FCC 47 CFR PART 15 SUBPART C

TEST REPORT

For

Applicant :	**ENJOY GROUP(HK) CO., LIMITED**
Address :	**Rm. 1305A, Fujian Dasha, Caitian Road, Futian District, Shenzhen, Guangdong, China**
Product Name :	**WCDMA Mobile Phone**
Model Name :	**S09, W63**
Brand Name :	**ENJOY**
FCC ID :	**ZHN-W63**
Report No. :	**STS131115F5**
Date of Issue :	**December 10,2013**

Issued by :	**Shenzhen Super Test Service Technology Co., Ltd.**
Address :	**No.5, Langshan 2nd Rd., North Hi-Tech Industrial park, Nanshan, Shenzhen, Guangdong, China**
Tel :	**86-755-27958522**
Fax :	**86-755-27958022**

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1. VERIFICATION OF CONFORMITY

Equipment Under Test:	WCDMA Mobile Phone
Brand Name:	ENJOY
Model Number:	S09
Series Model Name:	W63
Difference description:	Only the appearance is different
FCC ID:	ZHN-W63
Applicant:	ENJOY GROUP(HK) CO., LIMITED Rm. 1305A, Fujian Dasha, Caitian Road, Futian District, Shenzhen, Guangdong, China
Manufacturer:	ENJOY GROUP(HK) CO., LIMITED Rm. 1305A, Fujian Dasha, Caitian Road, Futian District, Shenzhen, Guangdong, China
Technical Standards:	47 CFR Part 15 Subpart C
File Number:	STS131115F5
Date of test:	November 26,2013-December 10,2013
Deviation:	None
Condition of Test Sample:	Normal
Test Result:	PASS

The above equipment was tested by STS for compliance with the requirements set forth in FCC rules and the Technical Standards mentioned above. This said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment and the level of the immunity endurance of the equipment are within the compliance requirements.

The test results of this report relate only to the tested sample identified in this report.

Tested by (+ signature): Petter Ping

Petter Ping December 10,2013

Review by (+ signature): July Wen

July Wen December 10,2013

Approved by (+ signature): Terry Yang

Terry Yang December 10,2013

2. GENERAL INFORMATION

2.1 Product Information

Product	WCDMA Mobile Phone
Brand Name	ENJOY
Model Number	S09
Frequency Range	2412MHz – 2462MHz
Modulation Technique	IEEE 802.11b mode: DSSS (1, 2, 5.5 and 11 Mpbs) IEEE 802.11g mode: OFDM (6, 9, 12, 18, 24, 36, 48 and 54 Mpbs) IEEE 802.11n Standard-20 MHz Channel mode: OFDM (6.5, 13, 19.5, 26, 39, 52, 58.5, 65.0Mbps)
Channel Number	IEEE 802.11b/g/n mode: 11 Channels
Antenna Type:	0.0 dBi, PCB Antenna
Power Supply	DC: 3.7V by Li-ion Battery; DC: 5V by AC Adapter(100V-240V 50/60Hz);
Temperature Range:	-20°C ~ 50°C

NOTE:

1. For a more detailed features description about the EUT, please refer to User's Manual.

2.2 Objective

The objective of the report is to perform tests according to 47 CFR Part 15 C for the EUT FCC Certification:

No.	Identity	Document Title
1	47 CFR Part 15 (10-1-05 Edition)	Radio Frequency Devices

2.3 Test Standards and Results

Test items and the results are as bellow:

No.	Section	Description	Result	Date of Test
1	15.247(a)(2)	6dB Bandwidth	PASS	2013-12-05
2	15.247(b)(3)	Peak Output Power	PASS	2013-12-05
3	15.247(d)	Conducted Spurious Emission	PASS	2013-12-05
4	15.247(d)	Band Edge	PASS	2013-12-05
5	15.247(e)	Power Spectral Density	PASS	2013-12-05
6	15.207	Conducted Emission	PASS	2013-12-05
7	15.247(d) 15.205 15.209	Radiated Emission	PASS	2013-12-05

Note: 1. The test result judgment is decided by the limit of measurement standard
2. The information of measurement uncertainty is available upon the customer's request.

2.4 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 15-35ºC
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

3. TEST FACILITY

3.1 TEST FACILITY

Test Site:	Compliance Certification Services Inc. (Kun shan) Laboratory
Location:	No.10 Weiye Rd, Innovation park, Eco&Tec,Development Zone, Kunshan City, Jiangsu, China
Description:	There is one 3m semi-anechoic an area test sites and two line conducted labs for final test. The Open Area Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4:2009 and CISPR 16 requirements. The FCC Registration Number is **238958.** The **CNAS** Registration Number is **CNAS L4354.**
Site Filing:	The site description is on file with the Federal Communications Commission, 7435 Oakland Mills Road, Columbia, MD 21046.
Instrument Tolerance:	All measuring equipment is in accord with ANSI C63.4:2009 and CISPR 16 requirements that meet industry regulatory agency and accreditation agency requirement.
Ground Plane:	Two conductive reference ground planes were used during the Line Conducted Emission, one in vertical and the other in horizontal. The dimensions of these ground planes are as below. The vertical ground plane was placed distancing 40 cm to the rear of the wooden test table on where the EUT and the support equipment were placed during test. The horizontal ground plane projected 50 cm beyond the footprint of the EUT system and distanced 80 cm to the wooden test table. For Radiated Emission Test, one horizontal conductive ground plane extended at least 1m beyond the periphery of the EUT and the largest measuring antenna, and covered the entire area between the EUT and the antenna. It has no holes or gaps having longitudinal dimensions larger than one-tenth of a wavelength at the highest frequency of measurement up to 1GHz.

3.2 GENERAL TEST PROCEDURES

EUT Function and Test Mode

The EUT has been tested under normal operating（TX）and standby（RX）condition.

The field strength of radiation emission was measured in the following position: EUT stand-up position (Y axis), lie-down position (X, Z axis).

The following data show only with the worst case setup.

The worst case of Y axis was reported.

Based on client request, all normal using modes of the normal function were tested but only the worst test data of the worst mode is recorded by this report.

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4:2009,Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4:2009.

3.3 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

(a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
[1]0.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 - 156.52525	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.17	3260 - 3267	23.6 - 24.0
12.29 - 12.293	167.72 - 173.2	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	322 - 335.4	3600 - 4400	([2])
13.36 - 13.41			

[1] Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

[2] Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

4. TEST EQUIPMENT LIST

4.1 SUPPORT EQUIPMENT

Device Type	Manufacturer	Model Name	Serial No.	Data Cable	Power Cable
Micro SD CARD	Kingston	1G	0907T139090	N/A	
Charger	Baijunda	S09	N/A	N/A	
Notebook	DELL	E4446A	E5430	Sheild 1.5m	

Remark:

All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.2 TEST EQUIPMENT LIST

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due	calibration interval
Spectrum Analyzer	Agilent	E4446A	MY44020154	2014-5-12	1 year
EMI Test Receiver	R&S	ESCI	1166.5950.03	2014-8-13	1 year
Pre-Amplfier	Miteq	NSP4000-NF	870629	2014-5-12	1 year
Bilog Antenna	Sunol	JB1	A110204-2	2014-5-12	1 year
Horn-antenna	SCHWARZBECK	BBHA9120D	D:266	2014-6-7	1 year
Horn-antenna	SCHWARZBECK	BBHA9170	D:171	2014-4-28	1 year
Loop-antenna	ZHINAN	ZN30900A	N/A	2014-6-7	1 year
Turn Table	CT	CT123	4165	N.C.R	1 year
Antenna Tower	CT	CTERG23	3256	N.C.R	1 year
Controller	CT	CT1OO	95637	N.C.R	1 year
EMI TEST RECEIVER	R&S	ESCI	100781	2014-3-14	1 year
V (V-LISN)	R&S	ENV216	101604	2014-5-21	1 year
Pulse Limiter	R&S	ESH3-Z2	100524	2014-9-24	1 year
Temperature Chamber	Guangzhou Gongwen	GDS-250	N/A	2014-9-24	1 year
Test Software	EZ-EMC				

NOTE: *Equipments listed above have been calibrated and are in the period of validation.*

47 CFR Part 15 C 15.247 Requirements

4.1 6dB Bandwidth

4.1.1 Definition

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

4.1.2 Test Description

The test method is refer to KDB 558074 D01 DTS Measurement Guidance V03r01 section 8.1.

The EUT is powered by the Battery, is coupled to the Spectrum Analyzer (SA) through the Attenuator/DC Block. The path loss as the factor is calibrated to correct the reading. During the measurement, the EUT is activated and is set to operate at maximum power. The RF load attached to the EUT antenna terminal is 50Ohm.

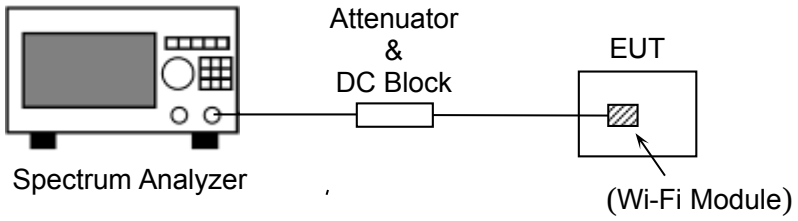


Figure 1: RF Test Setup

4.1.3 Test Result

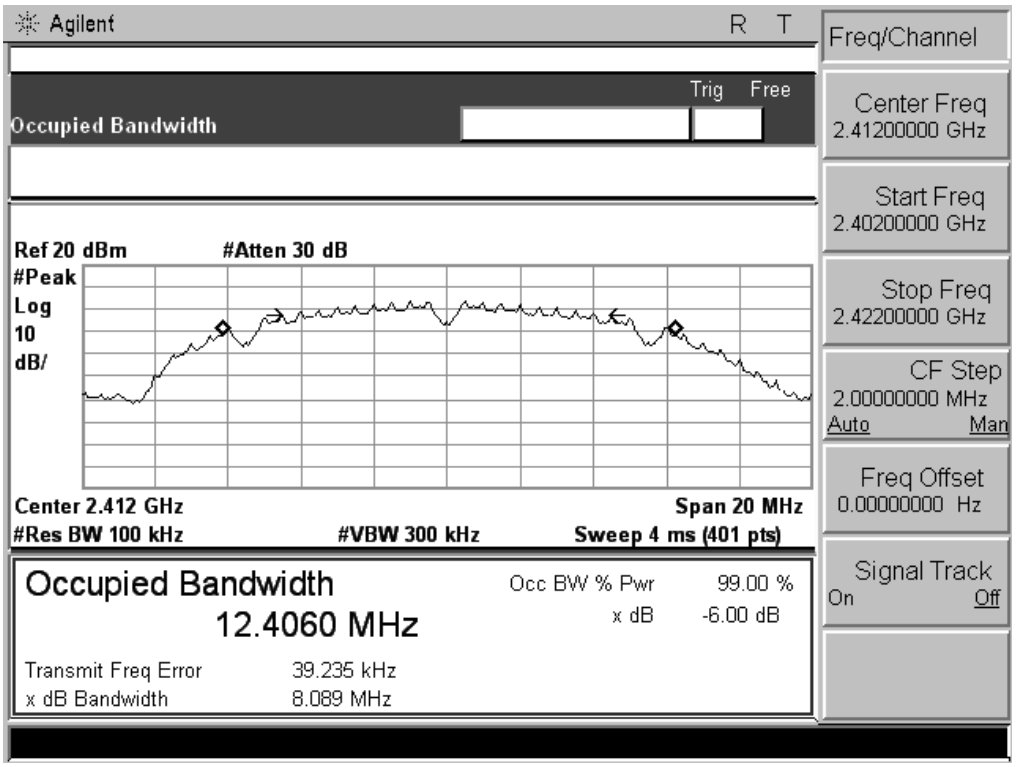
4.1.3.1 802.11b Test Mode

The minimum occupied bandwidth for the fundamental frequency 2462MHz is 9.025MHz. This occupied bandwidth complies with the FCC requirement.

A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
1	2412	8.089	≥500	PASS
6	2437	8.828	≥500	PASS
11	2462	9.025	≥500	PASS

Test Plot:



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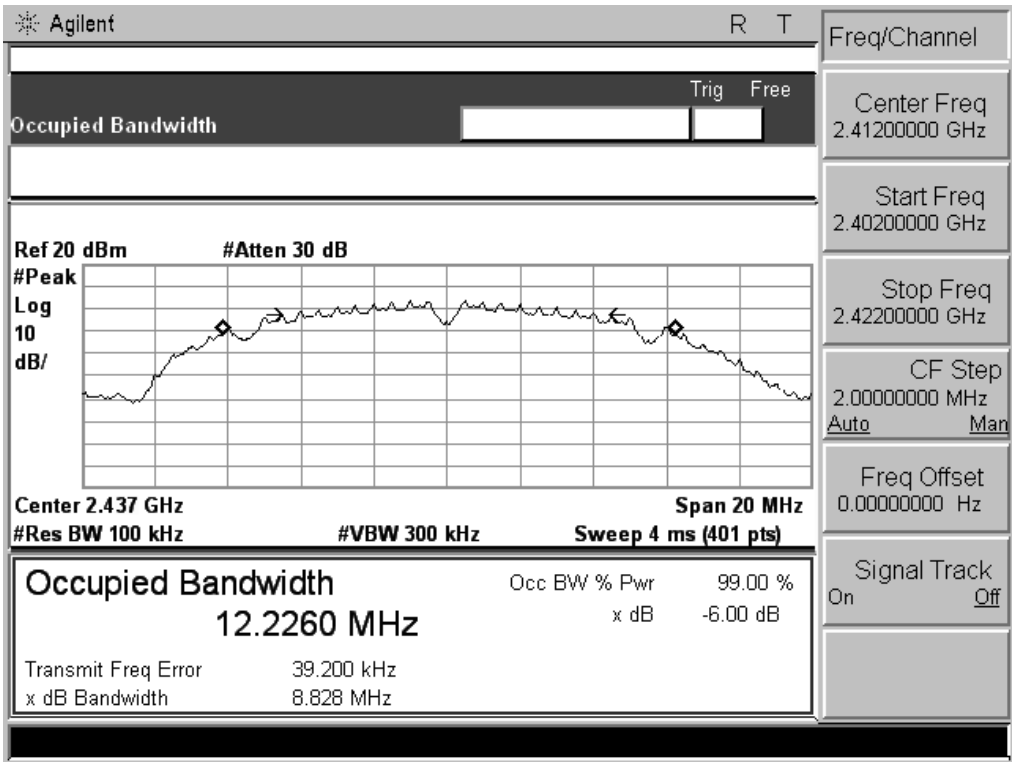

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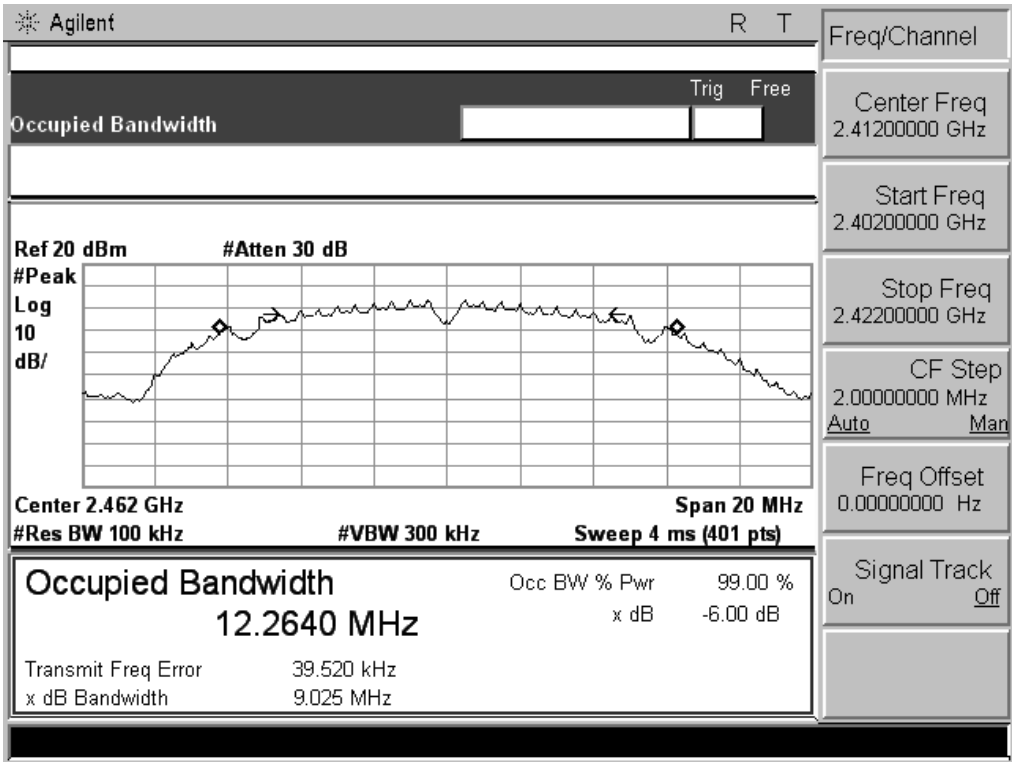


(CH High)

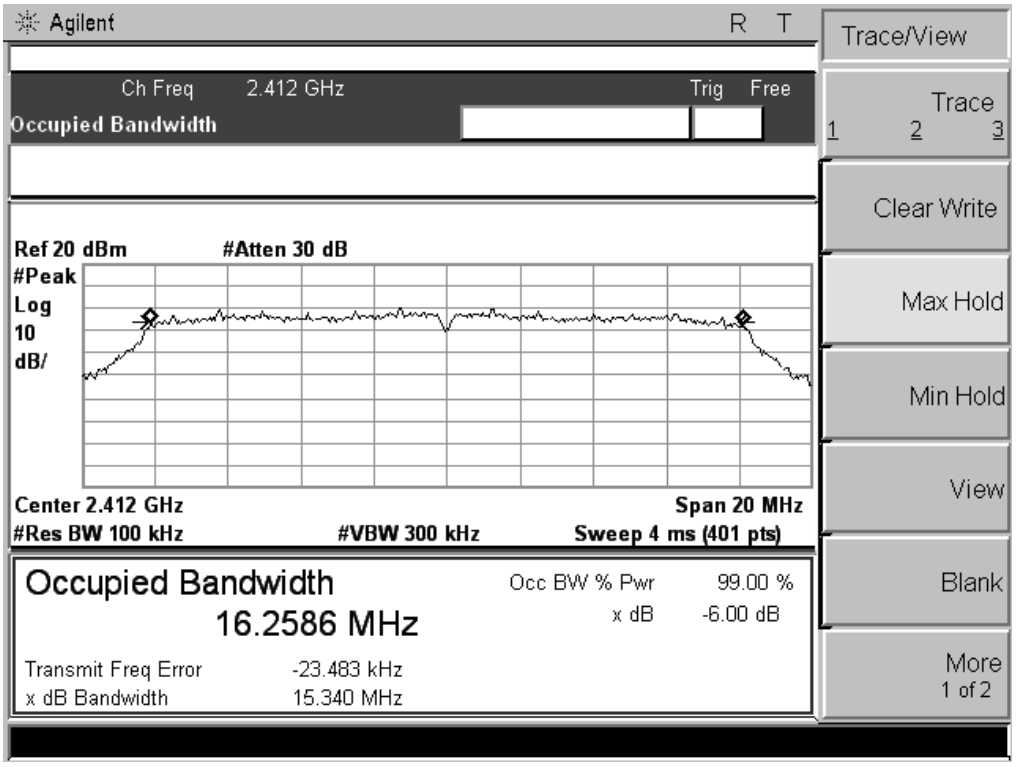
4.1.3.2 802.11g Test Mode

The minimum occupied bandwidth for the fundamental frequency 2462MHz is 15.913MHz. This occupied bandwidth complies with the FCC requirement.

A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
1	2412	15.340	≥500	PASS
6	2437	15.802	≥500	PASS
11	2462	15.913	≥500	PASS

B. Test Plot:



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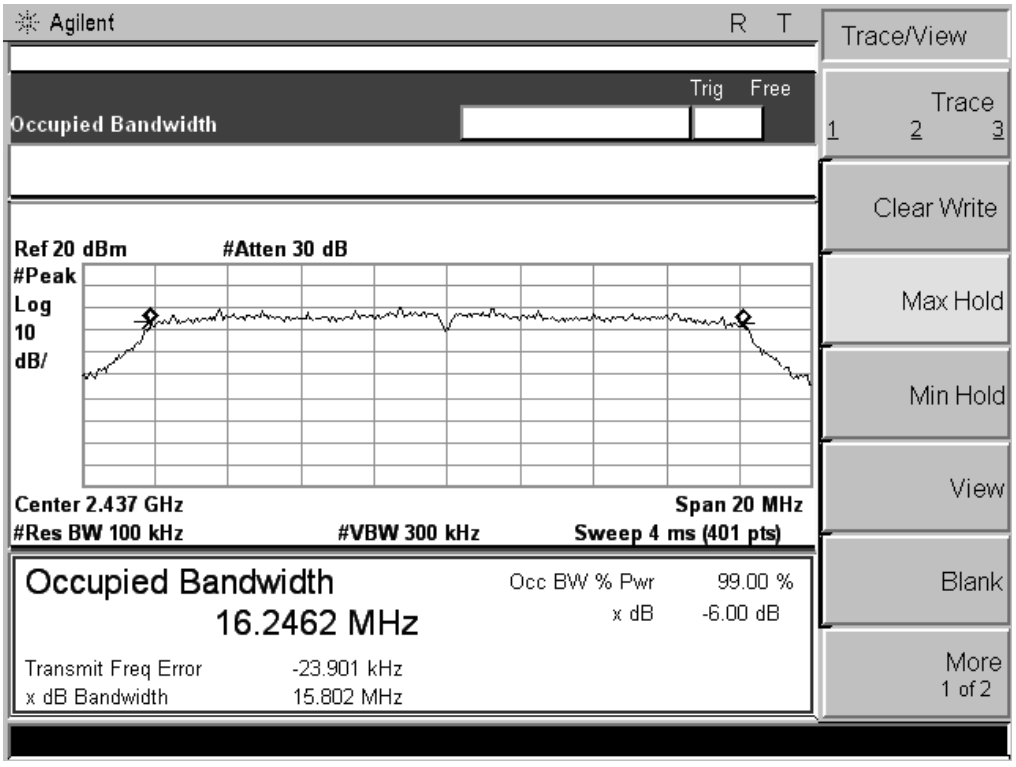

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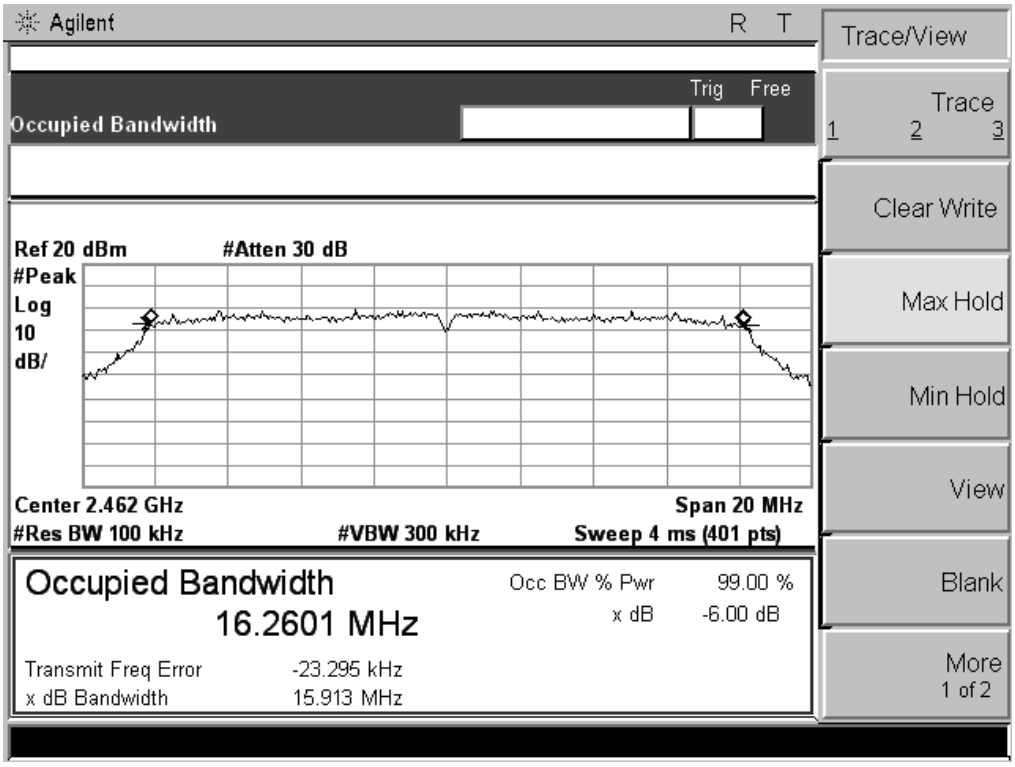


(CH High)

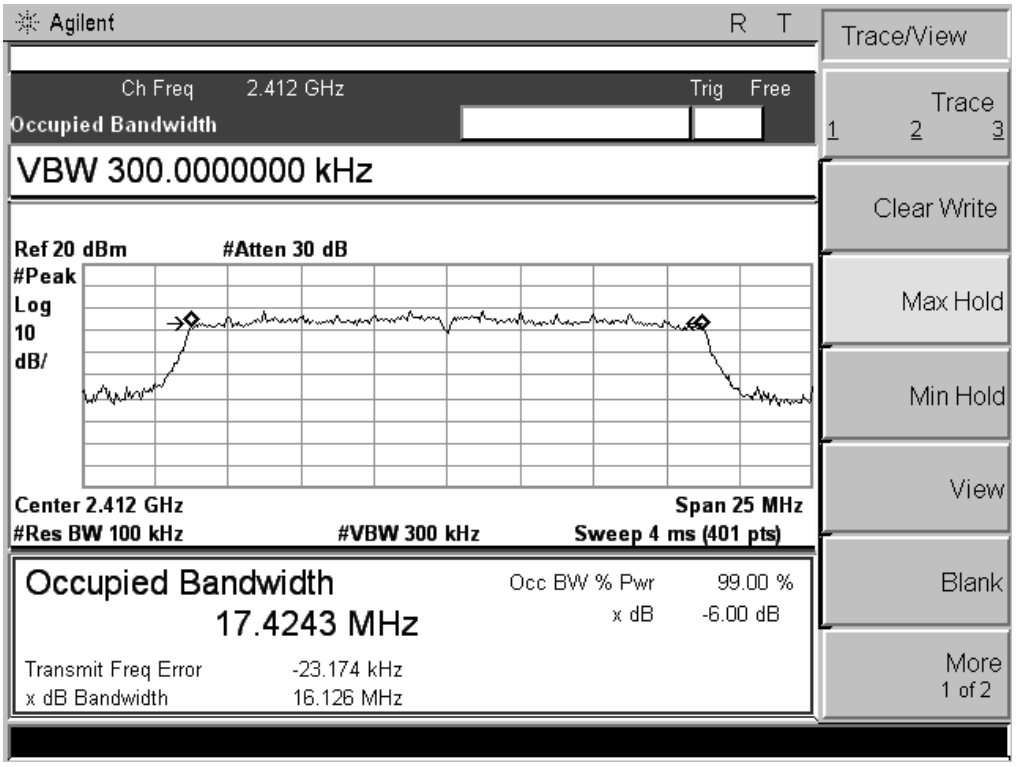
4.1.3.3 802.11n Test Mode

The minimum occupied bandwidth for the fundamental frequency 2462MHz is 17.30MHz. This occupied bandwidth complies with the FCC requirement.

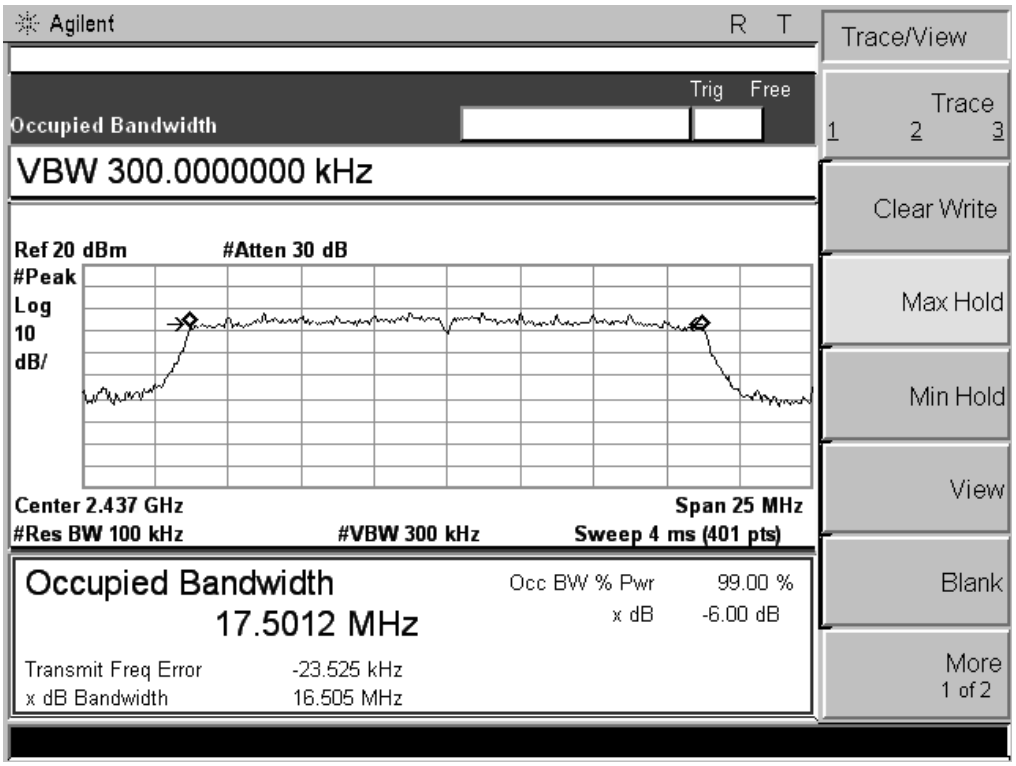
A. Test Verdict:

Channel	Frequency (MHz)	6 dB Bandwidth (MHz)	Limits (kHz)	Result
1	2412	16.126	≥500	PASS
6	2437	16.505	≥500	PASS
11	2462	16.582	≥500	PASS

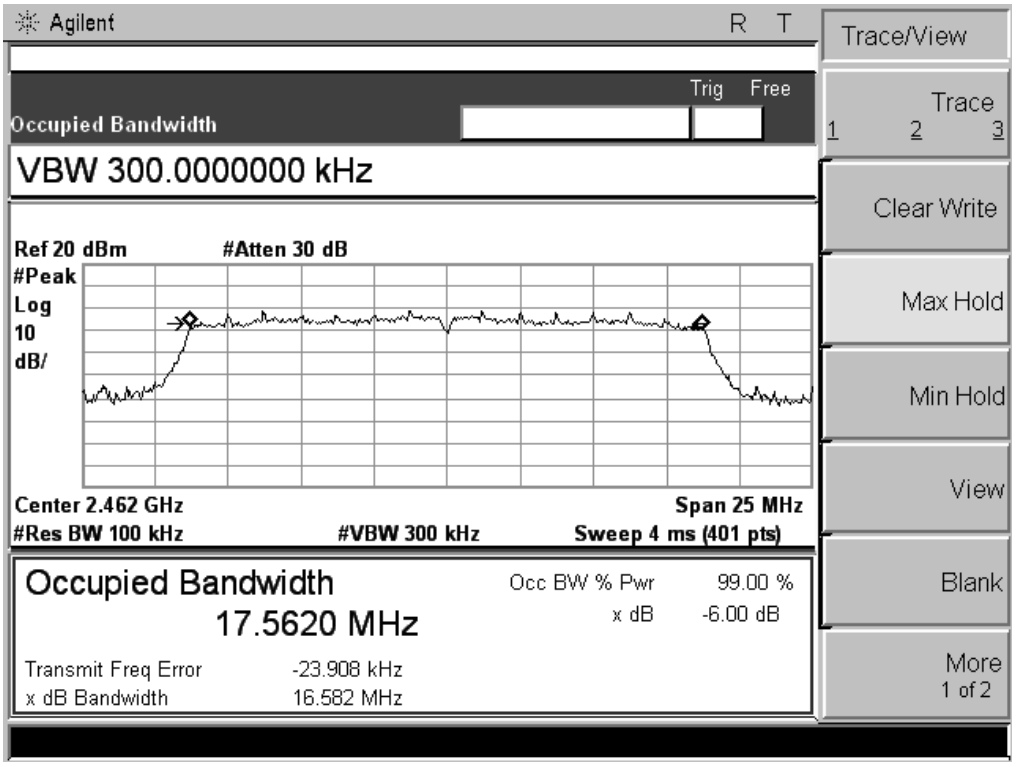
B. Test Plot:


Agilent
R T
Trace/View
Ch Freq 2.412 GHz
Trig Free
Occupied Bandwidth
Trace
1 2 3
VBW 300.0000000 kHz
Clear Write
Ref 20 dBm
#Atten 30 dB
#Peak
Log
10
dB/
Max Hold
Min Hold
View
Center 2.412 GHz
Span 25 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4 ms (401 pts)
Occupied Bandwidth
17.4243 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Blank
Transmit Freq Error -23.174 kHz
x dB Bandwidth 16.126 MHz
More
1 of 2

(CH Low)


Agilent
R T
Trace/View
Trig Free
Occupied Bandwidth
Trace
1 2 3
VBW 300.0000000 kHz
Clear Write
Ref 20 dBm
#Atten 30 dB
#Peak
Log
10
dB/
Max Hold
Min Hold
View
Center 2.437 GHz
Span 25 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4 ms (401 pts)
Occupied Bandwidth
17.5012 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Blank
Transmit Freq Error -23.525 kHz
x dB Bandwidth 16.505 MHz
More
1 of 2

(CH Mid)


Agilent
R T
Trig Free
Occupied Bandwidth
VBW 300.0000000 kHz
Ref 20 dBm
#Atten 30 dB
#Peak
Log
10
dB/
Center 2.462 GHz
Span 25 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 4 ms (401 pts)
Occupied Bandwidth
17.5620 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -23.908 kHz
x dB Bandwidth 16.582 MHz
Trace/View
Trace
1 2 3
Clear Write
Max Hold
Min Hold
View
Blank
More
1 of 2

(CH High)

4.2 Peak Output Power

4.2.1 Definition

For systems using digital modulation in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power.

4.2.2 Test Description

The test method is refer to KDB 558074 D01 DTS Measurement Guidance V03r01 section 9.1.

4.2.3 Test Result

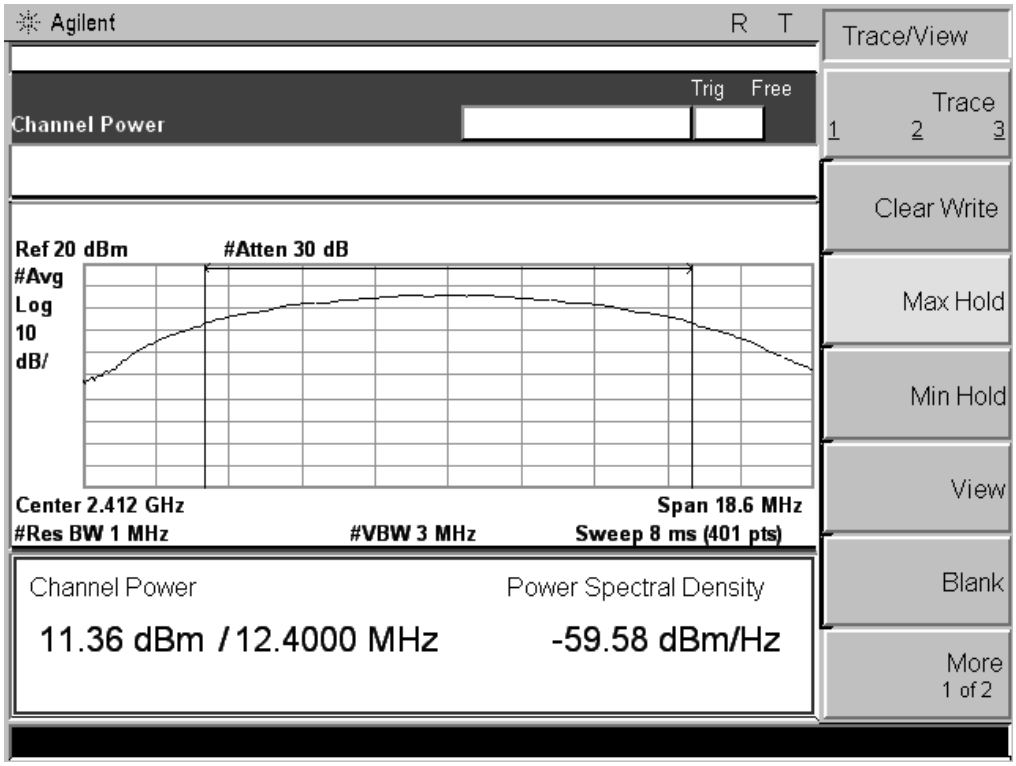
4.2.3.1 802.11b Test Mode

The maximum output power for the fundamental frequency 2412MHz is 11.36dBm. This power complies with the FCC requirement.

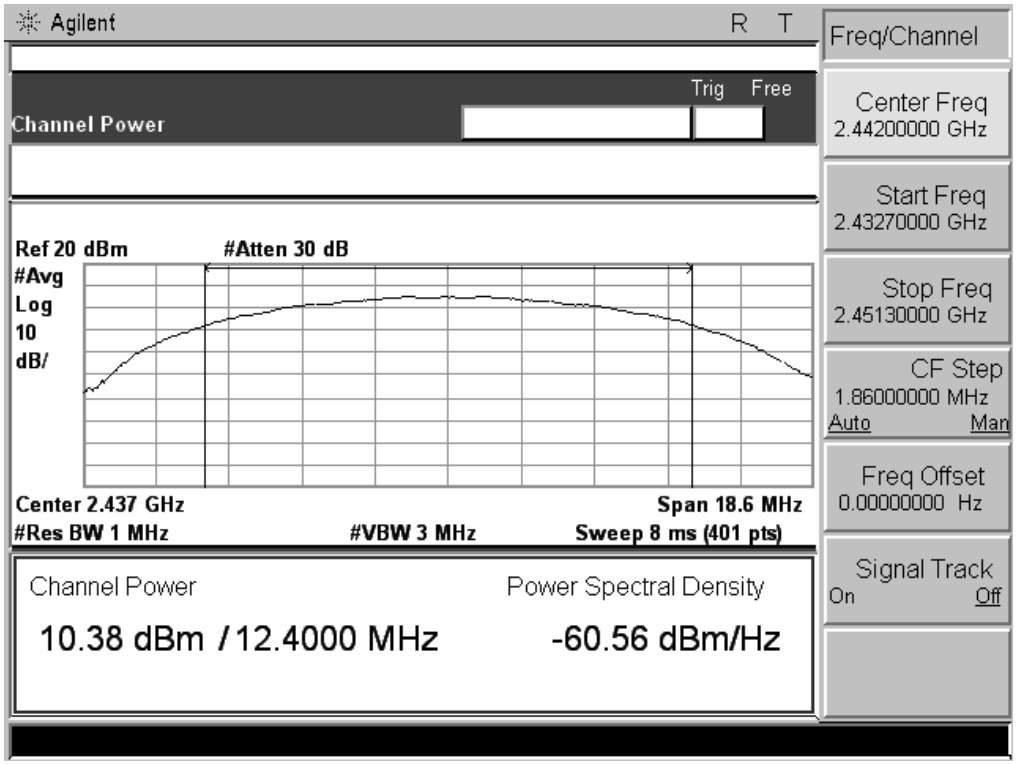
A. Test Verdict:

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	11.36	0.0137	30	1	PASS
6	2437	10.38	0.0109			PASS
11	2462	9.74	0.0094			PASS

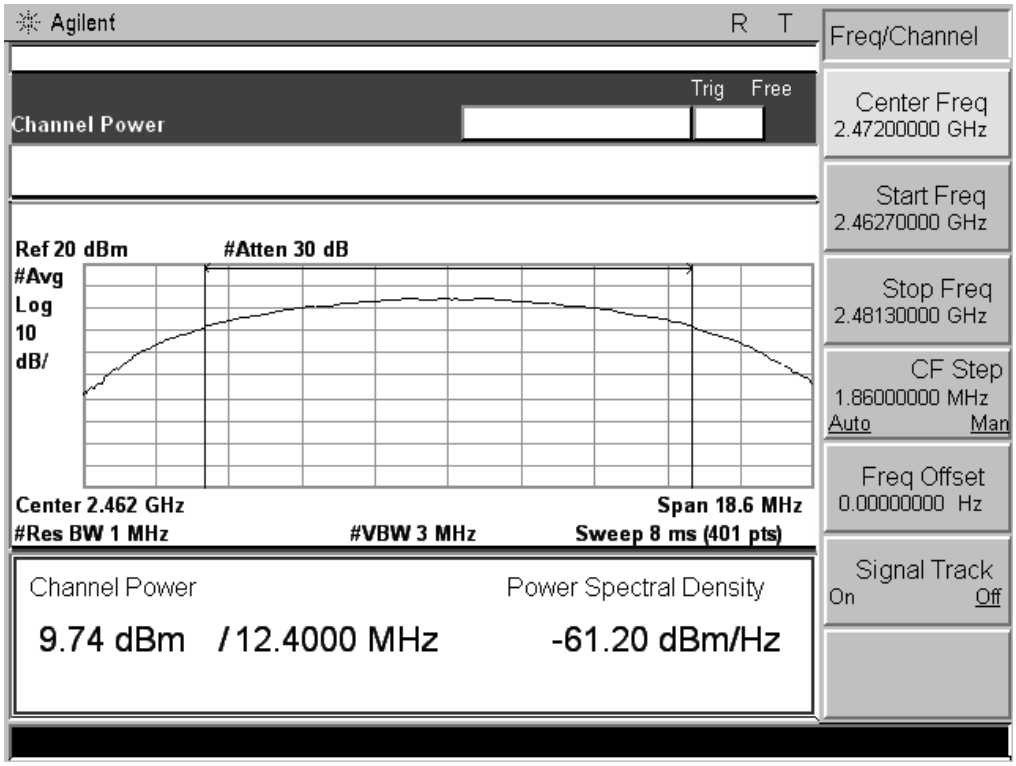
B. Test Plot:


Agilent
R T
Trig Free
Channel Power
Trace/View
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/
Center 2.412 GHz
Span 18.6 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 8 ms (401 pts)
Channel Power
Power Spectral Density
11.36 dBm / 12.4000 MHz
-59.58 dBm/Hz

(CH Low)


Agilent
R T
Trig Free
Channel Power
Freq/Channel
Center Freq
2.44200000 GHz
Start Freq
2.43270000 GHz
Stop Freq
2.45130000 GHz
CF Step
1.86000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off
Ref 20 dBm
#Atten 30 dB
#Avg
Log
10
dB/
Center 2.437 GHz
Span 18.6 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 8 ms (401 pts)
Channel Power
Power Spectral Density
10.38 dBm / 12.4000 MHz
-60.56 dBm/Hz

(CH Mid)


Agilent
R T
Trig Free
Channel Power
Ref 20 dBm
#Atten 30 dB
#Avg
Log
10
dB/
Center 2.462 GHz
Span 18.6 MHz
#Res BW 1 MHz
#VBW 3 MHz
Sweep 8 ms (401 pts)
Channel Power
9.74 dBm /12.4000 MHz
Power Spectral Density
-61.20 dBm/Hz
Freq/Channel
Center Freq
2.47200000 GHz
Start Freq
2.46270000 GHz
Stop Freq
2.48130000 GHz
CF Step
1.86000000 MHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off

(CH High)

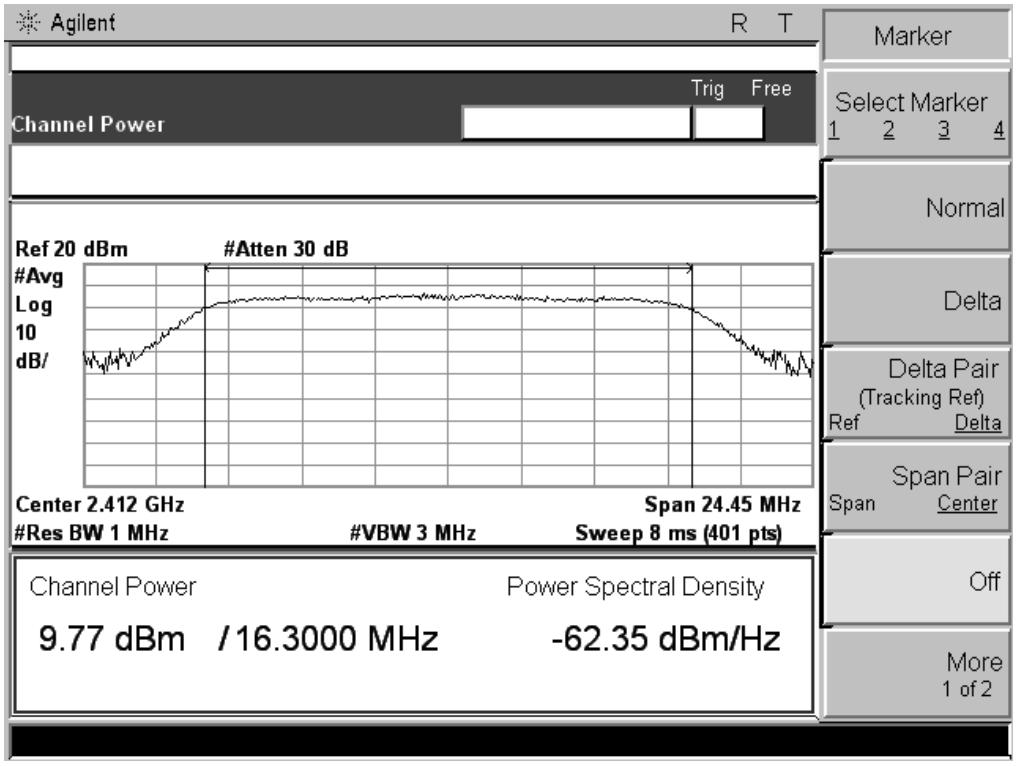
4.2.3.2 802.11g Test Mode

The maximum output power for the fundamental frequency 2412 MHz is 9.77dBm. This power complies with the FCC requirement.

A. Test Verdict:

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	9.77	0.00948	30	1	PASS
6	2437	9.12	0.00817			PASS
11	2462	8.41	0.00693			PASS

B. Test Plot:



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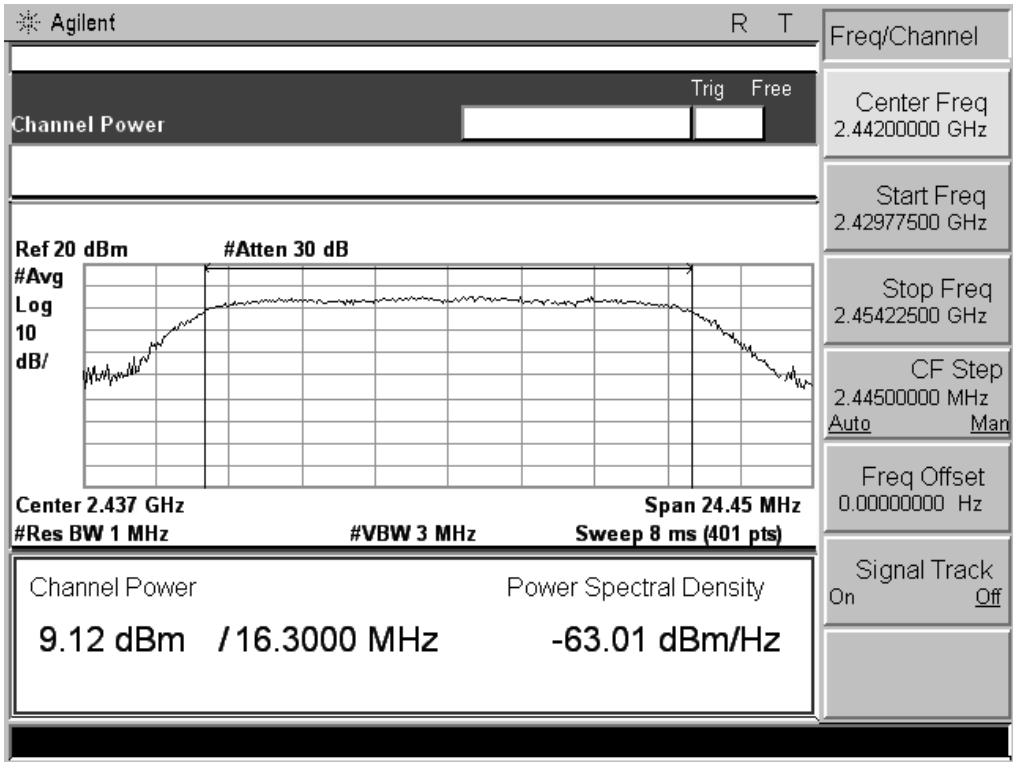

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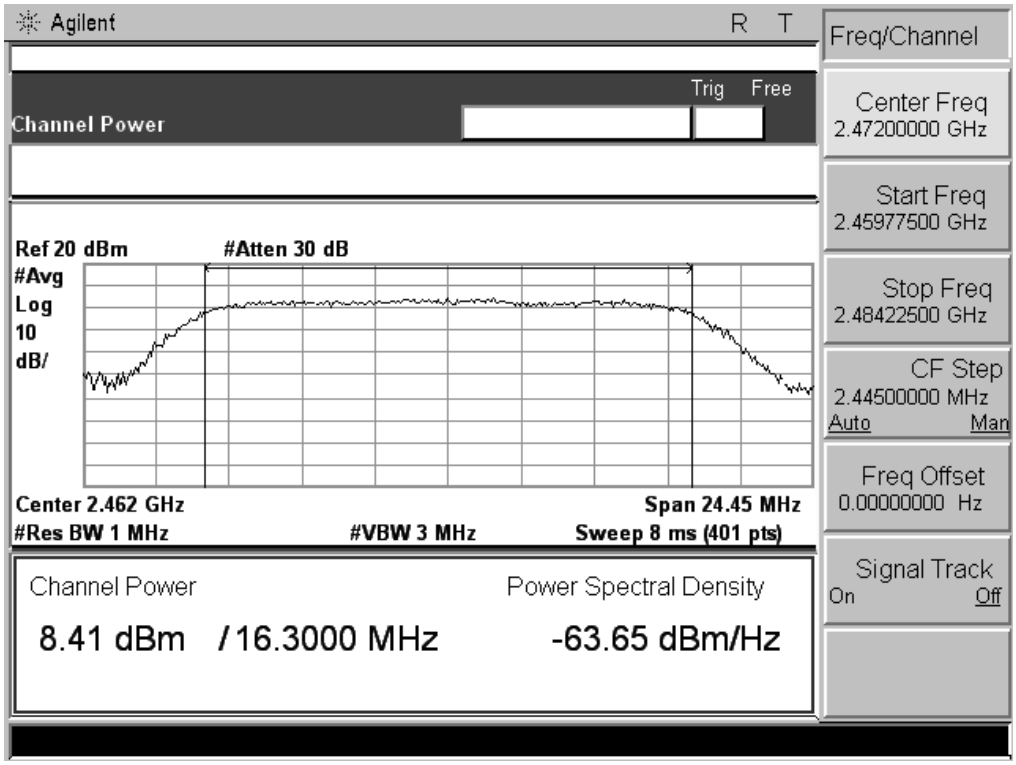


(CH High)

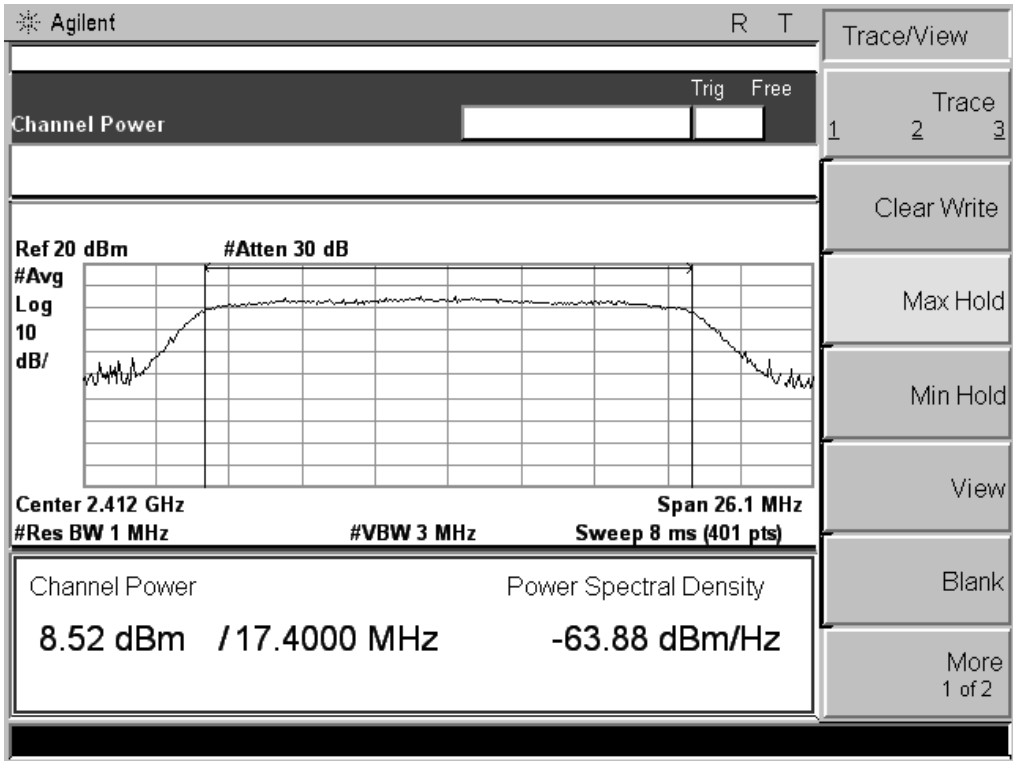
4.2.3.3 802.11n-20 Test Mode

The maximum output power for the fundamental frequency 2412 MHz is 8.52dBm. This power complies with the FCC requirement.

A. Test Verdict:

Channel	Frequency (MHz)	Measured Output Peak Power		Limit		Verdict
		dBm	W	dBm	W	
1	2412	8.52	0.00711	30	1	PASS
6	2437	7.98	0.00628			PASS
11	2462	7.31	0.00538			PASS

B. Test Plot:



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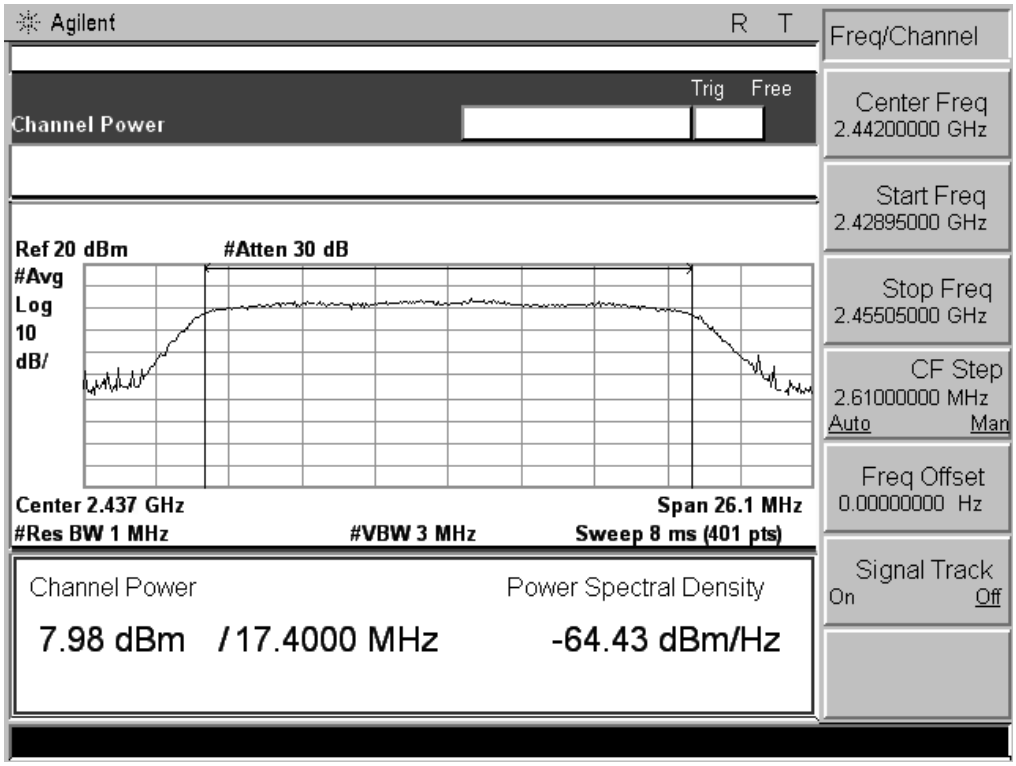

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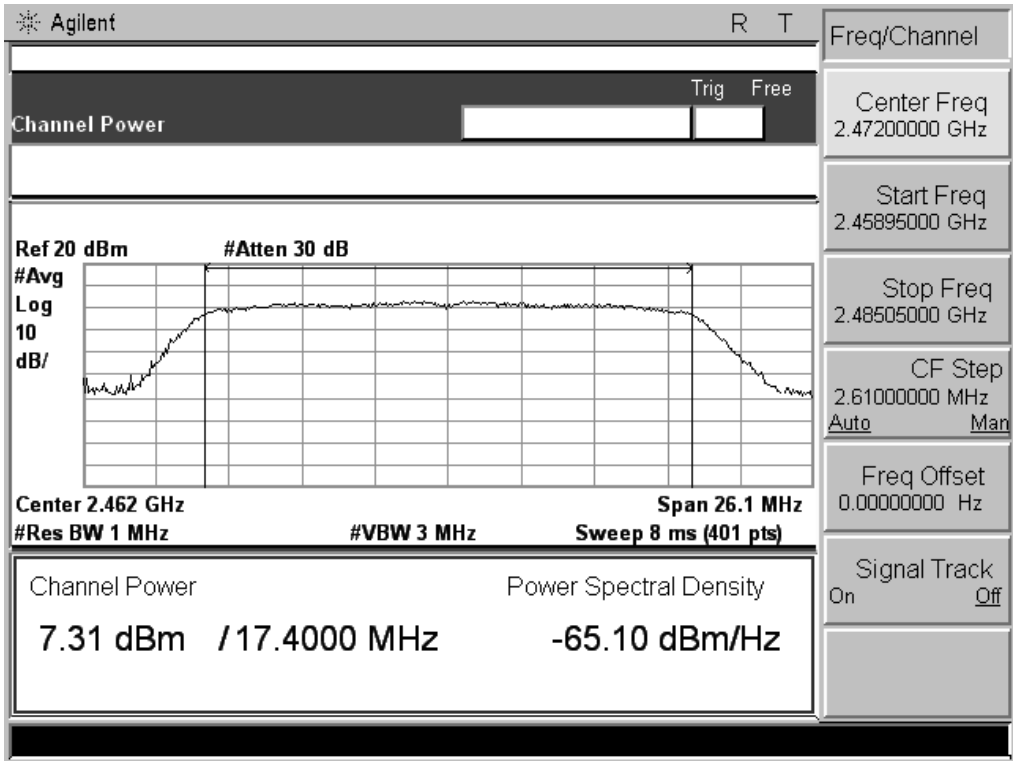


(CH High)

4.3 Conducted Spurious Emission

4.3.1 Definition

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.

4.3.2 Test Description

The test method is refer to KDB 558074 D01 DTS Measurement Guidance V03r01.

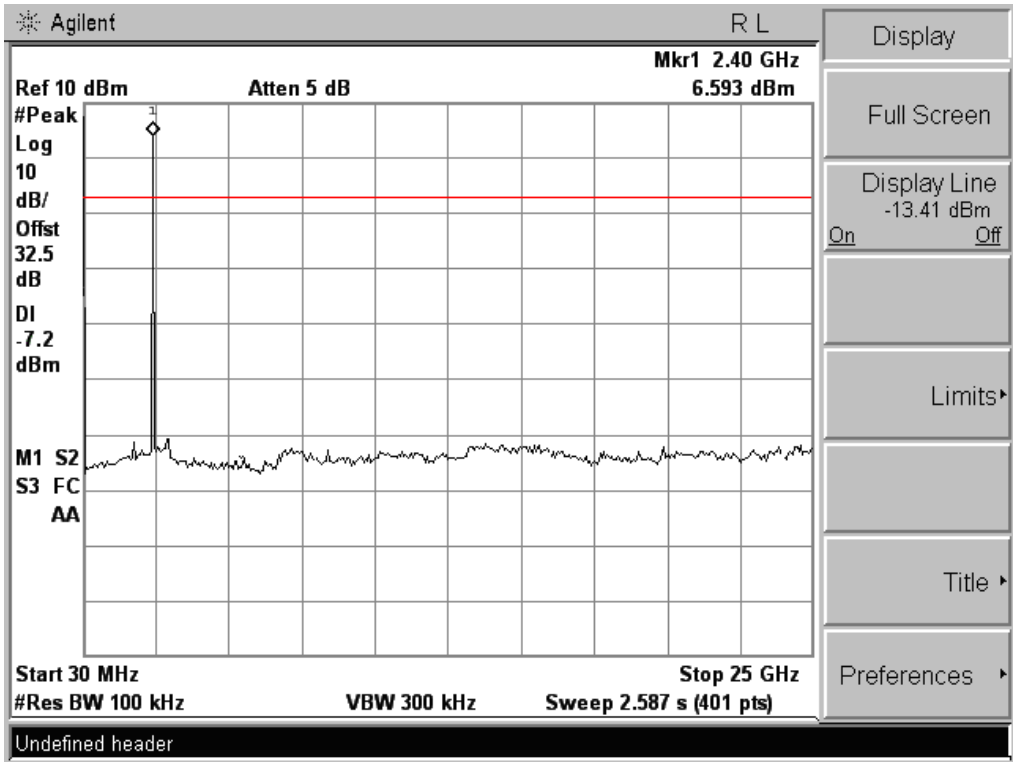
4.3.3 Test Result

The measurement frequency range is from 30MHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions.
The measuring frequency range was from 9 kHz to 25GHz, but only the worst (above 1000MHz band) test plots were display as below.

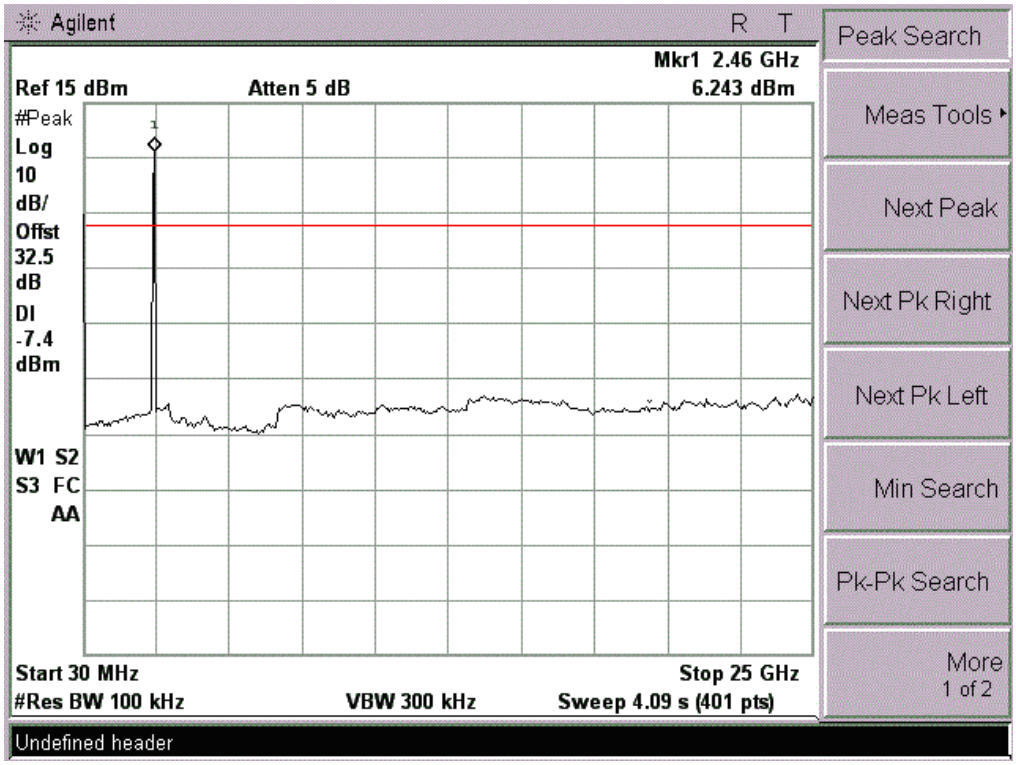
4.3.3.1 802.11b Test Mode

1. Table for the Harmonics:

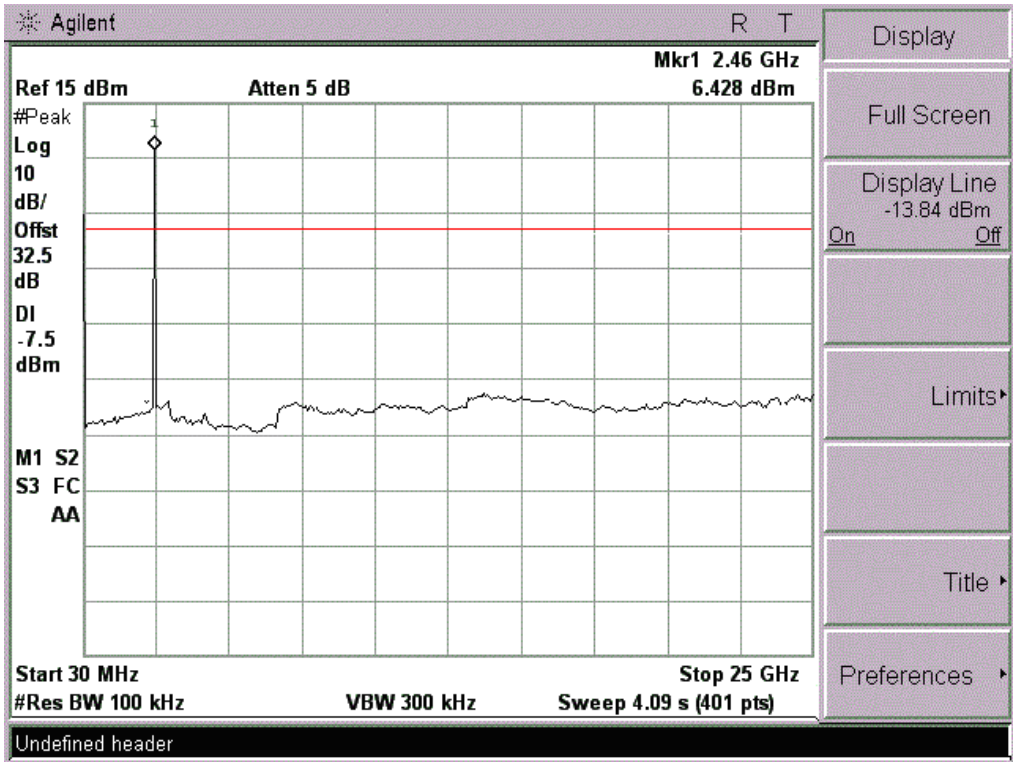
No.	Frequency (MHz)	Emission Power (dBm)	Limit (dBm)
Low Channel			
1	4824.20	-28.32	-7.28
2	7236.10	-39.16	-7.28
Middle Channel			
1	4874.20	-29.68	-7.44
2	7311.10	-40.52	-7.44
High Channel			
1	4924.10	-28.45	-7.57
2	7386.20	-39.09	-7.57



Low Channel



Middle Channel

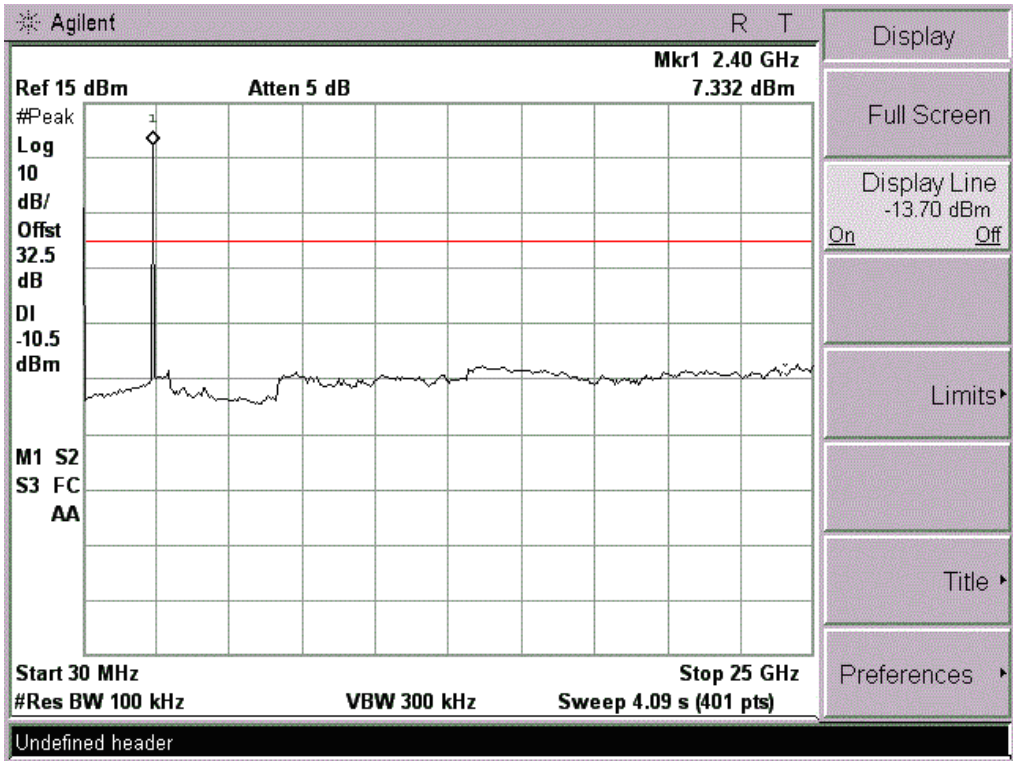


High Channel

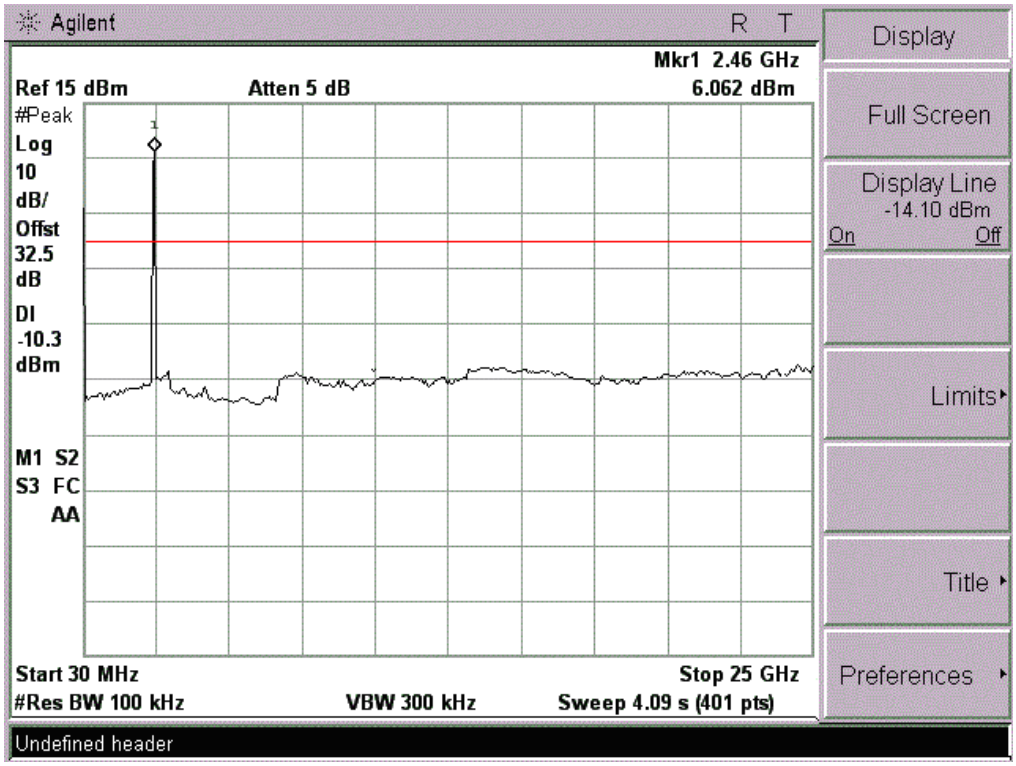
4.3.3.2 802.11g Test Mode

1. Table for the Harmonics:

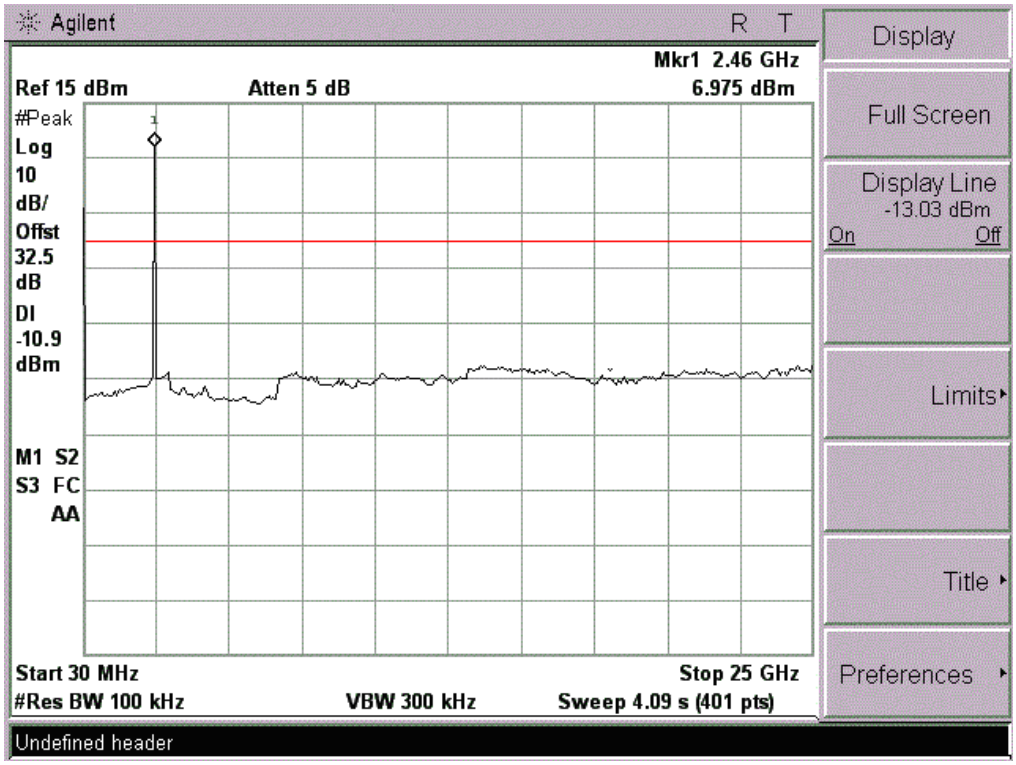
No.	Frequency (MHz)	Emission Power (dBm)	Limit (dBm)
Low Channel			
1	4824.20	-30.14	-10.48
2	7236.10	-41.52	-10.48
Middle Channel			
1	4874.20	-30.42	-10.29
2	7311.10	-41.64	-10.29
High Channel			
1	4924.10	-30.85	-10.85
2	7386.20	-41.24	-10.85



Low Channel



Middle Channel

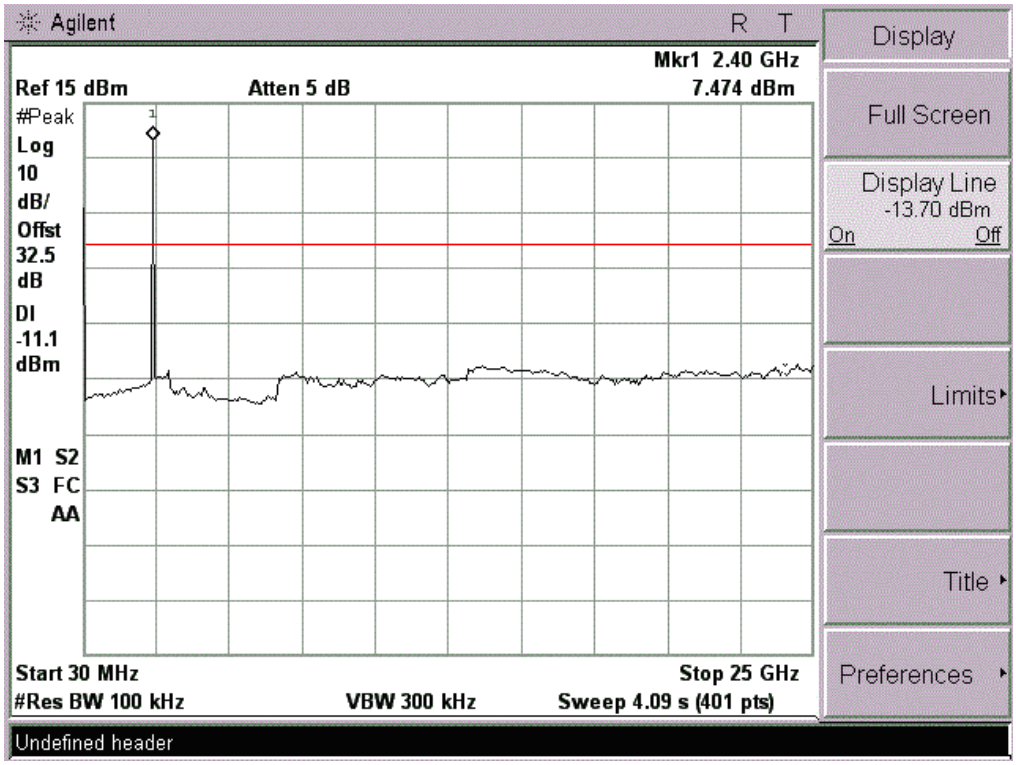


High Channel

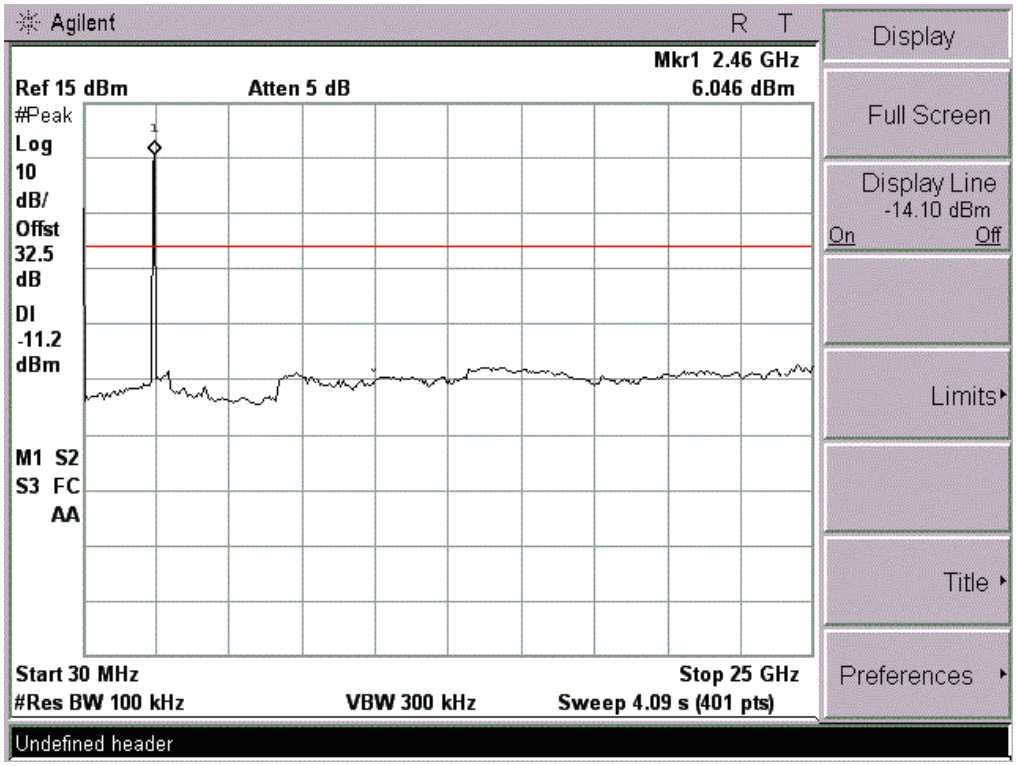
4.3.3.3 802.11n Test Mode

1. Table for the Harmonics:

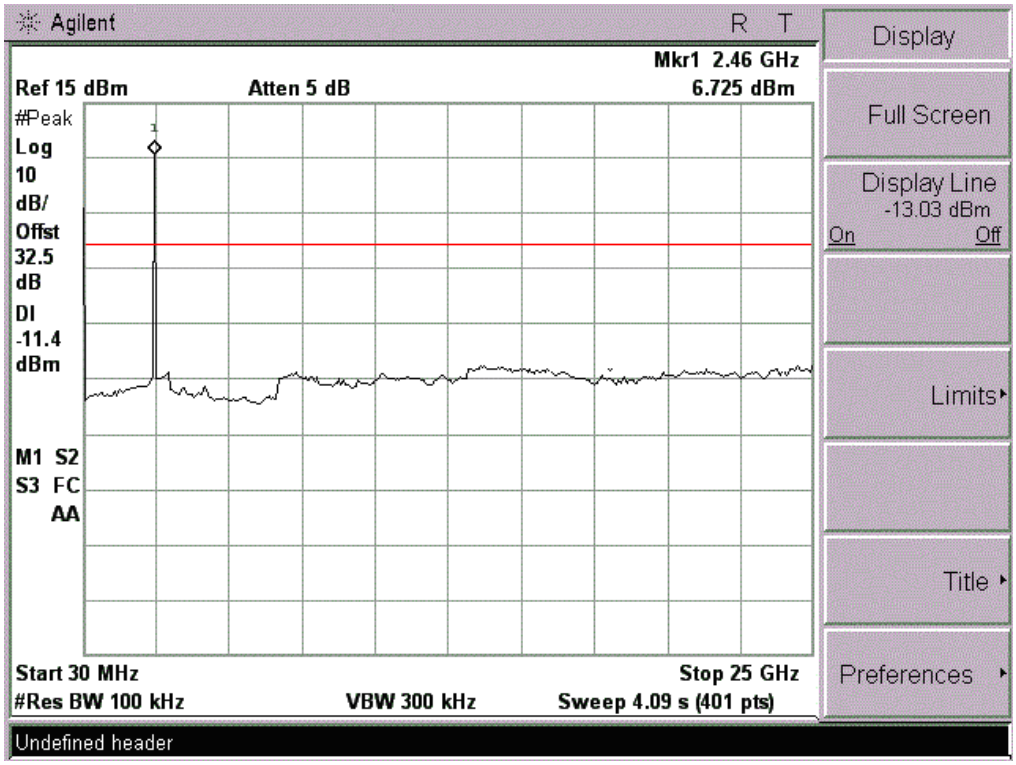
No.	Frequency (MHz)	Emission Power (dBm)	Limit (dBm)
Low Channel			
1	4824.20	-32.36	-11.05
2	7236.10	-42.82	-11.05
Middle Channel			
1	4874.20	-33.84	-11.19
2	7311.10	-42.18	-11.19
High Channel			
1	4924.10	-32.90	-11.36
2	7386.20	-43.67	-11.36



Low Channel



Middle Channel



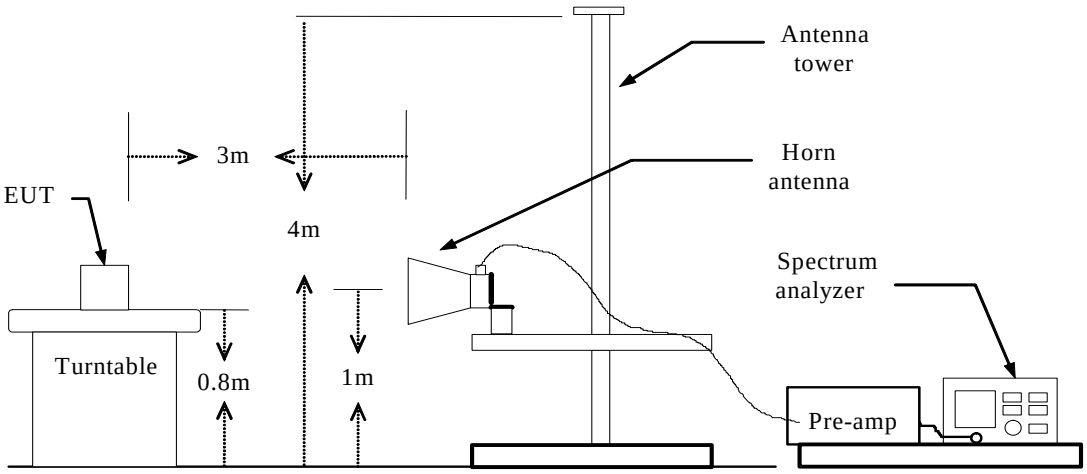
High Channel

4.4 Band Edge

4.4.1 Definition

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.

4.4.2 Test Description



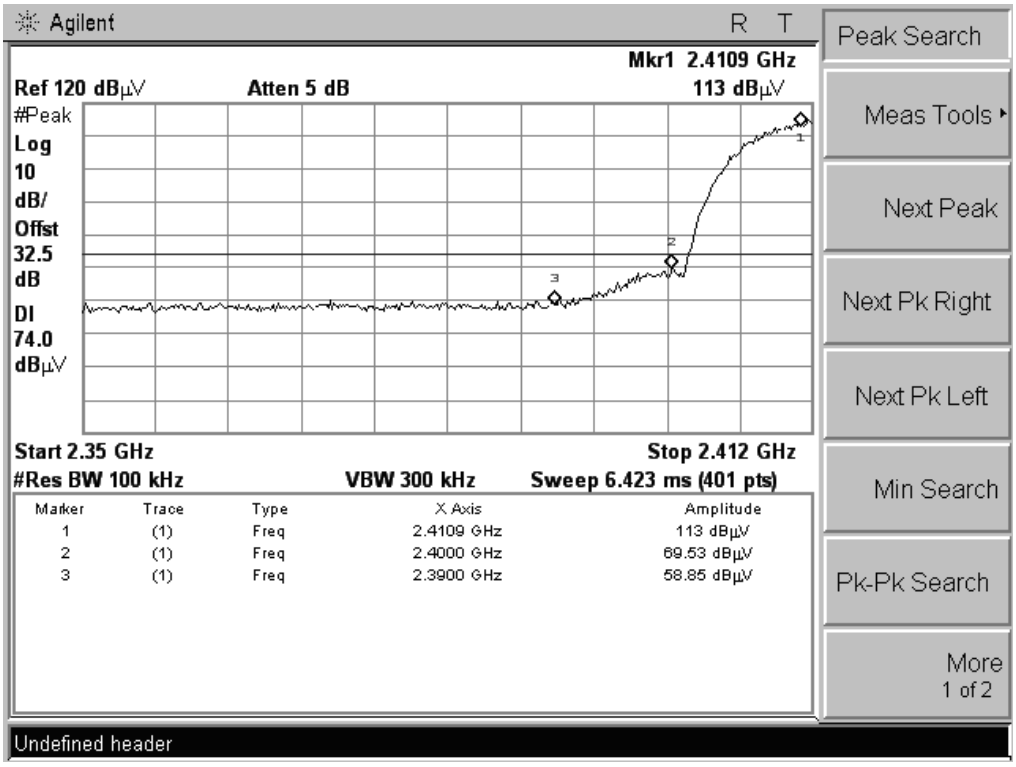
4.4.3 Test Result

The EUT operates at continuous transmit test mode. The lowest and highest channels are tested to verify the band edge emissions.

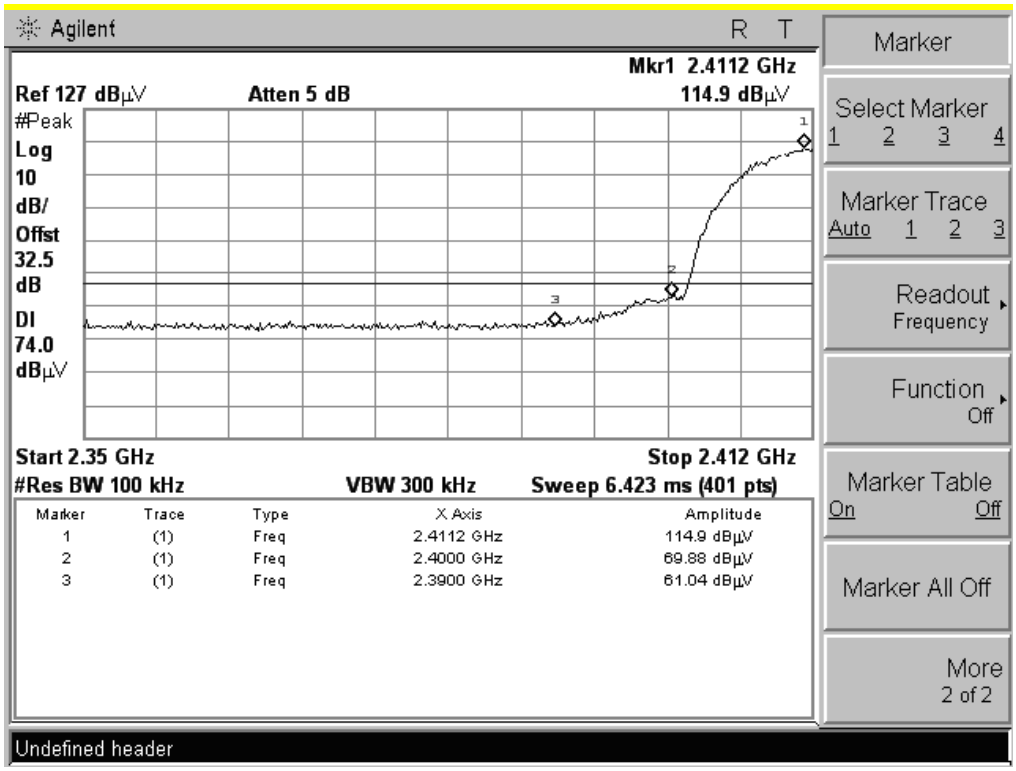
4.4.3.1 802.11b Test Mode

Test Mode		Channel Marked Frequency	Limit (dBuv/m)	Test Result Highest Emission (dBuv/m)			
				Vertical		Horizontal	
				Peak	Average	Peak	Average
WIFI	Low Channel	2390MHz	74(Peak) 54(Average)	58.85	39.86	61.04	38.46
		2400MHz		69.53	51.05	69.88	51.02
	High Channel	2483.5MHz		58.13	40. 35	59.60	39.65
		2500MHz		57.61	40.08	58.89	37.81

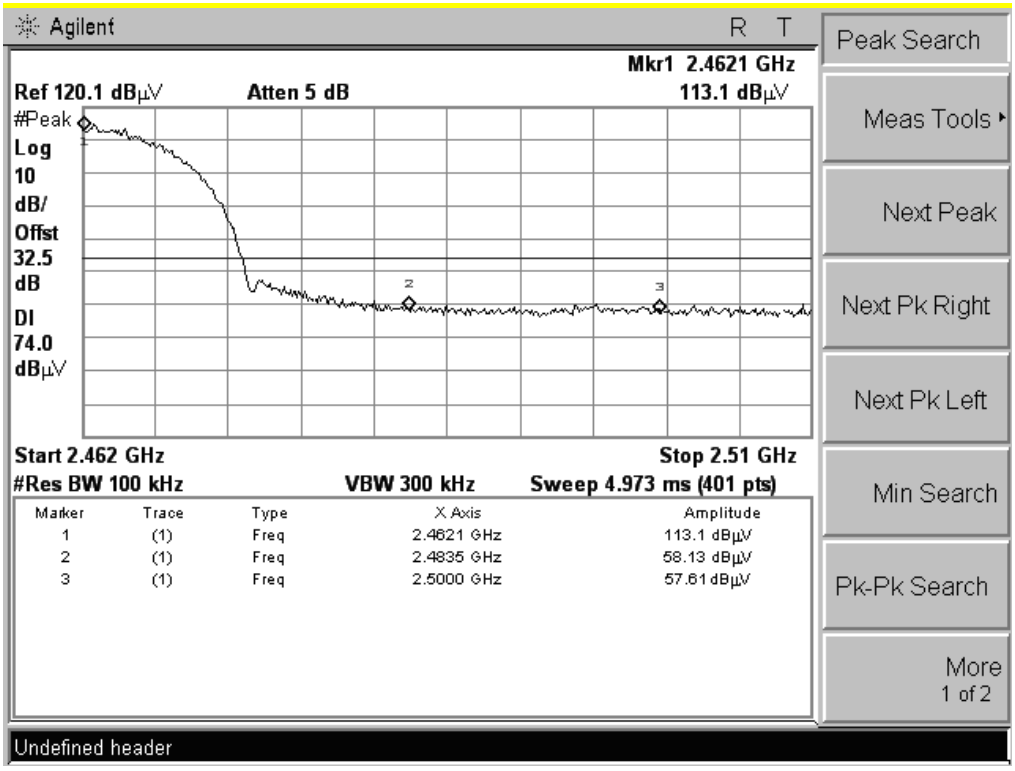
Test Plot:



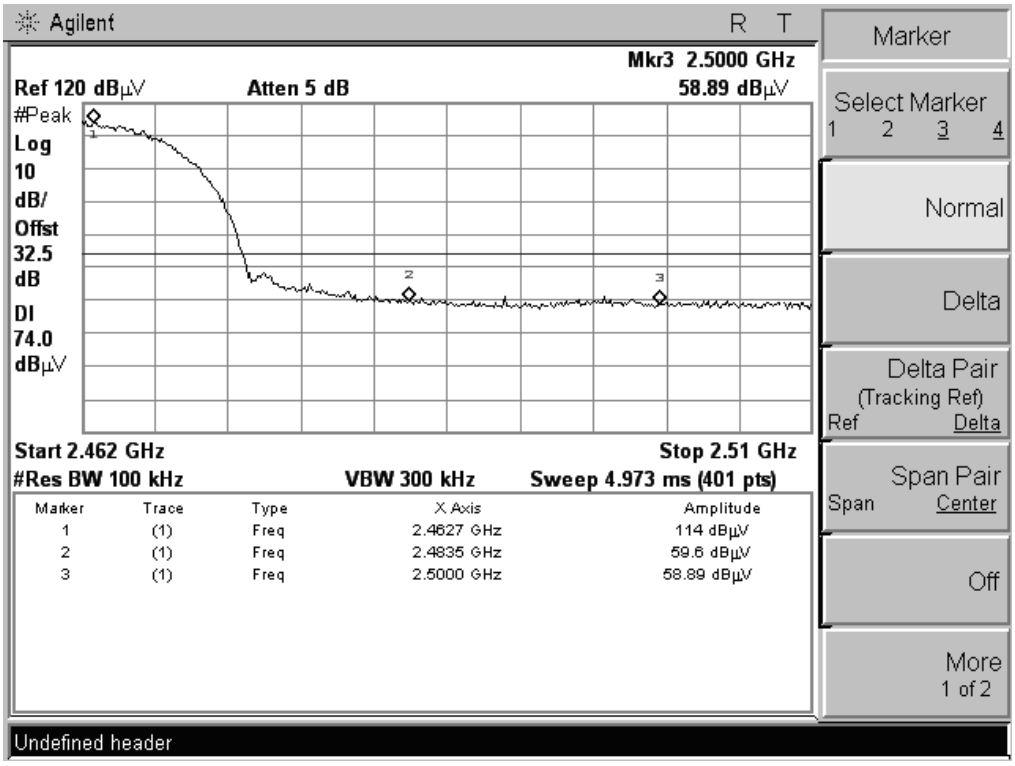
(CH Low, Vertical, Peak)



(CH Low, Horizontal, Peak)



(CH High, Vertical, Peak)

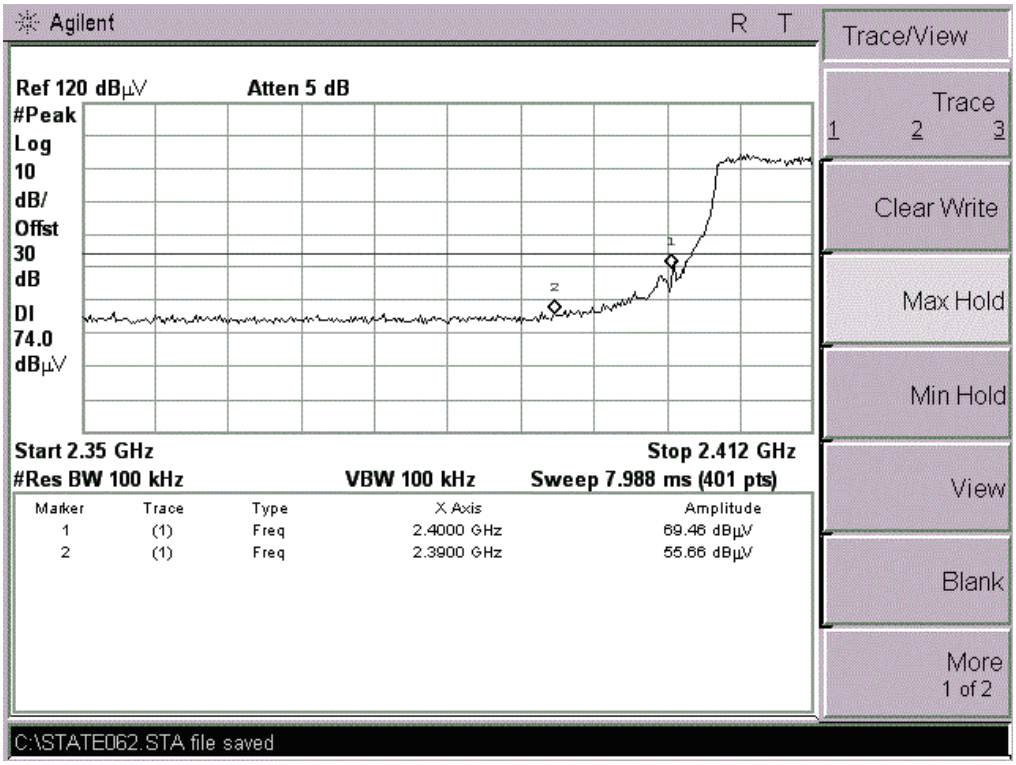


(CH High, Horizontal, Peak)

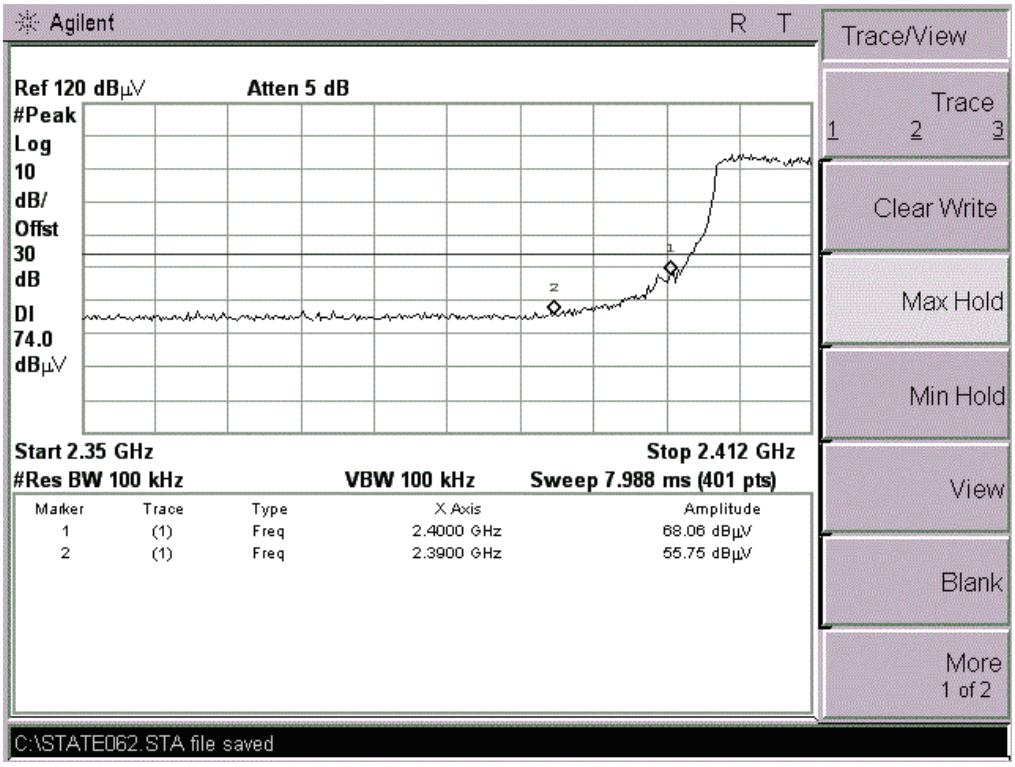
4.4.3.2 802.11g Test Mode

Test Mode		Channel Marked Frequency	Limit (dBuv/m)	Test Result Highest Emission (dBuv/m)			
				Vertical		Horizontal	
				Peak	Average	Peak	Average
WIFI	Low Channel	2390MHz	74(Peak) 54(Average)	55.66	37.25	55.75	36.76
		2400MHz		69.46	50.92	68.06	50.66
	High Channel	2483.5MHz		56.55	36.76	55.45	36.56
		2500MHz		55.65	36.86	55.85	39.02

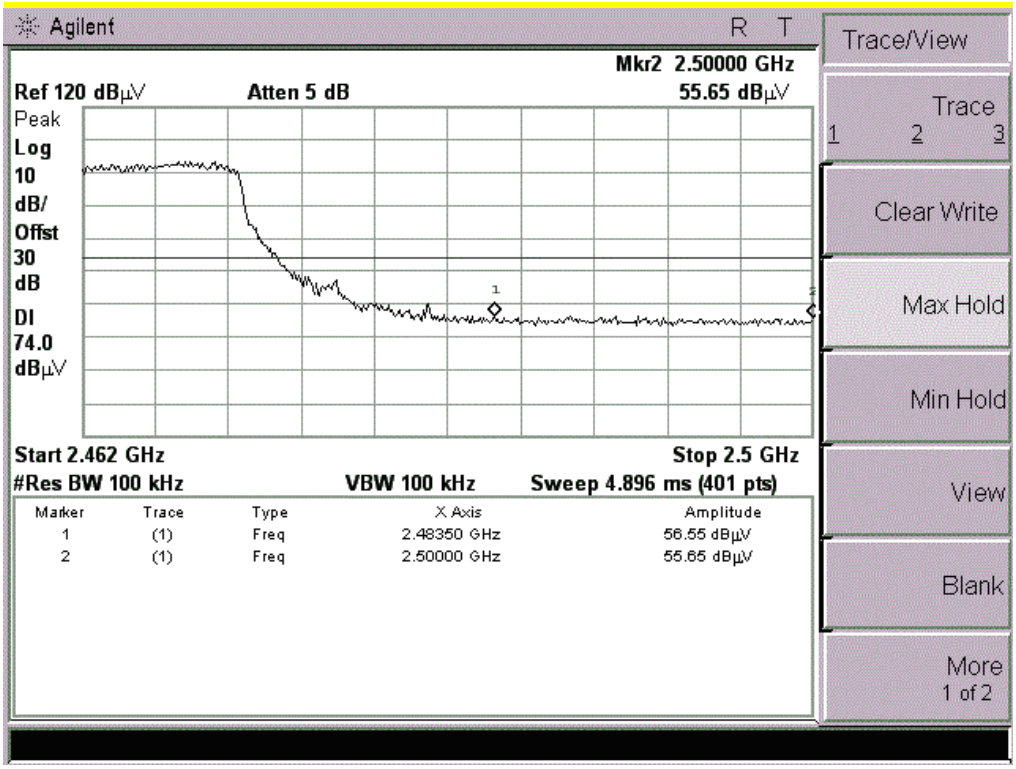
Test Plot:



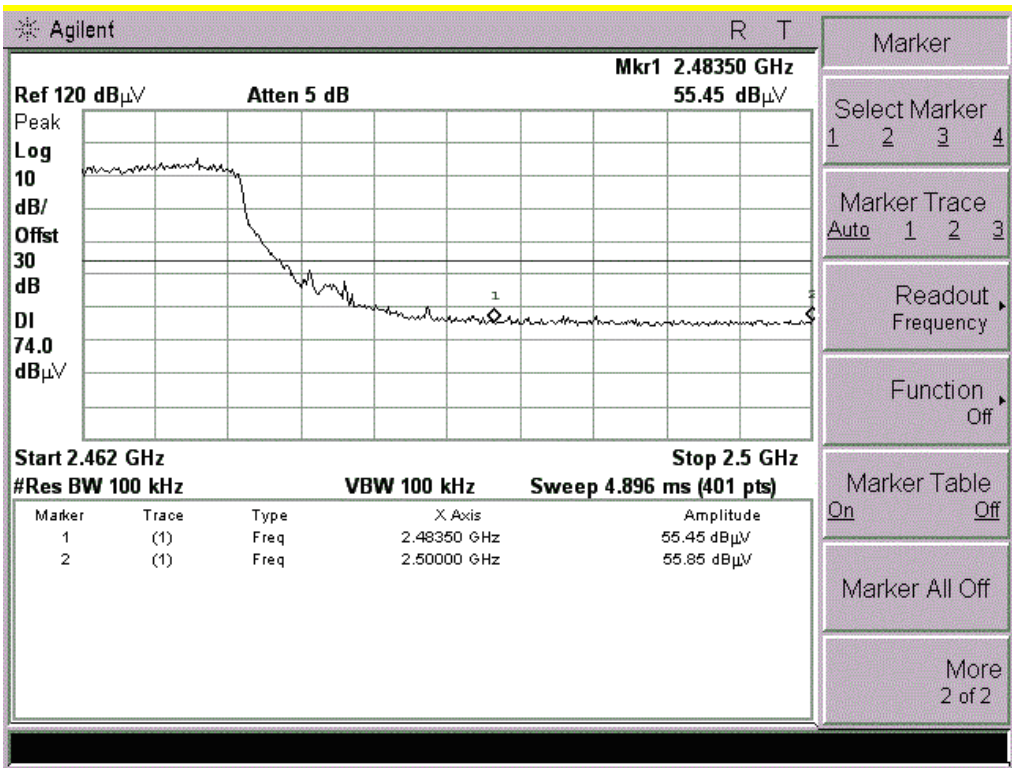
(CH Low, Vertical, Peak)



(CH Low, Horizontal, Peak)



(CH High, Vertical, Peak)

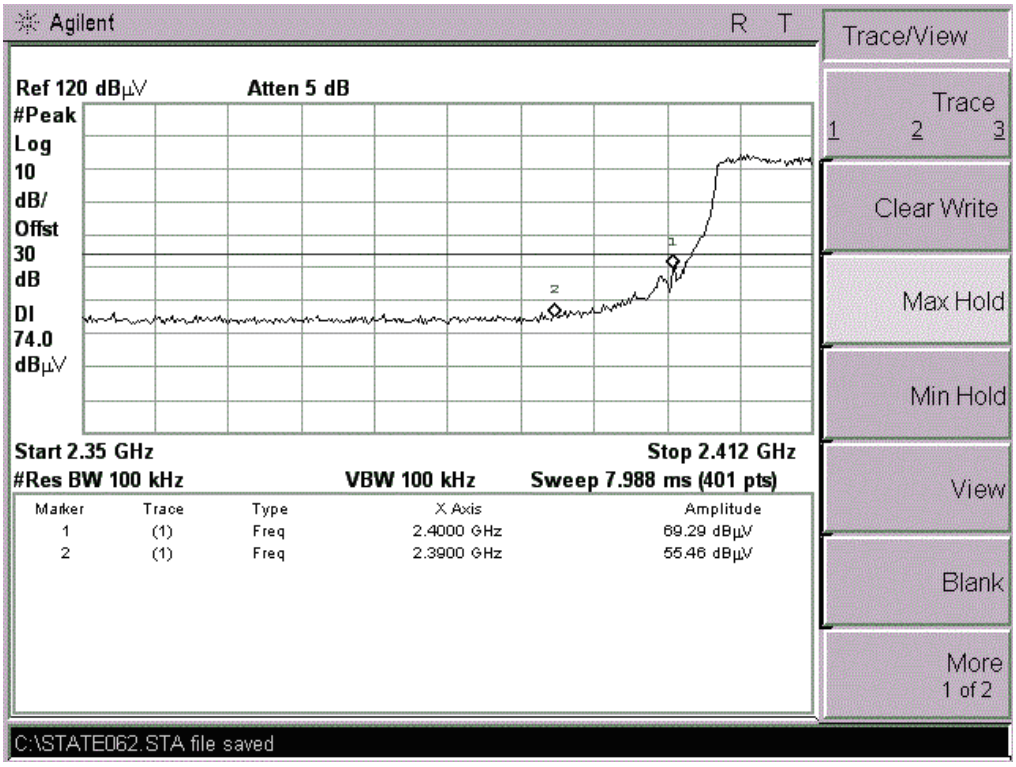


(CH High, Horizontal, Peak)

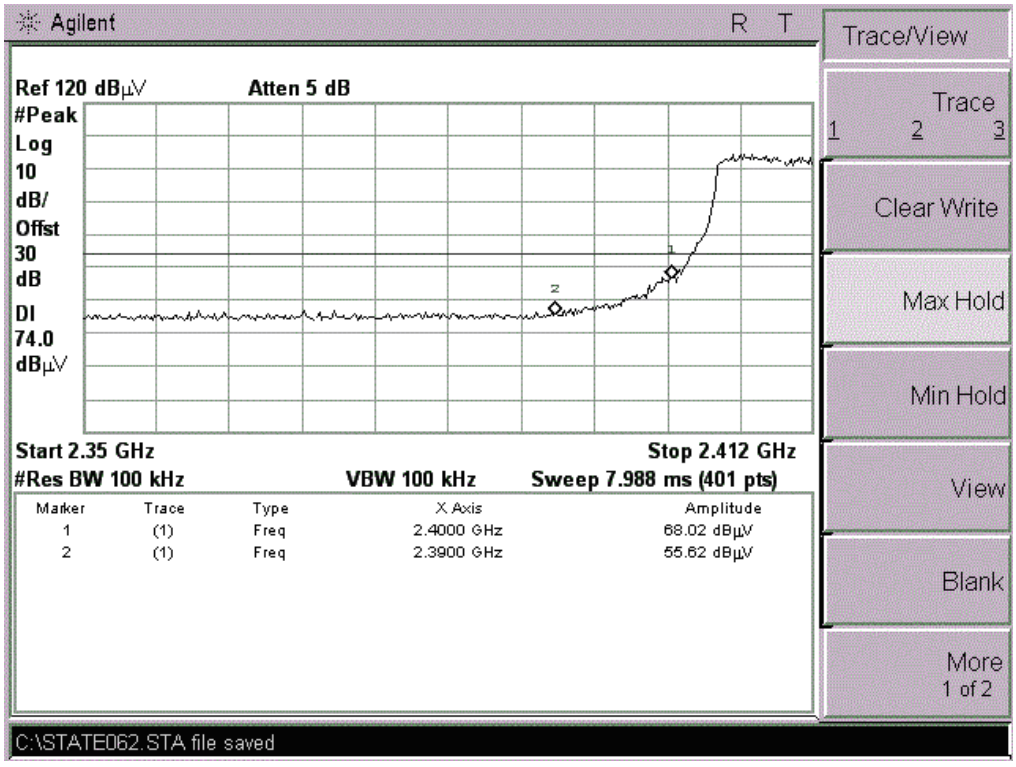
4.4.3.3 802.11n-20 Test Mode

Test Mode		Channel Marked Frequency	Limit (dBuv/m)	Test Result Highest Emission (dBuv/m)			
				Vertical		Horizontal	
				Peak	Average	Peak	Average
WIFI	Low Channel	2390MHz	74(Peak) 54(Average)	55.46	37.20	55.62	36.71
		2400MHz		69.29	50.89	68.02	50.64
	High Channel	2483.5MHz		56.50	36.74	55.48	36.49
		2500MHz		55.62	36.82	55.52	38.76

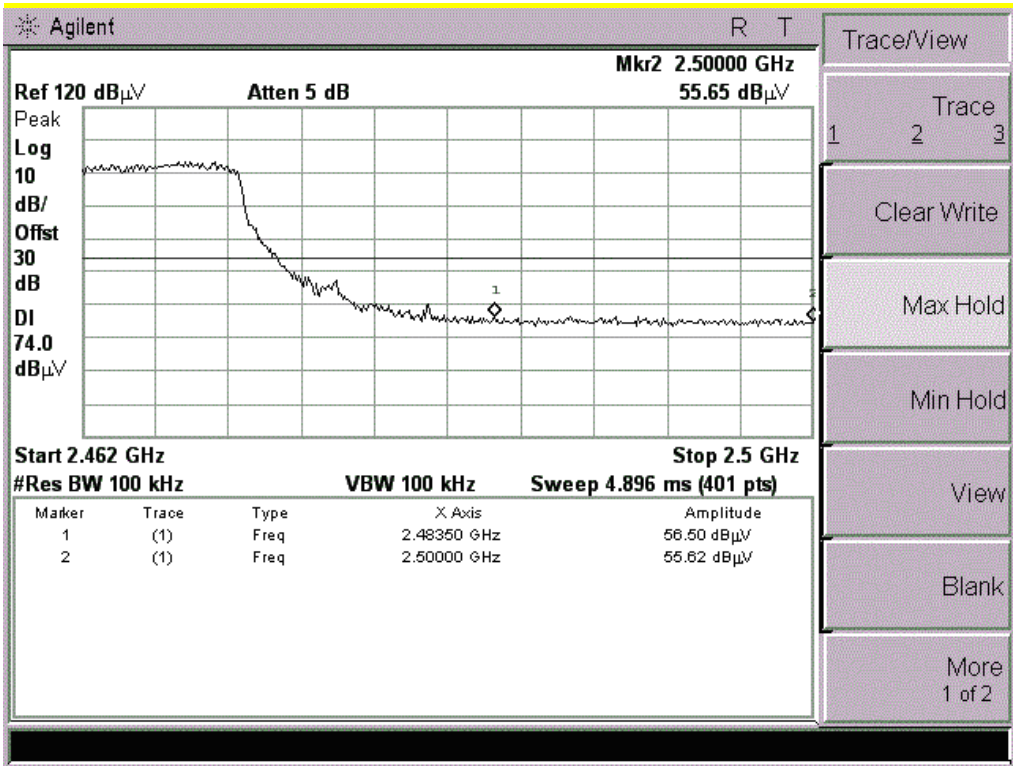
Test Plot:



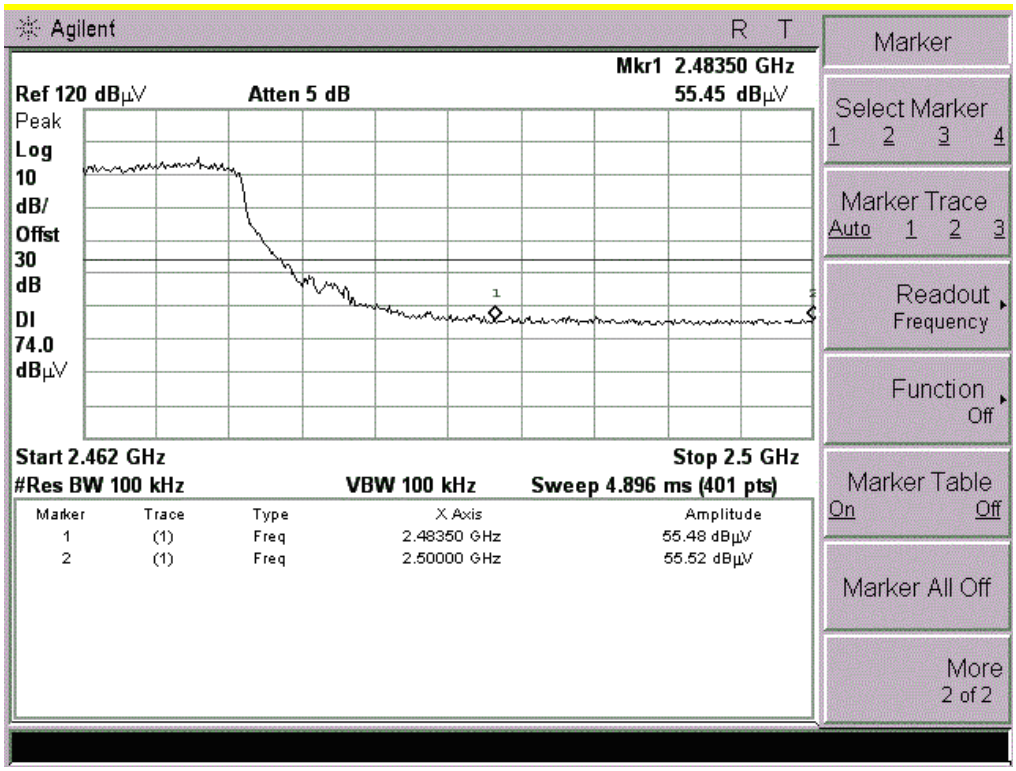
(CH Low, Vertical, Peak)



(CH Low, Horizontal, Peak)



(CH High, Vertical, Peak)



(CH High, Horizontal, Peak)

4.5 Power Spectral Density (PSD)

4.5.1 Definition

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

4.5.2 Test Description

The test method is refer to KDB 558074 D01 DTS Measurement Guidance V03r01 section 10.2.

4.5.3 Test Result

4.5.3.1 802.11b Test Mode

Channel	Frequency (MHz)	PSD (dBm)	Limits(dBm)	Result
1	2412	6.518	≤8	PASS
6	2437	6.469	≤8	PASS
11	2462	6.256	≤8	PASS

4.5.3.2 802.11g Test Mode

Channel	Frequency (MHz)	PSD (dBm)	Limits(dBm)	Result
1	2412	3.452	≤8	PASS
6	2437	3.628	≤8	PASS
11	2462	3.585	≤8	PASS

4.5.3.3 802.11n-20 Test Mode

Channel	Frequency (MHz)	PSD (dBm)	Limits(dBm)	Result
1	2412	-1.209	≤8	PASS
6	2437	-1.156	≤8	PASS
11	2462	-1.478	≤8	PASS

4.6 Conducted Emission

4.6.1 Definition

According to FCC section 15.207, for an intentional radiator that 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 the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN).

Frequency	Maximum RF Line Voltage	
	Q.P.(dBuV)	Average(dBuV)
150kHz-500kHz	66-56	56-46
500kHz-5MHz	56	46
5MHz-30MHz	60	50

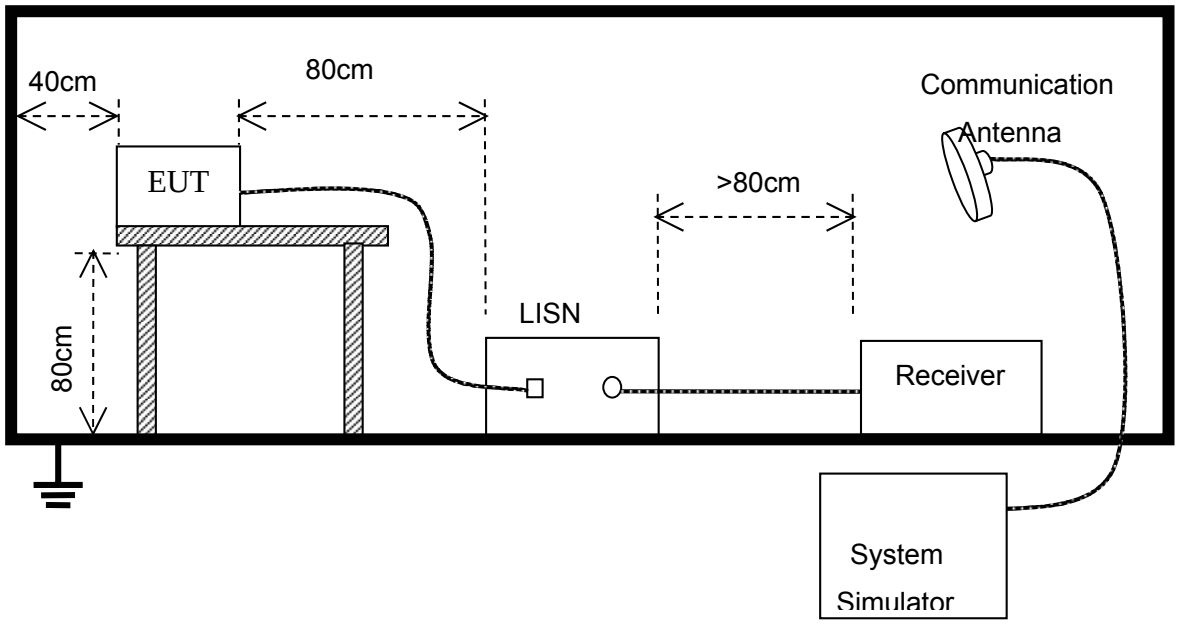
Note:

1. The lower limit shall apply at the transition frequency.

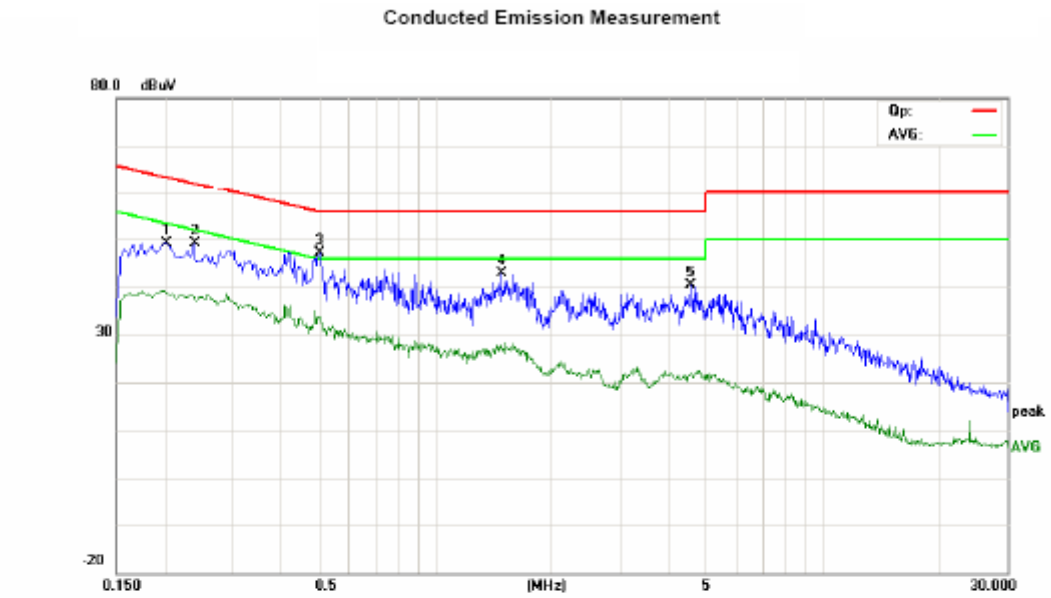
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz

4.6.2 Test Description

The EUT is powered by the Battery charged with the AC Adapter which is powered by 120V, 60Hz AC mains supply. The path loss as the factor is calibrated to correct the reading. During the measurement, the EUT is activated and is set to operate at maximum power.



4.6.3 Test Result



Site site #1 Phase: L1 Temperature: 26

Limit: FCC Part15 B Class B QP Power: AC 120V/60Hz Humidity: 60 %

EUT: Mobile Phone

M/N: S09

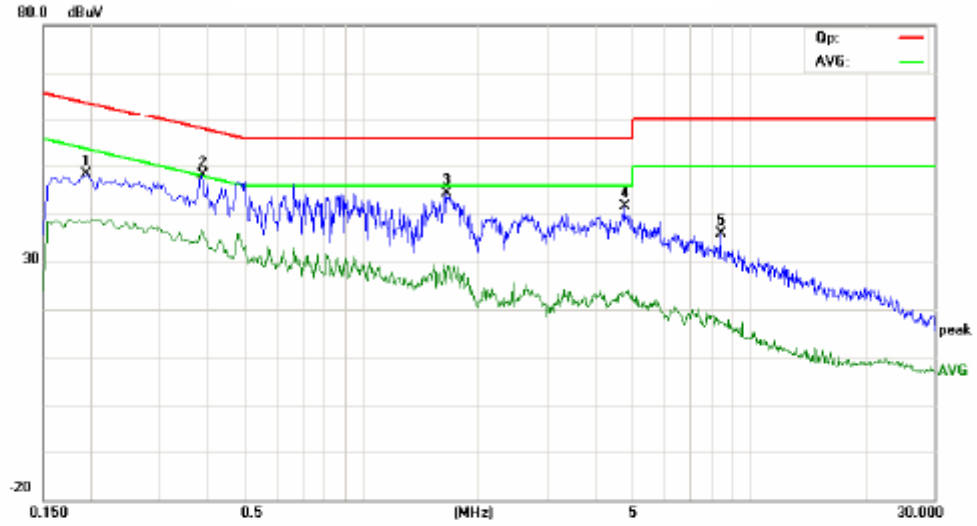
Mode: WIFI

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.2020	37.22	11.99	49.21	63.53	-14.32	peak	
2		0.2380	37.31	11.75	49.06	62.17	-13.11	peak	
3	*	0.5020	37.16	10.00	47.16	56.00	-8.84	peak	
4		1.4860	33.43	9.51	42.94	56.00	-13.06	peak	
5		4.5500	28.78	11.55	40.33	56.00	-15.67	peak	

*:Maximum data x:Over limit !:over margin

Conducted Emission Measurement



Site site #1 Phase: N Temperature: 26

Limit: FCC Part15 B Class B QP Power: AC 120V/60Hz Humidity: 60 %

EUT: Mobile Phone

M/N: S09

Mode: WIFI

Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1940	36.84	11.64	48.48	63.86	-15.38	peak	
2	*	0.3860	37.29	10.76	48.05	58.15	-10.10	peak	
3		1.6420	34.98	9.36	44.34	56.00	-11.66	peak	
4		4.7540	29.79	11.75	41.54	56.00	-14.46	peak	
5		8.4460	26.02	9.93	35.95	60.00	-24.05	peak	

*:Maximum data x:Over limit !:over margin

4.7 Radiated Emission

4.7.1 Definition

According to FCC section 15.247(d), radiated emission outside the frequency band 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)).

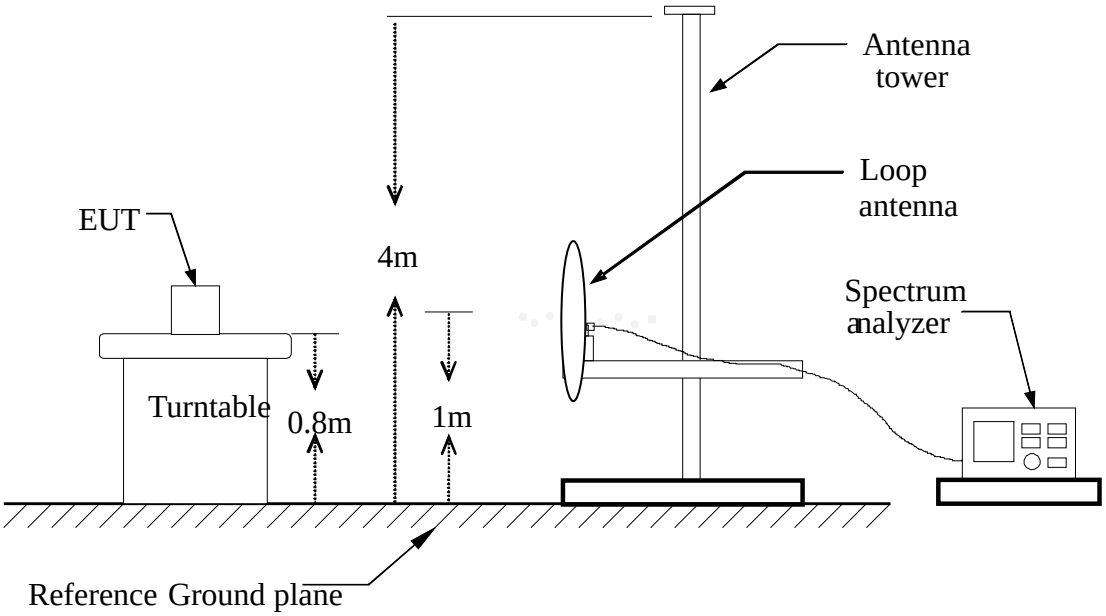
According to FCC section 15.209 (a), except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

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

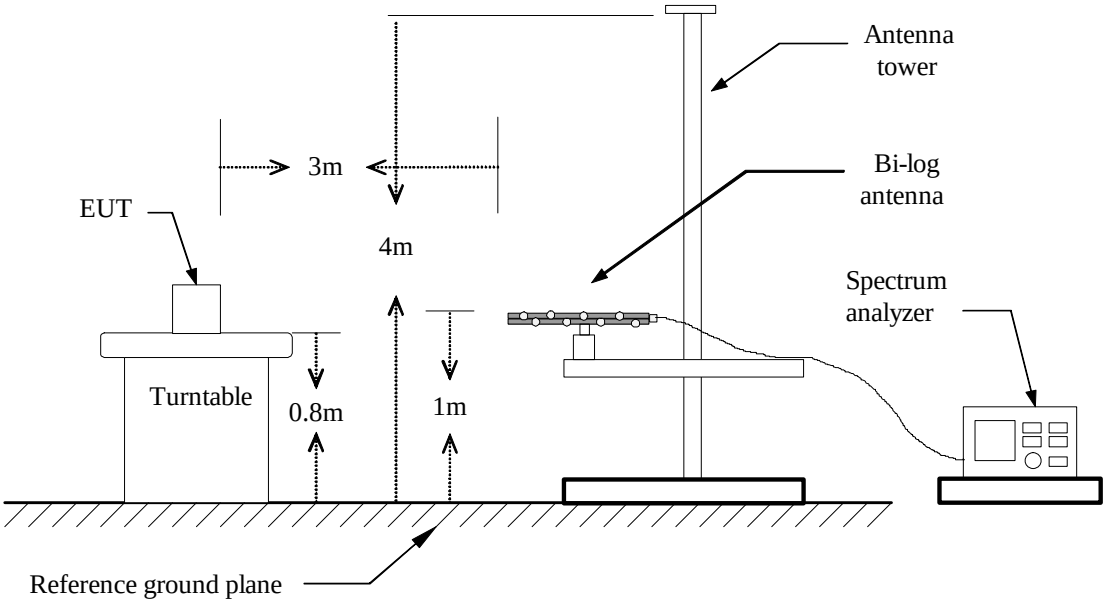
As shown in FCC section 15.35(b), for frequencies above 1000MHz, the field strength limits are based on average detector. When average radiated emission measurements are specified in this part, including emission measurements below 1000MHz, there also is a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 20dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

4.7.2 Test Description

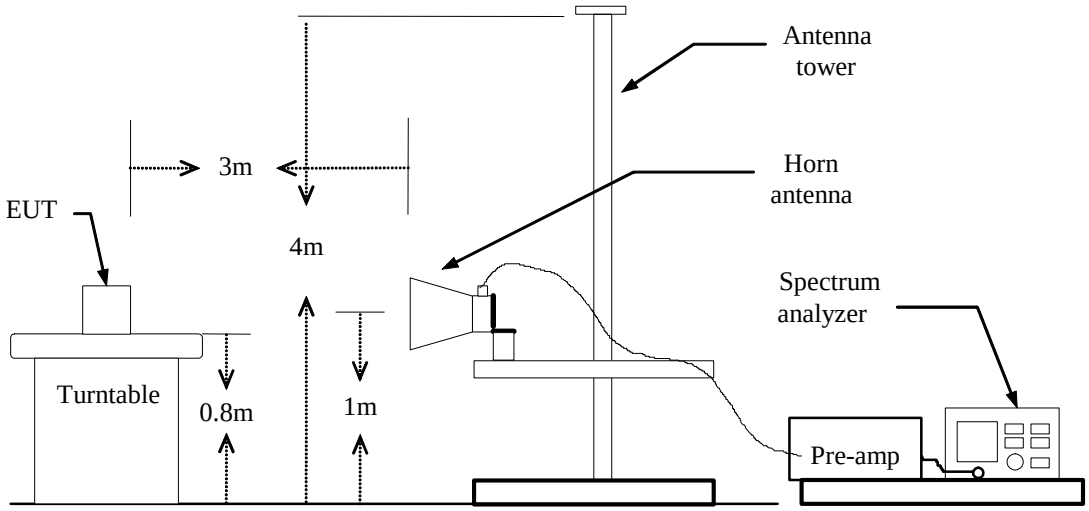
A. Test Setup:


Antenna
tower
Loop
antenna
EUT
4m
Spectrum
analyzer
Turntable
0.8m
1m
Reference Ground plane

Blow 1GHz:


Antenna
tower
3m
Bi-log
antenna
EUT
4m
Spectrum
analyzer
Turntable
0.8m
1m
Reference ground plane

Above 1GHz:



B. Test procedures

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
1. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

   Below 1GHz: RBW=100 kHz / VBW=300 kHz / Sweep=AUTO

   Above 1GHz : (a) PEAK: RBW=VBW=1MHz / Sweep=AUTO
   (b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

7. Repeat above procedures until the measurements for all frequencies are complete.

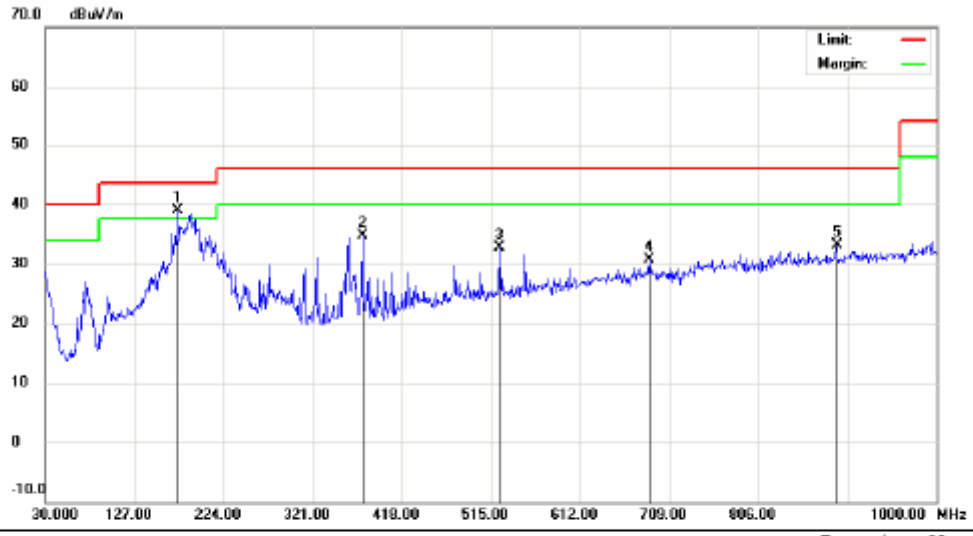
4.7.3 Test Result

Form 9 KHz to 30MHz:

The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

Form 30MHz to 1000MHz:

Radiated Emission Measurement

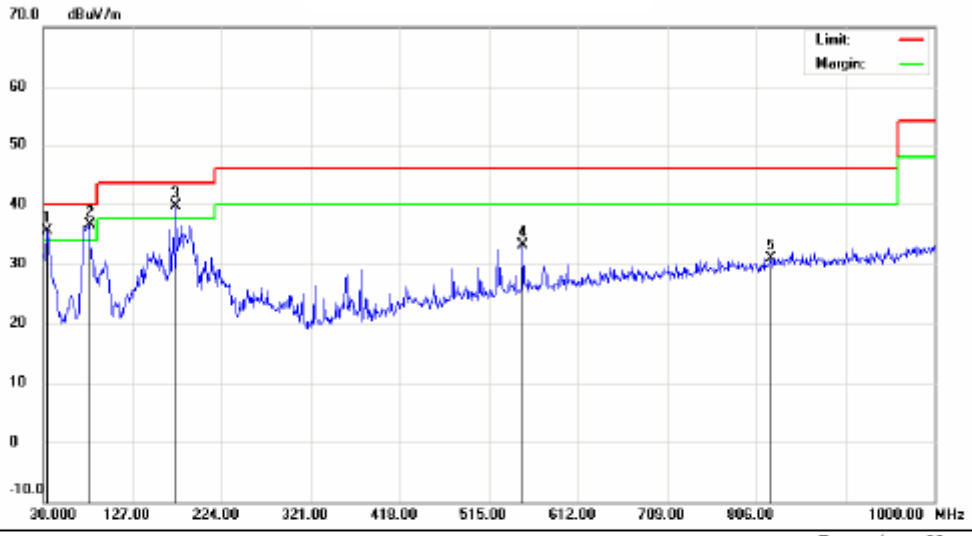


Site site MOST 3M
Polarization: *Horizontal*
Temperature: 26
Limit: FCC Part15 B 3M Radiation
Power: AC 120V/60Hz
Humidity: 61 %
EUT: Mobile Phone
Distance:
M/N: S09
Mode: WIFI
Note:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	174.5300	21.98	16.97	38.95	43.50	-4.55	peak			
2		375.3200	16.50	18.24	34.74	46.00	-11.26	peak			
3		524.7000	10.64	22.04	32.68	46.00	-13.32	peak			
4		687.6599	6.33	24.40	30.73	46.00	-15.27	peak			
5		890.3900	5.74	27.30	33.04	46.00	-12.96	peak			

*:Maximum data x:Over limit !:over margin

Radiated Emission Measurement



Site site MOST 3M
Limit: FCC Part15 B 3M Radiation
EUT: Mobile Phone
M/N: S09
Mode: WIFI
Note:

Polarization: *Vertical*
Power: AC 120V/60Hz

Temperature: 26
Humidity: 61 %

Distance:

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	!	34.8500	14.41	21.06	35.47	40.00	-4.53	peak			
2	*	79.4700	25.03	11.43	36.46	40.00	-3.54	peak			
3	!	174.5300	22.67	16.97	39.64	43.50	-3.86	peak			
4		551.8600	10.53	22.57	33.10	46.00	-12.90	peak			
5		821.5200	4.35	26.59	30.94	46.00	-15.06	peak			

*:Maximum data x:Over limit !:over margin

Above 1 GHz

Operation Mode:	TX/ IEEE 802.11b/CH Low	**Test Date:**	December 04,2013
Temperature:	20°C	**Tested by:**	Habby Guo
Humidity:	70 % RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	AV Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
4824.02	H	48.48	24.38	23.08	71.56	47.46	74.00	54.00	-6.54
N/A									>20
4824.02	V	47.75	23.89	23.93	71.68	47.82	74.00	54.00	-6.18
N/A									>20

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:
   margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

Operation Mode:	TX/ IEEE 802.11b/CH Mid	**Test Date:**	December 04,2013
Temperature:	20°C	**Tested by:**	Habby Guo
Humidity:	70 % RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	AV Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
4874.15	H	48.02	23.24	23.23	71.25	46.47	74.00	54.00	-7.53
N/A									>20
4874.15	V	48.33	23.55	23.23	71.56	46.78	74.00	54.00	-7.22
N/A									>20

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:
   margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

Operation Mode:	TX/ IEEE 802.11b/CH High	**Test Date:**	December 04,2013
Temperature:	20°C	**Tested by:**	Habby Guo
Humidity:	70 % RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	AV Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
4920.05	H	47.76	23.56	23.35	71.11	46.91	74.00	54.00	-7.09
N/A									>20
4920.05	V	48.10	23.67	23.35	71.45	47.02	74.00	54.00	-6.98
N/A									>20

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:
   margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

Operation Mode:	TX/ IEEE 802.11g/CH Low	**Test Date:**	December 04,2013
Temperature:	20°C	**Tested by:**	Habby Guo
Humidity:	70 % RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	AV Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
4824.02	H	47.27	21.68	23.08	70.35	44.76	74.00	54.00	-9.24
N/A									>20
4824.02	V	46.61	21.20	23.93	70.54	45.13	74.00	54.00	-8.87
N/A									>20

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:
   margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

Operation Mode:	TX/ IEEE 802.11g/CH Mid	**Test Date:**	December 04,2013
Temperature:	20°C	**Tested by:**	Habby Guo
Humidity:	70 % RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	AV Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
4874.15	H	46.29	22.35	23.23	69.52	45.58	74.00	54.00	-8.42
N/A									>20
4874.15	V	46.41	22.60	23.23	69.64	45.83	74.00	54.00	-8.17
N/A									>20

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:
   margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

Operation Mode:	TX/ IEEE 802.11g/CH High	**Test Date:**	December 04,2013
Temperature:	20°C	**Tested by:**	Habby Guo
Humidity:	70 % RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	AV Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
4920.05	H	46.27	22.76	23.35	69.62	46.11	74.00	54.00	-7.89
N/A									>20
4920.05	V	46.14	23.27	23.35	69.49	46.62	74.00	54.00	-7.38
N/A									>20

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:
   margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

Operation Mode:	TX/ IEEE 802.11n/CH Low	**Test Date:**	December 04,2013
Temperature:	20°C	**Tested by:**	Habby Guo
Humidity:	70 % RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	AV Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
4824.02	H	46.07	21.43	23.08	69.15	44.51	74.00	54.00	-9.49
N/A									>20
4824.02	V	45.72	20.83	23.93	69.65	44.76	74.00	54.00	-9.24
N/A									>20

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:
   margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

Operation Mode:	TX/ IEEE 802.11n/CH Mid	**Test Date:**	December 04,2013
Temperature:	20°C	**Tested by:**	Habby Guo
Humidity:	70 % RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	AV Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
4874.15	H	45.73	22.55	23.23	68.96	45.78	74.00	54.00	-8.22
N/A									>20
4874.15	V	45.89	22.61	23.23	69.12	45.84	74.00	54.00	-8.16
N/A									>20

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:
   margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

Operation Mode:	TX/ IEEE 802.11n/CH High	**Test Date:**	December 04,2013
Temperature:	20°C	**Tested by:**	Habby Guo
Humidity:	70 % RH	**Polarity:**	Ver. / Hor.

Freq. (MHz)	Ant. Pol H/V	Peak Reading (dBuV)	AV Reading (dBuV)	Ant. / CL CF (dB)	Actual Fs		Peak Limit (dBuV/m)	AV Limit (dBuV/m)	AV Margin (dB)
					Peak (dBuV/m)	AV (dBuV/m)			
4920.05	H	44.97	21.86	23.35	68.32	45.21	74.00	54.00	-8.79
N/A									>20
4920.05	V	45.32	22.17	23.35	68.67	45.52	74.00	54.00	-8.48
N/A									>20

Notes:

1. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.
2. Radiated emissions measured in frequency above 1000MHz were made with an instrument using peak/average detector mode.
3. Average test would be performed if the peak result were greater than the average limit or as required by the applicant.
4. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
5. Measurements above show only up to 6 maximum emissions noted, or would be lesser, with " N/A " remark, if no specific emissions from the EUT are recorded (ie:
   margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.
6. Margin (dB) = Remark result (dBuV/m) – Average limit (dBuV/m).

------END OF REPORT------