TEST REPORT

Reference No.	:	WTD17S0271945-2E
FCC ID.....	:	2AMNG-TG100
Applicant	:	Toast, Incorportated
Address	:	401 Park Drive, Suite 801, Boston, MA 02215., Boston, Massachusetts, United States
Manufacturer	:	Finance Metadata Information Solution (Shen Zhen) Co.,Ltd.
Address	:	Longhom Hi-tech Estate, Gongyeyuan Road, Dalang Street, Longhua New District, Shenzhen, China
Product.....	:	Tablet PC
Model(s).....	:	TG100
Standards.....	:	FCC CFR47 Part 15 C Section 15.247:2016
Date of Receipt sample.....	:	2017-02-27
Date of Test.....	:	2017-07-29 to 2017-09-16
Date of Issue	:	2017-09-19
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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Philo Zhong / Manager

2 Laboratories Introduction

Waltek Services Test Group Ltd. is one of the largest and the most comprehensive third party testing organizations in China, our headquarter located in Shenzhen (CNAS Registration No. L3110, A2LA Certificate Number: 4243.01) and have branches in Foshan (CNAS Registration No. L6478), Dongguan (CNAS Registration No. L9950), Zhongshan, Suzhou (CNAS Registration No. L7754), Ningbo and Hong Kong, Our test capability covered four large fields: safety test. Electronic Magnetic Compatibility(EMC), reliability and energy performance, Chemical test. Meanwhile, Waltek has got recognition as registration and accreditation laboratory from EMSD (Electrical and Mechanical Services Department), and American Energy star, FCC(The Federal Communications Commission), CPSC(Consumer Product Safety Commission), CEC(California energy efficiency), IC(Industry Canada) and ELI(Efficient Lighting Initiative). It's the strategic partner and data recognition laboratory of international authoritative organizations, such as UL, Intertek(ETL-SEMKO), CSA, TÜV Rheinland, TÜV SÜD, etc. As a professional, comprehensive, justice international test organization, we still keep the scientific and rigorous work attitude to help each client satisfy the international standards and assist their product enter into globe market smoothly.

Waltek Services (Shenzhen) Co., Ltd.

A. Accreditations for Conformity Assessment (International)

Country/Region	Accreditation Body	Scope	Note
USA	**CNAS (Registration No.: L3110) A2LA (Certificate No.: 4243.01)**	FCC ID \ DOC \ VOC	1
Canada		IC ID \ VOC	2
Japan		MIC-T \ MIC-R	-
Europe		EMCD \ RED	-
Taiwan		NCC	-
Hong Kong		OFCA	-
Australia		RCM	-
India	**International Services**	WPC	-
Thailand		NTC	-
Singapore		IDA	-
Note: 1. FCC Designation No.: CN1201. Test Firm Registration No.: 523476. 2. IC Canada Registration No.: 7760A			

B. TCBs and Notify Bodies Recognized Testing Laboratory.

Recognized Testing Laboratory of …	Notify body number
TUV Rheinland	Optional.
Intertek	
TUV SUD	
SGS	
Phoenix Testlab GmbH	0700
Element Materials Technology Warwick Ltd	0891
Timco Engineering, Inc.	1177
Eurofins Product Service GmbH	0681

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3 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTD17S0271945-2E	2017-02-27	2017-07-29 to 2017-09-16	2017-09-19	Original	-	Valid

4 General Information

4.1 General Description of E.U.T.

Product:	Tablet PC
Model(s).:	TG100
Model Difference:	N/A
Operation Frequency:	802.11b/g/n HT20: 2412MHz ~ 2462MHz, 802.11n HT40: 2422MHz~2452MHz BLE: 2402-2480MHz
RF output power	Wifi: 7.54dBm BLE: -1.47dBm
The Lowest Oscillator:	19.2MHz
Antenna Gain:	-0.86dBi
Type of modulation:	IEEE 802.11b (CCK/QPSK/BPSK,11Mbps max.) IEEE 802.11g (BPSK/QPSK/16QAM/64QAM,54Mbps max.) IEEE 802.11n (BPSK/QPSK/16QAM/64QAM,HT20:72Mbps max., HT40:150Mbps max.) BLE: GFSK

4.2 Details of E.U.T.

Ratings	DC 3.7V, 4100mAh, power by battry (Adapter: Input:100-240V~50/60 Hz, 0.35A MAX Output:5.0V ⎓ 2.0A)
Adapter	Model: HNEM050200UU

4.3 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	-

BLE:

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
0	2402	1	2404	2	2406	3	2408
4	2410	5	2412	6	2414	7	2416
8	2418	9	2420	10	2422	11	2424
12	2426	13	2428	14	2430	15	2432
16	2434	17	2436	18	2438	19	2440
20	2442	21	2444	22	2446	23	2448
24	2450	25	2452	26	2454	27	2456
28	2458	29	2460	30	2462	31	2464
32	2466	33	2468	34	2470	35	2472
36	2474	37	2476	38	2478	39	2480

4.4 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
	BLE	1 Mbps	0/19/39	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
	BLE	1 Mbps	0/19/39	TX
Frequency Range	802.11b	11 Mbps	1/11	TX
	802.11g	54 Mbps	1/11	TX
	802.11n HT20	108 Mbps	1/11	TX
	802.11n HT40	150 Mbps	3/9	TX
	BLE	1 Mbps	0/19/39	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
	BLE	1 Mbps	0/19/39	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 Equipment Used during Test

5.1 Equipments List

Conducted Emissions Test Site 1#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMI Test Receiver	R&S	ESCI	100947	2017-09-12	2018-09-11
2.	LISN	R&S	ENV216	101215	2017-09-12	2018-09-11
3.	Cable	Top	TYPE16(3.5M)	-	2017-09-12	2018-09-11
Conducted Emissions Test Site 2#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EMI Test Receiver	R&S	ESCI	101155	2017-09-12	2018-09-11
2.	LISN	SCHWARZBECK	NSLK 8128	8128-289	2017-09-12	2018-09-11
3.	Limiter	York	MTS-IMP-136	261115-001-0024	2017-09-12	2018-09-11
4.	Cable	LARGE	RF300	-	2017-09-12	2018-09-11
3m Semi-anechoic Chamber for Radiation Emissions Test site 1#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	EMC Analyzer	Agilent	E7405A	MY45114943	2017-09-14	2018-09-13
2	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	2016-10-17	2017-10-16
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	2017-04-09	2018-04-08
4	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	2017-09-12	2018-09-11
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2017-04-09	2018-04-08
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	2017-09-14	2018-09-13
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2017-04-13	2018-04-12
8	Coaxial Cable (above 1GHz)	Top	1GHz-25GHz	EW02014-7	2017-04-13	2018-04-12
3m Semi-anechoic Chamber for Radiation Emissions Test site 2#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No**	**Last Calibration Date**	**Calibration Due Date**
1	Test Receiver	R&S	ESCI	101296	2017-04-13	2018-04-12
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2017-04-09	2018-04-08
3	Amplifier	Compliance pirection systems inc	PAP-0203	22024	2017-04-13	2018-04-12
4	Cable	HUBER+SUHNER	CBL2	525178	2017-04-13	2018-04-12

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	2017-09-14	2018-09-13
2.	Spectrum Analyzer (9k-6GHz)	R&S	FSL6	100959	2017-09-12	2018-09-11
3.	Signal Analyzer (9k~26.5GHz)	Agilent	N9010A	MY50520207	2017-09-12	2018-09-11

5.2 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)

5.3 Test Equipment Calibration

All the test equipments used are valid and calibrated by GUANG ZHOU GRG METROLOGY & TES T CO., LTD. address is No.163, Pingyun Rd. West of Huangpu Ave,Tianhe District, Guangzhou, Gu angdong, China.

6 Test Summary

Test Items	Test Requirement	Result
Spurious Radiated Emissions	15.247 15.205(a) 15.209(a)	C
Conducted Emissions	15.207(a)	C
Conducted Spurious Emissions	15.247	C
Bandwidth	15.247(a)(2)	C
Maximum Peak Output Power	15.247(b)(3),(4)	C
Power Spectral Density	15.247(e)	C
Band Edge	15.247(d)	C
Antenna Requirement	15.203	C
Maximum Permissible Exposure (Exposure of Humans to RF Fields)	1.1307(b)(1)	C
Note: C=Compliance; NC=Not Compliance; NT=Not Tested; N/A=Not Applicable.		

7 Conducted Emission

Test Requirement:	FCC CFR 47 Part 15 Section 15.207
Test Method:	ANSI C63.10:2013
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)

7.1 E.U.T. Operation

Operating Environment **:**

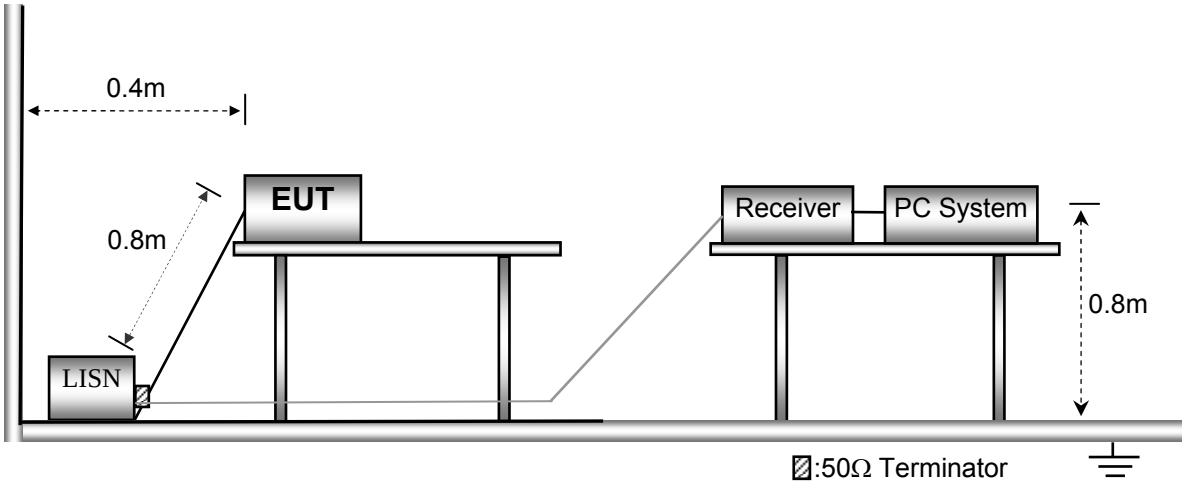
Temperature:	21.5 °C
Humidity:	51.9 % RH
Atmospheric Pressure:	101.2kPa

EUT Operation **:**

The test was performed in Transmitting mode(For BLE and WIFI), Only the worst case 802.11b mode were record in the report.

7.2 EUT Setup

The conducted emission tests were performed using the setup accordance with the ANSI C63.10.



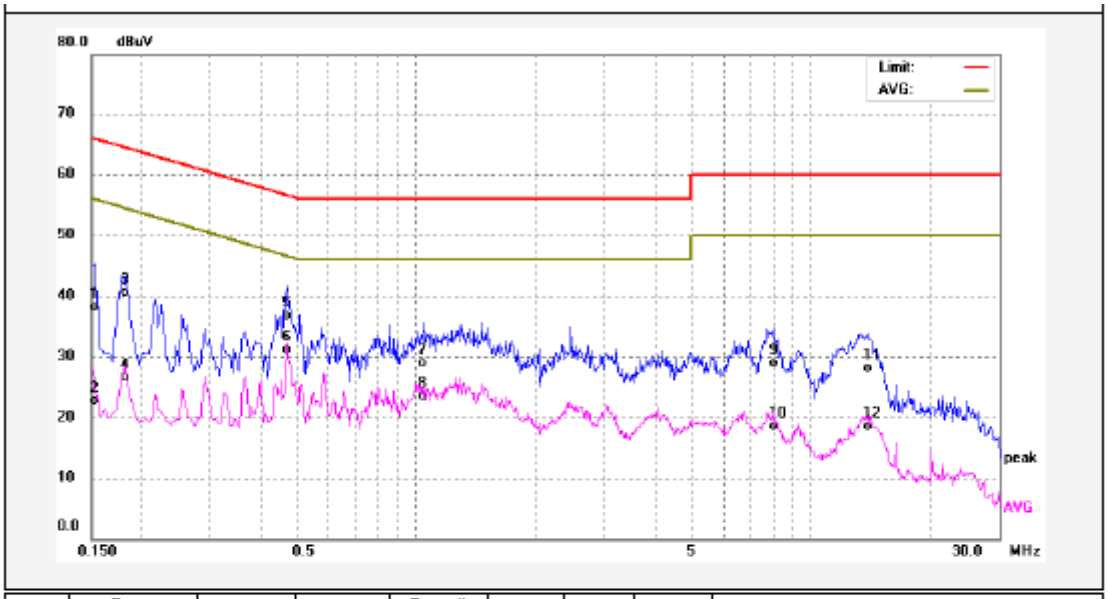
7.3 Measurement Description

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

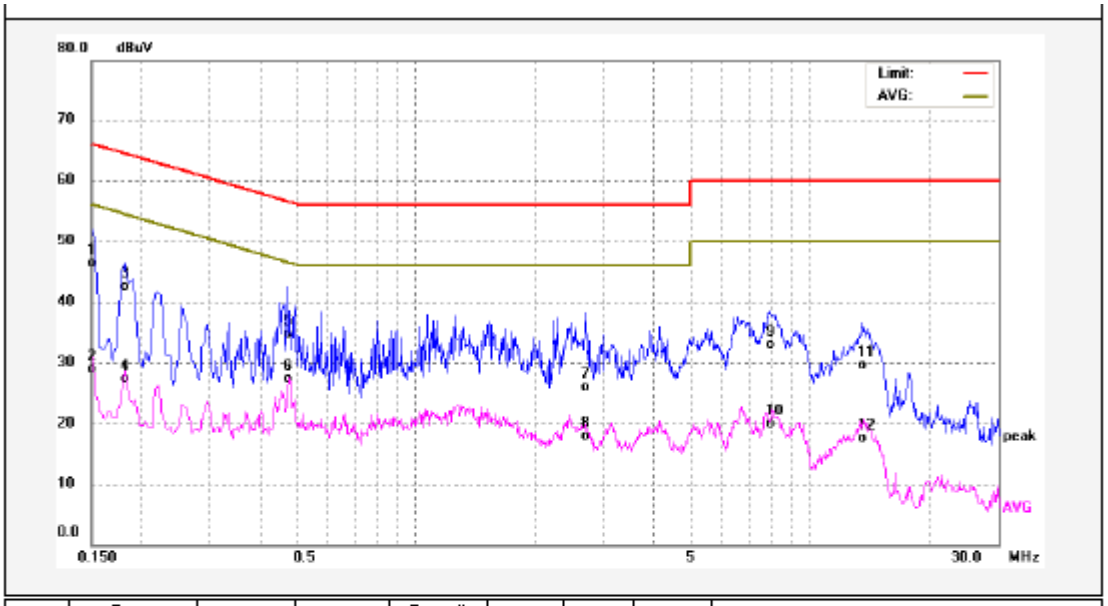
An initial pre-scan was performed on the live and neutral lines.

Live line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1539	28.02	10.02	38.04	65.78	-27.74	QP	
2	0.1539	12.76	10.02	22.78	55.78	-33.00	AVG	
3	0.1819	30.69	9.88	40.57	64.39	-23.82	QP	
4	0.1819	16.53	9.88	26.41	54.39	-27.98	AVG	
5	0.4700	26.69	10.06	36.75	56.51	-19.76	QP	
6	0.4700	21.00	10.06	31.06	46.51	-15.45	AVG	
7	1.0460	18.82	10.17	28.99	56.00	-27.01	QP	
8	1.0460	13.32	10.17	23.49	46.00	-22.51	AVG	
9	8.0420	18.58	10.31	28.89	60.00	-31.11	QP	
10	8.0420	8.13	10.31	18.44	50.00	-31.56	AVG	
11	13.9860	17.65	10.38	28.03	60.00	-31.97	QP	
12	13.9860	8.07	10.38	18.45	50.00	-31.55	AVG	

Neutral line:



No.	Freq. (MHz)	Reading (dBuV)	Factor (dB)	Result (dBuV)	Limit dBuV	Margin (dB)	Detector	Remark
1	0.1500	36.30	10.06	46.36	65.99	-19.63	QP	
2	0.1500	18.86	10.06	28.92	55.99	-27.07	AVG	
3	0.1819	32.59	9.88	42.47	64.39	-21.92	QP	
4	0.1819	17.51	9.88	27.39	54.39	-27.00	AVG	
5	0.4740	24.55	10.07	34.62	56.44	-21.82	QP	
6	0.4740	17.28	10.07	27.35	46.44	-19.09	AVG	
7	2.6860	15.59	10.23	25.82	56.00	-30.18	QP	
8	2.6860	7.68	10.23	17.91	46.00	-28.09	AVG	
9	7.8860	22.61	10.31	32.92	60.00	-27.08	QP	
10	7.8860	9.67	10.31	19.98	50.00	-30.02	AVG	
11	13.5780	19.16	10.38	29.54	60.00	-30.46	QP	
12	13.5780	7.06	10.38	17.44	50.00	-32.56	AVG	

8 Radiated Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.209 & 15.247

Test Method: ANSI C63.10:2013

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	$20\log^{(500)}$

8.1 EUT Operation

Operating Environment :

Temperature: 23.5 °C

Humidity: 52.1 % RH

Atmospheric Pressure: 101.2kPa

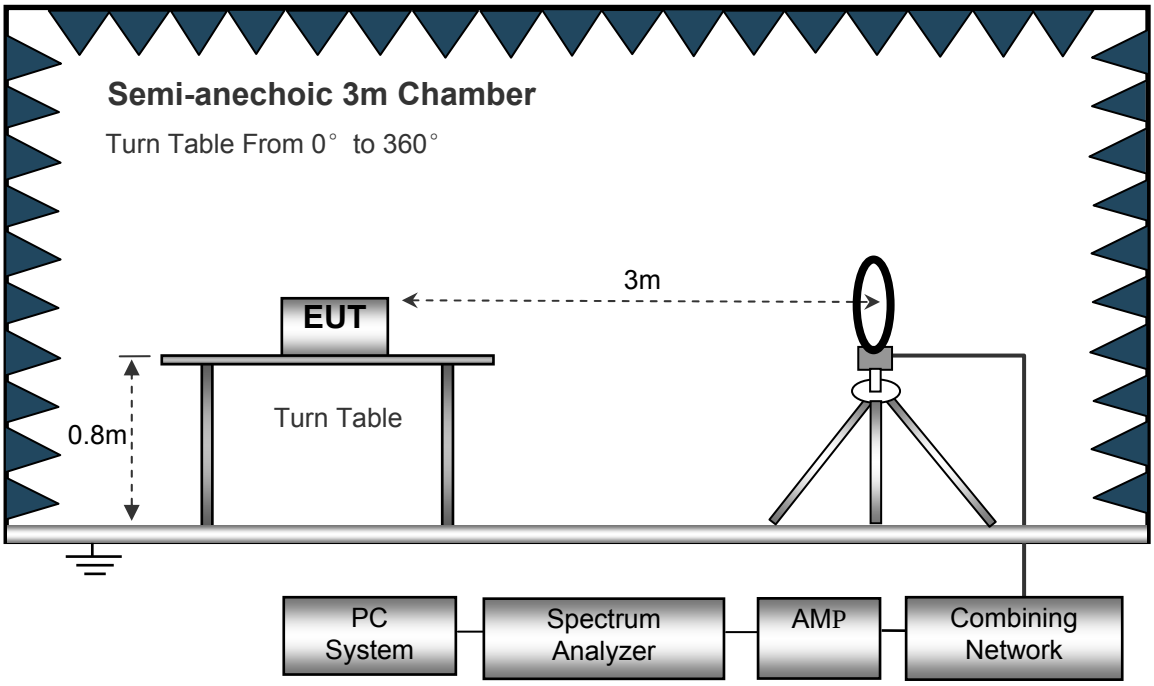
EUT Operation :

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

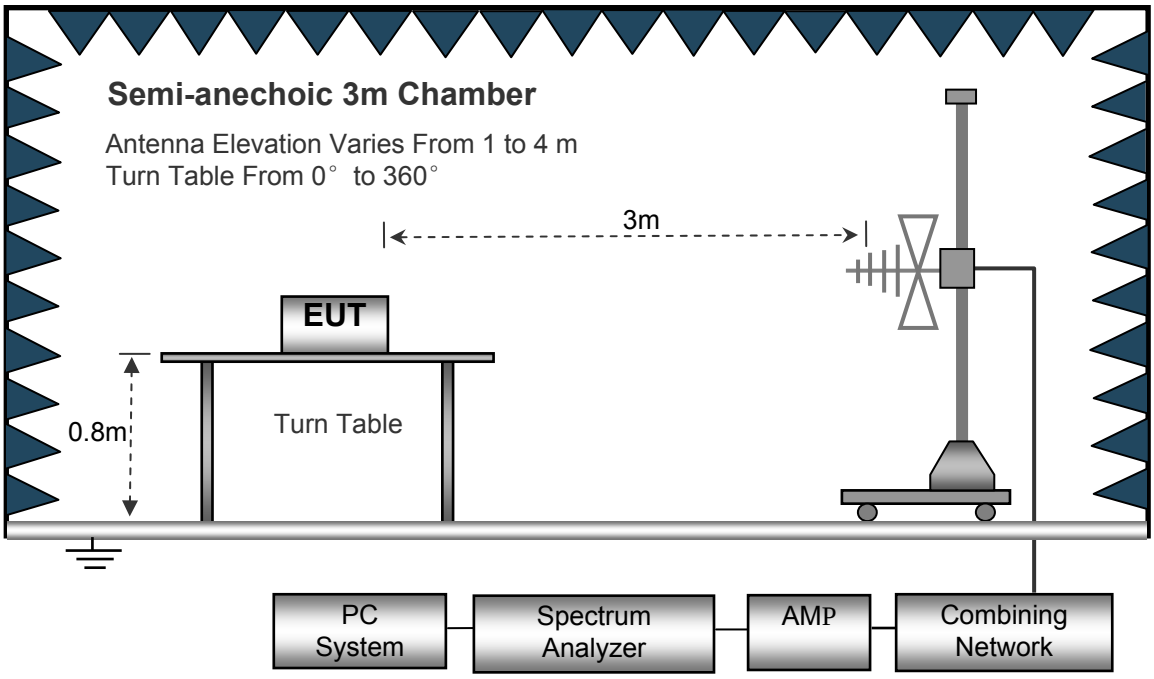
8.2 Test Setup

The radiated emission tests were performed in the 3m Semi- Anechoic Chamber test site, using the setup accordance with the ANSI C63.10.

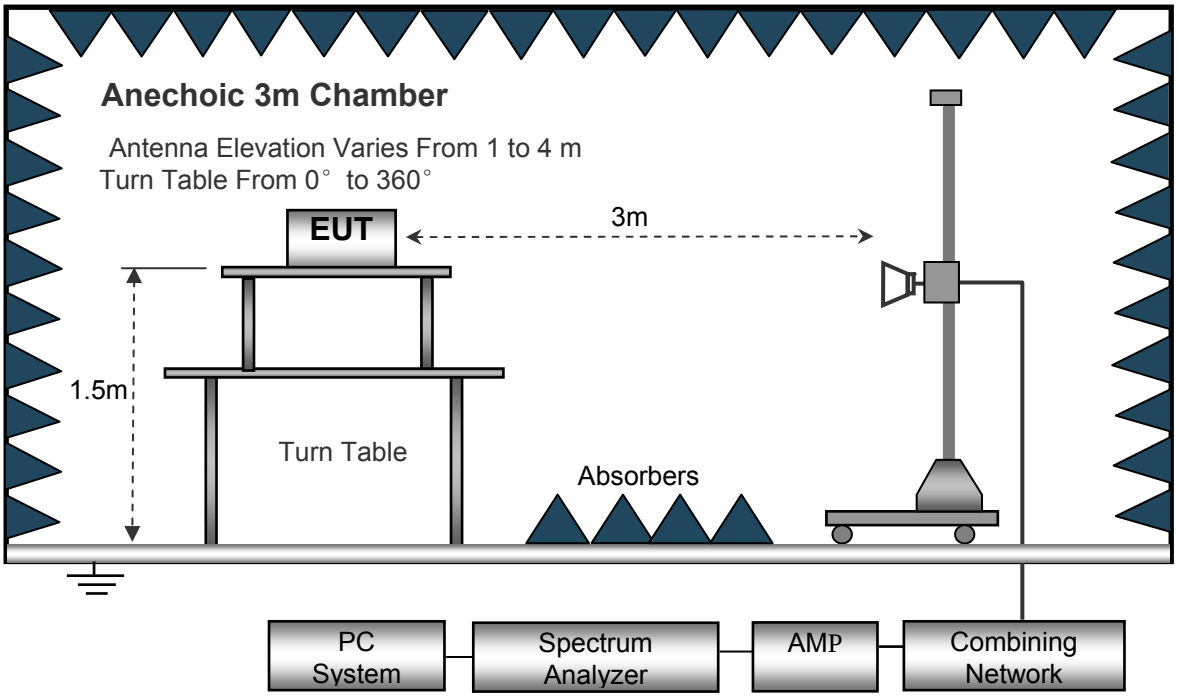
The test setup for emission measurement below 30MHz.



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. For below 1GHz, the EUT is 0.8m above ground plane; For above1GHz, the EUT is 1.5m 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.

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:

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

8.6 Summary of Test Results

Test Frequency: 19.2MHz ~ 30MHz

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

Test Frequency : 30MHz ~ 18GHz

WIFI:

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11b: Low Channel 2412MHz									
223.36	40.26	QP	330.33	1.95	H	11.20	29.06	46.00	-16.94
223.36	36.20	QP	12.07	1.61	V	11.20	25.00	46.00	-21.00
4824.00	50.19	PK	208.60	1.12	V	1.06	49.13	74.00	-24.87
4824.00	46.20	Ave	208.60	1.12	V	1.06	45.14	54.00	-8.86
7236.00	40.17	PK	123.12	1.11	H	1.33	41.50	74.00	-32.50
7236.00	40.12	Ave	123.12	1.11	H	1.33	41.45	54.00	-12.55
2322.34	46.05	PK	258.62	1.97	V	13.28	32.77	74.00	-41.23
2322.34	37.92	Ave	258.62	1.97	V	13.28	24.64	54.00	-29.36
2358.38	42.63	PK	88.34	1.06	H	13.01	29.62	74.00	-44.38
2358.38	37.34	Ave	88.34	1.06	H	13.01	24.33	54.00	-29.67
2498.72	44.41	PK	70.13	1.57	V	13.00	31.41	74.00	-42.59
2498.72	37.61	Ave	70.13	1.57	V	13.00	24.61	54.00	-29.39

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11b: Middle Channel 2437MHz									
223.36	41.23	QP	287.55	1.31	H	11.16	30.07	46.00	-15.93
223.36	34.74	QP	121.47	1.92	V	11.06	23.68	46.00	-22.32
4874.00	48.69	PK	333.10	1.51	V	1.05	47.64	74.00	-26.36
4874.00	46.28	Ave	333.10	1.51	V	1.05	45.23	54.00	-8.77
7311.00	41.31	PK	135.50	1.39	H	2.21	43.52	74.00	-30.48
7311.00	39.78	Ave	135.50	1.39	H	2.21	41.99	54.00	-12.01
2349.38	45.82	PK	124.68	1.55	V	13.56	32.26	74.00	-41.74
2349.38	39.90	Ave	124.68	1.55	V	13.56	26.34	54.00	-27.66
2361.33	43.43	PK	224.48	1.63	H	13.10	30.33	74.00	-43.67
2361.33	36.49	Ave	224.48	1.63	H	13.10	23.39	54.00	-30.61
2499.70	44.81	PK	75.50	1.26	V	13.04	31.77	74.00	-42.23
2499.70	38.29	Ave	75.50	1.26	V	13.04	25.25	54.00	-28.75

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11b: High Channel 2462MHz									
223.36	40.71	QP	358.04	1.17	H	11.13	29.58	46.00	-16.42
223.36	35.00	QP	335.13	1.84	V	11.13	23.87	46.00	-22.13
4924.00	49.44	PK	289.41	1.37	V	1.04	48.40	74.00	-25.60
4924.00	46.83	Ave	289.41	1.37	V	1.04	45.79	54.00	-8.21
7386.00	40.34	PK	327.39	1.10	H	2.84	43.18	74.00	-30.82
7386.00	41.16	Ave	327.39	1.10	H	2.84	44.00	54.00	-10.00
2330.57	46.99	PK	95.23	1.97	V	13.11	33.88	74.00	-40.12
2330.57	37.48	Ave	95.23	1.97	V	13.11	24.37	54.00	-29.63
2382.21	43.13	PK	187.79	1.12	H	13.25	29.88	74.00	-44.12
2382.21	36.59	Ave	187.79	1.12	H	13.25	23.34	54.00	-30.66
2491.10	44.72	PK	25.77	1.89	V	13.15	31.57	74.00	-42.43
2491.10	38.94	Ave	25.77	1.89	V	13.15	25.79	54.00	-28.21

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11g: Low Channel 2412MHz									
223.36	39.77	QP	135.47	1.80	H	11.20	28.57	46.00	-17.43
223.36	35.37	QP	131.54	1.17	V	11.20	24.17	46.00	-21.83
4824.00	50.90	PK	79.19	1.70	V	1.06	49.84	74.00	-24.16
4824.00	45.71	Ave	79.19	1.70	V	1.06	44.65	54.00	-9.35
7236.00	40.72	PK	277.37	1.54	H	1.33	42.05	74.00	-31.95
7236.00	40.04	Ave	277.37	1.54	H	1.33	41.37	54.00	-12.63
2330.06	46.45	PK	63.21	1.10	V	13.28	33.17	74.00	-40.83
2330.06	38.48	Ave	63.21	1.10	V	13.28	25.20	54.00	-28.80
2373.34	44.97	PK	301.80	1.27	H	13.01	31.96	74.00	-42.04
2373.34	37.18	Ave	301.80	1.27	H	13.01	24.17	54.00	-29.83
2487.83	43.79	PK	340.95	1.24	V	13.00	30.79	74.00	-43.21
2487.83	38.68	Ave	340.95	1.24	V	13.00	25.68	54.00	-28.32

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11g: Middle Channel 2437MHz									
223.36	38.50	QP	195.88	1.35	H	11.16	27.34	46.00	-18.66
223.36	36.86	QP	358.74	1.04	V	11.06	25.80	46.00	-20.20
4874.00	51.55	PK	98.16	1.87	V	1.05	50.50	74.00	-23.50
4874.00	44.57	Ave	98.16	1.87	V	1.05	43.52	54.00	-10.48
7311.00	40.31	PK	54.89	1.78	H	2.21	42.52	74.00	-31.48
7311.00	40.48	Ave	54.89	1.78	H	2.21	42.69	54.00	-11.31
2344.80	46.18	PK	355.27	1.97	V	13.56	32.62	74.00	-41.38
2344.80	38.35	Ave	355.27	1.97	V	13.56	24.79	54.00	-29.21
2360.86	42.05	PK	284.14	1.98	H	13.10	28.95	74.00	-45.05
2360.86	38.80	Ave	284.14	1.98	H	13.10	25.70	54.00	-28.30
2489.10	42.30	PK	347.60	1.52	V	13.04	29.26	74.00	-44.74
2489.10	38.52	Ave	347.60	1.52	V	13.04	25.48	54.00	-28.52

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
11g: High Channel 2462MHz									
223.36	38.66	QP	342.30	1.11	H	11.13	27.53	46.00	-18.47
223.36	36.94	QP	100.66	1.04	V	11.13	25.81	46.00	-20.19
4924.00	52.66	PK	279.40	1.70	V	1.04	51.62	74.00	-22.38
4924.00	43.67	Ave	279.40	1.70	V	1.04	42.63	54.00	-11.37
7386.00	39.71	PK	218.52	1.68	H	2.84	42.55	74.00	-31.45
7386.00	39.54	Ave	218.52	1.68	H	2.84	42.38	54.00	-11.62
2317.06	46.49	PK	244.01	1.09	V	13.11	33.38	74.00	-40.62
2317.06	37.02	Ave	244.01	1.09	V	13.11	23.91	54.00	-30.09
2374.24	43.84	PK	60.44	1.69	H	13.25	30.59	74.00	-43.41
2374.24	36.85	Ave	60.44	1.69	H	13.25	23.60	54.00	-30.40
2489.39	44.92	PK	239.79	1.76	V	13.15	31.77	74.00	-42.23
2489.39	37.44	Ave	239.79	1.76	V	13.15	24.29	54.00	-29.71

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n20: Low Channel 2412MHz									
223.36	39.66	QP	199.20	1.49	H	11.20	28.46	46.00	-17.54
223.36	37.51	QP	157.52	1.03	V	11.20	26.31	46.00	-19.69
4824.00	51.64	PK	187.21	1.75	V	1.06	50.58	74.00	-23.42
4824.00	42.19	Ave	187.21	1.75	V	1.06	41.13	54.00	-12.87
7236.00	39.25	PK	342.65	1.31	H	1.33	40.58	74.00	-33.42
7236.00	39.76	Ave	342.65	1.31	H	1.33	41.09	54.00	-12.91
2335.79	45.90	PK	179.61	1.59	V	13.28	32.62	74.00	-41.38
2335.79	39.95	Ave	179.61	1.59	V	13.28	26.67	54.00	-27.33
2366.19	42.44	PK	352.79	1.33	H	13.01	29.43	74.00	-44.57
2366.19	36.95	Ave	352.79	1.33	H	13.01	23.94	54.00	-30.06
2494.96	42.15	PK	150.06	1.74	V	13.00	29.15	74.00	-44.85
2494.96	37.57	Ave	150.06	1.74	V	13.00	24.57	54.00	-29.43

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n20: Middle Channel 2437MHz									
223.36	38.78	QP	100.37	1.91	H	11.16	27.62	46.00	-18.38
223.36	37.71	QP	245.32	1.42	V	11.06	26.65	46.00	-19.35
4874.00	50.19	PK	248.42	1.04	V	1.05	49.14	74.00	-24.86
4874.00	42.66	Ave	248.42	1.04	V	1.05	41.61	54.00	-12.39
7311.00	39.55	PK	108.80	1.64	H	2.21	41.76	74.00	-32.24
7311.00	40.50	Ave	108.80	1.64	H	2.21	42.71	54.00	-11.29
2346.31	46.65	PK	314.26	1.38	V	13.56	33.09	74.00	-40.91
2346.31	37.86	Ave	314.26	1.38	V	13.56	24.30	54.00	-29.70
2383.87	44.61	PK	165.40	1.89	H	13.10	31.51	74.00	-42.49
2383.87	37.44	Ave	165.40	1.89	H	13.10	24.34	54.00	-29.66
2495.04	44.07	PK	239.36	1.06	V	13.04	31.03	74.00	-42.97
2495.04	38.78	Ave	239.36	1.06	V	13.04	25.74	54.00	-28.26

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n20: High Channel 2462MHz									
223.36	37.52	QP	160.08	1.36	H	11.13	26.39	46.00	-19.61
223.36	38.70	QP	63.94	1.65	V	11.13	27.57	46.00	-18.43
4924.00	50.39	PK	341.74	1.16	V	1.04	49.35	74.00	-24.65
4924.00	43.07	Ave	341.74	1.16	V	1.04	42.03	54.00	-11.97
7386.00	40.01	PK	169.46	1.28	H	2.84	42.85	74.00	-31.15
7386.00	39.41	Ave	169.46	1.28	H	2.84	42.25	54.00	-11.75
2344.11	45.07	PK	71.73	1.59	V	13.11	31.96	74.00	-42.04
2344.11	37.34	Ave	71.73	1.59	V	13.11	24.23	54.00	-29.77
2380.04	43.83	PK	346.97	1.95	H	13.25	30.58	74.00	-43.42
2380.04	36.52	Ave	346.97	1.95	H	13.25	23.27	54.00	-30.73
2490.27	42.82	PK	26.89	1.81	V	13.15	29.67	74.00	-44.33
2490.27	37.33	Ave	26.89	1.81	V	13.15	24.18	54.00	-29.82

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n40: Low Channel 2422MHz									
223.36	36.26	QP	213.27	1.56	H	11.20	25.06	46.00	-20.94
223.36	39.70	QP	18.75	1.52	V	11.20	28.50	46.00	-17.50
4844.00	47.85	PK	351.76	1.89	V	1.06	46.79	74.00	-27.21
4844.00	40.89	Ave	351.76	1.89	V	1.06	39.83	54.00	-14.17
7266.00	37.89	PK	222.06	1.42	H	1.33	39.22	74.00	-34.78
7266.00	38.07	Ave	222.06	1.42	H	1.33	39.40	54.00	-14.60
2330.45	46.13	PK	137.91	1.32	V	13.28	32.85	74.00	-41.15
2330.45	39.14	Ave	137.91	1.32	V	13.28	25.86	54.00	-28.14
2355.57	42.33	PK	200.43	1.40	H	13.01	29.32	74.00	-44.68
2355.57	36.40	Ave	200.43	1.40	H	13.01	23.39	54.00	-30.61
2497.47	42.23	PK	186.45	1.93	V	13.00	29.23	74.00	-44.77
2497.47	36.50	Ave	186.45	1.93	V	13.00	23.50	54.00	-30.50

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n40: Middle Channel 2437MHz									
223.36	37.02	QP	331.81	1.59	H	11.16	25.86	46.00	-20.14
223.36	39.74	QP	237.66	1.13	V	11.06	28.68	46.00	-17.32
4874.00	48.25	PK	257.52	1.56	V	1.05	47.20	74.00	-26.80
4874.00	41.44	Ave	257.52	1.56	V	1.05	40.39	54.00	-13.61
7311.00	37.20	PK	54.86	1.17	H	2.21	39.41	74.00	-34.59
7311.00	37.55	Ave	54.86	1.17	H	2.21	39.76	54.00	-14.24
2339.87	45.75	PK	122.40	1.87	V	13.56	32.19	74.00	-41.81
2339.87	39.99	Ave	122.40	1.87	V	13.56	26.43	54.00	-27.57
2367.70	42.58	PK	195.68	1.51	H	13.10	29.48	74.00	-44.52
2367.70	37.11	Ave	195.68	1.51	H	13.10	24.01	54.00	-29.99
2487.82	44.26	PK	3.26	1.16	V	13.04	31.22	74.00	-42.78
2487.82	36.91	Ave	3.26	1.16	V	13.04	23.87	54.00	-30.13

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	FCC Part 15.247/209/205	
				Height	Polar			Limit	Margin
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB)	(dBμV/m)	(dBμV/m)	(dB)
n40: High Channel 2452MHz									
223.36	37.15	QP	36.42	1.97	H	11.13	26.02	46.00	-19.98
223.36	39.75	QP	94.16	1.34	V	11.13	28.62	46.00	-17.38
4904.00	47.47	PK	100.80	1.92	V	1.04	46.43	74.00	-27.57
4904.00	41.42	Ave	100.80	1.92	V	1.04	40.38	54.00	-13.62
7356.00	36.22	PK	140.05	1.66	H	2.84	39.06	74.00	-34.94
7356.00	38.53	Ave	140.05	1.66	H	2.84	41.37	54.00	-12.63
2334.11	45.66	PK	4.64	1.59	V	13.11	32.55	74.00	-41.45
2334.11	39.05	Ave	4.64	1.59	V	13.11	25.94	54.00	-28.06
2388.28	42.26	PK	302.44	1.20	H	13.25	29.01	74.00	-44.99
2388.28	36.93	Ave	302.44	1.20	H	13.25	23.68	54.00	-30.32
2490.16	42.90	PK	75.00	1.72	V	13.15	29.75	74.00	-44.25
2490.16	38.02	Ave	75.00	1.72	V	13.15	24.87	54.00	-29.13

BLE:

Frequency	Receiver Reading	Detector	Turn table Angle	RX Antenna		Corrected Factor	Corrected Amplitude	Limit	Margin
				Height	Polar				
(MHz)	(dBμV)	(PK/QP/Ave)	Degree	(m)	(H/V)	(dB/m)	(dBμV/m)	(dBμV/m)	(dB)
GFSK Low Channel 2402MHz									
223.65	35.24	QP	25	1.8	H	-13.35	21.89	46.00	-24.11
223.65	41.20	QP	323	1.5	V	-13.35	27.85	46.00	-18.15
4804.00	46.15	PK	165	1.4	V	-1.06	45.09	74.00	-28.91
4804.00	43.10	Ave	165	1.4	V	-1.06	42.04	54.00	-11.96
7206.00	40.18	PK	344	1.9	H	1.33	41.51	74.00	-32.49
7206.00	35.17	Ave	344	1.9	H	1.33	36.50	54.00	-17.50
2340.90	46.15	PK	143	1.8	V	-13.19	32.96	74.00	-41.04
2340.90	39.40	Ave	143	1.8	V	-13.19	26.21	54.00	-27.79
2386.02	42.53	PK	273	1.5	H	-13.14	29.39	74.00	-44.61
2386.02	36.25	Ave	273	1.5	H	-13.14	23.11	54.00	-30.89
2494.13	44.27	PK	199	1.5	V	-13.08	31.19	74.00	-42.81
2494.13	36.88	Ave	199	1.5	V	-13.08	23.80	54.00	-30.20
GFSK middle Channel 2440MHz									
223.65	34.85	QP	359	1.6	H	-13.35	21.50	46.00	-24.50
223.65	42.11	QP	118	1.4	V	-13.35	28.76	46.00	-17.24
4880.00	46.84	PK	80	2.0	V	-0.62	46.22	74.00	-27.78
4880.00	43.31	Ave	80	2.0	V	-0.62	42.69	54.00	-11.31
7320.00	39.66	PK	74	1.8	H	2.21	41.87	74.00	-32.13
7320.00	33.98	Ave	74	1.8	H	2.21	36.19	54.00	-17.81
2349.82	45.01	PK	128	1.4	V	-13.19	31.82	74.00	-42.18
2349.82	39.43	Ave	128	1.4	V	-13.19	26.24	54.00	-27.76
2381.89	43.48	PK	194	1.7	H	-13.14	30.34	74.00	-43.66
2381.89	37.59	Ave	194	1.7	H	-13.14	24.45	54.00	-29.55
2492.95	42.22	PK	232	1.8	V	-13.08	29.14	74.00	-44.86
2492.95	37.10	Ave	232	1.8	V	-13.08	24.02	54.00	-29.98

GFSK High Channel 2480MHz									
223.65	35.19	QP	84	1.8	H	-13.35	21.84	46.00	-24.16
223.65	41.65	QP	294	1.2	V	-13.35	28.30	46.00	-17.70
4960.00	47.58	PK	227	1.5	V	-0.24	47.34	74.00	-26.66
4960.00	44.36	Ave	227	1.5	V	-0.24	44.12	54.00	-9.88
7440.00	38.83	PK	163	1.5	H	2.84	41.67	74.00	-32.33
7440.00	34.16	Ave	163	1.5	H	2.84	37.00	54.00	-17.00
2342.68	45.32	PK	79	1.6	V	-13.19	32.13	74.00	-41.87
2342.68	38.60	Ave	79	1.6	V	-13.19	25.41	54.00	-28.59
2350.78	42.59	PK	185	1.5	H	-13.14	29.45	74.00	-44.55
2350.78	37.03	Ave	185	1.5	H	-13.14	23.89	54.00	-30.11
2487.43	42.70	PK	184	1.8	V	-13.08	29.62	74.00	-44.38
2487.43	36.02	Ave	184	1.8	V	-13.08	22.94	54.00	-31.06

9 Conducted Spurious Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: KDB 558074 D01 DTS Meas Guidance v03r05 April 8, 2016

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)).

9.1 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:

Blow 30MHz:

RBW = 100kHz, VBW = 300kHz, Sweep = auto

Detector function = peak, Trace = max hold

Above 30MHz:

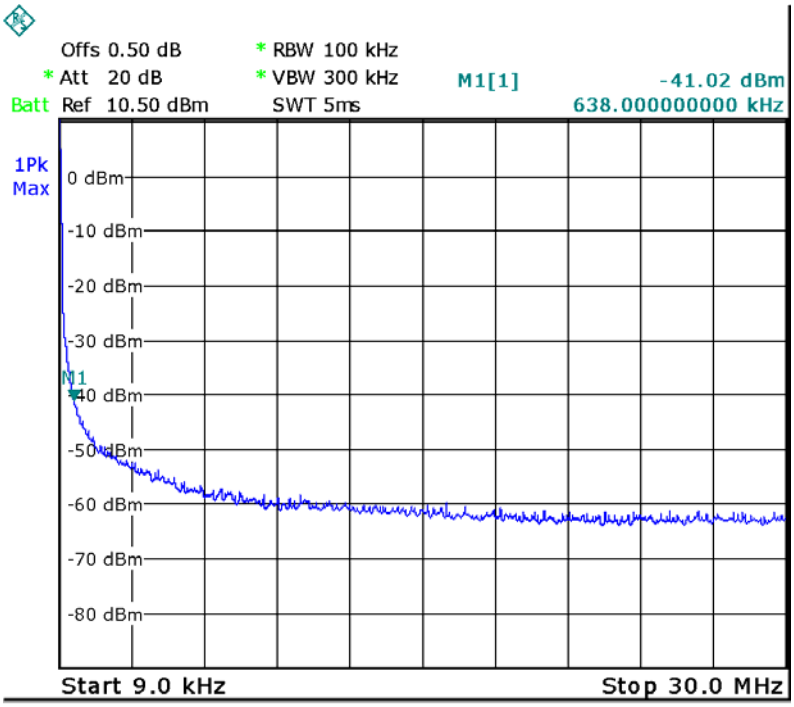
RBW = 1MHz, VBW = 3MHz, Sweep = auto

Detector function = peak, Trace = max hold

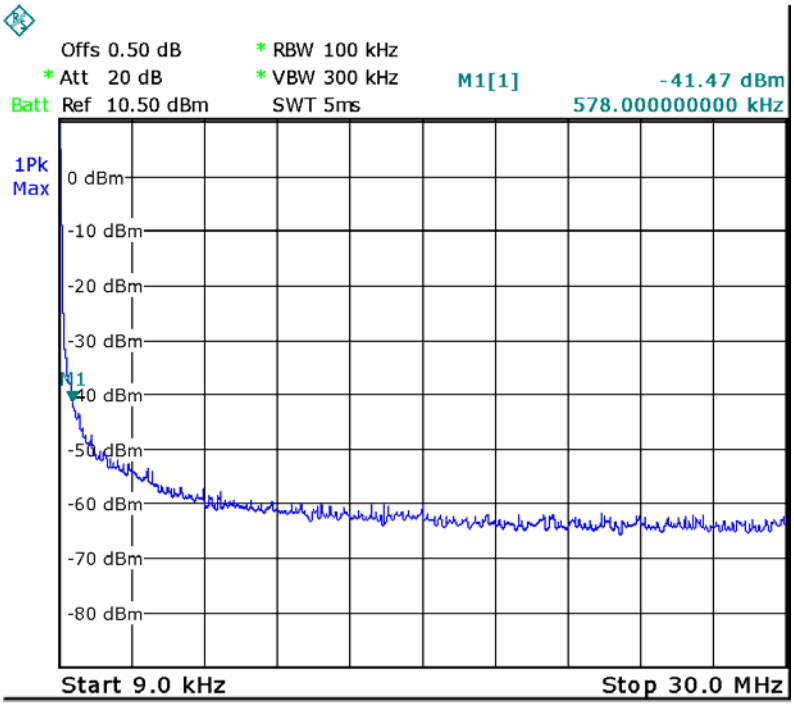
9.2 Test Result

802.11B

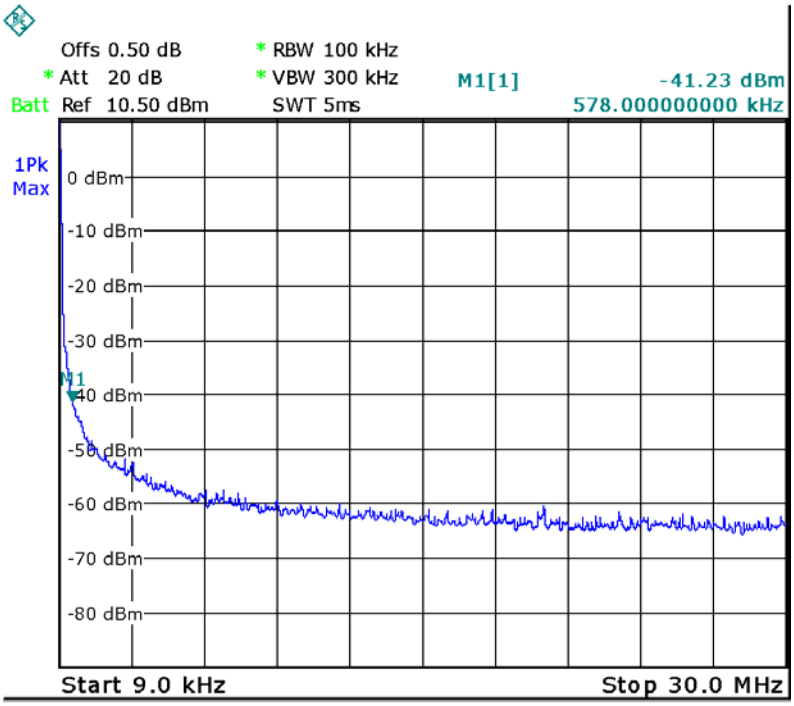
Low Channel



Middle Channel

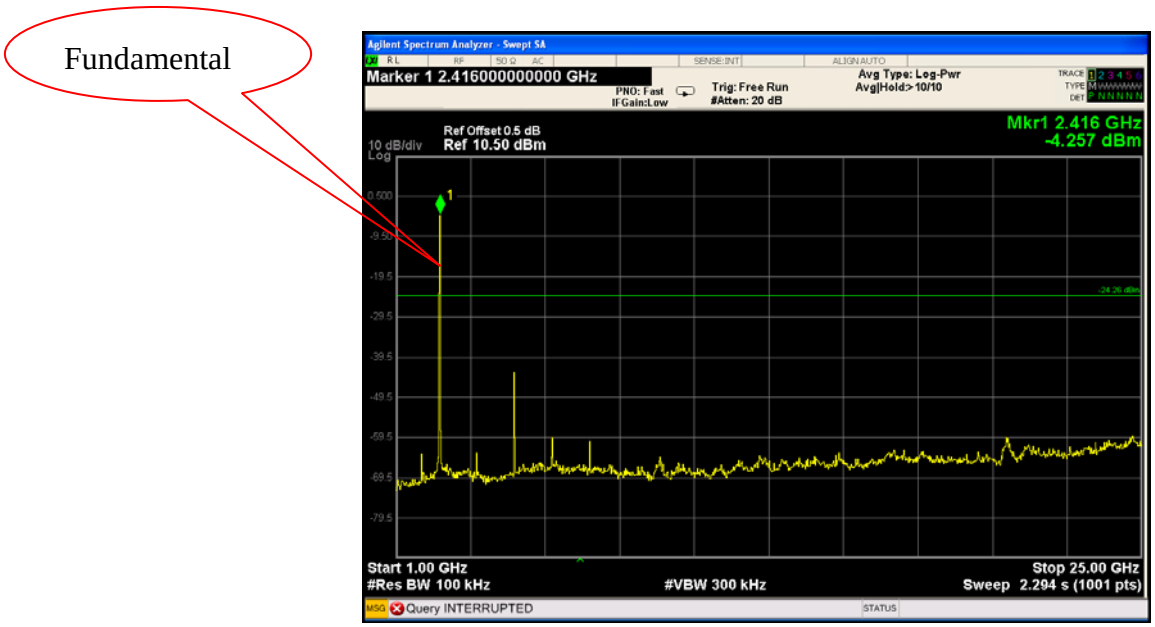


High Channel

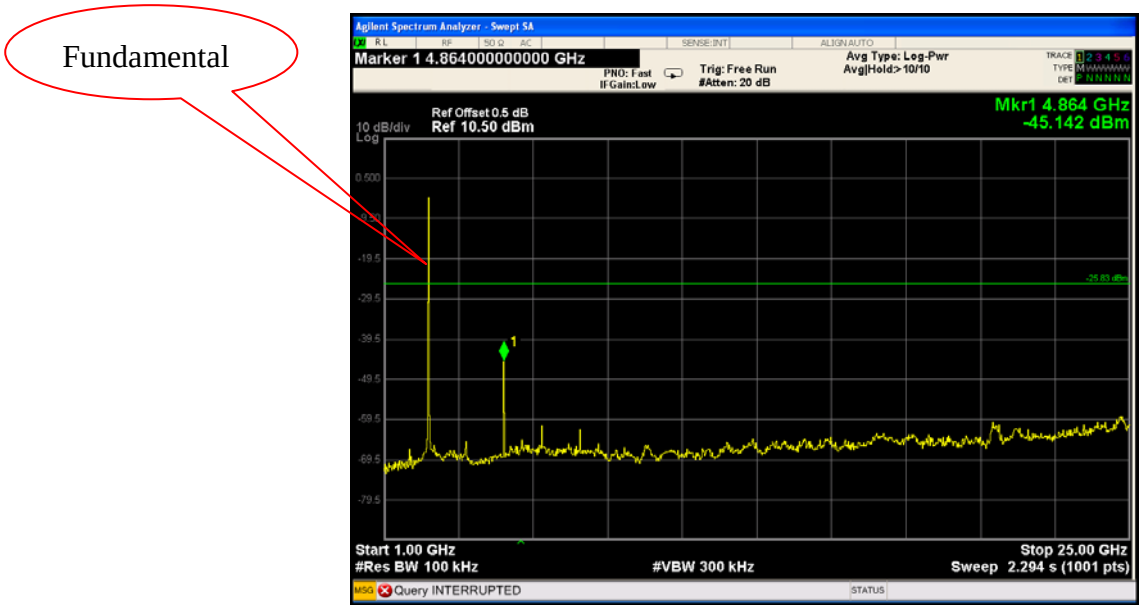


802.11B

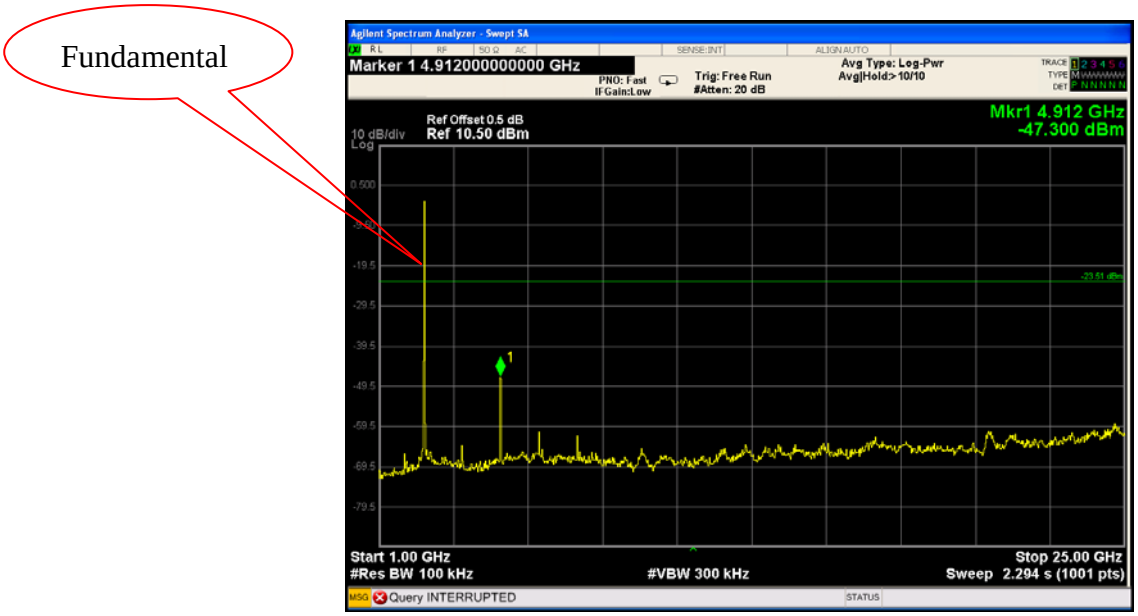
Low Channel



Middle Channel

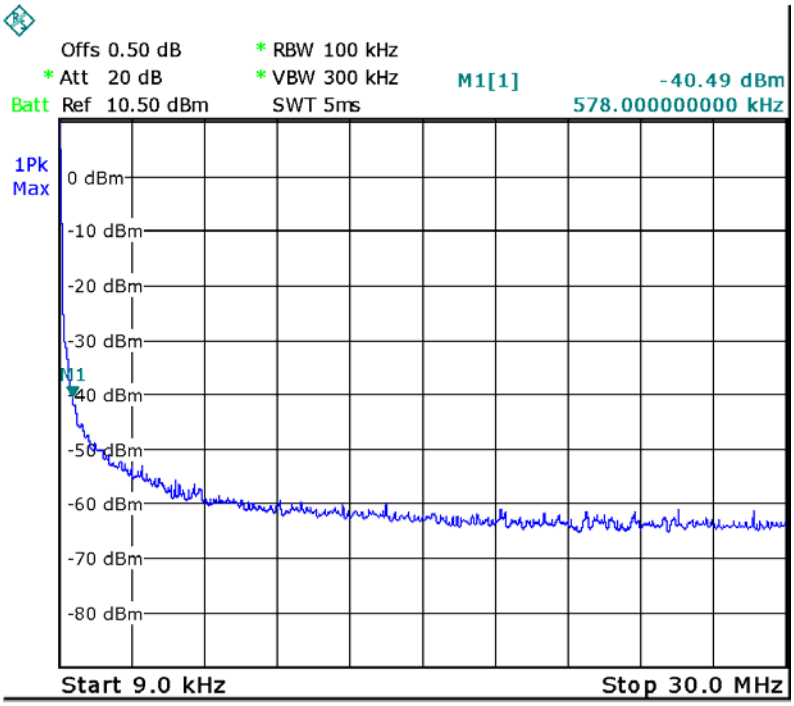


High Channel

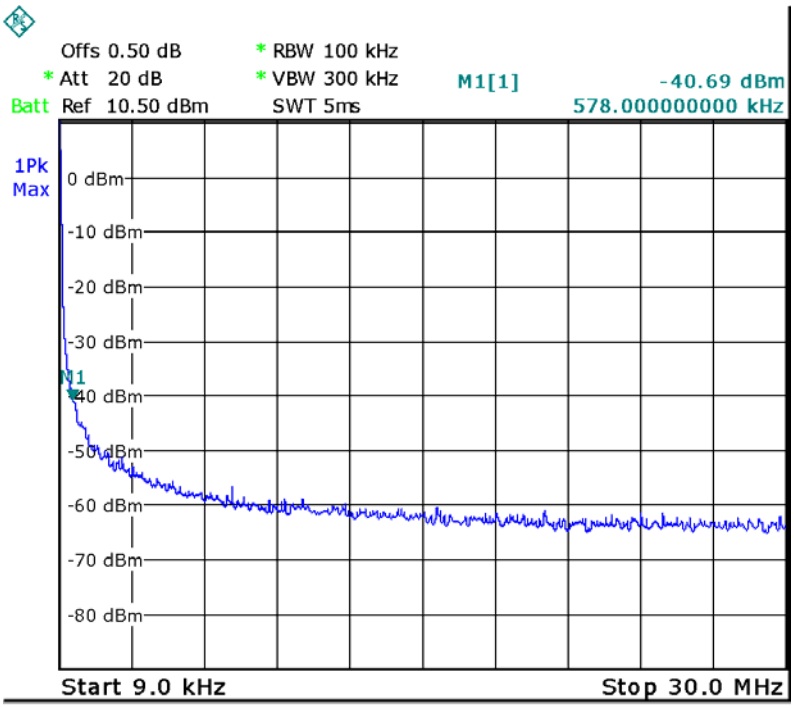


802.11G

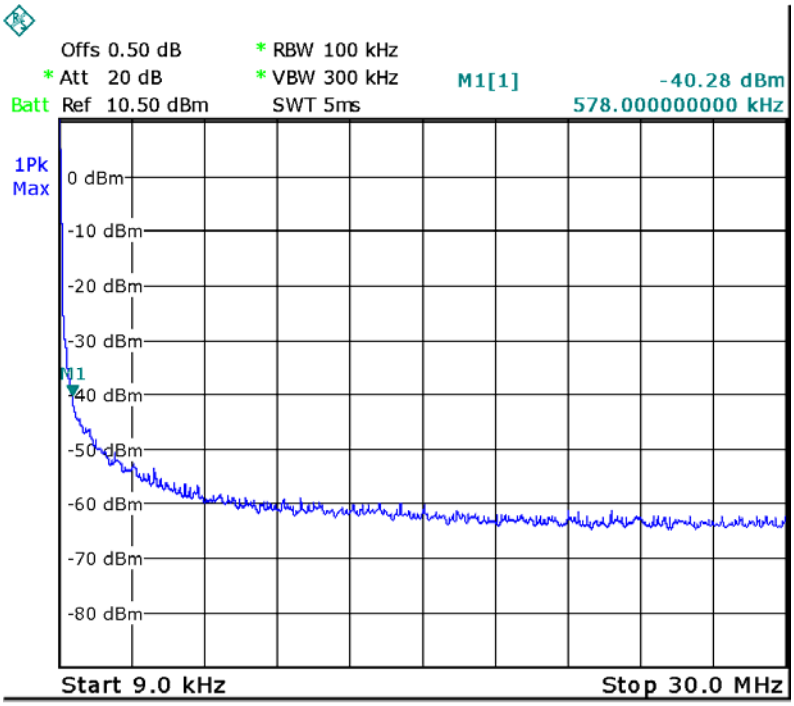
Low Channel



Middle Channel

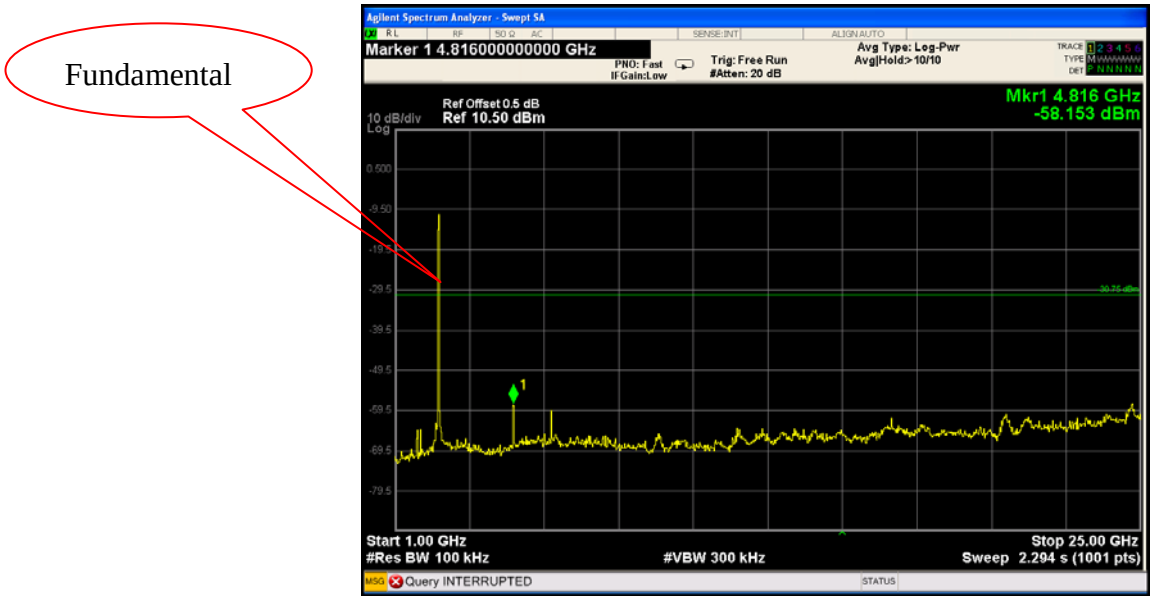


High Channel

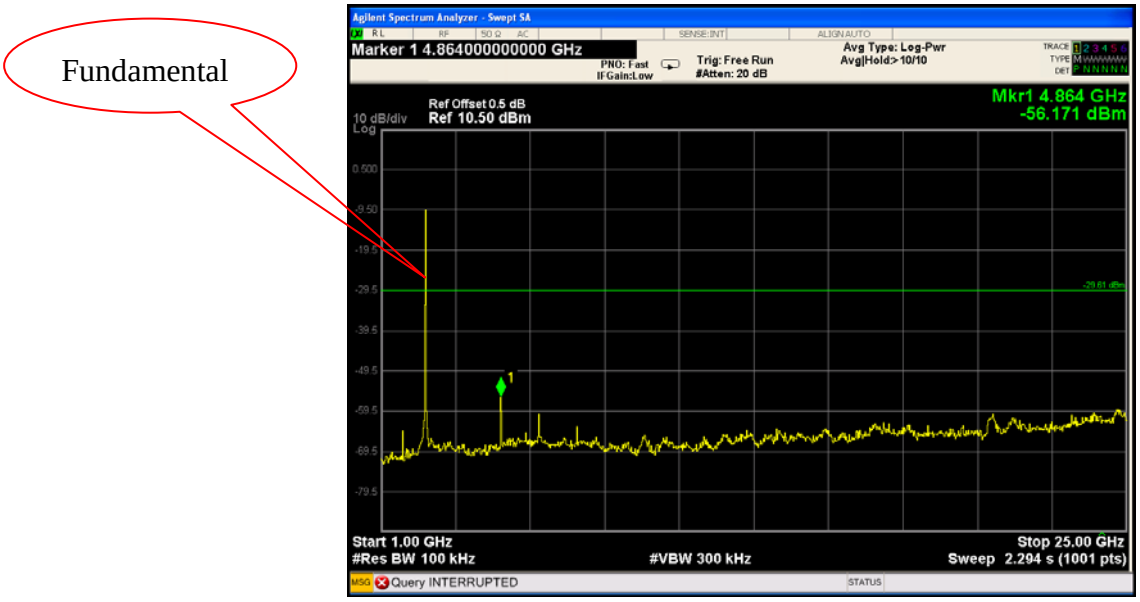


802.11G

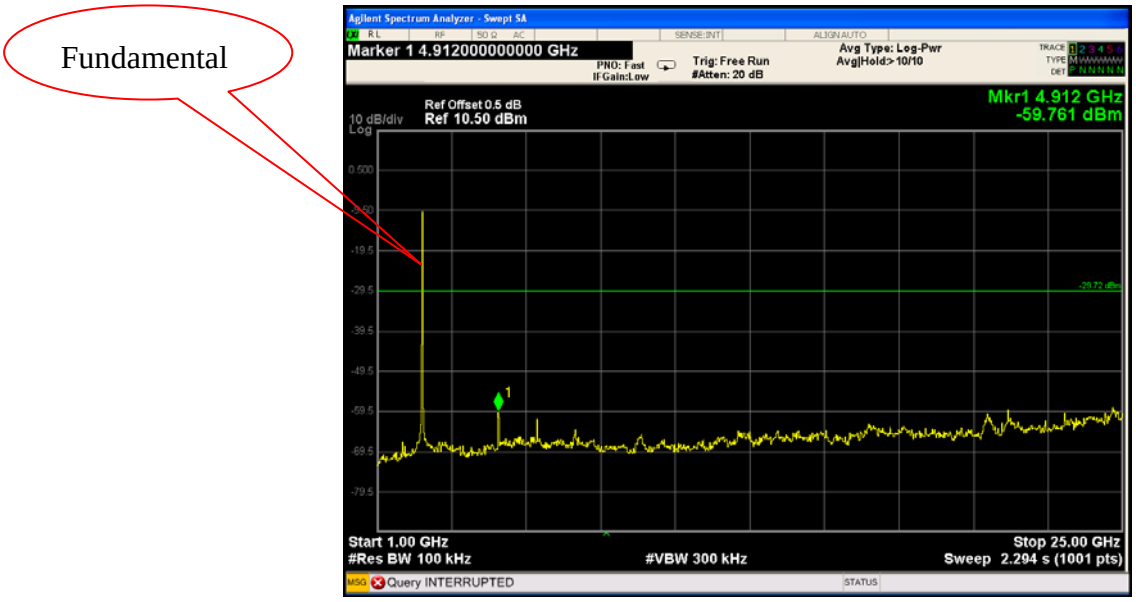
Low Channel



Middle Channel

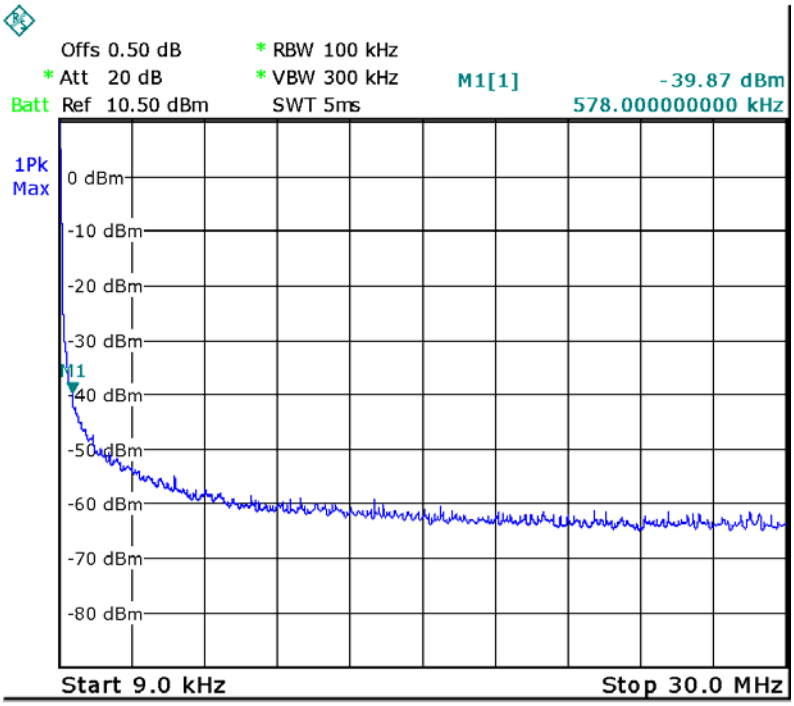


High Channel

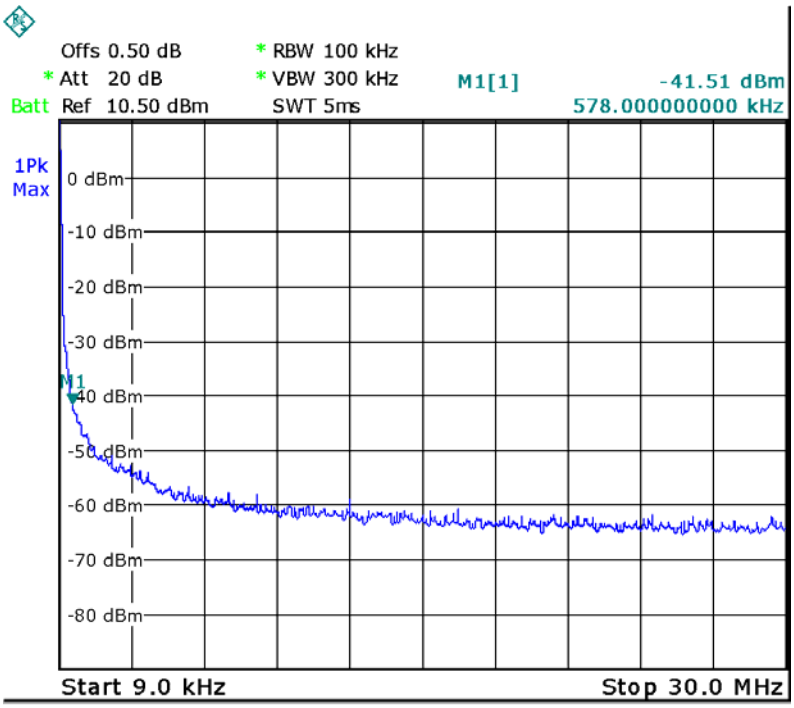


802.11 HT n20

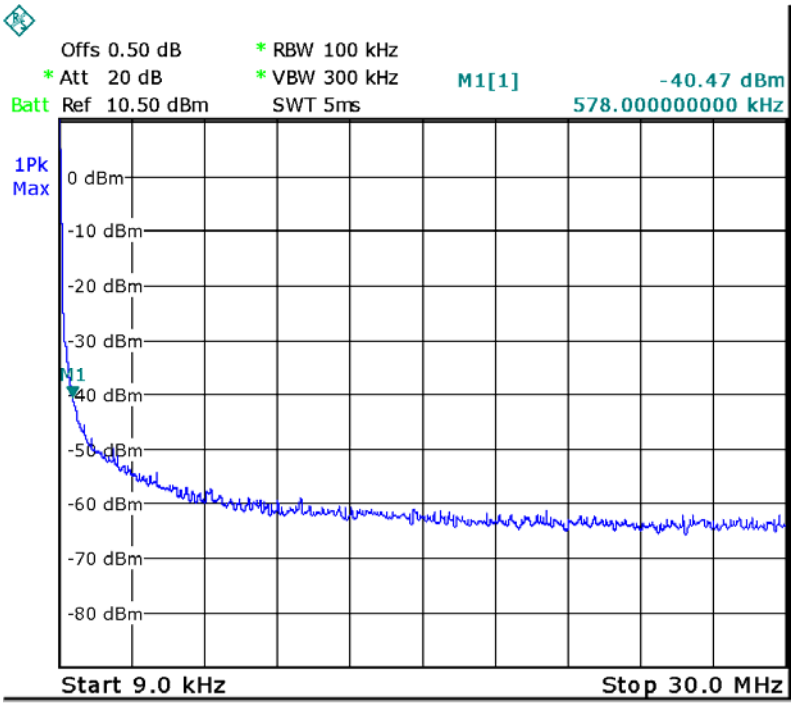
Low Channel



Middle Channel

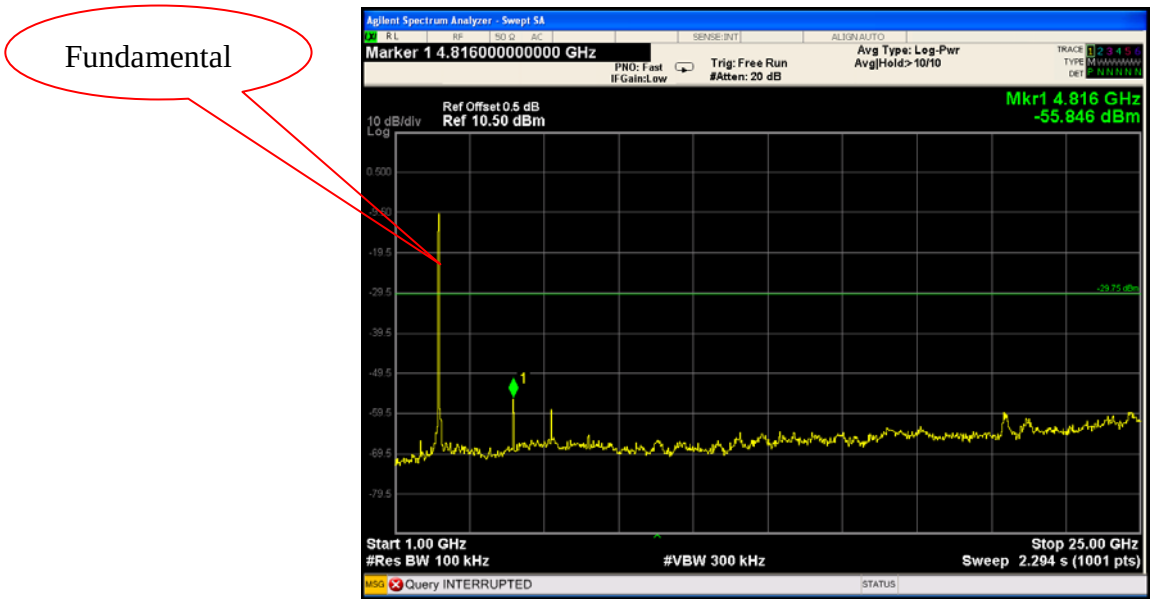


High Channel

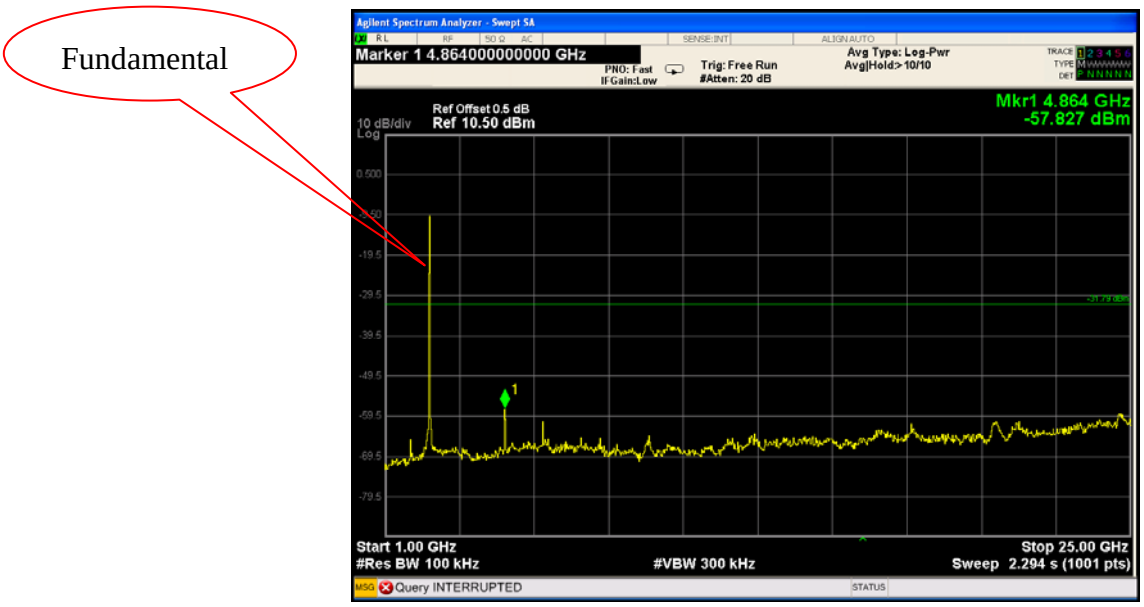


802.11 HT n20

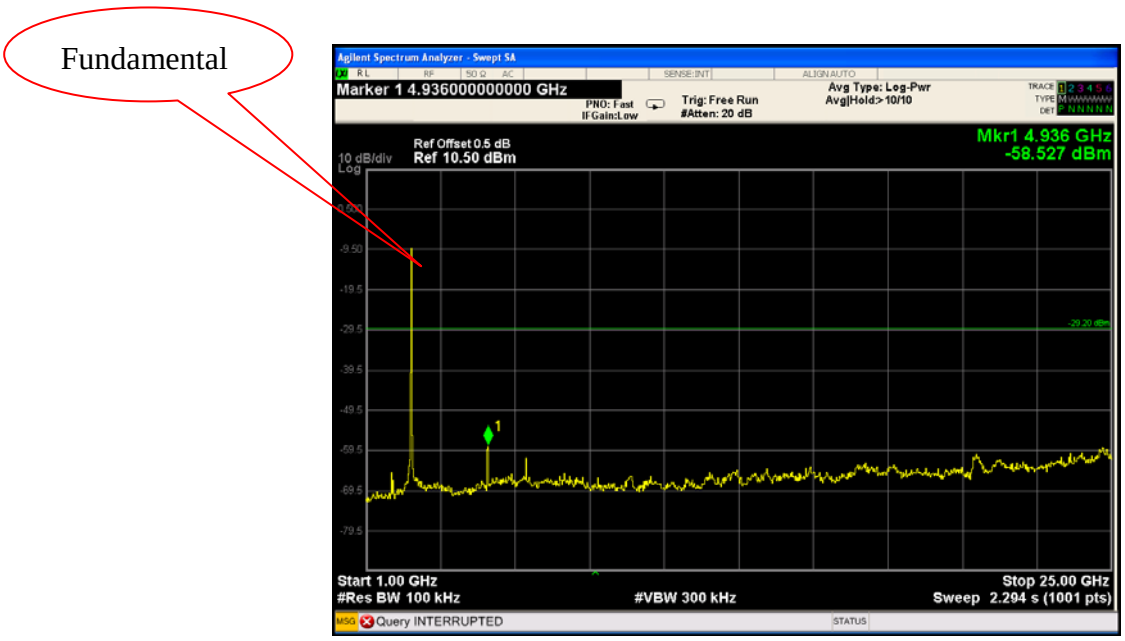
Low Channel



Middle Channel

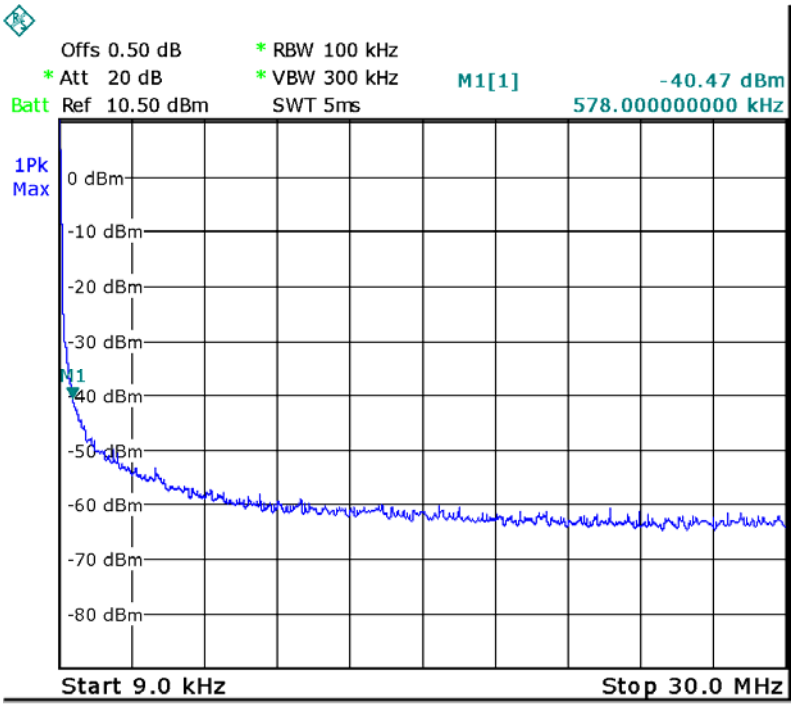


High Channel

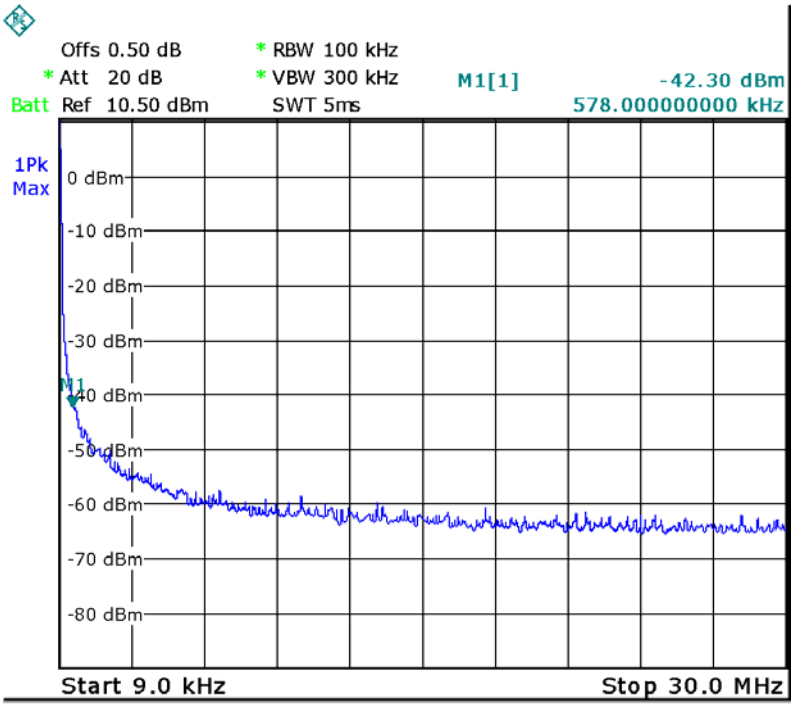


802.11 HT n40

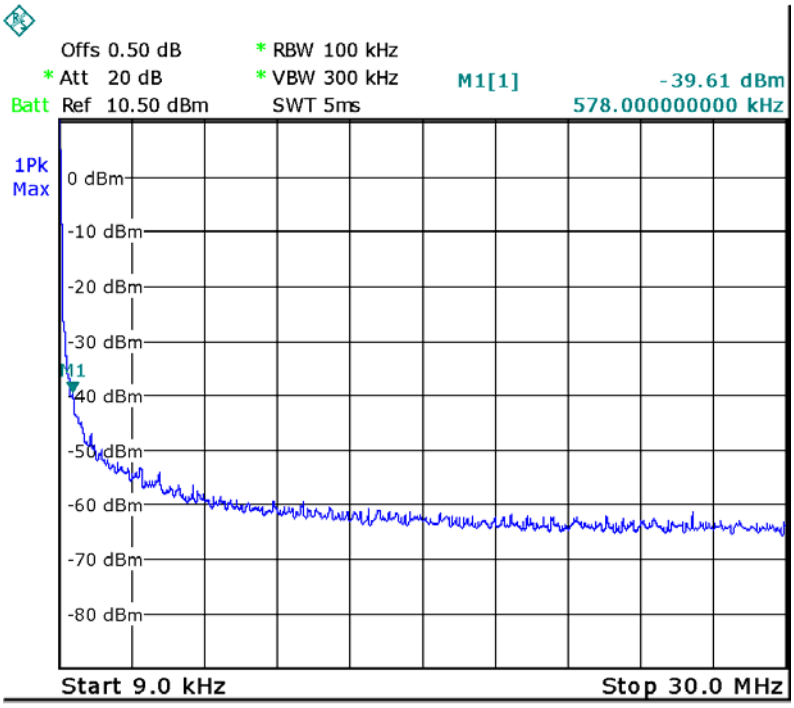
Low Channel



Middle Channel

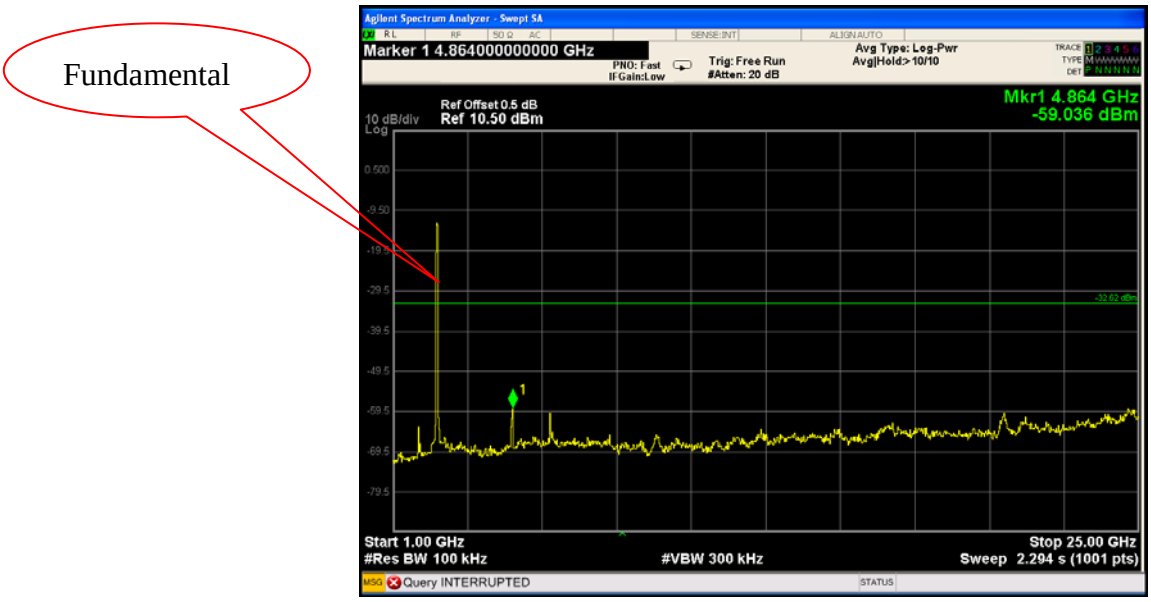


High Channel

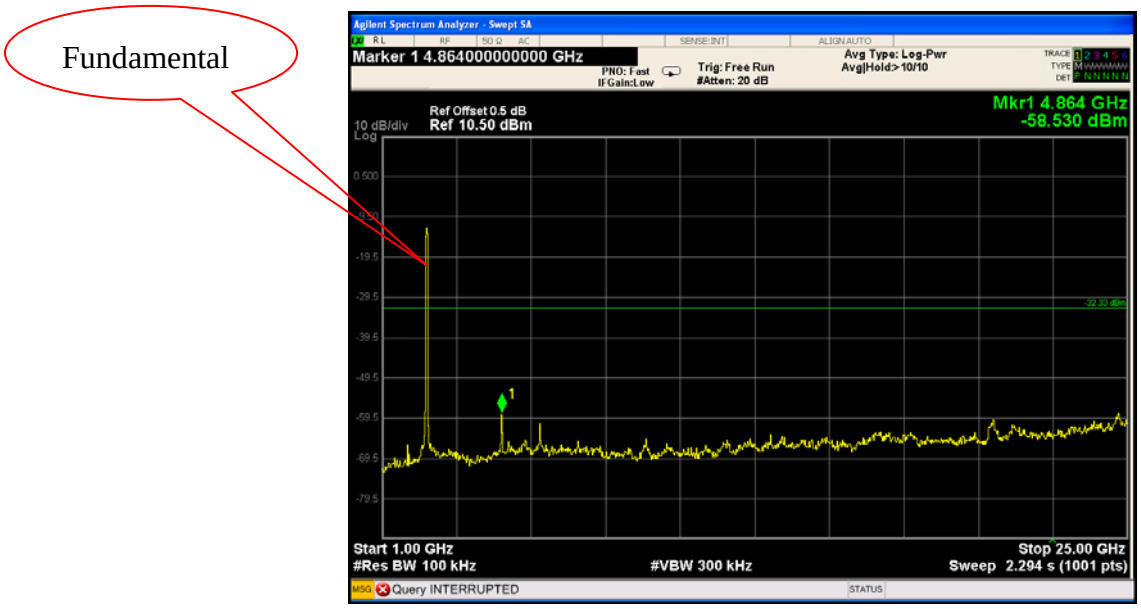


BLE

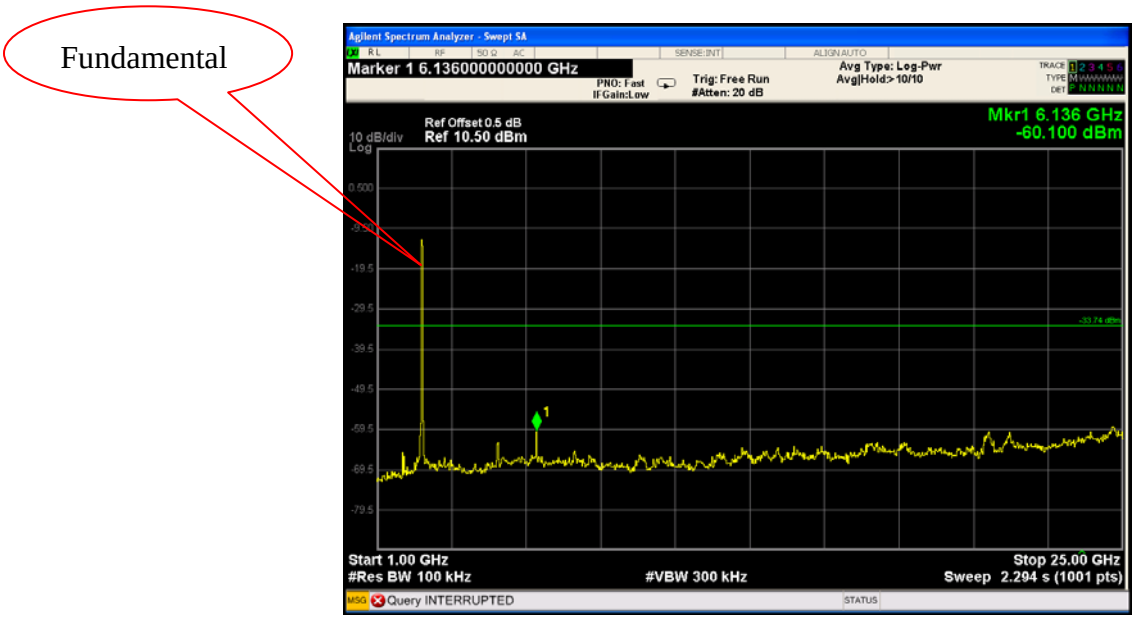
Low Channel



Middle Channel

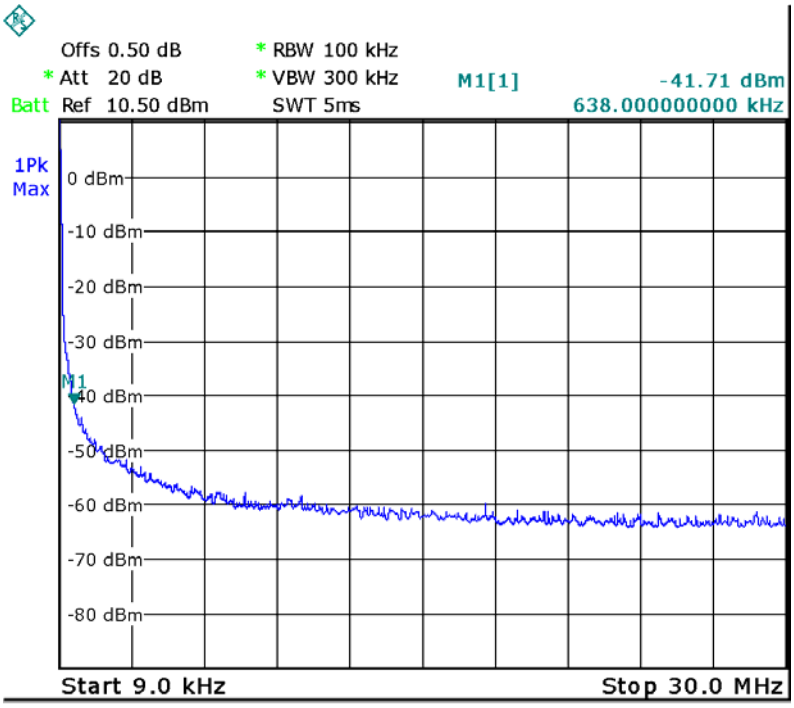


High Channel

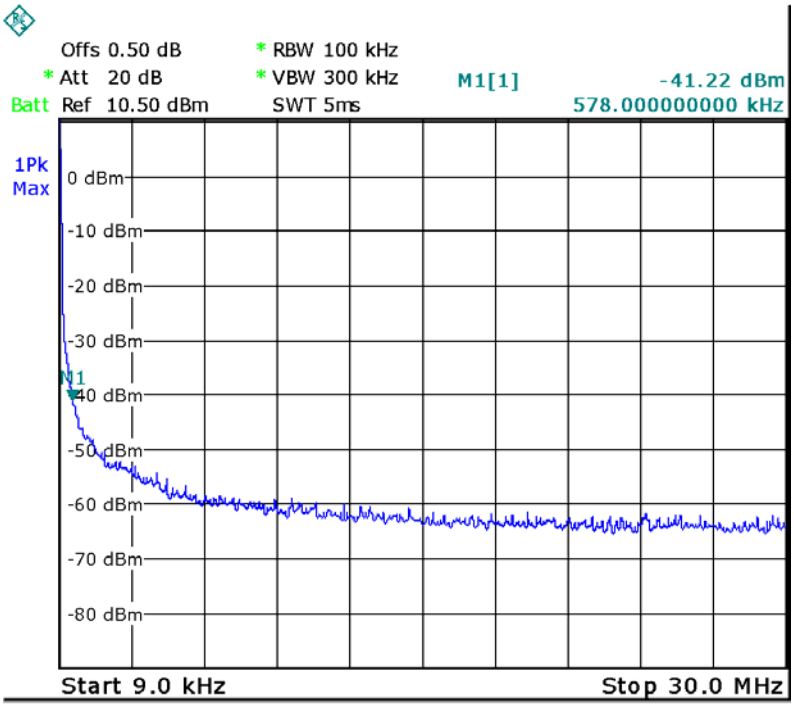


BLE

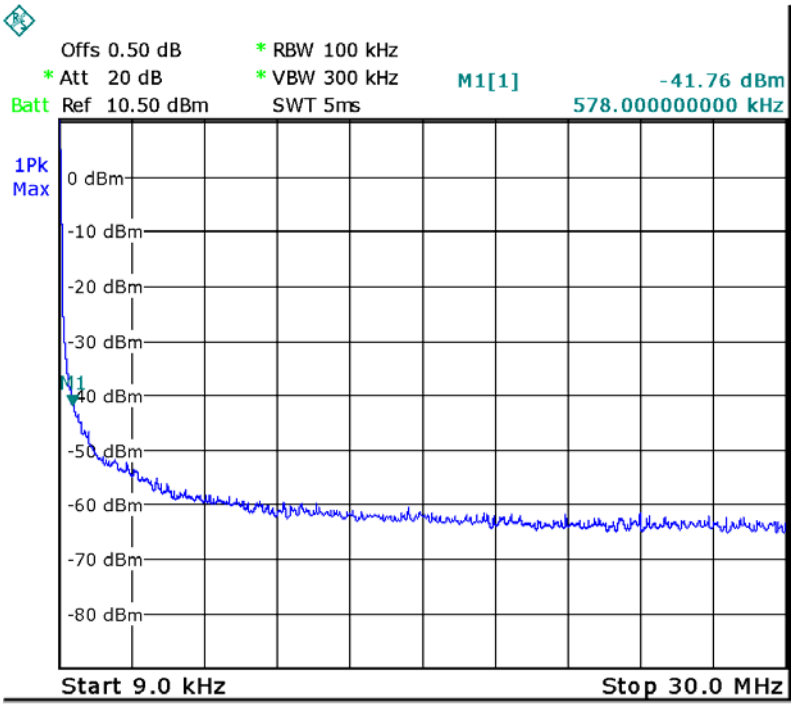
Low Channel



Middle Channel

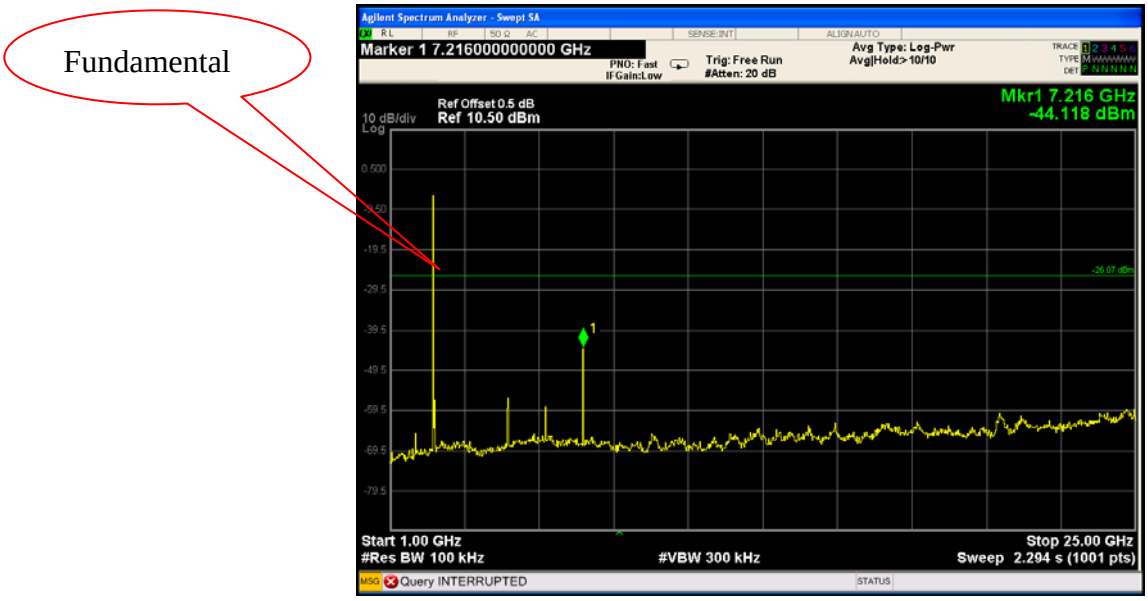


High Channel

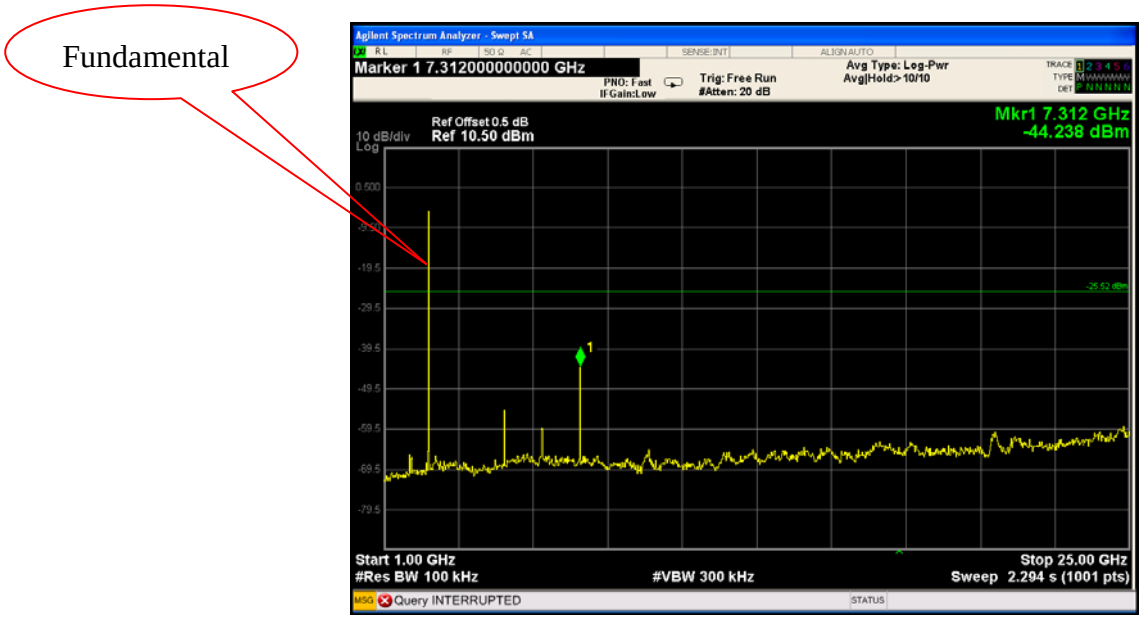


BLE

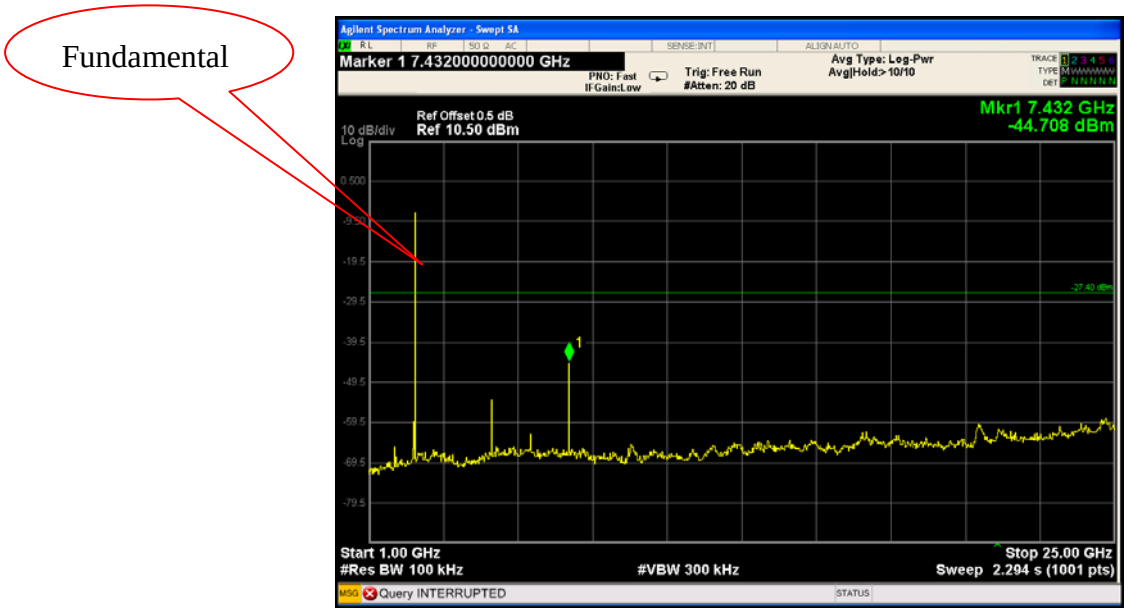
Low Channel



Middle Channel



High Channel



10 Band Edge Measurement

Test Requirement:	FCC CFR47 Part 15 Section 15.247
Test Method:	558074 D01 DTS Meas Guidance V04
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

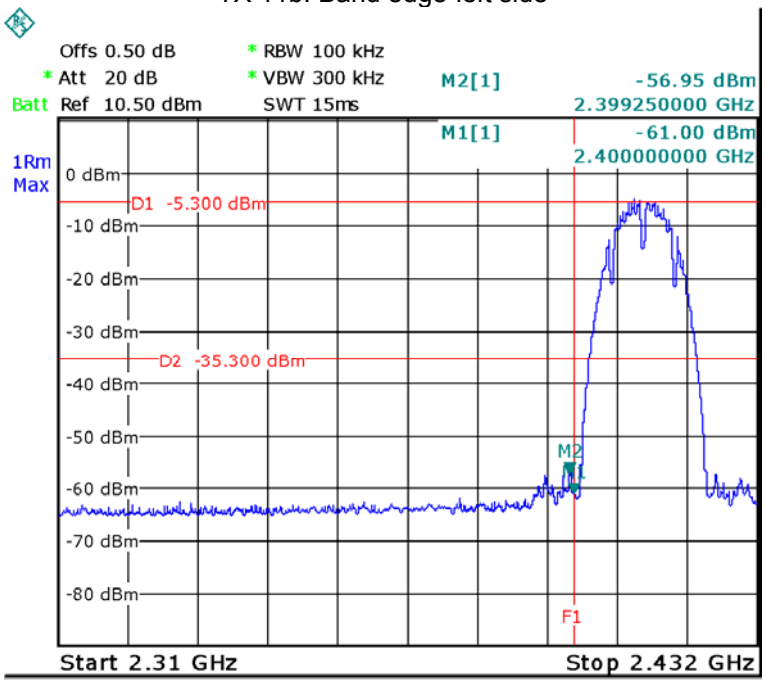
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then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

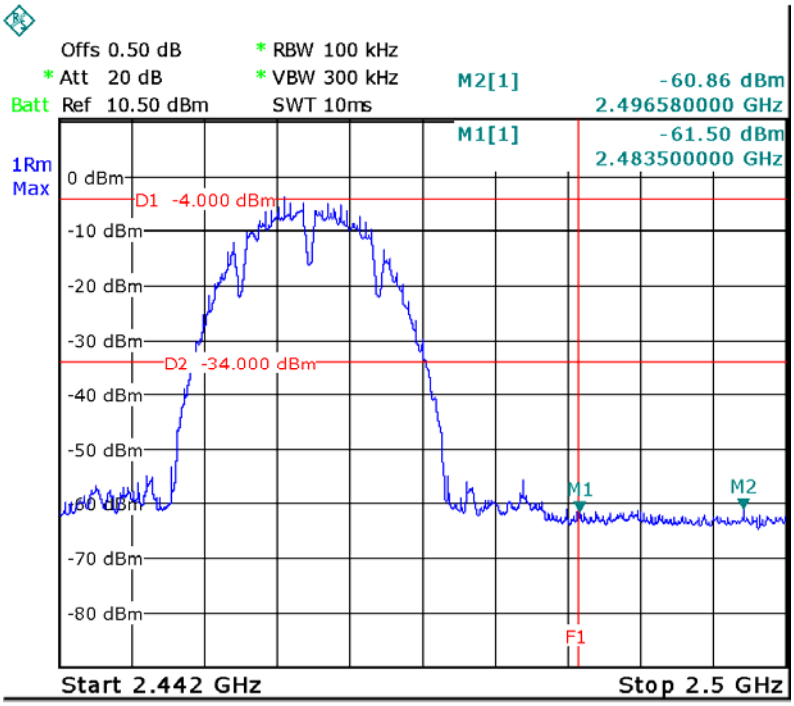
Test result plots shown as follows:

Wifi

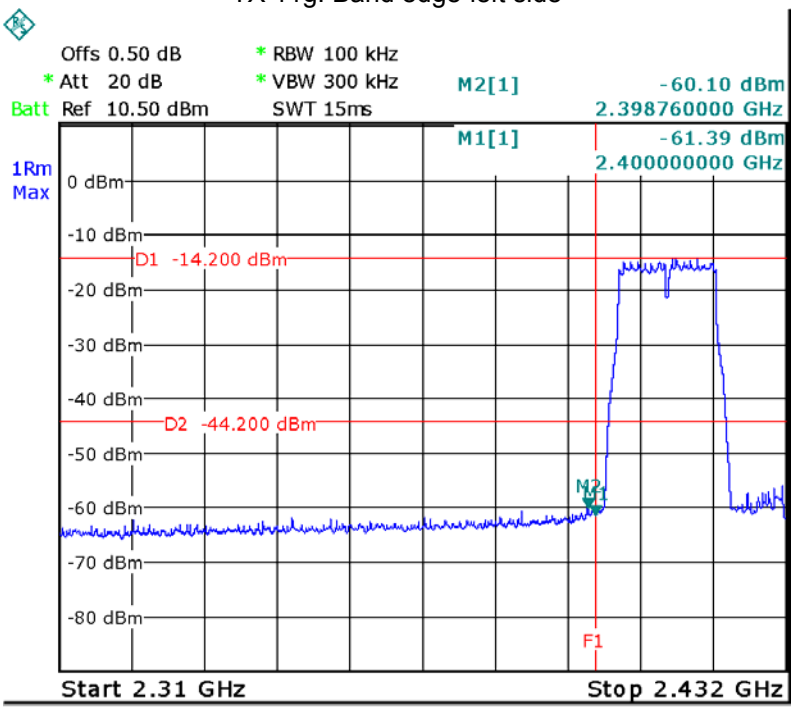
TX 11b: Band edge-left side



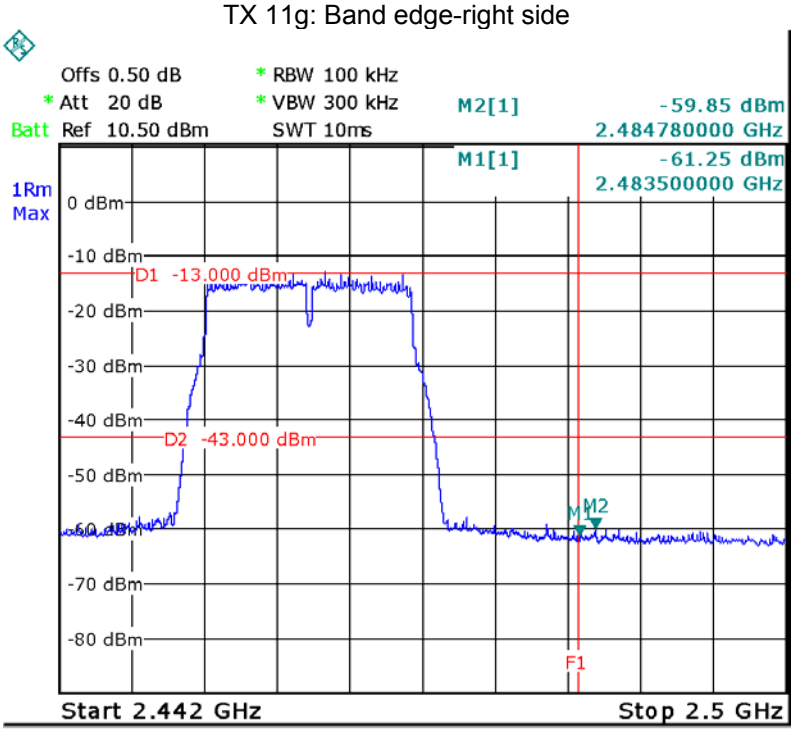
TX 11b: Band edge-right side



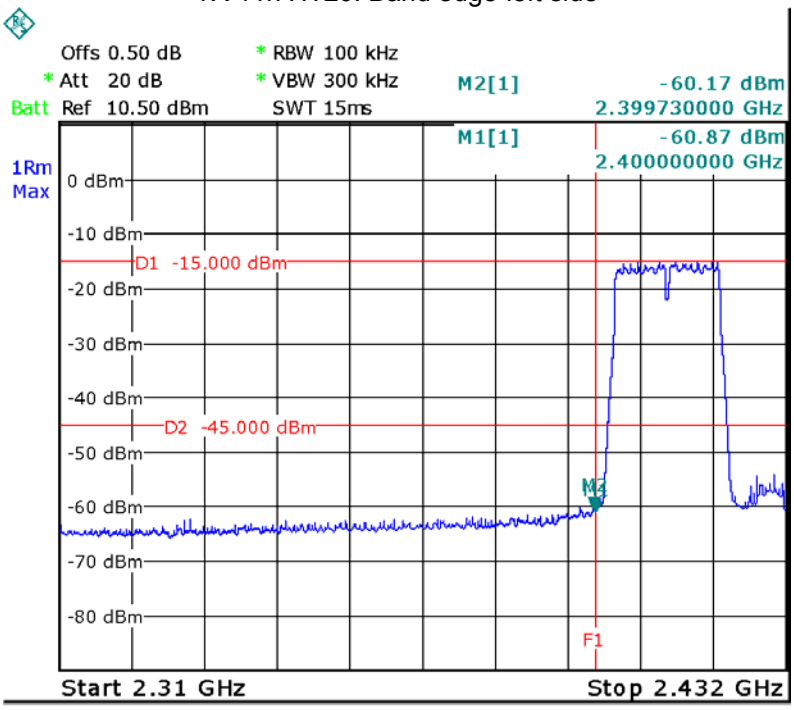
TX 11g: Band edge-left side



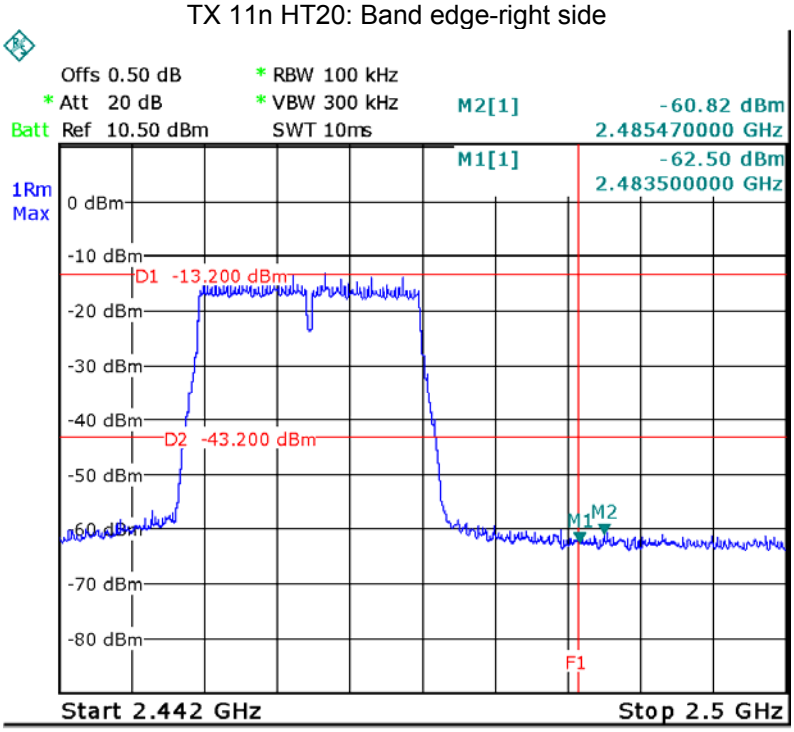
TX 11g: Band edge-right side



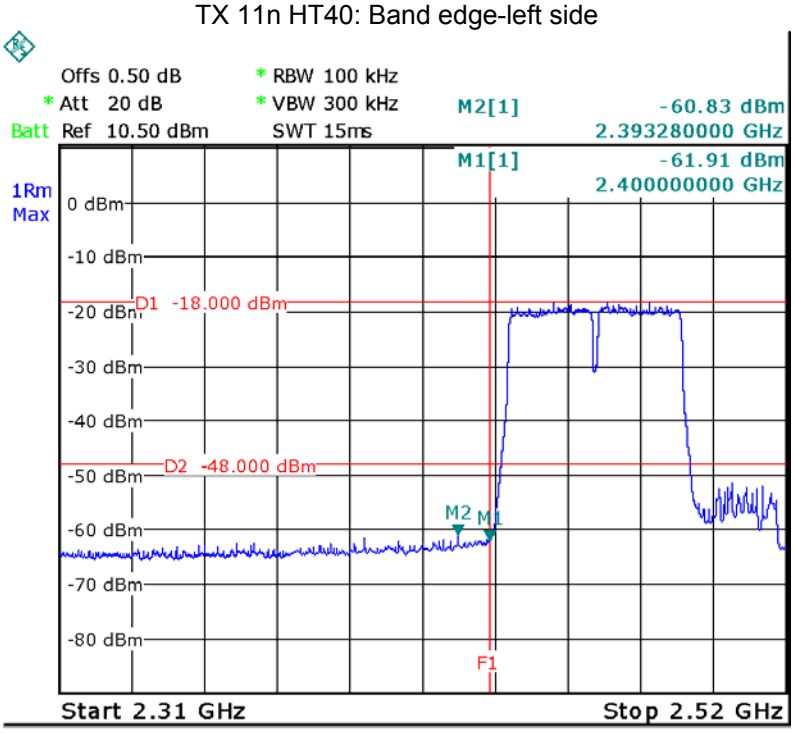
TX 11n HT20: Band edge-left side



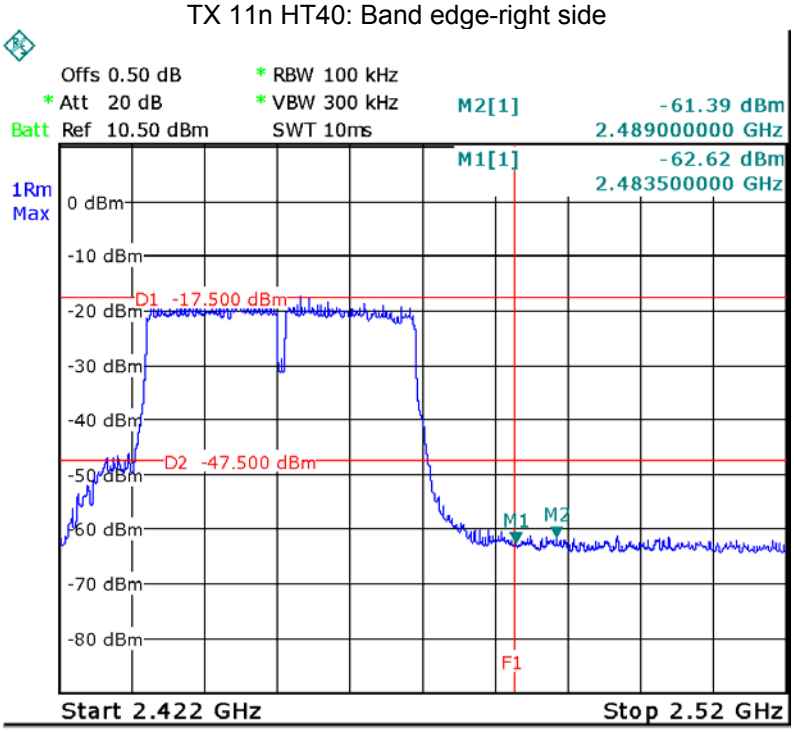
TX 11n HT20: Band edge-right side



TX 11n HT40: Band edge-left side

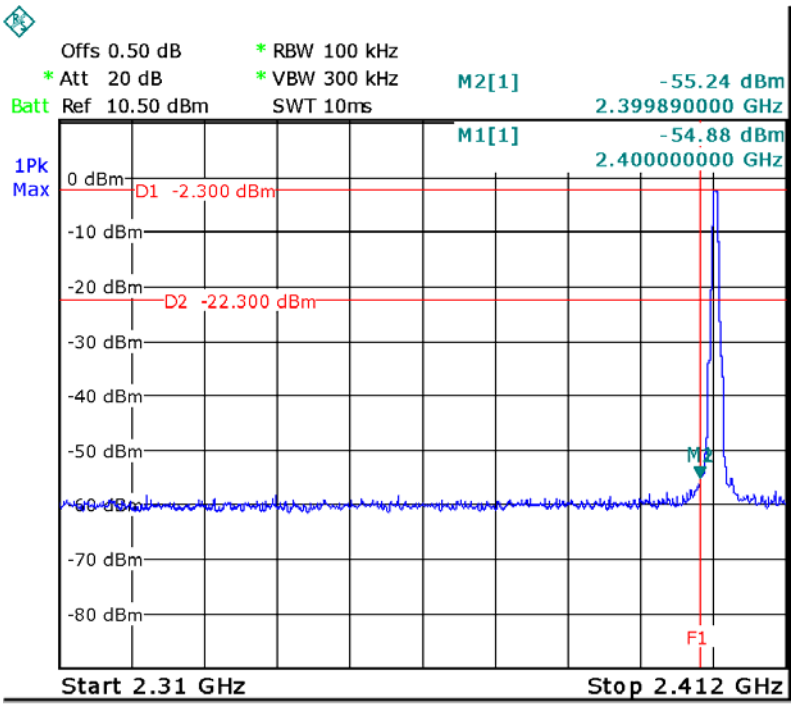


TX 11n HT40: Band edge-right side

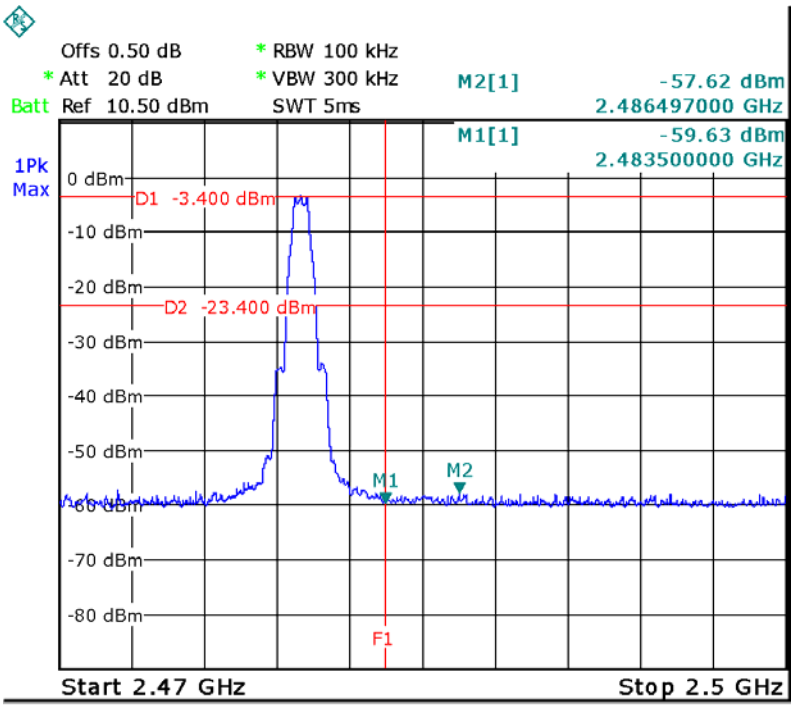


BLE

Band edge-left side



Band edge-right side



11 Bandwidth Measurement

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: 558074 D01 DTS Meas Guidance V04

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:

WIFI:

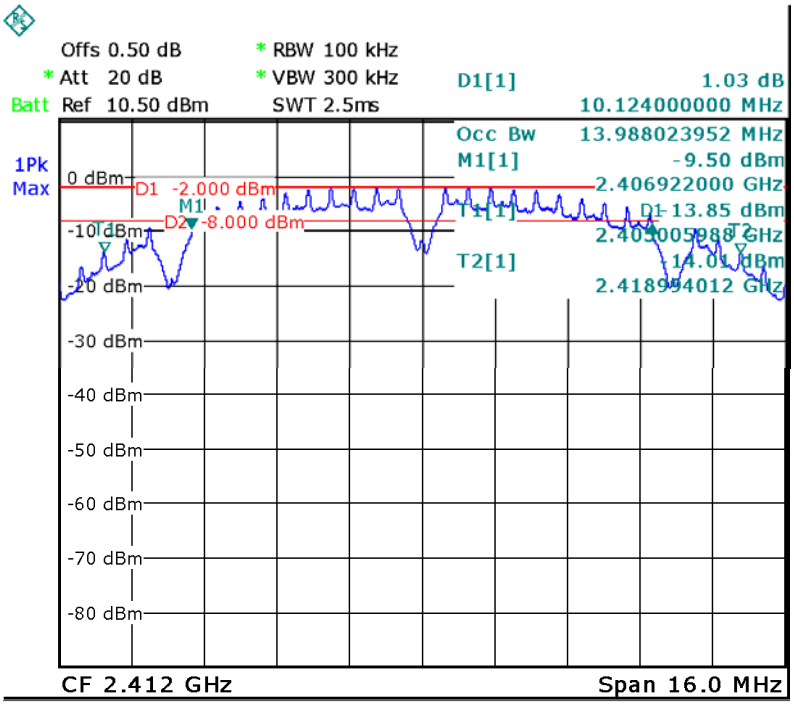
Operation mode	6dB Bandwidth (MHz)			99% Bandwidth (MHz)		
TX 11b	Channel 1	Channel 6	Channel 11	Channel 1	Channel 6	Channel 11
	10.124	10.124	10.124	12.964	13.956	13.988
TX 11g	Channel 1	Channel 6	Channel 11	Channel 1	Channel 6	Channel 11
	16.417	16.467	16.417	16.467	16.517	16.517
TX 11n HT20	Channel 1	Channel 6	Channel 11	Channel 1	Channel 6	Channel 11
	17.623	17.623	17.623	17.677	17.623	17.623
TX 11n HT40	Channel 3	Channel 6	Channel 9	Channel 3	Channel 6	Channel 9
	36.120	36.120	36.120	36.008	36.008	36.118

BLE:

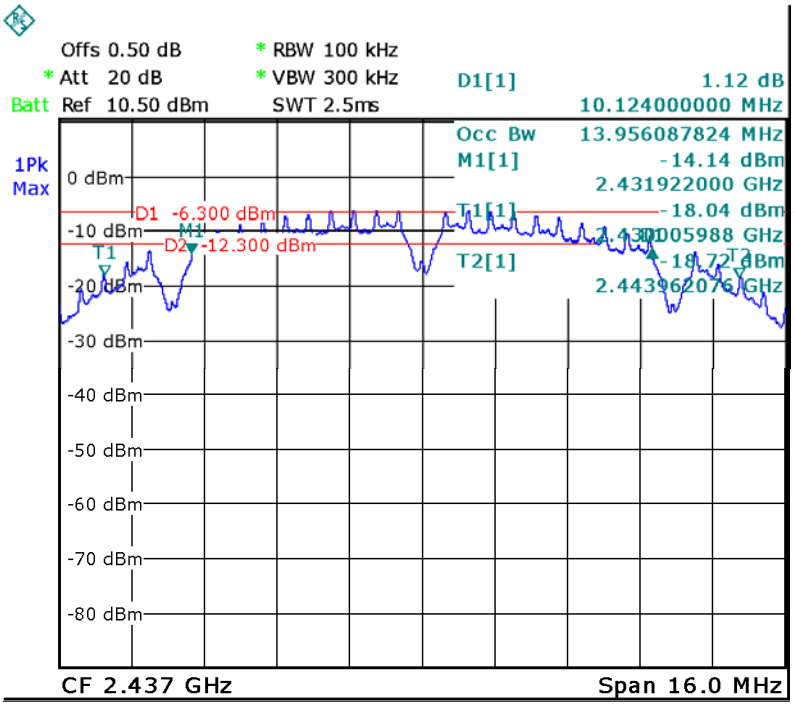
Operation mode	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
Low channel	0.677	1.030
Middle channel	0.683	1.030
High channel	0.683	1.030

Wifi: Test result plot as follows:

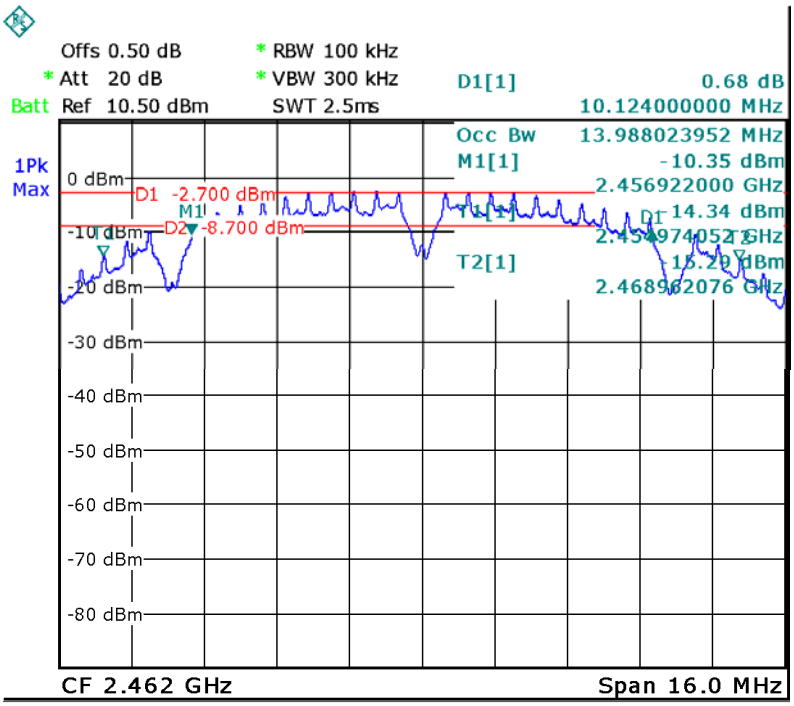
Mode: TX 11b channel 1



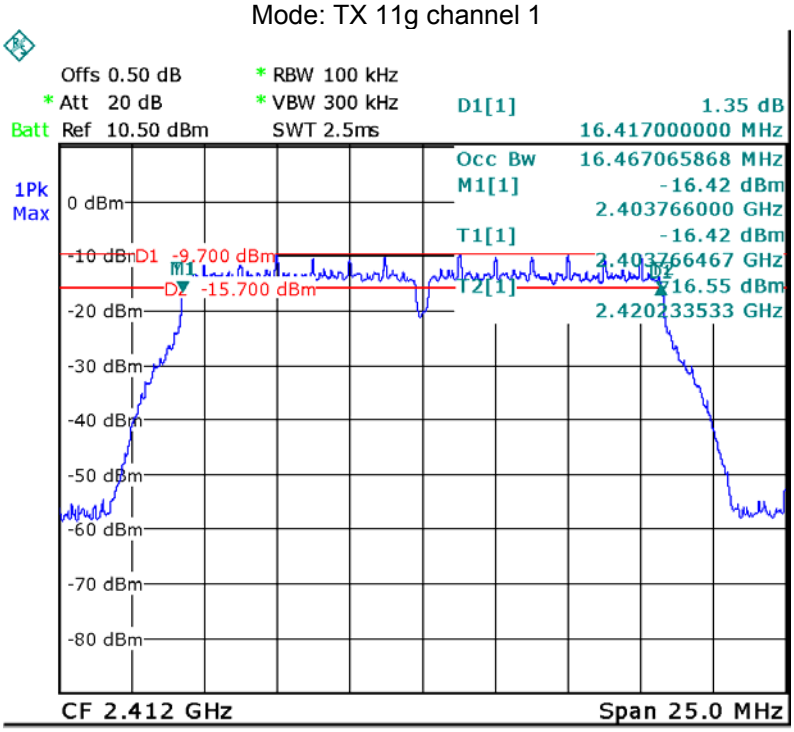
Mode: TX 11b channel 6



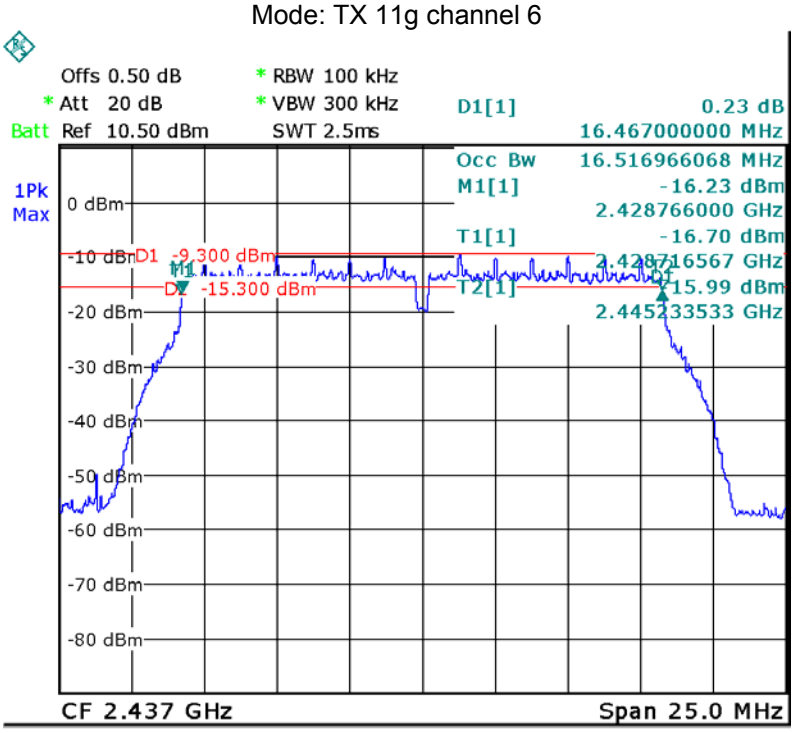
Mode: TX 11b channel 11



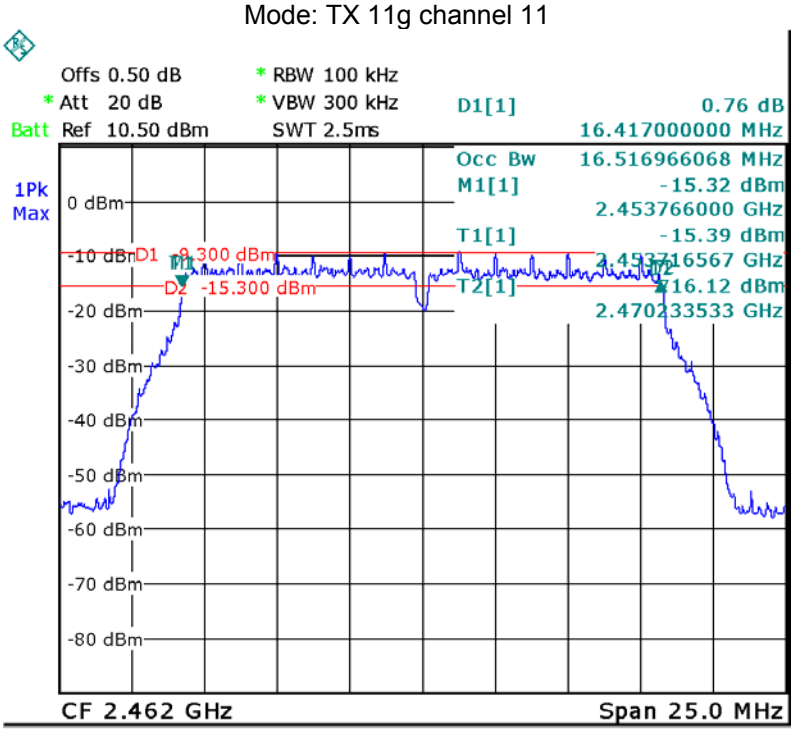
Mode: TX 11g channel 1



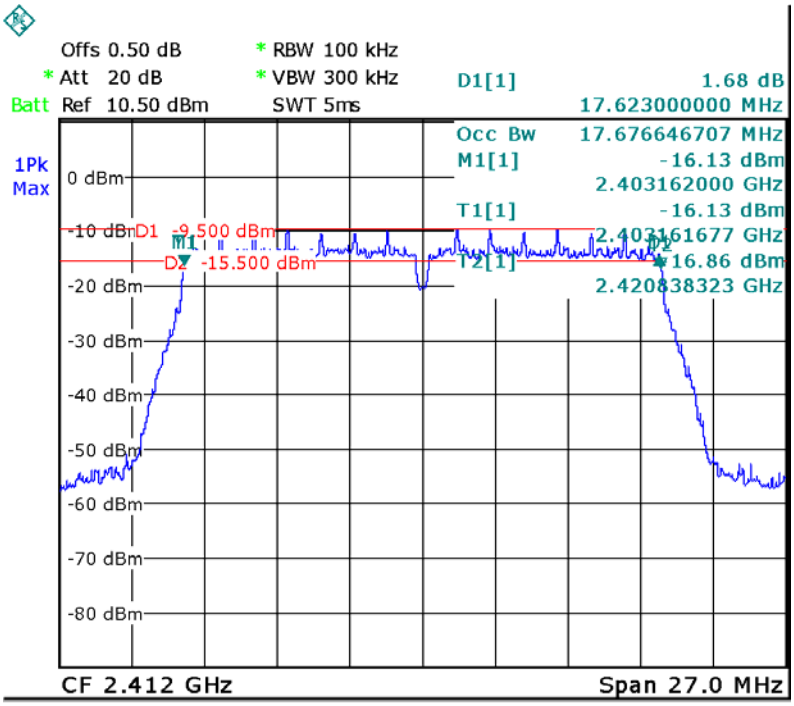
Mode: TX 11g channel 6



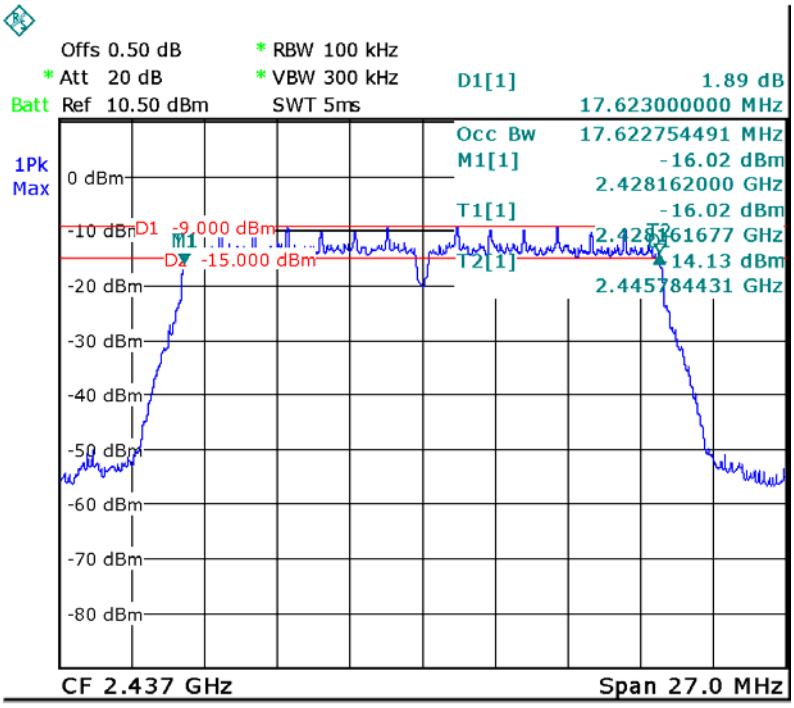
Mode: TX 11g channel 11



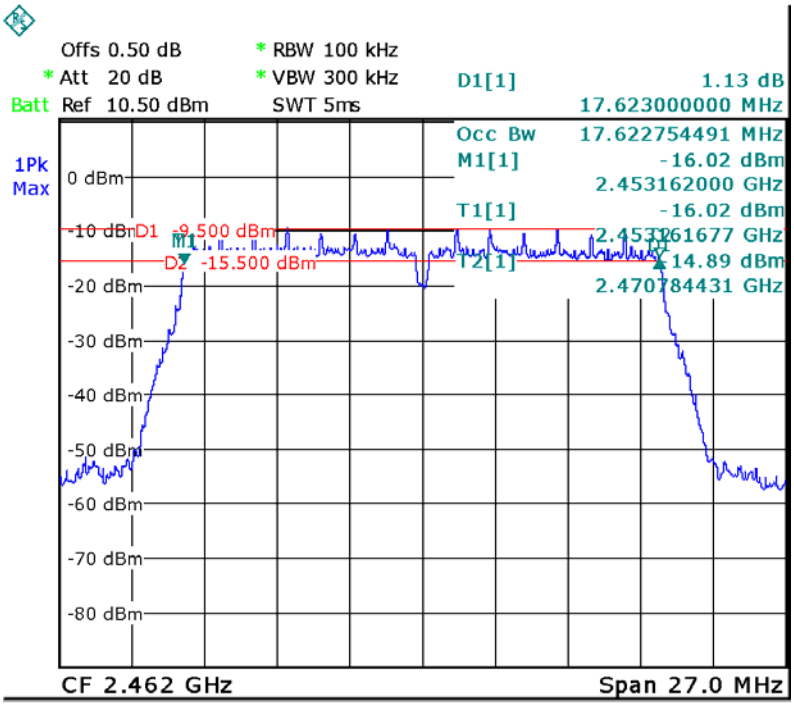
Mode: TX 11n HT20 channel 1



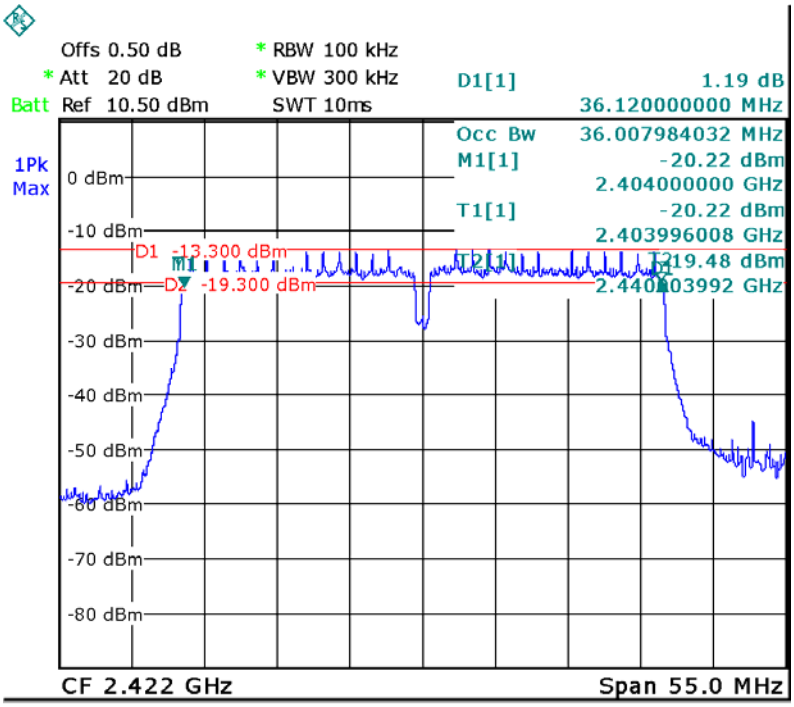
Mode: TX 11n HT20 channel 6



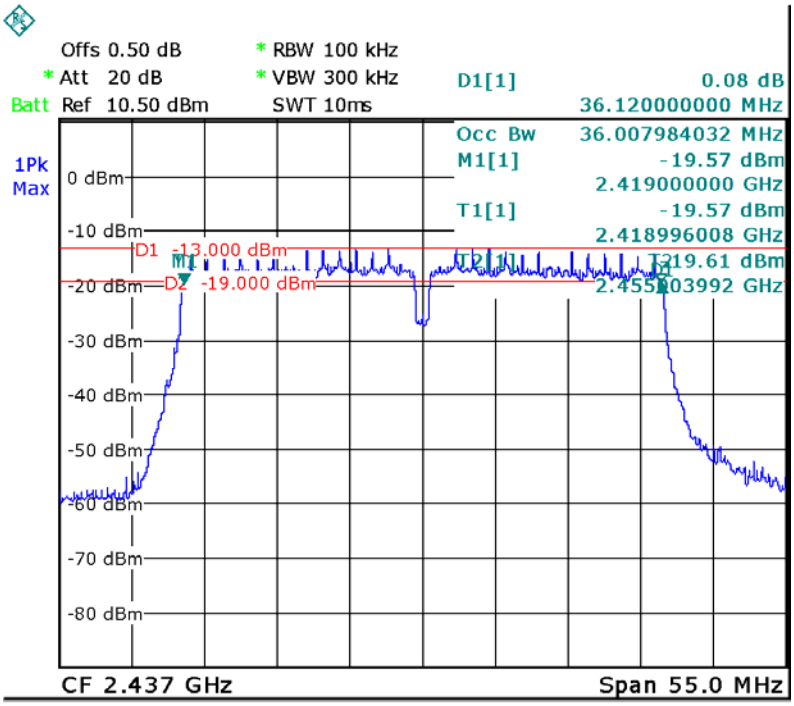
Mode: TX 11n HT20 channel 11



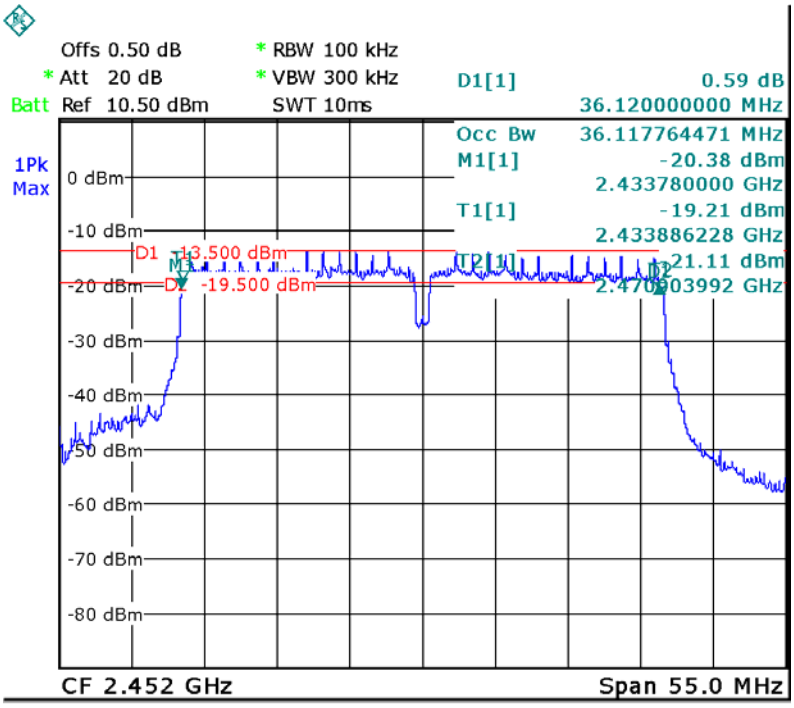
Mode: TX 11n HT40 channel 3



Mode: TX 11n HT40 channel 6

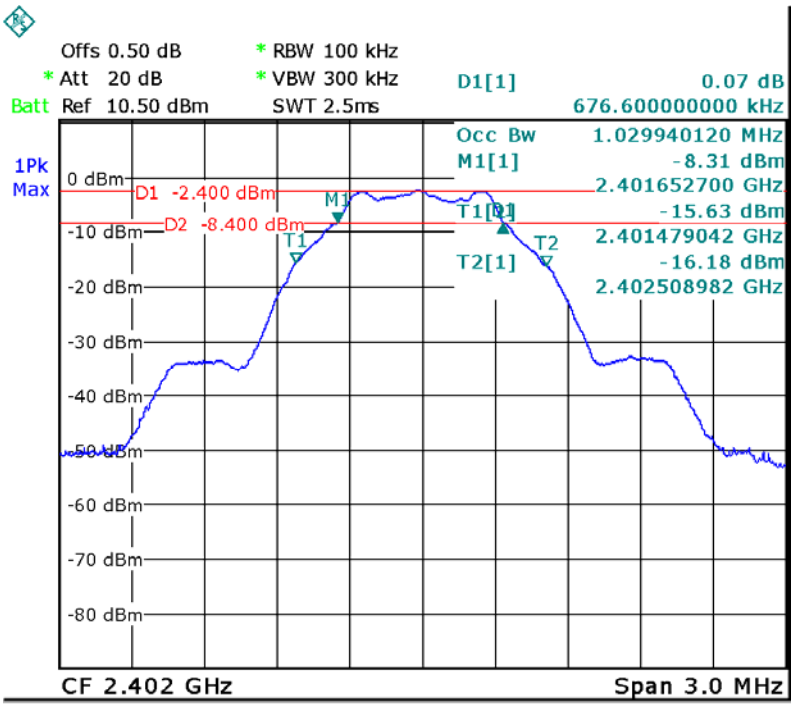


Mode: TX 11n HT40 channel 9

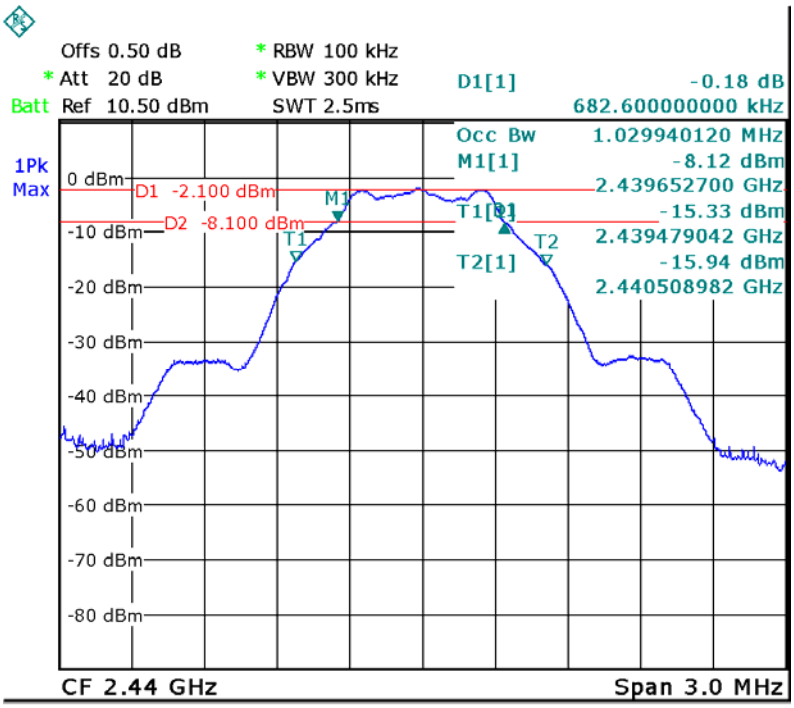


BLE:

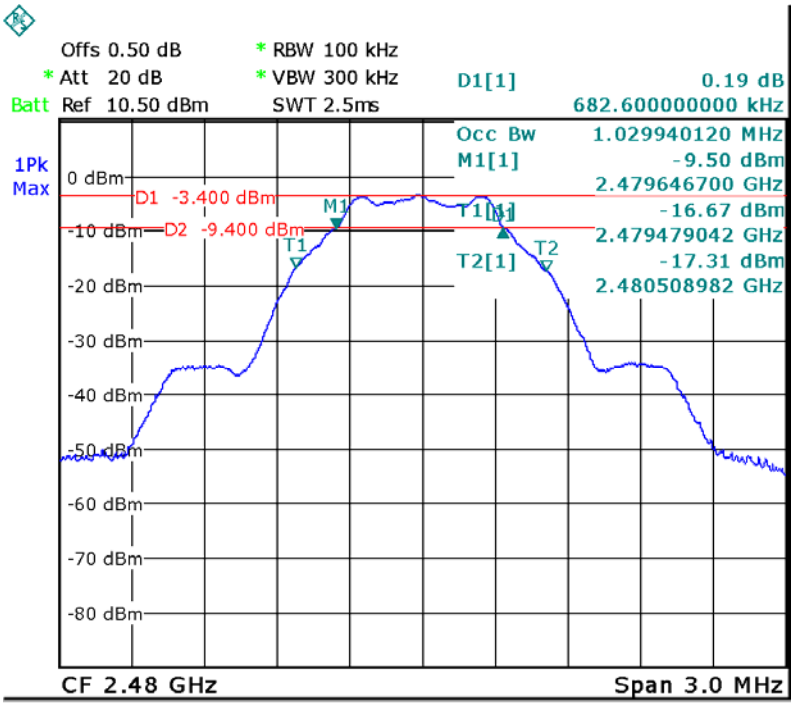
Mode: Low channel



Mode: Middle channel



Mode: High channel



12 Maximum Peak Output Power

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: 558074 D01 DTS Meas Guidance V04

12.1 Test Procedure:

558074 D01 DTS Meas Guidance V04

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.

12.2 Test Result:

Wifi:

Test mode :TX 11b		
Maximum Peak Output Power (dBm)		
2412MHz	2437MHz	2462MHz
7.42	7.51	7.05
Limit: 1W/30dBm		

Test mode :TX 11g		
Maximum Peak Output Power (dBm)		
2412MHz	2437MHz	2462MHz
7.32	7.45	7.50
Limit: 1W/30dBm		

Test mode :TX 11n HT20		
Maximum Peak Output Power (dBm)		
2412MHz	2437MHz	2462MHz
7.39	7.08	7.21
Limit: 1W/30dBm		

Test mode : TX 11n HT40		
Maximum Peak Output Power (dBm)		
2422MHz	2437MHz	2452MHz
7.54	7.43	7.20
Limit: 1W/30dBm		

BLE:

Maximum Peak Output Power (dBm)		
Low channel	Middle channel	High channel
-1.72	-1.47	-2.80
Limit: 1W/30dBm		

13 Power Spectral density

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: 558074 D01 DTS Meas Guidance V04

13.1 Test Procedure:

558074 D01 DTS Meas Guidance V04

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:

WIFI:

Test mode :TX 11b		
Power Spectral (dBm per 3kHz)		
2412MHz	2437MHz	2462MHz
-15.60	-20.63	-16.93
Limit: 8dBm per 3kHz		

Test mode :TX 11g		
Power Spectral (dBm per 3kHz)		
2412MHz	2437MHz	2462MHz
-23.90	-24.69	-24.06
Limit: 8dBm per 3kHz		

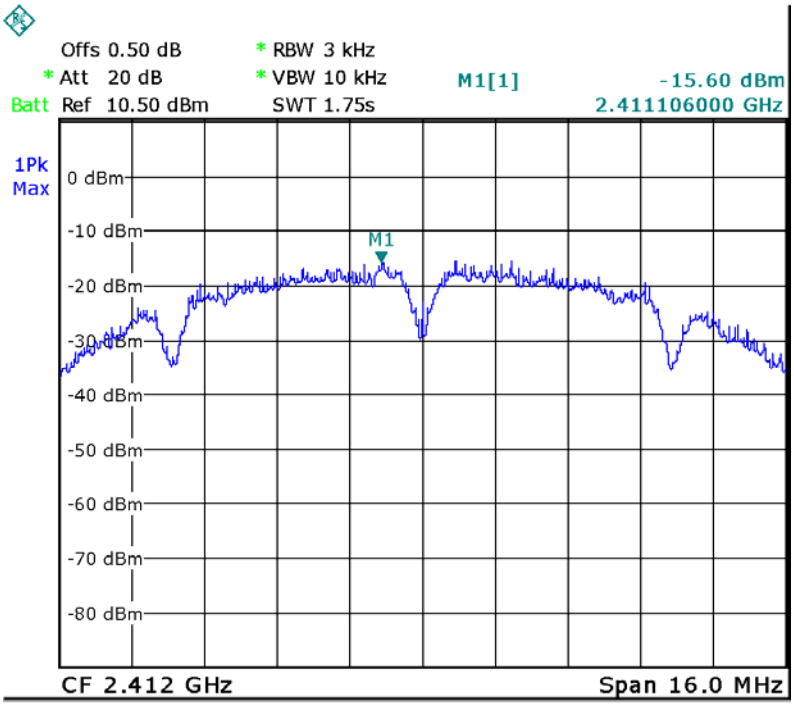
Test mode :TX 11n HT20		
Power Spectral (dBm per 3kHz)		
2412MHz	2437MHz	2462MHz
-23.85	-23.24	-23.54
Limit: 8dBm per 3kHz		

Test mode : TX 11n HT40		
Power Spectral (dBm per 3kHz)		
2422MHz	2437MHz	2452MHz
-28.08	-28.13	-27.86
Limit: 8dBm per 3kHz		

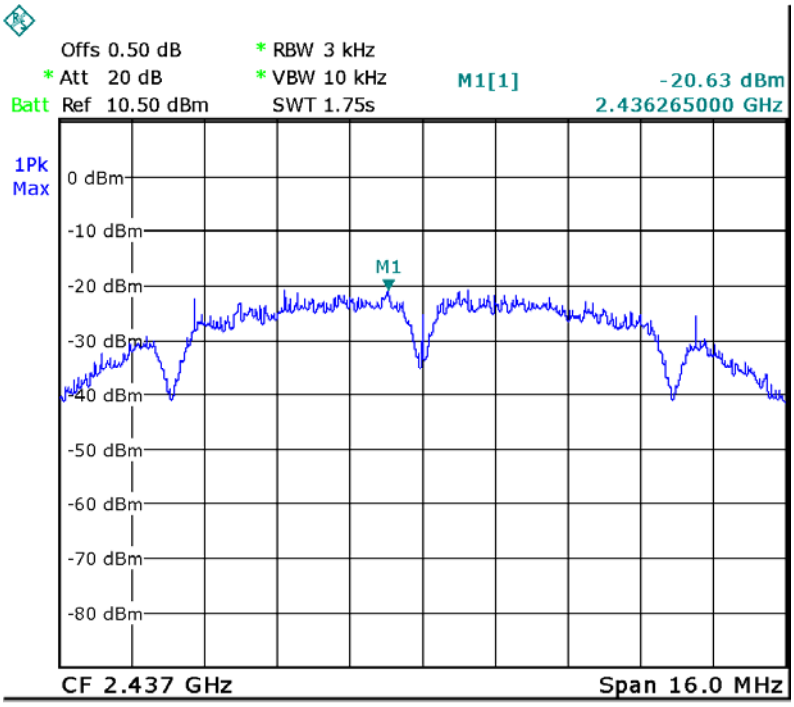
BLE:

Power Spectral Density(dBm)		
Low channel	Middle channel	High channel
-17.40	-17.02	-18.28
Limit: 8dBm per 3kHz		

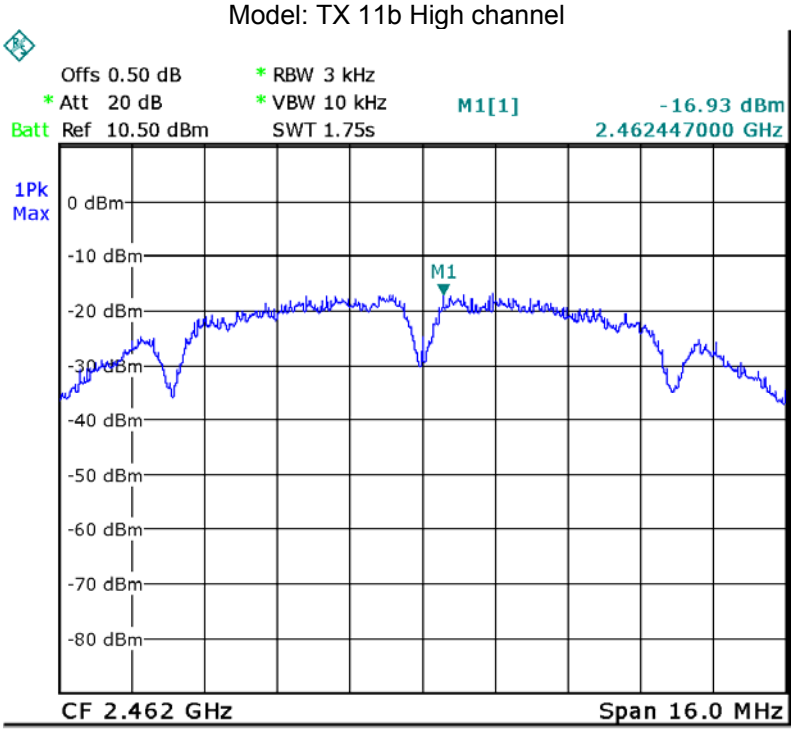
Model: TX 11b Low Channel



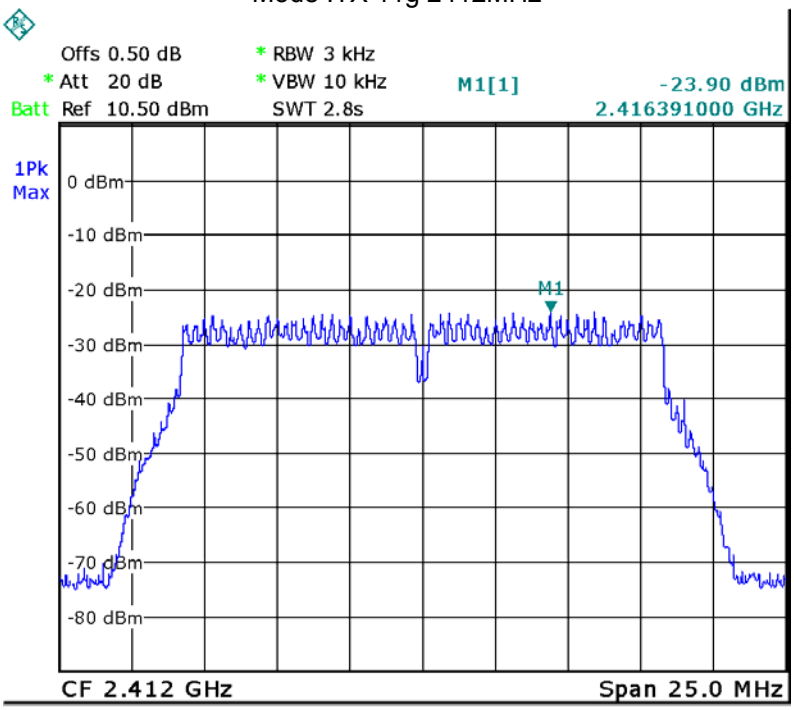
Model: TX 11b Middle channel



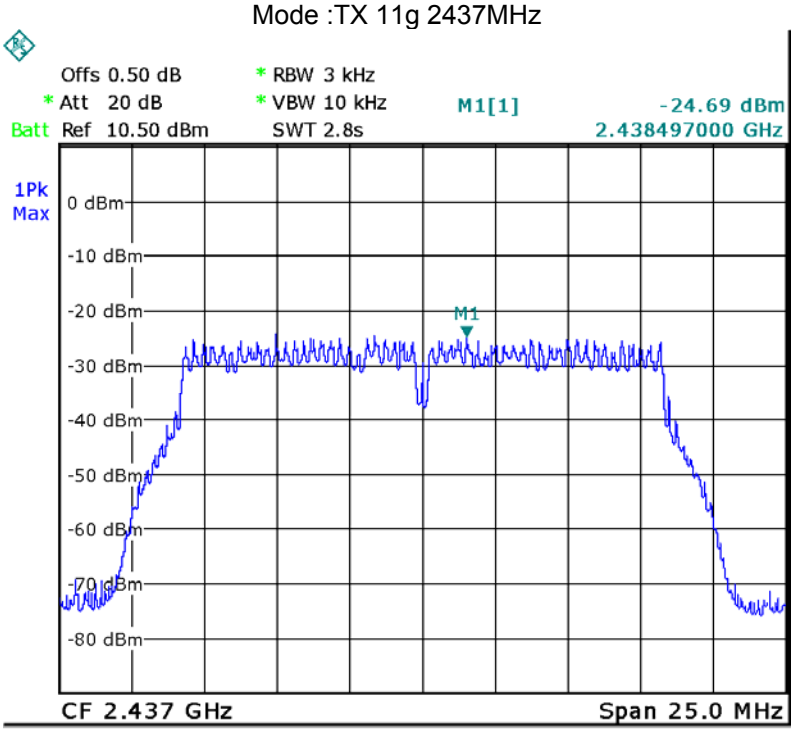
Model: TX 11b High channel



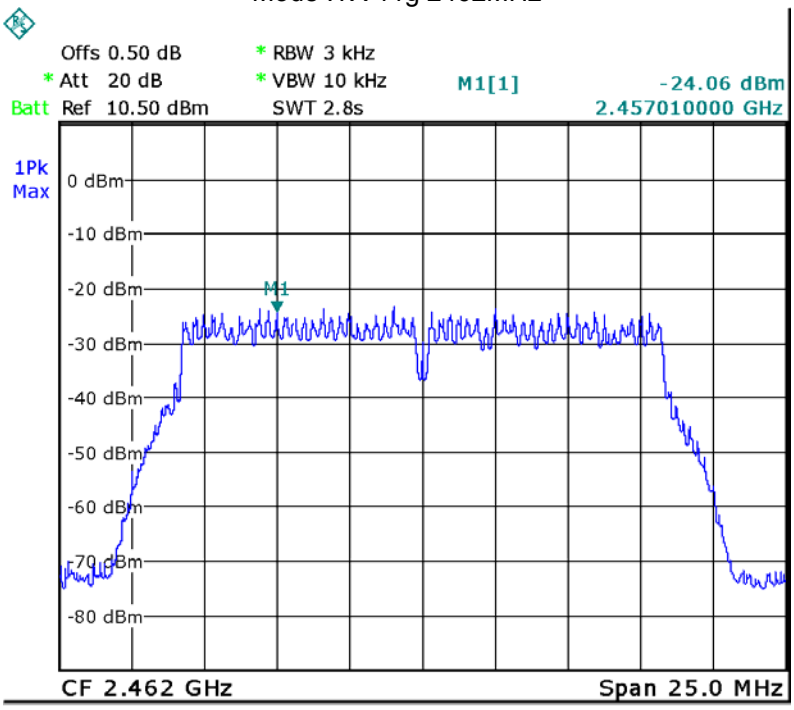
Mode :TX 11g 2412MHz



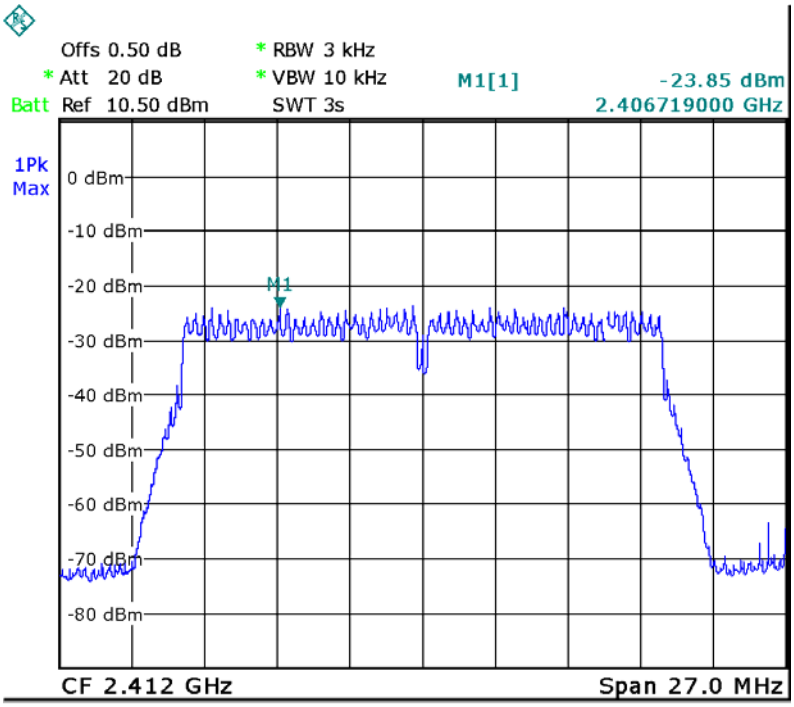
Mode :TX 11g 2437MHz



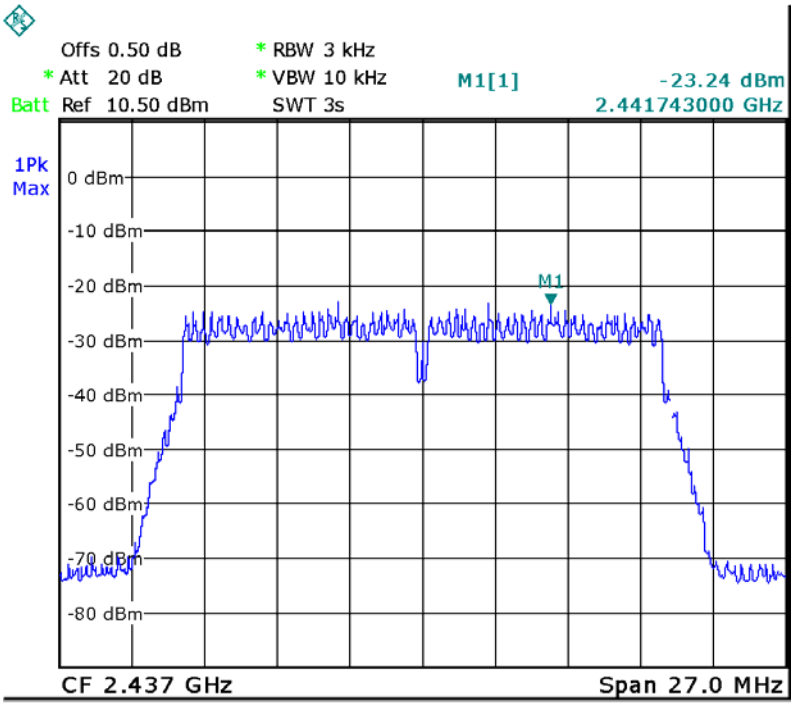
Mode :TX 11g 2462MHz



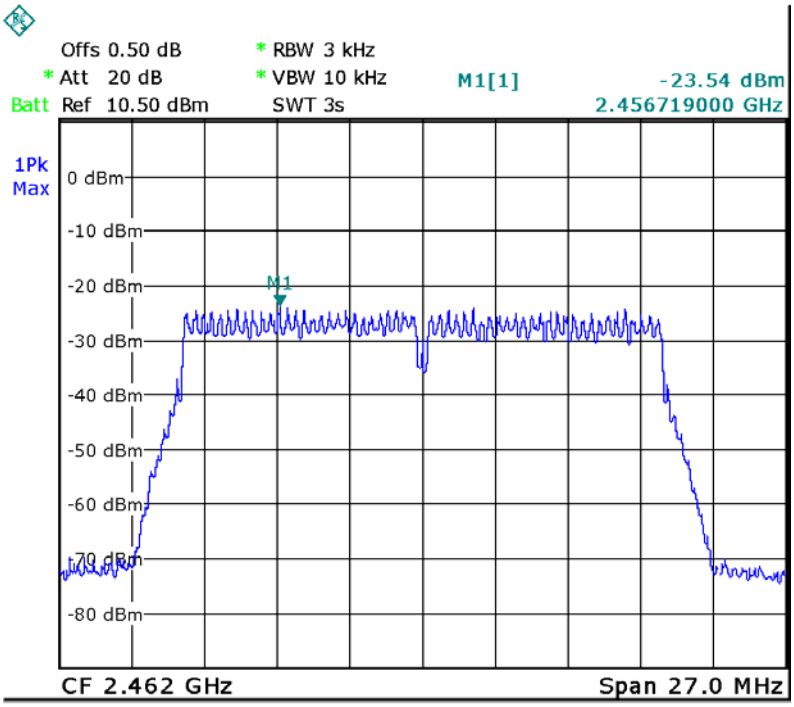
Mode: TX 11n HT20 2412MHz



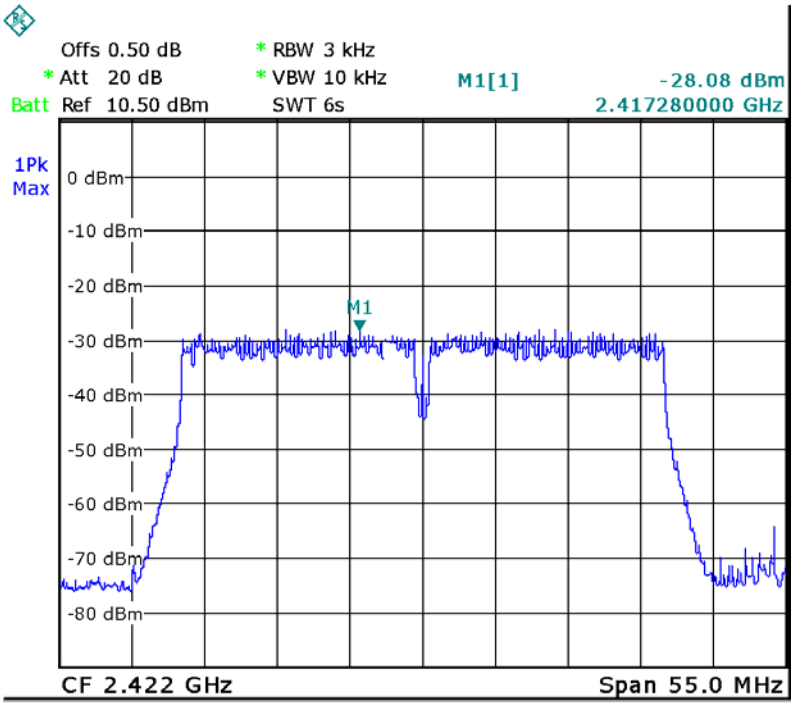
Mode: TX 11n HT20 2437MHz



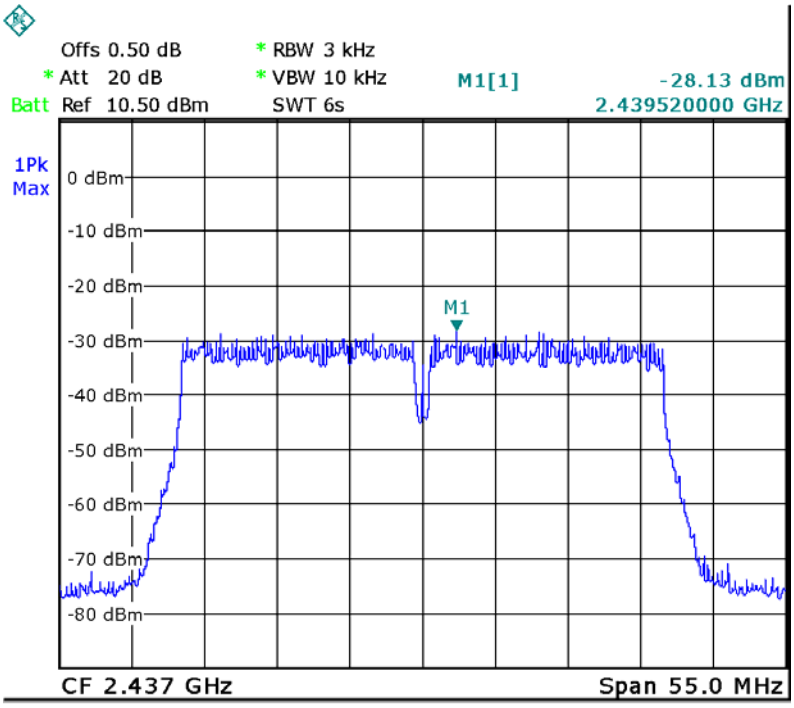
Mode: TX 11n HT20 2462MHz



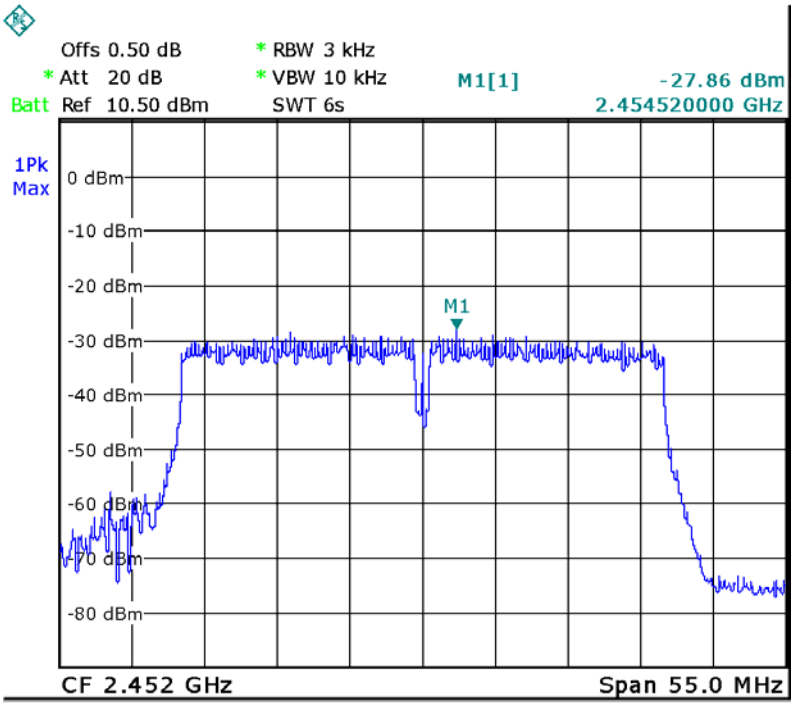
Mode: TX 11n HT40 2422MHz



Mode: TX 11n HT40 2437MHz

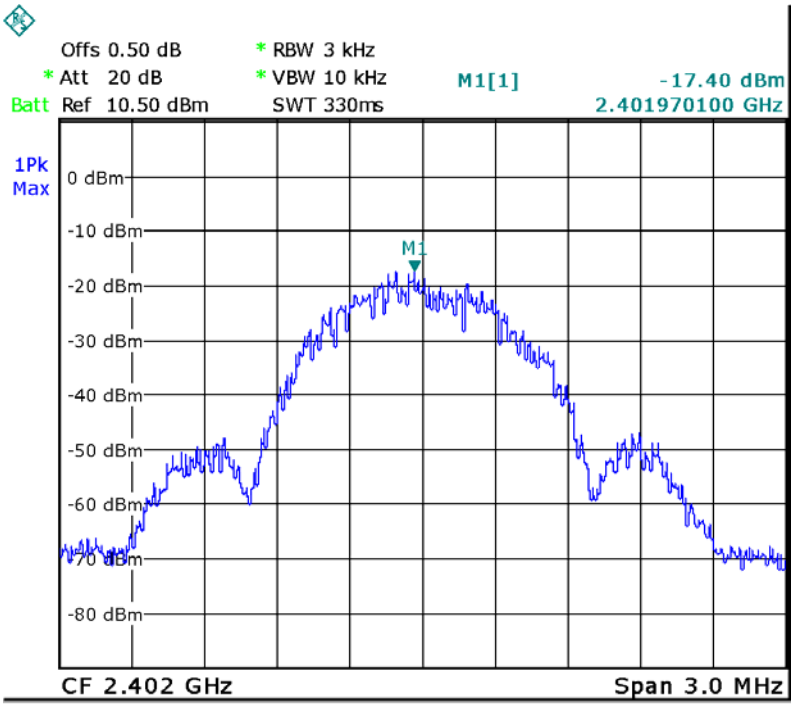


Mode: TX 11n HT40 2452MHz

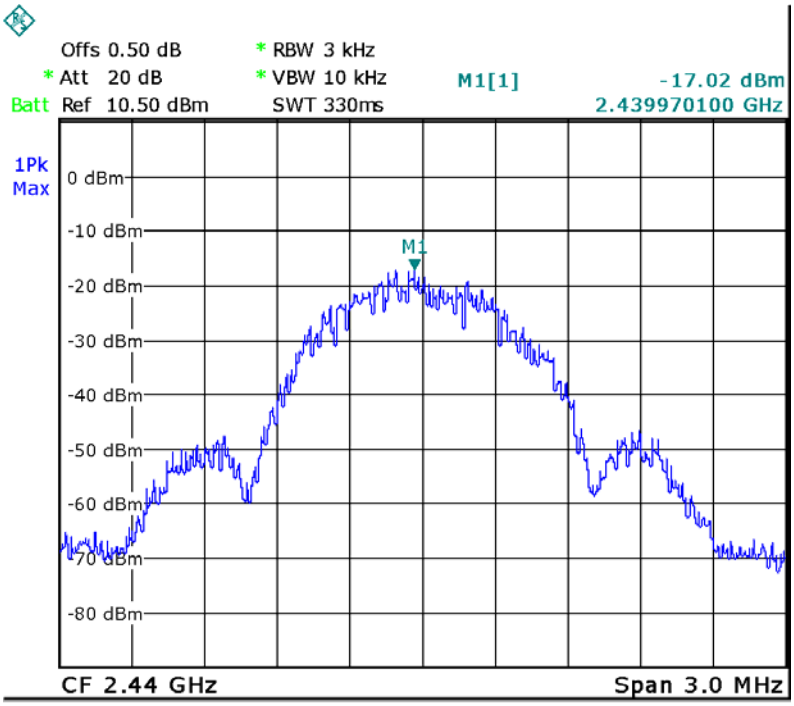


BLE:

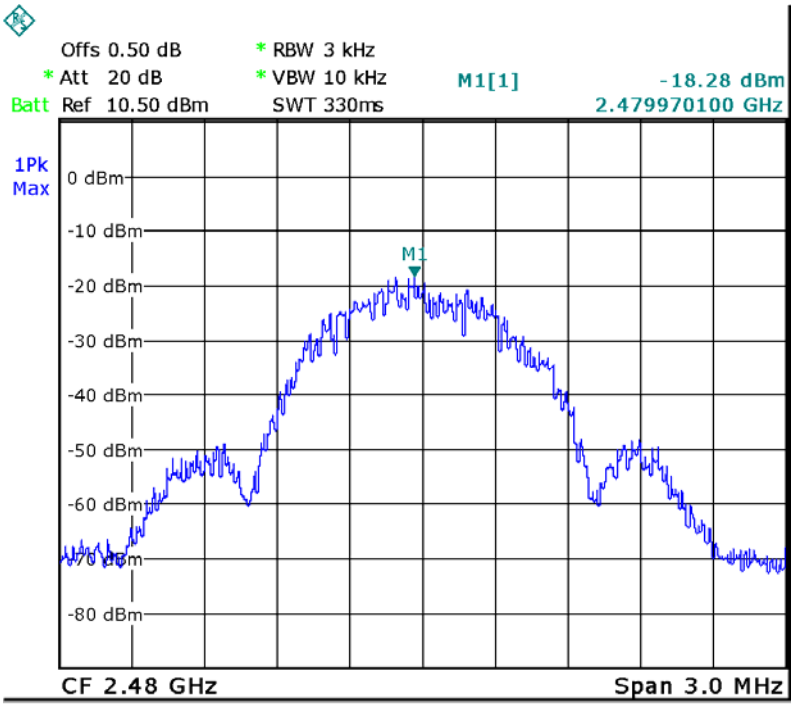
Test mode: Low channel



Test mode: Middle channel



Test mode: High channel



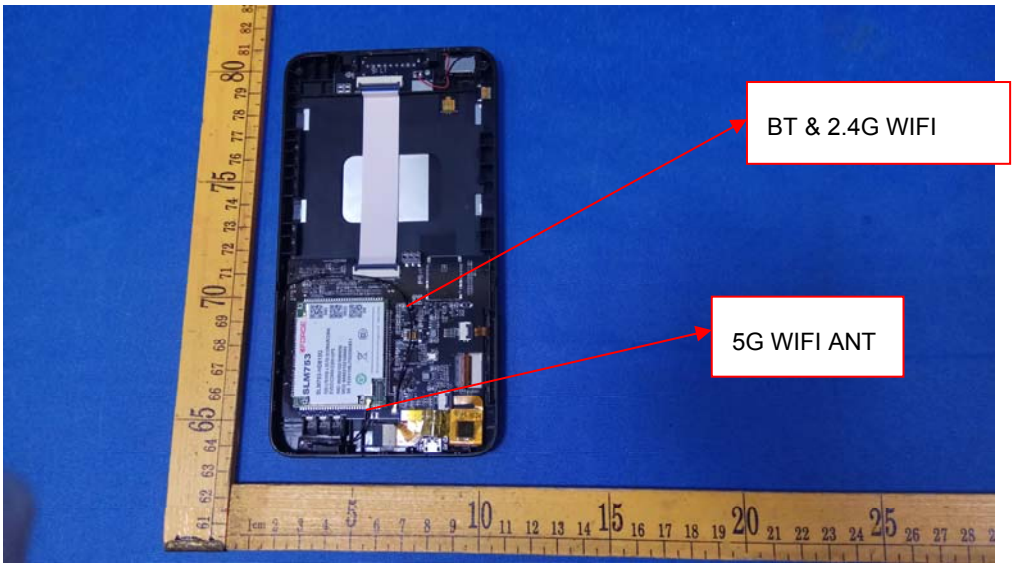
14 Antenna Requirement

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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

For intentional device, according to FCC 47 CFR Section 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.

Result:

The EUT has a Integrated Antenna, meets the requirements of FCC 15.203.



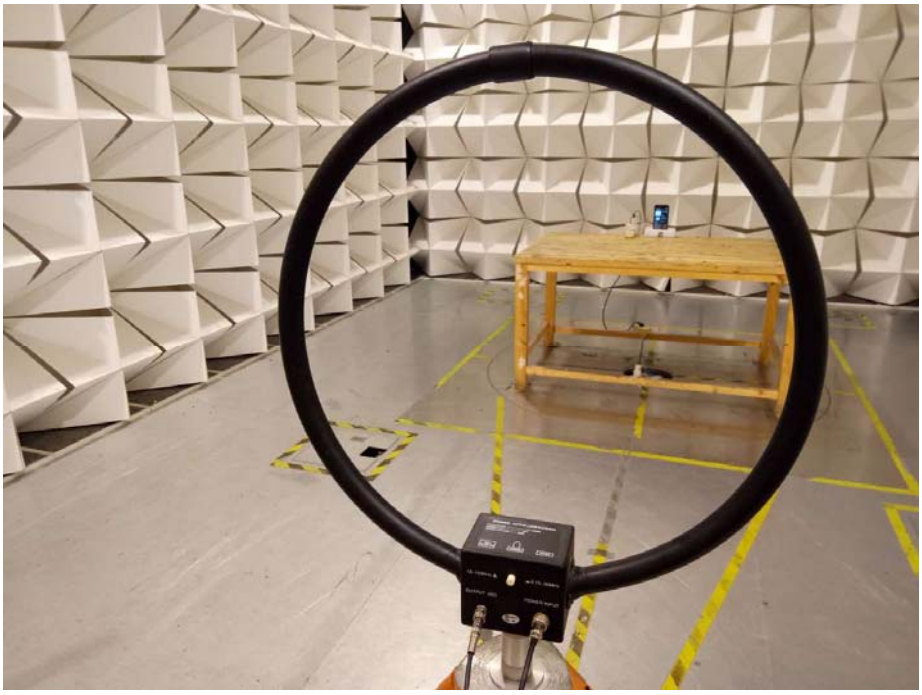
15 SAR Evaluation

Please refer to SAR report.

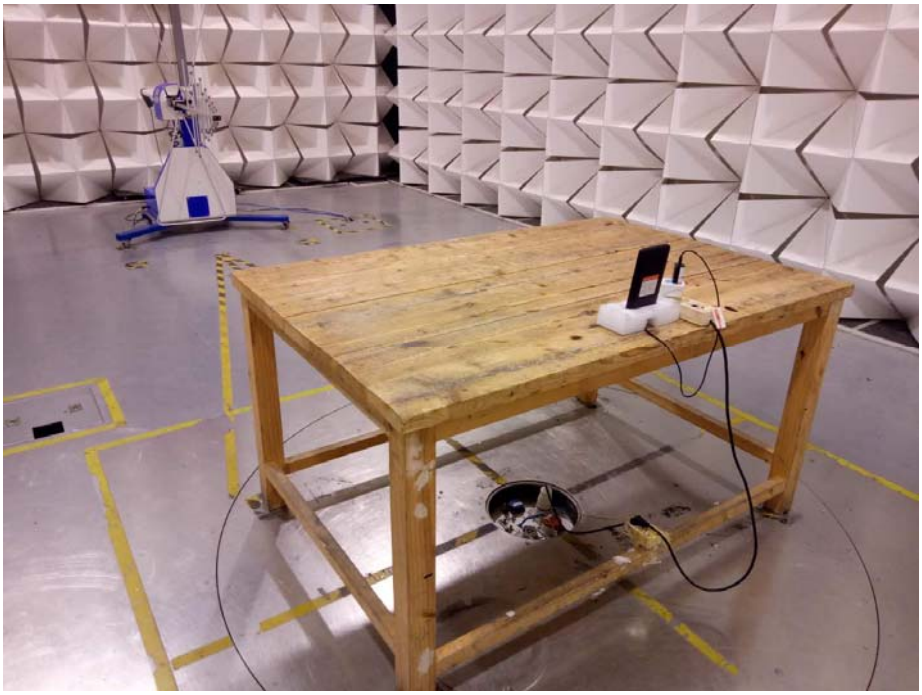
16 Photographs – Test Setup Photos

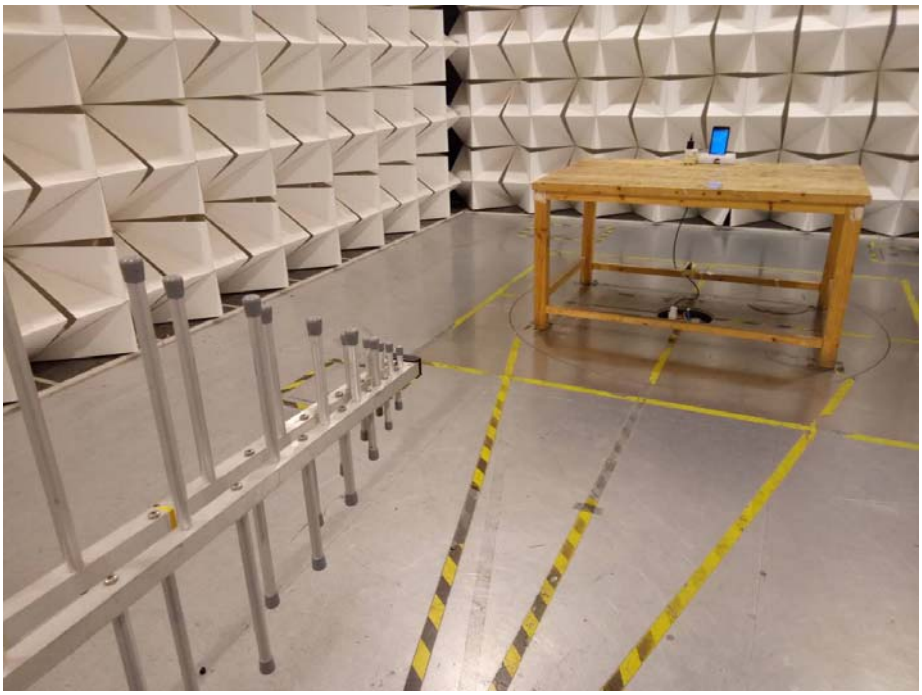
16.1 Radiated Emission

Test frequency Below 30MHz

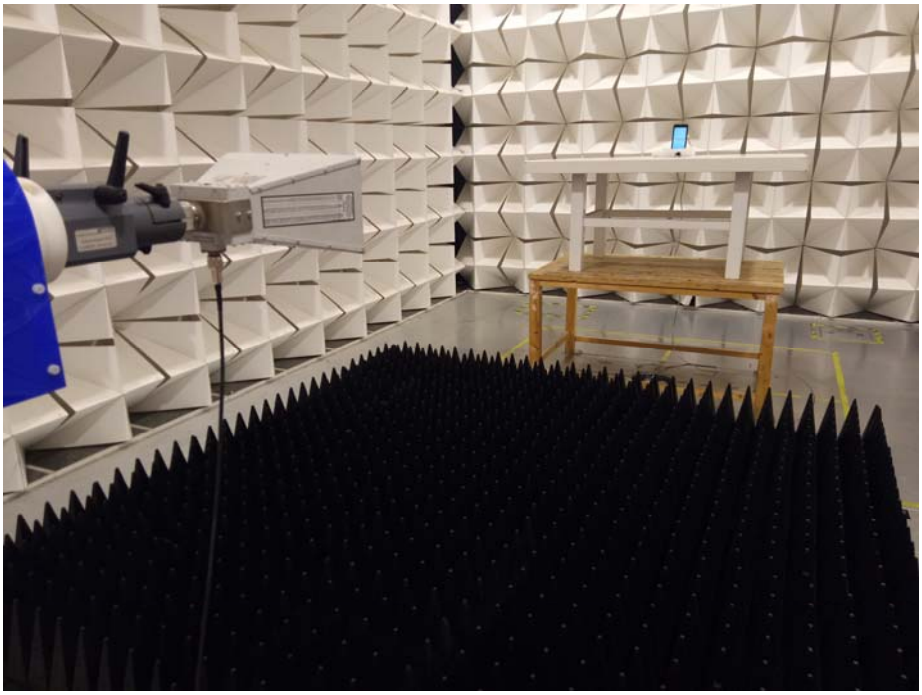


Test frequency from 30MHz to 1GHz





Test frequency above 1GHz



16.2 Conducted Emission

17 Photographs - Constructional Details

Refer to Annex WTD17S0271945E-Photo.

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