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Test Report for FCC

FCC ID :TKWFS2-AWB

Report Number		ESTRFC1702-003		
Applicant	Company name	Suprema Inc		
	Address	13554 17F-5, Parkview Office Tower, 248, Jeongjail-ro, Bundang-gu, Seongnam, Gyeonggi, South Korea		
	Telephone	+82-31-710-4908		
	Contack person	Bongseop Song		
Product	Product name	Face Station2		
	Model No.	FS2-AWB	Manufacturer	Suprema Inc
	Serial No.	None	Country of origin	KOREA
Test date	2017-02-02 ~ 2017-02-03		Date of issue	22-Feb-17
Testing location	347-69, Jungbu-daero 147beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do 467-811, R. O. Korea			
Standard	FCC PART 15 Subpart C (15.247) , ANSI C 63.10(2009) , KDB 558074 D01(2016)			
Measurement facility registration number	659627			
Tested by	Senior Engineer H.K. Lee (Signature)			
Reviewed by	Engineering Manager I.K. Hong (Signature)			
Abbreviation	OK, Pass = Passed, Fail = Failed, N/A = not applicable			

* Note

- This test report is not permitted to copy partly without our permission
- This test result is dependent on only equipment to be used
- This test result based on a single evaluation of one sample of the above mentioned

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Appendix 1. Special diagram

Appendix 2. Antenna Requirement

1. Laboratory Information

1.1 General

This EUT (Equipment Under Test) has been shown to be capable of compliance with the applicable technical standards and is tested in accordance with the measurement procedures as indicated in this report.
ESTECH Lab attests to accuracy of test data. All measurement reported herein were performed by ESTECH Co., Ltd.
ESTECH Lab assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

1.2 Test Lab.

Corporation Name : ESTECH Co., Ltd.

Head Office : Suite 1015 World Meridian II, 123 Gasan Digital 2-ro, Geumcheon-gu, Seoul 153-759, R. O. Korea

EMC/Telecom/Safety Test Lab : 347-69, Jungbu-daero 147beon-gil, Majang-myeon, Icheon-si,
Gyeonggi-do 467-811, R. O. Korea

1.3 Official Qualification(s)

MSIP : Granted Accreditation from Ministry of Information & Communication for EMC, Safety and Telecommunication
KOLAS : Accredited Lab By Korea Laboratory Accreditation Schema base on CENELEC requirements
FCC : Conformity Assessment Body(CAB) with registration number 659627 under APEC TEL MRA between the RRA and the FCC
VCCI : Granted Accreditation from Voluntary Control Council for Interference from ITE

2. Description of EUT

2.1 Summary of Equipment Under Test

Modulation Type	: CCK, OFDM
Transfer Rate	: 11 Mbps , 54 Mbps, 135 Mbps
Number of Channel	: 11 ch
PEAK Output Power	: 5.8 dBm
Rating	: INPUT : (100 - 240) Va.c., (50 - 60) Hz, 1.0 A OUTPUT : 12 Vd.c., 2.5 A
Receipt Date	: 5-Dec-16
Testing Voltage	: AC 120 V , 60 Hz
X-tal list(s) or Frequencies generated	: The highest operating frequency is 2 462 MHz

2.2 General descriptions of EUT

CPU 1.4 GHz Quad Core
Memory 8GB Flash + 1GB RAM
LCD 4" color TFT LCD (Resolution: 480 x 800)
Sound 24 bit/Voice DSP (echo cancel)
Operating temperature -20°C ~ 50°C
Storage temperature -40°C ~ 70°C
Operating humidity 0% ~ 80%, non-condensing
Storage humidity 0% ~ 90%, non-condensing
Camera CMOS VGA (720 x 480) pixels
Camera angle Visual : Diagonal 92.7° , IR : Diagonal 58°
Dimension (W x H x D) 141 mm x 125 mm x 164 mm (h)
Weight Device: 610g (With Wall-Bracket)
RF Option RFID : 13.5MHz / 117KHz

3. Test Standards

Test Standard : FCC PART 15 Subpart C (15.247)

This Standard sets out the regulations under which an intentional, unintentional, or incidental radiator may be operated without an individual license. It also contains the technical specifications, administrative requirements and other conditions relating to the marketing of Part 15 devices.

Test Method : ANSI C 63.10 (2009) & KDB558074 D01(2016)

This standard sets forth uniform methods of measurement of radio-frequency (RF) signals and noise emitted from both unintentional and intentional emitters of RF energy in the frequency range 9 kHz to 40 GHz. Methods for the measurement of radiated and AC power-line conducted radio noise are covered and may be applied to any such equipment unless otherwise specified by individual equipment requirements. These methods cover measurement of certain decides that deliberately radiate energy, such as intentional emitters, but does not cover licensed transmitters. This standard is not intended for certification/approval of avionic equipment or for industrial, scientific, and medical (ISM) equipment These method apply to the measurement of individual units or systems comprised of multiple units

Summary of Test Results

Applied Satandard : 47 CFR Part 15 Subpart C				remark
Standard	Test Type	Result	Remark	Limit
15.207	AC Power Conducted Emission	Pass	Meet the requirement	
15.205 & 15.209	Restricted band / Intentional Radiated Emission	Pass	Meet the requirement	
15.247(a)(2)	6 dB Bandwidth	Pass	Meet the requirement	Min. 500 kHz
	99 % Bandwidth			
15.247(b)(3)	Maximum Peak/average ouput power	Pass	Meet the requirement	Max. 30 dBm
15.247(c)	Transmitter Radiated Emission	Pass	Meet the requirement	Table 15.209
15.247(e)	Power Spectral Density	Pass	Meet the requirement	Max. 8 dBm
15.247(d)	Band Edge Measurement	Pass	Meet the requirement	20 dB less

4. Measurement Condition

4.1 EUT Operation

a. Channel

Ch.	Frequency	Ch.	Frequency
1	2 412 MHz	7	2 442 MHz
2	2 417 MHz	8	2 447 MHz
3	2 422 MHz	9	2 452 MHz
4	2 427 MHz	10	2 457 MHz
5	2 432 MHz	11	2 462 MHz
6	2 437 MHz		

b. Measurement Channel : WLAN : Low(2 412 MHz), Middle(2 437 MHz), High(2 462 MHz)

c. Test Mode : Continuous Output, CCK, OFDM

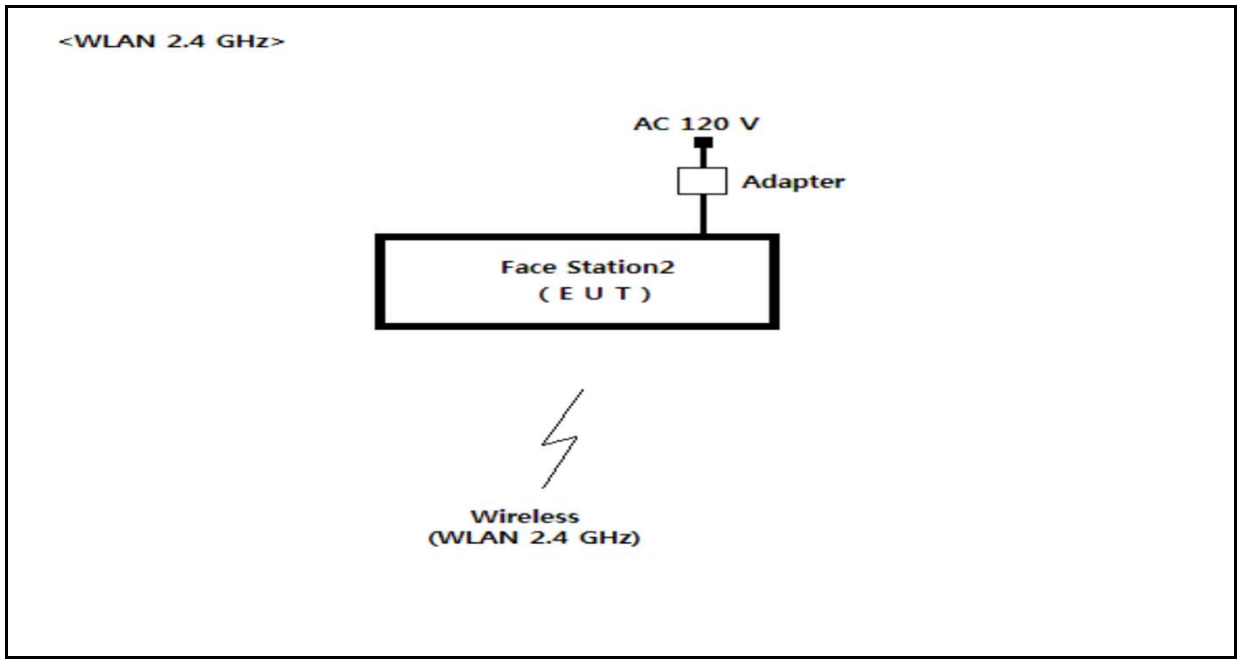
d. Test rate : 11 Mbps, 54 Mbps, 135 Mbps

4.2 EUT Operation

- The EUT was in the following operation mode during all testing

* Wireless LAN 2.4 GHz operation check
* Transmit mode were measured each channels(802.11.b, 802.11.g, 802.11.n20, 802.11.n40)

4.3 Configuration and Peripherals



4.4 EUT and Support equipment

Equipment Name	Model Name	S/N	Manufacturer	Remark (FCC ID)
Face Station2	FS2-AWB	NONE	Suprema Inc	EUT
Adapter	JPW128KA1200N05	NONE	BridgePower Corp.	

4.5 Cable Connecting

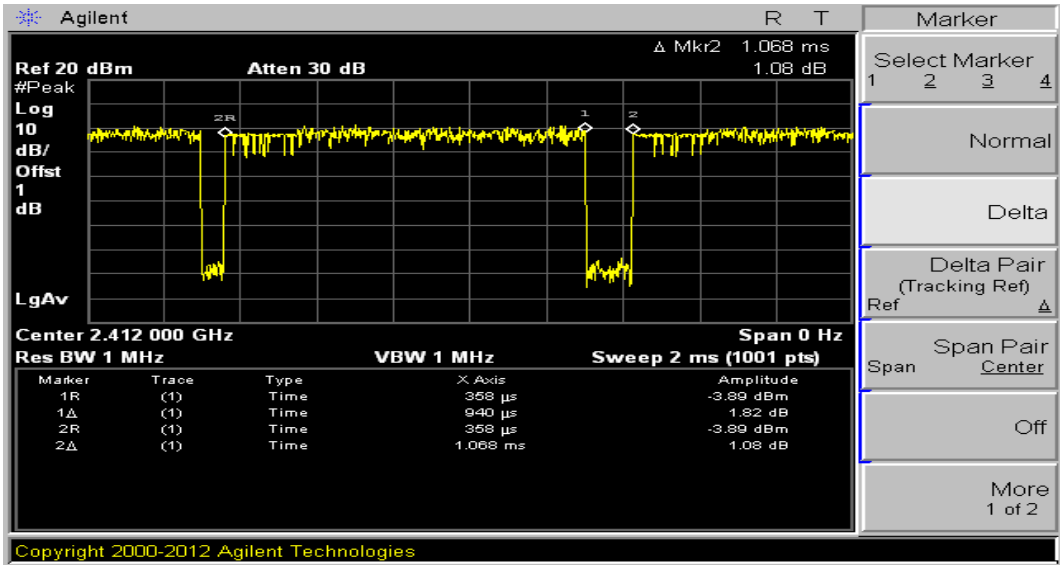
Start Equipment		End Equipment		Cable Standard		Remark
Name	I/O port	Name	I/O port	Length	Shielded	
Face Station2	WIRELESS (2.4 GHz)	Adapter	-	2	Unshielded	
Face Station2	Wireless (WLAN2.4 GHz)	-	-	-	-	

4.6 DUTY CYCLE OF TEST SIGNAL

Duty cycle is > 98 %, duty factor shall be considered.

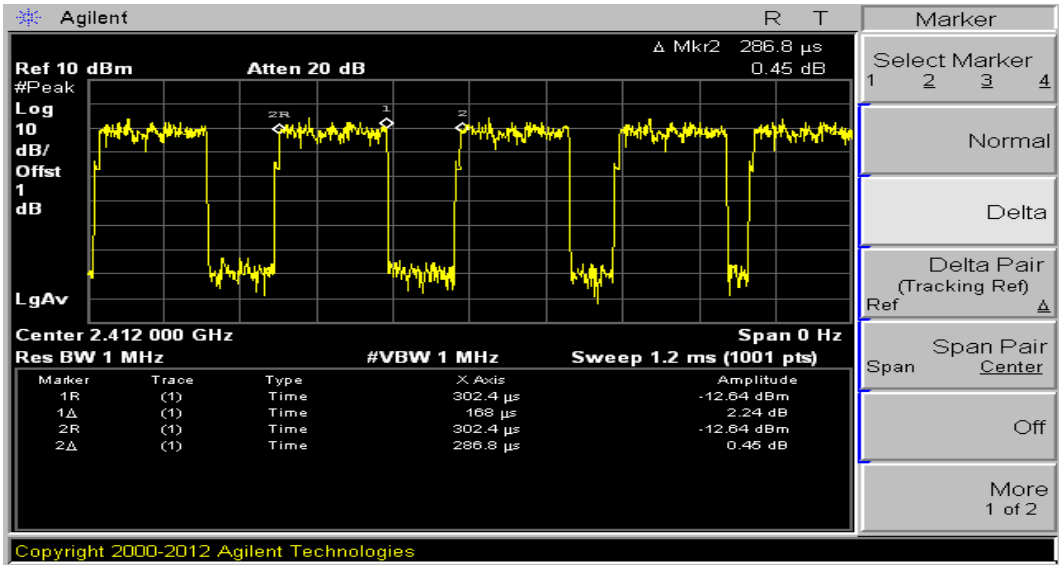
duty cycle = 88% , duty factor = 10*log(1/0.88) =0.555

802.11b



802.11g

duty cycle = 58% , duty factor = 10*log(1/0.58) =2.365

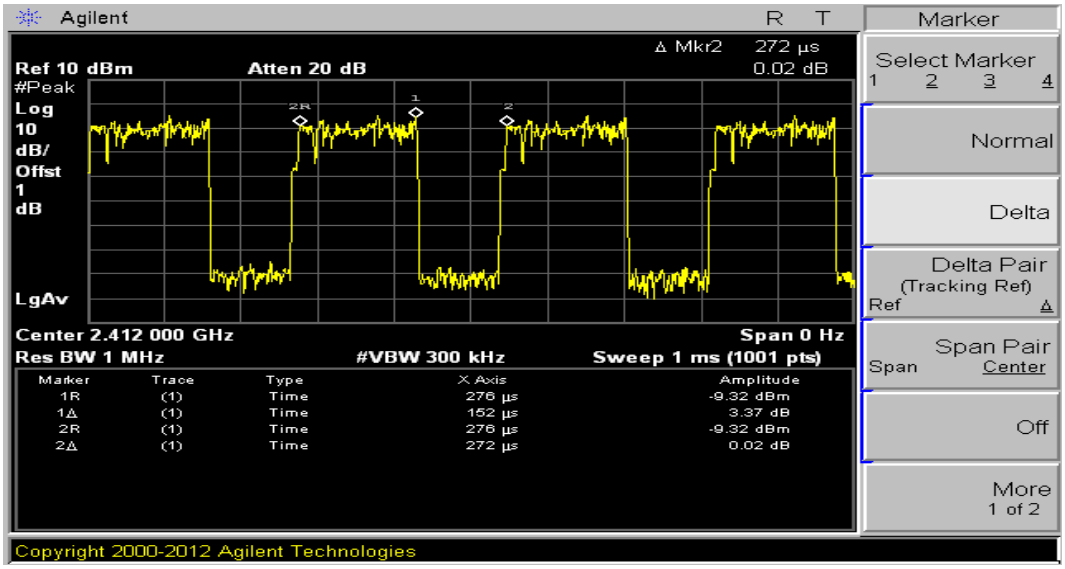


4.6 DUTY CYCLE OF TEST SIGNAL

Duty cycle is > 98 %, duty factor shall be considered.

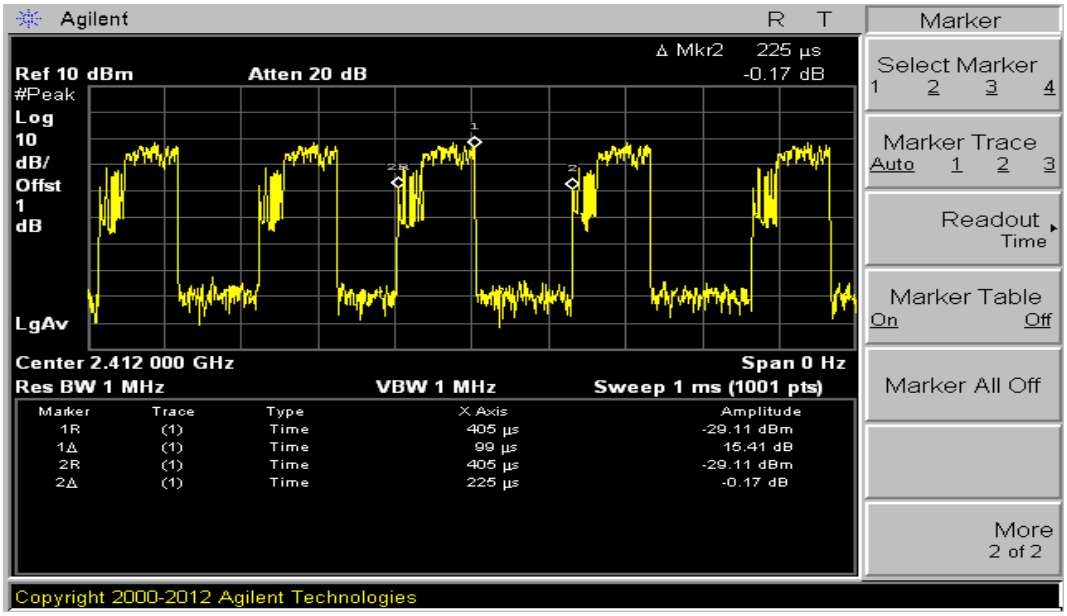
duty cycle = 59% , duty factor = 10*log(1/0.59) = 2.291

802.11n20



802.11n40

duty cycle = 44% , duty factor = 10*log(1/0.44) = 3.565



5. DTS bandwidth

5.1 Test procedure

558074 D01 DTS Meas Guidance v03v05 8.2 Option 2 : The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW ≥ 3 x RBW, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be > 6 dB.

5.2 might be > 6 dB Test instruments and measurement setup

The spectrum analyzer is set to as following.

. RBW= 100 KHz . VBW≥ 3 x RBW

. Span= 20 MHz . Sweep= suitable duration based on the EUT specification.

Limits : FCC § 15.247(a)(2)

6dB Bandwidth Test Instruments

Description	Model	Serial Number	Cal. Due Date
Spectrum Analyzer	E4440A	US42041291	4-Jan-18
RF Cable	Length: 30 cm	-	
-Spectrum Analyzer <=> EUT	Loss: 1 dB	-	

5.3 Measurement results

EUT	Face Station2	MODEL	FS2-AWB
MODE	b, g, n20, n40	ENVIRONMENTAL CONDITION	24.0 ℃, 44.0 % R.H.
INPUT POWER	12.0 Vd.c.		

MODE - 802.11b

Channel Frequency (MHz)	Emission bandwidth (MHz)	Bandwidth at 6dB below(MHz)	Minimum Limit (MHz)	PASS/FAIL
2 412	14.95	9.48	0.5	PASS
2 437	14.95	9.45	0.5	PASS
2 462	14.80	10.66	0.5	PASS

MODE - 802.11g

Channel Frequency (MHz)	Emission bandwidth (MHz)	Bandwidth at 6dB below(MHz)	Minimum Limit (MHz)	PASS/FAIL
2 412	16.60	18.28	0.5	PASS
2 437	16.46	16.52	0.5	PASS
2 462	16.47	16.48	0.5	PASS

5.3 Measurement results

EUT	Face Station2	MODEL	FS2-AWB
MODE	b, g, n20, n40	ENVIRONMENTAL CONDITION	24.0 ℃, 44.0 % R.H.
INPUT POWER	12.0 Vd.c.		

MODE - 802.11n20

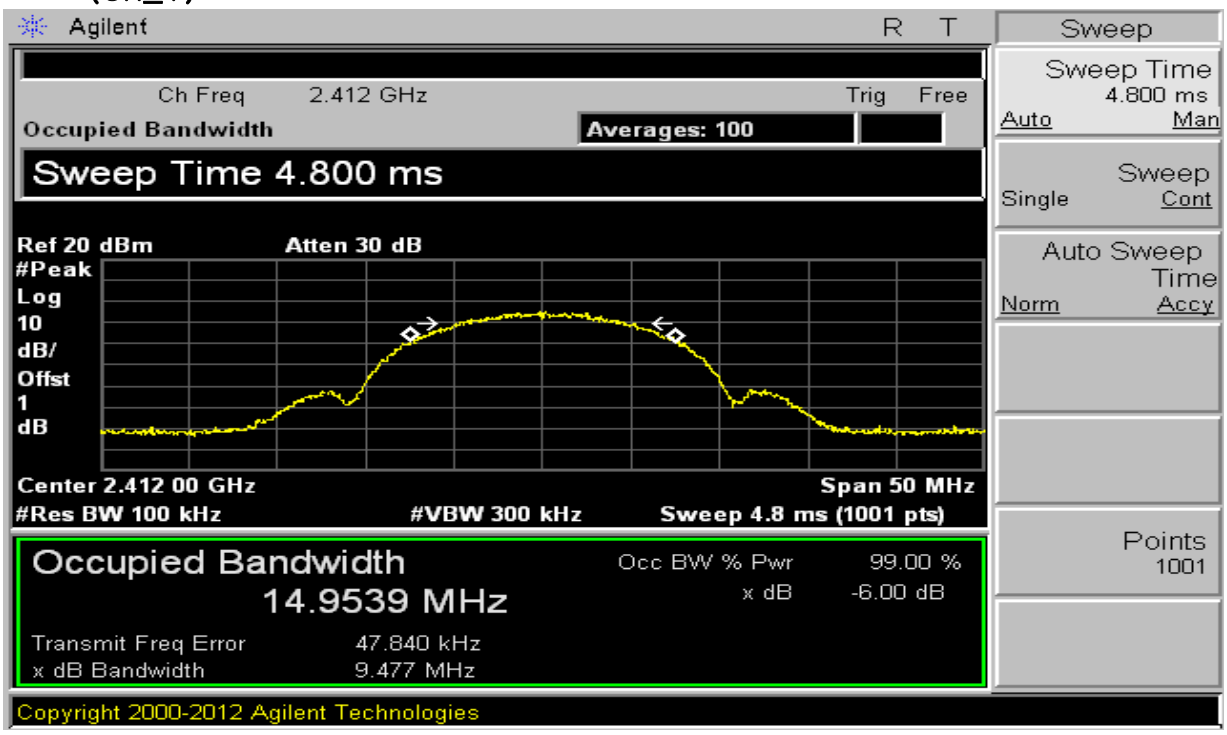
Channel Frequency (MHz)	Emission bandwidth (MHz)	Bandwidth at 6dB below(MHz)	Minimum Limit (MHz)	PASS/FAIL
2 412	17.66	17.66	0.5	PASS
2 437	17.68	17.72	0.5	PASS
2 462	17.69	17.68	0.5	PASS

MODE - 802.11n40

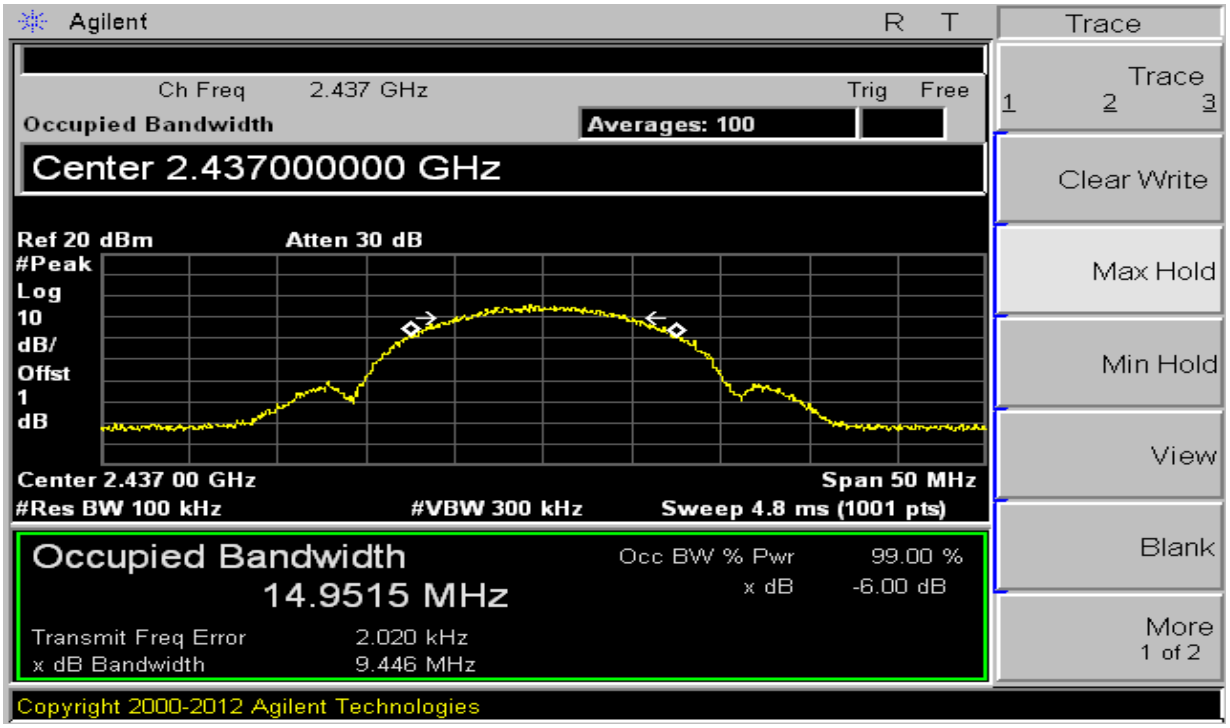
Channel Frequency (MHz)	Emission bandwidth (MHz)	Bandwidth at 6dB below(MHz)	Minimum Limit (MHz)	PASS/FAIL
2 422	35.97	36.02	0.5	PASS
2 437	35.93	35.75	0.5	PASS
2 462	36.01	36.00	0.5	PASS

5.4 Trace data - 802.11b

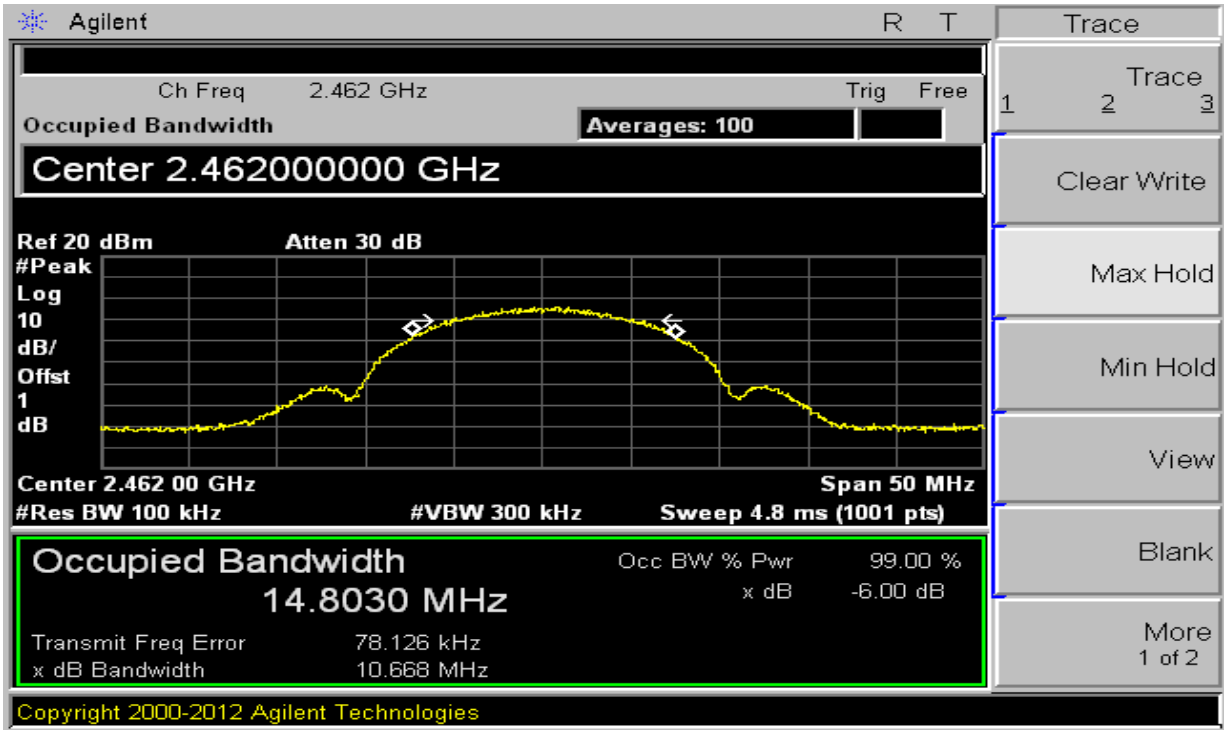
(ch_1)



(ch_6)

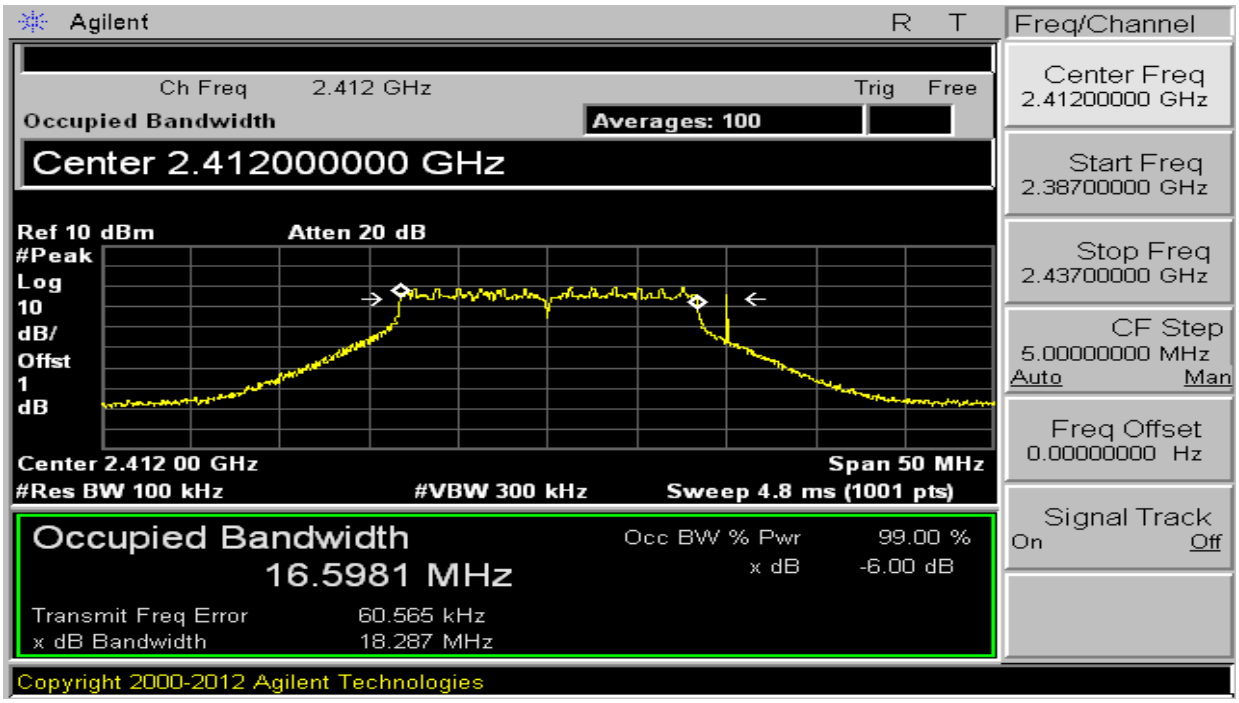


(ch_11)


Agilent
R T
Trace
Ch Freq 2.462 GHz
Trig Free
Occupied Bandwidth
Averages: 100
Trace
1 2 3
Center 2.462000000 GHz
Clear Write
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
1
dB
Max Hold
Min Hold
View
Center 2.462 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (1001 pts)
Occupied Bandwidth
14.8030 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Blank
Transmit Freq Error 78.126 kHz
x dB Bandwidth 10.668 MHz
More
1 of 2
Copyright 2000-2012 Agilent Technologies

5.4 Trace data – 802.11g

(ch_1)



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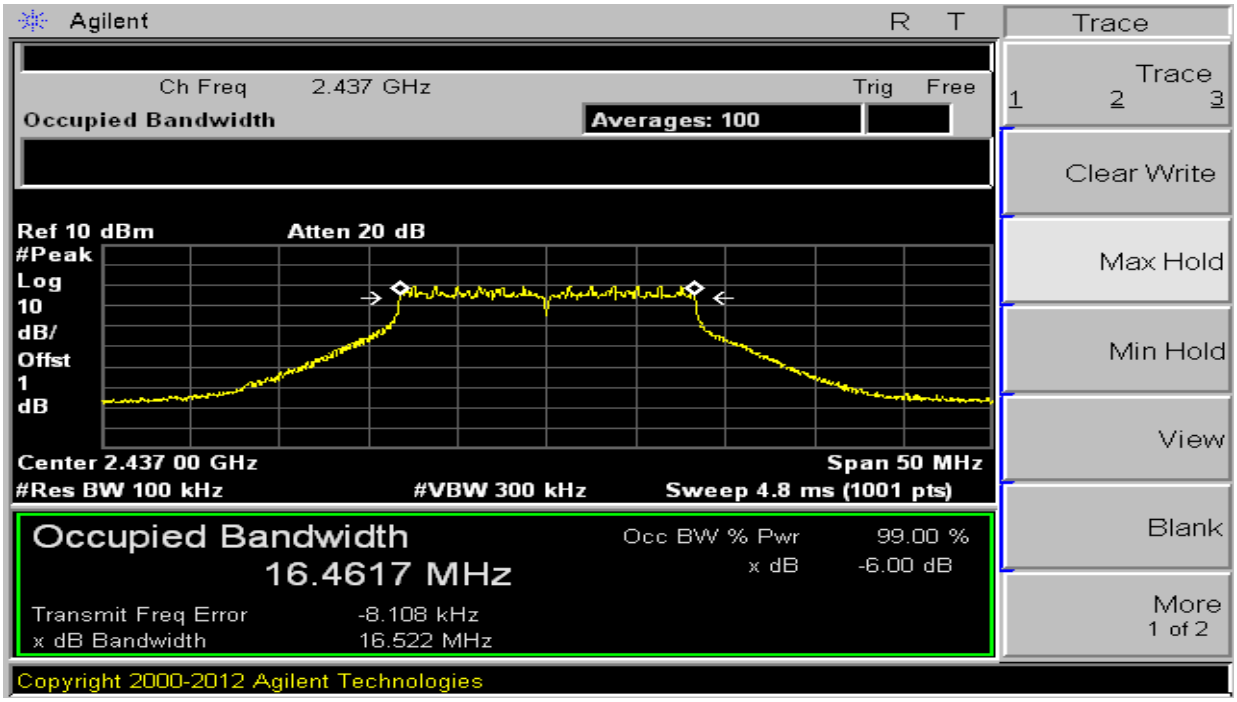

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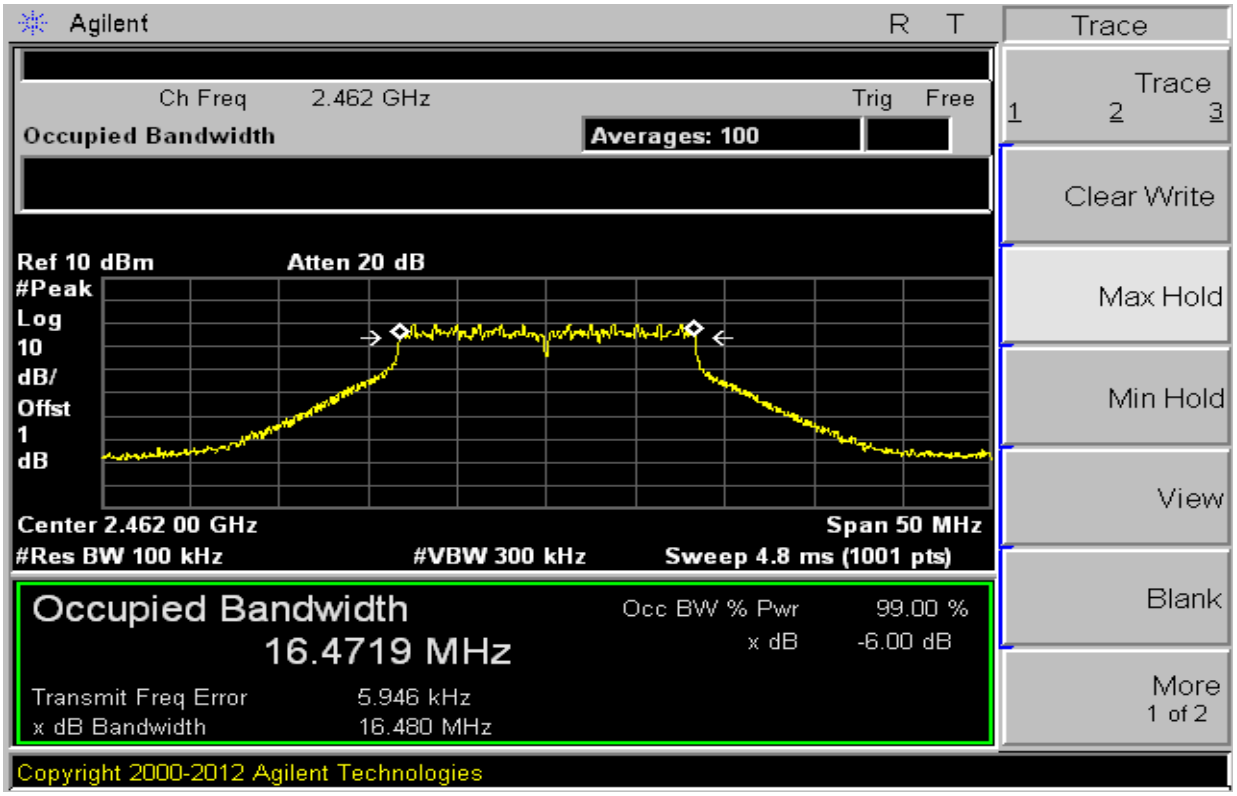
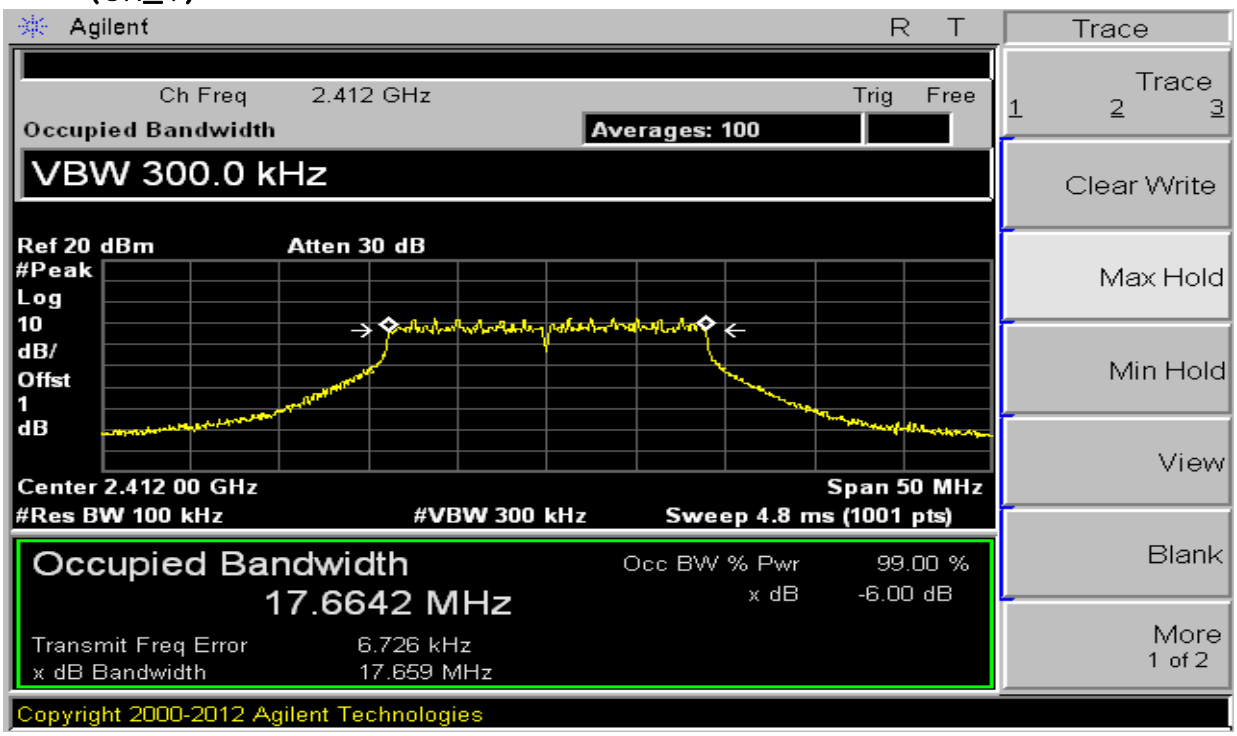

Agilent
R T
Trace
Ch Freq 2.462 GHz
Trig Free
Occupied Bandwidth
Averages: 100
Trace
1 2 3
Clear Write
Max Hold
Min Hold
View
Blank
More
1 of 2
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
1
dB
Center 2.462 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (1001 pts)
Occupied Bandwidth
16.4719 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error 5.946 kHz
x dB Bandwidth 16.480 MHz
Copyright 2000-2012 Agilent Technologies

5.4 Trace data - 802.11n20

(ch_1)



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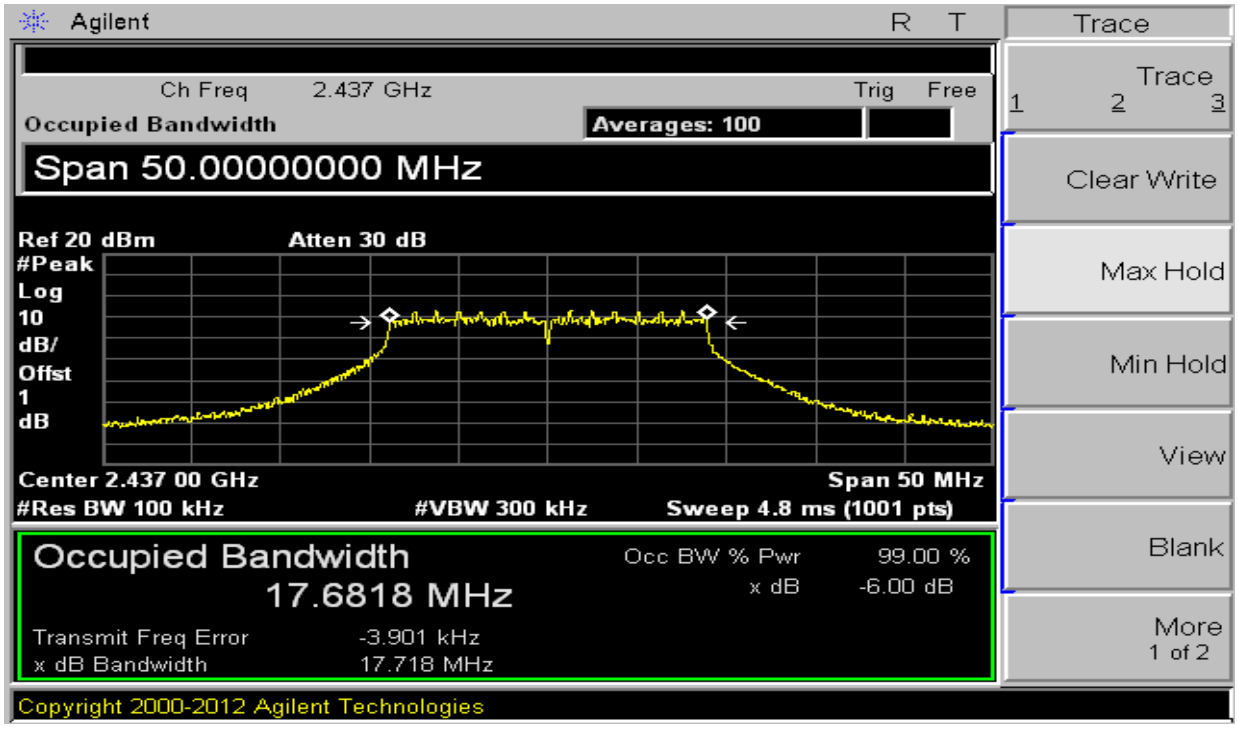
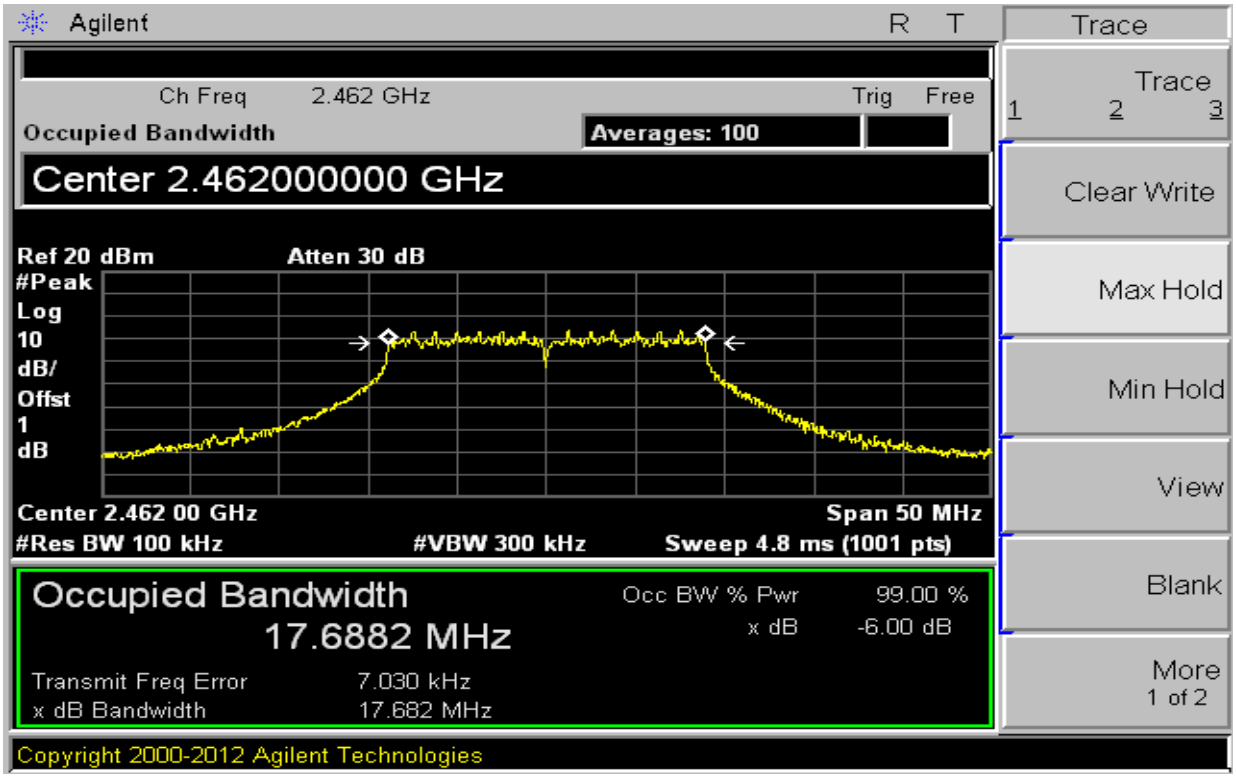


(ch_11)


Agilent
R T
Trace
Ch Freq 2.462 GHz
Trig Free
Occupied Bandwidth
Averages: 100
Center 2.462000000 GHz
Trace
1 2 3
Clear Write
Max Hold
Min Hold
View
Blank
More
1 of 2
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
1
dB
Center 2.462 00 GHz
Span 50 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4.8 ms (1001 pts)
Occupied Bandwidth
17.6882 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error 7.030 kHz
x dB Bandwidth 17.682 MHz
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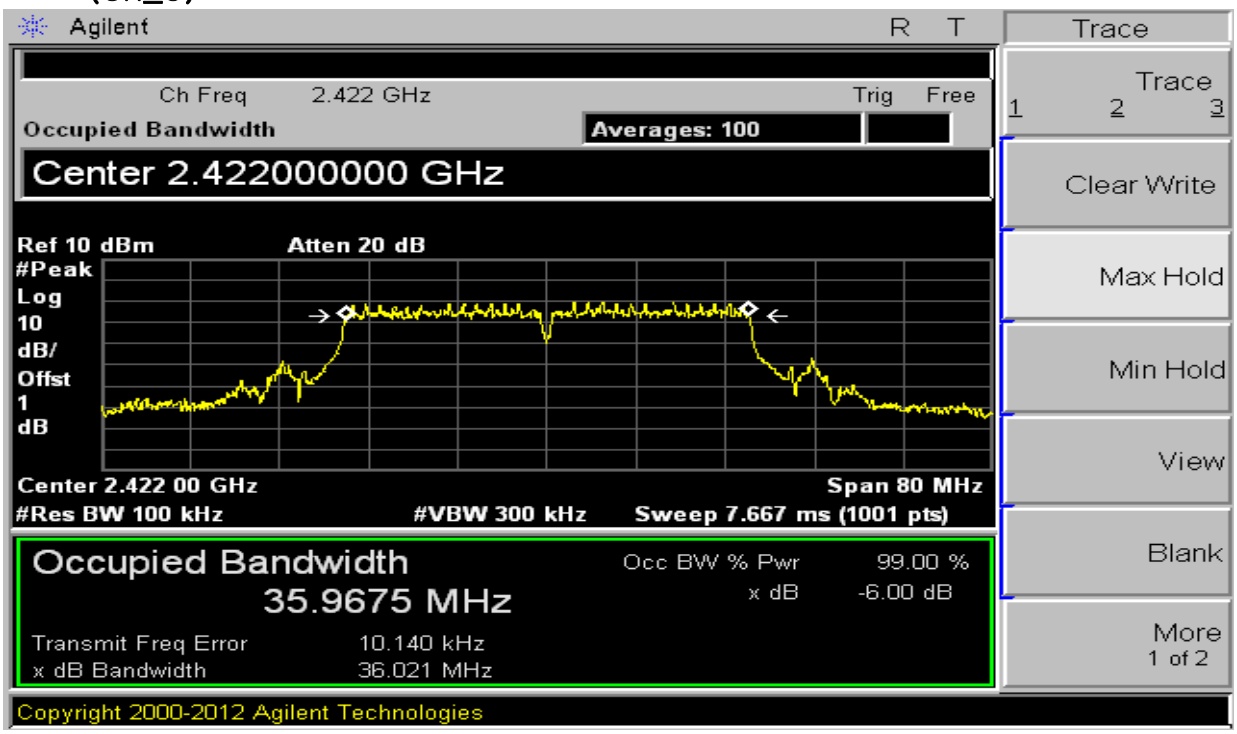
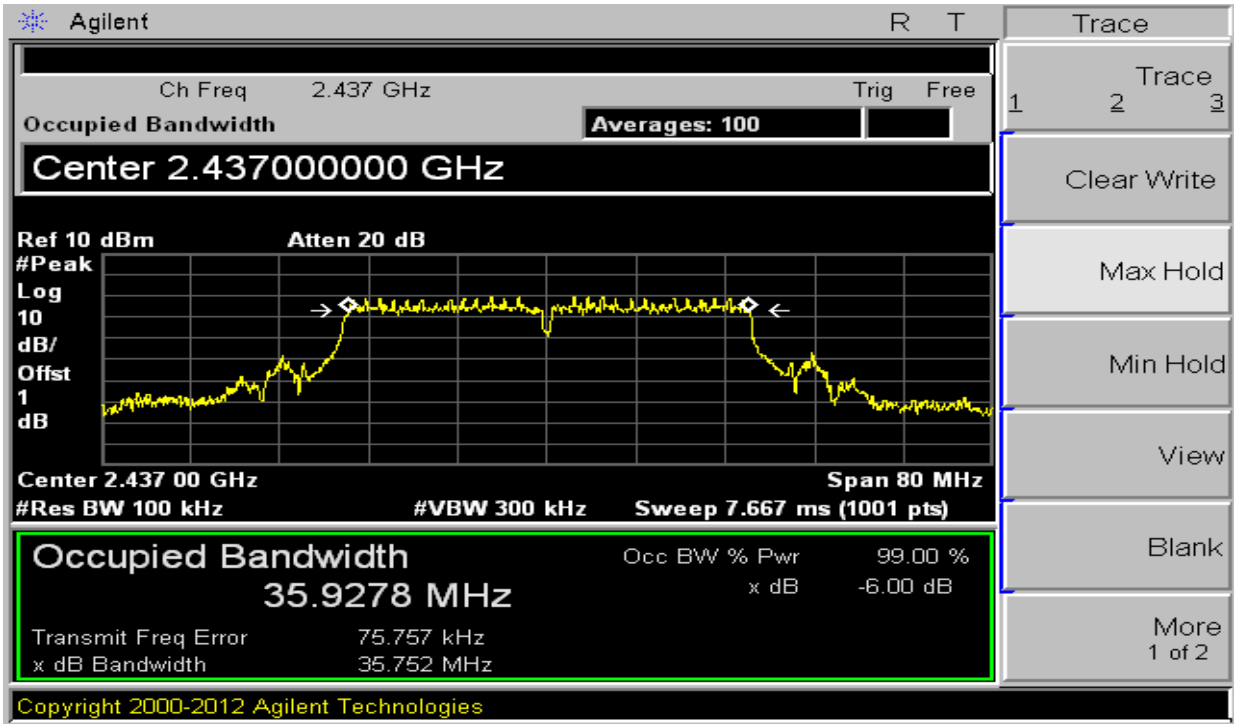
5.4 Trace data - 802.11n40

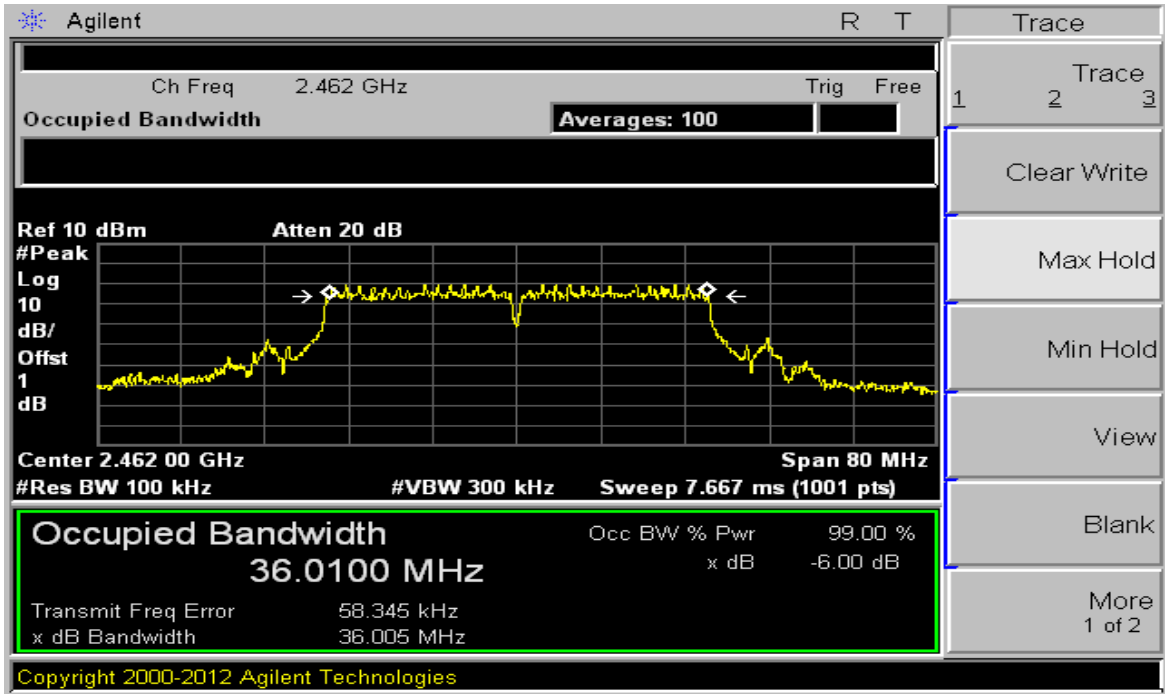
(ch_3)



(ch_6)



(ch_11)


Agilent
R T
Trace
Ch Freq 2.462 GHz
Trig Free
Occupied Bandwidth
Averages: 100
Trace
1 2 3
Clear Write
Max Hold
Min Hold
View
Blank
More
1 of 2
Ref 10 dBm
Atten 20 dB
#Peak
Log
10
dB/
Offst
1
dB
Center 2.462 00 GHz
Span 80 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 7.667 ms (1001 pts)
Occupied Bandwidth
36.0100 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error 58.345 kHz
x dB Bandwidth 36.005 MHz
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6. Maximum peak conducted output power

6.1 Test procedure

KDB 558074 D01 DTS Meas Guidance V03r05 9.1.1 Integrated band power method

6.2 Test instruments and measurement setup

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

Limits : FCC § 15.247

Maximum Peak Output Power Test Instruments

Description	Model	Serial Number	Cal. Due Date
Spectrum Analyzer	E4440A	US42041291	4-Jan-18
RF Cable	Length: 30 cm	-	
-Spectrum Analyzer <=> EUT	Loss: 1 dB	-	

6.3 Measurement results

EUT	Face Station2	MODEL	FS2-AWB
MODE	b, g, n20, n40	ENVIRONMENTAL CONDITION	22.0 ℃, 48.0 % R.H.
INPUT POWER	12.0 Vd.c.		

MODE - 802.11b

CHANNEL	Channel requency (MHz)	Conducted Power Output(dBm)			Limit[1W] (dBm)	PASS/FAIL
		Detector	(dBm)	(W)		
1	2 412	PEAK	5.29	0.0034	30.0	PASS
6	2 437	PEAK	5.98	0.0040	30.0	PASS
11	2 462	PEAK	5.80	0.0038	30.0	PASS

MODE - 802.11g

CHANNEL	Channel requency (MHz)	Conducted Power Output(dBm)			Limit[1W] (dBm)	PASS/FAIL
		Detector	(dBm)	(W)		
1	2 412	PEAK	0.39	0.0011	30.0	PASS
6	2 437	PEAK	0.85	0.0012	30.0	PASS
11	2 462	PEAK	0.54	0.0011	30.0	PASS

6.3 Measurement results

EUT	Face Station2	MODEL	FS2-AWB
MODE	b, g, n20, n40	ENVIRONMENTAL CONDITION	22.0 ℃, 48.0 % R.H.
INPUT POWER	12.0 Vd.c.		

MODE - 802.11n20

CHANNEL	Channel requency (MHz)	Conducted Power Output(dBm)			Limit[1W] (dBm)	PASS/FAIL
		Detector	(dBm)	(W)		
1	2 412	PEAK	3.68	0.0023	30.0	PASS
6	2 437	PEAK	3.76	0.0024	30.0	PASS
11	2 462	PEAK	3.81	0.0024	30.0	PASS

MODE - 802.11n40

CHANNEL	Channel requency (MHz)	Conducted Power Output(dBm)			Limit[1W] (dBm)	PASS/FAIL
		Detector	(dBm)	(W)		
3	2 422	PEAK	0.94	0.0012	30.0	PASS
6	2 437	PEAK	0.68	0.0012	30.0	PASS
11	2 462	PEAK	1.15	0.0013	30.0	PASS

7. Maximum conducted (average) output power

7.1 Test procedure

KDB 558074 D01 DTS Meas Guidance V03r05 9.2.2.4 Method AVGSA-2 (trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction)

7.2 Test instruments and measurement setup

a) Measure the duty cycle, x, of the transmitter output signal as described in 6.0.
b) Set span to at least 1.5 times the OBW.
c) Set RBW = 1-5% of the OBW, not to exceed 1 MHz.
d) Set VBW ≥ 3 x RBW.
e) Number of points in sweep ≥ 2 x span / RBW. (This gives bin-to-bin spacing ≤ RBW/2, so that narrowband signals are not lost between frequency bins.)
f) Sweep time = auto.
g) Detector = RMS (i.e., power averaging), if available. Otherwise, use sample detector mode.
h) Do not use sweep triggering. Allow the sweep to "free run".
i) Trace average at least 100 traces in power averaging (i.e., RMS) mode; however, the number of traces to be averaged shall be increased above 100 as needed such that the average accurately represents the true average over the on and off periods of the transmitter.
j) Compute power by integrating the spectrum across the OBW of the signal using the instrument's band power measurement function with band limits set equal to the OBW band edges. If the instrument does not have a band power function, sum the spectrum levels (in power units) at intervals equal to the RBW extending across the entire OBW of the spectrum.
k) Add 10 log (1/x), where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times (because the measurement represents an average over both the on and off times of the transmission). For example, add 10 log (1/0.25) = 6 dB if the duty cycle is 25 %.

Maximum conducted (average) output power Test Instruments

Description	Model	Serial Number	Cal. Due Date
Spectrum Analyzer	E4440A	US42041291	4-Jan-18
RF Cable	Length: 30 cm	-	
-Spectrum Analyzer <=> EUT	Loss: 1 dB	-	

7.3 Measurement results

EUT	Face Station2	MODEL	FS2-AWB
MODE	b, g, n20, n40	ENVIRONMENTAL CONDITION	24.0 ℃, 44.0 % R.H.
INPUT POWER	12.0 Vd.c.		

MODE - 802.11b

CHANNEL	Channel requency (MHz)	Conducted Power Output(dBm)			Measured + Duty Cycle(dBm)	Measured + Duty Cycle(W)
		Detector	(dBm)	Duty Cycle		
1	2 412	AVG	2.88	0.56	3.4	0.0022
6	2 437	AVG	3.44	0.56	4.0	0.0025
11	2 462	AVG	3.38	0.56	3.9	0.0025

MODE - 802.11g

CHANNEL	Channel requency (MHz)	Conducted Power Output(dBm)			Measured + Duty Cycle(dBm)	Measured + Duty Cycle(W)
		Detector	(dBm)	Duty Cycle		
1	2 412	AVG	-2.63	2.37	-0.3	0.0009
6	2 437	AVG	-1.75	2.37	0.6	0.0012
11	2 462	AVG	-1.91	2.37	0.5	0.0011

7.3 Measurement results

EUT	Face Station2	MODEL	FS2-AWB
MODE	b, g, n20, n40	ENVIRONMENTAL CONDITION	24.0 ℃, 44.0 % R.H.
INPUT POWER	12.0 Vd.c.		

MODE - 802.11n20

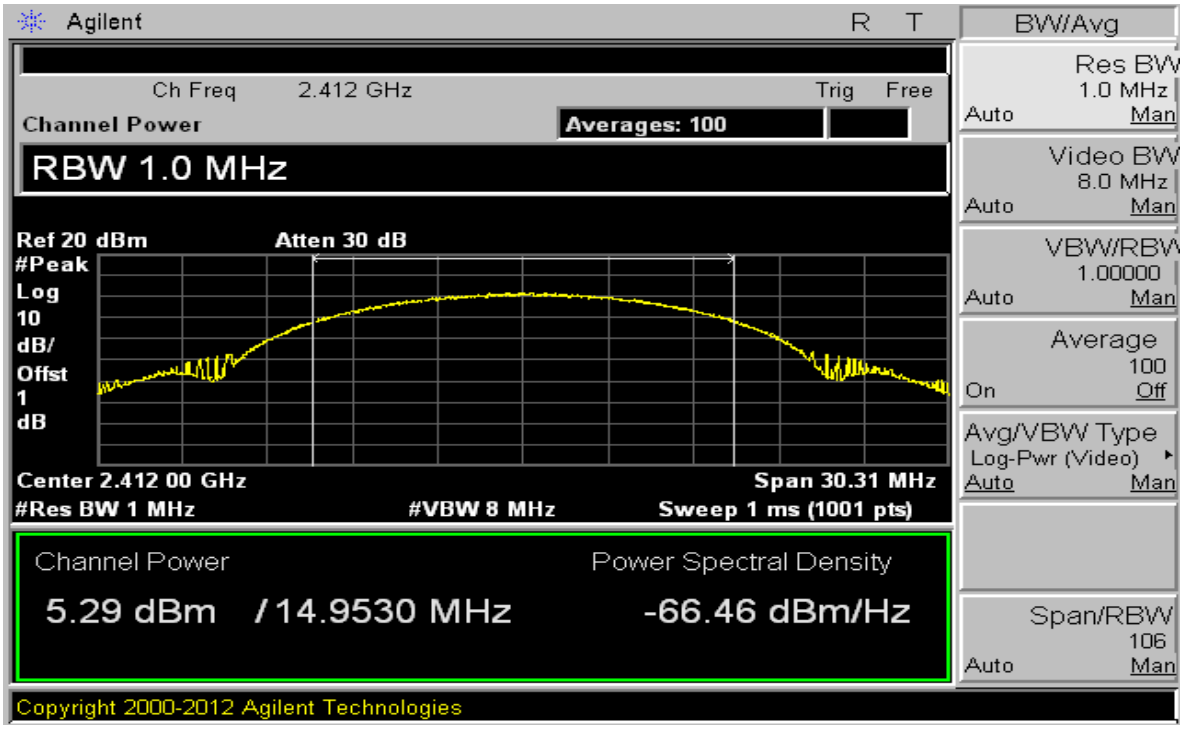
CHANNEL	Channel requency (MHz)	Conducted Power Output(dBm)			Measured + Duty Cycle(dBm)	Measured + Duty Cycle(W)
		Detector	(dBm)	Duty Cycle		
1	2 412	AVG	0.77	2.29	3.1	0.0020
6	2 437	AVG	1.09	2.29	3.4	0.0022
11	2 462	AVG	1.02	2.29	3.3	0.0021

MODE - 802.11n40

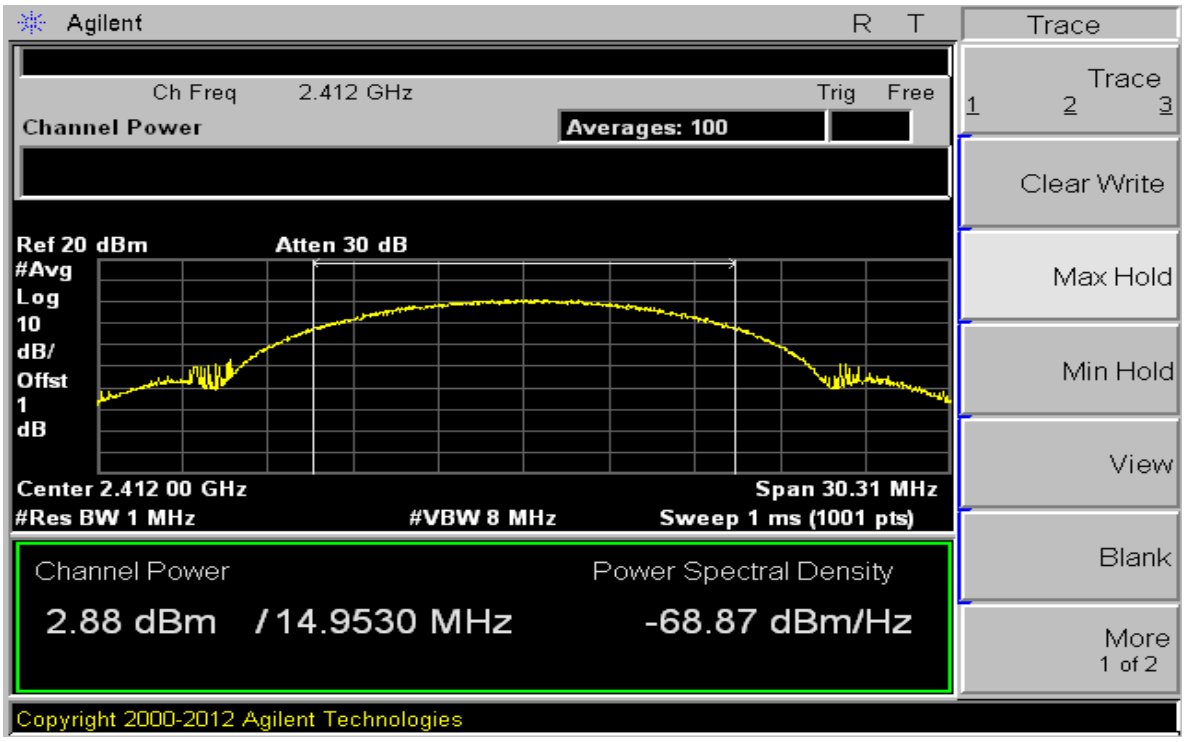
CHANNEL	Channel requency (MHz)	Conducted Power Output(dBm)			Measured + Duty Cycle(dBm)	Measured + Duty Cycle(W)
		Detector	(dBm)	Duty Cycle		
3	2 412	AVG	-1.66	3.57	1.9	0.0016
6	2 437	AVG	-1.62	3.57	1.9	0.0016
11	2 462	AVG	-1.47	3.57	2.1	0.0016

7.4 Trace data (Peak, Average) - 802.11b mode (ch_1)

(Peak)

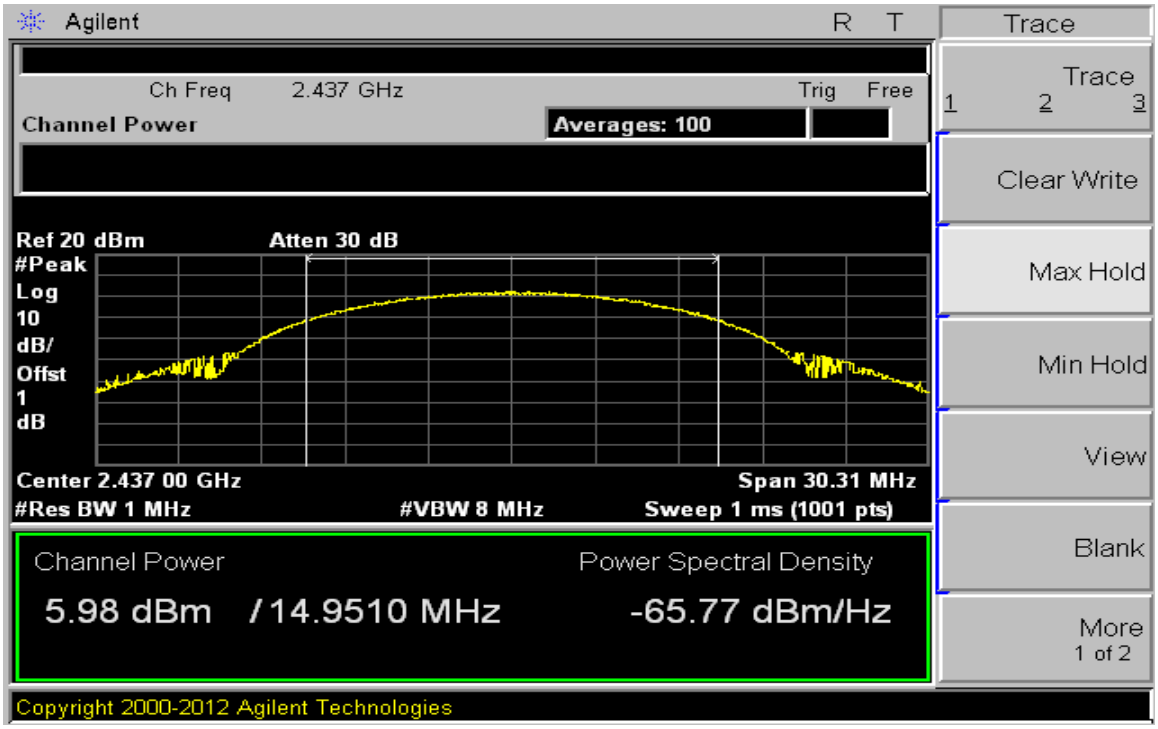


(Avg)

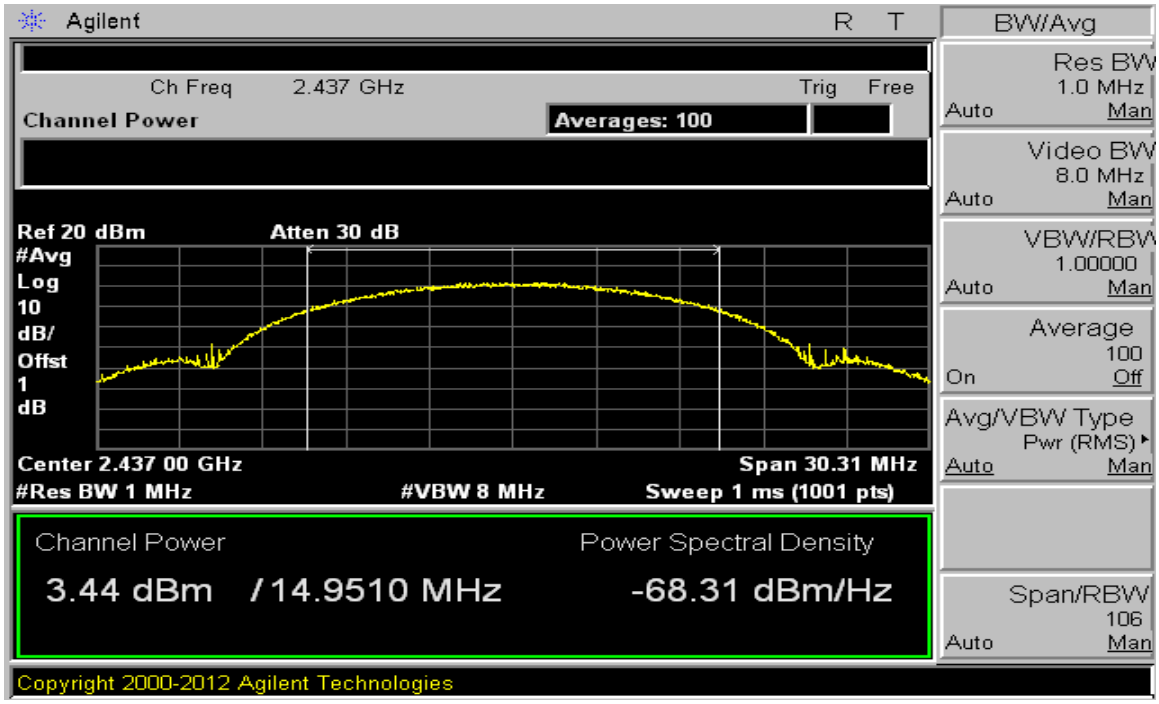


(ch_6)

(Peak)

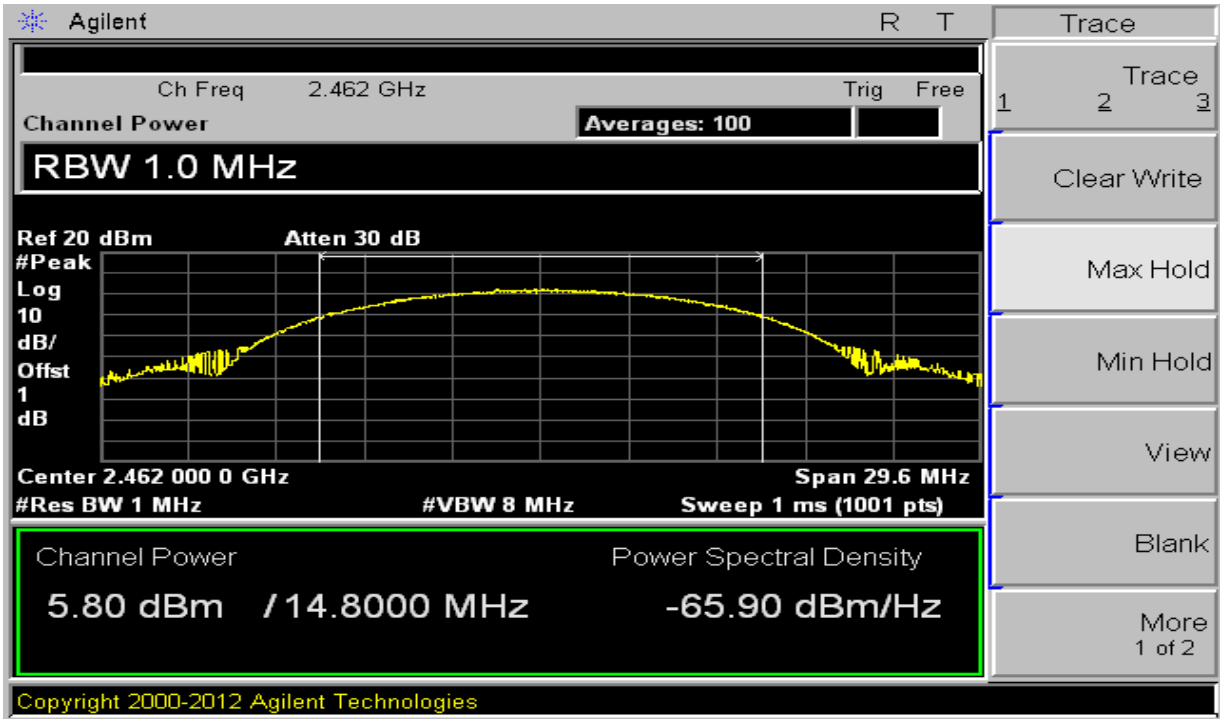

Agilent
R T
Trace
Ch Freq 2.437 GHz
Trig Free
Channel Power
Averages: 100
Trace
1 2 3
Clear Write
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
1
dB
Max Hold
Min Hold
View
Center 2.437 00 GHz
Span 30.31 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (1001 pts)
Channel Power
Power Spectral Density
5.98 dBm / 14.9510 MHz
-65.77 dBm/Hz
Blank
More
1 of 2
Copyright 2000-2012 Agilent Technologies

(Avg)

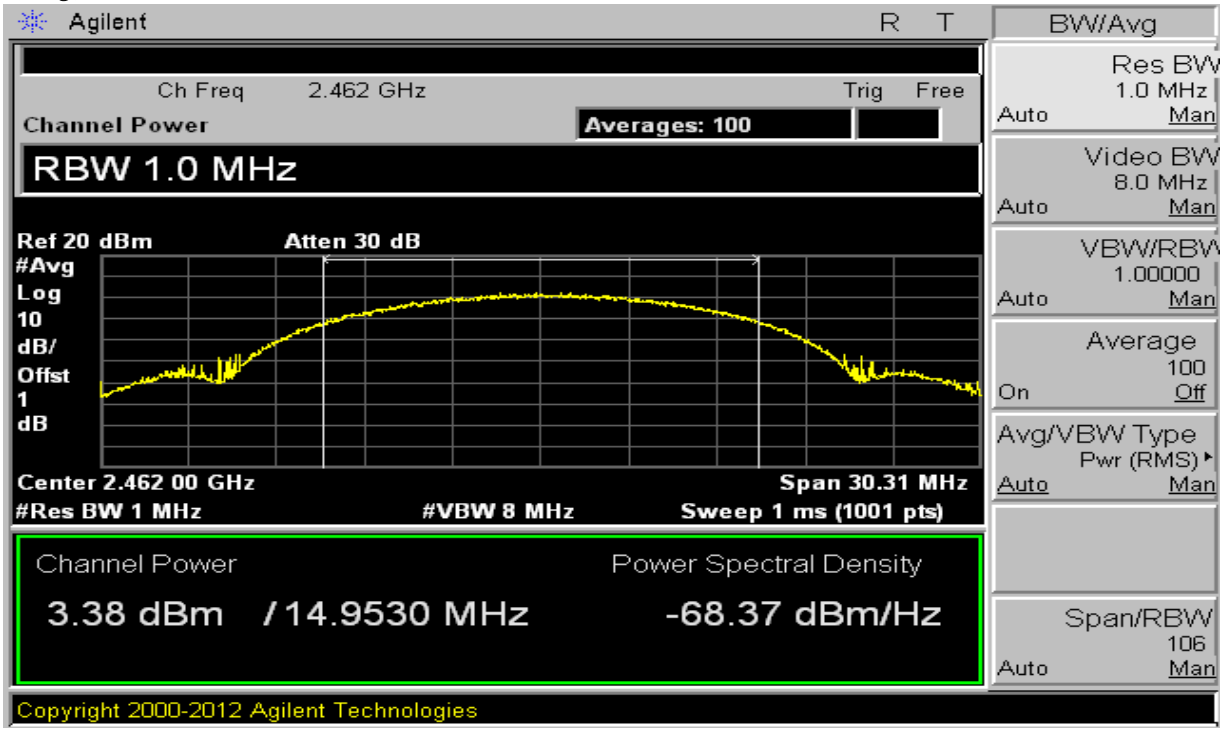

Agilent
R T
BW/Avg
Ch Freq 2.437 GHz
Trig Free
Channel Power
Averages: 100
Res BW
1.0 MHz
Auto Man
Video BW
8.0 MHz
Auto Man
Ref 20 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
1
dB
VBW/RBW
1.00000
Auto Man
Average
100
On Off
Avg/VBW Type
Pwr (RMS)
Auto Man
Center 2.437 00 GHz
Span 30.31 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (1001 pts)
Channel Power
Power Spectral Density
3.44 dBm / 14.9510 MHz
-68.31 dBm/Hz
Span/RBW
106
Auto Man
Copyright 2000-2012 Agilent Technologies

(ch_11)

(Peak)

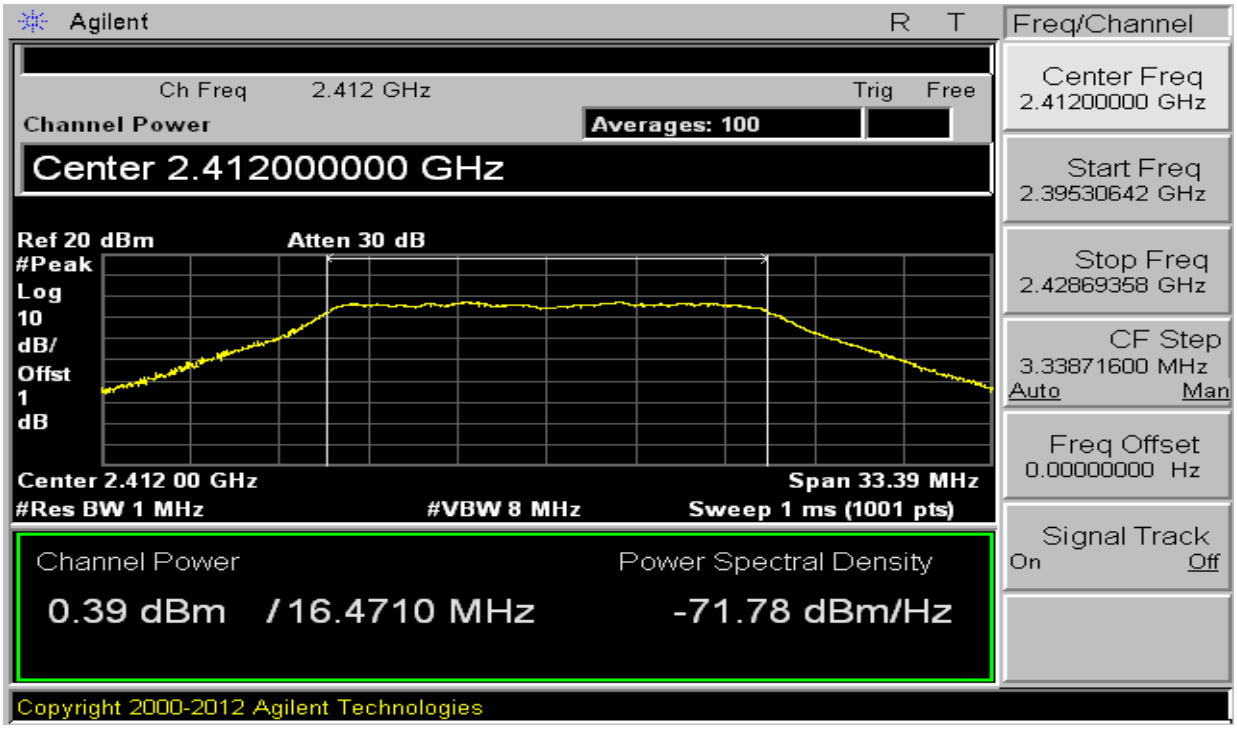


(Avg)

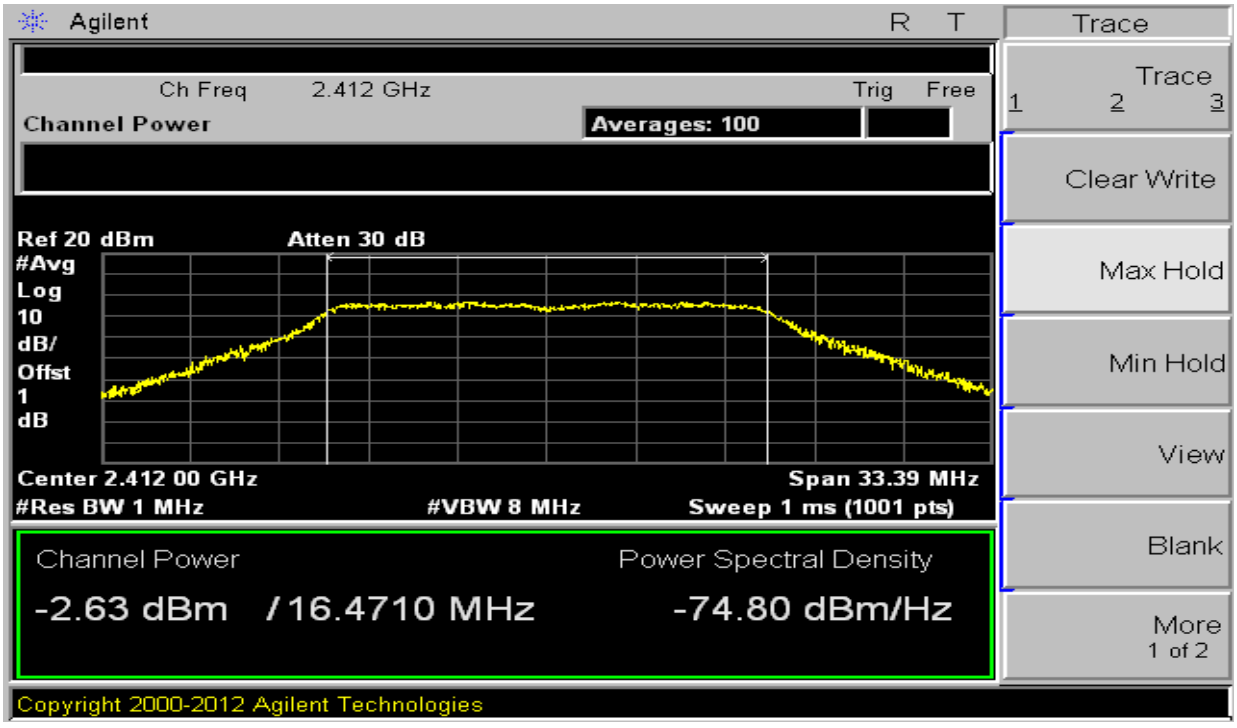


7.4 Trace data (Peak, Average) - 802.11g mode (ch_1)

(Peak)

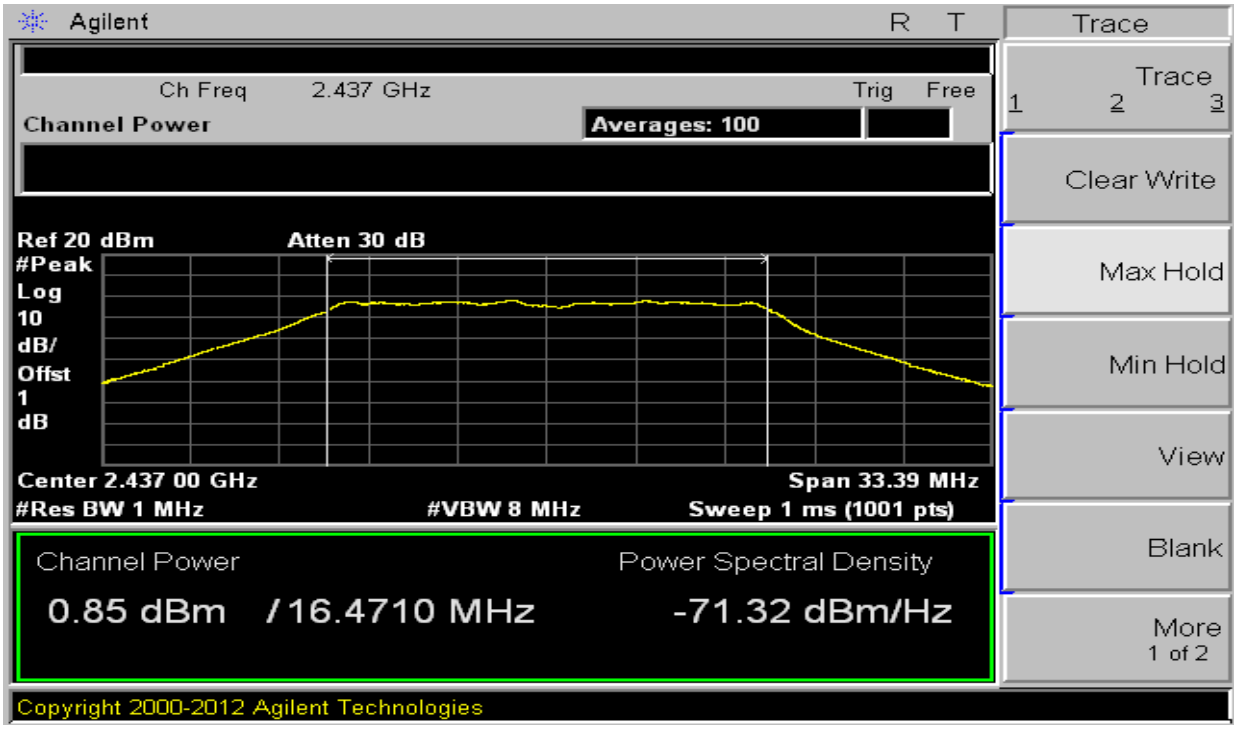


(Avg)

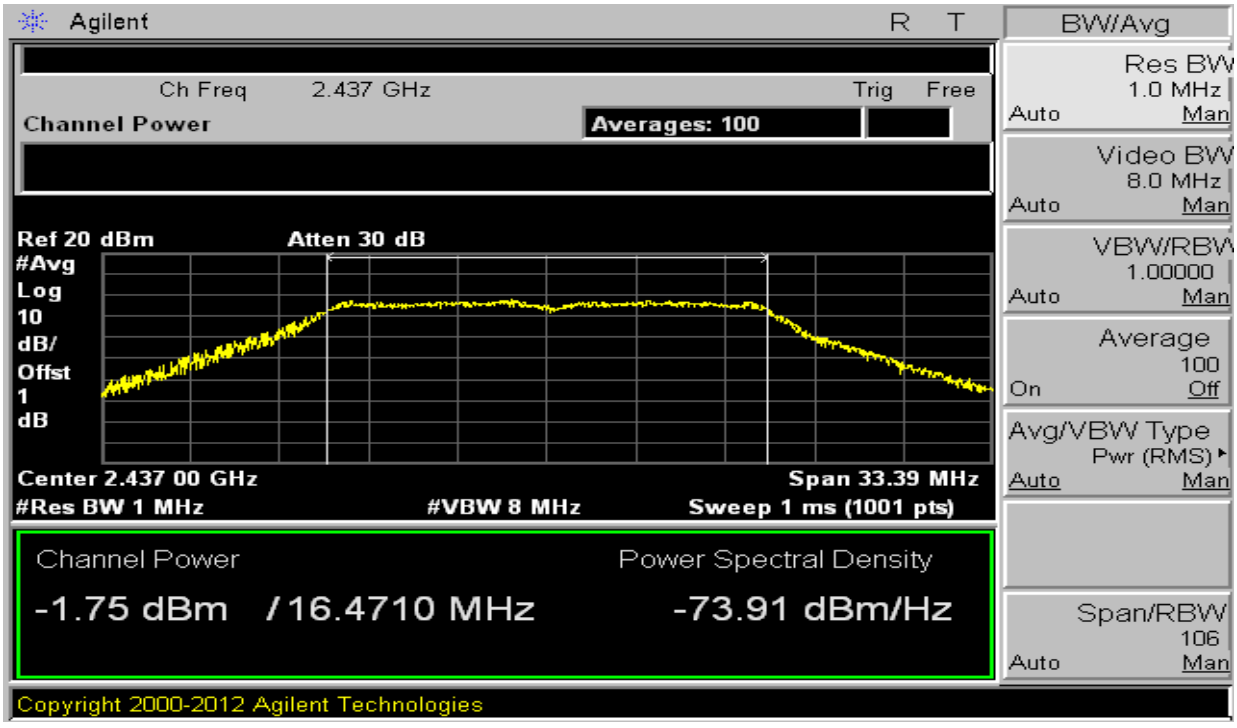


(ch_6)

(Peak)

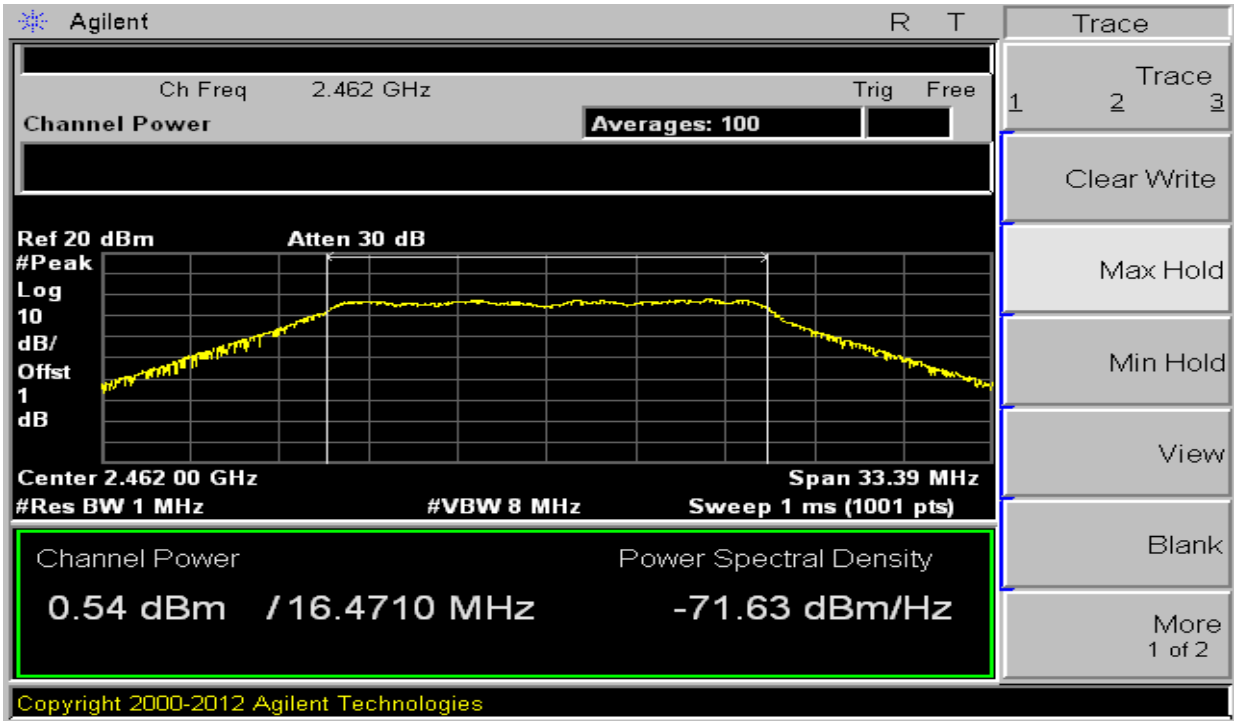

Agilent
R T
Trace
Ch Freq 2.437 GHz
Trig Free
Channel Power
Averages: 100
Trace
1 2 3
Clear Write
Max Hold
Min Hold
View
Blank
More
1 of 2
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
1
dB
Center 2.437 00 GHz
Span 33.39 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (1001 pts)
Channel Power
0.85 dBm /16.4710 MHz
Power Spectral Density
-71.32 dBm/Hz
Copyright 2000-2012 Agilent Technologies

(Avg)

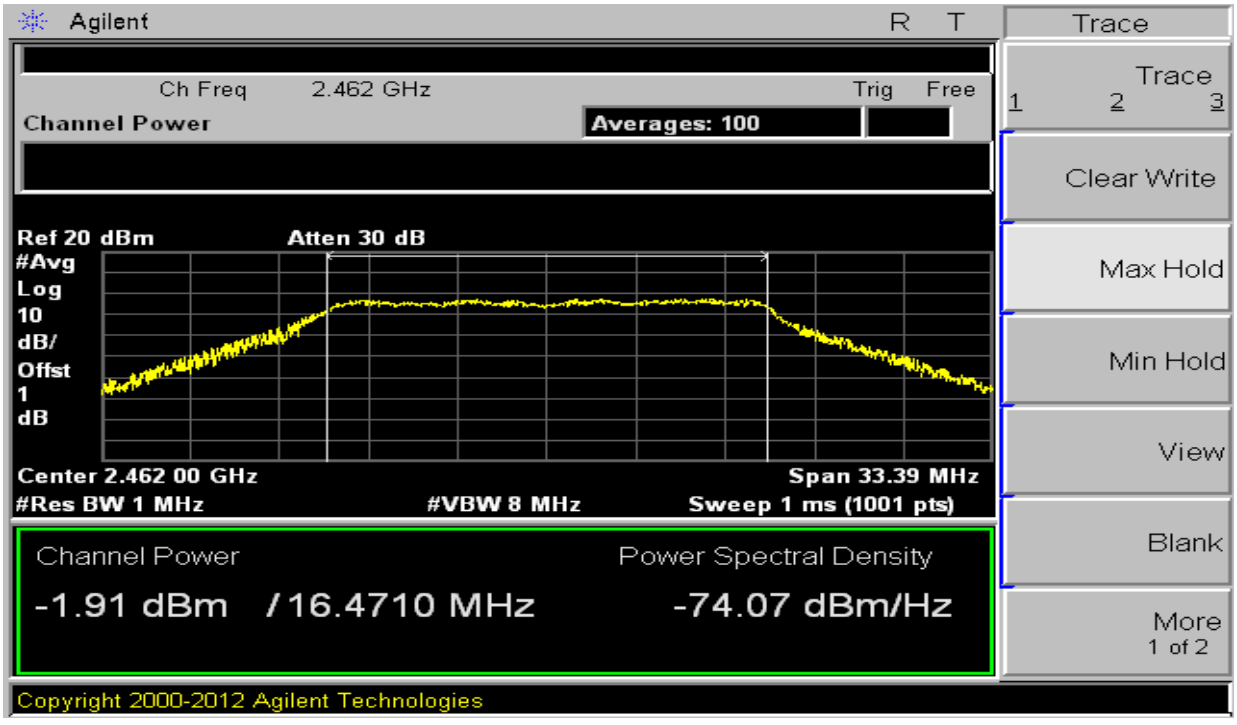

Agilent
R T
BW/Avg
Ch Freq 2.437 GHz
Trig Free
Channel Power
Averages: 100
Res BW
1.0 MHz
Auto Man
Video BW
8.0 MHz
Auto Man
VBW/RBW
1.00000
Auto Man
Average
100
On Off
Avg/VBW Type
Pwr (RMS)
Auto Man
Span/RBW
106
Auto Man
Ref 20 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
1
dB
Center 2.437 00 GHz
Span 33.39 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (1001 pts)
Channel Power
-1.75 dBm /16.4710 MHz
Power Spectral Density
-73.91 dBm/Hz
Copyright 2000-2012 Agilent Technologies

(ch_11)

(Peak)

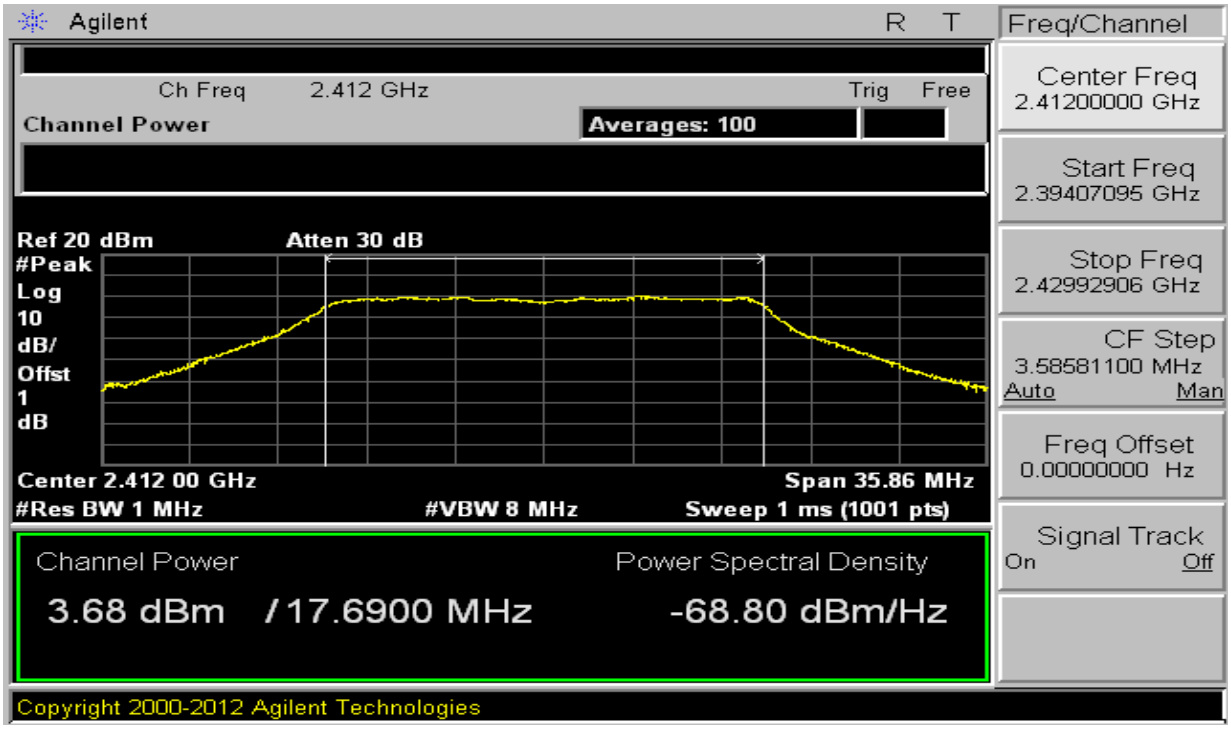


(Avg)

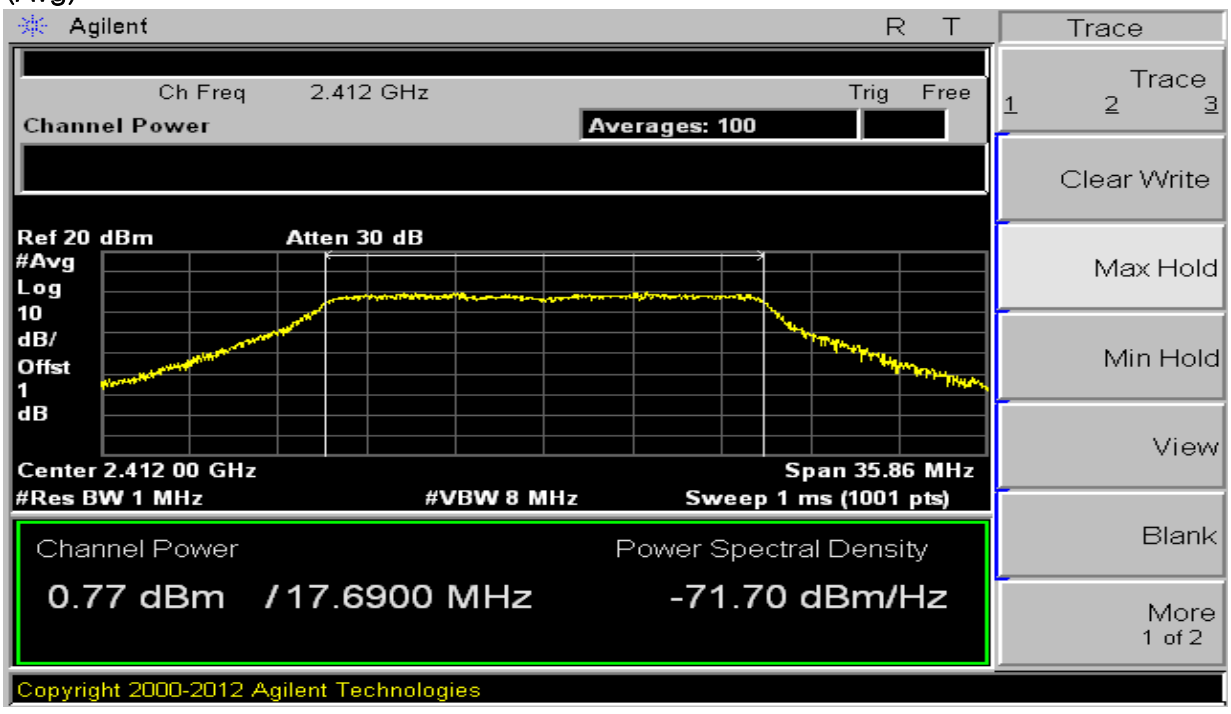


7.4 Trace data (Peak, Average) - 802.11n20 mode (ch_1)

(Peak)

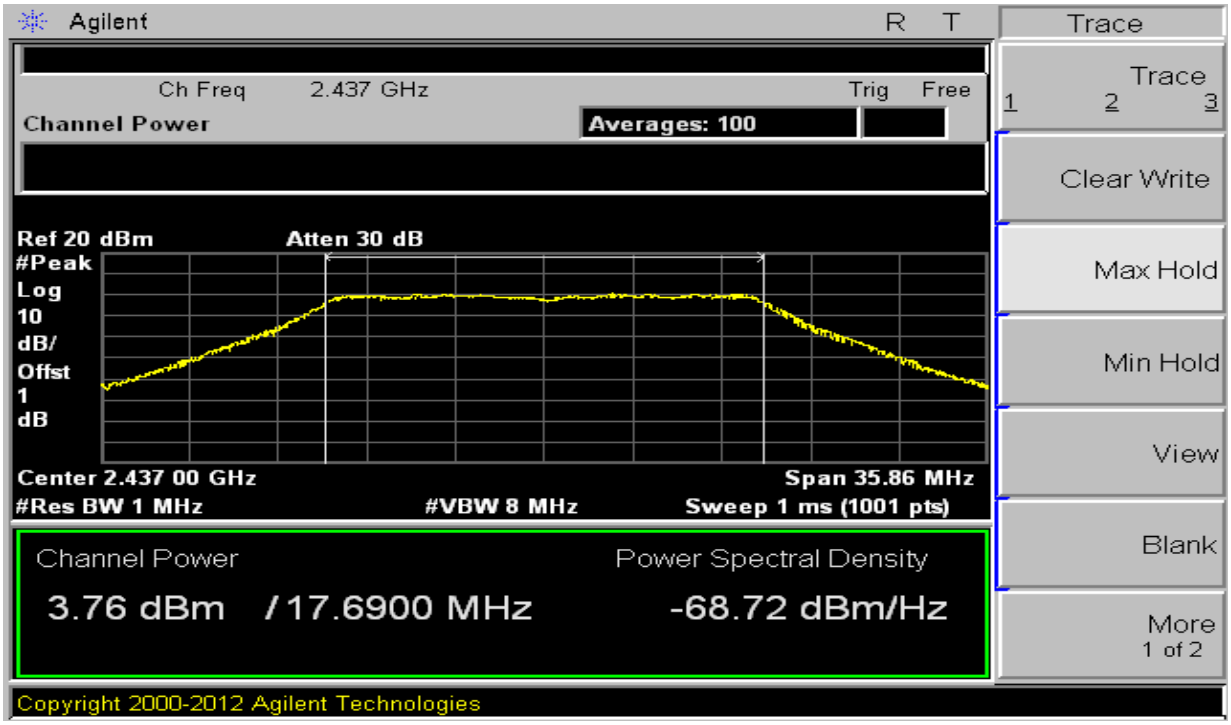


(Avg)

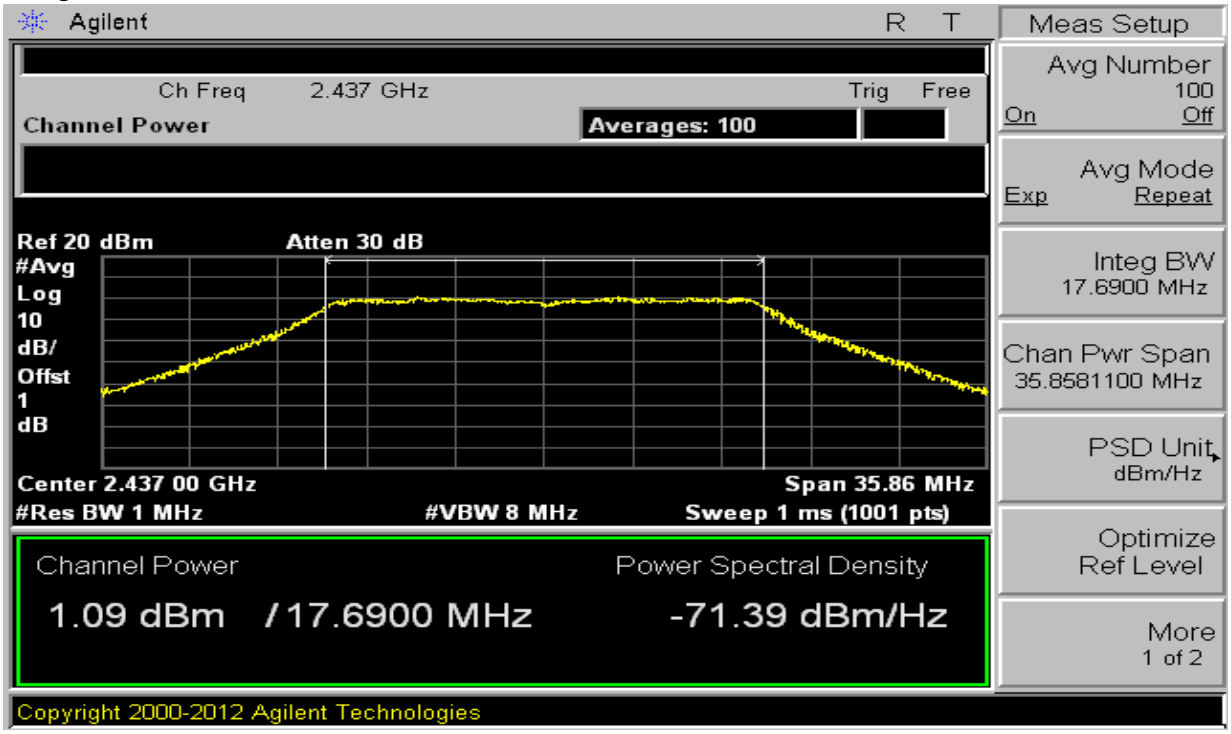


(ch_6)

(Peak)

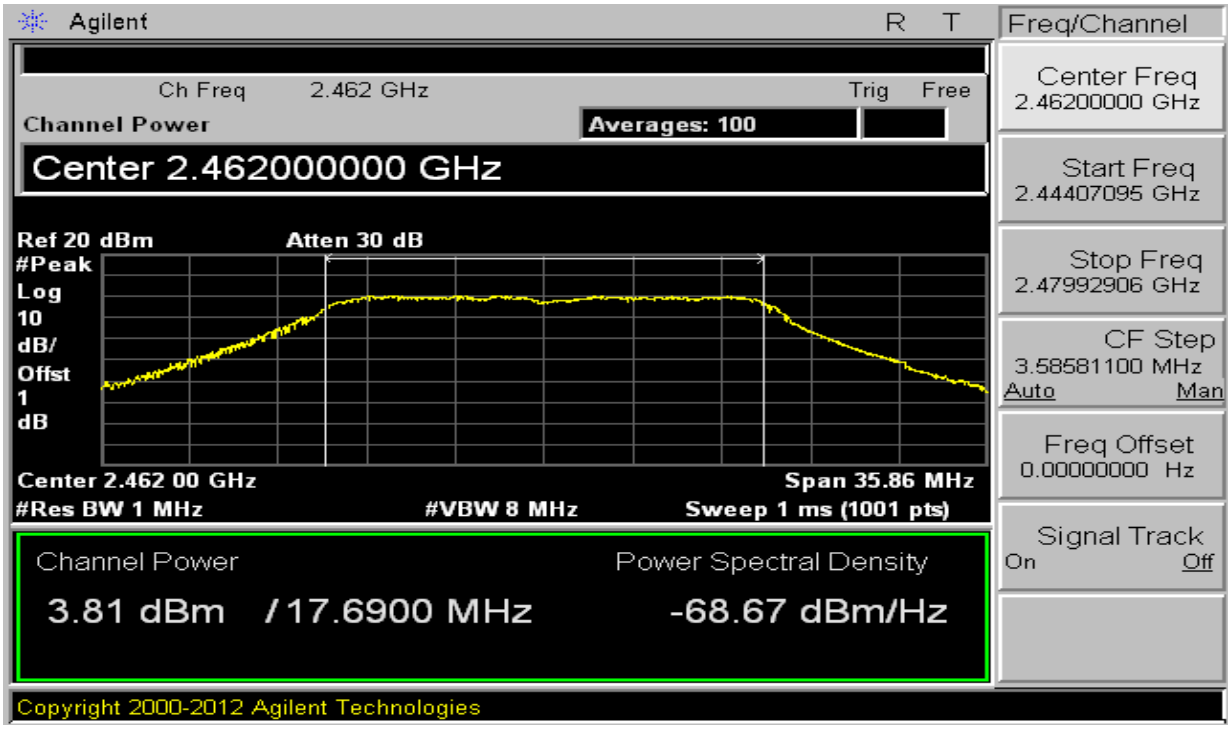

Agilent
R T
Trace
Ch Freq 2.437 GHz
Trig Free
Channel Power
Averages: 100
Trace
1 2 3
Clear Write
Max Hold
Min Hold
View
Blank
More
1 of 2
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
1
dB
Center 2.437 00 GHz
Span 35.86 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (1001 pts)
Channel Power
3.76 dBm / 17.6900 MHz
Power Spectral Density
-68.72 dBm/Hz
Copyright 2000-2012 Agilent Technologies

(Avg)

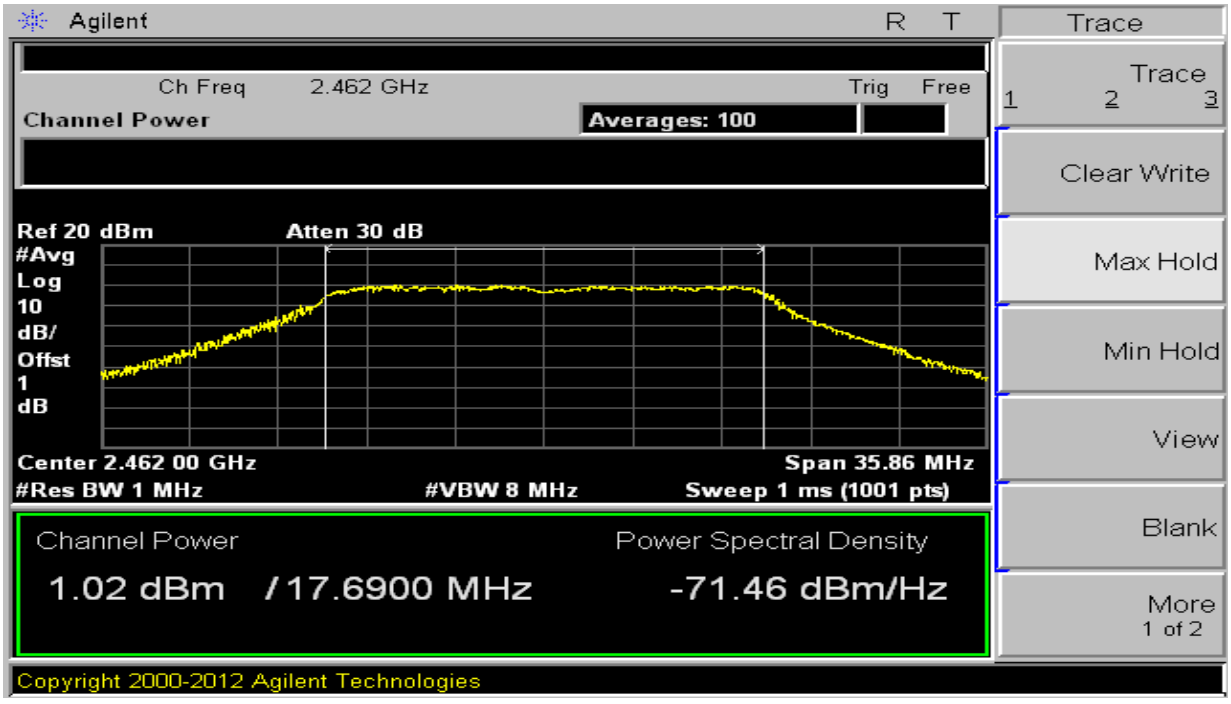

Agilent
R T
Meas Setup
Ch Freq 2.437 GHz
Trig Free
Channel Power
Averages: 100
Avg Number
100
On Off
Avg Mode
Exp Repeat
Integ BW
17.6900 MHz
Chan Pwr Span
35.8581100 MHz
PSD Unit
dBm/Hz
Optimize
Ref Level
More
1 of 2
Ref 20 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
1
dB
Center 2.437 00 GHz
Span 35.86 MHz
#Res BW 1 MHz
#VBW 8 MHz
Sweep 1 ms (1001 pts)
Channel Power
1.09 dBm / 17.6900 MHz
Power Spectral Density
-71.39 dBm/Hz
Copyright 2000-2012 Agilent Technologies

(ch_11)

(Peak)

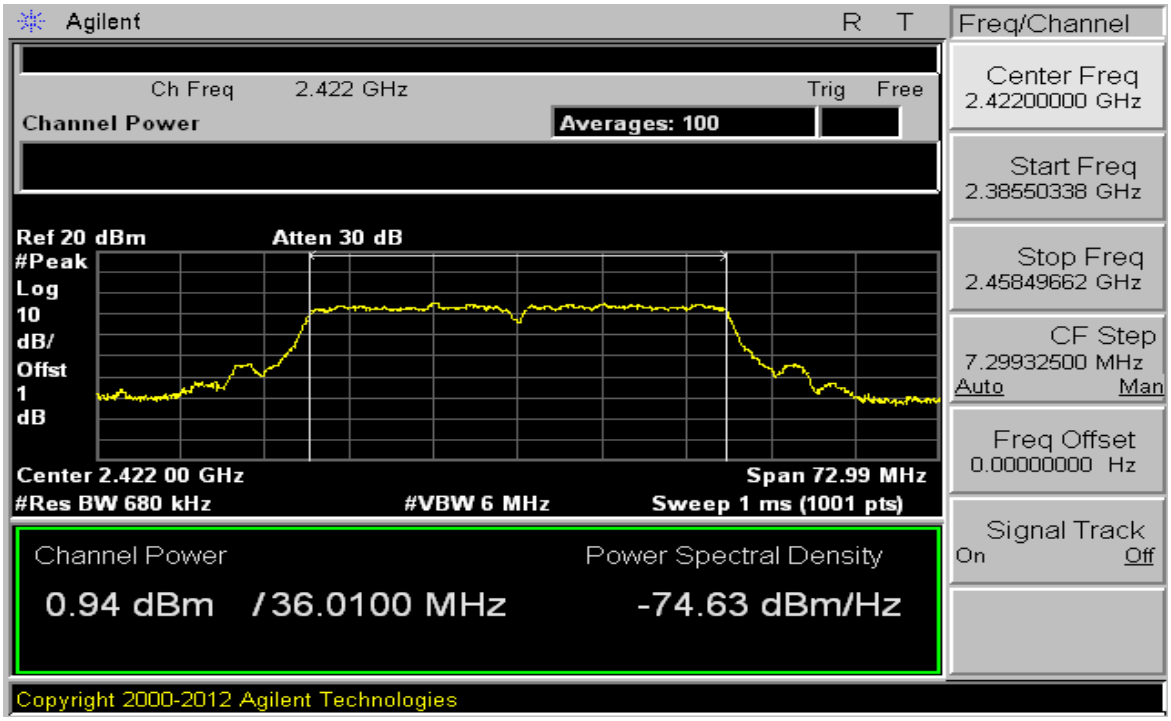


(Avg)

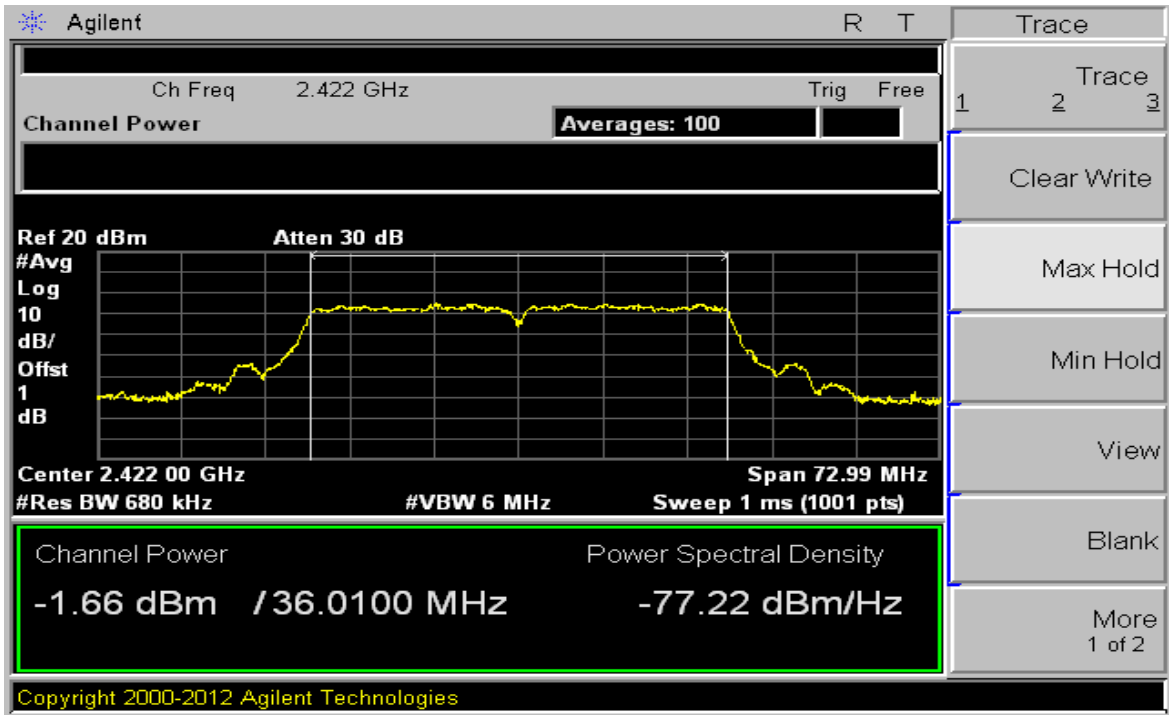


7.4 Trace data (Peak, Average) - 802.11n40 mode (ch_3)

(Peak)

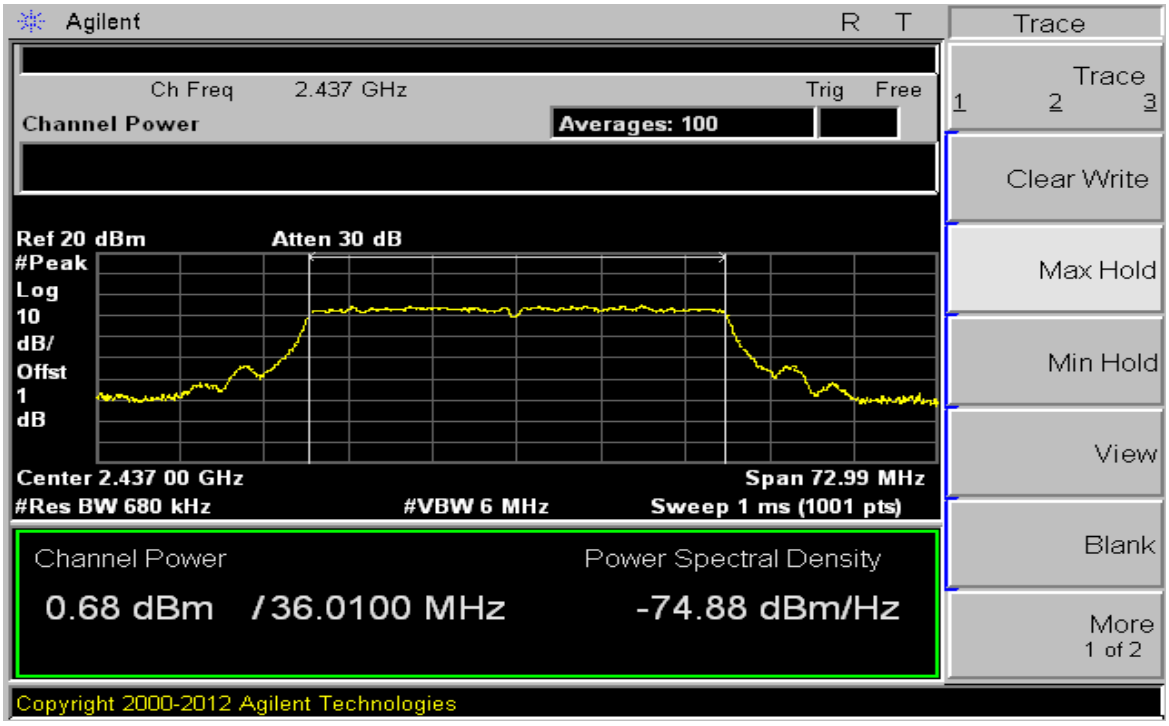


(Avg)

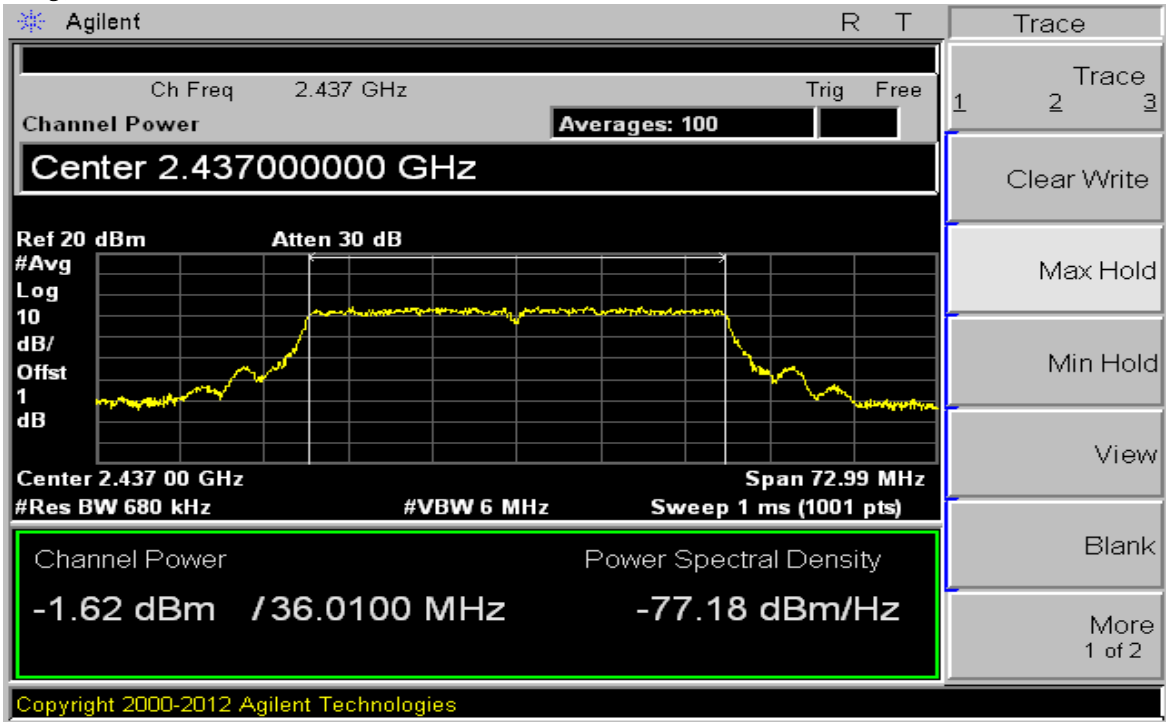


(ch_6)

(Peak)

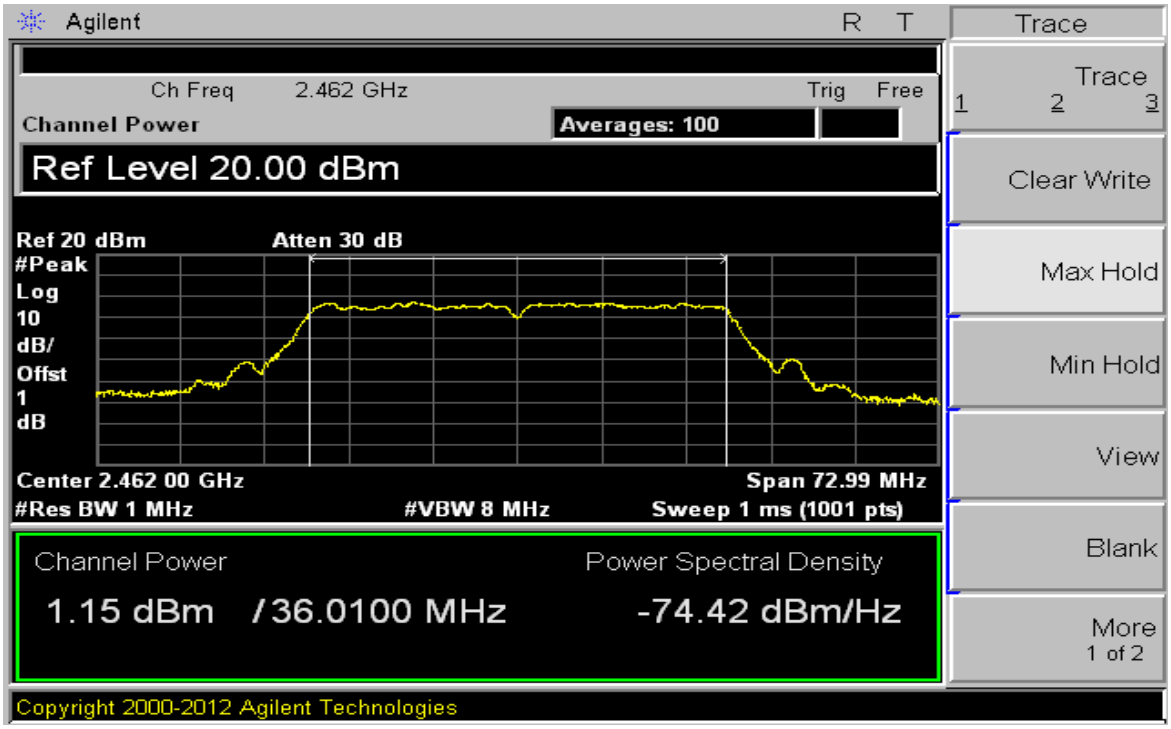

Agilent
R T
Trace
Ch Freq 2.437 GHz
Trig Free
Channel Power
Averages: 100
Trace 1 2 3
Clear Write
Max Hold
Min Hold
View
Blank
More 1 of 2
Ref 20 dBm
Atten 30 dB
#Peak
Log
10
dB/
Offst
1
dB
Center 2.437 00 GHz
Span 72.99 MHz
#Res BW 680 kHz
#VBW 6 MHz
Sweep 1 ms (1001 pts)
Channel Power
0.68 dBm /36.0100 MHz
Power Spectral Density
-74.88 dBm/Hz
Copyright 2000-2012 Agilent Technologies

(Avg)

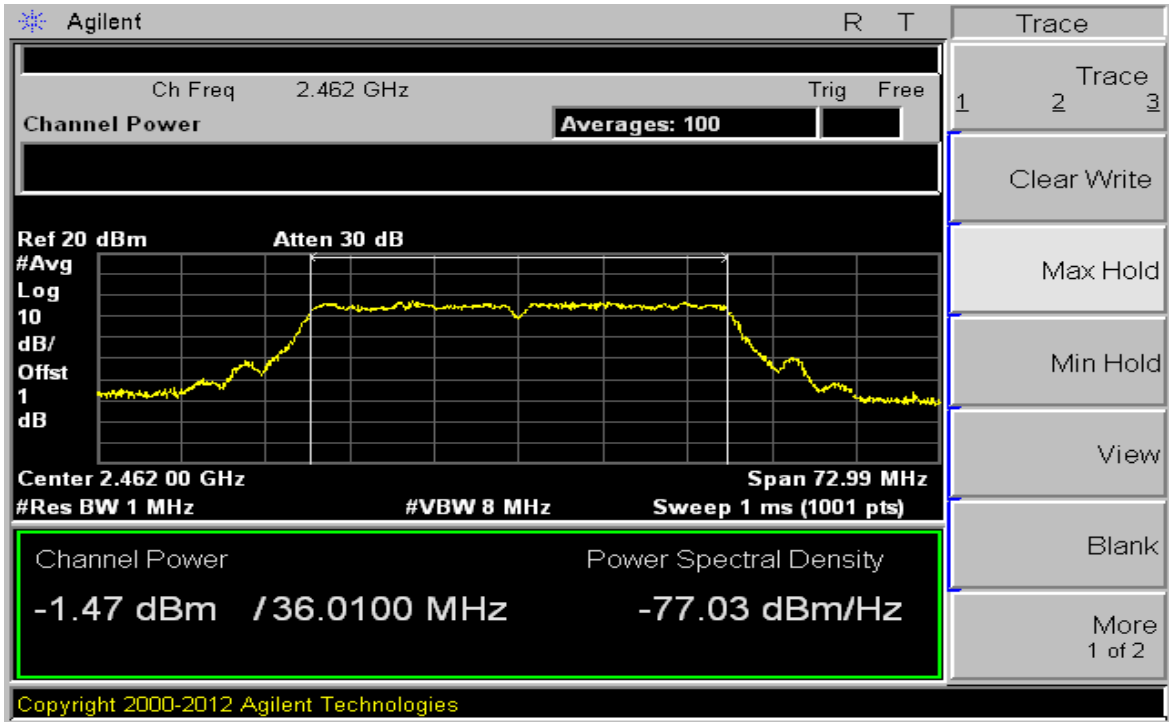

Agilent
R T
Trace
Ch Freq 2.437 GHz
Trig Free
Channel Power
Averages: 100
Center 2.437000000 GHz
Trace 1 2 3
Clear Write
Max Hold
Min Hold
View
Blank
More 1 of 2
Ref 20 dBm
Atten 30 dB
#Avg
Log
10
dB/
Offst
1
dB
Center 2.437 00 GHz
Span 72.99 MHz
#Res BW 680 kHz
#VBW 6 MHz
Sweep 1 ms (1001 pts)
Channel Power
-1.62 dBm /36.0100 MHz
Power Spectral Density
-77.18 dBm/Hz
Copyright 2000-2012 Agilent Technologies

(ch_11)

(Peak)



(Avg)



8. Maximum power spectral density level in the fundamental emission

8.1 Test procedure

KDB 558074 D01 DTS Meas Guidance V03r05 10.2 Method PKPSD (peak PSD)

8.2 Test instruments and measurement setup

The spectrum analyzer is set to as following.

a) Set analyzer center frequency to DTS channel center frequency.

b) Set the span to 1.5 times the DTS bandwidth.

c) Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.

d) Set the VBW ≥ 3 x RBW. e) Detector = peak.

f) Sweep time = auto couple. g) Trace mode = max hold.

h) Allow trace to fully stabilize.

i) Use the peak marker function to determine the maximum amplitude level within the RBW.

j) If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

Limits FCC § 15.247

The peak power density Test Instruments

Description	Model	Serial Number	Cal. Due Date
Spectrum Analyzer	E440A	US42041291	4-Jan-18
RF Cable	Length: 30 cm	-	
-Spectrum Analyzer <=> EUT	Loss: 1 dB	-	

8.3 Measurement results

EUT	Face Station2	MODEL	FS2-AWB
MODE	b, g, n20, n40	ENVIRONMENTAL CONDITION	22.0 ℃, 45.0 % R.H.
INPUT POWER	12.0 Vd.c.		

MODE - 802.11b

CHANNEL	Channel Frequency (MHz)	Measured Power Spectral Density (dBm)	Maximum Permissible Power Density (dBm/3kHz)	Margin
1	2 412	-20.88	8.0	28.88
6	2 437	-19.20	8.0	27.20
11	2 462	-20.39	8.0	28.39

MODE - 802.11g

CHANNEL	Channel Frequency (MHz)	Measured Power Spectral Density (dBm)	Maximum Permissible Power Density (dBm/3kHz)	Margin
1	2 412	-25.06	8.0	33.06
6	2 437	-24.86	8.0	32.86
11	2 462	-25.22	8.0	33.22

8.3 Measurement results

EUT	Face Station2	MODEL	FS2-AWB
MODE	b, g, n20, n40	ENVIRONMENTAL CONDITION	22.0 ℃, 45.0 % R.H.
INPUT POWER	12 Vd.c.		

MODE - 802.11n20

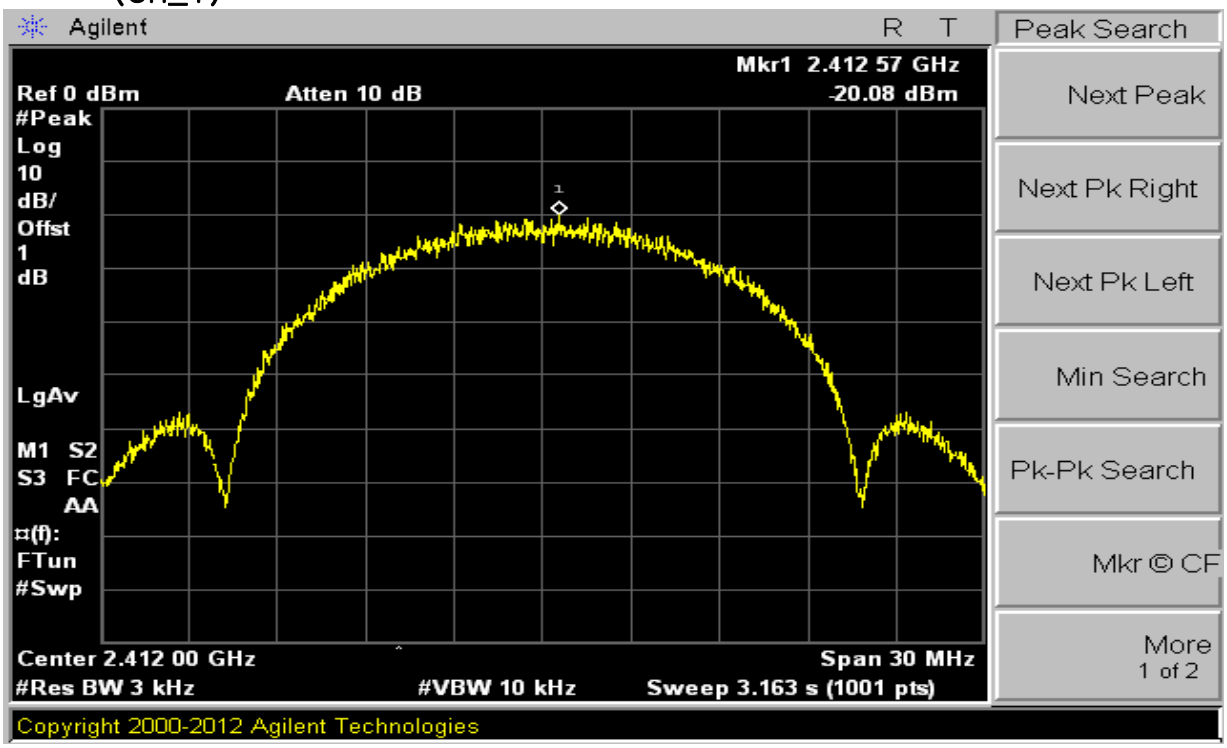
CHANNEL	Channel Frequency (MHz)	Measured Power Spectral Density (dBm)	Maximum Permissible Power Density (dBm/3kHz)	Margin
1	2 412	-23.27	8.0	31.27
6	2 437	-23.32	8.0	31.32
11	2 462	-22.99	8.0	30.99

MODE - 802.11n40

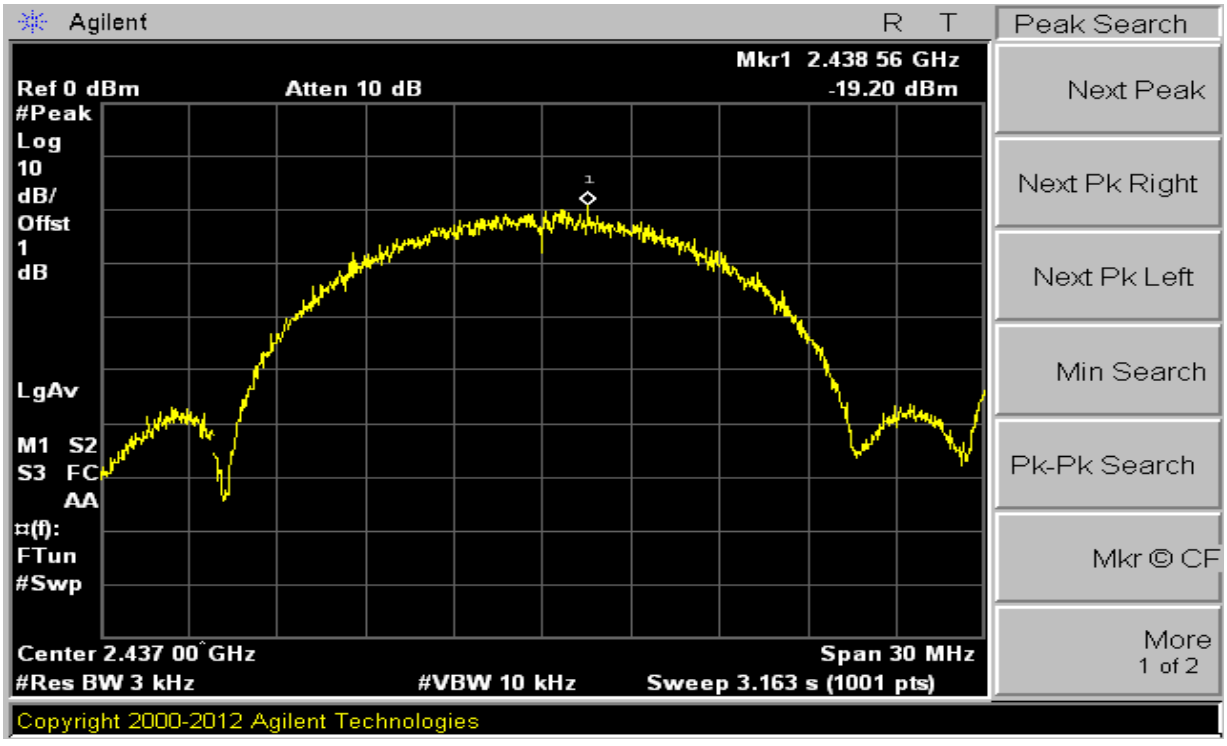
CHANNEL	Channel Frequency (MHz)	Measured Power Spectral Density (dBm)	Maximum Permissible Power Density (dBm/3kHz)	Margin
3	2 412	-24.82	8.0	32.82
6	2 437	-25.61	8.0	33.61
11	2 462	-25.17	8.0	33.17

8.4 Trace data - 802.11b mode

(ch_1)

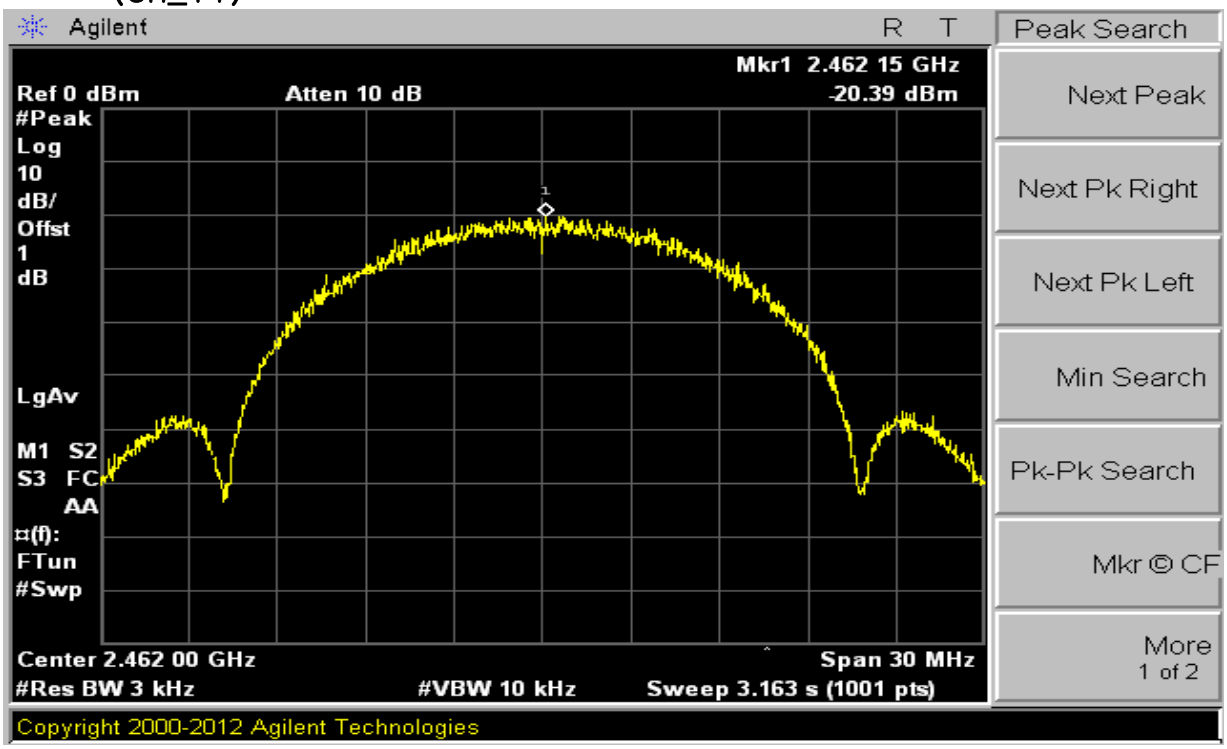


(ch_6)



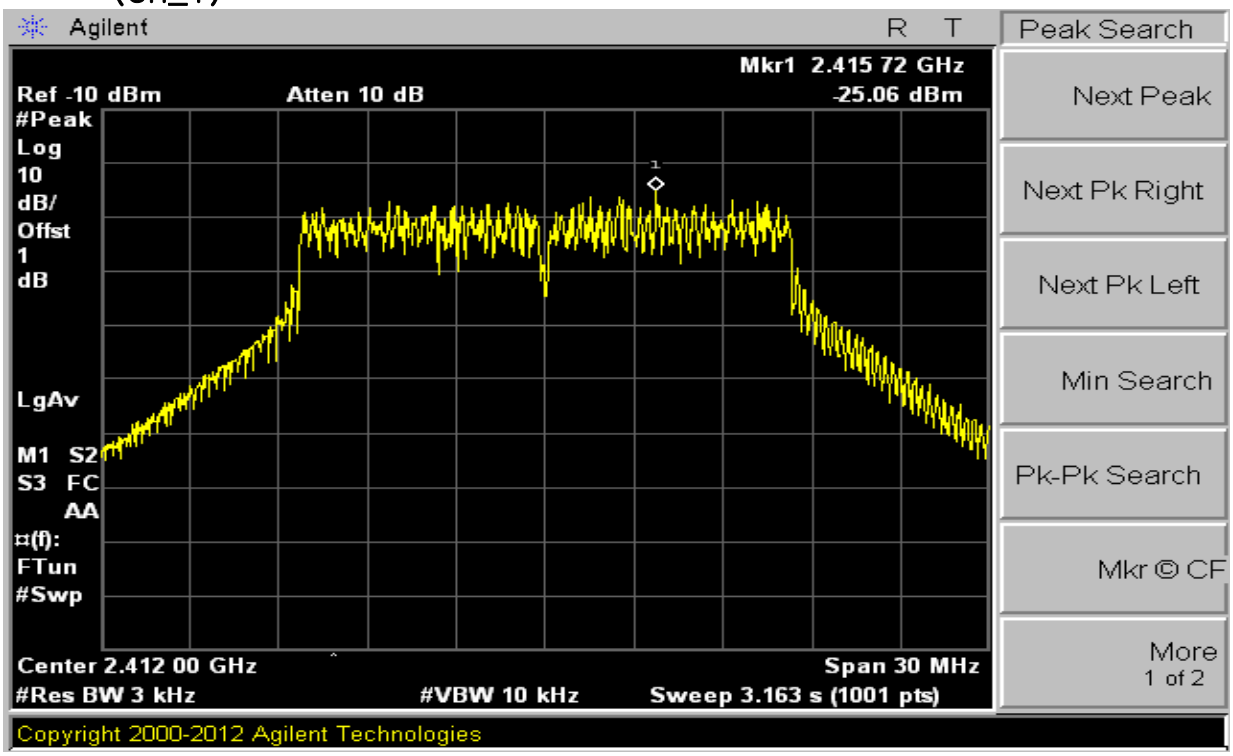
8.4 Trace data - 802.11b

(ch_11)

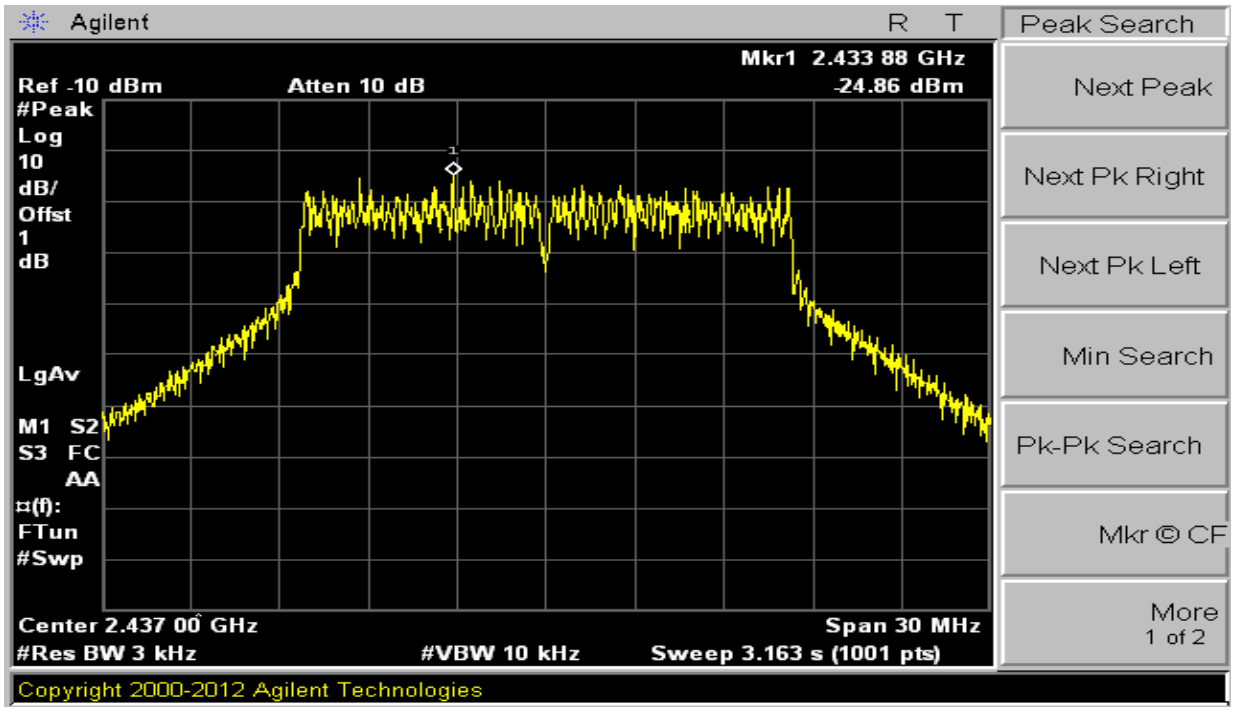


8.4 Trace data - 802.11g mode

(ch_1)

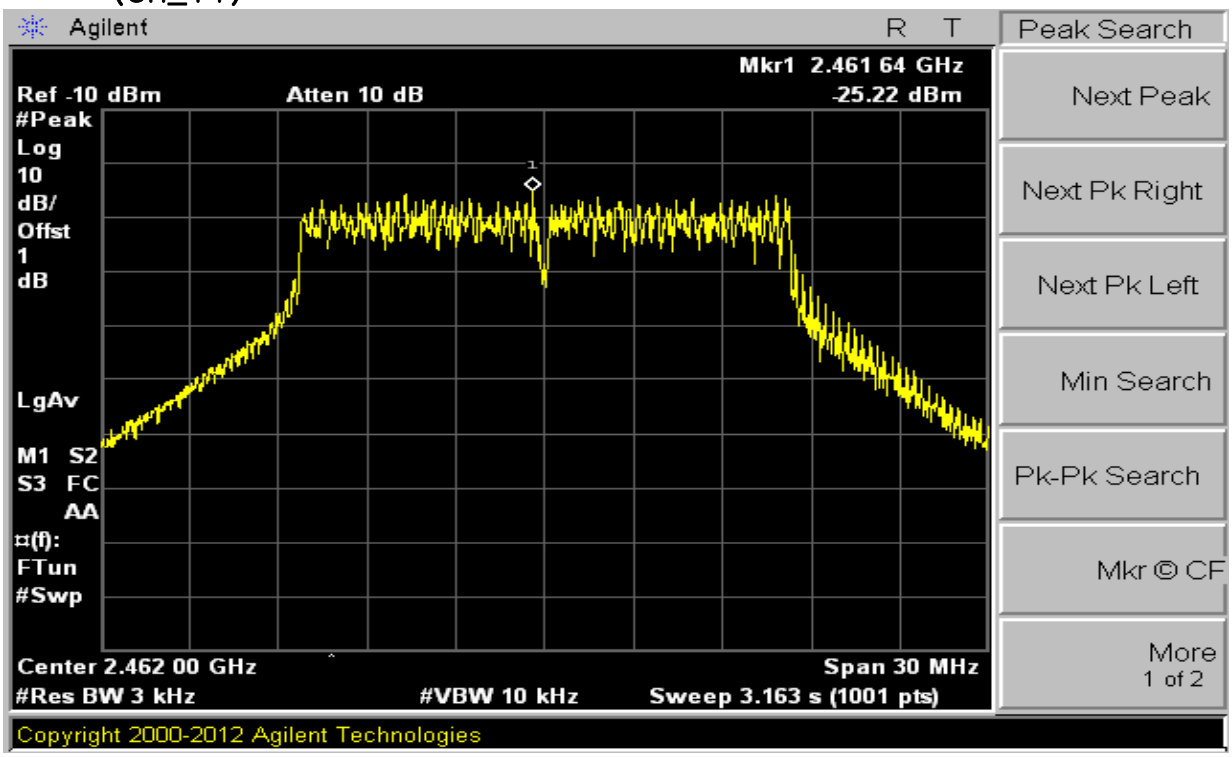


(ch_6)



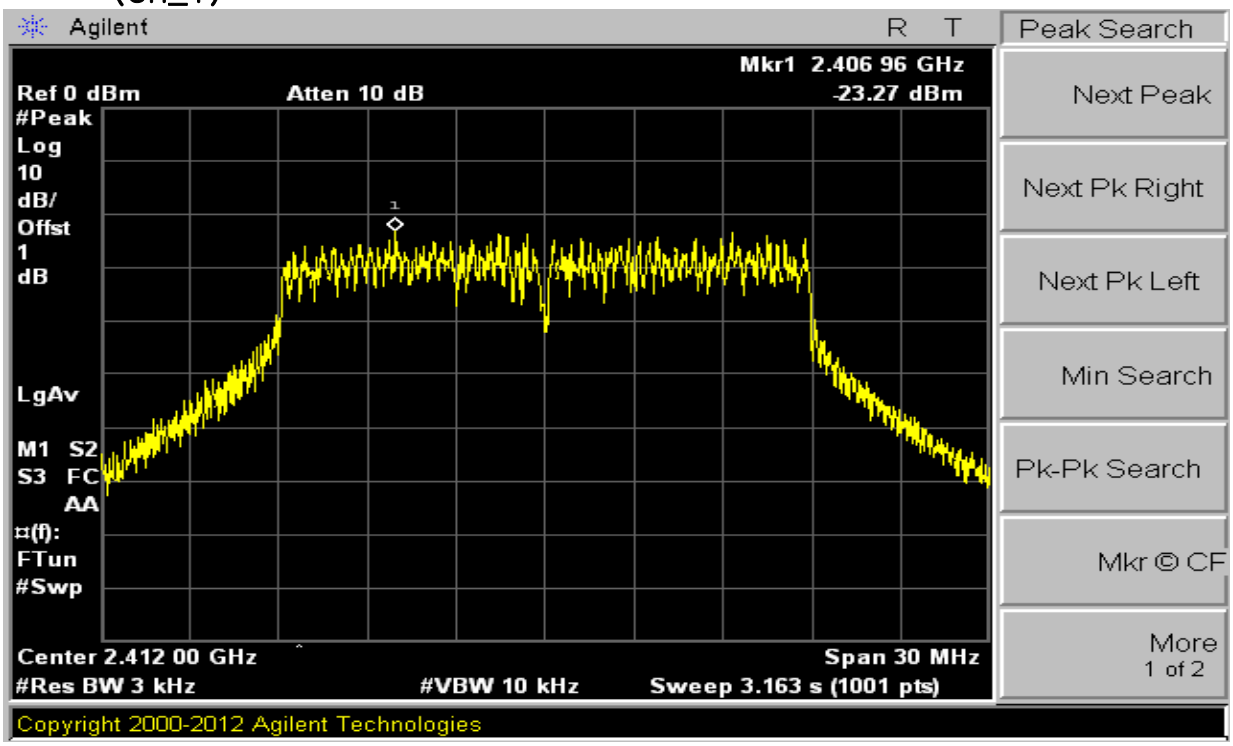
8.4 Trace data - 802.11g mode

(ch_11)

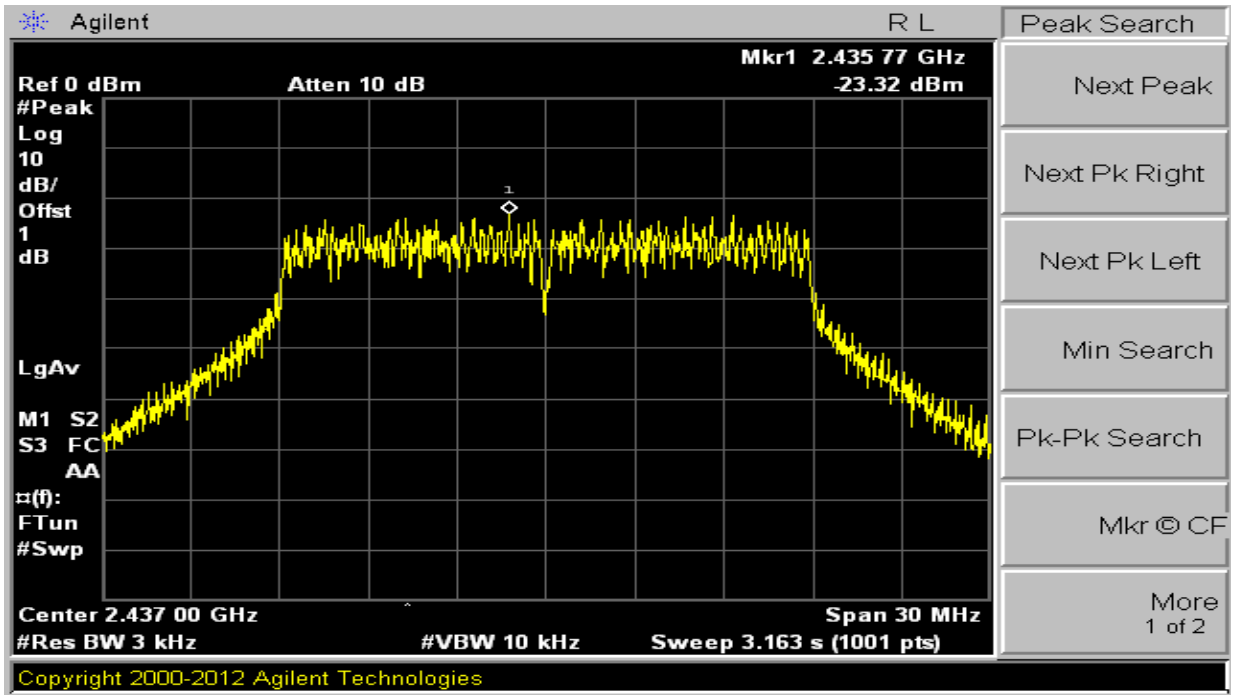


8.4 Trace data - 802.11n20 mode

(ch_1)

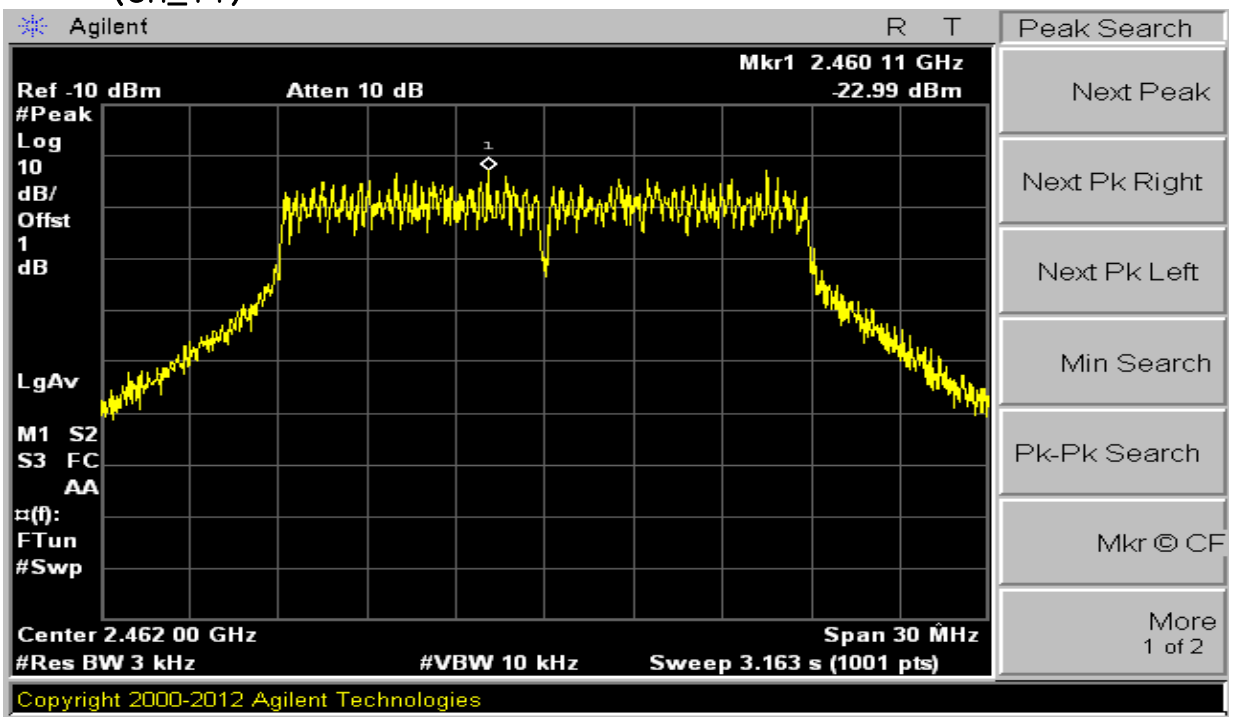


(ch_6)



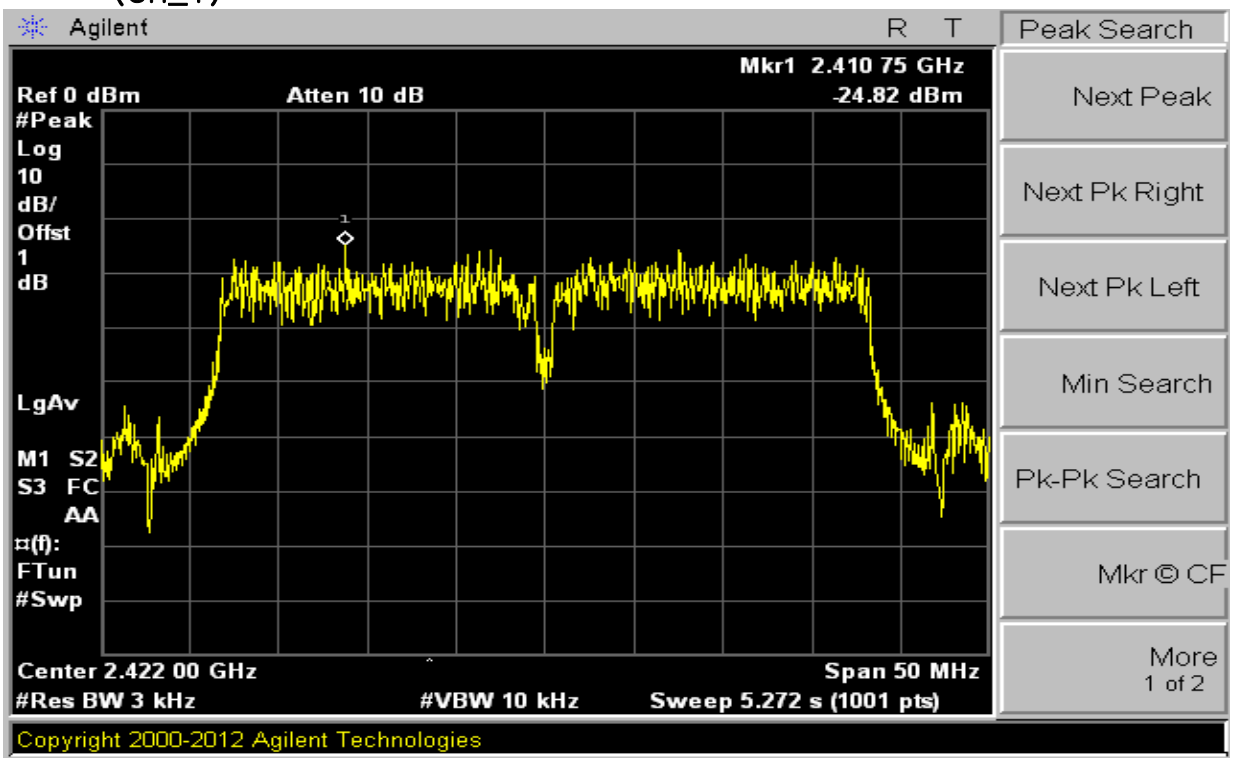
8.4 Trace data - 802.11n20 mode

(ch_11)

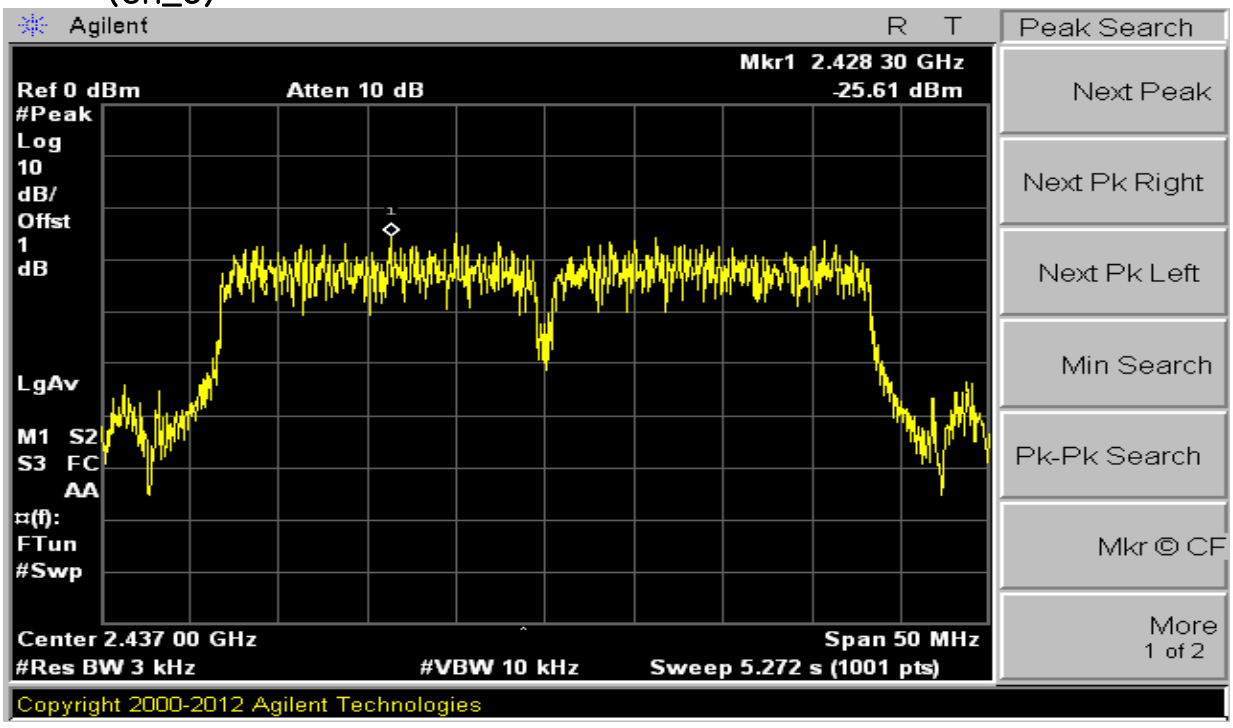


8.4 Trace data - 802.11n40 mode

(ch_1)

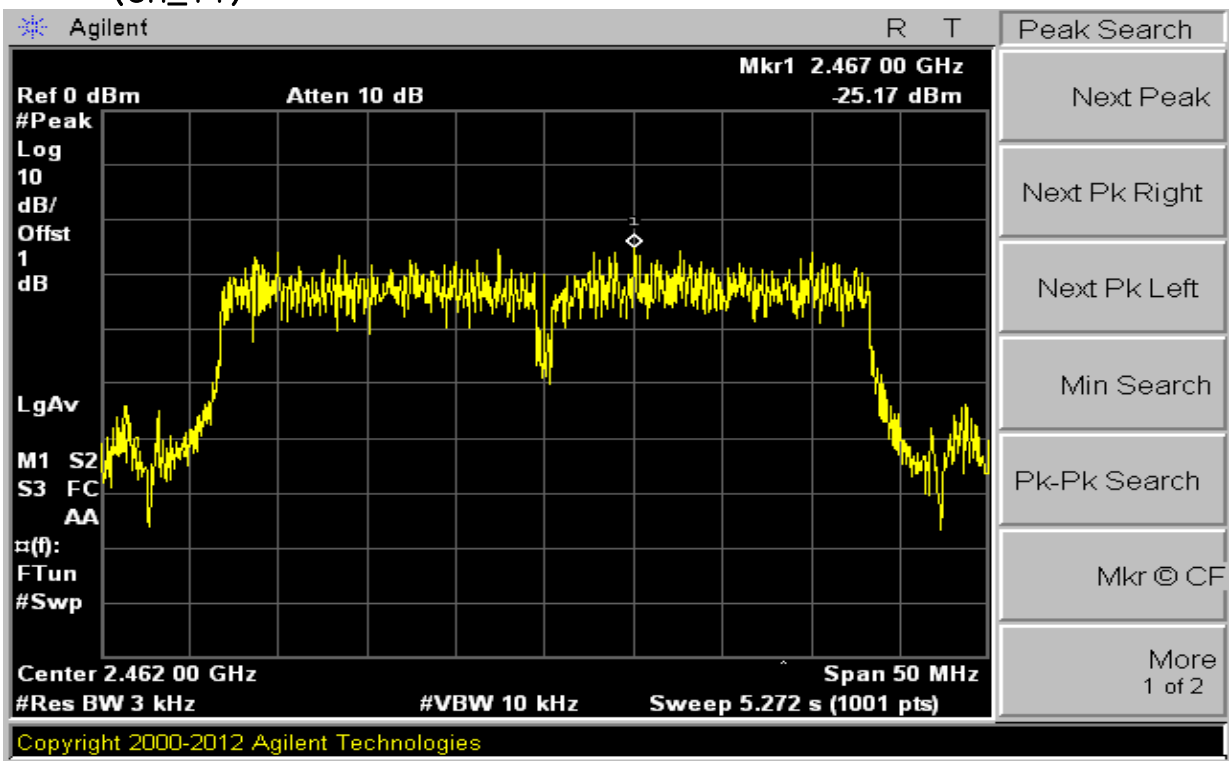


(ch_6)



8.4 Trace data - 802.11n40 mode

(ch_11)



9. Emissions in non-restricted frequency bands

9.1 Test procedure

KDB 558074 D01 DTS Meas Guidance V03r05 11.0 Emissions in non-restricted frequency

9.2 Test instruments and measurement setup

The spectrum analyzer is set to as following.

a) Set instrument center frequency to DTS channel center frequency.

b) Set the span to ≥ 1.5 times the DTS bandwidth.

c) Set the RBW = 100 kHz. d) Set the VBW ≥ 3 x RBW.

e) Detector = peak. f) Sweep time = auto couple.

g) Trace mode = max hold. h) Allow trace to fully stabilize.

i) Use the peak marker function to determine the maximum PSD level.

Limits FCC § 15.247

Band Edge&Out of Emission Test Instruments

Description	Model	Serial Number	Cal. Due Date
Spectrum Analyzer	E4440A	US42041291	4-Jan-18
Spectrum Analyzer	FSV40	100939	4-Jan-18
RF Cable	Length: 30 cm		-
-Spectrum Analyzer <=> EUT	Loss: 1 dB		-

9.3 Measurement results of band-edge & out of emission - Adapter

EUT	Face Station2	MODEL	FS2-AWB
MODE	b, g, n20, n40	ENVIRONMENTAL CONDITION	23.0 ℃, 43.0 % R.H.
INPUT POWER	12.0 Vd.c.		

MODE -802.11b

CHANNEL	Channel Frequency (MHz)	limit	PASS/FAIL
1	2 412	20dBc	PASS
11	2 462	20dBc	PASS

MODE -802.11g

CHANNEL	Channel Frequency (MHz)	limit	PASS/FAIL
1	2 412	20dBc	PASS
11	2 462	20dBc	PASS

9.3 Measurement results of band-edge & out of emission

EUT	Face Station2	MODEL	FS2-AWB
MODE	b, g, n20, n40	ENVIRONMENTAL CONDITION	23.0 ℃, 43.0 % R.H.
INPUT POWER	12.0 Vd.c.		

MODE -802.11n20

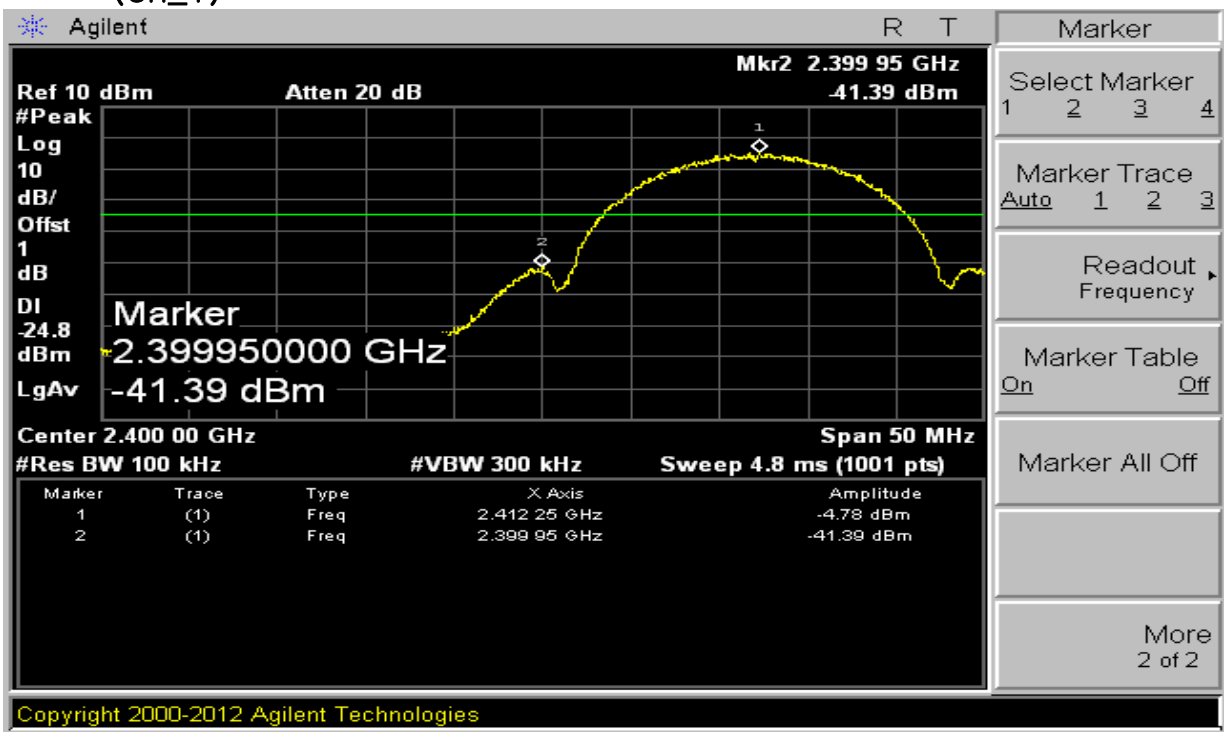
CHANNEL	Channel Frequency (MHz)	limit	PASS/FAIL
1	2 412	20dBc	PASS
11	2 462	20dBc	PASS

MODE -802.11n40

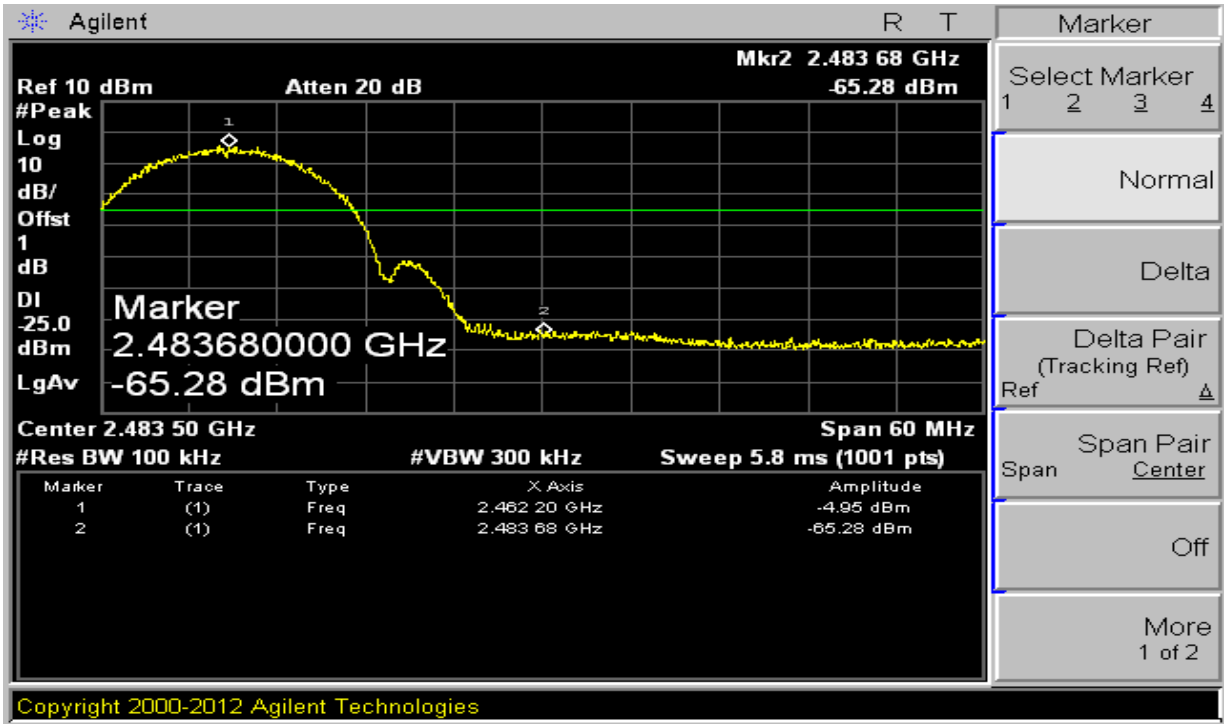
CHANNEL	Channel Frequency (MHz)	limit	PASS/FAIL
3	2 422	20dBc	PASS
11	2 462	20dBc	PASS

9.4 Trace data of band-edge & Out of Emission - 802.11b mode

(ch_1)

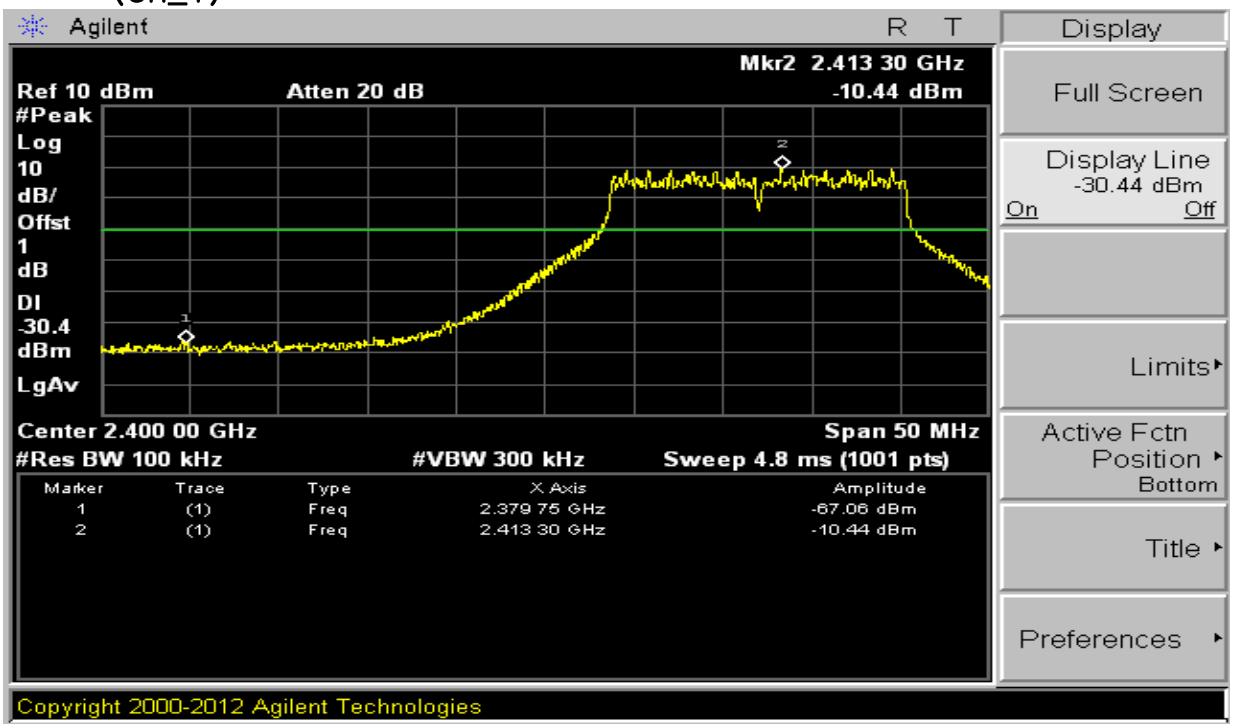


(ch_11)

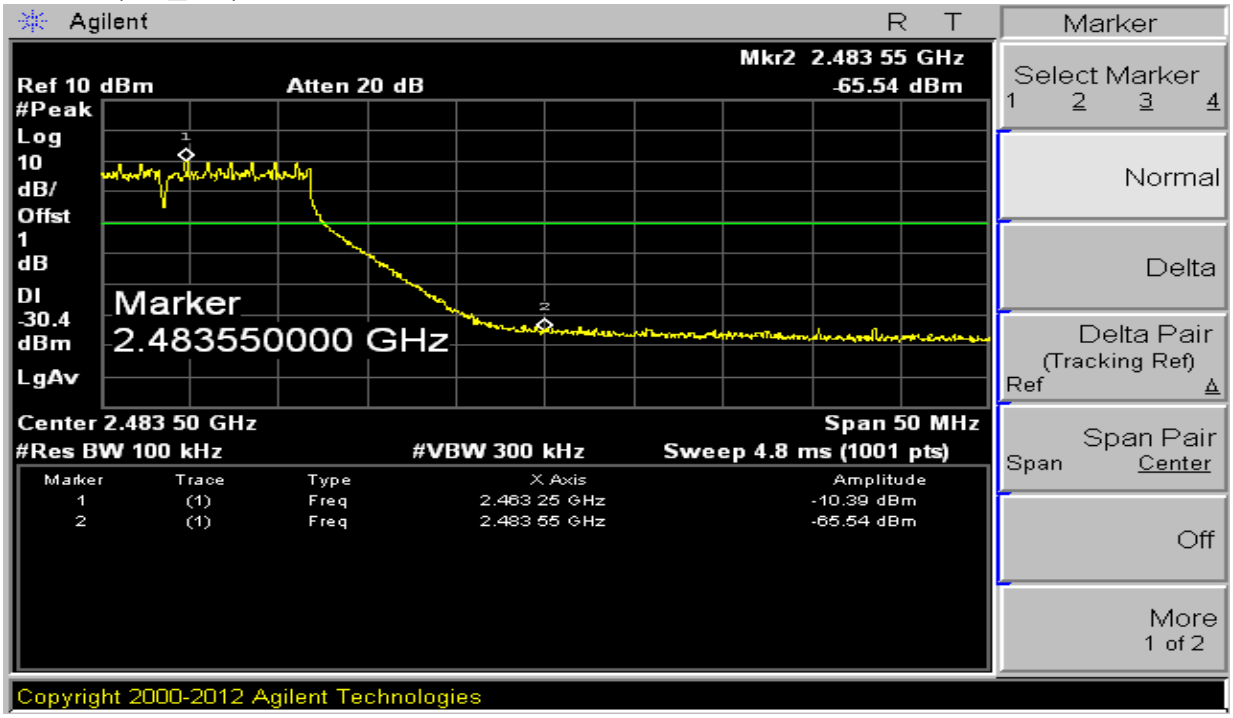


9.4 Trace data of band-edge & Out of Emission - 802.11g mode

(ch_1)

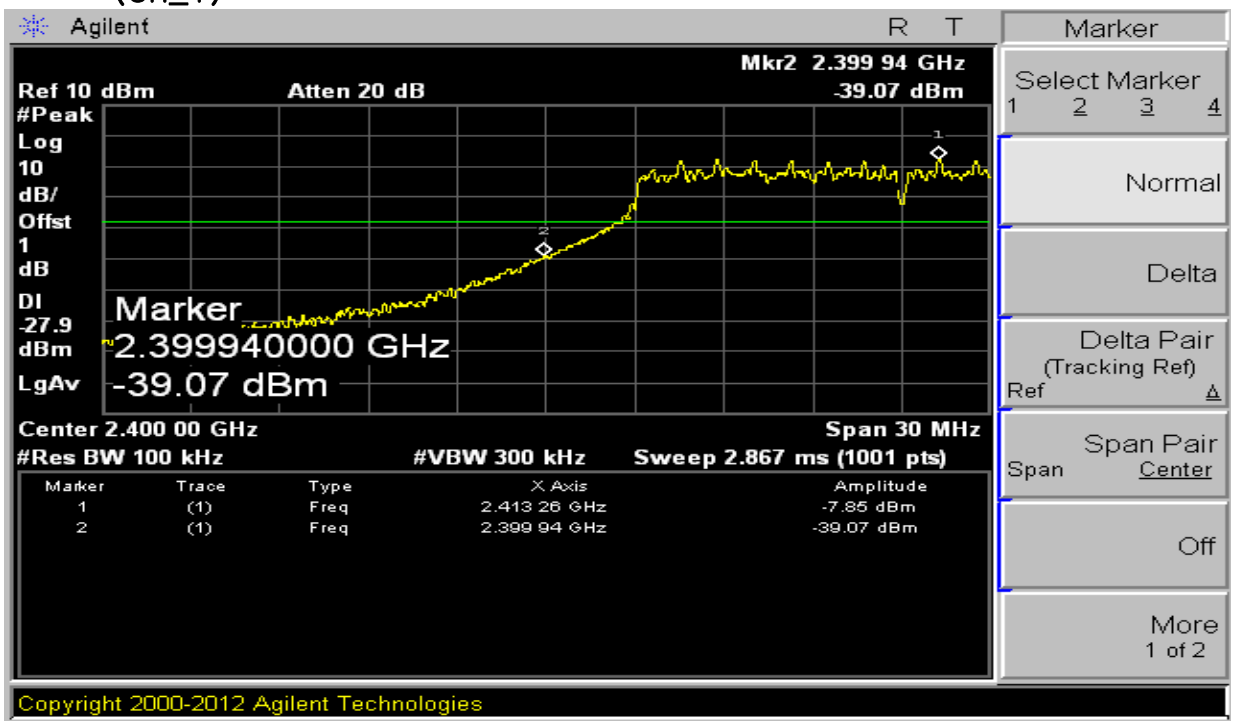


(ch_11)

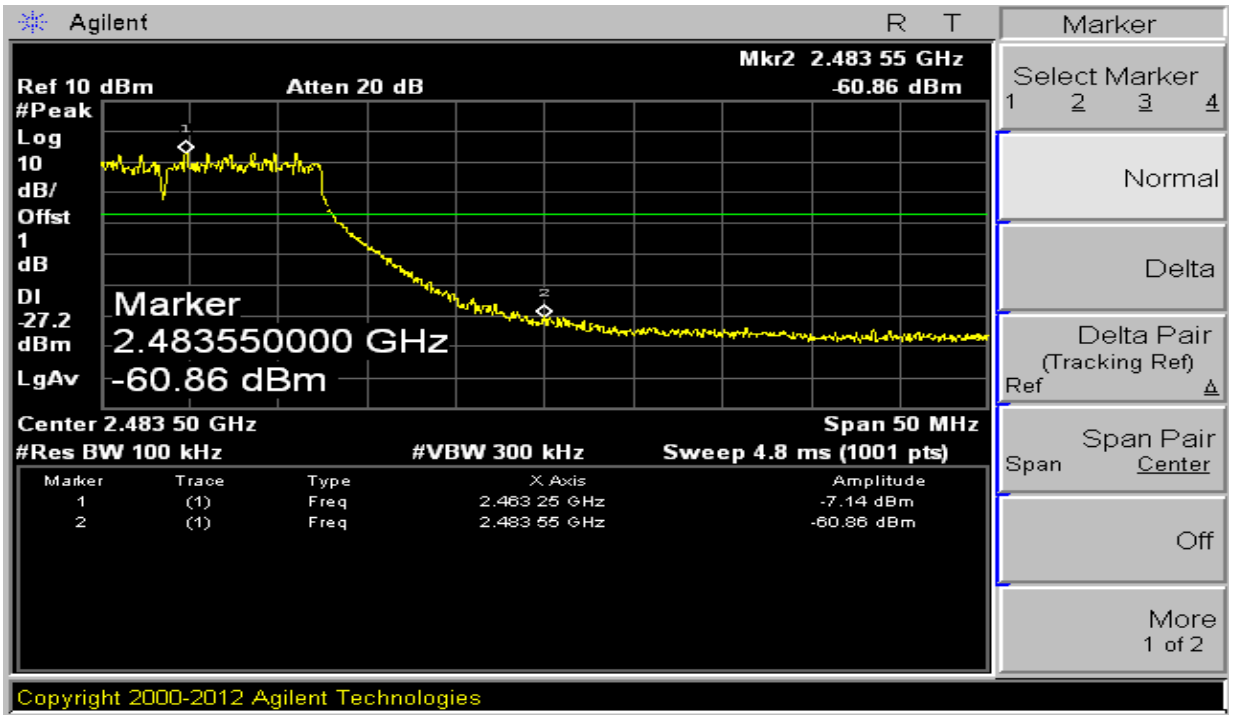


9.4 Trace data of band-edge & Out of Emission -802.11n20 mode

(ch_1)

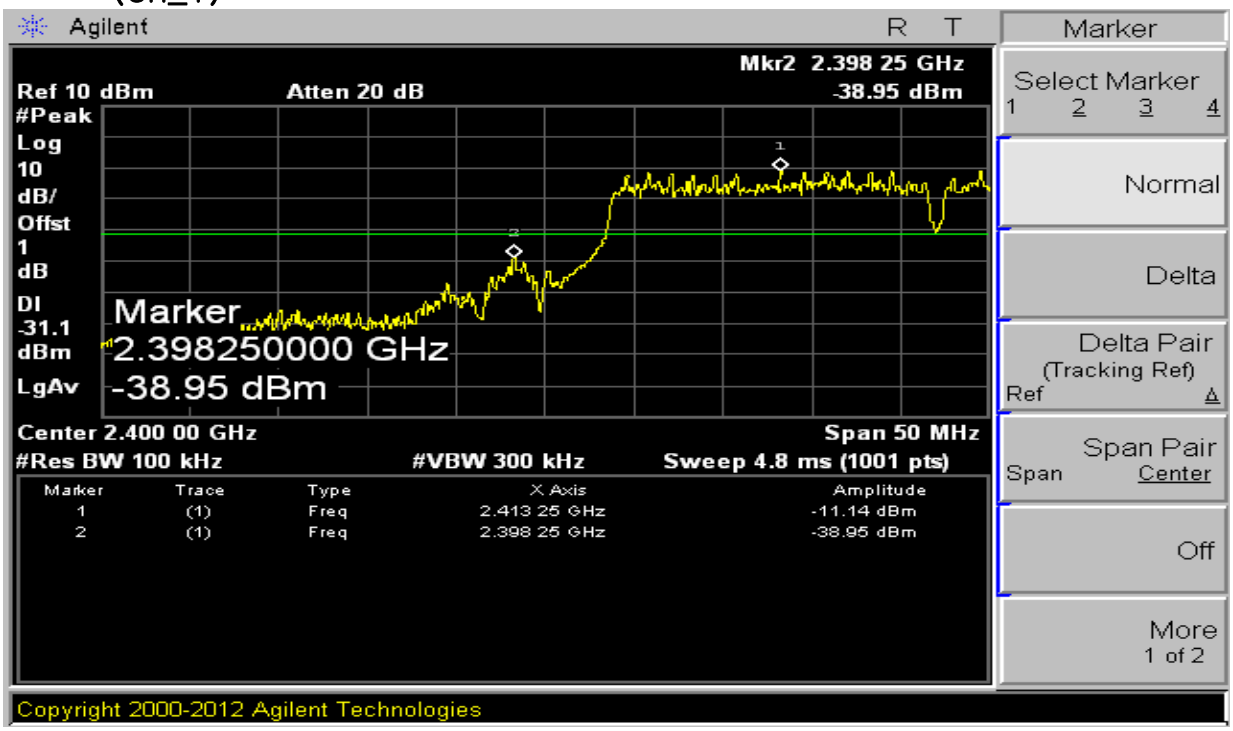


(ch_11)

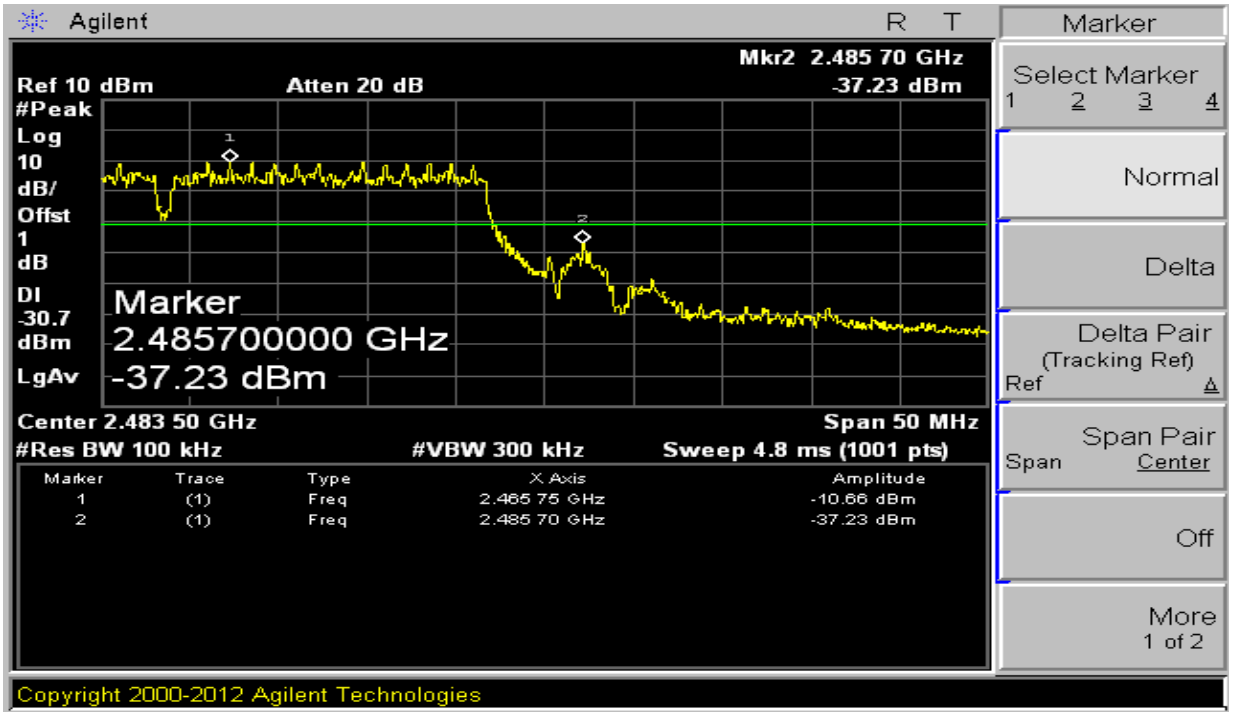


9.4 Trace data of band-edge & Out of Emission - 802.11n40 mode

(ch_1)

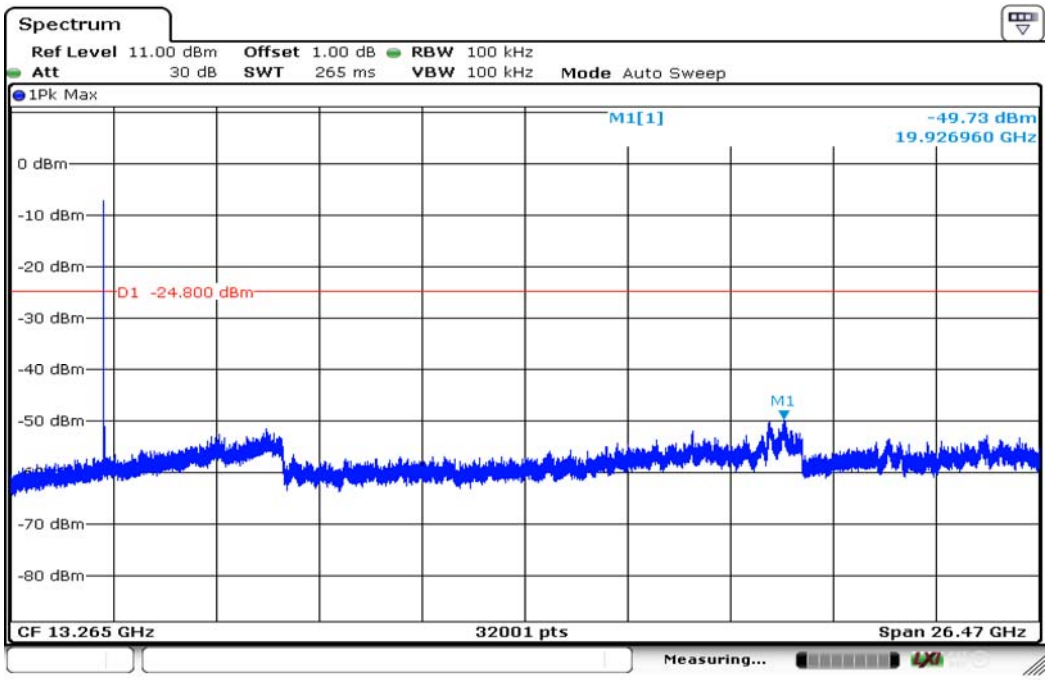


(ch_11)



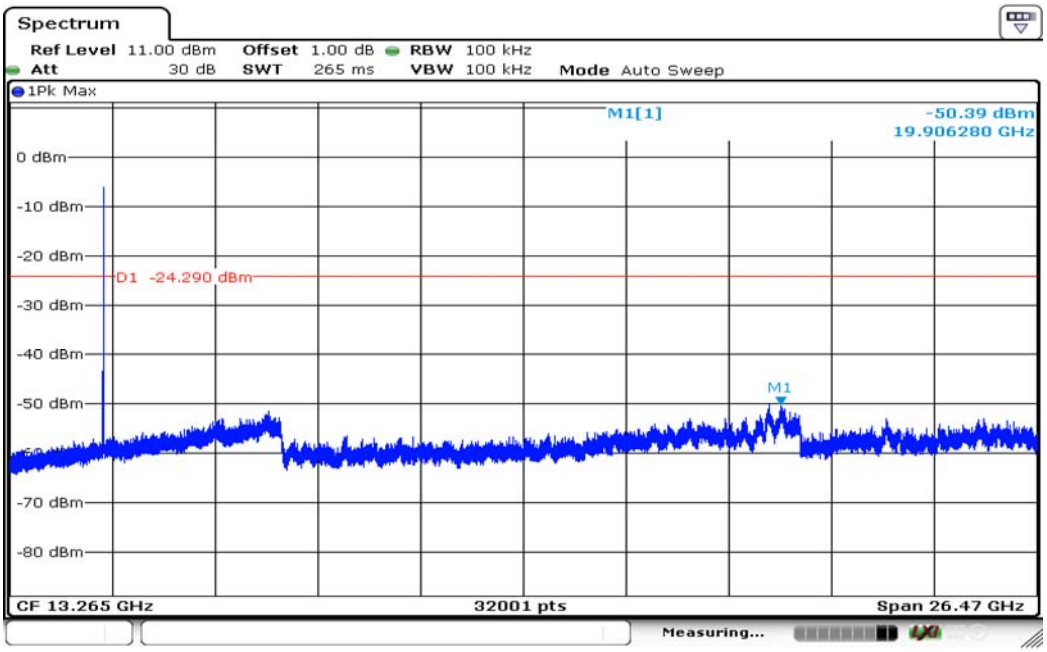
9.4 Trace data of Out of Emission - 802.11b mode

(ch_1)



11b

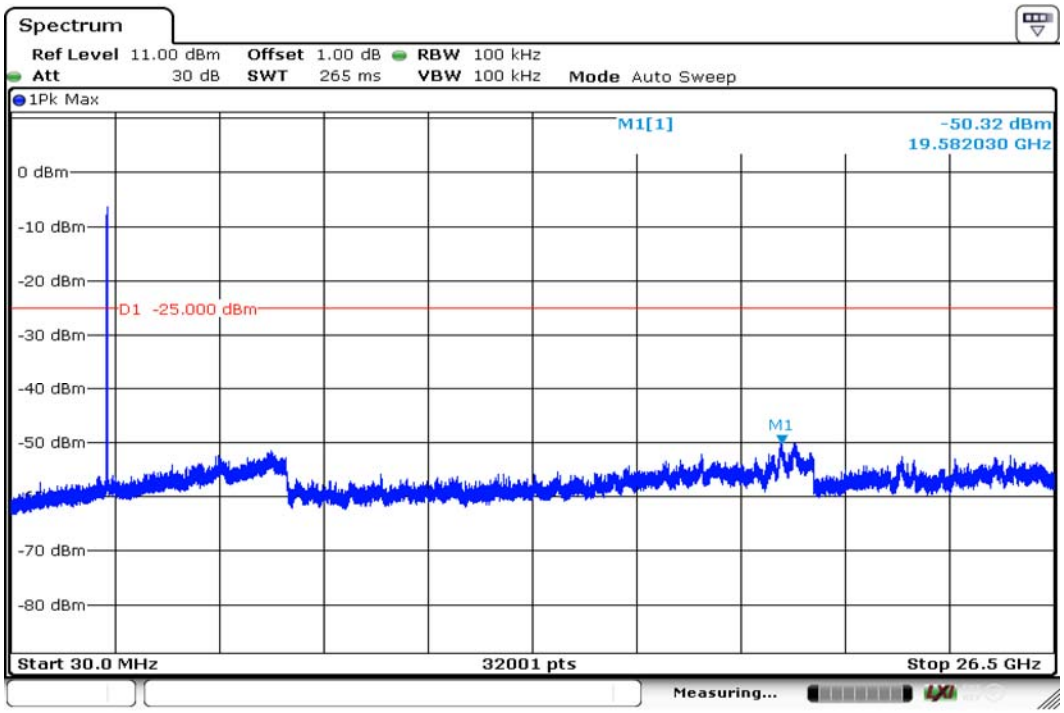
(ch_6)



11b

9.4 Trace data of Out of Emission - 802.11b mode

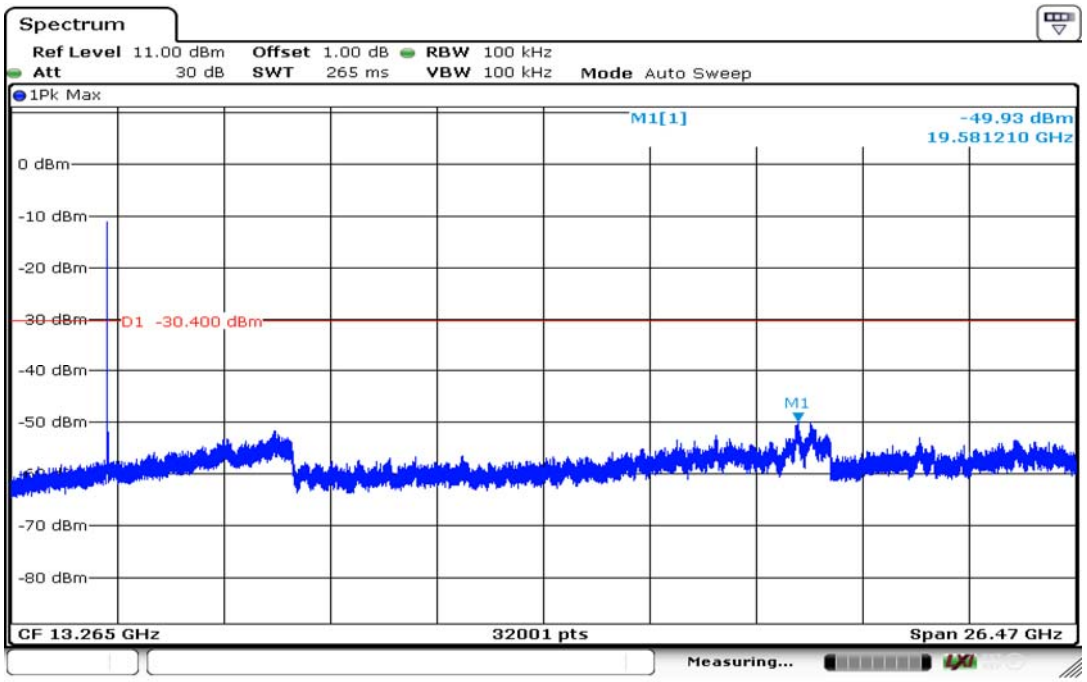
(ch_11)



11b

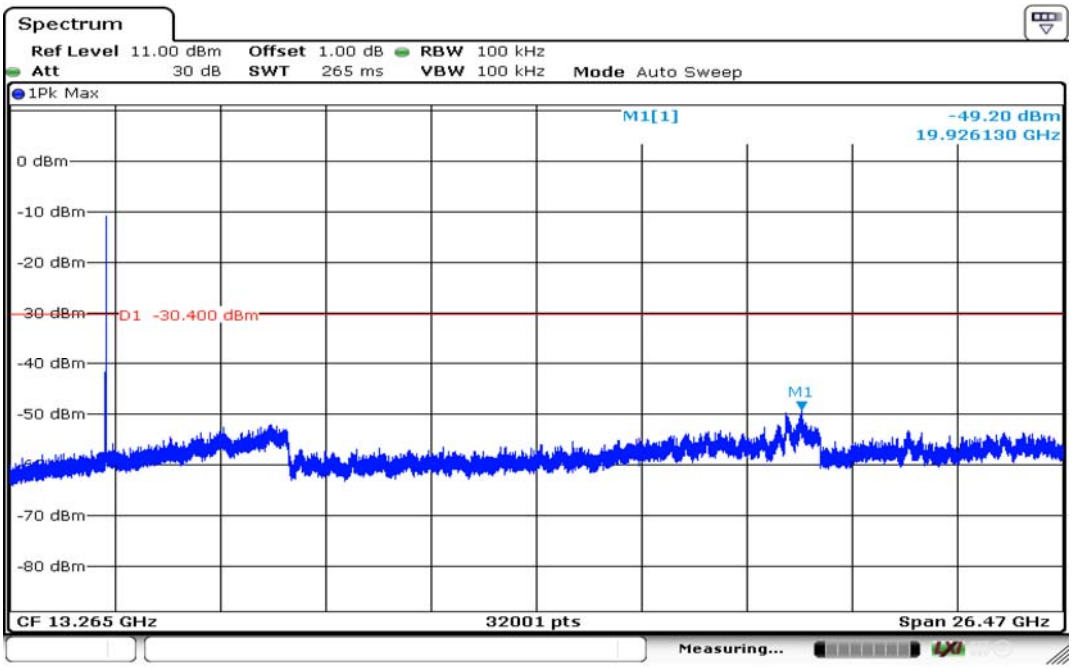
9.4 Trace data of Out of Emission - 802.11g mode

(ch_1)



11g

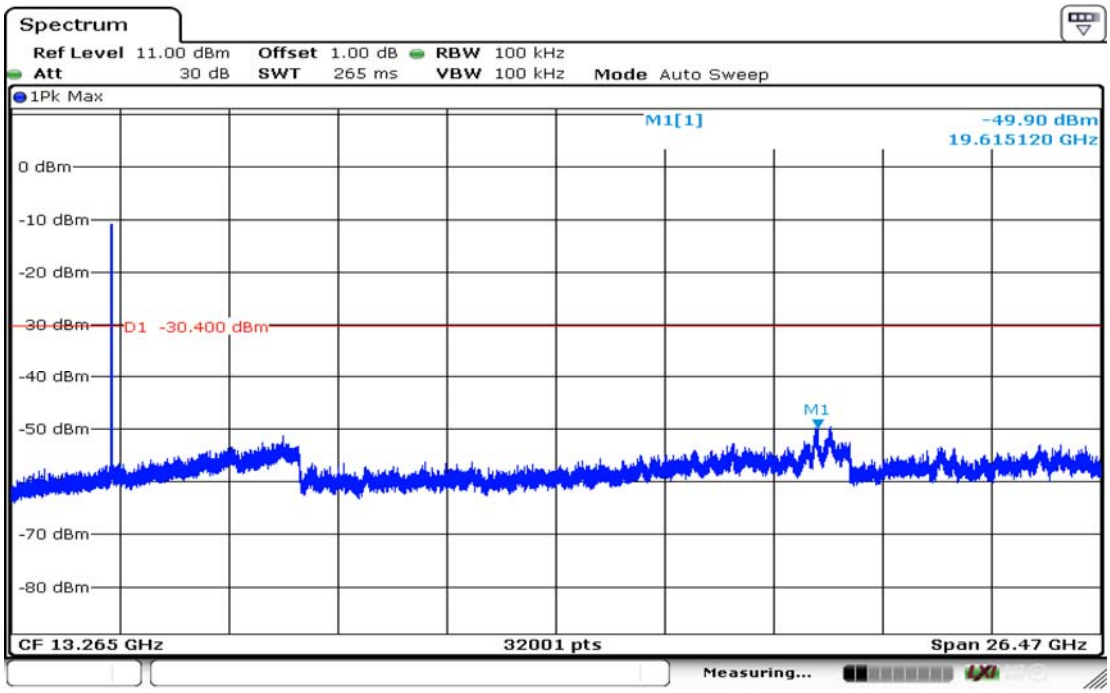
(ch_6)



11g

9.4 Trace data of Out of Emission - 802.11g mode

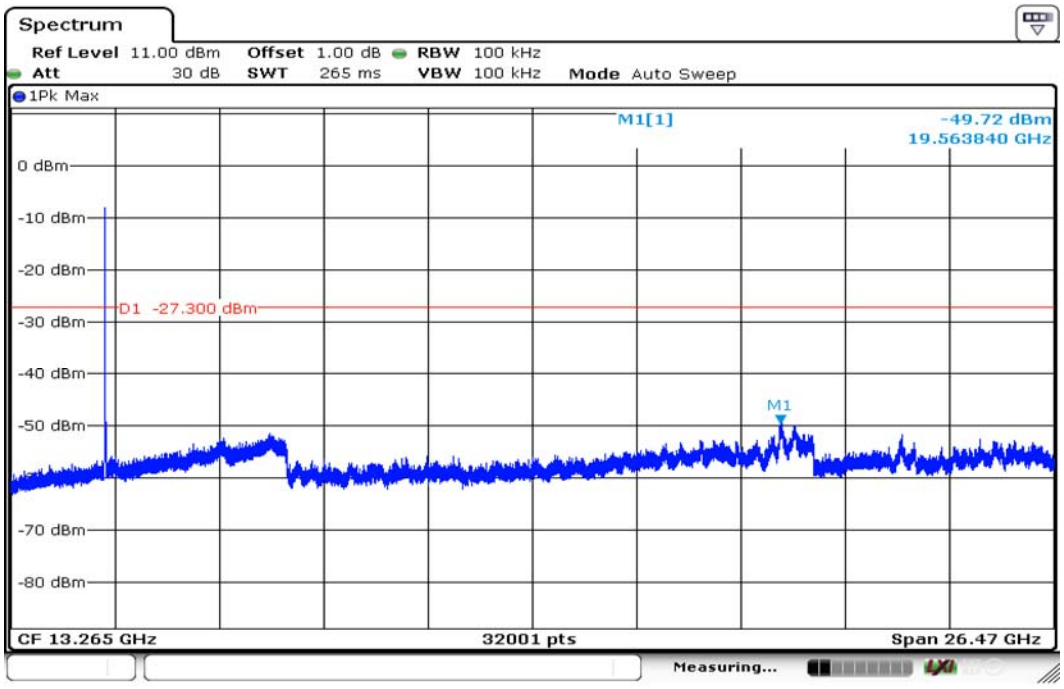
(ch_11)



11g

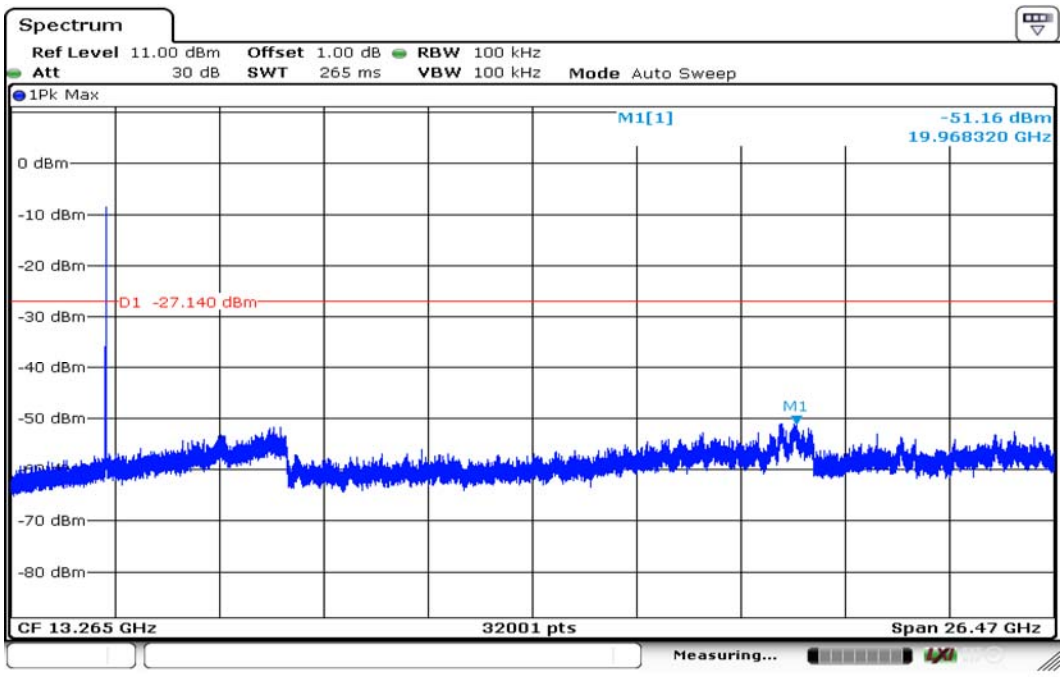
9.4 Trace data of Out of Emission - 802.11n20 mode

(ch_1)



11n20

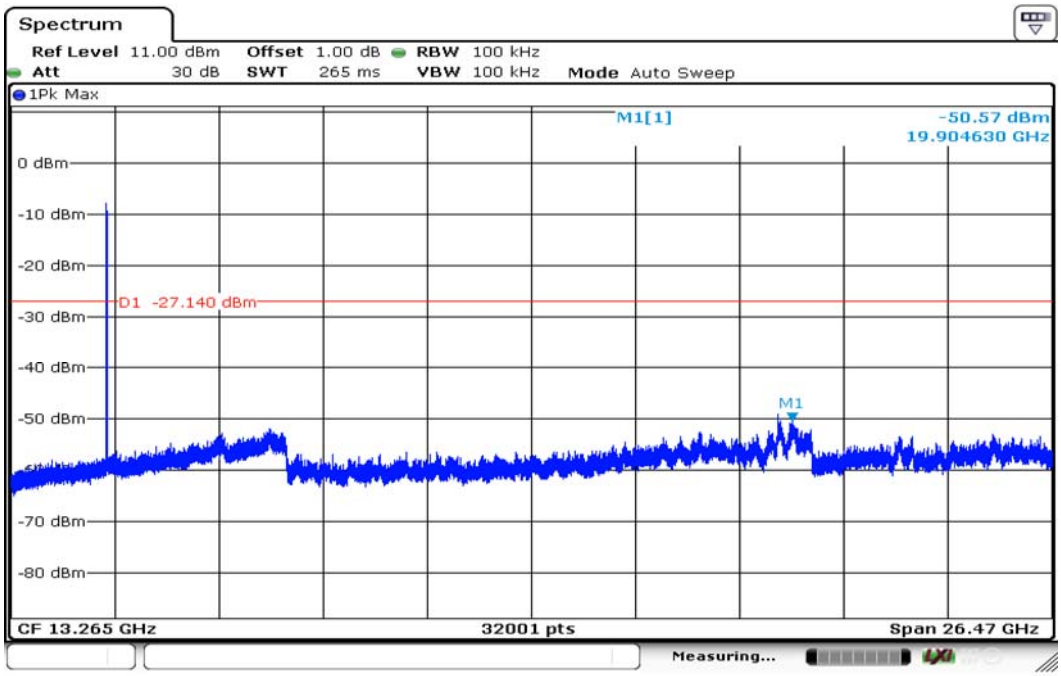
(ch_6)



11n20

9.4 Trace data of Out of Emission - 802.11n20 mode

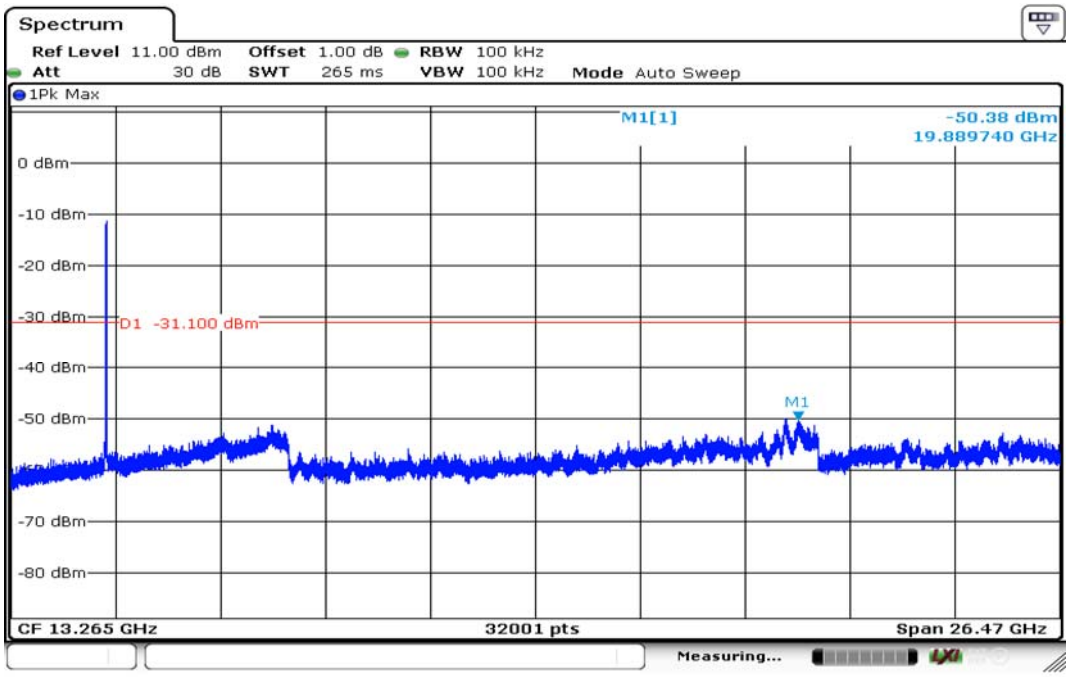
(ch_11)



11n20

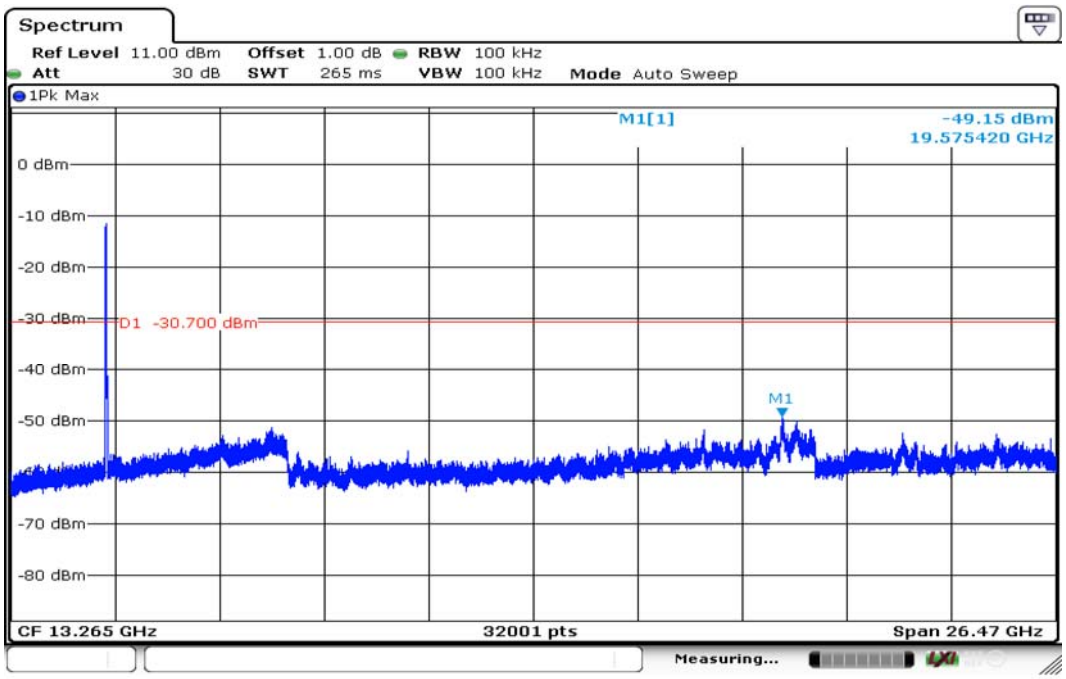
9.4 Trace data of Out of Emission – 802.11n40 mode

(ch_3)



11n40

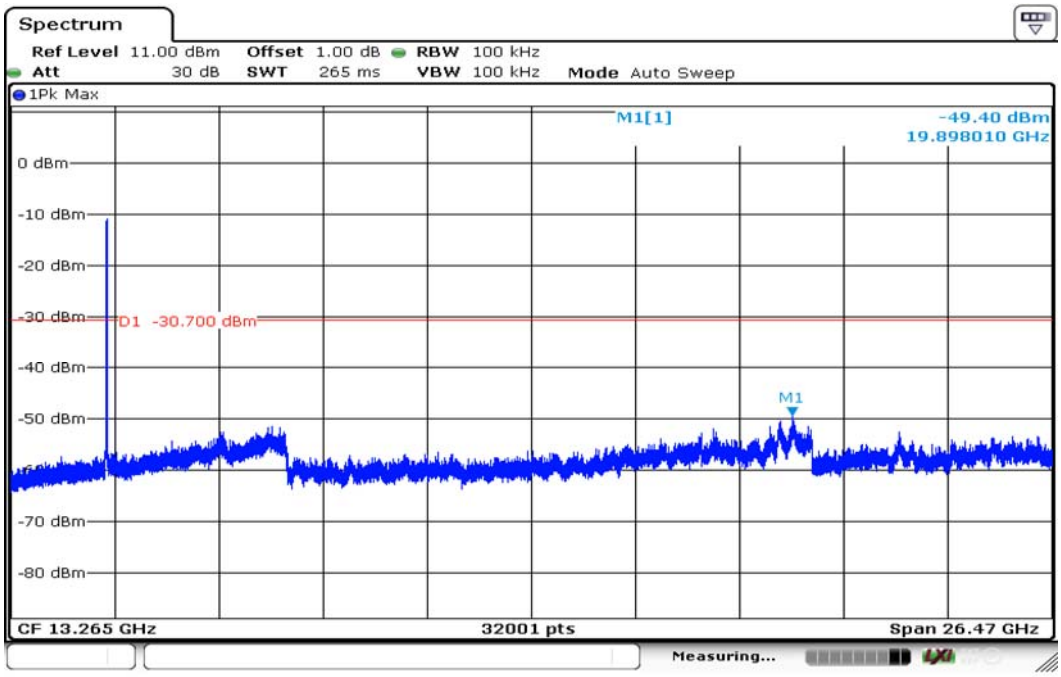
(ch_6)



11n40

9.4 Trace data of Out of Emission - 802.11n40 mode

(ch_11)



11n40

10. Measurement of radiated disturbance

Above 30 MHz Electric Field strength was measured in accordance with FCC PART 15.205, 15.209 . The test setup was made according to ANSI C 63.10 (2009) & KDB 558074 D01 Semi-anechoic chamber, which allows a 3 m distance measurement. The EUT was placed in the center of styrofoam. turntable. The height of this table was 0.8 m. The measurement was conducted with both horizontal and vertical antenna polarization. The turntable has fully rotated. For further description of the configuration refer to the picture of the test setup.

10.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
TEST Receiver	ESCI7	ROHDE & SCHWARZ	100916	15-Nov-17
Logbicon Antenna	VULB 9168	SCHWARZBECK	193	11-Mar-17
Turn Table	DT3000-2t	Innco System GmbH	N/A	-
Antenna Mast	MA4000-EP	Innco System GmbH	N/A	-
PREAMPLIFIER	8449B	AGILENT	3008A00581	15-Nov-17
Horn Antenna	BBHA9120D	SCHWARZBECK	469	25-Aug-17
Test Receiver	ESPI7	ROHDE & SCHWARZ	100185	15-Nov-17
Spectrum Analyzer	R3273	ADVANTEST	121200664	21-Oct-17
Turn Table	DT1500-S	Innco System GmbH	N/A	-
Antenna Mast	MA4000-EP	Innco System GmbH	N/A	-
Pyramidal Horn Antenna	3160-09-01	EST-LINDGREN	102642	25-Aug-17
Antenna Master & Turn table controller	C02000-P	Innco System GmbH	CO2000/642 /28051111/L	-

10.2 Environmental Condition

Below 1 GHz -Test Place : 10 m Semi-anechoic chamber

WLAN 802.11 b,g,n20,n40 Mode

Temperature (°C) : 21.4 ℃

Humidity (% R.H.) : 55.7 % R.H.

Above 1 GHz-Test Place : 3 m Semi-anechoic chamber

WLAN 802.11 b,g,n20,n40 Mode

Temperature (°C) : 22.1 ℃

Humidity (% R.H.) : 53.5 % R.H.

10.3 Measurement Instrument setting for Radiated Emission

10.3.1 Frequency range below 1 GHz

Detector : Quasi-Peak

10.3.2 Frequency range above 1 GHz

Peak Power Measurement Procedure (KDB 558074 section 12.2.4)

a. RBW : 1 MHz , VBW : 3 MHz
b. Trace mode = max hold
c. Detector : Peak
d. Sweep time = auto

Average Power Measurement Procedures (KDB 558074 section 12.2.5.2)

a. Set analyzer center frequency to the frequency associated with the emission
b. RBW : 1 MHz , VBW : 3 MHz
c. Detector : RMS
d. Sweep time = auto

* Note

Band	Duty cycle(%)	Ton (ms)	Ton + Toff (ms)	DCF=10*log(1/Duty) (dB)
802.11b	88.0	0.940	1.068	0.56
802.11g	58.0	0.168	0.287	2.37
802.11n20	59.0	0.152	0.272	2.29
802.11n40	44.0	0.099	0.225	3.57

* This was not applied of duty cycle factor for average value because of measured with the EUT transmitting continuously more than 98 % duty cycle at its maximum power control level.

10.4.1 Test Data (802.11 b)

Test Date : 3-Feb-17 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
119.10	15.71	V	1.0	10.96	1.64	43.50	28.31	15.19
162.70	19.48	H	1.8	13.10	1.93	43.50	34.51	8.99
243.20	23.11	H	1.7	11.56	2.41	46.00	37.08	8.92
405.00	21.06	H	1.4	15.74	3.18	46.00	39.98	6.02
559.60	12.23	V	1.0	19.09	3.76	46.00	35.08	10.92
786.90	5.09	V	1.0	22.25	4.58	46.00	31.92	14.08

Remark	H : Horizontal, V : Vertical *Checked in all 3 axis and the maximum measured data were reported.(Worst data is Z axis of position) *CL = Cable Loss(In case of below 1 000 MHz) *Result Value = Reading + Ant Factor + Cable loss *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1 GHz.

10.4.2 Test Data (802.11 g)

Test Date : 3-Feb-17 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
140.80	15.03	V	1.0	12.68	1.79	43.50	29.49	14.01
243.20	23.89	H	2.0	11.56	2.41	46.00	37.86	8.14
319.90	23.01	H	1.8	13.93	2.79	46.00	39.73	6.27
400.00	21.26	H	1.4	15.63	3.16	46.00	40.05	5.95
580.60	11.77	V	1.0	19.36	3.85	46.00	34.98	11.02
829.90	10.67	V	1.0	22.76	4.73	46.00	38.15	7.85

Remark	H : Horizontal, V : Vertical *Checked in all 3 axis and the maximum measured data were reported.(Worst data is Z axis of position) *CL = Cable Loss(In case of below 1 000 MHz) *Result Value = Reading + Ant Factor + Cable loss *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1 GHz.

10.4.3 Test Data (802.11 n20)

Test Date : 3-Feb-17 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
140.90	14.82	V	1.0	12.68	1.79	43.50	29.29	14.21
243.20	24.94	H	1.8	11.56	2.41	46.00	38.91	7.09
281.60	20.66	H	1.6	12.88	2.61	46.00	36.15	9.85
351.00	22.04	H	1.4	14.80	2.93	46.00	39.77	6.23
405.00	22.92	H	1.2	15.74	3.18	46.00	41.84	4.16
560.00	10.34	V	1.0	19.09	3.77	46.00	33.20	12.80

Remark	H : Horizontal, V : Vertical *Checked in all 3 axis and the maximum measured data were reported.(Worst data is Z axis of position) *CL = Cable Loss(In case of below 1 000 MHz) *Result Value = Reading + Ant Factor + Cable loss *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1 GHz.

10.4.4 Test Data (802.11 n40)

Test Date : 3-Feb-17 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Result Value		
				Ant Factor (dB)	Cable (dB)	Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
243.20	23.09	H	2.0	11.56	2.41	46.00	37.06	8.94
281.60	20.69	H	1.9	12.88	2.61	46.00	36.18	9.82
351.00	20.75	H	1.4	14.80	2.93	46.00	38.48	7.52
405.00	20.09	H	1.3	15.74	3.18	46.00	39.01	6.99
473.50	10.28	H	1.1	17.30	3.42	46.00	31.01	14.99
559.70	13.08	V	1.0	19.09	3.76	46.00	35.93	10.07

Remark	H : Horizontal, V : Vertical *Checked in all 3 axis and the maximum measured data were reported.(Worst data is Z axis of position) *CL = Cable Loss(In case of below 1 000 MHz) *Result Value = Reading + Ant Factor + Cable loss *The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1 GHz.

10.4-5 Test Data

Test Date : 2-Feb-17 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Duty Cycle Correction(dB)	Result Value		
				Ant Factor (dB)	Cable (dB)		Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW: 1 MHz VBW: 3 MHz)									
2390.00	23.02	H	1.8	26.11	5.79	0.56	74.00	55.47	18.53
2390.00	23.05	V	1.5	26.11	5.79	0.56	74.00	55.50	18.50
4824.00	44.89	H	1.6	30.99	-26.98	0.56	74.00	49.45	24.55
4824.00	42.76	V	1.7	30.99	-26.98	0.56	74.00	47.32	26.68
AV(RBW: 1 MHz VBW: 3 MHz)									
2390.00	15.17	H	1.8	26.11	5.79	0.56	54.00	47.62	6.38
2390.00	15.86	V	1.5	26.11	5.79	0.56	54.00	48.31	5.69
4824.00	32.79	H	1.6	30.99	-26.98	0.56	54.00	37.35	16.65
4824.00	30.66	V	1.7	30.99	-26.98	0.56	54.00	35.22	18.78

Remark	H : Horizontal, V : Vertical TEST MODE : 802.11 b - CH 1(2 412 MHz) *The TX signal wasn't detected from 3th harmonics. *Checked in all 3 axis and the maximum measured data were reported.(Worst data is Z axis of position) *Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Correction

10.4-6 Test Data

Test Date : 2-Feb-17 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Duty Cycle Correction(dB)	Result Value		
				Ant Factor (dB)	Cable (dB)		Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW: 1 MHz VBW: 3 MHz)									
4874.00	43.87	H	1.7	31.13	-26.84	0.56	74.00	48.72	25.28
4874.00	42.52	V	1.6	31.13	-26.84	0.56	74.00	47.37	26.63
AV(RBW: 1 MHz VBW: 3 MHz)									
4874.00	31.07	H	1.7	31.13	-26.84	0.56	54.00	35.92	18.08
4874.00	31.07	V	1.6	31.13	-26.84	0.56	54.00	35.92	18.08

Remark	H : Horizontal, V : Vertical TEST MODE : 802.11 b - CH 6(2 437 MHz) *The TX signal wasn't detected from 3th harmonics. *Checked in all 3 axis and the maximum measured data were reported.(Worst data is Z axis of position) *Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Correction

10.4-7 Test Data

Test Date : 2-Feb-17 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Duty Cycle Correction(dB)	Result Value		
				Ant Factor (dB)	Cable (dB)		Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW: 1 MHz VBW: 3 MHz)									
2483.50	23.01	H	1.5	26.30	5.79	0.56	74.00	55.66	18.34
2483.50	22.83	V	1.5	26.30	5.79	0.56	74.00	55.48	18.52
4924.00	43.82	H	1.5	31.27	-26.74	0.56	74.00	48.92	25.08
4924.00	43.30	V	1.5	31.27	-26.74	0.56	74.00	48.40	25.60
AV(RBW: 1 MHz VBW: 3 MHz)									
2483.50	16.22	H	1.5	26.30	5.79	0.56	54.00	48.87	5.13
2483.50	15.85	V	1.5	26.30	5.79	0.56	54.00	48.50	5.50
4924.00	31.53	H	1.5	31.27	-26.74	0.56	54.00	36.63	17.37
4924.00	30.73	V	1.5	31.27	-26.74	0.56	54.00	35.83	18.17

Remark	H : Horizontal, V : Vertical TEST MODE : 802.11 b - CH 11(2 462 MHz) *The TX signal wasn't detected from 3th harmonics. *Checked in all 3 axis and the maximum measured data were reported.(Worst data is Z axis of position) *Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Correction

10.4-8 Test Data

Test Date : 2-Feb-17 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Duty Cycle Correction(dB)	Result Value		
				Ant Factor (dB)	Cable (dB)		Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW: 1 MHz VBW: 3 MHz)									
2390.00	23.69	H	1.5	26.11	5.79	2.37	74.00	57.96	16.04
2390.00	22.83	V	1.6	26.11	5.79	2.37	74.00	57.10	16.90
4824.00	42.96	H	1.6	30.99	-26.98	2.37	74.00	49.34	24.66
4824.00	43.05	V	1.5	30.99	-26.98	2.37	74.00	49.43	24.57
AV(RBW: 1 MHz VBW: 3 MHz)									
2390.00	15.37	H	1.5	26.11	5.79	2.37	54.00	49.64	4.36
2390.00	15.58	V	1.6	26.11	5.79	2.37	54.00	49.85	4.15
4824.00	33.96	H	1.6	30.99	-26.98	2.37	54.00	40.34	13.66
4824.00	34.93	V	1.5	30.99	-26.98	2.37	54.00	41.31	12.69

Remark	H : Horizontal, V : Vertical TEST MODE : 802.11 g - CH 1(2 412 MHz) *The TX signal wasn't detected from 3th harmonics. *Checked in all 3 axis and the maximum measured data were reported.(Worst data is Z axis of position) *Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Correction

10.4-9 Test Data

Test Date : 2-Feb-17 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Duty Cycle Correction(dB)	Result Value		
				Ant Factor (dB)	Cable (dB)		Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW: 1 MHz VBW: 3 MHz)									
4874.00	42.83	H	1.6	31.13	-26.84	2.37	74.00	49.49	24.51
4874.00	42.75	V	1.7	31.13	-26.84	2.37	74.00	49.41	24.59
AV(RBW: 1 MHz VBW: 3 MHz)									
4874.00	34.35	H	1.6	31.13	-26.84	2.37	54.00	41.01	12.99
4874.00	33.72	V	1.7	31.13	-26.84	2.37	54.00	40.38	13.62
Remark	H : Horizontal, V : Vertical TEST MODE : 802.11 g - CH 6(2 437 MHz) *The TX signal wasn't detected from 3th harmonics. *Checked in all 3 axis and the maximum measured data were reported.(Worst data is Z axis of position) *Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Correction								

10.4-10 Test Data

Test Date : 2-Feb-17 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Duty Cycle Correction(dB)	Result Value		
				Ant Factor (dB)	Cable (dB)		Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW: 1 MHz VBW: 3 MHz)									
2483.50	23.30	H	1.5	26.30	5.79	2.37	74.00	57.76	16.24
2483.50	23.42	V	1.5	26.30	5.79	2.37	74.00	57.88	16.12
4924.00	42.37	H	1.6	31.27	-26.74	2.37	74.00	49.28	24.72
4924.00	42.09	V	1.5	31.27	-26.74	2.37	74.00	49.00	25.00
AV(RBW: 1 MHz VBW: 3 MHz)									
2483.50	16.62	H	1.5	26.30	5.79	2.37	54.00	51.08	2.92
2483.50	16.08	V	1.5	26.30	5.79	2.37	54.00	50.54	3.46
4924.00	34.31	H	1.6	31.27	-26.74	2.37	54.00	41.22	12.78
4924.00	35.20	V	1.5	31.27	-26.74	2.37	54.00	42.11	11.89

Remark	H : Horizontal, V : Vertical TEST MODE : 802.11g - CH 11(2 462 MHz) *The TX signal wasn't detected from 3th harmonics. *Checked in all 3 axis and the maximum measured data were reported.(Worst data is Z axis of position) *Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Correction

10.4-11 Test Data

Test Date : 2-Feb-17 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Duty Cycle Correction(dB)	Result Value		
				Ant Factor (dB)	Cable (dB)		Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW: 1 MHz VBW: 3 MHz)									
2390.00	24.03	H	1.6	26.11	5.79	2.29	74.00	58.22	15.78
2390.00	24.29	V	1.6	26.11	5.79	2.29	74.00	58.48	15.52
4824.00	43.19	H	1.5	30.99	-26.98	2.29	74.00	49.49	24.51
4824.00	43.25	V	1.5	30.99	-26.98	2.29	74.00	49.55	24.45
AV(RBW: 1 MHz VBW: 3 MHz)									
2390.00	15.87	H	1.6	26.11	5.79	2.29	54.00	50.06	3.94
2390.00	15.88	V	1.6	26.11	5.79	2.29	54.00	50.07	3.93
4824.00	32.75	H	1.5	30.99	-26.98	2.29	54.00	39.05	14.95
4824.00	32.99	V	1.5	30.99	-26.98	2.29	54.00	39.29	14.71

Remark	H : Horizontal, V : Vertical TEST MODE : 802.11 n20 - CH 1(2 412 MHz) *The TX signal wasn't detected from 3th harmonics. *Checked in all 3 axis and the maximum measured data were reported.(Worst data is Z axis of position) *Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Correction

10.4-12 Test Data

Test Date : 2-Feb-17 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Duty Cycle Correction(dB)	Result Value		
				Ant Factor (dB)	Cable (dB)		Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW: 1 MHz VBW: 3 MHz)									
4874.00	42.92	H	1.6	31.13	-26.84	2.29	74.00	49.50	24.50
4874.00	42.47	V	1.7	31.13	-26.84	2.29	74.00	49.05	24.95
AV(RBW: 1 MHz VBW: 3 MHz)									
4874.00	32.75	H	1.6	31.13	-26.84	2.29	54.00	39.33	14.67
4874.00	32.99	V	1.7	31.13	-26.84	2.29	54.00	39.57	14.43
Remark	H : Horizontal, V : Vertical TEST MODE : 802.11 n20 - CH 6(2 437 MHz) *The TX signal wasn't detected from 3th harmonics. *Checked in all 3 axis and the maximum measured data were reported.(Worst data is Z axis of position) *Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Correction								

10.4-13 Test Data

Test Date : 2-Feb-17 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Duty Cycle Correction(dB)	Result Value		
				Ant Factor (dB)	Cable (dB)		Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW: 1 MHz VBW: 3 MHz)									
2483.50	22.91	H	1.7	26.30	5.79	2.29	74.00	57.29	16.71
2483.50	23.35	V	1.6	26.30	5.79	2.29	74.00	57.73	16.27
4924.00	43.81	H	1.6	31.27	-26.74	2.29	74.00	50.64	23.36
4924.00	43.64	V	1.6	31.27	-26.74	2.29	74.00	50.47	23.53
AV(RBW: 1 MHz VBW: 3 MHz)									
2483.50	16.91	H	1.7	26.30	5.79	2.29	54.00	51.29	2.71
2483.50	16.43	V	1.6	26.30	5.79	2.29	54.00	50.81	3.19
4924.00	32.91	H	1.6	31.27	-26.74	2.29	54.00	39.74	14.26
4924.00	32.67	V	1.6	31.27	-26.74	2.29	54.00	39.50	14.50

Remark	H : Horizontal, V : Vertical TEST MODE : 802.11 n20 - CH 11(2 462 MHz) *The TX signal wasn't detected from 3th harmonics. *Checked in all 3 axis and the maximum measured data were reported.(Worst data is Z axis of position) *Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Correction

10.4-14 Test Data

Test Date : 2-Feb-17 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Duty Cycle Correction(dB)	Result Value		
				Ant Factor (dB)	Cable (dB)		Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW: 1 MHz VBW: 3 MHz)									
2385.88	47.18	H	1.5	26.10	-29.92	3.57	74.00	46.92	27.08
2389.80	51.58	V	1.6	26.11	-29.92	3.57	74.00	51.33	22.67
4844.00	43.84	H	1.6	31.05	-26.93	3.57	74.00	51.53	22.47
4844.00	43.43	V	1.7	31.05	-26.93	3.57	74.00	51.12	22.88
AV(RBW: 1 MHz VBW: 3 MHz)									
2385.88	40.04	H	1.5	26.10	-29.92	3.57	54.00	39.78	14.22
2389.80	41.43	V	1.6	26.11	-29.92	3.57	54.00	41.18	12.82
4824.00	36.08	H	1.6	30.99	-26.98	3.57	54.00	43.65	10.35
4824.00	35.53	V	1.7	30.99	-26.98	3.57	54.00	43.10	10.90

Remark	H : Horizontal, V : Vertical TEST MODE : 802.11 n40 - CH 3(2 422 MHz) *The TX signal wasn't detected from 3th harmonics. *Checked in all 3 axis and the maximum measured data were reported.(Worst data is Z axis of position) *Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Correction

10.4-15 Test Data

Test Date : 2-Feb-17 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Duty Cycle Correction(dB)	Result Value		
				Ant Factor (dB)	Cable (dB)		Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW: 1 MHz VBW: 3 MHz)									
4874.00	43.47	H	1.5	31.13	-26.84	3.57	74.00	51.33	22.67
4874.00	43.15	V	1.6	31.13	-26.84	3.57	74.00	51.01	22.99
AV(RBW: 1 MHz VBW: 3 MHz)									
4874.00	35.06	H	1.5	31.13	-26.84	3.57	54.00	42.92	11.08
4874.00	35.48	V	1.6	31.13	-26.84	3.57	54.00	43.34	10.66

Remark	H : Horizontal, V : Vertical TEST MODE : 802.11 n40 - CH 6(2 437 MHz) *The TX signal wasn't detected from 3th harmonics. *Checked in all 3 axis and the maximum measured data were reported.(Worst data is Z axis of position) *Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Correction

10.4-16 Test Data

Test Date : 2-Feb-17 Measurement Distance : 3 m

Frequency (MHz)	Reading (dBμV)	Position (V/H)	Height (m)	Correction Factor		Duty Cycle Correction(dB)	Result Value		
				Ant Factor (dB)	Cable (dB)		Limit (dBμV/m)	Result (dBμV/m)	Margin (dB)
PEAK(RBW: 1 MHz VBW: 3 MHz)									
2483.50	60.16	H	1.5	26.30	-29.93	3.57	74.00	60.09	13.91
2483.50	56.92	V	1.5	26.30	-29.93	3.57	74.00	56.85	17.15
2485.72	58.71	H	1.6	26.30	-29.92	3.57	74.00	58.66	15.34
2485.72	55.26	V	1.5	26.30	-29.92	3.57	74.00	55.21	18.79
4924.00	43.40	H	1.6	31.27	-26.74	3.57	74.00	51.50	22.50
4924.00	43.21	V	1.5	31.27	-26.74	3.57	74.00	51.31	22.69
AV(RBW: 1 MHz VBW: 3 MHz)									
2483.50	40.51	H	1.5	26.30	-29.93	3.57	54.00	40.44	13.56
2483.50	47.97	V	1.5	26.30	-29.93	3.57	54.00	47.90	6.10
2485.72	50.88	H	1.6	26.30	-29.92	3.57	54.00	50.83	3.17
2486.28	50.57	V	1.5	26.30	-29.92	3.57	54.00	50.52	3.48
4924.00	34.52	H	1.6	31.27	-26.74	3.57	54.00	42.62	11.38
4924.00	34.65	V	1.5	31.27	-26.74	3.57	54.00	42.75	11.25

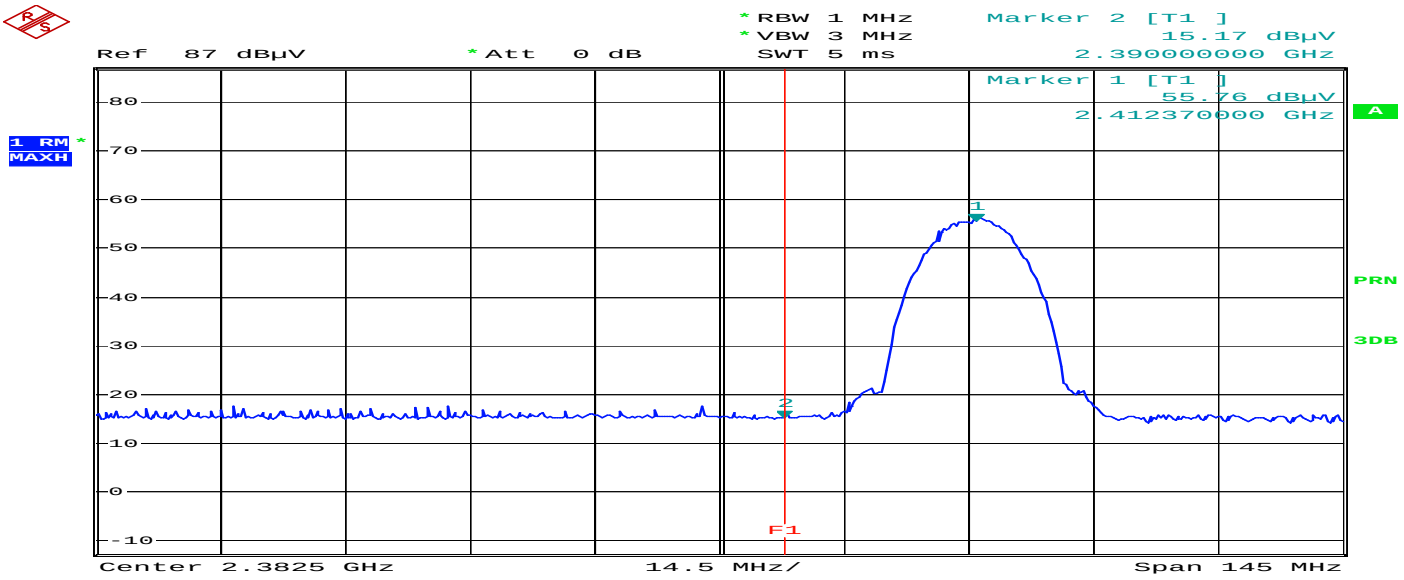
Remark	H : Horizontal, V : Vertical TEST MODE : 802.11n40 - CH 11(2 462 MHz) *The TX signal wasn't detected from 3th harmonics. *Checked in all 3 axis and the maximum measured data were reported.(Worst data is Z axis of position) *Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Correction

10.5 Restricted Band Edges

*802.11b Mode

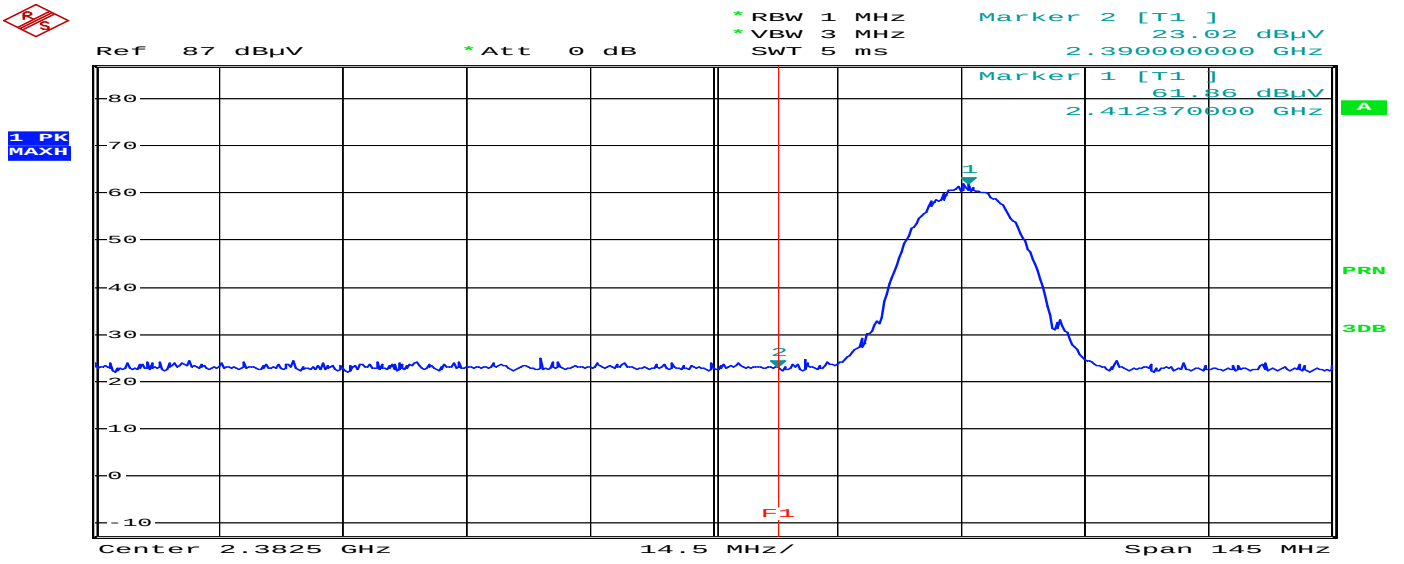
Band Edges(CH Low)

Detector mode:Peak Polarity:Horizontal



Comment: 802.11b_2412_RMS_HOR
Date: 2.FEB.2017 19:47:36

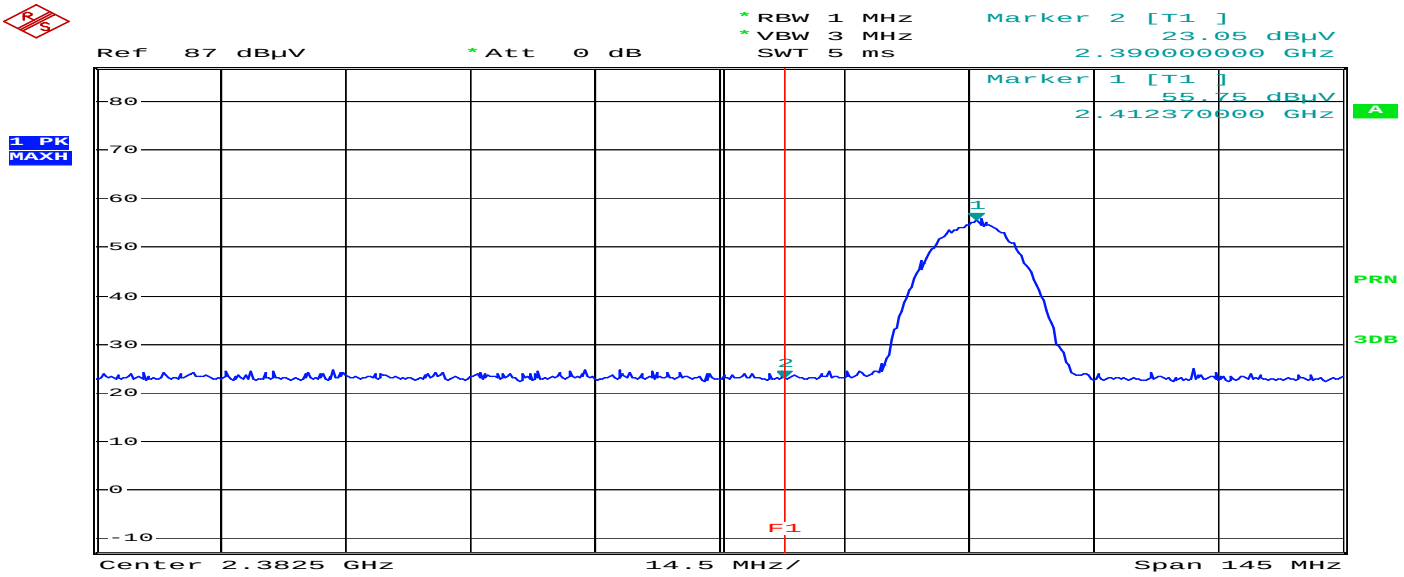
Detector mode:Average Polarity:Horizontal



Comment: 802.11b_2412_PEAK_HOR
Date: 2.FEB.2017 19:49:09

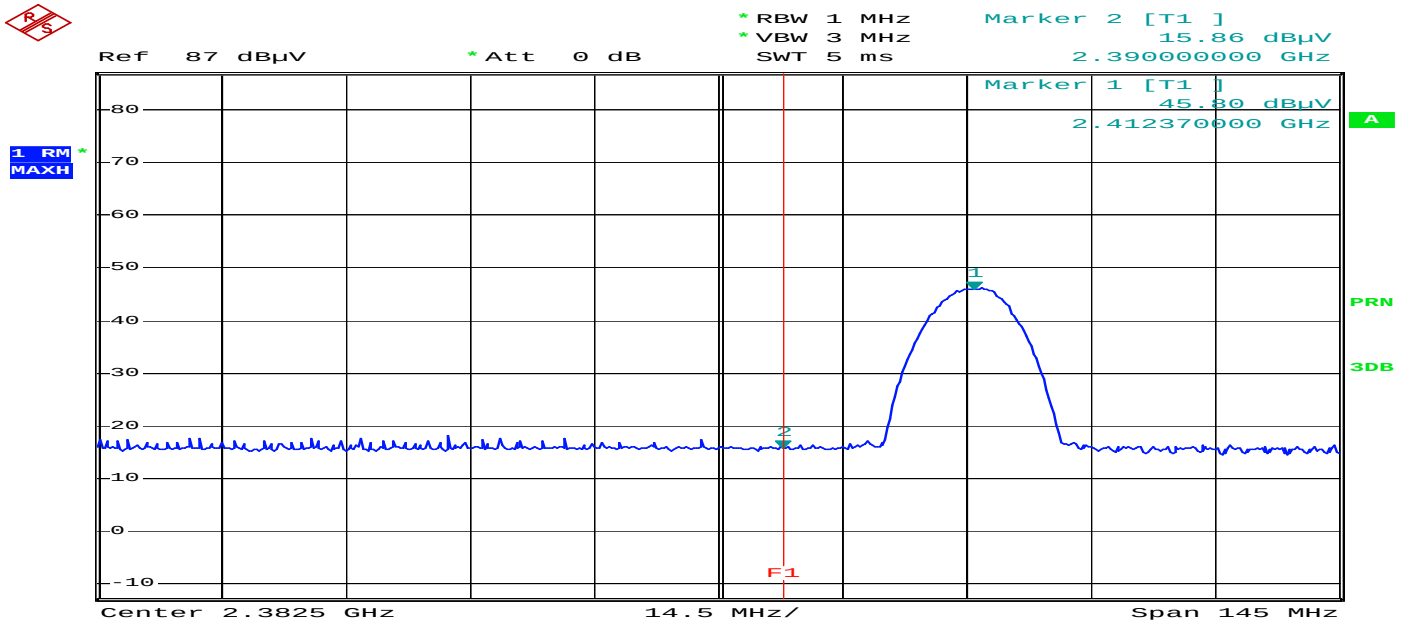
Band Edges(CH Low)

Detector mode:Peak Polarity:Vertical



Comment: 802.11b_2412_PEAK_VER
Date: 2.FEB.2017 19:43:47

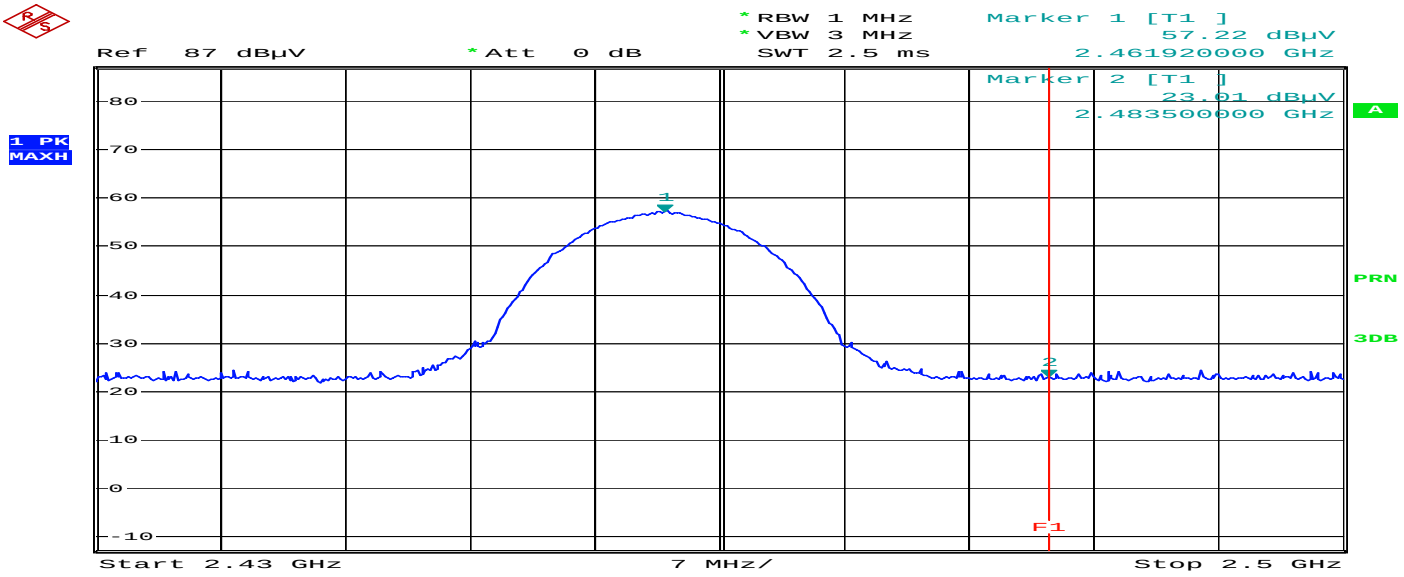
Detector mode:Average Polarity:Vertical



Comment: 802.11b_2412_RMS
Date: 2.FEB.2017 19:41:13

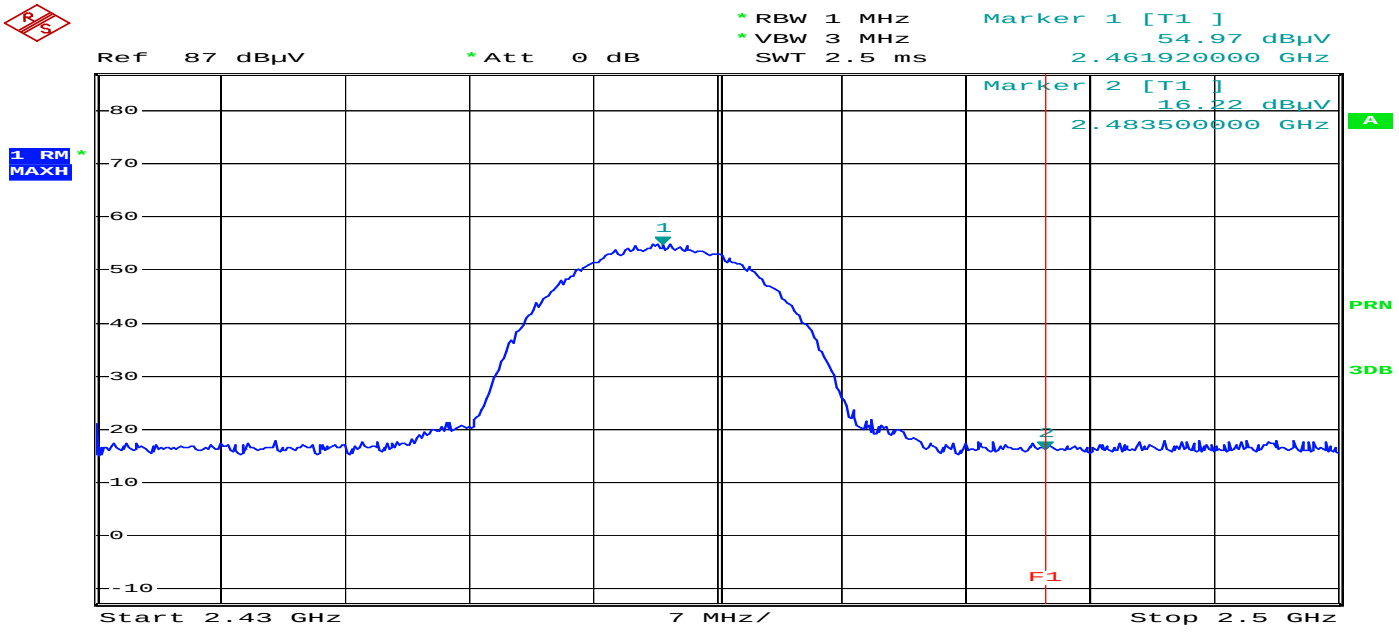
Band Edges(CH High)

Detector mode:Peak Polarity:Horizontal



Comment: 802.11b_2462_PEAK_HOR
Date: 2.FEB.2017 19:56:04

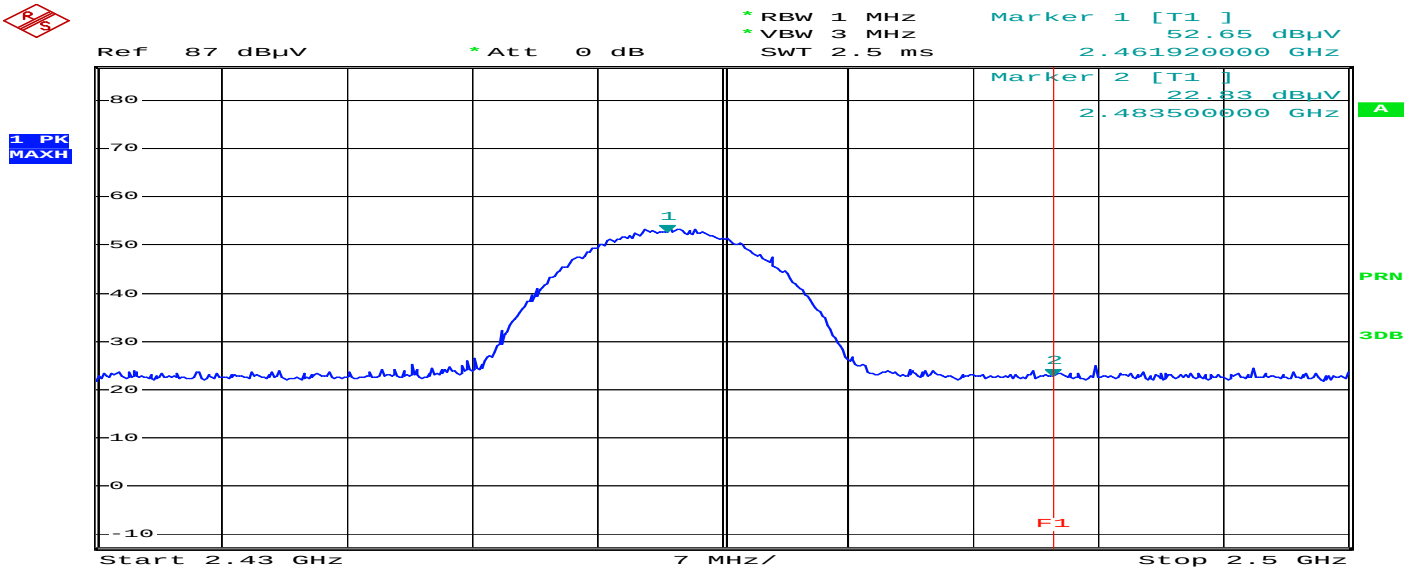
Detector mode:Average Polarity:Horizontal



Comment: 802.11b_2462_RMS_HOR
Date: 2.FEB.2017 20:00:05

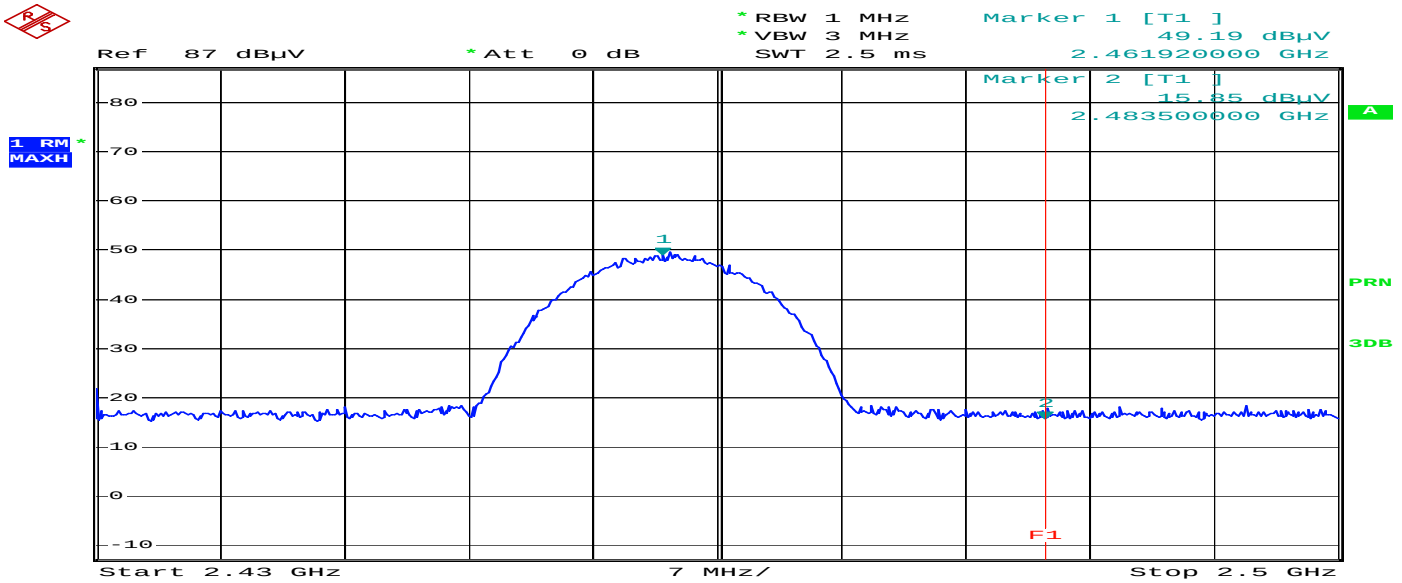
Band Edges(CH High)

Detector mode:Peak Polarity:Vertical



Comment: 802.11b_2462_PEAK_VER
Date: 2.FEB.2017 20:09:09

Detector mode:Average Polarity:Vertical

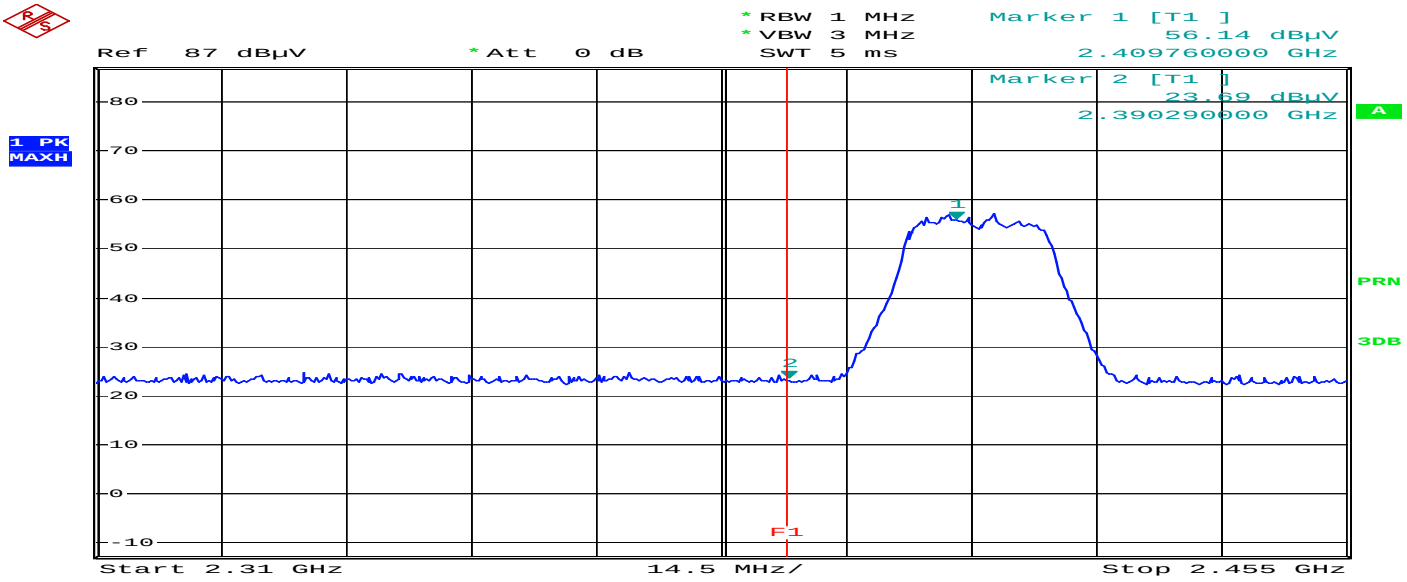


Comment: 802.11b_2462_RMS_VER
Date: 2.FEB.2017 20:06:24

*802.11g Mode

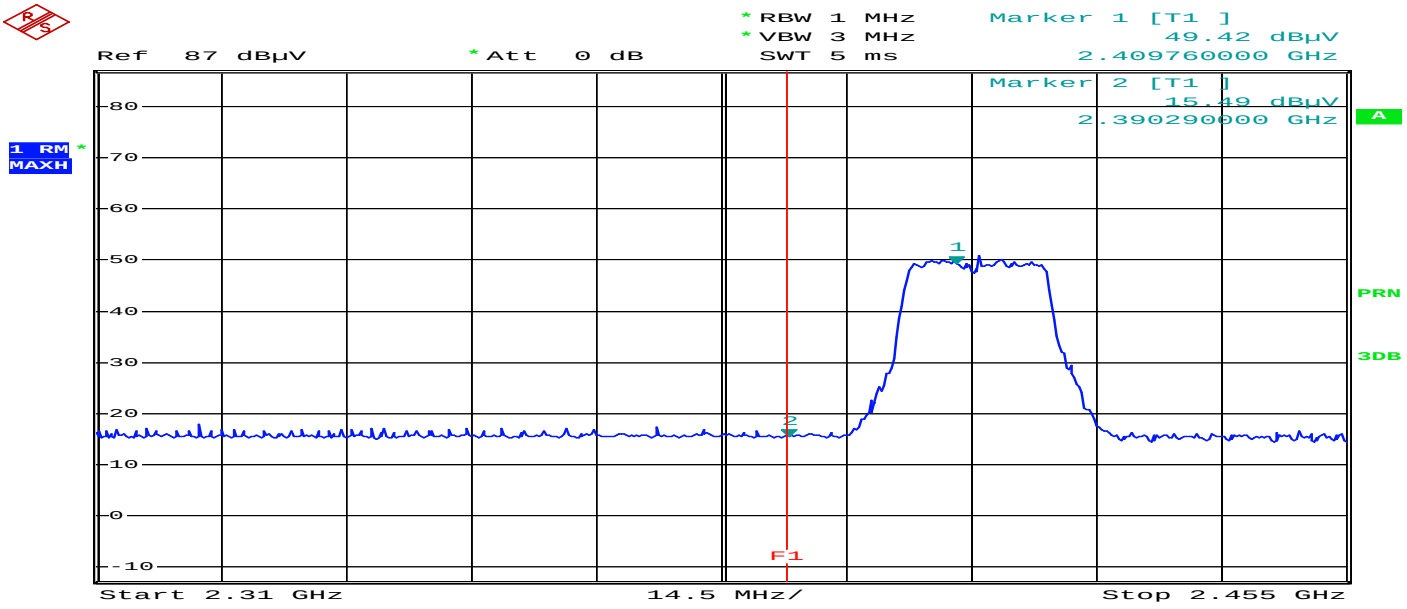
Band Edges(CH Low)

Detector mode:Peak Polarity:Horizontal



Comment: 802.11g_2412_PEAK_HOR
Date: 2.FEB.2017 20:47:24

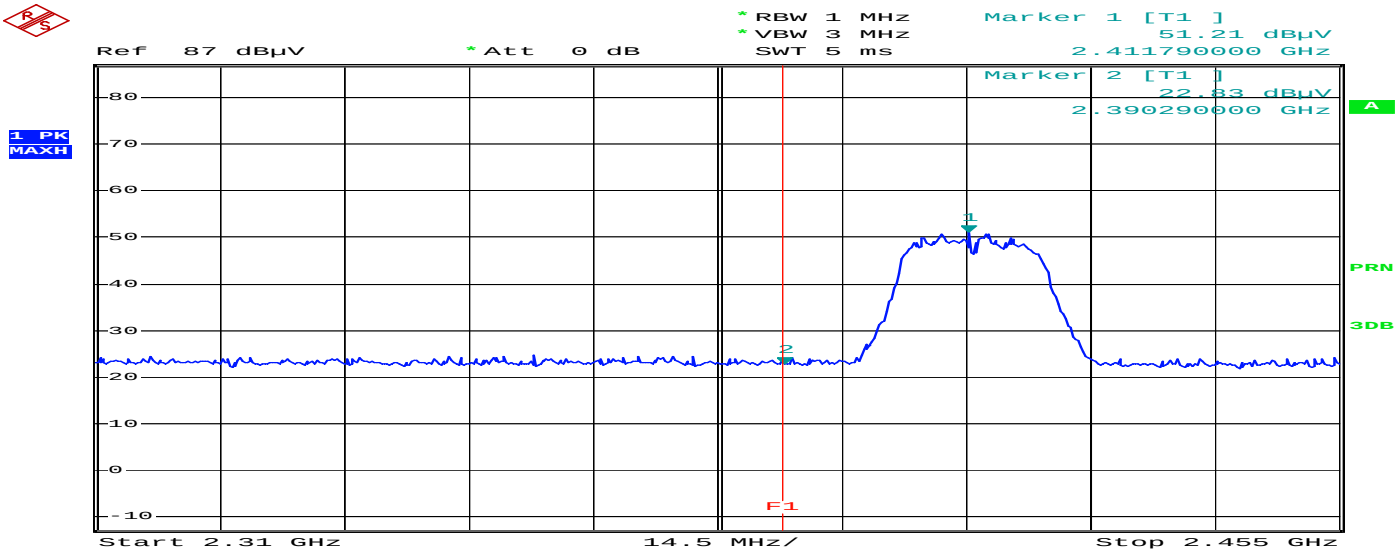
Detector mode:Average Polarity:Horizontal



Comment: 802.11g_2412_RMS_HOR
Date: 2.FEB.2017 20:51:25

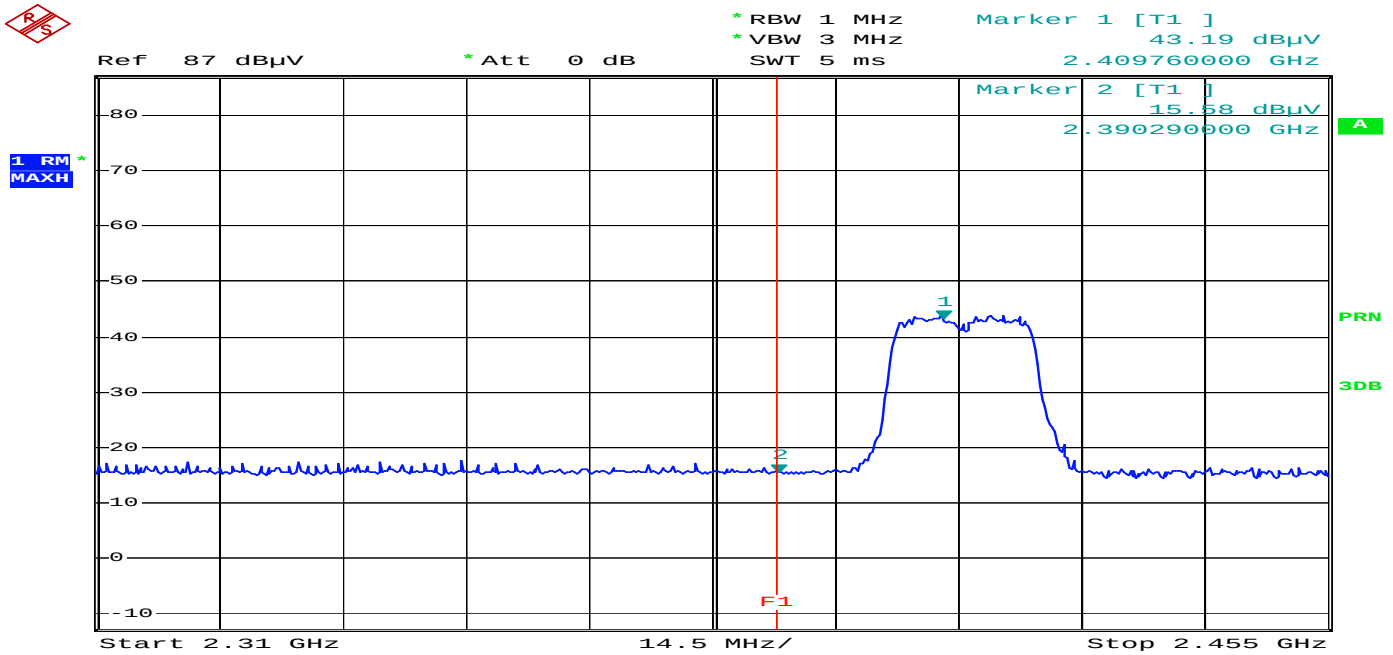
Band Edges(CH Low)

Detector mode:Peak Polarity:Vertical



Comment: 802.11g_2412_PEAK_VER
Date: 2.FEB.2017 20:57:37

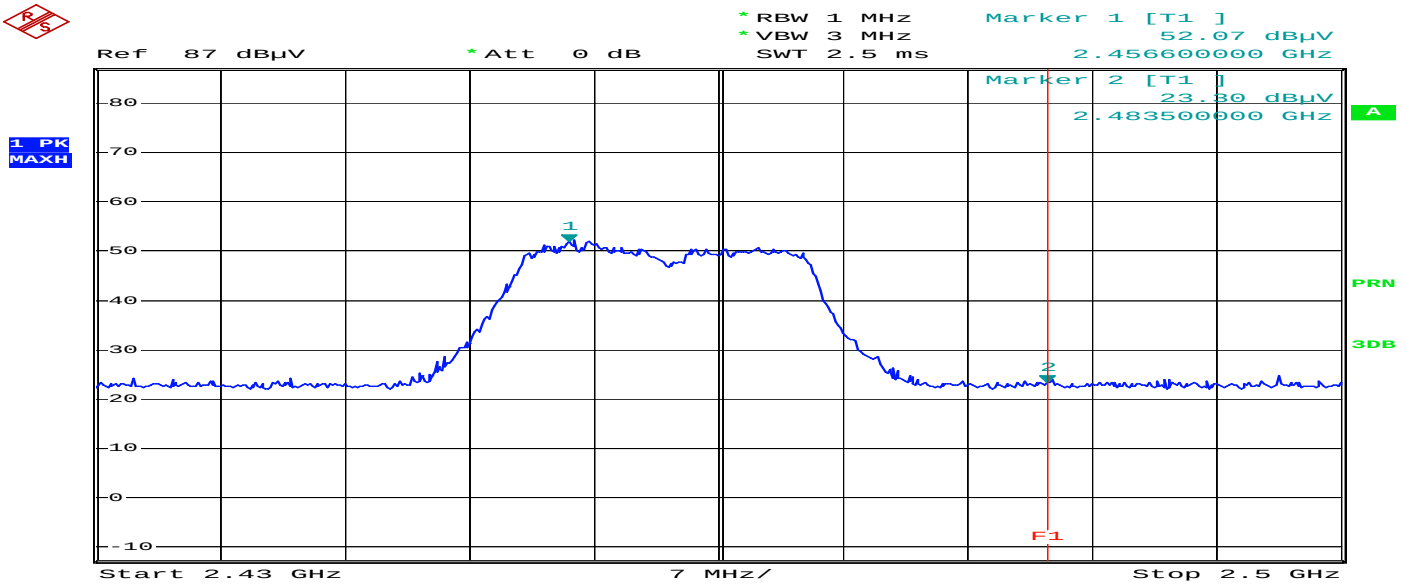
Detector mode:Average Polarity:Vertical



Comment: 802.11g_2412_RMS_VER
Date: 2.FEB.2017 20:55:51

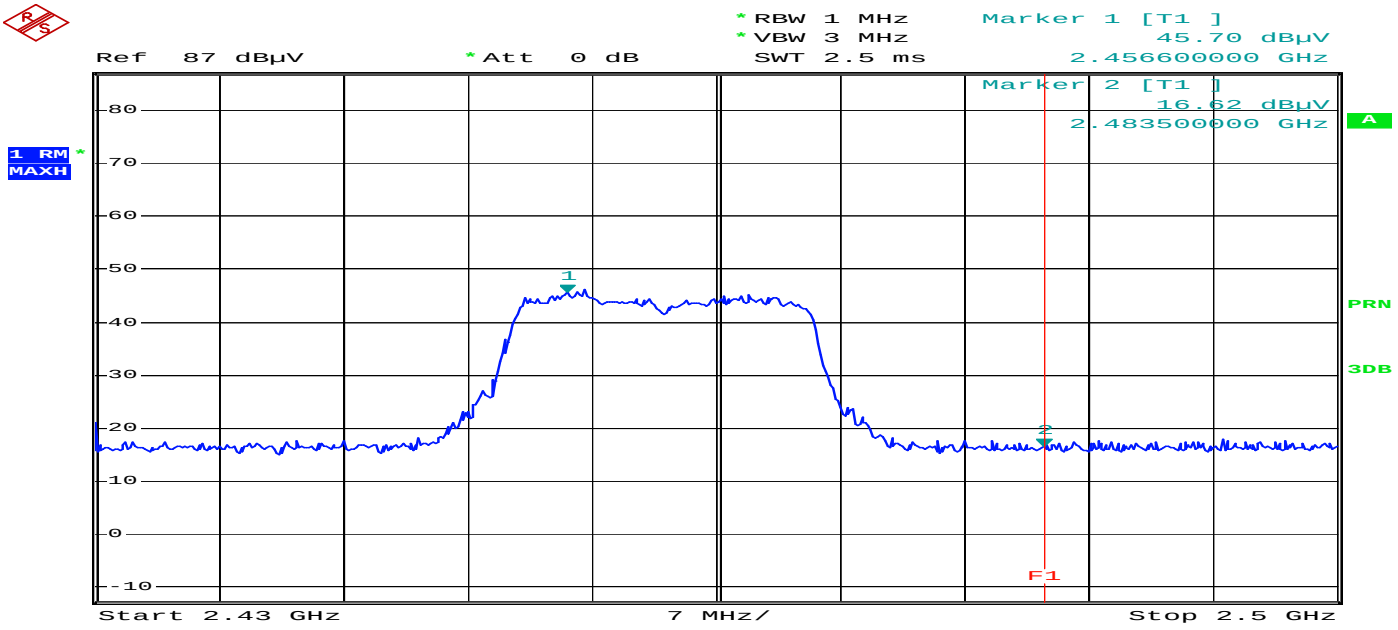
Band Edges(CH High)

Detector mode:Peak Polarity:Horizontal



Comment: 802.11g_2462_PEAK_HOR
Date: 2.FEB.2017 21:16:15

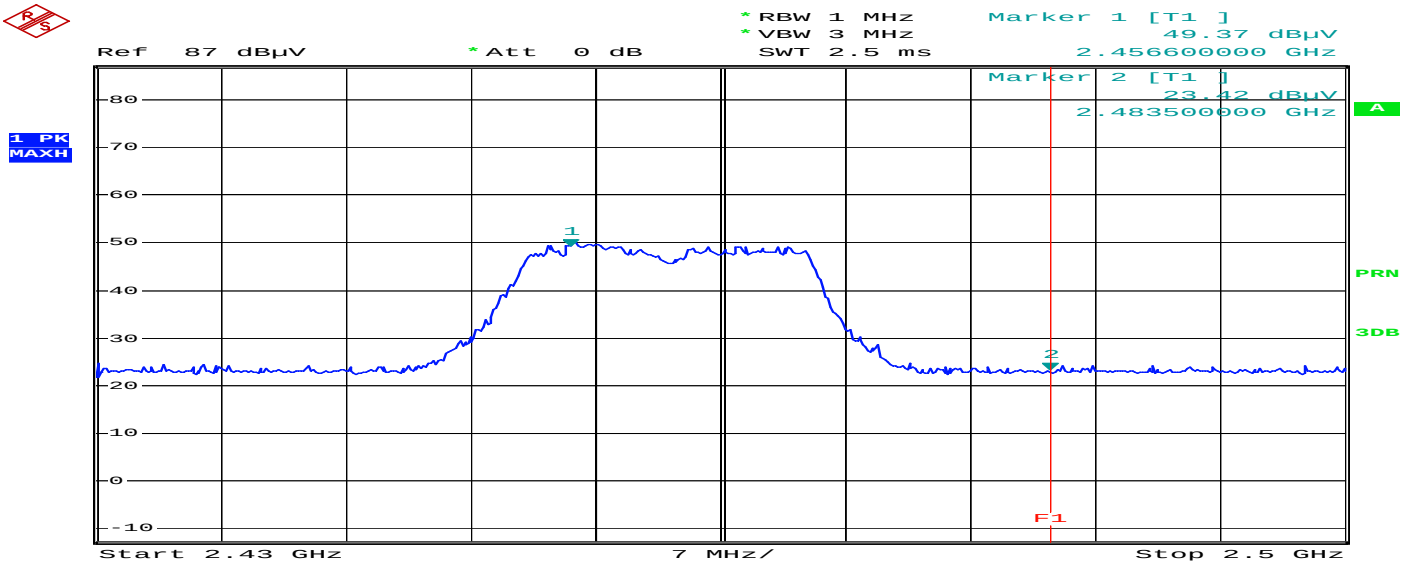
Detector mode:Average Polarity:Horizontal



Comment: 802.11g_2462_RMS_HOR
Date: 2.FEB.2017 21:14:20

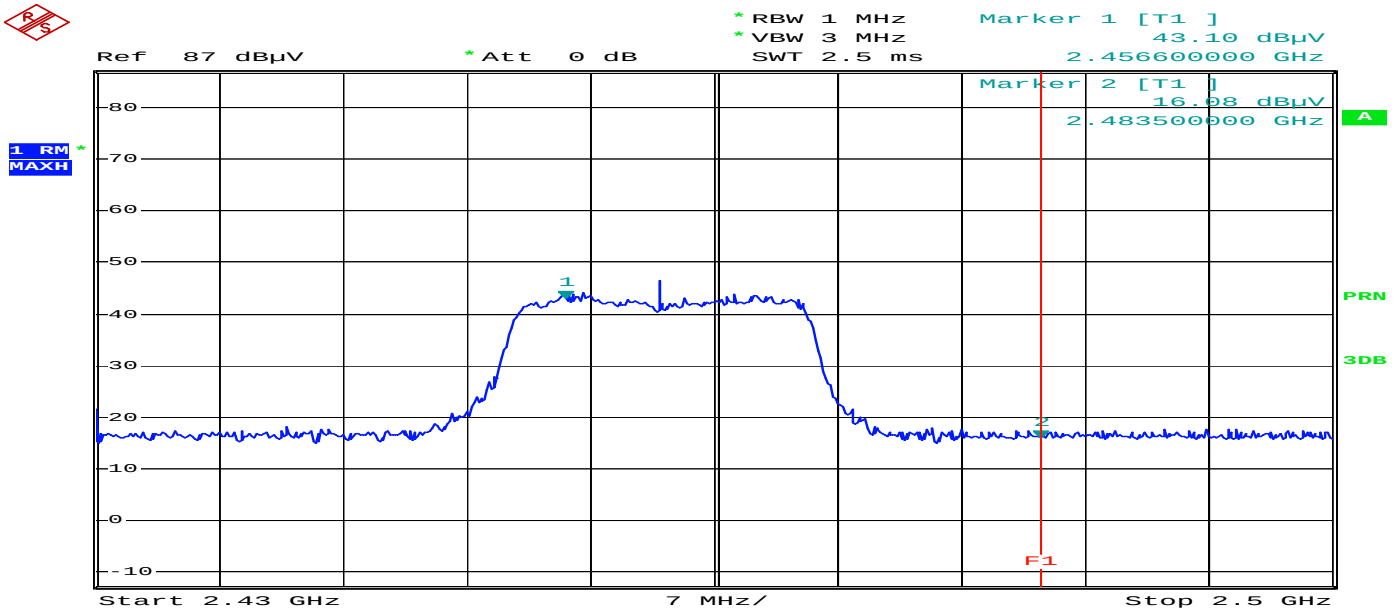
Band Edges(CH High)

Detector mode:Peak Polarity:Vertical



Comment: 802.11g_2462_PEAK_VER
Date: 2.FEB.2017 21:03:50

Detector mode:Average Polarity:Vertical

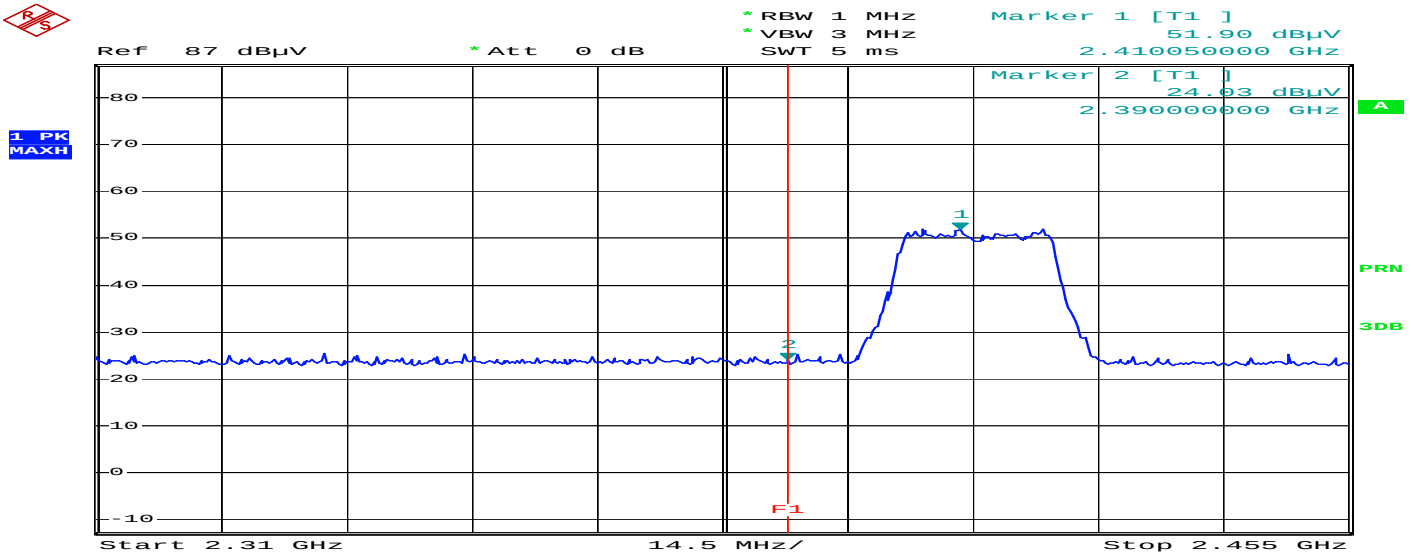


Comment: 802.11g_2462_RMS_VER
Date: 2.FEB.2017 21:06:37

*802.11n20 Mode

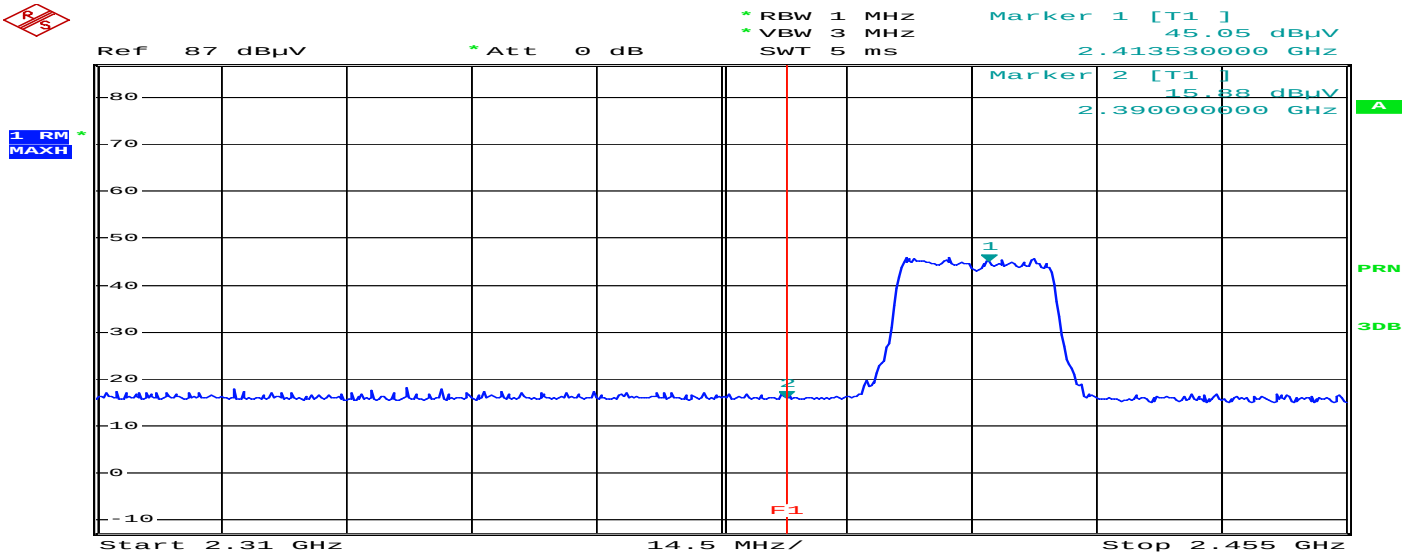
Band Edges(CH Low)

Detector mode:Peak Polarity:Horizontal



Comment: 802.11n20_2412_PEAK_HOR
Date: 1.FEB.2017 13:11:41

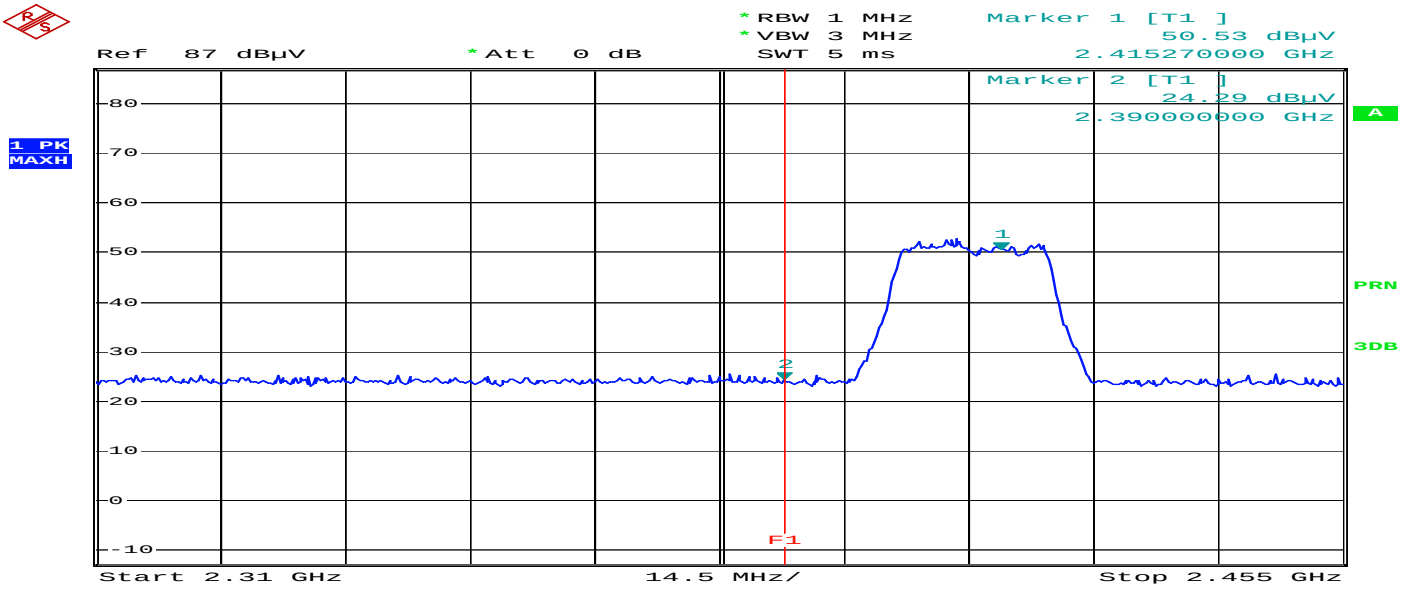
Detector mode:Average Polarity:Horizontal



Comment: 802.11n20_2412_RMS_HOR
Date: 1.FEB.2017 13:10:27

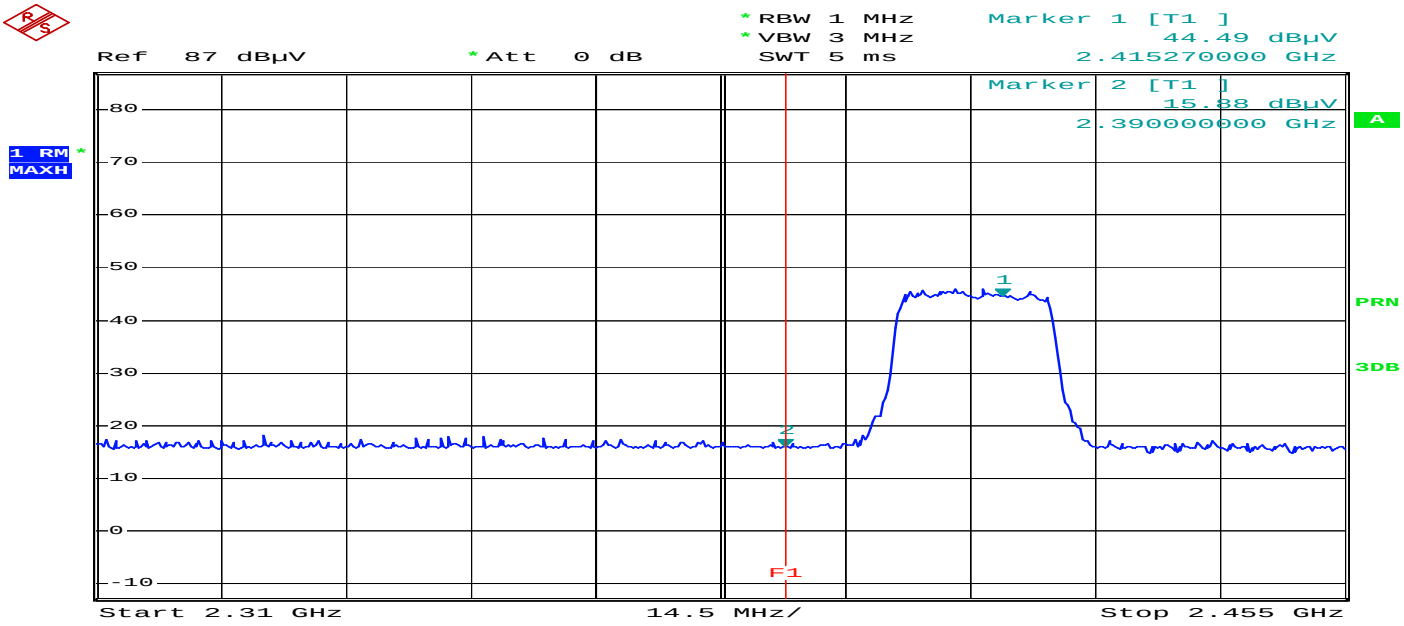
Band Edges(CH Low)

Detector mode:Peak Polarity:Vertical



Comment: 802.11n20_2412_PEAK_VER
Date: 1.FEB.2017 13:07:10

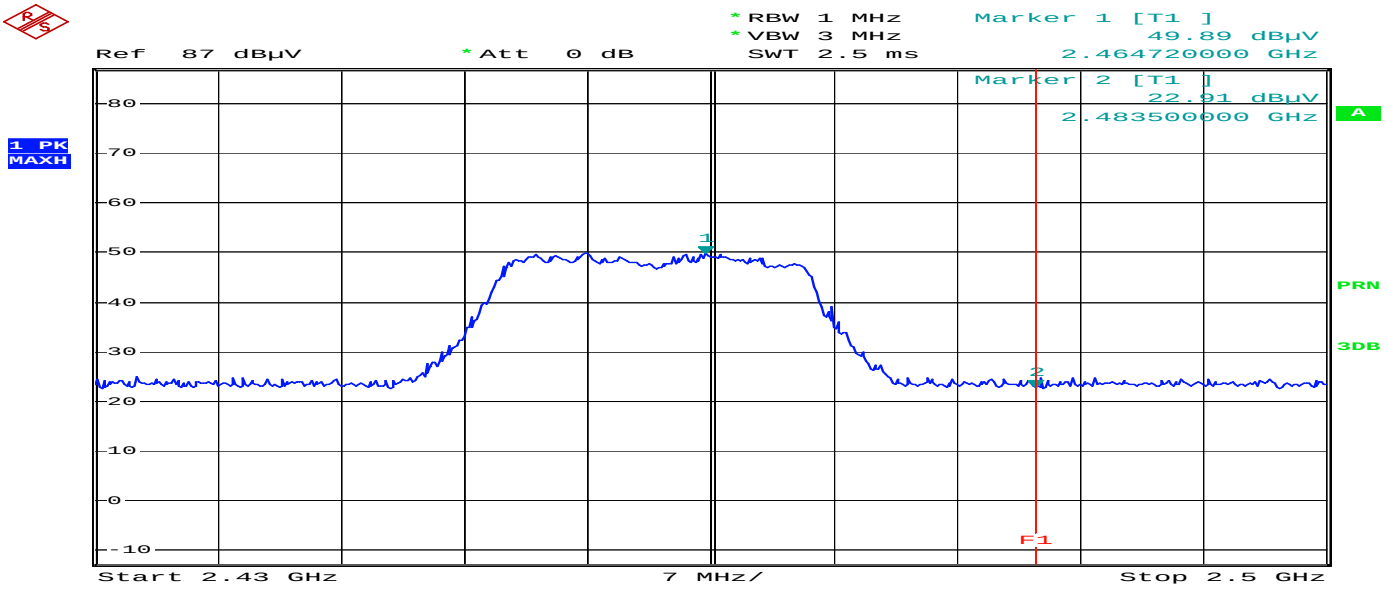
Detector mode:Average Polarity:Vertical



Comment: 802.11n20_2412_RMS_VER
Date: 1.FEB.2017 13:08:52

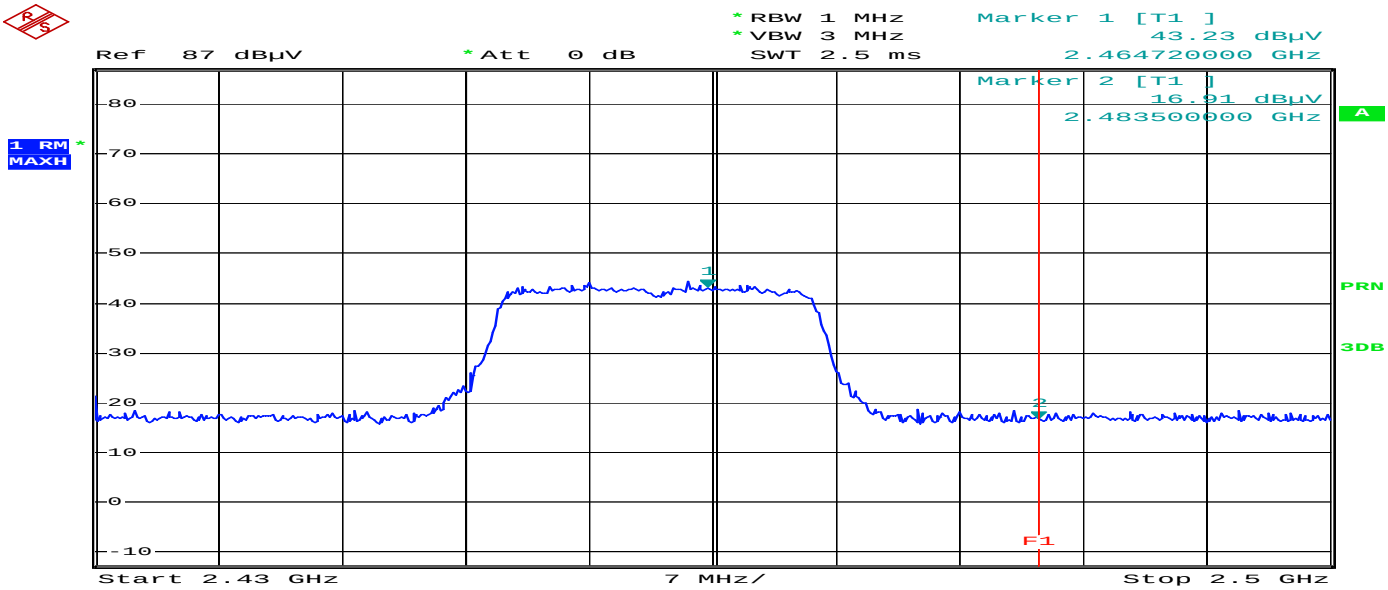
Band Edges(CH High)

Detector mode:Peak Polarity:Horizontal



Comment: 802.11n20_2462_PEAK_HOR
Date: 1.FEB.2017 13:15:00

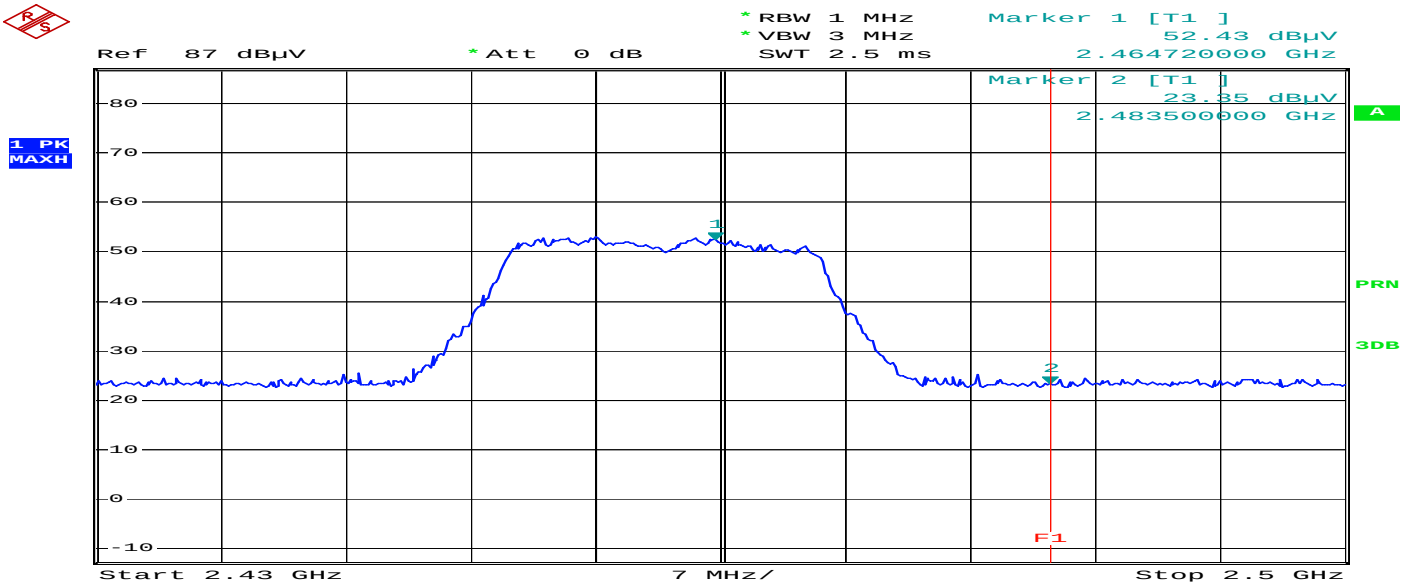
Detector mode:Average Polarity:Horizontal



Comment: 802.11n20_2462_RMS_HOR
Date: 1.FEB.2017 13:16:28

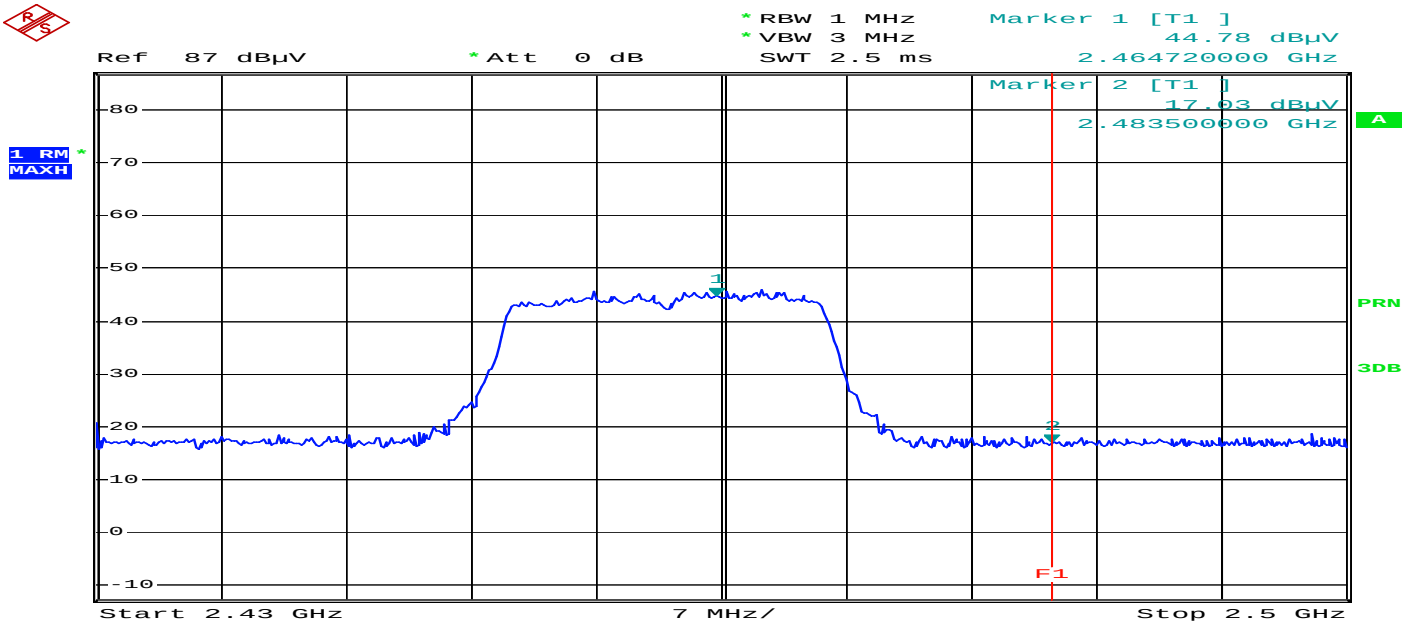
Band Edges(CH High)

Detector mode:Peak Polarity:Vertical



Comment: 802.11n20_2462_PEAK_VER
Date: 1.FEB.2017 13:20:20

Detector mode:Average Polarity:Vertical

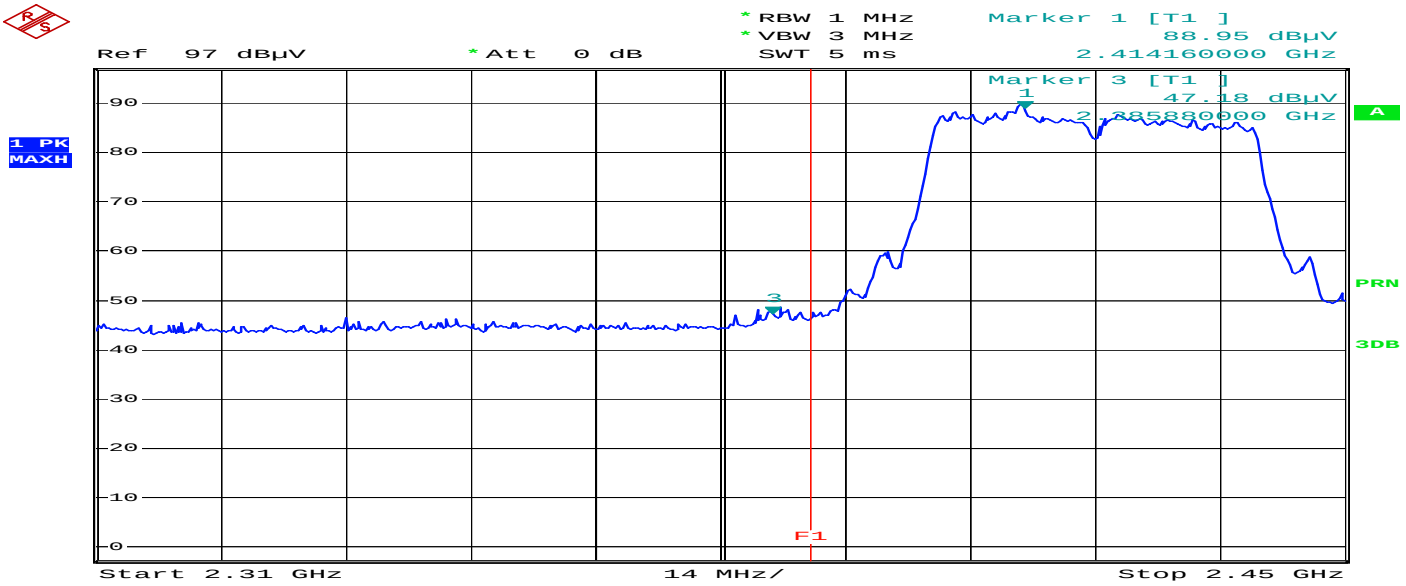


Comment: 802.11n20_2462_RMS_VER
Date: 1.FEB.2017 13:18:49

*802.11n40 Mode

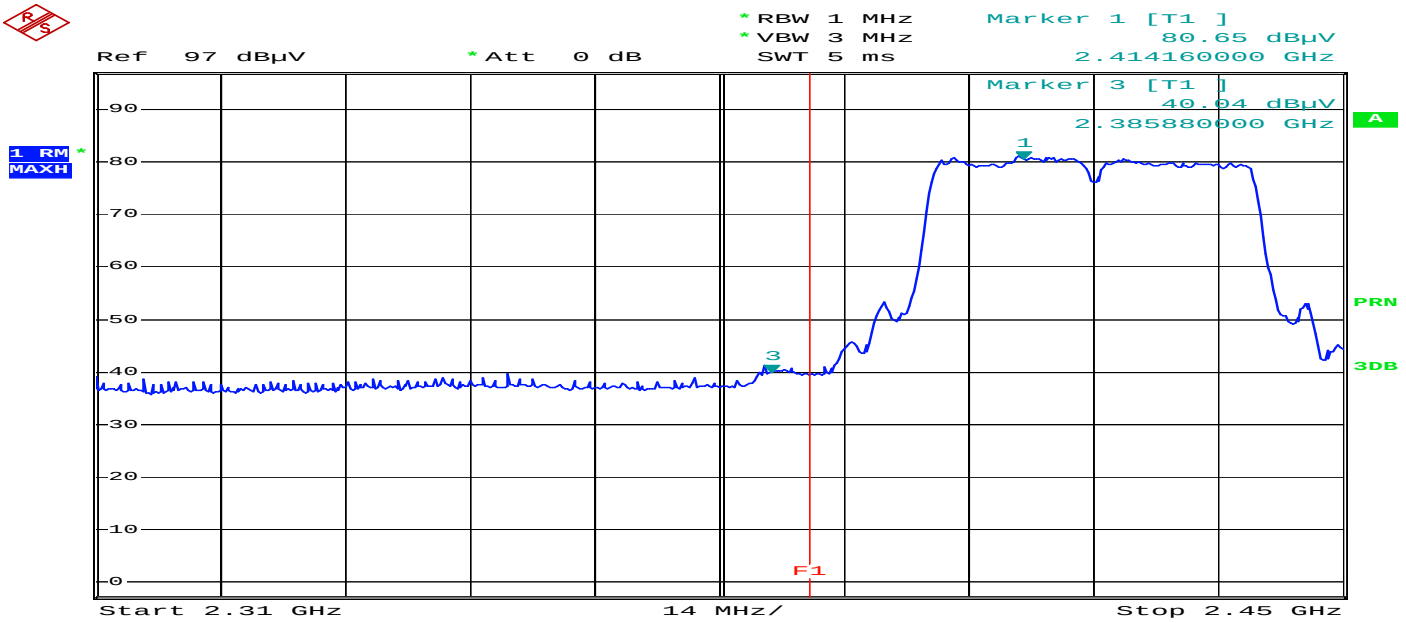
Band Edges(CH Low)

Detector mode:Peak Polarity:Horizontal



Comment: 802.11n40_2422_PEAK_HOR
Date: 2.FEB.2017 17:19:40

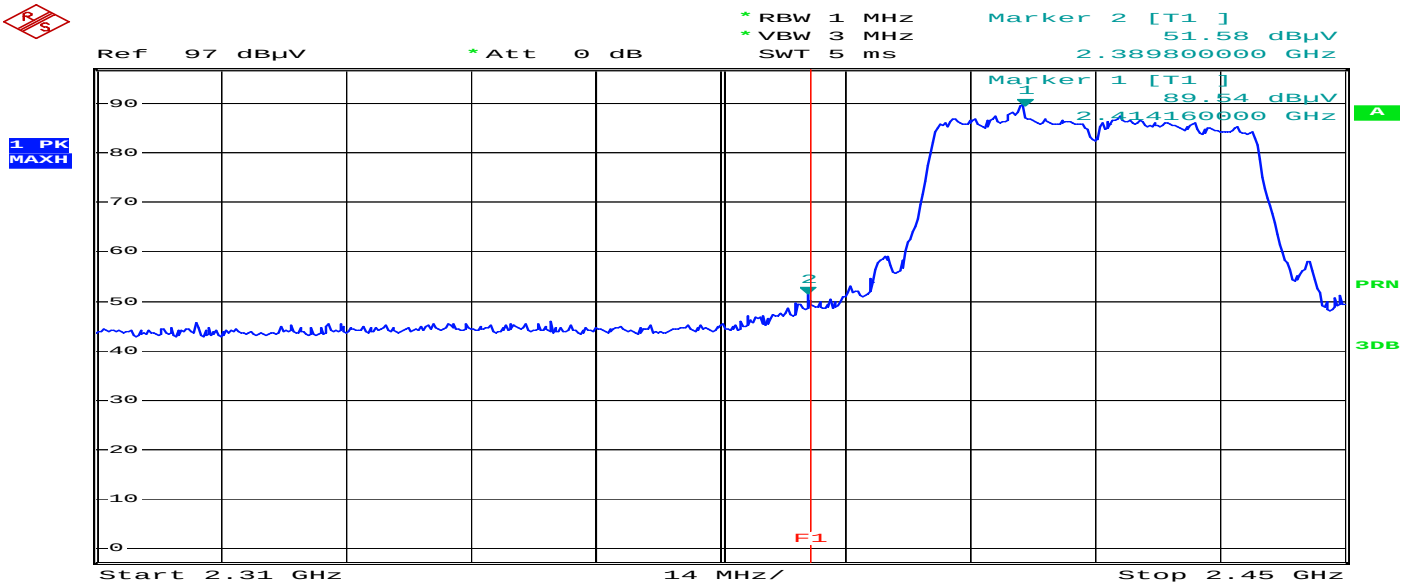
Detector mode:Average Polarity:Horizontal



Comment: 802.11n40_2422_RMS_HOR
Date: 2.FEB.2017 17:17:54

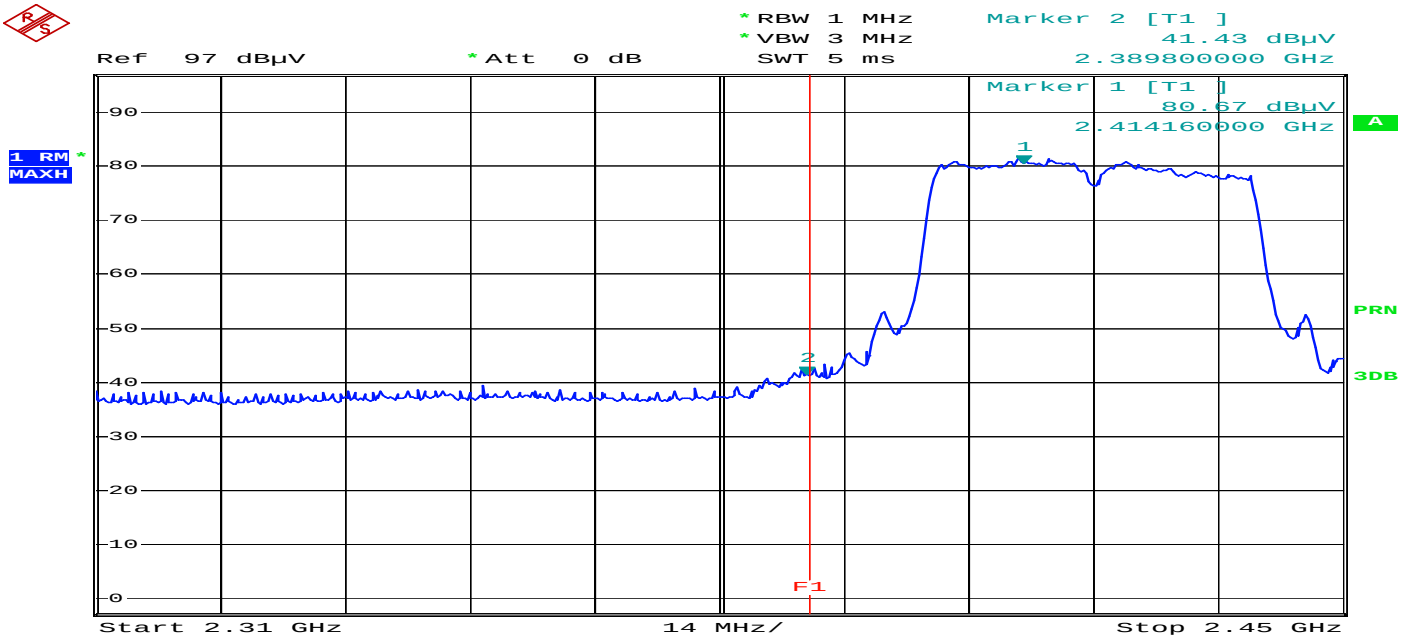
Band Edges(CH Low)

Detector mode:Peak Polarity:Vertical



Comment: 802.11n40_2422_PEAK_VER
Date: 2.FEB.2017 17:20:59

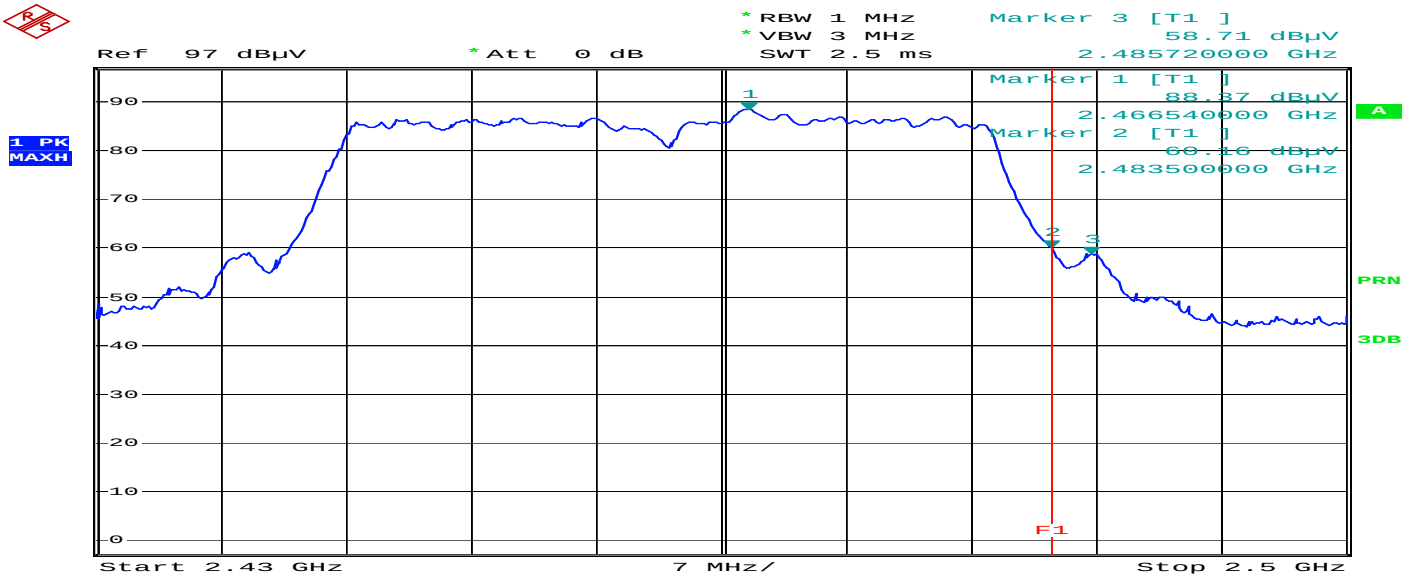
Detector mode:Average Polarity:Vertical



Comment: 802.11n40_2422_RMS_VER
Date: 2.FEB.2017 17:24:10

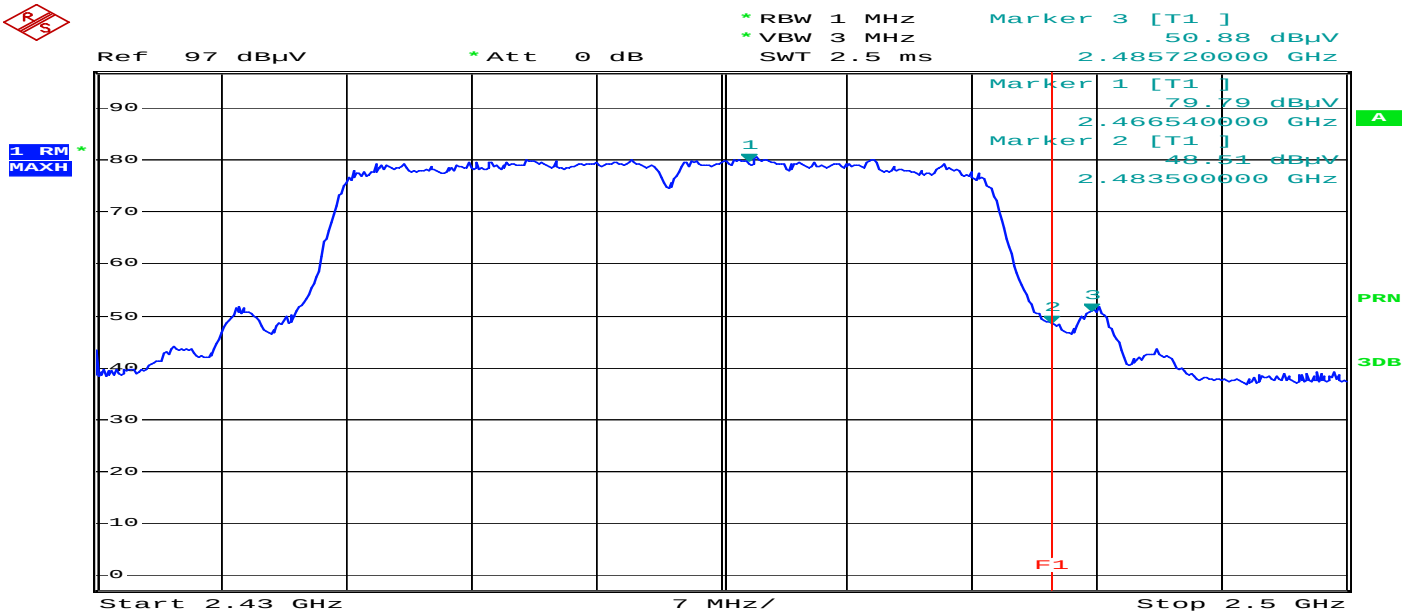
Band Edges(CH High)

Detector mode:Peak Polarity:Horizontal



Comment: 802.11n40_2462_PEAK_HOR
Date: 2.FEB.2017 17:02:23

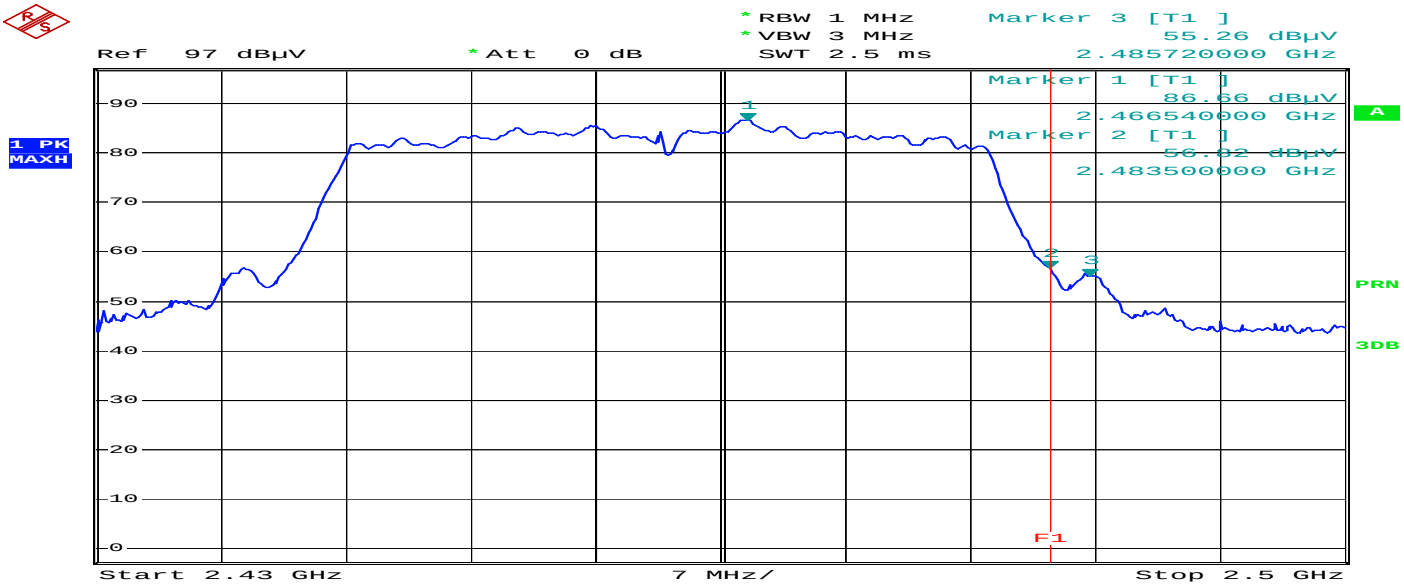
Detector mode:Average Polarity:Horizontal



Comment: 802.11n40_2462_RMS_HOR
Date: 2.FEB.2017 17:11:36

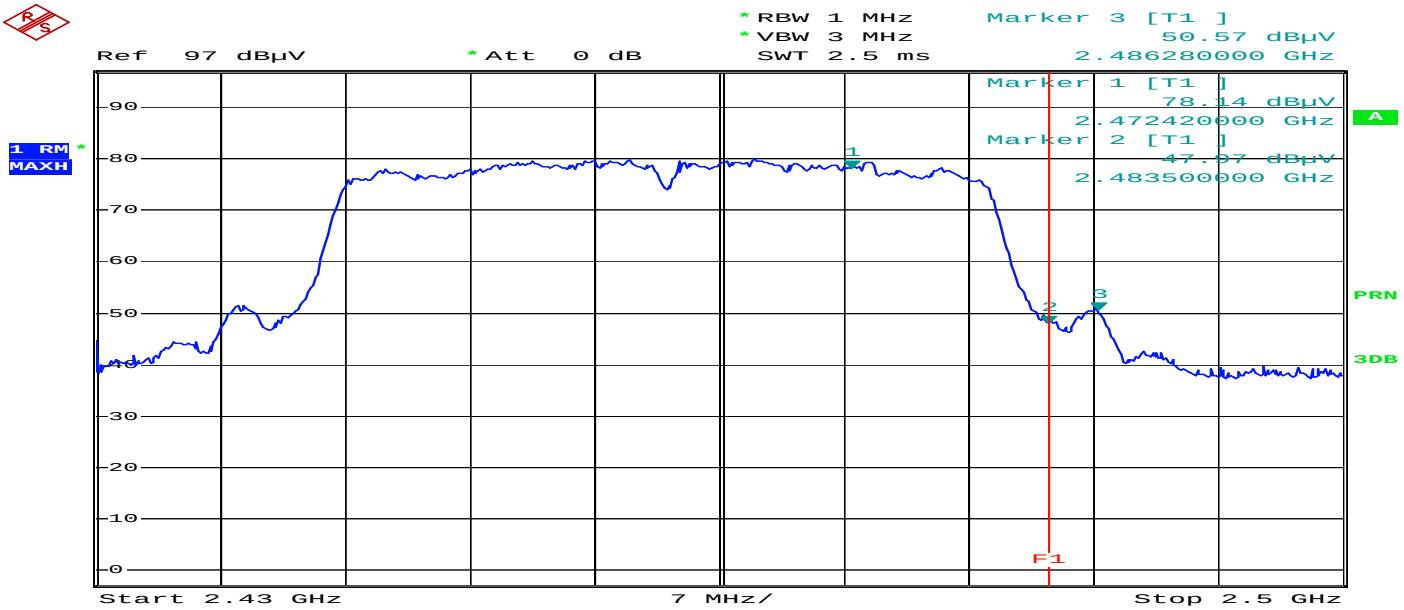
Band Edges(CH High)

Detector mode:Peak Polarity:Vertical



Comment: 802.11n40_2462_PEAK_VER
Date: 2.FEB.2017 16:55:25

Detector mode:Average Polarity:Vertical



Comment: 802.11n40_2462_RMS_VER
Date: 2.FEB.2017 16:48:05

11. Measurement of conducted disturbance

The continuous disturbance voltage of AC Mains in the frequency from 0.15 MHz to 30 MHz was measured in accordance to FCC PART 15.207. The test setup was made according to ANSI C 63.10 (2009) in a shielded room. The EUT was placed on a non-conductive table at least 0.8 m above the ground plan. A grounded vertical reference plane was positioned in a distance of 0.4 m from the EUT. The distance from the EUT to other metal surfaces was at least 0.8 m. The EUT was only earthen by its power cord through the line impedance stabilizing network. The power cord has been bundled to a length of 1.0 m. The test receiver with Quasi Peak detector complies with CISPR 16.

11.1 Measurement equipments

Equipment Name	Type	Manufacturer	Serial No.	Next Calibration date
TEST RECEIVER	ESPI	Rohde & Schwarz	100005	15-Nov-17
LISN	ESH3-Z5	Rohde & Schwarz	836679/025	15-Nov-17
Pulse Limiter	ESH3Z2	Rohde & Schwarz	NONE	15-Nov-17

11.2 Environmental Condition

Test Place : Shielded Room

Temperature (°C) : 22.4 °C
Humidity (% R.H.) : 51.2 % R.H.

11.3-1 Test Data (802.11 b)

Test Date : 3-Feb-17

Frequency (MHz)	Correction Factor		Line (H/N)	Quasi-peak Value			Average Value		
	Lisn (dB)	Cable (dB)		Limit (dBμV)	Reading (dBμV)	Result (dBμV)	Limit (dBμV)	Reading (dBμV)	Result (dB)
0.20	0.16	0.20	H	63.61	37.28	37.64	53.61	31.11	31.47
0.26	0.09	0.20	N	61.43	34.46	34.75	51.43	29.56	29.85
0.60	0.10	0.22	N	56.00	36.42	36.73	46.00	33.83	34.14
0.66	0.10	0.22	N	56.00	36.25	36.57	46.00	34.08	34.40
0.86	0.17	0.24	H	56.00	32.35	32.76	46.00	26.71	27.12
13.41	0.57	0.36	H	60.00	29.50	30.43	50.00	24.30	25.23

Remark	H : Hot Line, N : Neutral Line *Correction Factor = Lisn + Cable *Result = Correction Factor + Reading

11.3-2 Test Data (802.11 g)

Test Date : 3-Feb-17

Frequency (MHz)	Correction Factor		Line (H/N)	Quasi-peak Value			Average Value		
	Lisn (dB)	Cable (dB)		Limit (dBμV)	Reading (dBμV)	Result (dBμV)	Limit (dBμV)	Reading (dBμV)	Result (dB)
0.20	0.16	0.20	H	63.61	37.64	38.00	53.61	31.28	31.64
0.26	0.16	0.20	H	61.43	32.77	33.13	51.43	27.55	27.91
0.60	0.17	0.22	H	56.00	34.53	34.91	46.00	32.18	32.56
0.66	0.10	0.22	N	56.00	34.61	34.93	46.00	31.72	32.04
0.19	0.09	0.18	N	64.04	37.40	37.67	54.04	31.24	31.51
0.86	0.10	0.24	N	56.00	30.73	31.07	46.00	27.18	27.52

Remark	H : Hot Line, N : Neutral Line *Correction Factor = Lisn + Cable *Result = Correction Factor + Reading

11.3-3 Test Data (802.11 n20)

Test Date : 3-Feb-17

Frequency (MHz)	Correction Factor		Line (H/N)	Quasi-peak Value			Average Value		
	Lisn (dB)	Cable (dB)		Limit (dBμV)	Reading (dBμV)	Result (dBμV)	Limit (dBμV)	Reading (dBμV)	Result (dB)
0.86	0.17	0.24	H	56.00	29.13	29.54	46.00	26.22	26.63
13.91	0.59	0.36	H	60.00	28.91	29.86	50.00	24.73	25.68
0.20	0.09	0.20	N	63.61	37.84	38.13	53.61	31.60	31.89
0.26	0.09	0.20	N	61.43	34.98	35.27	51.43	30.00	30.29
0.60	0.10	0.22	N	56.00	36.11	36.42	46.00	33.17	33.48
0.66	0.10	0.22	N	56.00	36.02	36.34	46.00	33.22	33.54

Remark	H : Hot Line, N : Neutral Line *Correction Factor = Lisn + Cable *Result = Correction Factor + Reading

11.3-4 Test Data (802.11 n40)

Test Date : 3-Feb-17

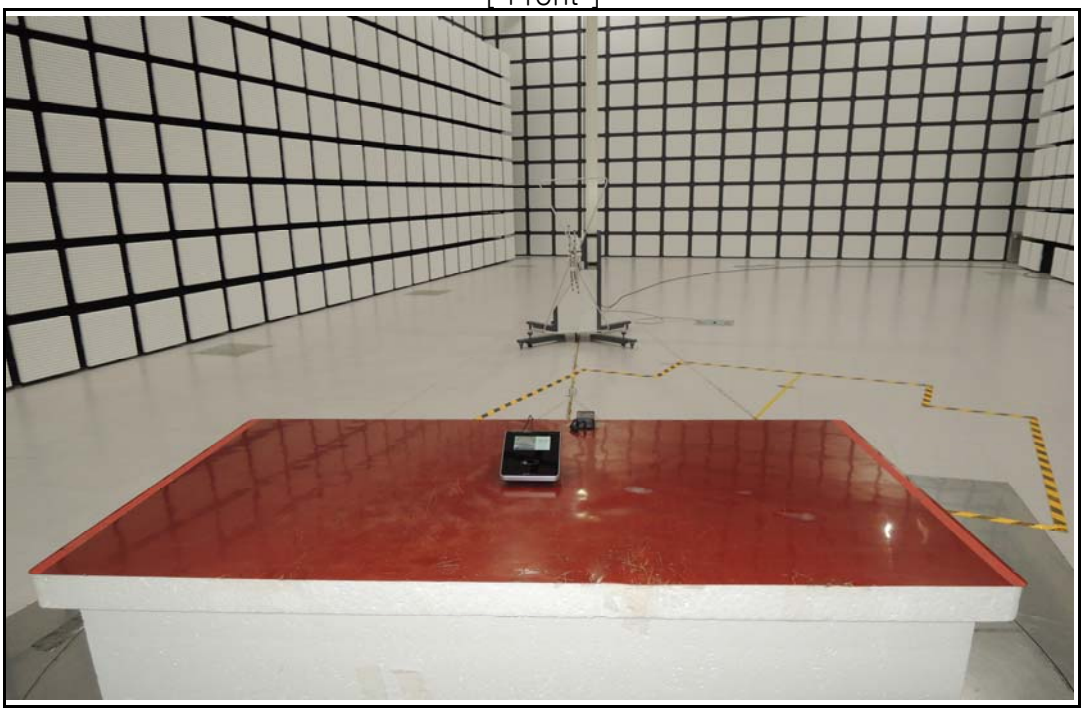
Frequency (MHz)	Correction Factor		Line (H/N)	Quasi-peak Value			Average Value		
	Lisn (dB)	Cable (dB)		Limit (dBμV)	Reading (dBμV)	Result (dBμV)	Limit (dBμV)	Reading (dBμV)	Result (dB)
0.20	0.16	0.20	H	63.61	37.80	38.16	53.61	31.24	31.60
0.33	0.09	0.20	N	59.45	33.95	34.24	49.45	29.16	29.45
0.60	0.10	0.22	N	56.00	36.06	36.37	46.00	33.06	33.37
0.66	0.10	0.22	N	56.00	36.24	36.56	46.00	33.02	33.34
0.80	0.10	0.23	N	56.00	34.15	34.48	46.00	29.39	29.72
22.15	0.59	0.33	N	60.00	29.11	30.03	50.00	20.12	21.04

Remark	H : Hot Line, N : Neutral Line *Correction Factor = Lisn + Cable *Result = Correction Factor + Reading

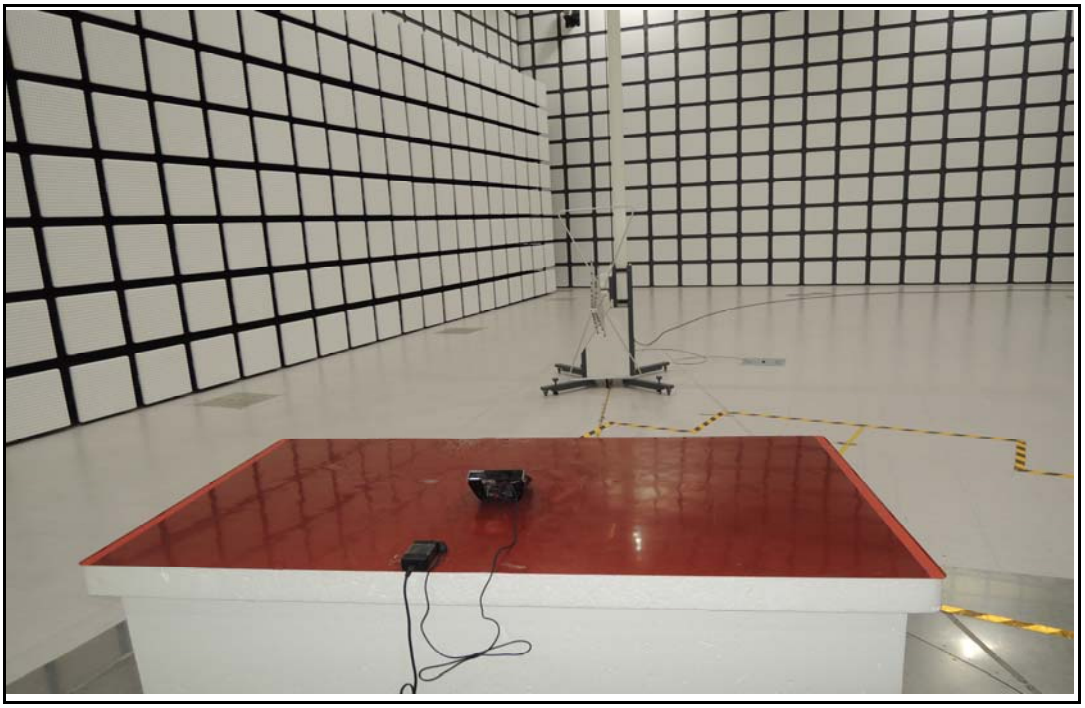
12. Photographs of test setup

12.1.Setup for Radiated Test : (30 ~ 1 000) MHz

[Front]



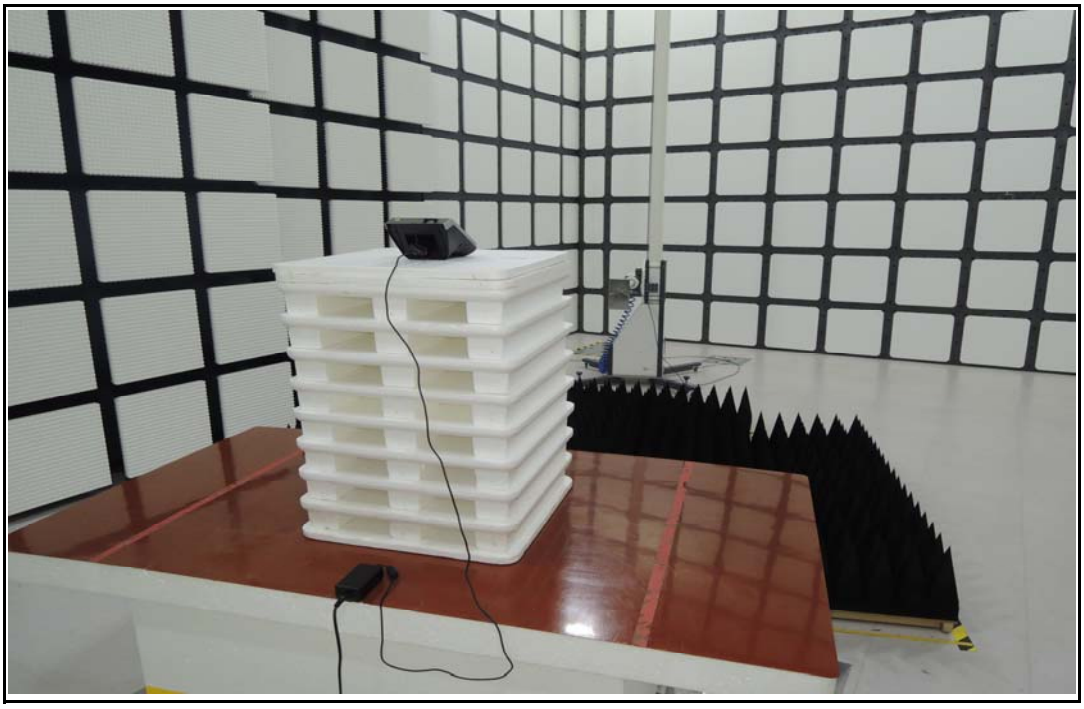
[Rear]



12.2.Setup for Radiated Test ：Above 1 GHz

[Front]

[Rear]



12.3. Setup for Conducted Test : (0.15 ~ 30) MHz

[Front]

[Rear]

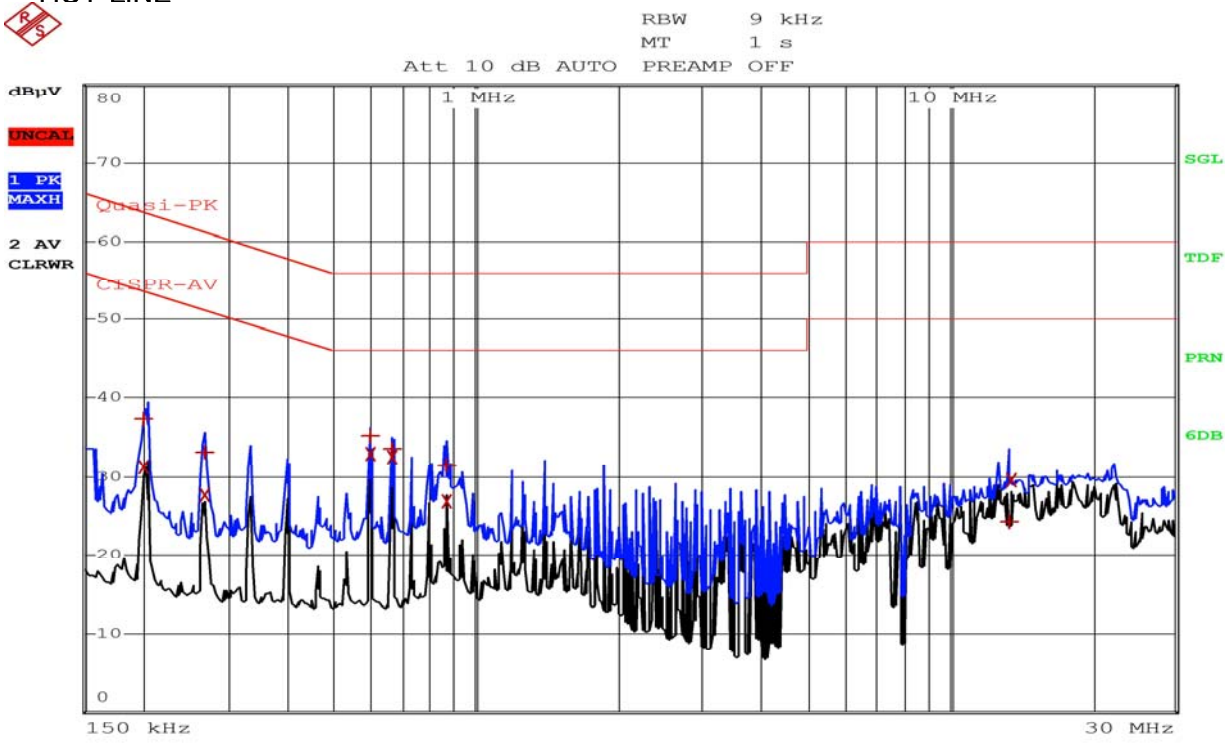
12.4. Photographs of EUT

[Front]

[Rear]

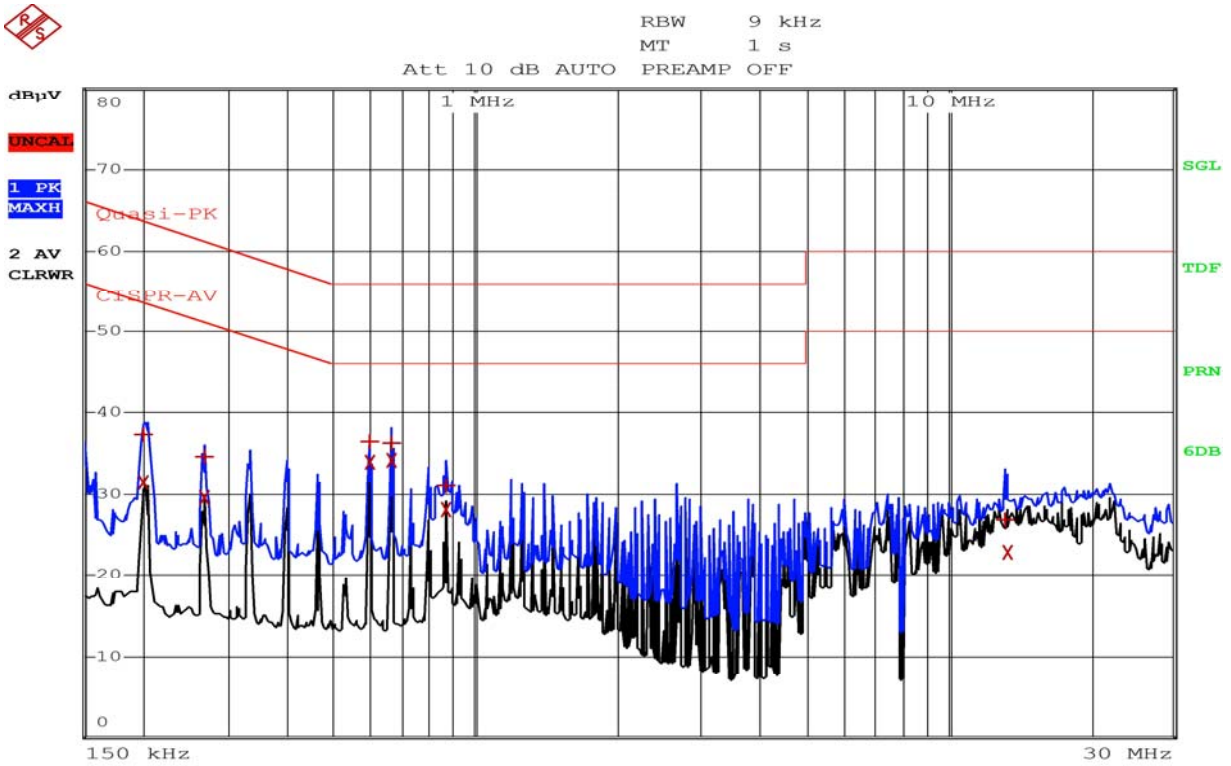
Appendix 1. Special diagram (802.11 b)

* HOT LINE



Comment: ESTR-16-12022(802.11.b)-HOT
Date: 3.FEB.2017 14:07:23

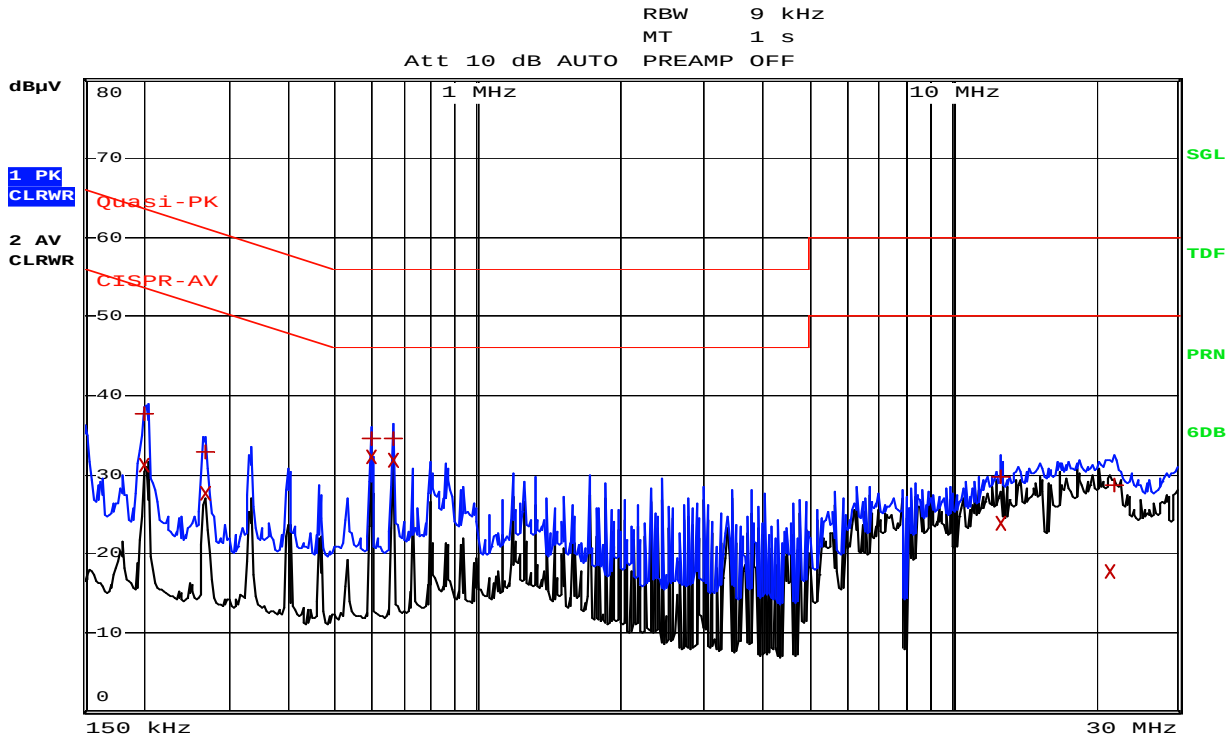
* NEUTRAL LINE



Comment: ESTR-16-12022(802.11.b)-NEUTRAL
Date: 3.FEB.2017 14:04:37

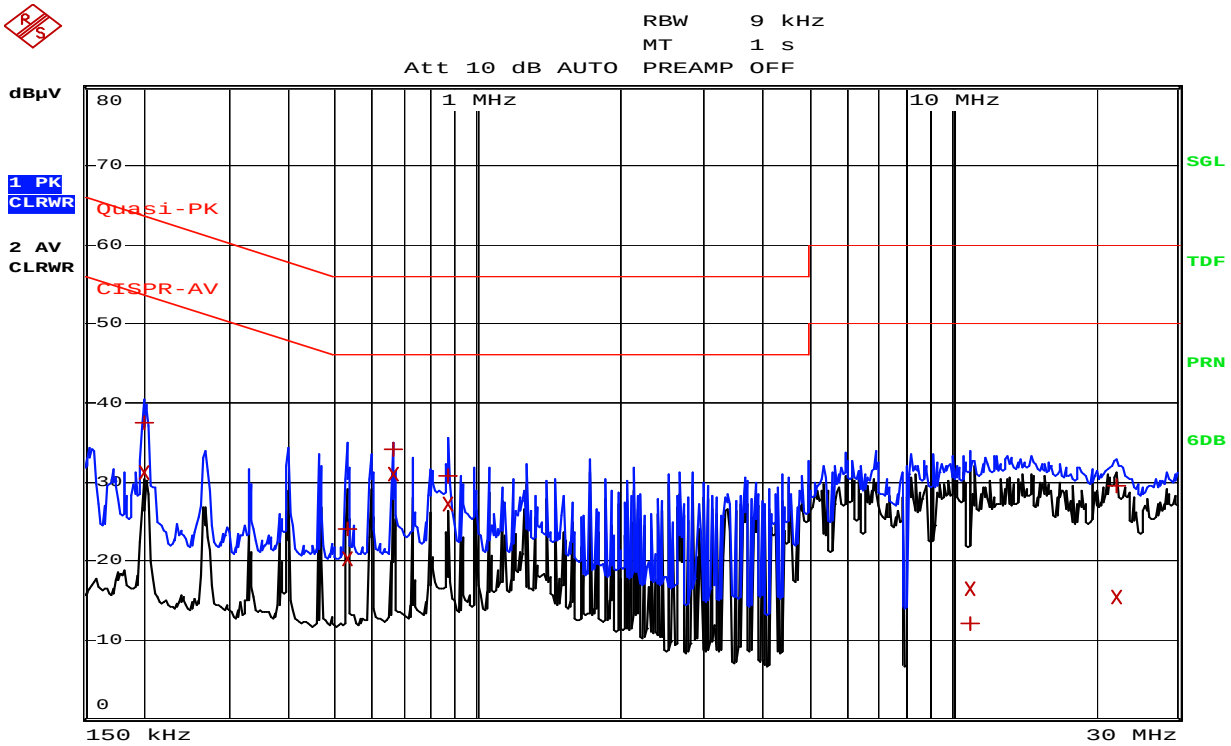
Appendix 1. Special diagram (802.11 g)

* HOT LINE



Comment: ESTR-16-12022(802.11.g)-HOT
Date: 3.FEB.2017 14:43:39

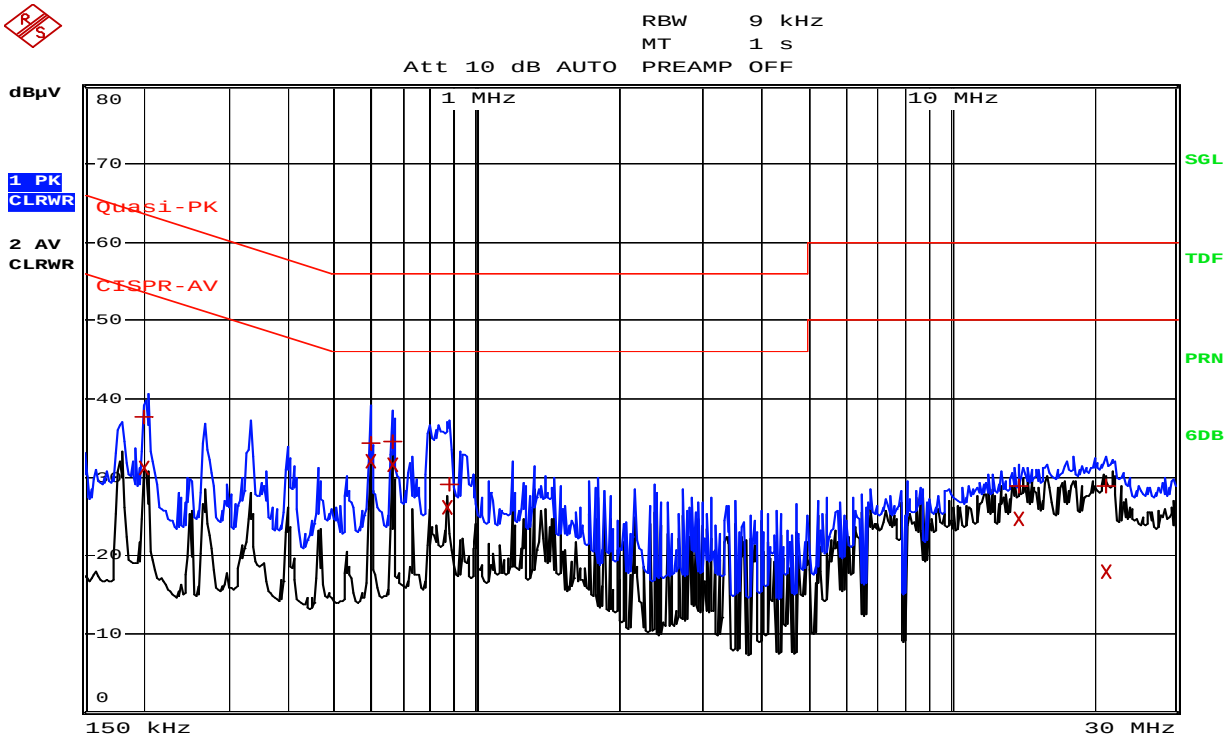
* NEUTRAL LINE



Comment: ESTR-16-12022(802.11.g)-NEUTRAL
Date: 3.FEB.2017 14:47:07

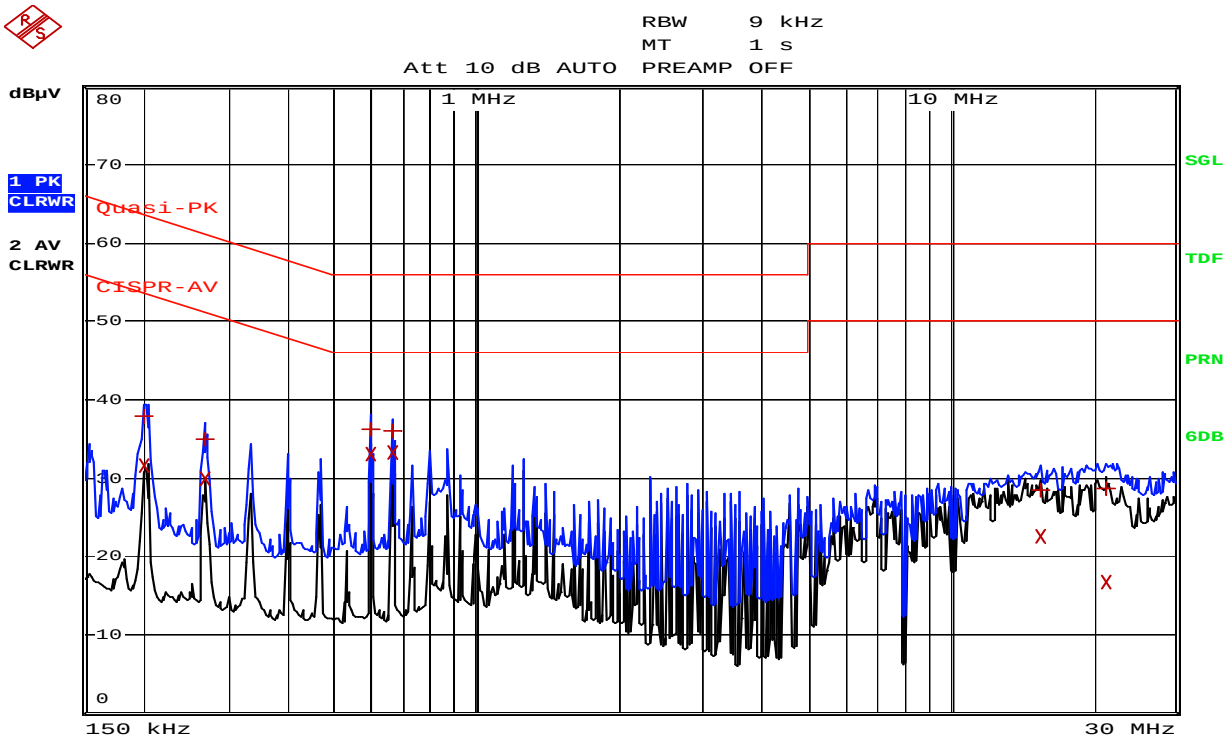
Appendix 1. Special diagram (802.11 n20)

* HOT LINE



Comment: ESTR-16-12022(802.11.n20)-HOT
Date: 3.FEB.2017 14:54:06

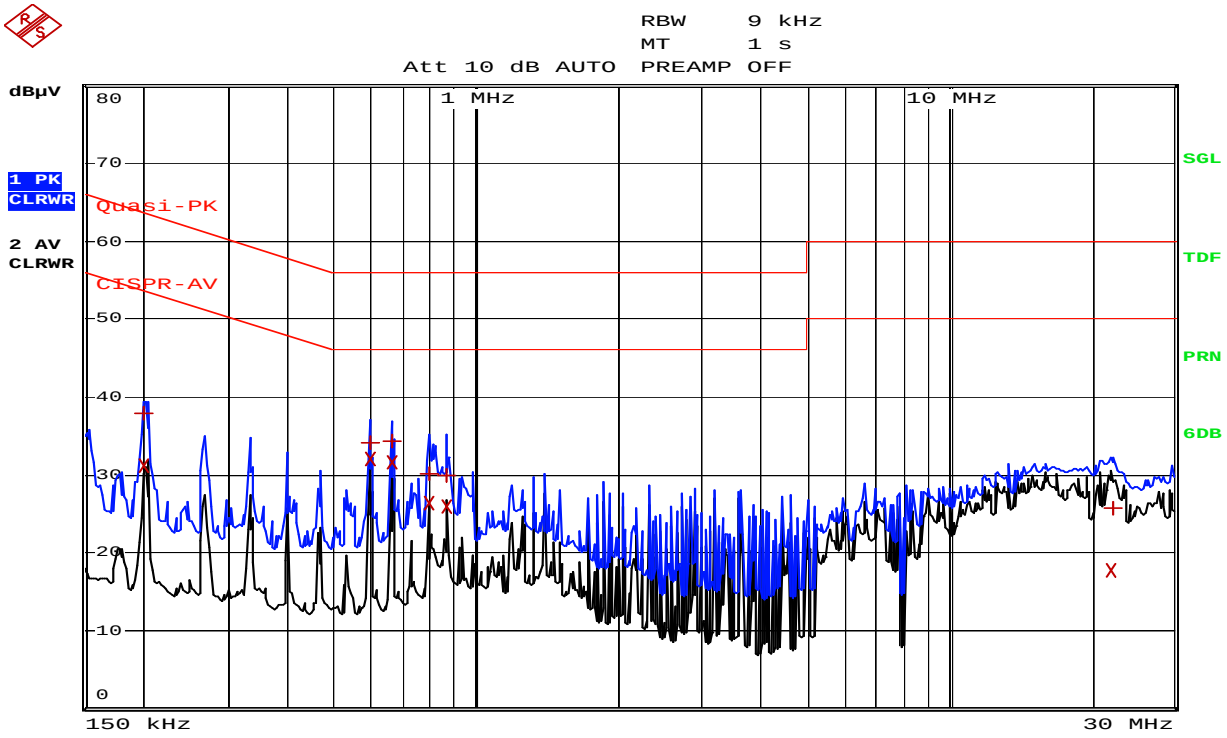
* NEUTRAL LINE



Comment: ESTR-16-12022(802.11.n20)-NEUTRAL
Date: 3.FEB.2017 14:51:55

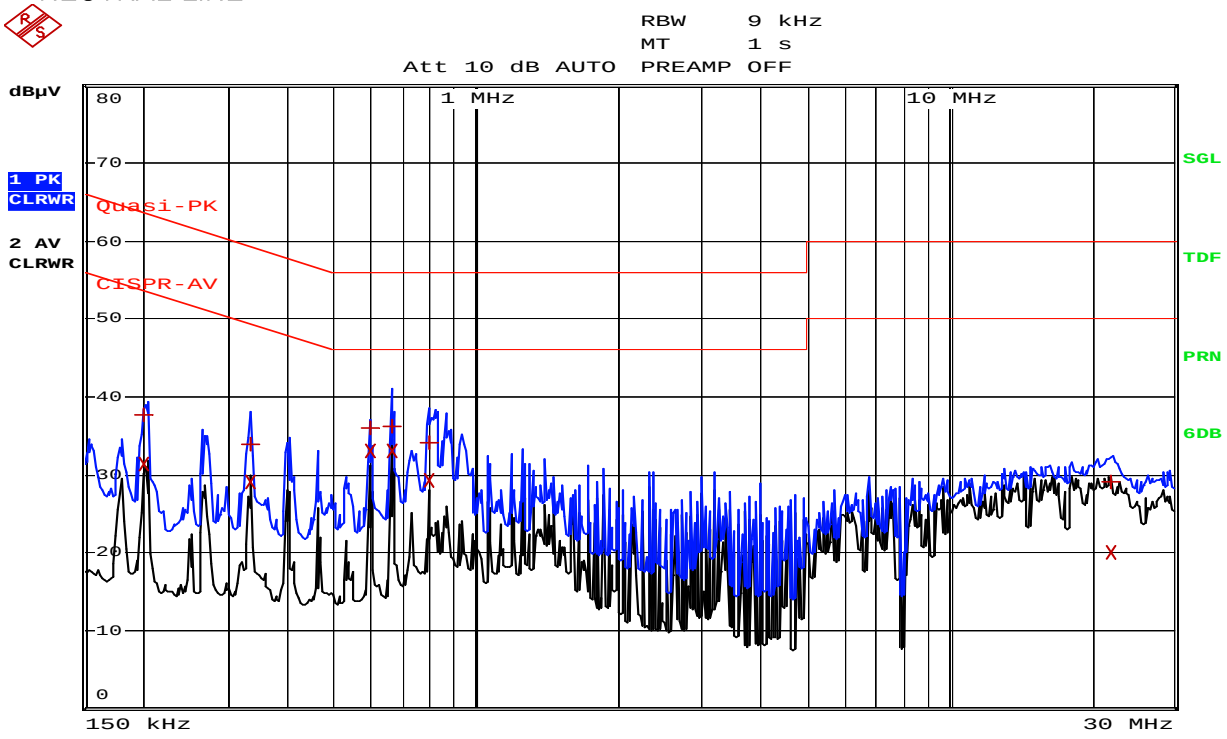
Appendix 1. Special diagram (802.11 n40)

* HOT LINE



Comment: ESTR-16-12022(802.11.n40)-HOT
Date: 3.FEB.2017 14:58:54

* NEUTRAL LINE



Comment: ESTR-16-12022(802.11.n40)-NEUTRAL
Date: 3.FEB.2017 15:01:08

Appendix 3. Antenna Requirement

1. Antenna Requirement

1.1 Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.204

1.2 Antenna Connected Construction

The antenna types used in this product are Intergrated SMD antenna . The maximum Gain of this antenna is 6.66 dBi.