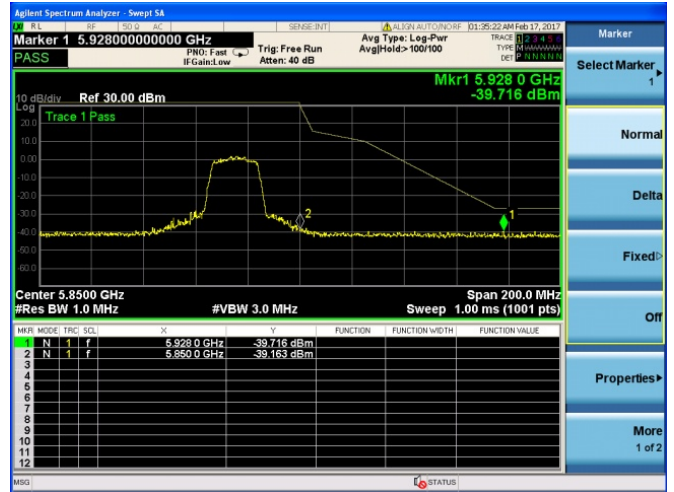
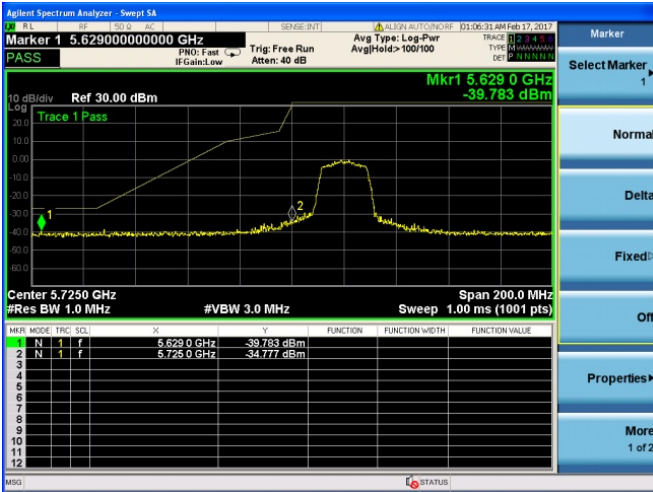




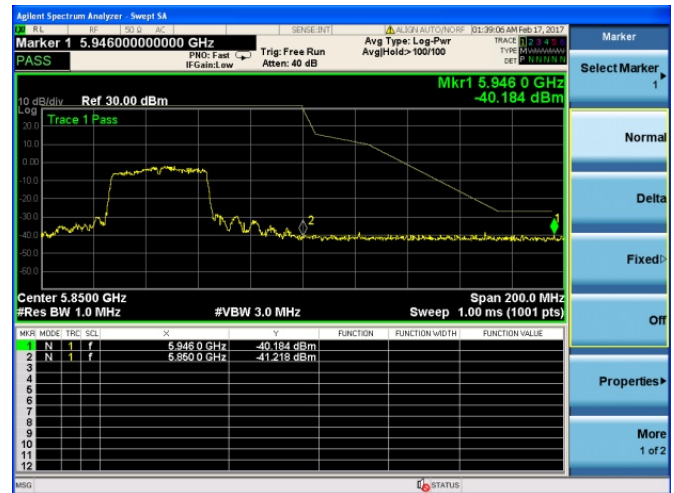
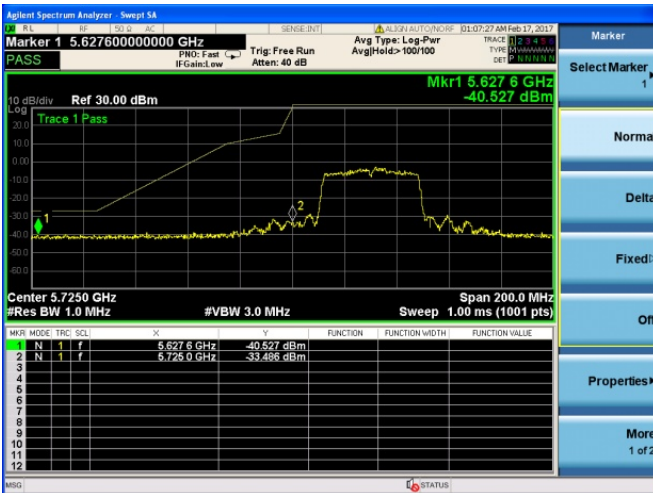
Band 4 ANT1 802.11a



802.11n20

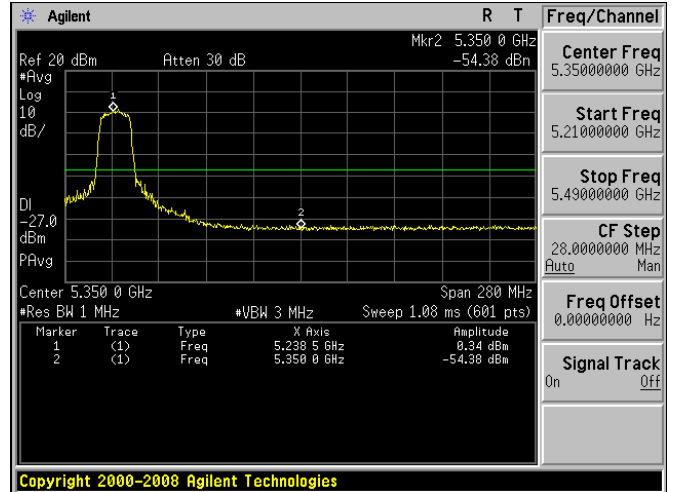
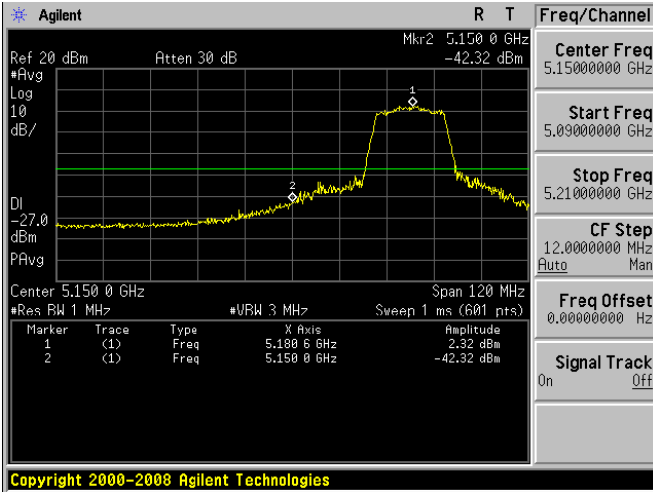


802.11n40

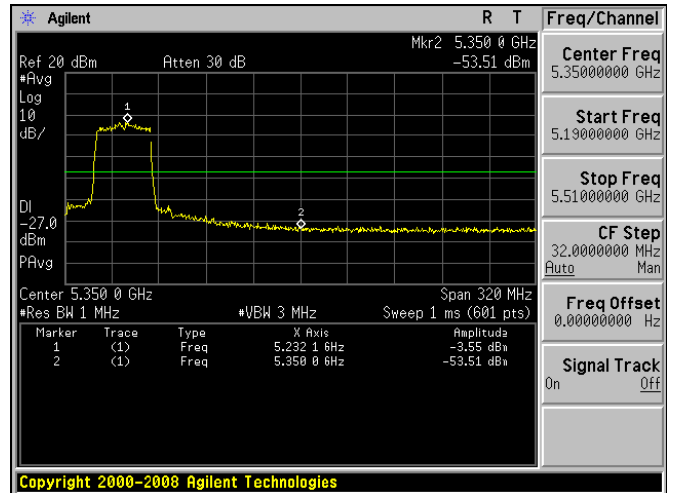
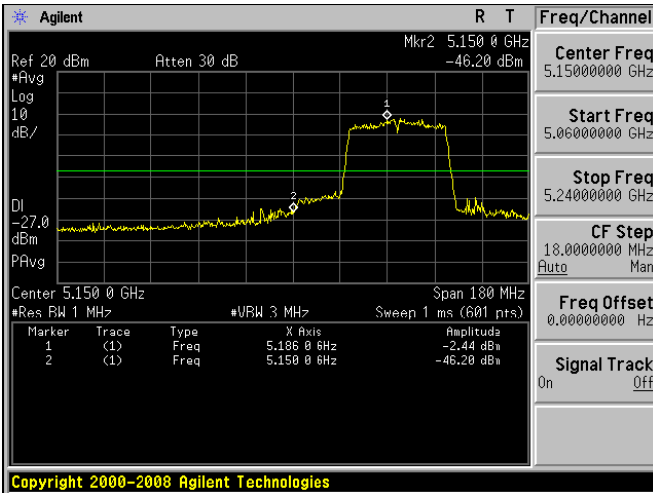




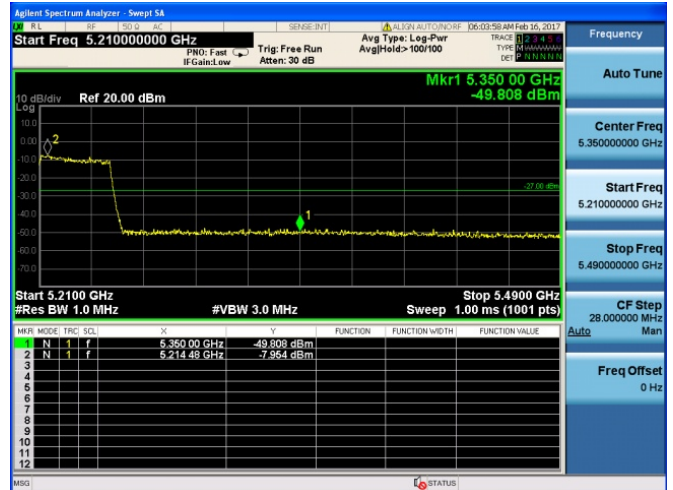
Band 1 ANT1
802.11ac20



802.11ac40

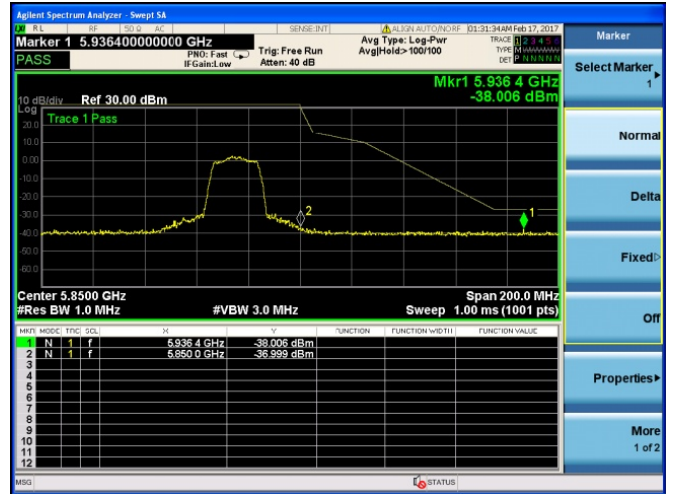
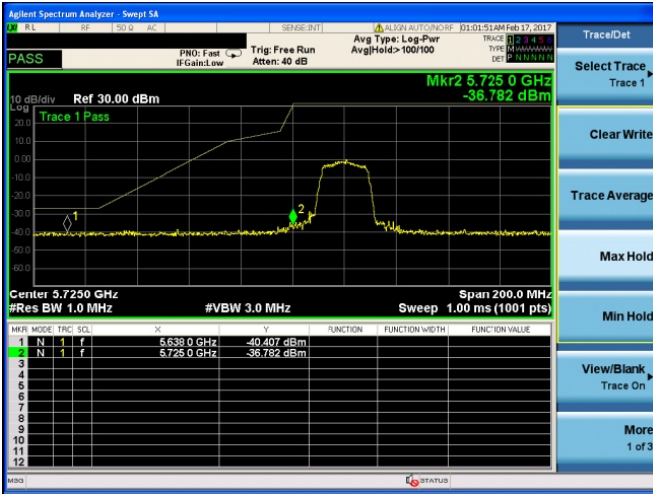


802.11ac80

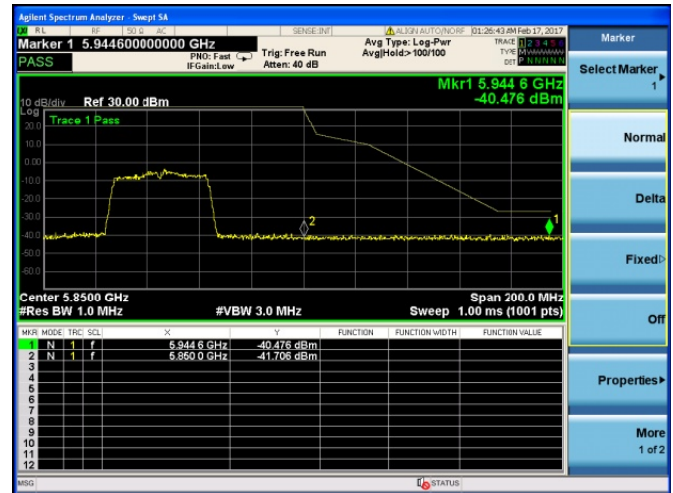
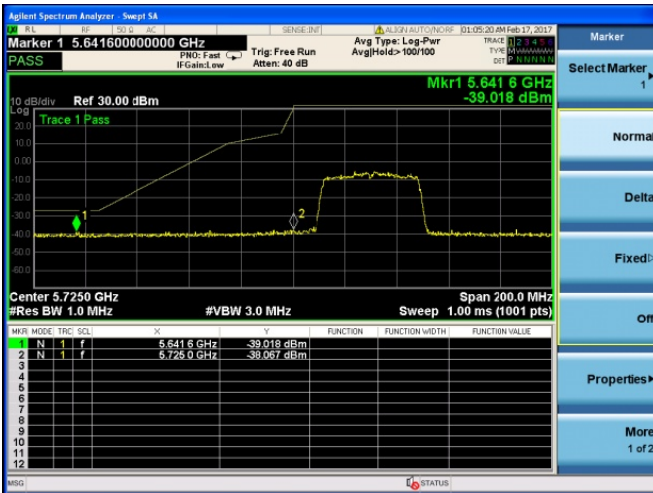




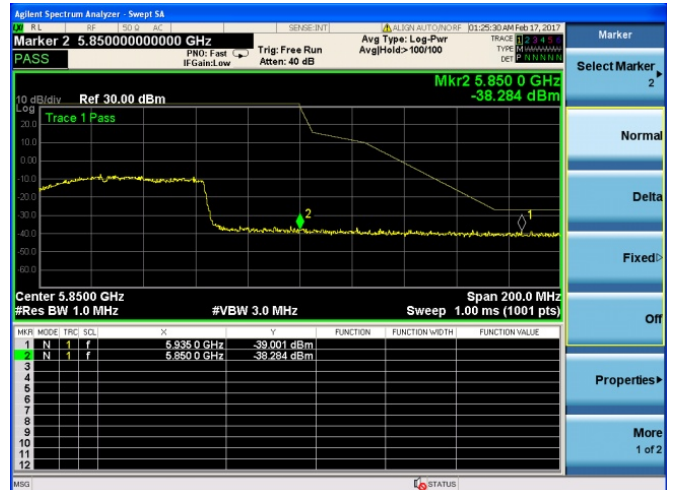
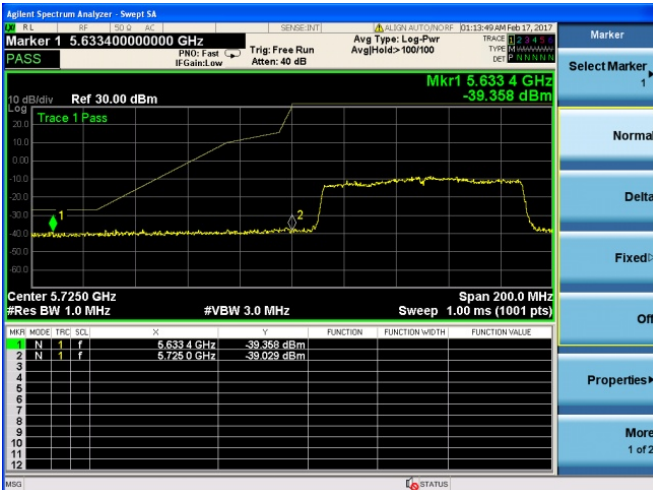
Band 4 ANT1
802.11ac20



802.11ac40



802.11ac80





6. 26DB AND 99% BANDWIDTH TEST

6.1. Limit

The bandwidth at 26 dB down from the highest in-band spectral density is measured with a spectrum analyzer connected to the antenna terminal while the EUT is operating at its maximum power control level, as defined in KDB 789033, at the appropriate frequencies. The spectrum analyzer's bandwidth measurement function is configured to measure the 26 dB bandwidth.

The 26 dB bandwidth is used to determine the conducted power limits.

There is no limit bandwidth for U-NII-1, U-NII-2-A and U-NII-2-C.

The minimum of 6dB Bandwidth measurement is 0.5 MHz for U-NII-3

6.2. Test setup

- 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*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.

we test all antennas, the antenna 1 was worst mode and the data recording in the report.

6.3. Test result

26dB bandwidth

	Frequency (MHz)	26dB Bandwidth (MHz)		99% Bandwidth (MHz)	
		ANT1	ANT2	ANT1	ANT2
802.11a	5180	24.06	23.85	17.150	17.142
	5200	23.92	23.76	17.142	17.144
	5240	23.55	23.78	17.358	17.144
802.11n (HT20)	5180	21.35	21.24	17.846	17.817
	5200	21.31	21.28	17.820	17.816
	5240	21.23	21.26	17.815	17.816
802.11n (HT40)	5190	39.60	39.58	36.086	36.088
	5230	39.59	39.58	36.132	36.094
802.11ac (HT20)	5180	21.38	21.38	17.885	17.882
	5200	21.41	21.39	17.880	17.885
	5240	21.49	21.39	17.895	17.885
802.11ac (HT40)	5190	39.60	39.59	36.232	36.235
	5230	39.59	39.59	36.293	36.235
802.11ac (HT80)	5210	79.53	79.51	75.346	75.341



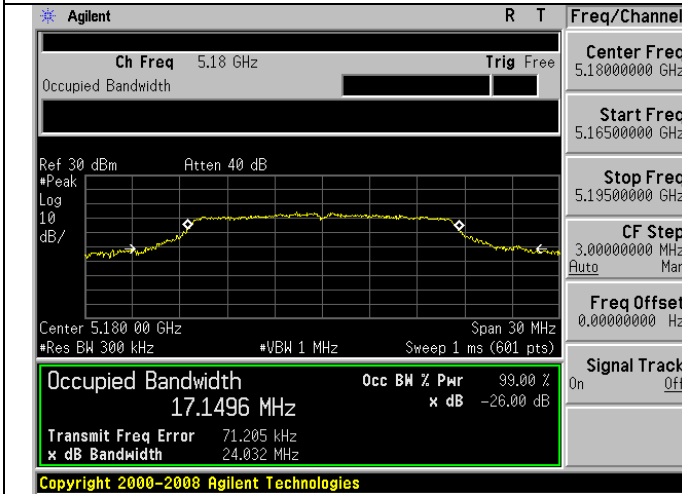
6dB bandwidth

	Frequency (MHz)	6dB Bandwidth (MHz)		99% Bandwidth (MHz)		Limit (MHz)
		ANT1	ANT2	ANT1	ANT2	
802.11a	5745	16.32	16.28	16.56	16.54	>0.5
	5785	16.07	16.29	16.57	16.56	>0.5
	5825	16.36	16.21	16.65	16.54	>0.5
802.11n (HT20)	5745	17.62	17.57	17.64	17.61	>0.5
	5785	17.65	17.56	17.61	17.62	>0.5
	5825	17.59	17.56	17.60	17.61	>0.5
802.11n (HT40)	5755	36.27	36.28	36.02	36.02	>0.5
	5795	36.38	36.28	36.04	36.02	>0.5
802.11ac (HT20)	5745	17.68	17.65	17.61	17.58	>0.5
	5785	17.68	17.65	17.60	17.58	>0.5
	5825	17.63	17.63	17.60	17.58	>0.5
802.11ac (HT40)	5755	36.23	36.26	35.98	35.87	>0.5
	5795	36.45	36.26	36.08	35.94	>0.5
802.11ac (HT80)	5775	75.96	75.89	75.29	75.25	>0.5

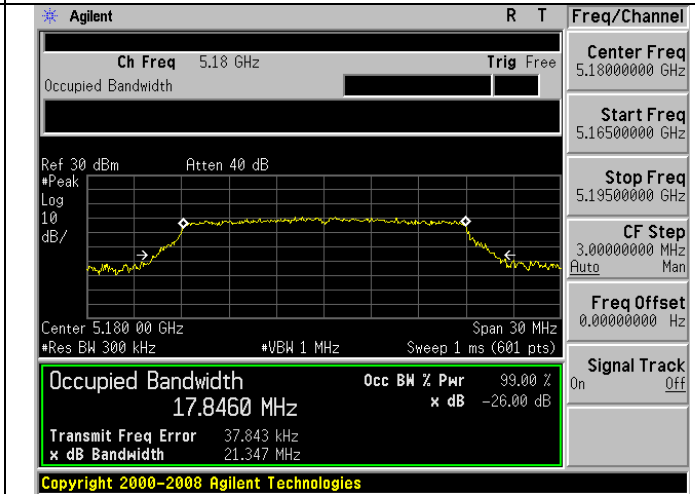


Band 1 ANT1

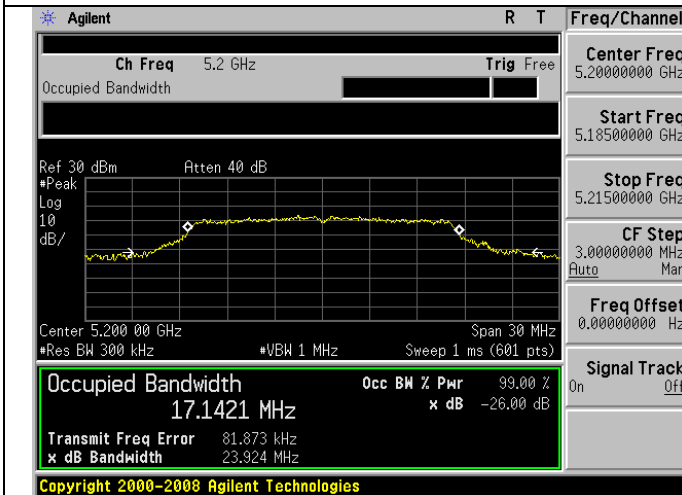
802.11a 5180MHz



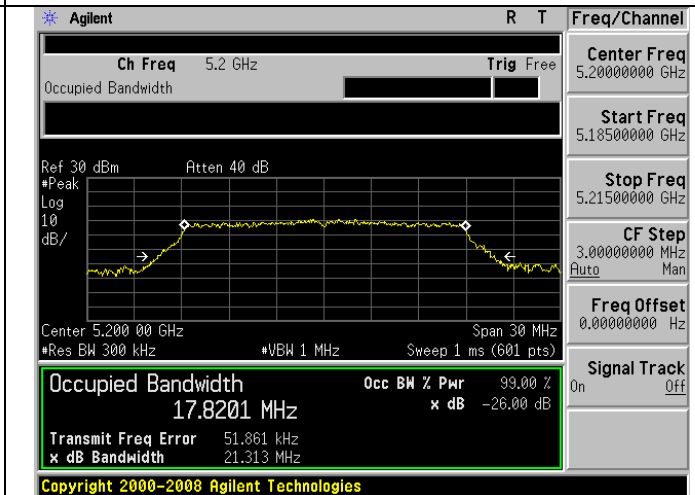
802.11n20MHz 5180MHz



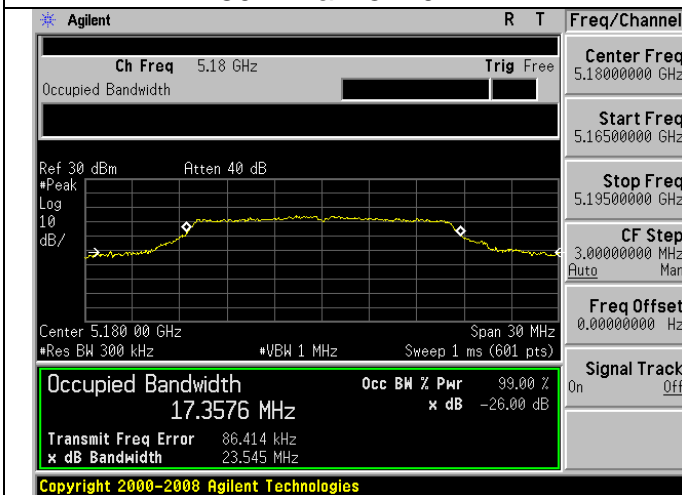
802.11a 5220MHz



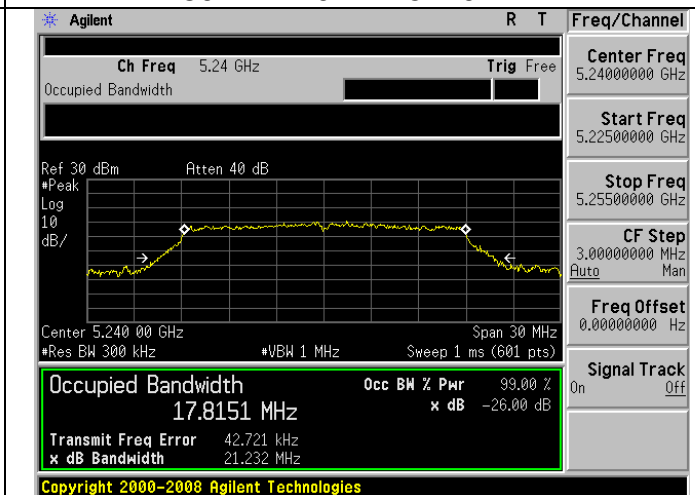
802.11n20MHz 5200MHz



802.11a 5240MHz

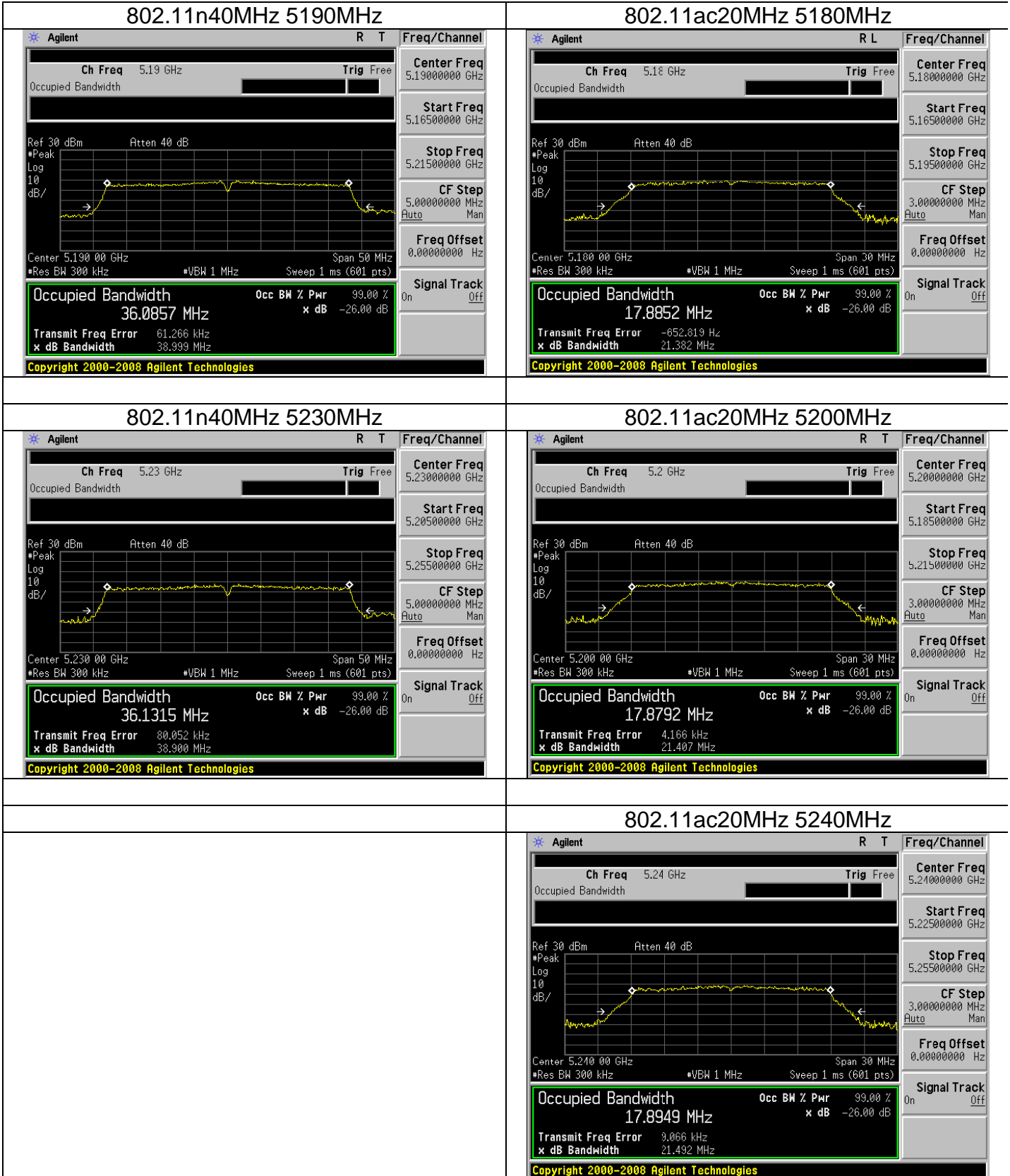


802.11n20MHz 5240MHz





Band 1 ANT1



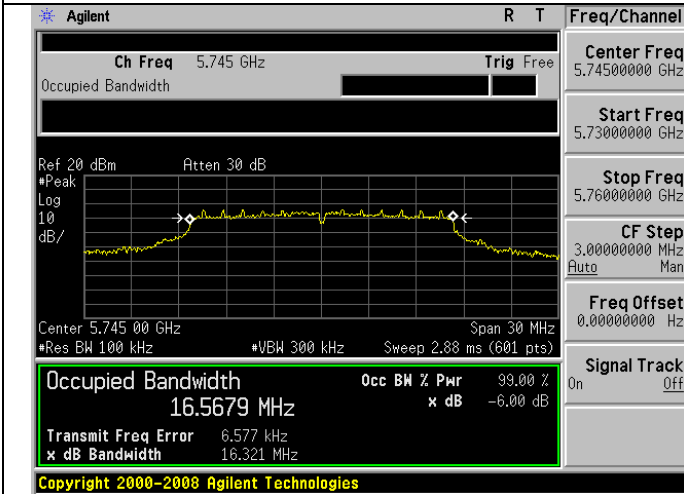


802.11ac40MHz 5190MHz	802.11ac 80MHz 5210MHz

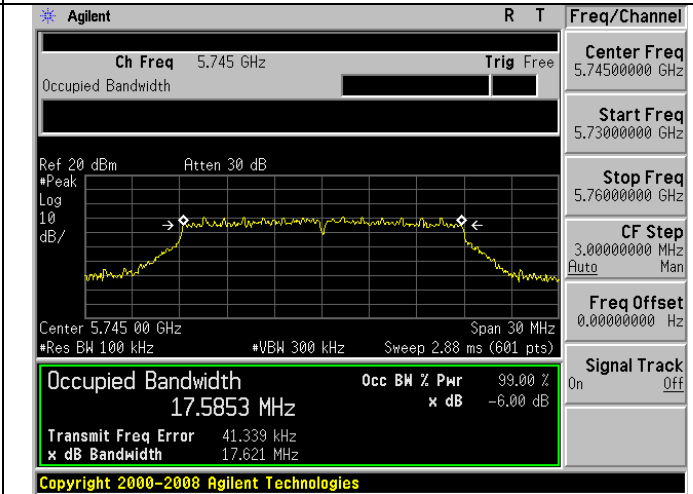


Band 4 ANT1

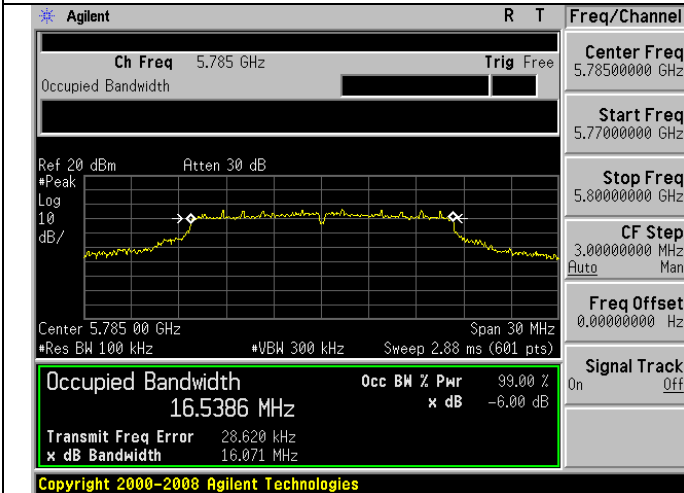
802.11a 5745MHz



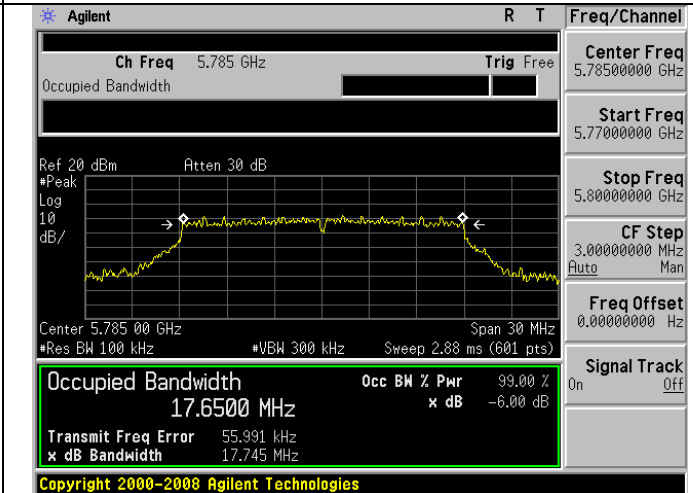
802.11n20MHz 5745MHz



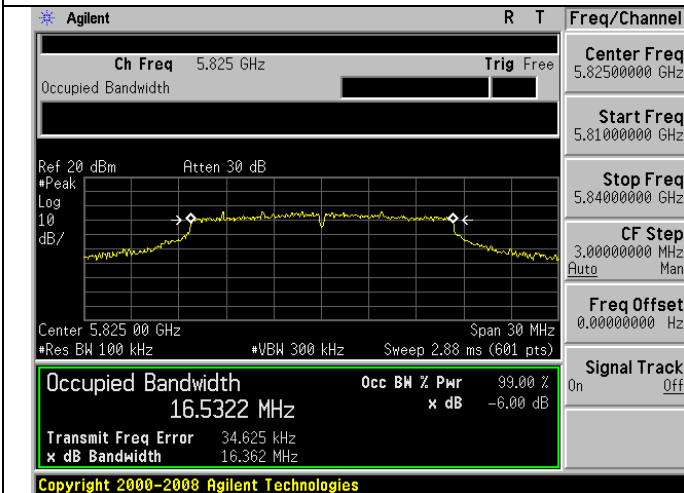
802.11a 5785MHz



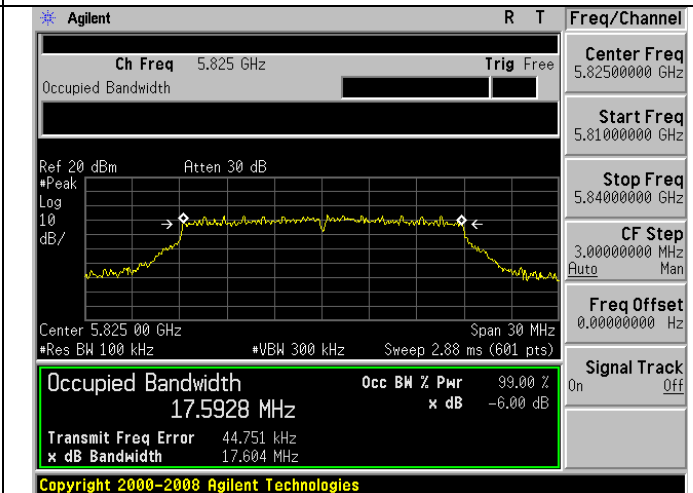
802.11n20MHz 5785MHz



802.11a 5825MHz



802.11n20MHz 5825MHz





Band 4 ANT1

802.11n40MHz 5755MHz	802.11ac20MHz 5745MHz
<p>Agilent R T Freq/Channel</p> <p>Ch Freq 5.755 GHz Trig Free</p> <p>Center Freq 5.75500000 GHz</p> <p>Start Freq 5.72500000 GHz</p> <p>Stop Freq 5.78500000 GHz</p> <p>CF Step 6.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Occupied Bandwidth 35.9871 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB</p> <p>Transmit Freq Error 59.404 kHz x dB Bandwidth 36.273 MHz</p> <p>Copyright 2000-2008 Agilent Technologies</p>	<p>Agilent R T Freq/Channel</p> <p>Ch Freq 5.1E GHz Trig Free</p> <p>Center Freq 5.18000000 GHz</p> <p>Start Freq 5.16500000 GHz</p> <p>Stop Freq 5.19500000 GHz</p> <p>CF Step 3.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Occupied Bandwidth 17.6084 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB</p> <p>Transmit Freq Error 45.945 kHz x dB Bandwidth 17.679 MHz</p> <p>Copyright 2000-2008 Agilent Technologies</p>
802.11n40MHz 5795MHz	802.11ac20MHz 5785MHz
<p>Agilent R T Freq/Channel</p> <p>Ch Freq 5.795 GHz Trig Free</p> <p>Center Freq 5.79500000 GHz</p> <p>Start Freq 5.76500000 GHz</p> <p>Stop Freq 5.82500000 GHz</p> <p>CF Step 6.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Occupied Bandwidth 36.0349 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB</p> <p>Transmit Freq Error 51.606 kHz x dB Bandwidth 36.377 MHz</p> <p>Copyright 2000-2008 Agilent Technologies</p>	<p>Agilent R T Freq/Channel</p> <p>Ch Freq 5.2 GHz Trig Free</p> <p>Center Freq 5.20000000 GHz</p> <p>Start Freq 5.18500000 GHz</p> <p>Stop Freq 5.21500000 GHz</p> <p>CF Step 3.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Occupied Bandwidth 17.5999 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB</p> <p>Transmit Freq Error 45.004 kHz x dB Bandwidth 17.682 MHz</p> <p>Copyright 2000-2008 Agilent Technologies</p>
	802.11ac20MHz 5825MHz
	<p>Agilent R T Freq/Channel</p> <p>Ch Freq 5.24 GHz Trig Free</p> <p>Center Freq 5.24000000 GHz</p> <p>Start Freq 5.22500000 GHz</p> <p>Stop Freq 5.25500000 GHz</p> <p>CF Step 3.00000000 MHz Auto Man</p> <p>Freq Offset 0.00000000 Hz</p> <p>Signal Track On Off</p> <p>Occupied Bandwidth 17.6005 MHz Occ BW % Pwr 99.00 % x dB -6.00 dB</p> <p>Transmit Freq Error 38.410 kHz x dB Bandwidth 17.627 MHz</p> <p>Copyright 2000-2008 Agilent Technologies</p>



802.11ac40MHz 5755MHz	802.11ac 80MHz 5775MHz
<p>Agilent R T Freq/Channel</p> <p>Ch Freq 5.19 GHz Trig Free</p> <p>Center Freq 5.19000000 GHz</p> <p>Start Freq 5.16500000 GHz</p> <p>Stop Freq 5.21500000 GHz</p> <p>CF Step 5.00000000 MHz</p> <p>Freq Offset 0.00000000 Hz</p> <p>Occupied Bandwidth 35.9813 MHz</p> <p>Occ BW % Pwr 99.00 %</p> <p>x dB -6.00 dB</p> <p>Transmit Freq Error 51.390 kHz</p> <p>x dB Bandwidth 36.229 MHz</p> <p>Copyright 2000-2008 Agilent Technologies</p>	<p>Agilent R T Freq/Channel</p> <p>Ch Freq 5.775 GHz Trig Free</p> <p>Center Freq 5.77500000 GHz</p> <p>Start Freq 5.71500000 GHz</p> <p>Stop Freq 5.83500000 GHz</p> <p>CF Step 12.00000000 MHz</p> <p>Freq Offset 0.00000000 Hz</p> <p>Occupied Bandwidth 75.2872 MHz</p> <p>Occ BW % Pwr 99.00 %</p> <p>x dB -6.00 dB</p> <p>Transmit Freq Error 108.947 kHz</p> <p>x dB Bandwidth 75.960 MHz</p> <p>Copyright 2000-2008 Agilent Technologies</p>
<p>Agilent R T Freq/Channel</p> <p>Ch Freq 5.23 GHz Trig Free</p> <p>Center Freq 5.23000000 GHz</p> <p>Start Freq 5.20500000 GHz</p> <p>Stop Freq 5.25500000 GHz</p> <p>CF Step 5.00000000 MHz</p> <p>Freq Offset 0.00000000 Hz</p> <p>Occupied Bandwidth 36.0786 MHz</p> <p>Occ BW % Pwr 99.00 %</p> <p>x dB -6.00 dB</p> <p>Transmit Freq Error 60.153 kHz</p> <p>x dB Bandwidth 36.447 MHz</p> <p>Copyright 2000-2008 Agilent Technologies</p>	