FCC TEST REPORT

Prepared For :	Eques Technology Co.,Limited
Product Name:	Smart camera
Model :	R20\R21\R22
Prepared By :	Shenzhen United Testing Technology Co., Ltd. 4F, Block B Unit 2, Jianxing Building, Chaguang Industry Area, Nanshan District, Shenzhen, China Tel: 86-755-86180996 Fax: 86-755-86180156
Test Date:	October 22, 2014 to October 31, 2014
Date of Report :	Novermber 01, 2014
Report No.:	UNI-1410128

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1 TEST CERTIFICATION

Product:	Smart camera
Model:	R20\R21\R22
Applicant:	Eques Technology Co.,Limited Room301,building 1,No.168 Jixin Road,Minhang District,Shanghai,China.
Factory:	Eques Technology Co.,Limited Room301,building 1,No.168 Jixin Road,Minhang District,Shanghai,China.
Trade Mark:	Eques
Tested:	October 22, 2014 to October 31, 2014
Operational Frequency Range:	EEE 802.11b/g, 802.11n HT20: 2412-2462MHz IEEE 802.11n HT40 : 2422MHz-2452MHz
Modulation Type:	IEEE 802.11b : DSSS (CCK, DQPSK, DBPSK) IEEE 802.11g : OFDM (64QAM, 16AQM, QPSK, BPSK) IEEE 802.11n HT20/40 : OFDM (64QAM, 16QAM, QPSK, BPSK)
Channel Spacing	IEEE 802.11b/g/n: 5MHz
Air Data Rate	IEEE 802.11b : 11, 5.5, 2, 1 Mbps IEEE 802.11g : 54, 48, 36, 24, 18, 12, 9, 6 Mbps IEEE 802.11n HT20 : 150, 117 ,104, 78, 65, 58.5, 52, 39, 26, 19.5, 13, 6 Mbps IEEE 802.11n HT40 : 150, 117 ,104, 78, 65, 58.5, 52, 39, 26, 19.5, 13, 6 Mbps
Frequency Selection	By software
Channel Number	IEEE 802.11b/g ,802.11n HT20 : 11 Channels IEEE 802.11n HT40 : 7 Channels
Antenna:	Integral antenna with Gain 3.0 dBi
Power Supply:	Model No.: RD0501000-USBA-BMG Input:100-240V, 50/60Hz, 250mA; Output: 5.0 V, 1000mA
FCC ID:	2AA47-R20
Applicable Standards:	FCC Part 15.247

The test report was prepared by Shenzhen United Testing Technology Co., Ltd. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Prepared by : Michael Su

Michael Su /Assistant Engineer

Reviewer : Mike Yong

Mike Yong/Supervisor

Approved & Authorized Signer : Hoffer Lau

Hoffer Lau/ Manager

2.0 Test Eqipment

Item	Test Equipment	Manufacturer	Model No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	June. 30 2014	June. 29 2015
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	Jul. 03 2014	Jul. 02 2015
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	Feb. 25 2014	Feb. 24 2015
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	9120D-829	June 29 2014	June 28 2015
6	Horn Antenna	ETS-LINDGREN	3160	June. 30 2014	June. 29 2015
7	EMI Test Software	AUDIX	E3	N/A	N/A
8	Amplifier(100kHz-3GHz)	HP	8347A	Jul. 03 2014	Jul. 02 2015
9	Amplifier(2GHz-20GHz)	HP	8349B	Jul. 03 2014	Jul. 02 2015
10	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	June. 30 2014	June. 29 2015
11	Band filter	Amindeon	82346	June. 30 2014	June. 29 2015
12	Constant temperature and humidity box	Oregon Scientific	BA-888	May 11 2014	May 10 2015
13	D.C. Power Supply	Instek	PS-3030	May 11 2014	May 10 2015
14	Universal radio communication tester	Rohde & Schwarz	CMU200	May 11 2014	May 10 2015
15	Splitter	Agilent	11636B	May 11 2014	May 10 2015
16	EMI Test Receiver	Rohde & Schwarz	ESCS30	Jul. 03 2014	Jul. 02 2015
17	LISN	Schwarebeck	NSLK 8126	Jul. 03 2014	Jul. 02 2015

3.0 Technical Details

3.1 Summary of test results

The EUT has been tested according to the following specifications:

Standard	Test Type	Result	Notes
FCC Part 15, Paragraph 15.107 & 15.207	Conducted Emission Test	PASS	Complies
FCC Part 15 Subpart C Paragraph 15.247(a)(2) Limit	Spectrum bandwidth of a Orthogonal Frequency Division Multiplex System Limit: 6dB bandwidth>500kHz	PASS	Complies
FCC Part 15, Paragraph 15.247(b)	Maximum peak output power Limit: max. 30dBm	PASS	Complies
FCC Part 15, Paragraph 15.109,15.205 & 15.209	Transmitter Radiated Emission Limit: Table 15.209	PASS	Complies
FCC Part 15, Paragraph 15.247(e)	Power Spectral Density Limit: max. 8dBm	PASS	Complies
FCC Part 15, Paragraph 15.247(d)	Out of Band Emission and Restricted Band Radiation Limit: 20dB less than peak value of fundamental frequency Restricted band limit: Table 15.209	PASS	Complies

4.0 Test LAB Details

All Tests Performed at

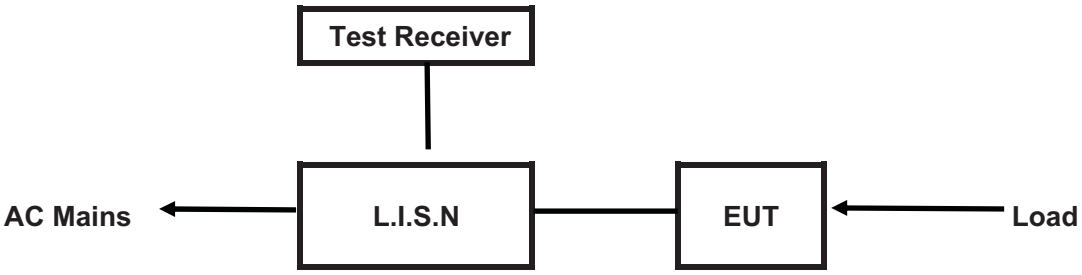
Name: ShenZhen CTL Testing Technology Co.,Ltd

Address: Floor 1-A, Baisha Technology Park, No. 3011, Shahexi Road, Nanshan, Shenzhen, Guangdong, China

FCC Registration Number: 970318

5. Power Line Conducted Emission Test

5.1 Schematics of the test



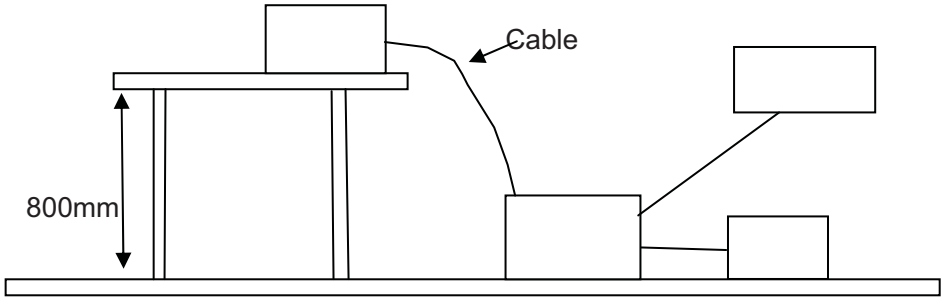
EUT: Equipment Under Test

5.2 Test Method and test Procedure

The EUT was tested according to ANSI C63.4-2003.The Frequency spectrum From 0.15MHz to 30MHz was investigated. The LISN used was 50ohm/50uH as specified by section 5.1 of ANSI C63.4 –2003.

Test Voltage: 120V~, 60Hz

Block diagram of Test setup



5.3 Configuration of The EUT

The EUT was configured according to ANSI C63.4-2003. All interface ports were connected to the appropriate peripherals. All peripherals and cables are listed below.

A. EUT

Device	Manufacturer	Model	FCC ID
Smart camera	Eques Technology Co.,Limited	R20\R21\R22	2AA47-R20

B. Internal Device

Device	Manufacturer	Model	FCC ID/DOC
N/A			

C. Peripherals

Device	Manufacturer	Model	FCC ID/DOC	Cable
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5.4 EUT Operating Condition

Operating condition is according to ANSI C63.4 -2003.

A Setup the EUT and simulators as shown on follow

B Enable AF signal and confirm EUT active to normal condition

5.5 Power line conducted Emission Limit according to Paragraph 15.107, 15.207

Frequency (MHz)	Class A Limits (dBμV)		Class B Limits (dBμV)	
	Quasi-peak Level	Average Level	Quasi-peak Level	Average Level
0.15 ～ 0.50	79.0	66.0	66.0～56.0*	56.0～46.0*
0.50 ～ 5.00	73.0	60.0	56.0	46.0
5.00 ～ 30.00	73.0	60.0	60.0	50.0

Notes: 1. *Decreasing linearly with logarithm of frequency.

2. The tighter limit shall apply at the transition frequencies

5.6 Test Results

The frequency spectrum from 0.15MHz to 30MHz was investigated. All reading are quasi-peak values with a resolution bandwidth of 9kHz.

A: Conducted Emission on Live Terminal (150kHz to 30MHz)

EUT Operating Environment

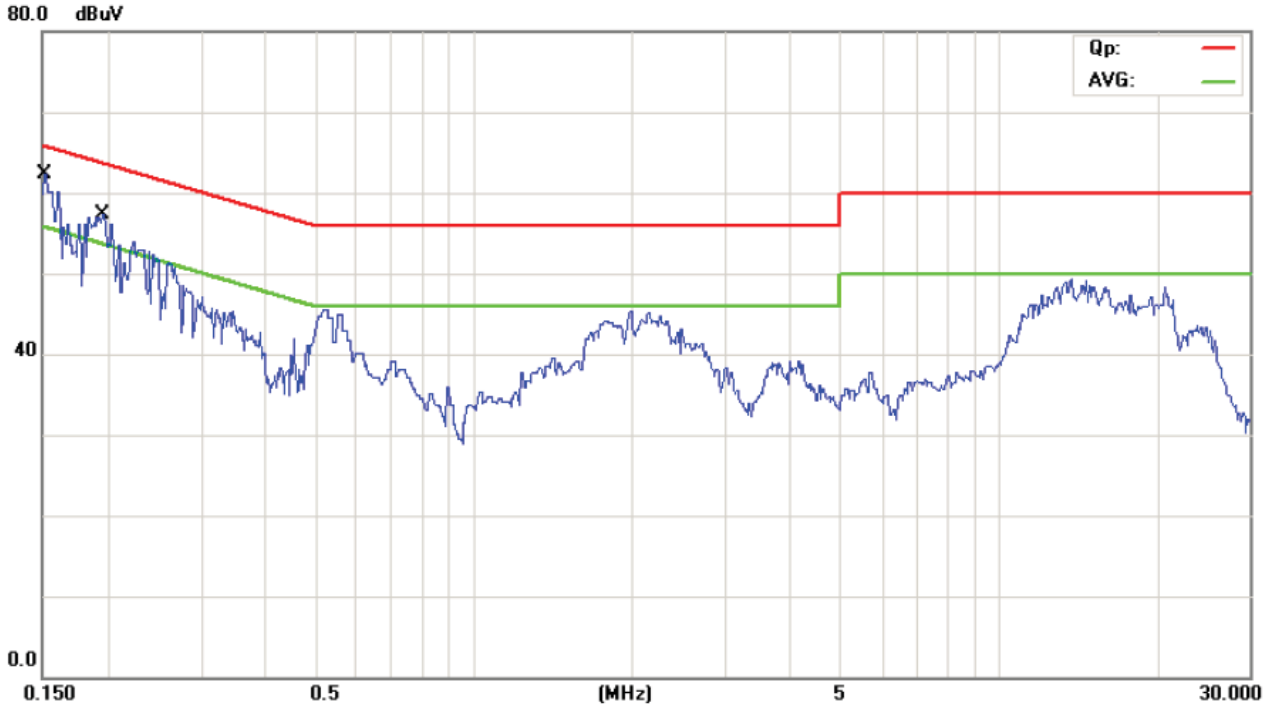
Temperature: 25℃ Humidity: 75%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Keep WIFI Transmitting

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1	*	0.1505	47.80	11.00	58.80	65.97	-7.17	QP	
2		0.1505	32.10	11.00	43.10	55.97	-12.87	AVG	
3		0.1941	40.10	11.05	51.15	63.86	-12.71	QP	
4		0.1941	27.00	11.05	38.05	53.86	-15.81	AVG	

B: Conducted Emission on Neutral Terminal (150kHz to 30MHz)

EUT Operating Environment

Temperature: 25℃ Humidity: 75%RH Atmospheric Pressure: 101 KPa

EUT set Condition: Keep WIFI Transmitting

Equipment Level: Class B

Results: Pass

Please refer to following diagram for individual

No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.1565	45.20	11.01	56.21	65.65	-9.44	QP	
2		0.1565	20.90	11.01	31.91	55.65	-23.74	AVG	
3	*	0.1920	45.76	11.04	56.80	63.95	-7.15	QP	
4		0.1920	15.76	11.04	26.80	53.95	-27.15	AVG	

6 Radiated Emission Test

6.1 Test Method and test Procedure:

(1) The EUT was tested according to ANSI C63.4 –2003. The radiated test was performed at CTL Laboratory. This site is on file with the FCC laboratory division, Registration No. 970318

(2) The EUT, peripherals were put on the turntable which table size is 1m x 1.5 m, table high 0.8 m. All set up is according to ANSI C63.4-2003.

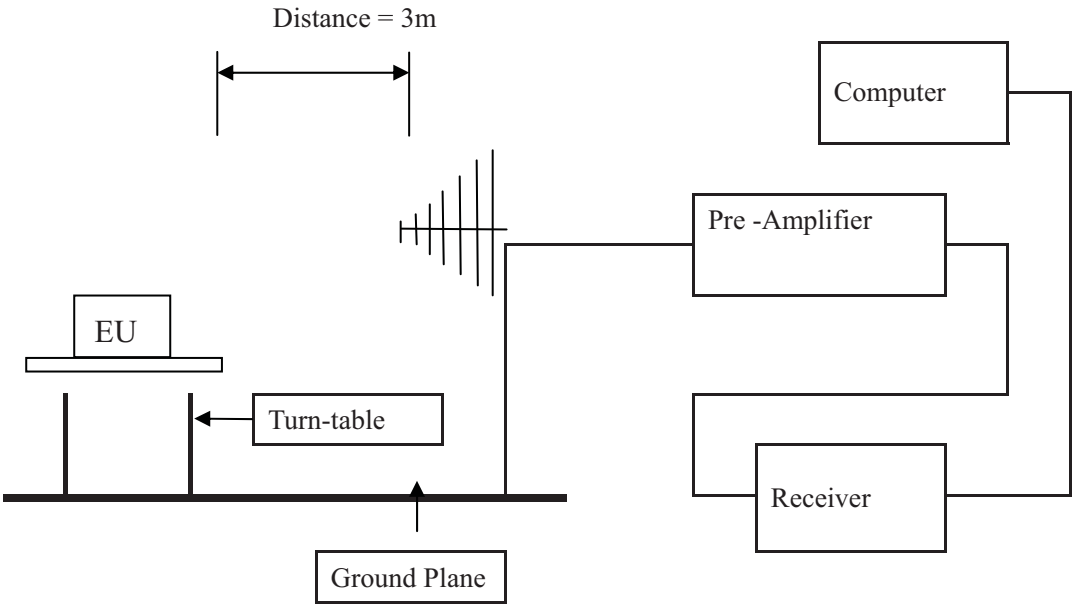
(3) The frequency spectrum from 30 MHz to 25 GHz was investigated. All readings from 30 MHz to 1 GHz are Quasi-peak values with a resolution bandwidth of 120 kHz. For measurement above 1GHz, peak values with RBW=1MHz, VBW=3MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector. Measurements were made at 3 meters.

(4) The antenna high is varied from 1 m to 4 m high to find the maximum emission for each frequency.

(5) Maximizing procedure was performed on the six (6) highest emissions to ensure EUT compliance is with all installation combinations. All data was recorded in the peak detection mode. Quasi-peak readings was performed only when an emission was found to be marginal (within -4 dB of specification limit), and are distinguished with a "**QP**" in the data table.

(6) The antenna polarization : Vertical polarization and Horizontal polarization.

Block diagram of Test setup



6.2 Configuration of The EUT

Same as section 5.3 of this report

6.3 EUT Operating Condition

Same as section 5.4 of this report.

6.4 Radiated Emission Limit

All emission from a digital device, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strength specified below:

Frequencies in restricted band are complied to limit on Paragraph 15.209 and 15.109

Frequency Range (MHz)	Distance (m)	Field strength (dBμV/m)
30-88	3	40.0
88-216	3	43.5
216-960	3	46.0
Above 960	3	54.0

Note: 1. RF Voltage (dBuV) = 20 log RF Voltage (uV)

2. In the Above Table, the higher limit applies at the band edges.

3. Distance refers to the distance in meters between the measuring instrument antenna and the EUT

Test result

General Radiated Emission Data and Harmonics Radiated Emission Data

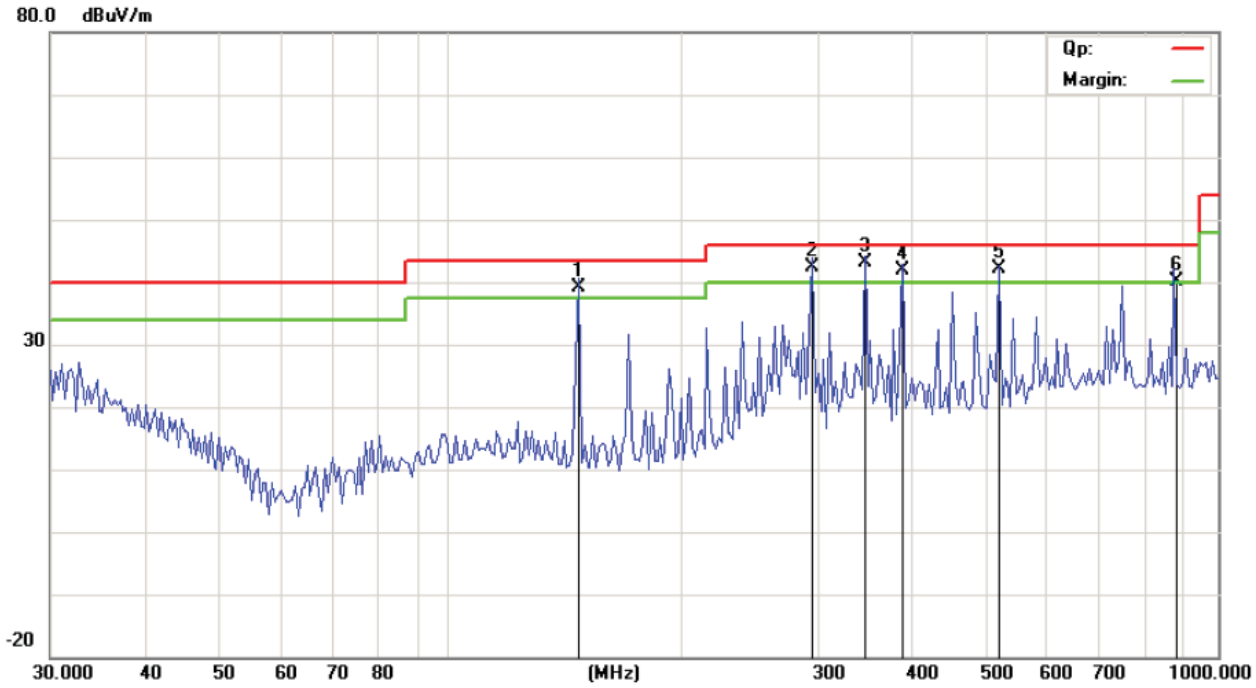
Radiated Emission In Horizontal (30MHz----1000MHz)

EUT set Condition: Keep Transmitting

Results: **Pass**

Test Figure:

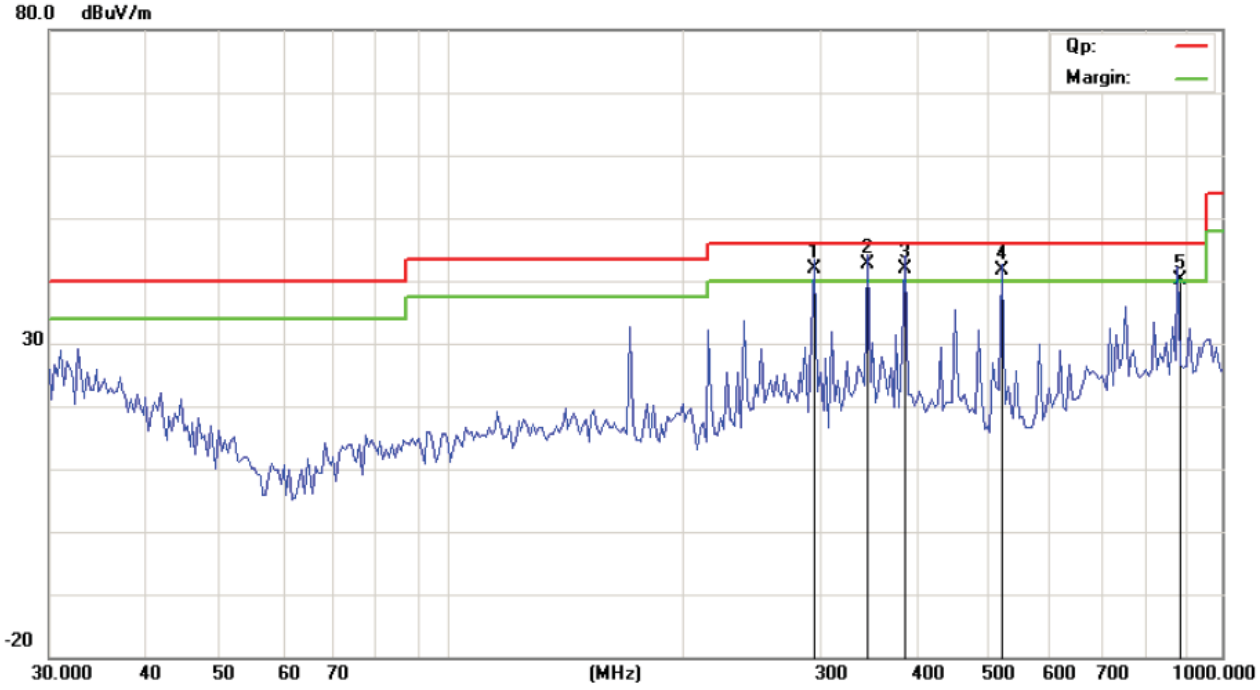
H



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	!	146.6304	54.29	-15.28	39.01	43.50	-4.49	QP		0	
2	!	297.1500	54.18	-11.69	42.49	46.00	-3.51	QP		0	
3	*	345.3450	53.09	-9.92	43.17	46.00	-2.83	QP		0	
4	!	388.3250	50.12	-8.33	41.79	46.00	-4.21	QP		0	
5	!	522.2750	46.81	-4.57	42.24	46.00	-3.76	QP		0	
6	!	891.6000	37.72	2.44	40.16	46.00	-5.84	QP		0	

Test Figure:

V



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	!	296.7500	53.49	-11.70	41.79	46.00	-4.21	QP		0	
2	*	345.3450	52.49	-9.92	42.57	46.00	-3.43	QP		0	
3	!	388.3250	50.32	-8.33	41.99	46.00	-4.01	QP		0	
4	!	522.2750	46.31	-4.57	41.74	46.00	-4.26	QP		0	
5	!	891.6000	37.72	2.44	40.16	46.00	-5.84	QP		0	

Operation Mode: Transmitting under CH01 for 11b at 11Mbps

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
4824.00	49.32（PK）	H	74(Peak)/ 54(AV)
4824.00	49.59（PK）	V	74(Peak)/ 54(AV)
7236.00	--	H/V	74(Peak)/ 54(AV)
9648.00	--	H/V	74(Peak)/ 54(AV)
12060	--	H/V	74(Peak)/ 54(AV)
14472	--	H/V	74(Peak)/ 54(AV)
16884	--	H/V	74(Peak)/ 54(AV)
19296	--	H/V	74(Peak)/ 54(AV)
21708	--	H/V	74(Peak)/ 54(AV)
24120	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark “---” means that the emissions level is too low to be measured

3. For 802.11b mode at 11Mbps

Operation Mode: Transmitting under CH06 for 11b at 11Mbps

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
4874.00	48.62（PK）	H	74(Peak)/ 54(AV)
4874.00	49.31（PK）	V	74(Peak)/ 54(AV)
7311.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)
12185	--	H/V	74(Peak)/ 54(AV)
14622	--	H/V	74(Peak)/ 54(AV)
17059	--	H/V	74(Peak)/ 54(AV)
19496	--	H/V	74(Peak)/ 54(AV)
21933	--	H/V	74(Peak)/ 54(AV)
24370	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark “---” means that the emissions level is too low to be measured

3. For 802.11b mode at 11Mbps

Operation Mode: Transmitting under CH11 for 11b at 11Mbps

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
4924	49.79（PK）	H	74(Peak)/ 54(AV)
4924	50.63（PK）	V	74(Peak)/ 54(AV)
7386	--	H/V	74(Peak)/ 54(AV)
9848	--	H/V	74(Peak)/ 54(AV)
12310	--	H/V	74(Peak)/ 54(AV)
14772	--	H/V	74(Peak)/ 54(AV)
17234	--	H/V	74(Peak)/ 54(AV)
19696	--	H/V	74(Peak)/ 54(AV)
22158	--	H/V	74(Peak)/ 54(AV)
24620	--	H/V	74(Peak)/ 54(AV)

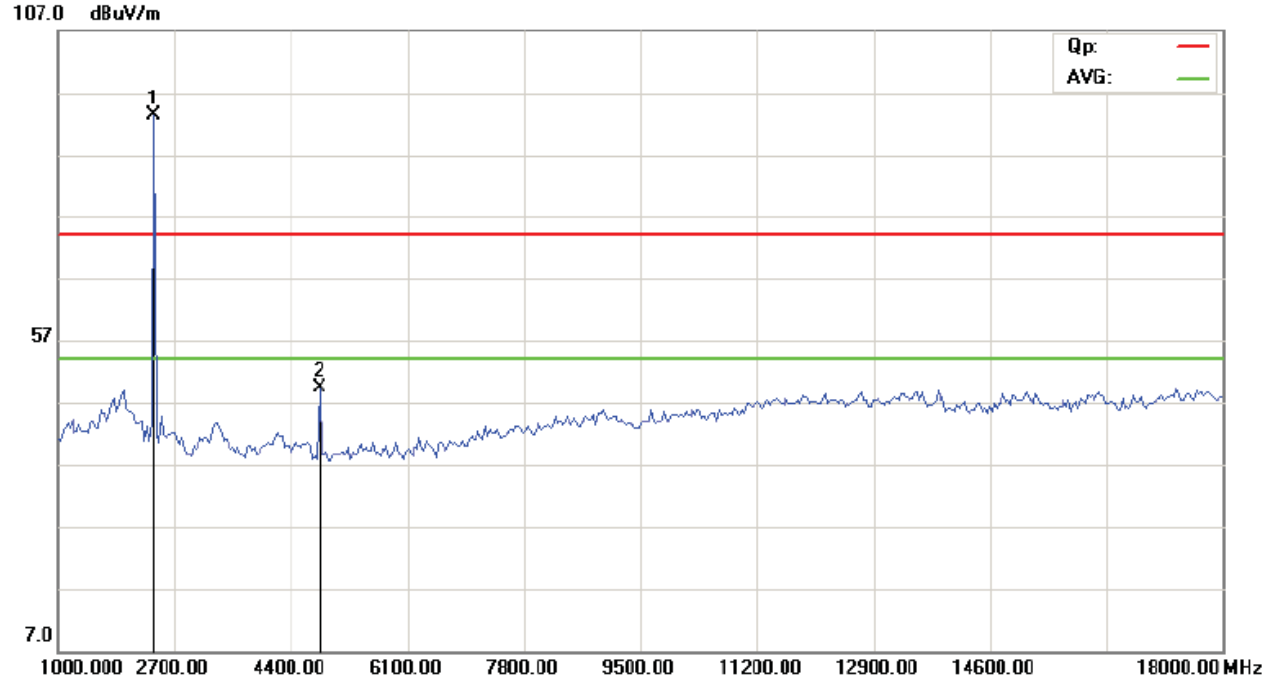
Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark “---” means that the emissions level is too low to be measured

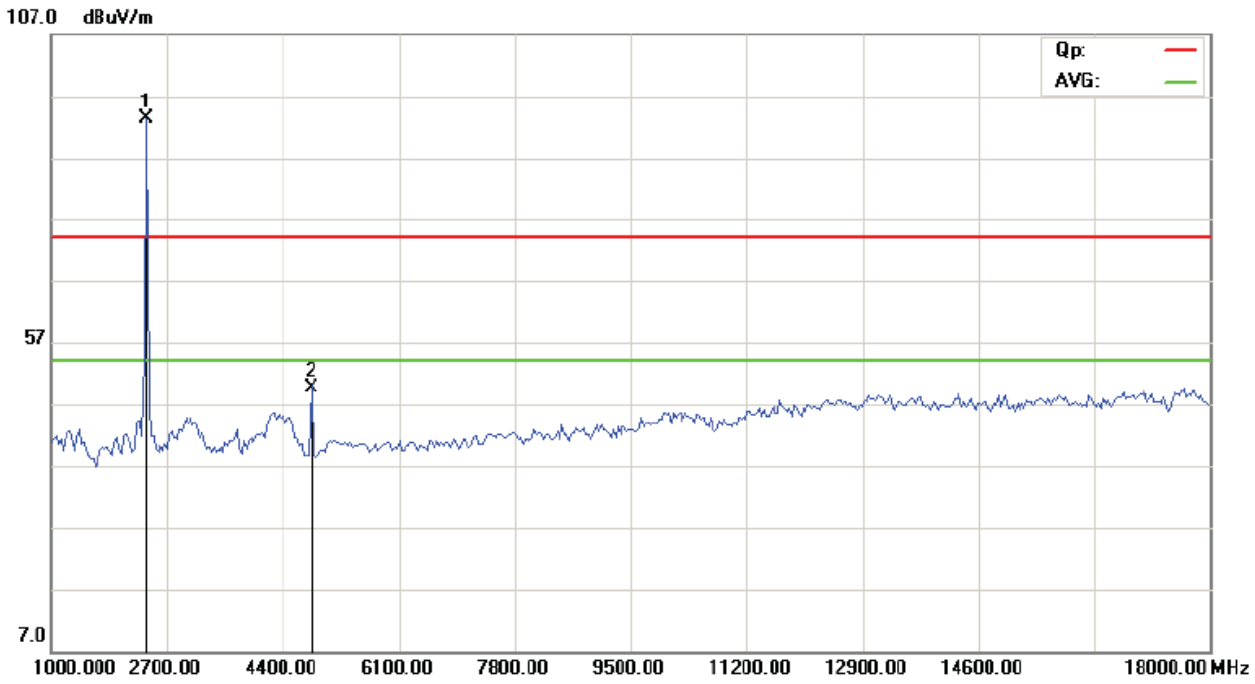
3. For 802.11b mode at 11Mbps

Please refer to the following test plots for details:

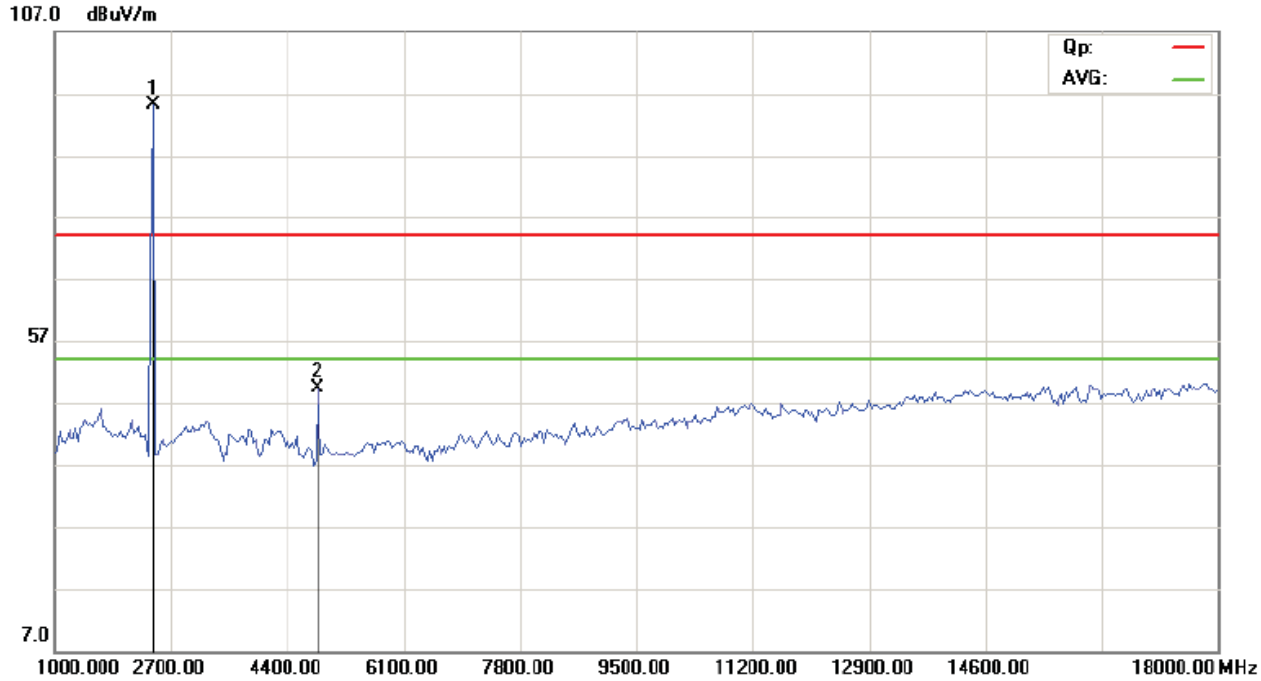
CH01 at 11Mbps: Horizontal



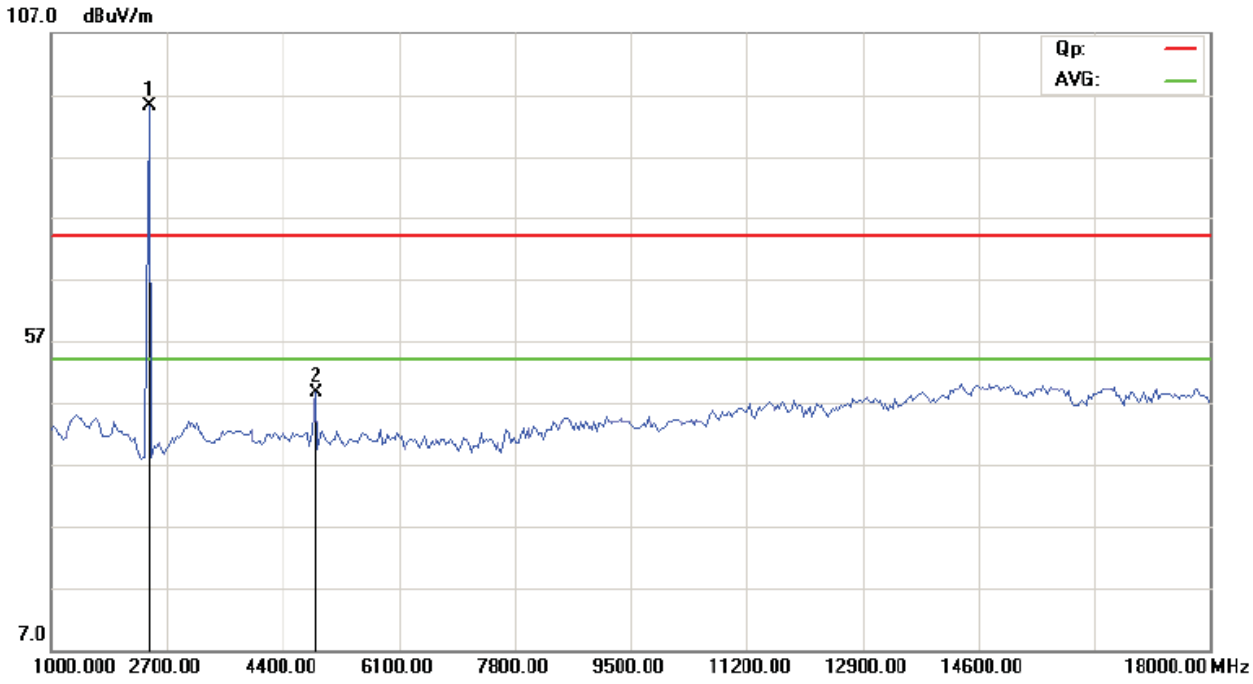
CH01 at 11Mbps: Vertical



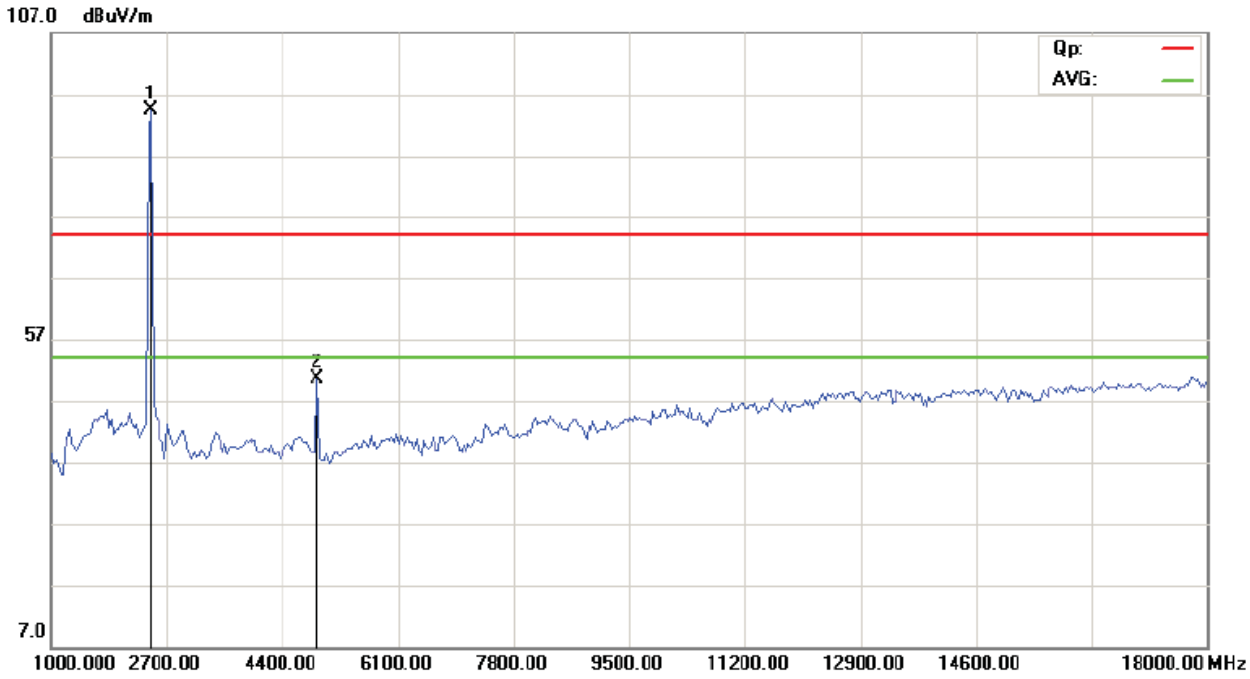
CH06 at 11Mbps: Vertical



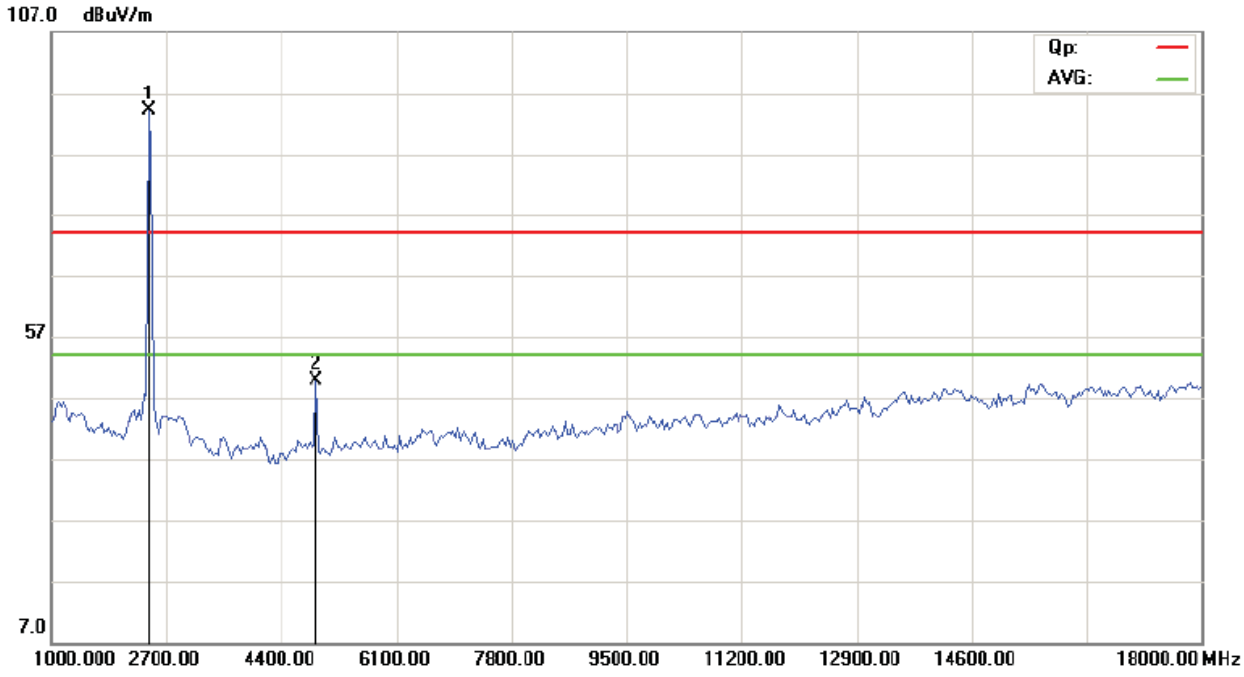
CH06 at 11Mbps: Horizontal



CH11 at 11Mbps: Vertical



CH11at 11Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

Operation Mode: Transmitting under CH01 for 11g at 54 Mbps

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
4824.00	49.28（PK）	H	74(Peak)/ 54(AV)
4824.00	48.32（PK）	V	74(Peak)/ 54(AV)
7236.00	--	H/V	74(Peak)/ 54(AV)
9648.00	--	H/V	74(Peak)/ 54(AV)
12060	--	H/V	74(Peak)/ 54(AV)
14472	--	H/V	74(Peak)/ 54(AV)
16684	--	H/V	74(Peak)/ 54(AV)
19296	--	H/V	74(Peak)/ 54(AV)
21708	--	H/V	74(Peak)/ 54(AV)
24120	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark “---” means that the emissions level is too low to be measured

3. For 802.11g mode 54Mbps

Operation Mode: Transmitting under CH06 for 11g at 54 Mbps

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
4874.00	48.97（PK）	H	74(Peak)/ 54(AV)
4874.00	48.20（PK）	V	74(Peak)/ 54(AV)
7311.00	--	H/V	74(Peak)/ 54(AV)
9748.00	--	H/V	74(Peak)/ 54(AV)
12185	--	H/V	74(Peak)/ 54(AV)
14622	--	H/V	74(Peak)/ 54(AV)
17059	--	H/V	74(Peak)/ 54(AV)
19496	--	H/V	74(Peak)/ 54(AV)
21933	--	H/V	74(Peak)/ 54(AV)
24370	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark “---” means that the emissions level is too low to be measured

3. For 802.11g mode 54Mbps

Operation Mode: Transmitting under CH11 for 11g at 54 Mbps

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
4924	48.58（PK）	H	74(Peak)/ 54(AV)
4924	49.14（PK）	V	74(Peak)/ 54(AV)
7386	--	H/V	74(Peak)/ 54(AV)
9848	--	H/V	74(Peak)/ 54(AV)
12310	--	H/V	74(Peak)/ 54(AV)
14772	--	H/V	74(Peak)/ 54(AV)
17234	--	H/V	74(Peak)/ 54(AV)
19696	--	H/V	74(Peak)/ 54(AV)
22158	--	H/V	74(Peak)/ 54(AV)
24620	--	H/V	74(Peak)/ 54(AV)

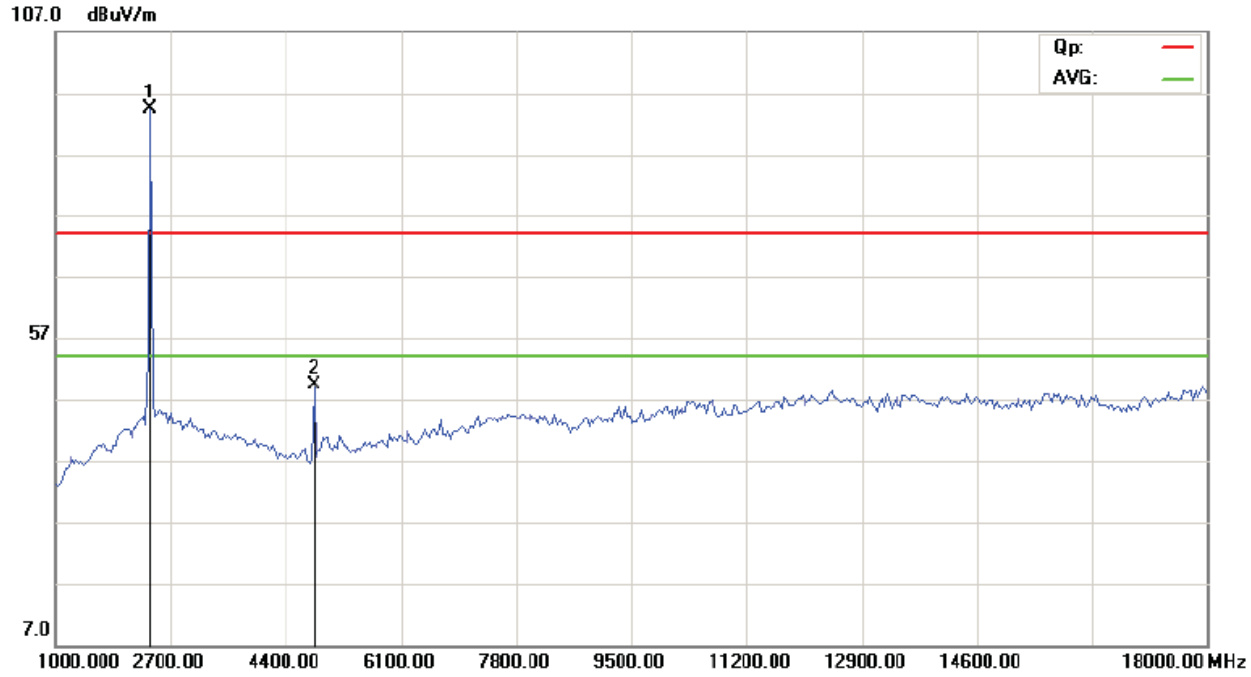
Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark “---” means that the emissions level is too low to be measured

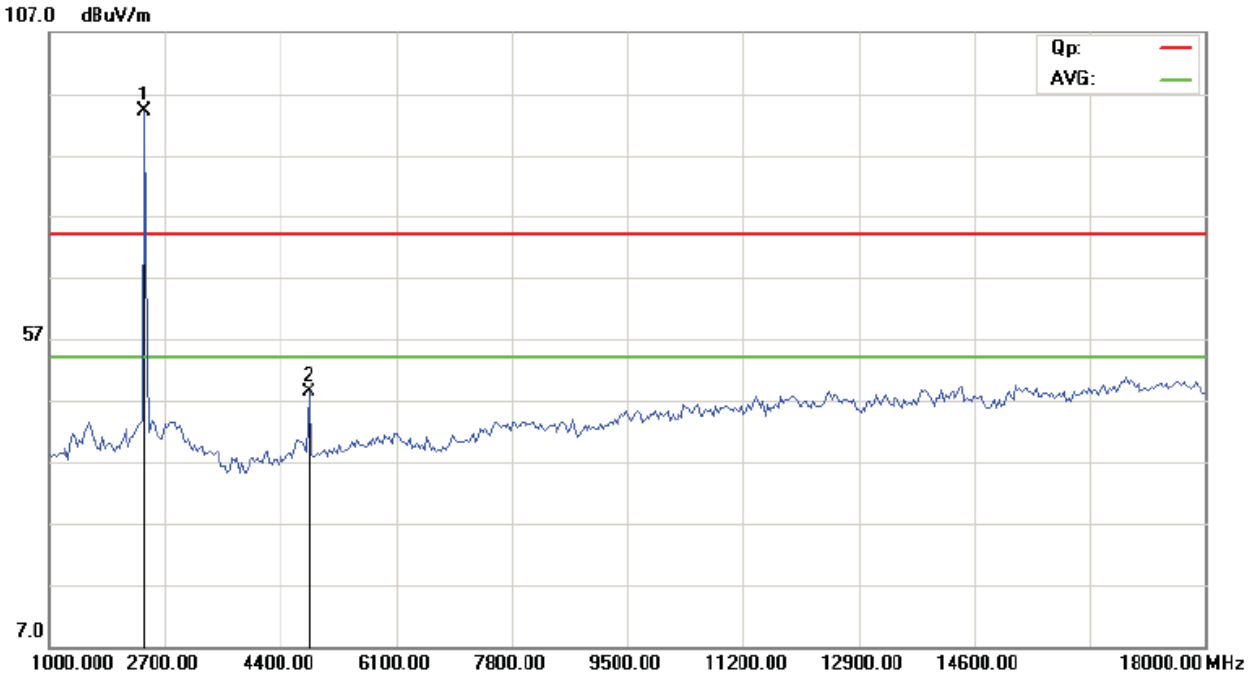
3. For 802.11g mode 54Mbps

Please refer to the following test plots for details:

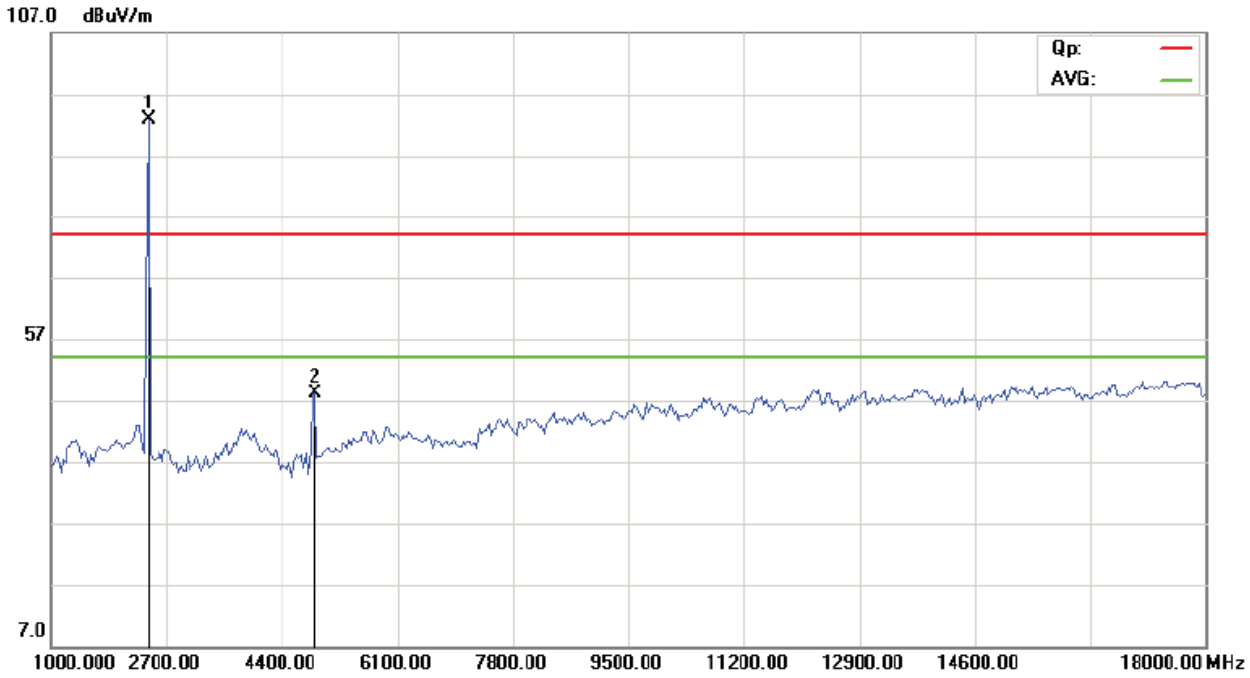
CH01 at 54Mbps: Horizontal



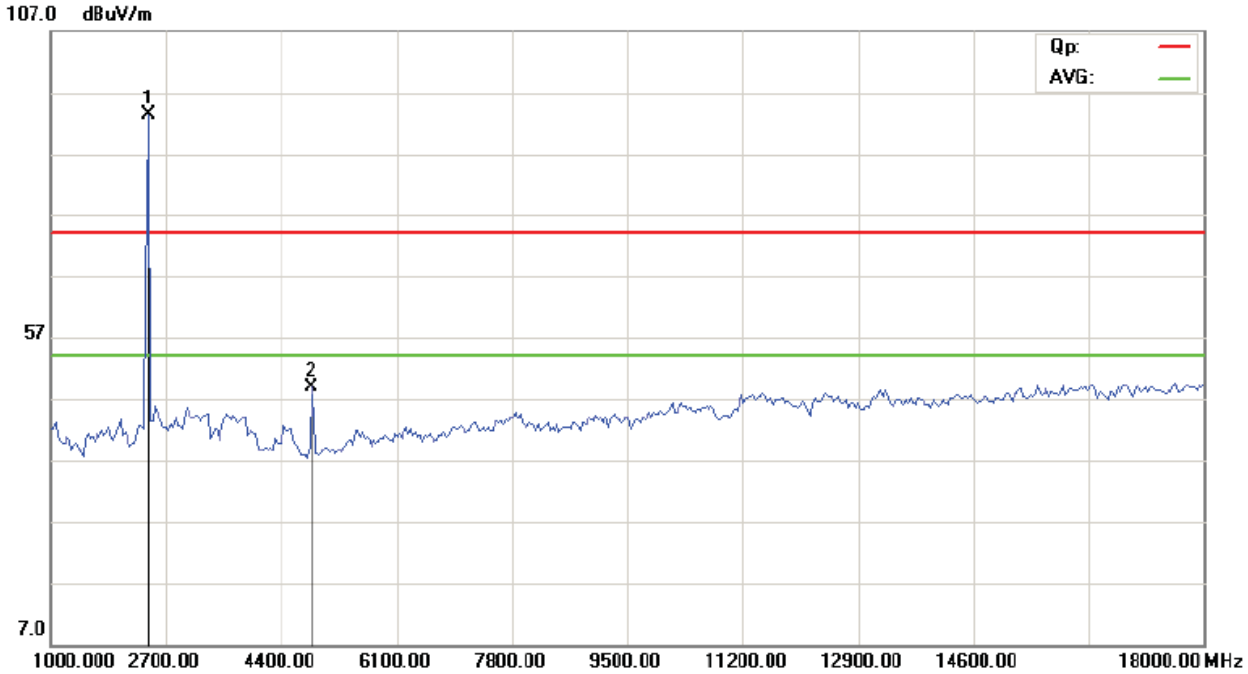
CH01 at 54Mbps: Vertical



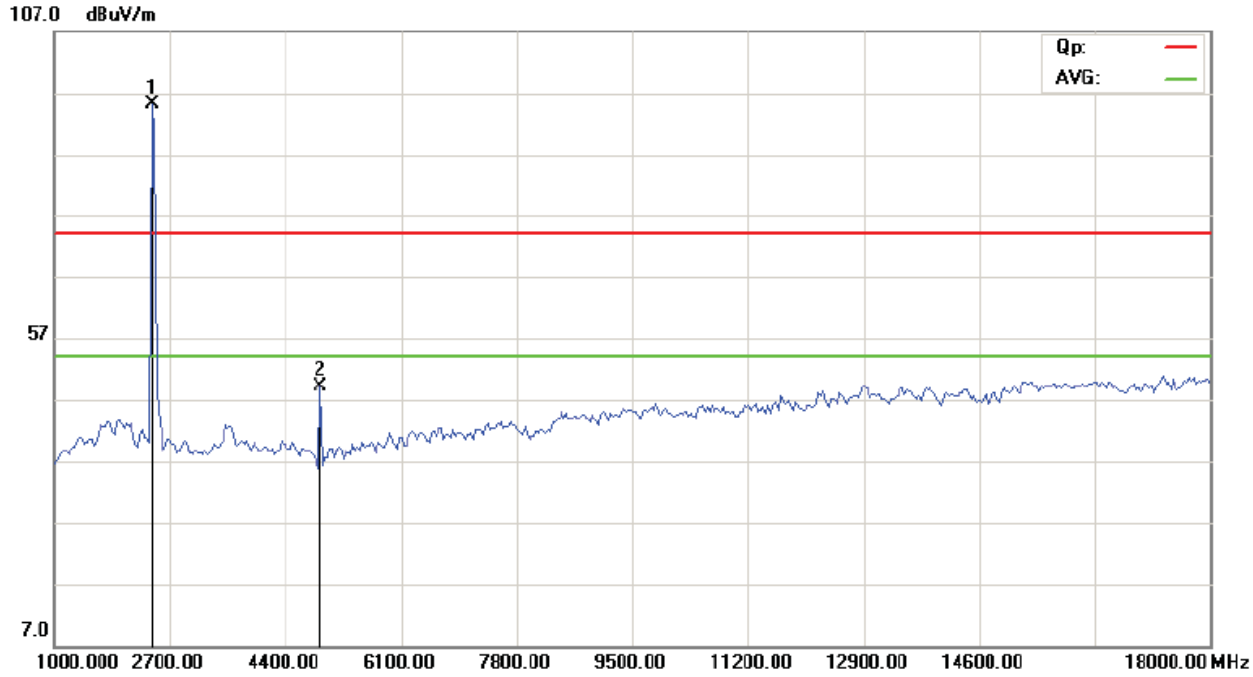
CH06 at 54Mbps: Vertical



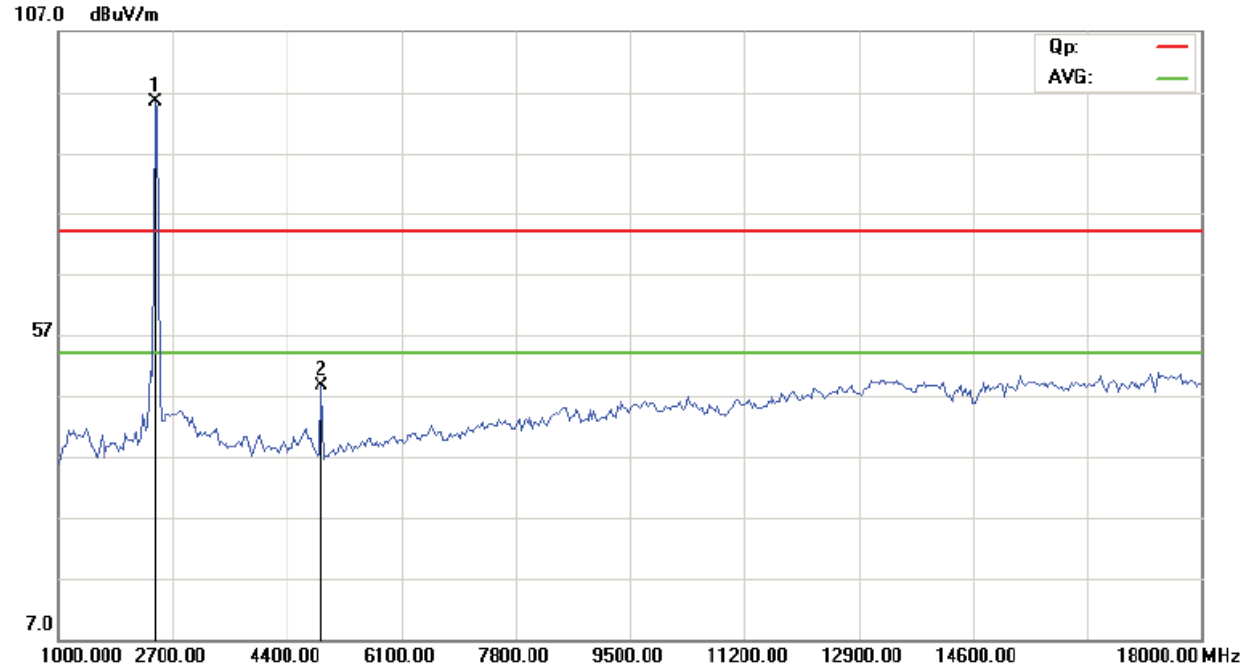
CH06 at 54Mbps: Horizontal



CH11 at 54Mbps: Vertical



CH11 at 54 Mbps: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

Operation Mode: Transmitting under CH01 for 11n HT20 at 65Mbps

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
4824	48.35（PK）	H	74(Peak)/ 54(AV)
4824	50.09（PK）	V	74(Peak)/ 54(AV)
7236	--	H/V	74(Peak)/ 54(AV)
9648	--	H/V	74(Peak)/ 54(AV)
12060	--	H/V	74(Peak)/ 54(AV)
14472	--	H/V	74(Peak)/ 54(AV)
16684	--	H/V	74(Peak)/ 54(AV)
19296	--	H/V	74(Peak)/ 54(AV)
21708	--	H/V	74(Peak)/ 54(AV)
24120	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark “---” means that the emissions level is too low to be measured

3. For 802.11n HT20 at 65Mbps

Operation Mode: Transmitting under CH06 for 11n HT20 at 65Mbps

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
4874	48.54（PK）	H	74(Peak)/ 54(AV)
4874	48.88（PK）	V	74(Peak)/ 54(AV)
7311	--	H/V	74(Peak)/ 54(AV)
9748	--	H/V	74(Peak)/ 54(AV)
12185	--	H/V	74(Peak)/ 54(AV)
14622	--	H/V	74(Peak)/ 54(AV)
17059	--	H/V	74(Peak)/ 54(AV)
19496	--	H/V	74(Peak)/ 54(AV)
21933	--	H/V	74(Peak)/ 54(AV)
24370	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark “---” means that the emissions level is too low to be measured

3. For 802. 11n HT20 at 65bps

Operation Mode: Transmitting under CH11 for 11n HT20 at 65Mbps

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
4924	49.19（PK）	H	74(Peak)/ 54(AV)
4924	49.14（PK）	V	74(Peak)/ 54(AV)
7386	--	H/V	74(Peak)/ 54(AV)
9848	--	H/V	74(Peak)/ 54(AV)
12310	--	H/V	74(Peak)/ 54(AV)
14772	--	H/V	74(Peak)/ 54(AV)
17234	--	H/V	74(Peak)/ 54(AV)
19696	--	H/V	74(Peak)/ 54(AV)
22158	--	H/V	74(Peak)/ 54(AV)
24620	--	H/V	74(Peak)/ 54(AV)

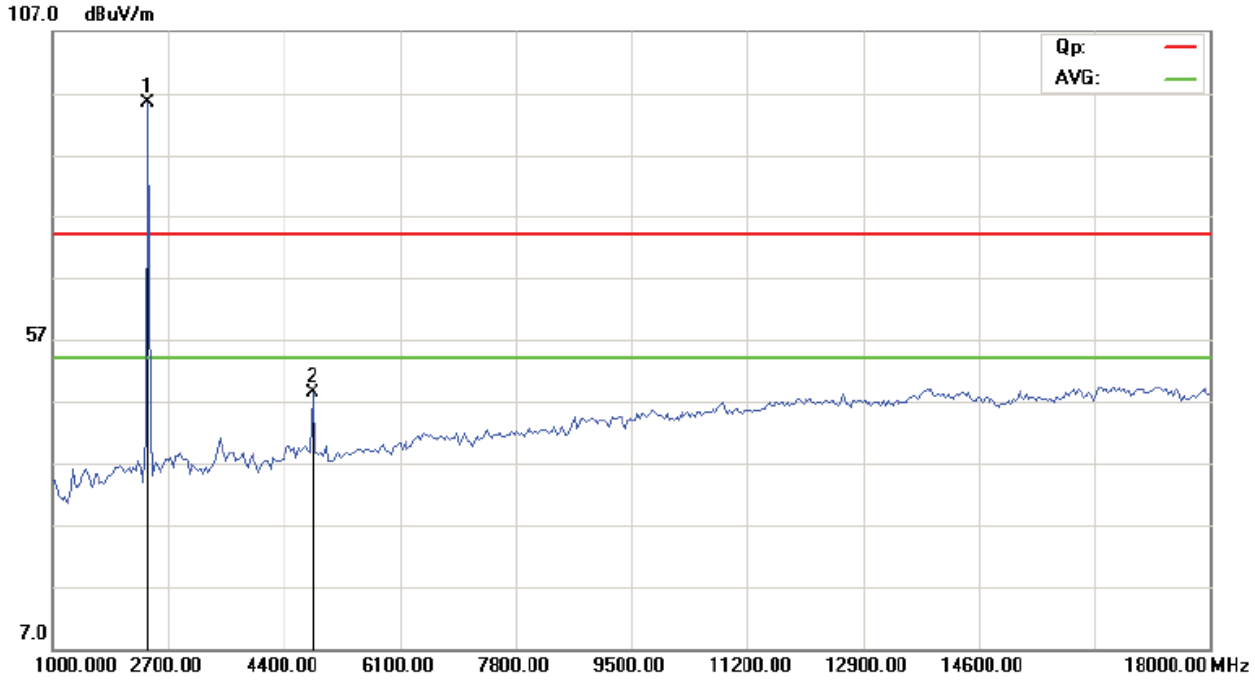
Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark “---” means that the emissions level is too low to be measured

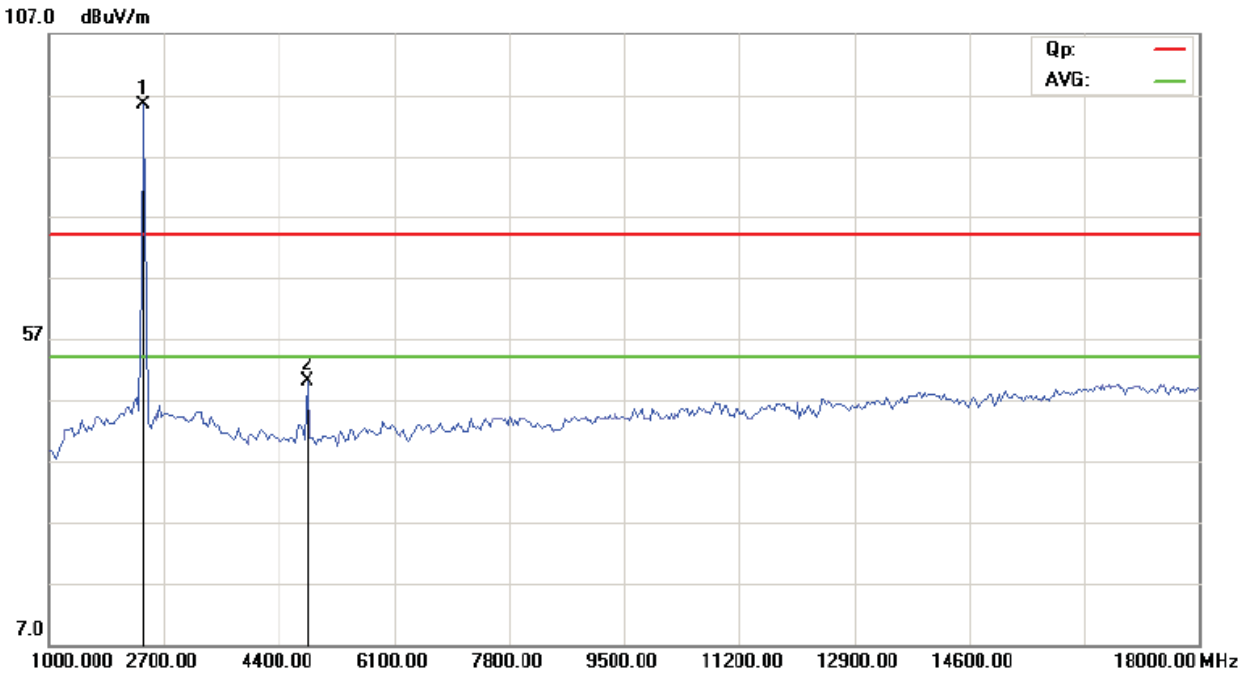
3. For 802. 11n HT20 at 65bps

Please refer to the following test plots for details:

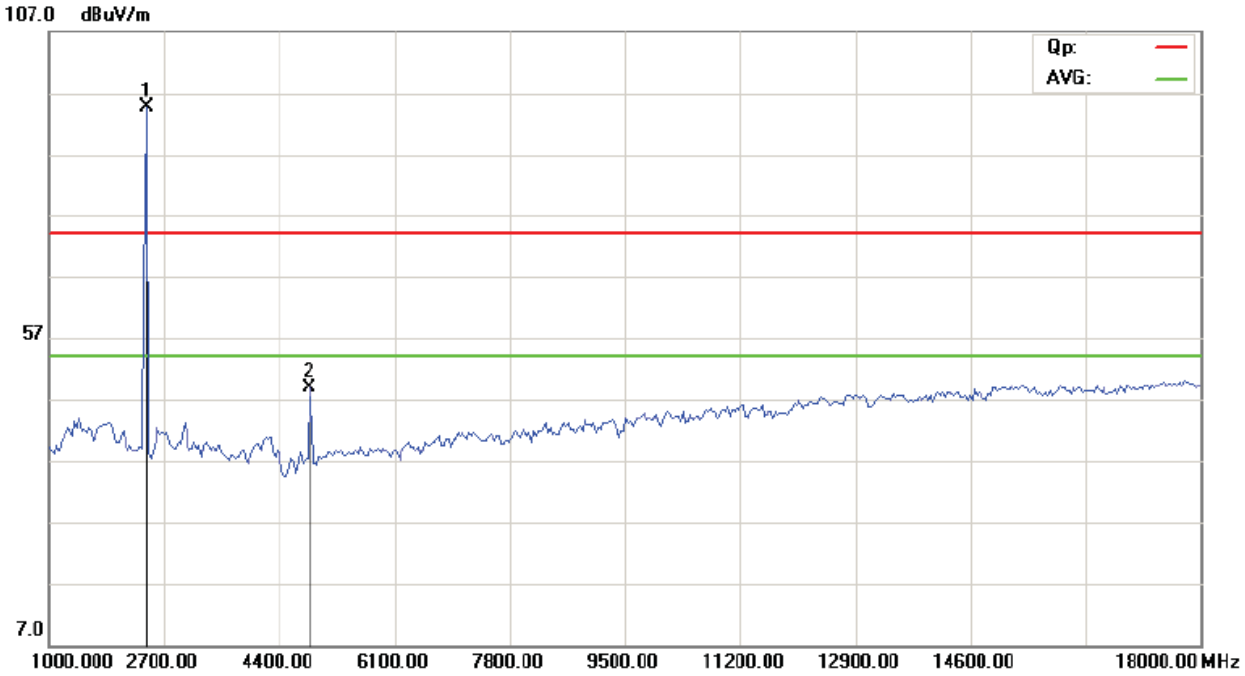
CH01 at 11n HT20: **Horizontal**



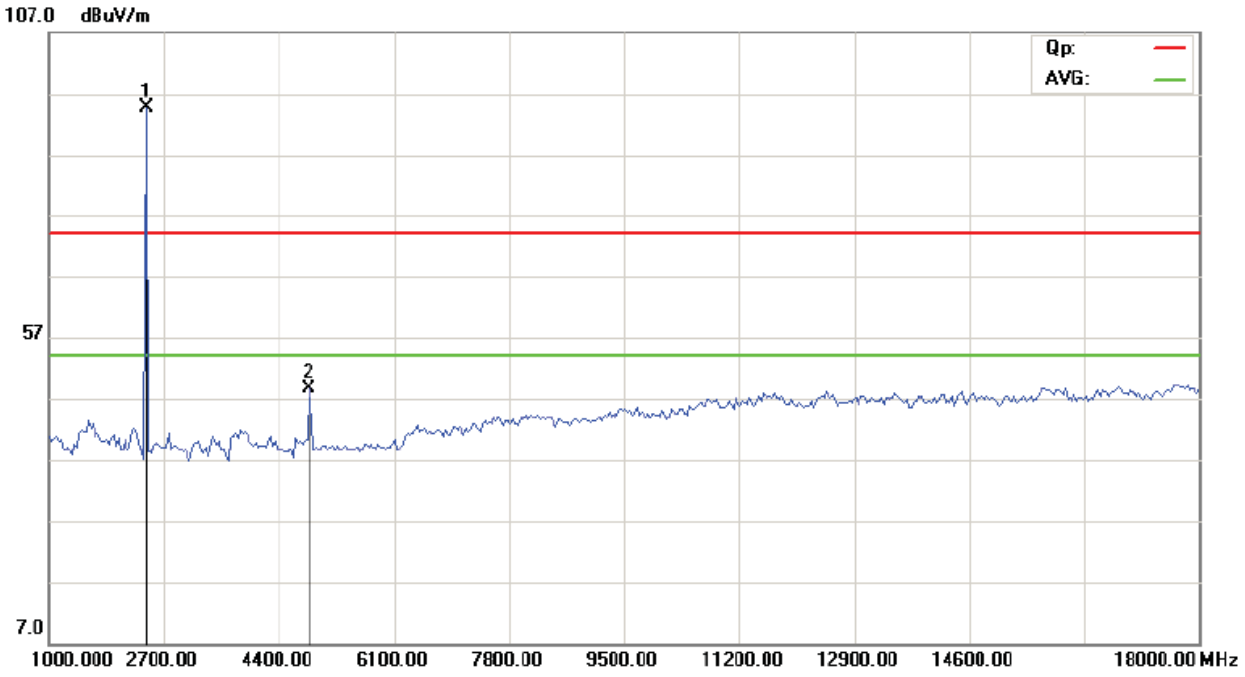
CH01 at 11n HT20: Vertical



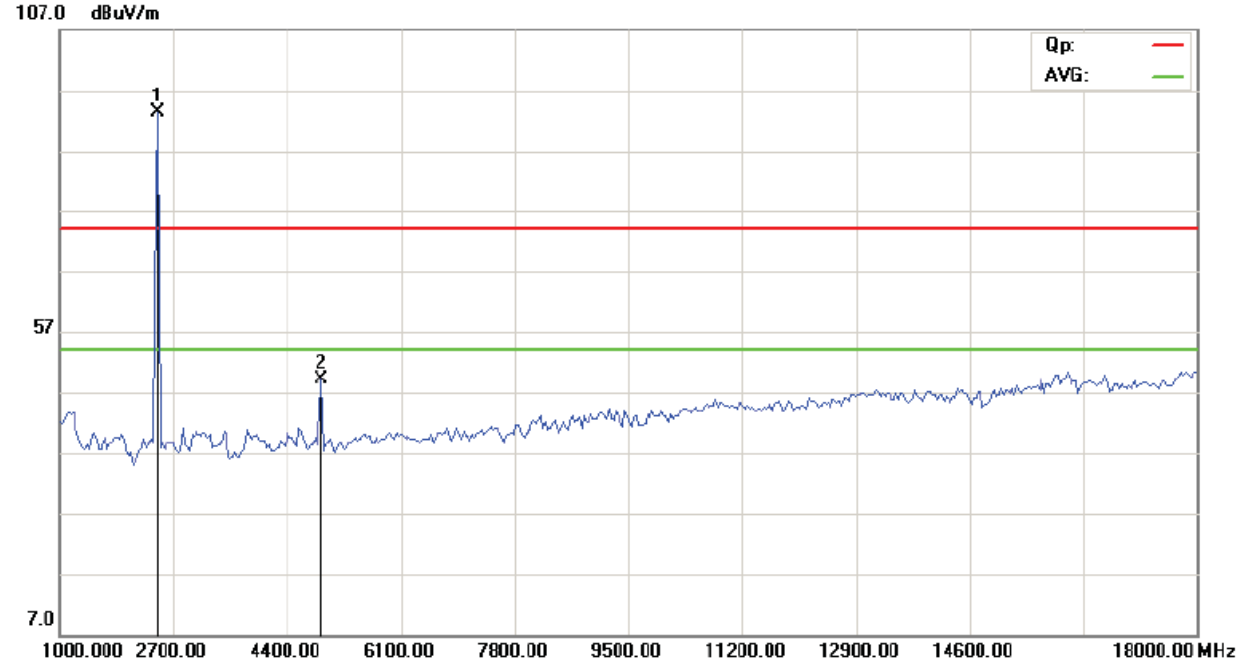
CH06 at 11n HT20: Vertical



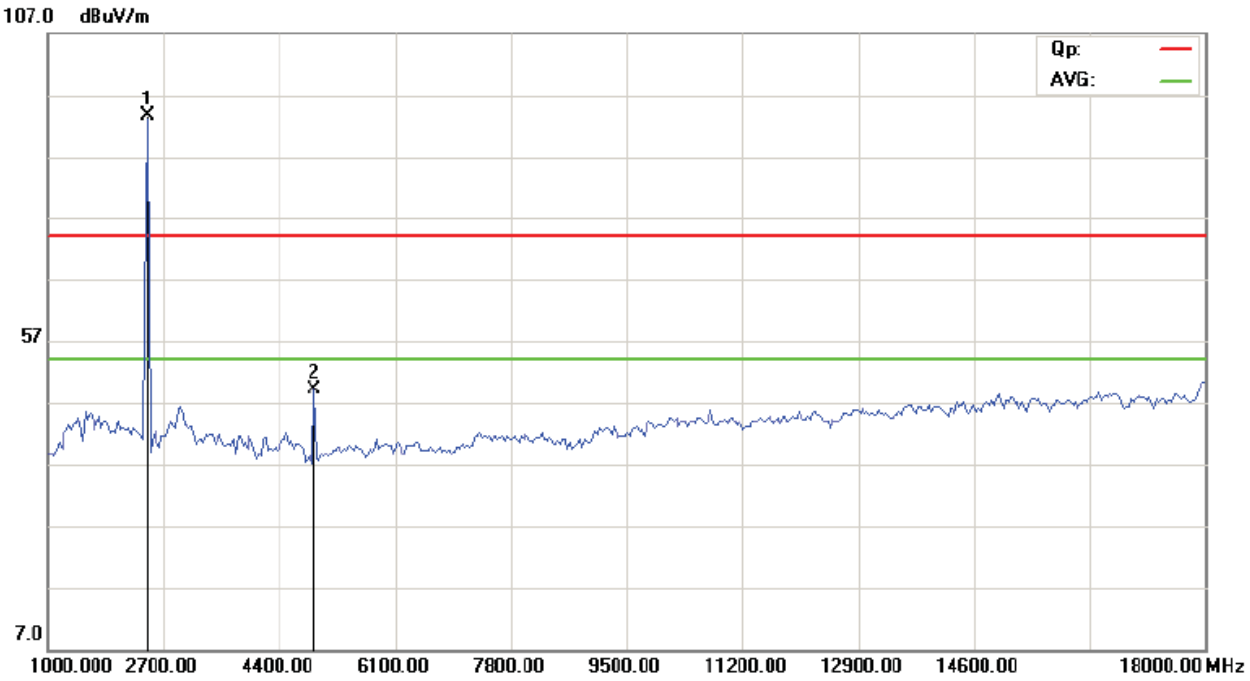
CH06 at 11n HT20: Horizontal



CH11 at 11n HT20: Vertical



CH11 at 11n HT20: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

Operation Mode: Transmitting under CH01 for 11n HT40 at 65Mbps

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
4844	48.01（PK）	H	74(Peak)/ 54(AV)
4844	48.71（PK）	V	74(Peak)/ 54(AV)
7266	--	H/V	74(Peak)/ 54(AV)
9688	--	H/V	74(Peak)/ 54(AV)
12110	--	H/V	74(Peak)/ 54(AV)
14532	--	H/V	74(Peak)/ 54(AV)
16954	--	H/V	74(Peak)/ 54(AV)
19376	--	H/V	74(Peak)/ 54(AV)
21798	--	H/V	74(Peak)/ 54(AV)
24220	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark “---” means that the emissions level is too low to be measured

3. For 802.11n HT40 at 65bps

Operation Mode: Transmitting under CH04 for 11n HT40 at 65Mbps

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
4874	49.18（PK）	H	74(Peak)/ 54(AV)
4874	48.29（PK）	V	74(Peak)/ 54(AV)
7311	--	H/V	74(Peak)/ 54(AV)
9748	--	H/V	74(Peak)/ 54(AV)
12185	--	H/V	74(Peak)/ 54(AV)
14622	--	H/V	74(Peak)/ 54(AV)
17059	--	H/V	74(Peak)/ 54(AV)
19496	--	H/V	74(Peak)/ 54(AV)
21933	--	H/V	74(Peak)/ 54(AV)
24370	--	H/V	74(Peak)/ 54(AV)

Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark “---” means that the emissions level is too low to be measured

3. For 802. 11n HT40 at 65bps

Operation Mode: Transmitting under CH7 for 11n HT40 at 65Mbps

Frequency (MHz)	Level@3m (dBμV/m)	Antenna Polarity	Limit@3m (dBμV/m)
4904	48.82（PK）	H	74(Peak)/ 54(AV)
4904	48.08（PK）	V	74(Peak)/ 54(AV)
7356	--	H/V	74(Peak)/ 54(AV)
9808	--	H/V	74(Peak)/ 54(AV)
12260	--	H/V	74(Peak)/ 54(AV)
14712	--	H/V	74(Peak)/ 54(AV)
17164	--	H/V	74(Peak)/ 54(AV)
19616	--	H/V	74(Peak)/ 54(AV)
22068	--	H/V	74(Peak)/ 54(AV)
24520	--	H/V	74(Peak)/ 54(AV)

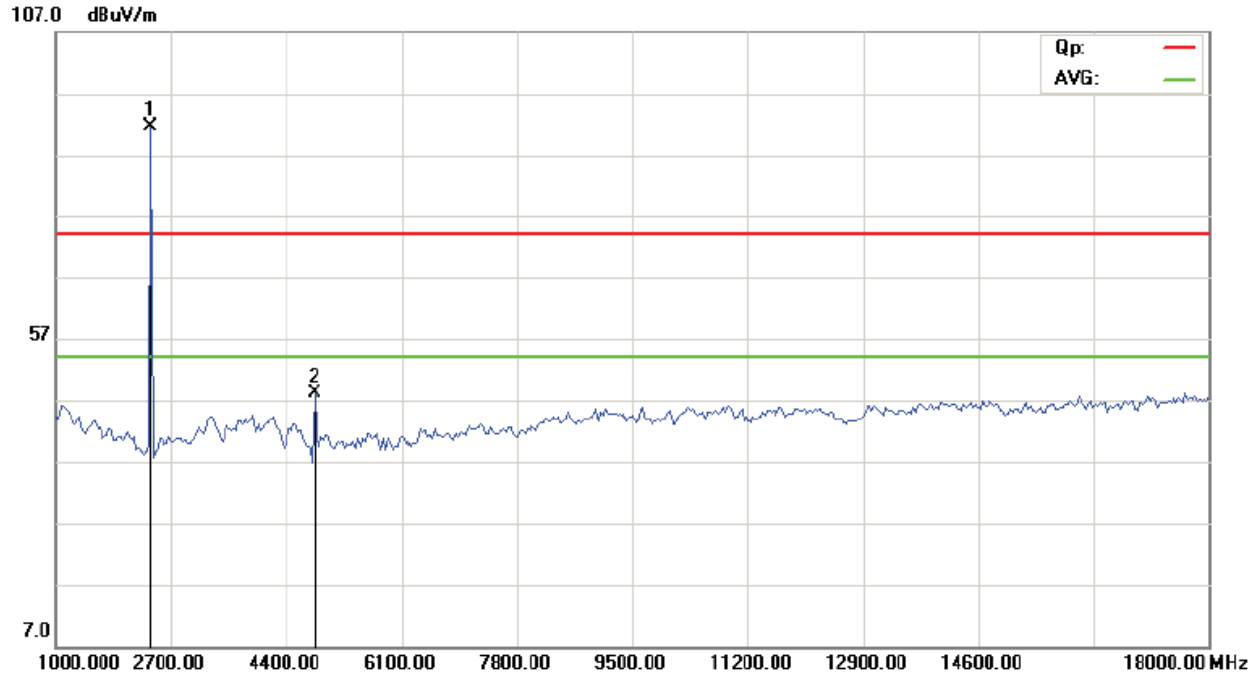
Note: 1. Level = Reading + AF + Cable - Preamp + Filter - Dist, Margin = Level - Limit

2. Remark “---” means that the emissions level is too low to be measured

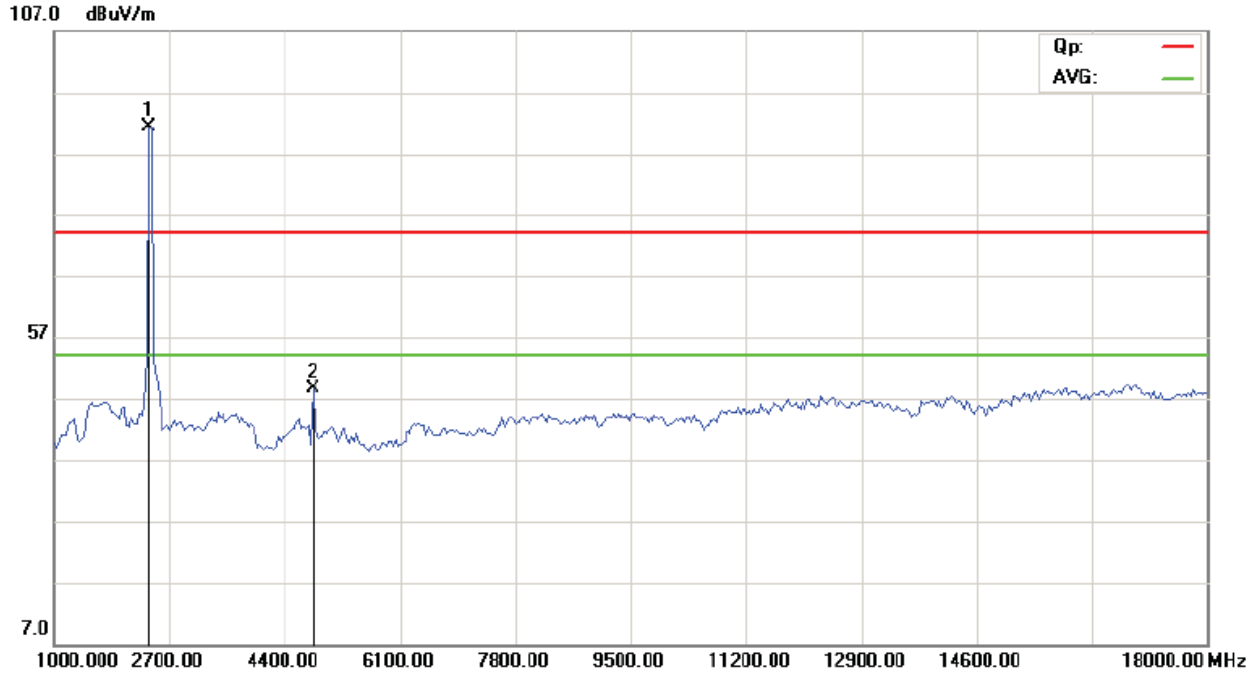
3. For 802. 11n HT40 at 65bps

Please refer to the following test plots for details:

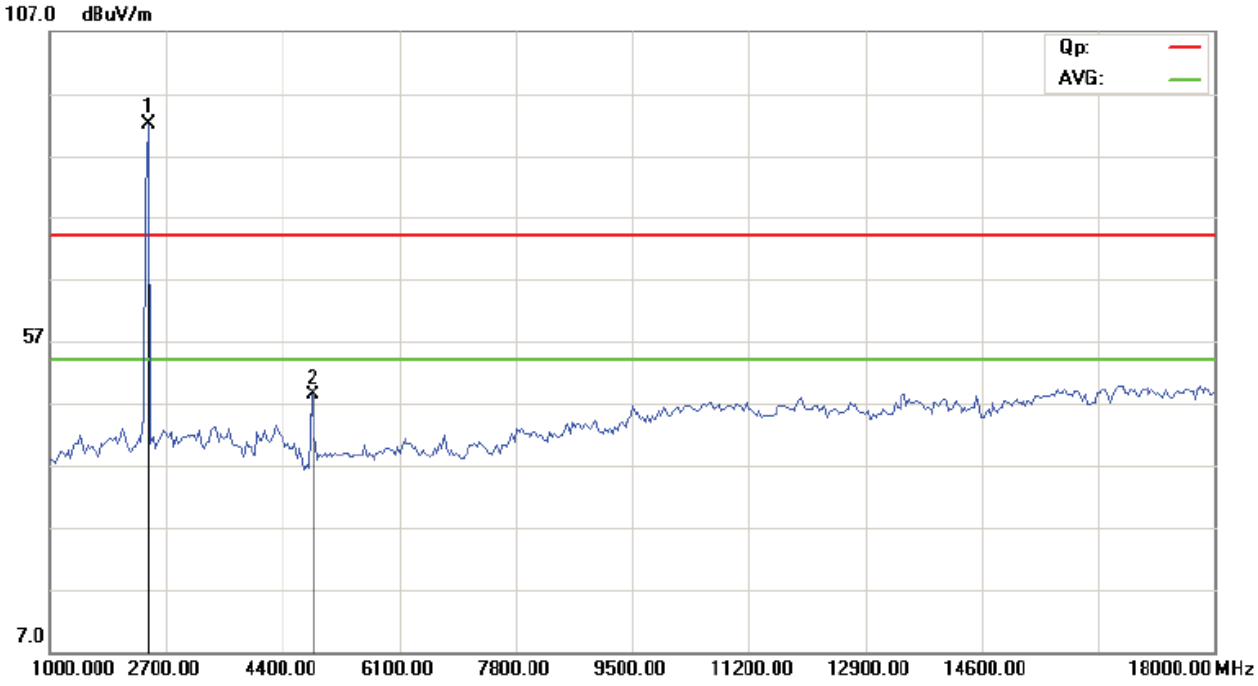
CH01 at 11n HT40: **Horizontal**



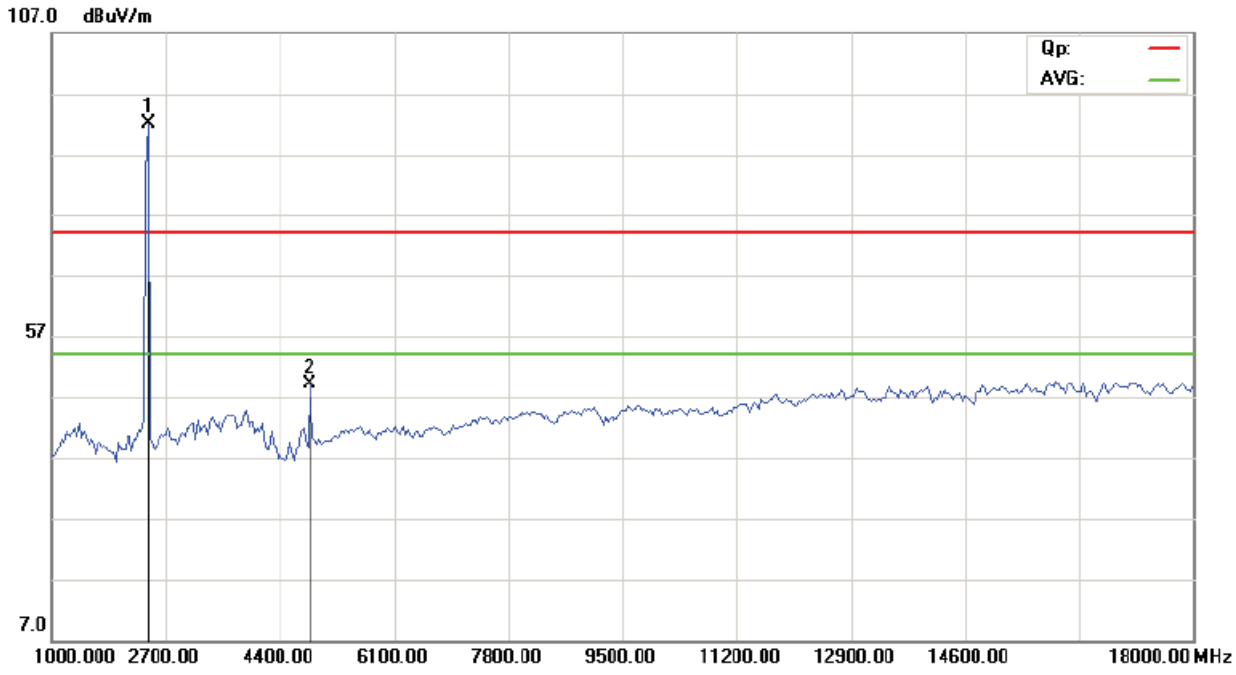
CH01 at 11n HT40: Vertical



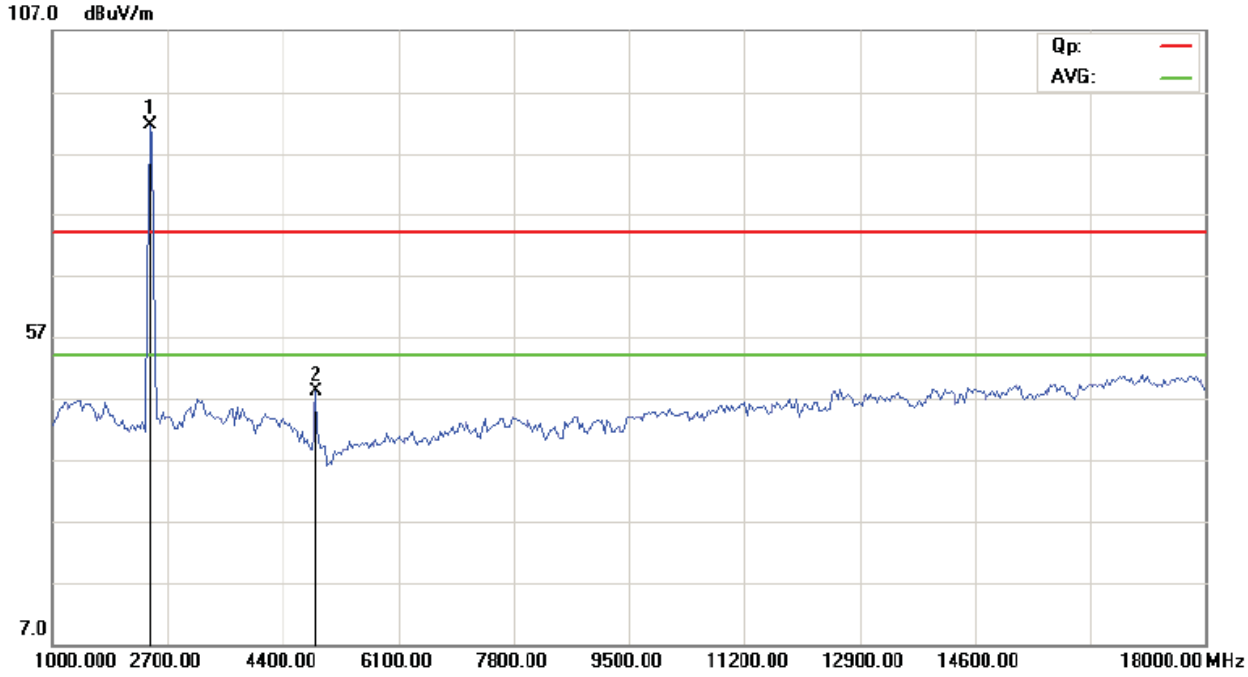
CH04 at 11n HT40: Vertical



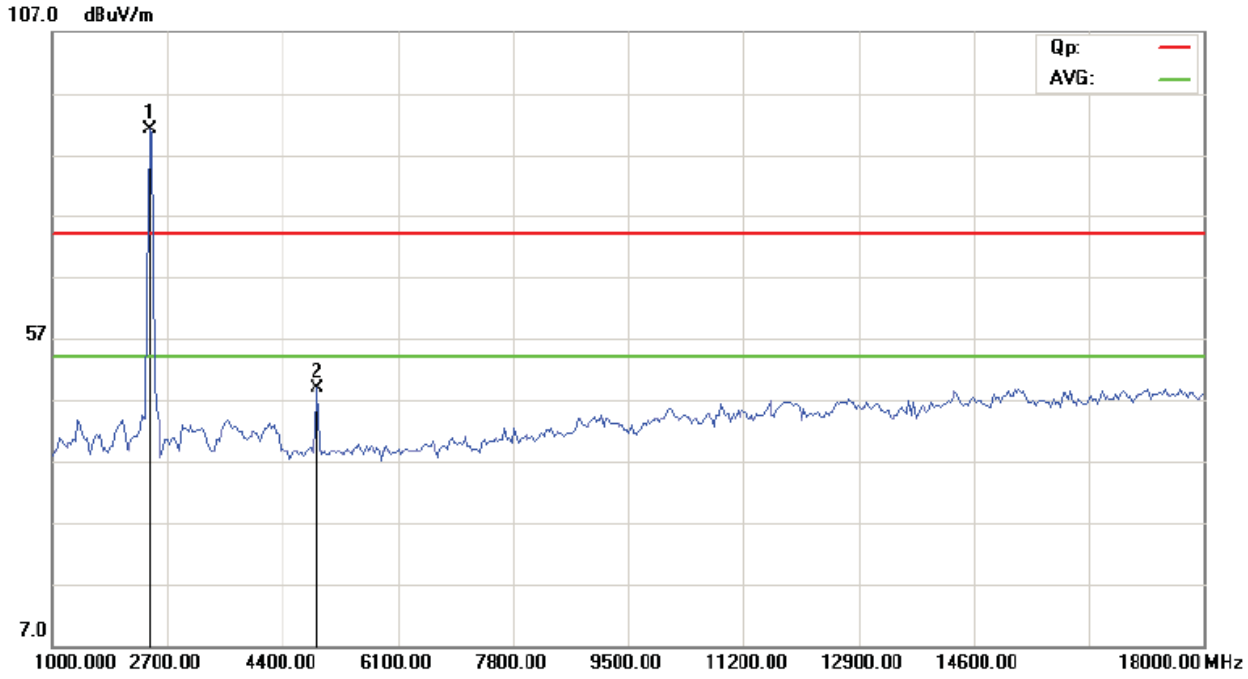
CH04 at 11n HT40: Horizontal



CH7 at 11n HT40: Vertical



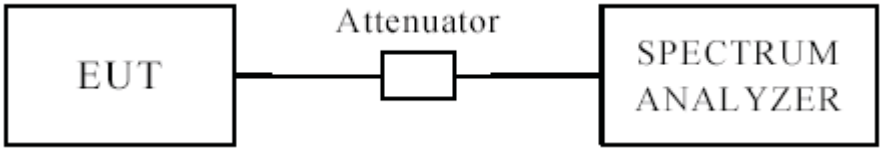
CH7 at 11n HT40: Horizontal



Note: For radiated Emissions from 18-25GHz, it is only the floor noise.

7.0 6dB Bandwidth Measurement

7.1 Test Setup



7.2 Limits of 6dB Bandwidth Measurement

The minimum of 6dB Bandwidth Measurement is >500kHz

7.3 Test Procedure

1. Set resolution bandwidth (RBW) = 100 kHz
2. Set the video bandwidth (VBW) ≥ 3 x RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.4 Test Result

EUT	Smart camera	Model	R20\ R21\R22
Mode	802.11b	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
1	2412	1	10.08	0.5	Pass
6	2437	1	10.08	0.5	Pass
11	2462	1	10.08	0.5	Pass
1	2412	11	10.02	0.5	Pass
6	2437	11	10.02	0.5	Pass
11	2462	11	10.02	0.5	Pass

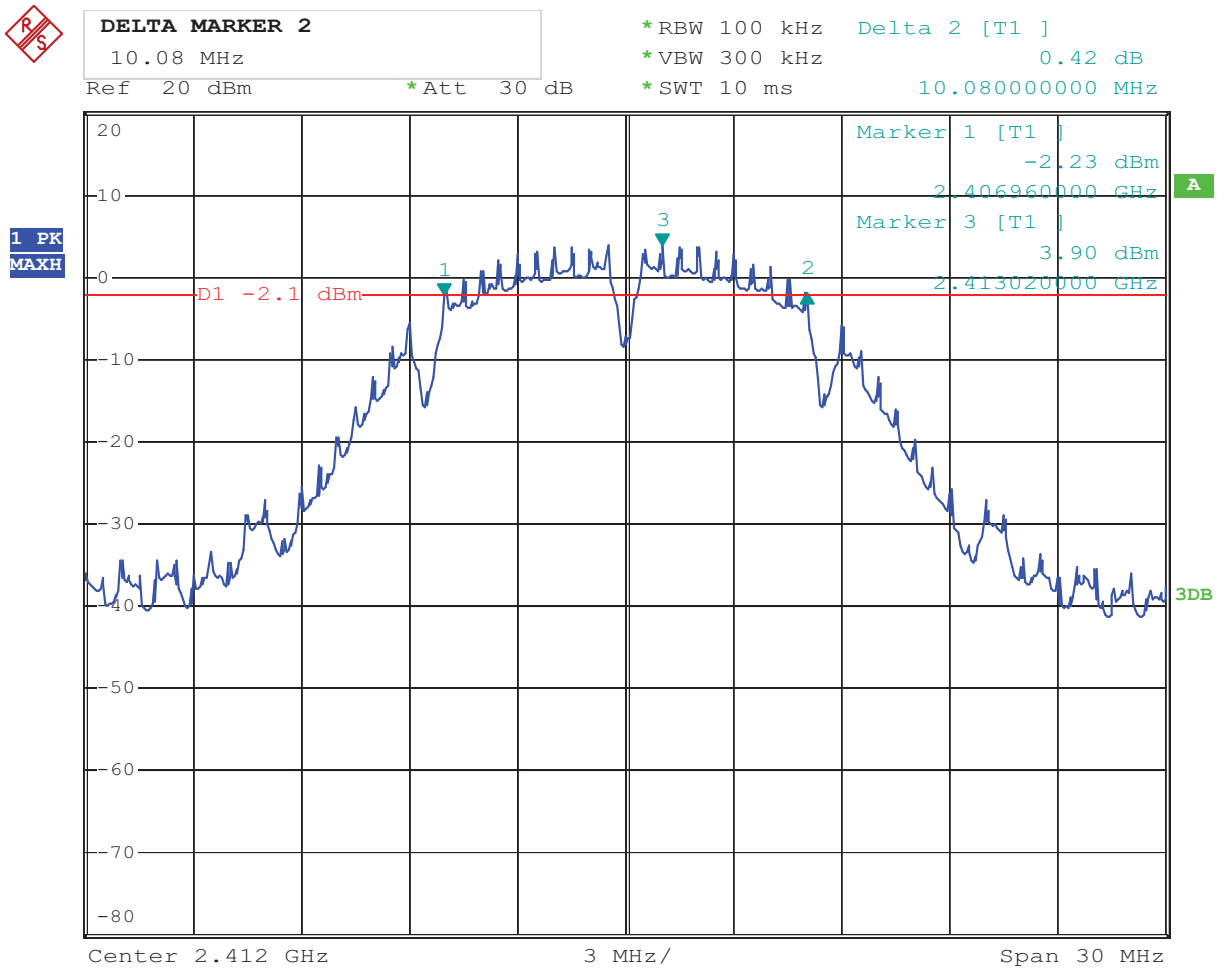
EUT	Smart camera	Model	R20\ R21\R22
Mode	802.11g	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
1	2412	54	16.32	0.5	Pass
6	2437	54	16.32	0.5	Pass
11	2462	54	16.32	0.5	Pass

EUT	Smart camera	Model	R20\ R21\R22
Mode	802.11n	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

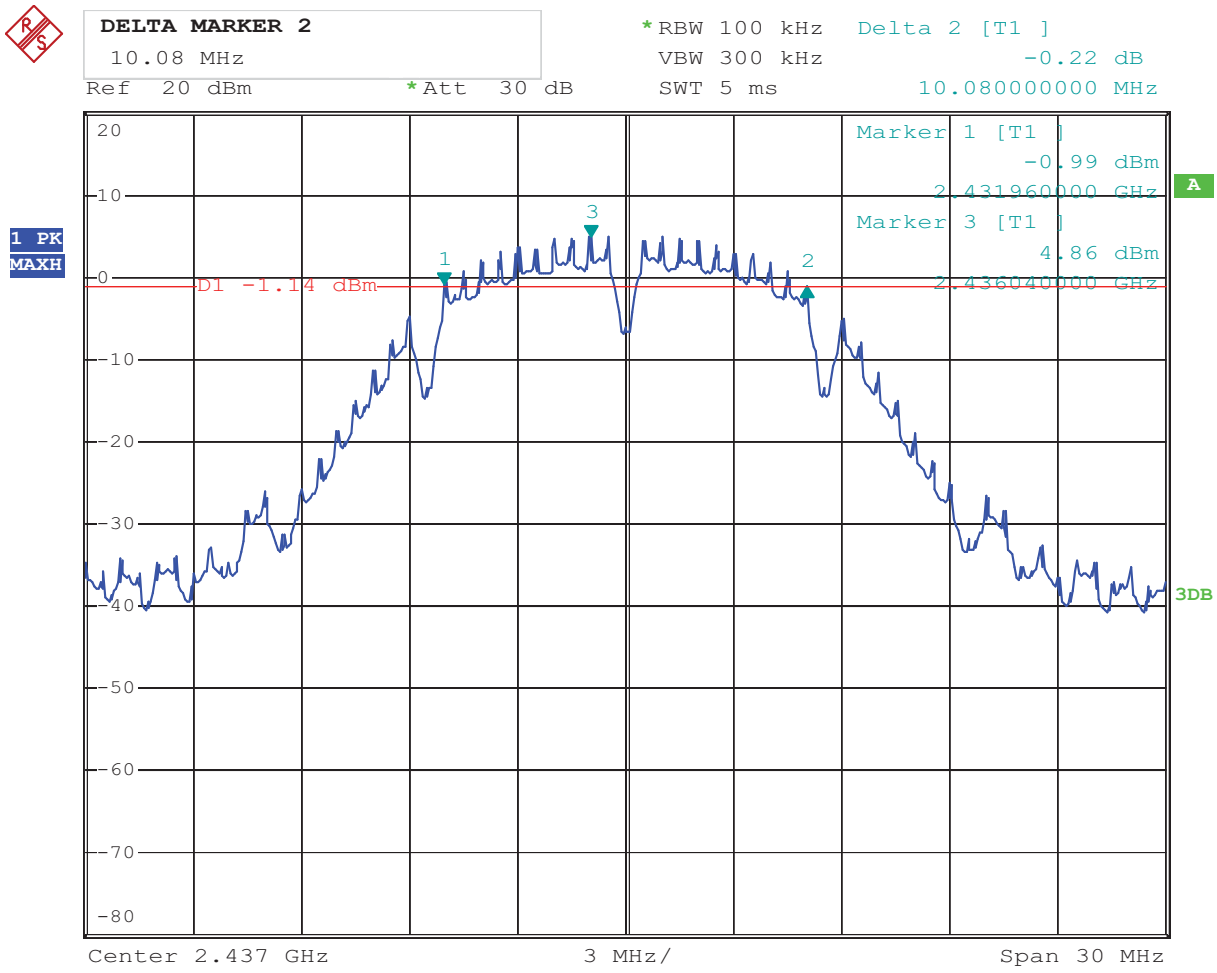
Channel	Channel Frequency (MHz)	Data Transfer Rate (Mbps)	6 dB Bandwidth (MHz)	Minimum Limit (MHz)	Pass/ Fail
HT20					
1	2412	65	17.28	0.5	Pass
6	2437	65	17.28	0.5	Pass
11	2462	65	17.28	0.5	Pass
HT40					
1	2422	65	35.30	0.5	Pass
4	2437	65	35.30	0.5	Pass
7	2452	65	35.30	0.5	Pass

1. 802.11b at 1Mbps of CH01



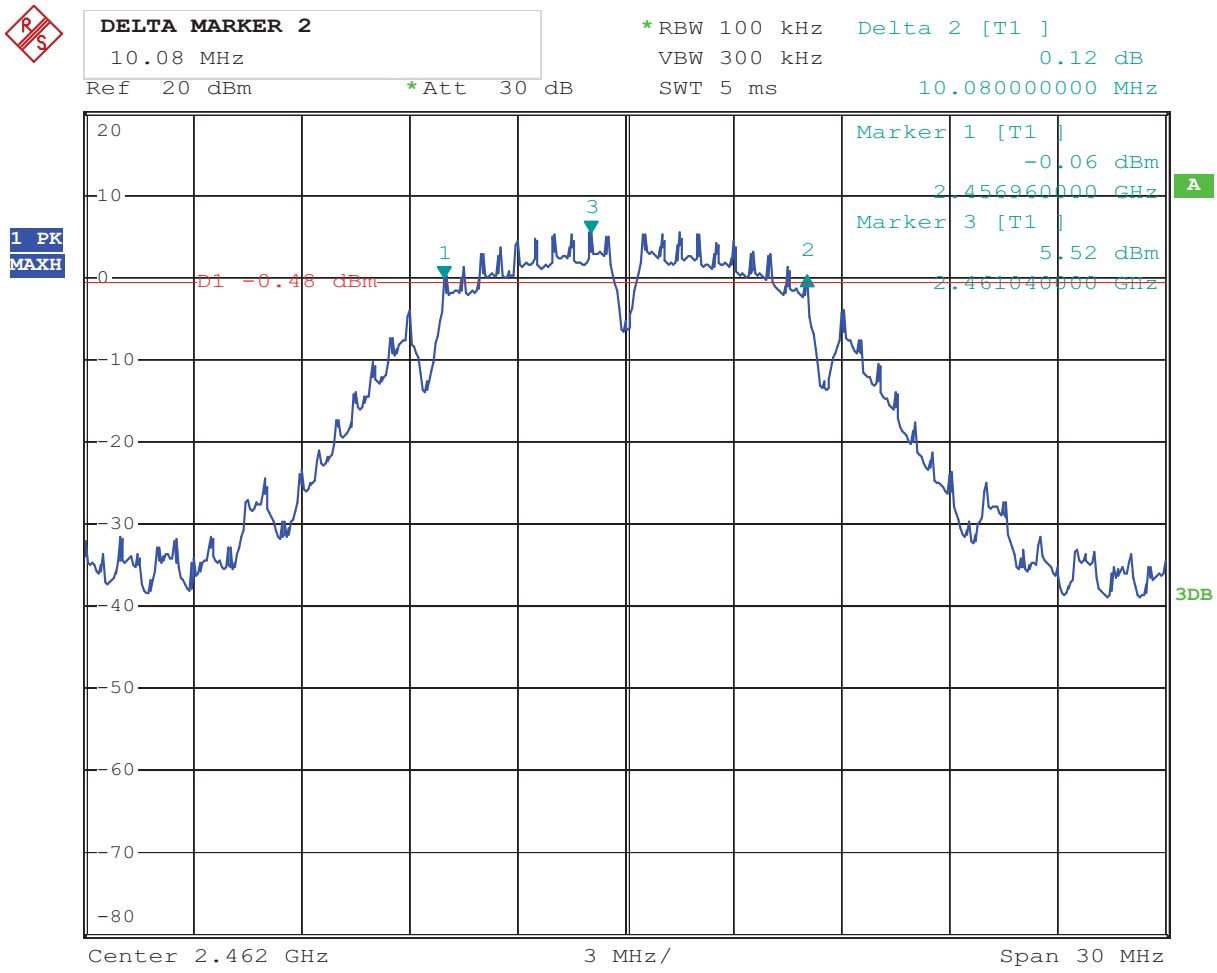
Date: 30.OCT.2014 11:38:09

2. 802.11b at 1Mbps of CH06



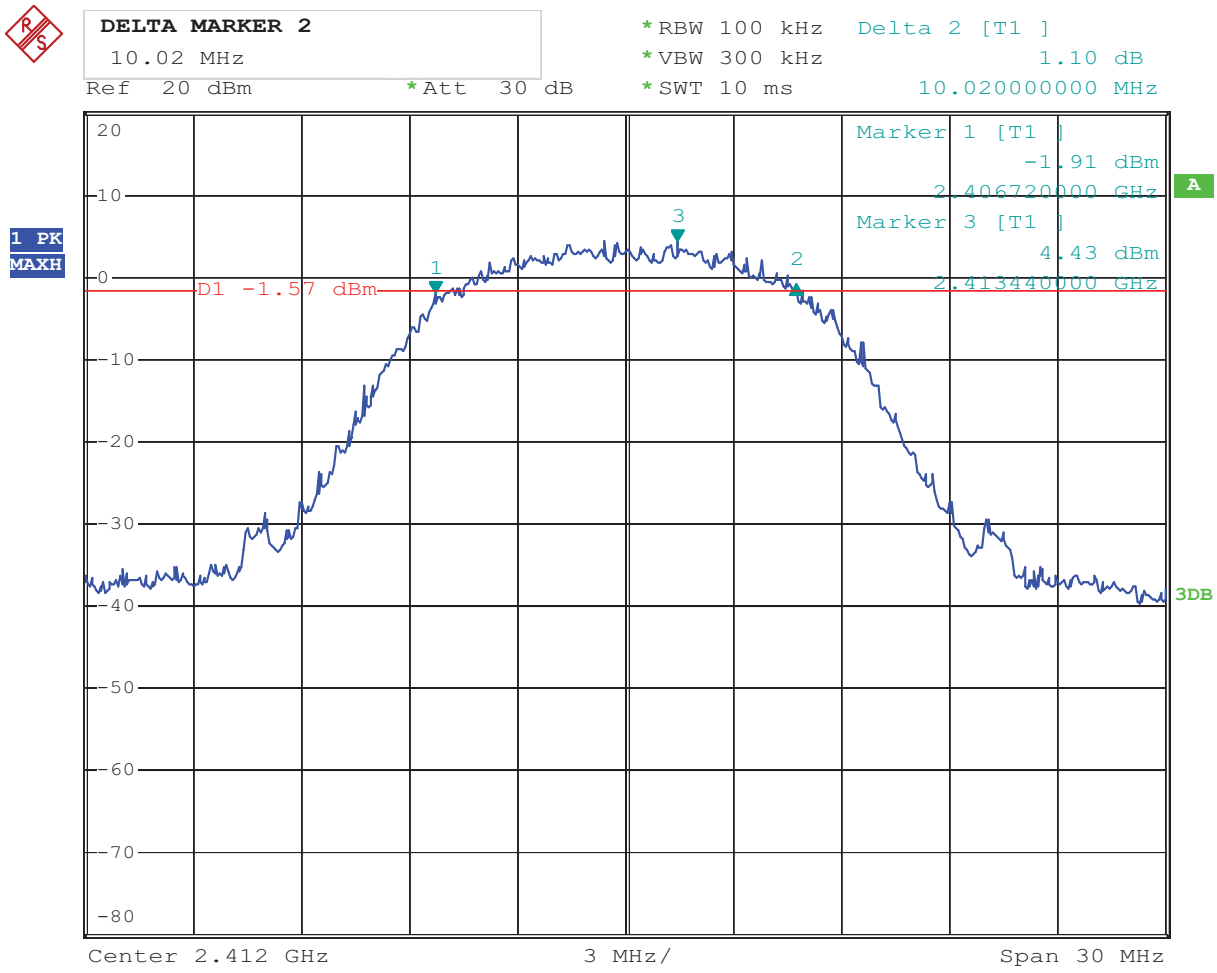
Date: 30.OCT.2014 14:28:18

3. 802.11b at 1Mbps of CH11

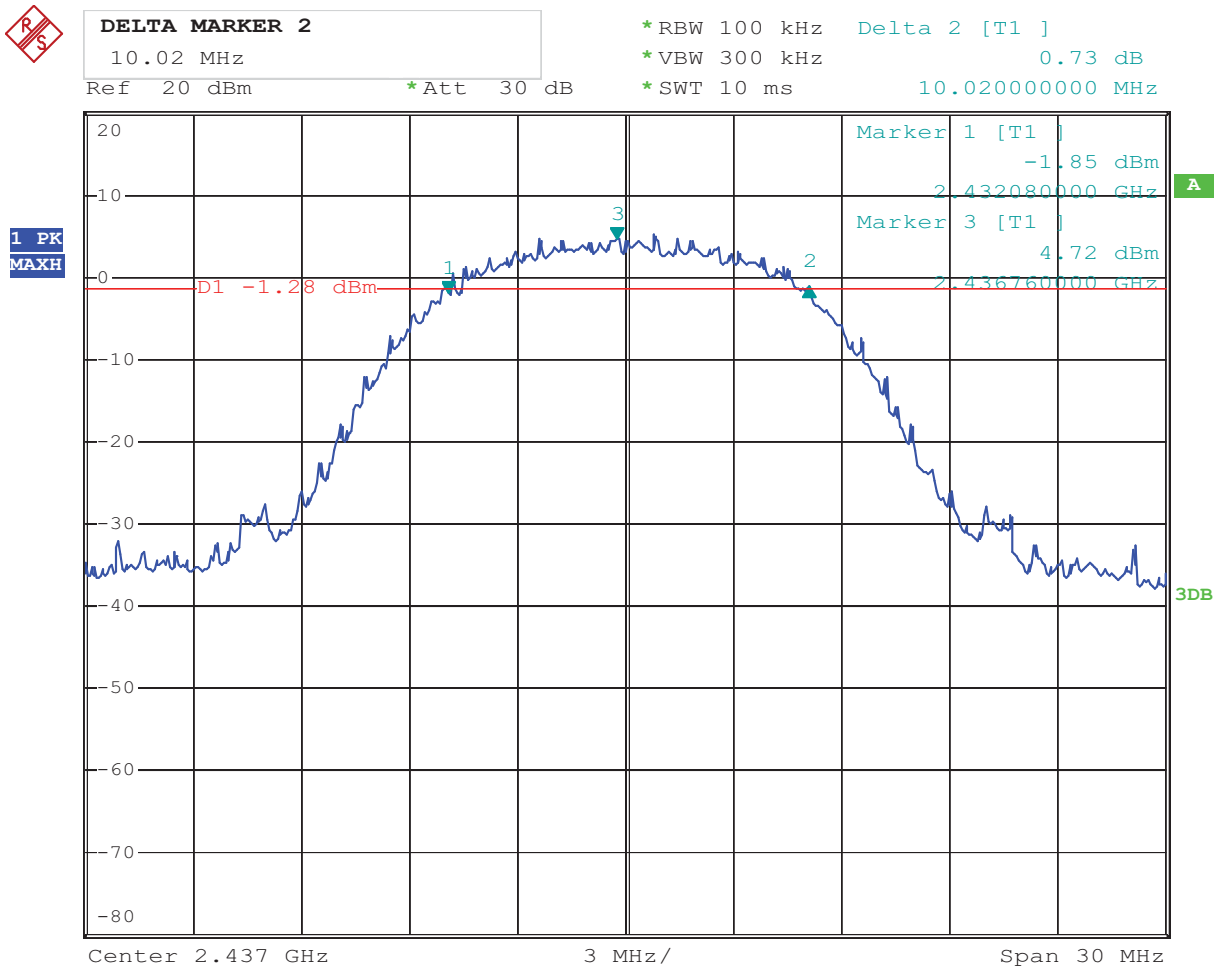


Date: 30.OCT.2014 14:30:34

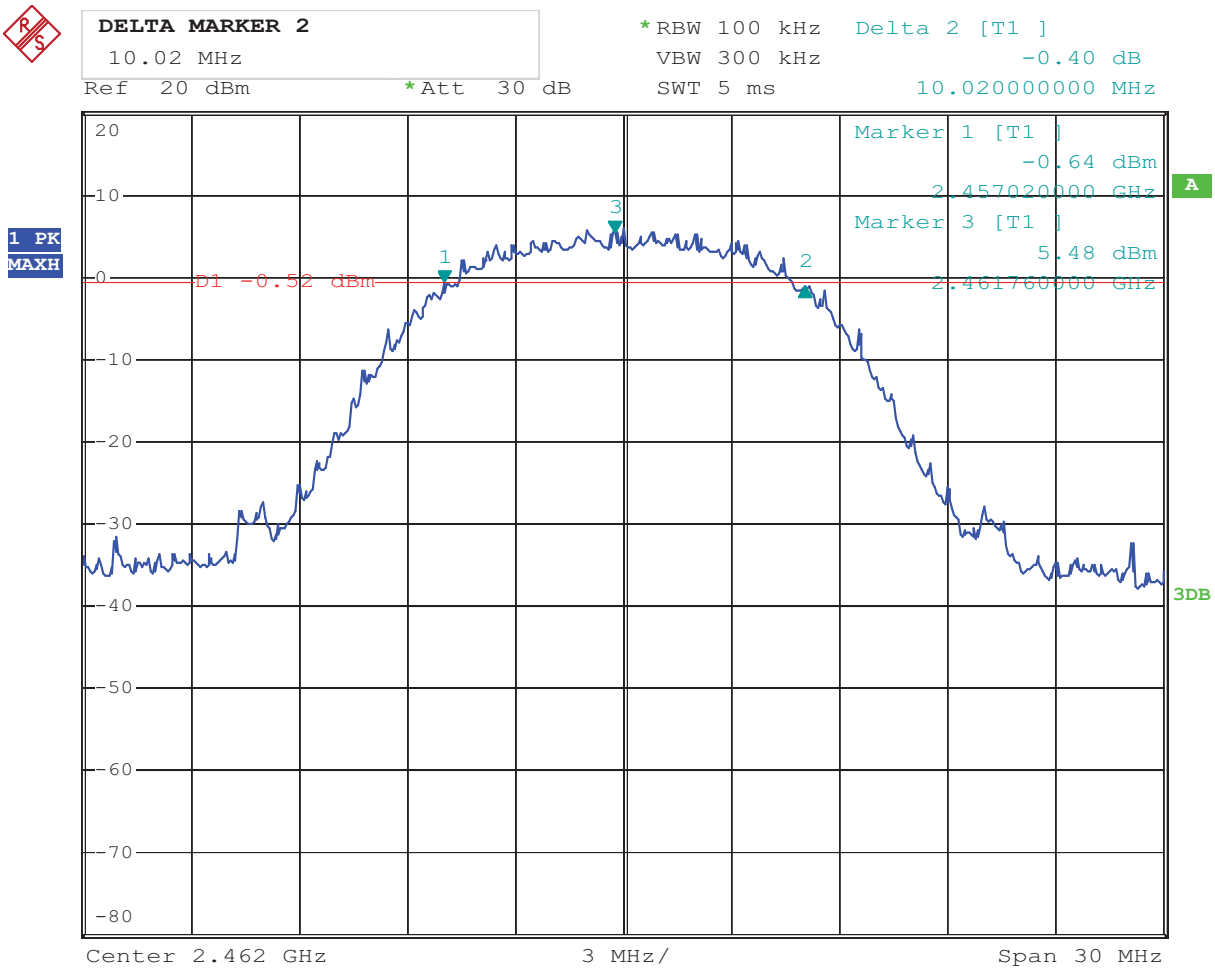
4. 802.11b at 11Mbps of CH01



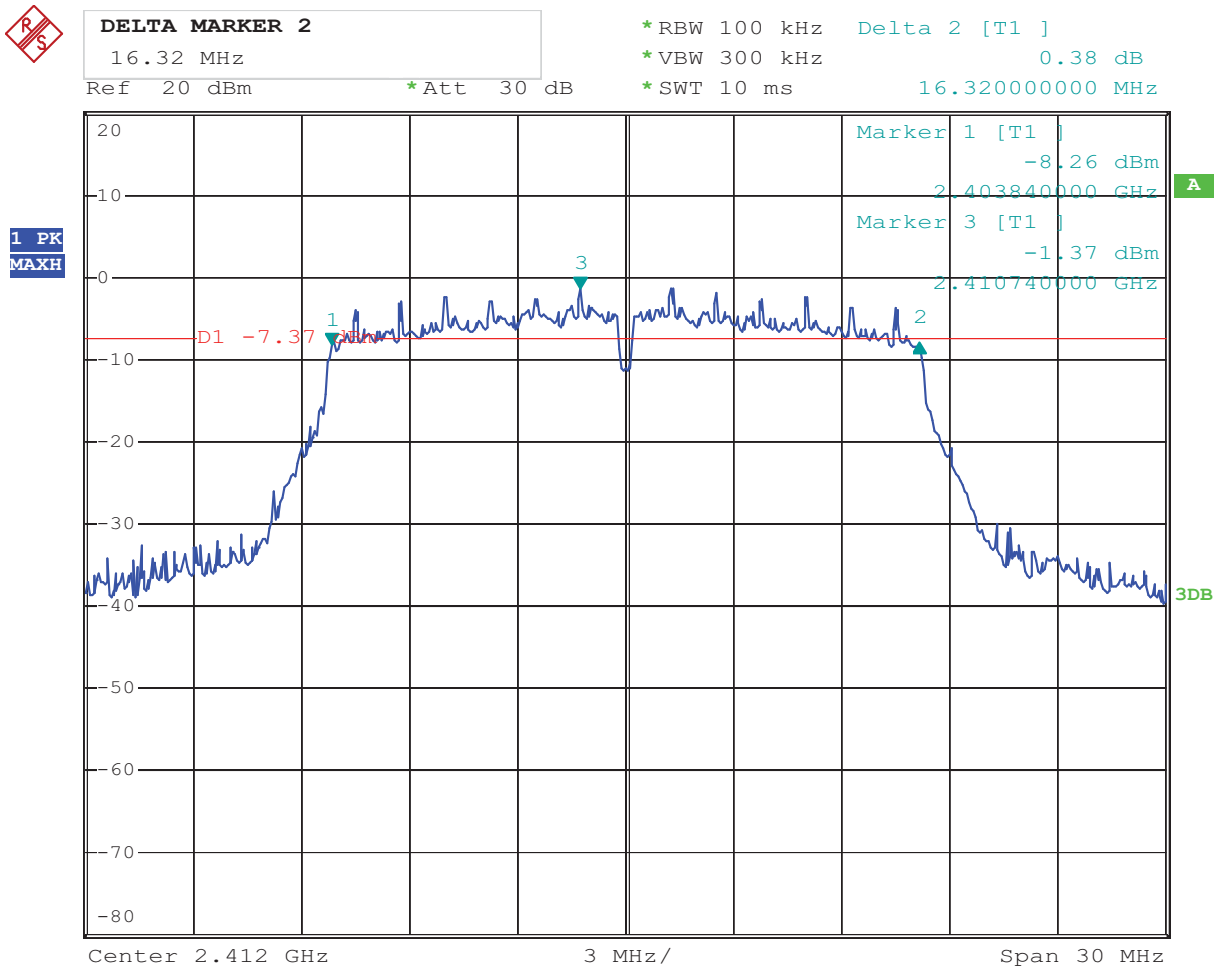
5. 802.11b at 11Mbps of CH06



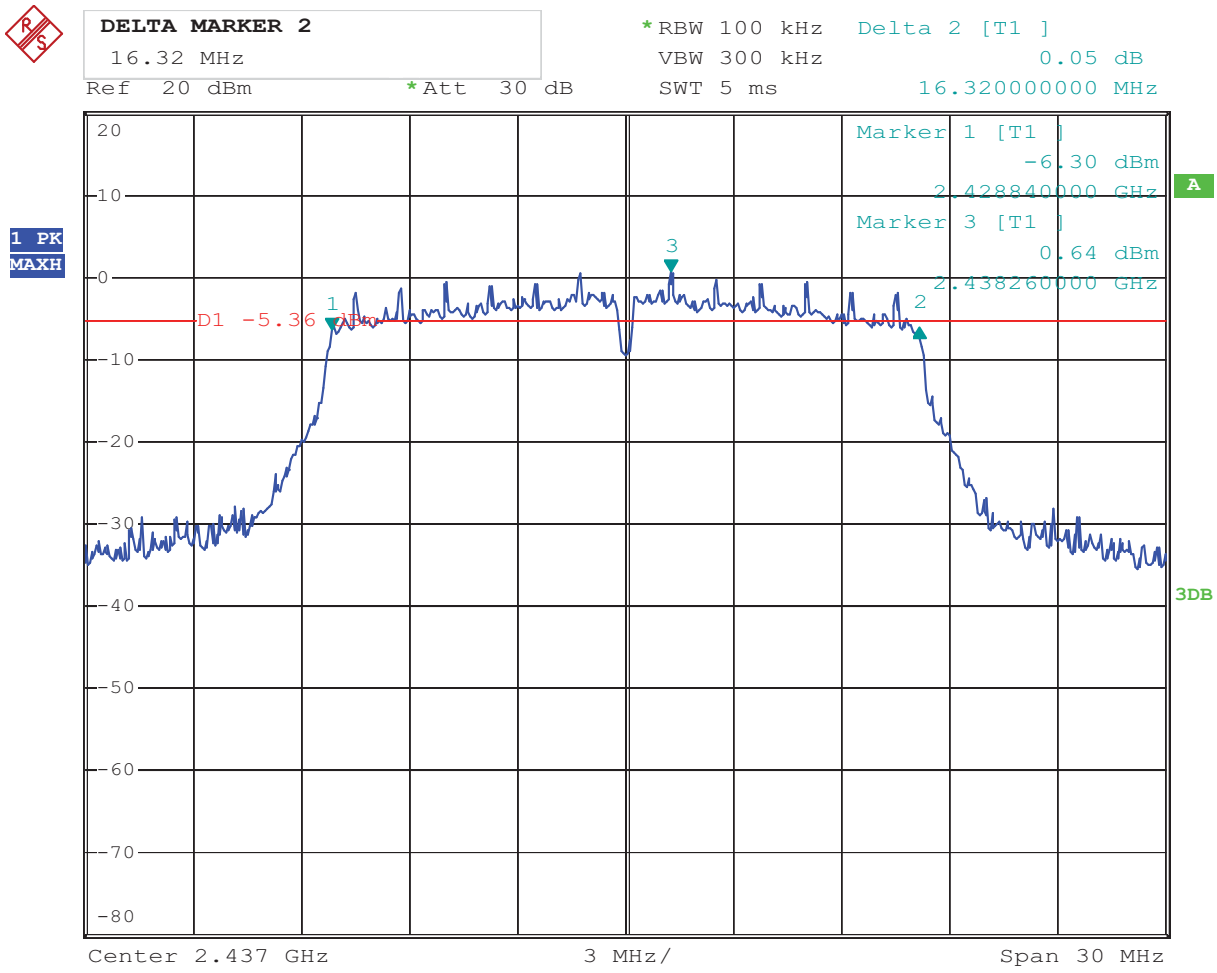
6. 802.11b at 11Mbps of CH11



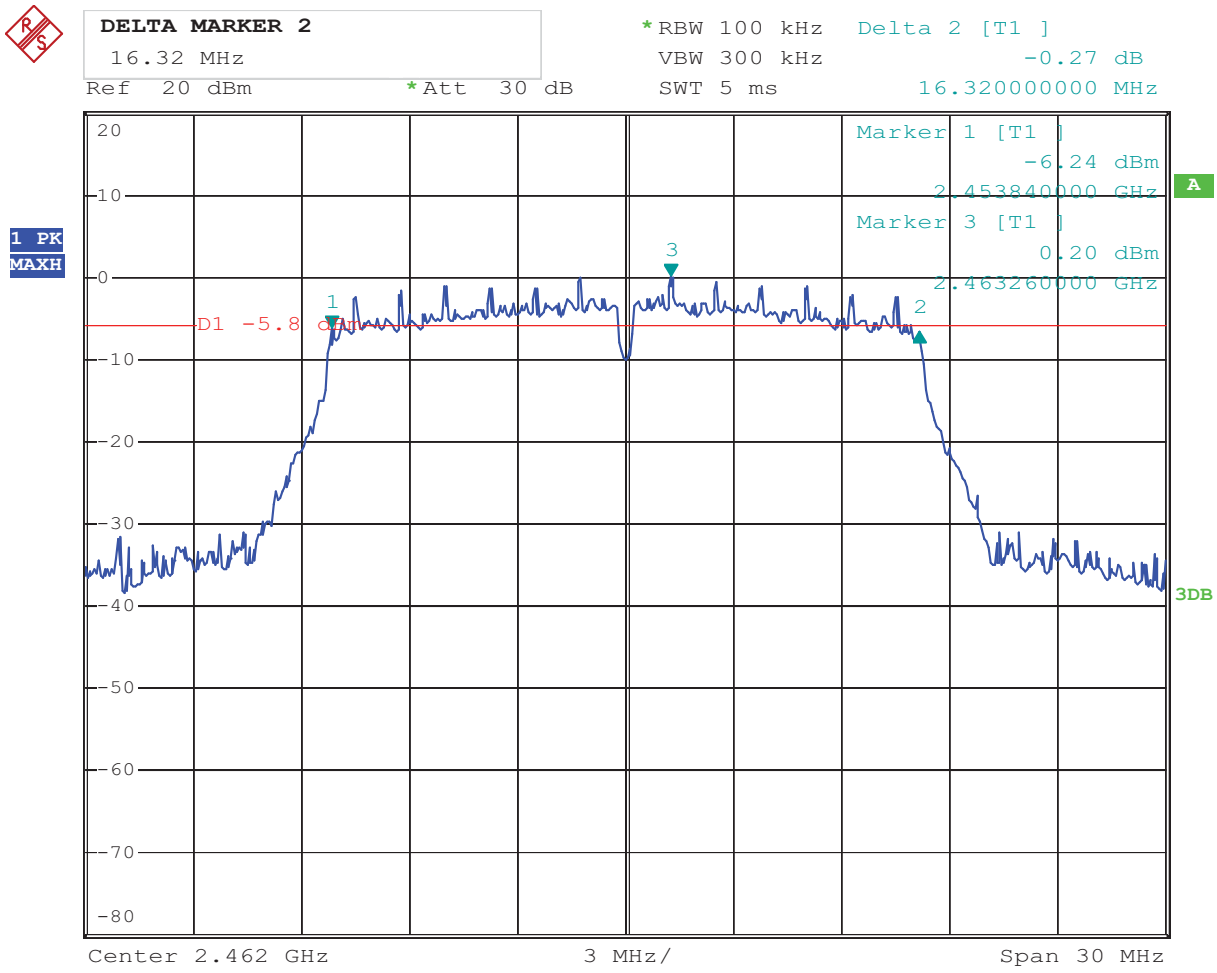
7. 802.11g at 54 Mbps of CH01



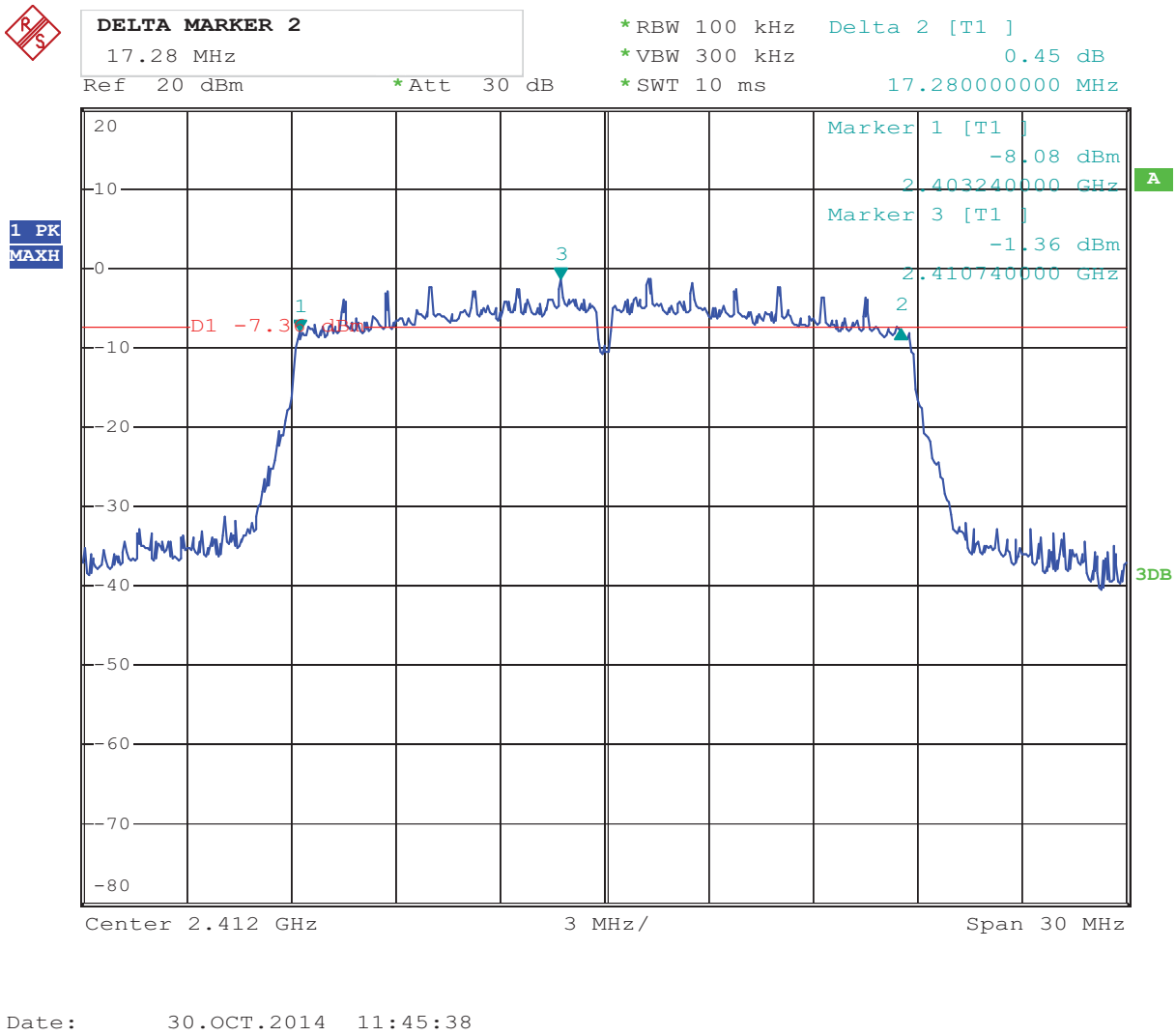
8. 802.11g at 54 Mbps of CH06



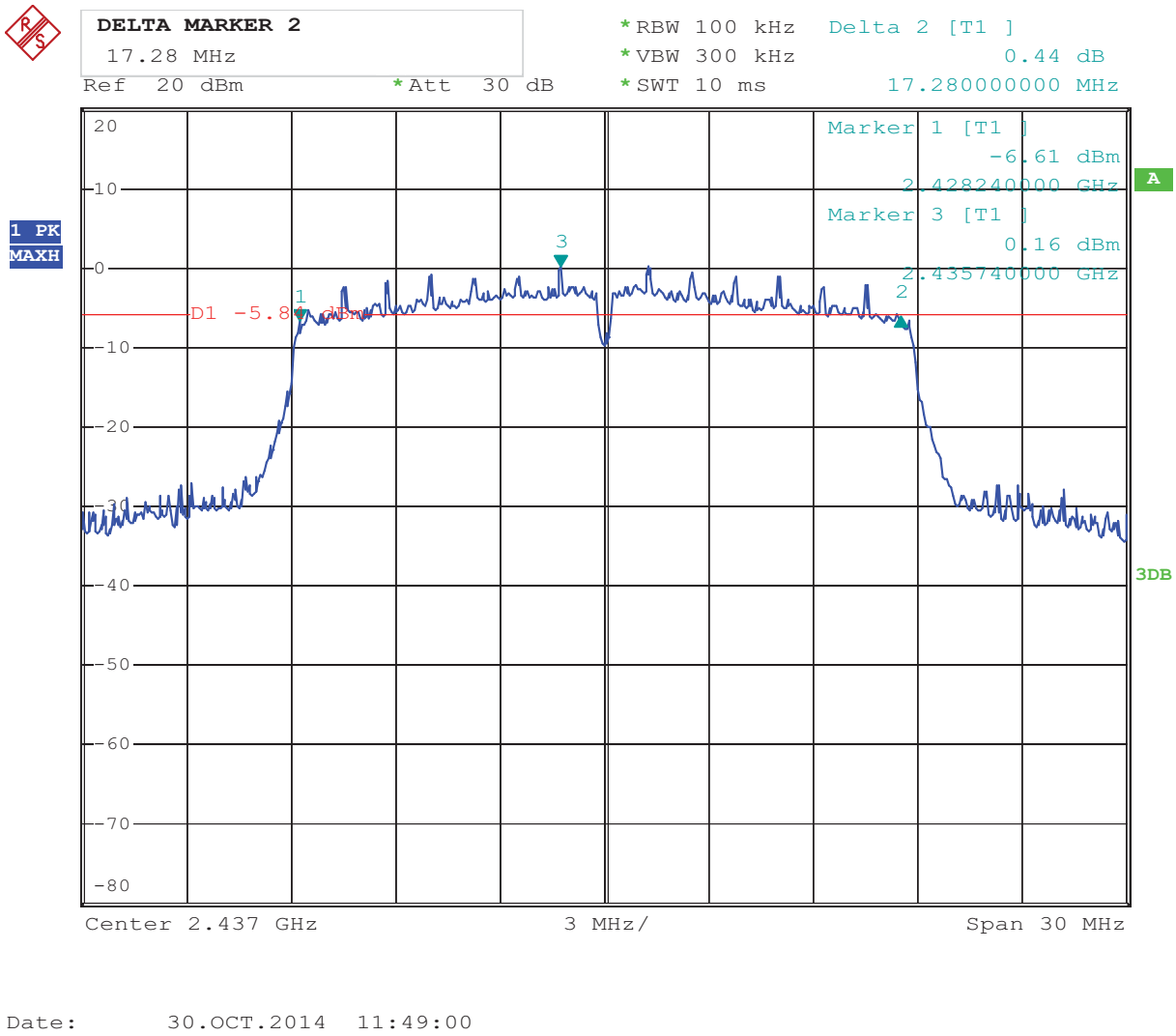
9. 802.11g at 54 Mbps of CH11



10. 802.11n at HT20 of CH01

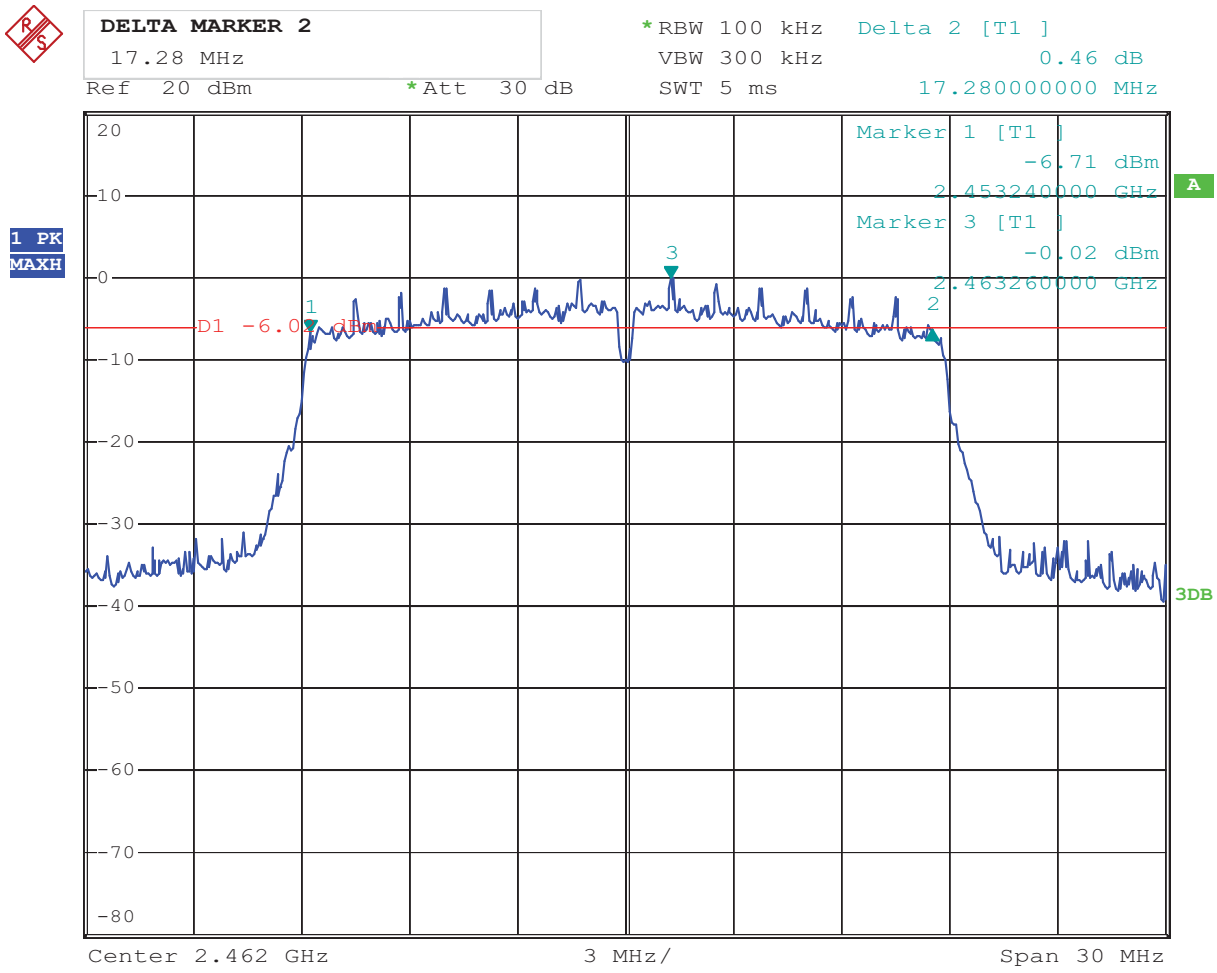


11. 802.11n at HT20 of CH06



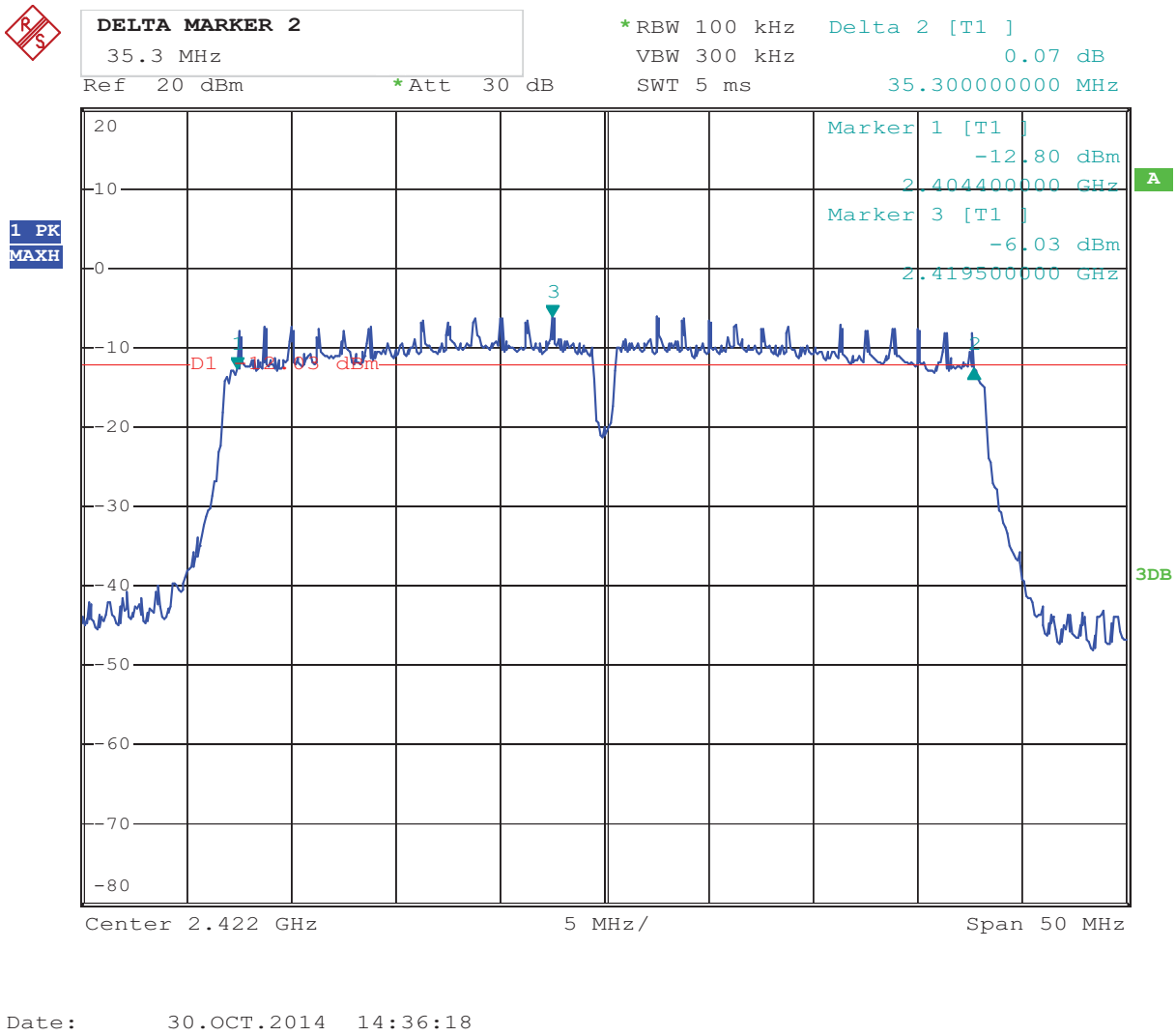
Date: 30.OCT.2014 11:49:00

12. 802.11n at HT20 of CH11

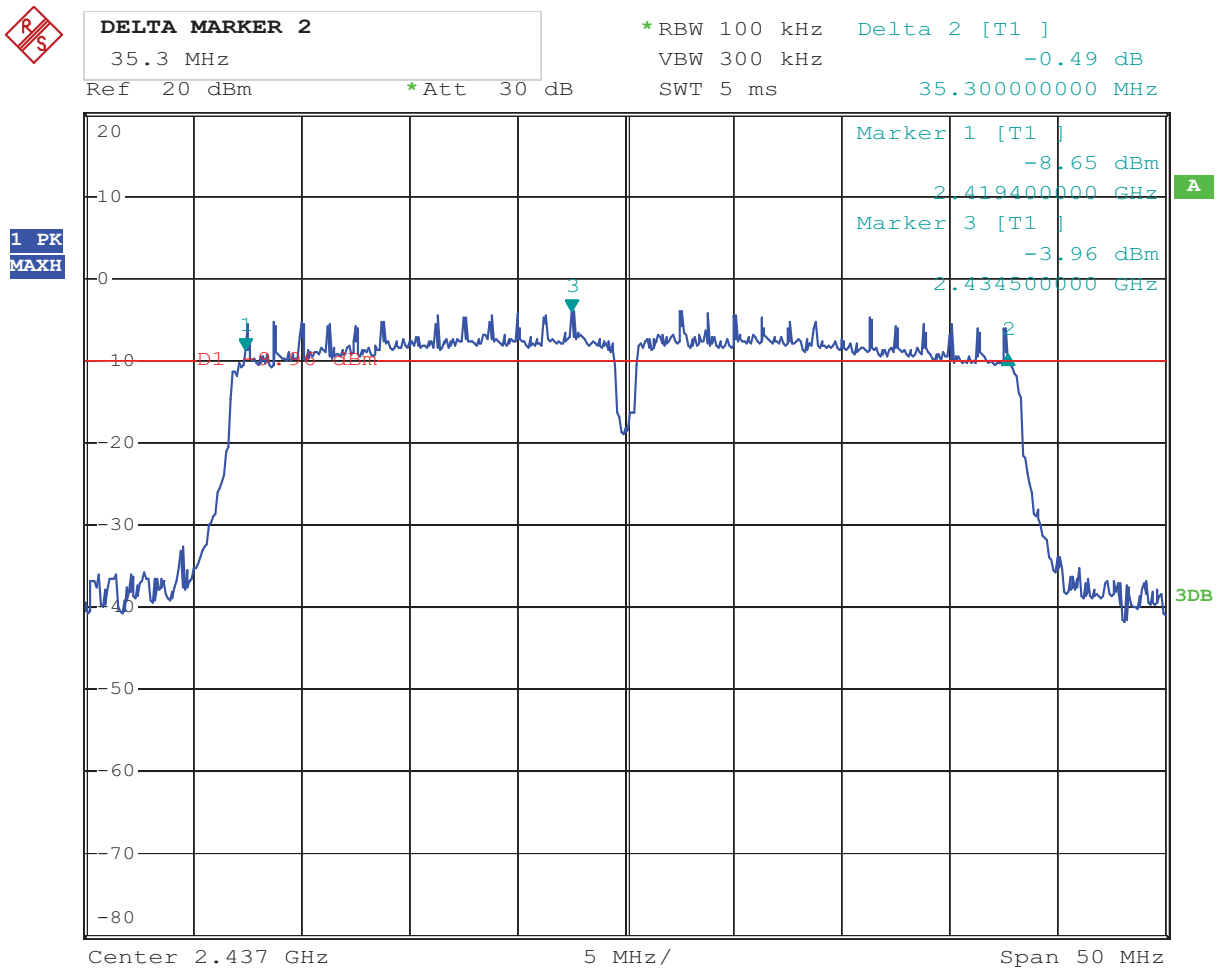


Date: 30.OCT.2014 14:34:57

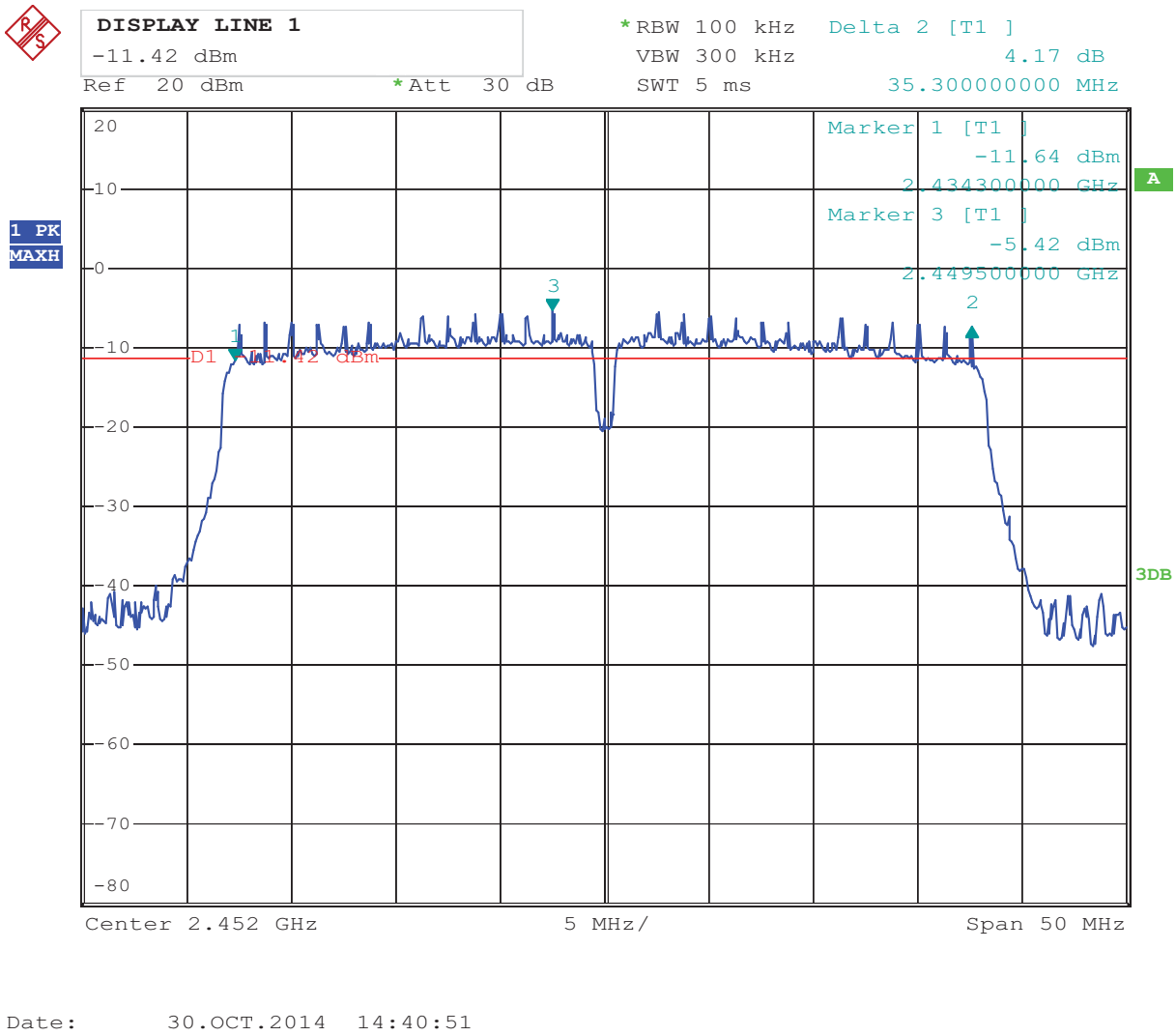
13. 802.11n at HT40 of CH01



14. 802.11n at HT40 of CH04

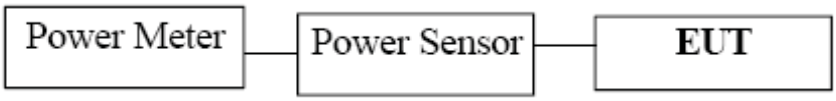


15. 802.11n at HT40 of CH07



8. Maximum Peak Output Power

8.1 Test Setup



8.2 Limits of Maximum Peak Output Power

The Maximum Peak Output Power Measurement is 30dBm.

8.3 Test Procedure

The RF power output was measured with a Power meter connected to the RF Antenna connector (conducted measurement) while EUT was operating in transmit mode at the appropriate centre frequency.

Note: the peak power was measured

Equipment list:

Power meter	Anritsu	ML2487A	6K00003613	2014-08-22	2015-08-21
Power sensor	Anritsu	MA2491A	32263	2014-08-22	2015-08-21

8.4Test Results

EUT	Smart camera	Model	R20\ R21\R22
Mode	802.11b 11Mbps	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass/ Fail
1	2412	19.62	30	Pass
6	2437	20.39	30	Pass
11	2462	**20.83**	30	Pass

Note: 1. At finial test to get the worst-case emission at 11Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

EUT	Smart camera	Model	R20\ R21\R22
Mode	802.11g	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass/ Fail
1	2412	17.72	30	Pass
6	2437	19.49	30	Pass
11	2462	19.10	30	Pass

Note: 1. At finial test to get the worst-case emission at 54Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

EUT	Smart camera	Model	R20\ R21\R22
Mode	802.11n HT20	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass/ Fail
1	2412	17.69	30	Pass
6	2437	19.60	30	Pass
11	2462	19.09	30	Pass

Note: 1. At finial test to get the worst-case emission at 65Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

EUT	Smart camera	Model	R20\ R21\R22
Mode	802.11n HT40	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Peak Power Output (dBm)	Peak Power Limit (dBm)	Pass/ Fail
1	2422	16.20	30	Pass
4	2437	18.28	30	Pass
7	2452	16.37	30	Pass

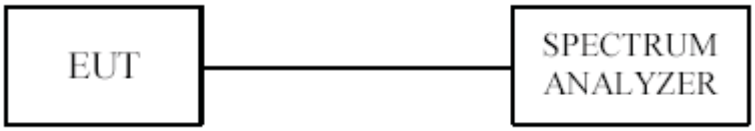
Note: 1. At finial test to get the worst-case emission at 65Mbps for CH01, CH06 and CH11

2. The result basic equation calculation as follow:

Peak Power Output = Peak Power Reading + Cable loss + Attenuator

9. Power Spectral Density Measurement

9.1 Test Setup



9.2 Limits of Power Spectral Density Measurement

The Maximum Power Spectral Density Measurement is 8dBm.

9.3 Test Procedure

1. Use this procedure when the maximum peak conducted output power in the fundamental emission is used to demonstrate compliance.
2. Set the RBW = 10 kHz.
3. Set the VBW ≥ 30 kHz.
4. Set the span to 1.5 times the DTS channel bandwidth.
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.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.
11. The resulting peak PSD level must be ≤ 8 dBm.

9.4Test Result

EUT	Smart camera	Model	R20\ R21\R22
Mode	802.11b 1Mbps	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Final RF Power Level (dBm)	Maximum Limit (dBm)	Pass/ Fail
1Mbps				
1	2412	-5.12	8	Pass
6	2437	-4.37	8	Pass
11	2462	-3.47	8	Pass

Note: At finial test to get the worst-case emission at 1Mbps for CH01, CH06 and CH11

EUT	Smart camera	Model	R20\ R21\R22
Mode	802.11b 11Mbps	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Final RF Power Level (dBm)	Maximum Limit (dBm)	Pass/ Fail
11Mbps				
1	2412	-4.63	8	Pass
6	2437	-4.73	8	Pass
11	2462	-4.76	8	Pass

Note: At finial test to get the worst-case emission at 11Mbps for CH01, CH06 and CH11

EUT	Smart camera	Model	R20\ R21\R22
Mode	802.11g	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Final RF Power Level (dBm)	Maximum Limit (dBm)	Pass/ Fail
54Mbps				
1	2412	-10.00	8	Pass
6	2437	-7.96	8	Pass
11	2462	-8.59	8	Pass

Note: At finial test to get the worst-case emission at 54Mbps for CH01, CH06 and CH11

EUT	Smart camera	Model	R20\ R21\R22
Mode	802.11n HT20	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Final RF Power Level (dBm)	Maximum Limit (dBm)	Pass/ Fail
11n HT20				
1	2412	-8.72	8	Pass
6	2437	-9.04	8	Pass
11	2462	-8.97	8	Pass

Note: At finial test to get the worst-case emission at 65M for CH01, CH06 and CH11

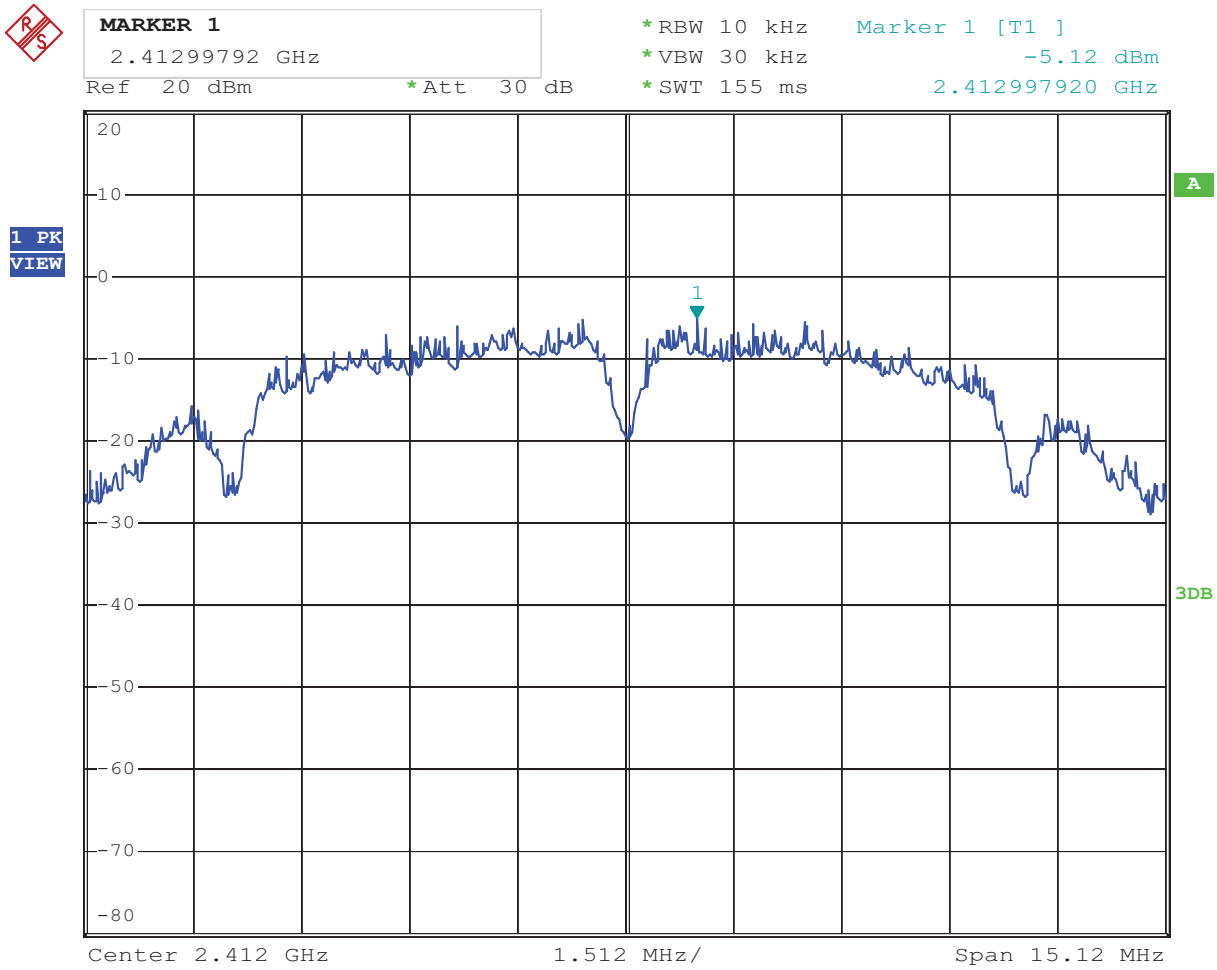
EUT	Smart camera	Model	R20\ R21\R22
Mode	802.11n HT40	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH

Channel	Channel Frequency (MHz)	Final RF Power Level (dBm)	Maximum Limit (dBm)	Pass/ Fail
11n HT40				
1	2422	-15.64	8	Pass
4	2437	-13.29	8	Pass
7	2452	-14.45	8	Pass

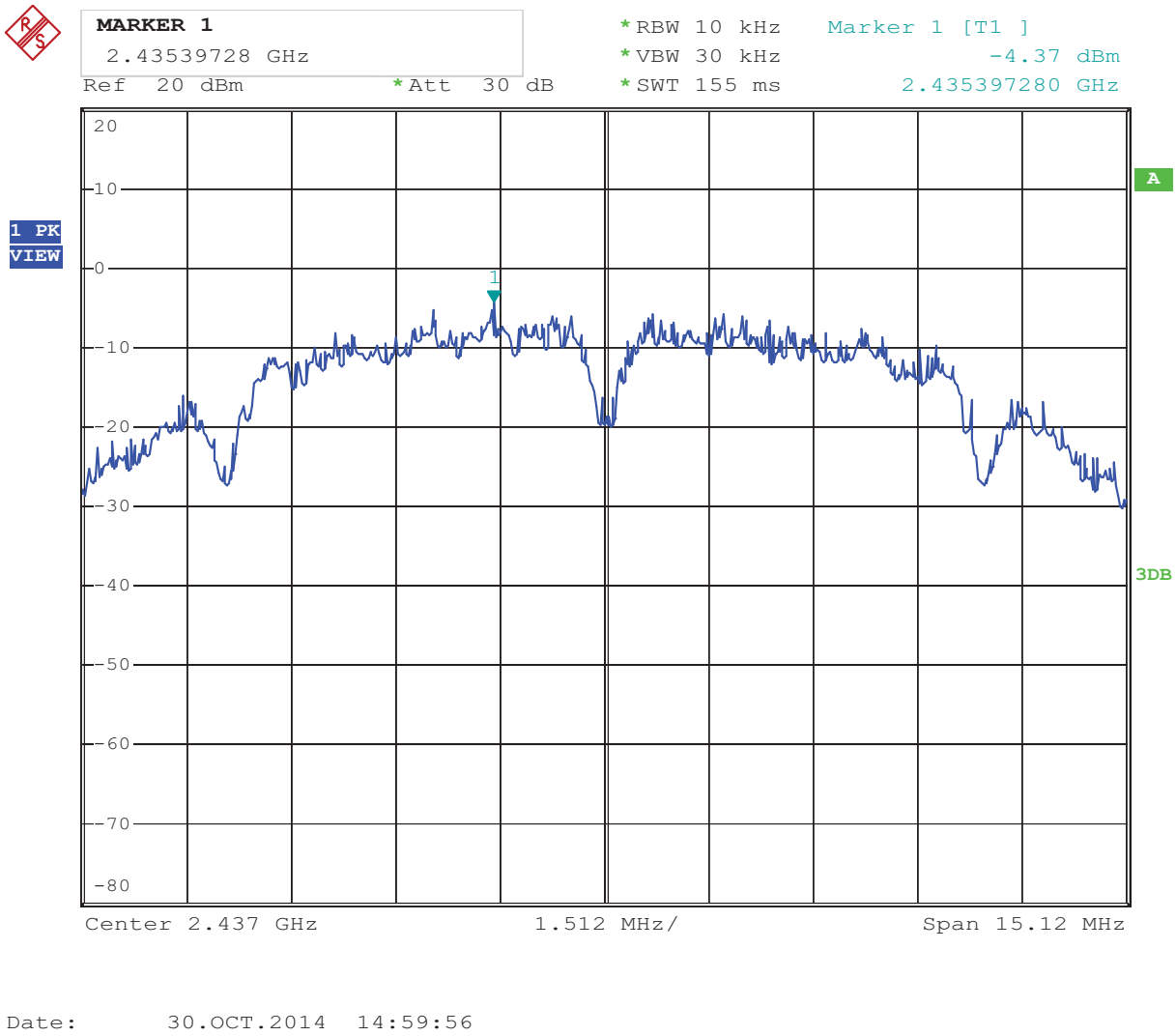
Note: At finial test to get the worst-case emission at 65Mfor CH01, CH04 and CH07

9.5 Photo of Power Spectral Density Measurement

1. 802.11b at 1Mbps of CH01

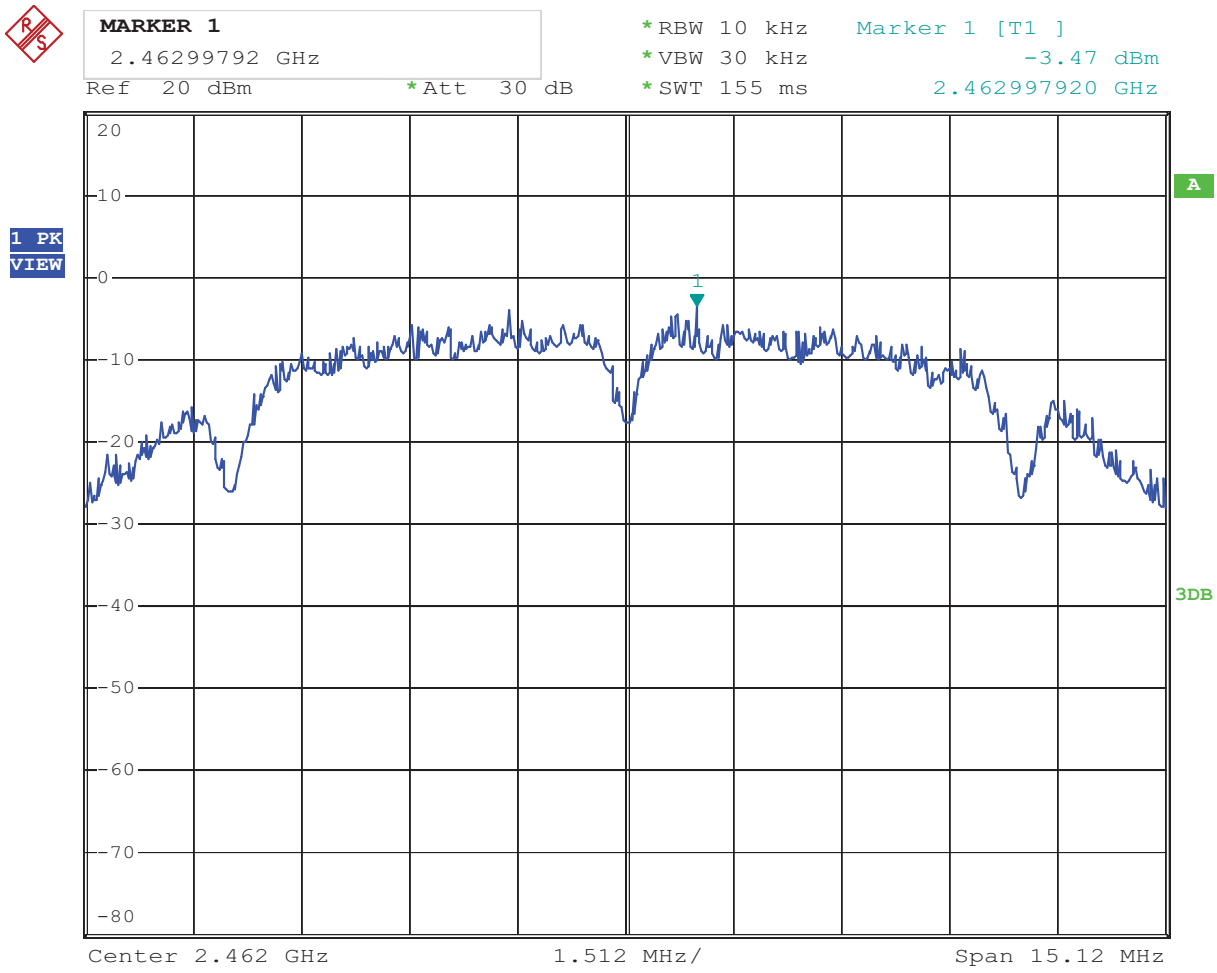


2. 802.11b at 1Mbps of CH06



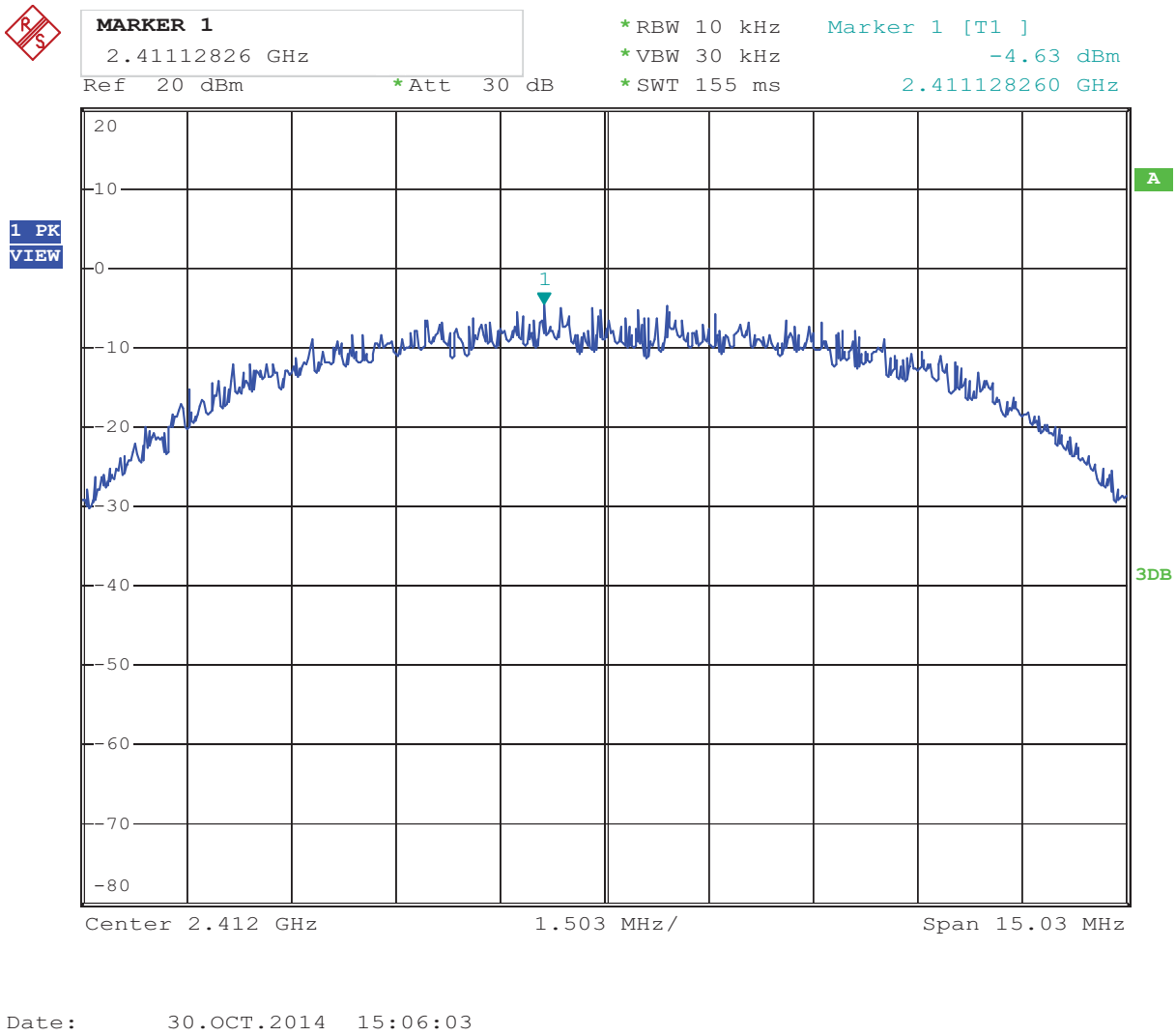
Date: 30.OCT.2014 14:59:56

3. 802.11b at 1Mbps of CH11

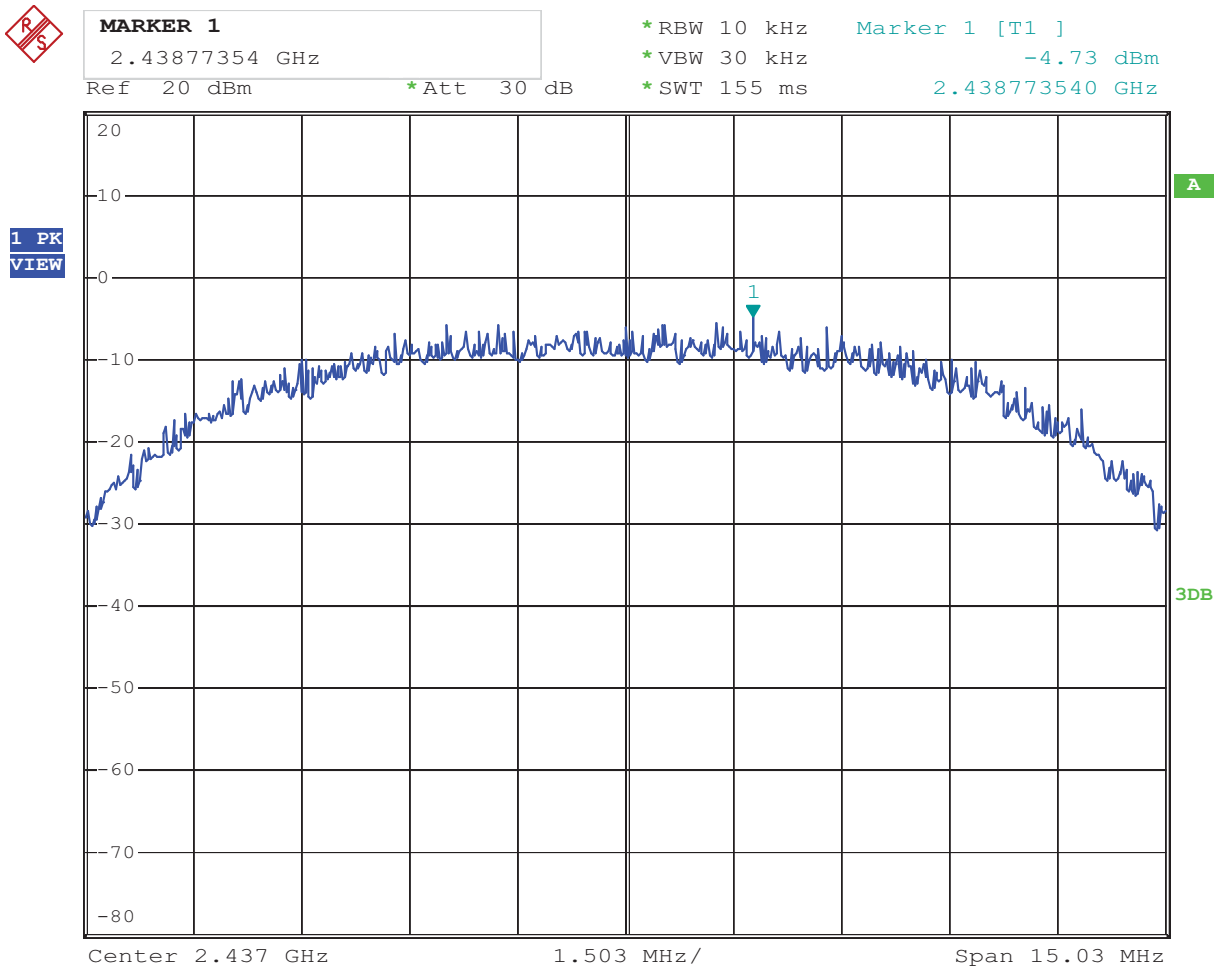


Date: 30.OCT.2014 15:00:23

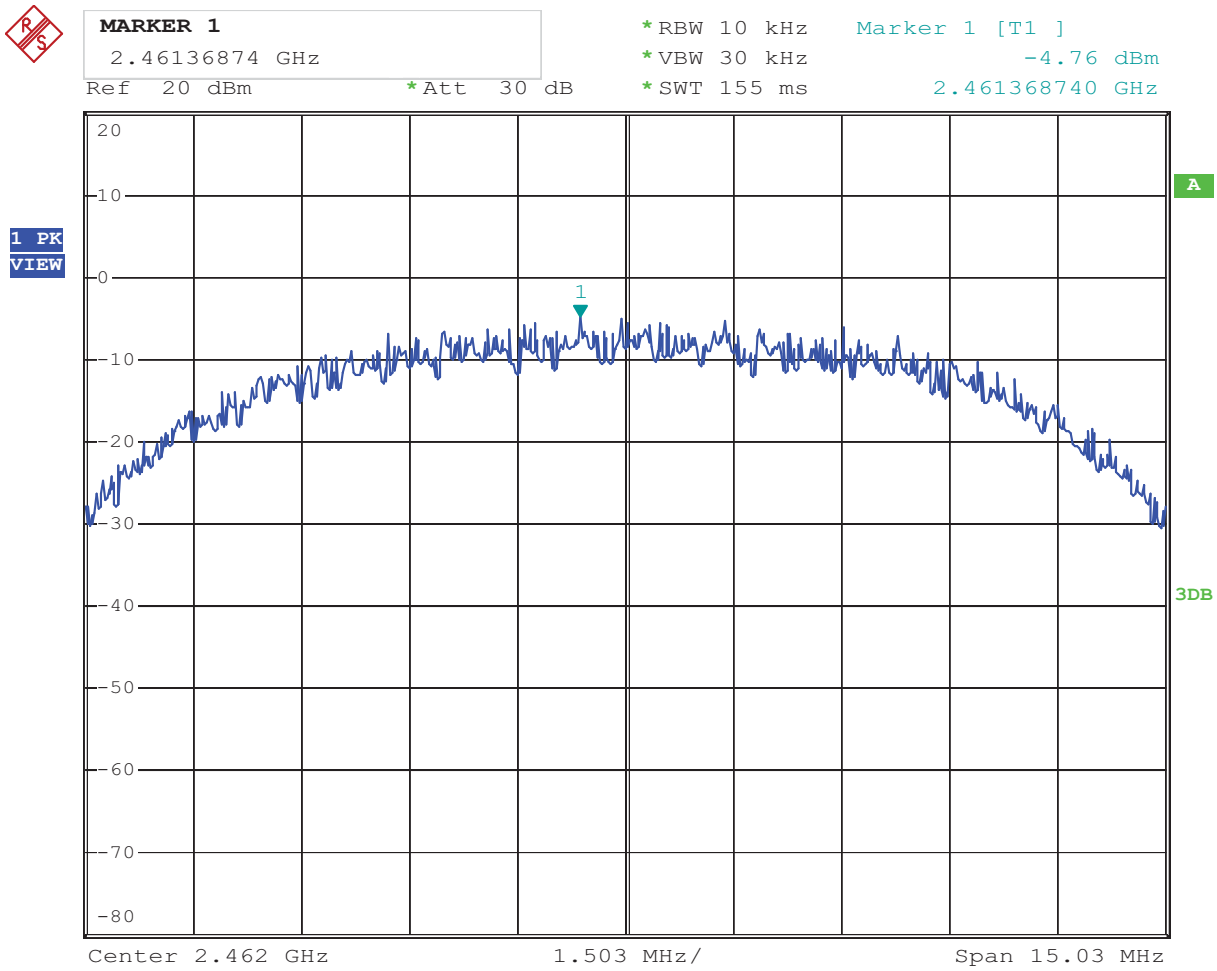
4. 802.11b at 11Mbps of CH01



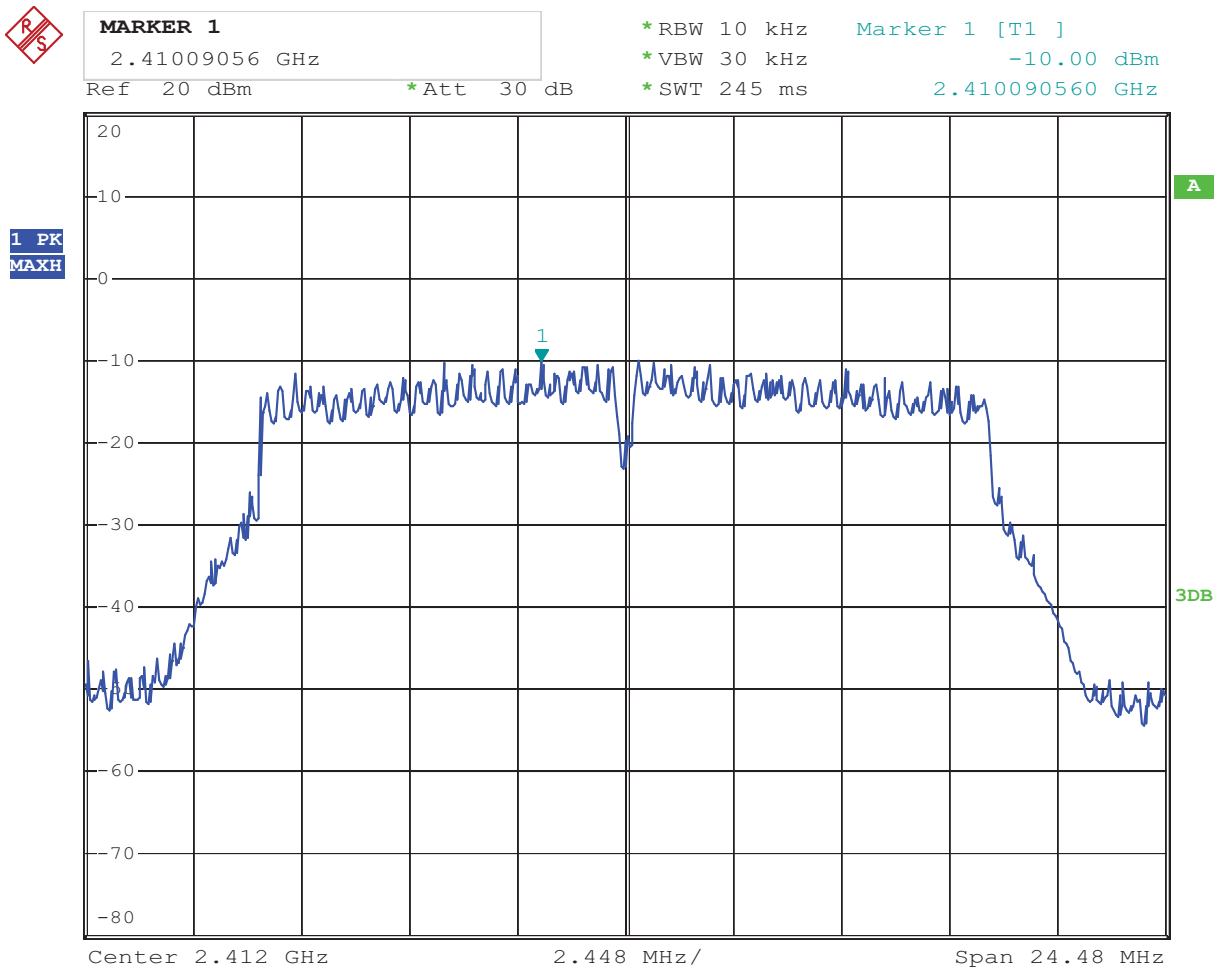
5. 802.11b at 11Mbps of CH06



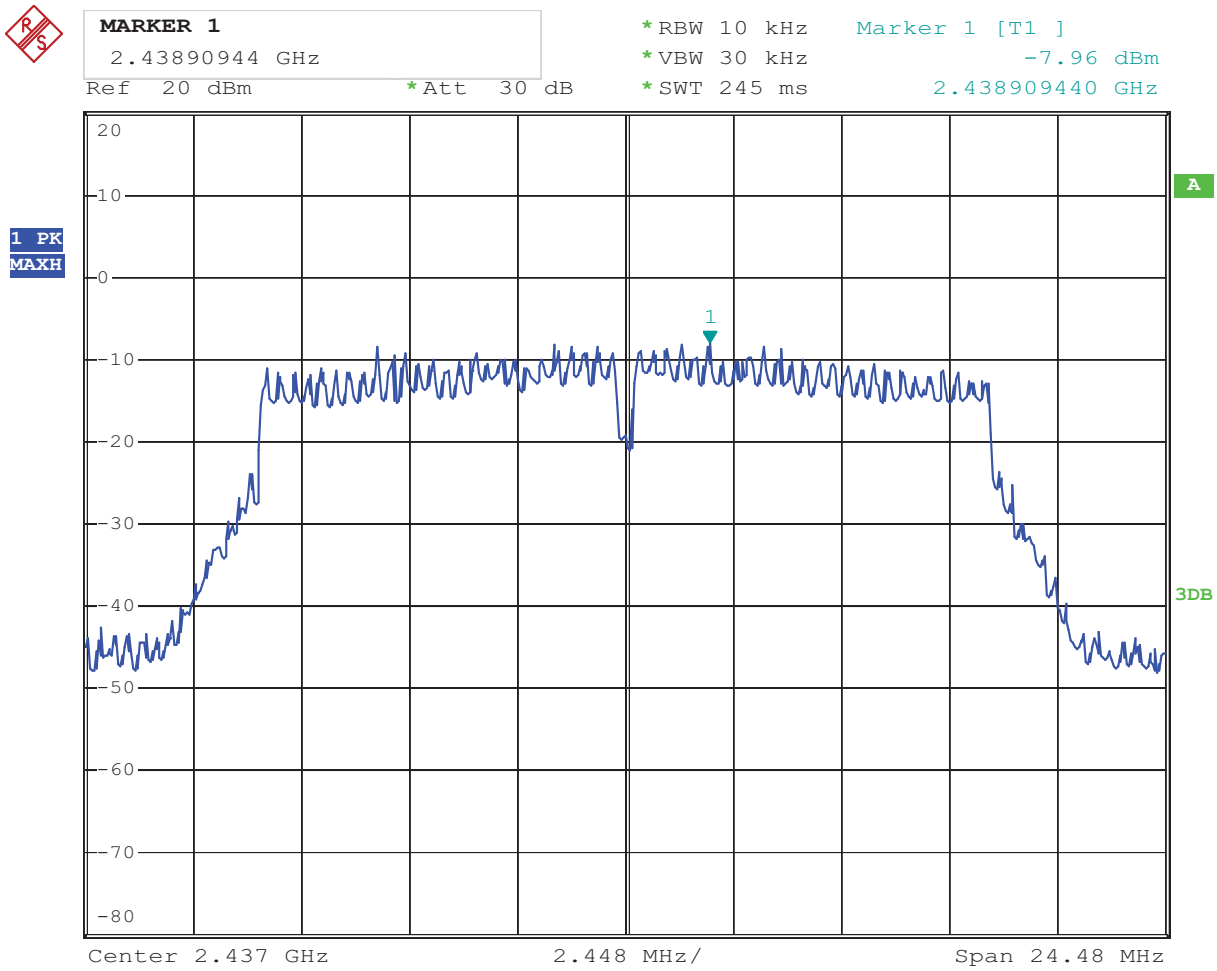
6. 802.11b at 11Mbps of CH11



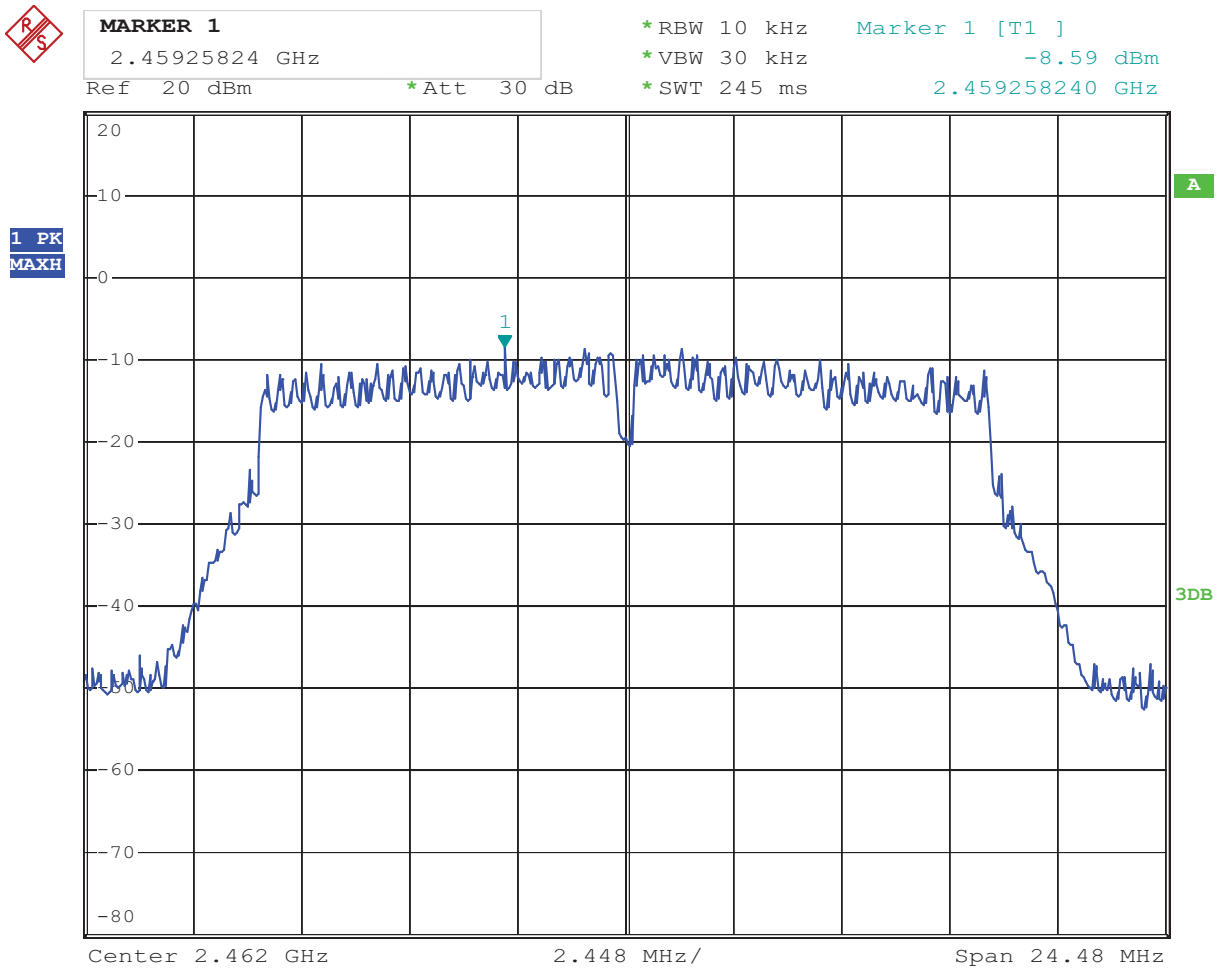
7. 802.11g at 54Mbps of CH1



8. 802.11g at 54Mbps of CH6

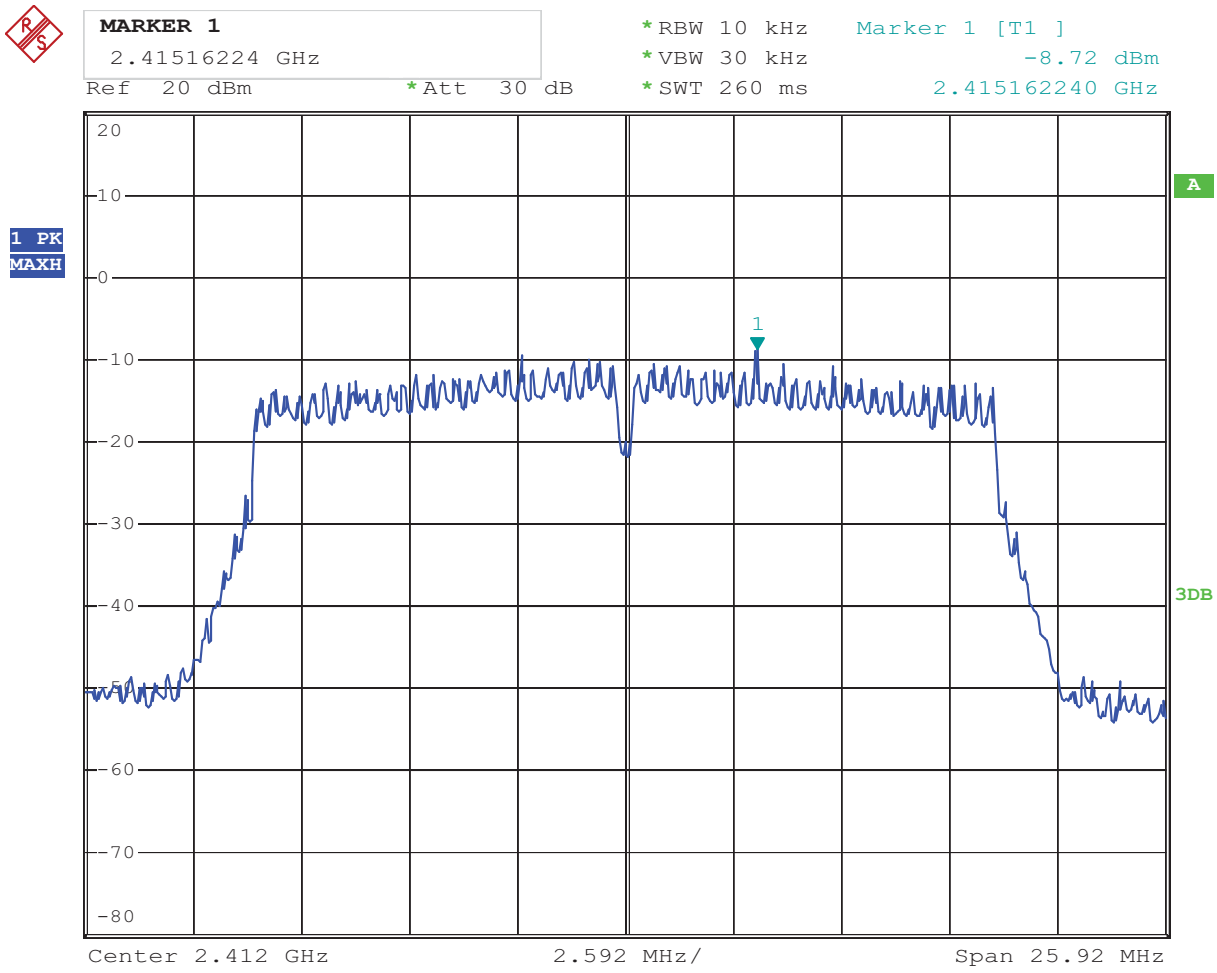


9. 802.11g at 54Mbps of CH11

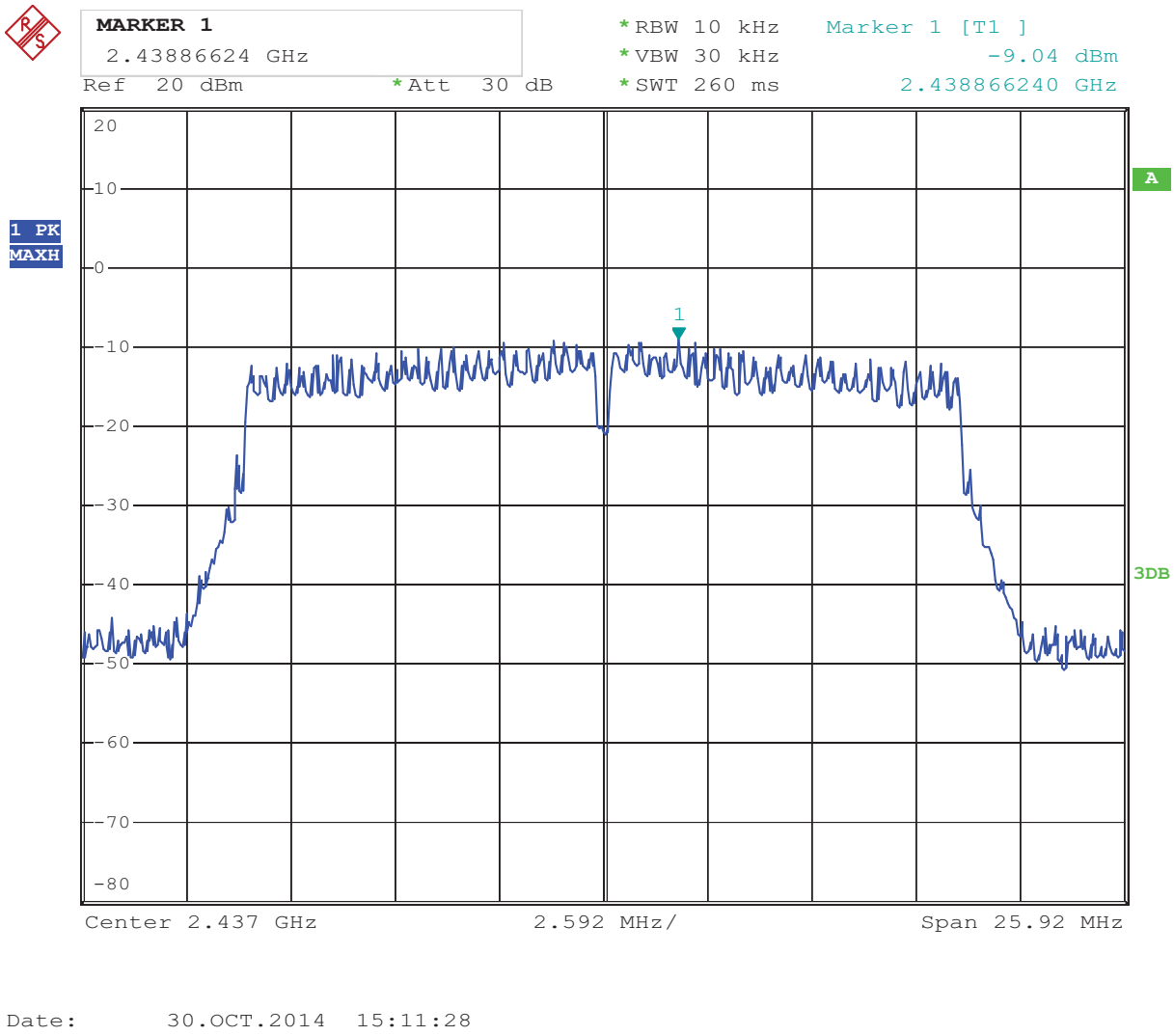


Date: 30.OCT.2014 15:09:54

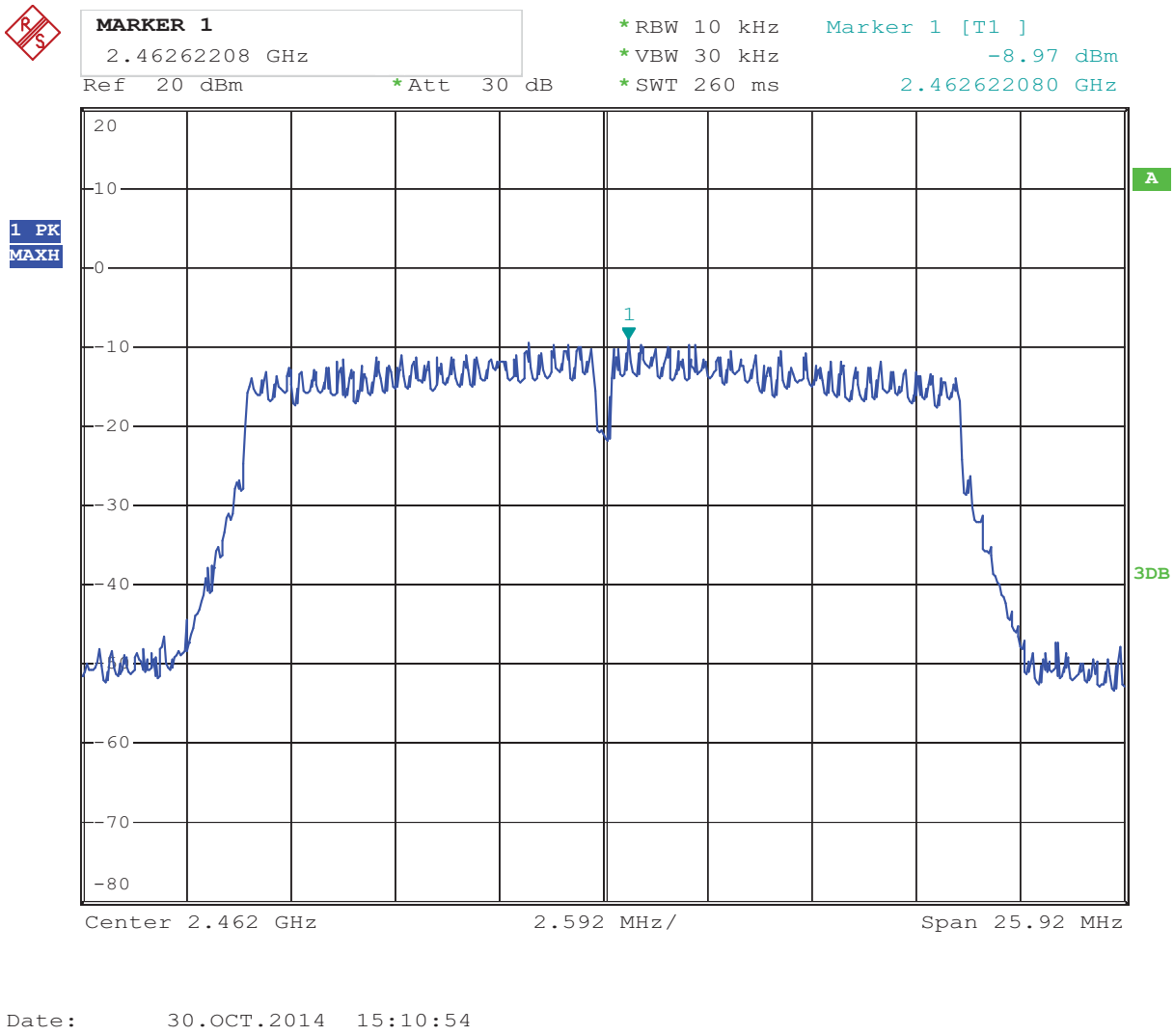
10. 802.11n at HT20 of CH01 65Mbps



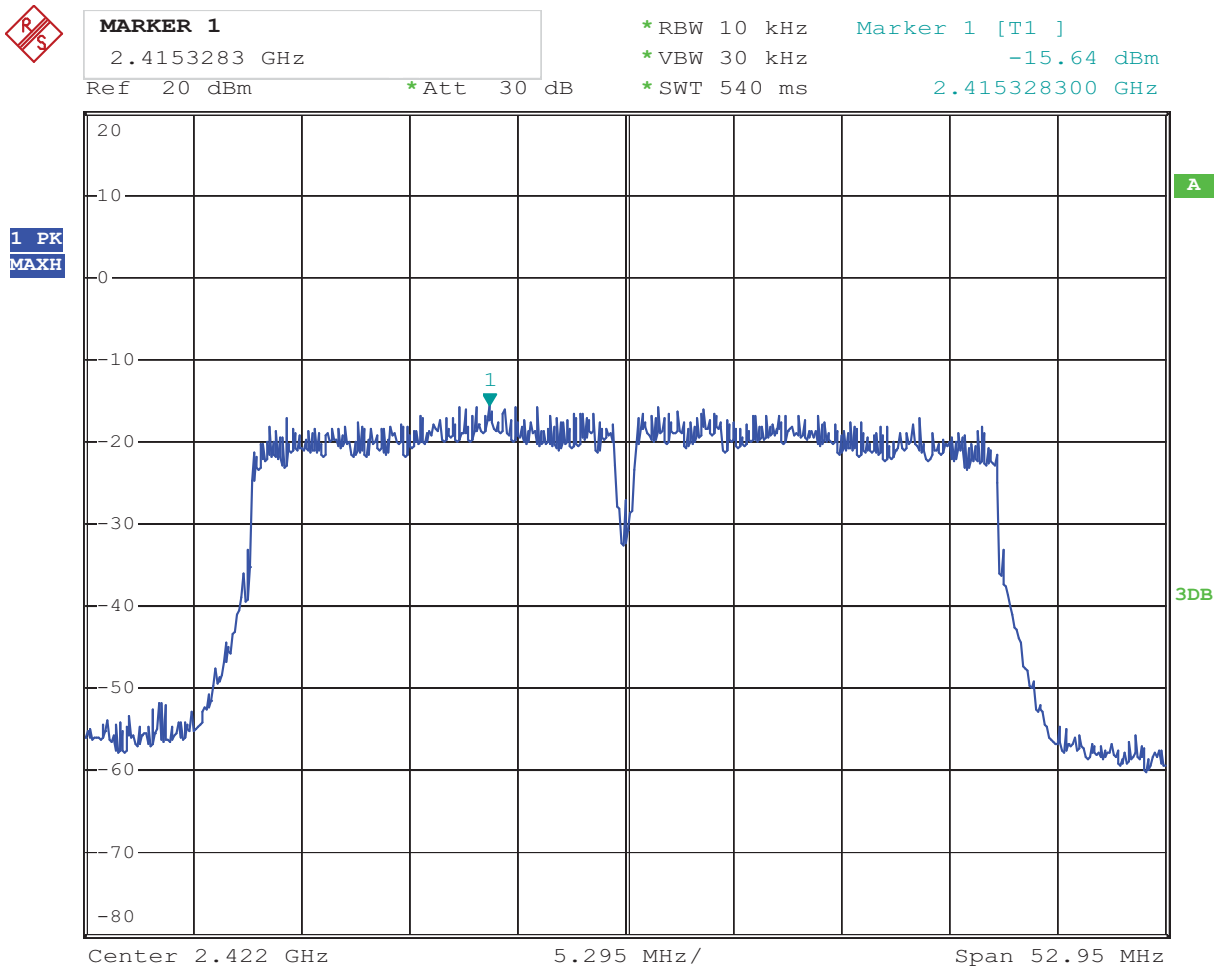
11. 802.11n at HT20 of CH06 65Mbps



12. 802.11n at HT20 of CH11 65Mbps

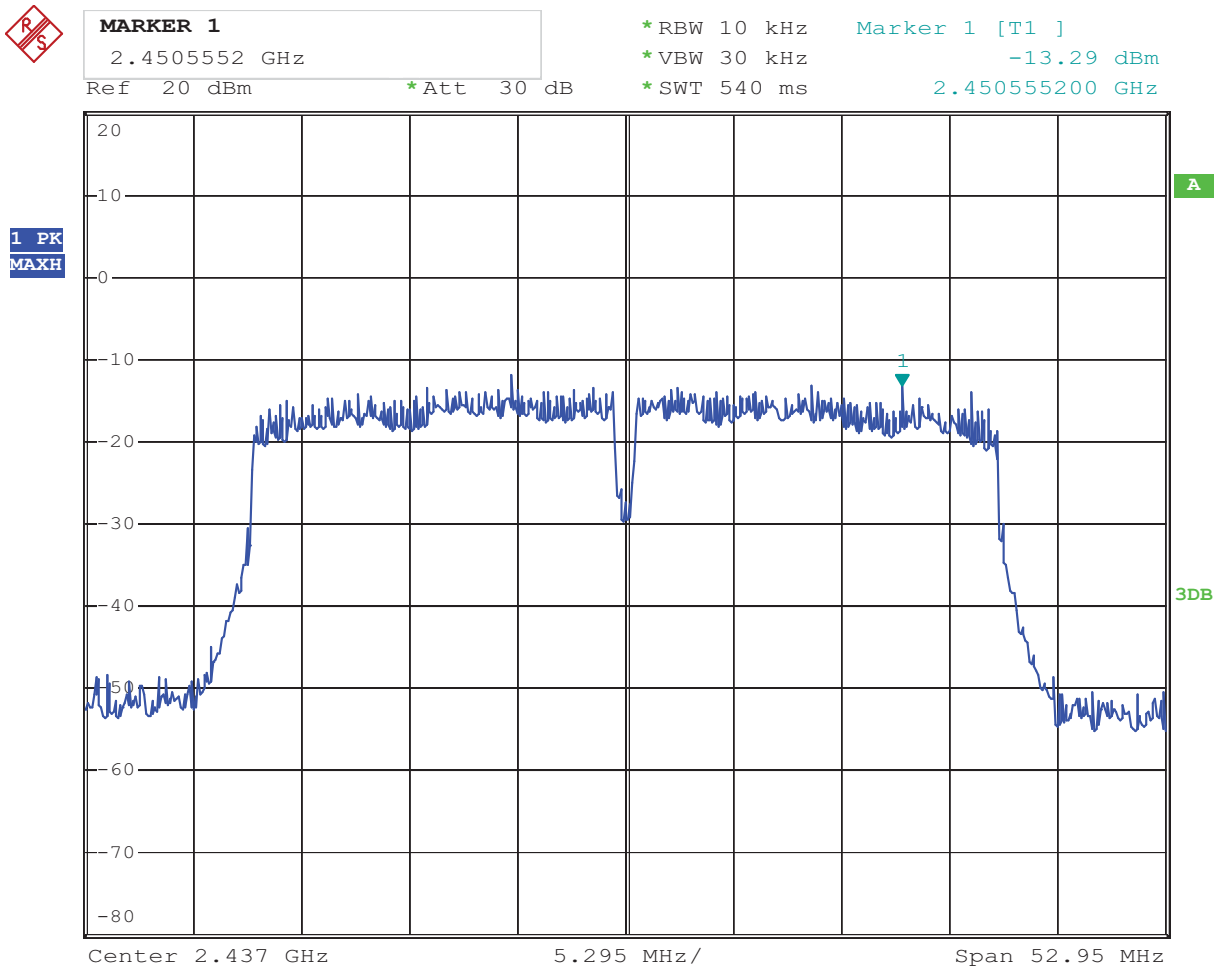


13. 802.11n at HT40 of CH01 65Mbps



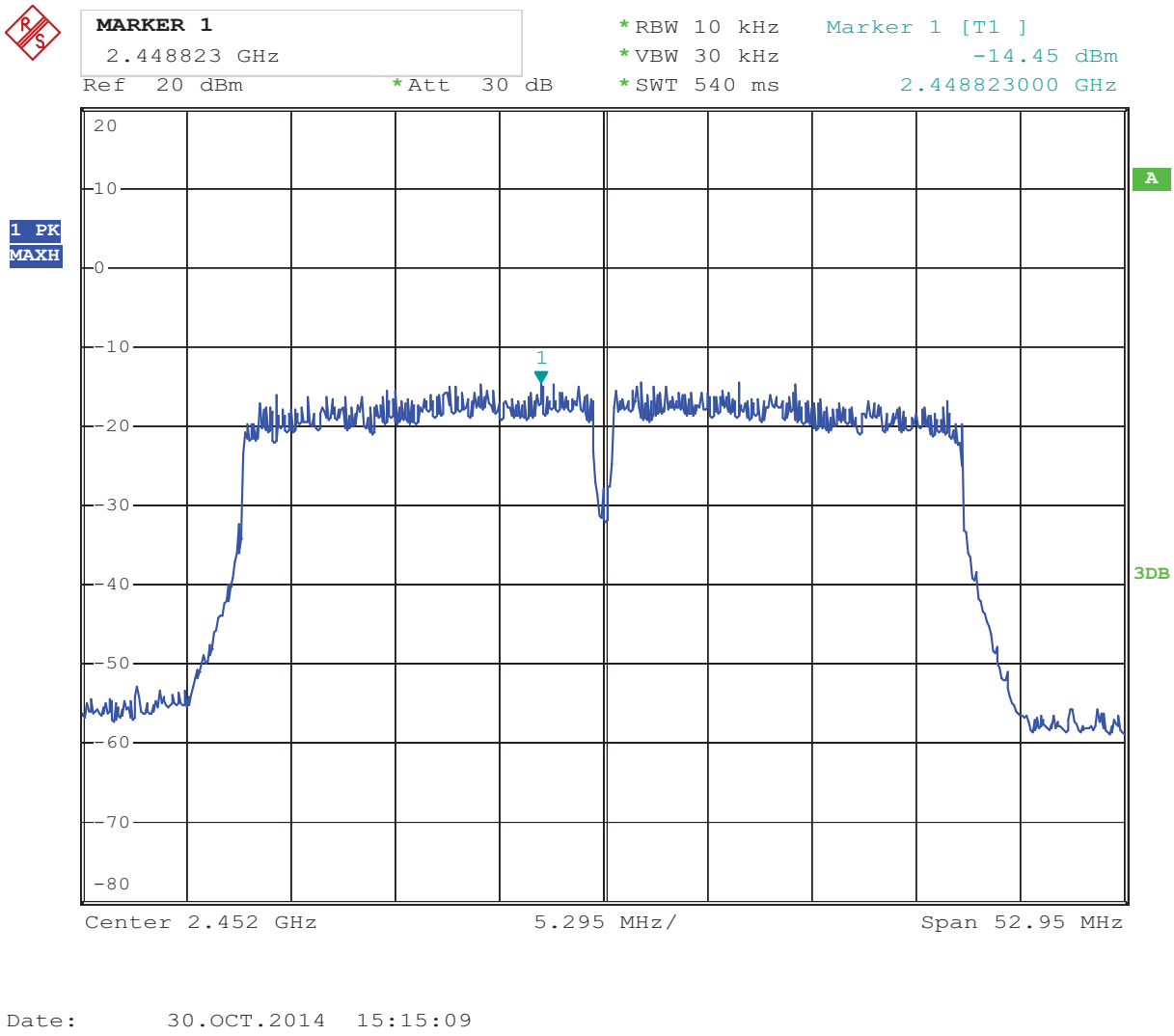
Date: 30.OCT.2014 15:13:17

14. 802.11n at HT40 of CH04 65Mbps



Date: 30.OCT.2014 15:14:21

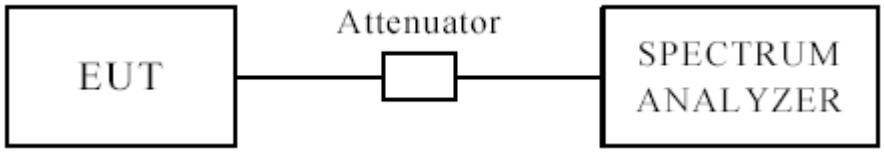
15. 802.11n at HT40 of CH07 65Mbps



Date: 30.OCT.2014 15:15:09

10 Out of Band Measurement

10.1 Test Setup for band edge



The restricted band requirement based on radiated emission test; please see the clause 6 for the test setup

10.2 Limits of Out of Band Emissions Measurement

1. Below –20dB of the highest emission level of operating band (in 100kHz Resolution Bandwidth).
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

10.3 Test Procedure

For signals in the restricted bands above and below the 2.4-2.483GHz allocated band a measurement was made of radiated emission test.(Peak values with RBW=1MHz, VBW=3MHz and PK detector. AV value with RBW=1MHz, VBW=3MHz and RMS detector)

For bandage test, the spectrum set as follows: RBW=100kHz,VBW=300 kHz. A conducted measurement used

10.4 Test Result

Please see next pages

Note: For band-edge measurement, the frequency from 30MHz-25GHz was tested. And It met the FCC rule.

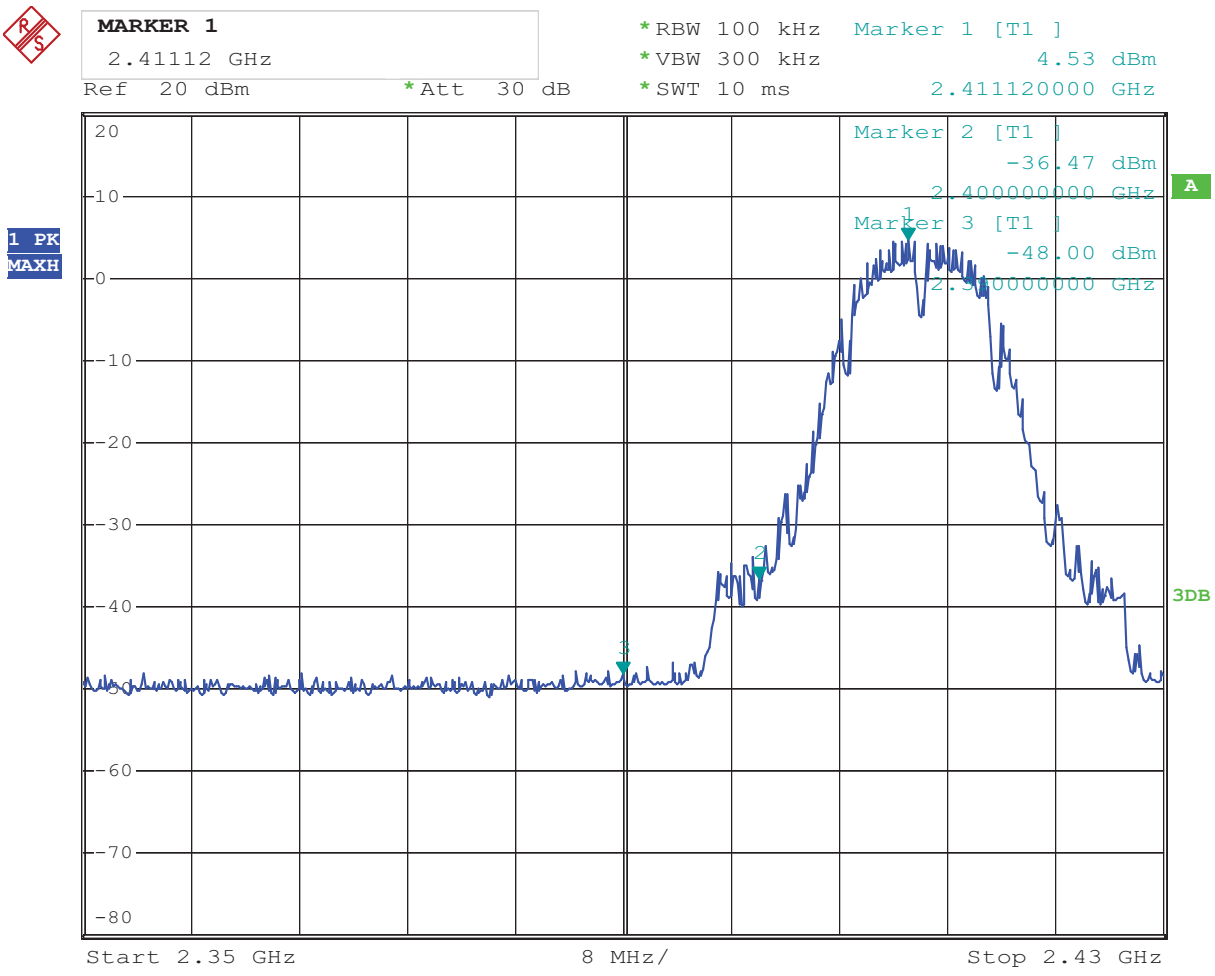
For 802.11b mode

CH01 at 1Mbps

10.4 Band-edge Measurement

EUT	Smart camera	Model	R20\ R21\R22
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



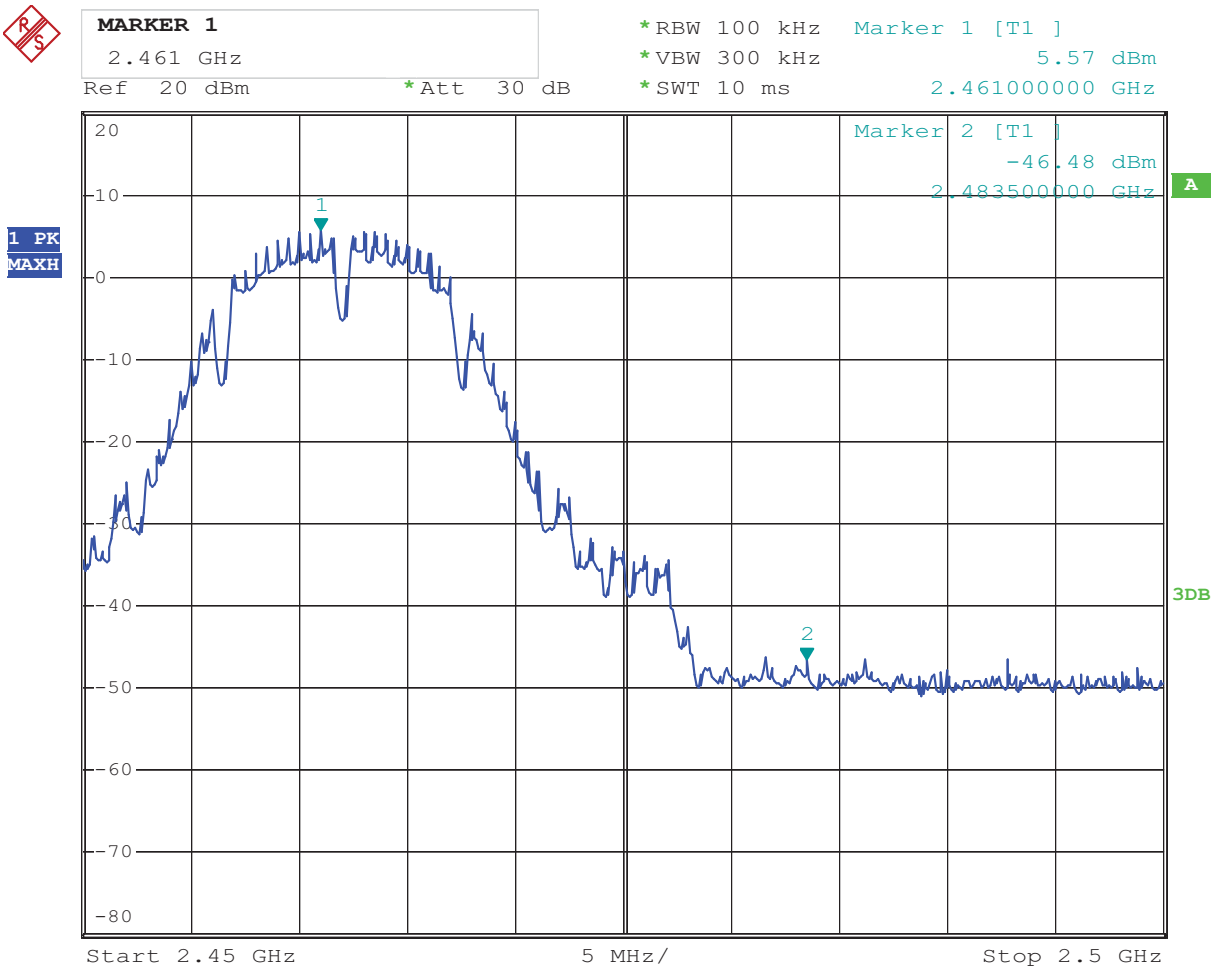
Date: 30.OCT.2014 15:23:45

CH11 at 1Mbps

10.4 Band-edge Measurement

EUT	Smart camera	Model	R20\ R21\R22
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



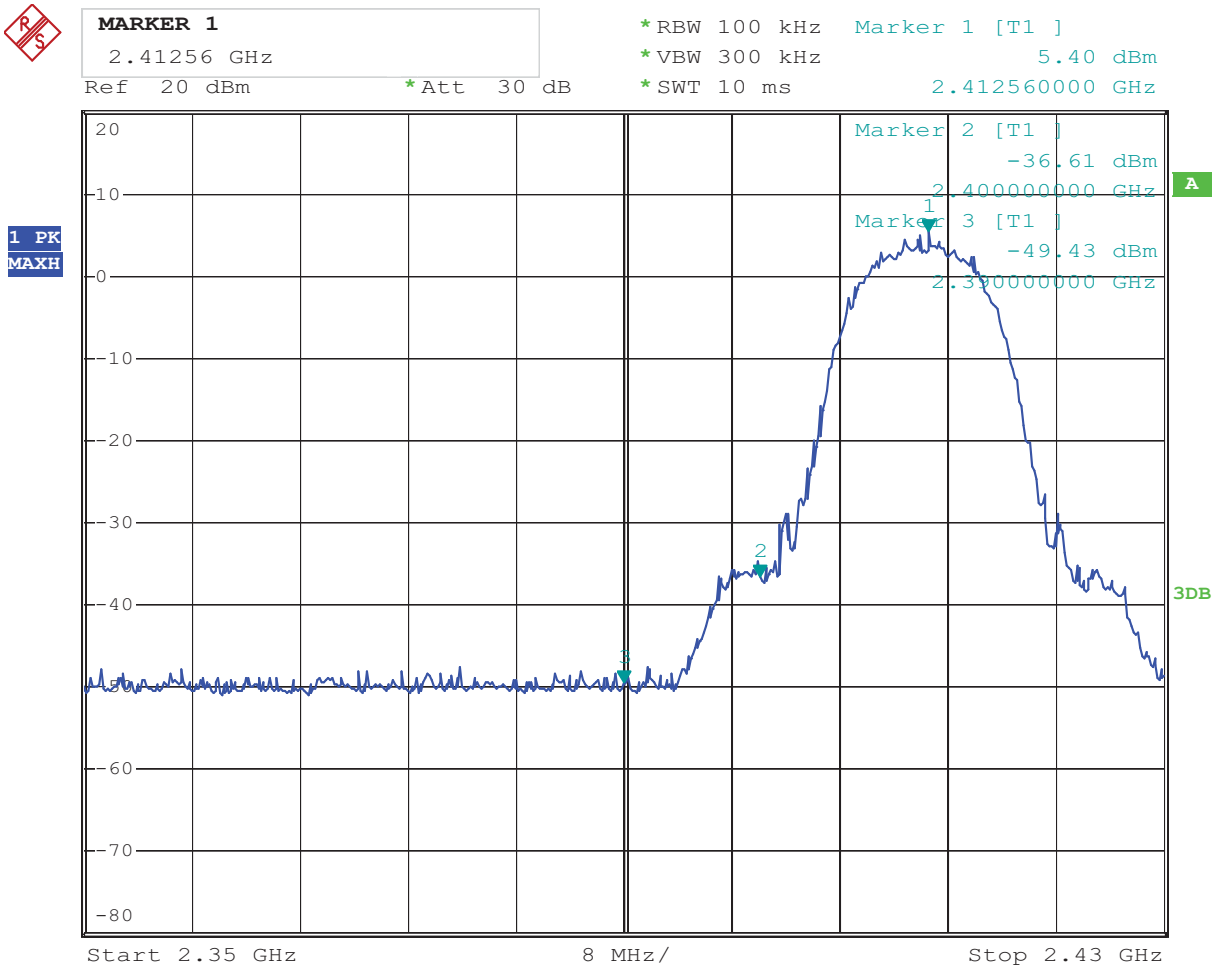
For 802.11b mode

CH01 at 11Mbps

10.4 Band-edge Measurement

EUT	Smart camera	Model	R20\ R21\R22
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



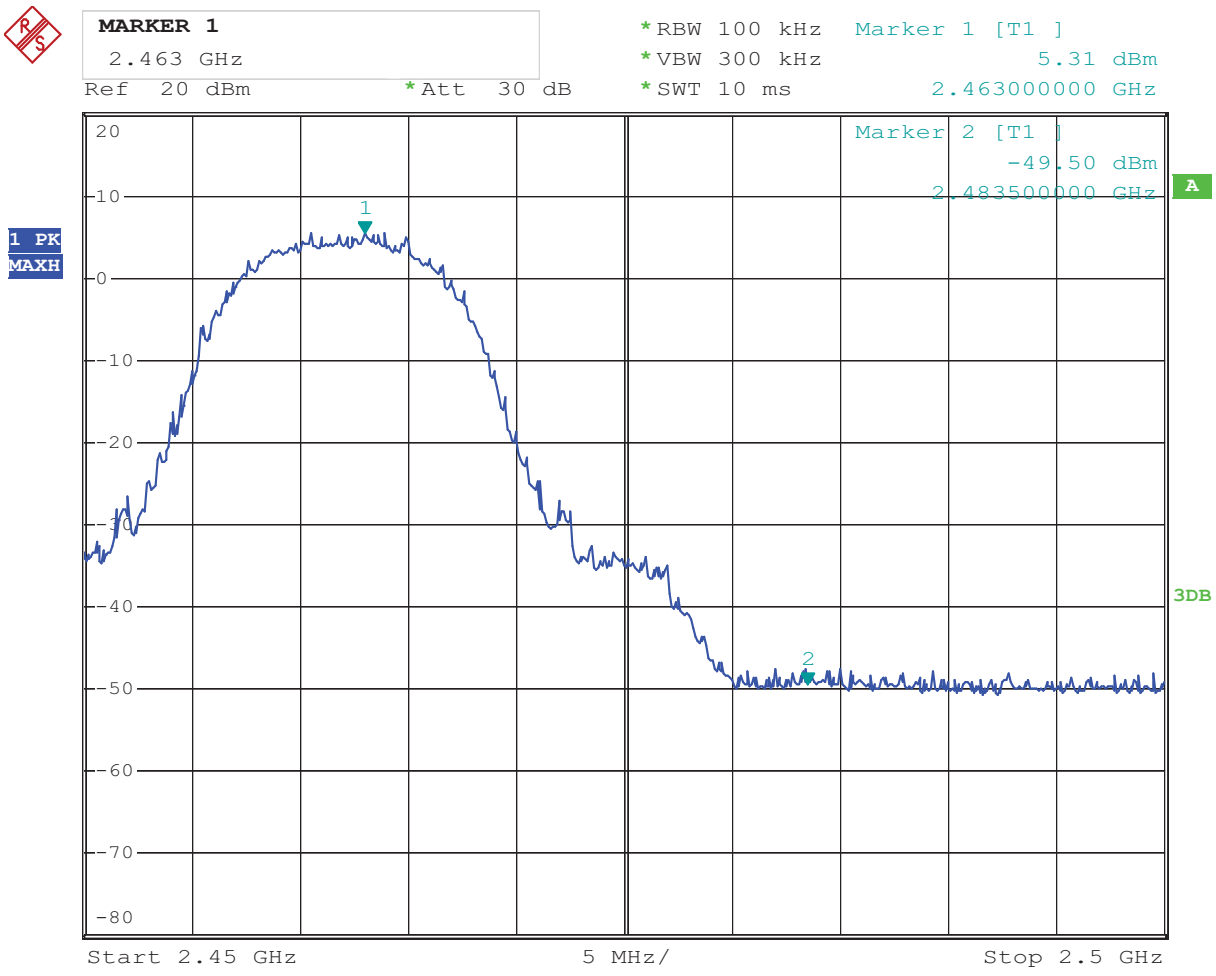
Date: 30.OCT.2014 15:22:10

CH11 at 11Mbps

10.4 Band-edge Measurement

EUT	Smart camera	Model	R20\ R21\R22
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 30.OCT.2014 15:21:19

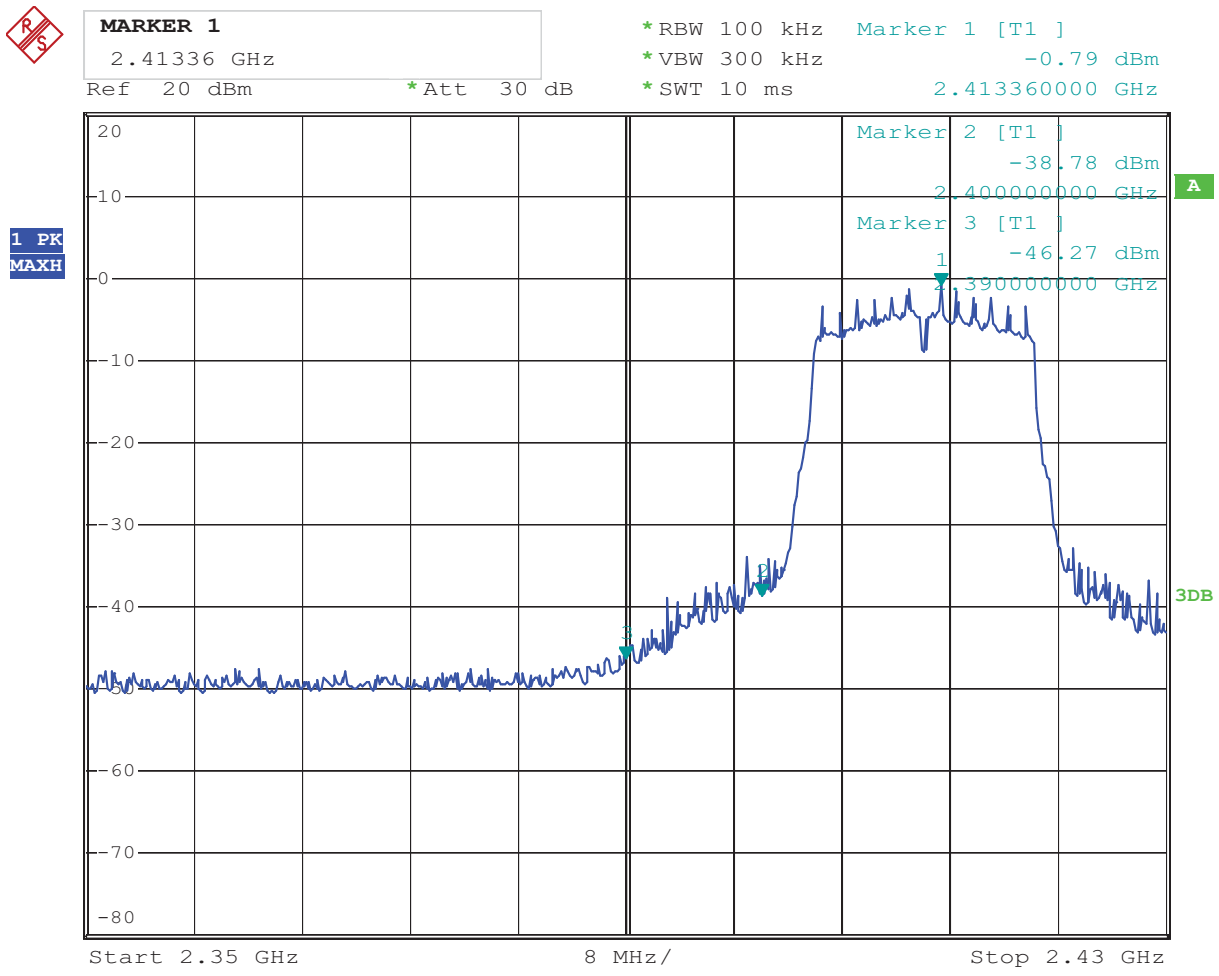
For 802.11g mode

CH01 at 54Mbps

10.4 Band-edge Measurement

EUT	Smart camera	Model	R20\ R21\R22
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



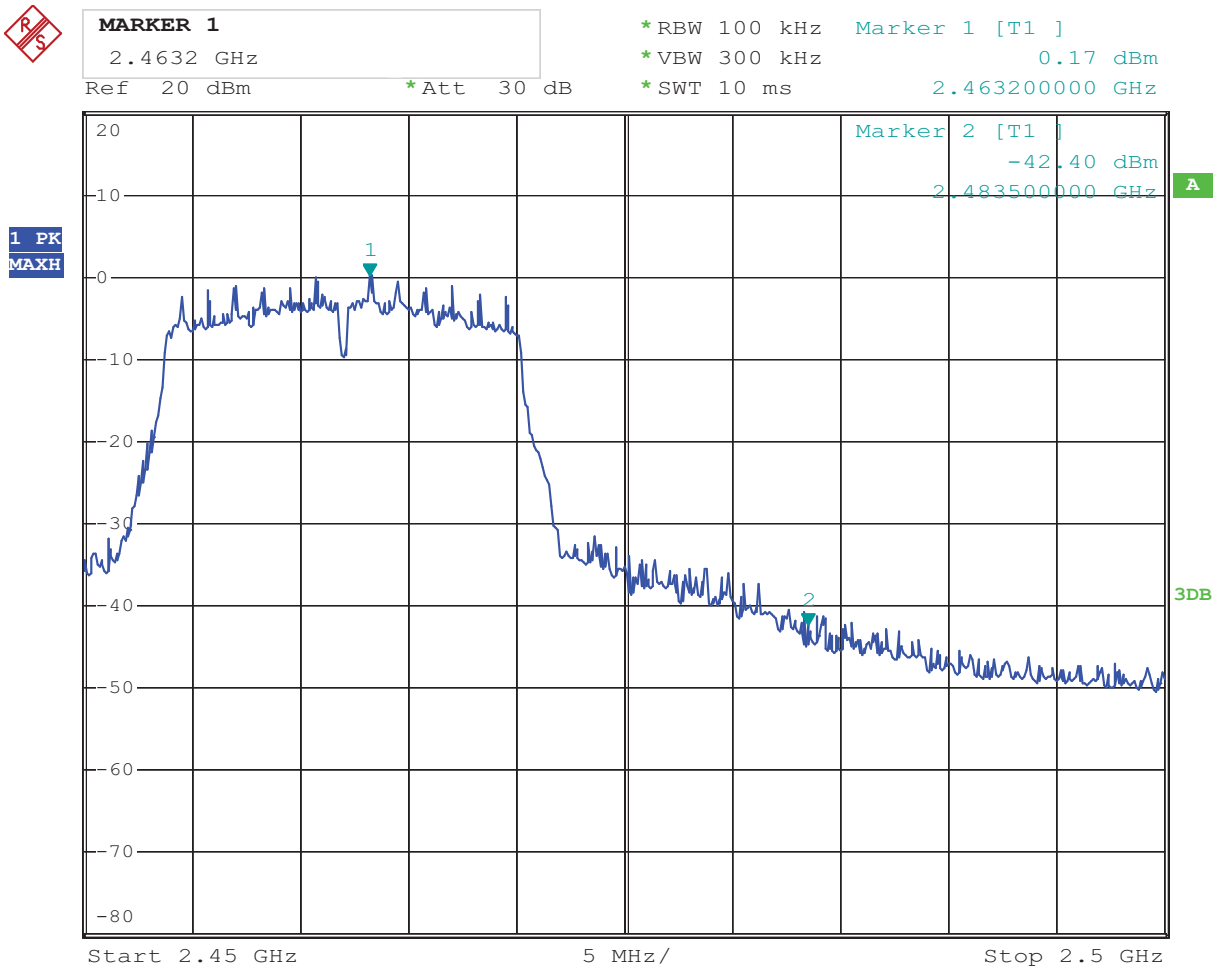
Date: 30.OCT.2014 15:22:51

CH11 at 54Mbps

10.4 Band-edge Measurement

EUT	Smart camera	Model	R20\ R21\R22
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 30.OCT.2014 15:20:41

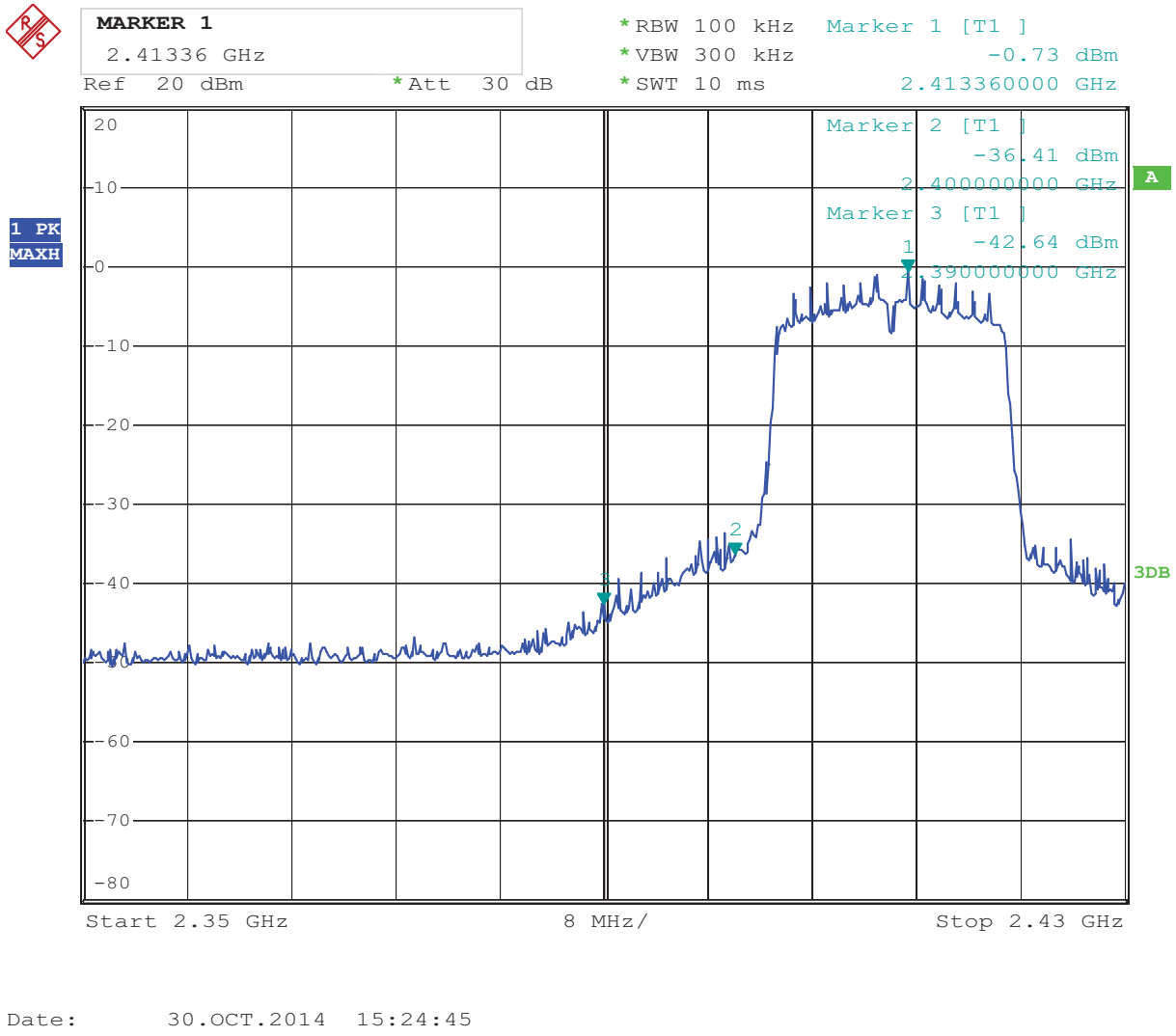
For 802.11n mode

CH01 at HT20 65Mbps

10.4 Band-edge Measurement

EUT	Smart camera	Model	R20\ R21\R22
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:

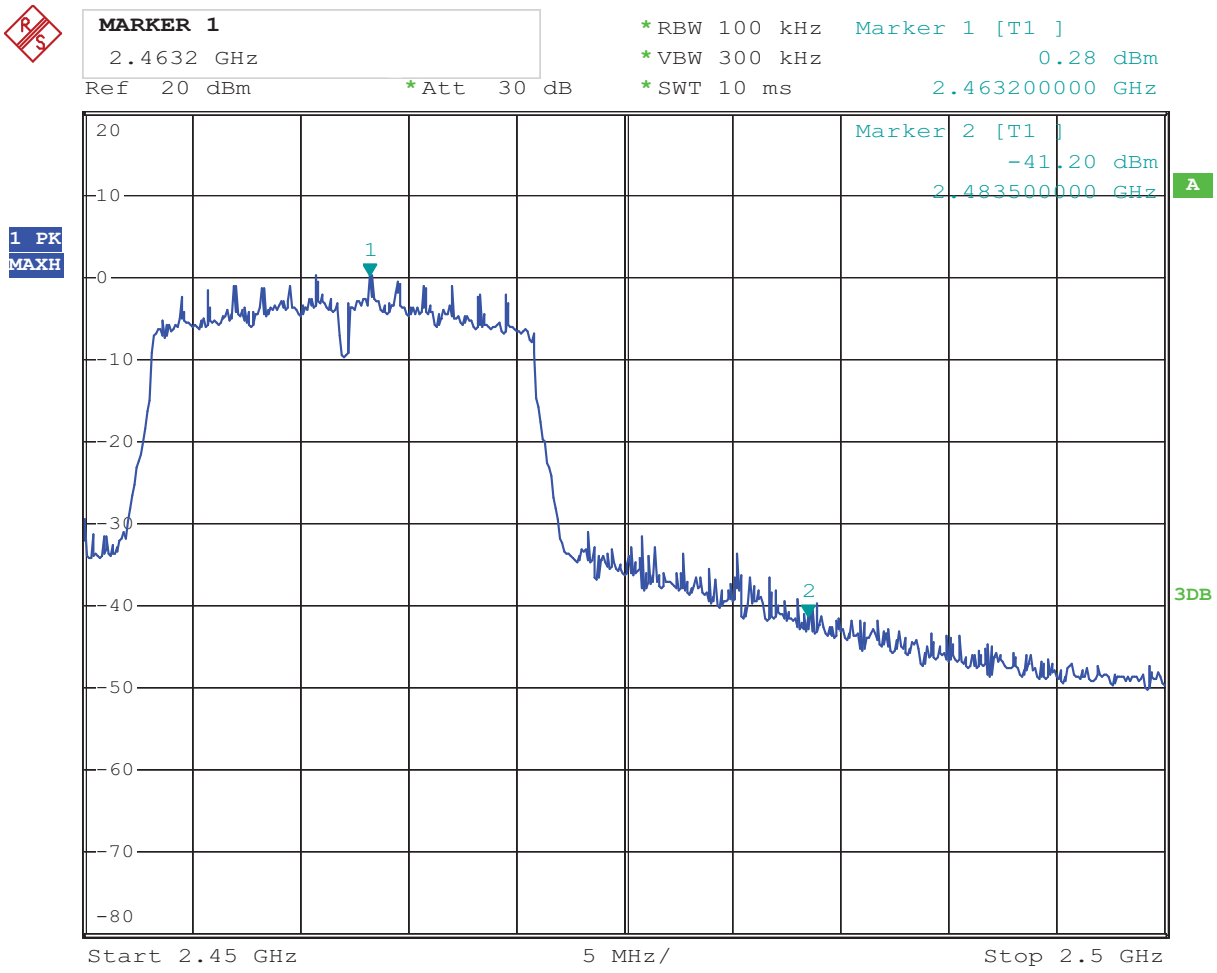


CH11 at HT20 65Mbps

10.4 Band-edge Measurement

EUT	Smart camera	Model	R20\ R21\R22
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 30.OCT.2014 15:19:01

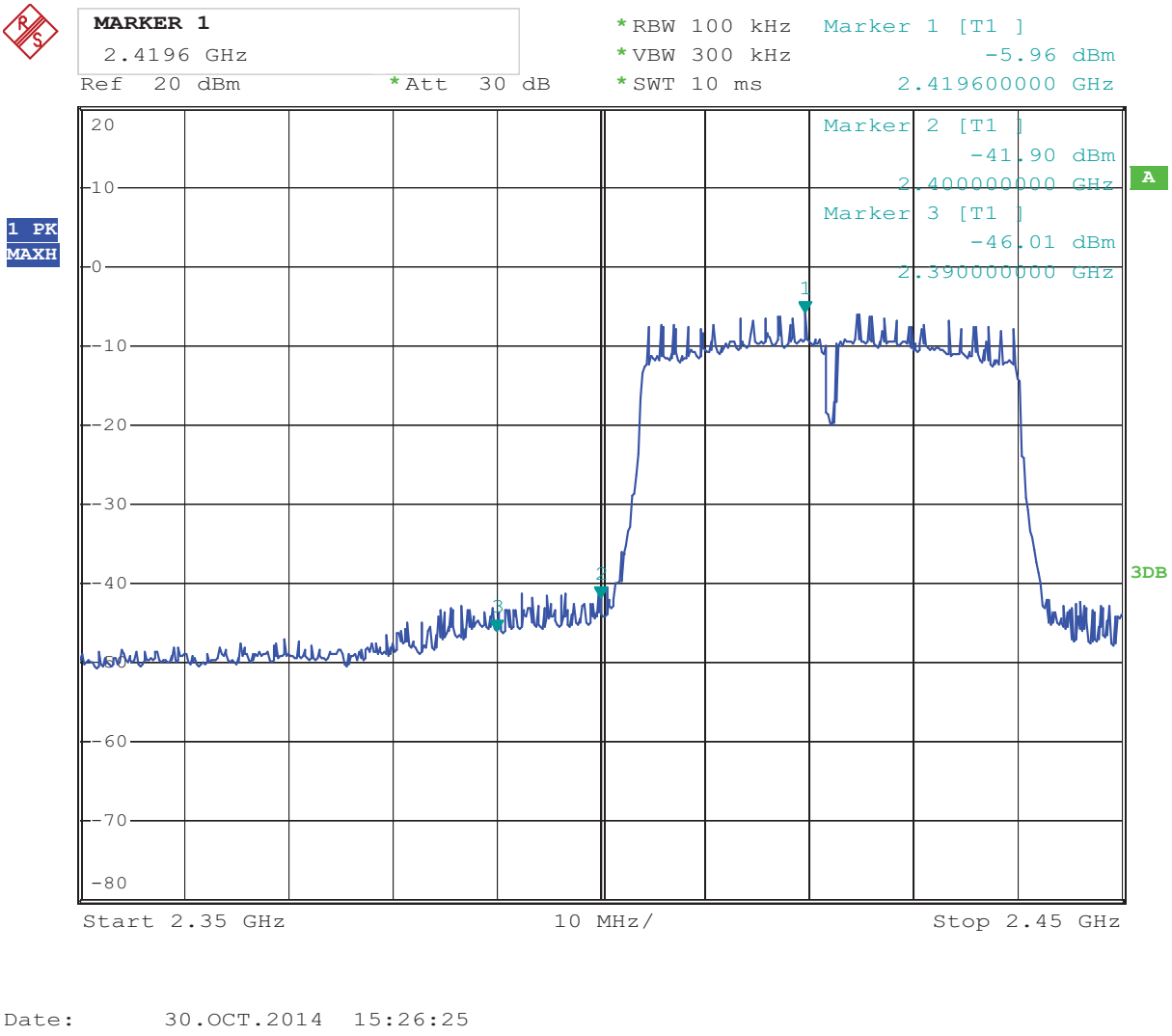
For 802.11n mode

CH01 at HT40 65Mbps

10.4 Band-edge Measurement

EUT	Smart camera	Model	R20\ R21\R22
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:

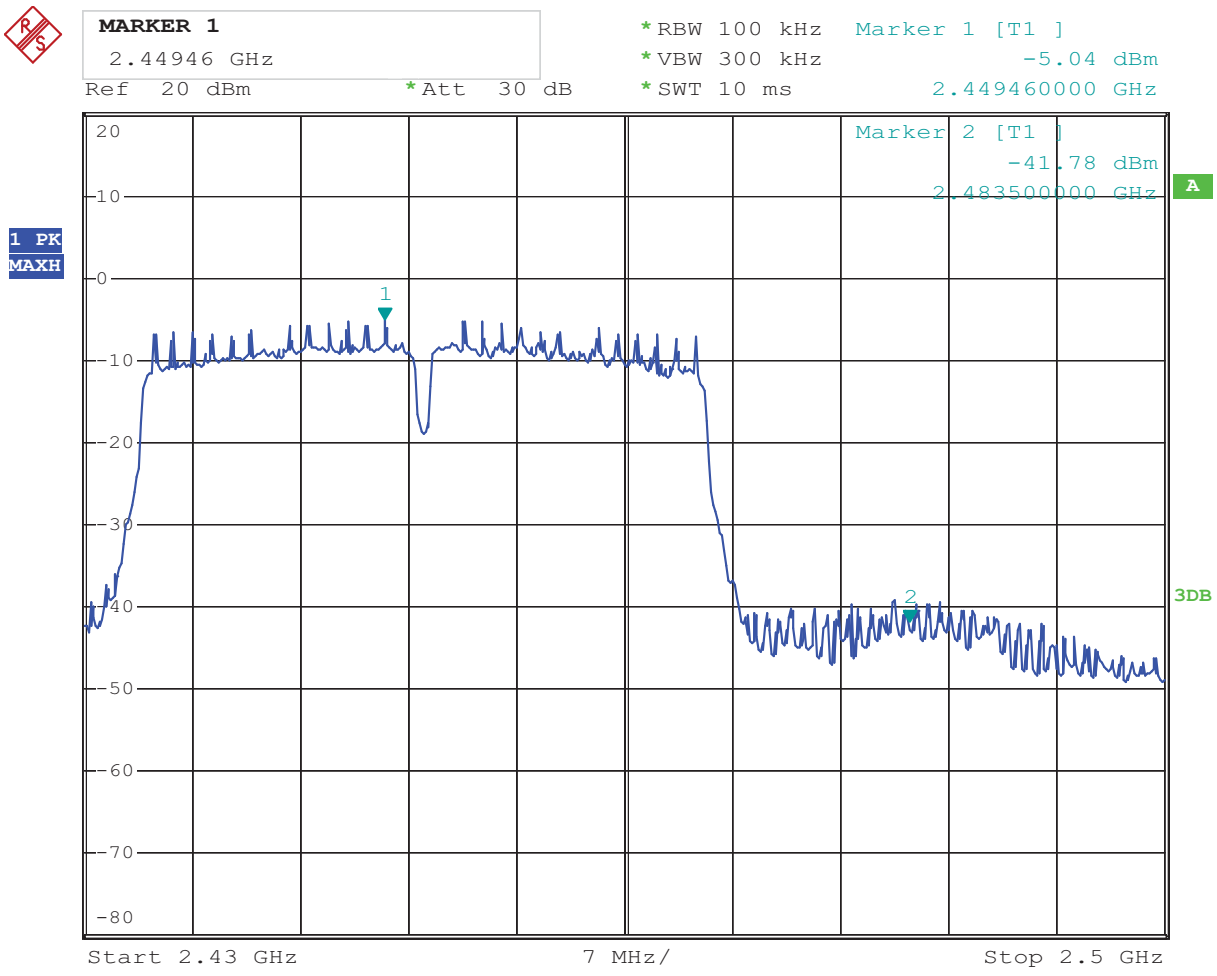


CH7 at HT40 65Mbps

10.4 Band-edge Measurement

EUT	Smart camera	Model	R20\ R21\R22
Mode	Keeping Transmitting	Input Voltage	120V~
Temperature	24 deg. C,	Humidity	56% RH
Test Result:	Pass	Detector	PK

Test Figure:



Date: 30.OCT.2014 15:18:02

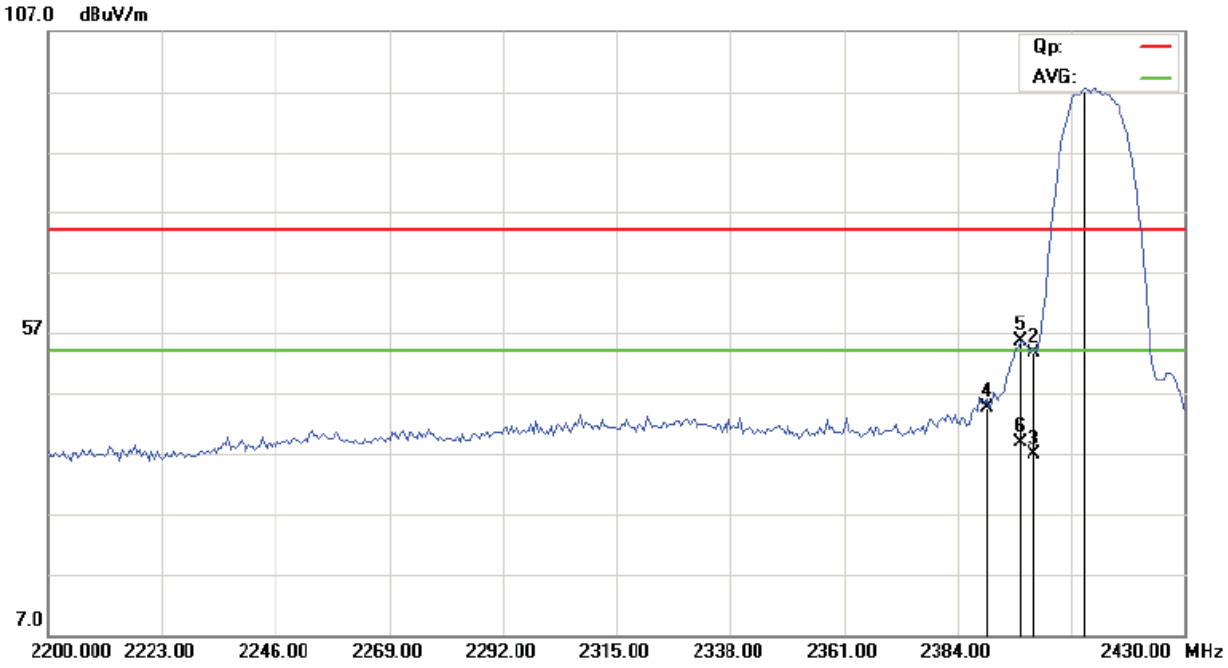
For 802.11b mode

CH01 at 11Mbps

10.4 Restricted band Measurement

Product:	Smart camera		Model	R20\ R21\R22
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2400	PK (dBμV/m)	53.66	Limit	74(dBμV/m)
	AV (dBμV/m)	36.89		54(dBμV/m)
2390	PK (dBμV/m)	44.68	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2396.814	PK (dBμV/m)	55.66	Limit	74(dBμV/m)
	AV (dBμV/m)	38.91		54(dBμV/m)

Test Figure: Horizontal



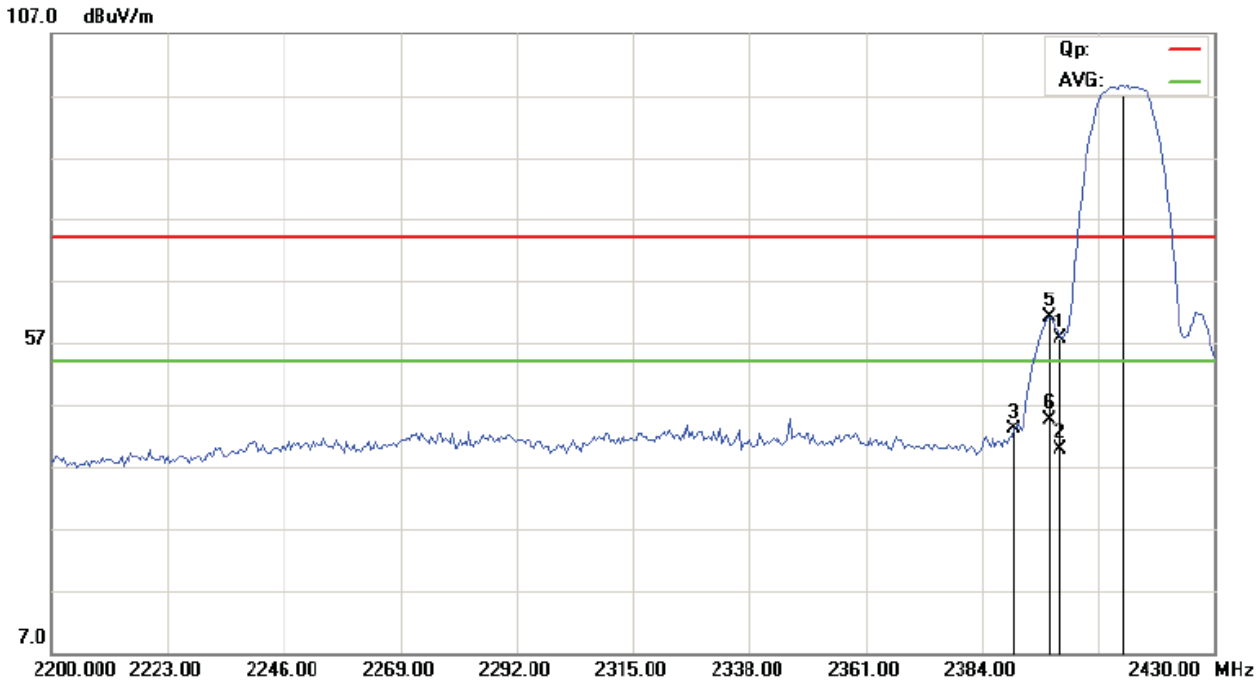
For 802.11b mode

CH01 at 11Mbps

10.4 Restricted band Measurement

Product:	Smart camera		Model	R20\ R21\R22
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2400	PK (dBμV/m)	57.54	Limit	74(dBμV/m)
	AV (dBμV/m)	39.82		54(dBμV/m)
2390	PK (dBμV/m)	43.10	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2397	PK (dBμV/m)	61.18	Limit	74(dBμV/m)
	AV (dBμV/m)	44.51		54(dBμV/m)

Test Figure: Vertical



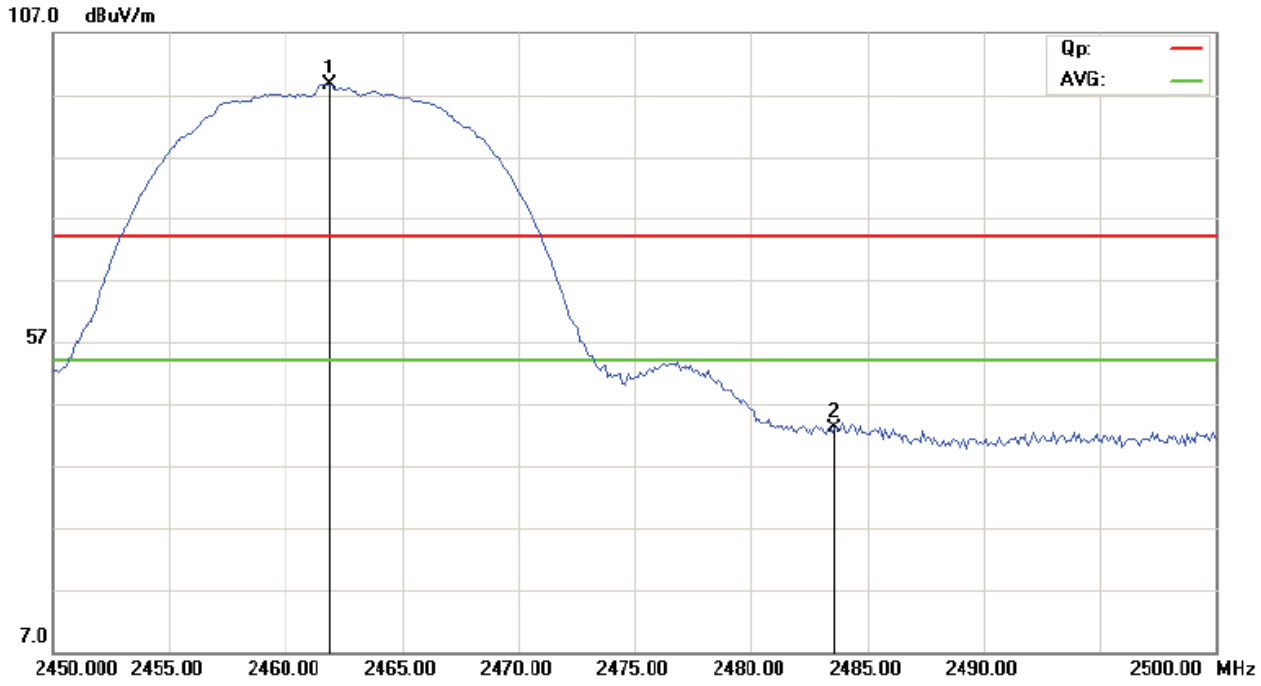
For 802.11b mode

CH11 at 11Mbps

10.4 Restricted band Measurement

Product:	Smart camera		Model	R20\ R21\R22
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	43.06	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure: Vertical



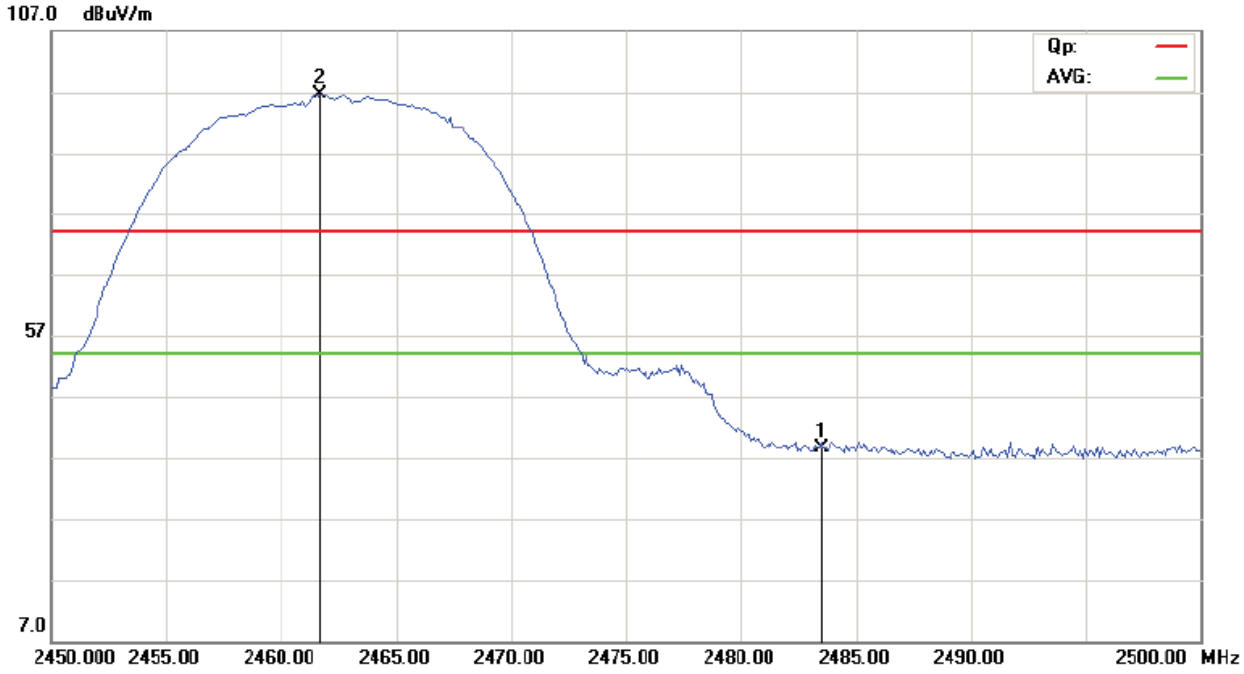
For 802.11b mode

CH11 at 11Mbps

10.4 Restricted band Measurement

Product:	Smart camera		Model	R20\ R21\R22
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	38.57	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure: Horizontal



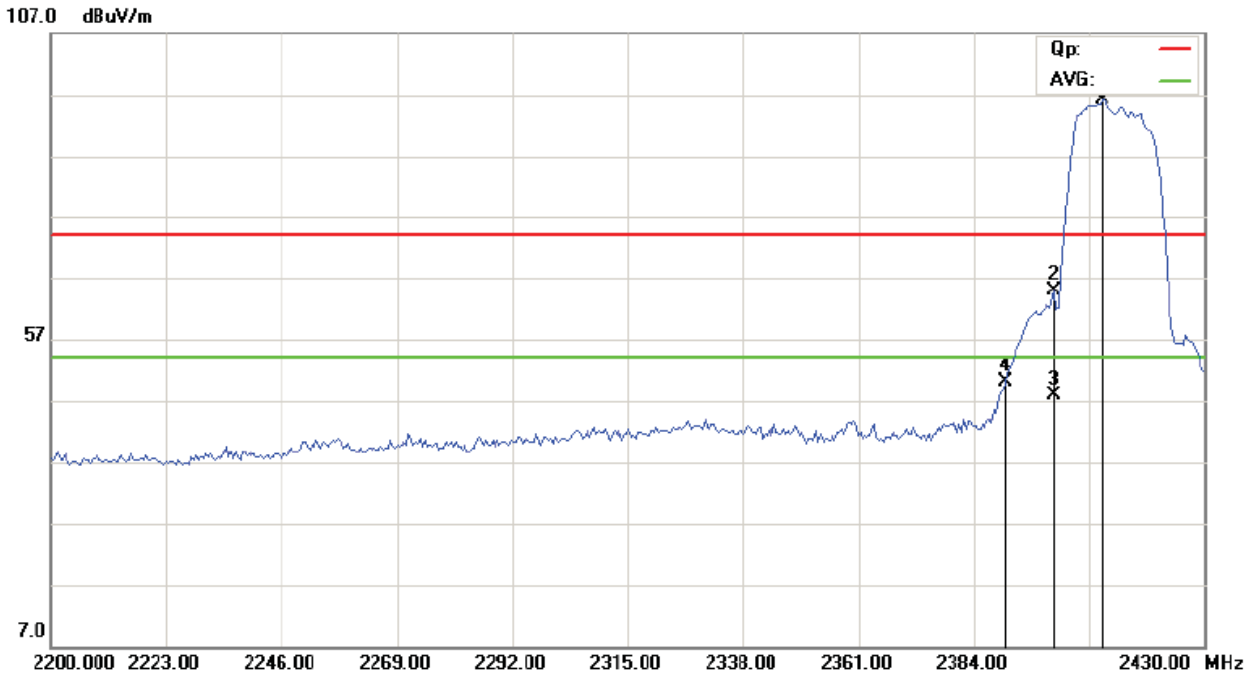
For 802.11g mode

CH01 at 54Mbps

10.4 Restricted band Measurement

Product:	Smart camera		Model	R20\ R21\R22
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2390.000	PK (dBμV/m)	50.18	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2400.000	PK (dBμV/m)	64.83	Limit	74(dBμV/m)
	AV (dBμV/m)	47.92		54(dBμV/m)

Test Figure: Horizontal



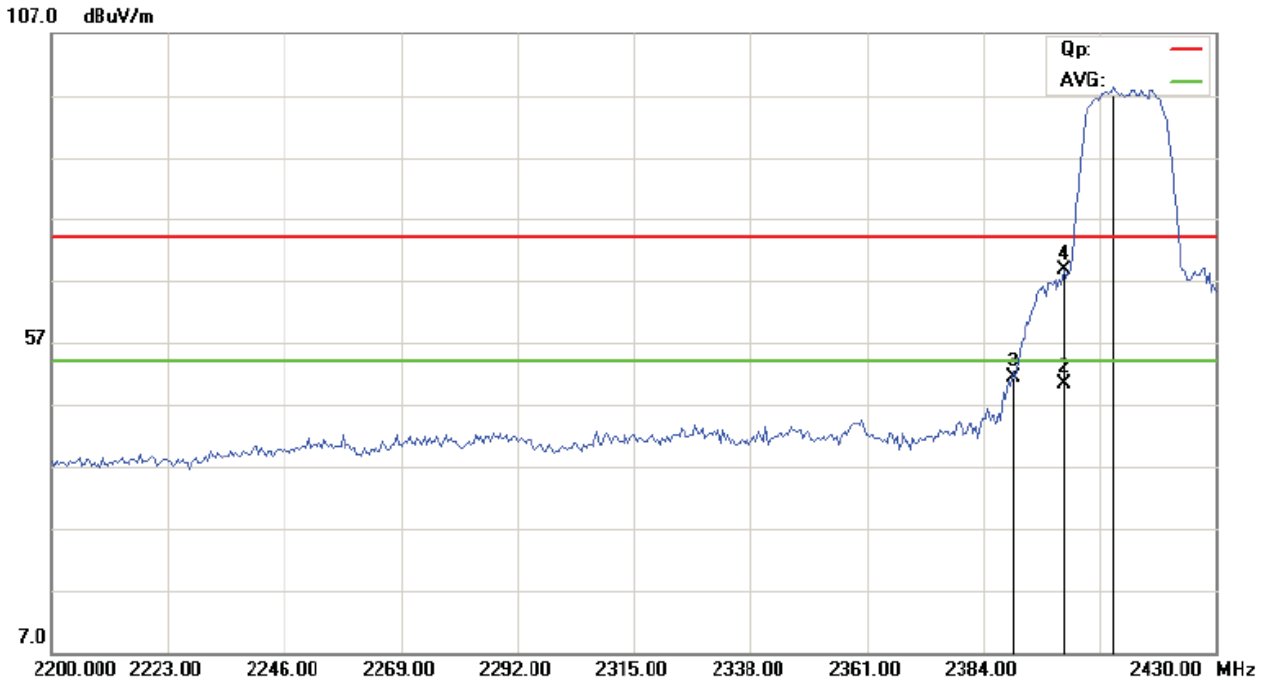
For 802.11g mode

CH01 at 54Mbps

10.4 Restricted band Measurement

Product:	Smart camera		Model	R20\ R21\R22
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2390.000	PK (dBμV/m)	51.36	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2400.000	PK (dBμV/m)	68.70	Limit	74(dBμV/m)
	AV (dBμV/m)	50.45		54(dBμV/m)

Test Figure: Vertical



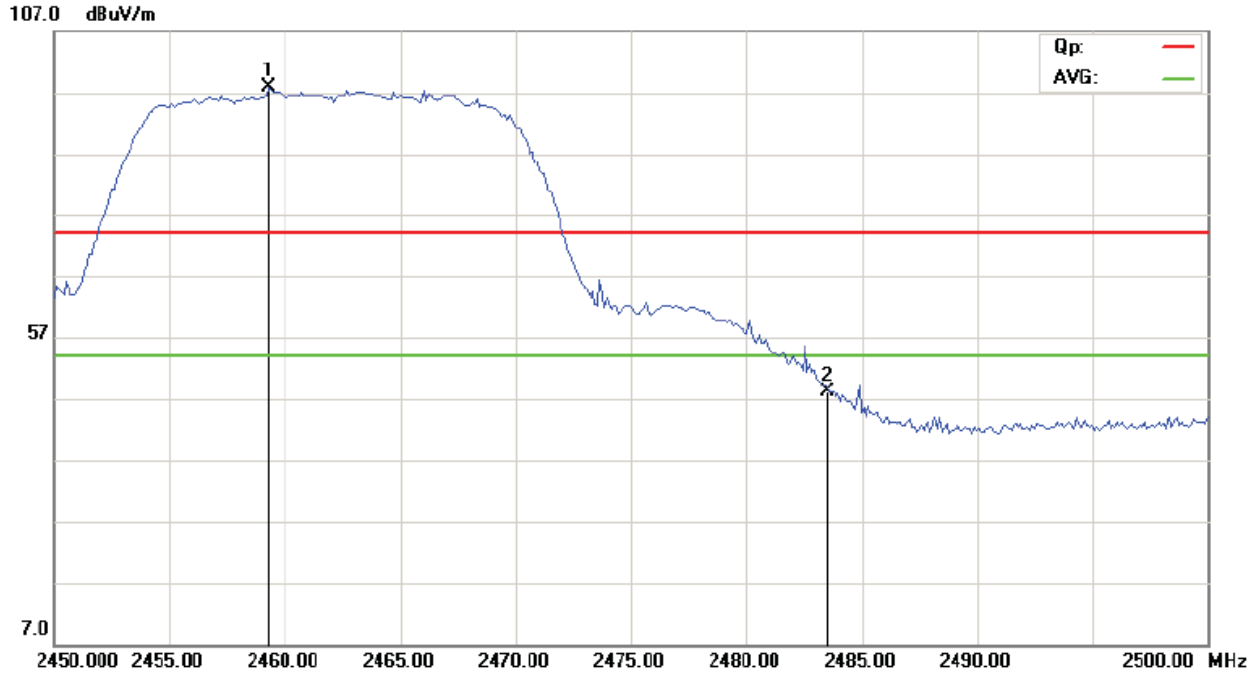
For 802.11g mode

CH11 at 54Mbps

10.4 Restricted band Measurement

Product:	Smart camera		Model	R20\ R21\R22
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	48.06	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure: Vertical



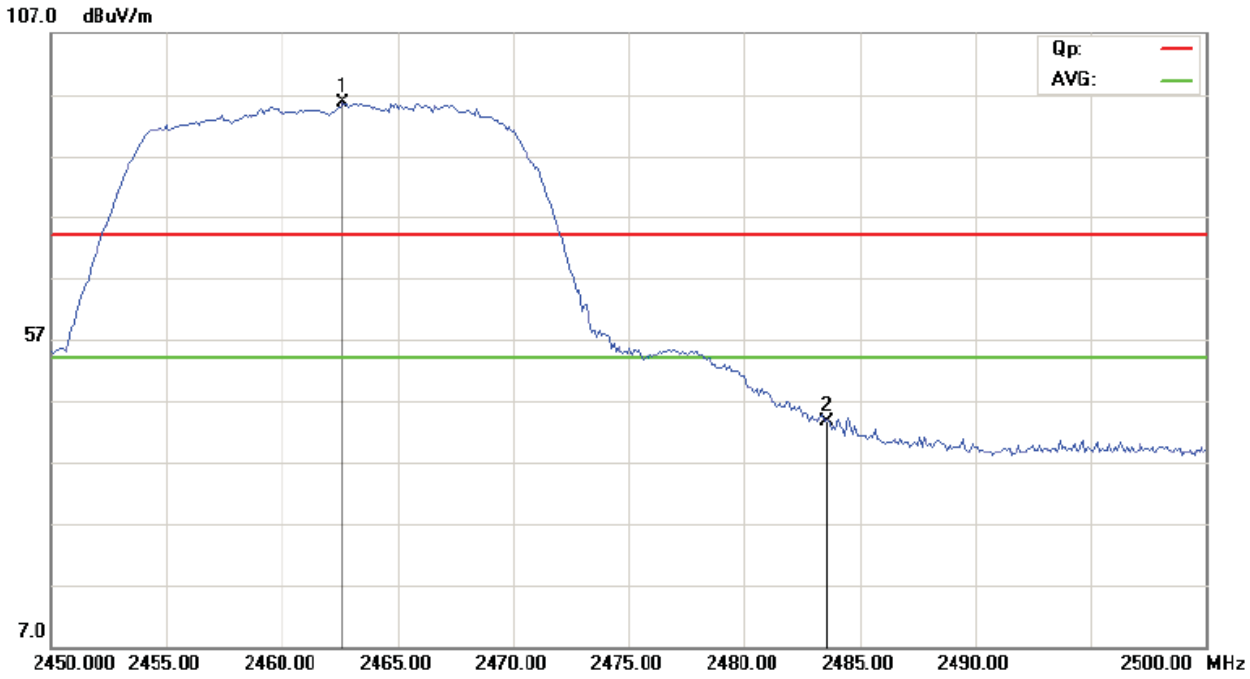
For 802.11g mode

CH11 at 54Mbps

10.4 Restricted band Measurement

Product:	Smart camera		Model	R20\ R21\R22
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	43.75	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure: Horizontal



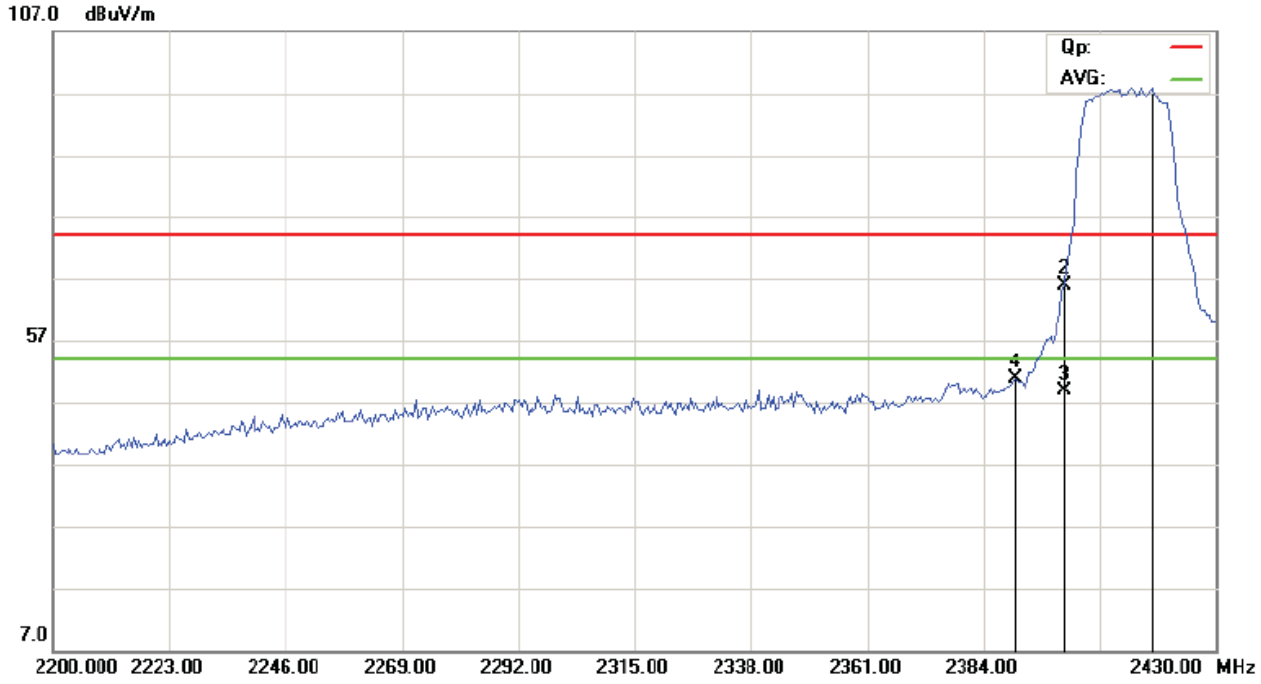
For 802.11n (HT20) mode

CH1 at 65Mbps

10.4 Restricted band Measurement

Product:	Smart camera		Model	R20\ R21\R22
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2390.000	PK (dBμV/m)	50.79	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2400.000	PK (dBμV/m)	65.89	Limit	74(dBμV/m)
	AV (dBμV/m)	48.85		54(dBμV/m)

Test Figure: Horizontal



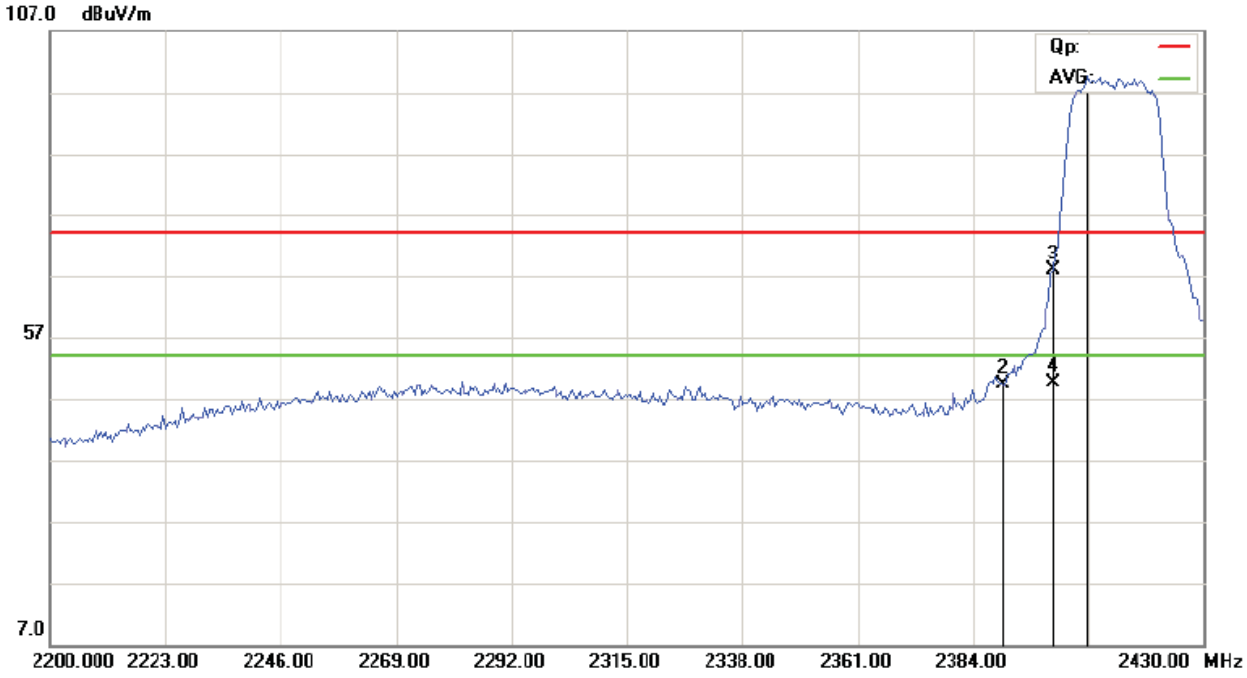
For 802.11n (HT20) mode

CH1 at 65Mbps

10.4 Restricted band Measurement

Product:	Smart camera		Model	R20\ R21\R22
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2390.000	PK (dBμV/m)	49.38	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)
2400.000	PK (dBμV/m)	67.85	Limit	74(dBμV/m)
	AV (dBμV/m)	49.56		54(dBμV/m)

Test Figure: Vertical



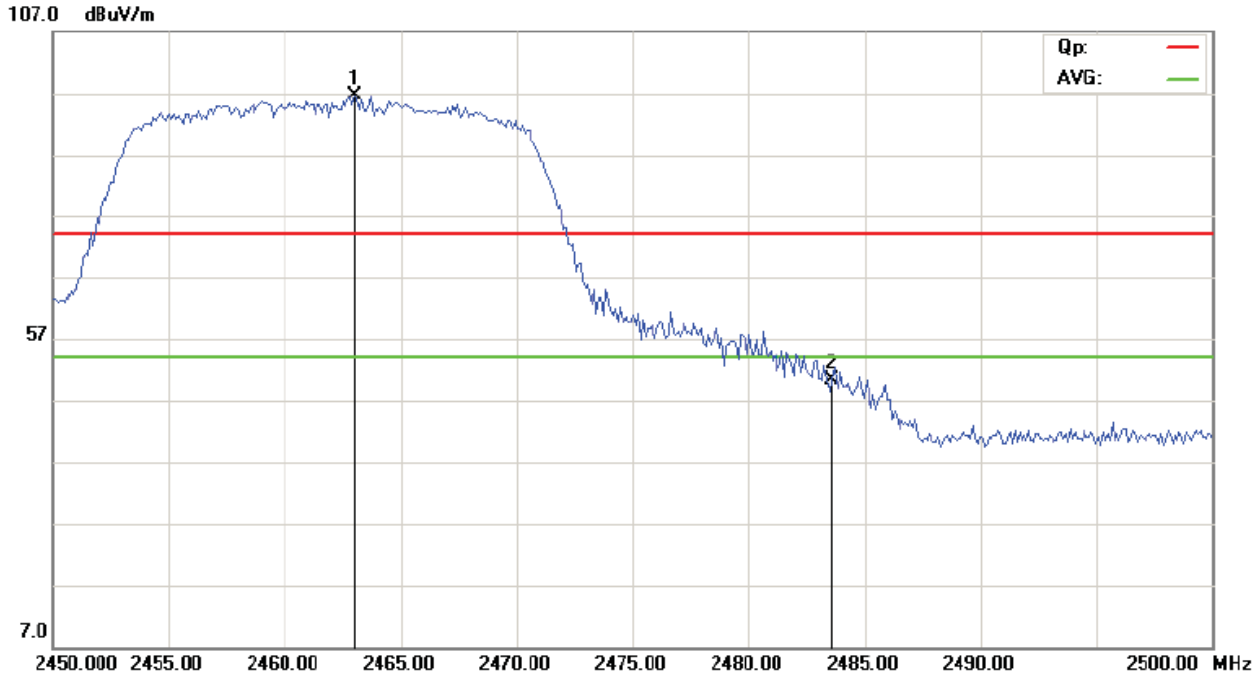
For 802.11n (HT20) mode

CH11 at 65Mbps

10.4 Restricted band Measurement

Product:	Smart camera		Model	R20\ R21\R22
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	50.49	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure: Vertical



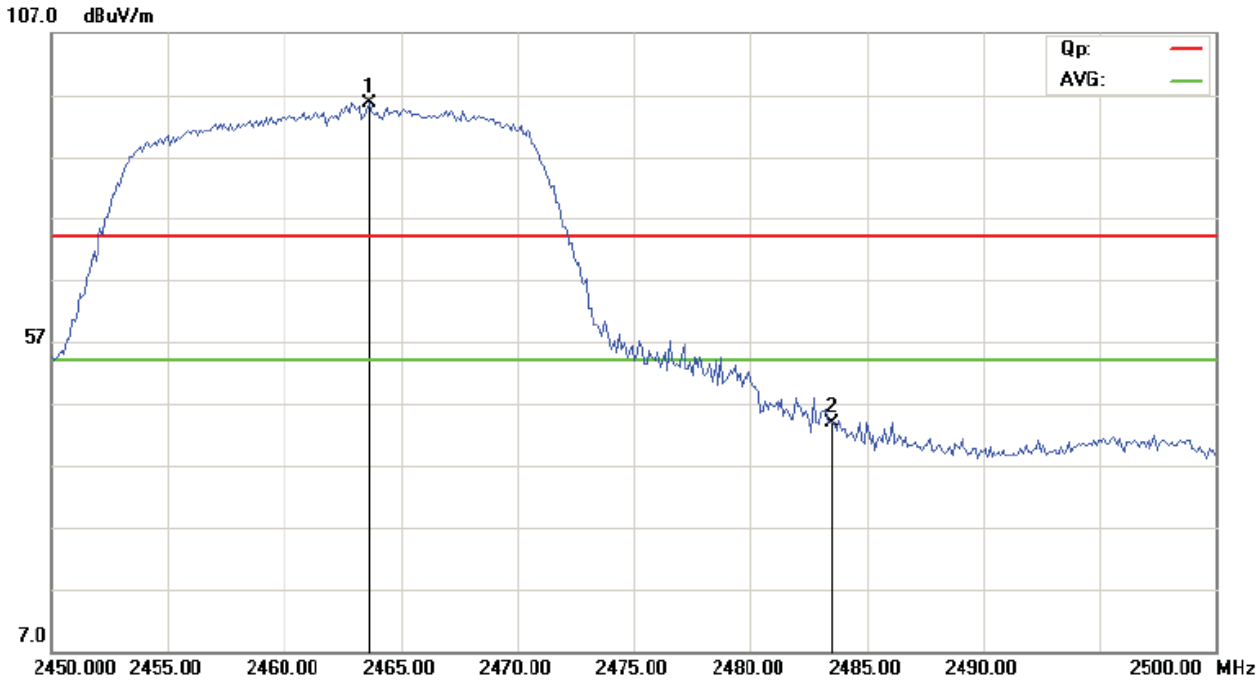
For 802.11n (HT20) mode

CH11 at 65Mbps

10.4 Restricted band Measurement

Product:	Smart camera		Model	R20\ R21\R22
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	43.78	Limit	74(dBμV/m)
	AV (dBμV/m)	--		54(dBμV/m)

Test Figure: Horizontal



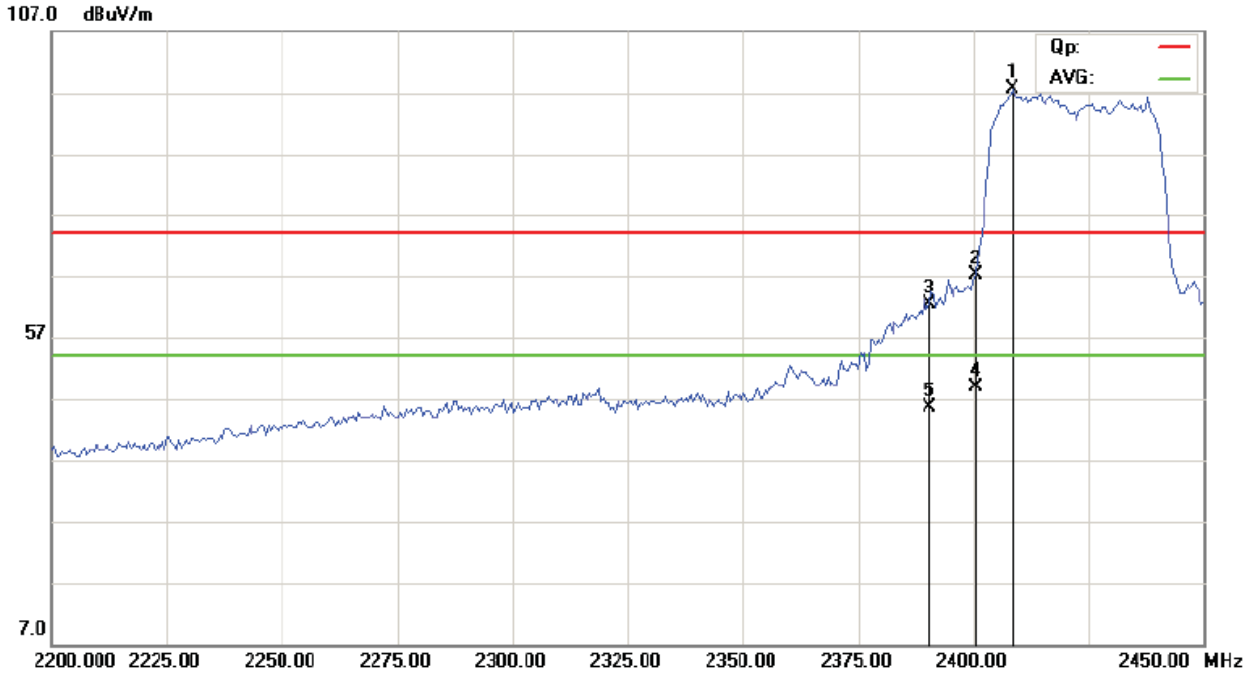
For 802.11n (HT40) mode

CH1 at 65Mbps

10.4 Restricted band Measurement

Product:	Smart camera		Model	R20\ R21\R22
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2390.000	PK (dBμV/m)	62.37	Limit	74(dBμV/m)
	AV (dBμV/m)	45.54		54(dBμV/m)
2400.000	PK (dBμV/m)	67.07	Limit	74(dBμV/m)
	AV (dBμV/m)	48.92		54(dBμV/m)

Test Figure: Vertical



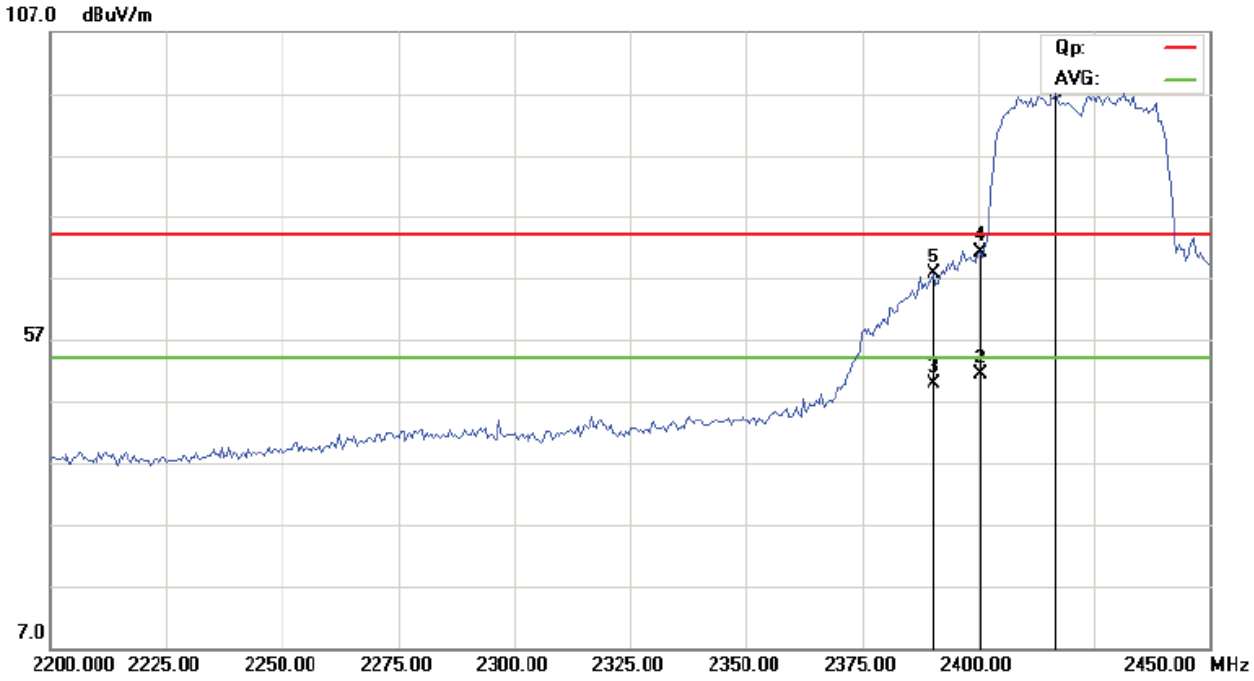
For 802.11n (HT40) mode

CH1 at 65Mbps

10.4 Restricted band Measurement

Product:	Smart camera		Model	R20\ R21\R22
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2390.000	PK (dBμV/m)	67.55	Limit	74(dBμV/m)
	AV (dBμV/m)	49.89		54(dBμV/m)
2400.000	PK (dBμV/m)	71.04	Limit	74(dBμV/m)
	AV (dBμV/m)	51.45		54(dBμV/m)

Test Figure: Horizontal



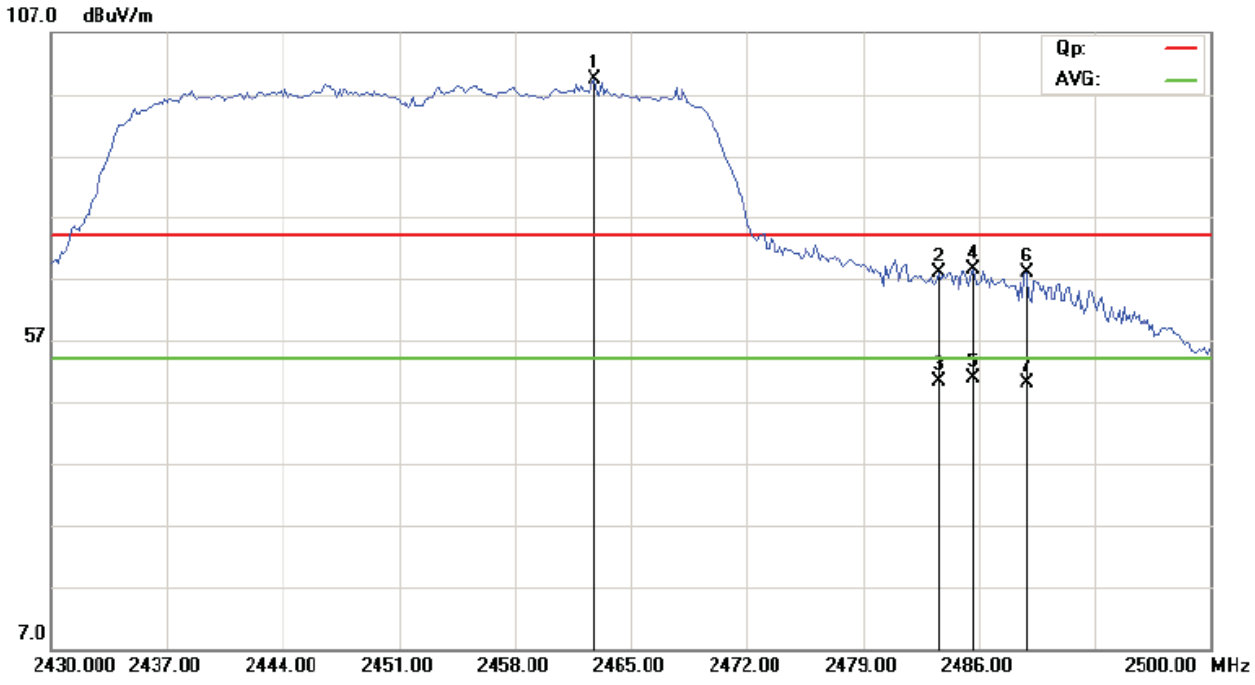
For 802.11n (HT40) mode

CH7 at 65Mbps

10.4 Restricted band Measurement

Product:	Smart camera		Model	R20\ R21\R22
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	67.87	Limit	74(dBμV/m)
	AV (dBμV/m)	50.49		54(dBμV/m)
2485.691	PK (dBμV/m)	68.36		74(dBμV/m)
	AV (dBμV/m)	50.84		54(dBμV/m)
2488.918	PK (dBμV/m)	67.89		74(dBμV/m)
	AV (dBμV/m)	50.21		54(dBμV/m)

Test Figure: Vertical



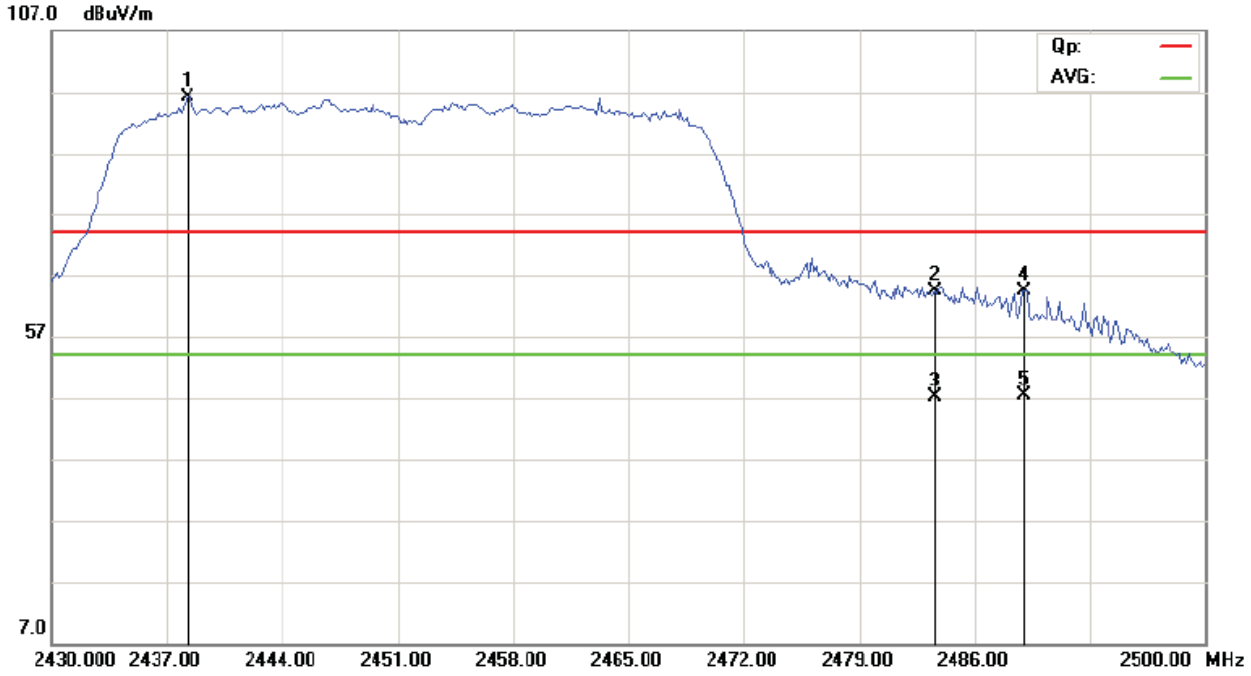
For 802.11n (HT40) mode

CH7 at 65Mbps

10.4 Restricted band Measurement

Product:	Smart camera		Model	R20\ R21\R22
Mode	Keeping Transmitting		Input Voltage	120V~
Temperature	24 deg. C,		Humidity	56% RH
Test Result:	Pass		Detector	PK
2483.500	PK (dBμV/m)	64.30	Limit	74(dBμV/m)
	AV (dBμV/m)	47.13		54(dBμV/m)
2489.058	PK (dBμV/m)	64.50		74(dBμV/m)
	AV (dBμV/m)	47.41		54(dBμV/m)

Test Figure: Horizontal



11.0 Antenna Requirement

11.1 Standard Applicable

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

And according to FCC 47 CFR Section 15.247 (b), if transmitter antennas of directional gain greater than 6 dBi are used, the power shall be reduced by the mount in dB that the directional gain of the antenna exceeds 6 dBi.

11.2 Antenna Connected construction

Integral antenna with maximum Gain 3.0dBi.

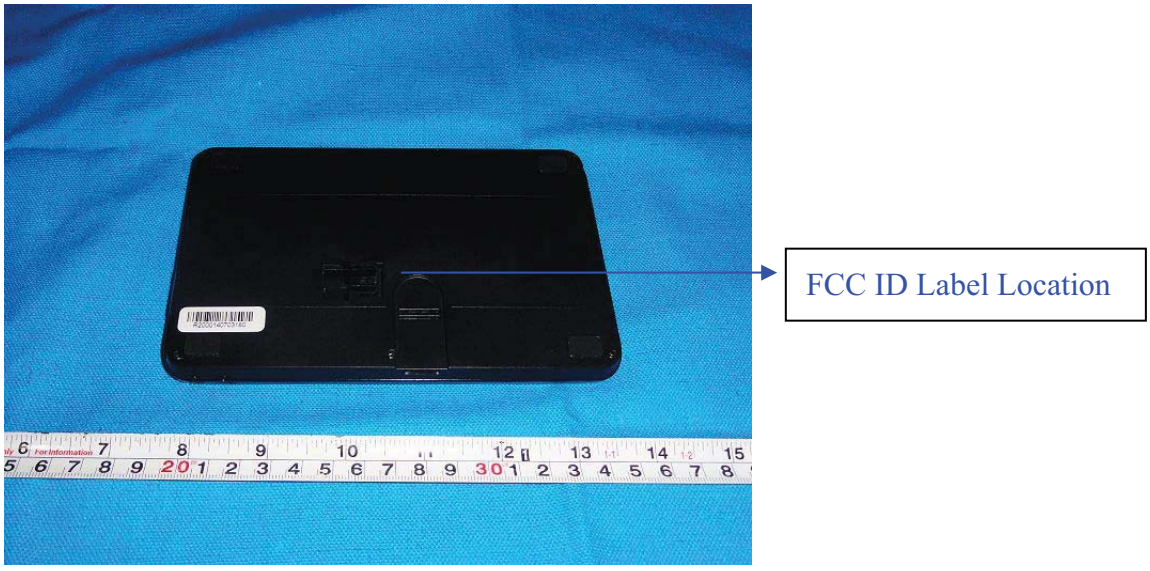
12.0 FCC ID Label

FCC ID: 2AA47-R20

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

The label must not be a stick-on paper label. The label on these products must be permanently affixed to the product and readily visible at the time of purchase and must last the expected lifetime of the equipment not be readily detachable.

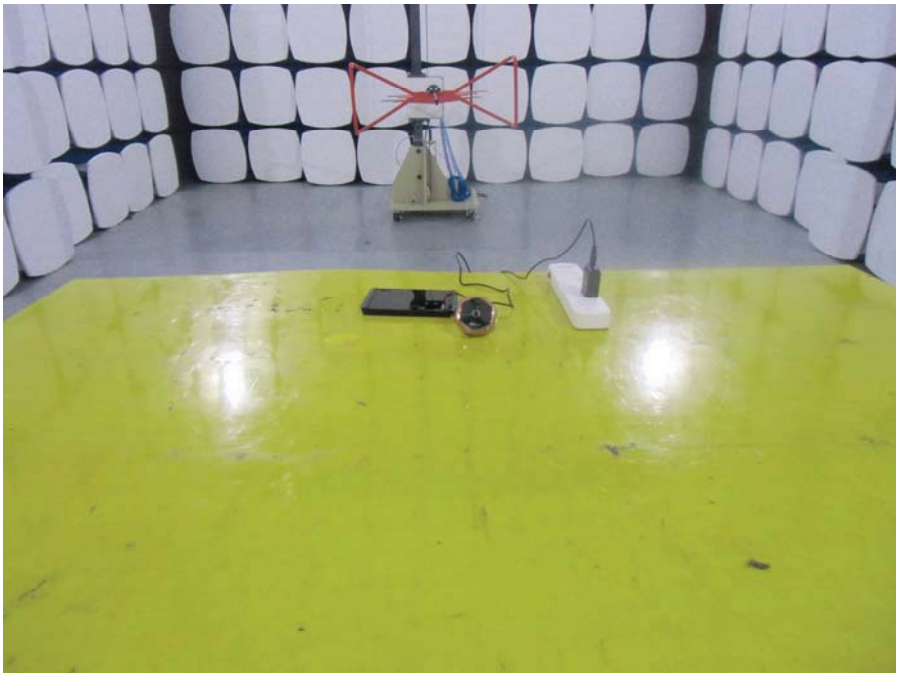
Mark Location:

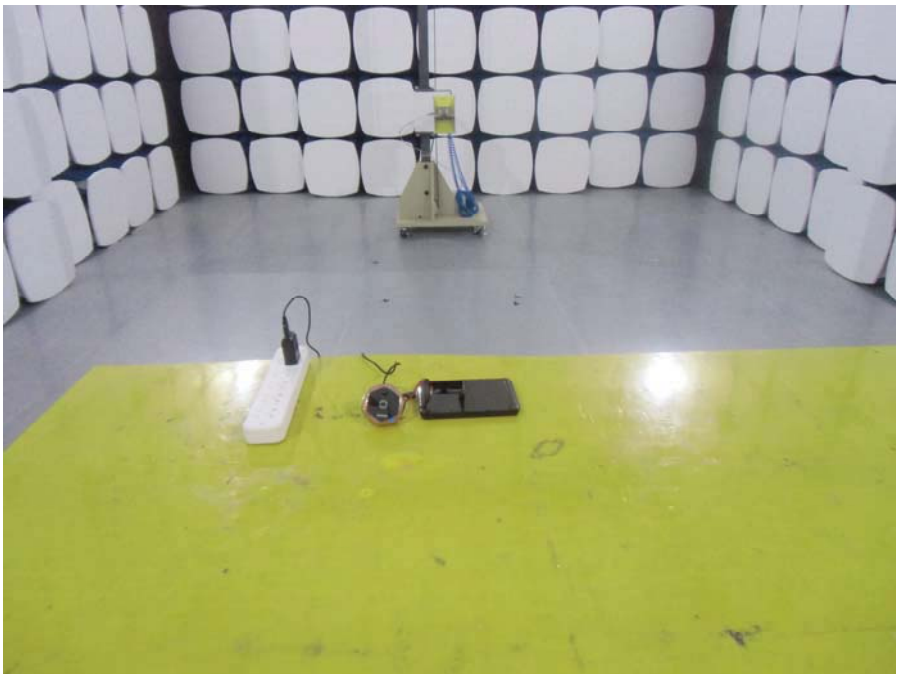


13 PHOTOGRAPHS OF THE TEST CONFIGURATION

Conducted Emissions

Radiated Emissions





PHOTOGRAPHS OF EUT

Photo 1

Photo 2

Photo 3

Photo 4

Photo 5

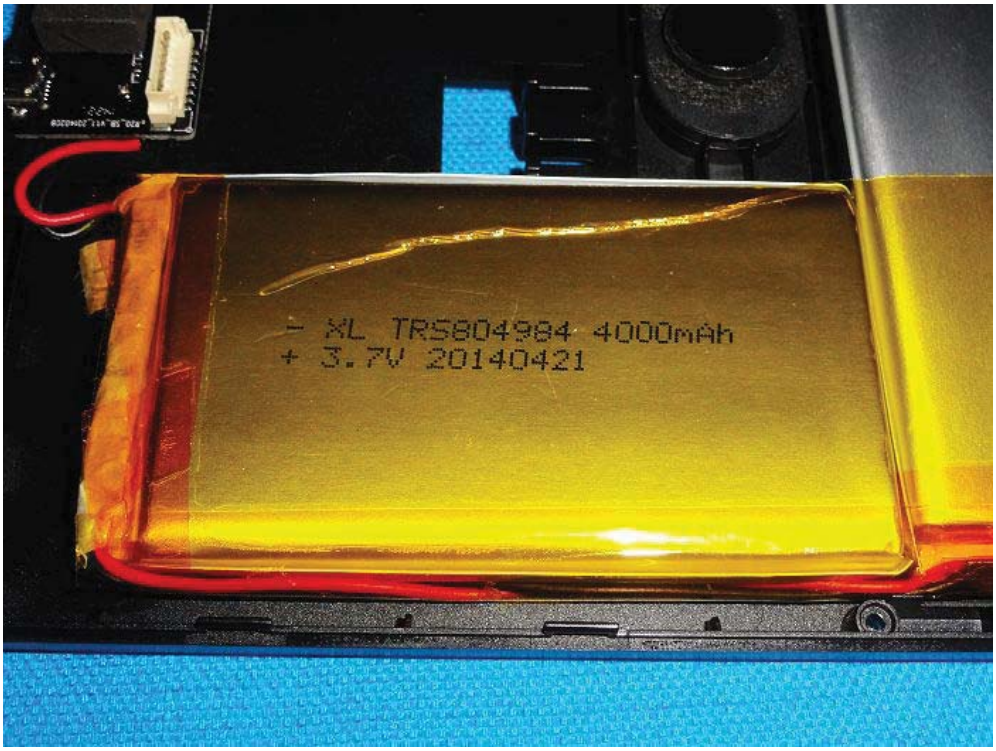


Photo 6

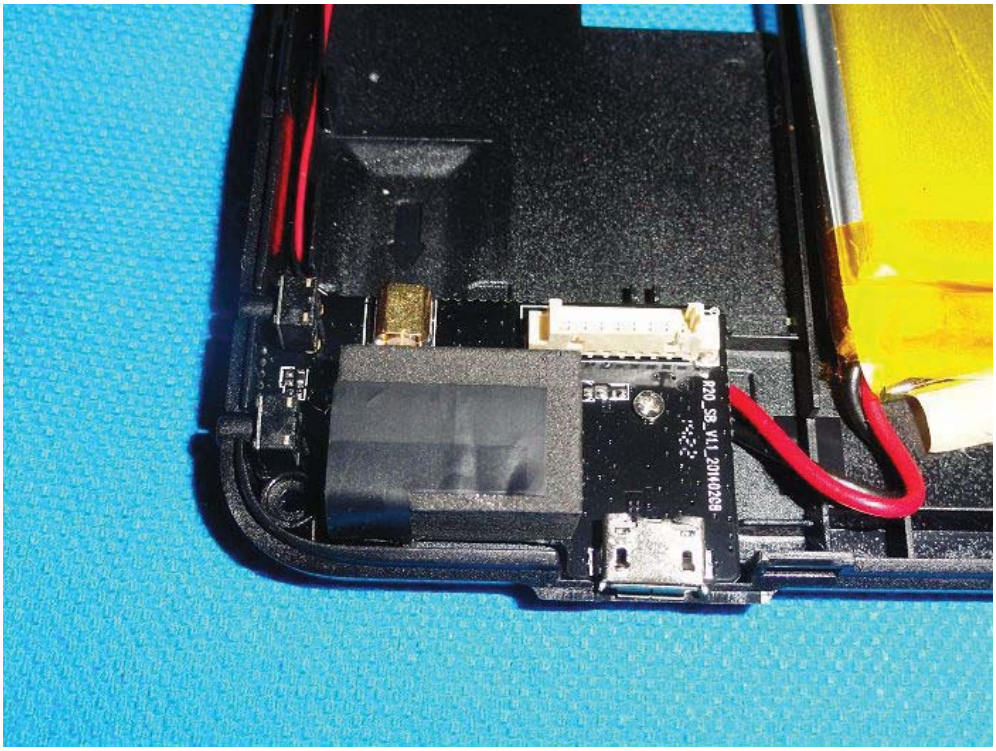


Photo 7

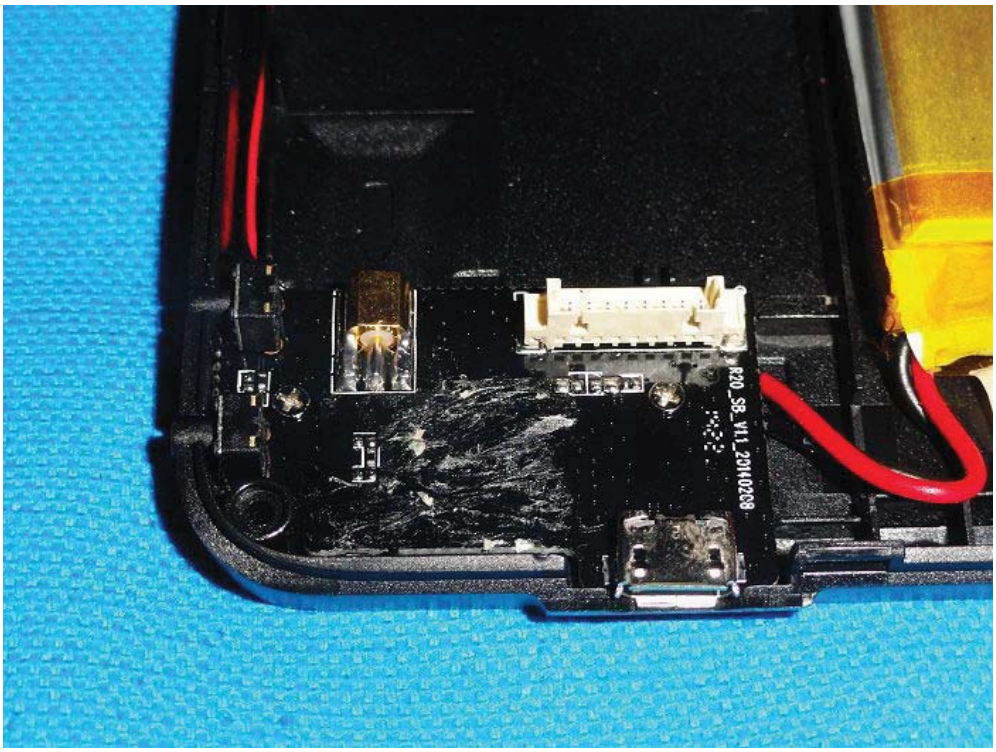


Photo 8

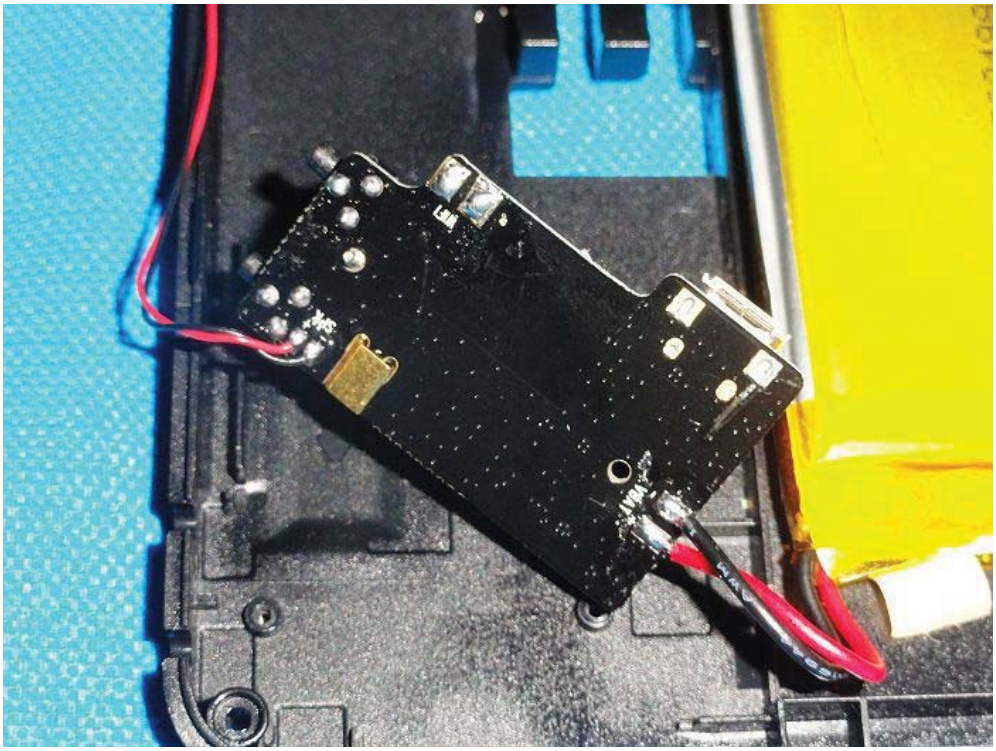


Photo 9

Photo 10

Photo 11

Photo 12

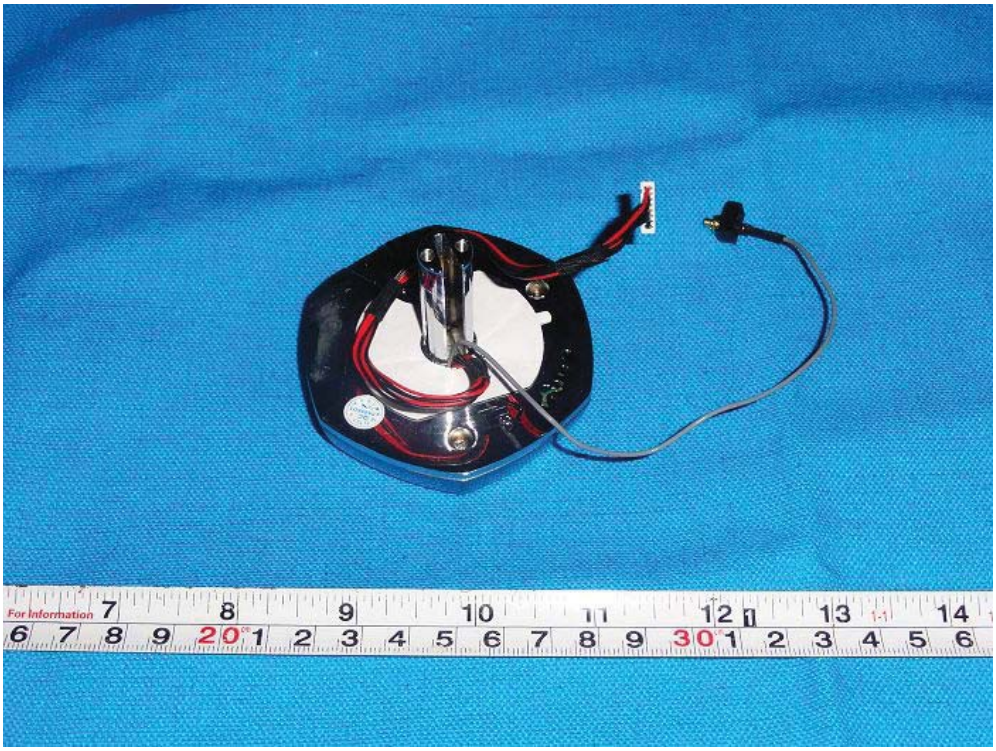


Photo 13

Photo 14

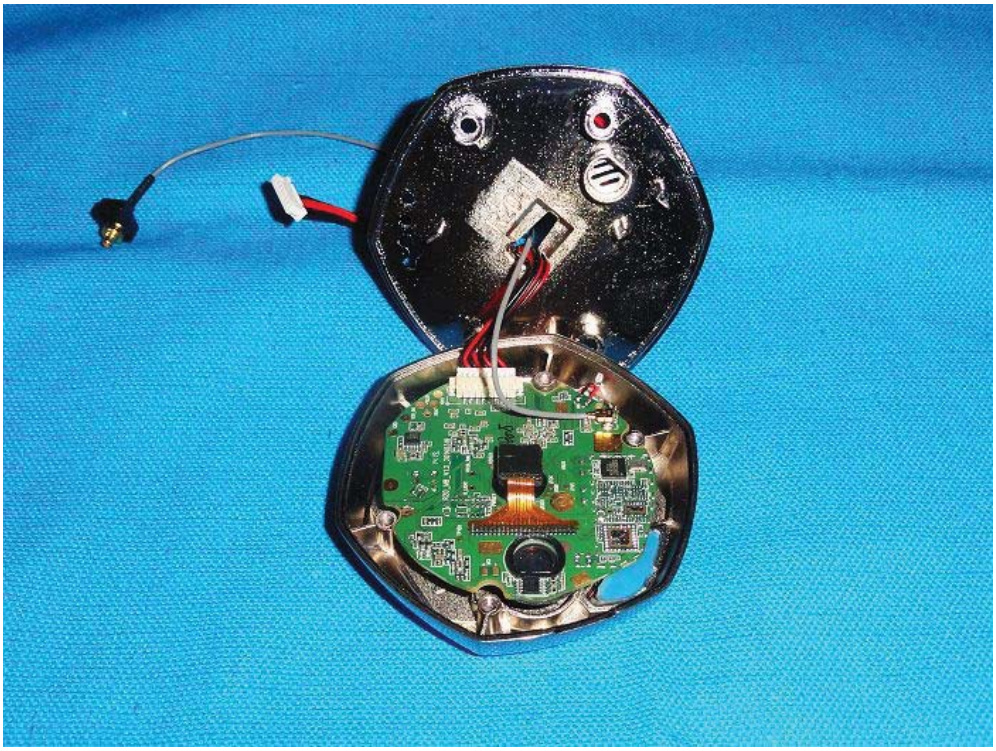


Photo 15

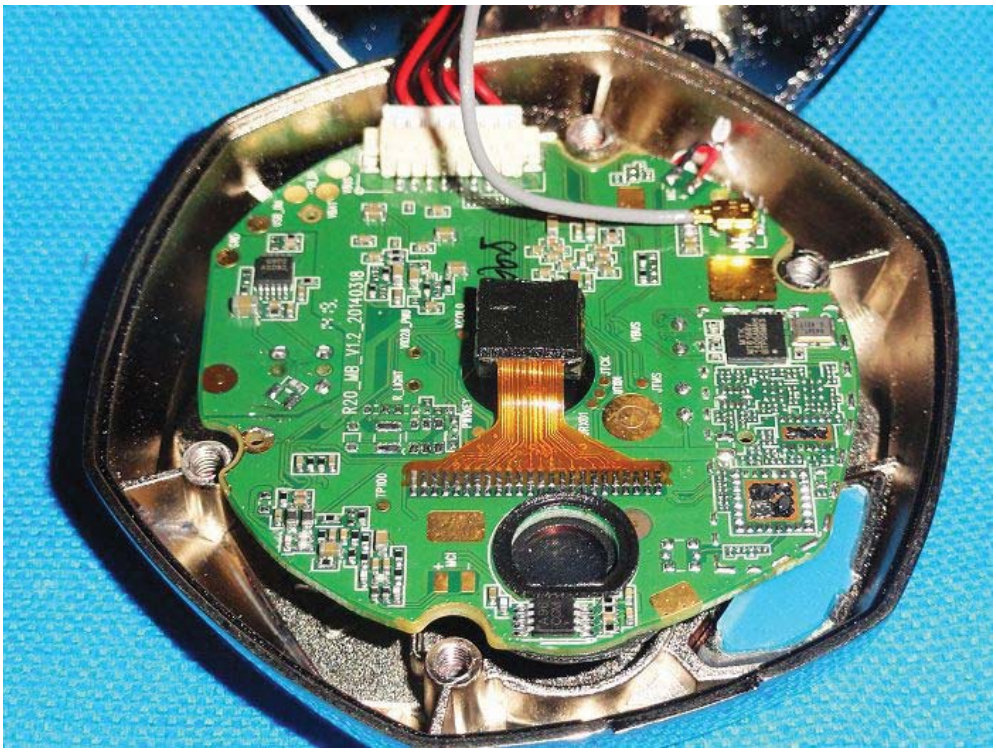


Photo 16

Photo 17

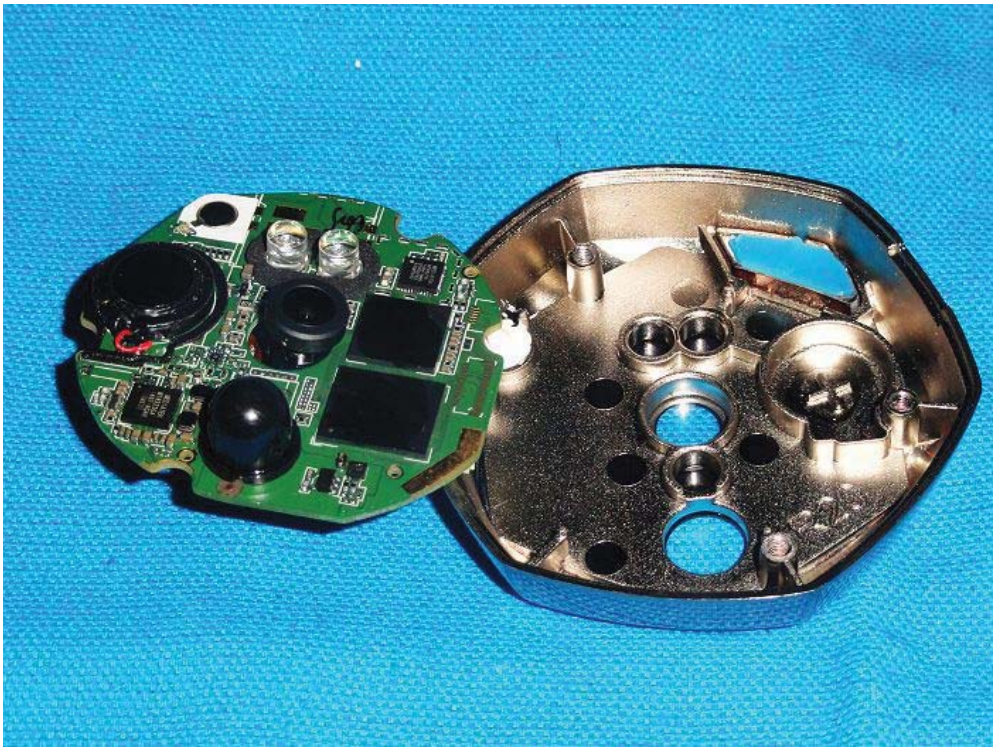


Photo 18

Photo 19

Photo 20

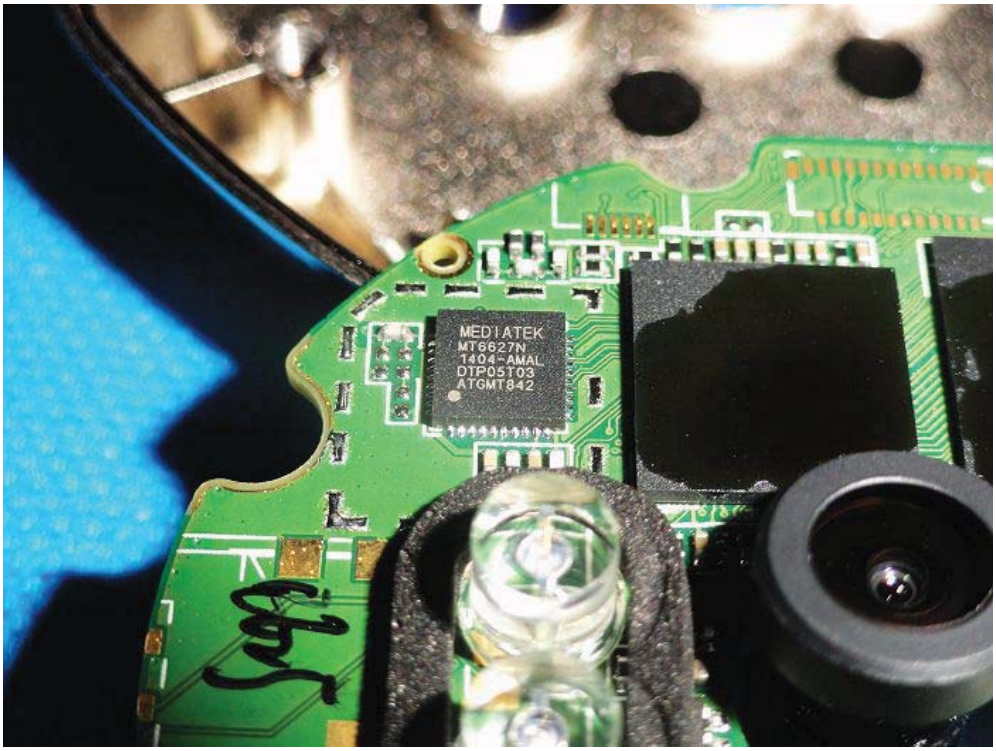


Photo 21

The Report End