

TEST REPORT

Reference No...... : WTS15S1240218-2E V1
FCC ID : WA6S5005
Applicant..... : VeryKool USA Inc
Address..... : 3636 Nobel Drive, Suite 325, San Diego, CA92122 USA
Manufacturer : Shenzhen Fortuneship Technology Co., Ltd
Address..... : 6/F, Kanghesheng Building, No.1 Chuangsheng Road,Nanshan District, Shenzhen, Guangdong, China
Product Name..... : Mobile Phone
Model No...... : s5005, s5004
Brand..... : verykool
Standards..... : FCC CFR47 Part 15C Section 15.247:2015
Date of Receipt sample : Dec. 23, 2015
Date of Test : Dec. 24, 2015 – Jan. 27, 2016
Date of Issue..... : Feb. 25, 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.

Prepared By:

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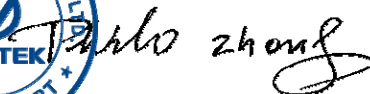
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Compiled by:



Zero Zhou / Test Engineer

Approved by:



Philo Zhong / Manager

2 Test Summary

Test Items	Test Requirement	Result
Radiated Spurious Emissions	15.247(d) 15.205(a) 15.209(a)	PASS
Conducted Spurious Emissions	15.247(d)	PASS
Conducted Emissions	15.207(a)	PASS
6dB Bandwidth	15.247(a)(2)	PASS
Maximum Peak Output Power	15.247(b)(3),(4)	PASS
Power Spectral Density	15.247(e)	PASS
Band Edge	15.247(d)	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 Report Revision History

Report No.	Report Version	Description	Issue Date
WTS15S1240218-2E	NONE	Original	Jan. 28, 2016
WTS15S1240218-2E	V1	Version 1	Feb. 25, 2016

5 General Information

5.1 General Description of E.U.T.

Product Name	: Mobile Phone
Model No.	: s5005, s5004
Model Description	: Only different for model names
GSM Band(s)	: GSM 850/900/1800/1900MHz
GPRS/EGPRS Class	: 12
WCDMA Band(s)	: FDD Band II/IV/V
LTE Bnad(s)	: N/A
Wi-Fi Specification	: 2.4G: 802.11b/g/n HT20/n HT40
Bluetooth Version	: Bluetooth v3.0+EDR
GPS	: Support
NFC	: N/A
Hardware Version	: R613-MB-V0.3
Software Version	: s5005_VK_Generic_Dual_SW_1.0

5.2 Details of E.U.T.

Operation Frequency	: GSM/GPRS/EGPRS 850: 824~849MHz PCS/GPRS/EGPRS1900: 1850~1910MHz WCDMA Band II: 1850~1910MHz WCDMA Band V: 824~849MHz WCDMA Band IV:1710~1755MHz WiFi: 802.11b/g/n HT20: 2412~2462MHz 802.11n HT40: 2422~2452MHz Bluetooth: 2402~2480MHz
Max. RF output power	: GSM 850: 32.78dBm PCS1900: 29.61dBm WCDMA Band II: 22.52dBm WCDMA Band IV: 22.77dBm WCDMA Band V: 22.51dBm WiFi(2.4G): 9.62dBm Bluetooth: 8.76dBm
Type of Modulation	: GSM,GPRS: GMSK EDGE: GMSK, 8PSK WCDMA: BPSK WiFi: CCK, OFDM Bluetooth: GFSK, Pi/4 DQPSK,8DPSK

Antenna installation	: GSM/WCDMA: internal permanent antenna WiFi/Bluetooth: internal permanent antenna
Antenna Gain	GSM 850: 0dBi PCS1900: -2dBi WCDMA Band II: -1.5dBi WCDMA Band IV: -1dBi WCDMA Band V: -1dBi WiFi(2.4G): 0dBi Bluetooth: 0dBi
Technical Data	Battery DC 3.8V, 2000mAh DC 5V, 0.2A, Charging from adapter 1 DC 5V, 0.15A, Charging from adapter 2 (Adapter Input:100-240V, 50/60Hz)
Adapter1	:Manufacture: Shenzhen Fortuneship Technology Co., Ltd. Model: s5005
Adapter2	:Manufacture: Shenzhenshi Jingrichang Electronic Technology CO.,LTD Model: JT-MO5100

5.3 Channel List

WIFI

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	2412	2	2417	3	2422	4	2427
5	2432	6	2437	7	2442	8	2447
9	2452	10	2457	11	2462	12	-

5.4 Test Mode

Table 1 Tests Carried Out Under FCC part 15.247

Test Items	Mode	Data Rate	Channel	TX/RX
Maximum Peak Output Power	802.11b	11 Mbps	1/6/11	TX
	802.11g	54 Mbps	1/6/11	TX
	802.11n HT20	108 Mbps	1/6/11	TX
	802.11n HT40	150 Mbps	3/6/9	TX
Power Spectral Density	802.11b	11 Mbps	1/6/11	TX
	802.11g	54 Mbps	1/6/11	TX
	802.11n HT20	108 Mbps	1/6/11	TX
	802.11n HT40	150 Mbps	3/6/9	TX
6dB Bandwidth	802.11b	11 Mbps	1/6/11	TX
	802.11g	54 Mbps	1/6/11	TX
	802.11n HT20	108 Mbps	1/6/11	TX
	802.11n HT40	150 Mbps	3/6/9	TX
Band Edge	802.11b	11 Mbps	1/6/11	TX
	802.11g	54 Mbps	1/6/11	TX
	802.11n HT20	108 Mbps	1/6/11	TX
	802.11n HT40	150 Mbps	3/6/9	TX
Transmitter Spurious Emissions	802.11b	11 Mbps	1/6/11	TX
	802.11g	54 Mbps	1/6/11	TX
	802.11n HT20	108 Mbps	1/6/11	TX
	802.11n HT40	150 Mbps	3/6/9	TX

Note :Parameters set by test software during channel & power tests, the software provided by the customer was used to set the operating channels as well as the output power level. The RF output power set is the power expected by the manufacturer and is going to be fixed on the firmware of the final product .

5.5 Test Facility

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

- **IC – Registration No.: 7760A**

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, 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.

6 Equipment Used during Test

6.1 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

6.2 Description of Support Units

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

6.3 Measurement Uncertainty

Parameter	Uncertainty
Radio Frequency	$\pm 1 \times 10^{-6}$
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)

6.4 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.

7 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 dB μ V between 0.15MHz & 0.5MHz 56 dB μ V between 0.5MHz & 5MHz 60 dB μ V between 5MHz & 30MHz
Detector:	Peak for pre-scan (9kHz Resolution Bandwidth)

7.1 E.U.T. Operation

Operating Environment :

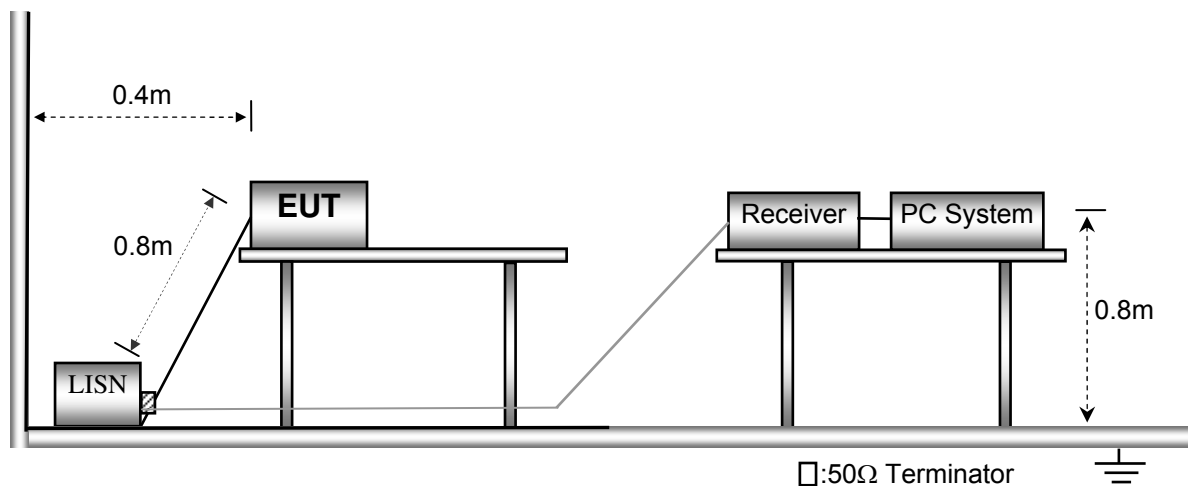
Temperature:	21.5 °C
Humidity:	51.9 % RH
Atmospheric Pressure:	101.2kPa

EUT Operation :

The test was performed in WIFI link mode(Wifi), the worst data were shown in the report.

7.2 EUT Setup

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



7.3 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.

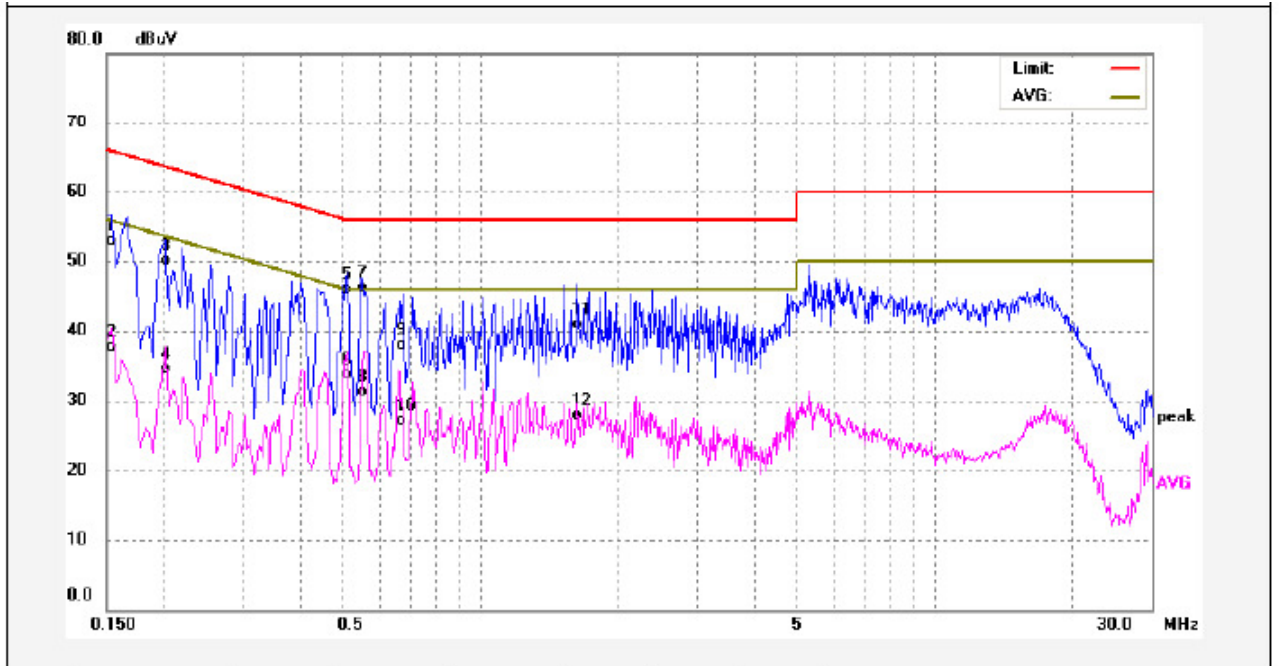
7.4 Conducted Emission Test Result

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

Worst Mode: WIFI mode

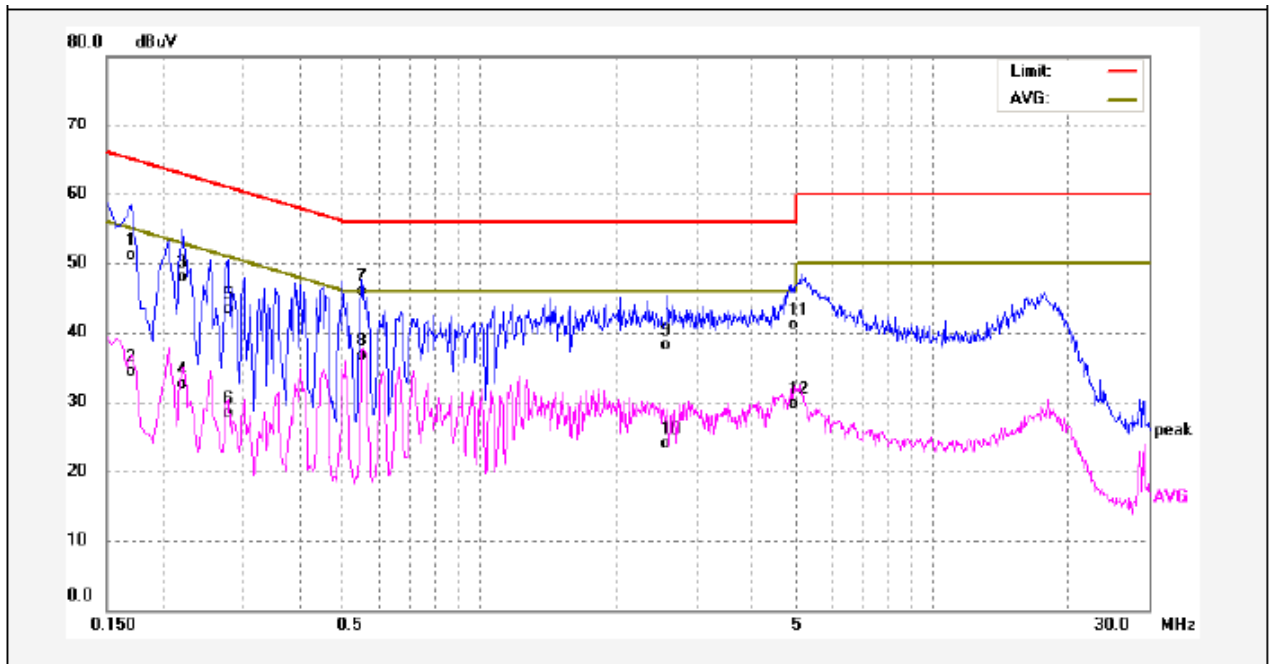
Adapter 1

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1539	42.88	10.10	52.98	65.78	-12.80	QP	
2	0.1539	27.55	10.10	37.65	55.78	-18.13	AVG	
3	0.2020	39.95	10.10	50.05	63.52	-13.47	QP	
4	0.2020	24.34	10.10	34.44	53.52	-19.08	AVG	
5	0.5100	35.84	10.12	45.96	56.00	-10.04	QP	
6	0.5100	23.60	10.12	33.72	46.00	-12.28	AVG	
7	0.5460	35.92	10.13	46.05	56.00	-9.95	QP	
8	0.5460	21.26	10.13	31.39	46.00	-14.61	AVG	
9	0.6740	27.77	10.16	37.93	56.00	-18.07	QP	
10	0.6740	16.97	10.16	27.13	46.00	-18.87	AVG	
11	1.6300	30.74	10.20	40.94	56.00	-15.06	QP	
12	1.6300	17.61	10.20	27.81	46.00	-18.19	AVG	

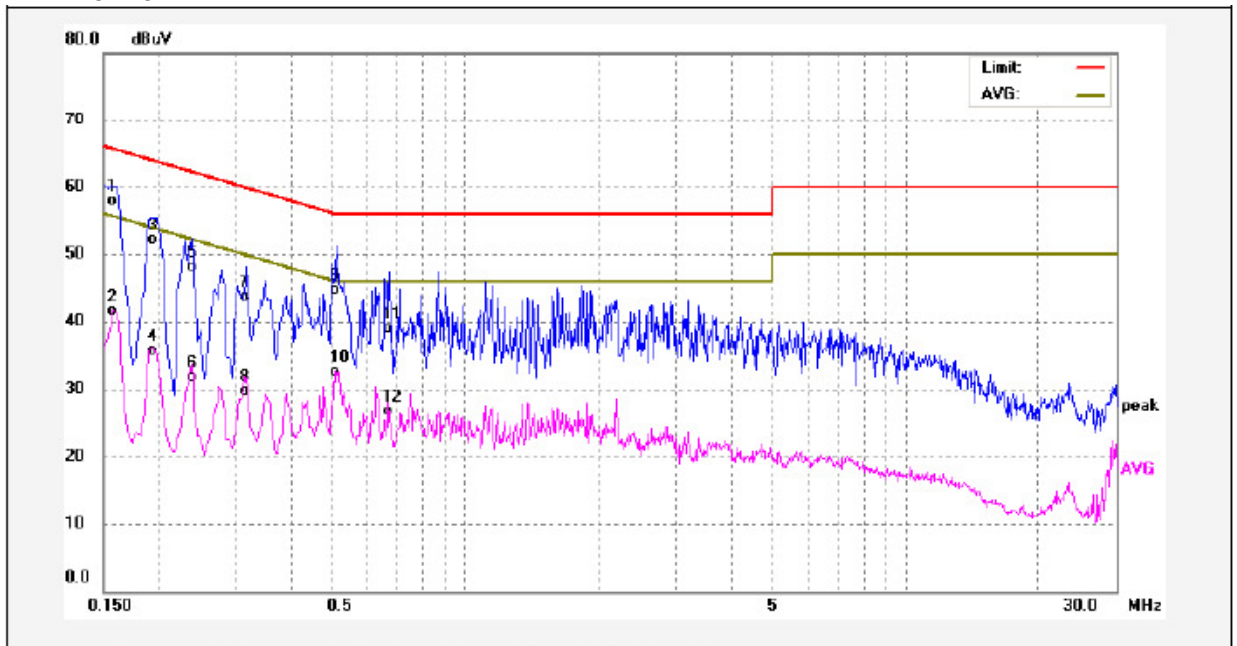
Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1700	41.03	10.10	51.13	64.96	-13.83	QP	
2	0.1700	24.27	10.10	34.37	54.96	-20.59	AVG	
3	0.2220	37.82	10.10	47.92	62.74	-14.82	QP	
4	0.2220	22.47	10.10	32.57	52.74	-20.17	AVG	
5	0.2779	33.24	10.10	43.34	60.88	-17.54	QP	
6	0.2779	18.27	10.10	28.37	50.88	-22.51	AVG	
7	0.5500	35.83	10.13	45.96	56.00	-10.04	QP	
8	0.5500	26.52	10.13	36.65	46.00	-9.35	AVG	
9	2.6060	27.82	10.20	38.02	56.00	-17.98	QP	
10	2.6060	13.68	10.20	23.88	46.00	-22.12	AVG	
11	4.8980	30.79	10.25	41.04	56.00	-14.96	QP	
12	4.8980	19.44	10.25	29.69	46.00	-16.31	AVG	

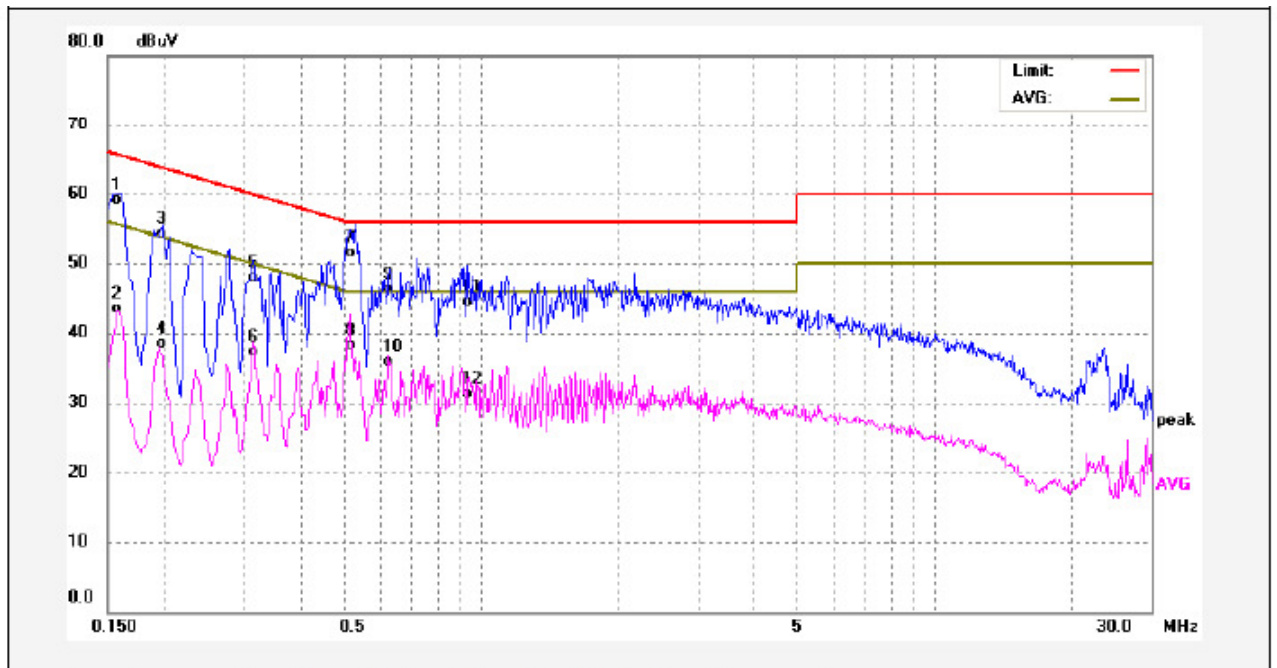
Adapter 2

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1580	47.79	10.10	57.89	65.56	-7.67	QP	
2	0.1580	31.37	10.10	41.47	55.56	-14.09	AVG	
3	0.1940	42.05	10.10	52.15	63.86	-11.71	QP	
4	0.1940	25.62	10.10	35.72	53.86	-18.14	AVG	
5	0.2380	38.07	10.10	48.17	62.16	-13.99	QP	
6	0.2380	21.53	10.10	31.63	52.16	-20.53	AVG	
7	0.3180	33.52	10.11	43.63	59.76	-16.13	QP	
8	0.3180	19.65	10.11	29.76	49.76	-20.00	AVG	
9	0.5100	34.52	10.12	44.64	56.00	-11.36	QP	
10	0.5100	22.45	10.12	32.57	46.00	-13.43	AVG	
11	0.6700	28.66	10.16	38.82	56.00	-17.18	QP	
12	0.6700	16.60	10.16	26.76	46.00	-19.24	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1580	49.04	10.10	59.14	65.56	-6.42	QP	
2	0.1580	33.31	10.10	43.41	55.56	-12.15	AVG	
3	0.1980	44.11	10.10	54.21	63.69	-9.48	QP	
4	0.1980	28.42	10.10	38.52	53.69	-15.17	AVG	
5	0.3140	37.81	10.11	47.92	59.86	-11.94	QP	
6	0.3140	27.29	10.11	37.40	49.86	-12.46	AVG	
7	0.5180	41.36	10.12	51.48	56.00	-4.52	QP	
8	0.5180	28.09	10.12	38.21	46.00	-7.79	AVG	
9	0.6300	36.23	10.15	46.38	56.00	-9.62	QP	
10	0.6300	25.85	10.15	36.00	46.00	-10.00	AVG	
11	0.9340	34.26	10.20	44.46	56.00	-11.54	QP	
12	0.9340	21.19	10.20	31.39	46.00	-14.61	AVG	

8 Radiated Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.209 & 15.247

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	$2400/F(\text{kHz})$	300	$10000 * 2400/F(\text{kHz})$	$20\log^{(2400/F(\text{kHz}))} + 80$
0.490 ~ 1.705	$24000/F(\text{kHz})$	30	$100 * 24000/F(\text{kHz})$	$20\log^{(24000/F(\text{kHz}))} + 40$
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	$20\log^{(500)}$

8.1 EUT Operation

Operating Environment :

Temperature: 23.5 °C

Humidity: 52.1 % RH

Atmospheric Pressure: 101.2kPa

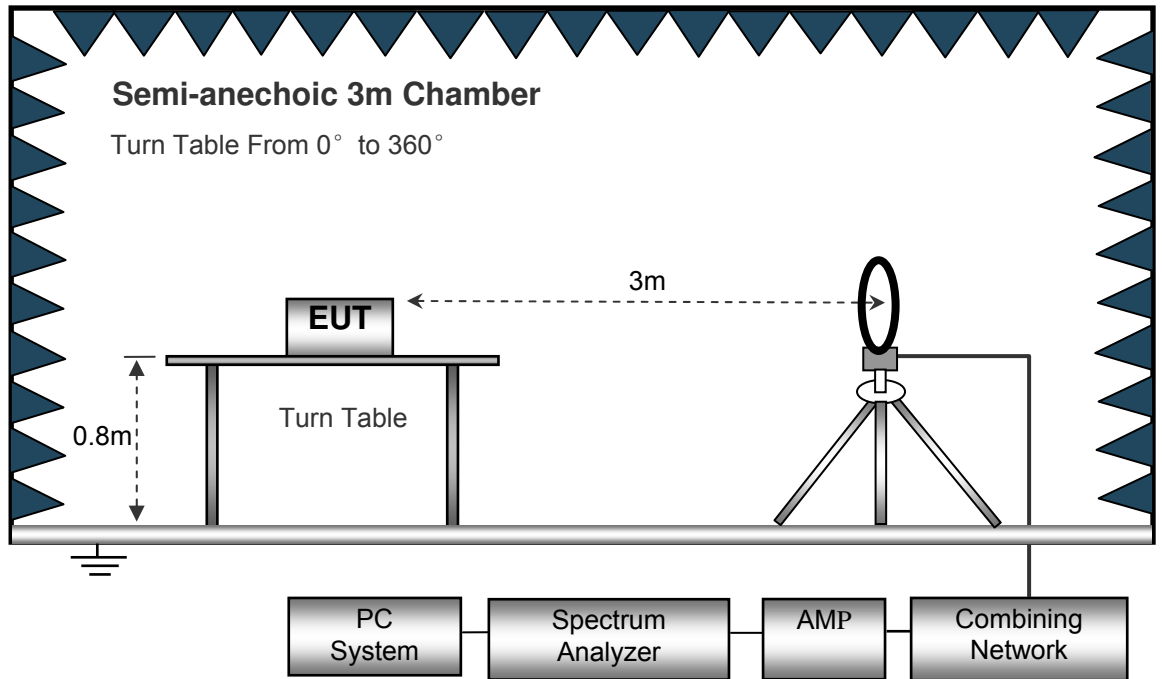
EUT Operation :

The test was performed in WIFI/BT link mode, the test data were shown in the report.

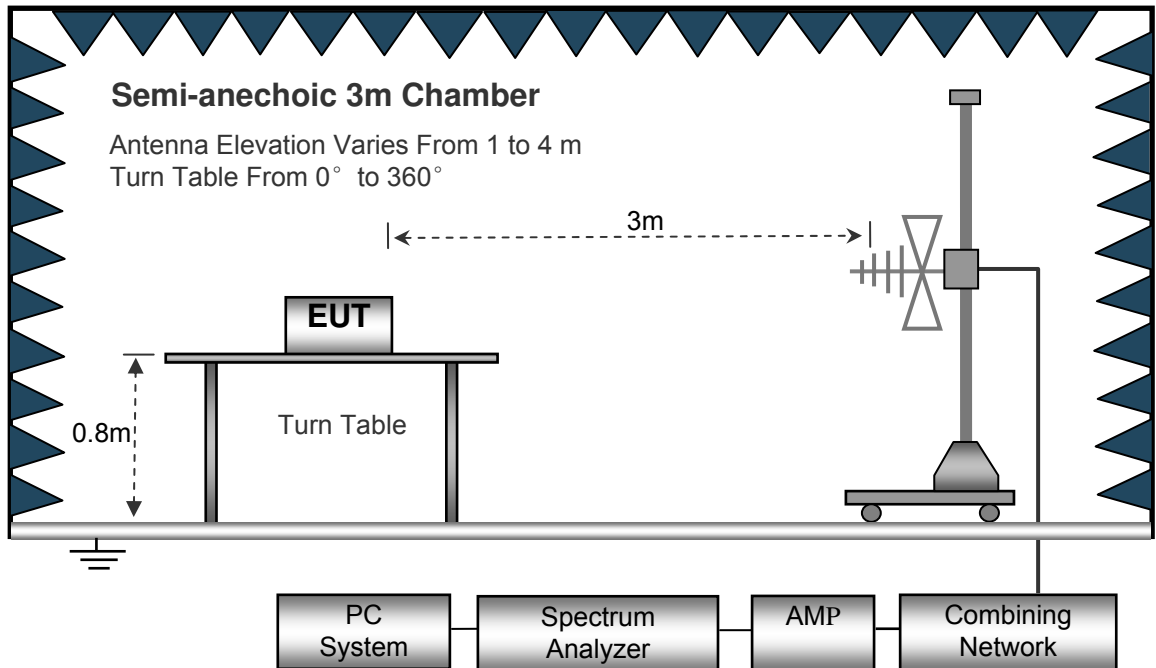
8.2 Test Setup

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

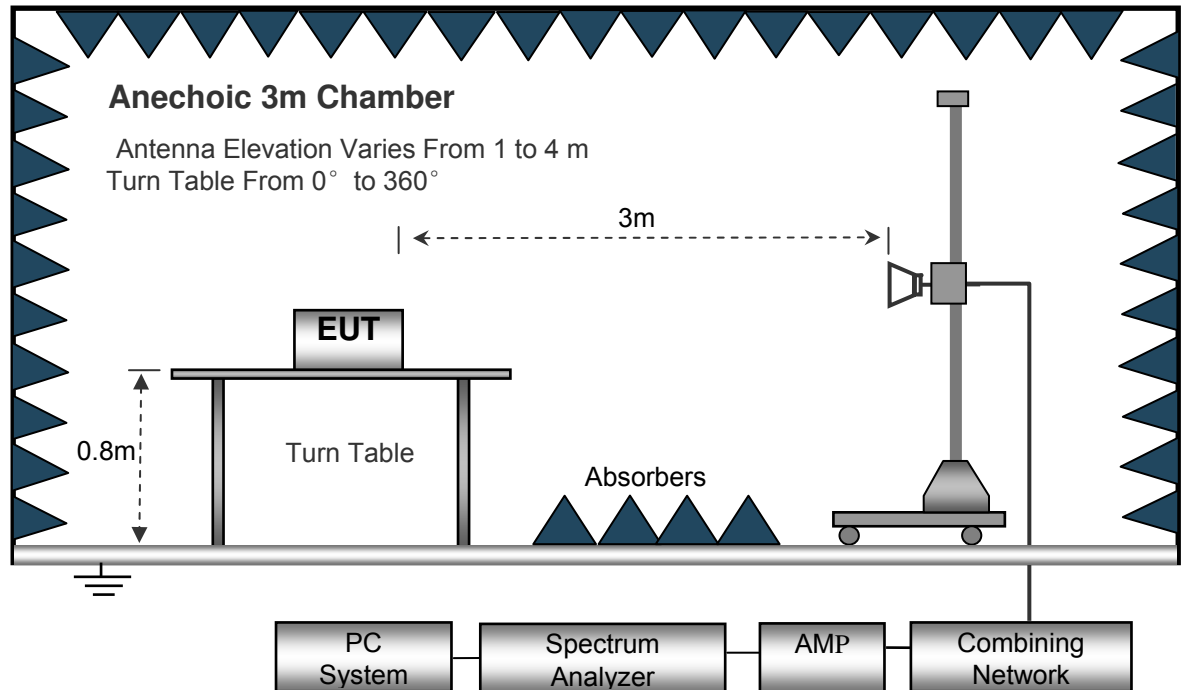
The test setup for emission measurement below 30MHz.



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



The test setup for emission measurement above 1 GHz.



8.3 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

8.4 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 during radiated emissions above 1GHz measurement.

8.5 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:

$$\text{Corr. Ampl.} = \text{Indicated Reading} + \text{Antenna Factor} + \text{Cable Factor} - \text{Amplifier Gain}$$

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:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Limit}$$

8.6 Summary of Test Results

Wifi:

Test Frequency : 26MHz ~ 30MHz

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

Test Frequency : 30MHz ~ 18GHz

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dB μ V)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
11b: Low Channel 2412MHz									
223.45	40.17	QP	54	1.8	H	-11.62	28.55	46.00	-17.45
223.45	36.45	QP	320	1.1	V	-11.62	24.83	46.00	-21.17
4824.00	50.84	PK	20	1.7	V	-1.06	49.78	74.00	-24.22
4824.00	47.16	Ave	20	1.7	V	-1.06	46.10	54.00	-7.90
7236.00	41.38	PK	171	1.7	H	1.33	42.71	74.00	-31.29
7236.00	40.50	Ave	171	1.7	H	1.33	41.83	54.00	-12.17
2336.81	46.89	PK	65	1.2	V	-13.19	33.70	74.00	-40.30
2336.81	39.58	Ave	65	1.2	V	-13.19	26.39	54.00	-27.61
2360.29	43.13	PK	51	1.0	H	-13.14	29.99	74.00	-44.01
2360.29	37.42	Ave	51	1.0	H	-13.14	24.28	54.00	-29.72
2499.33	44.28	PK	141	1.9	V	-13.08	31.20	74.00	-42.80
2499.33	37.52	Ave	141	1.9	V	-13.08	24.44	54.00	-29.56

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dB μ V)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
11b: Middle Channel 2437MHz									
223.45	40.84	QP	222	1.7	H	-11.62	29.22	46.00	-16.78
223.45	37.43	QP	290	1.1	V	-11.62	25.81	46.00	-20.19
4874.00	50.35	PK	357	1.6	V	-0.62	49.73	74.00	-24.27
4874.00	46.86	Ave	357	1.6	V	-0.62	46.24	54.00	-7.76
7311.00	41.10	PK	178	1.7	H	2.21	43.31	74.00	-30.69
7311.00	40.10	Ave	178	1.7	H	2.21	42.31	54.00	-11.69
2333.72	46.27	PK	288	2.0	V	-13.19	33.08	74.00	-40.92
2333.72	37.65	Ave	288	2.0	V	-13.19	24.46	54.00	-29.54
2362.63	44.37	PK	270	1.6	H	-13.14	31.23	74.00	-42.77
2362.63	36.11	Ave	270	1.6	H	-13.14	22.97	54.00	-31.03
2496.01	43.33	PK	146	1.4	V	-13.08	30.25	74.00	-43.75
2496.01	36.76	Ave	146	1.4	V	-13.08	23.68	54.00	-30.32

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dB μ V)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
11b: High Channel 2462MHz									
223.45	41.07	QP	29	1.2	H	-11.62	29.45	46.00	-16.55
223.45	38.41	QP	349	1.5	V	-11.62	26.79	46.00	-19.21
4924.00	51.74	PK	179	1.8	V	-0.24	51.50	74.00	-22.50
4924.00	47.49	Ave	179	1.8	V	-0.24	47.25	54.00	-6.75
7386.00	39.78	PK	109	1.2	H	2.84	42.62	74.00	-31.38
7386.00	38.99	Ave	109	1.2	H	2.84	41.83	54.00	-12.17
2348.84	45.81	PK	131	1.1	V	-13.19	32.62	74.00	-41.38
2348.84	39.35	Ave	131	1.1	V	-13.19	26.16	54.00	-27.84
2381.17	44.85	PK	253	1.2	H	-13.14	31.71	74.00	-42.29
2381.17	38.60	Ave	253	1.2	H	-13.14	25.46	54.00	-28.54
2499.94	44.66	PK	69	1.2	V	-13.08	31.58	74.00	-42.42
2499.94	38.12	Ave	69	1.2	V	-13.08	25.04	54.00	-28.96

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dB μ V)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
11g: Low Channel 2412MHz									
223.45	40.50	QP	86	1.2	H	-11.62	28.88	46.00	-17.12
223.45	38.76	QP	36	1.1	V	-11.62	27.14	46.00	-18.86
4824.00	51.98	PK	281	1.8	V	-1.06	50.92	74.00	-23.08
4824.00	48.67	Ave	281	1.8	V	-1.06	47.61	54.00	-6.39
7236.00	38.74	PK	64	2.0	H	1.33	40.07	74.00	-33.93
7236.00	40.20	Ave	64	2.0	H	1.33	41.53	54.00	-12.47
2332.88	46.60	PK	57	1.4	V	-13.19	33.41	74.00	-40.59
2332.88	39.90	Ave	57	1.4	V	-13.19	26.71	54.00	-27.29
2364.18	44.33	PK	130	1.9	H	-13.14	31.19	74.00	-42.81
2364.18	36.98	Ave	130	1.9	H	-13.14	23.84	54.00	-30.16
2498.74	42.03	PK	251	1.1	V	-13.08	28.95	74.00	-45.05
2498.74	36.82	Ave	251	1.1	V	-13.08	23.74	54.00	-30.26

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dB μ V)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
11g: Middle Channel 2437MHz									
223.45	41.95	QP	238	1.7	H	-11.62	30.33	46.00	-15.67
223.45	37.97	QP	150	1.0	V	-11.62	26.35	46.00	-19.65
4874.00	50.66	PK	152	1.3	V	-0.62	50.04	74.00	-23.96
4874.00	49.28	Ave	152	1.3	V	-0.62	48.66	54.00	-5.34
7311.00	37.92	PK	132	1.1	H	2.21	40.13	74.00	-33.87
7311.00	41.59	Ave	132	1.1	H	2.21	43.80	54.00	-10.20
2313.71	46.84	PK	136	1.4	V	-13.19	33.65	74.00	-40.35
2313.71	37.94	Ave	136	1.4	V	-13.19	24.75	54.00	-29.25
2369.40	43.30	PK	167	1.1	H	-13.14	30.16	74.00	-43.84
2369.40	37.84	Ave	167	1.1	H	-13.14	24.70	54.00	-29.30
2493.85	43.92	PK	294	1.5	V	-13.08	30.84	74.00	-43.16
2493.85	38.53	Ave	294	1.5	V	-13.08	25.45	54.00	-28.55

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dB μ V)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
11g: High Channel 2462MHz									
223.45	41.94	QP	332	1.1	H	-11.62	30.32	46.00	-15.68
223.45	38.87	QP	278	1.3	V	-11.62	27.25	46.00	-18.75
4924.00	51.19	PK	298	1.0	V	-0.24	50.95	74.00	-23.05
4924.00	49.51	Ave	298	1.0	V	-0.24	49.27	54.00	-4.73
7386.00	38.57	PK	58	1.3	H	2.84	41.41	74.00	-32.59
7386.00	40.20	Ave	58	1.3	H	2.84	43.04	54.00	-10.96
2349.26	46.31	PK	63	1.6	V	-13.19	33.12	74.00	-40.88
2349.26	38.88	Ave	63	1.6	V	-13.19	25.69	54.00	-28.31
2375.66	42.18	PK	127	1.4	H	-13.14	29.04	74.00	-44.96
2375.66	38.97	Ave	127	1.4	H	-13.14	25.83	54.00	-28.17
2494.37	44.18	PK	338	1.2	V	-13.08	31.10	74.00	-42.90
2494.37	36.86	Ave	338	1.2	V	-13.08	23.78	54.00	-30.22

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dB μ V)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
n20: Low Channel 2412MHz									
223.45	42.82	QP	101	1.7	H	-11.62	31.20	46.00	-14.80
223.45	38.89	QP	100	1.2	V	-11.62	27.27	46.00	-18.73
4824.00	51.73	PK	204	1.8	V	-1.06	50.67	74.00	-23.33
4824.00	48.49	Ave	204	1.8	V	-1.06	47.43	54.00	-6.57
7236.00	39.72	PK	298	1.2	H	1.33	41.05	74.00	-32.95
7236.00	39.60	Ave	298	1.2	H	1.33	40.93	54.00	-13.07
2343.30	46.33	PK	1	1.9	V	-13.19	33.14	74.00	-40.86
2343.30	39.65	Ave	1	1.9	V	-13.19	26.46	54.00	-27.54
2388.13	44.72	PK	153	1.7	H	-13.14	31.58	74.00	-42.42
2388.13	36.16	Ave	153	1.7	H	-13.14	23.02	54.00	-30.98
2490.25	44.07	PK	82	1.5	V	-13.08	30.99	74.00	-43.01
2490.25	36.12	Ave	82	1.5	V	-13.08	23.04	54.00	-30.96

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dB μ V)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
n20: Middle Channel 2437MHz									
223.45	43.43	QP	352	1.3	H	-11.62	31.81	46.00	-14.19
223.45	37.39	QP	349	1.2	V	-11.62	25.77	46.00	-20.23
4874.00	51.88	PK	94	1.5	V	-0.62	51.26	74.00	-22.74
4874.00	48.34	Ave	94	1.5	V	-0.62	47.72	54.00	-6.28
7311.00	41.21	PK	356	1.0	H	2.21	43.42	74.00	-30.58
7311.00	40.85	Ave	356	1.0	H	2.21	43.06	54.00	-10.94
2342.33	45.90	PK	226	1.1	V	-13.19	32.71	74.00	-41.29
2342.33	38.44	Ave	226	1.1	V	-13.19	25.25	54.00	-28.75
2350.91	44.81	PK	148	1.9	H	-13.14	31.67	74.00	-42.33
2350.91	36.24	Ave	148	1.9	H	-13.14	23.10	54.00	-30.90
2496.74	42.03	PK	266	1.9	V	-13.08	28.95	74.00	-45.05
2496.74	38.65	Ave	266	1.9	V	-13.08	25.57	54.00	-28.43

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dB μ V)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
n20: High Channel 2462MHz									
223.45	44.58	QP	32	1.7	H	-11.62	32.96	46.00	-13.04
223.45	37.10	QP	198	1.8	V	-11.62	25.48	46.00	-20.52
4924.00	51.67	PK	264	1.5	V	-0.24	51.43	74.00	-22.57
4924.00	47.87	Ave	264	1.5	V	-0.24	47.63	54.00	-6.37
7386.00	40.26	PK	22	1.5	H	2.84	43.10	74.00	-30.90
7386.00	41.67	Ave	22	1.5	H	2.84	44.51	54.00	-9.49
2334.38	46.34	PK	311	1.1	V	-13.19	33.15	74.00	-40.85
2334.38	39.06	Ave	311	1.1	V	-13.19	25.87	54.00	-28.13
2357.81	42.22	PK	49	1.6	H	-13.14	29.08	74.00	-44.92
2357.81	38.32	Ave	49	1.6	H	-13.14	25.18	54.00	-28.82
2487.55	44.94	PK	86	1.7	V	-13.08	31.86	74.00	-42.14
2487.55	38.95	Ave	86	1.7	V	-13.08	25.87	54.00	-28.13

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dB μ V)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
N40: Low Channel 2422MHz									
223.45	46.04	QP	12	1.8	H	-11.62	34.42	46.00	-11.58
223.45	36.36	QP	216	1.4	V	-11.62	24.74	46.00	-21.26
4844.00	49.94	PK	51	1.7	V	-1.06	48.88	74.00	-25.12
4844.00	46.76	Ave	51	1.7	V	-1.06	45.70	54.00	-8.30
7266.00	38.59	PK	90	1.3	H	1.33	39.92	74.00	-34.08
7266.00	40.17	Ave	90	1.3	H	1.33	41.50	54.00	-12.50
2337.70	45.36	PK	279	1.4	V	-13.19	32.17	74.00	-41.83
2337.70	38.15	Ave	279	1.4	V	-13.19	24.96	54.00	-29.04
2358.02	43.71	PK	6	1.7	H	-13.14	30.57	74.00	-43.43
2358.02	36.68	Ave	6	1.7	H	-13.14	23.54	54.00	-30.46
2488.06	42.62	PK	260	1.3	V	-13.08	29.54	74.00	-44.46
2488.06	37.64	Ave	260	1.3	V	-13.08	24.56	54.00	-29.44

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dB μ V)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
N40: Middle Channel 2437MHz									
223.45	46.77	QP	343	1.0	H	-11.62	35.15	46.00	-10.85
223.45	37.10	QP	129	2.0	V	-11.62	25.48	46.00	-20.52
4874.00	49.87	PK	248	1.2	V	-0.62	49.25	74.00	-24.75
4874.00	46.44	Ave	248	1.2	V	-0.62	45.82	54.00	-8.18
7311.00	39.24	PK	124	1.2	H	2.21	41.45	74.00	-32.55
7311.00	39.63	Ave	124	1.2	H	2.21	41.84	54.00	-12.16
2324.29	45.79	PK	82	1.9	V	-13.19	32.60	74.00	-41.40
2324.29	37.87	Ave	82	1.9	V	-13.19	24.68	54.00	-29.32
2367.72	43.31	PK	119	1.2	H	-13.14	30.17	74.00	-43.83
2367.72	38.07	Ave	119	1.2	H	-13.14	24.93	54.00	-29.07
2485.51	43.07	PK	277	1.3	V	-13.08	29.99	74.00	-44.01
2485.51	37.28	Ave	277	1.3	V	-13.08	24.20	54.00	-29.80

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dB μ V)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dB μ V/m)	(dB μ V/m)	(dB)
N40: High Channel 2452MHz									
223.45	47.71	QP	335	1.9	H	-11.62	36.09	46.00	-9.91
223.45	36.19	QP	246	1.6	V	-11.62	24.57	46.00	-21.43
4904.00	49.83	PK	340	1.7	V	-0.24	49.59	74.00	-24.41
4904.00	45.56	Ave	340	1.7	V	-0.24	45.32	54.00	-8.68
7356.00	40.04	PK	166	1.6	H	2.84	42.88	74.00	-31.12
7356.00	39.70	Ave	166	1.6	H	2.84	42.54	54.00	-11.46
2325.21	45.40	PK	79	1.5	V	-13.19	32.21	74.00	-41.79
2325.21	37.48	Ave	79	1.5	V	-13.19	24.29	54.00	-29.71
2363.14	42.97	PK	121	2.0	H	-13.14	29.83	74.00	-44.17
2363.14	38.59	Ave	121	2.0	H	-13.14	25.45	54.00	-28.55
2493.63	43.04	PK	197	1.1	V	-13.08	29.96	74.00	-44.04
2493.63	38.86	Ave	197	1.1	V	-13.08	25.78	54.00	-28.22

Test Frequency: 18GHz~25GHz

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

9 Conducted Spurious Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.247
Test Method: KDB 558074 D01 DTS Meas Guidance v03r04 06/09/2015
Test Result: PASS
Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

2.1 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, Sweep = auto
Detector function = peak, Trace = max hold

2.2 Test Result

802.11b

Low Channel

Fundamental



Middle Channel

Fundamental



High Channel

Fundamental



802.11g

Low Channel

Fundamental



Middle Channel

Fundamental



High Channel

Fundamental



802.11n HT20

Low Channel

Fundamental



Middle Channel

Fundamental



High Channel

Fundamental



802.11n HT40

Low Channel

Fundamental



Middle Channel

Fundamental



High Channel

Fundamental



10 Band Edge Measurement

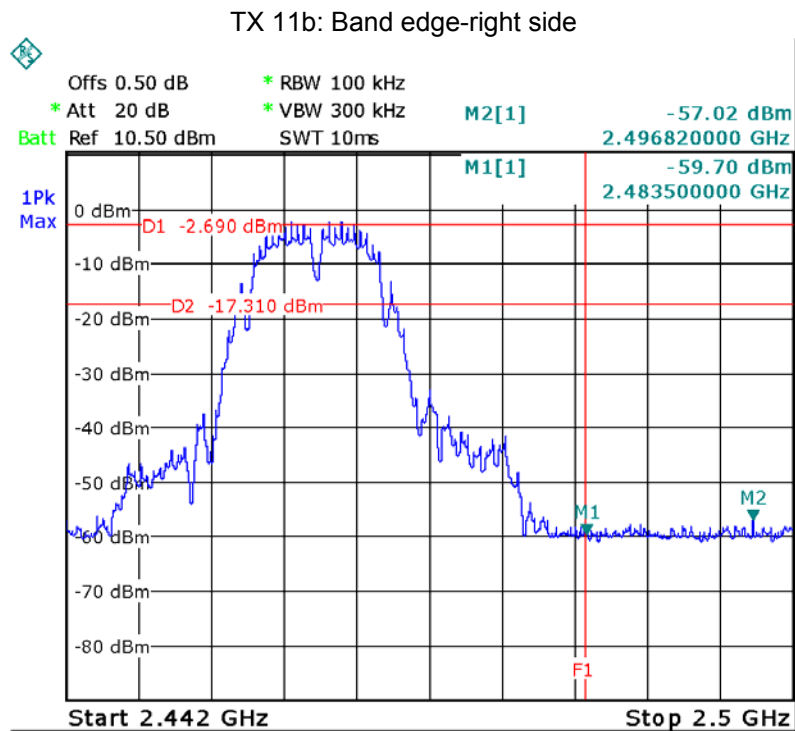
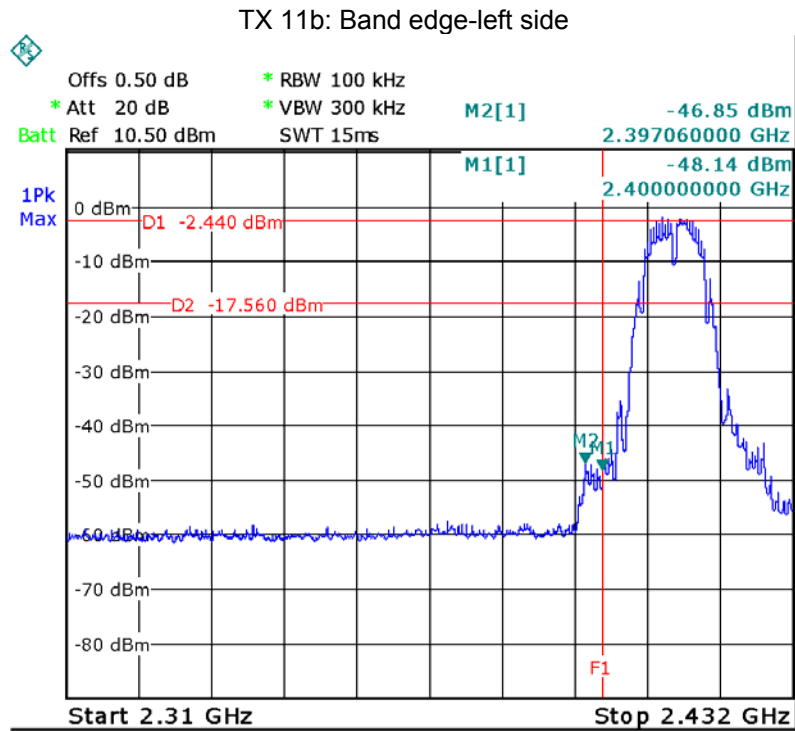
Test Requirement:	FCC CFR47 Part 15 Section 15.247
Test Method:	KDB 558074 D01 DTS Meas Guidance v03r04 06/09/2015
Test Limit:	Regulation 15.247 (d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).
Test Mode:	Transmitting

10.1 Test Produce

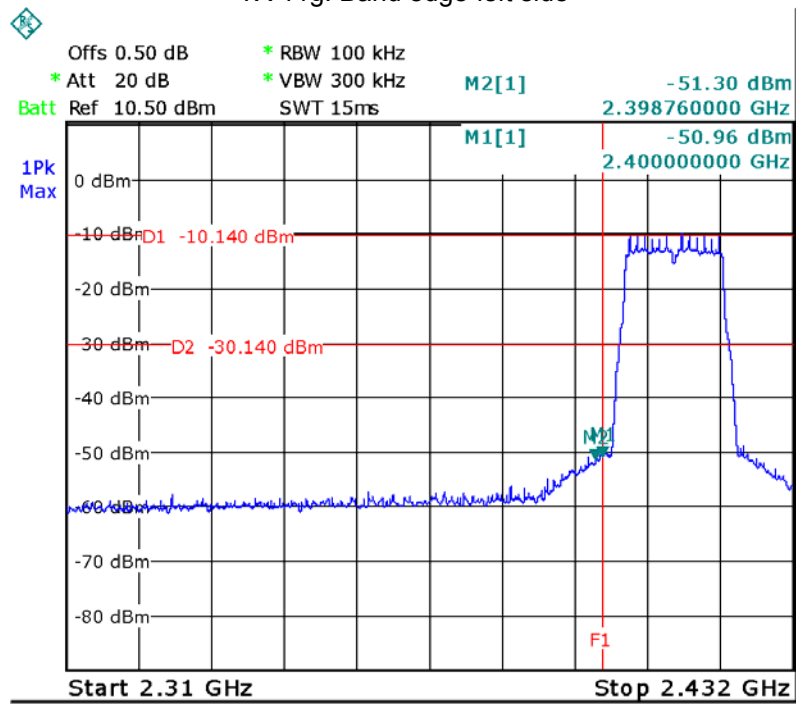
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then 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.

10.2 Test Result

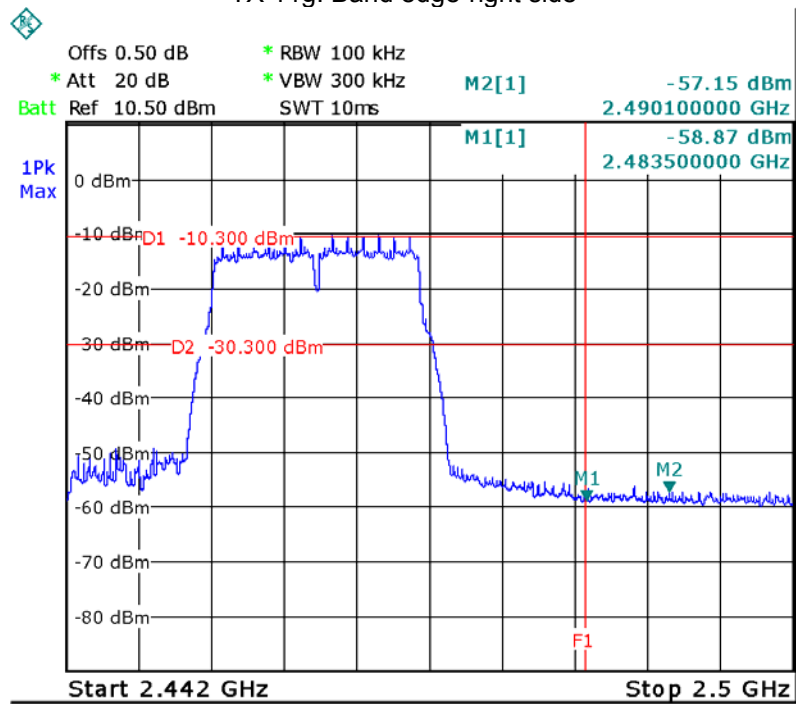
Test result plots shown as follows:



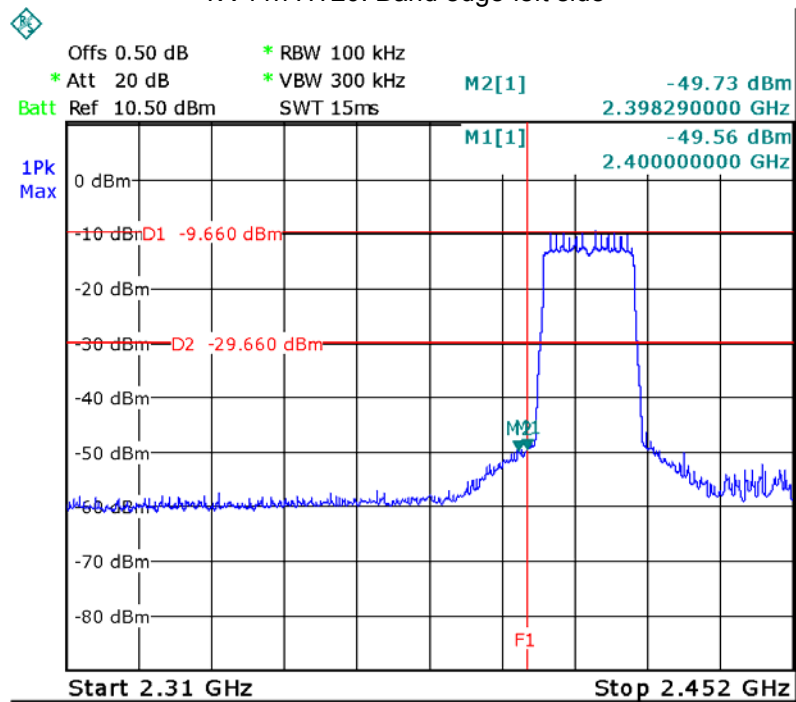
TX 11g: Band edge-left side



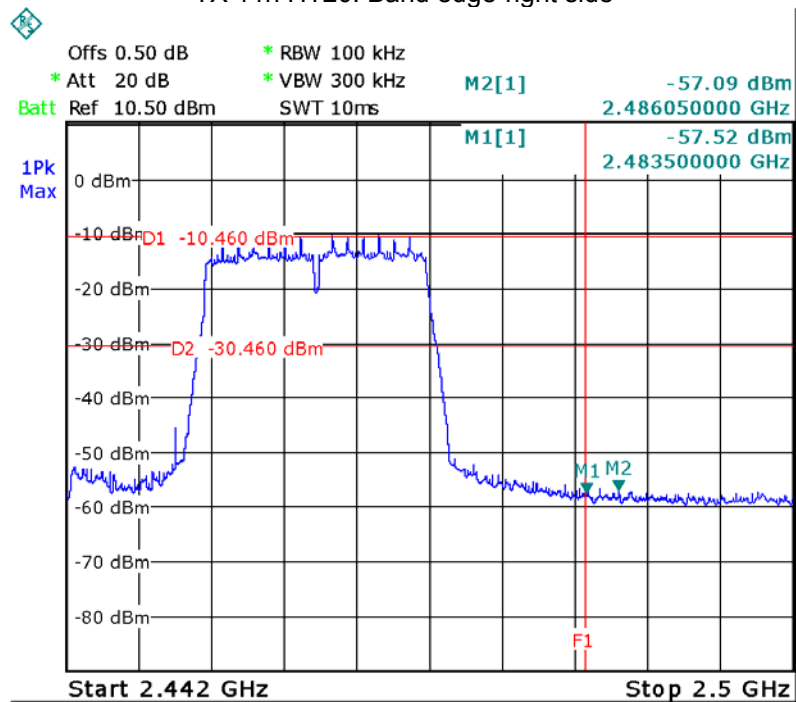
TX 11g: Band edge-right side



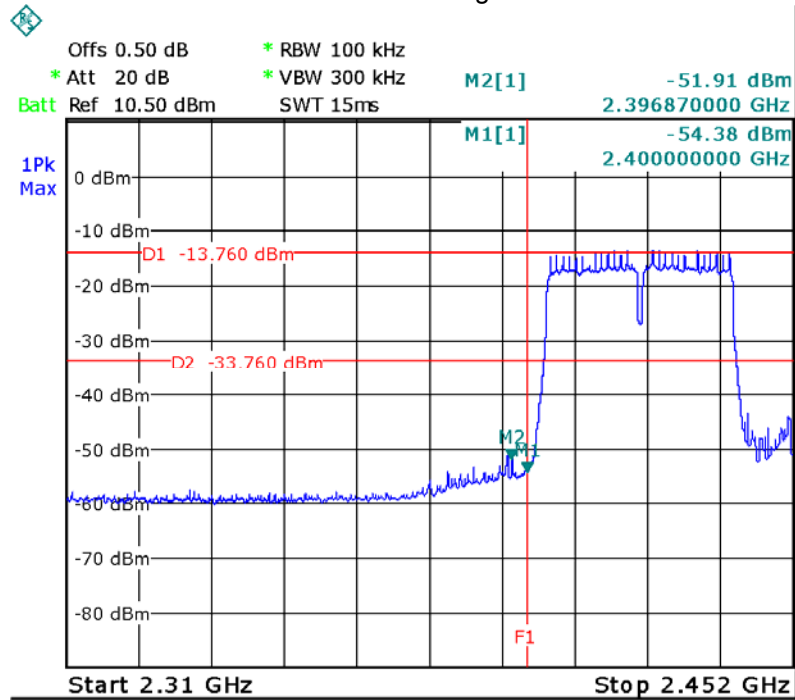
TX 11n HT20: Band edge-left side



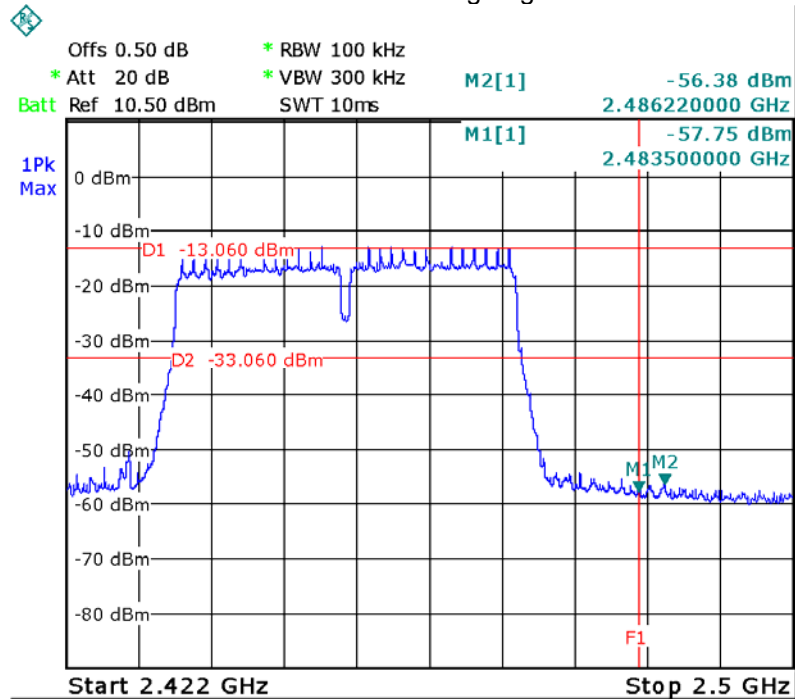
TX 11n HT20: Band edge-right side



TX 11n HT40: Band edge-left side



TX 11n HT40: Band edge-right side



11 6 dB Bandwidth Measurement

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: KDB 558074 D01 DTS Meas Guidance v03r04 06/09/2015

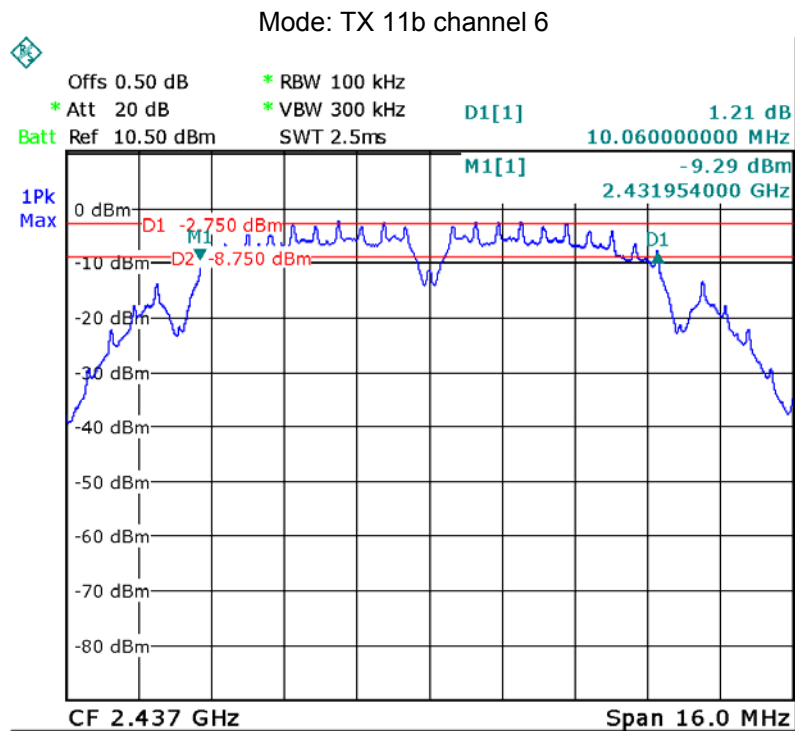
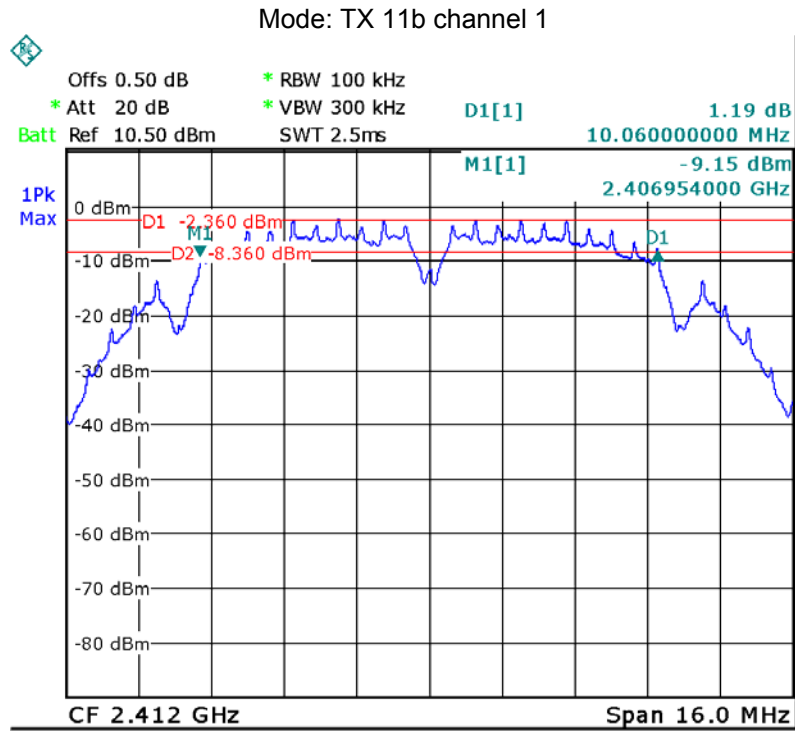
11.1 Test Procedure:

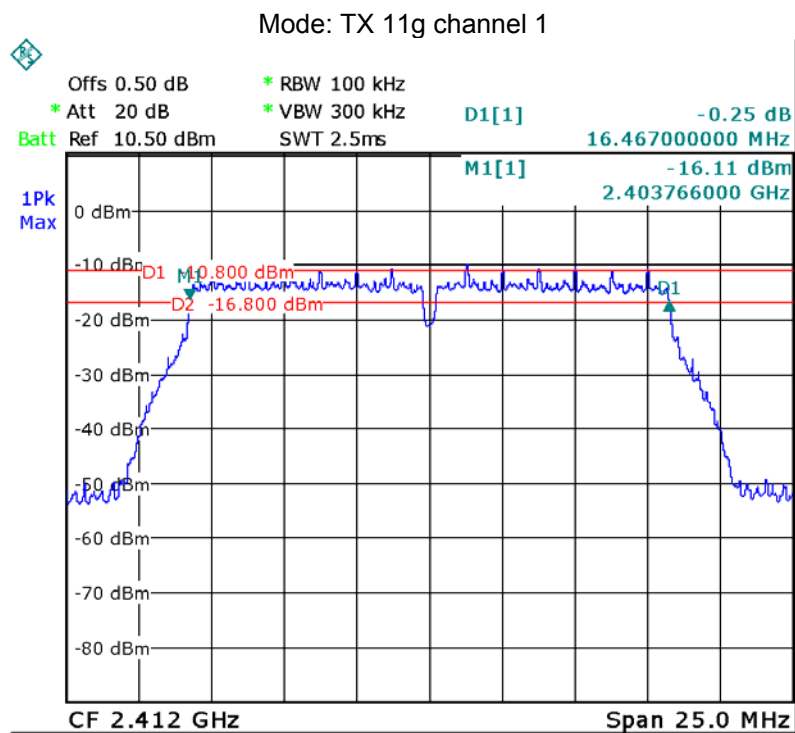
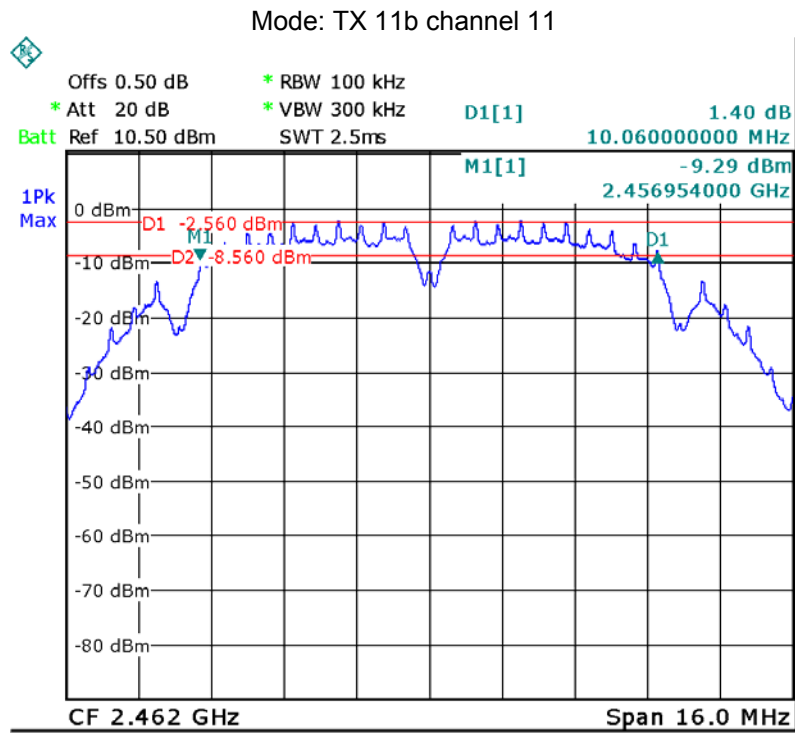
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum;
2. Set the spectrum analyzer: RBW = 100kHz, VBW = 300kHz

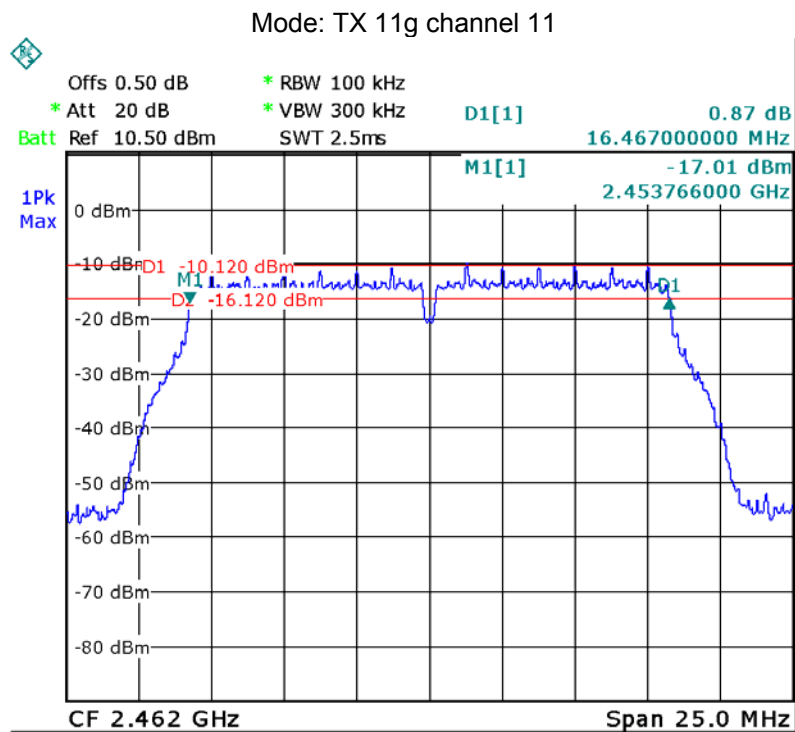
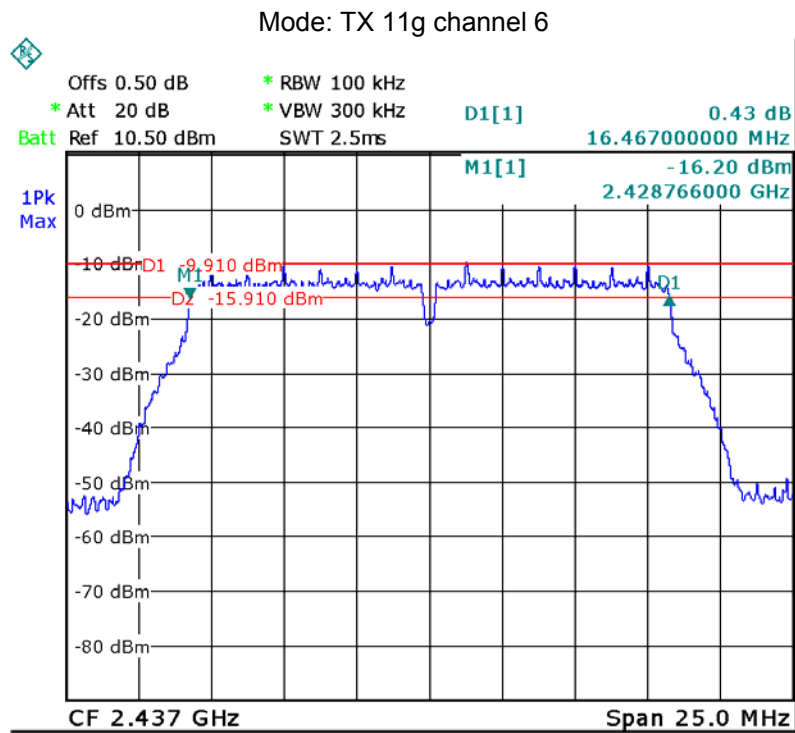
11.2 Test Result:

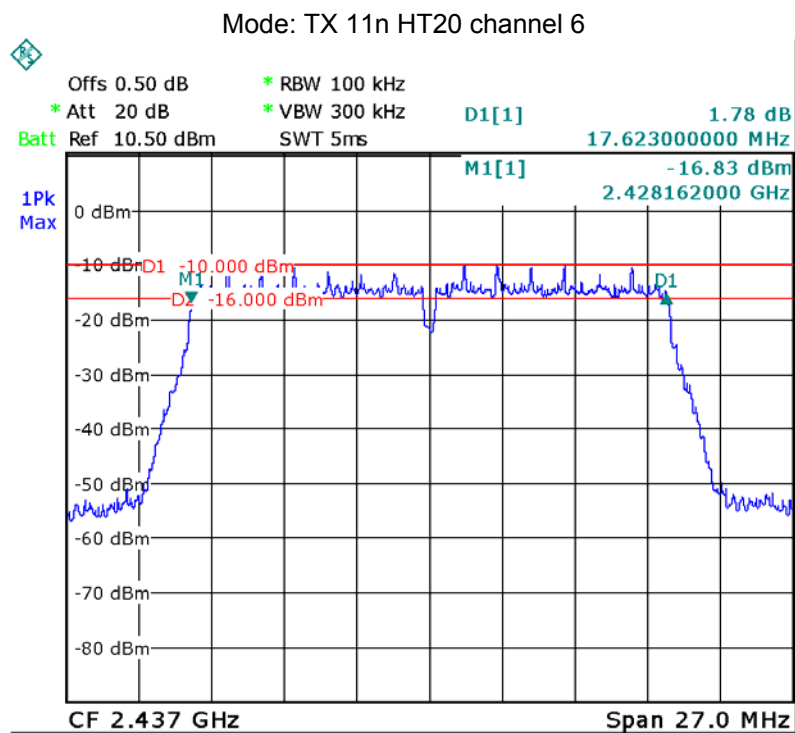
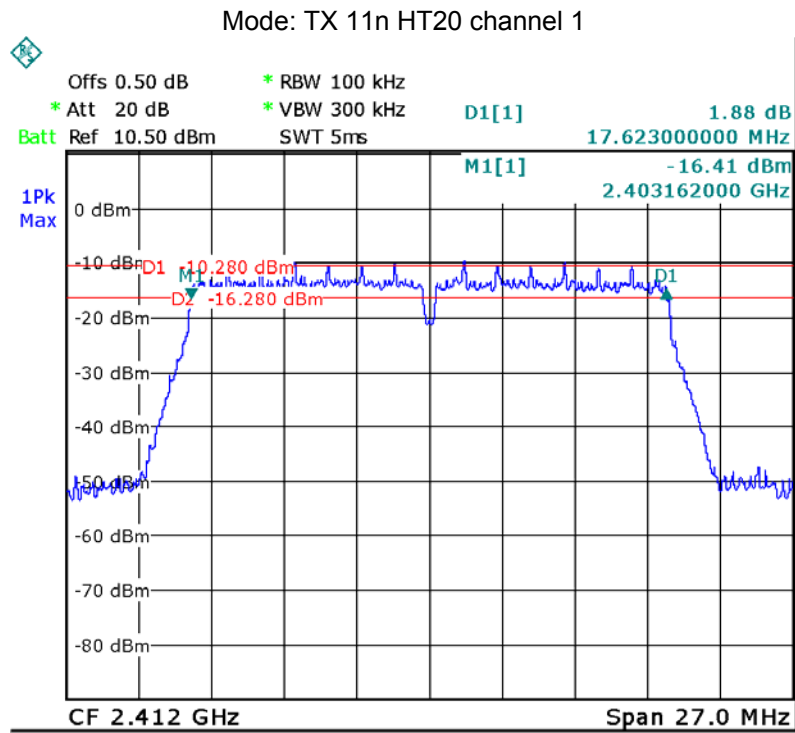
Operation mode	Bandwidth (MHz)		
	Channel 1	Channel 6	Channel 11
TX 11b	Channel 1	Channel 6	Channel 11
	10.060	10.060	10.060
TX 11g	Channel 1	Channel 6	Channel 11
	16.467	16.467	16.467
TX 11n HT20	Channel 1	Channel 6	Channel 11
	17.623	17.623	17.623
TX 11n HT40	Channel 3	Channel 6	Channel 9
	36.340	36.230	36.230

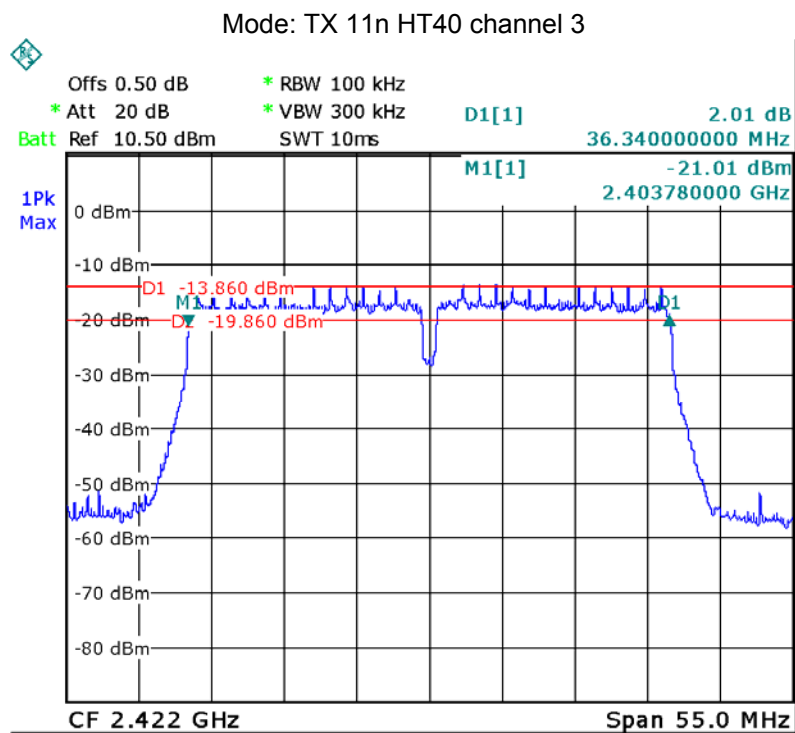
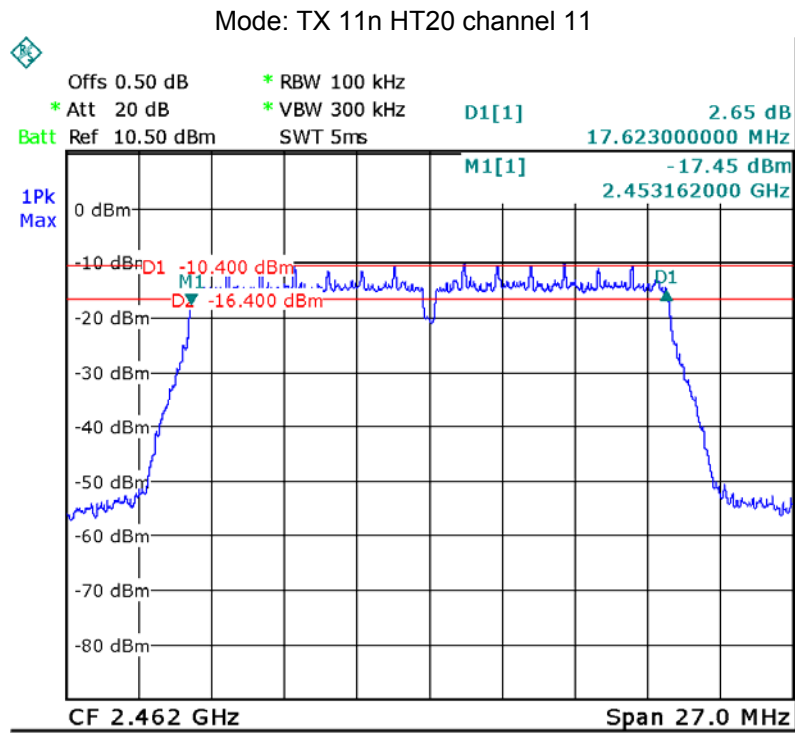
Test result plot as follows:

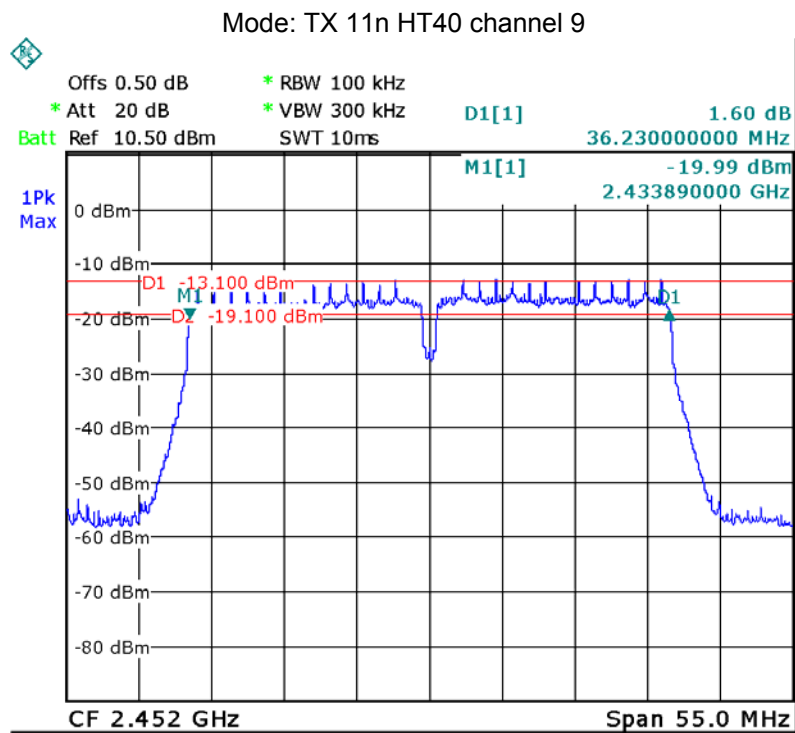
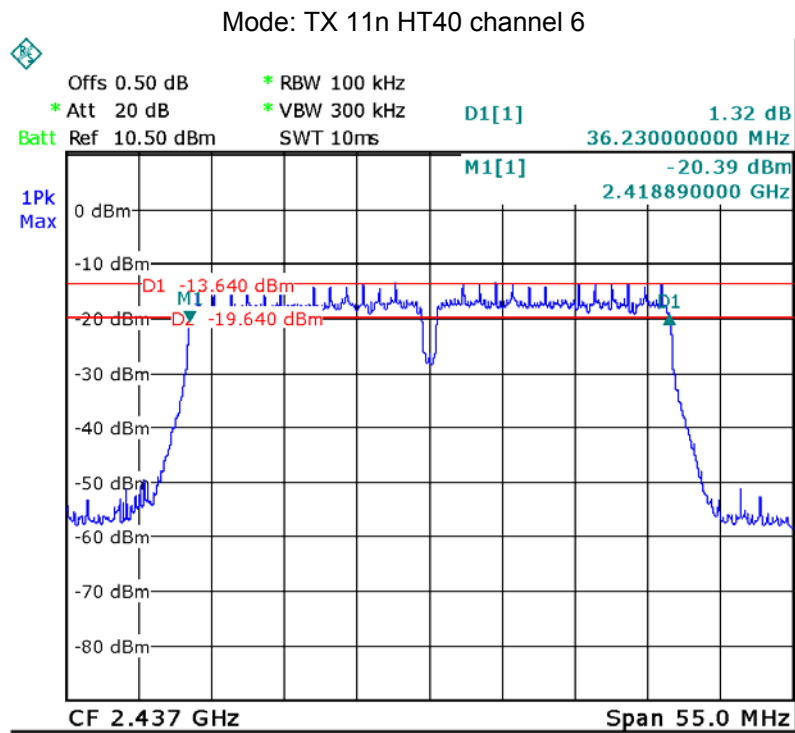












12 Maximum Peak Output Power

Test Requirement:

FCC CFR47 Part 15 Section 15.247

Test Method:

KDB 558074 D01 DTS Meas Guidance v03r04 06/09/2015

12.1 Test Procedure:

KDB 558074 D01 DTS Meas Guidance v03r04 06/09/2015

section 9.1.1 (For BLE)

This procedure shall be used when the measurement instrument has available a resolution bandwidth that is greater than the DTS bandwidth.

- a) Set the $RBW \geq$ DTS bandwidth.
- b) Set $VBW \geq 3$ RBW.
- c) Set $span \geq 3 \times RBW$
- d) Sweep time = auto couple.
- e) Detector = peak.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use peak marker function to determine the peak amplitude level.

section 9.1.2 (For WIFI)

This procedure may be used when the maximum available RBW of the measurement instrument is less than the DTS bandwidth.

- a) Set the $RBW = 1$ MHz.
- b) Set the $VBW \geq 3$ RBW
- c) Set the $span \geq 1.5 \times$ DTS bandwidth.
- d) Detector = peak.
- e) Sweep time = auto couple.
- f) Trace mode = max hold.
- g) Allow trace to fully stabilize.
- h) Use the instrument's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some instruments, this may require a manual override to select peak detector). If the instrument does not have a band power function, sum the spectrum levels (in linear power units) at intervals equal to the RBW extending across the DTS bandwidth.

12.2 Test Result:

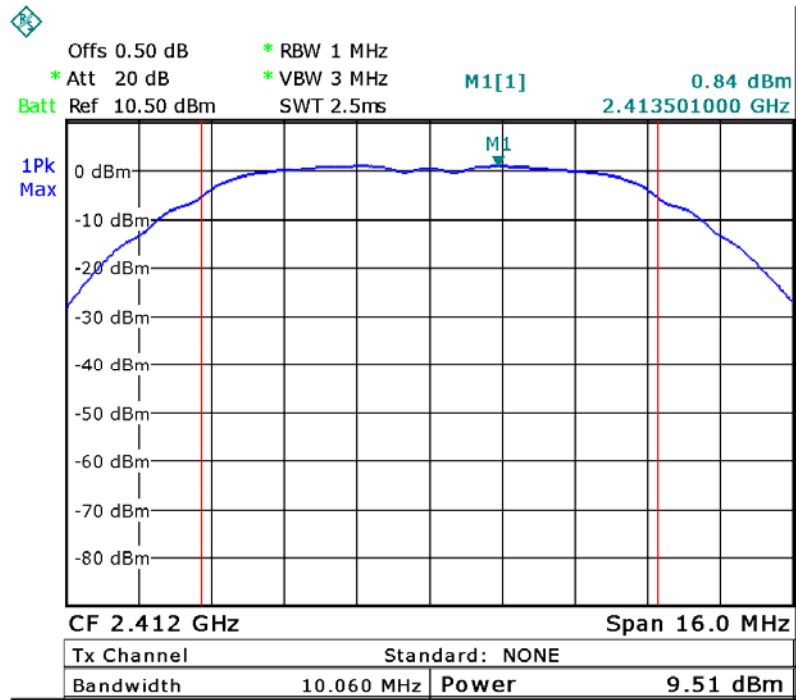
Test mode :TX 11b		
Maximum Peak Output Power (dBm)		
2412MHz	2437MHz	2462MHz
9.51	9.29	9.52
Limit: 1W/30dBm		

Test mode :TX 11g		
Maximum Peak Output Power (dBm)		
2412MHz	2437MHz	2462MHz
9.17	9.35	9.21
Limit: 1W/30dBm		

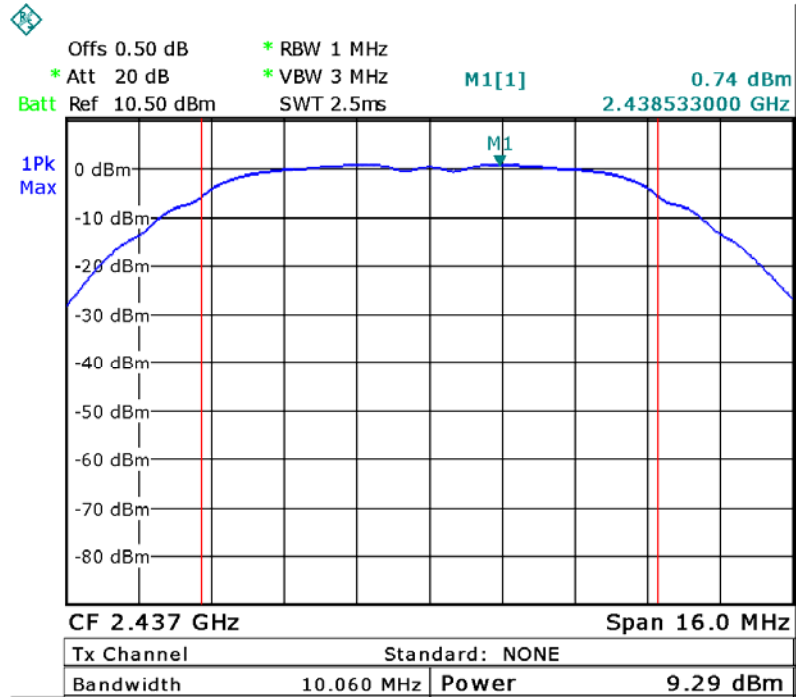
Test mode :TX 11n HT20		
Maximum Peak Output Power (dBm)		
2412MHz	2437MHz	2462MHz
9.62	9.29	9.11
Limit: 1W/30dBm		

Test mode :TX 11n HT40		
Maximum Peak Output Power (dBm)		
2422MHz	2437MHz	2452MHz
9.32	9.37	9.40
Limit: 1W/30dBm		

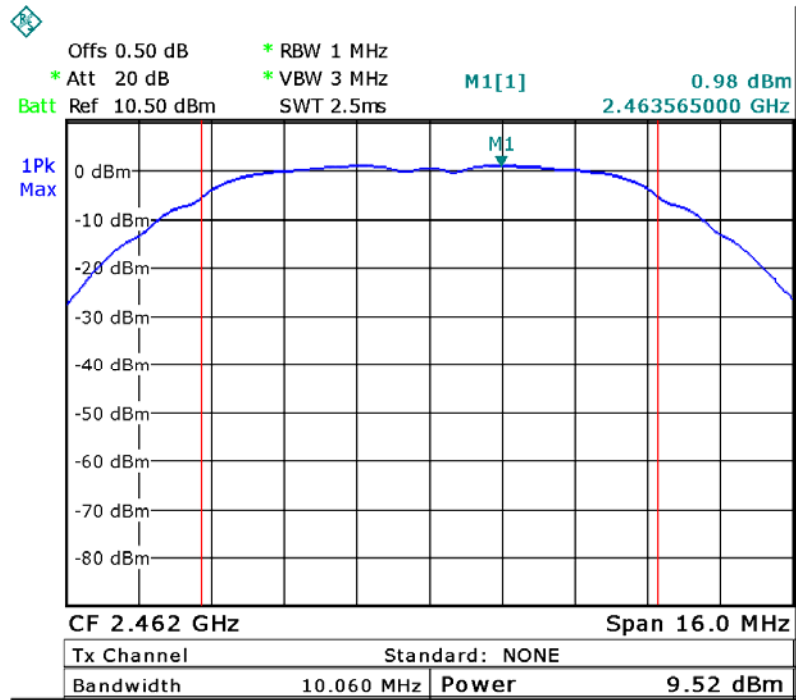
Mode: TX 11b channel 1



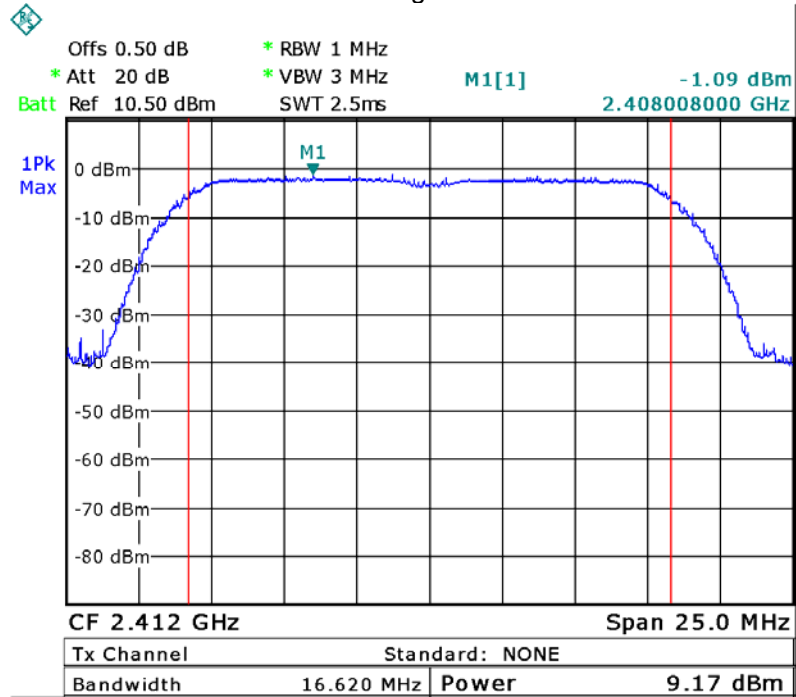
Mode: TX 11b channel 6

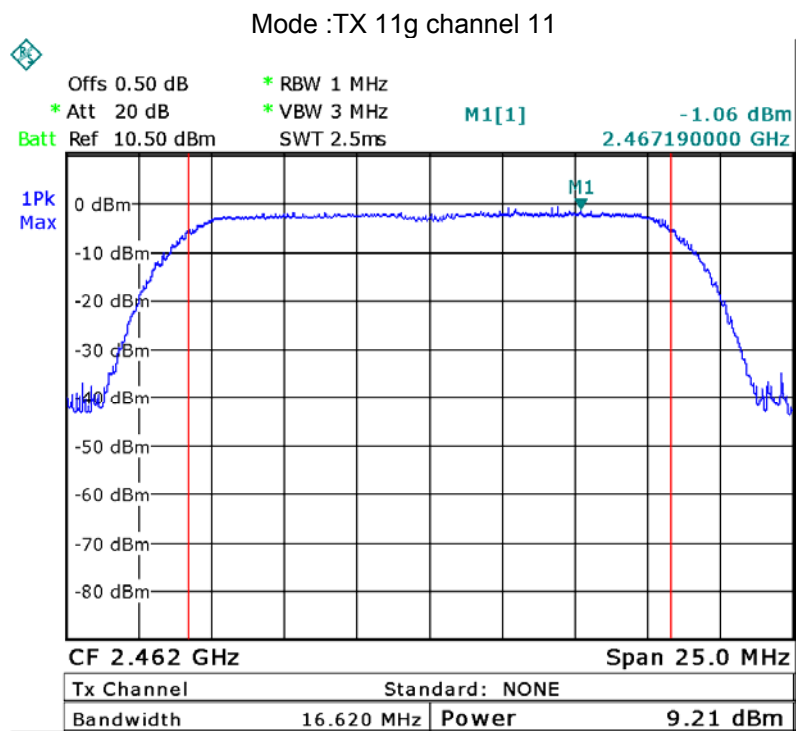
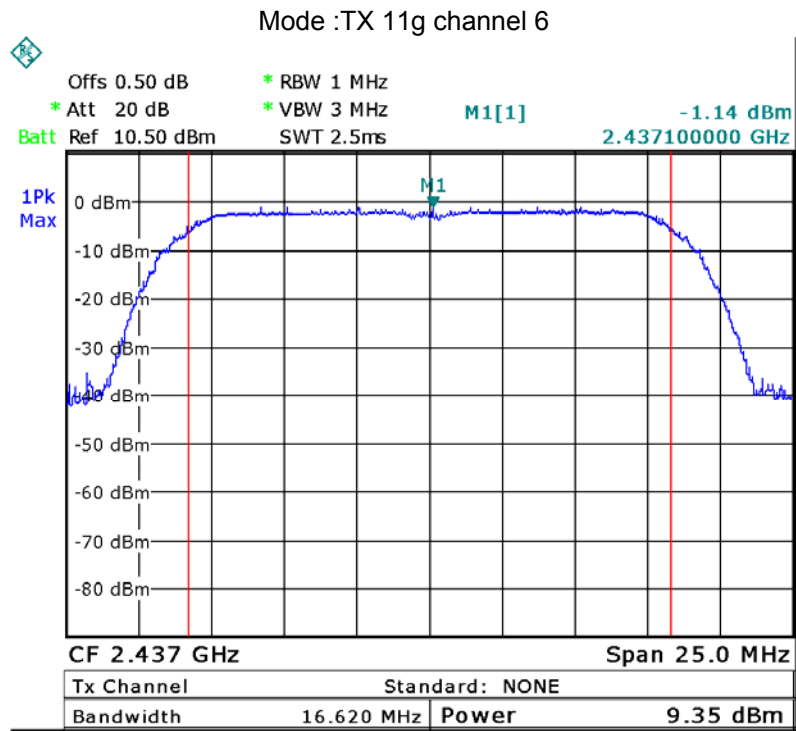


Mode: TX 11b channel 11

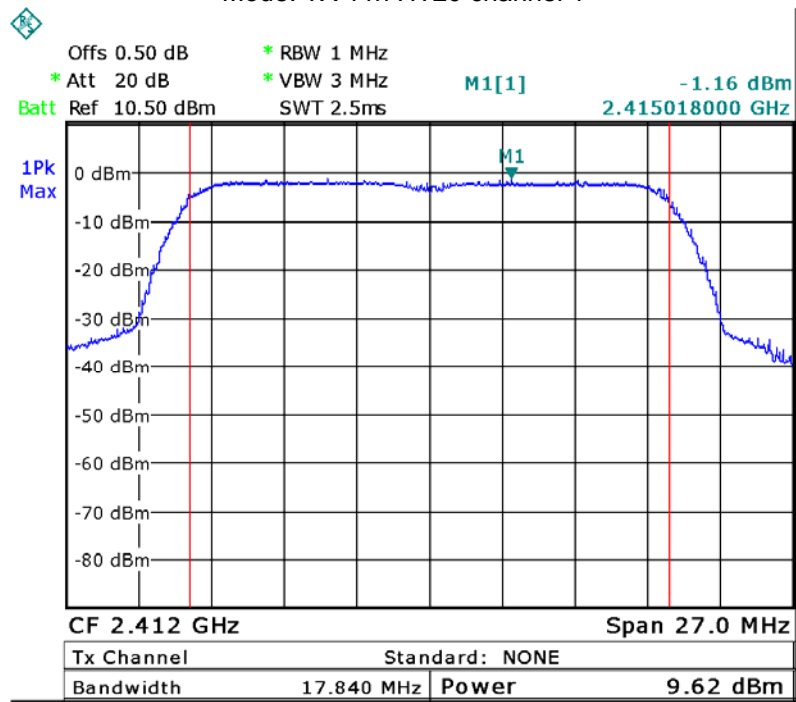


Mode :TX 11g channel 1

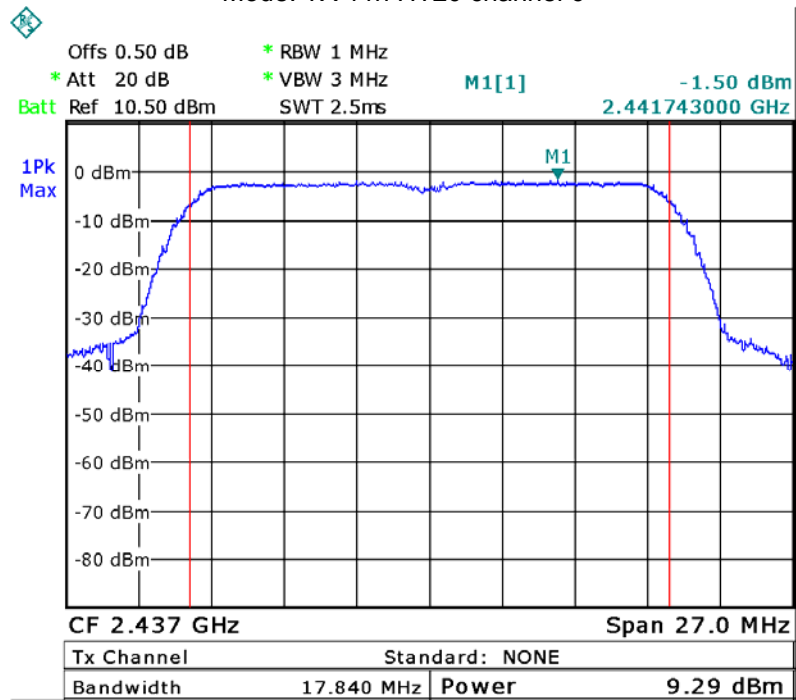




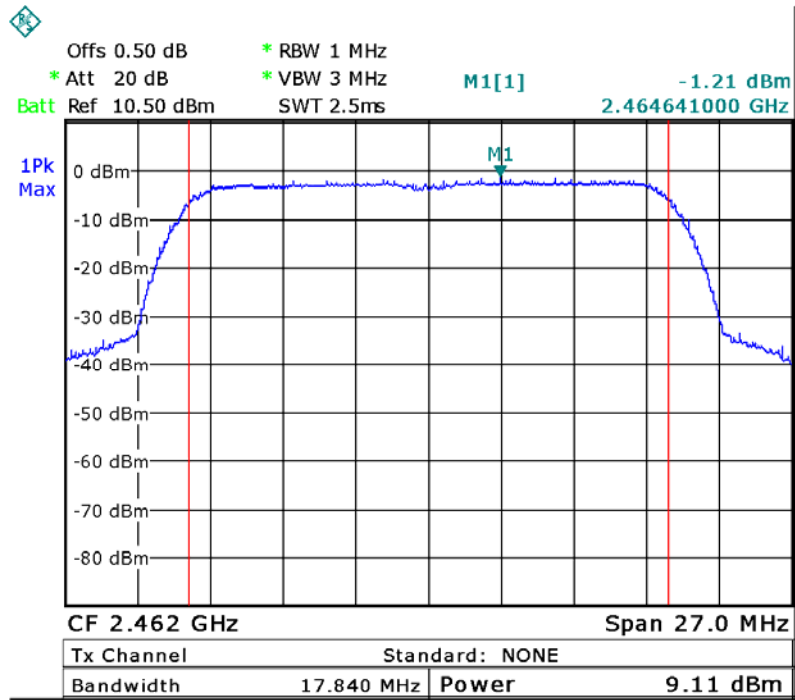
Mode: TX 11n HT20 channel 1



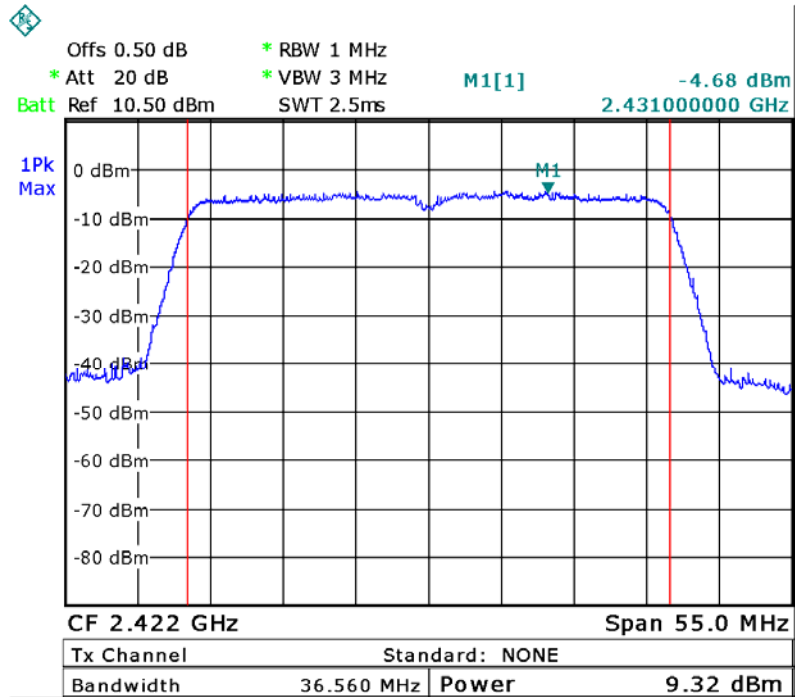
Mode: TX 11n HT20 channel 6



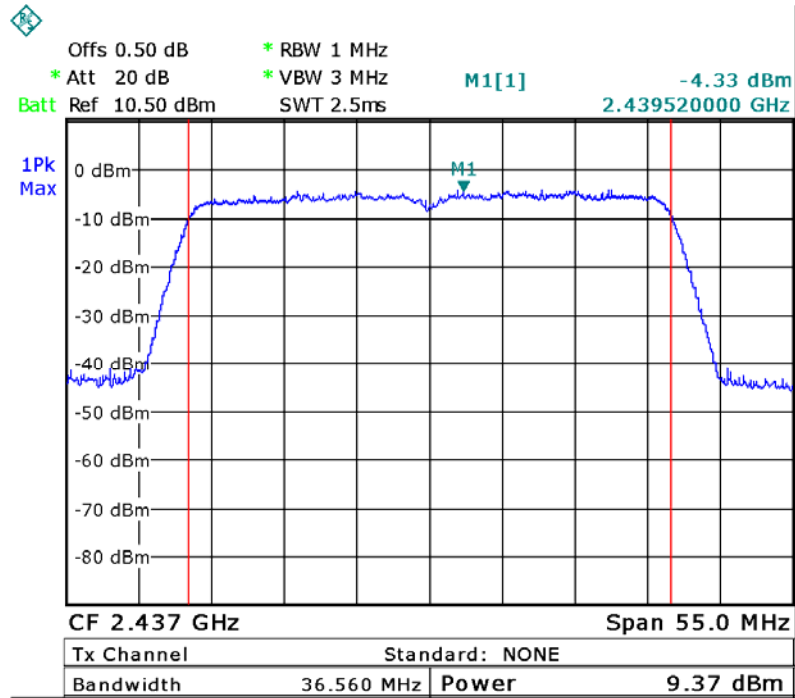
Mode: TX 11n HT20 channel 11



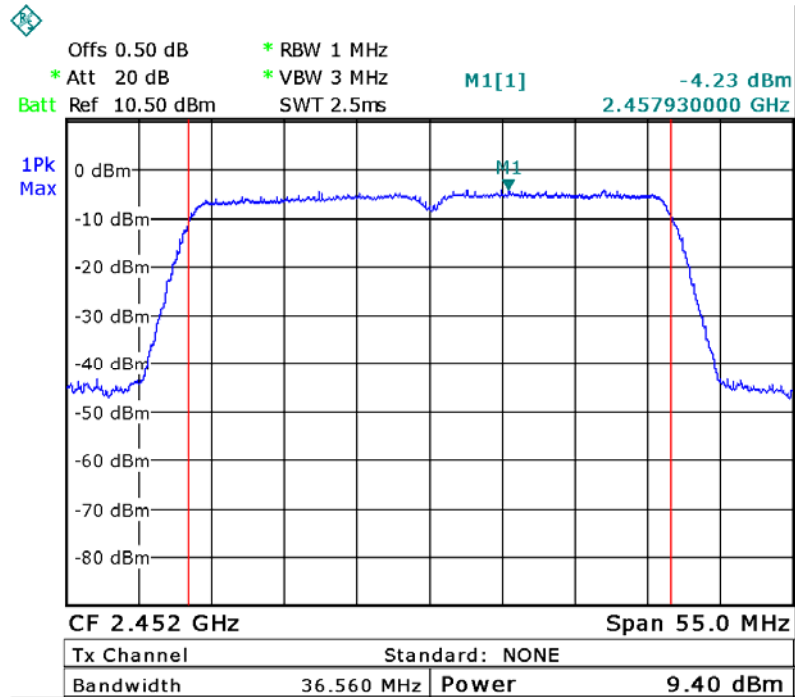
Mode: TX 11n HT40 channel 3



Mode: TX 11n HT40 channel 6



Mode: TX 11n HT40 channel 9



13 Power Spectral density

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: KDB 558074 D01 DTS Meas Guidance v03r04

13.1 Test Procedure:

KDB 558074 D01 DTS Meas Guidance v03r04 06/09/2015 section 10.2

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 = 3kHz. VBW = 10kHz , Span = 1.5 times the DTS channel bandwidth(6 dB bandwidth). 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.

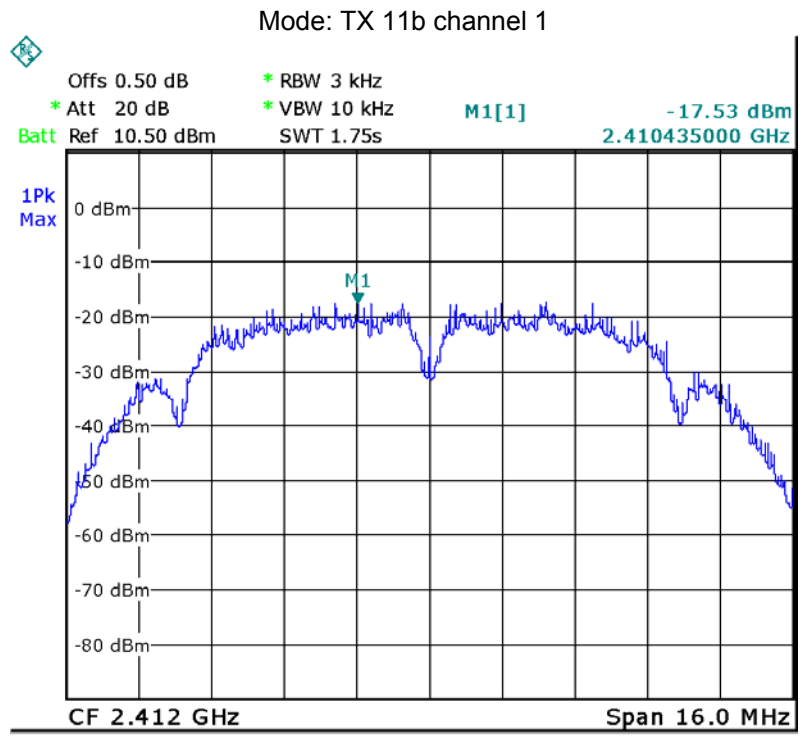
13.2 Test Result:

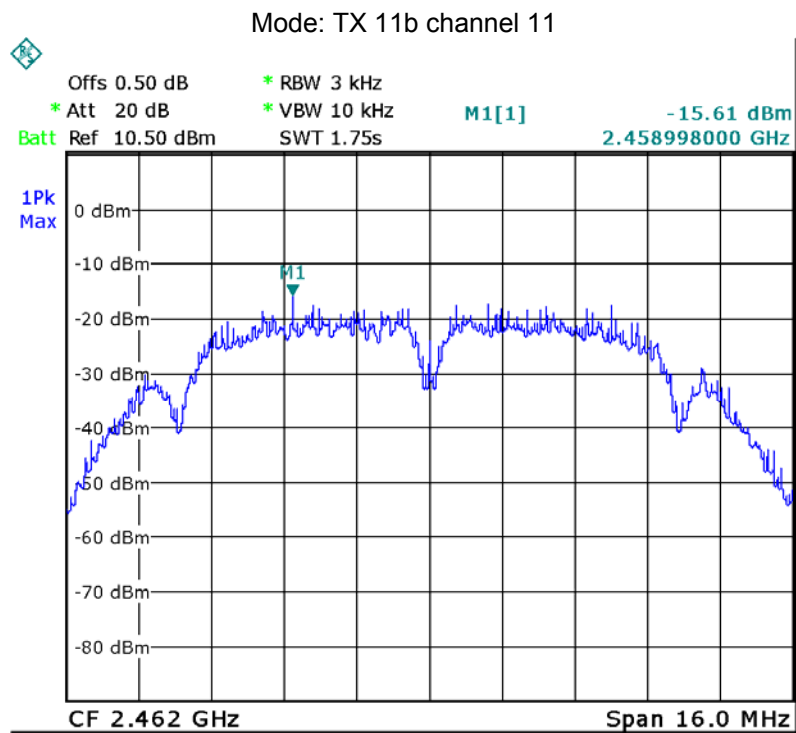
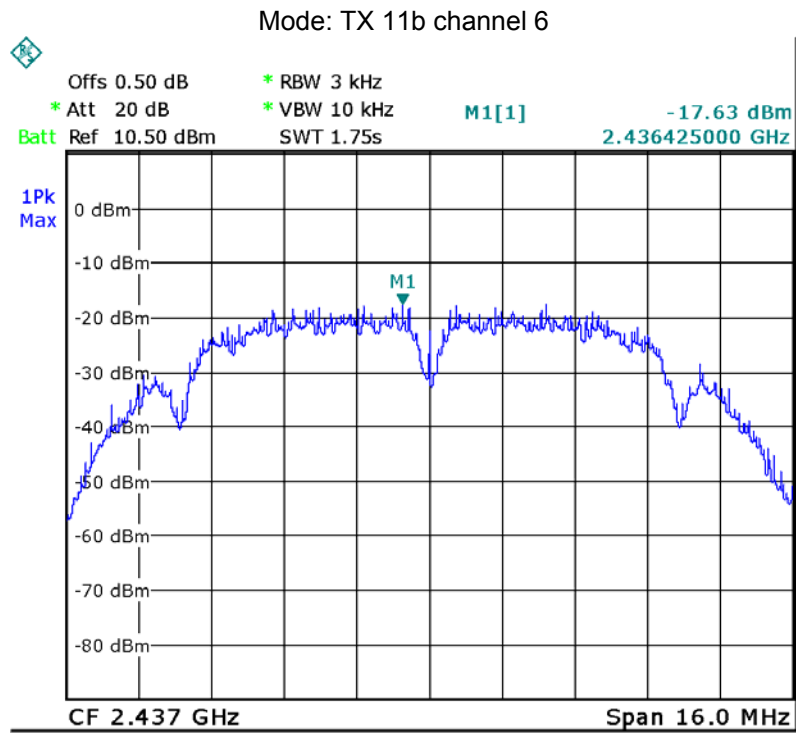
Test mode :TX 11b		
Power Spectral (dBm per 3kHz)		
2412MHz	2437MHz	2462MHz
-17.53	-17.63	-15.61
Limit: 8dBm per 3kHz		

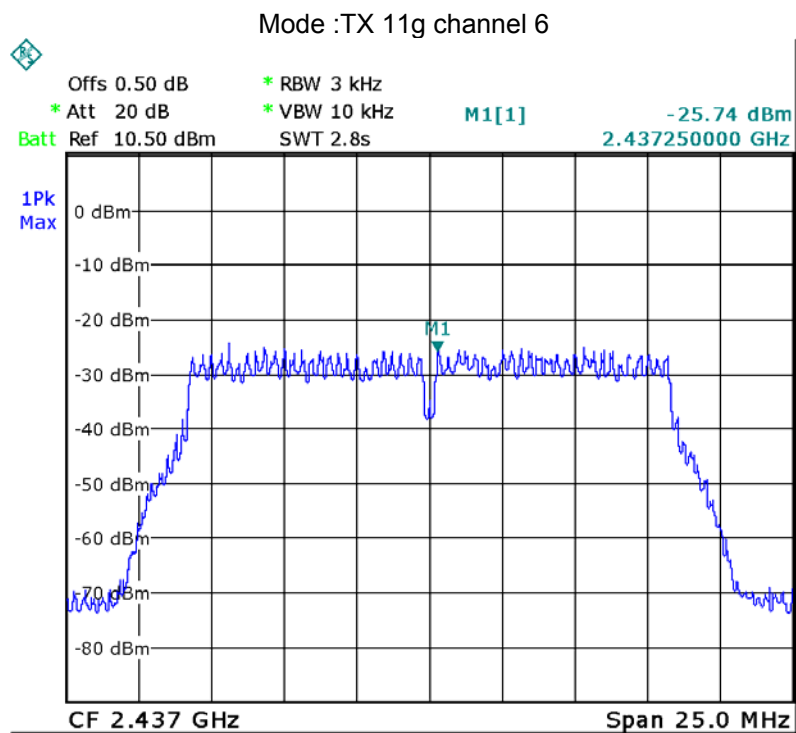
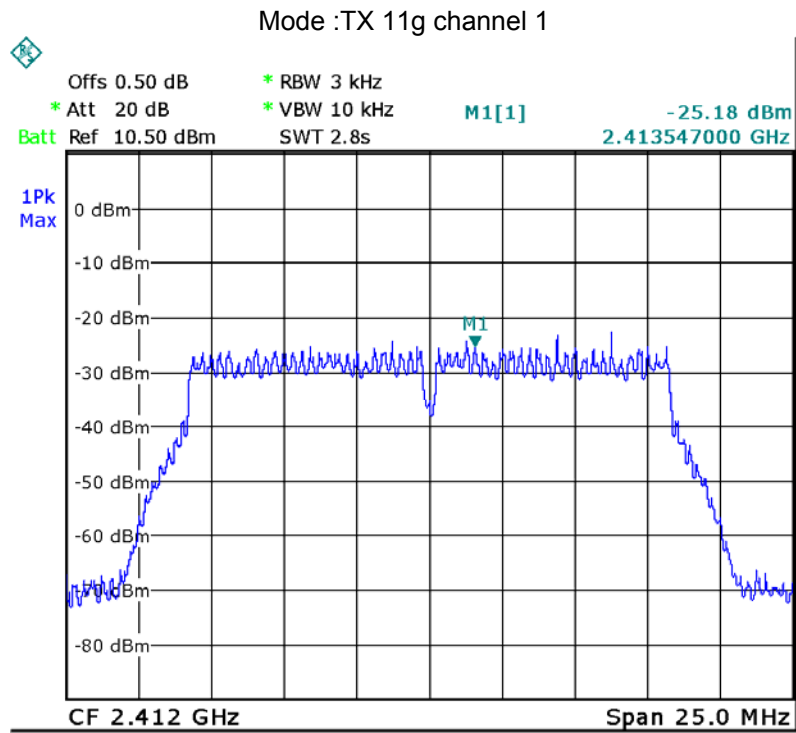
Test mode :TX 11g		
Power Spectral (dBm per 3kHz)		
2412MHz	2437MHz	2462MHz
-25.18	-25.74	-24.82
Limit: 8dBm per 3kHz		

Test mode :TX 11n HT20		
Power Spectral (dBm per 3kHz)		
2412MHz	2437MHz	2462MHz
-24.80	-25.77	-24.90
Limit: 8dBm per 3kHz		

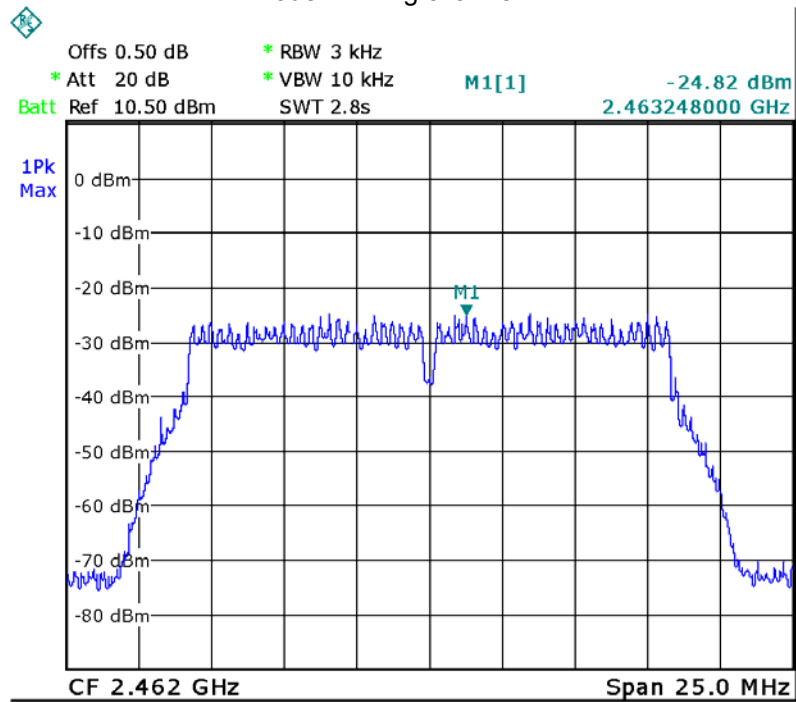
Test mode :TX 11n HT40		
Power Spectral (dBm per 3kHz)		
2422MHz	2437MHz	2452MHz
-28.77	-27.83	-27.16
Limit: 8dBm per 3kHz		



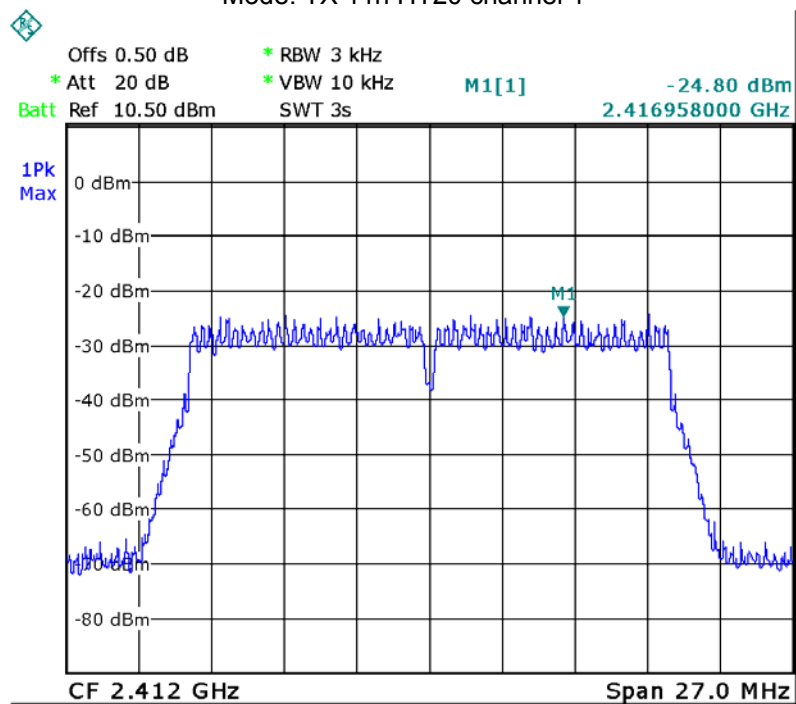




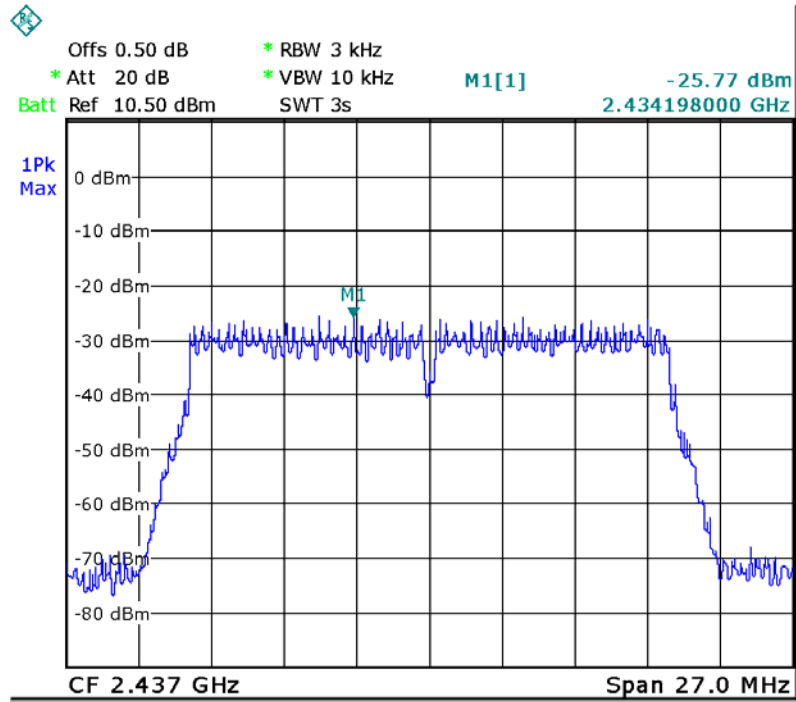
Mode :TX 11g channel 11



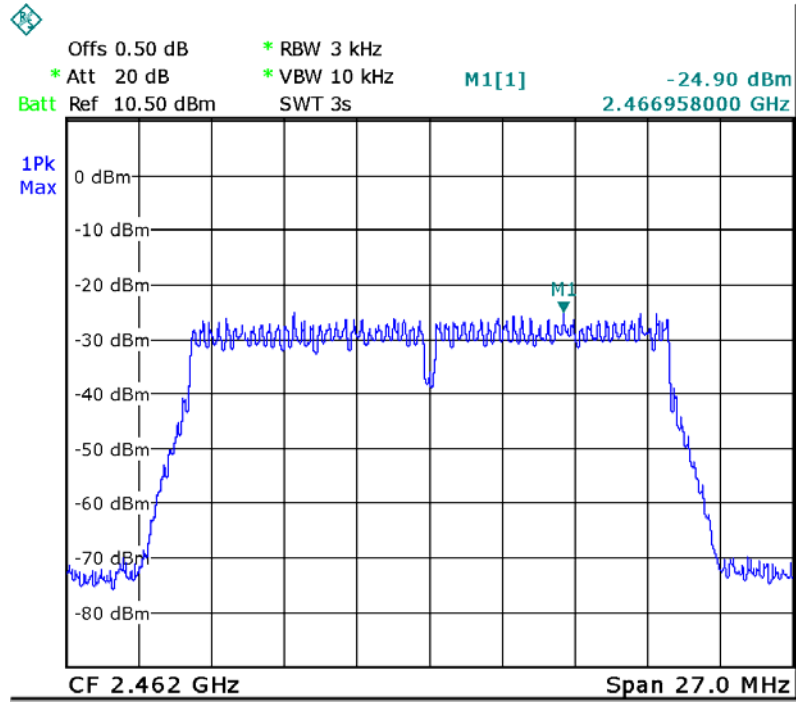
Mode: TX 11n HT20 channel 1



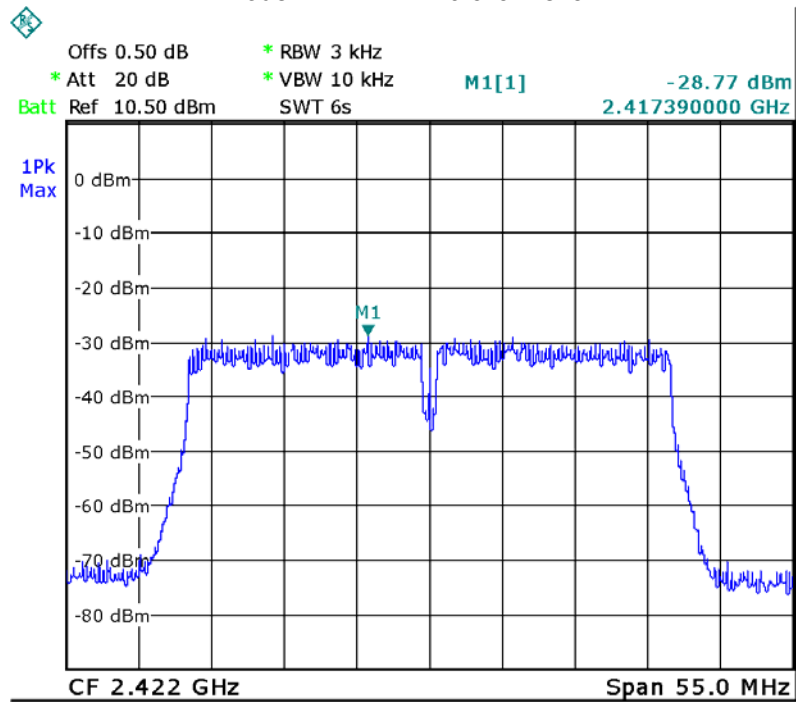
Mode: TX 11n HT20 channel 6



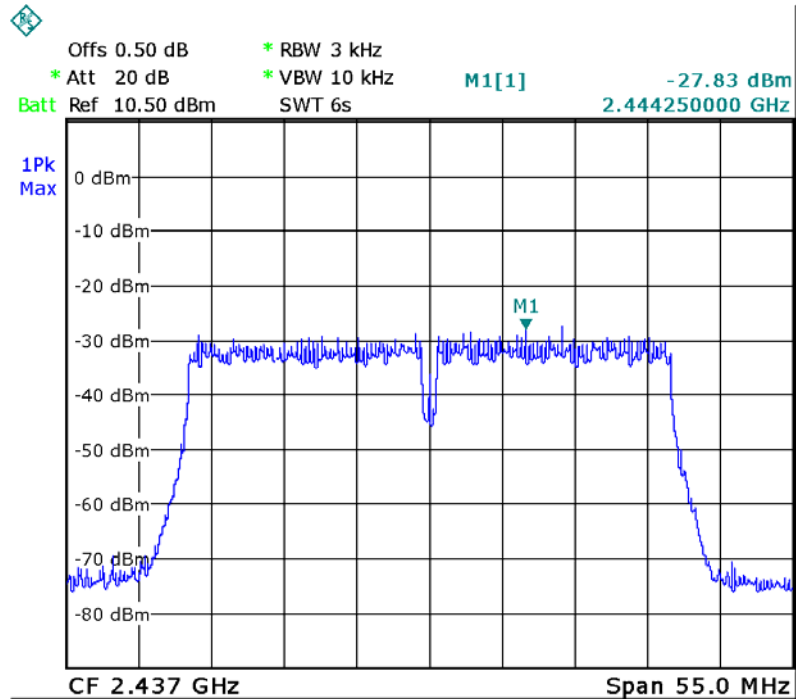
Mode: TX 11n HT20 channel 11

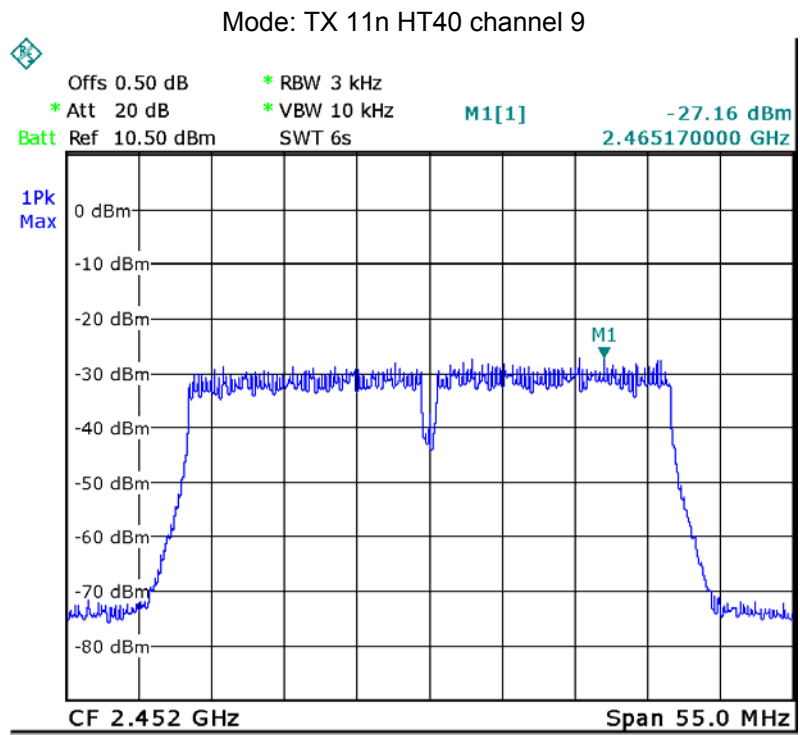


Mode: TX 11n HT40 channel 3



Mode: TX 11n HT40 channel 6





14 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 integrated antenna fulfill the requirement of this section.

