CONFORMANCE TEST REPORT
FOR
FCC 47 CFR, Part 15 Subpart C

Report No.: 17-06-MAS-031-02

Client:	JET OPTOELECTRONICS CO.,LTD.
Product:	SeatTop - Driver Mon A
Model:	620069
FCC ID:	Z3K-J78A620069
Manufacturer/supplier:	JET OPTOELECTRONICS CO.,LTD.
Date test item received:	2017/06/07
Date test campaign completed:	2017/08/28
Date of issue:	2017/08/28

Total number of pages of this test report: 227 pages
Total number of pages of photos: External photos 1 pages
Internal photos 7 pages
Setup photos 2 pages

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Manufacturer	: JET OPTOELECTRONICS CO.,LTD.
Address	: 3F.,No.300,Yangguang St.,Neihu Dist.,Taipei City 11491,Taiwan,R.O.C
EUT	: SeatTop - Driver Mon A
Trade name	: MAZDA
Model No.	: 620069
Power Source	: 12Vdc
Regulations applied	: FCC 47 CFR, Part 15 Subpart C

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⑤ FCC Registration Number: TW0371, TW1112
⑥ Industry Canada Site Registration Number: IC 2949A-2

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1 GENERAL INFORMATION

1.1 Product Description

a) Type of EUT : SeatTop - Driver Mon A
b) Trade Name : MAZDA
c) Model No. : 620069
d) FCC ID : Z3K-J78A620069

1.2 Characteristics of Device

The EUT is a rear seat entertainment System with built-in DVD player based on the WLAN technology. The module supports IEEE 802.11n with maximum data rates up to 72Mbps (20 MHz channel bandwidth) and 150 Mbps (40MHz channel bandwidth), 802.11g payload data rates of 6, 9, 12, 18, 24, 36, 48, and 54 Mbps, as well as 802.11b data rates of 1, 2, 5.5 and 11 Mbps for WLAN operation. WLAN operates in the unlicensed ISM Band at 2.4GHz.

RF chain	1T1R
Frequency Range	IEEE 802.11b/g, 802.11n HT20: 2412MHz~2462MHz IEEE 802.11n HT40: 2422MHz~2452MHz
Channel Spacing	IEEE 802.11b/g, 802.11n HT20/HT40: 5MHz
Channel Number	IEEE 802.11b/g, 802.11n HT20:11 Channels IEEE 802.11n HT40: 7 Channels
Transmit Data Rate	IEEE 802.11b: 11, 5.5, 2, 1 Mbps IEEE 802.11g: 54, 48, 36, 24, 18, 12, 11, 9, 6 Mbps IEEE 802.11n HT20: 65, 58.5, 52, 39, 26, 19.5, 13, 6.5Mbps IEEE 802.11n HT40: 135, 121.5, 108, 81, 54, 40.5, 27, 13.5 Mbps
Type of Modulation	IEEE 802.11b: DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) IEEE 802.11n HT20/40: OFDM (64QAM, 16QAM, QPSK, BPSK)

1.3 Test Methodology

All testing were performed according to the procedures in ANSI C63.10 (2013) and FCC CFR 47 Part 2 and Part 15 and KDB 558074 D01 v04.

1.4 Test Facility

The semi-anechoic chamber and conducted measurement facility used to collect the radiated and conducted data are located inside the Building at No.8, Lane 29, Wenming Rd. Guishan Dist. Taoyuan City 33383, Taiwan, R.O.C.
This site has been accreditation as a FCC filing site.

1.5 Test Summary

Requirement	FCC Paragraph #	Test Pass
Antenna Requirement	15.203	Pass
Conducted Emission	15.207	N/A
Emission Bandwidth	15.247 (a)(2)	Pass
Output Power Requirement	15.247 (b)(3)	Pass
Power Density Requirement	15.247 (e)	Pass
Spurious Emissions	15.247 (d)	Pass
Radiated Emission	15.247 (d)	Pass

Note: The test setup and measurement method for conductive output power measurements shown in this test report is different to the “Peak Output Power” test. Certain measurement uncertainty of peak power may be expected with the use of different power detection method or measuring equipment. Therefore, the conductive output power measurement results provided in this test report may be different to the specification of the device under test.

2 PROVISIONS APPLICABLE

2.1 Definition

Unintentional radiator:
A device that intentionally generates and radio frequency energy for use within the device, or that sends radio frequency signals by conduction to associated equipment via connecting wiring, but which is not intended to emit RF energy by radiation or induction.

Class A Digital Device:
A digital device that is marketed for use in a commercial, industrial or business environment, exclusive of a device which is marketed for use by the general public or is intended to be used in the home.

Class B Digital Device :
A digital device that is marketed for use in a residential environment notwithstanding use in commercial, business and industrial environments. Examples of such devices include, but are not limited to, personal computers, calculators, and similar electronic devices that are marketed for use by the general public.

Note: The responsible party may also qualify a device intended to be marketed in a commercial, business or industrial environment as a Class B device, and in fact is encouraged to do so, provided the device complies with the technical specifications for a Class B digital device. In the event that a particular type of device has been found to repeatedly cause harmful interference to radio communications, the Commission may classify such a digital device as a Class B digital device, regardless of its intended use.

Intentional radiator:
A device that intentionally generates and emits radio frequency energy by radiation or induction.

2.2 Requirement for Compliance

(1) Conducted Emission Requirement

For unintentional device, according to §15.107(a) Line Conducted Emission Limits is as following:

Frequency MHz	Quasi Peak dB μV	Average dB μV
0.15 - 0.5	66-56*	56-46*
0.5 - 5.0	56	46
5.0 - 30.0	60	50

*Decreases with the logarithm of the frequency.

For intentional device, according to §15.207(a) Line Conducted Emission Limits is same as above table.

(2) Radiated Emission Requirement

For unintentional device, according to §15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency MHz	Distance Meters	Radiated dB μV/m	Radiated μV/m
30 - 88	3	40.0	100
88 - 216	3	43.5	150
216 - 960	3	46.0	200
above 960	3	54.0	500

For intentional radiator device, according to §15.209(a), the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100**	3
88-216	150**	3
216-960	200**	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72MHz, 76-88MHz, 174-216MHz or 470-806MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

For intentional device, according to §15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above table.

(3) Antenna Requirement

For intentional device, according to §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.

For systems using digital modulation , according to 15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(4) Bandwidth Requirement

According to 15.247 (a)(2), systems using digital modulation techniques may operate in the 902 - 928 MHz, 2400 - 2483.5 MHz, and 5725 - 5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

(5) Output Power Requirement

For systems using digital modulation , according to 15.247(b), the maximum peak output power of the intentional radiator shall not exceed 1 Watt.

For systems using digital modulation , according to 15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(6) Spurious Emissions Measurement

According to 15.247 (d) , in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. 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)).

(7) Power Density Requirement

According to 15.247 (e) , for digitally modulated systems, the peak 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..

2.3 Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below :

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42-16.423	399.9-410	4.5-5.25
0.495 - 0.505 **	16.69475 - 16.69525	608-614	5.35-5.46
2.1735 - 2.1905	16.80425 - 16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475 - 156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	Above 38.6
13.36-13.41			

** : Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz

2.4 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device :

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

2.5 User Information

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

For a Class B digital device or peripheral, the instructions furnished the user shall include the following or similar statement, placed in a prominent location in the text of the manual.

The Federal Communications Commission Radio Frequency Interference Statement includes the following paragraph.

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio / TV technician for help.

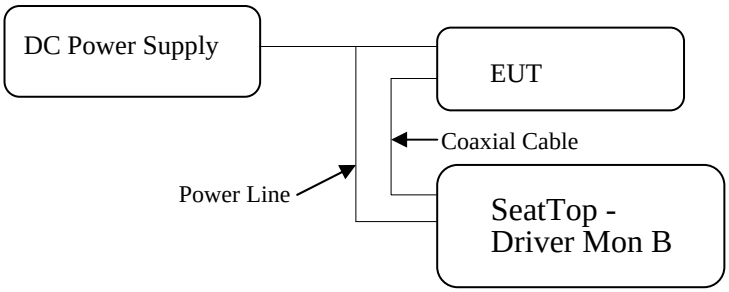
3. SYSTEM TEST CONFIGURATION

3.1 Devices for Tested System

Device	Manufacture	Model No.	Cable Description
* SeatTop - Driver Mon A	JET OPTOELECTRONICS CO.,LTD.	620069	4.5m*1 shielded Coaxial Cable 2.0m*1 Unshielded Power Line
SeatTop - Driver Mon B	JET OPTOELECTRONICS CO.,LTD.	620070	1.8m*1 Unshielded Power Line
DC Power Supply	GW	GPS-3030D	1.8m*1 Unshielded Power Line

Remark

1. "*" means equipment under test.



2.

Test Software:	DutApi_w8887_BrdigeEth.exe		
Power setting:	Mode	Channel	Setting
	b	Low	15
		Mid	15
		High	15
	g	Low	13
		Mid	13
		High	13
	n HT20	Low	11
		Mid	11
		High	11
	n HT40	Low	8
		Mid	8
		High	8

3.2 Dscription of Test modes

3.2.1 IEEE 802.11b, 802.11g, 802.11n HT20 mode:

There are three channels have been tested as following:

Channel	Frequency (MHz)
Low = 1	2412
Middle = 6	2437
High = 11	2462

IEEE 802.11b mode: 1 Mbps data rate is the worse case for full testing.
IEEE 802.11g mode: 6 Mbps data rate is the worse case for full testing.
IEEE 802.11n HT20 mode: MCS0 6.5 Mbps data rateis the worse case for full testing.

3.2.2 IEEE 802.11n HT40 mode:

There are three channels have been tested as following:

Channel	Frequency (MHz)
Low = 3	2422
Middle = 6	2437
High = 9	2452

IEEE 802.11n HT40 mode: 13.5 Mbps data rate is the worse case for full testing.

3.2.3 Test Mode Description

3.2.3.1 Modulation Type

Test Mode	Modulation
A	IEEE 802.11b
B	IEEE 802.11g
C	IEEE 802.11 n HT20
D	IEEE 802.11 n HT40

Test modes A,B,C	
Test Channel	Frequency (MHz)
Channel Low(L)	2412
Channel Mid(M)	2437
Channel High(H)	2462

Test mode D	
Test Channel	Frequency (MHz)
Channel Low(L)	2422
Channel Mid(M)	2437
Channel High(H)	2452

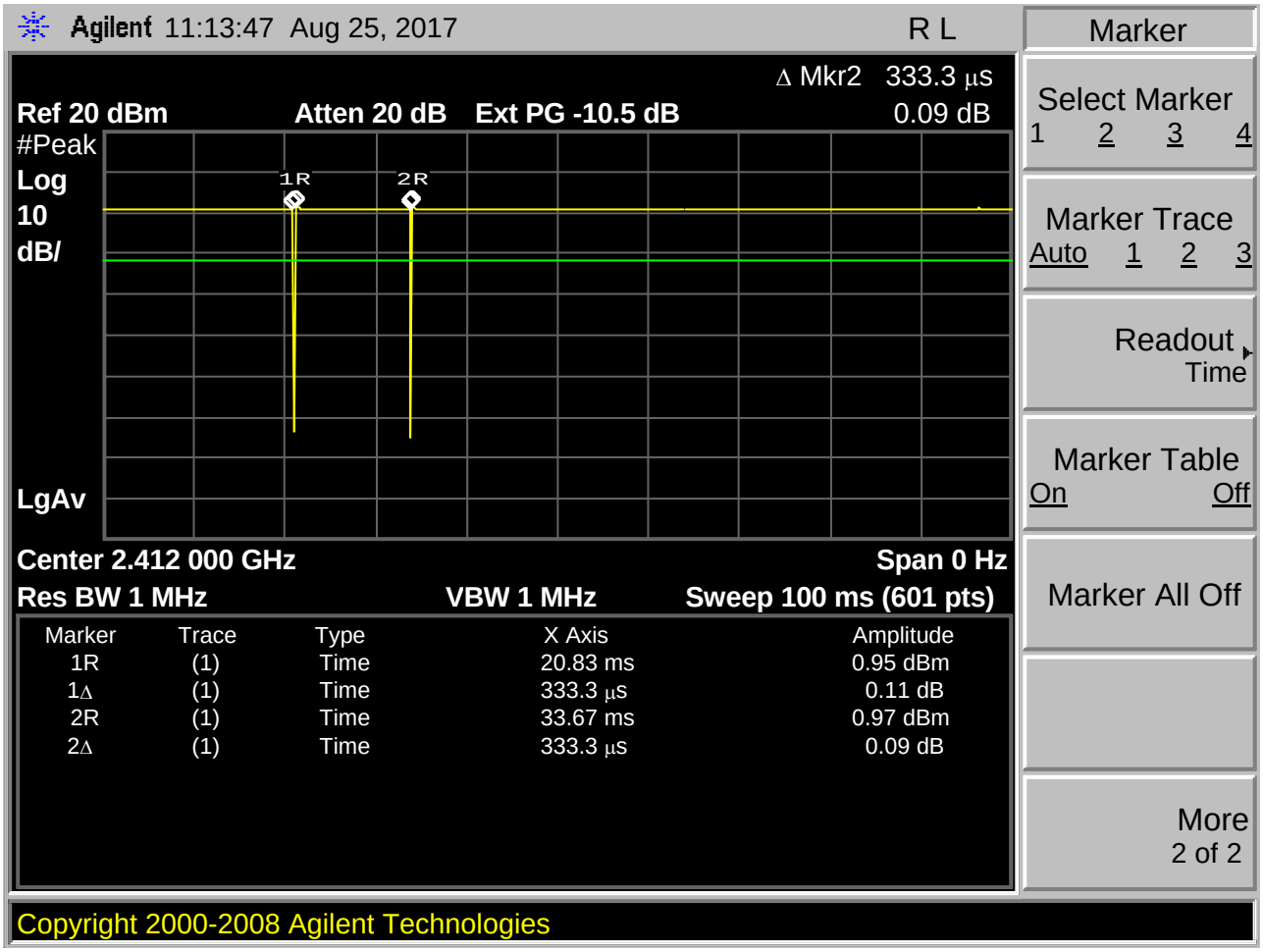
3.2.3.2 Test Mode and Worse Case Determination

Item	Test Item	Test mode	Frequrency(MHz)
1	Conducted emission measurement	-	-
2	Emisson bandwidth measurement	A，B，C，D	L，M，H
3	Output power measurement	A，B，C，D	L，M，H
4	Power density measurement	A，B，C，D	L，M，H
5	Spurious emission	A，B，C，D	L，M，H
6	Radiated emisson measurement(Harmonic)	A，B，C，D	L，M，H
6.1	Radiated emisson measurement (Below 1GHz)	B (note1)	M (note2)
6.2	Radiated emisson measurement (Above 1GHz)	A，B，C，D	L，M，H

Note: 1. Pretest result is no difference in four test modes, Choose one for final testing.
2. Pretest result is no difference by channel low, middle and high.Choose one for final testing and record the result

Duty cycle

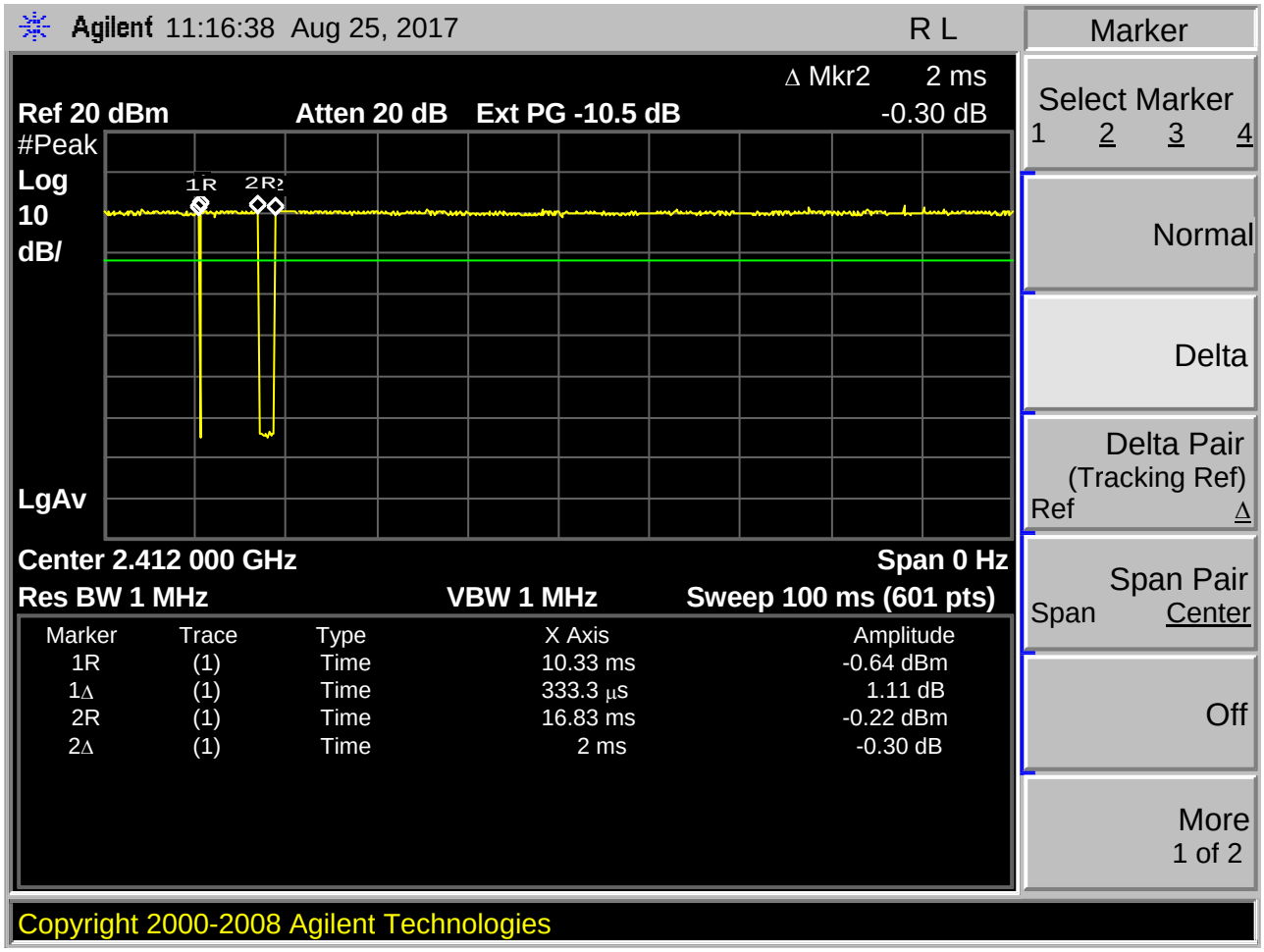
IEEE 802.11b



TX on time = 100 ms – (TX off time) = 100 - (0.3333+0.3333) = 99.3334 ms

Duty cycle = 99.3334/100 = 0.993, Duty cycle > 98%.

IEEE 802.11g

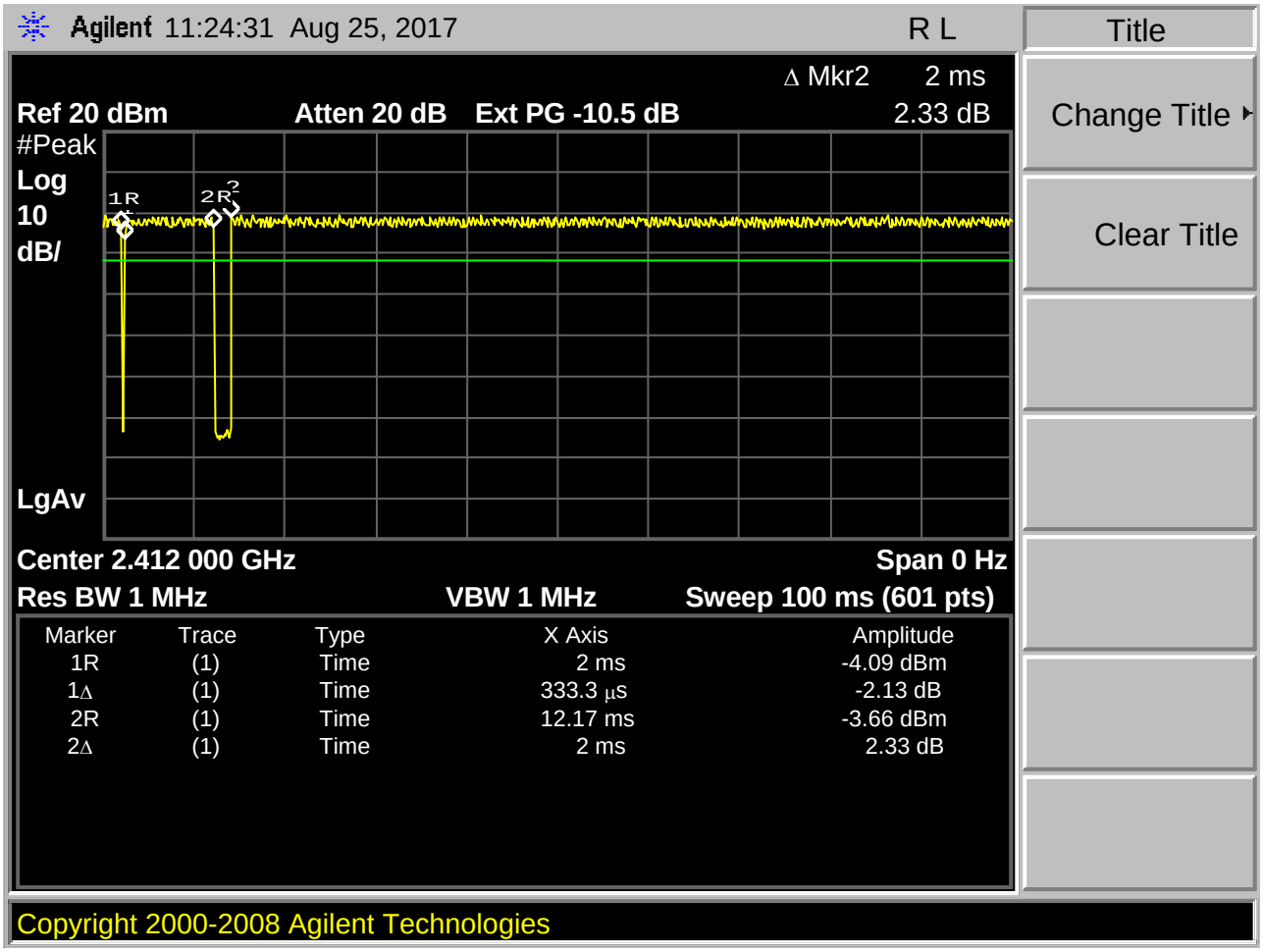


TX on time = 100 ms – (TX off time) = 100 - (0.3333+2) = 97.6667 ms

Duty cycle = 97.6667/100 = 0.977, Duty cycle < 98%.

Duty factor = 10 * log(1/0.997) = 0.10

IEEE 802.11 n HT20

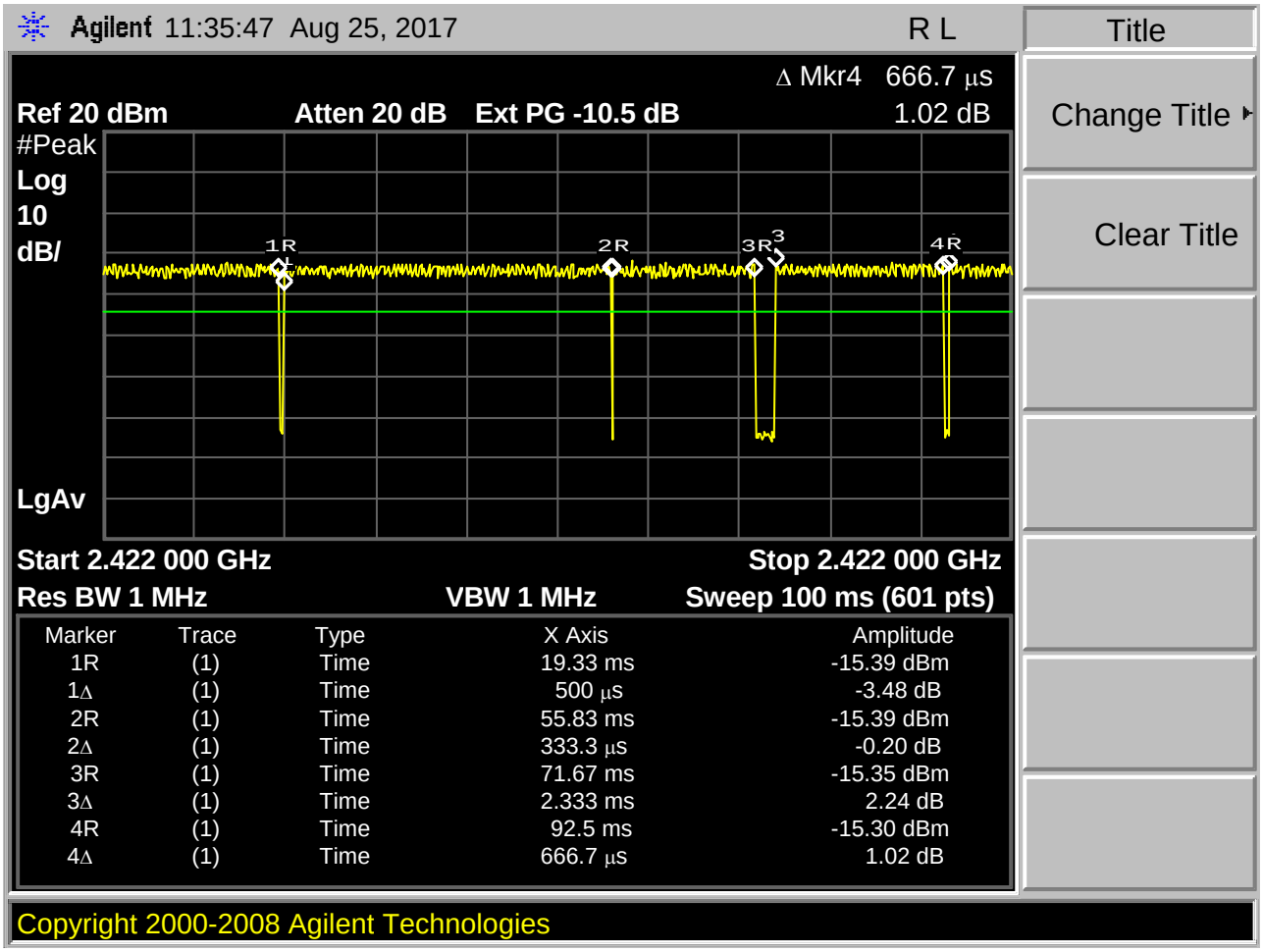


TX on time = 100 ms – (TX off time) = 100 - (0.3333+2) = 97.6667 ms

Duty cycle = 97.6667/100 = 0.977, Duty cycle < 98%.

Duty factor = 10 * log(1/0.997) = 0.10

IEEE 802.11 n HT40



TX on time = 100 ms – (TX off time) = 100 - (0.5+0.3333+2.333+0.6667) = 96.167 ms

Duty cycle = 96.167/100 = 0.962, Duty cycle < 98%.

Duty factor = 10 * log(1/0.962) = 0.17

4 CONDUCTED EMISSION MEASUREMENT

This EUT is excused from investigation of conducted emission, for it is powered by battery only. According to 15.107(d), measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.

5 ANTENNA REQUIREMENT

5.1 Standard Applicable

For intentional device, according to §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.

And according to §15.247 (b)(4), The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

5.2 Antenna Construction and Directional Gain

The antennas is a PIFA Antenna

Antenna Type	PIFA
Antenna Gain	0 dBi

The directional gain of antenna doesn’t greater than 6 dBi, the power won’t be reduced.

6 EMISSION BANDWIDTH MEASUREMENT

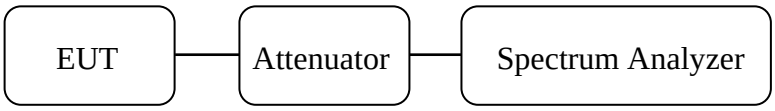
6.1 Standard Applicable

According to 15.247(a)(2), systems using digital modulation techniques may operate in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

6.2 Measurement Procedure

1. The testing follows FCC KDB 558074 D01 v04.
2. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
3. Position the EUT as shown in figure 1. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
4. Measure the frequency difference of two frequencies that were attenuated 6 dB from the reference level. Record the frequency difference as the emission bandwidth.
5. Repeat above procedures until all frequencies measured were complete.

Figure 1: Measurement onfiguration.



6.3 Measurement Equipment

Equipment	Manufacturer	Model No.
Spectrum Analyzer	Agilent	E4446A
Attenuator	WEINSCHEL	56-10

6.4 Measurement Data

6.4.1 IEEE 802.11b

Test Date: Aug. 18, 2017 Temperature: 24℃ Humidity: 60%

Channel	6dB Bandwidth (MHz)	FCC Limit (kHz)	Chart
L	9.667	500	Page 23
M	9.713	500	Page 24
H	10.116	500	Page 25

Note:
1. Please refer to page 23 to page 25 for chart
2. The estimated measurement uncertainty of the result measurement is 8.25×10^{-7} *(1GHz≦f≦ 18GHz)*


Agilent 10:59:35 Aug 18, 2017
R L
Measure
Ch Freq 2.412 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Ref 20 dBm
Atten 10 dB
Ext PG -10.5 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Center 2.412 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Occupied Bandwidth
14.1558 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -197.069 kHz
x dB Bandwidth 9.667 MHz
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Agilent 11:53:38 Aug 18, 2017
R L
Measure
Ch Freq 2.437 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Ref 20 dBm
Atten 10 dB
Ext PG -10.5 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Center 2.437 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Occupied Bandwidth
14.1557 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -219.065 kHz
x dB Bandwidth 9.713 MHz
Copyright 2000-2008 Agilent Technologies


Agilent 11:29:48 Aug 18, 2017
R L
Measure
Ch Freq 2.462 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 10 dB
Ext PG -10.5 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 2.462 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
14.1300 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error 140.425 kHz
x dB Bandwidth 10.116 MHz
More
1 of 2
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6.4.2 IEEE 802.11g

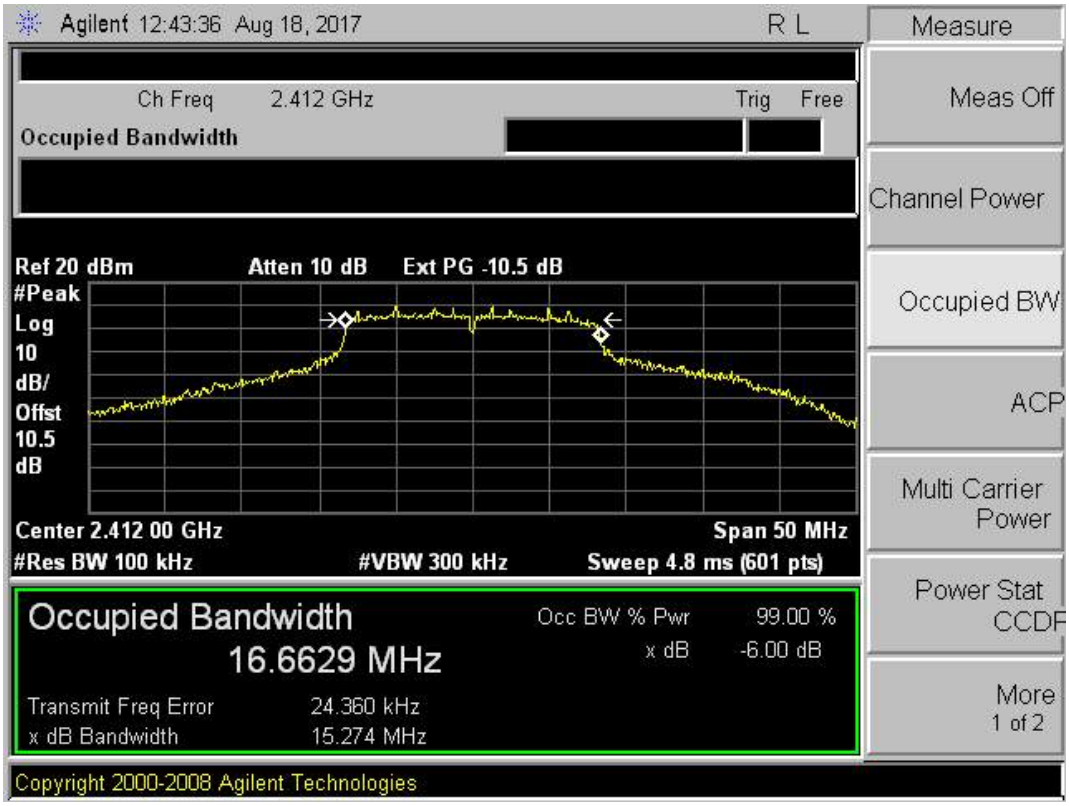
Test Date: Aug. 18, 2017 Temperature: 24℃ Humidity: 60%

Channel	6dB Bandwidth (MHz)	FCC Limit (kHz)	Chart
L	15.274	500	Page 27
M	15.833	500	Page 28
H	16.392	500	Page 29

Note:

1. Please refer to page 27 to page 29 for chart

2. The estimated measurement uncertainty of the result measurement is 8.25×10^{-7} *(1GHz≦f≦ 18GHz)*


Agilent 12:43:36 Aug 18, 2017
R L
Measure
Ch Freq 2.412 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 10 dB
Ext PG -10.5 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 2.412 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
16.6629 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error 24.360 kHz
x dB Bandwidth 15.274 MHz
More 1 of 2
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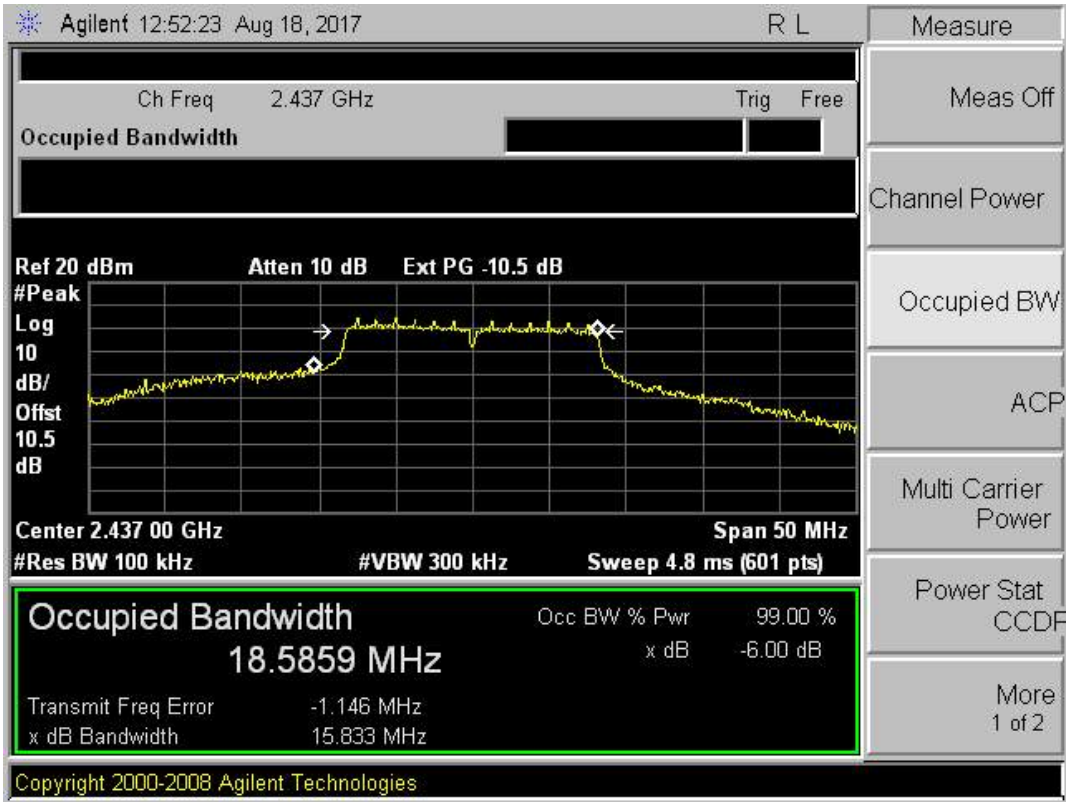
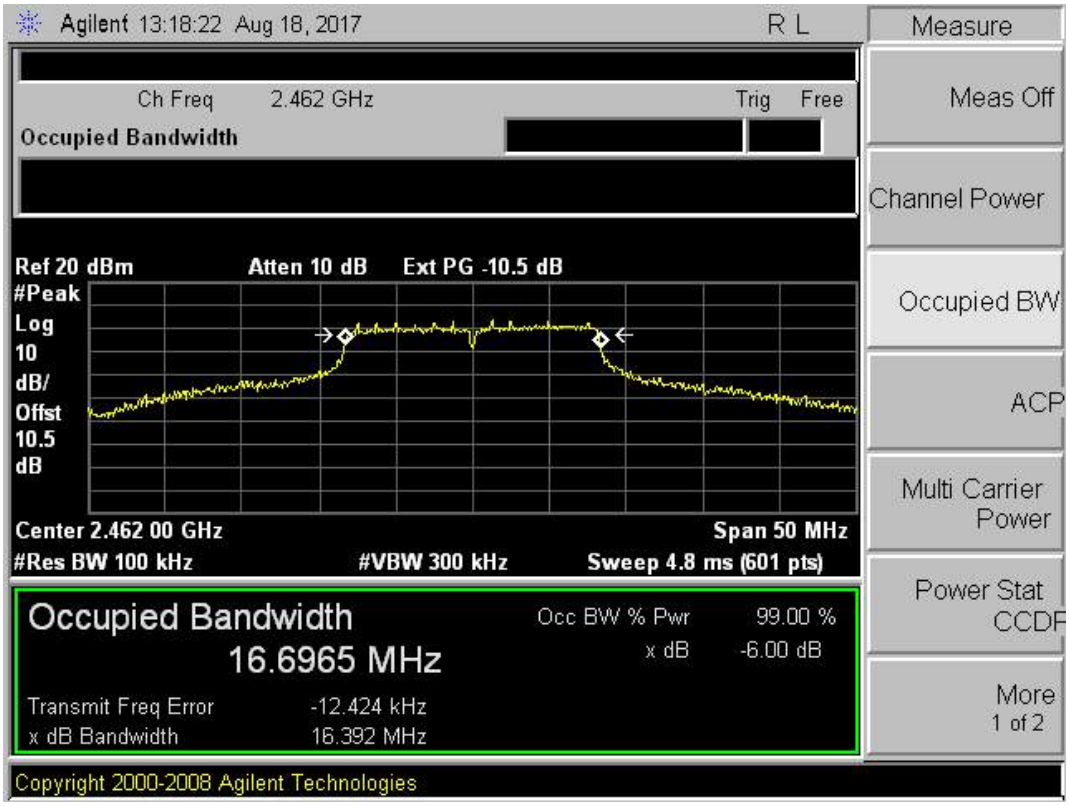

Agilent 12:52:23 Aug 18, 2017
R L
Measure
Ch Freq 2.437 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Ref 20 dBm
Atten 10 dB
Ext PG -10.5 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Center 2.437 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Occupied Bandwidth
18.5859 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -1.146 MHz
x dB Bandwidth 15.833 MHz
Copyright 2000-2008 Agilent Technologies


Agilent 13:18:22 Aug 18, 2017
R L
Measure
Ch Freq 2.462 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Ref 20 dBm
Atten 10 dB
Ext PG -10.5 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Center 2.462 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Occupied Bandwidth
16.6965 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -12.424 kHz
x dB Bandwidth 16.392 MHz
Copyright 2000-2008 Agilent Technologies

6.4.3 IEEE 802.11n, HT20

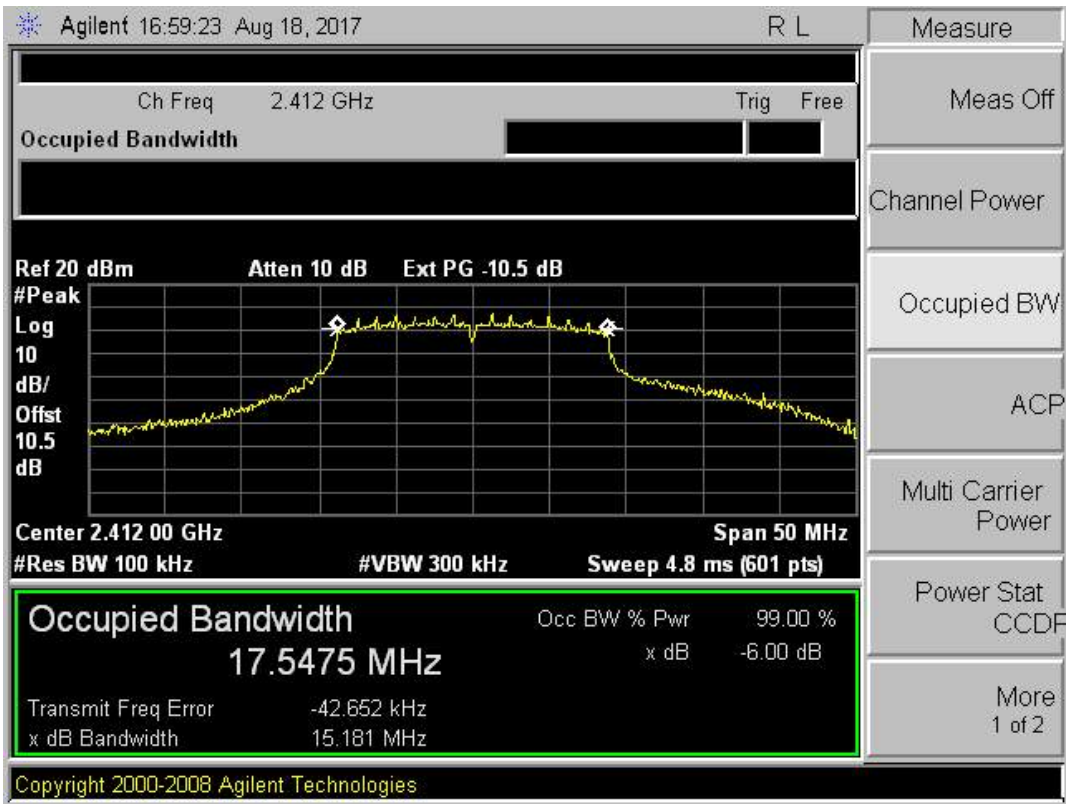
Test Date: Aug. 18, 2017 Temperature: 24℃ Humidity: 60%

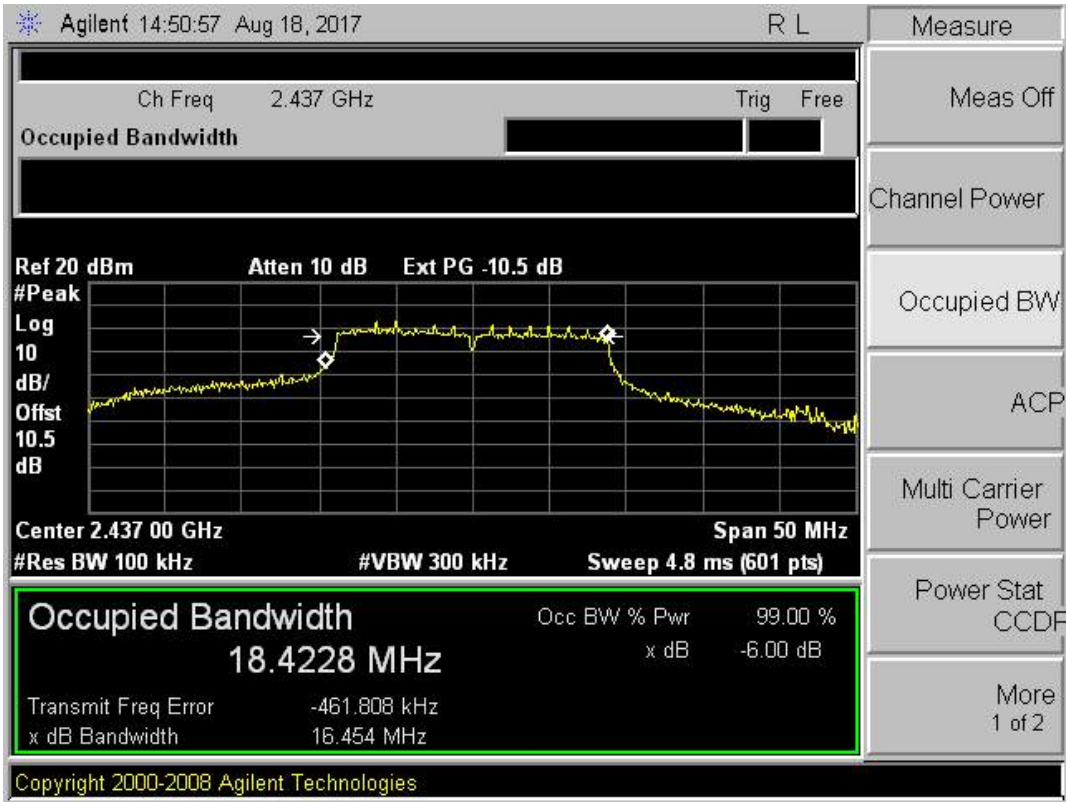
Channel	6dB Bandwidth (MHz)	FCC Limit (kHz)	Chart
L	15.181	500	Page 31
M	16.454	500	Page 32
H	16.747	500	Page 33

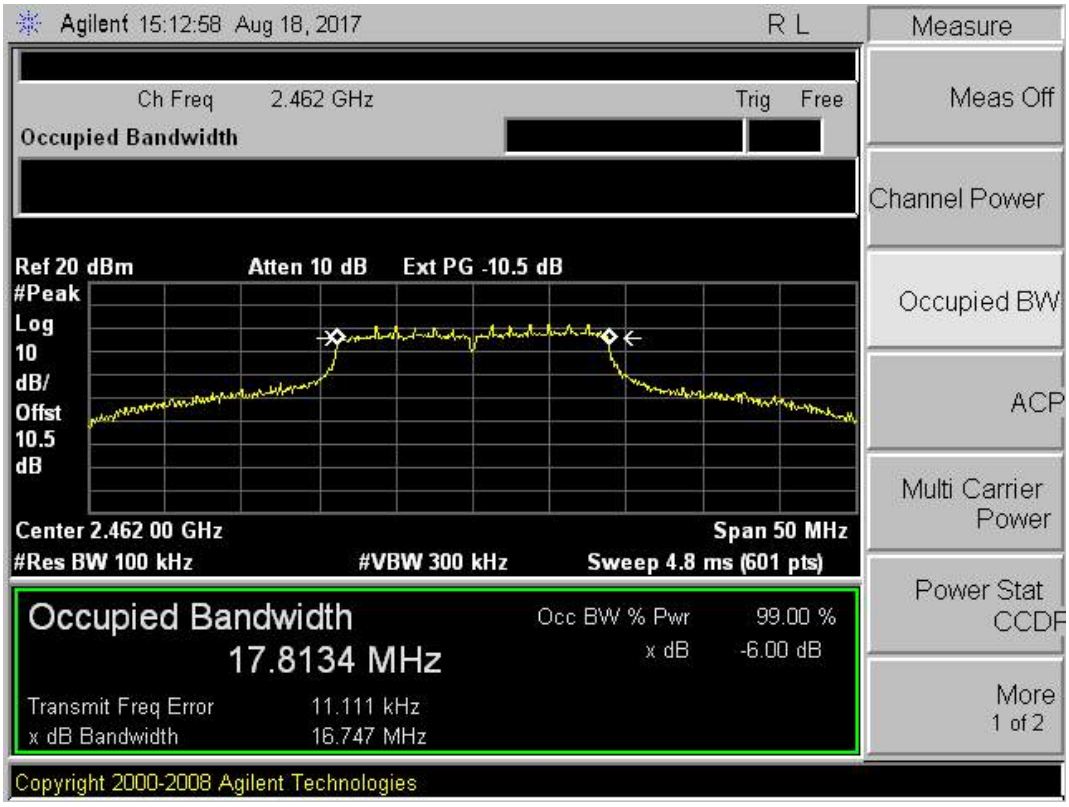
Note:

1. Please refer to page 31 to page 33 for chart

2. The estimated measurement uncertainty of the result measurement is 8.25×10^{-7} (1GHz ≦ f ≦ 18GHz)


Agilent 16:59:23 Aug 18, 2017
R L
Measure
Ch Freq 2.412 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 10 dB
Ext PG -10.5 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 2.412 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
17.5475 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -42.652 kHz
x dB Bandwidth 15.181 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 14:50:57 Aug 18, 2017
R L
Measure
Ch Freq 2.437 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Ref 20 dBm
Atten 10 dB
Ext PG -10.5 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Center 2.437 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Occupied Bandwidth
18.4228 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -461.808 kHz
x dB Bandwidth 16.454 MHz
Copyright 2000-2008 Agilent Technologies


Agilent 15:12:58 Aug 18, 2017
R L
Measure
Ch Freq 2.462 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 10 dB
Ext PG -10.5 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 2.462 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
17.8134 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error 11.111 kHz
x dB Bandwidth 16.747 MHz
More
1 of 2
Copyright 2000-2008 Agilent Technologies

6.4.4 IEEE 802.11n, HT40

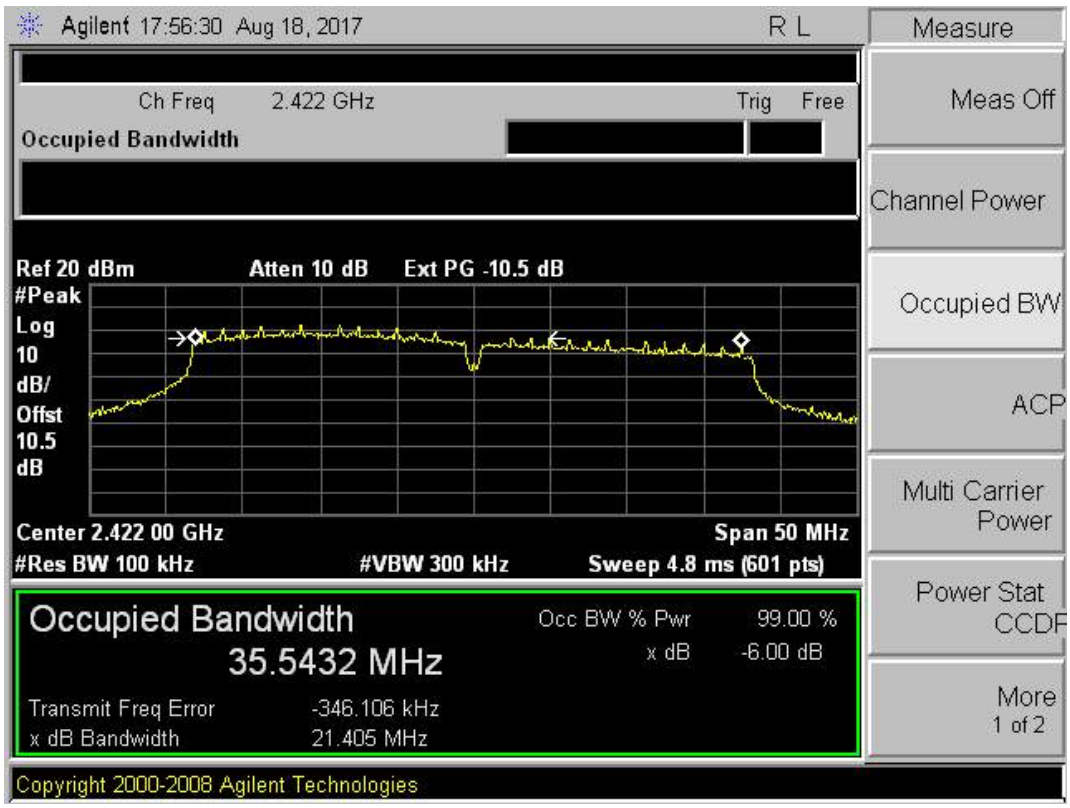
Test Date: Aug. 18, 2017 Temperature: 24℃ Humidity: 60%

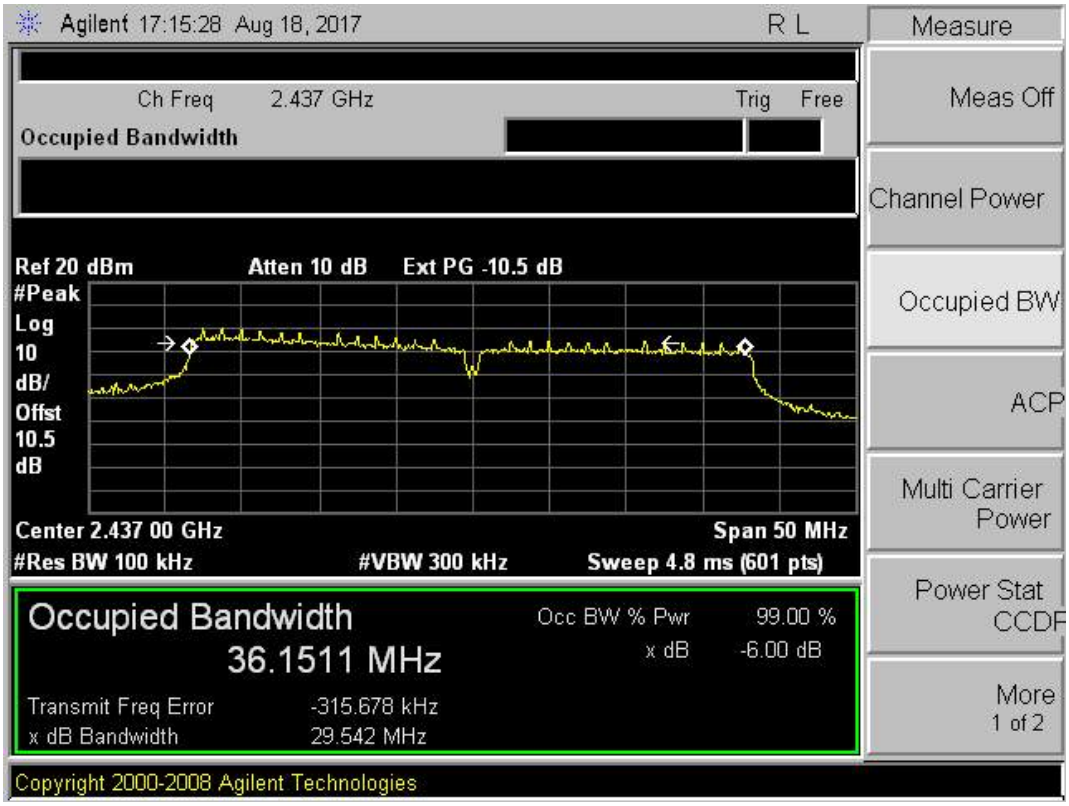
Channel	6dB Bandwidth (MHz)	FCC Limit (kHz)	Chart
L	21.405	500	Page 35
M	29.542	500	Page 36
H	36.403	500	Page 37

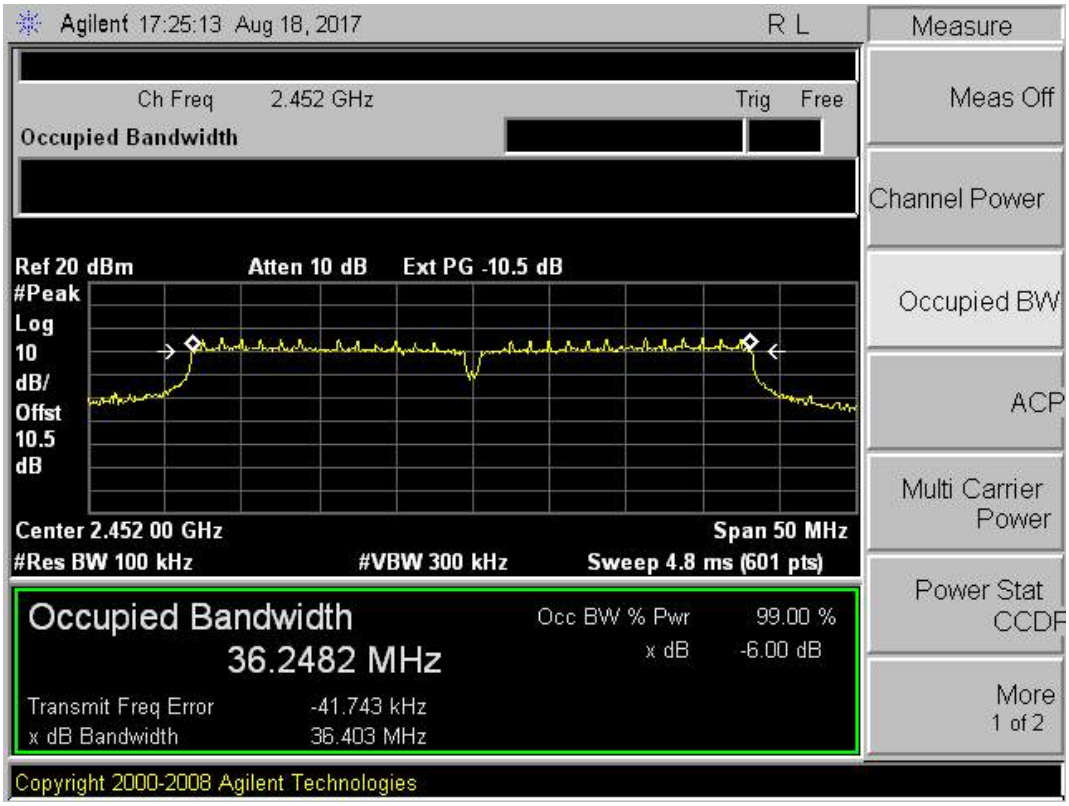
Note:

1. Please refer to page 35 to page 37 for chart

2. The estimated measurement uncertainty of the result measurement is 8.25×10^{-7} *(1GHz≦f≦ 18GHz)*


Agilent 17:56:30 Aug 18, 2017
R L
Measure
Ch Freq 2.422 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Ref 20 dBm
Atten 10 dB
Ext PG -10.5 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Occupied BW
ACP
Multi Carrier Power
Center 2.422 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Power Stat CCDF
Occupied Bandwidth
35.5432 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -346.106 kHz
x dB Bandwidth 21.405 MHz
More 1 of 2
Copyright 2000-2008 Agilent Technologies


Agilent 17:15:28 Aug 18, 2017
R L
Measure
Ch Freq 2.437 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Ref 20 dBm
Atten 10 dB
Ext PG -10.5 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Center 2.437 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Occupied Bandwidth
36.1511 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -315.678 kHz
x dB Bandwidth 29.542 MHz
Copyright 2000-2008 Agilent Technologies


Agilent 17:25:13 Aug 18, 2017
R L
Measure
Ch Freq 2.452 GHz
Trig Free
Occupied Bandwidth
Meas Off
Channel Power
Occupied BW
ACP
Multi Carrier Power
Power Stat CCDF
More 1 of 2
Ref 20 dBm
Atten 10 dB
Ext PG -10.5 dB
#Peak
Log
10
dB/
Offst
10.5
dB
Center 2.452 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (601 pts)
Occupied Bandwidth
36.2482 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -41.743 kHz
x dB Bandwidth 36.403 MHz
Copyright 2000-2008 Agilent Technologies

7 OUTPUT POWER MEASUREMENT

7.1 Standard Applicable

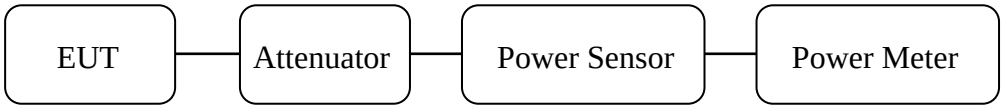
For direct sequence system, according to 15.247(b), the maximum peak output power of the transmitter shall not exceed 1 Watt.

According to 15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

7.2 Measurement Procedure

1. The testing follows FCC KDB 558074 D01 v04.
2. The test is performed in accordance with FCC KDB Publication No. 558074: Guidance on Measurements for Digital Transmission Systems (47 CFR 15.247)
3. Position the EUT as shown in figure 2.

Figure 2: Output power measurement configuration.



7.3 Measurement Equipment

Equipment	Manufacturer	Model No.
Power Meter	Agilent	N1912A
Wideband Power Sensor	Agilent	N1922A
Attenuator	WEINSCHEL	56-10

7.4 Measurement Data

7.4.1 IEEE 802.11b

Test Date: Aug. 18, 2017 Temperature: 24℃ Humidity: 60%

Channel	Maximum Peak Output Power (dBm)	FCC Limit (dBm)	Chart
L	12.37	30.0	-
M	8.42	30.0	-
H	8.09	30.0	-

Note:

The estimated measurement uncertainty of the result measurement is ±1.5dB(1GHz≦f≦18GHz)

7.4.2 IEEE 802.11g

Test Date: Aug. 18, 2017 Temperature: 24℃ Humidity: 60%

Channel	Maximum Peak Output Power (dBm)	FCC Limit (dBm)	Chart
L	15.22	30.0	-
M	13.91	30.0	-
H	14.10	30.0	-

Note:

The estimated measurement uncertainty of the result measurement is ±1.5dB(1GHz≦f≦18GHz)

7.4.3 IEEE 802.11n, HT20

Test Date: Aug. 18, 2017 Temperature: 24℃ Humidity: 60%

Channel	Maximum Peak Output Power (dBm)	FCC Limit (dBm)	Chart
L	14.11	30.0	-
M	11.75	30.0	-
H	11.29	30.0	-

Note:

The estimated measurement uncertainty of the result measurement is ±1.5dB(1GHz≦f≦18GHz)

7.4.4 IEEE 802.11n, HT40

Test Date: Aug. 18, 2017 Temperature: 24℃ Humidity: 60%

Channel	Maximum Peak Output Power (dBm)	FCC Limit (dBm)	Chart
L	13.05	30	-
M	10.57	30	-
H	9.53	30	-

Note:

The estimated measurement uncertainty of the result measurement is ±1.5dB(1GHz≦f≦18GHz)

8 POWER DENSITY MEASUREMENT

8.1 Standard Applicable

According to 15.247(e), 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.

8.2 Measurement Procedure

1. The testing follows FCC KDB 558074 D01 v04.
2. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
3. Position the EUT as shown in figure 1. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set EUT to any one measured frequency within its operating range and make sure the instrument is operated in its linear range.
4. Adjust the center frequency of spectrum analyzer on highest level appearing on spectral display within a 300 kHz frequency span.
5. Set the spectrum analyzer on a 3 kHz resolution bandwidth and 10 kHz video bandwidth as well as max. hold function, then record the measurement result.
6. Repeat above procedures until all measured frequencies were complete.

8.3 Measurement Equipment

Equipment	Manufacturer	Model No.
Spectrum Analyzer	Agilent	E4446A
Attenuator	WEINSCHEL	56-10

8.4 Measurement Data

8.4.1 IEEE 802.11b

Test Date: Aug. 18, 2017 Temperature: 24℃ Humidity: 60%

Channel	Peak Power Spectral Density (dBm)	FCC Limit (dBm)	Chart
L	-15.68	8	Page 45
M	-21.01	8	Page 46
H	-20.75	8	Page 47

Note:

1. *Please refer to page 45 to page 47 for chart*
2. *The estimated measurement uncertainty of the result measurement is ±1.5dB(1GHz≦f≦ 18GHz)*


Agilent 11:07:22 Aug 18, 2017
R L
Freq/Channel
Mkr1 2.410 40 GHz
Ref -0.508 dBm
Atten 10 dB
Ext PG -10.5 dB
-15.68 dBm
#Peak
Log
10
dB/
LgAv
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center Freq
2.41200000 GHz
Start Freq
2.39700000 GHz
Stop Freq
2.42700000 GHz
CF Step
3.00000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Center 2.412 00 GHz
Span 30 MHz
#Res BW 3 kHz
#VBW 10 kHz
Sweep 3.163 s (601 pts)
Copyright 2000-2008 Agilent Technologies


Agilent 11:20:03 Aug 18, 2017
R L
Freq/Channel
Mkr1 2.434 40 GHz
Ref -5.467 dBm
Atten 10 dB
Ext PG -10.5 dB
-21.01 dBm
#Peak
Log
10
dB/
LgAv
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center Freq
2.43700000 GHz
Start Freq
2.42200000 GHz
Stop Freq
2.45200000 GHz
CF Step
3.00000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Center 2.437 00 GHz
Span 30 MHz
#Res BW 3 kHz
#VBW 10 kHz
Sweep 3.163 s (601 pts)
Copyright 2000-2008 Agilent Technologies


Agilent 11:45:36 Aug 18, 2017
R L
Freq/Channel
Mkr1 2.463 85 GHz
Ref -5.339 dBm
Atten 10 dB
Ext PG -10.5 dB
-20.75 dBm
#Peak
Log
10
dB/
LgAv
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center Freq
2.46200000 GHz
Start Freq
2.44700000 GHz
Stop Freq
2.47700000 GHz
CF Step
3.00000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Center 2.462 00 GHz
Span 30 MHz
#Res BW 3 kHz
#VBW 10 kHz
Sweep 3.163 s (601 pts)
Copyright 2000-2008 Agilent Technologies

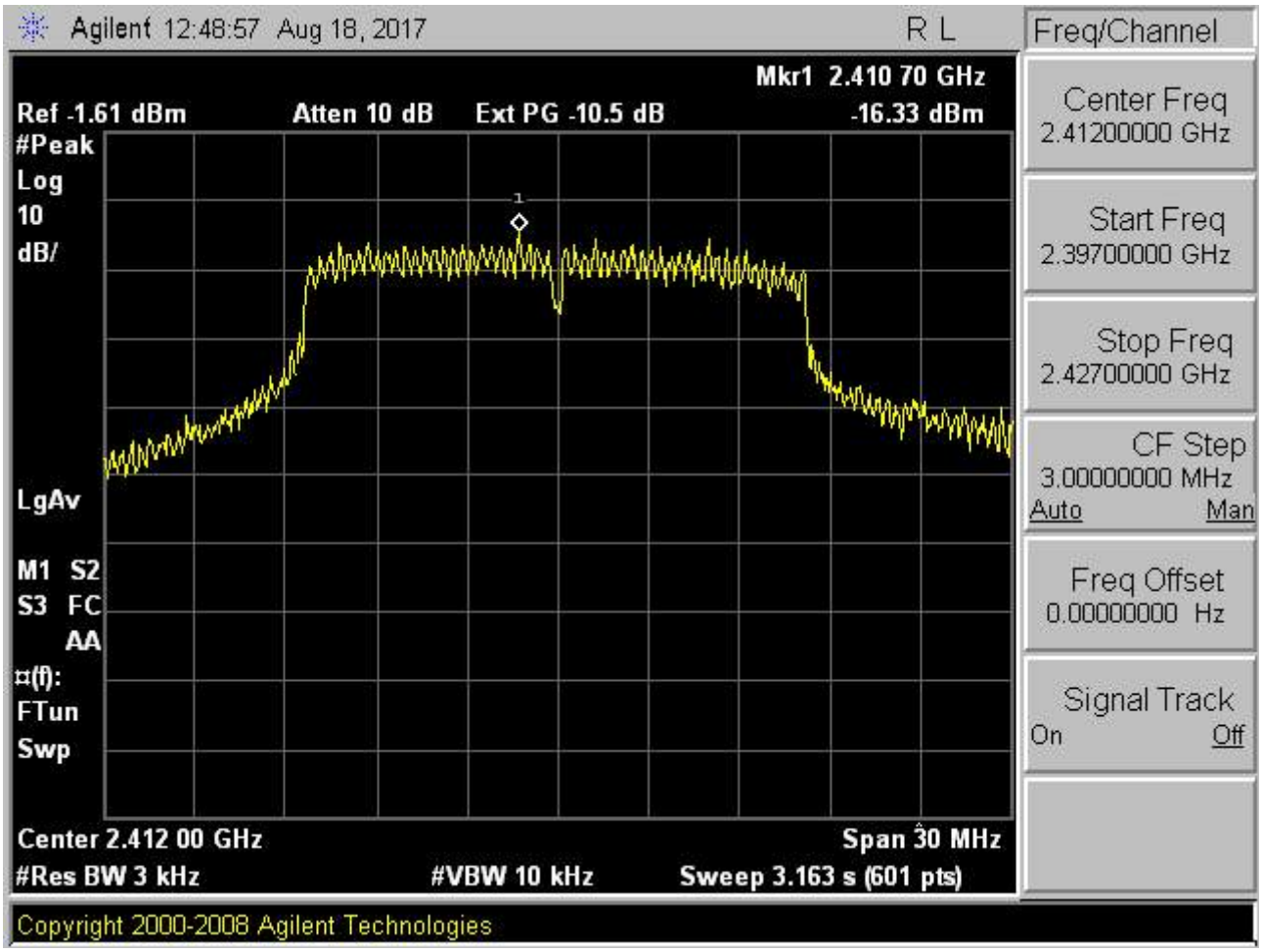
8.4.2 IEEE 802.11g

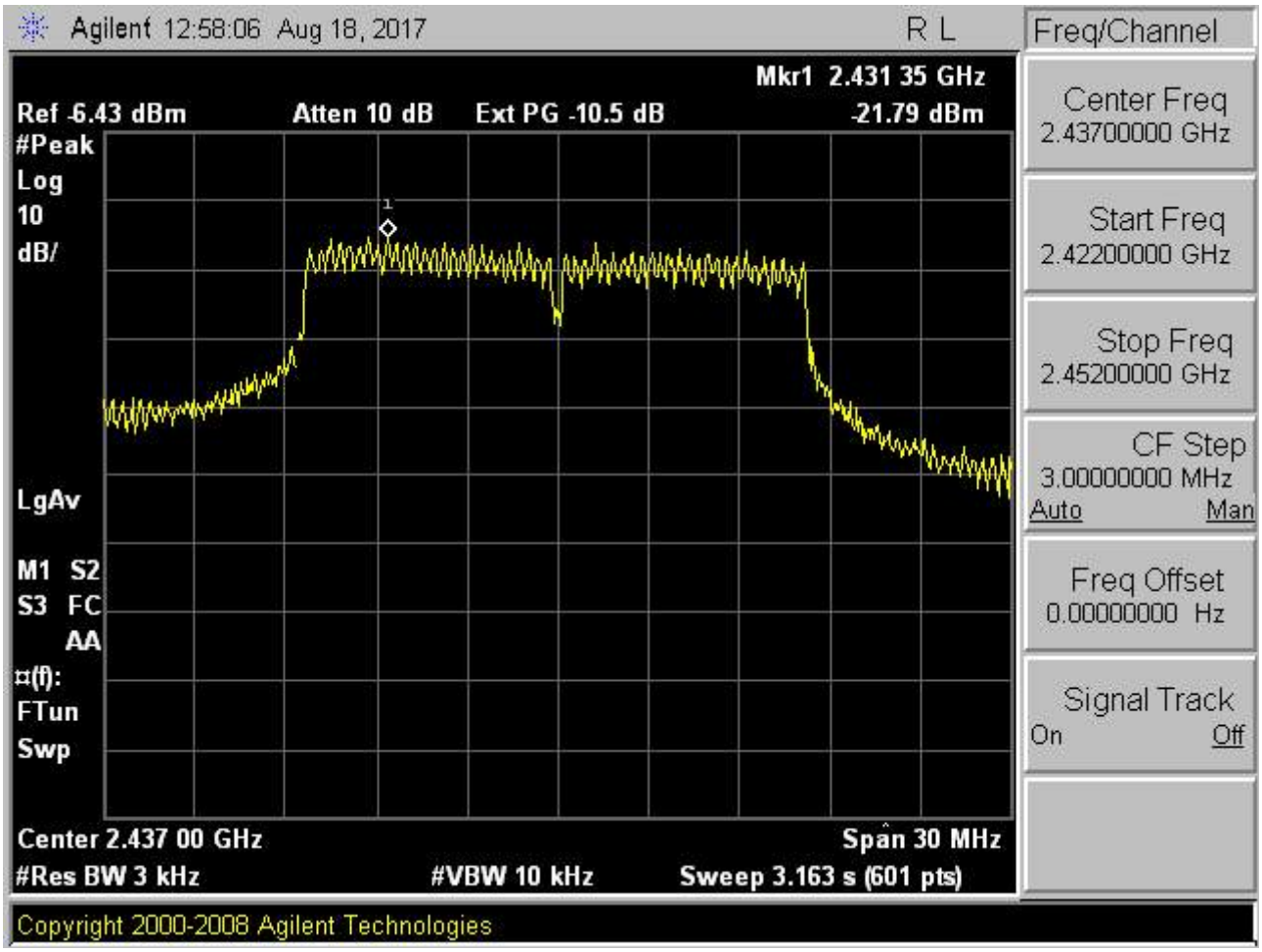
Test Date: Aug. 18, 2017 Temperature: 24℃ Humidity: 60%

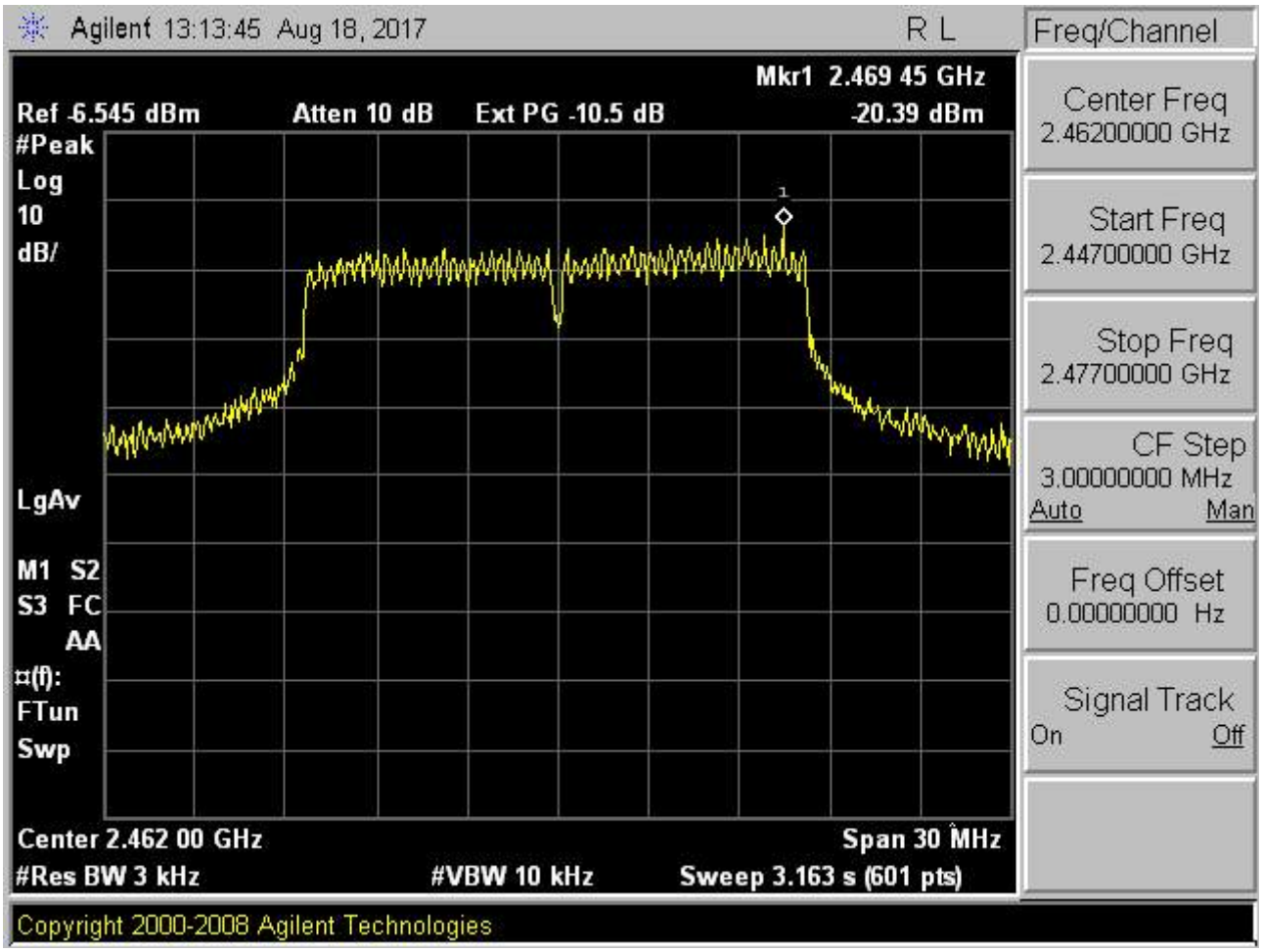
Channel	Peak Power Spectral Density (dBm)	FCC Limit (dBm)	Chart
L	-16.33	8	Page 49
M	-21.79	8	Page 50
H	-20.39	8	Page 51

Note:

1. *Please refer to page 49 to page 51 for chart*
2. *The estimated measurement uncertainty of the result measurement is ±1.5dB(1GHz≦f≦ 18GHz)*


Agilent 12:48:57 Aug 18, 2017
R L
Freq/Channel
Mkr1 2.410 70 GHz
Ref -1.61 dBm
Atten 10 dB
Ext PG -10.5 dB
-16.33 dBm
#Peak
Log
10
dB/
LgAv
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center Freq
2.41200000 GHz
Start Freq
2.39700000 GHz
Stop Freq
2.42700000 GHz
CF Step
3.00000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Center 2.412 00 GHz
Span 30 MHz
#Res BW 3 kHz
#VBW 10 kHz
Sweep 3.163 s (601 pts)
Copyright 2000-2008 Agilent Technologies


Agilent 12:58:06 Aug 18, 2017
R L
Freq/Channel
Mkr1 2.431 35 GHz
Ref -6.43 dBm
Atten 10 dB
Ext PG -10.5 dB
-21.79 dBm
#Peak
Log
10
dB/
LgAv
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center Freq
2.43700000 GHz
Start Freq
2.42200000 GHz
Stop Freq
2.45200000 GHz
CF Step
3.00000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Center 2.437 00 GHz
Span 30 MHz
#Res BW 3 kHz
#VBW 10 kHz
Sweep 3.163 s (601 pts)
Copyright 2000-2008 Agilent Technologies


Agilent 13:13:45 Aug 18, 2017
R L
Freq/Channel
Mkr1 2.469 45 GHz
Ref -6.545 dBm
Atten 10 dB
Ext PG -10.5 dB
-20.39 dBm
#Peak
Log
10
dB/
LgAv
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center Freq
2.46200000 GHz
Start Freq
2.44700000 GHz
Stop Freq
2.47700000 GHz
CF Step
3.00000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Center 2.462 00 GHz
Span 30 MHz
#Res BW 3 kHz
#VBW 10 kHz
Sweep 3.163 s (601 pts)
Copyright 2000-2008 Agilent Technologies

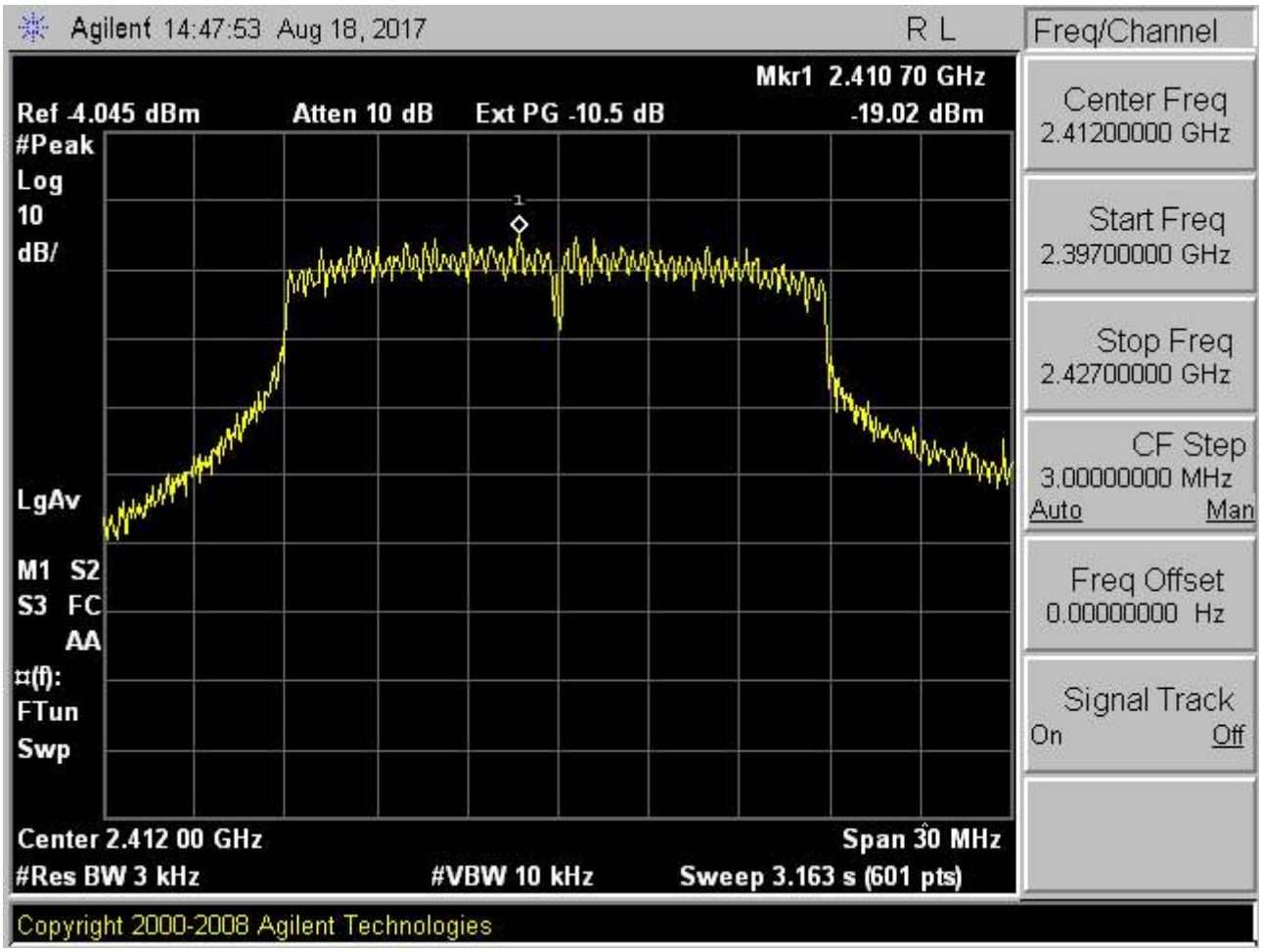
8.4.3 IEEE 802.11n, HT20

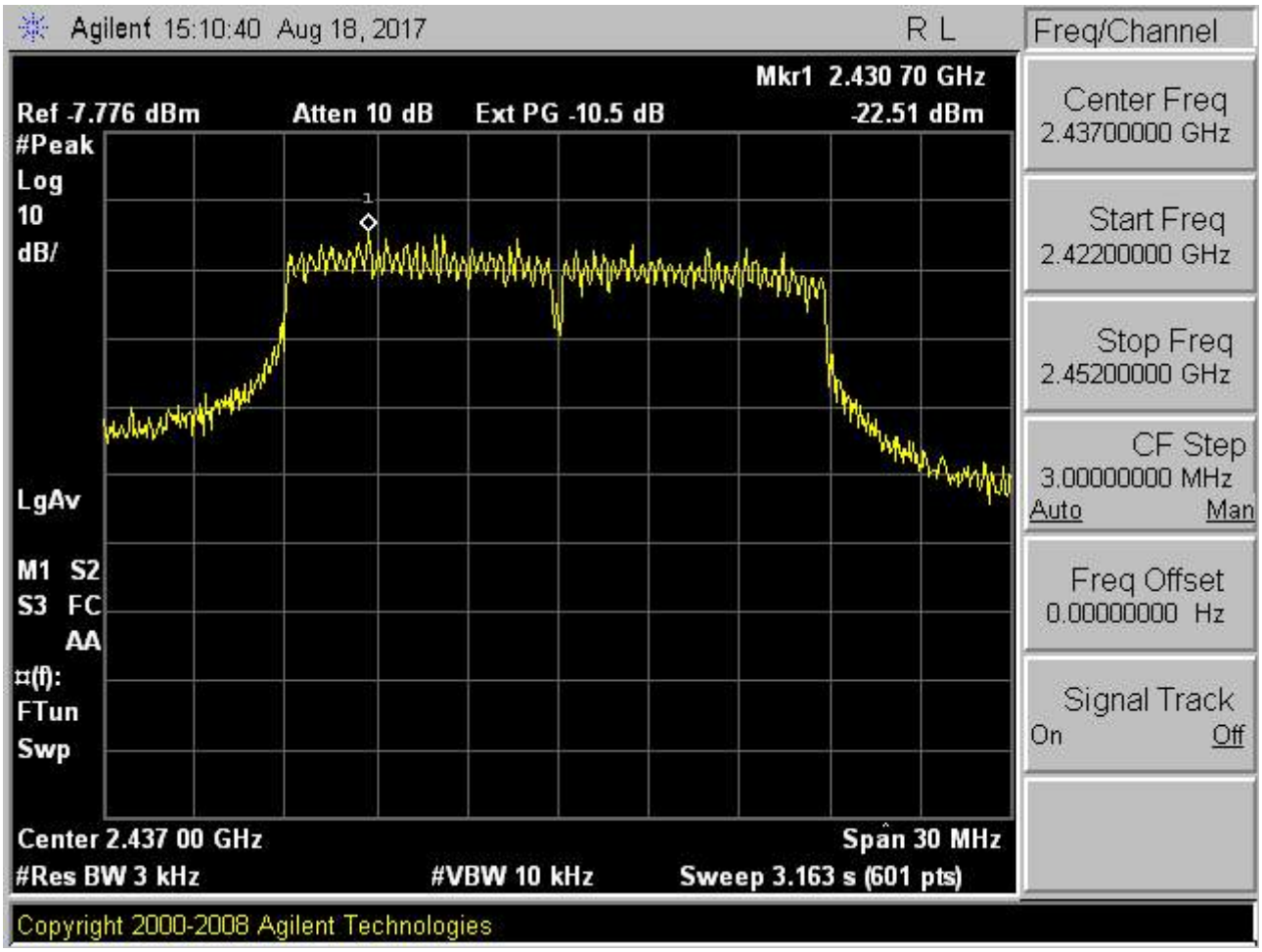
Test Date: Aug. 18, 2017 Temperature: 24℃ Humidity: 60%

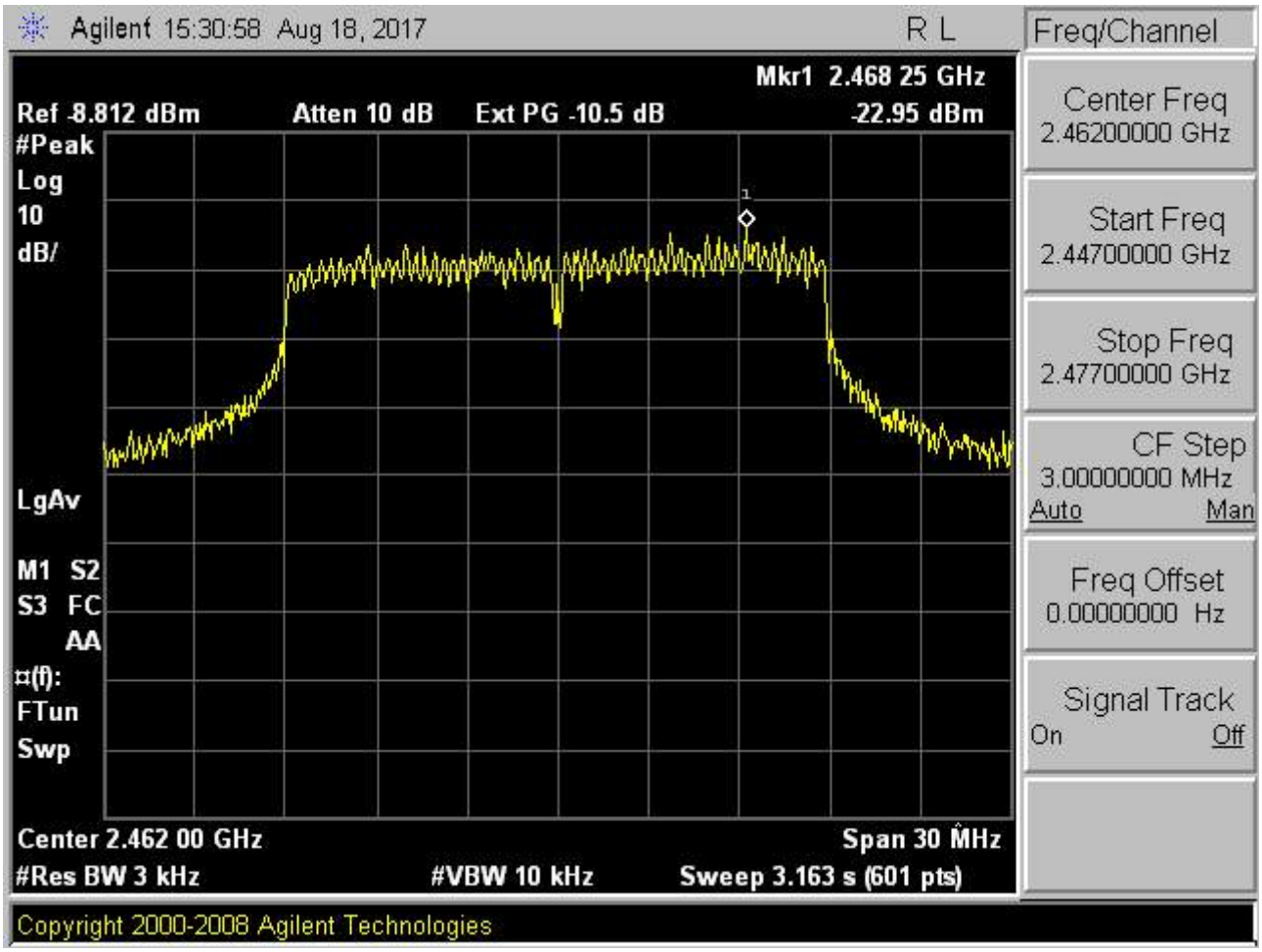
Channel	Peak Power Spectral Density (dBm)	FCC Limit (dBm)	Chart
L	-19.02	8	Page 53
M	-22.51	8	Page 54
H	-22.95	8	Page 55

Note:

1. *Please refer to page 53 to page 55 for chart*
2. *The estimated measurement uncertainty of the result measurement is ±1.5dB(1GHz≦f≦ 18GHz)*


Agilent 14:47:53 Aug 18, 2017
R L
Freq/Channel
Mkr1 2.410 70 GHz
Ref 4.045 dBm
Atten 10 dB
Ext PG 10.5 dB
19.02 dBm
#Peak
Log
10
dB/
LgAv
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 2.412 00 GHz
Span 30 MHz
#Res BW 3 kHz
#VBW 10 kHz
Sweep 3.163 s (601 pts)
Center Freq
2.41200000 GHz
Start Freq
2.39700000 GHz
Stop Freq
2.42700000 GHz
CF Step
3.00000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Copyright 2000-2008 Agilent Technologies


Agilent 15:10:40 Aug 18, 2017
R L
Freq/Channel
Mkr1 2.430 70 GHz
Ref -7.776 dBm
Atten 10 dB
Ext PG -10.5 dB
-22.51 dBm
#Peak
Log
10
dB/
LgAv
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center Freq
2.43700000 GHz
Start Freq
2.42200000 GHz
Stop Freq
2.45200000 GHz
CF Step
3.00000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Center 2.437 00 GHz
Span 30 MHz
#Res BW 3 kHz
#VBW 10 kHz
Sweep 3.163 s (601 pts)
Copyright 2000-2008 Agilent Technologies


Agilent 15:30:58 Aug 18, 2017
R L
Freq/Channel
Mkr1 2.468 25 GHz
Ref -8.812 dBm
Atten 10 dB
Ext PG -10.5 dB
-22.95 dBm
#Peak
Log
10
dB/
LgAv
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center Freq
2.46200000 GHz
Start Freq
2.44700000 GHz
Stop Freq
2.47700000 GHz
CF Step
3.00000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Center 2.462 00 GHz
Span 30 MHz
#Res BW 3 kHz
#VBW 10 kHz
Sweep 3.163 s (601 pts)
Copyright 2000-2008 Agilent Technologies

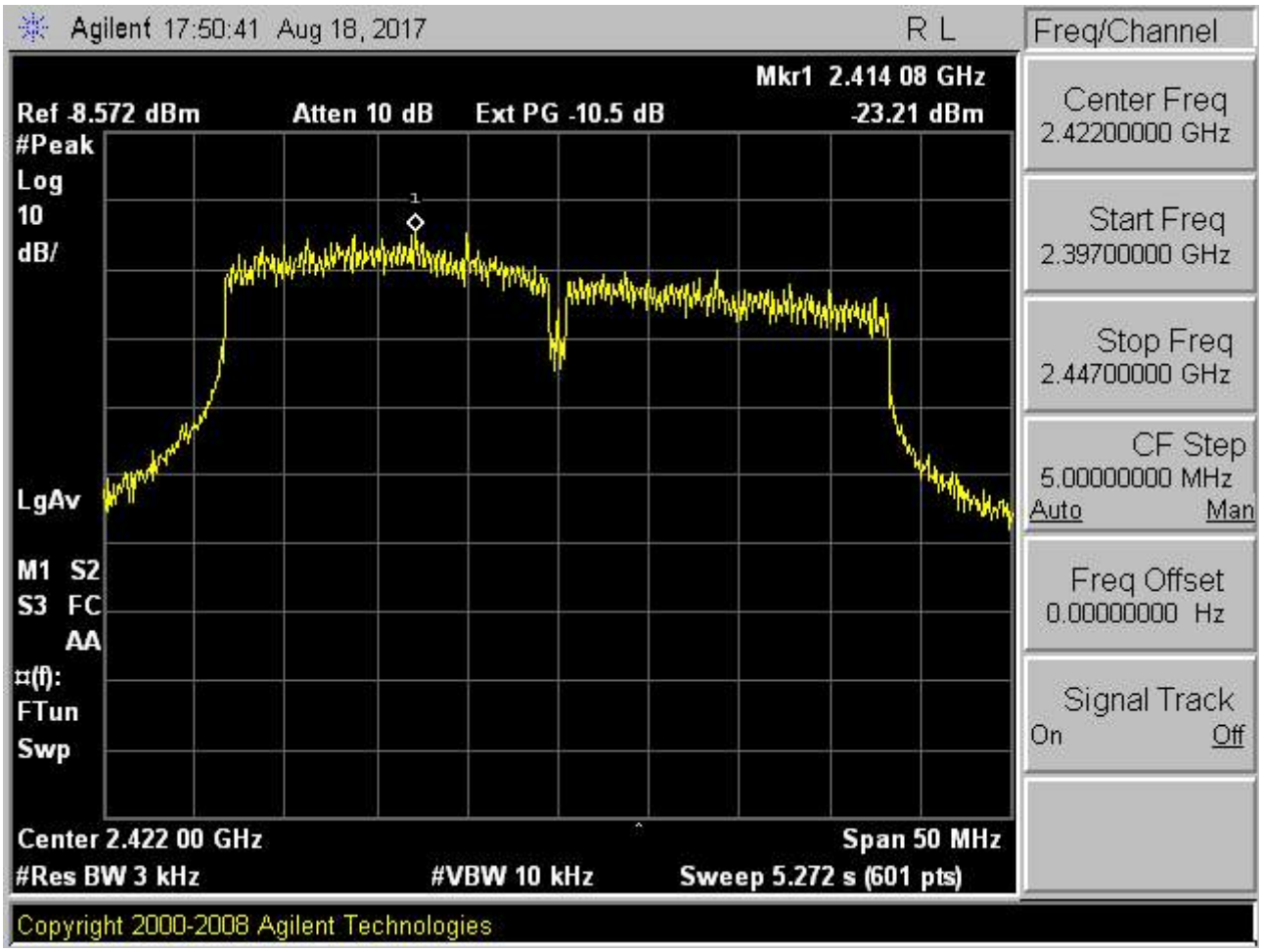
8.4.4 IEEE 802.11n, HT40

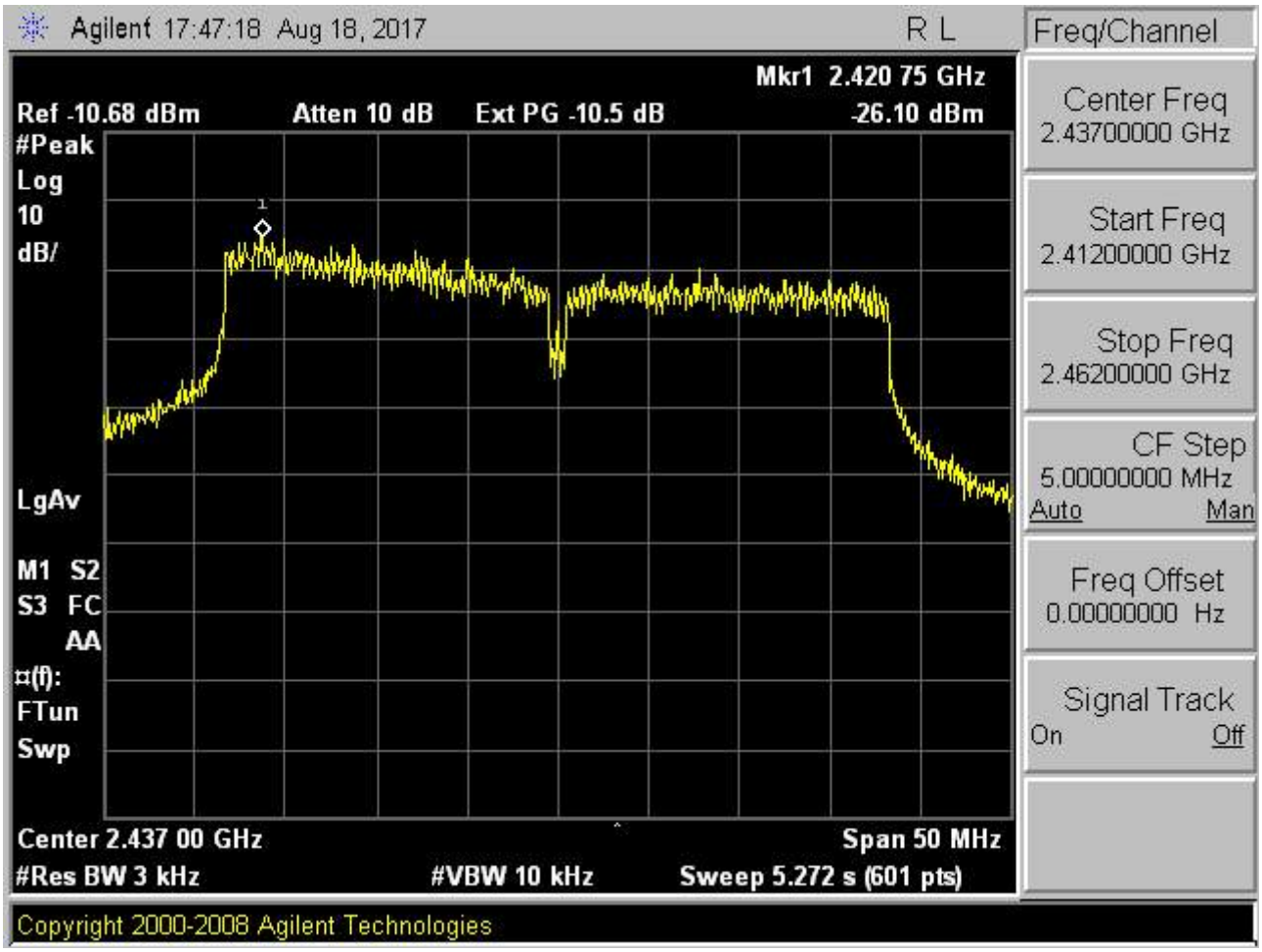
Test Date: Aug. 18, 2017 Temperature: 24℃ Humidity: 60%

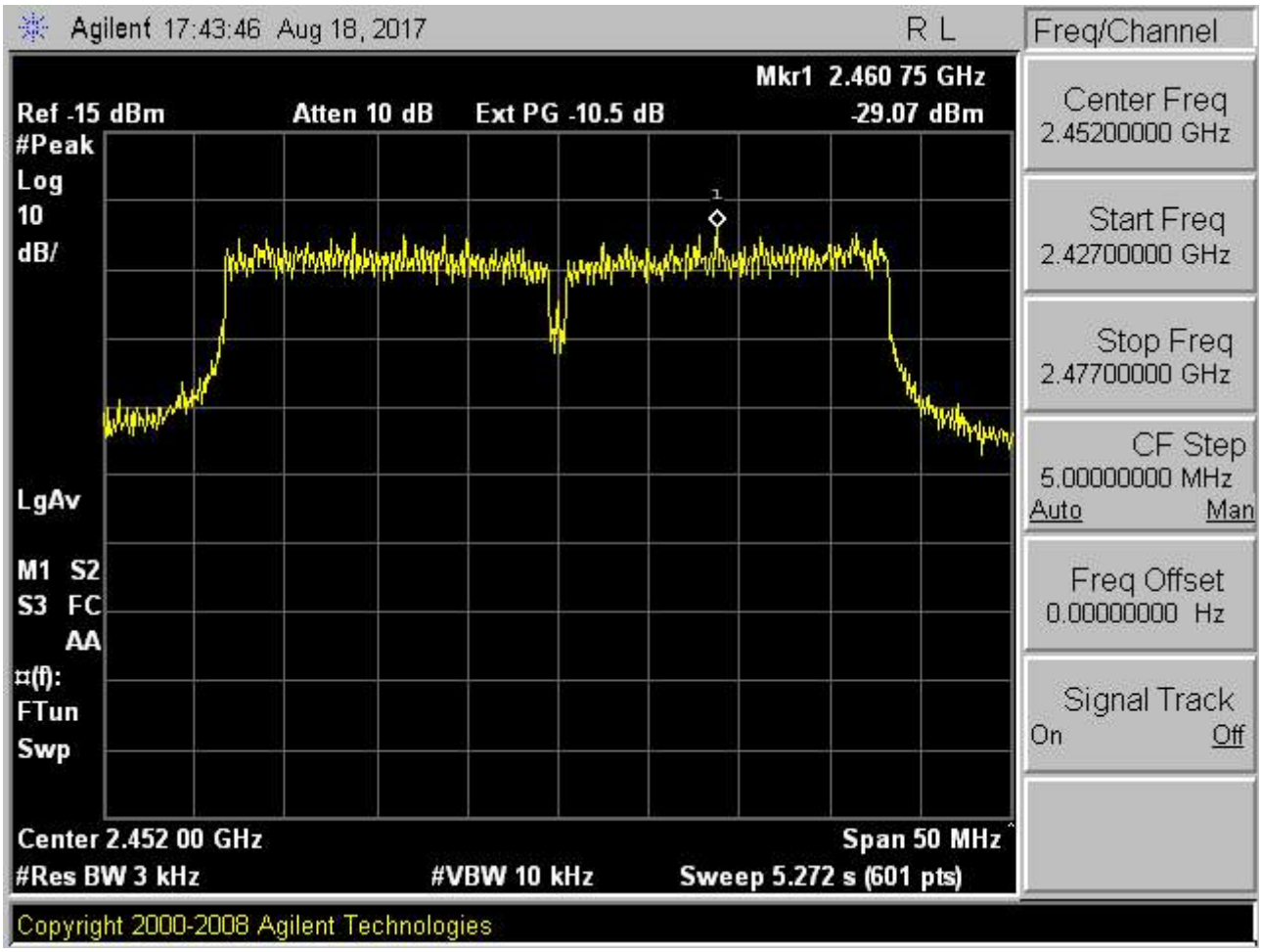
Channel	Peak Power Spectral Density (dBm)	FCC Limit (dBm)	Chart
L	-23.21	8	Page 57
M	-26.10	8	Page 58
H	-29.07	8	Page 59

Note:

1. *Please refer to page 57 to page 59 for chart*
2. *The estimated measurement uncertainty of the result measurement is ±1.5dB(1GHz≦f≦ 18GHz)*


Agilent 17:50:41 Aug 18, 2017
R L
Freq/Channel
Mkr1 2.414 08 GHz
Ref -8.572 dBm
Atten 10 dB
Ext PG -10.5 dB
-23.21 dBm
#Peak
Log
10
dB/
LgAv
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 2.422 00 GHz
Span 50 MHz
#Res BW 3 kHz
#VBW 10 kHz
Sweep 5.272 s (601 pts)
Center Freq
2.42200000 GHz
Start Freq
2.39700000 GHz
Stop Freq
2.44700000 GHz
CF Step
5.00000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Copyright 2000-2008 Agilent Technologies


Agilent 17:47:18 Aug 18, 2017
R L
Freq/Channel
Mkr1 2.420 75 GHz
Ref -10.68 dBm
Atten 10 dB
Ext PG -10.5 dB
-26.10 dBm
#Peak
Log
10
dB/
LgAv
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center Freq
2.43700000 GHz
Start Freq
2.41200000 GHz
Stop Freq
2.46200000 GHz
CF Step
5.00000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Center 2.437 00 GHz
Span 50 MHz
#Res BW 3 kHz
#VBW 10 kHz
Sweep 5.272 s (601 pts)
Copyright 2000-2008 Agilent Technologies


Agilent 17:43:46 Aug 18, 2017
R L
Freq/Channel
Mkr1 2.460 75 GHz
Ref -15 dBm
Atten 10 dB
Ext PG -10.5 dB
-29.07 dBm
#Peak
Log
10
dB/
LgAv
M1 S2
S3 FC
AA
¤(f):
FTun
Swp
Center 2.452 00 GHz
Span 50 MHz
#Res BW 3 kHz
#VBW 10 kHz
Sweep 5.272 s (601 pts)
Center Freq
2.45200000 GHz
Start Freq
2.42700000 GHz
Stop Freq
2.47700000 GHz
CF Step
5.00000000 MHz
Auto
Man
Freq Offset
0.00000000 Hz
Signal Track
On
Off
Copyright 2000-2008 Agilent Technologies

9 SPURIOUS EMISSION - RF CONDUCTED MEASUREMENT

9.1 Standard Applicable

According to 12.247 (d) , in any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

9.2 Measurement Procedure

1. The testing follows FCC KDB 558074 D01 v04.
2. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
3. Position the EUT as shown in figure 1. 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.
4. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge.
5. 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.
6. Repeat above procedures until all measured frequencies were complete.

9.3 Measurement Equipment

Equipment	Manufacturer	Model No.
Spectrum Analyzer	Agilent	E4446A
Attenuator	WEINSCHEL	56-10

9.4 Measurement Data

9.4.1 IEEE 802.11b

Test Date: Aug. 18, 2017 Temperature: 24℃ Humidity: 60%

Channel	Frequency(MHz)	Chart
1	2412	Page 63, Page 65,66
6	2437	Page 67,68
11	2462	Page 64, Page 69,70

Frequency Band: 2400 MHz ~ 2483.5 MHz
All out-of –band conducted emissions were more than 20dB below the carrier.

Note: 1. Please refer to page 63 to page 70 for chart
2. An external attenuator is used as part of the test system for these measurements, the attenuation introduced by the external attenuator has not been explicitly compensated in the measured power level as it is irrelevant to these specific measurement results.

9.4.2 IEEE 802.11g

Channel	Frequency(MHz)	Chart
1	2412	Page 71, Page 73,74
6	2437	Page 75,76
11	2462	Page 72, Page 77,78

Frequency Band: 2400 MHz ~ 2483.5 MHz
All out-of –band conducted emissions were more than 20dB below the carrier.

Note: 1. Please refer to page 71 to page 78 for chart
2. An external attenuator is used as part of the test system for these measurements, the attenuation introduced by the external attenuator has not been explicitly compensated in the measured power level as it is irrelevant to these specific measurement results.

9.4.3 IEEE 802.11n, HT20

Channel	Frequency(MHz)	Chart
1	2412	Page 79, Page 81,82
6	2437	Page 83,84
11	2462	Page 80, Page 85,86

Frequency Band: 2400 MHz ~ 2483.5 MHz
All out-of –band conducted emissions were more than 20dB below the carrier.

Note: 1. Please refer to page 79 to page 86 for chart
2. An external attenuator is used as part of the test system for these measurements, the attenuation introduced by the external attenuator has not been explicitly compensated in the measured power level as it is irrelevant to these specific measurement results.

9.4.4 IEEE 802.11n, HT40

Test Date: Aug. 18, 2017 Temperature: 24℃ Humidity: 60%

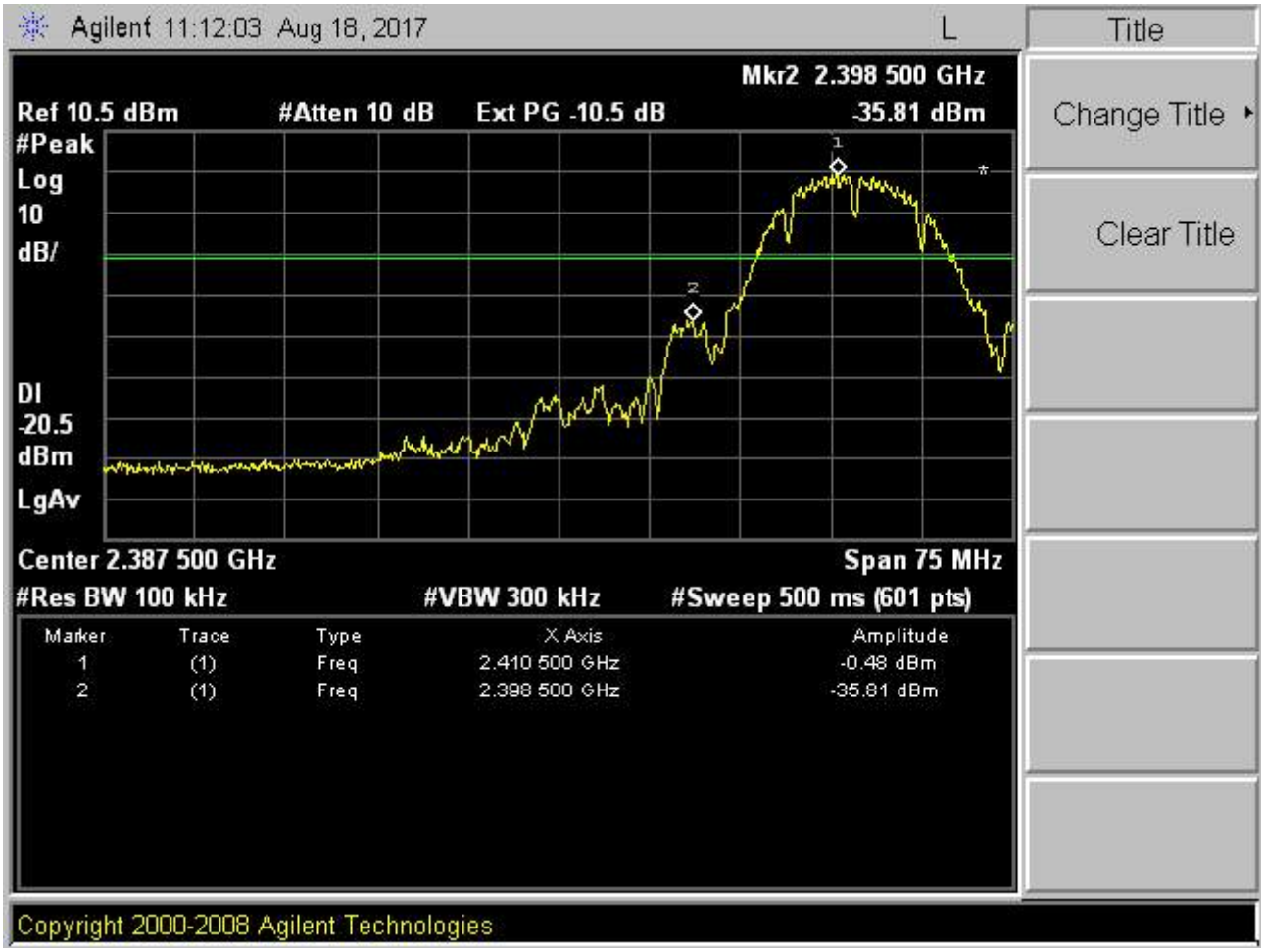
Channel	Chart
L	Page 87, Page 89,90
M	Page 91,92
H	Page 88, Page 93,94

Frequency Band: 2400 MHz ~ 2483.5 MHz
All out-of –band conducted emissions were more than 20dB below the carrier.

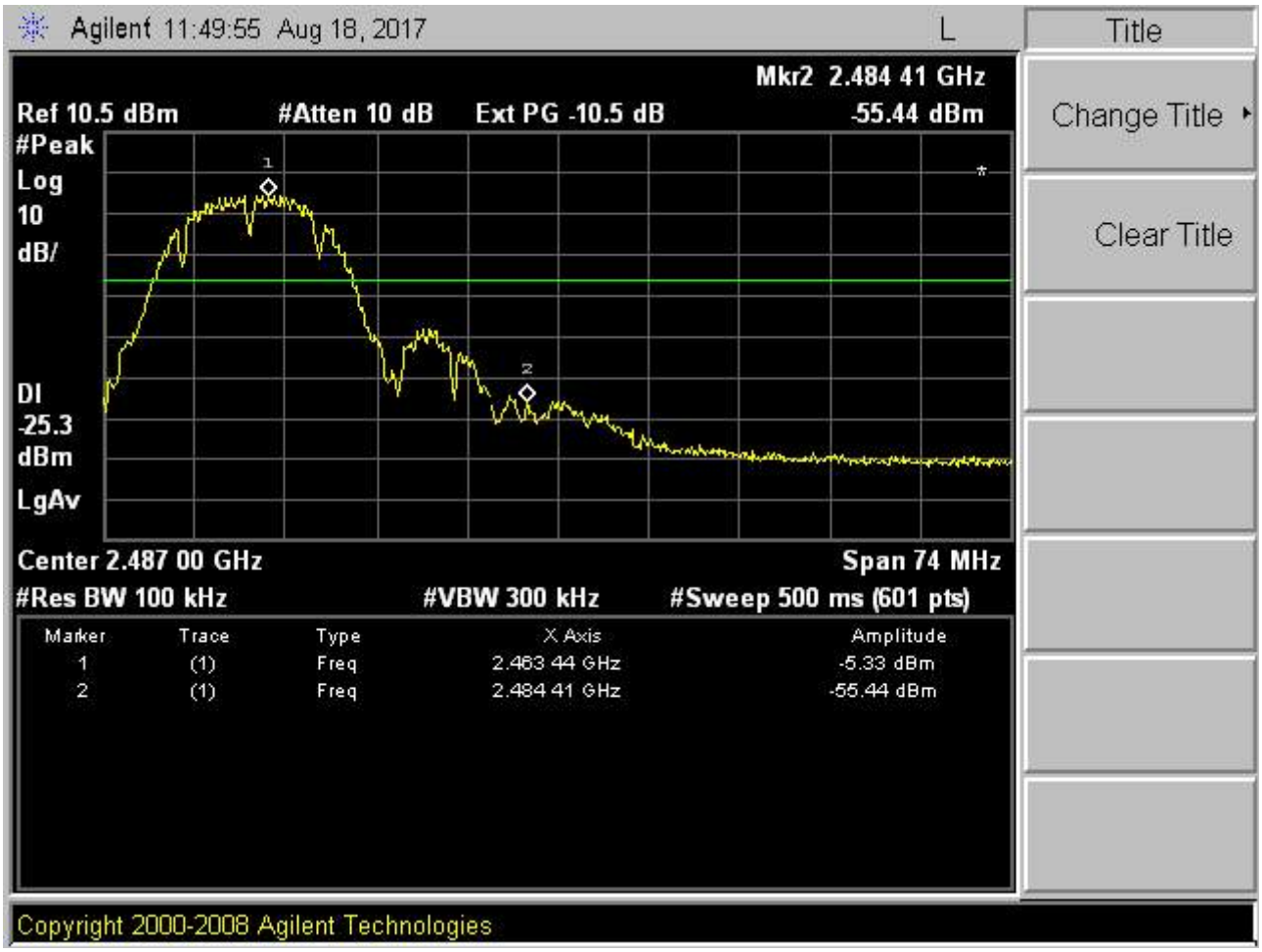
Note: 1. Please refer to page 87 to page 94 for chart
2. An external attenuator is used as part of the test system for these measurements, the attenuation introduced by the external attenuator has not been explicitly compensated in the measured power level as it is irrelevant to these specific measurement results.

802.11b

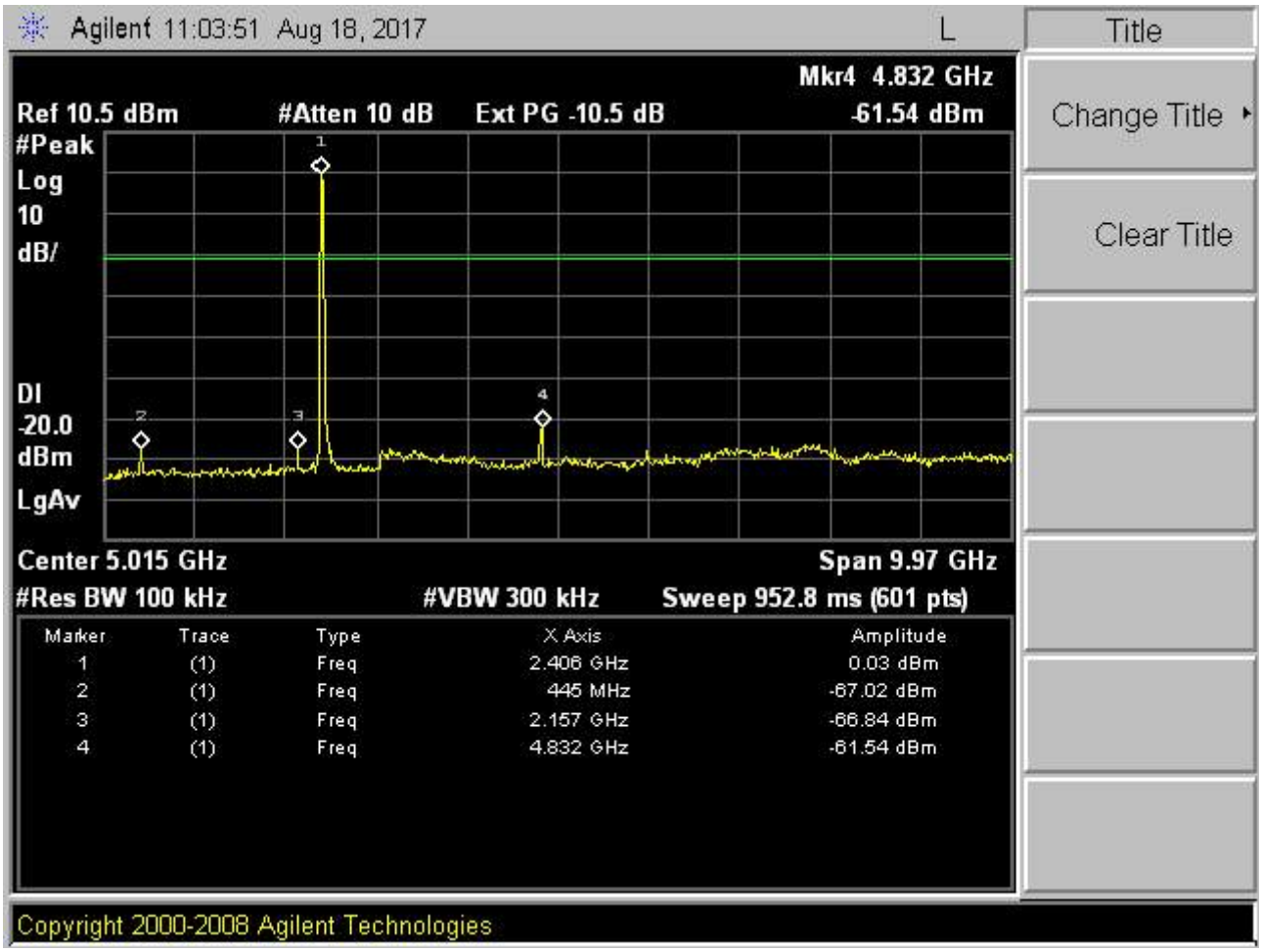
Low bandedge



High bandedge



CH Low


Agilent 11:03:51 Aug 18, 2017
L
Title
Mkr4 4.832 GHz
Ref 10.5 dBm
#Atten 10 dB
Ext PG -10.5 dB
-61.54 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-20.0
dBm
LgAv
Center 5.015 GHz
Span 9.97 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 952.8 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.406 GHz 0.03 dBm
2 (1) Freq 445 MHz -67.02 dBm
3 (1) Freq 2.157 GHz -66.84 dBm
4 (1) Freq 4.832 GHz -61.54 dBm
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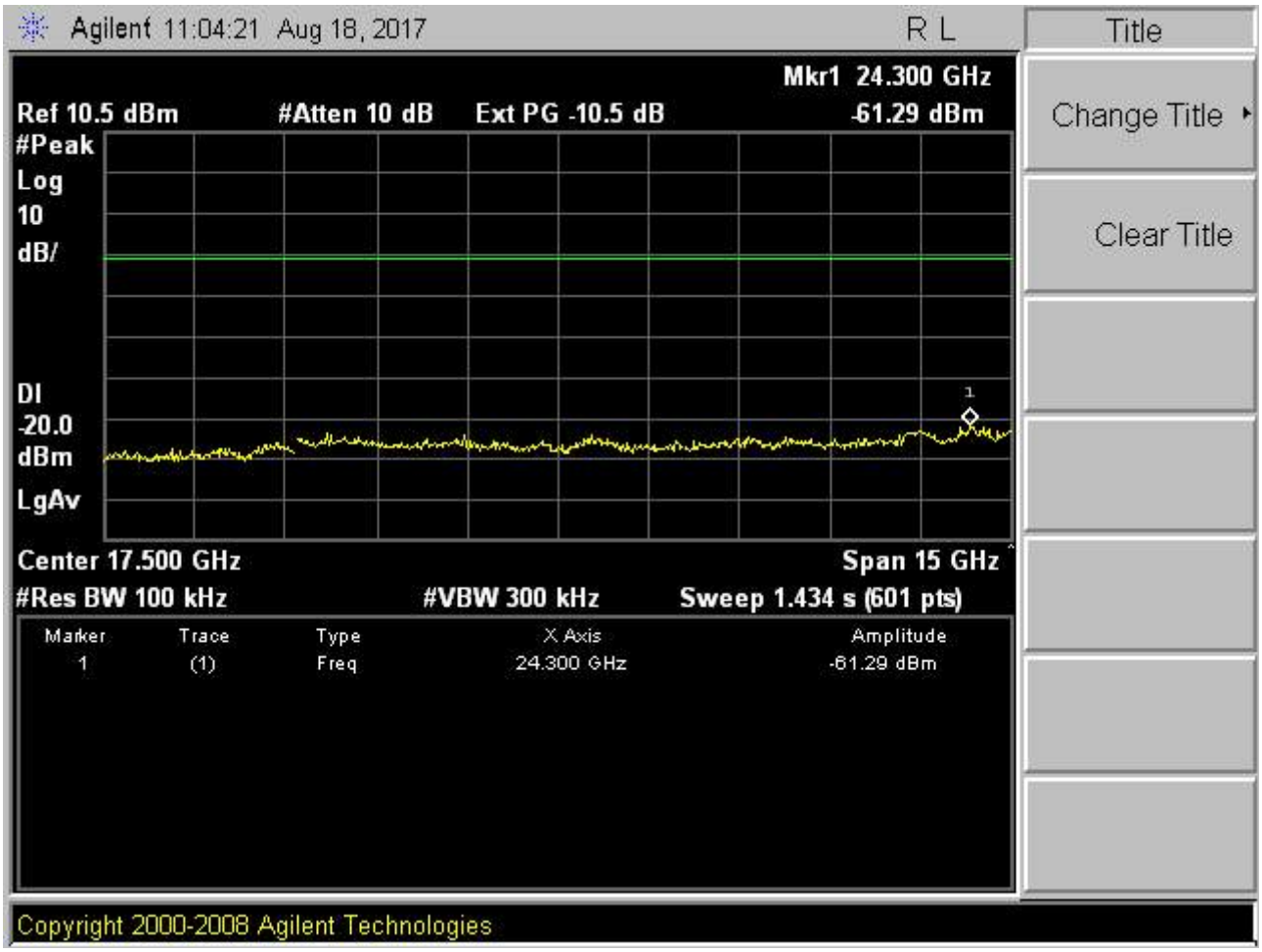
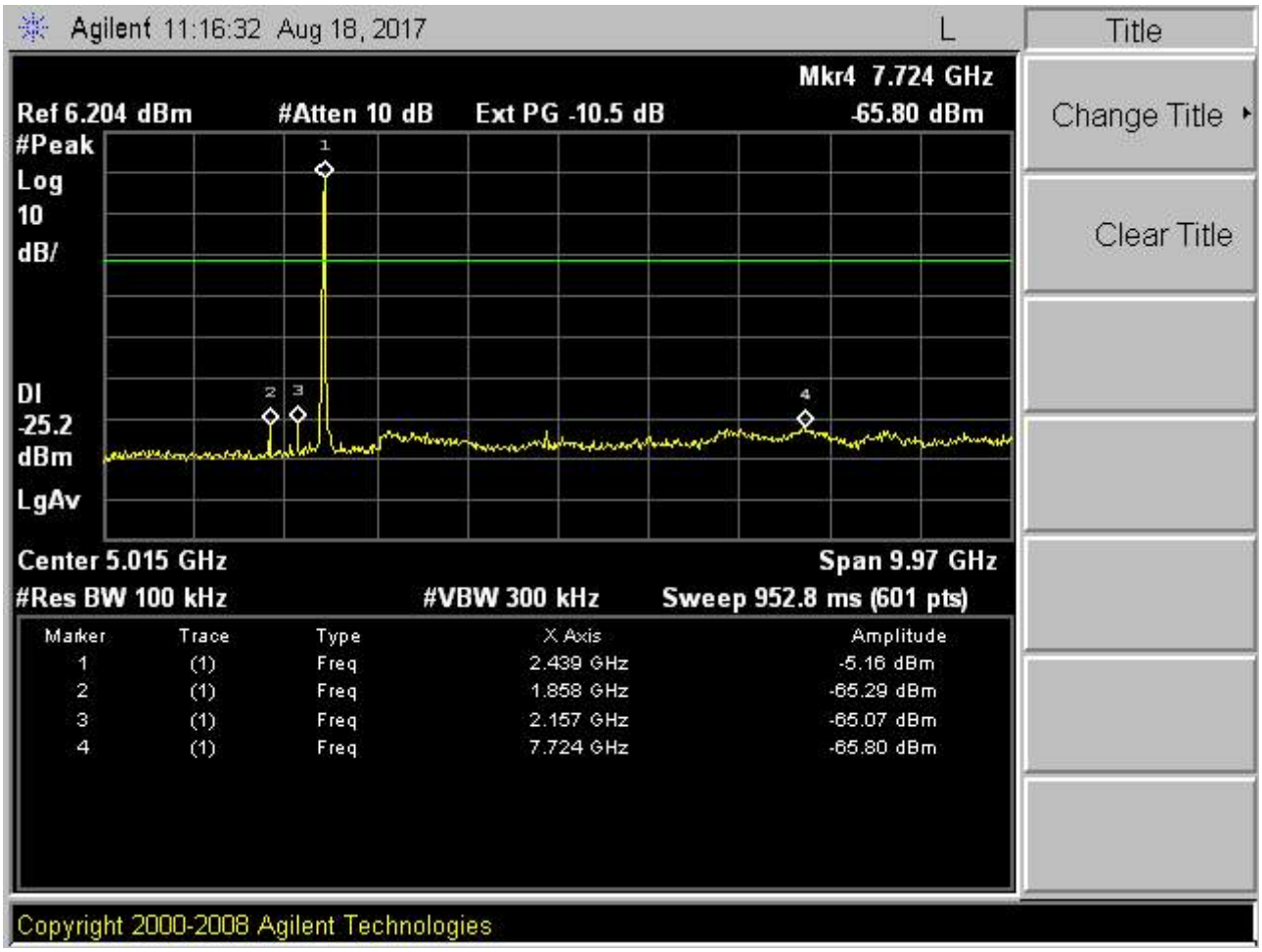
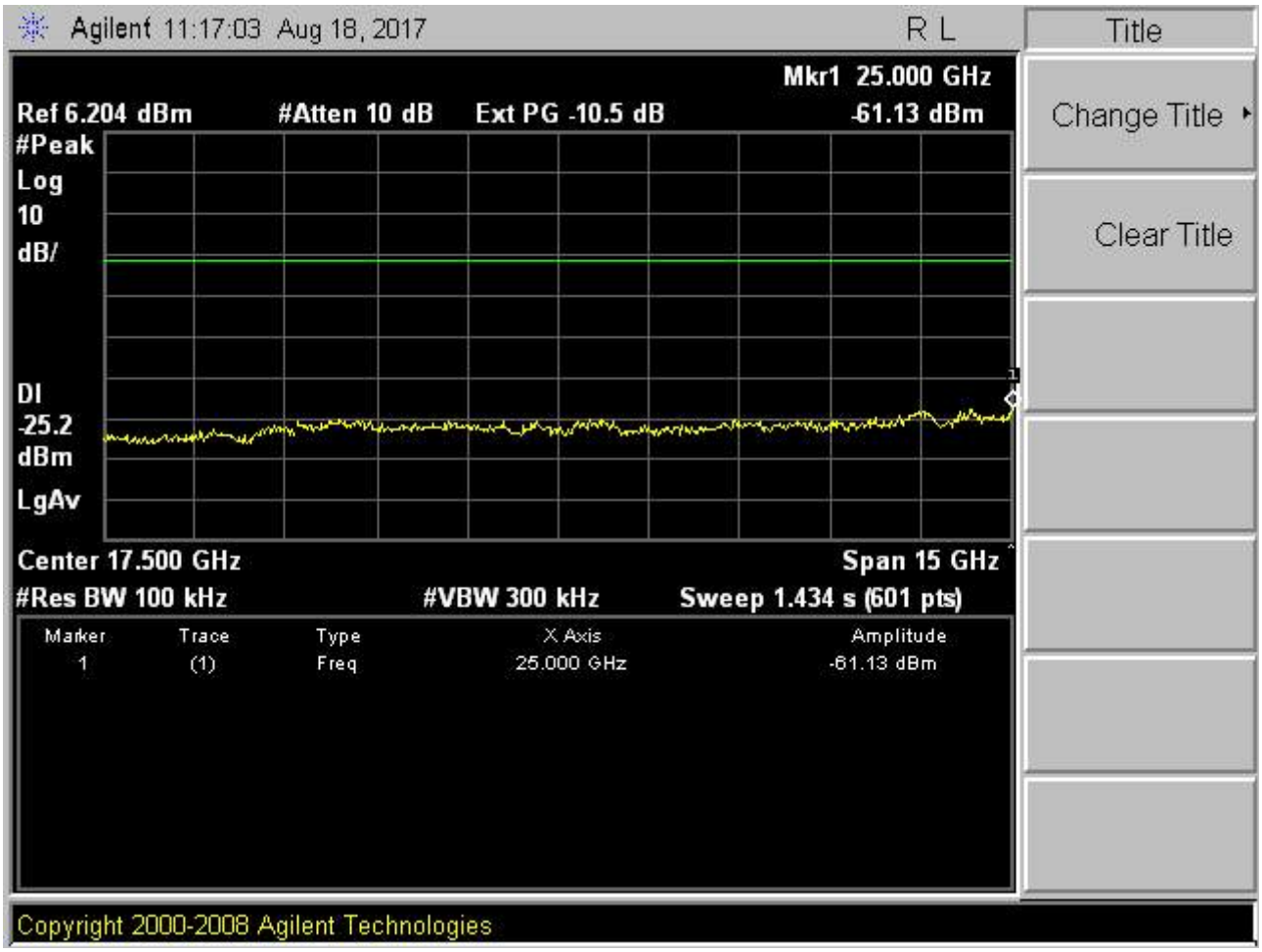
CH Low


Agilent 11:04:21 Aug 18, 2017
R L
Title
Mkr1 24.300 GHz
Ref 10.5 dBm
#Atten 10 dB
Ext PG -10.5 dB
-61.29 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-20.0
dBm
LgAv
1
Center 17.500 GHz
Span 15 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker
Trace
Type
X Axis
Amplitude
1
(1)
Freq
24.300 GHz
-61.29 dBm
Copyright 2000-2008 Agilent Technologies

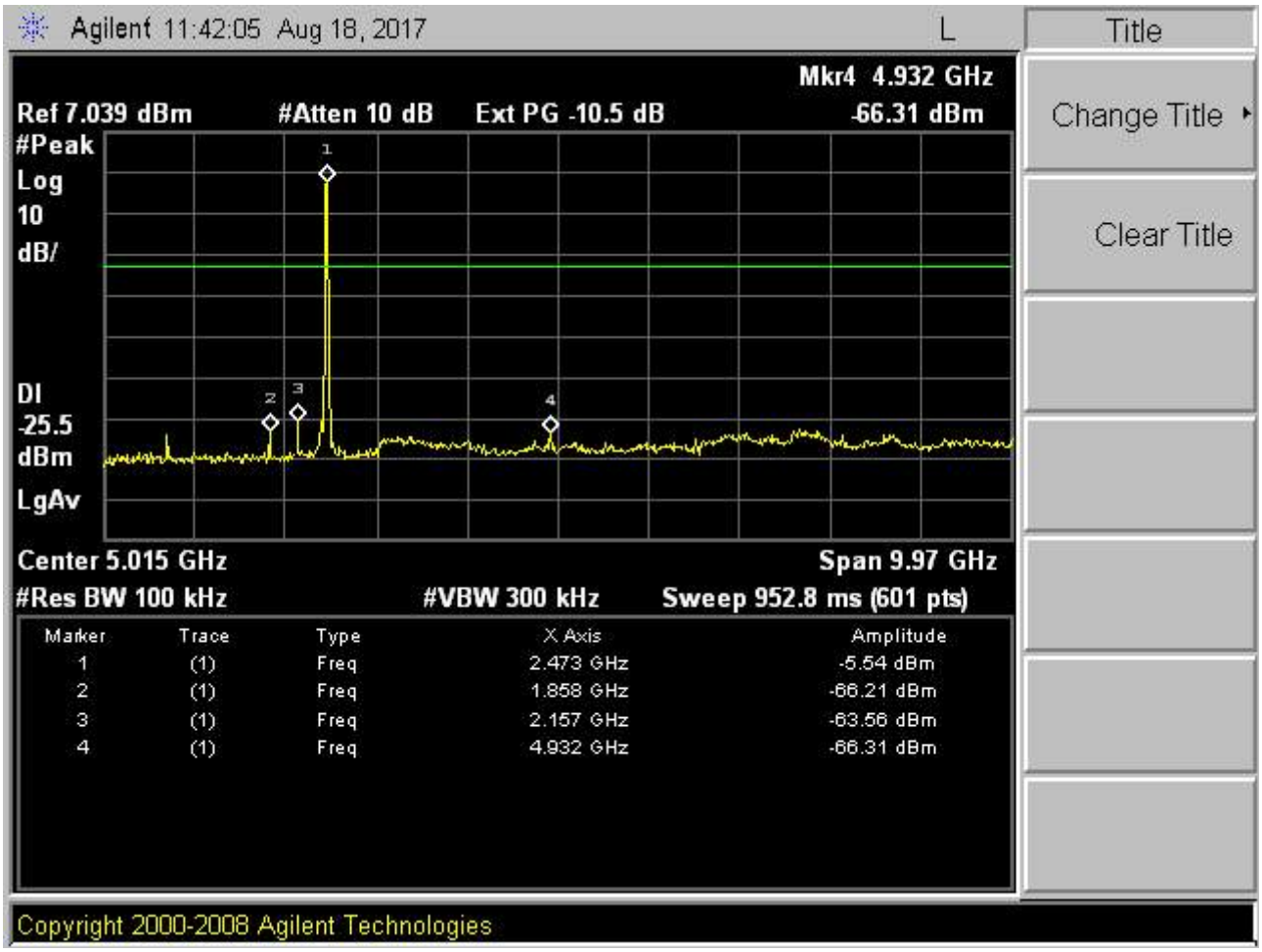
CH Mid


Agilent 11:16:32 Aug 18, 2017
L
Title
Mkr4 7.724 GHz
Ref 6.204 dBm
#Atten 10 dB
Ext PG -10.5 dB
-65.80 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-25.2
dBm
LgAv
Center 5.015 GHz
Span 9.97 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 952.8 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.439 GHz -5.16 dBm
2 (1) Freq 1.858 GHz -65.29 dBm
3 (1) Freq 2.157 GHz -65.07 dBm
4 (1) Freq 7.724 GHz -65.80 dBm
Copyright 2000-2008 Agilent Technologies

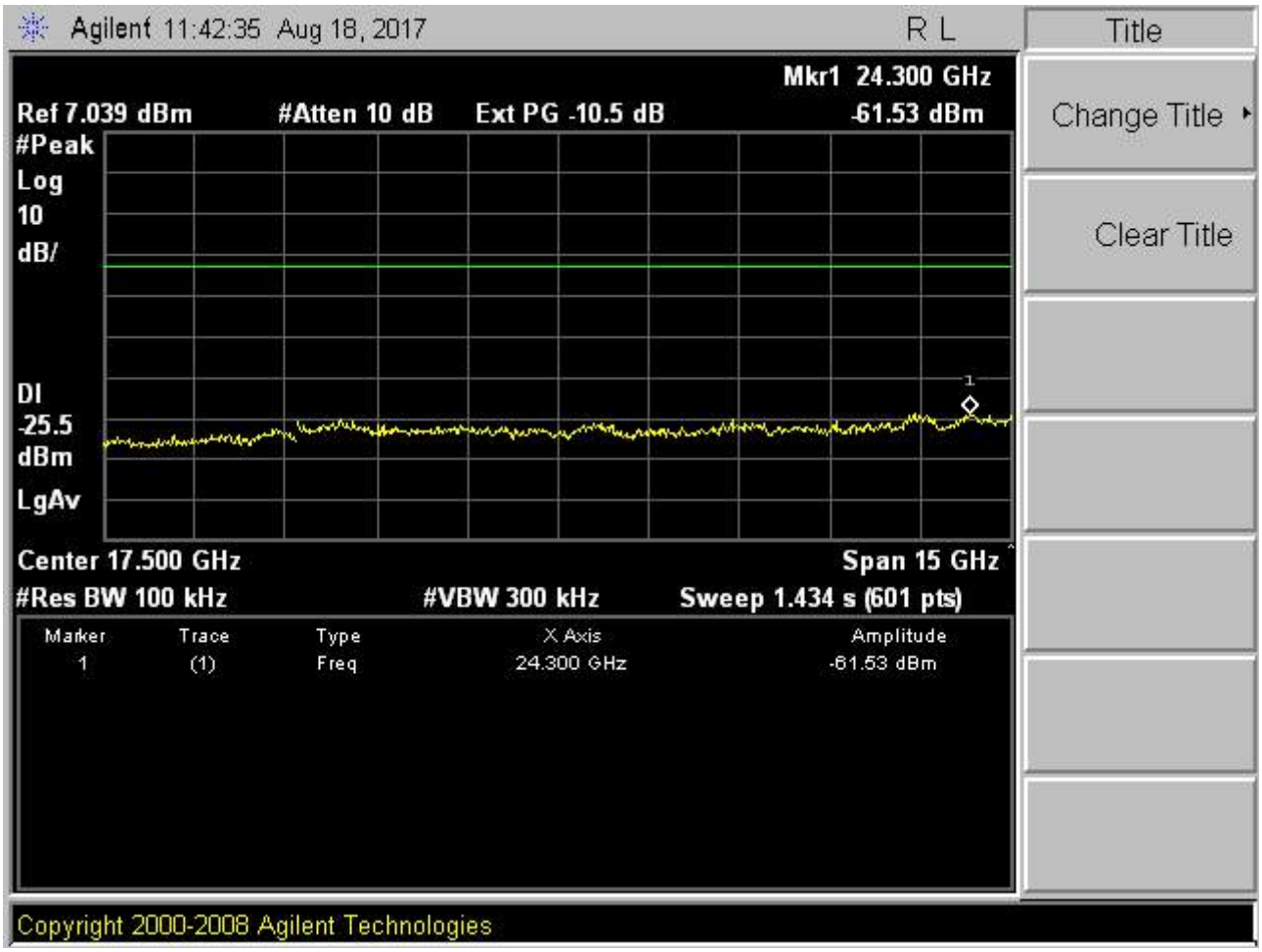
CH Mid


Agilent 11:17:03 Aug 18, 2017
R L
Title
Mkr1 25.000 GHz
Ref 6.204 dBm
#Atten 10 dB
Ext PG -10.5 dB
-61.13 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-25.2
dBm
LgAv
Center 17.500 GHz
Span 15 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker
Trace
Type
X Axis
Amplitude
1
(1)
Freq
25.000 GHz
-61.13 dBm
Copyright 2000-2008 Agilent Technologies

CH High

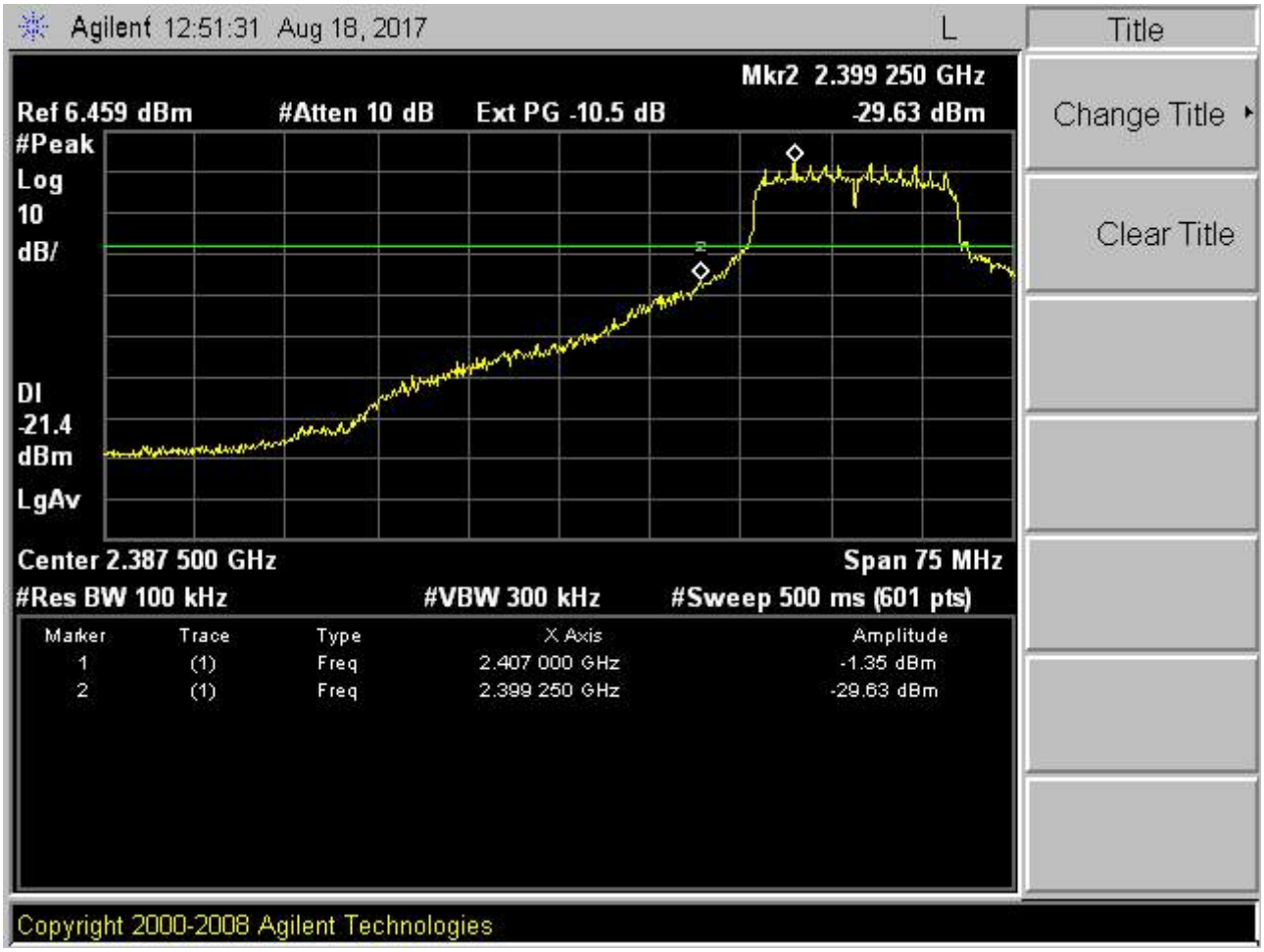

Agilent 11:42:05 Aug 18, 2017
L
Title
Mkr4 4.932 GHz
Ref 7.039 dBm
#Atten 10 dB
Ext PG -10.5 dB
-66.31 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-25.5
dBm
LgAv
Center 5.015 GHz
Span 9.97 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 952.8 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.473 GHz -5.54 dBm
2 (1) Freq 1.858 GHz -66.21 dBm
3 (1) Freq 2.157 GHz -63.56 dBm
4 (1) Freq 4.932 GHz -66.31 dBm
Copyright 2000-2008 Agilent Technologies

CH High

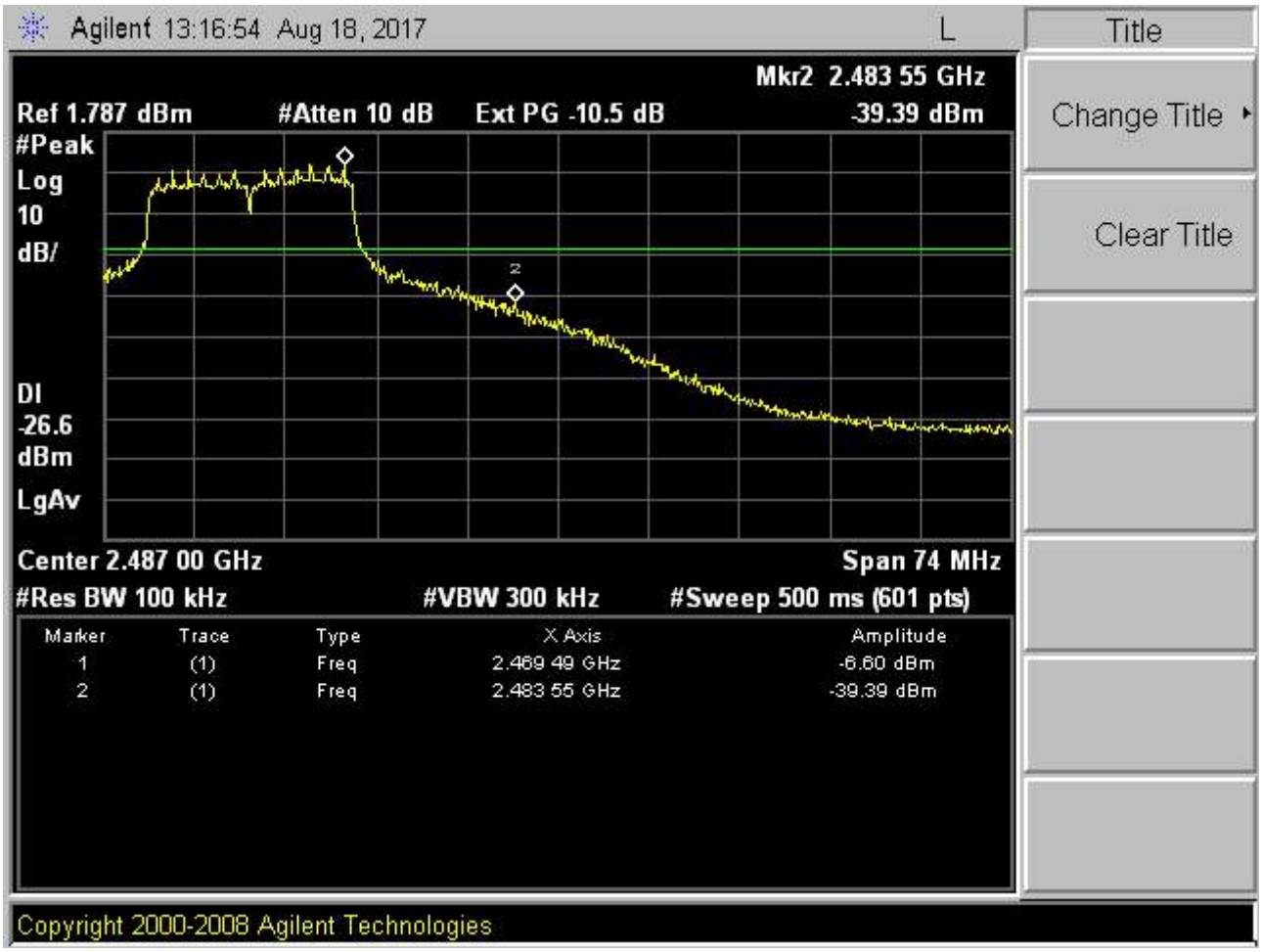

Agilent 11:42:35 Aug 18, 2017
R L
Title
Mkr1 24.300 GHz
Ref 7.039 dBm
#Atten 10 dB
Ext PG -10.5 dB
-61.53 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-25.5
dBm
LgAv
Center 17.500 GHz
Span 15 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker
Trace
Type
X Axis
Amplitude
1
(1)
Freq
24.300 GHz
-61.53 dBm
Copyright 2000-2008 Agilent Technologies

802.11g

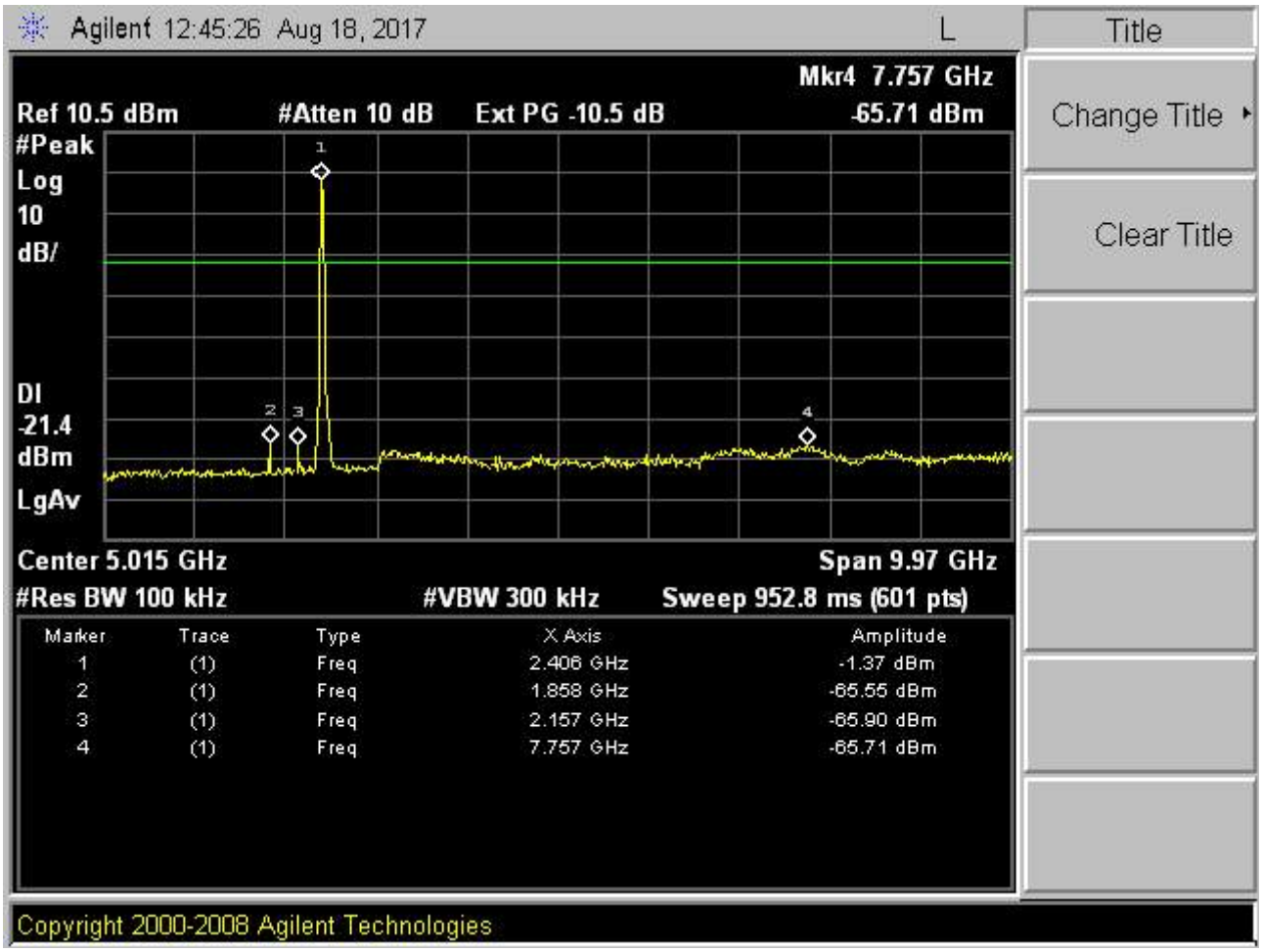
Low bandedge



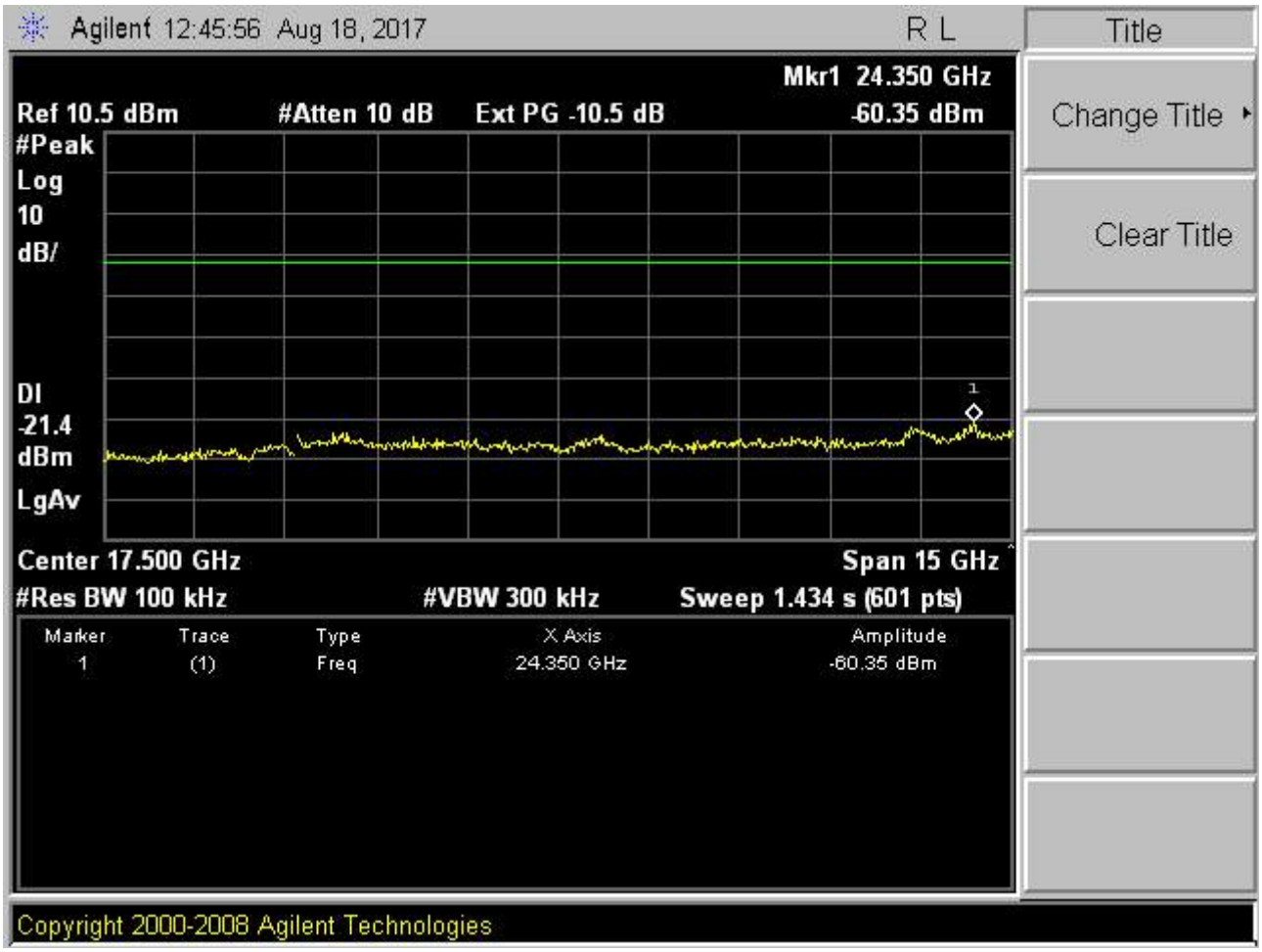
High Bandedge



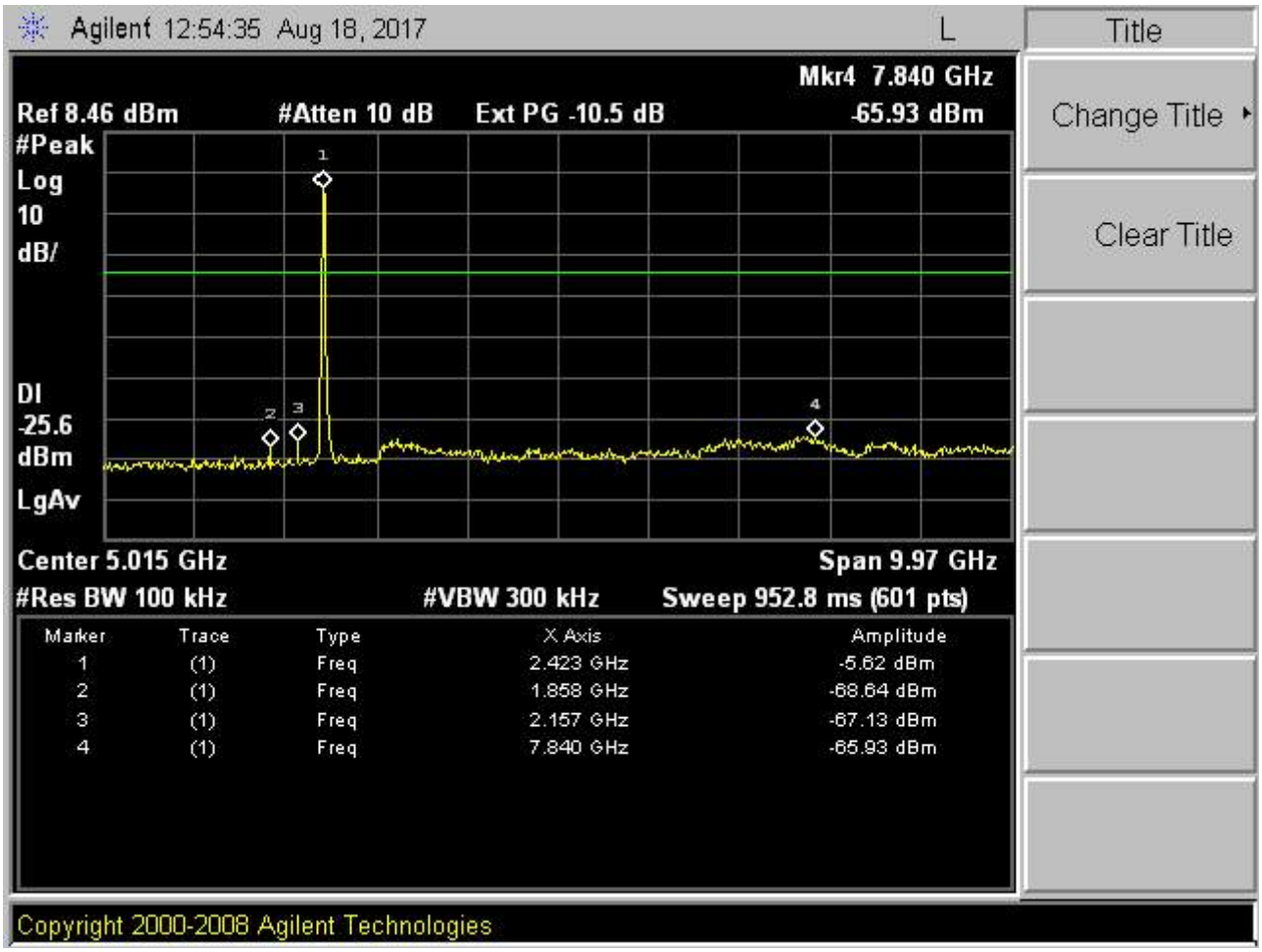
CH Low


Agilent 12:45:26 Aug 18, 2017
L
Title
Mkr4 7.757 GHz
Ref 10.5 dBm
#Atten 10 dB
Ext PG -10.5 dB
-65.71 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-21.4
dBm
LgAv
Center 5.015 GHz
Span 9.97 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 952.8 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.406 GHz -1.37 dBm
2 (1) Freq 1.858 GHz -65.55 dBm
3 (1) Freq 2.157 GHz -65.90 dBm
4 (1) Freq 7.757 GHz -65.71 dBm
Copyright 2000-2008 Agilent Technologies

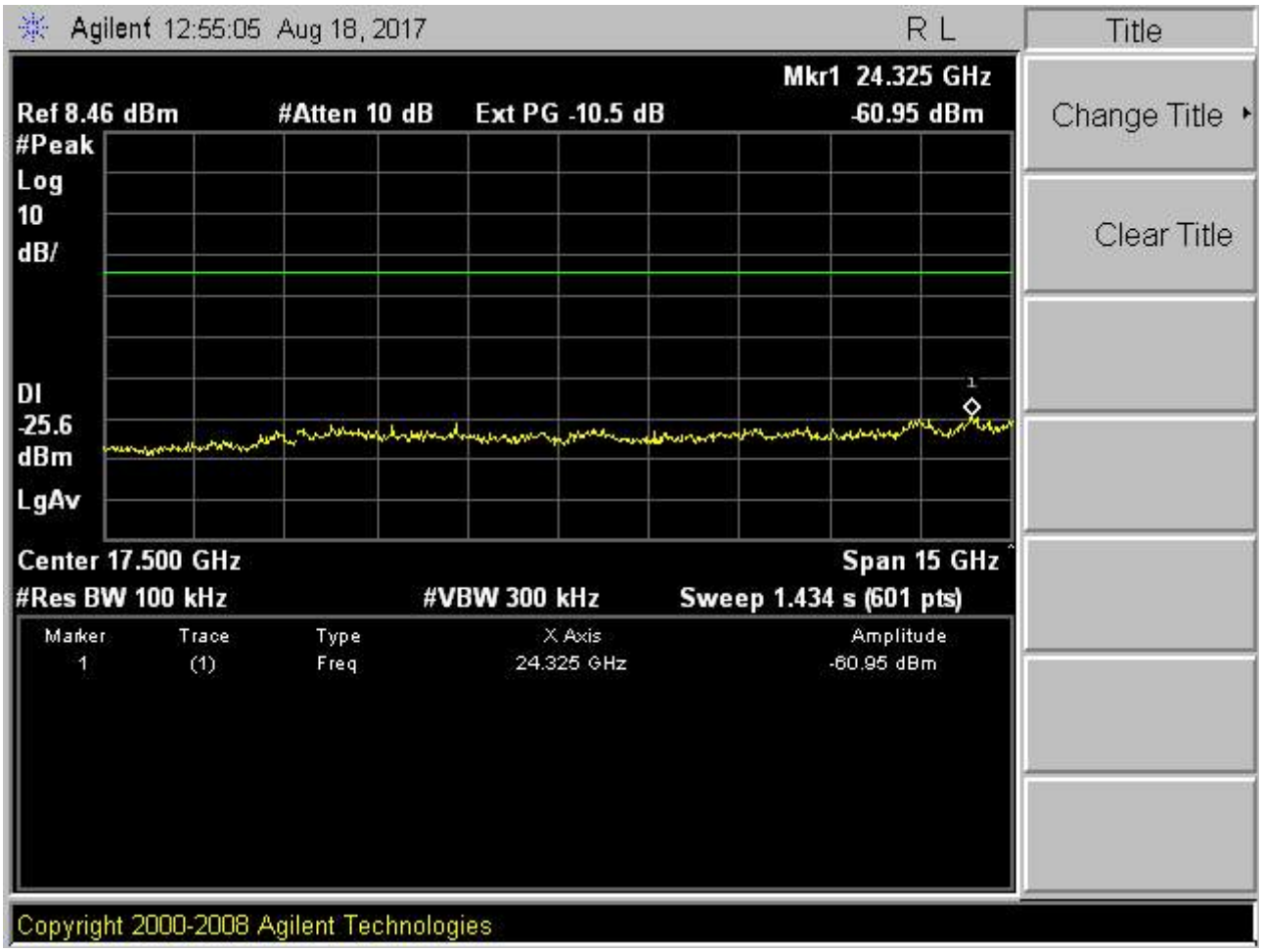
CH Low


Agilent 12:45:56 Aug 18, 2017
R L
Title
Mkr1 24.350 GHz
Ref 10.5 dBm
#Atten 10 dB
Ext PG -10.5 dB
-60.35 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-21.4
dBm
LgAv
Center 17.500 GHz
Span 15 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker
Trace
Type
X Axis
Amplitude
1
(1)
Freq
24.350 GHz
-60.35 dBm
Copyright 2000-2008 Agilent Technologies

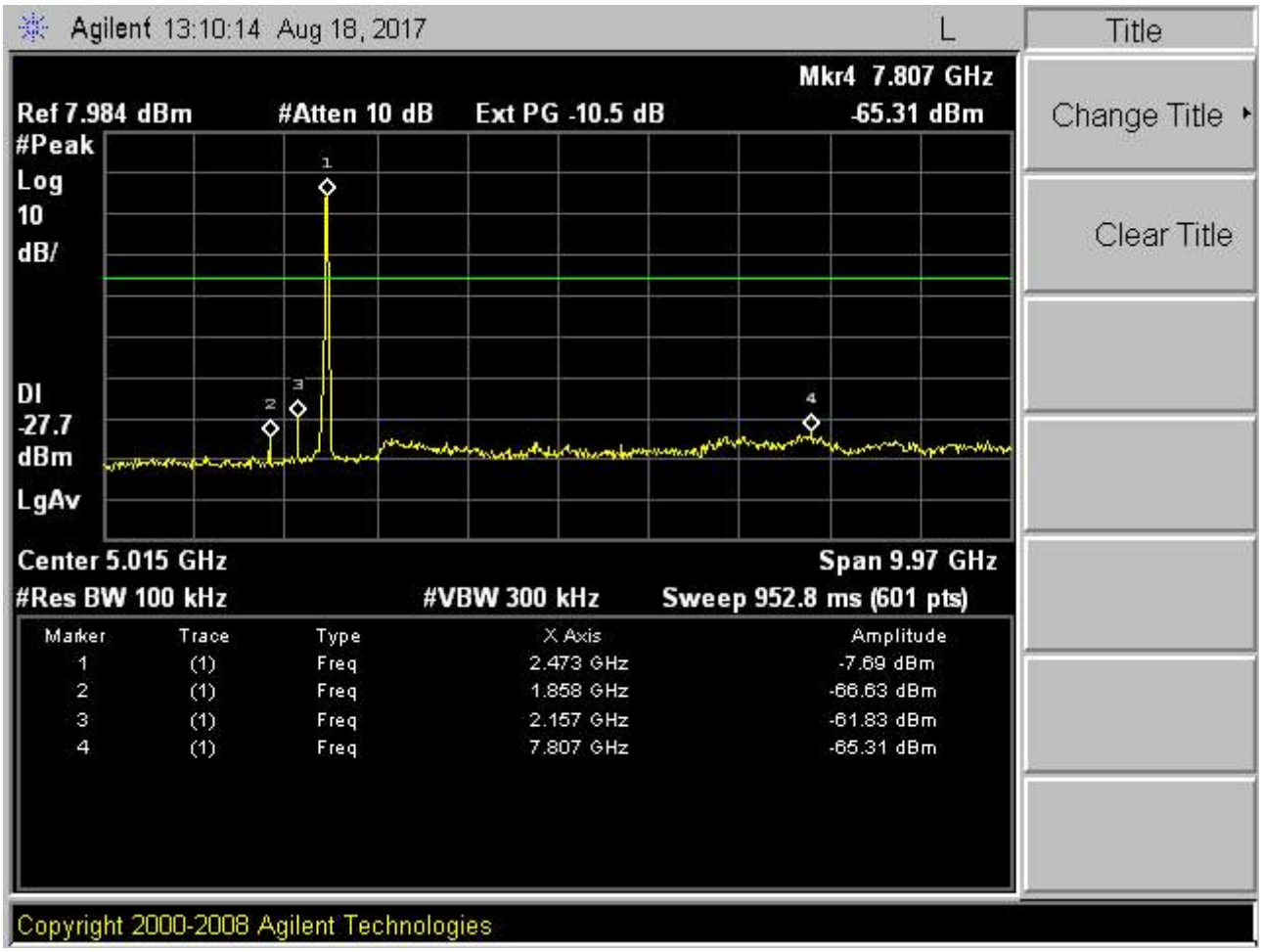
CH Mid


Agilent 12:54:35 Aug 18, 2017
L
Title
Mkr4 7.840 GHz
Ref 8.46 dBm
#Atten 10 dB
Ext PG -10.5 dB
-65.93 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-25.6
dBm
LgAv
Center 5.015 GHz
Span 9.97 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 952.8 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.423 GHz -5.62 dBm
2 (1) Freq 1.858 GHz -68.64 dBm
3 (1) Freq 2.157 GHz -67.13 dBm
4 (1) Freq 7.840 GHz -65.93 dBm
Copyright 2000-2008 Agilent Technologies

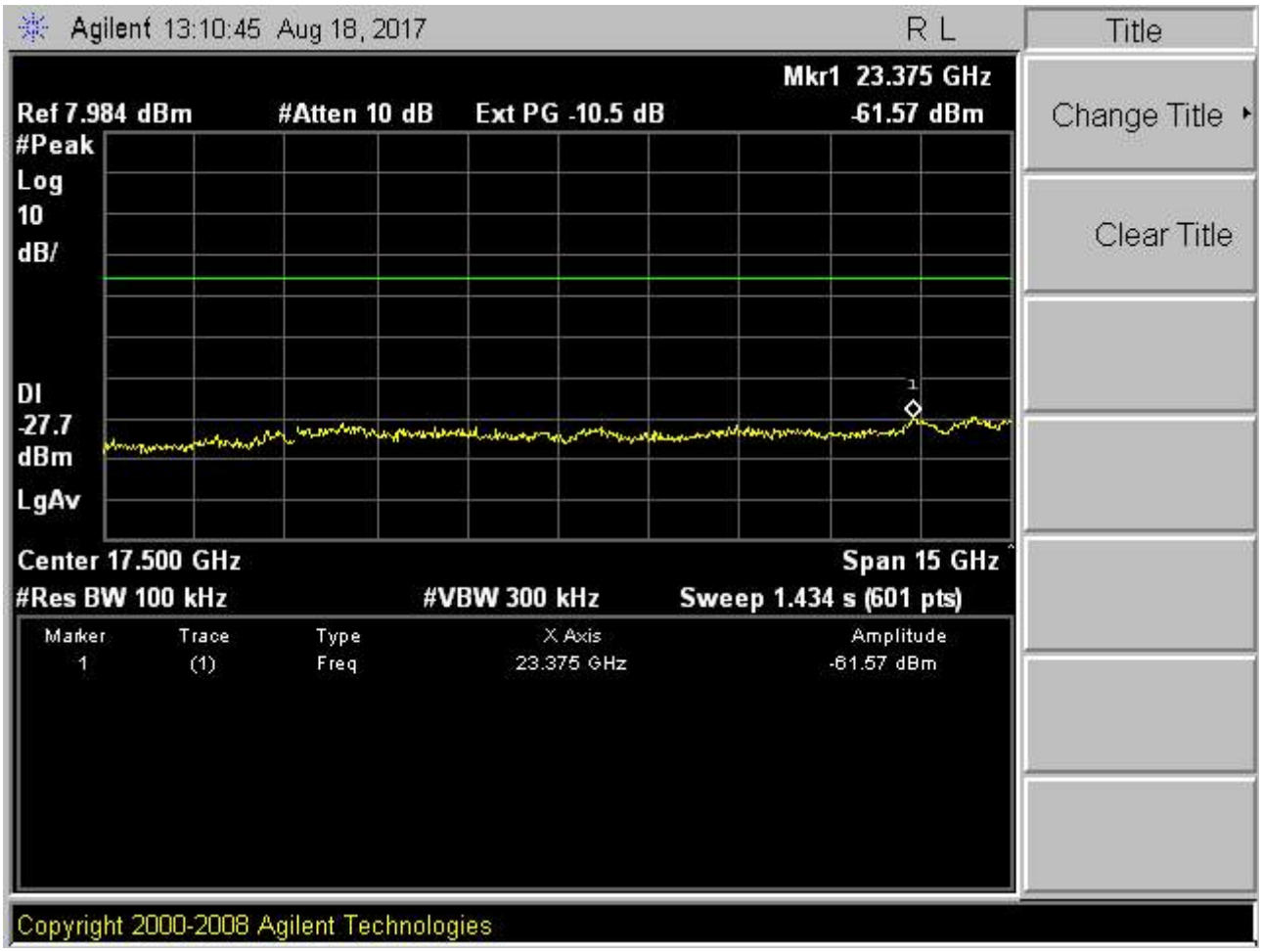
CH Mid


Agilent 12:55:05 Aug 18, 2017
R L
Title
Mkr1 24.325 GHz
Ref 8.46 dBm
#Atten 10 dB
Ext PG -10.5 dB
-60.95 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-25.6
dBm
LgAv
Center 17.500 GHz
Span 15 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker
Trace
Type
X Axis
Amplitude
1
(1)
Freq
24.325 GHz
-60.95 dBm
Copyright 2000-2008 Agilent Technologies

CH High

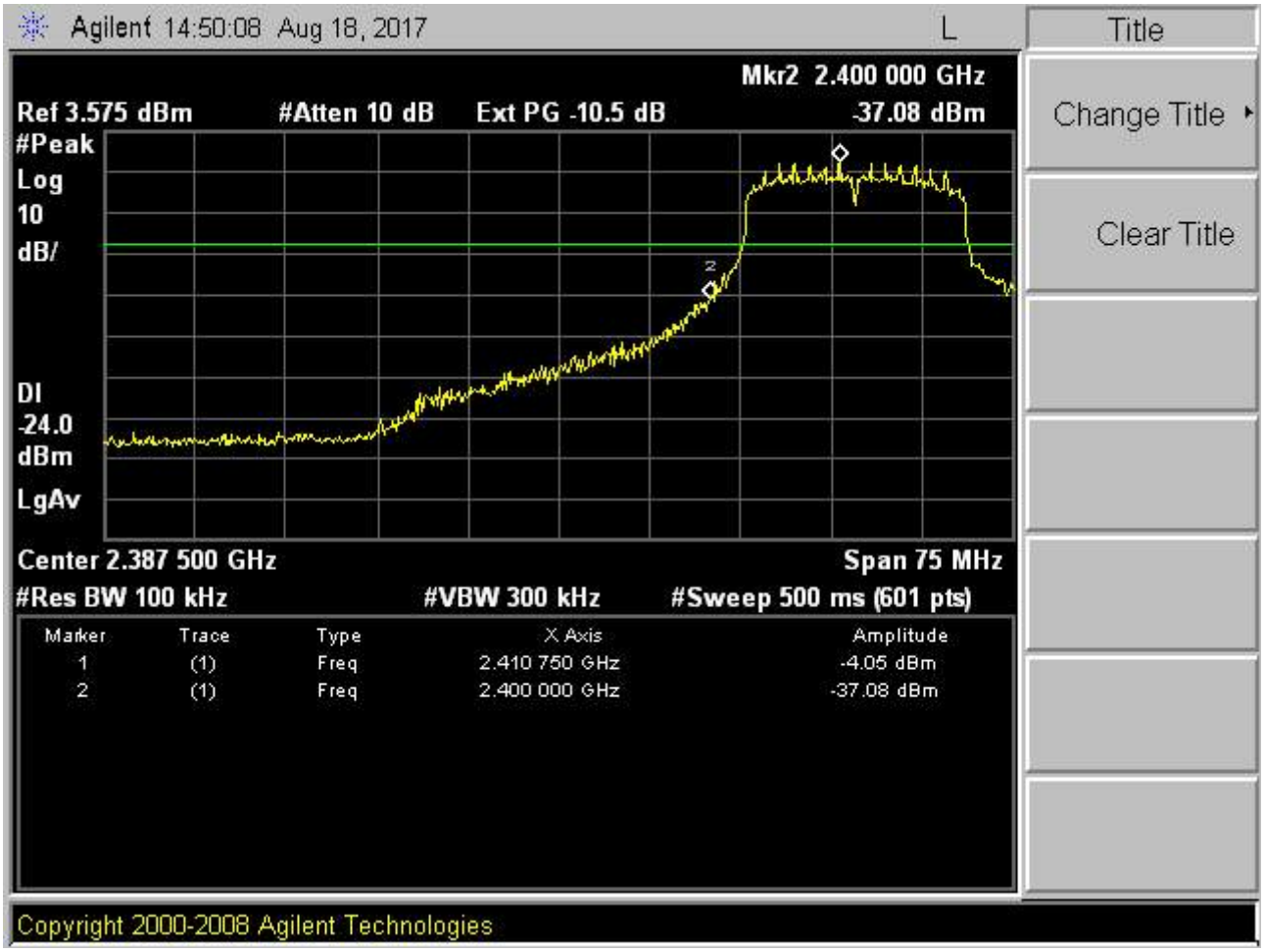

Agilent 13:10:14 Aug 18, 2017
L
Title
Mkr4 7.807 GHz
Ref 7.984 dBm
#Atten 10 dB
Ext PG -10.5 dB
-65.31 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-27.7
dBm
LgAv
Center 5.015 GHz
Span 9.97 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 952.8 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.473 GHz -7.69 dBm
2 (1) Freq 1.858 GHz -66.63 dBm
3 (1) Freq 2.157 GHz -61.83 dBm
4 (1) Freq 7.807 GHz -65.31 dBm
Copyright 2000-2008 Agilent Technologies

CH High

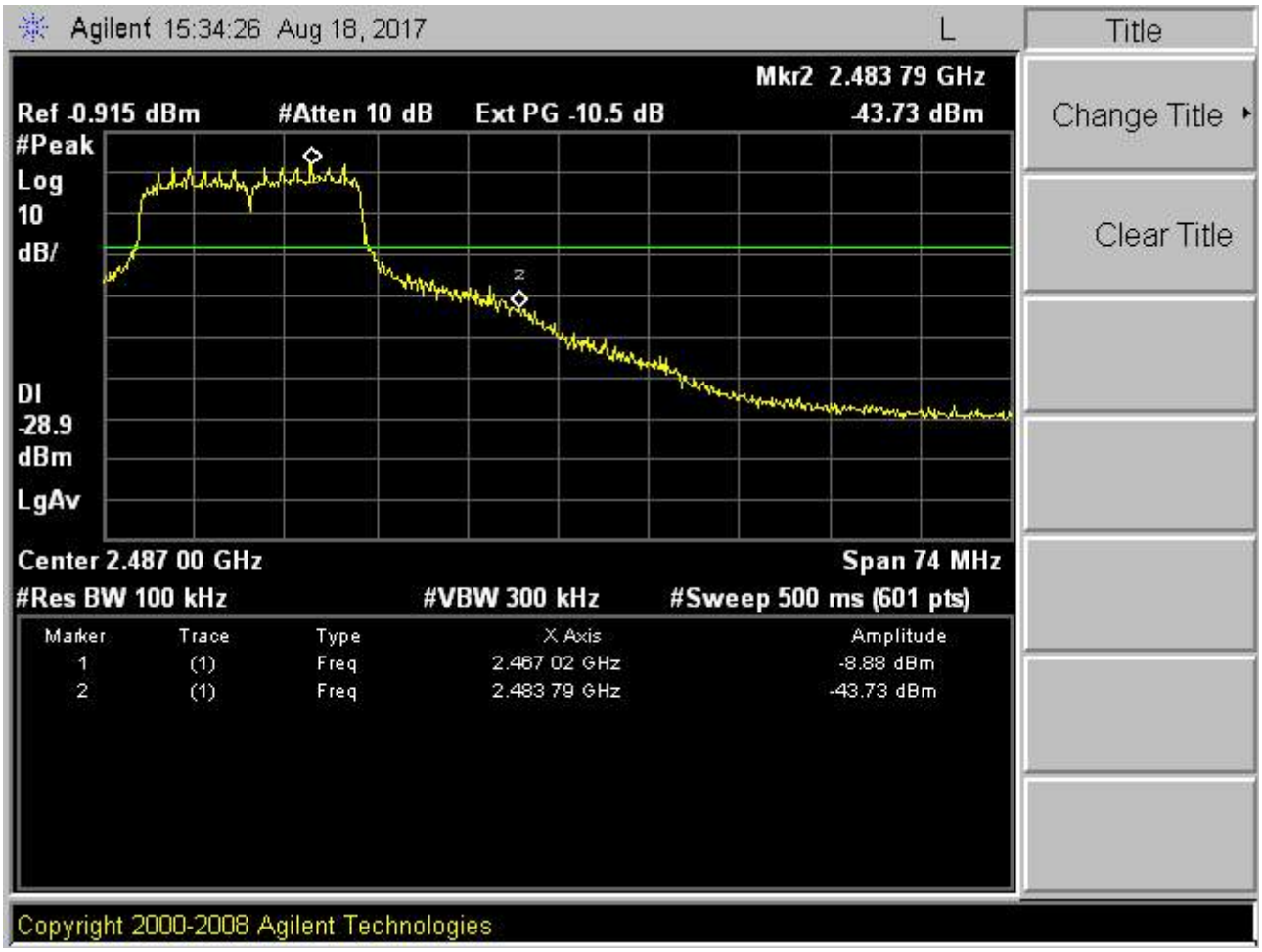

Agilent 13:10:45 Aug 18, 2017
R L
Title
Mkr1 23.375 GHz
Ref 7.984 dBm
#Atten 10 dB
Ext PG -10.5 dB
-61.57 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-27.7
dBm
LgAv
Center 17.500 GHz
Span 15 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker
Trace
Type
X Axis
Amplitude
1
(1)
Freq
23.375 GHz
-61.57 dBm
Copyright 2000-2008 Agilent Technologies

802.11n20

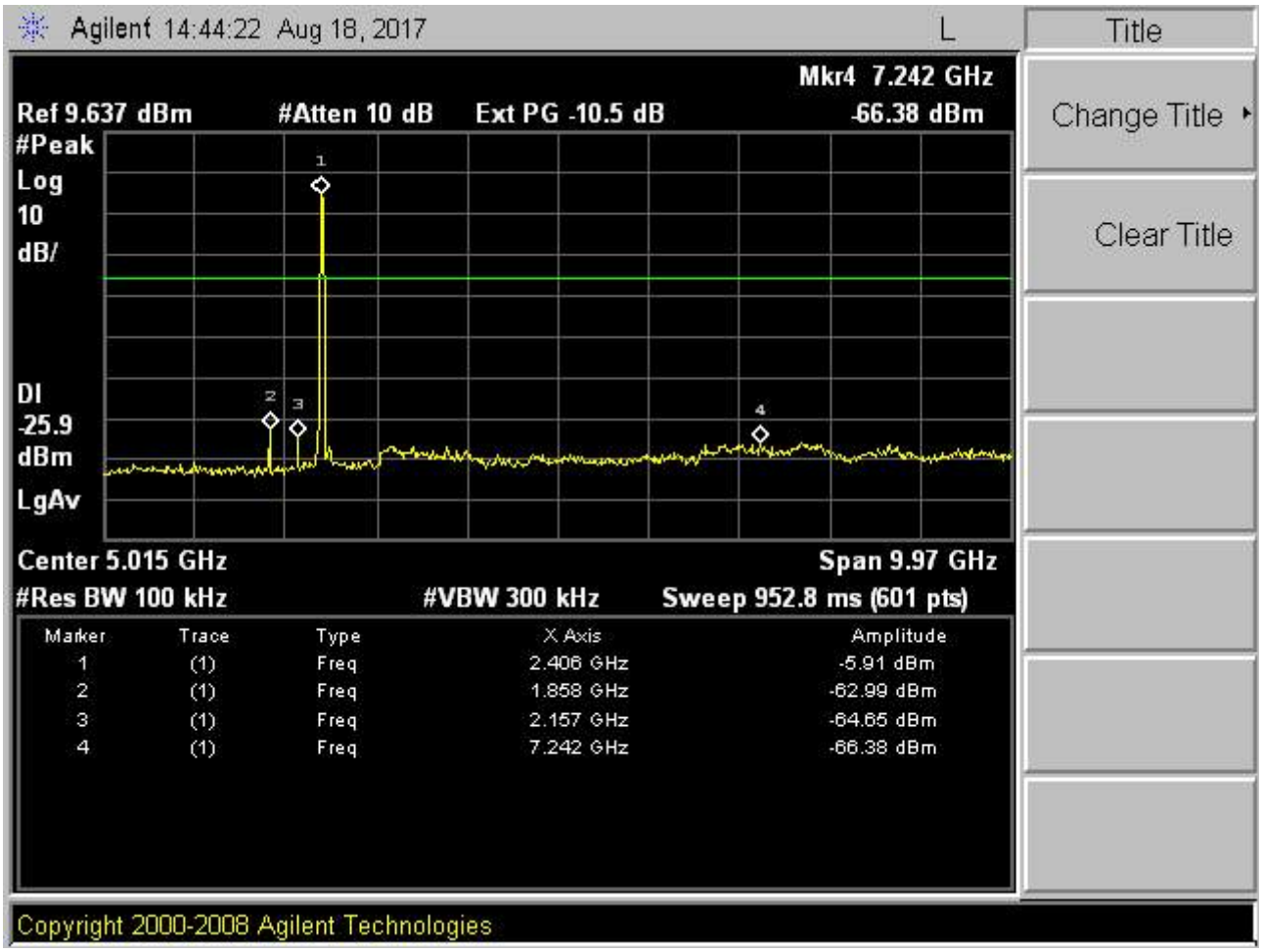
Low bandedge



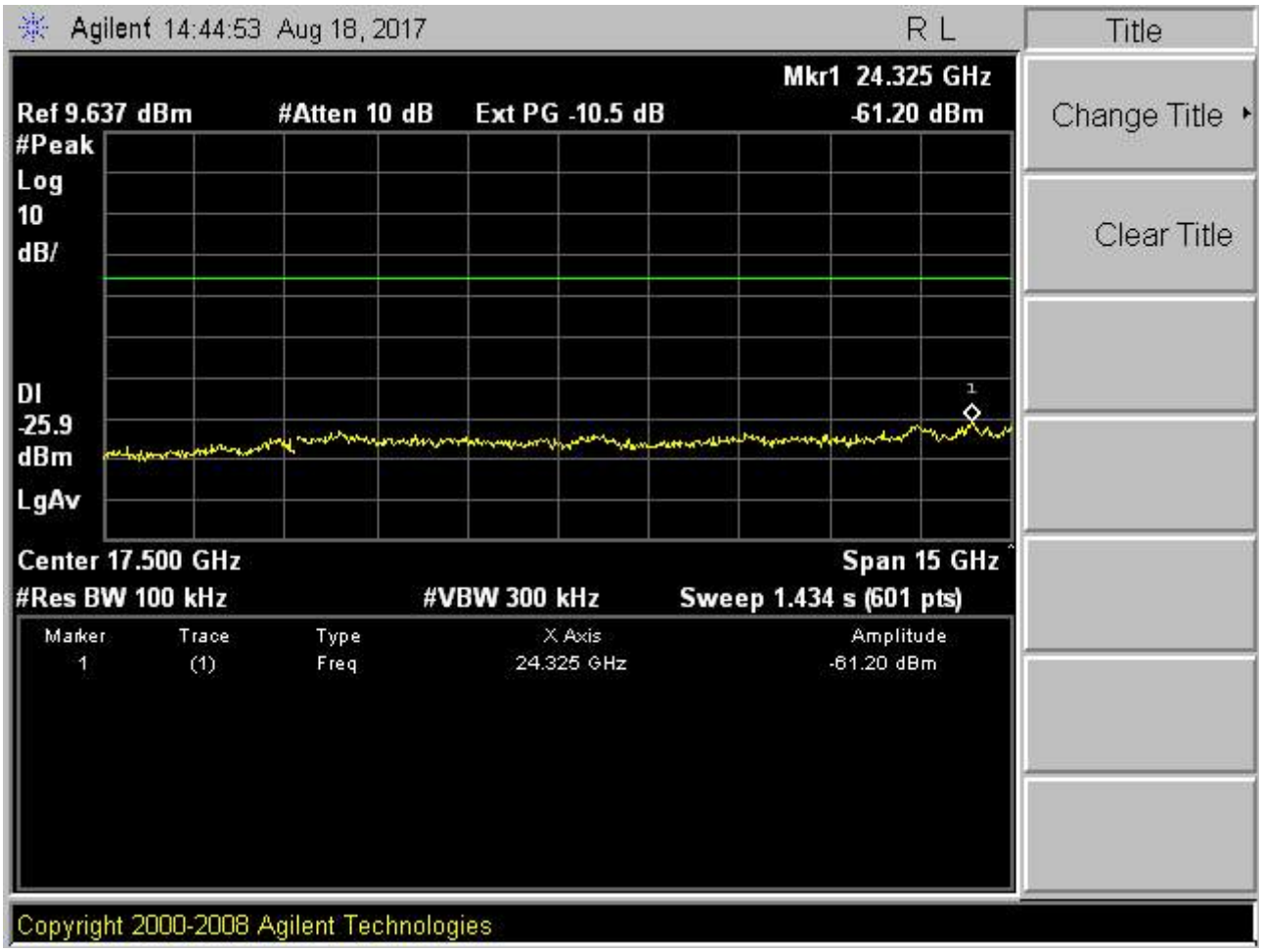
High bandedge



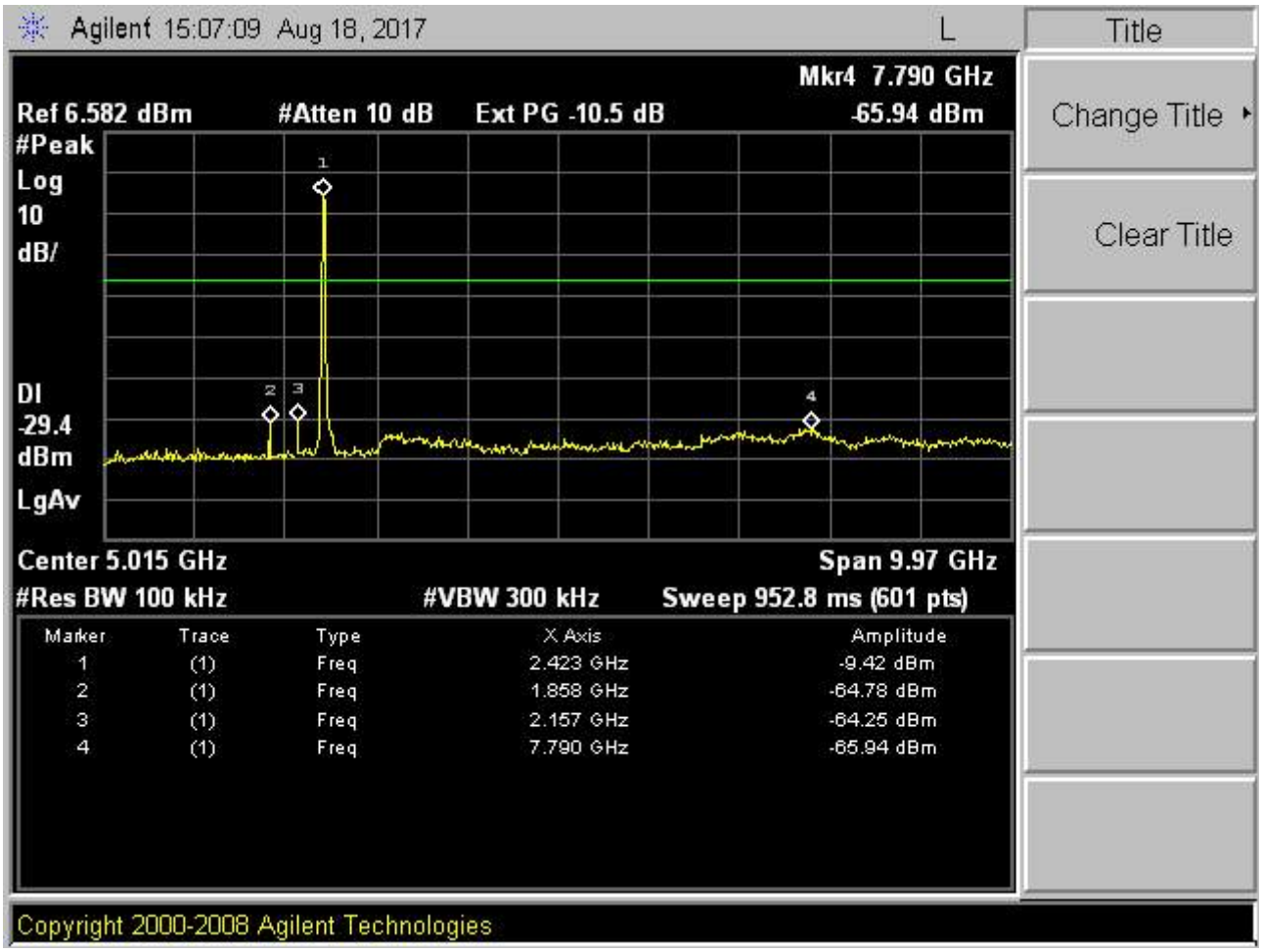
CH Low


Agilent 14:44:22 Aug 18, 2017
L
Title
Mkr4 7.242 GHz
Ref 9.637 dBm
#Atten 10 dB
Ext PG -10.5 dB
-66.38 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-25.9
dBm
LgAv
Center 5.015 GHz
Span 9.97 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 952.8 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.406 GHz -5.91 dBm
2 (1) Freq 1.858 GHz -62.99 dBm
3 (1) Freq 2.157 GHz -64.65 dBm
4 (1) Freq 7.242 GHz -66.38 dBm
Copyright 2000-2008 Agilent Technologies

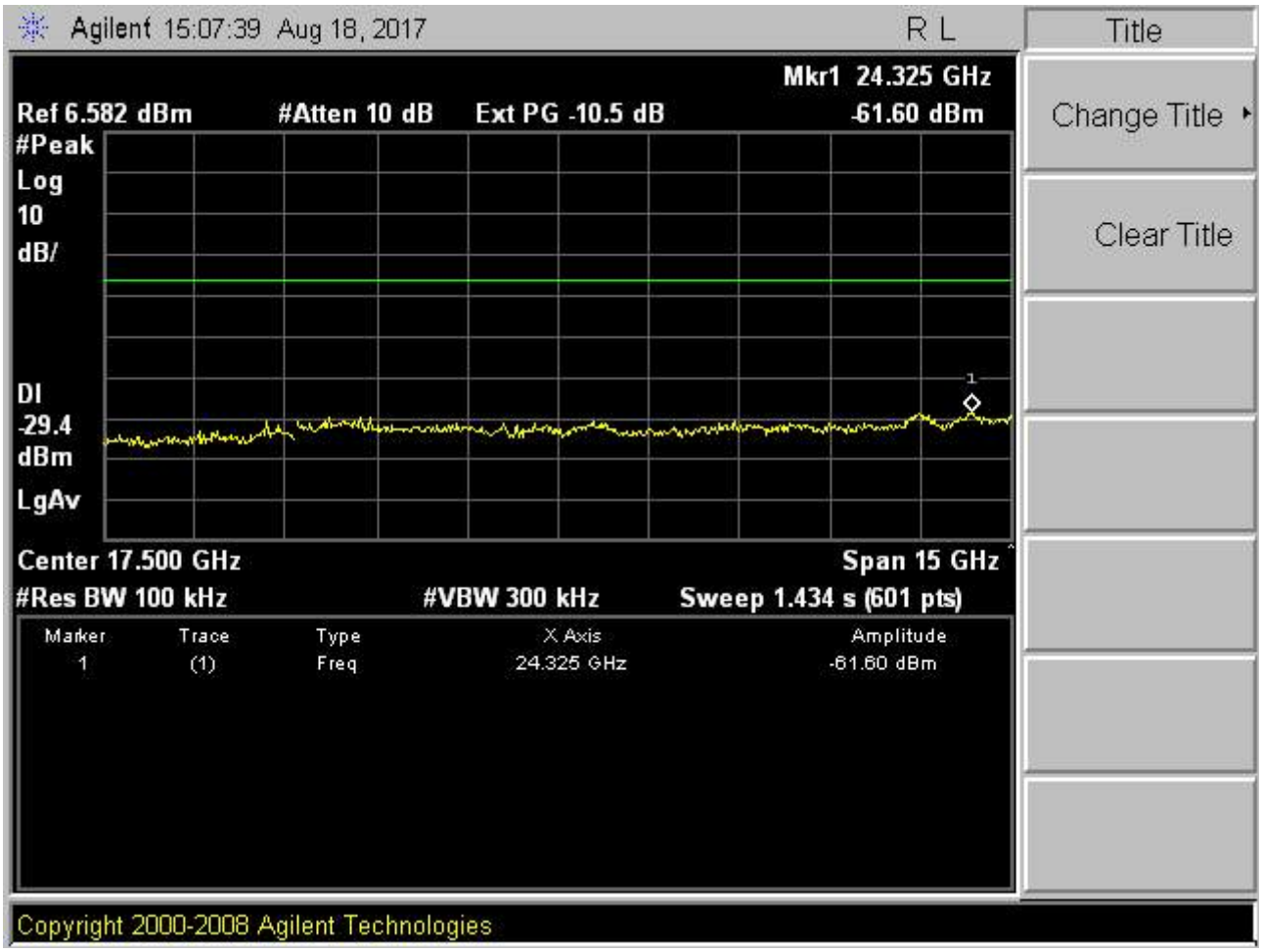
CH Low


Agilent 14:44:53 Aug 18, 2017
R L
Title
Mkr1 24.325 GHz
Ref 9.637 dBm
#Atten 10 dB
Ext PG -10.5 dB
-61.20 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-25.9
dBm
LgAv
Center 17.500 GHz
Span 15 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker
Trace
Type
X Axis
Amplitude
1
(1)
Freq
24.325 GHz
-61.20 dBm
Copyright 2000-2008 Agilent Technologies

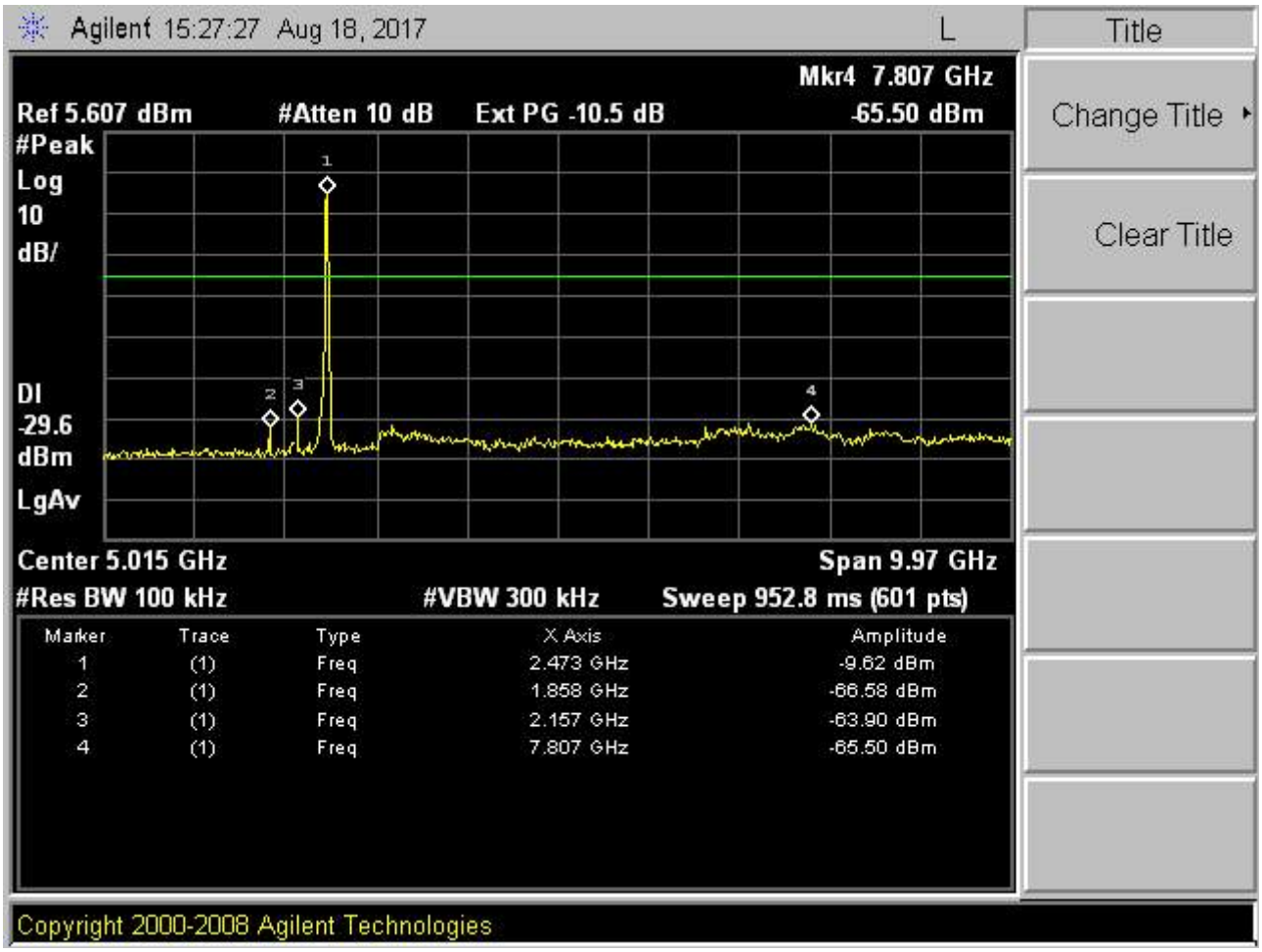
CH Mid


Agilent 15:07:09 Aug 18, 2017
L
Title
Mkr4 7.790 GHz
Ref 6.582 dBm
#Atten 10 dB
Ext PG -10.5 dB
-65.94 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-29.4
dBm
LgAv
Center 5.015 GHz
Span 9.97 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 952.8 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.423 GHz -9.42 dBm
2 (1) Freq 1.858 GHz -64.78 dBm
3 (1) Freq 2.157 GHz -64.25 dBm
4 (1) Freq 7.790 GHz -65.94 dBm
Copyright 2000-2008 Agilent Technologies

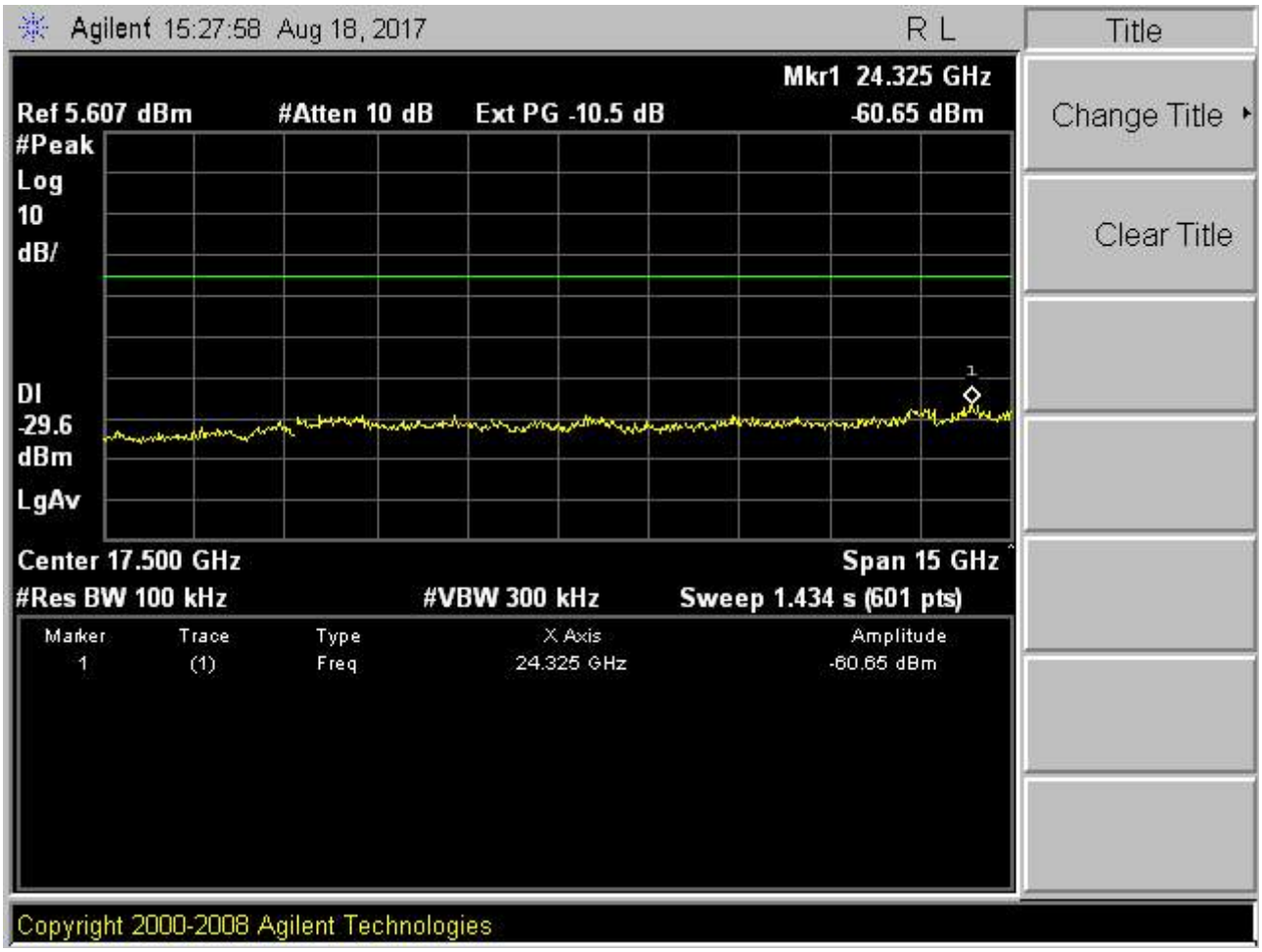
CH Mid


Agilent 15:07:39 Aug 18, 2017
R L
Title
Mkr1 24.325 GHz
Ref 6.582 dBm
#Atten 10 dB
Ext PG -10.5 dB
-61.60 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-29.4
dBm
LgAv
Center 17.500 GHz
Span 15 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker
Trace
Type
X Axis
Amplitude
1
(1)
Freq
24.325 GHz
-61.60 dBm
Copyright 2000-2008 Agilent Technologies

CH High

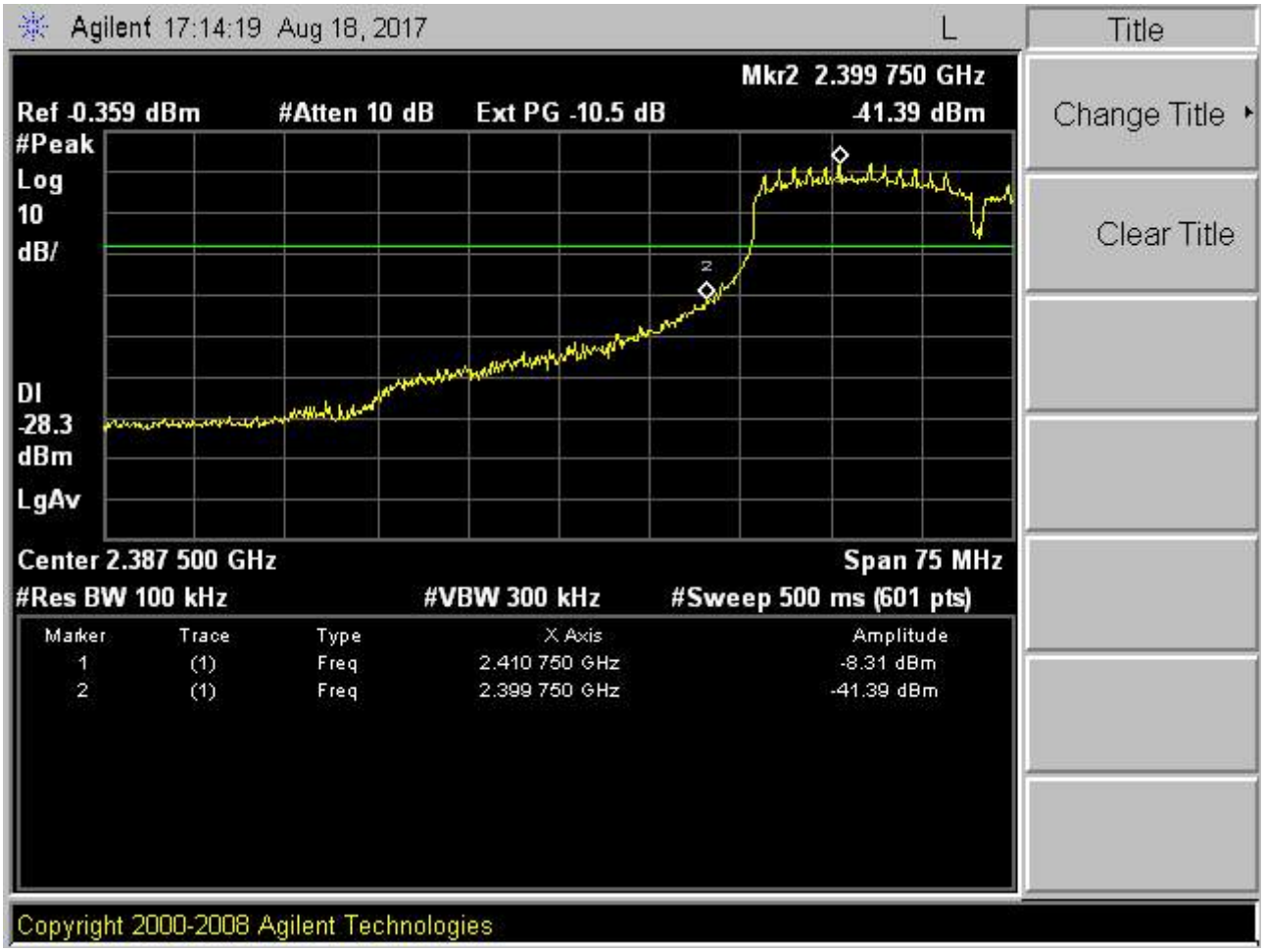

Agilent 15:27:27 Aug 18, 2017
L
Title
Mkr4 7.807 GHz
Ref 5.607 dBm
#Atten 10 dB
Ext PG -10.5 dB
-65.50 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-29.6
dBm
LgAv
Center 5.015 GHz
Span 9.97 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 952.8 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.473 GHz -9.62 dBm
2 (1) Freq 1.858 GHz -66.58 dBm
3 (1) Freq 2.157 GHz -63.90 dBm
4 (1) Freq 7.807 GHz -65.50 dBm
Copyright 2000-2008 Agilent Technologies

CH High

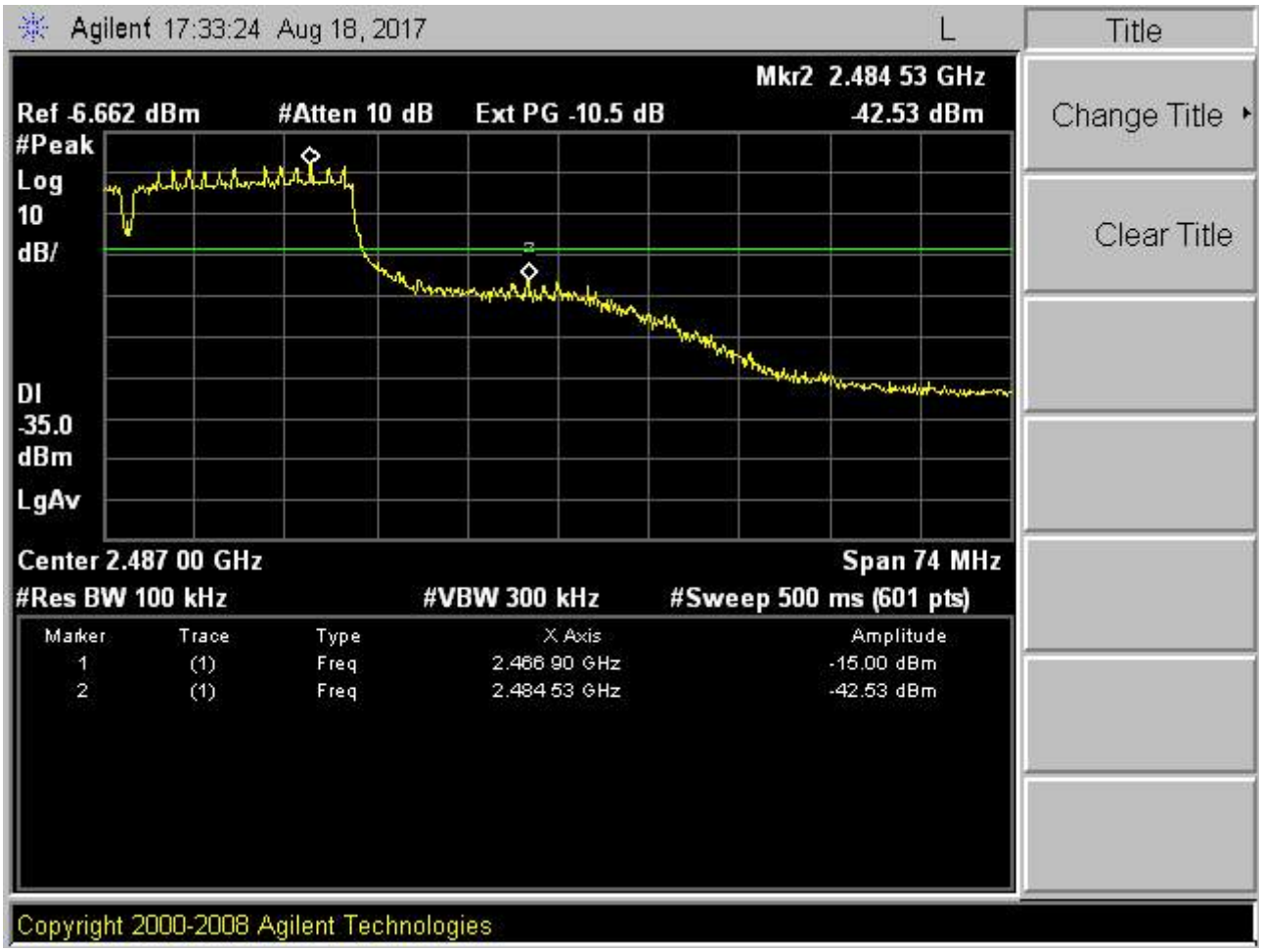

Agilent 15:27:58 Aug 18, 2017
R L
Title
Mkr1 24.325 GHz
Ref 5.607 dBm
#Atten 10 dB
Ext PG -10.5 dB
-60.65 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-29.6
dBm
LgAv
Center 17.500 GHz
Span 15 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker
Trace
Type
X Axis
Amplitude
1
(1)
Freq
24.325 GHz
-60.65 dBm
Copyright 2000-2008 Agilent Technologies

802.11n40

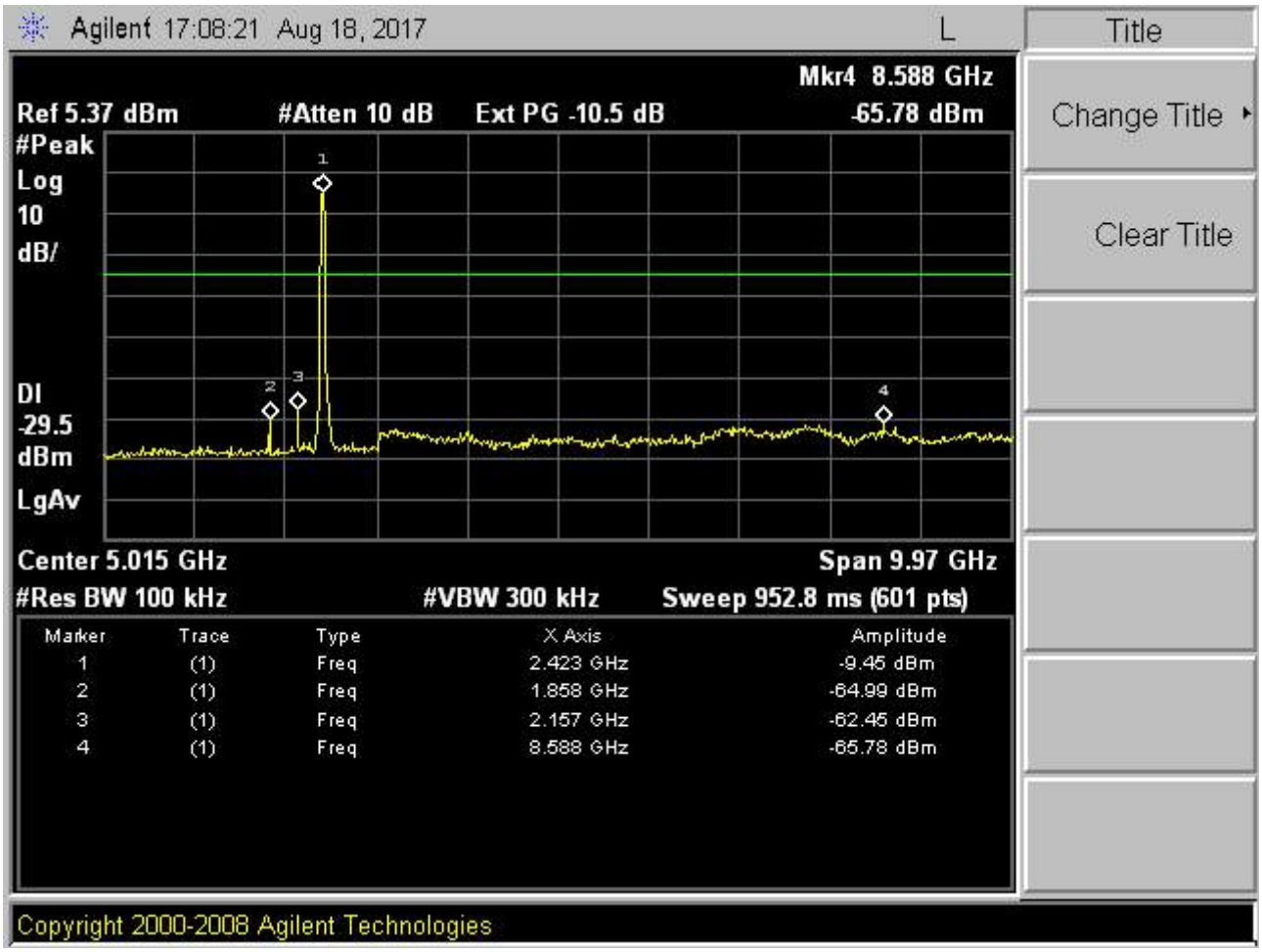
Low bandedge



High bandedge



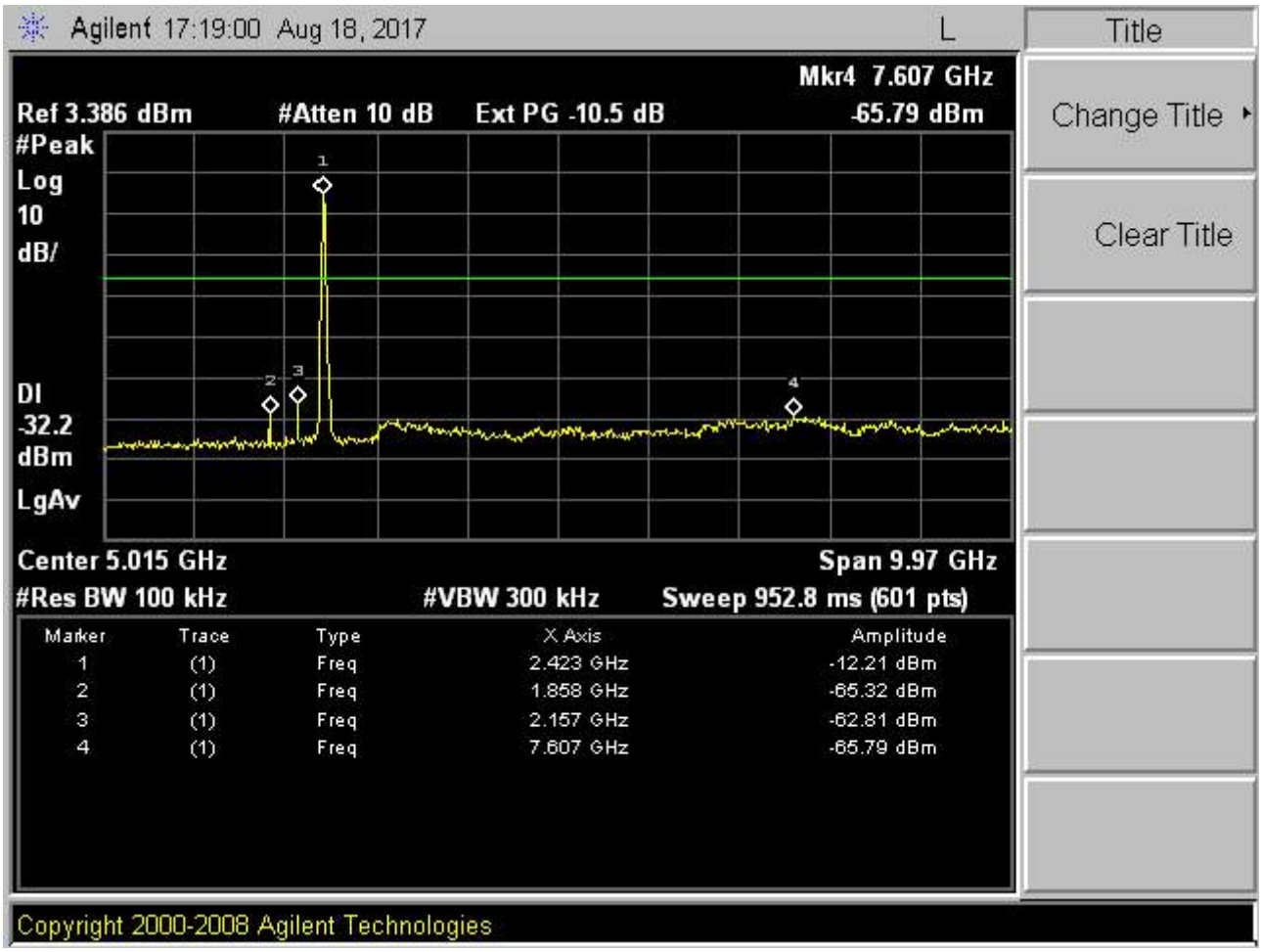
CH Low


Agilent 17:08:21 Aug 18, 2017
L
Title
Mkr4 8.588 GHz
Ref 5.37 dBm
#Atten 10 dB
Ext PG -10.5 dB
-65.78 dBm
#Peak
Log
10
dB/
DI
-29.5
dBm
LgAv
Center 5.015 GHz
Span 9.97 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 952.8 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.423 GHz -9.45 dBm
2 (1) Freq 1.858 GHz -64.99 dBm
3 (1) Freq 2.157 GHz -62.45 dBm
4 (1) Freq 8.588 GHz -65.78 dBm
Change Title
Clear Title
Copyright 2000-2008 Agilent Technologies

CH Low


Agilent 17:08:51 Aug 18, 2017
R L
Title
Mkr1 24.325 GHz
Ref 5.37 dBm
#Atten 10 dB
Ext PG -10.5 dB
-61.27 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-29.5
dBm
LgAv
Center 17.500 GHz
Span 15 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker
Trace
Type
X Axis
Amplitude
1
(1)
Freq
24.325 GHz
-61.27 dBm
Copyright 2000-2008 Agilent Technologies

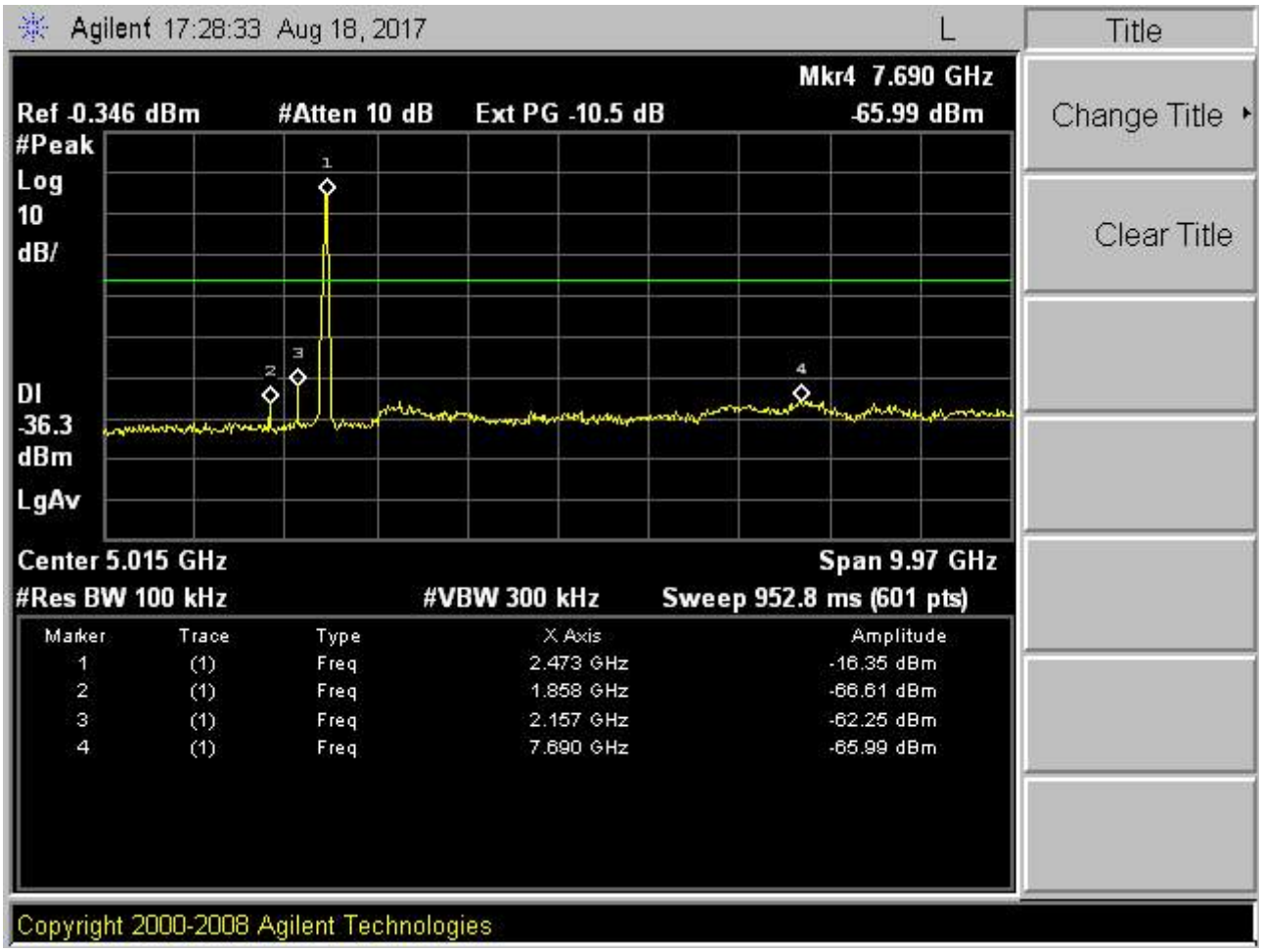
CH Mid


Agilent 17:19:00 Aug 18, 2017
L
Title
Mkr4 7.607 GHz
Ref 3.386 dBm
#Atten 10 dB
Ext PG -10.5 dB
-65.79 dBm
#Peak
Log
10
dB/
Dl
-32.2
dBm
LgAv
Center 5.015 GHz
Span 9.97 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 952.8 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.423 GHz -12.21 dBm
2 (1) Freq 1.858 GHz -65.32 dBm
3 (1) Freq 2.157 GHz -62.81 dBm
4 (1) Freq 7.607 GHz -65.79 dBm
Change Title
Clear Title
Copyright 2000-2008 Agilent Technologies

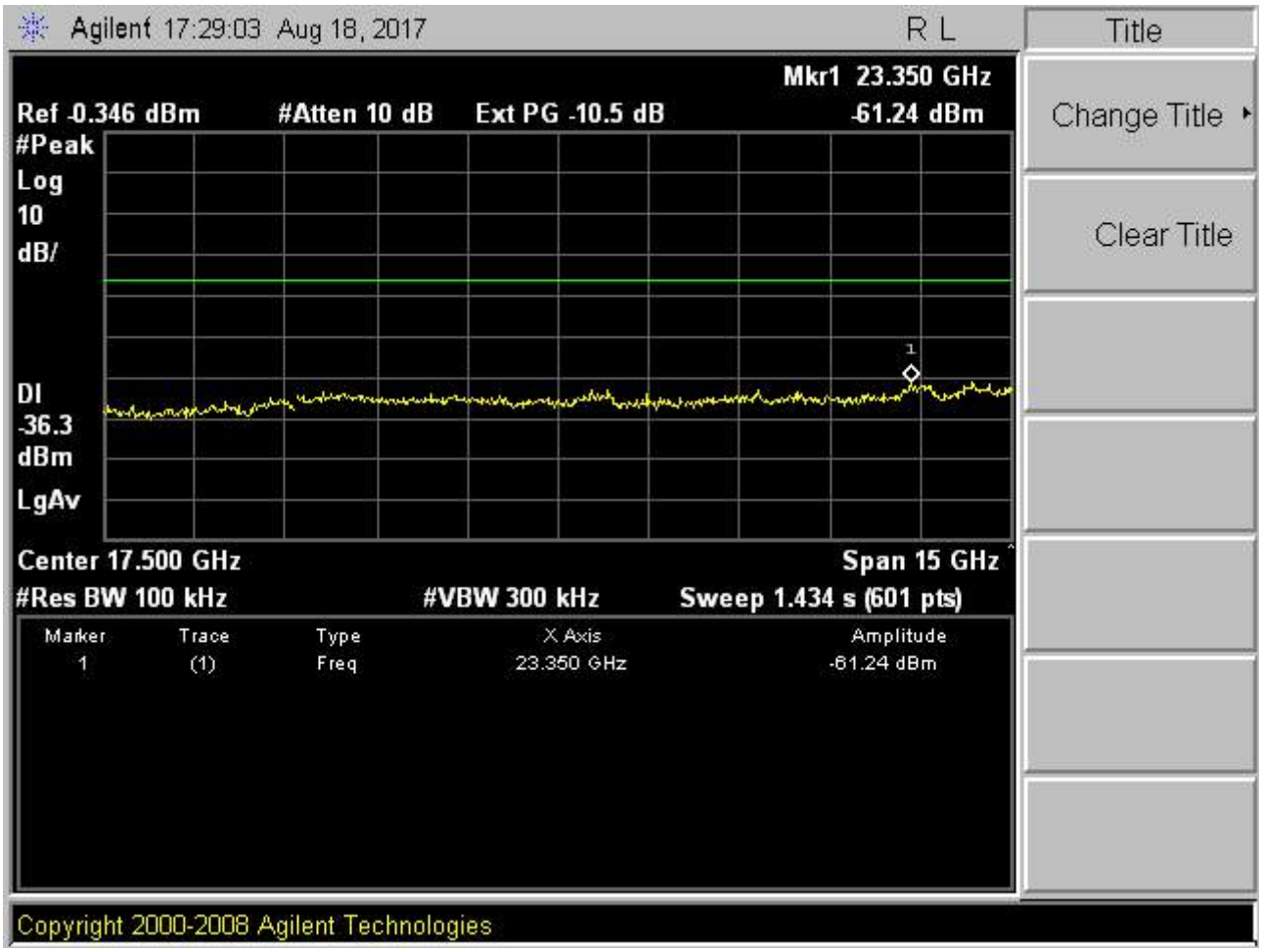
CH Mid


Agilent 17:19:30 Aug 18, 2017
R L
Title
Mkr1 24.300 GHz
Ref 3.386 dBm
#Atten 10 dB
Ext PG -10.5 dB
-61.36 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
1
Dl
-32.2
dBm
LgAv
Center 17.500 GHz
Span 15 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker
Trace
Type
X Axis
Amplitude
1
(1)
Freq
24.300 GHz
-61.36 dBm
Copyright 2000-2008 Agilent Technologies

CH High


Agilent 17:28:33 Aug 18, 2017
L
Title
Mkr4 7.690 GHz
Ref -0.346 dBm
#Atten 10 dB
Ext PG -10.5 dB
-65.99 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-36.3
dBm
LgAv
Center 5.015 GHz
Span 9.97 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 952.8 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.473 GHz -16.35 dBm
2 (1) Freq 1.858 GHz -66.61 dBm
3 (1) Freq 2.157 GHz -62.25 dBm
4 (1) Freq 7.690 GHz -65.99 dBm
Copyright 2000-2008 Agilent Technologies

CH High


Agilent 17:29:03 Aug 18, 2017
R L
Title
Mkr1 23.350 GHz
Ref -0.346 dBm
#Atten 10 dB
Ext PG -10.5 dB
-61.24 dBm
#Peak
Log
10
dB/
Change Title
Clear Title
Dl
-36.3
dBm
LgAv
Center 17.500 GHz
Span 15 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.434 s (601 pts)
Marker
Trace
Type
X Axis
Amplitude
1
(1)
Freq
23.350 GHz
-61.24 dBm
Copyright 2000-2008 Agilent Technologies

10 RADIATED EMISSION MEASUREMENT

10.1 Standard Applicable

For unintentional radiator, the radiated emission shall comply with §15.109(a).

For intentional radiators, according to §15.247 (a), operation under this provision is limited to frequency hopping and direct sequence spread spectrum, and the out band emission shall be comply with §15.247 (d)

10.2 Measurement Procedure

The testing follows FCC KDB 558074 D01 v04.

A.Preliminary Measurement For Portable Devices.

For movable devices, the following procedure was performed to determine the maximum emission axis of EUT (X,Y and Z axis):

1. With the receiving antenna is H polarization, rotate the EUT in turns with three orthogonal axes to determine the axis of maximum emission.
2. With the receiving ntenna is V polarization, rotate the EUT in turns with three orthogonal axes to determine the axis of maximum emission.
3. Compare the results derived from above two steps. The axis of maximum emission from EUT was determined and the configuration was used to perform the final measurement.
4. The position in which the maximum noise occurred was “Y axis”. (Please see the test setup photos)

B. Final Measurement

1. Setup the configuration per figure 2 and 3 for frequencies measured below and above 1 GHz respectively. Turn on EUT and make sure that it is in continuous operating function.
2. For emission frequencies measured below 1 GHz, a pre-scan is performed in a semi-anechoic chamber to determine the accurate frequencies of higher emissions and then each selected frequency is precisely measured. As the same purpose, for emission measured above 1 GHz, a pre-scan also be performed with a 1 meter measuring distance before final test.
3. For emission measured below and above 1 GHz, set the spectrum analyzer on a 120 kHz and 1 MHz resolution bandwidth respectively for each frequency measured in step 2.
4. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ° to 360 ° with a speed as slow as possible, and keep the azimuth that highest emission is indicated on the spectrum analyzer. Vary the antenna position again and record the highest value as a final reading. A RF test receiver is also used to confirm emissions measured.

Figure 2 : Frequencies measured below 1 GHz configuration

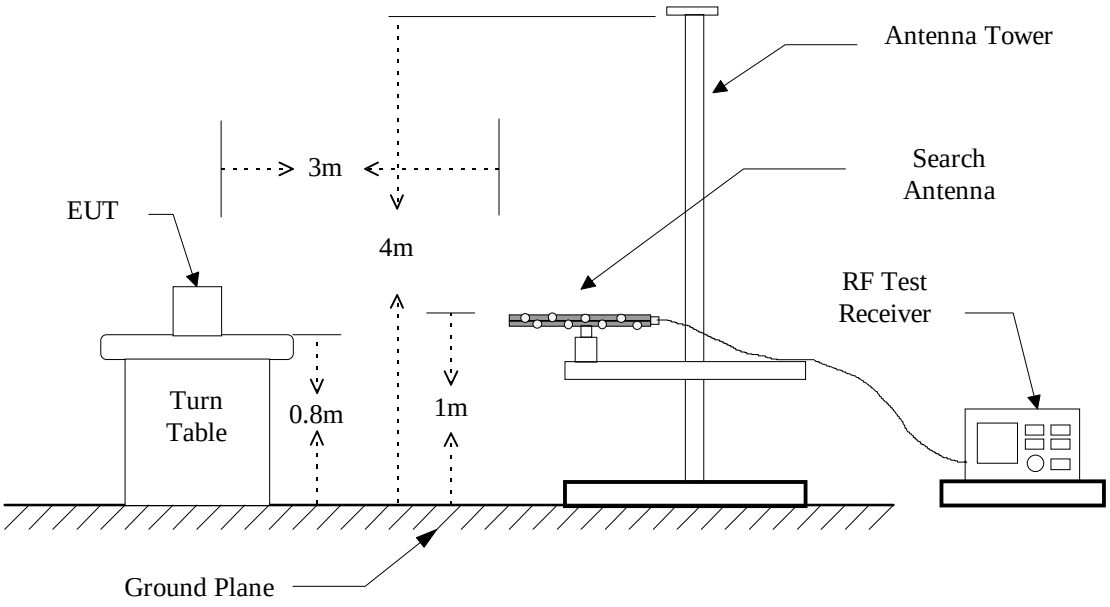
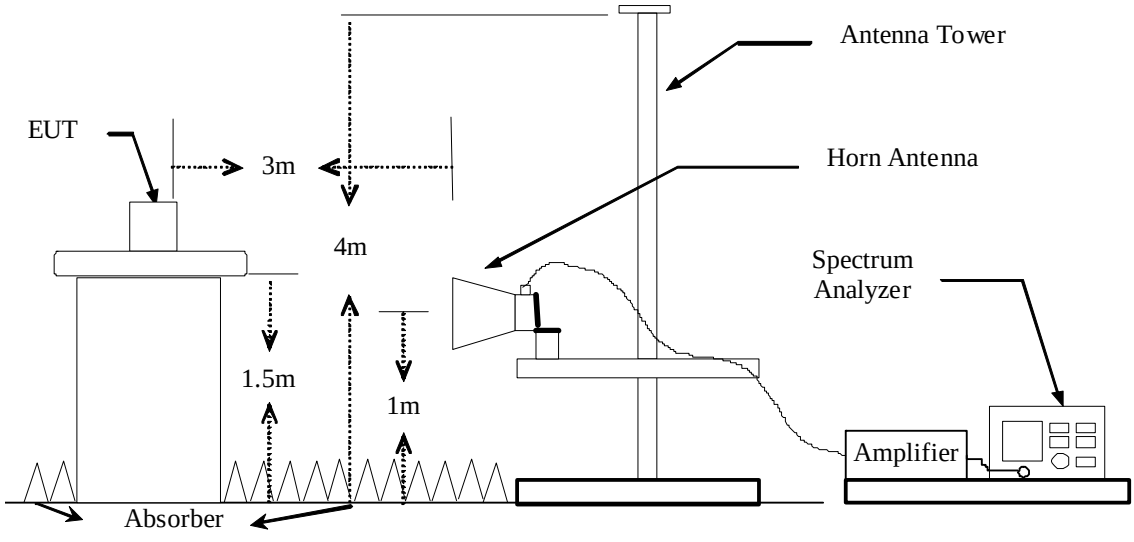


Figure 3 : Frequencies measured above 1 GHz configuration



10.3 Measuring Instrument

The following instrument are used for radiated emissions measurement :

Equipment	Manufacturer	Model No.
EMI Receiver	R&S	ESCI
Spectrum Analyzer	R&S	FSU46
Horn Antenna	EMCO	3115
BiLog Antenna	ETC	MCTD 2786B
Horn Antenna	EMCO	3116
Preamplifier	Hewlett-Packard	8449B
PRE-Amplifier	Agilent	8447D
Loop Antenna	EMCO	6512

Measuring instrument setup in measured frequency band when specified detector function is used :

Frequency Band (MHz)	Instrument	Function	Resolution Bandwidth	Video Bandwidth
30 to 1000	RF Test Receiver	Quasi-Peak	120 kHz	300 kHz
	Spectrum Analyzer	Peak	120 kHz	300 kHz
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz
	Spectrum Analyzer	Average	1 MHz	10 Hz

10.4 Radiated Emission Data

10.4.1 Harmonic

10.4.1.1 IEEE 802.11b

Test Date: Aug. 14, 2017 Temperature: 21℃ Humidity: 63%

a) Channel 1

Fundamental Frequency: 2412 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
4824.0000	H	---	---	0.0	---	---	74.0	54.0	---
4824.0000	V	---	---	0.0	---	---	74.0	54.0	---
7236.0000	H	---	---	3.4	---	---	74.0	54.0	---
7236.0000	V	---	---	3.4	---	---	74.0	54.0	---
9648.0000	H	---	---	5.4	---	---	74.0	54.0	---
9648.0000	V	---	---	5.4	---	---	74.0	54.0	---
12060.0000	H	---	---	8.2	---	---	74.0	54.0	---
12060.0000	V	---	---	8.2	---	---	74.0	54.0	---
14472.0000	H	---	---	13.6	---	---	74.0	54.0	---
14472.0000	V	---	---	13.6	---	---	74.0	54.0	---

Note :

1. Item of margin shown in above table refer to average limit.
2. Remark "---" means that the emissions level is too low to be measured.
3. If the peak result is under the average limit, that is deemed to meet the average limit.
4. If there is only peak result, item "Margin" referred to "peak result – average limit".
5. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.

b) Channel 6

Fundamental Frequency: 2437 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
4874.0000	H	50.2	---	0.2	50.4	---	74.0	54.0	-3.6
4874.0000	V	52.8	46.6	0.2	53.0	46.8	74.0	54.0	-7.2
7311.0000	H	---	---	3.6	---	---	74.0	54.0	---
7311.0000	V	---	---	3.6	---	---	74.0	54.0	---
9748.0000	H	---	---	5.5	---	---	74.0	54.0	---
9748.0000	V	---	---	5.5	---	---	74.0	54.0	---
12185.0000	H	---	---	8.3	---	---	74.0	54.0	---
12185.0000	V	---	---	8.3	---	---	74.0	54.0	---
14622.0000	H	---	---	12.9	---	---	74.0	54.0	---
14622.0000	V	---	---	12.9	---	---	74.0	54.0	---

Note :

1. Item of margin shown in above table refer to average limit.
2. Remark “---” means that the emissions level is too low to be measured.
3. If the peak result is under the average limit, that is deemed to meet the average limit.
4. If there is only peak result, item “Margin” referred to “peak result – average limit”.
5. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.

c) Channel 11

Fundamental Frequency: 2462 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
4924.0000	H	50.8	---	0.3	51.1	---	74.0	54.0	-2.9
4924.0000	V	53.6	47.6	0.3	53.9	47.9	74.0	54.0	-6.1
7386.0000	H	---	---	3.8	---	---	74.0	54.0	---
7386.0000	V	---	---	3.8	---	---	74.0	54.0	---
9848.0000	H	---	---	5.6	---	---	74.0	54.0	---
9848.0000	V	---	---	5.6	---	---	74.0	54.0	---
12310.0000	H	---	---	8.4	---	---	74.0	54.0	---
12310.0000	V	---	---	8.4	---	---	74.0	54.0	---
14772.0000	H	---	---	12.0	---	---	74.0	54.0	---
14772.0000	V	---	---	12.0	---	---	74.0	54.0	---

Note :

1. Item of margin shown in above table refer to average limit.
2. Remark "---" means that the emissions level is too low to be measured.
3. If the peak result is under the average limit, that is deemed to meet the average limit.
4. If there is only peak result, item "Margin" referred to "peak result – average limit".
5. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.

10.4.1.2 IEEE 802.11g

Test Date: Aug. 14, 2017 Temperature: 21℃ Humidity: 63%

a) Channel 1

Fundamental Frequency: 2412 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
4824.0000	H	---	---	0.0	---	---	74.0	54.0	---
4824.0000	V	---	---	0.0	---	---	74.0	54.0	---
7236.0000	H	---	---	3.4	---	---	74.0	54.0	---
7236.0000	V	---	---	3.4	---	---	74.0	54.0	---
9648.0000	H	---	---	5.4	---	---	74.0	54.0	---
9648.0000	V	---	---	5.4	---	---	74.0	54.0	---
12060.0000	H	---	---	8.2	---	---	74.0	54.0	---
12060.0000	V	---	---	8.2	---	---	74.0	54.0	---
14472.0000	H	---	---	13.6	---	---	74.0	54.0	---
14472.0000	V	---	---	13.6	---	---	74.0	54.0	---

Note :

1. Item of margin shown in above table refer to average limit.
2. Remark "---" means that the emissions level is too low to be measured.
3. If the peak result is under the average limit, that is deemed to meet the average limit.
4. If there is only peak result, item "Margin" referred to "peak result – average limit".
5. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.

b) Channel 6

Fundamental Frequency: 2437 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
4874.0000	H	---	---	0.2	---	---	74.0	54.0	---
4874.0000	V	52.2	38.5	0.2	52.4	38.7	74.0	54.0	-15.3
7311.0000	H	---	---	3.6	---	---	74.0	54.0	---
7311.0000	V	---	---	3.6	---	---	74.0	54.0	---
9748.0000	H	---	---	5.5	---	---	74.0	54.0	---
9748.0000	V	---	---	5.5	---	---	74.0	54.0	---
12185.0000	H	---	---	8.3	---	---	74.0	54.0	---
12185.0000	V	---	---	8.3	---	---	74.0	54.0	---
14622.0000	H	---	---	12.9	---	---	74.0	54.0	---
14622.0000	V	---	---	12.9	---	---	74.0	54.0	---

Note :

1. Item of margin shown in above table refer to average limit.
2. Remark “---” means that the emissions level is too low to be measured.
3. If the peak result is under the average limit, that is deemed to meet the average limit.
4. If there is only peak result, item “Margin” referred to “peak result – average limit”.
5. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.

c) Channel 11

Fundamental Frequency: 2462 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
4924.0000	H	---	---	0.3	---	---	74.0	54.0	---
4924.0000	V	53.3	38.6	0.3	53.6	38.9	74.0	54.0	-15.1
7386.0000	H	---	---	3.8	---	---	74.0	54.0	---
7386.0000	V	---	---	3.8	---	---	74.0	54.0	---
9848.0000	H	---	---	5.6	---	---	74.0	54.0	---
9848.0000	V	---	---	5.6	---	---	74.0	54.0	---
12310.0000	H	---	---	8.4	---	---	74.0	54.0	---
12310.0000	V	---	---	8.4	---	---	74.0	54.0	---
14772.0000	H	---	---	12.0	---	---	74.0	54.0	---
14772.0000	V	---	---	12.0	---	---	74.0	54.0	---

Note :

1. Item of margin shown in above table refer to average limit.
2. Remark “---” means that the emissions level is too low to be measured.
3. If the peak result is under the average limit, that is deemed to meet the average limit.
4. If there is only peak result, item “Margin” referred to “peak result – average limit”.
5. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.

10.4.1.3 IEEE 802.11n, HT20

Test Date: Aug. 14, 2017 Temperature: 21℃ Humidity: 63%

a) Channel 1

Fundamental Frequency: 2412 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
4824.0000	H	---	---	0.0	---	---	74.0	54.0	---
4824.0000	V	---	---	0.0	---	---	74.0	54.0	---
7236.0000	H	---	---	3.4	---	---	74.0	54.0	---
7236.0000	V	---	---	3.4	---	---	74.0	54.0	---
9648.0000	H	---	---	5.4	---	---	74.0	54.0	---
9648.0000	V	---	---	5.4	---	---	74.0	54.0	---
12060.0000	H	---	---	8.2	---	---	74.0	54.0	---
12060.0000	V	---	---	8.2	---	---	74.0	54.0	---
14472.0000	H	---	---	13.6	---	---	74.0	54.0	---
14472.0000	V	---	---	13.6	---	---	74.0	54.0	---

Note :

1. Item of margin shown in above table refer to average limit.
2. Remark "---" means that the emissions level is too low to be measured.
3. If the peak result is under the average limit, that is deemed to meet the average limit.
4. If there is only peak result, item "Margin" referred to "peak result – average limit".
5. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.

b) Channel 6

Fundamental Frequency: 2437 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
4874.0000	H	---	---	0.2	---	---	74.0	54.0	---
4874.0000	V	52.7	37.0	0.2	52.9	37.2	74.0	54.0	-16.8
7311.0000	H	---	---	3.6	---	---	74.0	54.0	---
7311.0000	V	---	---	3.6	---	---	74.0	54.0	---
9748.0000	H	---	---	5.5	---	---	74.0	54.0	---
9748.0000	V	---	---	5.5	---	---	74.0	54.0	---
12185.0000	H	---	---	8.3	---	---	74.0	54.0	---
12185.0000	V	---	---	8.3	---	---	74.0	54.0	---
14622.0000	H	---	---	12.9	---	---	74.0	54.0	---
14622.0000	V	---	---	12.9	---	---	74.0	54.0	---

Note :

1. Item of margin shown in above table refer to average limit.
2. Remark “---” means that the emissions level is too low to be measured.
3. If the peak result is under the average limit, that is deemed to meet the average limit.
4. If there is only peak result, item “Margin” referred to “peak result – average limit”.
5. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.

c) Channel 11

Fundamental Frequency: 2462 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
4924.0000	H	---	---	0.3	---	---	74.0	54.0	---
4924.0000	V	52.4	37.1	0.3	52.7	37.4	74.0	54.0	-16.6
7386.0000	H	---	---	3.8	---	---	74.0	54.0	---
7386.0000	V	---	---	3.8	---	---	74.0	54.0	---
9848.0000	H	---	---	5.6	---	---	74.0	54.0	---
9848.0000	V	---	---	5.6	---	---	74.0	54.0	---
12310.0000	H	---	---	8.4	---	---	74.0	54.0	---
12310.0000	V	---	---	8.4	---	---	74.0	54.0	---
14772.0000	H	---	---	12.0	---	---	74.0	54.0	---
14772.0000	V	---	---	12.0	---	---	74.0	54.0	---

Note :

1. Item of margin shown in above table refer to average limit.
2. Remark "---" means that the emissions level is too low to be measured.
3. If the peak result is under the average limit, that is deemed to meet the average limit.
4. If there is only peak result, item "Margin" referred to "peak result – average limit".
5. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.

10.4.1.4 IEEE 802.11n, HT40

Test Date: Aug. 14, 2017 Temperature: 21℃ Humidity: 63%

a) Channel 1

Fundamental Frequency: 2422 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
4844.0000	H	---	---	0.1	---	---	74.0	54.0	---
4844.0000	V	---	---	0.1	---	---	74.0	54.0	---
7266.0000	H	---	---	3.5	---	---	74.0	54.0	---
7266.0000	V	---	---	3.5	---	---	74.0	54.0	---
9688.0000	H	---	---	5.4	---	---	74.0	54.0	---
9688.0000	V	---	---	5.4	---	---	74.0	54.0	---
12110.0000	H	---	---	8.2	---	---	74.0	54.0	---
12110.0000	V	---	---	8.2	---	---	74.0	54.0	---
14532.0000	H	---	---	13.5	---	---	74.0	54.0	---
14532.0000	V	---	---	13.5	---	---	74.0	54.0	---

Note :

1. Item of margin shown in above table refer to average limit.
2. Remark "---" means that the emissions level is too low to be measured.
3. If the peak result is under the average limit, that is deemed to meet the average limit.
4. If there is only peak result, item "Margin" referred to "peak result – average limit".
5. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.

b) Channel 6

Fundamental Frequency: 2437 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
4874.0000	H	---	---	0.2	---	---	74.0	54.0	---
4874.0000	V	---	---	0.2	---	---	74.0	54.0	---
7311.0000	H	---	---	3.6	---	---	74.0	54.0	---
7311.0000	V	---	---	3.6	---	---	74.0	54.0	---
9748.0000	H	---	---	5.5	---	---	74.0	54.0	---
9748.0000	V	---	---	5.5	---	---	74.0	54.0	---
12185.0000	H	---	---	8.3	---	---	74.0	54.0	---
12185.0000	V	---	---	8.3	---	---	74.0	54.0	---
14622.0000	H	---	---	12.9	---	---	74.0	54.0	---
14622.0000	V	---	---	12.9	---	---	74.0	54.0	---

Note :

1. Item of margin shown in above table refer to average limit.
2. Remark “---” means that the emissions level is too low to be measured.
3. If the peak result is under the average limit, that is deemed to meet the average limit.
4. If there is only peak result, item “Margin” referred to “peak result – average limit”.
5. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.
   detected.

c) Channel 11

Fundamental Frequency: 2452 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
4904.0000	H	---	---	0.2	---	---	74.0	54.0	---
4904.0000	V	---	---	0.2	---	---	74.0	54.0	---
7356.0000	H	---	---	3.7	---	---	74.0	54.0	---
7356.0000	V	---	---	3.7	---	---	74.0	54.0	---
9808.0000	H	---	---	5.5	---	---	74.0	54.0	---
9808.0000	V	---	---	5.5	---	---	74.0	54.0	---
12260.0000	H	---	---	8.3	---	---	74.0	54.0	---
12260.0000	V	---	---	8.3	---	---	74.0	54.0	---
14712.0000	H	---	---	12.4	---	---	74.0	54.0	---
14712.0000	V	---	---	12.4	---	---	74.0	54.0	---

Note :

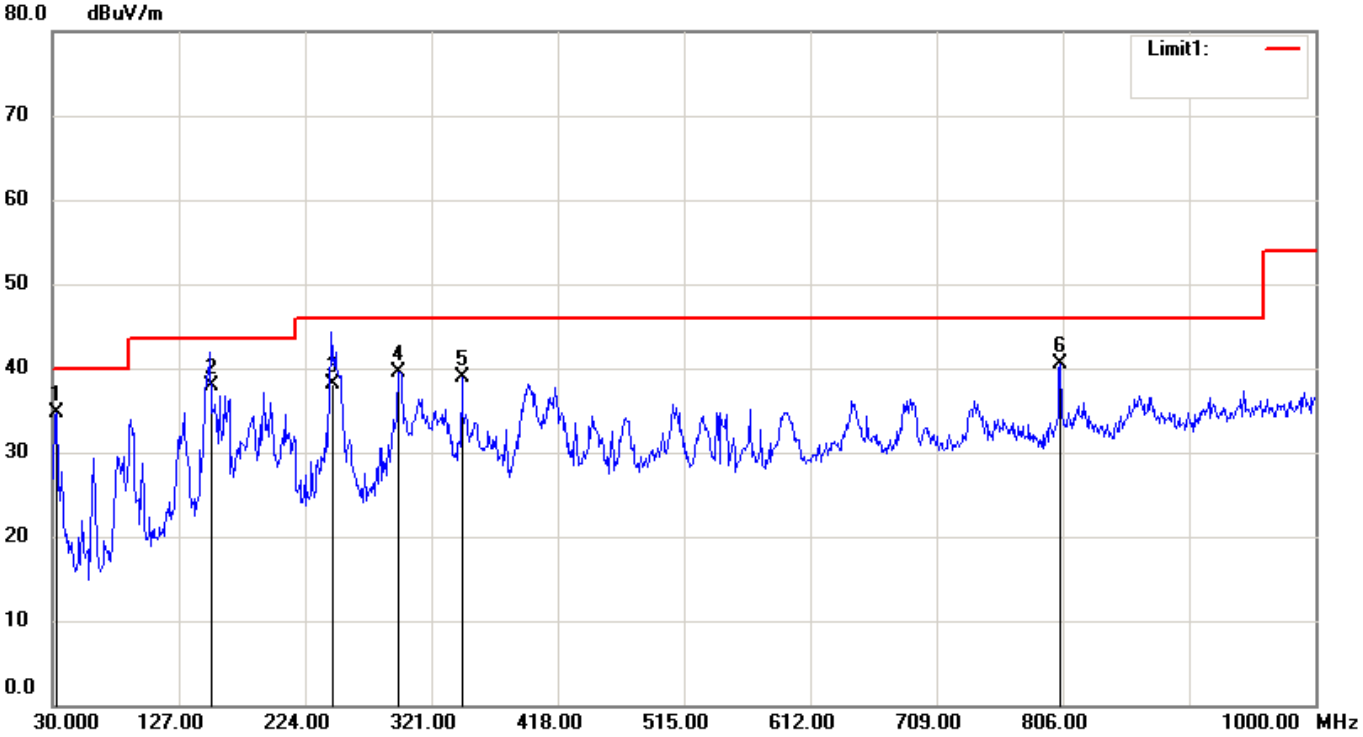
1. Item of margin shown in above table refer to average limit.
2. Remark "---" means that the emissions level is too low to be measured.
3. If the peak result is under the average limit, that is deemed to meet the average limit.
4. If there is only peak result, item "Margin" referred to "peak result – average limit".
5. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.

10.4.2 Spurious Emission

10.4.2.1 30MHz to 1GHz

File: 17-06-MAS-031_B **Data:** #1 **Date:** 2017/8/14 **Temperature:** 21 ℃

Time: PM 03:10:03 **Humidity:** 63 %

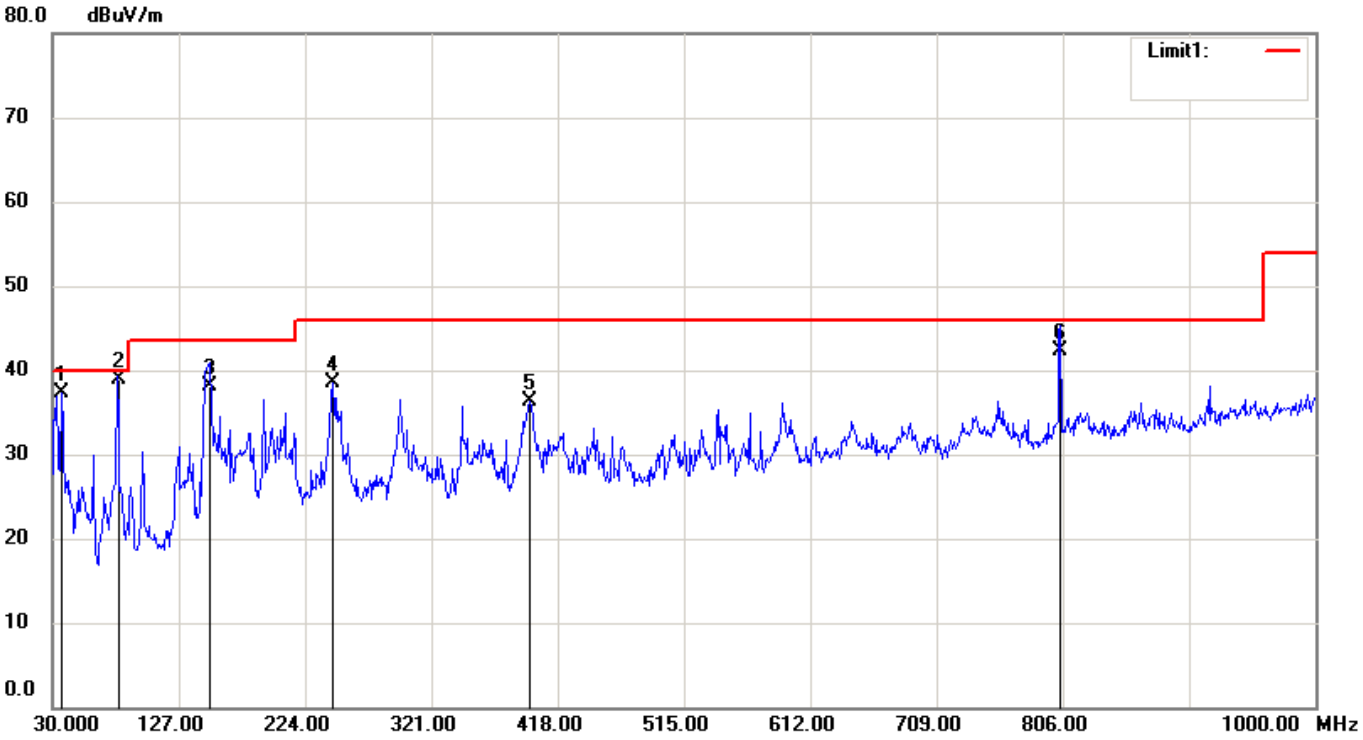


Condition: FCC **Polarization:** Horizontal
EUT: **Distance:** 3m
Model:
Test Mode:
Note:

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	32.9100	37.87	peak	-3.11	34.76	40.00	-5.24
2	151.3000	45.74	QP	-7.79	37.95	43.50	-5.55
3	244.8500	43.94	QP	-5.74	38.20	46.00	-7.80
4	295.7800	42.95	peak	-3.45	39.50	46.00	-6.50
5	344.2800	41.42	peak	-2.46	38.96	46.00	-7.04
6	804.0600	35.51	peak	4.96	40.47	46.00	-5.53

File: 17-06-MAS-031_B **Data:** #2 **Date:** 2017/8/14 **Temperature:** 21 ℃

Time: PM 03:12:35 **Humidity:** 63 %



Condition: FCC **Polarization:** Vertical
EUT: **Distance:** 3m
Model:
Test Mode:
Note:

No.	Frequency (MHz)	Reading (dBuV/m)	Detector	Corrected Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)
1	36.7900	42.44	QP	-5.18	37.26	40.00	-2.74
2	79.9945	52.37	QP	-13.37	39.00	40.00	-1.00
3	150.2100	45.86	QP	-7.76	38.10	43.50	-5.40
4	245.3400	44.09	peak	-5.67	38.42	46.00	-7.58
5	396.6600	37.95	peak	-1.68	36.27	46.00	-9.73
6	803.2310	37.37	QP	4.93	42.30	46.00	-3.70

10.4.2.2 above 1GHz

10.4.2.2.1 IEEE 802.11b

10.4.2.2.1.1 Fundamental Frequency: 2412 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
1042.6282	V	53.0	---	-13.10	39.9	---	74	54	-14.1
1044.8717	H	54.1	---	-13.10	41.0	---	74	54	-13.0
1134.6153	V	52.4	---	-12.60	39.8	---	74	54	-14.2
1177.2436	V	53.0	---	-12.40	40.6	---	74	54	-13.4
1210.8974	V	52.4	---	-12.20	40.2	---	74	54	-13.8
1293.9103	V	51.7	---	-11.80	39.9	---	74	54	-14.1
1504.8077	V	59.0	---	-10.70	48.3	---	74	54	-5.7
1511.5386	H	61.1	---	-10.70	50.4	---	74	54	-3.6
2112.8204	H	49.9	---	-7.30	42.6	---	74	54	-11.4

10.4.2.2.1.2 Fundamental Frequency: 2437 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
1040.3846	V	53.2	---	-13.10	40.1	---	74	54	-13.9
1042.6282	H	53.7	---	-13.10	40.6	---	74	54	-13.4
1121.1538	V	52.5	---	-12.70	39.8	---	74	54	-14.2
1143.5896	V	53.1	---	-12.60	40.5	---	74	54	-13.5
1462.1794	H	58.1	---	-10.90	47.2	---	74	54	-6.8
1502.5641	V	58.1	---	-10.70	47.4	---	74	54	-6.6
2112.8204	H	49.6	---	-7.30	42.3	---	74	54	-11.7
2112.8204	V	49.6	---	-7.30	42.3	---	74	54	-11.7
2155.4486	H	50.3	---	-7.10	43.2	---	74	54	-10.8
2682.4295	H	49.9	---	-5.60	44.3	---	74	54	-9.7

10.4.2.2.1.3 Fundamental Frequency: 2462 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
1031.4103	V	52.3	---	-13.10	39.2	---	74	54	-14.8
1044.8717	H	52.2	---	-13.10	39.1	---	74	54	-14.9
1100.9614	V	50.3	---	-12.80	37.5	---	74	54	-16.5
1139.1025	V	53.9	---	-12.60	41.3	---	74	54	-12.7
1179.4872	V	51.7	---	-12.40	39.3	---	74	54	-14.7
1385.8974	V	51.7	---	-11.30	40.4	---	74	54	-13.6
1464.4230	H	58.1	---	-10.90	47.2	---	74	54	-6.8
1498.0770	H	56.2	---	-10.70	45.5	---	74	54	-8.5
1502.5641	V	56.5	---	-10.70	45.8	---	74	54	-8.2

Note: 1. Place of Measurement: Measuring site of the ETC.
2. Item of margin shown in above table refer to average limit.
3. Remark "---" means that the emissions level is too low to be measured.
4. If the peak result is under the average limit, that is deemed to meet the average limit.
5. If there is only peak result, item "Margin" referred to "peak result – average limit".
6. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.
7. The estimated measurement uncertainty of the result measurement is
±4.2dB (9kHz≦f≦30MHz)
±4.6dB (30MHz≦f<300MHz).
±4.4dB (300MHz≦f<1000MHz).
±2.9dB (1GHz≦f<18GHz).
±3.5dB (18GHz≦f≦40GHz).
8. Please refer to page 120 to page 137 for chart.

10.4.2.2.2 IEEE 802.11g

10.4.2.2.2.1 Fundamental Frequency: 2412 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
1044.8717	V	52.2	---	-13.10	39.1	---	74	54	-14.9
1047.1153	H	54.1	---	-13.10	41.0	---	74	54	-13.0
1121.1538	V	53.7	---	-12.70	41.0	---	74	54	-13.0
1298.3974	V	51.4	---	-11.80	39.6	---	74	54	-14.4
1484.6153	H	56.8	---	-10.80	46.0	---	74	54	-8.0
1504.8077	V	57.3	---	-10.70	46.6	---	74	54	-7.4
2112.8204	H	50.3	---	-7.30	43.0	---	74	54	-11.0
2112.8204	V	49.4	---	-7.30	42.1	---	74	54	-11.9
2757.0280	H	49.2	---	-5.30	43.9	---	74	54	-10.1

10.4.2.2.2.2 Fundamental Frequency: 2437 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
1040.3846	H	52.9	---	-13.10	39.8	---	74	54	-14.2
1044.8717	V	52.5	---	-13.10	39.4	---	74	54	-14.6
1096.4744	V	54.0	---	-12.80	41.2	---	74	54	-12.8
1136.8590	V	52.1	---	-12.60	39.5	---	74	54	-14.5
1284.9358	V	51.2	---	-11.80	39.4	---	74	54	-14.6
1468.9103	H	56.5	---	-10.90	45.6	---	74	54	-8.4
1504.8077	V	58.3	---	-10.70	47.6	---	74	54	-6.4
2112.8204	H	49.5	---	-7.30	42.2	---	74	54	-11.8
2112.8204	V	49.3	---	-7.30	42.0	---	74	54	-12.0
2229.4872	H	49.3	---	-7.00	42.3	---	74	54	-11.7
2707.2957	H	48.9	---	-5.50	43.4	---	74	54	-10.6

10.4.2.2.2.3 Fundamental Frequency: 2462 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
1031.4103	V	52.1	---	-13.10	39.0	---	74	54	-15.0
1044.8717	H	53.1	---	-13.10	40.0	---	74	54	-14.0
1098.7180	V	51.6	---	-12.80	38.8	---	74	54	-15.2
1145.8333	V	53.4	---	-12.60	40.8	---	74	54	-13.2
1464.4230	V	54.6	---	-10.90	43.7	---	74	54	-10.3
1477.8846	H	56.8	---	-10.90	45.9	---	74	54	-8.1
1489.1024	V	56.0	---	-10.80	45.2	---	74	54	-8.8
1504.8077	V	56.3	---	-10.70	45.6	---	74	54	-8.4
2112.8204	H	50.7	---	-7.30	43.4	---	74	54	-10.6

Note: 1. Place of Measurement: Measuring site of the ETC.
2. Item of margin shown in above table refer to average limit.
3. Remark "---" means that the emissions level is too low to be measured.
4. If the peak result is under the average limit, that is deemed to meet the average limit.
5. If there is only peak result, item "Margin" referred to "peak result – average limit".
6. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.
7. The estimated measurement uncertainty of the result measurement is
±4.2dB (9kHz≦f≦30MHz)
±4.6dB (30MHz≦f<300MHz).
±4.4dB (300MHz≦f<1000MHz).
±2.9dB (1GHz≦f<18GHz).
±3.5dB (18GHz≦f≦40GHz).
8. Please refer to page 138 to page 155 for chart.

10.4.2.2.3 IEEE 802.11n, HT20

10.4.2.2.3.1 Fundamental Frequency: 2412 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
1031.4103	H	54.0	---	-13.10	40.9	---	74	54	-13.1
1031.4103	V	52.5	---	-13.10	39.4	---	74	54	-14.6
1042.6282	V	53.0	---	-13.10	39.9	---	74	54	-14.1
1044.8717	H	54.9	---	-13.10	41.8	---	74	54	-12.2
1094.2308	V	52.4	---	-12.80	39.6	---	74	54	-14.4
1141.3461	V	53.5	---	-12.60	40.9	---	74	54	-13.1
1300.6410	V	51.5	---	-11.80	39.7	---	74	54	-14.3
1462.1794	H	58.0	---	-10.90	47.1	---	74	54	-6.9
1511.5385	V	57.2	---	-10.70	46.5	---	74	54	-7.5
1572.1153	H	51.1	---	-10.30	40.8	---	74	54	-13.2
2732.1620	H	49.5	---	-5.40	44.1	---	74	54	-9.9

10.4.2.2.3.2 Fundamental Frequency: 2437 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
1031.4103	H	53.7	---	-13.10	40.6	---	74	54	-13.4
1042.6282	V	53.3	---	-13.10	40.2	---	74	54	-13.8
1098.7180	V	51.0	---	-12.80	38.2	---	74	54	-15.8
1134.6153	V	52.2	---	-12.60	39.6	---	74	54	-14.4
1161.5385	H	51.1	---	-12.50	38.6	---	74	54	-15.4
1199.6793	H	51.1	---	-12.30	38.8	---	74	54	-15.2
1269.2308	H	50.6	---	-11.90	38.7	---	74	54	-15.3
1462.1794	H	58.5	---	-10.90	47.6	---	74	54	-6.4
1507.0513	V	56.3	---	-10.70	45.6	---	74	54	-8.4
2112.8204	H	49.3	---	-7.30	42.0	---	74	54	-12.0
2112.8204	V	50.1	---	-7.30	42.8	---	74	54	-11.2
2707.2957	V	48.6	---	-5.50	43.1	---	74	54	-10.9

10.4.2.2.3.3 Fundamental Frequency: 2462 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
1002.2436	H	52.3	---	-13.30	39.0	---	74	54	-15.0
1031.4103	H	53.1	---	-13.10	40.0	---	74	54	-14.0
1042.6282	V	52.5	---	-13.10	39.4	---	74	54	-14.6
1136.8590	V	52.6	---	-12.60	40.0	---	74	54	-14.0
1271.4744	V	51.4	---	-11.90	39.5	---	74	54	-14.5
1305.1282	V	51.1	---	-11.70	39.4	---	74	54	-14.6
1462.1794	H	58.9	---	-10.90	48.0	---	74	54	-6.0
1483.8460	H	50.4	---	-10.80	39.6	---	74	54	-14.4
1504.8077	V	57.1	---	-10.70	46.4	---	74	54	-7.6
2732.1620	H	49.3	---	-5.40	43.9	---	74	54	-10.1
2732.1620	V	48.8	---	-5.40	43.4	---	74	54	-10.6

Note: 1. Place of Measurement: Measuring site of the ETC.
2. Item of margin shown in above table refer to average limit.
3. Remark "---" means that the emissions level is too low to be measured.
4. If the peak result is under the average limit, that is deemed to meet the average limit.
5. If there is only peak result, item "Margin" referred to "peak result – average limit".
6. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.
7. The estimated measurement uncertainty of the result measurement is
±4.2dB (9kHz≦f≦30MHz)
±4.6dB (30MHz≦f<300MHz).
±4.4dB (300MHz≦f<1000MHz).
±2.9dB (1GHz≦f<18GHz).
±3.5dB (18GHz≦f≦40GHz).
8. Please refer to page 156 to page 173 for chart.

10.4.2.2.4 IEEE 802.11n, HT40

10.4.2.2.4.1 Fundamental Frequency: 2422 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
1044.8717	H	53.1	---	-13.10	40.0	---	74	54	-14.0
1047.1153	V	52.3	---	-13.10	39.2	---	74	54	-14.8
1141.3461	V	52.2	---	-12.60	39.6	---	74	54	-14.4
1287.1794	V	52.2	---	-11.80	40.4	---	74	54	-13.6
1466.6666	H	57.2	---	-10.90	46.3	---	74	54	-7.7
1477.8846	H	57.0	---	-10.90	46.1	---	74	54	-7.9
1507.0513	V	56.6	---	-10.70	45.9	---	74	54	-8.1
2112.8204	H	50.1	---	-7.30	42.8	---	74	54	-11.2
2112.8204	V	49.4	---	-7.30	42.1	---	74	54	-11.9

10.4.2.2.4.2 Fundamental Frequency: 2437 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
1040.3846	V	52.9	---	-13.10	39.8	---	74	54	-14.2
1094.2308	V	52.2	---	-12.80	39.4	---	74	54	-14.6
1107.6922	H	51.3	---	-12.70	38.6	---	74	54	-15.4
1125.6410	V	52.5	---	-12.70	39.8	---	74	54	-14.2
1141.3461	V	52.8	---	-12.60	40.2	---	74	54	-13.8
1249.0385	H	50.7	---	-12.00	38.7	---	74	54	-15.3
1280.4486	V	51.9	---	-11.90	40.0	---	74	54	-14.0
1468.9103	H	58.7	---	-10.90	47.8	---	74	54	-6.2
1489.1025	V	57.4	---	-10.80	46.6	---	74	54	-7.4
1516.0255	H	55.4	---	-10.60	44.8	---	74	54	-9.2
2732.1620	H	49.7	---	-5.40	44.3	---	74	54	-9.7

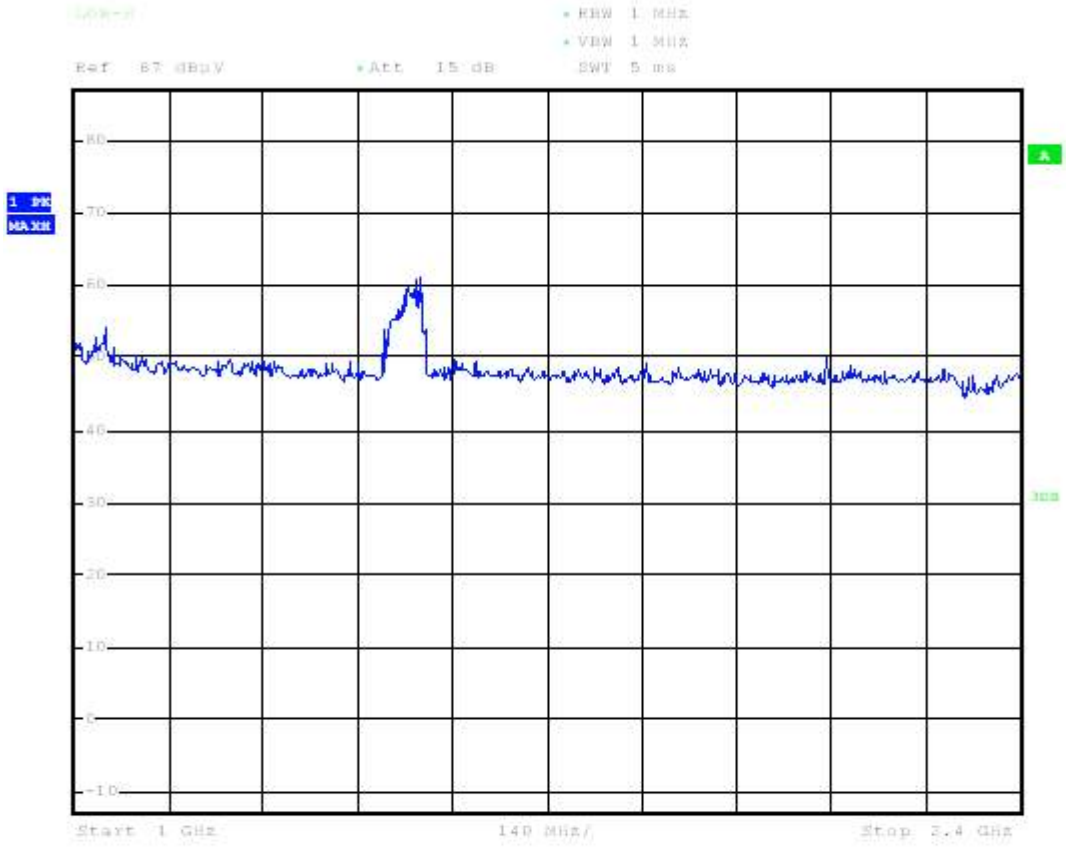
10.4.2.2.4.3 Fundamental Frequency: 2452 MHz

Frequency	Ant Pol	Reading (dBuV/m)@3m		Correct Factor	Result (dBuV/m)@3m		Limit (dBuV/m)@3m		Margin (worse)
(MHz)	H/V	Peak	AVG	(dB)	Peak	AVG	Peak	AVG	(dB)
1031.4103	V	52.5	---	-13.10	39.4	---	74	54	-14.6
1042.3896	V	54.2	---	-13.10	41.1	---	74	54	-12.9
1042.6282	H	52.0	---	-13.10	38.9	---	74	54	-15.1
1083.0127	H	52.6	---	-12.90	39.7	---	74	54	-14.3
1143.5896	V	52.9	---	-12.60	40.3	---	74	54	-13.7
1300.6410	V	51.6	---	-11.80	39.8	---	74	54	-14.2
1462.1794	V	55.3	---	-10.90	44.4	---	74	54	-9.6
1468.9103	H	58.9	---	-10.90	48.0	---	74	54	-6.0
1486.8590	V	55.8	---	-10.80	45.0	---	74	54	-9.0
1513.7820	H	54.5	---	-10.60	43.9	---	74	54	-10.1

Note: 1. Place of Measurement: Measuring site of the ETC.
2. Item of margin shown in above table refer to average limit.
3. Remark "---" means that the emissions level is too low to be measured.
4. If the peak result is under the average limit, that is deemed to meet the average limit.
5. If there is only peak result, item "Margin" referred to "peak result – average limit".
6. The radiation emissions have been measured to beyond the tenth harmonic of the fundamental frequency and show the significant frequencies, other means the value is too low to be detected.
7. The estimated measurement uncertainty of the result measurement is
±4.2dB (9kHz≦f≦30MHz)
±4.6dB (30MHz≦f<300MHz).
±4.4dB (300MHz≦f<1000MHz).
±2.9dB (1GHz≦f<18GHz).
±3.5dB (18GHz≦f≦40GHz).
8. Please refer to page 174 to page 191 for chart.

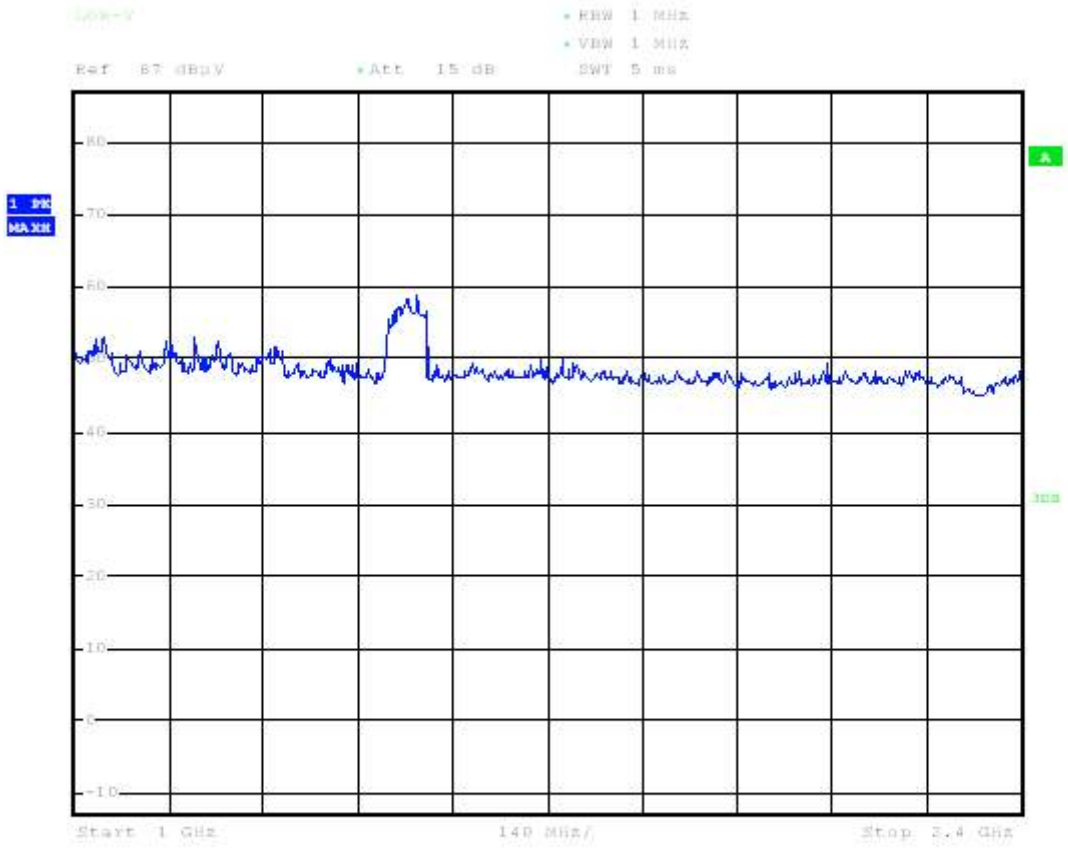
IEEE 802.11b

CH Low (Horizontal)



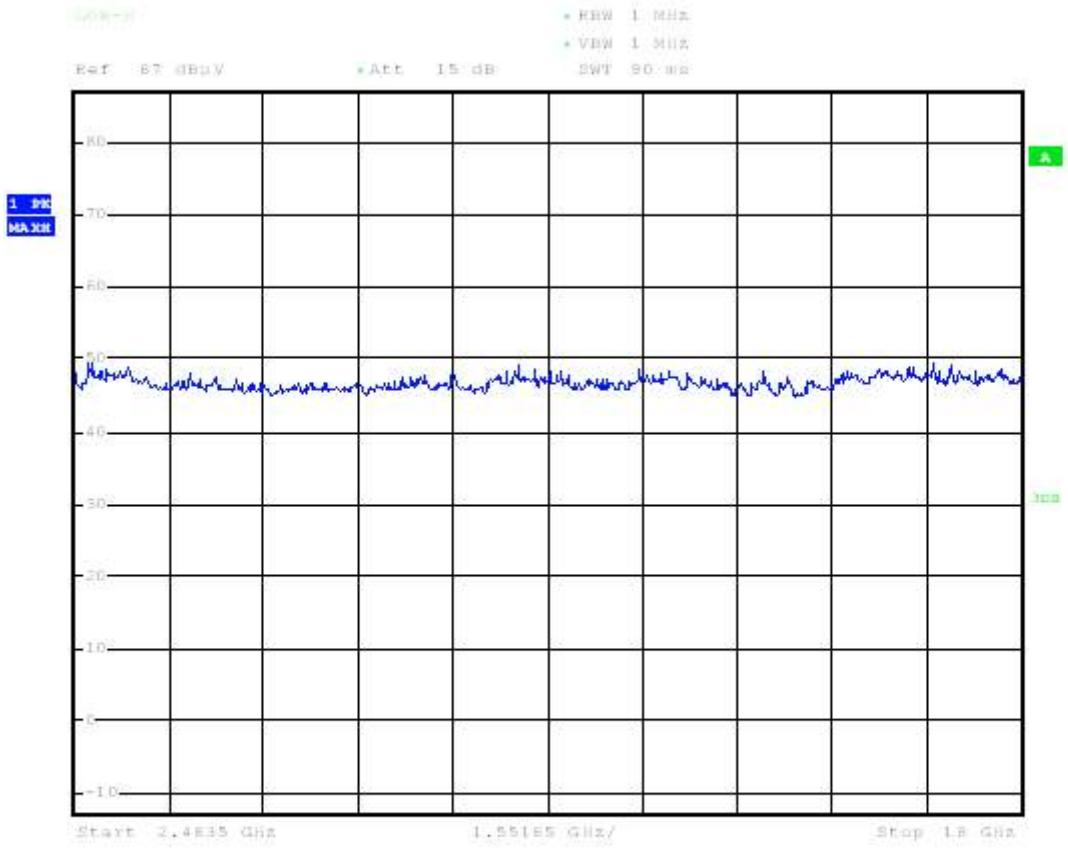
Date: 22.AUG.2017 03:08:05

CH Low (Vertical)



Date: 22.AUG.2017 03:10:48

CH Low (Horizontal)



Date: 22.AUG.2017 03:09:16

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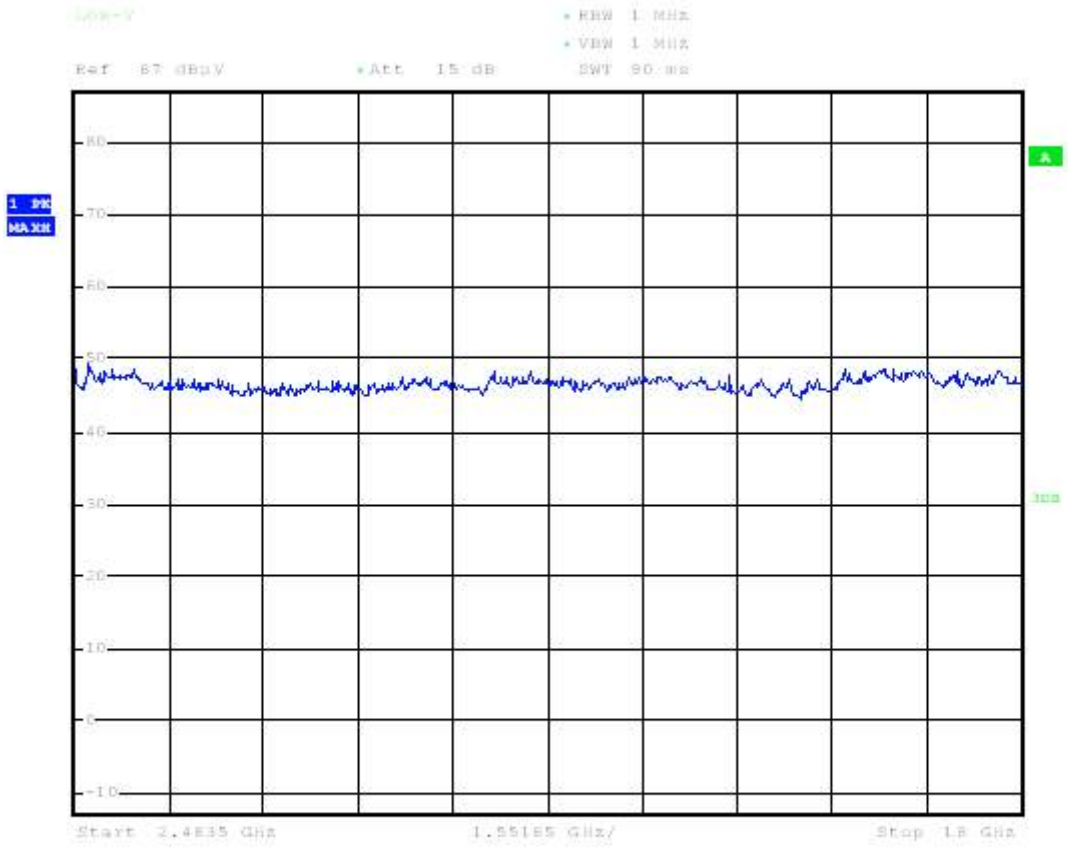

Date: 22.AUG.2017 03:11:59

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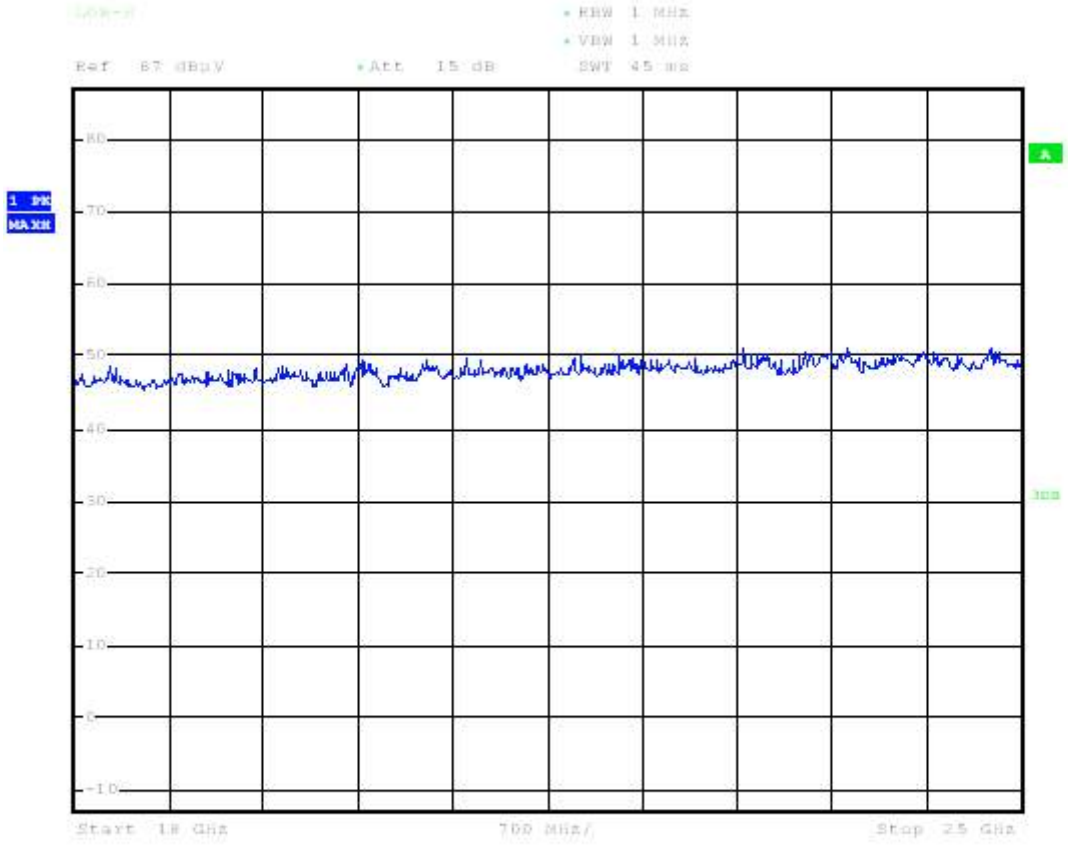
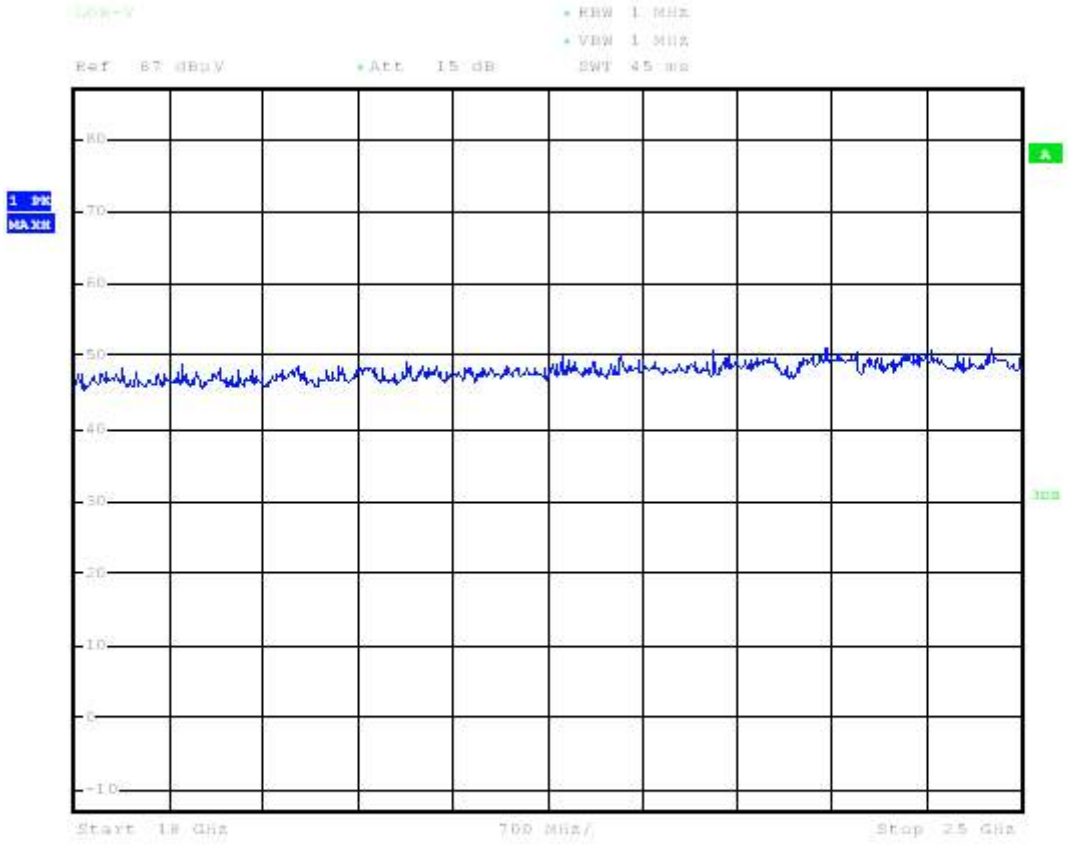


Date: 22.AUG.2017 03:09:36

CH Low (Vertical)



Date: 22.AUG.2017 03:12:19

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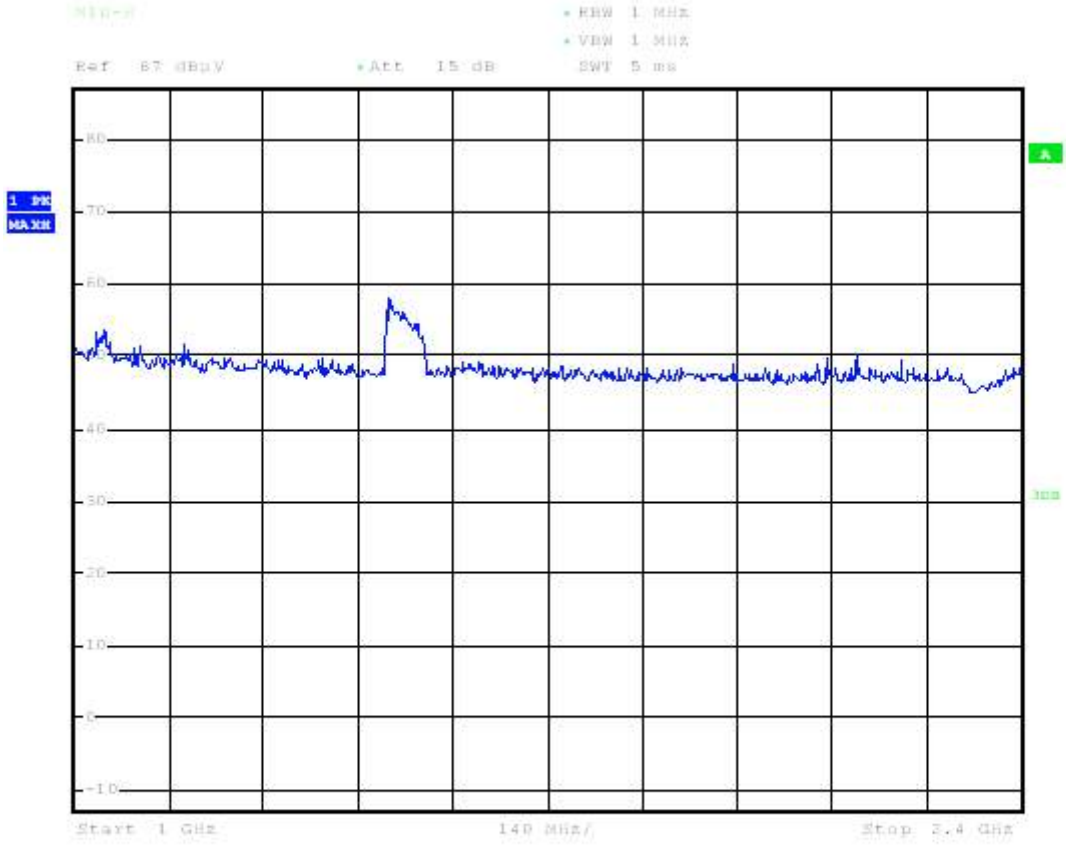

Date: 22.AUG.2017 09:44:52

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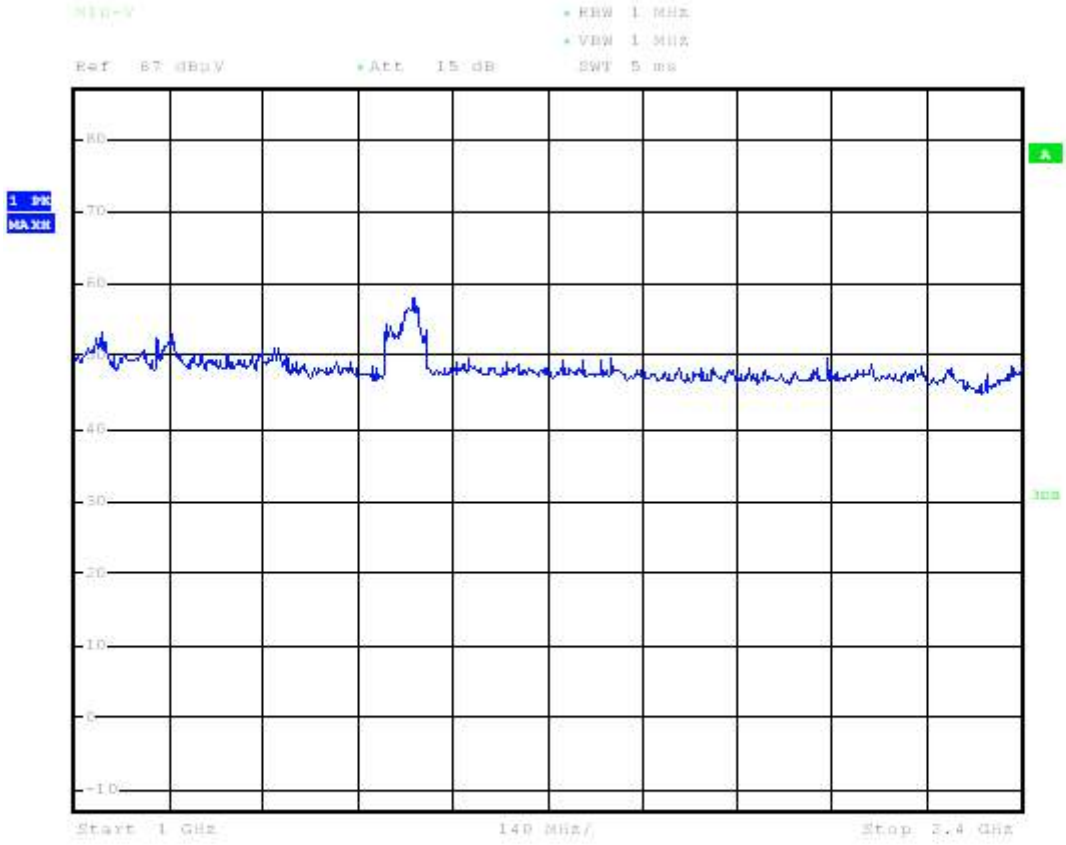

Date: 22.AUG.2017 09:47:36

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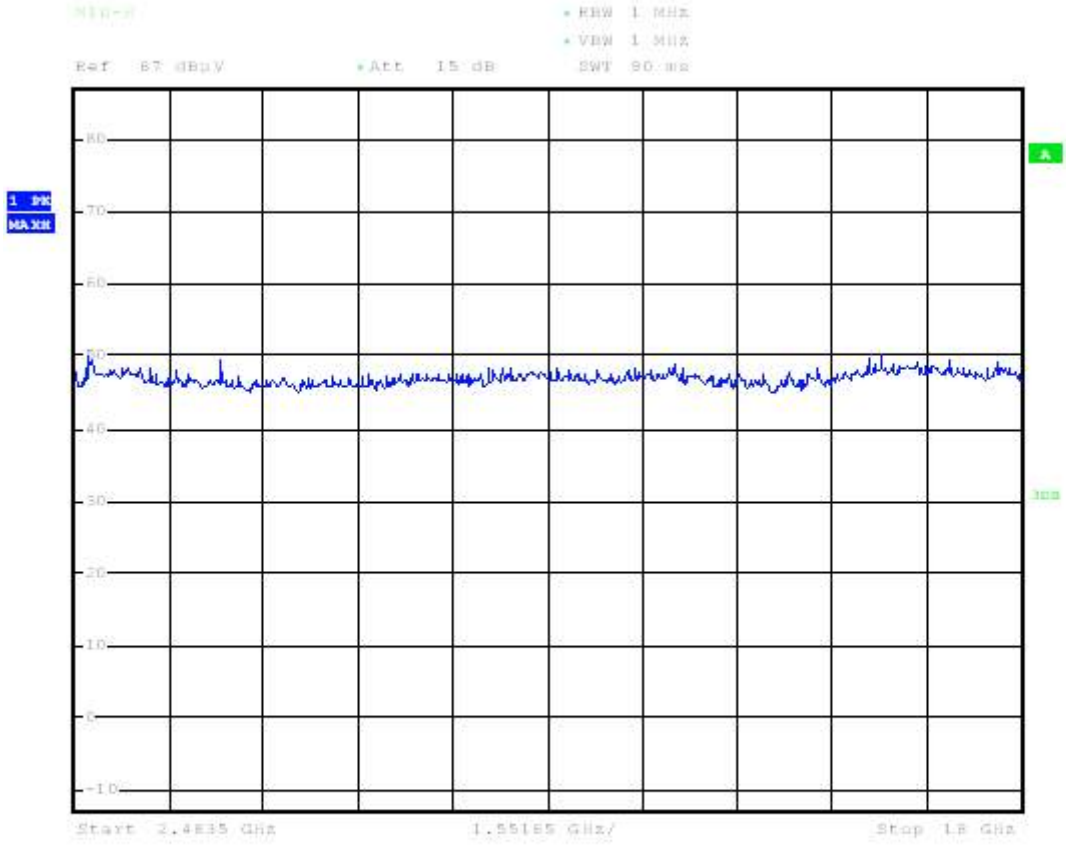

Date: 22.AUG.2017 09:46:04

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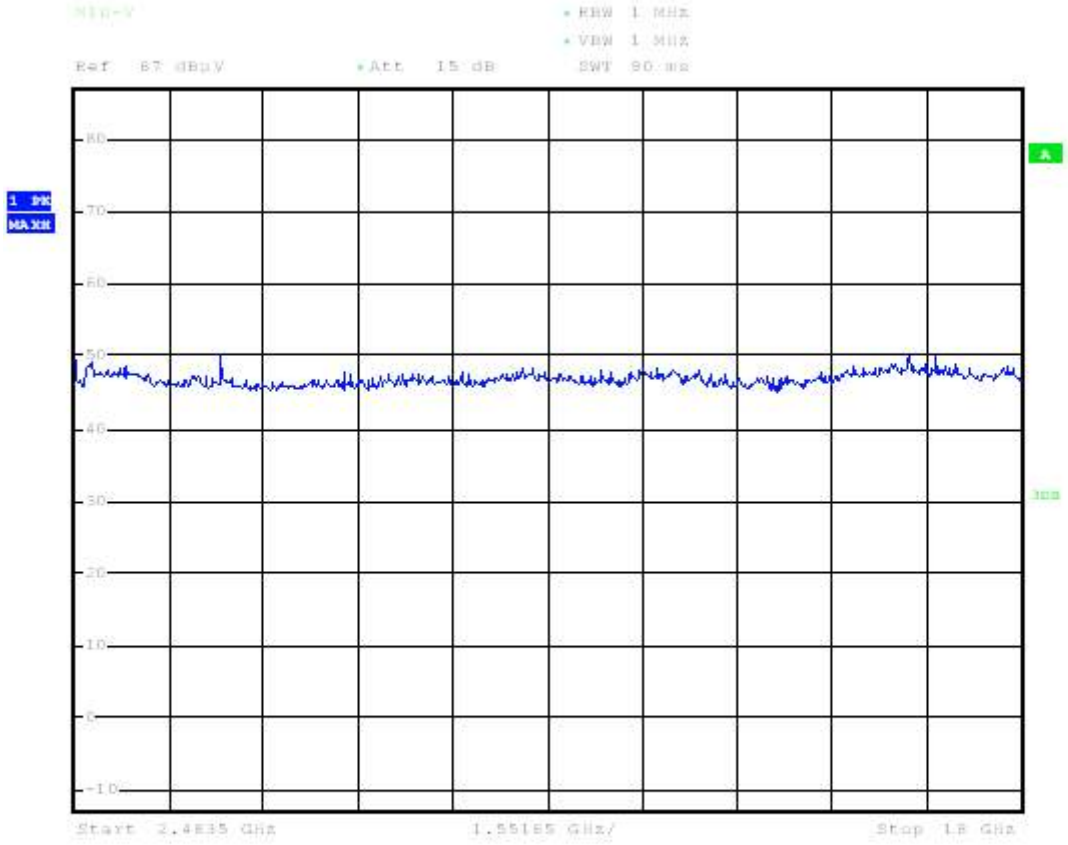

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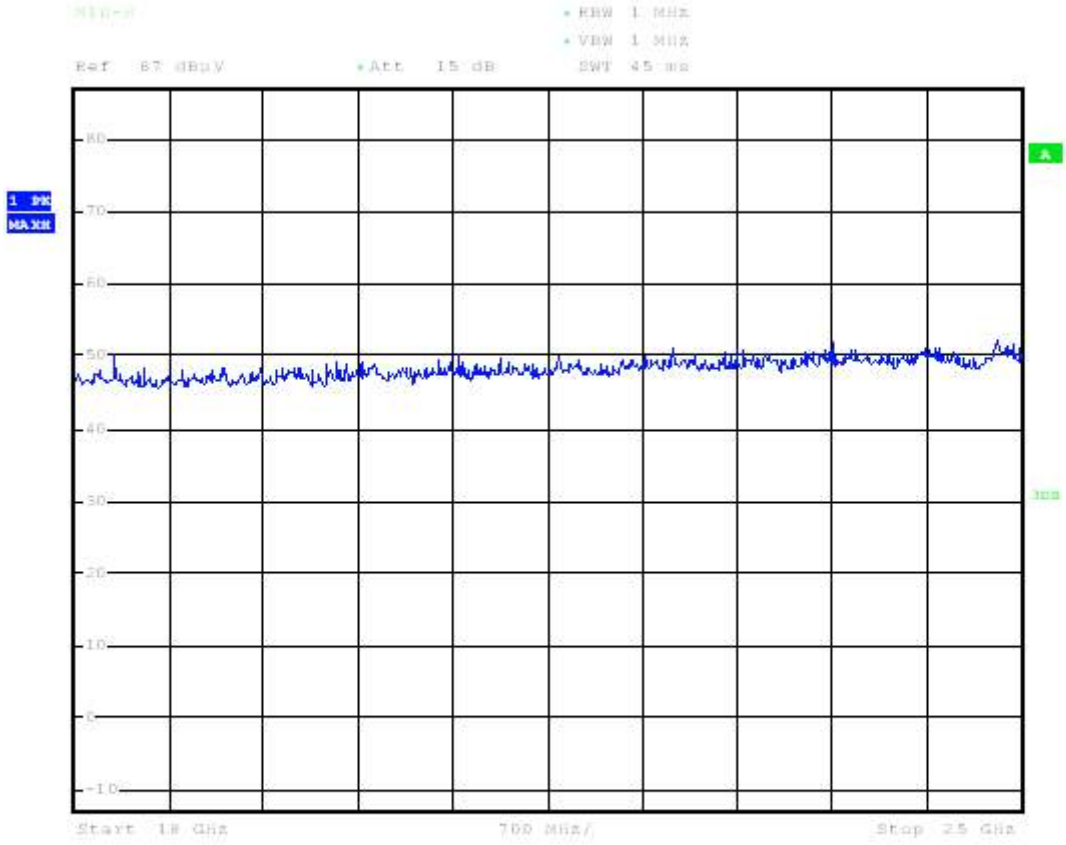

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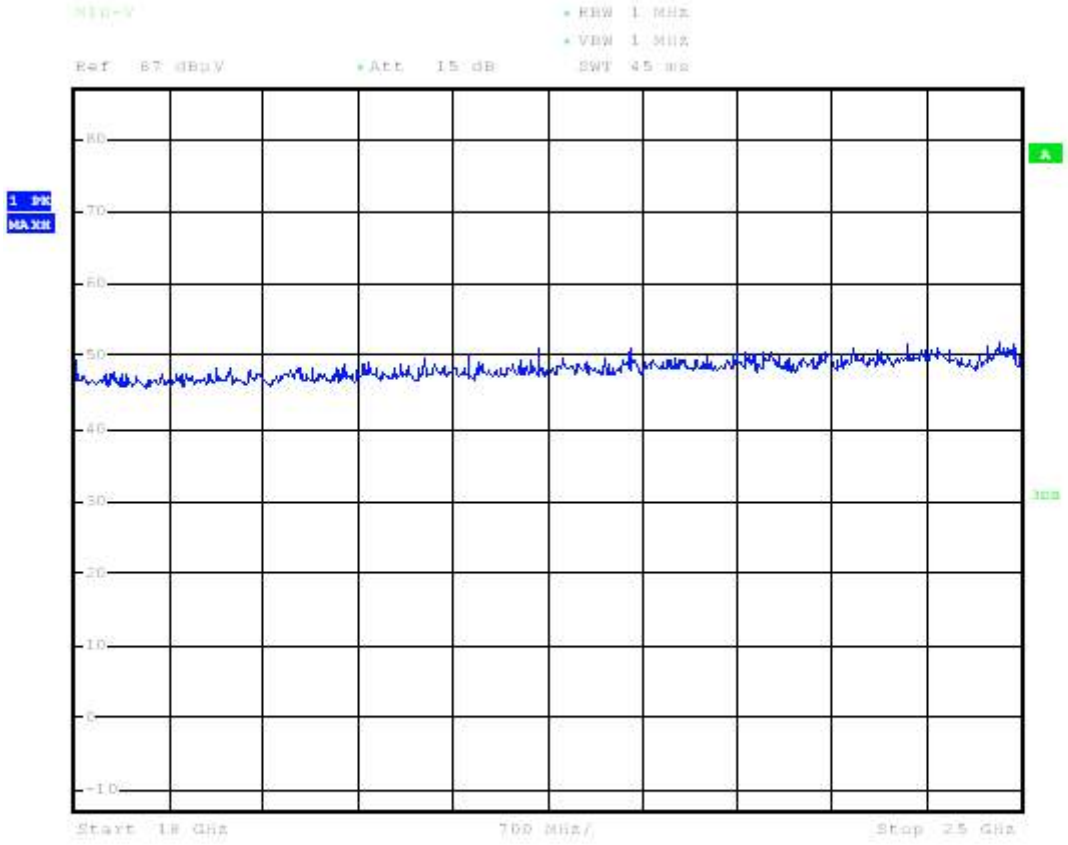

Date: 22.AUG.2017 09:49:08

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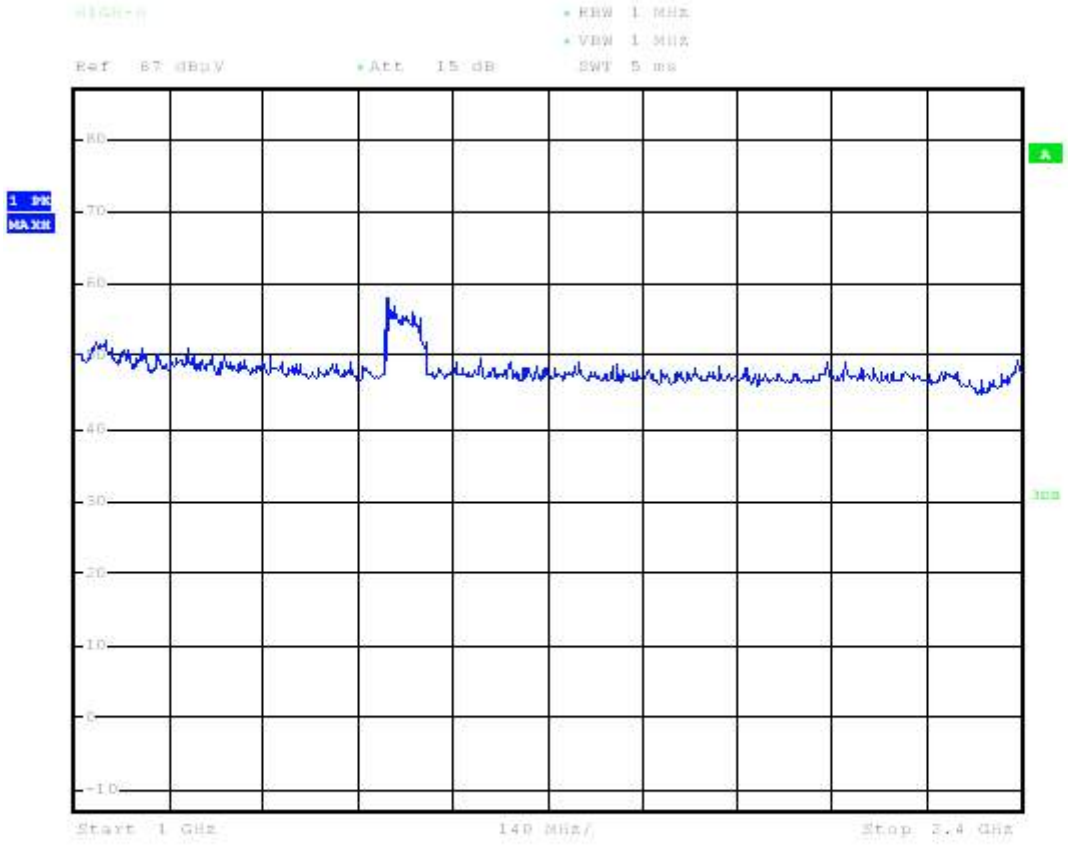
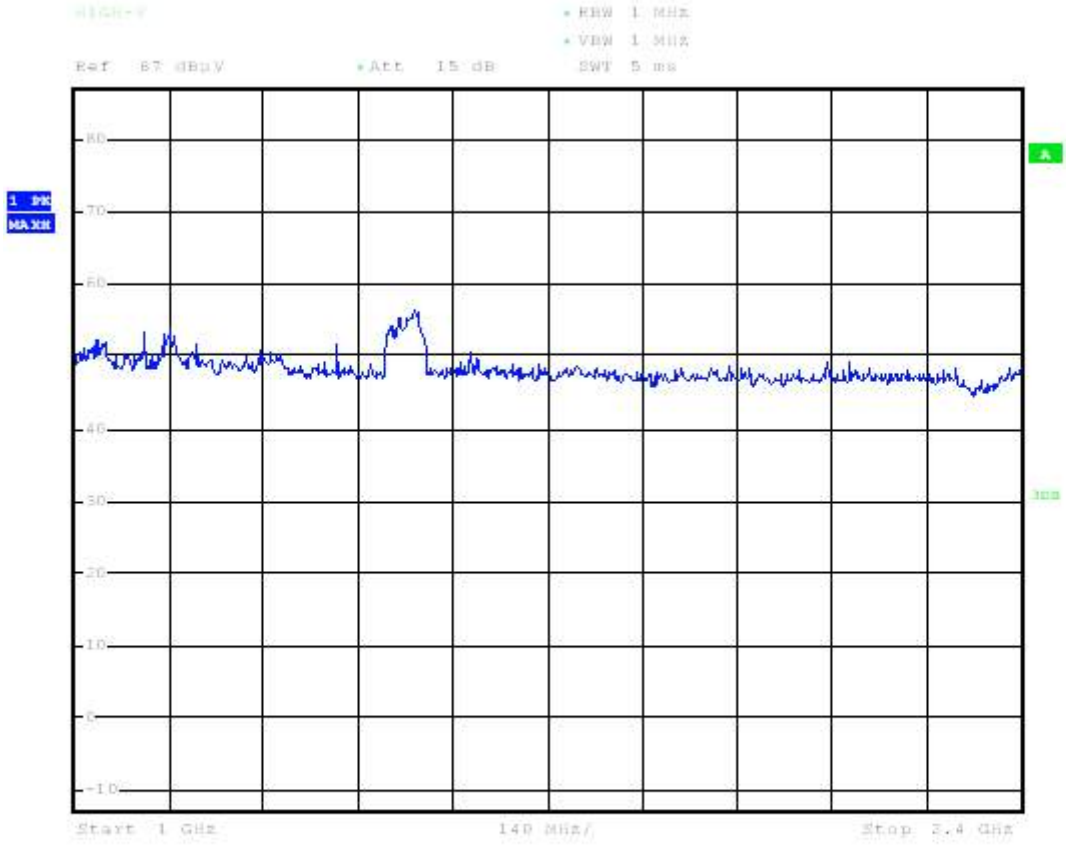


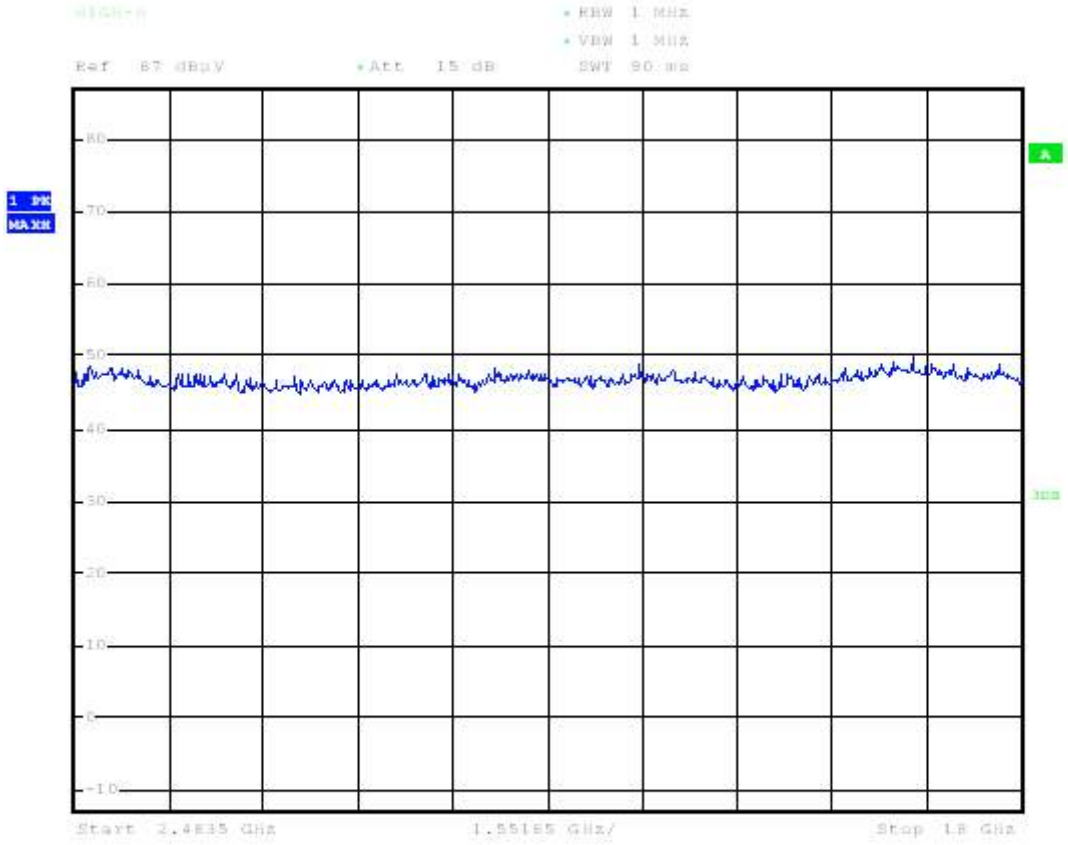
Date: 22.AUG.2017 10:08:28

CH High (Vertical)



Date: 22.AUG.2017 10:11:11

CH High (Horizontal)



Date: 22.AUG.2017 10:09:39

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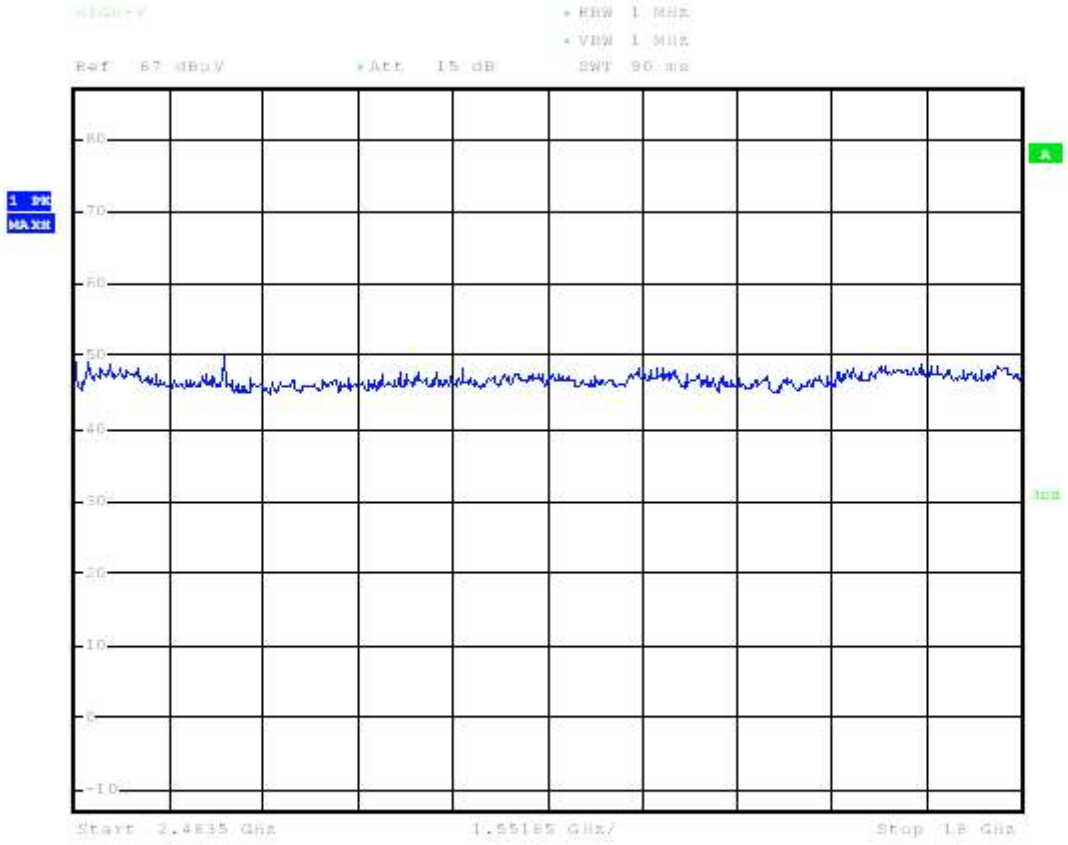

Date: 22.AUG.2017 10:12:22

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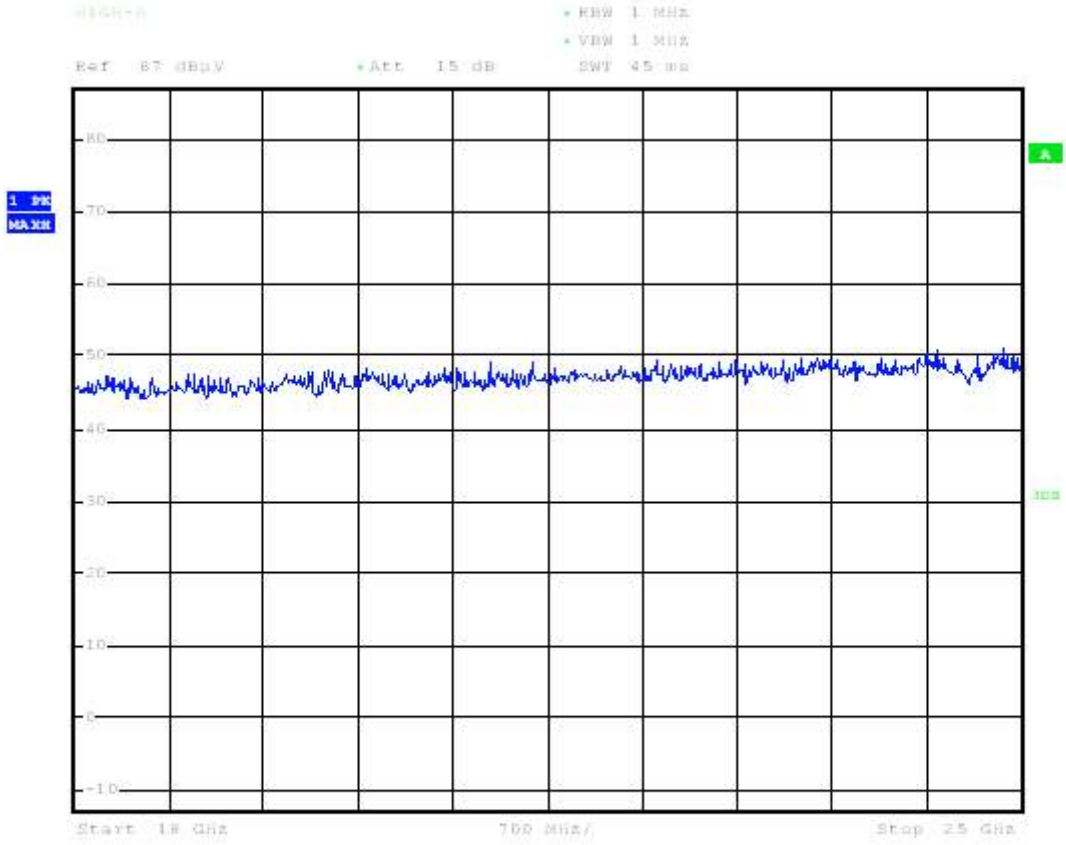
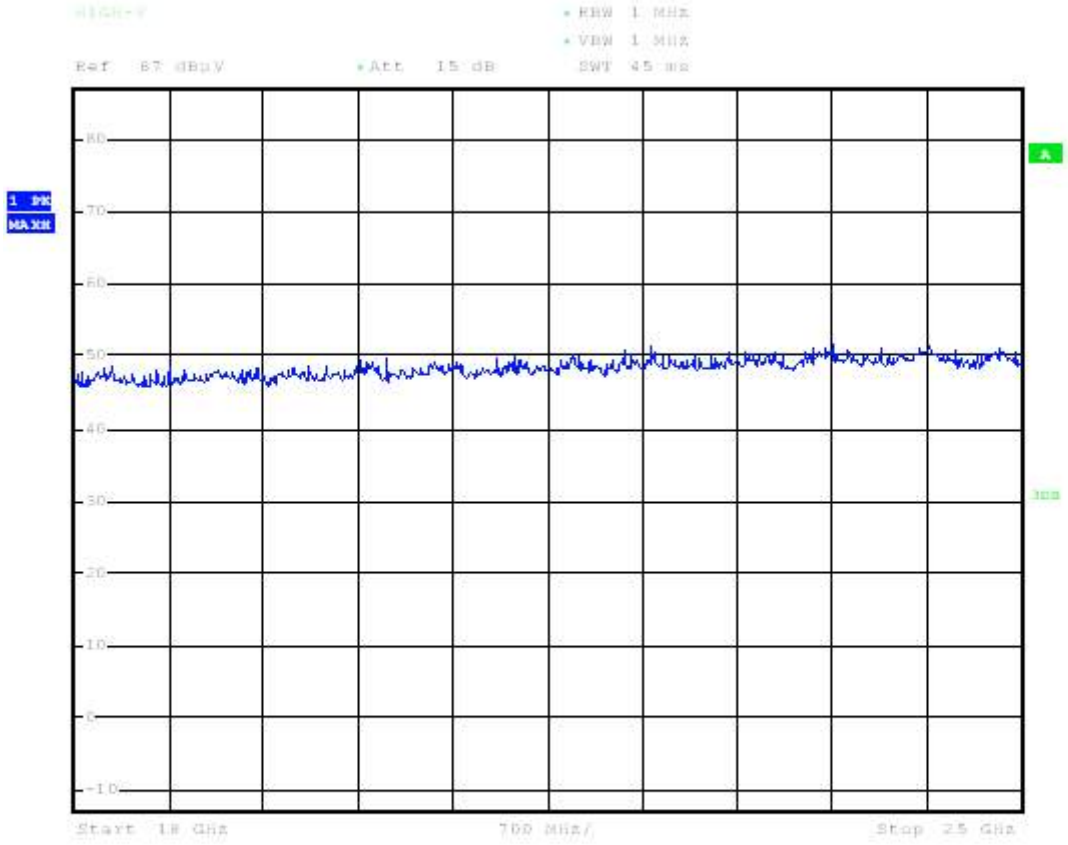


Date: 22.AUG.2017 10:09:59

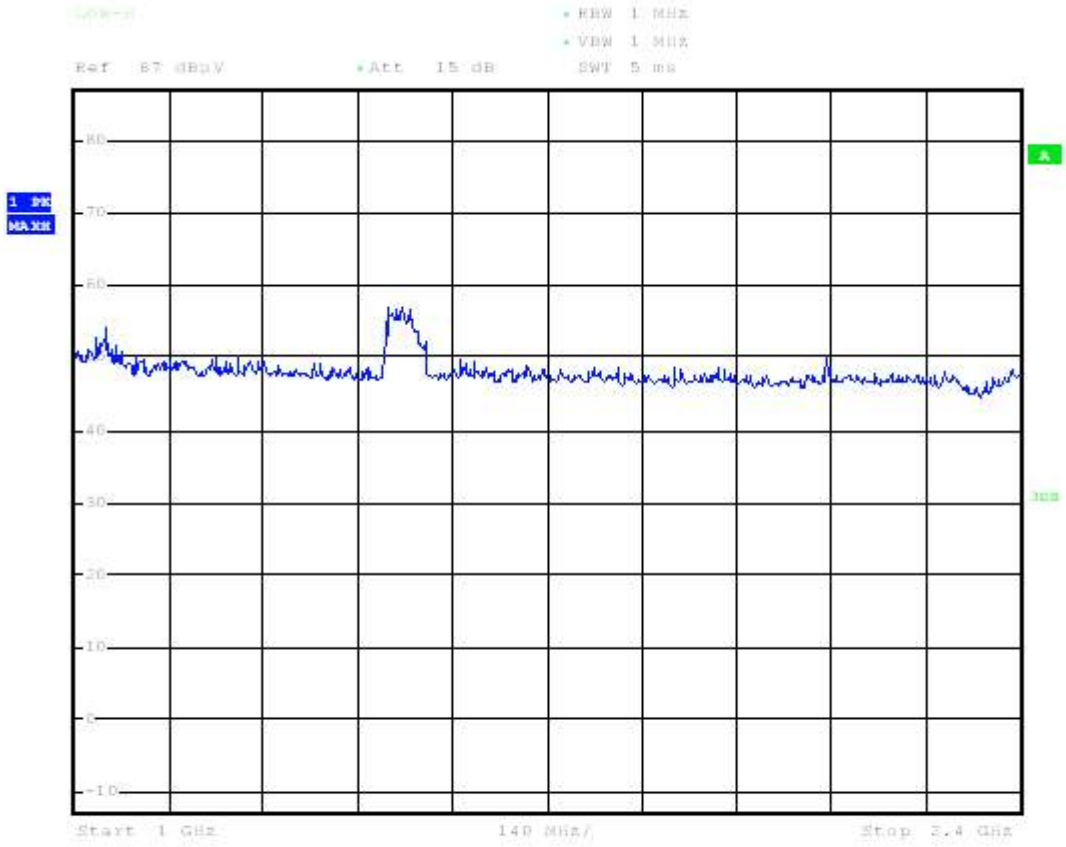
CH High (Vertical)



Date: 22.AUG.2017 10:12:50

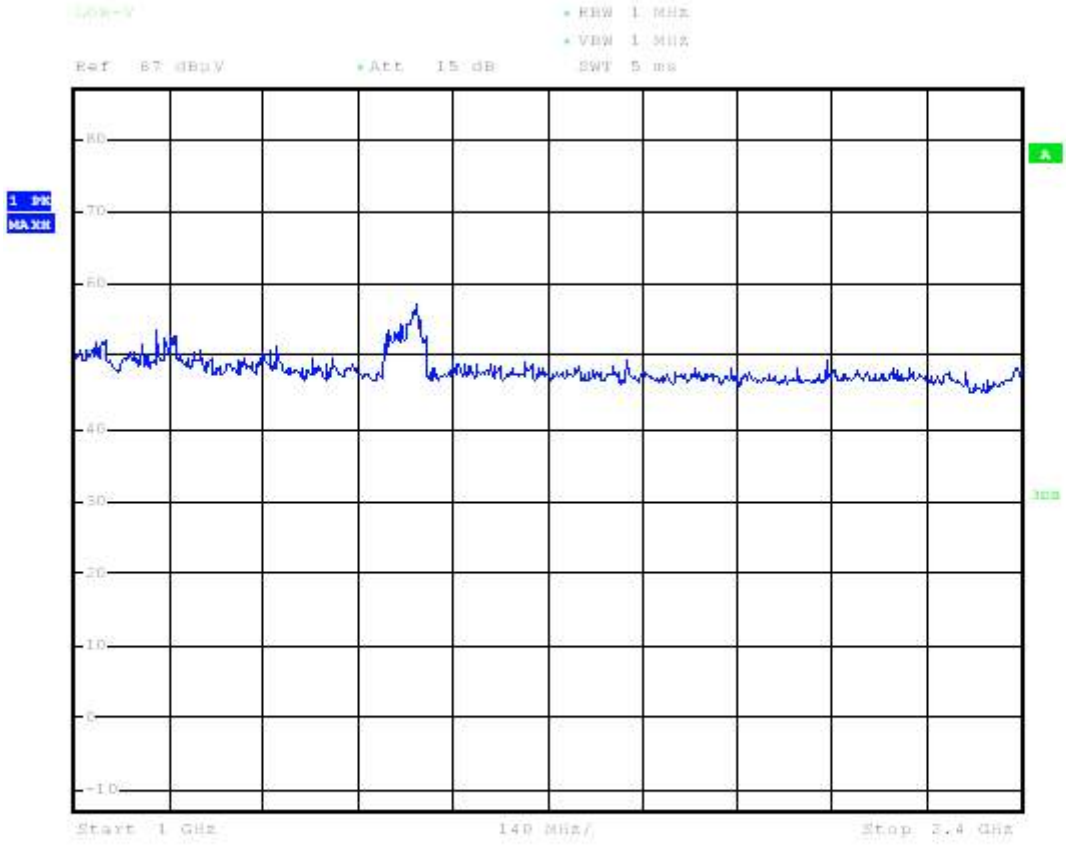
IEEE 802.11g

CH Low (Horizontal)



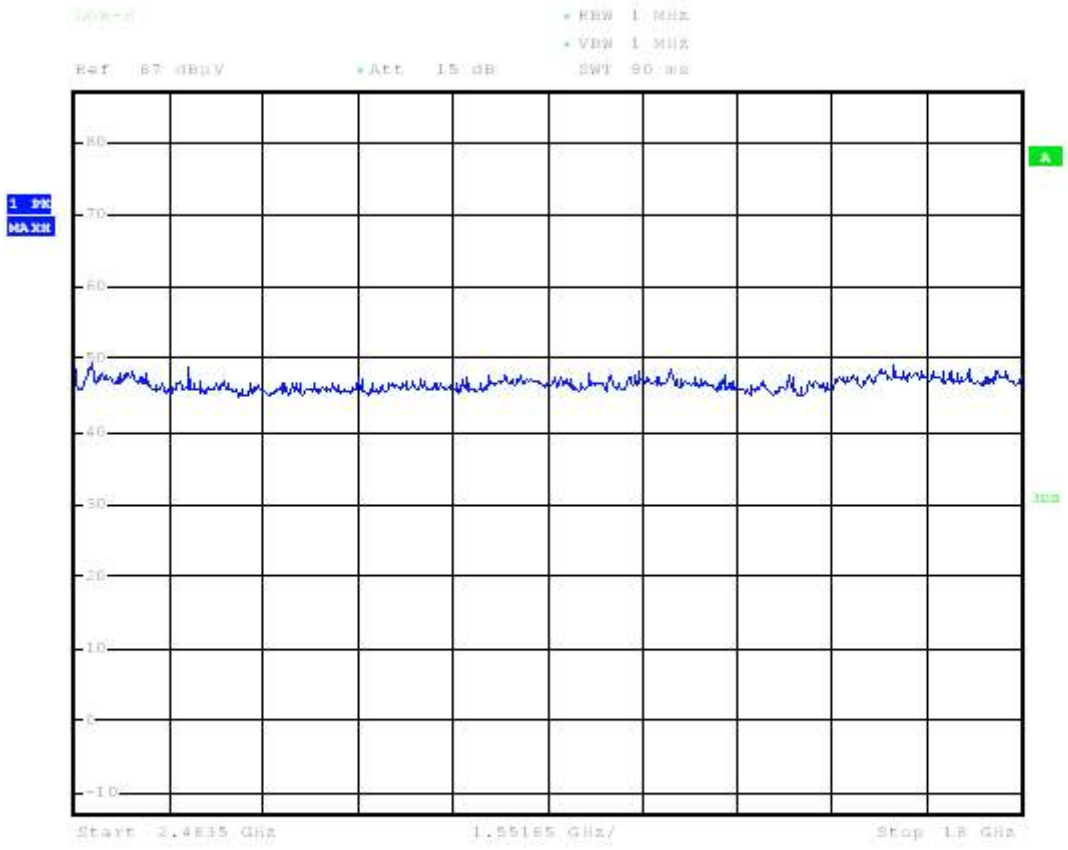
Date: 22.AUG.2017 10:34:39

CH Low (Vertical)



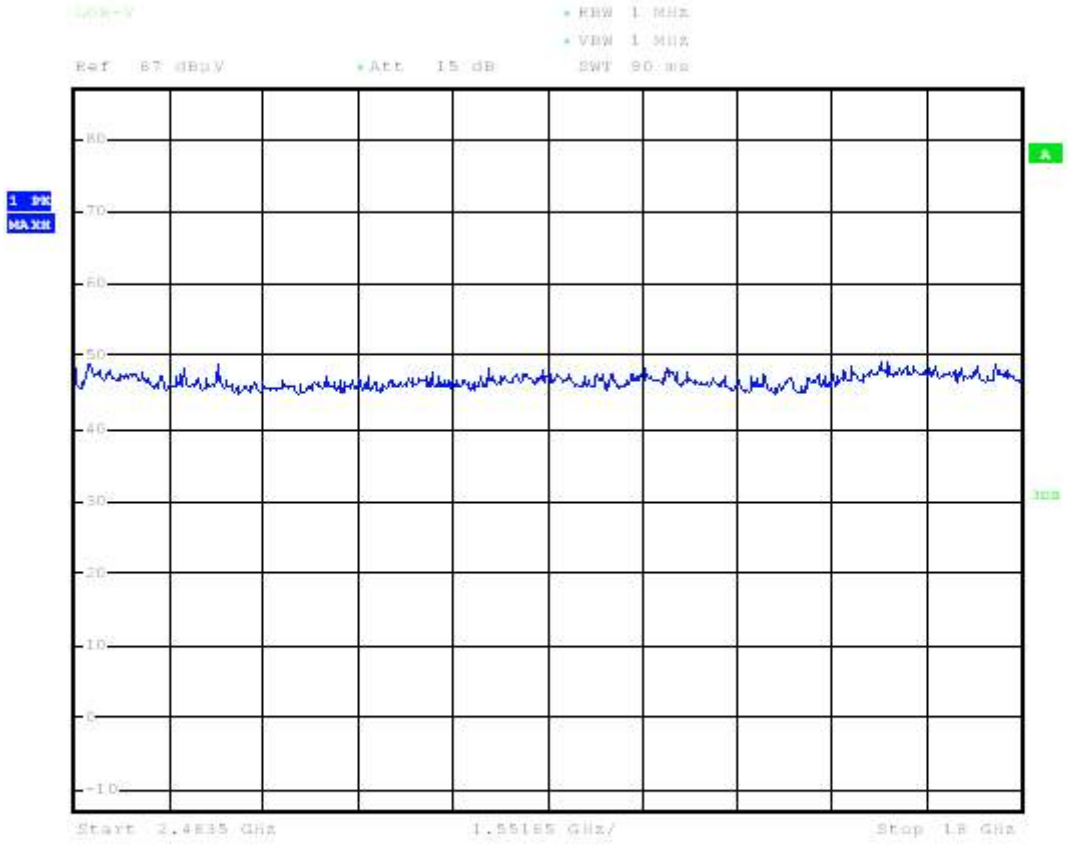
Date: 22.AUG.2017 10:37:22

CH Low (Horizontal)



Date: 22.AUG.2017 10:35:51

CH Low (Vertical)



Date: 22.AUG.2017 10:38:34

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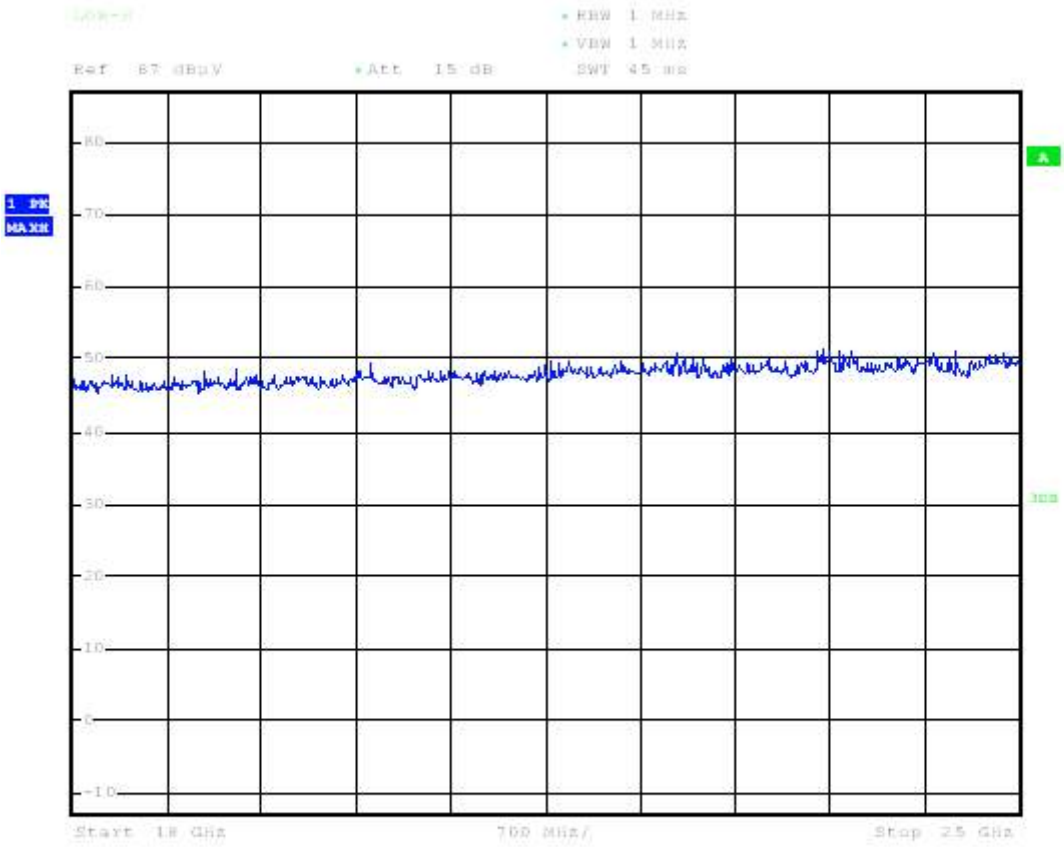

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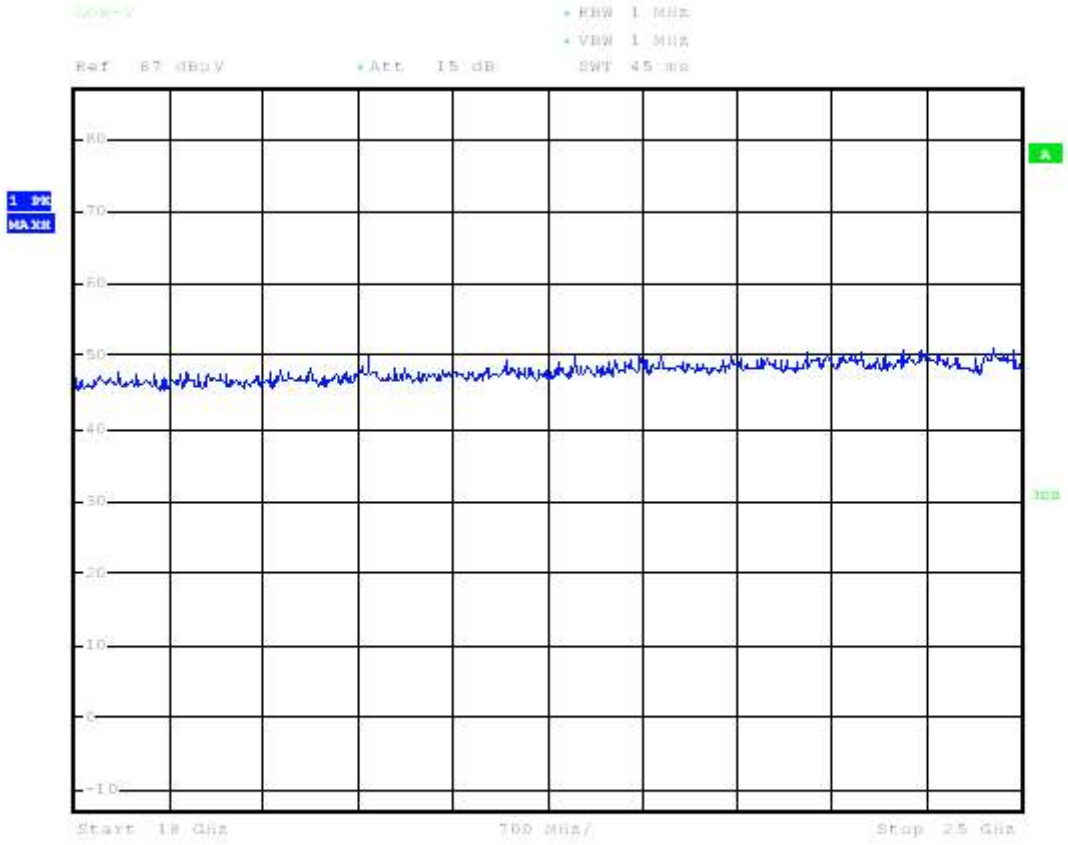
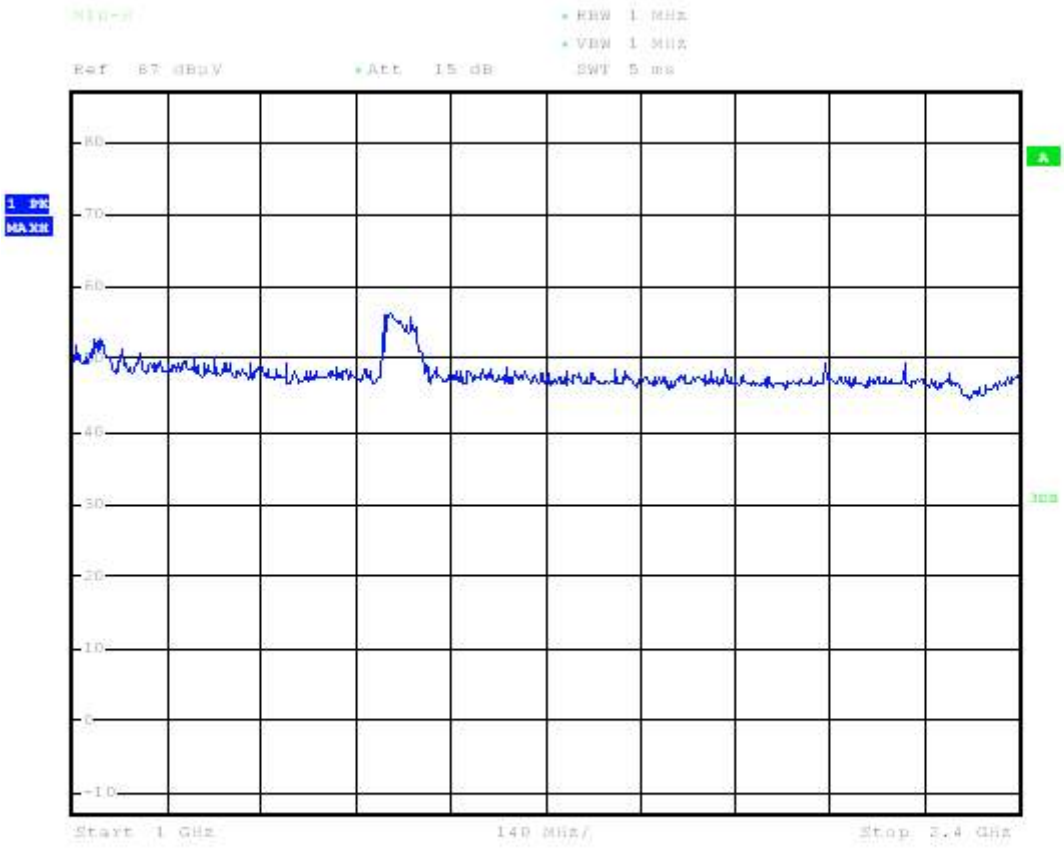


Date: 22.AUG.2017 10:38:54

CH Mid (Horizontal)



Date: 22.AUG.2017 10:48:52

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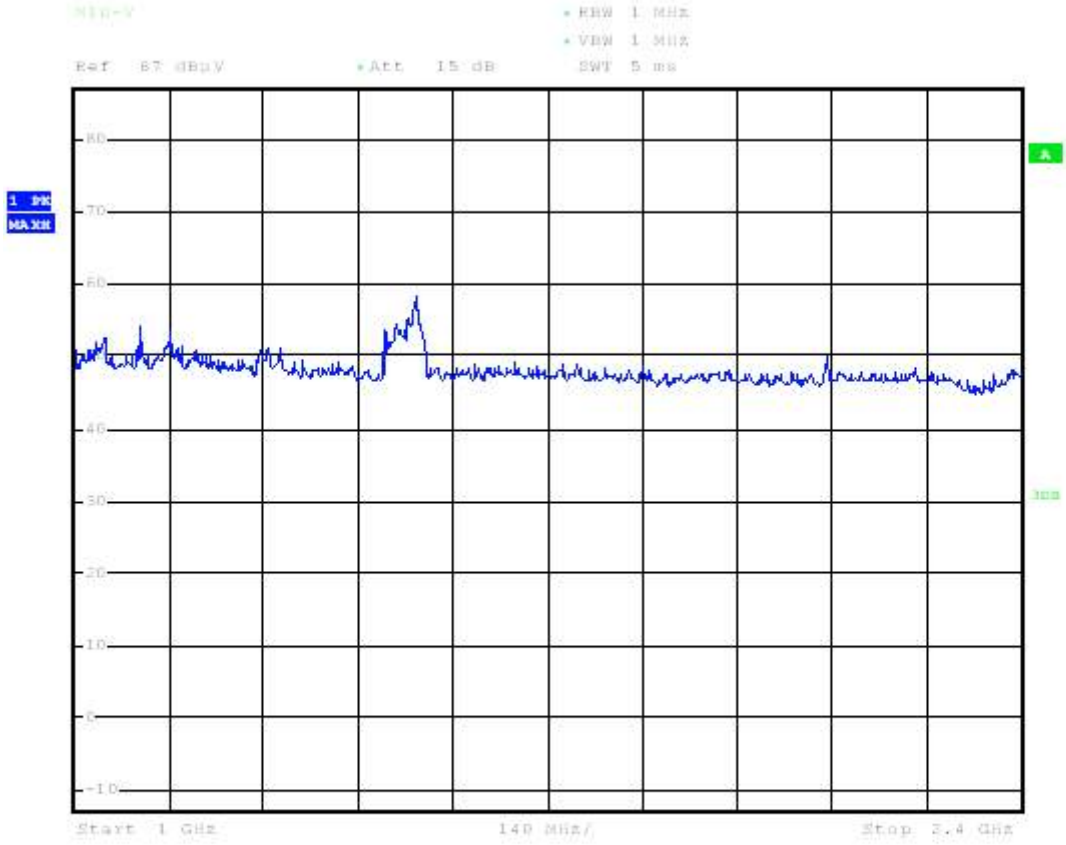

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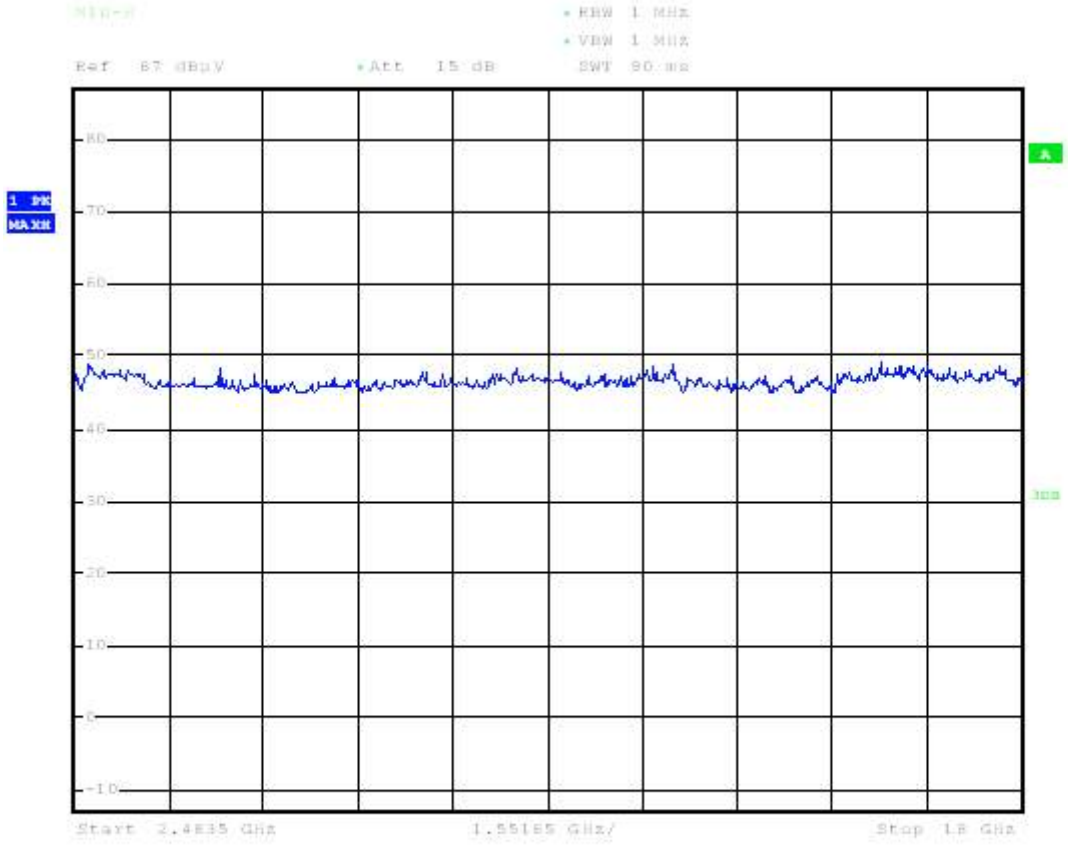

Date: 22.AUG.2017 10:50:04

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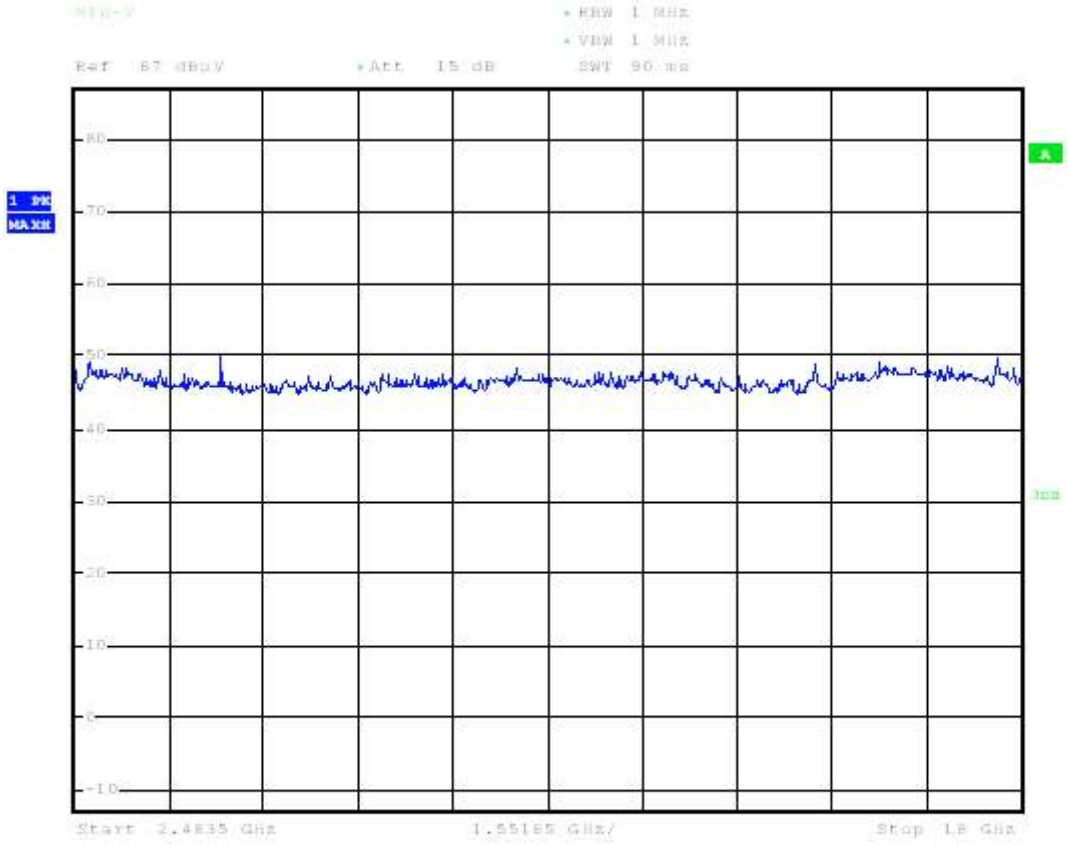
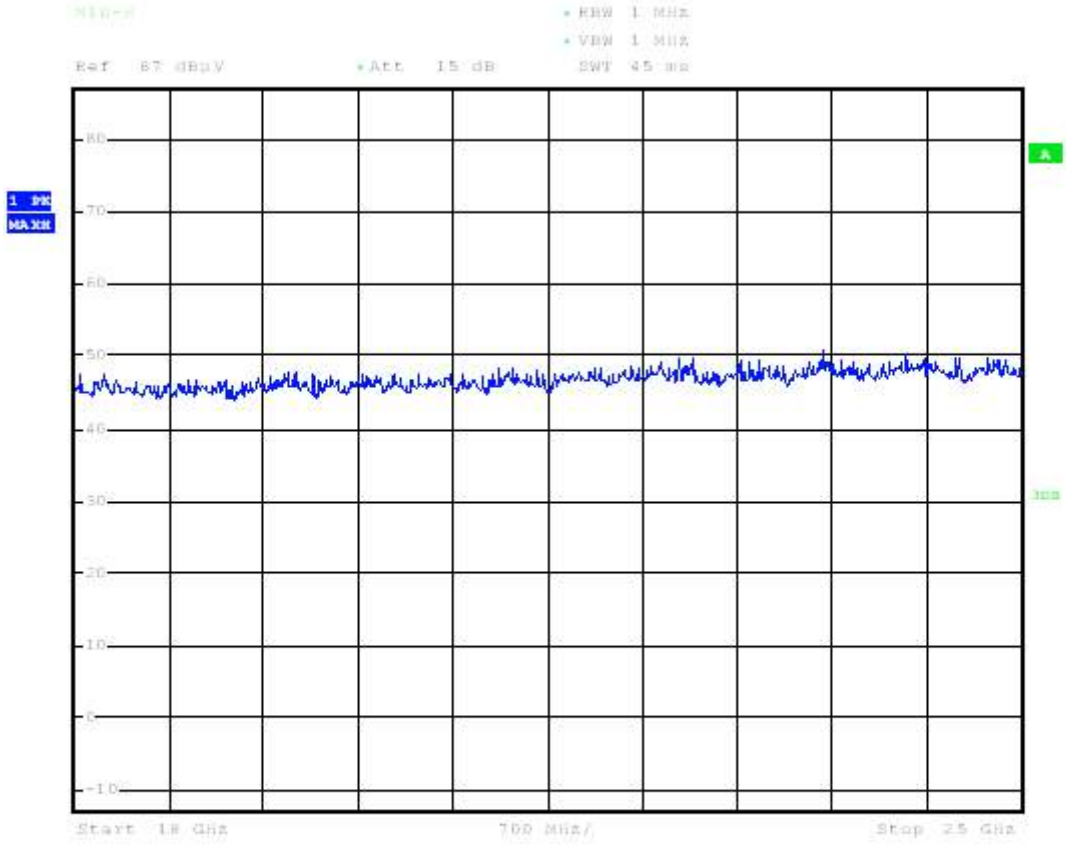


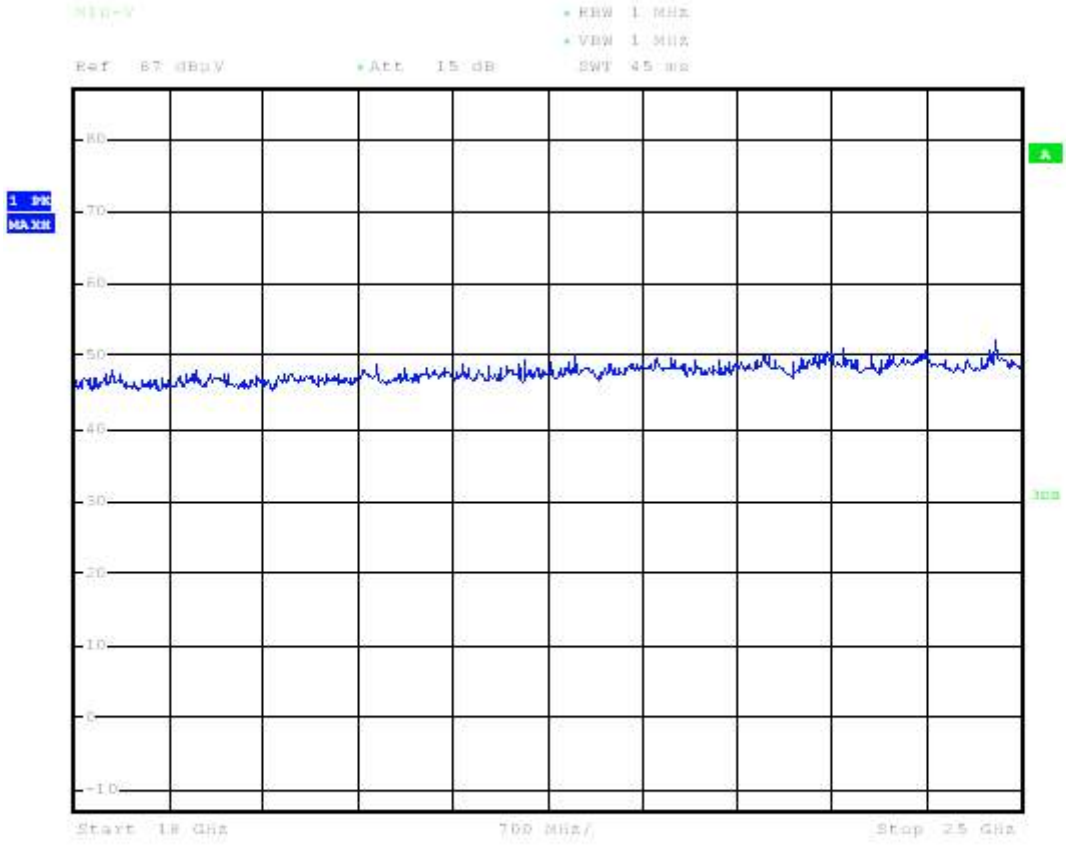
Date: 22.AUG.2017 10:52:47

CH Mid (Horizontal)



Date: 22.AUG.2017 10:50:24

CH Mid (Vertical)



Date: 22.AUG.2017 10:53:07

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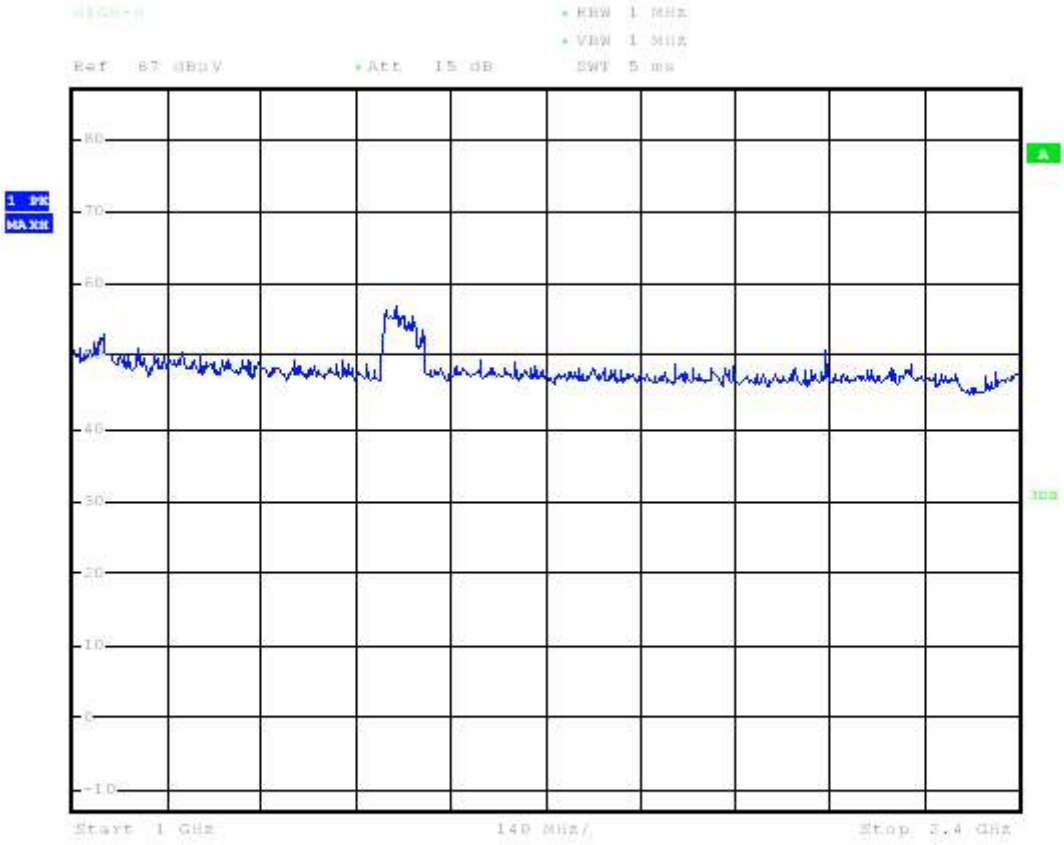

Date: 22.AUG.2017 11:05:43

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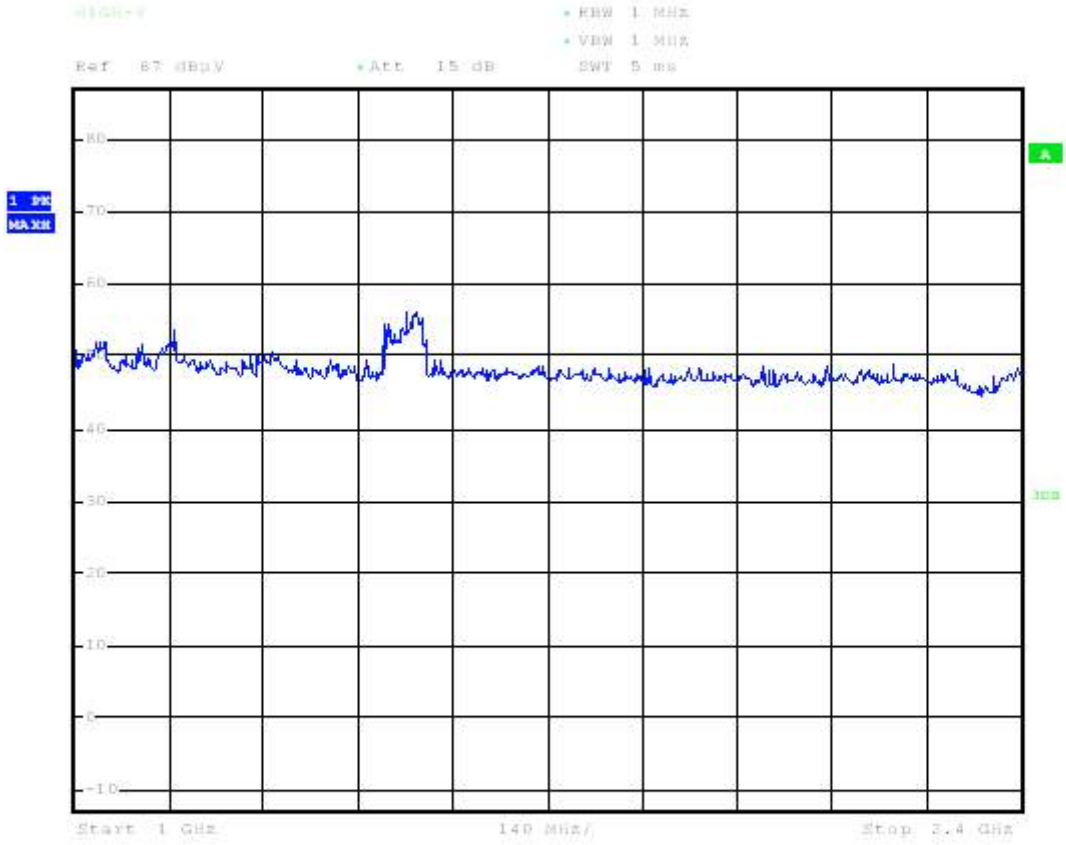

Date: 22.AUG.2017 11:08:26

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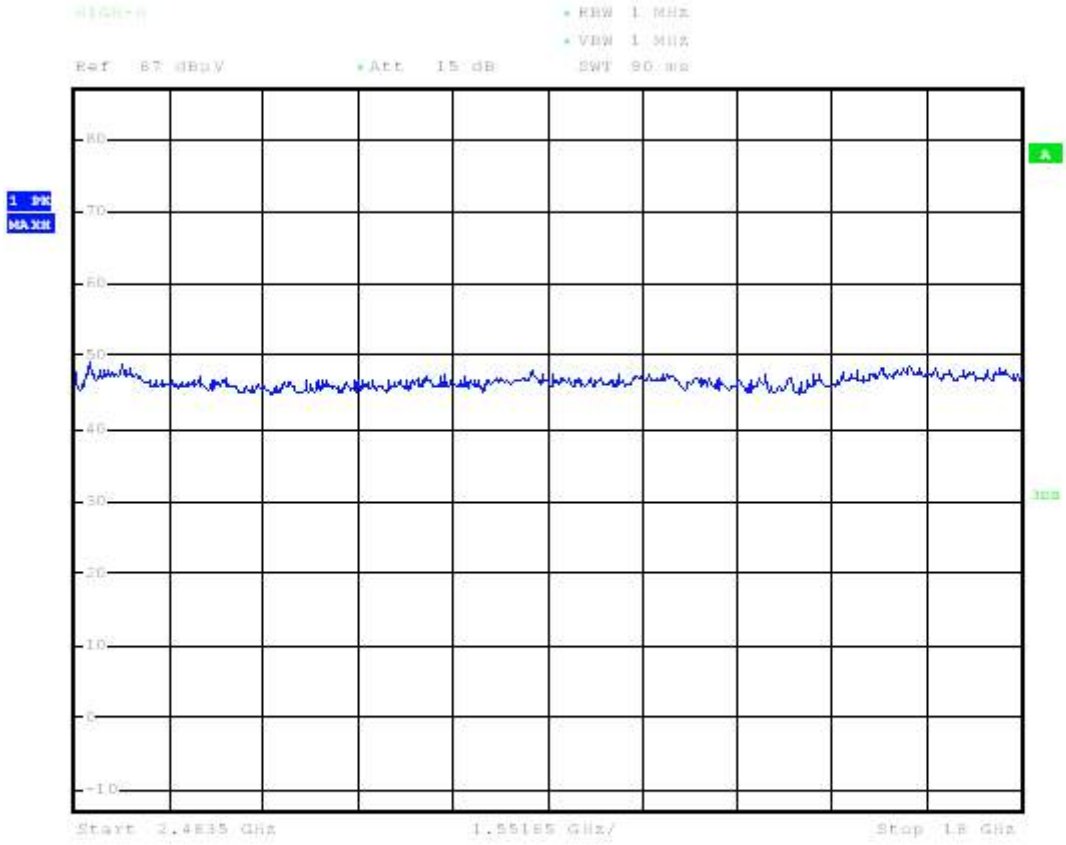

Date: 22.AUG.2017 11:06:54

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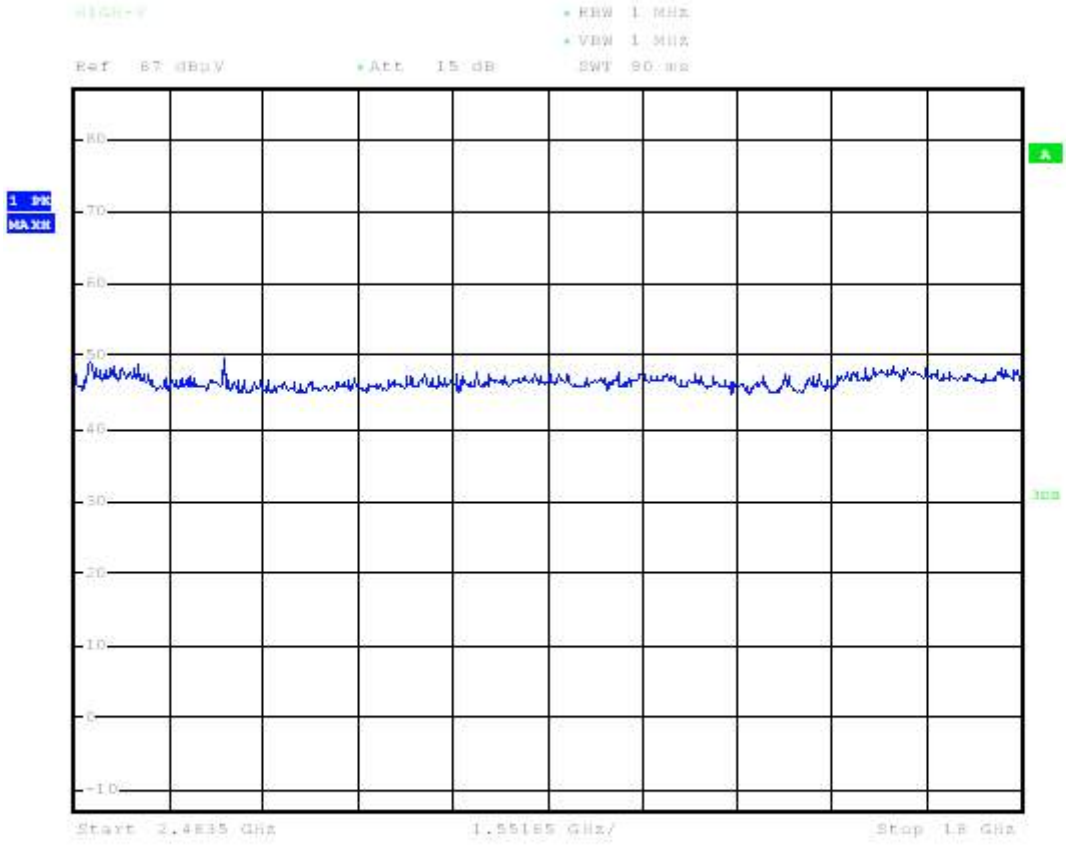

Date: 22.AUG.2017 11:09:37

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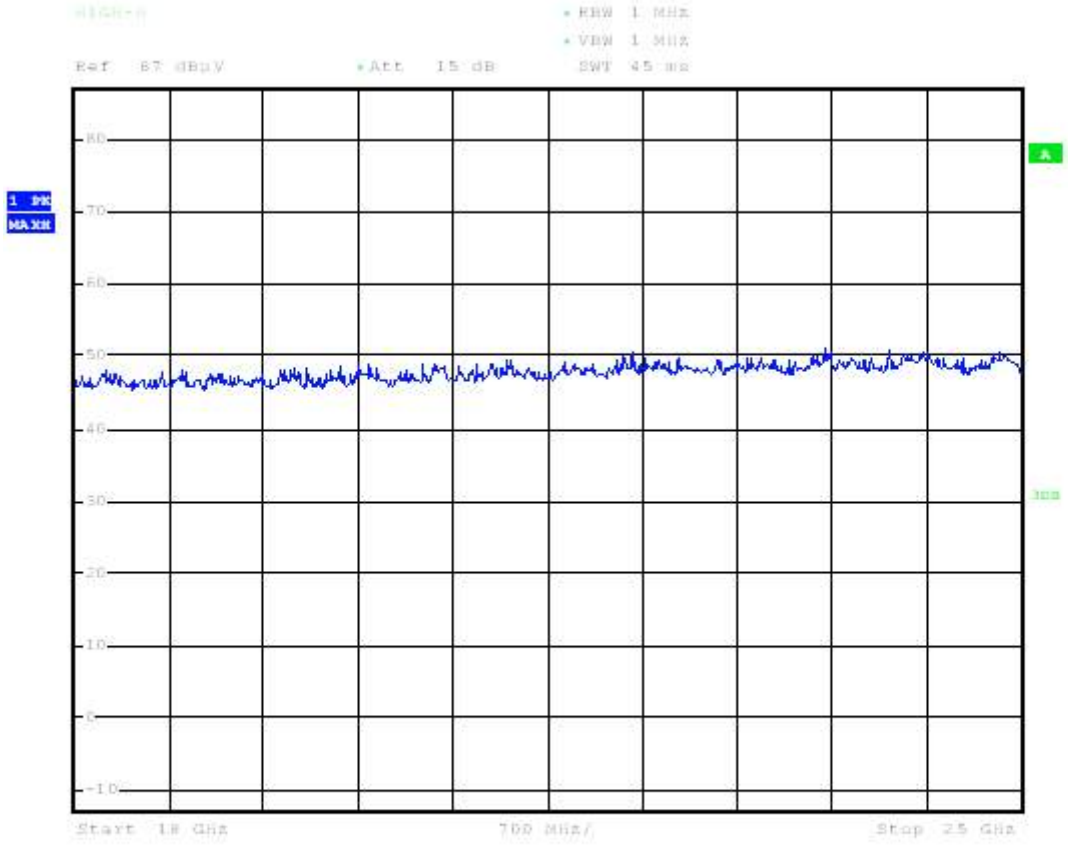

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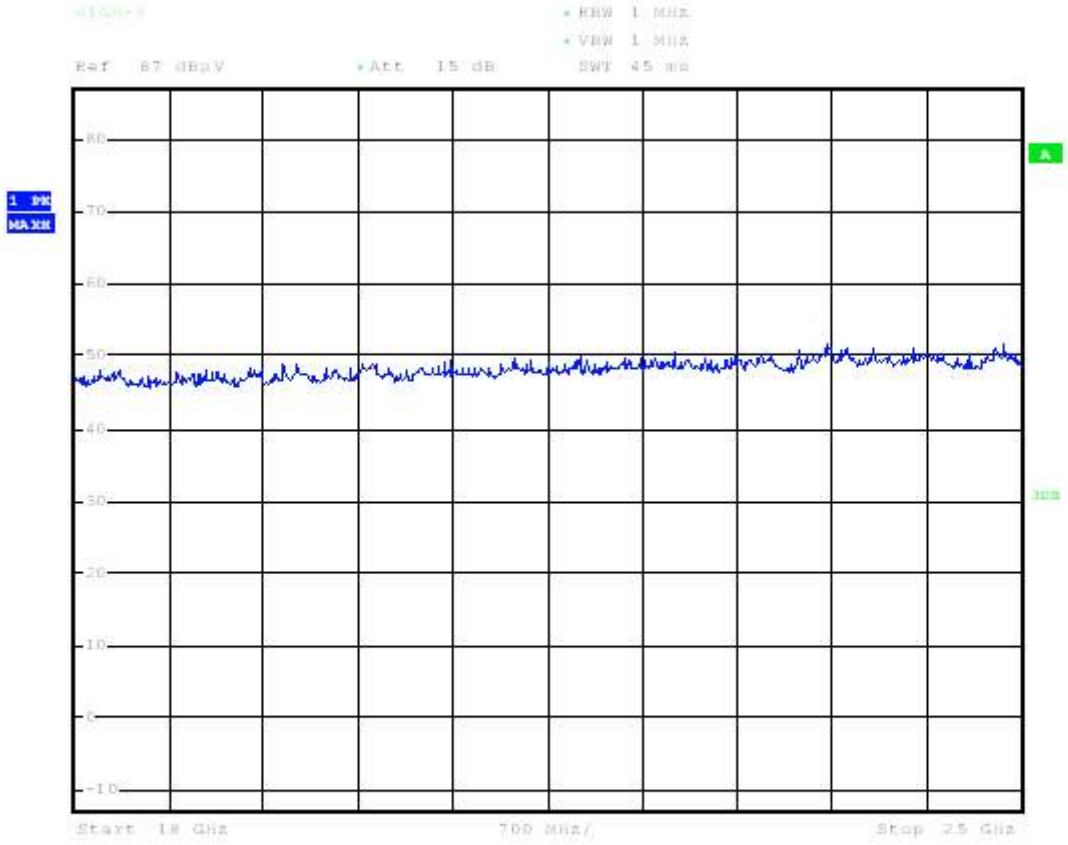

Date: 22.AUG.2017 11:10:05

IEEE 802.11n HT20
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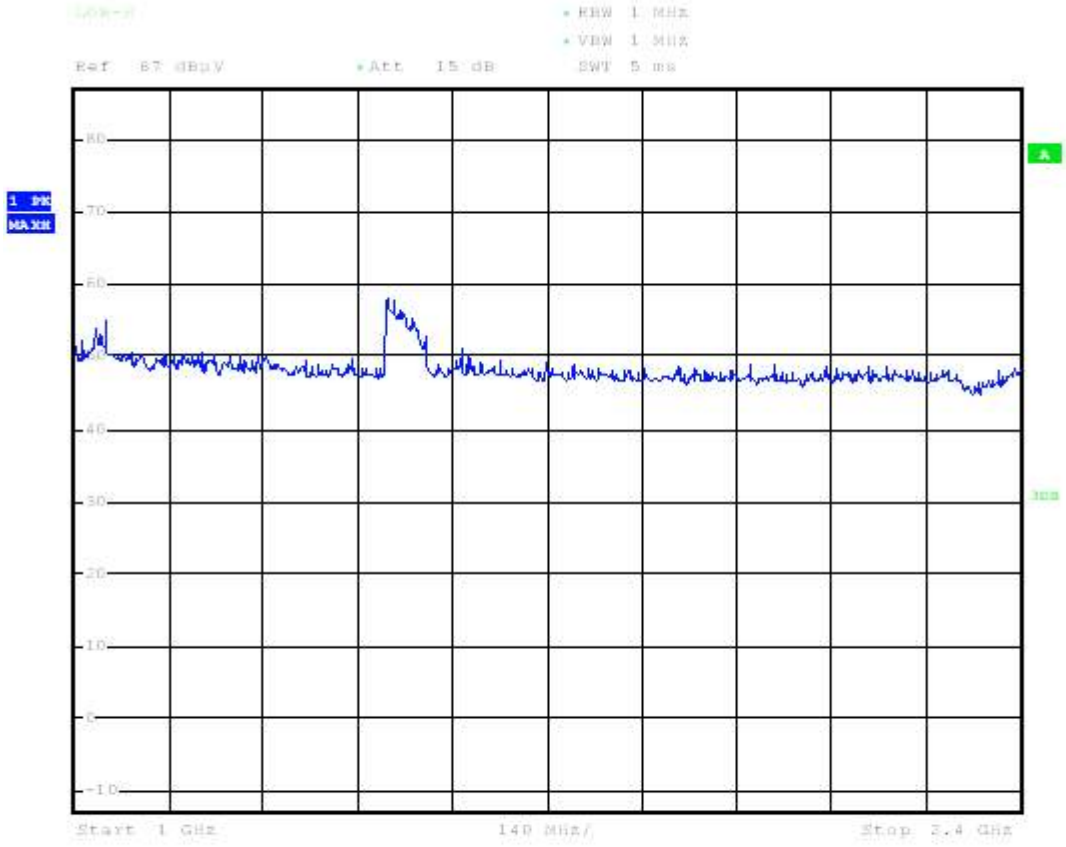

Date: 22.AUG.2017 12:09:45

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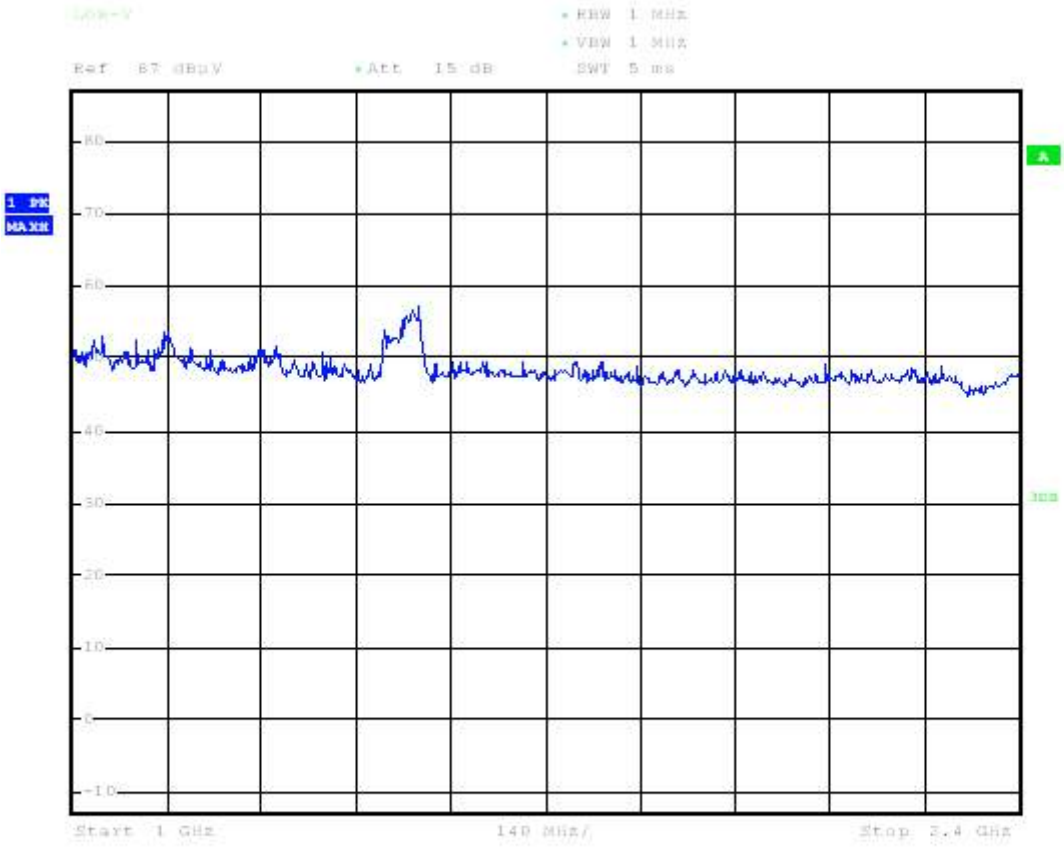

Date: 22.AUG.2017 12:12:28

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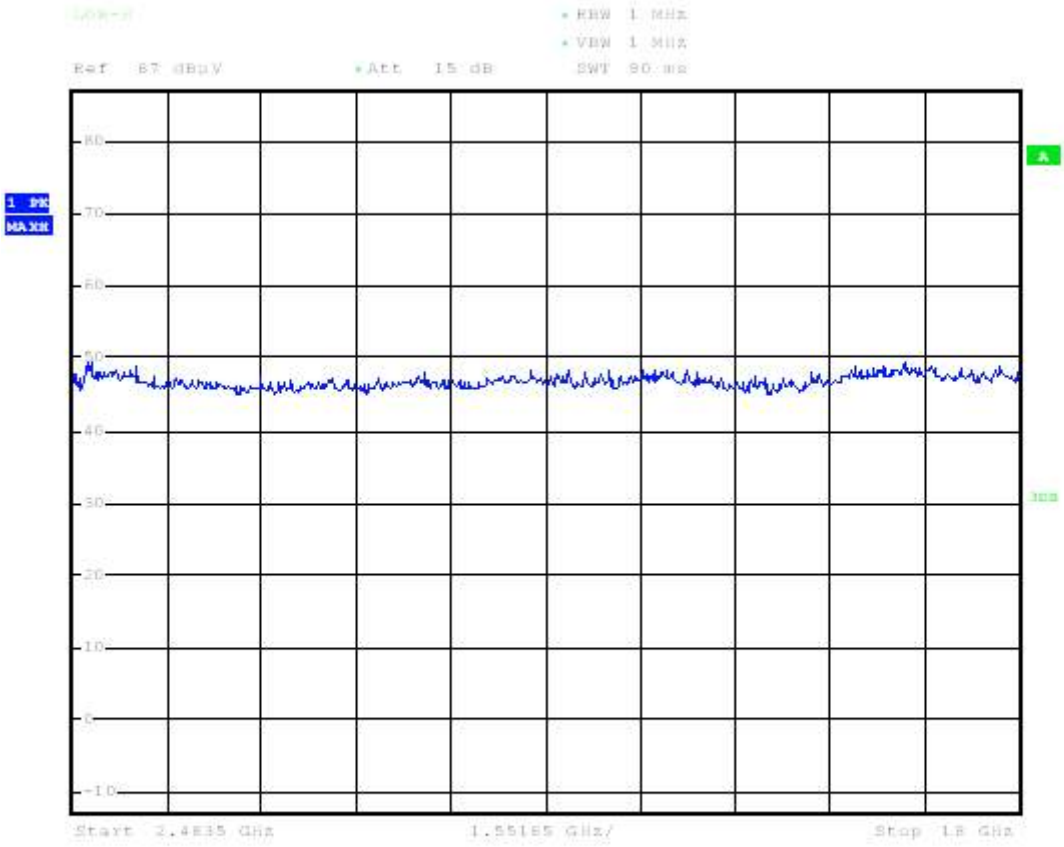

Date: 22.AUG.2017 12:10:57

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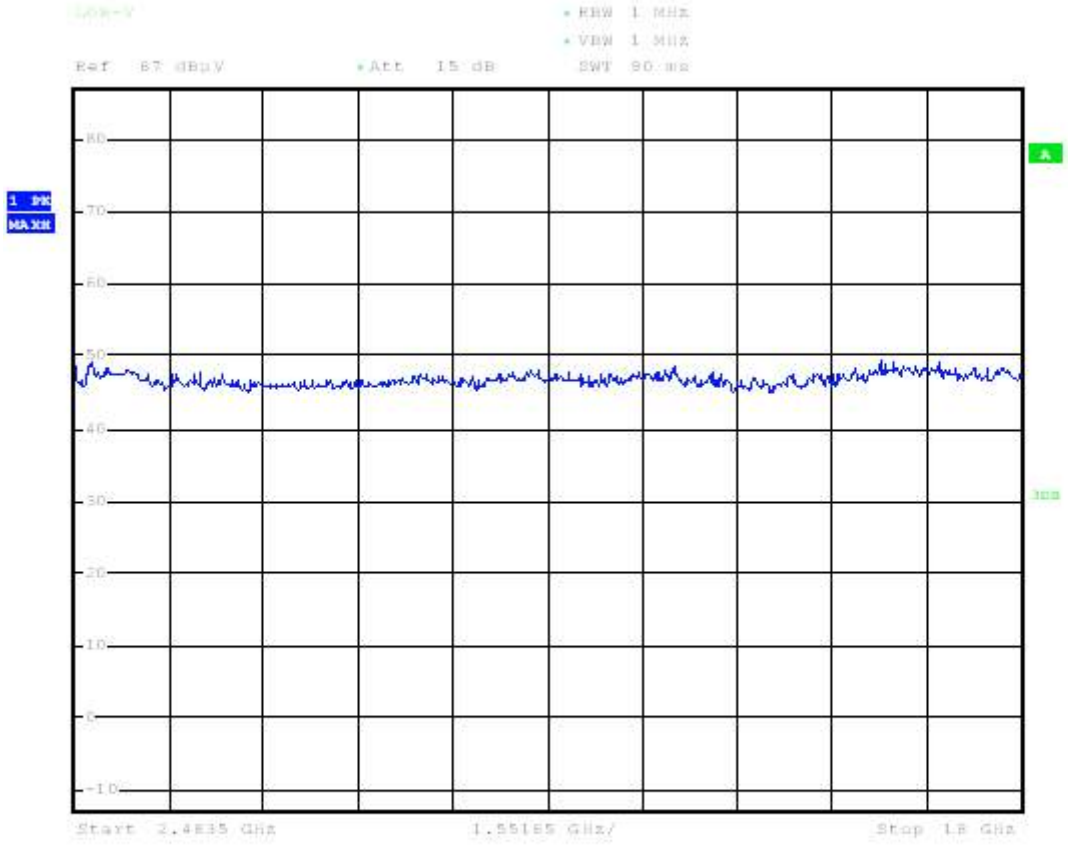
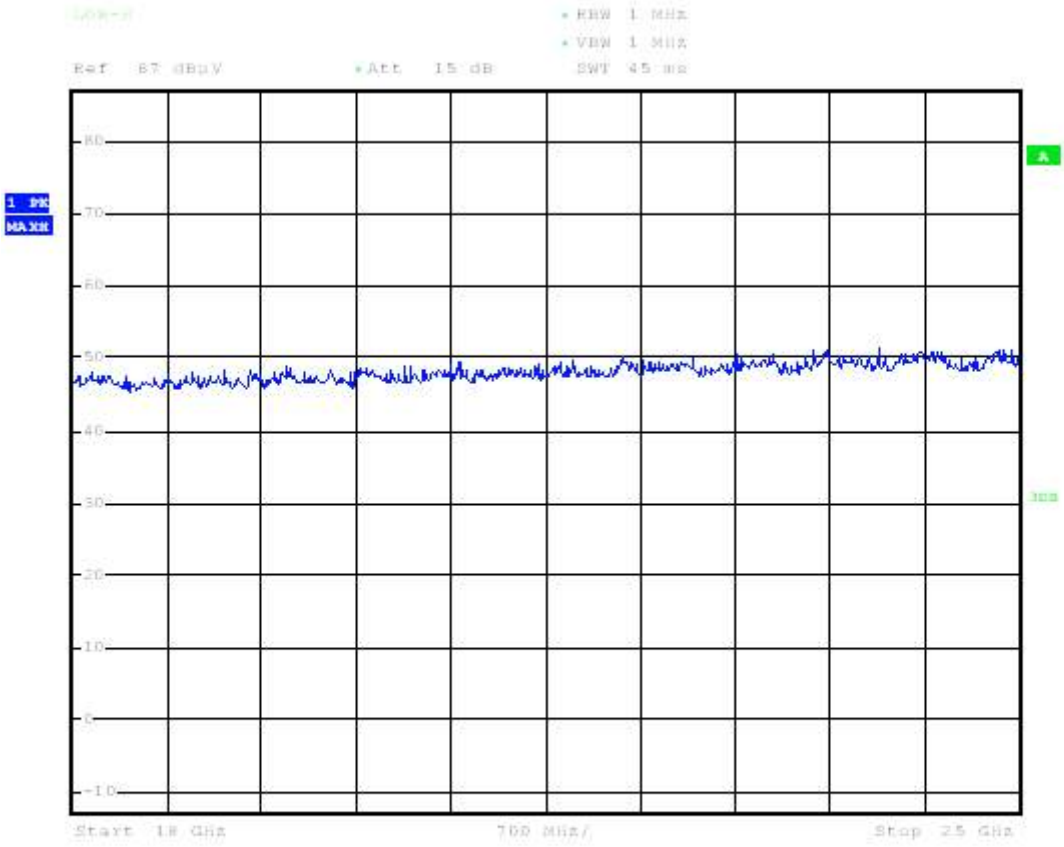


Date: 22.AUG.2017 12:13:39

CH Low (Horizontal)



Date: 22.AUG.2017 12:11:17

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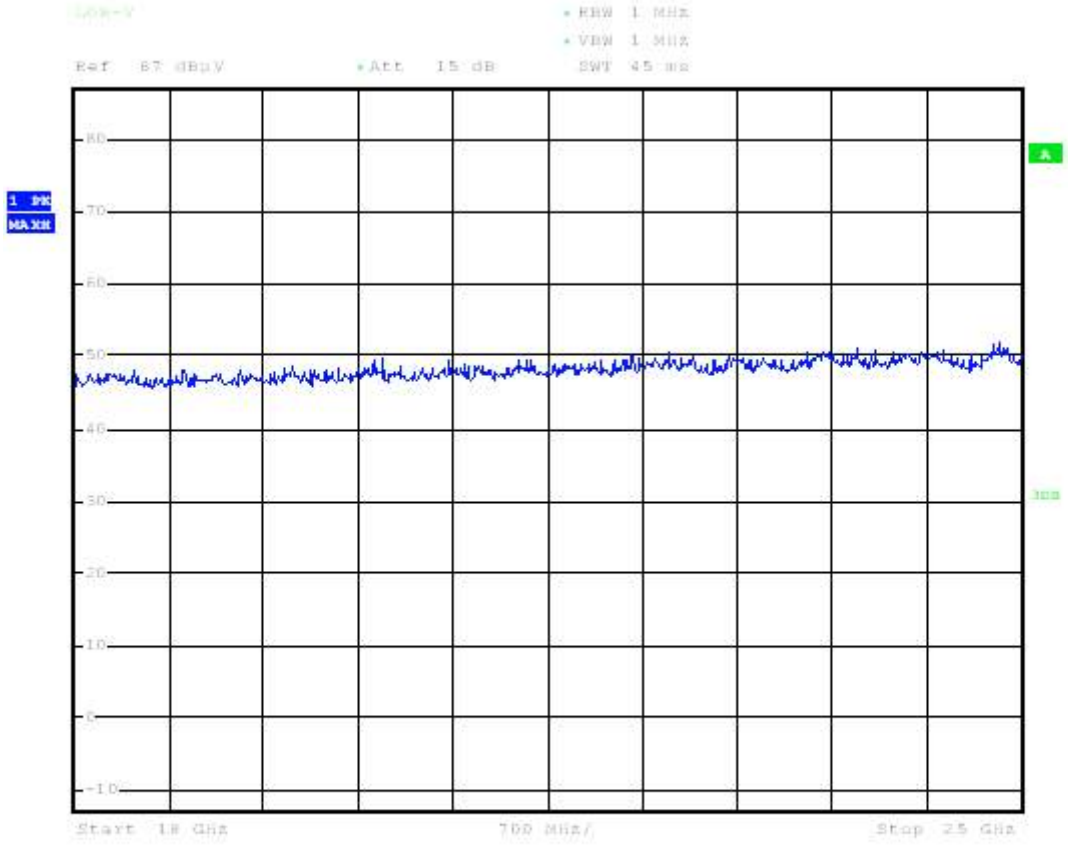
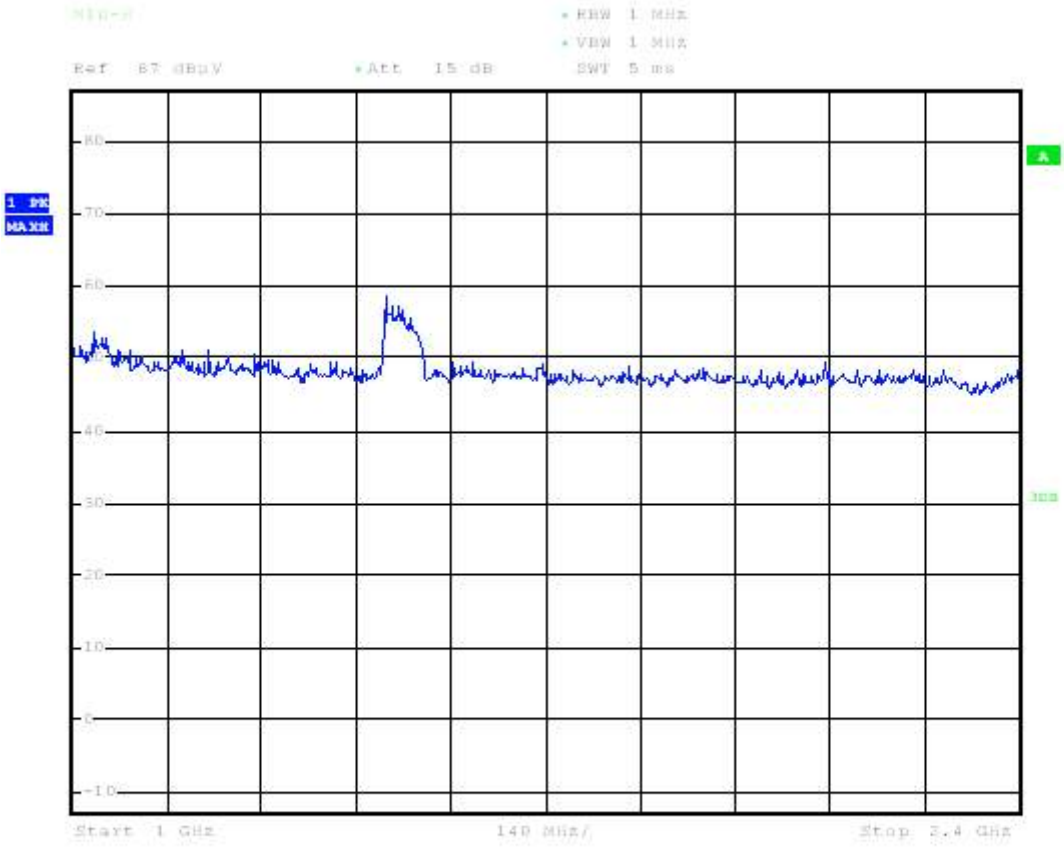


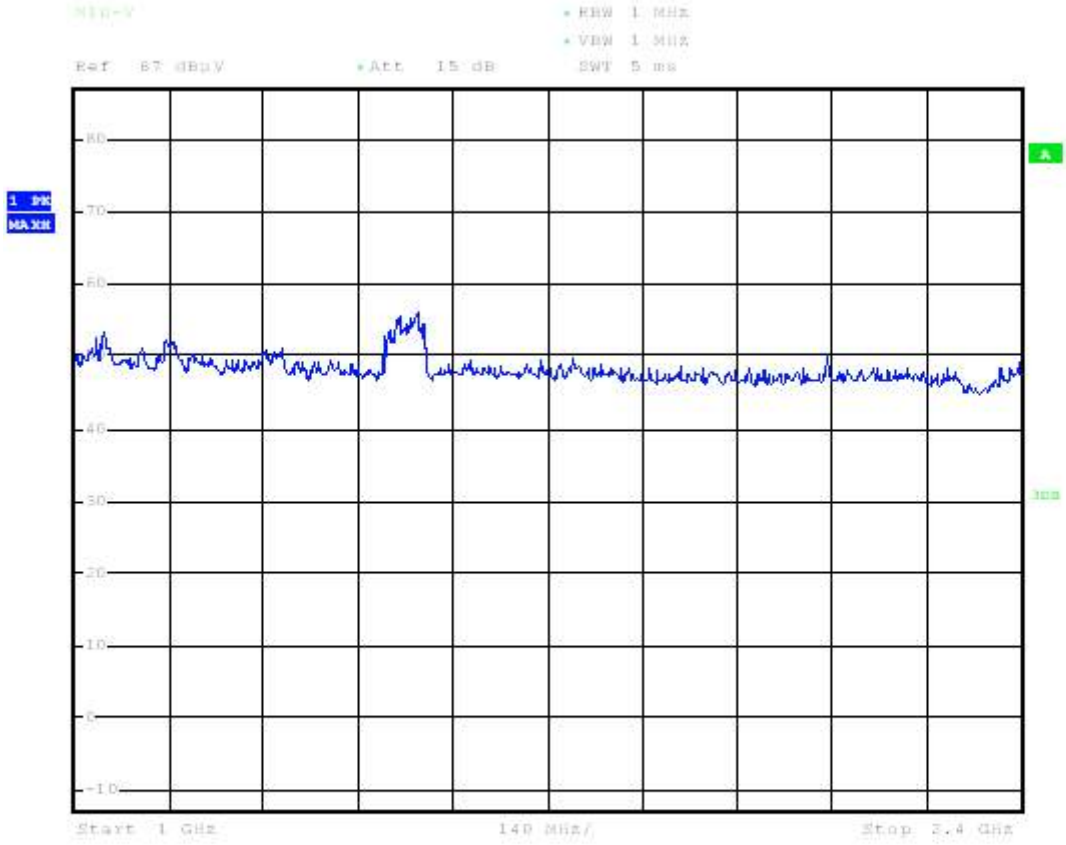
Date: 22.AUG.2017 12:13:59

CH Mid (Horizontal)



Date: 22.AUG.2017 12:22:06

CH Mid (Vertical)



Date: 22.AUG.2017 12:24:48

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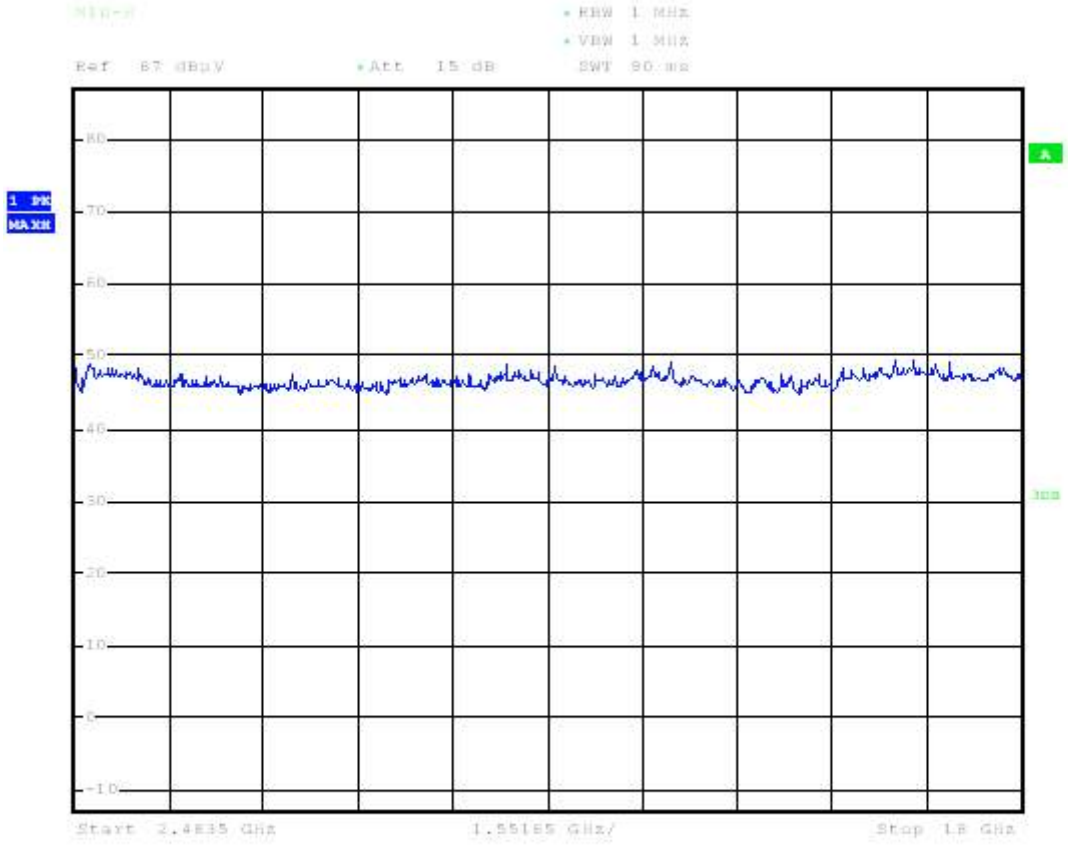
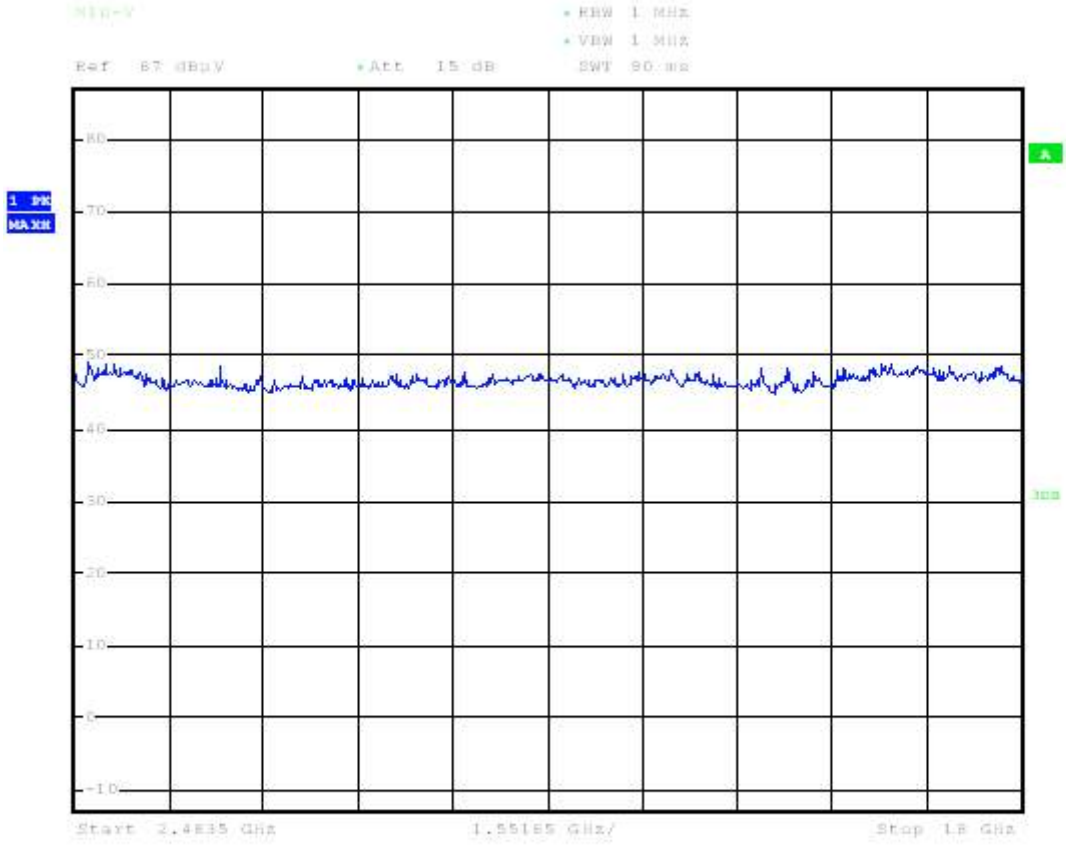


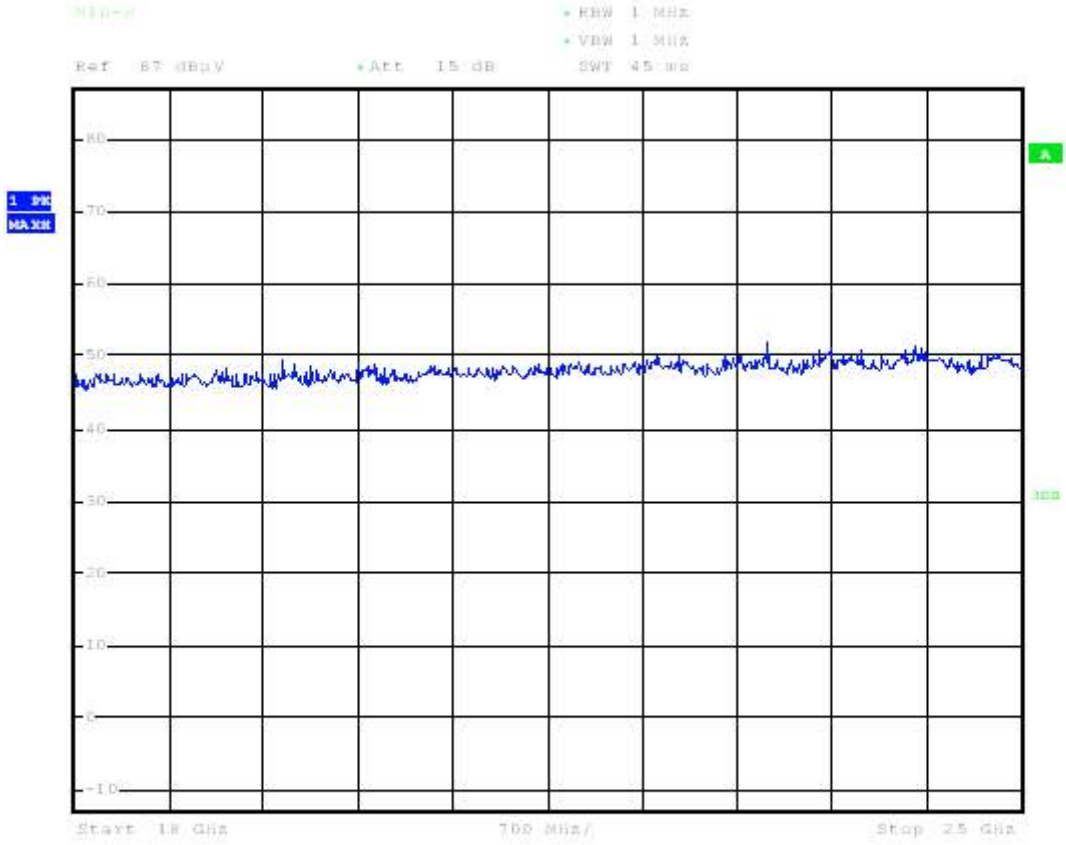
Date: 22.AUG.2017 12:23:17

CH Mid (Vertical)



Date: 22.AUG.2017 12:25:59

CH Mid (Horizontal)



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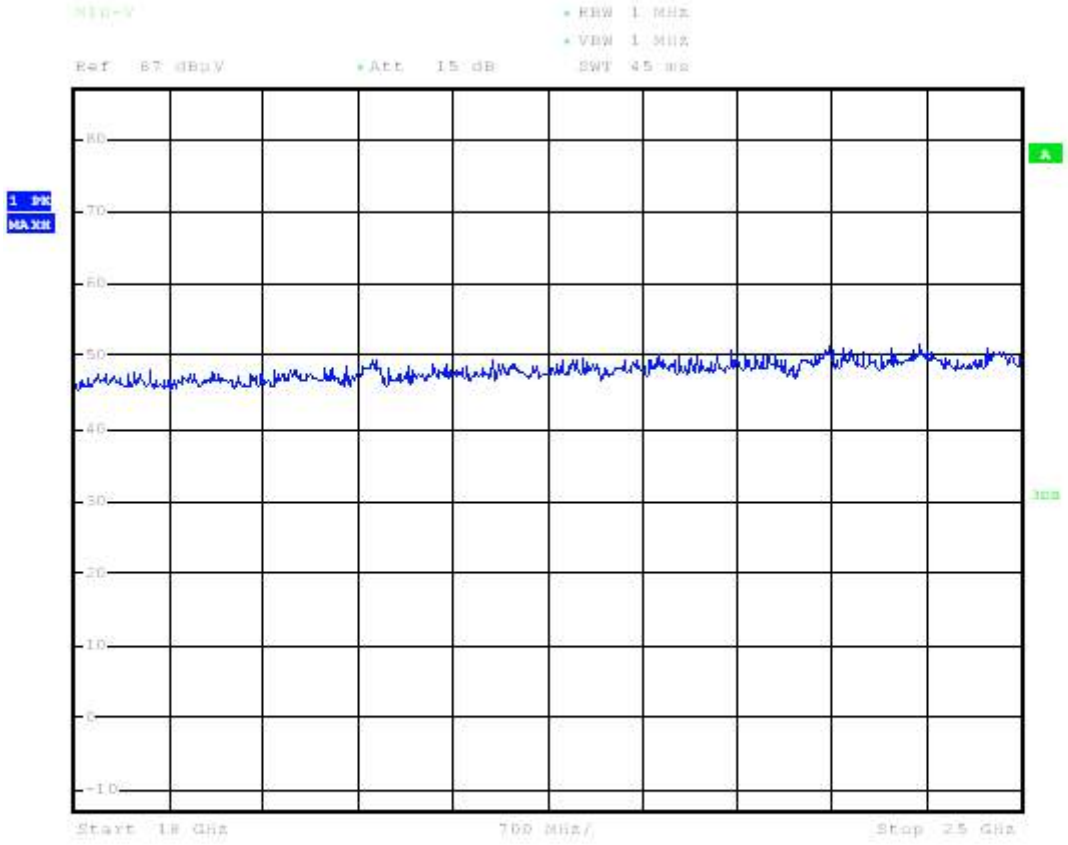

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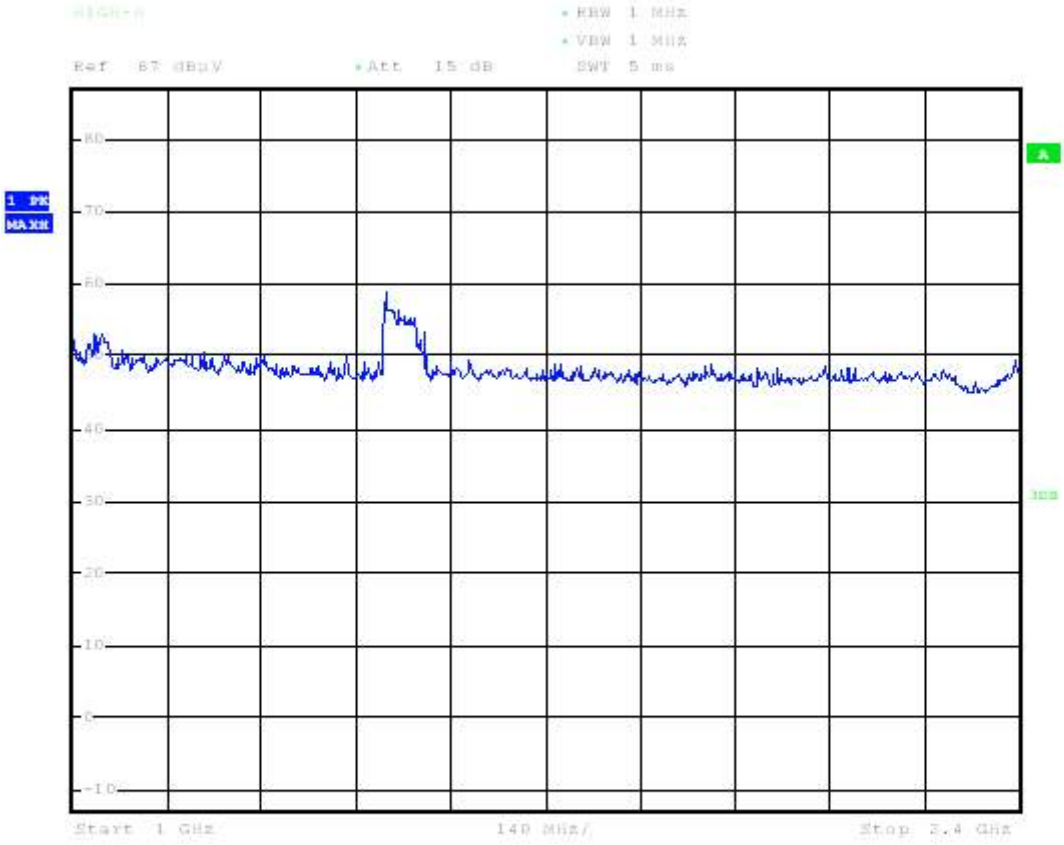

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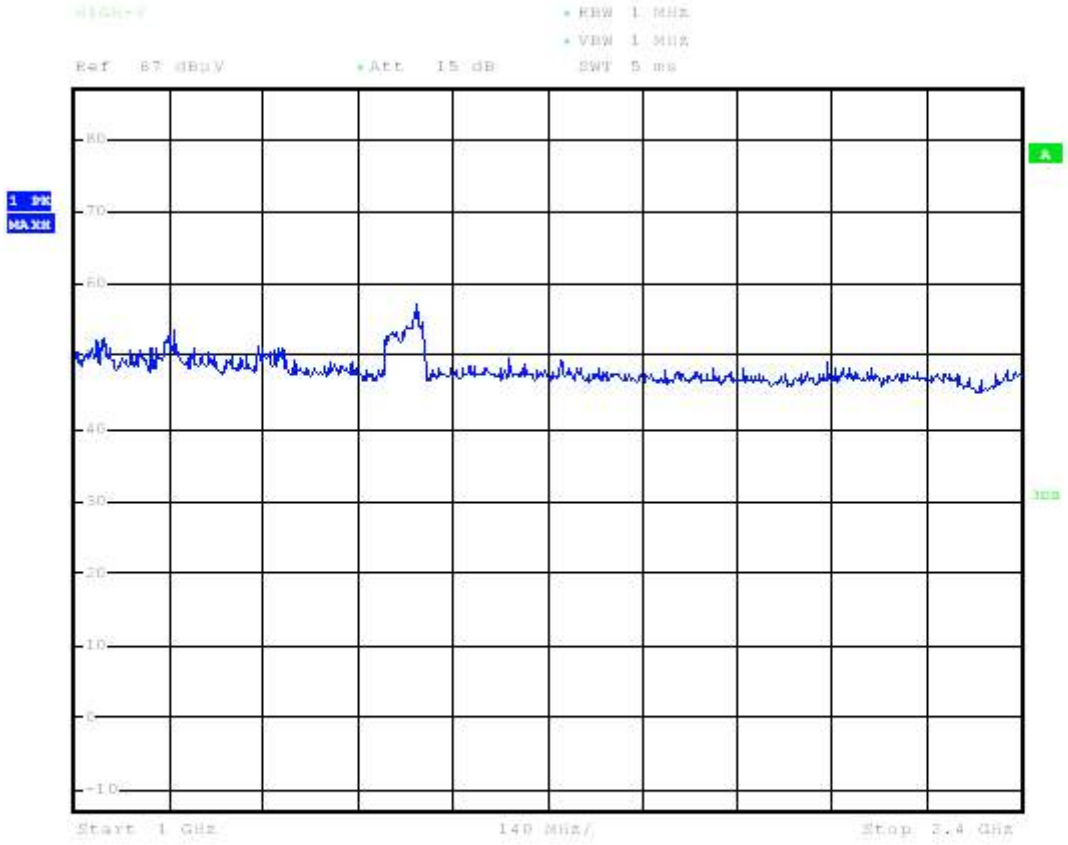
CH High (Vertical)



Date: 22.AUG.2017 12:42:36

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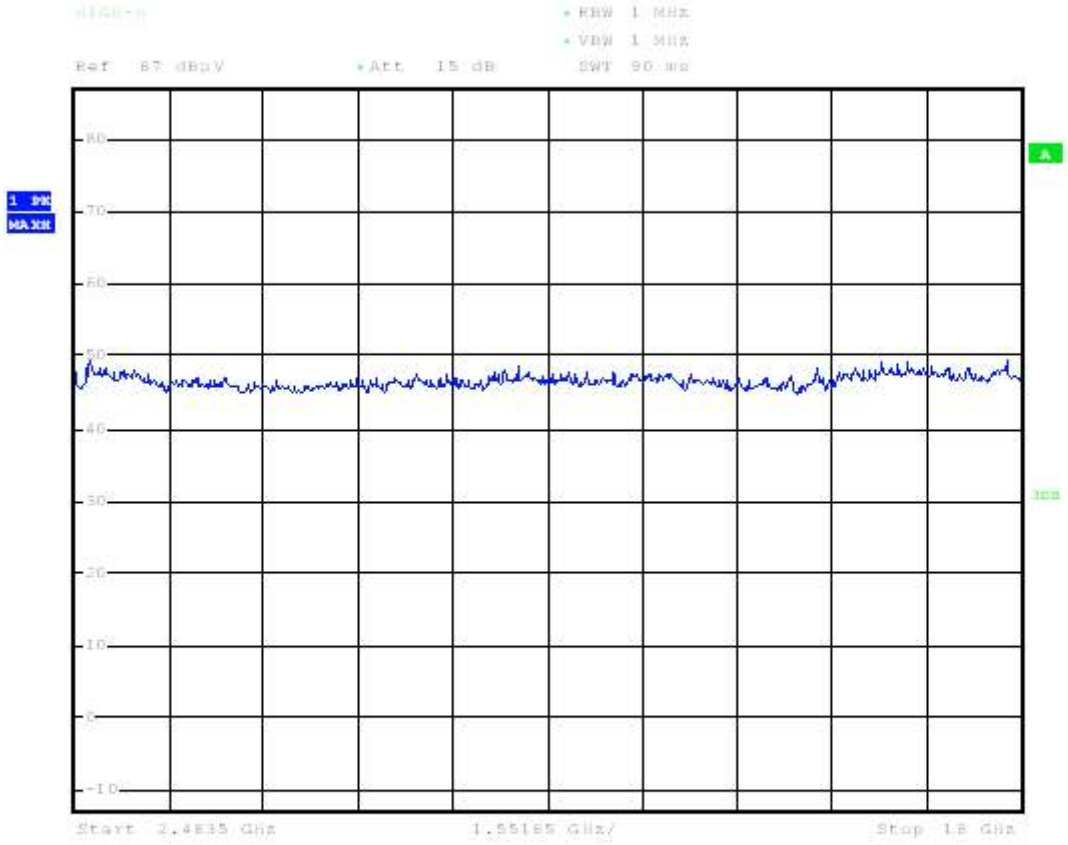

Date: 22.AUG.2017 12:41:04

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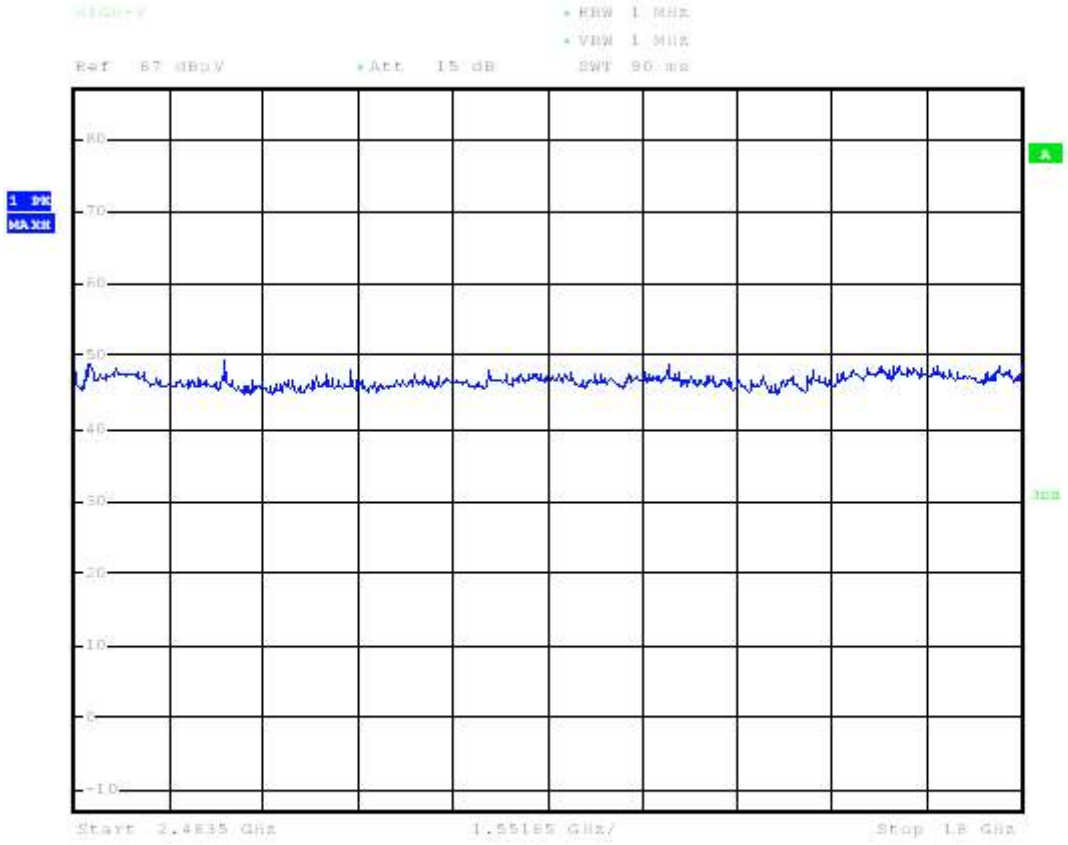

Date: 22.AUG.2017 12:43:47

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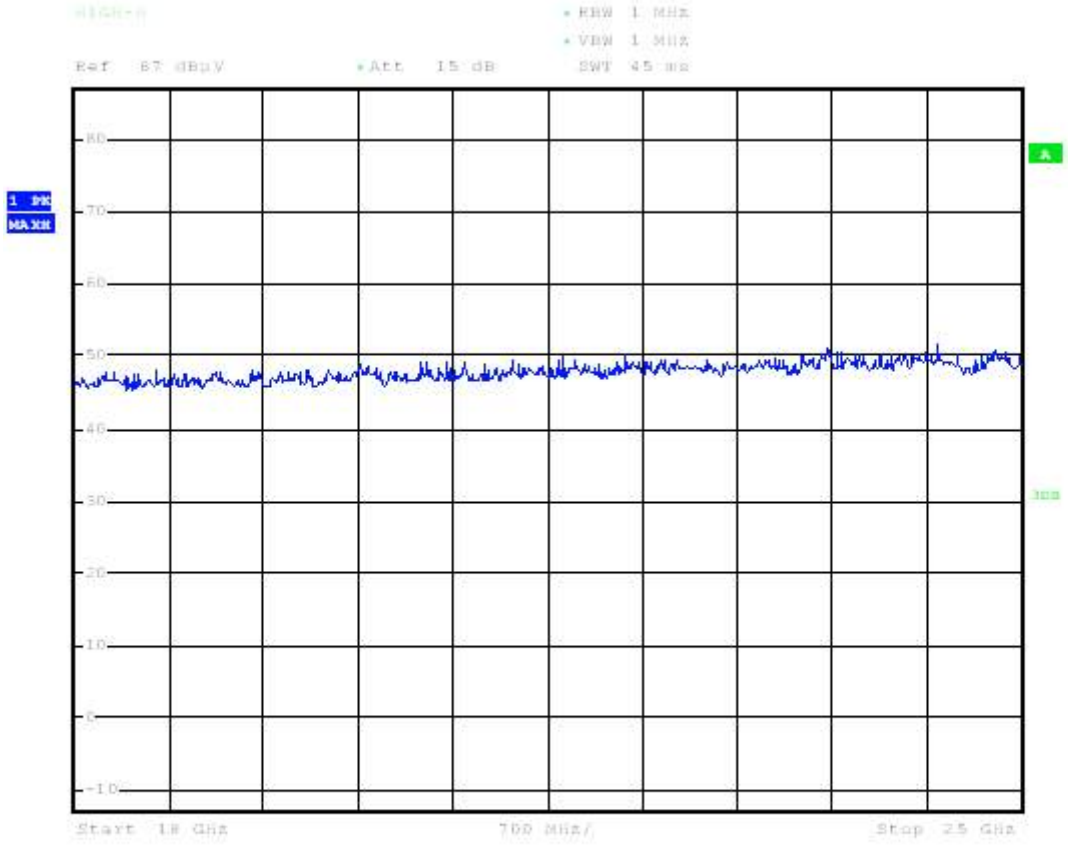

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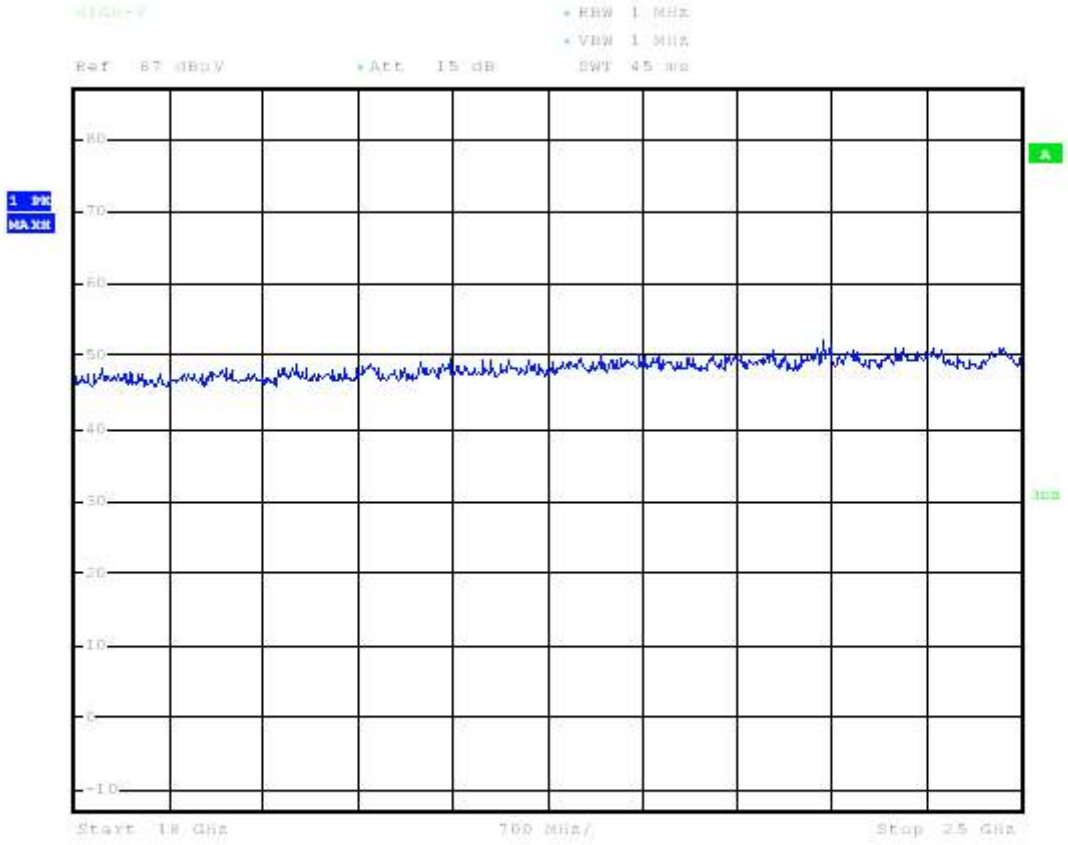
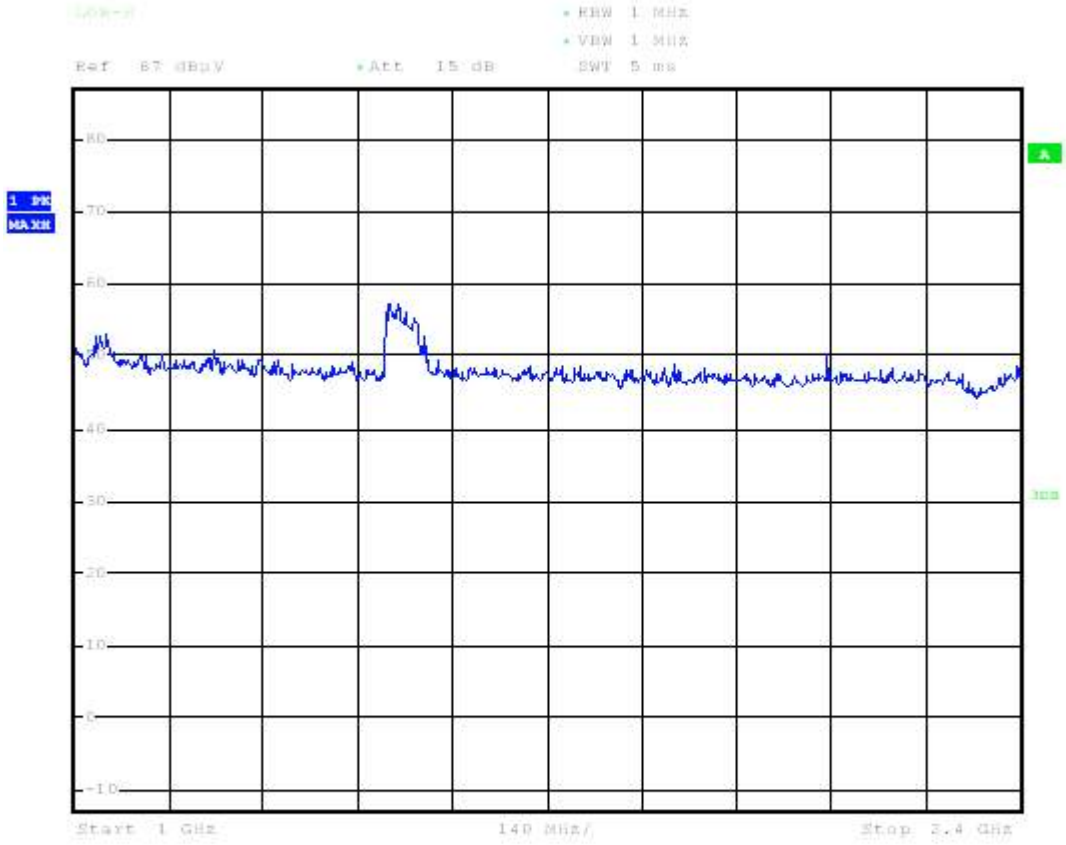


Date: 22.AUG.2017 12:44:16

IEEE 802.11n HT40

CH Low (Horizontal)



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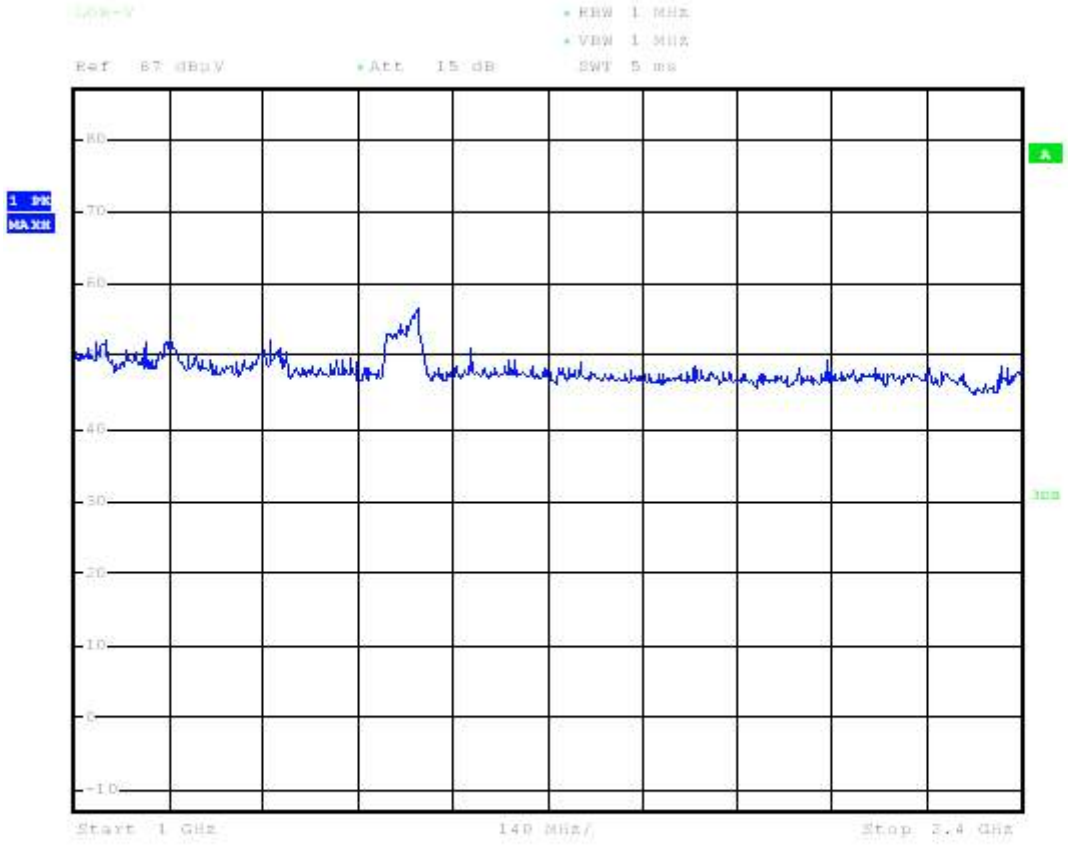

Date: 22.AUG.2017 13:34:52

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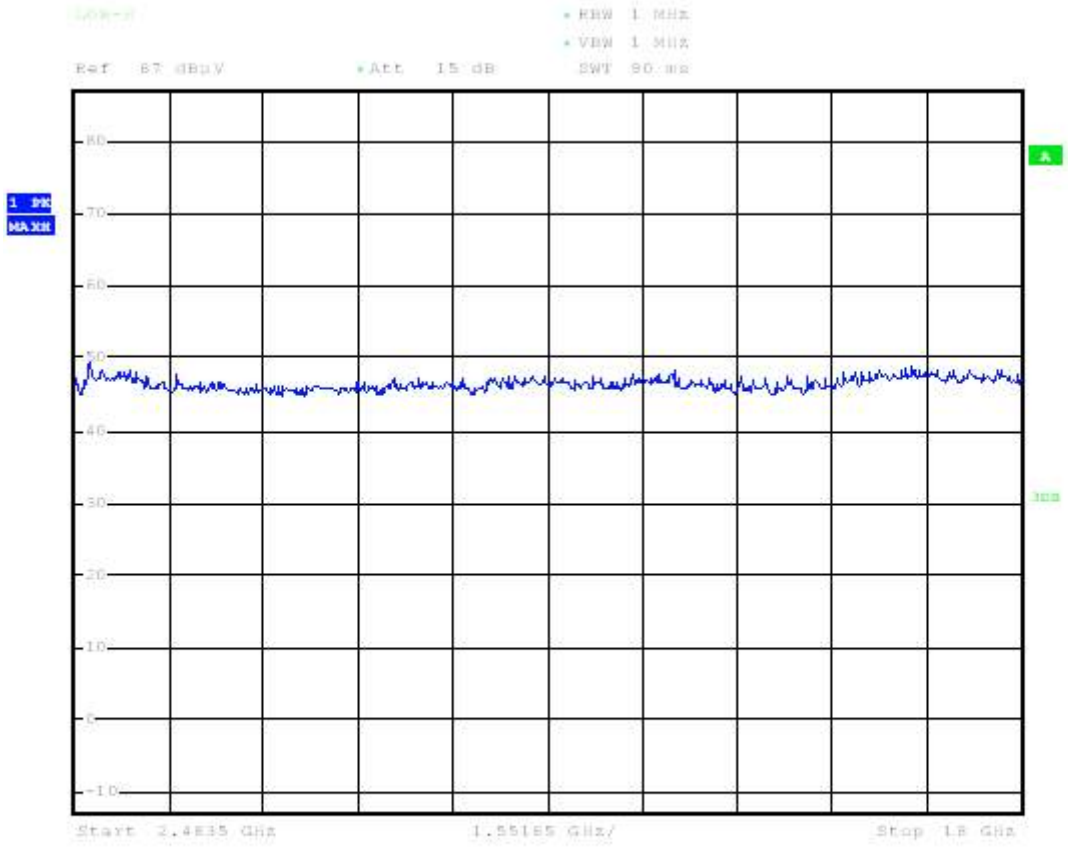

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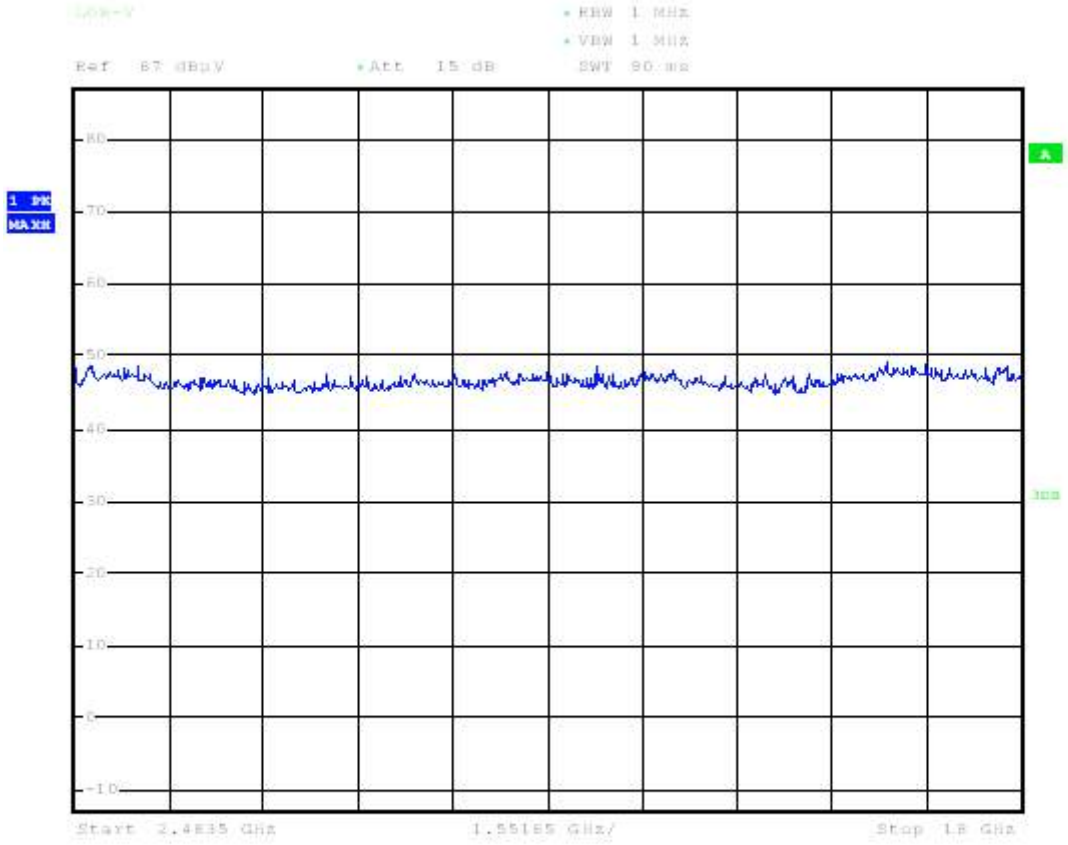

Date: 22.AUG.2017 13:36:04

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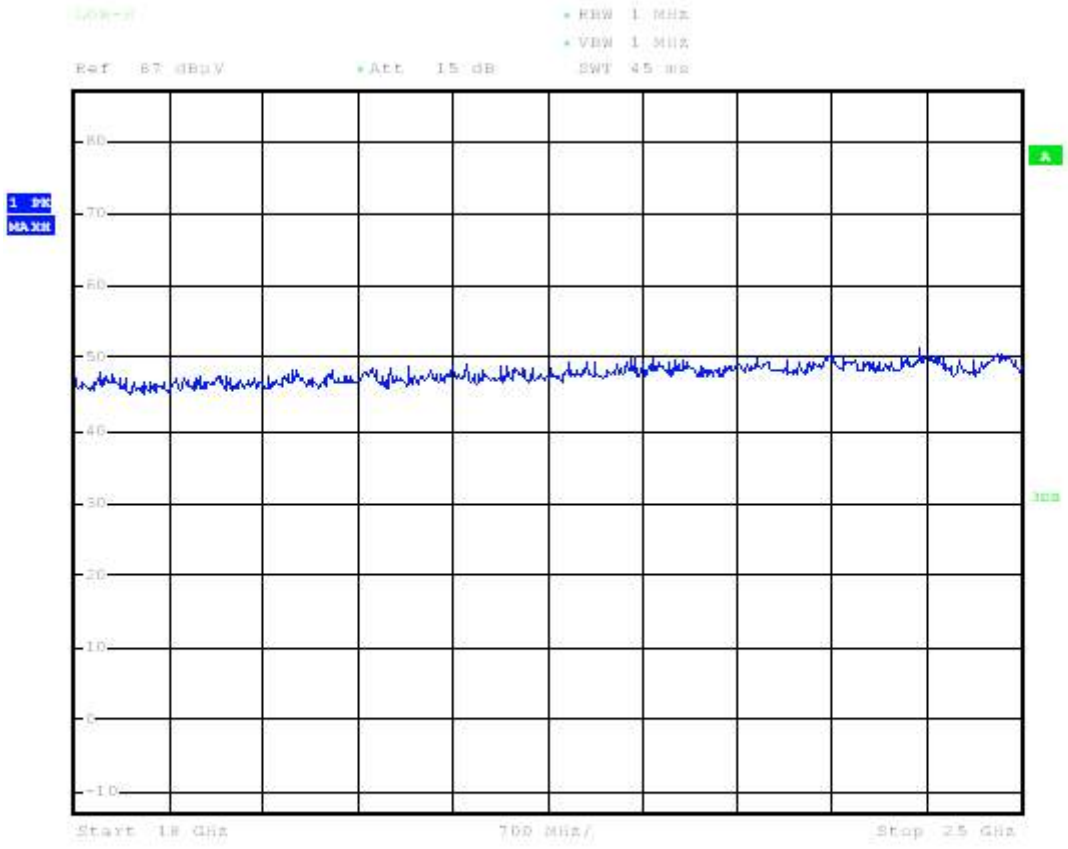

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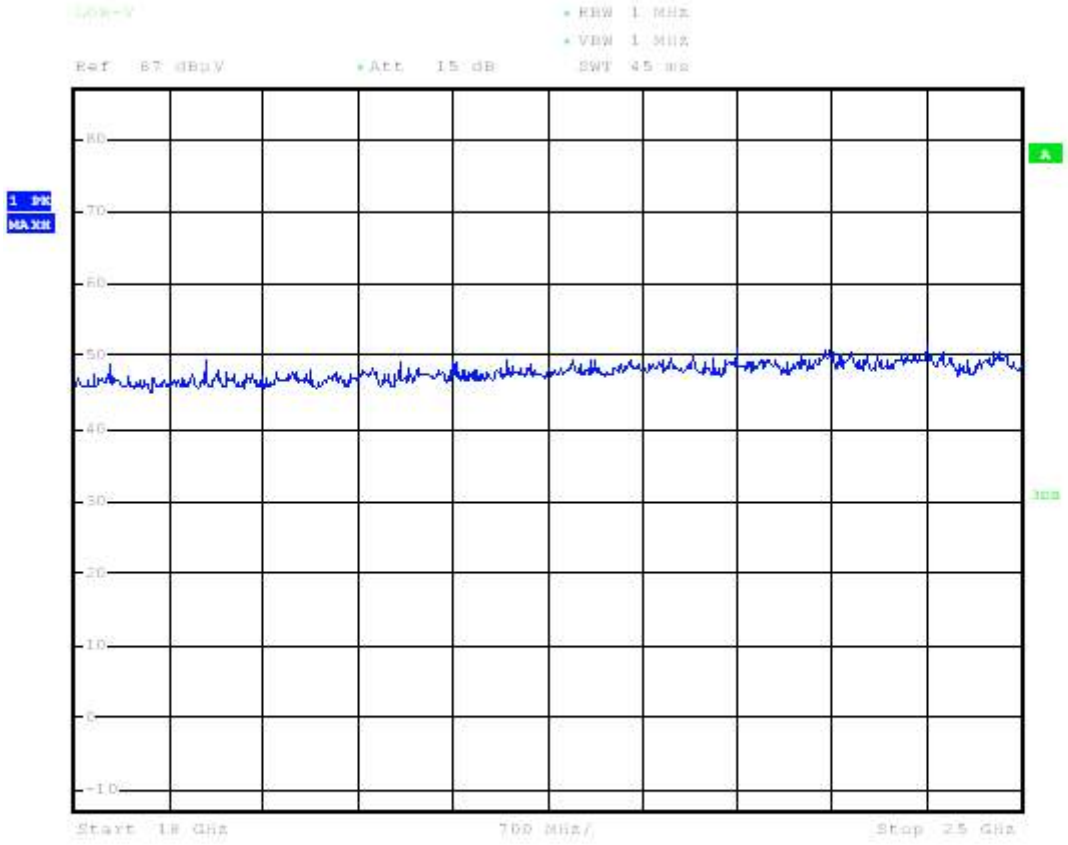

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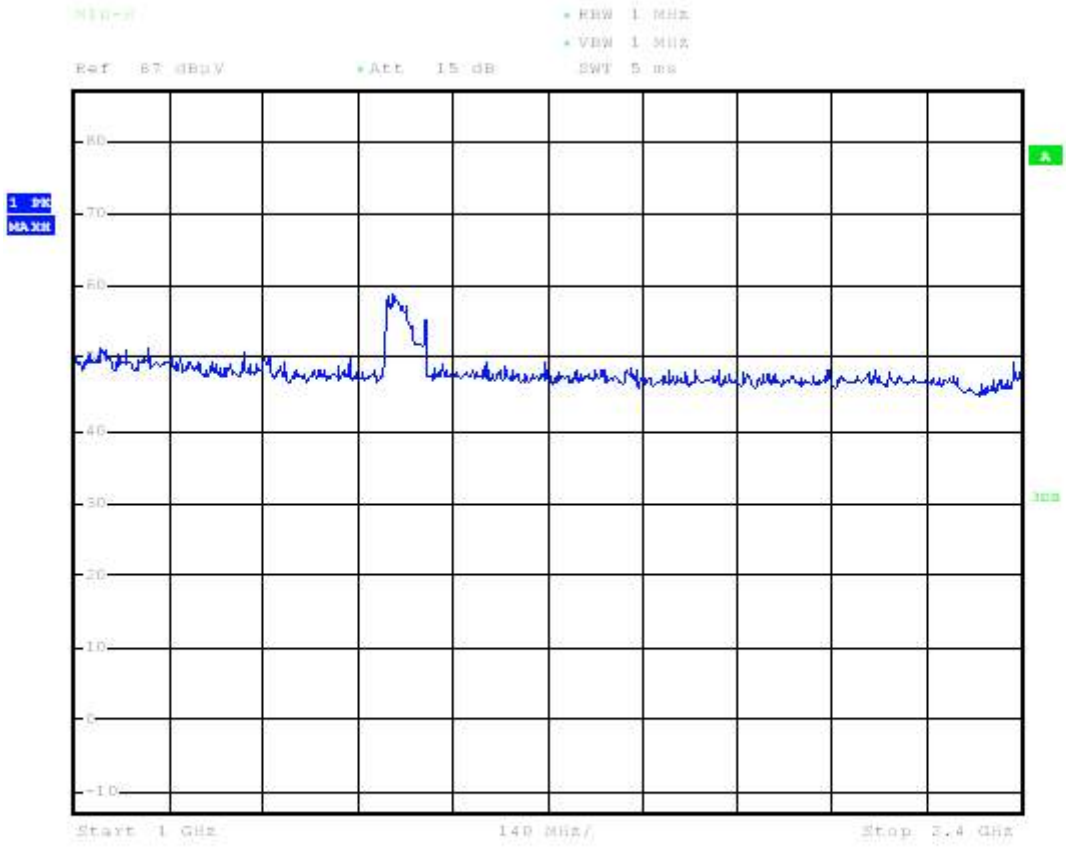
CH Mid (Horizontal)



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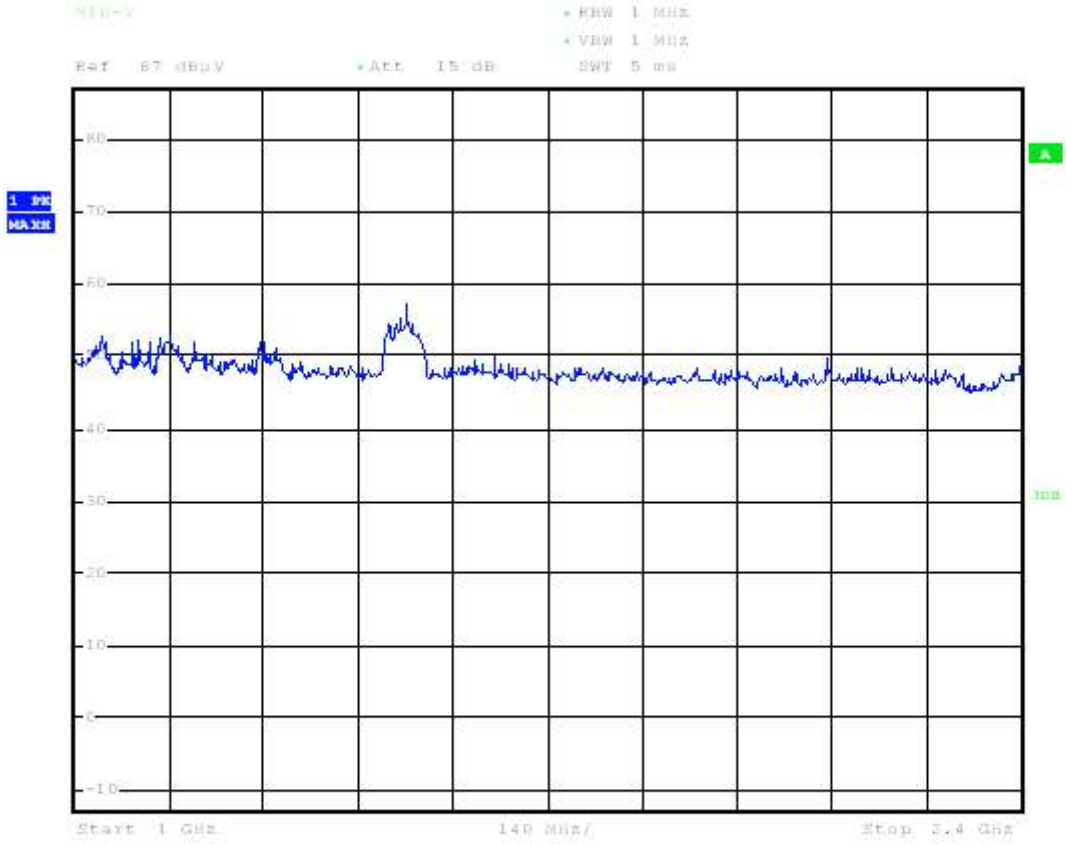

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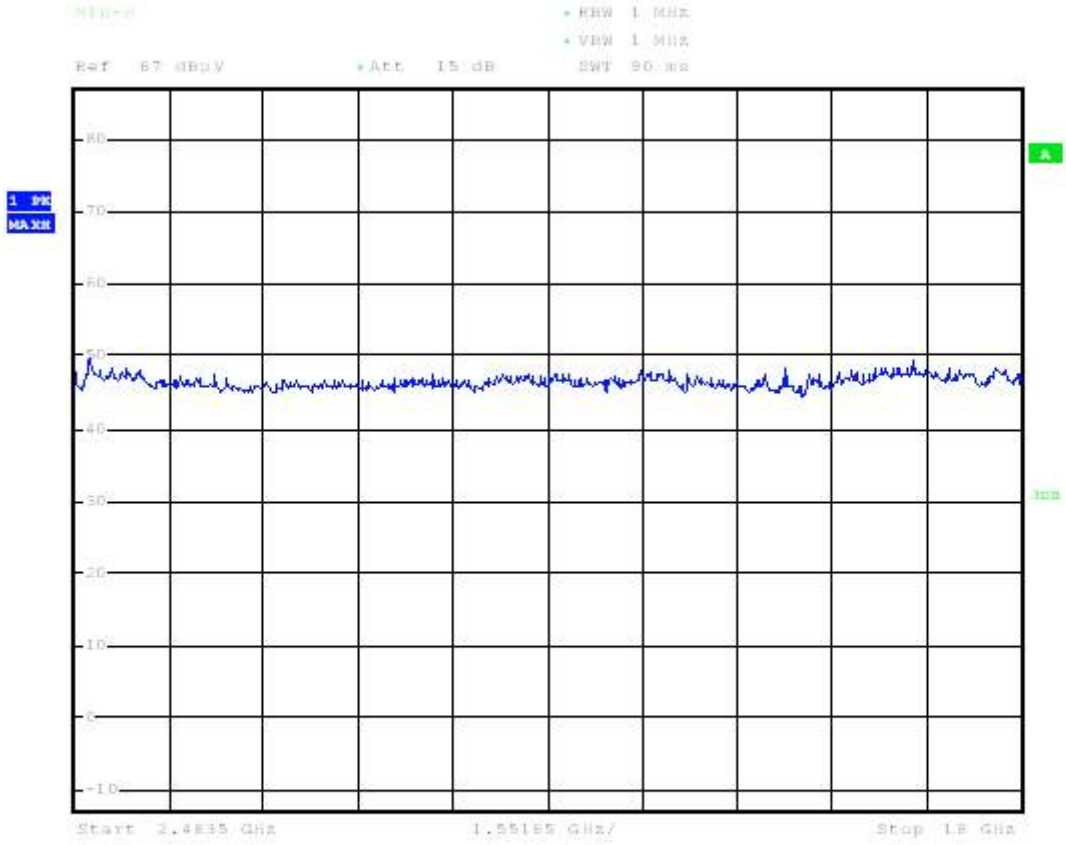

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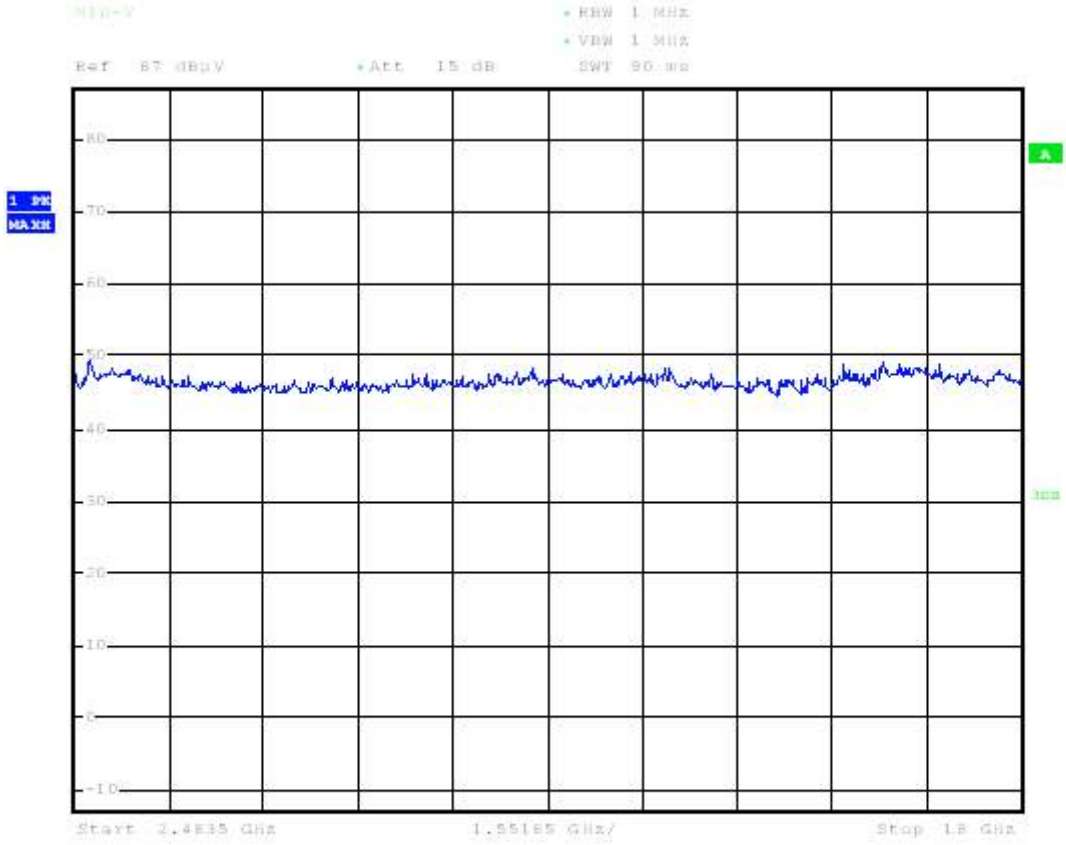

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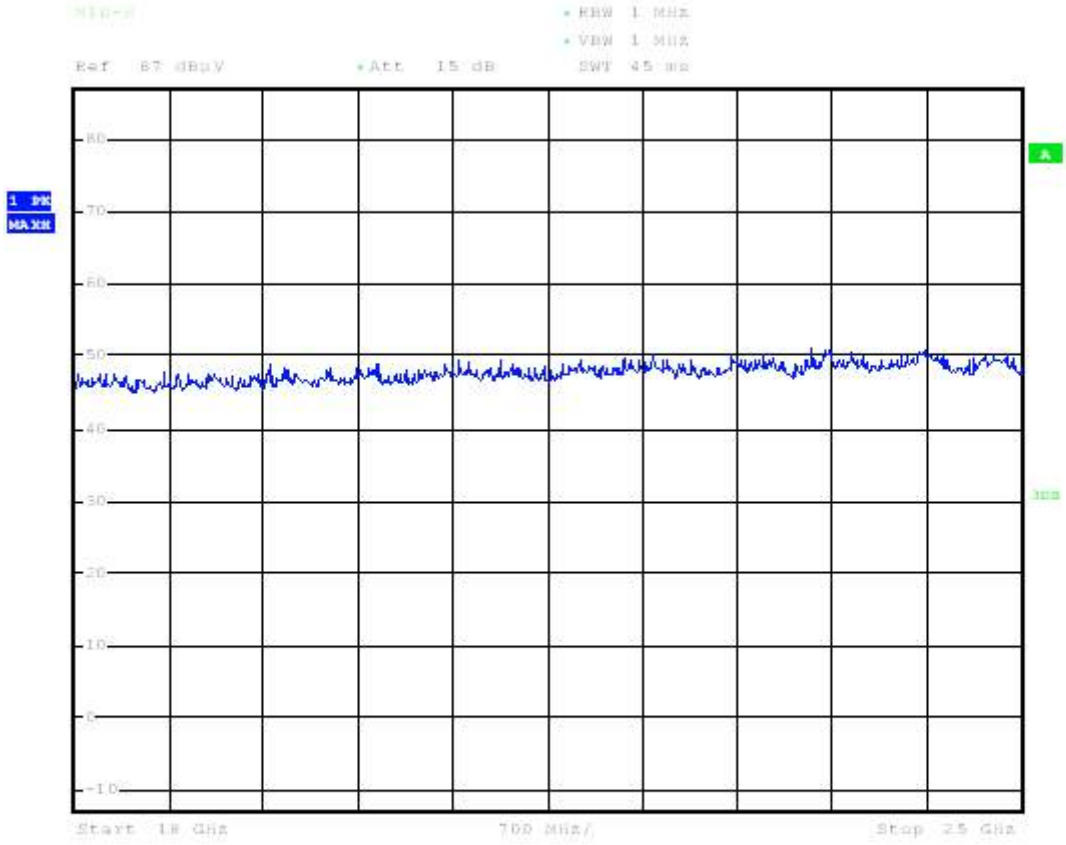

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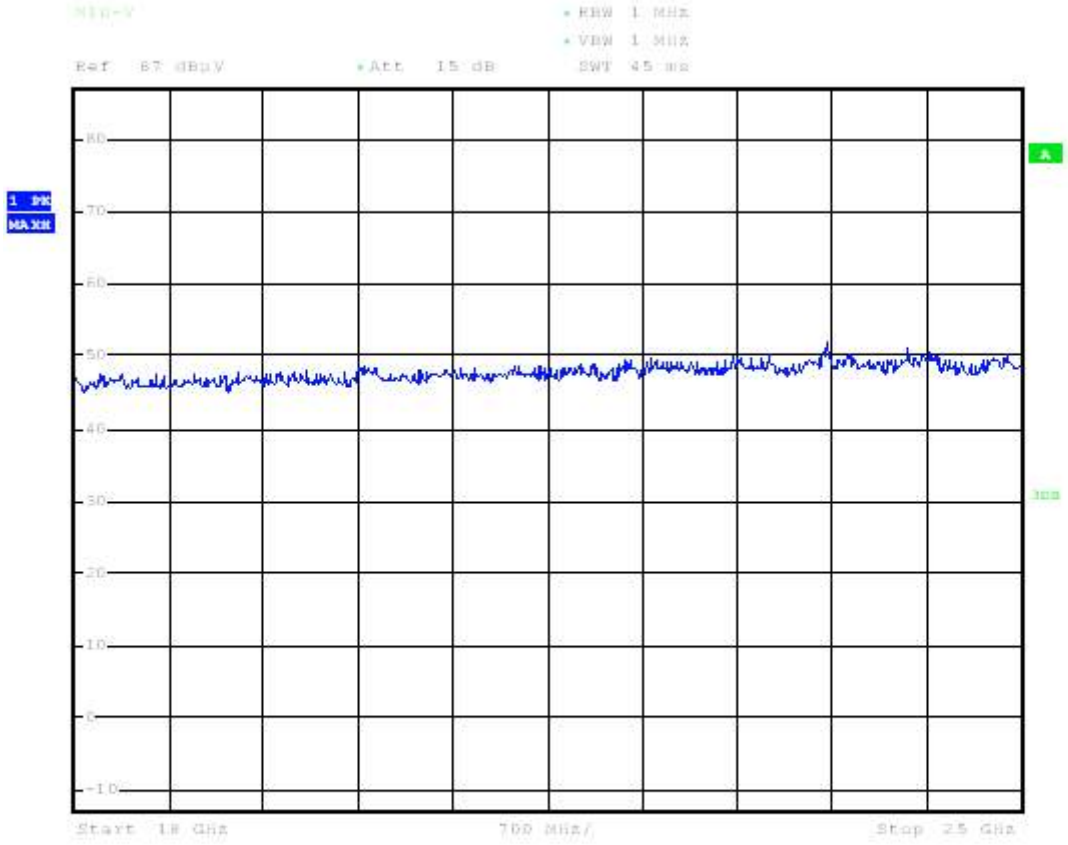

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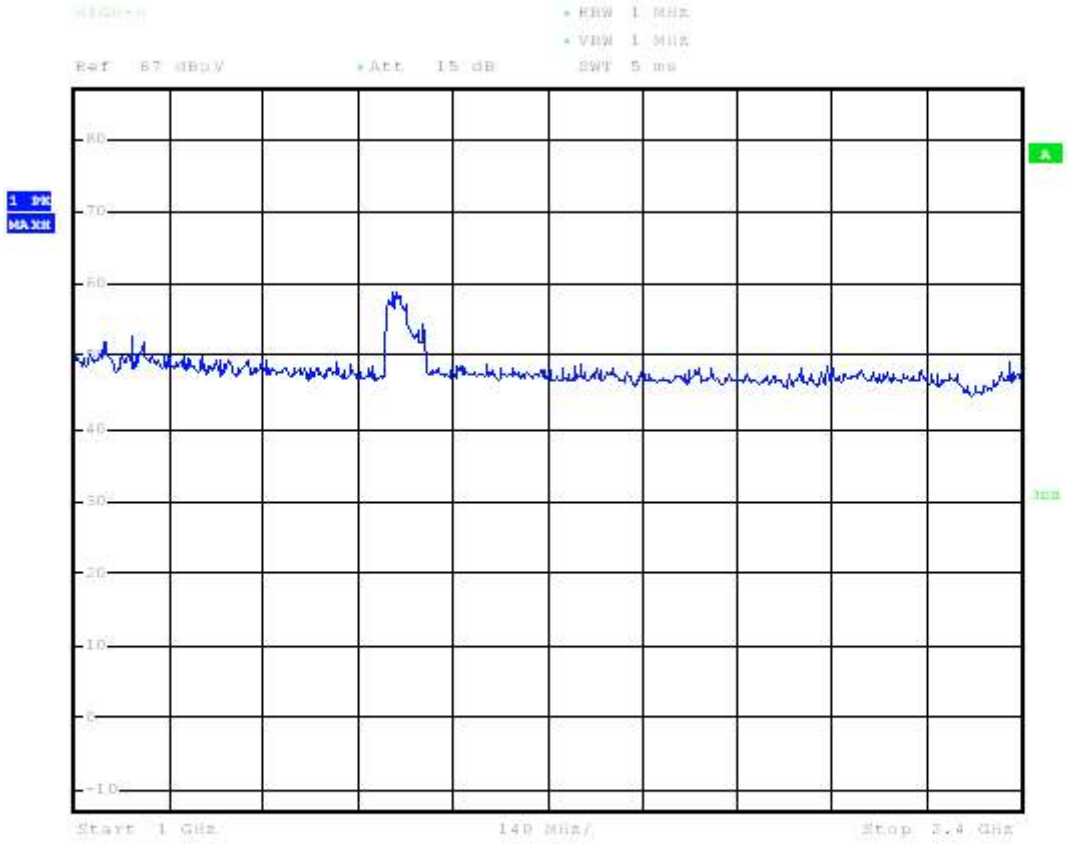
CH High (Horizontal)



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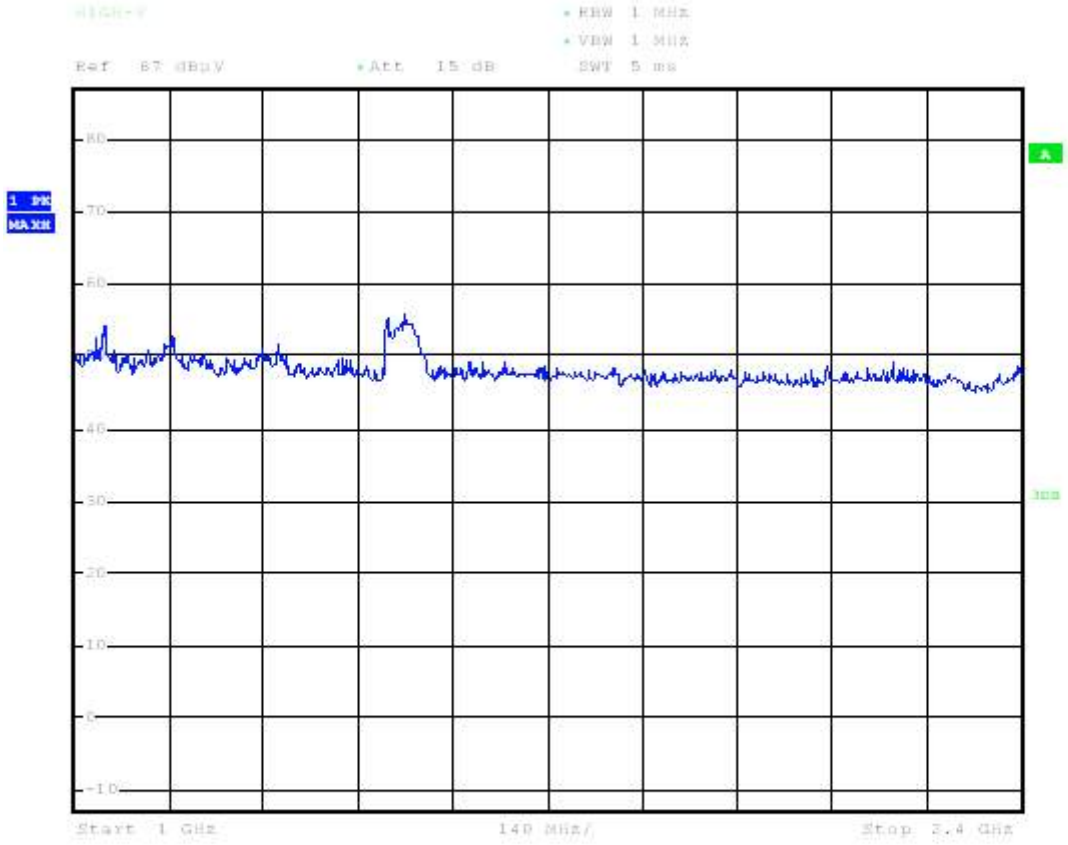

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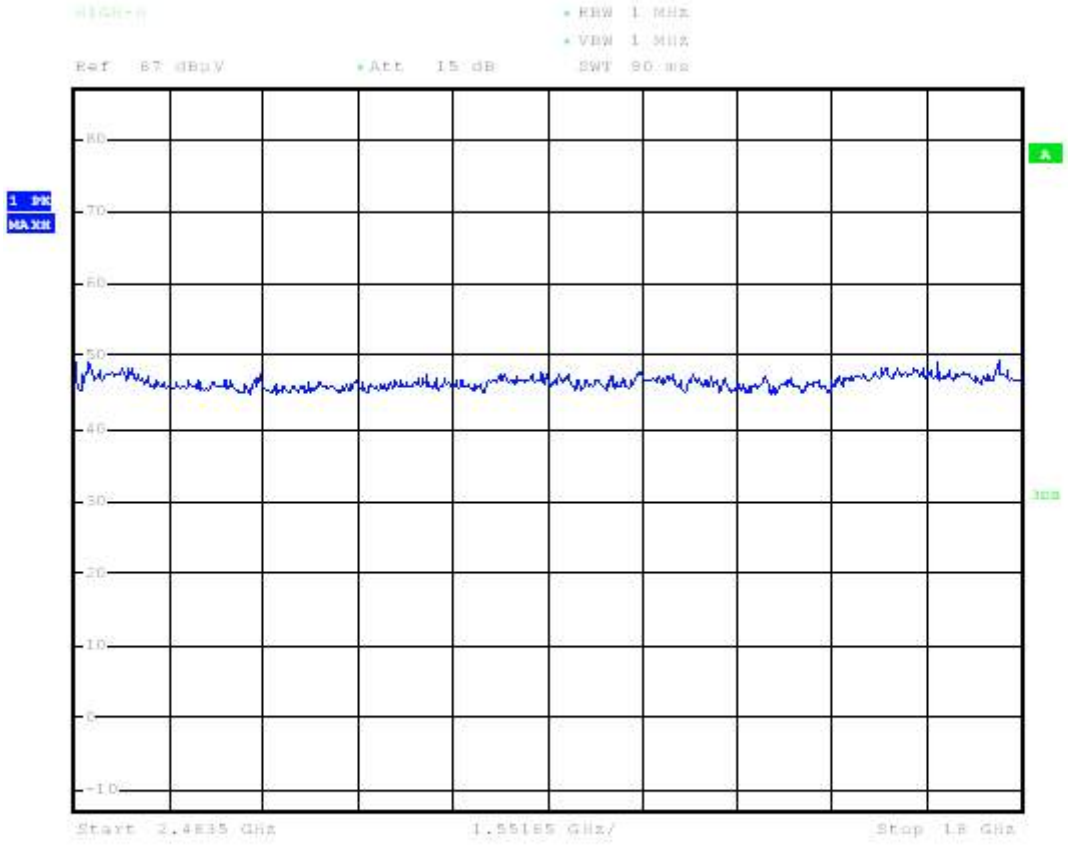

Date: 22.AUG.2017 14:09:36

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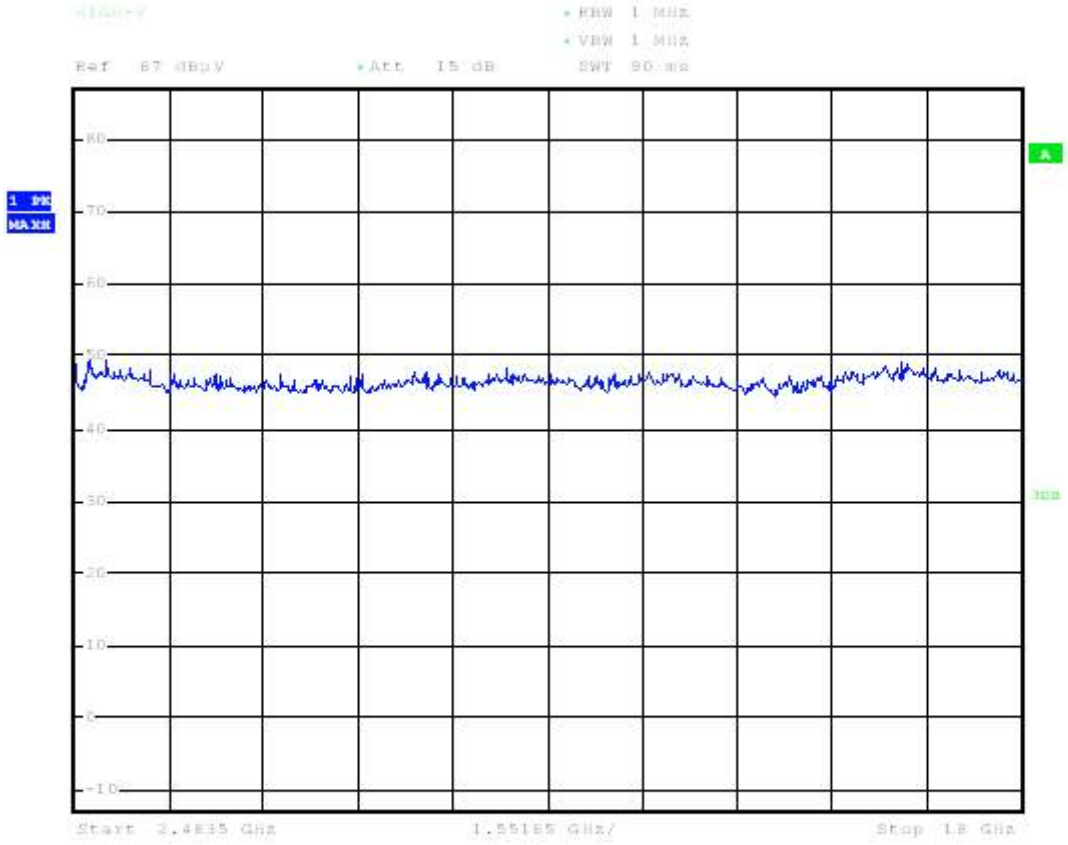
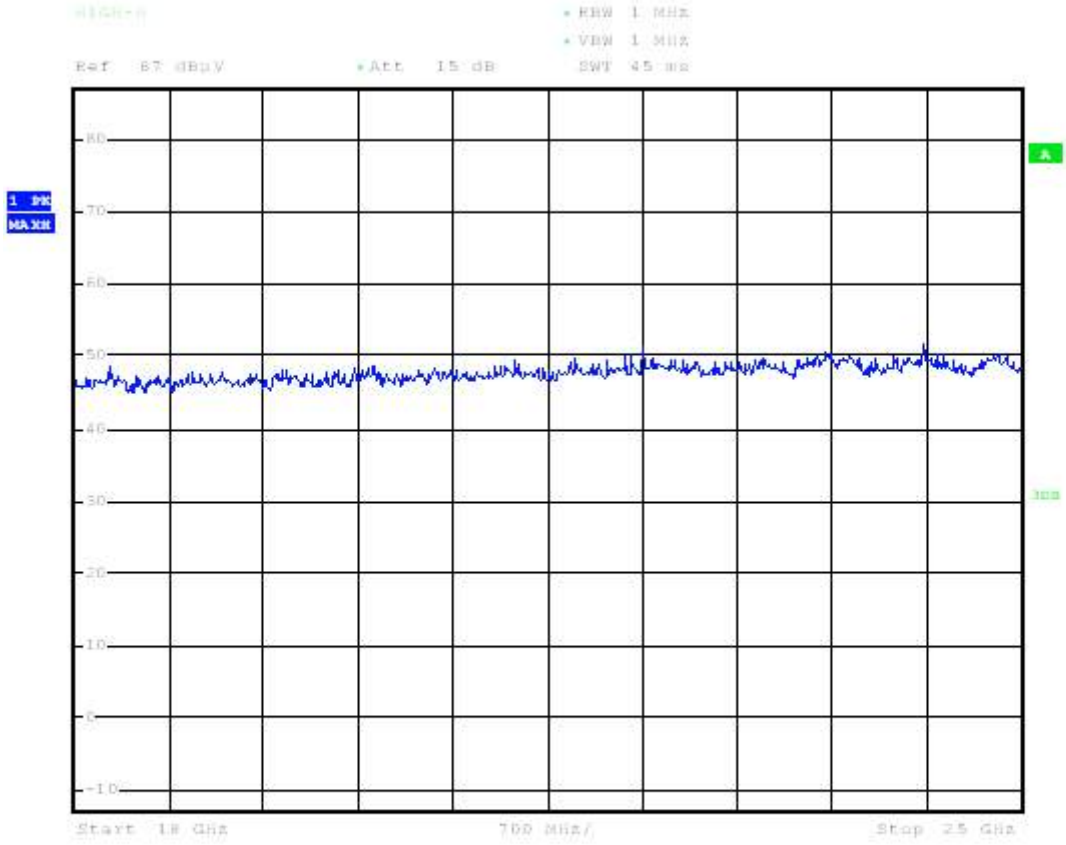


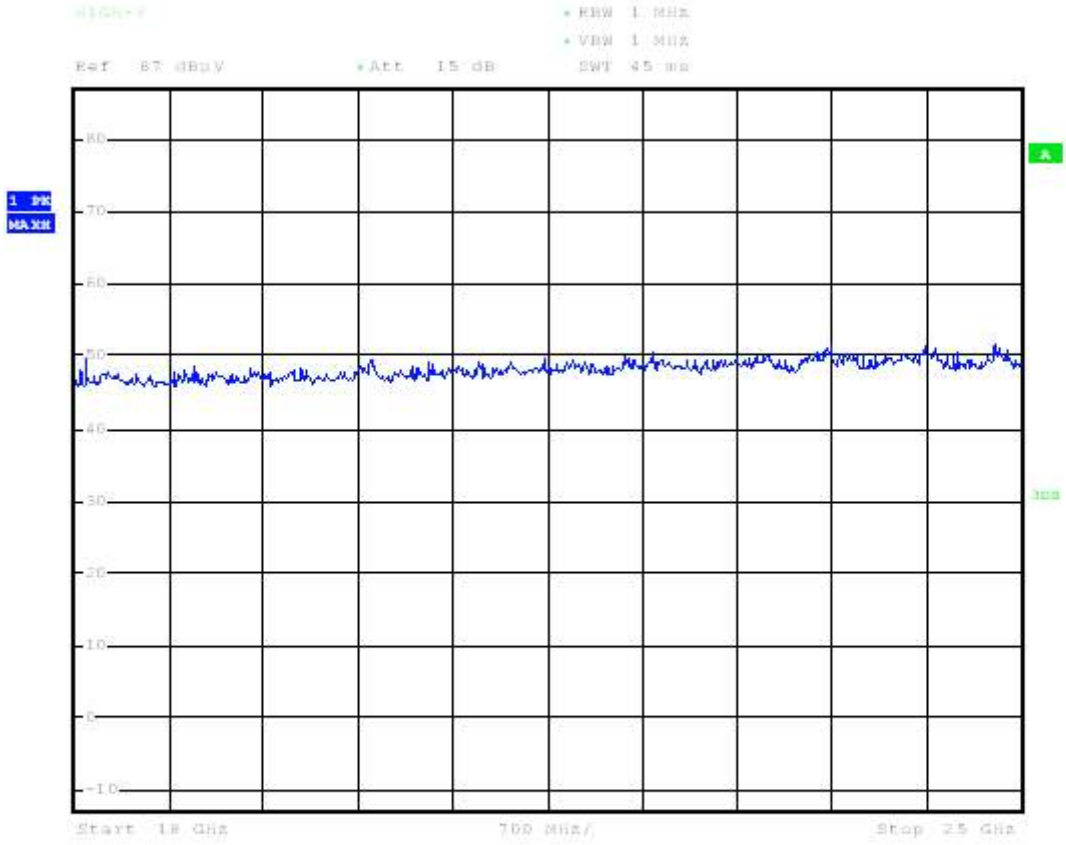
Date: 22.AUG.2017 14:12:21

CH High (Horizontal)



Date: 22.AUG.2017 14:09:57

CH High (Vertical)



Date: 22.AUG.2017 14:12:49

10.4.3 Radiated Measurement at Bandedge with Fundamental Frequencies and co-location

Test Date: Aug. 14, 2017 Temperature: 21℃ Humidity: 63%

10.4.3.1 IEEE 802.11b

Operation Channel	Frequency	Reading @3m (dBuV/m)				Factor	Result		Limit @3m		Margin (worse)	
		H		V			(dBuV/m)		(dBuV/m)		(dB)	
	(MHz)	Peak	Ave	Peak	Ave	(dB)	Peak	Ave	Peak	Ave	Peak	Ave
Low	2390.000	27.1	14.5	26.4	14.2	30.8	57.9	45.3	74	54	-16.1	-8.7
High	2483.500	27.8	15.4	26.9	15.4	31.0	58.8	46.4	74	54	-15.2	-7.6

10.4.3.2 IEEE 802.11g

Operation Channel	Frequency	Reading @3m (dBuV/m)				Factor	Result		Limit @3m		Margin (worse)	
		H		V			(dBuV/m)		(dBuV/m)		(dB)	
	(MHz)	Peak	Ave	Peak	Ave	(dB)	Peak	Ave	Peak	Ave	Peak	Ave
Low	2390.000	35.7	21.1	31.0	17.7	30.8	66.5	51.9	74	54	-7.5	-2.1
High	2483.500	37.5	22.6	35.8	21.6	31.0	68.5	53.6	74	54	-5.5	-0.4

10.4.3.3 IEEE 802.11n HT20

Operation Channel	Frequency	Reading @3m (dBuV/m)				Factor	Result		Limit @3m		Margin (worse)	
		H		V			(dBuV/m)		(dBuV/m)		(dB)	
	(MHz)	Peak	Ave	Peak	Ave	(dB)	Peak	Ave	Peak	Ave	Peak	Ave
Low	2390.000	35.2	19.2	32.0	16.3	30.8	66.0	50.0	74	54	-8.0	-4.0
High	2483.500	38.3	22.4	37.5	21.0	31.0	69.3	53.4	74	54	-4.7	-0.6

Note :

1. Remark "---" means that the emissions level is too low to be measured.
2. The result is the highest value of radiated emission from restrict band of 2310 ~ 2390 MHz and 2483.5 ~ 2500 MHz.

10.4.3.4 IEEE 802.11n HT40

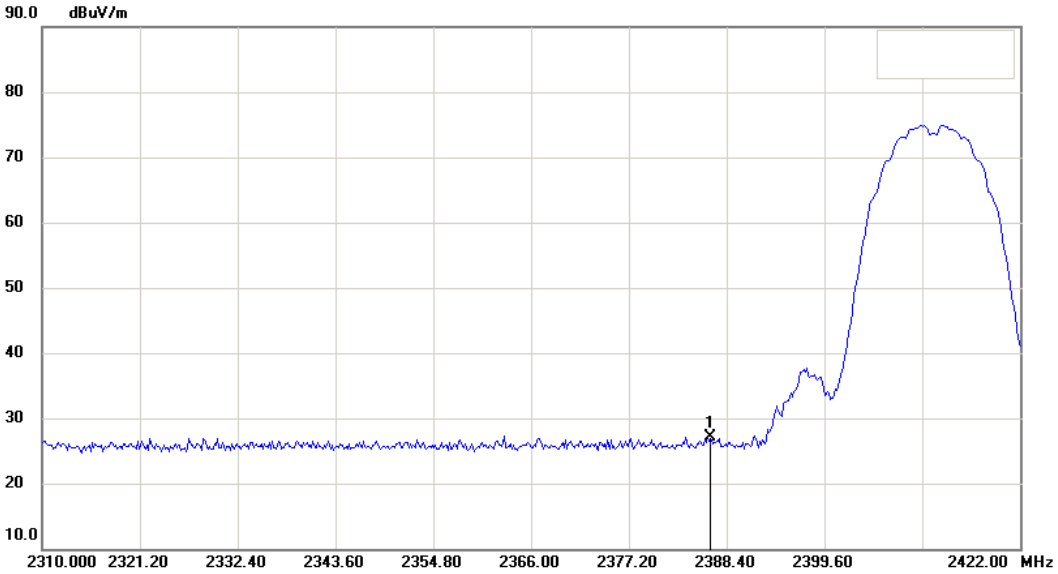
Operation Channel	Frequency	Reading @3m (dBuV/m)				Factor	Result		Limit @3m		Margin (worse)	
		H		V			(dBuV/m)		(dBuV/m)		(dB)	
	(MHz)	Peak	Ave	Peak	Ave	(dB)	Peak	Ave	Peak	Ave	Peak	Ave
Low	2390.000	33.3	20.1	30.1	16.8	30.8	64.1	50.9	74	54	-9.9	-3.1
High	2483.500	36.5	22.5	35.3	20.5	31.0	67.5	53.5	74	54	-6.5	-0.5

Note :

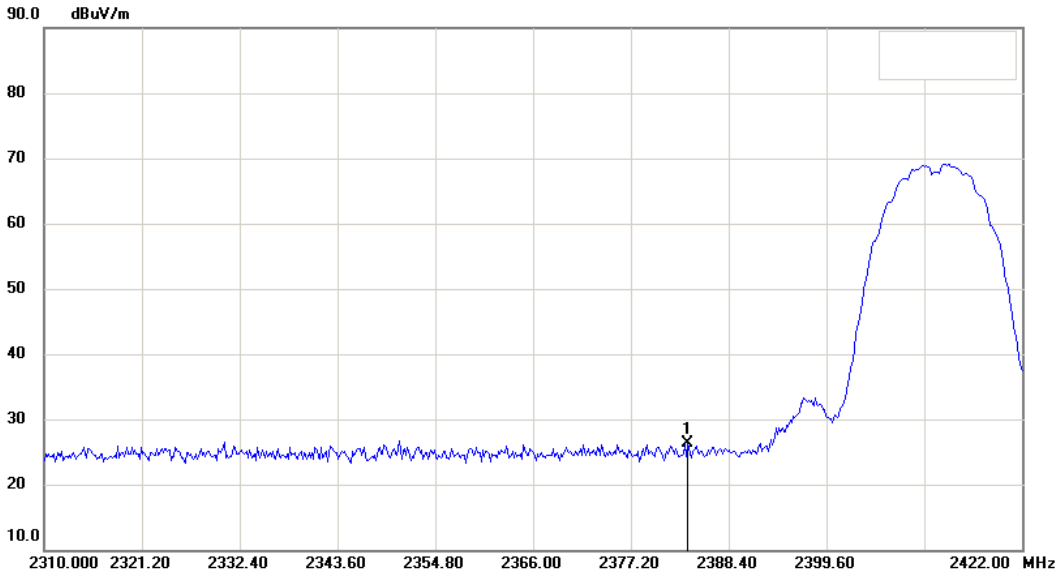
1. Remark "---" means that the emissions level is too low to be measured.
2. The result is the highest value of radiated emission from restrict band of 2310 ~ 2390 MHz and 2483.5 ~ 2500 MHz.

IEEE 802.11b

Horizontal (Peak)



Vertical (Peak)



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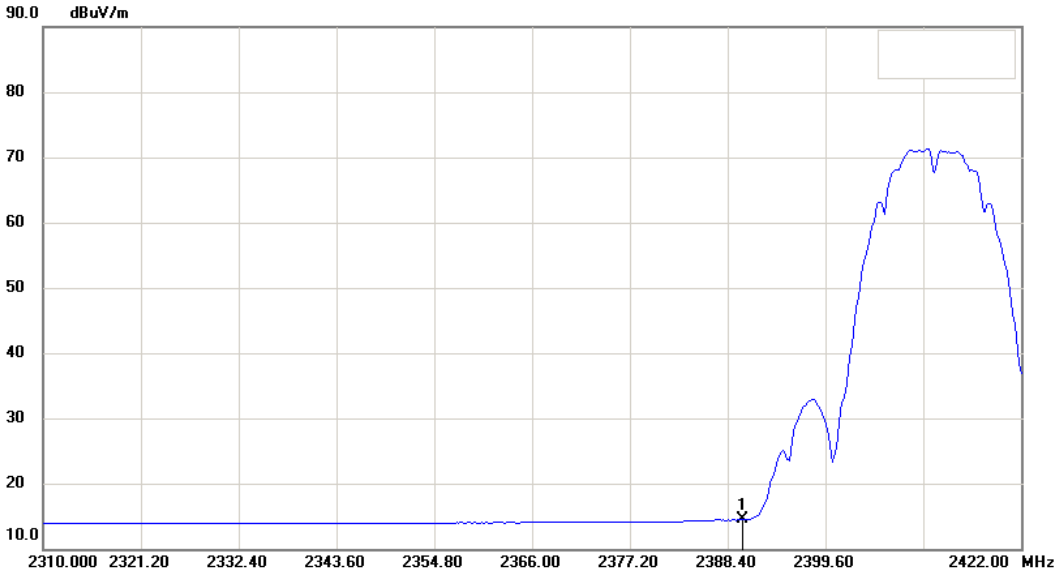

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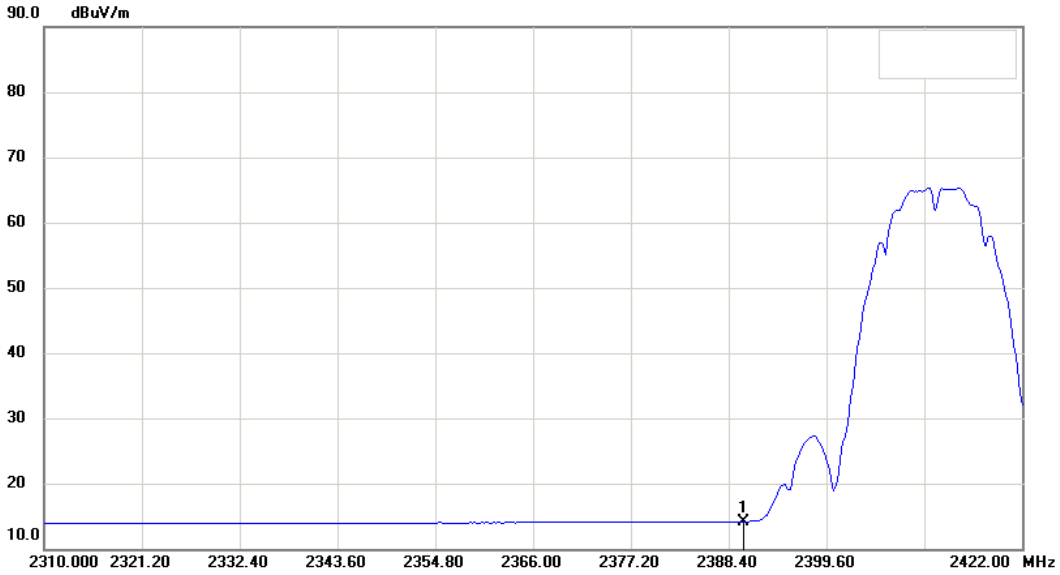

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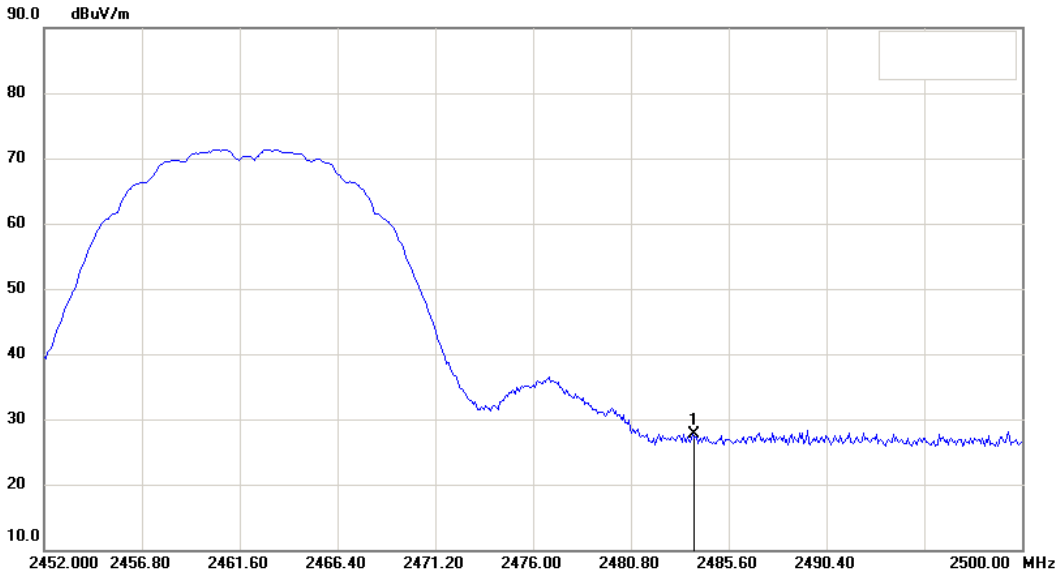

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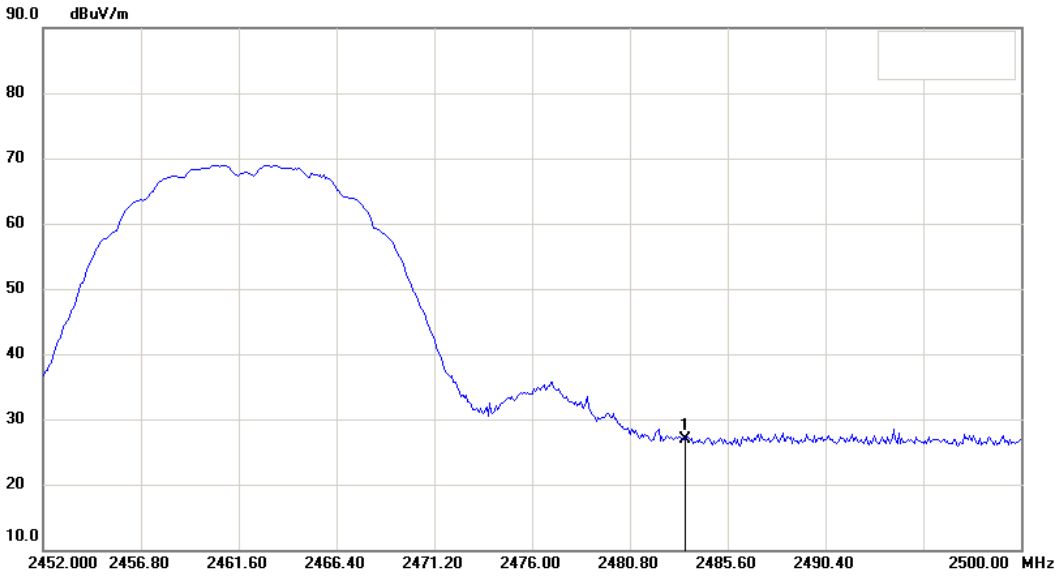

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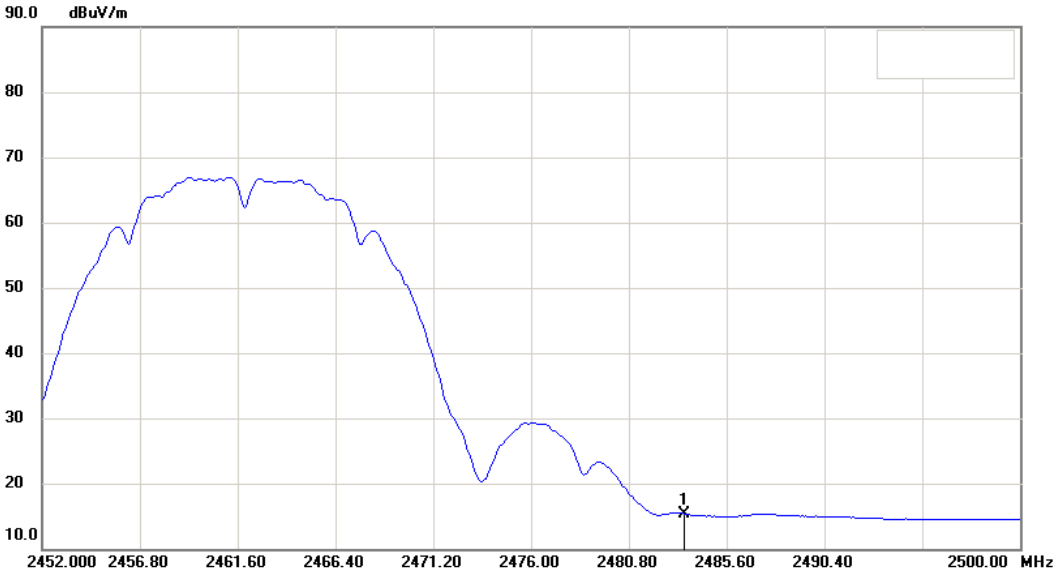

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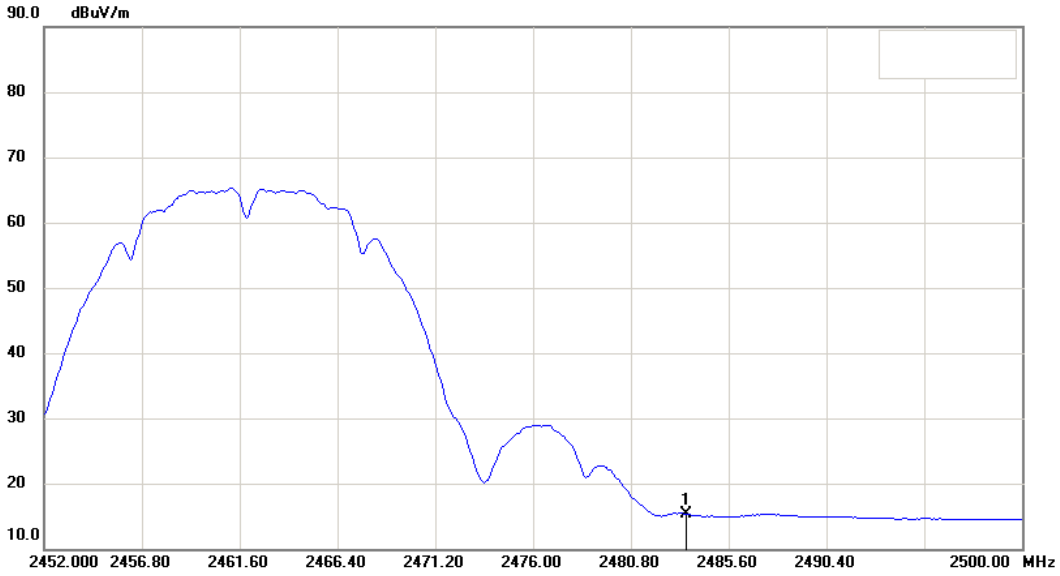
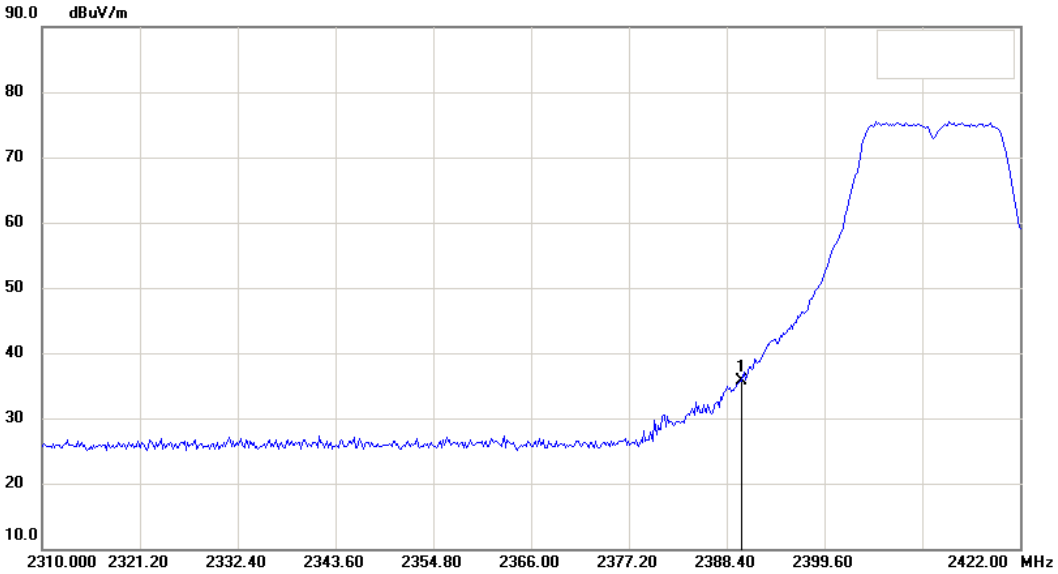


IEEE 802.11g

Horizontal (Peak)



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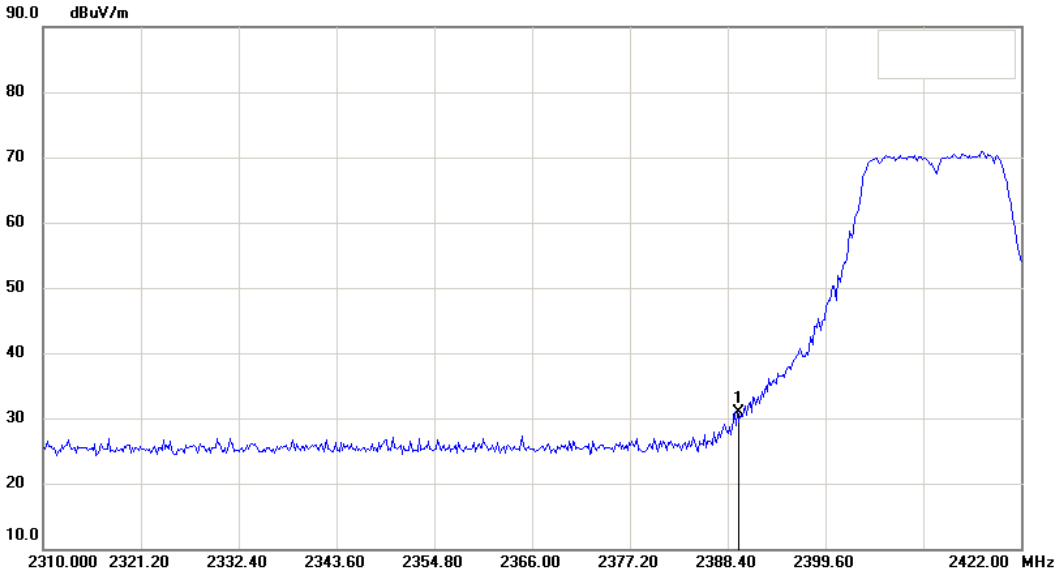

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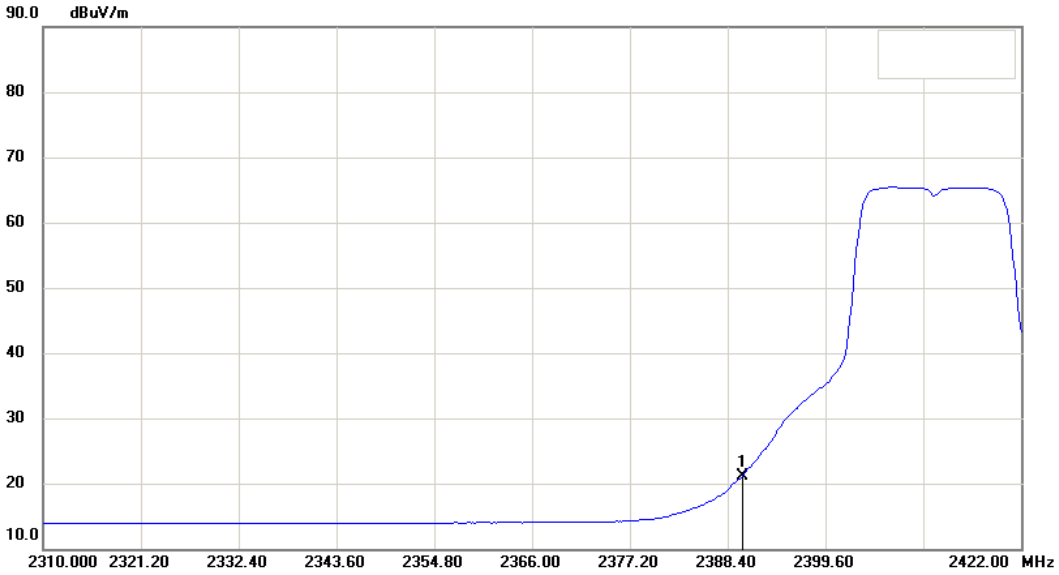

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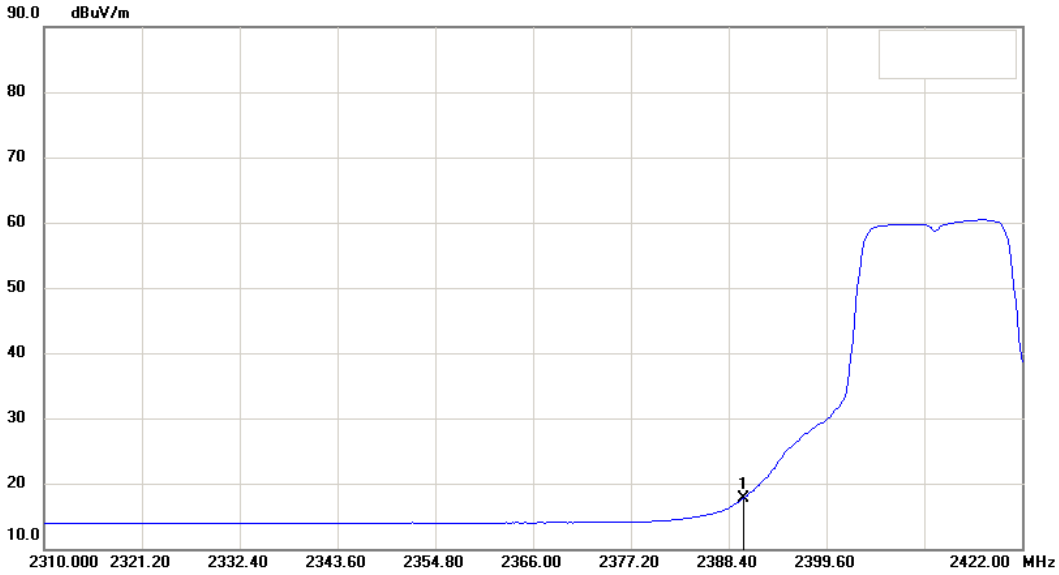

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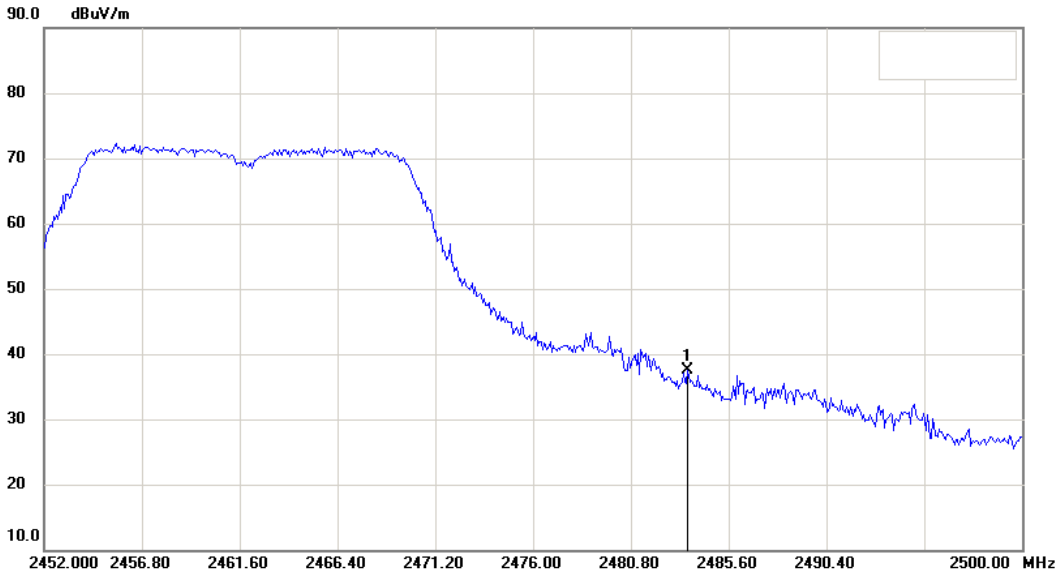

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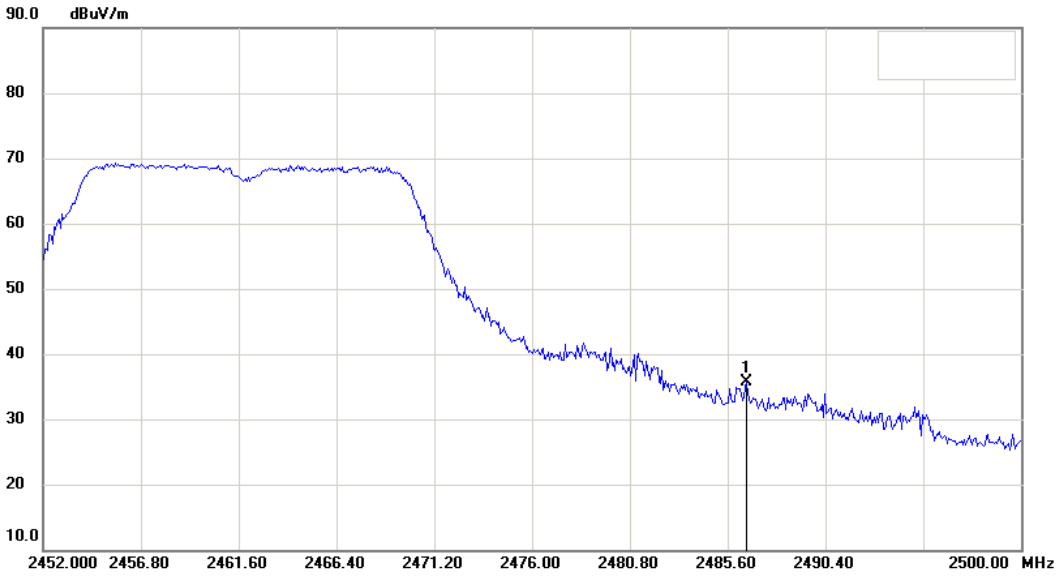

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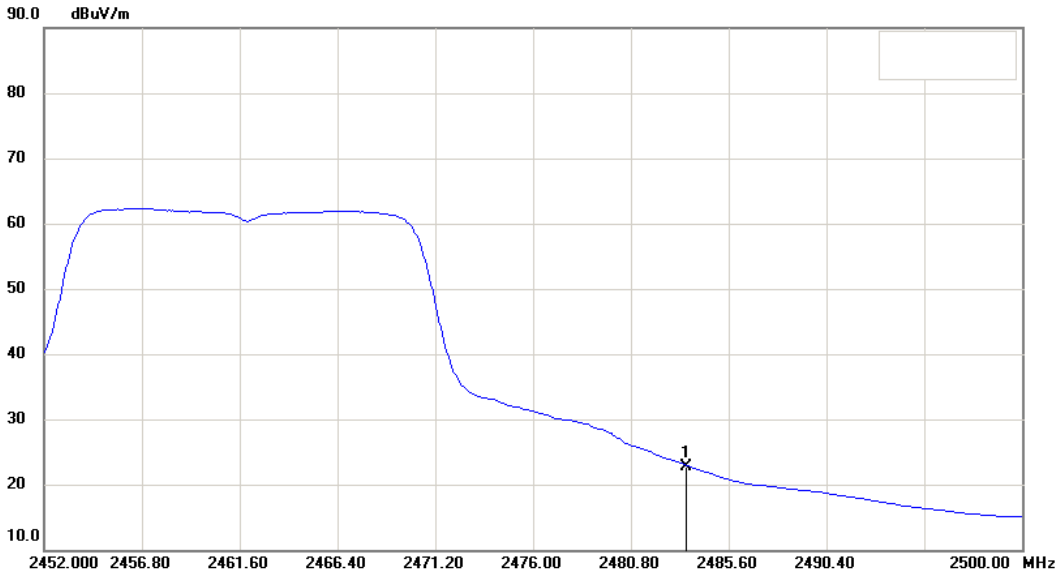

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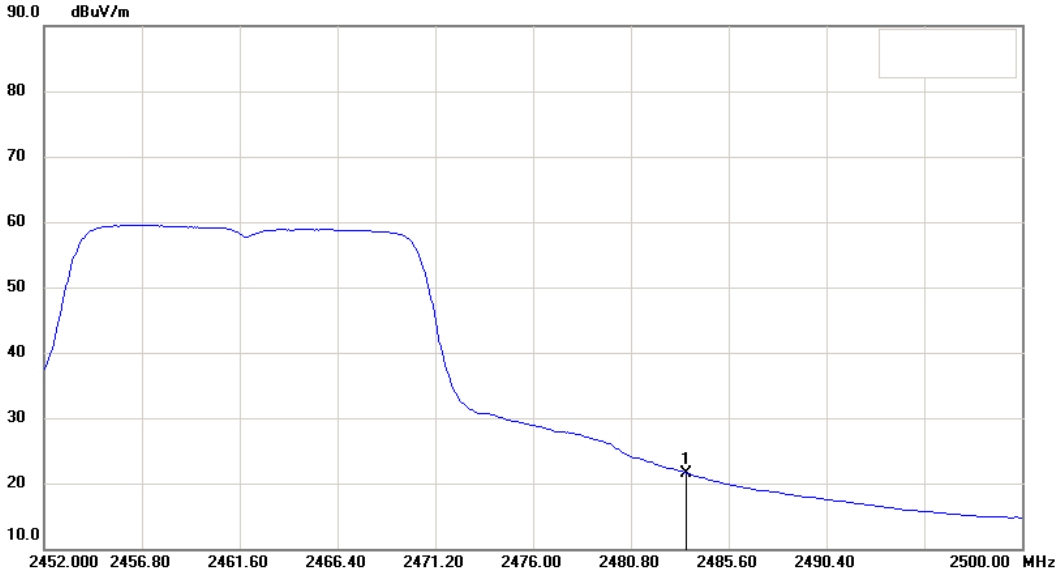
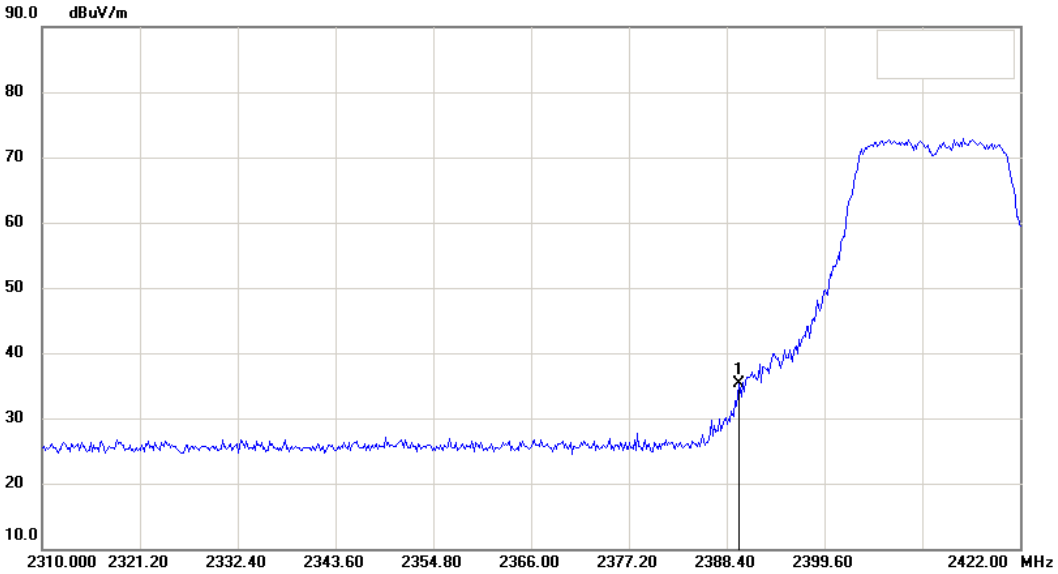
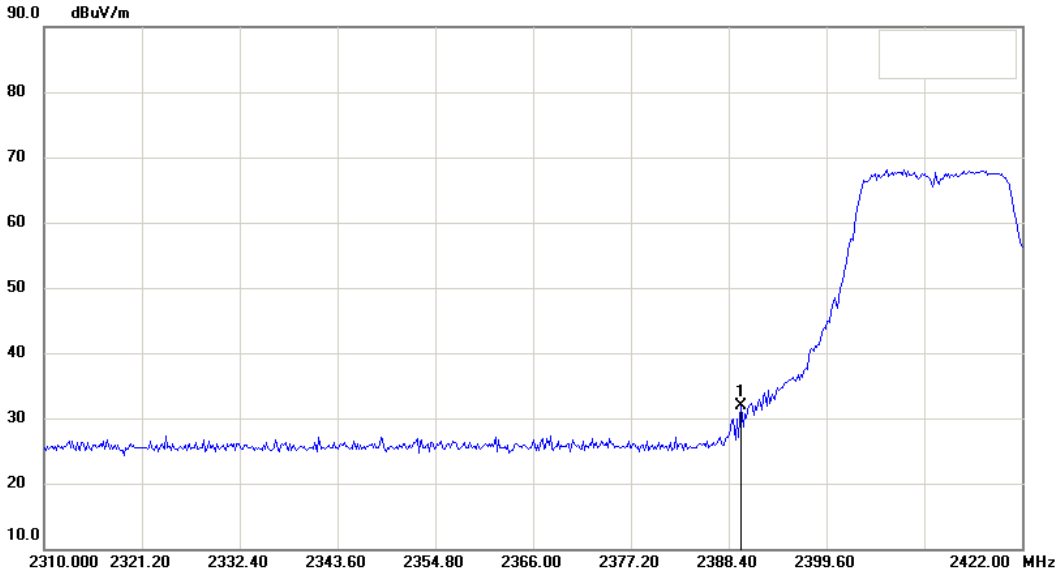


IEEE 802.11n HT20

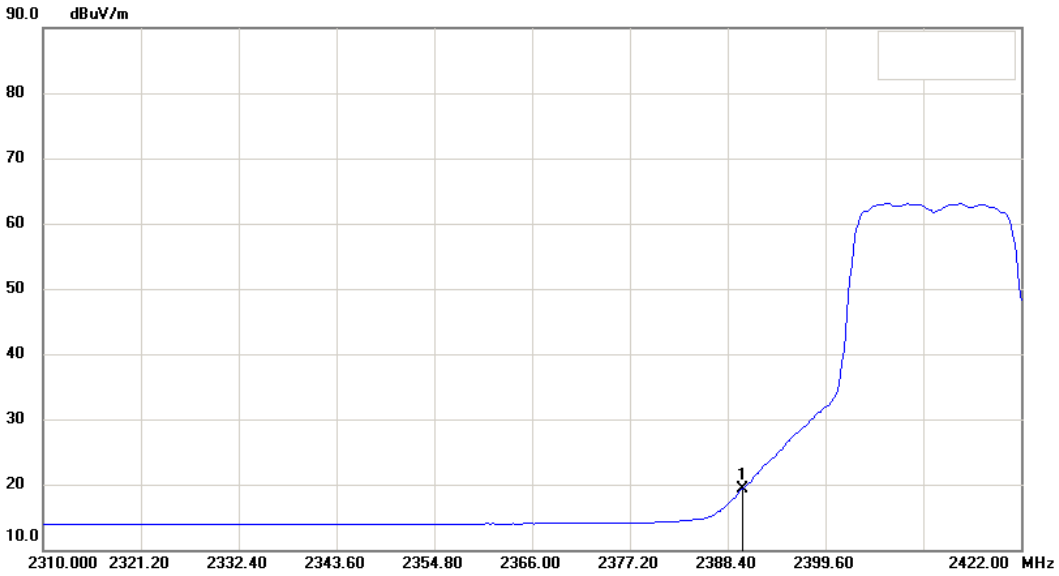
Horizontal (Peak)



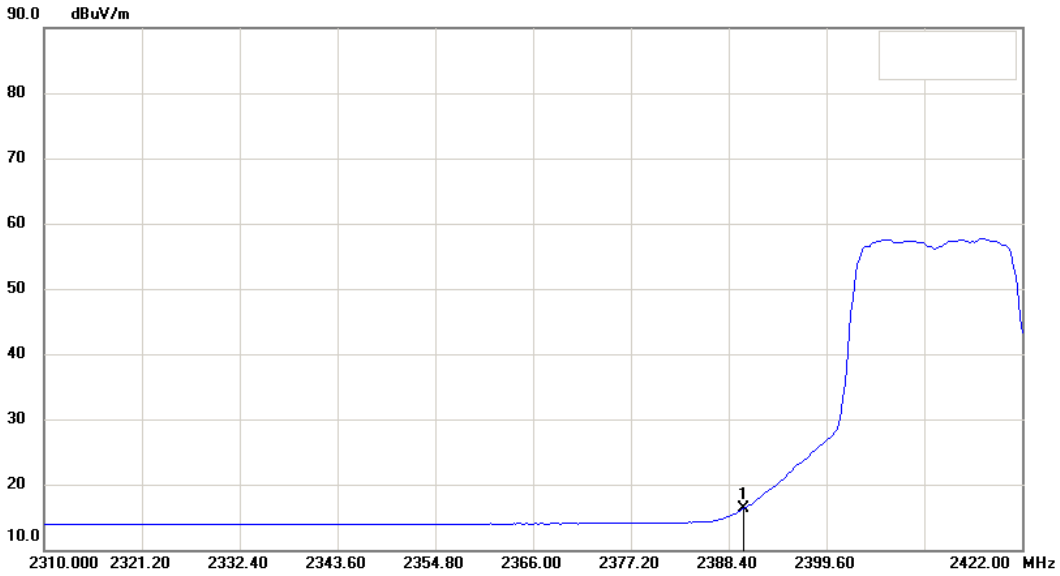
Vertical (Average)



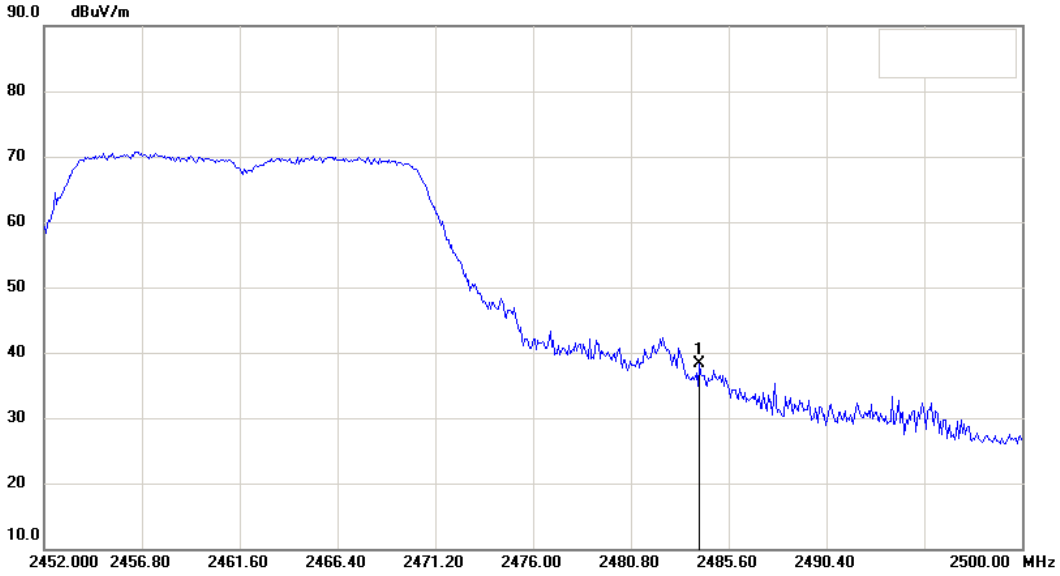
Horizontal (Peak)



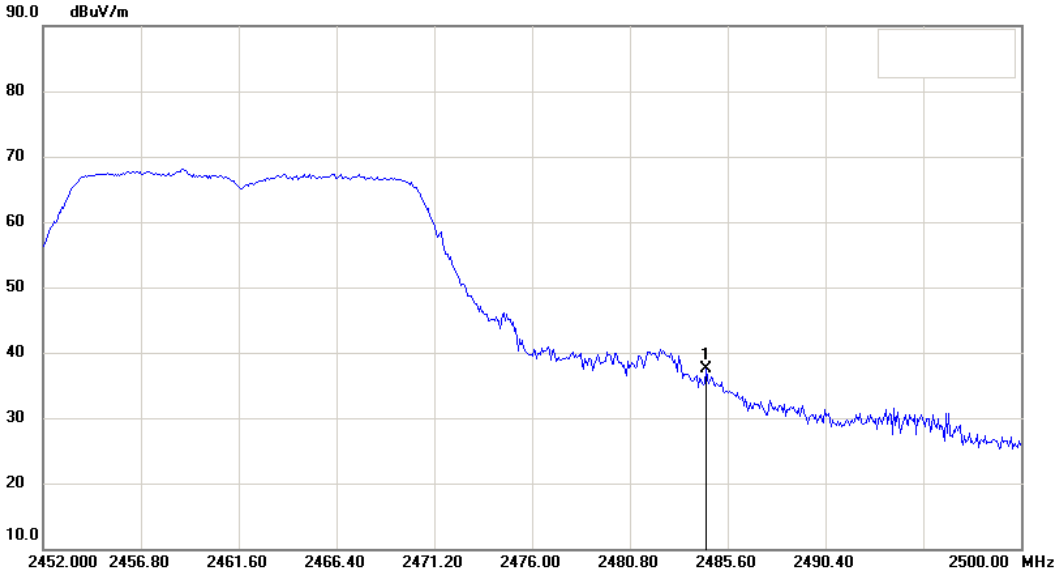
Vertical (Average)



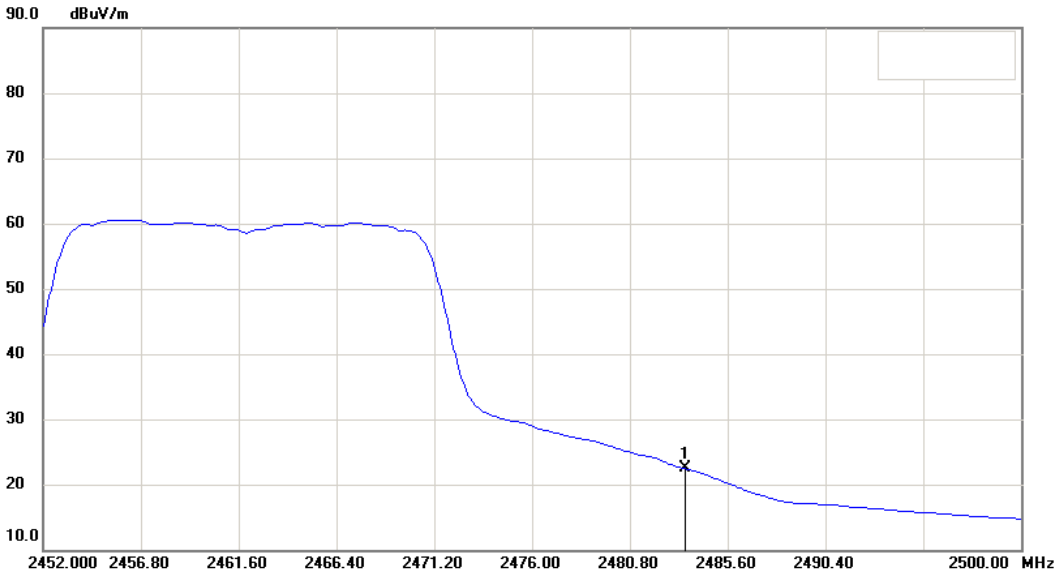
Horizontal (Peak)



Vertical (Peak)



Horizontal (Average)



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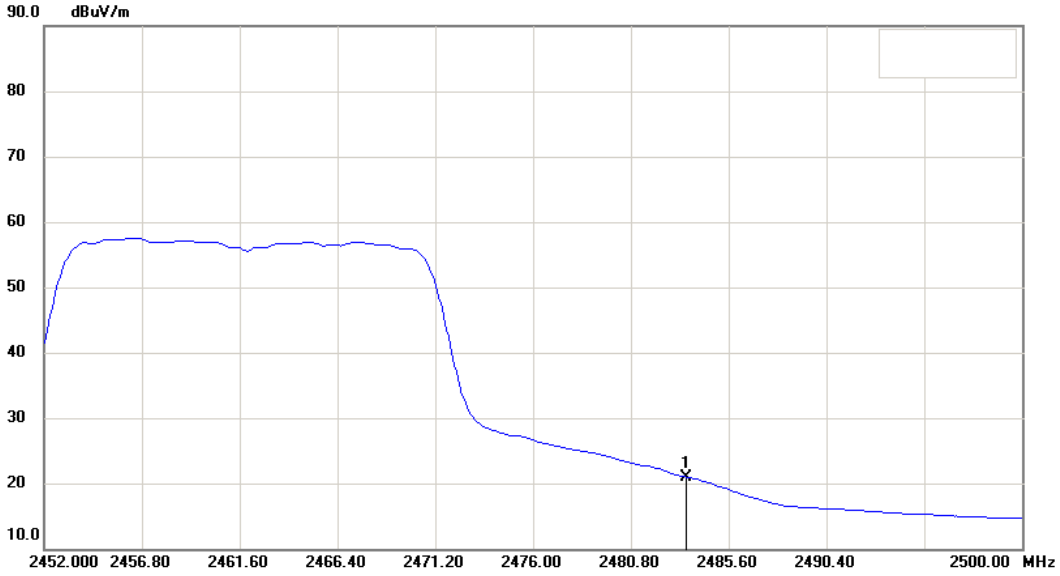

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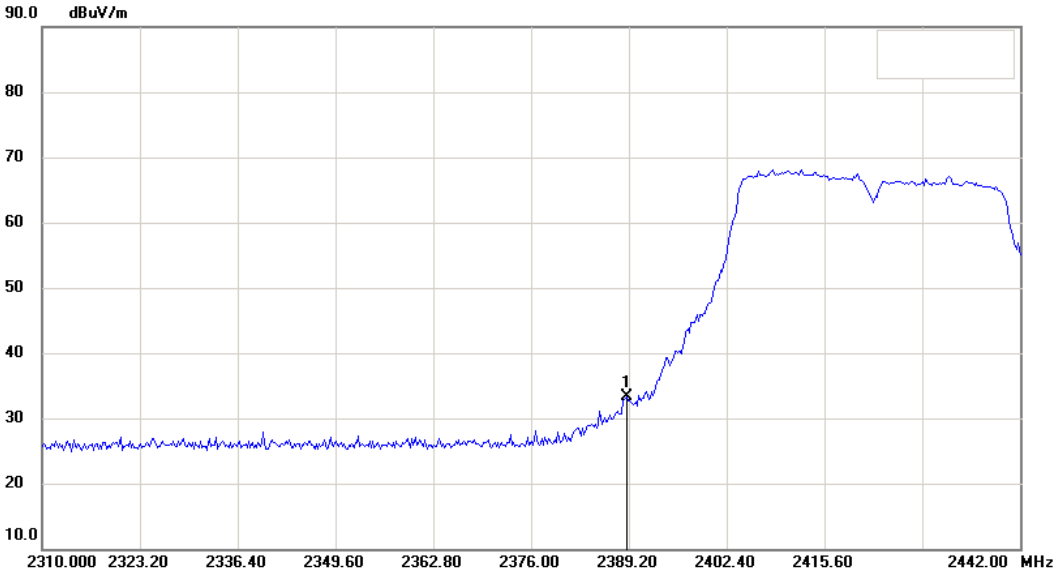
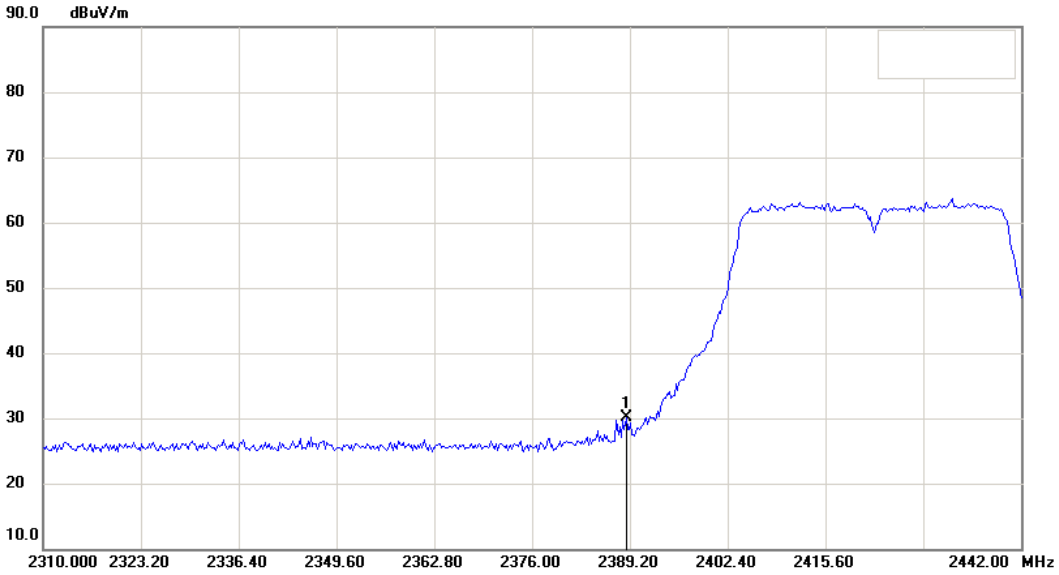
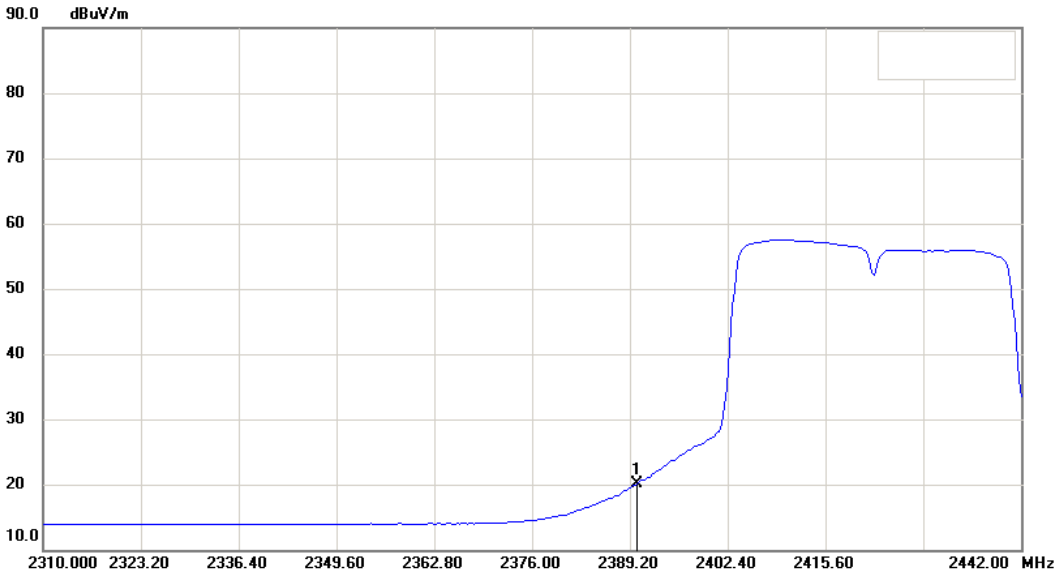
Horizontal (Peak)



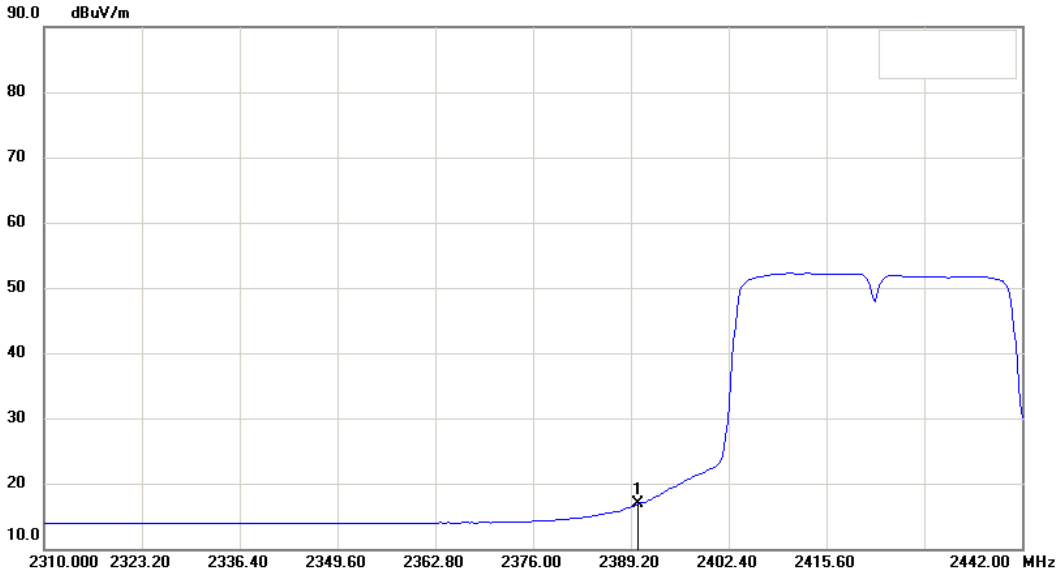
Vertical (Peak)



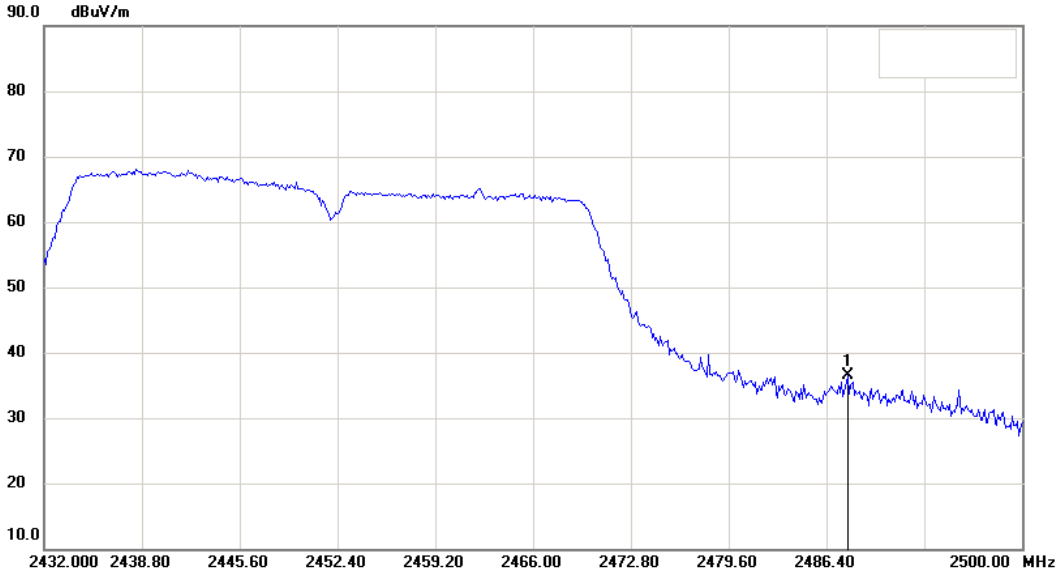
Horizontal (Average)



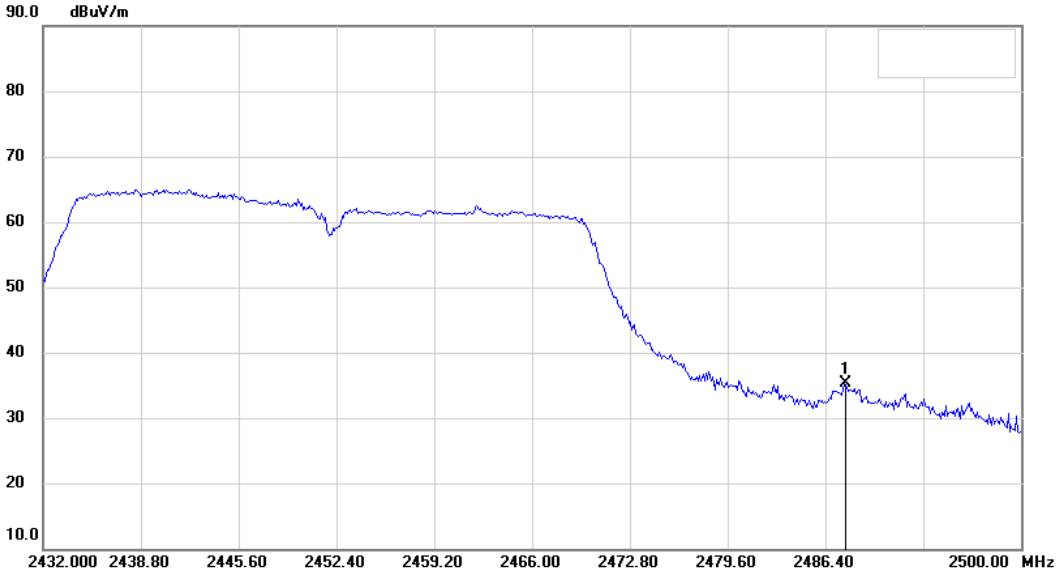
Vertical (Average)



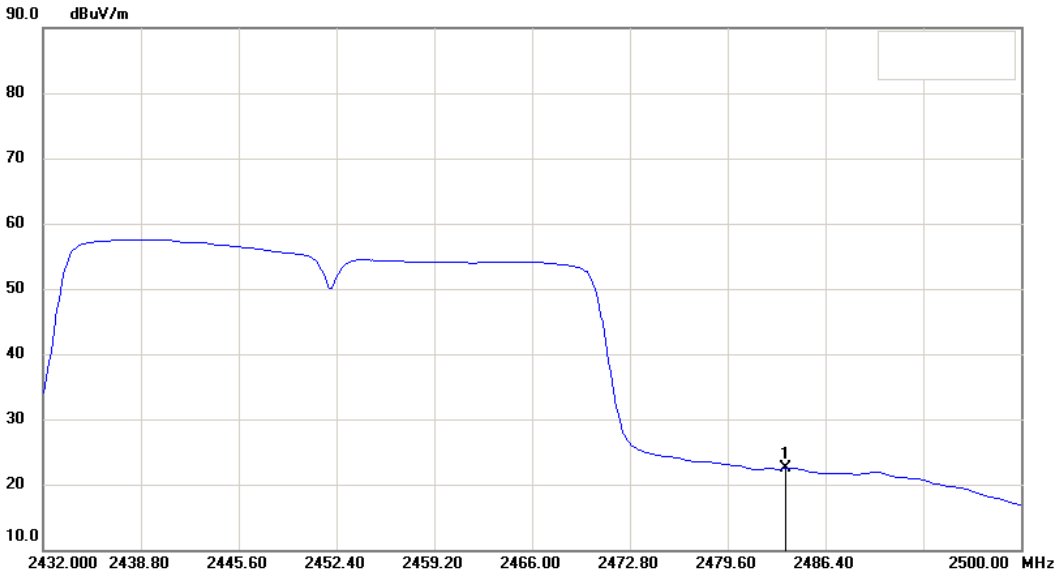
Horizontal (Peak)



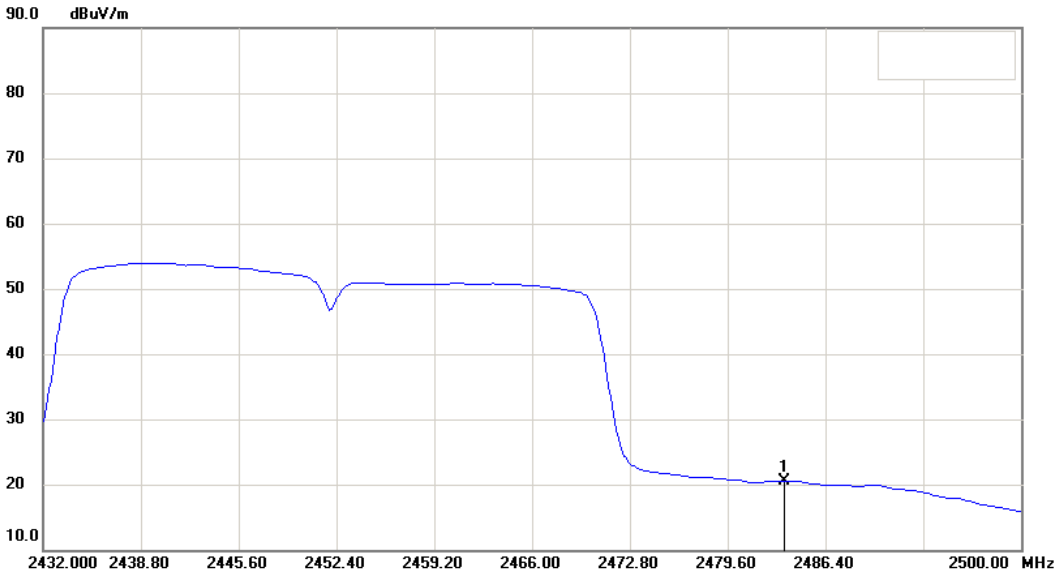
Vertical (Peak)



Horizontal (Average)



Vertical (Average)



10.5 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor, High Pass Filter Loss(if used) and Cable Loss, and subtracting the Amplifier Gain (if any) from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

where

Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss - Amplifier Gain

11. EQUIPMENTS LIST FOR TESTING

Equipment	Manufacturer	Model No.	S/N	Calibration Date	Next Cal. Due
Spectrum Analyzer	Agilent	E4446A	13052013-001	10/18/2016	10/17/2017
Power Meter	Agilent	N1922A	13053523-001	10/12/2016	10/11/2017
Peak Power Sensor	Agilent	N1912A	13050625-001	10/12/2016	10/11/2017
EMI Receiver	R&S	ESCI	13054423-001	01/13/2017	01/12/2018
Spectrum Analyzer	R&S	FSU46	13040904-001	01/10/2017	01/09/2018
Horn Antenna	EMCO	3115	13059201-001	11/09/2016	11/08/2017
BiLog Antenna	ETC	MCTD 2786B	BLB17F04016	02/15/2017	02/14/2018
Horn Antenna	EMCO	3116	13059202-001	10/18/2016	10/17/2017
PRE-Amplifier	Agilent	8449B	13040709-001	01/10/2017	01/09/2018
PRE-Amplifier	Agilent	8447D	13040715-002	04/25/2017	04/24/2018
Loop Antenna	EMCO	6512	13054104-001	09/01/2016	08/31/2017
Attenuator	WEINSCHEL	56-10	58772	04/25/2017	04/24/2018