



FCC PART 15 SUBPART C TEST REPORT

FCC PART 15.247

Report Reference No......: **TRE1203005601**

FCC ID.....: **GCOMLK001A**

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Date of issue.....: Apr 09, 2012

Testing Laboratory Name: **Shenzhen Huatongwei International Inspection Co., Ltd**

Address: Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China

Applicant's name.....: **ShenZhen Huapu Digital Co.,LTD**

Address: 5'F Building 6, Huaide Cuihai Industry Zone, Fuyong, Baoan, Shenzhen, China.

Test specification:

Standard.....: **FCC Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz Direct Sequence System**

TRF Originator.....: Shenzhen Huatongwei International Inspection CO., Ltd

Master TRF.....: Dated 2006-06

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Test item description: **WIFI MODULE**

Trade Mark: /

Model/Type reference.....: MLK001A

Operation Frequency.....: From 2400MHz to 2483.5MHz

Listed Models: MLK003A,MLK004A,MLK005A,MLK006A,MLK007A,MLK008A, MLK009A,MLK010A,MLK011A,MLK012A,MLK013A,MLK014A,MLK015A,MLK016A,MLK017A,MLK018A,MLK019A

Result.....: **Positive**

TEST REPORT

Test Report No. : TRE1203005601	Apr 09, 2012 ----- Date of issue
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Equipment under Test : WIFI MODULE

Model /Type : MLK001A

Listed Models : MLK003A,MLK004A,MLK005A,MLK006A,MLK007A,MLK008A,
MLK009A,MLK010A,MLK011A,MLK012A,MLK013A,MLK014A,
MLK015A,MLK016A,MLK017A,MLK018A,MLK019A

Applicant : **ShenZhen Huapu Digital Co.,LTD**

Address : 5'F Building 6, Huaide Cuihai Industry Zone, Fuyong, Baoan,
Shenzhen, China.

Manufacturer : **ShenZhen Huapu Digital Co.,LTD**

Address : 5'F Building 6, Huaide Cuihai Industry Zone, Fuyong, Baoan,
Shenzhen, China.

Test Result according to the standards on page 4:	Positive
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The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. TEST STANDARDS

The tests were performed according to following standards:

[FCC Rules Part 15.247](#): Frequency Hopping, Direct Spread Spectrum and Hybrid Systems that are in operation within the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz.

[ANSI C63.10](#): American National Standard for Testing Unlicensed Wireless Devices

2. SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Mar 22, 2012
Testing commenced on	:	Mar 22, 2012
Testing concluded on	:	Apr 09, 2012

2.2. Equipment Under Test

Power supply system utilised

Power supply voltage	:	<input type="radio"/> 120V / 60 Hz	<input type="radio"/> 115V / 60Hz
		<input type="radio"/> 12 V DC	<input type="radio"/> 24 V DC
		<input checked="" type="radio"/> Other (specified in blank below)	

DC 3.3V from USB Board

Description of the test mode

IEEE 802.11b/g/n: Eleven channels are provided to the EUT.

Channel	Frequency(MHz)	Channel	Frequency(MHz)
1	2412	8	2447
2	2417	9	2452
3	2422	10	2457
4	2427	11	2462
5	2432		
6	2437		
7	2442		

2.3. Short description of the Equipment under Test (EUT)

2.4GHz (WIFI MODULE (MLK001A))

For more details, refer to the user's manual of the EUT.

Serial number: Prototype

2.4. EUT operation mode

The EUT has been tested under typical operating condition. The Applicant provides command to control the EUT for staying in continuous transmitting and receiving mode for testing.

2.5. EUT configuration

The following peripheral devices and interface cables were connected during the measurement:

- - supplied by the manufacturer
- - supplied by the lab

<input type="radio"/>	Power Cable	Length (m) :	/
		Shield :	/
		Detachable :	/
<input type="radio"/>	Multimeter	Manufacturer :	/
		Model No. :	/

2.6. Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: GCOMLK001A** filing to comply with Section 15.247 of the FCC Part 15, Subpart C Rules.

2.7. Modifications

No modifications were implemented to meet testing criteria.

2.8. NOTE

- The EUT is a 802.11b/g/n WIFI MODULE, The functions of the EUT listed as below:

	Test Standards	Reference Report
WLAN 802.11b/g/n	FCC Part 15 Subpart C (Section15.247)	TRE1203005601
MPE REPORT	FCC Per 47 CFR 2.1091(b)	TRE1203005602

- The frequency bands used in this EUT are listed as follows:

Frequency Band(MHz)	2400-2483.5	5150-5350	5470-5725	5725-5850
802.11b	√	—	—	—
802.11g	√	—	—	—
802.11n(20MHz)	√	—	—	—
802.11n(40MHz)	√	—	—	—

- The EUT incorporates a SISO function, Physically, the EUT provides one completed transmitter and one completed receiver.

Modulation Mode	TX Function
802.11b	1TX
802.11g	1TX
802.11n (20MHz)	1TX
802.11n (40MHz)	1TX

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen Huatongwei International Inspection Co., Ltd
Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China
Phone: 86-755-26715686 Fax: 86-755-26748089

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2009) and CISPR Publication 22.

3.2. Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

CNAS-Lab Code: L1225

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories, Date of Registration: Mar. 29, 2012. Valid time is until Feb. 28, 2015.

A2LA-Lab Cert. No. 2243.01

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. Valid time is until Sept. 30, 2013.

FCC-Registration No.: 662850

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 662850, Renewal date Jul. 01, 2009, valid time is until Jun. 30, 2012.

IC-Registration No.: 5377A

The 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377A on Jan. 25, 2011, valid time is until Jan. 24, 2014.

ACA

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

NEMKO-Aut. No.: ELA125

Shenzhen Huatongwei International Inspection Co., Ltd has been assessed the quality assurance system, the testing facilities, qualifications and testing practices of the relevant parts of the organization. The quality assurance system of the Laboratory has been validated against ISO/IEC 17025 or equivalent. The laboratory also fulfils the conditions described in Nemko Document NLA-10, the authorization is valid through July 07, 2013

VCCI

The 3m Semi-anechoic chamber (12.2m×7.95m×6.7m) and Shielded Room (8m×4m×3m) of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-292. Date of Registration: Dec. 24, 2010. Valid time is until Dec. 23, 2013.

Main Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-2726. Date of Registration: Dec. 20, 2009. Valid time is until Dec. 19, 2012.

Telecommunication Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-1837. Date of Registration: May 07, 2010. Valid time is until May 06, 2013.

DNV

Shenzhen Huatongwei International Inspection Co., Ltd. has been found to comply with the requirements of DNV towards subcontractor of EMC and safety testing services in conjunction with the EMC and Low voltage Directives and in the voluntary field. The acceptance is based on a formal quality Audit and follow-ups according to relevant parts of ISO/IEC Guide 17025 (2005), in accordance with the requirements of the DNV Laboratory Quality Manual towards subcontractors. Valid time is until Aug. 24, 2013.

3.3. Environmental conditions

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

Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 950-1050mbar

3.4. Configuration of Tested System

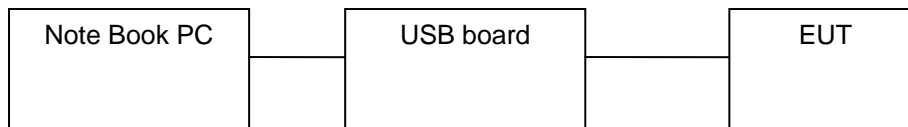


Table 2-1 Equipment Used in Tested System

No.	Product	Manufacturer	Model No.	Serial No.	FCC ID
1	Notebook PC	DELL	D610	CN-0D4571-48643-51S-0236	-----

3.5. Test Description

FCC PART 15		
FCC Part 15.207	AC Power Conducted Emission	PASS
FCC Part 15.247(a)(2)	6dB Bandwidth	PASS
FCC Part 15.247(d)	Spurious RF Conducted Emission	PASS
FCC Part 15.247(b)	Maximum Peak Output Power	PASS
FCC Part 15.247(e)	Power Spectral Density	PASS
FCC Part 15.109/ 15.205/ 15.209	Radiated Emissions	PASS
FCC Part 15.247(d)	Band Edge Compliance of RF Emission	PASS
FCC Part 15.203/15.247 (b)	Antenna Requirement	PASS
FCC Part1.1307 (b)	MPE Evaluation	PASS

Remark: The measurement uncertainty is not included in the test result.

Preliminary tests were performed in different data rate to find the worst radiated emission. The data rate shown in the table below is the worst-case rate with respect to the specific test item. Investigation has been done on all the possible configurations for searching the worst cases. The following table is a list of the test modes shown in this test report.

Test Items	Mode	Data Rate	Channel
Maximum Peak Conducted Output Power Power Spectral Density 6dB Bandwidth Spurious RF conducted emission Radiated Emission 9kHz~1GHz& Radiated Emission 1GHz~10th Harmonic	11b/DSSS	11 Mbps	1/6/11
	11g/OFDM	54 Mbps	1/6/11
	11n(20MHz)/OFDM	65Mbps	1/6/11
	11n(40MHz)/OFDM	135 Mbps	3/6/9
Band Edge Compliance of RF Emission	11b/DSSS	11 Mbps	1/11
	11g/OFDM	54 Mbps	1/11
	11n(20MHz)/OFDM	65Mbps	1/11
	11n(40MHz)/OFDM	135 Mbps	3/9

3.6. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

Test Items	Measurement Uncertainty	Notes
Frequency stability	150 Hz	(1)
Transmitter power conducted	0.57 dB	(1)
Transmitter power Radiated	2.20 dB	(1)
Conducted spurious emission 9KHz-12.75 GHz	1.60 dB	(1)
Radiated spurious emission 9KHz-12.75 GHz	2.20 dB	(1)
Conducted Emission 9KHz-30MHz	3.39 dB	(1)
Radiated Emission 30~1000MHz	4.24 dB	(1)
Radiated Emissio 1~18GHz	5.16 dB	(1)
Radiated Emissio 18-40GHz	5.54 dB	(1)
Occupied Bandwidth	-----	(1)
Emission Mask	-----	(1)
Modulation Characteristic	-----	(1)
Transmitter Frequency Behavior	-----	(1)

- (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=1.96.

3.7. Equipments Used during the Test

AC Power Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	Artificial Mains	Rohde&Schwarz	ESH2-Z5	100028	2011/10/23
2	EMI Test Receiver	Rohde&Schwarz	ESCS 30	100038	2011/10/23
3	Pulse Limiter	Rohde&Schwarz	ESHSZ2	100044	2011/10/23
4	EMI Test Software	Rohde&Schwarz	ES-K1 V1.71	N/A	2011/10/23

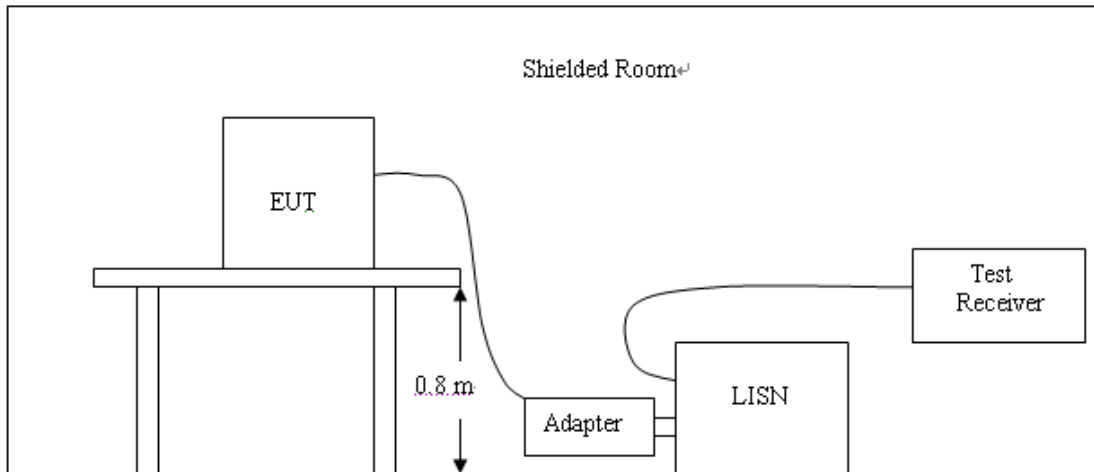
Radiated Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ULTRA-BROADBAND ANTENNA	Rohde&Schwarz	HL562	100015	2011/10/23
2	EMI TEST RECEIVER	Rohde&Schwarz	ESI 26	100009	2011/10/23
3	RF TEST PANEL	Rohde&Schwarz	TS / RSP	335015/ 0017	2011/10/23
4	TURNTABLE	ETS	2088	2149	2011/10/23
5	ANTENNA MAST	ETS	2075	2346	2011/10/23
6	EMI TEST SOFTWARE	Rohde&Schwarz	ESK1	N/A	2011/10/23
7	HORN ANTENNA	Rohde&Schwarz	HF906	100039	2011/10/23
8	Amplifer	Sonoma	310N	E009-13	2011/10/23
9	JS amplifer	Rohde&Schwarz	JS4-00101800-28-5A	F201504	2011/10/23
10	High pass filter	Compliance Direction systems	BSU-6	34202	2011/10/23

Maximum Peak Output Power / Power Spectral Density / 6dB Bandwidth / Band Edge Compliance of RF Emission / Spurious RF Conducted Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI TEST RECEIVER	Rohde&Schwarz	ESI 26	100009	2011/10/23
2	Power Meter	Anritsu	ML2487A	6K00001568	2011/10/23
3	Power Meter Sensor	Anritsu	ML2491A	0630989	2011/10/23
4	Spectrum Analyzer	AGILENT	E4407B	MY44210775	2011/10/23

4. TEST CONDITIONS AND RESULTS

4.1. AC Power Conducted Emission

TEST CONFIGURATION



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 C63.4-2009.
- 2 Support equipment, if needed, was placed as per ANSI C63.4-2009
- 3 All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4-2009
- 4 The EUT received DC12V 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

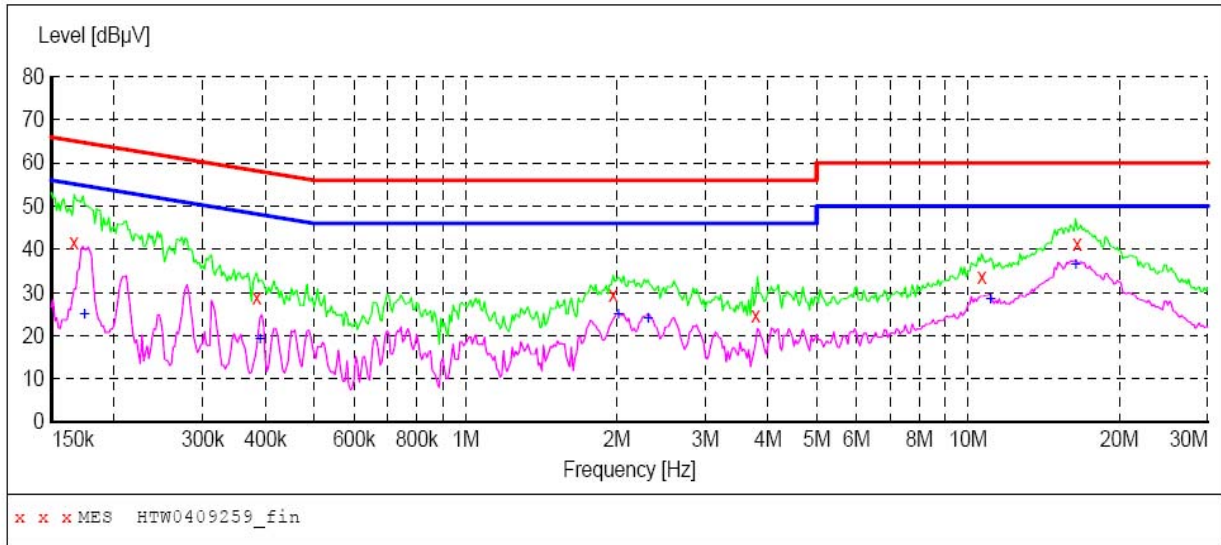
* Decreasing linearly with the logarithm of the frequency

TEST RESULTS

The AC Power Conducted Emission measurement 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.

SCAN TABLE: "Voltage (9K-30M) FIN"

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "HTW0409259_fin"

4/9/2012 11:14AM

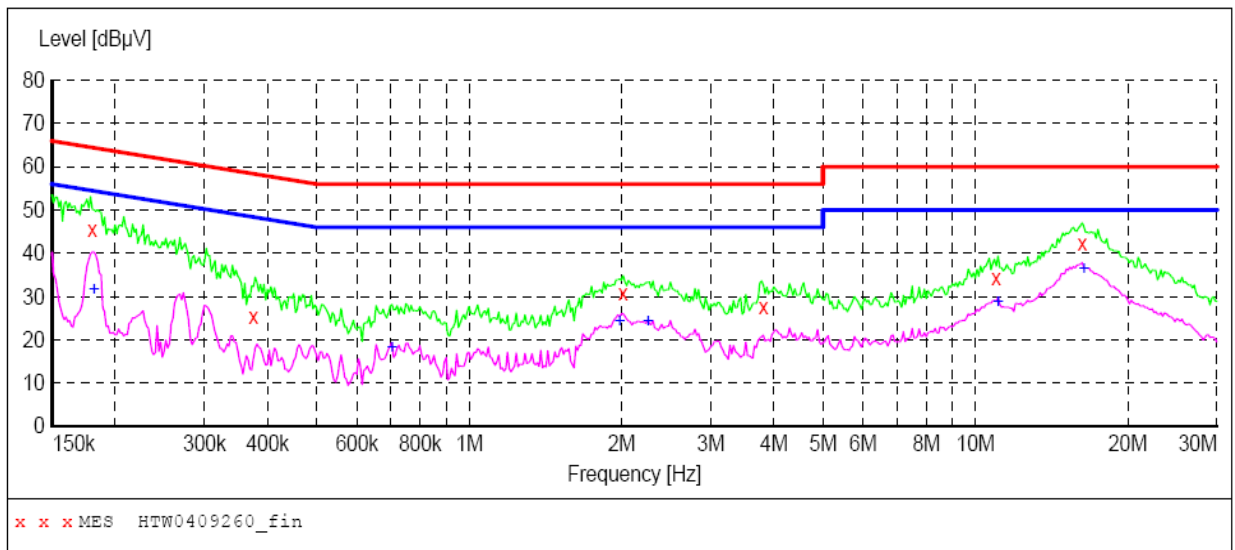
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.166370	41.60	10.1	65	23.5	QP	L1	GND
0.384088	28.70	10.1	58	29.5	QP	L1	GND
1.967172	29.50	10.2	56	26.5	QP	L1	GND
3.781000	24.70	10.2	56	31.3	QP	L1	GND
10.653088	33.70	10.6	60	26.3	QP	L1	GND
16.512210	41.50	10.8	60	18.5	QP	L1	GND

MEASUREMENT RESULT: "HTW0409259_fin2"

4/9/2012 11:14AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.174510	24.90	10.1	55	29.8	AV	L1	GND
0.390260	19.40	10.1	48	28.7	AV	L1	GND
2.014760	25.00	10.2	46	21.0	AV	L1	GND
2.307030	24.10	10.2	46	21.9	AV	L1	GND
11.086095	28.50	10.6	50	21.5	AV	L1	GND
16.381159	36.70	10.8	50	13.3	AV	L1	GND

SCAN TABLE: "Voltage (9K-30M) FIN"
 Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "HTW0409260_fin"

4/9/2012 11:22AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.180170	45.40	10.1	65	19.1	QP	N	GND
0.375010	25.30	10.1	58	33.1	QP	N	GND
2.014760	30.70	10.2	56	25.3	QP	N	GND
3.811240	27.60	10.2	56	28.4	QP	N	GND
10.998110	34.20	10.6	60	25.8	QP	N	GND
16.251147	42.20	10.8	60	17.8	QP	N	GND

MEASUREMENT RESULT: "HTW0409260_fin2"

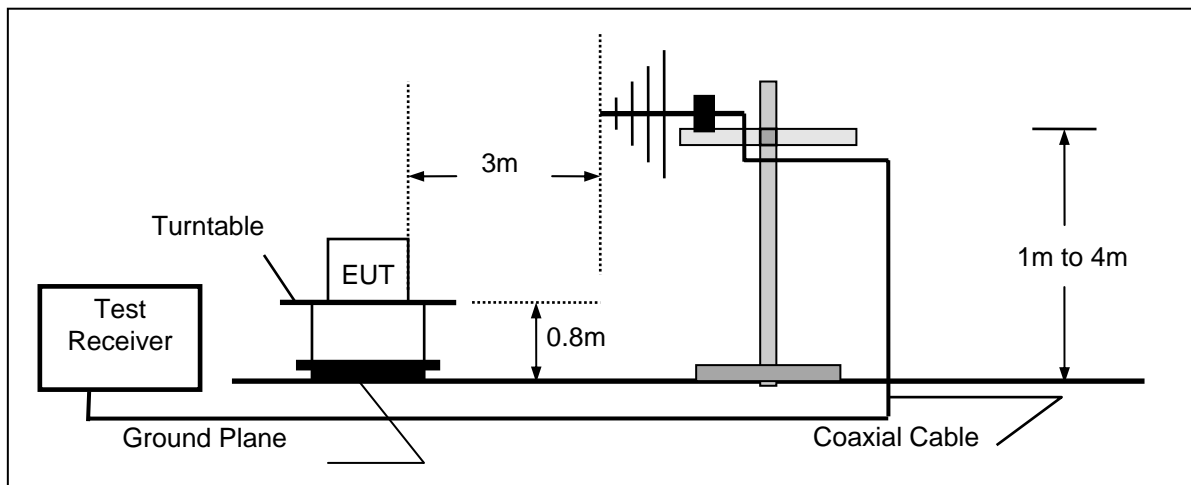
4/9/2012 11:22AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.181610	31.80	10.1	54	22.6	AV	N	GND
0.703776	18.20	10.1	46	27.8	AV	N	GND
1.982910	24.40	10.2	46	21.6	AV	N	GND
2.252537	24.50	10.2	46	21.5	AV	N	GND
11.086095	28.70	10.6	50	21.3	AV	N	GND
16.381160	36.50	10.8	50	13.5	AV	N	GND

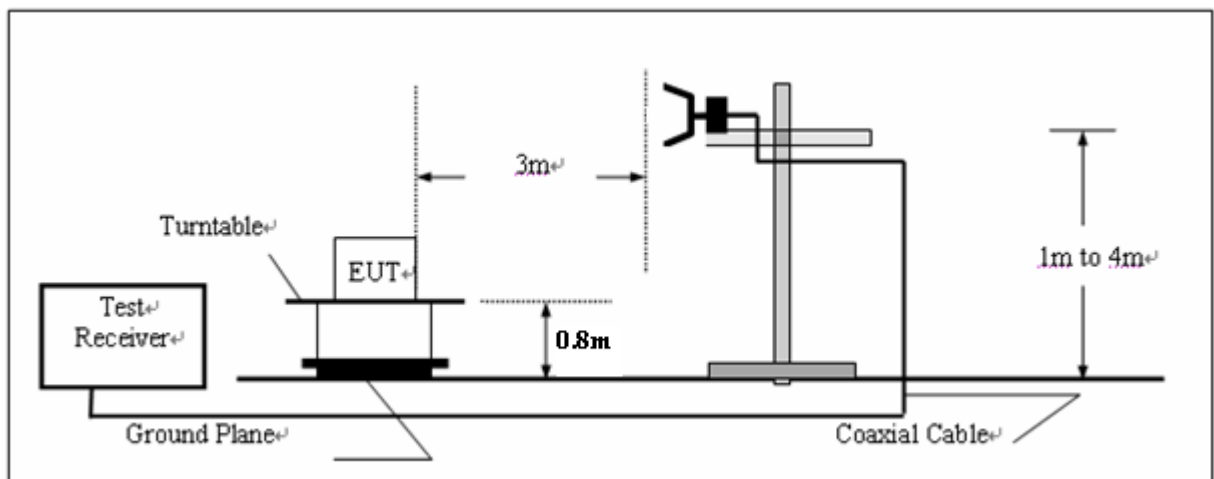
4.2. Radiated Emission

TEST CONFIGURATION

(a) Radiated Emission Test Set-Up, Frequency below 1000MHz



(b) Radiated Emission Test Set-Up, Frequency above 1000MHz



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.

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.

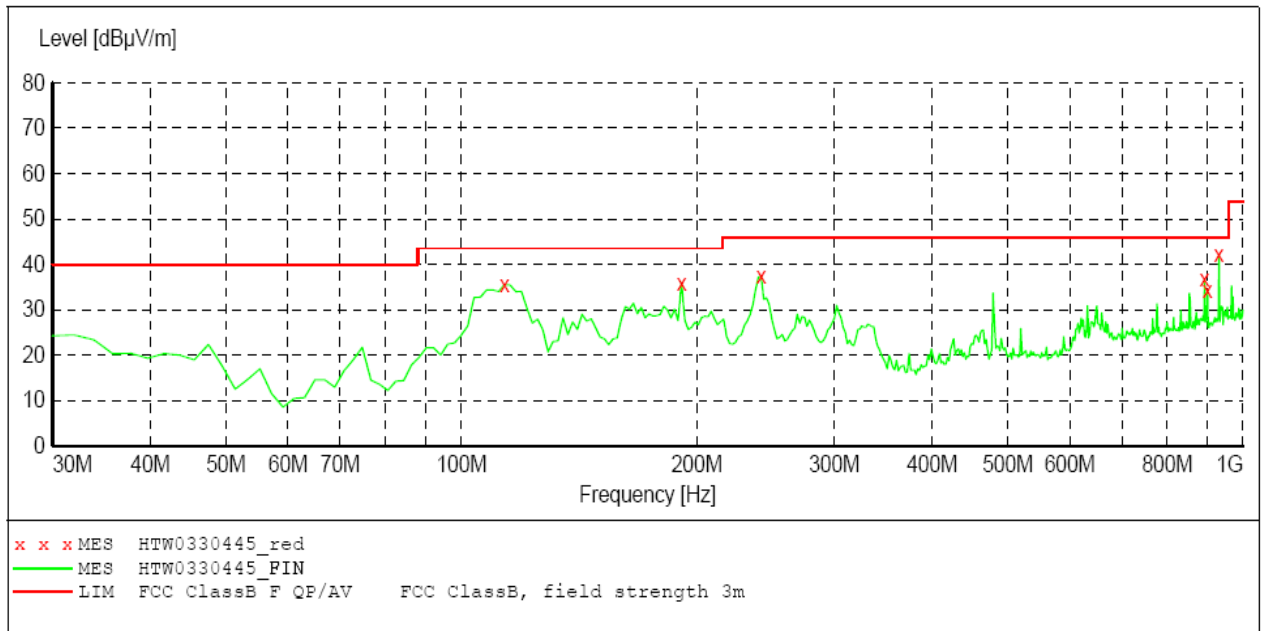
Frequency (MHz)	Distance (Meters)	Radiated (dB μ V/m)	Radiated (μ V/m)
30-88	3	40.0	100
88-216	3	43.5	150
216-960	3	46.0	200
Above 960	3	54.0	500

TEST RESULTS

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.

SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	HL562 201106



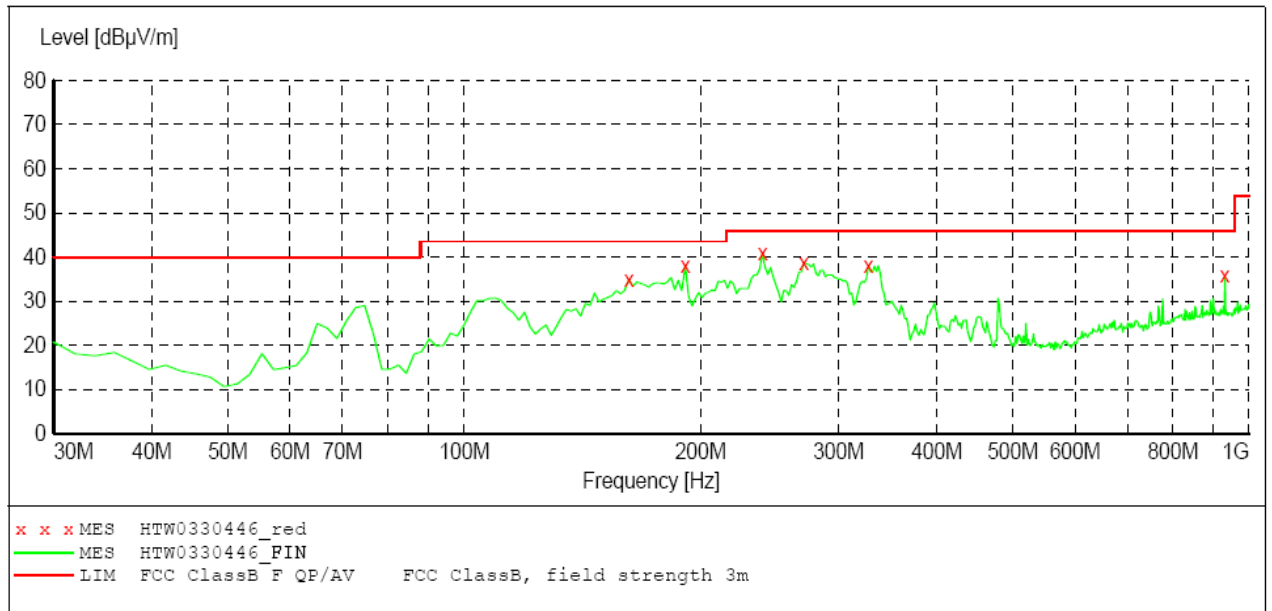
MEASUREMENT RESULT: "HTW0330445_FIN"

3/30/2012 4:32PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
113.587174	35.50	-19.6	43.5	8.0	QP	100.0	109.00	VERTICAL
191.342685	35.90	-22.2	43.5	7.6	QP	100.0	69.00	VERTICAL
241.883768	37.30	-18.8	46.0	8.7	QP	100.0	69.00	VERTICAL
893.086172	36.60	-6.8	46.0	9.4	QP	100.0	22.00	VERTICAL
900.861723	34.30	-7.3	46.0	11.7	QP	100.0	26.00	VERTICAL
931.963928	42.10	-7.2	46.0	3.9	QP	100.0	0.00	VERTICAL

SWEEP TABLE: "test (30M-1G)"

Short Description:		Field Strength			
Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	HL562 201106



MEASUREMENT RESULT: "HTW0330446FIN"

3/30/2012 4:35PM

Frequency	Level	Transd	Limit	Margin	Det.	Height	Azimuth	Polarization
MHz	dBuV/m	dB	dBuV/m	dB		cm	deg	
162.184369	34.90	-23.1	43.5	8.6	QP	300.0	181.00	HORIZONTAL
191.342685	38.00	-22.2	43.5	5.5	QP	100.0	299.00	HORIZONTAL
239.939880	40.80	-18.8	46.0	5.2	QP	100.0	137.00	HORIZONTAL
271.042084	38.80	-18.0	46.0	7.2	QP	100.0	164.00	HORIZONTAL
327.414830	38.10	-16.1	46.0	7.9	QP	100.0	144.00	HORIZONTAL
931.963928	35.70	-7.2	46.0	10.3	QP	100.0	232.00	HORIZONTAL

802.11b Mode(above 1GHz)

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11b--2412MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	2390.00	43.24	PK	74.00	30.76	1.00 H	216	46.64	28.3	4.90	-36.6	-3.40
1	2390.00	35.21	AV	54.00	18.79	1.00 H	216	38.61	28.3	4.90	-36.6	-3.40
2	*2412.00	95.06	PK			1.00 H	360	98.46	28.3	4.90	-36.6	-3.40
2	*2412.00	88.65	AV			1.00 H	360	92.05	28.3	4.90	-36.6	-3.40
3	4824.00	48.98	PK	74.00	25.02	1.00 H	359	45.78	32.7	7.00	-36.5	3.20
3	4824.00	40.15	AV	54.00	13.85	1.00 H	359	36.95	32.7	7.00	-36.5	3.20
4	7236.00	51.17	PK	74.00	22.83	1.00 H	152	41.77	35.8	8.90	-35.3	9.40
4	7236.00	43.62	AV	54.00	10.38	1.00 H	152	34.22	35.8	8.90	-35.3	9.40
5	9648.00	51.02	PK	74.00	22.98	1.00 H	140	38.42	37.2	10.20	-34.8	12.60
5	9648.00	43.25	AV	54.00	10.75	1.00 H	140	30.65	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11b--2412MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	2390.0	43.04	PK	74.00	30.96	1.00 V	192	46.44	28.3	4.90	-36.6	-3.40
1	2390.0	34.65	AV	54.00	19.35	1.00 V	192	38.05	28.3	4.90	-36.6	-3.40
2	*2412.	98.29	PK			1.00 V	124	101.69	28.3	4.90	-36.6	-3.40
2	*2412.	91.26	AV			1.00 V	124	94.66	28.3	4.90	-36.6	-3.40
3	4824.0	52.69	PK	74.00	21.31	1.00 V	339	49.49	32.7	7.00	-36.5	3.20
3	4824.0	43.26	AV	54.00	10.74	1.00 V	339	40.06	32.7	7.00	-36.5	3.20
4	7236.0	52.19	PK	74.00	21.81	1.00 V	340	42.79	35.8	8.90	-35.3	9.40
4	7236.0	41.52	AV	54.00	12.48	1.00 V	340	32.12	35.8	8.90	-35.3	9.40
5	9648.0	53.64	PK	74.00	20.36	1.00 V	20	41.04	37.2	10.20	-34.8	12.60
5	9648.0	43.57	AV	54.00	10.43	1.00 V	20	30.97	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11b--2437MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2437.00	99.26	PK			1.00 H	153	102.46	28.3	5.10	-36.6	-3.20
1	*2437.00	90.23	AV			1.00 H	153	93.43	28.3	5.10	-36.6	-3.20
2	4874.00	46.12	PK	74.00	27.88	1.00 H	202	42.72	32.3	7.60	-36.5	3.40
2	4874.00	35.06	AV	54.00	18.94	1.00 H	202	31.66	32.3	7.60	-36.5	3.40
3	7311.00	51.36	PK	74.00	22.64	1.00 H	355	41.96	36.1	8.60	-35.3	9.40
3	7311.00	39.48	AV	54.00	14.52	1.00 H	355	30.08	36.1	8.60	-35.3	9.40
4	9748.00	53.63	PK	74.00	20.37	1.00 H	28	41.03	37.2	10.20	-34.8	12.60
4	9748.00	41.20	AV	54.00	12.8	1.00 H	28	28.6	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11b--2437MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2437.00	100.65	PK			1.00 V	121	103.8	28.3	5.10	-36.6	-3.20
1	*2437.00	90.25	AV			1.00 V	121	93.45	28.3	5.10	-36.6	-3.20
2	4874.00	47.23	PK	74.00	26.77	1.00 V	97	43.83	32.3	7.60	-36.5	3.40
2	4874.00	35.13	AV	54.00	18.87	1.00 V	97	31.73	32.3	7.60	-36.5	3.40
3	7311.00	59.52	PK	74.00	14.48	1.00 V	288	50.12	36.1	8.60	-35.3	9.40
3	7311.00	39.78	AV	54.00	14.22	1.00 V	288	30.38	36.1	8.60	-35.3	9.40
4	9748.00	49.85	PK	74.00	24.15	1.00 V	89	37.25	37.2	10.20	-34.8	12.60
4	9748.00	38.55	AV	54.00	15.45	1.00 V	89	25.95	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11b--2462MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2462.00	93.19	PK			1.00 H	154	96.49	28.6	4.70	-36.6	-3.30
1	*2462.00	84.96	AV			1.00 H	154	88.26	28.6	4.70	-36.6	-3.30
2	2483.50	60.97	PK	74.00	13.03	1.00 H	146	64.27	28.6	4.70	-36.6	-3.30
2	2483.50	45.62	AV	54.00	8.38	1.00 H	146	48.92	28.6	4.70	-36.6	-3.30
3	4924.00	49.24	PK	74.00	24.76	1.00 H	100	45.44	33.0	7.00	-36.2	3.80
3	4924.00	31.91	AV	54.00	22.09	1.00 H	100	28.11	33.0	7.00	-36.2	3.80
4	7386.00	55.79	PK	74.00	18.21	1.00 H	190	46.39	36.2	8.50	-35.3	9.40
4	7386.00	40.62	AV	54.00	13.38	1.00 H	190	31.22	36.2	8.50	-35.3	9.40
5	9848.00	50.56	PK	74.00	23.44	1.00 H	113	37.96	37.2	10.20	-34.8	12.60
5	9848.00	30.52	AV	54.00	23.48	1.00 H	113	17.92	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11b--2462MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2462.00	98.20	PK			1.00 V	247	101.5	28.6	4.70	-36.6	-3.30
1	*2462.00	90.45	AV			1.00 V	247	93.75	28.6	4.70	-36.6	-3.30
2	2483.50	60.80	PK	74.00	13.20	1.00 V	150	64.1	28.6	4.70	-36.6	-3.30
2	2483.50	40.21	AV	54.00	13.79	1.00 V	150	43.51	28.6	4.70	-36.6	-3.30
3	4924.00	54.93	PK	74.00	19.07	1.00 V	90	51.13	33.0	7.00	-36.2	3.80
3	4924.00	45.83	AV	54.00	8.17	1.00 V	90	42.03	33.0	7.00	-36.2	3.80
4	7386.00	63.60	PK	74.00	10.40	1.00 V	29	54.2	36.2	8.50	-35.3	9.40
4	7386.00	40.57	AV	54.00	13.43	1.00 V	29	31.17	36.2	8.50	-35.3	9.40
5	9848.00	56.22	PK	74.00	17.78	1.00 V	222	43.62	37.2	10.20	-34.8	12.60
5	9848.00	33.57	AV	54.00	20.43	1.00 V	222	20.97	37.2	10.20	-34.8	12.60

- REMARKS:**
1. Emission level (dBuV/m)=Raw Value(dBuV) + Correction Factor(dB/m)
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) +Pre-amplifier Factor
 3. The other emission levels were very low against the limit.
 4. Margin value = Limit value- Emission level.
 5. The limit value is defined as per 15.247
 6. "*" "": Fundamental frequency
 7. For Wireless 802.11b mode at 11Mbps.

802.11g Mode

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11g--2412MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	2390.00	43.48	PK	74.00	30.52	1.00 H	142	46.7	28.3	5.00	-36.6	-3.30
1	2390.00	30.52	AV	54.00	23.48	1.00 H	142	33.8	28.3	5.00	-36.6	-3.30
2	*2412.00	93.62	PK			1.00 H	123	96.9	28.3	5.00	-36.6	-3.30
2	*2412.00	83.35	AV			1.00 H	123	86.6	28.3	5.00	-36.6	-3.30
3	4824.00	49.92	PK	74.00	24.08	1.00 H	216	46.1	32.7	7.30	-36.2	3.80
3	4824.00	36.14	AV	54.00	17.86	1.00 H	216	32.3	32.7	7.30	-36.2	3.80
4	7236.00	54.66	PK	74.00	19.34	1.00 H	176	45.2	35.8	8.90	-35.3	9.40
4	7236.00	35.67	AV	54.00	18.33	1.00 H	176	26.2	35.8	8.90	-35.3	9.40
5	9648.00	50.42	PK	74.00	23.58	1.00 H	72	37.8	37.2	10.20	-34.8	12.60
5	9648.00	32.47	AV	54.00	21.53	1.00 H	72	19.8	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11g--2412MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	2390.00	52.67	PK	74.00	21.33	1.00 V	199	55.97	28.3	5.00	-36.6	-3.30
1	2390.00	33.45	AV	54.00	20.55	1.00 V	199	36.75	28.3	5.00	-36.6	-3.30
2	*2412.00	100.6	PK			1.00 V	127	103.9	28.3	5.00	-36.6	-3.30
2	*2412.00	86.57	AV			1.00 V	127	89.87	28.3	5.00	-36.6	-3.30
3	4824.00	57.35	PK	74.00	16.65	1.00 V	95	53.55	32.7	7.30	-36.2	3.80
3	4824.00	39.58	AV	54.00	14.42	1.00 V	95	35.78	32.7	7.30	-36.2	3.80
4	7236.00	61.29	PK	74.00	12.71	1.00 V	0	51.89	35.8	8.90	-35.3	9.40
4	7236.00	42.47	AV	54.00	11.53	1.00 V	0	33.07	35.8	8.90	-35.3	9.40
5	9648.00	60.54	PK	74.00	13.46	1.00 V	264	47.94	37.2	10.20	-34.8	12.60
5	9648.00	42.57	AV	54.00	11.43	1.00 V	264	29.97	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11g--2437MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2437.00	97.54	PK			1.00 H	100	100.74	28.3	5.10	-36.6	-3.20
1	*2437.00	83.45	AV			1.00 H	100	86.65	28.3	5.10	-36.6	-3.20
2	4874.00	65.12	PK	74.00	8.88	1.00 H	214	61.72	32.8	7.10	-36.5	3.40
2	4874.00	41.57	AV	54.00	12.43	1.00 H	214	38.17	32.8	7.10	-36.5	3.40
3	7311.00	58.41	PK	74.00	15.59	1.00 H	0	49.01	36.1	8.60	-35.3	9.40
3	7311.00	40.91	AV	54.00	13.09	1.00 H	0	31.51	36.1	8.60	-35.3	9.40
4	9748.00	50.40	PK	74.00	23.6	1.00 H	163	37.8	37.2	10.20	-34.8	12.60
4	9748.00	30.78	AV	54.00	23.22	1.00 H	163	18.18	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11g--2437MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2437.00	99.21	PK			1.00 V	122	102.41	28.3	5.10	-36.6	-3.20
1	*2437.00	88.78	AV			1.00 V	122	91.98	28.3	5.10	-36.6	-3.20
2	4874.00	58.72	PK	74.00	15.28	1.00 V	100	55.32	32.8	7.10	-36.5	3.40
2	4874.00	40.15	AV	54.00	13.85	1.00 V	100	36.75	32.8	7.10	-36.5	3.40
3	7311.00	53.21	PK	74.00	20.79	1.00 V	356	43.81	36.1	8.60	-35.3	9.40
3	7311.00	41.00	AV	54.00	13.00	1.00 V	356	31.60	36.1	8.60	-35.3	9.40
4	9748.00	49.87	PK	74.00	24.13	1.00 V	26	37.27	37.2	10.20	-34.8	12.60
4	9748.00	35.92	AV	54.00	18.08	1.00 V	26	23.32	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11g--2462MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2462.00	92.63	PK			1.00 H	156	95.93	28.2	5.10	-36.6	-3.30
1	*2462.00	82.21	AV			1.00 H	156	85.51	28.2	5.10	-36.6	-3.30
2	2483.50	50.15	PK	74.00	23.85	1.00 H	191	53.45	28.2	5.10	-36.6	-3.30
2	2483.50	38.54	AV	54.00	15.46	1.00 H	191	41.84	28.2	5.10	-36.6	-3.30
3	4924.00	50.98	PK	74.00	23.02	1.00 H	198	47.18	33.0	7.00	-36.2	3.80
3	4924.00	36.47	AV	54.00	17.53	1.00 H	198	32.67	33.0	7.00	-36.2	3.80
4	7386.00	55.13	PK	74.00	18.87	1.00 H	90	45.73	36.2	8.50	-35.3	9.40
4	7386.00	40.57	AV	54.00	13.43	1.00 H	90	31.17	36.2	8.50	-35.3	9.40
5	9848.00	53.47	PK	74.00	20.53	1.00 H	124	40.87	37.3	10.10	-34.8	12.60
5	9848.00	40.11	AV	54.00	13.89	1.00 H	124	27.51	37.3	10.10	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11g--2462MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2462.00	87.83	PK			1.00 V	125	91.13	28.2	5.10	-36.6	-3.30
1	*2462.00	80.12	AV			1.00 V	125	83.42	28.2	5.10	-36.6	-3.30
2	2483.50	51.80	PK	74.00	22.20	1.00 V	348	55.1	28.2	5.10	-36.6	-3.30
2	2483.50	34.52	AV	54.00	19.48	1.00 V	348	37.82	28.2	5.10	-36.6	-3.30
3	4924.00	46.71	PK	74.00	27.29	1.00 V	96	42.91	33.0	7.00	-36.2	3.80
3	4924.00	33.58	AV	54.00	20.42	1.00 V	96	29.78	33.0	7.00	-36.2	3.80
4	7386.00	54.35	PK	74.00	19.65	1.00 V	35	44.95	36.2	8.50	-35.3	9.40
4	7386.00	40.87	AV	54.00	13.13	1.00 V	35	31.47	36.2	8.50	-35.3	9.40
5	9848.00	46.52	PK	74.00	27.48	1.00 V	37	33.92	37.3	10.10	-34.8	12.60
5	9848.00	33.86	AV	54.00	20.14	1.00 V	37	21.26	37.3	10.10	-34.8	12.60

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m)
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) + Pre-amplifier Factor
 3. The other emission levels were very low against the limit.
 4. Margin value = Limit value - Emission level.
 5. The limit value is defined as per 15.247
 6. " * " : Fundamental frequency
 7. For Wireless 802.11g mode at 54Mbps.

802.11n20 Mode

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11n20--2412MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	2390.00	42.51	PK	74.00	31.49	1.00 H	248	45.81	28.3	5.00	-36.6	-3.30
1	2390.00	30.78	AV	54.00	23.22	1.00 H	248	34.08	28.3	5.00	-36.6	-3.30
2	*2412.00	98.62	PK			1.00 H	100	101.92	28.3	5.00	-36.6	-3.30
2	*2412.00	83.69	AV			1.00 H	100	86.99	28.3	5.00	-36.6	-3.30
3	4824.00	56.56	PK	74.00	17.44	1.00 H	204	52.76	32.7	7.30	-36.2	3.80
3	4824.00	40.89	AV	54.00	13.11	1.00 H	204	37.09	32.7	7.30	-36.2	3.80
4	7236.00	57.52	PK	74.00	16.48	1.00 H	114	48.12	35.8	8.90	-35.3	9.40
4	7236.00	40.13	AV	54.00	13.87	1.00 H	114	30.73	35.8	8.90	-35.3	9.40
5	9648.00	50.21	PK	74.00	23.79	1.00 H	93	37.61	37.2	10.20	-34.8	12.60
5	9648.00	35.69	AV	54.00	18.31	1.00 H	93	23.09	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11n20--2412MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	2390.00	44.03	PK	74.00	29.97	1.00 V	123	47.33	28.3	5.00	-36.6	-3.30
1	2390.00	31.74	AV	54.00	22.26	1.00 V	123	35.04	28.3	5.00	-36.6	-3.30
2	*2412.00	100.58	PK			1.00 V	123	103.88	28.3	5.00	-36.6	-3.30
2	*2412.00	86.54	AV			1.00 V	123	89.84	28.3	5.00	-36.6	-3.30
3	4824.00	58.42	PK	74.00	15.58	1.00 V	100	54.62	32.7	7.30	-36.2	3.80
3	4824.00	42.57	AV	54.00	11.43	1.00 V	100	38.77	32.7	7.30	-36.2	3.80
4	7236.00	60.14	PK	74.00	13.86	1.00 V	236	50.74	35.8	8.90	-35.3	9.40
4	7236.00	43.87	AV	54.00	10.13	1.00 V	236	34.47	35.8	8.90	-35.3	9.40
5	9648.00	56.87	PK	74.00	17.13	1.00 V	116	44.27	37.2	10.20	-34.8	12.60
5	9648.00	40.57	AV	54.00	13.43	1.00 V	116	27.97	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11n20--2437MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2437.00	93.58	PK			1.00 H	120	96.7	28.3	5.10	-36.6	-3.20
1	*2437.00	80.52	AV			1.00 H	120	83.7	28.3	5.10	-36.6	-3.20
2	4874.00	50.62	PK	74.00	23.38	1.00 H	194	47.2	32.3	7.60	-36.5	3.40
2	4874.00	38.62	AV	54.00	15.38	1.00 H	194	35.2	32.3	7.60	-36.5	3.40
3	7311.00	53.12	PK	74.00	20.88	1.00 H	248	43.7	36.1	8.60	-35.3	9.40
3	7311.00	42.69	AV	54.00	11.31	1.00 H	248	33.2	36.1	8.60	-35.3	9.40
4	9748.00	50.05	PK	74.00	23.95	1.00 H	36	37.4	37.2	10.20	-34.8	12.60
4	9748.00	36.54	AV	54.00	17.46	1.00 H	36	23.9	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11n20--2437MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2437.00	96.52	PK			1.00 V	122	99.72	28.3	5.10	-36.6	-3.20
1	*2437.00	82.66	AV			1.00 V	122	85.86	28.3	5.10	-36.6	-3.20
2	4874.00	52.64	PK	74.00	21.36	1.00 V	181	49.24	32.3	7.60	-36.5	3.40
2	4874.00	39.52	AV	54.00	14.48	1.00 V	181	36.12	32.3	7.60	-36.5	3.40
3	7311.00	59.56	PK	74.00	14.44	1.00 V	346	50.16	36.1	8.60	-35.3	9.40
3	7311.00	40.56	AV	54.00	13.44	1.00 V	346	31.16	36.1	8.60	-35.3	9.40
4	9748.00	53.25	PK	74.00	20.75	1.00 V	335	40.65	37.2	10.20	-34.8	12.60
4	9748.00	40.56	AV	54.00	13.44	1.00 V	335	27.96	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11n20--2462MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2462.00	92.63	PK			1.00 H	122	95.9	28.2	5.10	-36.6	-3.30
1	*2462.00	79.52	AV			1.00 H	122	82.8	28.2	5.10	-36.6	-3.30
2	2483.50	50.15	PK	74.00	23.85	1.00 H	354	53.4	28.2	5.10	-36.6	-3.30
2	2483.50	38.52	AV	54.00	15.48	1.00 H	354	41.8	28.2	5.10	-36.6	-3.30
3	4924.00	50.89	PK	74.00	23.11	1.00 H	217	47.0	33.0	7.00	-36.2	3.80
3	4924.00	36.52	AV	54.00	17.48	1.00 H	217	32.7	33.0	7.00	-36.2	3.80
4	7386.00	55.22	PK	74.00	18.78	1.00 H	0	45.8	36.2	8.50	-35.3	9.40
4	7386.00	42.21	AV	54.00	11.79	1.00 H	0	32.8	36.2	8.50	-35.3	9.40
5	9848.00	51.21	PK	74.00	22.79	1.00 H	118	38.6	37.3	10.10	-34.8	12.60
5	9848.00	37.85	AV	54.00	16.15	1.00 H	118	25.2	37.3	10.10	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11n20--2462MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2462.00	94.85	PK			1.00 V	125	98.1	28.2	5.10	-36.6	-3.30
1	*2462.00	80.54	AV			1.00 V	125	83.8	28.2	5.10	-36.6	-3.30
2	2483.50	51.80	PK	74.00	22.20	1.00 V	153	55.1	28.2	5.10	-36.6	-3.30
2	2483.50	38.52	AV	54.00	15.48	1.00 V	153	41.8	28.2	5.10	-36.6	-3.30
3	4924.00	46.51	PK	74.00	27.49	1.00 V	100	42.7	33.0	7.00	-36.2	3.80
3	4924.00	32.56	AV	54.00	21.44	1.00 V	100	28.7	33.0	7.00	-36.2	3.80
4	7386.00	54.35	PK	74.00	19.65	1.00 V	0	44.9	36.2	8.50	-35.3	9.40
4	7386.00	40.56	AV	54.00	13.44	1.00 V	0	31.1	36.2	8.50	-35.3	9.40
5	9848.00	49.80	PK	74.00	24.20	1.00 V	187	37.2	37.3	10.10	-34.8	12.60
5	9848.00	32.95	AV	54.00	21.05	1.00 V	187	20.3	37.3	10.10	-34.8	12.60

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m)
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) + Pre-amplifier Factor
 3. The other emission levels were very low against the limit.
 4. Margin value = Limit value - Emission level.
 5. The limit value is defined as per 15.247
 6. " * " : Fundamental frequency
 7. For Wireless 802.11n (20MHz) mode at 65Mbps.

802.11n40 Mode

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11n40--2422MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	2390.00	40.52	PK	74.00	33.48	1.00 H	222	43.82	28.3	5.00	-36.6	-3.30
1	2390.00	30.21	AV	54.00	23.79	1.00 H	222	33.51	28.3	5.00	-36.6	-3.30
2	*2422.00	97.52	PK			1.00 H	123	100.82	28.3	5.00	-36.6	-3.30
2	*2422.00	80.41	AV			1.00 H	123	83.71	28.3	5.00	-36.6	-3.30
3	4844.00	52.64	PK	74.00	21.36	1.00 H	91	48.84	32.7	7.30	-36.2	3.80
3	4844.00	35.85	AV	54.00	18.15	1.00 H	91	32.05	32.7	7.30	-36.2	3.80
4	7266.00	45.95	PK	74.00	28.05	1.00 H	266	36.55	35.8	8.90	-35.3	9.40
4	7266.00	35.69	AV	54.00	18.31	1.00 H	266	26.29	35.8	8.90	-35.3	9.40
5	9688.00	52.59	PK	74.00	21.41	1.00 H	337	39.99	37.2	10.20	-34.8	12.60
5	9688.00	36.85	AV	54.00	17.15	1.00 H	337	24.25	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11n40--2422MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	2390.00	44.98	PK	74.00	29.02	1.00 V	80	48.28	28.3	5.00	-36.6	-3.30
1	2390.00	32.08	AV	54.00	21.92	1.00 V	80	35.38	28.3	5.00	-36.6	-3.30
2	*2422.00	96.50	PK			1.00 V	127	99.80	28.3	5.00	-36.6	-3.30
2	*2422.00	82.08	AV			1.00 V	127	85.38	28.3	5.00	-36.6	-3.30
3	4844.00	51.49	PK	74.00	22.51	1.00 V	211	47.69	32.7	7.30	-36.2	3.80
3	4844.00	37.19	AV	54.00	16.81	1.00 V	211	33.39	32.7	7.30	-36.2	3.80
4	7266.00	60.52	PK	74.00	13.48	1.00 V	57	51.12	35.8	8.90	-35.3	9.40
4	7266.00	43.89	AV	54.00	10.11	1.00 V	57	34.49	35.8	8.90	-35.3	9.40
5	9688.00	50.69	PK	74.00	23.31	1.00 V	249	38.09	37.2	10.20	-34.8	12.60
5	9688.00	35.88	AV	54.00	18.12	1.00 V	249	23.28	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11n40--2437MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2437.00	94.15	PK			1.00 H	100	97.35	28.3	5.10	-36.6	-3.20
1	*2437.00	82.16	AV			1.00 H	100	85.36	28.3	5.10	-36.6	-3.20
2	4874.00	52.61	PK	74.00	21.39	1.00 H	198	49.21	32.3	7.60	-36.5	3.40
2	4874.00	38.52	AV	54.00	15.48	1.00 H	198	35.12	32.3	7.60	-36.5	3.40
3	7311.00	56.22	PK	74.00	17.78	1.00 H	203	46.82	36.1	8.60	-35.3	9.40
3	7311.00	39.56	AV	54.00	14.44	1.00 H	203	30.16	36.1	8.60	-35.3	9.40
4	9748.00	50.10	PK	74.00	23.90	1.00 H	56	37.50	37.2	10.20	-34.8	12.60
4	9748.00	35.99	AV	54.00	18.01	1.00 H	56	23.39	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11n40--2437MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2437.00	97.85	PK			1.00 V	122	101.05	28.3	5.10	-36.6	-3.20
1	*2437.00	83.51	AV			1.00 V	122	86.71	28.3	5.10	-36.6	-3.20
2	4874.00	50.62	PK	74.00	23.38	1.00 V	96	47.22	32.3	7.60	-36.5	3.40
2	4874.00	41.66	AV	54.00	12.34	1.00 V	96	38.26	32.3	7.60	-36.5	3.40
3	7311.00	55.58	PK	74.00	18.42	1.00 V	26	46.18	36.1	8.60	-35.3	9.40
3	7311.00	40.25	AV	54.00	13.75	1.00 V	26	30.85	36.1	8.60	-35.3	9.40
4	9748.00	48.52	PK	74.00	25.48	1.00 V	299	35.92	37.2	10.20	-34.8	12.60
4	9748.00	32.20	AV	54.00	21.80	1.00 V	299	19.6	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M (802.11n40--2452MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2452.00	94.94	PK			1.00 H	153	98.14	28.2	5.20	-36.6	-3.20
1	*2452.00	80.12	AV			1.00 H	153	83.32	28.2	5.20	-36.6	-3.20
2	2483.50	49.33	PK	74.00	24.67	1.00 H	127	52.63	28.2	5.10	-36.6	-3.30
2	2483.50	35.21	AV	54.00	18.79	1.00 H	127	38.51	28.2	5.10	-36.6	-3.30
3	4904.00	50.58	PK	74.00	23.42	1.00 H	204	46.78	33.0	7.00	-36.2	3.80
3	4904.00	36.15	AV	54.00	17.85	1.00 H	204	32.35	33.0	7.00	-36.2	3.80
4	7356.00	56.74	PK	74.00	17.26	1.00 H	301	47.34	36.2	8.50	-35.3	9.40
4	7356.00	41.25	AV	54.00	12.75	1.00 H	301	31.85	36.2	8.50	-35.3	9.40
5	9808.00	50.26	PK	74.00	23.74	1.00 H	118	37.66	37.3	10.10	-34.8	12.60
5	9808.00	34.58	AV	54.00	19.42	1.00 H	118	21.98	37.3	10.10	-34.8	12.60

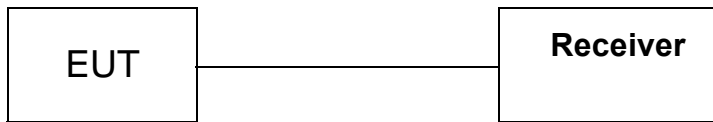
ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M (802.11n40--2452MHz)

No.	Frequency (MHz)	Emission Level (dBuV/m)		Limit (dBuV/m)	Margin (dB)	Antenna Height (m)	Table Angle (Degree)	Raw Value (dBuV)	Antenna Factor (dB/m)	Cable Factor (dB)	Pre-amplifier (dB)	Correction Factor (dB/m)
1	*2452.00	98.99	PK			1.00 V	125	102.19	28.2	5.20	-36.6	-3.20
1	*2452.00	81.54	AV			1.00 V	125	84.74	28.2	5.20	-36.6	-3.20
2	2483.50	40.90	PK	74.00	33.1	1.00 V	143	44.20	28.2	5.10	-36.6	-3.30
2	2483.50	29.58	AV	54.00	24.42	1.00 V	143	32.88	28.2	5.10	-36.6	-3.30
3	4904.00	55.14	PK	74.00	18.86	1.00 V	177	51.34	33.0	7.00	-36.2	3.80
3	4904.00	38.47	AV	54.00	15.53	1.00 V	177	34.67	33.0	7.00	-36.2	3.80
4	7356.00	60.09	PK	74.00	13.91	1.00 V	0	50.69	36.2	8.50	-35.3	9.40
4	7356.00	42.31	AV	54.00	11.69	1.00 V	0	32.91	36.2	8.50	-35.3	9.40
5	9808.00	52.68	PK	74.00	21.32	1.00 V	315	40.08	37.3	10.10	-34.8	12.60
5	9808.00	31.55	AV	54.00	22.45	1.00 V	315	18.95	37.3	10.10	-34.8	12.60

- REMARKS:**
1. Emission level (dBuV/m) = Raw Value (dBuV) + Correction Factor (dB/m)
 2. Correction Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) + Pre-amplifier Factor
 3. The other emission levels were very low against the limit.
 4. Margin value = Limit value - Emission level.
 5. The limit value is defined as per 15.247
 6. " * " : Fundamental frequency
 7. For Wireless 802.11n (40MHz) mode at 135Mbps.

4.3. Maximum Peak Output Power

TEST CONFIGURATION



TEST PROCEDURE

The EUT was directly connected to the power meter and antenna output port as show in the block diagram as TEST CONFIGURATION shows.

LIMIT

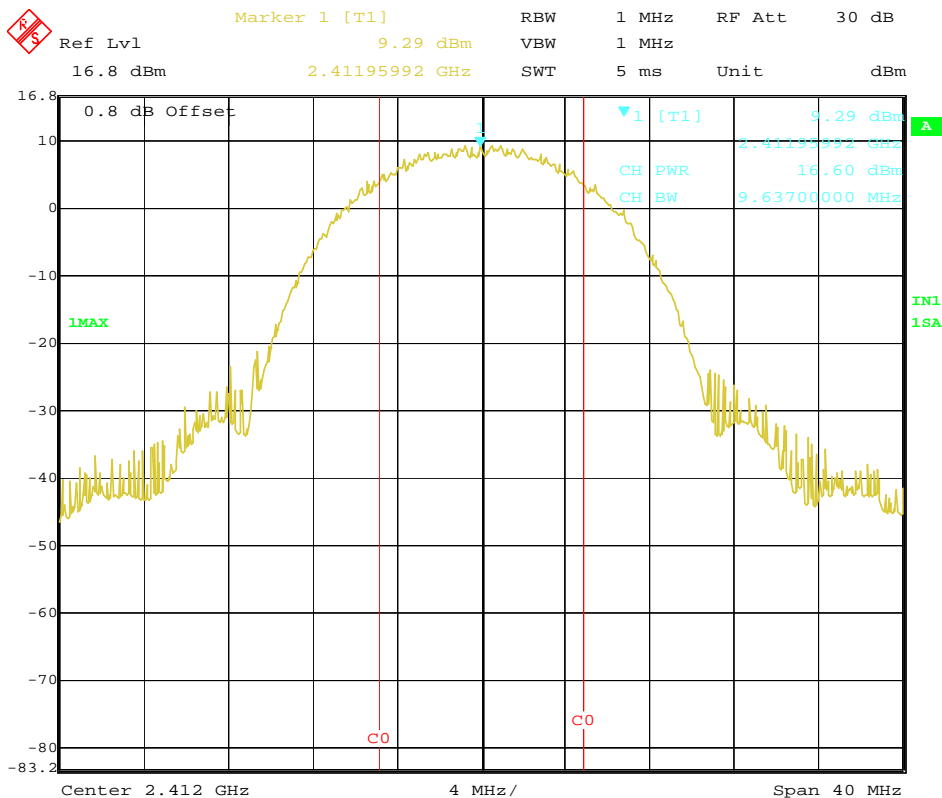
The Maximum Peak Output Power Measurement is 30dBm.

TEST RESULTS

Channel	Frequency (MHz)	Reading Power Output(dBm)	Limit (dBm)	Pass / Fail
802.11b				
Low	2412	16.60	30	PASS
Middle	2437	16.77	30	PASS
High	2462	16.80	30	PASS
802.11g				
Low	2412	16.20	30	PASS
Middle	2437	15.77	30	PASS
High	2462	15.42	30	PASS
802.11n20				
Low	2412	15.66	30	PASS
Middle	2437	15.38	30	PASS
High	2462	15.42	30	PASS
802.11n40				
Low	2422	15.13	30	PASS
Middle	2437	15.21	30	PASS
High	2452	14.87	30	PASS

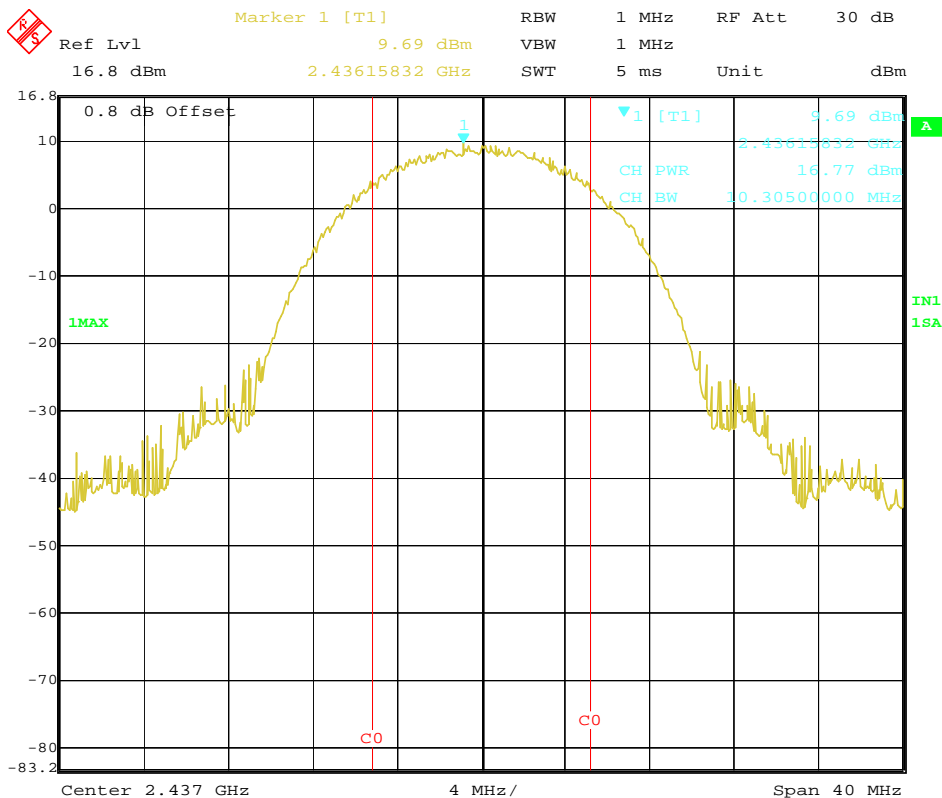
Photos of Maximum Peak Output Power

802.11b Mode channel 1



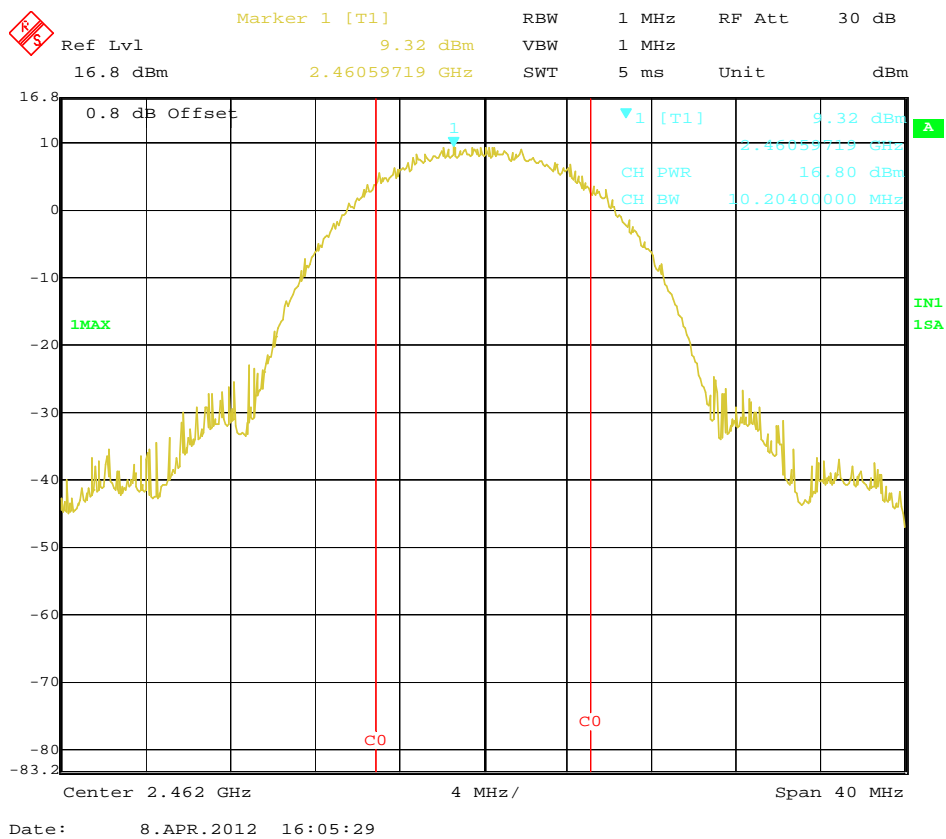
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802.11b Mode channel 6

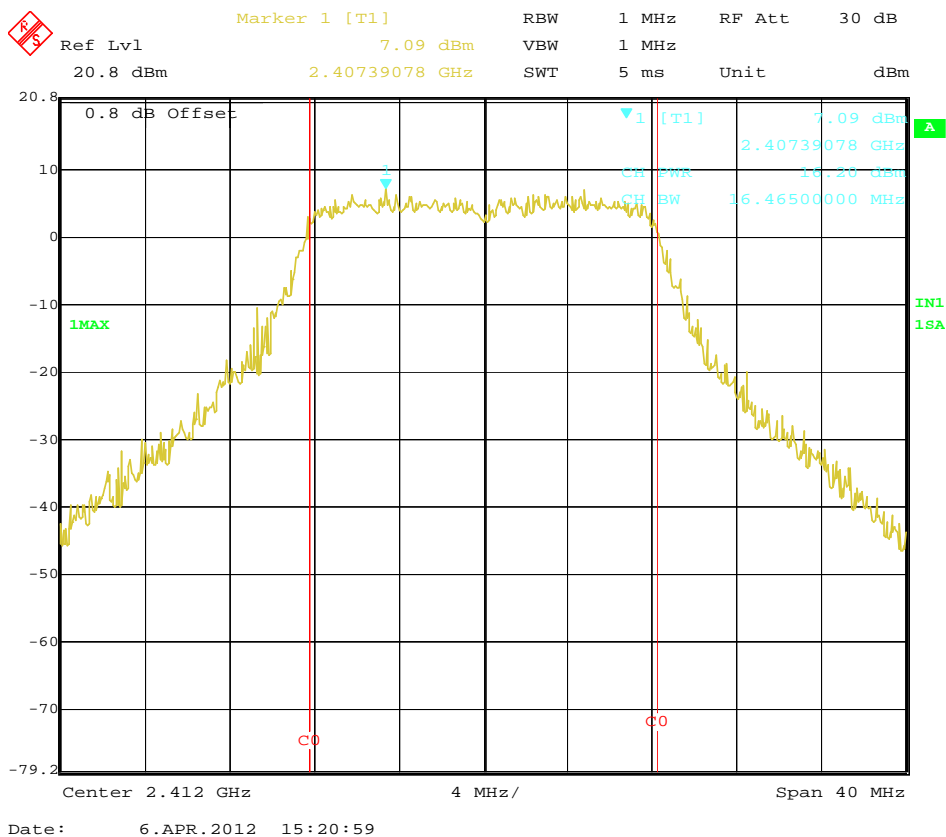


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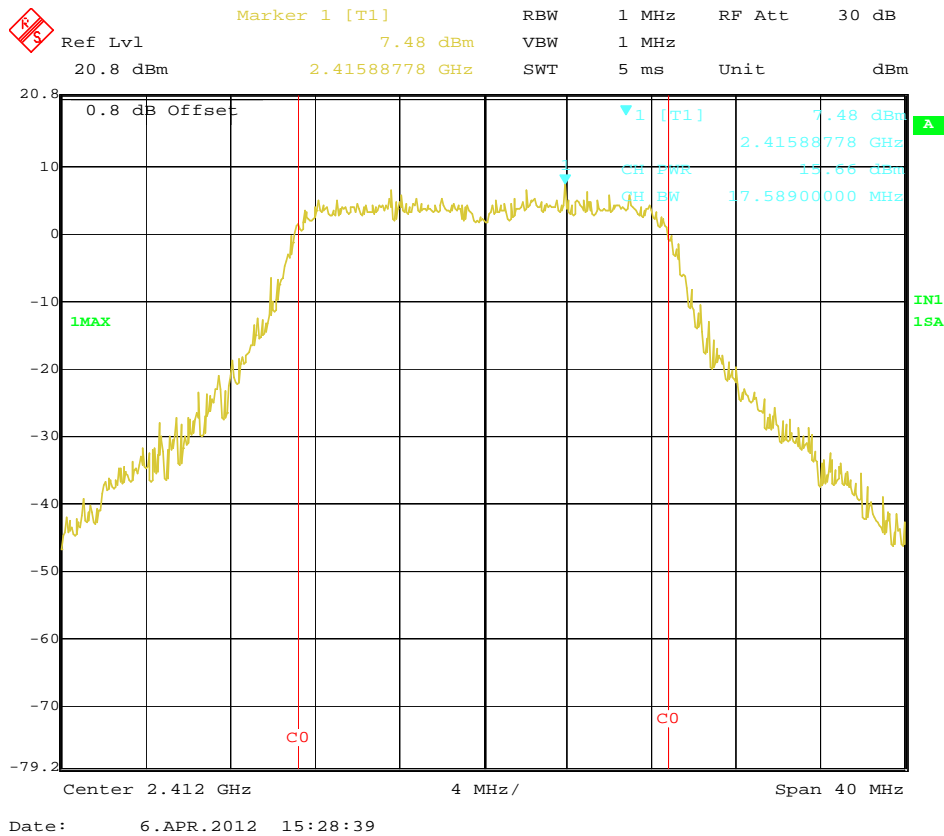
802.11b Mode channel 11



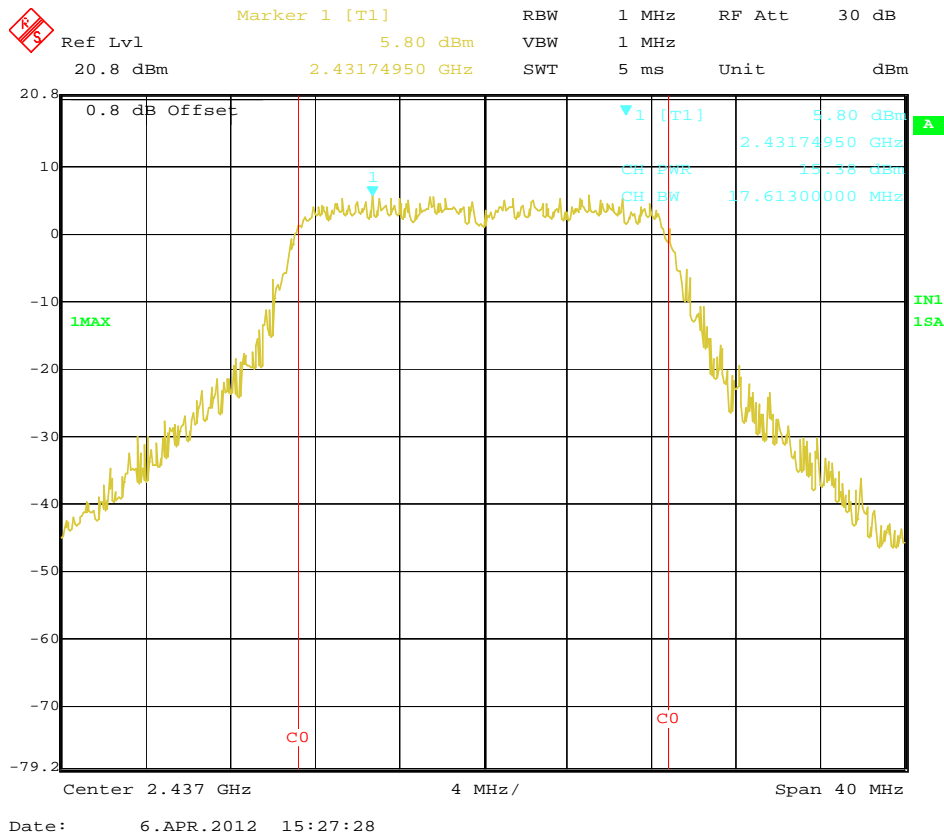
802.11g Mode channel 1



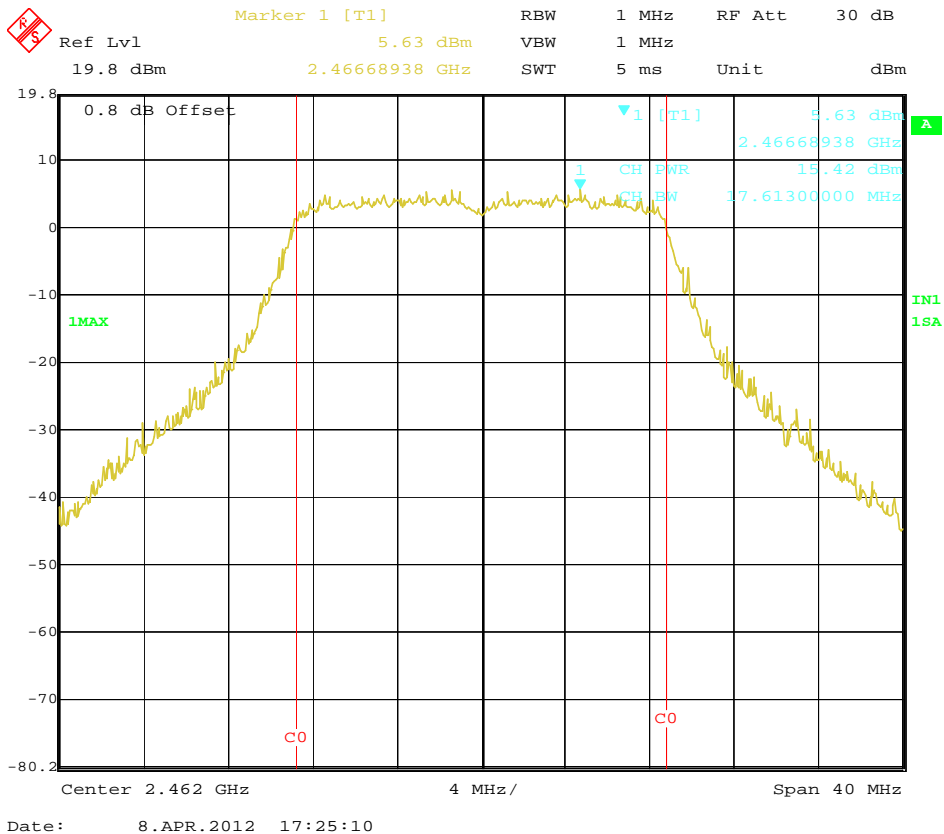
802.11n20 Mode channel 1



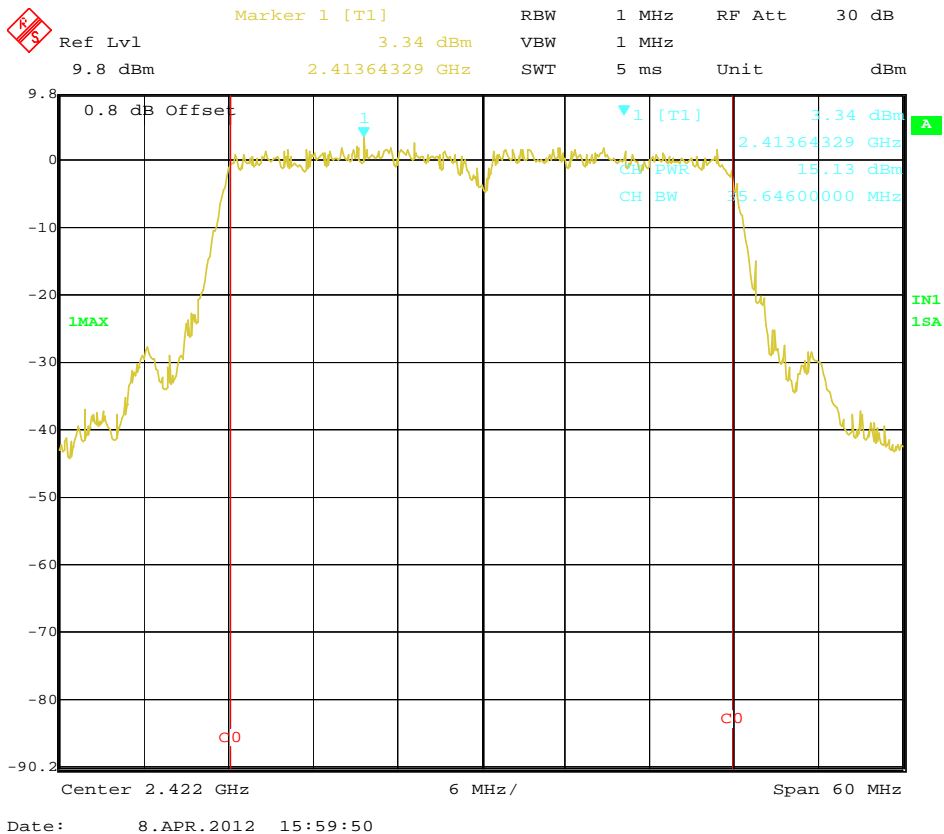
802.11n20 Mode channel 6



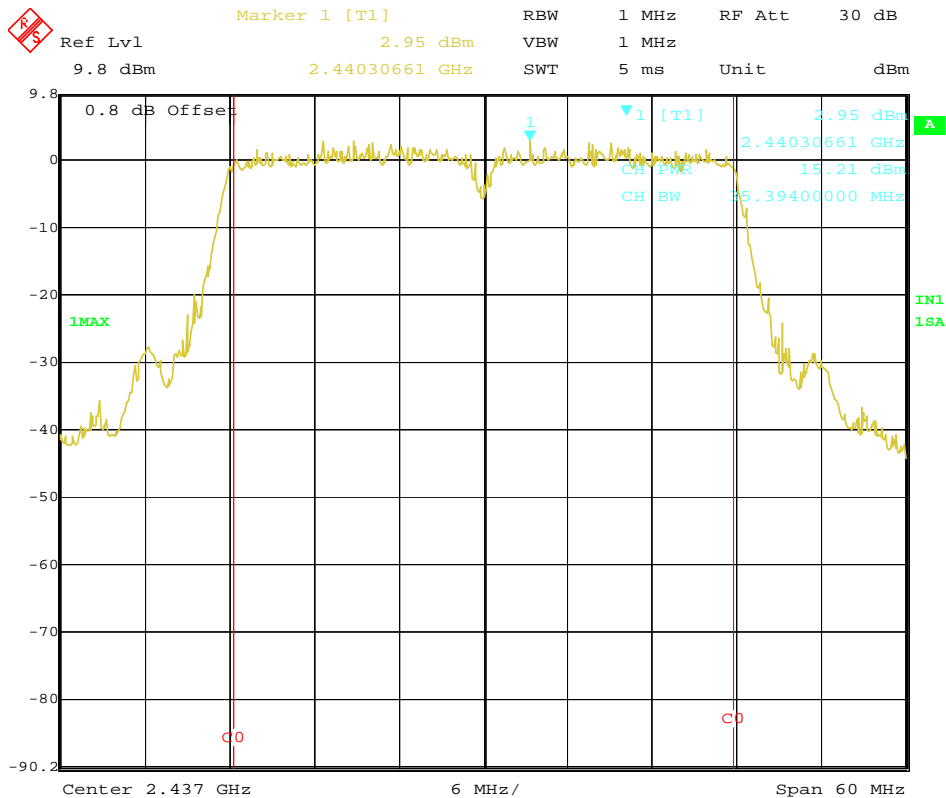
802.11n20 Mode channel 11



802.11n40 Mode channel 3

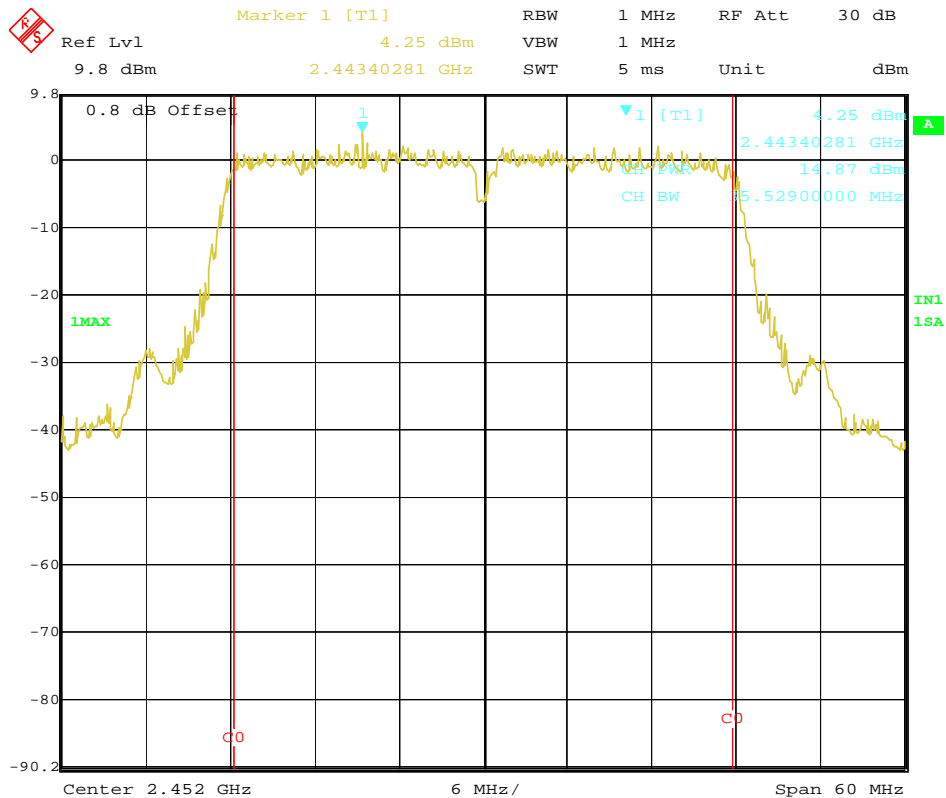


802.11n40 Mode channel 7



Date: 8.APR.2012 15:57:05

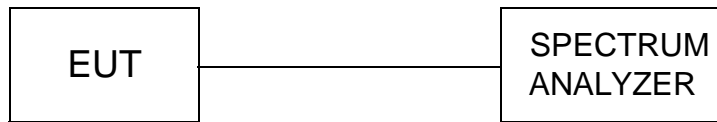
802.11n40 Mode channel 11



Date: 8.APR.2012 15:48:16

4.4. Power Spectral Density

TEST CONFIGURATION



TEST PROCEDURE

1. Set CENTER FREQUENCY = Frequency from Power Spectral Density Test Matrix
2. Set SPAN = 20 MHz (For devices with a nominal 40 MHz BW, 50 MHz span will be needed)
3. Set REFERENCE LEVEL = 20 dBm
4. Set ATTENUATION = 0 dB (add internal attenuation, if necessary)
5. Set SWEEP TIME = Coupled
6. Set RBW = 3 kHz
7. Set VBW = 10 kHz
8. Set DETECTOR = Peak
9. Set MKR = Center Frequency
10. Set TRACE = CLEAR WRITE

Place the radio in continuous transmit mode. Set the TRACE to MAX HOLD, and after the trace stabilizes, the TRACE to VIEW. Set the marker on the peak of the signal and then adjust the center frequency of the spectrum analyzer to the marker frequency. After viewing the EUT waveform on the spectrum analyzer, perform the following spectrum analyzer functions to capture the trace:

11. Set SPAN = 300 kHz
12. Set SWEEP TIME = 100 s
13. Set TRACE = MAX HOLD
14. Set MKR = PEAK SEARCH
15. Record the marker level for the particular mode. Repeat these steps for other device modes.

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

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-9.454	8	PASS
6	2437	-10.68	8	PASS
11	2462	-11.61	8	PASS

Note: 1. For 802.11b mode at final test to get the worst-case emission at 11Mbps.
2. The test results including the cable lose.

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-14.47	8	PASS
6	2437	-15.65	8	PASS
11	2462	-15.52	8	PASS

Note: 1. For 802.11g mode at final test to get the worst-case emission at 54Mbps.
2. The test results including the cable lose.

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
1	2412	-15.52	8	PASS
6	2437	-15.00	8	PASS
11	2462	-15.61	8	PASS

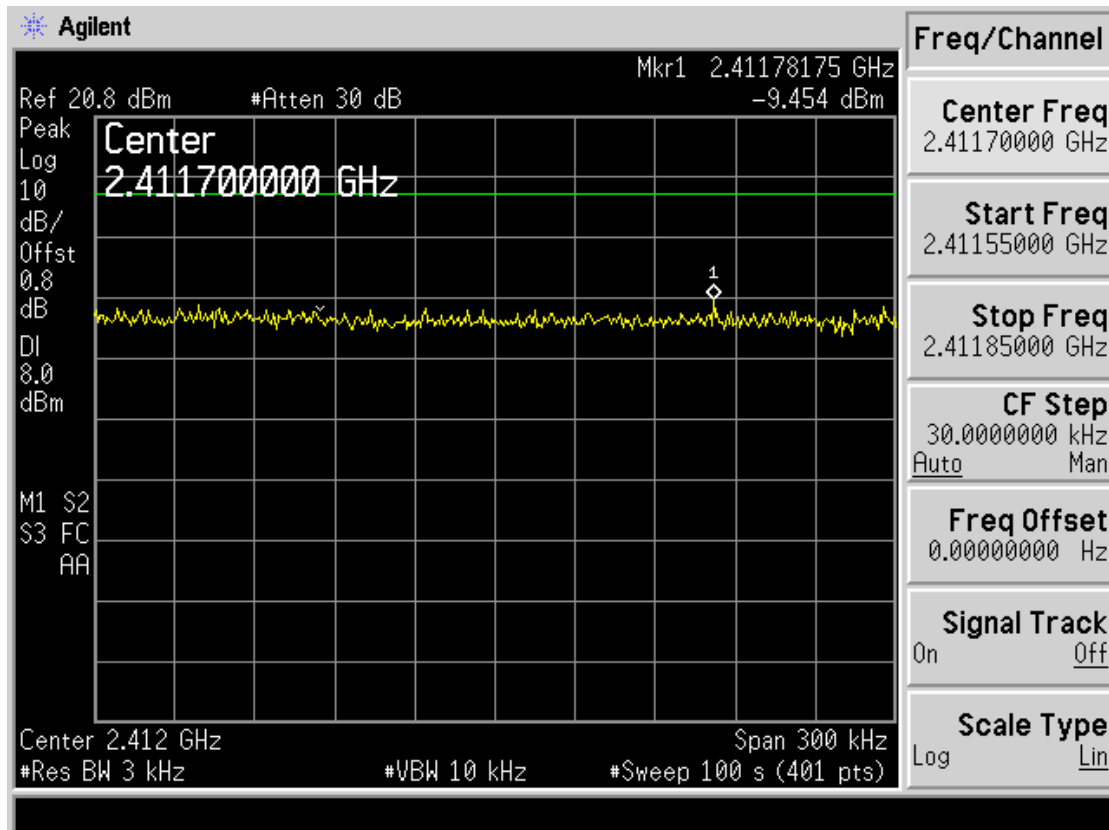
Note: 1. For 802.11n(20MHz) mode at final test to get the worst-case emission at 65 Mbps.
2. The test results including the cable lose.

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM LIMIT (dBm)	PASS/FAIL
3	2422	-17.26	8	PASS
6	2437	-19.39	8	PASS
9	2452	-17.23	8	PASS

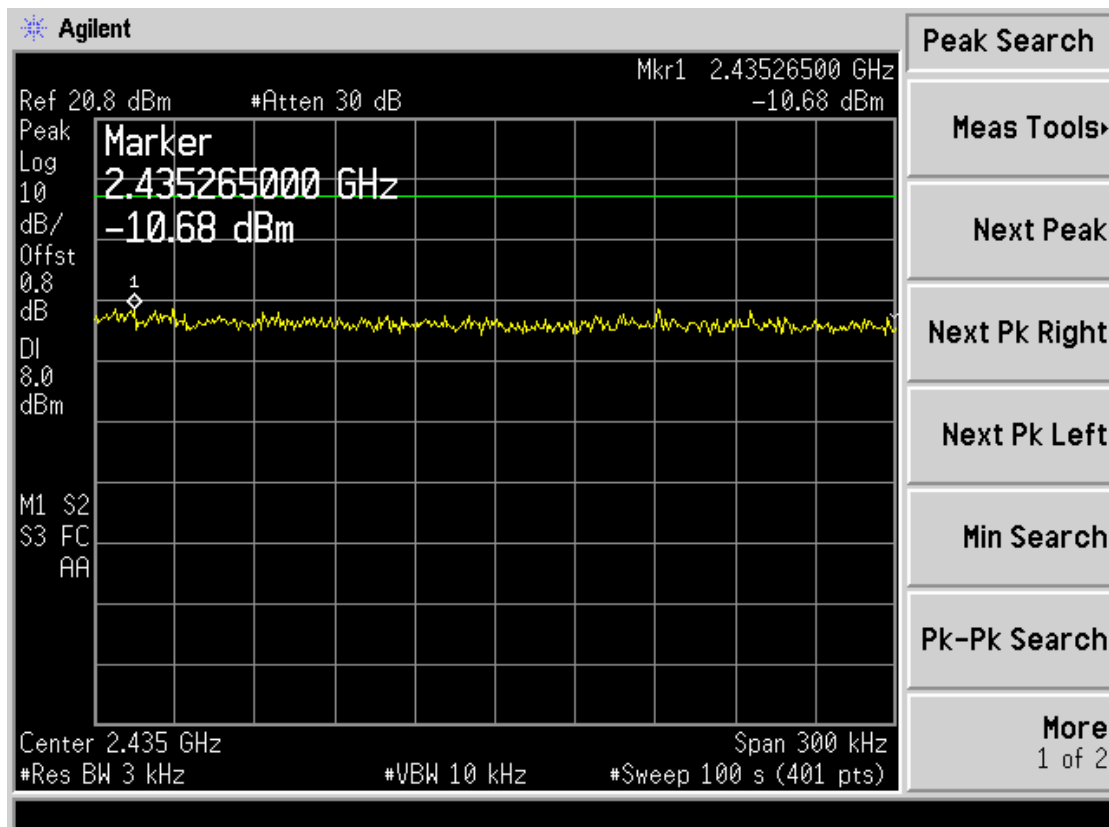
Note: 1. For 802.11n(40MHz) mode at final test to get the worst-case emission at 135Mbps.
2. The test results including the cable lose.

Photos of Power Spectral Density Measurement

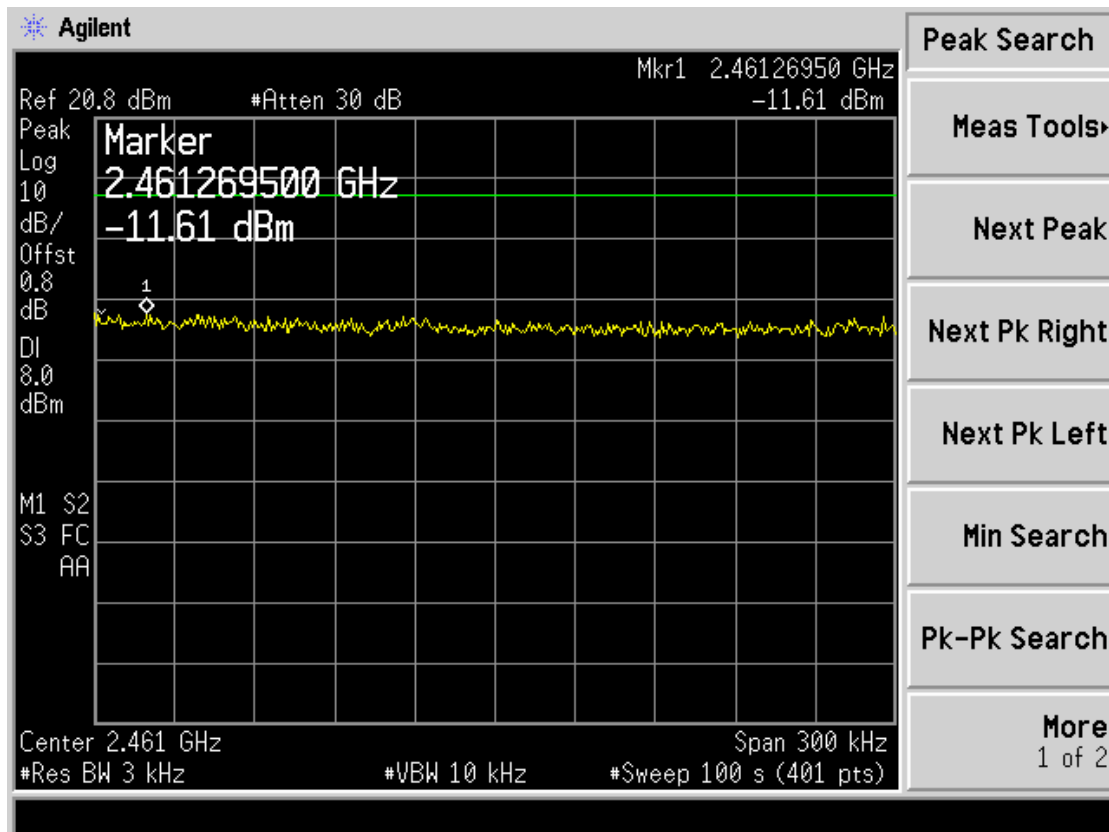
802.11b Mode channel 1



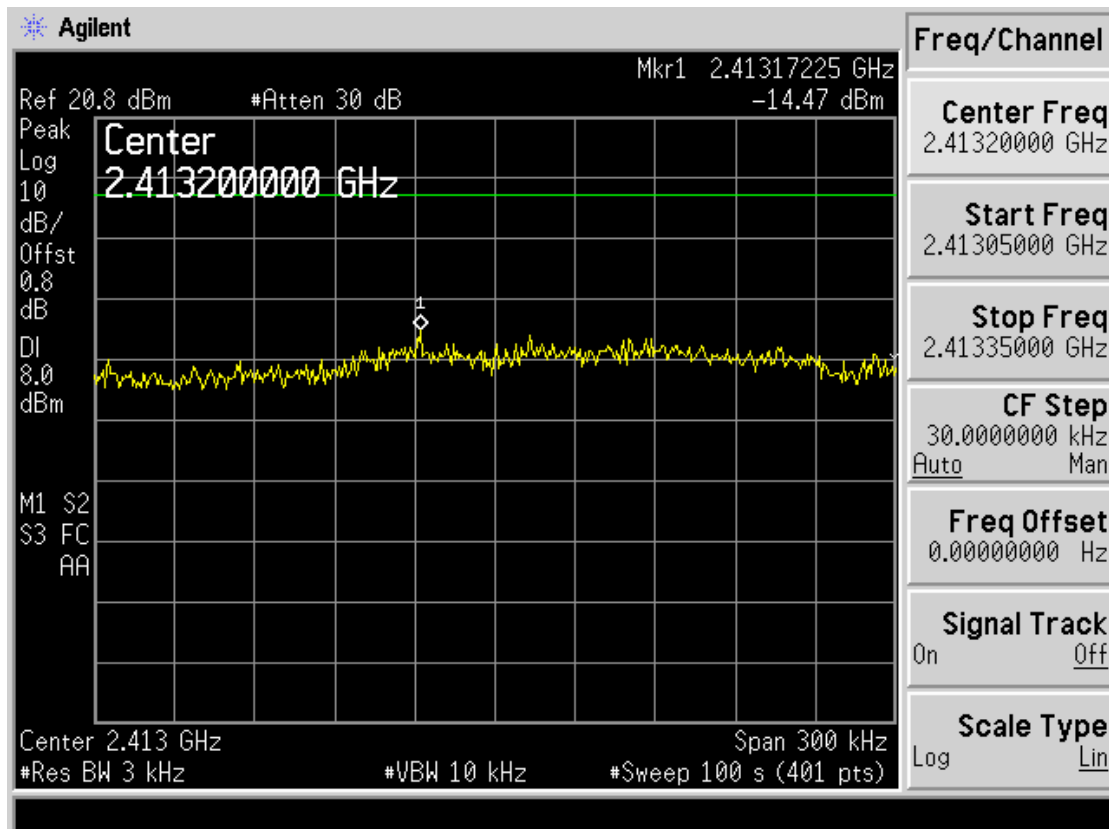
802.11b Mode channel 6



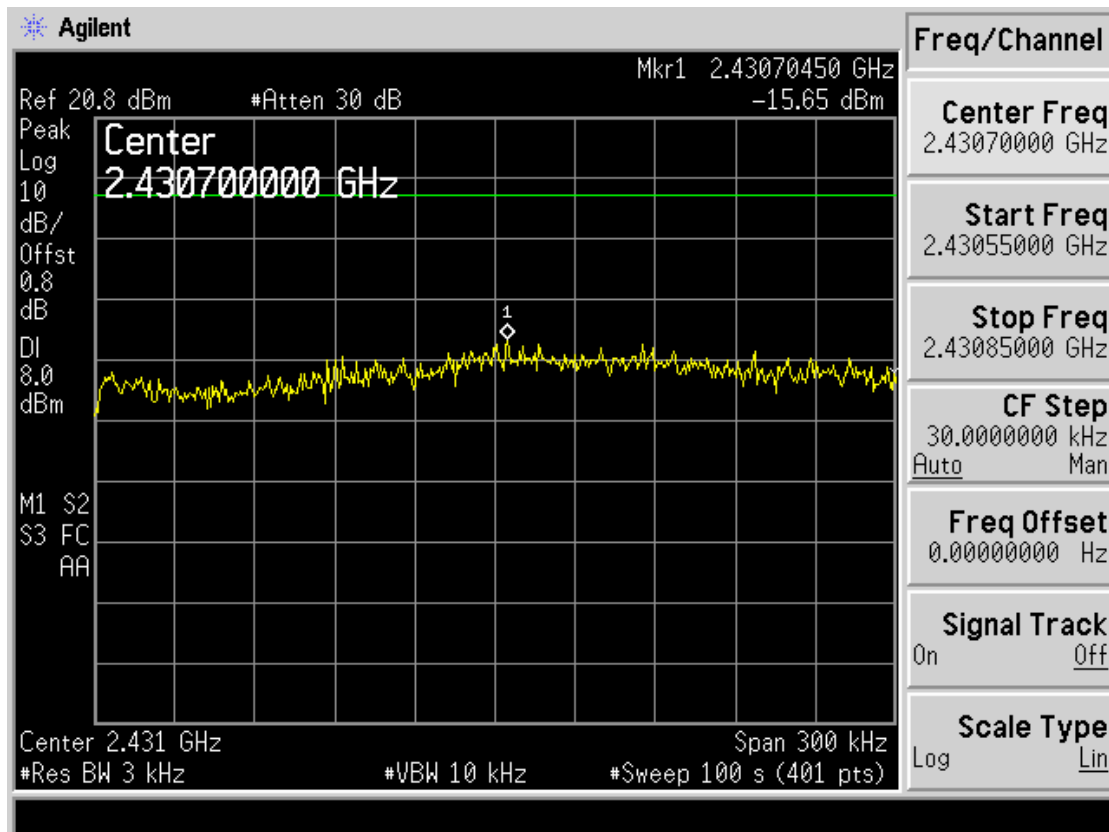
802.11b Mode channel 11



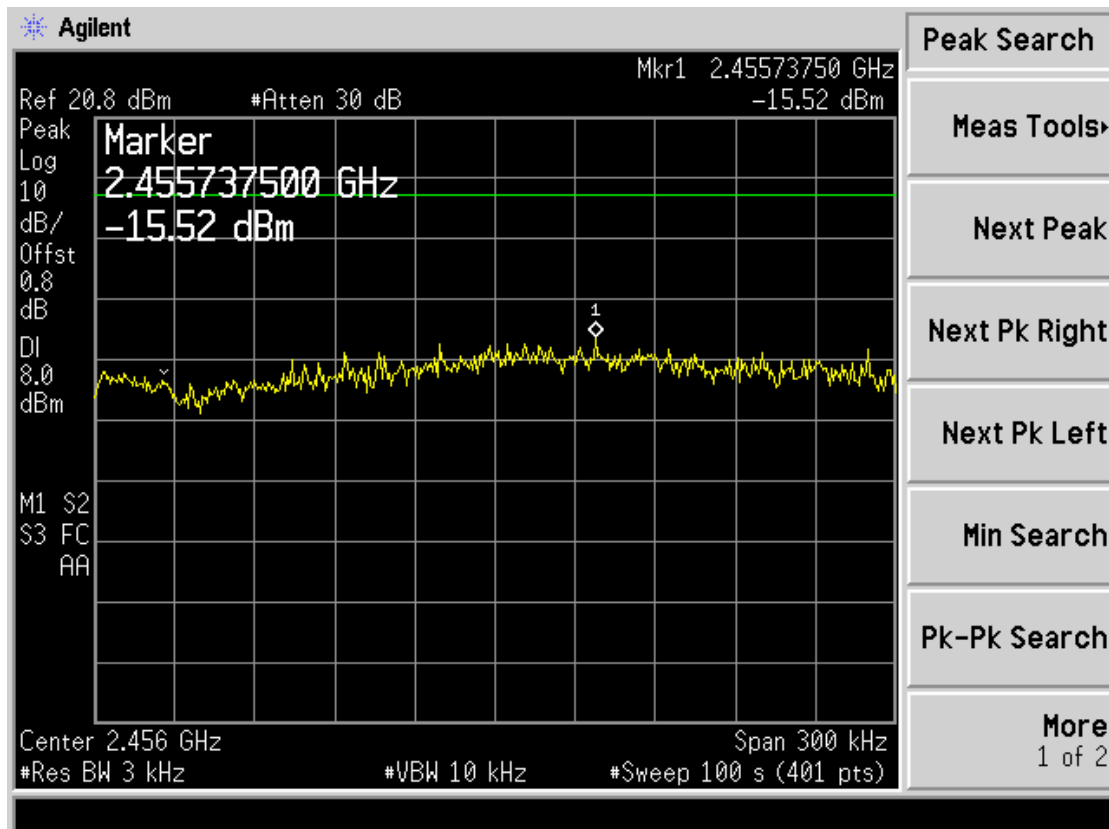
802.11g Mode channel 1



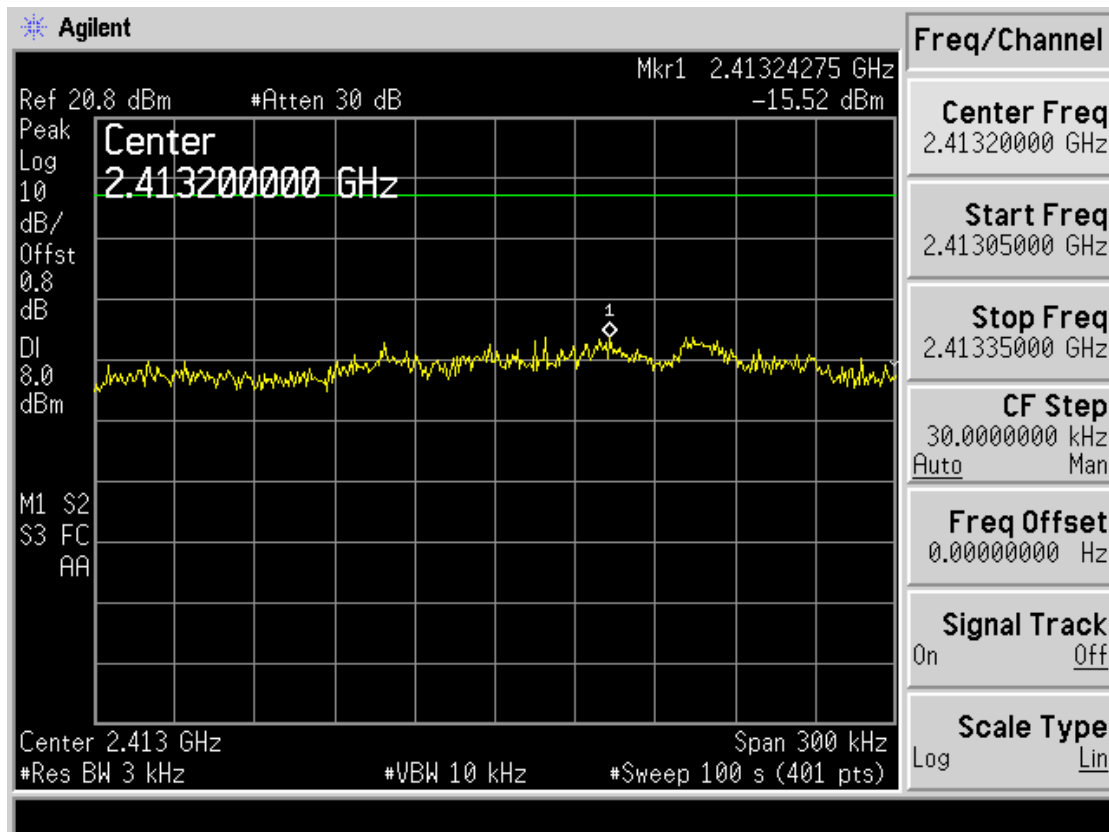
802.11g Mode channel 6



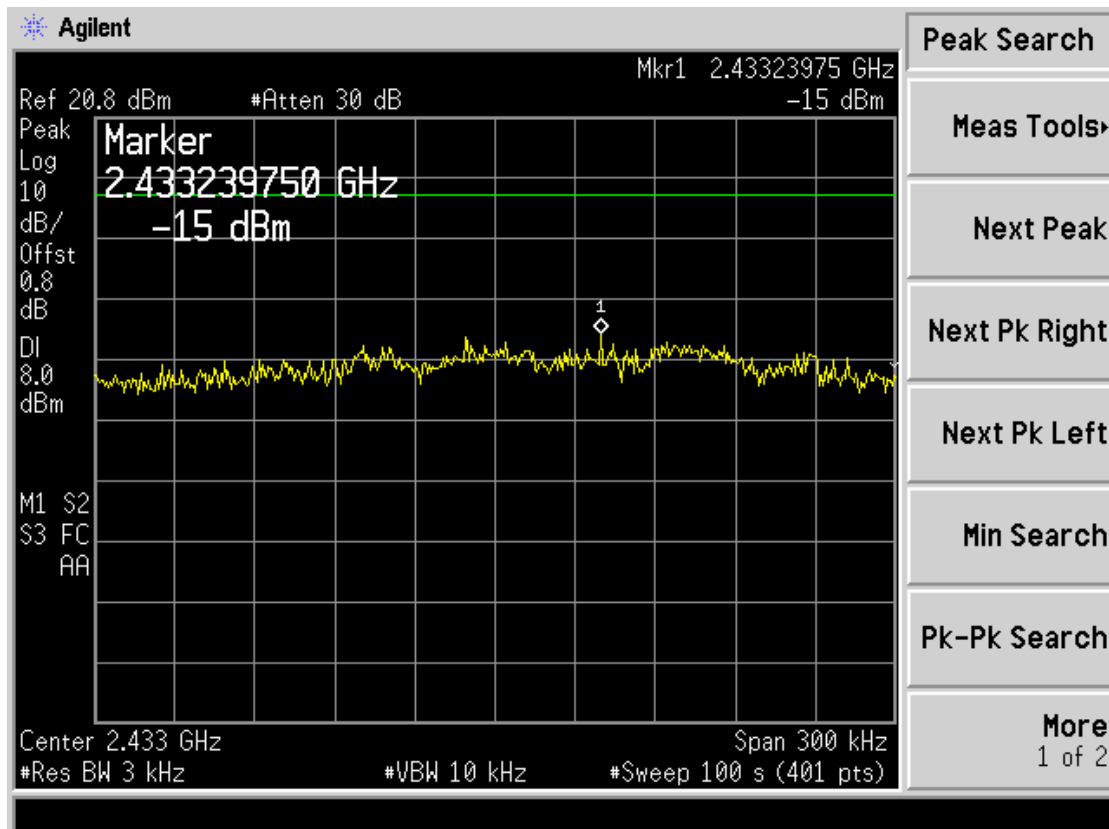
802.11g Mode channel 11



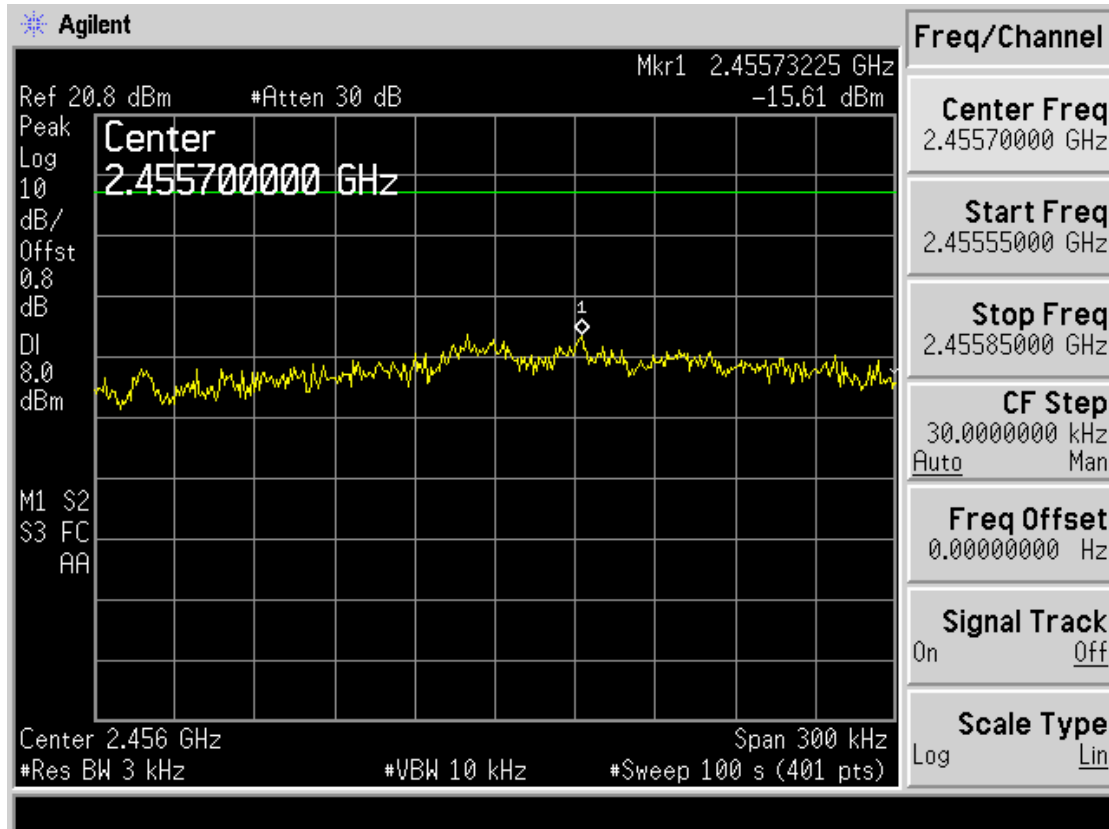
802.11n20 Mode channel 1



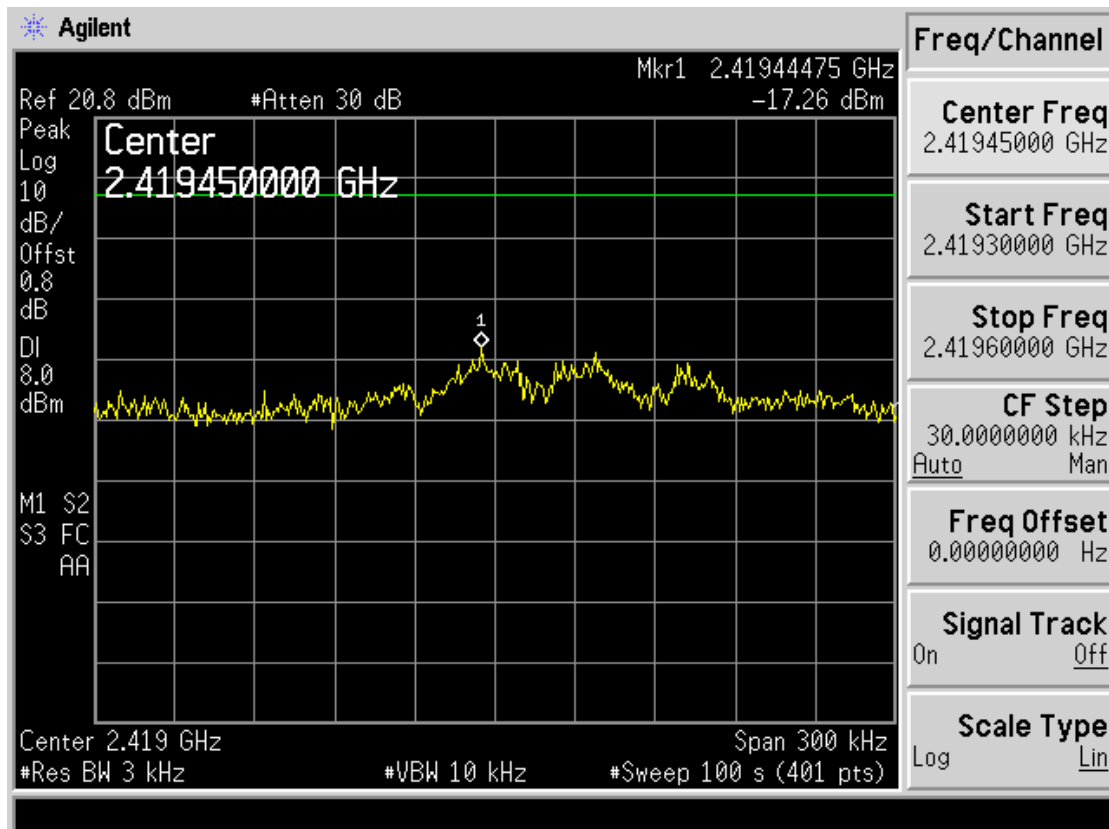
802.11n20 Mode channel 6



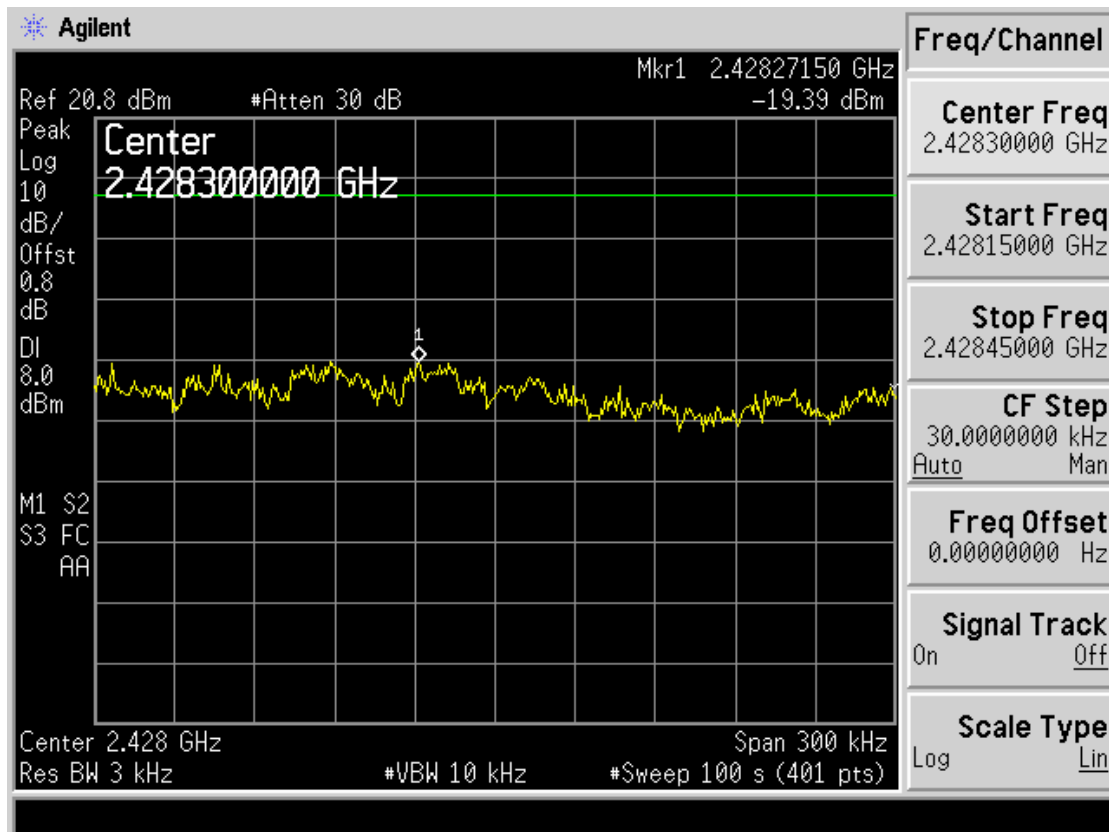
802.11n20 Mode channel 11



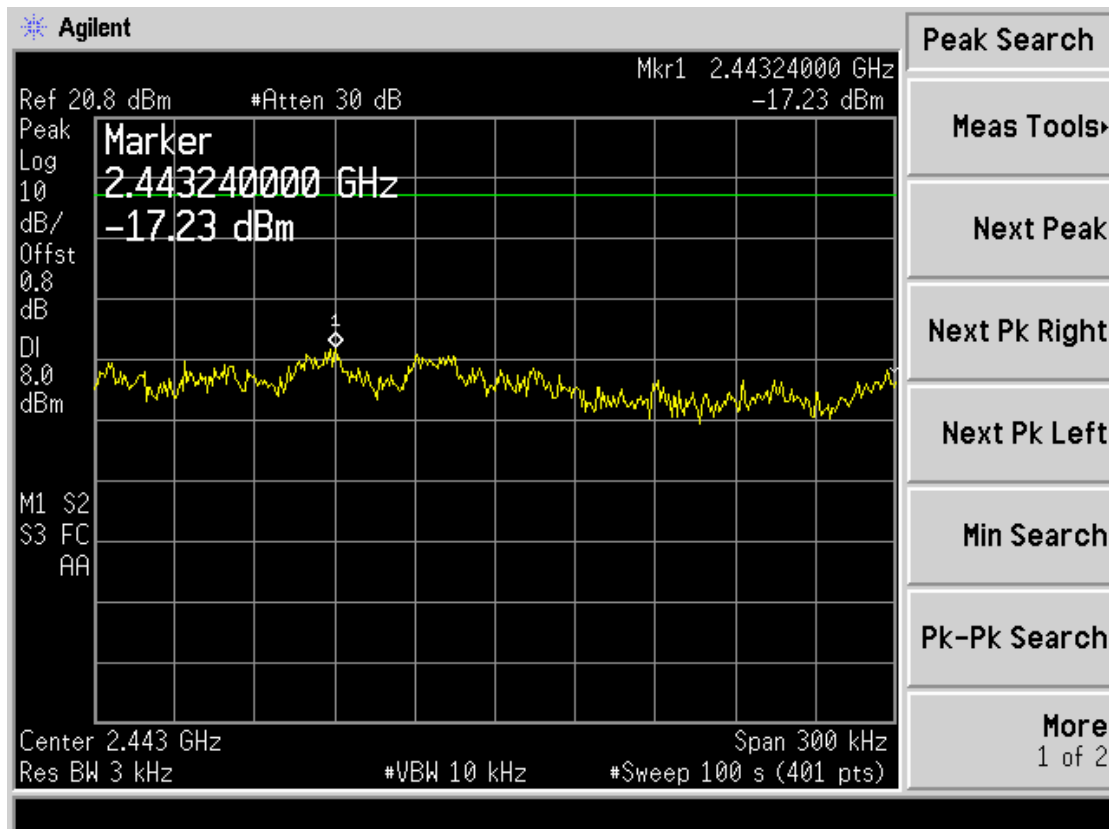
802.11n40 Mode channel 3



802.11n40 Mode channel 6

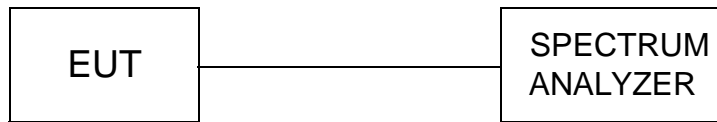


802.11n40 Mode channel 9



4.5. Band Edge Compliance of RF Emission

TEST CONFIGURATION



TEST PROCEDURE

The band edge compliance of RF radiated emission should be measured by following the guidance in ANSI C63.4:2009 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=100kHz and VBM= 300KHz to measure the peak field strength and set RBW to 1MHz and VBW to 10Hz to measure the average radiated field strength.

The conducted RF band edge was measured by using a spectrum analyzer. Set span wide enough to capture the highest in-band emission and the emission at the band edge. Set RBW=100kHz and VBM= 300KHz, to measure the conducted peak band edge.

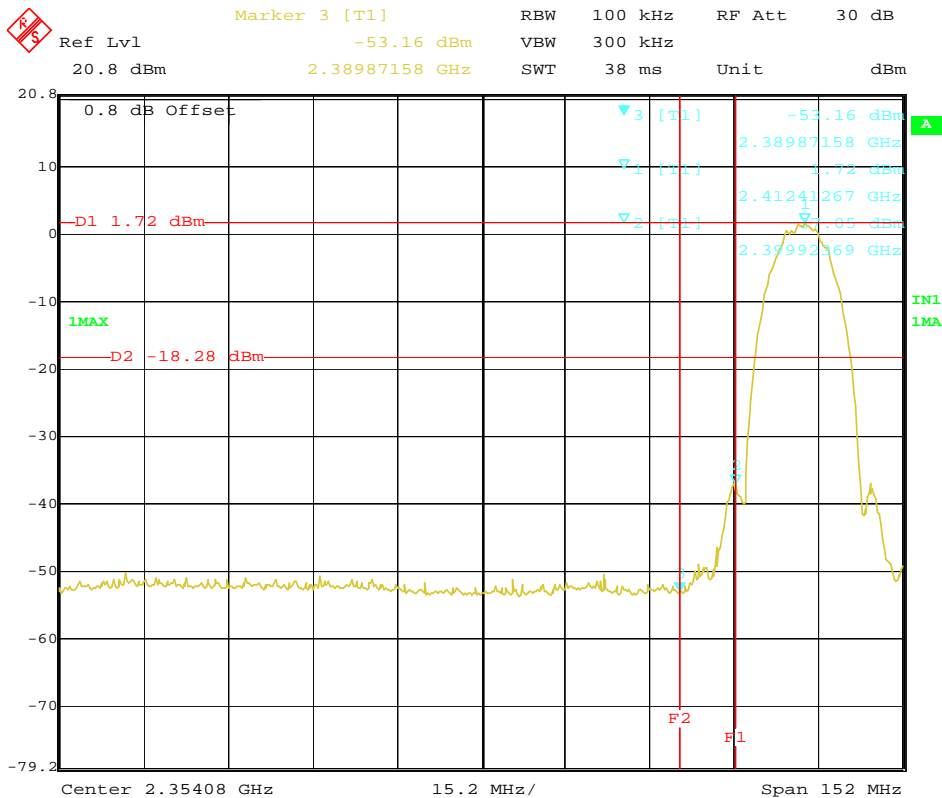
LIMIT

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

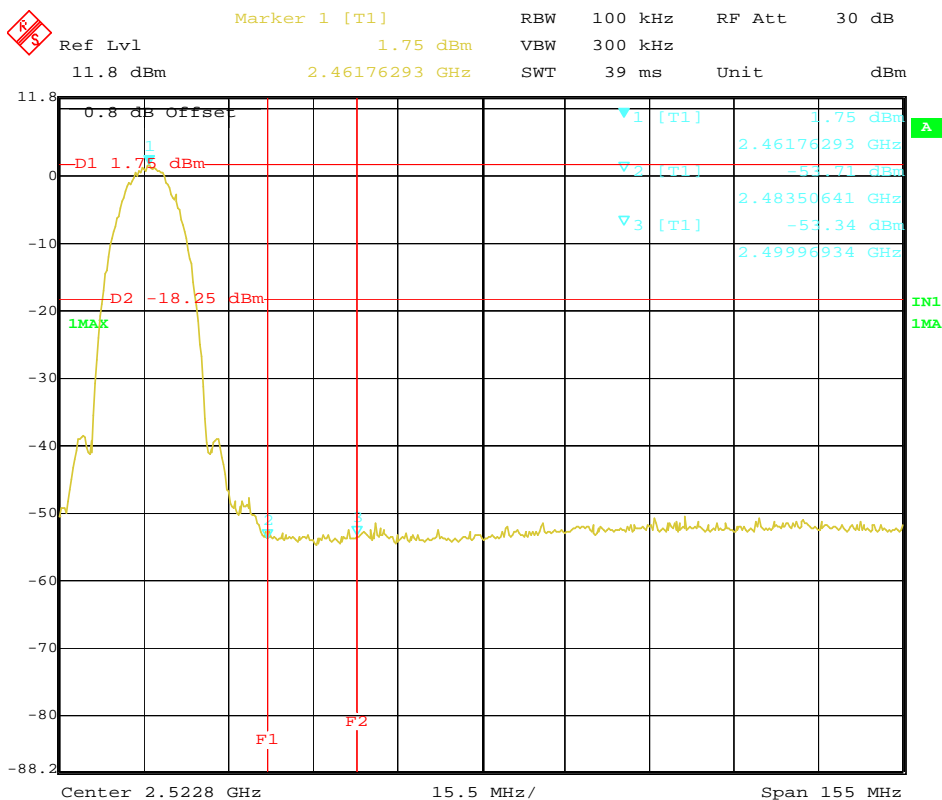
TEST RESULTS

CHANNEL NUMBER	CHANNEL FREQUENCY (MHz)	Delta Peak to Band emission (dBc)	LIMIT (dBc)	PASS/FAIL
802.11b				
Low	2399.924	-37.05	20	PASS
High	2499.97	-53.34	20	PASS
802.11g				
Low	2399.924	-33.85	20	PASS
High	2499.97	-54.04	20	PASS
802.11n20				
Low	2399.685	-35.35	20	PASS
High	2499.97	-53.98	20	PASS
802.11n40				
Low	2398.466	-36.65	20	PASS
High	2500.541	-51.42	20	PASS

For 802.11b Mode

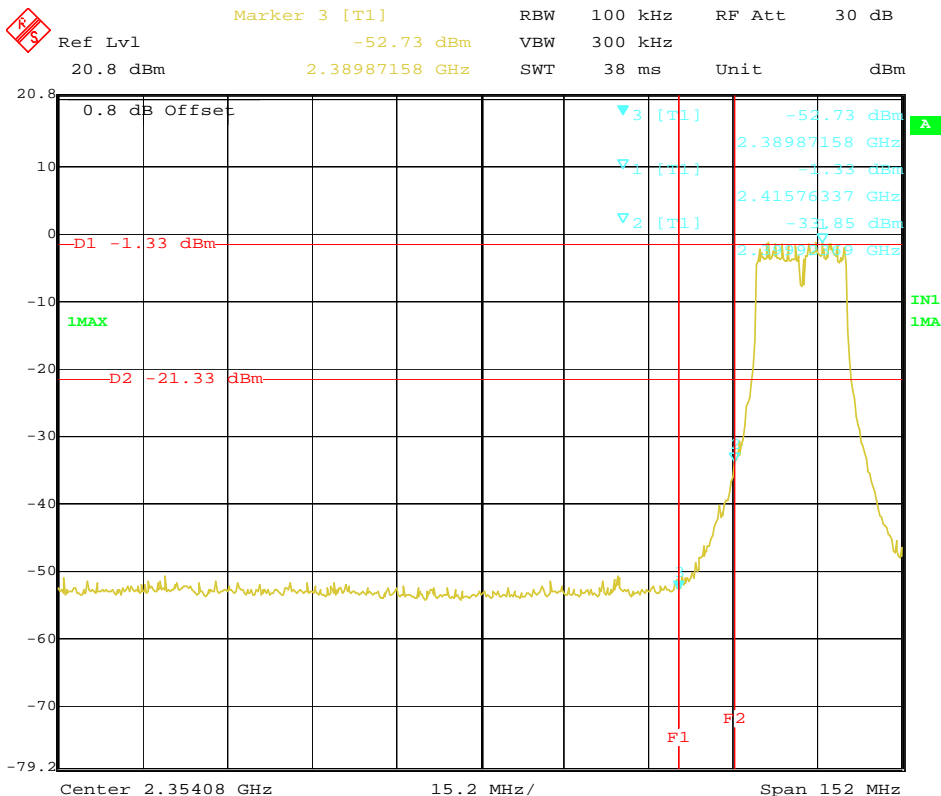


Date: 4.APR.2012 12:07:26

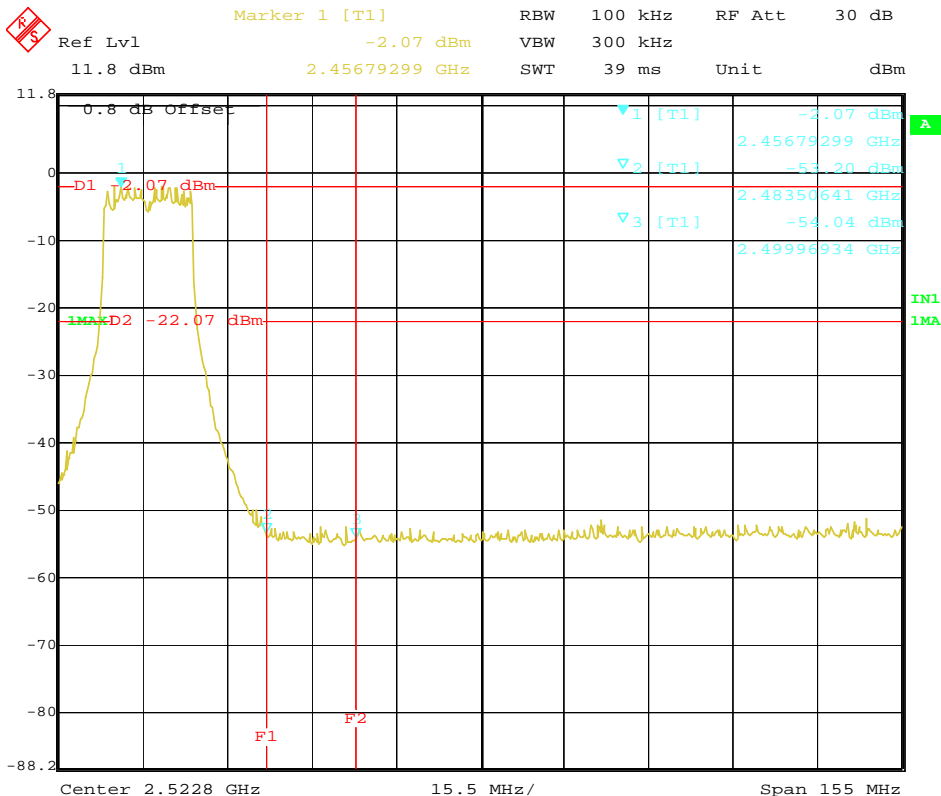


Date: 6.APR.2012 17:10:30

For 802.11g Mode




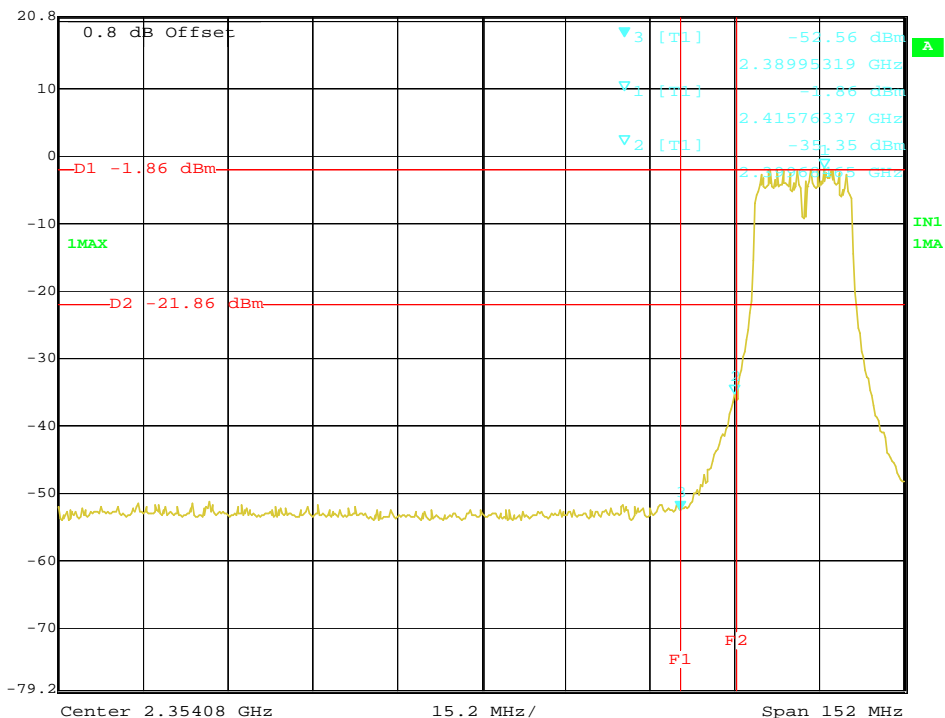
Date: 4.APR.2012 12:30:43




Date: 6.APR.2012 17:05:30

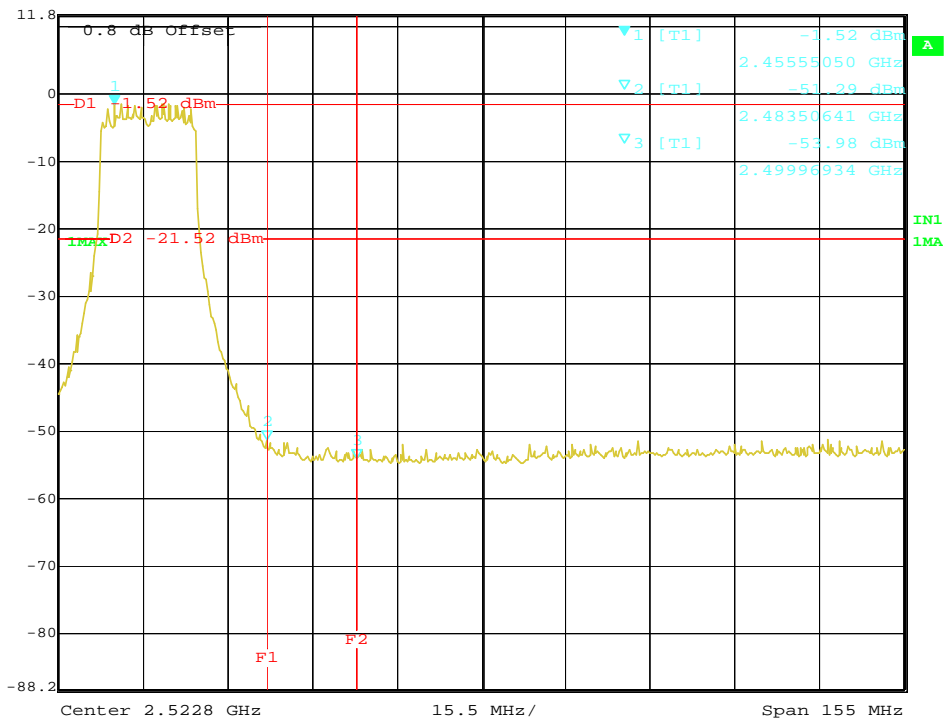
802.11n (20MHz) Mode

 Marker 3 [T1] RBW 100 kHz RF Att 30 dB
Ref Lvl -52.56 dBm VBW 300 kHz
20.8 dBm 2.38995319 GHz SWT 38 ms Unit dBm



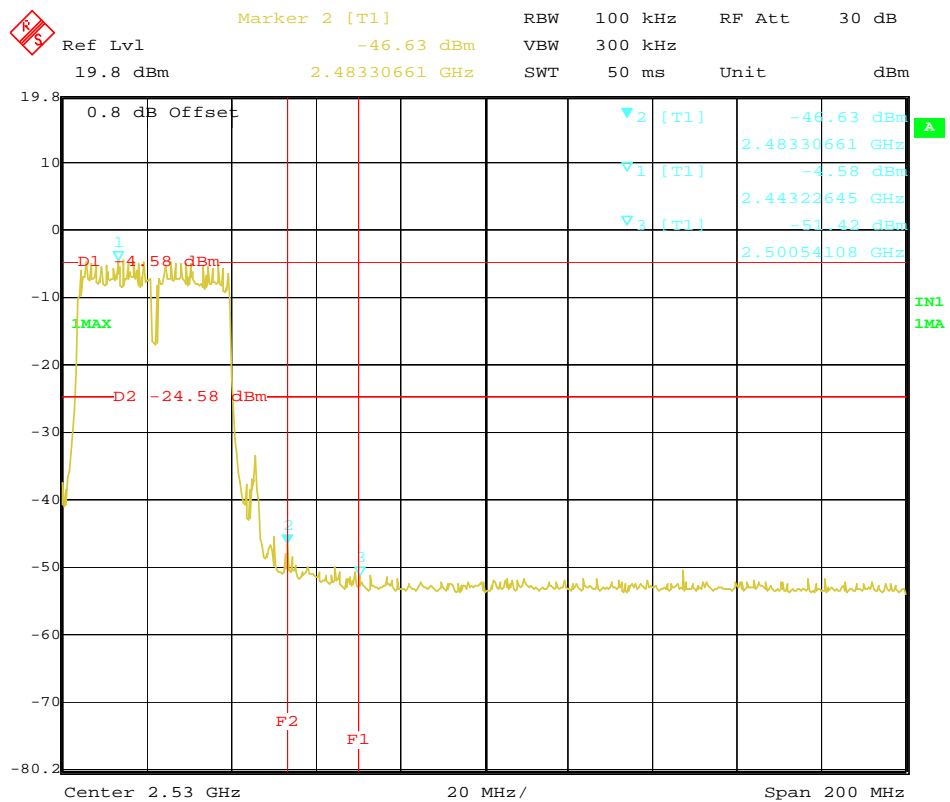
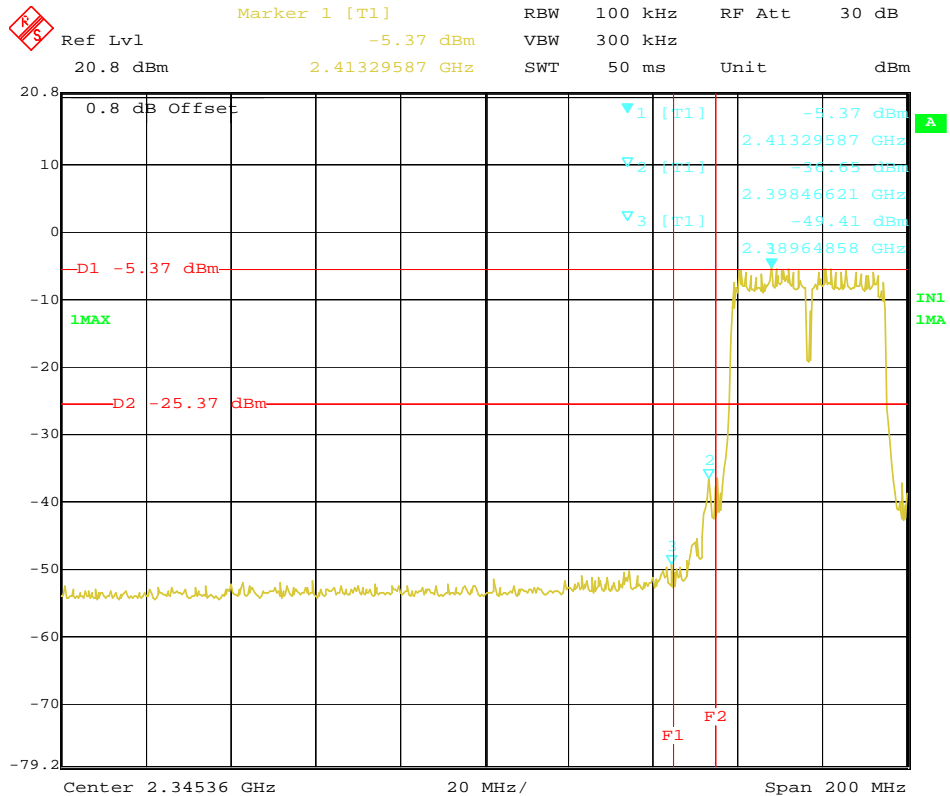
Date: 4.APR.2012 12:26:23

 Marker 1 [T1] RBW 100 kHz RF Att 30 dB
Ref Lvl -1.52 dBm VBW 300 kHz
11.8 dBm 2.45555050 GHz SWT 39 ms Unit dBm



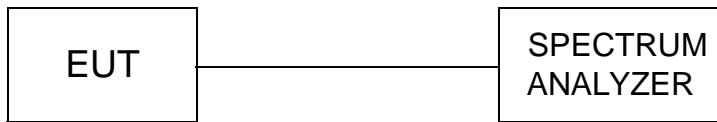
Date: 6.APR.2012 17:03:46

802.11n (40MHz) Mode



4.6. Spurious RF Conducted Emission

TEST CONFIGURATION



TEST PROCEDURE

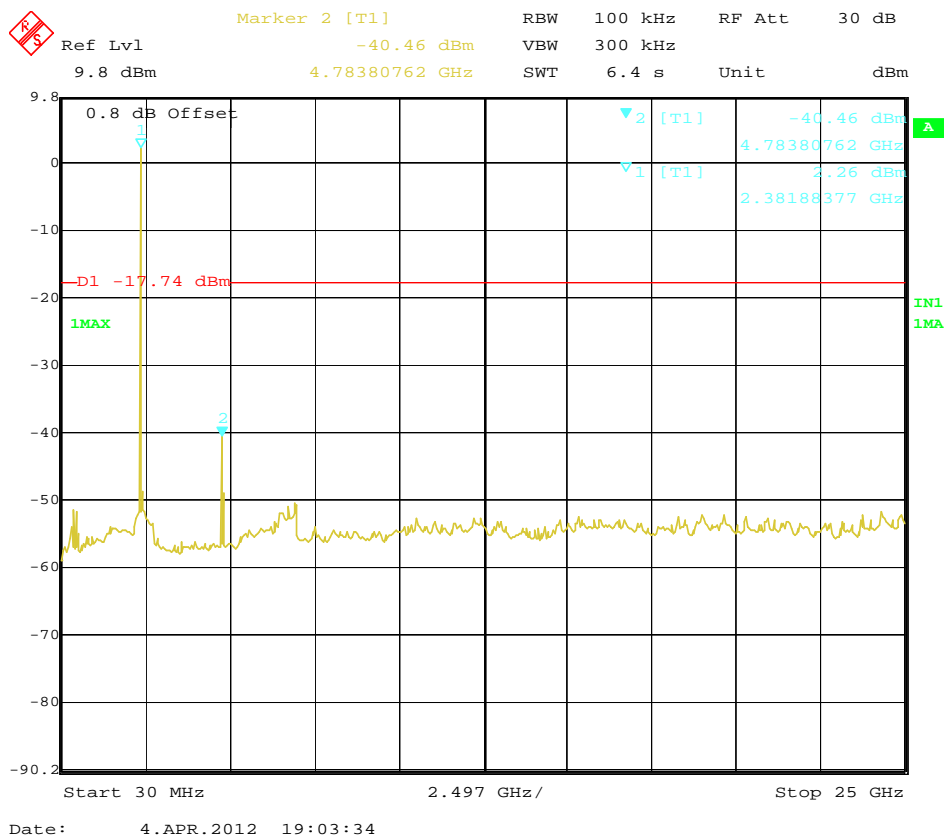
The Spurious RF conducted emissions compliance of RF radiated emission should be measured by following the guidance in ANSI C63.10-2009 with respect to maximizing the emission by rotating the EUT, measuring the emission while the EUT is situated in three orthogonal planes (if appropriate), adjusting the measurement antenna height and polarization etc. Set RBW=100kHz and VBM= 300KHz to measure the peak field strength , and mwasure frequeny range from 30MHz to 26.5GHz.

LIMIT

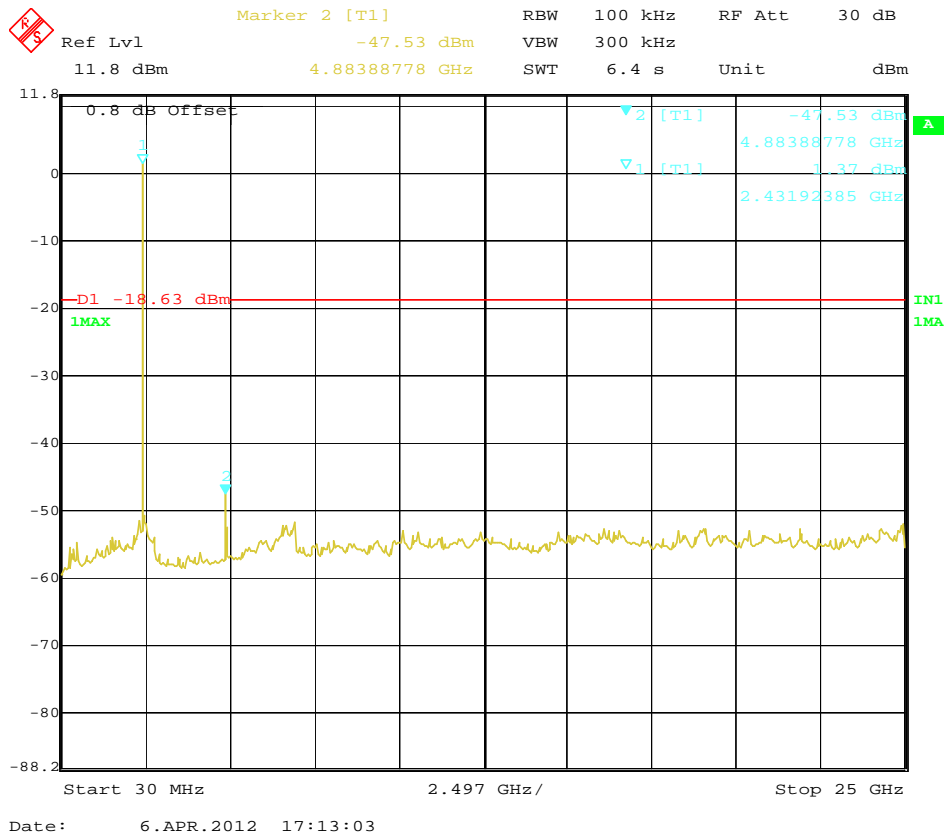
1. Below -20dB of the highest emission level in operating band.
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209.

TEST RESULTS

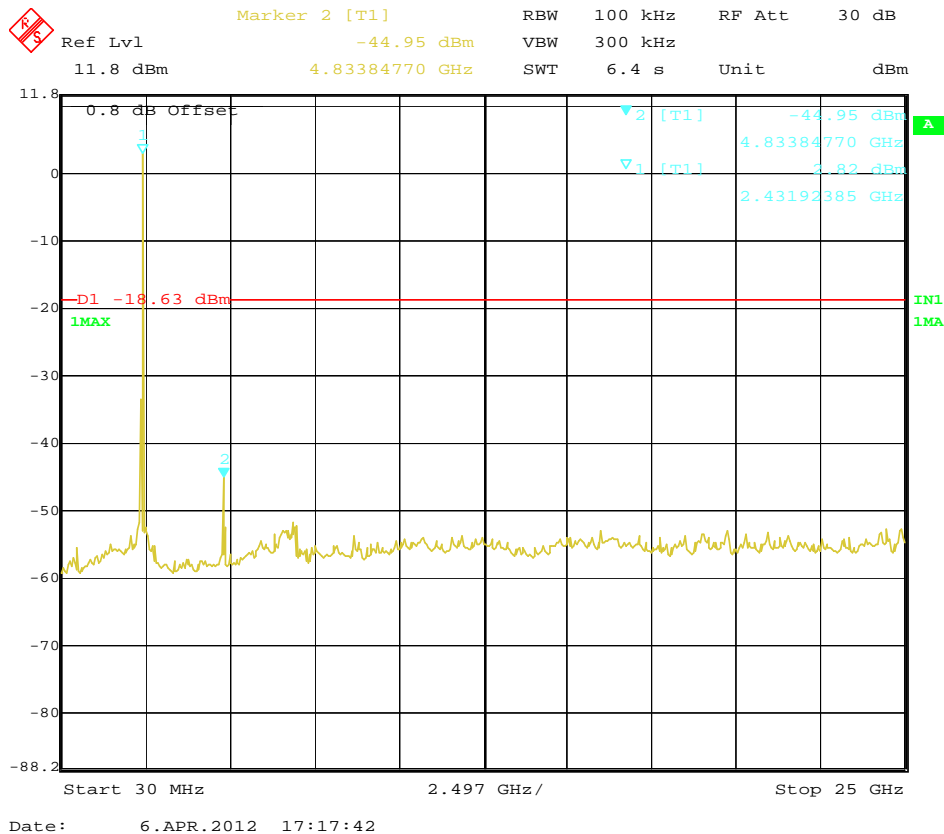
802.11b Mode channel 1



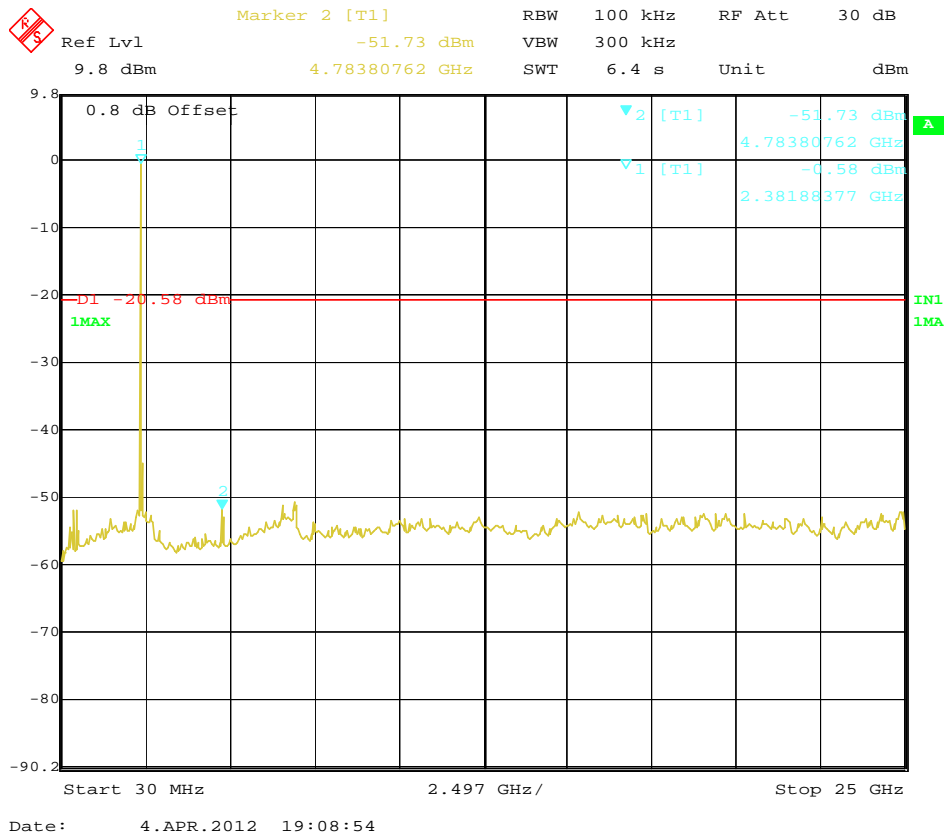
802.11b Mode channel 6



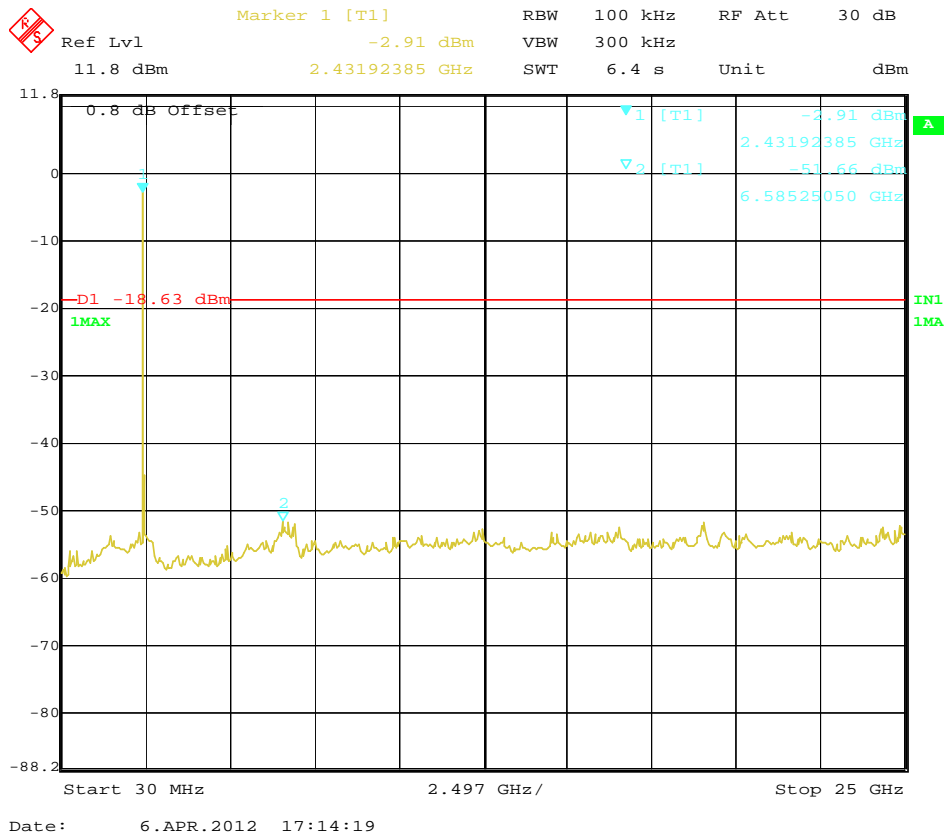
802.11b Mode channel 11



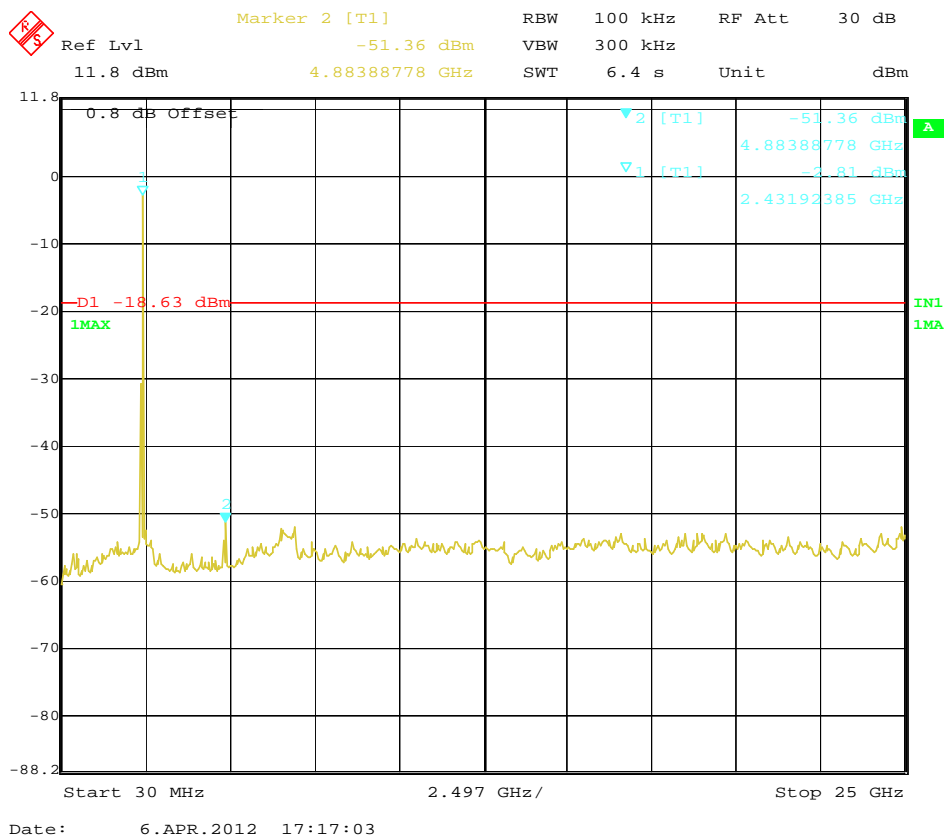
802.11g Mode channel 1



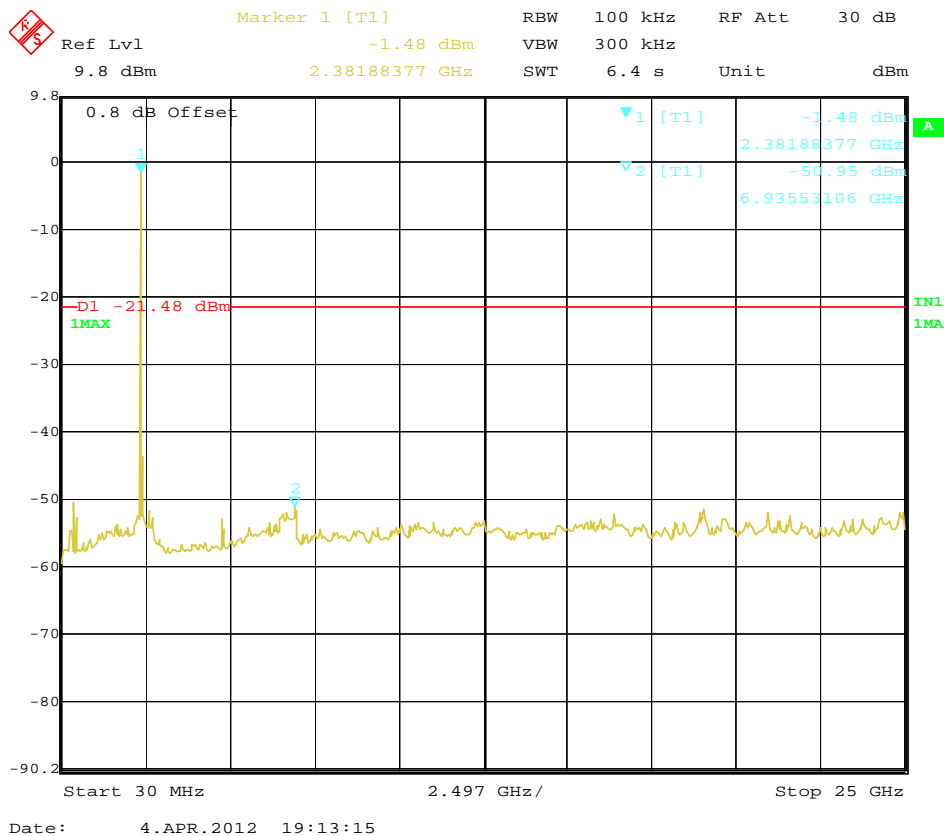
802.11g Mode channel 6



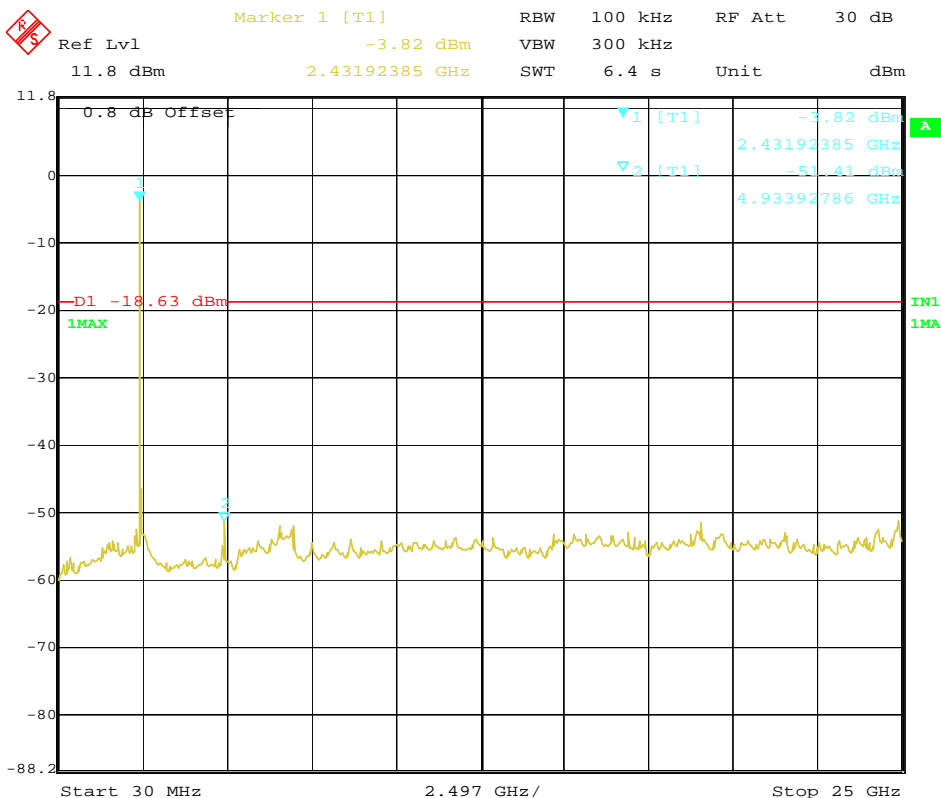
802.11g Mode channel 11



802.11n20 Mode channel 1

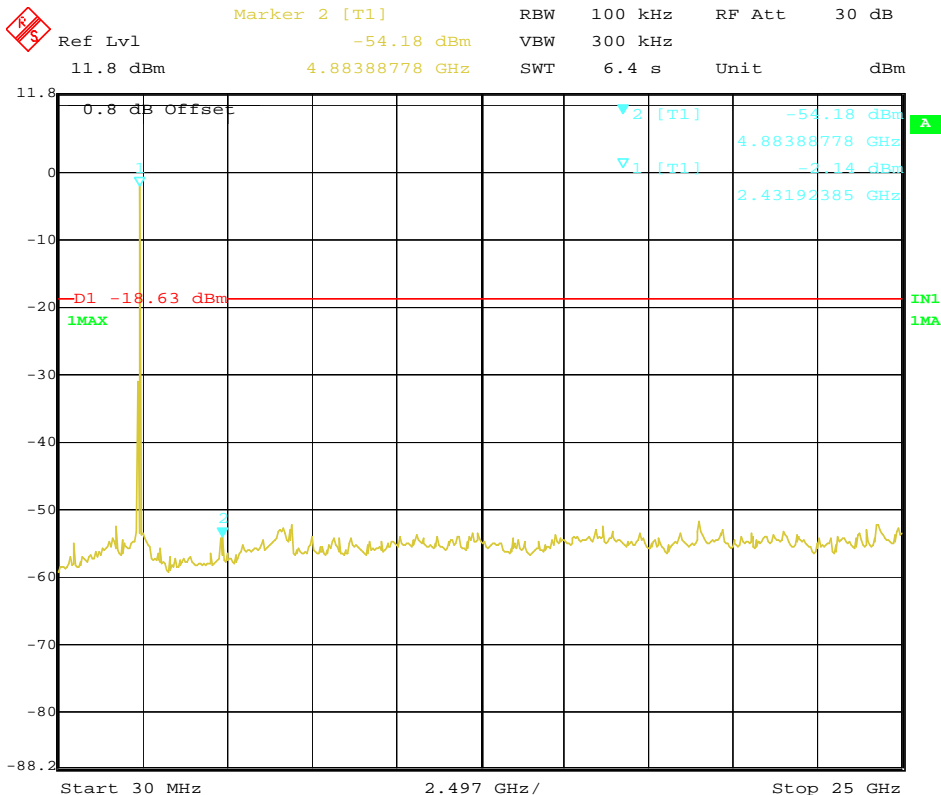


802.11n20 Mode channel 6



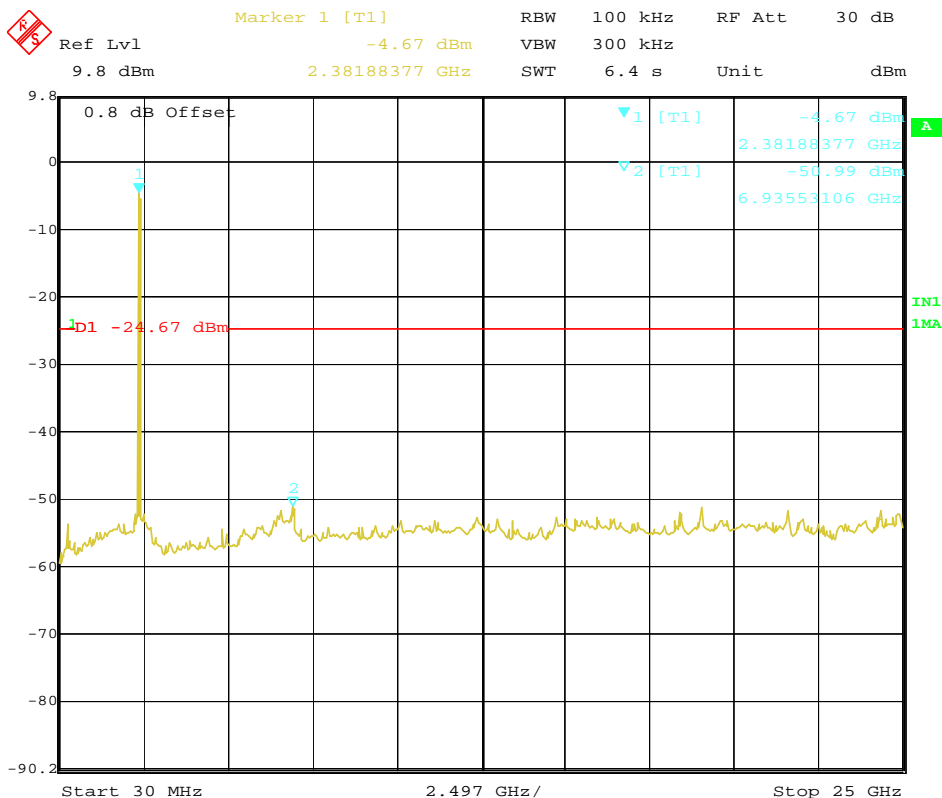
Date: 6.APR.2012 17:15:15

802.11n20 Mode channel 11



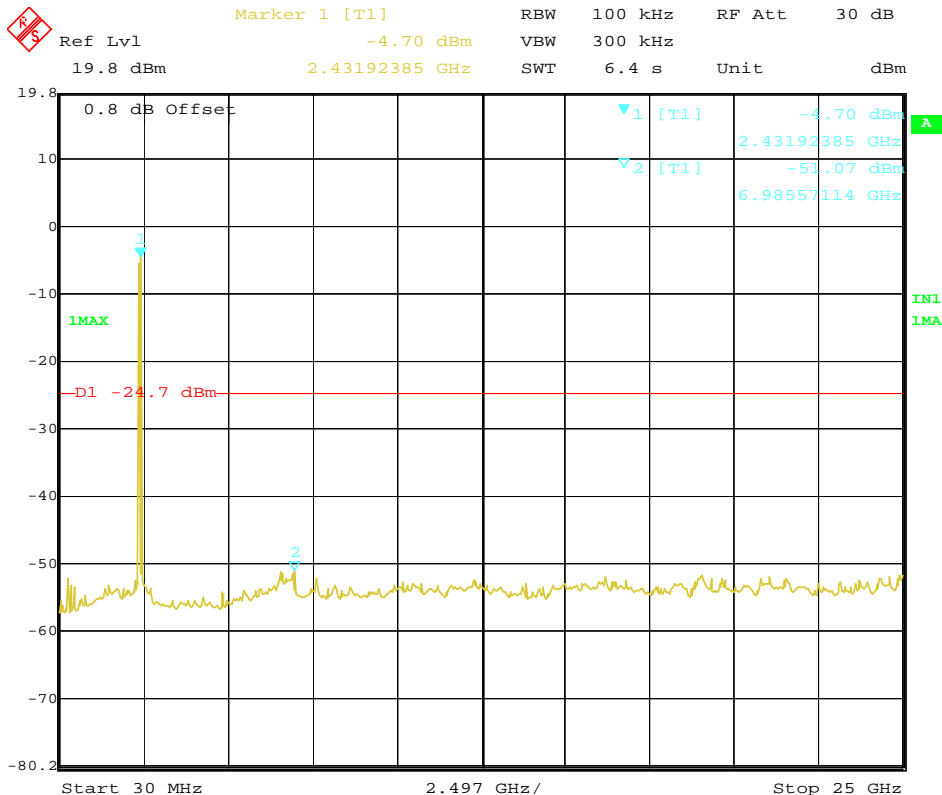
Date: 6.APR.2012 17:16:13

802.11n40 Mode channel 3



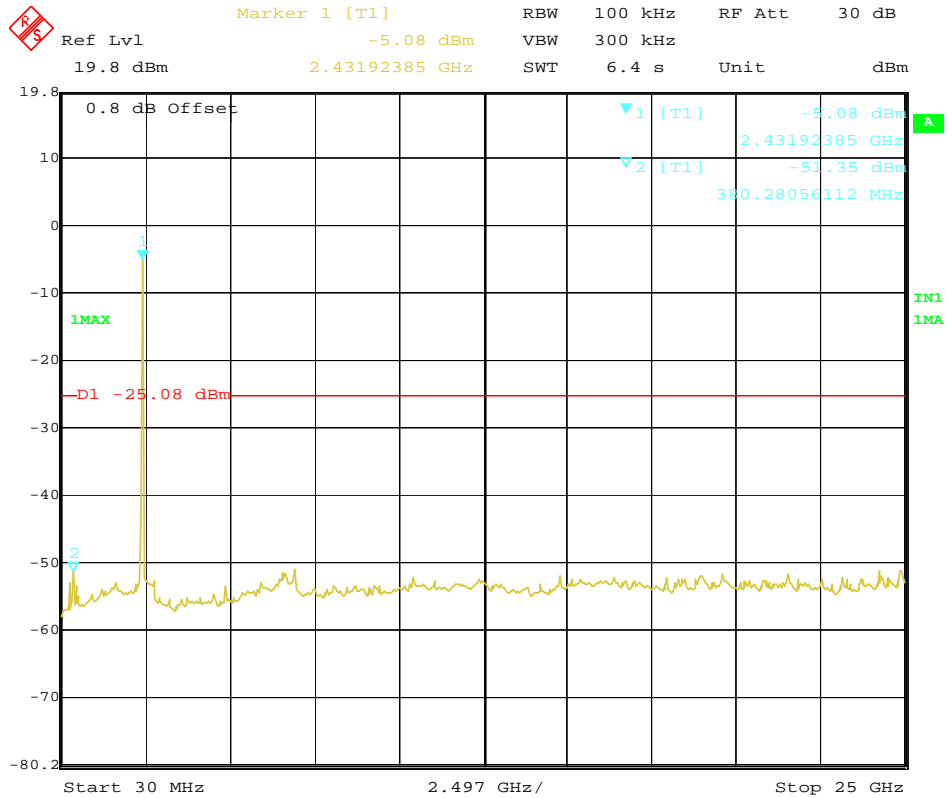
Date: 4.APR.2012 19:18:18

802.11n40 Mode channel 6



Date: 8.APR.2012 17:39:42

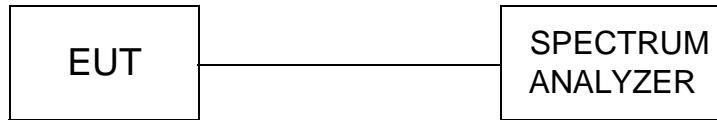
802.11n40 Mode channel 9



Date: 8.APR.2012 17:37:55

4.7. 6dB Bandwidth

TEST CONFIGURATION



TEST PROCEDURE

The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 KHz RBW and 300KHz VBW.

The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

LIMIT

For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

TEST RESULTS

For 802.11b Mode

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	99%Bandwidth (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	9.637	14.759	0.5	PASS
6	2437	10.305	14.669	0.5	PASS
11	2462	10.204	14.633	0.5	PASS

For 802.11g Mode

CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	99%Bandwidth (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	16.465	16.394	0.5	PASS
6	2437	16.393	16.393	0.5	PASS
11	2462	16.361	16.368	0.5	PASS

For 802.11n (20MHz) Mode

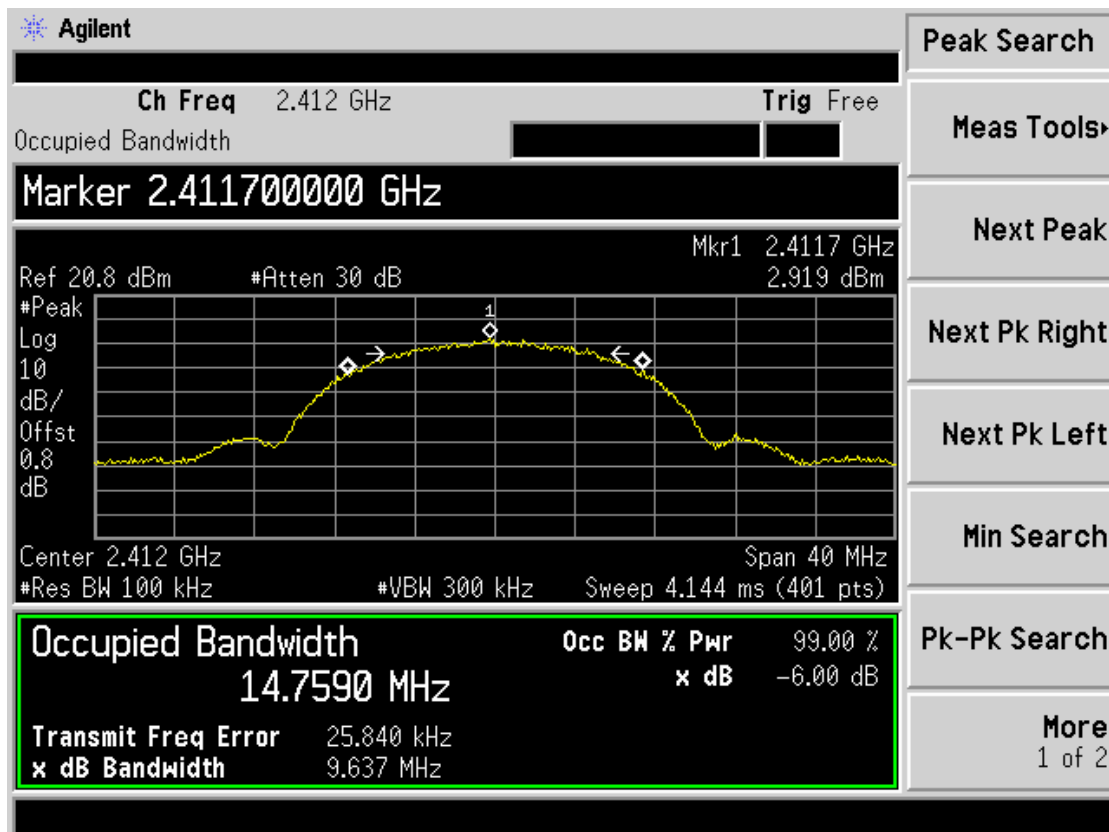
CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	99%Bandwidth (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2412	17.589	17.576	0.5	PASS
6	2437	17.613	17.604	0.5	PASS
11	2462	17.515	17.591	0.5	PASS

For 802.11n (40MHz) Mode

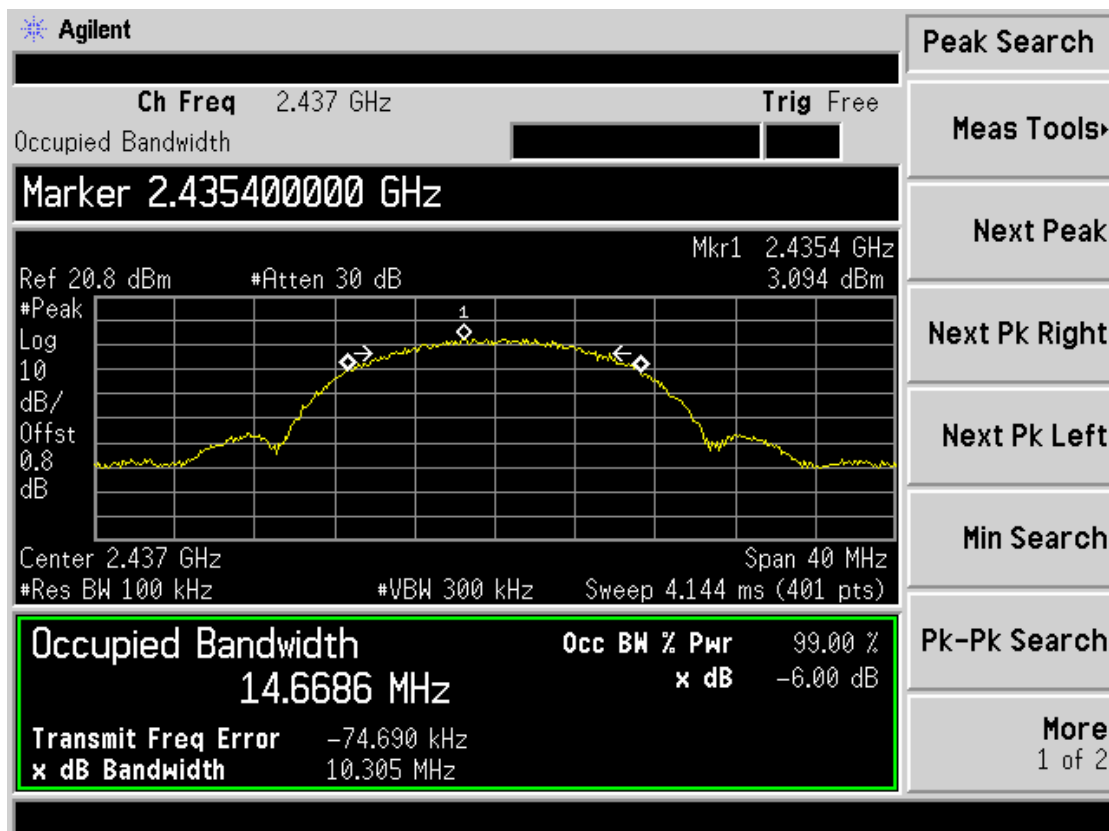
CHANNEL	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	99%Bandwidth (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
3	2422	35.646	35.894	0.5	PASS
6	2437	35.394	35.892	0.5	PASS
9	2452	35.529	35.806	0.5	PASS

Photos of 6dB Bandwidth Measurement and 99% Occupied Bandwidth

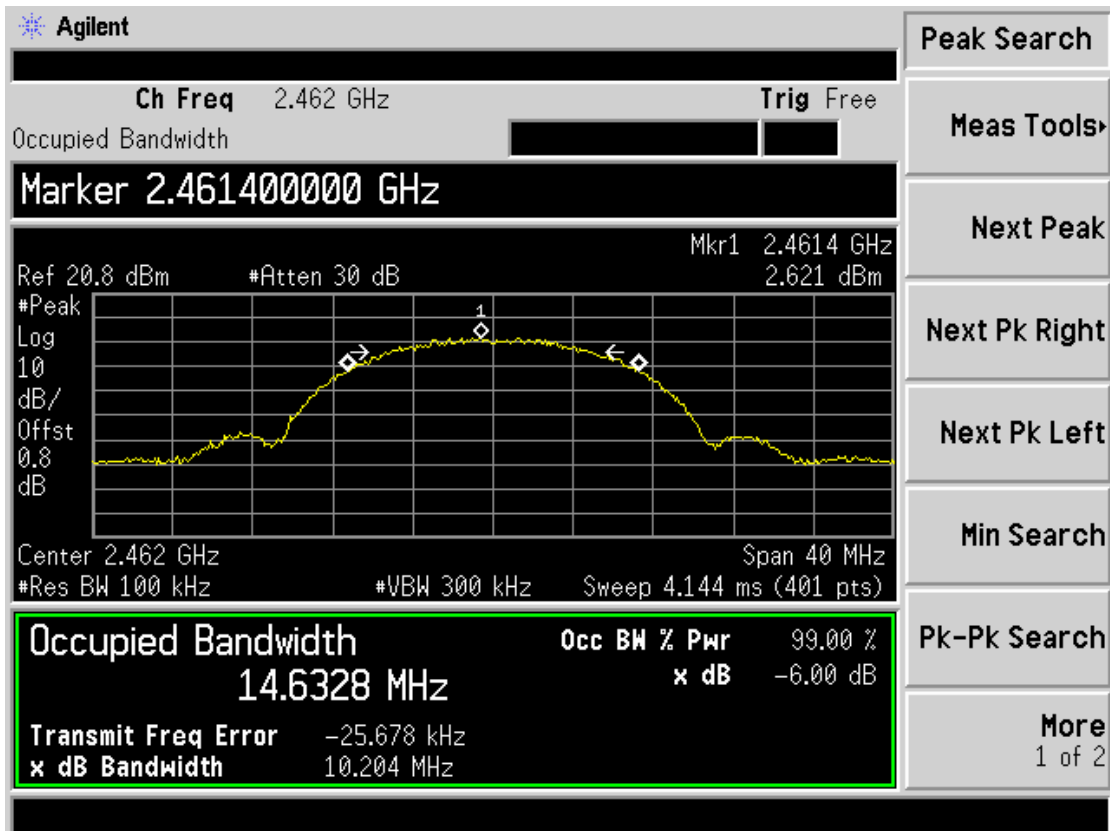
802.11b Mode channel 1



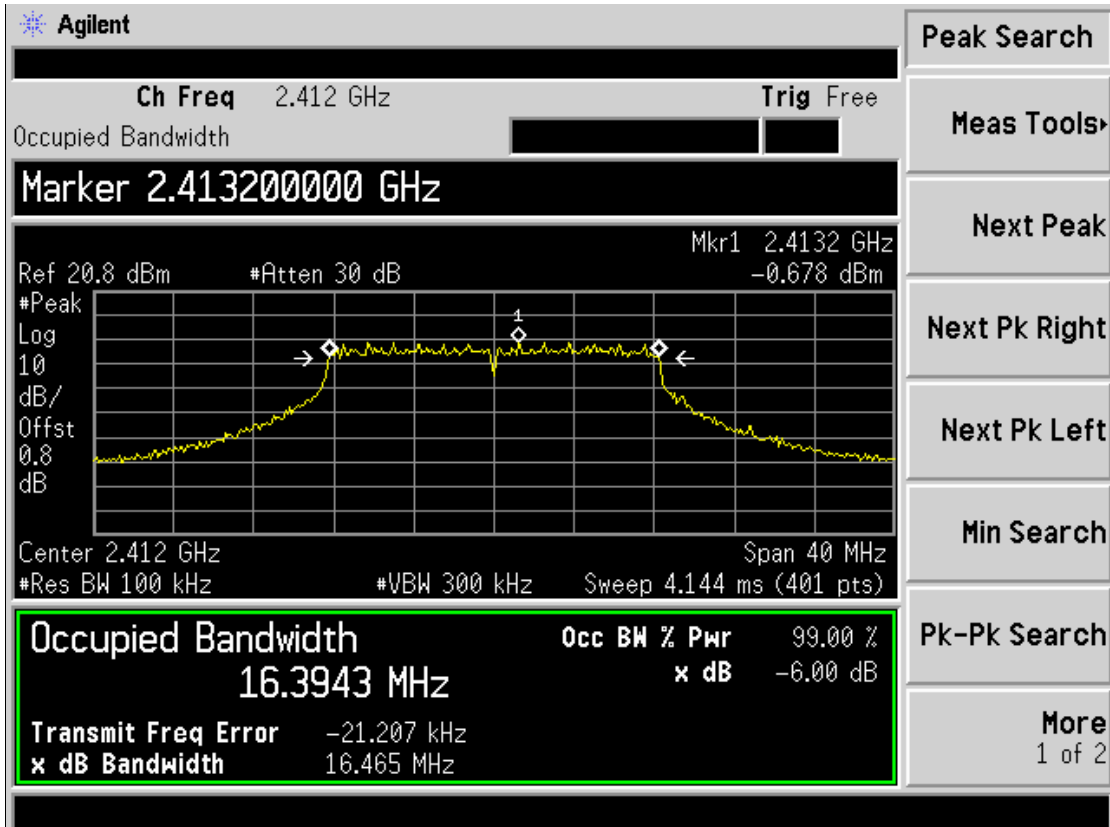
802.11b Mode channel 6



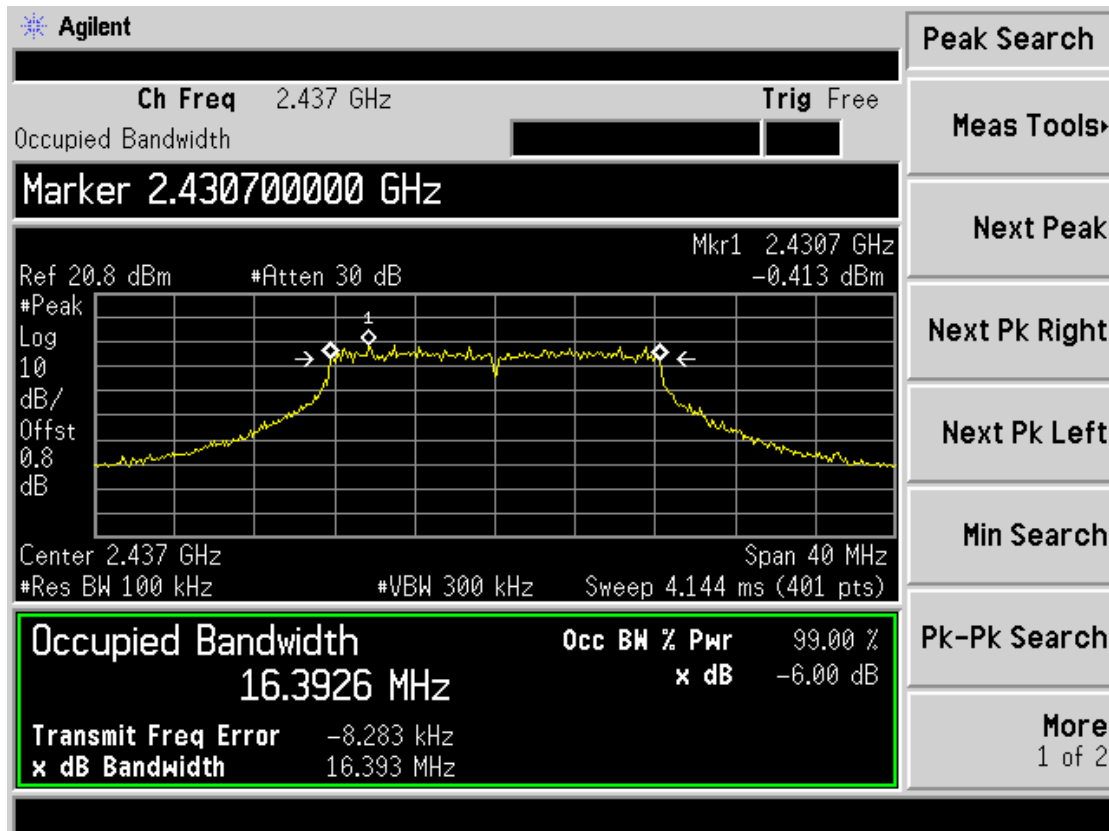
802.11b Mode channel 11



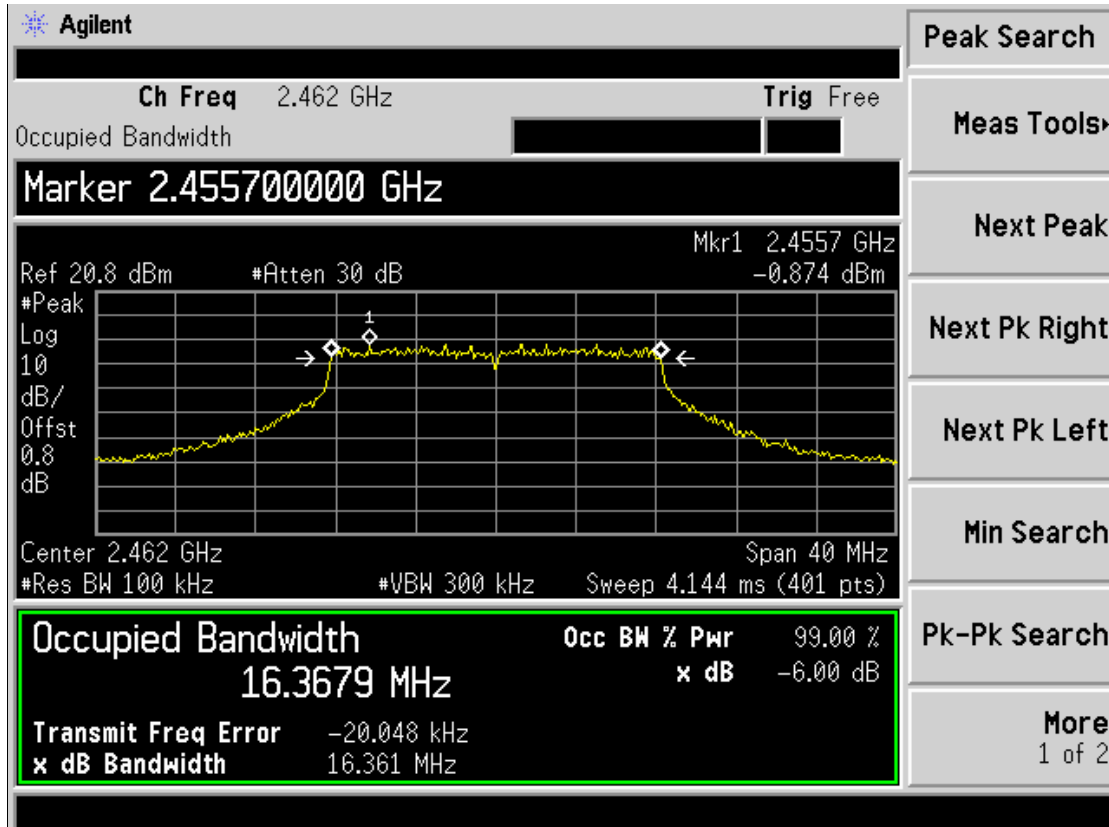
802.11g Mode channel 1



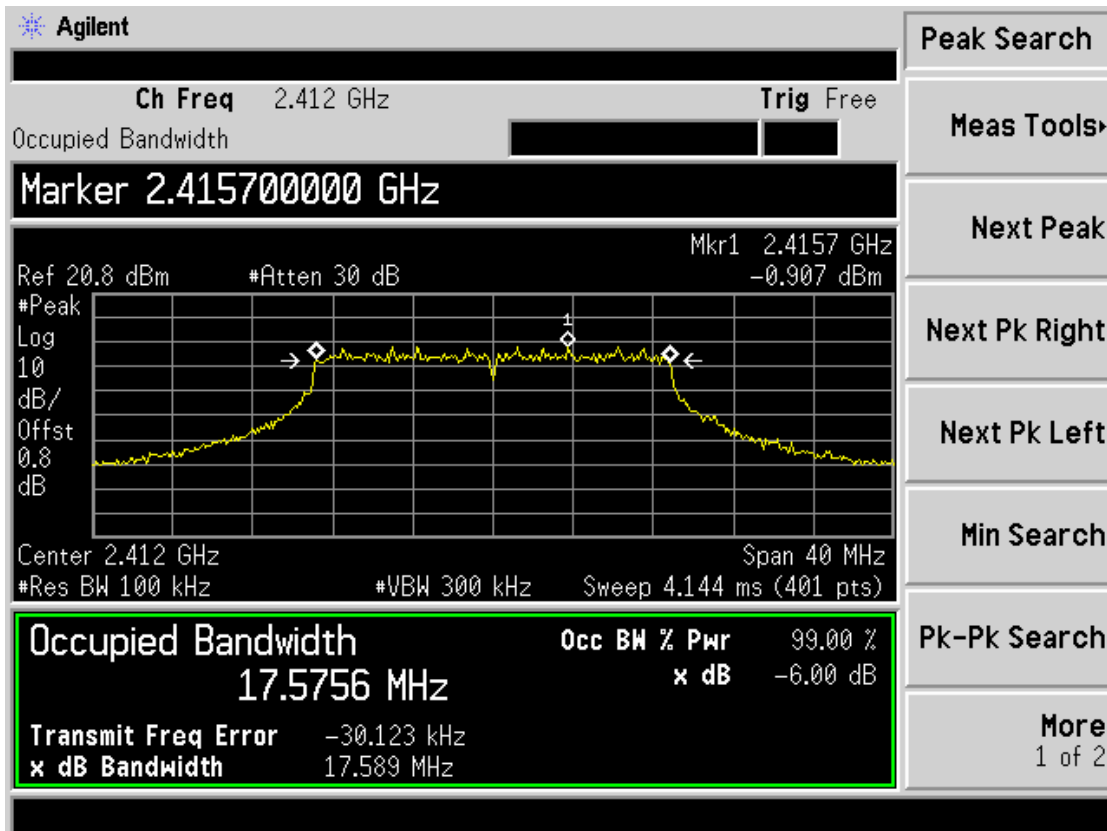
802.11g Mode channel 6



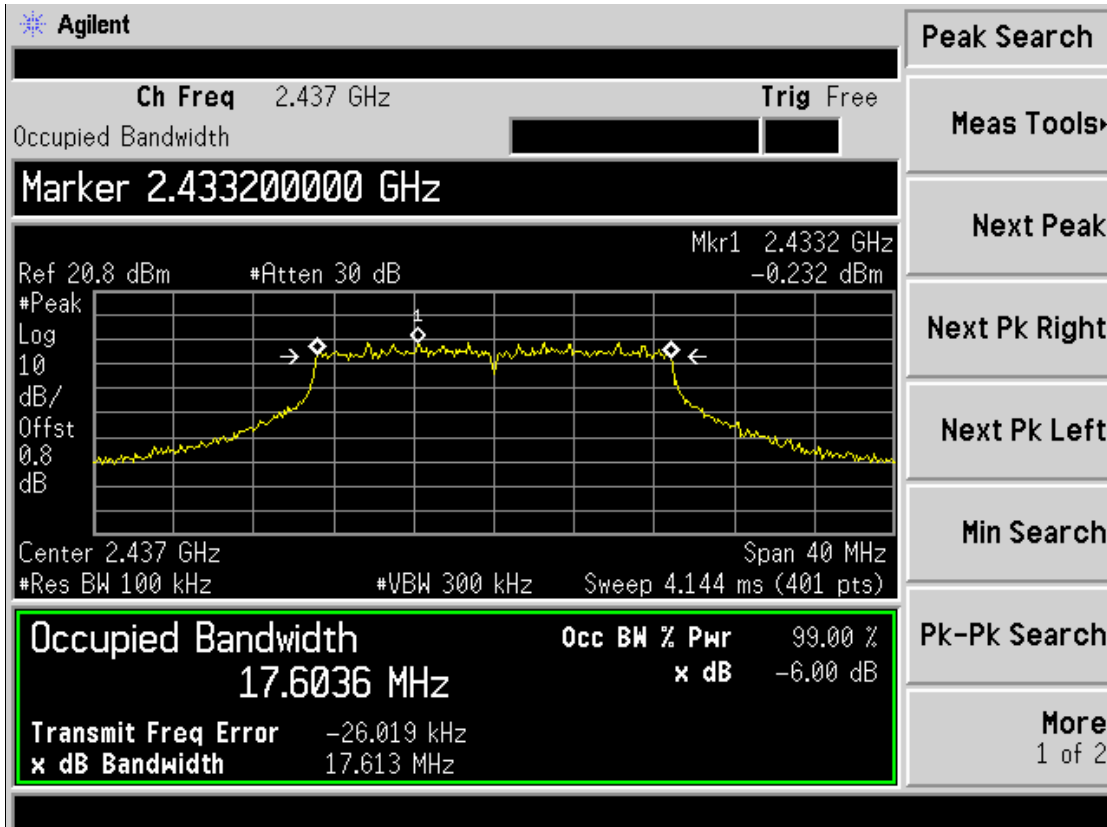
802.11g Mode channel 11



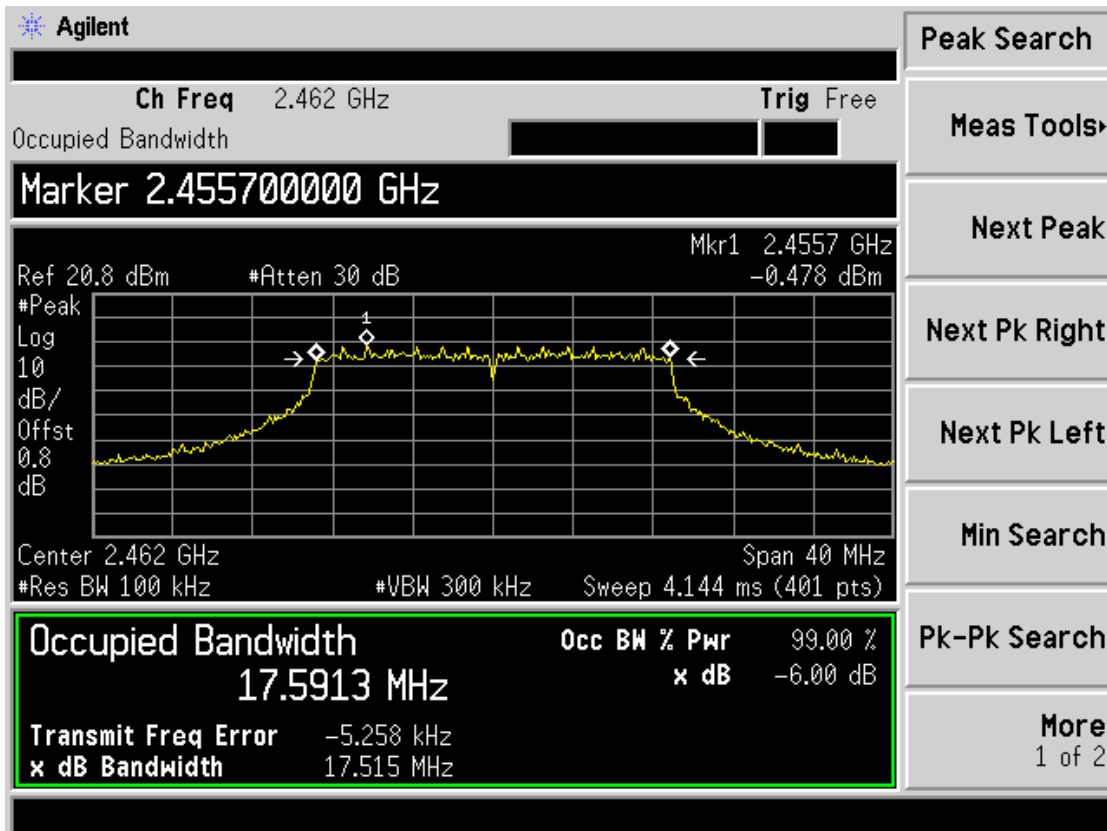
802.11n20 Mode channel 1



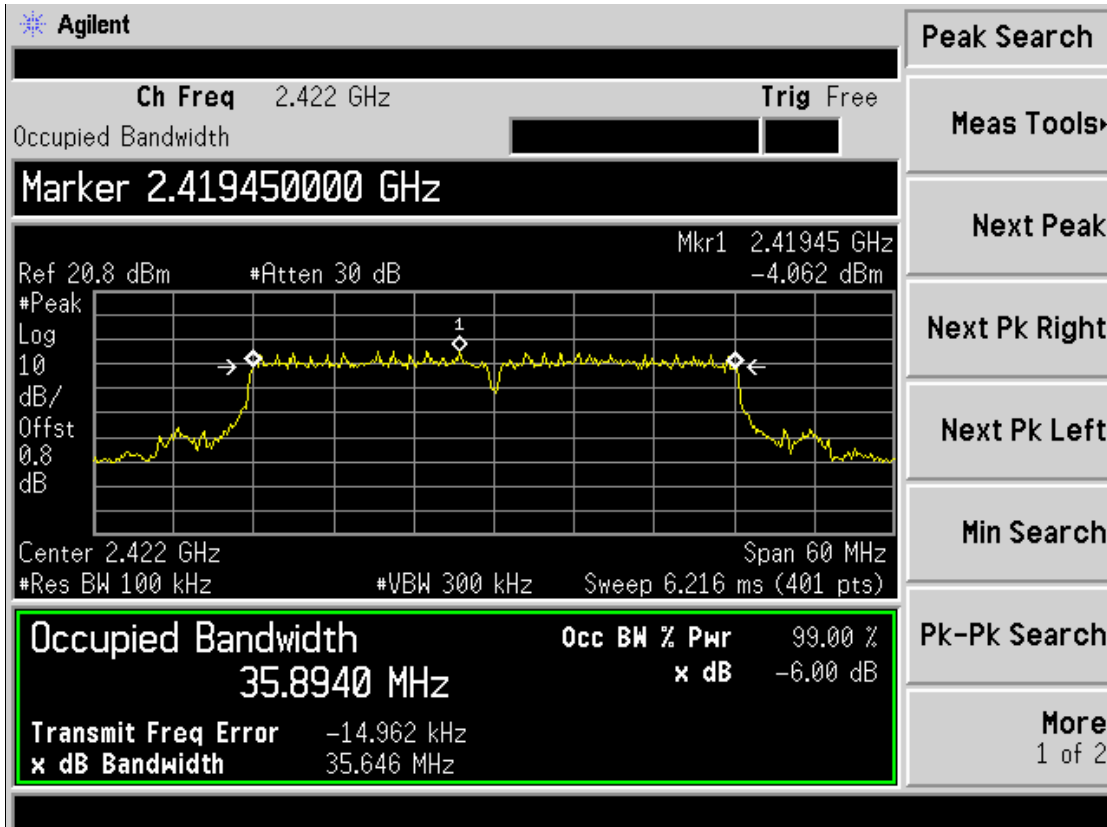
802.11n20 Mode channel 6



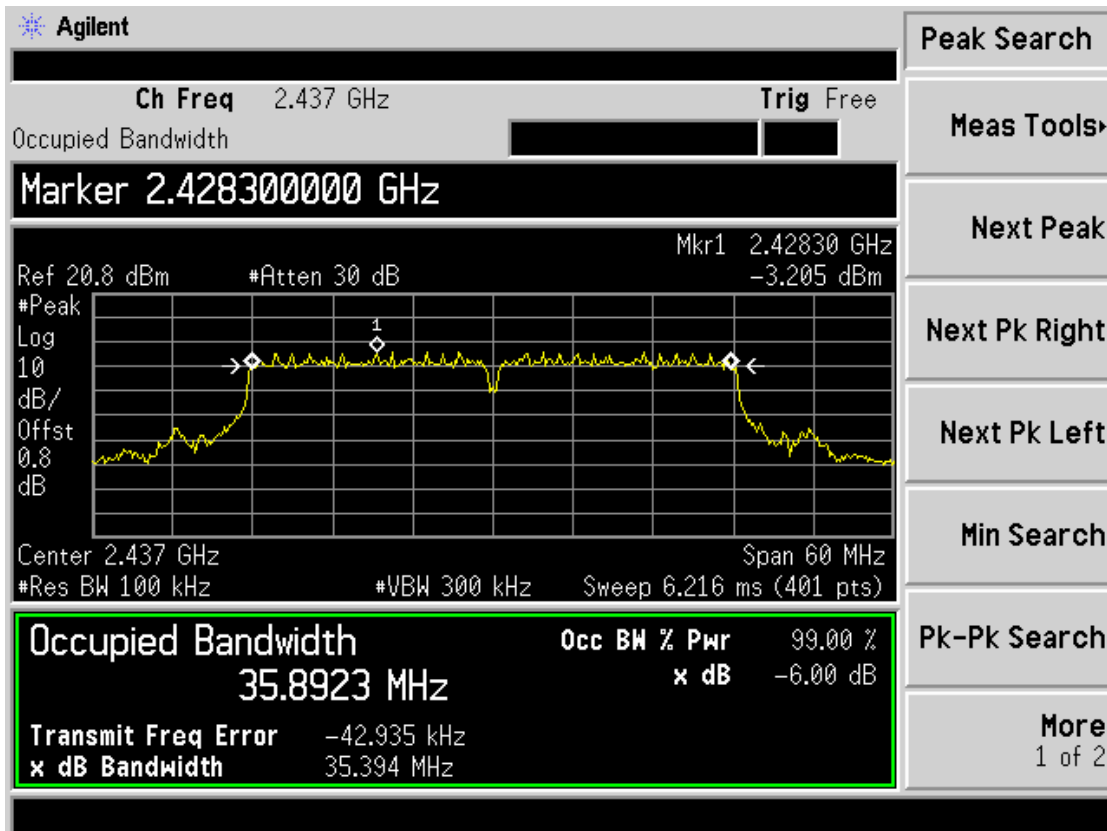
802.11n20 Mode channel 11



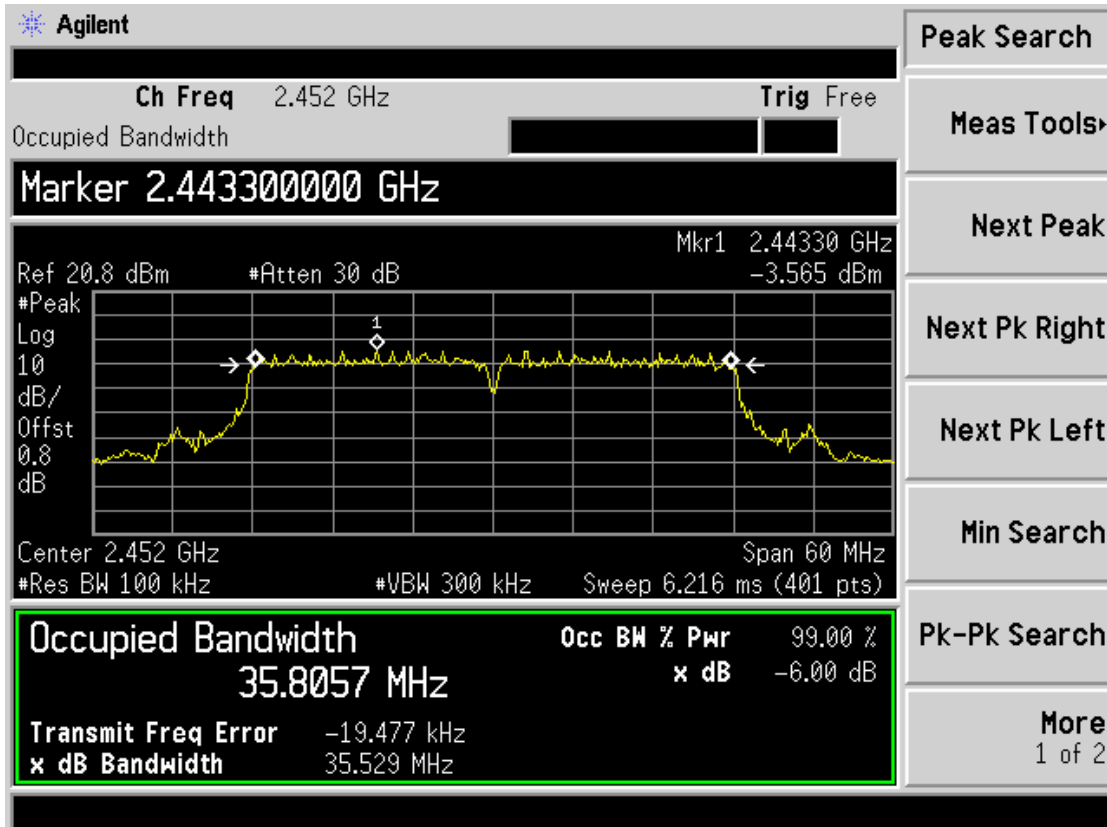
802.11n40 Mode channel 3



802.11n40 Mode channel 6



802.11n40 Mode channel 9



4.8. Antenna Requirement

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.

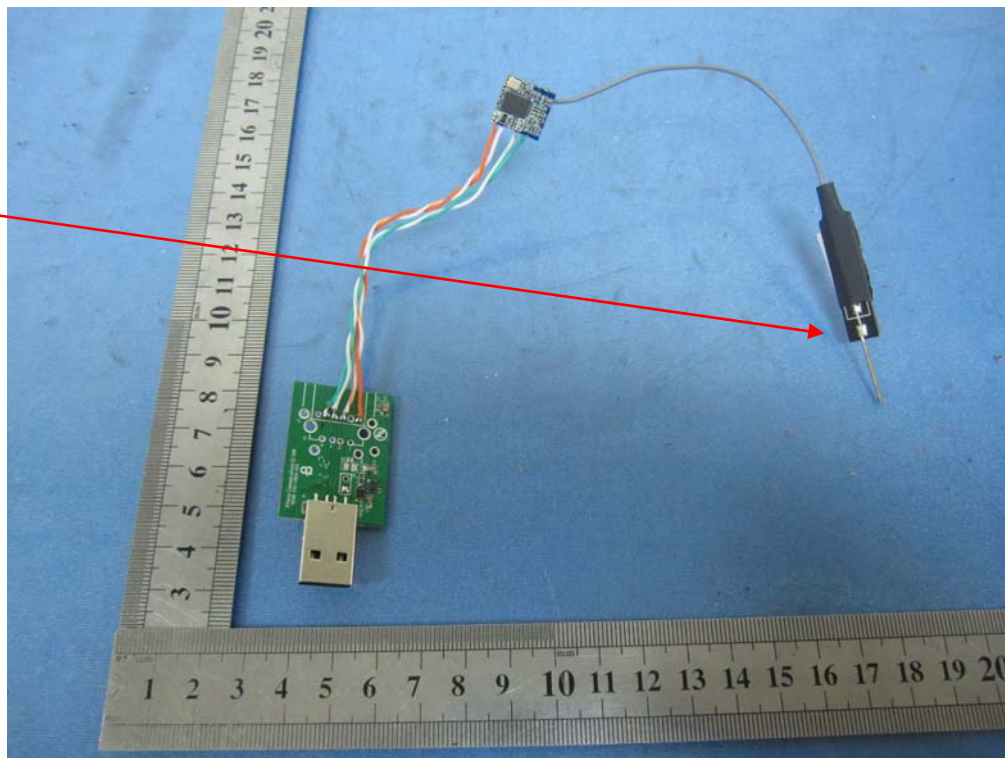
And according to FCC 47 CFR Section 15.247 (c), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

Refer to statement below for compliance

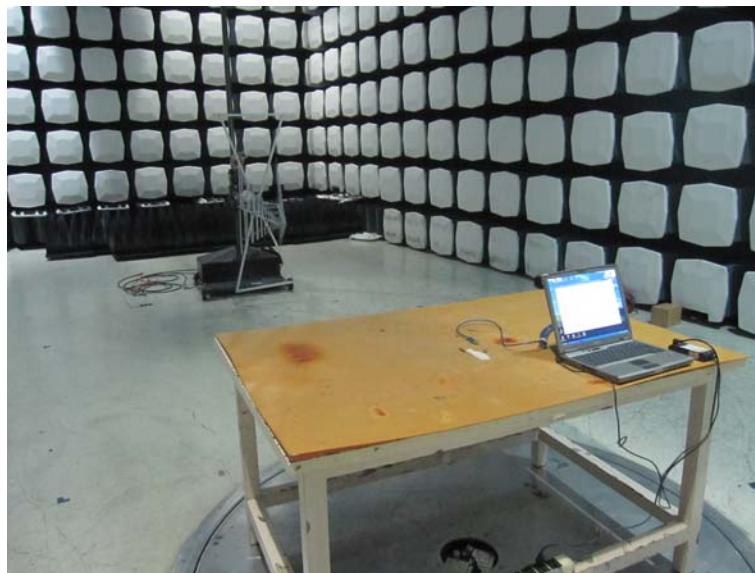
The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

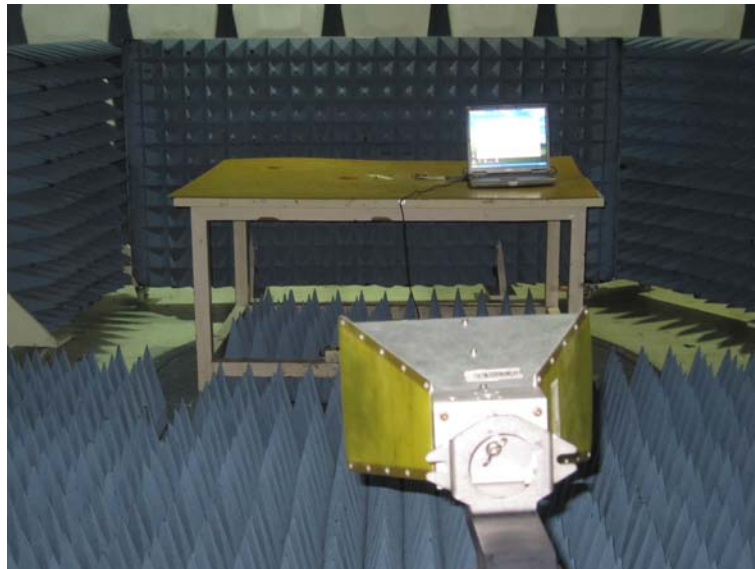
Antenna Connected Construction

1. The test antenna used in this modual is a External Antenna .The maximum Gain of the antenna is 3.5dBi. The antenna is can be replaced according to customer's requirement. please see the photos as following:



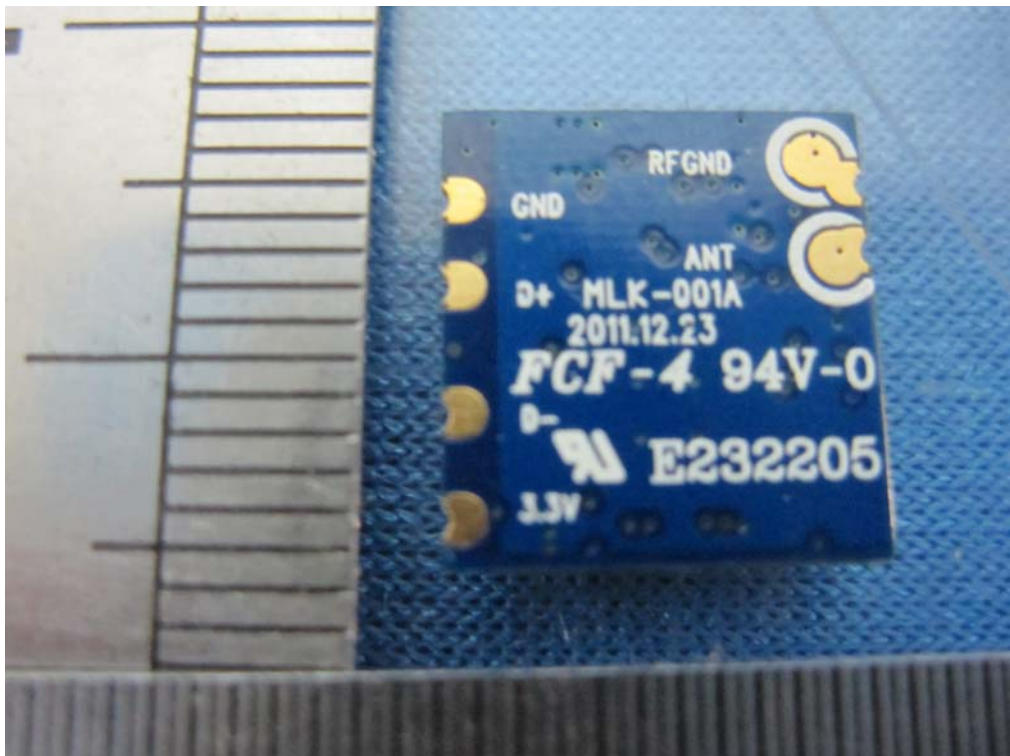
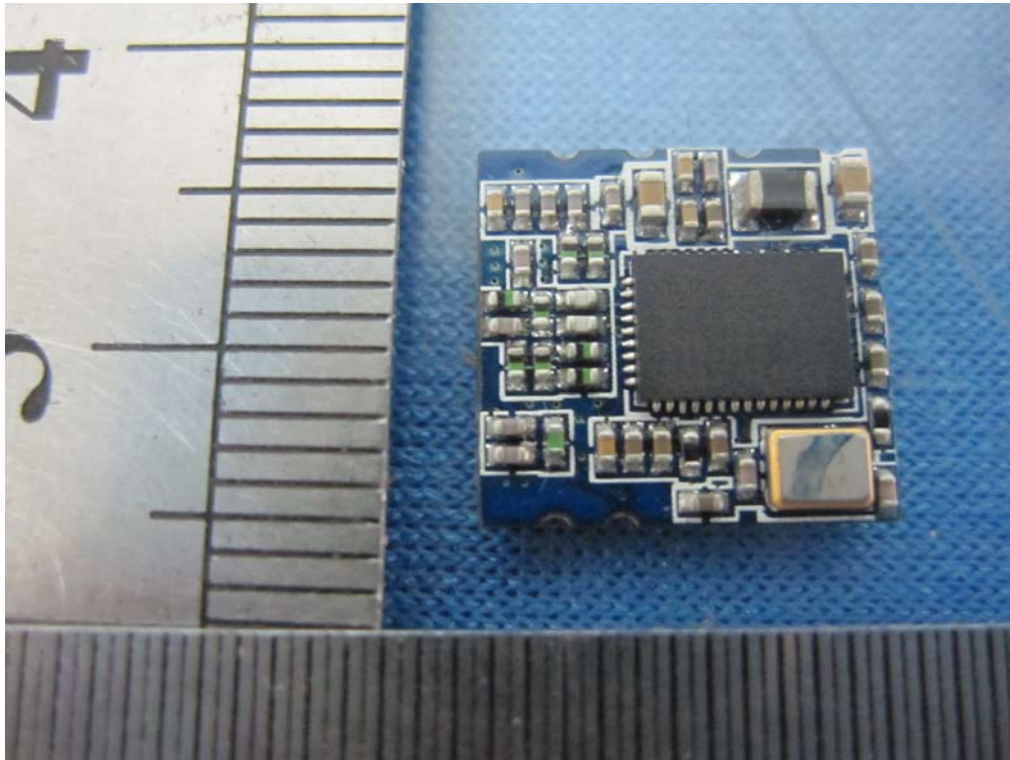
5. Test Setup Photos of the EUT



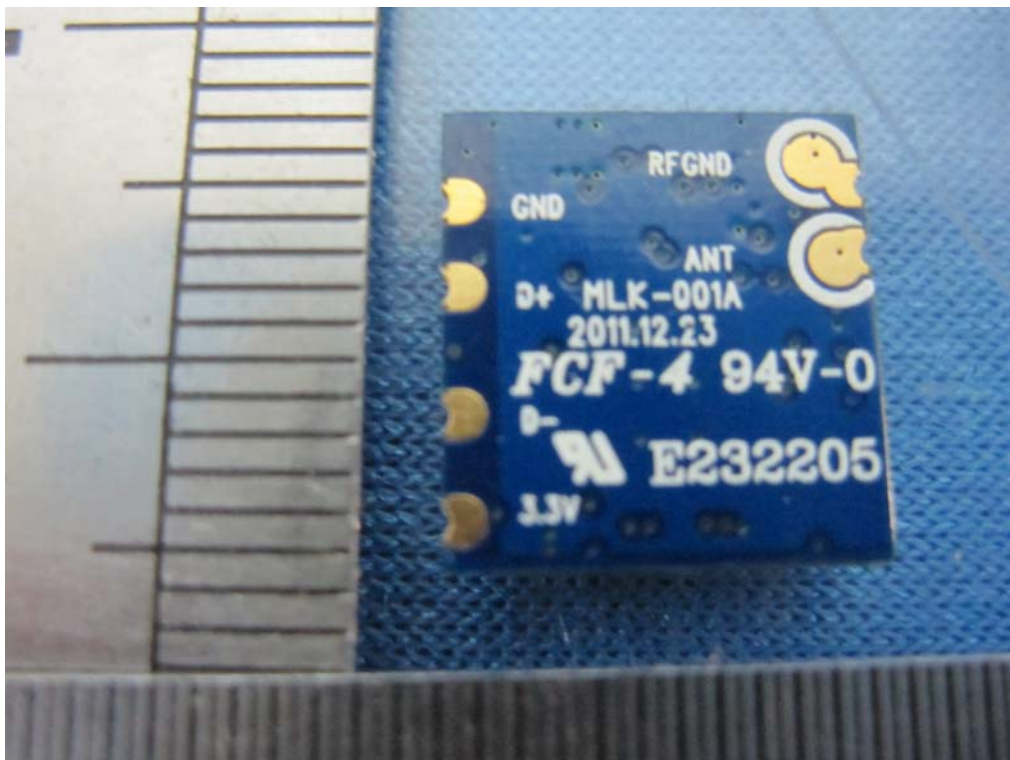
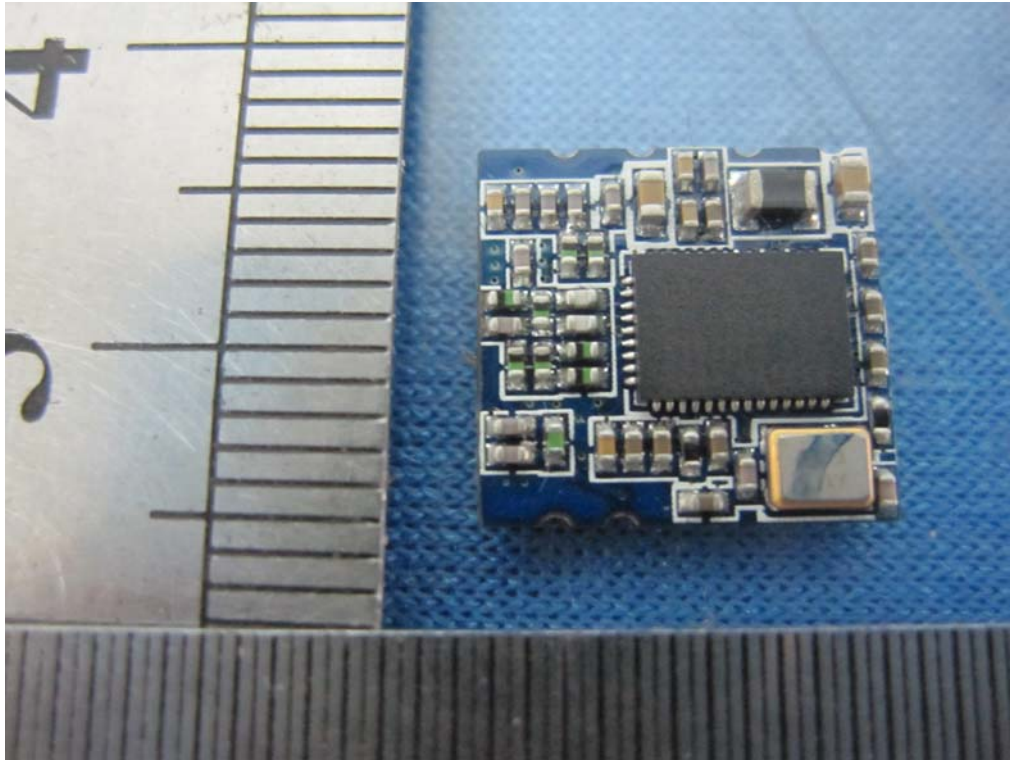


6. External and Internal Photos of the EUT

External Photos



Internal Photos



.....End of Report.....