

TEST REPORT

Reference No..... : WTS20S05031125W003 V1
FCC ID : 2AG32EG2013BM11
Applicant..... : Baicells Technologies Co., Ltd.
Address..... : 9-10F, 1stBldg., No.81 Beiqing Road, Haidian District,
Beijing,China
Manufacturer : Baicells Technologies Co., Ltd.
Address..... : 9-10F, 1stBldg., No.81 Beiqing Road, Haidian District,
Beijing,China
Product..... : LTE Indoor CPE
Model(s) : EG2013B-M11, EG3013B-M11
Brand Name..... : BaiCells
Standards..... : FCC CFR47 Part 15.247:2018
Date of Receipt sample : 2020-05-26
Date of Test : 2020-05-27 to 2020-06-25
Date of Issue..... : 2020-06-30
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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3 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTS20S05031 125W003	2020-05-26	2020-05-27 to 2020-06-25	2020-06-29	original	-	Replaced
WTS20S05031 125W003 V1	2020-05-26	2020-05-27 to 2020-06-25	2020-06-30	Version1	Updated	Valid

4 General Information

4.1 General Description of E.U.T.

Product:	LTE Indoor CPE
Model(s):	EG2013B-M11, EG3013B-M11
Model Description:	Only different for the model names.
Wi-Fi Specification:	2.4G-802.11b/g/n HT20/n HT40

4.2 Details of E.U.T.

Operation Frequency:	802.11b/g/n HT20: 2412~2462MHz 802.11n HT40: 2422~2452MHz
Max. RF output power:	ANT 0: 14.97dBm ANT 1: 14.70dBm
Type of Modulation:	CCK, OFDM
Antenna installation:	internal permanent antenna
Antenna Gain:	ANT 0: 2.0dBi ANT 1: 2.0dBi
Ratings:	DC 5V 2.0A

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	-

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	1 Mbps	1/6/11	TX
	802.11g	6 Mbps	1/6/11	TX
	802.11n HT20	MCS0	1/6/11	TX
	802.11n HT40	MCS0	3/6/9	TX
Power Spectral Density	802.11b	1 Mbps	1/6/11	TX
	802.11g	6 Mbps	1/6/11	TX
	802.11n HT20	MCS0	1/6/11	TX
	802.11n HT40	MCS0	3/6/9	TX
6dB Bandwidth	802.11b	1 Mbps	1/6/11	TX
	802.11g	6 Mbps	1/6/11	TX
	802.11n HT20	MCS0	1/6/11	TX
	802.11n HT40	MCS0	3/6/9	TX
Band Edge	802.11b	1 Mbps	1/6/11	TX
	802.11g	6 Mbps	1/6/11	TX
	802.11n HT20	MCS0	1/6/11	TX
	802.11n HT40	MCS0	3/6/9	TX
Transmitter Spurious Emissions	802.11b	1 Mbps	1/6/11	TX
	802.11g	6 Mbps	1/6/11	TX
	802.11n HT20	MCS0	1/6/11	TX
	802.11n HT40	MCS0	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 .

The all test were performed 100 % duty cycle.

4.5 Test Facility

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

ISED CAB identifier: CN0013. Test Firm 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, 2016.

FCC Designation No.: CN1201. Test Firm Registration No.: 523476.

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 number 523476, September 10, 2019.

5 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)	N/A
6 dB Bandwidth and 99% 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

6 Equipment Used during Test

6.1 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	2019-09-17	2020-09-16
2.	LISN	R&S	ENV216	101215	2019-09-17	2020-09-16
3.	Cable	Top	TYPE16(3.5M)	-	2019-09-17	2020-09-16
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	2019-09-17	2020-09-16
2.	LISN	SCHWARZBECK	NSLK 8128	8128-289	2019-09-17	2020-09-16
3.	Limiter	York	MTS-IMP-136	261115-001-0024	2019-09-17	2020-09-16
4.	Cable	LARGE	RF300	-	2019-09-17	2020-09-16
3m Semi-anechoic Chamber for Radiation Emissions Test site 1#						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1	Spectrum Analyzer	R&S	FSP	100091	2020-04-20	2021-04-19
2	Active Loop Antenna	Beijing Dazhi	ZN30900A	-	2020-04-20	2021-04-19
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	2019-08-11	2020-08-10
4	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	2019-09-17	2020-09-16
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2020-04-19	2021-04-18
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	2020-04-20	2021-04-19
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2020-04-20	2021-04-19
8	Coaxial Cable (above 1GHz)	Top	1GHz-25GHz	EW02014-7	2020-04-20	2021-04-19
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	2020-04-20	2021-04-19
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2020-04-25	2021-04-24
3	Amplifier	Compliance pirection systems inc	PAP-0203	22024	2020-04-20	2021-04-19
4	Cable	HUBER+SUHNER	CBL2	525178	2020-04-20	2021-04-19

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	2019-09-17	2020-09-16
2.	Spectrum Analyzer (9k-6GHz)	R&S	FSL6	100959	2019-09-17	2020-09-16
3.	Signal Analyzer (9k~26.5GHz)	Agilent	N9010A	MY50520207	2019-09-17	2020-09-16

6.2 Description of Support Units

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

6.3 Measurement Uncertainty

Parameter	Uncertainty
Conducted Emission	± 3.64 dB(AC mains 150KHz~30MHz)
Radiated Spurious Emissions	± 5.08 dB (Bilog antenna 30M~1000MHz)
	± 5.47 dB (Horn antenna 1000M~25000MHz)
Radio Frequency	± 1 x 10 ⁻⁷ Hz
RF Power	± 0.42 dB
RF Power Density	± 0.7dB
Conducted Spurious Emissions	± 2.76 dB (9kHz~26500MHz)
Confidence interval: 95%. Confidence factor:k=2	

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 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	$20\log^{(500)}$

7.1 EUT Operation

Operating Environment :

Temperature: 23.5 °C

Humidity: 52.1 % RH

Atmospheric Pressure: 101.2kPa

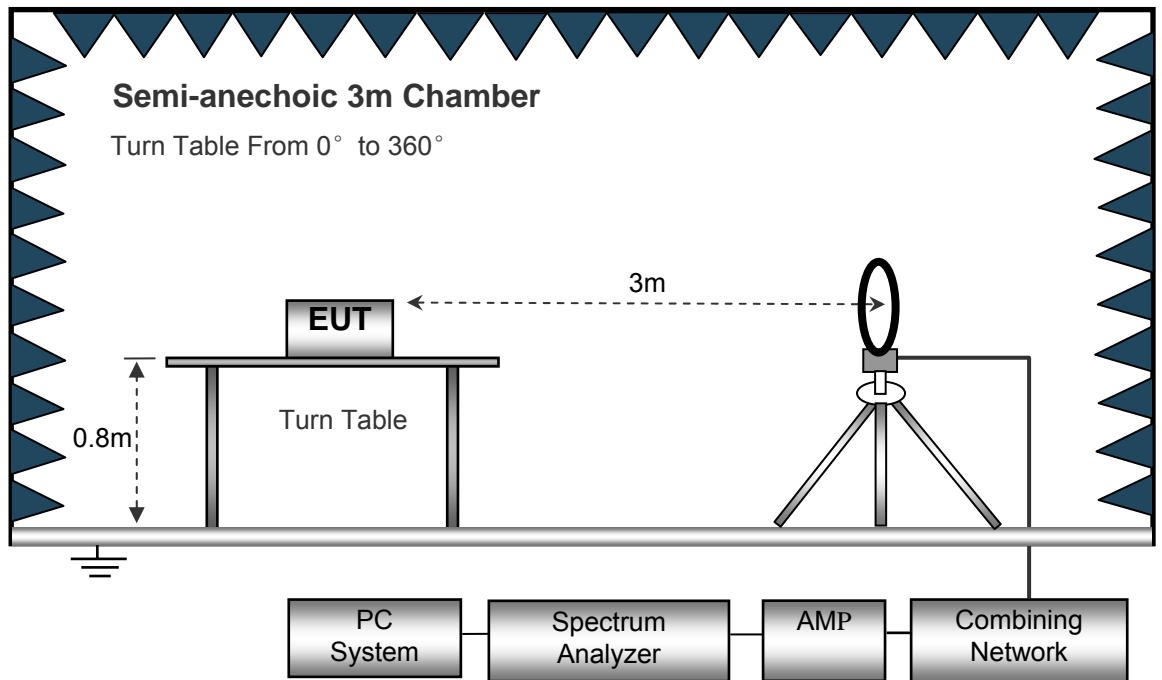
EUT Operation :

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

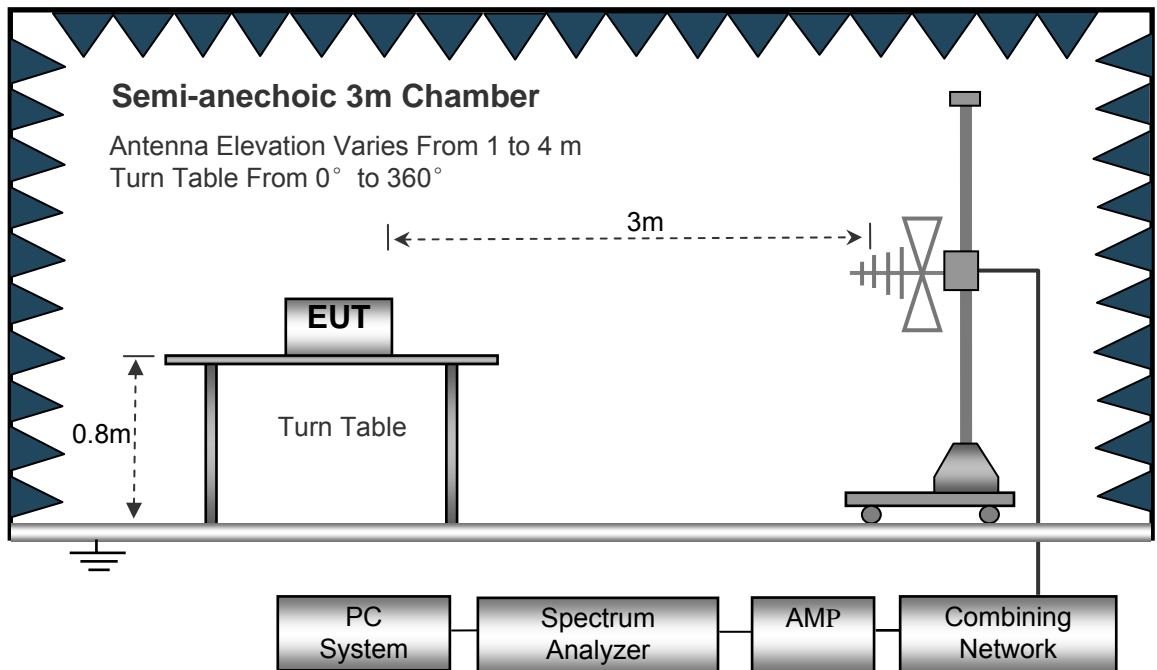
7.2 Test Setup

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

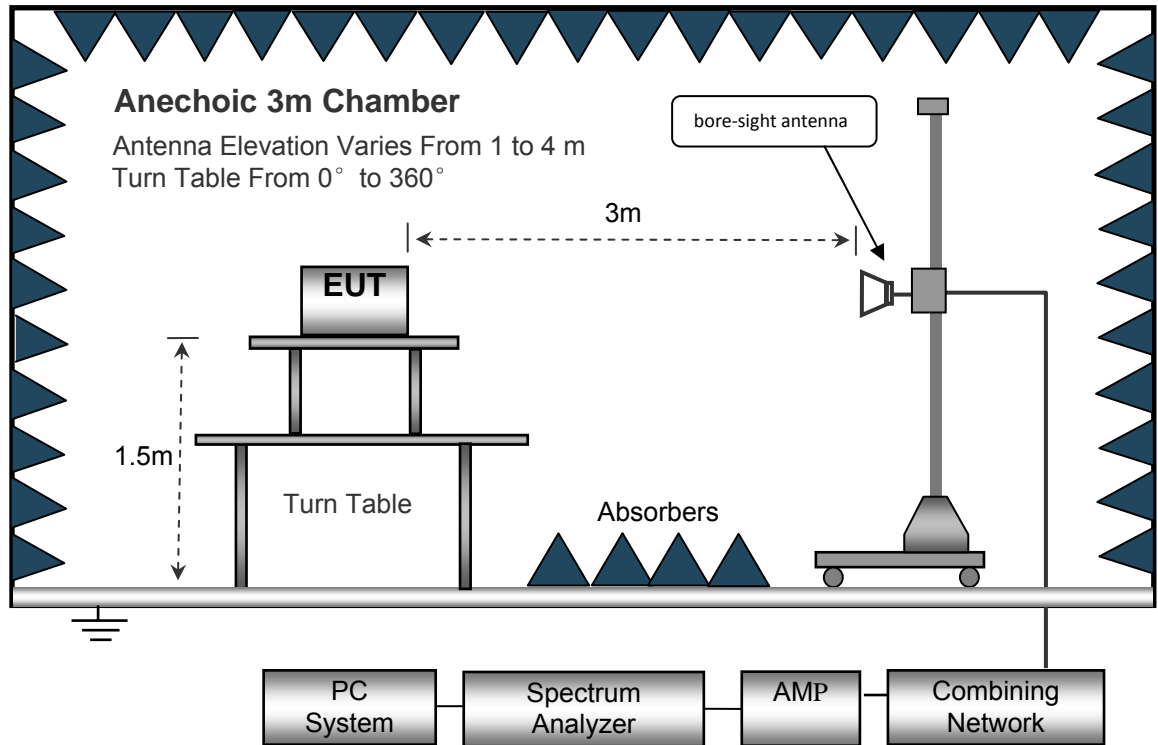
The test setup for emission measurement below 30MHz.



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



The test setup for emission measurement above 1 GHz.



7.3 Spectrum Analyzer Setup

Below 30MHz

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

30MHz ~ 1GHz

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

Above 1GHz

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

7.4 Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above ground plane for below 1GHz and 1.5m for above 1GHz.
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 Z axis,so the worst data were shown as follow.
8. A 2.4GHz high –pass filter is used druing radiated emissions above 1GHz measurement.

7.5 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:

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

7.6 Summary of Test Results

Wifi:

Test Frequency: 9KHz~30MHz

Frequency	Measurement results dB μ V @3m	Detector PK/QP	Correct factor dB/m	Extrapolation factor dB	Measurement results (calculated) dB μ V/m @30m	Limits dB μ V/m @30m	Margin dB
(MHz)	Measurement results	Detector	Correct factor	Extrapolation factor	Measurement results (calculated)	Limits	Margin
ANT0+ANT1 802.11b							
6.032	25.17	QP	21.84	40.00	7.01	29.54	-22.53
15.730	24.65	QP	21.35	40.00	6.00	29.54	-23.54
25.680	25.13	QP	20.67	40.00	5.80	29.54	-23.74
ANT0+ANT1 802.11g							
6.032	24.53	QP	21.84	40.00	6.37	29.54	-23.17
8.051	24.71	QP	21.02	40.00	5.73	29.54	-23.81
26.215	25.06	QP	20.55	40.00	5.61	29.54	-23.93
ANT0+ANT1 802.11n(HT20)							
6.032	25.17	QP	21.84	40.00	7.01	29.54	-22.53
8.051	25.03	QP	21.02	40.00	6.05	29.54	-23.49
26.215	24.42	QP	20.55	40.00	4.97	29.54	-24.57
ANT0+ANT1 802.11n(HT40)							
6.032	25.11	QP	21.84	40.00	6.95	29.54	-22.59
8.051	25.23	QP	21.02	40.00	6.25	29.54	-23.29
26.215	24.57	QP	20.55	40.00	5.12	29.54	-24.42

Remark: All test data were reported and only the worst case (low channel mode) test graphs were showed in test report

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)
(ANT0+ANT1) 11b: Low Channel 2412MHz									
223.45	41.05	QP	32	1.9	H	-11.62	29.43	46.00	-16.57
223.45	36.26	QP	134	1.7	V	-11.62	24.64	46.00	-21.36
4824.00	50.44	PK	235	1.9	V	-1.06	49.38	74.00	-24.62
4824.00	46.32	Ave	235	1.9	V	-1.06	45.26	54.00	-8.74
7236.00	41.08	PK	307	1.3	H	1.33	42.41	74.00	-31.59
7236.00	41.96	Ave	307	1.3	H	1.33	43.29	54.00	-10.71
2316.44	45.38	PK	199	1.3	V	-13.19	32.19	74.00	-41.81
2316.44	38.31	Ave	199	1.3	V	-13.19	25.12	54.00	-28.88
2363.28	44.17	PK	240	1.1	H	-13.14	31.03	74.00	-42.97
2363.28	37.92	Ave	240	1.1	H	-13.14	24.78	54.00	-29.22
2485.02	44.07	PK	31	1.7	V	-13.08	30.99	74.00	-43.01
2485.02	36.50	Ave	31	1.7	V	-13.08	23.42	54.00	-30.58

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)
(ANT0+ANT1) 11b: Middle Channel 2437MHz									
223.45	40.15	QP	274	1.3	H	-11.62	28.53	46.00	-17.47
223.45	37.45	QP	112	1.8	V	-11.62	25.83	46.00	-20.17
4874.00	50.25	PK	16	1.8	V	-0.62	49.63	74.00	-24.37
4874.00	47.05	Ave	16	1.8	V	-0.62	46.43	54.00	-7.57
7311.00	41.81	PK	159	1.4	H	2.21	44.02	74.00	-29.98
7311.00	42.25	Ave	159	1.4	H	2.21	44.46	54.00	-9.54
2324.58	45.73	PK	251	1.7	V	-13.19	32.54	74.00	-41.46
2324.58	39.35	Ave	251	1.7	V	-13.19	26.16	54.00	-27.84
2366.72	42.94	PK	358	1.3	H	-13.14	29.80	74.00	-44.20
2366.72	38.24	Ave	358	1.3	H	-13.14	25.10	54.00	-28.90
2484.69	42.18	PK	108	1.9	V	-13.08	29.10	74.00	-44.90
2484.69	37.67	Ave	108	1.9	V	-13.08	24.59	54.00	-29.41

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)
(ANT0+ANT1) 11b: High Channel 2462MHz									
223.45	40.08	QP	218	1.9	H	-11.62	28.46	46.00	-17.54
223.45	36.56	QP	126	1.6	V	-11.62	24.94	46.00	-21.06
4924.00	49.59	PK	121	1.3	V	-0.24	49.35	74.00	-24.65
4924.00	45.80	Ave	121	1.3	V	-0.24	45.56	54.00	-8.44
7386.00	40.59	PK	117	1.7	H	2.84	43.43	74.00	-30.57
7386.00	43.04	Ave	117	1.7	H	2.84	45.88	54.00	-8.12
2312.98	46.93	PK	174	1.8	V	-13.19	33.74	74.00	-40.26
2312.98	37.36	Ave	174	1.8	V	-13.19	24.17	54.00	-29.83
2373.07	42.29	PK	350	1.4	H	-13.14	29.15	74.00	-44.85
2373.07	37.23	Ave	350	1.4	H	-13.14	24.09	54.00	-29.91
2488.56	42.54	PK	53	1.8	V	-13.08	29.46	74.00	-44.54
2488.56	37.78	Ave	53	1.8	V	-13.08	24.70	54.00	-29.30

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)
(ANT0+ANT1) 11g: Low Channel 2412MHz									
223.45	41.19	QP	36	2.0	H	-11.62	29.57	46.00	-16.43
223.45	37.11	QP	30	1.4	V	-11.62	25.49	46.00	-20.51
4824.00	50.35	PK	127	1.6	V	-1.06	49.29	74.00	-24.71
4824.00	46.77	Ave	127	1.6	V	-1.06	45.71	54.00	-8.29
7236.00	41.69	PK	200	1.7	H	1.33	43.02	74.00	-30.98
7236.00	43.11	Ave	200	1.7	H	1.33	44.44	54.00	-9.56
2312.98	46.37	PK	175	1.9	V	-13.19	33.18	74.00	-40.82
2312.98	37.45	Ave	175	1.9	V	-13.19	24.26	54.00	-29.74
2354.09	42.77	PK	129	1.0	H	-13.14	29.63	74.00	-44.37
2354.09	37.37	Ave	129	1.0	H	-13.14	24.23	54.00	-29.77
2492.87	42.74	PK	249	1.5	V	-13.08	29.66	74.00	-44.34
2492.87	37.12	Ave	249	1.5	V	-13.08	24.04	54.00	-29.96

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)
(ANT0+ANT1) 11g: Middle Channel 2437MHz									
223.45	42.60	QP	200	1.9	H	-11.62	30.98	46.00	-15.02
223.45	36.16	QP	21	1.3	V	-11.62	24.54	46.00	-21.46
4874.00	50.29	PK	252	2.0	V	-0.62	49.67	74.00	-24.33
4874.00	46.81	Ave	252	2.0	V	-0.62	46.19	54.00	-7.81
7311.00	40.39	PK	316	1.6	H	2.21	42.60	74.00	-31.40
7311.00	44.13	Ave	316	1.6	H	2.21	46.34	54.00	-7.66
2343.60	45.42	PK	99	1.8	V	-13.19	32.23	74.00	-41.77
2343.60	39.29	Ave	99	1.8	V	-13.19	26.10	54.00	-27.90
2375.27	43.64	PK	23	1.1	H	-13.14	30.50	74.00	-43.50
2375.27	37.20	Ave	23	1.1	H	-13.14	24.06	54.00	-29.94
2493.25	42.07	PK	340	1.7	V	-13.08	28.99	74.00	-45.01
2493.25	37.24	Ave	340	1.7	V	-13.08	24.16	54.00	-29.84

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)
(ANT0+ANT1) 11g: High Channel 2462MHz									
223.45	41.30	QP	42	1.9	H	-11.62	29.68	46.00	-16.32
223.45	36.70	QP	283	1.1	V	-11.62	25.08	46.00	-20.92
4924.00	50.33	PK	166	1.5	V	-0.24	50.09	74.00	-23.91
4924.00	46.71	Ave	166	1.5	V	-0.24	46.47	54.00	-7.53
7386.00	39.52	PK	47	1.0	H	2.84	42.36	74.00	-31.64
7386.00	44.84	Ave	47	1.0	H	2.84	47.68	54.00	-6.32
2320.85	45.57	PK	337	1.5	V	-13.19	32.38	74.00	-41.62
2320.85	37.92	Ave	337	1.5	V	-13.19	24.73	54.00	-29.27
2357.73	44.16	PK	177	1.1	H	-13.14	31.02	74.00	-42.98
2357.73	37.79	Ave	177	1.1	H	-13.14	24.65	54.00	-29.35
2489.99	44.25	PK	280	1.9	V	-13.08	31.17	74.00	-42.83
2489.99	38.80	Ave	280	1.9	V	-13.08	25.72	54.00	-28.28

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)
(ANT0+ANT1) 11n20: Low Channel 2412MHz									
223.45	42.02	QP	309	1.9	H	-11.62	30.40	46.00	-15.60
223.45	36.47	QP	100	1.4	V	-11.62	24.85	46.00	-21.15
4824.00	51.79	PK	67	1.8	V	-1.06	50.73	74.00	-23.27
4824.00	45.85	Ave	67	1.8	V	-1.06	44.79	54.00	-9.21
7236.00	38.54	PK	278	2.0	H	1.33	39.87	74.00	-34.13
7236.00	43.88	Ave	278	2.0	H	1.33	45.21	54.00	-8.79
2322.79	45.40	PK	87	1.4	V	-13.19	32.21	74.00	-41.79
2322.79	38.35	Ave	87	1.4	V	-13.19	25.16	54.00	-28.84
2358.45	44.14	PK	181	1.5	H	-13.14	31.00	74.00	-43.00
2358.45	36.38	Ave	181	1.5	H	-13.14	23.24	54.00	-30.76
2491.62	44.16	PK	122	1.6	V	-13.08	31.08	74.00	-42.92
2491.62	38.89	Ave	122	1.6	V	-13.08	25.81	54.00	-28.19

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)
(ANT0+ANT1) 11n20: Middle Channel 2437MHz									
223.45	41.83	QP	204	1.0	H	-11.62	30.21	46.00	-15.79
223.45	35.46	QP	221	1.3	V	-11.62	23.84	46.00	-22.16
4874.00	51.14	PK	211	1.8	V	-0.62	50.52	74.00	-23.48
4874.00	47.13	Ave	211	1.8	V	-0.62	46.51	54.00	-7.49
7311.00	37.66	PK	27	1.9	H	2.21	39.87	74.00	-34.13
7311.00	42.69	Ave	27	1.9	H	2.21	44.90	54.00	-9.10
2346.81	46.22	PK	309	1.6	V	-13.19	33.03	74.00	-40.97
2346.81	38.57	Ave	309	1.6	V	-13.19	25.38	54.00	-28.62
2368.90	43.37	PK	319	1.2	H	-13.14	30.23	74.00	-43.77
2368.90	38.15	Ave	319	1.2	H	-13.14	25.01	54.00	-28.99
2491.69	43.34	PK	253	1.3	V	-13.08	30.26	74.00	-43.74
2491.69	36.73	Ave	253	1.3	V	-13.08	23.65	54.00	-30.35

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)
(ANT0+ANT1) 11n20: High Channel 2462MHz									
223.45	42.49	QP	352	2.0	H	-11.62	30.87	46.00	-15.13
223.45	34.20	QP	307	1.9	V	-11.62	22.58	46.00	-23.42
4924.00	50.86	PK	255	1.3	V	-0.24	50.62	74.00	-23.38
4924.00	47.81	Ave	255	1.3	V	-0.24	47.57	54.00	-6.43
7386.00	37.81	PK	212	1.9	H	2.84	40.65	74.00	-33.35
7386.00	41.27	Ave	212	1.9	H	2.84	44.11	54.00	-9.89
2346.88	45.79	PK	62	1.6	V	-13.19	32.60	74.00	-41.40
2346.88	37.60	Ave	62	1.6	V	-13.19	24.41	54.00	-29.59
2360.35	42.45	PK	118	1.1	H	-13.14	29.31	74.00	-44.69
2360.35	38.63	Ave	118	1.1	H	-13.14	25.49	54.00	-28.51
2495.40	43.79	PK	270	1.7	V	-13.08	30.71	74.00	-43.29
2495.40	37.93	Ave	270	1.7	V	-13.08	24.85	54.00	-29.15

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)
(ANT0+ANT1) 11n40: Low Channel 2422MHz									
223.45	42.71	QP	292	1.4	H	-11.62	31.09	46.00	-14.91
223.45	33.44	QP	349	1.1	V	-11.62	21.82	46.00	-24.18
4844.00	48.99	PK	323	1.5	V	-1.06	47.93	74.00	-26.07
4844.00	45.83	Ave	323	1.5	V	-1.06	44.77	54.00	-9.23
7266.00	36.51	PK	136	1.6	H	1.33	37.84	74.00	-36.16
7266.00	39.58	Ave	136	1.6	H	1.33	40.91	54.00	-13.09
2332.81	46.67	PK	45	1.5	V	-13.19	33.48	74.00	-40.52
2332.81	37.25	Ave	45	1.5	V	-13.19	24.06	54.00	-29.94
2383.72	44.27	PK	95	1.5	H	-13.14	31.13	74.00	-42.87
2383.72	36.29	Ave	95	1.5	H	-13.14	23.15	54.00	-30.85
2485.31	42.79	PK	91	1.2	V	-13.08	29.71	74.00	-44.29
2485.31	36.99	Ave	91	1.2	V	-13.08	23.91	54.00	-30.09

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)
(ANT0+ANT1) 11n40: Middle Channel 2437MHz									
223.45	42.30	QP	137	2.0	H	-11.62	30.68	46.00	-15.32
223.45	33.64	QP	272	1.1	V	-11.62	22.02	46.00	-23.98
4874.00	48.15	PK	187	1.7	V	-0.62	47.53	74.00	-26.47
4874.00	45.93	Ave	187	1.7	V	-0.62	45.31	54.00	-8.69
7311.00	37.37	PK	296	1.7	H	2.21	39.58	74.00	-34.42
7311.00	38.65	Ave	296	1.7	H	2.21	40.86	54.00	-13.14
2334.59	45.82	PK	38	1.3	V	-13.19	32.63	74.00	-41.37
2334.59	39.12	Ave	38	1.3	V	-13.19	25.93	54.00	-28.07
2372.50	43.02	PK	149	1.9	H	-13.14	29.88	74.00	-44.12
2372.50	37.60	Ave	149	1.9	H	-13.14	24.46	54.00	-29.54
2498.82	44.53	PK	70	1.2	V	-13.08	31.45	74.00	-42.55
2498.82	38.36	Ave	70	1.2	V	-13.08	25.28	54.00	-28.72

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)
(ANT0+ANT1) 11n40: High Channel 2452MHz									
223.45	43.01	QP	353	1.1	H	-11.62	31.39	46.00	-14.61
223.45	32.70	QP	250	1.7	V	-11.62	21.08	46.00	-24.92
4904.00	47.16	PK	258	1.9	V	-0.24	46.92	74.00	-27.08
4904.00	46.01	Ave	258	1.9	V	-0.24	45.77	54.00	-8.23
7356.00	36.77	PK	42	1.7	H	2.84	39.61	74.00	-34.39
7356.00	38.89	Ave	42	1.7	H	2.84	41.73	54.00	-12.27
2323.36	45.82	PK	144	1.7	V	-13.19	32.63	74.00	-41.37
2323.36	39.82	Ave	144	1.7	V	-13.19	26.63	54.00	-27.37
2389.82	44.42	PK	175	1.8	H	-13.14	31.28	74.00	-42.72
2389.82	36.23	Ave	175	1.8	H	-13.14	23.09	54.00	-30.91
2484.46	42.59	PK	324	1.6	V	-13.08	29.51	74.00	-44.49
2484.46	36.65	Ave	324	1.6	V	-13.08	23.57	54.00	-30.43

Test Frequency: 18GHz~25GHz

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

8 Conducted Spurious Emissions

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: ANSI C63.10:2013

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)).

8.1 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:
 - a) Set instrument center frequency to DTS channel center frequency.
 - b) Set the span to ≈ 1.5 times the DTS bandwidth.
 - c) Set the RBW = 100 kHz.
 - d) Set the VBW $\approx [3 \times \text{RBW}]$.
 - e) Detector = peak.
 - f) Sweep time = auto couple.
 - g) Trace mode = max hold.
 - h) Allow trace to fully stabilize.
 - i) Use the peak marker function to determine the maximum PSD level.

Note that the channel found to contain the maximum PSD level can be used to establish the reference level.

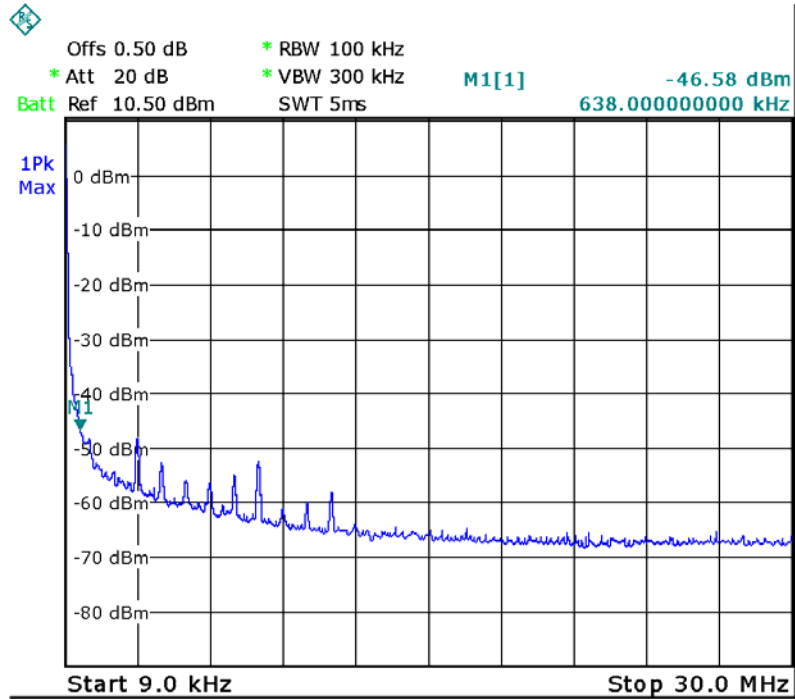
8.2 Test Result

Antenna 0

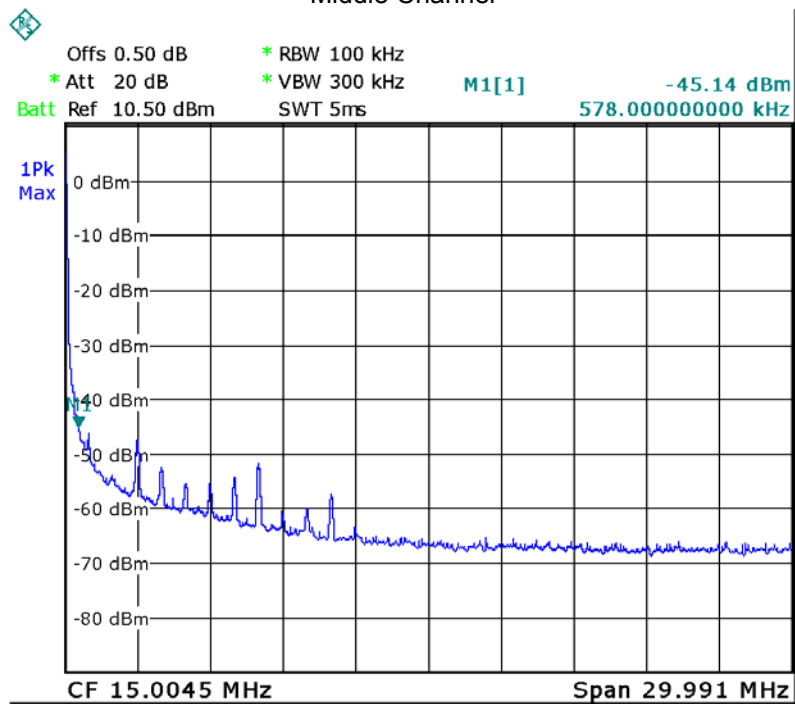
9KHz – 30MHz

802.11b

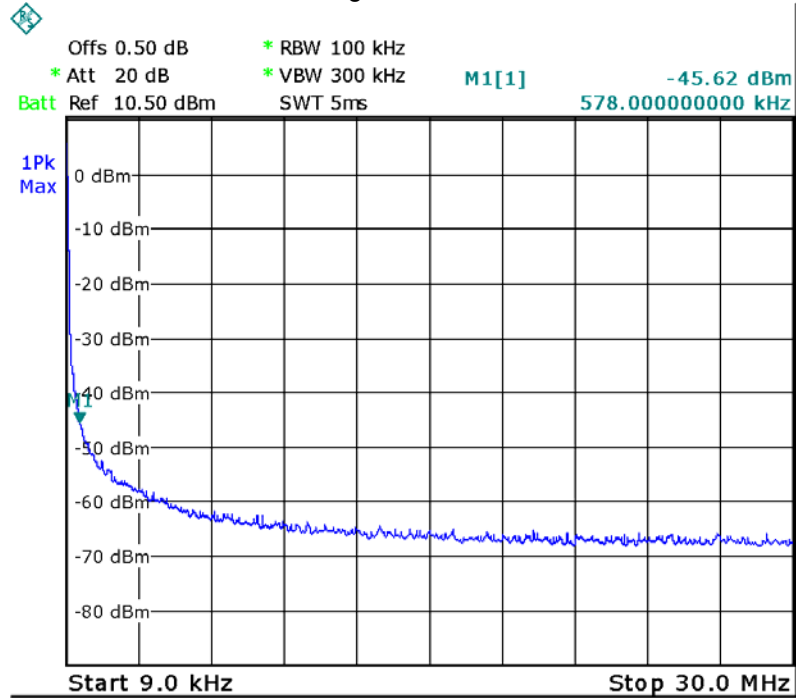
Low Channel



Middle Channel

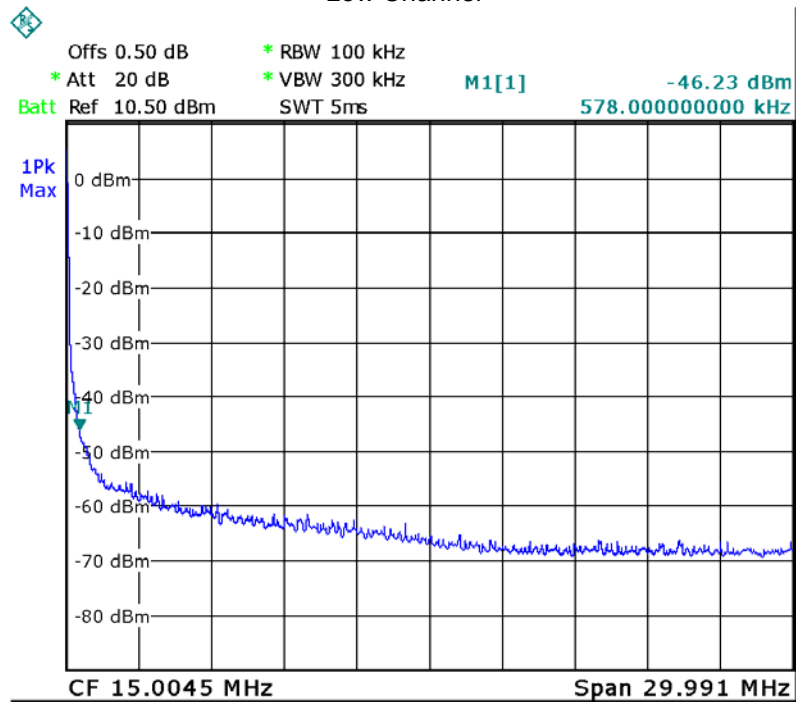


High Channel

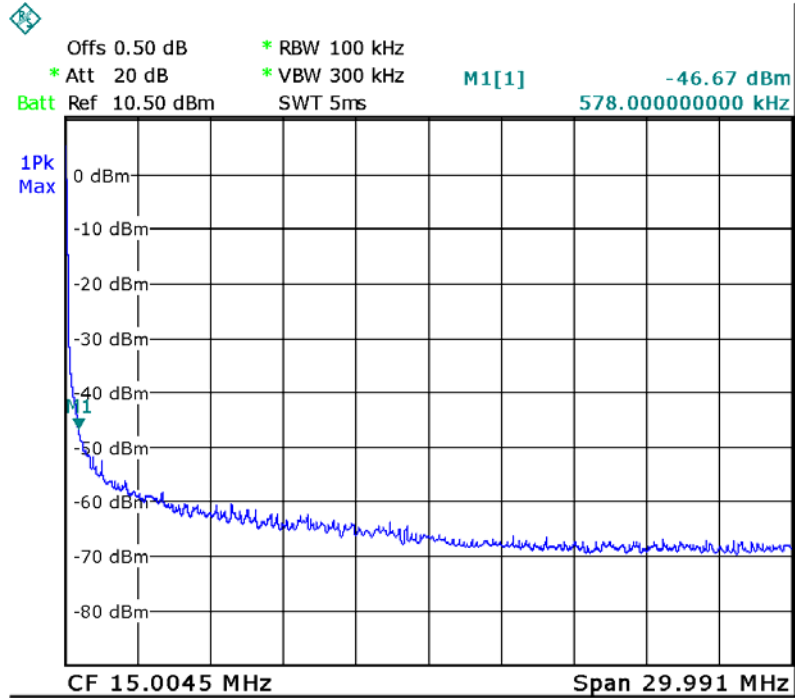


802.11g

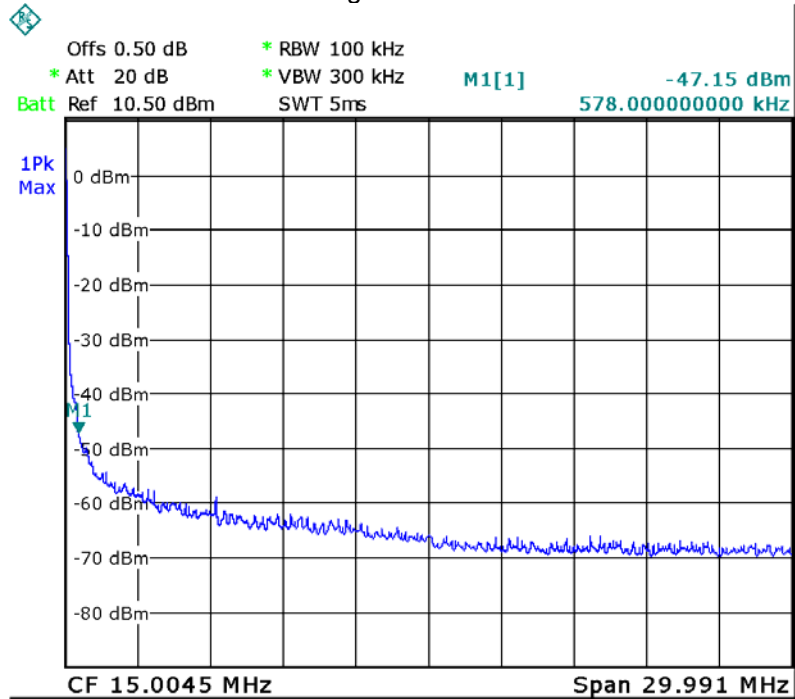
Low Channel



Middle Channel

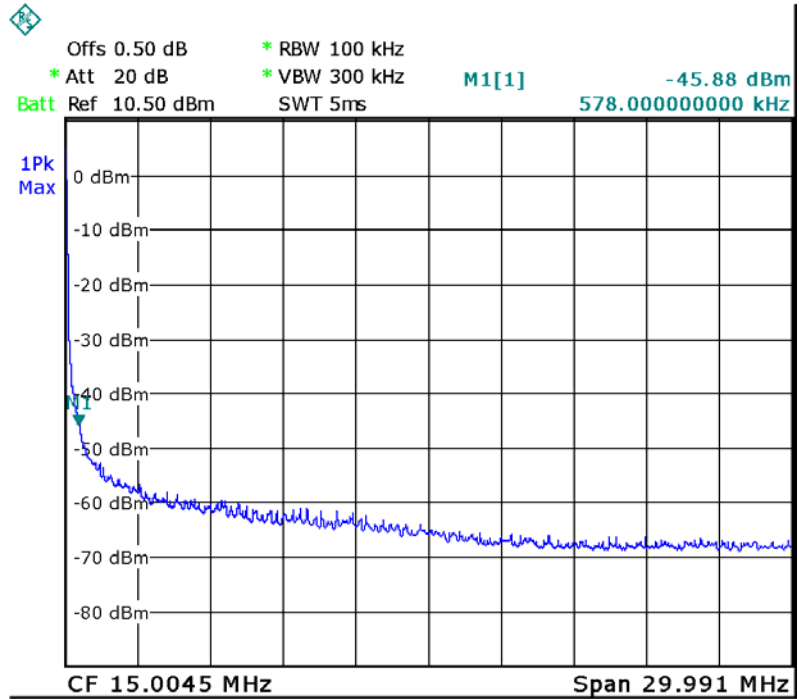


High Channel

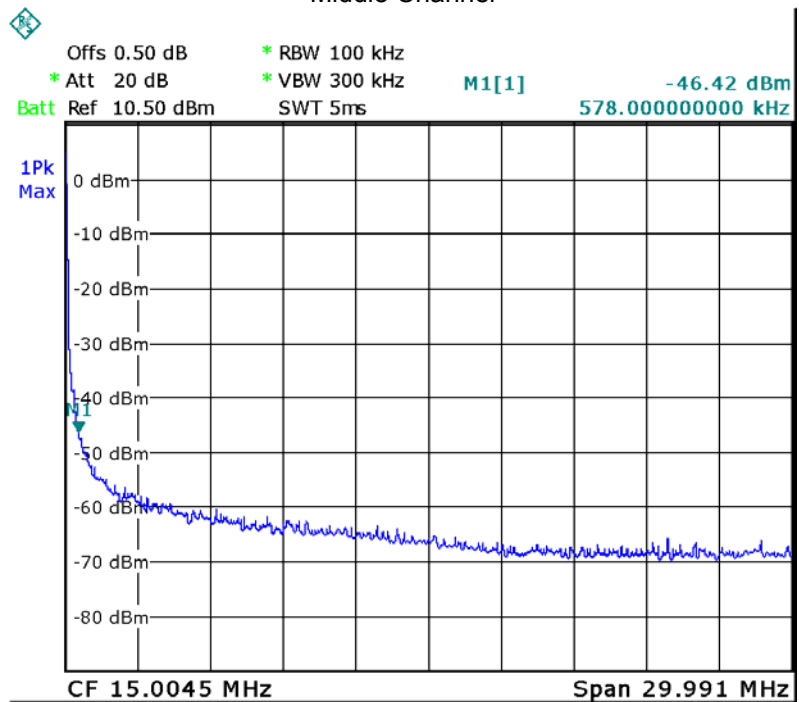


802.11n HT20

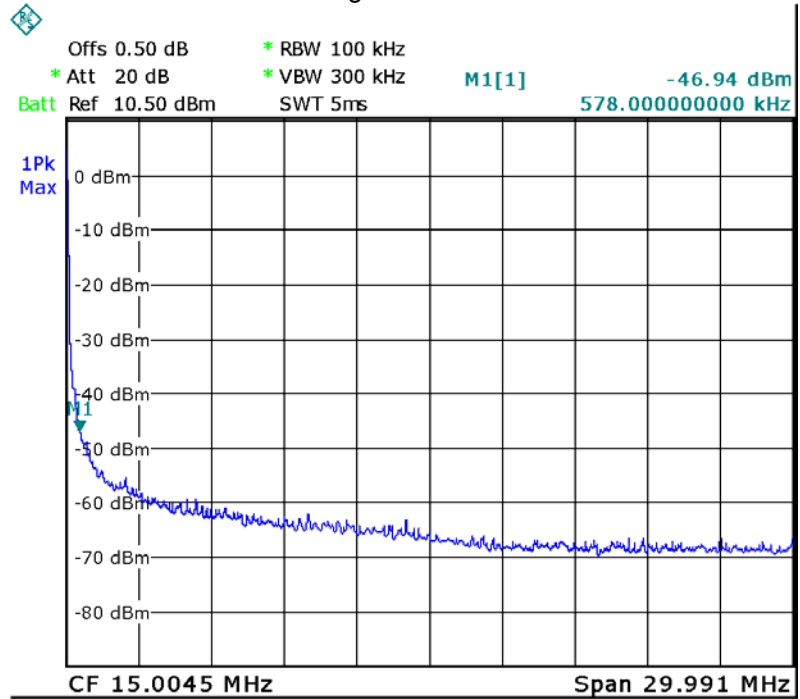
Low Channel



Middle Channel

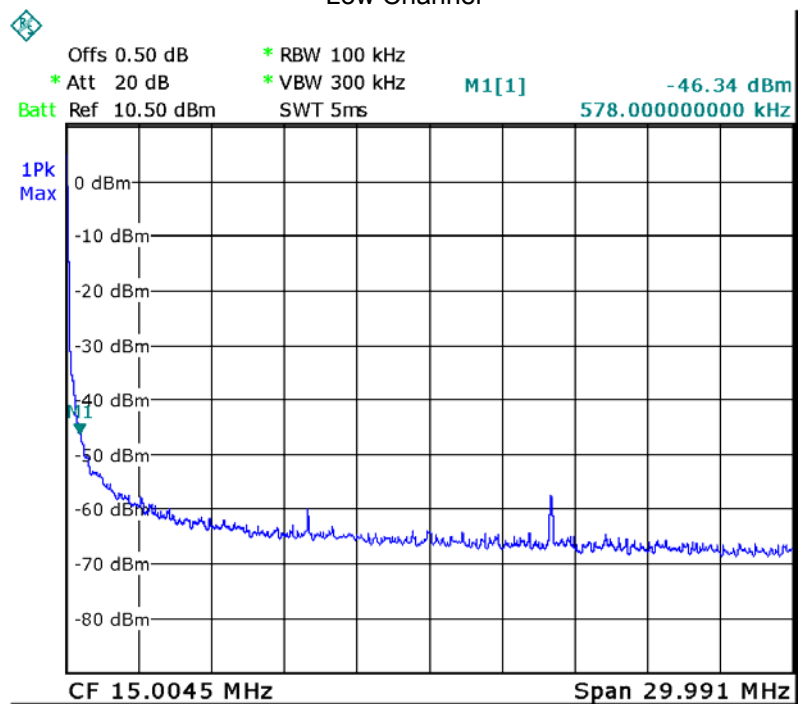


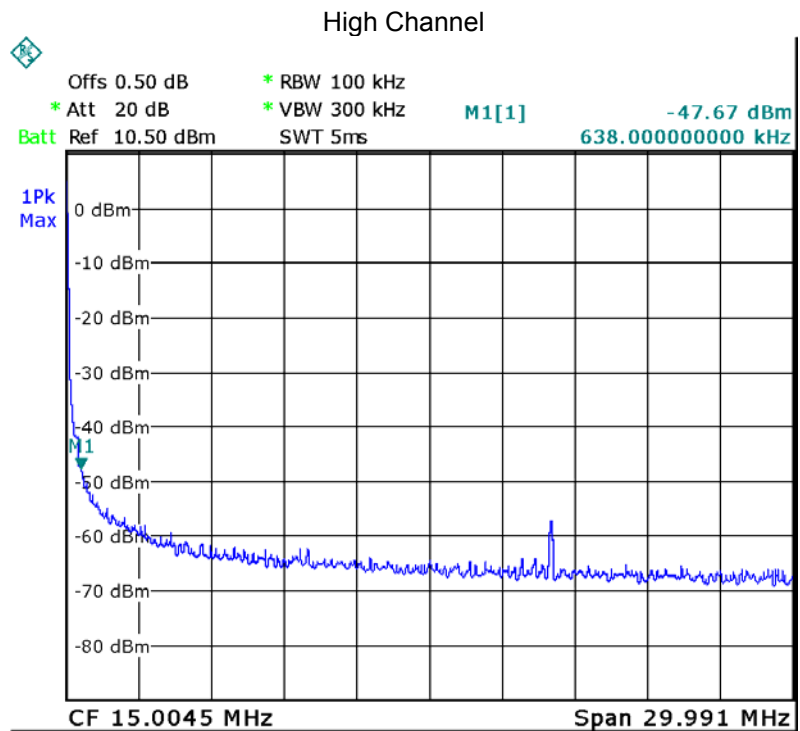
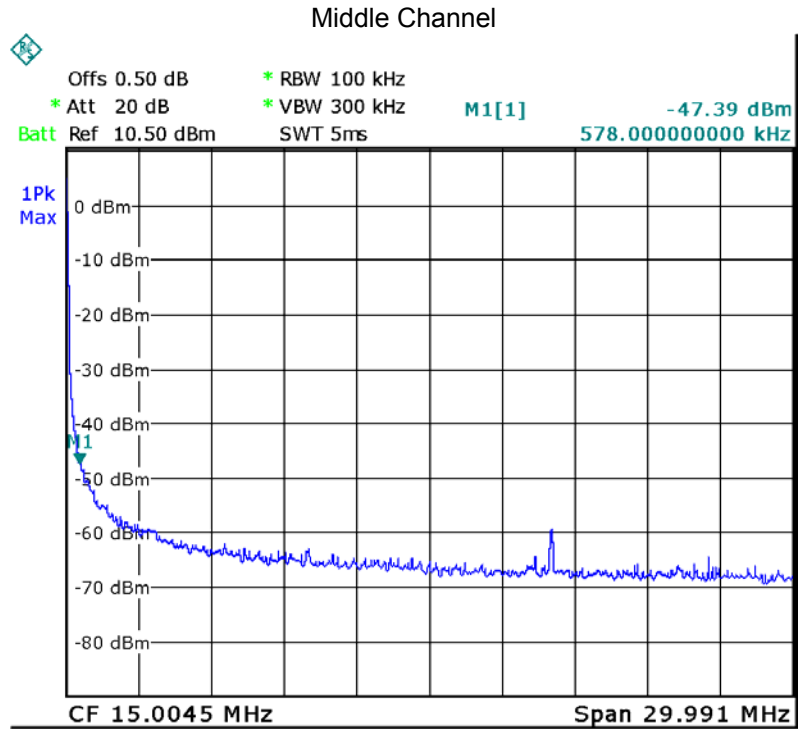
High Channel



802.11n HT40

Low Channel



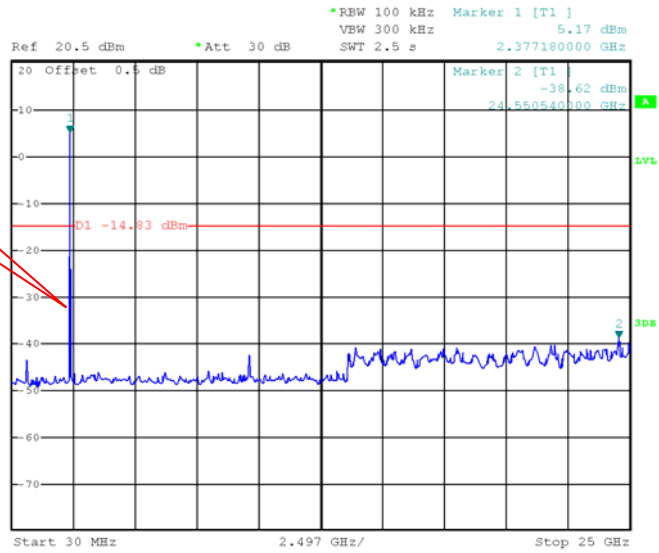


Above 30MHz

802.11b

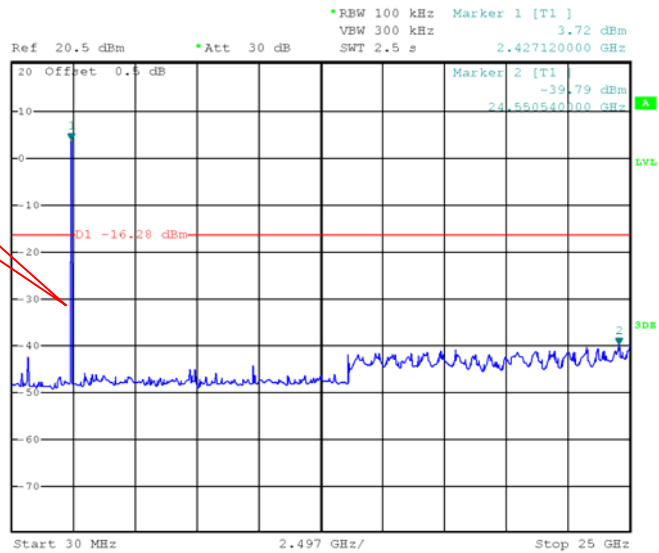
Low Channel

Fundamental



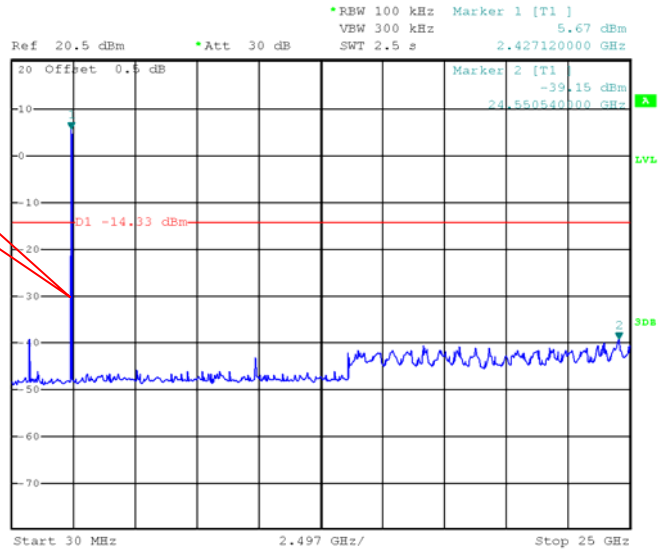
Middle Channel

Fundamental



High Channel

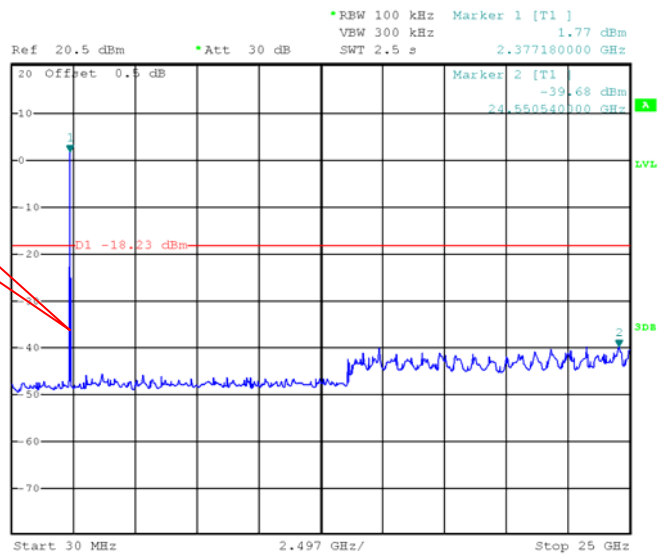
Fundamental



802.11g

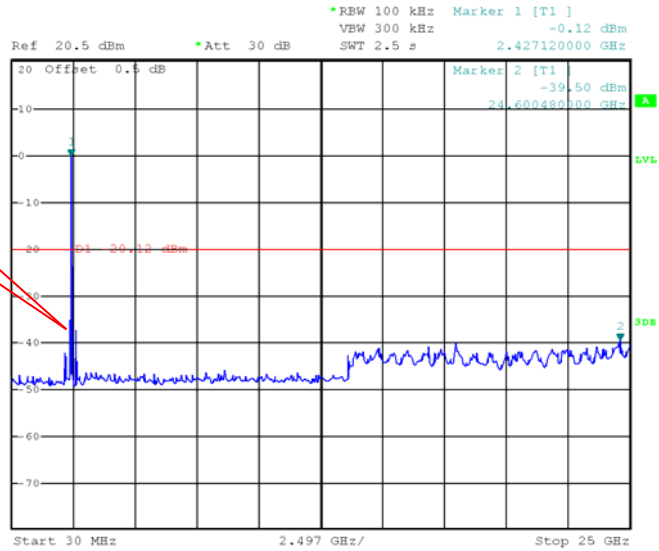
Low Channel

Fundamental



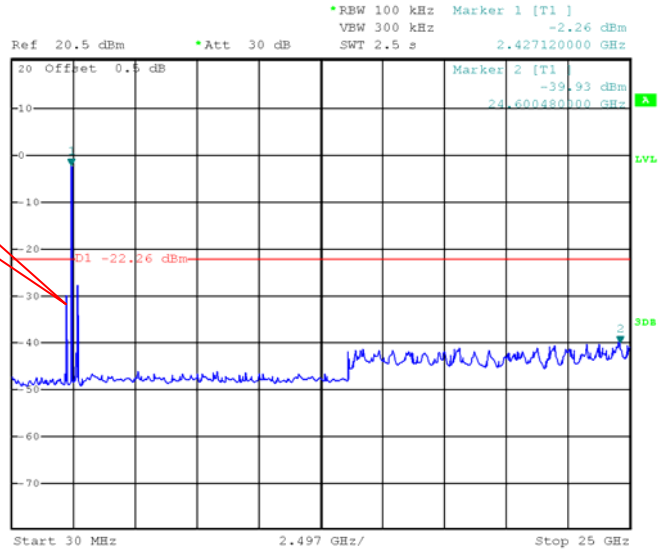
Middle Channel

Fundamental



High Channel

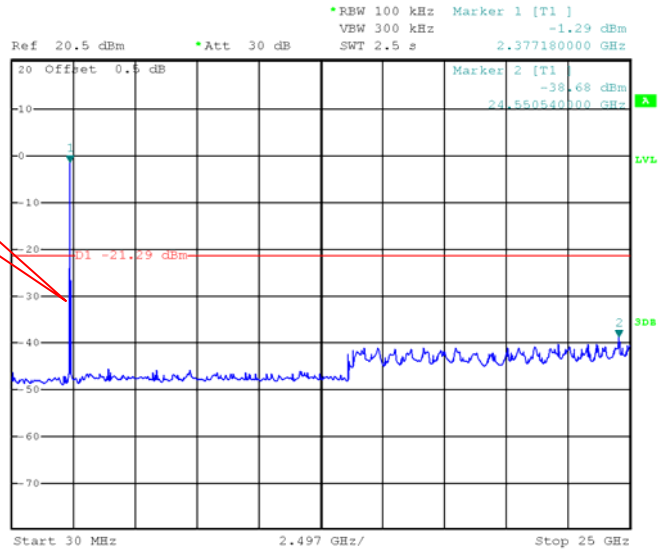
Fundamental



802.11n HT20

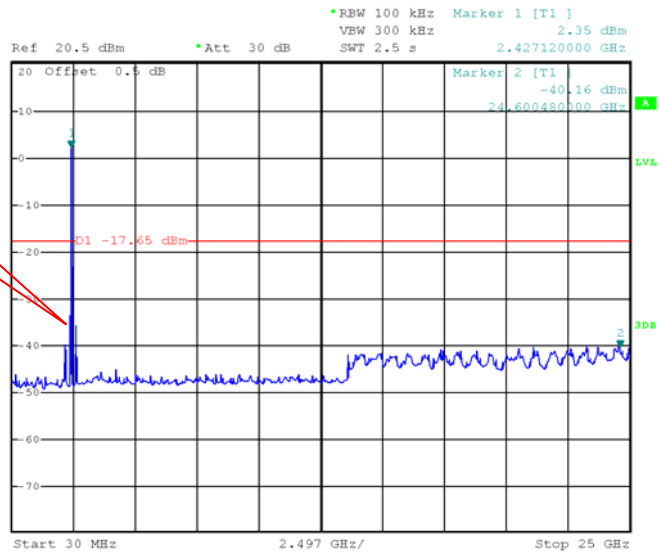
Low Channel

Fundamental



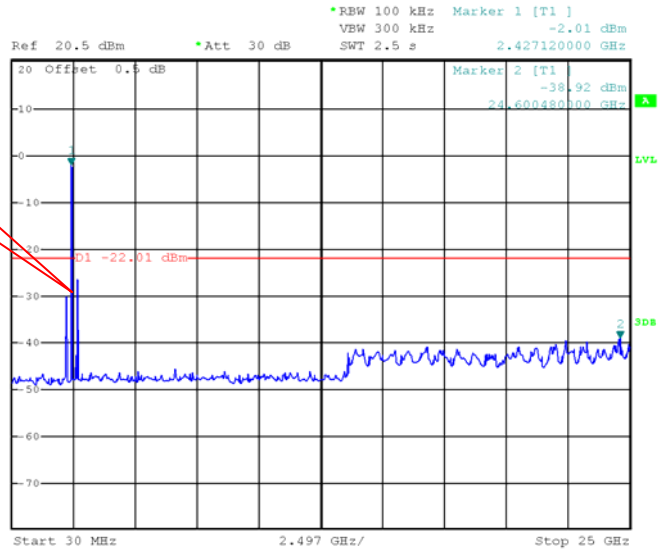
Middle Channel

Fundamental



High Channel

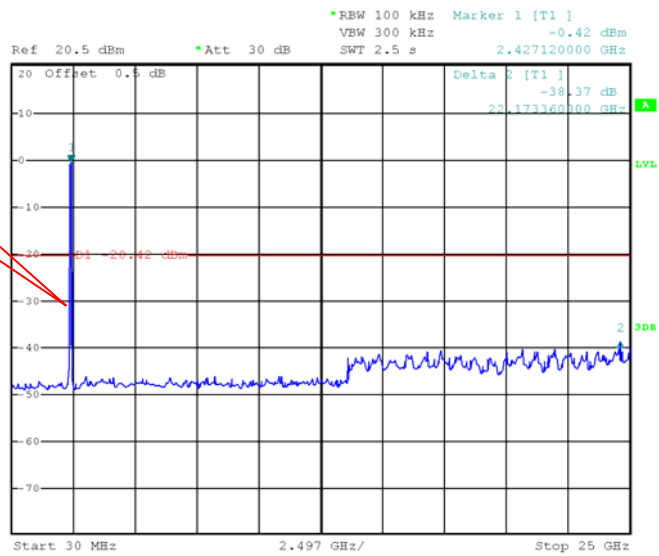
Fundamental



802.11n HT40

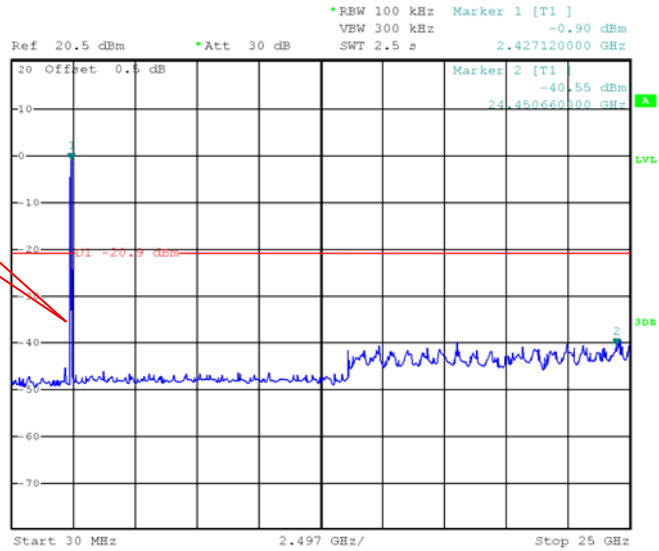
Low Channel

Fundamental



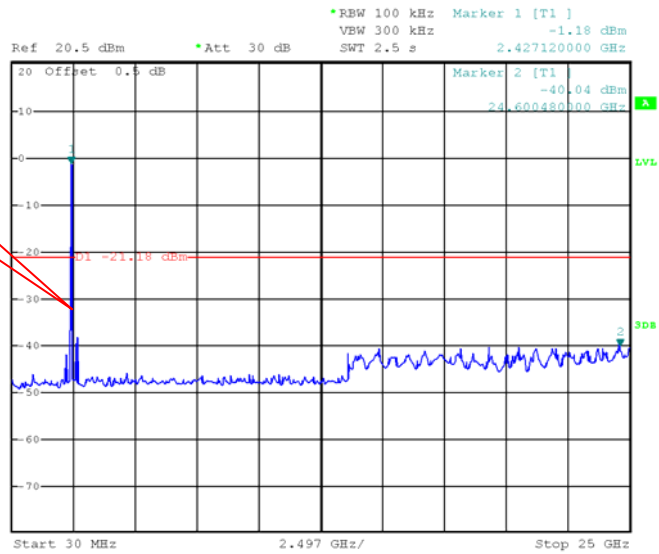
Middle Channel

Fundamental



High Channel

Fundamental

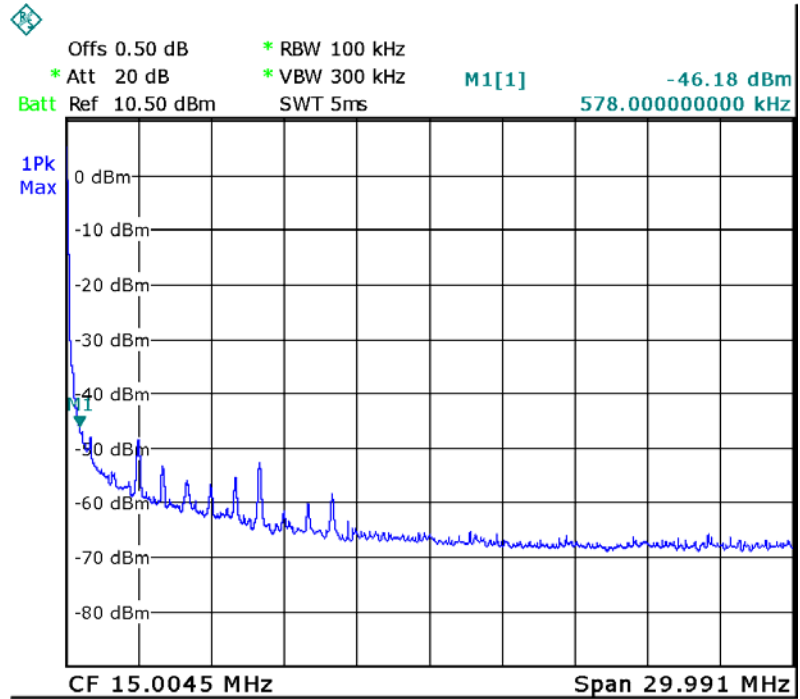


Antenna 1

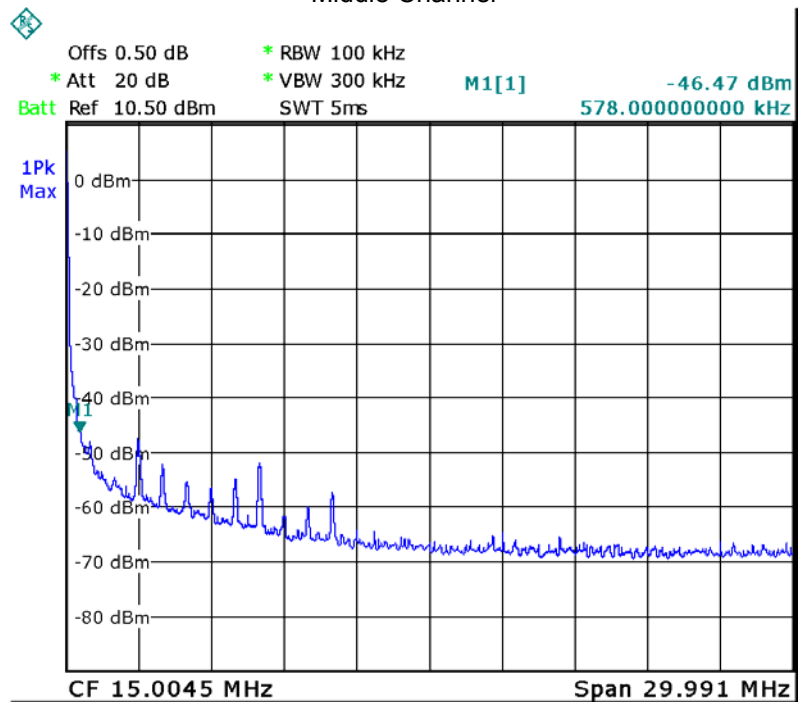
9KHz – 30MHz

802.11b

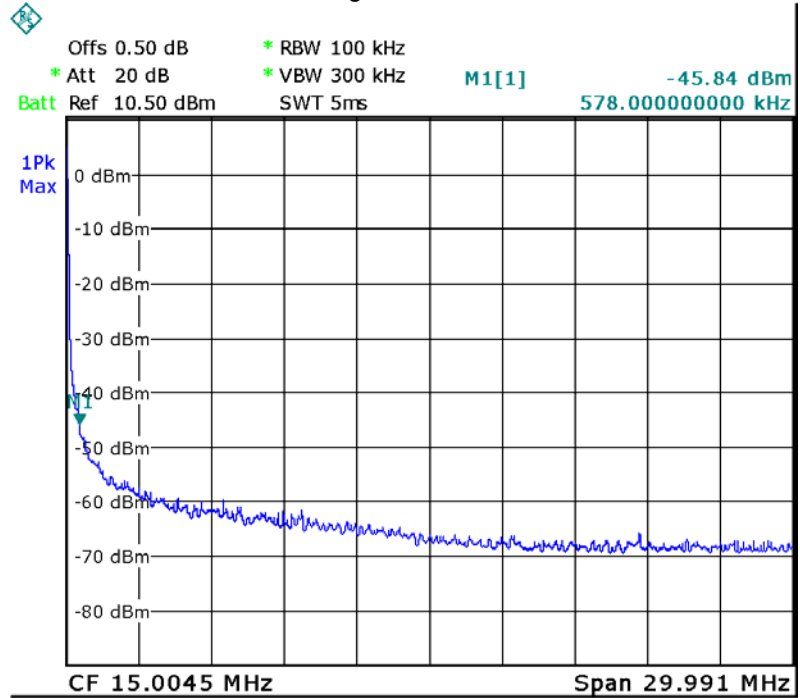
Low Channel



Middle Channel

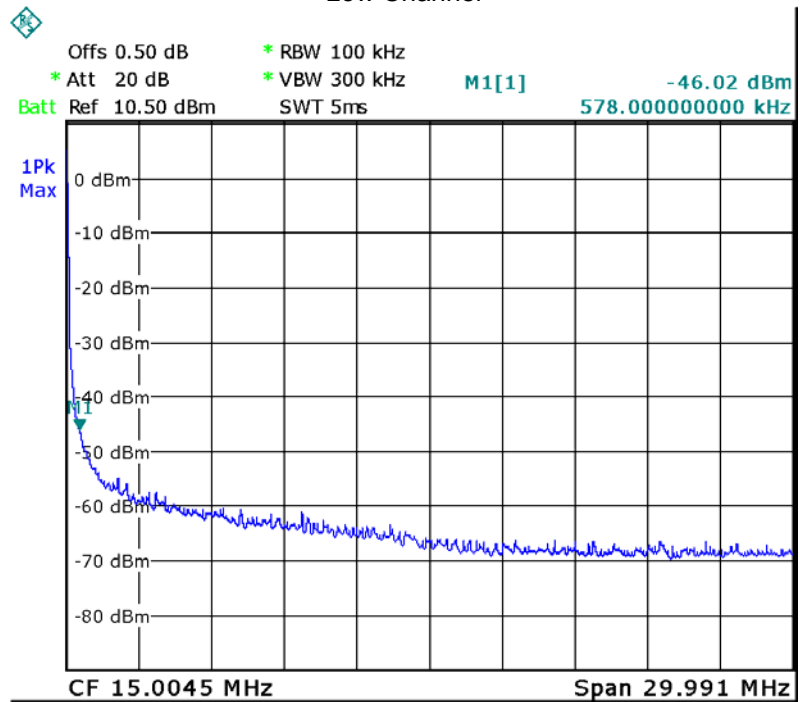


High Channel

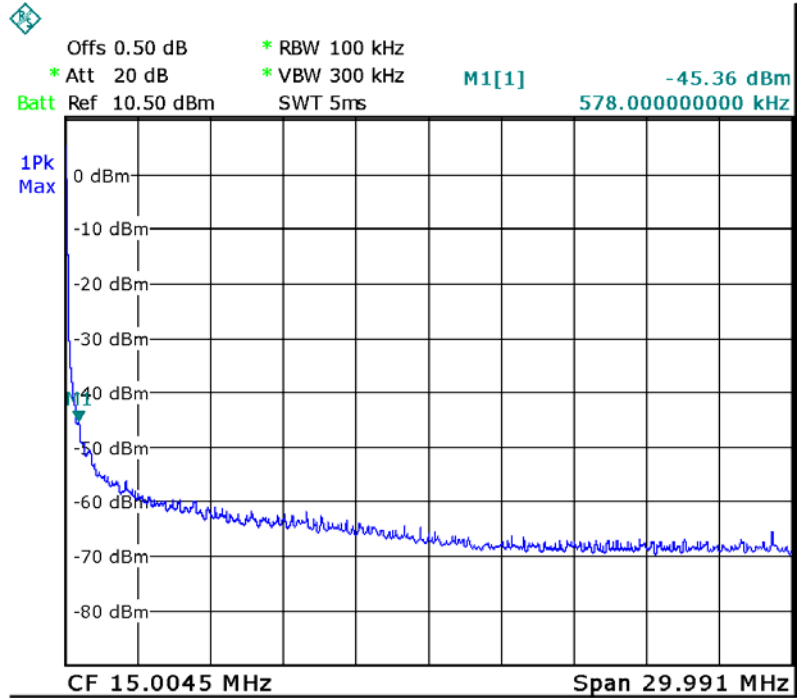


802.11g

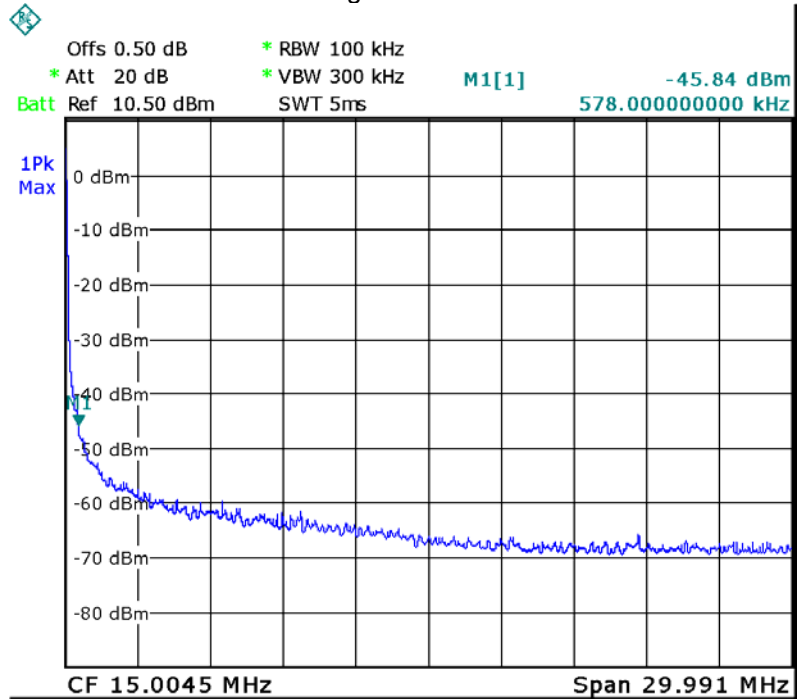
Low Channel



Middle Channel

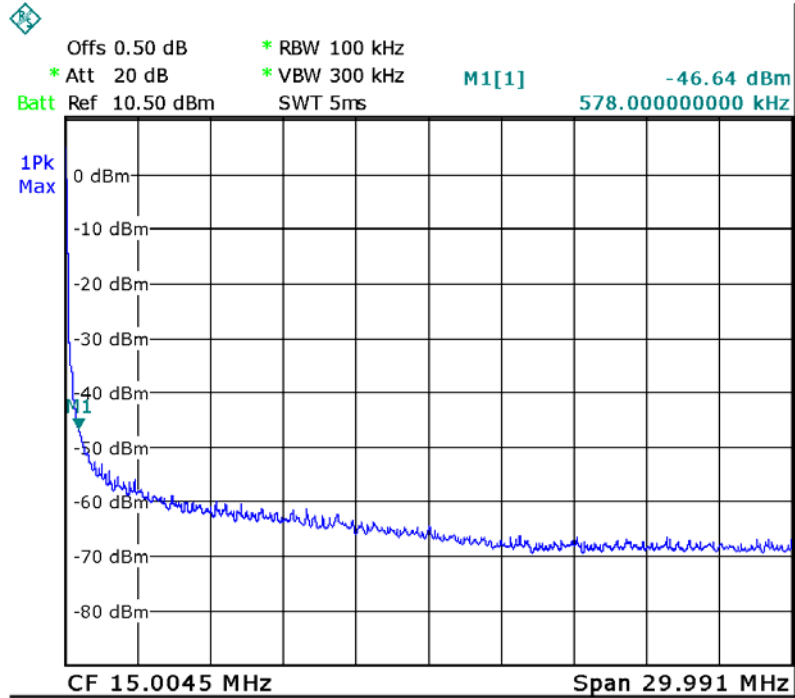


High Channel

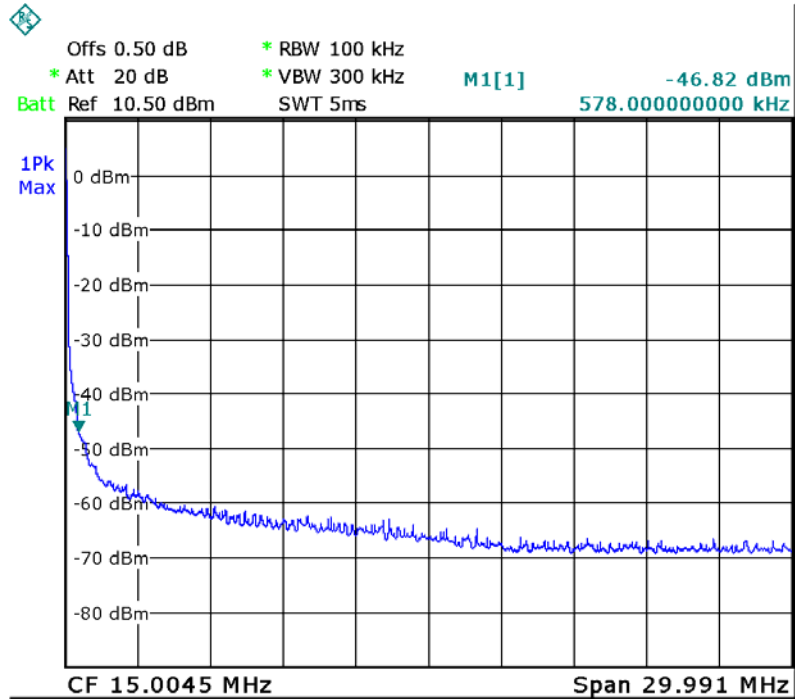


802.11n HT20

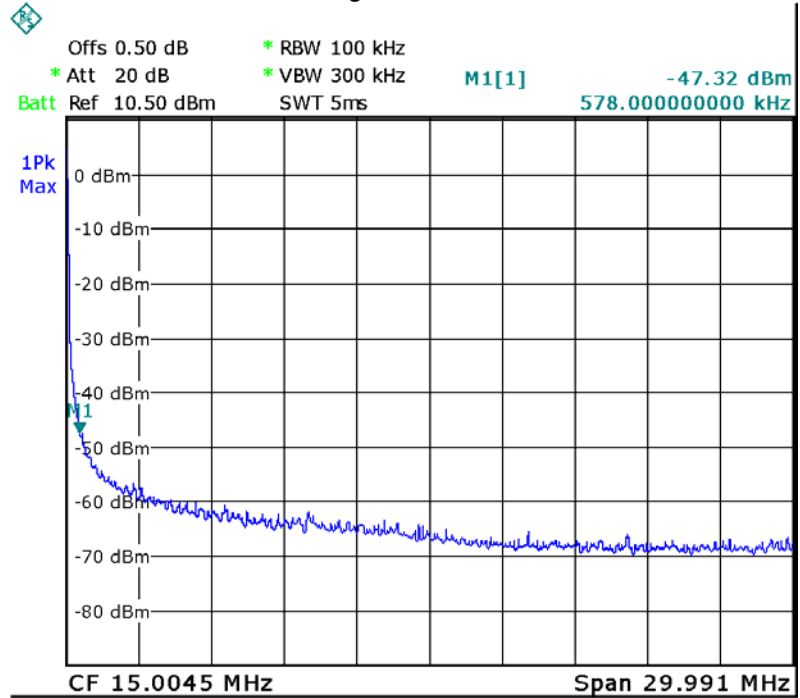
Low Channel



Middle Channel

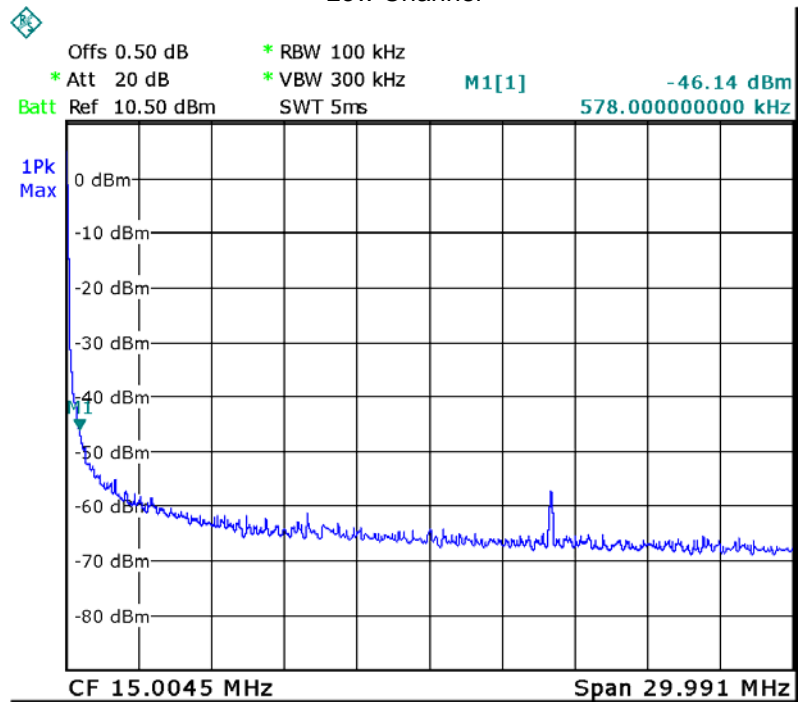


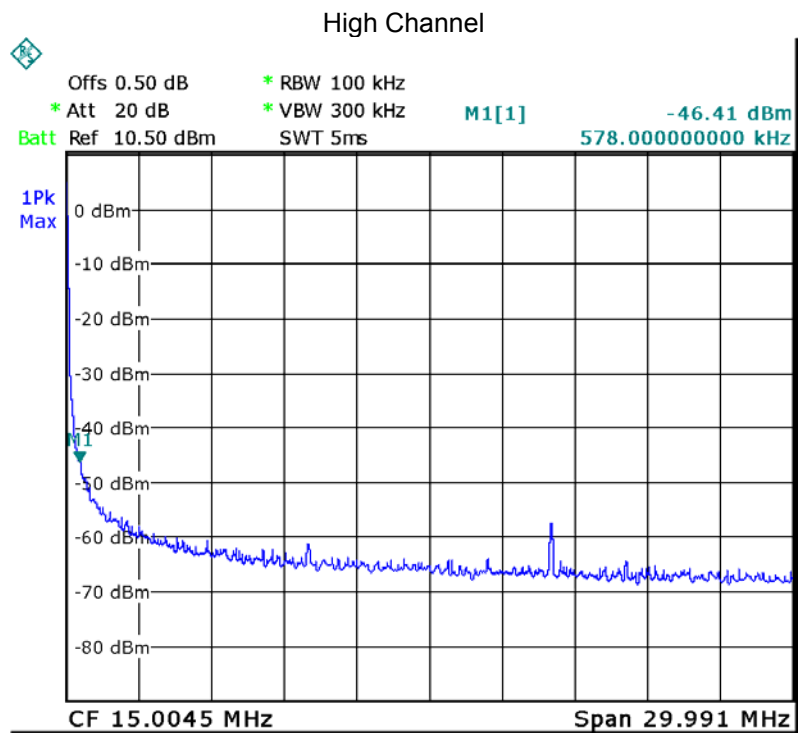
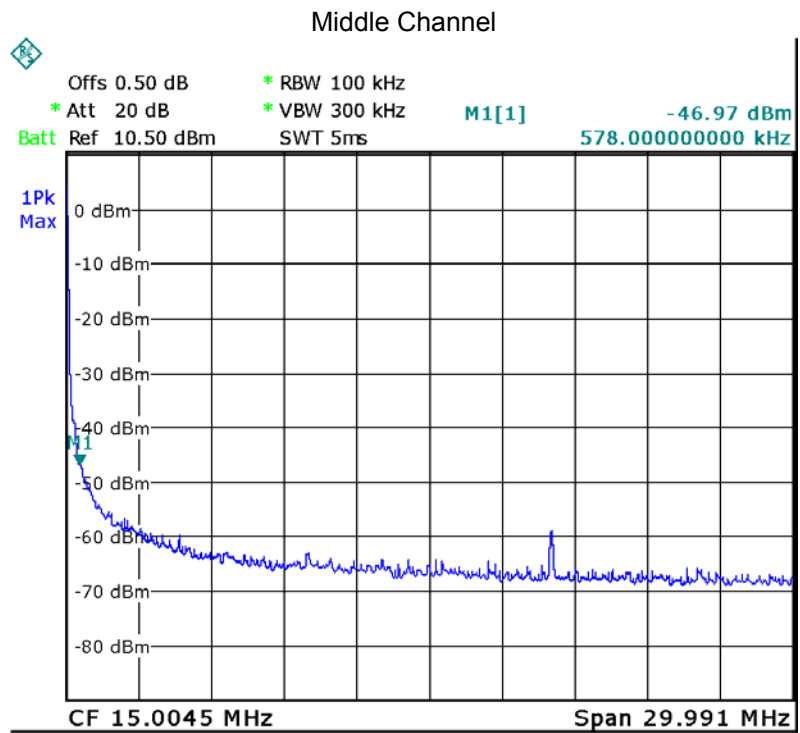
High Channel



802.11n HT40

Low Channel

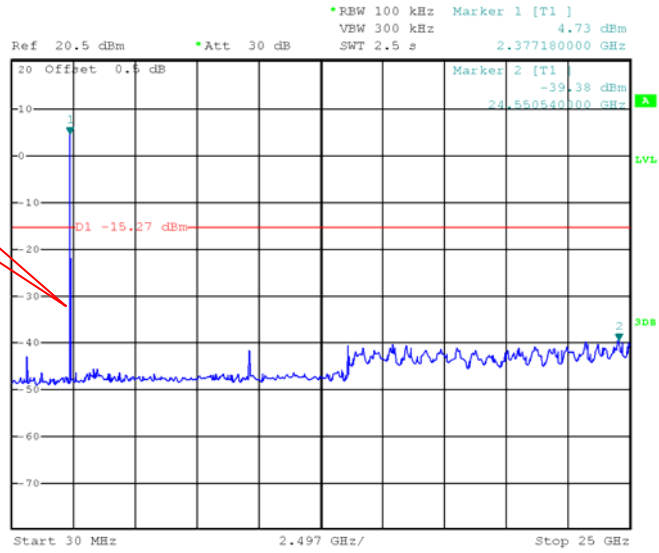
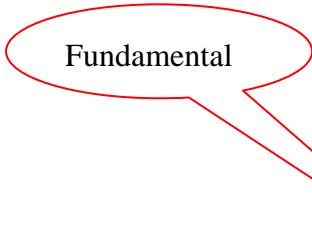




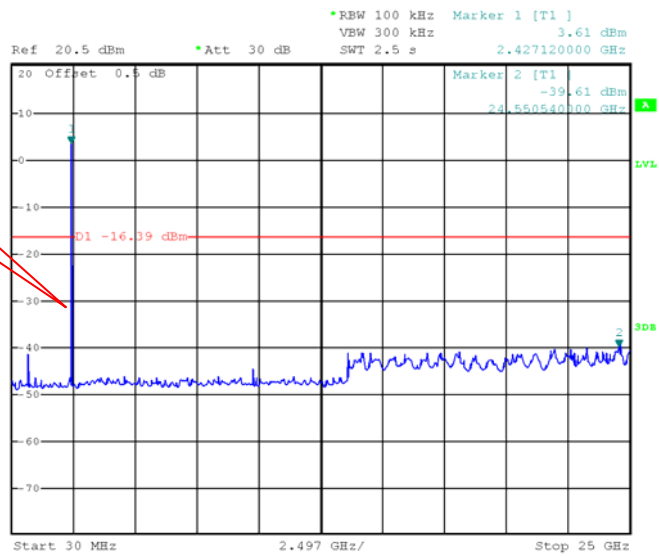
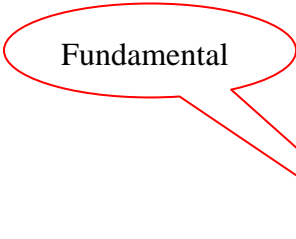
Above 30MHz

802.11b

Low Channel

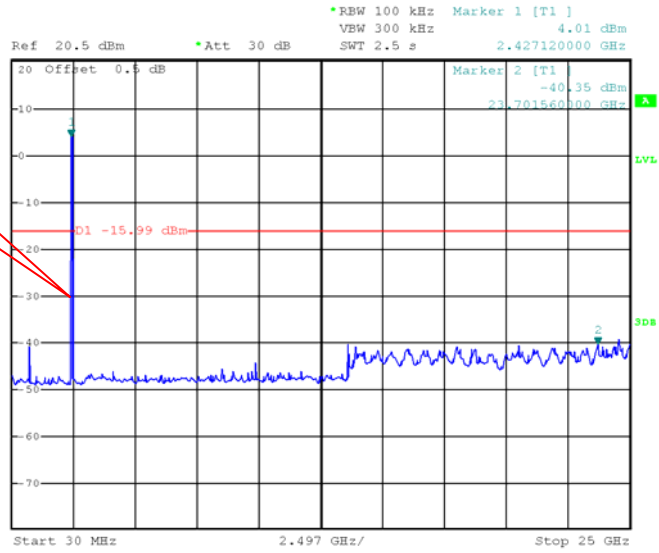


Middle Channel



High Channel

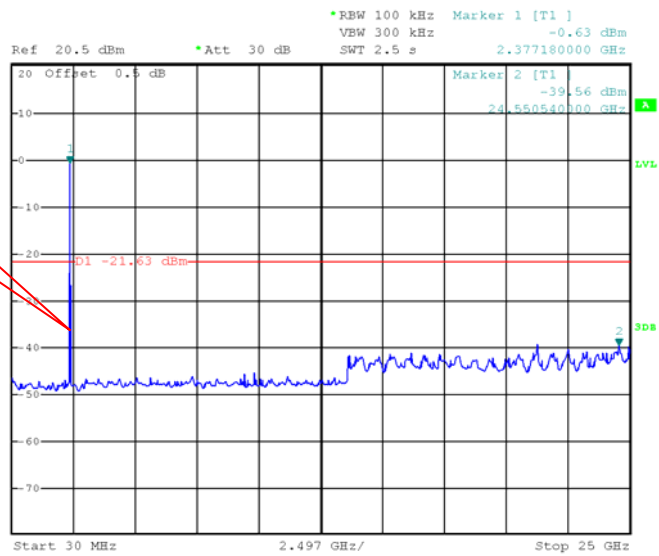
Fundamental



802.11g

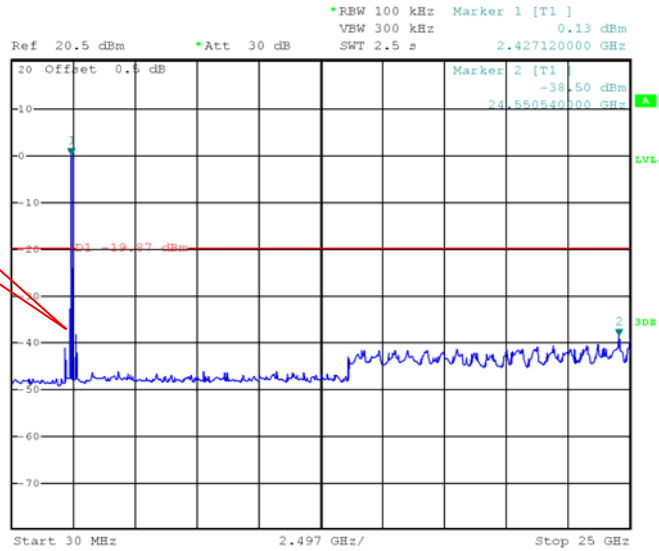
Low Channel

Fundamental



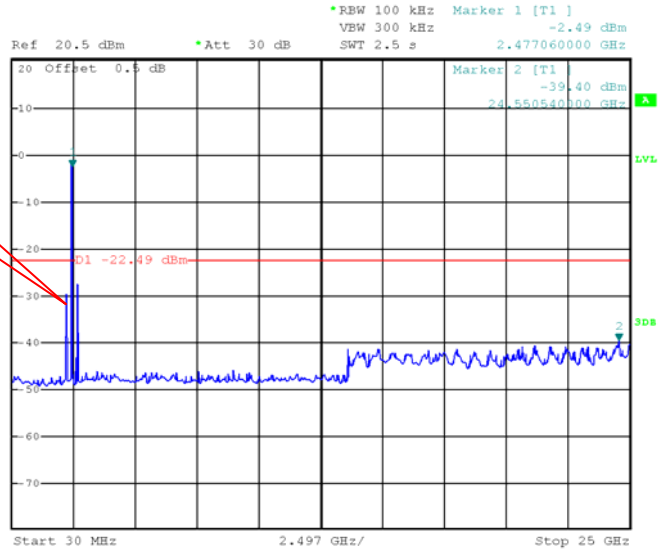
Middle Channel

Fundamental



High Channel

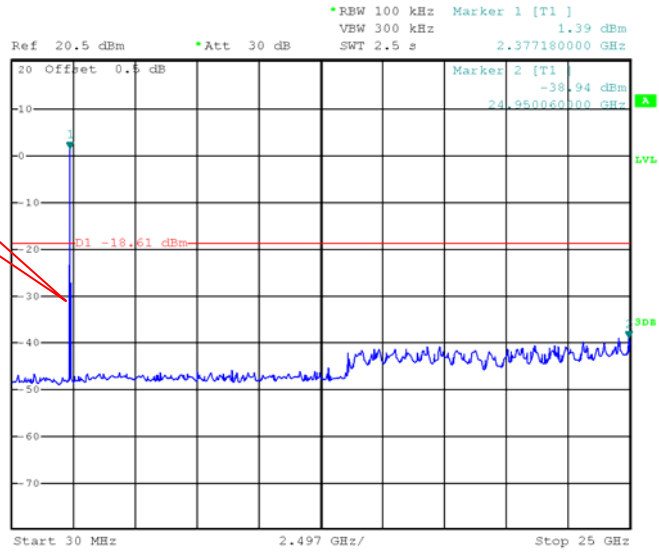
Fundamental



802.11n HT20

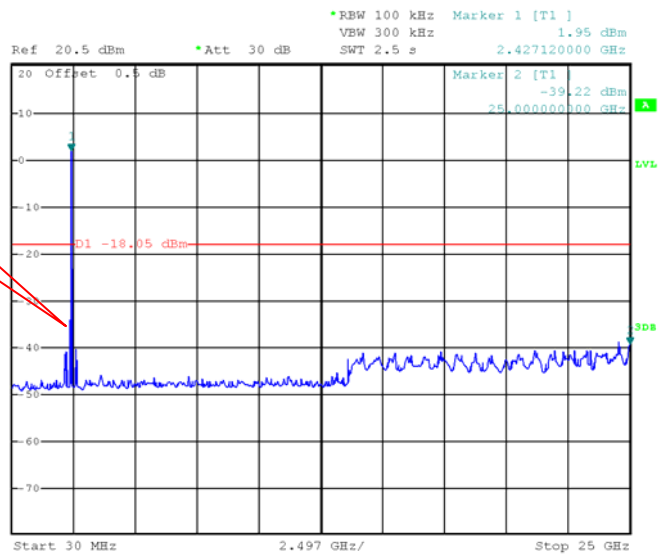
Low Channel

Fundamental



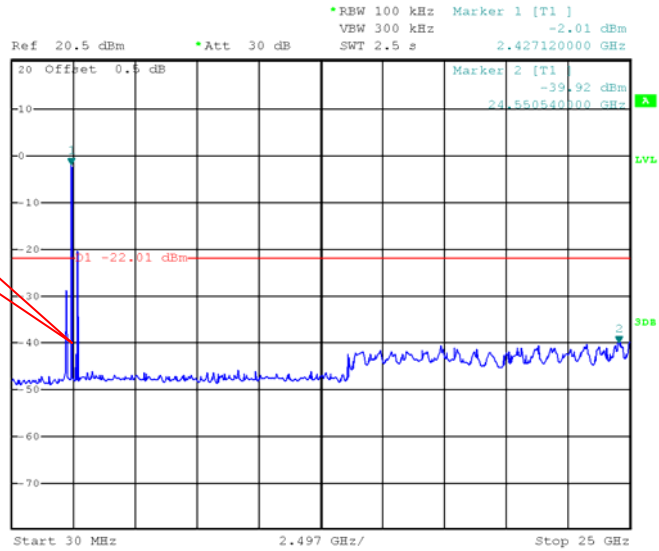
Middle Channel

Fundamental



High Channel

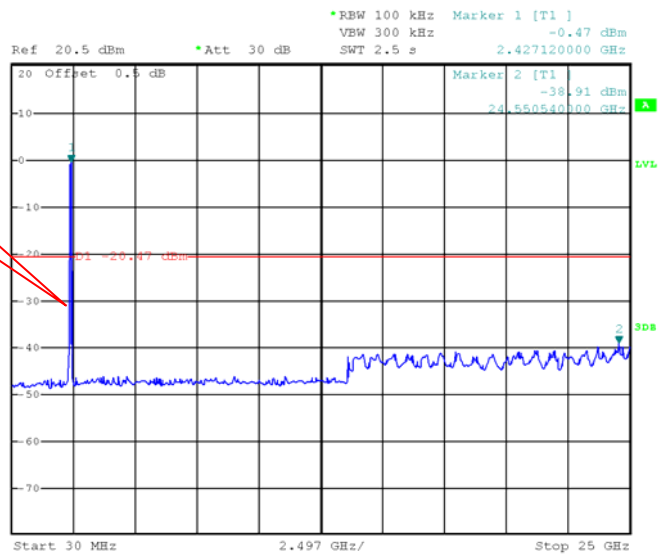
Fundamental



802.11n HT40

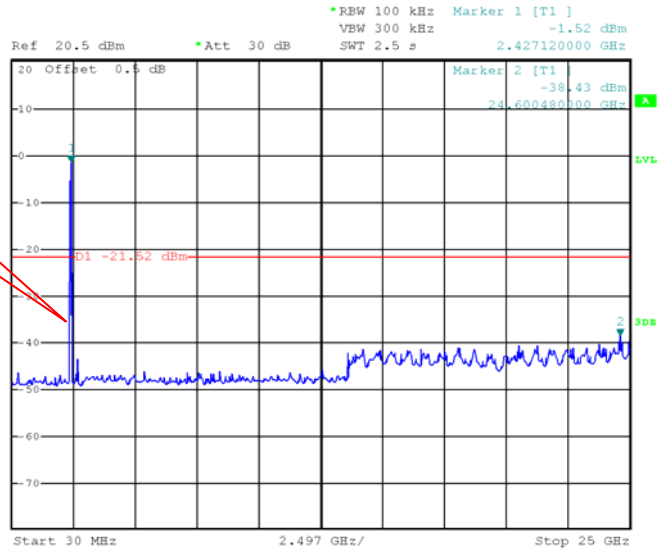
Low Channel

Fundamental



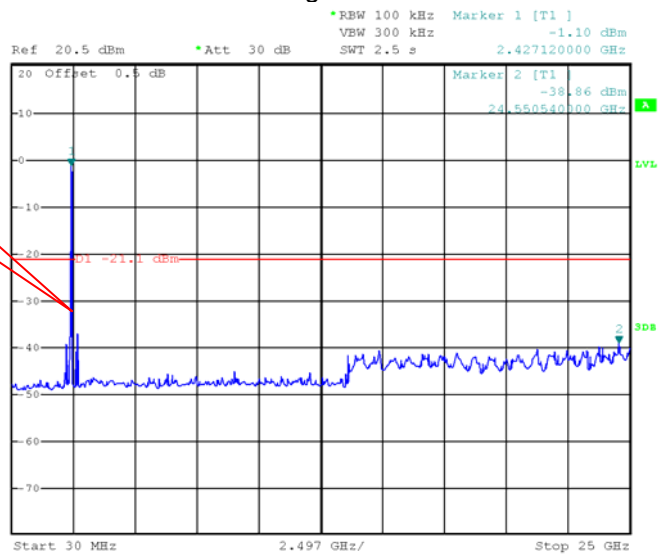
Middle Channel

Fundamental



High Channel

Fundamental



9 Band Edge Measurement

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: ANSI C63.10:2013

Test Limit: Regulation 15.247 (d), In any 100 kHz bandwidth outside the frequency band 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

9.1 Test Produce

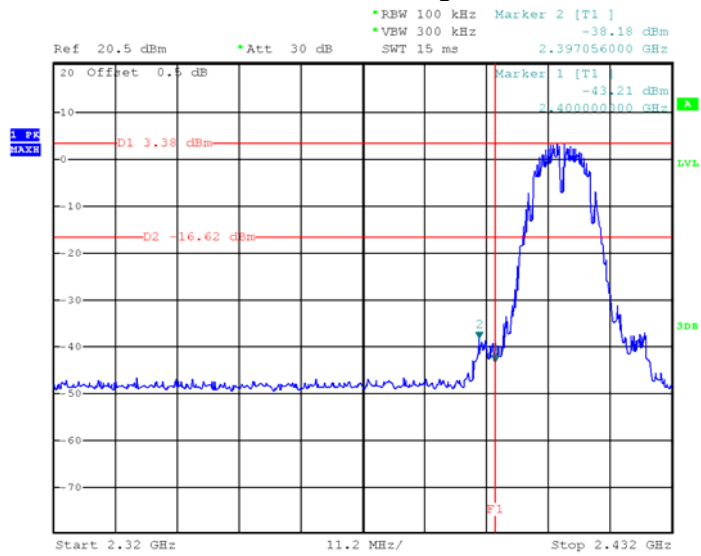
1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

9.2 Test Result

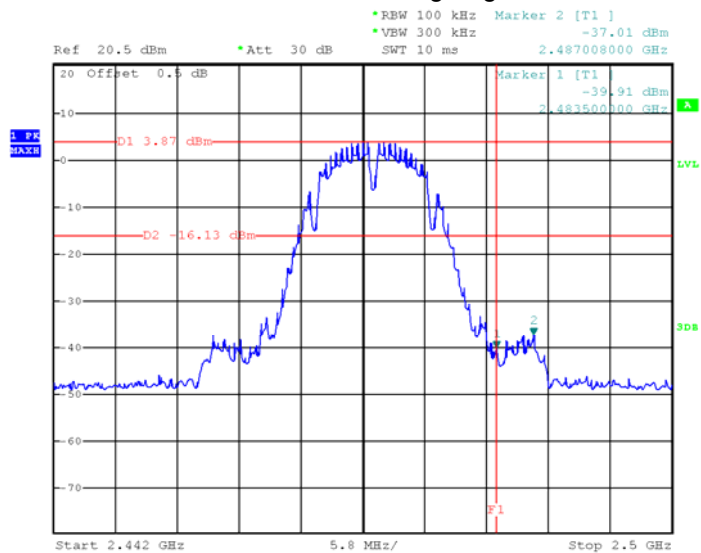
Test result plots shown as follows:

Antenna 0

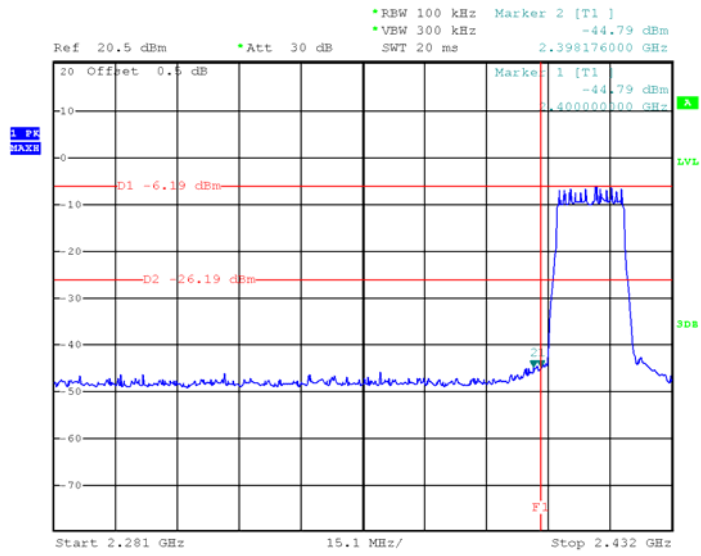
TX 11b: Band edge-left side



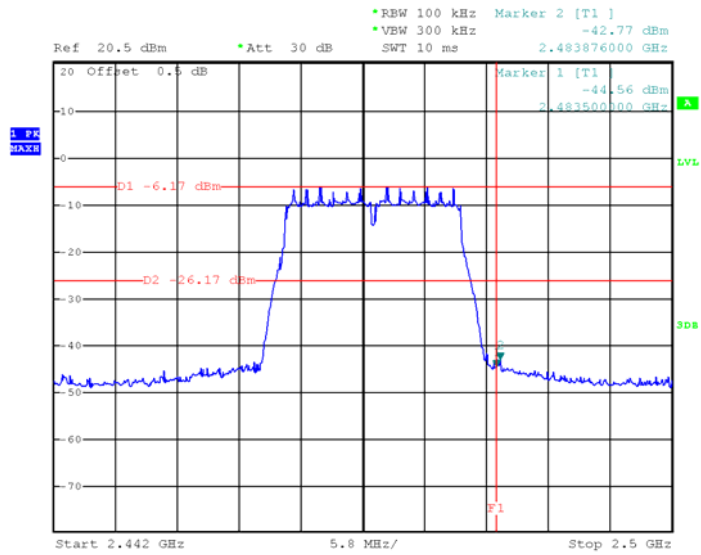
TX 11b: Band edge-right side



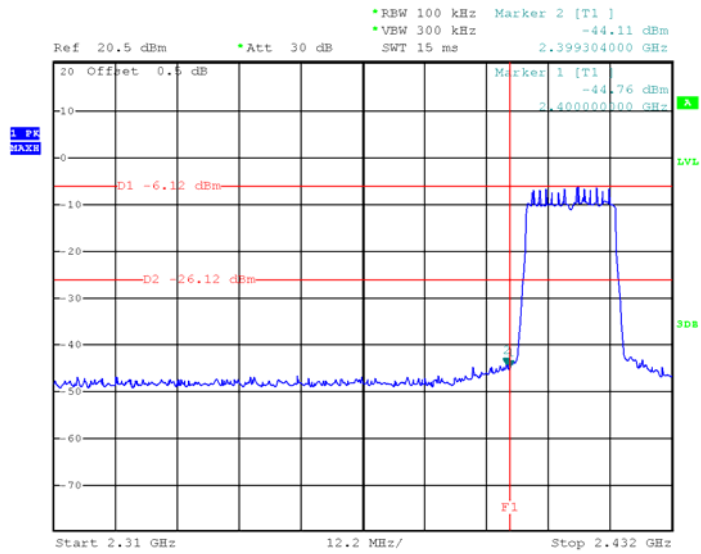
TX 11g: Band edge-left side



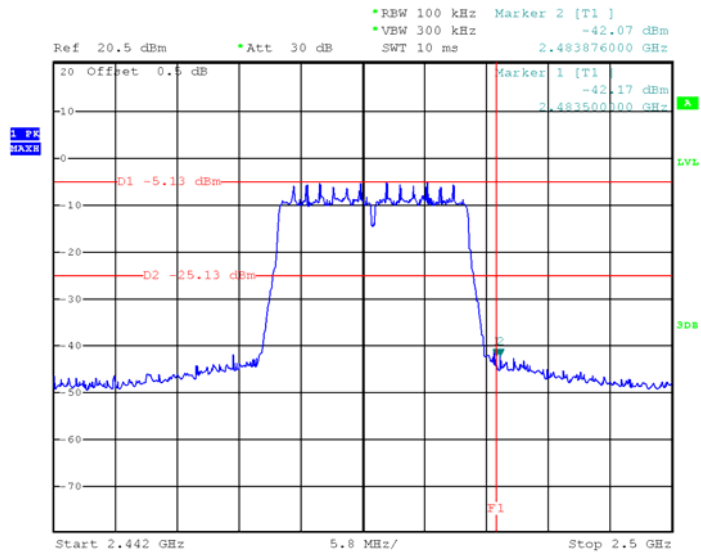
TX 11g: Band edge-right side



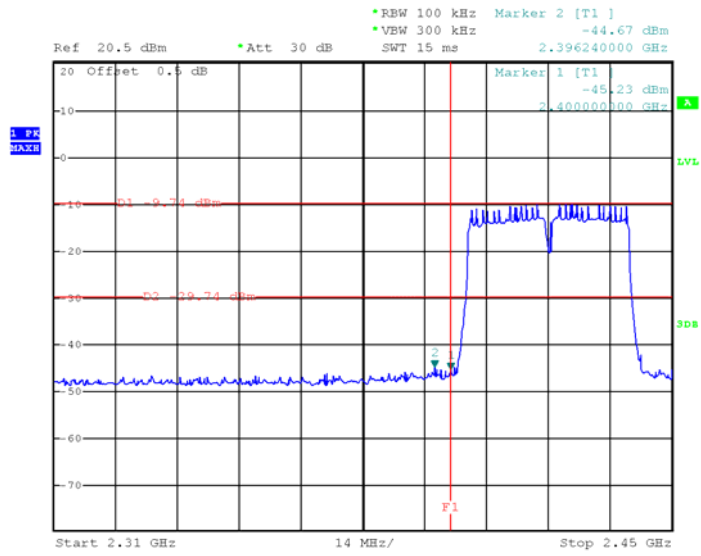
TX 11n HT20: Band edge-left side



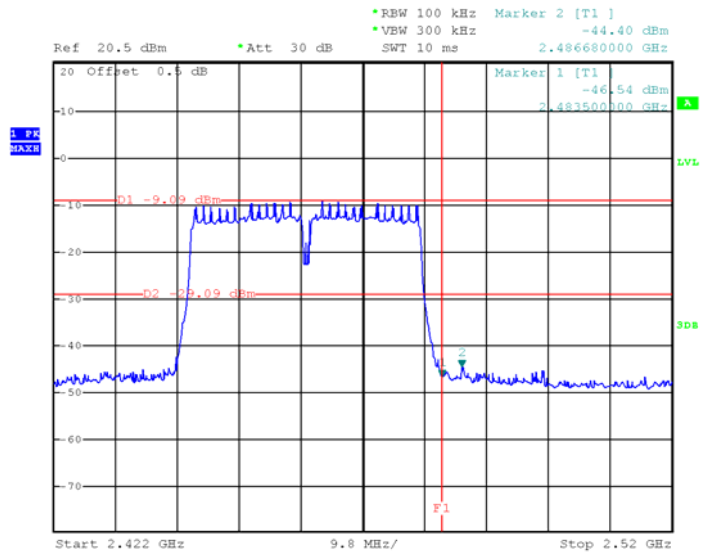
TX 11n HT20: Band edge-right side



TX 11n HT40: Band edge-left side

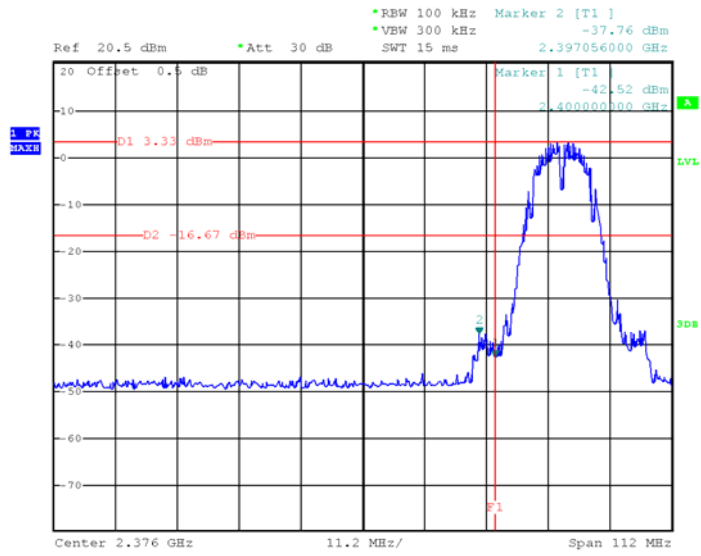


TX 11n HT40: Band edge-right side

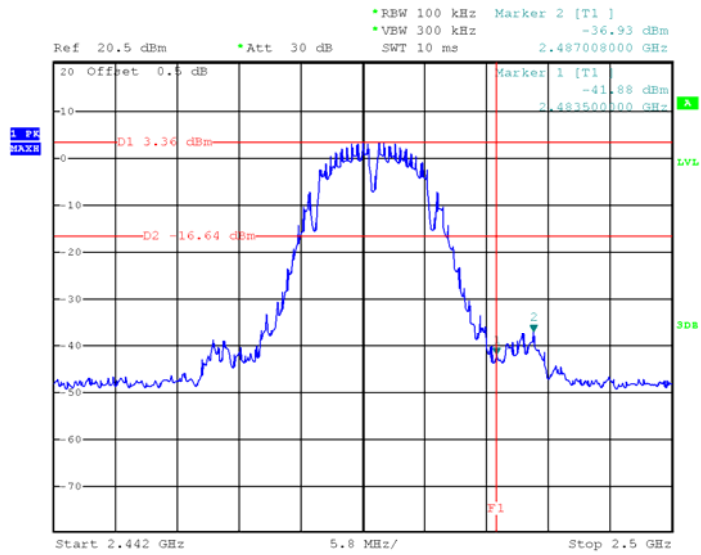


Antenna 1

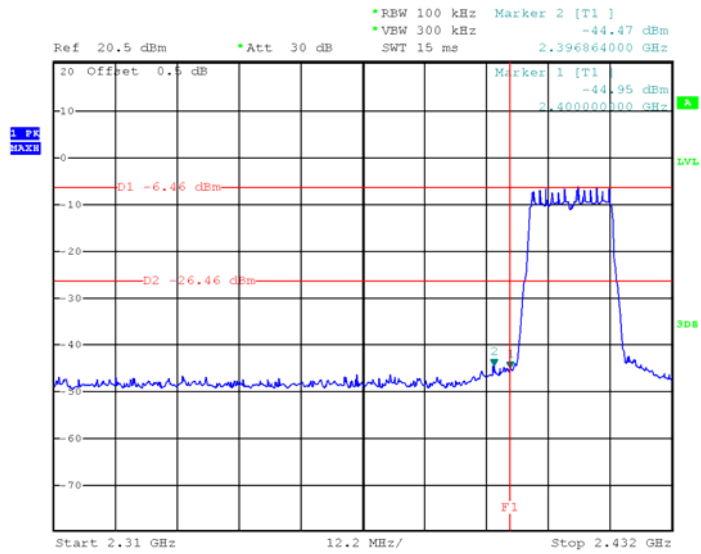
TX 11b: Band edge-left side



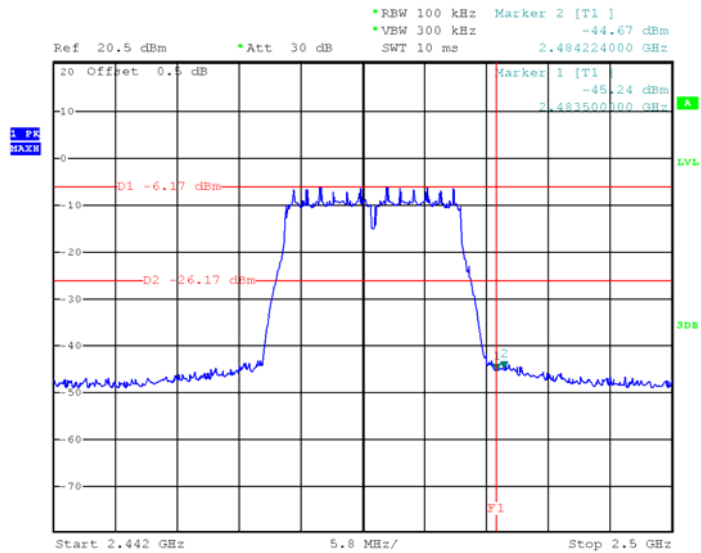
TX 11b: Band edge-right side



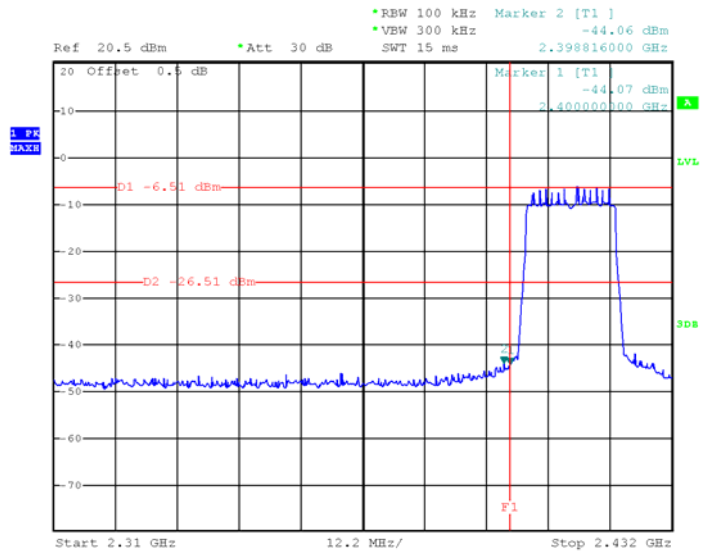
TX 11g: Band edge-left side



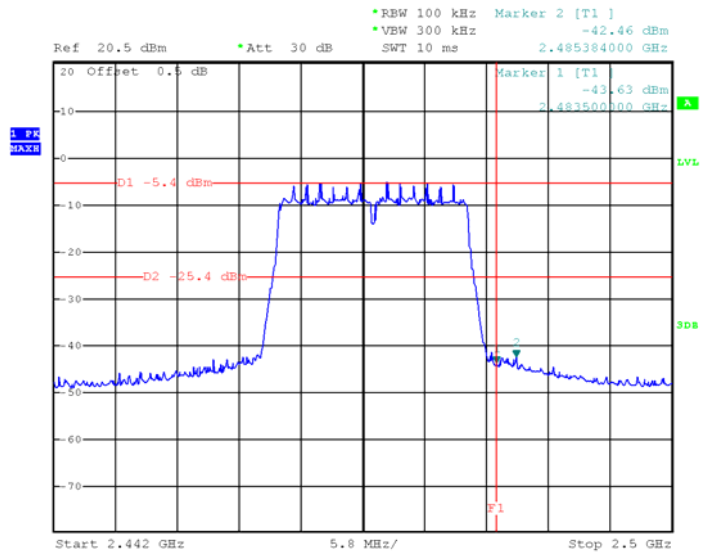
TX 11g: Band edge-right side



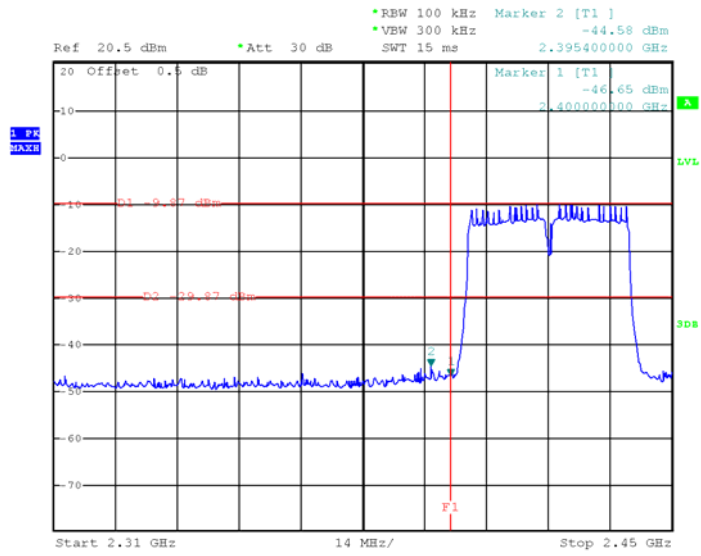
TX 11n HT20: Band edge-left side



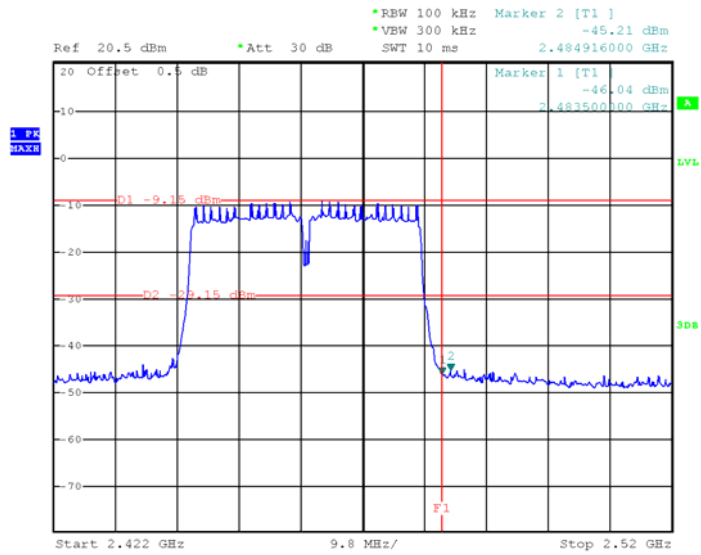
TX 11n HT20: Band edge-right side



TX 11n HT40: Band edge-left side



TX 11n HT40: Band edge-right side



10 6 dB Bandwidth and 99% Bandwidth Measurement

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: ANSI C63.10:2013

10.1 Test Procedure:

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

10.2 Test Result:

Antenna 0

Operation mode	Test Channel	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
TX 11b	Channel 1	10.048	12.576
	Channel 6	10.048	12.576
	Channel 11	10.048	12.448
TX 11g	Channel 1	16.440	17.150
	Channel 6	16.200	17.100
	Channel 11	16.500	17.150
TX 11n HT20	Channel 1	17.712	17.982
	Channel 6	17.712	17.928
	Channel 11	17.388	17.982
TX 11n HT40	Channel 3	36.080	36.190
	Channel 6	36.190	36.190
	Channel 9	36.300	36.300

Antenna 1

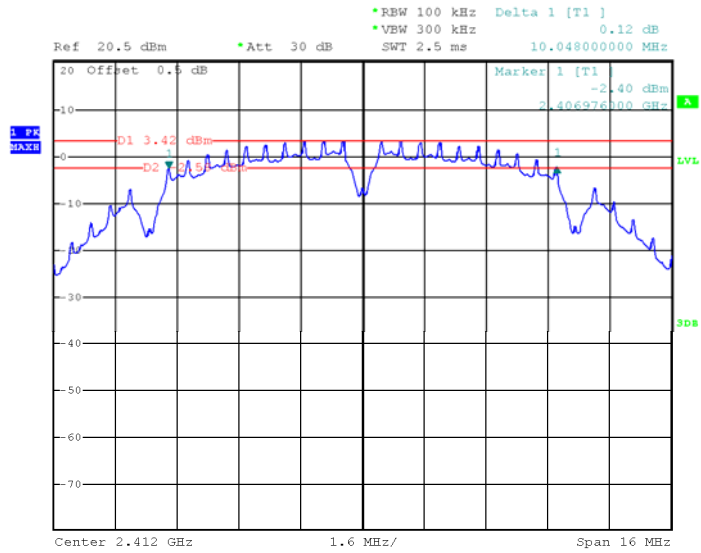
Operation mode	Test Channel	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
TX 11b	Channel 1	10.080	12.576
	Channel 6	10.016	12.480
	Channel 11	10.016	12.416
TX 11g	Channel 1	16.500	17.100
	Channel 6	16.200	17.100
	Channel 11	16.500	17.150
TX 11n HT20	Channel 1	17.388	17.982
	Channel 6	17.388	17.928
	Channel 11	17.712	17.928
TX 11n HT40	Channel 3	36.300	10.016
	Channel 6	36.190	10.016
	Channel 9	36.300	36.190

Test result plot:

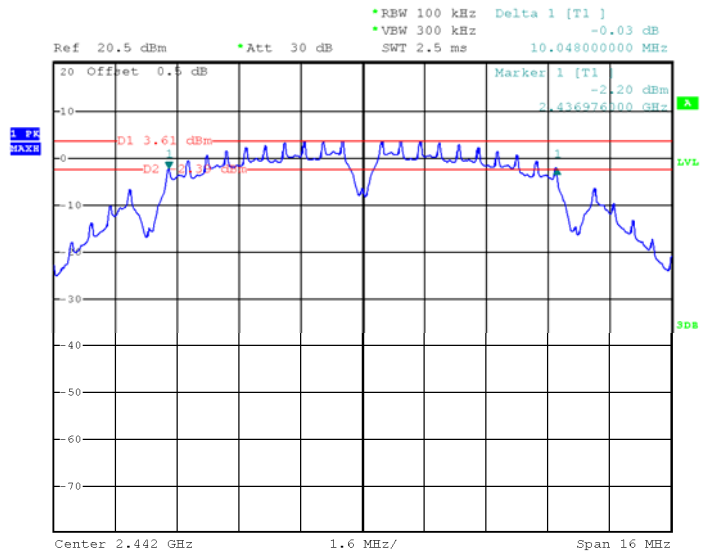
Antenna 0

6 dB Bandwidth

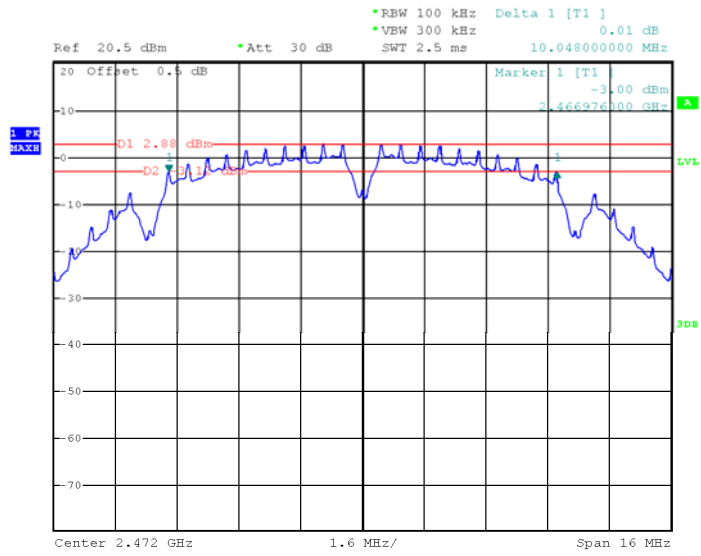
Mode: TX 11b channel 1



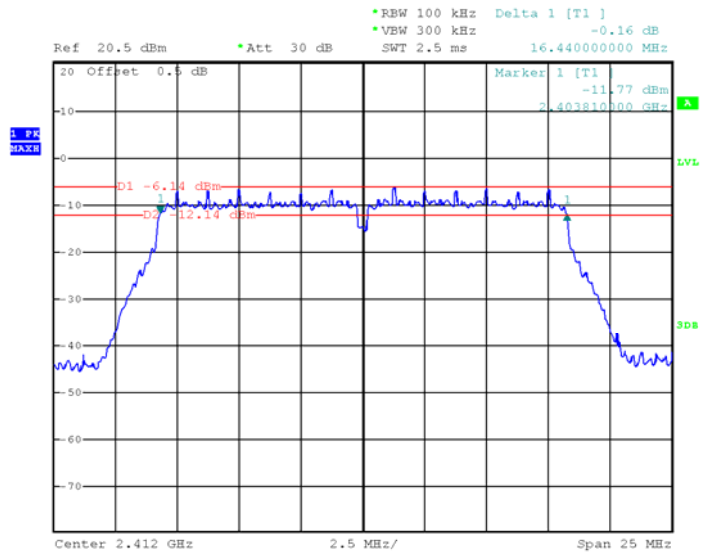
Mode: TX 11b channel 6



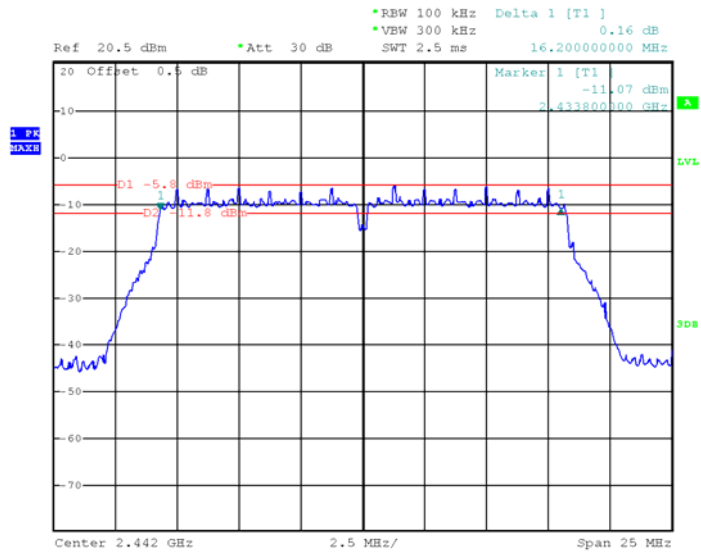
Mode: TX 11b channel 11



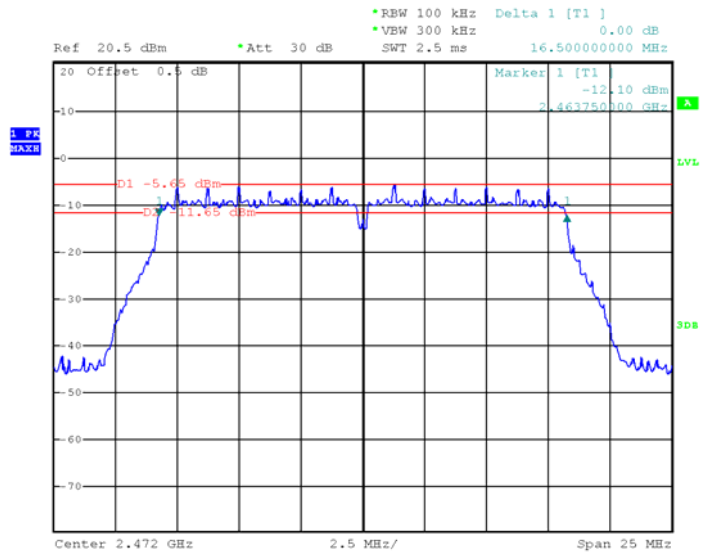
Mode: TX 11g channel 1



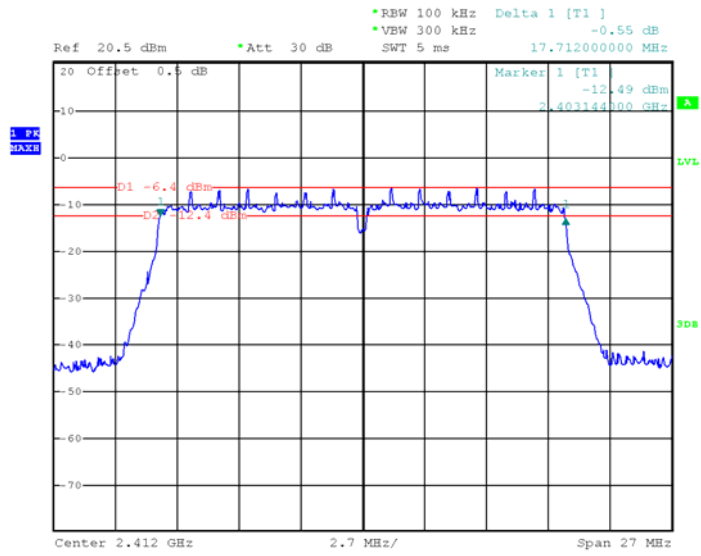
Mode: TX 11g channel 6



Mode: TX 11g channel 11

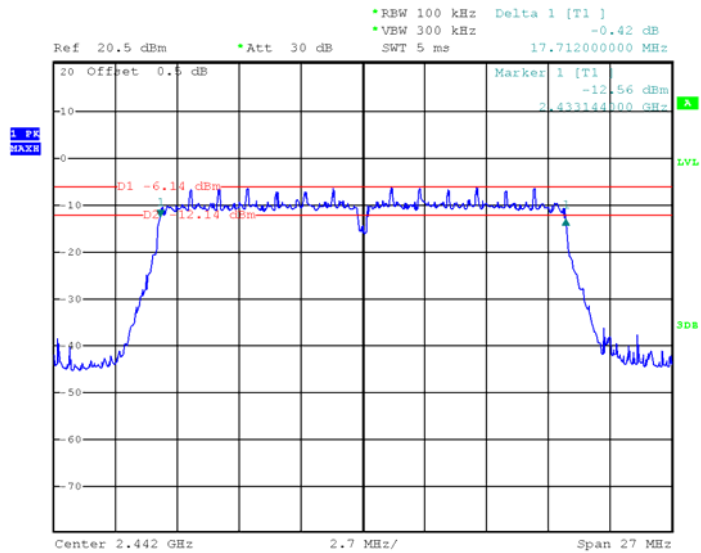


Mode: TX 11n HT20 channel 1

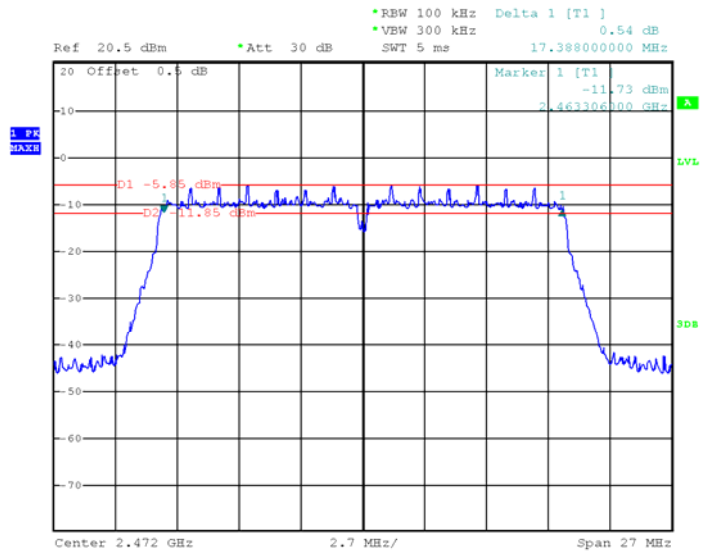


3

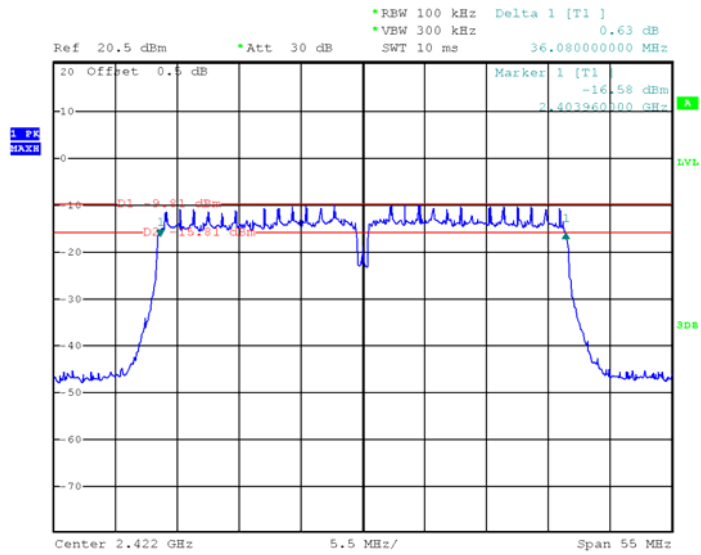
Mode: TX 11n HT20 channel 6



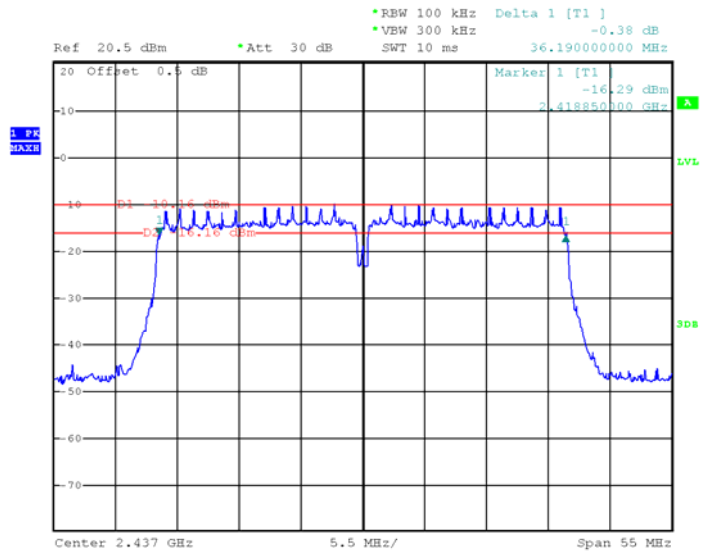
Mode: TX 11n HT20 channel 11



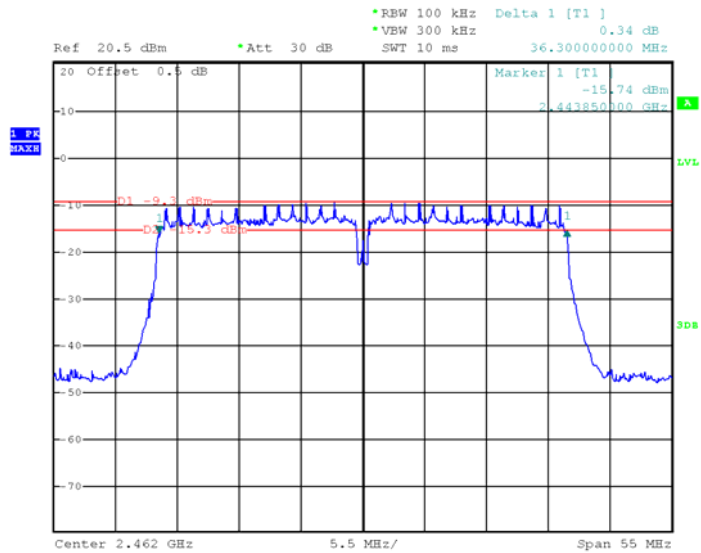
Mode: TX 11n HT40 channel 3



Mode: TX 11n HT40 channel 6

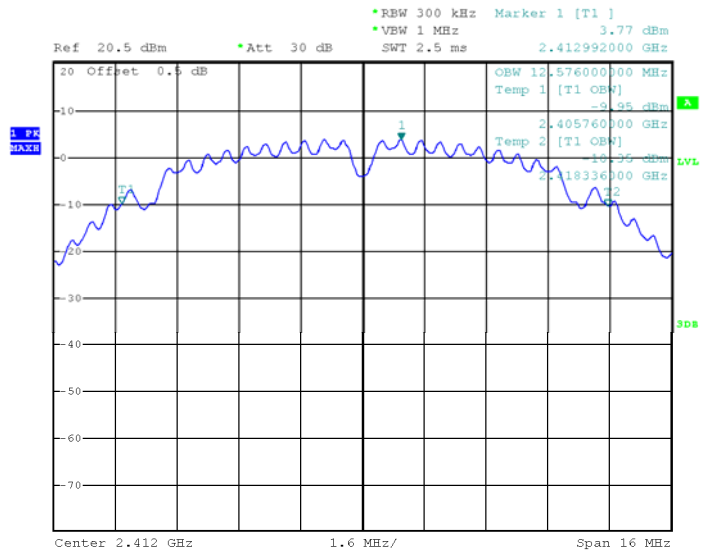


Mode: TX 11n HT40 channel 9

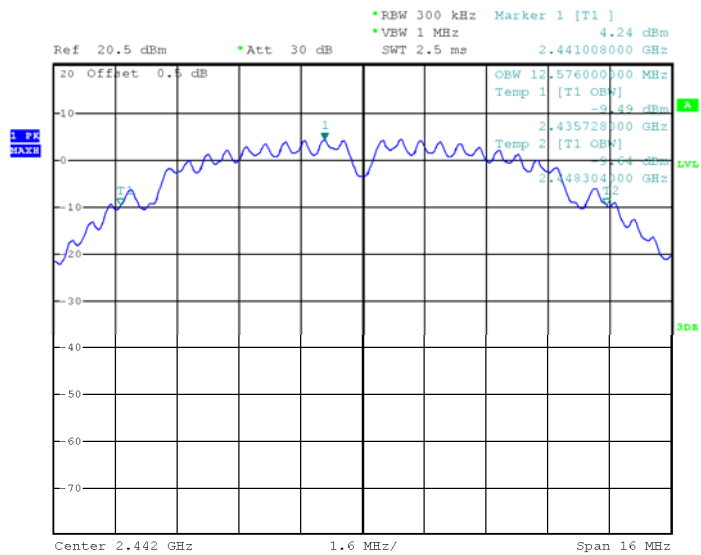


99% Bandwidth

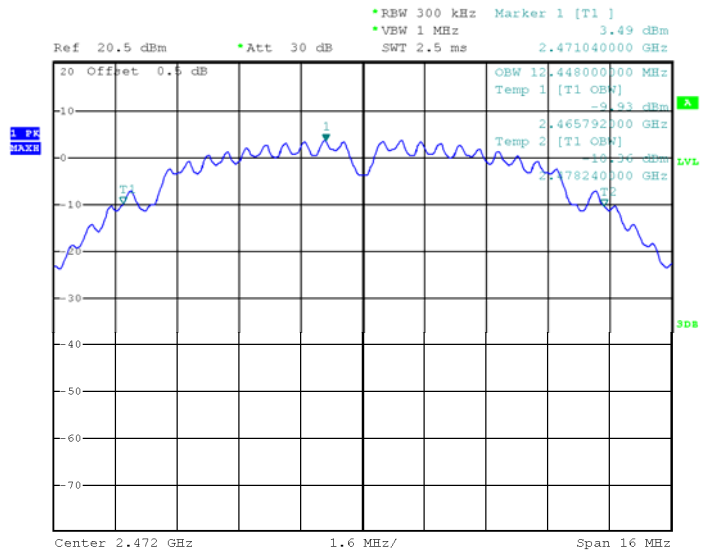
Mode: TX 11b channel 1



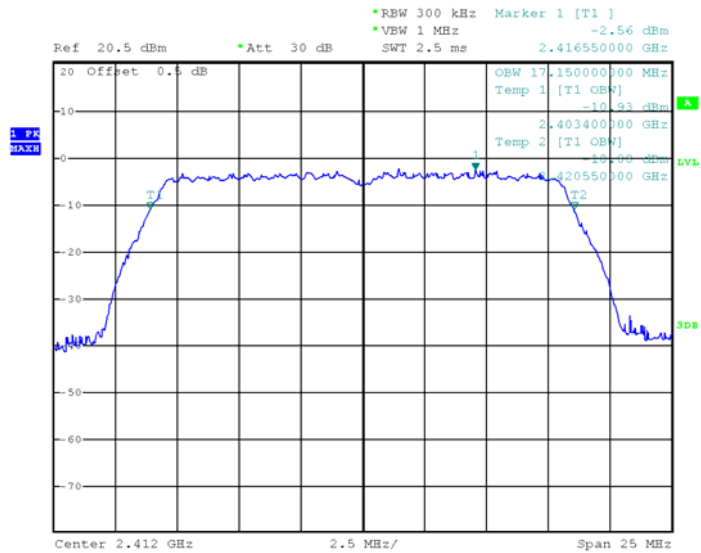
Mode: TX 11b channel 6



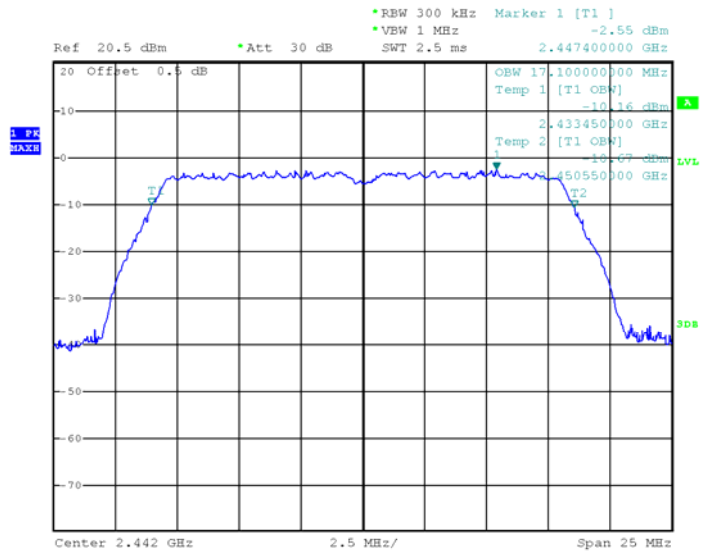
Mode: TX 11b channel 11



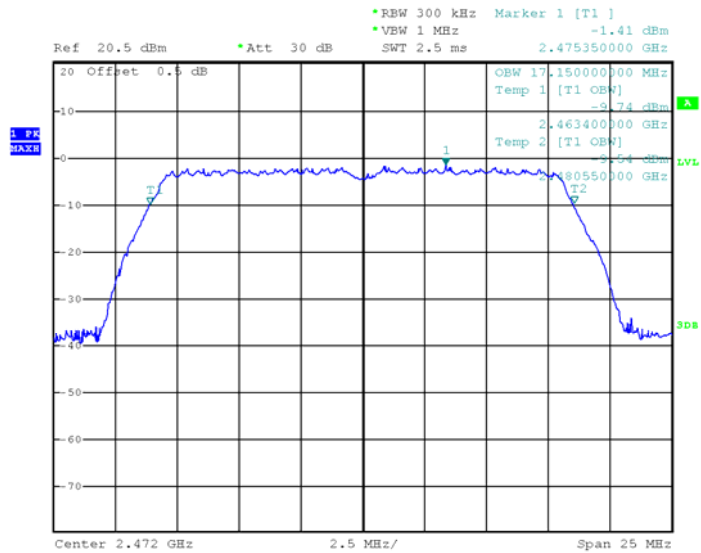
Mode: TX 11g channel 1



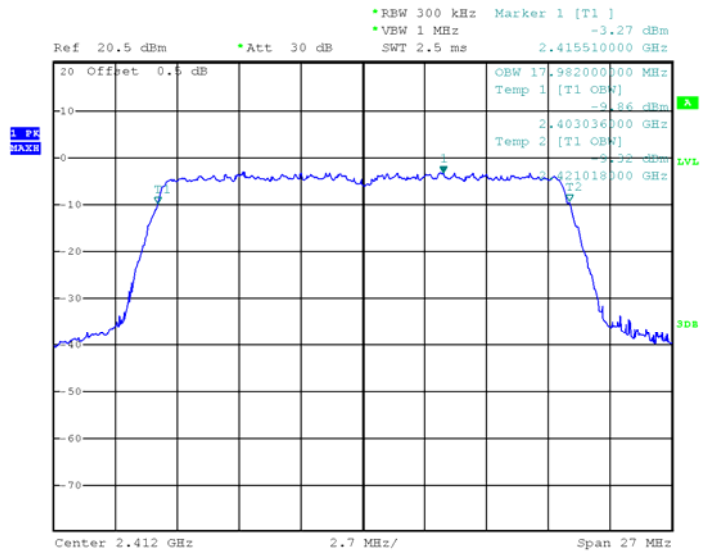
Mode: TX 11g channel 6



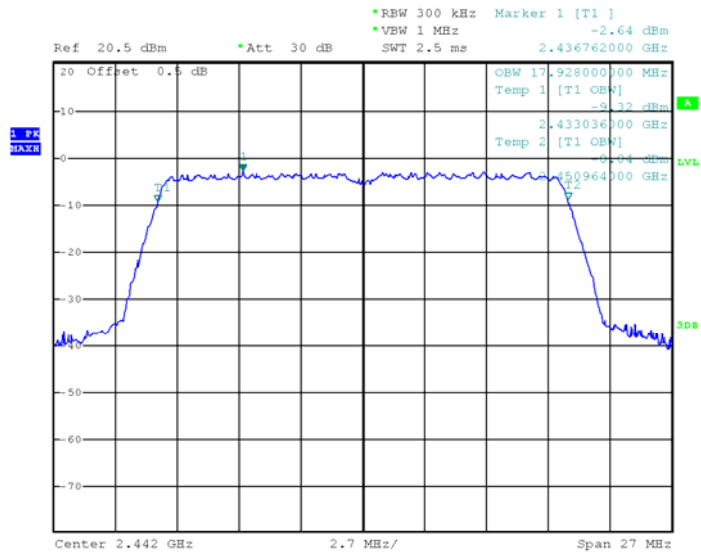
Mode: TX 11g channel 11



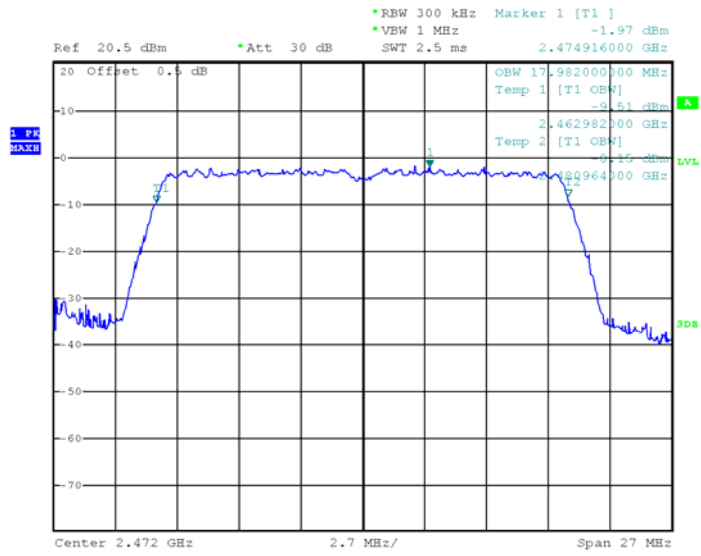
Mode: TX 11n HT20 channel 1



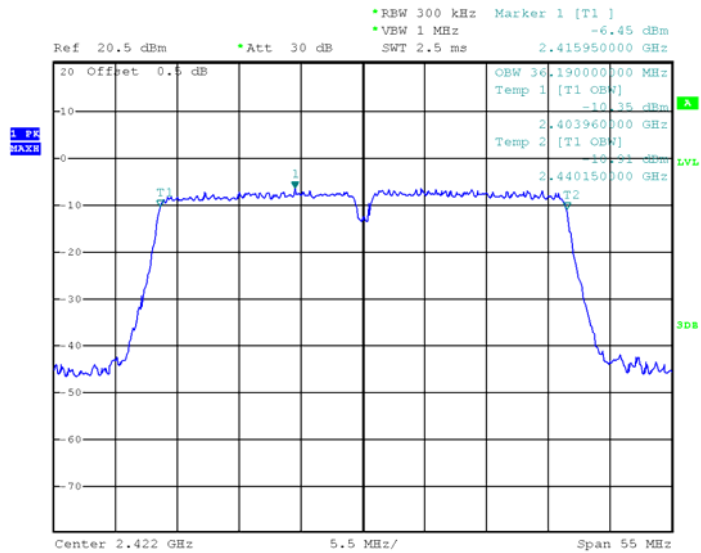
Mode: TX 11n HT20 channel 6



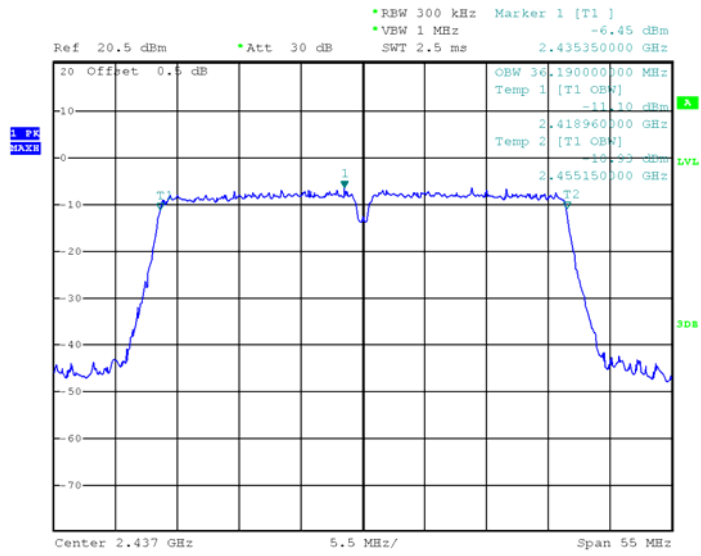
Mode: TX 11n HT20 channel 11



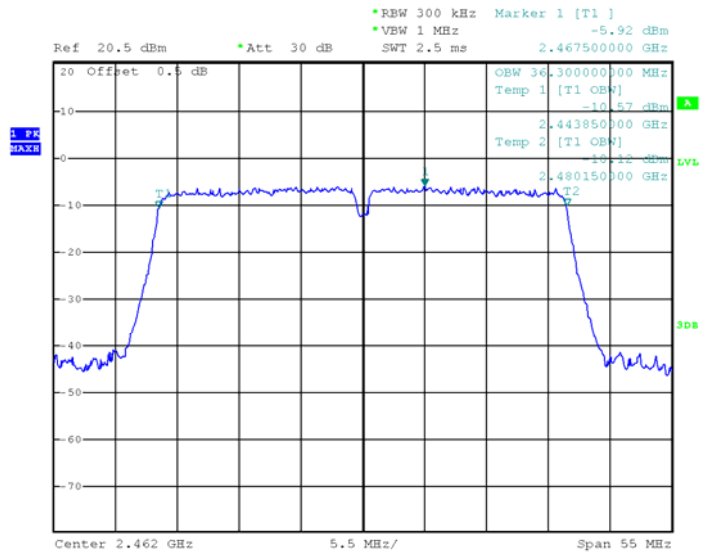
Mode: TX 11n HT40 channel 3



Mode: TX 11n HT40 channel 6

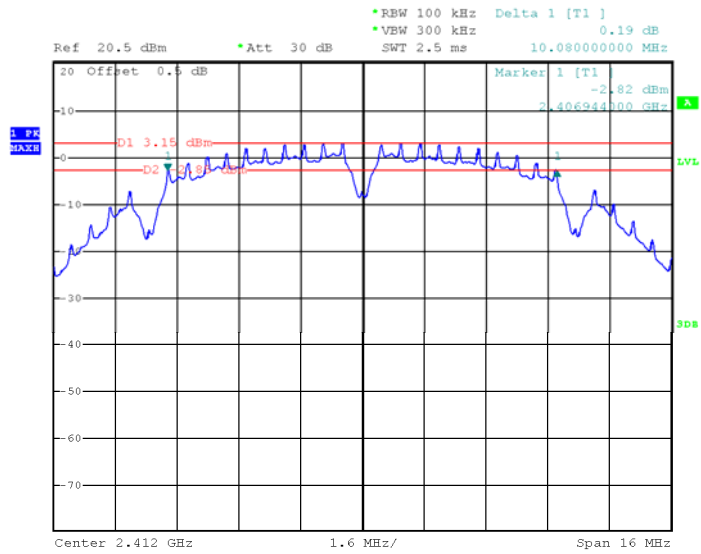


Mode: TX 11n HT40 channel 9

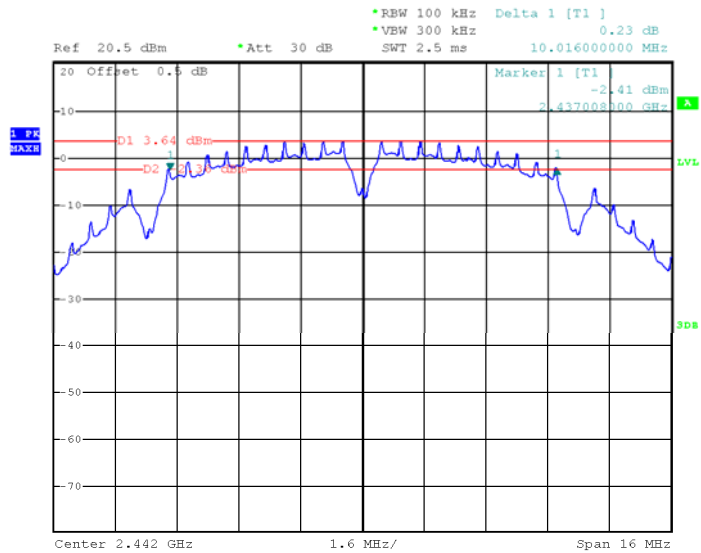


Antenna 1

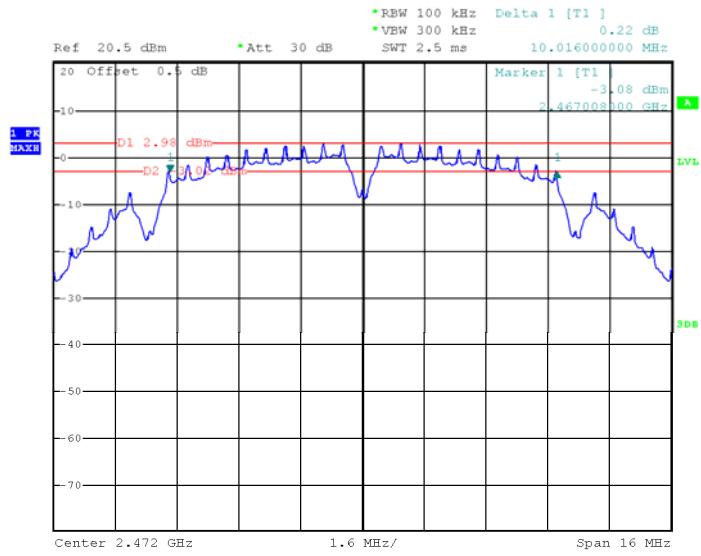
Mode: TX 11b channel 1



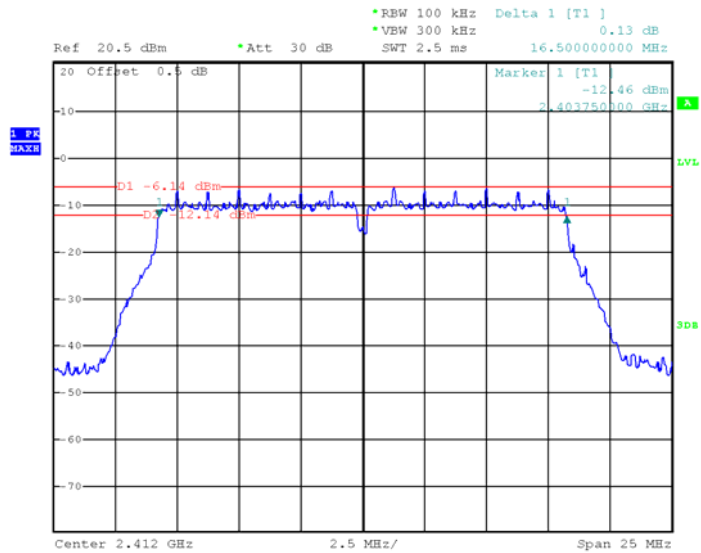
Mode: TX 11b channel 6



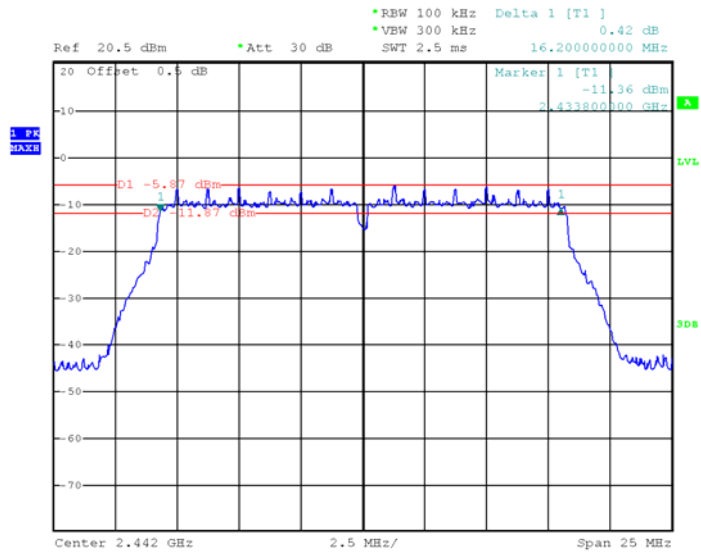
Mode: TX 11b channel 11



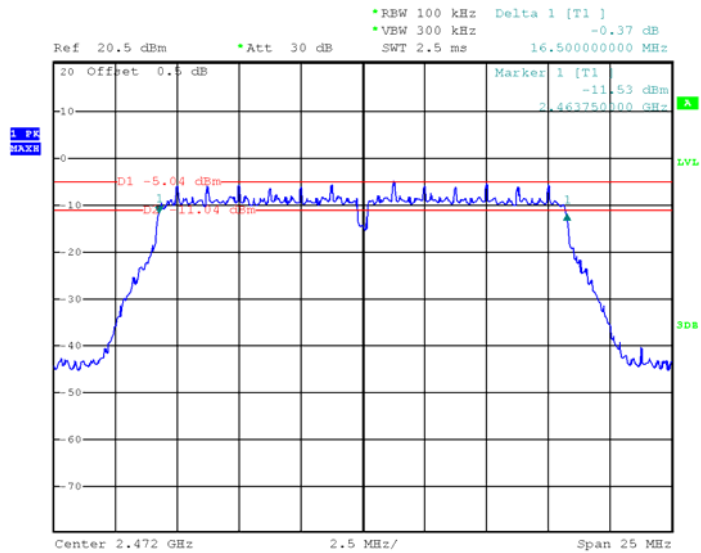
Mode: TX 11g channel 1



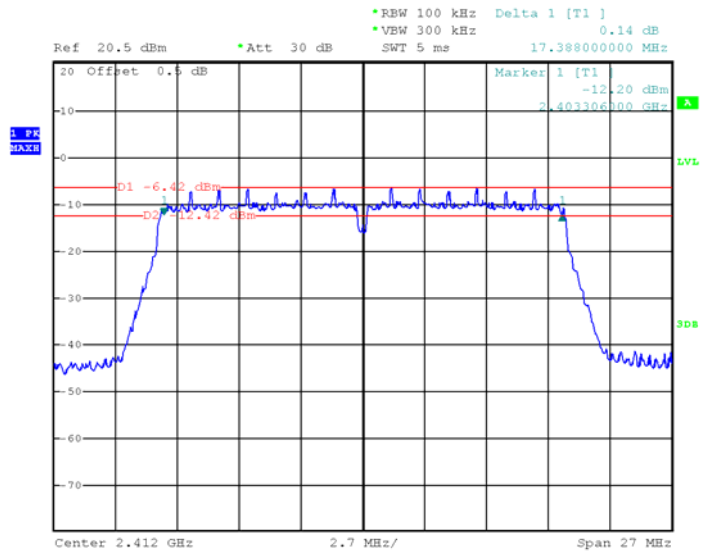
Mode: TX 11g channel 6



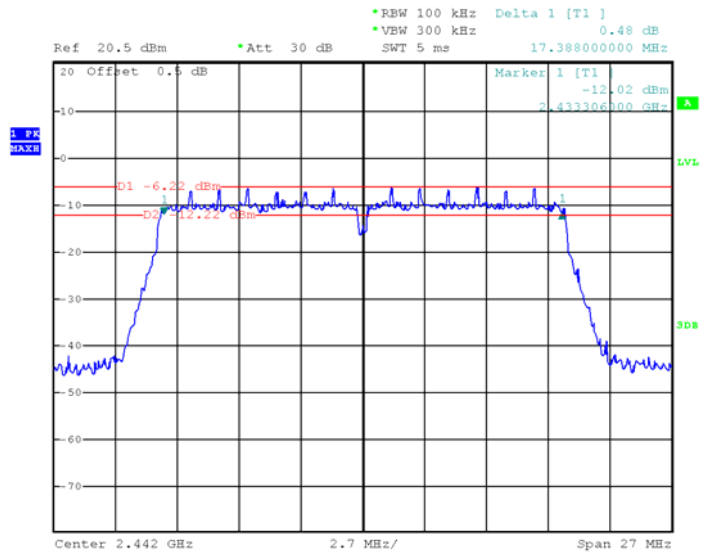
Mode: TX 11g channel 11



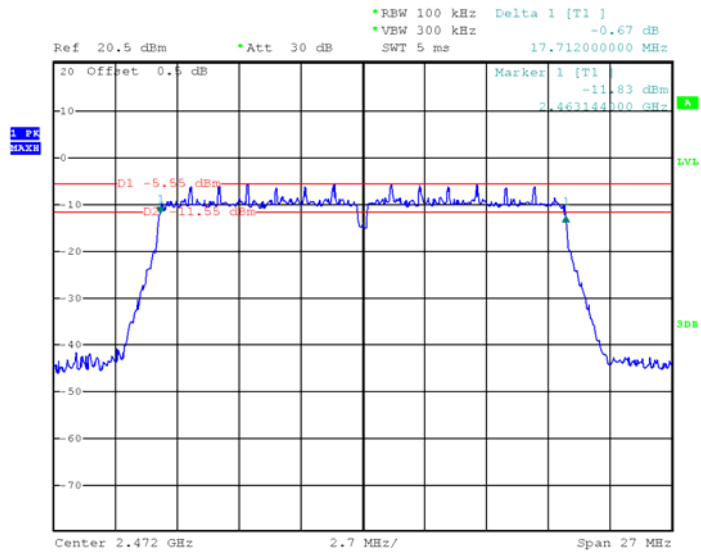
Mode: TX 11n HT20 channel 1



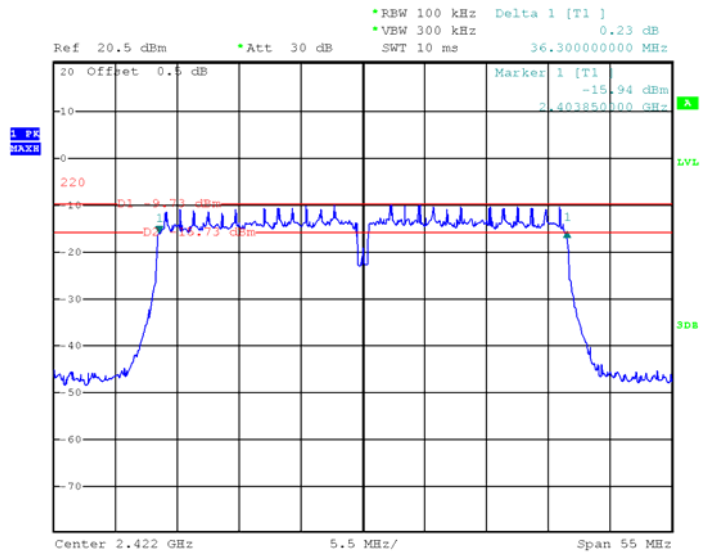
Mode: TX 11n HT20 channel 6



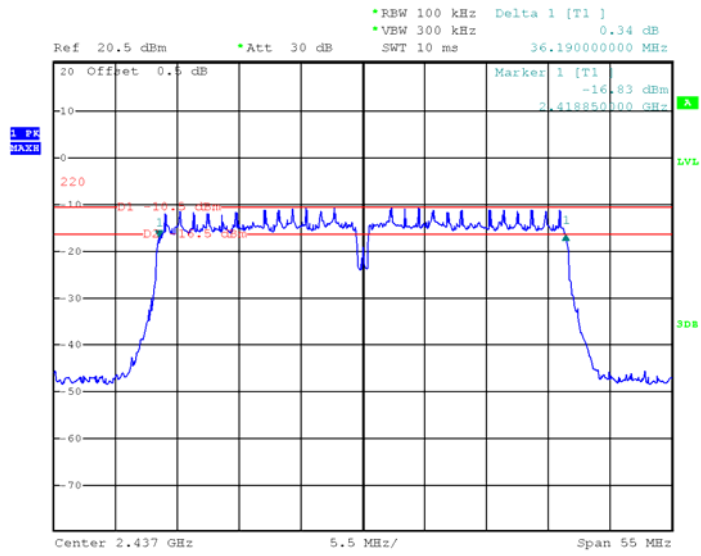
Mode: TX 11n HT20 channel 11



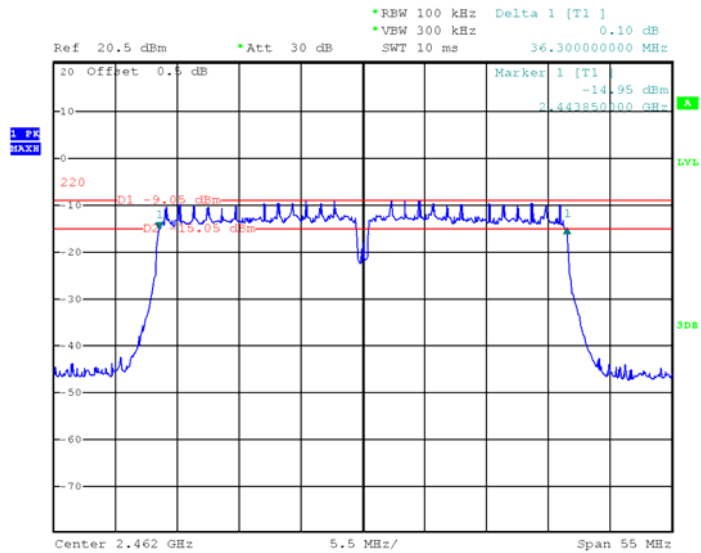
Mode: TX 11n HT40 channel 3



Mode: TX 11n HT40 channel 6

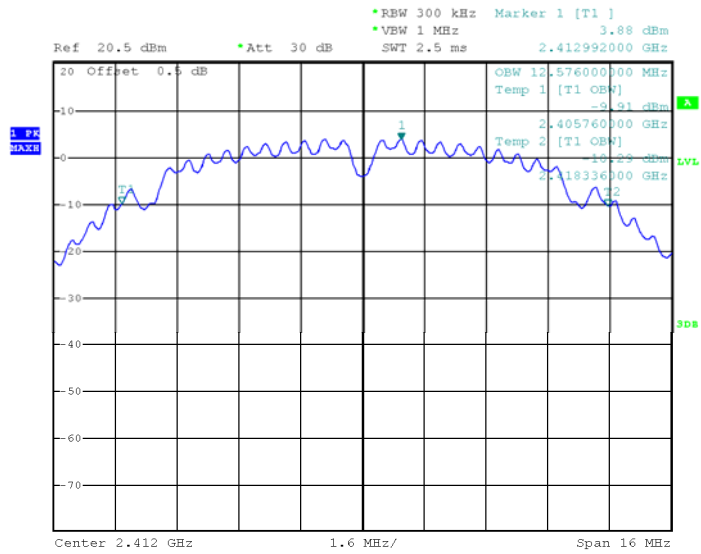


Mode: TX 11n HT40 channel 9

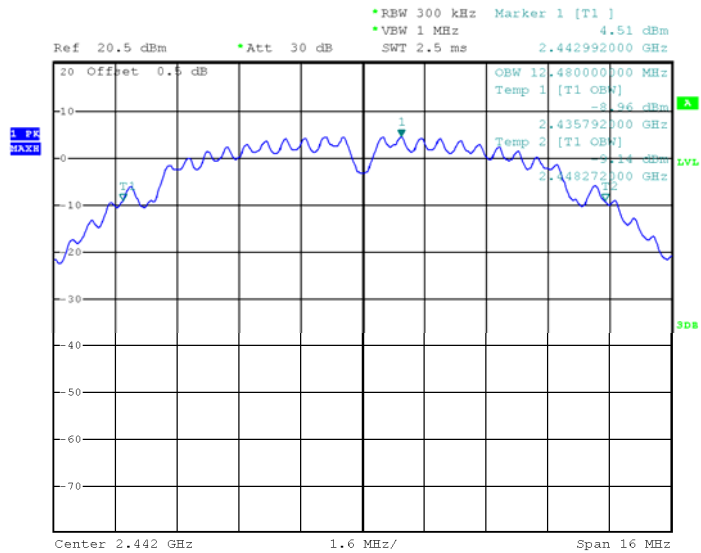


99% Bandwidth

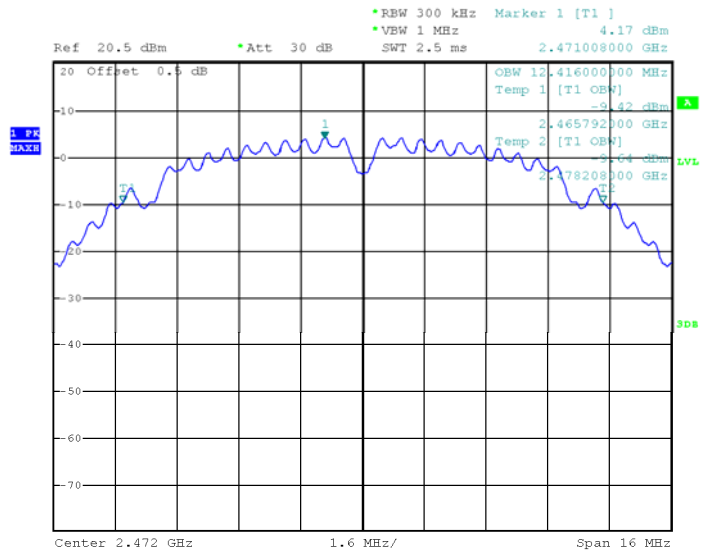
Mode: TX 11b channel 1



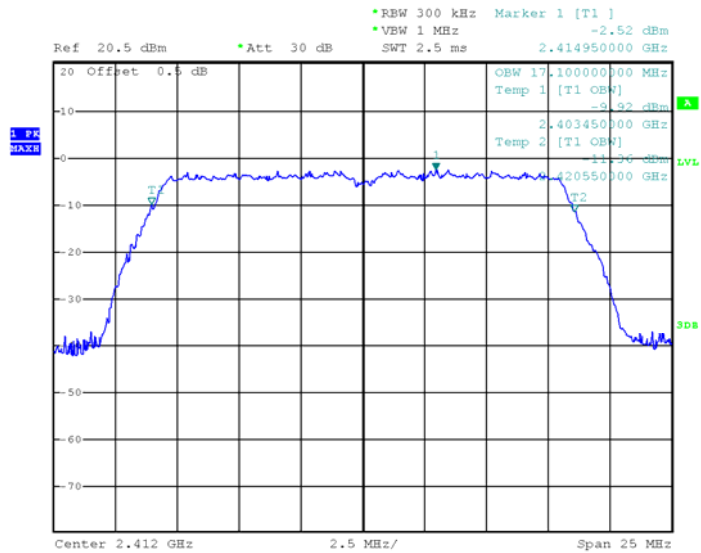
Mode: TX 11b channel 6



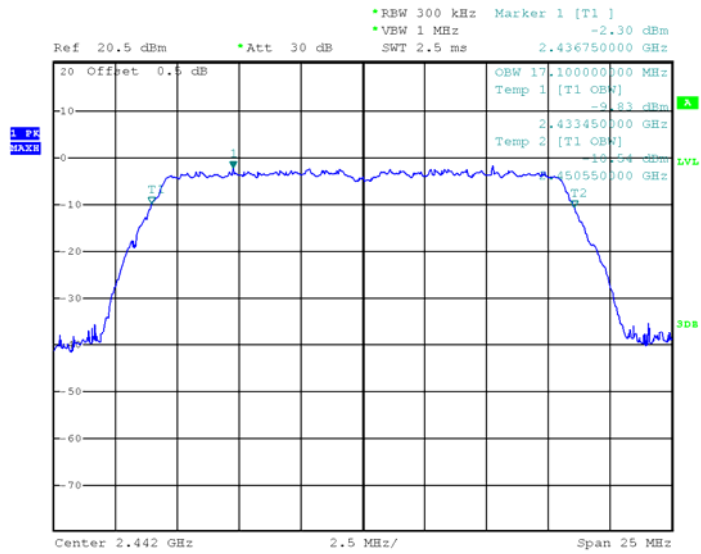
Mode: TX 11b channel 11



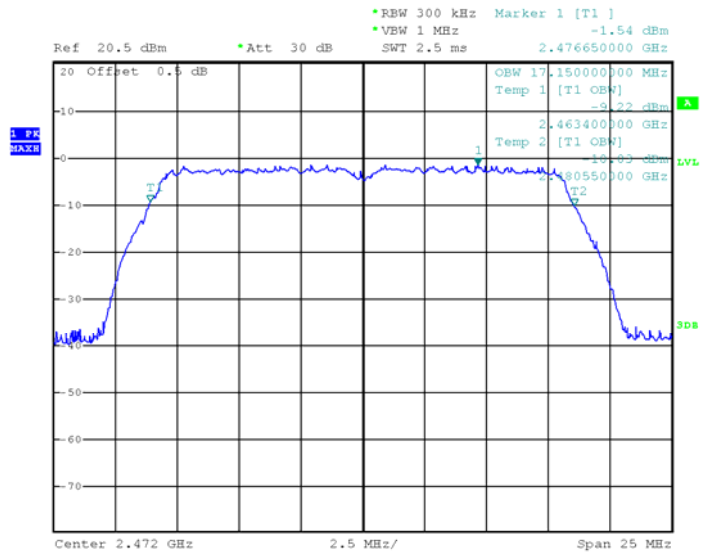
Mode: TX 11g channel 1



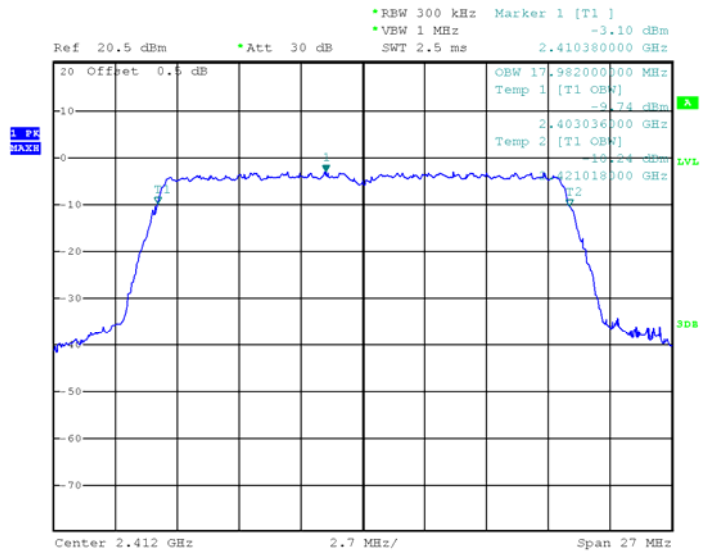
Mode: TX 11g channel 6



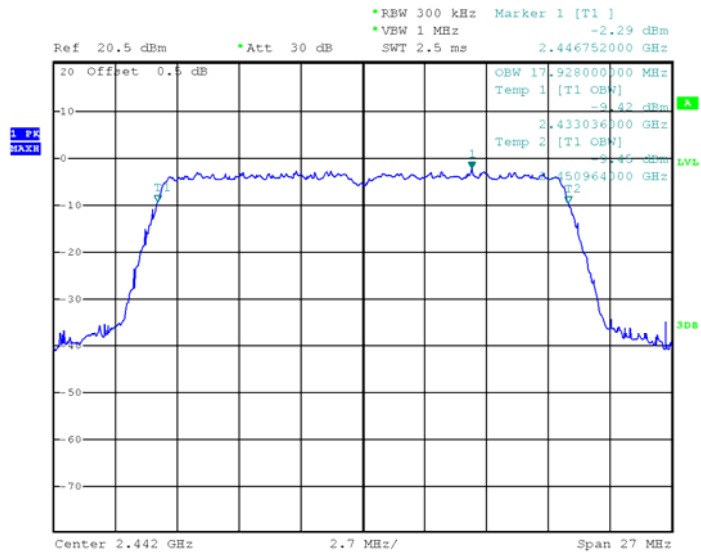
Mode: TX 11g channel 11



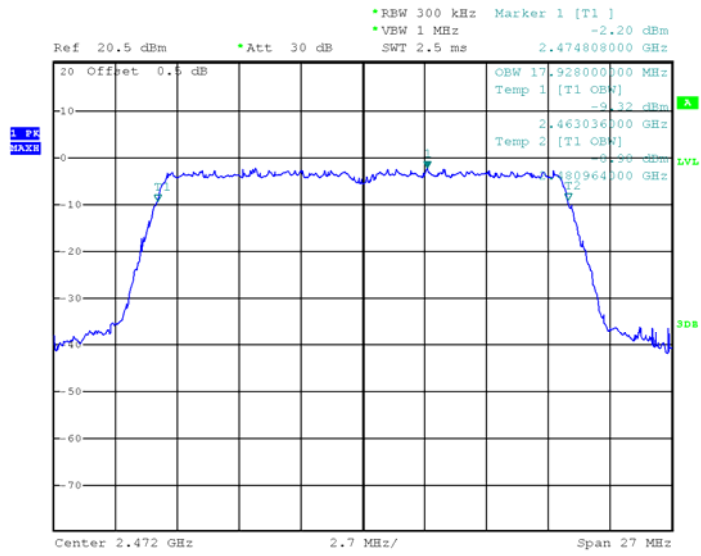
Mode: TX 11n HT20 channel 1



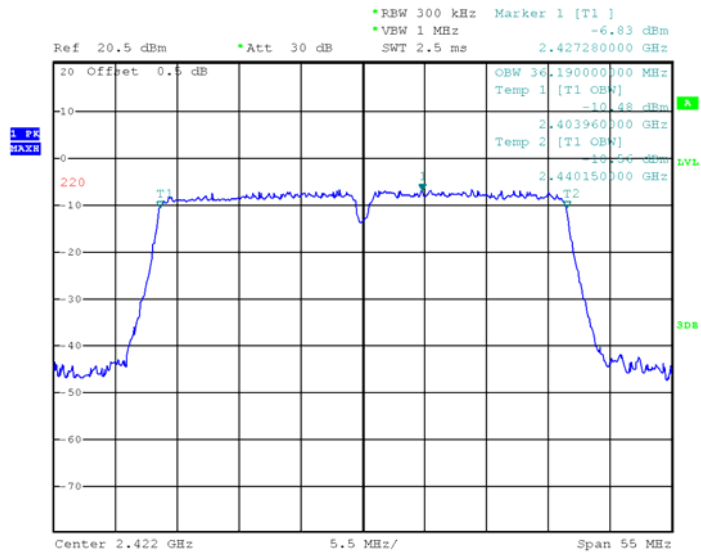
Mode: TX 11n HT20 channel 6



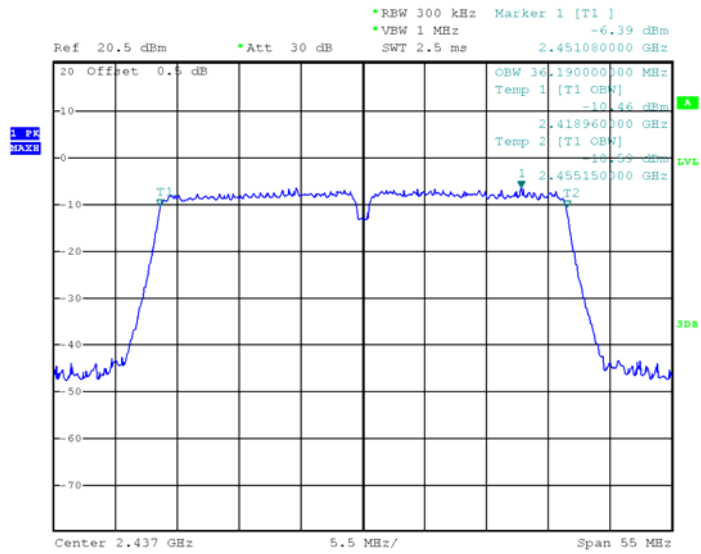
Mode: TX 11n HT20 channel 11



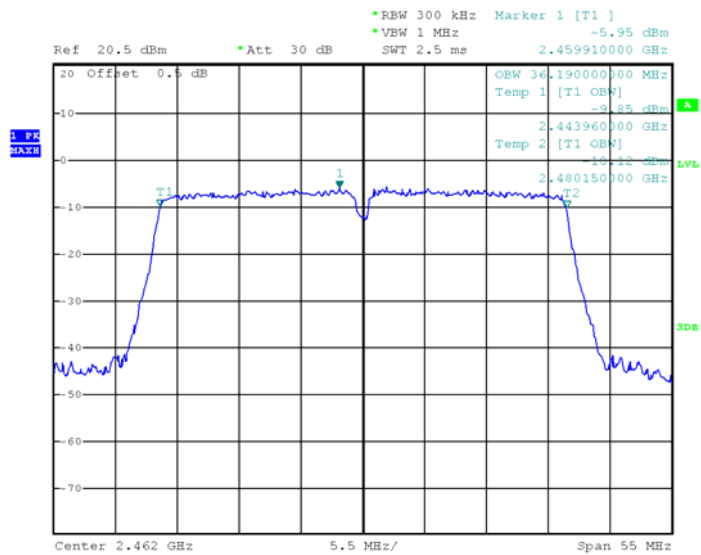
Mode: TX 11n HT40 channel 3



Mode: TX 11n HT40 channel 6



Mode: TX 11n HT40 channel 9



11 Maximum Peak Output Power

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: ANSI C63.10:2013

11.1 Test Procedure:

KDB 558074 D01 15.247 Meas Guidance v05 August 24, 2018

section 8.3.1.2 (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% to 5% of the OBW, not to exceed 1 MHz..

b) Set the VBW $\geq 3 \times$ RBW

c) Set the span $\geq 1.5 \times$ OBW.

d) Detector = RMS.

e) Sweep time = auto couple.

f) trigger = free run..

g) Number of points in sweep $\geq [2 \times \text{span} / \text{RBW}]$. (This gives bin-to-bin spacing $\geq \text{RBW} / 2$, so that narrowband signals are not lost between frequency bins.)

h) Trace average at least 100 traces in power averaging (rms) mode.

i) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function, with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum..

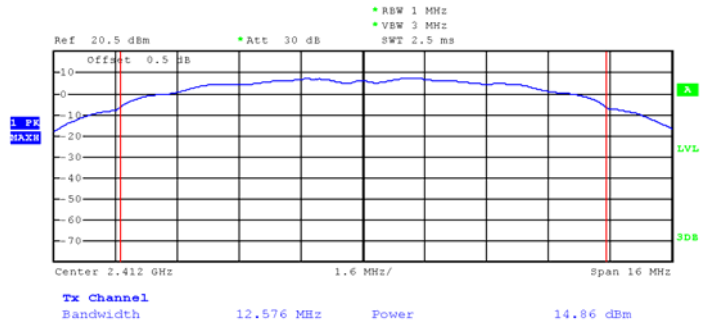
11.2 Test Result:

Operation mode	Channel Frequency (MHz)	Maximum Peak Output Power (dBm)		
		ANT0	ANT1	Total
TX 11b	Low-2412	14.86	14.39	17.64
	Middle-2437	14.97	14.70	17.85
	High-2462	14.46	14.25	17.37
TX 11g	Low-2412	12.70	12.73	15.73
	Middle-2437	12.69	12.88	15.80
	High-2462	12.95	12.25	15.62
TX 11n HT20	Low-2412	12.36	12.74	15.56
	Middle-2437	12.57	12.55	15.57
	High-2462	12.10	12.93	15.55
TX 11n HT40	Low-2422	12.23	12.39	15.32
	Middle-2437	12.56	12.59	15.59
	High-2452	12.13	12.44	15.30
Limit: 1W/30dBm				

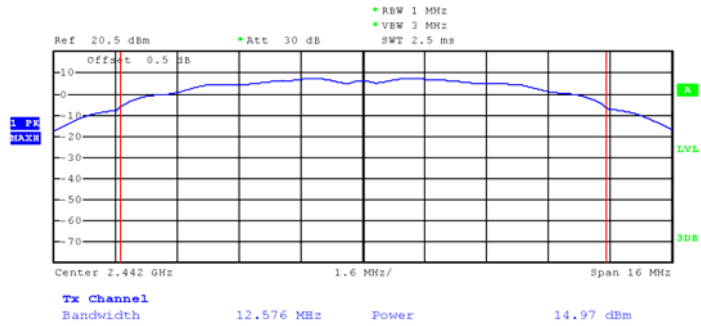
Test Plot

Antenna 0

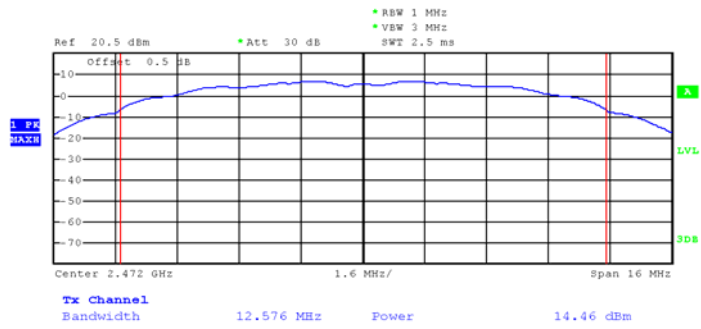
Mode: TX 11b channel 1



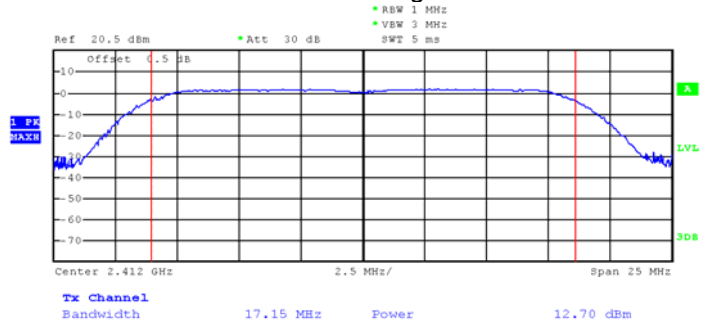
Mode: TX 11b channel 6



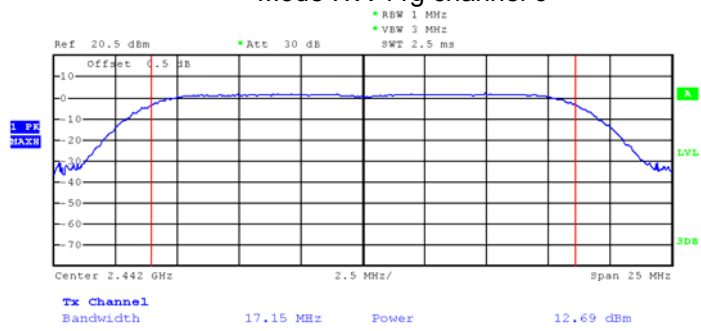
Mode: TX 11b channel 11



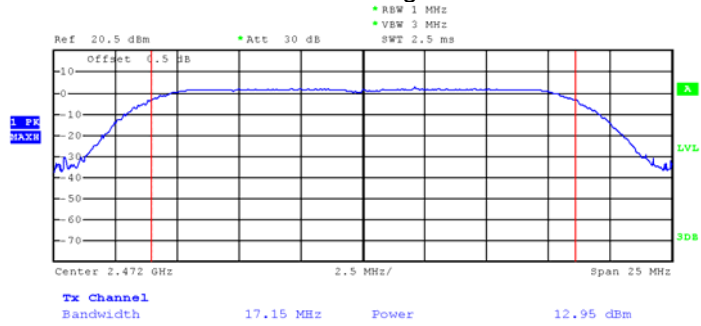
Mode :TX 11g channel 1



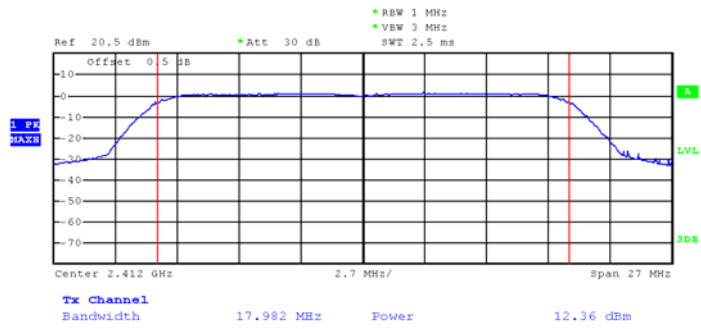
Mode :TX 11g channel 6



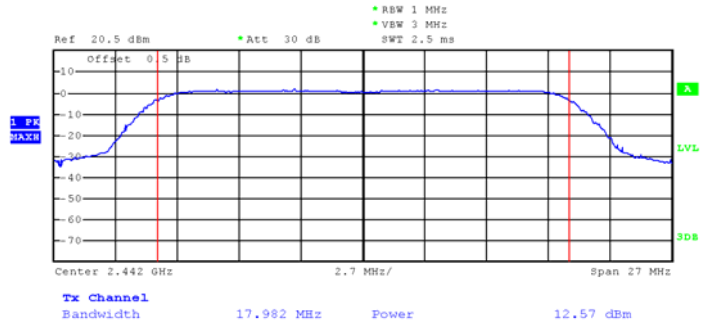
Mode :TX 11g channel 11



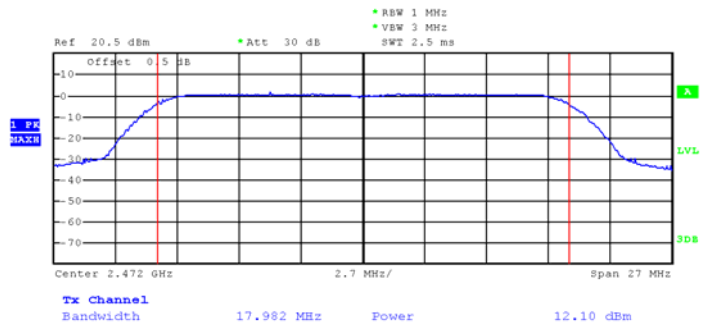
Mode: TX 11n HT20 channel 1



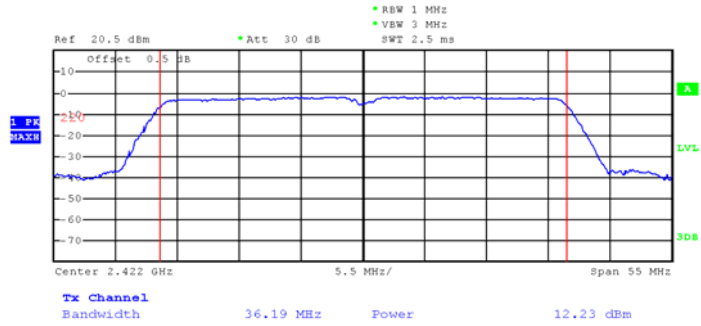
Mode: TX 11n HT20 channel 6



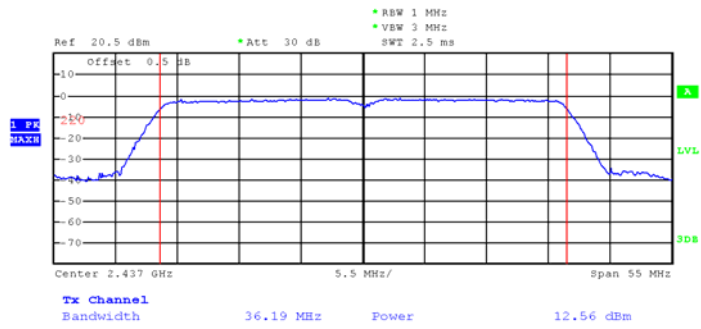
Mode: TX 11n HT20 channel 11



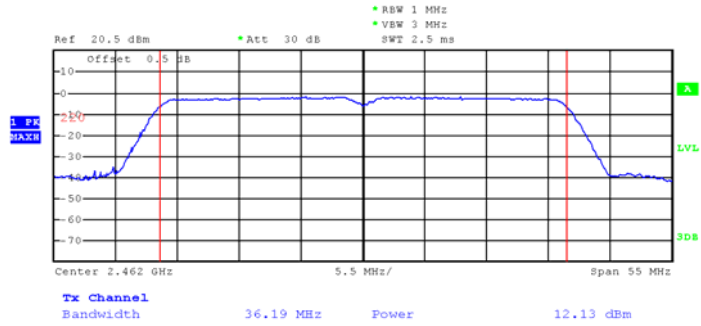
Mode: TX 11n HT40 channel 3



Mode: TX 11n HT40 channel 6

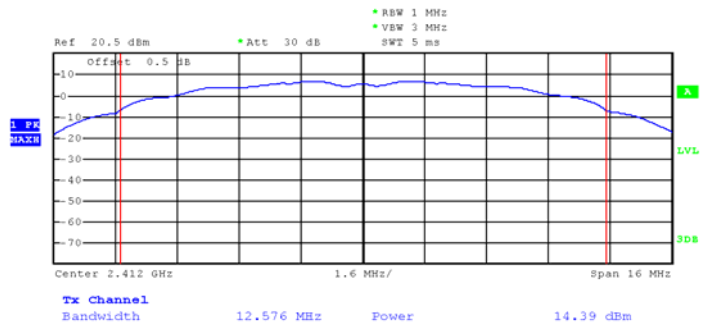


Mode: TX 11n HT40 channel 9

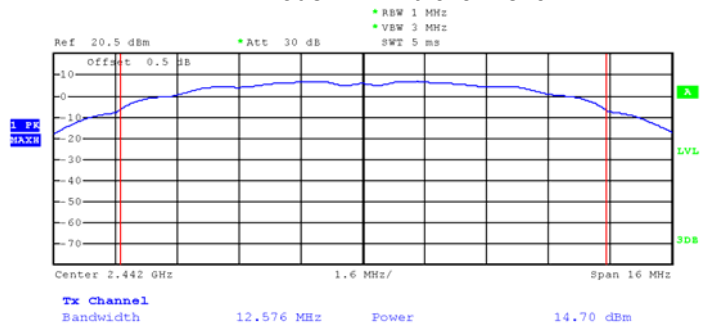


Antenna 1

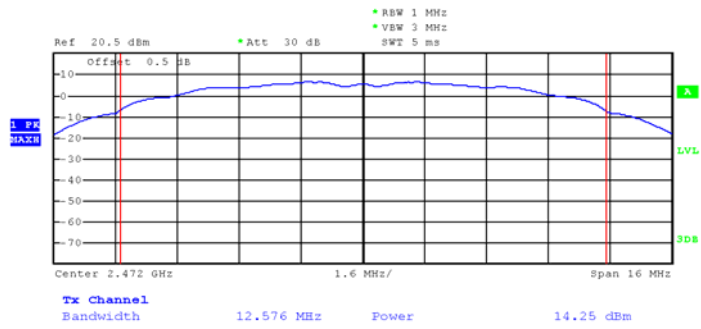
Mode: TX 11b channel 1



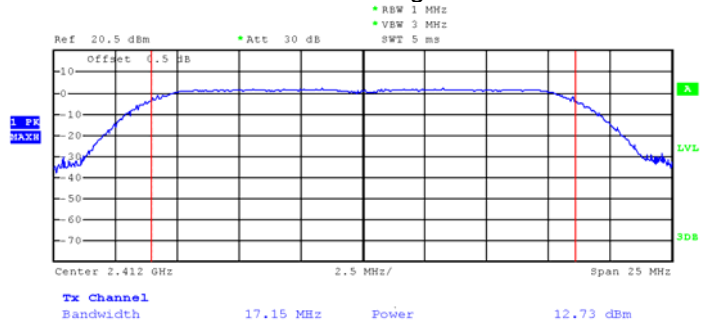
Mode: TX 11b channel 6



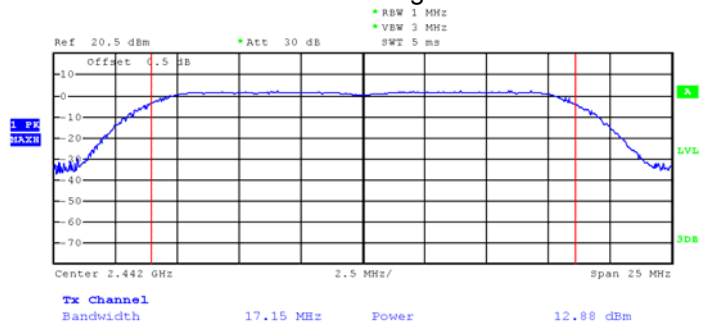
Mode: TX 11b channel 11



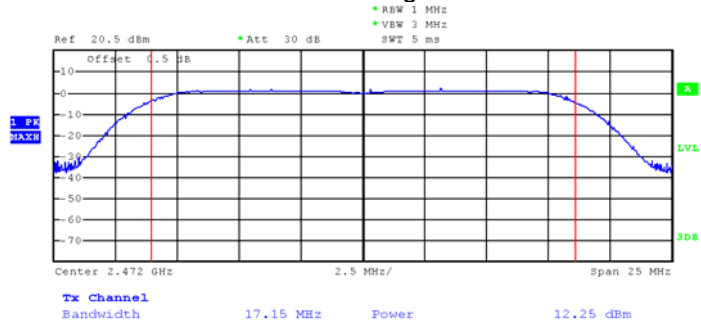
Mode :TX 11g channel 1



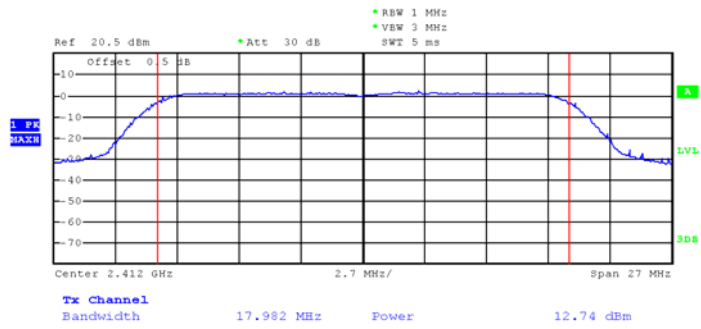
Mode :TX 11g channel 6



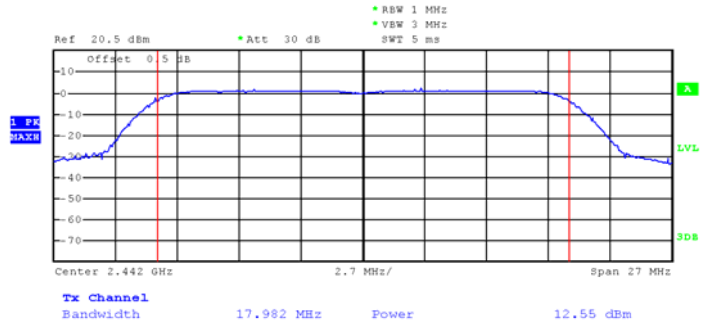
Mode :TX 11g channel 11



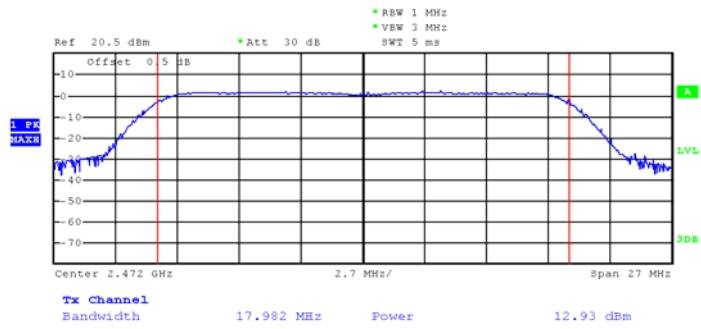
Mode: TX 11n HT20 channel 1



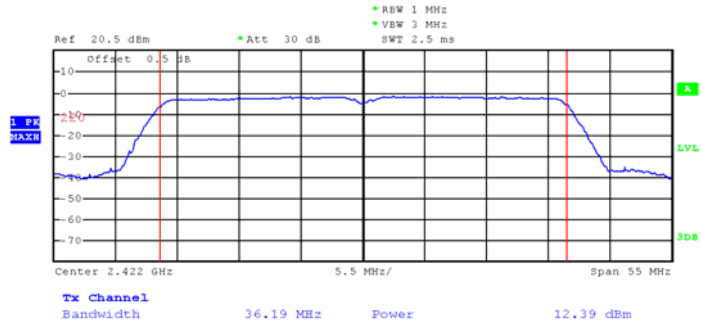
Mode: TX 11n HT20 channel 6



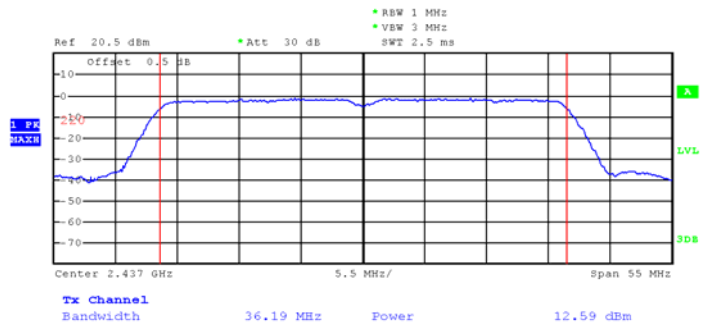
Mode: TX 11n HT20 channel 11



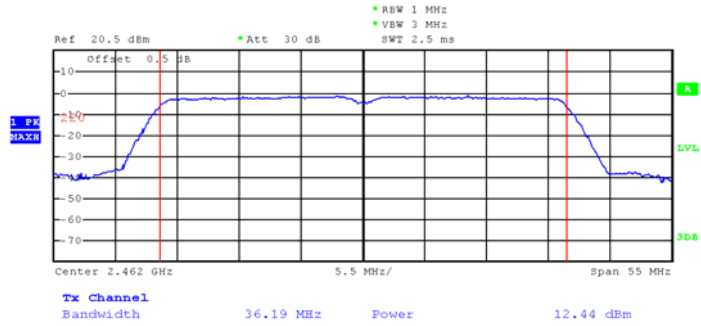
Mode: TX 11n HT40 channel 3



Mode: TX 11n HT40 channel 6



Mode: TX 11n HT40 channel 9



12 Power Spectral density

Test Requirement: FCC CFR47 Part 15 Section 15.247

Test Method: ANSI C63.10:2013

12.1 Test Procedure:

KDB 558074 D01 15.247 Meas Guidance v05 August 24, 2018 section 10.2

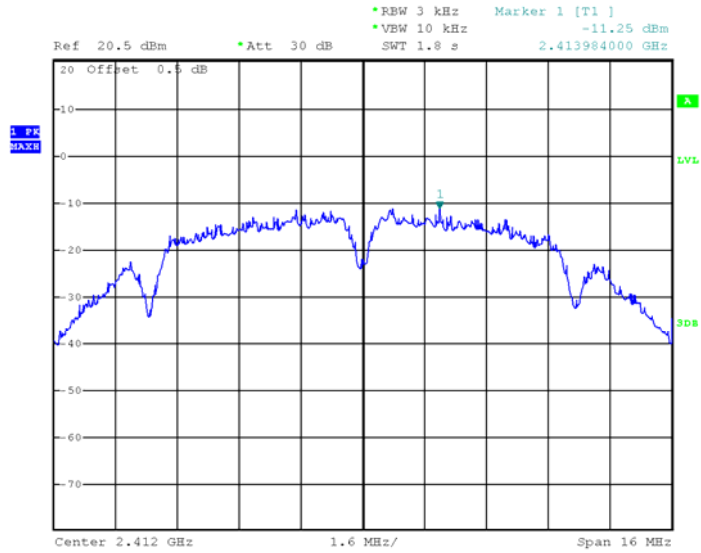
1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 3kHz. VBW = 10kHz , Span = 1.5 times the DTS channel bandwidth(6 dB bandwidth). Sweep = auto; Detector Function = Peak. Trace = Max hold.
3. Allow the trace to 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.

12.2 Test Result:

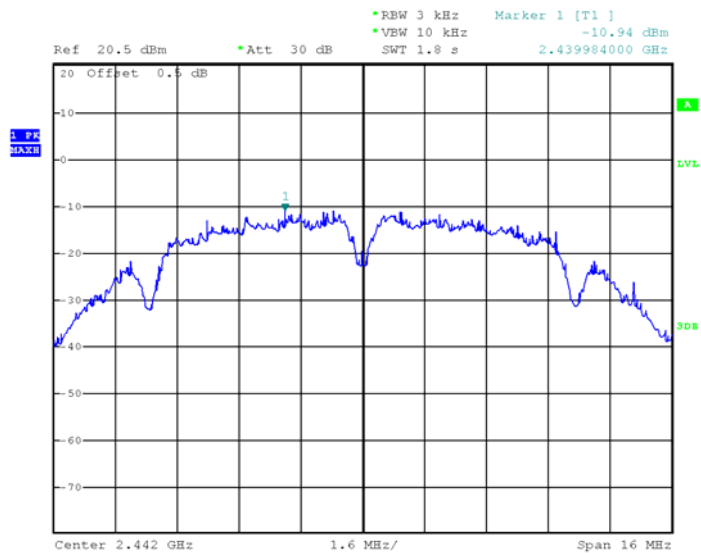
Operation mode	Channel Frequency (MHz)	Power Spectral density (dBm)		
		ANT0	ANT1	Total
TX 11b	Low-2412	-11.25	-11.18	-8.20
	Middle-2437	-10.94	-10.89	-7.90
	High-2462	-10.99	-10.45	-7.70
TX 11g	Low-2412	-21.35	-20.5	-17.89
	Middle-2437	-20.67	-20.17	-17.40
	High-2462	-19.17	-20.28	-16.68
TX 11n HT20	Low-2412	-22.03	-20.22	-18.02
	Middle-2437	-21.34	-20.09	-17.66
	High-2462	-20.41	-21.1	-17.73
TX 11n HT40	Low-2422	-23.52	-23.88	-20.69
	Middle-2437	-24.15	-23.57	-20.84
	High-2452	-23.09	-23.41	-20.24
Limit: 1W/30dBm				

Test Plot

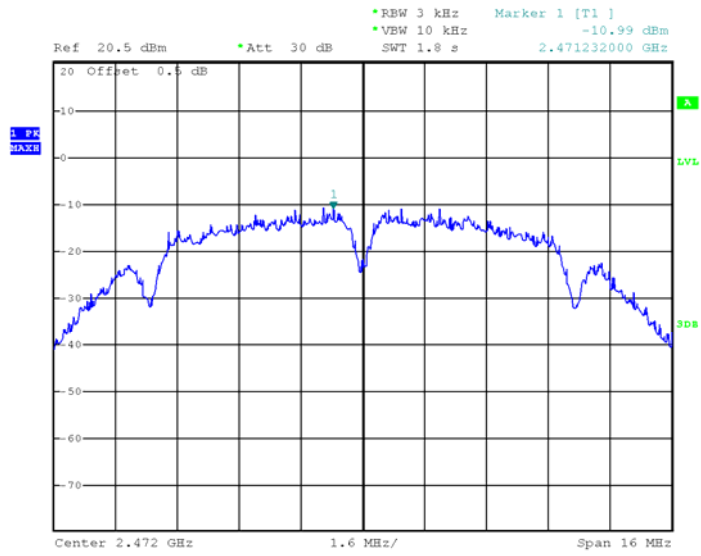
Antenna 0
Mode: TX 11b channel 1



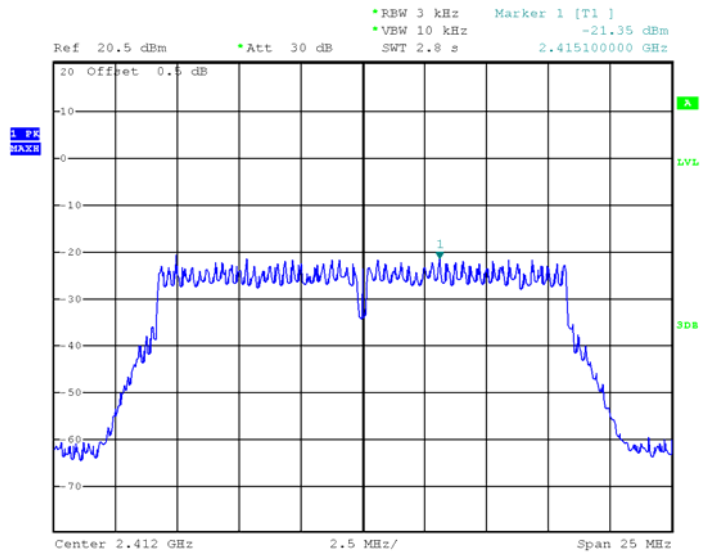
Mode: TX 11b channel 6



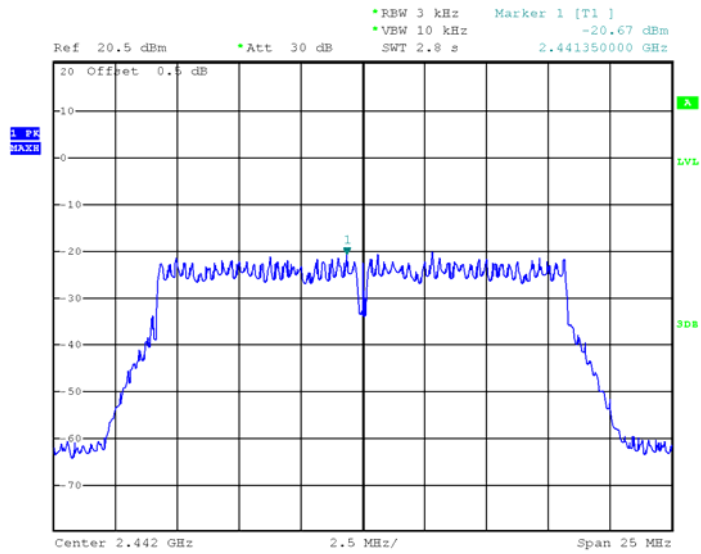
Mode: TX 11b channel 11



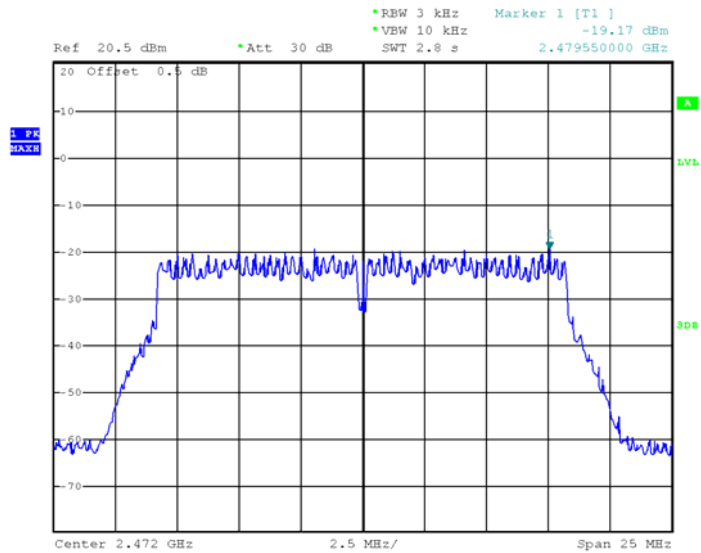
Mode :TX 11g channel 1



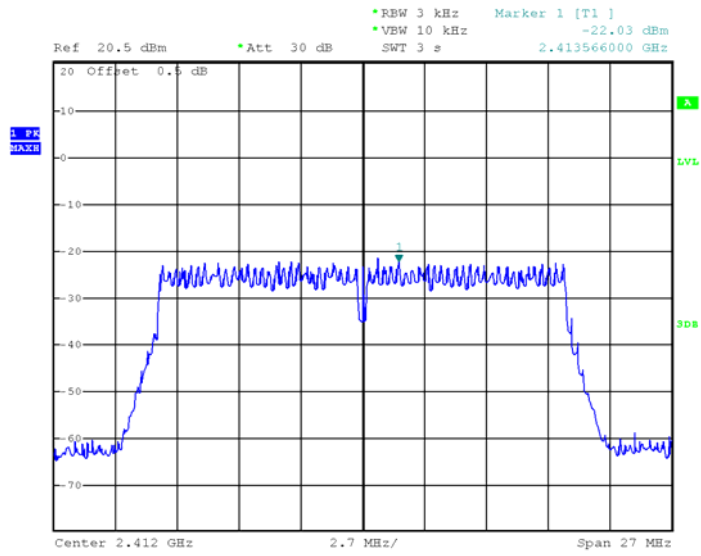
Mode :TX 11g channel 6



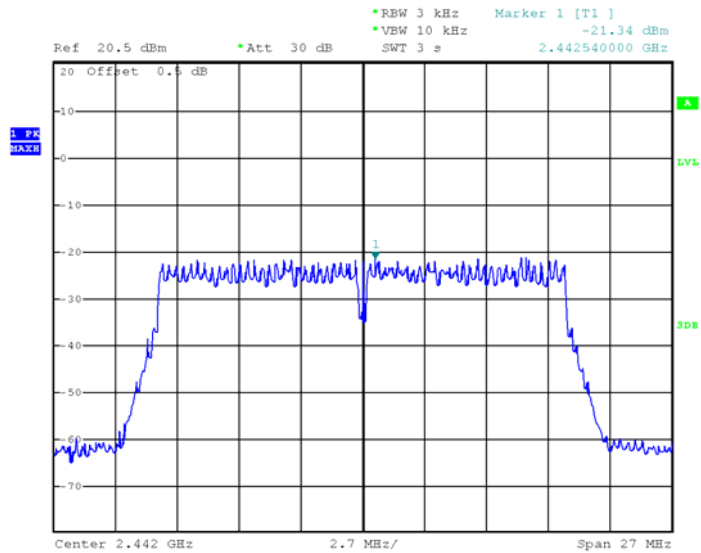
Mode :TX 11g channel 11



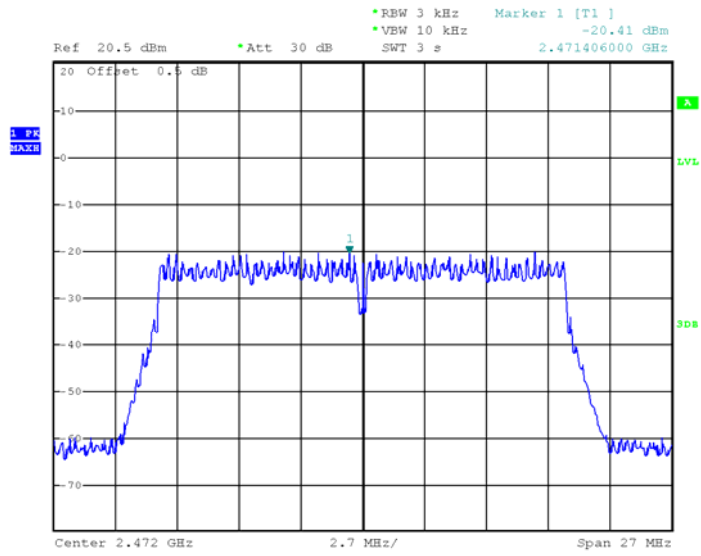
Mode: TX 11n HT20 channel 1



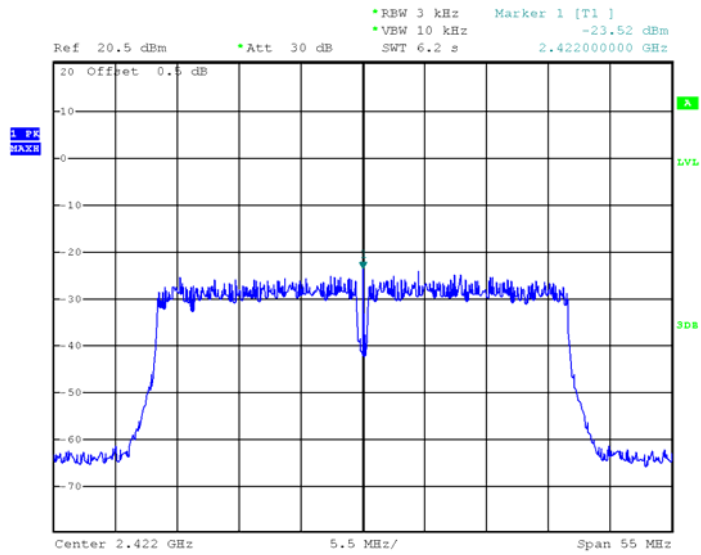
Mode: TX 11n HT20 channel 6



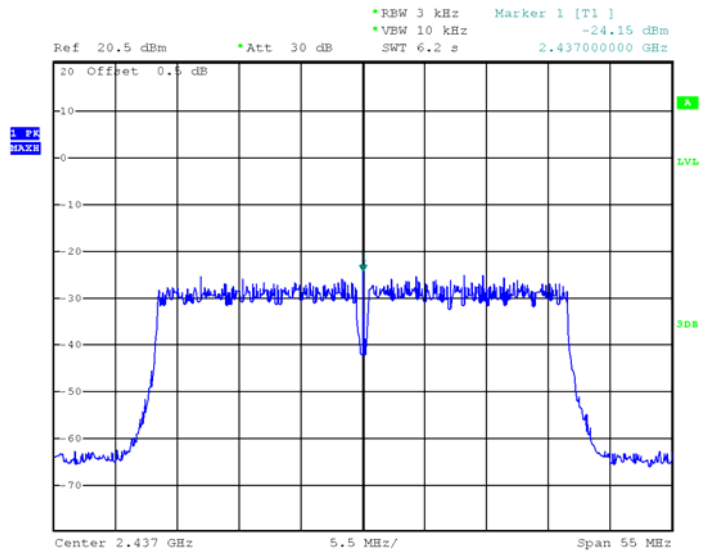
Mode: TX 11n HT20 channel 11



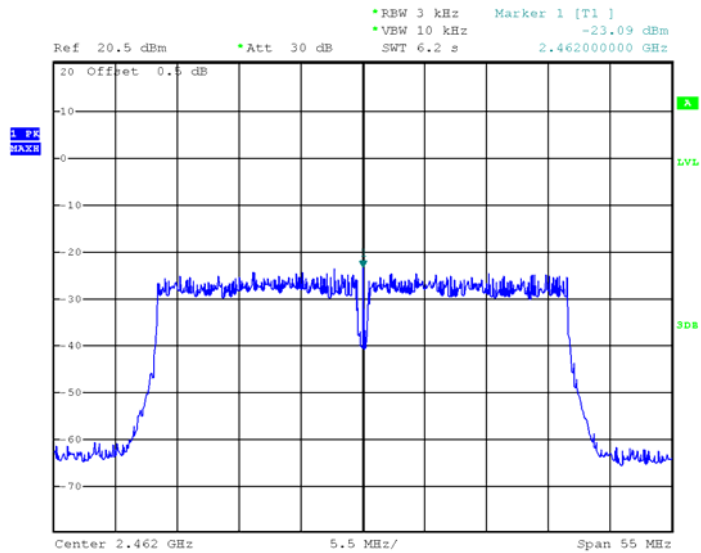
Mode: TX 11n HT40 channel 3



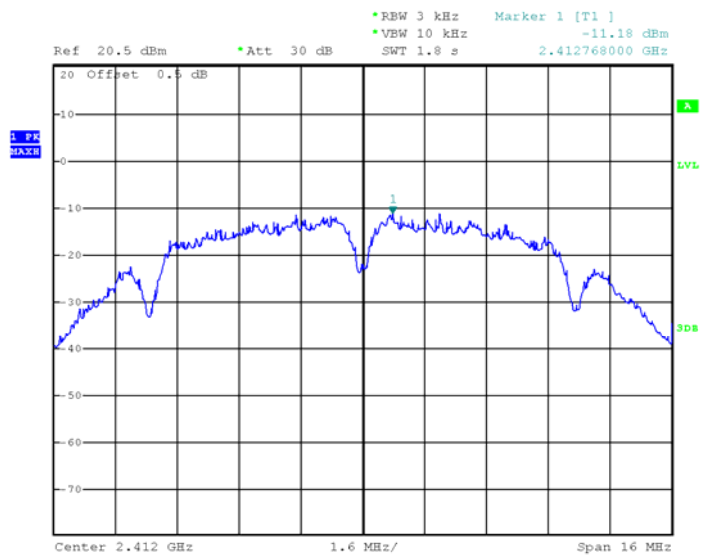
Mode: TX 11n HT40 channel 6



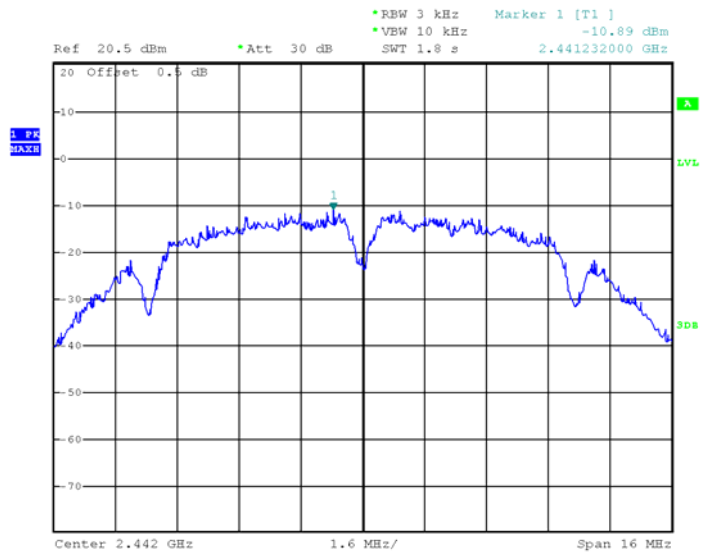
Mode: TX 11n HT40 channel 9



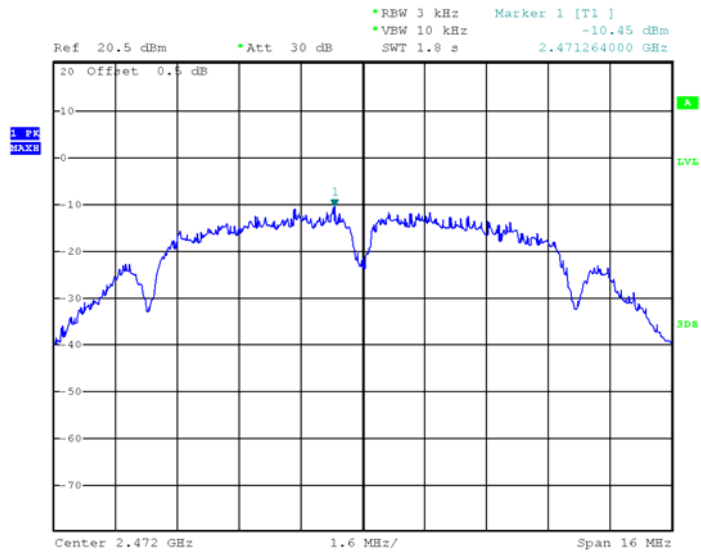
Antenna 1 Mode: TX 11b channel 1



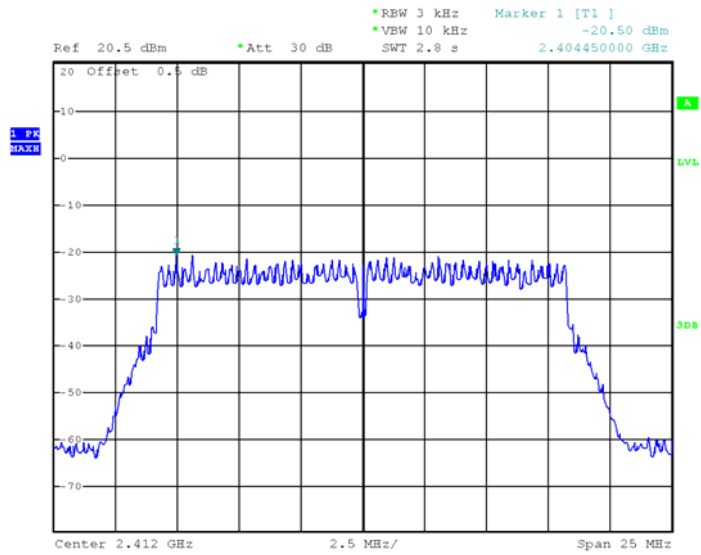
Mode: TX 11b channel 6



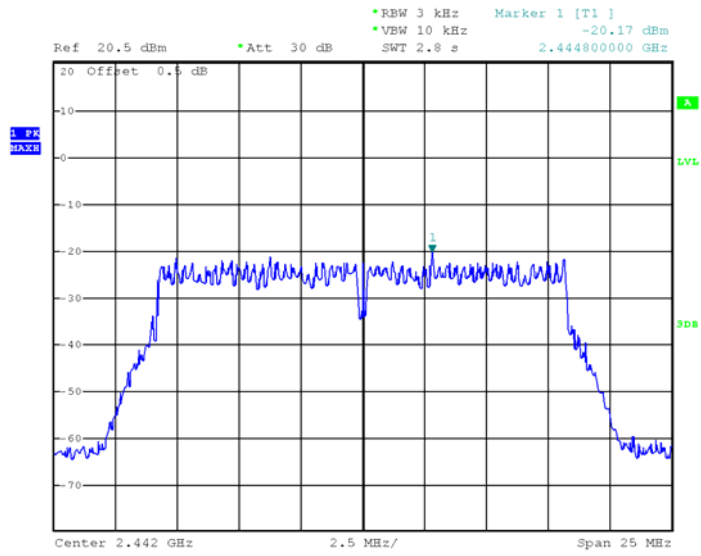
Mode: TX 11b channel 11



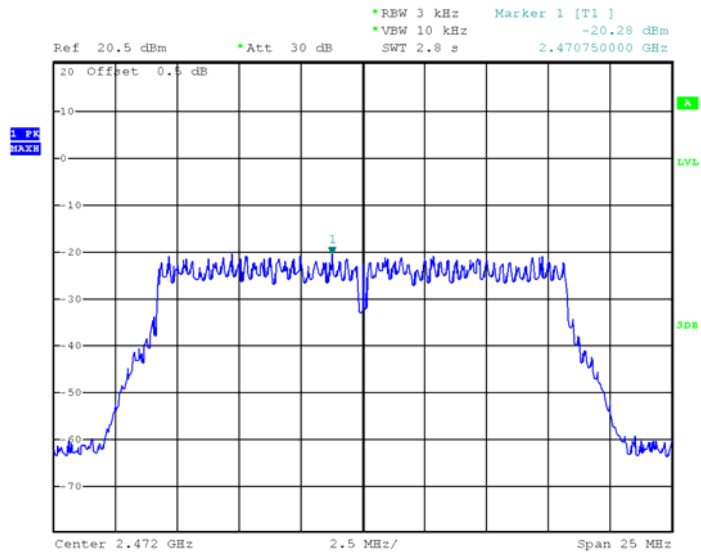
Mode :TX 11g channel 1



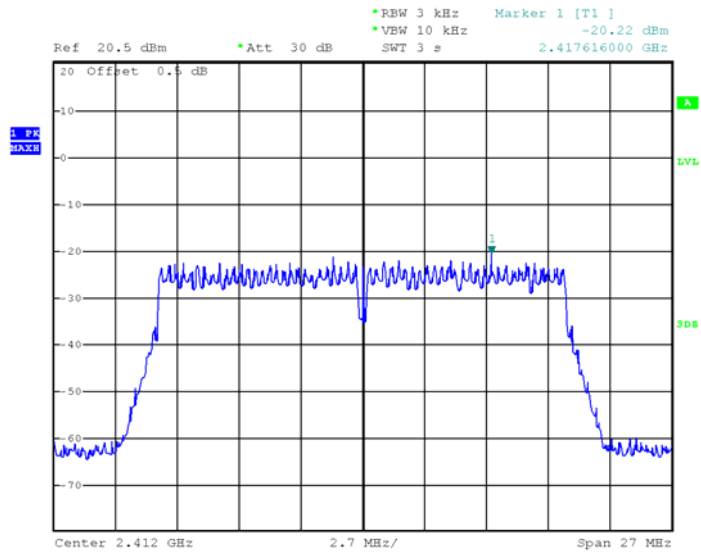
Mode :TX 11g channel 6



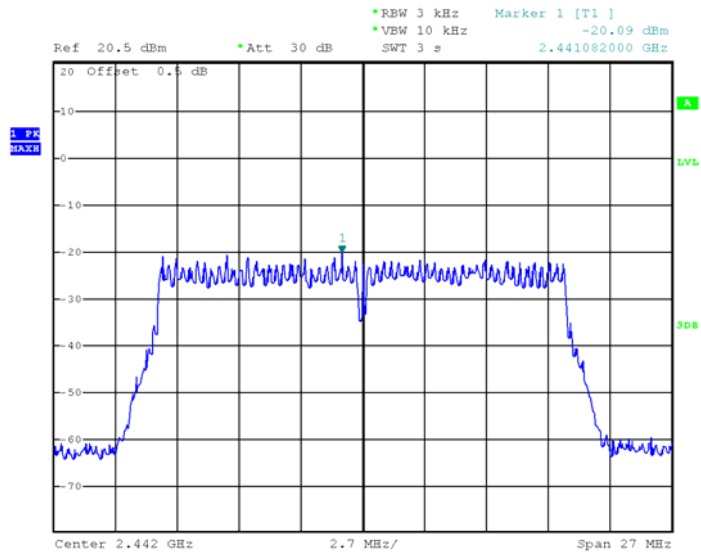
Mode :TX 11g channel 11



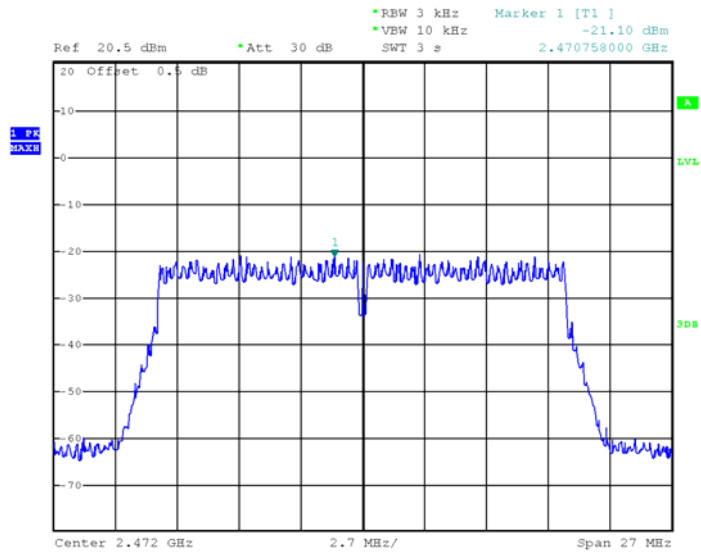
Mode: TX 11n HT20 channel 1



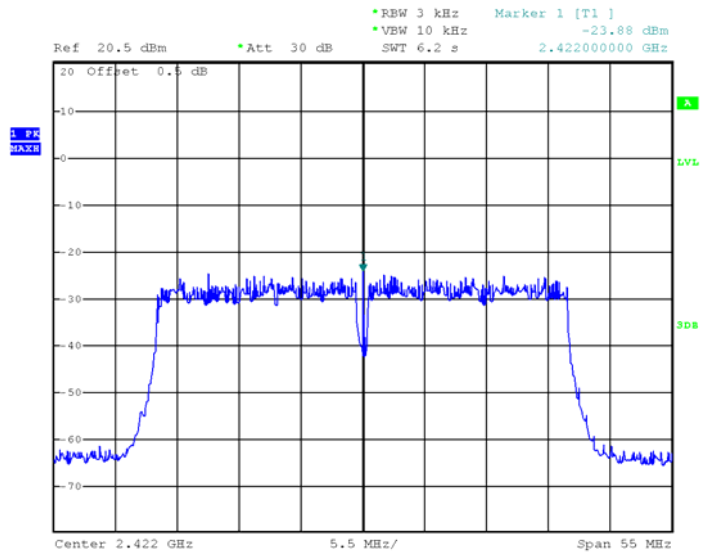
Mode: TX 11n HT20 channel 6



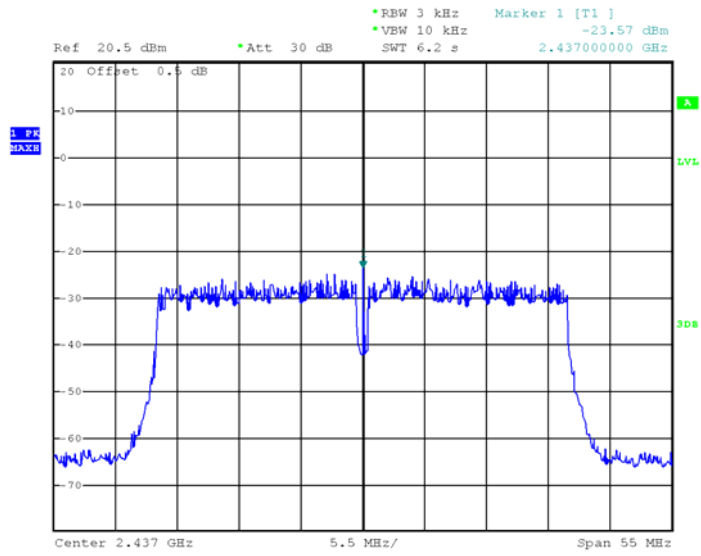
Mode: TX 11n HT20 channel 11



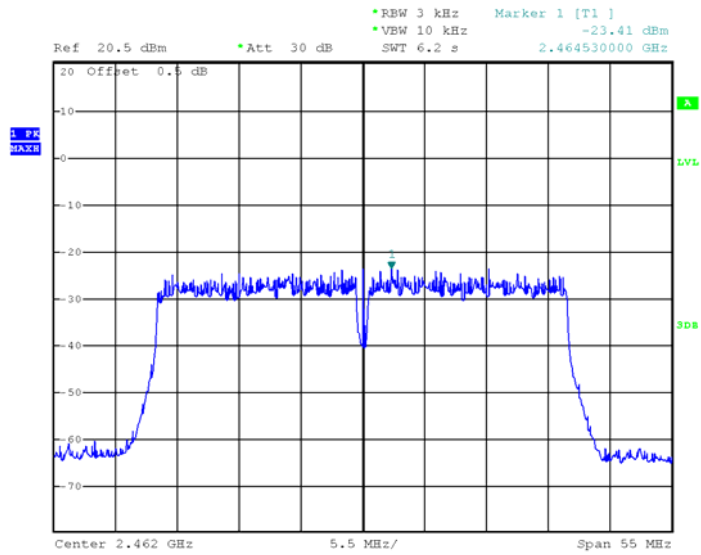
Mode: TX 11n HT40 channel 3



Mode: TX 11n HT40 channel 6



Mode: TX 11n HT40 channel 9



13 Antenna Requirement

According to the FCC Part 15 Paragraph 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. This product has an integrated antenna fulfill the requirement of this section.

14 RF Exposure

Remark: refer to MPE report: WTS20S05031125W002.

15 Photographs of test setup and EUT.

Note: Please refer to appendix: Appendix-EG2013B-M11-Photos.

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