Radio Frequency

TEST REPORT

Report No.: **170400062TWN-001**

Model No.: **SmartPlug SP-A-PH**

Issued Date: **May 02, 2017**

Applicant: **Cortex Technologies Corporation**
KM 20 East Service Road Cupang Muntinlupa, 1771 Philippines

Test Method/ Standard: **47 CFR FCC Part 15.247 & ANSI C63.10 2013**
KDB 558074 D01 v04
KDB 662911 D01 v02r01

Registration No.: **911880**

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Revision History

Report No.	Issue Date	Revision Summary
170400062TWN-001	May 05, 2017	Original report

Table of Contents

1. Summary of Test Data 5

2. General Information 6
2.1 Identification of the EUT 6
2.2 Antenna description 6
2.3 Peripherals equipment 6
2.4 Operation mode 7
2.5 Applied test modes and channels 8
2.6 Power setting of test software 9

3. Minimum 6 dB Bandwidth 12
3.1 Operating environment 12
3.2 Limit for minimum 6dB bandwidth 12
3.3 Measuring instrument setting 12
3.4 Test procedure 12
3.5 Test diagram 13
3.6 Test results 13

4. Maximum Peak Conducted Output Power 19
4.1 Operating environment 19
4.2 Limit for maximum peak conducted output power 19
4.3 Measuring instrument setting 19
4.4 Test procedure 19
4.5 Test diagram 19
4.6 Test result 20

5. Power Spectral Density 21
5.1 Operating environment 21
5.2 Limit for power spectrum density 21
5.3 Measuring instrument setting 21
5.4 Test procedure 22
5.5 Test diagram 22
5.6 Test results 22

6. Emissions In Non-Restricted Frequency Bands 28
6.1 Operating environment 28
6.2 Limit for emissions in non-restricted frequency bands 28
6.3 Measuring instruments setting 28
6.4 Test procedure 29
6.5 Test diagram 29

6.6 Test results..... 29

7. Emissions In Restricted Frequency Bands (Radiated emission measurements)..... 39
7.1 Operating environment..... 39
7.2 Limit for emission in restricted frequency bands (Radiated emission measurement)..... 39
7.3 Measuring instrument setting..... 40
7.4 Test procedure..... 41
7.5 Test configuration..... 42
7.5.1 Radiated emission from 9kHz to 30MHz uses Loop Antenna:..... 42
7.5.2 Radiated emission below 1GHz using Bilog Antenna..... 43
7.5.3 Radiated emission above 1GHz using Horn Antenna..... 43
7.6 Test result..... 44
7.6.1 Measurement results: frequencies 9kHz to 30MHz..... 44
7.6.2 Measurement results: frequencies below 1 GHz..... 45
7.6.3 Measurement results: frequency above 1GHz to 25GHz..... 46

8. Emission On Band Edge..... 52
8.1 Operating environment..... 52
8.2 Measuring instrument setting..... 52
8.3 Test procedure..... 52
8.4 Test results..... 53

9. AC Power Line Conducted Emission..... 63
9.1 Operating environment..... 63
9.2 Limit for AC power line conducted emission..... 63
9.3 Measuring instrument setting..... 63
9.4 Test procedure..... 64
9.5 Test diagram..... 64
9.6 Test results..... 65

Appendix A: Test equipment list..... 67

Appendix B: Measurement Uncertainty..... 69

1. Summary of Test Data

Test Requirement	Applicable Rule (Section 15.247)	Result
Minimum 6 dB Bandwidth	15.247(a)(2)	Pass
Maximum Peak Conducted Output Power	15.247(b)(3)	Pass
Power Spectral Density	15.247(e)	Pass
Emissions In Non-Restricted Frequency Bands	15.247(d)	Pass
Emissions In Restricted Frequency Bands (Radiated emission measurements)	15.247(d), 15.205, 15.209	Pass
Emission On The Band Edge	15.247(d), 15.205	Pass
AC Power Line Conducted Emission	15.207	Pass
Antenna Requirement	15.203	Pass

2. General Information

2.1 Identification of the EUT

Product:	SmartPlug
Model No:	SmartPlug SP-A-PH
Operating Frequency:	2412 MHz ~ 2462 MHz
Channel Number:	11 channels
Frequency of Each Channel:	2412+5 k, k＝0 ~ 10
Access scheme:	DSSS, OFDM
Rated Power:	110-220Vac, 50/60Hz
Power Cord:	N/A
Sample Received:	Apr. 10, 2017
Sample condition:	Workable
Test Date(s):	Apr. 10, 2017~ Apr. 25, 2017

Note 1: The test report only allows to be revised within three years from its original issued date unless further standard or the requirement was noticed.
Note 2: When determining the test conclusion, the Measurement Uncertainty of test has been considered.
Note 3: *Except where explicitly agreed in writing, all work and services performed by Intertek is subject to our standard Terms and Conditions which can be obtained at our website:* http://www.intertek-twn.com/terms/ *. Intertek's responsibility and liability are limited to the terms and conditions of the agreement.*

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2.2 Antenna description

The EUT uses a permanently connected antenna.

Antenna Gain:	0.38 dBi
Antenna Type:	Chip Antenna
Connector Type:	N/A

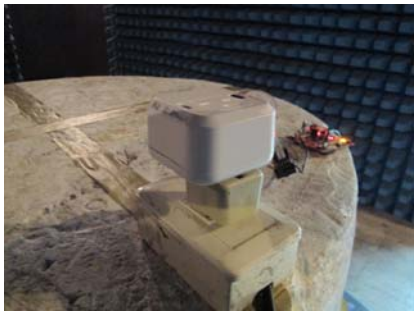
2.3 Peripherals equipment

Peripherals	Brand	Model No.	Serial No.	Description of Data Cable
Notebook PC	DELL	Latitude D610	5YWZK1S	Mini USB 0.4 meter
SimpleLink Wi-Fi CC3200 LaunchPad	TEXAS INSTRUMENTS	N/A	N/A	N/A

2.4 Operation mode

TX-MODE is based on the program “Radio Tool GUI” and the program can select different frequency and modulation.

The signal is maximized through rotation and placement in the three orthogonal axes.



X axis

Y axis

Z axis

After verifying three axes, we found the maximum electromagnetic field was occurred at Z axis. The final test data was executed under this configuration.

With individual verifying, the maximum output power was found out 1 Mbps data rate for 802.11b mode, 6 Mbps data rate for 802.11g mode, MCS0 data rate for 802.11n HT 20 mode.

The final tests were executed under these conditions recorded in this report individually.

Please refer the details below:

802.11b ch6 chain0		802.11g ch6 chain0		802.11n HT20 ch6 chain0	
Data rate (Mbps)	**AV (dBm)**	**Data rate (Mbps)**	**AV (dBm)**	**Data rate (Mbps)**	**AV (dBm)**
2	10.38	9	7.57	MCS1	7.35
5.5	10.11	12	6.87	MCS2	6.2
11	9.96	18	5.71	MCS3	3.45
		24	2.33	MCS4	2.62
		36	1.57	MCS5	1.24
		48	0.04	MCS6	0.75
		54	-0.39	MCS7	-0.05

2.5 Applied test modes and channels

Test items	Mode	Data Rate (Mbps)	Channel	Antenna
Minimum 6 dB Bandwidth	802.11 b	1	1, 6 , 11	Chain0
	802.11 g	6	1, 6, 11	Chain0
	802.11 n (HT20)	6.5	1, 6, 11	Chain0
Maximum peak conducted output power	802.11 b	1	1, 6 , 11	Chain0
	802.11 g	6	1, 6, 11	Chain0
	802.11 n (HT20)	6.5	1, 6, 11	Chain0
Power Spectral Density	802.11 b	1	1, 6 , 11	Chain0
	802.11 g	6	1, 6, 11	Chain0
	802.11 n (HT20)	6.5	1, 6, 11	Chain0
RF Antenna Conducted Spurious	802.11 b	1	1, 6 , 11	Chain0
	802.11 g	6	1, 6, 11	Chain0
	802.11 n (HT20)	6.5	1, 6, 11	Chain0
Radiated spurious Emission 9kHz~1GHz	worst Case(802.11g Ch6)			
Radiated Spurious Emission 10GHz~10th Harmonic	802.11 b	1	1, 6 , 11	Chain0
	802.11 g	6	1, 6, 11	Chain0
	802.11 n (HT20)	6.5	1, 6, 11	Chain0
Restricted-Band Band edge	802.11 b	1	1, 6 , 11	Chain0
	802.11 g	6	1, 6, 11	Chain0
	802.11 n (HT20)	6.5	1, 6, 11	Chain0
AC Power Line Conducted Emission	Normal Link			

2.6 Power setting of test software

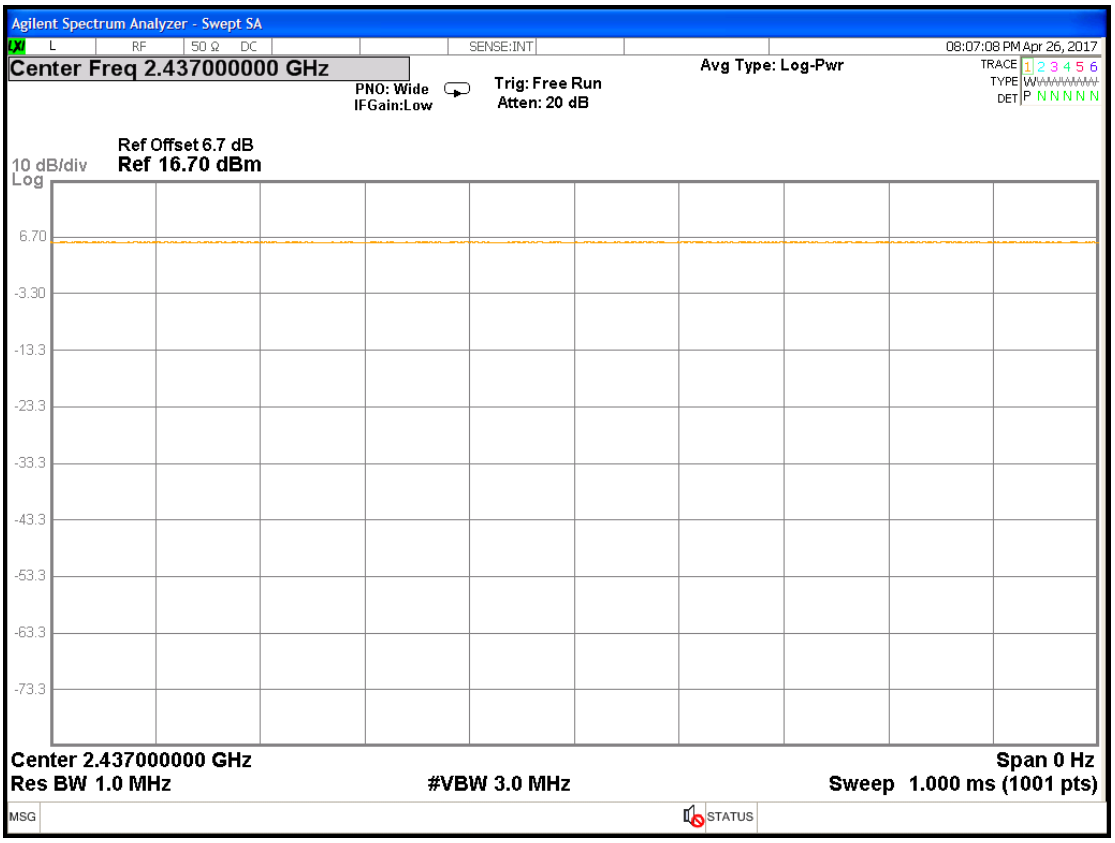
Channels & power setting software provided by the client was used to change the operating channels as well as the output power level and is going to be installed in the final end product.

Mode	Channel	Frequency	Power setting
802.11b (chain0)	1	2412	0
	6	2437	0
	11	2462	0
802.11g (chain0)	1	2412	0
	6	2437	0
	11	2462	0
802.11n (HT20)	1	2412	0
	6	2437	0
	11	2462	0

Note: The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.

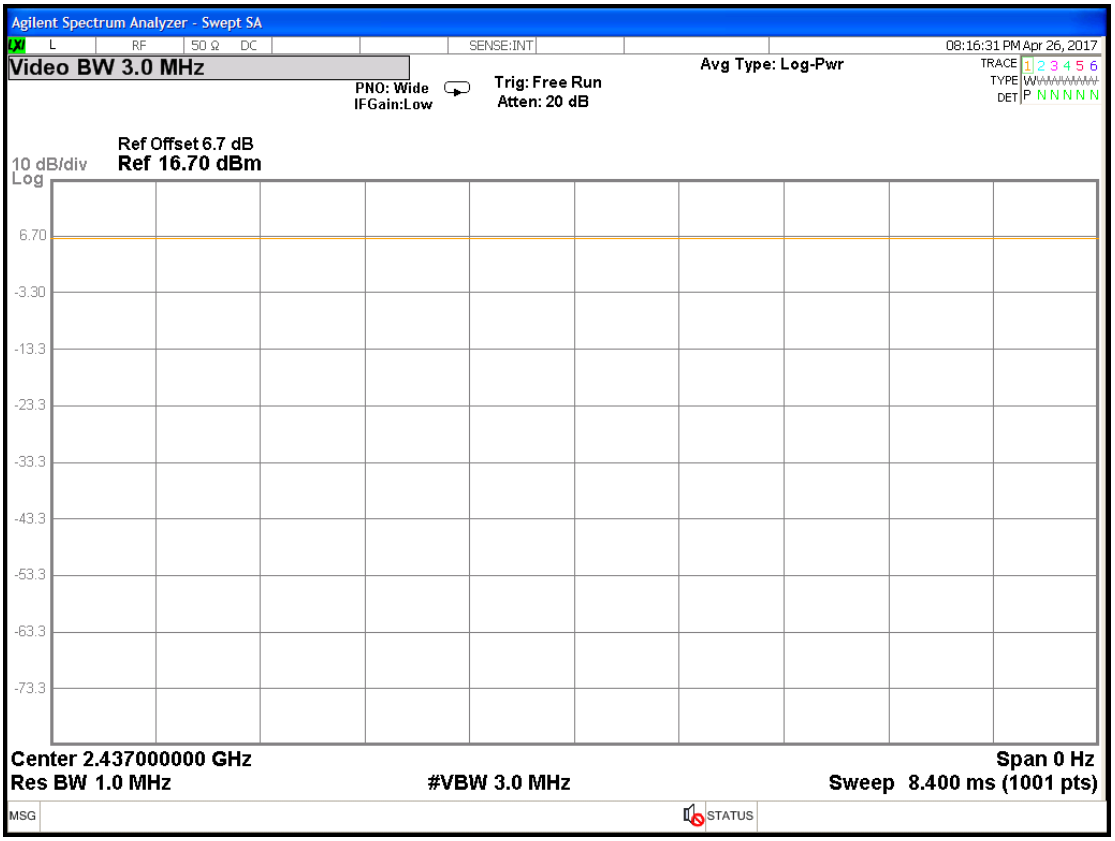
Mode	Channel	Frequency (MHz)	Data rate	Signal on time(s)	Total signal transmit time(s)	Duty cycle	Duty Cycle factor
802.11b	6	2437	1	1	1	1.000	0.000
802.11g	6	2437	6	1	1	1.000	0.000
802.11n (HT20)	6	2437	6.5	1	1	1.000	0.000

Chain0 : Duty cycle @ 802.11b mode Ch 6



Chain0 : Duty cycle @ 802.11g mode Ch 6

Chain0 : Duty cycle @ 802.11n(HT20) mode Ch 6



3. Minimum 6 dB Bandwidth

3.1 Operating environment

Temperature:	25	℃
Relative Humidity:	50	%
Atmospheric Pressure	1008	hPa
Requirement & Test method	15.247(a)(2) KDB 558074 D01 v04	

3.2 Limit for minimum 6dB bandwidth

The minimum 6 dB bandwidth shall be at least 500 kHz.

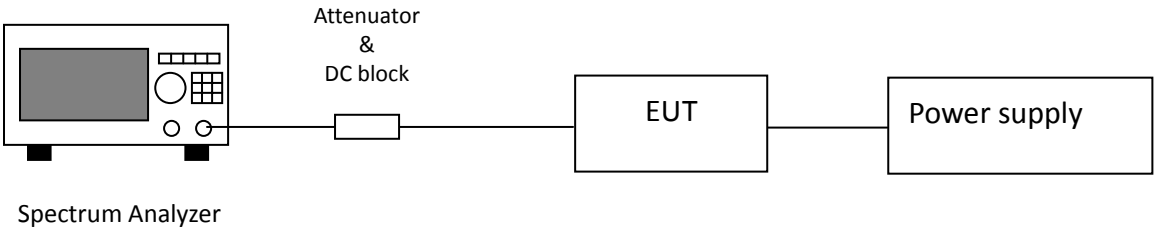
3.3 Measuring instrument setting

Spectrum analyzer settings	
Spectrum Analyzer function	**Setting**
Detector	Peak
RBW	100kHz
VBW	≧3 x RBW
Sweep	Auto couple
Trace	Allow the trace to stabilize.
Span	Between two times and five times the occupied bandwidth
Attenuation	Auto

3.4 Test procedure

1. The transmitter output was connected to the spectrum analyzer.
2. Test was performed in accordance with clause 8.1 option1 of KDB 558074 D01
3. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission

3.5 Test diagram

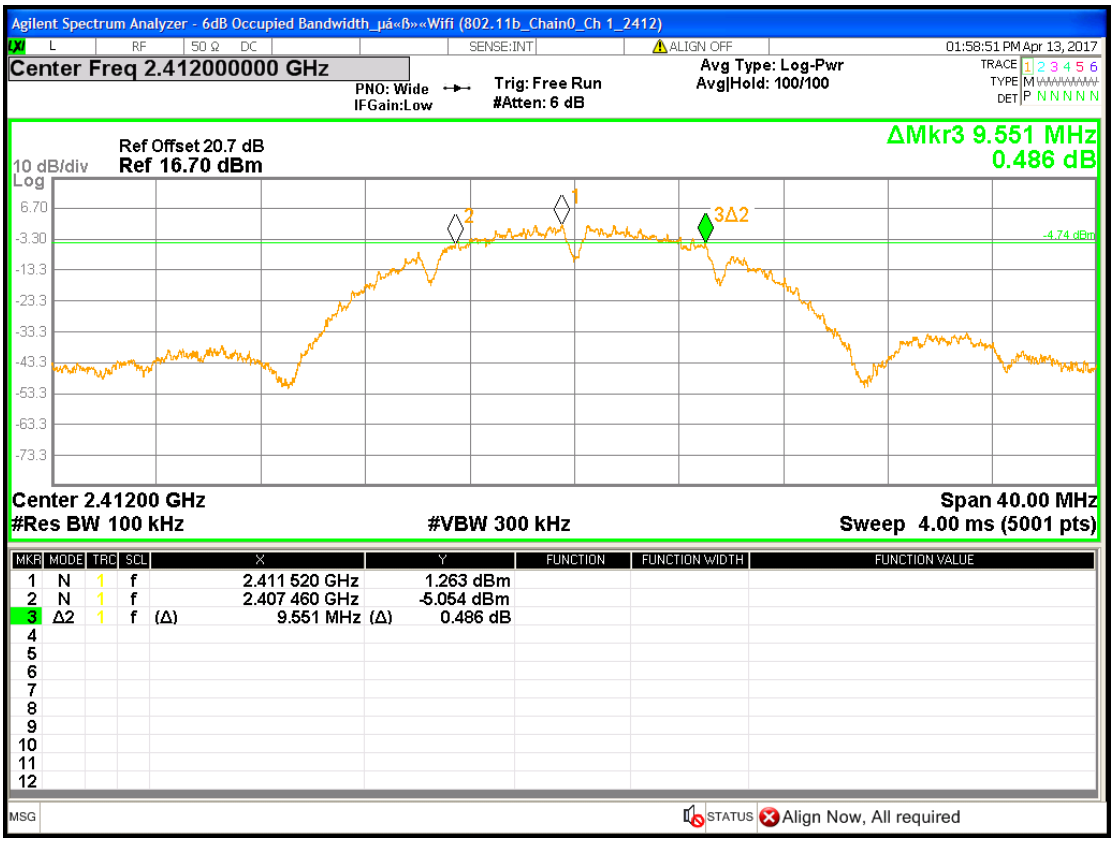


3.6 Test results

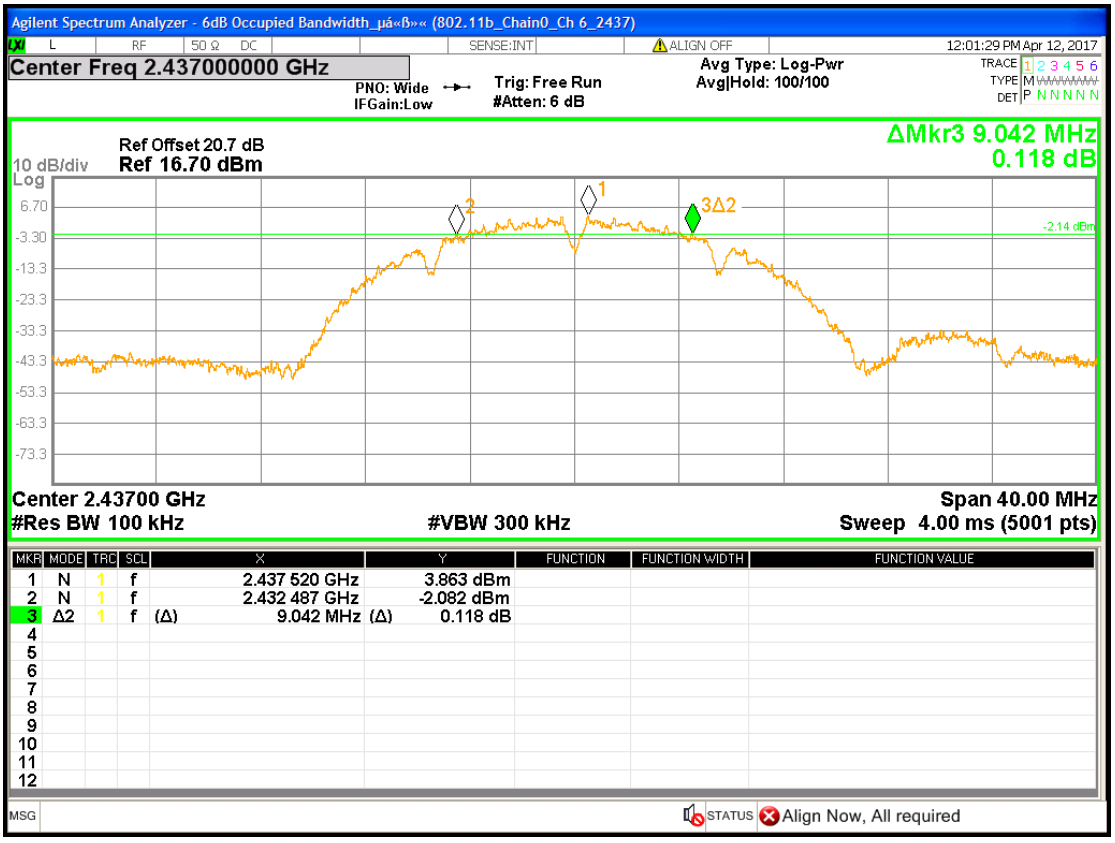
Single TX

Mode	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
802.11b (chain0)	1	2412	9.551	>0.5
	6	2437	9.042	>0.5
	11	2462	9.113	>0.5
802.11g (chain0)	1	2412	13.882	>0.5
	6	2437	15.052	>0.5
	11	2462	13.805	>0.5
802.11n(HT20) (chain0)	1	2412	15.034	>0.5
	6	2437	13.808	>0.5
	11	2462	15.054	>0.5

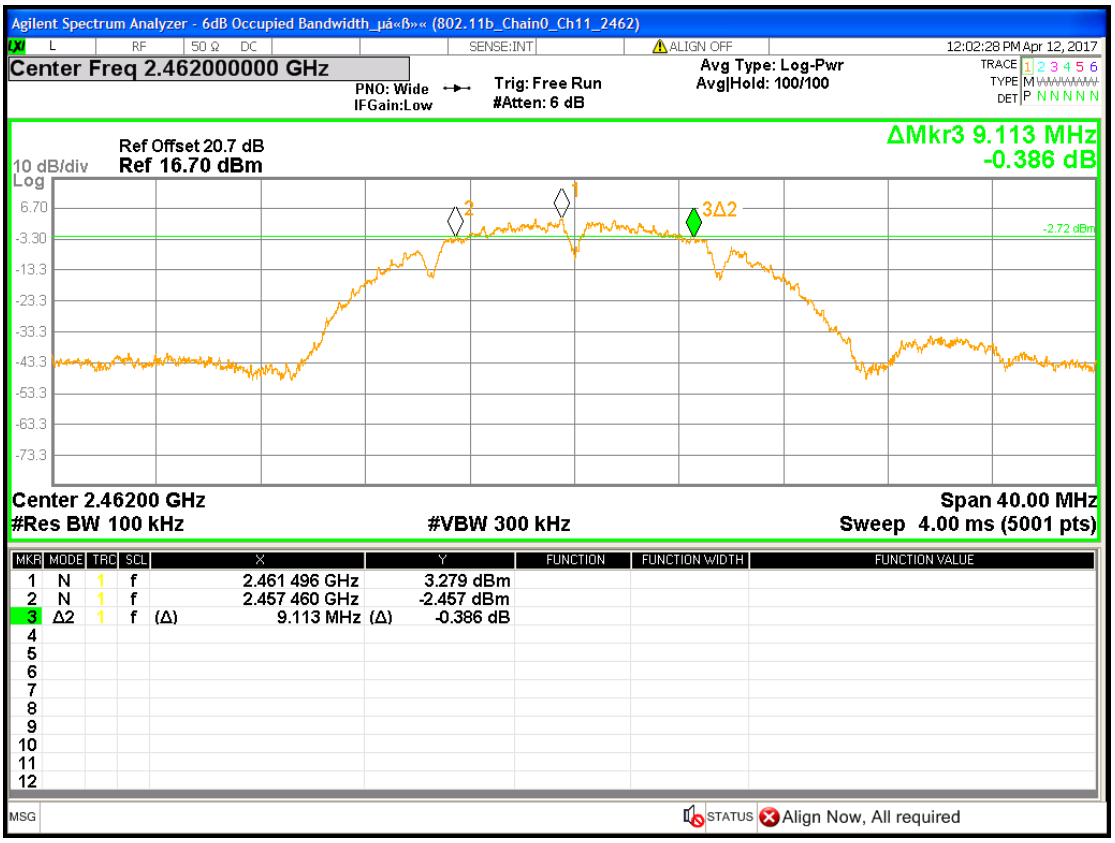
Chain0 : 6dB Bandwidth @ 802.11b mode Ch 1



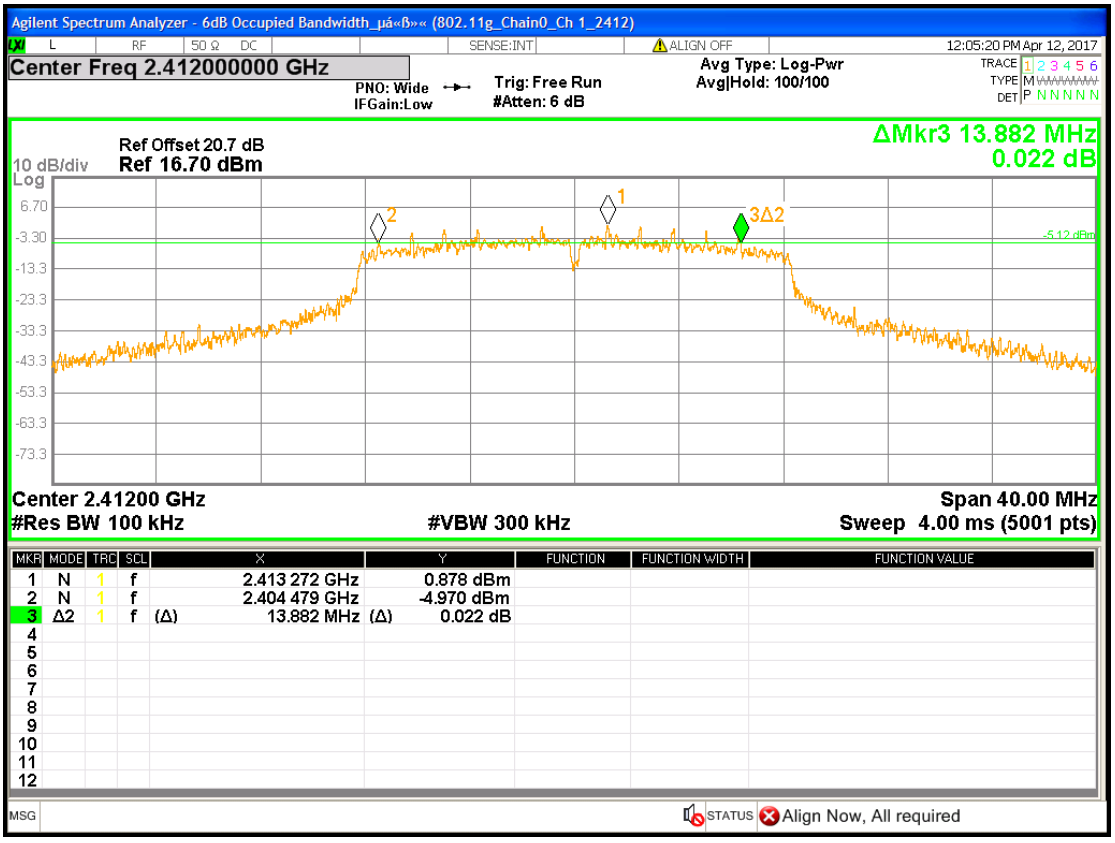
Chain0 : 6dB Bandwidth @ 802.11b mode Ch 6



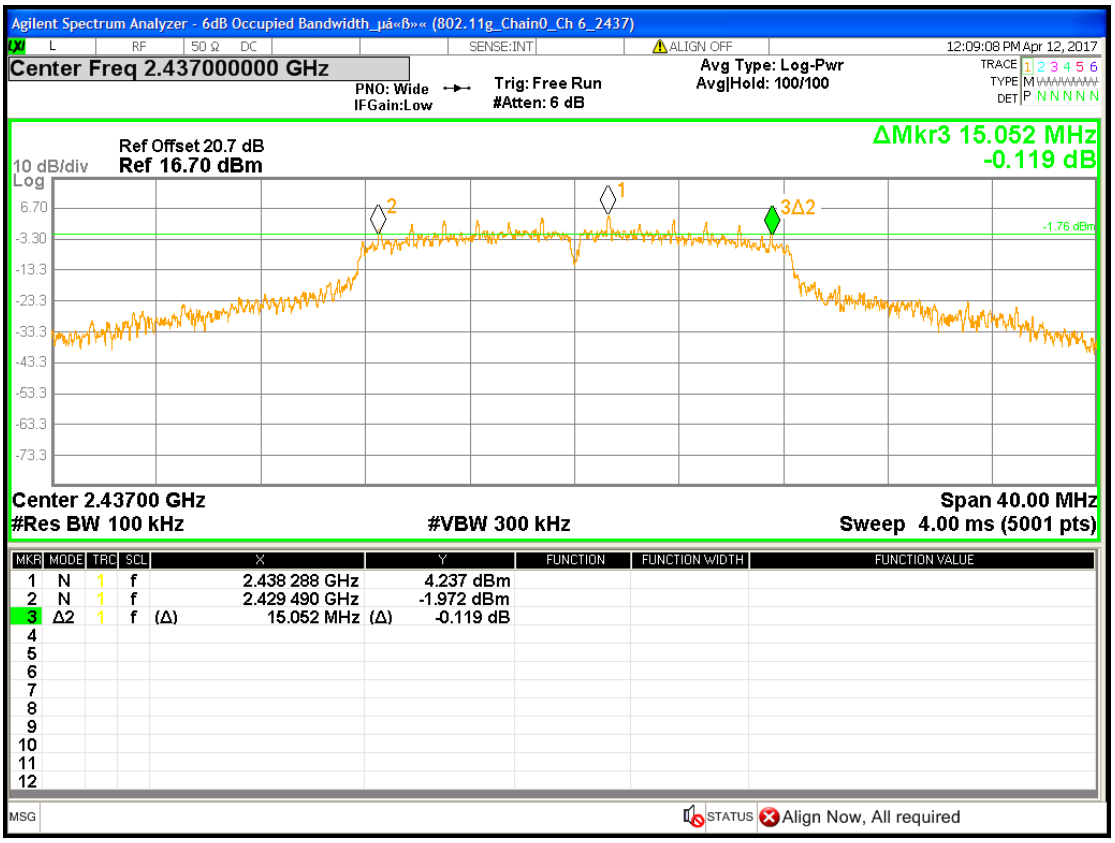
Chain0 : 6dB Bandwidth @ 802.11b mode Ch11



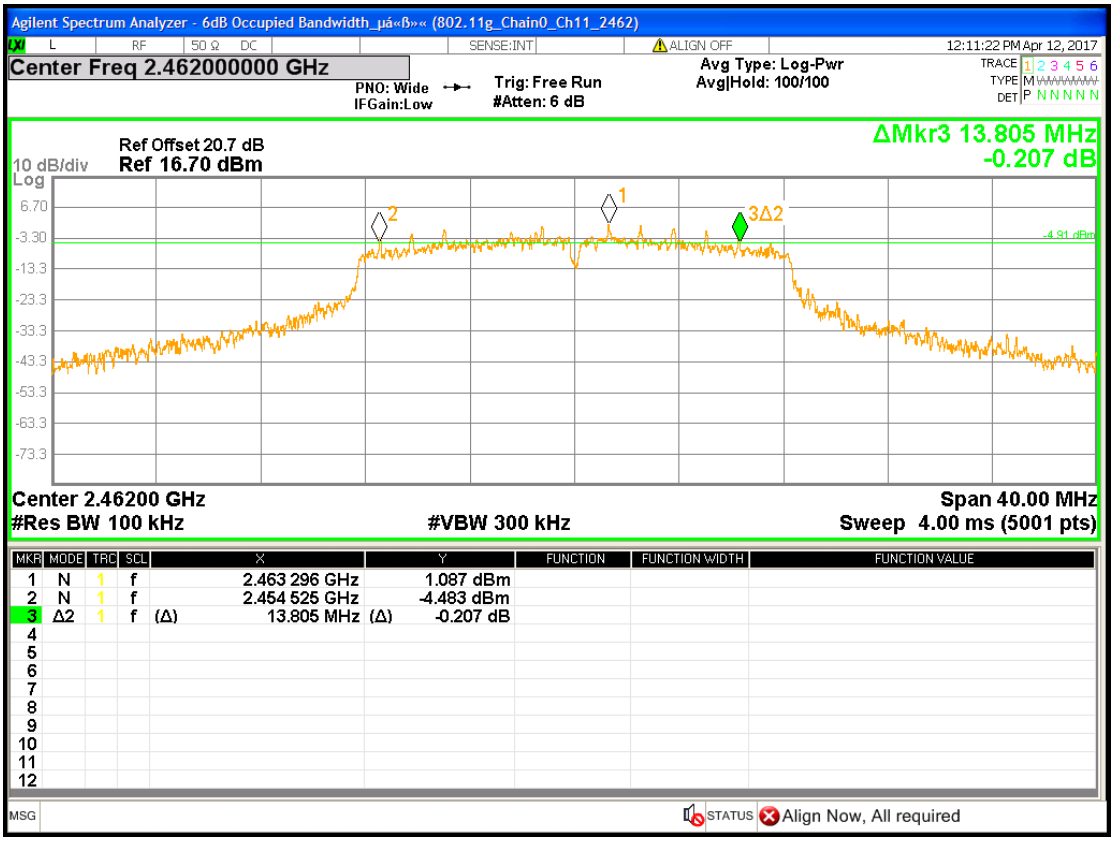
Chain0 : 6dB Bandwidth @ 802.11g mode Ch 1



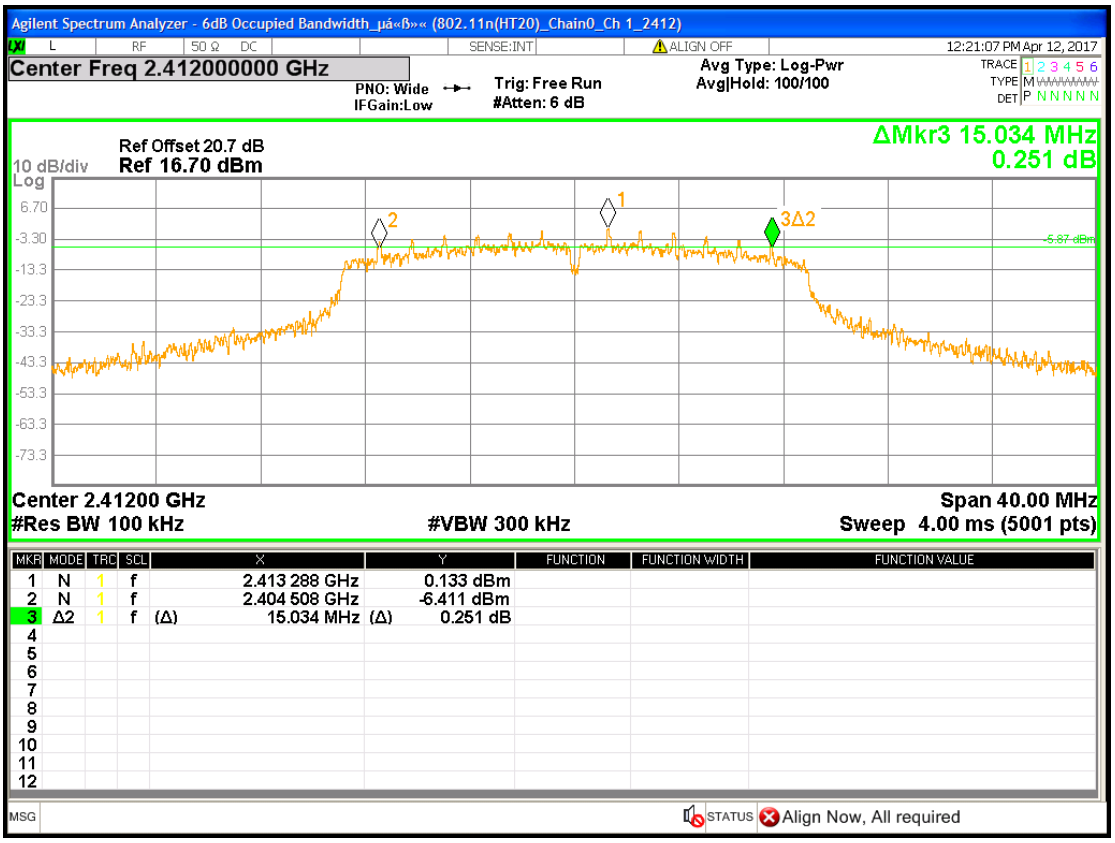
Chain0 : 6dB Bandwidth @ 802.11g mode Ch 6



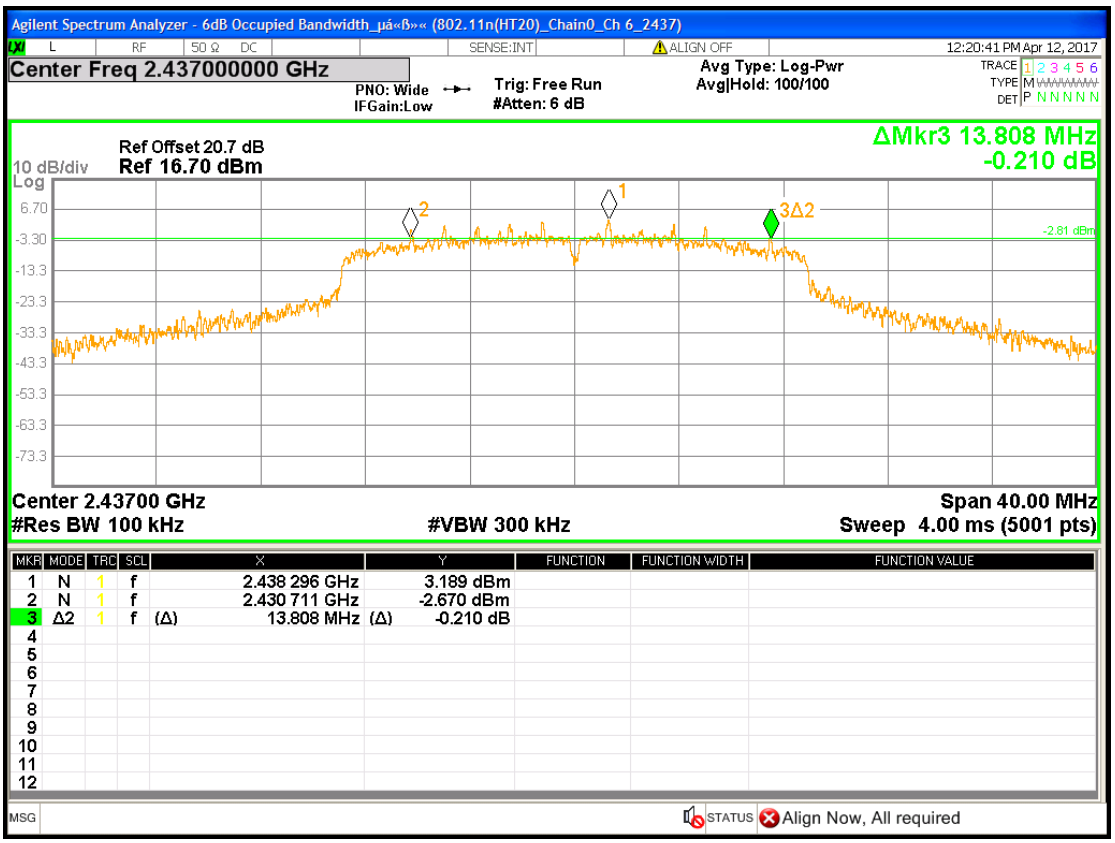
Chain0 : 6dB Bandwidth @ 802.11g mode Ch11



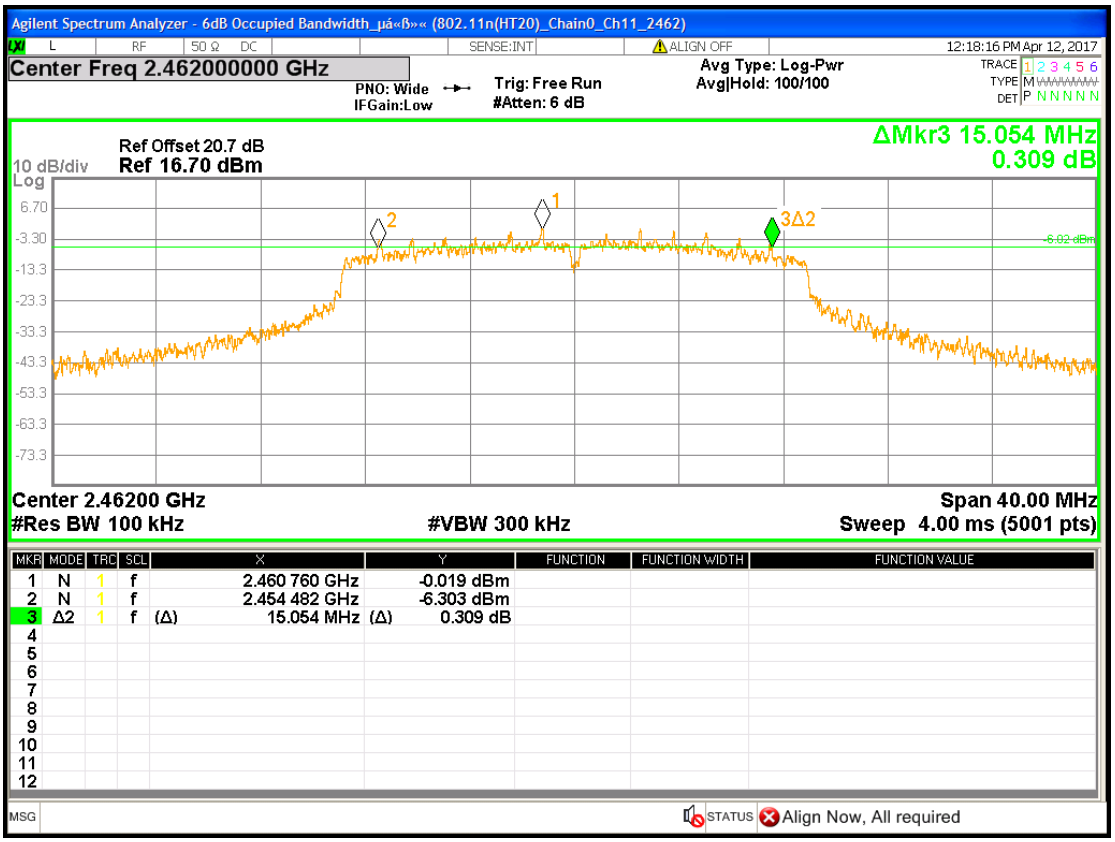
Chain0 : 6dB Bandwidth @ 802.11n(HT20) mode Ch 1



Chain0 : 6dB Bandwidth @ 802.11n(HT20) mode Ch 6



Chain0 : 6dB Bandwidth @ 802.11n(HT20) mode Ch11



4. Maximum Peak Conducted Output Power

4.1 Operating environment

Temperature:	25	℃
Relative Humidity:	50	%
Atmospheric Pressure	1008	hPa
Requirement & Test method	15.247(b)(3) KDB 558074 D01 v04	

4.2 Limit for maximum peak conducted output power

For systems using digital modulation in the 2400-2483.5 MHz: 1 Watt (30dBm)

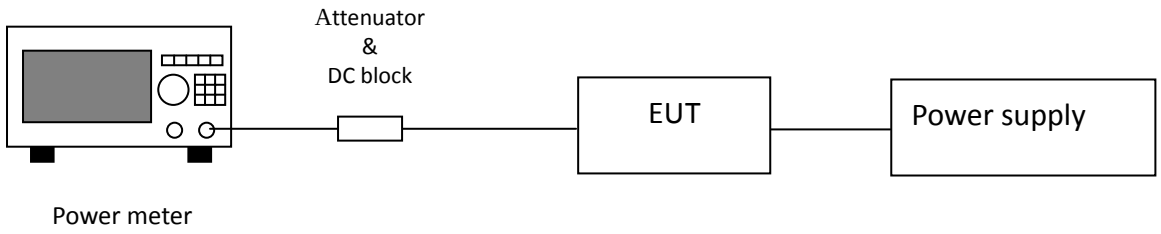
4.3 Measuring instrument setting

Power meter	
Power meter	**Setting**
Bandwidth	65MHz bandwidth is greater than the EUT emission bandwidth
Detector	Peak & Average

4.4 Test procedure

Test procedures refer to clause 9.1.3 peak power meter method and clause 9.2.3.2 measurement using a gated RF average power meter of KDB 558074 D01.

4.5 Test diagram



4.6 Test result

Single TX

Mode	Channel	Frequency (MHz)	Data Rate (Mbps)	Output Power (AV) (dBm)	Total Power (AV) (mW)	Maximum power (PK) (dBm)	Maximum power (PK) (mW)	Limit (dBm)	Margin (dB)
802.11b (chain0)	1	2412	1	9.7	9.33	13.50	22.39	30	-16.50
	6	2437		10.74	11.86	14.87	30.69	30	-15.13
	11	2462		10.14	10.33	14.05	25.41	30	-15.95
802.11g (chain0)	1	2412	6	6.7	4.68	16.82	48.08	30	-13.18
	6	2437		8.55	7.16	17.26	53.21	30	-12.74
	11	2462		6.78	4.76	16.59	45.60	30	-13.41
802.11n(HT20) (chain0)	1	2412	6.5	4.68	2.94	16.16	41.30	30	-13.84
	6	2437		7.45	5.56	17.20	52.48	30	-12.80
	11	2462		4.34	2.72	16.31	42.76	30	-13.69

5. Power Spectral Density

5.1 Operating environment

Temperature:	25	℃
Relative Humidity:	50	%
Atmospheric Pressure	1008	hPa
Requirement & Test method	15.247(e) KDB 558074 D01 v04	

5.2 Limit for power spectrum density

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission

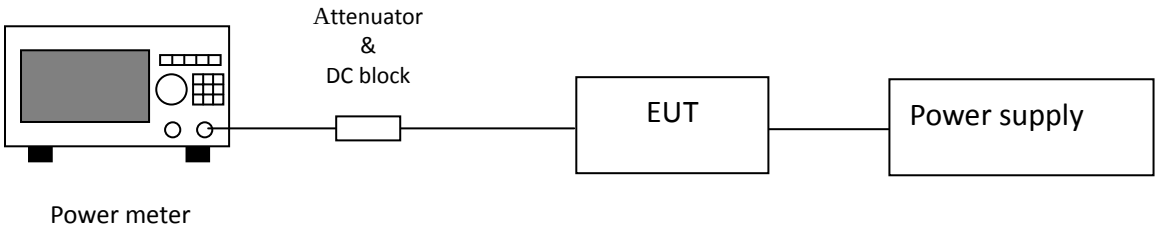
5.3 Measuring instrument setting

Spectrum analyzer settings	
Spectrum Analyzer function	**Setting**
Detector	Peak
RBW	≧3 kHz
VBW	≧3 x RBW
Sweep	Auto couple
Trace	Max hold
Span	1.5 times x 6dB bandwidth
Attenuation	Auto

5.4 Test procedure

1. Test procedure refer to clause 10.2 method PKPSD (peak PSD) of KDB 558074 D01.
2. Using the maximum conducted output power in the fundamental emission demonstrates compliance. The EUT must be configured to transmit continuously at full power over the measurement duration.
3. Use the peak marker function to determine the maximum amplitude level within the RBW.

5.5 Test diagram

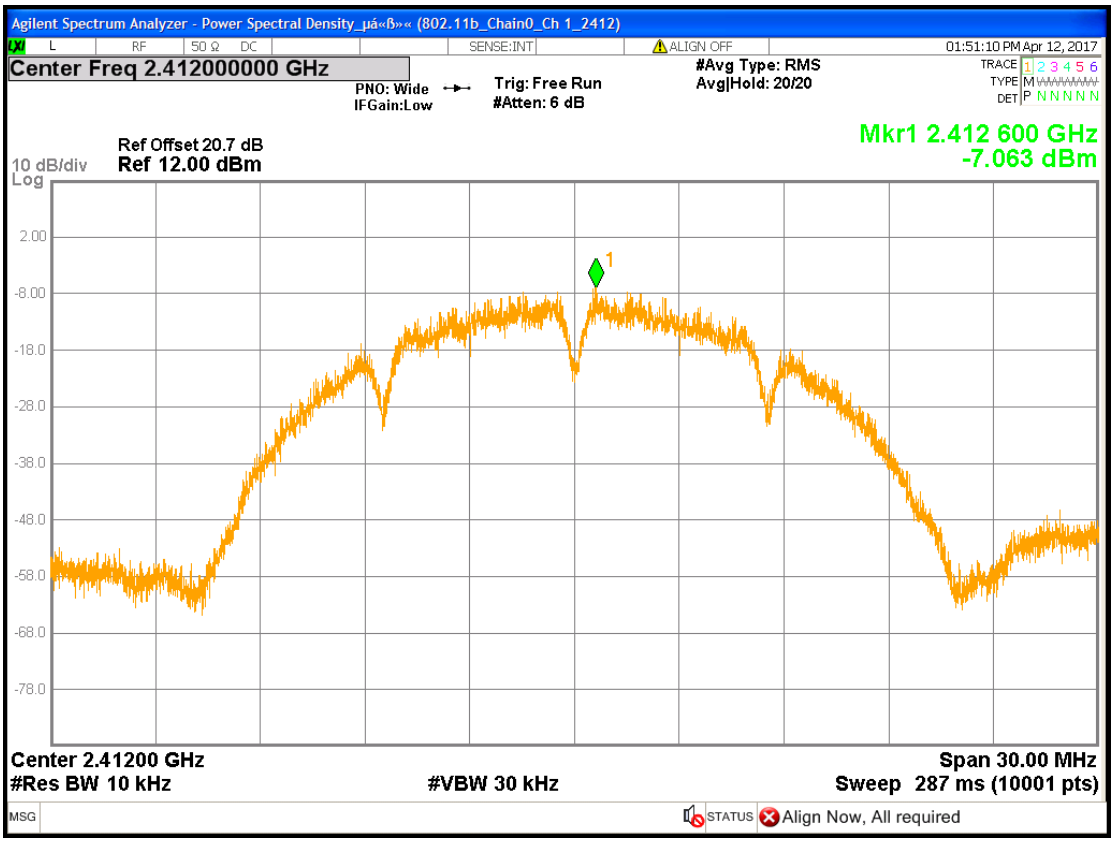


5.6 Test results

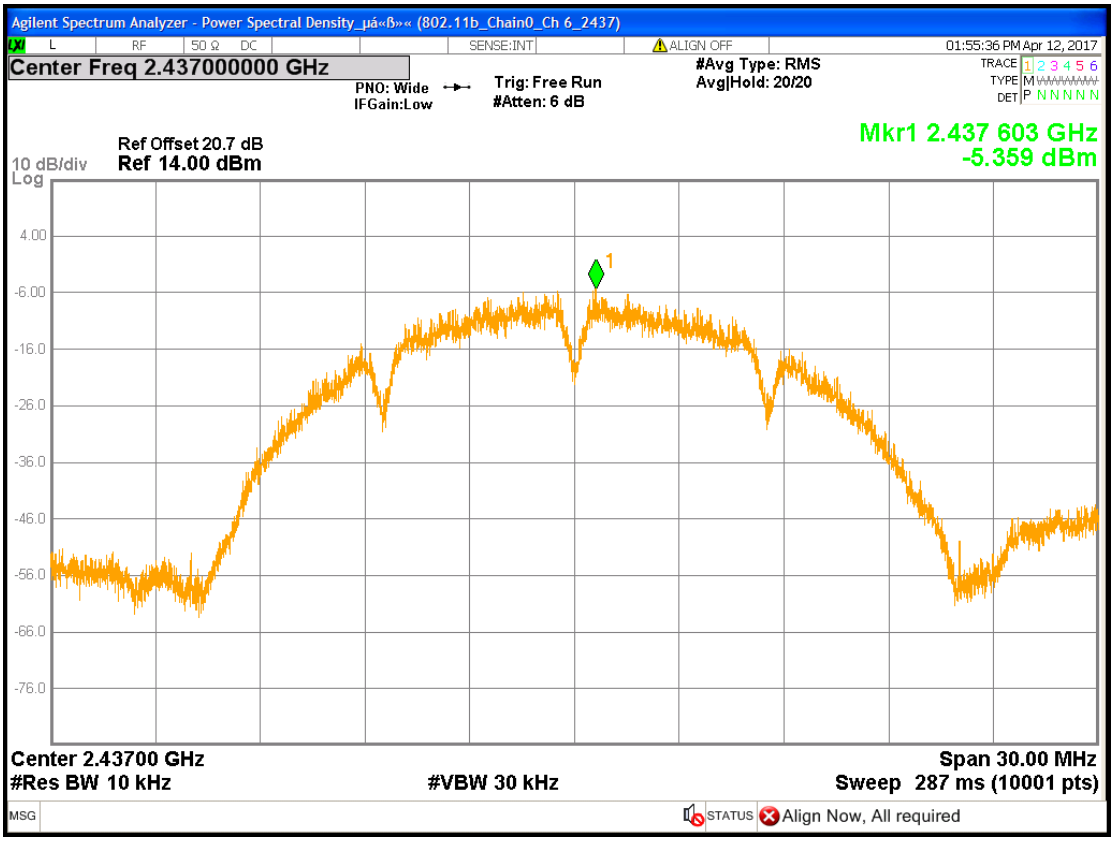
Mode	Channel	Frequency (MHz)	RBW factor	PSD in 10 kHz	PSD in 3kHz		Limit (dBm)	Margin (dB)
					(dBm)	(mW)		
802.11b (chain0)	1	2412	5.23	-7.063	-12.29	0.06	8	-20.29
	6	2437	5.23	-5.359	-10.59	0.09	8	-18.59
	11	2462	5.23	-6.473	-11.70	0.07	8	-19.70
802.11g (chain0)	1	2412	5.23	-10.165	-15.39	0.03	8	-23.39
	6	2437	5.23	-6.132	-11.36	0.07	8	-19.36
	11	2462	5.23	-9.629	-14.86	0.03	8	-22.86
802.11n (HT20) (chain0)	1	2412	5.23	-9.794	-15.02	0.03	8	-23.02
	6	2437	5.23	-8.110	-13.34	0.05	8	-21.34
	11	2462	5.23	-10.579	-15.81	0.03	8	-23.81

Remark: RBW Correction: 10*log(10kHz/3kHz)

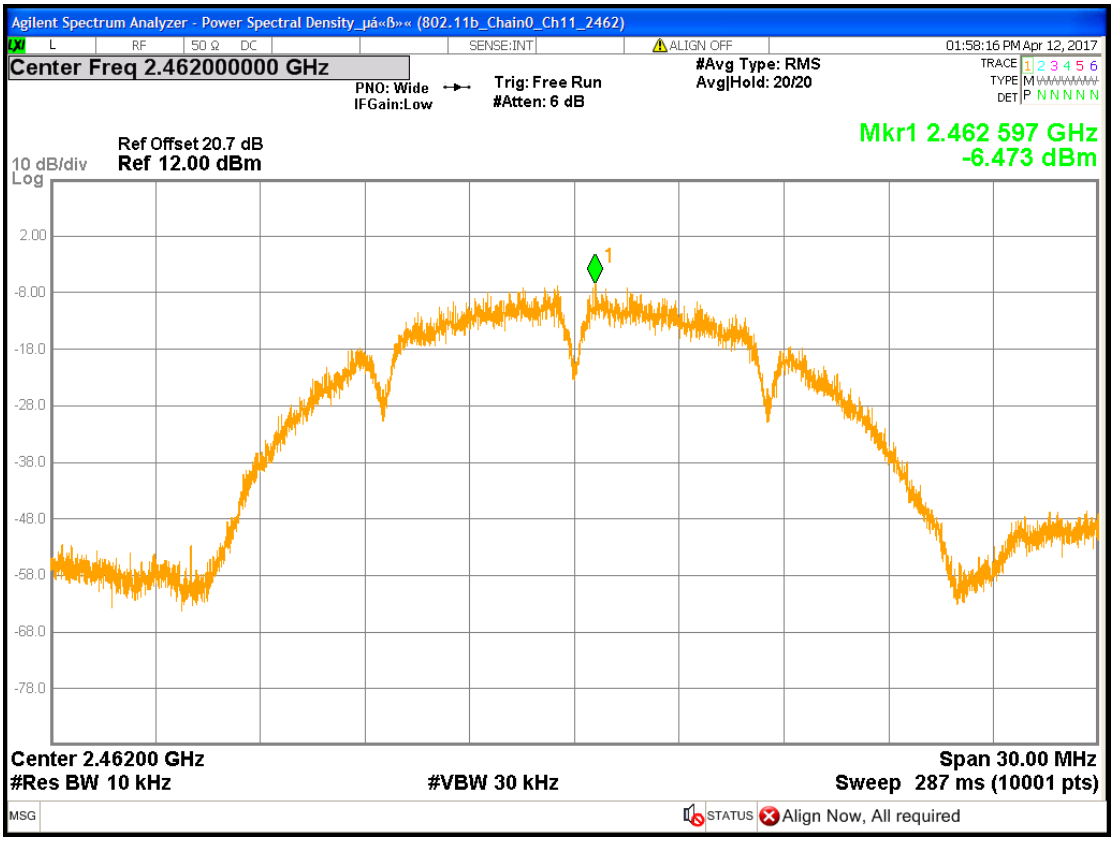
Chain0 : Power Spectral Density @ 802.11b mode Ch 1



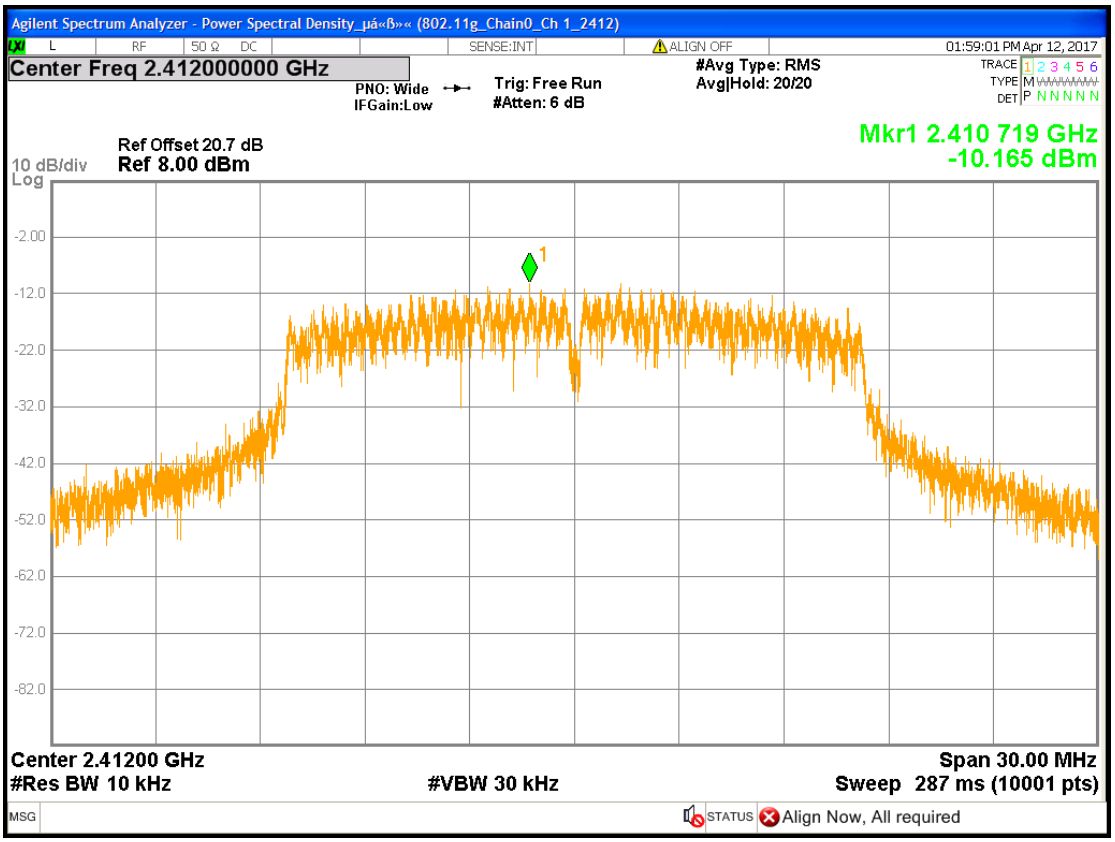
Chain0 : Power Spectral Density @ 802.11b mode Ch 6



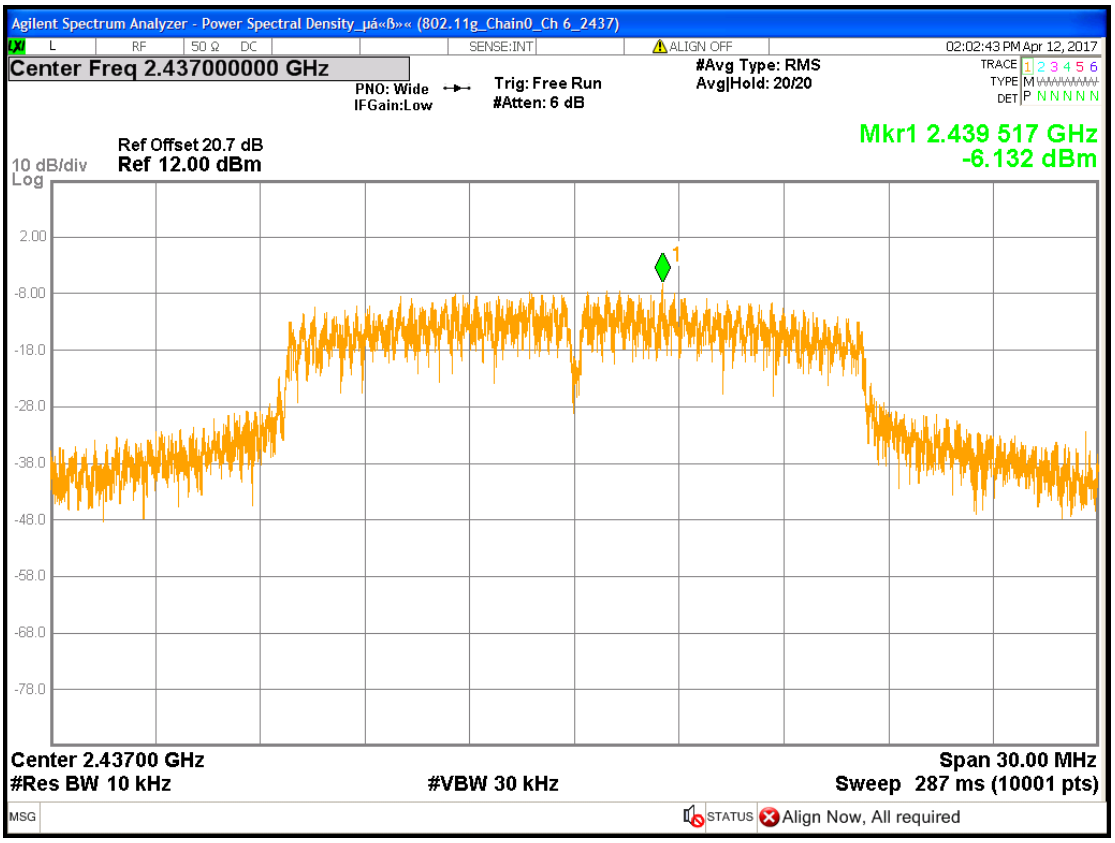
Chain0 : Power Spectral Density @ 802.11b mode Ch11



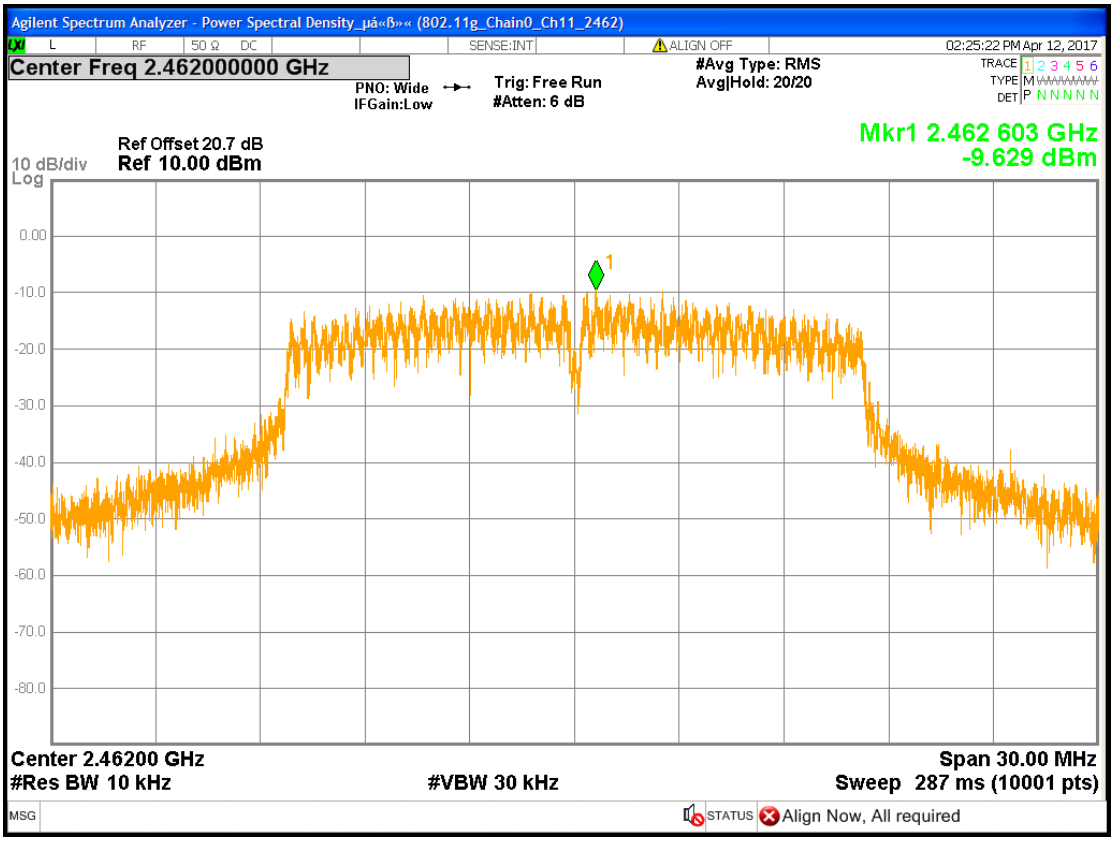
Chain0 : Power Spectral Density @ 802.11g mode Ch 1



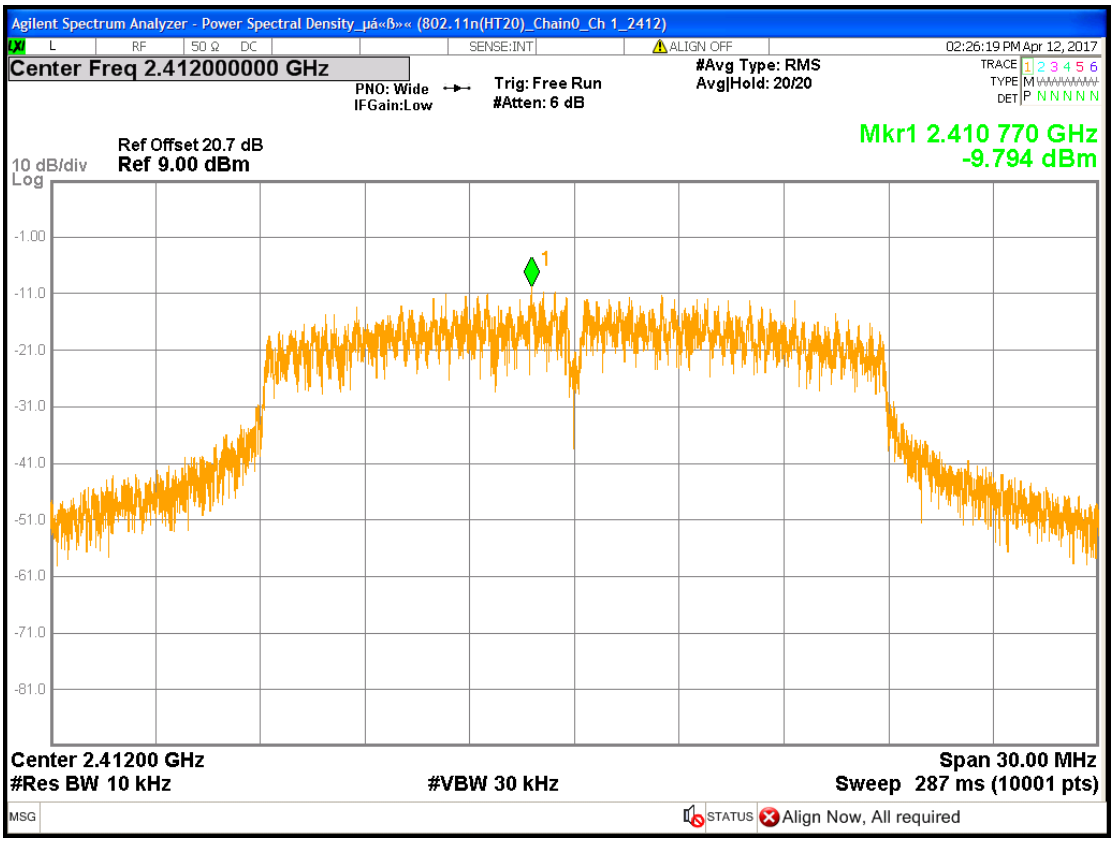
Chain0 : Power Spectral Density @ 802.11g mode Ch 6



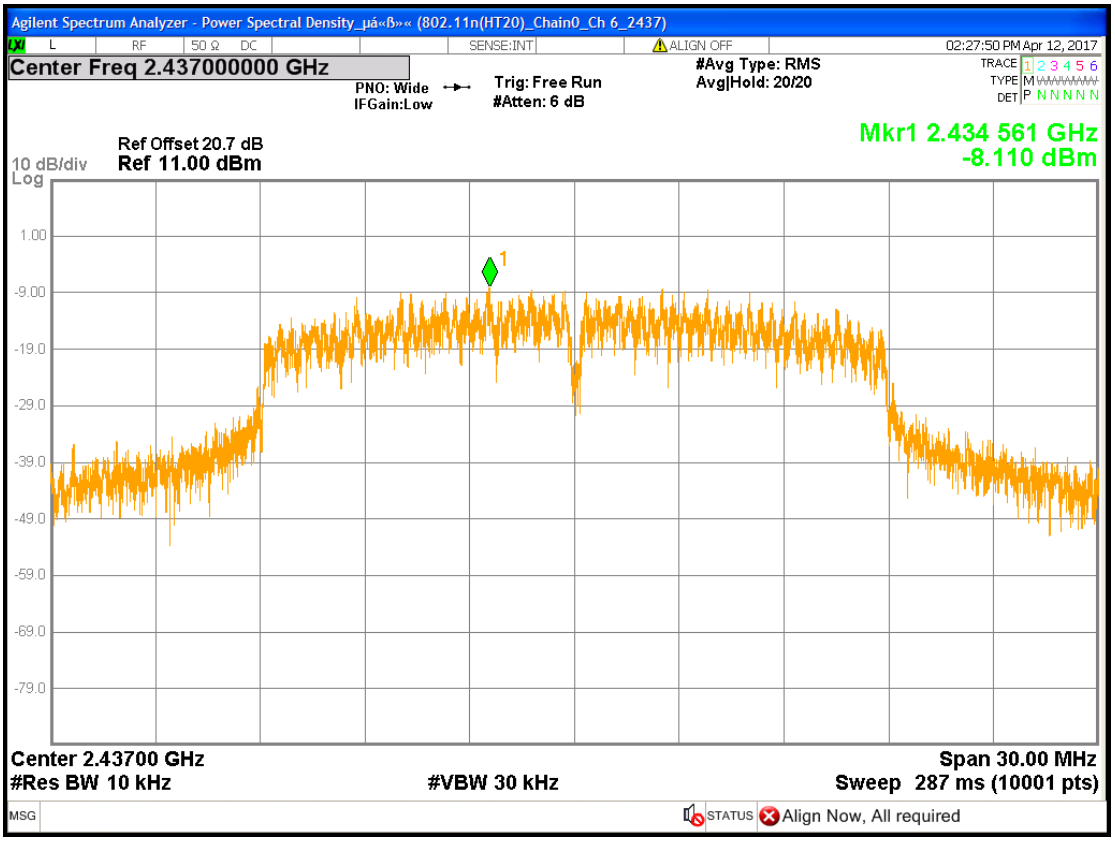
Chain0 : Power Spectral Density @ 802.11g mode Ch11



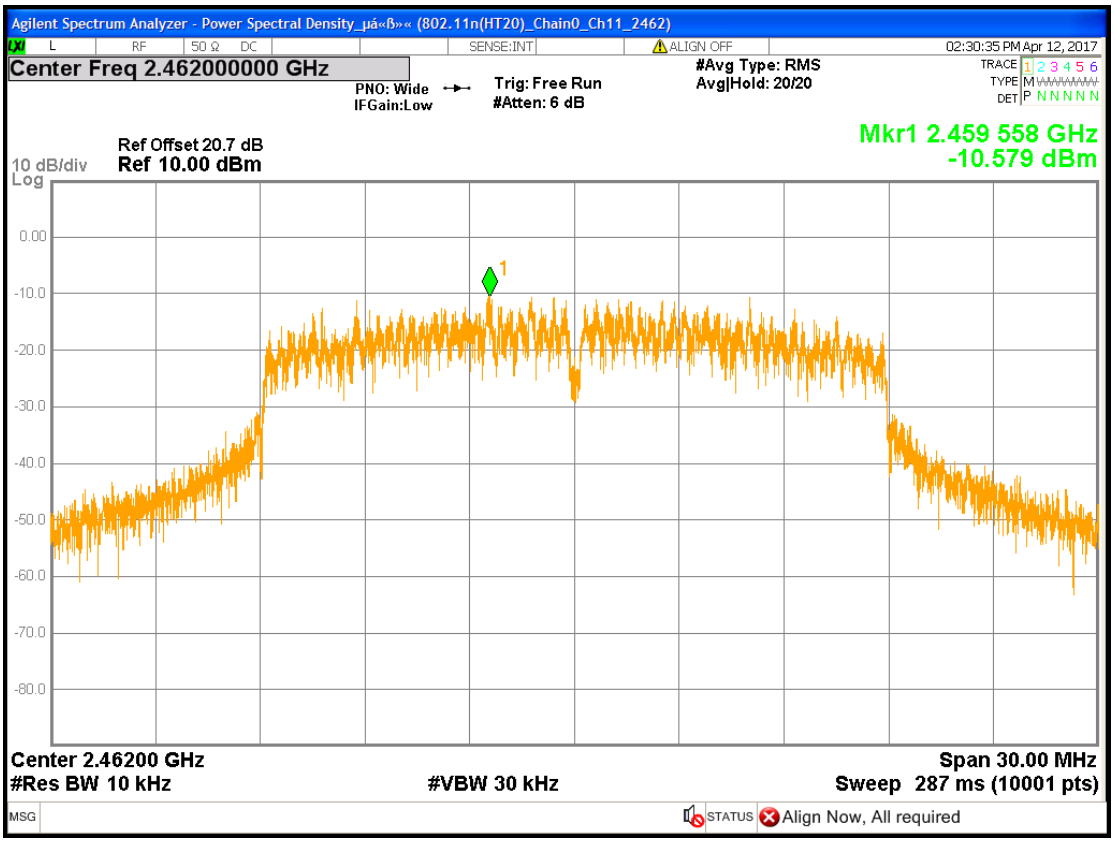
Chain0 : Power Spectral Density @ 802.11n(HT20) mode Ch 1



Chain0 : Power Spectral Density @ 802.11n(HT20) mode Ch 6



Chain0 : Power Spectral Density @ 802.11n(HT20) mode Ch11


Agilent Spectrum Analyzer - Power Spectral Density_µá«ß»« (802.11n(HT20)_Chain0_Ch11_2462)
Center Freq 2.462000000 GHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 6 dB
#Avg Type: RMS
Avg|Hold: 20/20
02:30:35 PM Apr 12, 2017
Ref Offset 20.7 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 2.459 558 GHz
-10.579 dBm
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-80.0
Center 2.46200 GHz
#Res BW 10 kHz
#VBW 30 kHz
Span 30.00 MHz
Sweep 287 ms (10001 pts)
MSG
STATUS
Align Now, All required

6. Emissions In Non-Restricted Frequency Bands

6.1 Operating environment

Temperature:	25	℃
Relative Humidity:	50	%
Atmospheric Pressure	1008	hPa
Requirement	15.247(d)	
Channel number	Low、Middle、High	

6.2 Limit for emissions in non-restricted frequency bands

The peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz

6.3 Measuring instruments setting

Reference level measurement

Spectrum analyzer settings	
Spectrum Analyzer function	**Setting**
Detector	Peak
RBW	≧100 kHz
VBW	≧3 x RBW
Sweep	Auto couple
Trace	Max hold
Span	≧1.5 time 6dB bandwidth
Attenuation	Auto

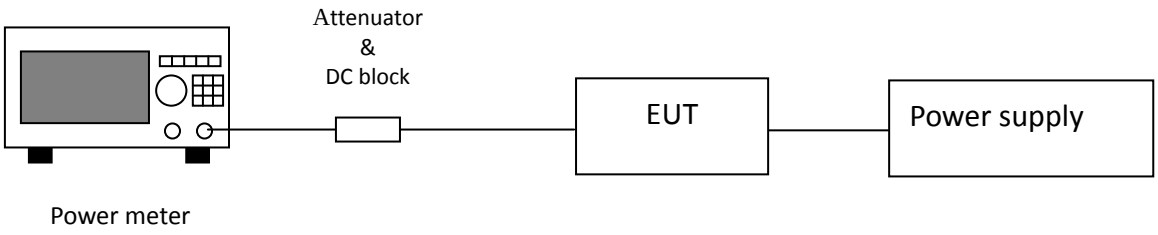
Emission level measurement

Spectrum analyzer settings	
Spectrum Analyzer function	**Setting**
Detector	Peak
RBW	≧100 kHz
VBW	≧3 x RBW
Sweep	Auto couple
Trace	Max hold
Attenuation	Auto

6.4 Test procedure

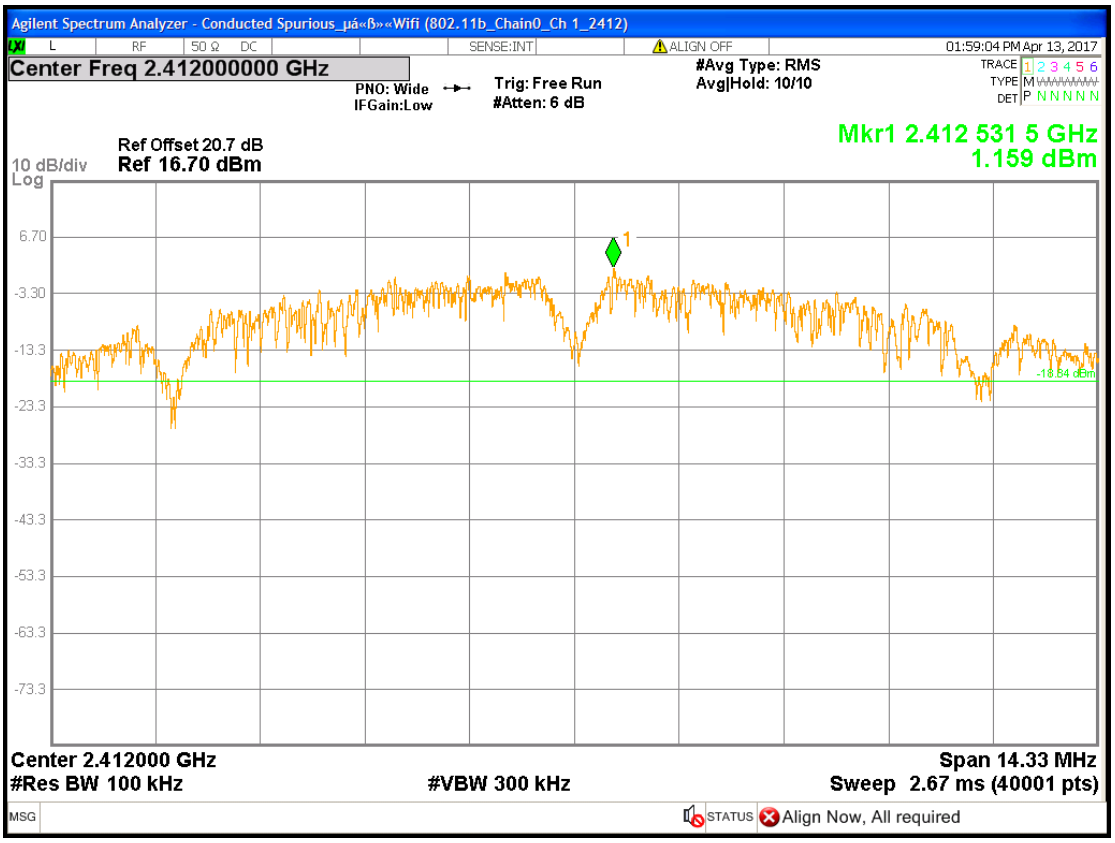
1. The procedure was used in antenna-port conducted and connected to the spectrum analyzer.
2. Set instrument center frequency to center frequency
3. Use the parameter configured in clause 6.3 to measure
4. Use the peak marker function to determine the maximum amplitude level.

6.5 Test diagram

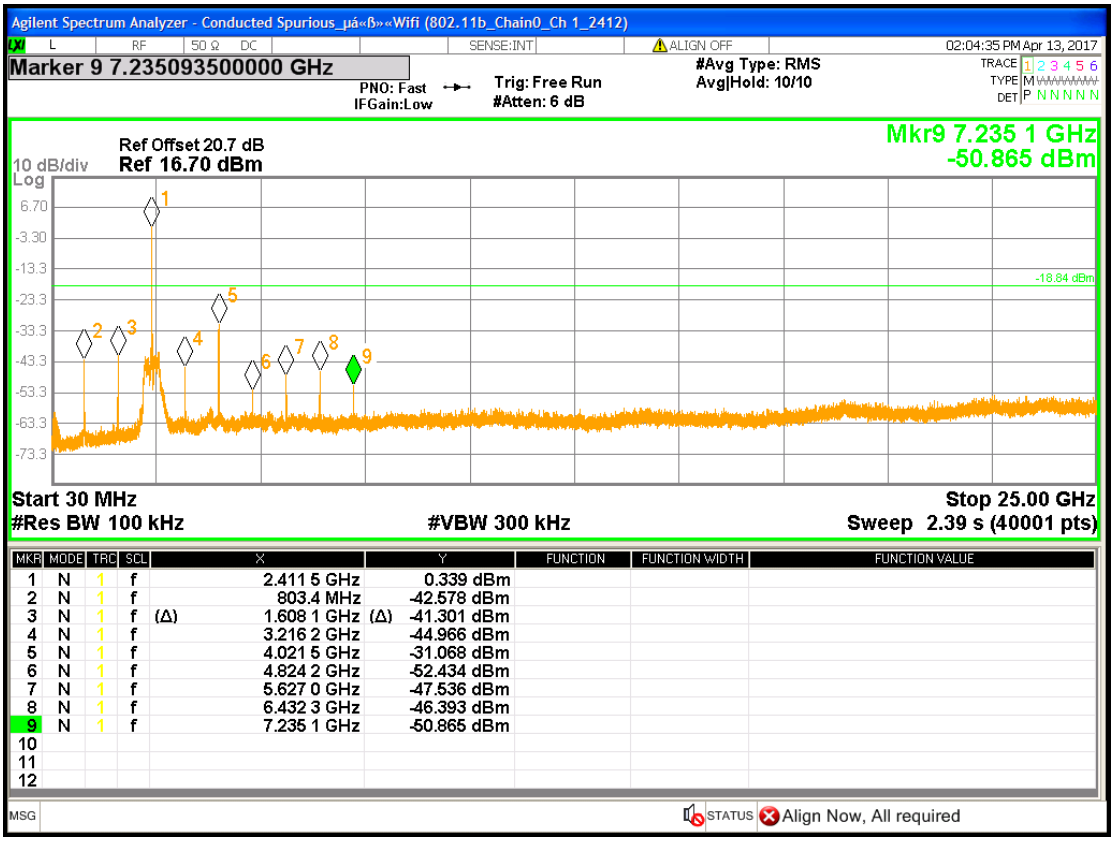


6.6 Test results

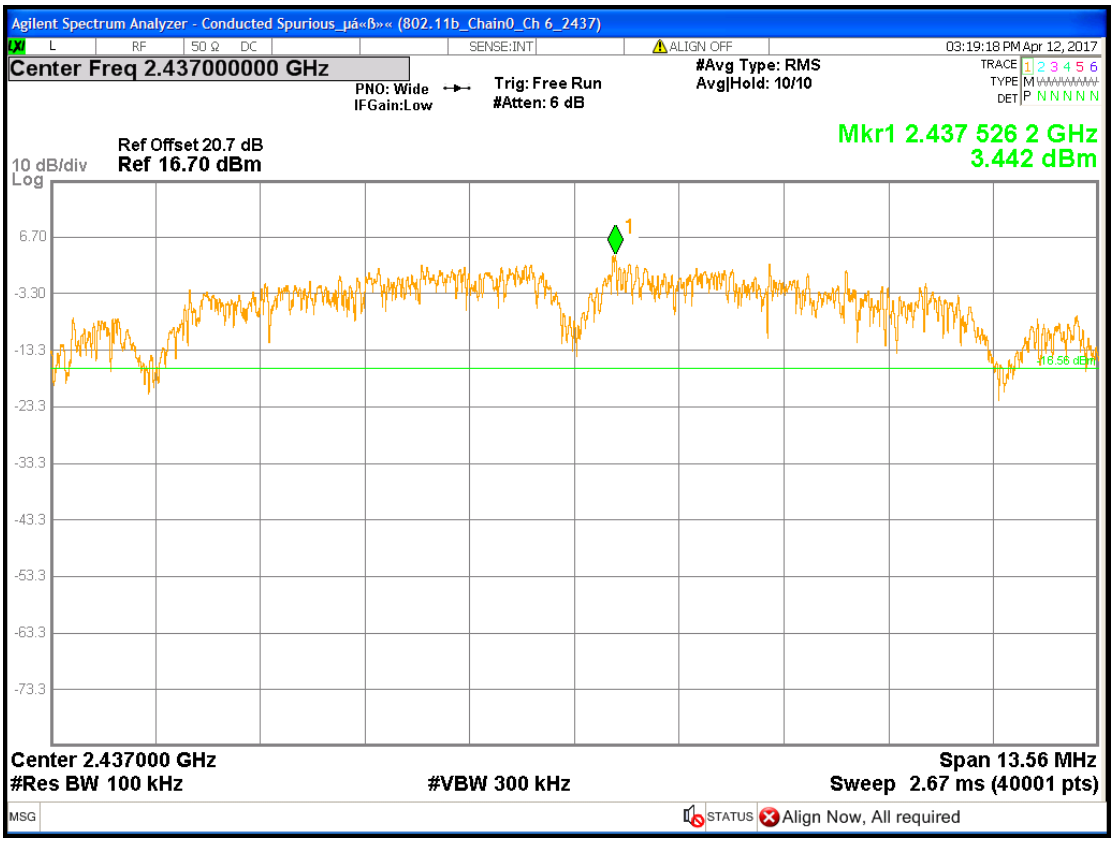
Chain0 : Conducted Spurious @ 802.11b mode Ch 1



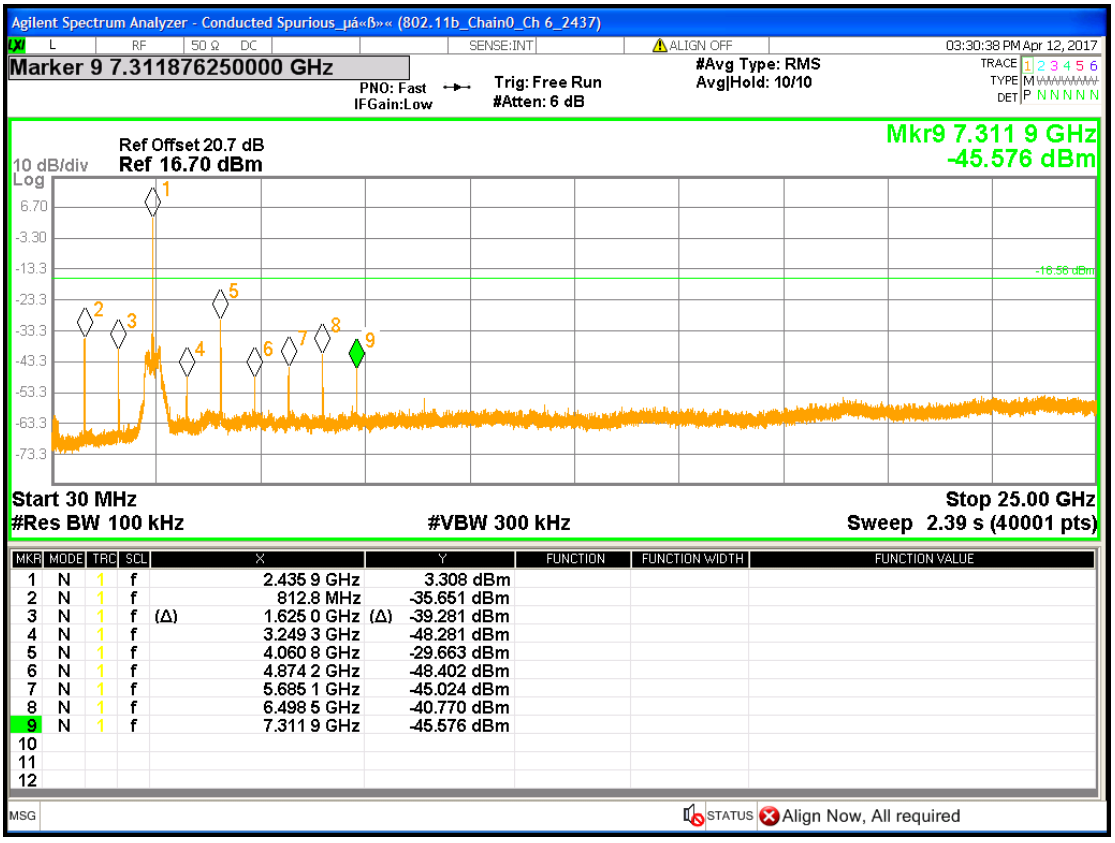
Chain0 : Conducted Spurious @ 802.11b mode Ch 1



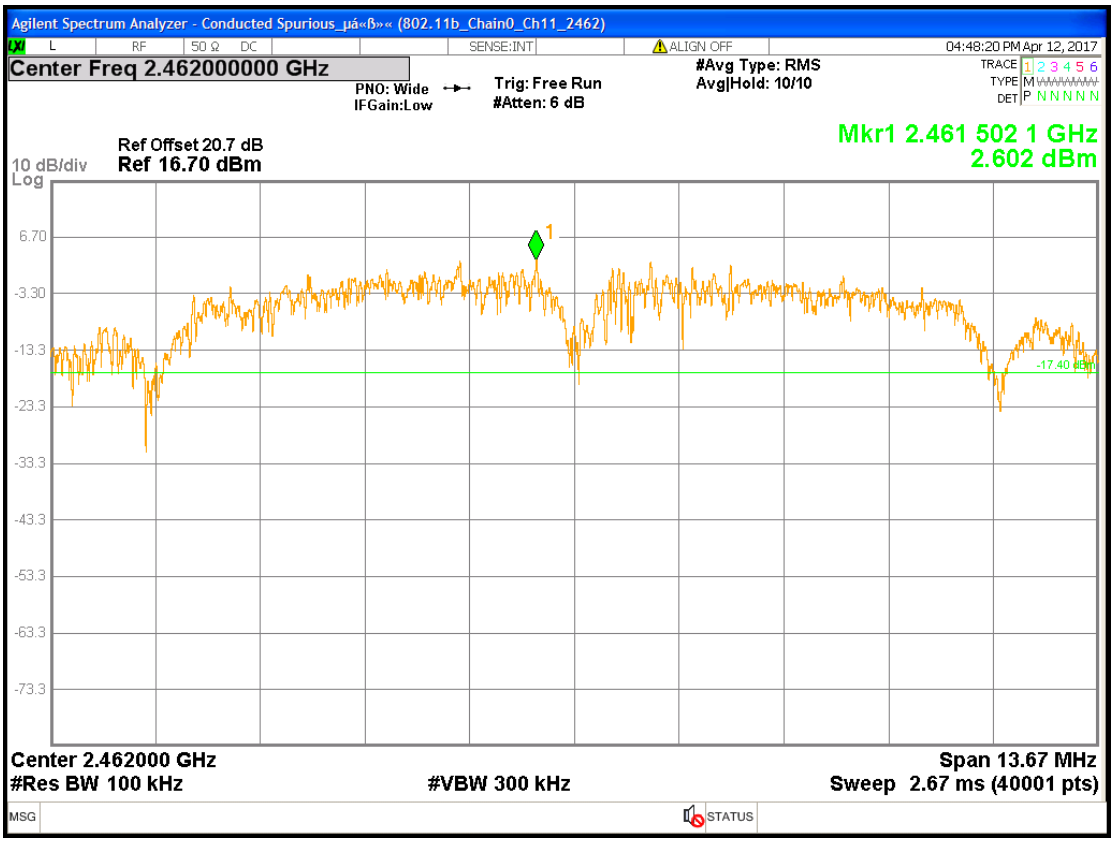
Chain0 : Conducted Spurious @ 802.11b mode Ch 6



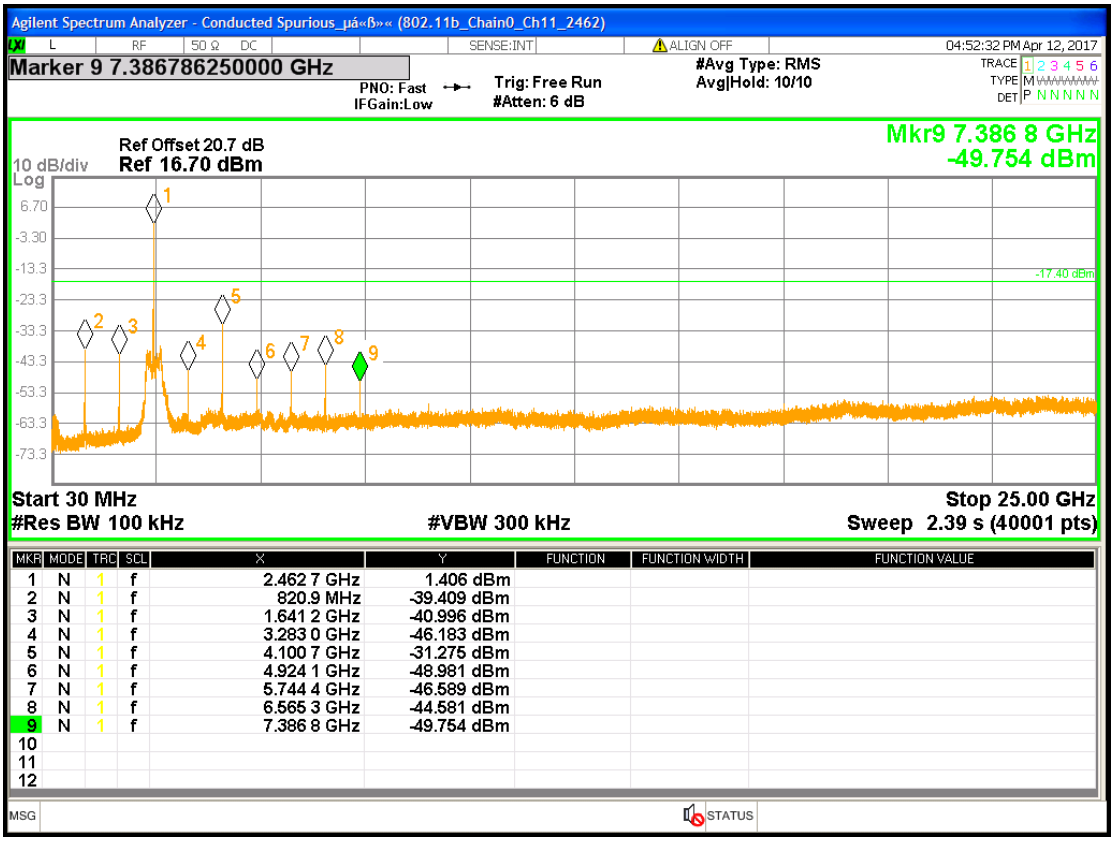
Chain0 : Conducted Spurious @ 802.11b mode Ch 6



Chain0 : Conducted Spurious @ 802.11b mode Ch11

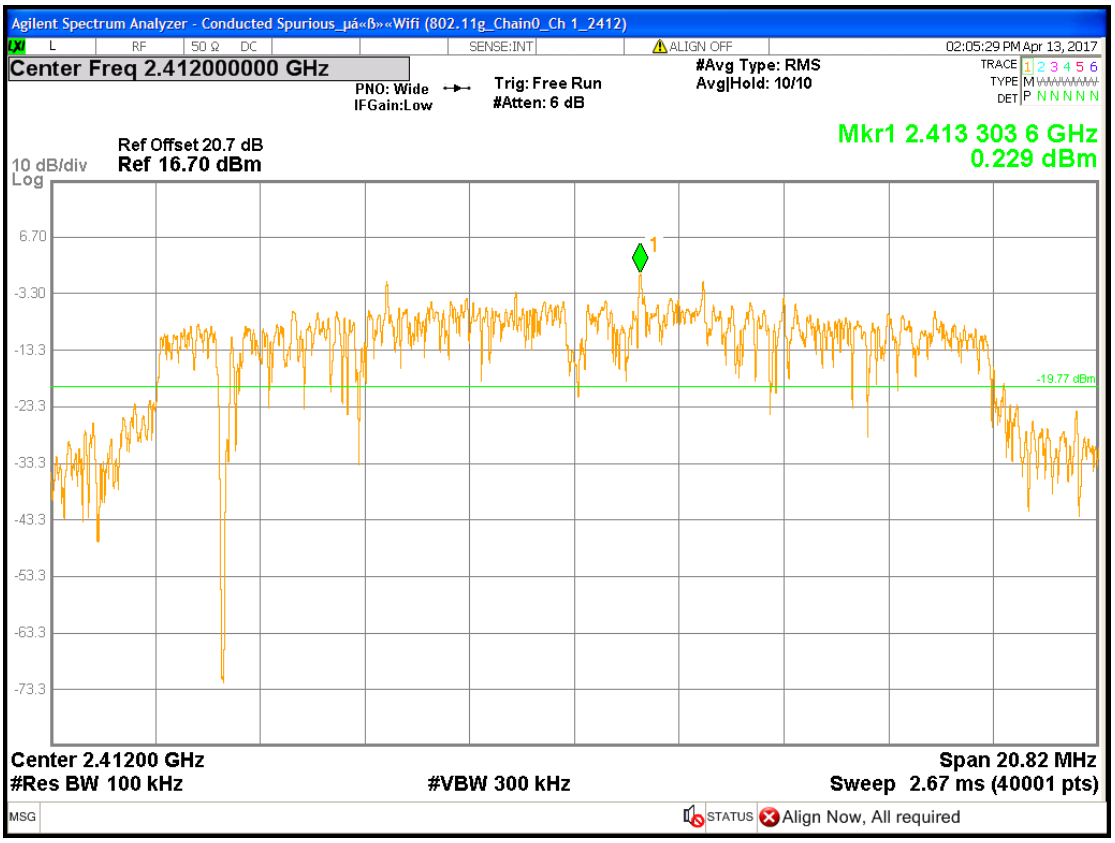


Chain0 : Conducted Spurious @ 802.11b mode Ch11

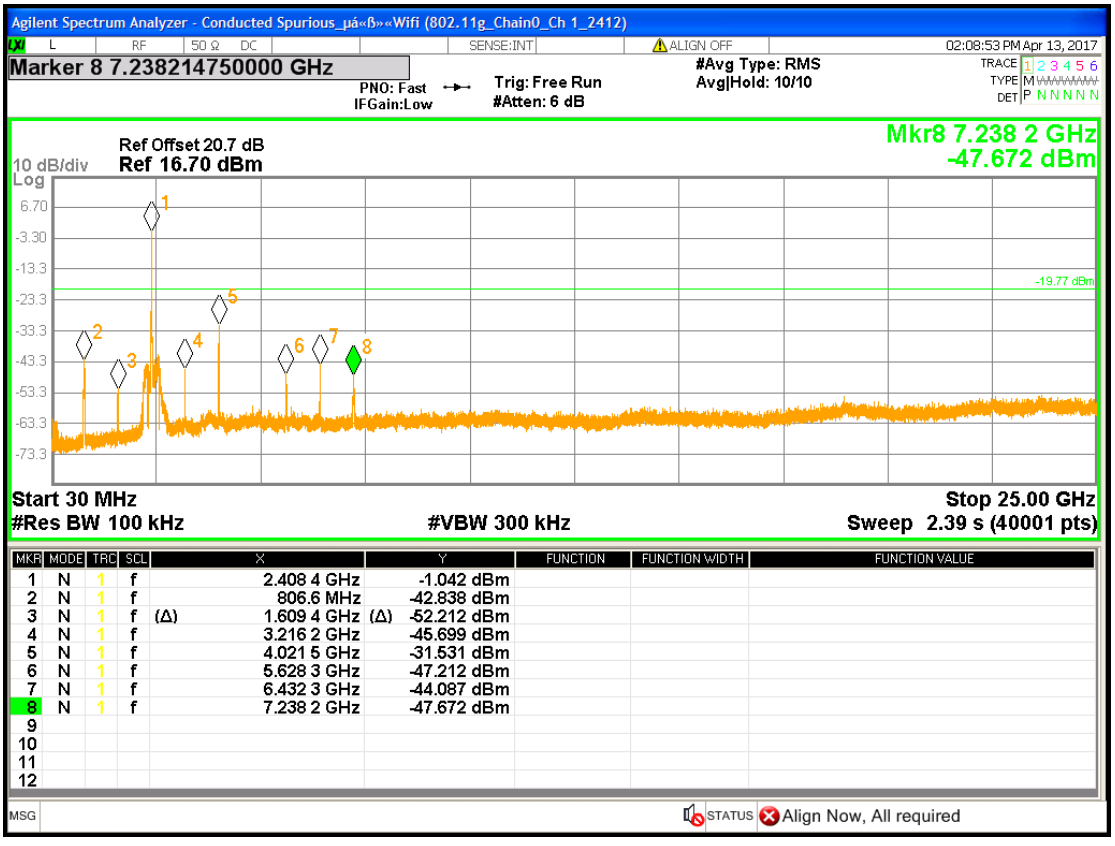


MKR	MODE	TRC	SCL	X	Y	FUNCTION	FUNCTION WIDTH	FUNCTION VALUE
1	N	1	f	2.462 7 GHz	1.406 dBm			
2	N	1	f	820.9 MHz	-39.409 dBm			
3	N	1	f	1.641 2 GHz	-40.996 dBm			
4	N	1	f	3.283 0 GHz	-46.183 dBm			
5	N	1	f	4.100 7 GHz	-31.275 dBm			
6	N	1	f	4.924 1 GHz	-48.981 dBm			
7	N	1	f	5.744 4 GHz	-46.589 dBm			
8	N	1	f	6.565 3 GHz	-44.581 dBm			
9	N	1	f	7.386 8 GHz	-49.754 dBm			
10								
11								
12								

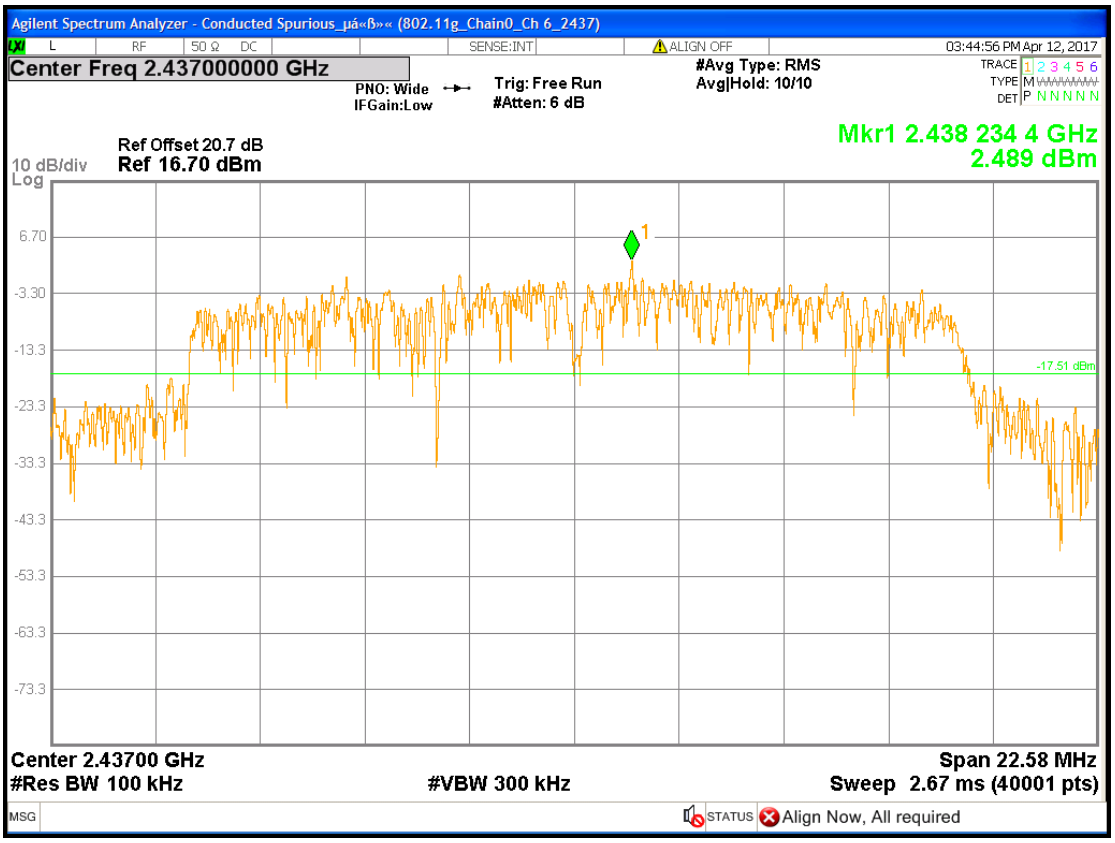
Chain0 : Conducted Spurious @ 802.11g mode Ch 1



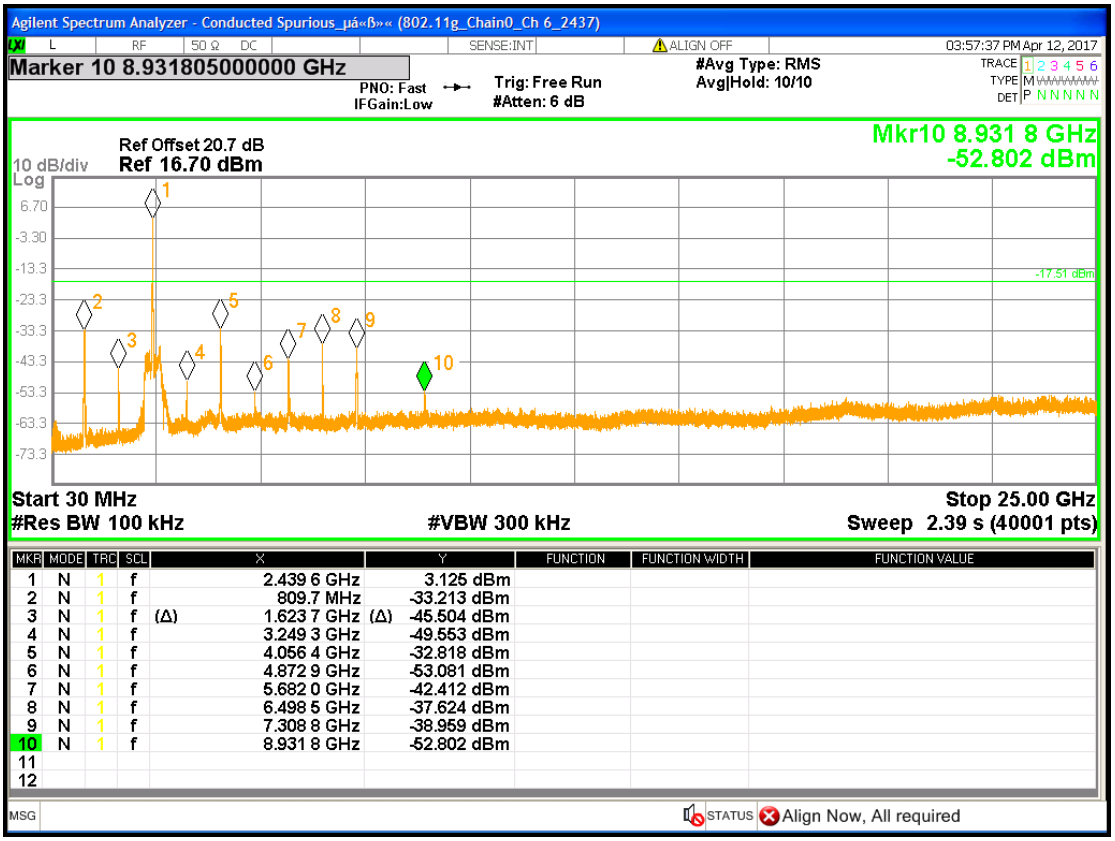
Chain0 : Conducted Spurious @ 802.11g mode Ch 1



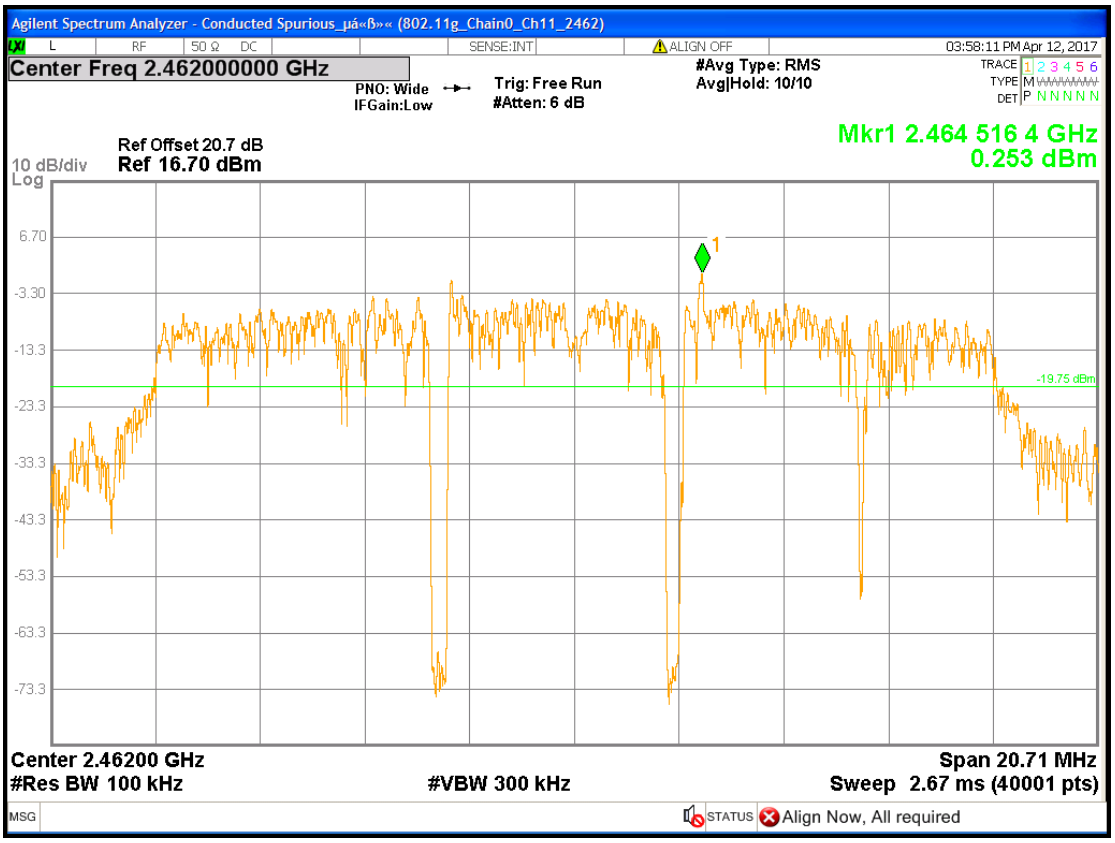
Chain0 : Conducted Spurious @ 802.11g mode Ch 6



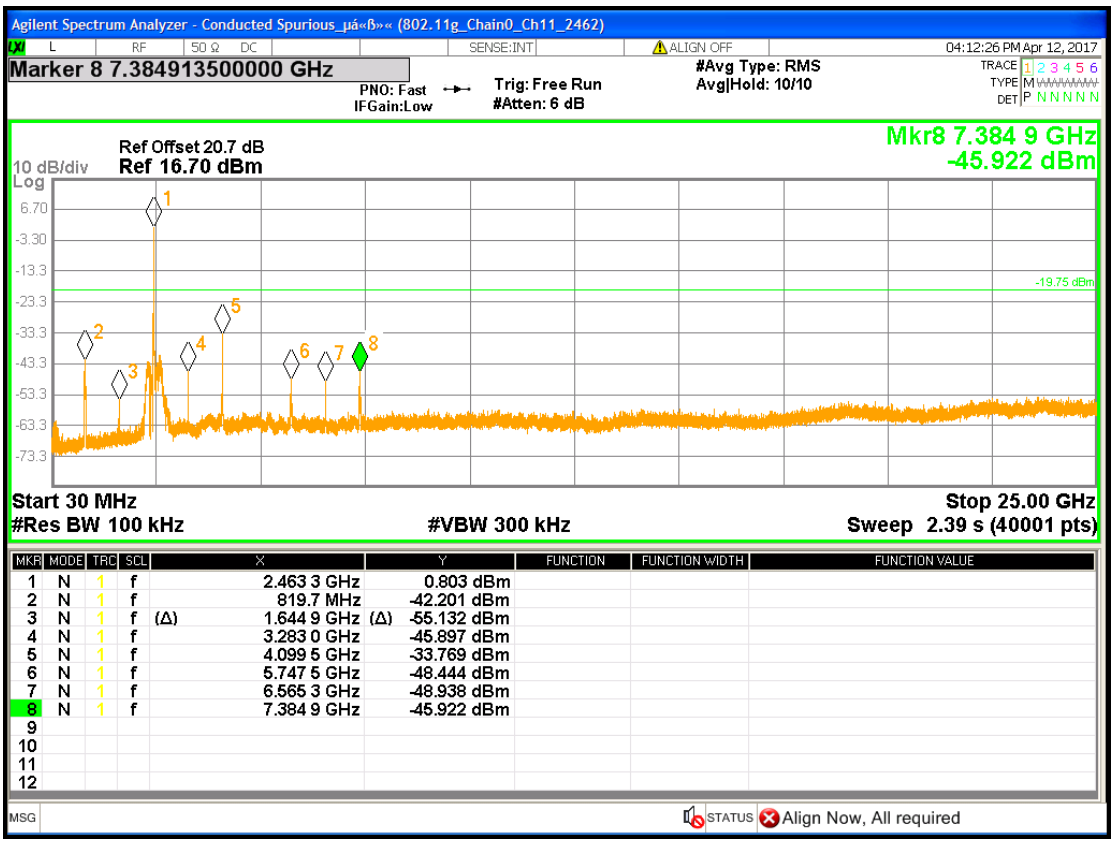
Chain0 : Conducted Spurious @ 802.11g mode Ch 6



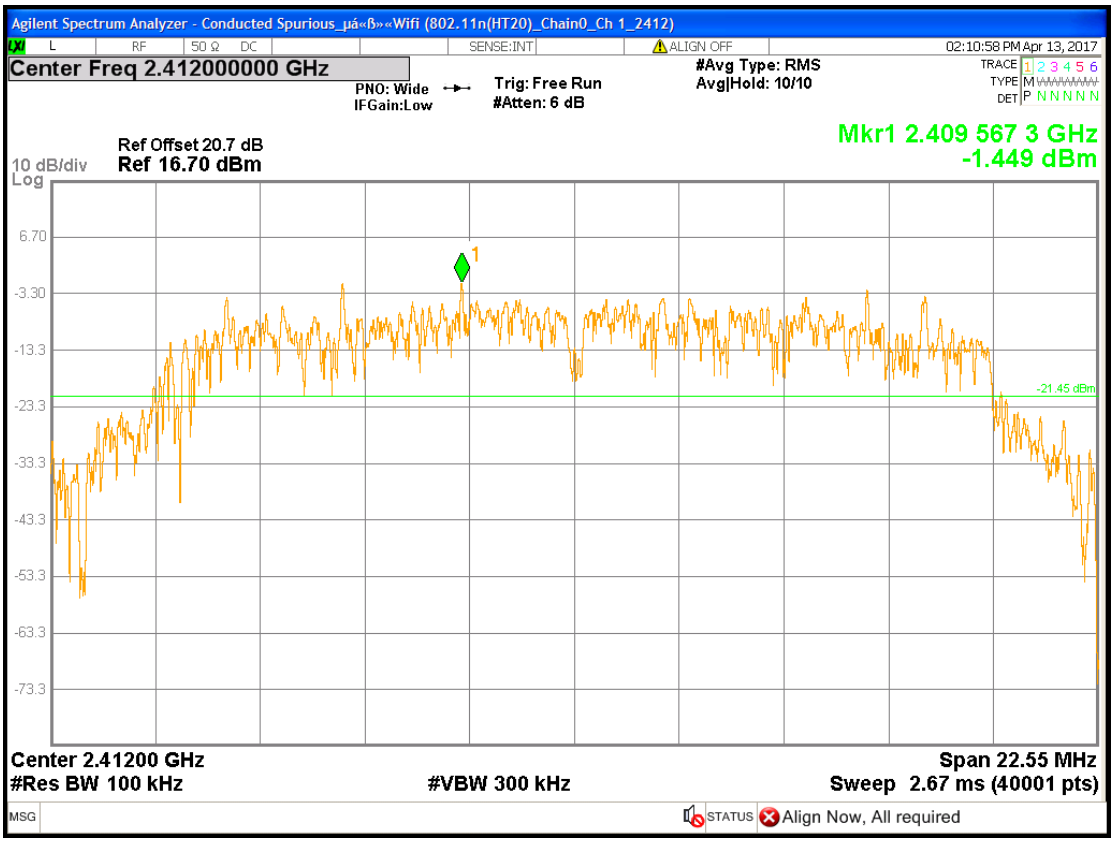
Chain0 : Conducted Spurious @ 802.11g mode Ch11



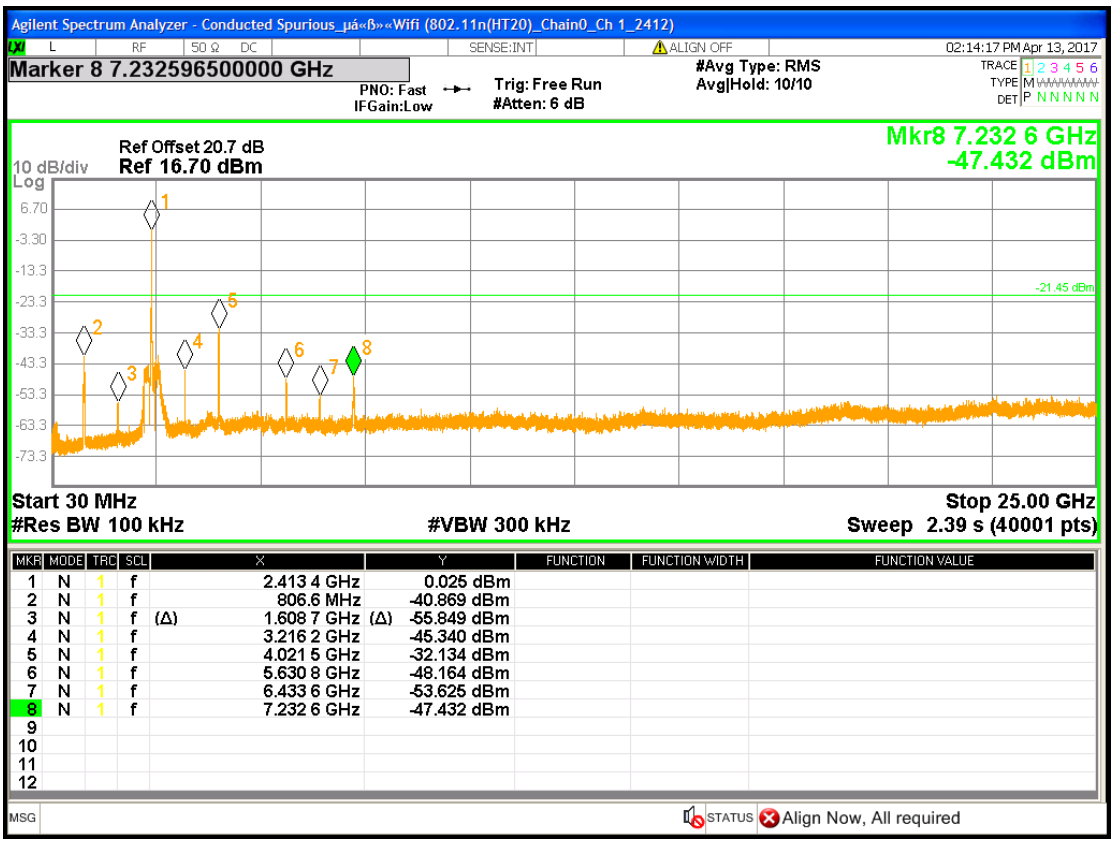
Chain0 : Conducted Spurious @ 802.11g mode Ch11



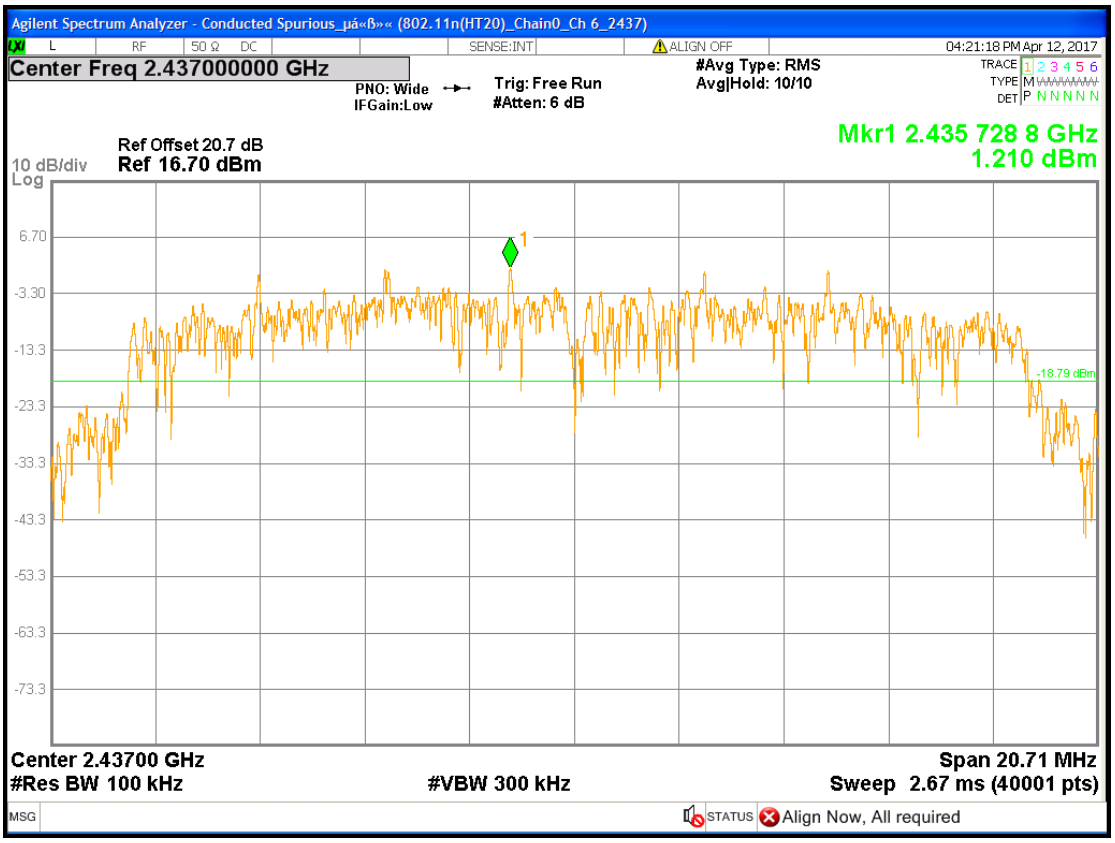
Chain0 : Conducted Spurious @ 802.11n(HT20) mode Ch 1



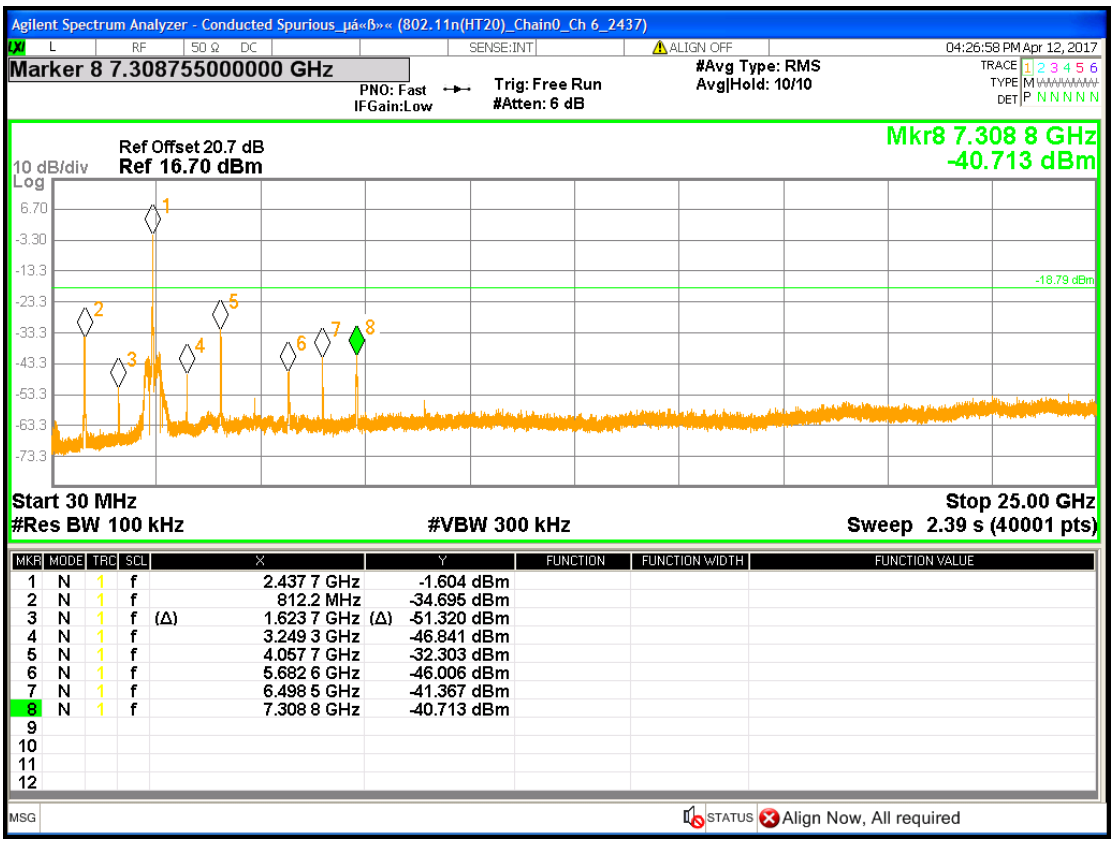
Chain0 : Conducted Spurious @ 802.11n(HT20) mode Ch 1



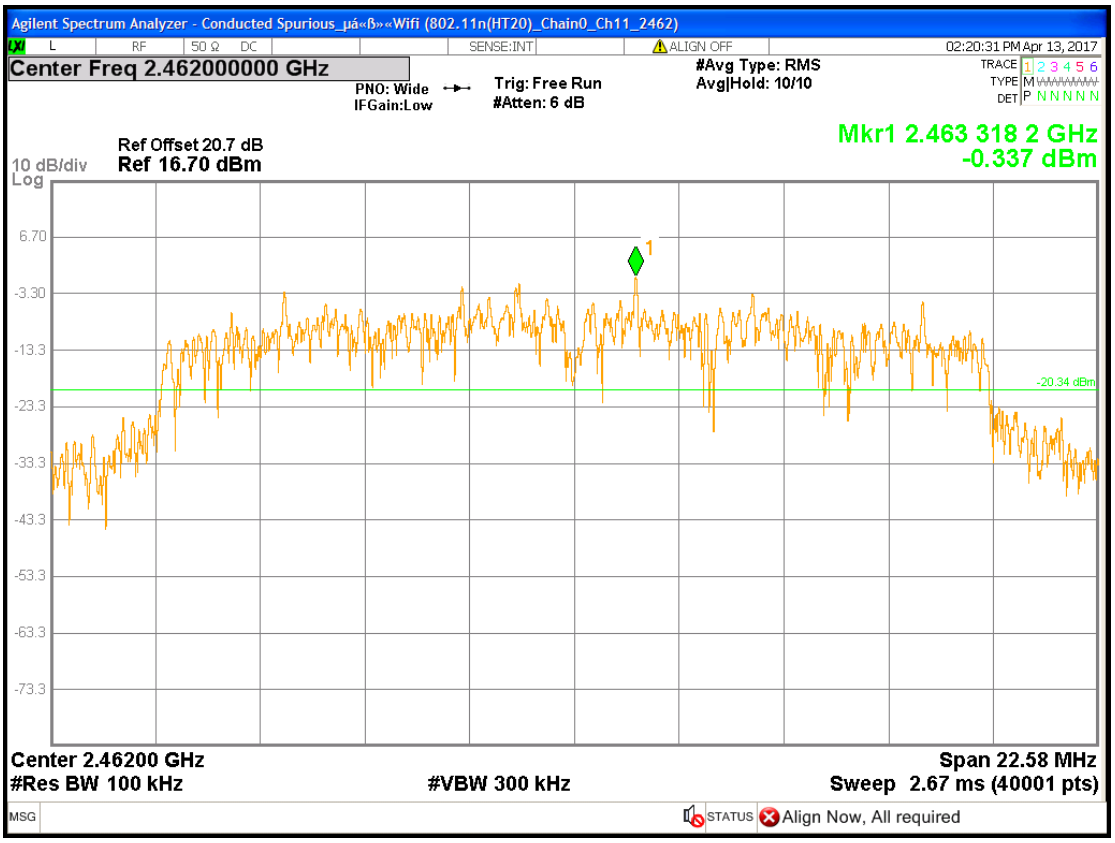
Chain0 : Conducted Spurious @ 802.11n(HT20) mode Ch 6



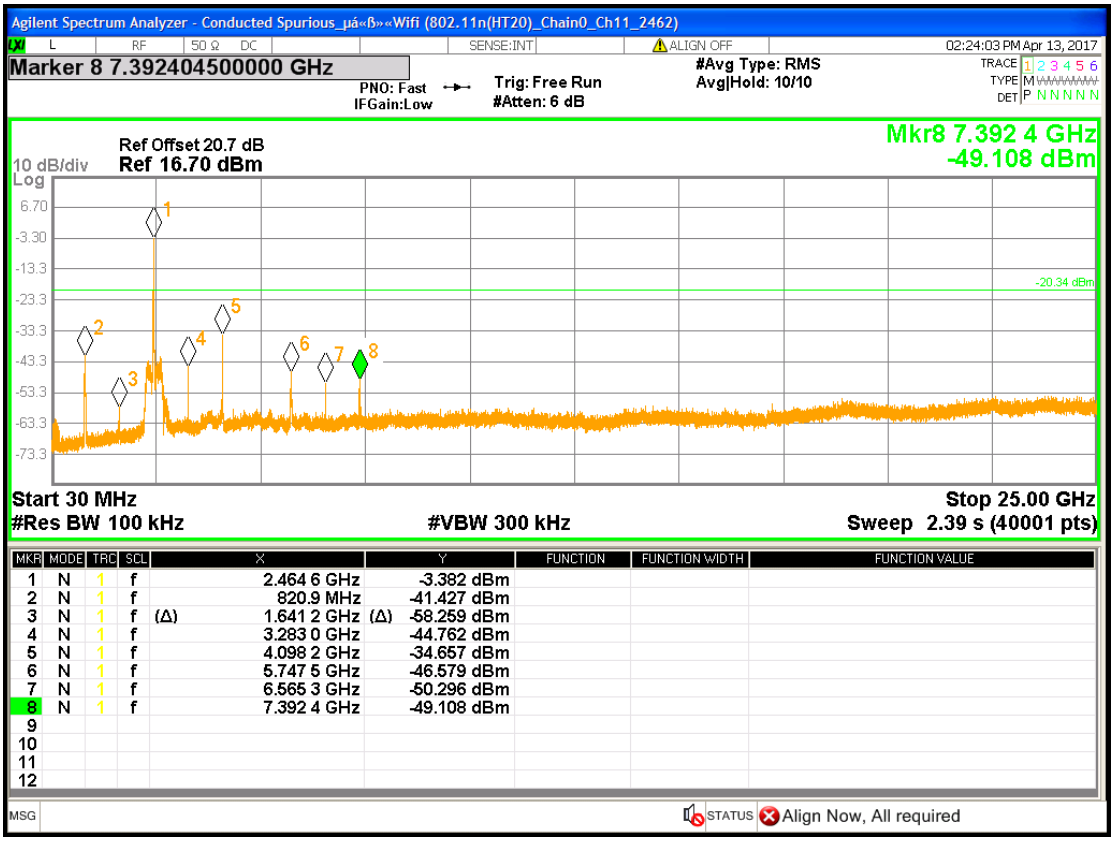
Chain0 : Conducted Spurious @ 802.11n(HT20) mode Ch 6



Chain0 : Conducted Spurious @ 802.11n(HT20) mode Ch11



Chain0 : Conducted Spurious @ 802.11n(HT20) mode Ch11



7. Emissions In Restricted Frequency Bands (Radiated emission measurements)

7.1 Operating environment

Temperature:	25	℃
Relative Humidity:	50	%
Atmospheric Pressure	1008	hPa
Requirement	15.247(d), 15.205, 15.209	

7.2 Limit for emission in restricted frequency bands (Radiated emission measurement)

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement distance (meters)
0.009~0.490	2400/F(kHz)	300
0.490~1.705	2400/F(kHz)	30
1.705~30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Remark:

1. In the above table, the tighter limit applies at the band edges.
2. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system

7.3 Measuring instrument setting

Below 1GHz measurement

Receiver settings	
Receiver function	**Setting**
Detector	QP
RBW	9-150 kHz ; 200-300 Hz 0.15-30 MHz; 9-10 kHz 30-1000 MHz; 100-120 kHz
VBW	≧3 x RBW
Sweep	Auto couple
Attenuation	Auto

Above 1GHz measurement

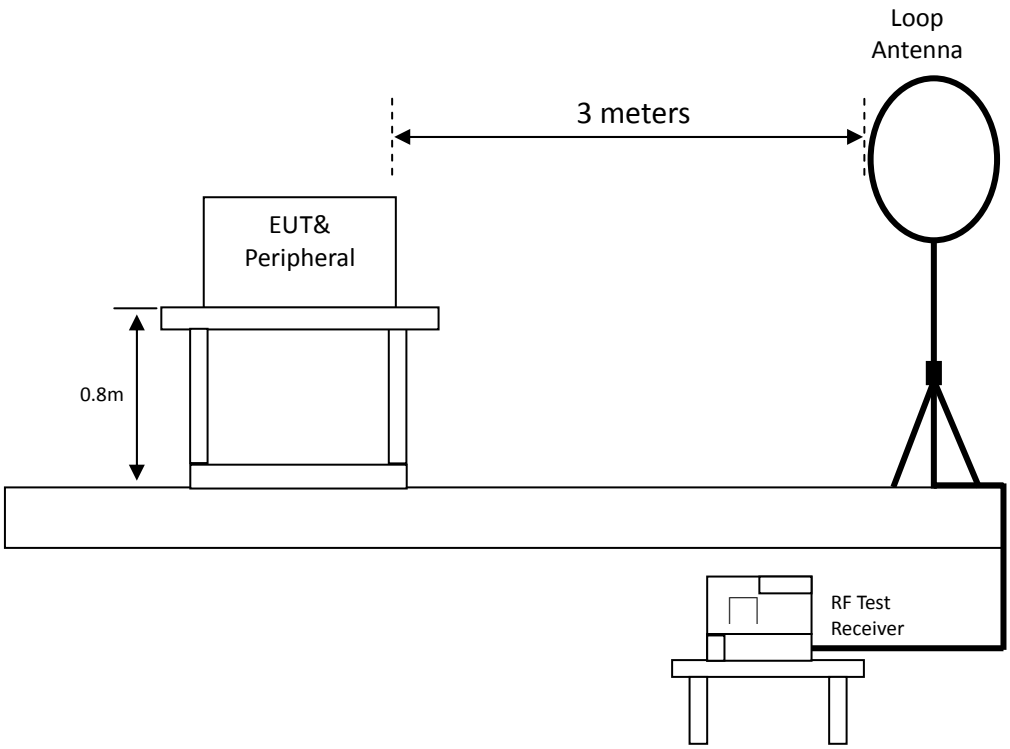
Spectrum analyzer settings	
Spectrum Analyzer function	**Setting**
Detector	Peak
RBW	1MHz
VBW	3MHz for Peak and Average
Sweep	Auto couple
Start Frequency	1GHz
Stop Frequency	Tenth harmonic
Attenuation	Auto

7.4 Test procedure

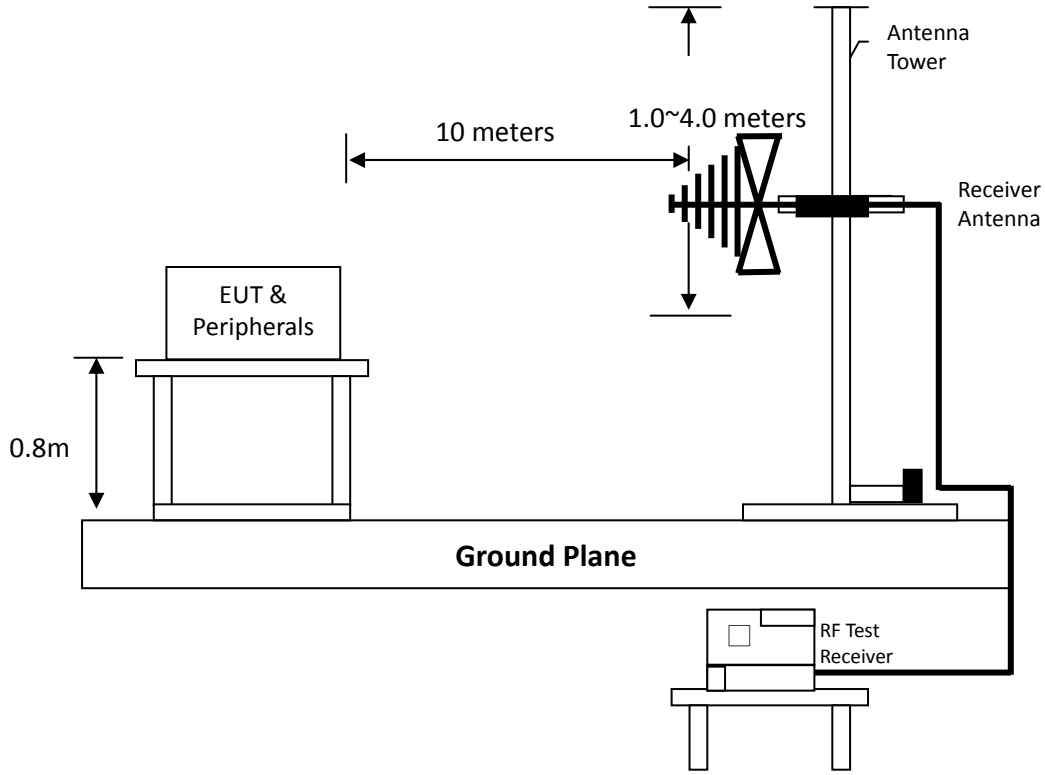
1. Configure the EUT according to ANSI C63.10. The EUT was placed on the top of the turntable 0.8 meter or 1.5 meter above ground. The center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.
2. Power on the EUT and all the companion devices. The turntable was rotated by 360 degree to find the position of the maximum emission level.
3. The height of the receiving antenna was varied between one meter and four meters above ground to find the maximum emission field strength of the both horizontal and vertical polarization
4. If find the frequencies above the limit or below within 3dB, the antenna tower was scan (from 1m to 4m) and then the turntable was rotated to find the maximum reading.
5. Set the test-receiver system to peak or CISPR quasi-peak detector with specified bandwidth under maximum hold mode.
6. For emissions above 1GHz, use 1MHz VBW and 3MHz RBW for peak and average reading Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the measurement antenna aimed at the source of emissions at each frequency of significant emissions, with polarization oriented for maximum response.
7. If the emissions level of the EUT in peak mode was 3dB lower than the average limit specified then testing will be stopped and peak values of the EUT will be reported. Otherwise, the emissions which do not have 3dB margin will be measured using the quasi-peak method for below 1GHz.
8. For testing above 1GHz, The emissions level of the EUT in peak mode was lower than average limit, then testing will be stopped and peak values of the EUT will be reported, otherwise, the emission will be measured in average mode again and reported.
9. In case the emission is lower than 30MHz, loop antenna has to be used for measurement and the recorded data should be quasi-peak measured by receiver.

7.5 Test configuration

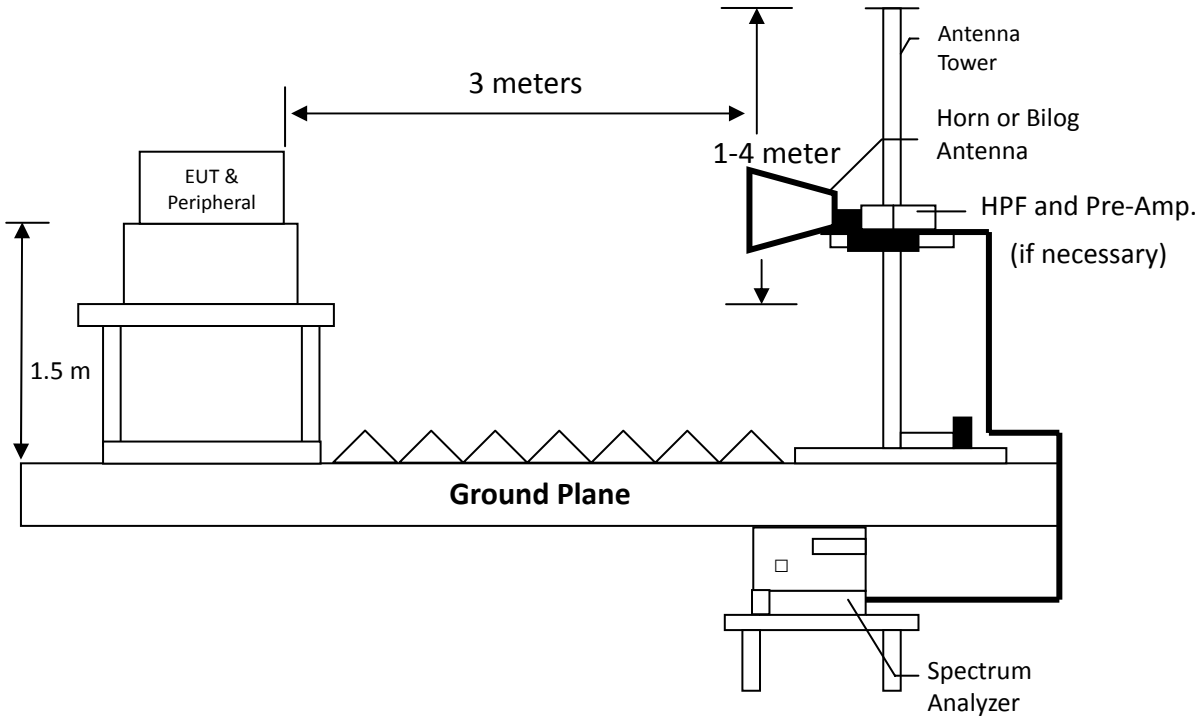
7.5.1 Radiated emission from 9kHz to 30MHz uses Loop Antenna:



7.5.2 Radiated emission below 1GHz using Bilog Antenna



7.5.3 Radiated emission above 1GHz using Horn Antenna



7.6 Test result

7.6.1 Measurement results: frequencies 9kHz to 30MHz

The test was performed on EUT under 802.11b/g/n continuously transmitting mode. The worst case occurred at 802.11g ch 6.

EUT : SmartPlug SP-A-PH
Worst Case : 802.11g ch 6

Polarity (circle)	Frequency (MHz)	Detection Value	Factor (dB/m)	Reading (dBµV)	Value (dBµV/m)	Limit @ 3m (dBµV/m)	Tolerance (dB)
Plane	0.02	QP	90.60	-33.89	56.71	121.58	-64.87
Plane	0.03	QP	85.90	-31.82	54.08	118.06	-63.98
Plane	0.04	QP	83.20	-32.89	50.31	115.56	-65.25
Plane	0.06	QP	79.24	-29.36	49.88	112.04	-62.16
Plane	0.09	QP	75.46	-30.60	44.86	108.52	-63.66
Plane	0.11	QP	73.72	-28.32	45.40	106.78	-61.38
Plane	0.15	QP	71.78	-22.50	49.28	104.08	-54.80
Plane	0.45	QP	61.35	-8.41	52.94	94.54	-41.60
Plane	0.99	QP	54.81	-8.89	45.92	67.69	-21.77
Plane	1.46	QP	52.54	-10.44	42.10	64.32	-22.22
Plane	1.94	QP	50.28	-10.21	40.07	69.54	-29.47
Plane	2.48	QP	47.74	-11.11	36.63	69.54	-32.91

Remark: Corr. Factor = Antenna Factor + Cable Loss - PreAmplifier Gain

7.6.2 Measurement results: frequencies below 1 GHz

The test was performed on EUT under 802.11b/g/n continuously transmitting mode. The worst case occurred at 802.11g ch 6.

EUT : SmartPlug SP-A-PH
Worst Case : 802.11g ch 6

Antenna Polariz. (V/H)	Freq. (MHz)	Receiver Detector	Corr. Factor (dB/m)	Reading (dBµV)	Corrected Level (dBµV/m)	Limit @ 3 m (dBµV/m)	Margin (dB)
Vertical	37.76	QP	16.09	20.20	36.29	40.00	-3.71
Vertical	119.24	QP	13.78	24.92	38.70	43.50	-4.80
Vertical	202.66	QP	14.02	19.76	33.78	43.50	-9.72
Vertical	441.28	QP	20.98	18.94	39.92	46.00	-6.08
Vertical	483.96	QP	21.76	15.94	37.70	46.00	-8.30
Vertical	488.80	QP	21.84	18.52	40.36	46.00	-5.64
Horizontal	127.00	QP	14.58	24.78	39.35	43.50	-4.15
Horizontal	144.46	QP	16.26	19.81	36.07	43.50	-7.43
Horizontal	202.66	QP	14.02	22.47	36.49	43.50	-7.01
Horizontal	447.10	QP	21.13	15.32	36.45	46.00	-9.55
Horizontal	730.34	QP	26.21	11.84	38.05	46.00	-7.95
Horizontal	798.24	QP	27.28	12.99	40.27	46.00	-5.73

Remark: Corr. Factor = Antenna Factor + Cable Loss

7.6.3 Measurement results: frequency above 1GHz to 25GHz

EUT : SmartPlug SP-A-PH
Test mode : TX Mode

Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBµV)	Corrected Reading (dBµV/m)	Limit @ 3 m (dBµV/m)	Margin (dB)
802.11b Ch_1	3210	PK	V	39.88	-3.78	52.84	49.06	74.00	-24.94
	4020	PK	V	40.40	-1.50	55.82	54.32	74.00	-19.68
	4020	AV	V	40.40	-1.50	52.80	51.30	54.00	-2.70
	4824	PK	V	40.10	-0.04	50.57	50.53	74.00	-23.47
	6435	PK	V	38.30	6.07	48.06	54.13	74.00	-19.87
	6435	AV	V	38.30	6.07	45.23	51.30	54.00	-2.70
	3210	PK	H	39.88	-3.78	51.90	48.12	74.00	-25.88
	4020	PK	H	40.40	-1.50	54.41	52.91	74.00	-21.09
	4824	PK	H	40.10	-0.04	50.93	50.89	74.00	-23.11
	6435	PK	H	38.30	6.07	46.56	52.63	74.00	-21.37
802.11b Ch_6	3255	PK	V	39.91	-3.81	50.40	46.59	74.00	-27.41
	4065	PK	V	40.43	-1.46	57.67	56.21	74.00	-17.79
	4065	AV	V	40.43	-1.46	47.36	45.90	54.00	-8.10
	4874	PK	V	40.00	0.13	52.12	52.25	74.00	-21.75
	5685	PK	V	38.21	3.79	41.97	45.76	74.00	-28.24
	6495	PK	V	38.31	6.36	48.21	54.57	74.00	-19.43
	6495	AV	V	38.31	6.36	45.31	51.67	54.00	-2.33
	7311	PK	V	38.02	8.42	40.19	48.61	74.00	-25.39
	3255	PK	H	39.91	-3.81	50.18	46.37	74.00	-27.63
	4061	PK	H	40.43	-1.47	56.04	54.57	74.00	-19.43
	4061	AV	H	40.43	-1.47	53.21	51.74	54.00	-2.26
	4874	PK	H	40.00	0.13	52.84	52.97	74.00	-21.03
	6495	PK	H	38.31	6.36	47.88	54.24	74.00	-19.76
	6495	AV	H	38.31	6.36	44.86	51.22	54.00	-2.78
	7311	PK	H	38.02	8.42	37.03	45.45	74.00	-28.55

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

EUT : SmartPlug SP-A-PH
Test mode : TX Mode

Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBµV)	Corrected Reading (dBµV/m)	Limit @ 3 m (dBµV/m)	Margin (dB)
802.11b Ch_11	3285	PK	V	39.92	-3.83	50.87	47.04	74.00	-26.96
	3990	PK	V	40.38	-1.57	44.25	42.68	74.00	-31.32
	4095	PK	V	40.45	-1.44	54.72	53.28	74.00	-20.72
	4920	PK	V	39.92	0.28	45.97	46.25	74.00	-27.75
	5745	PK	V	38.21	3.82	40.29	44.11	74.00	-29.89
	6570	PK	V	38.31	6.53	47.74	54.27	74.00	-19.73
	6570	AV	V	38.31	6.53	45.15	51.68	54.00	-2.32
	7380	PK	V	37.96	8.64	40.36	49.00	74.00	-25.00
	3285	PK	H	39.92	-3.83	50.70	46.87	74.00	-27.13
	4110	PK	H	40.46	-1.43	54.94	53.51	74.00	-20.49
	4110	AV	H	40.46	-1.43	53.05	51.62	54.00	-2.38
	4920	PK	H	39.92	0.28	47.28	47.56	74.00	-26.44
	5745	PK	H	38.21	3.82	38.77	42.59	74.00	-31.41
	6570	PK	H	38.31	6.53	47.97	54.50	74.00	-19.50
	6570	AV	H	38.31	6.53	43.08	51.72	54.00	-2.28
	7380	PK	H	37.96	8.64	48.81	45.03	74.00	-28.97

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

EUT : SmartPlug SP-A-PH
Test mode : TX Mode

Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBµV)	Corrected Reading (dBµV/m)	Limit @ 3 m (dBµV/m)	Margin (dB)
802.11g Ch_1	3210	PK	V	39.88	-3.78	52.16	48.38	74.00	-25.62
	4020	PK	V	40.40	-1.50	55.28	53.78	74.00	-20.22
	4020	AV	V	40.40	-1.50	51.73	50.23	54.00	-3.77
	4824	PK	V	40.10	-0.04	47.60	47.56	74.00	-26.44
	5625	PK	V	38.21	3.76	39.67	43.43	74.00	-30.57
	6435	PK	V	38.30	6.07	48.26	54.33	74.00	-19.67
	6435	AV	V	38.30	6.07	45.27	51.34	54.00	-2.66
	7236	PK	V	38.08	8.19	40.97	49.16	74.00	-24.84
	3210	PK	H	39.88	-3.78	52.34	48.56	74.00	-25.44
	4020	PK	H	40.40	-1.50	52.80	51.30	74.00	-22.70
	4824	PK	H	40.10	-0.04	46.74	46.70	74.00	-27.30
	6435	PK	H	38.30	6.07	45.33	51.40	74.00	-22.60
	7236	PK	H	38.08	8.19	42.52	50.71	74.00	-23.29
802.11g Ch_6	3255	PK	V	39.91	-3.81	49.23	45.42	74.00	-28.58
	4065	PK	V	40.43	-1.46	56.40	54.94	74.00	-19.06
	4065	AV	V	40.43	-1.46	49.55	48.09	54.00	-5.91
	4874	PK	V	40.00	0.13	52.81	52.94	74.00	-21.06
	5685	PK	V	38.21	3.79	42.67	46.46	74.00	-27.54
	6495	PK	V	38.31	6.36	49.61	55.97	74.00	-18.03
	6495	AV	V	38.31	6.36	41.85	48.21	54.00	-5.79
	7311	PK	V	38.02	8.42	48.52	56.94	74.00	-17.06
	7311	AV	V	38.02	8.42	42.64	51.06	54.00	-2.94
	3255	PK	H	39.91	-3.81	49.91	46.10	74.00	-27.90
	4065	PK	H	40.43	-1.46	57.20	55.74	74.00	-18.26
	4065	AV	H	40.43	-1.46	52.80	51.34	54.00	-2.66
	4874	PK	H	40.00	0.13	51.09	51.22	74.00	-22.78
	5685	PK	H	38.21	3.79	45.93	49.72	74.00	-24.28
	6495	PK	H	38.31	6.36	47.96	54.32	74.00	-19.68
	6495	AV	H	38.31	6.36	41.96	48.32	54.00	-5.68
	7311	PK	H	38.02	8.42	45.91	54.33	74.00	-19.67
	7311	AV	H	38.02	8.42	38.38	46.80	54.00	-7.20

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

EUT : SmartPlug SP-A-PH
Test mode : TX Mode

Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)
802.11g Ch_11	3285	PK	V	39.92	-3.83	51.42	47.59	74.00	-26.41
	3900	PK	V	40.32	-2.01	43.15	41.14	74.00	-32.86
	4095	PK	V	40.45	-1.44	52.35	50.91	74.00	-23.09
	5745	PK	V	38.21	3.82	39.11	42.93	74.00	-31.07
	6570	PK	V	38.31	6.53	47.35	53.88	74.00	-20.12
	6570	AV	V	38.31	6.53	44.16	50.69	54.00	-3.31
	7380	PK	V	37.96	8.64	38.73	47.37	74.00	-26.63
	3285	PK	H	39.92	-3.83	51.32	47.49	74.00	-26.51
	4110	PK	H	40.46	-1.43	52.09	50.66	74.00	-23.34
	5745	PK	H	38.21	3.82	38.82	42.64	74.00	-31.36
	6570	PK	H	38.31	6.53	45.38	51.91	74.00	-22.09
	7380	PK	H	37.96	8.64	38.49	47.13	74.00	-26.87

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

EUT : SmartPlug SP-A-PH
Test mode : TX Mode

Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBµV)	Corrected Reading (dBµV/m)	Limit @ 3 m (dBµV/m)	Margin (dB)
802.11n HT20 , Ch 1	3210	PK	V	39.88	-3.78	54.68	50.90	74.00	-23.10
	4020	PK	V	40.40	-1.50	55.39	53.89	74.00	-20.11
	4020	AV	V	40.40	-1.50	53.25	51.75	54.00	-2.25
	4824	PK	V	40.10	-0.04	49.47	49.43	74.00	-24.57
	6435	PK	V	38.30	6.07	45.26	51.33	74.00	-22.67
	7236	PK	V	38.08	8.19	39.36	47.55	74.00	-26.45
	3210	PK	H	39.88	-3.78	56.66	52.88	74.00	-21.12
	4020	PK	H	40.40	-1.50	53.15	51.65	74.00	-22.35
	4824	PK	H	40.10	-0.04	49.41	49.37	74.00	-24.63
	6435	PK	H	38.30	6.07	43.42	49.49	74.00	-24.51
	7236	PK	H	38.08	8.19	36.21	44.40	74.00	-29.60
802.11n HT20 Ch_6	3255	PK	V	39.91	-3.81	50.02	46.21	74.00	-27.79
	4065	PK	V	40.43	-1.46	57.47	56.01	74.00	-17.99
	4065	AV	V	40.43	-1.46	52.29	50.83	54.00	-3.17
	4874	PK	V	40.00	0.13	48.96	49.09	74.00	-24.91
	5685	PK	V	38.21	3.79	40.78	44.57	74.00	-29.43
	6495	PK	V	38.31	6.36	46.82	53.18	74.00	-20.82
	7311	PK	V	38.02	8.42	40.77	49.19	74.00	-24.81
	3255	PK	H	39.91	-3.81	52.19	48.38	74.00	-25.62
	4065	PK	H	40.43	-1.46	53.98	52.52	74.00	-21.48
	4874	PK	H	40.00	0.13	47.65	47.78	74.00	-26.22
	6495	PK	H	38.31	6.36	42.48	48.84	74.00	-25.16
	7311	PK	H	38.02	8.42	39.96	48.38	74.00	-25.62

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

EUT : SmartPlug SP-A-PH
Test mode : TX Mode

Mode	Frequency (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Preamp. Gain (dB)	Correction Factor (dB/m)	Reading (dBµV)	Corrected Reading (dBµV/m)	Limit @ 3 m (dBµV/m)	Margin (dB)
802.11n HT20 Ch_11	3285	PK	V	39.92	-3.83	51.89	48.06	74.00	-25.94
	4095	PK	V	40.45	-1.44	55.18	53.74	74.00	-20.26
	4095	AV	V	40.45	-1.44	52.87	51.43	54.00	-2.57
	4924	PK	V	39.91	0.30	37.42	37.72	74.00	-36.28
	6570	PK	V	38.31	6.53	47.39	53.92	74.00	-20.08
	6570	AV	V	38.31	6.53	45.14	51.67	54.00	-2.33
	7386	PK	V	37.96	8.66	34.45	43.11	74.00	-30.89
	3285	PK	H	39.92	-3.83	50.77	46.94	74.00	-27.06
	4095	PK	H	40.45	-1.44	50.72	49.28	74.00	-24.72
	4800	PK	H	40.14	-0.11	42.41	42.30	74.00	-31.70
	4924	PK	H	39.91	0.30	38.55	38.85	74.00	-35.15
	6570	PK	H	38.31	6.53	43.79	50.32	74.00	-23.68
	7386	PK	H	37.96	8.66	37.50	46.16	74.00	-27.84

Remark: Correction Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Pre_Amplifier Gain

8. Emission On Band Edge

8.1 Operating environment

Temperature:	25	℃
Relative Humidity:	50	%
Atmospheric Pressure	1008	hPa
Requirement	15.247(d), 15.205	

8.2 Measuring instrument setting

Spectrum analyzer settings	
Spectrum Analyzer function	**Setting**
Detector	Peak
RBW	1MHz
VBW	3MHz for peak and 10Hz for average
Sweep	Auto couple
Restrict bands	2310~2390MHz
	2483.5 ~2500MHz
Attenuation	Auto

8.3 Test procedure

The test procedure is the same as clause 7.4

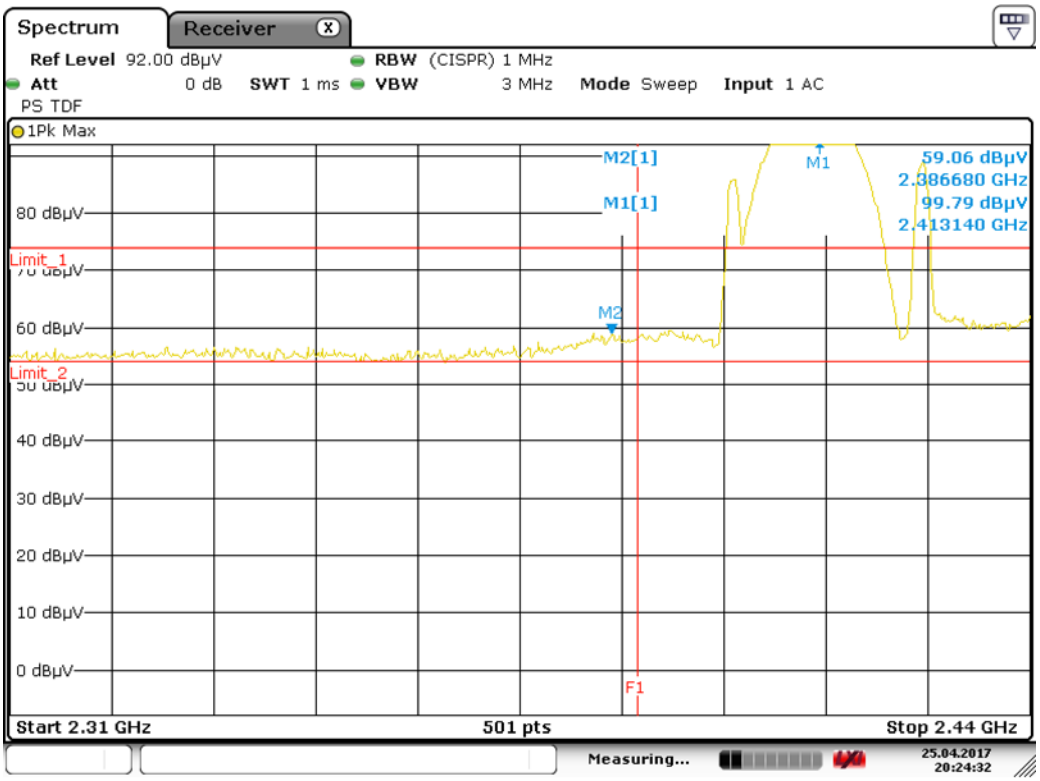
8.4 Test results

EUT : SmartPlug SP-A-PH
Test mode : TX Mode

Mode	Freq. (MHz)	Spectrum Analyzer Detector	Ant. Pol. (H/V)	Correction Factor (dB/m)	Reading (dBμV)	Corrected Reading (dBμV/m)	Limit @ 3 m (dBμV/m)	Margin (dB)	Restricted band (MHz)
802.11b Chain0	2386.68	PK	V	33.84	25.22	59.06	74	-14.94	2310~2390
	2390.00	AV	V	33.85	16.66	50.51	54	-3.49	
	2536.69	PK	V	34.42	32.59	67.01	74	-6.99	2483.5~2500
	2542.66	AV	V	34.43	19.25	53.68	54	-0.32	
802.11g Chain0	2389.79	PK	V	33.85	25.67	59.52	74	-14.48	2310~2390
	2390.00	AV	V	33.85	16.46	50.31	54	-3.69	
	2484.24	PK	V	34.30	32.44	66.74	74	-7.26	2483.5~2500
	2483.50	AV	V	34.30	17.23	51.53	54	-2.47	
802.11n (HT20)	2389.01	PK	V	33.85	24.46	58.31	74	-15.69	2310~2390
	2390.00	AV	V	33.85	16.45	50.30	54	-3.70	
	2485.02	PK	V	34.31	30.71	65.02	74	-8.98	2483.5~2500
	2483.50	AV	V	34.30	17.05	51.35	54	-2.65	

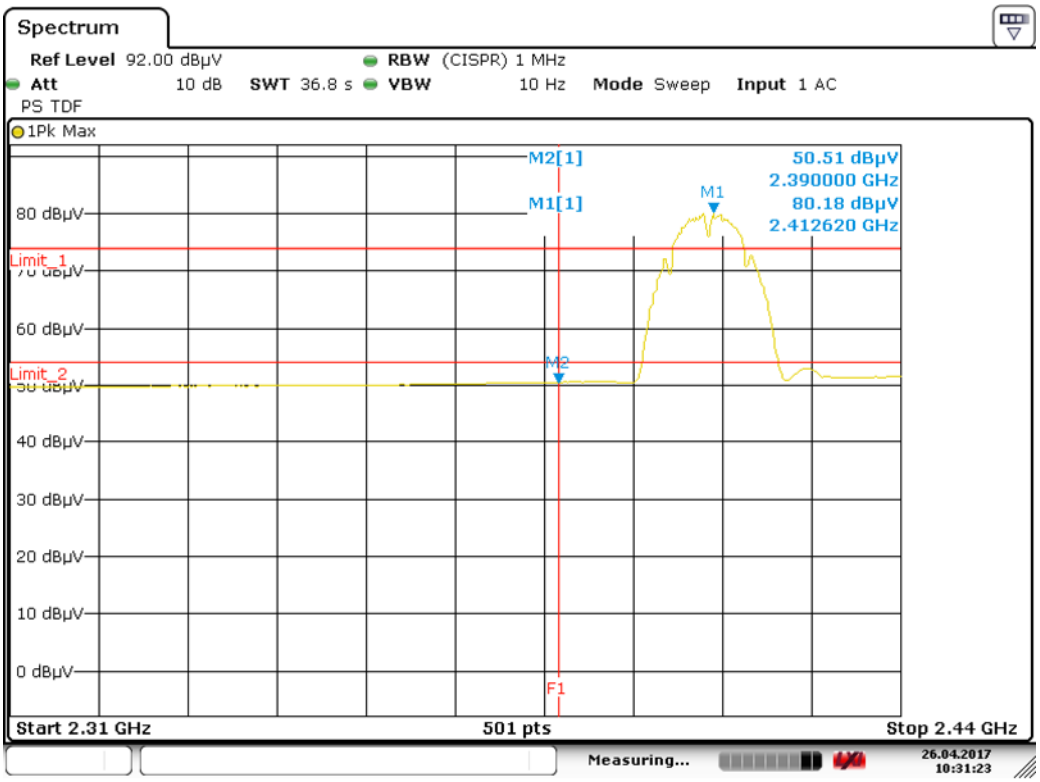
Remark: Correction Factor = Antenna Factor + Cable Loss

Chain0 : Bandedge @ 802.11b mode Ch 1 Peak



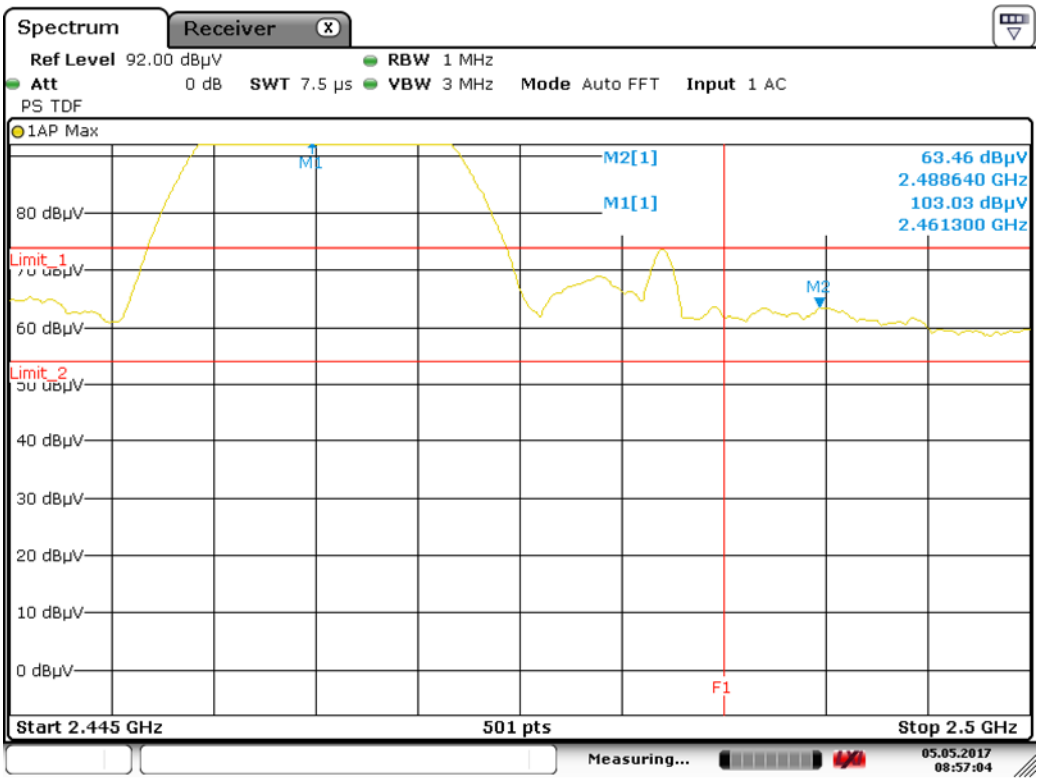
Date: 25.APR.2017 20:24:32

Chain0 : Bandedge @ 802.11b mode Ch1 Average



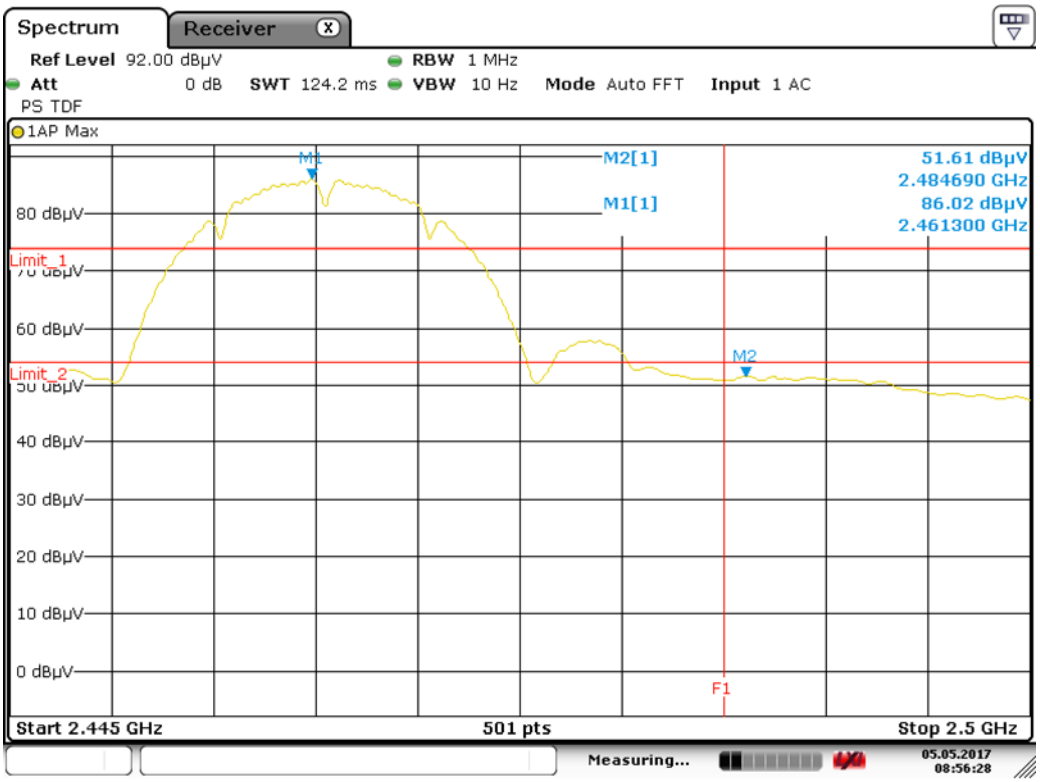
Date: 26.APR.2017 10:31:22

Chain0 : Bandedge @ 802.11b mode Ch11 Peak



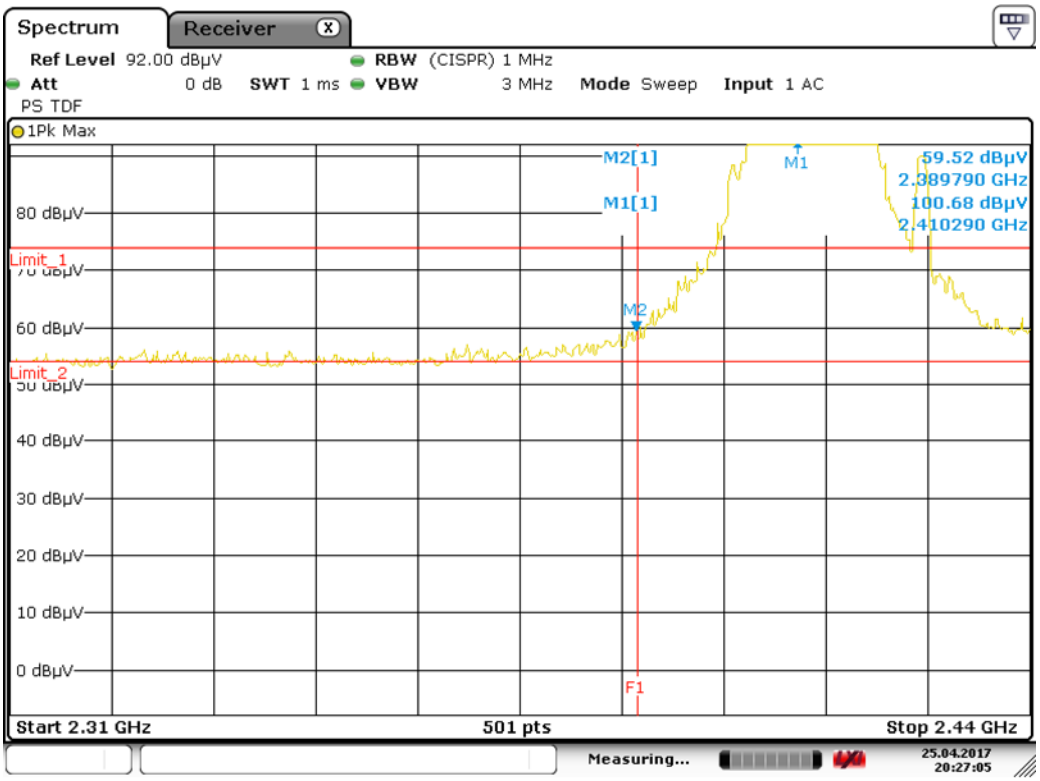
Date: 5.MAY.2017 08:57:04

Chain0 : Bandedge @ 802.11b mode Ch11 Average



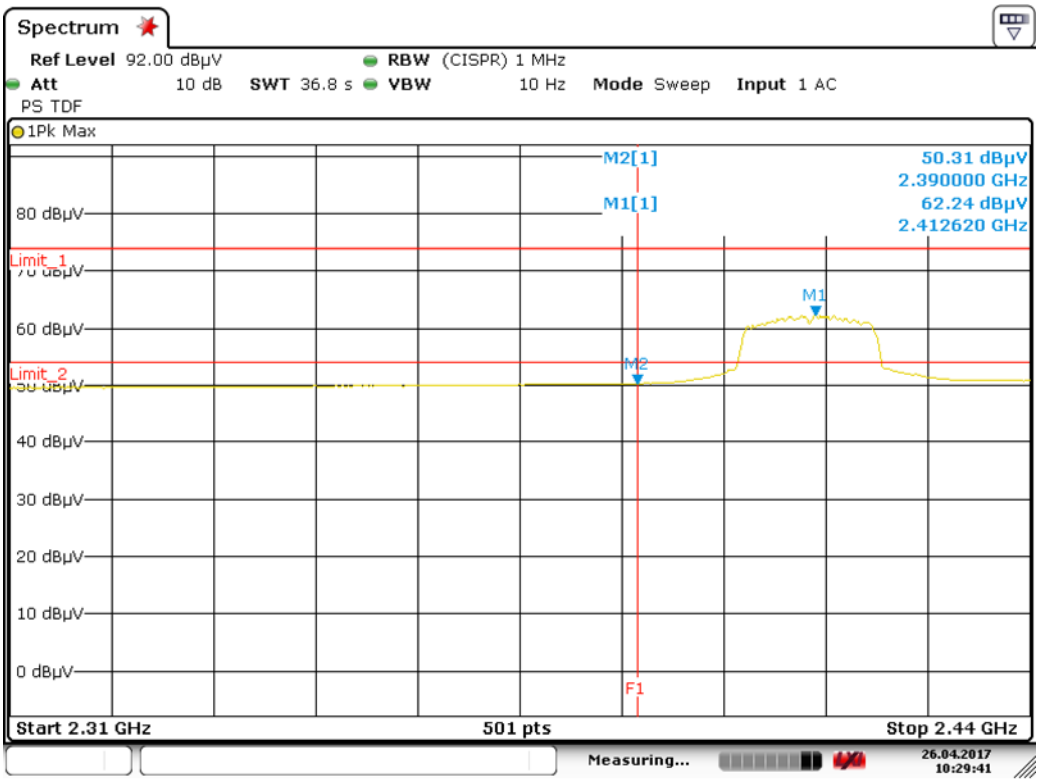
Date: 5.MAY.2017 08:56:28

Chain0 : Bandedge @ 802.11g mode Ch1 Peak



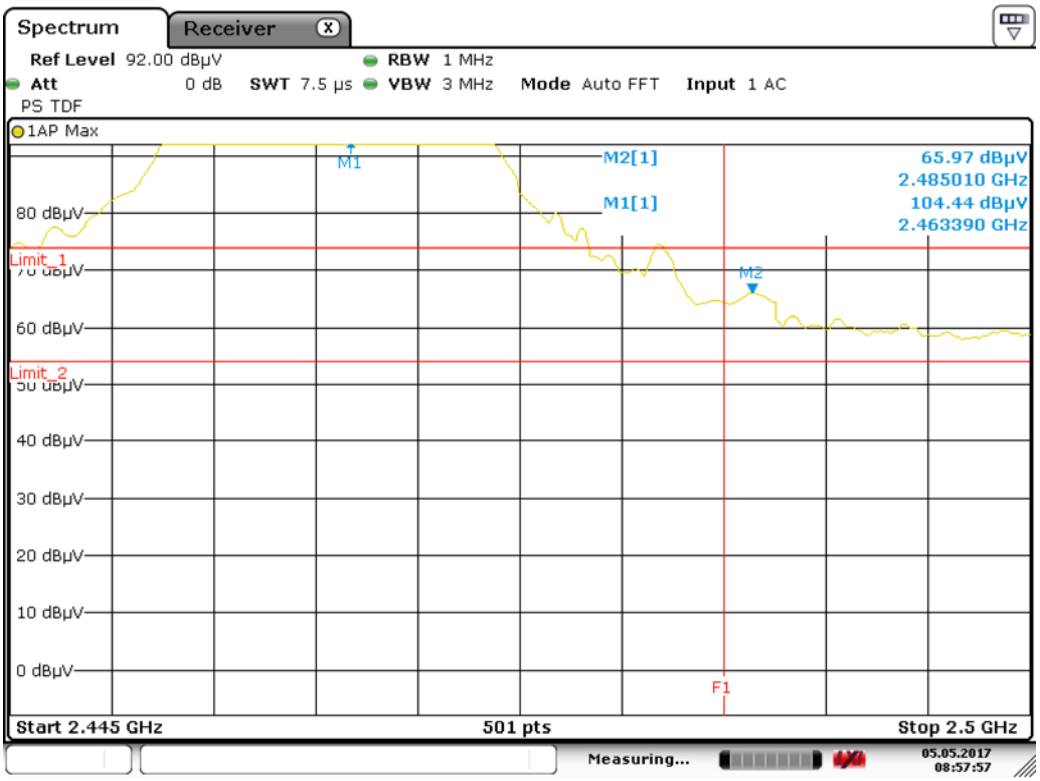
Date: 25.APR.2017 20:27:06

Chain0 : Bandedge @ 802.11g mode Ch1 Average



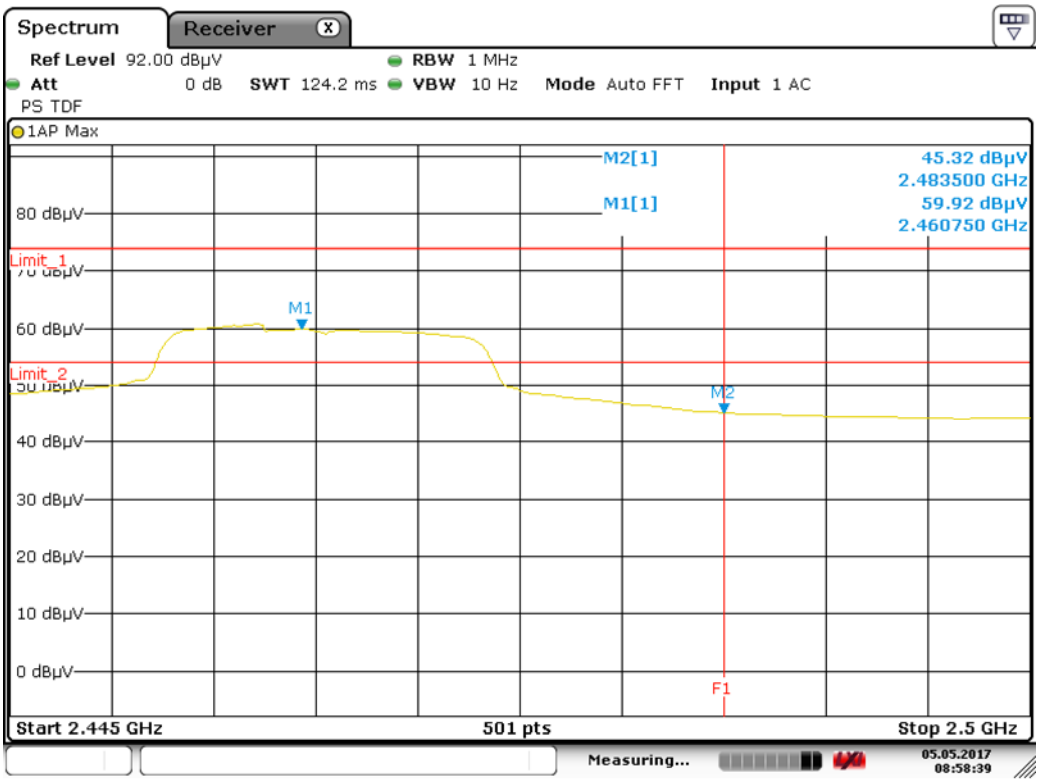
Date: 26.APR.2017 10:29:40

Chain0 : Bandedge @ 802.11g mode Ch 11 Peak



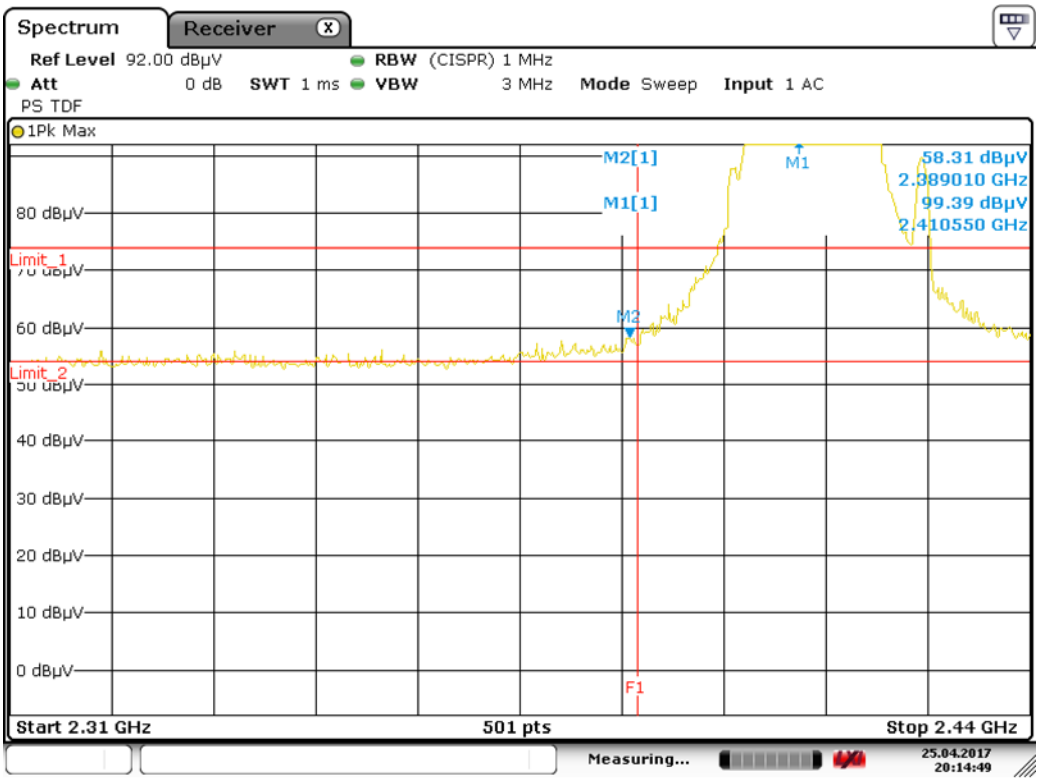
Date: 5.MAY.2017 08:57:57

Chain0 : Bandedge @ 802.11g mode Ch11 Average



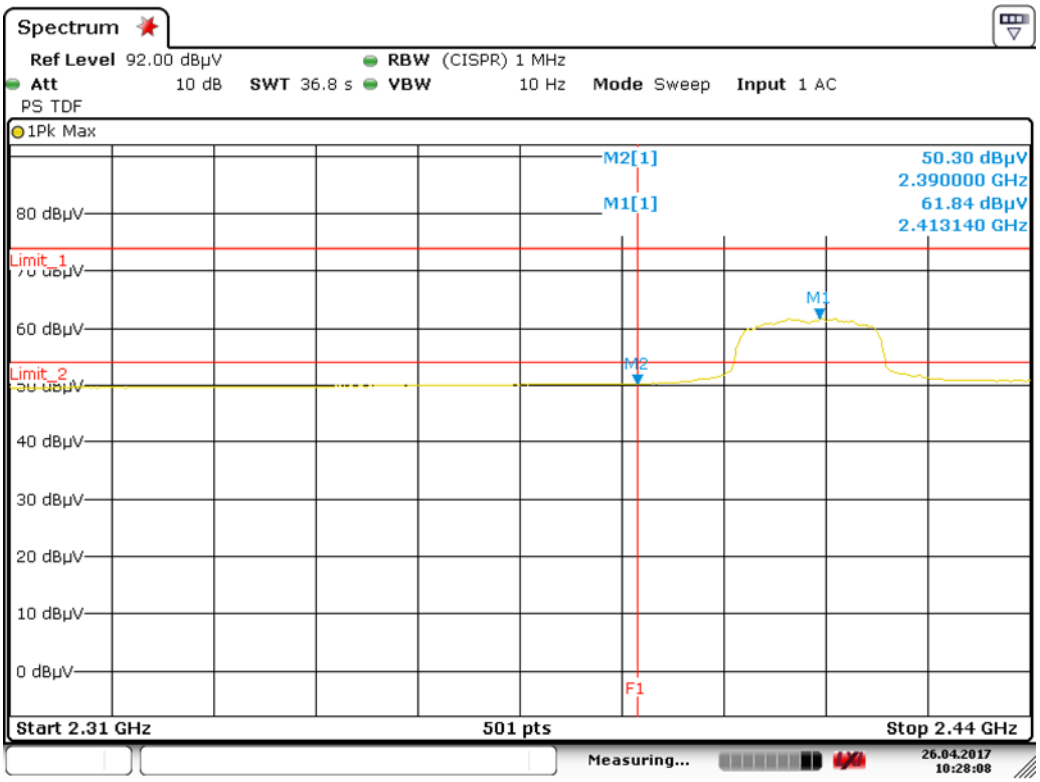
Date: 5.MAY.2017 08:58:39

Chain0 : Bandedge @ 802.11 n(HT20) mode Ch 1 Peak



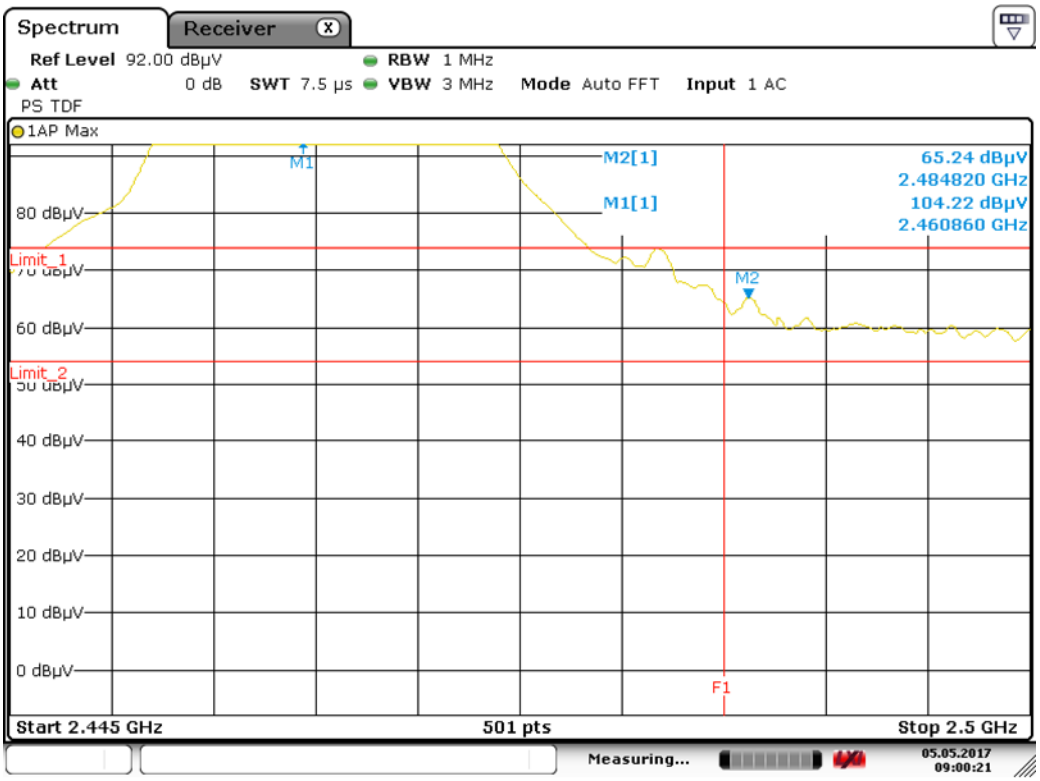
Date: 25.APR.2017 20:14:49

Chain0 : Bandedge @ 802.11 n(HT20) mode Ch1 Average



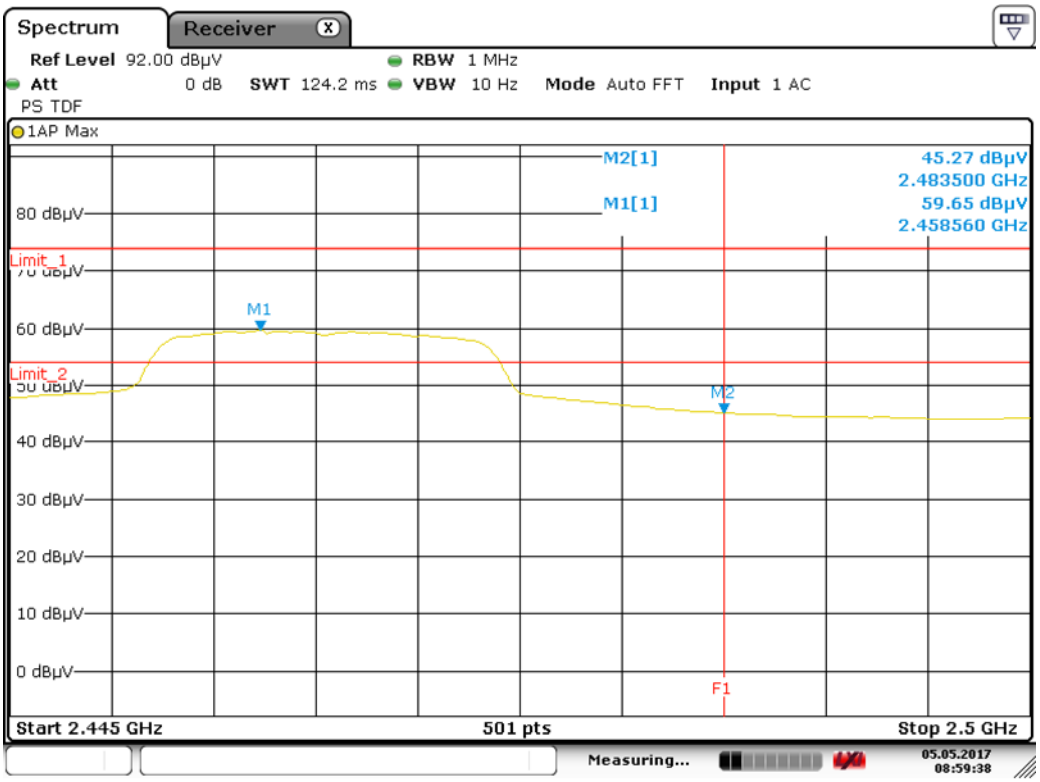
Date: 26.APR.2017 10:28:08

Chain0 : Bandedge @ 802.11 n(HT20) mode Ch 11 Peak



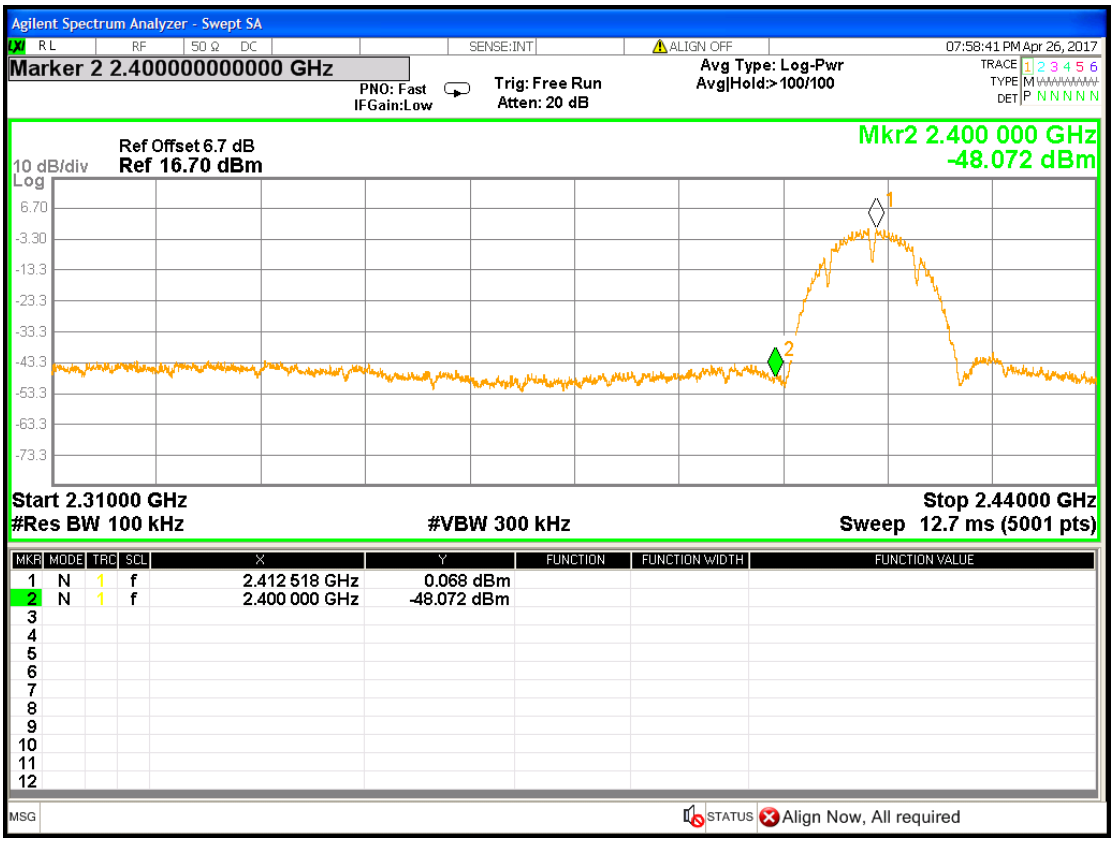
Date: 5.MAY.2017 09:00:21

Chain0 : Bandedge @ 802.11 n(HT20) mode Ch11 Average

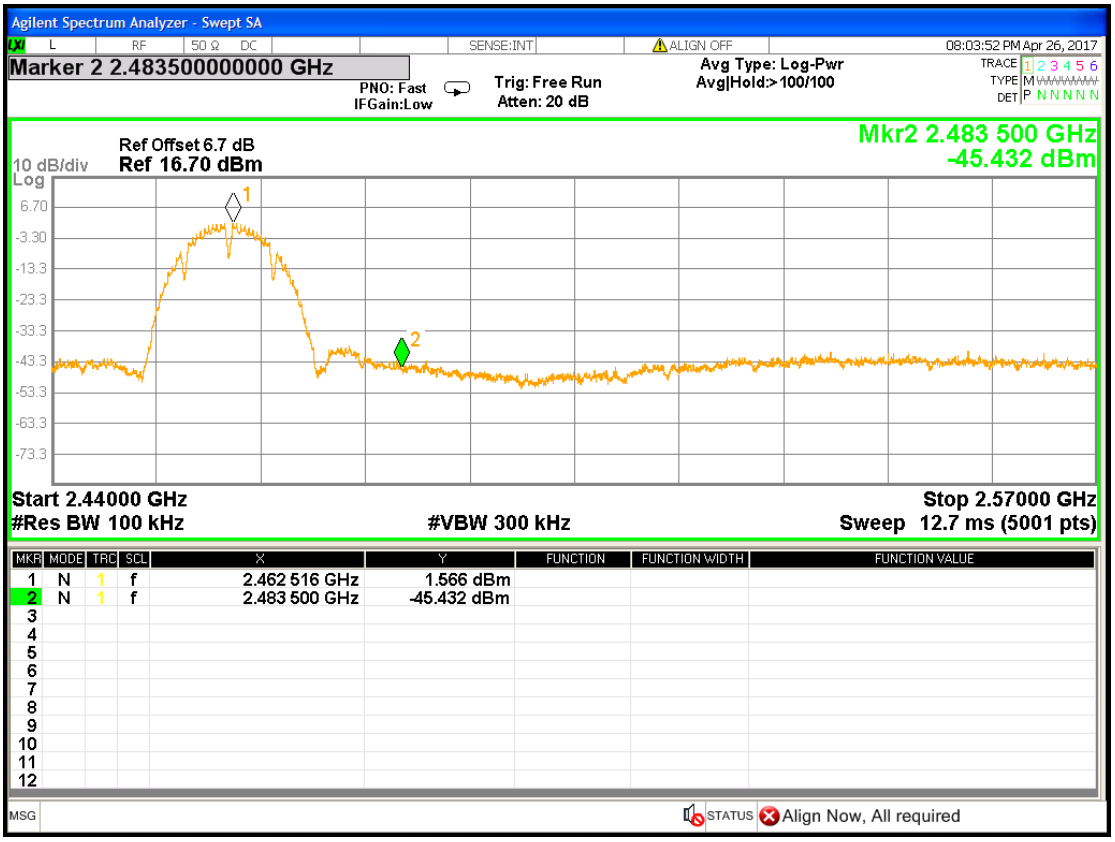


Date: 5.MAY.2017 08:59:38

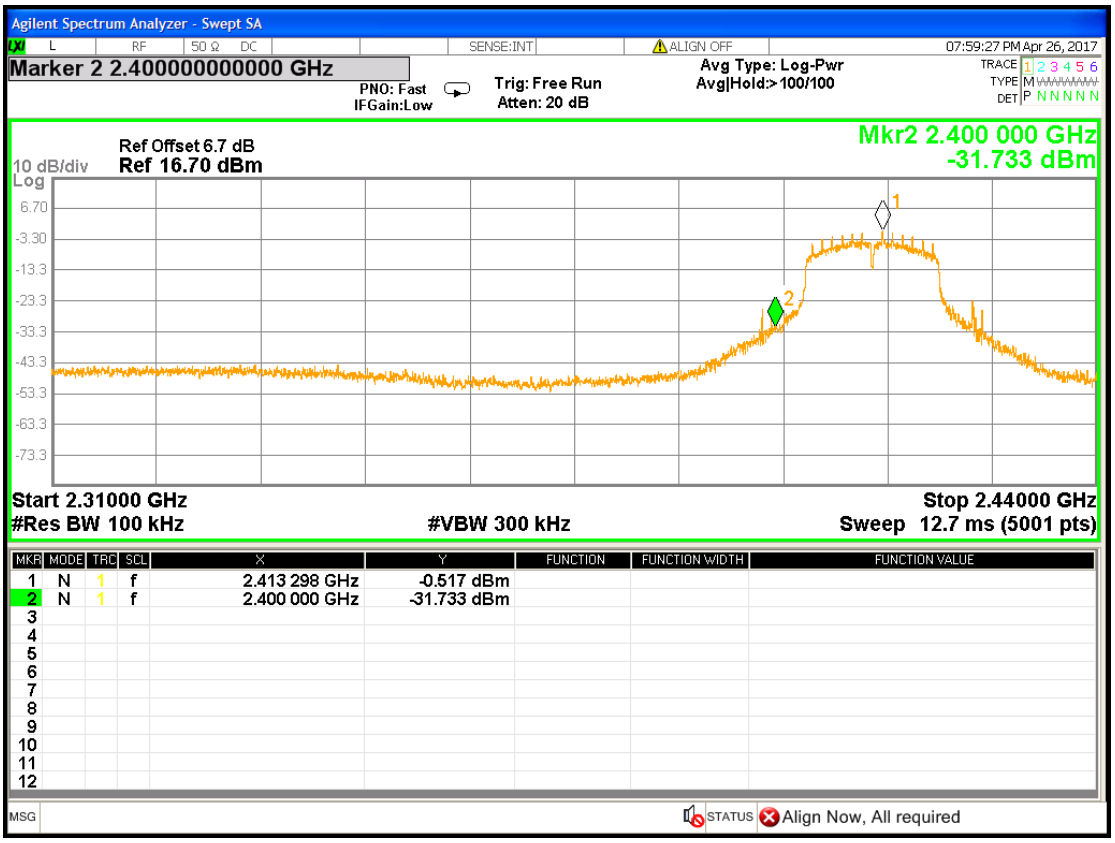
Chain0 : Authorized-Band Band edge @ 802.11b mode Ch 1



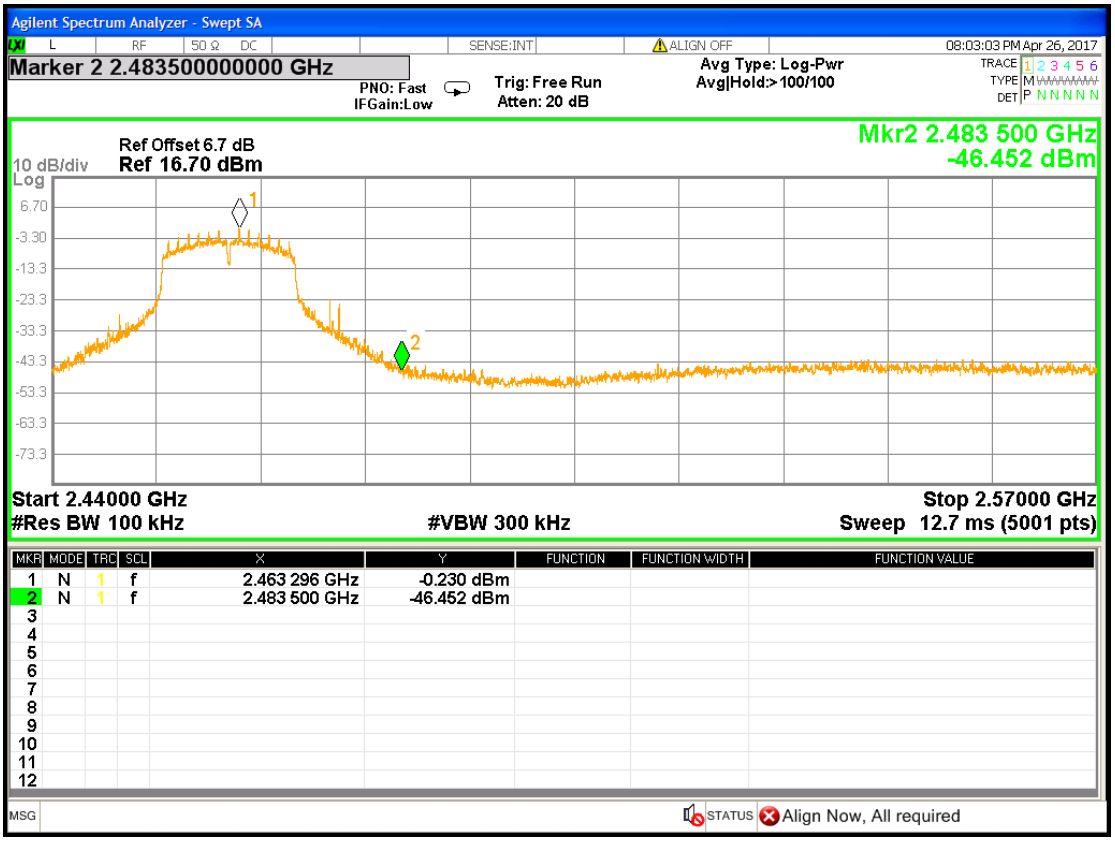
Chain0 : Authorized-Band Band edge @ 802.11b mode Ch11



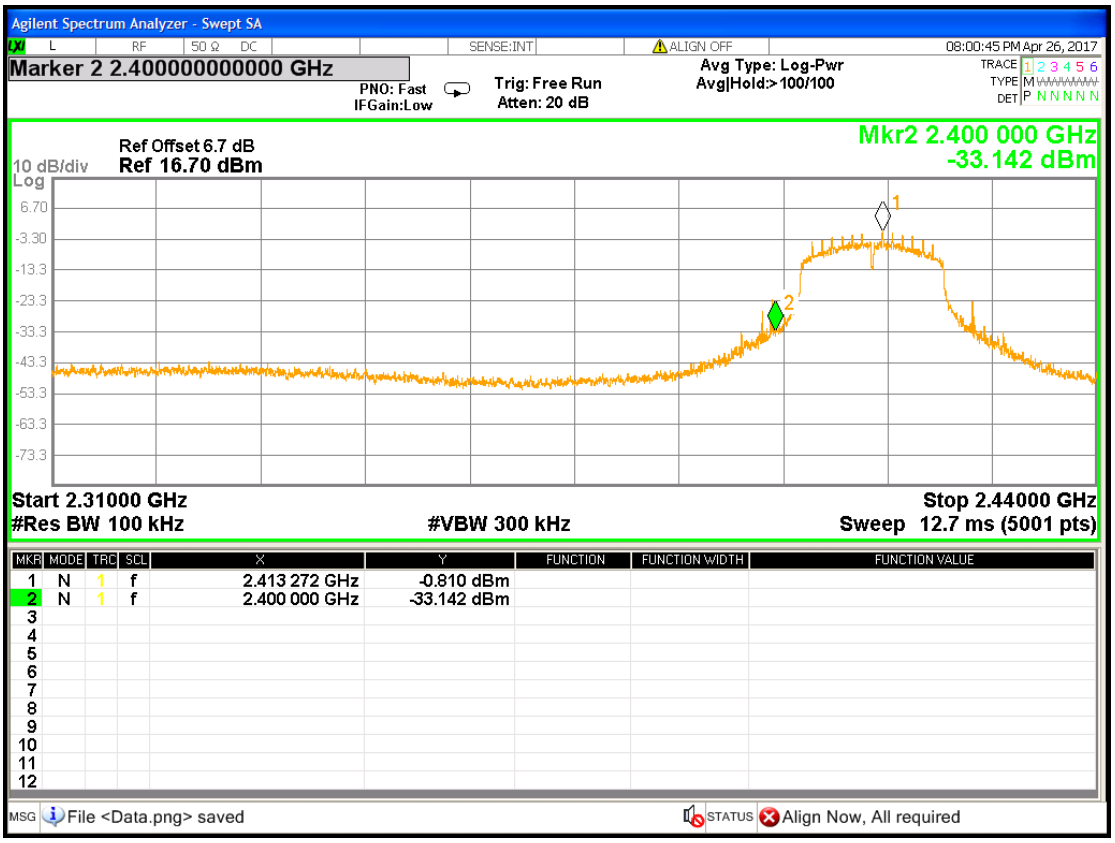
Chain0 : Authorized-Band Band edge @ 802.11g mode Ch 1



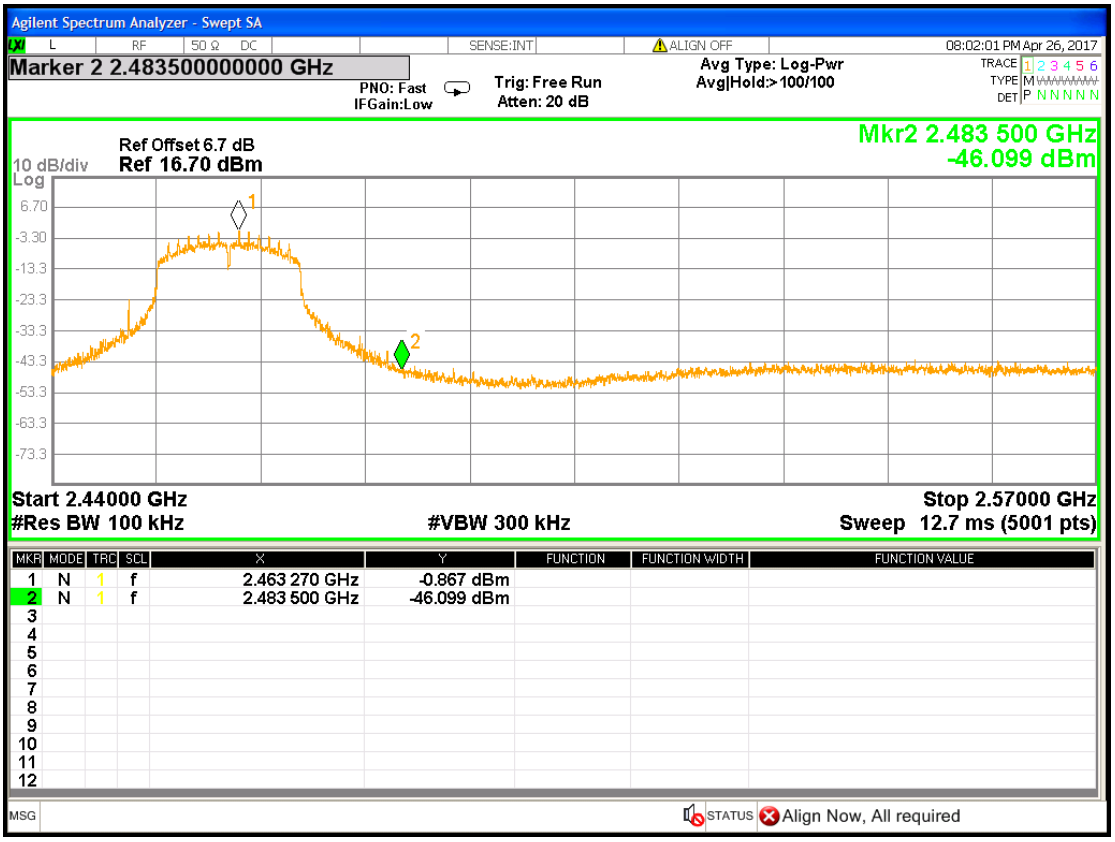
Chain0 : Authorized-Band Band edge @ 802.11g mode Ch11



Chain0 : Authorized-Band Band edge @ 802.11n(HT20) mode Ch 1



Chain0 : Authorized-Band Band edge @ 802.11n(HT20) mode Ch11



9. AC Power Line Conducted Emission

9.1 Operating environment

Temperature:	25	℃
Relative Humidity:	50	%
Atmospheric Pressure	1008	hPa
Test Voltage	120V, 60Hz	
Requirement	15.207	

9.2 Limit for AC power line conducted emission

Freq. (MHz)	Conducted Limit (dBuV)	
	Q.P.	Ave.
0.15~0.50	66 – 56*	56 – 46*
0.50~5.00	56	46
5.00~30.0	60	50

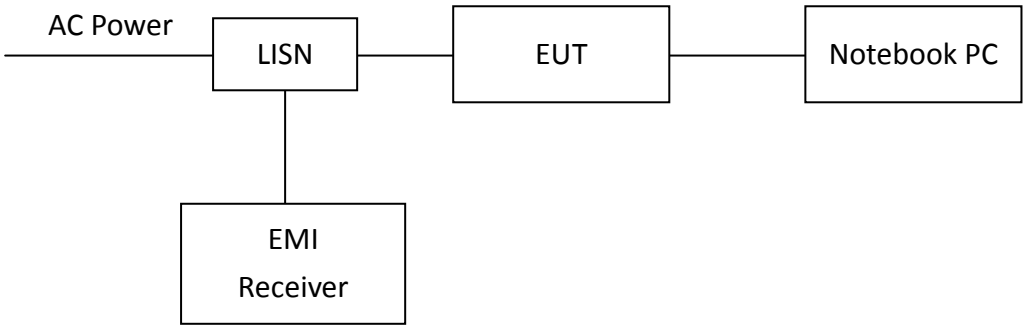
9.3 Measuring instrument setting

Receiver settings	
Receiver function	**Setting**
Detector	QP
Start frequency	0.15MHz
Stop frequency	30MHz
IF bandwidth	9 kHz
Attenuation	10dB

9.4 Test procedure

1. Configure the EUT according to ANSI C63.10. The EUT or host of EHT has to be placed 0.4 meter far from the conducting wall of the shielding room and at least 80 centimeters from any other grounded conducting surface.
2. Connect EUT or host of EUT to the power mains through a line impedance stabilization network.
3. All the companion devices are connected to the other LISN. The LISN should provide 50Uh/50ohms coupling impedance.
4. The frequency range from 150 kHz to 30MHz was searched
5. Set the test-receiver system to peak detector and specified bandwidth with maximum hold mode.
6. The measurement has to be done between each power line and ground at the power terminal.

9.5 Test diagram



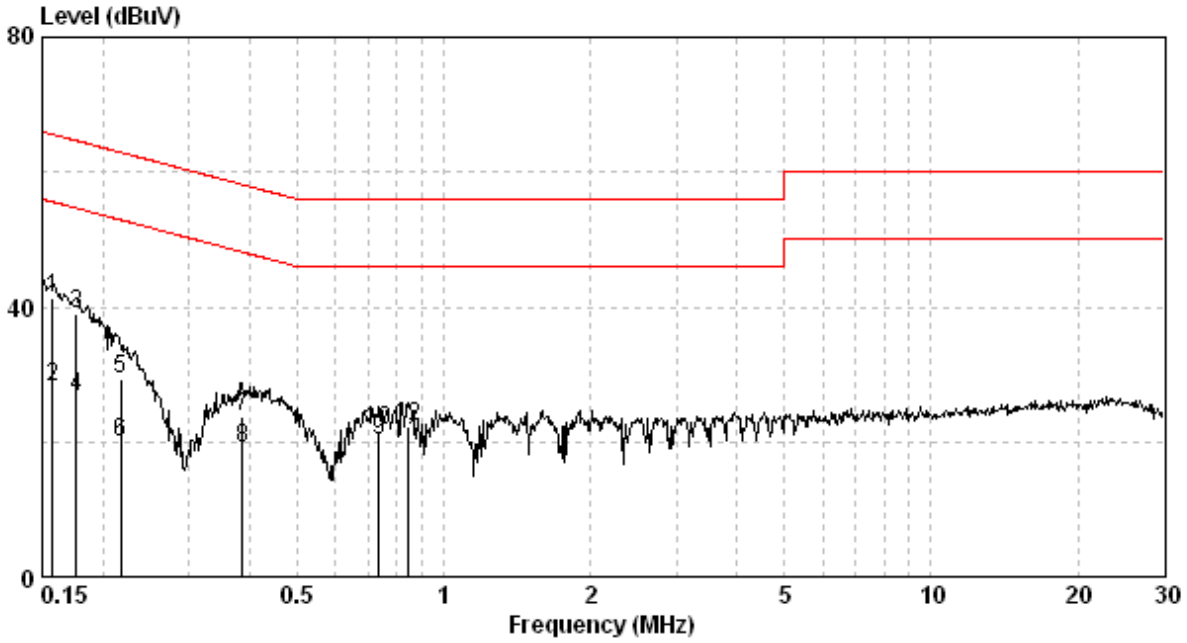
Note: The EUT was tested while in normal communication mode.

9.6 Test results

Phase: Live Line
Model No.: SmartPlug SP-A-PH
Test Condition: Normal communication

Frequency (MHz)	Corr. Factor (dB)	Level Qp (dBuV)	Limit Qp (dBuV)	Level AV (dBuV)	Limit Av (dBuV)	Margin (dB) Qp	Av
0.157	9.74	41.26	65.60	28.14	55.60	-24.35	-27.46
0.176	9.74	38.92	64.68	26.54	54.68	-25.76	-28.14
0.217	9.74	29.27	62.92	19.83	52.92	-33.65	-33.09
0.387	9.77	23.78	58.12	18.92	48.12	-34.34	-29.20
0.735	9.79	21.67	56.00	20.14	46.00	-34.33	-25.86
0.844	9.80	22.15	56.00	19.81	46.00	-33.85	-26.19

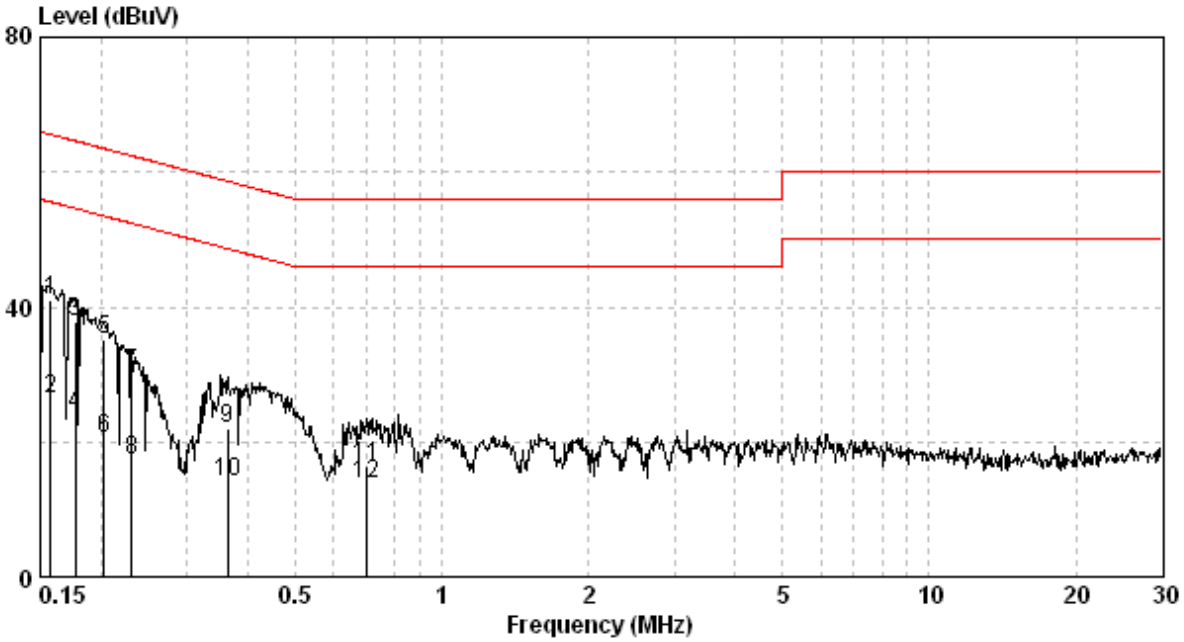
Remark:
1. Correction Factor (dB)= LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Level (dBuV) – Limit (dBuV)



Phase: Neutral Line
Model No.: SmartPlug SP-A-PH
Test Condition: Normal communication

Frequency (MHz)	Corr. Factor (dB)	Level Qp (dBuV)	Limit Qp (dBuV)	Level AV (dBuV)	Limit Av (dBuV)	Margin (dB) Qp	Av
0.157	9.74	40.93	65.60	26.29	55.60	-24.68	-29.32
0.177	9.74	37.92	64.64	24.13	54.64	-26.72	-30.50
0.203	9.74	35.14	63.49	20.58	53.49	-28.35	-32.91
0.232	9.75	30.16	62.39	17.36	52.39	-32.23	-35.03
0.363	9.76	21.96	58.65	13.97	48.65	-36.70	-34.68
0.701	9.82	16.36	56.00	13.77	46.00	-39.64	-32.23

Remark:
1. Correction Factor (dB)= LISN Factor (dB) + Cable Loss (dB)
2. Margin (dB) = Level (dBuV) – Limit (dBuV)



Appendix A: Test equipment list

Equipment	Brand	Model No.	Serial No.	Calibration Date	Next Calibration Date
ESCI EMI Test Receiver	Rohde & Schwarz	ESCI	100018	2016/11/30	2017/11/29
Spectrum Analyzer	Rohde & Schwarz	FSP30	100137	2016/08/16	2017/08/15
Horn Antenna (1-18G)	SHWARZBECK	BBHA 9120 D	9120D-456	2014/08/29	2017/08/27
Horn Antenna (14-42G)	SHWARZBECK	BBHA 9170	BBHA9170159	2014/09/16	2017/09/14
Broadband Antenna	SHWARZBECK	VULB 9168	9168-172	2017/04/05	2018/04/04
Pre-Amplifier	EMC Co.	EMC12635SE	980205	2016/10/08	2017/10/07
Pre-Amplifier	MITEQ	JS4-26004000--27-8A	828825	2016/09/12	2017/09/11
Power Meter	Anritsu	ML2495A	0844001	2016/11/09	2017/11/08
Power Sensor	Anritsu	MA2411B	0738452	2016/11/09	2017/11/08
Signal Analyzer	Agilent	N9030A	MY51380492	2016/09/13	2017/09/12
966-2(A) Cable 9kHz~26.5GHz	SUHNER	SMA / EX 100	N/A	2016/05/05	2017/05/04
966-2(B) Cable 9kHz~26.5GHz	SUHNER	SUCOFLEX 104P	CB0005	2016/05/04	2017/05/03
RF Cable 9kHz~26.5GHz	SUHNER	SUCOFLEX 102	CB0006	2016/05/05	2017/05/04
966-2_3m Semi-Anechoic Chamber	966_2	CEM-966_2	N/A	2017/03/29	2018/03/28
High Pass Filter	Reactel	7HS-3G/18G-S11	N/A	2016/06/03	2017/06/02
Active Loop Antenna	SCHWARZBECK MESS-ELEKTRONIC	FMZB1519	1519-067	2017/03/30	2018/03/29
Attenuator	PASTERNACK	N/A	PA7001-20	2016/05/06	2017/05/05
Attenuator	EMCI	N/A	AT-N0619	2016/05/06	2017/05/05

Test Equipment/ Test site	Brand	Model No.	Serial No.	Calibration Date	Next Calibration
EMI Receiver	R&S	ESCI	100059	2016/11/21	2017/11/20
Two-Line V-Network	R&S	ENV216	101159	2016/06/02	2017/06/01
Artificial Mains Network (LISN)	SCHAFFNER	MN2050D	1586	2016/05/25	2017/05/24
CON-1 Shielded Room	N/A	N/A	N/A	NCR	NCR
CON-1 Cable	SUHNER	SUCOFLEX-104	26438414	2016/05/05	2017/05/04
Test software	Audix	e3	4.2004-1-12k	NCR	NCR

Note: No Calibration Required (NCR).

Appendix B: Measurement Uncertainty

This uncertainty represents an expanded uncertainty expressed at approximately the 95 % confidence level using a coverage factor of *k*=2.

Item	Uncertainty
Vertically polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m	5.14 dB
Horizontally polarized radiated disturbances from 30MHz~1GHz in a semi-anechoic chamber at a distance of 3m	5.22 dB
Vertically polarized Radiated disturbances from 1GHz~18GHz in a semi-anechoic chamber at a distance of 3m	3.64 dB
Horizontally polarized Radiated disturbances from 1GHz~18GHz in a semi-anechoic chamber at a distance of 3m	3.64 dB
Vertically polarized Radiated disturbances from 18GHz~40GHz in a semi-anechoic chamber at a distance of 3m	2.68 dB
Horizontally polarized Radiated disturbances from 18GHz~40GHz in a semi-anechoic chamber at a distance of 3m	2.68 dB
Radiated disturbances from 9kHz~30MHz in a semi-anechoic chamber at a distance of 3m	3.54 dB
Emission on the Band Edge Test	3.64 dB
Minimum 6 dB Bandwidth	1.22 dB
Maximum Peak Conducted Output Power	1.22 dB
Power Spectral Density	1.22 dB
Emissions In Non-Restricted Frequency Bands	1.22 dB
AC Power Line Conducted Emission	2.48 dB