TEST REPORT

Reference No.	:	WTS15S1240188-5E
FCC ID	:	2ADTU-ELEMENT
Applicant	:	Acegame S.A
Address	:	Gorriti 4539 - C.A.B.A. - Buenos Aires - Argentina
Manufacturer	:	SHENZHEN GOTRON ELECTRONIC CO.,LTD.
Address	:	518, 5F, R&D building, Tsinghua Hi-Tech park(North) Nanshan district, Shenzhen 518057 P.R.China
Product Name	:	mobile phone
Model No.	:	Zen Element 2nd Gen
Brand	:	X-VIEW
Standards	:	FCC CFR47 Part 15 C Section 15.407:2015
Date of Receipt sample	:	Dec. 23, 2015
Date of Test	:	Dec. 24, 2015 – Jan. 7, 2016
Date of Issue	:	Jan. 8, 2016
Test Result	:	**Pass**

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

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Compiled by:

Zero Zhou / Test Engineer

Approved by:

Philo Zhong / Manager

2 Test Summary

Test Items	Test Requirement	Result
Conducted Emissions	15.207(a)	PASS
Radiated Emissions	15.407(a) 15.205(a) 15.209(a)	PASS
Duty Cycle	KDB 789033	--
6dB Bandwidth	15.407(a)	PASS
26 dB Emission Bandwidth & 99% Occupied Bandwidth	15.407(a)	PASS
Maximum Conducted Output Power	15.407(a)	PASS
Power Spectral Density	15.407(a)	PASS
Restricted bands around fundamental frequency	15.407(a)	PASS
Antenna Requirement	15.203	PASS
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	1.1307(b)(1)	PASS

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4 General Information

4.1 General Description of E.U.T.

Product Name	:mobile phone
Model No.	:Zen Element 2nd Gen
Model Description	:N/A
GSM Band(s)	: GSM 850/900/1800/1900MHz
GPRS Class	: 12
WCDMA Band(s)	: FDD Band II/IV/V
LTE Bnad(s)	: LTE Band 4
Wi-Fi Specification	: 2.4G: 802.11b/g/n HT20/n HT40 5G Band I: 802.11a/ n HT20/ n HT40
Bluetooth Version	: Bluetooth v4.0 with BLE
GPS	: Support
NFC	: N/A
Hardware Version	: S511 v1.2
Software Version	: c228_v35m_gq3022BH_20151019

4.2 Details of E.U.T.

Operation Frequency	: GSM/GPRS 850: 824~849MHz PCS/GPRS1900: 1850~1910MHz WCDMA Band II: 1850~1910MHz WCDMA Band V: 824~849MHz WCDMA Band IV:1710~1755MHz LTE Band 4: 1710~1755MHz WiFi: 802.11b/g/n HT20: 2412~2462MHz 802.11n HT40: 2422~2452MHz 802.11a/ n(HT20/40): 5150MHz~5250MHz Bluetooth: 2402~2480MHz
Max. RF output power	: GSM 850: 32.26dBm PCS1900:29.77dBm WCDMA Band II: 22.85dBm WCDMA Band IV: 22.56dBm WCDMA Band V: 22.58dBm LTE Band 4: 24.46dBm WiFi(2.4G): 8.27dBm WiFi(5G): 7.73dBm Bluetooth: 2.48dBm
Type of Modulation	: GSM,GPRS: GMSK WCDMA: BPSK LTE: QPSK, 16QAM WiFi: CCK, OFDM

Bluetooth: GFSK, Pi/4 DQPSK,8DPSK

Antenna installation	: GSM/WCDMA/LTE: internal permanent antenna WiFi/Bluetooth: internal permanent antenna
Antenna Gain	GSM 850: 0.5dBi PCS1900: 0.8dBi WCDMA Band II: 0.8dBi WCDMA Band IV: 0.5dBi WCDMA Band V: 0.7dBi LTE Band 4: 0.5dBi WiFi(2.4G): -1.1dBi WiF(5G)i: -1.0dBi Bluetooth: -1.1dBi
Technical Data	:Battery DC 3.8V, 2550mAh DC 5V, 1A, charging from adapter (Adapter Input: 100-240V~50/60Hz)
Adapter	:Manufacture: SHENZHEN XINJIAXUN ELECTRONIC SO.,LTD. Model No.: XJX-CE1000U

4.3 Channel List

Band I (5.15-5.25GHz)			
channel	Frequency(MHz)	channel	Frequency(MHz)
36	5180	38	5190
40	5200	42	5210
44	5220	46	5230
48	5240		

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

For 802.11a/n(HT20):

channel	Frequency(MHz)	channel	Frequency(MHz)
36	5180	40	5200
48	5240		

For 802.11 n(HT40):

channel	Frequency(MHz)	channel	Frequency(MHz)
38	5190	46	5230

4.4 Test Facility

The test facility has a test site registered with the following organizations:

- **IC – Registration No.: 7760A-1**

  Waltek Services(Shenzhen) Co., Ltd. Has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration number 7760A-1,October 15, 2015.

- **FCC Test Site 1#– Registration No.: 880581**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 880581, April 29, 2014.

- **FCC Test Site 2#– Registration No.: 328995**

  Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 328995, December 3, 2014.

5 Equipment Used during Test

5.1 Equipments List

Conducted Emissions at Mains Terminals Disturbance Voltage						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMI Test Receiver	R&S	ESCI	101155	Sep.15,2015	Sep.14,2016
2.	LISN	SCHWARZBECK	NSLK 8128	8128-289	Sep.15,2015	Sep.14,2016
3.	Limiter	York	MTS-IMP-136	261115-001-0024	Sep.15,2015	Sep.14,2016
4.	Cable	LARGE	RF300	-	Sep.15,2015	Sep.14,2016
3m Semi-anechoic Chamber for Radiation						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	EMC Analyzer	Agilent	E7405A	MY45114943	Sep.15,2015	Sep.14,2016
2	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	Sep.15,2015	Sep.14,2016
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	Apr.18,2015	Apr.17,2016
4	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	Sep.15,2015	Sep.14,2016
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	Apr.18,2015	Apr.17,2016
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	669	Apr.18,2015	Apr.17,2016
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	Mar.17,2015	Mar.16,2016
8	Coaxial Cable (above 1GHz)	Top	1000MHz-25GHz	EW02014-7	Apr.10,2015	Apr.09,2016
9	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	Sep.15,2015	Sep.14,2016
10	Universal Radio Communication Tester	R&S	CMU 200	112461	Apr.10,2015	Apr.09,2016
11	Signal Generator	R&S	SMR20	100046	Sep.15,2015	Sep.14,2016
RF Conducted Testing						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMC Analyzer (9k~26.5GHz)	Agilent	E7405A	MY45114943	Aug. 15,2015	Aug.14,2016
2.	Spectrum Analyzer (9k-6GHz)	R&S	FSL6	100959	Aug. 15,2015	Aug.14,2016
3.	Humidity Chamber	GF	GTH-225-40-1P	IAA061213	Aug. 15,2015	Aug.14,2016

5.2 Description of Support Units

Equipment	Manufacturer	Model No.	Series No.
/	/	/	/

5.3 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	± 1 x 10^{-6}
RF Power	± 1.0 dB
RF Power Density	± 2.2 dB
Radiated Spurious Emissions test	± 5.03 dB (30M~1000MHz)
	± 5.47 dB (1000M~25000MHz)
Conducted Spurious Emissions test	± 3.64 dB (AC mains 150KHz~30MHz)

5.4 Test Equipment Calibration

All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No.110 Dongguan Zhuang RD. Guangzhou, P.R.China.

6 Conducted Emission

Test Requirement:	FCC CFR 47 Part 15 Section 15.207
Test Method:	ANSI C63.4:2009
Test Result:	PASS
Frequency Range:	150kHz to 30MHz
Class/Severity:	Class B
Limit:	66-56 dBμV between 0.15MHz & 0.5MHz
	56 dBμV between 0.5MHz & 5MHz
	60 dBμV between 5MHz & 30MHz
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)

6.1 E.U.T. Operation

Operating Environment **:**

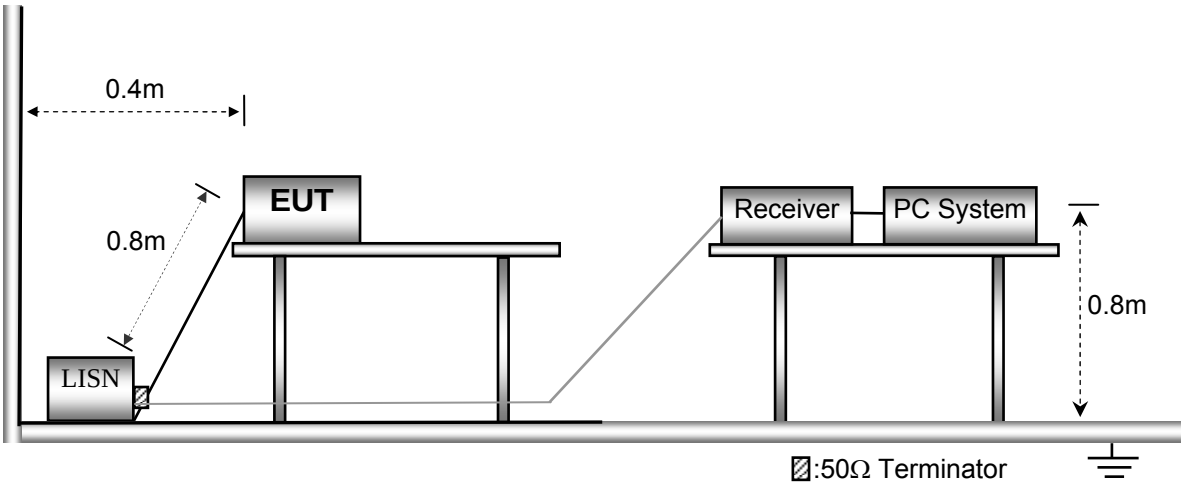
Temperature:	21.5 °C
Humidity:	51.9 % RH
Atmospheric Pressure:	101.2kPa

EUT Operation **:**

The test was performed in transmitting mode, the test data were shown in the report.

6.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.4.



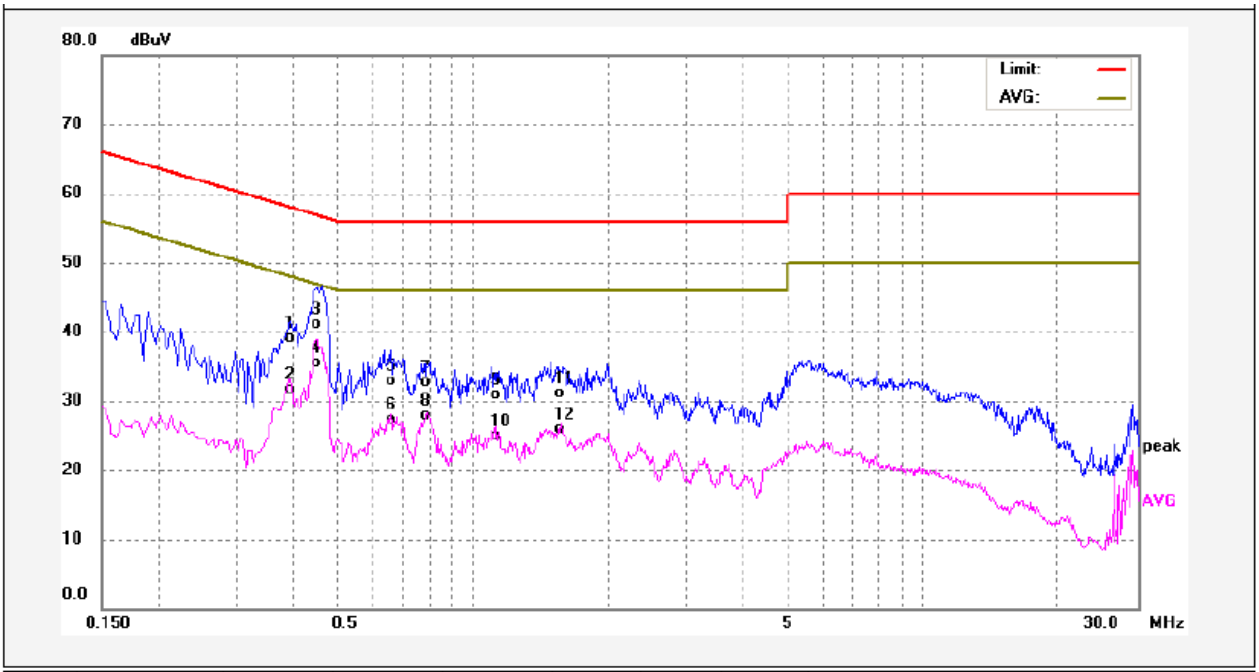
6.3 Measurement Description

The maximised peak emissions from the EUT was scanned and measured for both the Live and Neutral Lines. Quasi-peak & average measurements were performed if peak emissions were within 6dB of the average limit line.

6.4 Conducted Emission Test Result

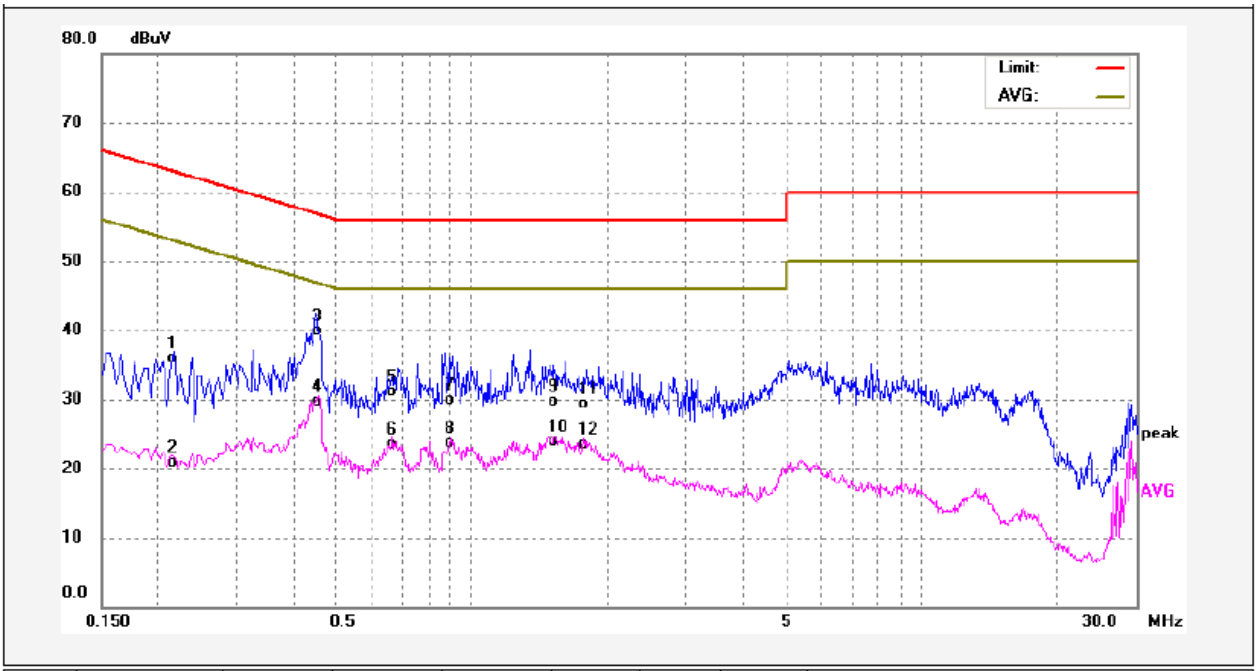
An initial pre-scan was performed on the live and neutral lines.

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.3940	29.13	10.11	39.24	57.98	-18.74	QP	
2	0.3940	21.46	10.11	31.57	47.98	-16.41	AVG	
3	0.4500	31.01	10.12	41.13	56.87	-15.74	QP	
4	0.4500	25.58	10.12	35.70	46.87	-11.17	AVG	
5	0.6580	22.58	10.16	32.74	56.00	-23.26	QP	
6	0.6580	17.10	10.16	27.26	46.00	-18.74	AVG	
7	0.7940	22.45	10.18	32.63	56.00	-23.37	QP	
8	0.7940	17.58	10.18	27.98	46.00	-18.02	AVG	
9	1.1300	20.71	10.21	30.92	56.00	-25.08	QP	
10	1.1300	14.68	10.21	24.89	46.00	-21.11	AVG	
11	1.5740	20.91	10.20	31.11	56.00	-24.89	QP	
12	1.5740	15.65	10.20	25.85	46.00	-20.15	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.2180	25.77	10.10	35.87	62.89	-27.02	QP	
2	0.2180	10.68	10.10	20.78	52.89	-32.11	AVG	
3	0.4500	29.65	10.12	39.77	56.87	-17.10	QP	
4	0.4500	19.51	10.12	29.63	46.87	-17.24	AVG	
5	0.6660	21.10	10.16	31.26	56.00	-24.74	QP	
6	0.6660	13.30	10.16	23.46	46.00	-22.54	AVG	
7	0.9020	19.77	10.20	29.97	56.00	-26.03	QP	
8	0.9020	14.41	10.20	24.61	46.00	-21.39	AVG	
9	1.5339	19.44	10.20	29.64	56.00	-26.36	QP	
10	1.5339	13.71	10.20	23.91	46.00	-22.09	AVG	
11	1.7740	19.02	10.19	29.21	56.00	-26.79	QP	
12	1.7740	13.41	10.19	23.60	46.00	-22.40	AVG	

7 Radiated Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.209 & 15.407

Test Method: ANSI C63.4:2009

Test Result: PASS

Measurement Distance: 3m

Limit:

Frequency (MHz)	Field Strength		Field Strength Limit at 3m Measurement Dist	
	uV/m	Distance (m)	uV/m	dBuV/m
0.009 ~ 0.490	2400/F(kHz)	300	10000 * 2400/F(kHz)	$20\log^{(2400/F(kHz))} + 80$
0.490 ~ 1.705	24000/F(kHz)	30	100 * 24000/F(kHz)	$20\log^{(24000/F(kHz))} + 40$
1.705 ~ 30	30	30	100 * 30	$20\log^{(30)} + 40$
30 ~ 88	100	3	100	$20\log^{(100)}$
88 ~ 216	150	3	150	$20\log^{(150)}$
216 ~ 960	200	3	200	$20\log^{(200)}$
Above 960	500	3	500	$20\log^{(500)}$

7.1 EUT Operation

Operating Environment **:**

Temperature: 23.5 °C

Humidity: 52.1 % RH

Atmospheric Pressure: 101.2kPa

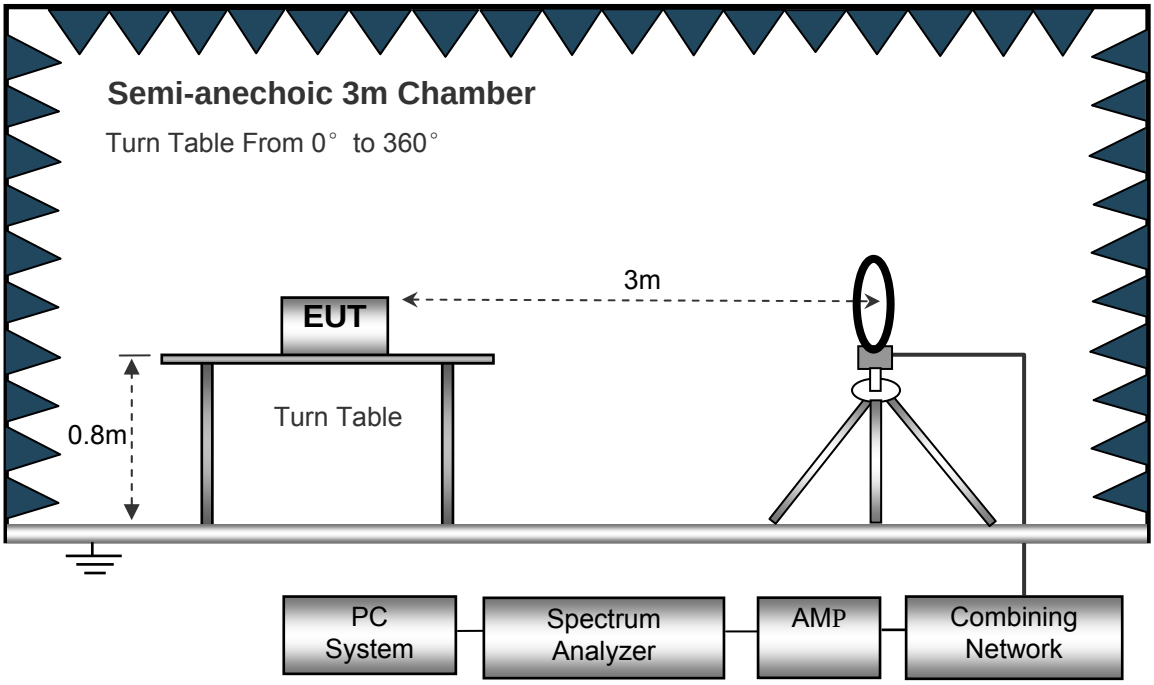
EUT Operation **:**

The test was performed in transmitting mode, the test data were shown in the report.

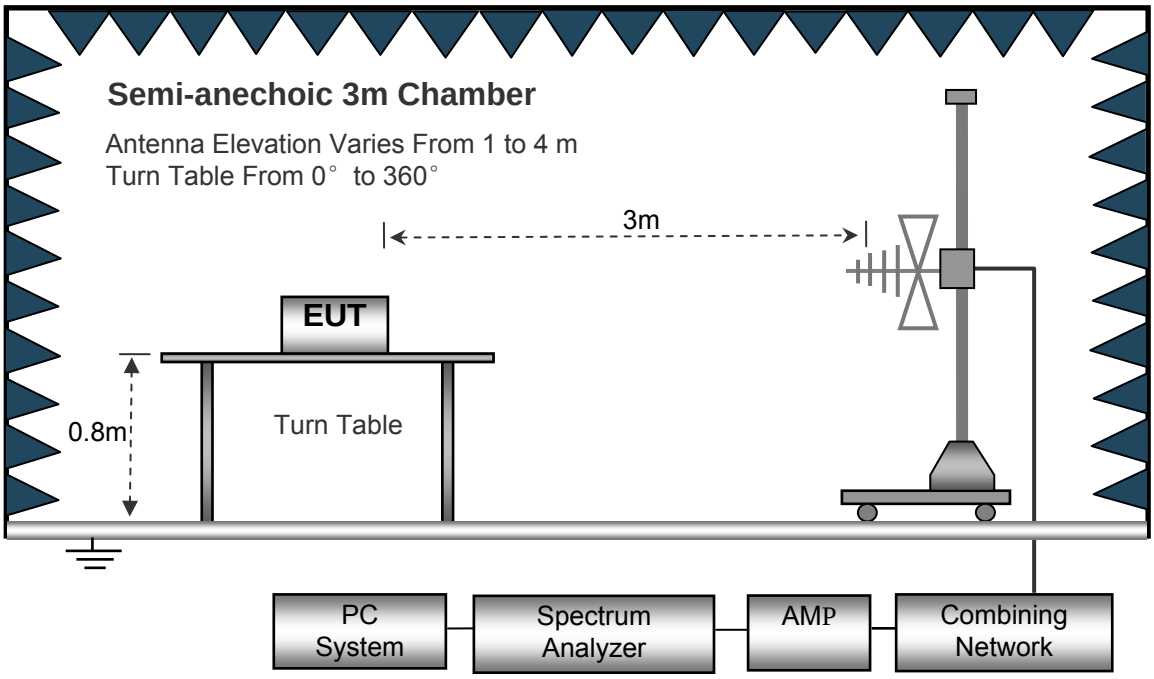
7.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.4.

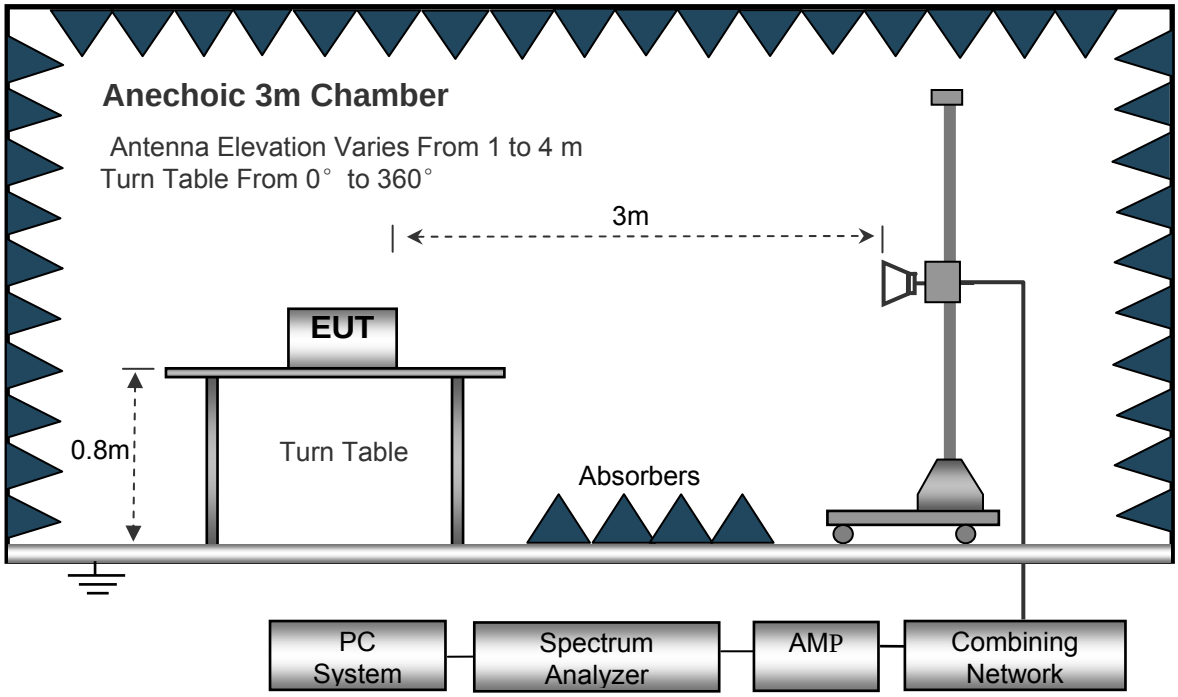
The test setup for emission measurement below 30MHz.



The test setup for emission measurement from 30 MHz to 1 GHz.



The test setup for emission measurement above 1 GHz.



7.3 Spectrum Analyzer Setup

Below 30MHz

Sweep Speed	Auto
IF Bandwidth	10kHz
Video Bandwidth	10kHz
Resolution Bandwidth	10kHz

30MHz ~ 1GHz

Sweep Speed	Auto
Detector	PK
Resolution Bandwidth	100kHz
Video Bandwidth	300kHz

Above 1GHz

Sweep Speed	Auto
Detector	PK
Resolution Bandwidth	1MHz
Video Bandwidth	3MHz
Detector	Ave.
Resolution Bandwidth	1MHz
Video Bandwidth	10Hz

7.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is moved from 1m to 4m to find out the maximum emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The radiation measurements are performed in X,Y and Z axis positioning(X denotes lying on the table, Y denotes side stand and Z denotes vertical stand),the worst condition was tested putting the eut in X axis,so the worst data were shown as follow.
8. A 2.4GHz high –pass filter is used druing radiated emissions above 1GHz measurement.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

Corr. Ampl. = Indicated Reading + Antenna Factor + Cable Factor - Amplifier Gain

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the maximum limit for Class B. The equation for margin calculation is as follows:

Margin = Corr. Ampl. – Limit

7.5 Summary of Test Results

Test Frequency : 30MHz ~ 18GHz

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11a band I Low Channel 5180MHz									
223.50	40.67	QP	306	1.6	H	-11.62	29.05	46.00	-16.95
223.50	35.77	QP	226	1.0	V	-11.62	24.15	46.00	-21.85
4517.01	50.12	PK	192	1.6	H	-2.03	48.09	74.00	-25.91
4517.01	47.34	Ave	192	1.6	H	-2.03	45.31	54.00	-8.69
5149.03	51.98	PK	135	1.5	H	-1.02	50.96	74.00	-23.04
5149.03	47.09	Ave	135	1.5	H	-1.02	46.07	54.00	-7.93
10360.00	41.02	PK	220	1.9	H	5.33	46.35	74.00	-27.65
10360.00	36.66	Ave	220	1.9	H	5.33	41.99	54.00	-12.01
5364.97	43.00	PK	291	1.8	H	-1.21	41.79	74.00	-32.21
5364.97	38.04	Ave	291	1.8	H	-1.21	36.83	54.00	-17.17

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11a band I middle channel 5200MHz									
223.50	40.15	QP	225	2.0	H	-11.62	28.53	46.00	-17.47
223.50	35.33	QP	231	2.0	V	-11.62	23.71	46.00	-22.29
4530.53	49.53	PK	146	2.0	H	-1.94	47.59	74.00	-26.41
4530.53	46.46	Ave	146	2.0	H	-1.94	44.52	54.00	-9.48
5114.01	51.96	PK	44	1.4	H	-1.06	50.90	74.00	-23.10
5114.01	46.96	Ave	44	1.4	H	-1.06	45.90	54.00	-8.10
10400.00	39.77	PK	183	1.8	H	5.21	44.98	74.00	-29.02
10400.00	36.55	Ave	183	1.8	H	5.21	41.76	54.00	-12.24
5381.43	46.21	PK	277	1.2	H	-1.37	44.84	74.00	-29.16
5381.43	37.77	Ave	277	1.2	H	-1.37	36.40	54.00	-17.60

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11a band I High channel 5240MHz									
223.50	39.98	QP	316	1.3	H	-11.62	28.36	46.00	-17.64
223.50	34.97	QP	78	1.6	V	-11.62	23.35	46.00	-22.65
4510.63	48.90	PK	334	1.1	H	-2.24	46.66	74.00	-27.34
4510.63	45.93	Ave	334	1.1	H	-2.24	43.69	54.00	-10.31
5128.03	52.85	PK	85	1.1	H	-1.09	51.76	74.00	-22.24
5128.03	48.52	Ave	85	1.1	H	-1.09	47.43	54.00	-6.57
10480.00	41.60	PK	4	1.6	H	5.14	46.74	74.00	-27.26
10480.00	38.04	Ave	4	1.6	H	5.14	43.18	54.00	-10.82
5354.47	45.60	PK	3	1.6	H	-1.38	44.22	74.00	-29.78
5354.47	37.68	Ave	3	1.6	H	-1.38	36.30	54.00	-17.70

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11n(HT20) band I low Channel 5180MHz									
223.50	40.54	QP	55	1.4	H	-11.62	28.92	46.00	-17.08
223.50	35.69	QP	275	1.5	V	-11.62	24.07	46.00	-21.93
4534.99	50.33	PK	169	1.1	H	-2.03	48.30	74.00	-25.70
4534.99	47.08	Ave	169	1.1	H	-2.03	45.05	54.00	-8.95
5147.63	50.78	PK	318	1.8	H	-1.02	49.76	74.00	-24.24
5147.63	47.05	Ave	318	1.8	H	-1.02	46.03	54.00	-7.97
10360.00	41.13	PK	126	1.6	H	5.33	46.46	74.00	-27.54
10360.00	36.66	Ave	126	1.6	H	5.33	41.99	54.00	-12.01

5362.28	43.00	PK	334	1.5	H	-1.21	41.79	74.00	-32.21
5362.28	38.50	Ave	334	1.5	H	-1.21	37.29	54.00	-16.71

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11n(HT20) band I middle channel 5200MHz									
223.50	39.34	QP	341	1.3	H	-11.62	27.72	46.00	-18.28
223.50	36.84	QP	142	1.3	V	-11.62	25.22	46.00	-20.78
4518.39	49.37	PK	360	1.6	H	-1.94	47.43	74.00	-26.57
4518.39	48.53	Ave	360	1.6	H	-1.94	46.59	54.00	-7.41
5123.05	49.84	PK	223	1.9	H	-1.06	48.78	74.00	-25.22
5123.05	47.64	Ave	223	1.9	H	-1.06	46.58	54.00	-7.42
10400.00	40.66	PK	246	1.4	H	5.21	45.87	74.00	-28.13
10400.00	37.65	Ave	246	1.4	H	5.21	42.86	54.00	-11.14
5352.85	46.02	PK	101	1.5	H	-1.37	44.65	74.00	-29.35
5352.85	39.91	Ave	101	1.5	H	-1.37	38.54	54.00	-15.46

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11n(HT20) band I High channel 5240MHz									
223.50	38.94	QP	339	1.5	H	-11.62	27.32	46.00	-18.68
223.50	37.01	QP	236	1.4	V	-11.62	25.39	46.00	-20.61
4500.41	50.20	PK	20	1.4	H	-2.24	47.96	74.00	-26.04
4500.41	48.19	Ave	20	1.4	H	-2.24	45.95	54.00	-8.05
5121.79	51.12	PK	177	1.0	H	-1.09	50.03	74.00	-23.97
5121.79	47.25	Ave	177	1.0	H	-1.09	46.16	54.00	-7.84
10480.00	42.34	PK	125	2.0	H	5.14	47.48	74.00	-26.52
10480.00	35.94	Ave	125	2.0	H	5.14	41.08	54.00	-12.92

5377.03	46.01	PK	66	1.1	H	-1.38	44.63	74.00	-29.37
5377.03	37.78	Ave	66	1.1	H	-1.38	36.40	54.00	-17.60

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11n(HT40) band I low Channel 5190MHz									
223.50	38.11	QP	299	1.4	H	-11.62	26.49	46.00	-19.51
223.50	36.26	QP	47	1.4	V	-11.62	24.64	46.00	-21.36
4512.86	40.68	PK	345	1.1	H	-1.89	38.79	74.00	-35.21
4512.86	36.28	Ave	345	1.1	H	-1.89	34.39	54.00	-19.61
5146.96	47.95	PK	217	1.2	H	-1.06	46.89	74.00	-27.11
5146.96	41.30	Ave	217	1.2	H	-1.06	40.24	54.00	-13.76
10380.00	39.70	PK	321	1.5	H	5.26	44.96	74.00	-29.04
10380.00	34.00	Ave	321	1.5	H	5.26	39.26	54.00	-14.74
5377.48	46.64	PK	70	1.8	H	-1.03	45.61	74.00	-28.39
5377.48	37.10	Ave	70	1.8	H	-1.03	36.07	54.00	-17.93

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.407/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
802.11n(HT40) band I high Channel 5755MHz									
223.50	37.20	QP	79	2.0	H	-11.62	25.58	46.00	-20.42
223.50	36.80	QP	255	1.7	V	-11.62	25.18	46.00	-20.82
4506.95	40.40	PK	90	1.6	H	-1.94	38.46	74.00	-35.54
4506.95	35.55	Ave	90	1.6	H	-1.94	33.61	54.00	-20.39
5115.47	48.88	PK	108	1.8	H	-1.06	47.82	74.00	-26.18
5115.47	41.96	Ave	108	1.8	H	-1.06	40.90	54.00	-13.10

10460.00	41.52	PK	279	1.6	H	5.28	46.80	74.00	-27.20
10480.00	35.81	Ave	279	1.6	H	5.28	41.09	54.00	-12.91
5379.02	46.26	PK	179	1.3	H	-1.05	45.21	74.00	-28.79
5379.02	37.98	Ave	179	1.3	H	-1.05	36.93	54.00	-17.07

Test Frequency: 18GHz~40GHz

The measurements were more than 20 dB below the limit and not reported.

8 Duty cycle

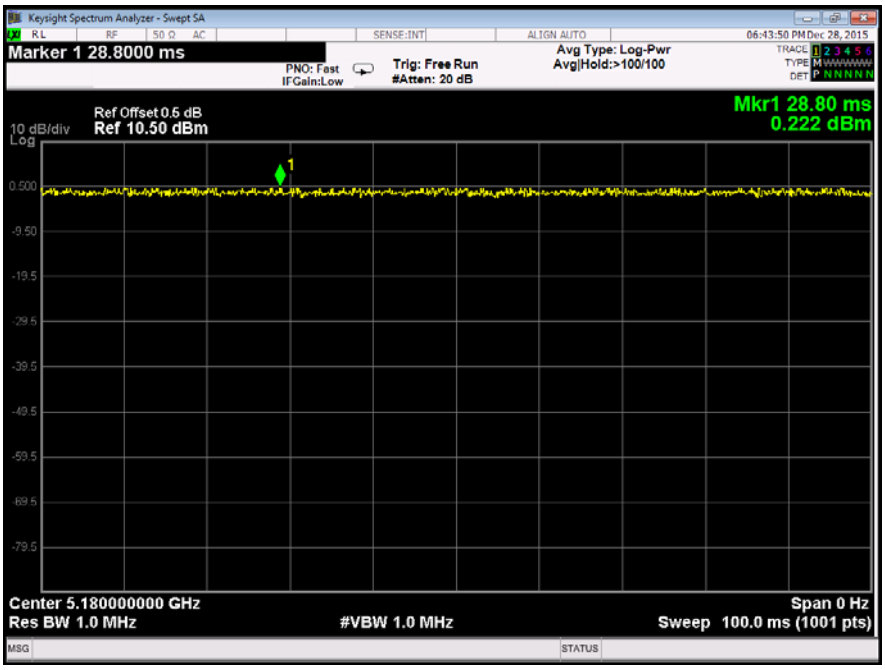
Test Requirement:	47 CFR Part 15C 15.407
Test Method:	ANSI C63.10: 2009
Test Limit:	N/A
Test Result:	PASS
Remark:	Through Pre-scan, and found 802.11a at lowest channel is the worst case. Only the worst case is recorded in the report.

8.1 Summary of Test Results

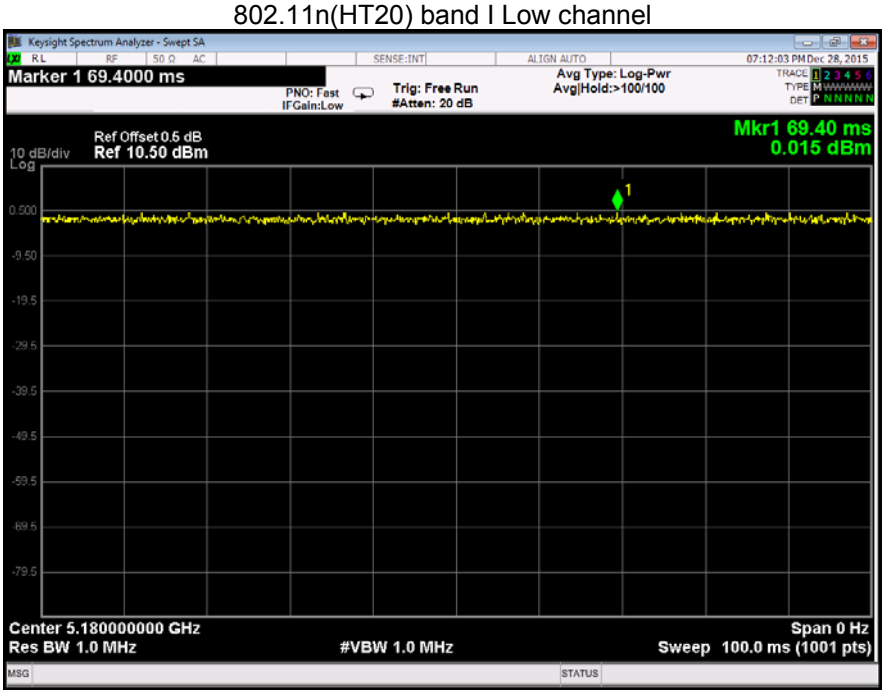
802.11a mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
36	100	100	100
802.11n(HT20) mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
36	100	100	100
802.11n(HT40) mode			
channel	On time(ms)	Period(ms)	Duty Cycle(%)
38	100	100	100

Test result plots shown as follows:

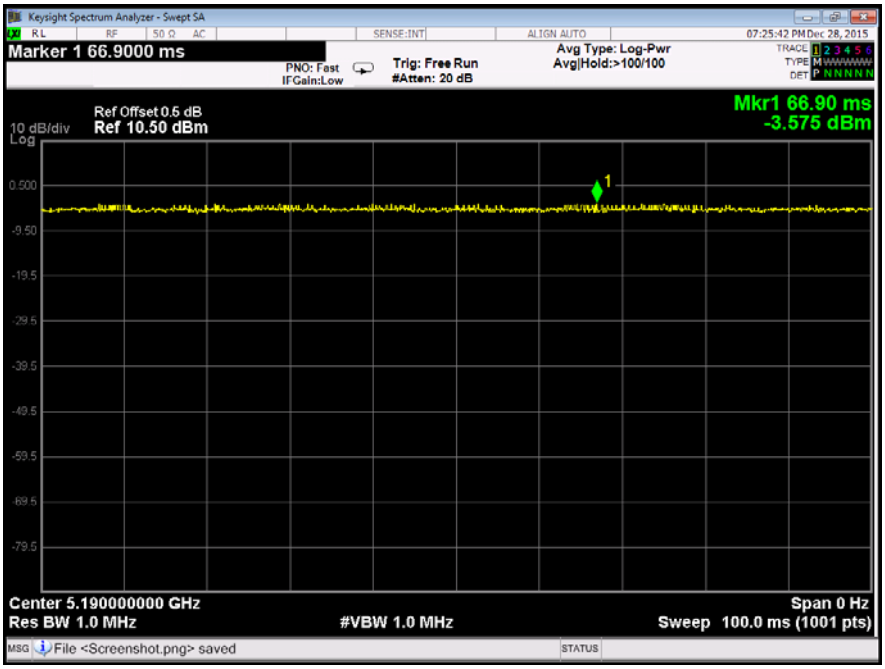
802.11a band I Low channel



802.11n(HT20) band I Low channel



802.11n(HT40) band I Low channel


Keysight Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
07:25:42 PM Dec 28, 2015
Marker 1 66.9000 ms
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P N N N N N
Ref Offset 0.6 dB
10 dB/div
Log
Ref 10.50 dBm
Mkr1 66.90 ms
-3.575 dBm
0.500
-9.50
-19.5
-29.5
-39.5
-49.5
-59.5
-69.5
-79.5
1
Center 5.190000000 GHz
Res BW 1.0 MHz
#VBW 1.0 MHz
Span 0 Hz
Sweep 100.0 ms (1001 pts)
MSG
File <Screenshot.png> saved
STATUS

9 Band Edge

Test Requirement:	FCC CFR47 Part 15 Section 15.407
Test Method:	ANSI C63.10 2009
Test Limit:	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 −27dBm/MHz.
Test Result:	PASS

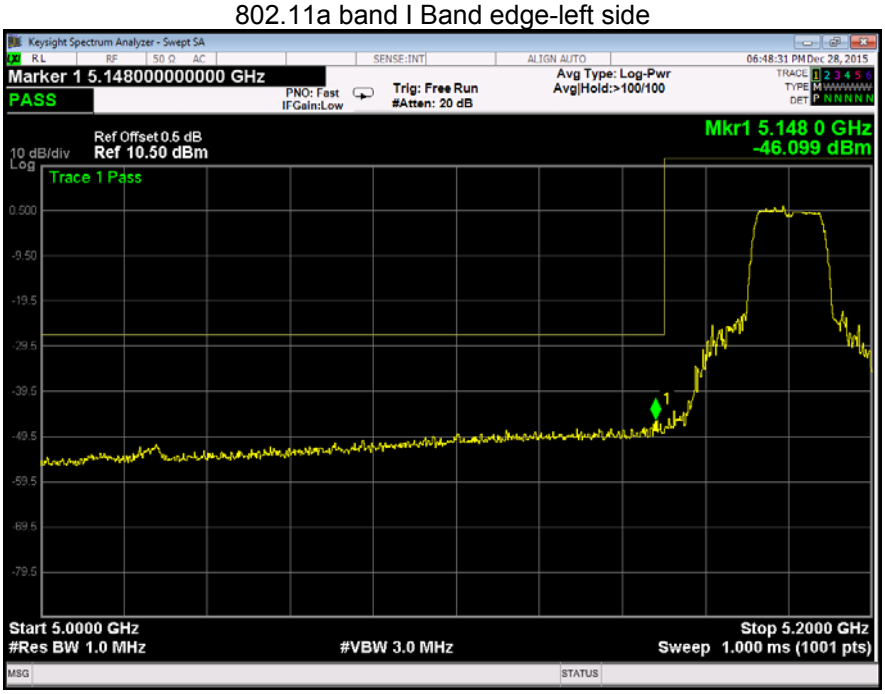
9.1 Test Produce

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 to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
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.

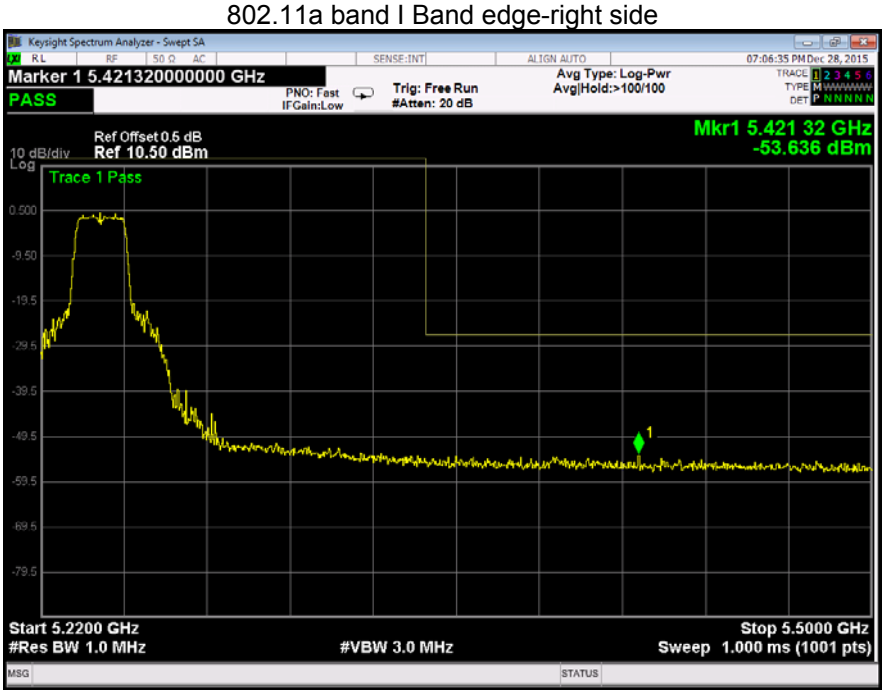
9.2 Test Result

Test result plots shown as follows:

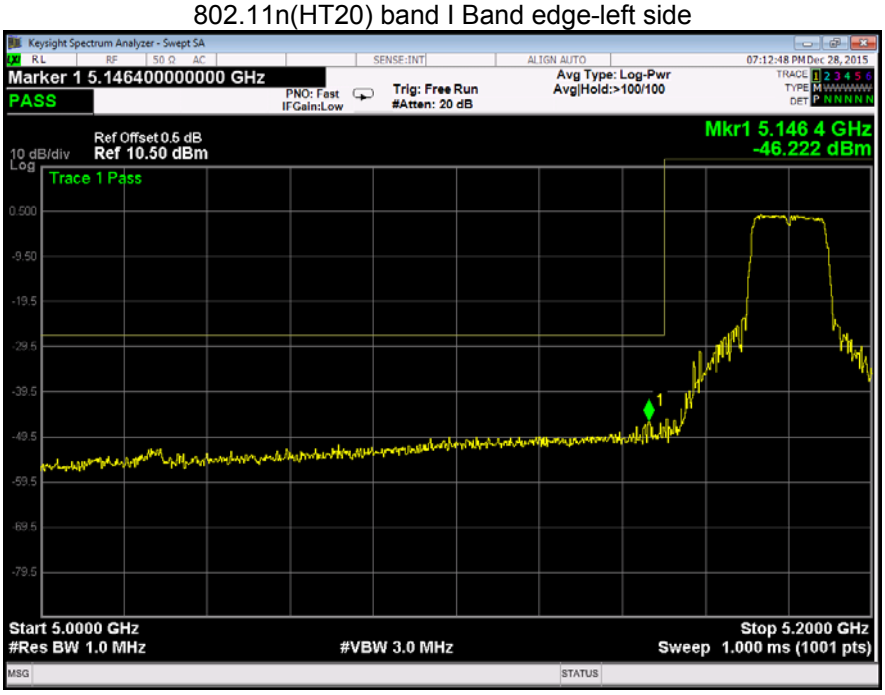
802.11a band I Band edge-left side



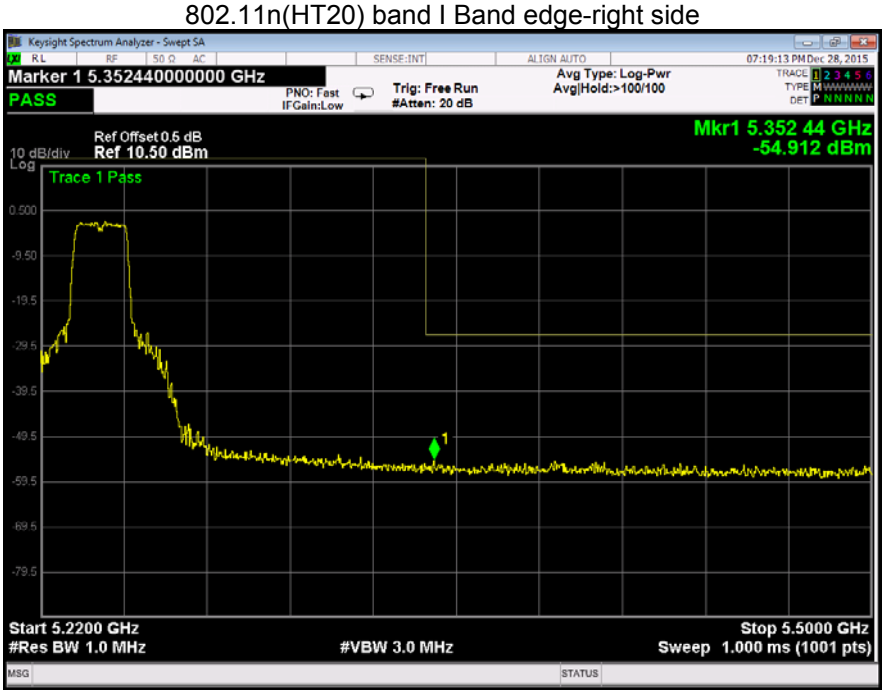
802.11a band I Band edge-right side



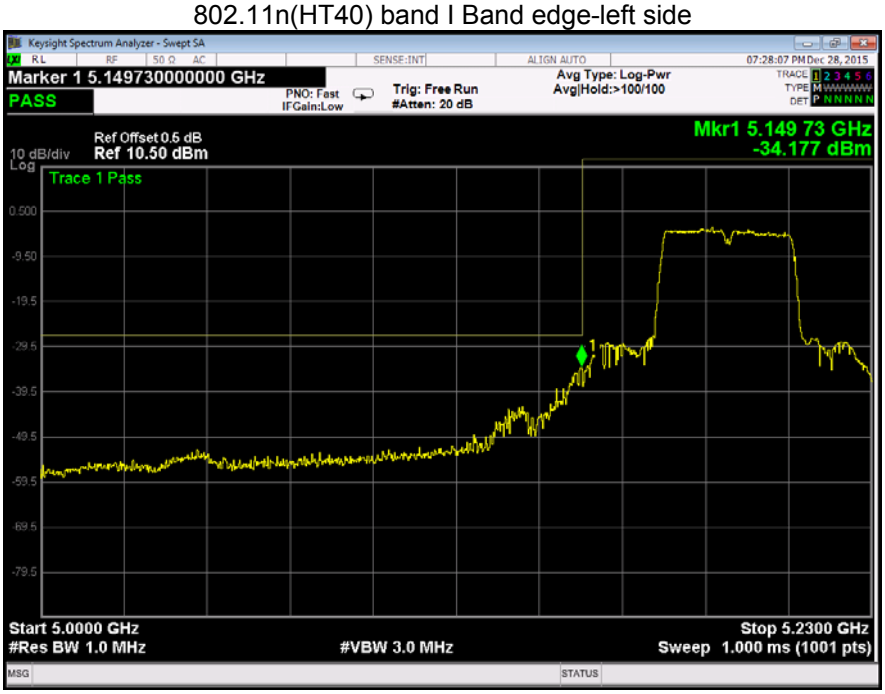
802.11n(HT20) band I Band edge-left side



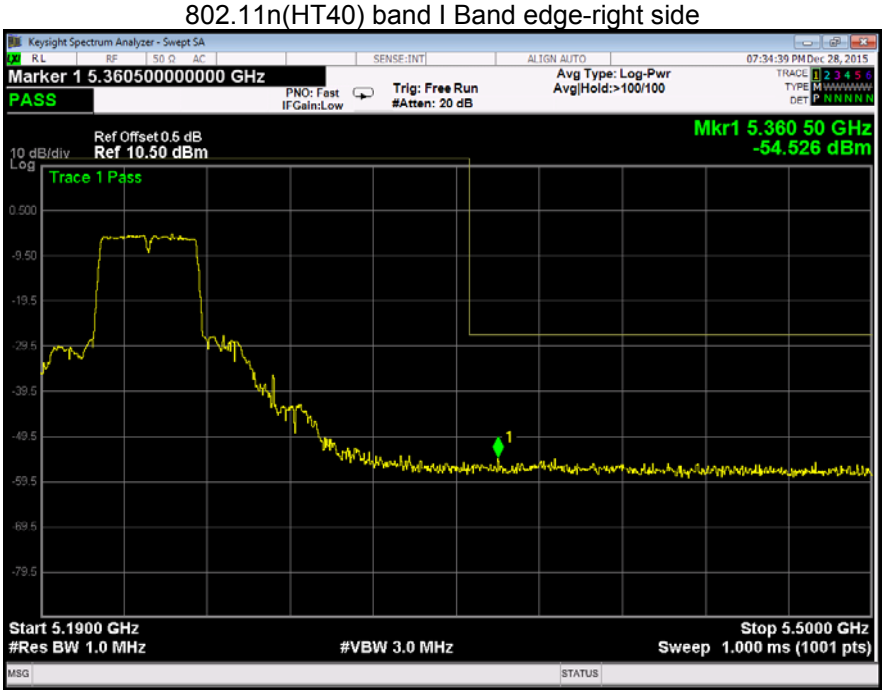
802.11n(HT20) band I Band edge-right side



802.11n(HT40) band I Band edge-left side



802.11n(HT40) band I Band edge-right side



10 26 dB Bandwidth and 99% Occupied Bandwidth

Test Requirement:	47 CFR Part 15C Section 15.407 (a)
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v01r01 KDB 644545 D03 Guidance for IEEE 802.11ac v01
Test Limit:	No restriction limits
Test Result:	PASS

10.1 Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;

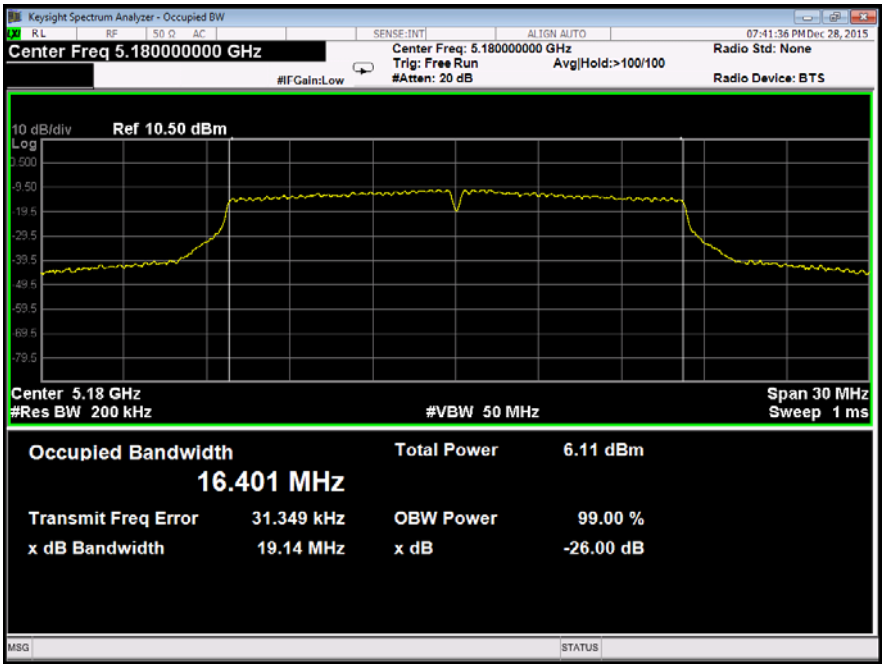
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

10.2 Test Result:

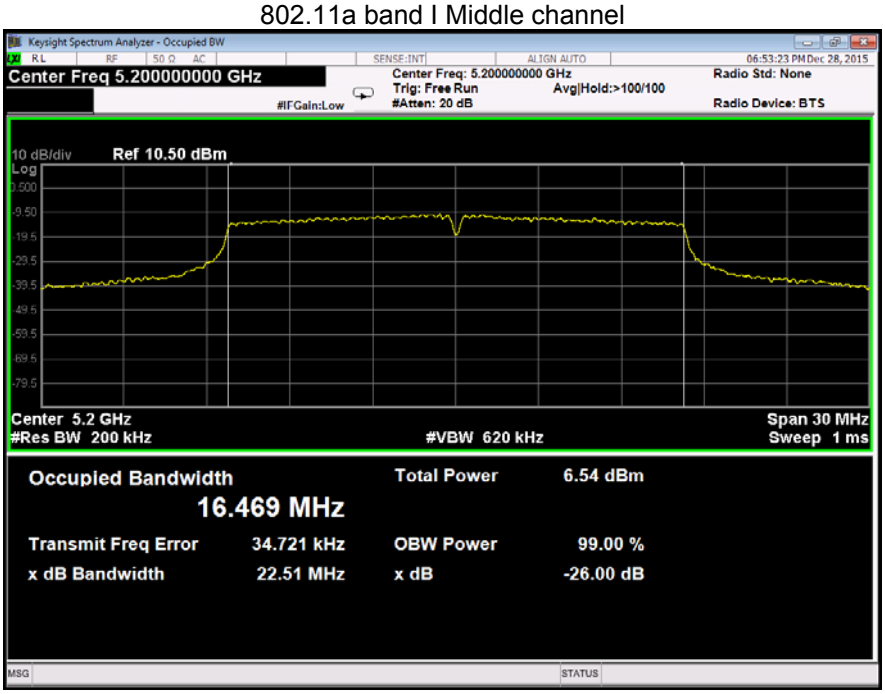
Band	Operation mode	26 dB Bandwidth (MHz)			99% Bandwidth (MHz)		
		Low	Middle	High	Low	Middle	High
Band I	802.11a	19.14	22.51	26.00	16.40	16.47	16.51
	802.11n(HT20)	22.70	22.57	26.11	17.643	17.645	17.668
	802.11n(HT40)	55.90	/	60	36.150	/	36.229

Test result plots shown as follows:

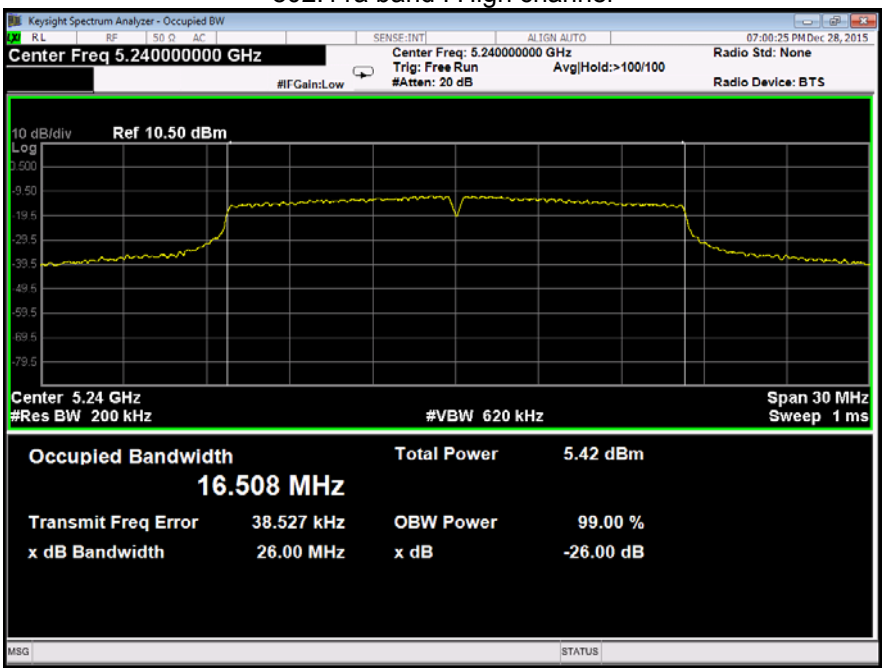
802.11a band I Low channel



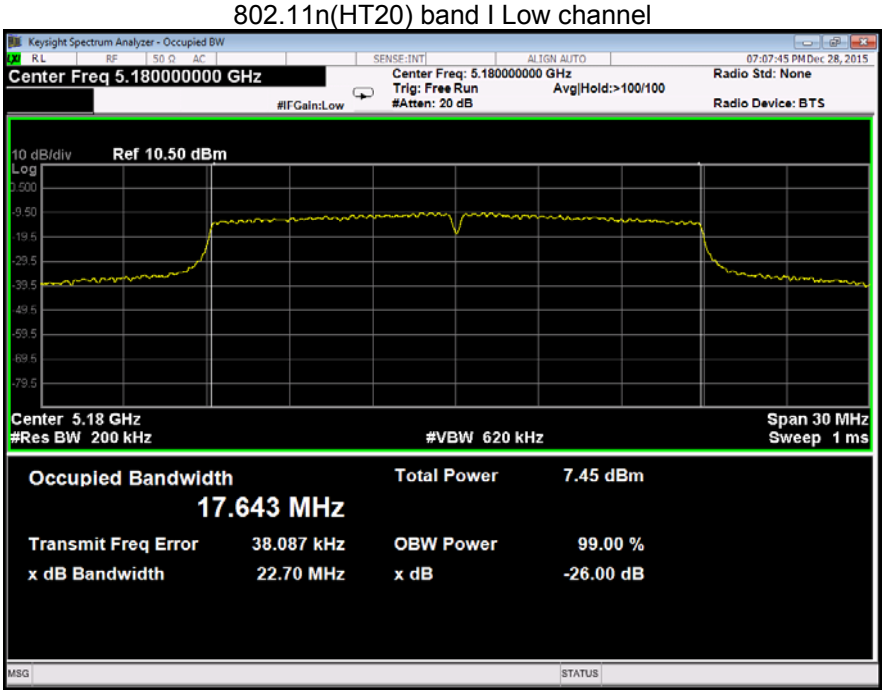
802.11a band I Middle channel



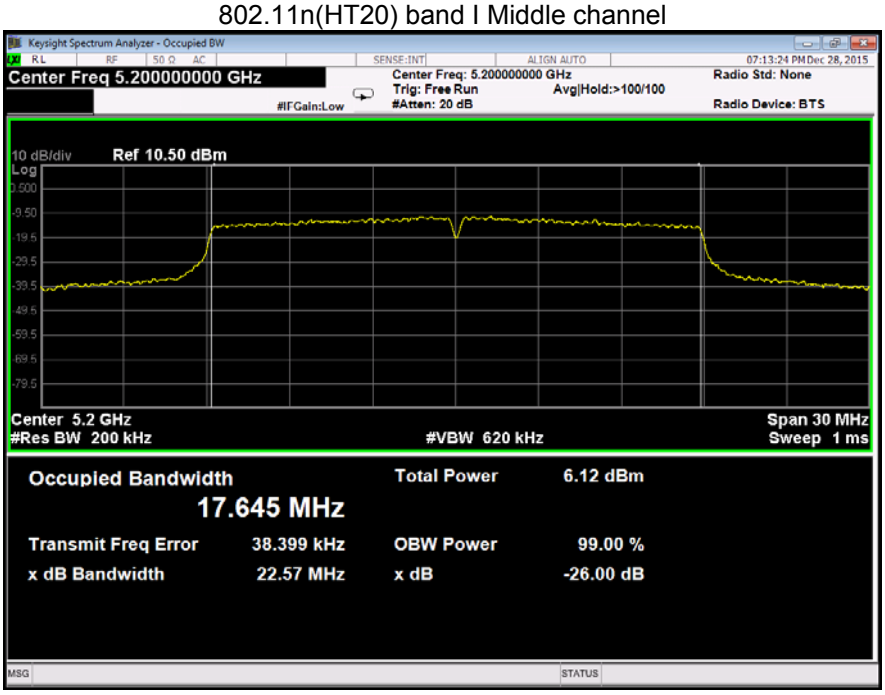
802.11a band I High channel



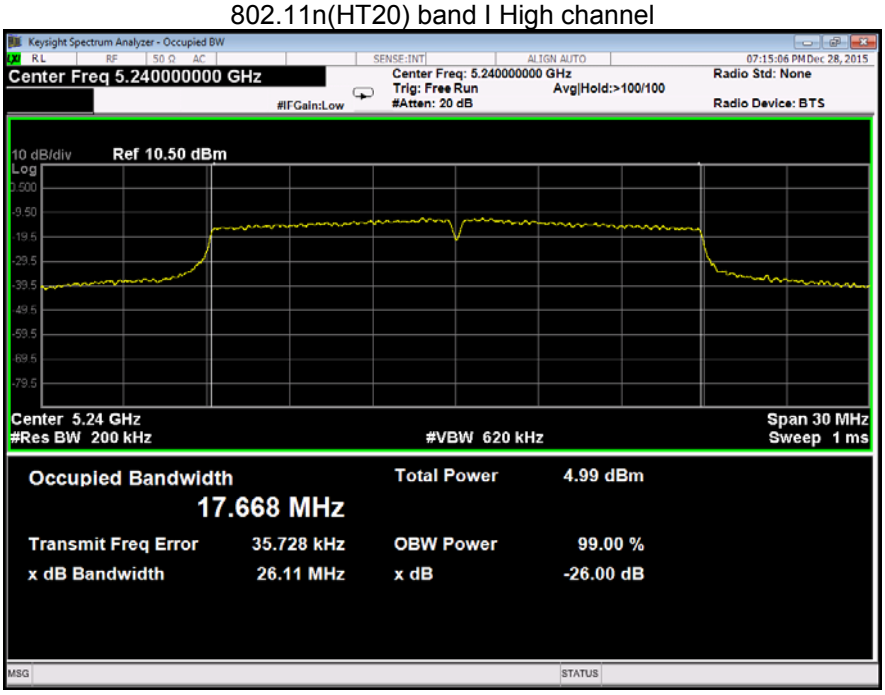
802.11n(HT20) band I Low channel



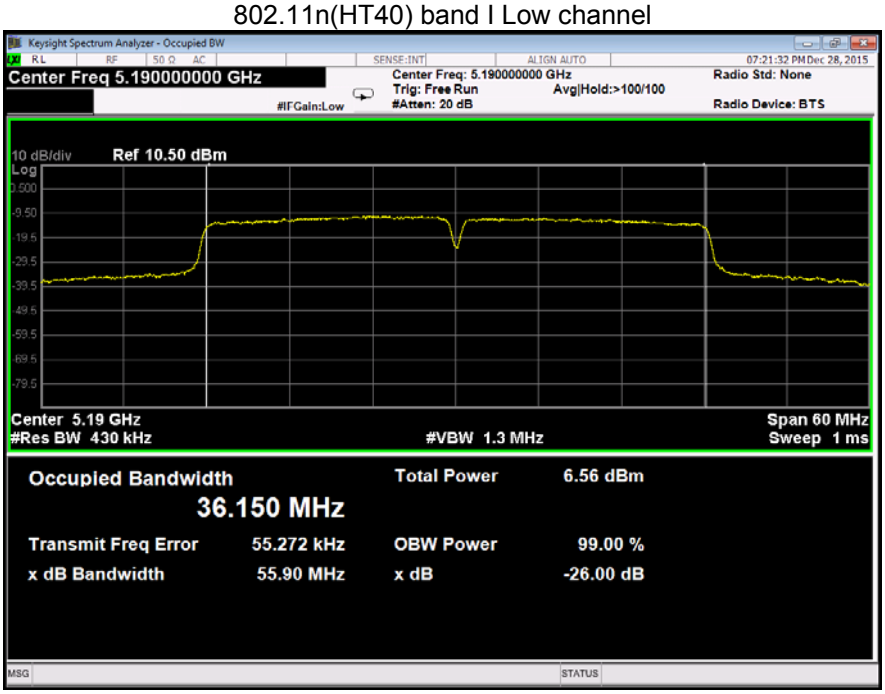
802.11n(HT20) band I Middle channel



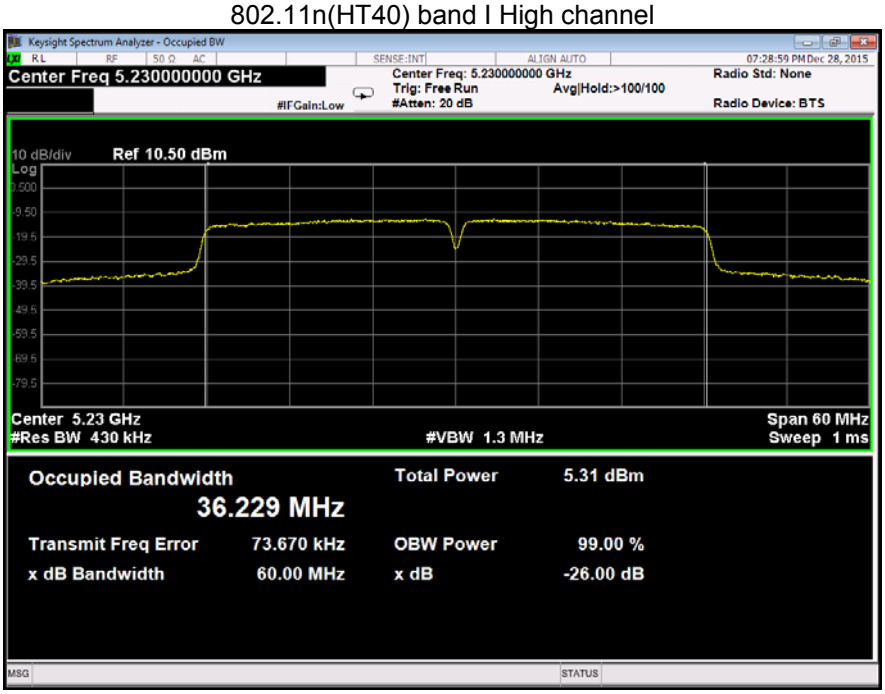
802.11n(HT20) band I High channel



802.11n(HT40) band I Low channel



802.11n(HT40) band I High channel



11 Conducted Output Power

Test Requirement:	FCC CFR47 Part 15 Section 15.407(a)
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v01r01 KDB 644545 D03 Guidance for IEEE 802.11ac v01
Test Limit:	24dBm
Test Result:	PASS
Remark:	Conducted output power= measurement power+10log(1/x) X is duty cycle=1, so 10log(1/1)=0 Conducted output power= measurement power

11.1 Test Procedure:

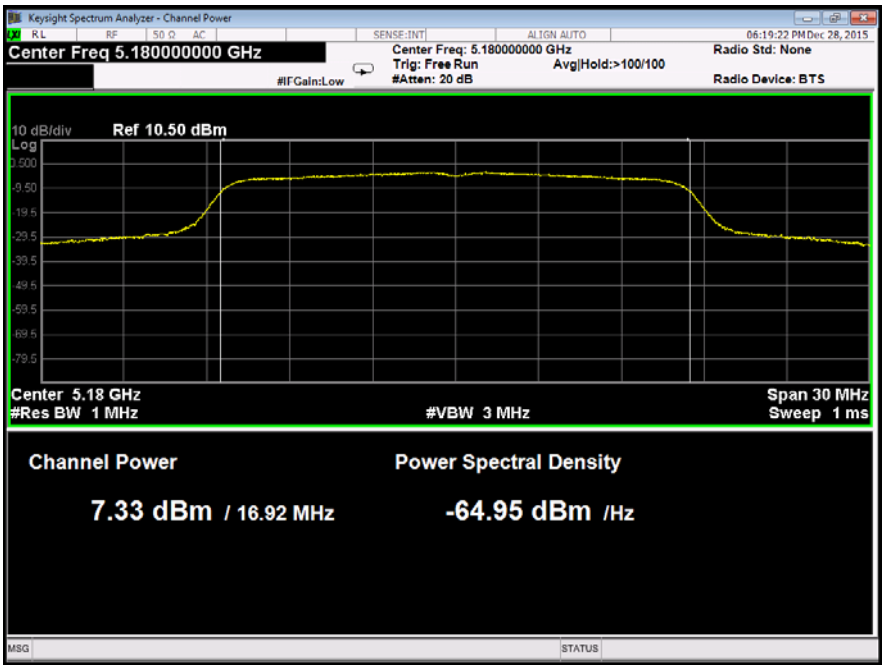
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 1 MHz. VBW = 3 MHz. Sweep = auto; Detector Function = Peak, Set the span to fully encompass the DTS bandwidth.
3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

11.2 Test Result:

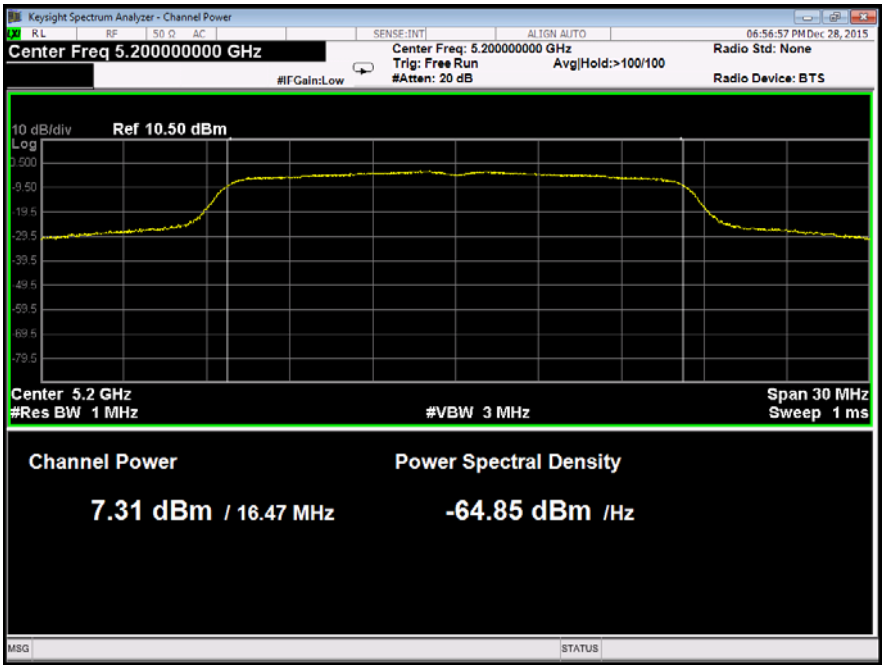
Band	Operation mode	Conducted Output Power (dBm)		
		Low	Middle	High
Band I	802.11a	7.33	7.31	7.73
	802.11n(HT20)	7.32	6.19	7.36
	802.11n(HT40)	7.60	/	7.00

Test result plots shown as follows:

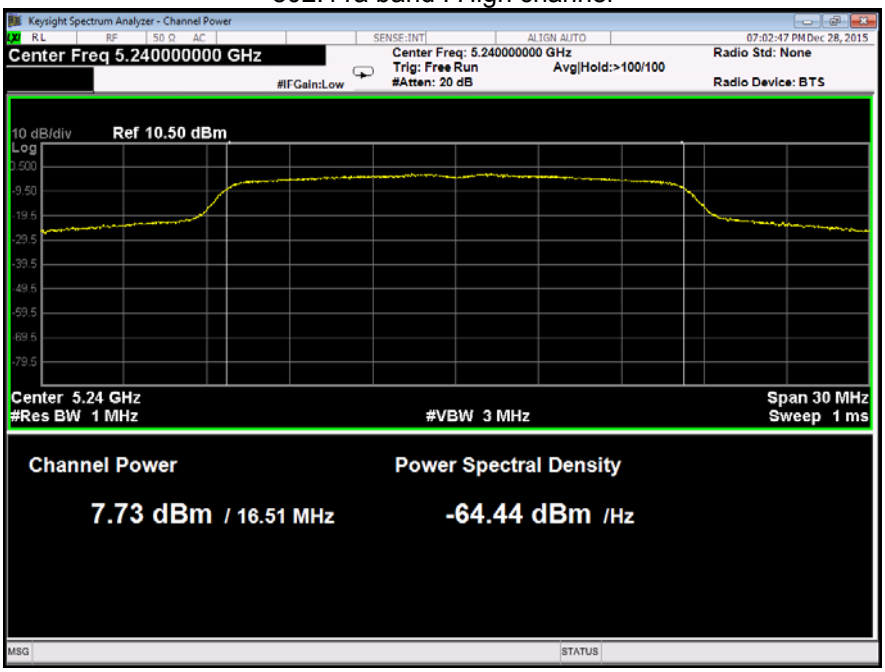
802.11a band I Low channel



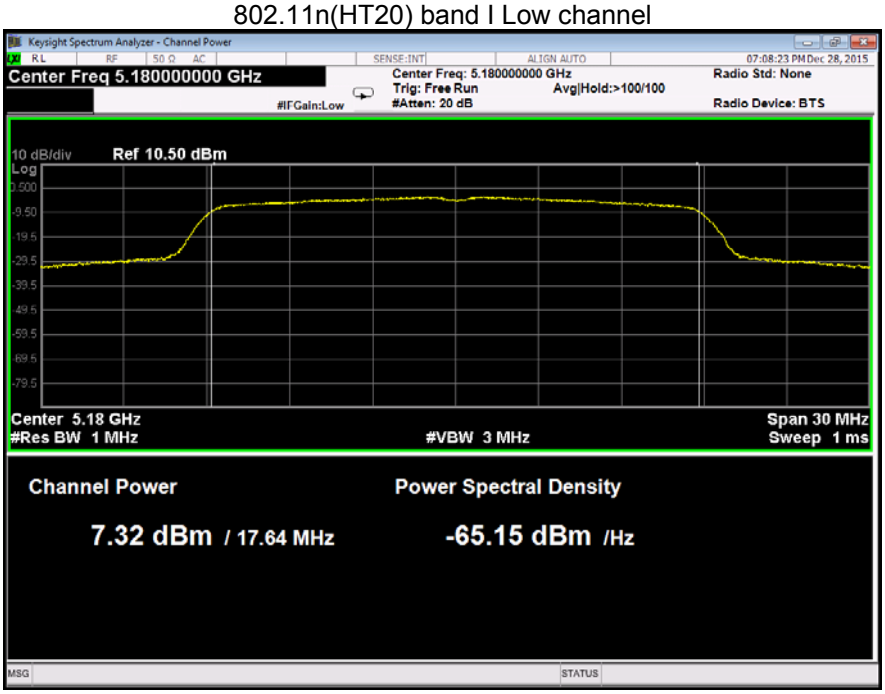
802.11a band I Middle channel



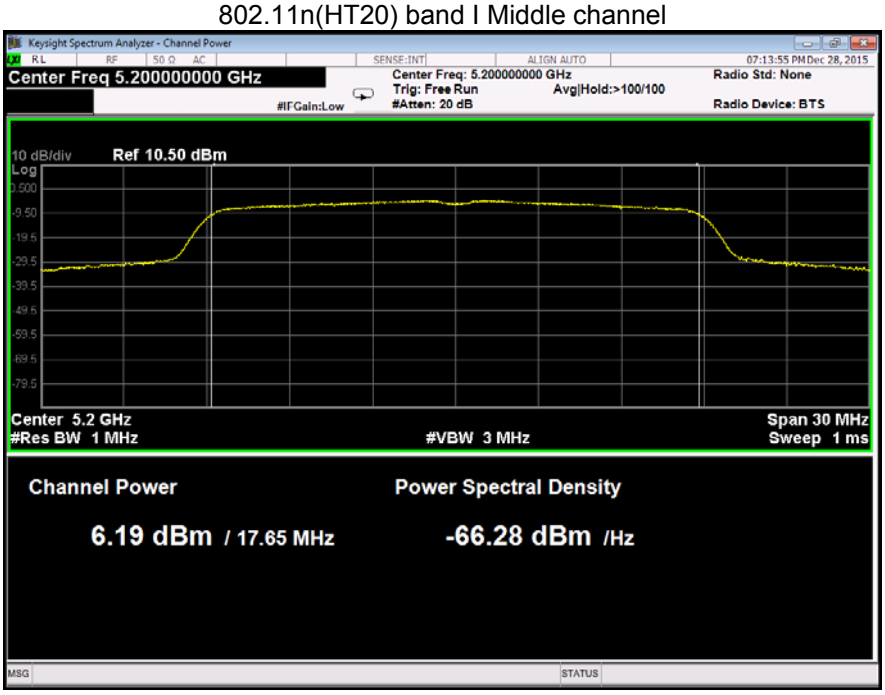
802.11a band I High channel



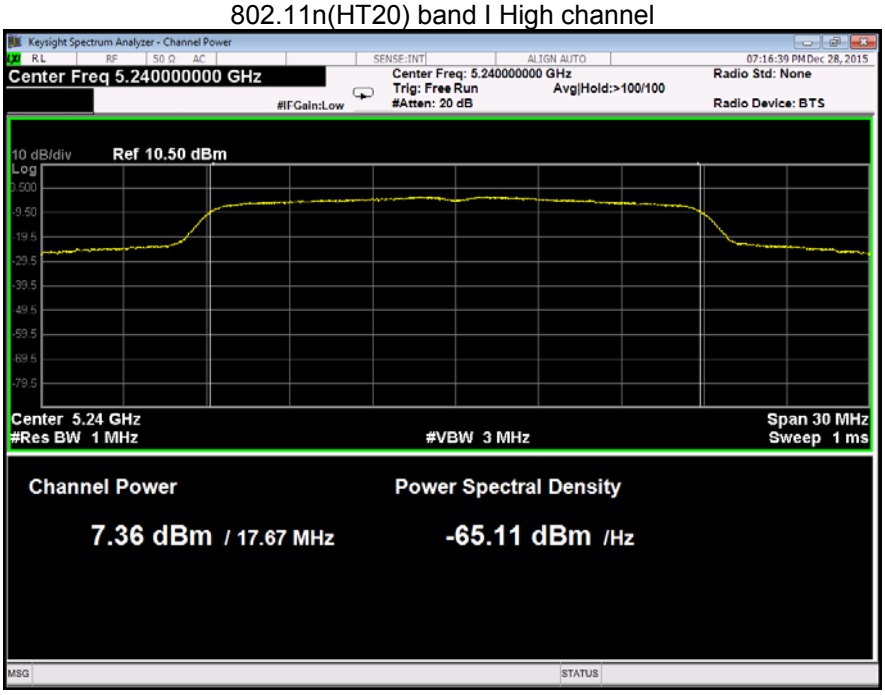
802.11n(HT20) band I Low channel



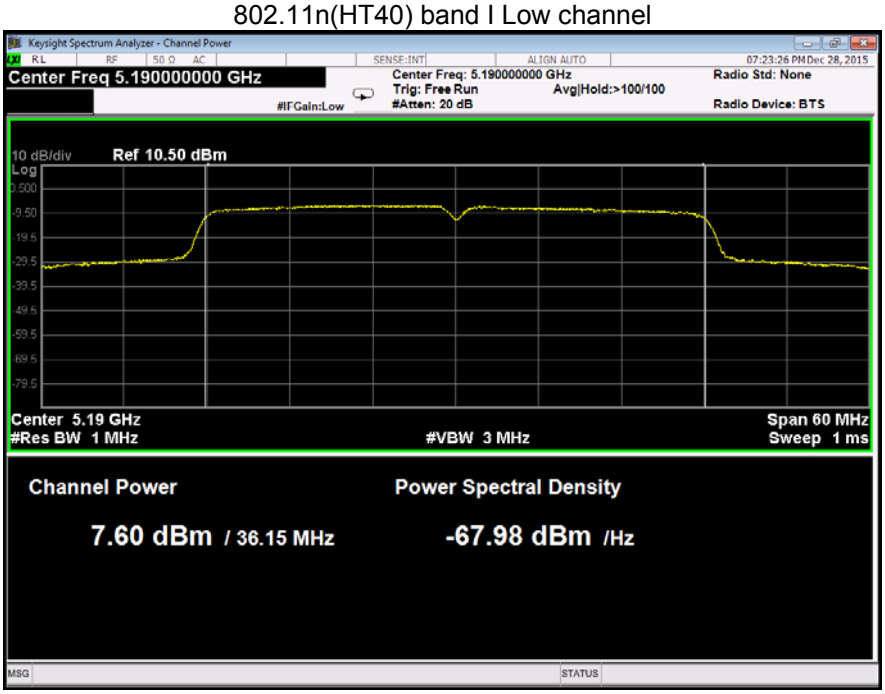
802.11n(HT20) band I Middle channel



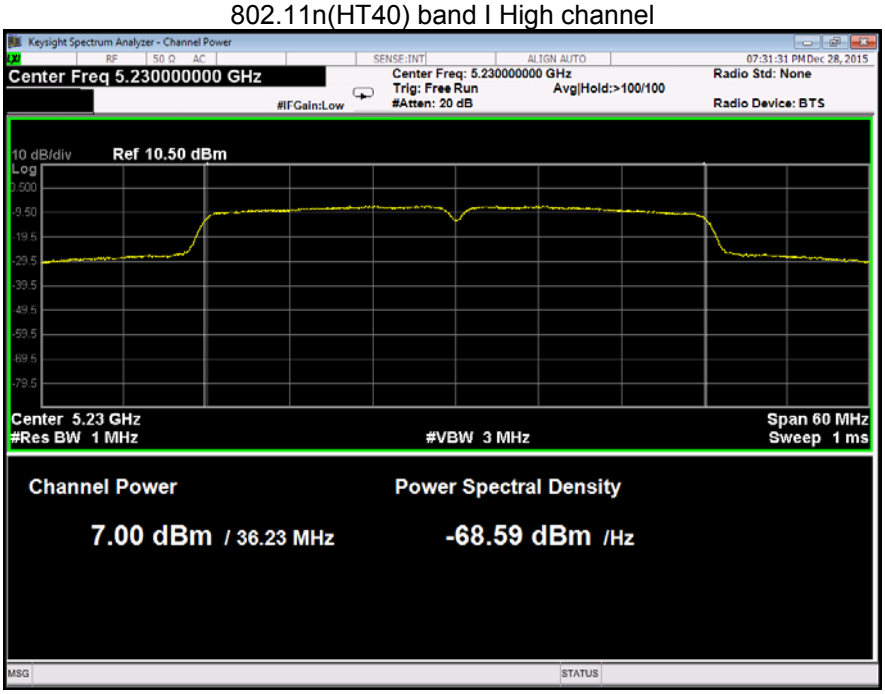
802.11n(HT20) band I High channel



802.11n(HT40) band I Low channel



802.11n(HT40) band I High channel



12 Power Spectral density

Test Requirement:	FCC CFR47 Part 15 Section 15.407(a)
Test Method:	KDB 789033 D02 General U-NII Test Procedures New Rules v01r01 KDB 644545 D03 Guidance for IEEE 802.11ac v01
Test Limit:	≤11dBm/MHz for Operation in the band I(5150MHz-5250MHz)of device
Test Result:	PASS

12.1 Test Procedure:

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.

2. Set the spectrum analyzer: RBW = 510kHz/1MHz. VBW ⩾3 RBW Sweep = auto; Detector Function = Peak. Trace = Max hold.

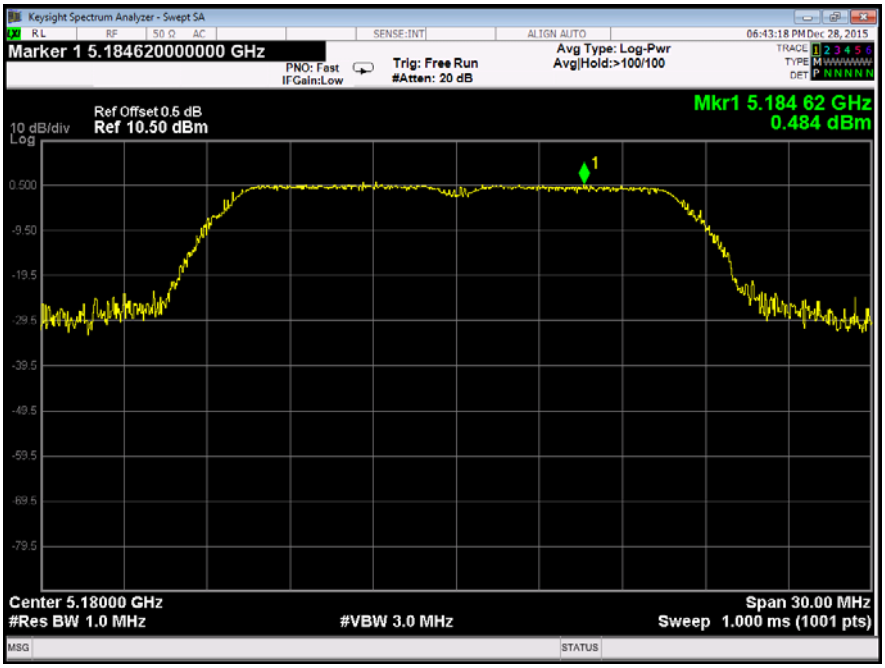
3. Allow the trace to stabilize. Use the marker-delta function to determine the separation between the peaks of the adjacent channels. The limit is specified in one of the subparagraphs of this Section Submit this plot.

12.2 Test Result:

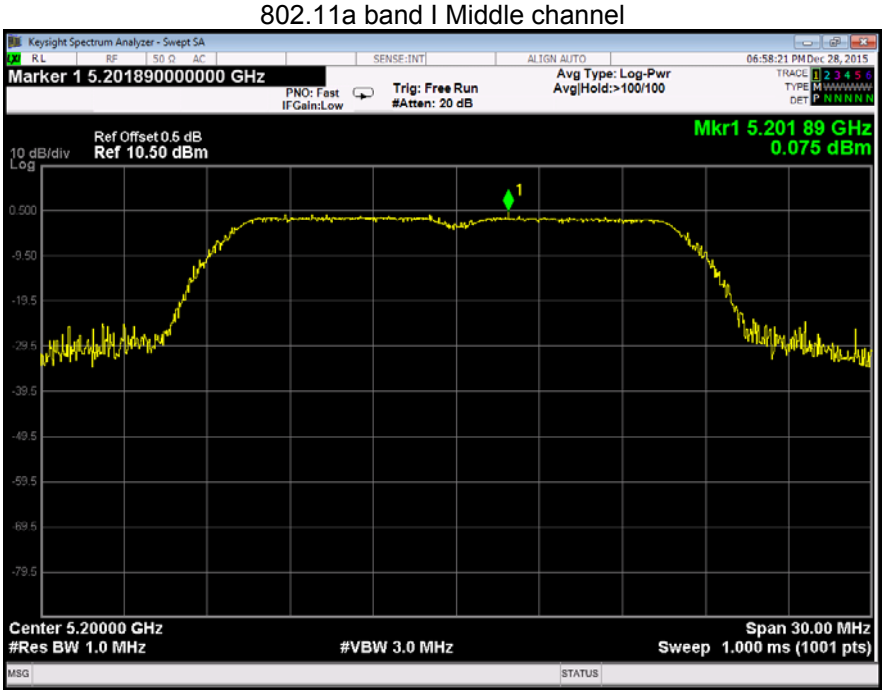
Band	Operation mode	Power Spectral Density (dBm/MHz)		
		Low	Middle	High
Band I	802.11a	0.484	0.075	-0.174
	802.11n(HT20)	0.609	-0.502	-1.535
	802.11n(HT40)	-1.040	/	-1.223
	Limit	≤11dBm/MHz		

Test result plots shown as follows:

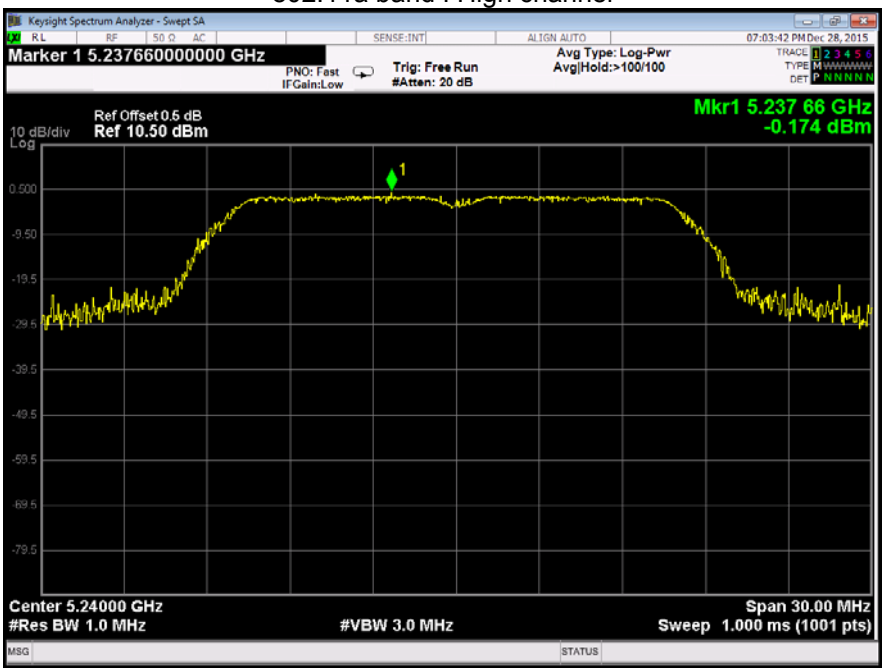
802.11a band I Low channel



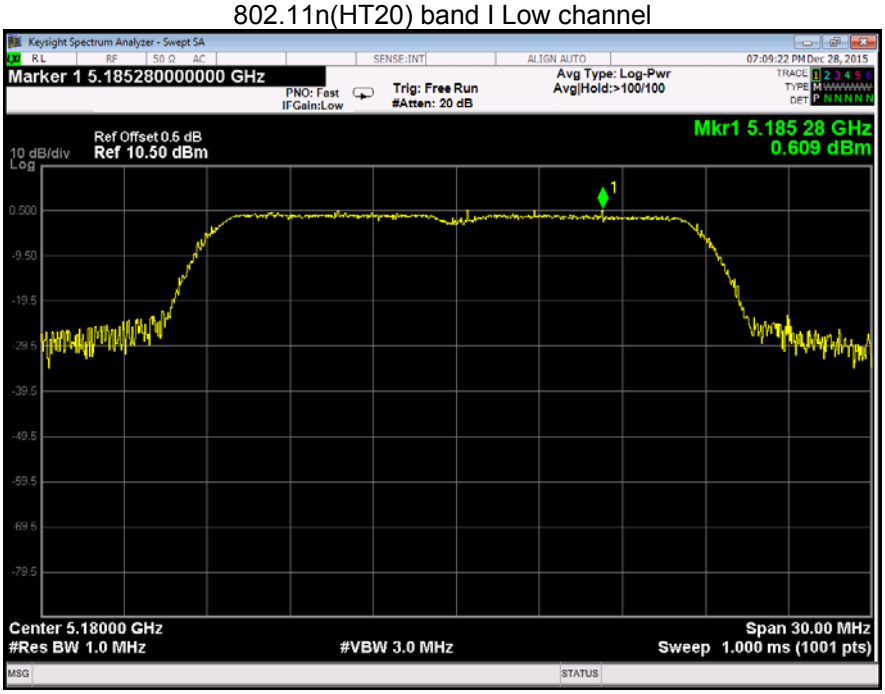
802.11a band I Middle channel



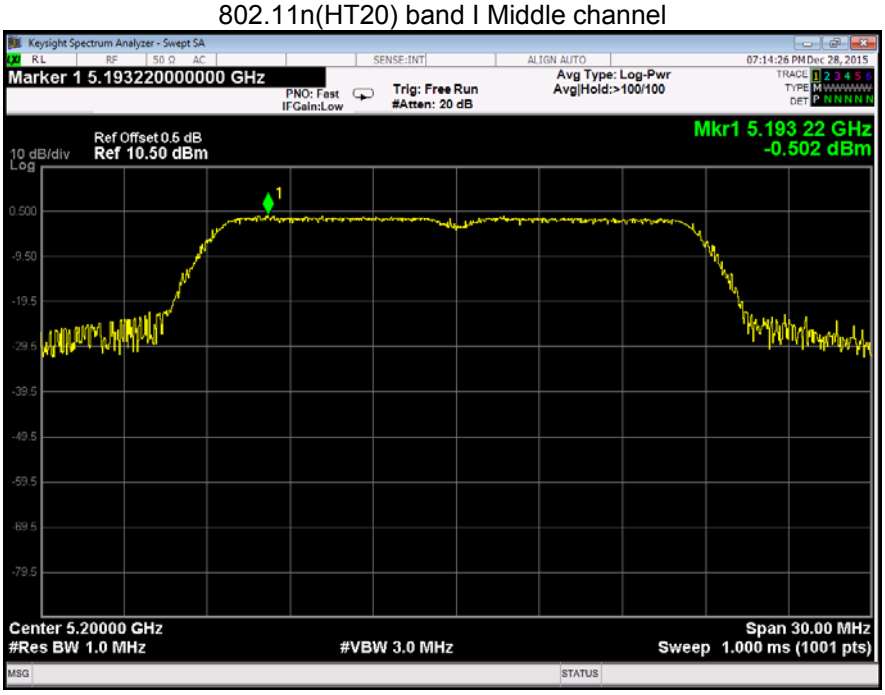
802.11a band I High channel



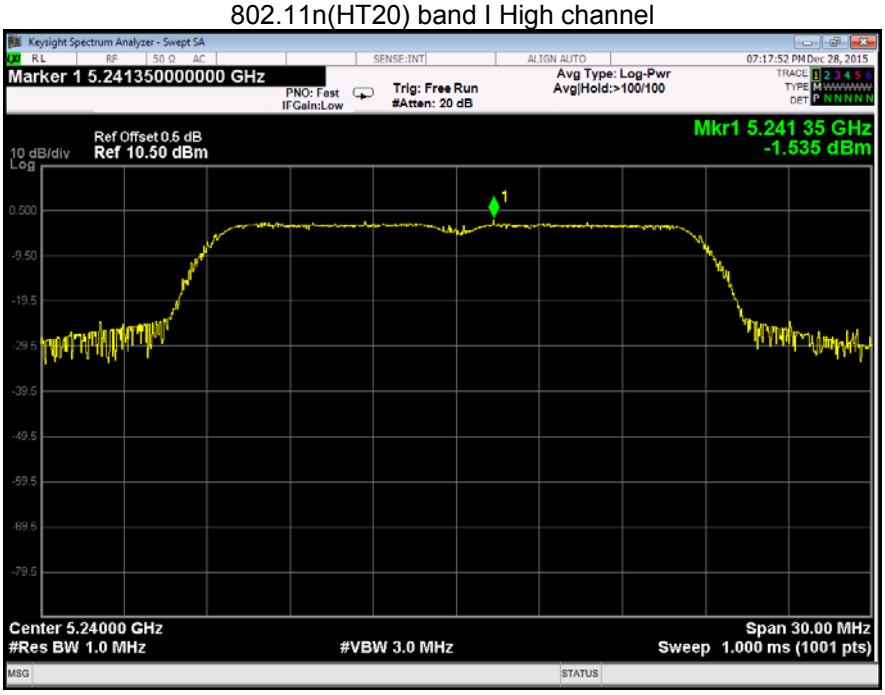
802.11n(HT20) band I Low channel



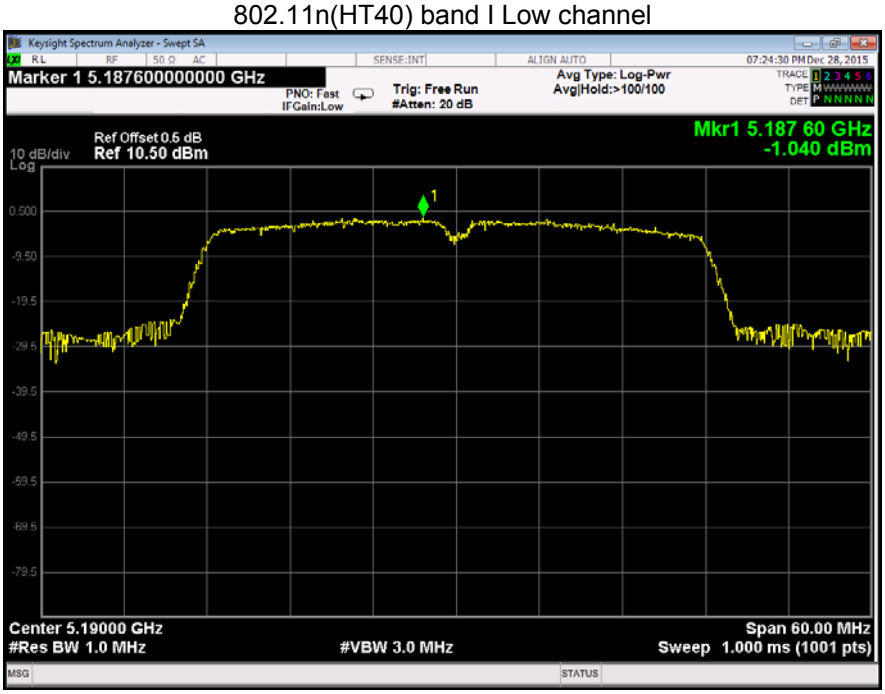
802.11n(HT20) band I Middle channel



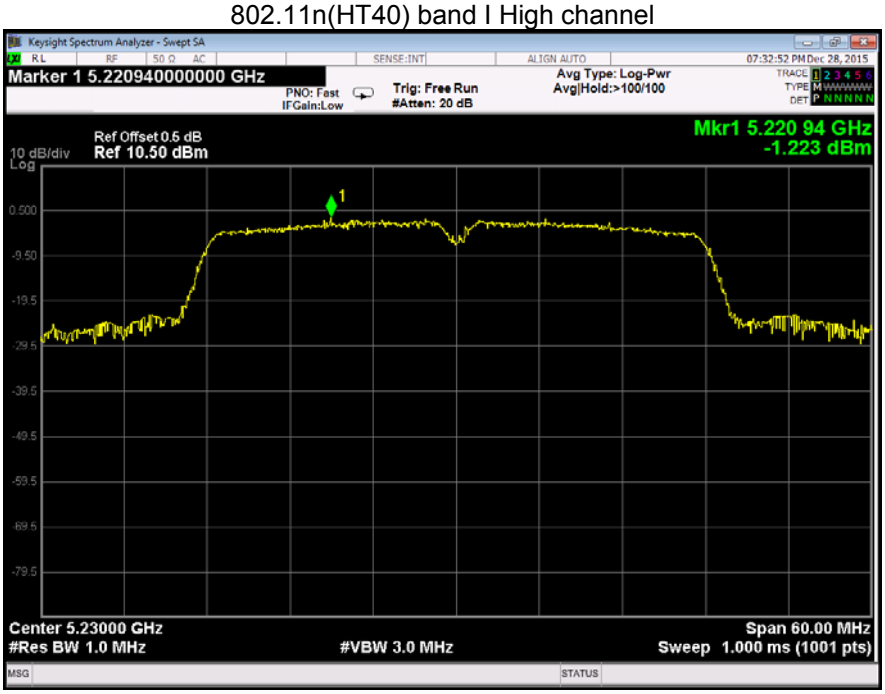
802.11n(HT20) band I High channel



802.11n(HT40) band I Low channel



802.11n(HT40) band I High channel



13 Antenna Requirement

According to the FCC Part 15 Paragraph 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. This product has an internal integrated antenna fulfill the requirement of this section.

14 RF Exposure

Remark: refer to SAR test report: WTS15S1240185E.

======End of Report======