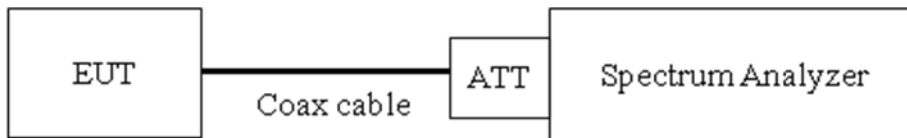


8.6 OUT OF BAND EMISSIONS AT THE BAND EDGE/ CONDUCTED SPURIOUS EMISSIONS**Test Requirements and limit, §15.247(d) / RSS-247(Issue 1) Section 5.5.**

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

Limit : 20 dBc**■ TEST CONFIGURATION****■ TEST PROCEDURE**

The transmitter output is connected to the spectrum analyzer. (Procedure 11.0 in KDB 558074, issued 06/05/2014)

RBW = 100 kHz

VBW \geq 3 x RBW

Set span to encompass the spectrum to be examined

Measurement Type or = Peak

Trace Mode = max hold

Sweep time = auto couple

Ensure that the number of measurement points \geq Span/RBW

Allow trace to fully stabilize.

Use peak marker function to determine the maximum amplitude level.

Measurements are made over the 30 MHz to 10th harmonic range with the transmitter set to the lowest, middle, and highest channels.

Note :

1. The band edge results in plot is already including the actual values of loss for the attenuator and cable combination.
2. Spectrum offset = Attenuator loss + Cable loss

3. We apply to the offset in the 2.4 GHz range that was rounded off to the closest tenth dB. Actual value of loss for the attenuator and cable combination is below table.

Band	Loss(dB)
2.4 GHz	10.2

(Actual value of loss for the attenuator and cable combination)

4. In order to simplify the report, attached plots were only the worst case channel and data rate.

■ FACTORS FOR FREQUENCY

Freq(MHz)	Factor(dB)
30	9.95
100	10.01
200	10.03
300	10.04
400	10.05
500	10.04
600	10.03
700	10.09
800	10.10
900	10.08
1000	10.11
2000	10.25
2400*	10.19
2500*	10.24
3000	10.27
4000	10.22
5000	10.48
5700*	10.42
5800*	10.44
6000	10.48
7000	10.57
8000	10.45
9000	10.50
10000	10.64
11000	10.69
12000	10.75
13000	10.92
14000	11.90

15000	11.00
16000	11.03
17000	10.93
18000	10.96
19000	10.85
20000	12.11
21000	11.17
22000	10.99
23000	11.12
24000	11.10
25000	11.42
26000	11.28

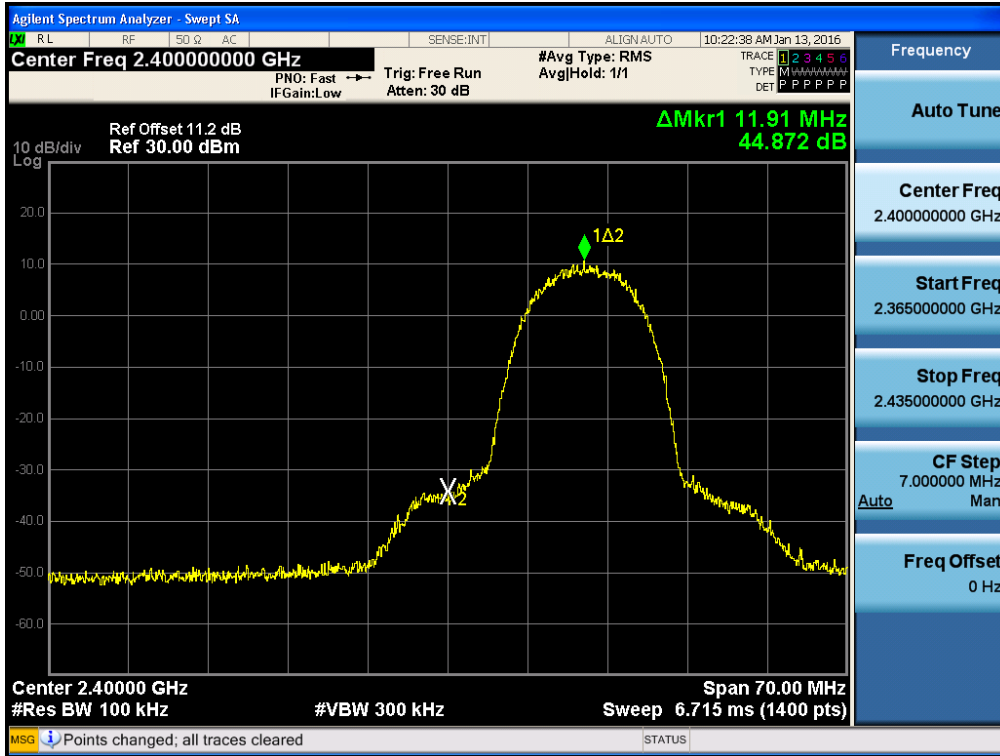
Note : 1. ** is fundamental frequency range.

2. Factor = Cable loss + Attenuator loss

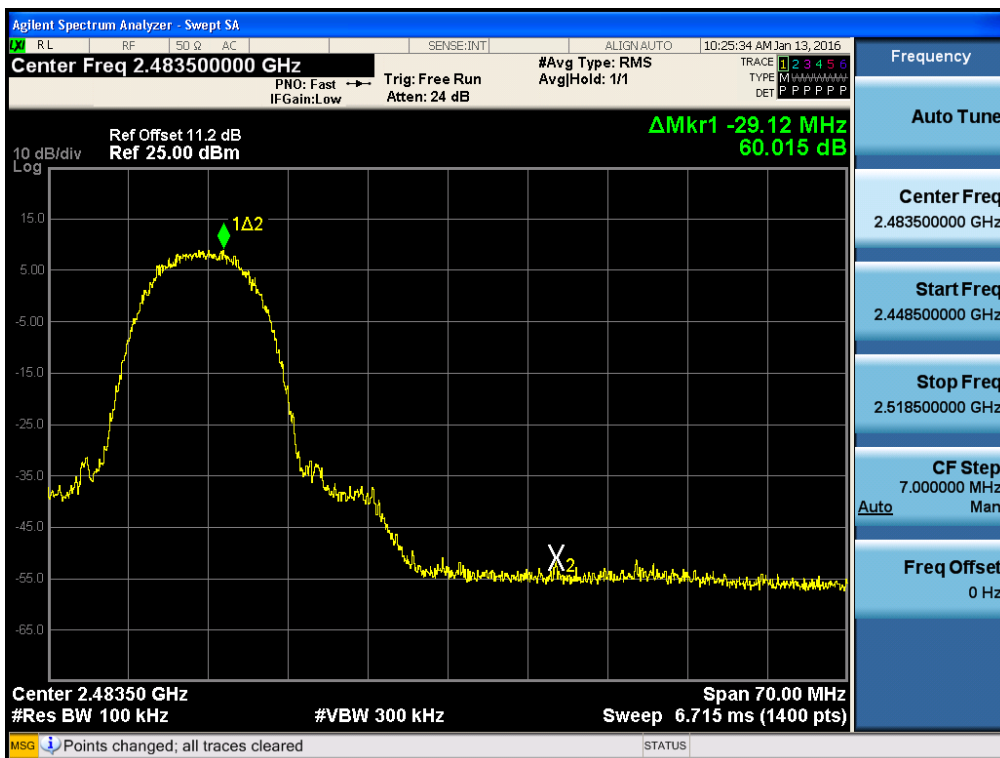
Monitoring Port

RESULT PLOTS_Ant.0

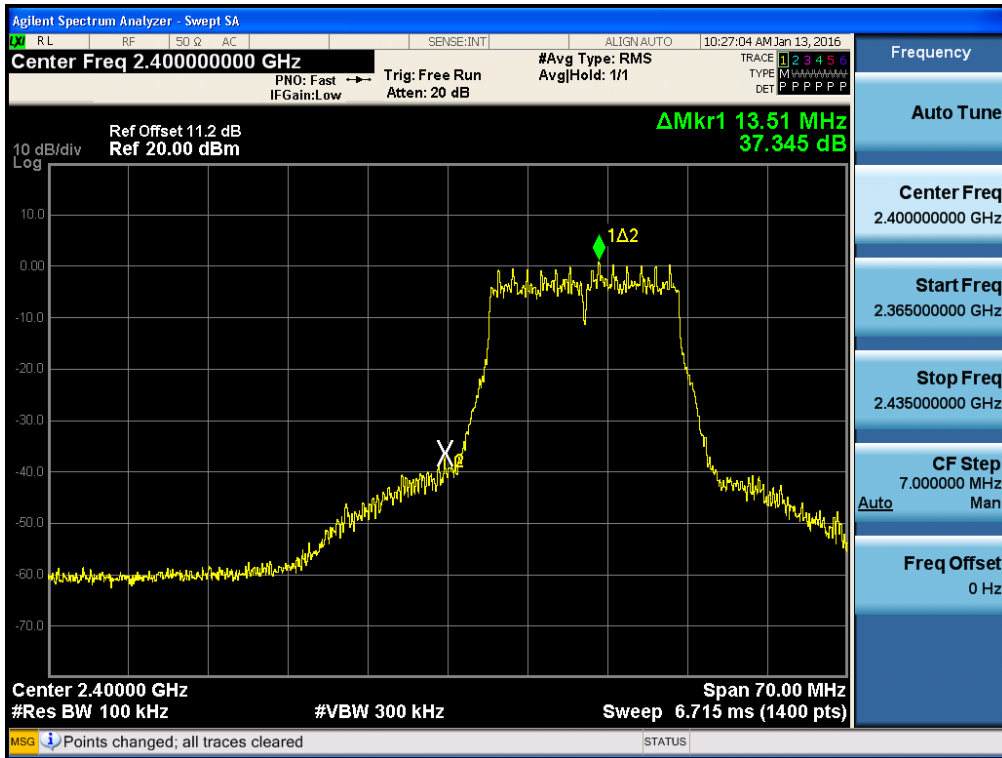
BandEdge (802.11b-CH1)



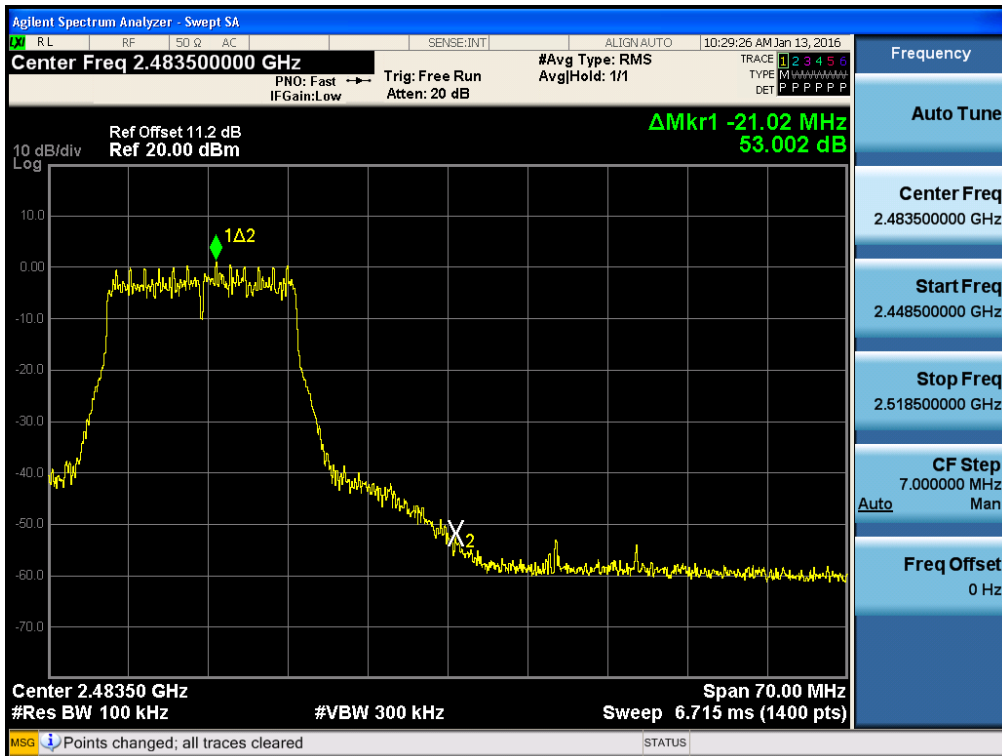
BandEdge (802.11b-CH11)



BandEdge (802.11g-CH1)



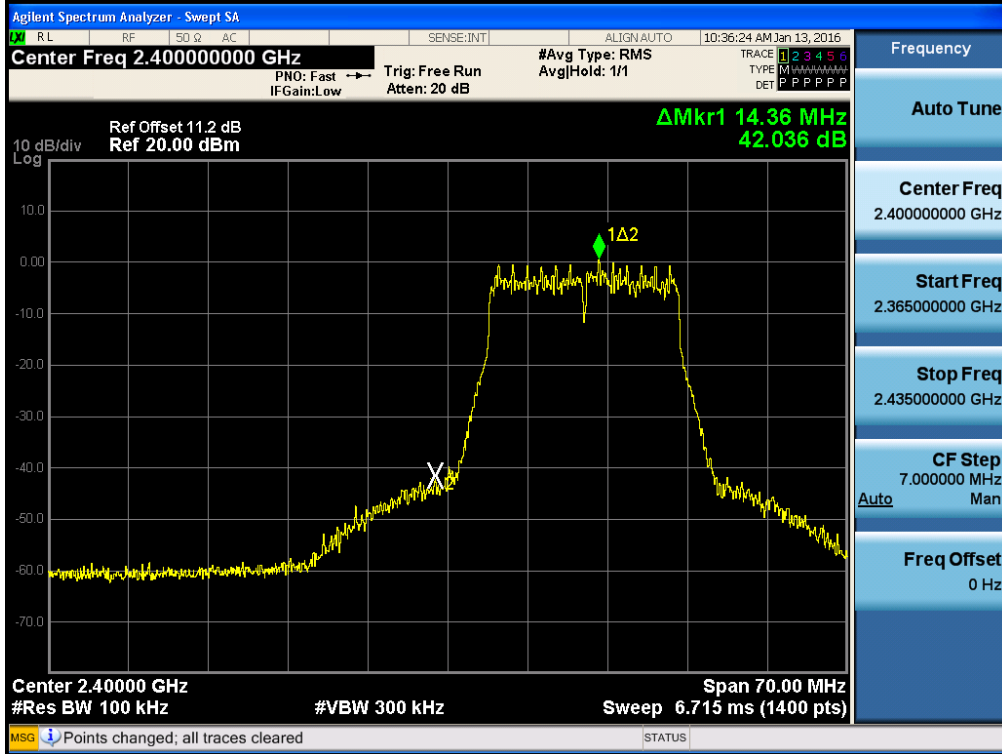
BandEdge (802.11g-CH11)



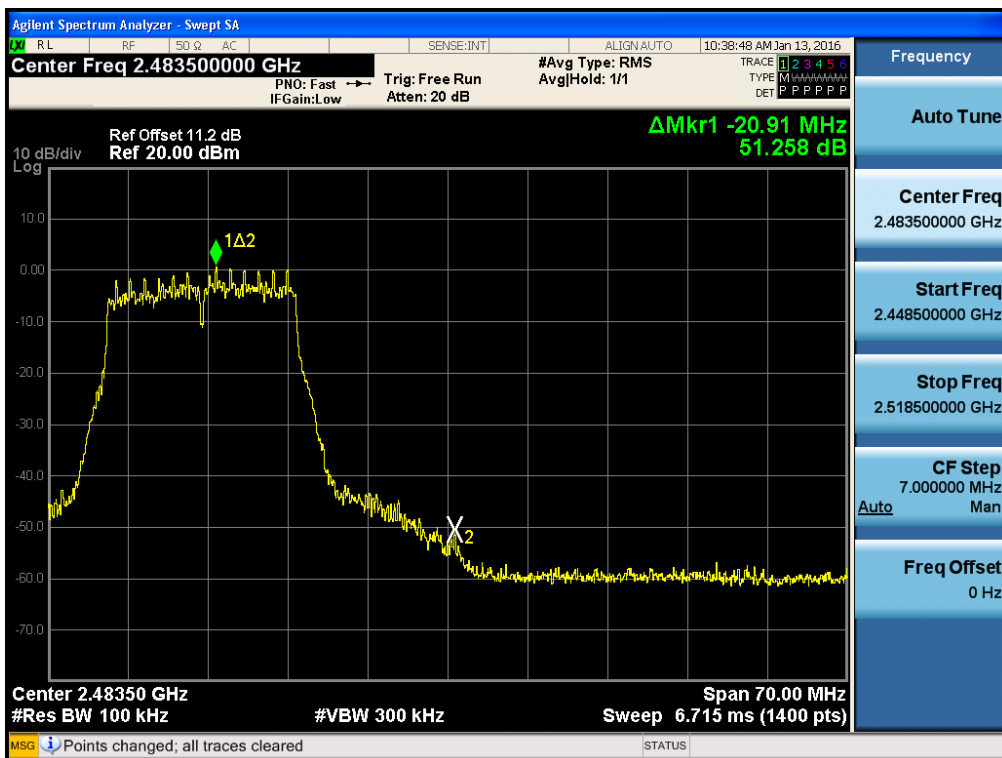
Monitoring Port

RESULT PLOTS_Ant.1

BandEdge (802.11g-CH1)



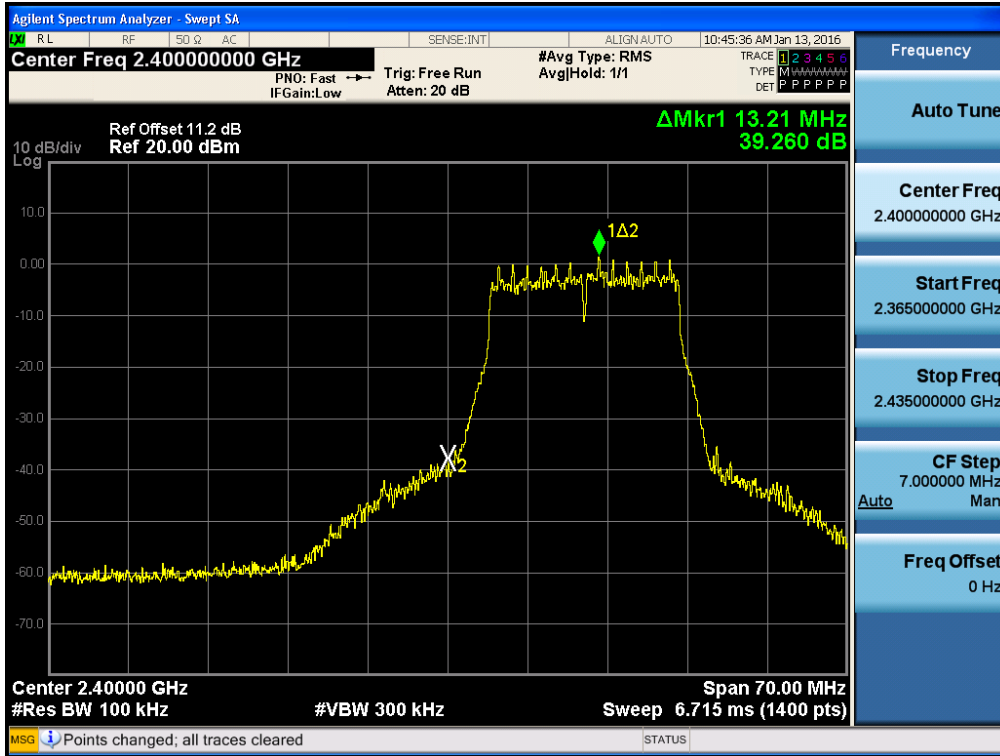
BandEdge (802.11g-CH11)



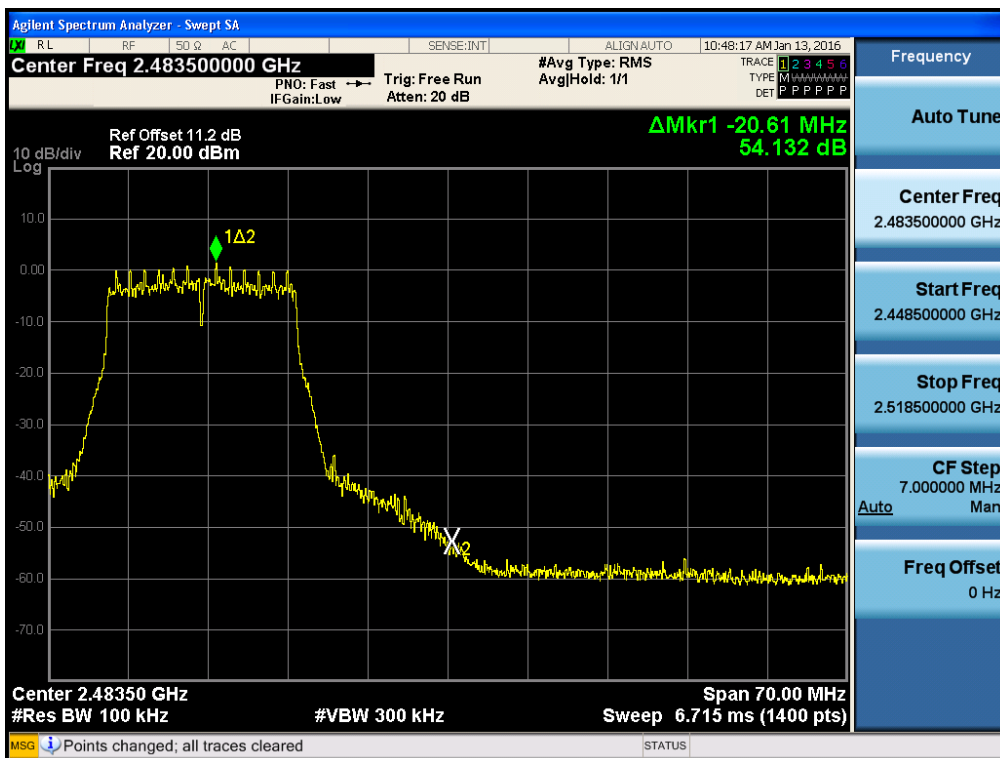
Monitoring Port

RESULT PLOTS_Ant.2

BandEdge (802.11g-CH1)



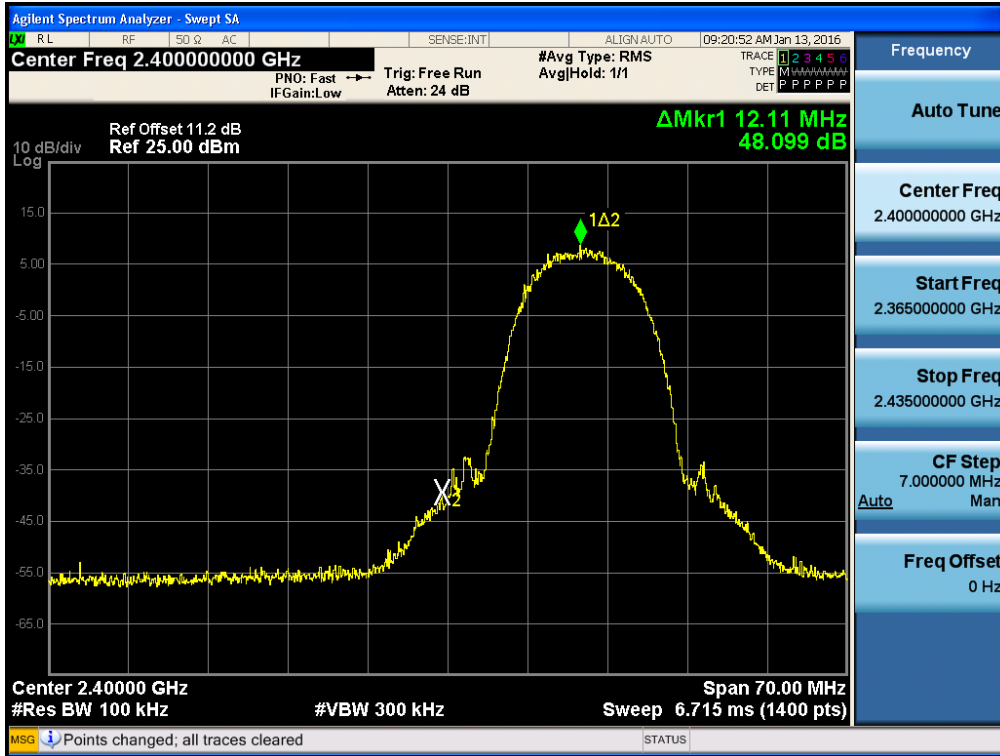
BandEdge (802.11g-CH11)



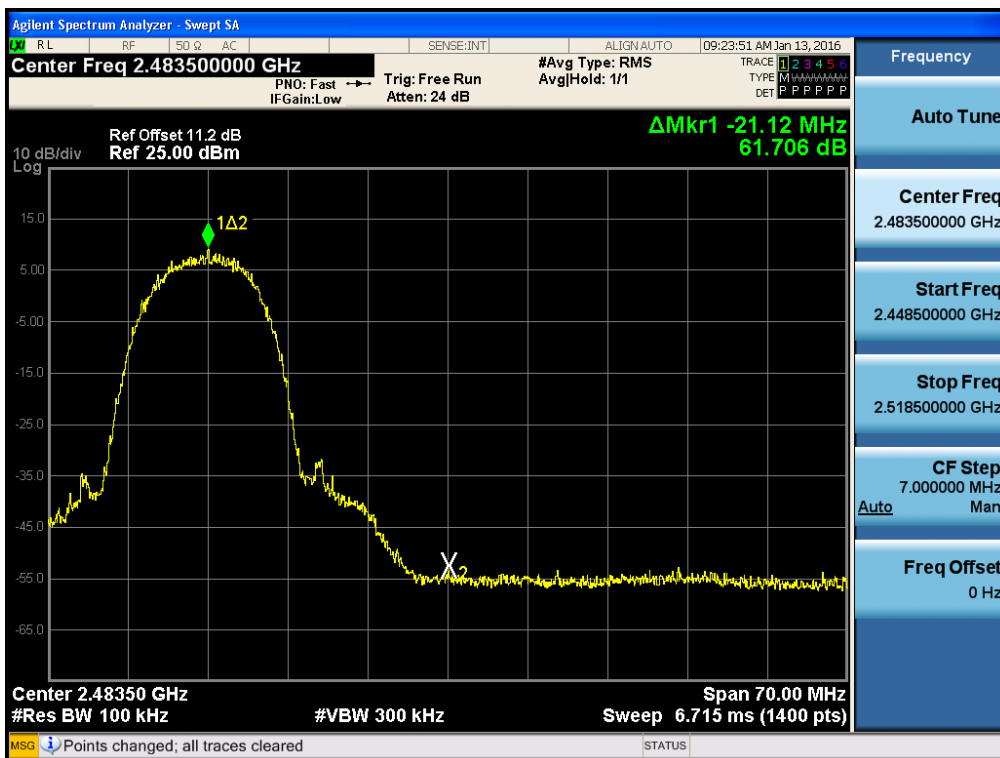
Service Port

RESULT PLOTS_Ant.0

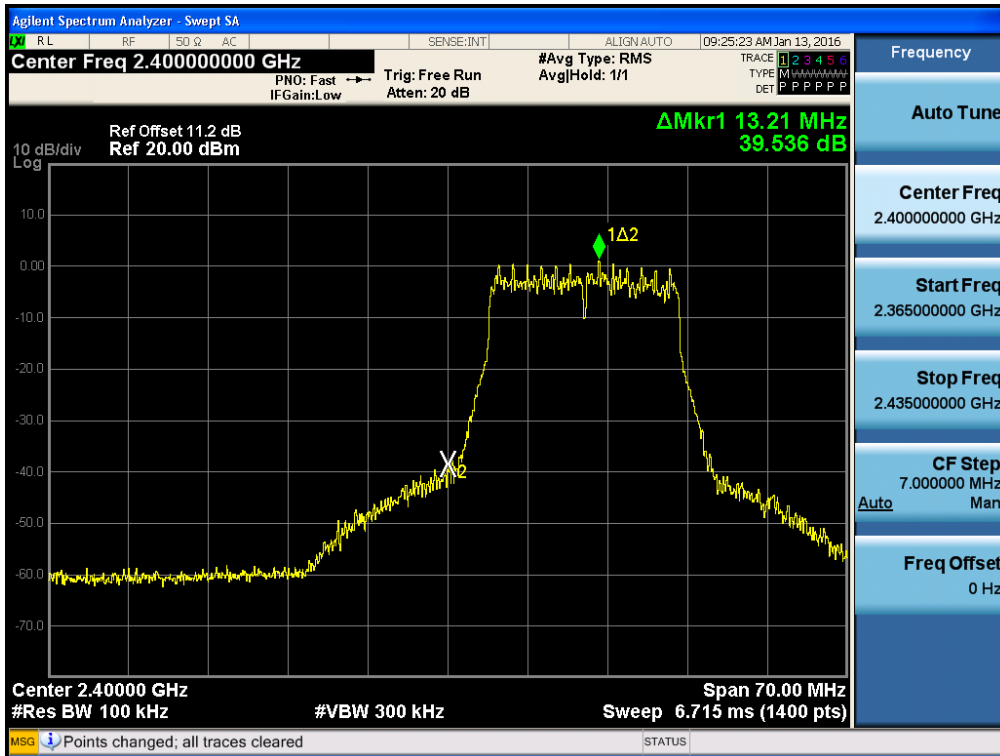
BandEdge (802.11b-CH1)



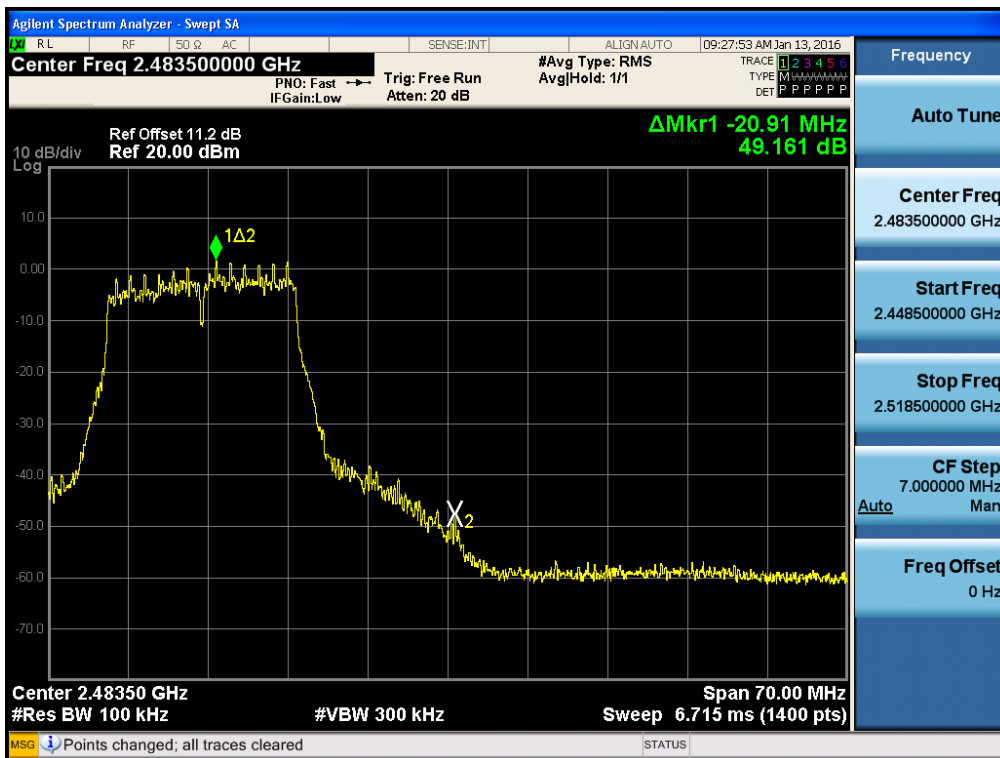
BandEdge (802.11b-CH11)



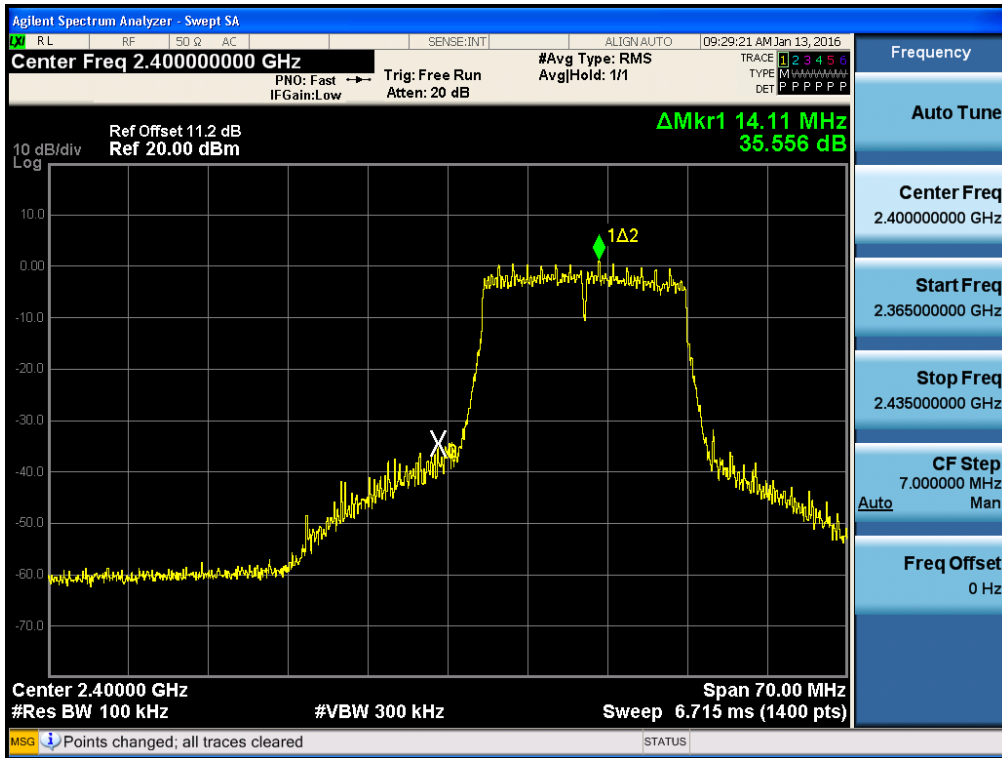
BandEdge (802.11g-CH1)



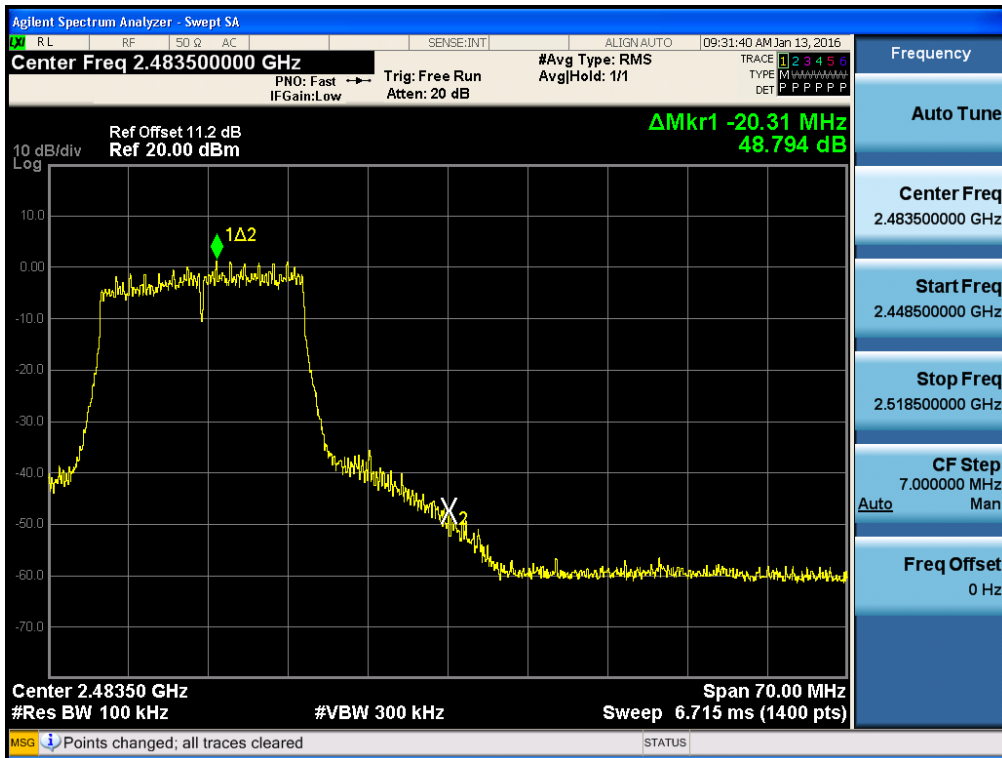
BandEdge (802.11g-CH11)



BandEdge (802.11n-CH1)



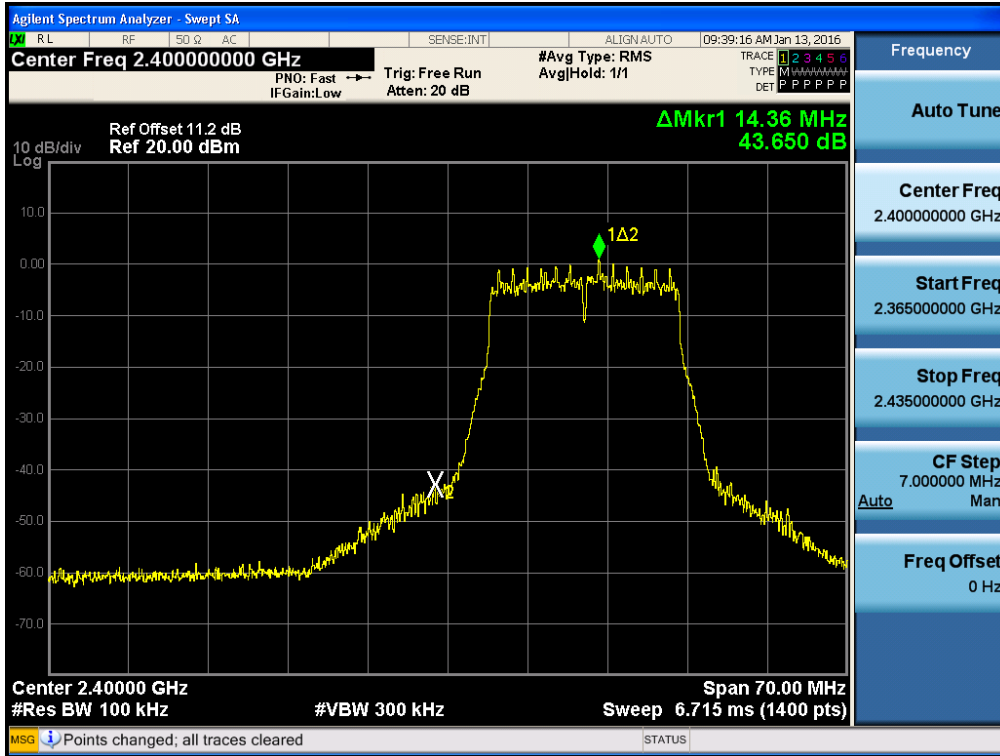
BandEdge (802.11n-CH11)



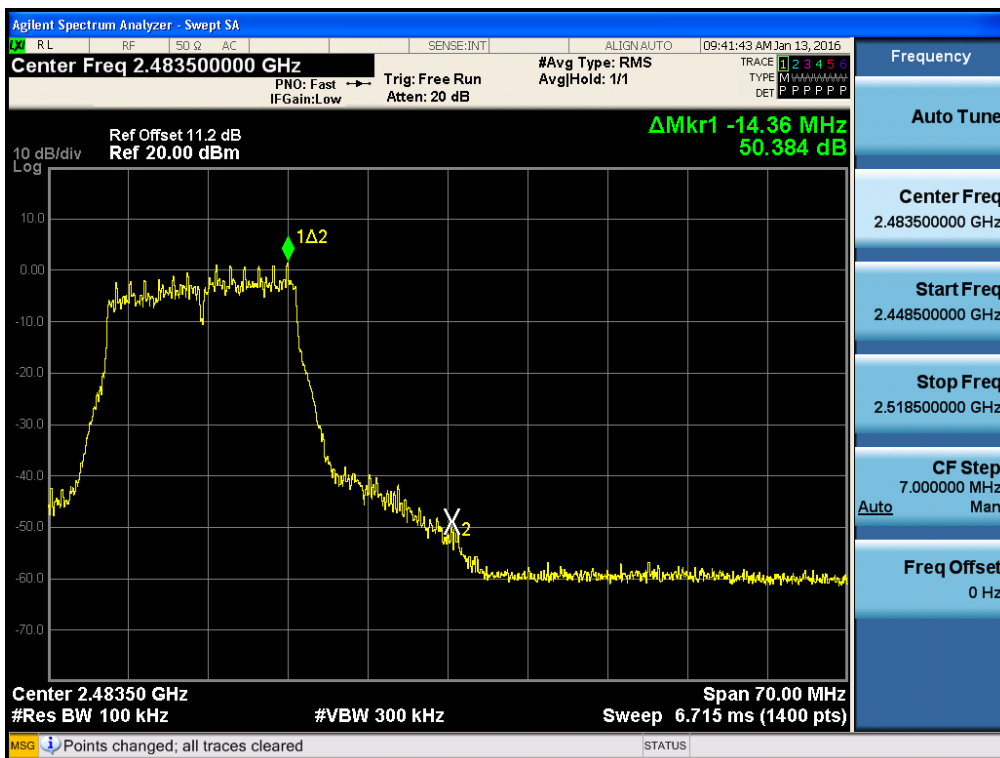
Service Port

RESULT PLOTS_Ant.1

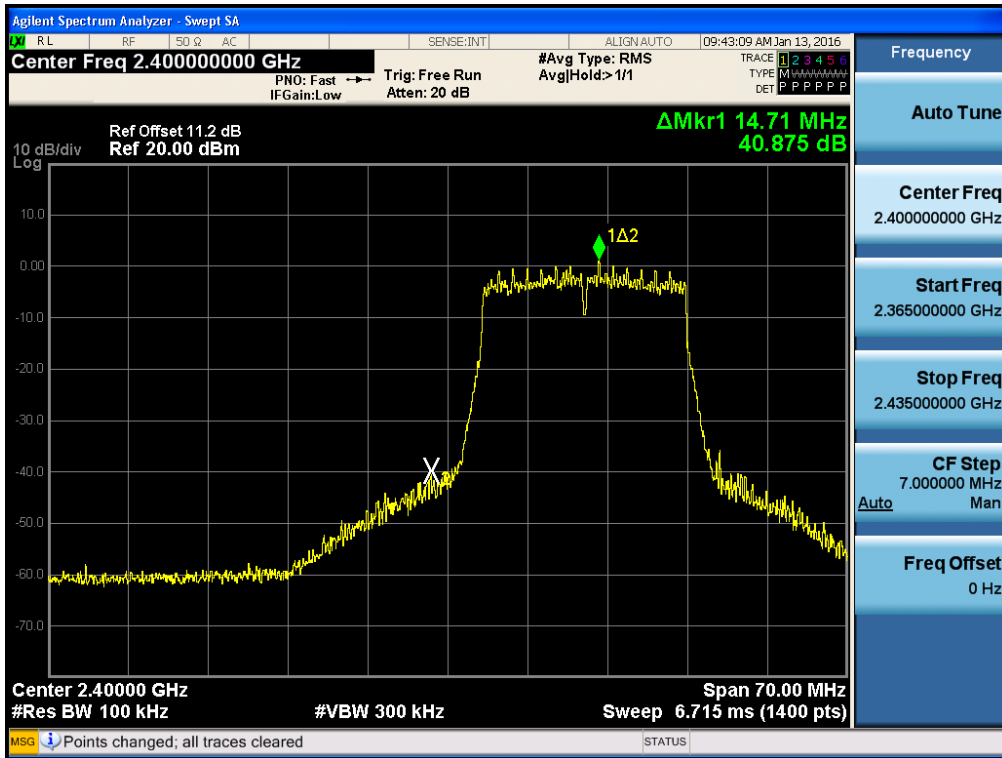
BandEdge (802.11g-CH1)



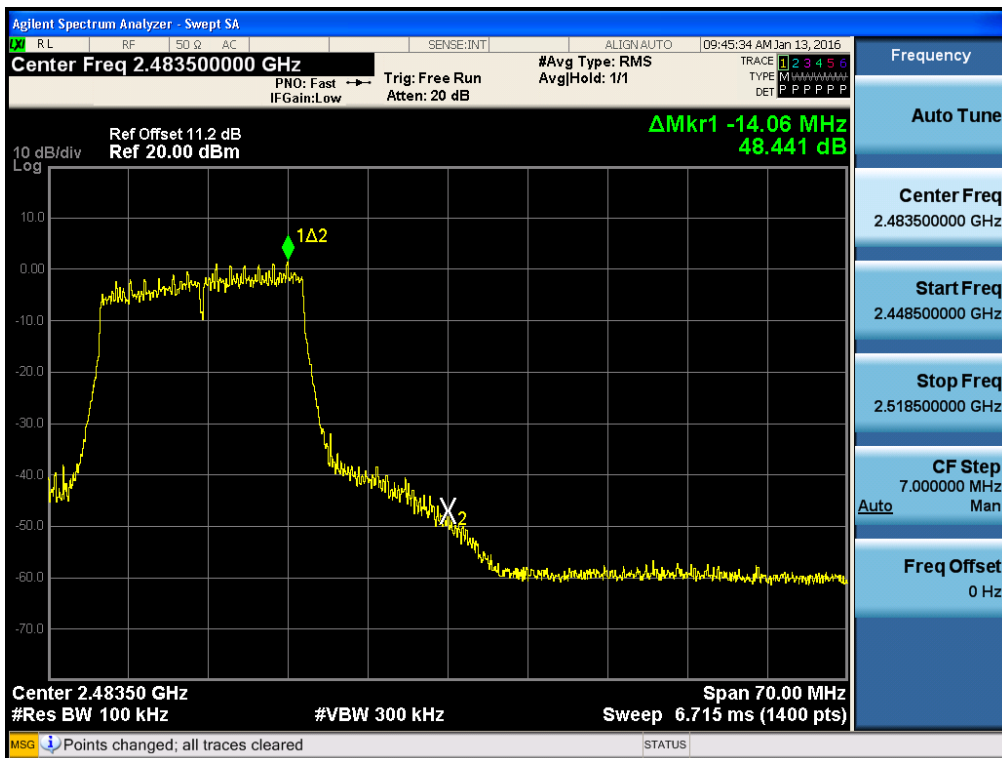
BandEdge (802.11g-CH11)



BandEdge (802.11n-CH1)



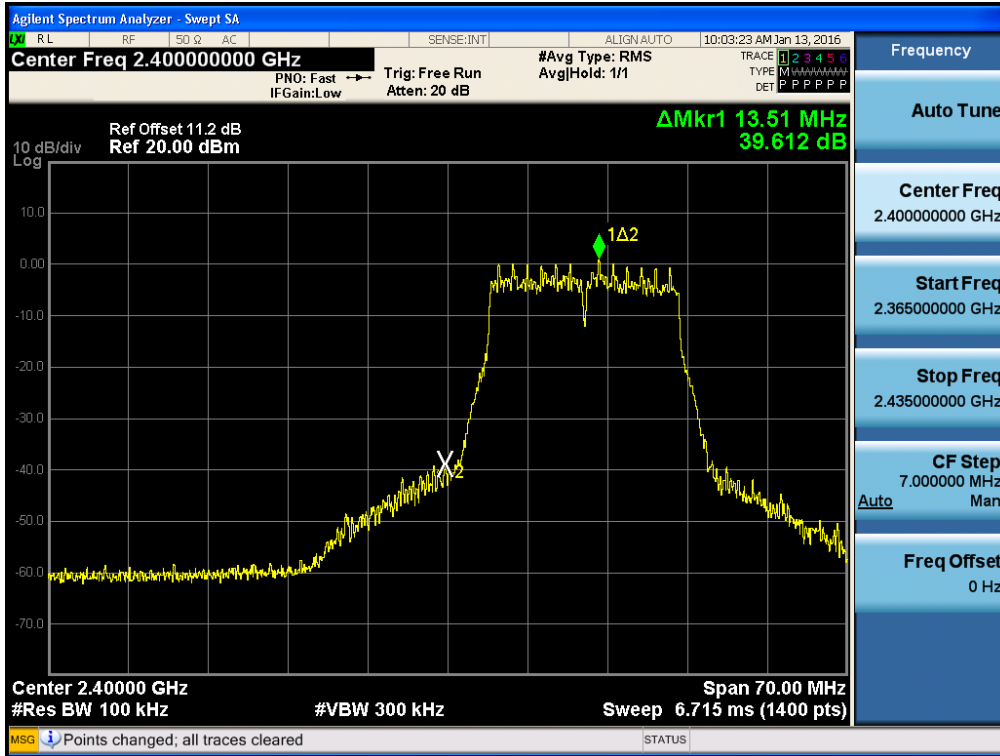
BandEdge (802.11n-CH11)



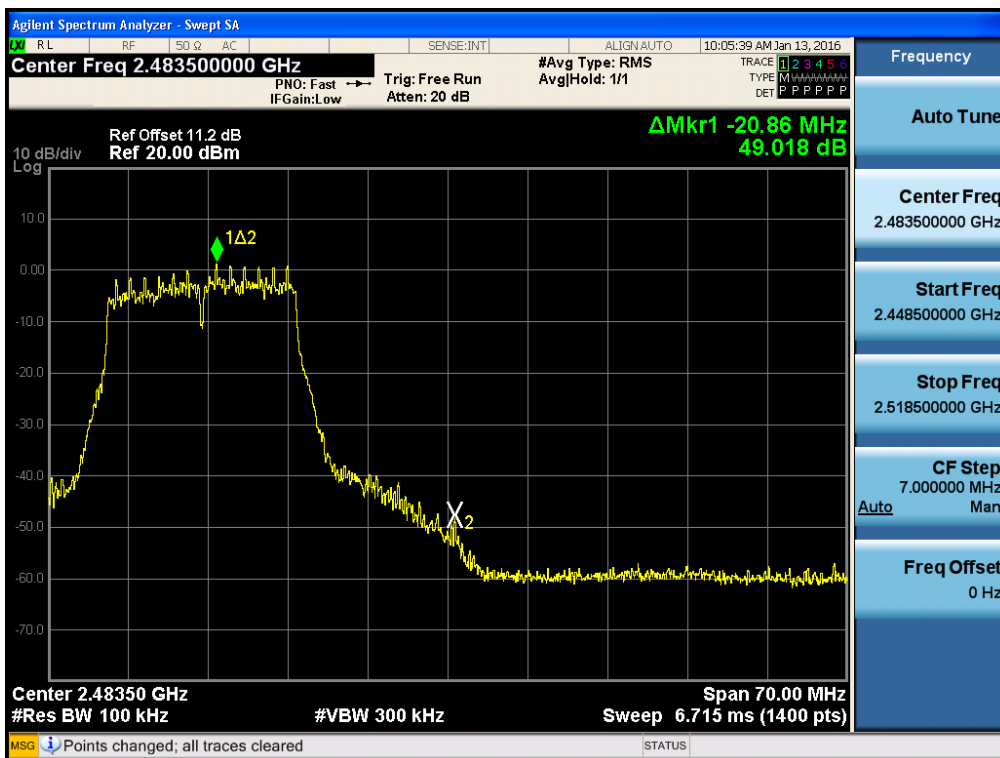
Service Port

RESULT PLOTS_Ant.2

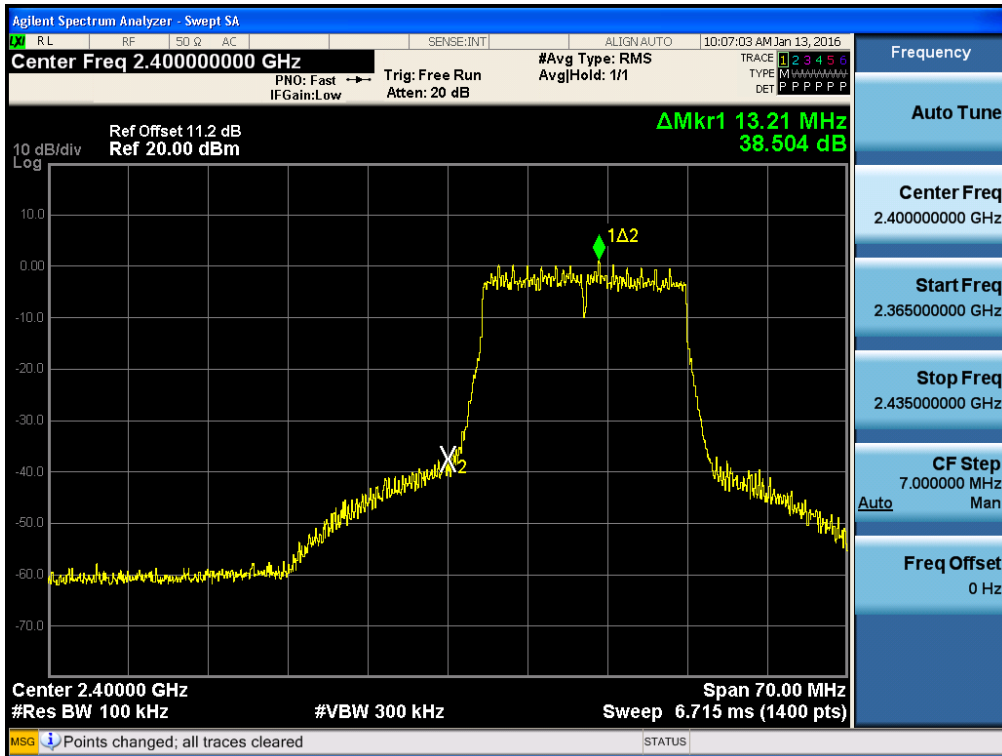
BandEdge (802.11g-CH1)



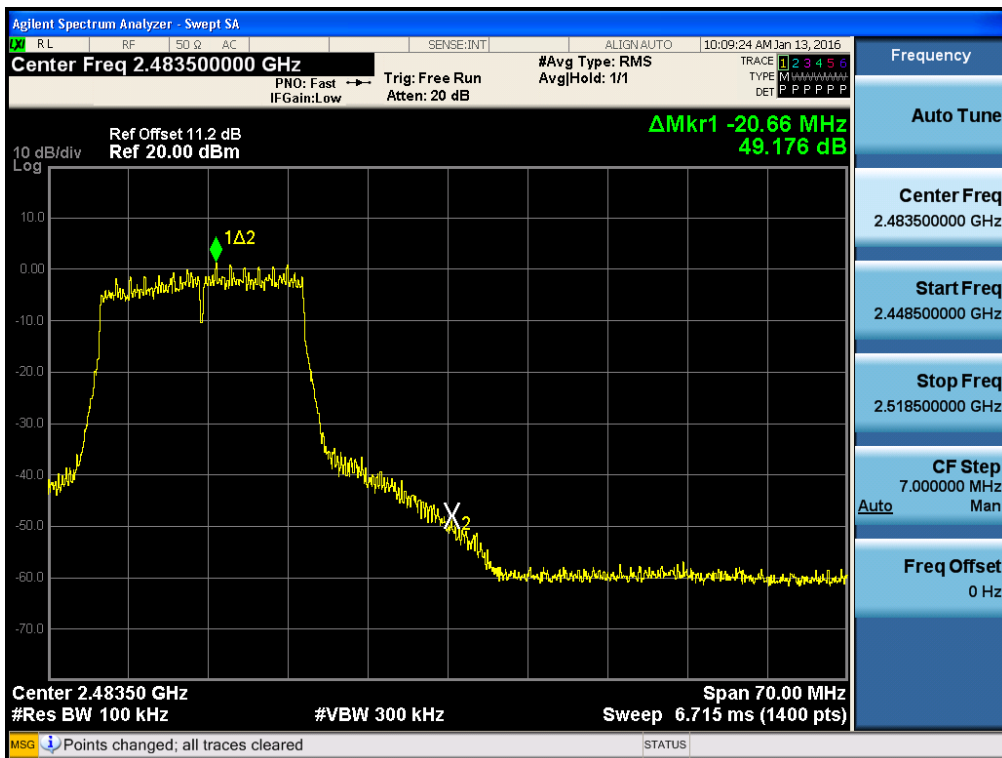
BandEdge (802.11g-CH11)



BandEdge (802.11n-CH1)



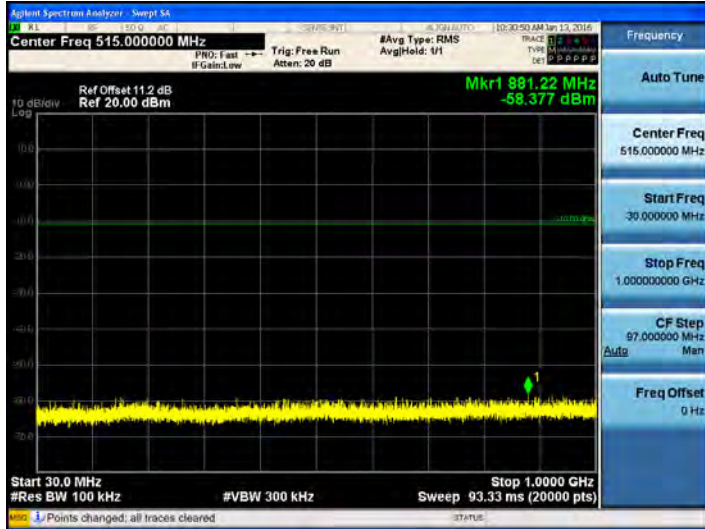
BandEdge (802.11n-CH11)



Monitoring_Ant.0

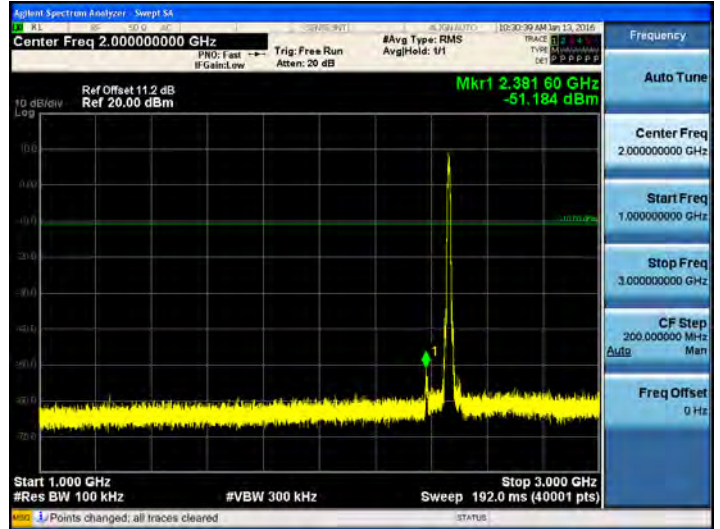
30 MHz ~ 1 GHz

Conducted Spurious Emission (802.11b_Ch.11_11 Mbps)



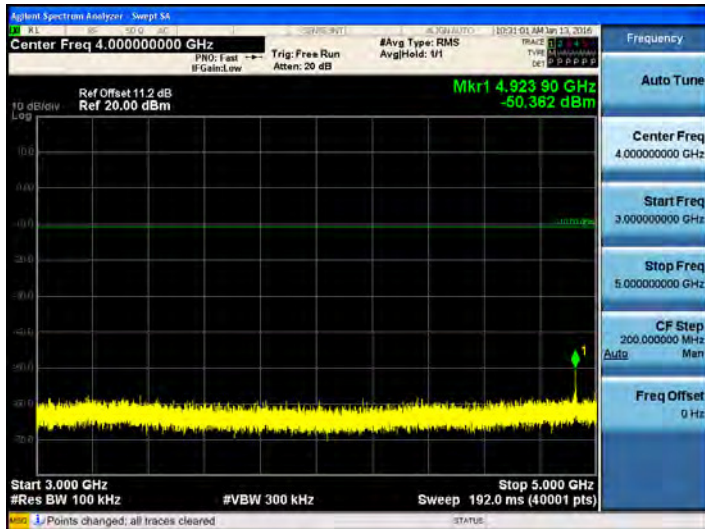
1 GHz ~ 3 GHz

Conducted Spurious Emission (802.11b_Ch.11_11 Mbps)



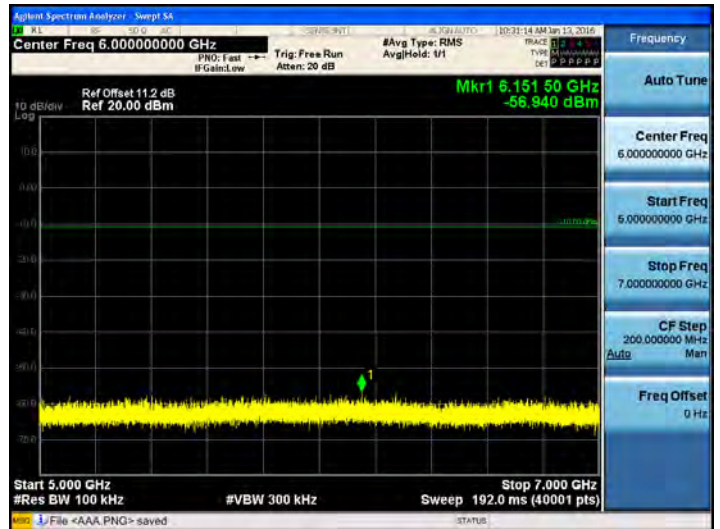
3 GHz ~ 5 GHz

Conducted Spurious Emission (802.11b_Ch.11_11 Mbps)



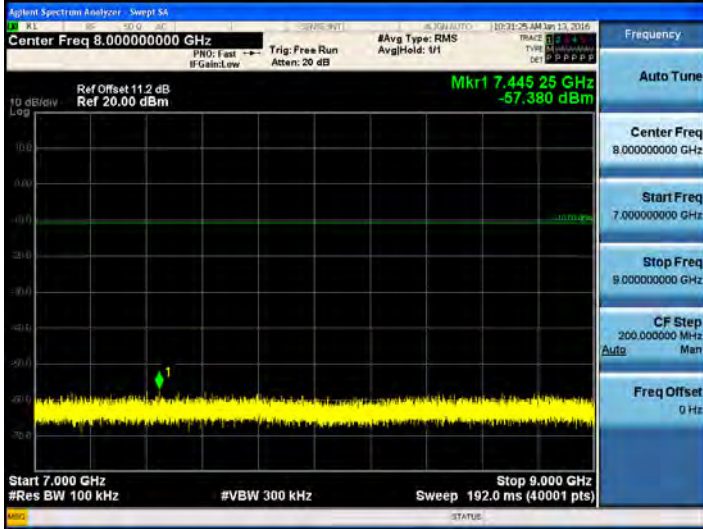
5 GHz ~ 7 GHz

Conducted Spurious Emission (802.11b_Ch.11_11 Mbps)



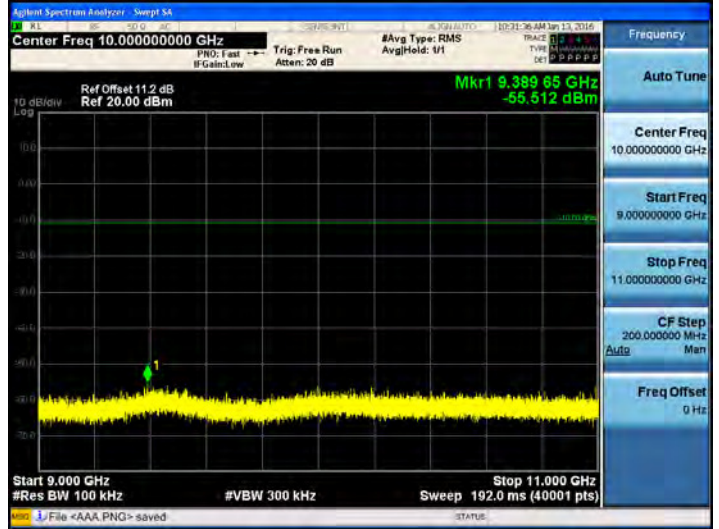
7 GHz ~ 9 GHz

Conducted Spurious Emission (802.11b_Ch.11_11 Mbps)



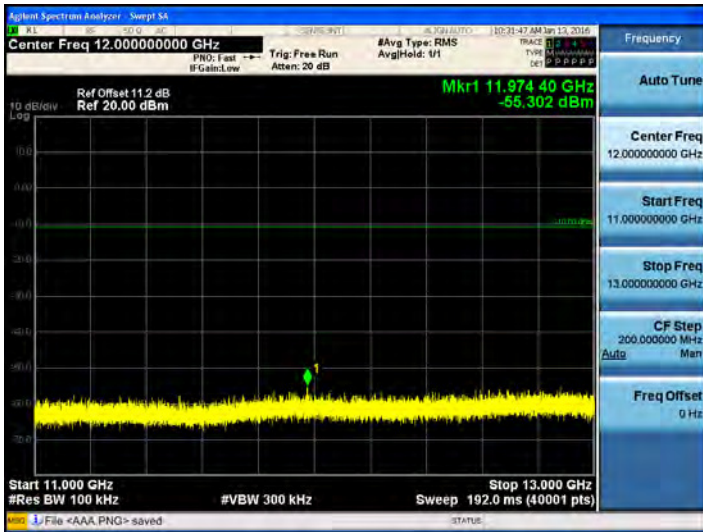
9 GHz ~ 11 GHz

Conducted Spurious Emission (802.11b_Ch.11_11 Mbps)



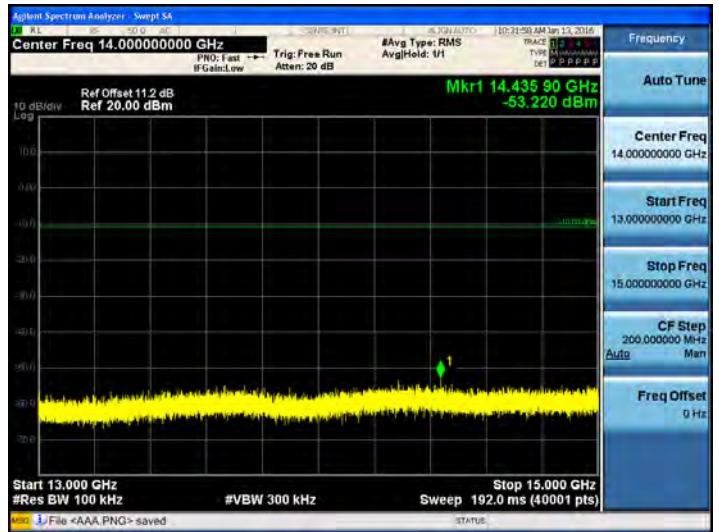
11 GHz ~ 13 GHz

Conducted Spurious Emission (802.11b_Ch.11_11 Mbps)



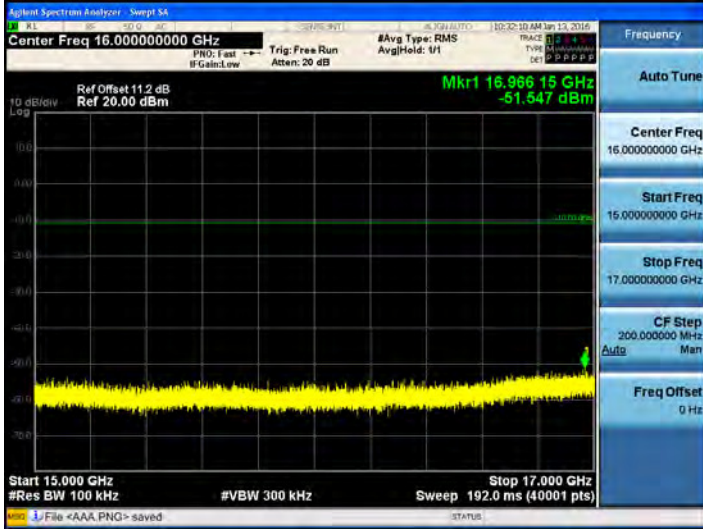
13 GHz ~ 15 GHz

Conducted Spurious Emission (802.11b_Ch.11_11 Mbps)



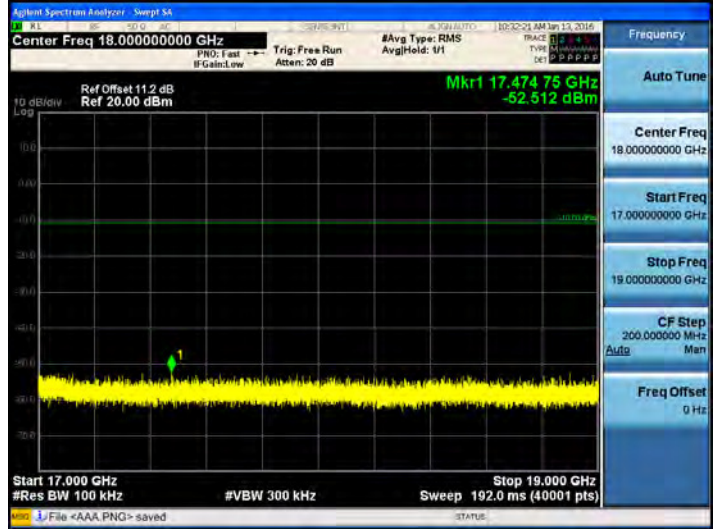
15 GHz ~ 17 GHz

Conducted Spurious Emission (802.11b_Ch.11_11 Mbps)



17 GHz ~ 19 GHz

Conducted Spurious Emission (802.11b_Ch.11_11 Mbps)



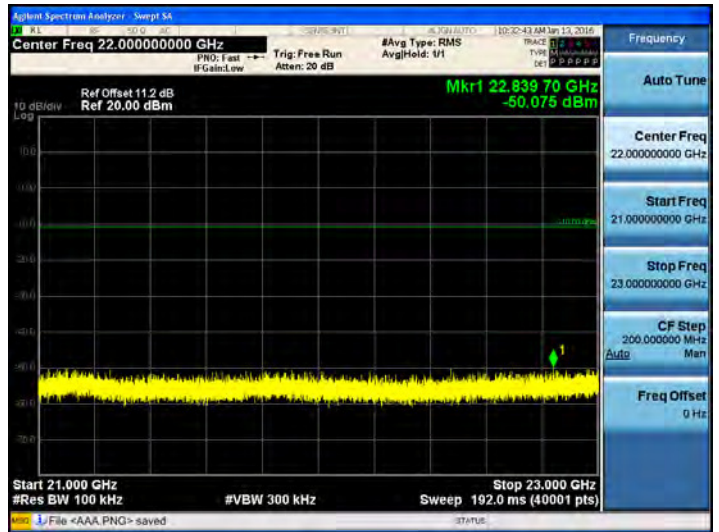
19 GHz ~ 21 GHz

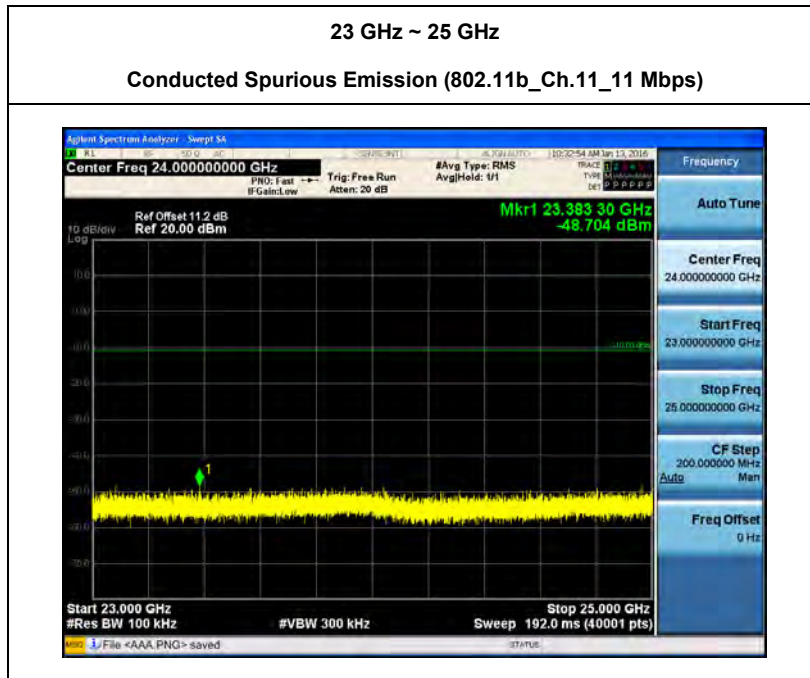
Conducted Spurious Emission (802.11b_Ch.11_11 Mbps)



21 GHz ~ 23 GHz

Conducted Spurious Emission (802.11b_Ch.11_11 Mbps)

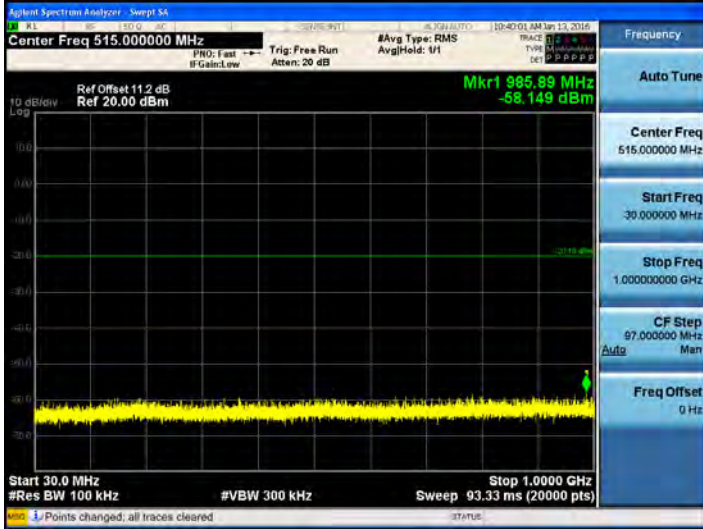




Monitoring_Ant.1

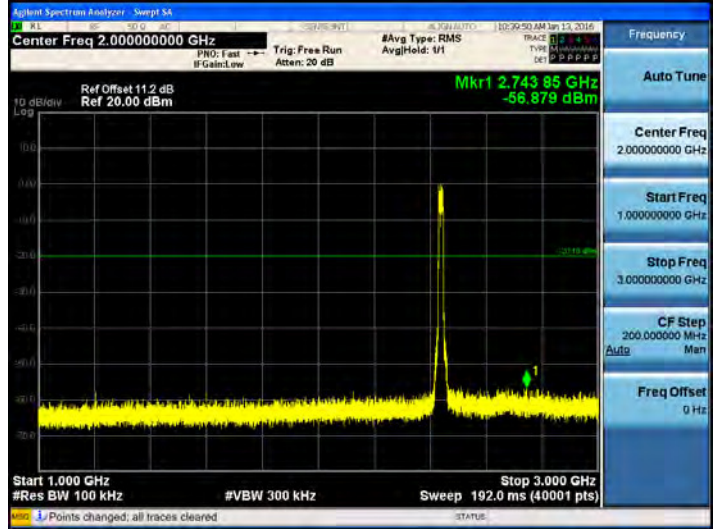
30 MHz ~ 1 GHz

Conducted Spurious Emission (802.11g_Ch.6_48 Mbps)



1 GHz ~ 3 GHz

Conducted Spurious Emission (802.11g_Ch.6_48 Mbps)



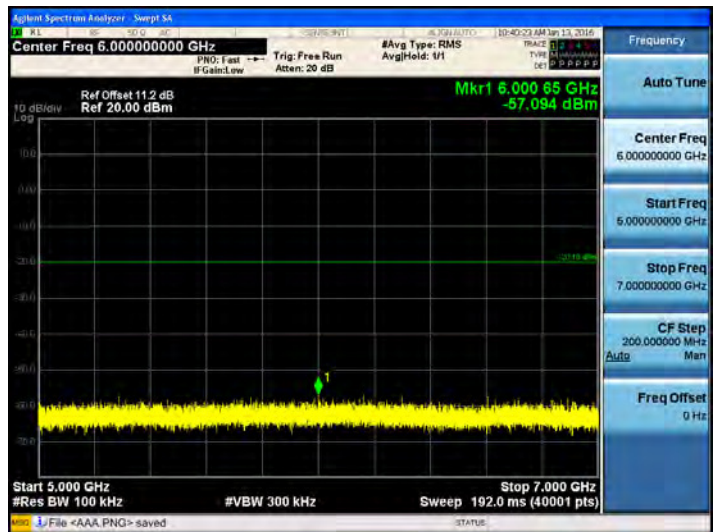
3 GHz ~ 5 GHz

Conducted Spurious Emission (802.11g_Ch.6_48 Mbps)



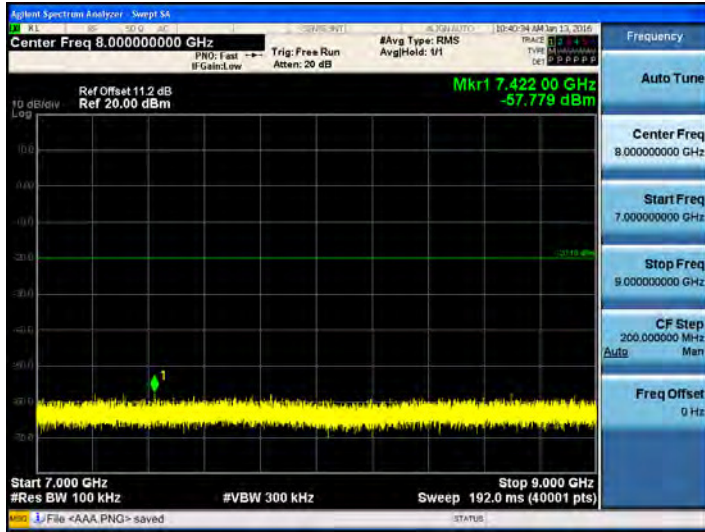
5 GHz ~ 7 GHz

Conducted Spurious Emission (802.11g_Ch.6_48 Mbps)



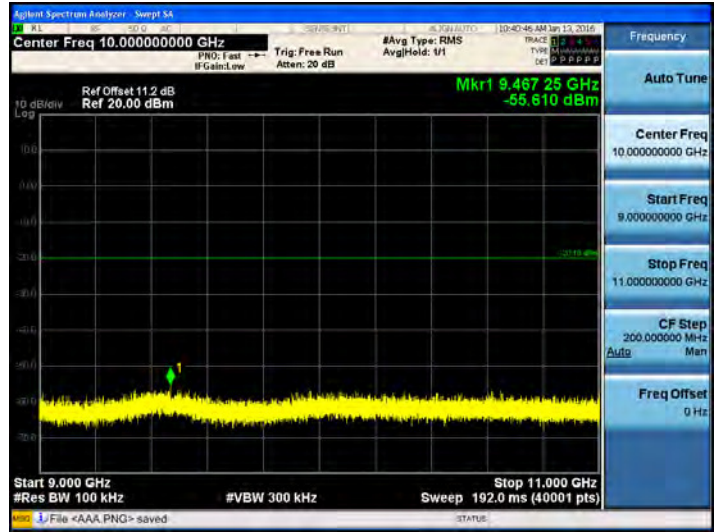
7 GHz ~ 9 GHz

Conducted Spurious Emission (802.11g_Ch.6_48 Mbps)



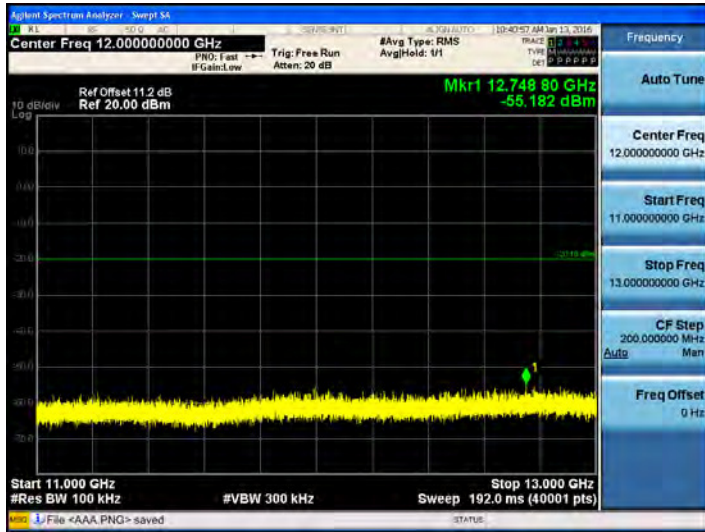
9 GHz ~ 11 GHz

Conducted Spurious Emission (802.11g_Ch.6_48 Mbps)



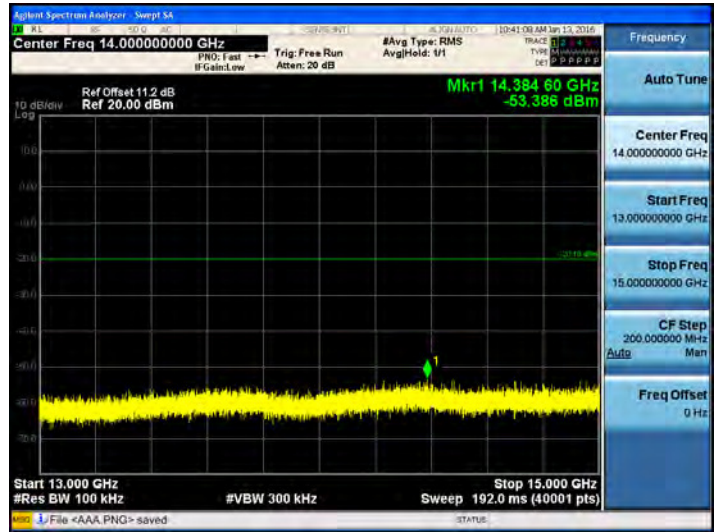
11 GHz ~ 13 GHz

Conducted Spurious Emission (802.11g_Ch.6_48 Mbps)



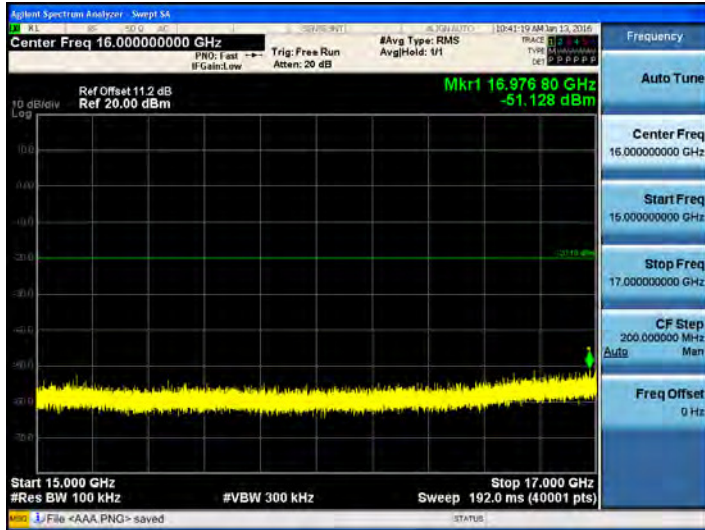
13 GHz ~ 15 GHz

Conducted Spurious Emission (802.11g_Ch.6_48 Mbps)



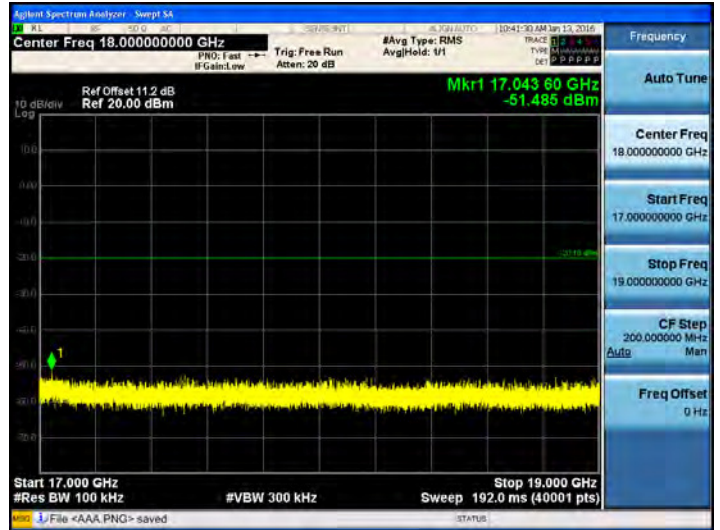
15 GHz ~ 17 GHz

Conducted Spurious Emission (802.11g_Ch.6_48 Mbps)



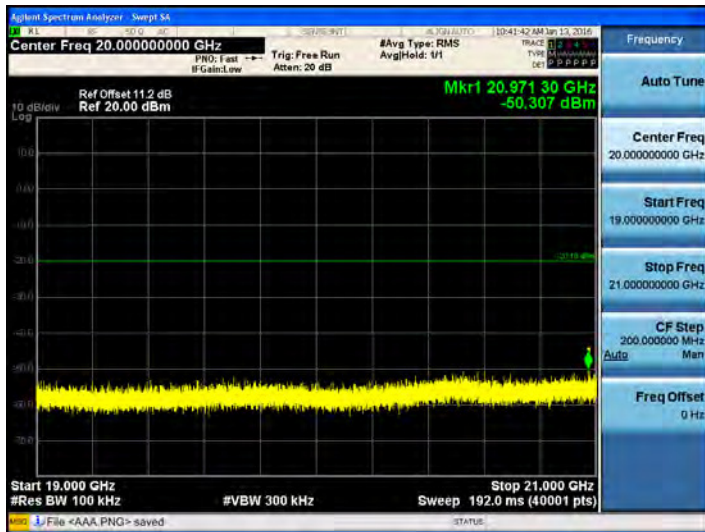
17 GHz ~ 19 GHz

Conducted Spurious Emission (802.11g_Ch.6_48 Mbps)



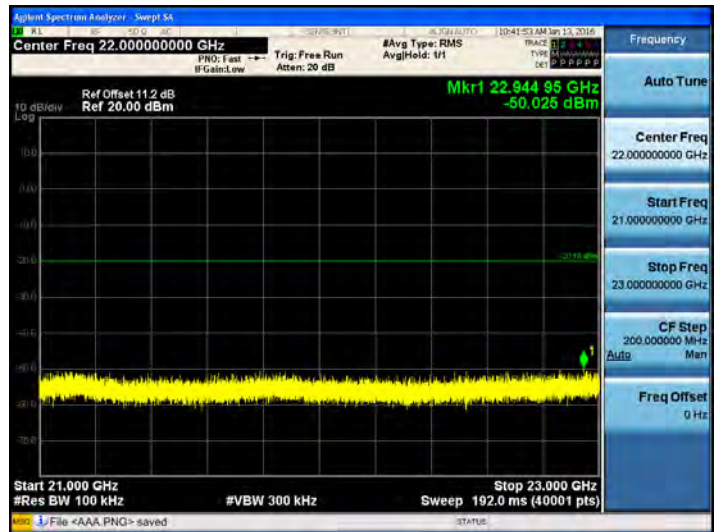
19 GHz ~ 21 GHz

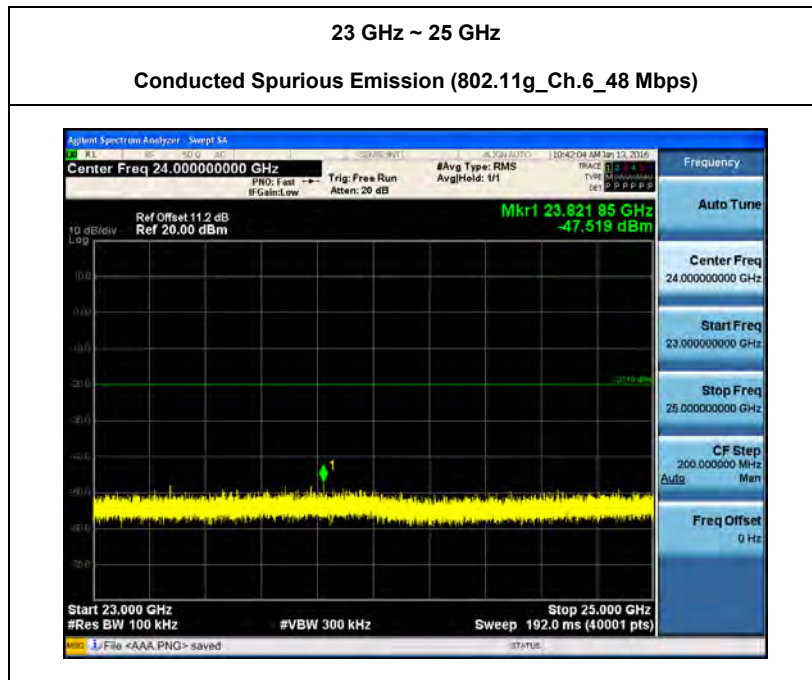
Conducted Spurious Emission (802.11g_Ch.6_48 Mbps)



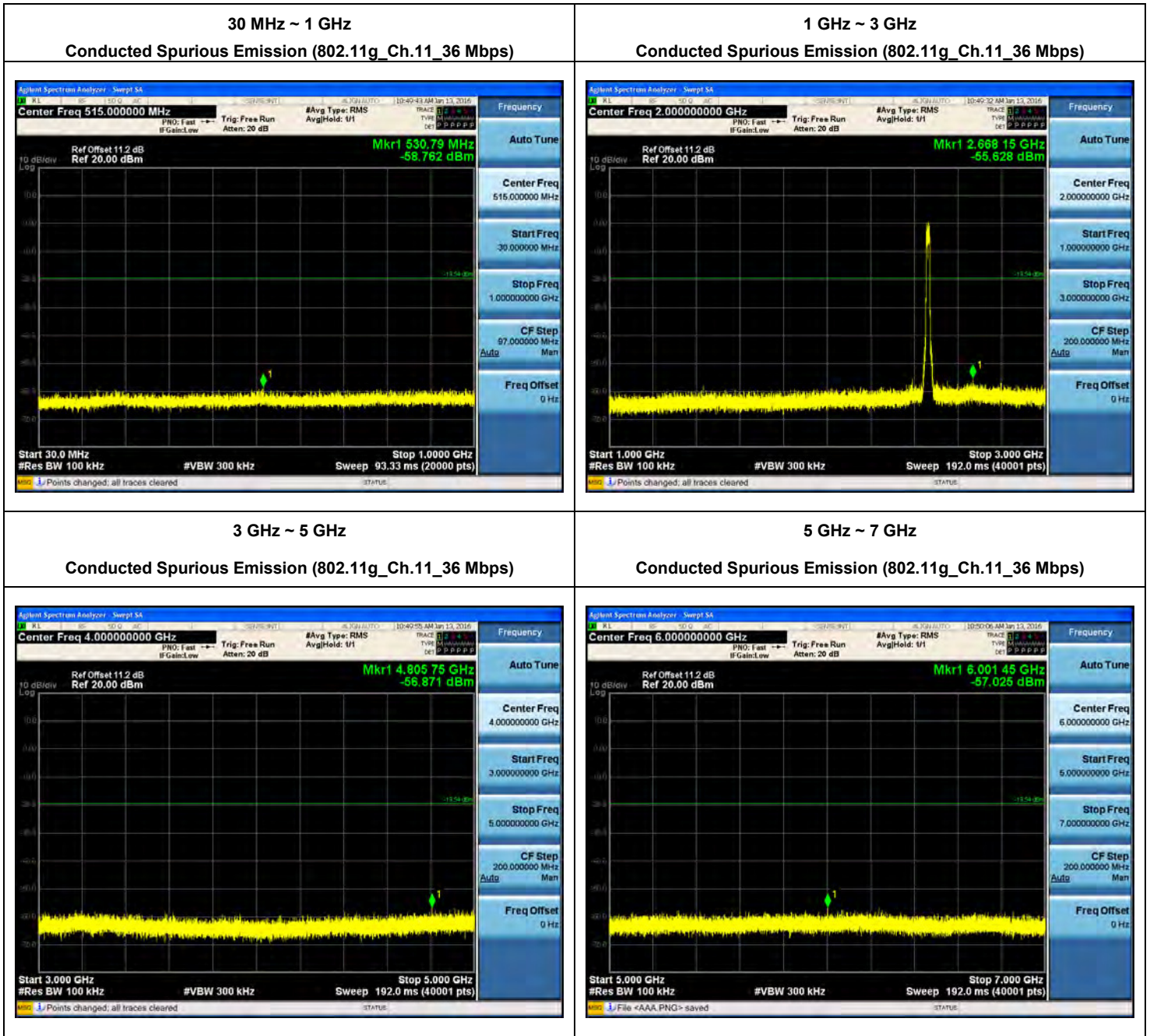
21 GHz ~23 GHz

Conducted Spurious Emission (802.11g_Ch.6_48 Mbps)



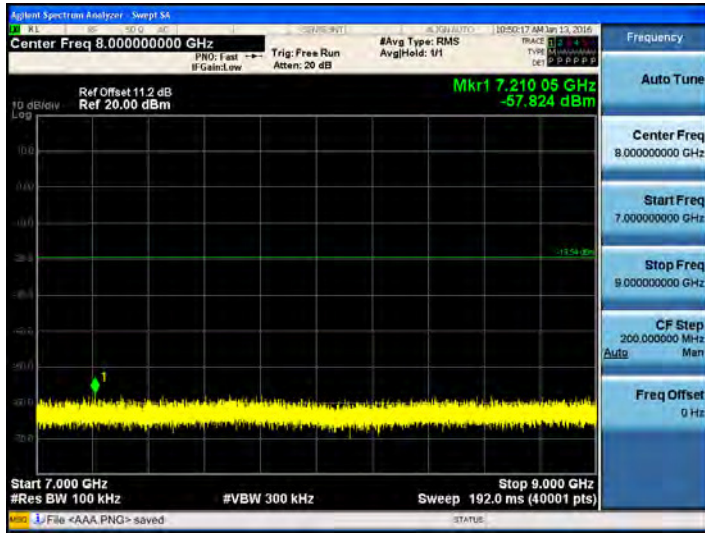


Monitoring_Ant.2



7 GHz ~ 9 GHz	9 GHz ~ 11 GHz
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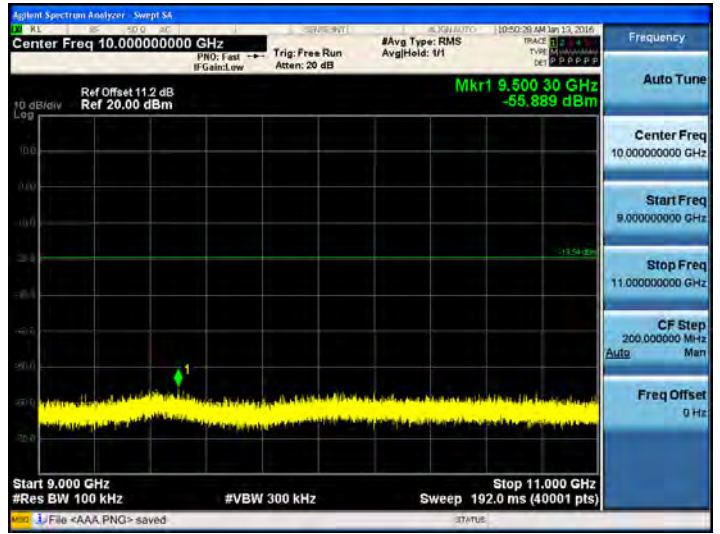
Conducted Spurious Emission (802.11g_Ch.11_36 Mbps)



11 GHz ~ 13 GHz

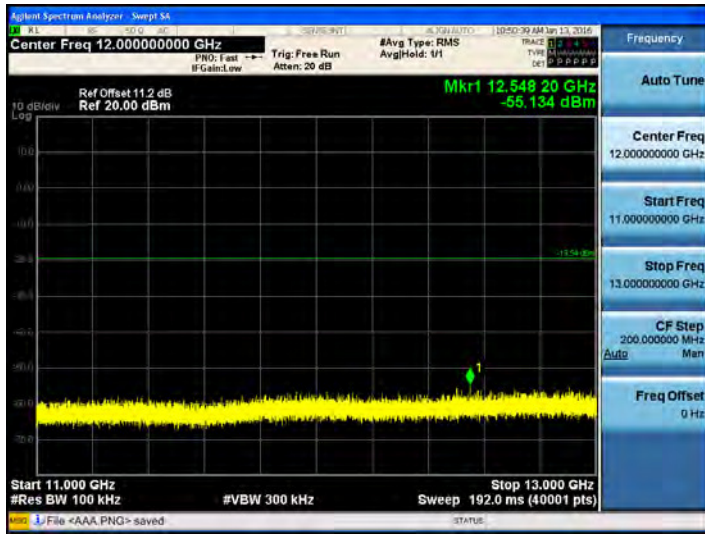
Conducted Spurious Emission (802.11g_Ch.11_36 Mbps)

Conducted Spurious Emission (802.11g_Ch.11_36 Mbps)

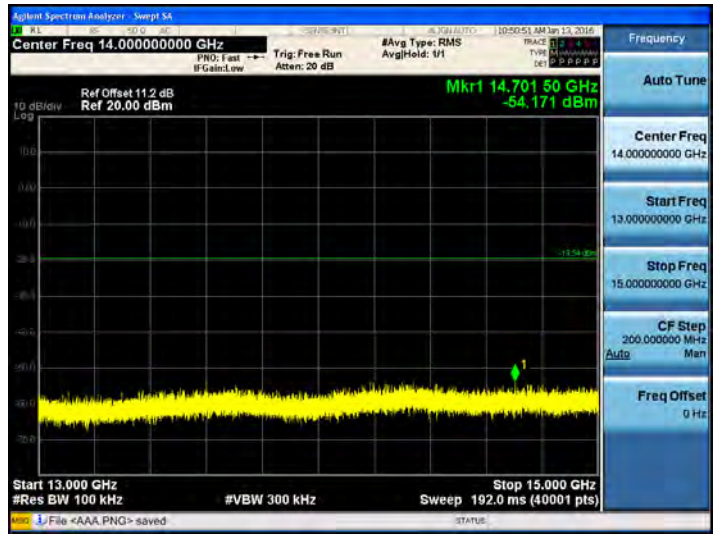


13 GHz ~ 15 GHz

Conducted Spurious Emission (802.11g_Ch.11_36 Mbps)

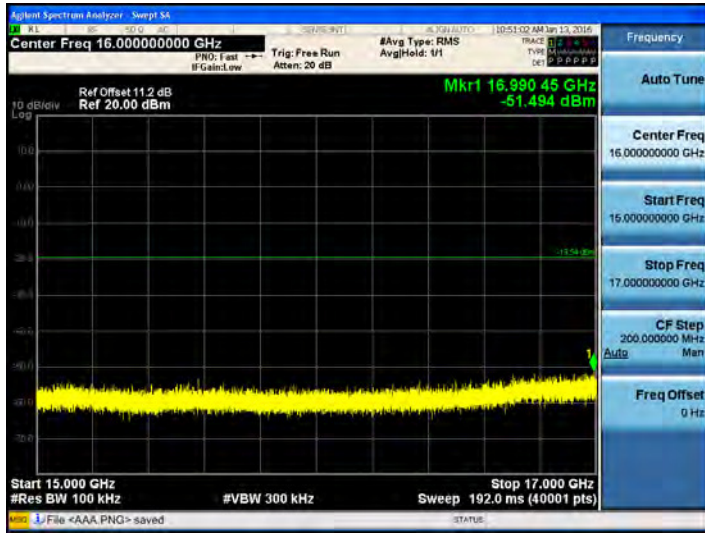


15 GHz ~ 17 GHz



17 GHz ~ 19 GHz

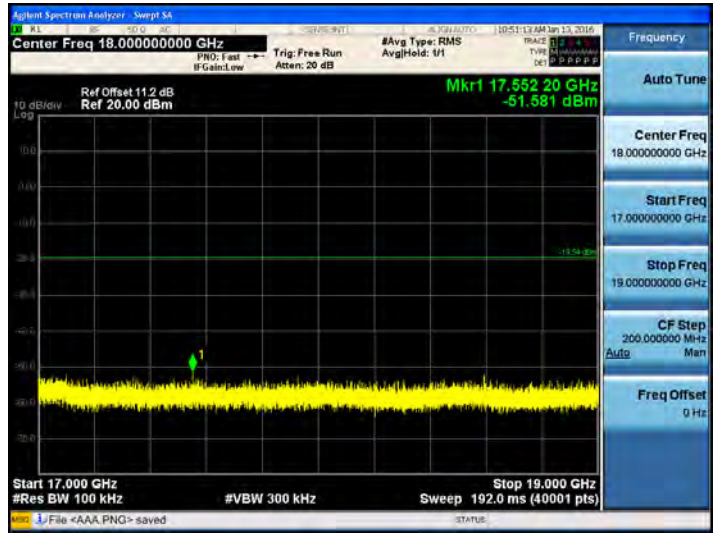
Conducted Spurious Emission (802.11g_Ch.11_36 Mbps)



19 GHz ~ 21 GHz

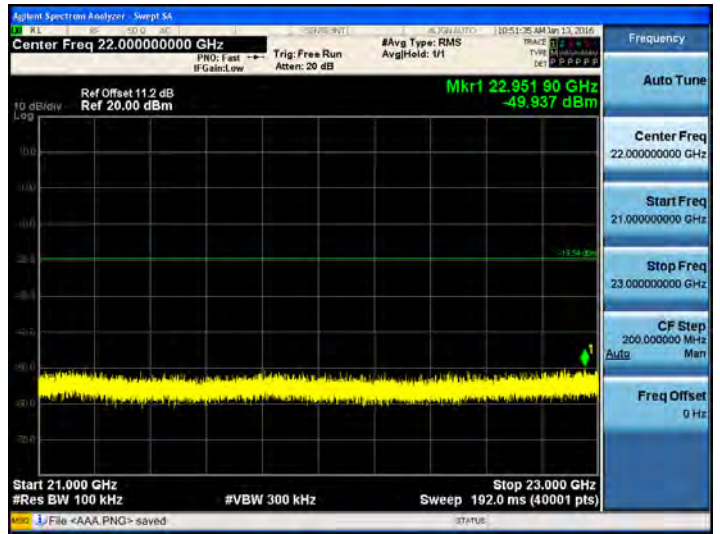
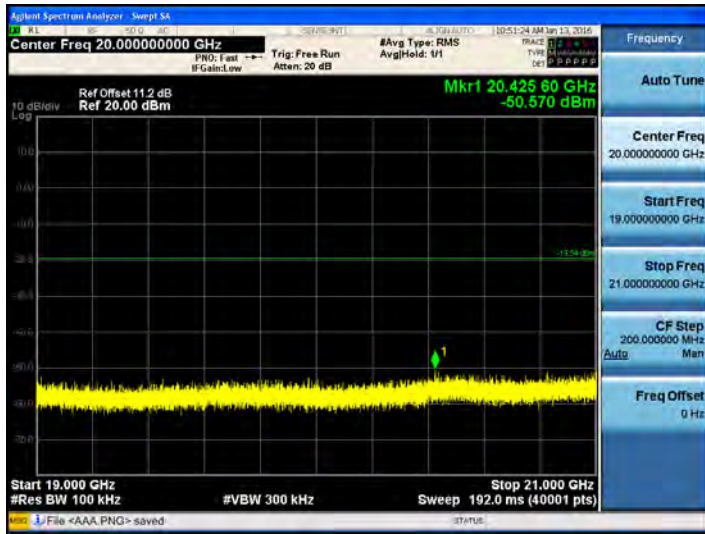
Conducted Spurious Emission (802.11g_Ch.11_36 Mbps)

Conducted Spurious Emission (802.11g_Ch.11_36 Mbps)

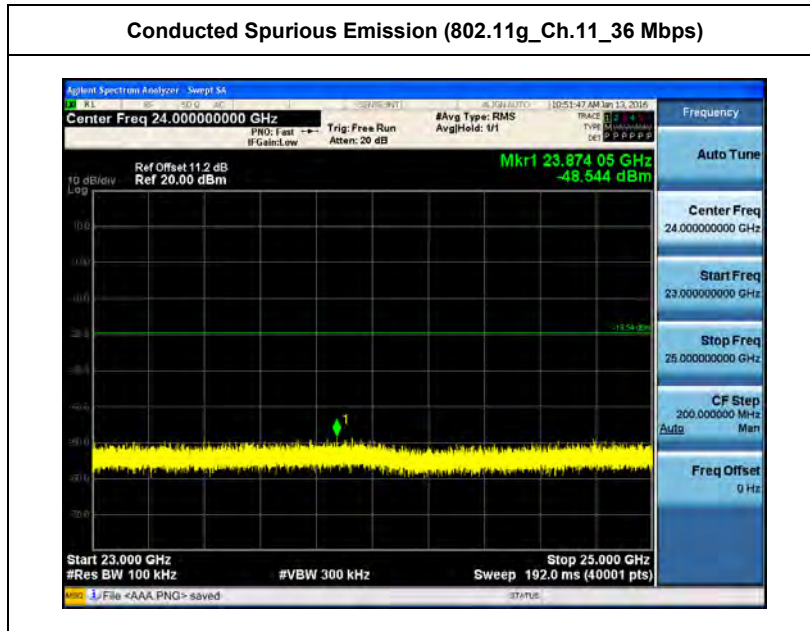


21 GHz ~23 GHz

Conducted Spurious Emission (802.11g_Ch.11_36 Mbps)



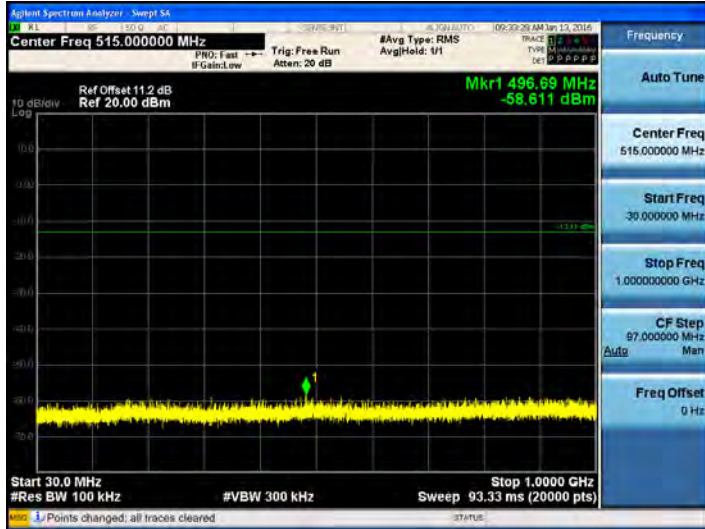
23 GHz ~ 25 GHz



Service_Ant.0

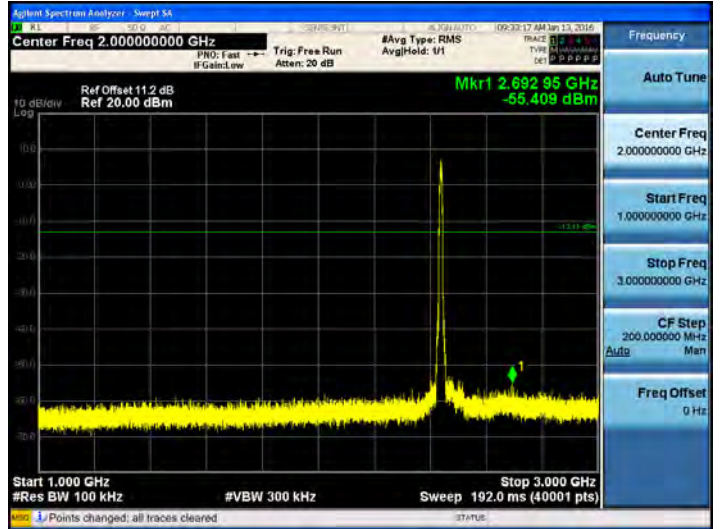
30 MHz ~ 1 GHz

Conducted Spurious Emission (802.11b_Ch.6_11 Mbps)



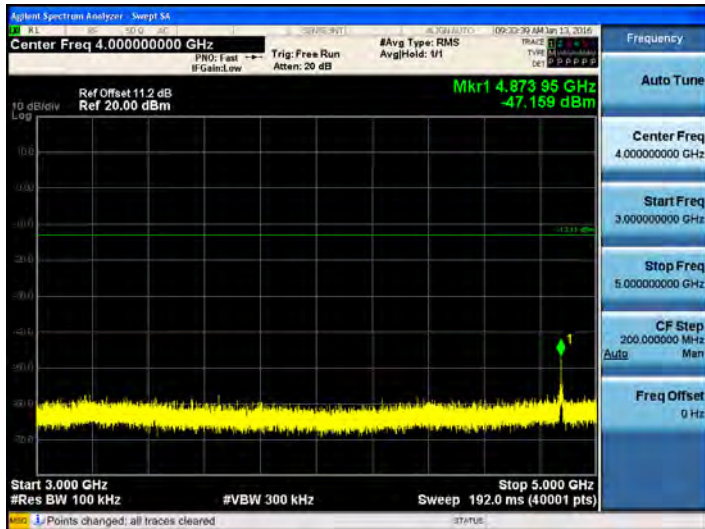
1 GHz ~ 3 GHz

Conducted Spurious Emission (802.11b_Ch.6_11 Mbps)



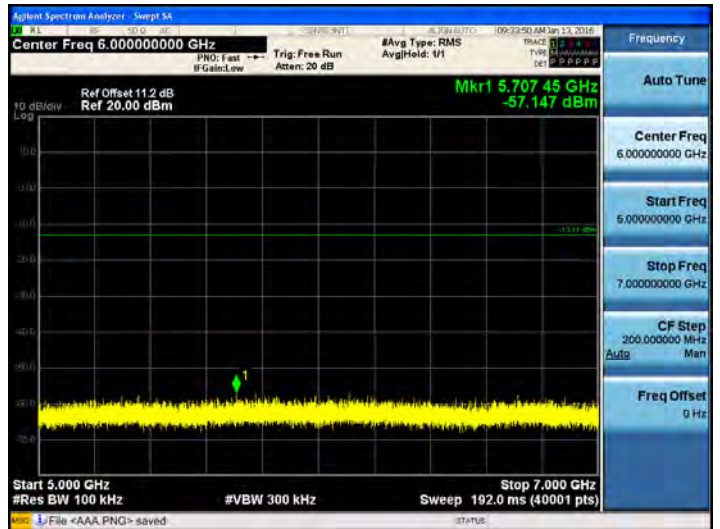
3 GHz ~ 5 GHz

Conducted Spurious Emission (802.11b_Ch.6_11 Mbps)



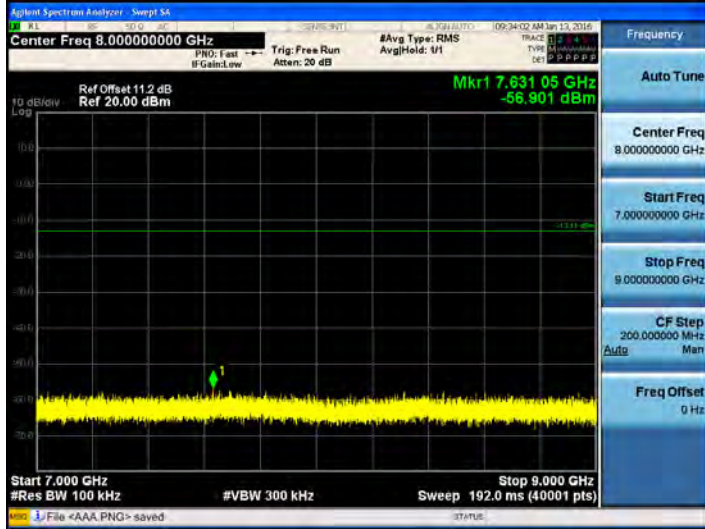
5 GHz ~ 7 GHz

Conducted Spurious Emission (802.11b_Ch.6_11 Mbps)



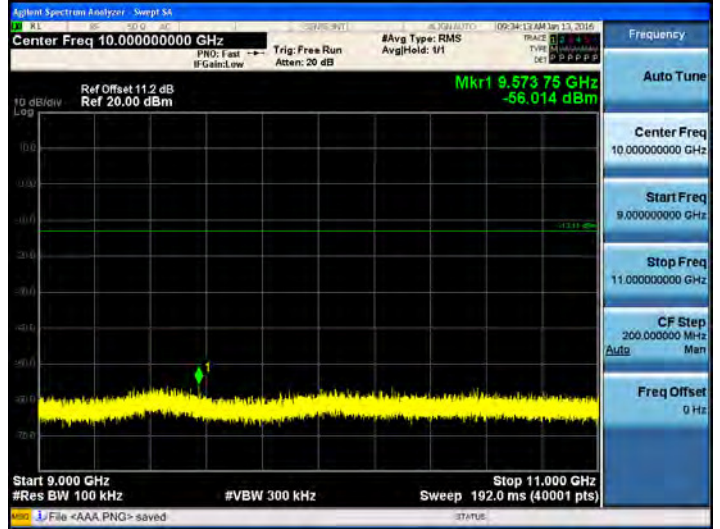
7 GHz ~ 9 GHz

Conducted Spurious Emission (802.11b_Ch.6_11 Mbps)



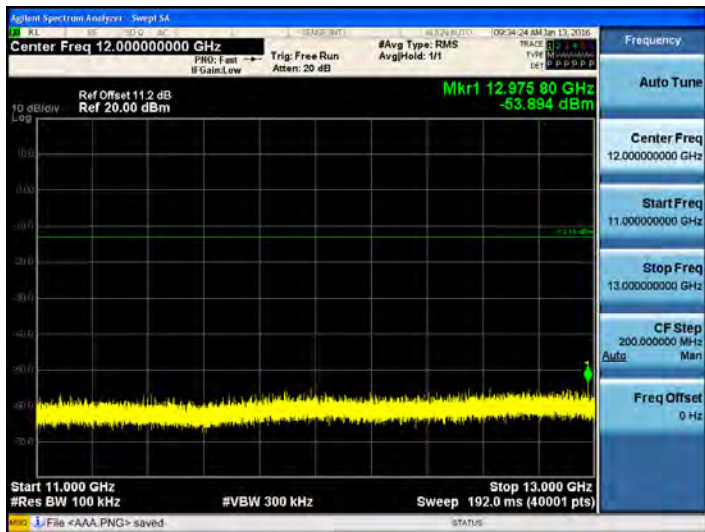
9 GHz ~ 11 GHz

Conducted Spurious Emission (802.11b_Ch.6_11 Mbps)



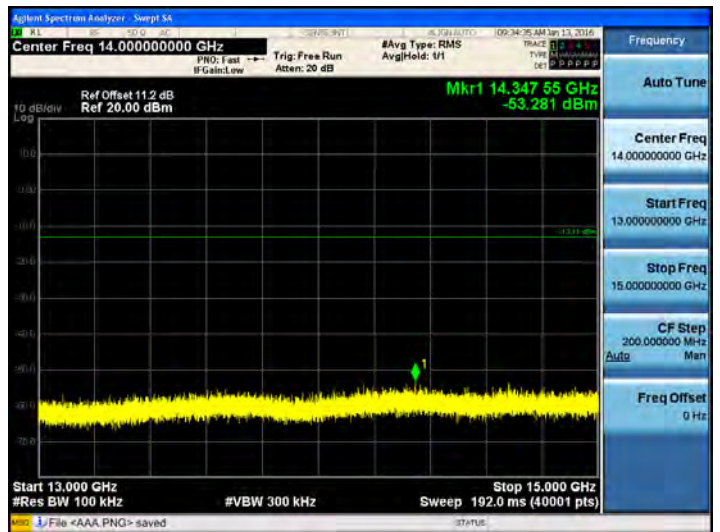
11 GHz ~ 13 GHz

Conducted Spurious Emission (802.11b_Ch.6_11 Mbps)



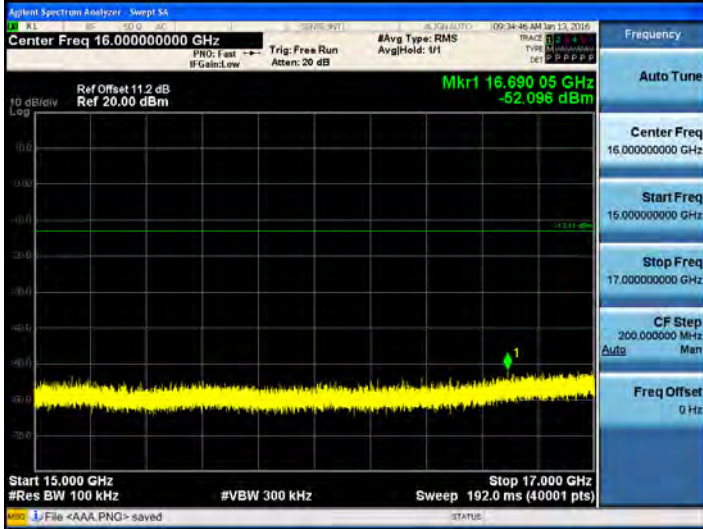
13 GHz ~ 15 GHz

Conducted Spurious Emission (802.11b_Ch.6_11 Mbps)



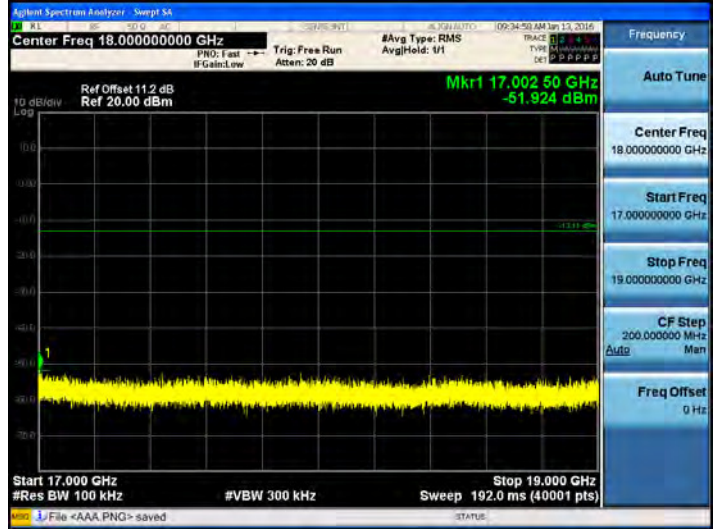
15 GHz ~ 17 GHz

Conducted Spurious Emission (802.11b_Ch.6_11 Mbps)



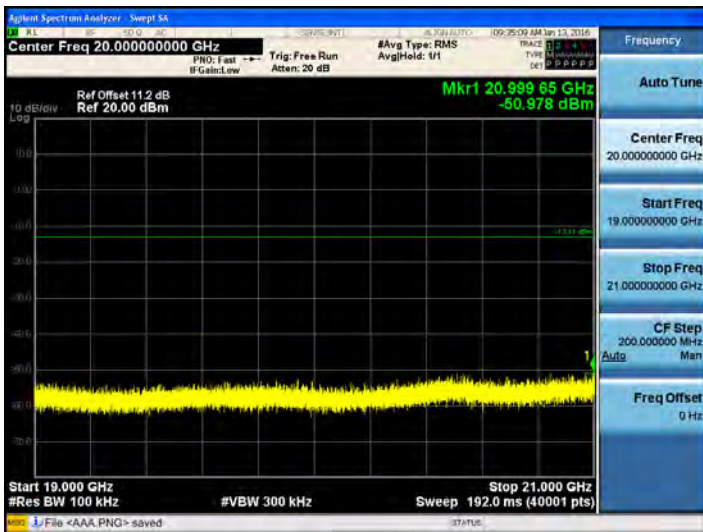
17 GHz ~ 19 GHz

Conducted Spurious Emission (802.11b_Ch.6_11 Mbps)



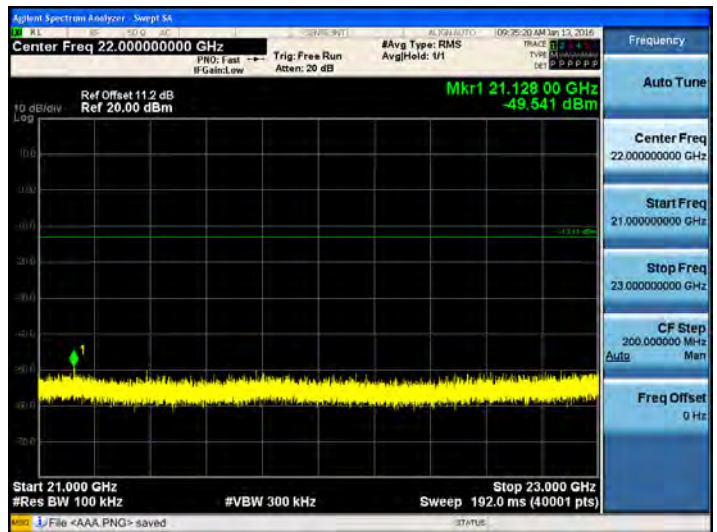
19 GHz ~ 21 GHz

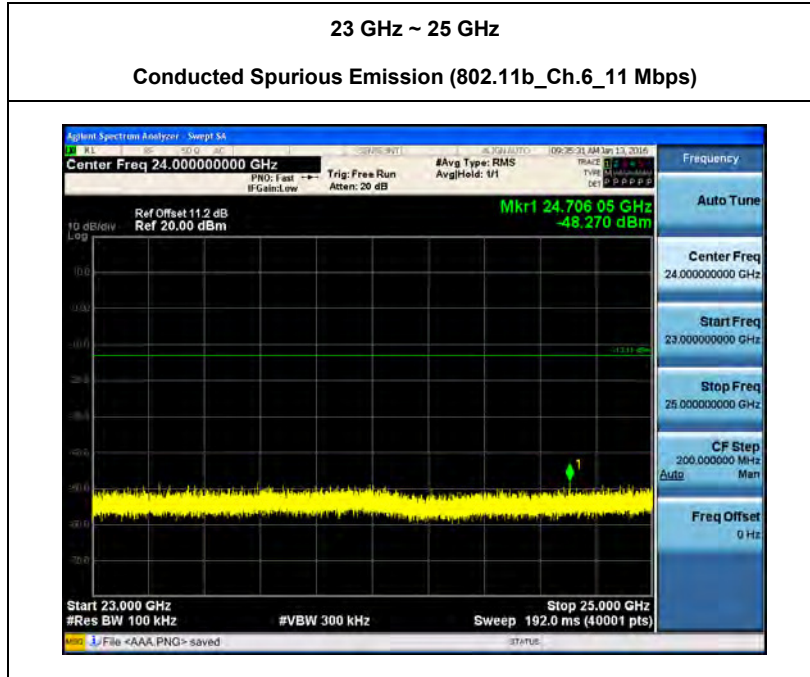
Conducted Spurious Emission (802.11b_Ch.6_11 Mbps)



21 GHz ~ 23 GHz

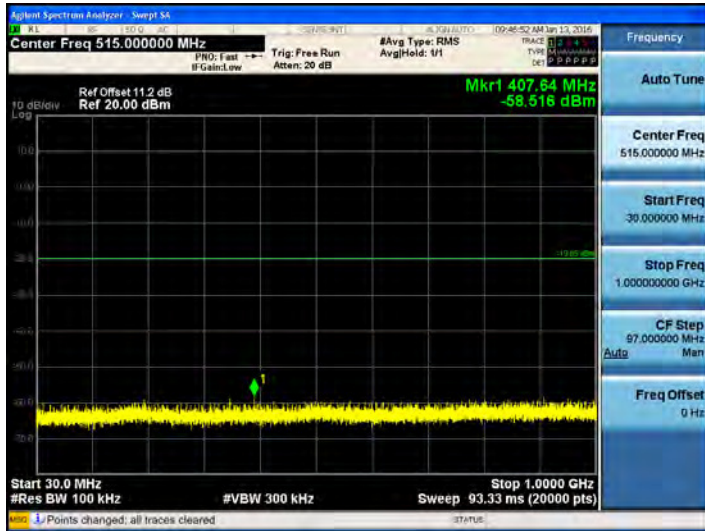
Conducted Spurious Emission (802.11b_Ch.6_11 Mbps)



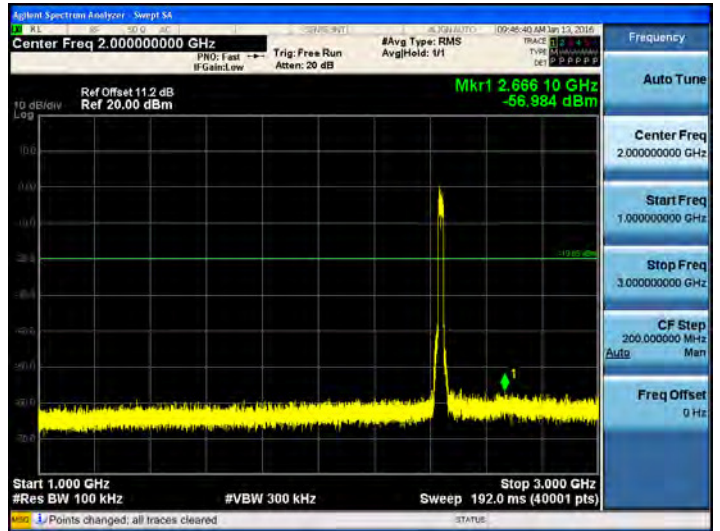


Service_Ant.1

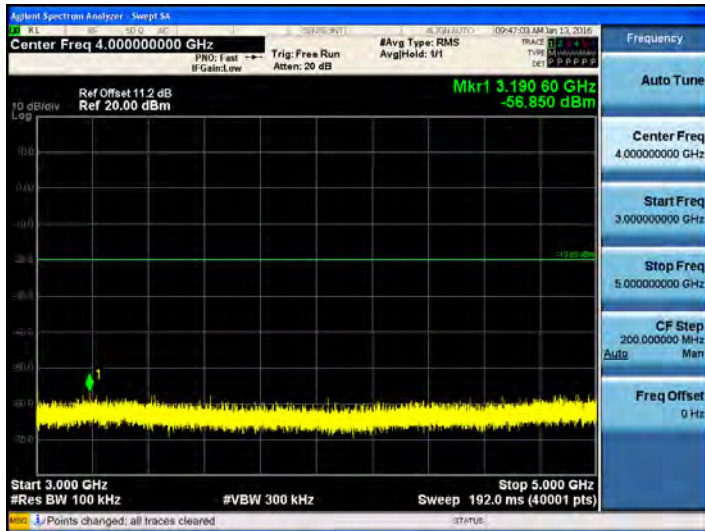
30 MHz ~ 1 GHz
Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



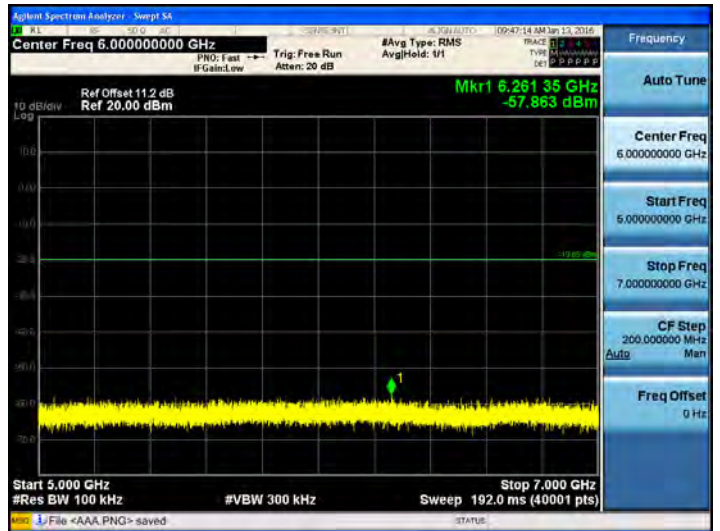
1 GHz ~ 3 GHz
Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



3 GHz ~ 5 GHz
Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)

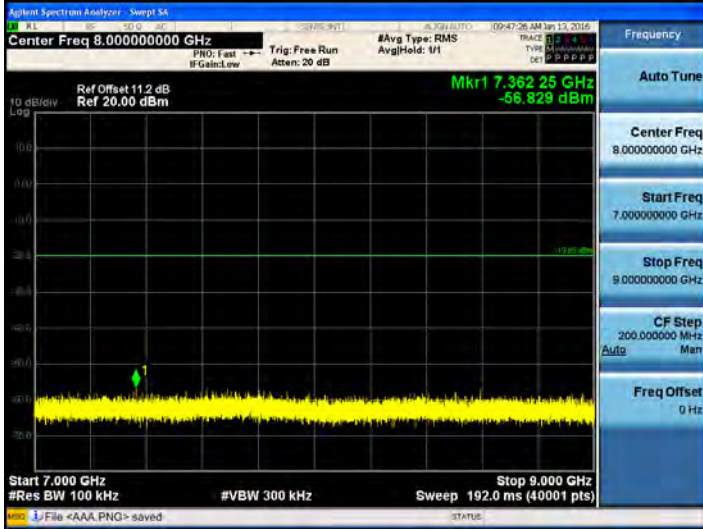


5 GHz ~ 7 GHz
Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



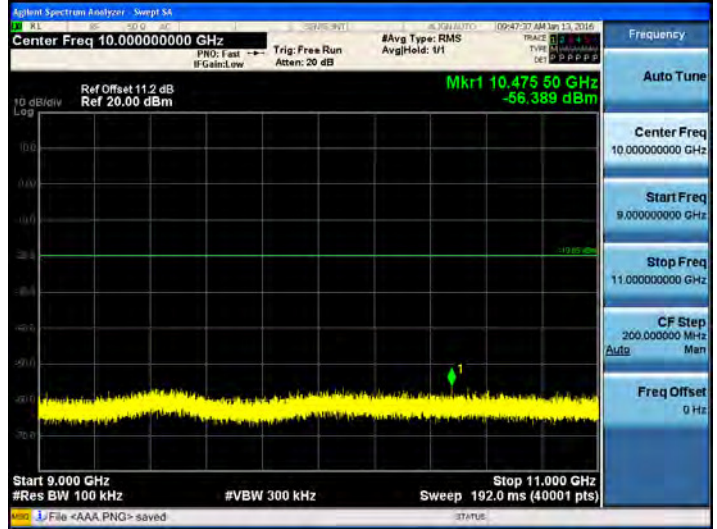
7 GHz ~ 9 GHz

Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



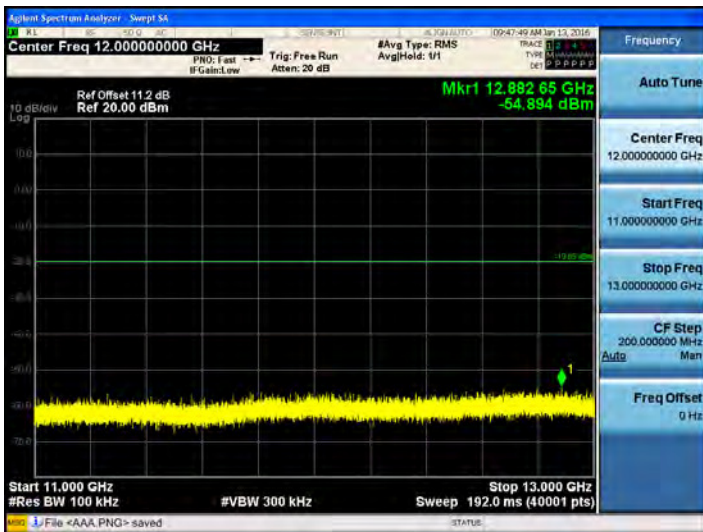
9 GHz ~ 11 GHz

Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



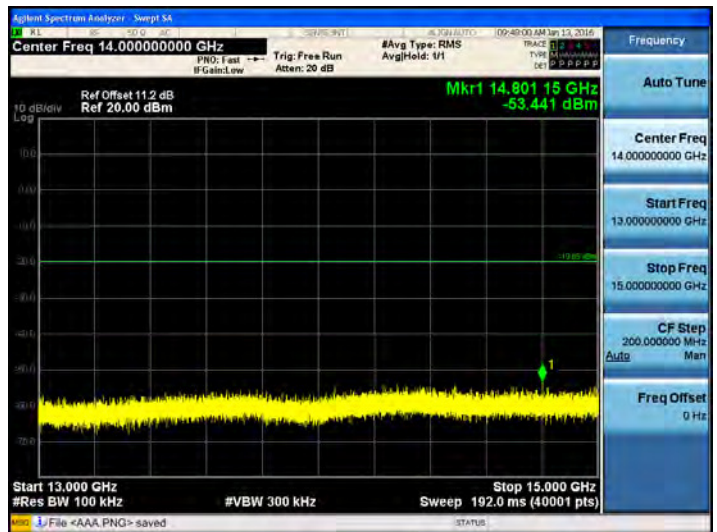
11 GHz ~ 13 GHz

Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



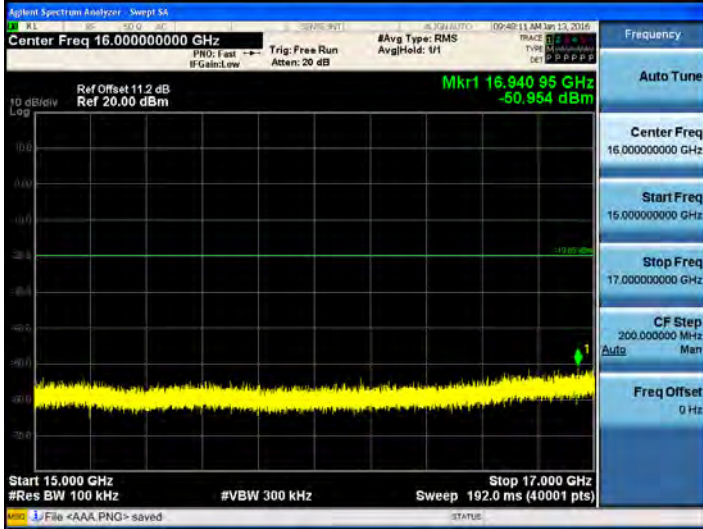
13 GHz ~ 15 GHz

Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



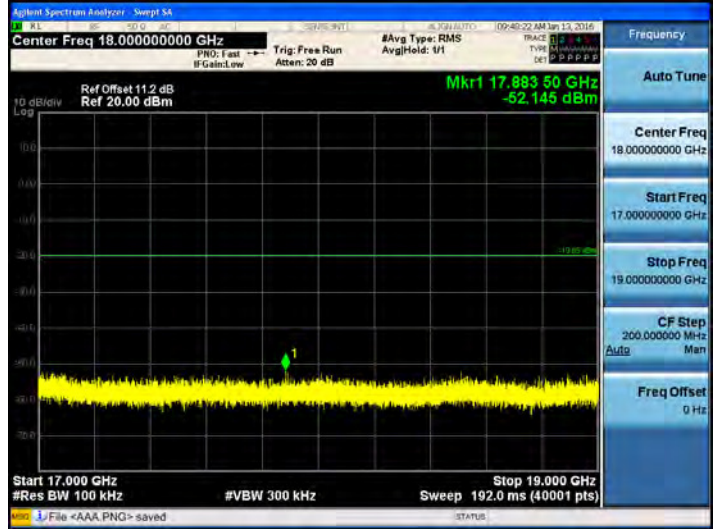
15 GHz ~ 17 GHz

Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



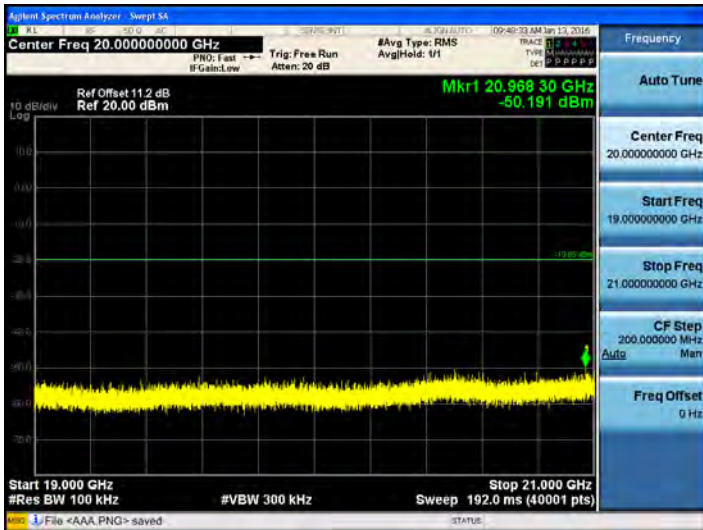
17 GHz ~ 19 GHz

Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



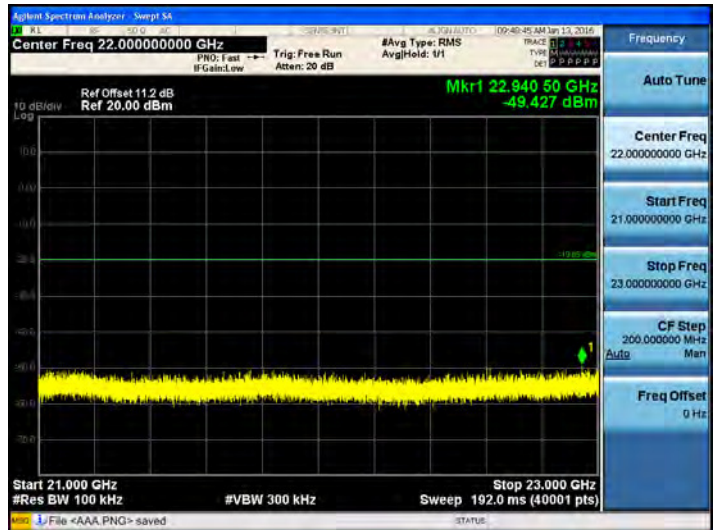
19 GHz ~ 21 GHz

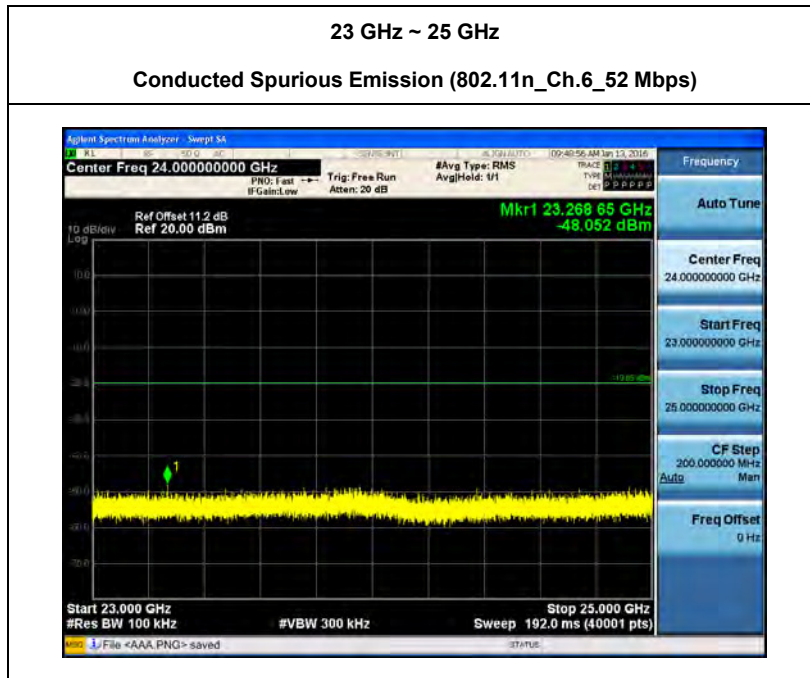
Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



21 GHz ~ 23 GHz

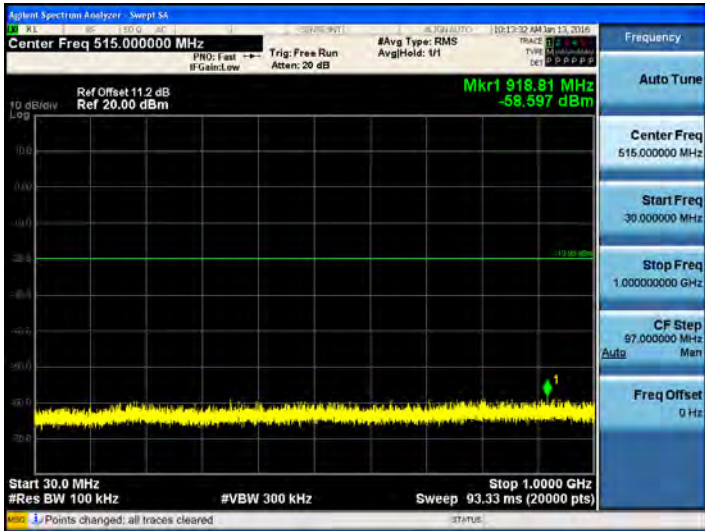
Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



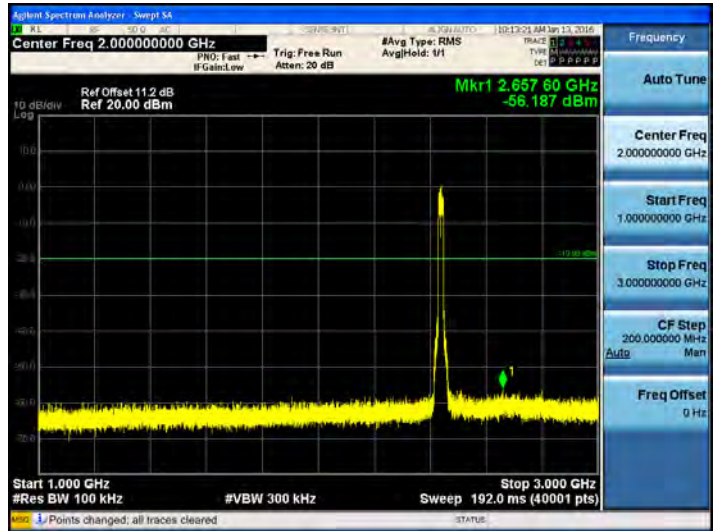


Service_Ant.2

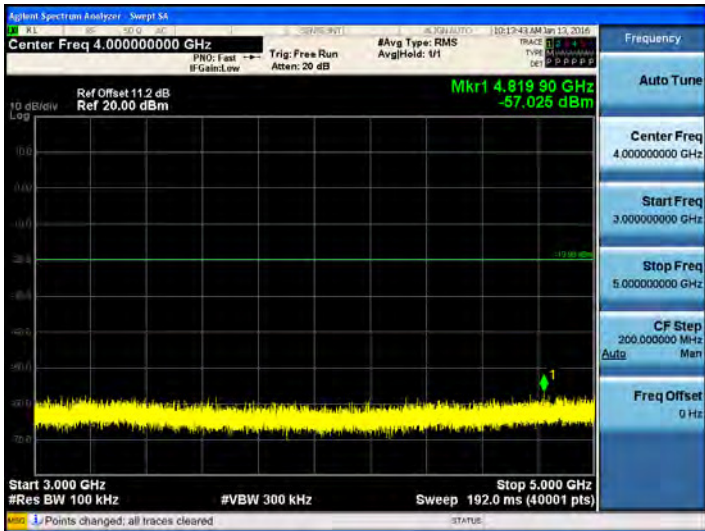
30 MHz ~ 1 GHz
Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



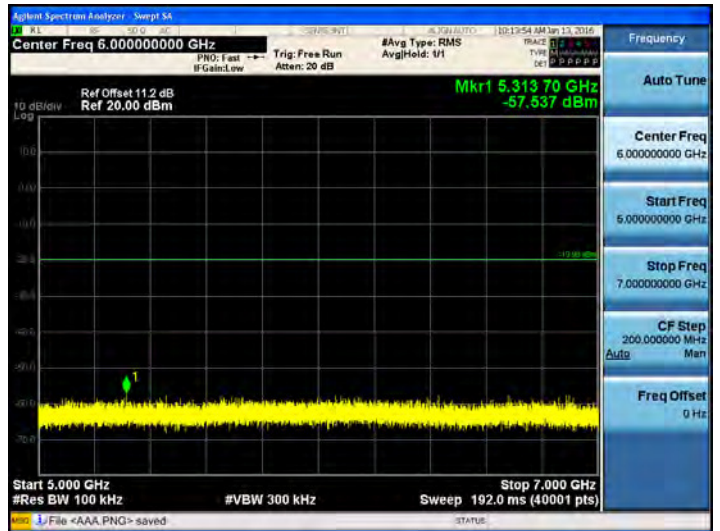
1 GHz ~ 3 GHz
Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



3 GHz ~ 5 GHz
Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)

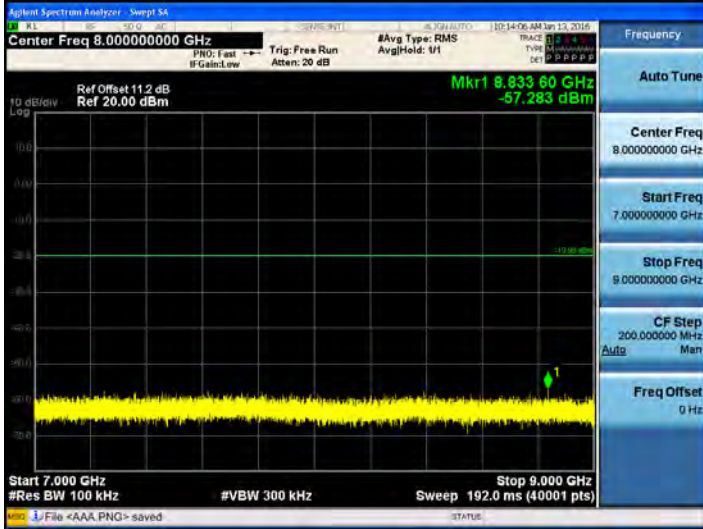


5 GHz ~ 7 GHz
Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



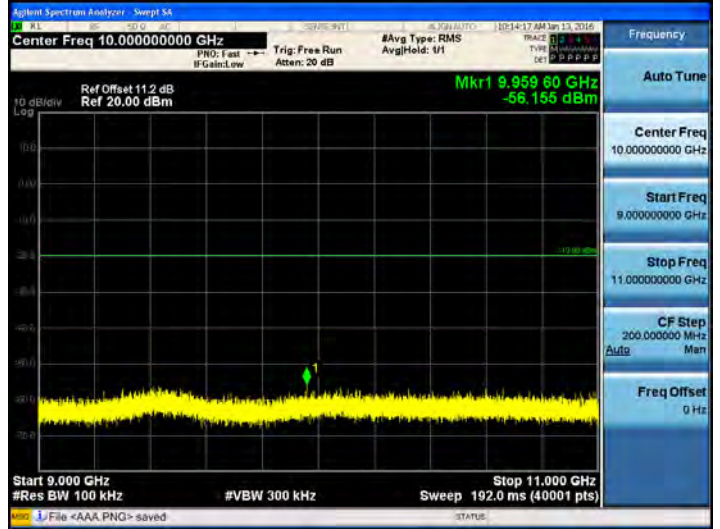
7 GHz ~ 9 GHz

Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



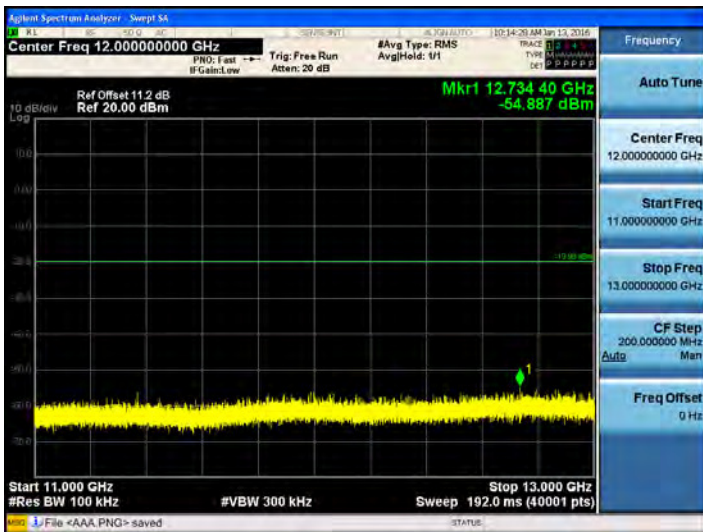
9 GHz ~ 11 GHz

Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



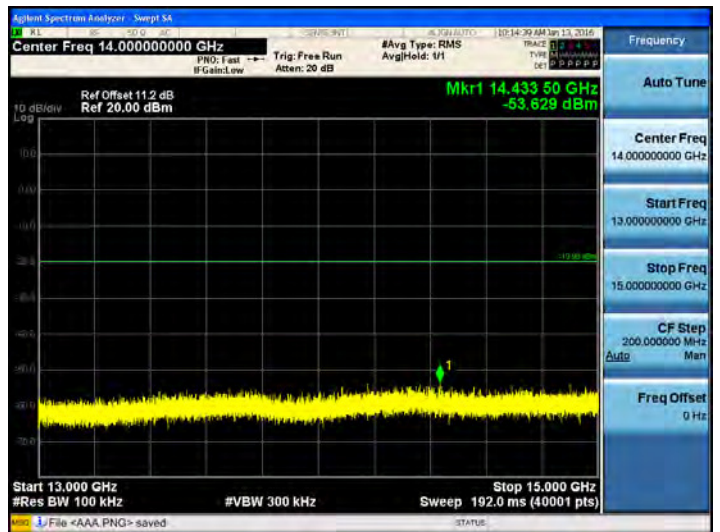
11 GHz ~ 13 GHz

Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



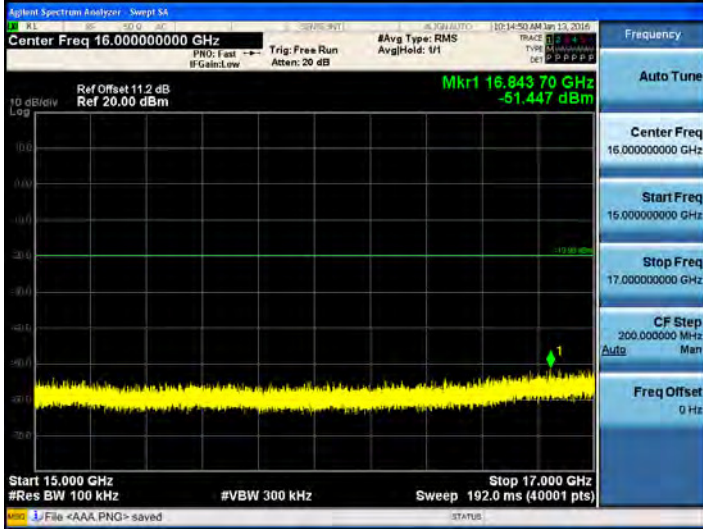
13 GHz ~ 15 GHz

Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



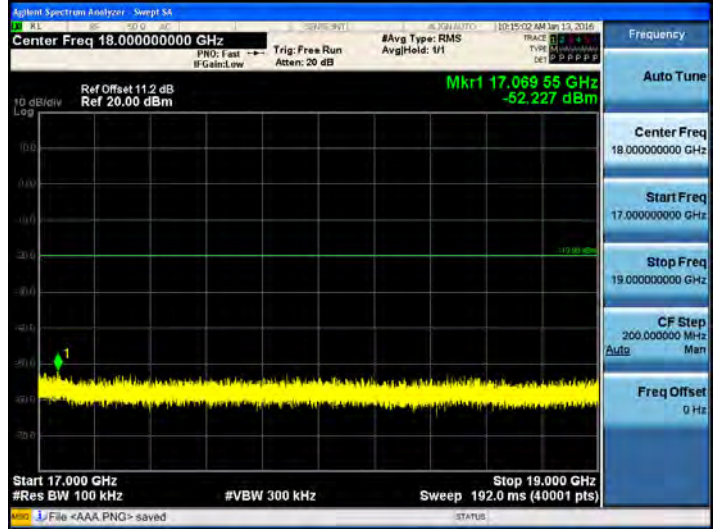
15 GHz ~ 17 GHz

Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



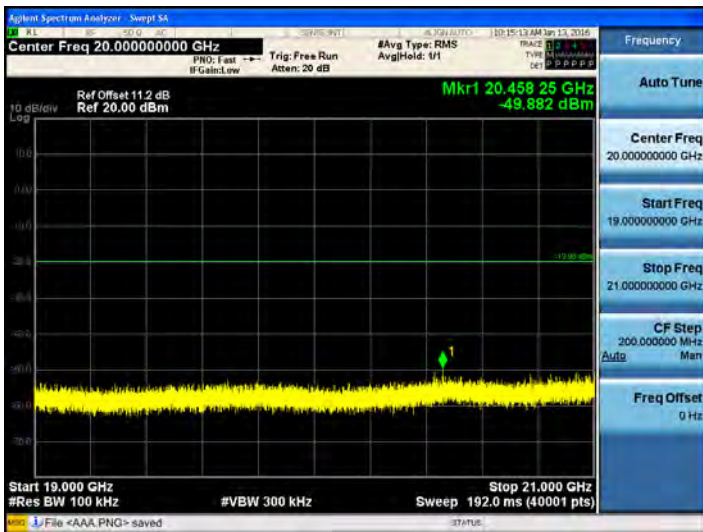
17 GHz ~ 19 GHz

Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



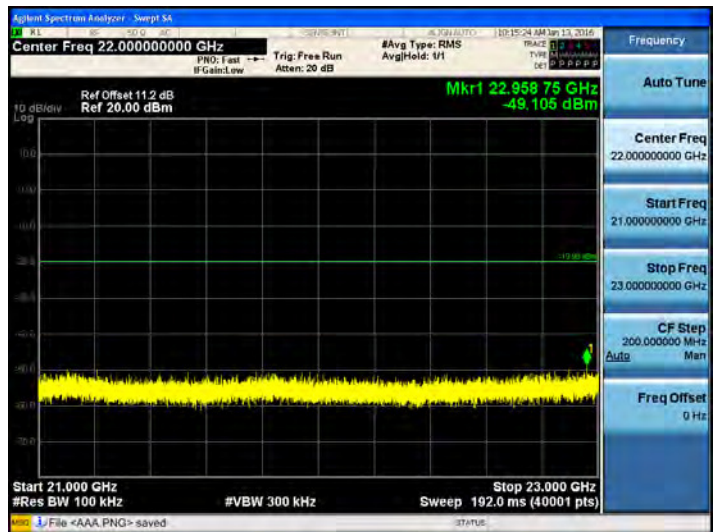
19 GHz ~ 21 GHz

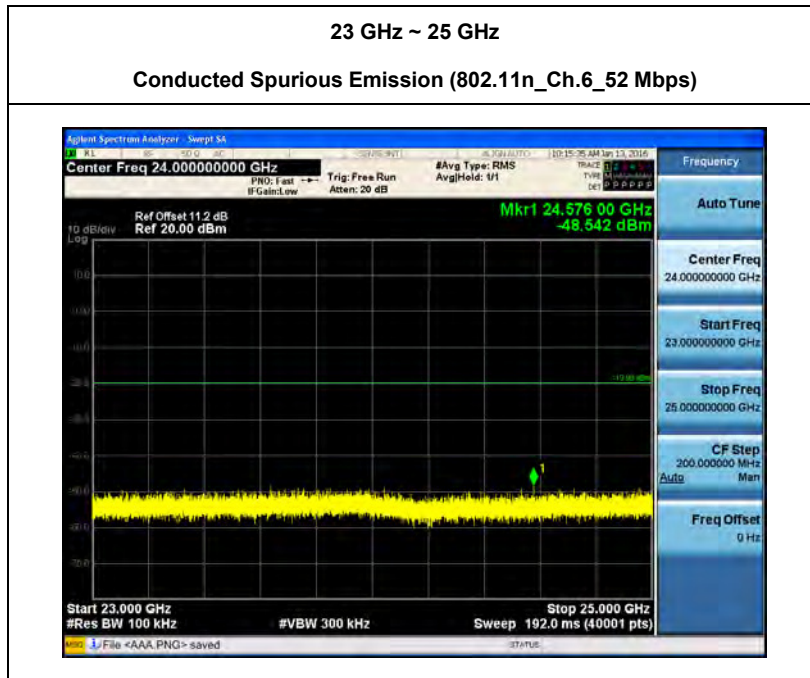
Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)



21 GHz ~ 23 GHz

Conducted Spurious Emission (802.11n_Ch.6_52 Mbps)





8.7 RADIATED MEASUREMENT

8.7.1 RADIATED SPURIOUS EMISSIONS.

Test Requirements and limit, §15.205, §15.209

Frequency (MHz)	Field Strength (uV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

■ Test case

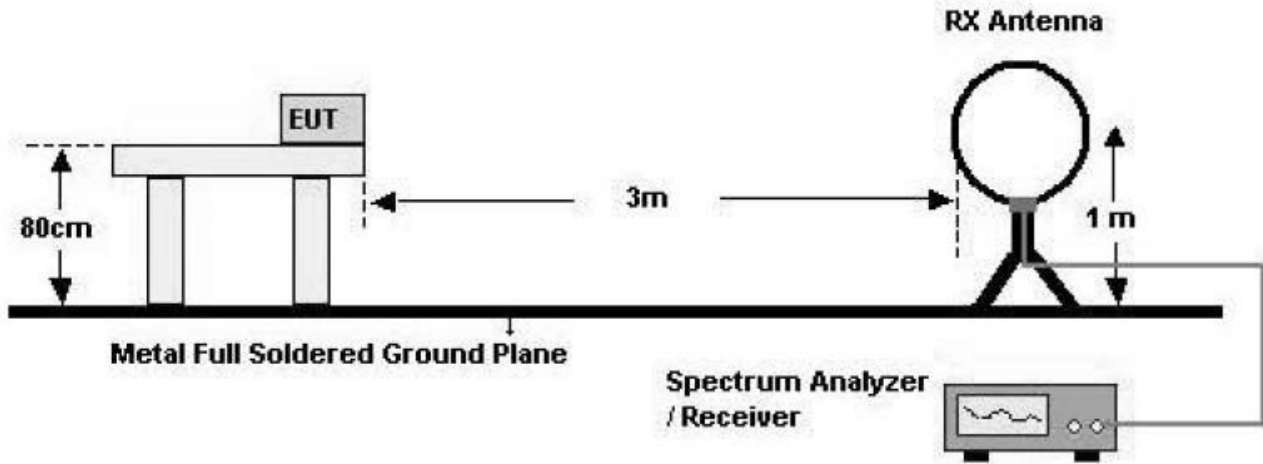
2.4 GHz Band

Port	Operating Mode	Mode	Operating Ant.
Monitoring	802.11b	SISO	Ant 0(Worst Case)
	802.11g	MIMO	Ant 0 & 1 & 2(Worst Case)
Service	802.11b/g/n	SISO	Ant 0
			Ant 1
			Ant 2
	802.11g/n	MIMO	Ant 0 & 1
			Ant 0 & 1 & 2(Worst Case)

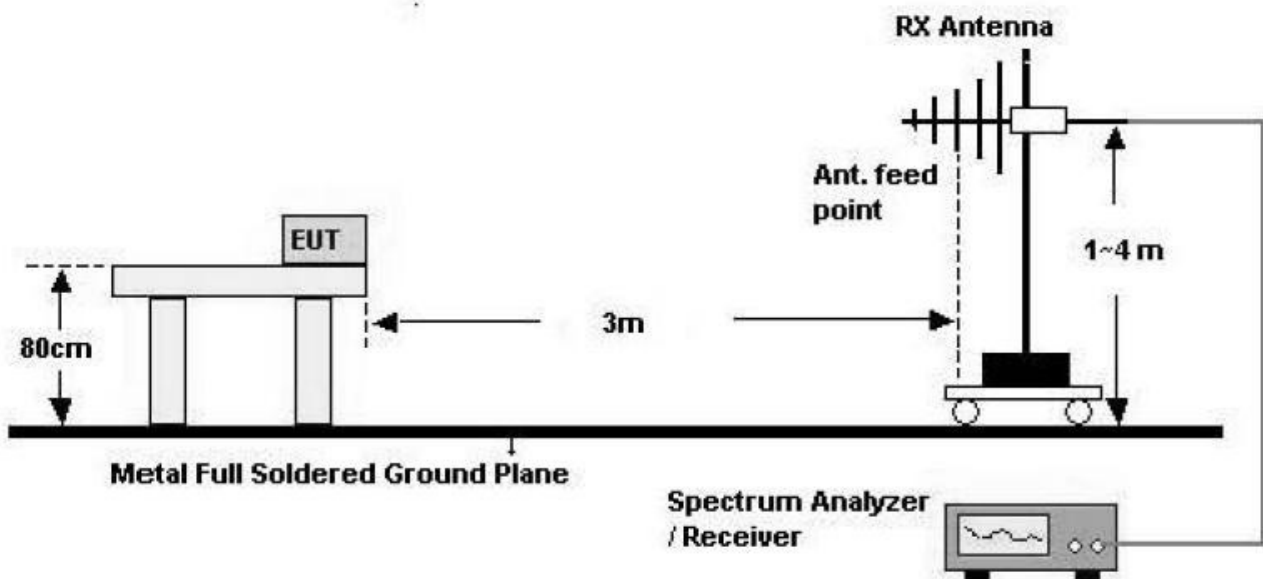
Note : In case of radiation test, we have done all test case. We attached the result of worst case for 802.11b/g/n mode.

Test Configuration

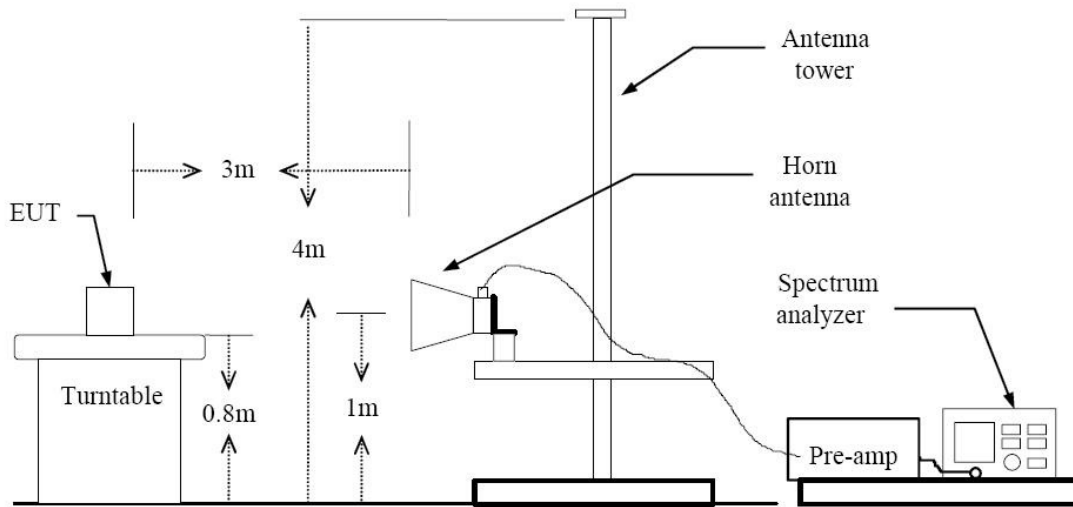
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



TEST PROCEDURE USED

Method 12.1 in KDB 558074, issued 01/07/2016

Spectrum Setting

- Peak

Peak emission levels are measured by setting the instrument as follows:

RBW = cf. Table 1.

VBW \geq 3 x RBW.

Detector = Peak.

Sweep time = auto.

Trace mode = max hold.

Allow sweeps to continue until the trace stabilizes.

(Note that the required measurement time may be longer for low duty cycle applications).

Table 1 —RBW as a function of frequency

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

- Average (duty cycle \geq 98%)

Set RBW = 1 MHz

Set VBW \geq 3 x RBW

Detector = RMS

Averaging type = power (*i.e.*, RMS).

Sweep time = auto.

Trace mode = average (at least 100 traces).

- Average (duty cycle < 98%, duty cycle variations are less than $\pm 2\%$)

Set RBW = 1 MHz

Set VBW \geq 3 x RBW

Detector = RMS.

Averaging type = power (*i.e.*, RMS).

Sweep time = auto.

Trace mode = average (at least 100 traces).

A correction factor shall be added to the measurement results prior to comparing to the emission limit in order to compute the emission level that would have been measured had the test been performed at 100 percent duty cycle.

Note :

The duty cycle factor for 802.11 b/g/n_20MHz

Mode	Worst Data rate (Mbps)	T _{on} (ms)	T _{total} (ms)	Duty Cycle (%)	Duty Cycle Factor (dB)
b	1	12.420	13.050	95.17	0.22
g	6	2.070	2.180	94.95	0.22
n_20MHz	6.5	1.921	2.019	95.15	0.22

TEST RESULTS

9 kHz – 30MHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dB μ V	dB /m	dB	(H/V)	dB μ V/m	dB μ V/m	dB
No Critical peaks found							

Notes:

1. Measuring frequencies from 9 kHz to the 30MHz.
2. The reading of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
3. Distance extrapolation factor = 40 log (specific distance / test distance) (dB)
4. Limit line = specific Limits (dBuV) + Distance extrapolation factor
5. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

TEST RESULTS

Below 1 GHz

Operation Mode: Normal Mode

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dB μ V	dB /m	dB	(H/V)	dB μ V/m	dB μ V/m	dB
No Critical peaks found							

Notes:

1. Measuring frequencies from 30 MHz to the 1 GHz.
2. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Monitoring

Above 1 GHz

Operation Mode: 802.11 b
 Transfer Rate: 1 Mbps
 Operating Frequency: 2412
 Channel No.: 01 Ch

Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4824	54.74	0.00	-2.83	V	51.91	73.98	22.07	PK
4824	48.24	0.22	-2.83	V	45.63	53.98	8.35	AV
7236	46.48	0.00	6.74	V	53.22	73.98	20.76	PK
7236	34.11	0.22	6.74	V	41.07	53.98	12.91	AV
4824	55.25	0.00	-2.83	H	52.42	73.98	21.56	PK
4824	49.00	0.22	-2.83	H	46.39	53.98	7.59	AV
7236	46.54	0.00	6.74	H	53.28	73.98	20.70	PK
7236	34.15	0.22	6.74	H	41.11	53.98	12.87	AV

Operation Mode: 802.11 g
 Transfer Rate: 6 Mbps
 Operating Frequency: 2412
 Channel No.: 01 Ch

Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4824	50.33	0.00	-2.83	V	47.50	73.98	26.48	PK
4824	38.86	0.22	-2.83	V	36.25	53.98	17.73	AV
7236	46.51	0.00	6.74	V	53.25	73.98	20.73	PK
7236	34.12	0.22	6.74	V	41.08	53.98	12.90	AV
4824	50.86	0.00	-2.83	H	48.03	73.98	25.95	PK
4824	39.40	0.22	-2.83	H	36.79	53.98	17.19	AV
7236	46.61	0.00	6.74	H	53.35	73.98	20.63	PK
7236	34.14	0.22	6.74	H	41.10	53.98	12.88	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Factor(802.11b/g)
5. We have done 802.11b/g mode and all data rate. Worst data rate is the lowest data of each mode.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Operation Mode: 802.11 b
 Transfer Rate: 1 Mbps
 Operating Frequency: 2437
 Channel No.: 06 Ch

Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4874	58.04	0.00	-2.61	V	55.43	73.98	18.55	PK
4874	54.10	0.22	-2.61	V	51.71	53.98	2.27	AV
7311	46.59	0.00	6.17	V	52.76	73.98	21.22	PK
7311	34.74	0.22	6.17	V	41.13	53.98	12.85	AV
4874	58.52	0.00	-2.61	H	55.91	73.98	18.07	PK
4874	54.71	0.22	-2.61	H	52.32	53.98	1.66	AV
7311	46.68	0.00	6.17	H	52.85	73.98	21.13	PK
7311	34.80	0.22	6.17	H	41.19	53.98	12.79	AV

Operation Mode: 802.11 g
 Transfer Rate: 6 Mbps
 Operating Frequency: 2437
 Channel No.: 06 Ch

Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4874	51.32	0.00	-2.61	V	48.71	73.98	25.27	PK
4874	39.11	0.22	-2.61	V	36.72	53.98	17.26	AV
7311	46.56	0.00	6.17	V	52.73	73.98	21.25	PK
7311	34.72	0.22	6.17	V	41.11	53.98	12.87	AV
4874	51.78	0.00	-2.61	H	49.17	73.98	24.81	PK
4874	39.46	0.22	-2.61	H	37.07	53.98	16.91	AV
7311	46.65	0.00	6.17	H	52.82	73.98	21.16	PK
7311	34.74	0.22	6.17	H	41.13	53.98	12.85	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Factor(802.11b/g)
5. We have done 802.11b/g mode and all data rate. Worst data rate is the lowest data of each mode.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Operation Mode: 802.11 b
 Transfer Rate: 1 Mbps
 Operating Frequency 2462
 Channel No. 11 Ch

Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4924	57.89	0.00	-2.42	V	55.47	73.98	18.51	PK
4924	53.89	0.22	-2.42	V	51.69	53.98	2.29	AV
7386	45.90	0.00	6.33	V	52.23	73.98	21.75	PK
7386	33.63	0.22	6.33	V	40.18	53.98	13.80	AV
4924	58.35	0.00	-2.42	H	55.93	73.98	18.05	PK
4924	54.56	0.22	-2.42	H	52.36	53.98	1.62	AV
7386	45.94	0.00	6.33	H	52.27	73.98	21.71	PK
7386	33.65	0.22	6.33	H	40.20	53.98	13.78	AV

Operation Mode: 802.11 g
 Transfer Rate: 6 Mbps
 Operating Frequency 2462
 Channel No. 11 Ch

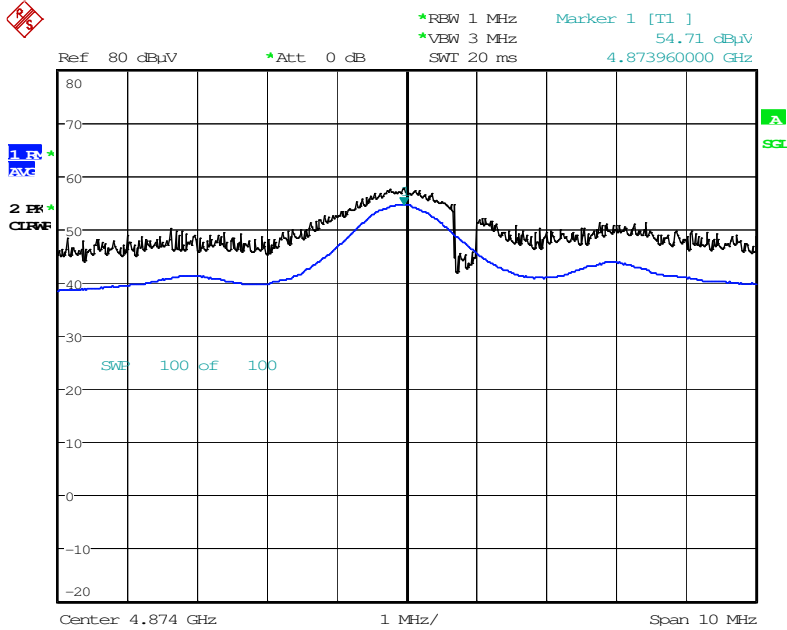
Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4924	53.48	0.00	-2.42	V	51.06	73.98	22.92	PK
4924	39.24	0.22	-2.42	V	37.04	53.98	16.94	AV
7386	45.81	0.00	6.33	V	52.14	73.98	21.84	PK
7386	33.60	0.22	6.33	V	40.15	53.98	13.83	AV
4924	54.03	0.00	-2.42	H	51.61	73.98	22.37	PK
4924	39.75	0.22	-2.42	H	37.55	53.98	16.43	AV
7386	45.89	0.00	6.33	H	52.22	73.98	21.76	PK
7386	33.63	0.22	6.33	H	40.18	53.98	13.80	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Factor(802.11b/g)
5. We have done 802.11b/g mode and all data rate. Worst data rate is the lowest data of each mode.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

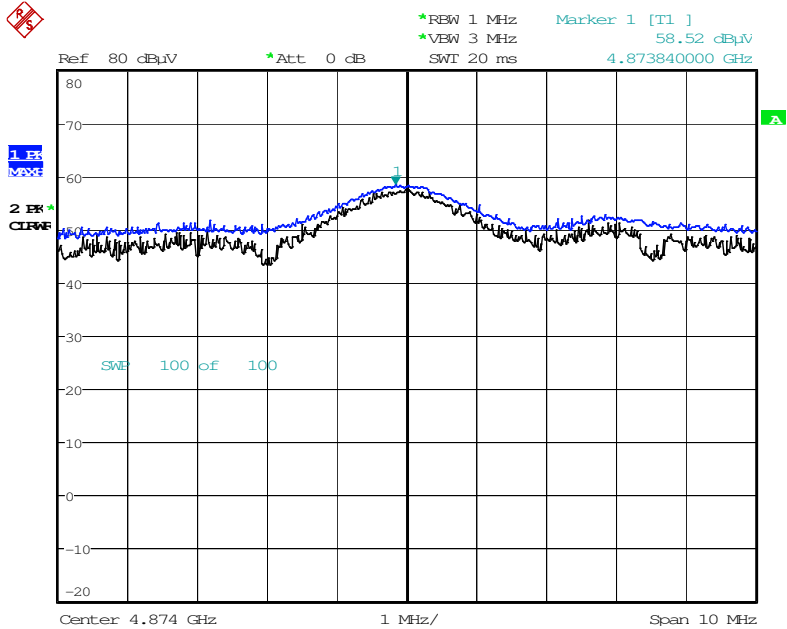
■ **RESULT PLOTS_Monitoring**

Radiated Spurious Emissions plot – Average Reading (802.11b, Ch.6 2nd Harmonic)



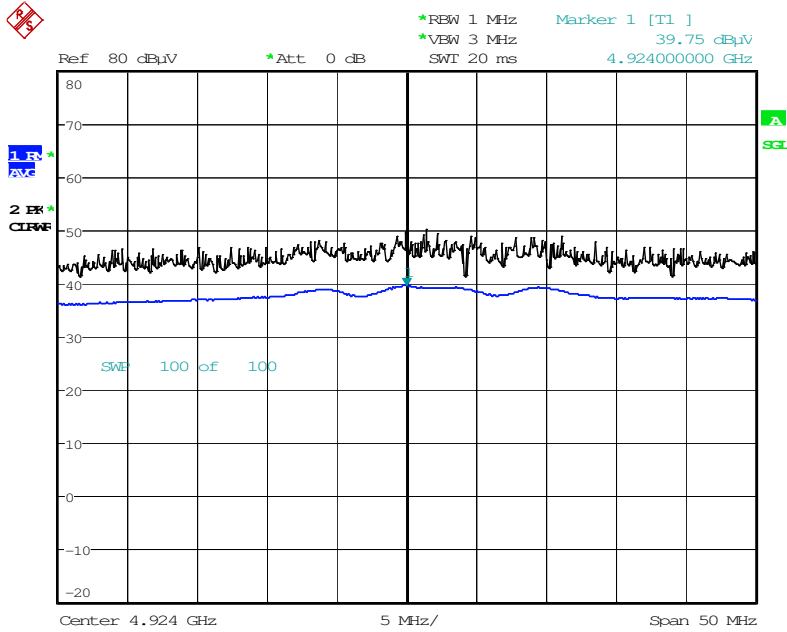
Date: 23.DEC.2015 02:03:09

Radiated Spurious Emissions plot – Peak Reading (802.11b, Ch.6 2nd Harmonic)



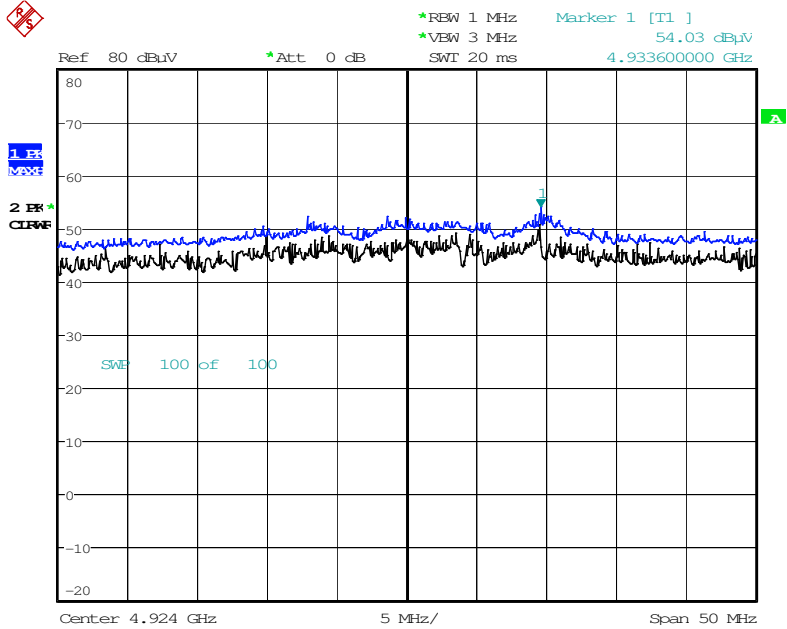
Date: 23.DEC.2015 02:03:53

Radiated Spurious Emissions plot – Average Reading (802.11g, Ch.11 2nd Harmonic)



Date: 23.DEC.2015 02:15:54

Radiated Spurious Emissions plot – Peak Reading (802.11g, Ch.1 2nd Harmonic)



Date: 23.DEC.2015 02:16:19

Note : Only the worst case plots for Radiated Spurious Emissions.

Service

Above 1 GHz

Operation Mode: 802.11 b
 Transfer Rate: 1 Mbps
 Operating Frequency: 2412
 Channel No. 01 Ch

Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4824	49.54	0.00	-2.83	V	46.71	73.98	27.27	PK
4824	41.21	0.22	-2.83	V	38.60	53.98	15.38	AV
7236	47.13	0.00	6.74	V	53.87	73.98	20.11	PK
7236	34.94	0.22	6.74	V	41.90	53.98	12.08	AV
4824	50.74	0.00	-2.83	H	47.91	73.98	26.07	PK
4824	42.68	0.22	-2.83	H	40.07	53.98	13.91	AV
7236	47.26	0.00	6.74	H	54.00	73.98	19.98	PK
7236	35.00	0.22	6.74	H	41.96	53.98	12.02	AV

Operation Mode: 802.11 g
 Transfer Rate: 6 Mbps
 Operating Frequency: 2412
 Channel No. 01 Ch

Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4824	51.02	0.00	-2.83	V	48.19	73.98	25.79	PK
4824	38.54	0.22	-2.83	V	35.93	53.98	18.05	AV
7236	47.15	0.00	6.74	V	53.89	73.98	20.09	PK
7236	34.95	0.22	6.74	V	41.91	53.98	12.07	AV
4824	52.22	0.00	-2.83	H	49.39	73.98	24.59	PK
4824	39.68	0.22	-2.83	H	37.07	53.98	16.91	AV
7236	47.22	0.00	6.74	H	53.96	73.98	20.02	PK
7236	34.98	0.22	6.74	H	41.94	53.98	12.04	AV

Operation Mode: 802.11 n_20MHz BW
 Transfer MCS Index: 0
 Operating Frequency 2412
 Channel No. 01 Ch

Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4824	50.89	0.00	-2.83	V	48.06	73.98	25.92	PK
4824	37.67	0.22	-2.83	V	35.06	53.98	18.92	AV
7236	47.11	0.00	6.74	V	53.85	73.98	20.13	PK
7236	34.90	0.22	6.74	V	41.86	53.98	12.12	AV
4824	51.73	0.00	-2.83	H	48.90	73.98	25.08	PK
4824	39.57	0.22	-2.83	H	36.96	53.98	17.02	AV
7236	47.18	0.00	6.74	H	53.92	73.98	20.06	PK
7236	34.95	0.22	6.74	H	41.91	53.98	12.07	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Factor(802.11b/g/n)
5. We have done 802.11b/g/n mode and all data rate. Worst data rate is the lowest data of each mode.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Operation Mode: 802.11 b
 Transfer Rate: 1 Mbps
 Operating Frequency: 2437
 Channel No.: 06 Ch

Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4874	53.67	0.00	-2.61	V	51.06	73.98	22.92	PK
4874	47.66	0.22	-2.61	V	45.27	53.98	8.71	AV
7311	46.39	0.00	6.17	V	52.56	73.98	21.42	PK
7311	34.51	0.22	6.17	V	40.90	53.98	13.08	AV
4874	54.93	0.00	-2.61	H	52.32	73.98	21.66	PK
4874	49.11	0.22	-2.61	H	46.72	53.98	7.26	AV
7311	46.46	0.00	6.17	H	52.63	73.98	21.35	PK
7311	34.55	0.22	6.17	H	40.94	53.98	13.04	AV

Operation Mode: 802.11 g
 Transfer Rate: 6 Mbps
 Operating Frequency: 2437
 Channel No.: 06 Ch

Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4874	53.32	0.00	-2.61	V	50.71	73.98	23.27	PK
4874	40.22	0.22	-2.61	V	37.83	53.98	16.15	AV
7311	46.41	0.00	6.17	V	52.58	73.98	21.40	PK
7311	34.49	0.22	6.17	V	40.88	53.98	13.10	AV
4874	54.14	0.00	-2.61	H	51.53	73.98	22.45	PK
4874	41.46	0.22	-2.61	H	39.07	53.98	14.91	AV
7311	46.50	0.00	6.17	H	52.67	73.98	21.31	PK
7311	34.57	0.22	6.17	H	40.96	53.98	13.02	AV

Operation Mode: 802.11 n_20 MHz BW
 Transfer MCS Index: 0
 Operating Frequency: 2437
 Channel No.: 06 Ch

Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4874	52.34	0.00	-2.61	V	49.73	73.98	24.25	PK
4874	40.66	0.22	-2.61	V	38.27	53.98	15.71	AV
7311	46.38	0.00	6.17	V	52.55	73.98	21.43	PK
7311	34.43	0.22	6.17	V	40.82	53.98	13.16	AV
4874	53.11	0.00	-2.61	H	50.50	73.98	23.48	PK
4874	41.48	0.22	-2.61	H	39.09	53.98	14.89	AV
7311	46.47	0.00	6.17	H	52.64	73.98	21.34	PK
7311	34.52	0.22	6.17	H	40.91	53.98	13.07	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Factor(802.11b/g/n)
5. We have done 802.11b/g/n mode and all data rate. Worst data rate is the lowest data of each mode.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

Operation Mode: 802.11 b
 Transfer Rate: 1 Mbps
 Operating Frequency: 2462
 Channel No.: 11 Ch

Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4924	52.41	0.00	-2.42	V	49.99	73.98	23.99	PK
4924	46.84	0.22	-2.42	V	44.64	53.98	9.34	AV
7386	45.50	0.00	6.33	V	51.83	73.98	22.15	PK
7386	33.67	0.22	6.33	V	40.22	53.98	13.76	AV
4924	53.52	0.00	-2.42	H	51.10	73.98	22.88	PK
4924	48.11	0.22	-2.42	H	45.91	53.98	8.07	AV
7386	45.56	0.00	6.33	H	51.89	73.98	22.09	PK
7386	33.70	0.22	6.33	H	40.25	53.98	13.73	AV

Operation Mode: 802.11 g
 Transfer Rate: 6 Mbps
 Operating Frequency: 2462
 Channel No.: 11 Ch

Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4924	55.84	0.00	-2.42	V	53.42	73.98	20.56	PK
4924	41.74	0.22	-2.42	V	39.54	53.98	14.44	AV
7386	45.51	0.00	6.33	V	51.84	73.98	22.14	PK
7386	33.66	0.22	6.33	V	40.21	53.98	13.77	AV
4924	57.51	0.00	-2.42	H	55.09	73.98	18.89	PK
4924	42.89	0.22	-2.42	H	40.69	53.98	13.29	AV
7386	45.52	0.00	6.33	H	51.85	73.98	22.13	PK
7386	33.68	0.22	6.33	H	40.23	53.98	13.75	AV

Operation Mode: 802.11 n_20 MHz BW
 Transfer MCS Index: 0
 Operating Frequency 2462
 Channel No. 11 Ch

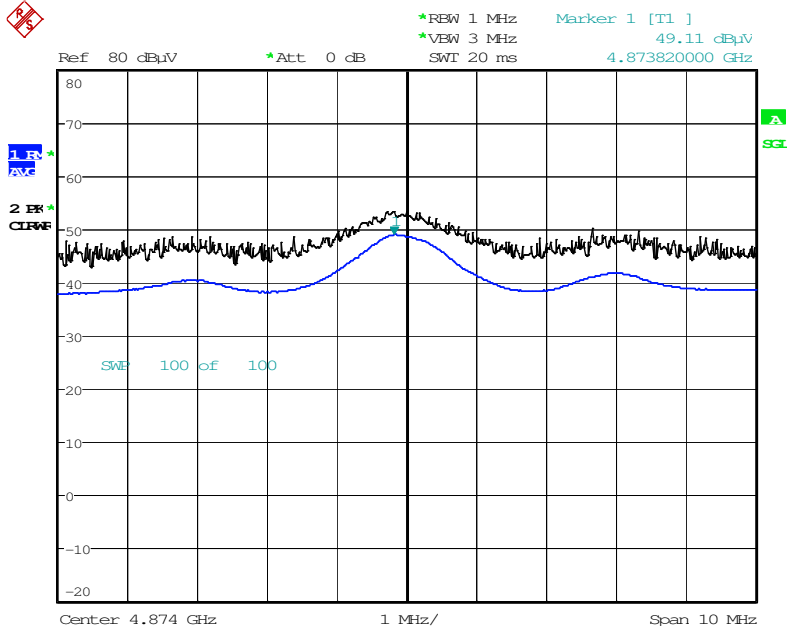
Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL-AMP G [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
4924	54.88	0.00	-2.42	V	52.46	73.98	21.52	PK
4924	42.34	0.22	-2.42	V	40.14	53.98	13.84	AV
7386	45.47	0.00	6.33	V	51.80	73.98	22.18	PK
7386	33.62	0.22	6.33	V	40.17	53.98	13.81	AV
4924	56.68	0.00	-2.42	H	54.26	73.98	19.72	PK
4924	43.54	0.22	-2.42	H	41.34	53.98	12.64	AV
7386	45.47	0.00	6.33	H	51.80	73.98	22.18	PK
7386	33.62	0.22	6.33	H	40.17	53.98	13.81	AV

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.
3. Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.
4. Total = Reading Value + Antenna Factor + Cable Loss - Amp Gain + Duty Cycle Factor(802.11b/g/n)
5. We have done 802.11b/g/n mode and all data rate. Worst data rate is the lowest data of each mode.
6. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

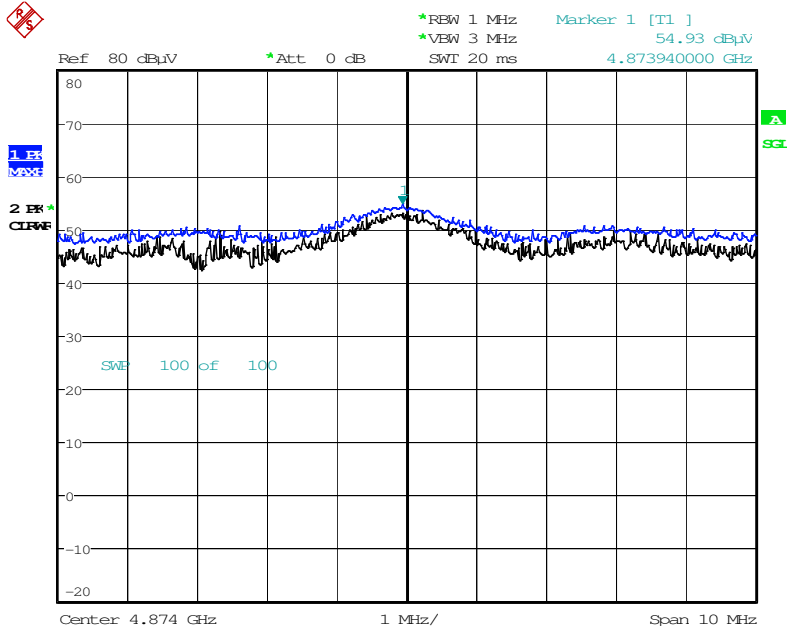
▣ RESULT PLOTS_Service

Radiated Spurious Emissions plot – Average Reading (802.11b, Ch.6 2nd Harmonic)



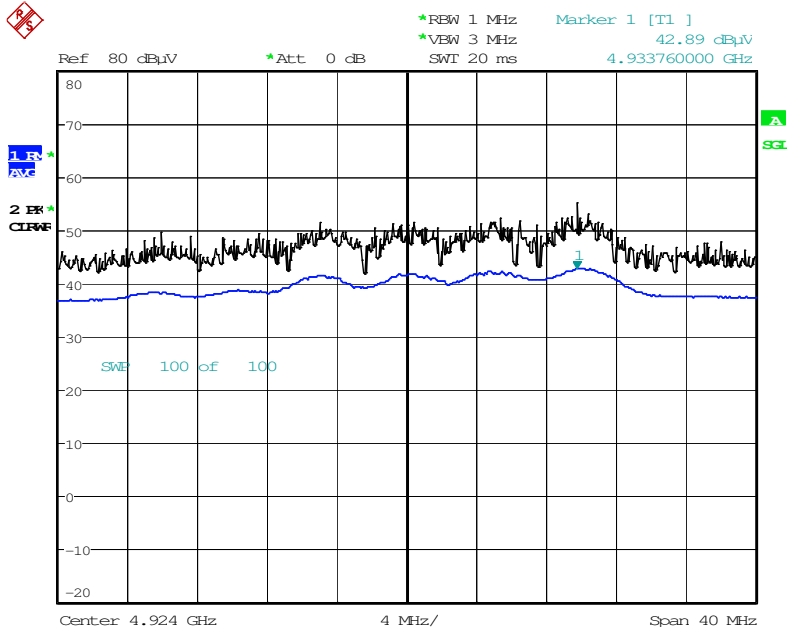
Date: 20.DEC.2015 09:58:34

Radiated Spurious Emissions plot – Peak Reading (802.11b, Ch.6 2nd Harmonic)



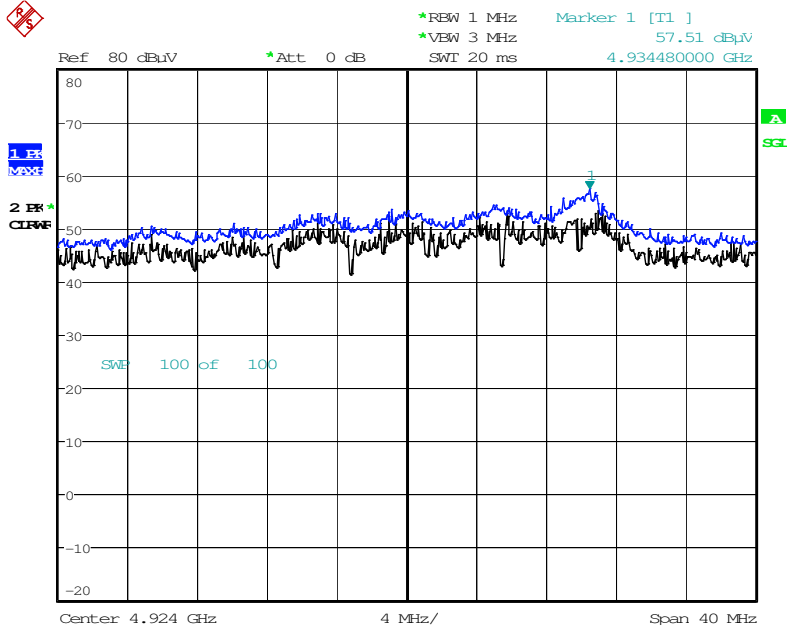
Date: 20.DEC.2015 09:58:56

Radiated Spurious Emissions plot – Average Reading (802.11g, Ch.11 2nd Harmonic)



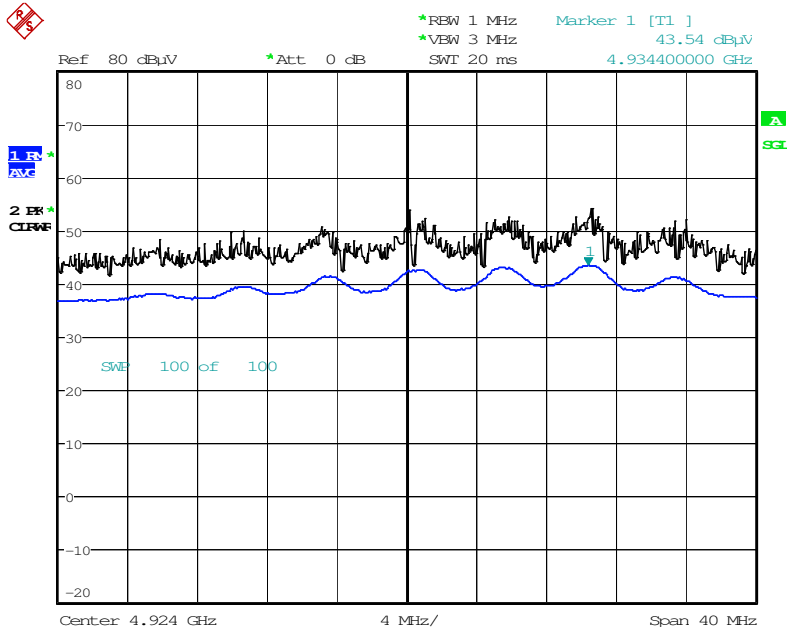
Date: 20.DEC.2015 10:06:54

Radiated Spurious Emissions plot – Peak Reading (802.11g, Ch.11 2nd Harmonic)



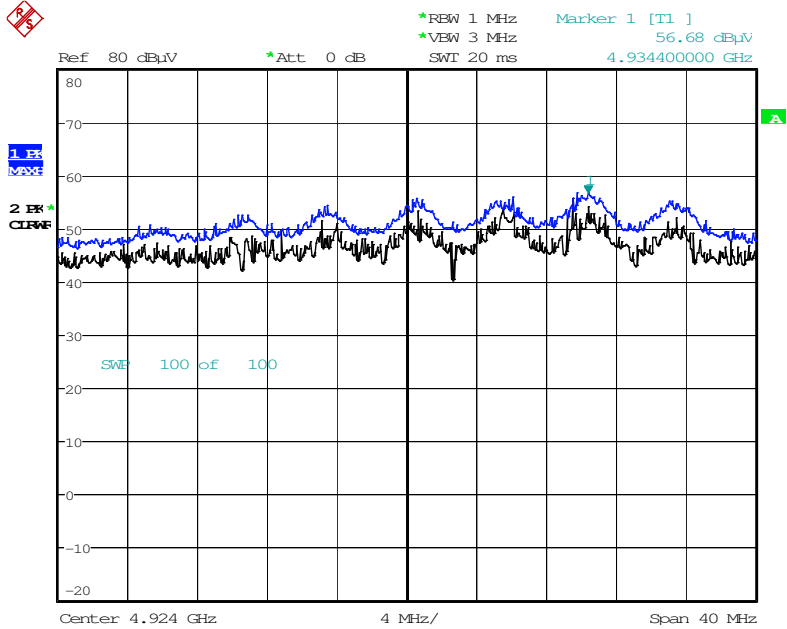
Date: 20.DEC.2015 10:07:08

Radiated Spurious Emissions plot – Average Reading (802.11n, Ch.11 2nd Harmonic)



Date: 20.DEC.2015 10:06:05

Radiated Spurious Emissions plot – Peak Reading (802.11n, Ch.11 2nd Harmonic)



Date: 20.DEC.2015 10:05:48

Note : Only the worst case plots for Radiated Restricted Band Edges.

8.7.2 RECEIVER SPURIOUS EMISSIONS

IC Rule(s) RSS-GEN
 Test Requirements: Below the table
 Operating conditions: Under normal test conditions
 Method of testing: Radiated

S/A. Settings: F < 1 GHz: RBW: 120 kHz, VBW: 300 kHz (Quasi Peak)
 F > 1 GHz: RBW: 1 MHz, VBW: 1 MHz (Peak)
 Mode of operation: Receive

Frequency (MHz)	Field Strength (microvolts/m at 3 meters)
30 – 88	100
88 - 216	150
216 – 960	200
Above 960	500

Operation Mode: Receive:

30 MHz ~ 1 GHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dB μ V	dB /m	dB	(H/V)	dB μ V/m	dB μ V/m	dB
No Critical peaks found							

Above 1 GHz

Frequency	Reading	Ant. factor	Cable loss	Ant. POL	Total	Limit	Margin
MHz	dB μ V	dB /m	dB	(H/V)	dB μ V/m	dB μ V/m	dB
No Critical peaks found							

8.7.3 RADIATED RESTRICTED BAND EDGES

Test Requirements and limit, §15.247(d) §15.205, §15.209

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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)).

Monitoring

Operation Mode:	802.11g
Transfer Rate:	6 Mbps
Operating Frequency	2412 MHz, 2462 MHz
Channel No.	01 Ch, 11 Ch

Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	34.23	0.00	31.31	H	65.54	73.98	8.44	PK
2390.0	19.65	0.22	31.31	H	51.18	53.98	2.80	AV
2390.0	34.60	0.00	31.31	V	65.91	73.98	8.07	PK
2390.0	19.69	0.22	31.31	V	51.22	53.98	2.76	AV
2483.5	37.72	0.00	31.37	H	69.09	73.98	4.89	PK
2483.5	21.79	0.22	31.37	H	53.38	53.98	0.60	AV
2483.5	36.26	0.00	31.37	V	67.63	73.98	6.35	PK
2483.5	17.72	0.22	31.37	V	49.31	53.98	4.67	AV

Operation Mode: 802.11b
 Transfer Rate: 1 Mbps
 Operating Frequency: 2412 MHz, 2462 MHz
 Channel No. 01 Ch, 11 Ch

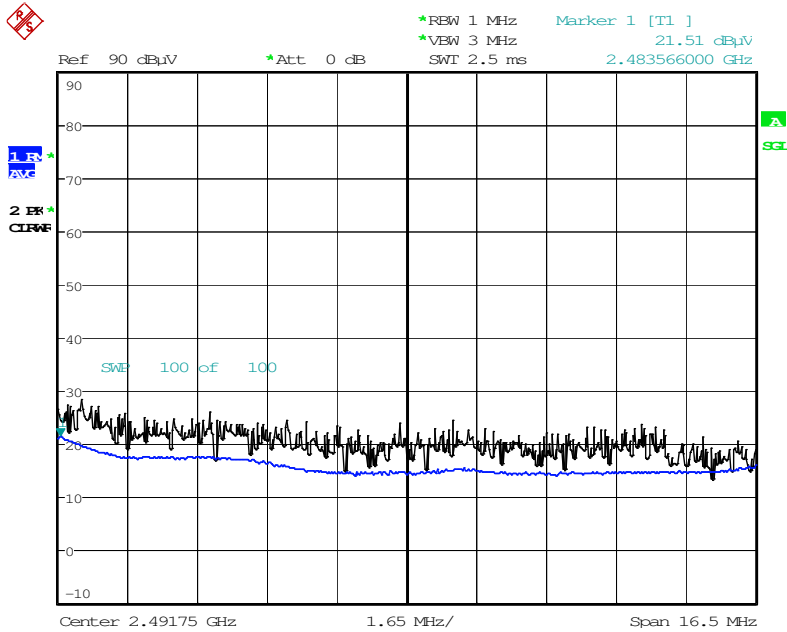
Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	25.64	0.00	31.31	H	56.95	73.98	17.03	PK
2390.0	15.10	0.22	31.31	H	46.63	53.98	7.35	AV
2390.0	26.02	0.00	31.31	V	57.33	73.98	16.65	PK
2390.0	15.60	0.22	31.31	V	47.13	53.98	6.85	AV
2483.5	31.72	0.00	31.37	H	63.09	73.98	10.89	PK
2483.5	21.28	0.22	31.37	H	52.87	53.98	1.11	AV
2483.5	30.70	0.00	31.37	V	62.07	73.98	11.91	PK
2483.5	21.51	0.22	31.37	V	53.10	53.98	0.88	AV

Notes:

1. Total = Reading Value + Antenna Factor + Cable Loss + Duty Cycle Factor(802.11b/g)
2. We have done 802.11b/g mode and all data rate. Worst data rate is the lowest data of each mode.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

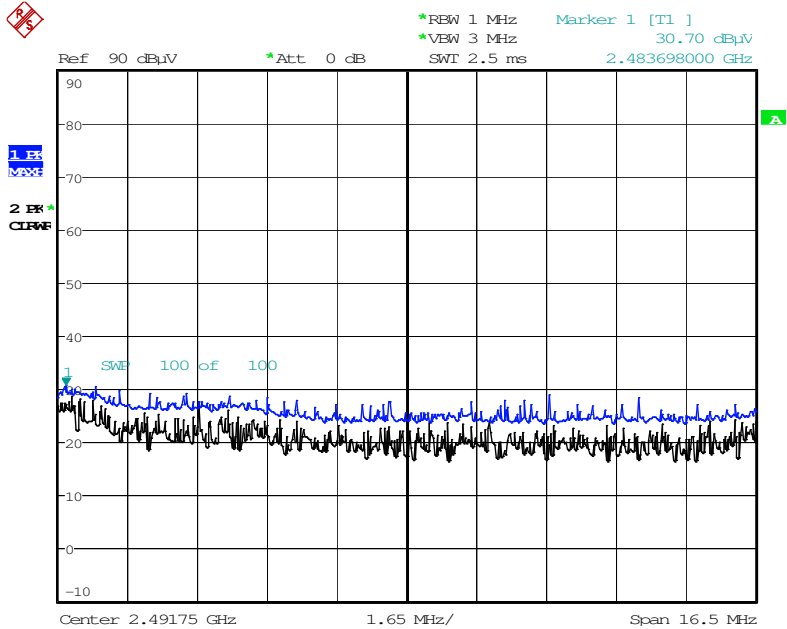
■ **RESULT PLOTS**

Radiated Restricted Band Edges plot – Average Reading (802.11b, Ch.11)



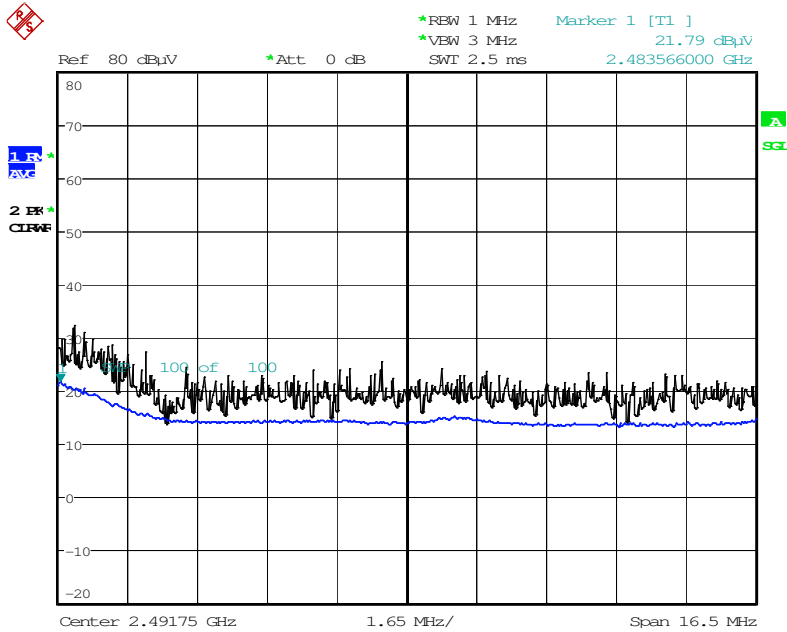
Date: 21.DEC.2015 11:26:16

Radiated Restricted Band Edges plot – Peak Reading (802.11b, Ch.11)



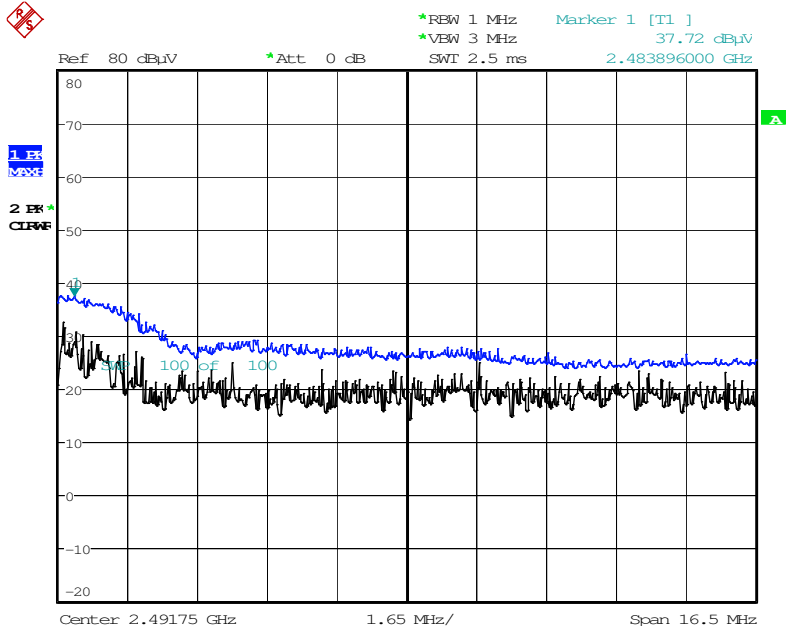
Date: 21.DEC.2015 11:25:21

Radiated Restricted Band Edges plot – Average Reading (802.11g, Ch.11)



Date: 22.DEC.2015 01:06:04

Radiated Restricted Band Edges plot – Peak Reading (802.11g, Ch.11)



Date: 22.DEC.2015 01:07:50

Note : Only the worst case plots for Radiated Restricted Band Edges.

Service

Operation Mode: 802.11g

Transfer Rate: 6 Mbps

Operating Frequency: 2412 MHz, 2462 MHz

Channel No.: 01 Ch, 11 Ch

Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	28.27	0.00	31.31	H	59.58	73.98	14.40	PK
2390.0	14.40	0.22	31.31	H	45.93	53.98	8.05	AV
2390.0	26.28	0.00	31.31	V	57.59	73.98	16.39	PK
2390.0	14.15	0.22	31.31	V	45.68	53.98	8.30	AV
2483.5	37.83	0.00	31.37	H	69.20	73.98	4.78	PK
2483.5	19.91	0.22	31.37	H	51.50	53.98	2.48	AV
2483.5	37.02	0.00	31.37	V	68.39	73.98	5.59	PK
2483.5	17.94	0.22	31.37	V	49.53	53.98	4.45	AV

Operation Mode: 802.11b

Transfer Rate: 1 Mbps

Operating Frequency: 2412 MHz, 2462 MHz

Channel No.: 01 Ch, 11 Ch

Frequency [MHz]	Reading dBuV	A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	25.50	31.31	H	56.81	73.98	17.17	PK
2390.0	14.08	31.31	H	45.39	53.98	8.59	AV
2390.0	25.14	31.31	V	56.45	73.98	17.53	PK
2390.0	14.02	31.31	V	45.33	53.98	8.65	AV
2483.5	24.35	31.37	H	55.72	73.98	18.26	PK
2483.5	13.30	31.37	H	44.67	53.98	9.31	AV
2483.5	24.27	31.37	V	55.64	73.98	18.34	PK
2483.5	13.24	31.37	V	44.61	53.98	9.37	AV

Operation Mode: 802.11n_20MHz BW
 Transfer MCS Index: 0
 Operating Frequency: 2412 MHz, 2462 MHz
 Channel No.: 01 Ch, 11 Ch

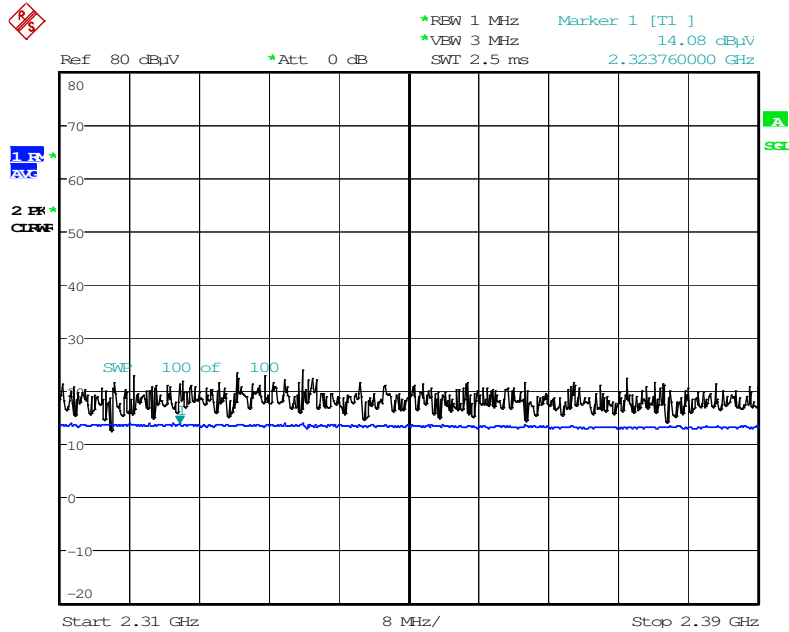
Frequency [MHz]	Reading dBuV	Duty Cycle Factor [dB]	A.F.+CL [dB]	ANT. POL [H/V]	Total [dBuV/m]	Limit [dBuV/m]	Margin [dB]	Measurement Type
2390.0	33.65	0.00	31.31	H	64.96	73.98	9.02	PK
2390.0	14.94	0.22	31.31	H	46.47	53.98	7.51	AV
2390.0	32.84	0.00	31.31	V	64.15	73.98	9.83	PK
2390.0	14.43	0.22	31.31	V	45.96	53.98	8.02	AV
2483.5	36.19	0.00	31.37	H	67.56	73.98	6.42	PK
2483.5	18.87	0.22	31.37	H	50.46	53.98	3.52	AV
2483.5	35.76	0.00	31.37	V	67.13	73.98	6.85	PK
2483.5	17.13	0.22	31.37	V	48.72	53.98	5.26	AV

Notes:

1. Total = Reading Value + Antenna Factor + Cable Loss + Duty Cycle Factor(802.11g/n)
2. We have done 802.11b/g/n mode and all data rate. Worst data rate is the lowest data of each mode.
3. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

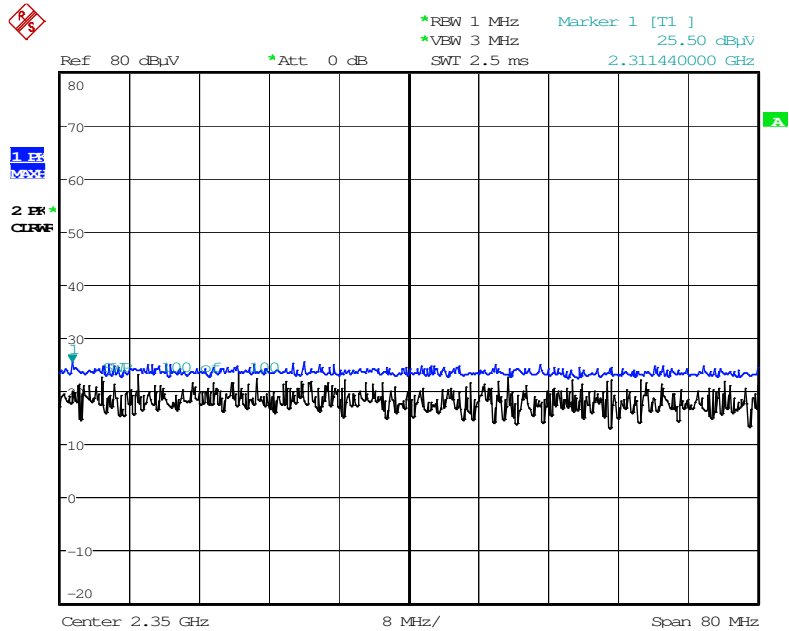
■ **RESULT PLOTS**

Radiated Restricted Band Edges plot – Average Reading (802.11b, Ch.1)



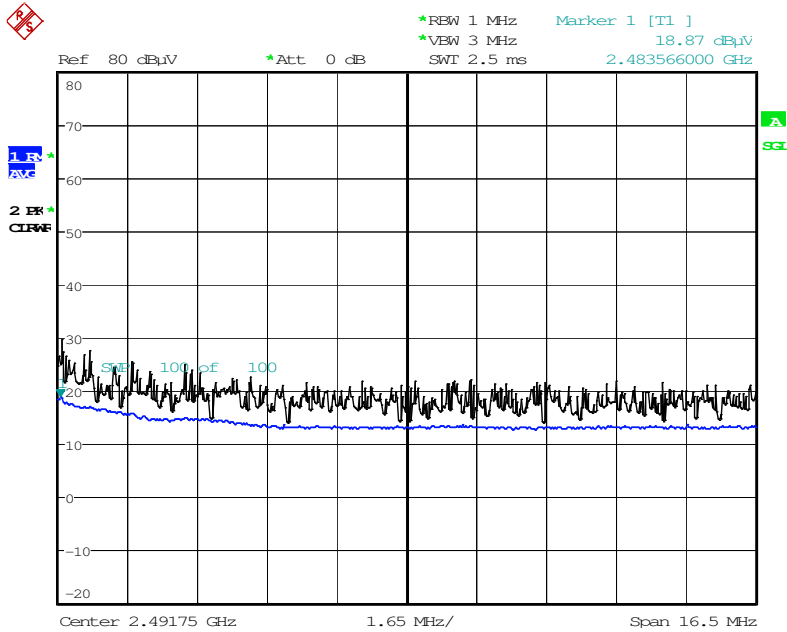
Date: 20.DEC.2015 08:52:11

Radiated Restricted Band Edges plot – Peak Reading (802.11b, Ch.1)



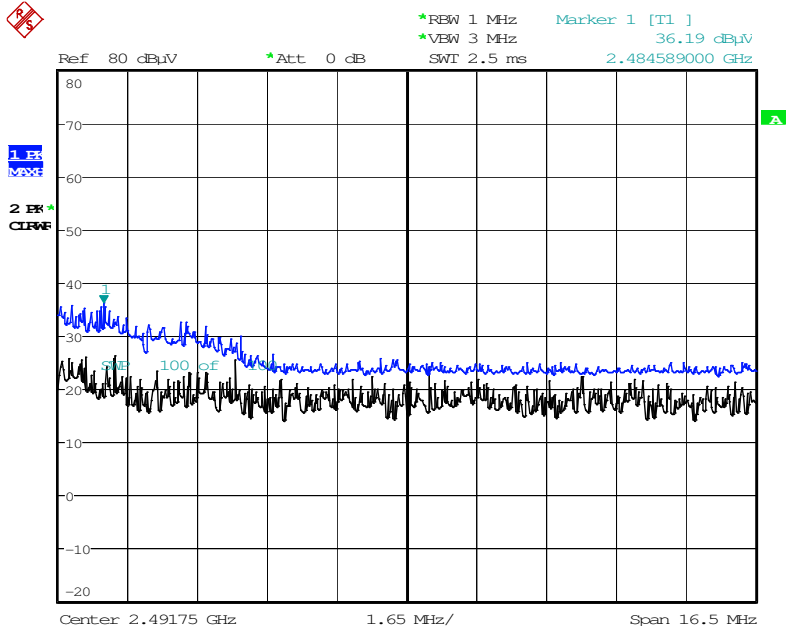
Date: 20.DEC.2015 08:52:51

Radiated Restricted Band Edges plot – Average Reading (802.11n, Ch.11)



Date: 22.DEC.2015 01:47:27

Radiated Restricted Band Edges plot – Peak Reading (802.11n, Ch.11)



Date: 22.DEC.2015 01:47:59

Note : Only the worst case plots for Radiated Restricted Band Edges.

8.8 POWERLINE CONDUCTED EMISSIONS

Test Requirements and limit, §15.207

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

Test Configuration

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

TEST PROCEDURE

1. The EUT is placed on a wooden table 80 cm above the reference ground plane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Measurement Typeors – Quasi Peak and Average Measurement Typeor.
5. We are performed the AC Power Line Conducted Emission test for 36 Mbps, Ch.6 and 802.11g
Because 802.11g mode is worst case.

▣ **RESULT PLOTS**

Conducted Emissions (Line 1)

EMI Auto Test(14)

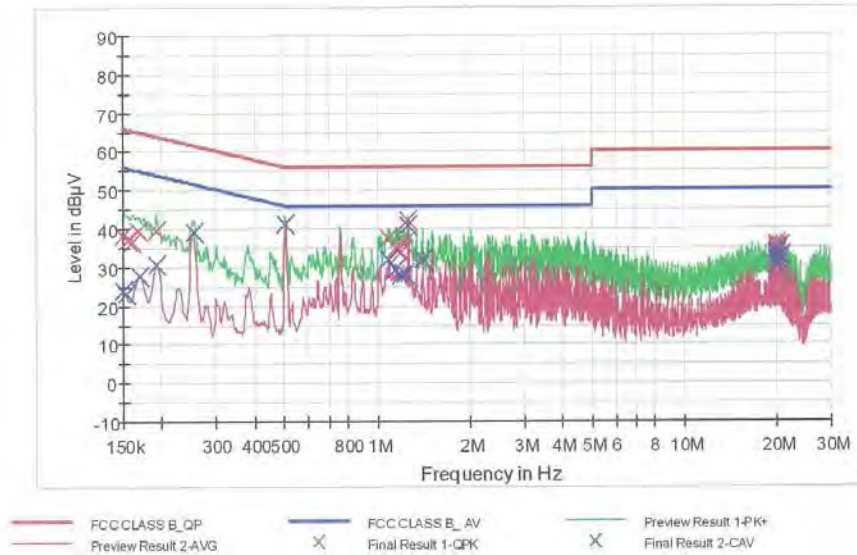
1 / 2

HCT TEST Report

Common Information

EUT: WEA403Si
 Manufacturer: SAMSUNG
 Test Site: SHIELD ROOM
 Operating Conditions: WLAN MODE 2.4G
 Operator Name: SK LEE

FCC CLASS B



Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Gorr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	38.3	9.000	Off	N	9.6	27.7	66.0
0.156000	37.2	9.000	Off	N	9.6	28.5	65.7
0.160000	36.8	9.000	Off	N	9.6	28.7	65.5
0.168000	39.5	9.000	Off	N	9.6	25.6	65.1
0.192000	39.4	9.000	Off	N	9.6	24.5	63.9
0.506000	41.4	9.000	Off	N	9.6	14.6	56.0
1.088000	37.4	9.000	Off	N	9.7	18.6	56.0
1.156000	34.8	9.000	Off	N	9.7	21.2	56.0
1.180000	34.6	9.000	Off	N	9.7	21.4	56.0
1.194000	33.5	9.000	Off	N	9.7	22.5	56.0
1.216000	36.2	9.000	Off	N	9.7	19.8	56.0
1.264000	42.0	9.000	Off	N	9.7	14.0	56.0
19.880000	33.9	9.000	Off	N	10.3	26.1	60.0
19.920000	35.1	9.000	Off	N	10.3	24.9	60.0
20.000000	35.8	9.000	Off	N	10.3	24.2	60.0
20.040000	35.9	9.000	Off	N	10.3	24.1	60.0

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EMI Auto Test(14)

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Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
20.082000	34.8	9.000	Off	N	10.3	25.2	60.0
20.680000	35.3	9.000	Off	N	10.3	24.7	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	24.0	9.000	Off	N	9.6	32.0	56.0
0.154000	23.0	9.000	Off	N	9.6	32.8	55.8
0.170000	27.9	9.000	Off	N	9.6	27.1	55.0
0.192000	30.6	9.000	Off	N	9.6	23.3	53.9
0.254000	39.3	9.000	Off	N	9.6	12.3	51.6
0.506000	41.2	9.000	Off	N	9.6	4.8	46.0
1.090000	32.0	9.000	Off	N	9.7	14.0	46.0
1.156000	29.6	9.000	Off	N	9.7	16.4	46.0
1.194000	27.8	9.000	Off	N	9.7	18.2	46.0
1.238000	28.4	9.000	Off	N	9.7	17.6	46.0
1.264000	40.8	9.000	Off	N	9.7	5.2	46.0
1.410000	31.8	9.000	Off	N	9.7	14.2	46.0
19.880000	30.5	9.000	Off	N	10.3	19.5	50.0
19.920000	32.2	9.000	Off	N	10.3	17.8	50.0
19.960000	33.1	9.000	Off	N	10.3	16.9	50.0
20.000000	33.7	9.000	Off	N	10.3	16.3	50.0
20.040000	34.1	9.000	Off	N	10.3	15.9	50.0
20.680000	32.8	9.000	Off	N	10.3	17.2	50.0

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Conducted Emissions (Line 2)

EMI Auto Test(14)

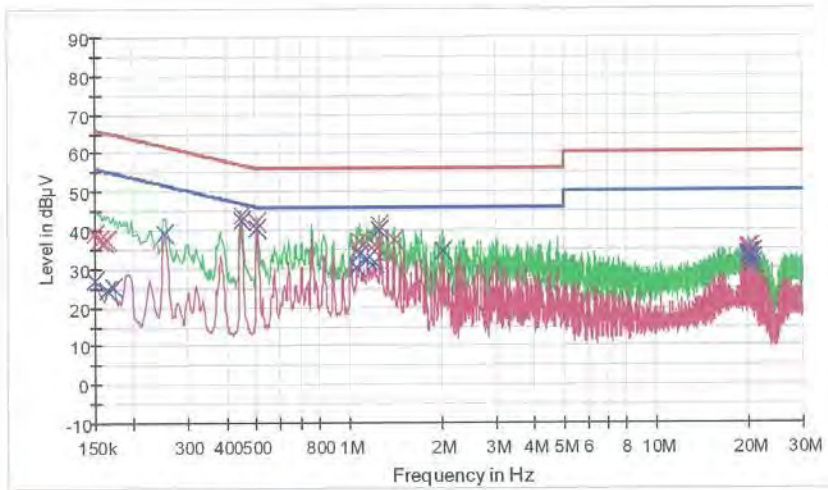
1 / 2

HCT TEST Report

Common Information

EUT: WEA403Si
 Manufacturer: SAMSUNG
 Test Site: SHIELD ROOM
 Operating Conditions: WLAN MODE 2.4G
 Operator Name: SK LEE

FCC CLASS B



— FCCCLASS B_QP — FCC CLASS B_AV — Preview Result 1-PK*
 — Preview Result 2-AVG x Final Result 1-QPK x Final Result 2-CAV

Final Result 1

Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	39.2	9.000	Off	L1	9.7	26.8	66.0
0.156000	37.5	9.000	Off	L1	9.6	28.2	65.7
0.160000	37.2	9.000	Off	L1	9.6	28.3	65.5
0.164000	37.4	9.000	Off	L1	9.6	27.9	65.3
0.448000	43.6	9.000	Off	L1	9.7	13.3	56.9
0.506000	42.1	9.000	Off	L1	9.7	13.9	56.0
1.080000	34.9	9.000	Off	L1	9.7	21.1	56.0
1.090000	37.2	9.000	Off	L1	9.7	18.8	56.0
1.212000	36.1	9.000	Off	L1	9.7	19.9	56.0
1.220000	34.7	9.000	Off	L1	9.7	21.3	56.0
1.264000	41.2	9.000	Off	L1	9.7	14.8	56.0
1.408000	37.7	9.000	Off	L1	9.7	18.3	56.0
19.960000	35.1	9.000	Off	L1	10.2	24.9	60.0
20.000000	35.4	9.000	Off	L1	10.3	24.6	60.0
20.040000	35.6	9.000	Off	L1	10.3	24.4	60.0
20.080000	35.4	9.000	Off	L1	10.3	24.6	60.0

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EMI Auto Test(14)

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Frequency (MHz)	QuasiPeak (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
20.202000	32.6	9.000	Off	L1	10.3	27.4	60.0
20.720000	34.2	9.000	Off	L1	10.3	25.8	60.0

Final Result 2

Frequency (MHz)	CAverage (dBµV)	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)
0.150000	27.0	9.000	Off	L1	9.7	29.0	56.0
0.164000	24.3	9.000	Off	L1	9.6	31.0	55.3
0.172000	25.3	9.000	Off	L1	9.6	29.6	54.9
0.252000	39.1	9.000	Off	L1	9.6	12.6	51.7
0.448000	42.7	9.000	Off	L1	9.7	4.2	46.9
0.506000	40.5	9.000	Off	L1	9.7	5.5	46.0
1.066000	30.2	9.000	Off	L1	9.7	15.8	46.0
1.088000	33.5	9.000	Off	L1	9.7	12.5	46.0
1.150000	32.3	9.000	Off	L1	9.7	13.7	46.0
1.214000	31.5	9.000	Off	L1	9.7	14.5	46.0
1.264000	39.8	9.000	Off	L1	9.7	6.2	46.0
2.022000	34.4	9.000	Off	L1	9.8	11.6	46.0
19.960000	32.8	9.000	Off	L1	10.2	17.2	50.0
20.000000	33.4	9.000	Off	L1	10.3	16.6	50.0
20.040000	33.7	9.000	Off	L1	10.3	16.3	50.0
20.080000	33.5	9.000	Off	L1	10.3	16.5	50.0
20.680000	32.5	9.000	Off	L1	10.3	17.6	50.0
20.720000	31.3	9.000	Off	L1	10.3	18.7	50.0

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9. LIST OF TEST EQUIPMENT

9.1 LIST OF TEST EQUIPMENT(Conducted Test)

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Rohde & Schwarz	ENV216 / LISN	12/28/2015	Annual	100073
Rohde & Schwarz	ESCI / TEST RECEIVER	12/28/2015	Annual	100584
Agilent	N9020A / SIGNAL ANALYZER	06/30/2015	Annual	MY51110085
Agilent	N9030A / SIGNAL ANALYZER	11/24/2015	Annual	MY49431210
Agilent	N1911A/Power Meter	07/09/2015	Annual	MY45100523
Agilent	N1921A /POWER SENSOR	07/09/2015	Annual	MY45241059
Agilent	87300B/Directional Coupler	11/30/2015	Annual	3116A03621
Hewlett Packard	11667B / Power Splitter	06/15/2015	Annual	5001
Hewlett Packard	E3632A / DC POWER SUPPLY	03/11/2015	Annual	KR75303962
Agilent	8493C / Attenuator(10 dB)	07/21/2015	Annual	07560

9.2 LIST OF TEST EQUIPMENT(Radiated Test)

Manufacturer	Model / Equipment	Calibration Date	Calibration Interval	Serial No.
Innco system	MA4000-EP / Antenna Position Tower	N/A	N/A	N/A
Innco system	CT0800 / Turn Table	N/A	N/A	N/A
Innco system	CO3000 / Controller(Antenna mast)	N/A	N/A	CO3000-4p
ETS	2090 / Controller(Turn table)	N/A	N/A	1646
Rohde & Schwarz	Loop Antenna	02/04/2016	Biennial	100179
Schwarzbeck	VULB 9160 / Trilog Antenna	10/10/2014	Biennial	3368
Schwarzbeck	BBHA 9120D / Horn Antenna	08/26/2014	Biennial	9120D-1300
Schwarzbeck	BBHA9170 / Horn Antenna(15 GHz ~ 40 GHz)	09/03/2015	Biennial	BBHA9170541
Rohde & Schwarz	FSP / Spectrum Analyzer	10/05/2015	Annual	836650/016
Wainwright Instruments	WHKX10-2700-3000-18000-40SS / High Pass Filter	08/20/2015	Annual	4
Wainwright Instruments	WHKX8-6090-7000-18000-40SS / High Pass Filter	08/03/2015	Annual	5
Wainwright Instruments	WRCJV2400/2483.5-2370/2520-60/12SS / Band Reject Filter	07/06/2015	Annual	2
Wainwright Instruments	WRCJV5100/5850-40/50-8EEK / Band Reject Filter	01/26/2016	Annual	2
H.P.	8491A / 10dB Attenuator	08/11/2015	Annual	18593
CERNEX	CBLU1183540 / Power Amplifier	02/01/2016	Annual	24614
CERNEX	CBL06185030 / Power Amplifier	02/01/2016	Annual	24615
CERNEX	CBL18265035 / Power Amplifier	07/27/2015	Annual	22966
CERNEX	CBL26405040 / Power Amplifier	07/09/2015	Annual	25956