



Shenzhen CTL Electromagnetic Technology Co., Ltd.
Tel: +86-755-89486194 Fax: +86-755-89486187

FCC PART 15 SUBPART C TEST REPORT

FCC Part 15.247

Report Reference No.: **CTL11038161-S-WF**

Compiled by

(position+printed name+signature) : File administrators Andy Zhang

Andy Zhang

Name of the organization performing the tests

Test Engineer Kendy Wang

Kendy Wang

(position+printed name+signature) :

Approved by

(position+printed name+signature) : Manager Tracy Qi

Tracy Qi

Date of issue: March 11, 2011

Representative Laboratory Name: **Shenzhen CTL Electromagnetic Technology Co., Ltd.**

Address : Zone B, 4/F, Block 20, Guangqian Industrial Park, Longzhu Road, Nanshan, Shenzhen 518055 China.

Test Firm : **Bontek Compliance Testing Laboratory Ltd**

Address : 1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road, Nanshan, Shenzhen, China

Applicant's name: **Shenzhen Firstview Electronic Co. Ltd.**

Address : 3-4/F, Block B, Huafeng 1st Technology Zone, Baoan Main Road, Baoan District, Shenzhen, China

Test specification:

Standard : FCC Part 15.247: Operation within the bands 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz.

TRF Originator : Shenzhen CTL Electromagnetic Technology Co., Ltd.

Master TRF : Dated 2011-01

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Test item description : **MID**

FCC ID : **YW5-JHPC1104617V**

Trade Mark : /

Model/Type reference : PC617

Listed Models : PC627, PC637, PC801, PC802, PC803, PC1002I, PC1003, PC1005

Modulation : DSSS, OFDM

Work Frequency Range : 2412~2462MHz

Antenna Type : PCB

Result : **Positive**

TEST REPORT

Test Report No. :	CTL11038161-S-WF	April 20, 2011
		Date of issue

Equipment under Test : MID

Model /Type : PC617

Listed Models : PC627,PC637,PC801,PC802,PC803,PC1002I,PC1003,PC1005

Applicant : Shenzhen Firstview Electronic Co. Ltd.

Address : 3-4/F, Block B, Huafeng 1st Technology Zone, Baoan Main Road, Baoan District, Shenzhen, China

Manufacturer : Shenzhen Firstview Electronic Co. Ltd.

Address : 3-4/F, Block B, Huafeng 1st Technology Zone, Baoan Main Road, Baoan District, Shenzhen, China

Test Result according to the standards on page 4:

Positive

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 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 C63.4-2003

KDB Publication No. 558074 Guidance on Measurements for Digital Transmission Systems

ANSI C63.10-2009: American National Standard for Testing Unlicensed Wireless Devices.



2. SUMMARY

2.1. General Remarks

Date of receipt of test sample : March 27, 2011

Testing commenced on : March 29, 2011

Testing concluded on : April 8, 2011

2.2. Equipment Under Test

Power supply system utilised

Power supply voltage : ☒ 120V / 60 Hz ☐ 115V / 60Hz
☐ 12 V DC ☐ 24 V DC
☒ Other (specified in blank below)

DC 9V from adapter

Description of the test mode

IEEE 802.11b/g/n: Thirteen channels are provided to the EUT, but only eleventh channels used for USA.

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 (Wireless Lite N MID)

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

Serial number: Prototype

2.4. EUT operation mode

Test Mode:

1. The EUT has been tested under normal operating condition.
2. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed. Channel low (2412MHz), mid (2442MHz) and high (2462MHz) with highest data rate are chosen for full testing.

2.5. EUT configuration

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

- - supplied by the manufacturer

- Mouse

Manufacturer : DELL

Model No. : MOC5UO

- Keyboard

Manufacturer : DELL

Model No. : L100

- Earphone

Manufacturer : HYUNDAI

Model No. : HY-1088MV

2.6. NOTE

1. The EUT is an 802.11b/g/n MID, The functions of the EUT listed as below:

	Test Standards	Reference Report
WLAN 802.11b/g, 802.11n	FCC Part 15 Subpart C (Section 15.247)	CTL11038161-S-WF

2. 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)	✓	—	—	—

3. The EUT incorporates a MIMO function, Physically, the EUT provides two completed transmitter and two completed receivers.

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

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

This submittal(s) (test report) is intended for FCC ID: **YW5-JHPC1104617V** filing to comply with of the FCC Part 15.247 Rules.

2.8. Modifications

No modifications were implemented to meet testing criteria.

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Bontek Compliance Testing Laboratory Ltd
1/F, Block East H-3, OCT Eastern Ind. Zone, Qiaocheng East Road, Nanshan, Shenzhen, China

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 (2003) and CISPR Publication 22.

3.2. Test Facility

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

IC Registration No.: 7631A

The 3m alternate test site of Bontek Compliance Testing Laboratory Ltd EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration NO.: 7631A on March, 2008.

FCC-Registration No.: 338263

Bontek Compliance Testing Laboratory 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 338263, March 24, 2008.

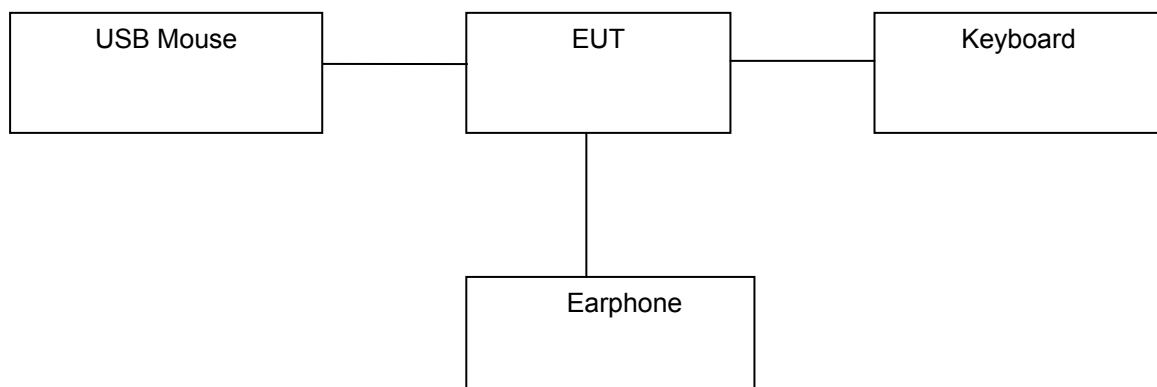
3.3. Environmental conditions

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

Temperature:	<u>15-35 ° C</u>
Humidity:	<u>30-60 %</u>
Atmospheric pressure:	<u>950-1050mbar</u>

3.4. Configuration of Tested System

Fig. 2-1 Configuration of Tested System



3.5. 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 Bontek Compliance Testing Laboratory 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 Bontek laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10dB	(1)
Radiated Emission	1~12.75GHz	4.32dB	(1)
Conducted Disturbance	0.15~30MHz	3.20dB	(1)

- (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.6. Equipments Used during the Test

Item	Test Equipment	Manufacturer	Model No.	Last Cal.	Due. Date
1	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	2010/04/15	2011/04/14
2	Spectrum Analyzer	Agilent	E4402B	2010/04/15	2011/04/14
3	Dual Directional Coupler	Agilent	778D	2010/04/15	2011/04/14
4	10dB attenuator	SCHWARZBECK	MTAIMP-136	2010/04/15	2011/04/14
5	Tunable Bandreject filter	K&L	3TNF-800	2010/04/15	2011/04/14
6	Tunable Bandreject filter	K&L	5TNF-1700	2010/04/15	2011/04/14
7	High-Pass Filter	K&L	9SH10-2700/X12750-O/O	2010/04/15	2011/04/14
8	High-Pass Filter	K&L	41H10-1375/U12750-O/O	2010/04/15	2011/04/14
9	Coaxial Cable	Huber+Suhner	AC4-RF-H	2010/04/15	2011/04/14
10	AC Power Supply	IDRC	CF-500TP	2010/04/15	2011/04/14
11	DC Power Supply	IDRC	CD-035-020PR	2010/04/15	2011/04/14
12	RF Current Probe	FCC	F-33-4	2010/04/15	2011/04/14
13	Temperature /Humidity Meter	zhicheng	ZC1-2	2010/04/15	2011/04/14
14	MICROWAVE AMPLIFIER	HP	8349B	2010/04/15	2011/04/14
15	Amplifier	HP	8447D	2010/04/15	2011/04/14
16	SIGNAL GENERATOR	HP	8647A	2010/04/15	2011/04/14
17	Log Periodic Antenna	ELECTRO-METRICS	EM-6950	2010/04/15	2011/04/14
18	Horn Antenna	Schwarzbeck	BBHA9120A	2010/04/15	2011/04/14
19	EMI Test Receiver	R&S	ESPI	2010/04/15	2011/04/14

3.7. Summary of Test Result

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 Per 47 CFR 2.1091(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.

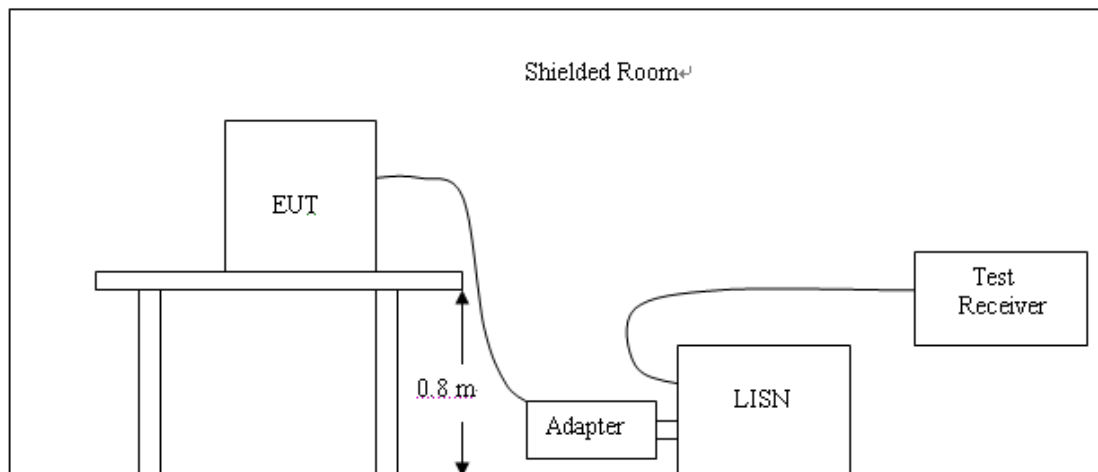
Test Items	Mode	Data Rate	Channel
AC Power Conducted Emission	Normal Link	11 Mbps	1
Maximum Peak Conducted Output Power Power Spectral Density 6dB Bandwidth Spurious RF conducted emission	11b/DSSS	11 Mbps	1/6/11
	11g/OFDM	54 Mbps	1/6/11
	11n(20MHz)/OFDM	65Mbps	1/6/11
	11n(40MHz)/OFDM	135Mbps	3/6/9
Radiated Emission 30MHz~1GHz	11b/DSSS	11 Mbps	1/6/11
	11g/OFDM	54 Mbps	1/6/11
	11n(20MHz)/OFDM	65Mbps	1/6/11
	11n(40MHz)/OFDM	135Mbps	3/6/9
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	135Mbps	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	135Mbps	3/9

Note1: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.

4. TEST CONDITIONS AND RESULTS

4.1. Conducted Emissions Test

TEST CONFIGURATION



TEST PROCEDURE

For unintentional device, according to § 15.107(a) Line 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

For intentional device, according to §15.207(a) Line Conducted Emission Limit is same as above table.

1. Please follow the guidelines in ANSI C63.4-2003.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

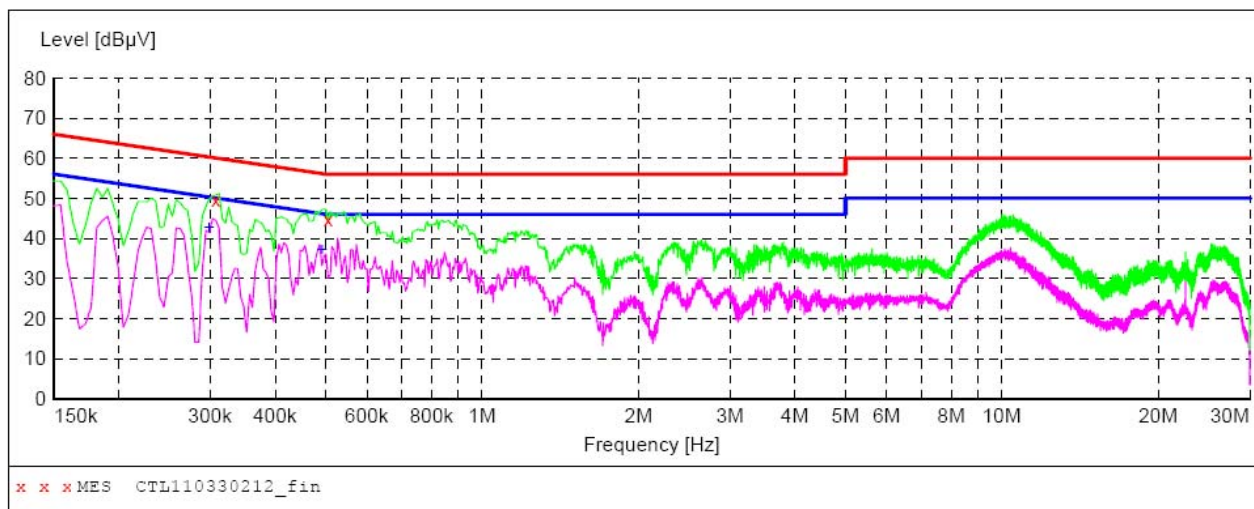
The RBW/VBW for 150KHz to 30MHz: 9KHz

TEST RESULTS

Line 1:

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

Short Description: 150K-30M Voltage

**MEASUREMENT RESULT: "CTL110330212_fin"**

3/30/2011 21:07

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.307500	49.60	10.0	60	10.4	QP	N	GND
0.505500	44.70	9.9	56	11.3	QP	N	GND

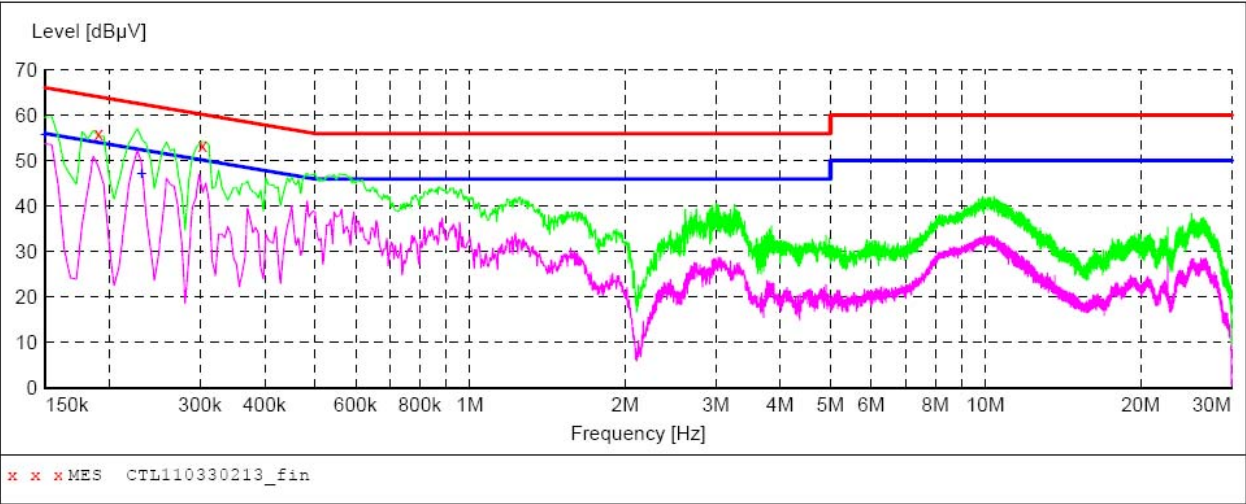
MEASUREMENT RESULT: "CTL110330212_fin2"

3/30/2011 21:07

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.298500	42.80	10.0	50	7.5	AV	N	GND
0.492000	37.20	9.9	46	8.9	AV	N	GND

Line 2:

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



MEASUREMENT RESULT: "CTL110330213_fin"

3/30/2011 21:09

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.190500	55.90	9.9	64	8.1	QP	L1	GND
0.303000	53.40	10.0	60	6.8	QP	L1	GND

MEASUREMENT RESULT: "CTL110330213_fin2"

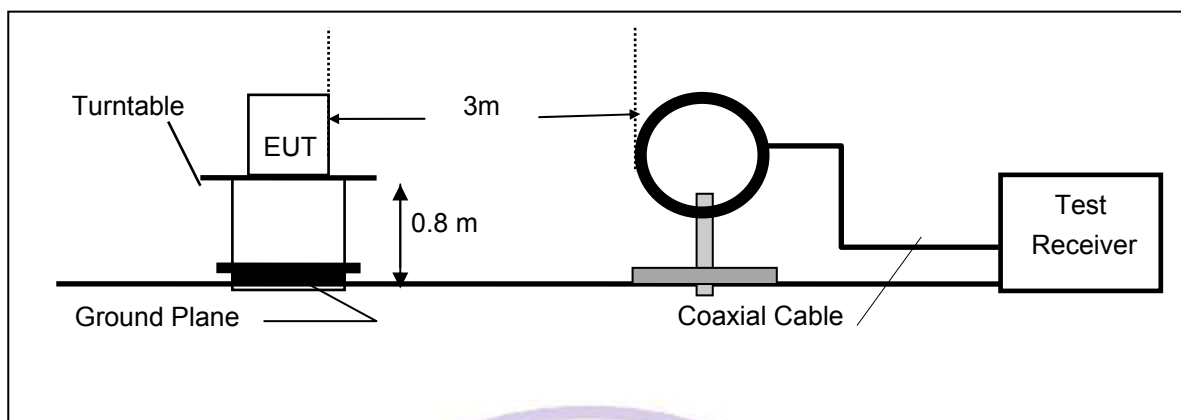
3/30/2011 21:09

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.150000	55.60	9.9	56	0.4	AV	L1	GND
0.231000	47.20	9.9	52	5.2	AV	L1	GND

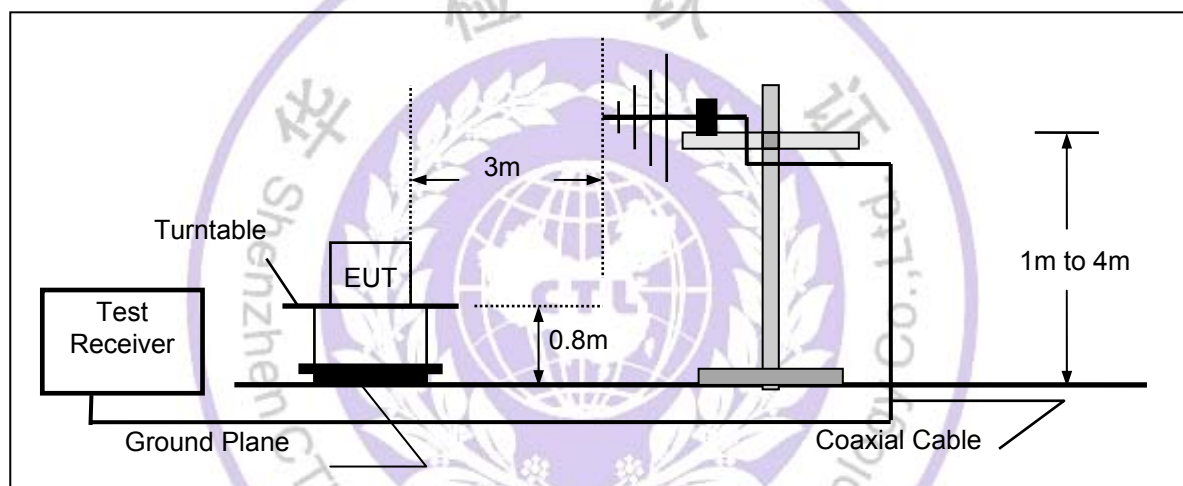
4.2. Radiated Emission Test

TEST CONFIGURATION

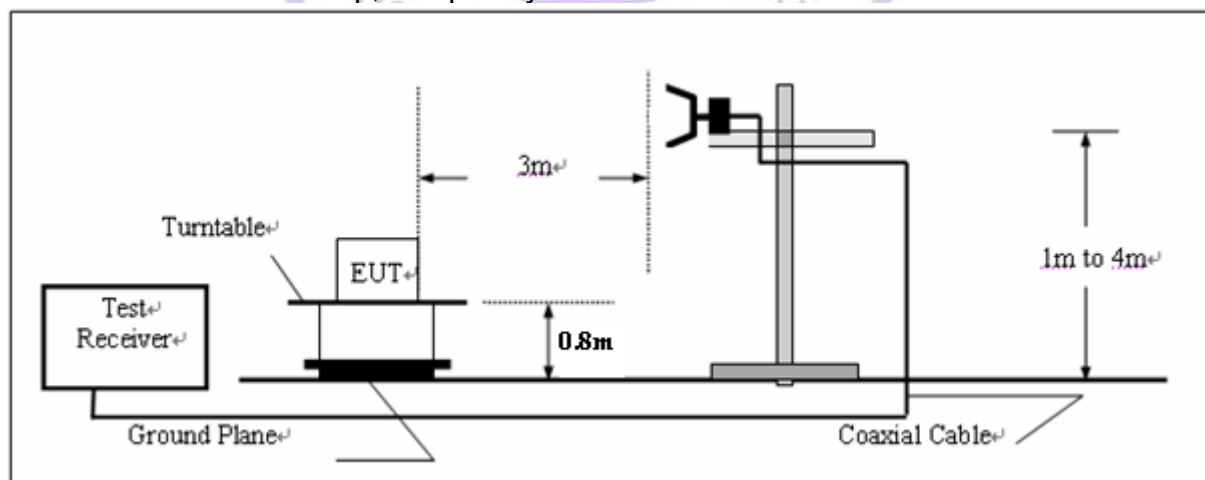
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



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



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	

TEST PROCEDURE

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The EUT was placed on a turn table which is 0.8m above ground plane.
3. 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
4. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
5. Span = wide enough to fully capture the emission being measured; RBW = 1 MHz for $f > 1$ GHz, 100 kHz for $f < 1$ GHz; VBW=RBW; Sweep = auto; Detector function = peak; Trace = max hold.
6. Repeat above procedures until all frequency measurements have been completed.

LIMIT

For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency (MHz)	Distance (Meters)	Radiated (dBμV/m)	Radiated (μV/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

For intentional device, according to § 15.209(a), the general requirement of field strength of radiated emissions from intentional radiators at a distance of 3 meters shall not exceed the above 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.

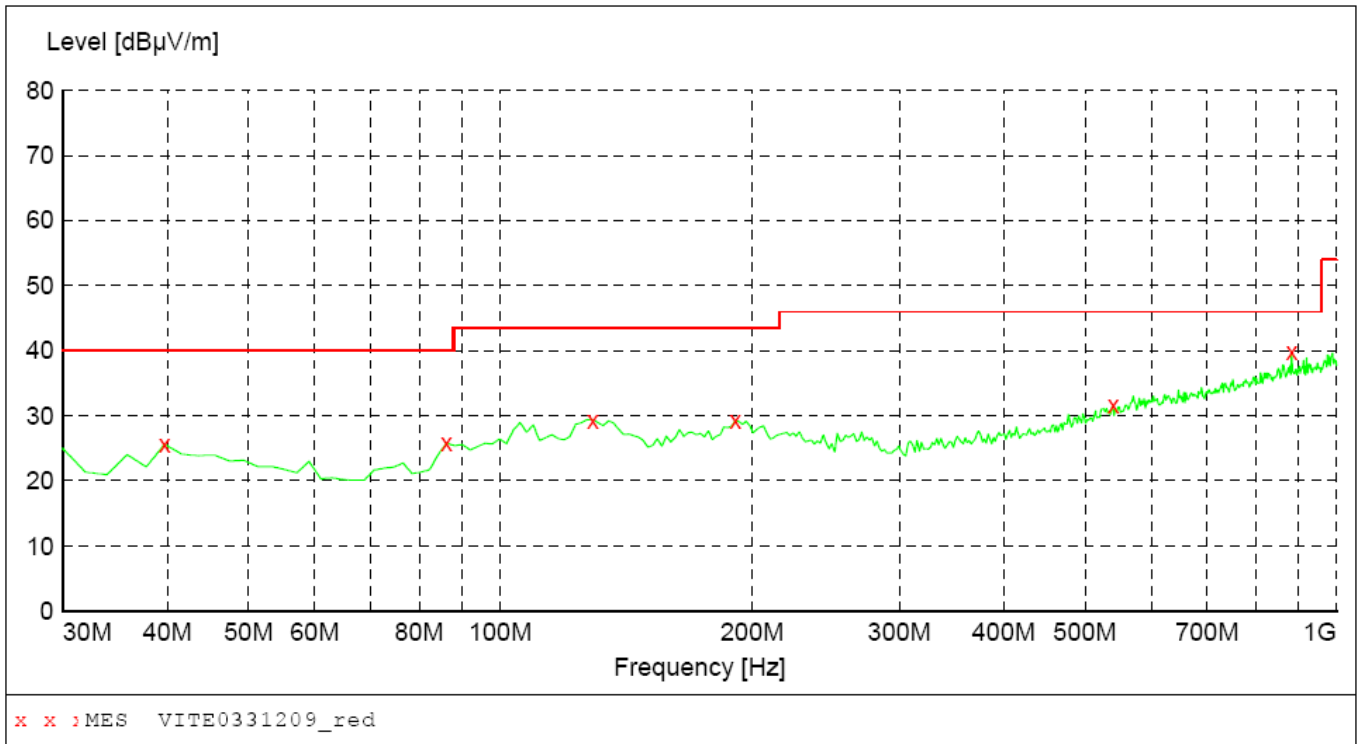
TEST RESULTS

Below 1GHz:

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.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
30.0 MHz	1.0 GHz	MaxPeak	Coupled	100 kHz	VULB9163 NEW



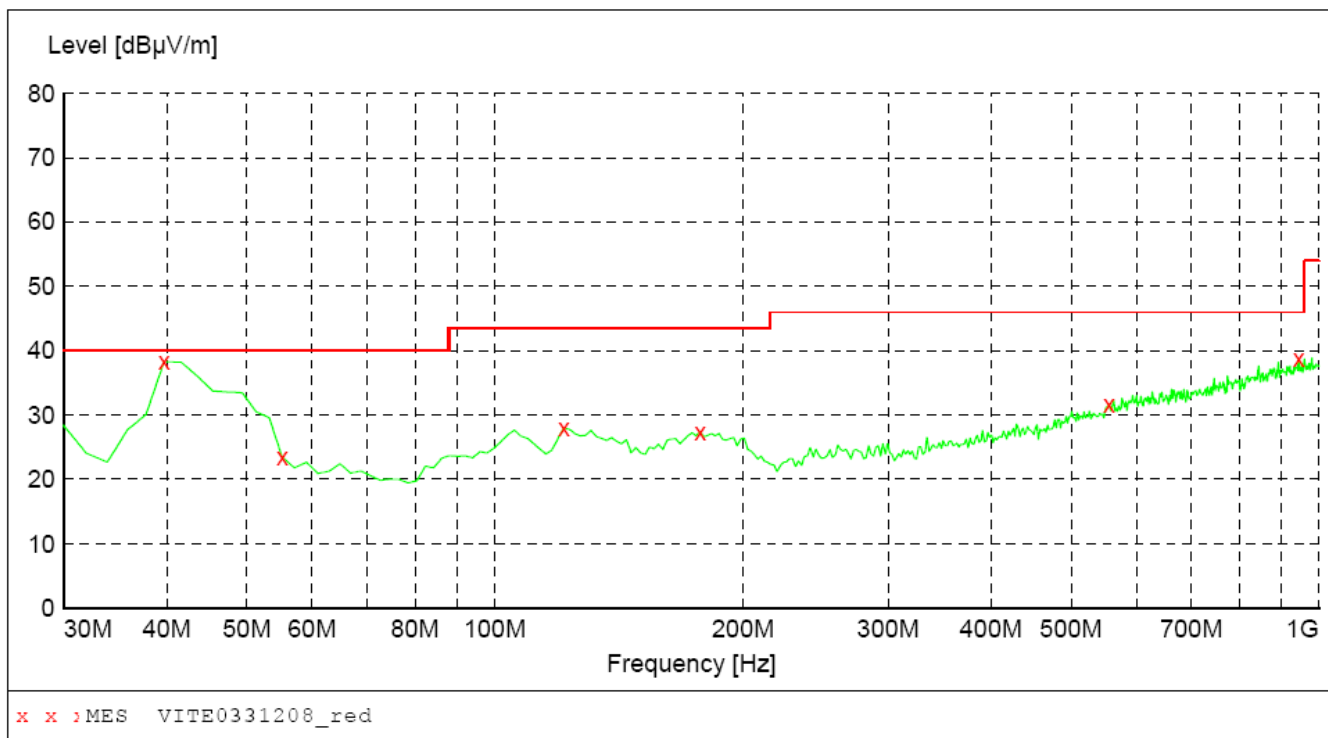
MEASUREMENT RESULT: "VITE0331209_red"

3/31/2011 20:02

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
39.700000	25.60	15.8	40.0	14.4	Peak	100.0	0.00	HORIZONTAL
86.260000	25.80	14.8	40.0	14.2	Peak	300.0	0.00	HORIZONTAL
128.940000	29.40	13.9	43.5	14.1	Peak	300.0	0.00	HORIZONTAL
191.020000	29.20	16.1	43.5	14.3	Peak	100.0	0.00	HORIZONTAL
540.220000	31.60	24.9	46.0	14.4	Peak	300.0	0.00	HORIZONTAL
883.600000	39.80	30.9	46.0	6.2	Peak	300.0	0.00	HORIZONTAL

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	VULB9163 NEW

**MEASUREMENT RESULT: "VITE0331208_red"**

3/31/2011 19:58

Frequency MHz	Level dBμV/m	Transd dB	Limit dBμV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
39.700000	38.30	15.8	40.0	1.7	Peak	100.0	0.00	VERTICAL
55.220000	23.50	15.6	40.0	16.5	Peak	100.0	0.00	VERTICAL
121.180000	28.00	14.9	43.5	15.5	Peak	100.0	0.00	VERTICAL
177.440000	27.40	14.9	43.5	16.1	Peak	100.0	0.00	VERTICAL
555.740000	31.70	25.3	46.0	14.3	Peak	100.0	0.00	VERTICAL
943.740000	38.80	31.7	46.0	7.2	Peak	100.0	0.00	VERTICAL

Above 1GHz:
802.11b CH1

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

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	50.83	PK	74.00	23.17	1.00 H	200	54.23	28.3	4.90	36.6	-3.40
1	2390.00	42.11	AV	54.00	11.89	1.00 H	200	45.41	28.3	4.90	36.6	-3.40
2	*2412.00	106.46	PK			1.00 H	333	109.86	28.3	4.90	36.6	-3.40
2	*2412.00	93.10	AV			1.00 H	333	96.50	28.3	4.90	36.6	-3.40
3	4824.00	49.23	PK	74.00	24.77	1.00 H	125	46.03	32.7	7.00	36.5	3.20
3	4824.00	39.00	AV	54.00	15.00	1.00 H	125	35.80	32.7	7.00	36.5	3.20
4	7236.00	57.21	PK	74.00	16.79	1.00 H	66	47.81	35.8	8.90	35.3	9.40
4	7236.00	43.35	AV	54.00	10.65	1.00 H	66	33.95	35.8	8.90	35.3	9.40
5	9648.00	55.23	PK	74.00	18.77	1.00 H	264	42.63	37.2	10.20	34.8	12.60
5	9648.00	43.00	AV	54.00	11.00	1.00 H	264	30.40	037.2	10.20	34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	53.89	PK	74.00	20.11	1.0	236	57.29	28.3	4.90	36.6	-3.40
1	2390.00	44.49	AV	54.00	9.51	1.0	236	47.89	28.3	4.90	36.6	-3.40
2	*2412.00	109.96	PK			1.0	100	113.36	28.3	4.90	36.6	-3.40
2	*2412.00	96.21	AV			1.0	100	99.55	28.3	4.90	36.6	-3.40
3	4824.00	58.23	PK	74.00	15.77	1.0	312	55.03	32.7	7.00	36.5	3.20
3	4824.00	43.00	AV	54.00	11.00	1.0	312	39.80	32.7	7.00	36.5	3.20
4	7236.00	60.12	PK	74.00	13.88	1.0	46	50.72	35.8	8.90	35.3	9.40
4	7236.00	45.17	AV	54.00	8.83	1.0	46	35.77	35.8	8.90	35.3	9.40
5	9648.00	58.64	PK	74.00	15.36	1.0	108	46.04	37.2	10.20	34.8	12.60
5	9648.00	43.57	AV	54.00	10.43	1.0	108	30.97	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.

802.11b CH6

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

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	105.30 PK			1.00 H	153	108.50	28.3	5.10	-36.6	-3.20
1	*2437.00	92.30 AV			1.00 H	153	95.50	28.3	5.10	-36.6	-3.20
2	4874.00	46.40 PK	74.00	27.60	1.00 H	202	43.20	32.3	7.60	-36.5	3.40
2	4874.00	35.00 AV	54.00	19.00	1.00 H	202	31.60	32.3	7.60	-36.5	3.40
3	7311.00	51.10 PK	74.00	22.90	1.00 H	355	41.70	36.1	8.60	-35.3	9.40
3	7311.00	39.00 AV	54.00	15.00	1.00 H	355	29.60	36.1	8.60	-35.3	9.40
4	9748.00	58.20 PK	74.00	15.80	1.00 H	28	45.60	37.2	10.20	-34.8	12.60
4	9748.00	46.20 AV	54.00	7.80	1.00 H	28	33.60	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	107.70 PK			1.00 V	121	110.90	28.3	5.10	-36.6	-3.20
1	*2437.00	96.20 AV			1.00 V	121	98.40	28.3	5.10	-36.6	-3.20
2	4874.00	47.00 PK	74.00	27.00	1.00 V	97	43.60	32.3	7.60	-36.5	3.40
2	4874.00	35.10 AV	54.00	18.90	1.00 V	97	32.10	32.3	7.60	-36.5	3.40
3	7311.00	55.10 PK	74.00	22.90	1.00 V	288	45.70	36.1	8.60	-35.3	9.40
3	7311.00	39.10 AV	54.00	14.90	1.00 V	288	29.70	36.1	8.60	-35.3	9.40
4	9748.00	59.30 PK	74.00	14.70	1.00 V	89	46.70	37.2	10.20	-34.8	12.60
4	9748.00	46.20 AV	54.00	7.80	1.00 V	89	33.60	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.

802.11b CH11

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

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	104.90 PK			1.00 H	154	108.20	28.6	4.70	-36.6	-3.30
1	*2462.00	91.70 AV			1.00 H	154	95.00	28.6	4.70	-36.6	-3.30
2	2483.50	36.70 PK	74.00	37.30	1.00 H	146	40.00	28.6	4.70	-36.6	-3.30
2	2483.50	23.10 AV	54.00	30.90	1.00 H	146	26.40	28.6	4.70	-36.6	-3.30
3	4022.04	45.20 PK	74.00	28.80	1.00 H	341	43.30	32.2	6.20	-36.5	1.90
3	4022.04	33.30 AV	54.00	20.70	1.00 H	341	31.40	32.2	6.20	-36.5	1.90
4	4924.00	47.10 PK	74.00	26.90	1.00 H	100	43.30	33.0	7.00	-36.2	3.80
4	4924.00	35.10 AV	54.00	18.90	1.00 H	100	31.30	33.0	7.00	-36.2	3.80
5	7386.00	54.40 PK	74.00	19.60	1.00 H	190	45.00	36.2	8.50	-35.3	9.40
5	7386.00	42.30 AV	54.00	11.70	1.00 H	190	32.90	36.2	8.50	-35.3	9.40
6	9848.00	59.00 PK	74.00	15.00	1.00 H	113	46.40	37.2	10.20	-34.8	12.60
6	9848.00	46.40 AV	54.00	7.60	1.00 H	113	33.80	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	107.90 PK			1.00 V	247	111.20	28.6	4.70	-36.6	-3.30
1	*2462.00	97.60 AV			1.00 V	247	100.90	28.6	4.70	-36.6	-3.30
2	2483.50	53.40 PK	74.00	20.60	1.00 V	150	56.70	28.6	4.70	-36.6	-3.30
2	2483.50	40.80 AV	54.00	13.20	1.00 V	150	44.10	28.6	4.70	-36.6	-3.30
3	4022.04	45.10 PK	74.00	28.90	1.00 V	299	43.20	32.2	6.20	-36.5	1.90
3	4022.04	33.30 AV	54.00	20.70	1.00 V	299	31.40	32.2	6.20	-36.5	1.90
4	4924.00	46.40 PK	74.00	27.60	1.00 V	90	42.60	33.0	7.00	-36.2	3.80
4	4924.00	35.10 AV	54.00	18.90	1.00 V	90	31.30	33.0	7.00	-36.2	3.80
5	7386.00	55.00 PK	74.00	19.00	1.00 V	29	45.60	36.2	8.50	-35.3	9.40
5	7386.00	42.60 AV	54.00	11.40	1.00 V	29	33.20	36.2	8.50	-35.3	9.40
6	9848.00	58.30 PK	74.00	15.70	1.00 V	222	45.70	37.2	10.20	-34.8	12.60
6	9848.00	46.10 AV	54.00	7.90	1.00 V	222	33.50	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 CH1

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

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	62.83	PK	74.00	11.17	1.00 H	247	66.13	28.3	5.00	36.6	-3.30
1	2390.00	42.22	AV	54.00	11.78	1.00 H	247	45.52	28.3	5.00	36.6	-3.30
2	*2412.00	106.36	PK			1.00 H	100	109.66	28.3	5.00	36.6	-3.30
2	*2412.00	92.53	AV			1.00 H	100	95.83	28.3	5.00	36.6	-3.30
3	4824.00	50.23	PK	74.00	23.77	1.00 H	89	46.43	32.7	7.30	36.2	3.80
3	4824.00	36.88	AV	54.00	17.12	1.00 H	89	33.08	32.7	7.30	36.2	3.80
4	7236.00	54.00	PK	74.00	20.00	1.00 H	345	44.60	35.8	8.90	35.3	9.40
4	7236.00	40.13	AV	54.00	13.87	1.00 H	345	30.73	35.8	8.90	35.3	9.40
5	9648.00	51.55	PK	74.00	22.45	1.00 H	121	38.95	37.2	10.20	34.8	12.60
5	9648.00	39.78	AV	54.00	14.22	1.00 H	121	27.18	37.2	10.20	34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	69.55	PK	74.00	4.450	1.00 V	288	72.85	28.3	5.00	36.6	-3.30
1	2390.00	42.25	AV	54.00	11.75	1.00 V	288	45.55	28.3	5.00	36.6	-3.30
2	*2412.00	104.29	PK			1.00 V	69	107.59	28.3	5.00	36.6	-3.30
2	*2412.00	92.24	AV			1.00 V	69	95.54	28.3	5.00	36.6	-3.30
3	4824.00	55.54	PK	74.00	18.46	1.00 V	291	51.74	32.7	7.30	36.2	3.80
3	4824.00	40.12	AV	54.00	13.88	1.00 V	291	36.32	32.7	7.30	36.2	3.80
4	7236.00	60.45	PK	74.00	13.55	1.00 V	360	51.05	35.8	8.90	35.3	9.40
4	7236.00	42.77	AV	54.00	11.23	1.00 V	360	33.37	35.8	8.90	35.3	9.40
5	9648.00	57.68	PK	74.00	16.32	1.00 V	155	45.08	37.2	10.20	34.8	12.60
5	9648.00	40.44	AV	54.00	13.56	1.00 V	155	27.84	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 802.11g mode at 54Mbps.

802.11g CH6

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

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	104.40 PK			1.00 H	100	107.60	28.3	5.10	-36.6	-3.20
1	*2437.00	87.00 AV			1.00 H	100	90.20	28.3	5.10	-36.6	-3.20
2	4874.00	46.40 PK	74.00	27.60	1.00 H	214	43.00	32.8	7.10	-36.5	3.40
2	4874.00	35.10 AV	54.00	18.90	1.00 H	214	31.70	32.8	7.10	-36.5	3.40
3	7311.00	54.70 PK	74.00	19.30	1.00 H	0	45.30	36.1	8.60	-35.3	9.40
3	7311.00	42.30 AV	54.00	11.70	1.00 H	0	32.90	36.1	8.60	-35.3	9.40
4	9748.00	57.80 PK	74.00	16.20	1.00 H	163	45.20	37.2	10.20	-34.8	12.60
4	9748.00	46.30 AV	54.00	7.70	1.00 H	163	33.70	37.2	10.20	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	107.50 PK			1.00 V	122	110.70	28.3	5.10	-36.6	-3.20
1	*2437.00	94.80 AV			1.00 V	122	98.00	28.3	5.10	-36.6	-3.20
2	4874.00	46.10 PK	74.00	27.90	1.00 V	100	42.70	32.8	7.10	-36.5	3.40
2	4874.00	35.10 AV	54.00	18.90	1.00 V	100	31.70	32.8	7.10	-36.5	3.40
3	7311.00	54.90 PK	74.00	19.10	1.00 V	356	45.50	36.1	8.60	-35.3	9.40
3	7311.00	42.40 AV	54.00	11.60	1.00 V	356	33.00	36.1	8.60	-35.3	9.40
4	9748.00	58.60 PK	74.00	15.40	1.00 V	26	46.00	37.2	10.20	-34.8	12.60
4	9748.00	48.20 AV	54.00	7.80	1.00 V	26	35.60	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 802.11g mode at 54Mbps.

802.11g CH11

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

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	99.50 PK			1.00 H	156	102.80	28.2	5.10	-36.6	-3.30
1	*2462.00	85.80 AV			1.00 H	156	89.10	28.2	5.10	-36.6	-3.30
2	2483.50	47.70 PK	74.00	26.30	1.00 H	191	51.00	28.2	5.10	-36.6	-3.30
2	2483.50	30.10 AV	54.00	23.90	1.00 H	191	33.40	28.2	5.10	-36.6	-3.30
3	4924.00	46.90 PK	74.00	27.10	1.00 H	198	43.10	33.0	7.00	-36.2	3.80
3	4924.00	34.90 AV	54.00	19.10	1.00 H	198	31.10	33.0	7.00	-36.2	3.80
4	7386.00	54.70 PK	74.00	19.30	1.00 H	90	45.30	36.2	8.50	-35.3	9.40
4	7386.00	42.30 AV	54.00	11.70	1.00 H	90	32.90	36.2	8.50	-35.3	9.40
5	9848.00	58.60 PK	74.00	15.40	1.00 H	124	46.00	37.3	10.10	-34.8	12.60
5	9848.00	46.20 AV	54.00	7.80	1.00 H	124	33.60	37.3	10.10	-34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	101.50 PK			1.00 V	125	105.80	28.2	5.10	-36.6	-3.30
1	*2462.00	89.10 AV			1.00 V	125	94.40	28.2	5.10	-36.6	-3.30
2	2483.50	65.70 PK	74.00	8.30	1.00 V	348	69.00	28.2	5.10	-36.6	-3.30
2	2483.50	50.90 AV	54.00	3.10	1.00 V	348	54.20	28.2	5.10	-36.6	-3.30
3	4924.00	46.10 PK	74.00	27.90	1.00 V	96	42.30	33.0	7.00	-36.2	3.80
3	4924.00	34.80 AV	54.00	19.20	1.00 V	96	31.00	33.0	7.00	-36.2	3.80
4	7386.00	54.40 PK	74.00	19.60	1.00 V	35	45.00	36.2	8.50	-35.3	9.40
4	7386.00	42.30 AV	54.00	11.70	1.00 V	35	32.90	36.2	8.50	-35.3	9.40
5	9848.00	58.60 PK	74.00	15.40	1.00 V	37	46.00	37.3	10.10	-34.8	12.60
5	9848.00	46.20 AV	54.00	7.80	1.00 V	37	33.60	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.

802.11n (20MHz) Channel 1

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

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	67.10	PK	74.00	6.90	1.00 H	144	70.40	28.3	5.00	36.6	-3.30
1	2390.00	34.50	AV	54.00	19.50	1.00 H	144	37.80	28.3	5.00	36.6	-3.30
2	*2412.00	104.43	PK			1.00 H	256	107.73	28.3	5.00	36.6	-3.30
2	*2412.00	84.00	AV			1.00 H	256	87.30	28.3	5.00	36.6	-3.30
3	4824.00	52.23	PK	74.00	21.77	1.00 H	88	48.43	32.7	7.30	36.2	3.80
3	4824.00	41.47	AV	54.00	12.53	1.00 H	88	37.67	32.7	7.30	36.2	3.80
4	7236.00	53.88	PK	74.00	20.12	1.00 H	331	44.48	35.8	8.90	35.3	9.40
4	7236.00	41.26	AV	54.00	12.74	1.00 H	331	31.86	35.8	8.90	35.3	9.40
5	9648.00	55.14	PK	74.00	18.86	1.00 H	105	42.54	37.2	10.20	34.8	12.60
5	9648.00	42.69	AV	54.00	11.31	1.00 H	105	30.09	37.2	10.20	34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	68.01	PK	74.00	5.99	1.00 V	125	71.31	28.3	5.00	36.6	-3.30
1	2390.00	45.27	AV	54.00	8.73	1.00 V	125	48.57	28.3	5.00	36.6	-3.30
2	*2412.00	105.40	PK			1.00 V	236	108.70	28.3	5.00	36.6	-3.30
2	*2412.00	87.72	AV			1.00 V	236	91.02	28.3	5.00	36.6	-3.30
3	4824.00	53.39	PK	74.00	20.61	1.00 V	179	49.59	32.7	7.30	36.2	3.80
3	4824.00	42.07	AV	54.00	11.93	1.00 V	179	38.27	32.7	7.30	36.2	3.80
4	7236.00	54.51	PK	74.00	19.49	1.00 V	313	45.11	35.8	8.90	35.3	9.40
4	7236.00	41.56	AV	54.00	12.44	1.00 V	313	32.16	35.8	8.90	35.3	9.40
5	9648.00	56.71	PK	74.00	17.29	1.00 V	5	44.11	37.2	10.20	34.8	12.60
5	9648.00	43.25	AV	54.00	10.75	1.00 V	5	30.65	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

802.11n (20MHz) Channel 6

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

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	101.88	PK		1.00 H	223	105.08	28.3	5.10	36.6	-3.20
1	*2437.00	85.07	AV		1.00 H	122	88.27	28.3	5.10	36.6	-3.20
2	4874.00	47.56	PK	74.00	1.00 H	5	44.16	32.8	7.10	36.5	3.40
2	4874.00	36.91	AV	54.00	1.00 H	5	33.51	32.8	7.10	36.5	3.40
3	7311.00	51.72	PK	74.00	1.00 H	124	42.32	36.1	8.60	35.3	9.40
3	7311.00	40.66	AV	54.00	1.00 H	124	31.26	36.1	8.60	35.3	9.40
4	9748.00	53.78	PK	74.00	1.00 H	325	41.18	37.2	10.20	34.8	12.60
4	9748.00	42.04	AV	54.00	1.00 H	325	29.44	37.2	10.20	34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	102.97	PK		1.00 V	125	106.17	28.3	5.10	36.6	-3.20
1	*2437.00	86.11	AV		1.00 V	125	89.31	28.3	5.10	36.6	-3.20
2	4874.00	48.23	PK	74.00	1.00 V	289	44.83	32.8	7.10	36.5	3.40
2	4874.00	36.97	AV	54.00	1.00 V	289	33.57	32.8	7.10	36.5	3.40
3	7311.00	55.46	PK	74.00	1.00 V	0	46.06	36.1	8.60	35.3	9.40
3	7311.00	40.57	AV	54.00	1.00 V	0	31.17	36.1	8.60	35.3	9.40
4	9748.00	52.36	PK	74.00	1.00 V	180	39.76	37.2	10.20	34.8	12.60
4	9748.00	42.89	AV	54.00	1.00 V	180	30.29	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

802.11n (20MHz) Channel 11

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

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	96.84	PK			1.00 H	122	100.14	28.2	5.10	36.6	-3.30
1	*2462.00	87.73	AV			1.00 H	122	91.03	28.2	5.10	36.6	-3.30
2	2483.50	45.50	PK	74.00	28.50	1.00 H	300	48.80	28.2	5.10	36.6	-3.30
2	2483.50	37.65	AV	54.00	16.35	1.00 H	300	40.95	28.2	5.10	36.6	-3.30
3	4924.00	49.28	PK	74.00	24.72	1.00 H	156	45.48	33.0	7.00	36.2	3.80
3	4924.00	35.00	AV	54.00	19.00	1.00 H	156	31.20	33.0	7.00	36.2	3.80
4	7386.00	50.36	PK	74.00	23.64	1.00 H	334	40.96	36.2	8.50	35.3	9.40
4	7386.00	39.12	AV	54.00	14.88	1.00 H	334	29.72	36.2	8.50	35.3	9.40
5	9848.00	52.17	PK	74.00	21.83	1.00 H	278	39.57	37.3	10.10	34.8	12.60
5	9848.00	40.23	AV	54.00	13.77	1.00 H	278	27.63	37.3	10.10	34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	103.54	PK			1.00 V	125	106.84	28.2	5.10	36.6	-3.30
1	*2462.00	88.32	AV			1.00 V	125	91.62	28.2	5.10	36.6	-3.30
2	2483.50	58.08	PK	74.00	15.92	1.00 V	189	61.38	28.2	5.10	36.6	-3.30
2	2483.50	37.91	AV	54.00	16.09	1.00 V	189	41.21	28.2	5.10	36.6	-3.30
3	4924.00	52.12	PK	74.00	21.88	1.00 V	347	48.32	33.0	7.00	36.2	3.80
3	4924.00	36.17	AV	54.00	17.83	1.00 V	347	32.37	33.0	7.00	36.2	3.80
4	7386.00	54.12	PK	74.00	19.88	1.00 V	12	44.72	36.2	8.50	35.3	9.40
4	7386.00	40.54	AV	54.00	13.46	1.00 V	12	31.14	36.2	8.50	35.3	9.40
5	9848.00	54.10	PK	74.00	19.90	1.00 V	208	41.50	37.3	10.10	34.8	12.60
5	9848.00	41.23	AV	54.00	12.77	1.00 V	208	28.63	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

802.11n (40MHz) Channel 3

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

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	65.16	PK	74.00	8.84	1.00 H	236	68.46	28.3	5.00	36.6	-3.30
1	2390.00	37.13	AV	54.00	16.87	1.00 H	236	40.43	28.3	5.00	36.6	-3.30
2	*2422.00	100.03	PK			1.00 H	100	103.33	28.3	5.00	36.6	-3.30
2	*2422.00	82.21	AV			1.00 H	100	85.51	28.3	5.00	36.6	-3.30
3	4844.00	50.88	PK	74.00	23.12	1.00 H	197	47.08	32.7	7.30	36.2	3.80
3	4844.00	40.26	AV	54.00	13.74	1.00 H	197	36.46	32.7	7.30	36.2	3.80
4	7266.00	53.00	PK	74.00	21.00	1.00 H	306	43.60	35.8	8.90	35.3	9.40
4	7266.00	41.08	AV	54.00	12.92	1.00 H	306	31.68	35.8	8.90	35.3	9.40
5	9688.00	54.72	PK	74.00	19.28	1.00 H	17	42.12	37.2	10.20	34.8	12.60
5	9688.00	42.25	AV	54.00	11.75	1.00 H	17	29.65	37.2	10.20	34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	69.89	PK	74.00	4.11	1.00 V	122	73.19	28.3	5.00	36.6	-3.30
1	2390.00	38.06	AV	54.00	15.94	1.00 V	122	41.36	28.3	5.00	36.6	-3.30
2	*2422.00	103.44	PK			1.00 V	189	106.74	28.3	5.00	36.6	-3.30
2	*2422.00	83.93	AV			1.00 V	189	87.23	28.3	5.00	36.6	-3.30
3	4844.00	52.77	PK	74.00	21.23	1.00 V	257	48.97	32.7	7.30	36.2	3.80
3	4844.00	40.03	AV	54.00	13.97	1.00 V	257	36.23	32.7	7.30	36.2	3.80
4	7266.00	53.89	PK	74.00	20.11	1.00 V	155	44.49	35.8	8.90	35.3	9.40
4	7266.00	41.56	AV	54.00	12.44	1.00 V	155	32.16	35.8	8.90	35.3	9.40
5	9688.00	55.99	PK	74.00	18.01	1.00 V	334	43.39	37.2	10.20	34.8	12.60
5	9688.00	43.14	AV	54.00	10.86	1.00 V	334	30.54	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

802.11n (40MHz) Channel 6

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

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	99.15	PK			1.00 H	100	102.35	28.3	5.10	36.6	-3.20
1	*2437.00	84.36	AV			1.00 H	100	87.56	28.3	5.10	36.6	-3.20
2	4874.00	49.11	PK	74.00	24.89	1.00 H	198	45.71	32.3	7.60	36.5	3.40
2	4874.00	38.82	AV	54.00	15.18	1.00 H	198	35.42	32.3	7.60	36.5	3.40
3	7311.00	52.22	PK	74.00	21.78	1.00 H	203	42.82	36.1	8.60	35.3	9.40
3	7311.00	41.00	AV	54.00	13.00	1.00 H	203	31.60	36.1	8.60	35.3	9.40
4	9748.00	53.91	PK	74.00	20.09	1.00 H	56	41.31	37.2	10.20	34.8	12.60
4	9748.00	42.17	AV	54.00	11.83	1.00 H	56	29.57	37.2	10.20	34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	101.14	PK			1.00 V	122	104.34	28.3	5.10	36.6	-3.20
1	*2437.00	86.51	AV			1.00 V	122	89.71	28.3	5.10	36.6	-3.20
2	4874.00	49.99	PK	74.00	24.01	1.00 V	96	46.59	32.3	7.60	36.5	3.40
2	4874.00	38.97	AV	54.00	15.03	1.00 V	96	35.57	32.3	7.60	36.5	3.40
3	7311.00	54.36	PK	74.00	19.64	1.00 V	26	44.96	36.1	8.60	35.3	9.40
3	7311.00	40.57	AV	54.00	13.43	1.00 V	26	31.17	36.1	8.60	35.3	9.40
4	9748.00	52.79	PK	74.00	21.21	1.00 V	299	40.19	37.2	10.20	34.8	12.60
4	9748.00	42.07	AV	54.00	11.93	1.00 V	299	29.47	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

802.11n (40MHz) Channel 9

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

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	95.09	PK			1.00 H	125	98.29	28.2	5.20	36.6	-3.20
1	*2452.00	83.71	AV			1.00 H	125	85.91	28.2	5.20	36.6	-3.20
2	2483.50	54.61	PK	74.00	19.39	1.00 H	312	57.91	28.2	5.10	36.6	-3.30
2	2483.50	39.24	AV	54.00	14.76	1.00 H	312	42.54	28.2	5.10	36.6	-3.30
3	4904.00	49.97	PK	74.00	24.03	1.00 H	258	46.17	33.0	7.00	36.2	3.80
3	4904.00	35.67	AV	54.00	18.33	1.00 H	258	31.87	33.0	7.00	36.2	3.80
4	7356.00	51.12	PK	74.00	22.88	1.00 H	12	41.72	36.2	8.50	35.3	9.40
4	7356.00	39.99	AV	54.00	14.01	1.00 H	12	30.59	36.2	8.50	35.3	9.40
5	9808.00	52.72	PK	74.00	21.28	1.00 H	100	40.12	37.3	10.10	34.8	12.60
5	9808.00	41.23	AV	54.00	12.77	1.00 H	100	28.63	37.3	10.10	34.8	12.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

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	100.99	PK			1.00 V	125	104.19	28.2	5.20	36.6	-3.20
1	*2452.00	84.50	AV			1.00 V	125	87.70	28.2	5.20	36.6	-3.20
2	2483.50	61.38	PK	74.00	12.62	1.00 V	300	64.68	28.2	5.10	36.6	-3.30
2	2483.50	39.63	AV	54.00	14.37	1.00 V	300	42.93	28.2	5.10	36.6	-3.30
3	4904.00	53.56	PK	74.00	20.44	1.00 V	346	49.76	33.0	7.00	36.2	3.80
3	4904.00	37.15	AV	54.00	16.85	1.00 V	346	33.35	33.0	7.00	36.2	3.80
4	7356.00	54.99	PK	74.00	19.01	1.00 V	157	45.59	36.2	8.50	35.3	9.40
4	7356.00	41.47	AV	54.00	12.53	1.00 V	157	32.07	36.2	8.50	35.3	9.40
5	9808.00	55.51	PK	74.00	18.49	1.00 V	287	42.91	37.3	10.10	34.8	12.60
5	9808.00	42.12	AV	54.00	11.88	1.00 V	287	29.52	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

Note:

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor.

Remark: No any other emissions level which are attenuated less than 20dB below the limit

According to 15.31(o), The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part.

Hence there no other emissions have been reported.

According to 15.31(o), The amplitude of spurious emissions from intentional radiators and emissions from unintentional radiators which are attenuated more than 20 dB below the permissible value need not be reported unless specifically required elsewhere in this Part.

Hence there no other emissions have been reported.

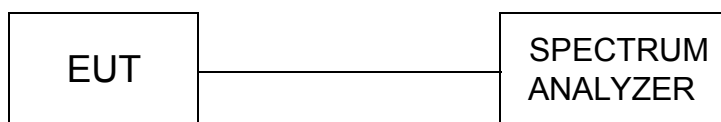
Remark:

- 1). As shown in Section, for frequencies above 1000 MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.
- 2). The test only perform the EUT in transmitting status since the test frequencies were over 1GHz only required transmitting status.
- 3) Pre-Scan has been conducted to determine the worst-case mode from all possible Combinations between available modulations, data rates and antenna ports, and found the EUT worse case mode: 802.11b (11MHz), 802.11g (54MHz)
- 4) For this intentional radiator operates below 25 GHz. The spectrum shall be investigated to the tenth harmonic of the highest fundamental frequency. And above the 4th harmonic of this intentional radiator, the disturbance is very low. So the test result only displays to 4th harmonic.



4.3. 6dB Bandwidth Measurement

TEST CONFIGURATION



TEST PROCEDURE

1. The testing follows FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
2. The RF output of EUT was connected to the spectrum analyzer by a low loss cable.
3. Make the measurement with the spectrum analyzer's resolution bandwidth (RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW. The 6 dB bandwidth must be greater than 500 kHz.
4. The marker-delta reading at this point is the 6 dB bandwidth of the emission.

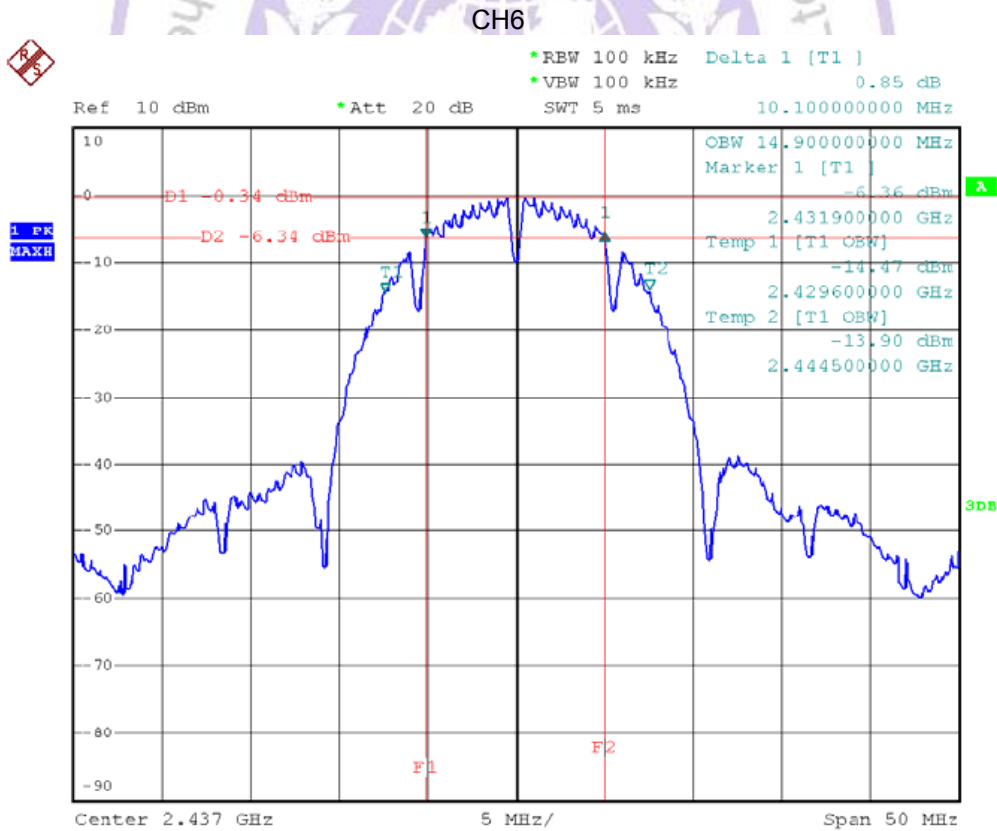
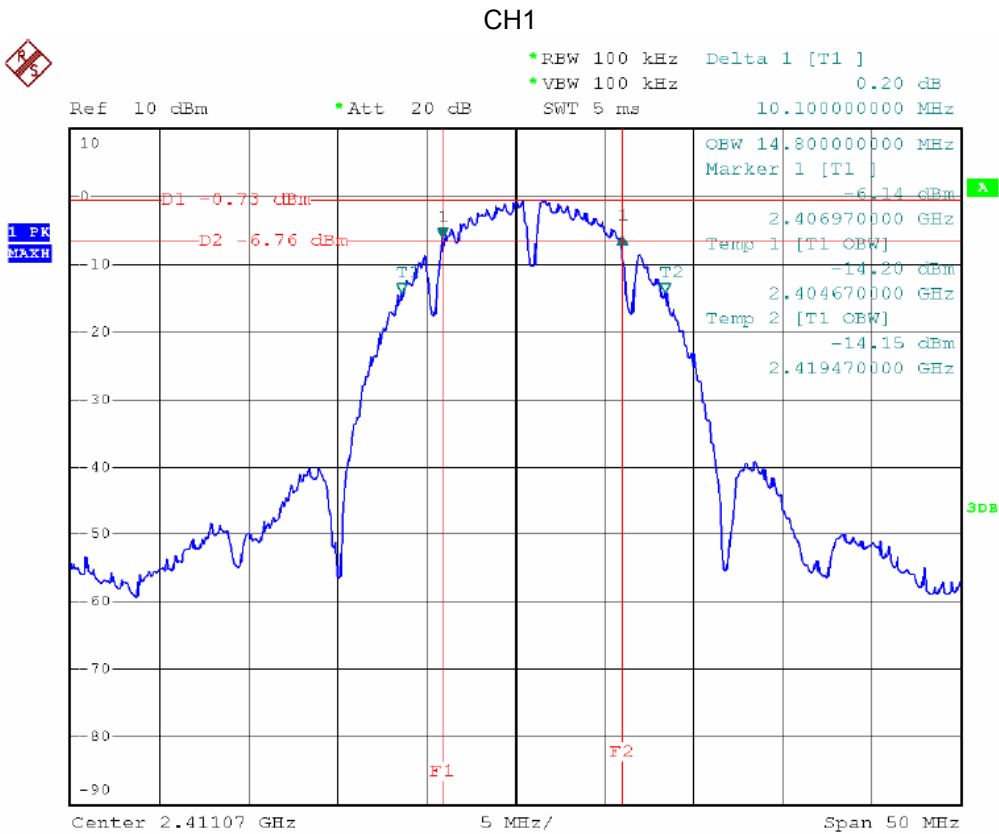
LIMIT

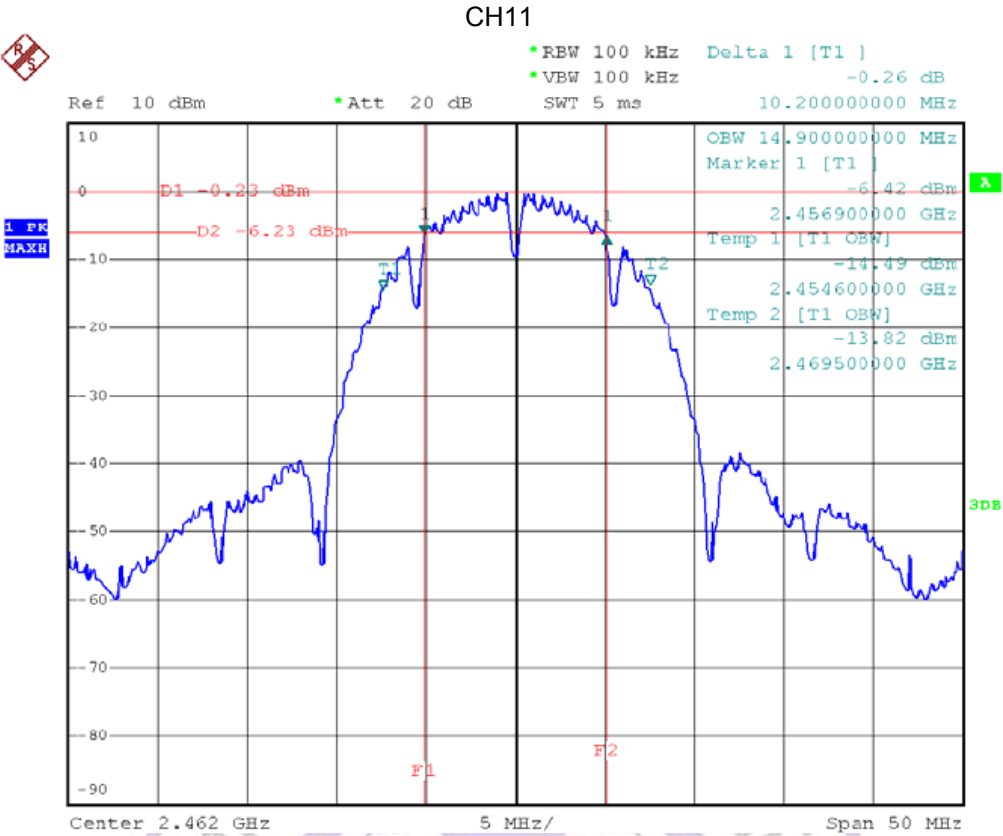
For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

TEST RESULTS

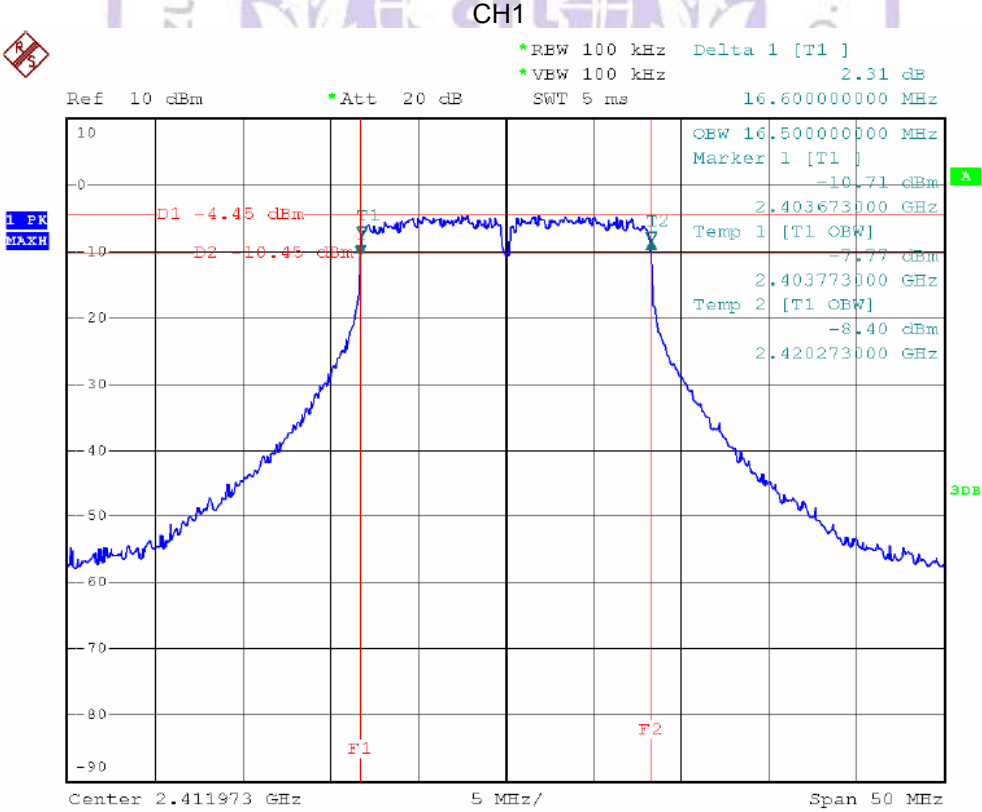
Mode	CHANNEL	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
802.11b	1	10.10	0.5	PASS
	6	10.10	0.5	PASS
	11	10.20	0.5	PASS
802.11g	1	16.60	0.5	PASS
	6	16.60	0.5	PASS
	11	16.60	0.5	PASS
802.11n HT20	1	17.80	0.5	PASS
	6	17.80	0.5	PASS
	11	17.80	0.5	PASS
802.11n HT40	3	36.53	0.5	PASS
	6	36.56	0.5	PASS
	9	36.33	0.5	PASS

For 802.11b:

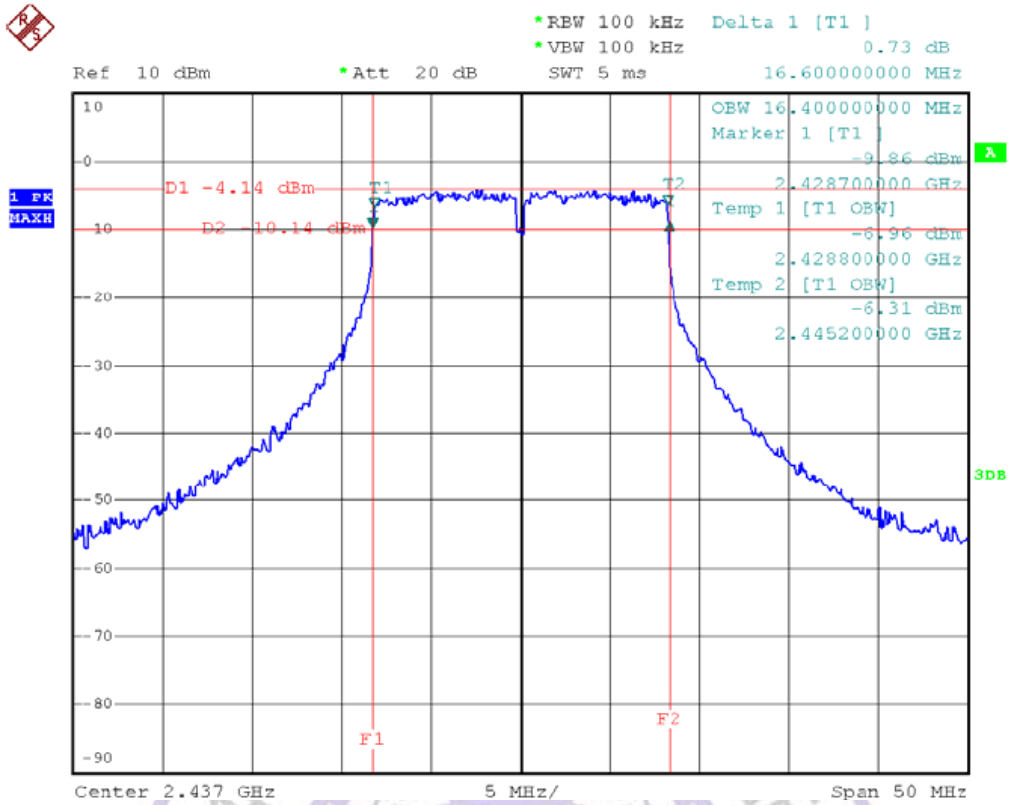




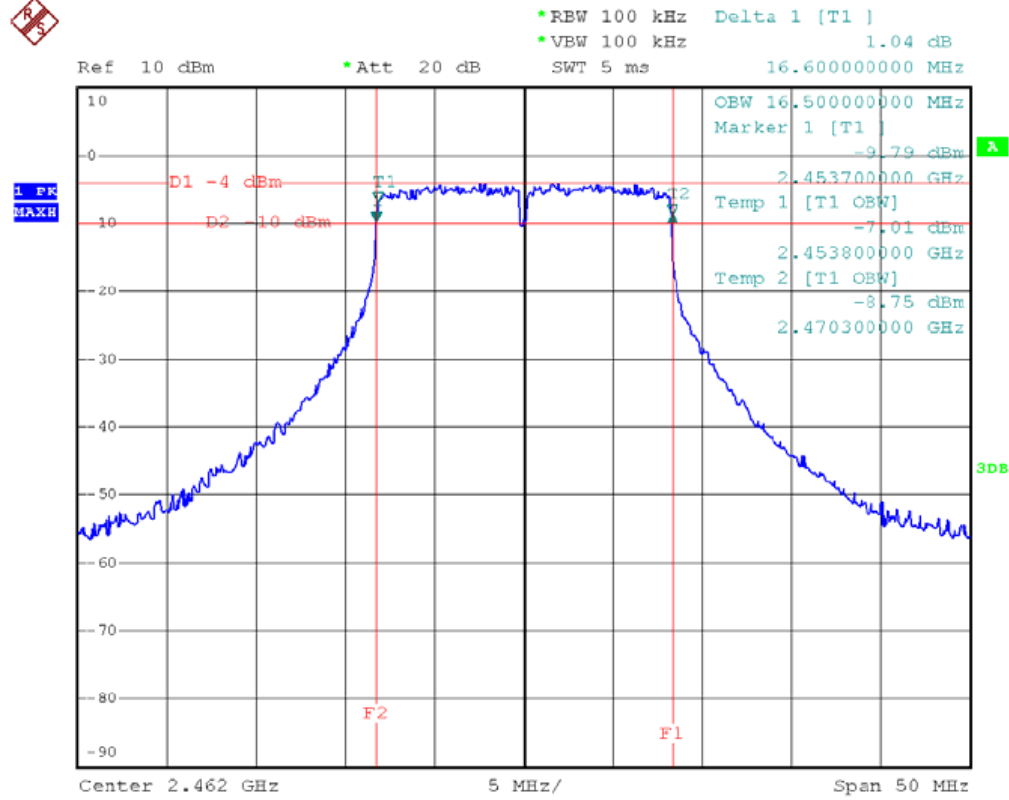
For 802.11g:



CH6

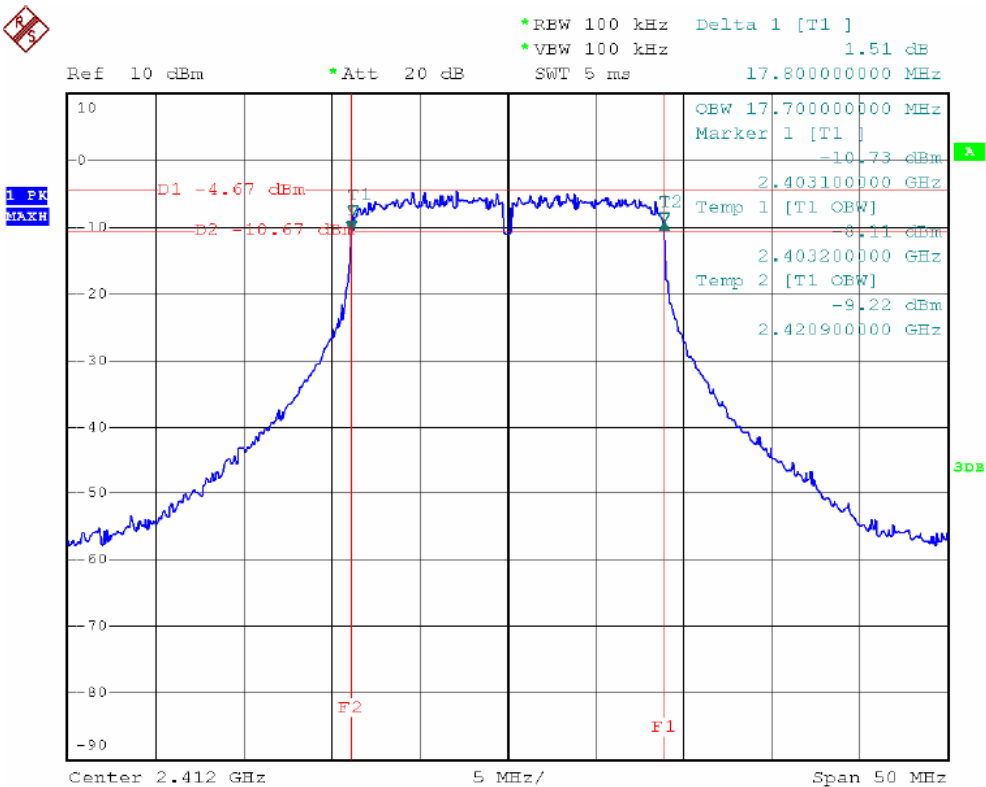


CH11

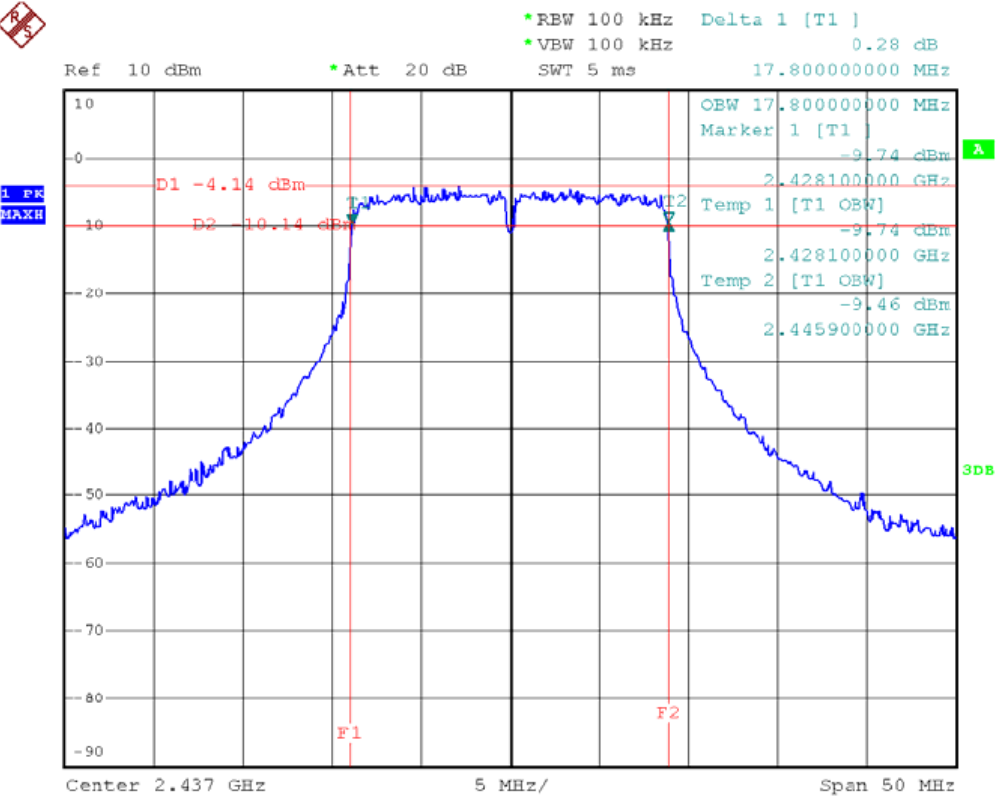


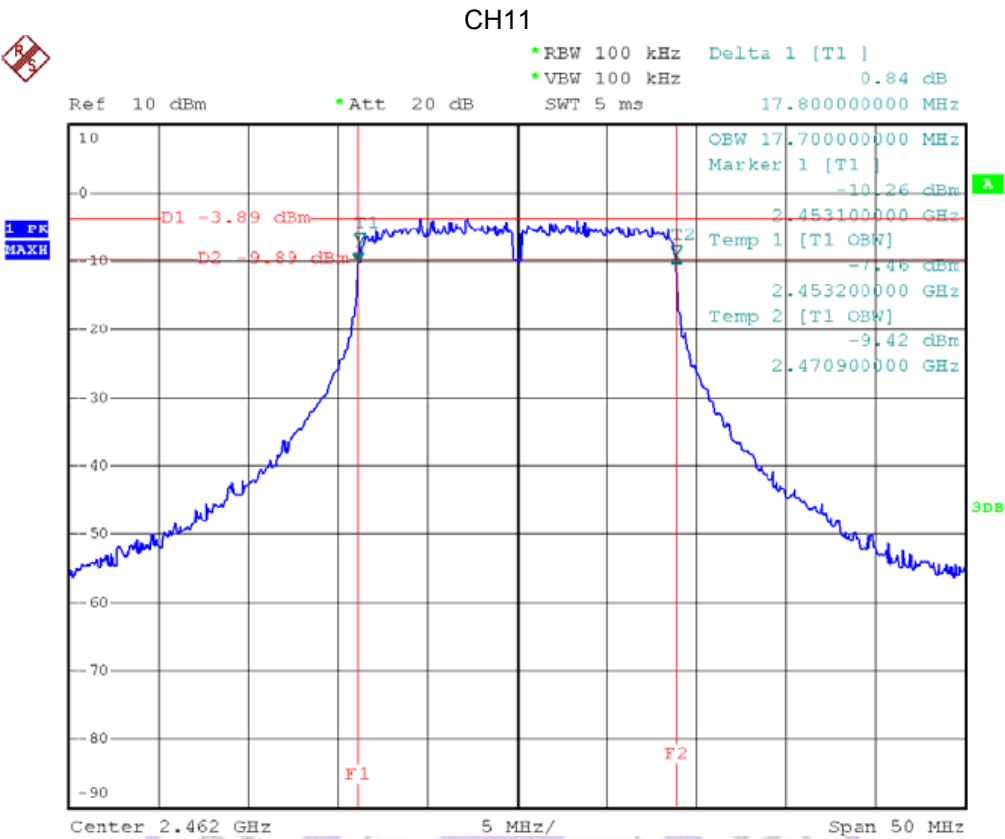
For 802.11n (20MHz) Mode:

CH1

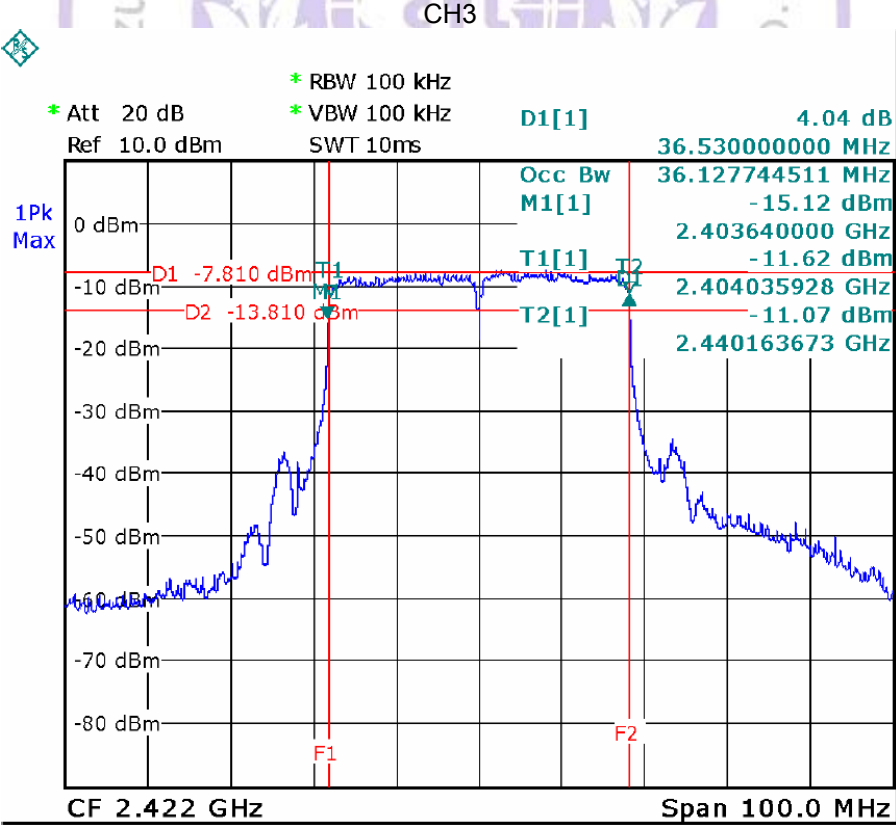


CH6

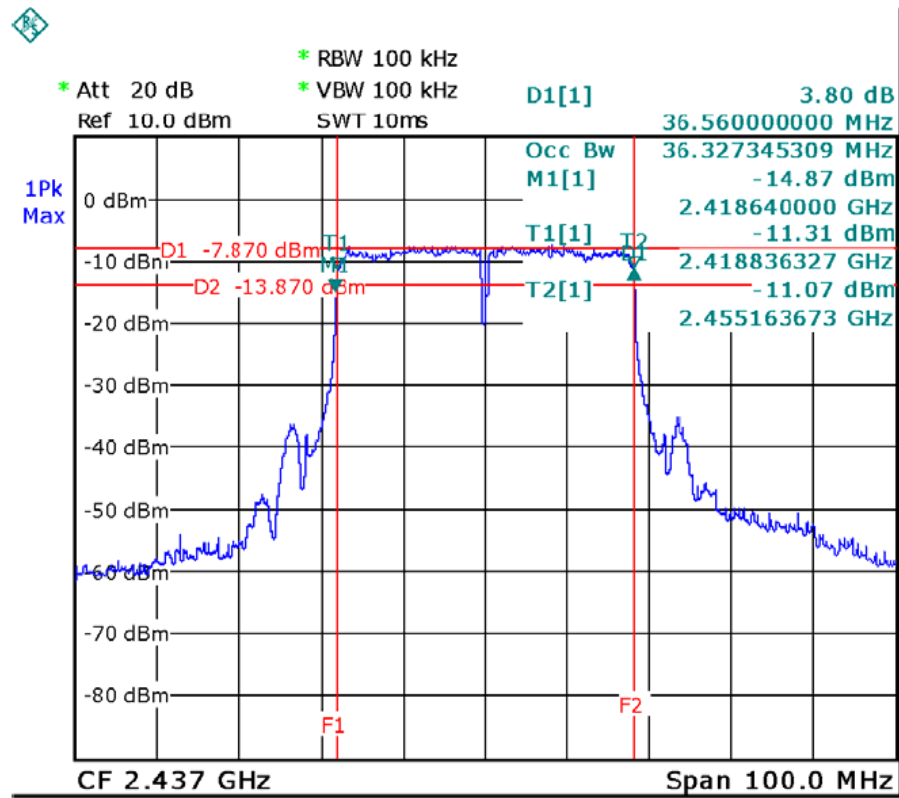




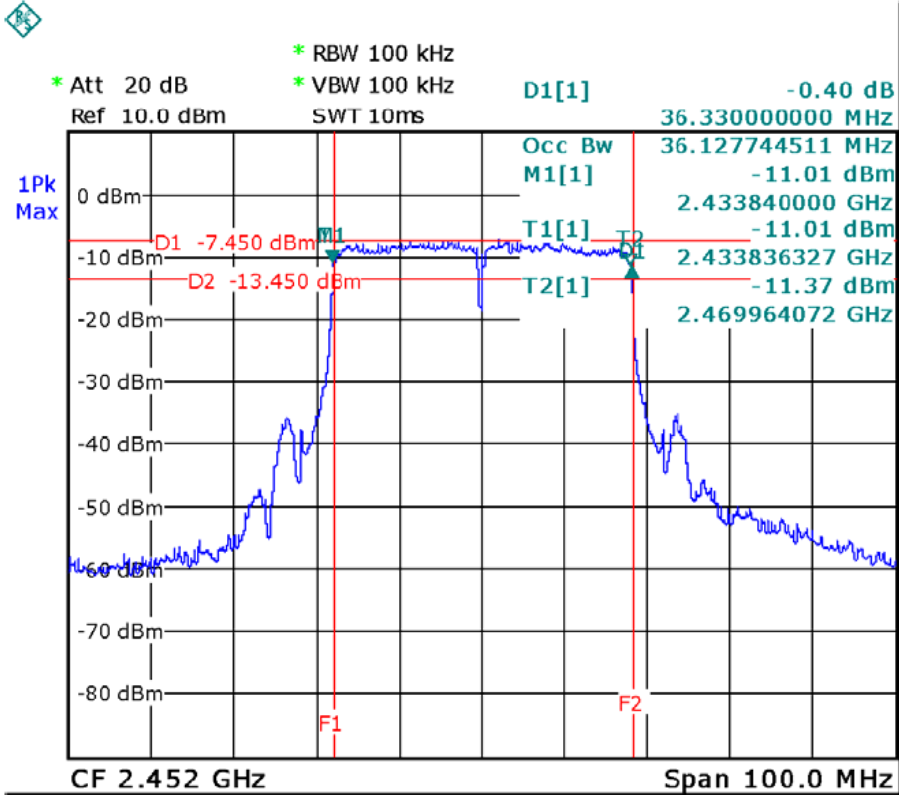
For 802.11n (40MHz) Mode:



CH6

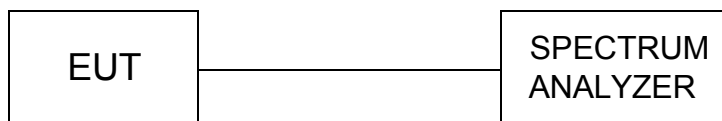


CH9



4.4. Maximum Peak Output Power

TEST CONFIGURATION



TEST PROCEDURE

According to C63.10 -2009, The EUT was directly connected to the power meter / spectrum analyzer and antenna output port as show in the block diagram as TEST CONFIGURATION shows.

1. For IEEE 802.11b/g and IEEE802.11n HT20 mode, use a PK power meter which's bandwidth is above 26dB bandwidth of signal to measure out each test modes' PK output power.
2. Spectrum analyzer only used for 802.11n HT40 measurement.

LIMIT

The Peak Output Power Measurement limits are 30dBm.

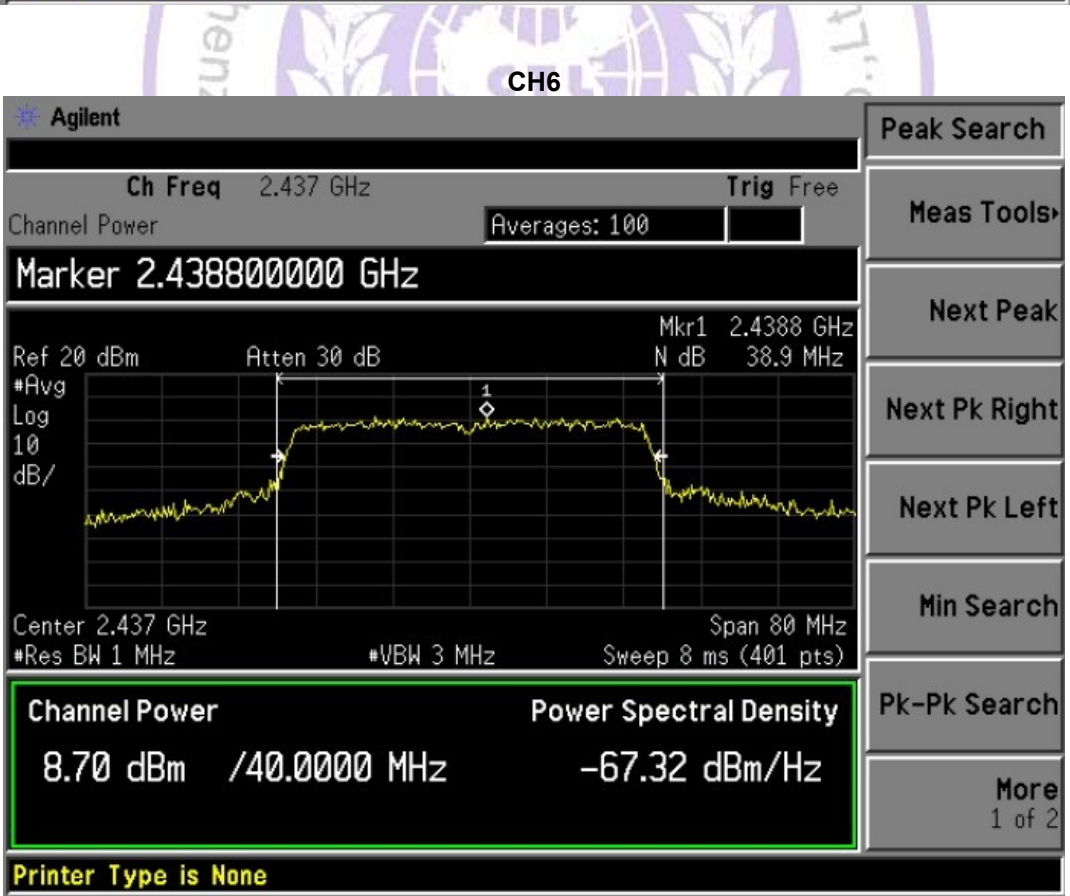
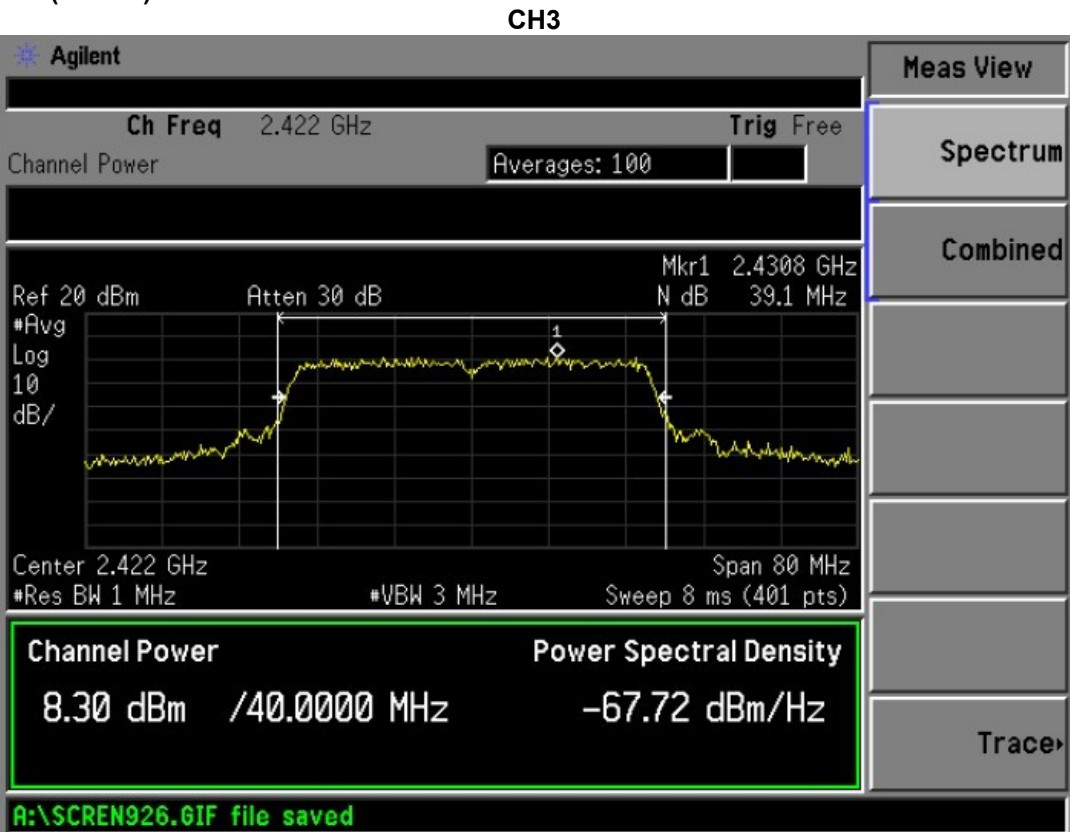
TEST RESULTS

Mode	Channel	Peak Power Output (dBm)	Peak Power Limit (dBm)	PASS / FAIL
802.11b	1	12.01	30	PASS
	6	12.10	30	PASS
	11	12.05	30	PASS
802.11g	1	11.83	30	PASS
	6	12.06	30	PASS
	11	11.95	30	PASS
802.11n HT20	1	11.54	30	PASS
	6	11.61	30	PASS
	11	11.51	30	PASS
802.11n HT40	3	8.30	30	PASS
	6	8.70	30	PASS
	9	9.26	30	PASS

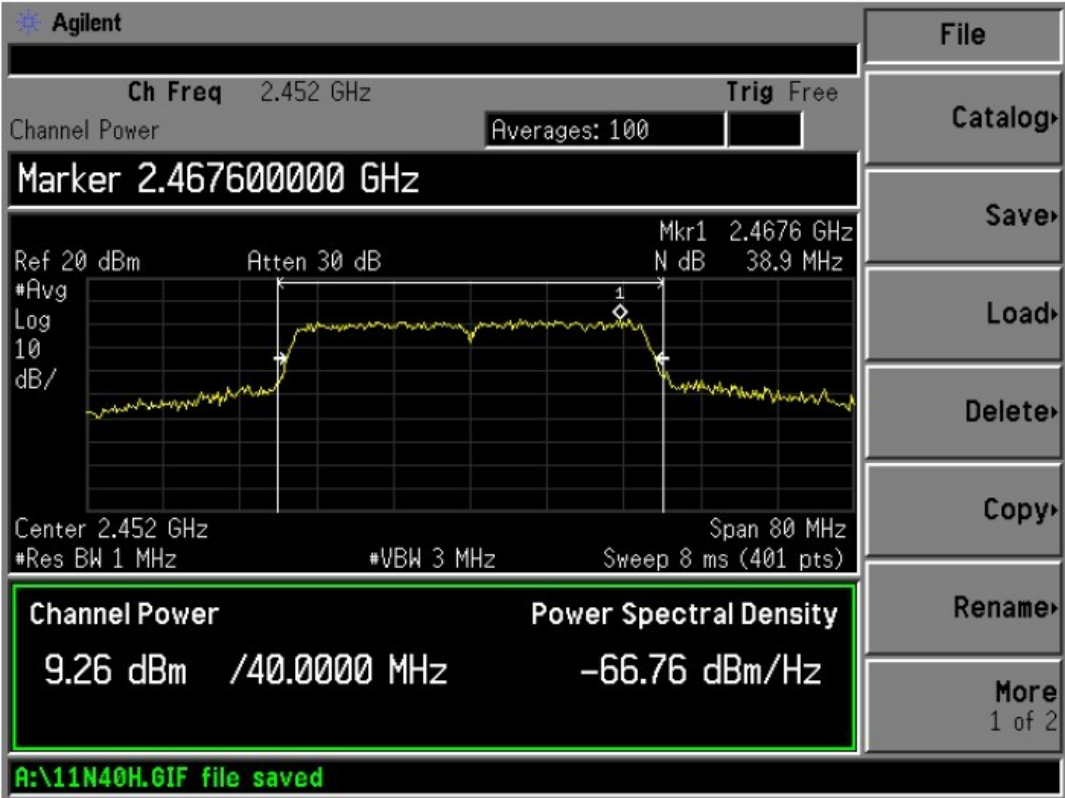
Note: The test results including the cable lose.

Plots of Maximum Peak Output Power Measurement

For 802.11N Mode(40MHz):

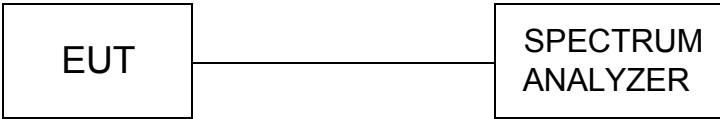


CH9



4.5. Band Edge Measurement

TEST CONFIGURATION



TEST PROCEDURE

The band edge compliance of RF radiated emission should be measured by following the guidance in ANSI C63.4 and FCC KDB Publication No. 558074 (Measurement Guidelines of DTS) 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 and VBW to 100 kHz, to measure the conducted peak band edge.

Connect the spectrum analyzer to the EUT using an appropriate RF cable connected to the EUT output. Configure the spectrum analyzer settings as described below (be sure to enter all losses between the unlicensed wireless device output and the spectrum analyzer).

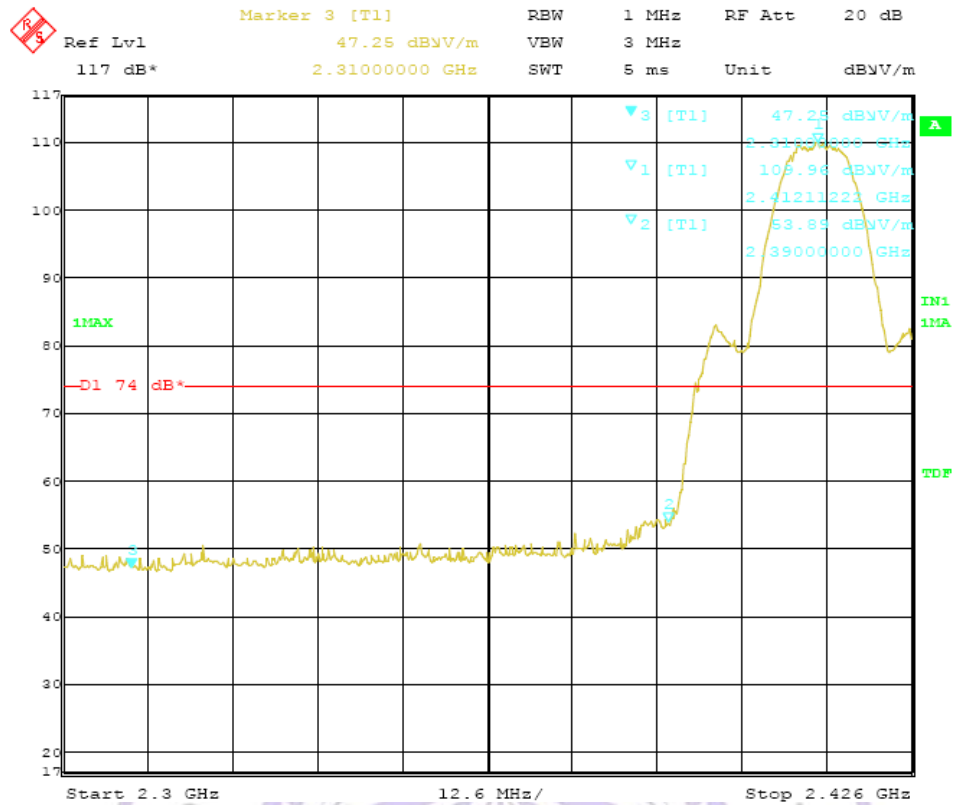
- Span: Set Span for minimum 50 MHz - Reference Level: 110 dB μ V (corrected for gains and losses of test antenna factor, preamp gain and cable loss) - Attenuation: 10 dB
- Sweep Time: Coupled - Resolution Bandwidth: Up to and including 1 GHz = \geq 100 kHz
- Resolution Bandwidth: Above 1 GHz = 1 MHz - Video Bandwidth: Below 1 GHz = 300 kHz
- Video Bandwidth: Up to and including 1 GHz = \geq 3 MHz for peak and 10 Hz for average
- Detector: Peak

Place a marker at the end of the restricted band closest to the transmit frequency to show compliance. Also measure any emissions in the restricted bands. Save the spectrum analyzer plot. Repeat for each power and modulation for lowest and highest channel.

LIMIT

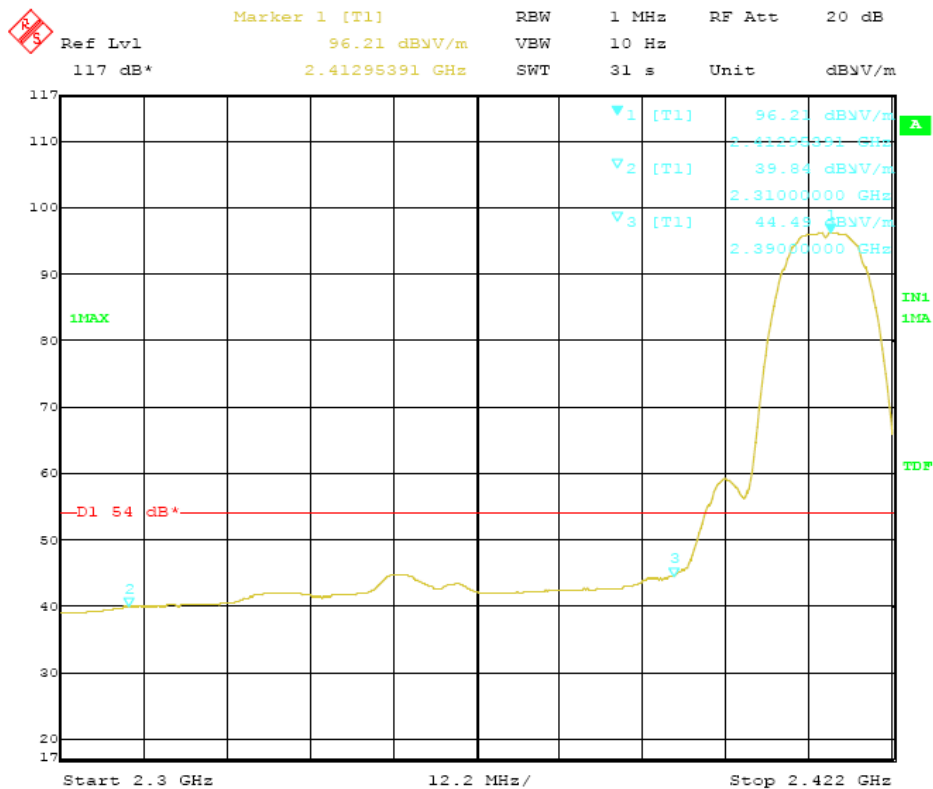
1. Below -20dB of the highest emission level in operating band.
2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209(see Section 15.205(c)).

Frequency (MHz)	Limit Average (dBuv/m)	Limit Peak (dBuv/m)
Below 2390 or Above 2483.5	54	74

TEST RESULTS**Transmitting mode: 802.11b**

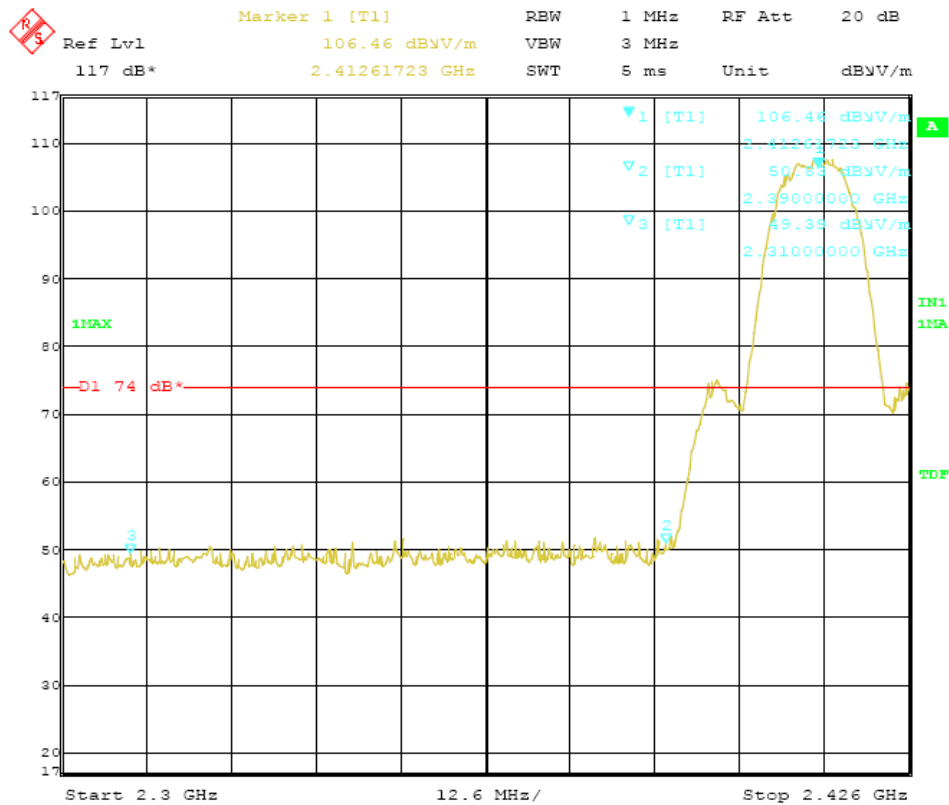
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the peak radiated field strength shall blow 74dB μ V/m.
2. Antenna Polarization vertical.



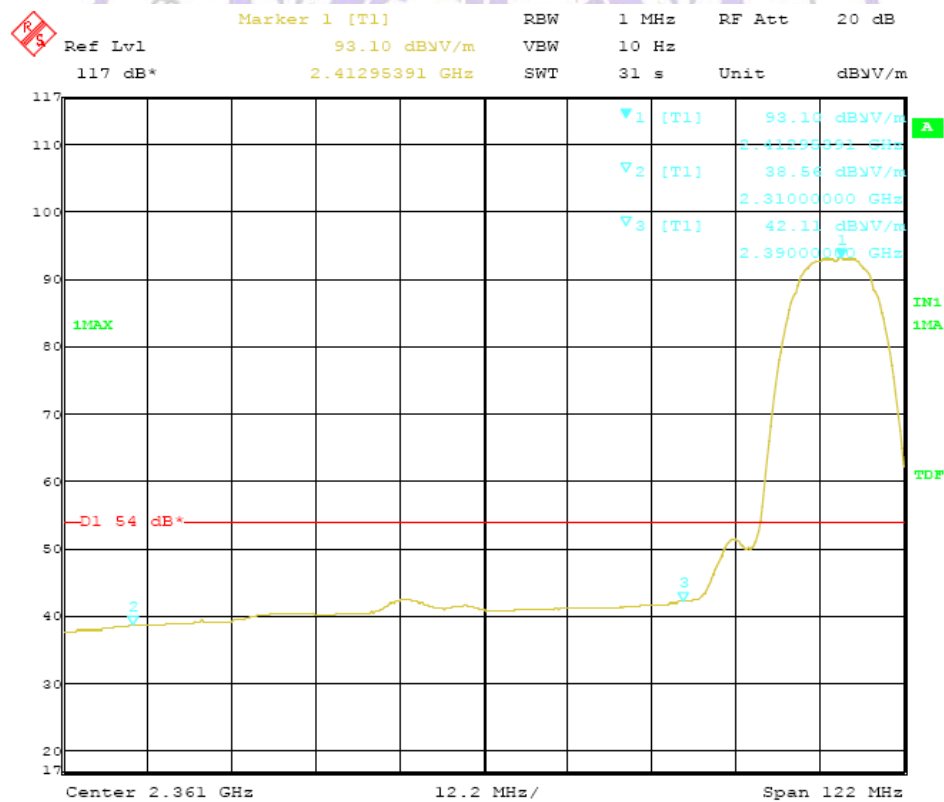
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the average radiated field strength shall blow 54dB μ V/m.
2. Antenna Polarization vertical.



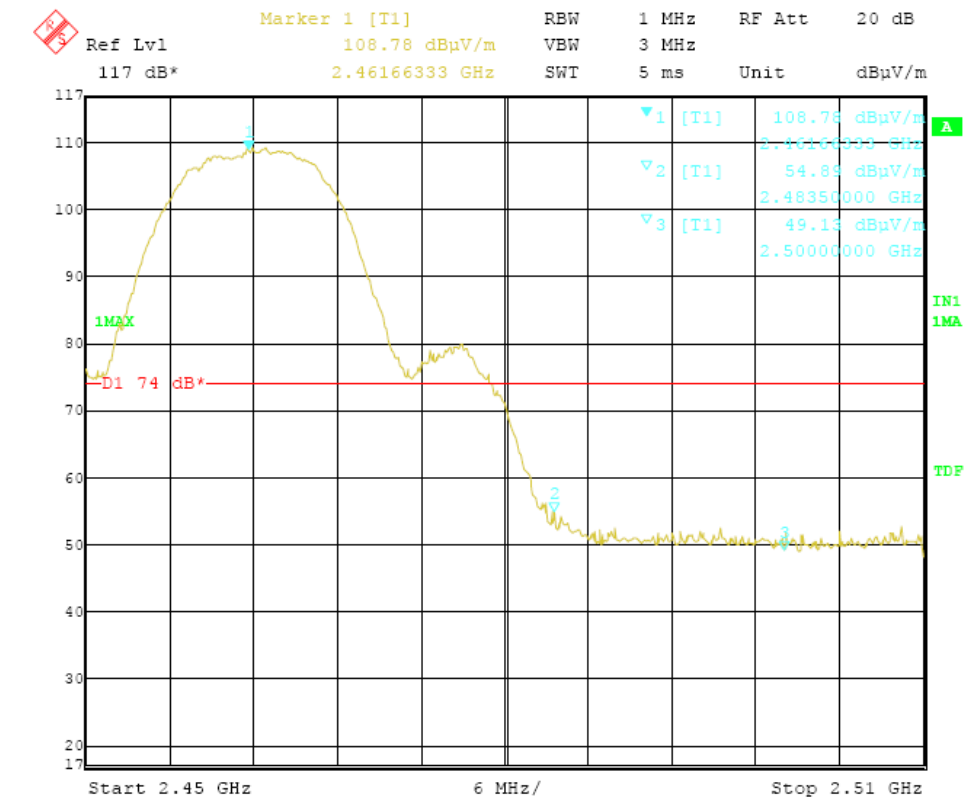
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the peak radiated field strength shall blow 74dB μ v/m.
2. Antenna Polarization horizontal.



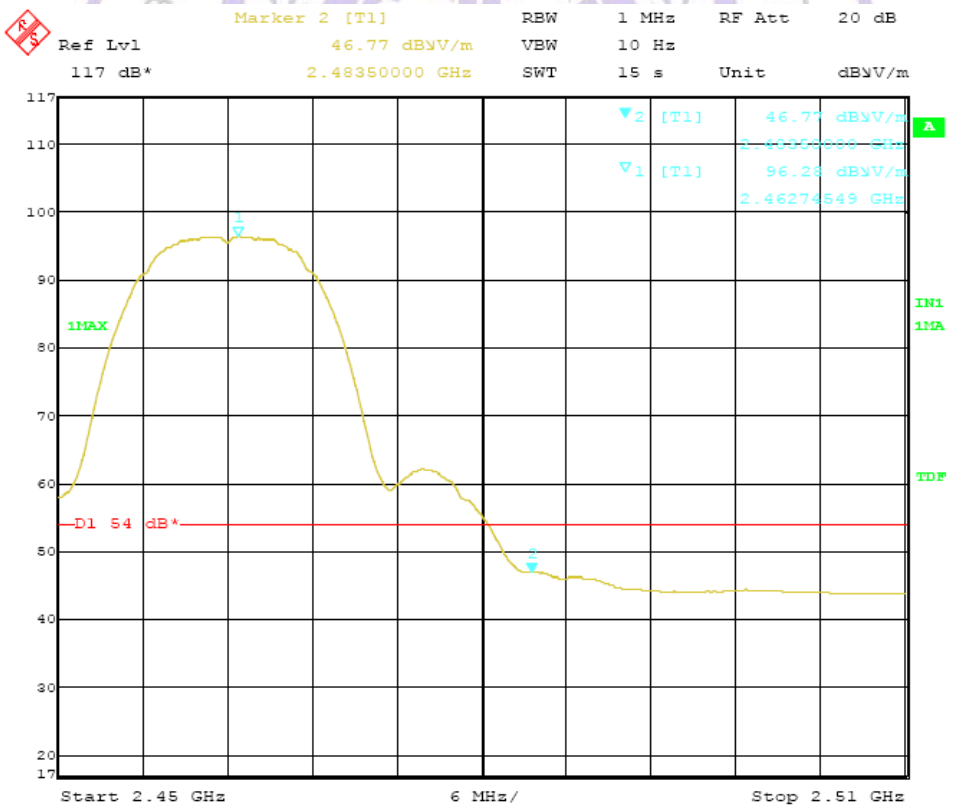
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the average radiated field strength shall blow 54dB μ v/m.
2. Antenna Polarization horizontal.



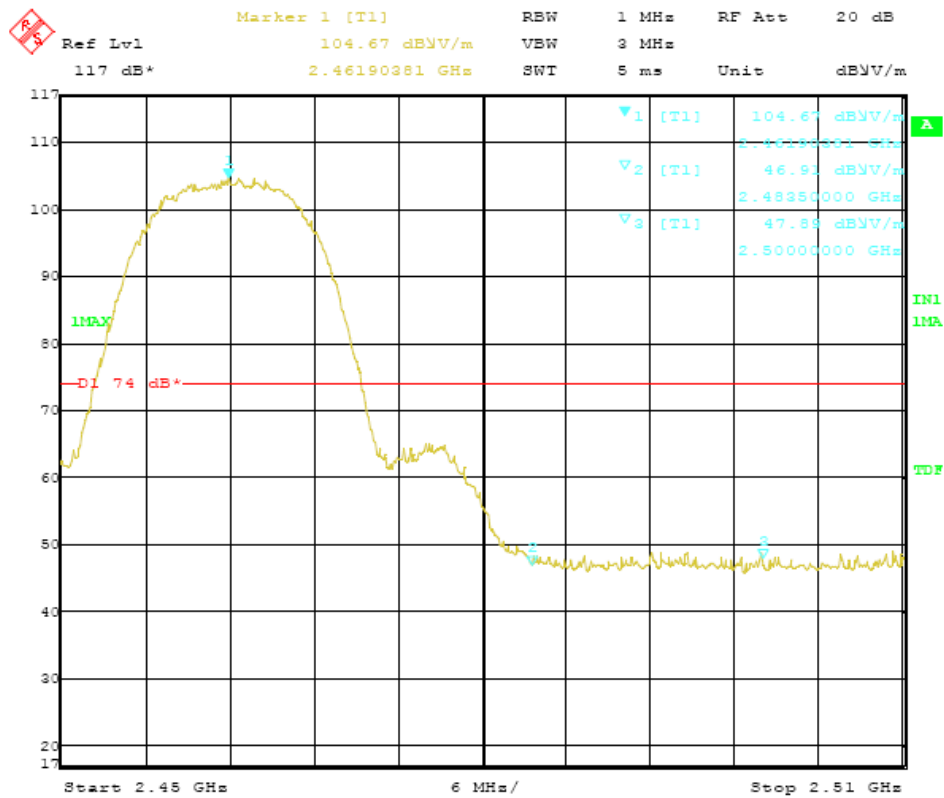
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the peak radiated field strength shall blow 74dBuV/m.
2. Antenna Polarization vertical.



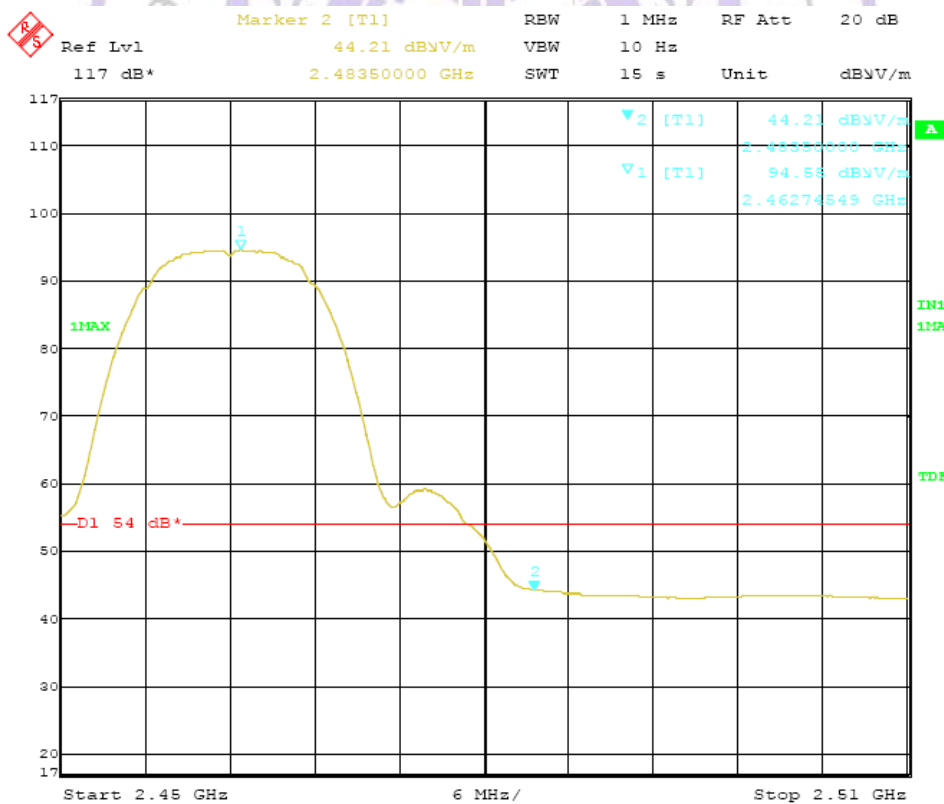
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the average radiated field strength shall blow 54dBuV/m.
2. Antenna Polarization vertical.



Note:

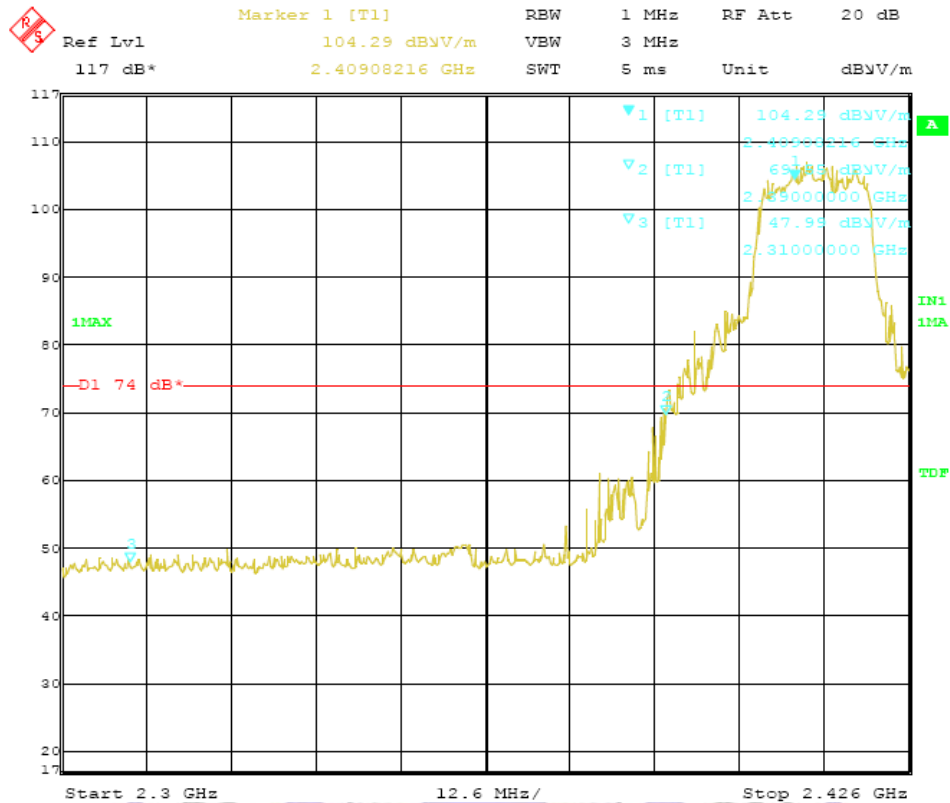
1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the peak radiated field strength shall blow 74dB μ v/m.
2. Antenna Polarization horizontal.



Note:

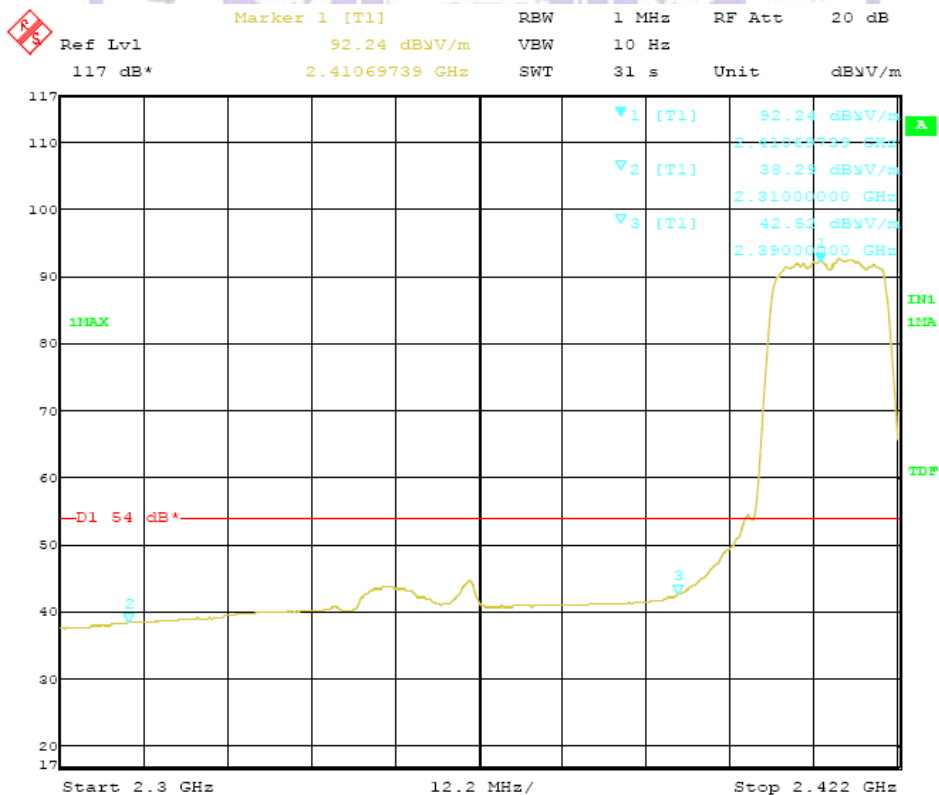
1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the average radiated field strength shall blow 54dB μ v/m.
2. Antenna Polarization horizontal.

Note : For 802.11g Mode:



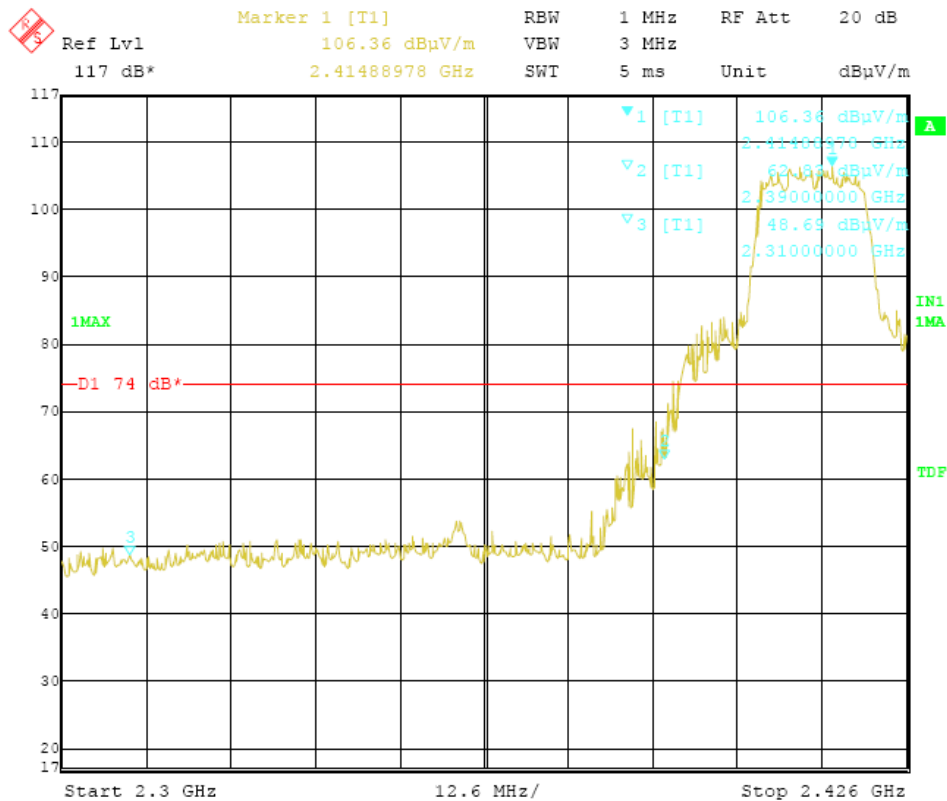
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the peak radiated field strength shall blow 74dB μ v/m.
2. Antenna Polarization vertical.



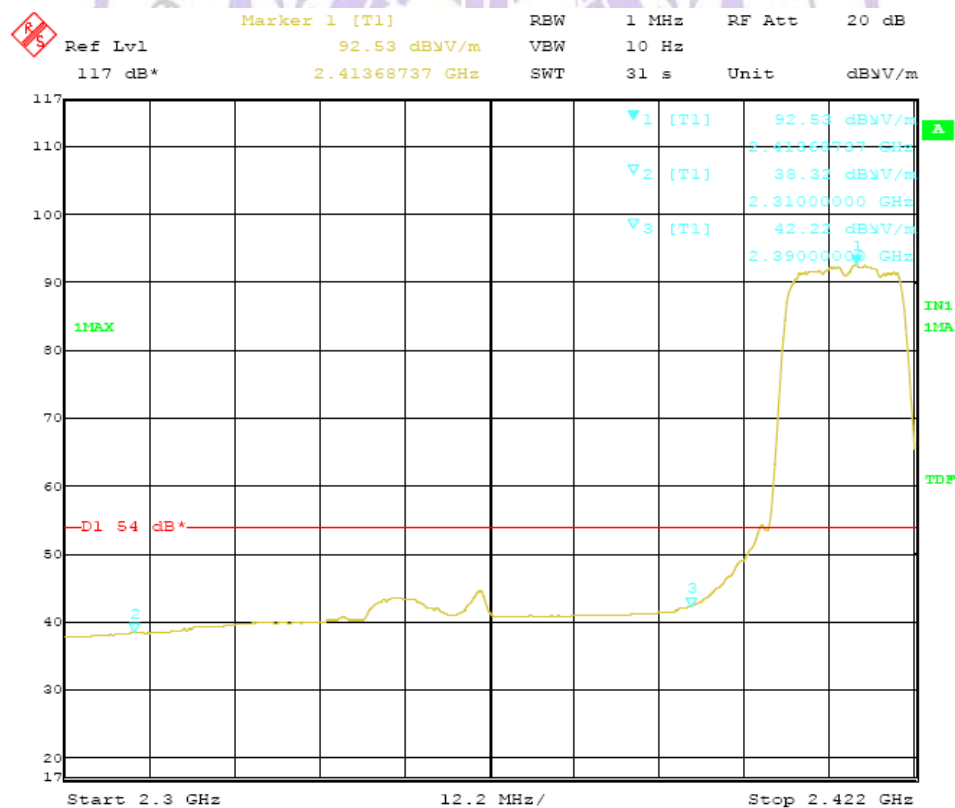
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the average radiated field strength shall blow 54dB μ v/m.
2. Antenna Polarization vertical.



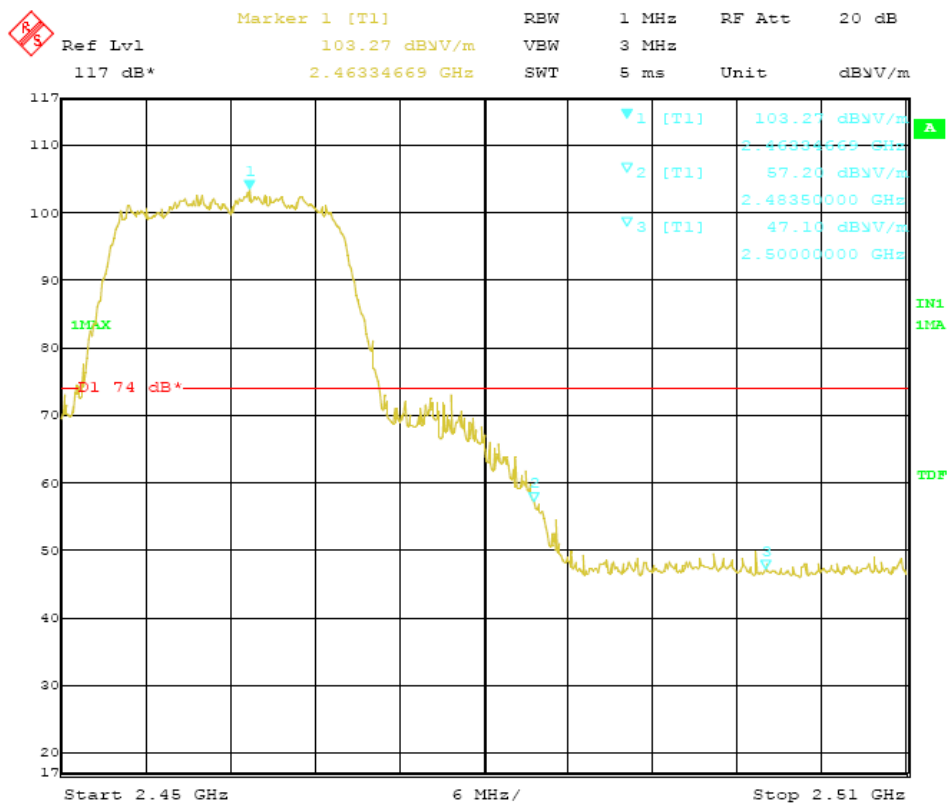
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the peak radiated field strength shall not exceed 74dBμV/m.
2. Antenna Polarization horizontal.

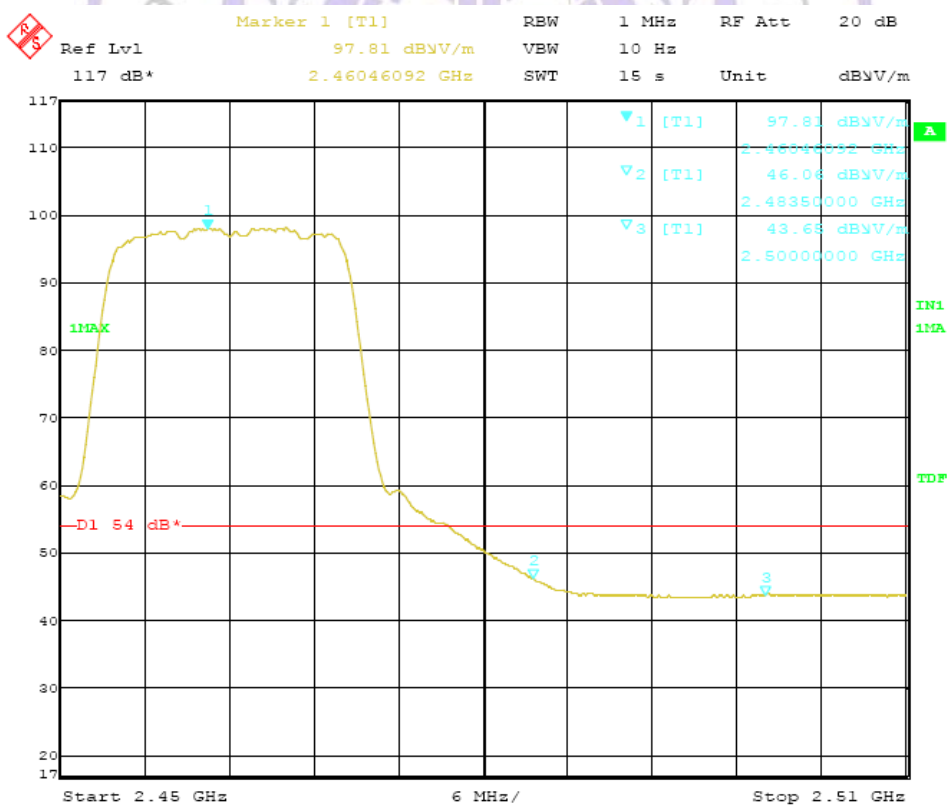


Note:

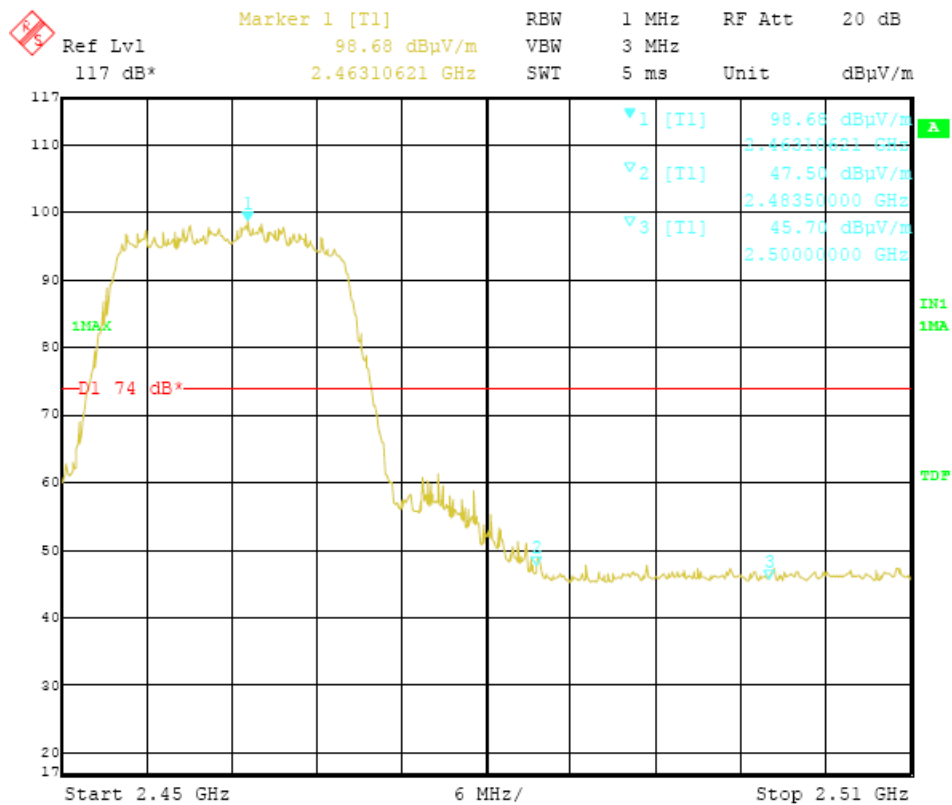
1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the average radiated field strength shall not exceed 54dBμV/m.
2. Antenna Polarization horizontal.



- Note:
1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the peak radiated field strength shall blow 74dB μ v/m.
 2. Antenna Polarization vertical.

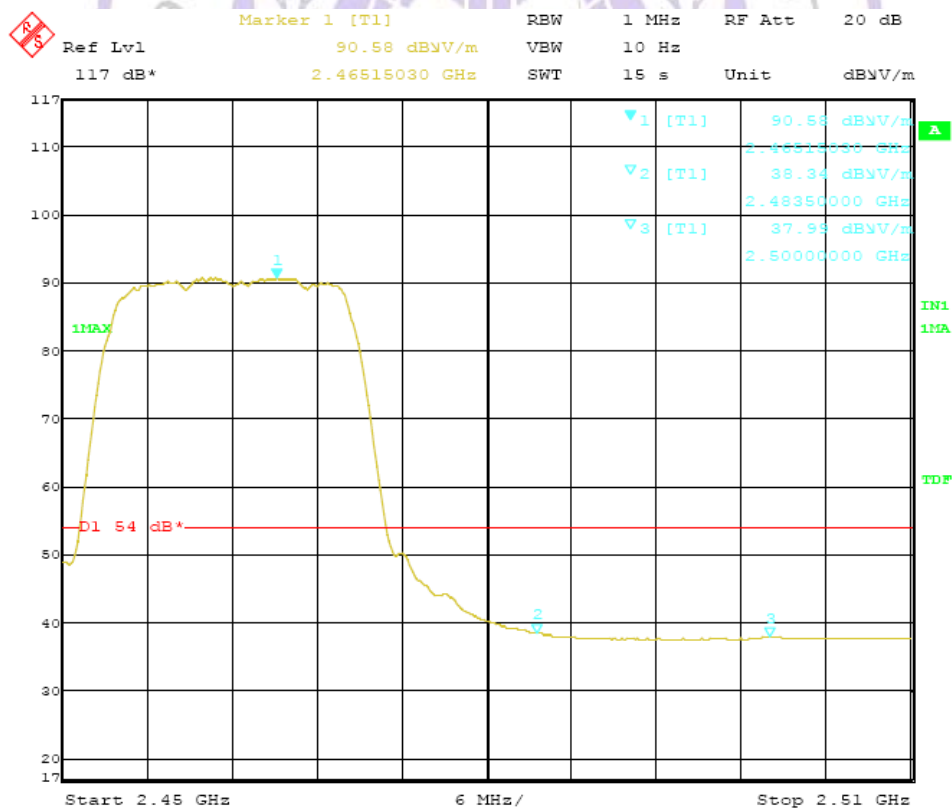


- Note:
1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the average radiated field strength shall blow 54dB μ v/m.
 2. Antenna Polarization vertical.



Note:

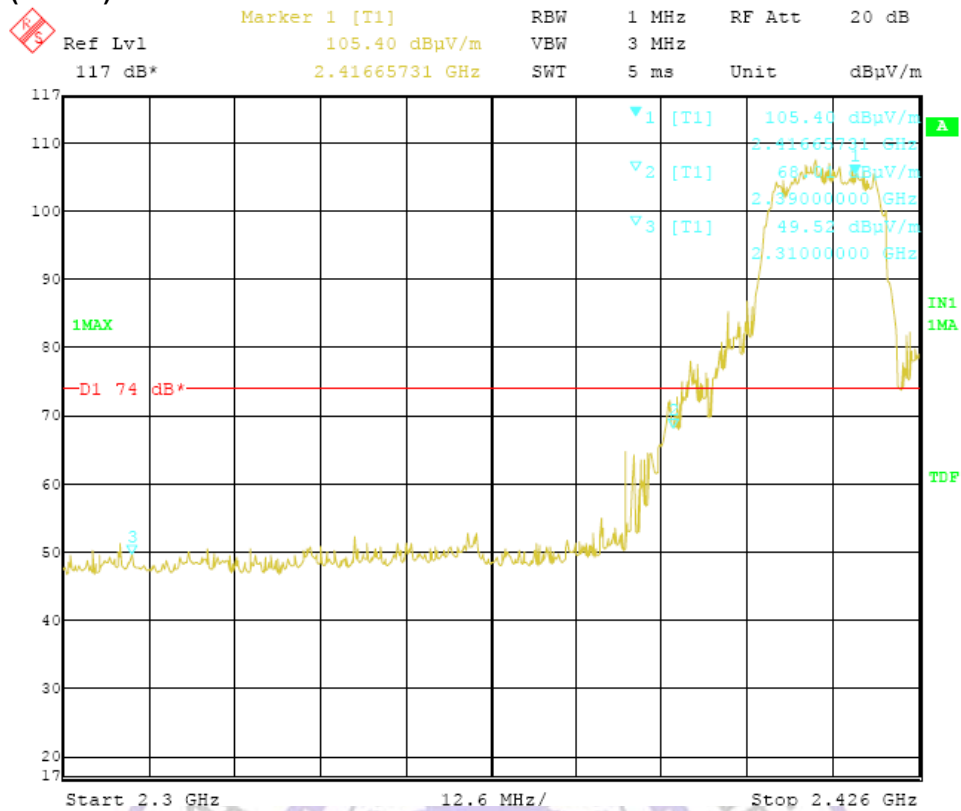
1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the peak radiated field strength shall blow 74dBμv/m.
2. Antenna Polarization horizontal.



Note:

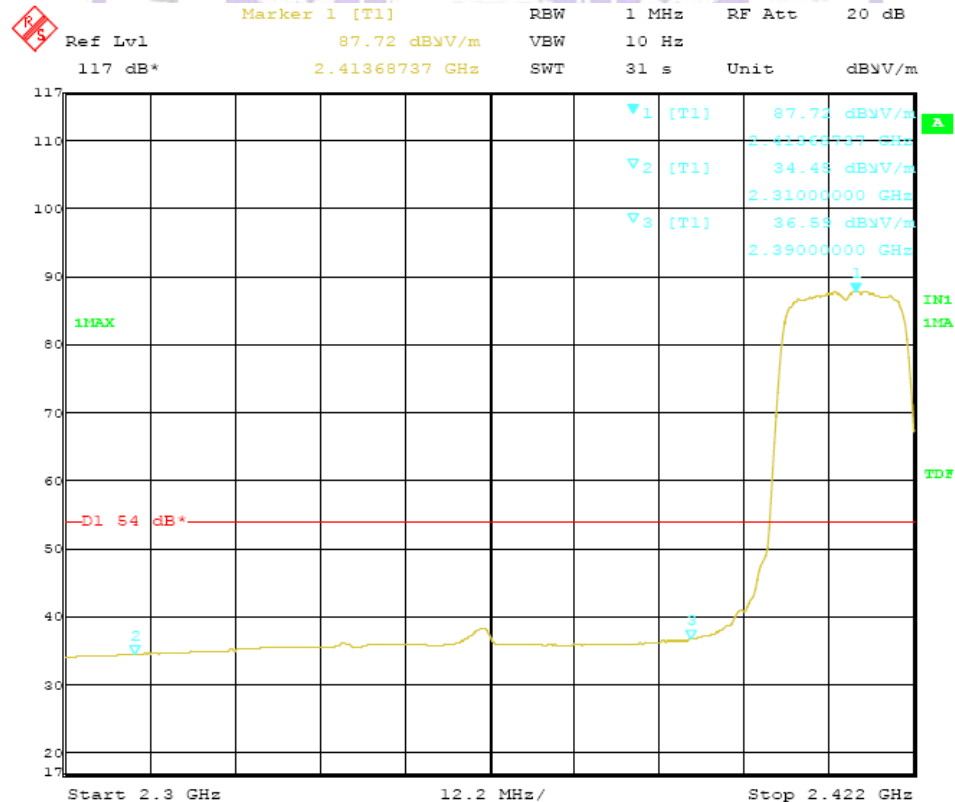
1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the average radiated field strength shall blow 54dBμv/m.
2. Antenna Polarization horizontal.

Note : For 802.11n (20MHz) Mode:



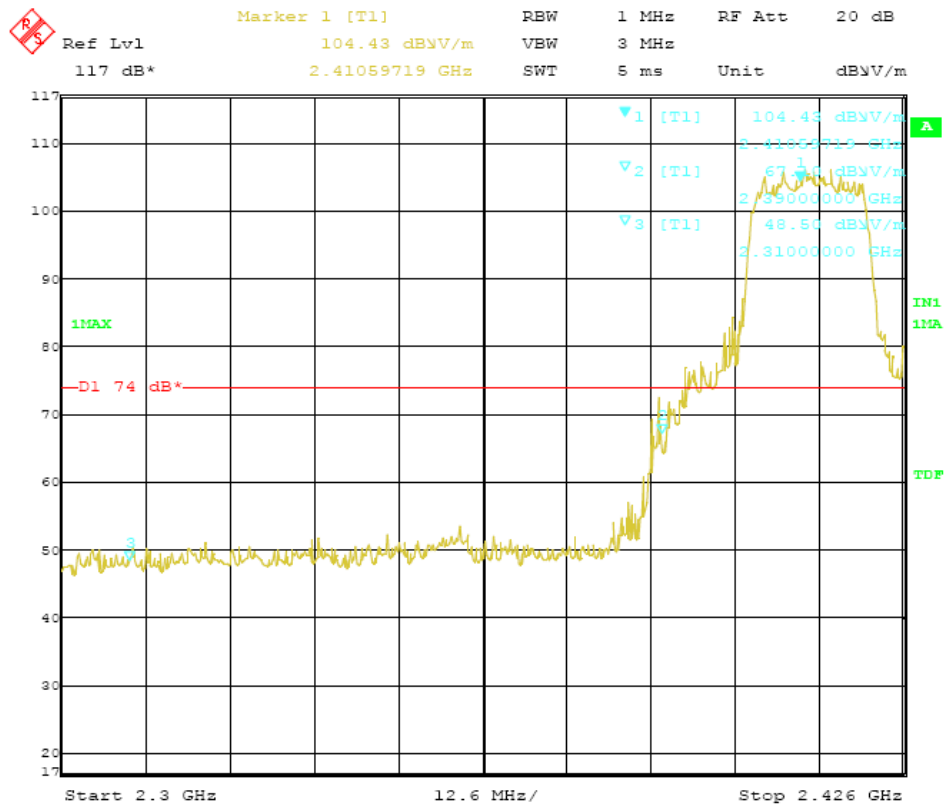
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the peak radiated field strength shall blow 74dBuV/m.
2. Antenna Polarization vertical.



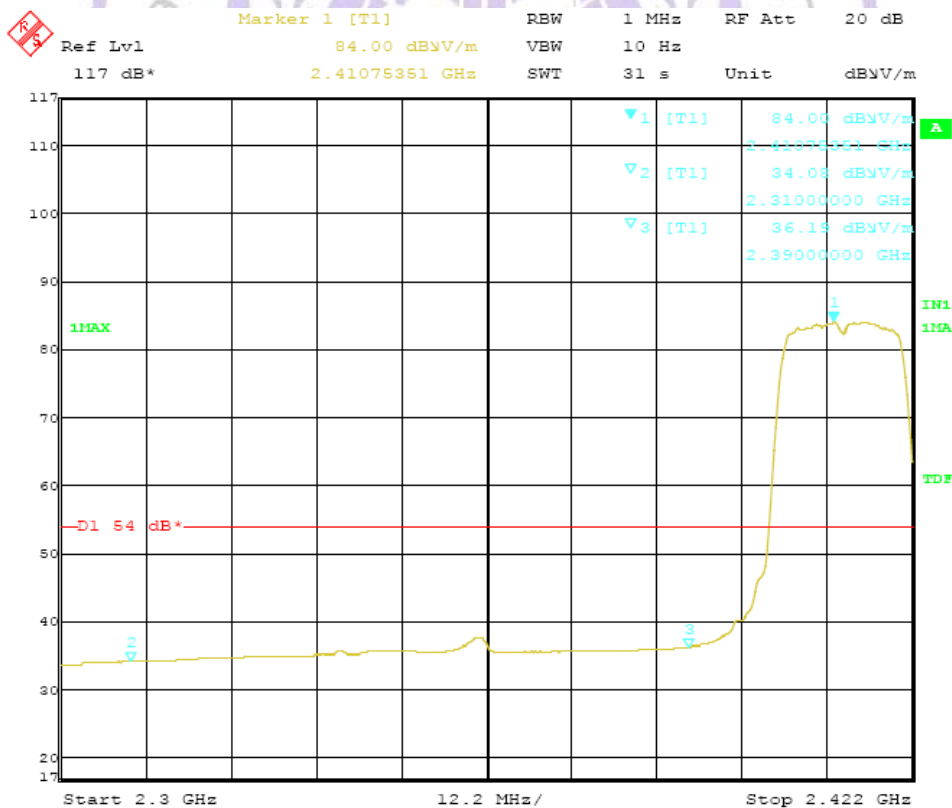
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the average radiated field strength shall blow 54dBuV/m.
2. Antenna Polarization vertical.



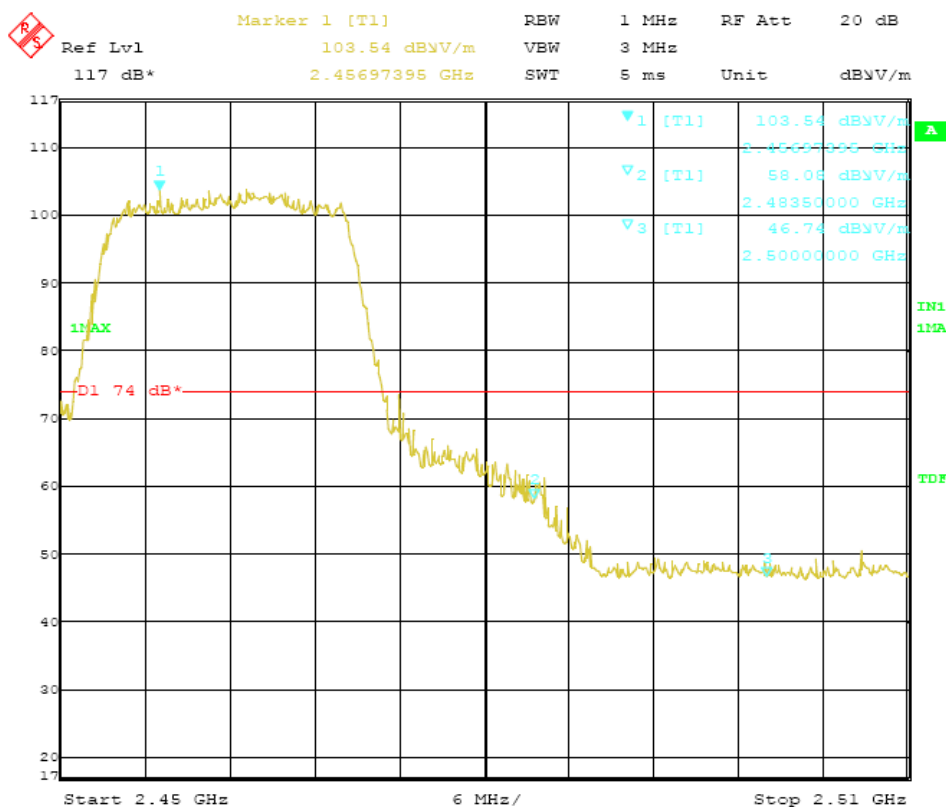
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the peak radiated field strength shall blow 74dB μ v/m.
2. Antenna Polarization horizontal.



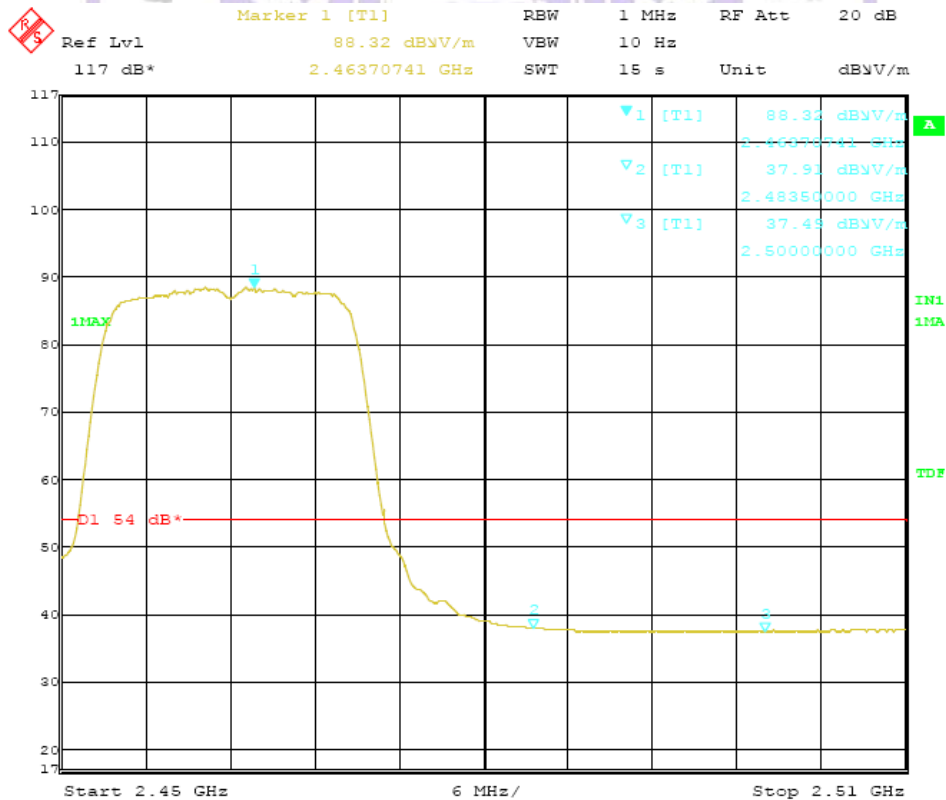
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the average radiated field strength shall blow 54dB μ v/m.
2. Antenna Polarization horizontal.



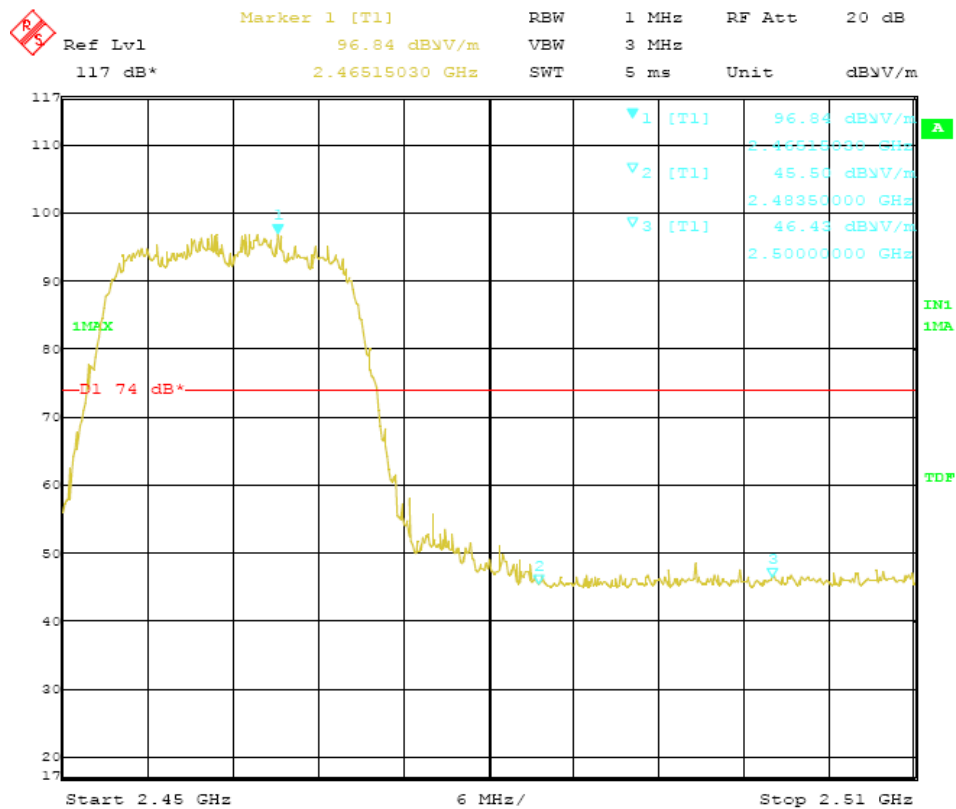
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the peak radiated field strength shall be 74dBµV/m.
2. Antenna Polarization vertical.

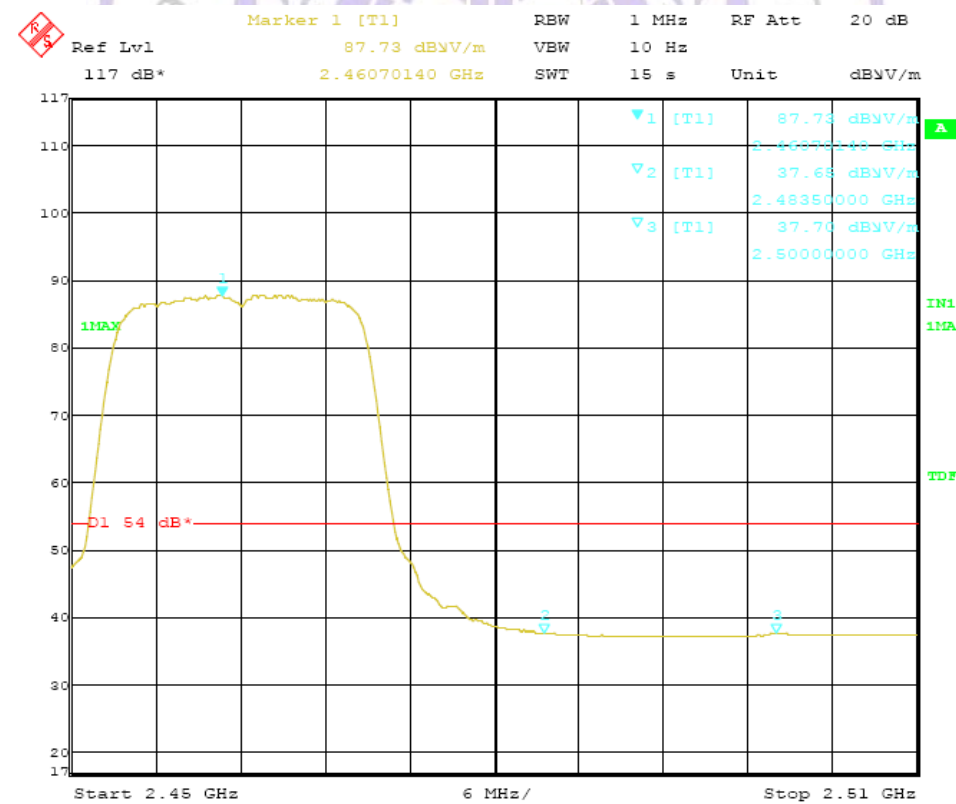


Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the average radiated field strength shall be 54dBµv/m.
2. Antenna Polarization vertical.

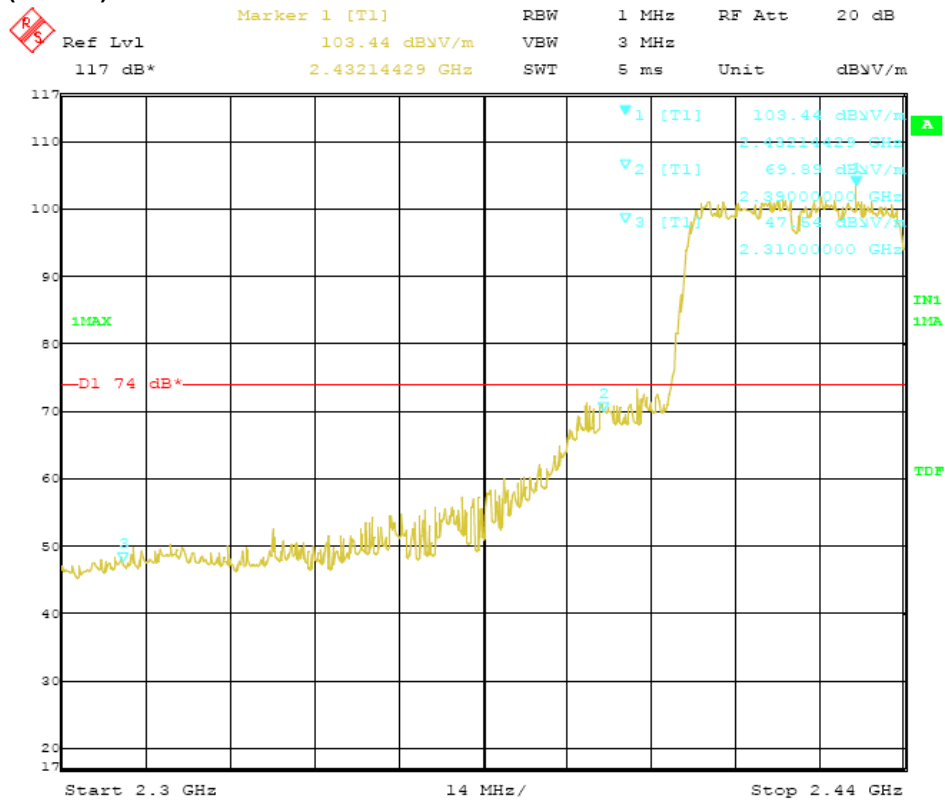


- Note:
1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the peak radiated field strength shall blow 74dB μ v/m.
 2. Antenna Polarization horizontal.



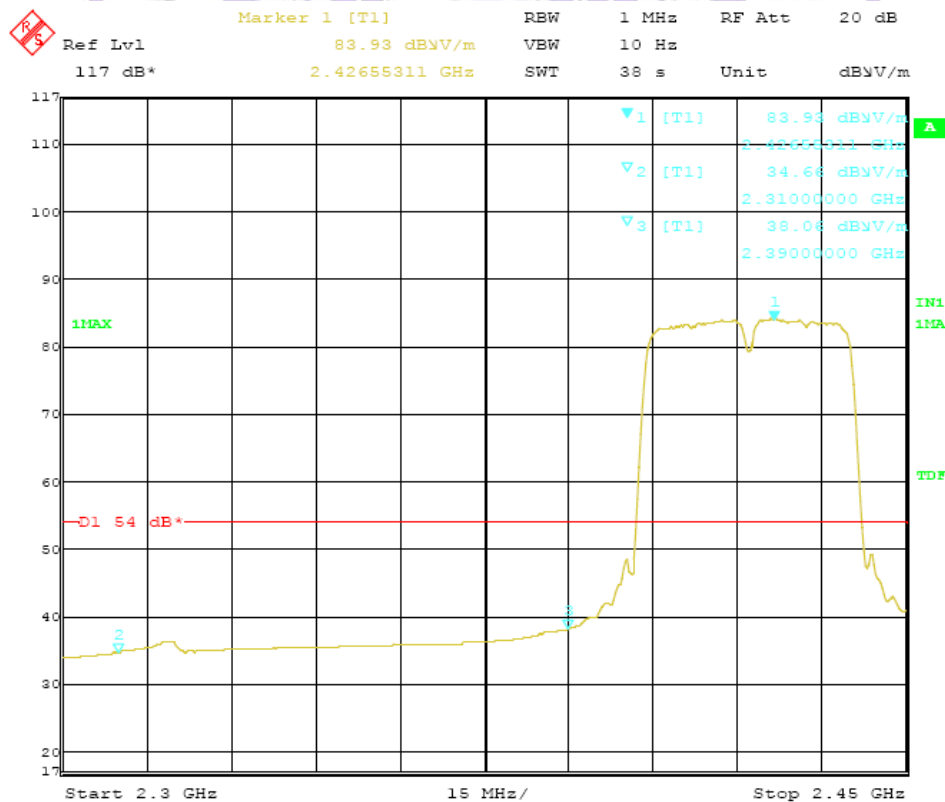
- Note:
1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the average radiated field strength shall blow 54dB μ v/m.
 2. Antenna Polarization horizontal.

Note : For 802.11n (40MHz) Mode:



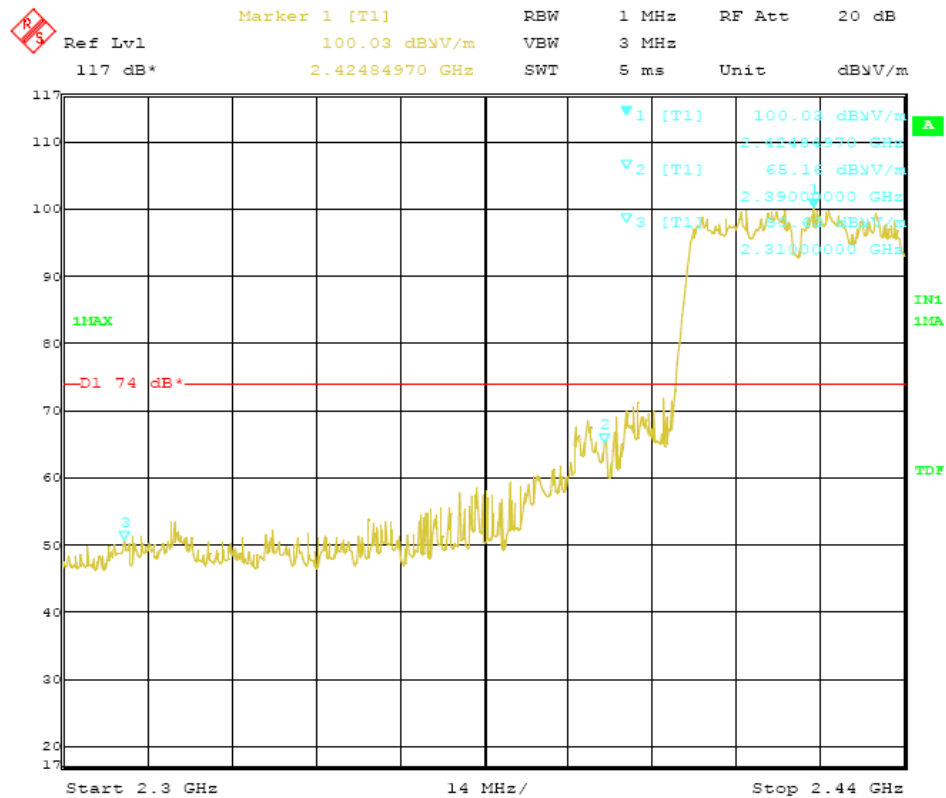
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the peak radiated field strength shall blow 74dBμv/m.
2. Antenna Polarization vertical.



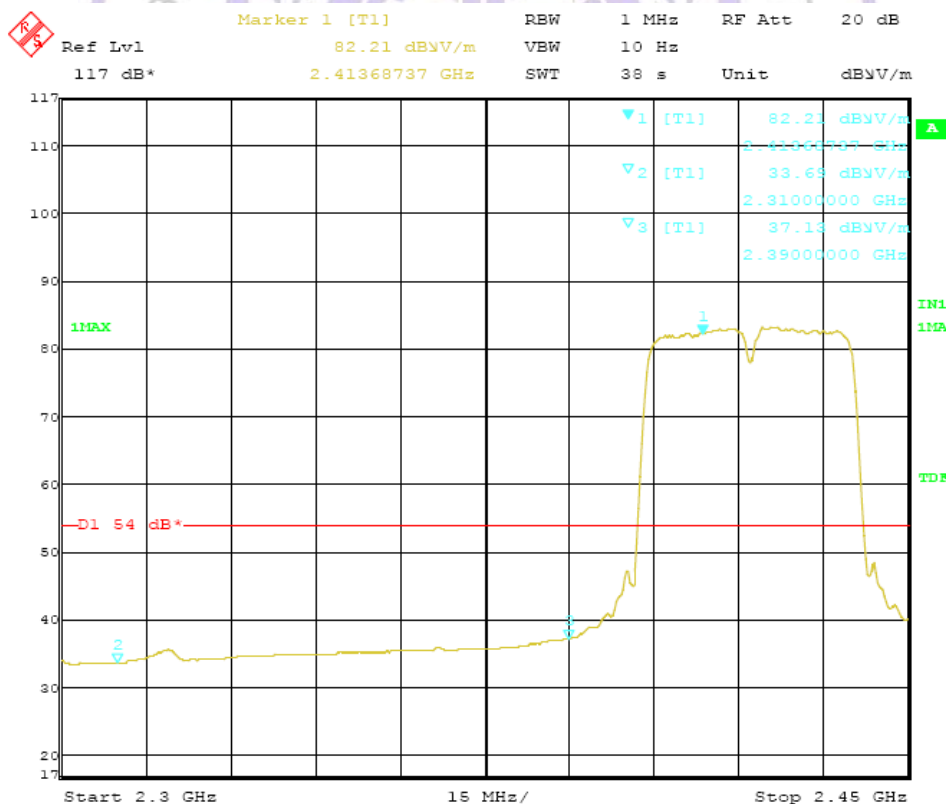
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the average radiated field strength shall blow 54dBμv/m.
2. Antenna Polarization vertical.



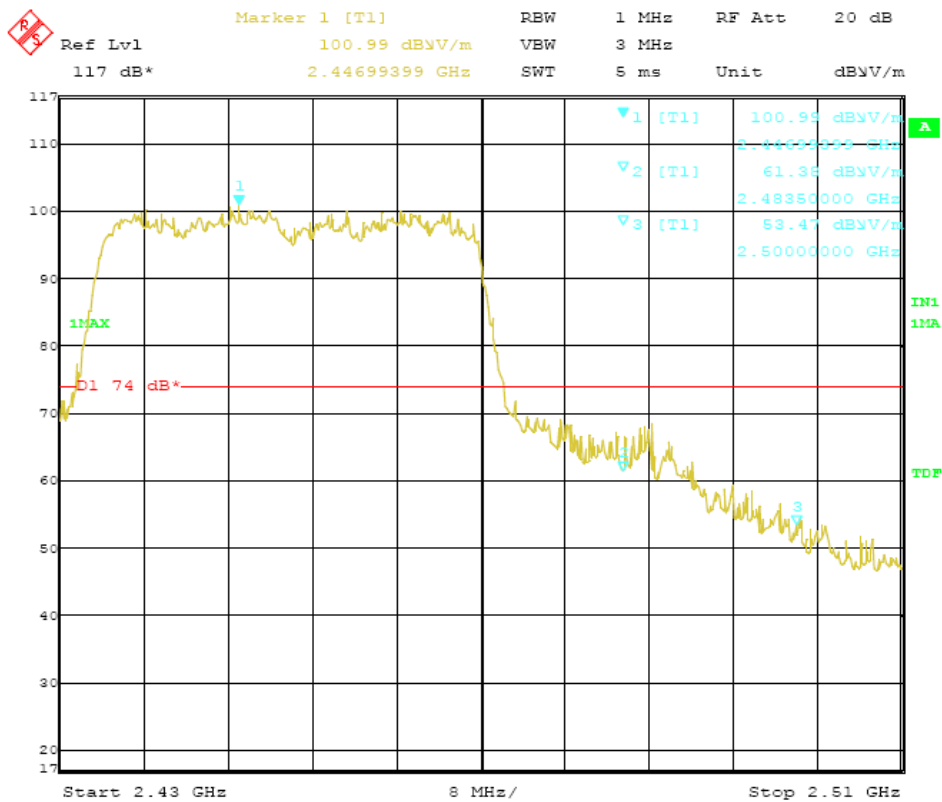
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the peak radiated field strength shall blow 74dB μ v/m.
2. Antenna Polarization horizontal.



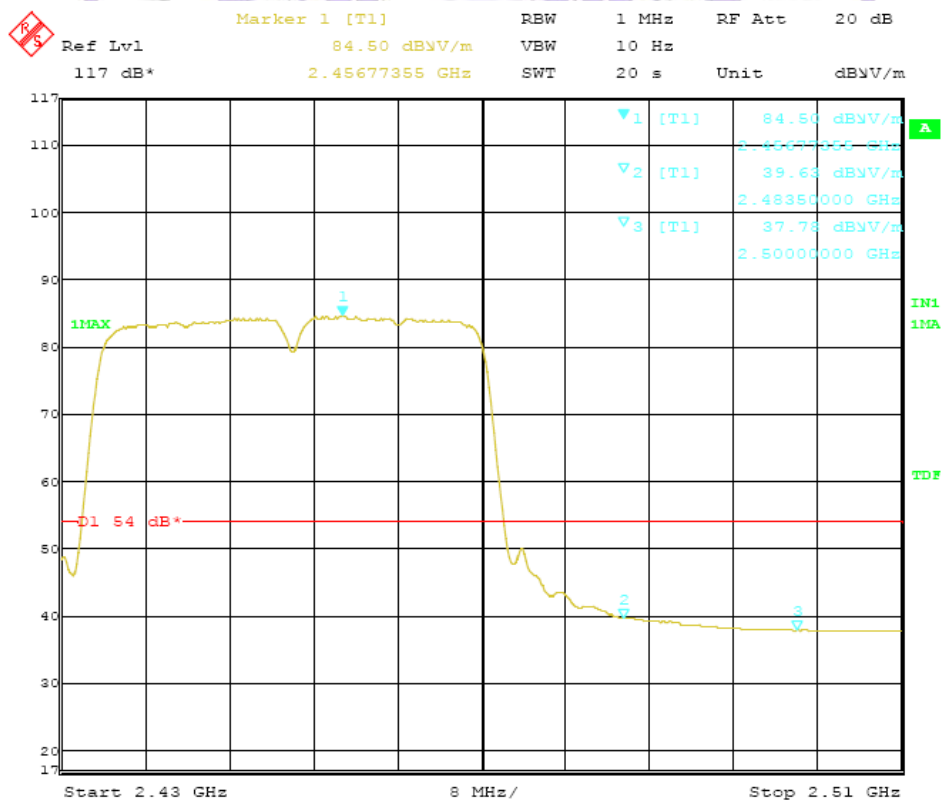
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the average radiated field strength shall blow 54dB μ v/m.
2. Antenna Polarization horizontal.



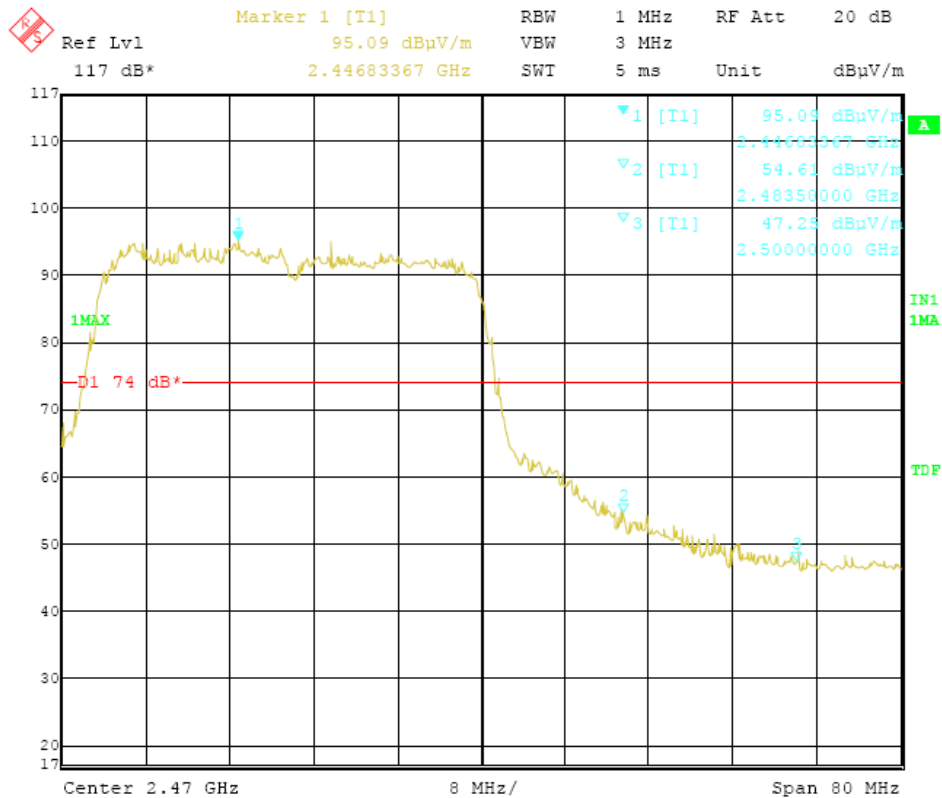
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the peak radiated field strength shall blow 74dB μ v/m.
2. Antenna Polarization vertical.



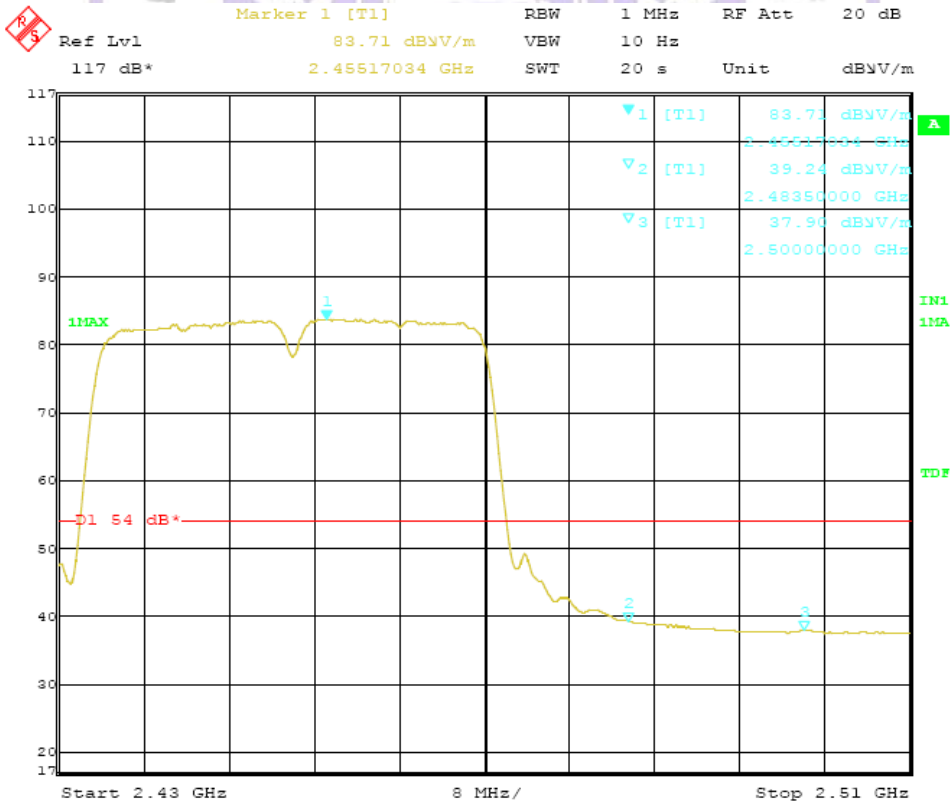
Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the average radiated field strength shall blow 54dB μ v/m.
2. Antenna Polarization vertical.



Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the peak radiated field strength shall blow 74dBμv/m.
2. Antenna Polarization horizontal.

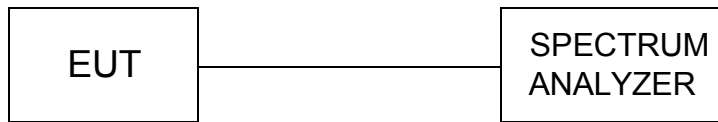


Note:

1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in Section 15.209, the average radiated field strength shall blow 54dBμv/m.
2. Antenna Polarization horizontal.

4.6. Power Spectral Density Measurement

TEST CONFIGURATION



TEST PROCEDURE

1. The testing follows the FCC KDB Publication No. 558074 (Measurement Guidelines of DTS).
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.

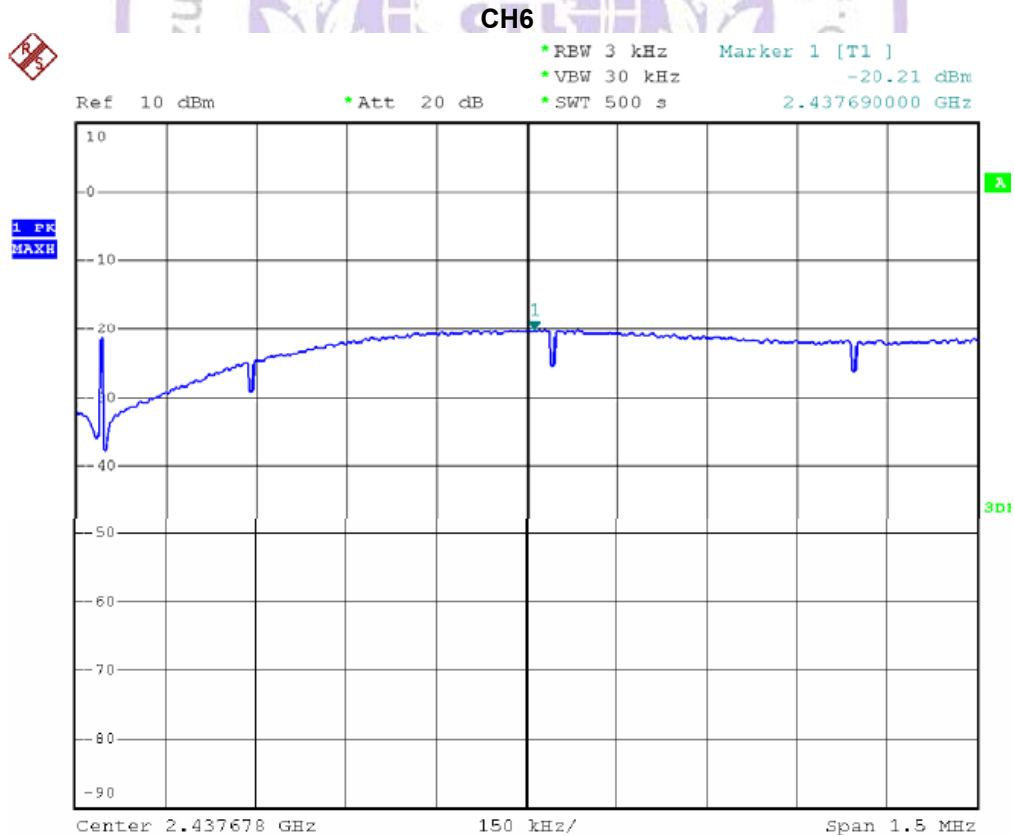
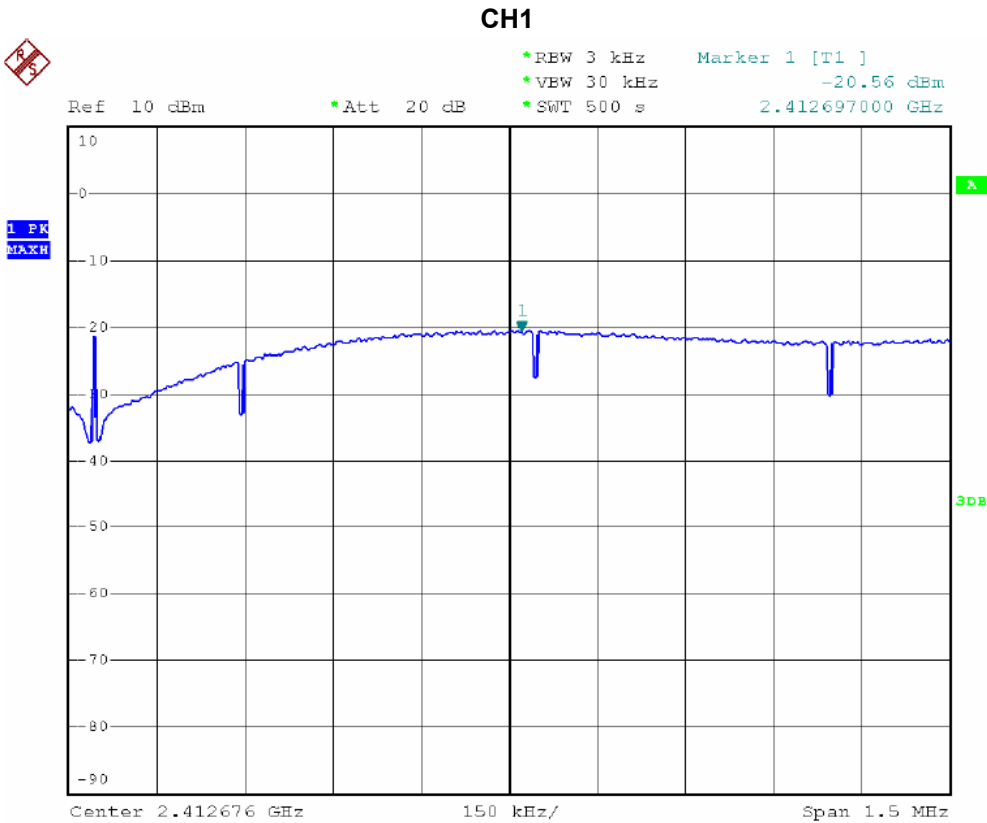
LIMIT

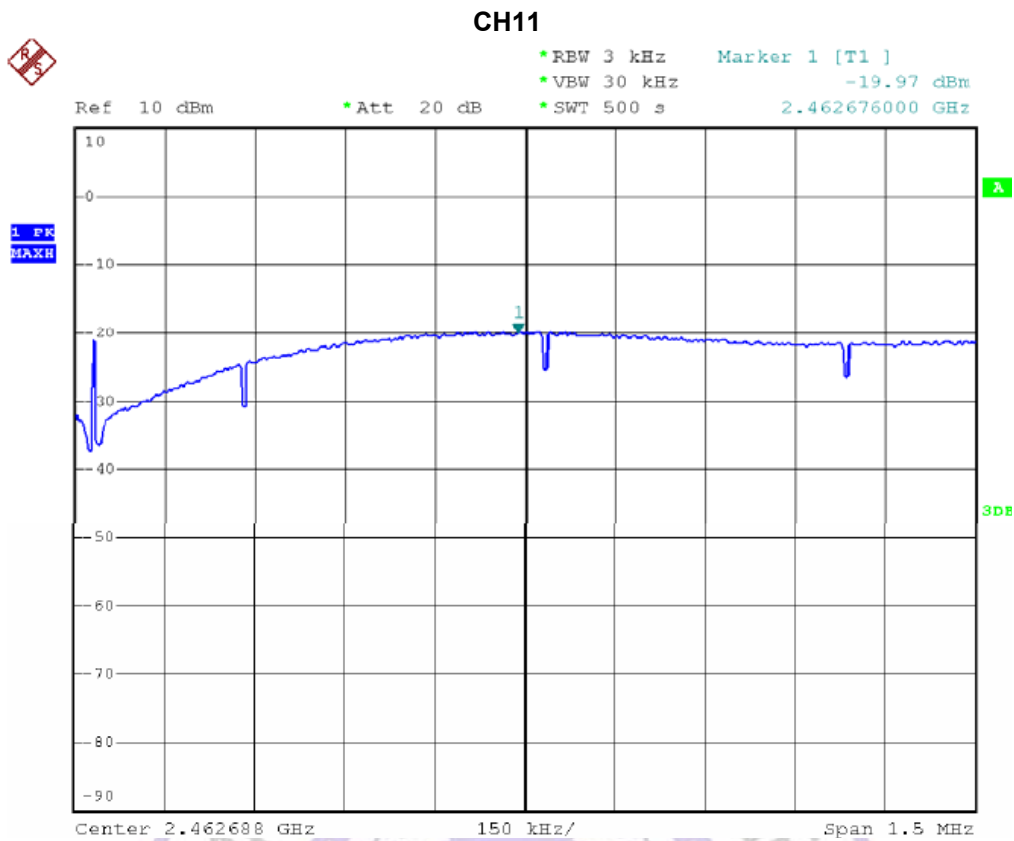
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST RESULTS

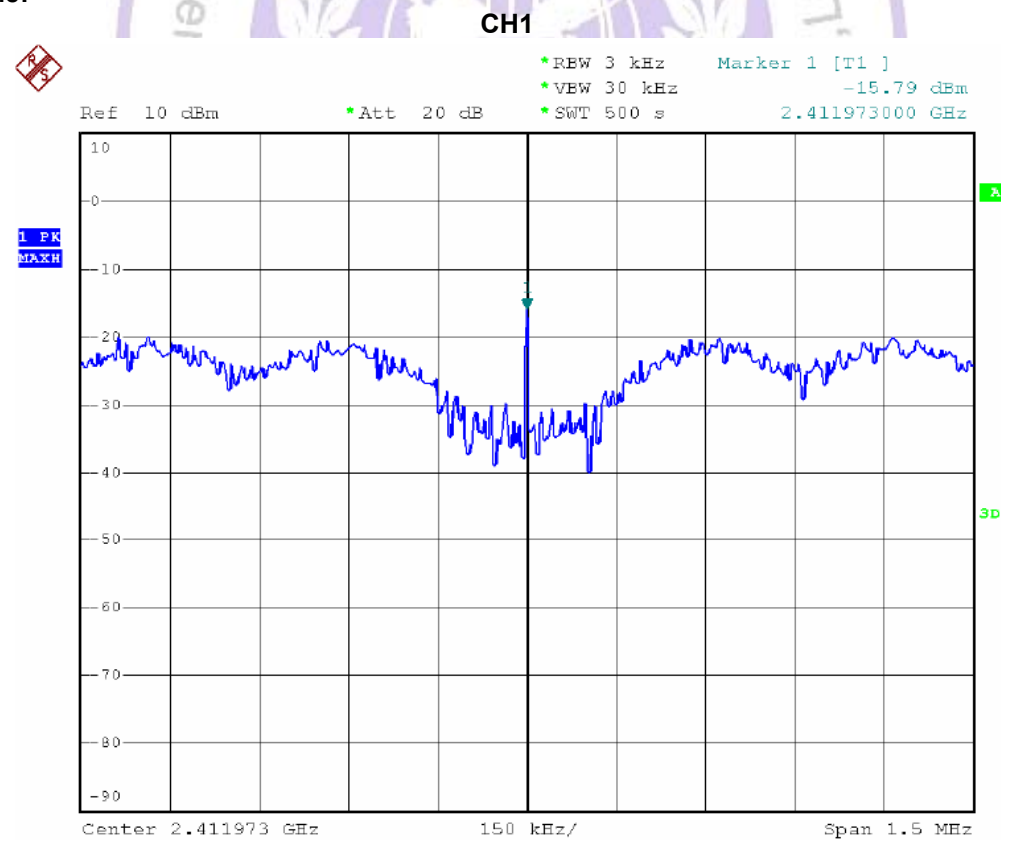
Channel	Channel Frequency (MHz)	RF power level in 3 KHz BW (dBm)	Maximum limit (dBm)	PASS / FAIL
802.11b CH1	2412	-20.56	8	PASS
802.11b CH 6	2437	-20.21	8	PASS
802.11b CH 11	2462	-19.97	8	PASS
802.11g CH1	2412	-15.79	8	PASS
802.11g CH6	2437	-15.52	8	PASS
802.11g CH11	2462	-15.10	8	PASS
HT20 CH1	2412	-15.80	8	PASS
HT20 CH 6	2437	-15.55	8	PASS
HT20 CH 11	2462	-15.22	8	PASS
HT40 CH 3	2422	-11.40	8	PASS
HT40 CH 6	2437	-11.16	8	PASS
HT40 CH 9	2452	-11.08	8	PASS

For 802.11b Mode:

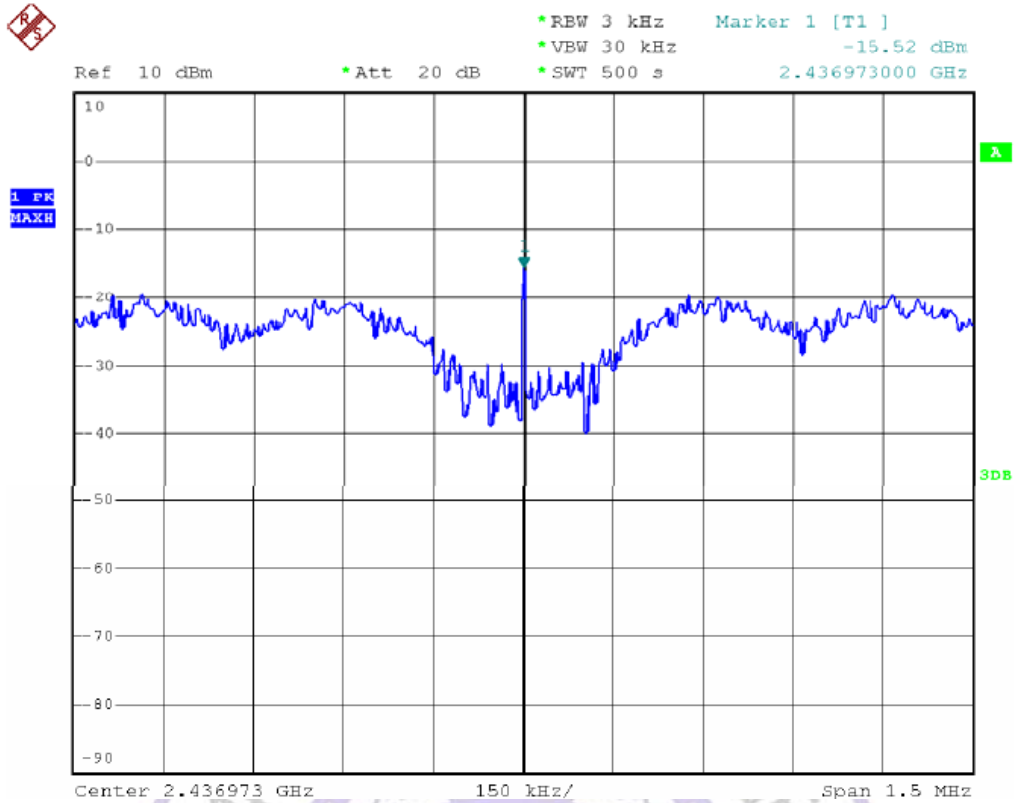




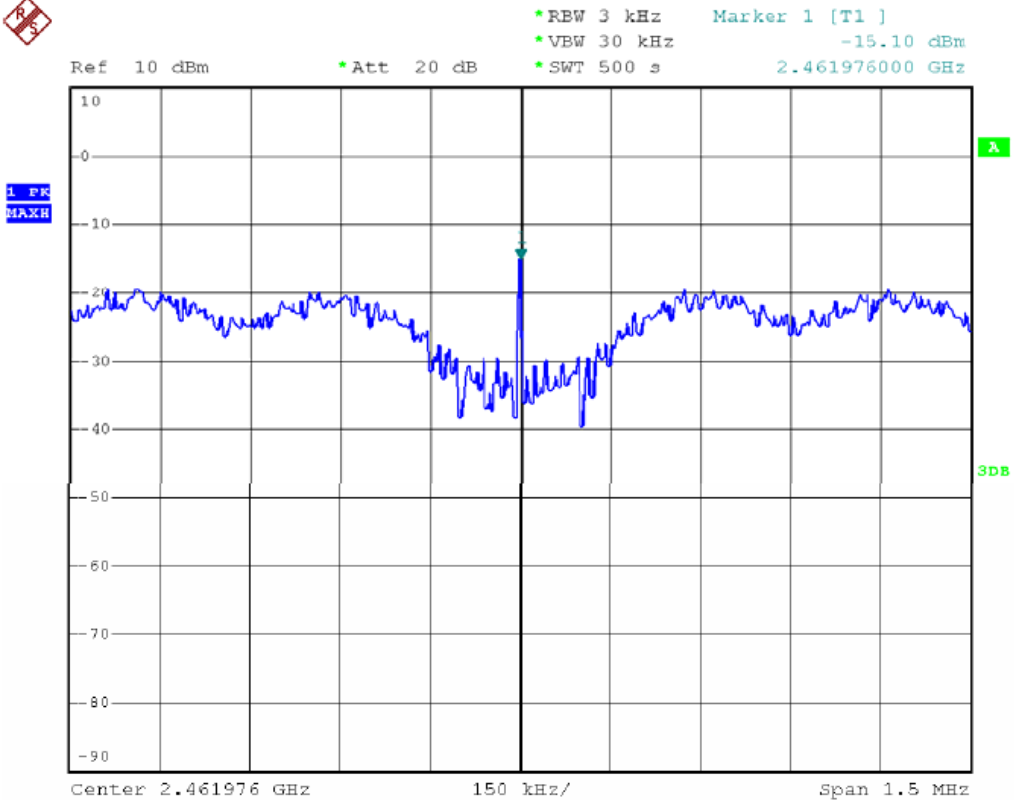
For 802.11g Mode:



CH6

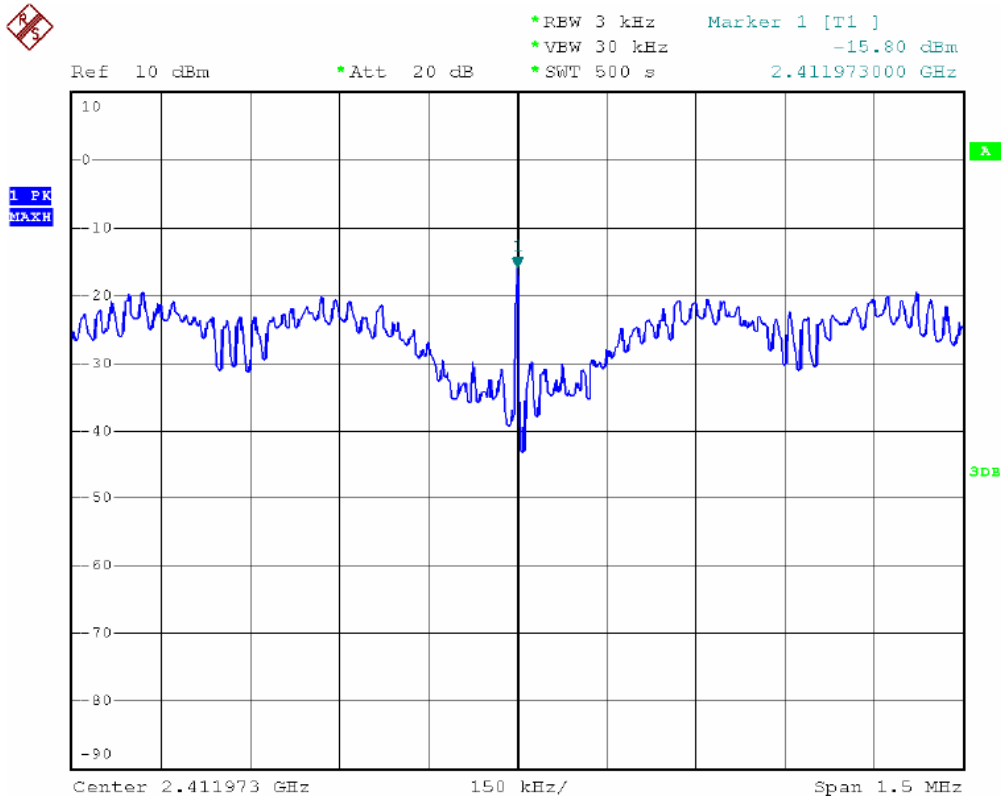


CH11 @ANT 1

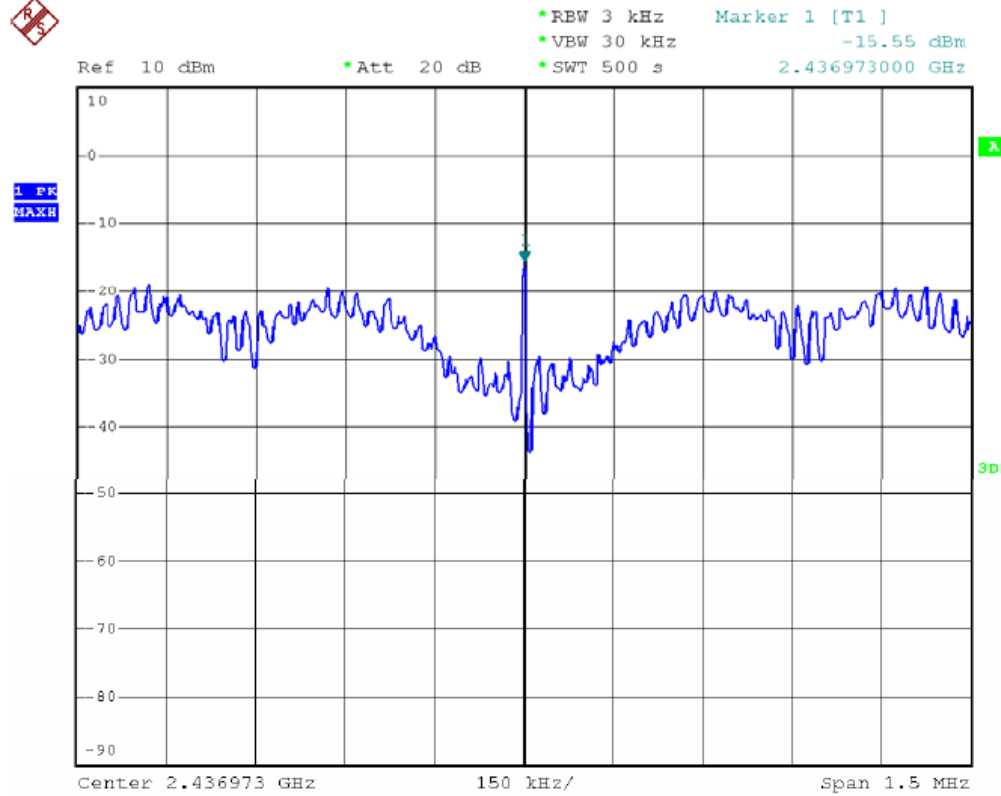


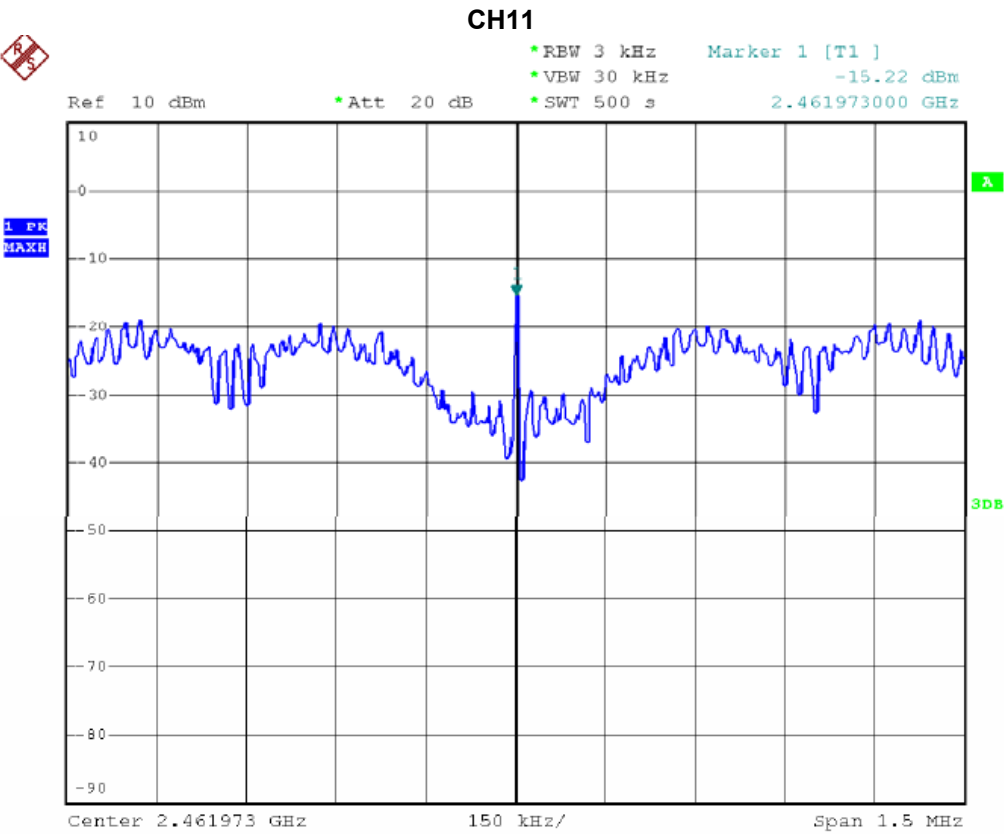
For 802.11n (20MHz) Mode:

CH1

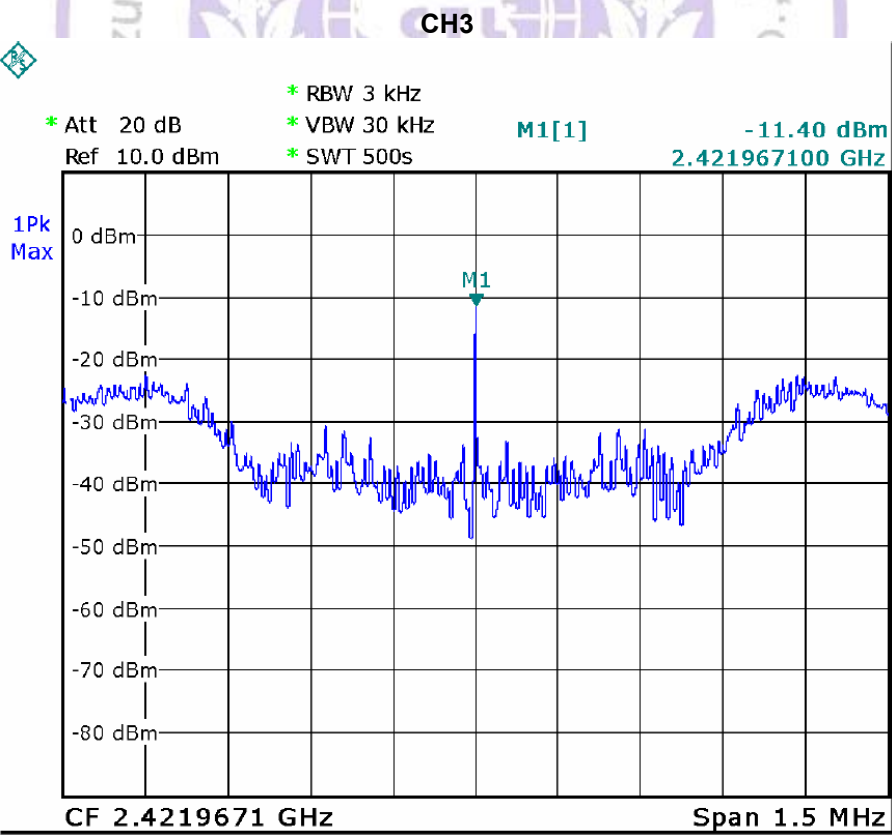


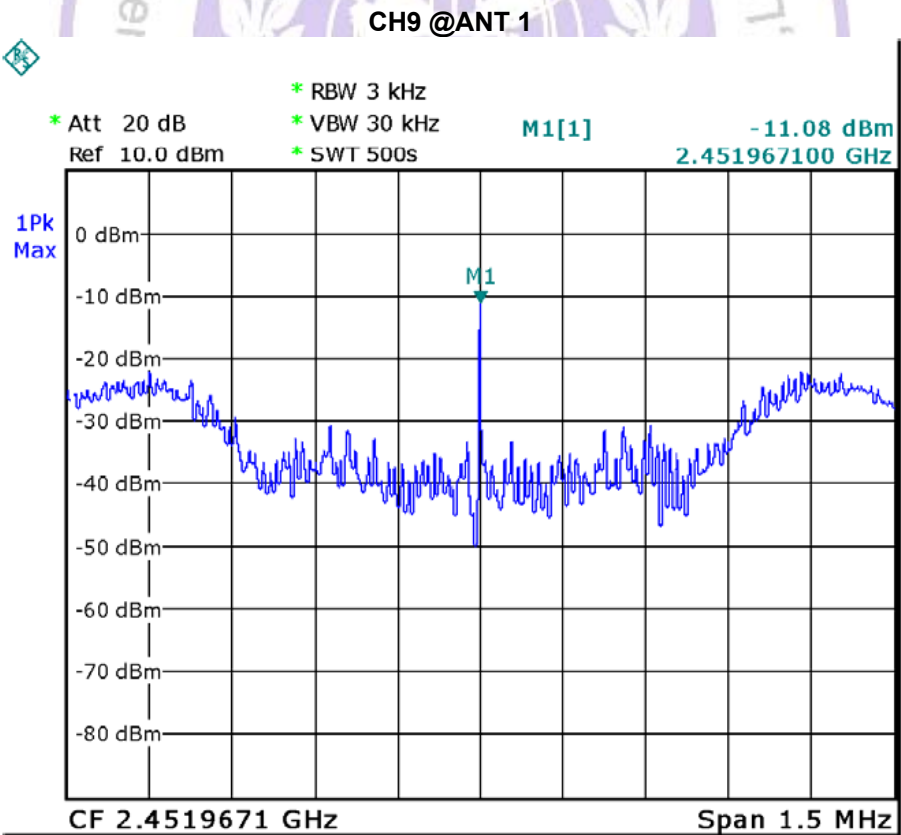
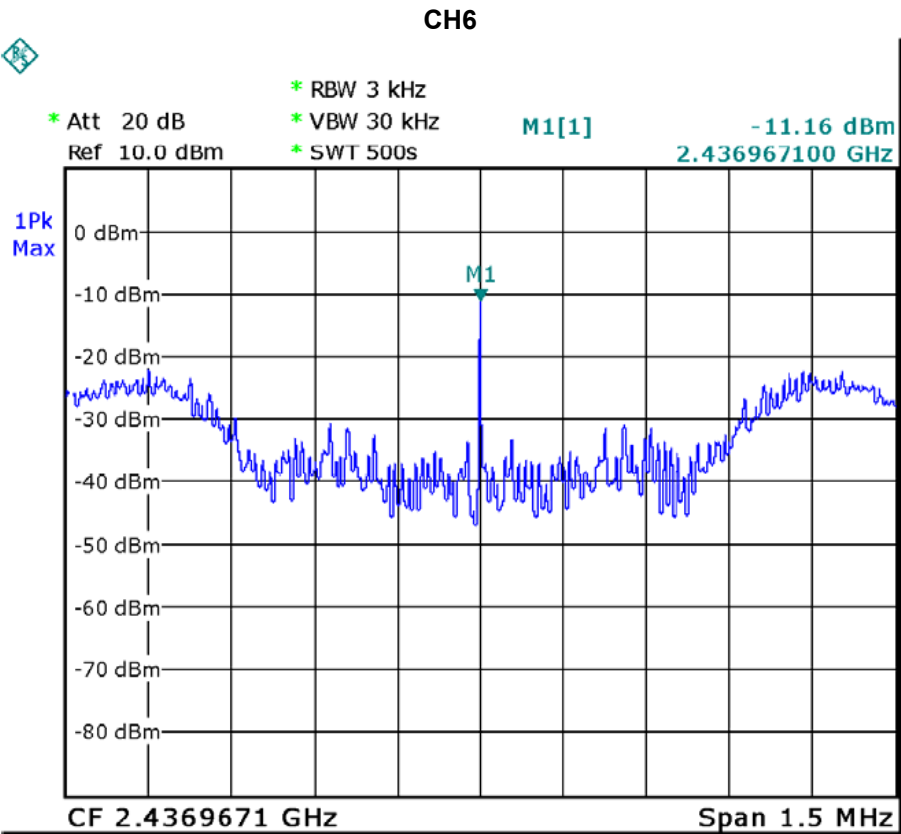
CH6





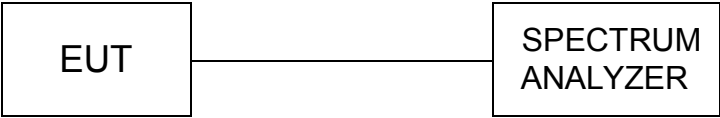
For 802.11n (40MHz) Mode:





4.7. 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 measure frequency range from 30MHz to 26.5GHz.

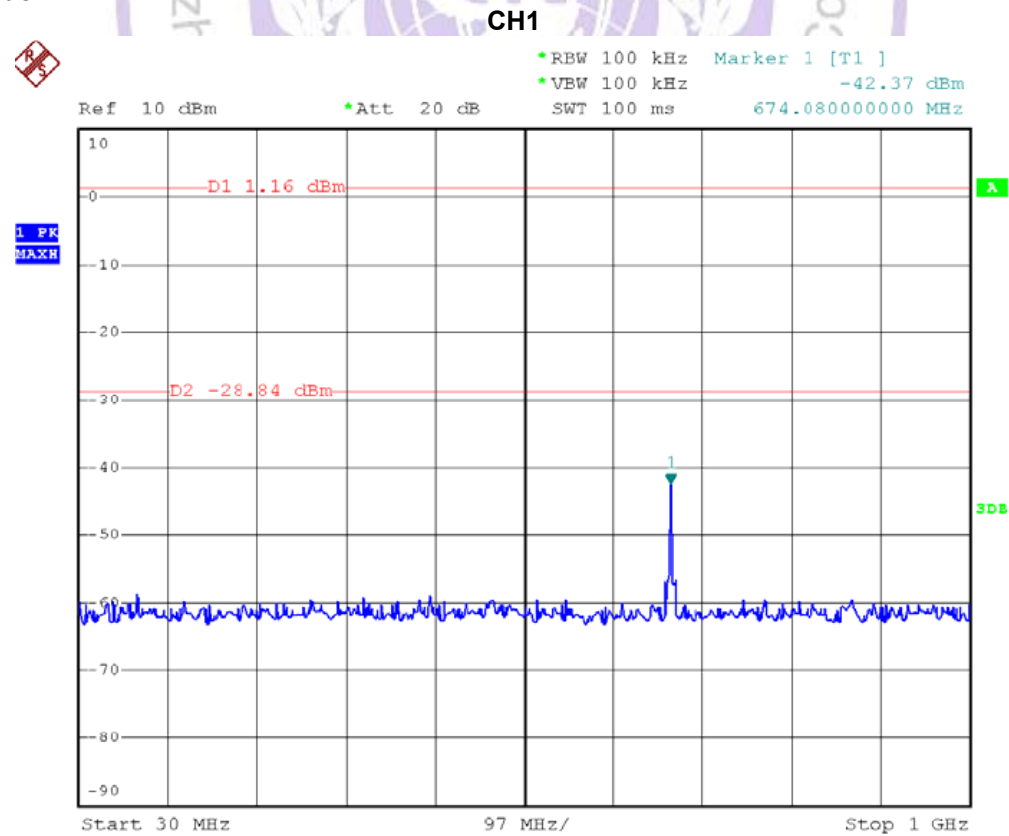
LIMIT

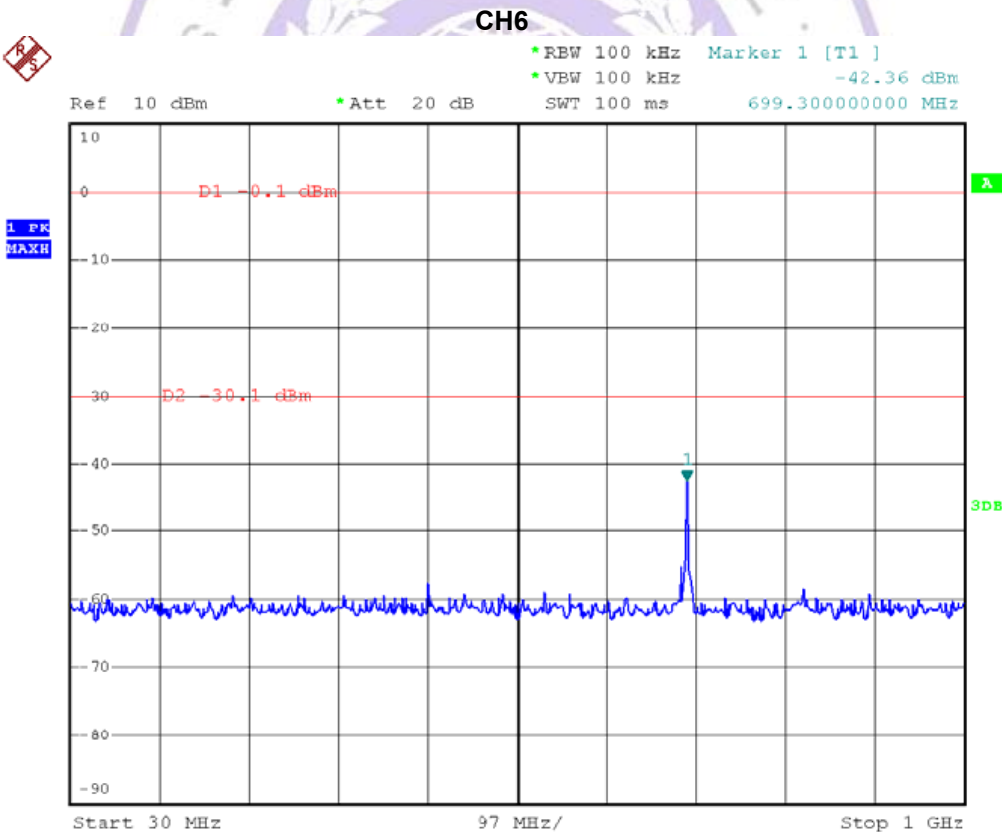
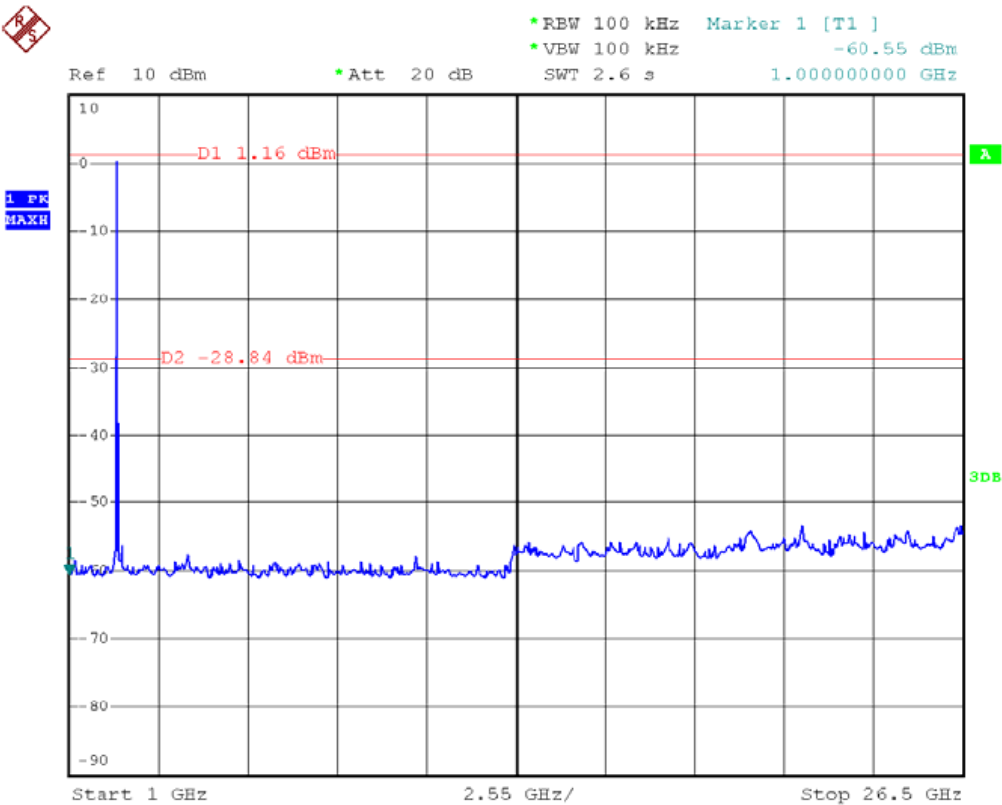
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

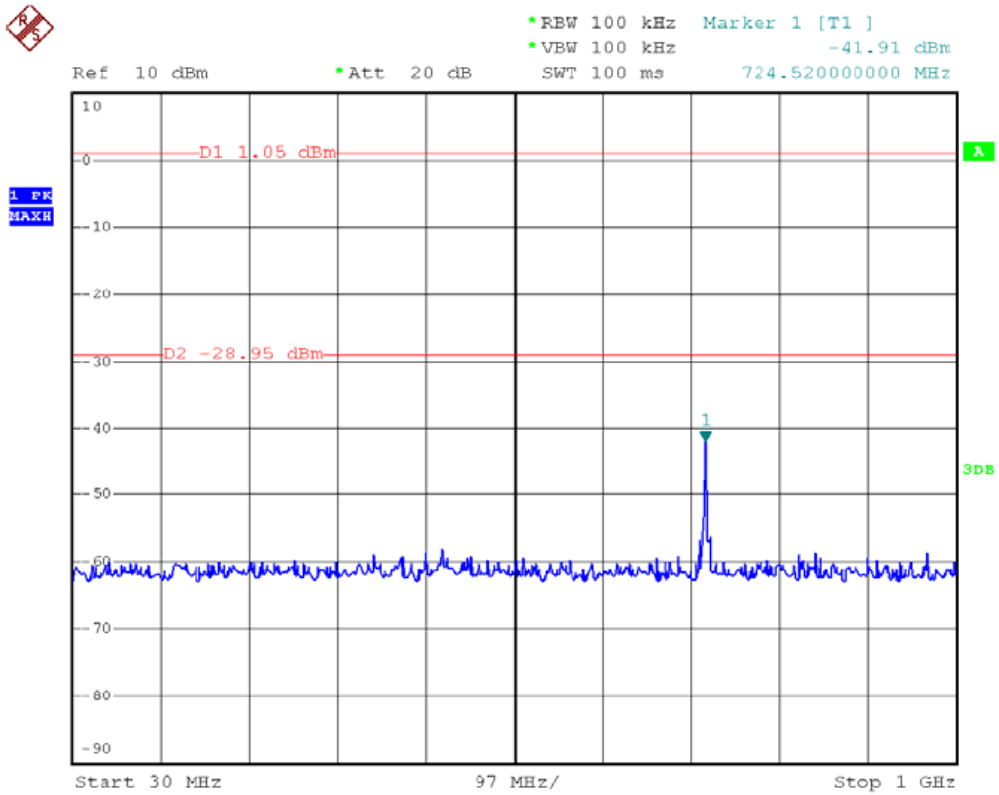
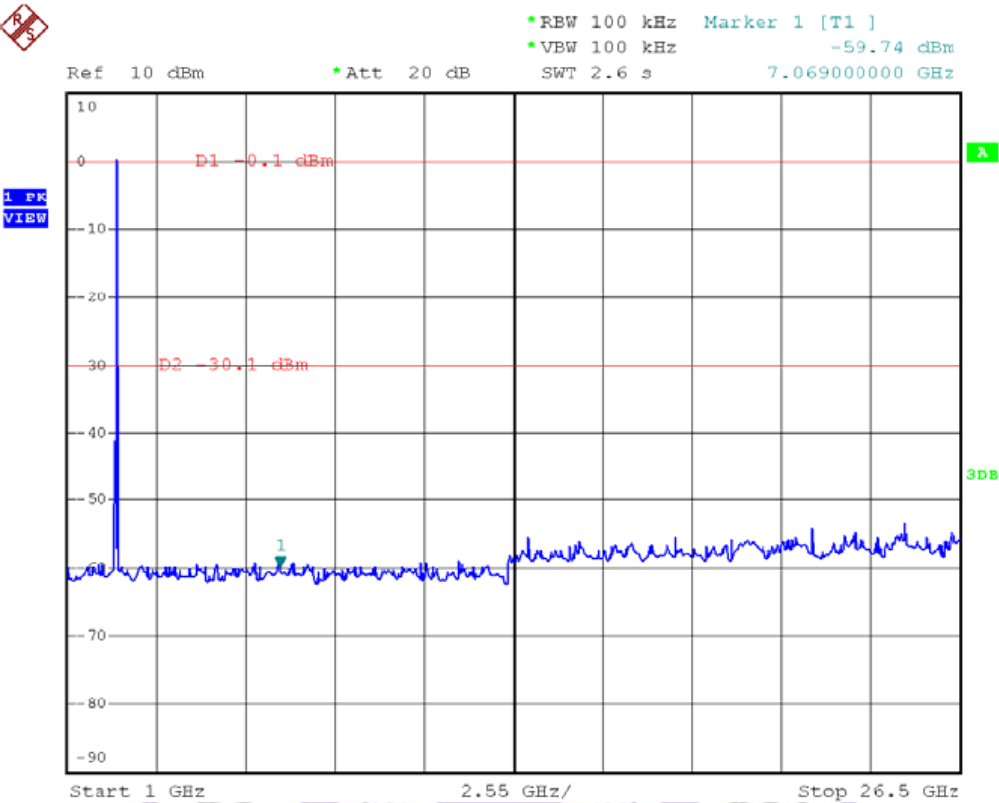
TEST RESULTS

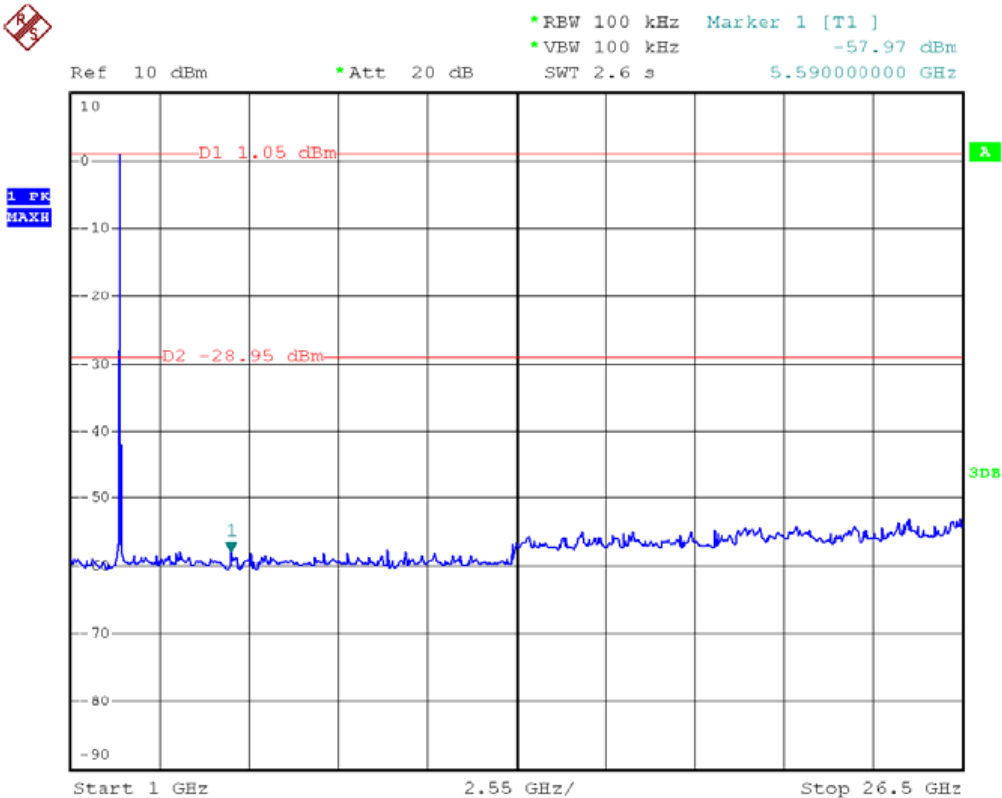
Photos of Spurious RF Conducted Emission Measurement

For 802.11b Mode:

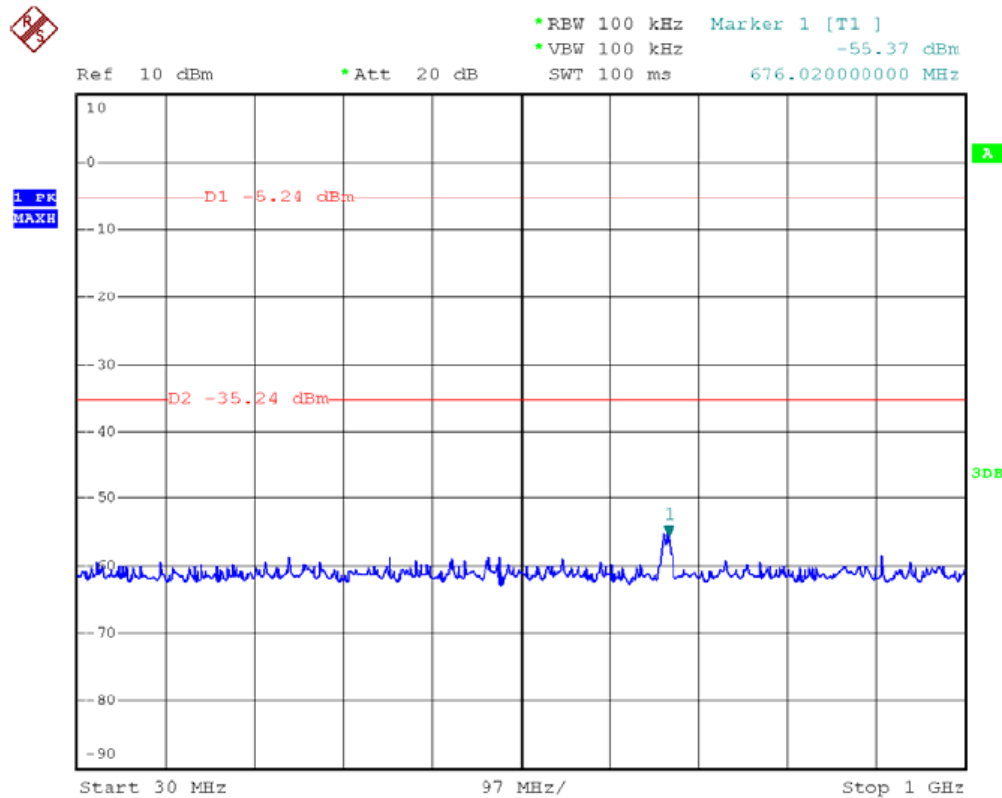


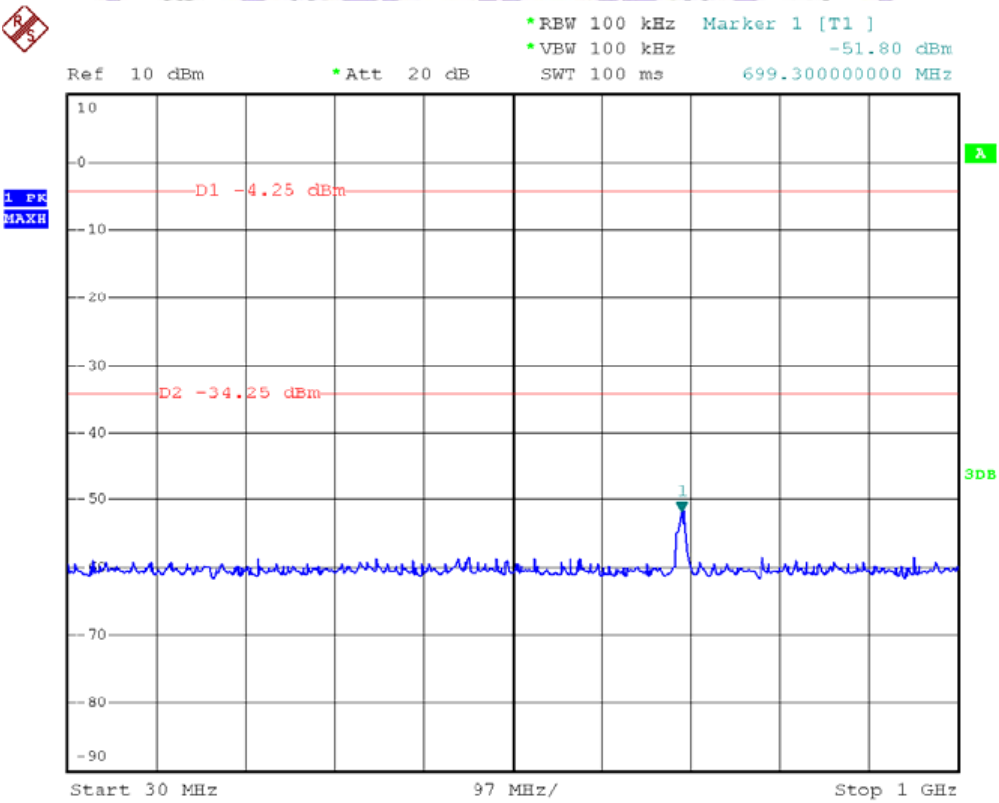
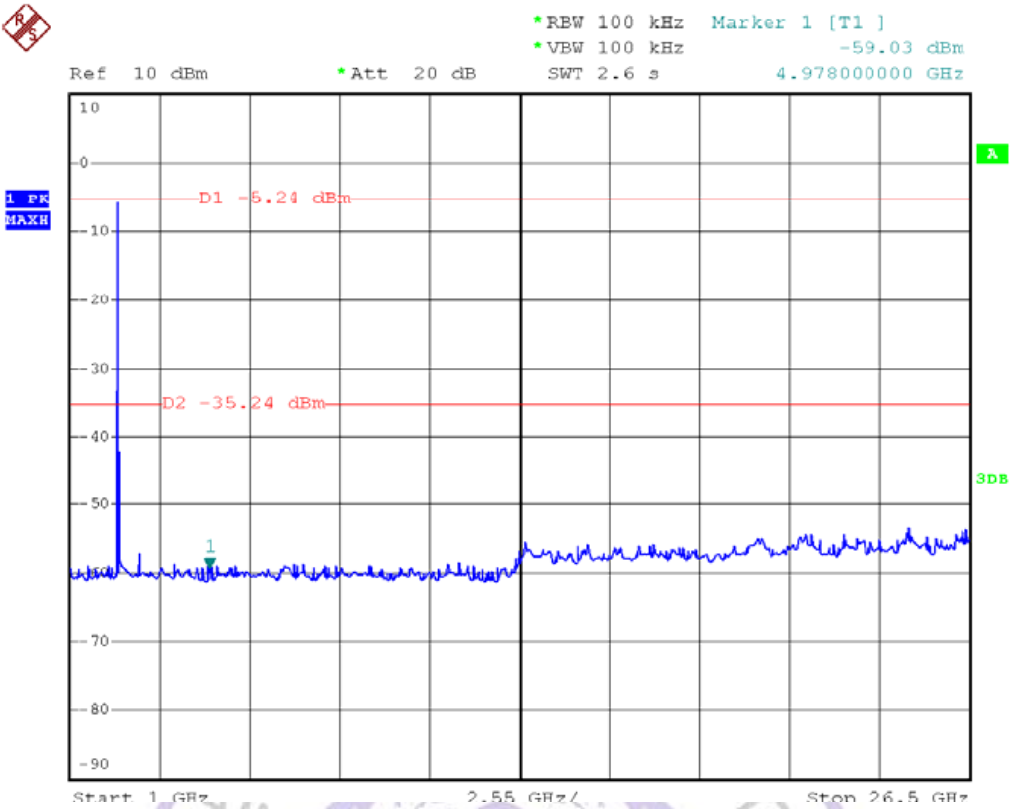


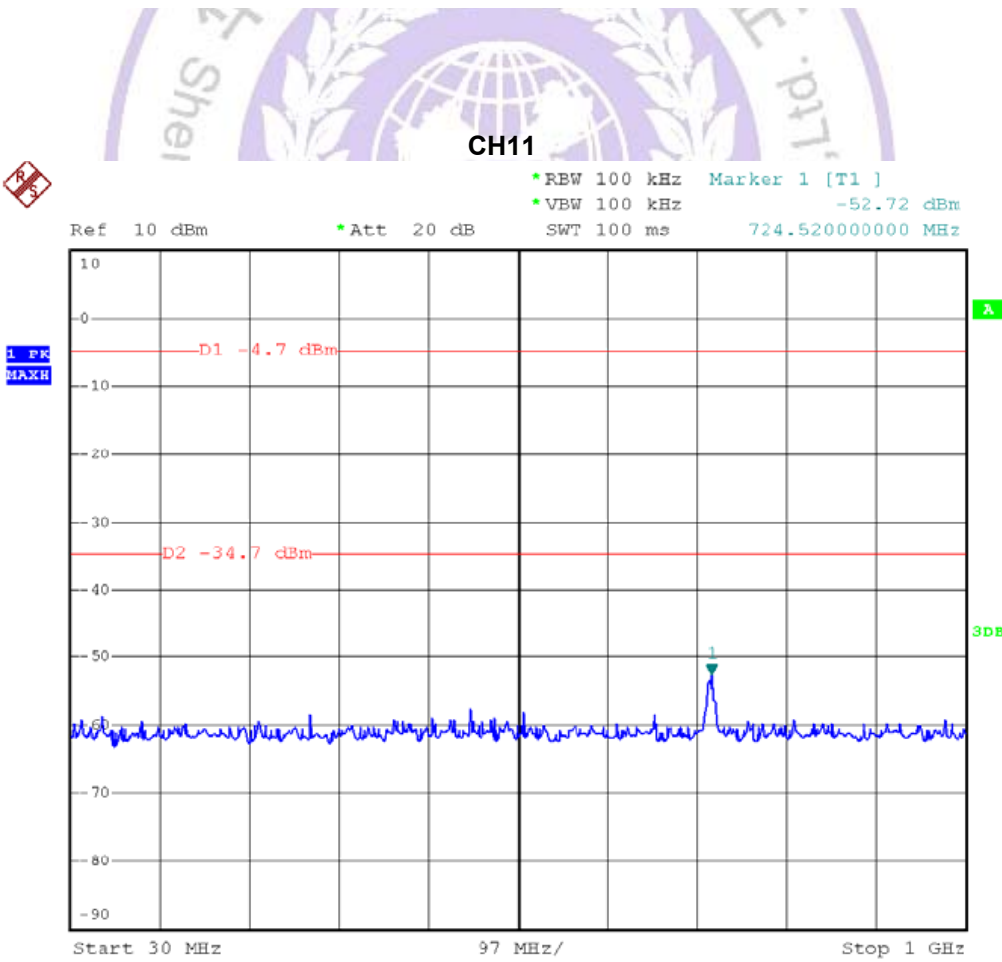
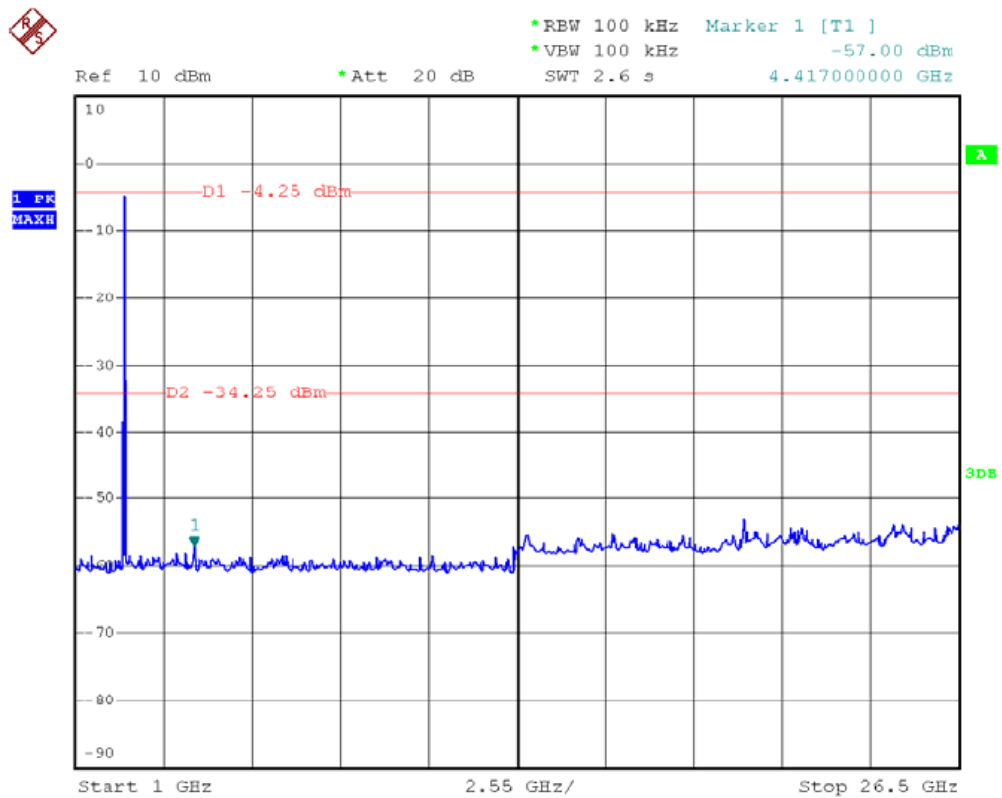


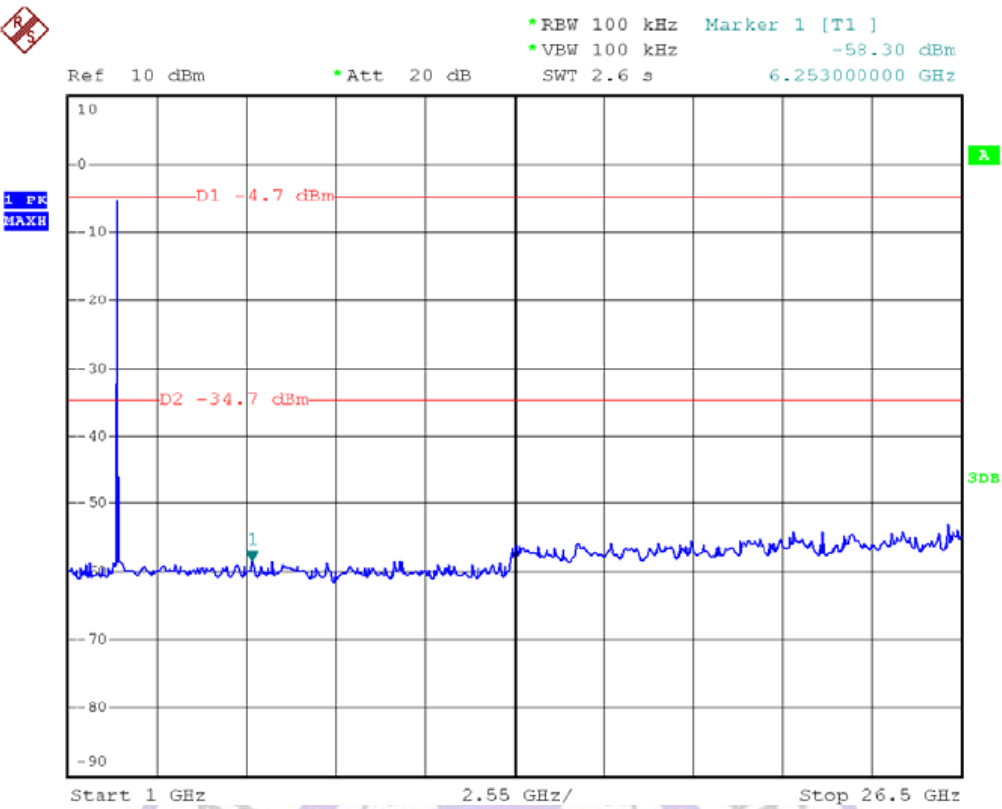


For 802.11g Mode:



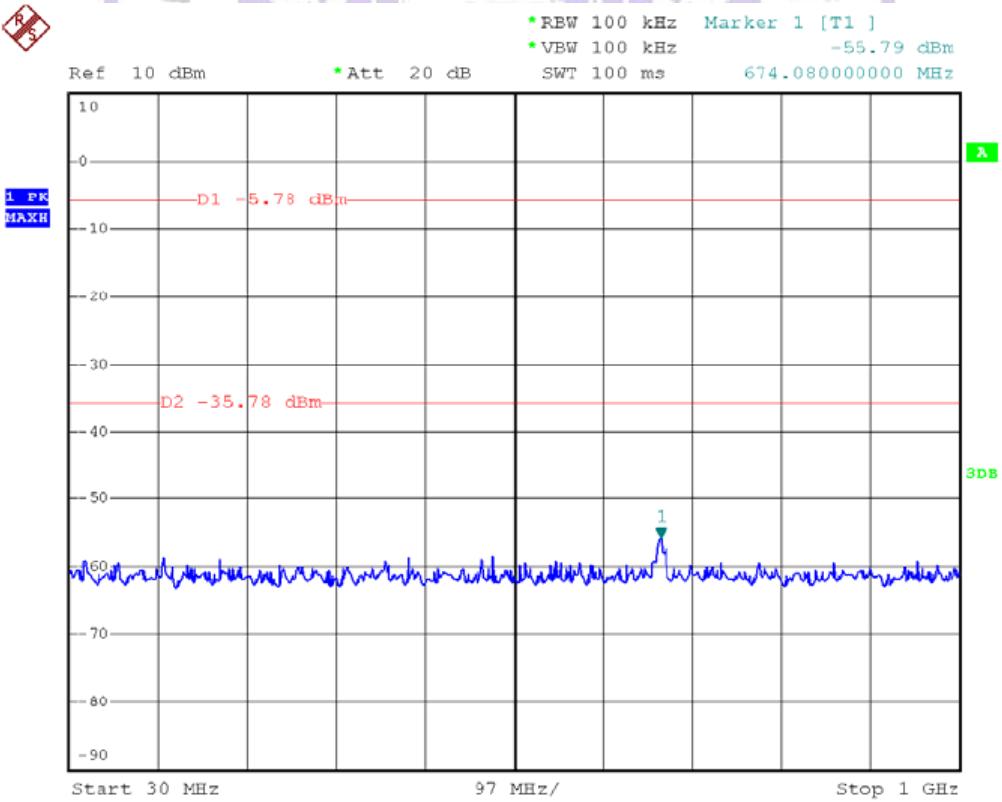


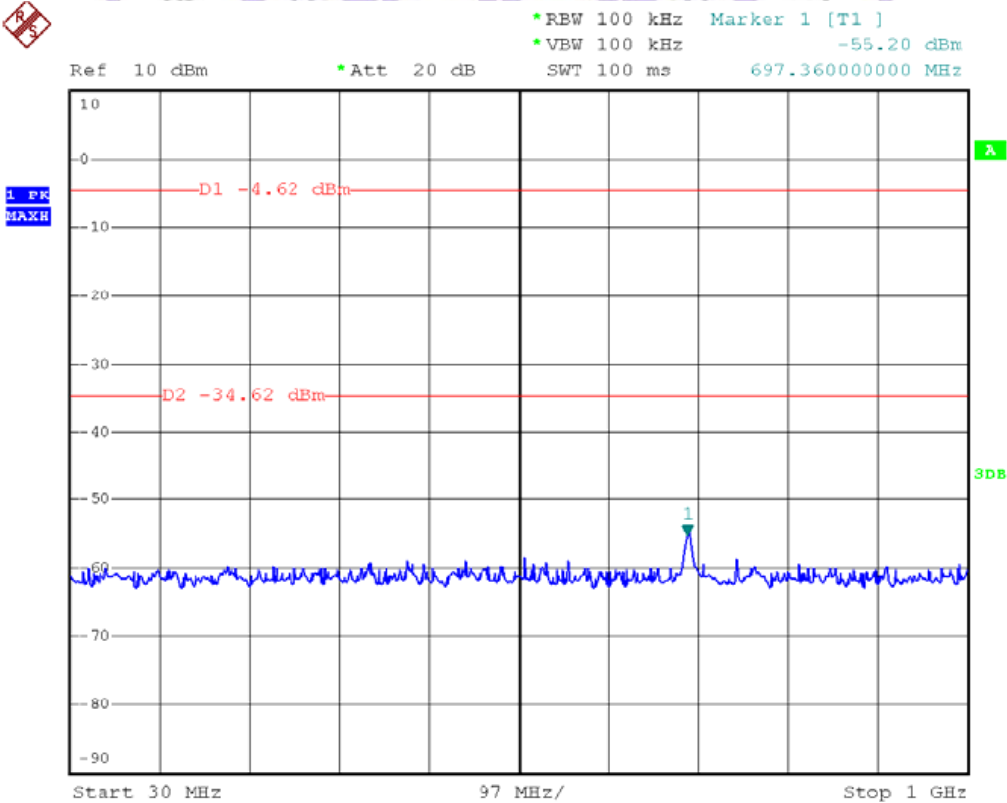
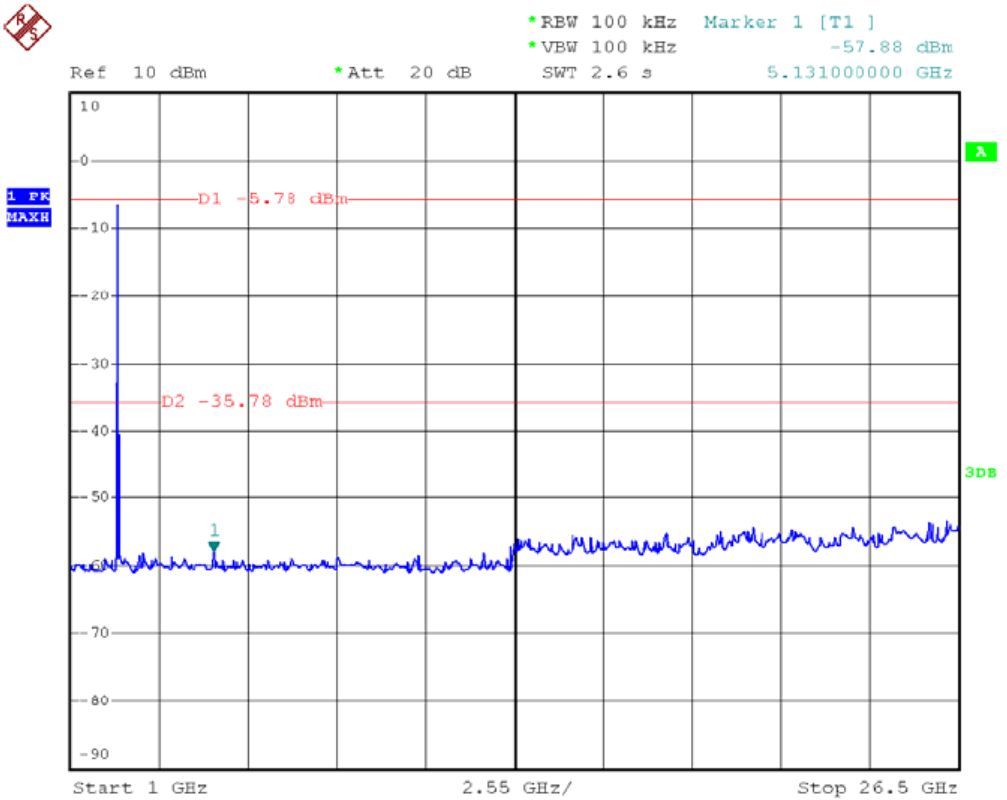


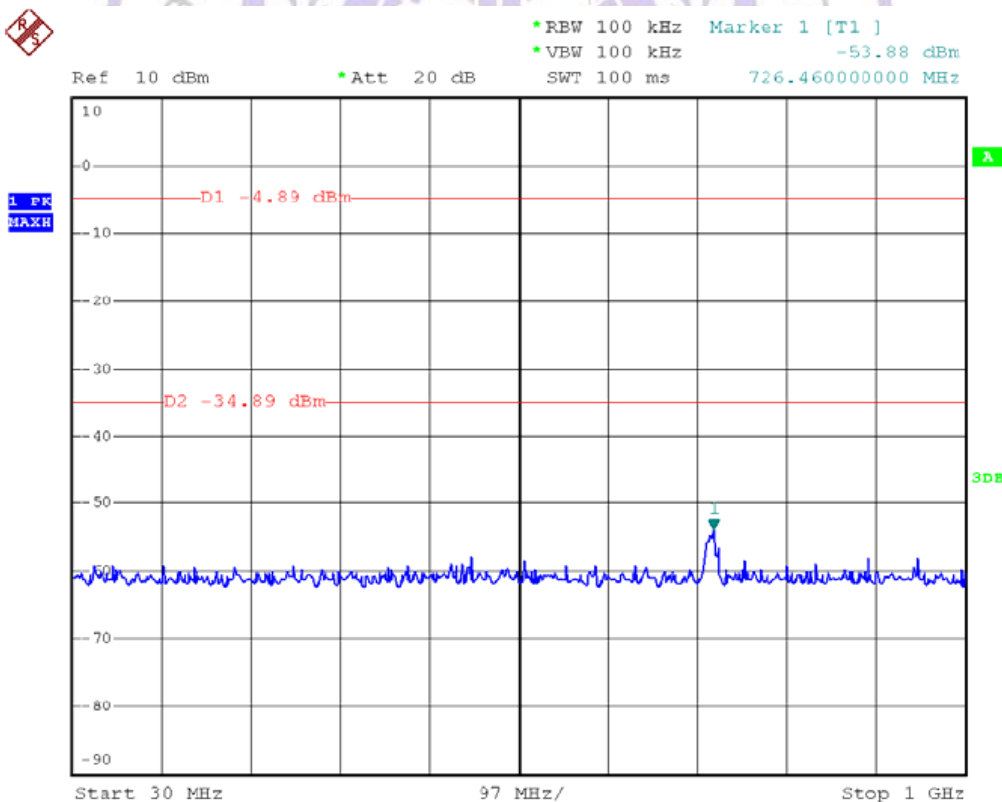
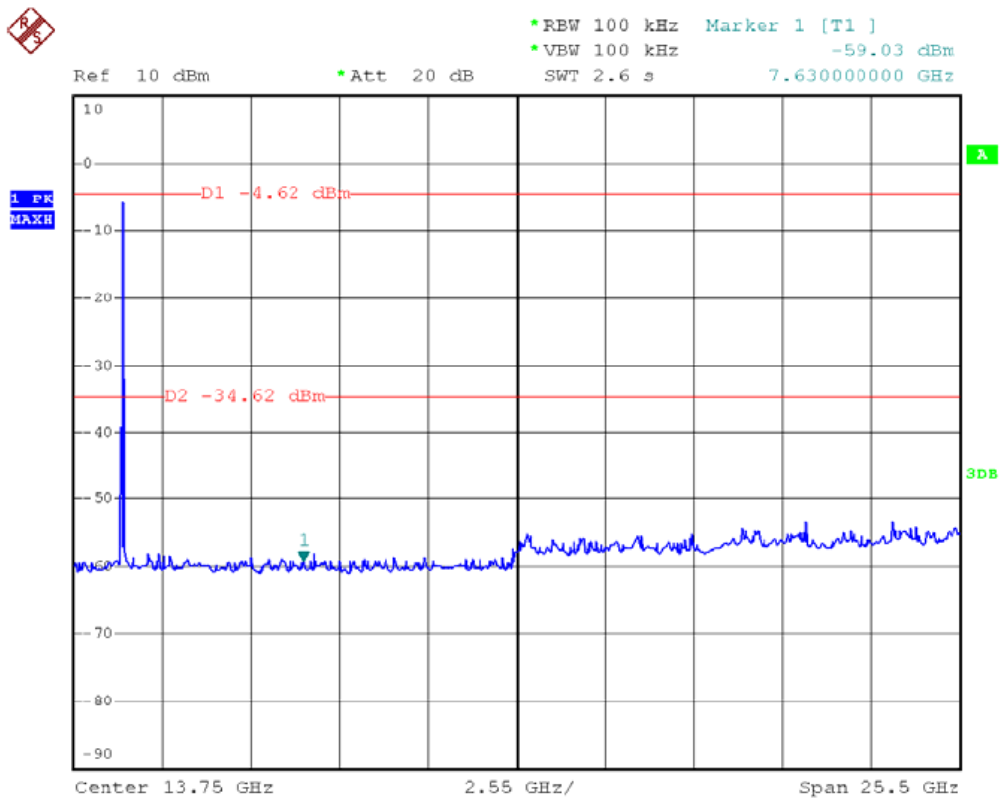


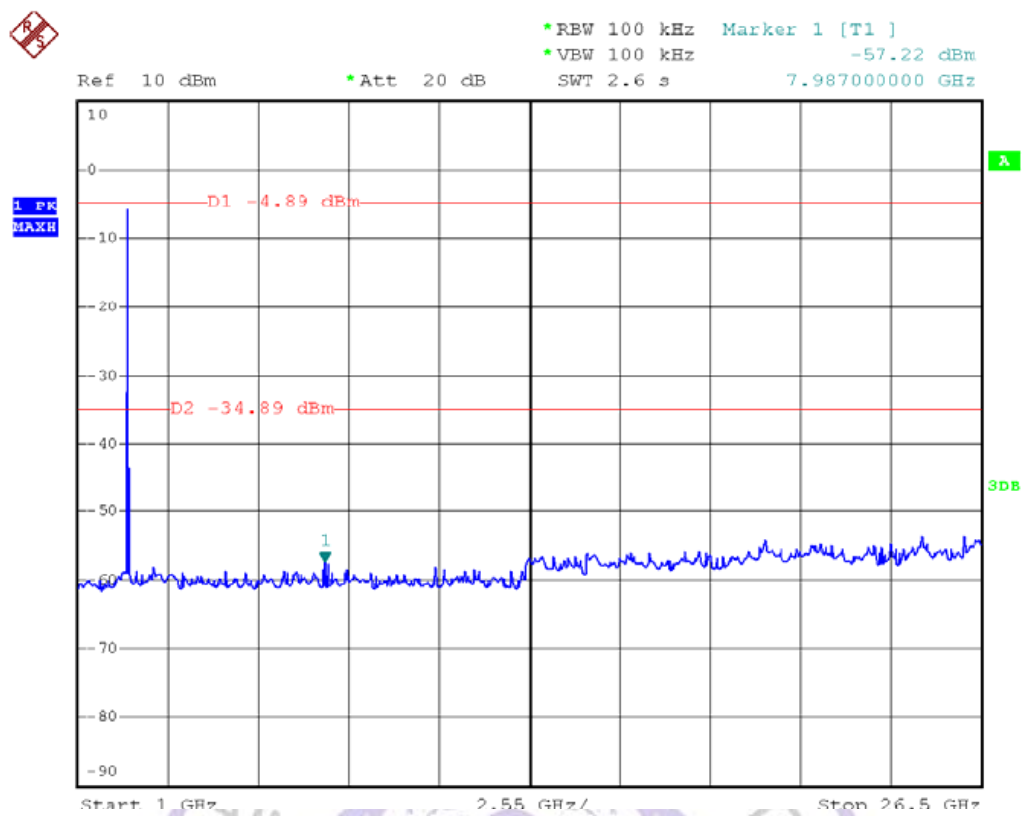
For 802.11n (20MHz) Mode:

CH1



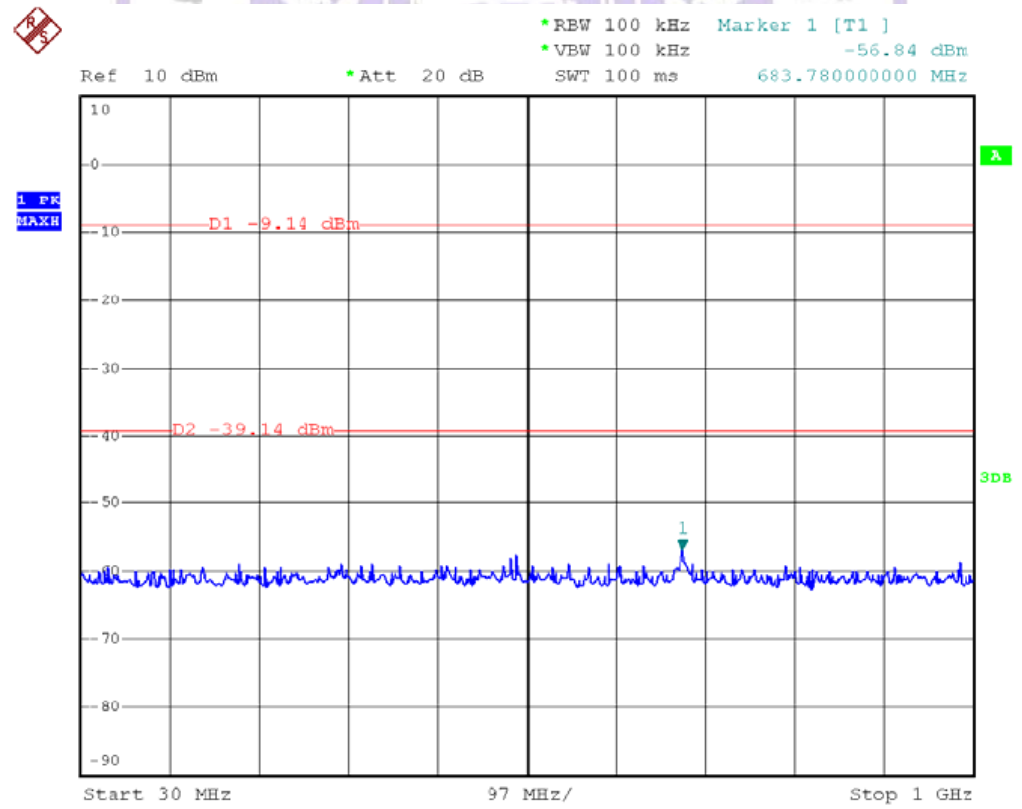


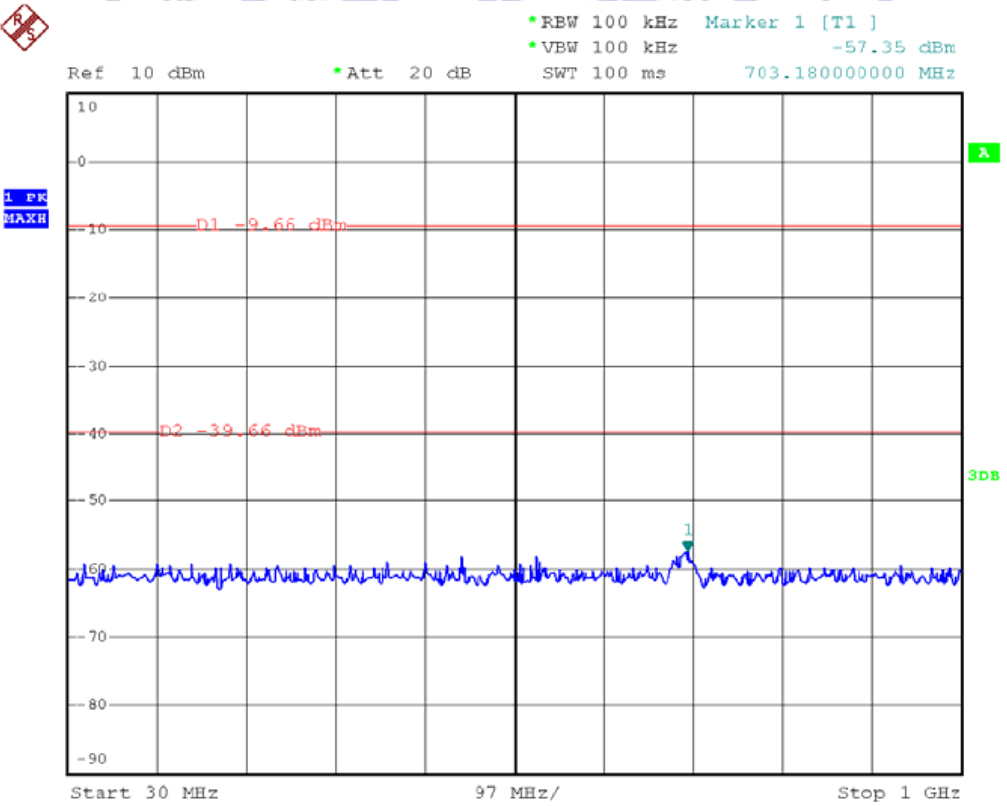
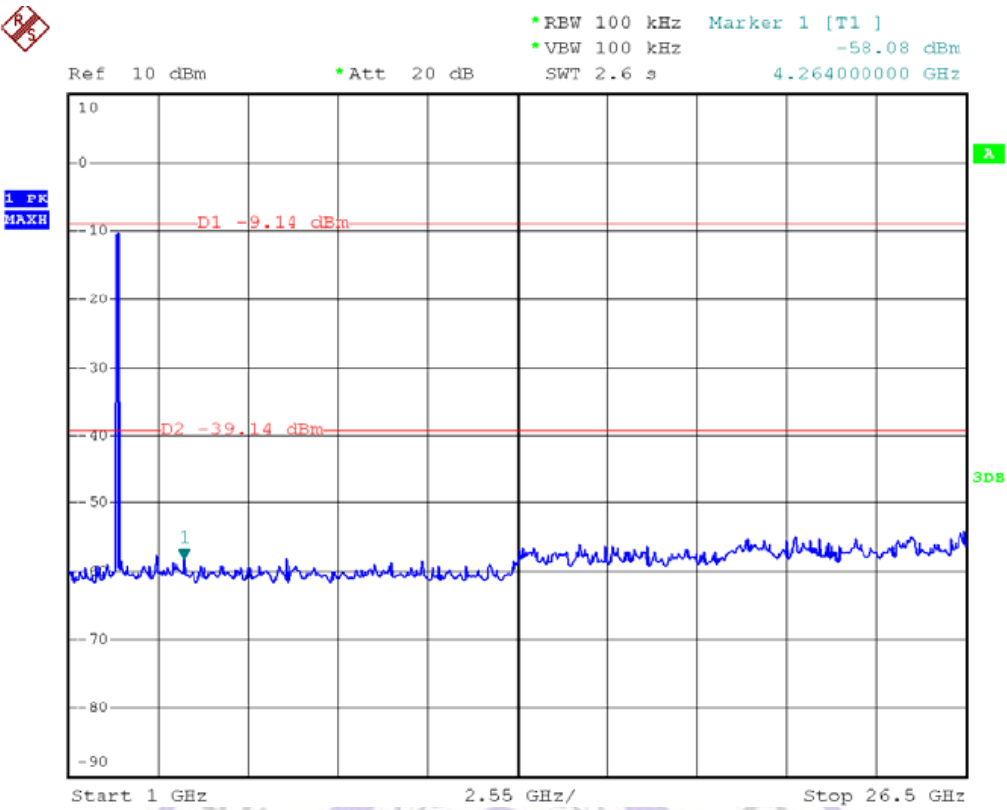


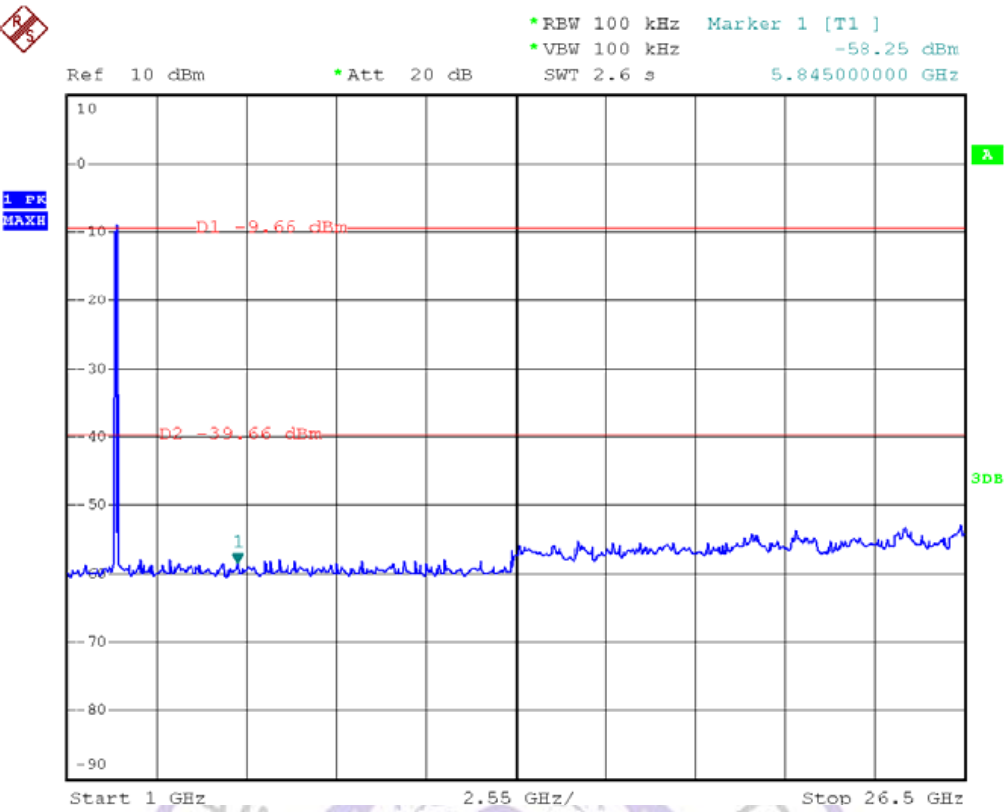


For 802.11n (40MHz) Mode:

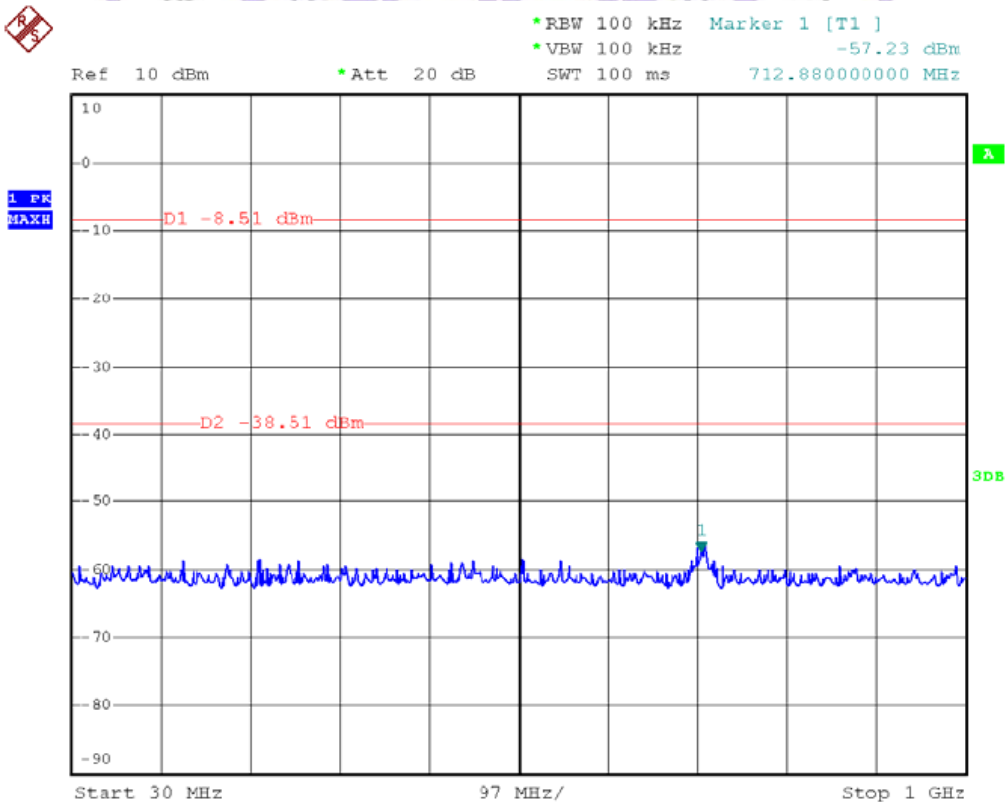
CH3

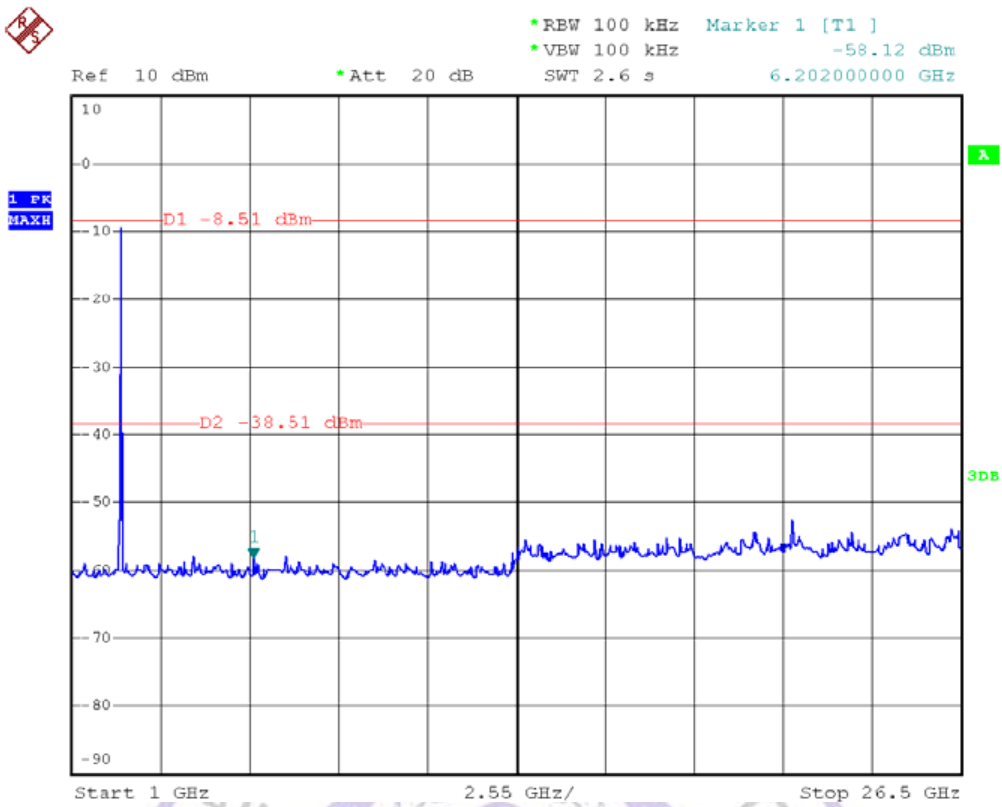




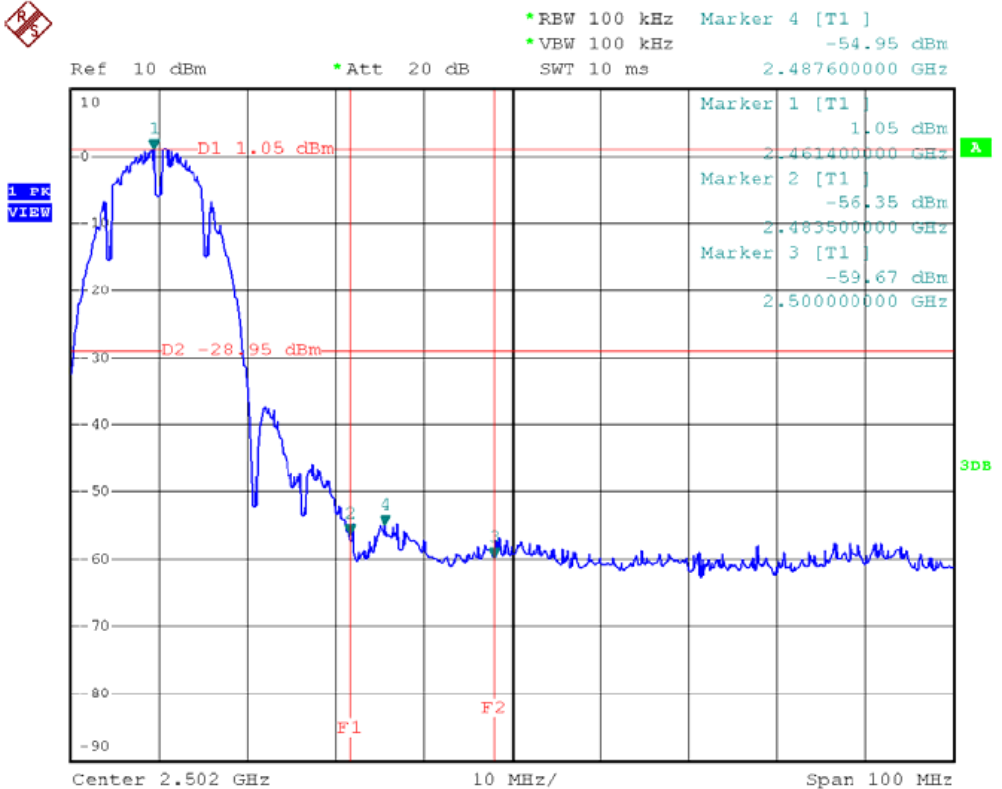
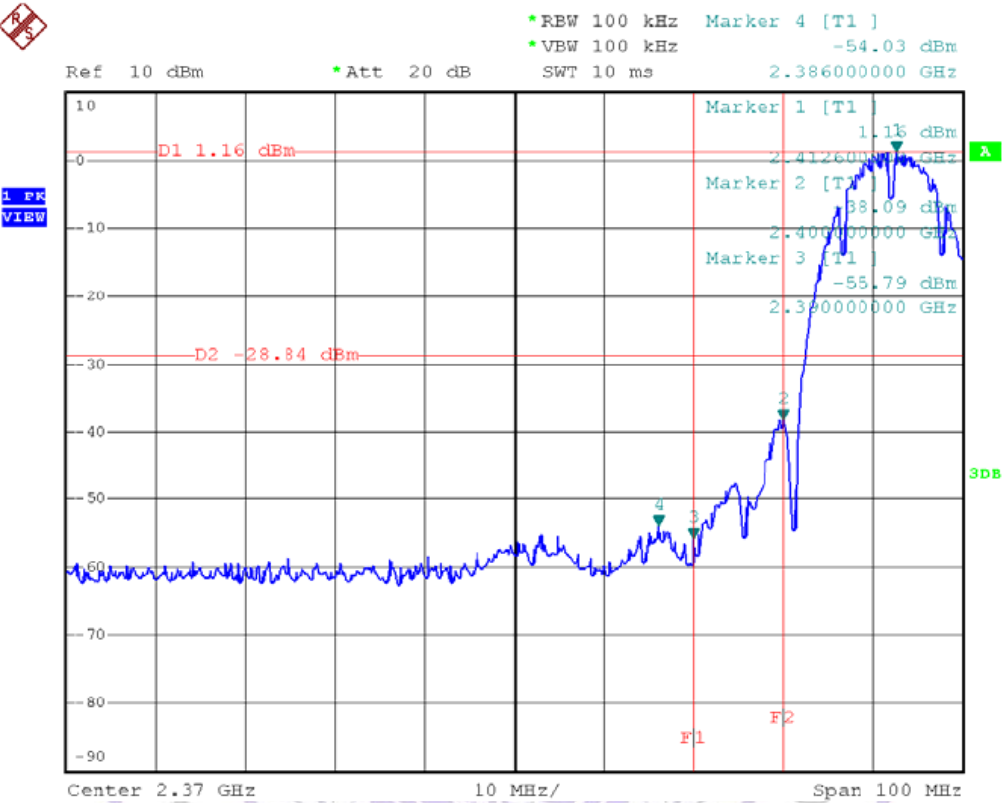


CH9

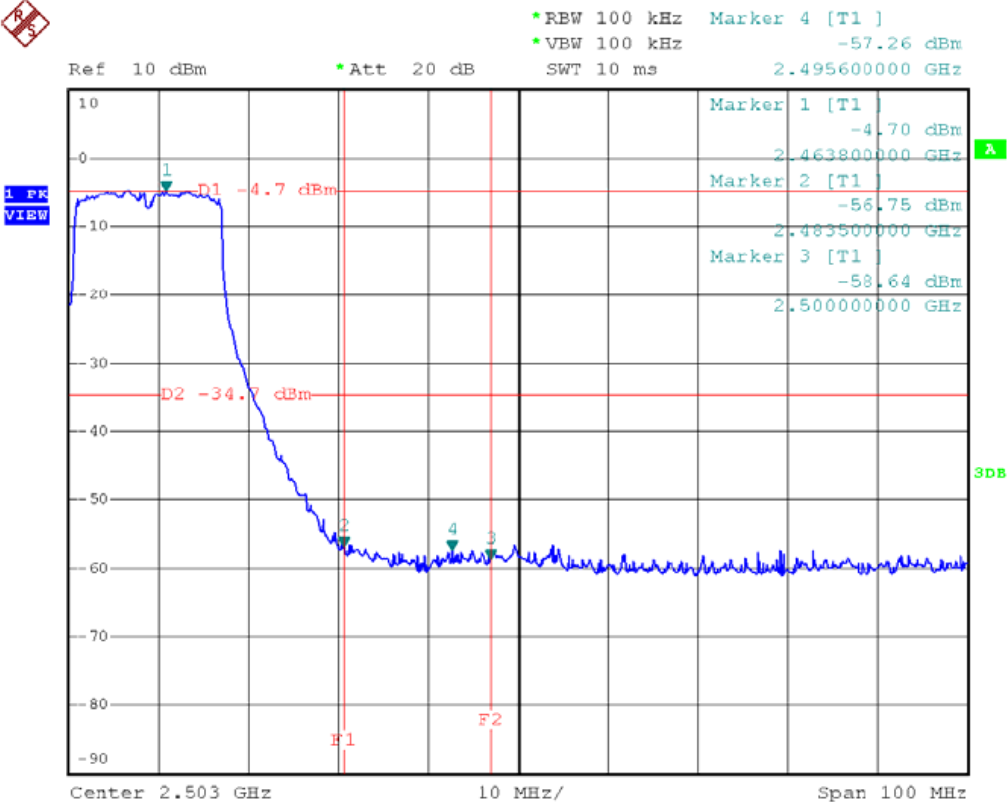
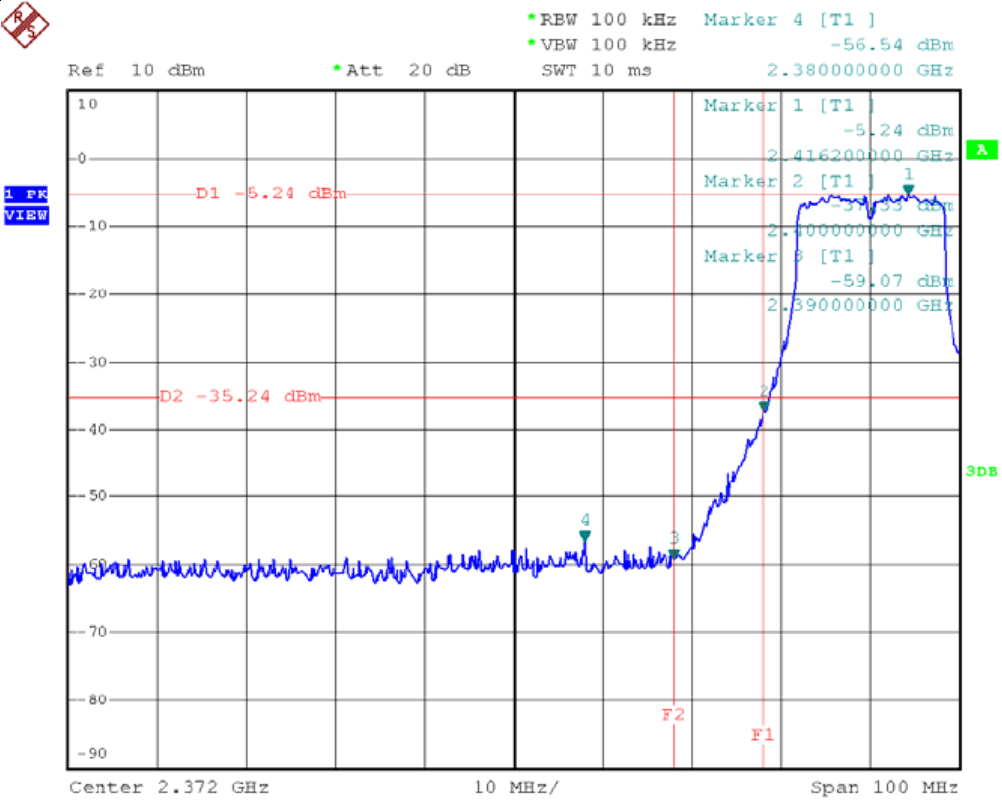




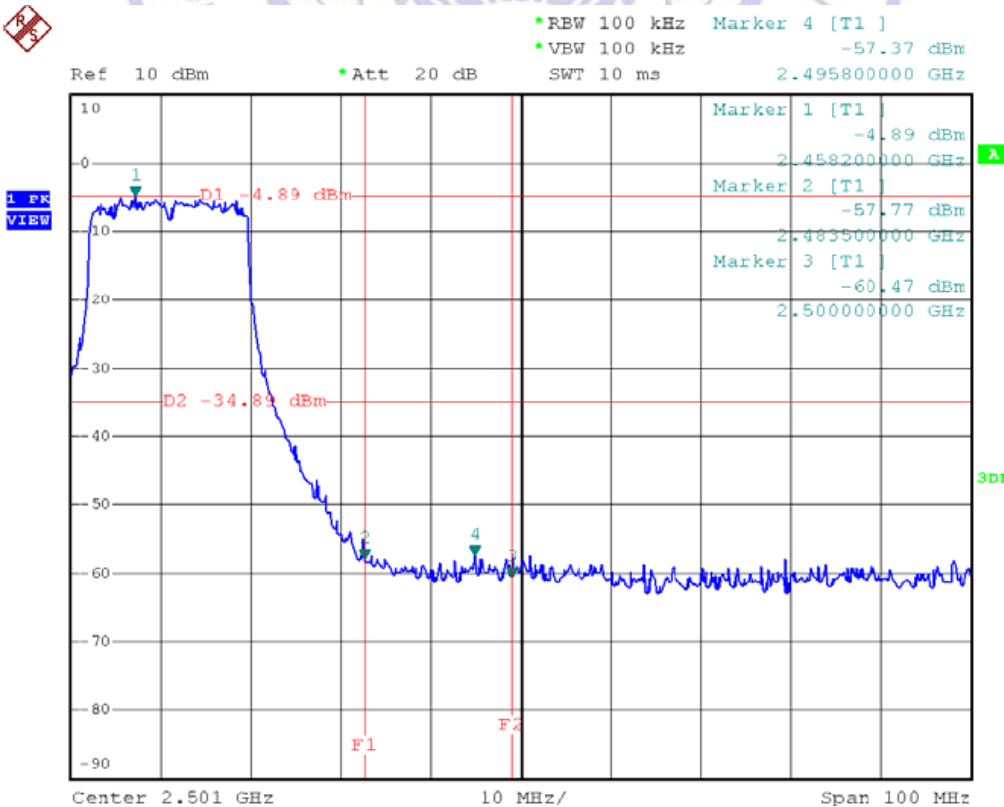
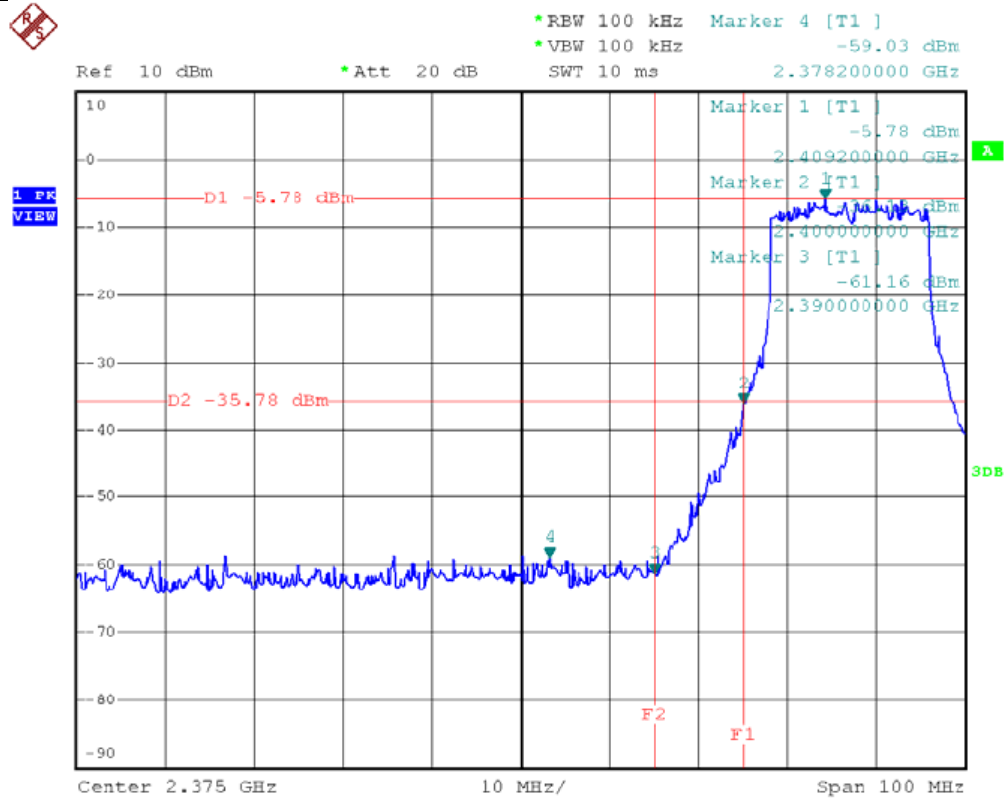
Test mode	Frequency	Delta peak to band emission	Limit(dBc)
802.11b	2400MHz	38.09	20
	2483.5MHz	56.35	20



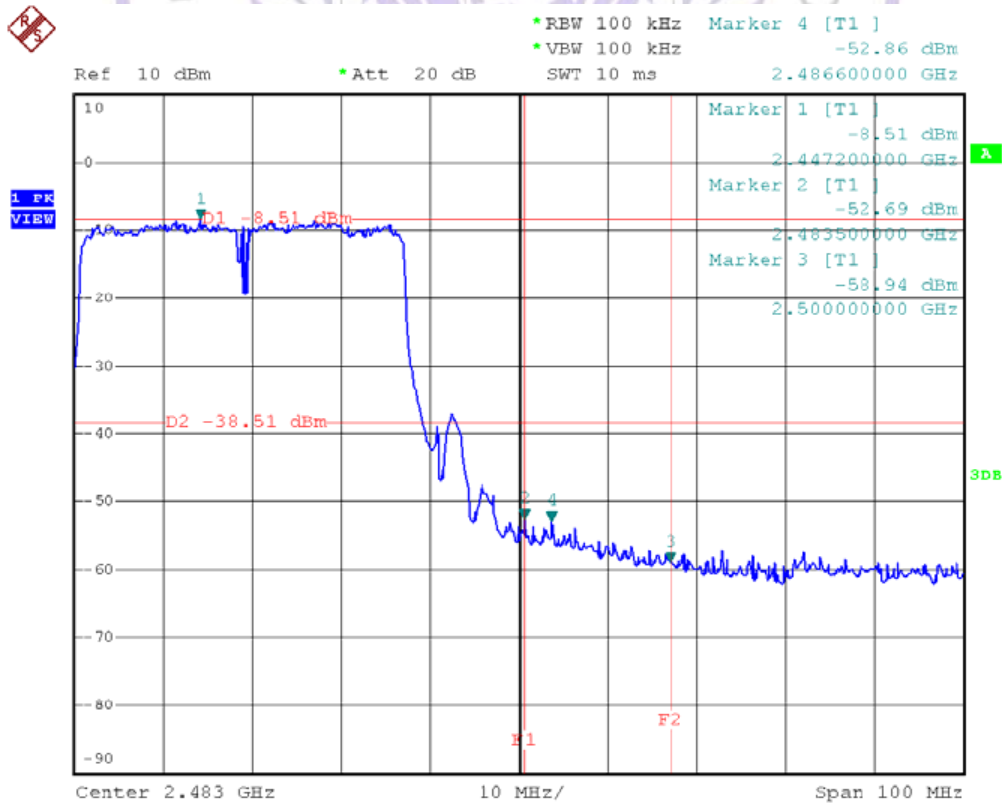
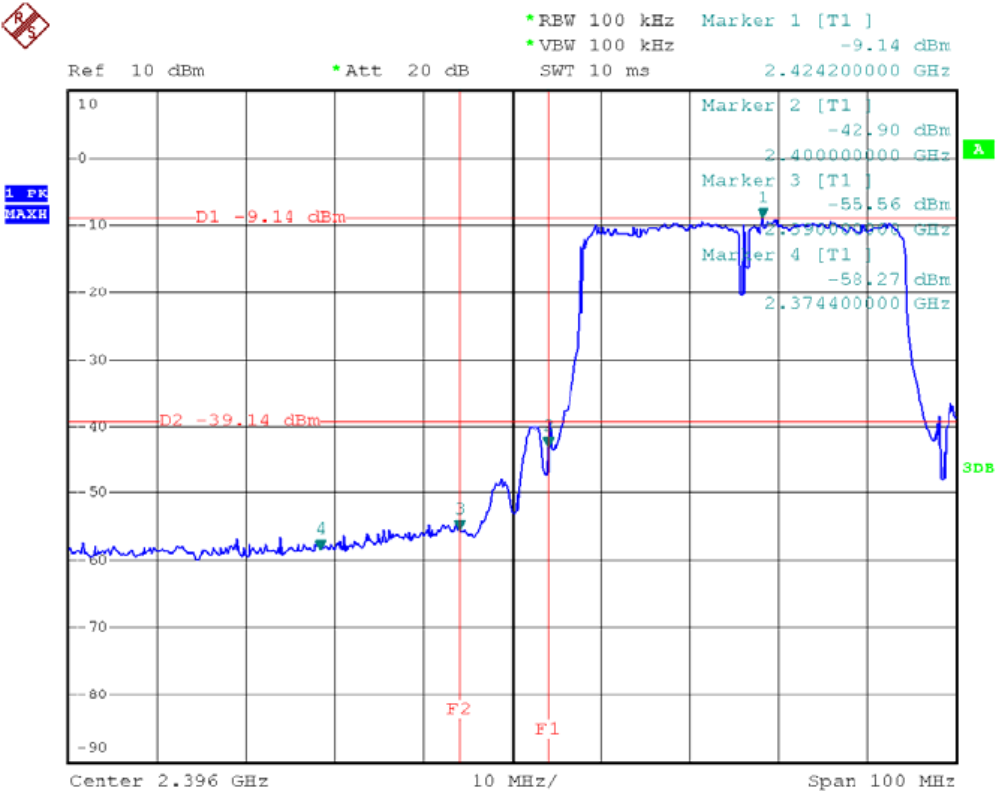
Test mode	Frequency	Delta peak to band emission	Limit(dBc)
802.11g	2400MHz	37.33	20
	2483.5MHz	56.75	20



Test mode	Frequency	Delta peak to band emission	Limit(dBc)
802.11N HT20M	2400MHz	36.18	20
	2483.5MHz	57.77	20



Test mode	Frequency	Delta peak to band emission	Limit(dBc)
802.11N HT40M	2400MHz	42.90	20
	2483.5MHz	52.69	20



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.

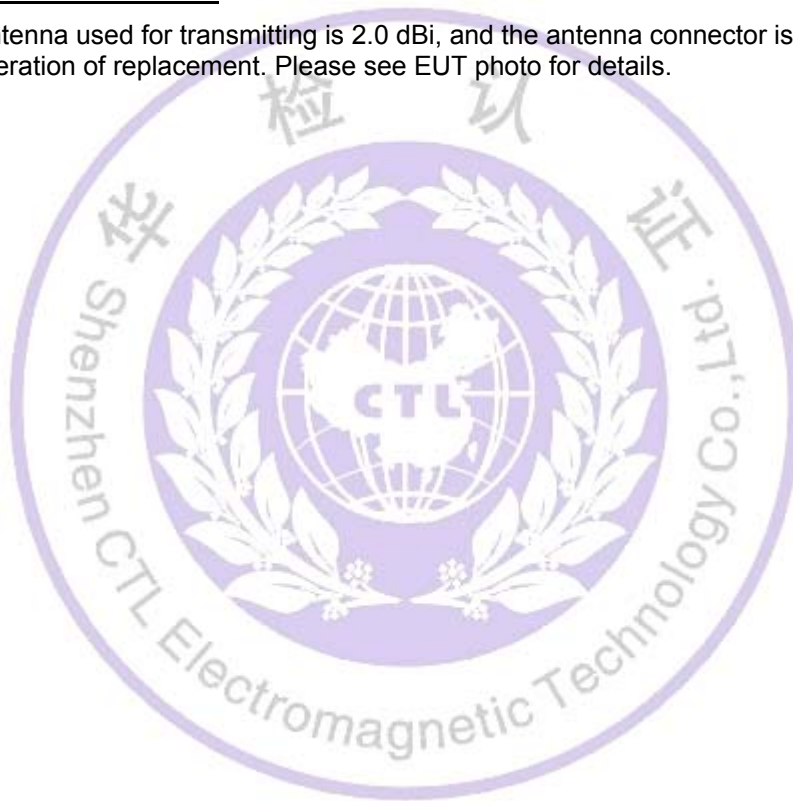
And according to FCC 47 CFR Section 15.247 (c), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

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

The directional gains of antenna used for transmitting is 2.0 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Please see EUT photo for details.



4.9. RF Exposure

LIMIT

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

EUT Specification

EUT	MID
Frequency band (Operating)	<input checked="" type="checkbox"/> WLAN: 2.412GHz ~ 2.462GHz <input type="checkbox"/> WLAN: 5.18GHz ~ 5.32GHz / 5.50GHz ~ 5.70GHz <input type="checkbox"/> WLAN: 5.745GHz ~ 5.825GHz <input type="checkbox"/> Others
Device category	<input checked="" type="checkbox"/> Portable (<20cm separation) <input type="checkbox"/> Mobile (>20cm separation) <input type="checkbox"/> Others
Exposure classification	<input type="checkbox"/> Occupational/Controlled exposure (S = 5mW/cm ²) <input checked="" type="checkbox"/> General Population/Uncontrolled exposure (S=1mW/cm ²)
Antenna diversity	<input type="checkbox"/> Single antenna <input checked="" type="checkbox"/> Multiple antennas (1 for TX/RX function; 1 for RX only) <div style="margin-left: 20px;"> <input type="checkbox"/> Tx diversity <input checked="" type="checkbox"/> Rx diversity <input checked="" type="checkbox"/> Tx/Rx diversity </div>
Max. output power	IEEE 802.11b mode: 12.10 dBm (16.20 mW) IEEE 802.11g mode: 12.06 dBm (16.07 mW) draft 802.11n 20 MHz Channel mode: 11.61 dBm (14.50 mW) draft 802.11n 40 MHz Channel mode: 9.26 dBm (8.4 mW)
Antenna gain (Max)	2 dBi (Numeric gain: 1.6)
Evaluation applied	<input type="checkbox"/> MPE Evaluation* <input type="checkbox"/> SAR Evaluation <input checked="" type="checkbox"/> N/A
Remark: 1. The maximum output power is <u>12.10 dBm (16.20 mW)</u> at <u>2437MHz</u> (with <u>1.6 numeric antenna gain.</u>)	

TEST RESULTS

No non-compliance noted.

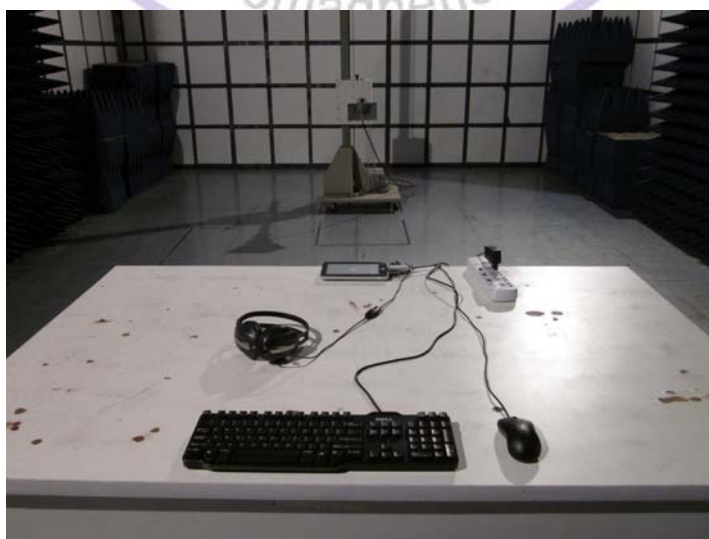
(According to RF Exposure Procedures and Equipment Authorization Policies, SAR evaluation is not required for the PORTABLE device while its maximum average output power is lower than $60/f$ (GHz)= $60/2.437=24.62$ mW)

Remark:

802.11b maximum peak power is 12.10 dBm = 16.20 mW <(60/f); Individual SAR is not required.

802.11g maximum peak power is 12.06 dBm = 16.07 mW <(60/f); Individual SAR is not required.

5. Test Setup Photos of the EUT

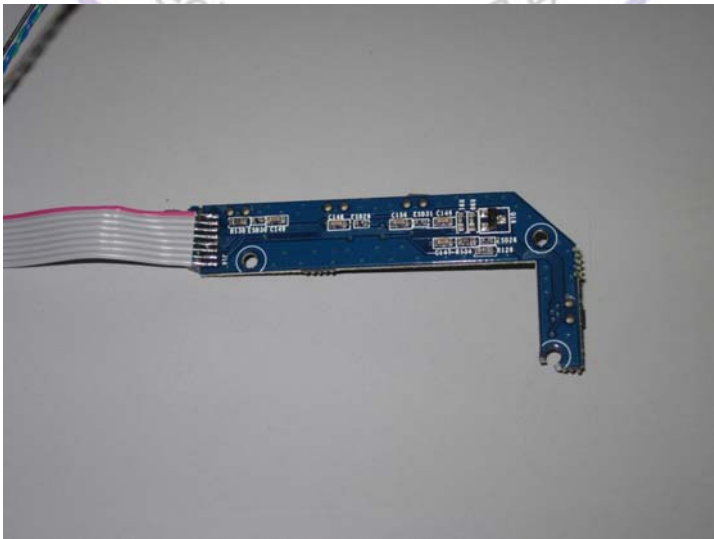
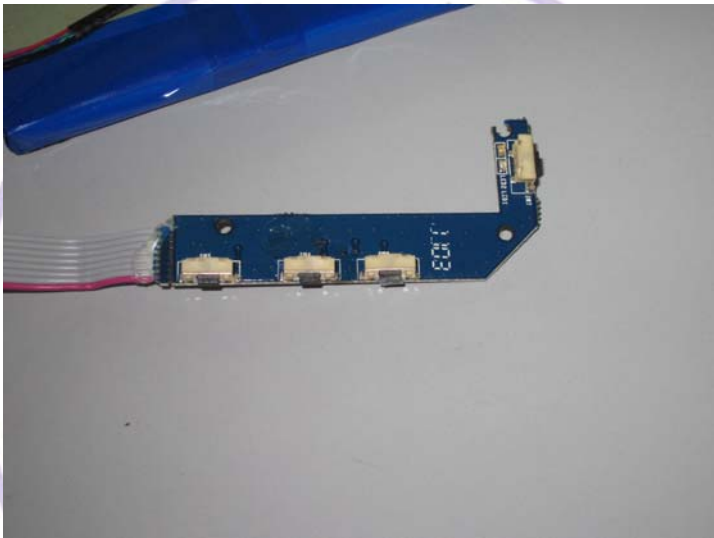


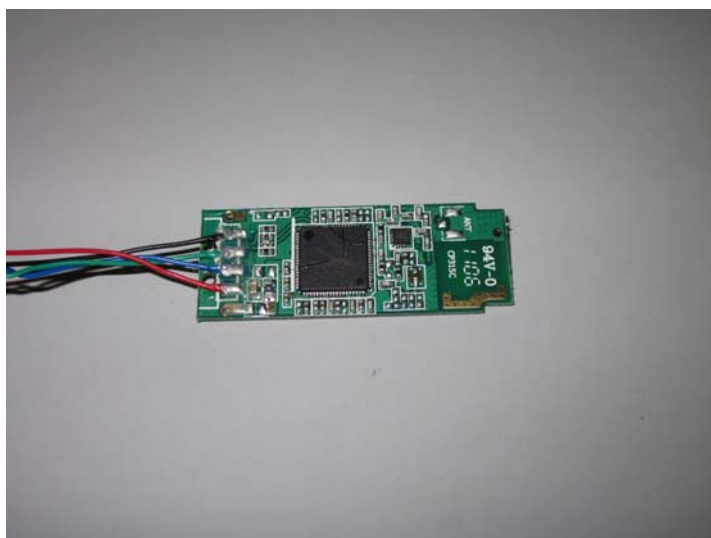
6. External and Internal Photos of the EUT

External Photos



Internal Photos





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