



FCC RF Test Report

Product Type : WCDMA Mobile Phone
Applicant : Sky Phone LLC
Address : 1348 Washington Av., Miami Beach
Trade Name : SKY DEVICE
Model Number : SKY 5.0S
Test Specification : FCC 47 CFR PART 15 SUBPART C: Oct., 2013
RSS-210 Issue 8 December 2010
ANSI C63.10:2009
KD558074 D01 DTS Meas Guidance v03r02
Receive Date : 23 July, 2014
Test Period : 23 July, 2014 to 23 Aug, 2014
Issue Date : 23, Aug 2014

Issue by

A Test Lab Techno Corp.

No. 140-1, Changan Street, Bade City,

Taoyuan County 334, Taiwan R.O.C.

Tel : +886-3-2710188 / Fax : +886-3-2710190



Taiwan Accreditation Foundation accreditation number: 1330

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Revision History

Rev.	Issue Date	Revisions	Revised By
00	23 Aug, 2014	Initial Issue	



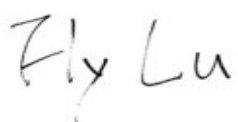
Verification of Compliance

Issued Date: 08/23/2014

Product Type : WCDMA Mobile Phone
Applicant : Sky Phone LLC
Address : 1348 Washington Av., Miami Beach
Trade Name : SKY DEVICE
Model Number : SKY 5.0S
FCC ID : 2ABOSGCSKY50S
EUT Rated Voltage : AC 120V; DC 3.7V battery, DC 5.0V USB charge;
Test Voltage : AC 120V; DC 3.7V;
Applicable Standard : FCC 47 CFR PART 15 SUBPART C: Oct., 2013
RSS-210 Issue 8 December 2010
ANSI C63.10:2009
KD558074 D01 DTS Meas Guidance v03r02
Test Result : Complied
Performing Lab. : Shenzhen Academy of Metrology and Quality Inspection
No.4 Tongfa Road, Xili Town, Nanshan District, Shenzhen,
Guangdong, China
Tel : 0086-755-86928965 / Fax : 0086-755-86009898-31396
Web: www.smq.com.cn

The EUT described above is tested by Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory to determine the maximum emissions from the EUT. Shenzhen Academy of Metrology and Quality Inspection EMC Laboratory assumed full responsibility for the accuracy of the test results. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with FCC Rules Part 15.207, 15.209 and 15.247.

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

Approved By :  Reviewed By : 
(Manager) (Murphy Wang) (Testing Engineer) (Fly Lu)



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1. General Information

1.1 Applied Standard

Applied Rules: FCC 47 CFR PART 15 SUBPART C: Oct., 2013

Test Method: FCC 558074 D01 DTS Meas Guidance
FCC KDB 662911 D01 Multiple Transmitter Output

1.2 Test Location

Test Location 1: Shenzhen Academy of Metrology and quality Inspection

Address: No.4 Tongfa Road, Xili Town, Nanshan District, Shenzhen, Guangdong, China

1.3 Test Environment Condition

Ambient Temperature: 19.5 to 25°C

Ambient Relative Humidity: 40 to 55 %

Atmospheric Pressure: Not applicable

2. Test Summary

Test Item	FCC Part No.	Requirements	Verdict
DTS (6 dB) Bandwidth	15.247(a)(2)	≥ 500 kHz.	PASS
Maximum Peak Conducted Output Power	15.247(b)(3)	For directional gain: $< 30\text{dBm} - (G[\text{dBi}] - 6[\text{dB}])$, peak; Otherwise: $< 30\text{dBm}$, peak.	PASS
Maximum Power Spectral Density Level	15.247(e)	For directional gain: $< 8\text{dBm}/3\text{ kHz} - (G[\text{dBi}] - 6[\text{dB}])$, peak. Otherwise: $< 8\text{dBm}/3\text{ kHz}$, peak.	PASS
Band Edges Compliance	15.247(d)	$< -20\text{dBm}/100\text{ kHz}$ if total peak power $\leq$ power limit.	PASS
Unwanted Emissions into Non-Restricted Frequency Bands	15.247(d)	$< -20\text{dBm}/100\text{ kHz}$ if total peak power $\leq$ power limit.	PASS
Unwanted Emissions into Restricted Frequency Bands (Conducted)	15.247(d) 15.209	$< -20\text{dBm}/100\text{ kHz}$ if total peak power $\leq$ power limit.	PASS
Unwanted Emissions into Restricted Frequency Bands (Radiated)	15.247(d) 15.209	FCC Part 15.209 field strength limit;	PASS
AC Power Line Conducted Emissions	15.207	FCC Part 15.207 conducted limit;	PASS

3. Description of the Equipment under Test (EUT)



3.1 General Description

Product	WCDMA Mobile Phone	
Trade Name	SKY DEVICE	
Model Number	SKY 5.0S	
Applicant	Sky Phone LLC 1348 Washington Av., Miami Beach	
Manufacturer	Shenzhen Malata Mobile Communication CO.,LTD 25/F, Malata Technology Building, NO9998 Shennan Rd, Hi-tech Park, Nanshan, Shenzhen, P.R. China 518057.	
FCC ID	2ABOSGCSKY50S	
Mode	Frequency (MHz)	Modulation
IEEE 802.11b	2412 ~ 2462	CCK(DSSS)
IEEE 802.11g	2412 ~ 2462	OFDM
IEEE 802.11n HT20	2412 ~ 2462	16-QAM, 64-QAM
IEEE 802.11n HT40	2422 ~ 2452	16-QAM, 64-QAM
Antenna Delivery	1*Tx + 1*Rx	
Type of Antenna	Internal	
Antenna Gain (dBi)	0 dBi	

NOTE: Only WLAN test data included in this report.

3.2 EUT Identity

IMEI No.	
SIM 1	883772029997780
SIM 2	863772029998101

NOTE: Unless otherwise noted in the report, the functional boards installed in the units shall be selected from the below list, but not means all the functional boards listed below shall be installed in one unit.

3.3 Test Modes

NOTE: Typical working modes for each IEEE 802.11mode are selected to perform tests. The manufacturer provide special test software to control TX duty cycle >98% for TX test.

Test Mode	Test Modes Description
11b	IEEE 802.11b with data rate of 1 Mbps using SISO mode.
11g	IEEE 802.11g with data rate of 6 Mbps using SISO mode.
11n HT20	IEEE 802.11n with data date of MCS0 and bandwidth of 20MHz using SISO mode.
11n HT40	IEEE 802.11n with data date of MCS7 and bandwidth of 40MHz using SISO mode.

3.4 EUT Configurations

3.4.1 General Configurations

Configuration	Description
Test Antenna Ports	Until otherwise specified, All TX tests are performed at all TX antenna ports of the EUT, and All RX tests are performed at all RX antenna ports of the EUT.
Multiple RF Sources	Other than the tested RF source of the EUT, other RF source(s) are disabled or shutdown during measurements.



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

3.4.2 Customized Configurations

Test Mode	RF Ch.	BG Port	TX Freq. [MHz]	RX Freq. [MHz]	Ch. BW [MHz]
11b	L	BG 1	Ch No. 1 / 2412MHz	---	20
		BG2		---	20
	M	BG 1	Ch No. 6 / 2437 MHz	---	20
		BG2		---	20
	H	BG 1	Ch No. 11/ 2462MHz	---	20
		BG2		---	20
11g	L	BG 1	Ch No. 1 / 2412MHz	---	20
		BG2		---	20
	M	BG 1	Ch No. 6 / 2437 MHz	---	20
		BG2		---	20
	H	BG 1	Ch No. 11/ 2462MHz	---	20
		BG2		---	20
11n HT20	L	BG 1	Ch No. 1 / 2412MHz	---	20
		BG2		---	20
	M	BG 1	Ch No. 6 / 2437 MHz	---	20
		BG2		---	20
	H	BG 1	Ch No. 11/ 2462MHz	---	20
		BG2		---	20
11n HT40	L	BG 1	Ch No. 3/ 2422MHz	---	40
		BG2		---	40
	M	BG 1	Ch No. 6 / 2437 MHz	---	40
		BG2		---	40
	H	BG 1	Ch No. 9/ 2452 MHz	---	40
		BG2		---	40

3.5 Test Environments

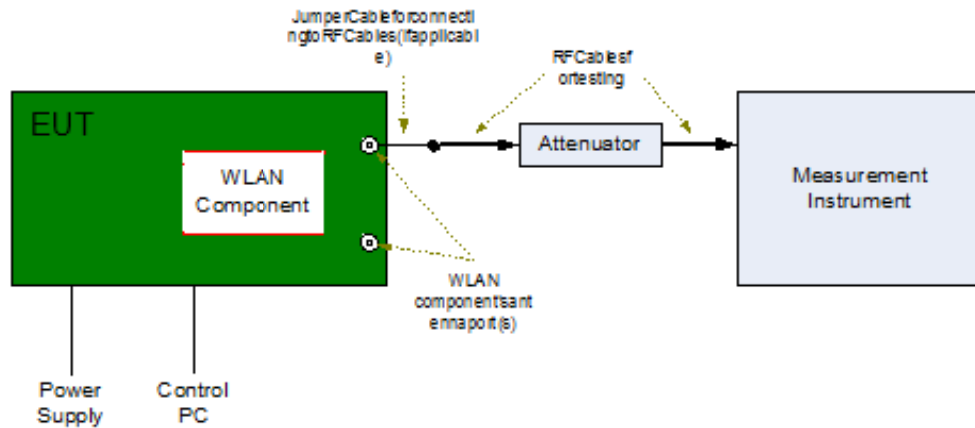
NOTE: The values used in the test report maybe stringent than the declared.

Environment Parameter	Selected Values During Tests		
NTNV	Temperature	Voltage	Relative Humidity
	Ambient	3.7VDC	Ambient

3.6 Test Setups

3.6.1 Test Setup 1

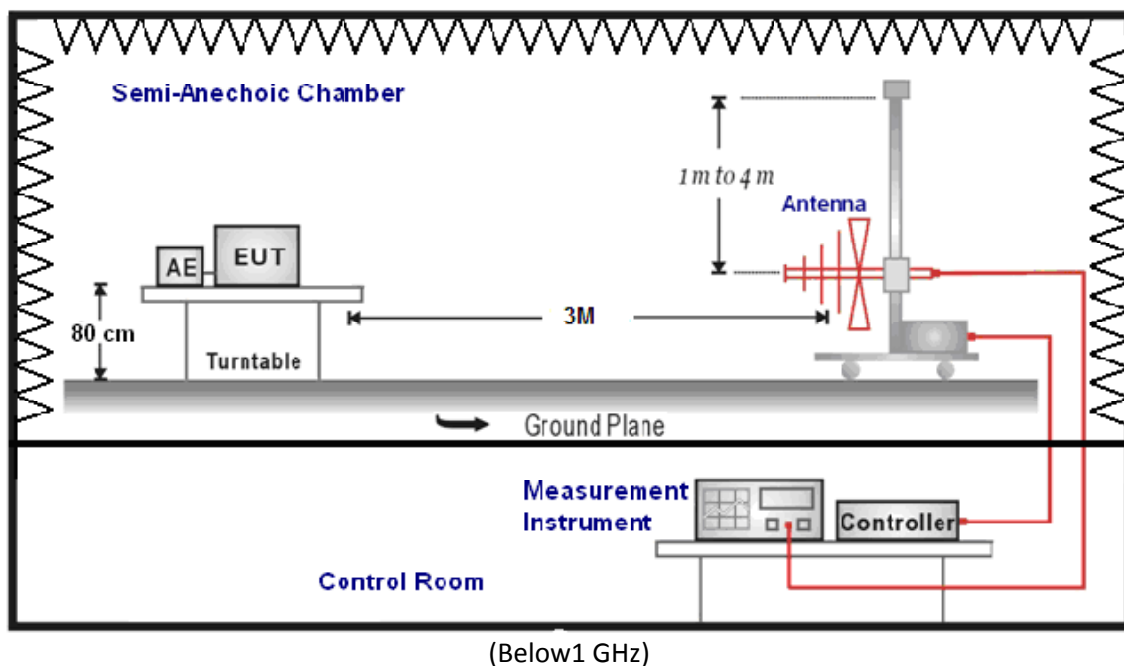
The WLAN component's antenna ports(s) of the EUT are connected to the measurement instrument per an appropriate attenuator. The EUT is controlled by PC/software to emit the specified signals for the purpose of measurements.

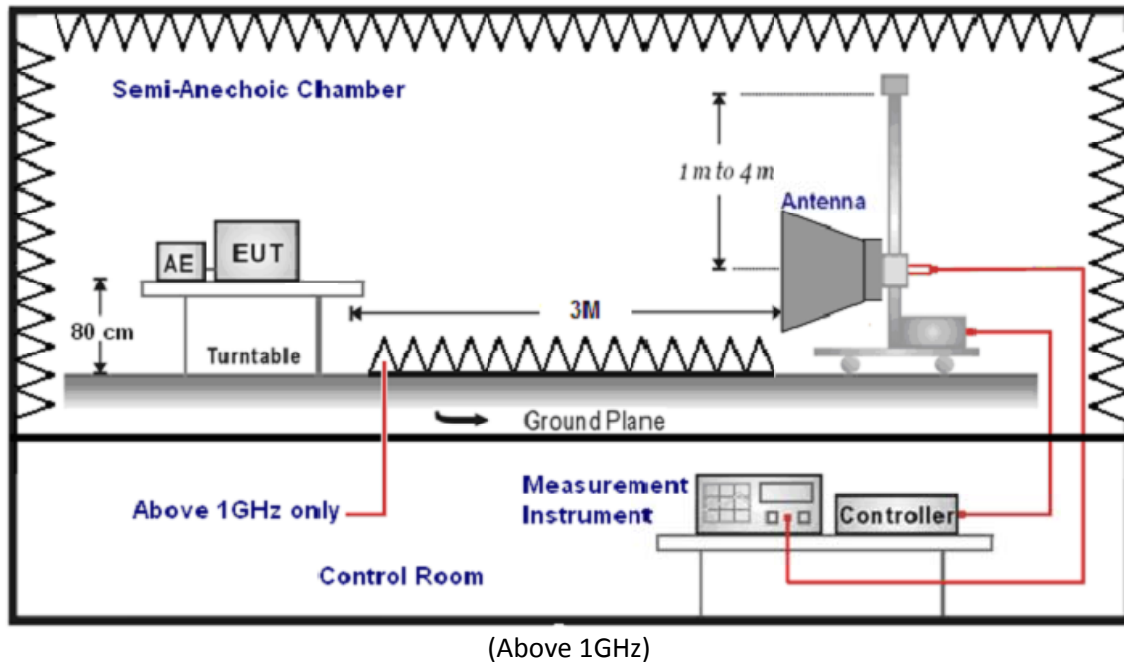


3.6.2 Test Setup 2

The test site's anechoic chamber has met the requirement of NSA tolerance 4dB according to the standards: ANSI C63.4. The test distance is 3m. The setup is according to ANSI C63.4 and CAN/CSA-CEI/IEC CISPR 22.

The maximal emission value is acquired by adjusting the antenna height, polarization and turntable azimuth. Normally, the height range of antenna is 1m to 4m, the azimuth range of turntable is 0° to 360°, and the receive antenna has two polarizations Vertical (V) and Horizontal (H).

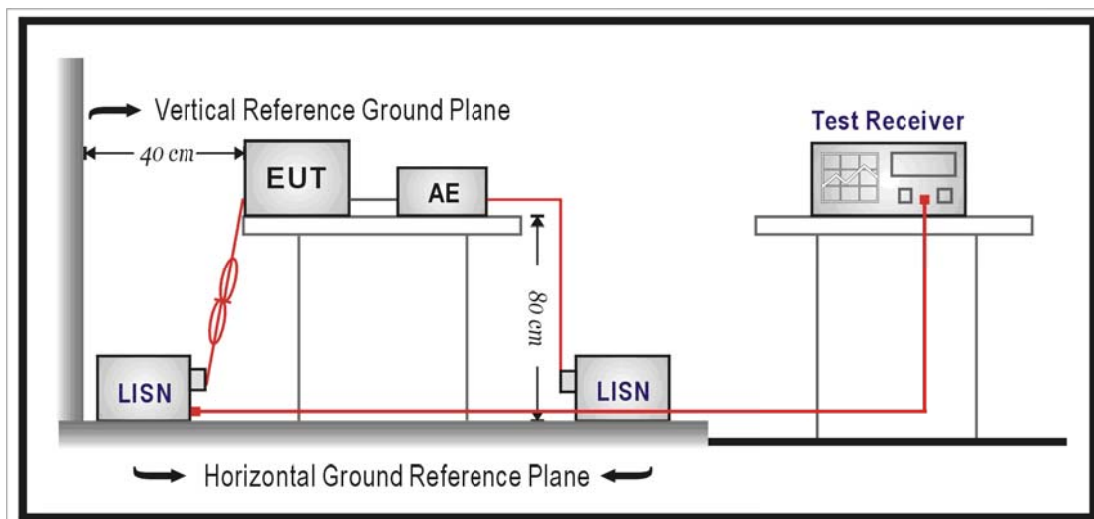




3.6.3 Test Setup 3

The mains cable of the EUT (maybe per AC/DC Adapter) must be connected to LISN. The LISN shall be placed 0.8 m from the boundary of EUT and bonded to a ground reference plane for LISN mounted on top of the ground reference plane. This distance is between the closest points of the LISN and the EUT. All other units of the EUT and associated equipment shall be least 0.8m from the LISN.

Ground connections, where required for safety purposes, shall be connected to the reference ground point of the LISN and, where not otherwise provided or specified by the manufacturer, shall be of same length as the mains cable and run parallel to the mains connection at a separation distance of not more than 0.1 m.



3.7 Test Conditions

Test Case	Test Conditions	
	Configuration	Description
	Measurement Method	FCC KDB 558074 §7.1.1Option2.
	Test Environment	NTNV



	Test Setup	Test Setup 1
	EUT Configuration	11b_L,11b_M,11b_H 11g_L,11g_M,11g_H 11n HT20_L, 11n HT20_M, 11n HT20_H 11n HT40_L, 11n HT40_M, 11n HT40_H
Maximum Peak Conducted Output Power	Measurement Method	FCC KDB 558074§7.2.1.1
	Test Environment	NTNV
	Test Setup	Test Setup 1
	EUT Configuration	11b_L,11b_M,11b_H 11g_L,11g_M,11g_H 11n HT20_L, 11n HT20_M, 11n HT20_H 11n HT40_L, 11n HT40_M, 11n HT40_H
Maximum Power Spectral Density Level	Measurement Method	FCC KDB 558074 §7.3.1Option 1 (peak PSD).
	Test Environment	NTNV
	Test Setup	Test Setup 1
	EUT Configuration	11b_L,11b_M,11b_H 11g_L,11g_M,11g_H 11n HT20_L, 11n HT20_M, 11n HT20_H 11n HT40_L, 11n HT40_M, 11n HT40_H
Unwanted Emissions into Non-Restricted Frequency Bands	Measurement Method	FCC KDB 558074§7.4.1, use Peak PSD.
	Test Environment	NTNV
	Test Setup	Test Setup 1
	EUT Configuration	11b_L,11b_M,11b_H 11g_L,11g_M,11g_H 11n HT20_L, 11n HT20_M, 11n HT20_H 11n HT40_L, 11n HT40_M, 11n HT40_H
Unwanted Emissions into Restricted Frequency Bands (Conducted)	Measurement Method	FCC KDB 558074§7.4.2, Conducted (antenna-port).
	Test Environment	NTNV
	Test Setup	Test Setup 1
	EUT Configuration	11b_L,11b_M,11b_H 11g_L,11g_M,11g_H 11n HT20_L, 11n HT20_M, 11n HT20_H 11n HT40_L, 11n HT40_M, 11n HT40_H
Unwanted Emissions into Restricted	Measurement Method	FCC KDB 558074§7.4.2,Radiated(cabinet/case emissions with Impedance matching for antenna-port).
	Test Environment	NTNV
	EUT Configuration	11b_L,11b_M,11b_H 11g_L,11g_M,11g_H 11n HT20_L, 11n HT20_M, 11n HT20_H 11n HT40_L, 11n HT40_M, 11n HT40_H

Test Case	Test Conditions	
	Configuration	Description
AC Power Line Conducted Emissions	Measurement Method	AC mains conducted.
	Test Environment	NTNV
	Test Setup	Test Setup 3
	EUT Configuration	11g_M (Worst Conf.).



Note: For Radiated Emissions, By preliminary testing and verifying three axis (X, Y and Z) position of EUT transmitted status, it was found that "Z axis" position was the worst, then the final test was executed the worst condition and test data were recorded in this report.

4. Measurement Uncertainty

Test Item	Frequency Range	Uncertainty (dB)
Conducted Emission	9kHz ~ 30MHz	3.50
Radiated Emission	9kHz ~ 30MHz	4.12
	30MHz ~ 1000MHz	4.50
	1000MHz ~ 18000MHz	4.60
	18000MHz ~ 40000MHz	5.12

5. Main Test Instruments

AC Power Conducted Emission					
Equipment Name	Manufacturer	Model	Serial Number	Cal Date	Cal Period
Test Receiver	R&S	ESCS	SB3319	01/20/2014	1 year
LISN	R&S	ESH2-Z5	SB3321	01/20/2014	1 year
LISN	R&S	ESH3-Z5	SB2604	01/20/2014	1 year
Test Software	R&S	ESK1	N/A	N/A	N/A

Radiated Emission					
Equipment Name	Manufacturer	Model	Serial Number	Cal Date	Cal Period
Loop Antenna	Schwarzbeck	FMZB1516	SB3345	01/22/2014	1 year
Horn Antenna	AR	AT4560	SB3450/01	05/16/2014	1 year
Amplifier(18-40GHz)	R&S	---	SB3435/02	05/16/2014	1 year
Amplifier(1-18GHz)	R&S	---	SB3435/01	01/22/2014	1 year
Horn Antenna	R&S	HF907	SB8501/01	05/13/2014	1 year
Bilog Antenna	Schwarzbeck	VULB9163	SB8501/04	01/20/2014	1 year
EMI Test Receiver	R&S	ESU40	SB85001/09	05/16/2014	1 year
EMI Test Receiver	R&S	ESIB26	SB3253	01/22/2014	1 year
Test Software	R&S	ESK1	N/A	N/A	N/A
Test Software	R&S	EMC32	N/A	N/A	N/A

Maximum Peak Output Power / Power Spectral Density / 6dB Bandwidth / Band Edge Compliance of RF Emission / Spurious RF Conducted Emission					
Equipment Name	Manufacturer	Model	Serial Number	Cal Date	Cal Period
MXA Signal Analyzer	Agilent	N9020A	MY53420615	05/12/2014	1 year
Power Sensor	Agilent	U2021XA	MY53180015	09/27/2013	1 year
Power Sensor	Agilent	U2021XA	MY53260040	09/27/2013	1 year
Power Sensor	Agilent	U2021XA	MY53360002	09/27/2013	1 year
Power Sensor	Agilent	U2021XA	MY53360006	09/27/2013	1 year
USB Modular Simultaneous Data Acquisition	Agilent	U2531A	TW53353509	N/A	N/A
USB Modular Simultaneous Data Acquisition	Agilent	U2531A	TW53353511	N/A	N/A



6. Test Conditions and Results

6.1 AC Power Conducted Emission

TEST PROCEDURE

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10-2009.
2. Support equipment, if needed, was placed as per ANSI C63.10-2009
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10-2009
4. The EUT received DC5V power from the adapter, the adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

AC Power Conducted Emission Limit

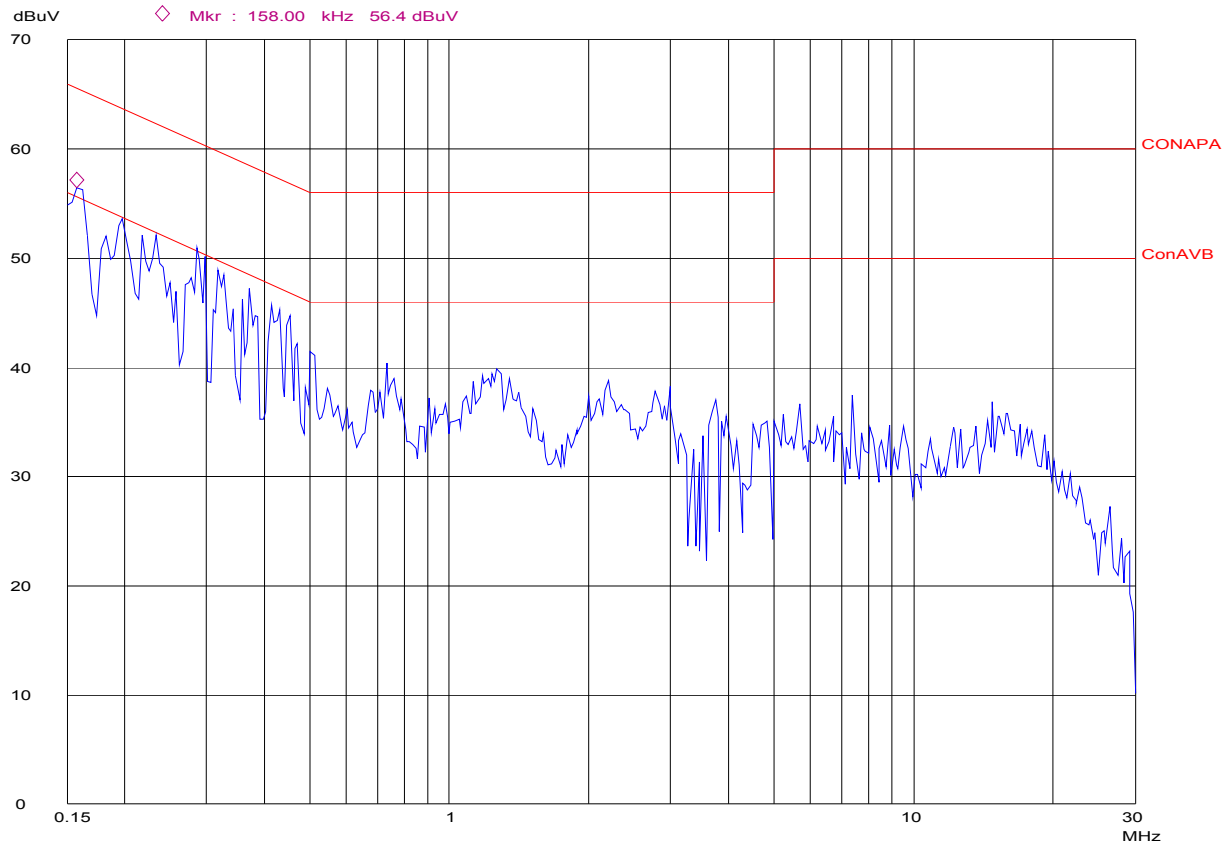
For intentional device, according to § 15.207(a) AC Power Conducted Emission Limits is as following :

Frequency (MHz)	Maximum RF Line Voltage (dBμV)			
	CLASS A		CLASS B	
	Q.P.	Ave.	Q.P.	Ave.
0.15 - 0.50	79	66	66-56*	56-46*
0.50 - 5.00	73	60	56	46
5.00 - 30.0	73	60	60	50

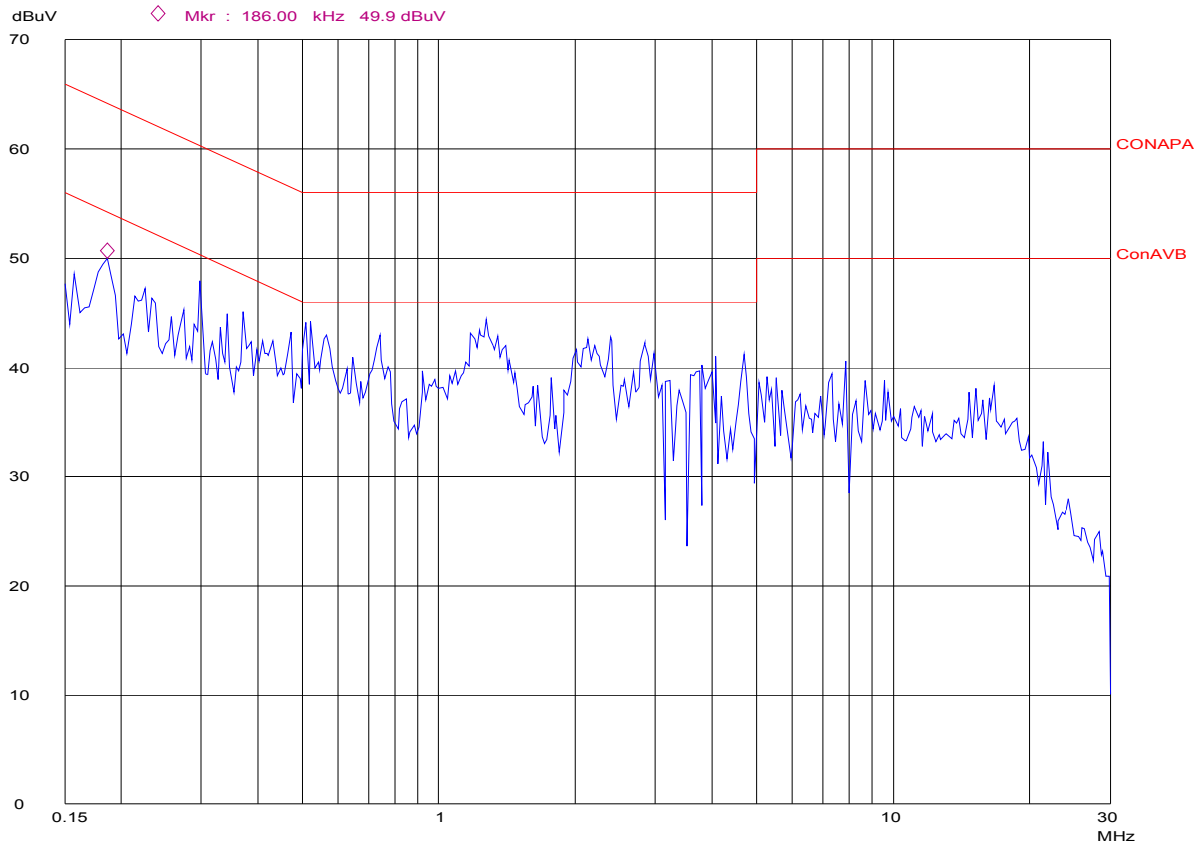
* Decreasing linearly with the logarithm of the frequency

TEST RESULTS

The AC Power Conducted Emission measurement is performed the each test mode (b/g/n) and channel (low/mid/high), the datum recorded below (802.11b mode, the middle channel) is the worst case for all the test modes and channels.



	Frequency (MHz)	Correction Factor (dB)	Quasi-Peak			Average		
			Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)
Line	0.162	9.7	29.6	39.3	65.4	18.5	28.2	55.4
	0.198	9.7	31.3	41.0	63.7	18.9	28.6	53.7
	0.234	9.7	27.5	37.2	62.3	17.7	27.4	52.3
	0.288	9.7	32.2	41.9	60.6	16.3	26.0	50.6
	0.37	9.7	27.5	37.2	58.5	16.6	26.3	48.5
	0.422	9.7	30.5	40.2	57.4	11.4	21.1	47.4



	Frequency (MHz)	Correction Factor (dB)	Quasi-Peak			Average		
			Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)	Reading (dBμV)	Emission Level (dBμV)	Limits (dBμV)
Neutral	0.158	9.7	26.9	36.6	65.6	21.8	31.5	55.6
	0.186	9.7	26.6	36.3	64.2	14.2	23.9	54.2
	0.298	9.7	20.9	30.6	60.3	10.1	19.8	50.3
	0.37	9.7	21.8	31.5	58.5	15.2	24.9	48.5
	0.522	9.8	20.5	30.3	56	13.3	23.1	46.0
	1.27	9.8	33.3	43.1	56	15.6	25.4	46.0



6.2 Radiated Emissions

TEST PROCEDURE

1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.
5. The EUT minimum operation frequency was 32.768 KHz and maximum operation frequency was 2462MHz.so radiated emission test frequency band from 9 KHz to 25GHz.

Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CL - AG$$

Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

RADIATION LIMIT

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emission from intentional radiators at a distance of 3 meters shall not exceed the following table. According to § 15.247(d), in any 100kHz bandwidth outside the frequency band in which the EUT is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of desired power.

The frequency spectrum above 1 GHz for Transmitter was investigated. All emission not reported are much lower than the prescribed limits. Set the RBW=1MHz, VBW=3MHz for Peak Detector while the RBW=1MHz, VBW=10Hz for Average Detector, Readings are both peak and average values.

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/m)
0.009-0.49	300	$20\log(2400/F(KHz))+80$	$2400/F(KHz)$
0.49-1.705	30	$20\log(24000/F(KHz))+40$	$24000/F(KHz)$
1.705-30	30	$20\log(30)+40$	30
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST RESULTS

Remark:

1. The radiated measurement are performed the each test mode (b/g/n) and channel (low/mid/high), the datum recorded below (802.11b mode, the middle channel) is the worst case for all the test mode and channel.



2. ULTRA-BROADBAND ANTENNA for the radiation emission test below 1G.
3. HORN ANTENNA for the radiation emission test above 1G.
4. We tested both battery powered and powered by adapter charging mode at three orientate ons, recorded worst case at powered by adapter charging mode.
5. “---” means not recorded as emission levels lower than limit.
6. For radiated emission from 18GHz to 26GHz, the limit 54dBuV/m (AV)/74dBuV/m (PK) covert into dBm was -43.26dBm (AV)/-23.26dBm (PK) in 3 meter chamber according to KDB558074 for EIRP level to an equivalent electric field strength using the following relationship

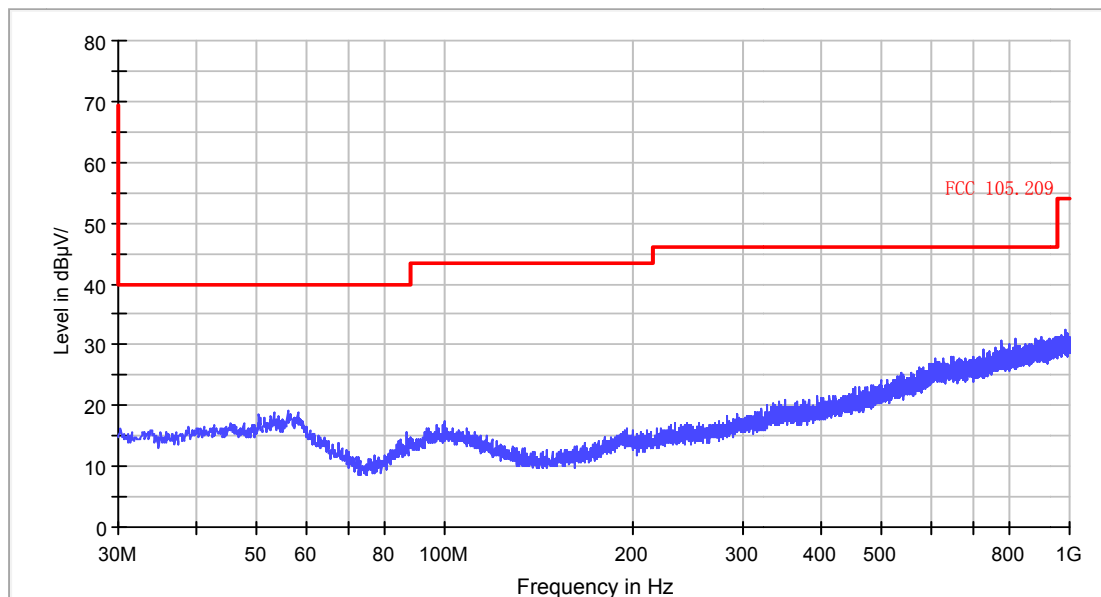
$$E = \text{EIRP} - 20\log D + 104.8$$

For 9 KHz to 30MHz

Frequency (MHz)	Corrected Reading (dBμV/m)@3m	FCC Limit (dBμV/m) @3m	Margin (dB)	Detector	Result
12.00	44.59	69.54	24.95	QP	PASS
24.00	41.05	69.54	28.49	QP	PASS

For 30MHz to 1000MHz

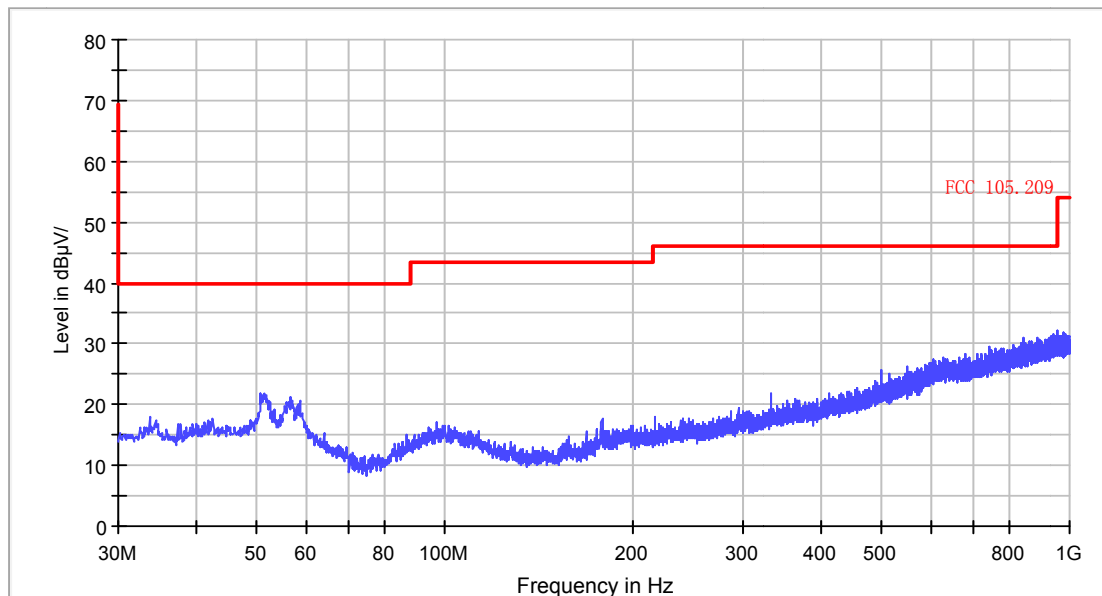
Electric Field Strength 30M-1GHz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					Peak	H



Electric Field Strength 30M-1GHz

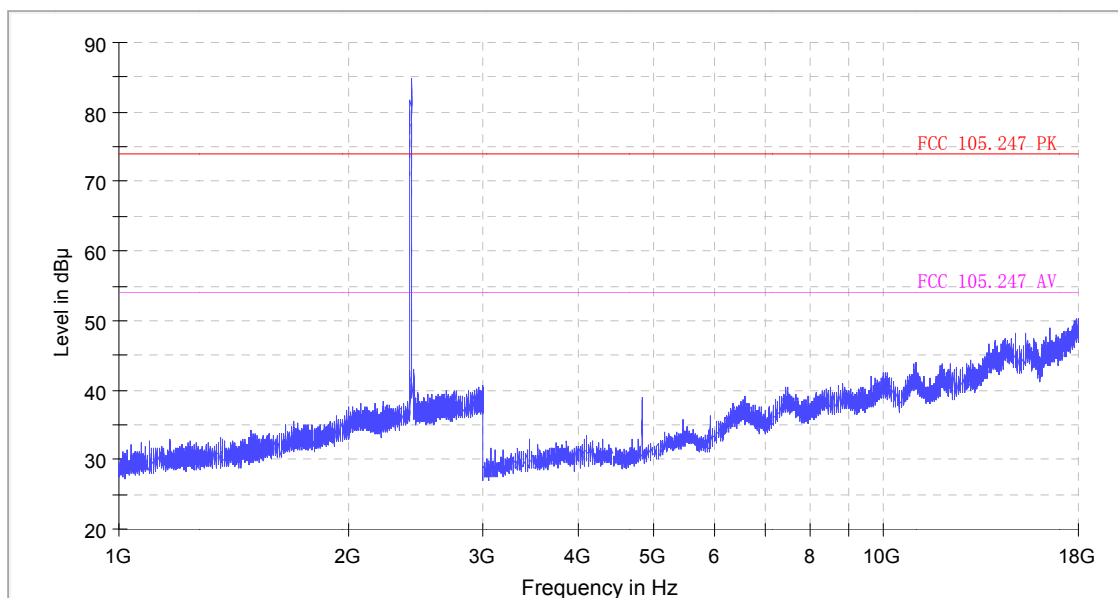


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					Peak	V

For 1GHz to 25GHz

802.11b @ Channel 1 @ 2412MHz

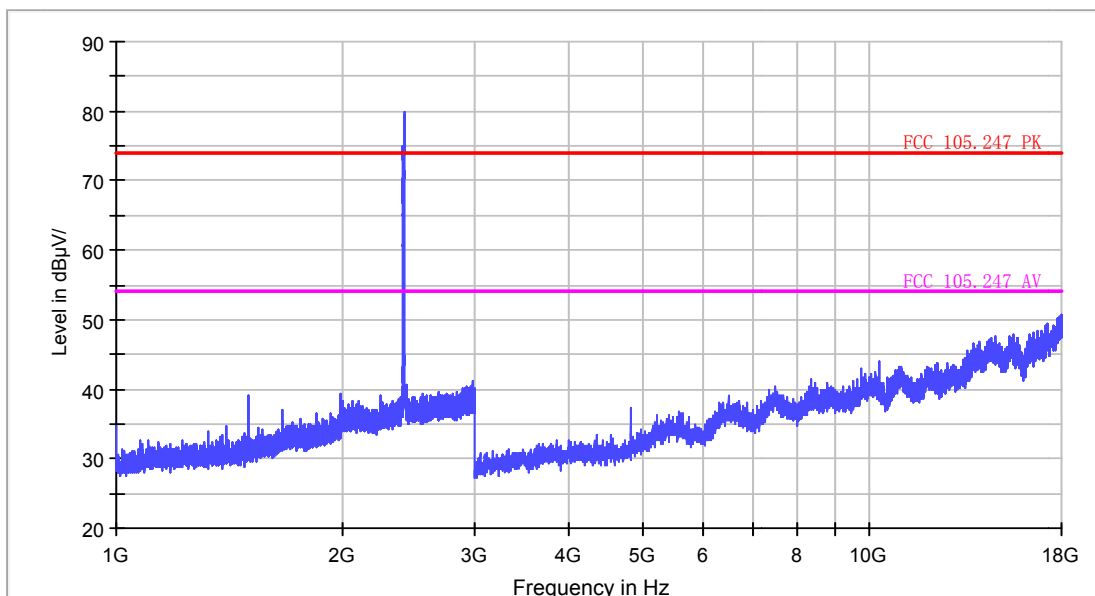
FCC Electric Field Strength 1-18GHz operate on 2.4GHz



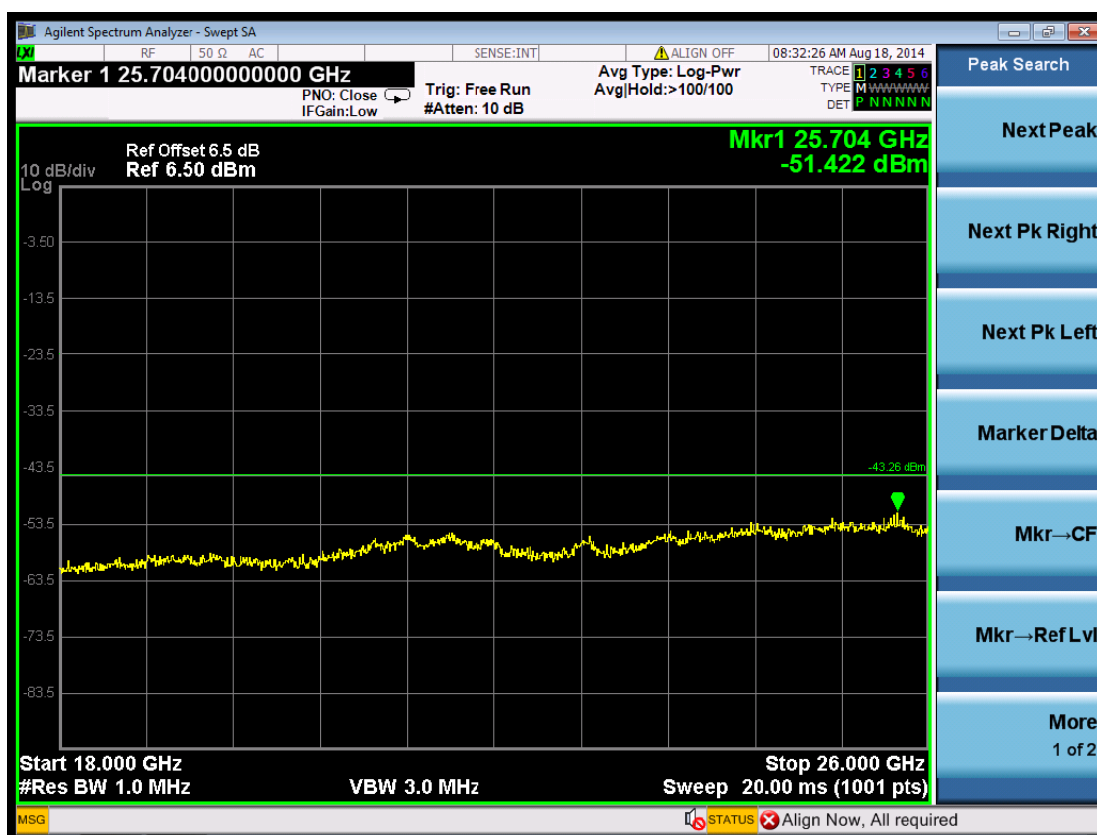
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V



FCC Electric Field Strength 1-18GHz operate on 2.4GHz



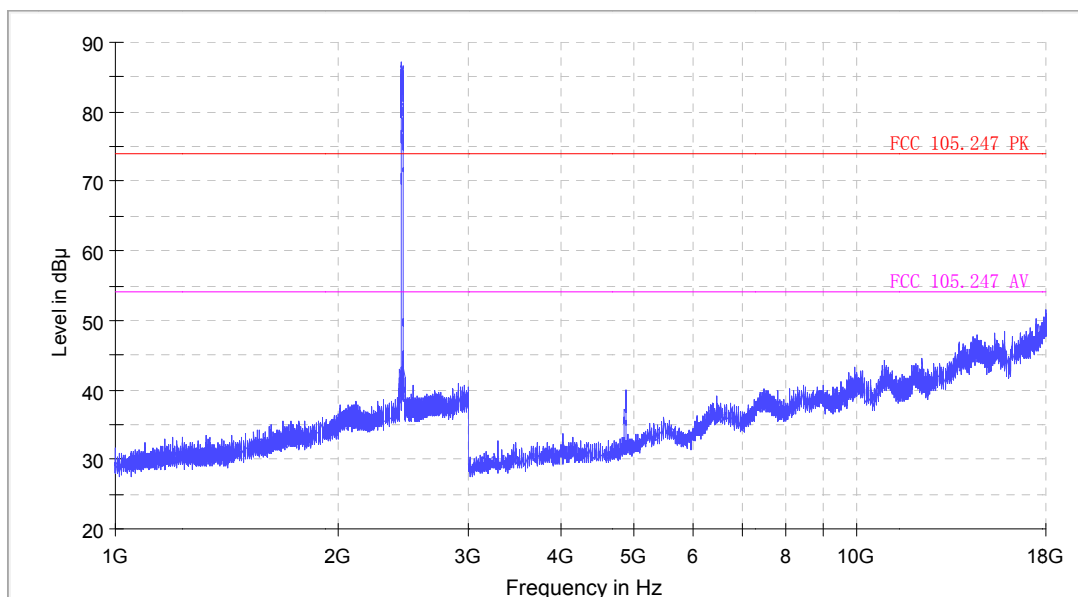
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V





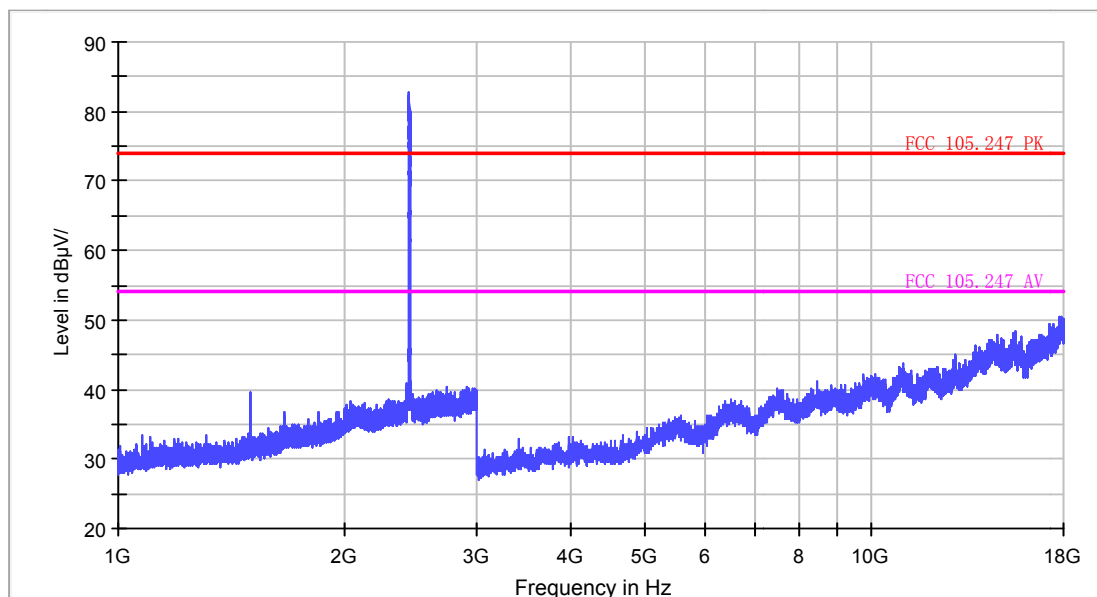
802.11b @ Channel 6 @ 2437MHz

FCC Electric Field Strength 1-18GHz operate on 2.4GHz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V

FCC Electric Field Strength 1-18GHz operate on 2.4GHz

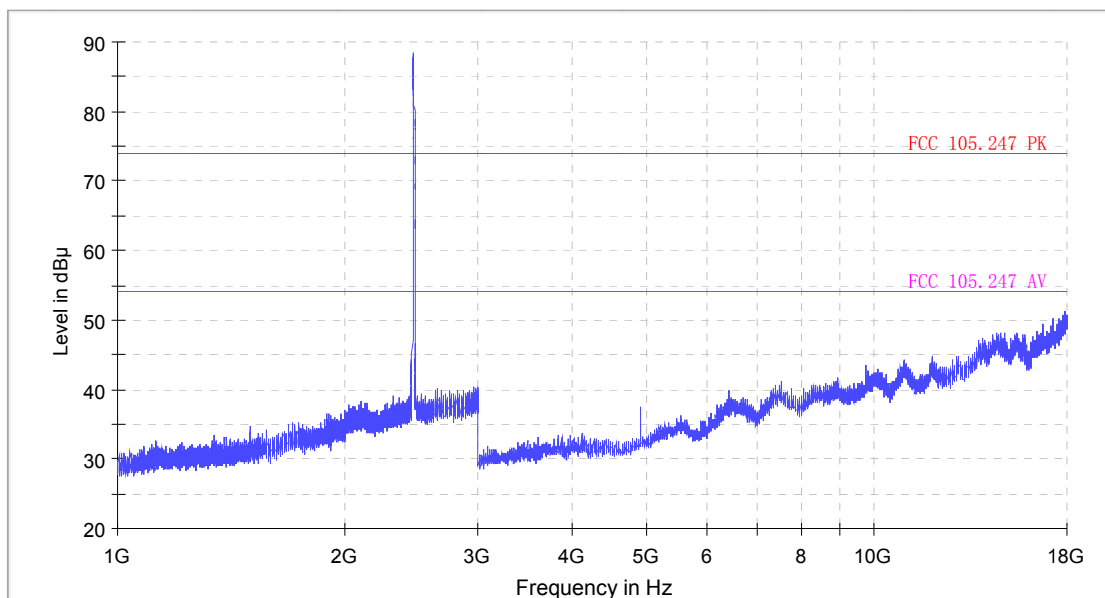


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V



802.11b @ Channel 11 @ 2462MHz

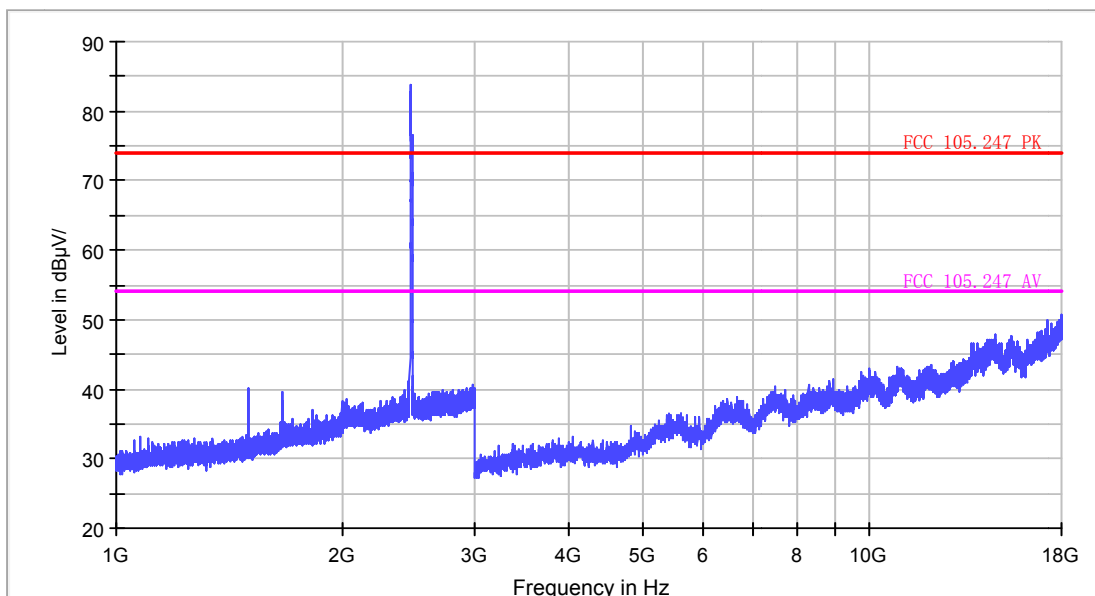
FCC Electric Field Strength 1-18GHz operate on 2.4GHz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V



FCC Electric Field Strength 1-18GHz operate on 2.4GHz



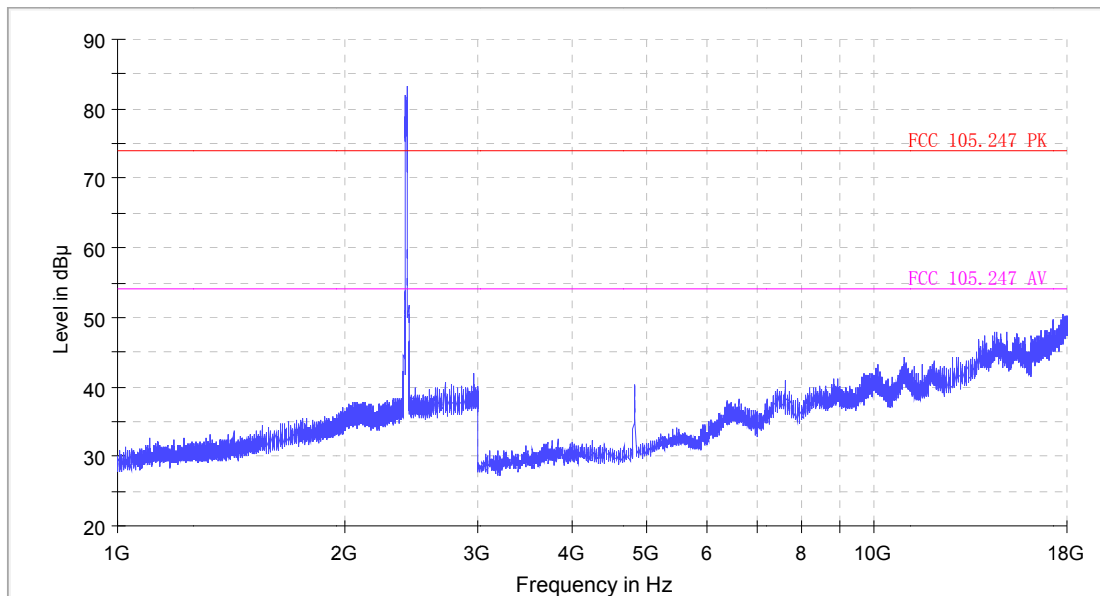
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V





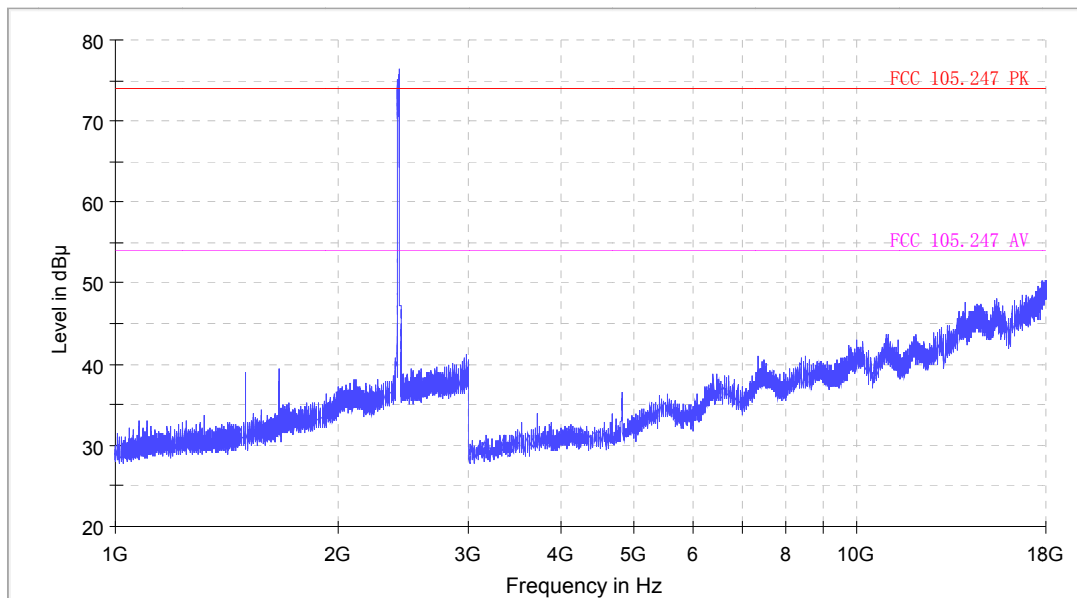
802.11g @ Channel 1 @ 2412MHz

FCC Electric Field Strength 1-18GHz operate on 2.4GHz

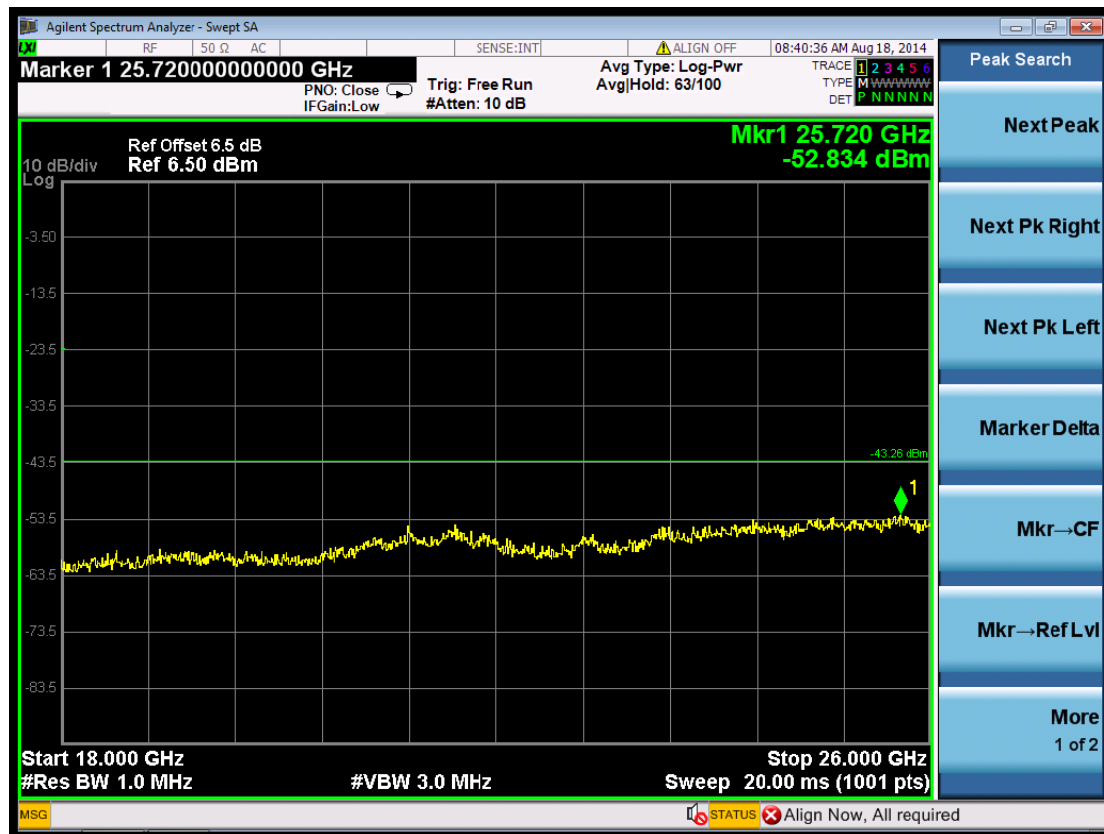


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V

FCC Electric Field Strength 1-18GHz operate on 2.4GHz

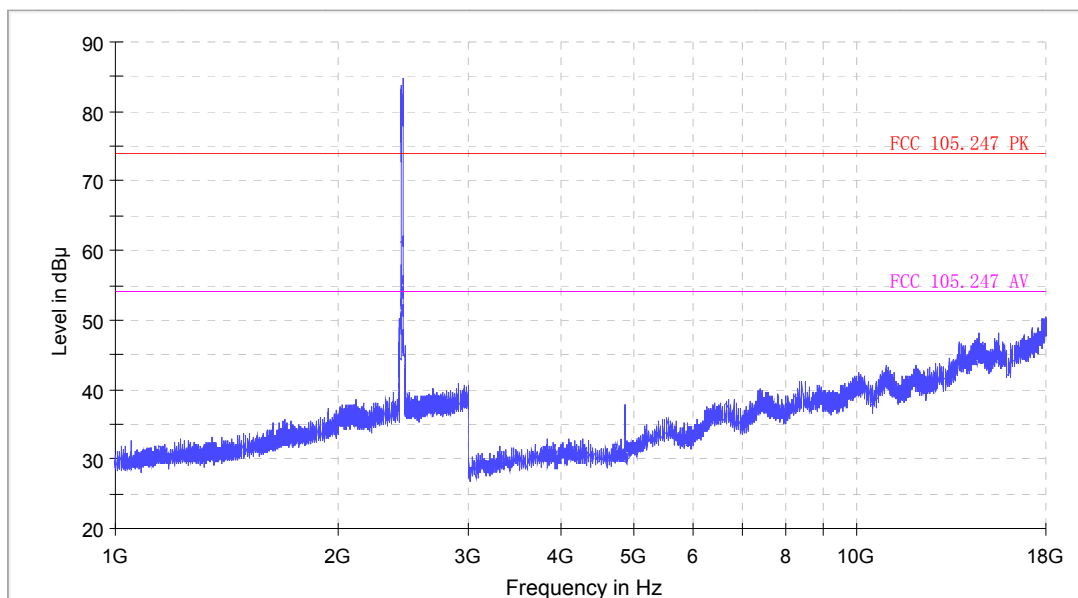


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V



802.11g @ Channel 6 @ 2437MHz

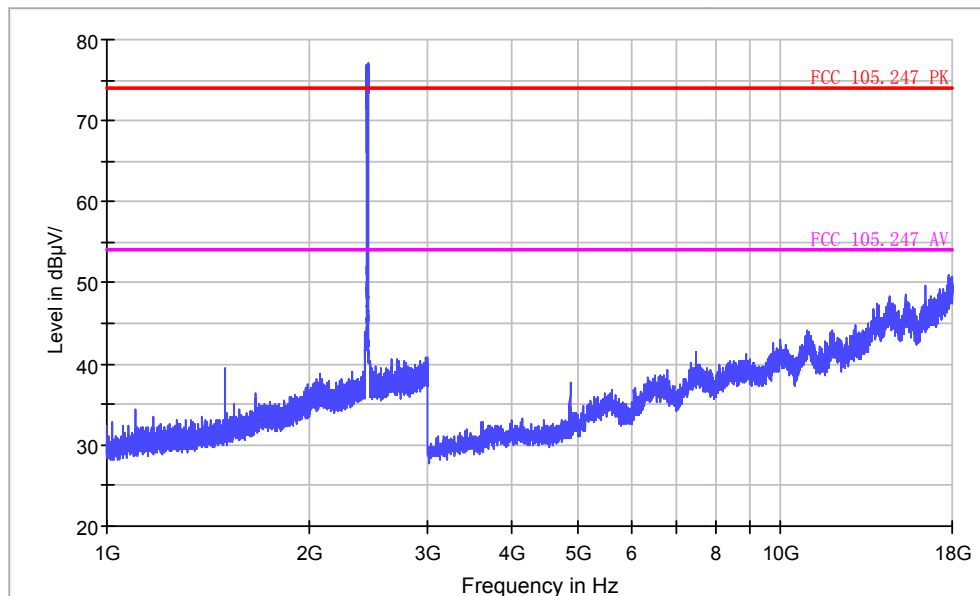
FCC Electric Field Strength 1-18GHz operate on 2.4GHz



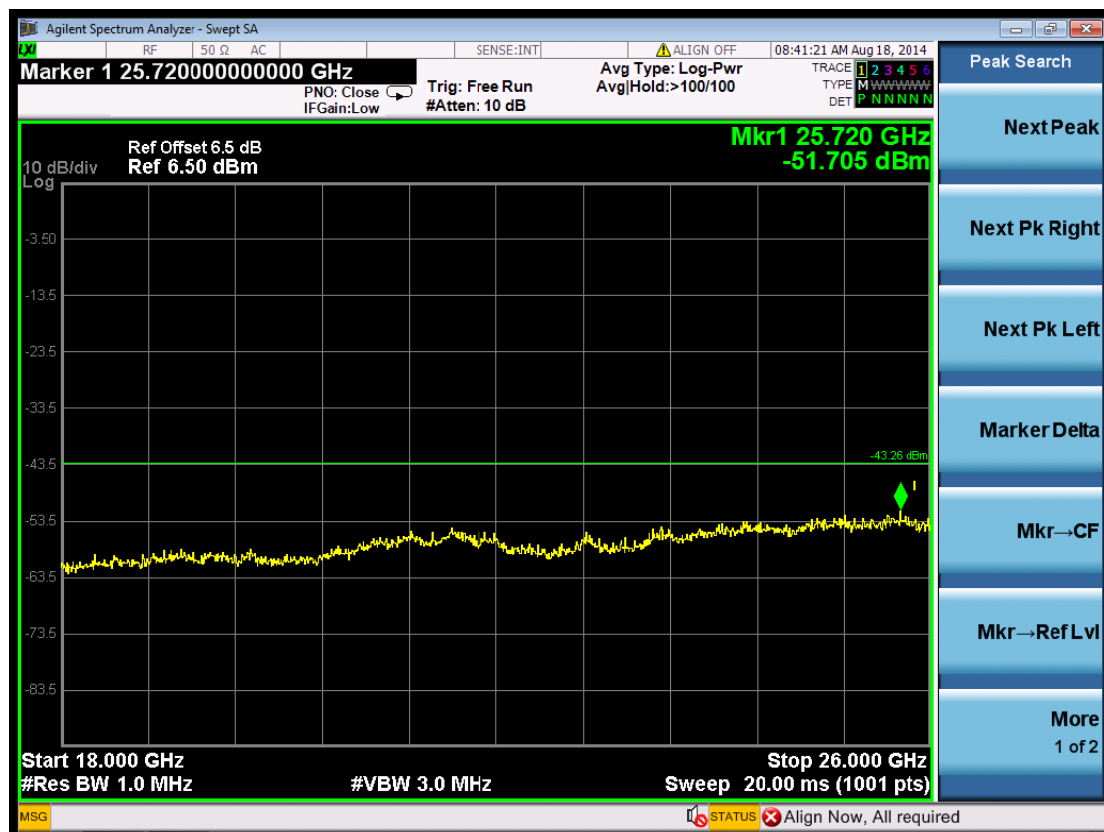
Frequency (MHz)	Reading (dBUV)	Correct Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V



FCC Electric Field Strength 1-18GHz operate on 2.4GHz



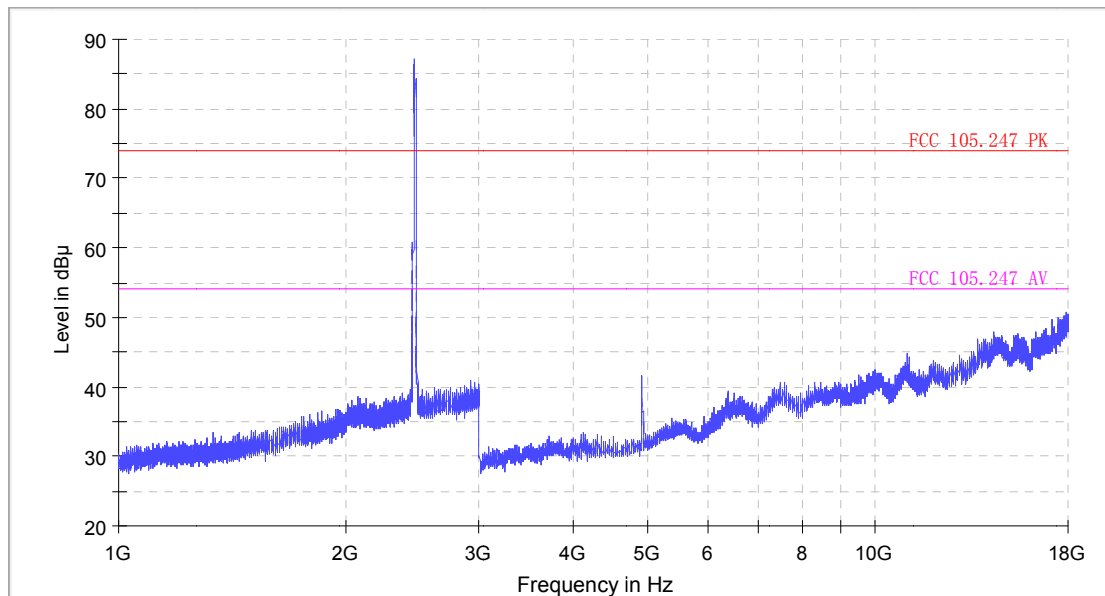
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V





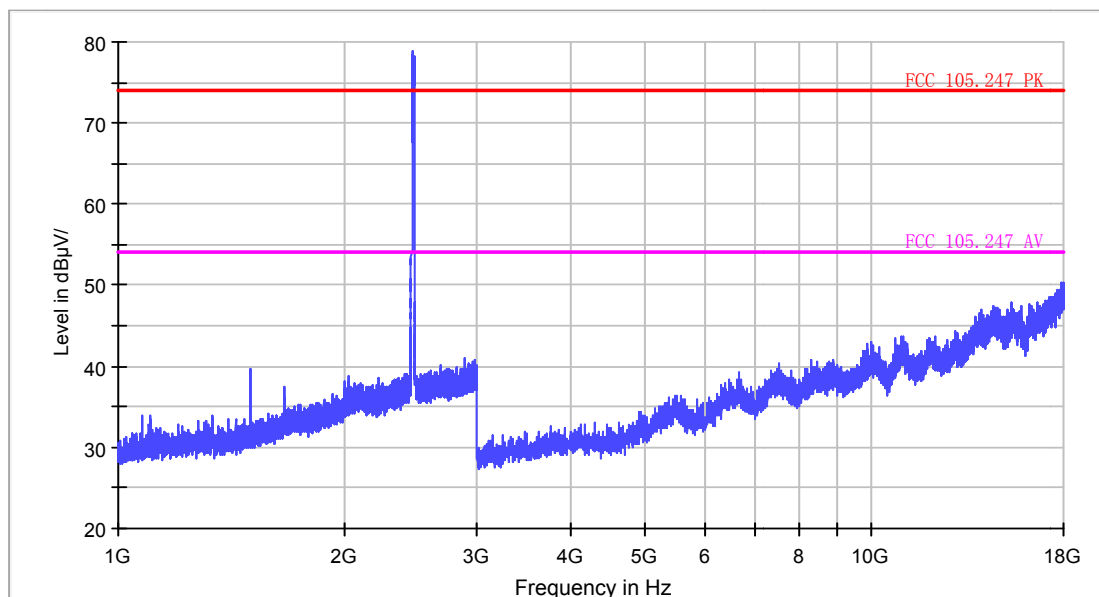
802.11g @ Channel 11 @ 2462MHz

FCC Electric Field Strength 1-18GHz operate on 2.4GHz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V

FCC Electric Field Strength 1-18GHz operate on 2.4GHz

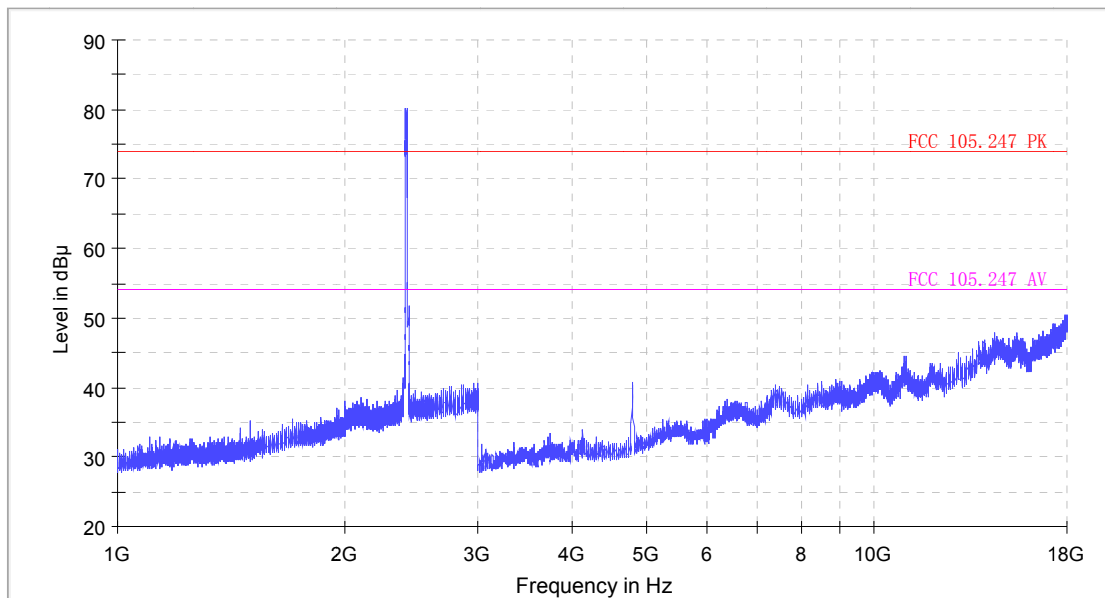


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V



802.11n HT20 @ Channel 1 @ 2412MHz

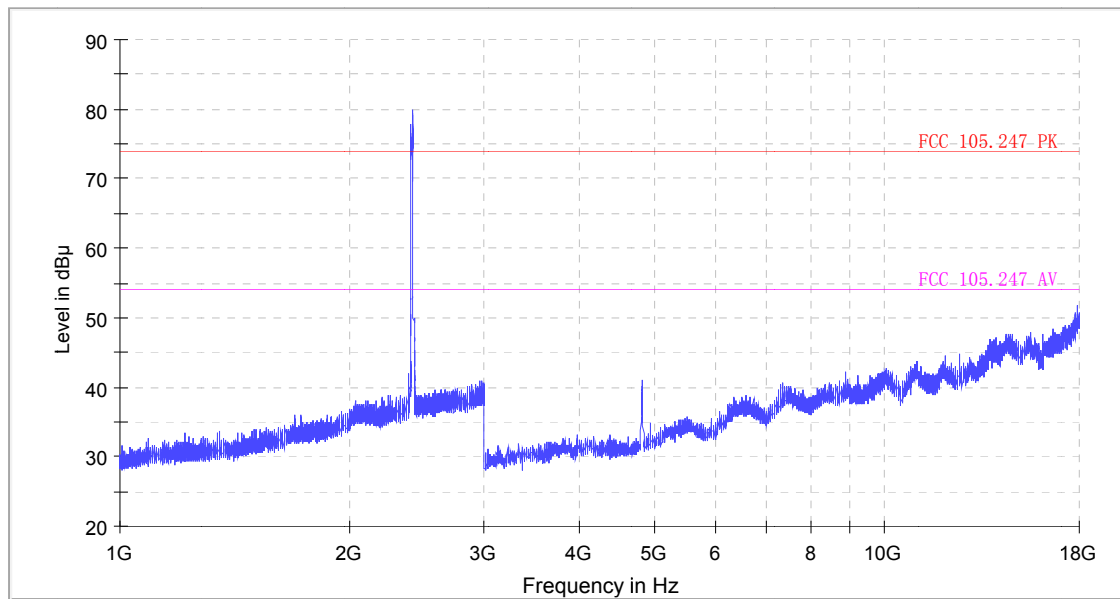
FCC Electric Field Strength 1-18GHz operate on 2.4GHz



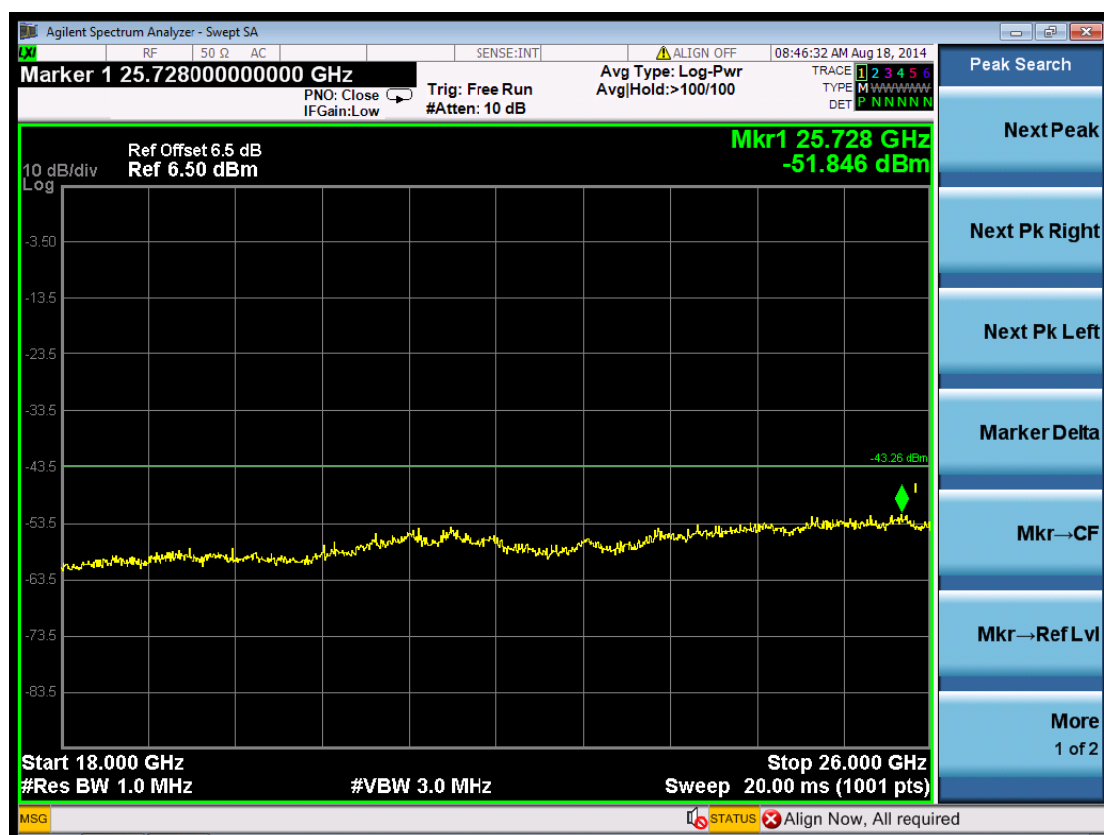
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V



FCC Electric Field Strength 1-18GHz operate on 2.4GHz



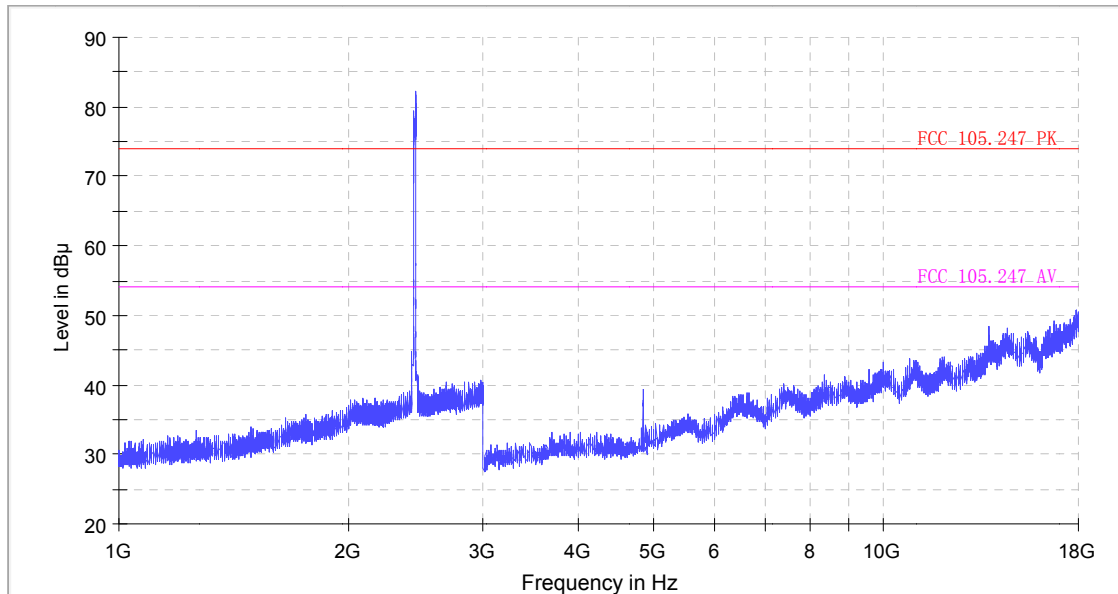
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V





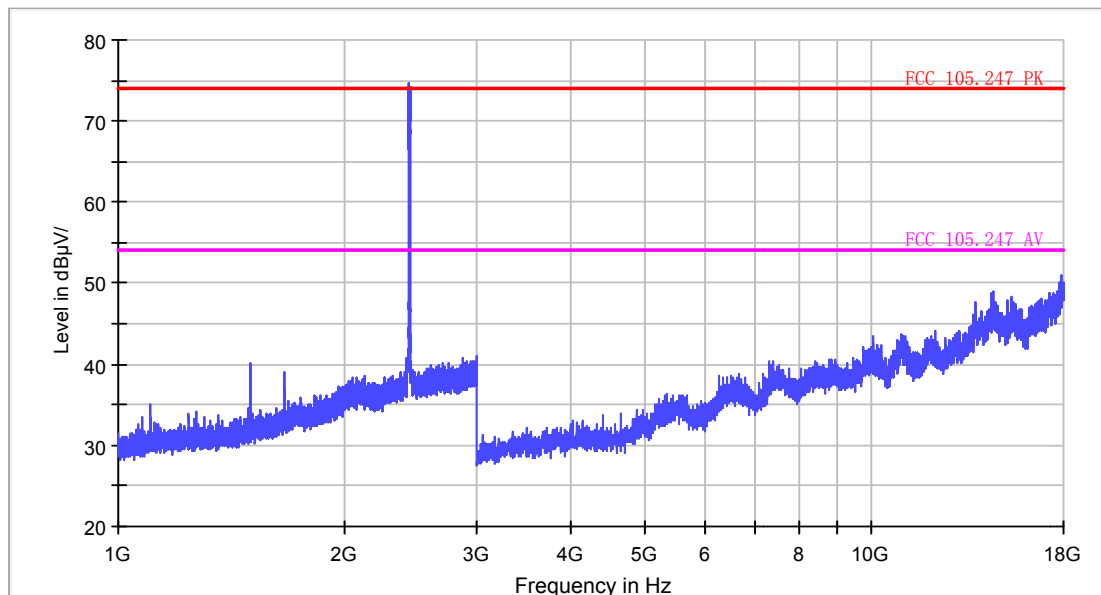
802.11n HT20 @ Channel 6 @ 2437MHz

FCC Electric Field Strength 1-18GHz operate on 2.4GHz

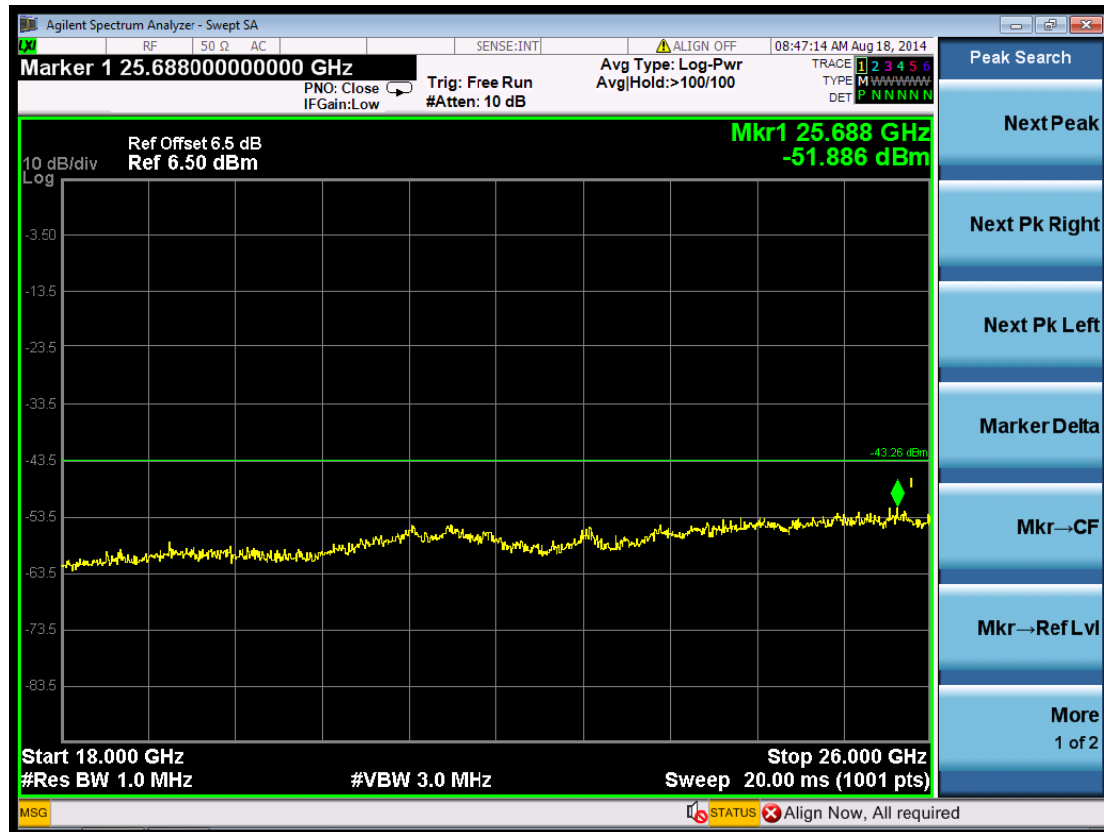


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V

FCC Electric Field Strength 1-18GHz operate on 2.4GHz

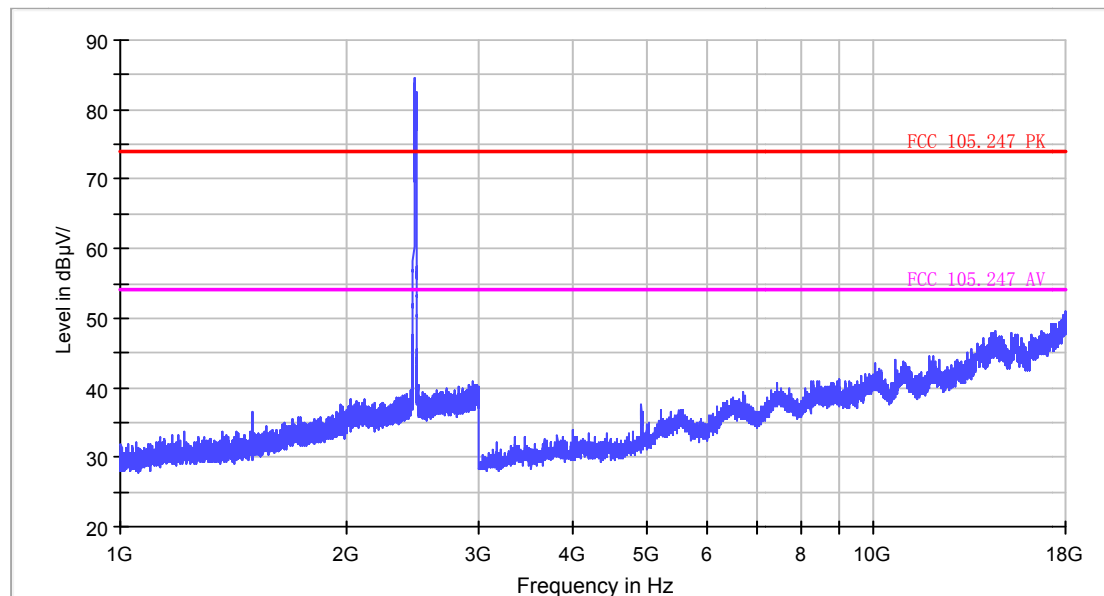


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V



802.11n HT20 @ Channel 11 @ 2462MHz

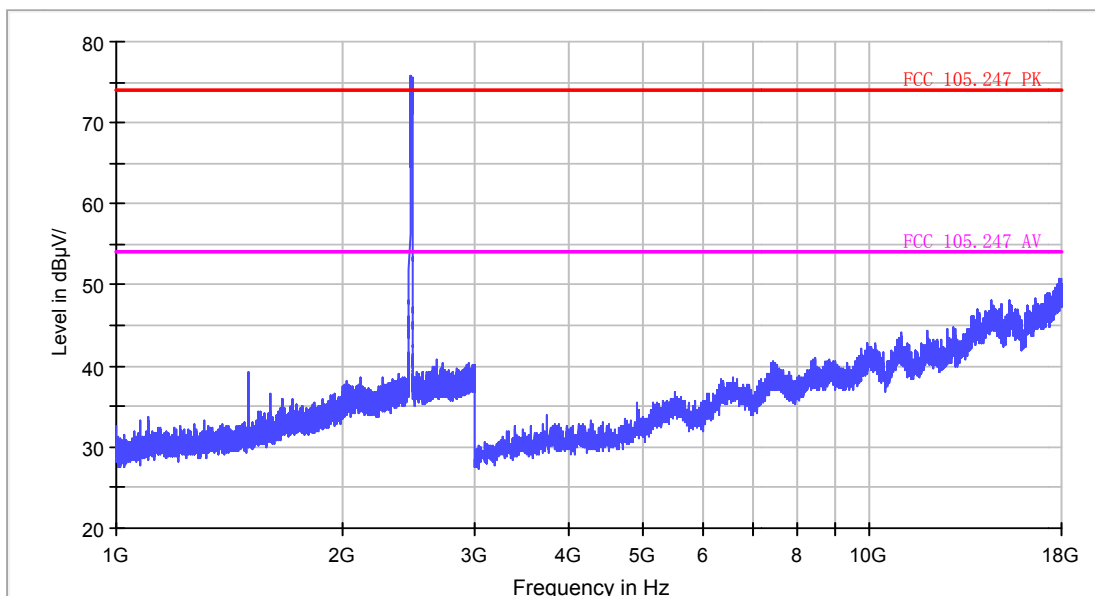
FCC Electric Field Strength 1-18GHz operate on 2.4GHz



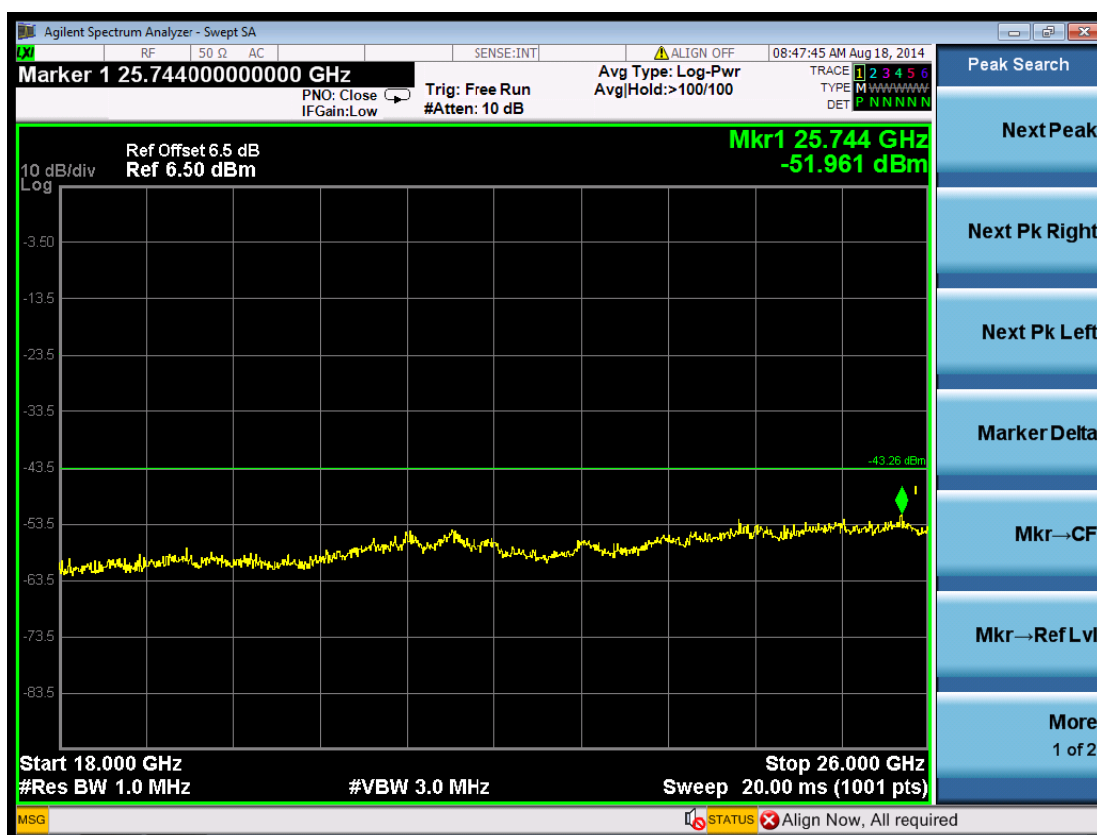
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V



FCC Electric Field Strength 1-18GHz operate on 2.4GHz



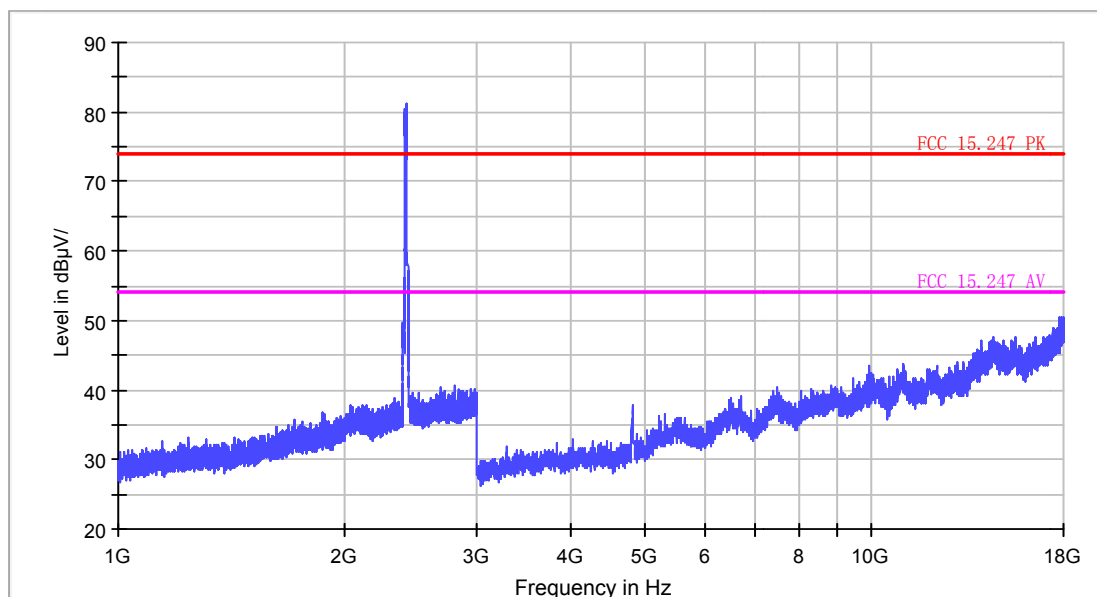
Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V





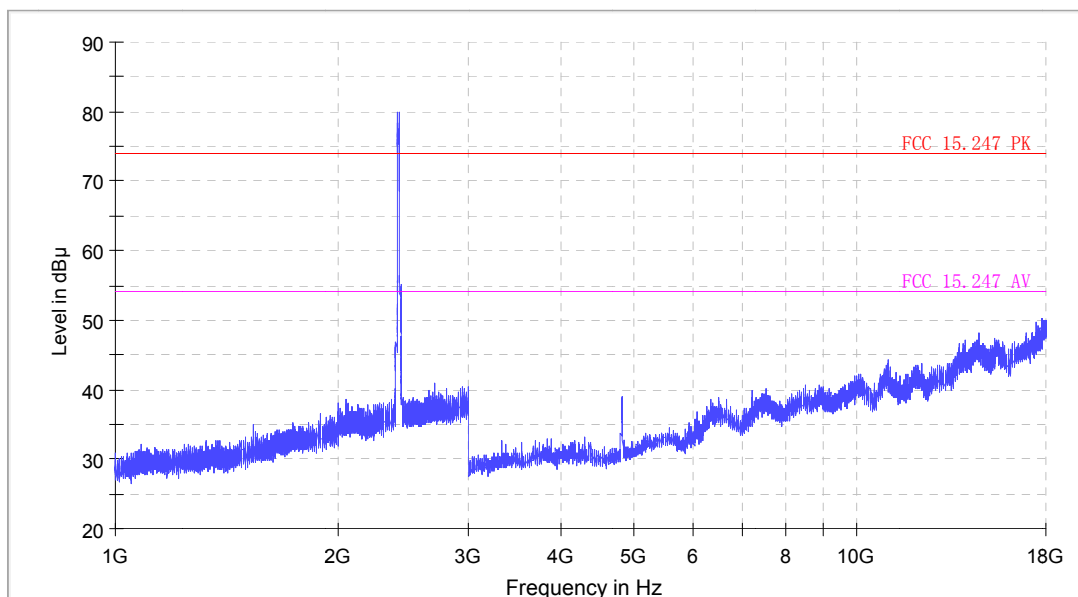
802.11n HT40 @ Channel 3 @ 2422MHz

FCC Electric Field Strength 1-18GHz operate on 2.4GHz

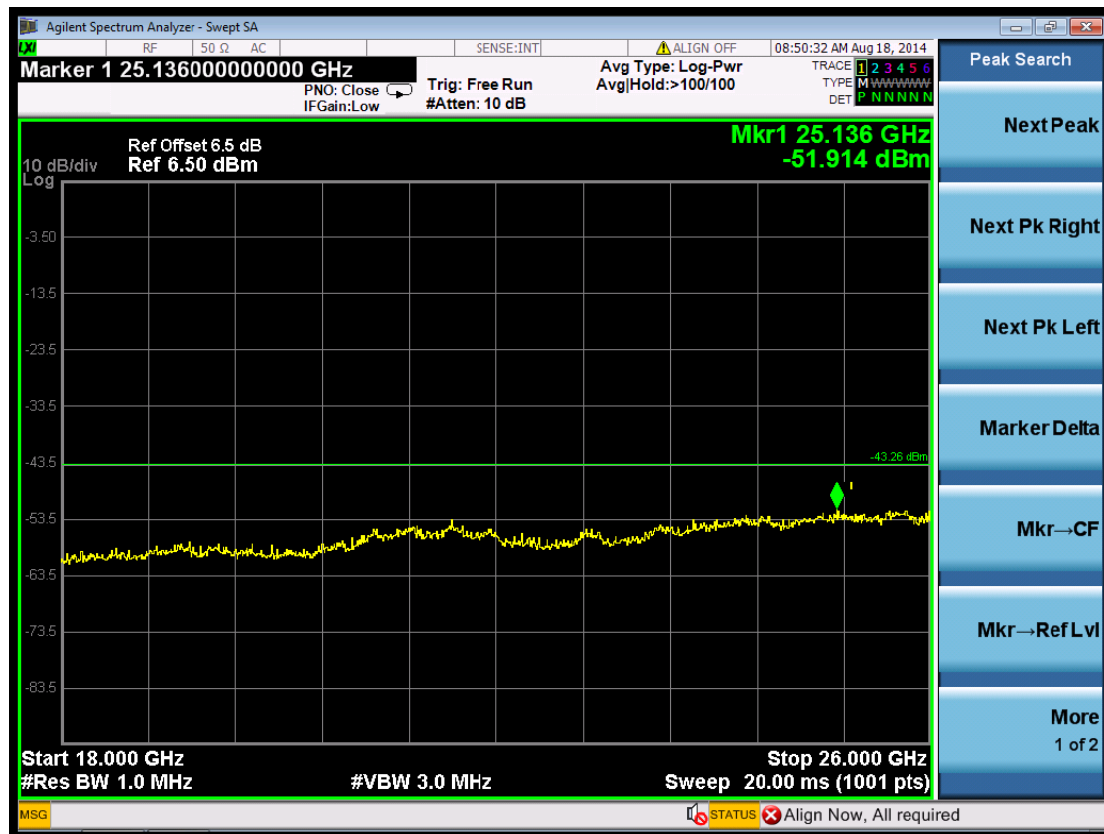


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V

FCC Electric Field Strength 1-18GHz operate on 2.4GHz

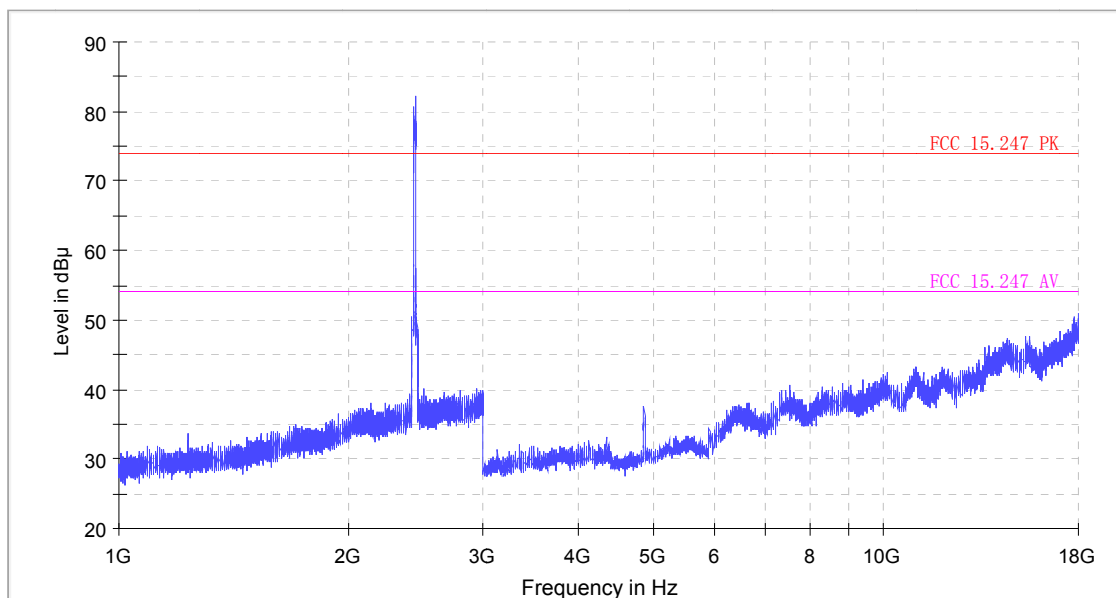


Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V



802.11n HT40 @ Channel 6 @ 2437MHz

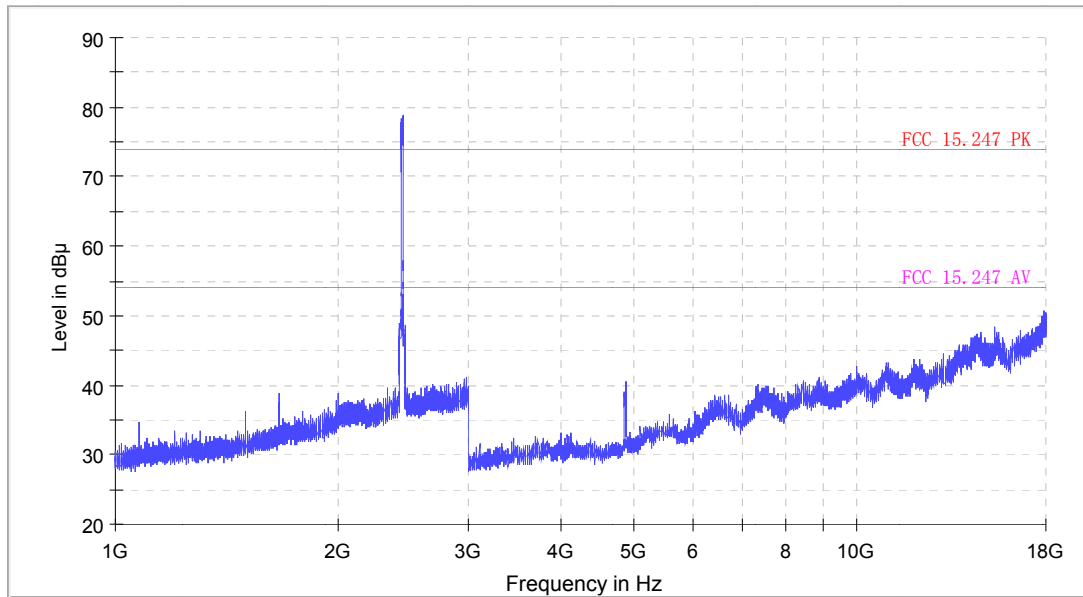
FCC Electric Field Strength 1-18GHz operate on 2.4GHz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V



FCC Electric Field Strength 1-18GHz operate on 2.4GHz



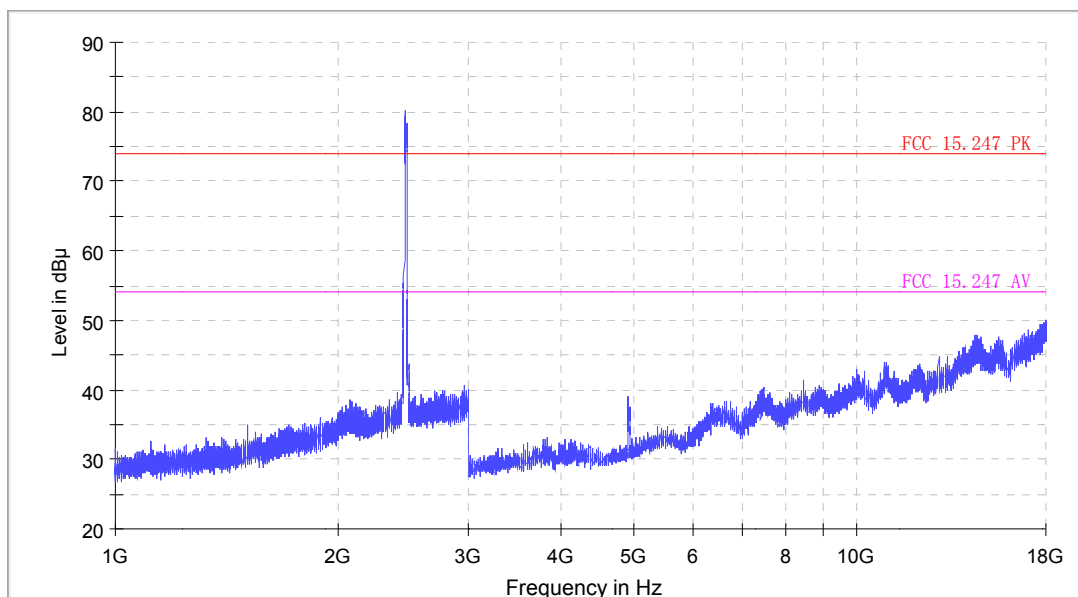
Frequency (MHz)	Reading (dBUV)	Correct Factor (dB/m)	Result (dBUV/m)	Limit (dBUV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V





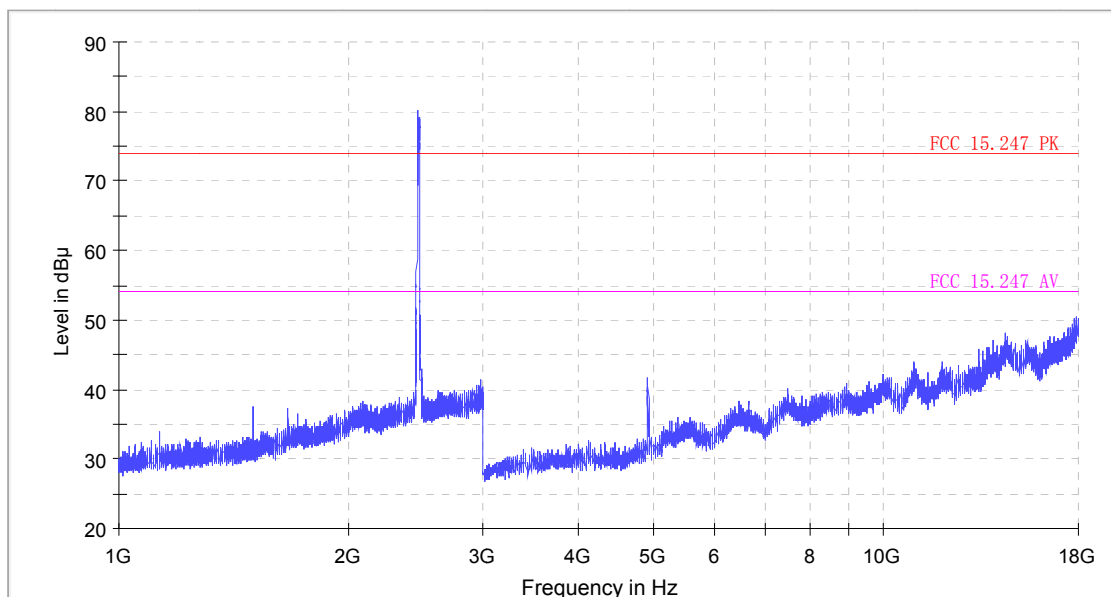
802.11n HT40 @ Channel 9 @ 2452MHz

FCC Electric Field Strength 1-18GHz operate on 2.4GHz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V

FCC Electric Field Strength 1-18GHz operate on 2.4GHz



Frequency (MHz)	Reading (dBuV)	Correct Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Ant. Polar. H / V
	---					AV	V





6.3 Maximum Peak Output Power

TEST PROCEDURE

According to KDB558074 D01 DTS Mea Guidance v03r02 9.1.2 PKPM1 Peak power meter method “The maximum peak conducted output power may be measured using a broadband peak RF power meter. The power meter shall have a video bandwidth that is greater than or equal to the DTS bandwidth and shall utilize a fast-responding diode detector.”

LIMIT

The Maximum Peak Output Power Measurement is 30dBm.

TEST RESULTS

Remark: We measured output power at difference data rate for each mode and recorded worst case for each mode.

4.3.1 802.11b Test Mode

A. Test Verdict

Channel	Frequency (MHz)	Measured Output Peak Power (dBm)	Limits (dBm)	Verdict
1	2412	17.65	30	PASS
6	2437	17.93	30	PASS
11	2462	16.47	30	PASS

Note: 1. For 802.11b mode at final test to get the worst-case emission at 1Mbps.
2. The test results including the cable loss.

4.3.2 802.11g Test Mode

A. Test Verdict

Channel	Frequency (MHz)	Measured Output Peak Power (dBm)	Limits (dBm)	Verdict
1	2412	19.95	30	PASS
6	2437	21.46	30	PASS
11	2462	19.61	30	PASS

Note: 1. For 802.11g mode at final test to get the worst-case emission at 6Mbps.
2. The test results including the cable loss.



4.3.3 802.11n HT20 Test Mode

A. Test Verdict

Channel	Frequency (MHz)	Measured Output Peak Power (dBm)	Limits (dBm)	Verdict
1	2412	20.26	30	PASS
6	2437	22.81	30	PASS
11	2462	20.94	30	PASS

Note: 1. For 802.11n HT20 mode at final test to get the worst-case emission at 6.5Mbps.
2. The test results including the cable loss.

4.3.4 802.11n HT40 Test Mode

A. Test Verdict

Channel	Frequency (MHz)	Measured Output Peak Power (dBm)	Limits (dBm)	Verdict
3	2422	21.71	30	PASS
6	2437	24.12	30	PASS
9	2452	22.10	30	PASS

Note: 1. For 802.11n HT40 mode at final test to get the worst-case emission at 13.5Mbps.
2. The test results including the cable loss.



6.4 Power Spectral Density

TEST PROCEDURE

According to KDB 558074 D01 V03 Method PKPSD (peak PSD) this procedure shall be used if maximum peak conducted output power was used to demonstrate compliance, and is optional if the maximum conducted (average) output power was used to demonstrate compliance.

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: $3 \text{ kHz} \leq \text{RBW} \leq 100 \text{ kHz}$.
4. Set the VBW $\geq 3 \text{ RBW}$.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

LIMIT

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.

TEST RESULTS

5.4.1 802.11b Test Mode

A. Test Verdict

Channel	Frequency (MHz)	Report PSD (dBm/3kHz)	Refer to Plot	Limits (dBm/3KHz)	Verdict
1	2412	-3.541	Plot 6.4.1 A	8	PASS
6	2437	-3.919	Plot 6.4.1 B	8	PASS
11	2462	-4.408	Plot 6.4.1 C	8	PASS

Note: 1. For 802.11b mode at final test to get the worst-case emission at 1Mbps.
2. The test results including the cable loss.

B. Test Plots



(Plot 6.4.1 A: Channel 1: 2412MHz @ 802.11b)



(Plot 6.4.1 B: Channel 6: 2437MHz @ 802.11b)



(Plot 6.4.1 C: Channel 11: 2462MHz @ 802.11b)

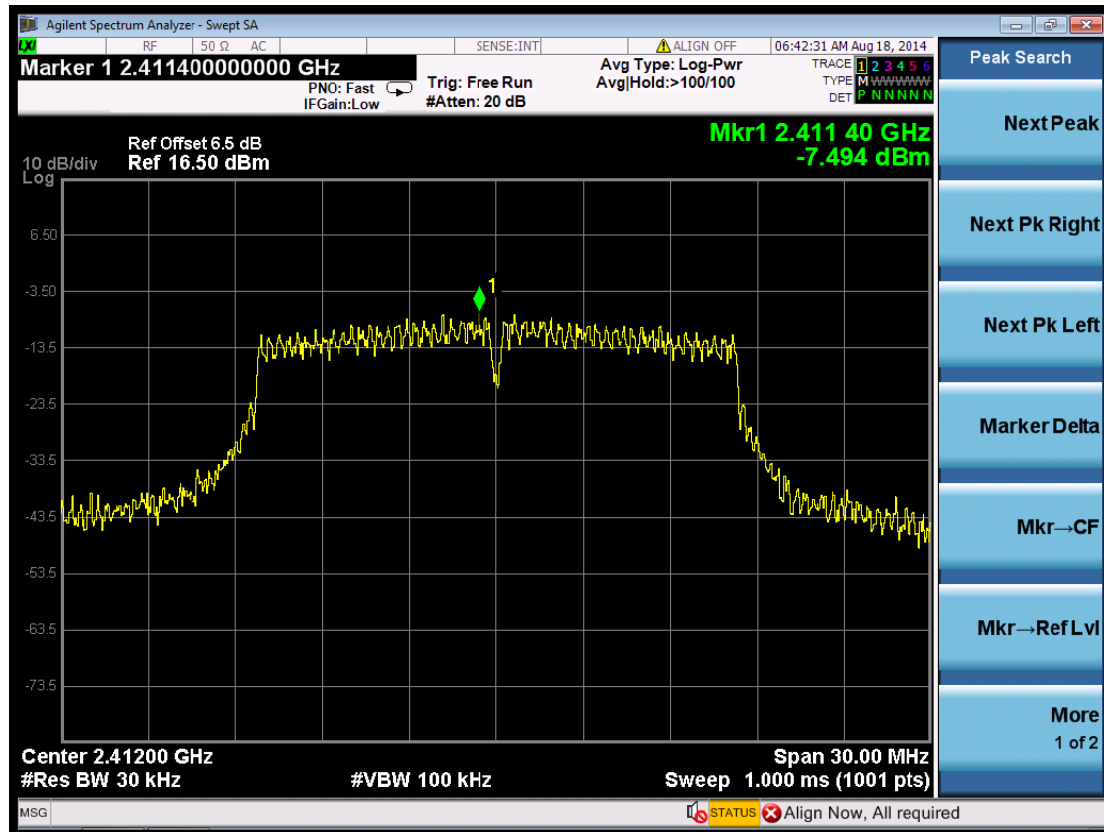
5.4.2 802.11g Test Mode

A. Test Verdict

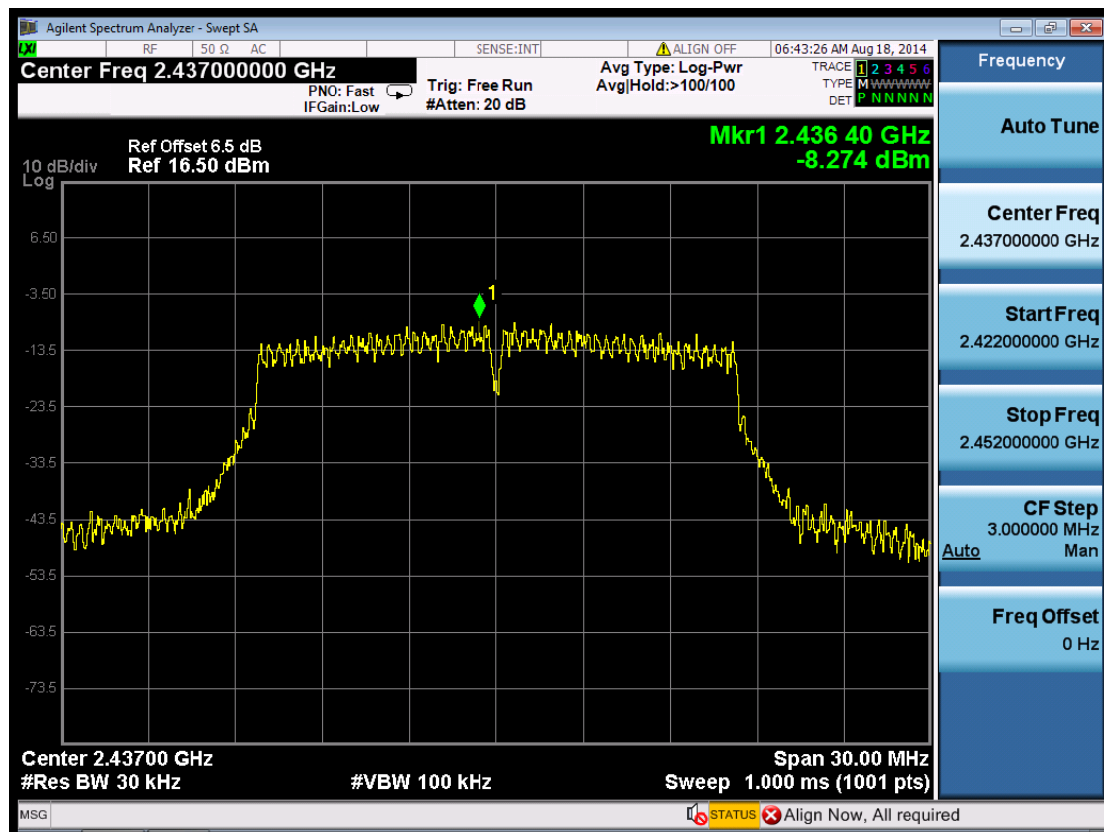
Channel	Frequency (MHz)	Report PSD (dBm/3kHz)	Refer to Plot	Limits (dBm/3KHz)	Verdict
1	2412	-7.494	Plot 6.4.2 A	8	PASS
6	2437	-8.274	Plot 6.4.2 B	8	PASS
11	2462	-8.155	Plot 6.4.2 C	8	PASS

Note: 1. For 802.11g mode at final test to get the worst-case emission at 6Mbps.
2. The test results including the cable loss.

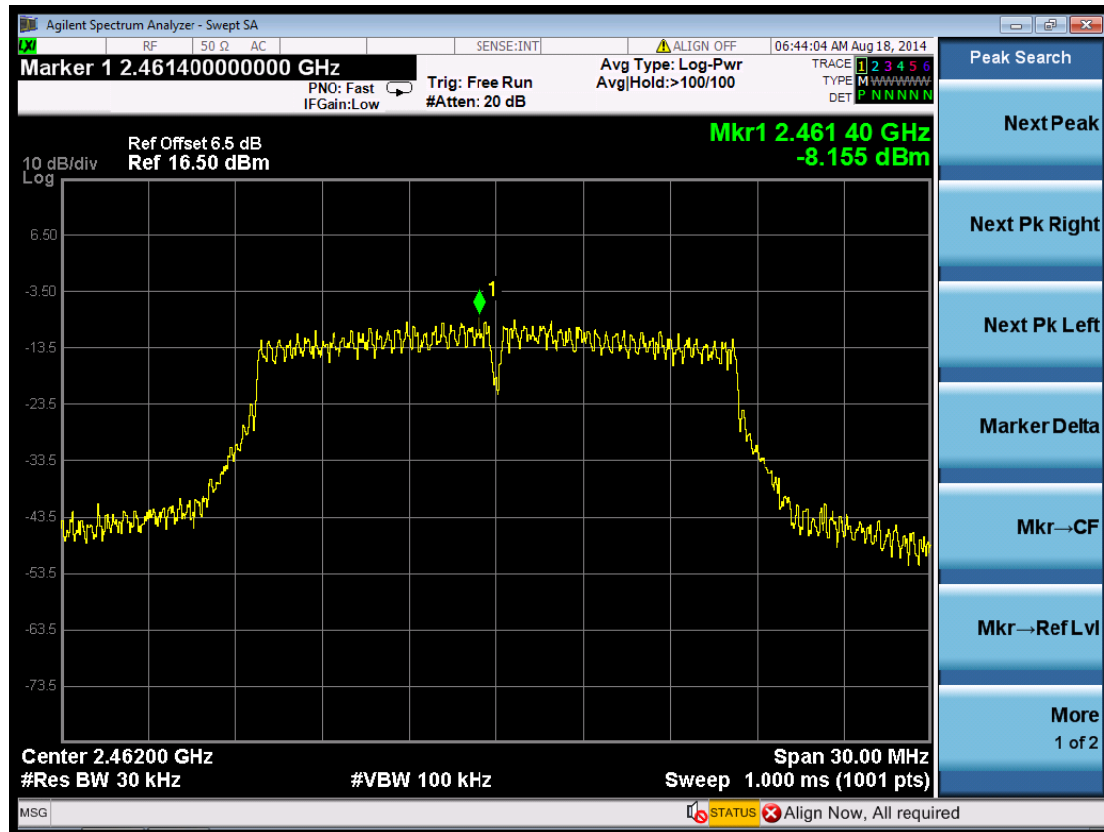
B. Test Plots



(Plot 6.4.2 A: Channel 1: 2412MHz @ 802.11g)



(Plot 6.4.2 B: Channel 6: 2437MHz @ 802.11g)



(Plot 6.4.2 C: Channel 11: 2462MHz @ 802.11g)

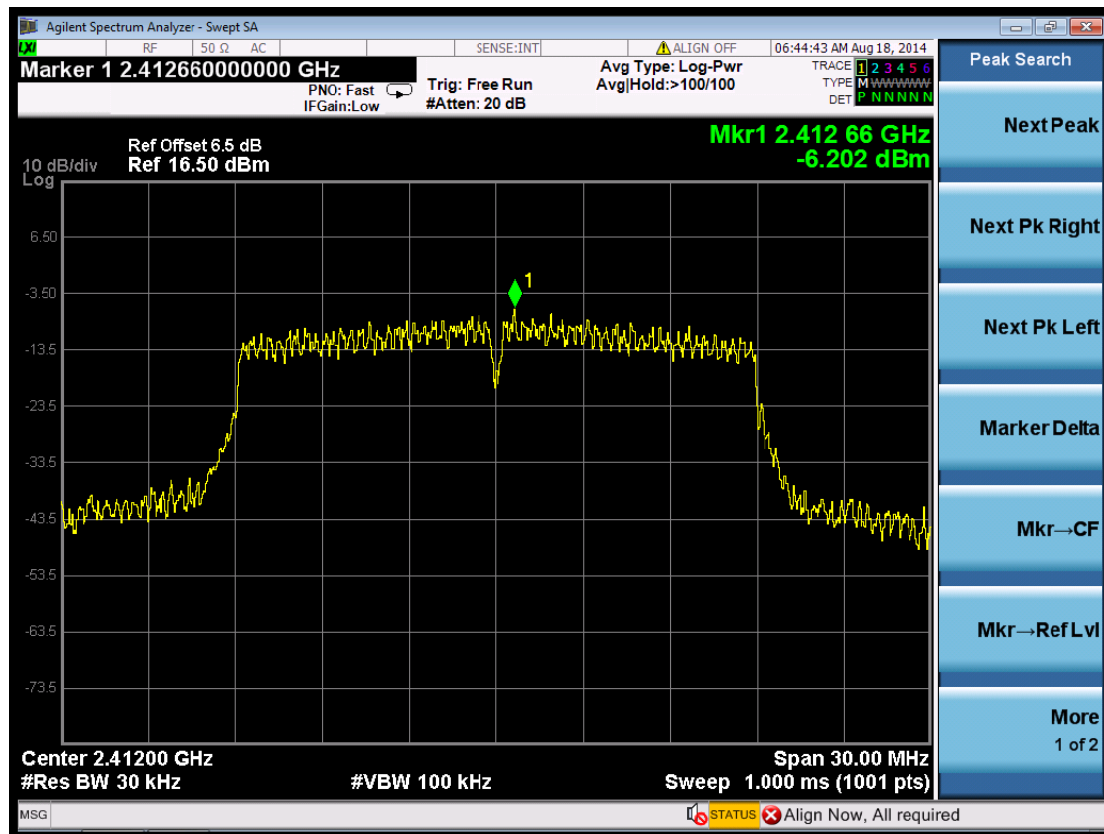
4.4.3 802.11n HT20 Test Mode

A. Test Verdict

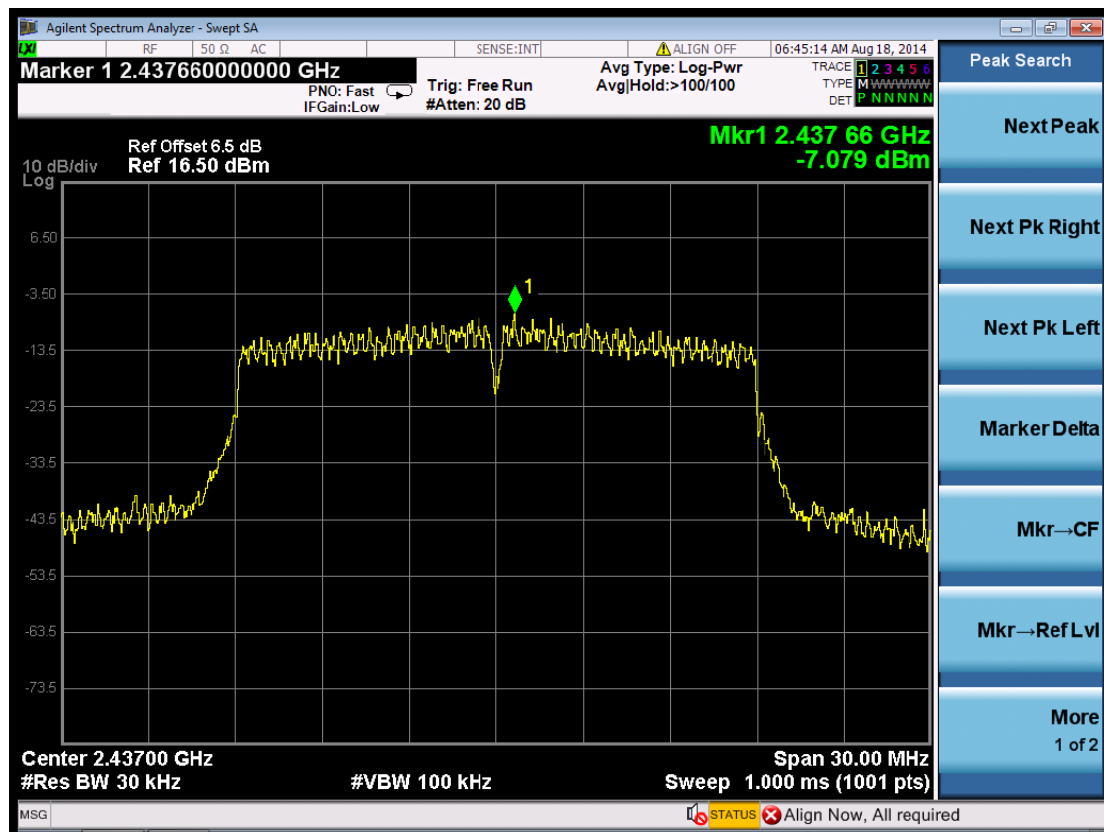
Channel	Frequency (MHz)	Report PSD (dBm/3kHz)	Refer to Plot	Limits (dBm/3KHz)	Verdict
1	2412	-6.202	Plot 6.4.3 A	8	PASS
6	2437	-7.079	Plot 6.4.3 B	8	PASS
11	2462	-8.194	Plot 6.4.3 C	8	PASS

- Note: 1. For 802.11n HT20 mode at final test to get the worst-case emission at 6.5Mbps.
2. The test results including the cable loss.

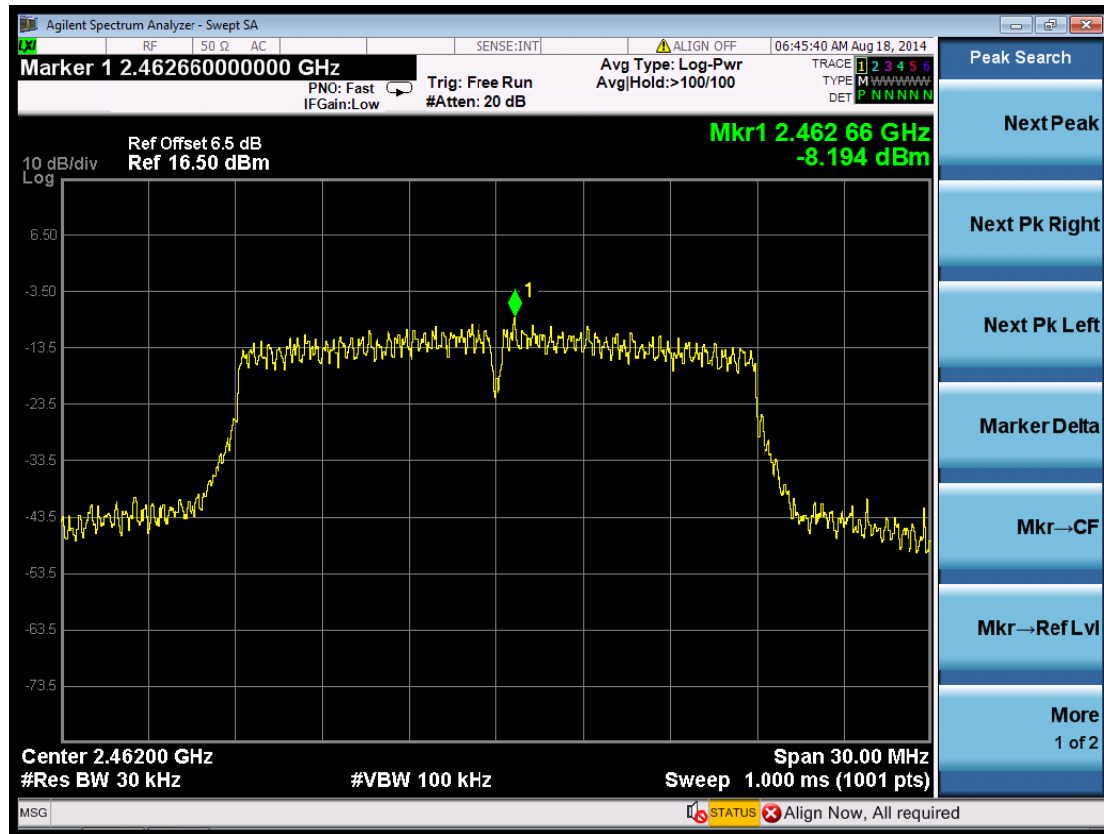
B. Test Plots



(Plot 6.4.3 A: Channel 1: 2412MHz @ 802.11n HT20)



(Plot 6.4.3 B: Channel 6: 2437MHz @ 802.11n HT20)



(Plot 6.4.3 C: Channel 11: 2462MHz @ 802.11n HT20)

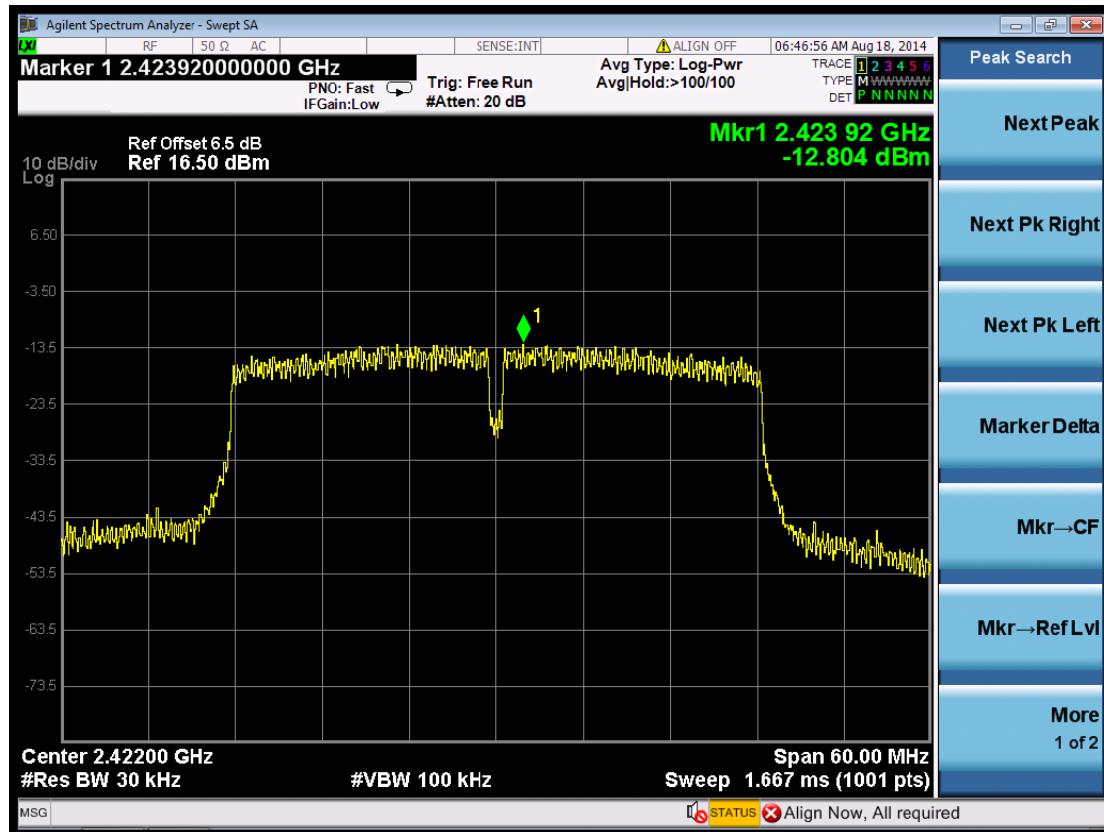
4.4.4 802.11n HT40 Test Mode

A. Test Verdict

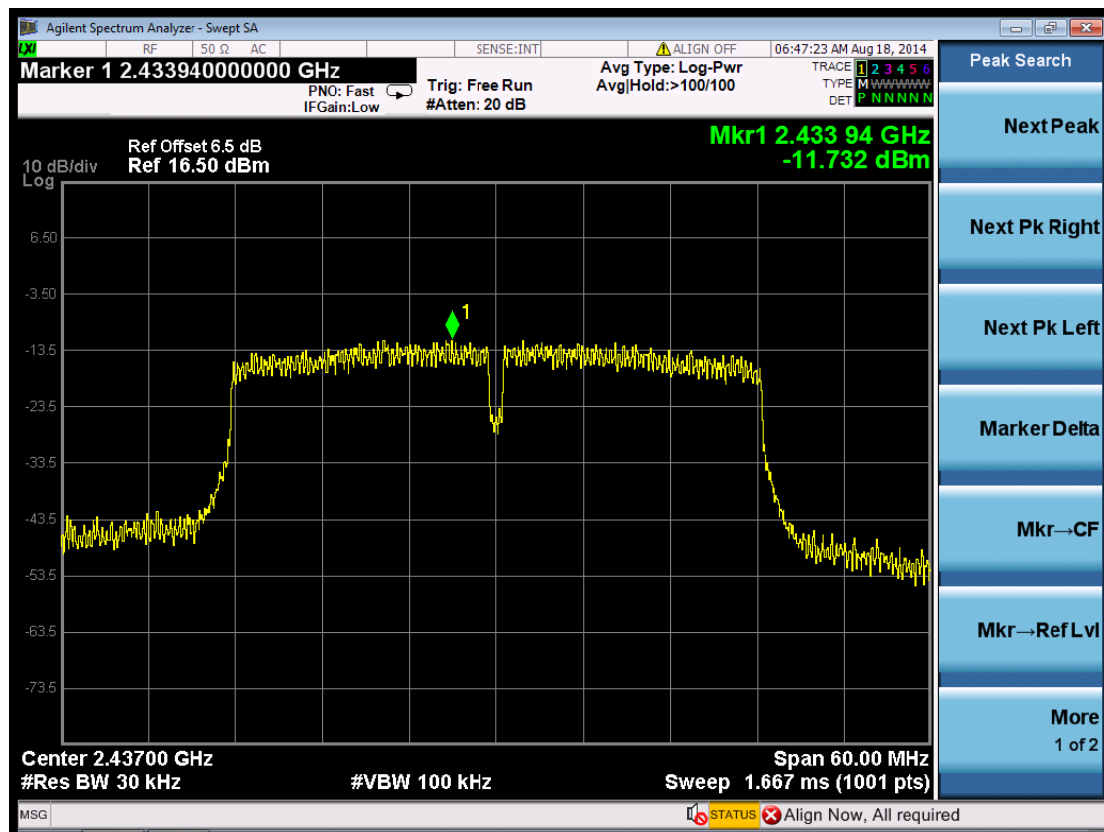
Channel	Frequency (MHz)	Report PSD (dBm/3kHz)	Refer to Plot	Limits (dBm/3KHz)	Verdict
3	2422	-12.804	Plot 6.4.4 A	8	PASS
6	2437	-11.732	Plot 6.4.4 B	8	PASS
9	2452	-12.005	Plot 6.4.4 C	8	PASS

Note: 1. For 802.11n HT40 mode at final test to get the worst-case emission at 13.5Mbps.
2. The test results including the cable loss.

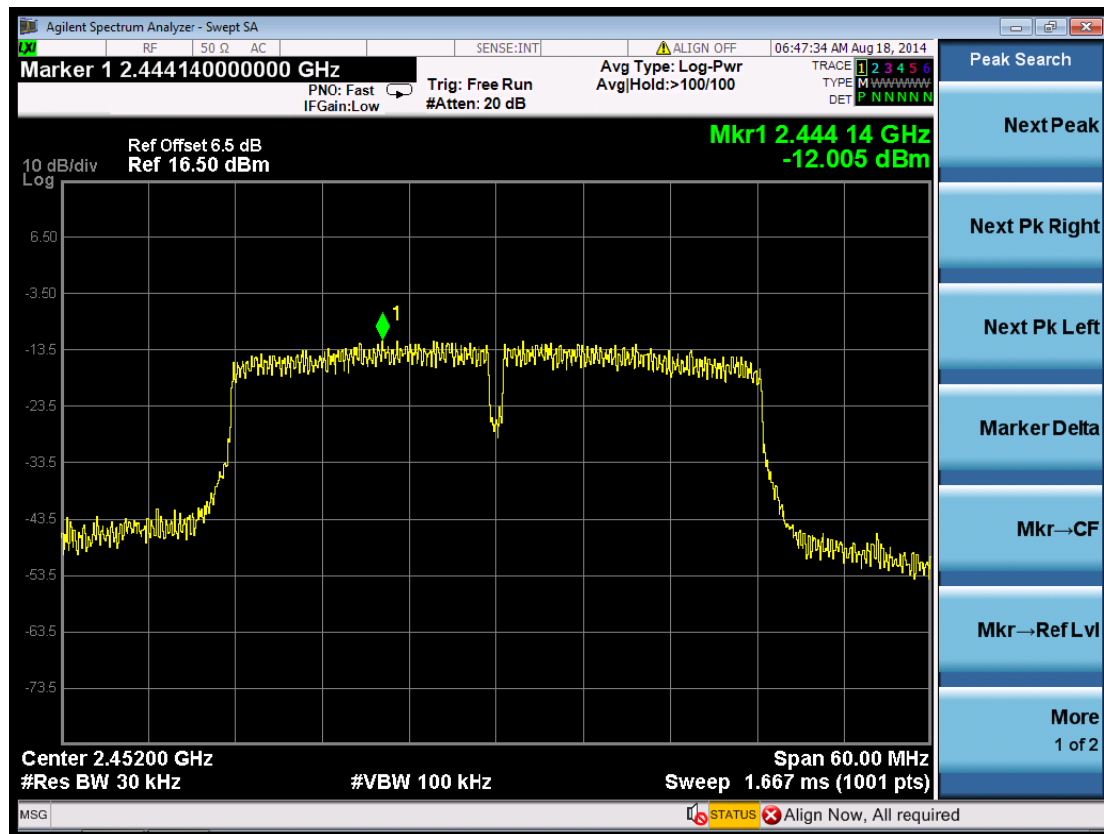
B. Test Plots



(Plot 6.4.4 A: Channel 3: 2422MHz @ 802.11n HT40))



(Plot 6.4.4 B: Channel 6: 2437MHz @ 802.11n HT40))



(Plot 6.4.4 C: Channel 6: 2452MHz @ 802.11n HT40)



6.5 Band Edge Compliance of RF Emission

TEST REQUIREMENT

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)).

TEST PROCEDURE

According to KDB 558074 D01 V03 for Antenna-port conducted measurement. Antenna-port conducted measurements may also be used as an alternative to radiated measurements for demonstrating compliance in the restricted frequency bands. If conducted measurements are performed, then proper impedance matching must be ensured and an additional radiated test for cabinet/case spurious emissions is required.

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Remove the antenna from the EUT and then connect to a low loss RF cable from the antenna port to a EMI test receiver, then turn on the EUT and make it operate in transmitting mode. Then set it to Low Channel and High Channel within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge, for Radiated emissions restricted band RBW=1MHz, VBW=3MHz for peak detector and RBW=1MHz, VBW=10Hz for average detector.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.
6. Measure the conducted output power (in dBm) using the detector specified by the appropriate regulatory agency (see 12.2.2, 12.2.3, and 12.2.4 for guidance regarding measurement procedures for determining quasi-peak, peak, and average conducted output power, respectively).
7. Add the maximum transmit antenna gain (in dBi) to the measured output power level to determine the EIRP level (see 12.2.5 for guidance on determining the applicable antenna gain)
8. Add the appropriate maximum ground reflection factor to the EIRP level (6 dB for frequencies ≤ 30 MHz, 4.7 dB for frequencies between 30 MHz and 1000 MHz, inclusive and 0 dB for frequencies > 1000 MHz).
9. For devices with multiple antenna-ports, measure the power of each individual chain and sum the EIRP of all chains in linear terms (e.g., Watts, mW).
10. Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:
$$E = \text{EIRP} - 20 \log D + 104.8$$

Where:

E = electric field strength in dB μ V/m,

EIRP = equivalent isotropic radiated power in dBm

D = specified measurement distance in meters.

11. Since the out-of-band characteristics of the EUT transmit antenna will often be unknown, the use of a conservative antenna gain value is necessary. Thus, when determining the EIRP based on the measured conducted power, the upper bound on antenna gain for a device with a single RF output shall be selected as the maximum in-band gain of the antenna across all operating bands, or 2 dBi, whichever is



greater. However, for devices that operate in multiple frequency bands while using the same transmit antenna, the highest gain of the antenna within the operating band nearest in frequency to the restricted band emission being measured may be used in lieu of the overall highest gain when the emission is at a frequency that is within 20 percent of the nearest band edge frequency, but in no case shall a value less than 2 dBi be used.

12. Compare the resultant electric field strength level to the applicable regulatory limit.
13. Perform radiated spurious emission test duress until all measured frequencies were complete.

LIMIT

Below -20dB of the highest emission level in operating band.

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).

TEST RESULTS

Remark: The Bandedge was measured at difference data rate for each mode and recorded worst case for each mode.

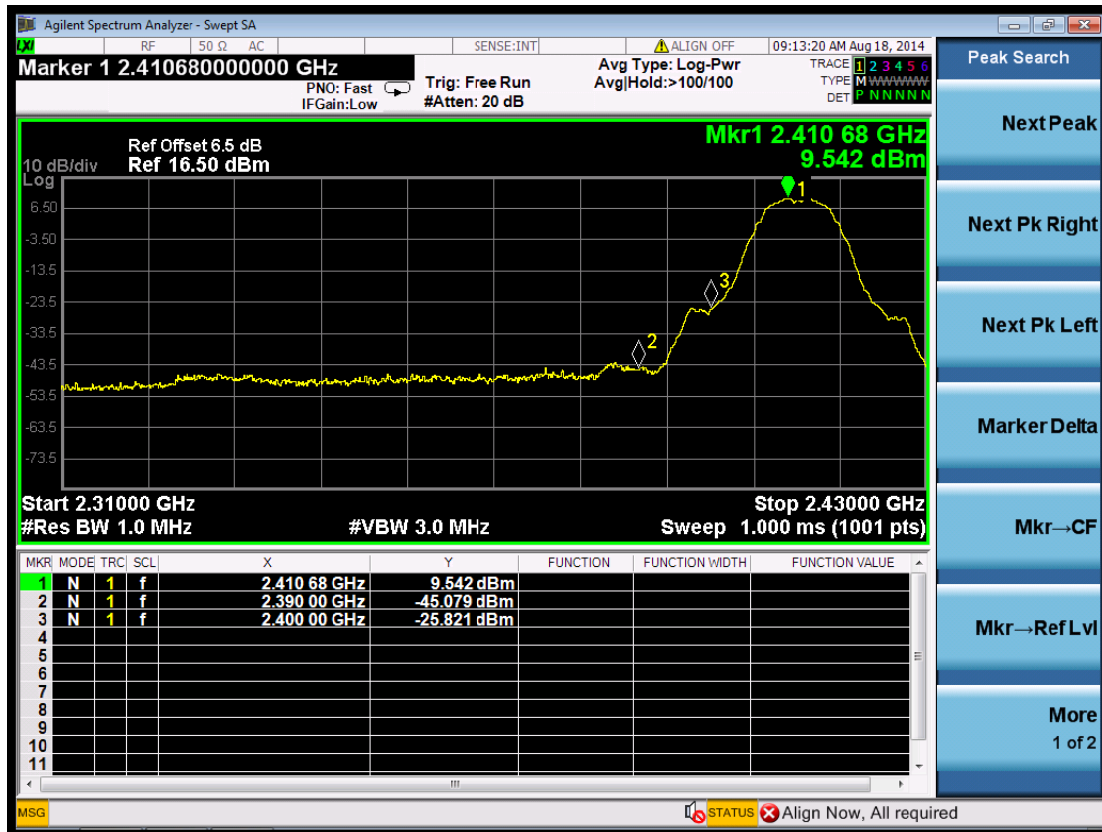
6.5.1 802.11b Test Mode

A. Test Verdict

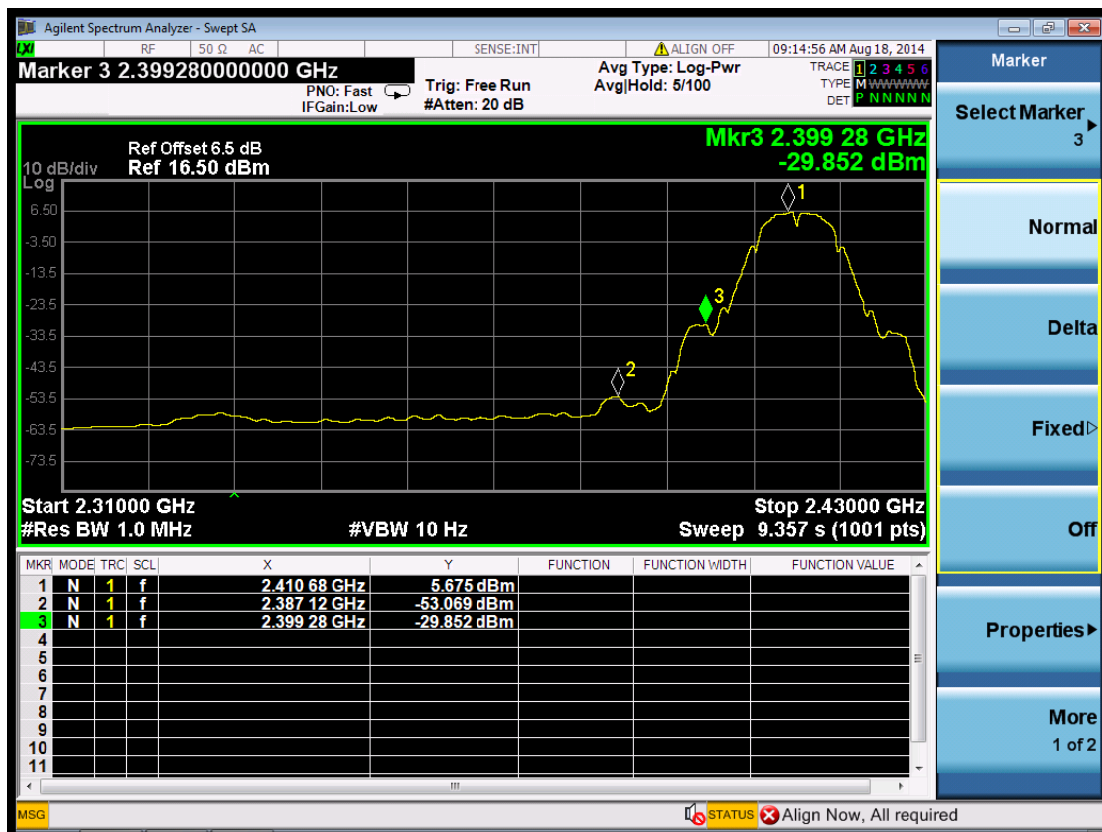
Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Ground Reflection Factor (dB)	Covert Radiated E Level At 3m (dBuV/m)	Detector	Limit (dBuV/m)	Refer to Plot
2390.00	-45.079	2.00	0.00	52.181	Peak	74.00	Plot 6.5.1 A1
2387.12	-53.069	2.00	0.00	44.191	AV	54.00	Plot 6.5.1 A2
2410.68	9.542	2.00	0.00	106.802	Peak	---	Plot 6.5.1 A1
2410.68	5.675	2.00	0.00	102.935	AV	---	Plot 6.5.1 A2
2460.78	8.991	2.00	0.00	106.251	Peak	---	Plot 6.5.1 A3
2461.23	5.494	2.00	0.00	102.754	AV	---	Plot 6.5.1 A4
2484.17	-45.317	2.00	0.00	51.943	Peak	74.00	Plot 6.5.1 A3
2483.50	-56.326	2.00	0.00	40.934	AV	54.00	Plot 6.5.1 A4

- Note:
1. For 802.11b mode at final test to get the worst-case emission at 1Mbps.
 2. The test results including the cable loss.
 3. "---" means that the fundamental frequency not for 15.209 limits requirement.

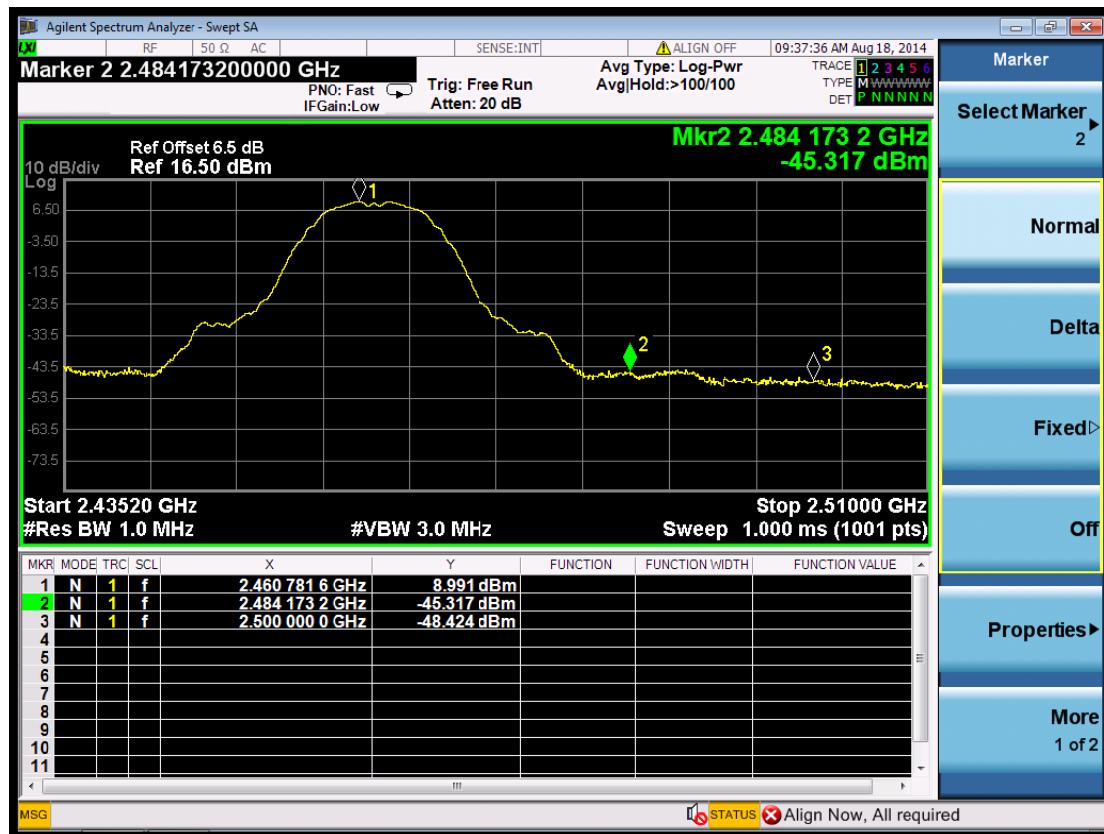
B. Test Plots



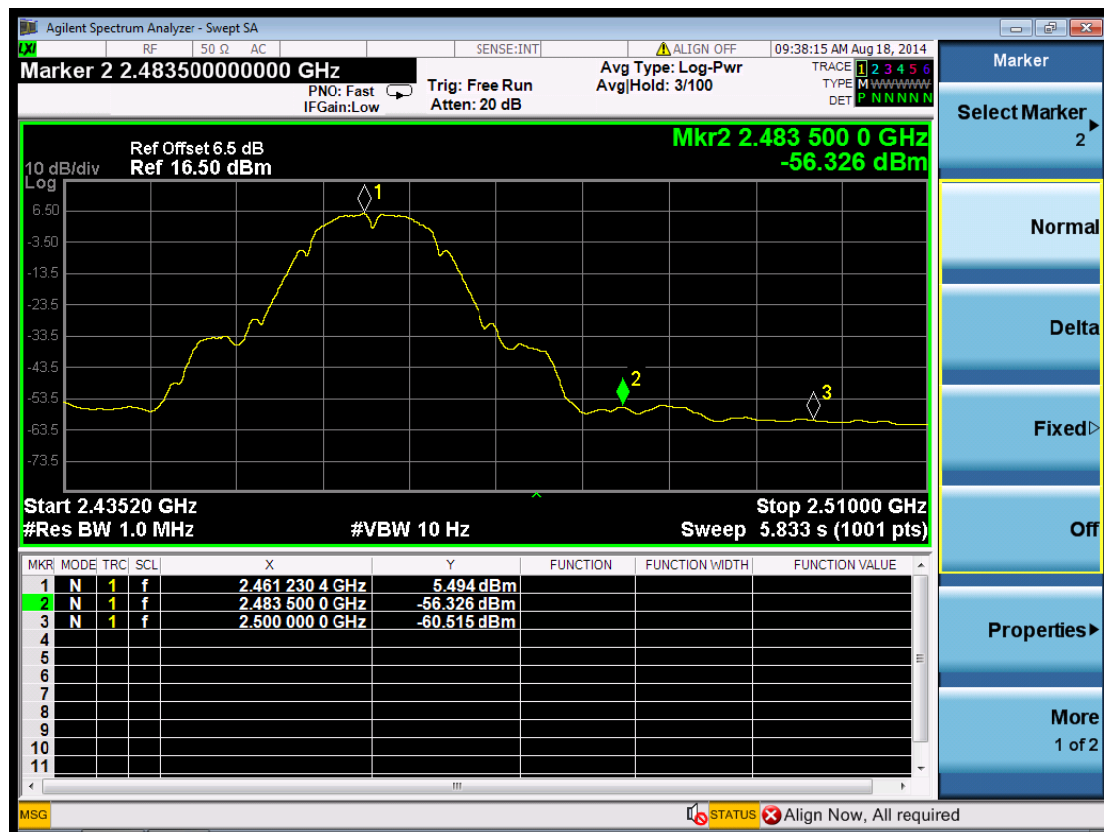
(Plot 6.5.1 A1: Channel 1: 2412MHz @ 802.11b)



(Plot 6.5.1 A2: Channel 1: 2412MHz @ 802.11b)



(Plot 6.5.1 A3: Channel 11: 2462MHz @ 802.11b)



(Plot 6.5.1 A4: Channel 11: 2462MHz @ 802.11b)



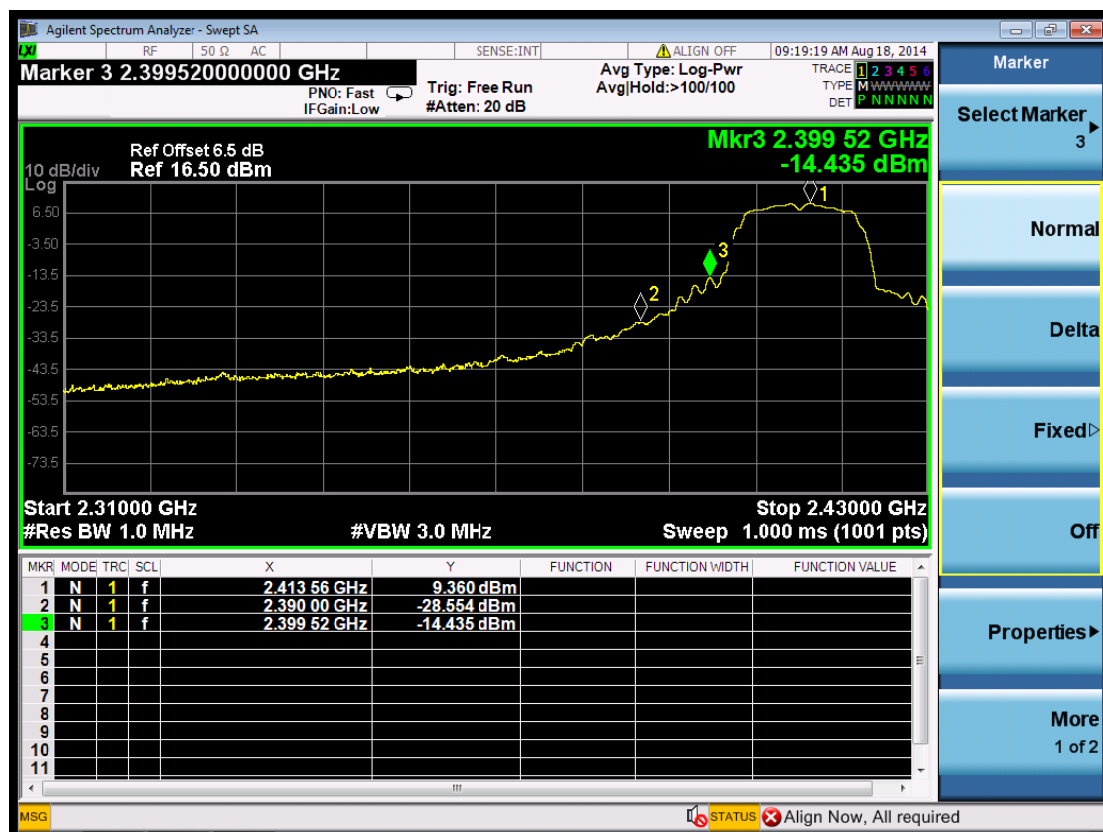
6.5.2 802.11g Test Mode

A. Test Verdict

Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Ground Reflection Factor (dB)	Covert Radiated E Level At 3m (dBuV/m)	Detector	Limit (dBuV/m)	Refer to Plot
2390.00	-28.554	2.00	0.00	68.706	Peak	74.00	Plot 6.5.2 A1
2387.12	-47.061	2.00	0.00	50.199	AV	54.00	Plot 6.5.2 A2
2413.56	9.360	2.00	0.00	106.62	Peak	---	Plot 6.5.2 A1
2410.68	-0.400	2.00	0.00	96.86	AV	---	Plot 6.5.2 A2
2463.40	9.225	2.00	0.00	106.485	Peak	---	Plot 6.5.2 A3
2460.93	-0.453	2.00	0.00	96.807	AV	---	Plot 6.5.2 A4
2483.50	-26.786	2.00	0.00	70.474	Peak	74.00	Plot 6.5.2 A3
2483.50	-48.573	2.00	0.00	48.687	AV	54.00	Plot 6.5.2 A4

- Note: 1. For 802.11g mode at final test to get the worst-case emission at 6Mbps.
2. The test results including the cable loss.
3. "---" means that the fundamental frequency not for 15.209 limits requirement.

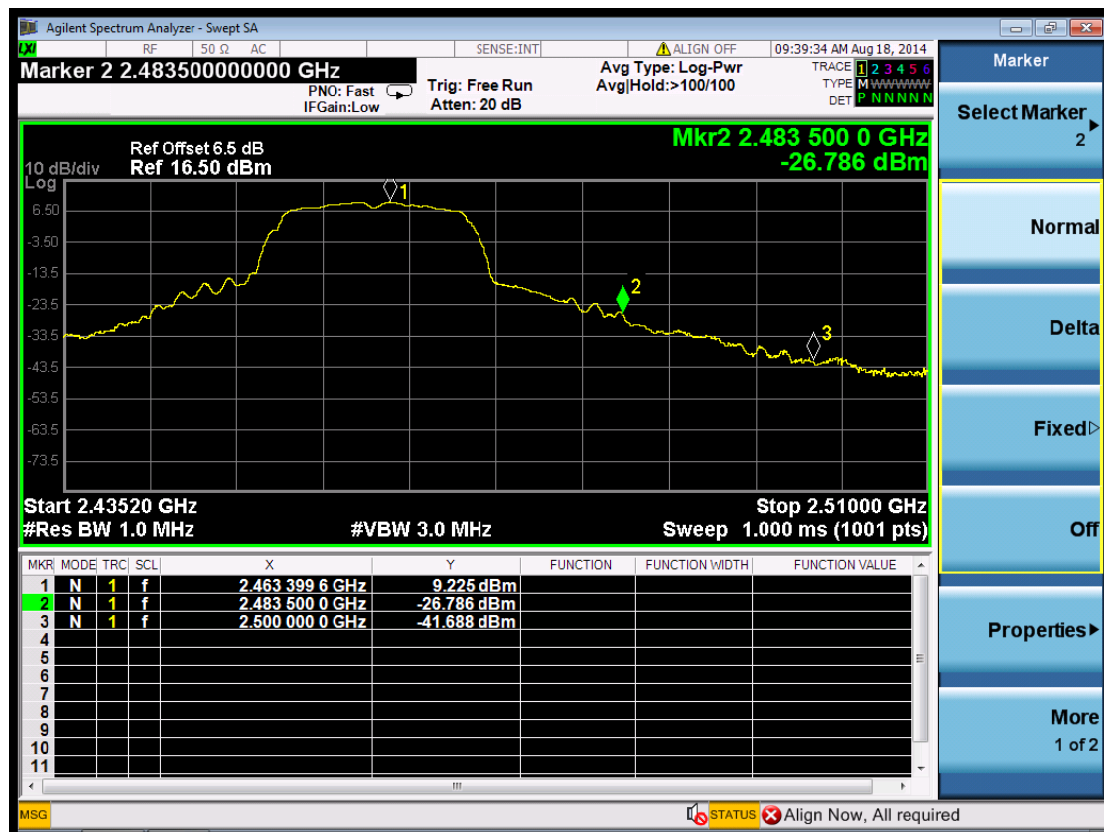
B. Test Plots



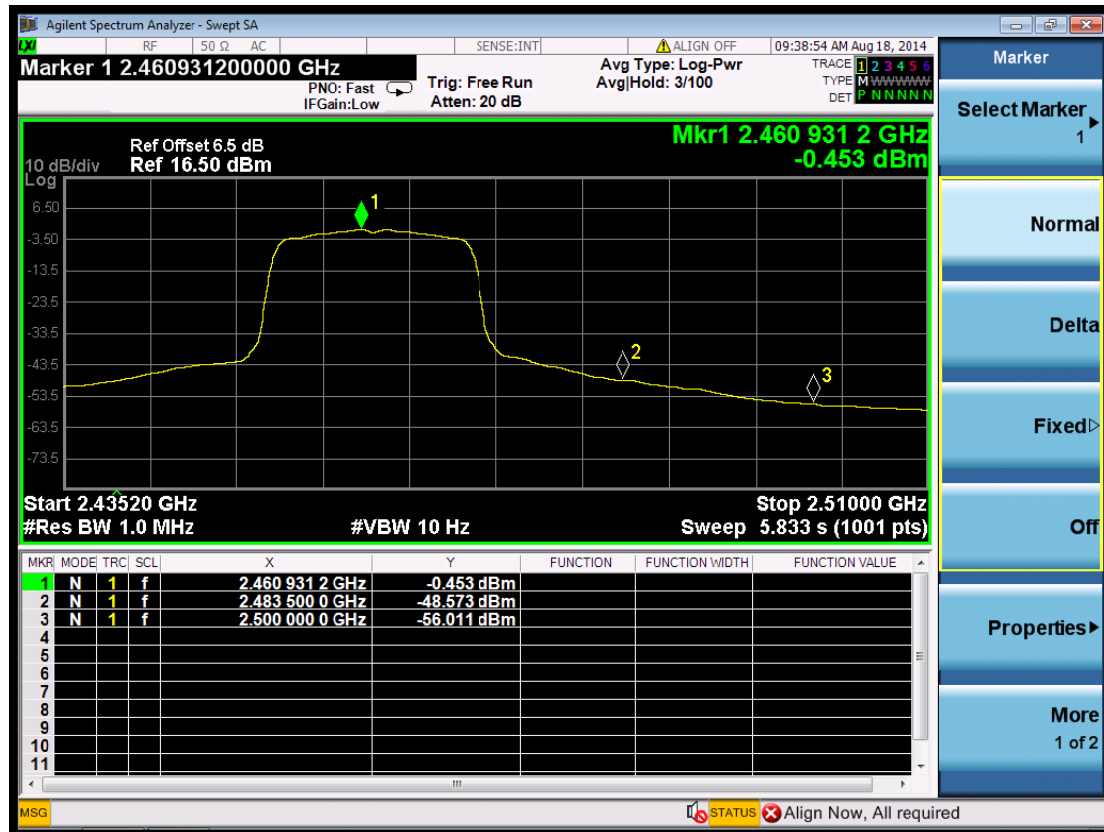
(Plot 6.5.2 A1: Channel 1: 2412MHz @ 802.11g)



(Plot 6.5.2 A2: Channel 1: 2412MHz @ 802.11g)



(Plot 6.5.2 A3: Channel 11: 2462MHz @ 802.11g)



(Plot 6.5.2 A4: Channel 11: 2462MHz @ 802.11g)

6.5.3 802.11n HT20 Test Mode

A. Test Verdict

Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Ground Reflection Factor (dB)	Covert Radiated E Level At 3m (dBuV/m)	Detector	Limit (dBuV/m)	Refer to Plot
2389.16	-25.255	2.00	0.00	72.005	Peak	74.00	Plot 6.5.3 A1
2390.00	-44.818	2.00	0.00	52.442	AV	54.00	Plot 6.5.3 A2
2413.32	9.222	2.00	0.00	106.482	Peak	---	Plot 6.5.3 A1
2413.44	-1.030	2.00	0.00	96.23	AV	---	Plot 6.5.3 A2
2460.71	9.392	2.00	0.00	106.652	Peak	---	Plot 6.5.3 A3
2463.55	-0.774	2.00	0.00	96.486	AV	---	Plot 6.5.3 A4
2485.15	-22.630	2.00	0.00	74.63	Peak	74.00	Plot 6.5.3 A3
2483.50	-47.374	2.00	0.00	49.886	AV	54.00	Plot 6.5.3 A4

Note: 1. For 802.11n HT20 mode at final test to get the worst-case emission at 6.5Mbps.
 2. The test results including the cable lose.
 3. "----" means that the fundamental frequency not for 15.209 limits requirement.

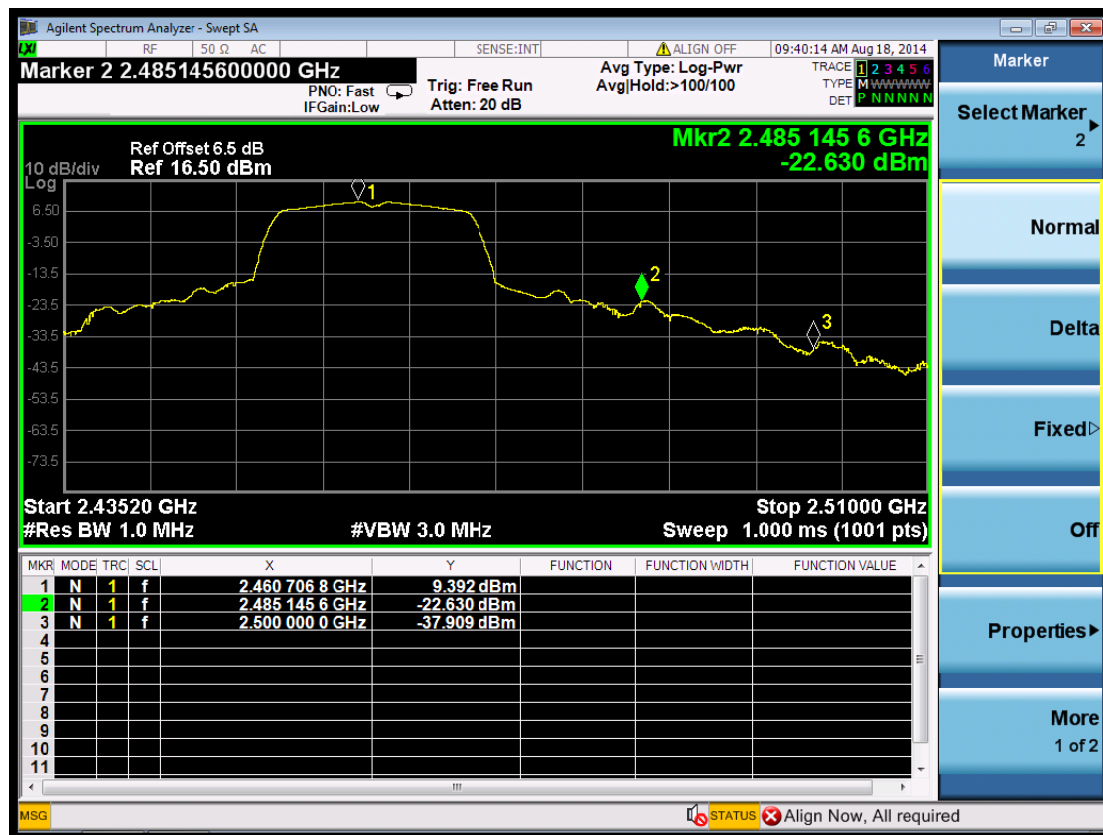
B. Test Plots



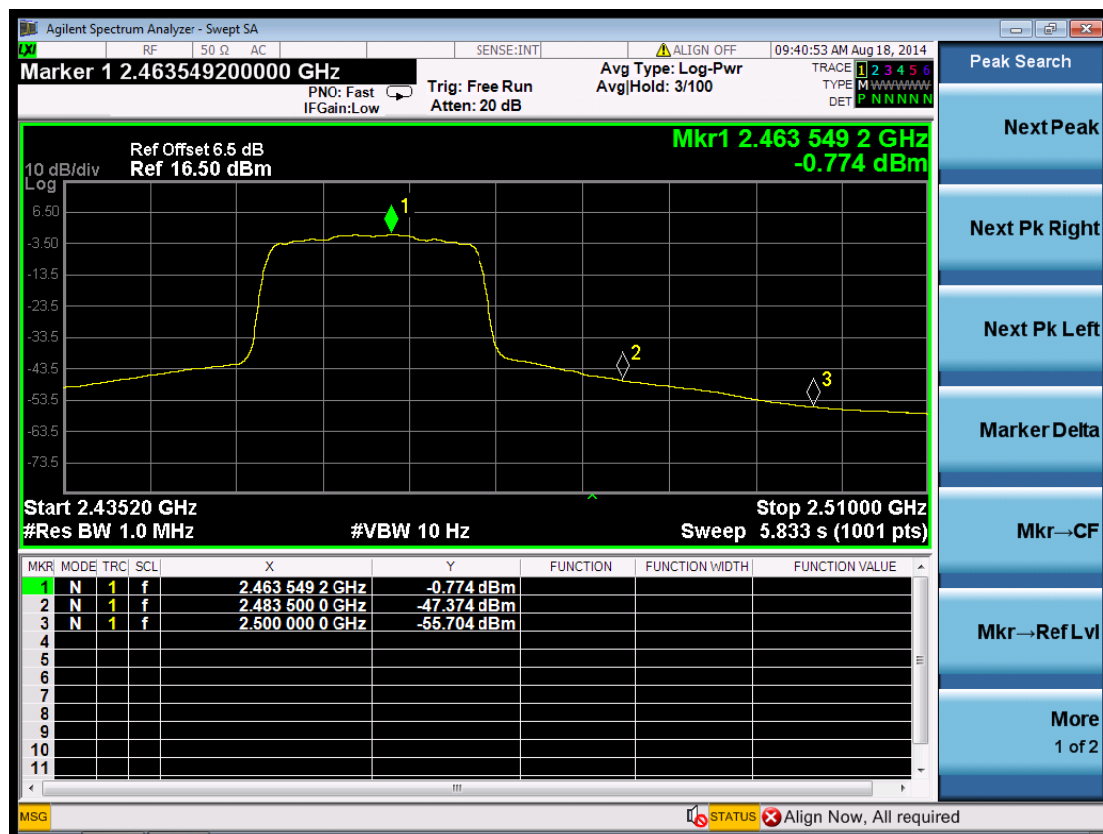
(Plot 6.5.3 A1: Channel 1: 2412MHz @ 802.11n HT20)



(Plot 6.5.3 A2: Channel 1: 2412MHz @ 802.11n HT20MHz)



(Plot 6.5.3 A3: Channel 11: 2462MHz @ 802.11n HT20MHz)



(Plot 6.5.3 A4: Channel 11: 2462MHz @ 802.11n HT20MHz)



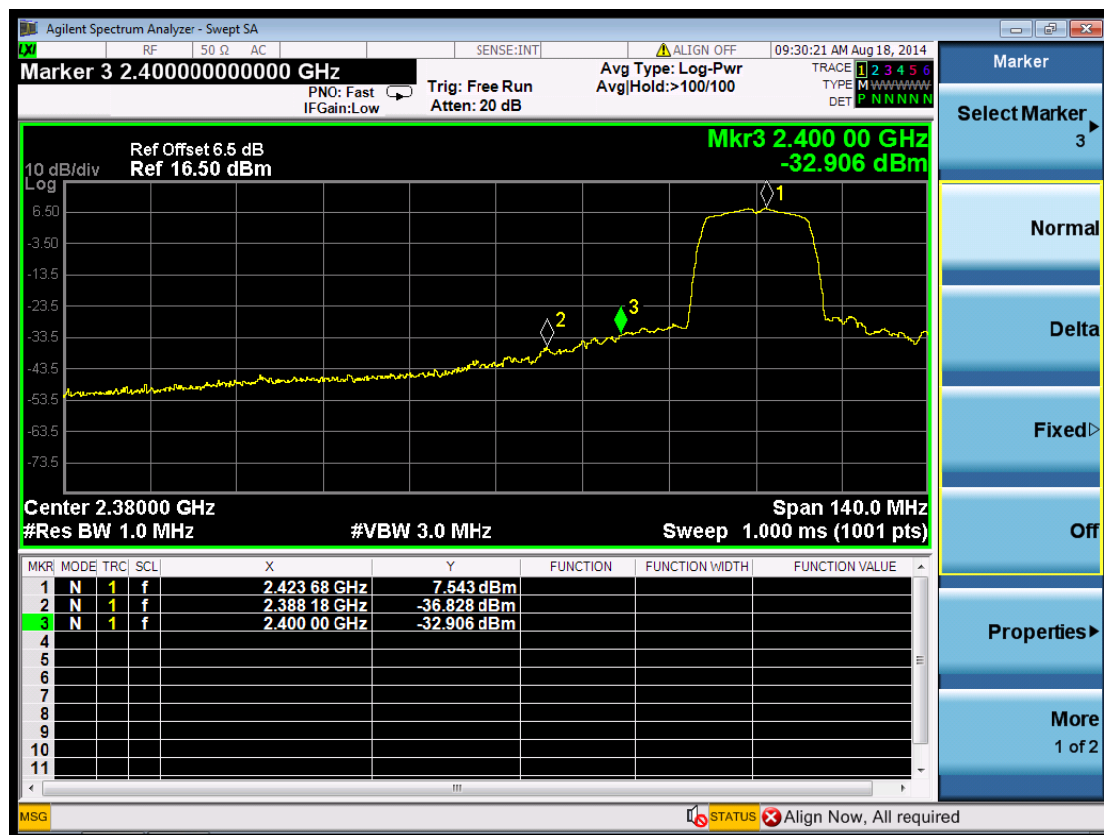
6.5.4 802.11n HT40MHz Test Mode

A. Test Verdict

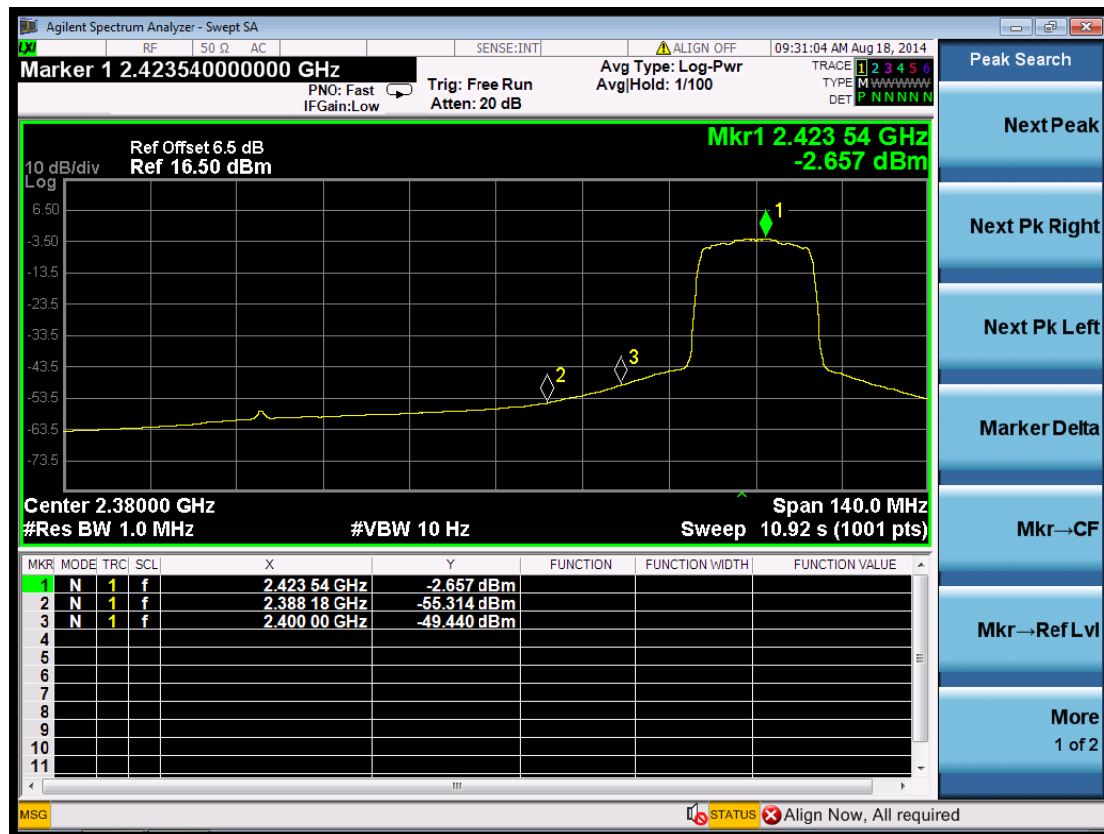
Frequency (MHz)	Conducted Power (dBm)	Antenna Gain (dBi)	Ground Reflection Factor (dB)	Covert Radiated E Level At 3m (dBuV/m)	Detector	Limit (dBuV/m)	Refer to Plot
2388.18	-36.828	2.00	0.00	60.432	Peak	74.00	Plot 6.5.4 A1
2388.18	-55.314	2.00	0.00	41.946	AV	54.00	Plot 6.5.4 A2
2423.68	7.543	2.00	0.00	104.803	Peak	---	Plot 6.5.4 A1
2423.54	-2.657	2.00	0.00	94.603	AV	---	Plot 6.5.4 A2
2453.23	7.263	2.00	0.00	104.523	Peak	---	Plot 6.5.4 A3
2450.46	-3.004	2.00	0.00	94.256	AV	---	Plot 6.5.4 A4
2485.59	-38.616	2.00	0.00	58.644	Peak	74.00	Plot 6.5.4 A3
2483.50	-55.613	2.00	0.00	41.647	AV	54.00	Plot 6.5.4 A4

- Note: 1. For 802.11n HT40 mode at final test to get the worst-case emission at 13.5Mbps.
 2. The test results including the cable lose.
 3. "---" means that the fundamental frequency not for 15.209 limits requirement.

B. Test Plots



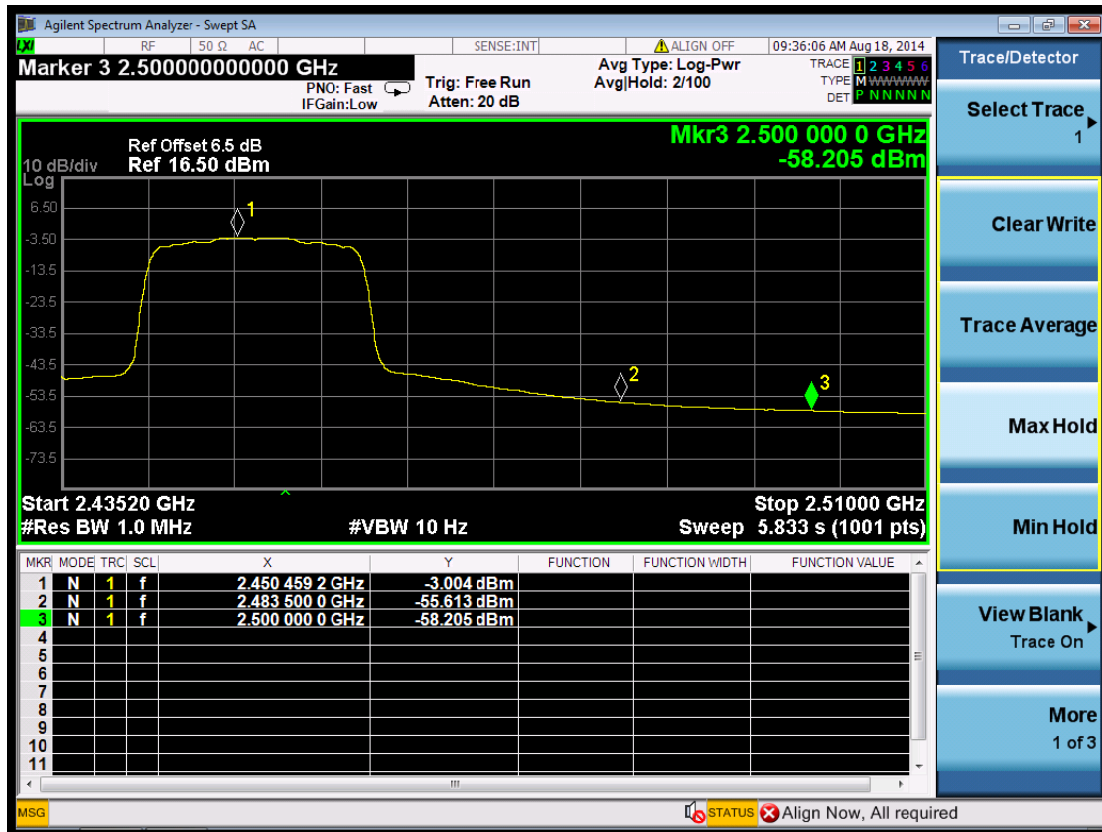
(Plot 6.5.4 A1: Channel 3: 2422MHz @ 802.11n HT40MHz)



(Plot 6.5.4 A2: Channel 3: 2422MHz @ 802.11n HT40MHz)



(Plot 6.5.4 A3: Channel 9: 2452MHz @ 802.11n HT40MHz)



(Plot 6.5.4 A4: Channel 9: 2452MHz @ 802.11n HT40MHz)



6.6 Spurious RF Conducted Emission

TEST PROCEDURE

The Spurious RF conducted emissions compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10-2009 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW=100 kHz and VBW= 300 KHz to measure the peak field strength, and measure frequency range from 9 KHz to 26.5GHz.

LIMIT

1. Below -20dB of the highest emission level in operating band.
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

TEST RESULTS

Remark: The measurement frequency range is from 9 KHz to the 10th harmonic of the fundamental frequency. The lowest, middle and highest channels are tested to verify the spurious emissions and bandedge measurement data.

6.6.1 802.11b Test Mode

A. Test Verdict

Channel	Frequency (MHz)	Frequency Range	Refer to Plot	Limit (dBc)	Verdict
1	2412	2.412 GHz	Plot 6.6.1 A1	---	PASS
		9KHz-30MHz	Plot 6.6.1 A2	-20	PASS
		30MHz-3GHz	Plot 6.6.1 A3	-20	PASS
		3GHz-9GHz	Plot 6.6.1 A4	-20	PASS
		9GHz-15GHz	Plot 6.6.1 A5	-20	PASS
		15GHz-20GHz	Plot 6.6.1 A6	-20	PASS
		20GHz-25GHz	Plot 6.6.1 A7	-20	PASS
6	2437	2.437 GHz	Plot 6.6.1 B1	---	PASS
		9KHz-30MHz	Plot 6.6.1 B2	-20	PASS
		30MHz-3GHz	Plot 6.6.1 B3	-20	PASS
		3GHz-9GHz	Plot 6.6.1 B4	-20	PASS
		9GHz-15GHz	Plot 6.6.1 B5	-20	PASS
		15GHz-20GHz	Plot 6.6.1 B6	-20	PASS
		20GHz-25GHz	Plot 6.6.1 B7	-20	PASS
11	2462	2.462 GHz	Plot 6.6.1 C1	---	PASS
		9KHz-30MHz	Plot 6.6.1 C2	-20	PASS
		30MHz-3GHz	Plot 6.6.1 C3	-20	PASS
		3GHz-9GHz	Plot 6.6.1 C4	-20	PASS
		9GHz-15GHz	Plot 6.6.1 C5	-20	PASS
		15GHz-20GHz	Plot 6.6.1 C6	-20	PASS
		20GHz-25GHz	Plot 6.6.1 C7	-20	PASS

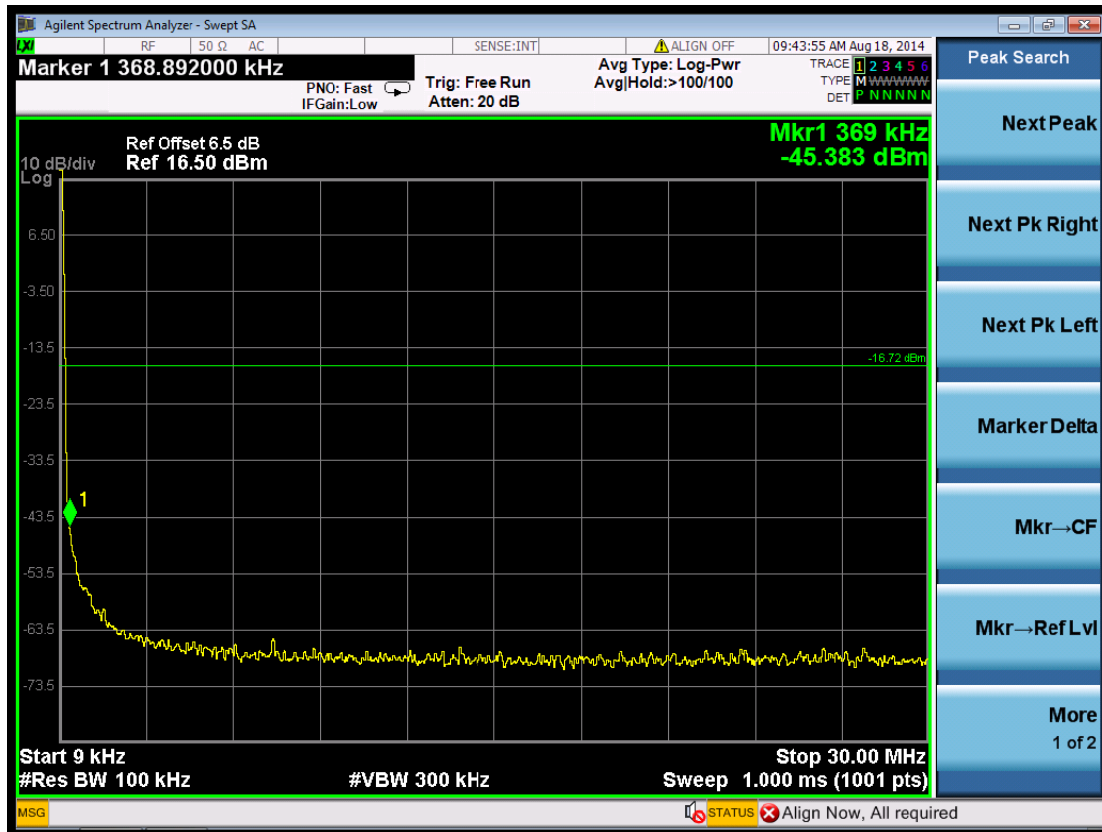


Frequency (MHz)	Delta Peak to Band emission (dBc)	Detector	Limit (dBc)	Refer to Plot	Verdict
2400.00	-35.184	Peak	-20	Plot 6.6.1 D	PASS
2483.50	-49.612	Peak	-20	Plot 6.6.1 E	PASS

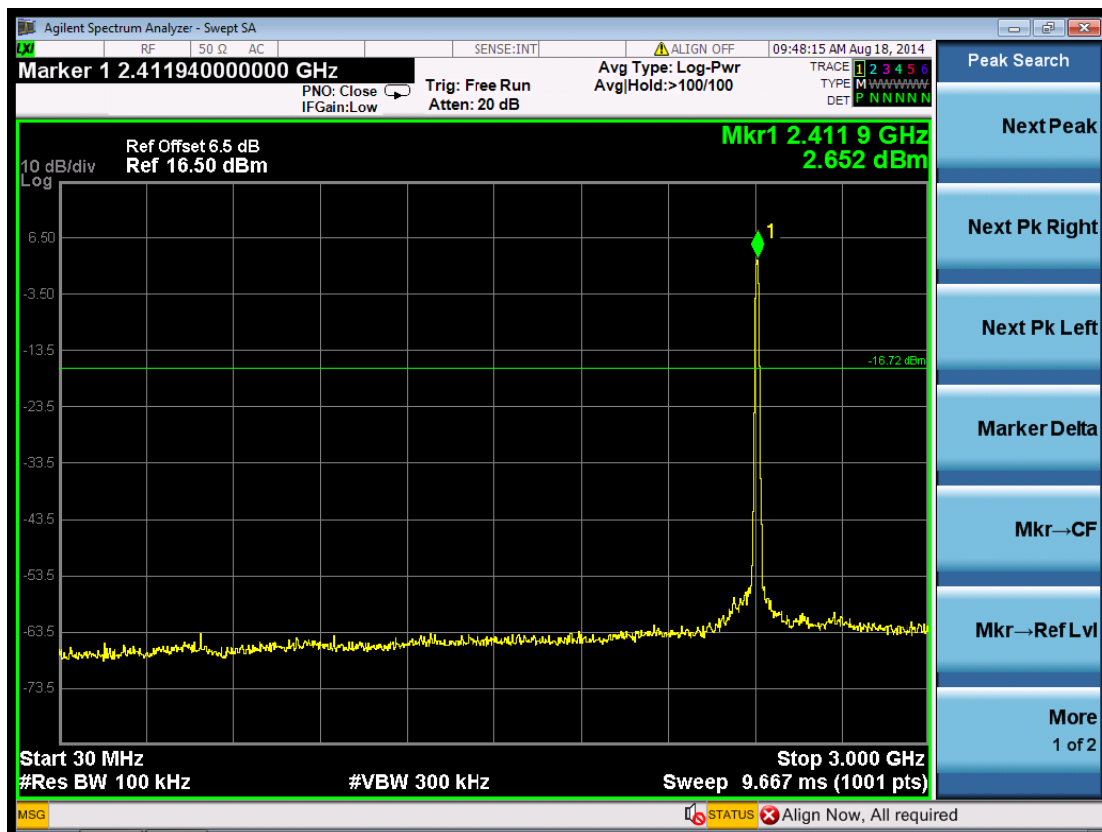
- Note: 1. For 802.11b mode at final test to get the worst-case emission at 1Mbps.
2. The test results including the cable loss.



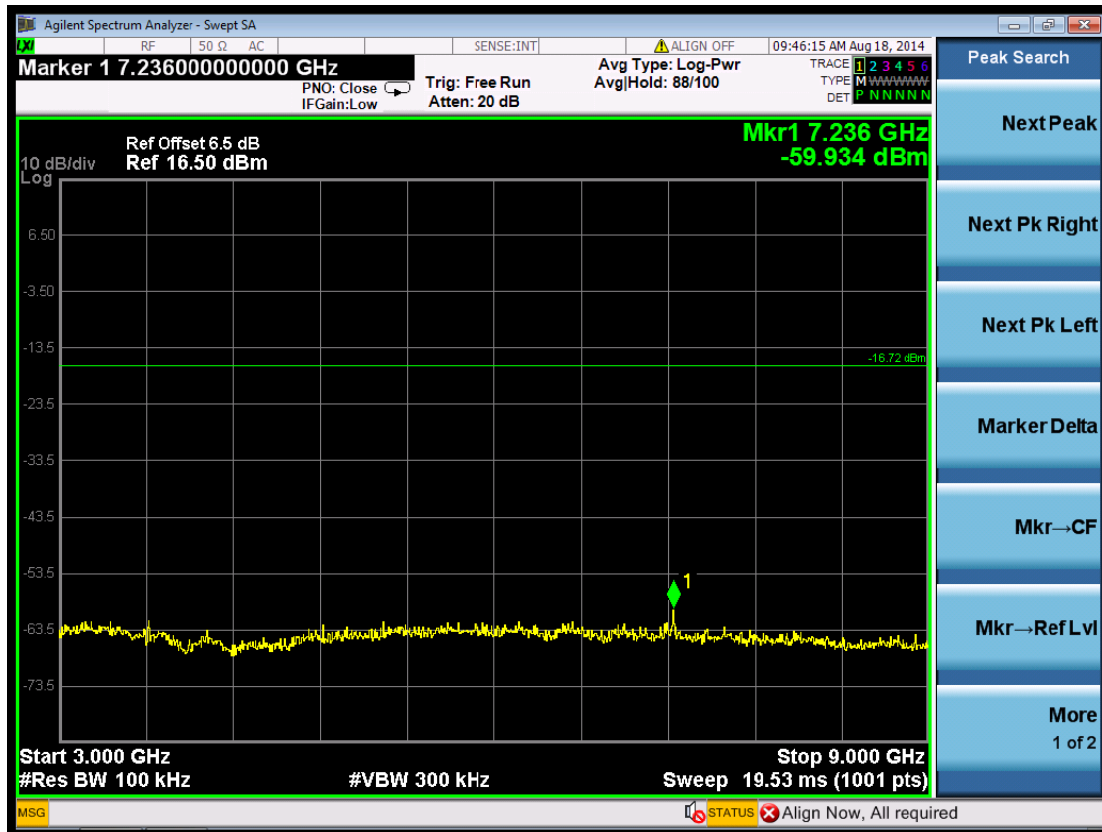
(Plot 6.6.1 A1: Channel 1: 2412MHz @ 802.11b)



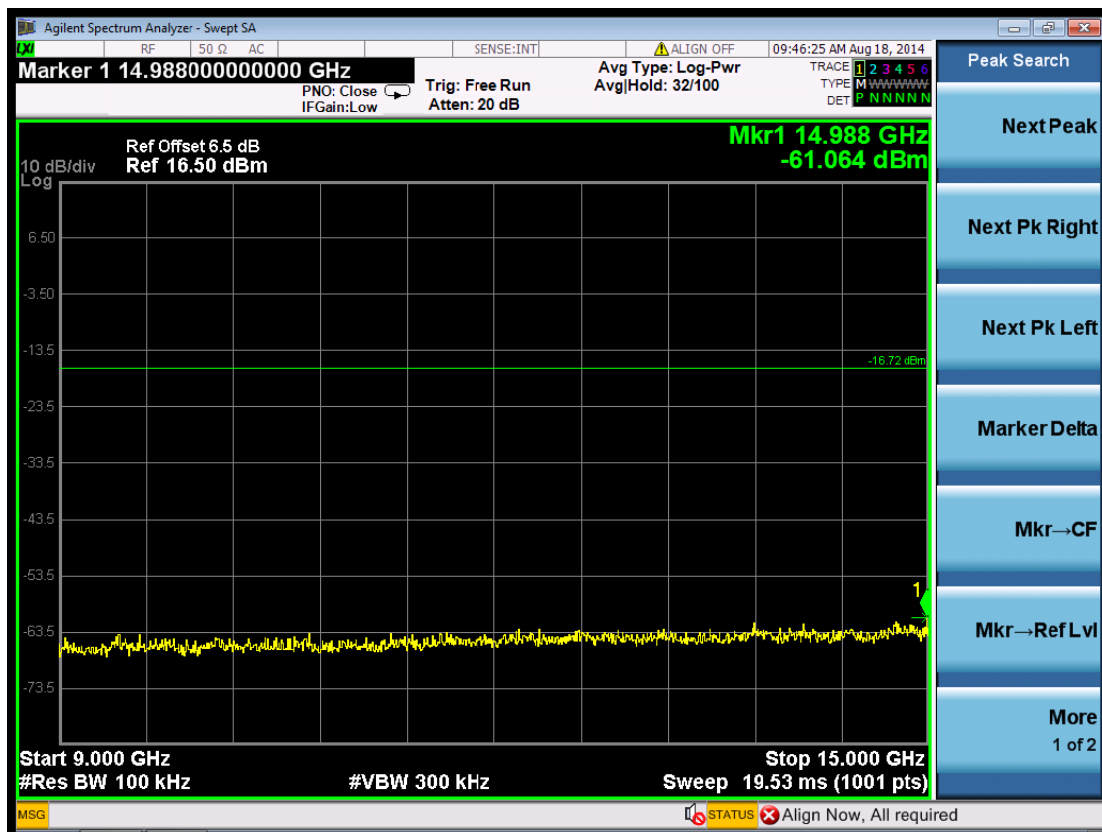
(Plot 6.6.1 A2: Channel 1: 2412MHz @ 802.11b)



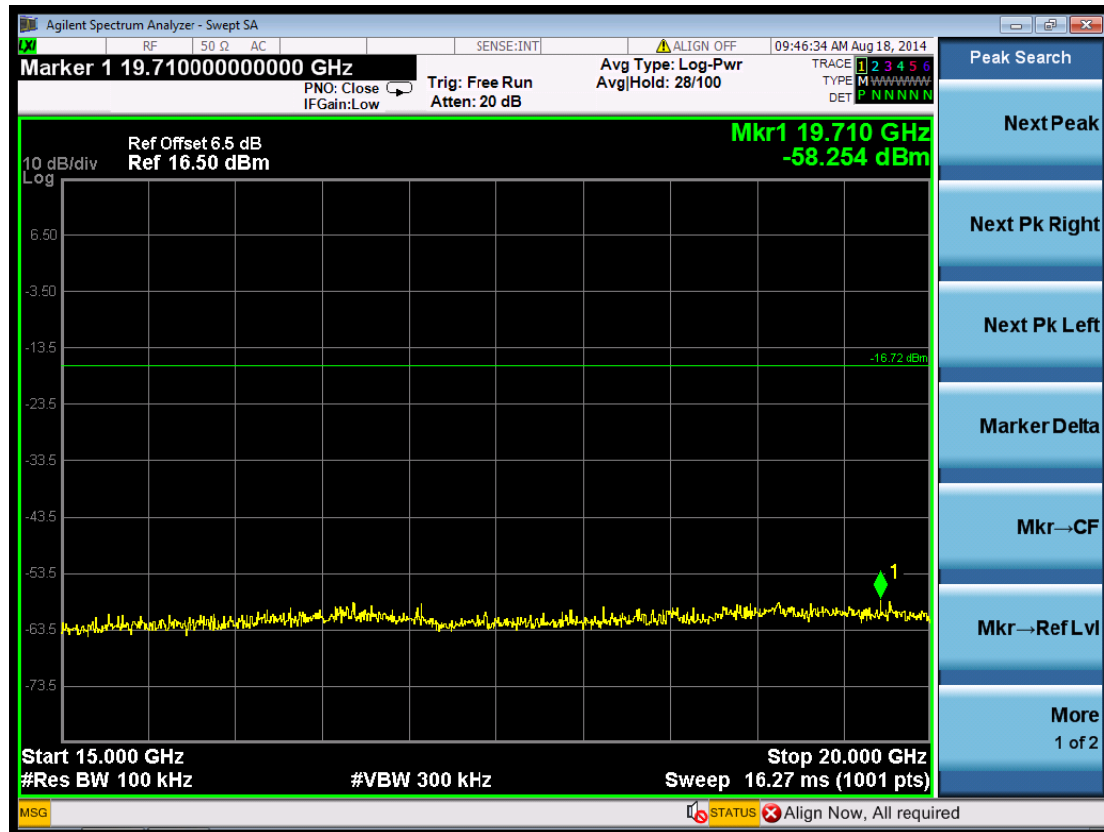
(Plot 6.6.1 A3: Channel 1: 2412MHz @ 802.11b)



(Plot 6.6.1 A4: Channel 1: 2412MHz @ 802.11b)



(Plot 6.6.1 A5: Channel 1: 2412MHz @ 802.11b)



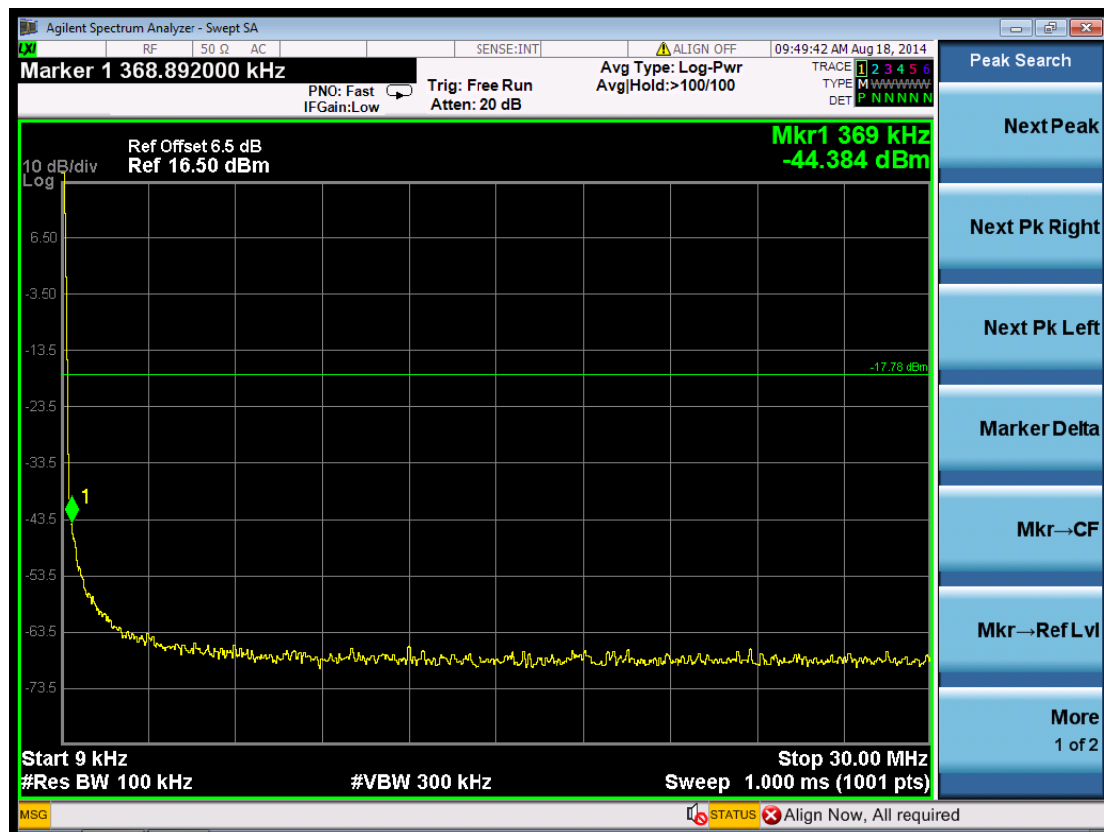
(Plot 6.6.1 A6: Channel 1: 2412MHz @ 802.11b)



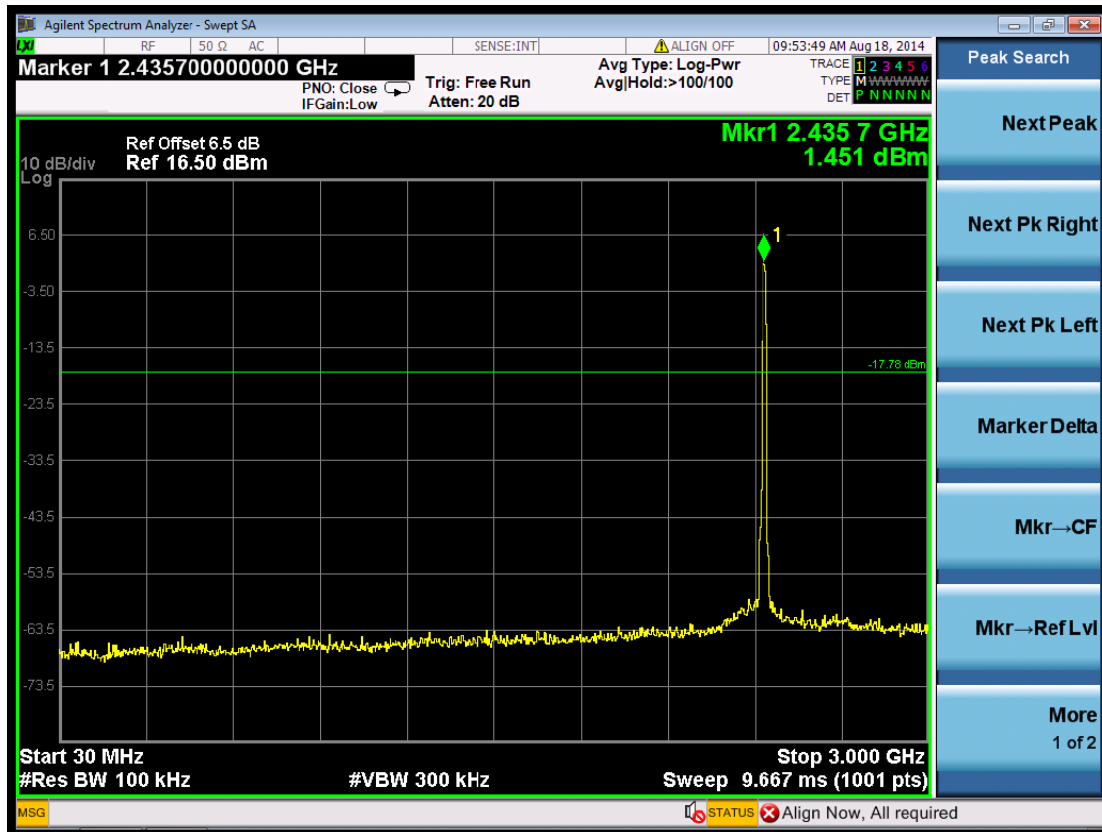
(Plot 6.6.1 A7: Channel 1: 2412MHz @ 802.11b)



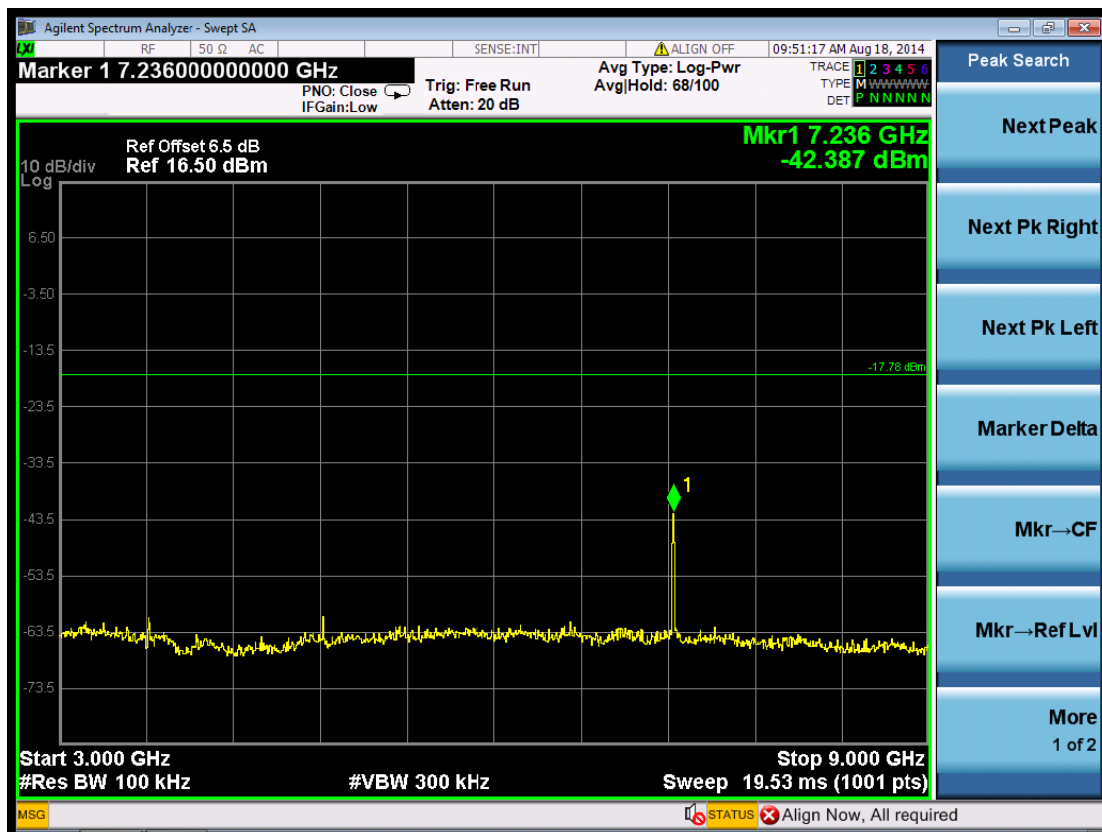
(Plot 6.6.1 B1: Channel 6: 2437MHz @ 802.11b)



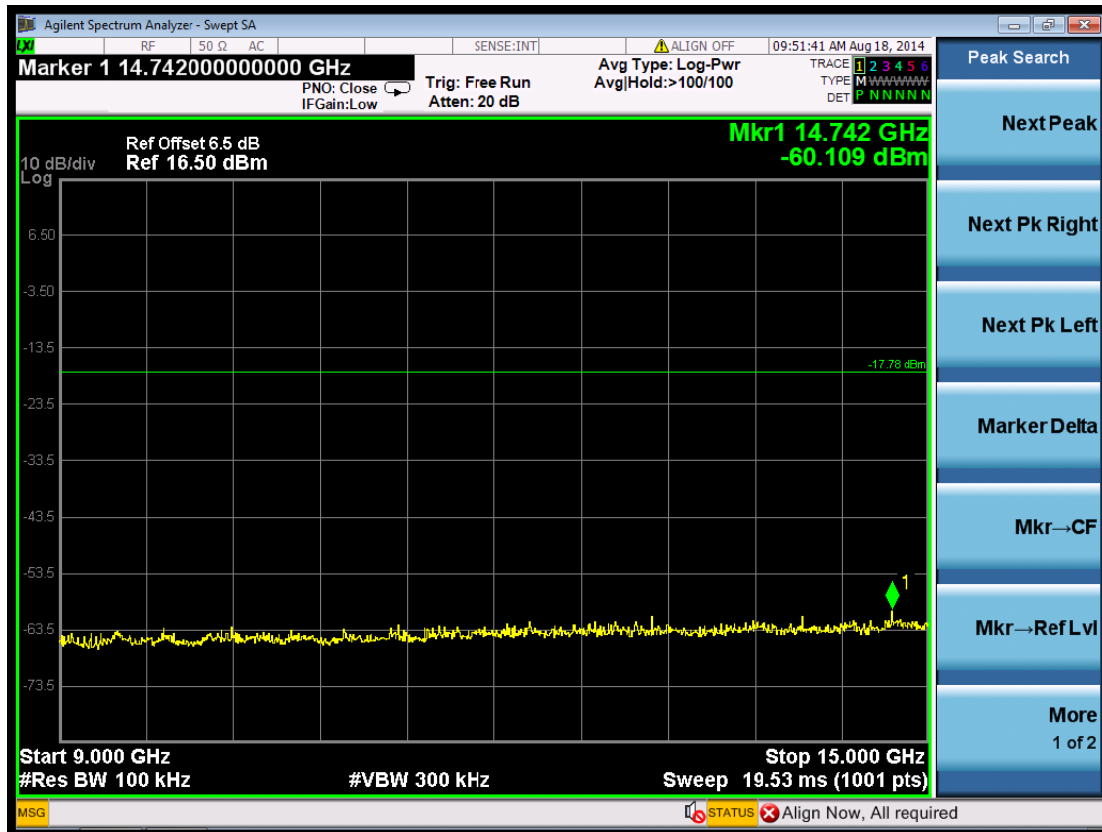
(Plot 6.6.1 B2: Channel 6: 2437MHz @ 802.11b)



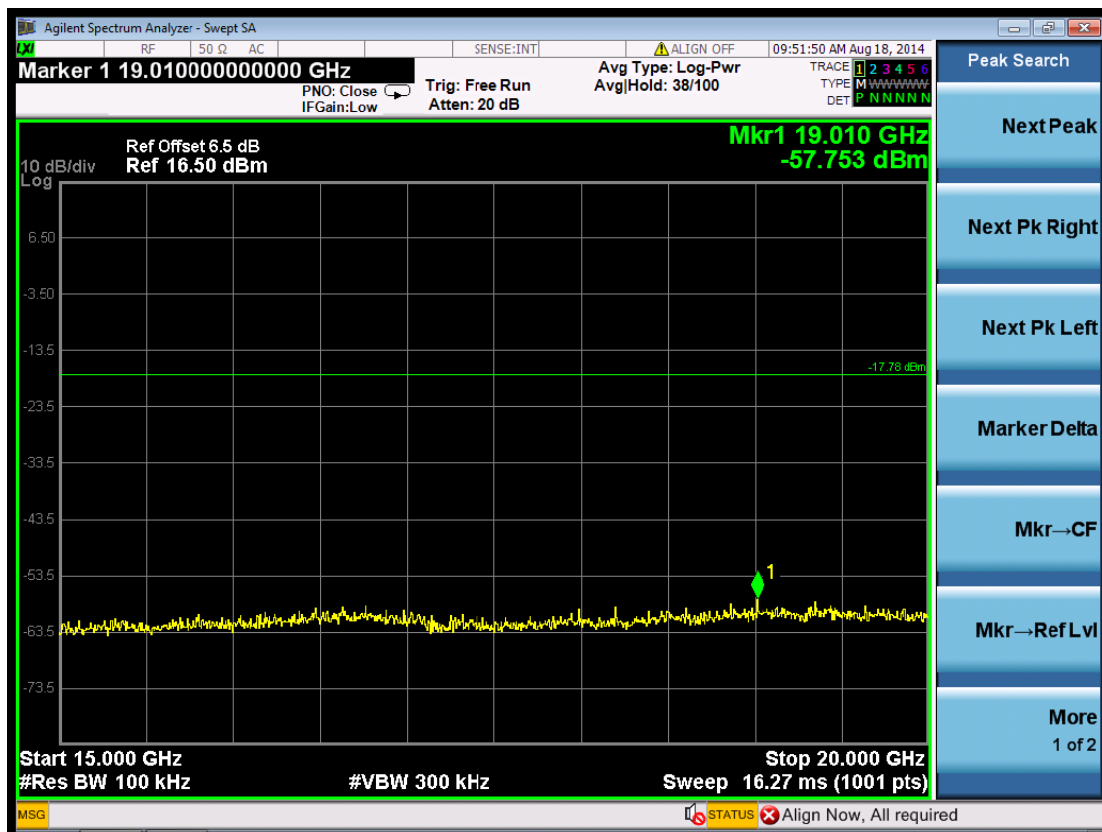
(Plot 6.6.1 B3: Channel 6: 2437MHz @ 802.11b)



(Plot 6.6.1 B4: Channel 6: 2437MHz @ 802.11b)



(Plot 6.6.1 B5: Channel 6: 2437MHz @ 802.11b)



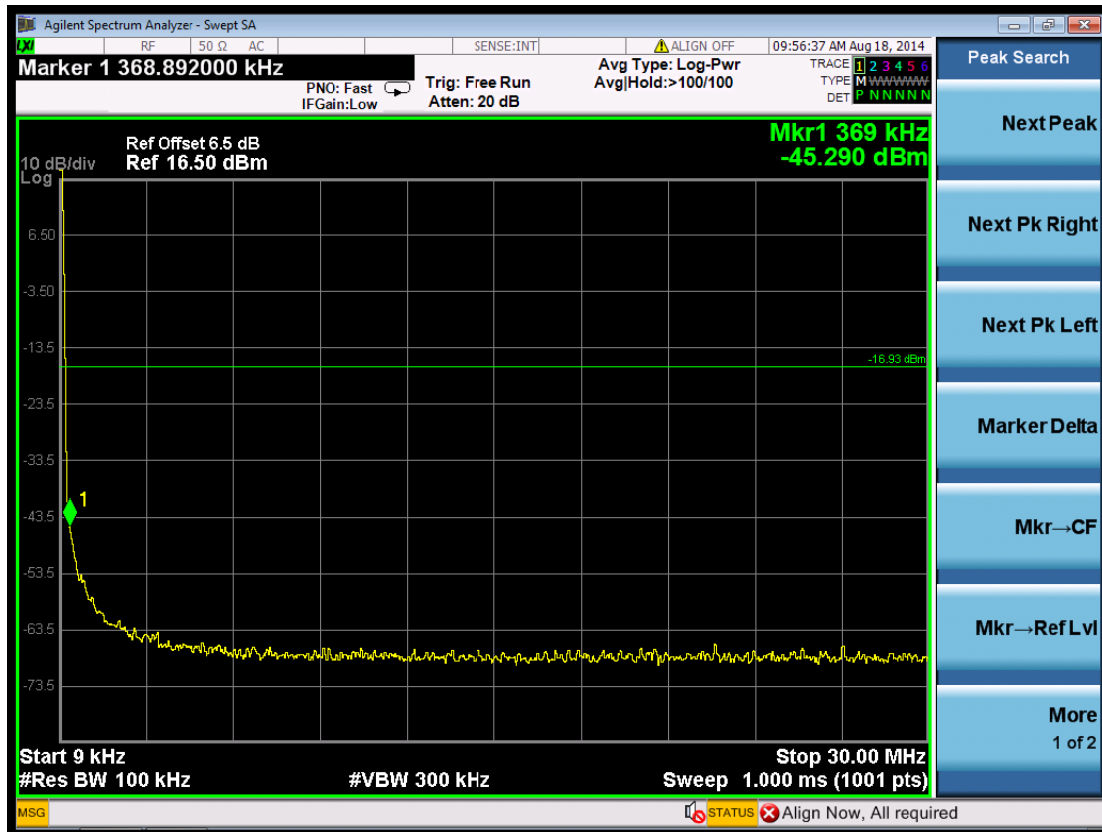
(Plot 6.6.1 B6: Channel 6: 2437MHz @ 802.11b)



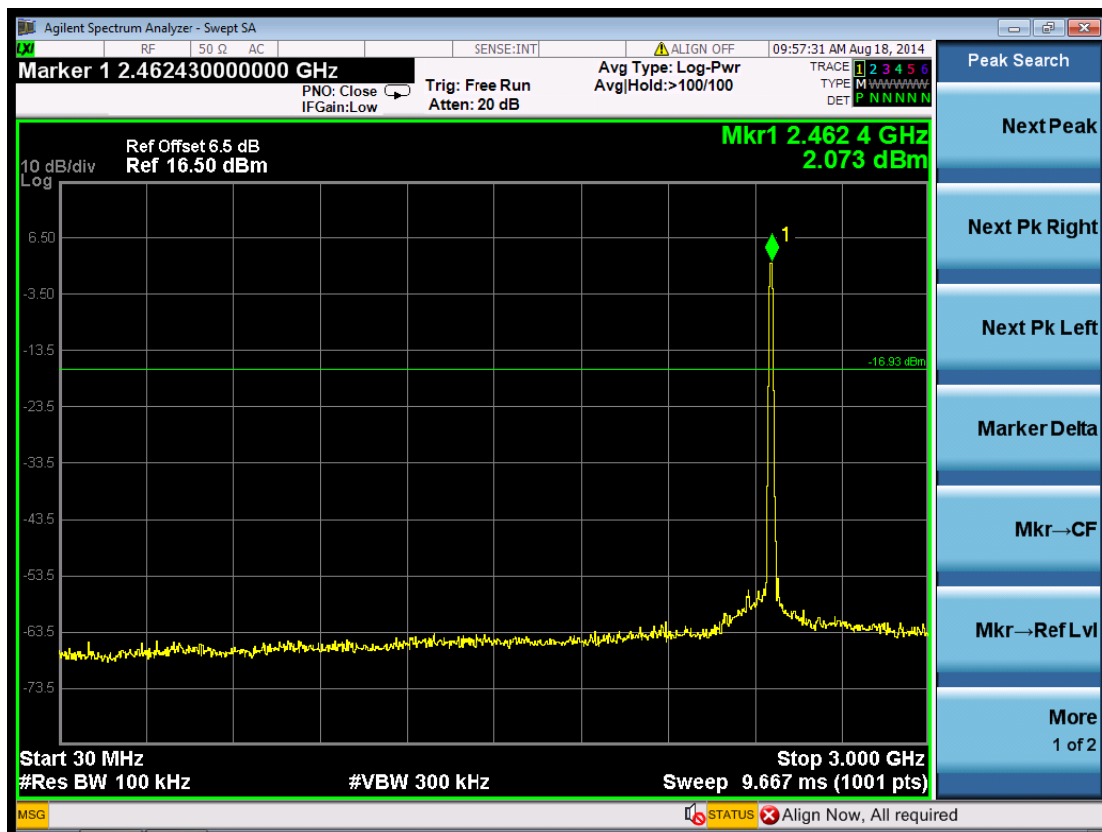
(Plot 6.6.1 B7: Channel 6: 2437MHz @ 802.11b)



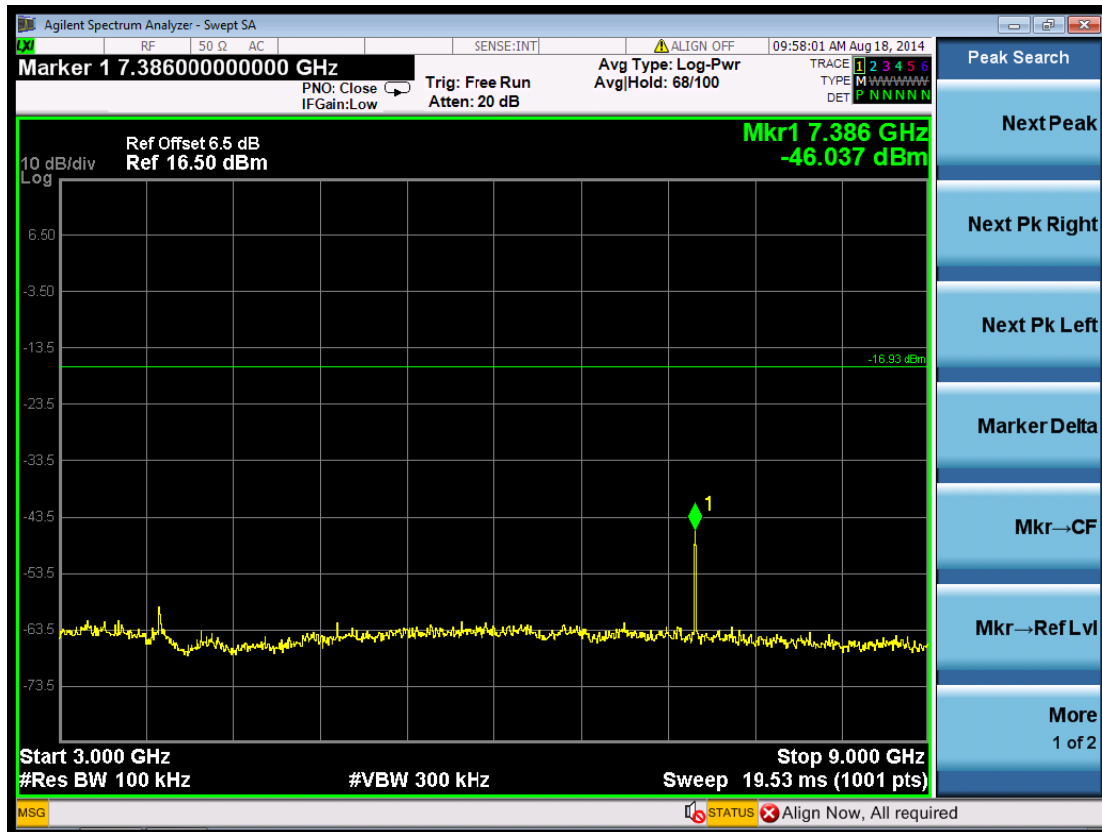
(Plot 6.6.1 C1: Channel 11: 2462MHz @ 802.11b)



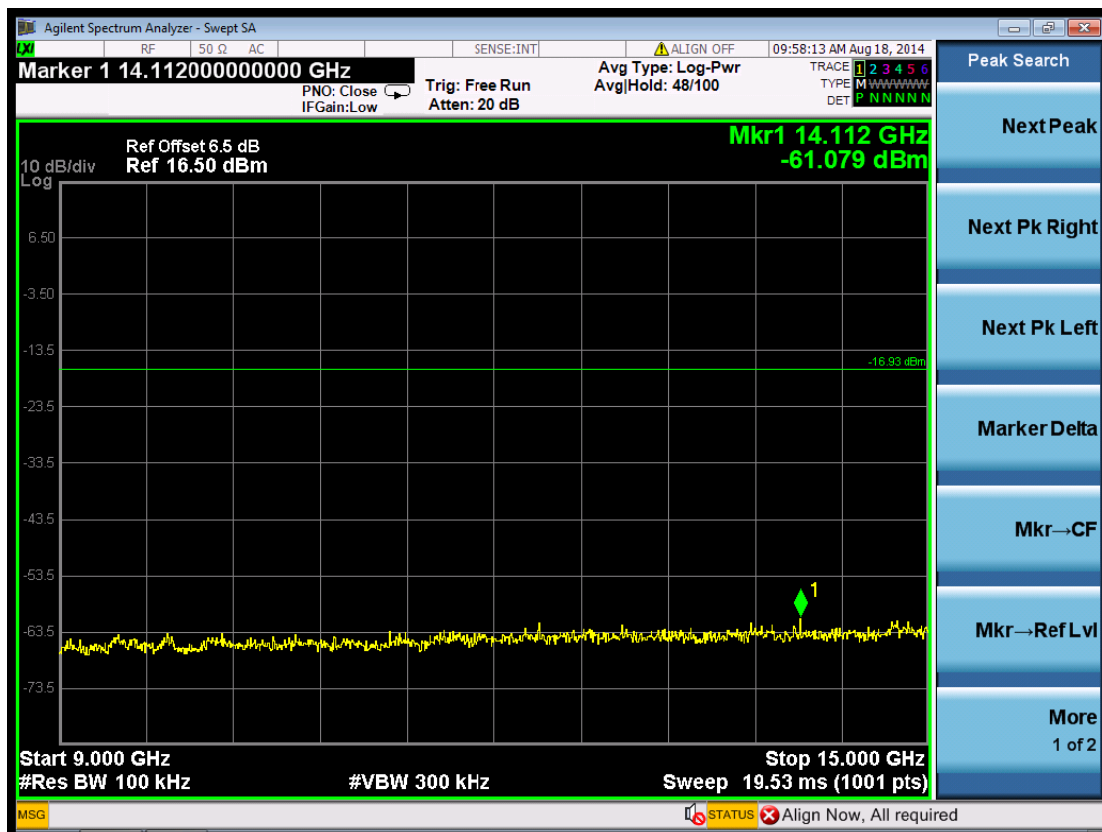
(Plot 6.6.1 C2: Channel 11: 2462MHz @ 802.11b)



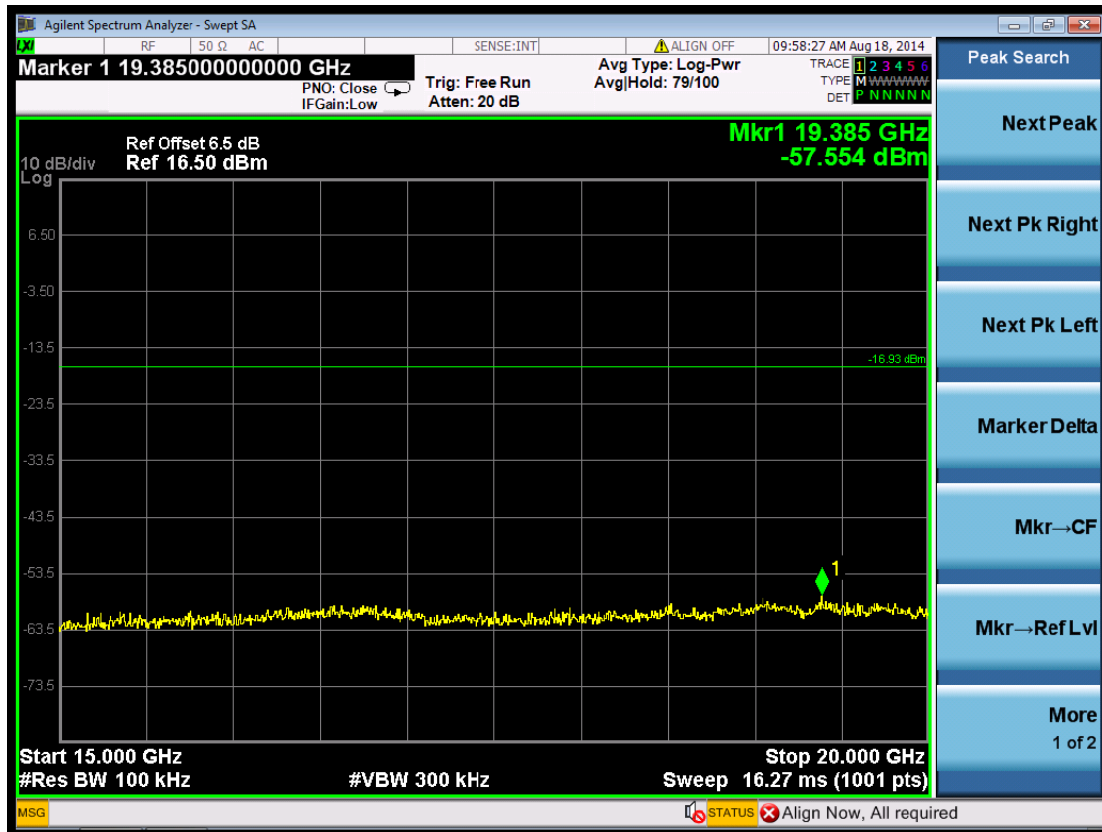
(Plot 6.6.1 C3: Channel 11: 2462MHz @ 802.11b)



(Plot 6.6.1 C4: Channel 11: 2462MHz @ 802.11b)



(Plot 6.6.1 C5: Channel 11: 2462MHz @ 802.11b)



(Plot 6.6.1 C6: Channel 11: 2462MHz @ 802.11b)



(Plot 6.6.1 C7: Channel 11: 2462MHz @ 802.11b)