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FCC PART 15 SUBPART C TEST REPORT

Part 15.247

Report Reference No.....:	**CTL1410302624-WF**
Compiled by (position+printed name+signature) .:	File administrators Jacky Chen
Name of the organization performing the tests (position+printed name+signature) .:	Test Engineer Tracy Qi
Approved by (position+printed name+signature) .:	Manager Tracy Qi
Date of issue.....:	Nov. 24, 2014
Test Laboratory Name .....:	**Shenzhen CTL Testing Technology Co., Ltd.**
Address .....:	Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055
Applicant's name.....:	**Hamedata Technology Co., Limited**
Address .....:	1st Zone, 3F, Plant#1, Huahan Industrial Park, No.16, Jinniu West Rd., Pingshan New District, Shenzhen518118, 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 Testing Technology Co., Ltd.
Master TRF.....:	Dated 2011-01

Test item description .....:	**WIFI-Speaker**
FCC ID……..:	**2ADOW-WM3**
Trade Mark .....:	HAME
Model/Type reference .....:	WM3, WM1, WM2, WM1S, WM2S, WM3S, WM4, W5, WM6, WM7, WM8, WM9, WM4S, WM5S, WM6S, WM7S, WM8S, WM9S, WU01X, WU02X, WU03X, WU04X, WU05X
Modulation .....:	802.11b DSSS, 802.11g/n: OFDM
Work Frequency Range .....:	802.11b/g/n(20MHz): 2412~2462MHz 802.11n(40MHz): 2422~2452
Antenna Type .....:	Undetachable
Antenna Gain.....:	1.0dBi
Result .....:	**Positivec**

TEST REPORT

Test Report No. :	CTL1410302624-WF	Nov. 24, 2014 Date of issue

Equipment under Test	:	WIFI-Speaker
Model /Type	:	WM3
Listed Modes	:	WM1, WM2, WM1S, WM2S, WM3S, WM4, W5, WM6, WM7, WM8, WM9, WM4S, WM5S, WM6S, WM7S, WM8S, WM9S, WU01X, WU02X, WU03X, WU04X, WU05X
Difference Description	:	Only the color and model's name is different
Applicant	:	**Hamedata Technology Co., Limited**
Address	:	1st Zone, 3F, Plant#1, Huahan Industrial Park, No.16, Jinniu West Rd., Pingshan New District, Shenzhen518118, China
Manufacturer	:	**Hamedata Technology Co., Limited**
Address	:	1st Zone, 3F, Plant#1, Huahan Industrial Park, No.16, Jinniu West Rd., Pingshan New District, Shenzhen518118, 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.

Contents

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

ANSI C63.4-2009

KDB Publication No. 558074 D01 v03r02 Guidance on Measurements for Digital Transmission Systems

2 . SUMMARY

2.1. General Remarks

Date of receipt of test sample	:	Nov. 03, 2014
Testing commenced on	:	Nov. 03, 2014
Testing concluded on	:	Nov. 24, 2014

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)		

Description of the test mode

IEEE 802.11b/g/n(HT20): Thirteen channels are provided to the EUT, but only eleventh channels used for USA and Canada.

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		

IEEE 802.11n (HT40)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
3	2422	8	2447
4	2427	9	2452
5	2432		
6	2437		
7	2442		

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

WIFI-Speaker, support 802.11b/g/n.

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 (2437MHz) and high (2462MHz) for 802.11b/g/n(HT20) and Channel low (2422MHz), mid (2437MHz) and high (2452MHz) for 802.11 n HT40 with highest data rate are chosen for full testing.
3. Test Mode:

Test Mode(TM)	Description	Remark
1	Transmitting	802.11 b 2412MHz, 2437MHz, 2462MHz
2	Transmitting	802.11 g 2412MHz, 2437MHz, 2462MHz
3	Transmitting	802.11 n HT20 2412MHz, 2437MHz, 2462MHz
4	Transmitting	802.11 n HT40 2422MHz, 2437MHz, 2452MHz

2.5. EUT configuration

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

○ - supplied by the manufacturer

● - supplied by the lab

○ AC adapter Manufacturer : Hamedata
Model No. : SK03G-1800200W3

● Notebook PC Manufacturer : DELL
Model No. : PP18L

2.6. NOTE

1. The EUT is a **WIFI-Speaker**,The functions of the EUT listed as below:

	Test Standards	Reference Report
WLAN 802.11b/g, 802.11n	FCC Part 15 Subpart C (Section15.247)	CTL1410302624-WF
	FCC Per 47 CFR 2.1091(b)	CTL1410302624-WM

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)	2TX
802.11n (40MHz)	2TX

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

This submittal(s) (test report) is intended for FCCID: 2ADOW-WM3 filing to comply with of the FCC part15.247 Rules.

2.8. Modifications

No modifications were implemented to meet testing criteria.

3. TEST ENVIRONMENT

3.1. Address of the test laboratory

Shenzhen CTL Testing Technology Co., Ltd.
Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055

The sites are constructed in conformance with the requirements of ANSI C6230, ANSI C63.4 (2009) and CISPR Publication 22.

3.2. Test Facility

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

IC Registration No.: 9618B

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration No.: 9618B on November 13, 2013.

FCC-Registration No.: 970318

Shenzhen CTL Testing Technology 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 970318, December 19, 2013.

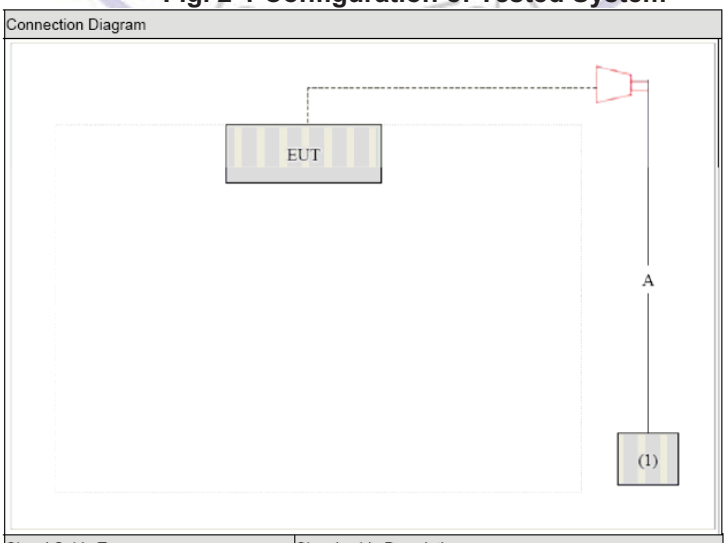
3.3. Environmental conditions

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

Fig. 2-1 Configuration of Tested System



Signal Cable Type		Signal cable Description
A	Coaxial Cable	Shielded, >5m

3.5. Duty Cycle

Operated Mode for Worst Duty Cycle		
☐ Operated normally mode for worst duty cycle		
☒ Operated test mode for worst duty cycle		
Mode	Duty Cycle (%)	Duty Factor (dB)
11b	100	0
11g	100	0
11n HT20	100	0
11n HT40	100	0

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 CTL Testing Technology 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 CTL laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.10dB	(1)
Radiated Emission	1~12.75GHz	4.32dB	(1)
Radiated Emission	12.75GHz-25 GHz	4.68dB	(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.

3.7. Equipments Used during the Test

Test Equipment	Manufacturer	Model No.	Serial No.	Calibration Date	Calibration Due Date
Bilog Antenna	Sunol Sciences Corp.	JB1	A061713	2014/07/12	2015/07/11
EMI Test Receiver	R&S	ESCI	103710	2014/07/10	2015/07/09
Spectrum Analyzer	Agilent	E4407B	MY45108355	2014/07/06	2015/07/05
Controller	EM Electronics	Controller EM 1000	N/A	2014/07/06	2015/07/05
Horn Antenna	Sunol Sciences Corp.	DRH-118	A062013	2014/07/12	2015/07/11
Horn Antenna	SCHWARZBECK	BBHA9170	1562	2014/07/12	2015/07/11
Active Loop Antenna	SCHWARZBECK	FMZB1519	1519-037	2014/07/12	2015/07/11
LISN	R&S	ENV216	101316	2014/07/10	2015/07/09
LISN	SCHWARZBECK	NSLK8127	8127687	2014/07/10	2015/07/09
Microwave Preamplifier	HP	8349B	3155A00882	2014/07/10	2015/07/09
Amplifier	HP	8447D	3113A07663	2014/07/10	2015/07/09
Transient Limiter	Com-Power	LIT-153	532226	2014/07/10	2015/07/09
Radio Communication Tester	R&S	CMU200	3655A03522	2014/07/06	2015/07/05
Temperature/Humidity Meter	zhicheng	ZC1-2	22522	2014/07/10	2015/07/09
SIGNAL GENERATOR	HP	8647A	3200A00852	2014/07/10	2015/07/09
Wideband Peak Power Meter	Anritsu	ML2495A	220.23.35	2014/07/06	2015/07/05
Climate Chamber	ESPEC	EL-10KA	A20120523	2014/07/06	2015/07/05
High-Pass Filter	K&L	9SH10-2700/X12750-O/O	/	2014/07/06	2015/07/05
High-Pass Filter	K&L	41H10-1375/U12750-O/O	/	2014/07/06	2015/07/05
RF Cable	HUBER+SUHNER	RG214	/	2014/07/09	2015/07/08

3.8. 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

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	150Mbps	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	150Mbps	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	150Mbps	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	150Mbps	3/9

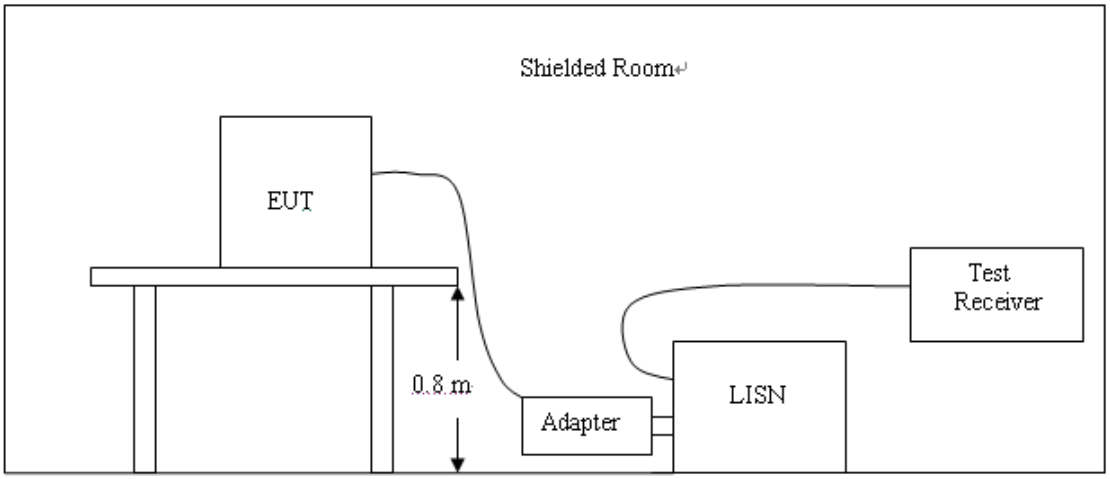
Note1: According exploratory test, EUT will have maximum output power in those data rate, so those data rate were used for all test.

Note2: This device use MIMO 2X2 antennas, for 802.11b/g mode, based exploratory test, when transmit with Antenna 1 have worse emissions, so the final radiated spurious emissions were tested with Antenna 1. For 802.11n mode, all the radiated spurious emissions and band edge test were performed with two antennas transmit synchronous.

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.

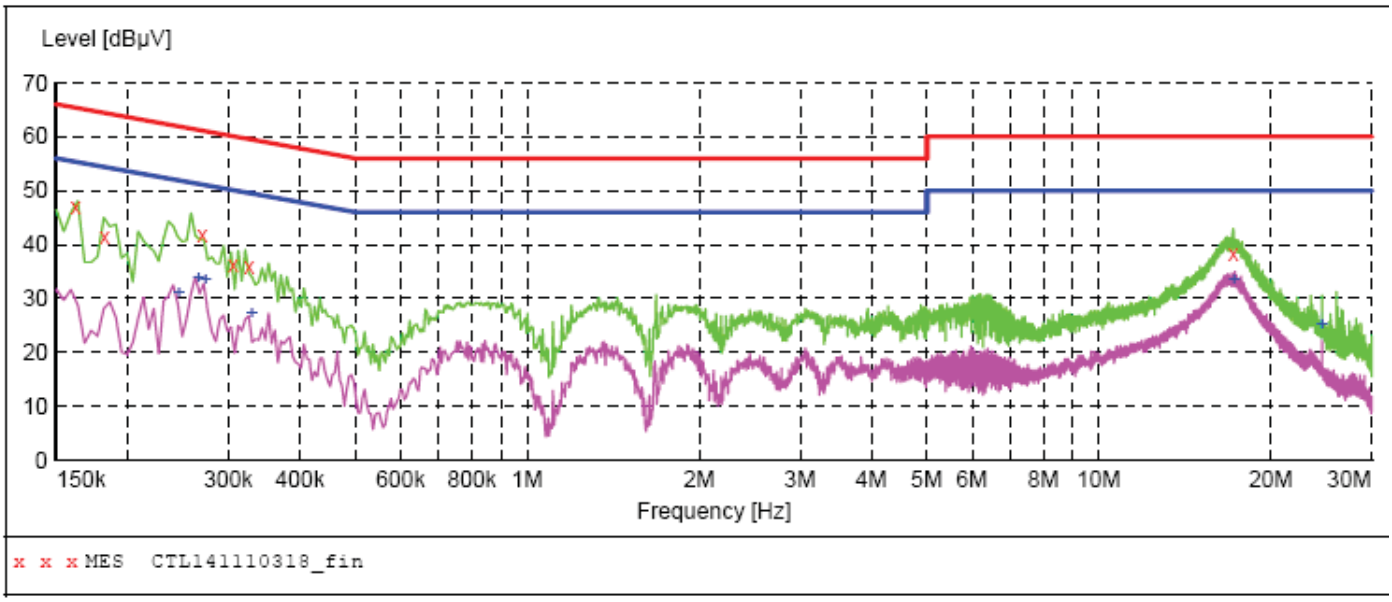
1. Please follow the guidelines in ANSI C63.4-2009.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All 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

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

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "CTL141110318_fin"

11/10/2014 10:15AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.162000	47.10	10.2	65	18.3	QP	N	GND
0.182000	41.50	10.2	64	22.9	QP	N	GND
0.270000	41.90	10.2	61	19.2	QP	N	GND
0.306000	36.30	10.2	60	23.8	QP	N	GND
0.326000	35.80	10.2	60	23.8	QP	N	GND
17.150000	38.20	10.8	60	21.8	QP	N	GND

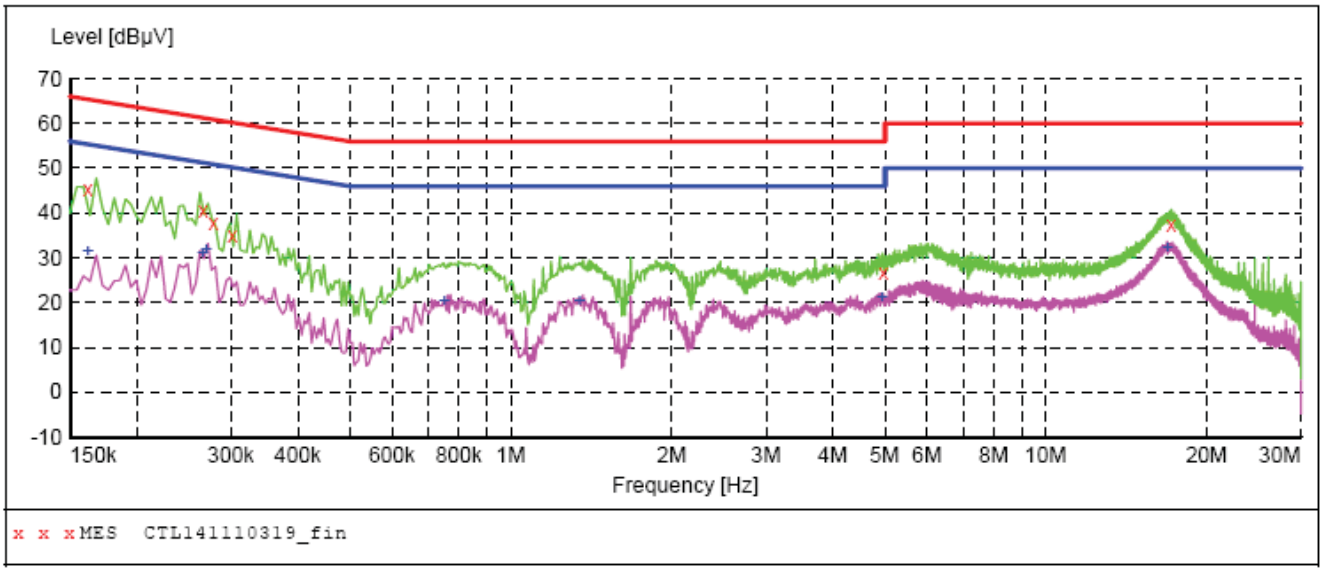
MEASUREMENT RESULT: "CTL141110318_fin2"

11/10/2014 10:15AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.246000	31.00	10.2	52	20.9	AV	N	GND
0.266000	33.70	10.2	51	17.5	AV	N	GND
0.274000	33.60	10.2	51	17.4	AV	N	GND
0.330000	27.10	10.2	50	22.4	AV	N	GND
17.264000	33.40	10.8	50	16.6	AV	N	GND
24.578000	25.30	11.1	50	24.7	AV	N	GND

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

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "CTL141110319_fin"

11/10/2014 10:19AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.162000	45.20	10.2	65	20.2	QP	L1	GND
0.266000	40.60	10.2	61	20.6	QP	L1	GND
0.278000	37.70	10.2	61	23.2	QP	L1	GND
0.302000	35.20	10.2	60	25.0	QP	L1	GND
4.976000	26.80	10.4	56	29.2	QP	L1	GND
17.150000	37.20	10.8	60	22.8	QP	L1	GND

MEASUREMENT RESULT: "CTL141110319_fin2"

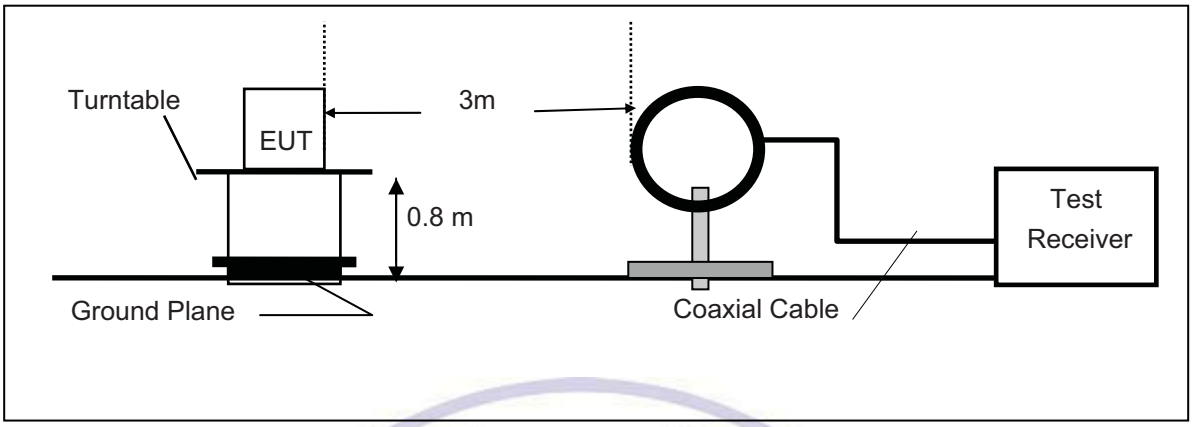
11/10/2014 10:19AM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.162000	31.50	10.2	55	23.9	AV	L1	GND
0.266000	31.20	10.2	51	20.0	AV	L1	GND
0.270000	31.70	10.2	51	19.4	AV	L1	GND
0.752000	20.30	10.2	46	25.7	AV	L1	GND
1.346000	20.20	10.3	46	25.8	AV	L1	GND
4.946000	21.30	10.4	46	24.7	AV	L1	GND

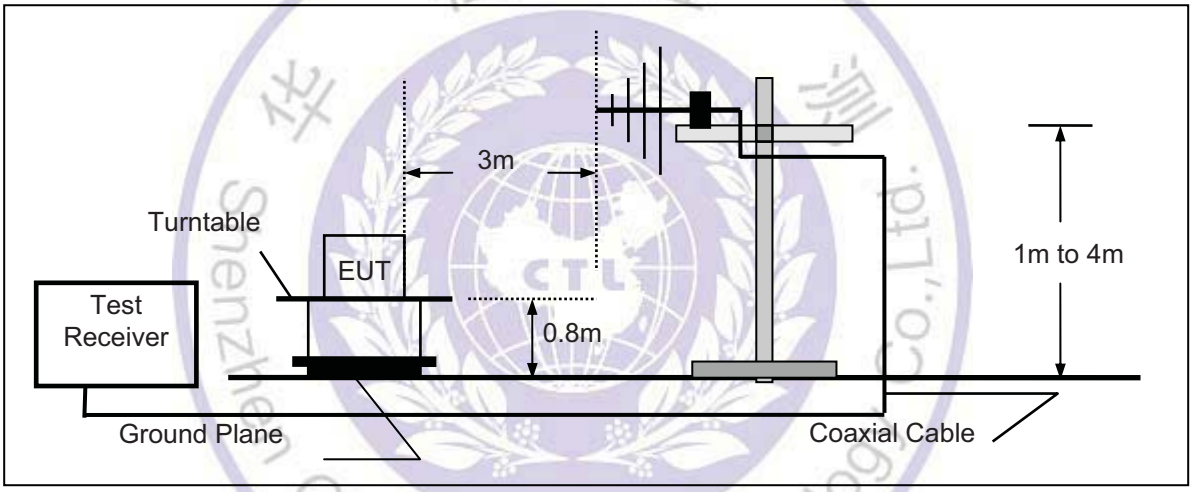
4.2. Radiated Emission Test

TEST CONFIGURATION

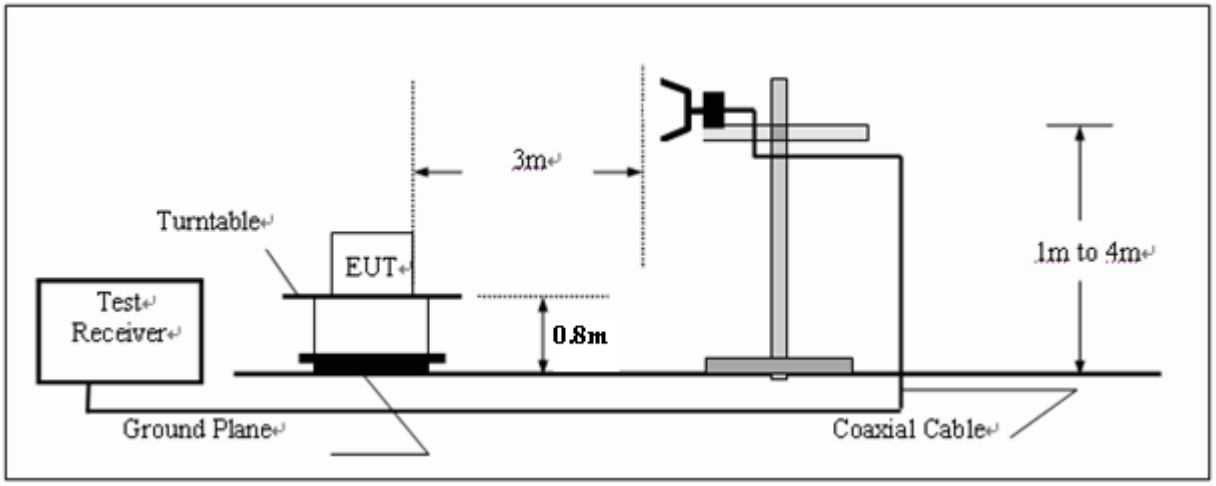
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(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 D01 v03r02 (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.

Note:
When doing emission measurement above 1GHz, the horn antenna will be bended down a little (as horn antenna has the narrow beamwidth) in order to keeping the antenna in the "cone of radiation" of EUT. The 3dB beamwidth is 60 degrees for H-plane and 90 degrees for E-plane.

Remark： For above 1GHz, RBW 1MHz, VBW 3MHz, Peak detector for PK value, RMS detector for AV value.

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 the100kHz bandwidth within the band that contains the highest level of desired power.

TEST RESULTS

9KHz-30MHz:

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Limit Line (dBuV)	Remark
-	-	-	-	See Note

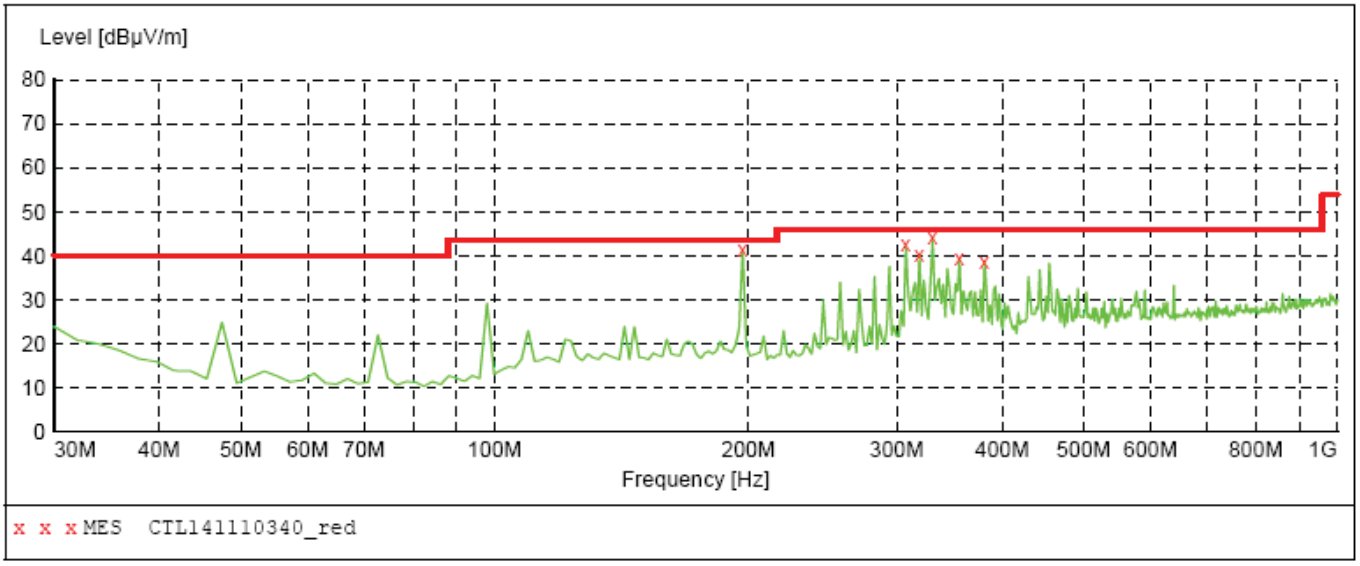
Note: The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

Dstance extrapolation factor= 40 log (specific distance/ test distance) (dB);
Limit line= specific limits (dBuV) + distance extrapolation factor.

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 Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	300.0 ms	120 kHz	JB1



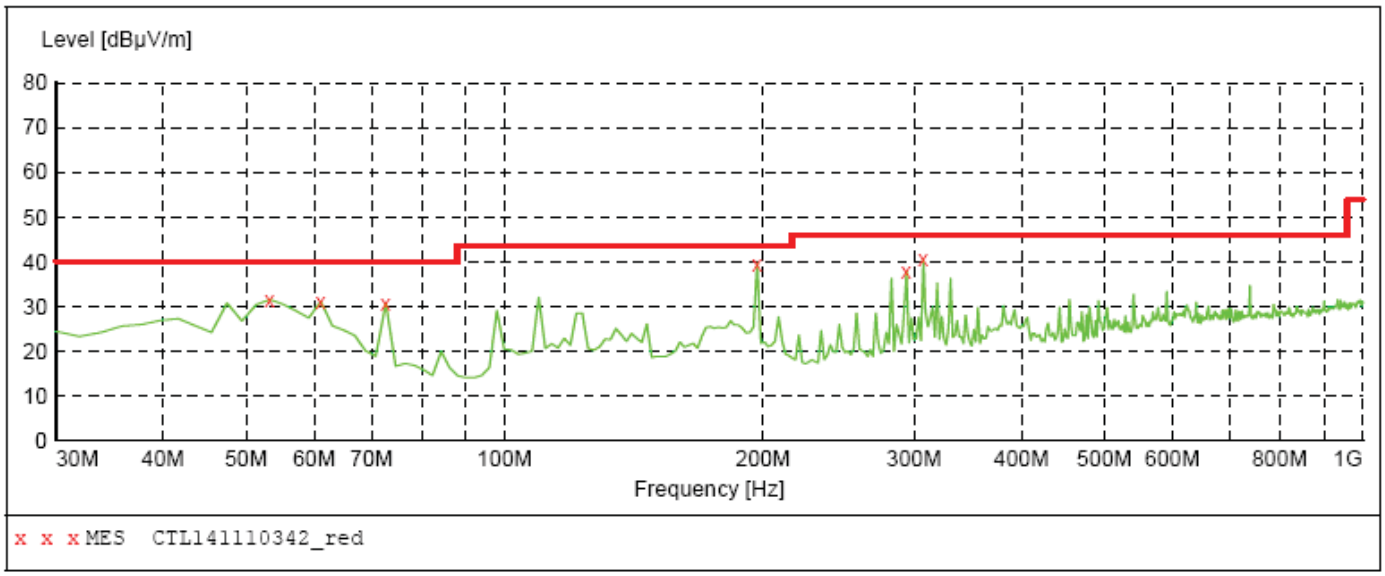
MEASUREMENT RESULT: "CTL141110340_red"

11/10/2014 4:47PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
196.840000	41.30	13.8	43.5	2.2	---	0.0	0.00	HORIZONTAL
307.420000	42.60	15.6	46.0	3.4	---	0.0	0.00	HORIZONTAL
319.060000	40.40	15.9	46.0	5.6	---	0.0	0.00	HORIZONTAL
330.700000	44.30	16.3	46.0	1.7	---	0.0	0.00	HORIZONTAL
355.920000	39.30	17.2	46.0	6.7	---	0.0	0.00	HORIZONTAL
381.140000	38.70	17.8	46.0	7.3	---	0.0	0.00	HORIZONTAL

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

Short Description:			Field Strength		
Start Frequency	Stop Frequency	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	MaxPeak	300.0 ms	120 kHz	JB1



MEASUREMENT RESULT: "CTL141110342_red"

11/10/2014 4:50PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
53.280000	31.50	8.3	40.0	8.5	---	0.0	0.00	VERTICAL
61.040000	31.10	8.4	40.0	8.9	---	0.0	0.00	VERTICAL
72.680000	30.70	8.5	40.0	9.3	---	0.0	0.00	VERTICAL
196.840000	39.60	13.8	43.5	3.9	---	0.0	0.00	VERTICAL
293.840000	37.80	15.4	46.0	8.2	---	0.0	0.00	VERTICAL
307.420000	40.50	15.6	46.0	5.5	---	0.0	0.00	VERTICAL

Above 1GHz:

802.11b

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	V	2412.0	71.7	30.8	102.5	Fundamental	/	PK
	V	287.6	13.6	14.8	28.4	46	17.6	QP
	V	324.5	17.2	19.7	36.9	46	9.1	QP
	V	3200.0	49.2	-0.6	48.6	54(note3)	5.4	PK
	V	4825.0	47.5	2.6	50.1	54(note3)	3.9	PK
	V	7239.0	50.1	8.1	58.2	74	15.8	PK
	V	7236.0	40.8	8.9	49.7	54	4.3	AV
	H	24000.0	62.3	-8.9	53.4	54(note3)	0.6	PK
6	V	2437.0	70.6	31.2	101.8	Fundamental	/	PK
	V	368.2	15.2	15.2	30.4	46	15.6	QP
	V	608.7	16.8	21.2	38.0	46	8.0	QP
	V	3200.0	45.9	-0.6	45.3	54(note3)	8.7	PK
	V	4876.0	45.9	2.8	48.7	54(note3)	5.3	PK
	V	7315.5	47.5	8.8	56.3	74	17.7	PK
	V	7311.0	43.9	8.1	52.0	54	2.0	AV
	H	24000.0	59.1	-8.9	50.2	54(note3)	3.8	PK
11	V	2462.0	70.5	30.9	101.4	Fundamental	/	PK
	V	458.1	12.6	14.9	27.5	46	18.5	QP
	H	596.7	12.9	21.2	34.1	46	11.9	QP
	V	3200.0	44.1	-0.6	43.5	54(note3)	10.5	PK
	V	4927.0	45.1	3.0	48.1	54(note3)	5.9	PK
	V	7383.5	50.1	8.9	59.0	74	15.0	PK
	V	7386.0	43.9	8.9	52.8	54	1.2	AV
	H	24000.0	59.2	-8.9	50.3	54(note3)	3.7	PK

Note: 1. Measure Level = Reading Level + Factor.
2. The test results which are attenuated more than 20 dB below the permissible value limit (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

802.11g

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	V	2411.9	71.0	31.9	102.9	Fundamental	/	PK
	H	271.4	10.8	15.7	26.5	46	19.5	QP
	H	359.1	10.1	21.3	31.4	46	14.6	QP
	V	3200.0	43.2	-0.6	42.6	54(note3)	11.4	PK
	V	4824.0	44.3	2.6	46.9	54(note3)	7.1	PK
	V	7236.0	46.2	8.9	55.1	74	18.9	PK
	V	7239.0	41.4	8.9	50.3	54	3.7	AV
	H	24000.0	60.0	-8.9	51.1	54(note3)	2.9	PK
6	V	2437.0	71.4	31.2	102.6	Fundamental	/	PK
	V	715.2	14.8	14.8	29.6	46	16.4	QP
	V	246.5	13.1	21.2	34.3	46	11.7	QP
	V	3200.0	43.4	-0.6	42.8	54(note3)	11.2	PK
	V	4876.0	45.2	2.8	48.0	54(note3)	6.0	PK
	V	7298.5	47.8	8.8	56.6	74	17.4	PK
	H	7298.9	44.1	8.8	52.9	54	1.1	AV
	H	24000.0	60.1	-8.9	51.2	54(note3)	2.8	PK
11	V	2462.3	71.2	30.9	102.1	Fundamental	/	PK
	H	842.5	7.2	21.2	28.4	46	17.6	QP
	V	103.4	20.9	14.7	35.6	46	10.4	QP
	V	3200.0	47.1	-0.6	46.5	54(note3)	7.5	PK
	V	4927.0	44.3	3.0	47.3	54(note3)	6.7	PK
	V	7386.0	48.2	8.9	57.1	74	16.9	PK
	V	7392.0	42.1	8.9	51.0	54	3.0	AV
	H	24000.0	60.4	-8.9	51.5	54(note3)	2.5	PK

Note: 1. Measure Level = Reading Level + Factor.
2. The test results which are attenuated more than 20 dB below the permissible value limit (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

802.11n(20MHz), KEEPING MIMO TX MODE

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	V	2412.1	70.8	30.7	101.5	Fundamental	/	PK
	H	542.9	10.9	21.2	32.1	46	13.9	QP
	H	362.8	12.4	15.1	27.5	46	18.5	QP
	V	3200.0	45.4	-0.6	44.8	54(note3)	9.2	PK
	V	4824.0	45.5	2.6	48.1	54(note3)	5.9	PK
	V	7236.0	46.7	8.9	55.6	74	18.4	PK
	V	7239.0	42.0	8.9	50.9	54	3.1	AV
	H	24000.0	60.3	-8.9	51.4	54(note3)	2.6	PK
6	V	2437.0	70.8	31.2	102.0	Fundamental	/	PK
	H	597.6	5.9	21.2	27.1	46	18.9	QP
	H	320.3	20.8	16.0	36.8	46	9.2	QP
	V	3200.0	44.1	-0.6	43.5	54(note3)	10.5	PK
	V	4876.0	46.7	2.8	49.5	54(note3)	4.5	PK
	V	7307.0	46.4	8.8	55.2	74	18.8	PK
	V	7310.6	42.5	8.8	51.3	54	2.7	AV
	H	24000.0	60.3	-8.9	51.4	54(note3)	2.6	PK
11	V	2462.0	70.8	30.9	101.7	Fundamental	/	PK
	H	364.3	14.9	14.7	29.6	46	16.4	QP
	H	541.9	10.2	21.2	31.4	46	14.6	QP
	V	3200.0	48.2	-0.6	47.6	54(note3)	6.4	PK
	V	4924.0	45.1	3.0	48.1	54(note3)	5.9	PK
	V	7375.0	48.6	9.0	57.6	74	16.4	PK
	V	7378.3	43.2	9.0	52.2	54	1.8	AV
	H	24000.0	60.3	-8.9	51.4	54(note3)	2.6	PK

Note: 1. Measure Level = Reading Level + Factor.
2. The test results which are attenuated more than 20 dB below the permissible value limit (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.
3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

802.11n(40MHz), KEEPING MIMO TX MODE

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
3	V	2423.6	69.4	31.8	101.2	Fundamental	/	PK
	H	341.9	13.2	16.0	29.2	46	16.8	QP
	H	564.0	4.6	21.2	25.8	46	20.2	QP
	V	3200.0	46.2	-0.6	45.6	54(note3)	8.4	PK
	V	4844.0	45.0	2.6	47.6	54(note3)	6.4	PK
	V	7290.0	47.3	8.8	56.1	74	17.9	PK
	H	7290.7	43.3	8.8	52.1	54	1.9	AV
	H	24000.0	60.2	-8.9	51.3	54(note3)	2.7	PK
6	V	2437.0	70.5	31.2	101.7	Fundamental	/	PK
	H	291.9	15.8	14.8	30.6	46	15.4	QP
	H	553.3	13.0	21.2	34.2	46	11.8	QP
	V	3200.0	46.3	-0.6	45.7	54(note3)	8.3	PK
	V	4874.0	46.1	2.8	48.9	54(note3)	5.1	PK
	V	7349.2	48.6	9.0	57.6	74	16.4	PK
	V	7358.0	42.8	9.0	51.8	54	2.2	AV
	H	24000.0	60.0	-8.9	51.1	54(note3)	2.9	PK
9	V	2453.6	71.1	30.9	102.0	Fundamental	/	PK
	H	586.3	10.2	21.2	31.4	46	14.6	QP
	H	294.3	14.1	14.8	28.9	46	17.1	QP
	V	3200.0	47.8	-0.6	47.2	54(note3)	6.8	PK
	V	4904.0	44.4	2.9	47.3	54(note3)	6.7	PK
	V	7349.4	47.2	9.0	56.2	74	17.8	PK
	V	7349.5	41.8	9.0	50.8	54	3.2	AV
	H	24000.0	60.3	-8.9	51.4	54(note3)	2.6	PK

Note: 1. Measure Level = Reading Level + Factor.

2. The test results which are attenuated more than 20 dB below the permissible value limit (the test frequency range: 9kHz~30MHz, 18GHz~25GHz), therefore no data appear in the report.

3. This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

4.3. 6dB Bandwidth Measurement

TEST CONFIGURATION

TEST PROCEDURE

1. The testing follows FCC KDB Publication No. 558074 D01 v03r02 (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

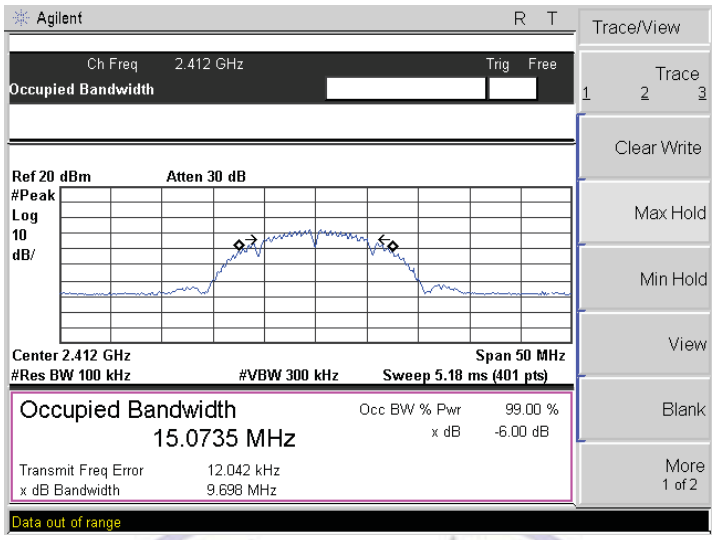
For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

TEST RESULTS

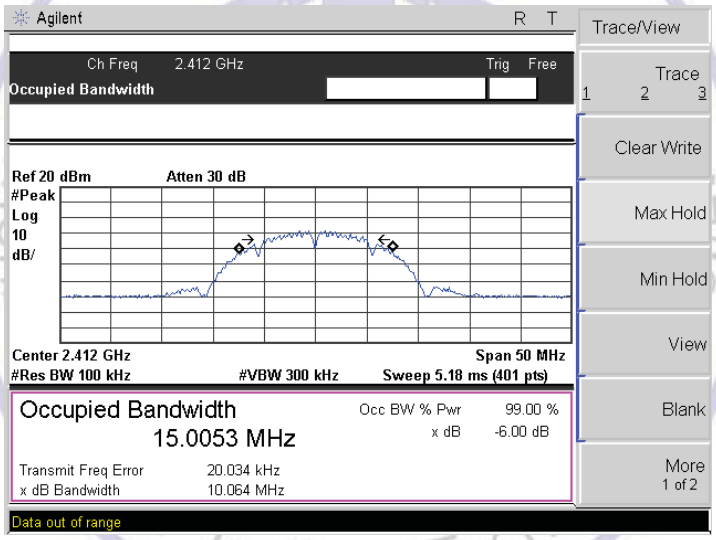
Mode	CHANNEL	6dB BANDWIDTH (MHz)		MINIMUM LIMIT (MHz)	PASS/FAIL
		Ant 1 6dB	Ant 2 6dB		
802.11b	1	9.698	10.064	0.5	PASS
	6	9.188	10.020	0.5	PASS
	11	9.611	9.699	0.5	PASS
802.11g	1	16.465	16.440	0.5	PASS
	6	16.479	16.624	0.5	PASS
	11	16.463	16.463	0.5	PASS
802.11n HT20	1	17.765	17.675	0.5	PASS
	6	17.612	17.570	0.5	PASS
	11	17.642	16.680	0.5	PASS
802.11n HT40	3	35.559	35.661	0.5	PASS
	6	35.613	35.569	0.5	PASS
	9	35.522	35.726	0.5	PASS

For 802.11b:

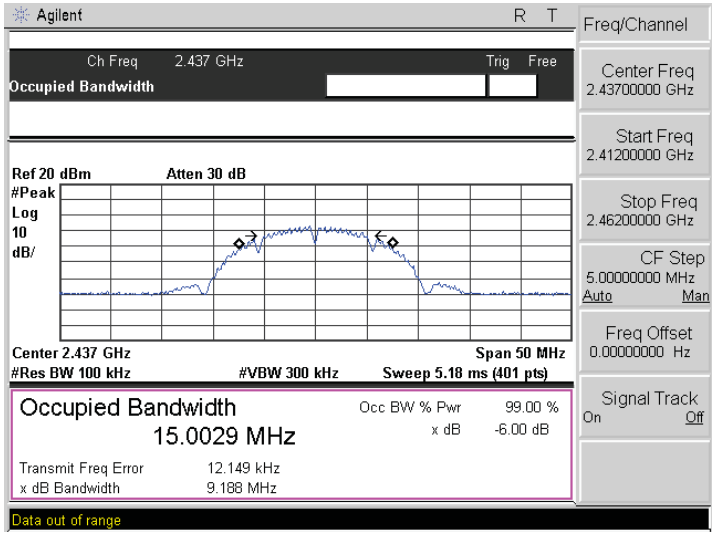
CH1 @ANT 1



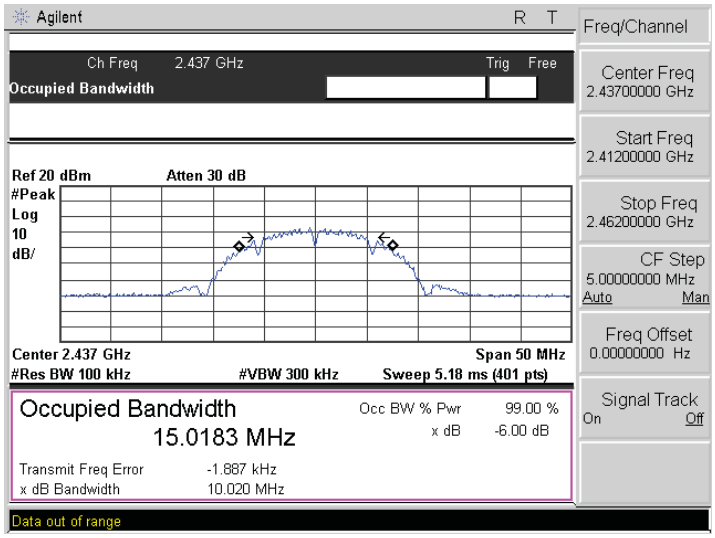
CH1 @ANT 2



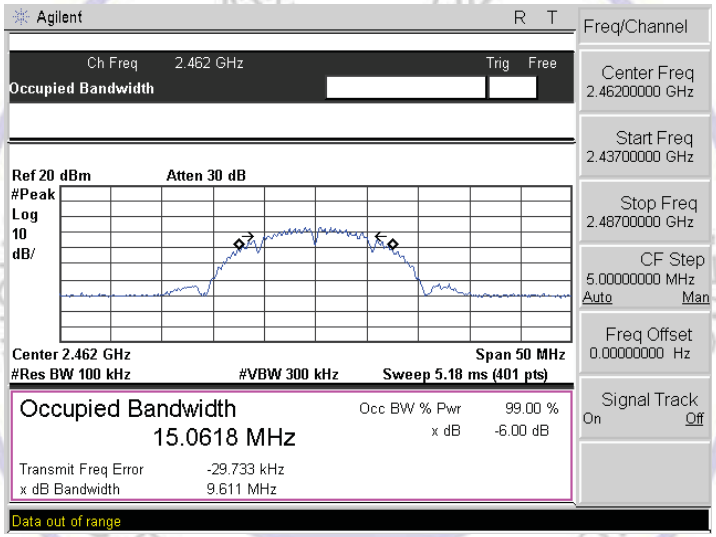
CH6 @ANT 1



CH6 @ANT 2



CH11 @ANT 1



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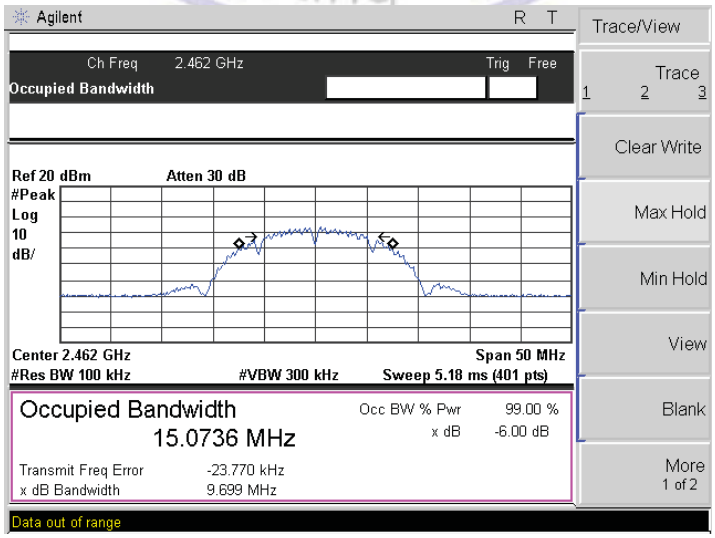
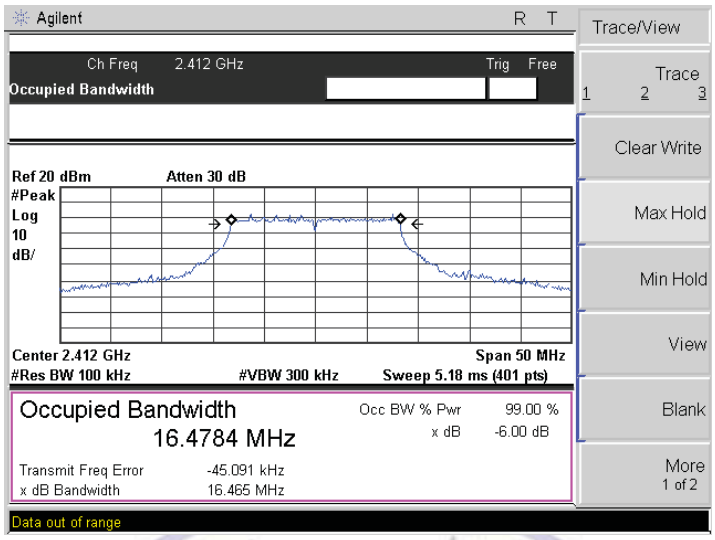


For 802.11g:

CH1 @ANT 1



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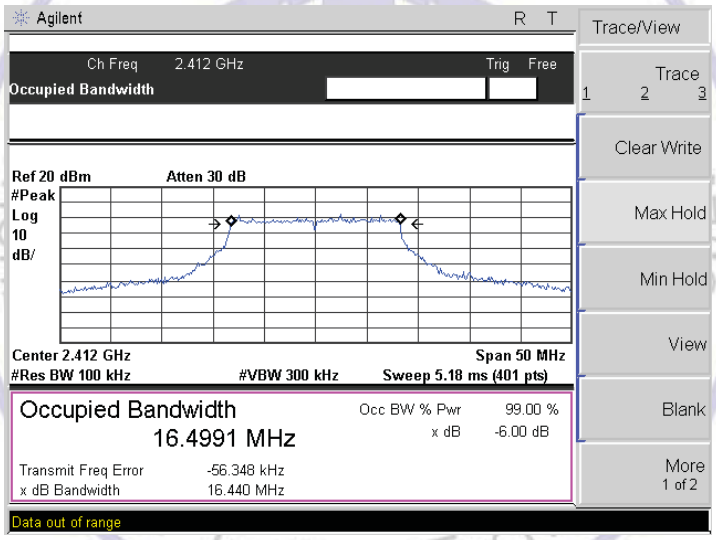
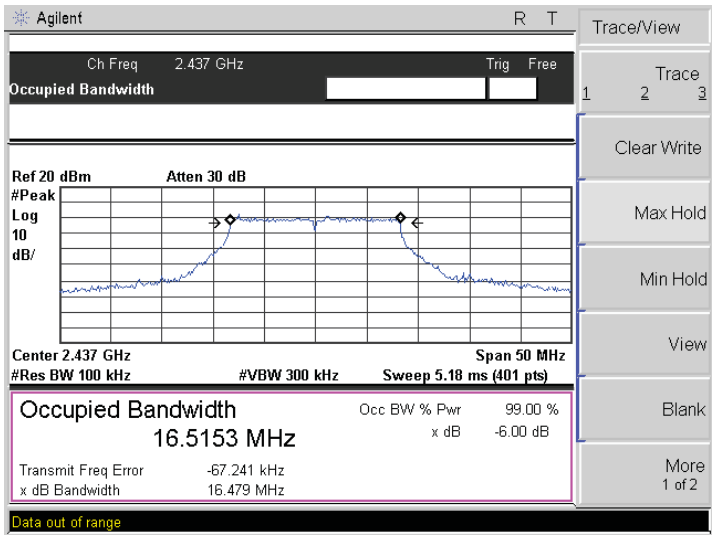


CH6 @ ANT 1



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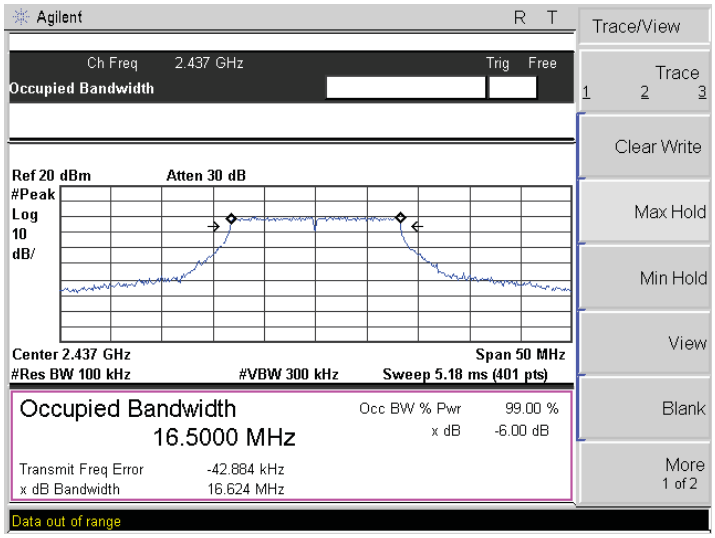
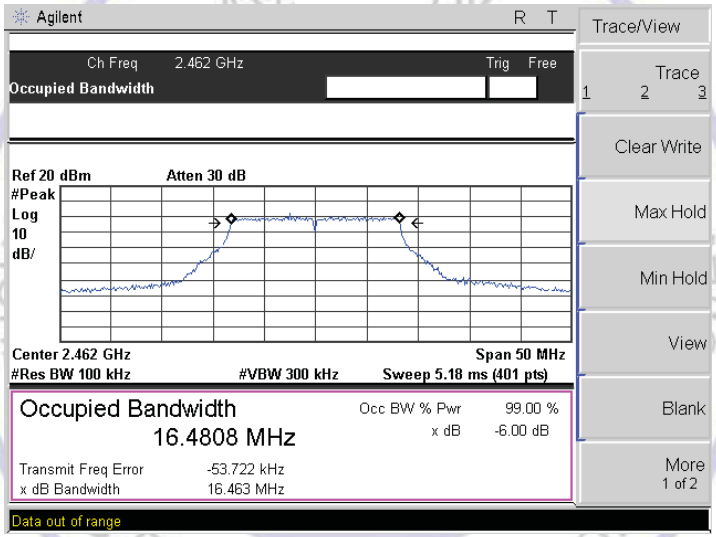
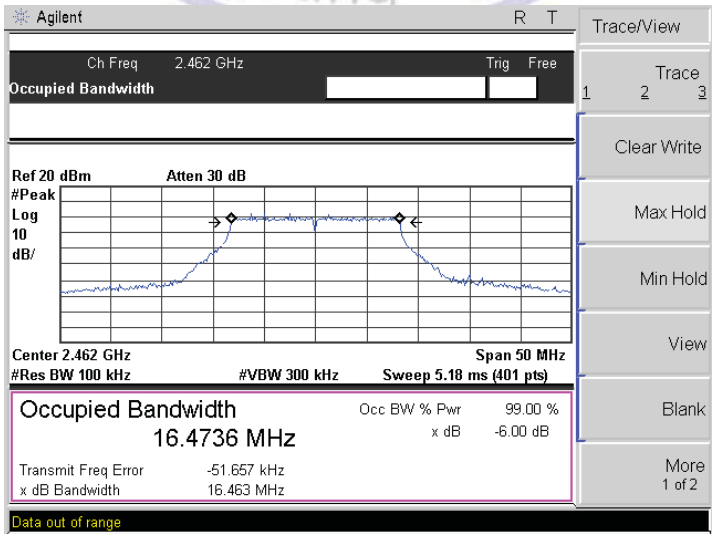


CH11 @ANT 1

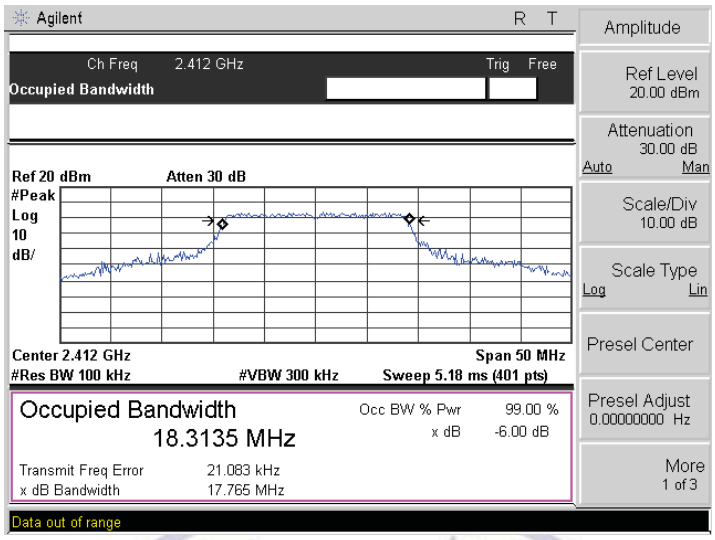


CH11 @ANT 2

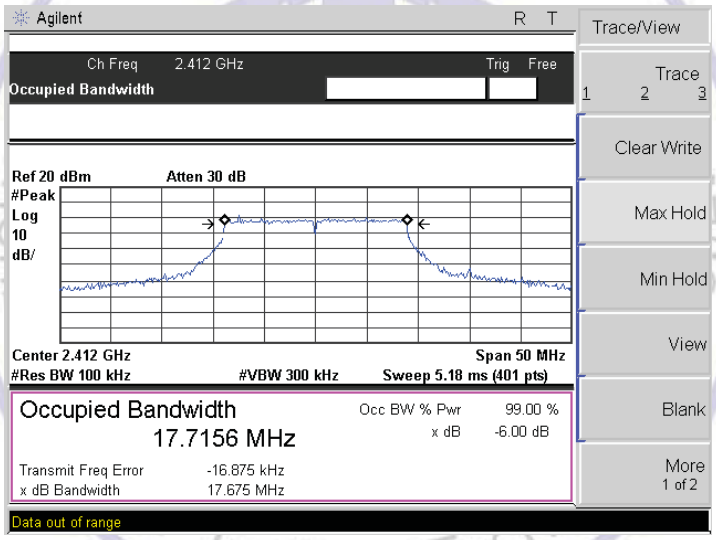


For 802.11n (20MHz) Mode:

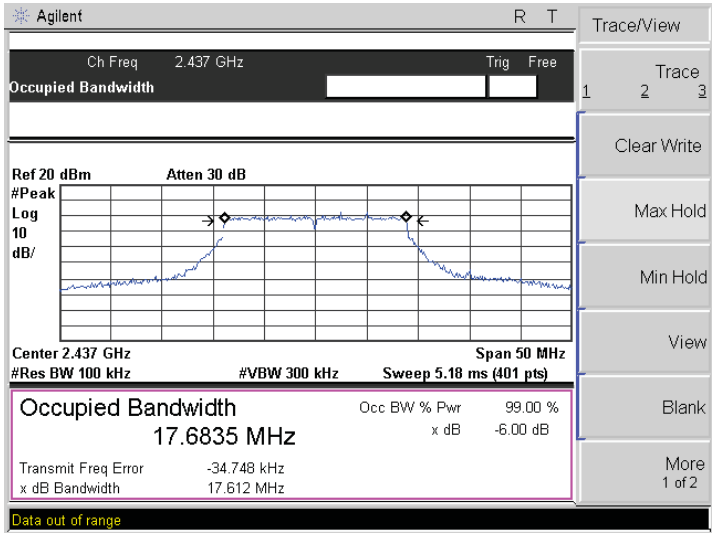
CH1 @ANT 1



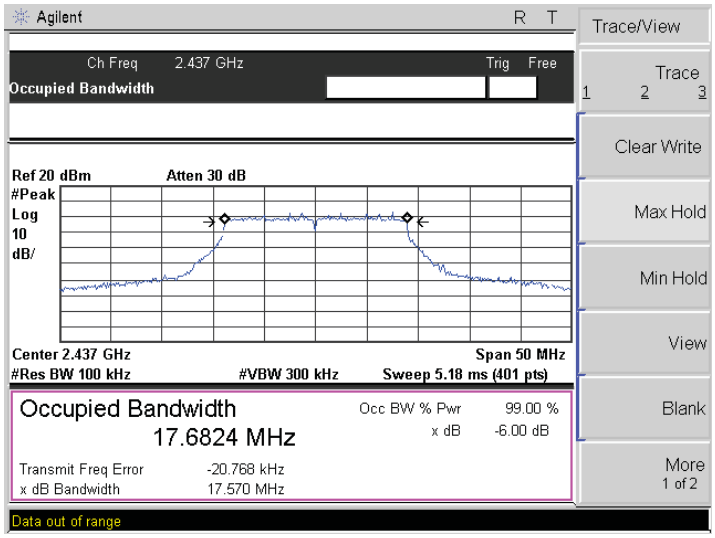
CH1 @ANT 2



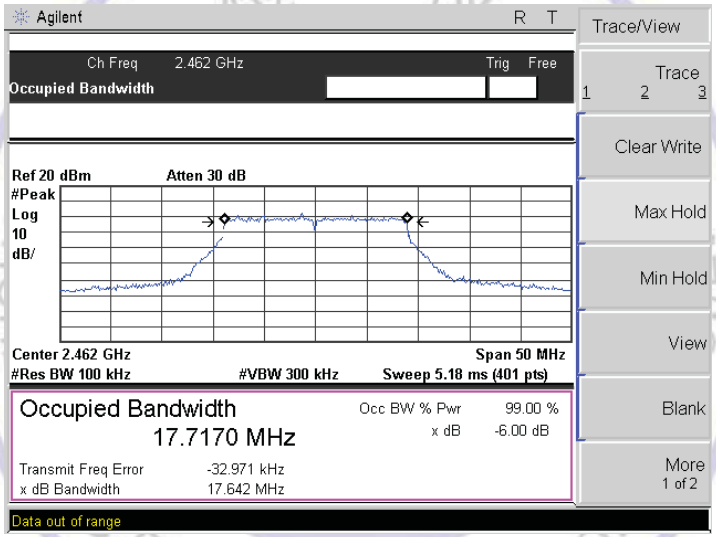
CH6 @ANT 1



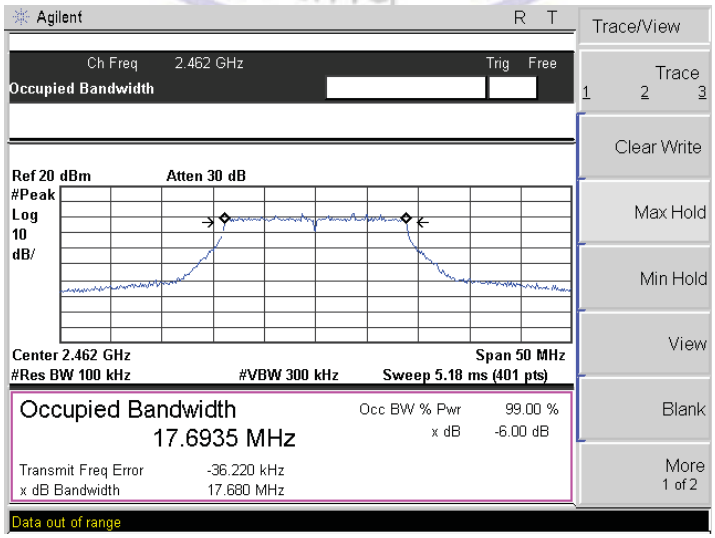
CH6 @ANT 2



CH11 @ANT 1

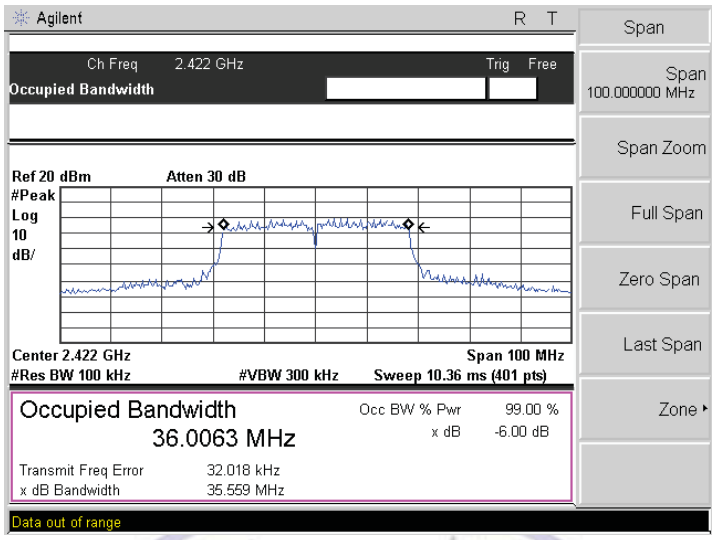


CH11 @ANT 2

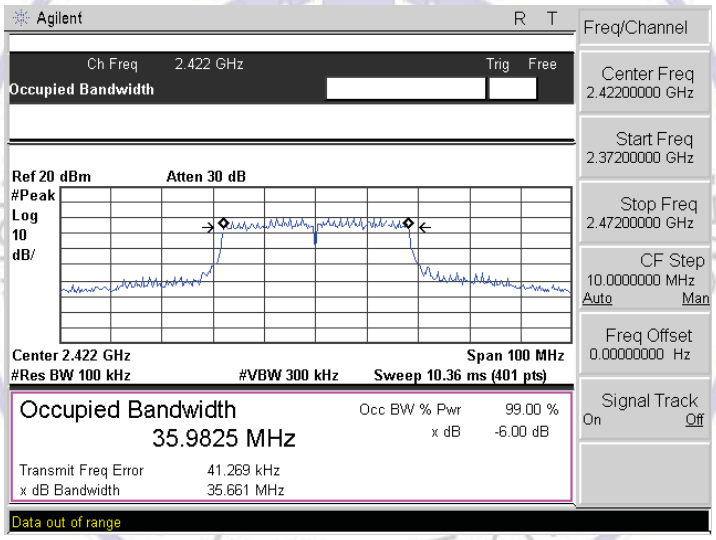


For 802.11n (40MHz) Mode:

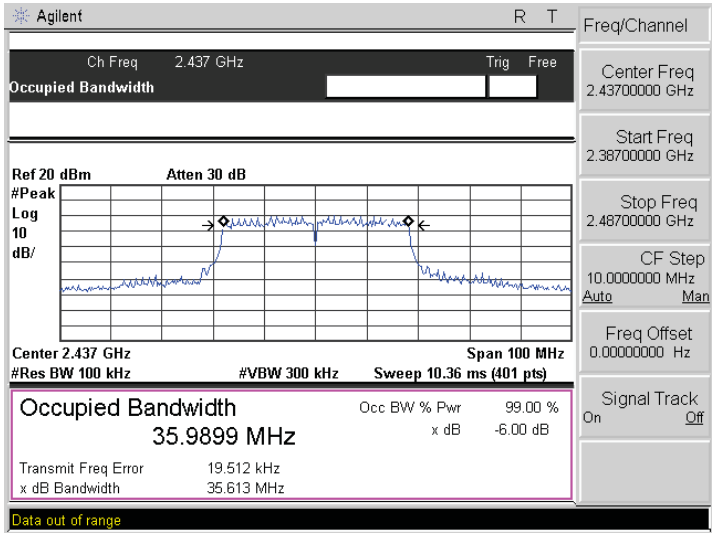
CH3 @ANT 1



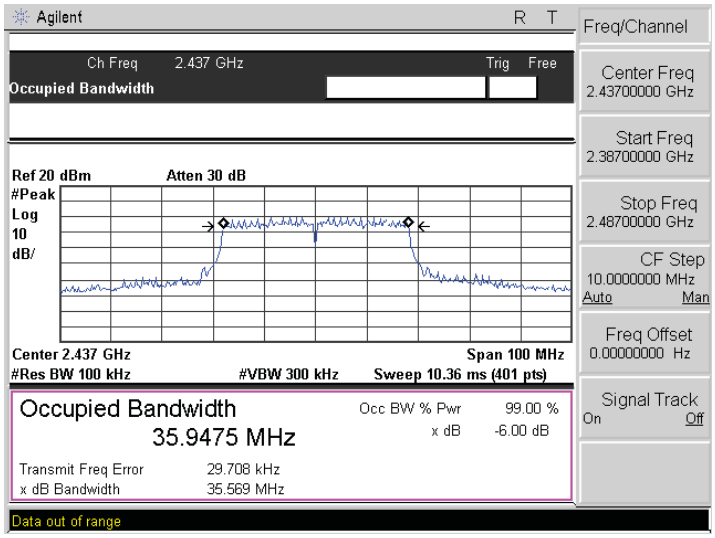
CH3 @ANT 2



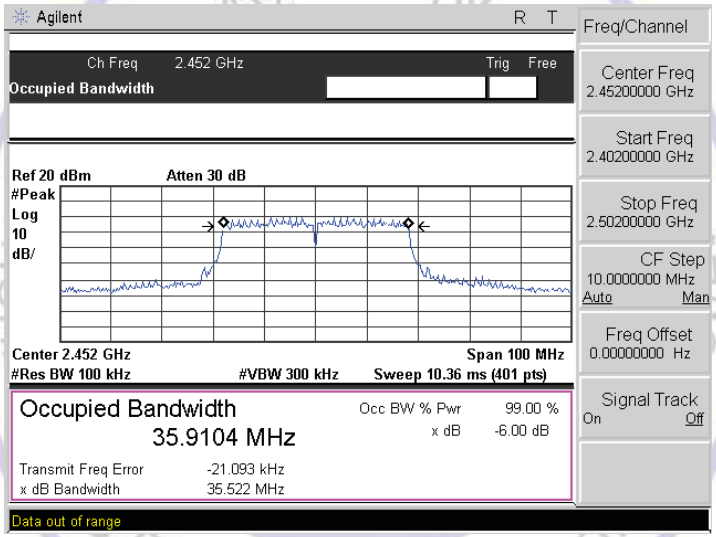
CH6 @ANT 1



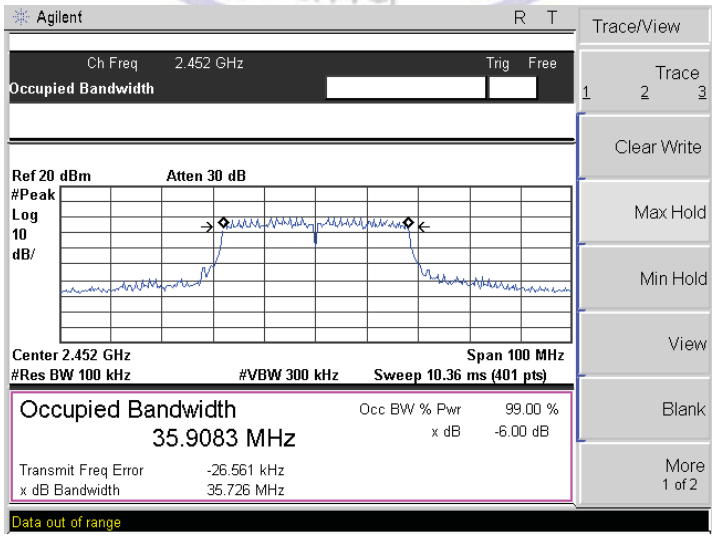
CH6 @ANT 2



CH9 @ANT 1

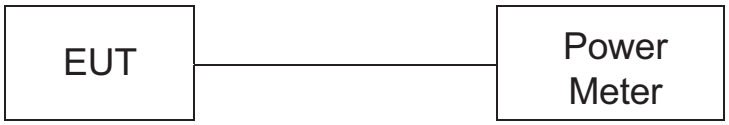


CH9 @ANT 2



4.4. Maximum Peak Output Power

TEST CONFIGURATION



TEST PROCEDURE

According to C63.10 -2009 and KDB558074 D01 v03r02,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.

Use the wideband power meter to test peak power and record the result.

LIMIT

The Peak Output Power Measurement limits are 30dBm.

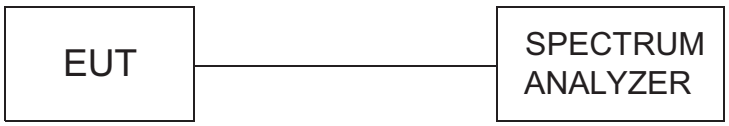
TEST RESULTS

Mode	Channel	Peak Power Output (dBm)			Peak Power Limit (dBm)	PASS / FAIL
		Ant1	Ant 2	Total		
802.11b	1	8.85	8.78	N/A	30	PASS
	6	8.91	8.83	N/A	30	PASS
	11	8.84	8.92	N/A	30	PASS
802.11g	1	8.61	8.68	N/A	30	PASS
	6	8.50	8.72	N/A	30	PASS
	11	8.48	8.53	N/A	30	PASS
802.11n HT20	1	6.58	6.43	9.52	30	PASS
	6	6.47	6.56	9.53	30	PASS
	11	6.37	6.51	9.45	30	PASS
802.11n HT40	3	6.21	6.15	9.19	30	PASS
	6	6.33	6.08	9.22	30	PASS
	9	6.14	6.19	9.18	30	PASS

Note: The test results including the cable lose.

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 C63.10 and FCC KDB Publication No. 558074 D01 v03r02 (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.

For above 1GHz, RBW 1MHz, VBW 3MHz, Peak detector for PK value, RMS detector for AV value.

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

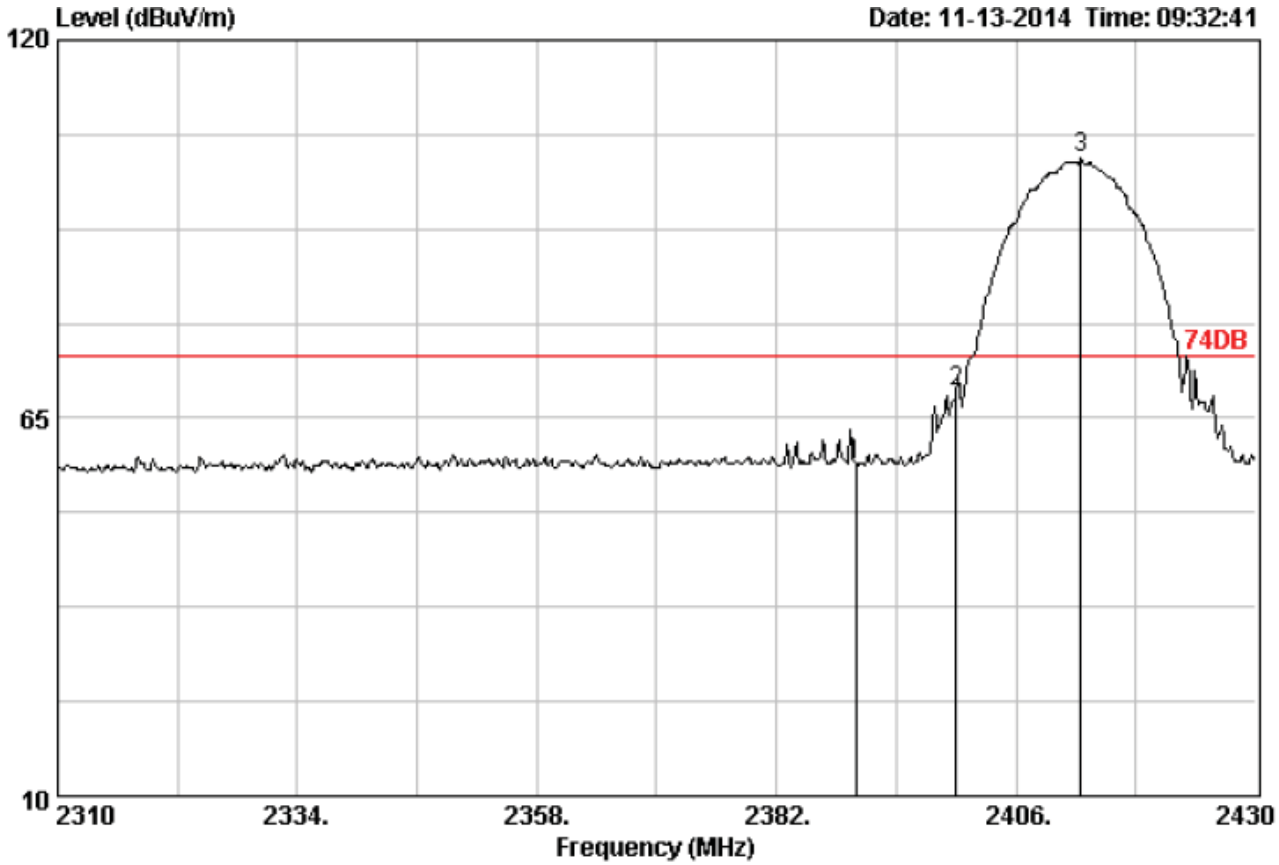
1. Below -20dB of the highest emission level in operating band.

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

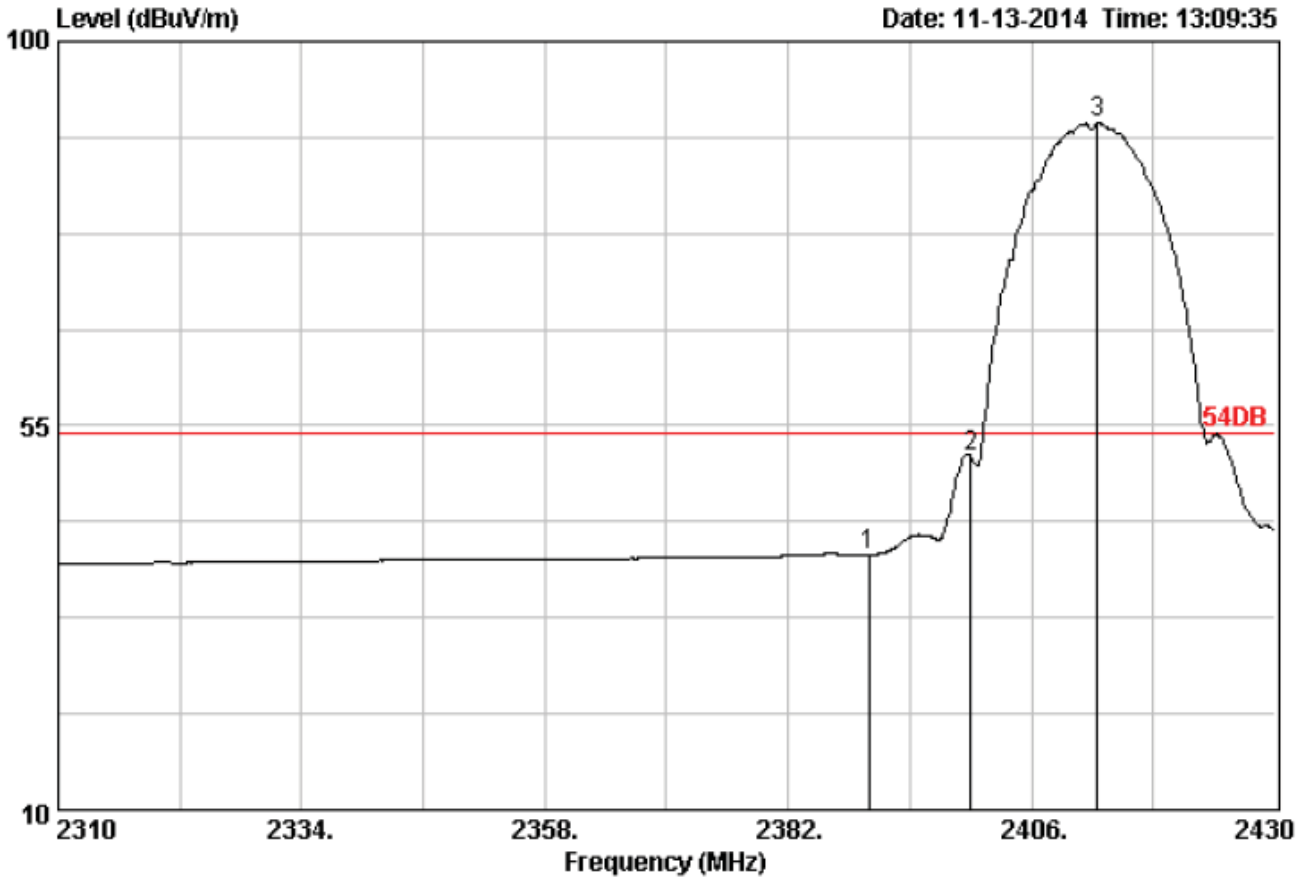
Transmitting mode: 802.11b



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 74DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 834
Ant. pol. : HORIZONTAL

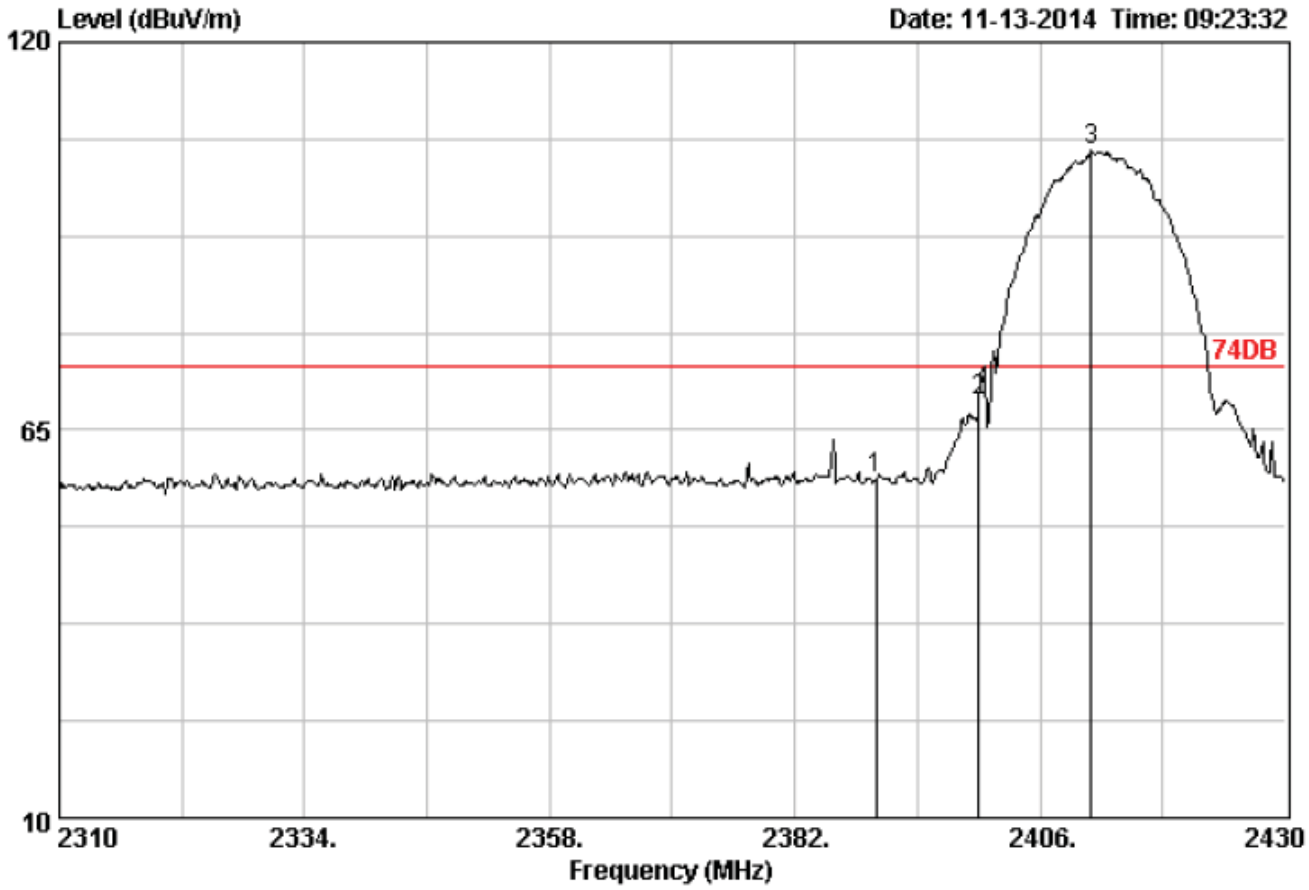
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	60.00	58.03	74.00	15.97	Peak
2	2400.00	28.78	4.61	70.71	68.74	74.00	5.26	Peak
3	2412.48	28.81	4.63	104.68	102.76	74.00	-28.76	Peak



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 862
Ant. pol. : HORIZONTAL

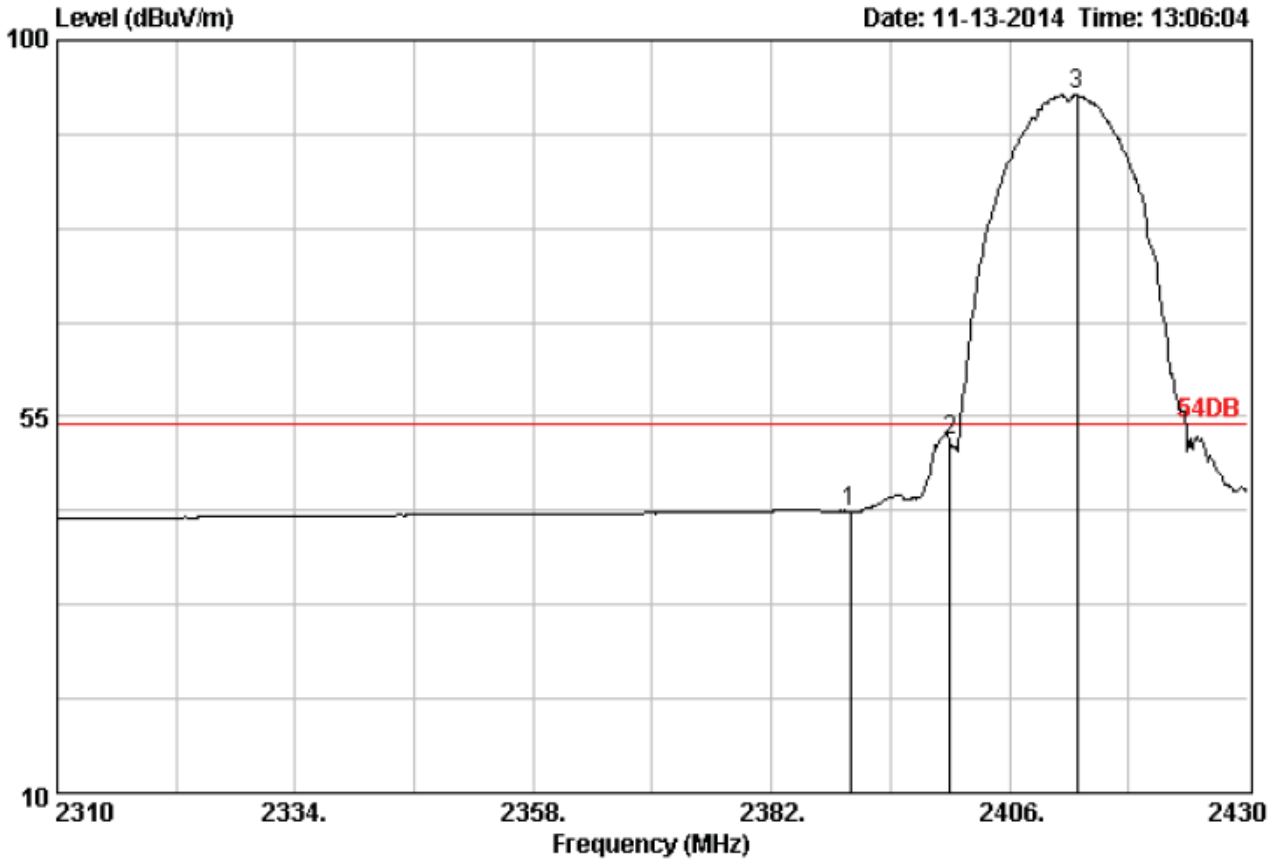
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	41.86	39.89	54.00	14.11	Average
2	2400.00	28.78	4.61	53.38	51.41	54.00	2.59	Average
3	2412.48	28.81	4.63	92.45	90.53	54.00	-36.53	Average



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 74DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 832
Ant. pol. : VERTICAL

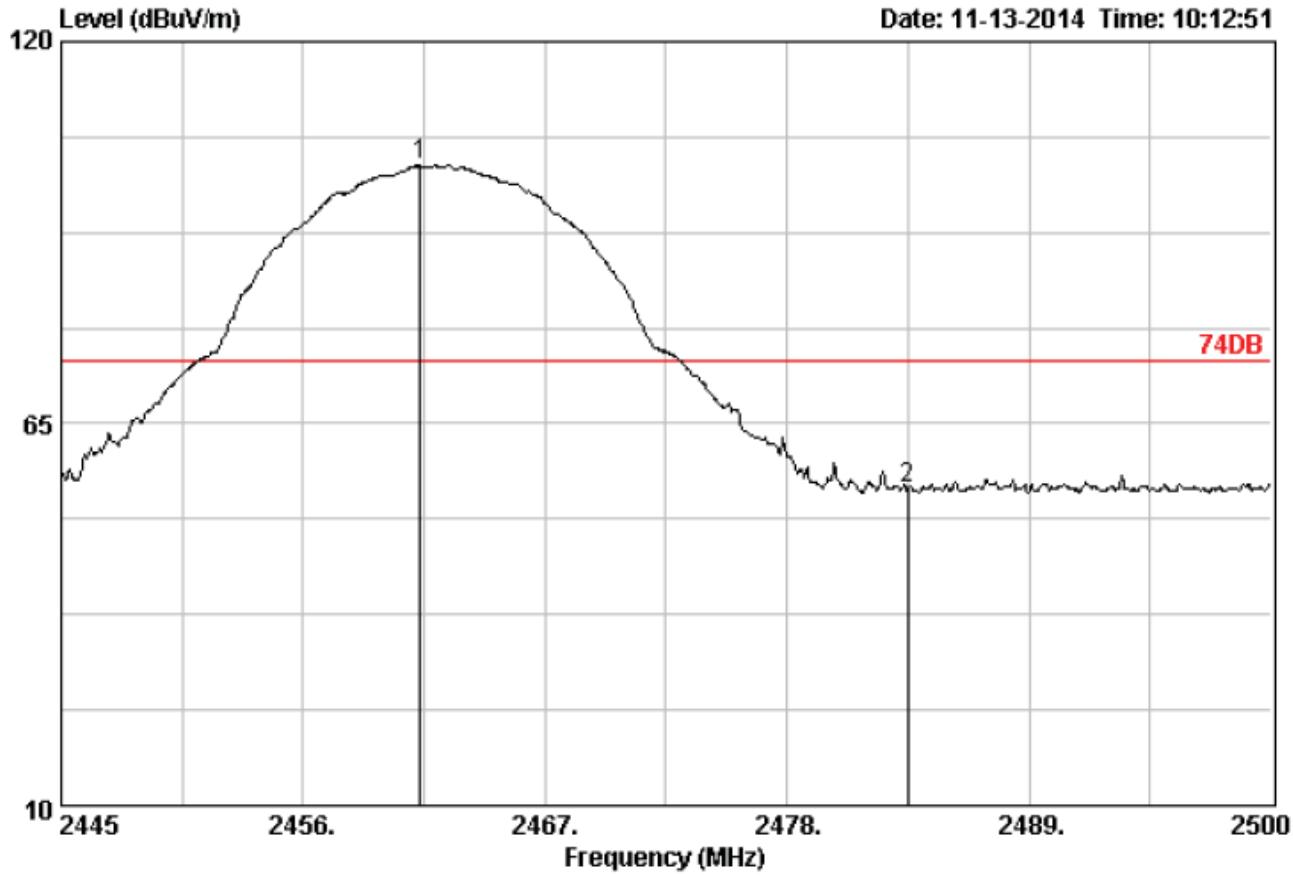
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	59.95	57.98	74.00	16.02	Peak
2	2400.00	28.78	4.61	70.99	69.02	74.00	4.98	Peak
3	2411.04	28.81	4.63	106.47	104.55	74.00	-30.55	Peak



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 861
Ant. pol. : VERTICAL

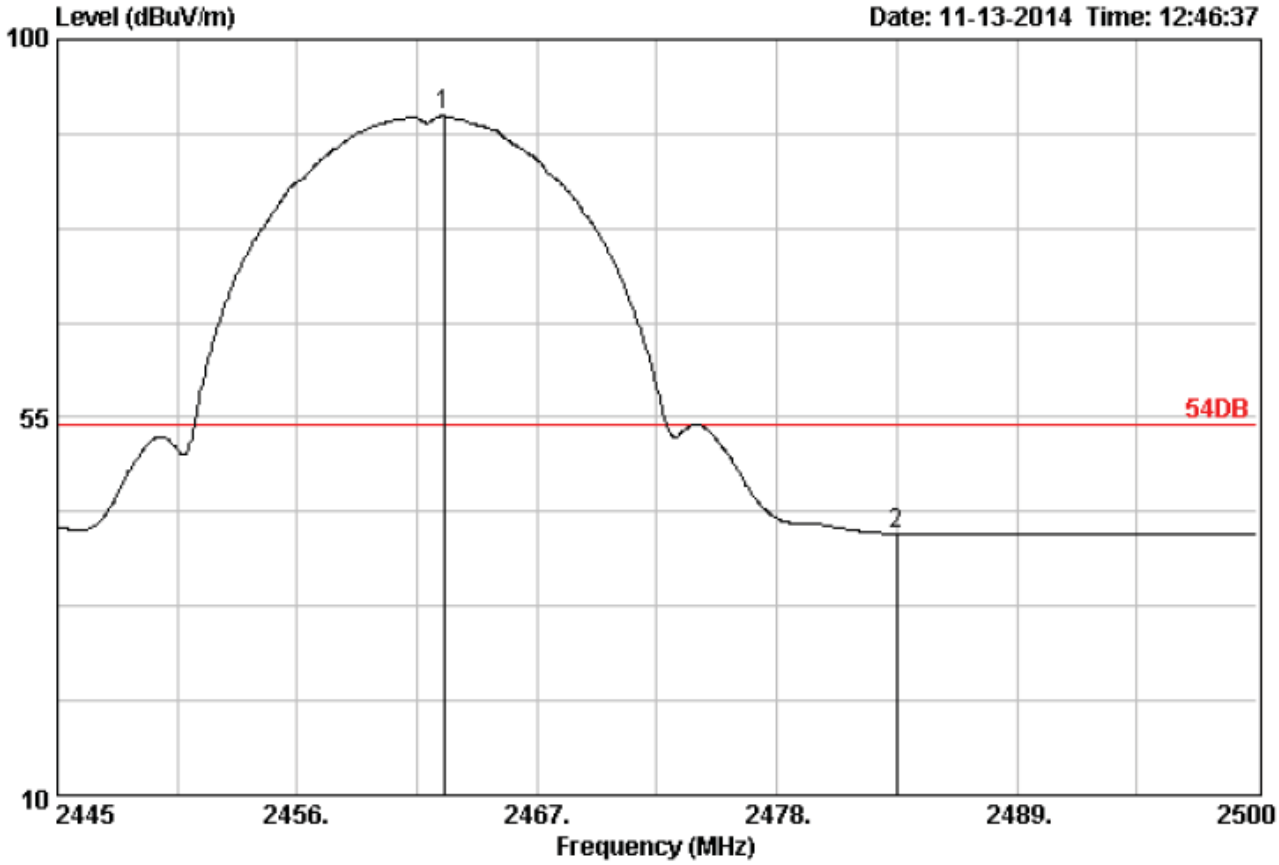
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	45.65	43.68	54.00	10.32	Average
2	2400.00	28.78	4.61	53.97	52.00	54.00	2.00	Average
3	2412.84	28.81	4.63	95.47	93.55	54.00	-39.55	Average



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 74DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 840
Ant. pol. : HORIZONTAL

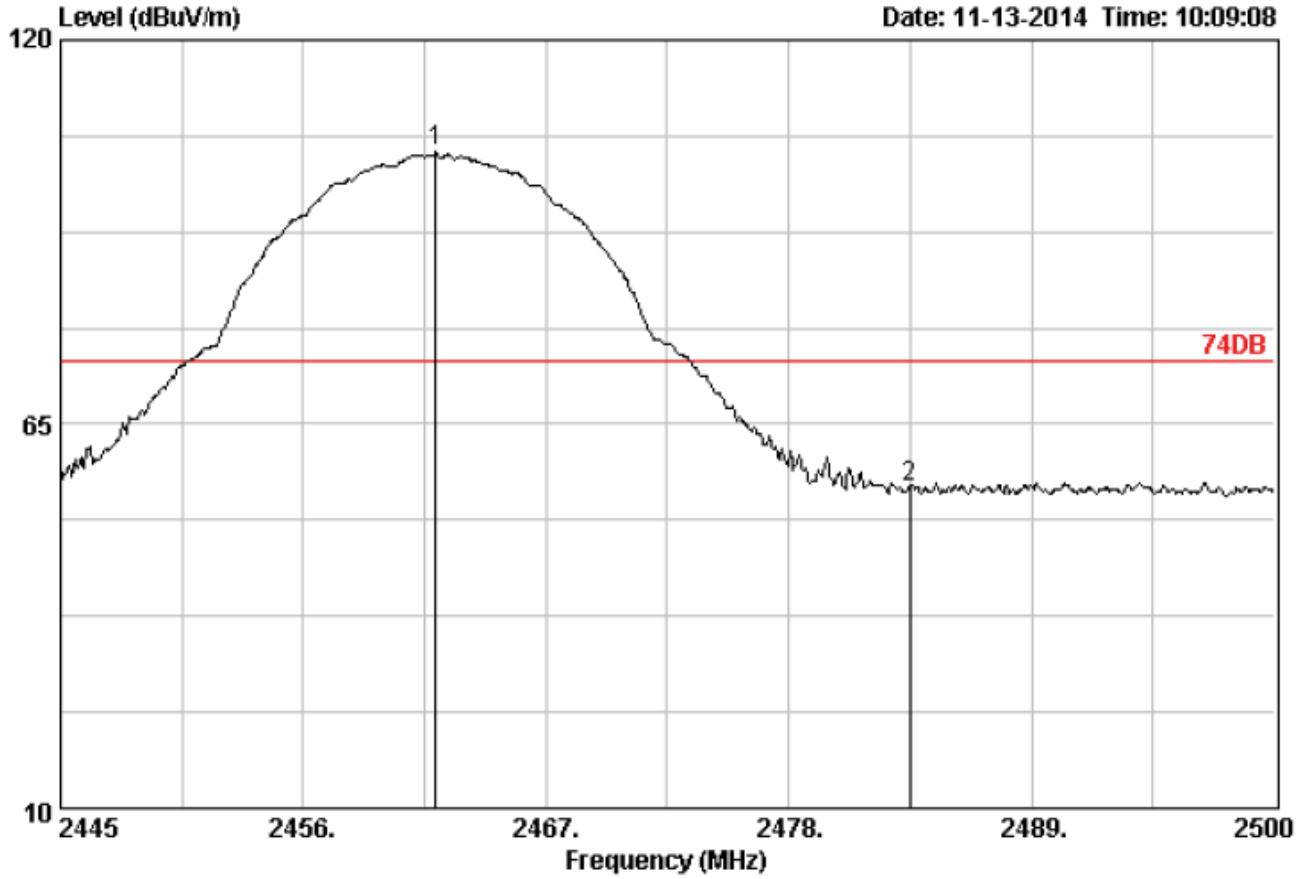
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2461.34	28.90	4.68	104.02	102.23	74.00	-28.23	Peak
2	2483.50	28.93	4.70	57.36	55.61	74.00	18.39	Peak



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 859
Ant. pol. : HORIZONTAL

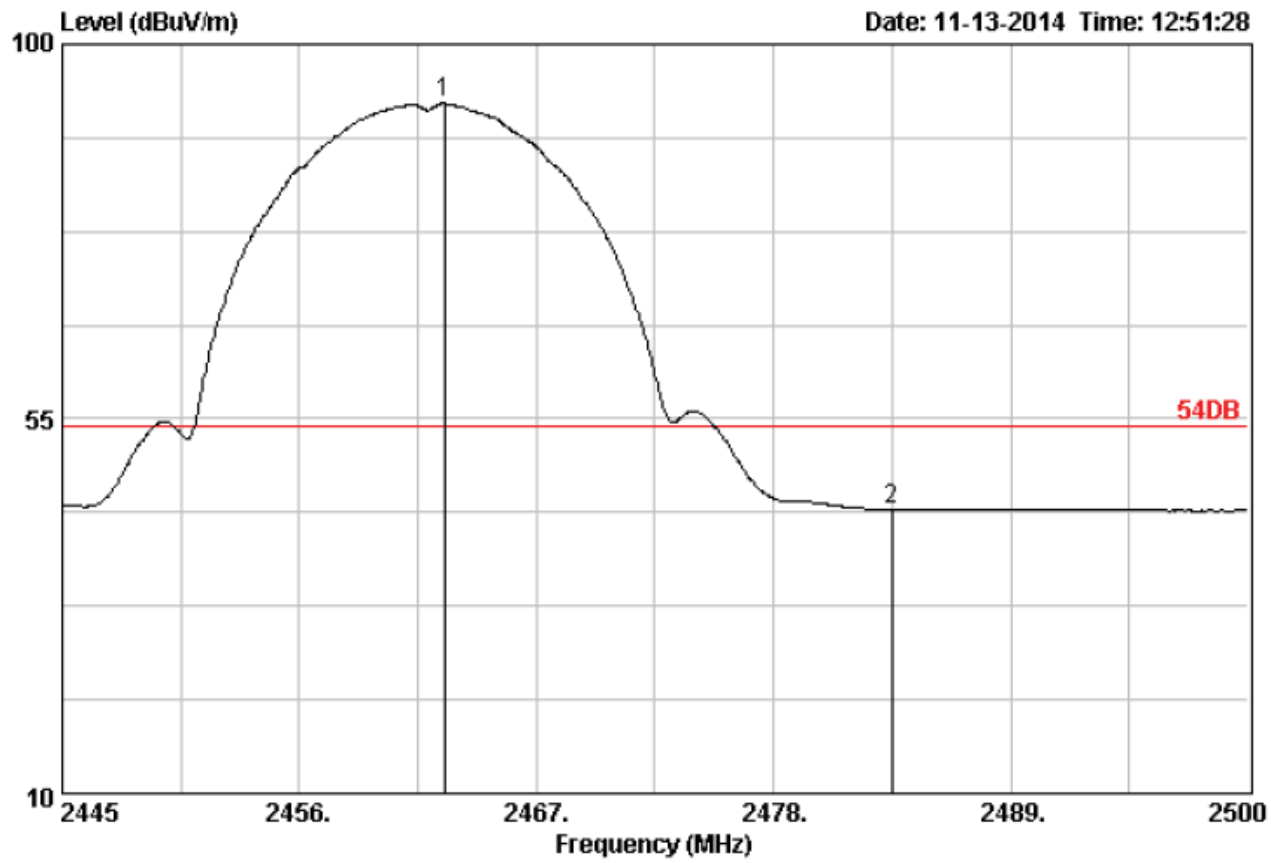
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.71	28.90	4.68	92.66	90.87	54.00	-36.87	Average
2	2483.50	28.93	4.70	42.87	41.12	54.00	12.88	Average



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 74DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 839
Ant. pol. : VERTICAL

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.00	28.90	4.68	105.71	103.92	74.00	-29.92	Peak
2	2483.50	28.93	4.70	57.80	56.05	74.00	17.95	Peak

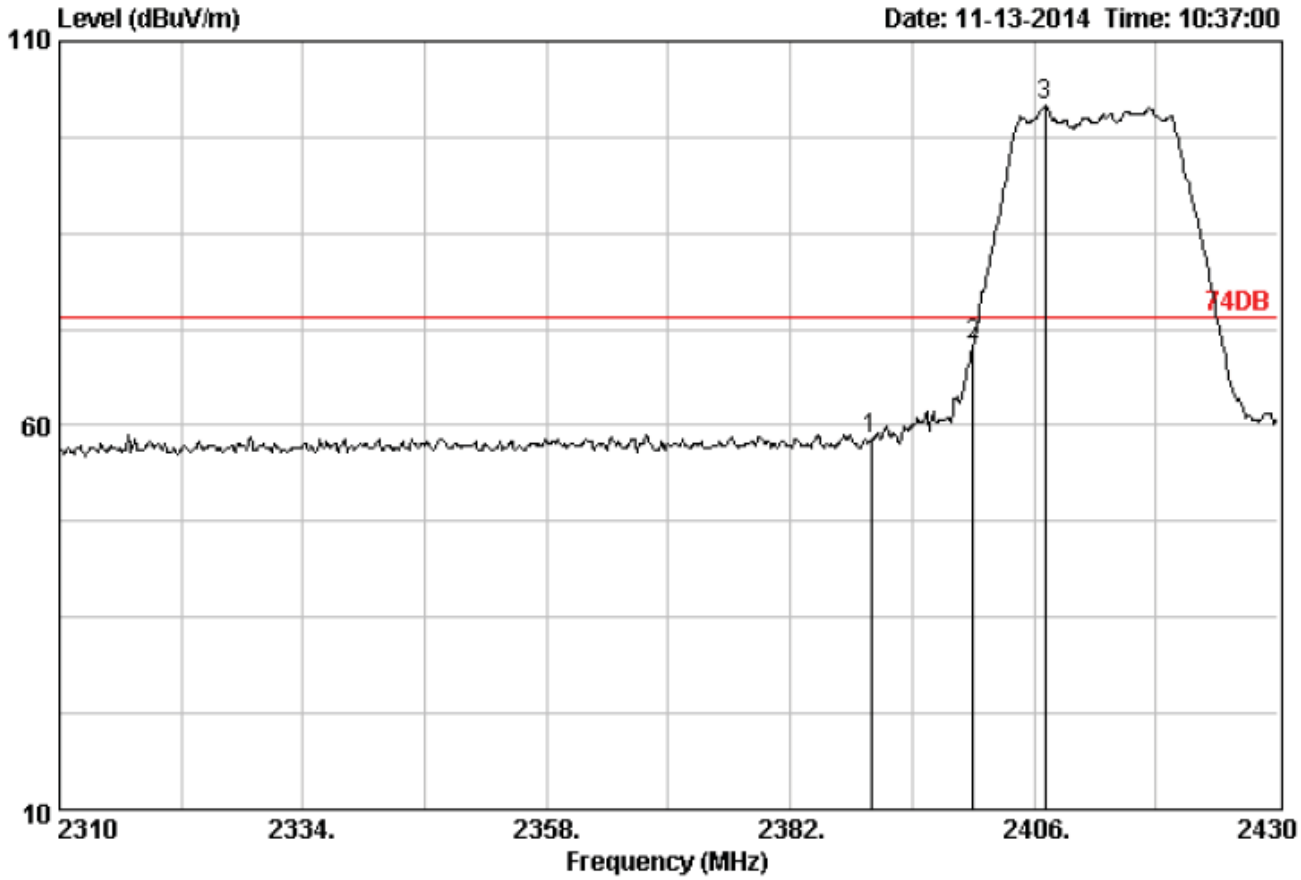


Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 860
Ant. pol. : VERTICAL

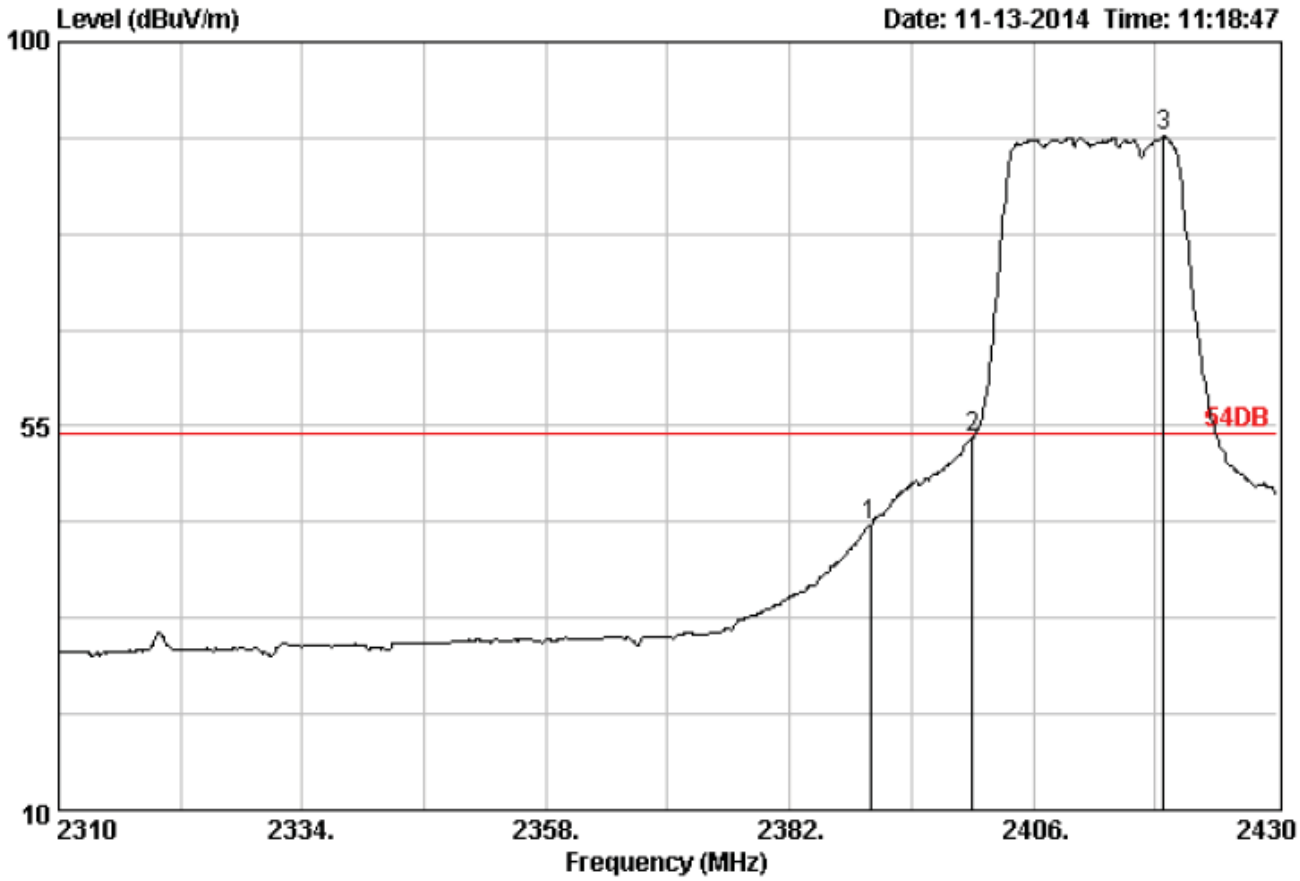
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2462.71	28.90	4.68	94.70	92.91	54.00	-38.91	Average
2	2483.50	28.93	4.70	45.81	44.06	54.00	9.94	Average

Note : For 802.11g Mode:



Site no. : 3m Chamber Data no. : 847
Dis. / Ant. : 3m DRH-118 Ant. pol. : HORIZONTAL
Limit : 74DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

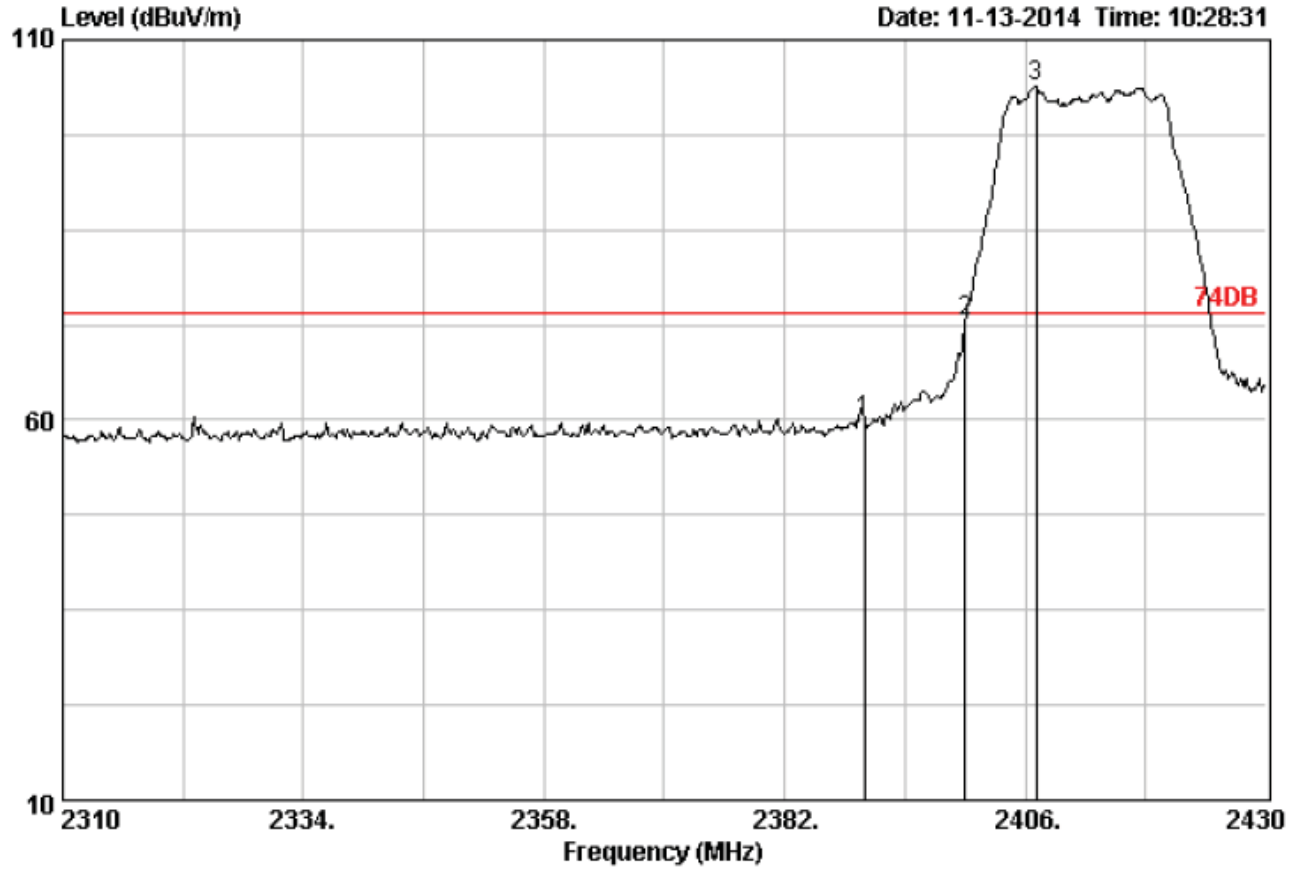
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	60.23	58.26	74.00	15.74	Peak
2	2400.00	28.78	4.61	72.38	70.41	74.00	3.59	Peak
3	2407.08	28.81	4.63	103.45	101.53	74.00	-27.53	Peak



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

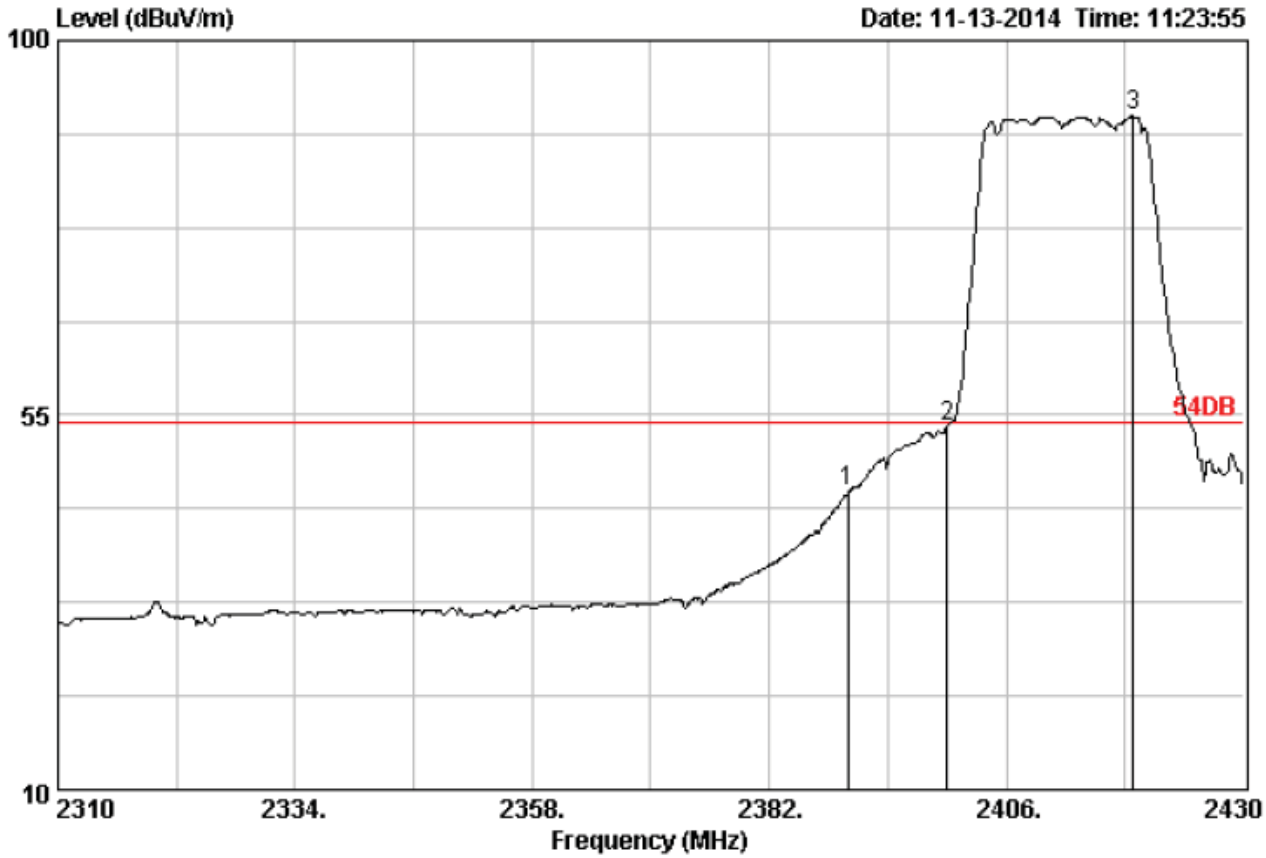
Data no. : 852
Ant. pol. : HORIZONTAL

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	45.42	43.45	54.00	10.55	Average
2	2400.00	28.78	4.61	55.53	53.56	54.00	0.44	Average
3	2418.84	28.81	4.63	90.94	89.02	54.00	-35.02	Average



Site no. : 3m Chamber Data no. : 846
Dis. / Ant. : 3m DRH-118 Ant. pol. : VERTICAL
Limit : 74DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

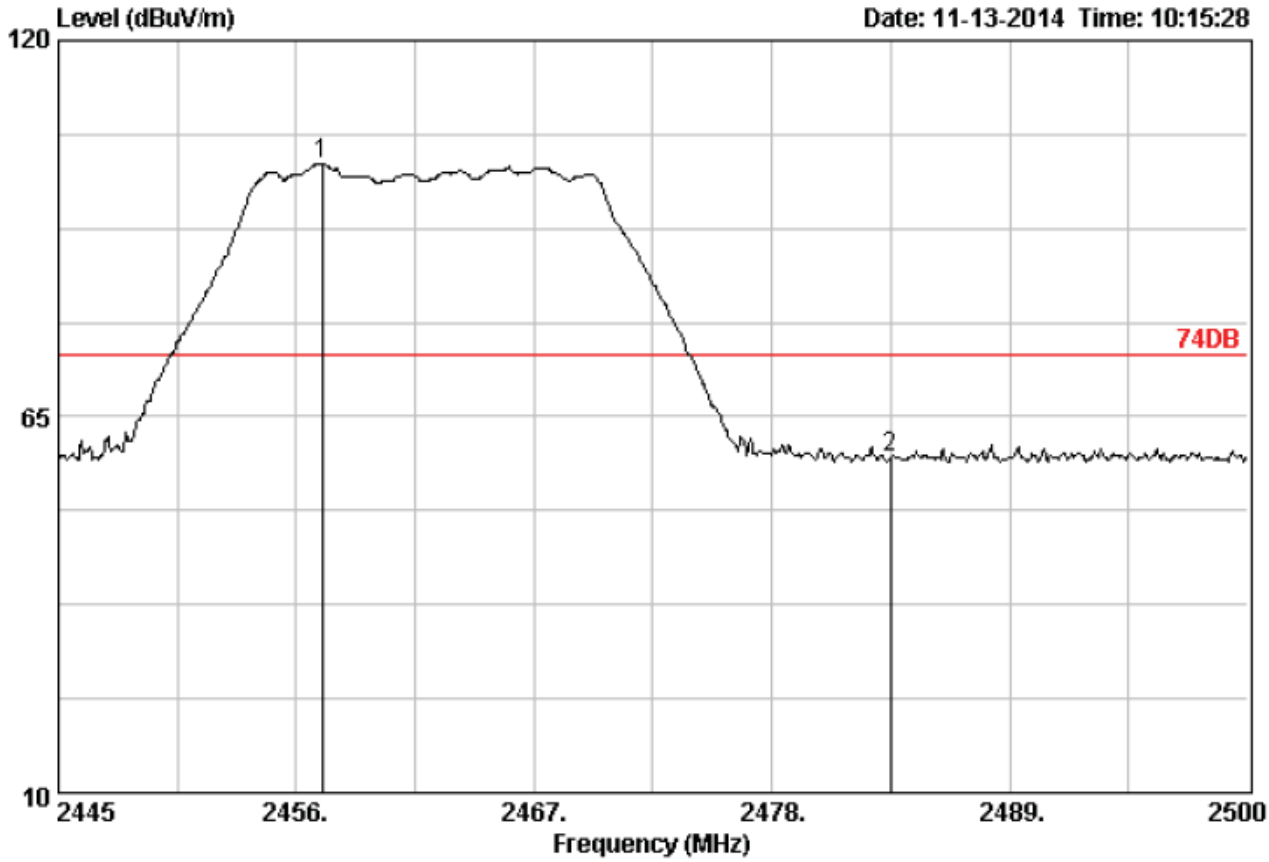
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	61.78	59.81	74.00	14.19	Peak
2	2400.00	28.78	4.61	74.91	72.94	74.00	1.06	Peak
3	2407.08	28.81	4.63	105.81	103.89	74.00	-29.89	Peak



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 853
Ant. pol. : VERTICAL

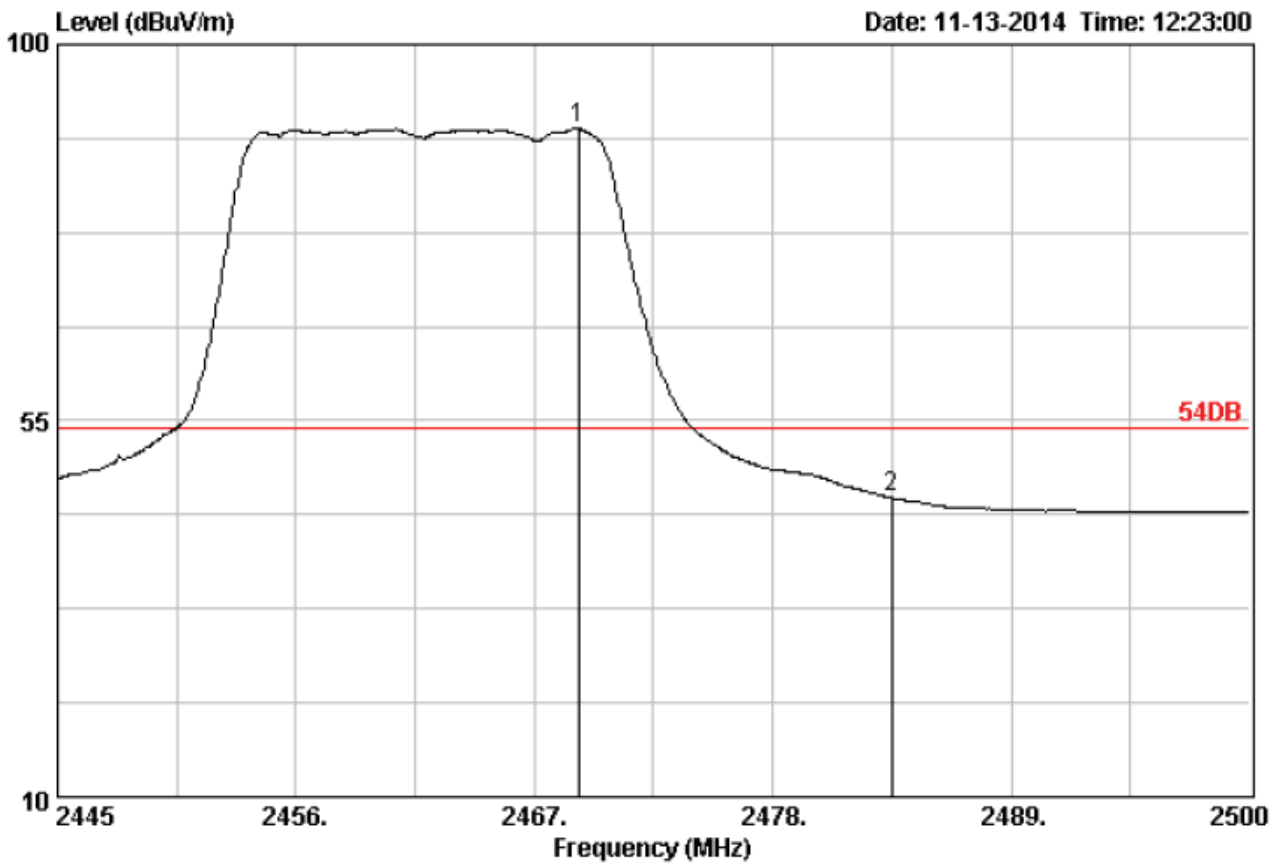
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	47.72	45.75	54.00	8.25	Average
2	2400.00	28.78	4.61	55.66	53.69	54.00	0.31	Average
3	2418.84	28.81	4.63	92.96	91.04	54.00	-37.04	Average



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 74DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 841
Ant. pol. : HORIZONTAL

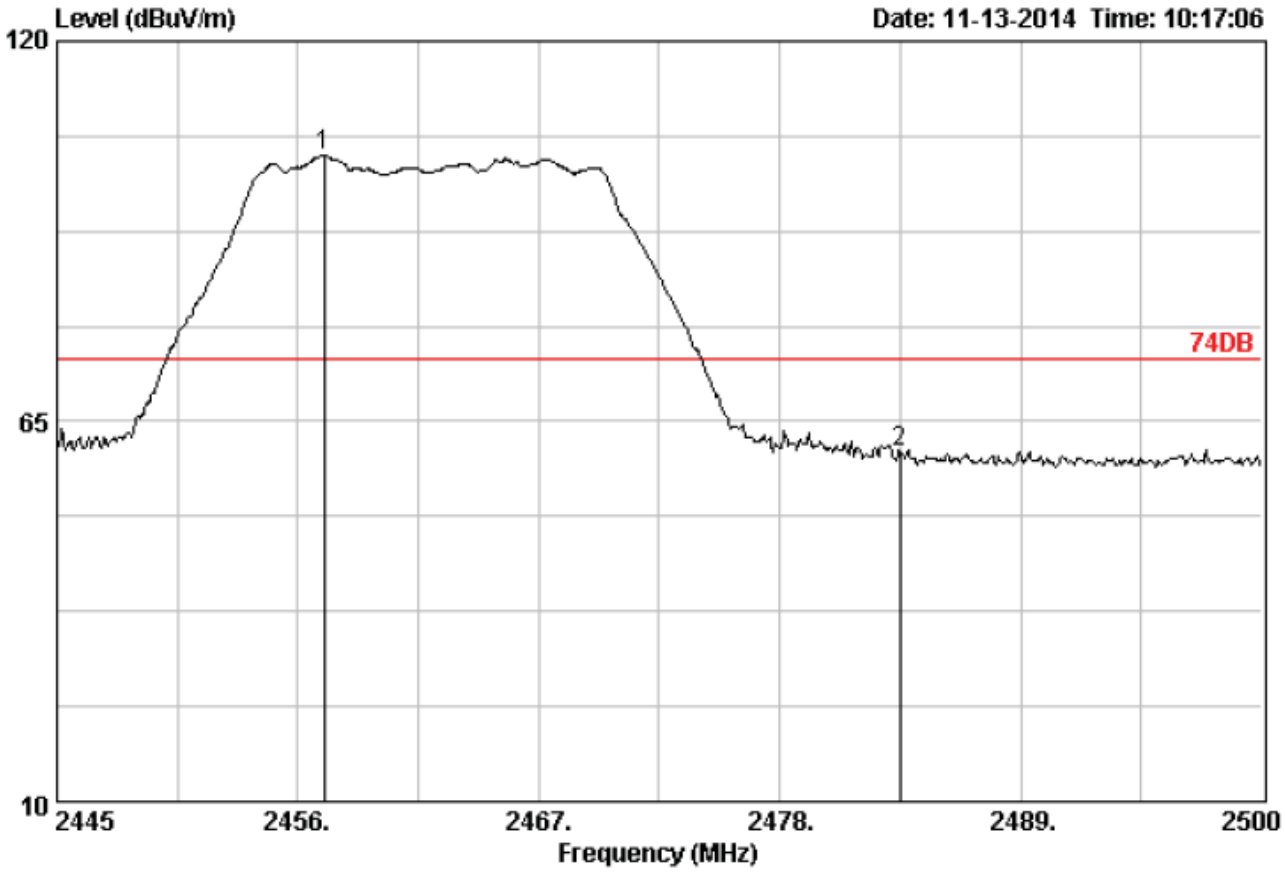
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2457.21	28.90	4.68	103.73	101.94	74.00	-27.94	Peak
2	2483.50	28.93	4.70	60.74	58.99	74.00	15.01	Peak



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 858
Ant. pol. : HORIZONTAL

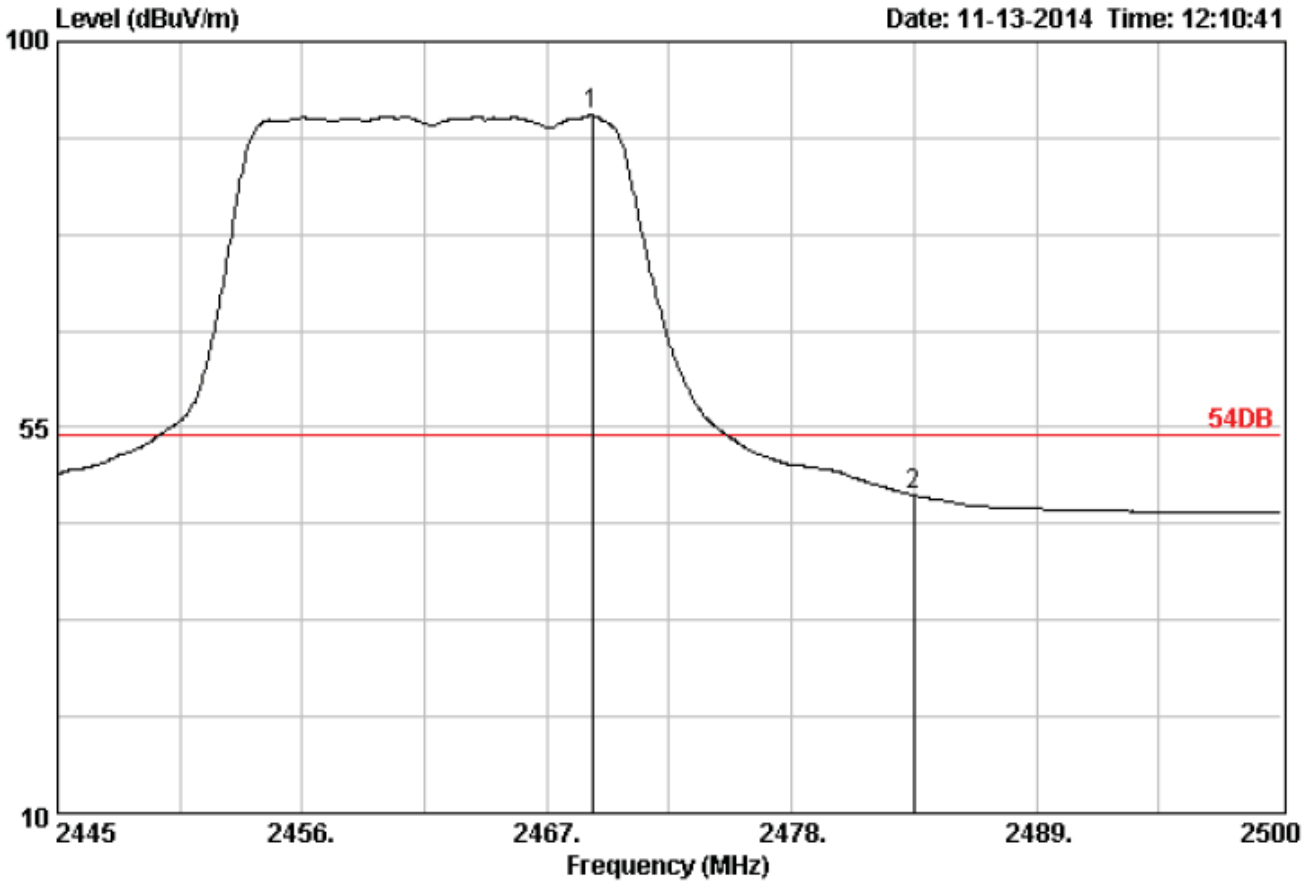
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2469.04	28.90	4.68	91.77	89.98	54.00	-35.98	Average
2	2483.50	28.93	4.70	47.52	45.77	54.00	8.23	Average



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 74DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 842
Ant. pol. : VERTICAL

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2457.21	28.90	4.68	105.17	103.38	74.00	-29.38	Peak
2	2483.50	28.93	4.70	62.36	60.61	74.00	13.39	Peak

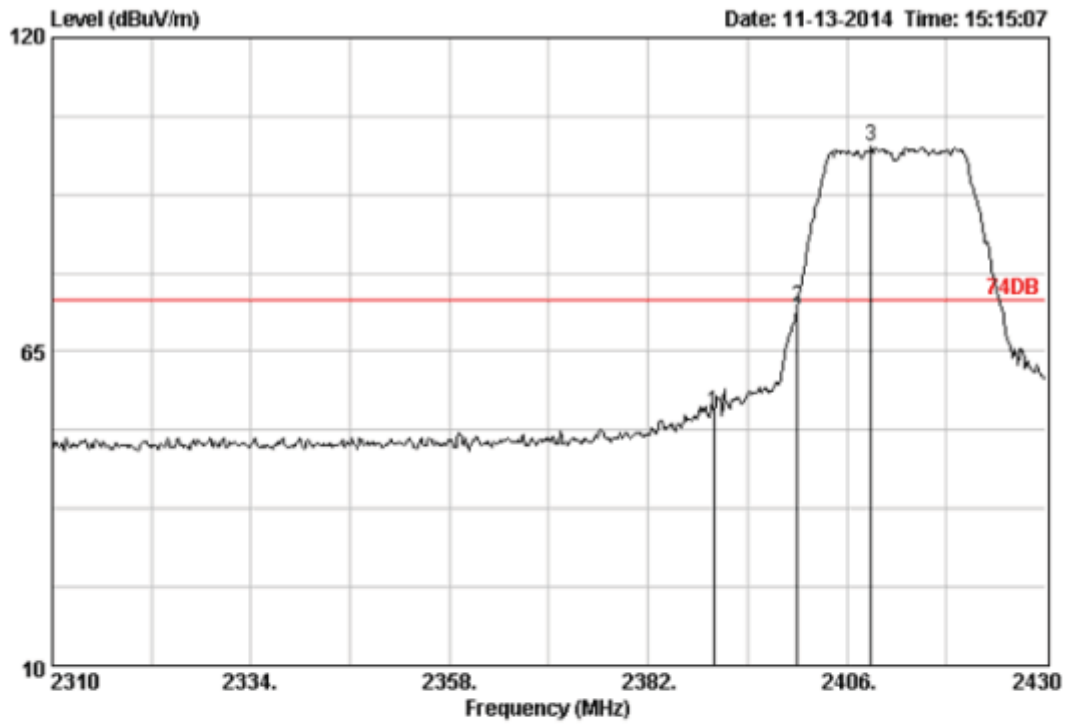


Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 856
Ant. pol. : VERTICAL

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2469.04	28.90	4.68	93.21	91.42	54.00	-37.42	Average
2	2483.50	28.93	4.70	48.82	47.07	54.00	6.93	Average

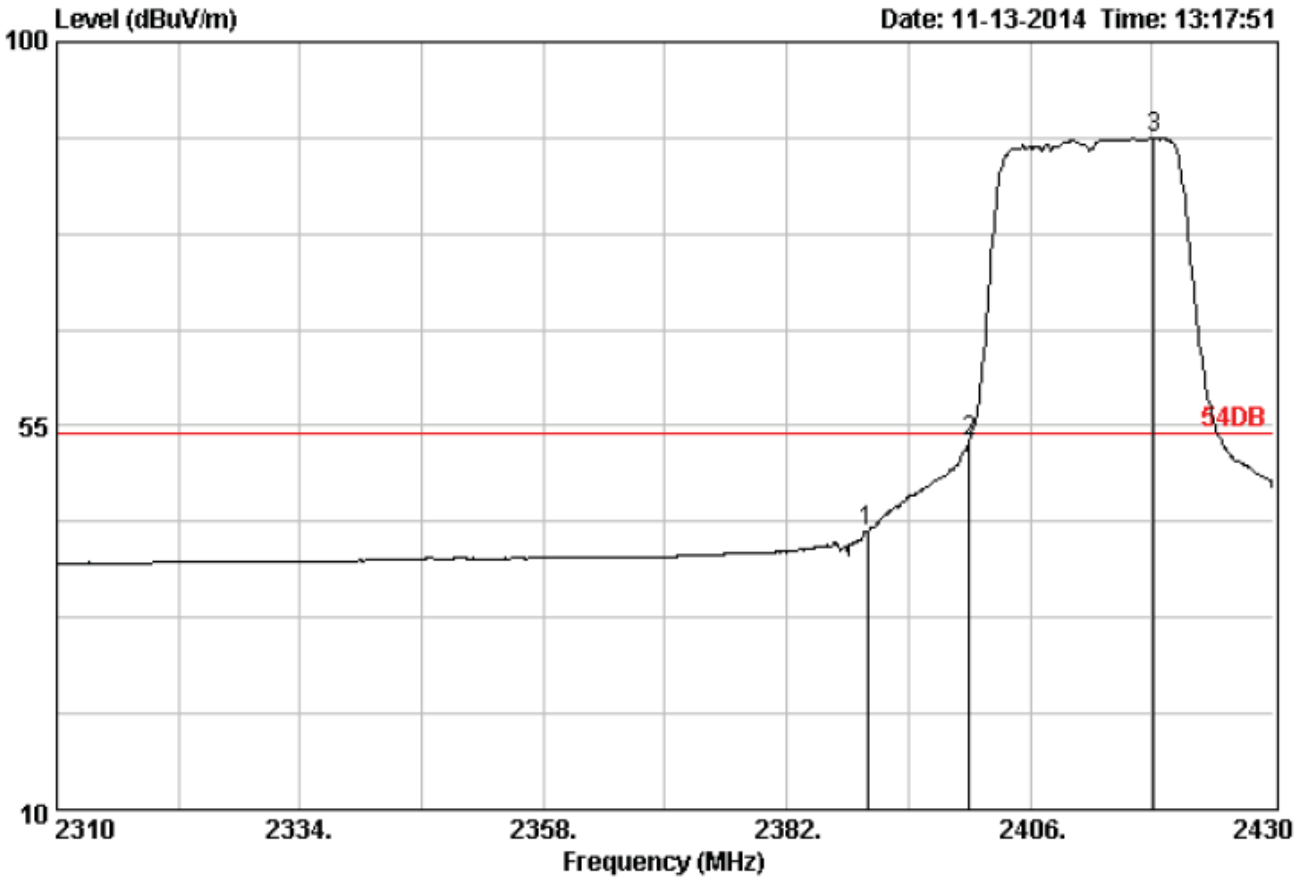
Note : For 802.11n (20MHz, KEEPING MIMO TX MODE) Mode:



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 74DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 873
Ant. pol. : HORIZONTAL

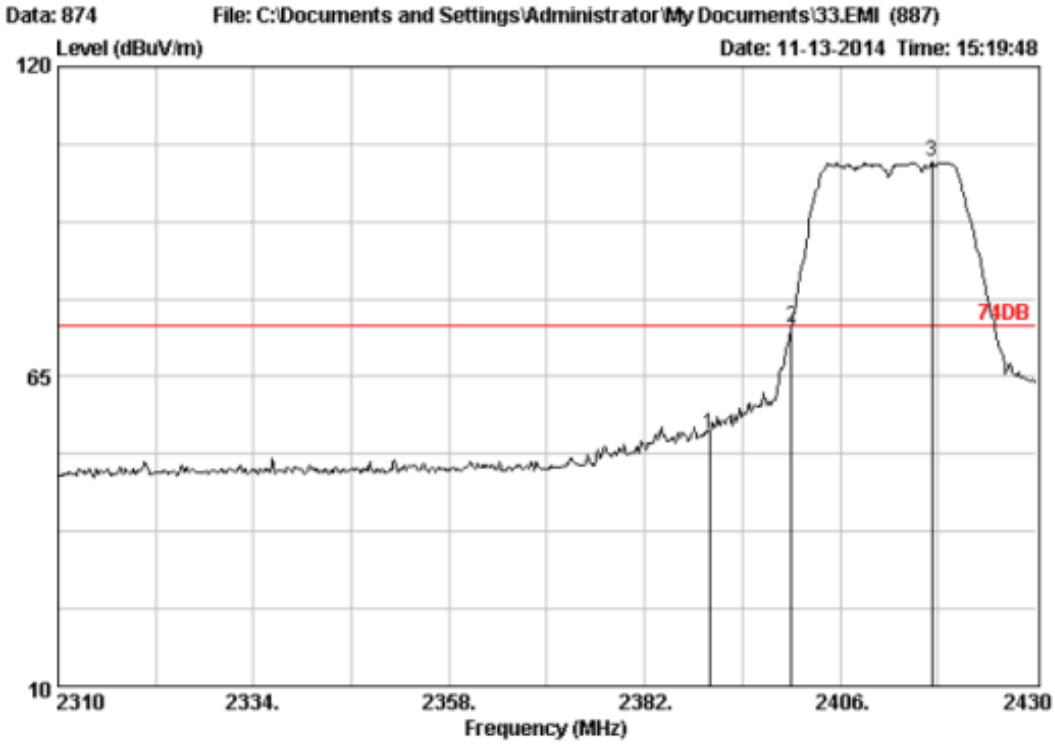
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	56.25	54.28	74.00	19.72	Peak
2	2400.00	28.78	4.61	74.88	72.91	74.00	1.09	Peak
3	2408.88	28.81	4.63	102.78	100.86	74.00	-26.86	Peak



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 864
Ant. pol. : HORIZONTAL

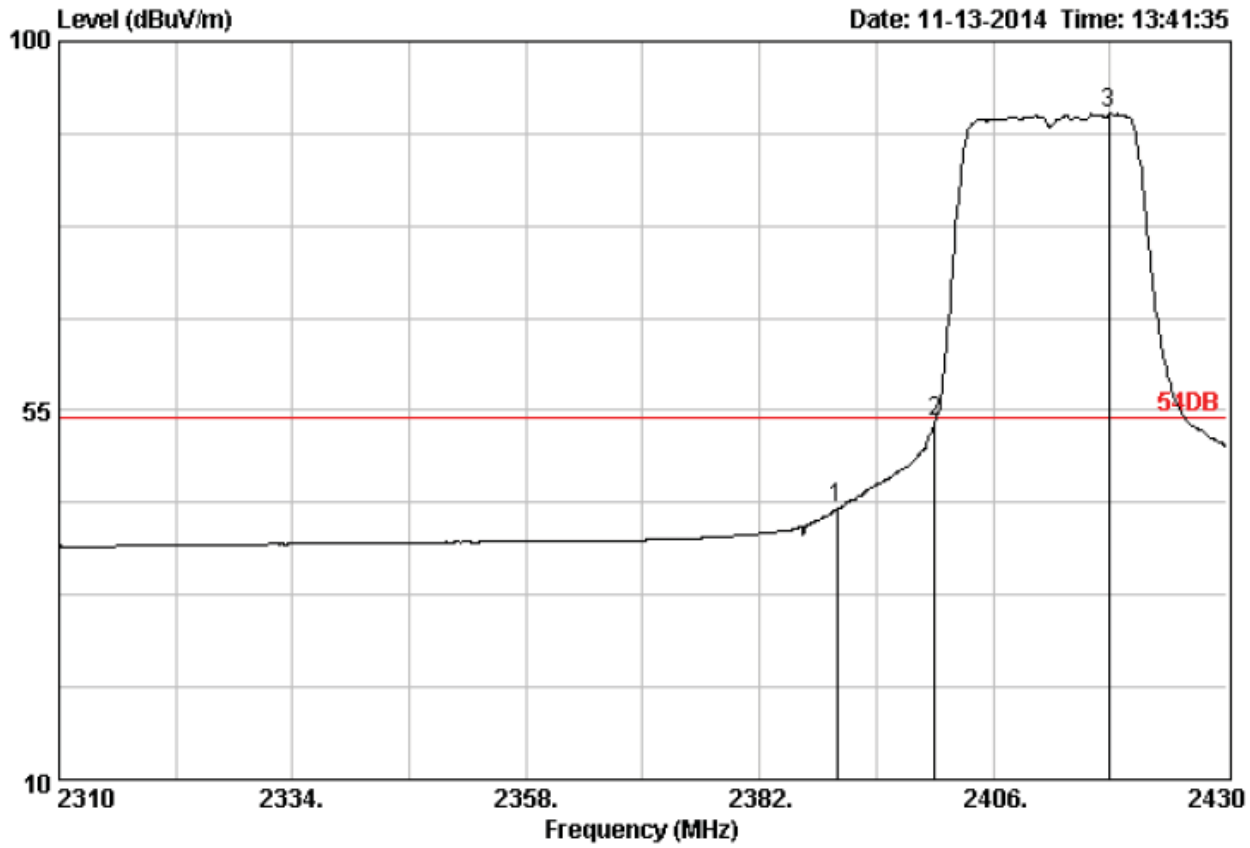
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	44.60	42.63	54.00	11.37	Average
2	2400.00	28.78	4.61	55.21	53.24	54.00	0.76	Average
3	2418.24	28.81	4.63	90.68	88.76	54.00	-34.76	Average



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 74DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 874
Ant. pol. : VERTICAL

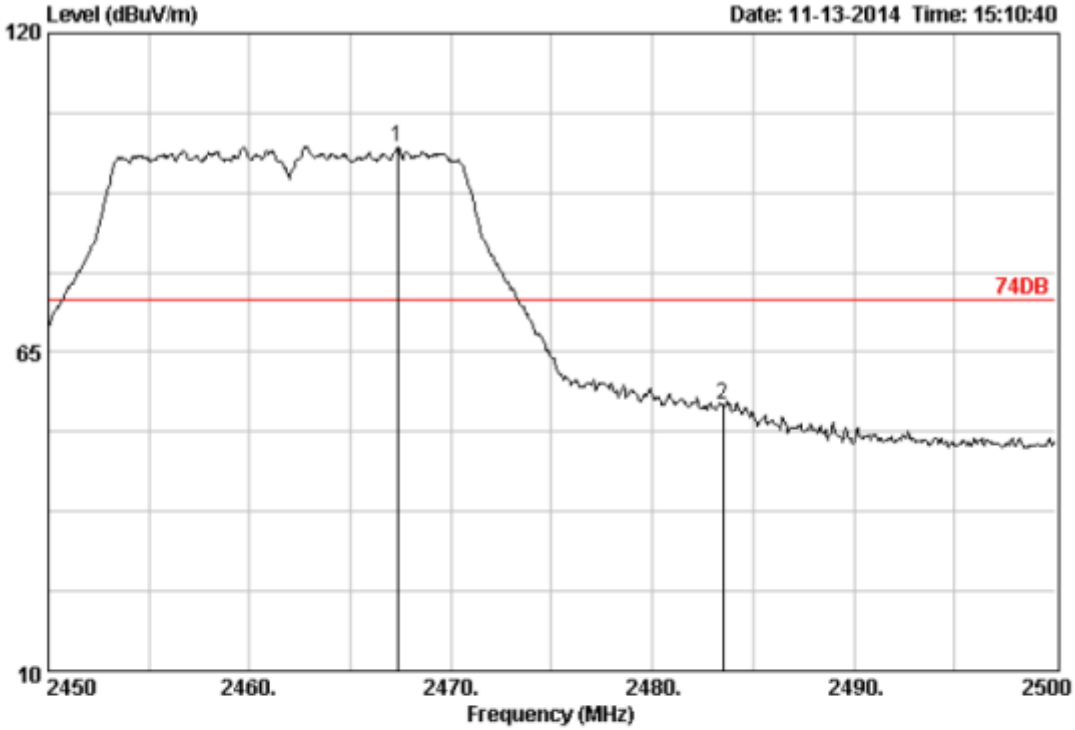
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	56.79	54.82	74.00	19.18	Peak
2	2400.00	28.78	4.61	75.73	73.76	74.00	0.24	Peak
3	2417.28	28.81	4.63	104.92	103.00	74.00	-29.00	Peak



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

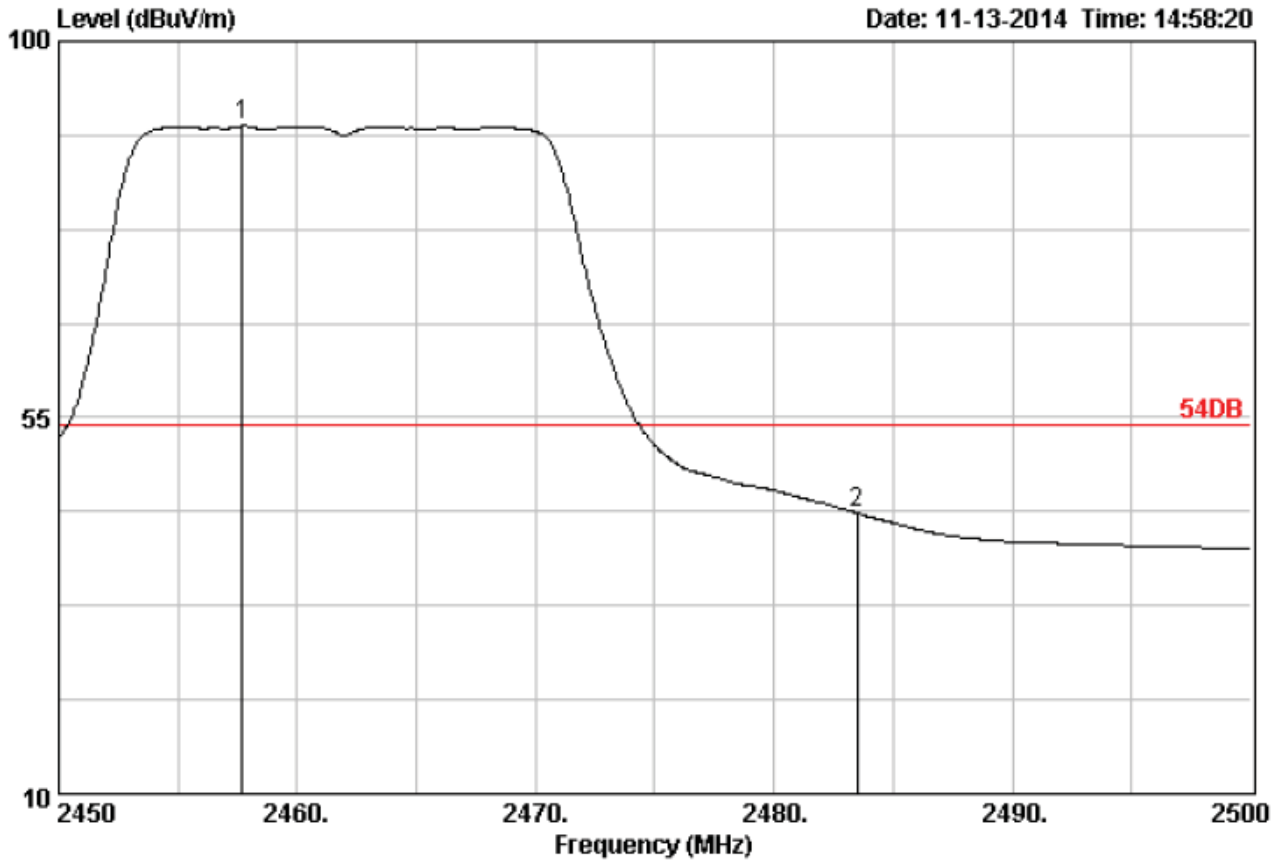
Data no. : 867
Ant. pol. : VERTICAL

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	45.02	43.05	54.00	10.95	Average
2	2400.00	28.78	4.61	55.53	53.56	54.00	0.44	Average
3	2417.88	28.81	4.63	93.09	91.17	54.00	-37.17	Average



Site no. : 3m Chamber Data no. : 871
Dis. / Ant. : 3m DRH-118 Ant. pol. : HORIZONTAL
Limit : 74DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

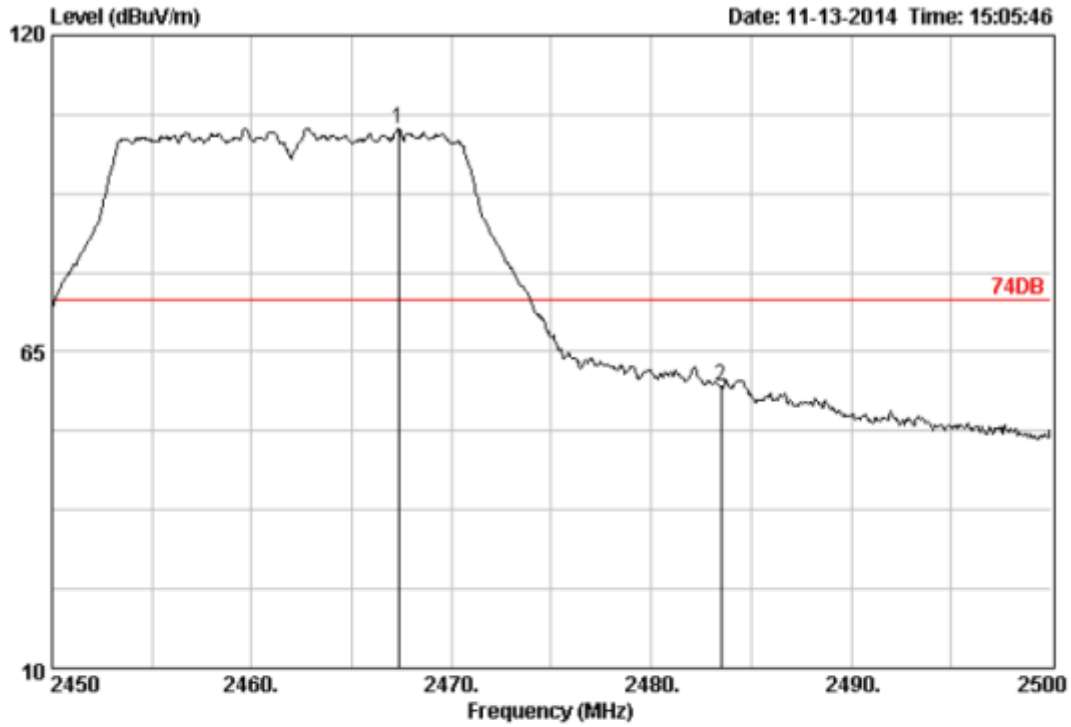
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2467.35	28.90	4.68	102.25	100.46	74.00	-26.46	Peak
2	2483.50	28.93	4.70	57.56	55.81	74.00	18.19	Peak



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 868
Ant. pol. : HORIZONTAL

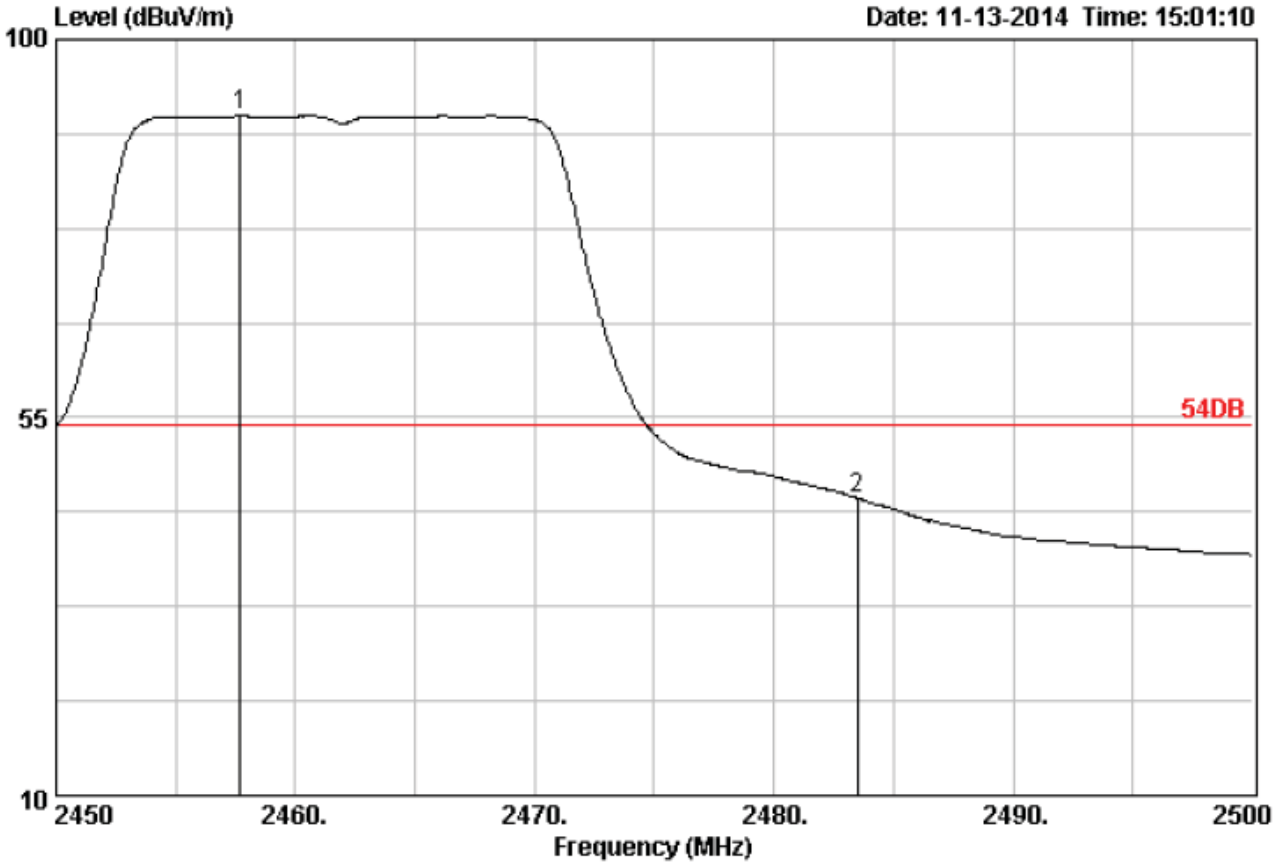
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2457.70	28.90	4.68	91.71	89.92	54.00	-35.92	Average
2	2483.50	28.93	4.70	45.30	43.55	54.00	10.45	Average



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 74DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 870
Ant. pol. : VERTICAL

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2467.35	28.90	4.68	105.68	103.89	74.00	-29.89	Peak
2	2483.50	28.93	4.70	60.65	58.90	74.00	15.10	Peak

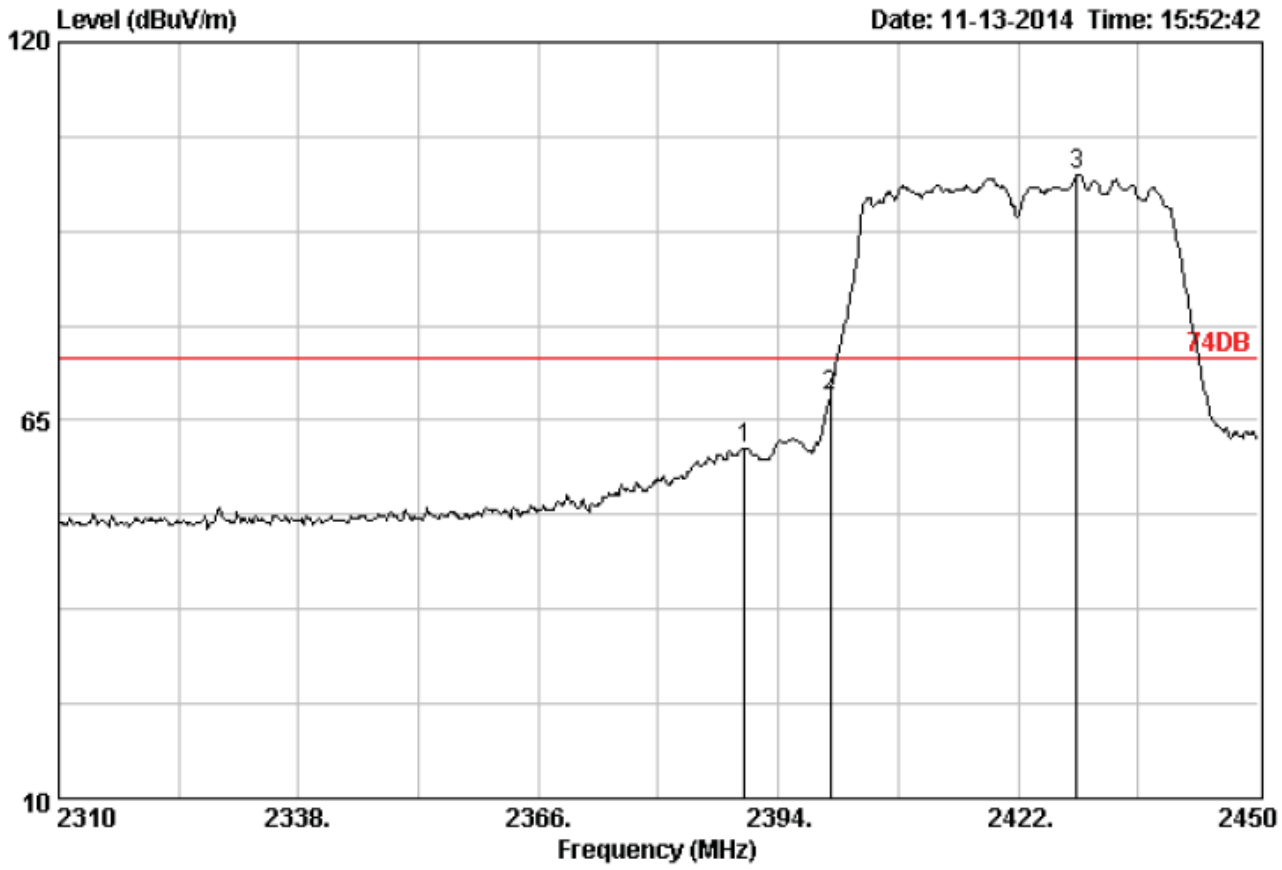


Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 869
Ant. pol. : VERTICAL

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2457.70	28.90	4.68	92.84	91.05	54.00	-37.05	Average
2	2483.50	28.93	4.70	47.14	45.39	54.00	8.61	Average

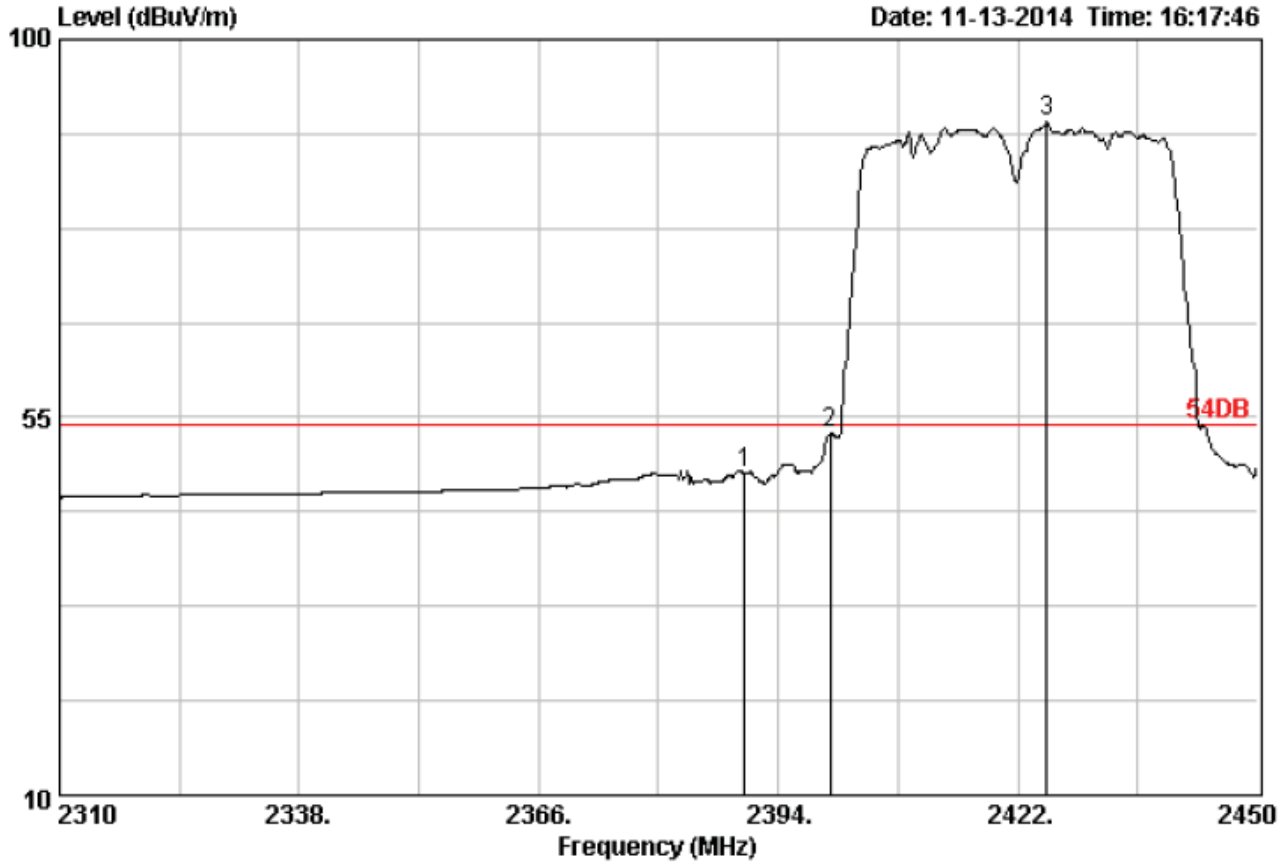
Note : For 802.11n (40MHz, KEEPING MIMO TX MODE) Mode:



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 74DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 877
Ant. pol. : HORIZONTAL

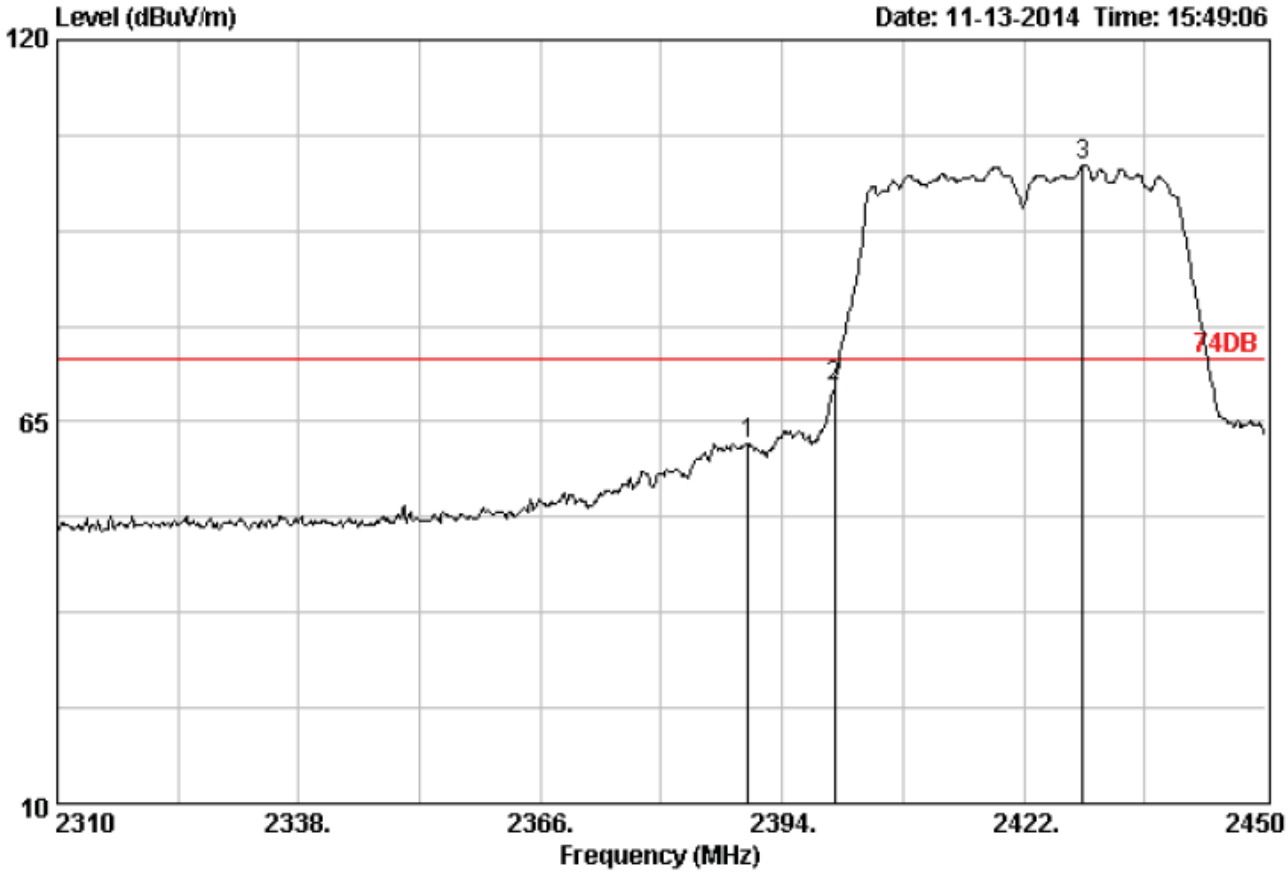
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	62.69	60.72	74.00	13.28	Peak
2	2400.00	28.78	4.61	70.55	68.58	74.00	5.42	Peak
3	2428.86	28.84	4.64	102.46	100.58	74.00	-26.58	Peak



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 882
Ant. pol. : HORIZONTAL

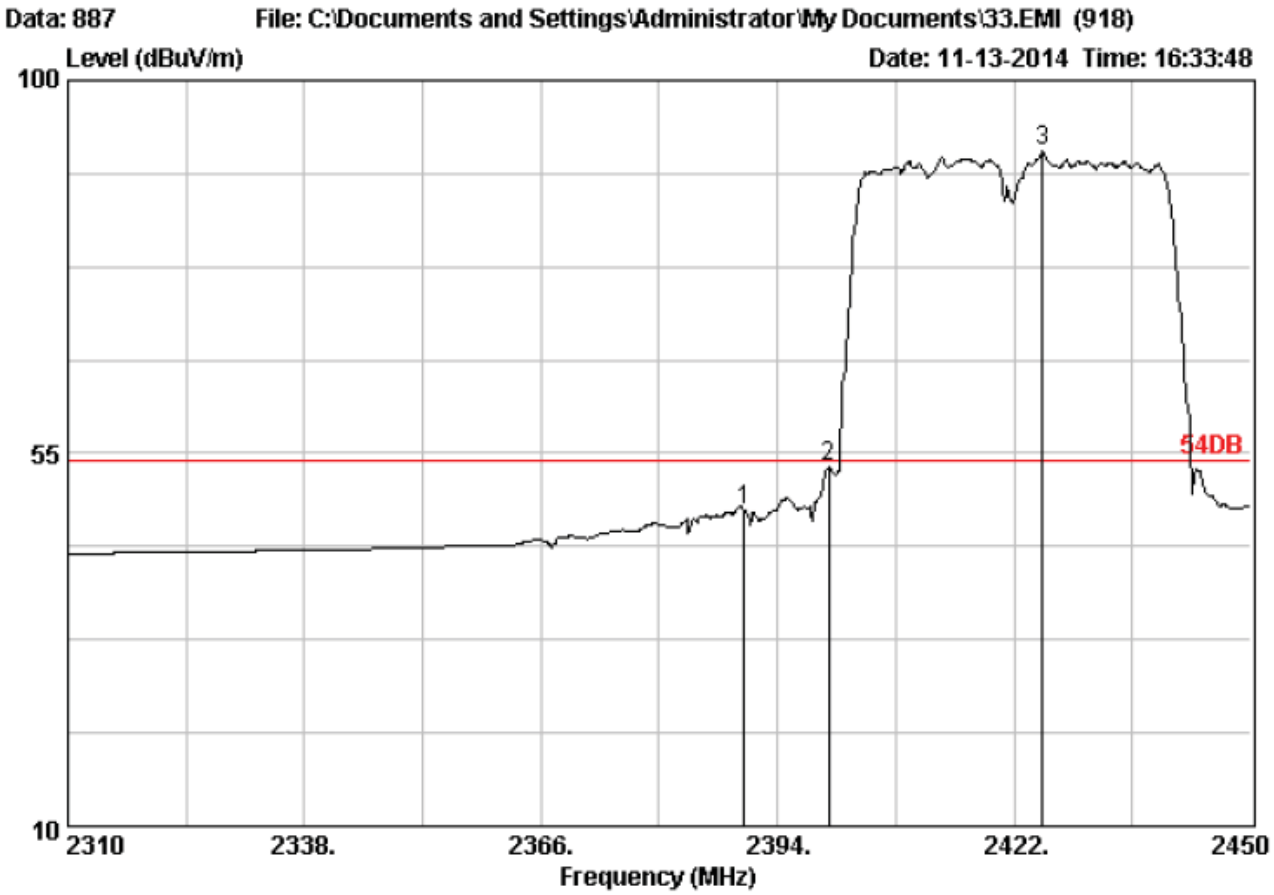
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	50.34	48.37	54.00	5.63	Average
2	2400.00	28.78	4.61	55.01	53.04	54.00	0.96	Average
3	2425.36	28.84	4.64	92.07	90.19	54.00	-36.19	Average



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 74DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 876
Ant. pol. : VERTICAL

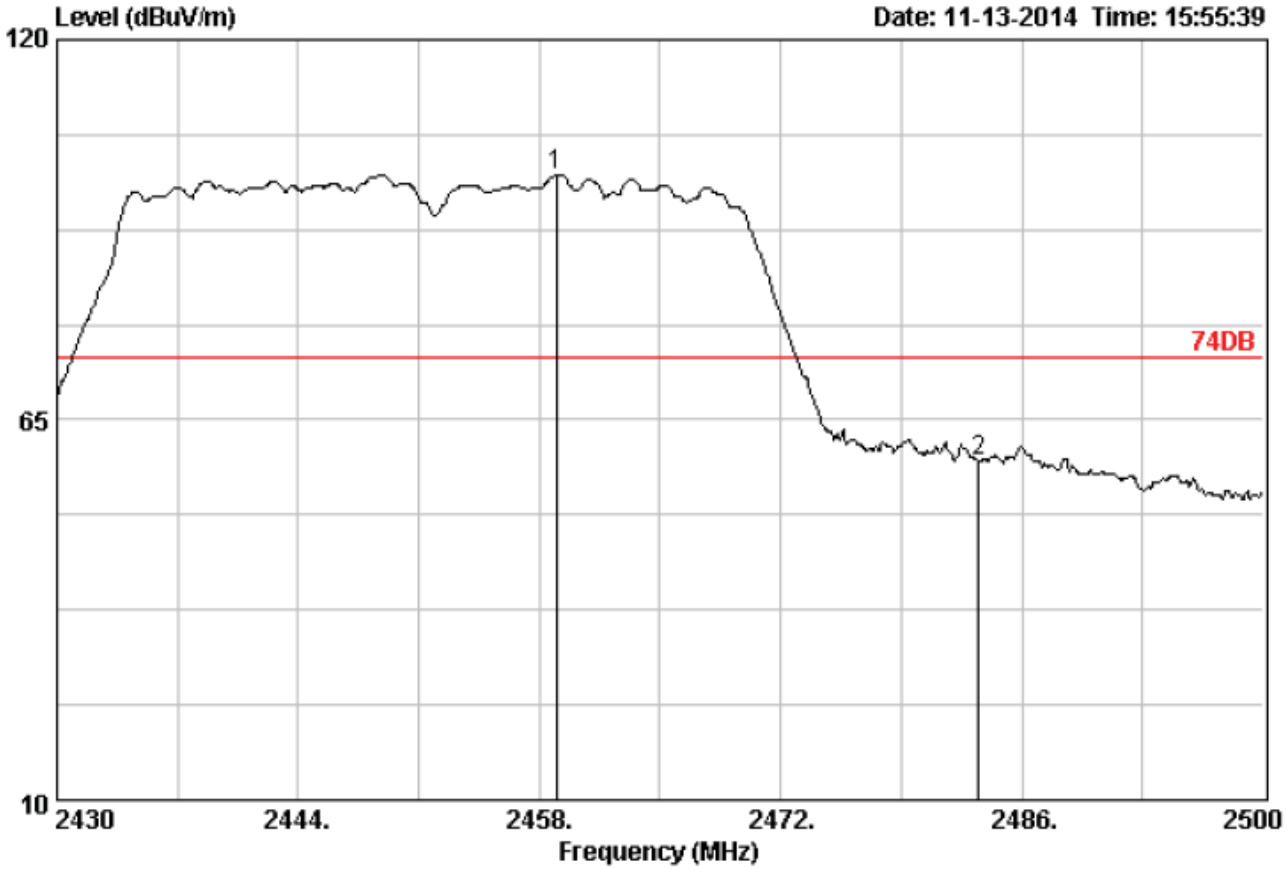
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	63.74	61.77	74.00	12.23	Peak
2	2400.00	28.78	4.61	72.17	70.20	74.00	3.80	Peak
3	2428.86	28.84	4.64	103.89	102.01	74.00	-28.01	Peak



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 887
Ant. pol. : VERTICAL

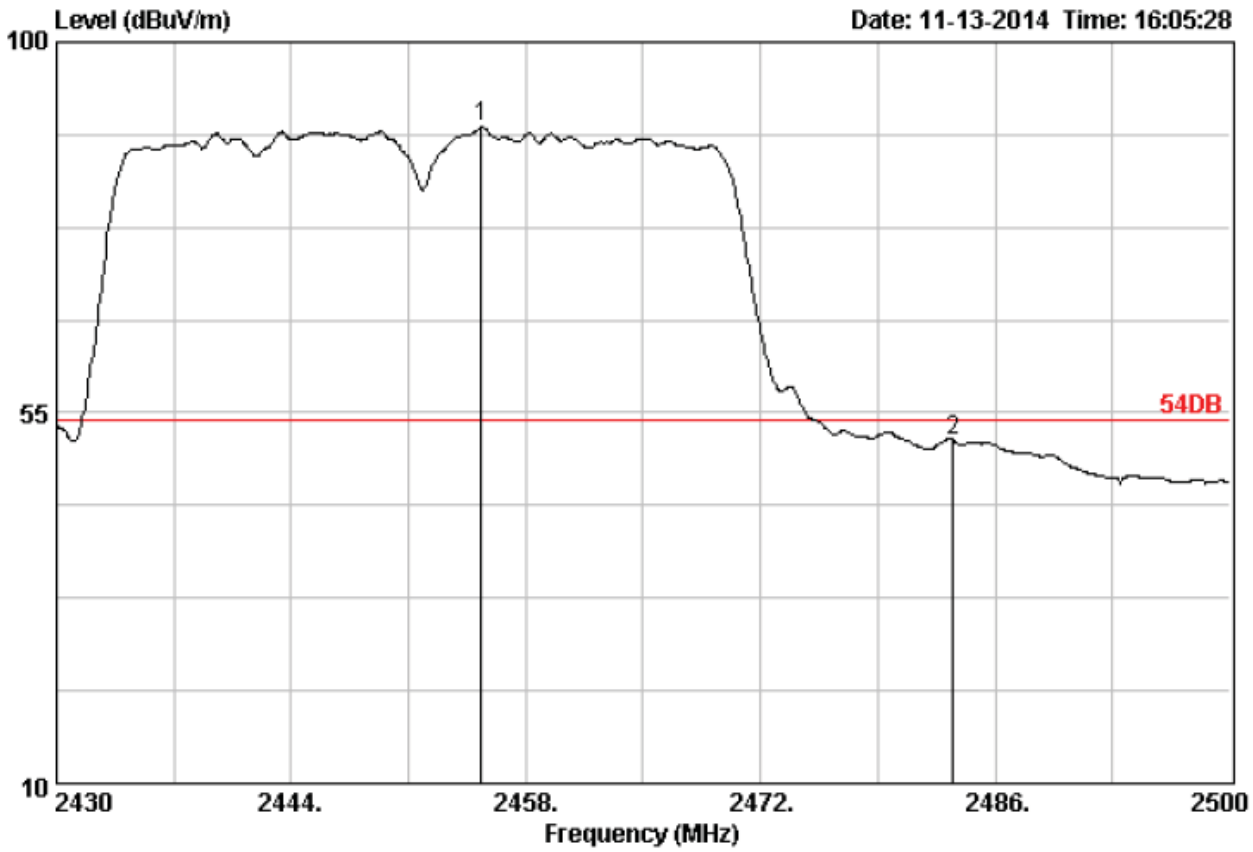
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	50.18	48.21	54.00	5.79	Average
2	2400.00	28.78	4.61	55.22	53.25	54.00	0.75	Average
3	2425.36	28.84	4.64	93.42	91.54	54.00	-37.54	Average



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 74DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 878
Ant. pol. : HORIZONTAL

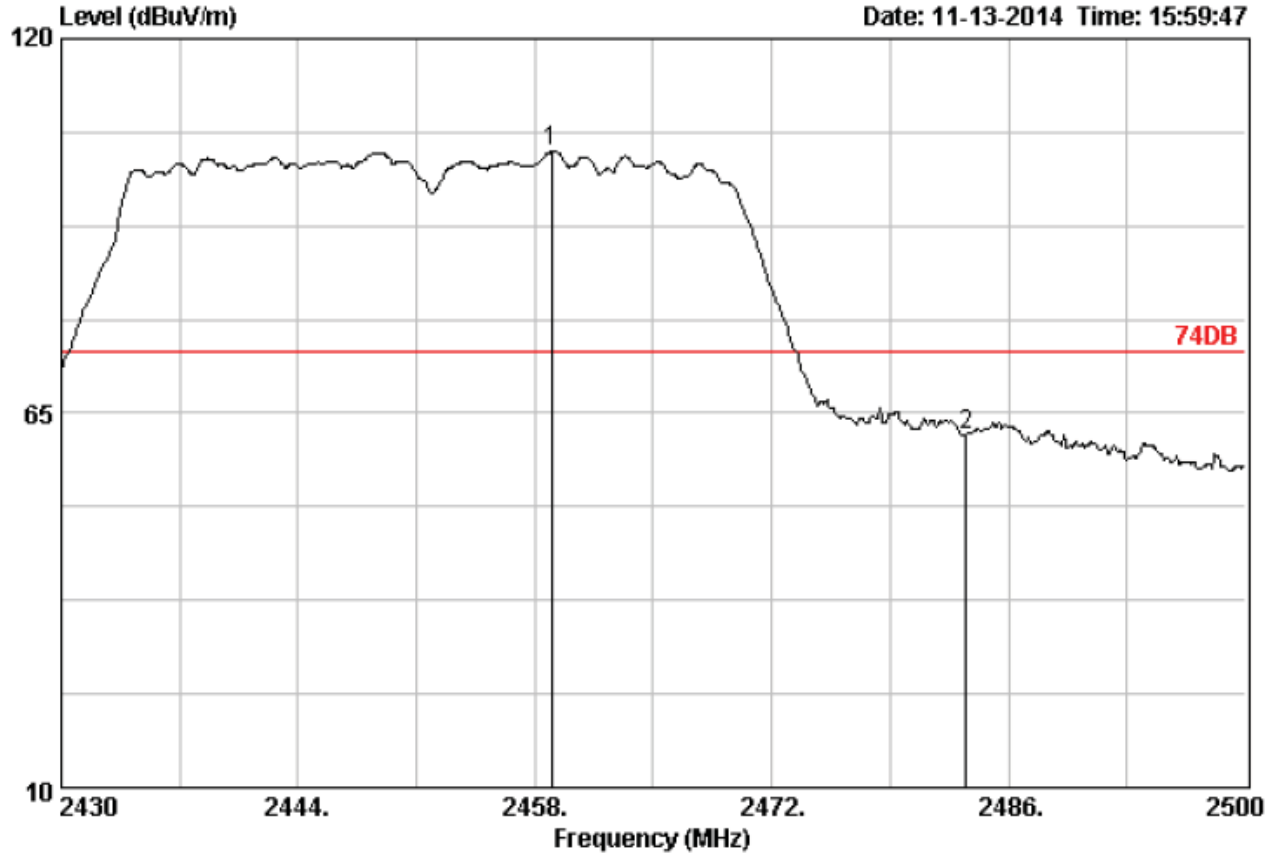
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2458.98	28.90	4.68	102.28	100.49	74.00	-26.49	Peak
2	2483.50	28.93	4.70	60.75	59.00	74.00	15.00	Peak



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 880
Ant. pol. : HORIZONTAL

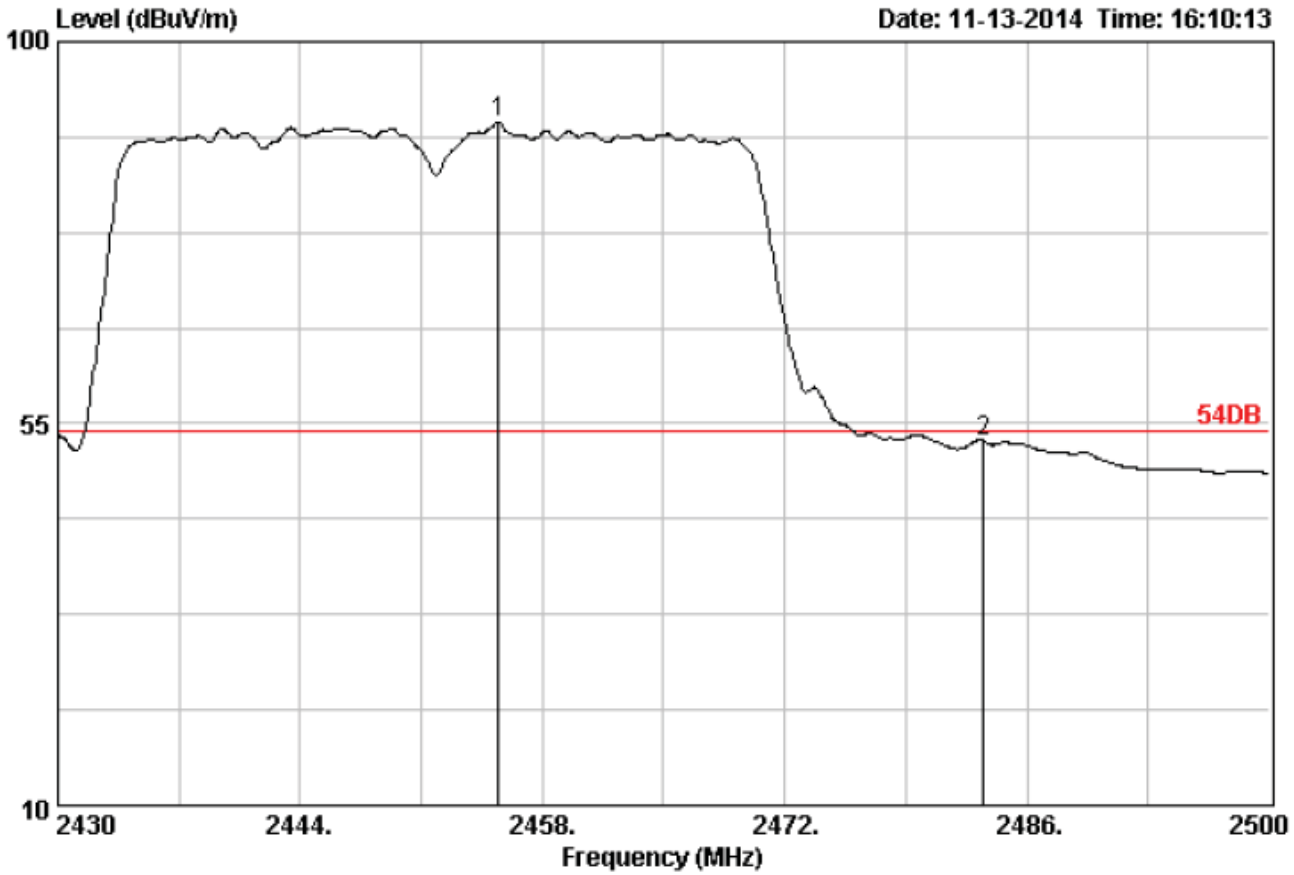
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2455.34	28.90	4.68	91.46	89.67	54.00	-35.67	Average
2	2483.50	28.93	4.70	53.39	51.64	54.00	2.36	Average



Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 74DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 879
Ant. pol. : VERTICAL

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2458.98	28.90	4.68	105.19	103.40	74.00	-29.40	Peak
2	2483.50	28.93	4.70	63.68	61.93	74.00	12.07	Peak



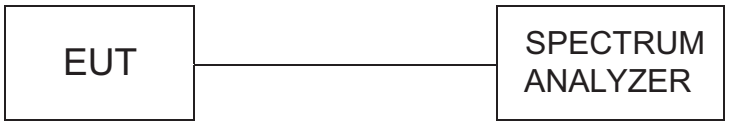
Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 881
Ant. pol. : VERTICAL

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2455.48	28.90	4.68	92.34	90.55	54.00	-36.55	Average
2	2483.50	28.93	4.70	54.67	52.92	54.00	1.08	Average

4.6. Power Spectral Density Measurement

TEST CONFIGURATION



TEST PROCEDURE

The EUT was tested according to KDB558074 D01 v03r02 for compliance to FCC 47CFR 15.247 requirements.

Set RBW= 3 kHz, VBW≥10KHz, SPAN to 1.5 times greater than the EBW,.

LIMIT

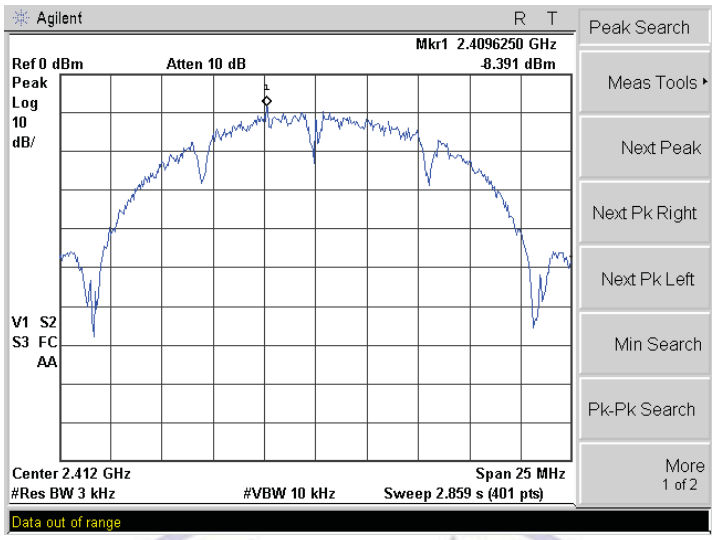
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST RESULTS

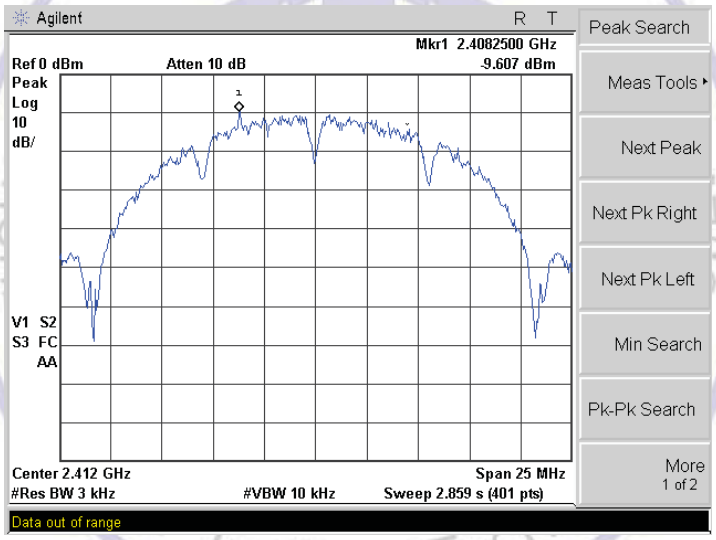
Channel	Channel Frequency (MHz)	PSD (dBm/ 3KHz)			Maximum limit (dBm/ 3KHz)	PASS / FAIL
		Ant1	Ant 2	Total		
1	2412	-8.391	-9.607	N/A	8	PASS
6	2437	-9.724	-9.251	N/A	8	PASS
11	2462	-9.070	-9.857	N/A	8	PASS
1	2412	-12.43	-13.17	N/A	8	PASS
6	2437	-12.72	-13.06	N/A	8	PASS
11	2462	-13.26	-12.97	N/A	8	PASS
1	2412	-13.96	-13.62	-10.78	8	PASS
6	2437	-13.77	-13.49	-10.62	8	PASS
11	2462	-13.68	-13.53	-10.59	8	PASS
3	2422	-16.12	-16.60	-13.34	8	PASS
6	2437	-17.13	-15.80	-13.40	8	PASS
9	2452	-16.45	-15.59	-12.99	8	PASS

For 802.11b Mode:

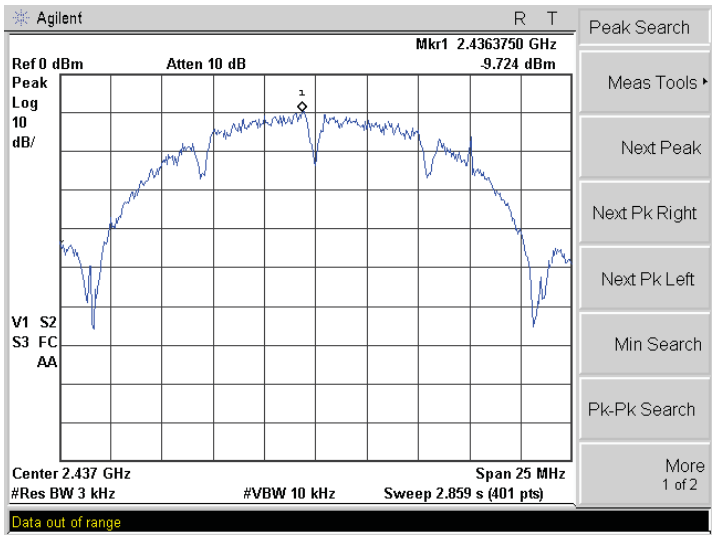
CH1 @ANT 1



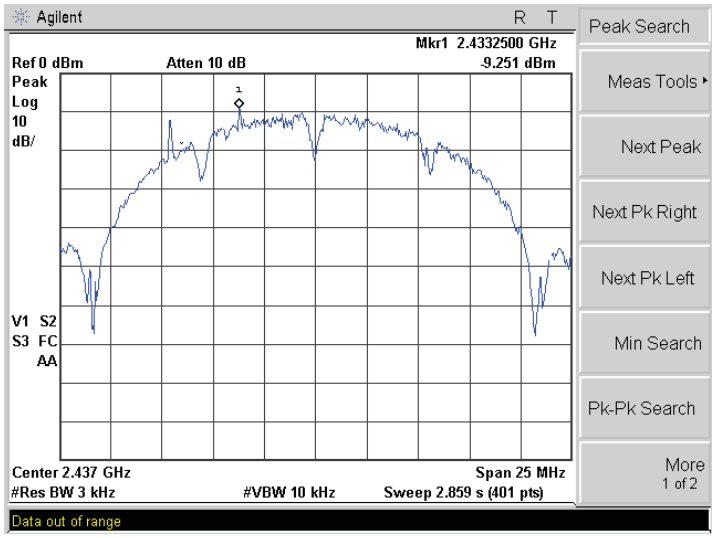
CH1 @ANT 2



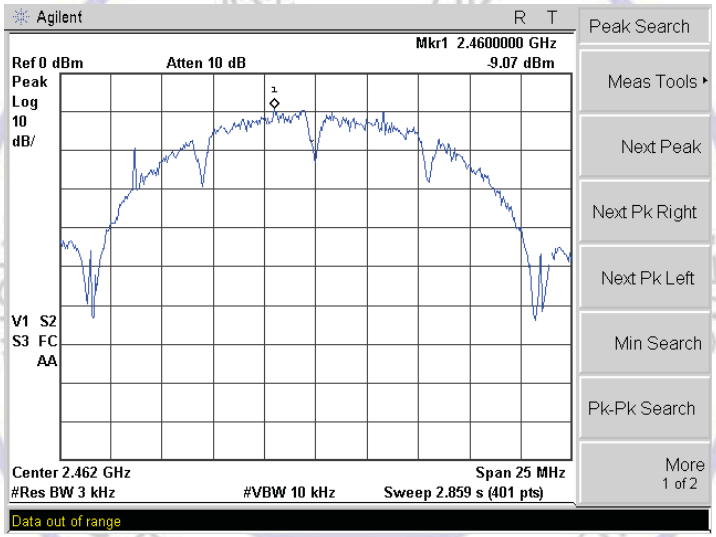
CH6 @ANT 1



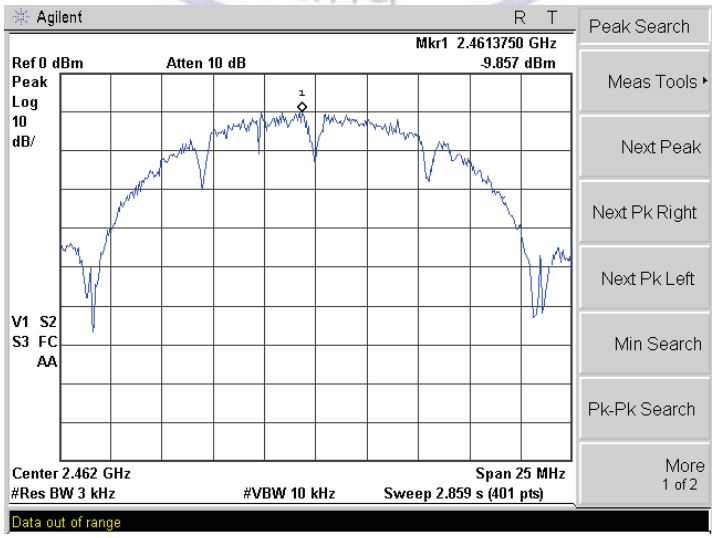
CH6 @ANT 2



CH11 @ANT 1

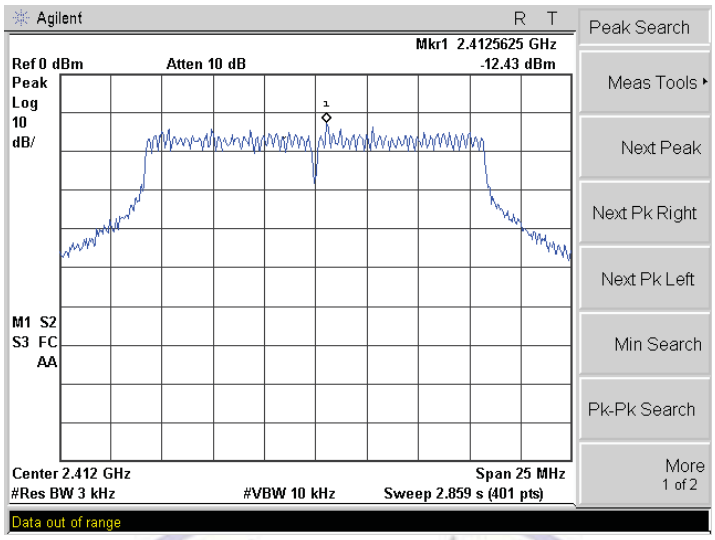


CH11 @ANT 2

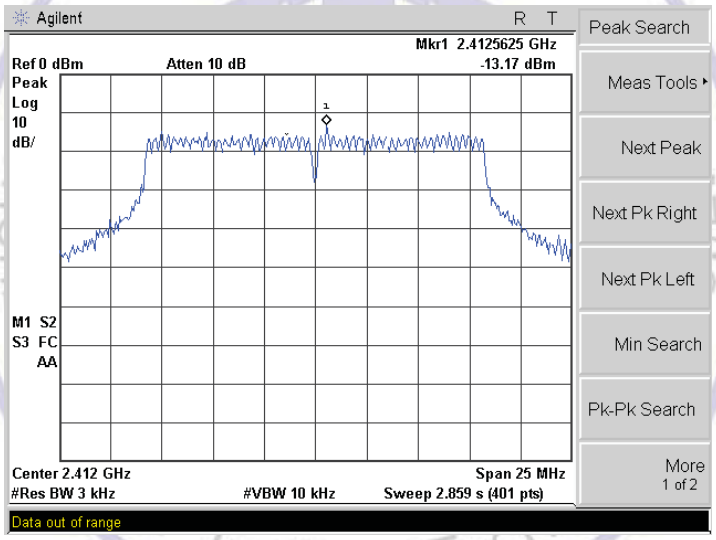


For 802.11g Mode:

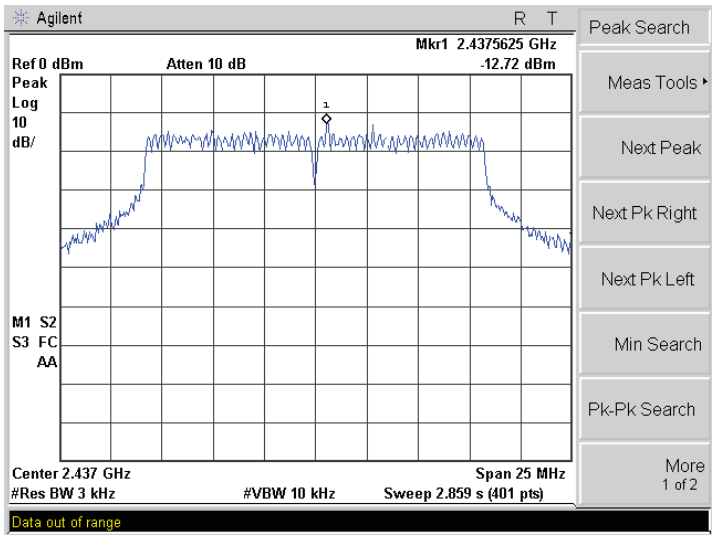
CH1 @ANT 1



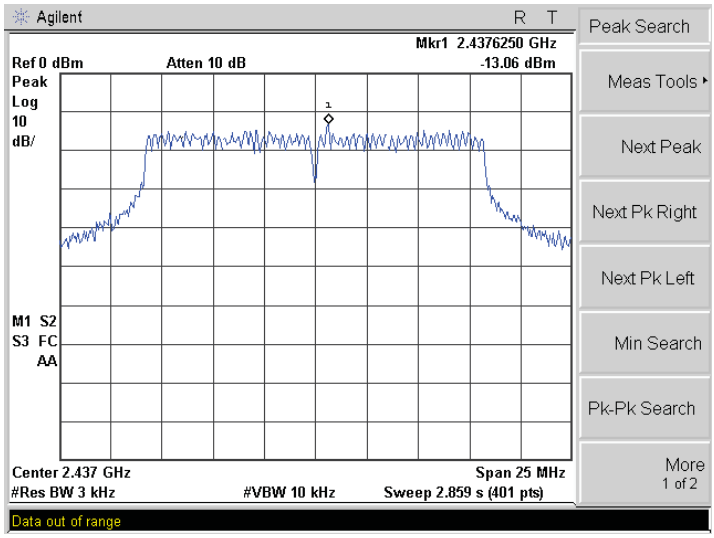
CH1 @ANT 2



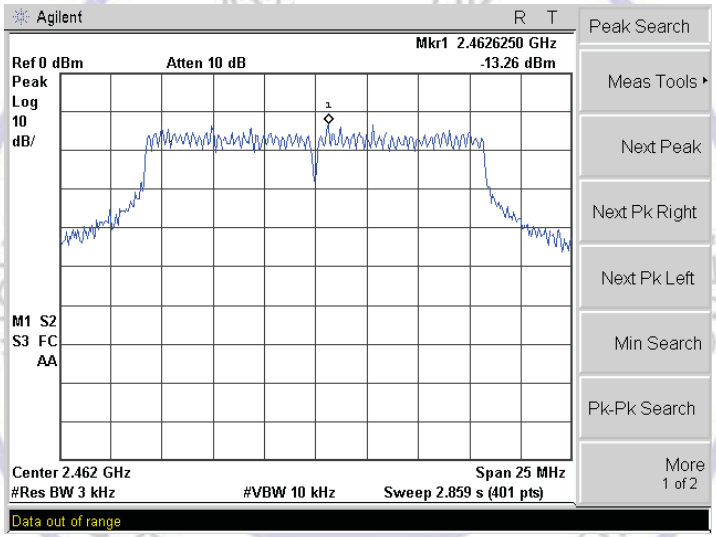
CH6 @ANT 1



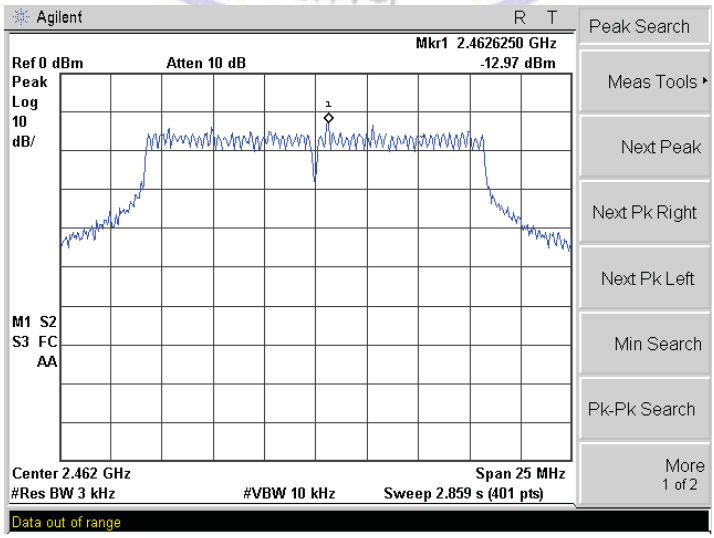
CH6 @ANT 2



CH11 @ANT 1

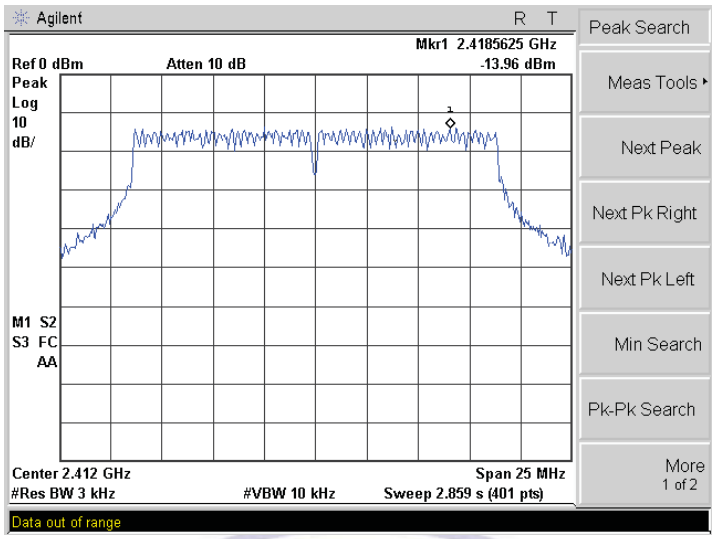


CH11 @ANT 2

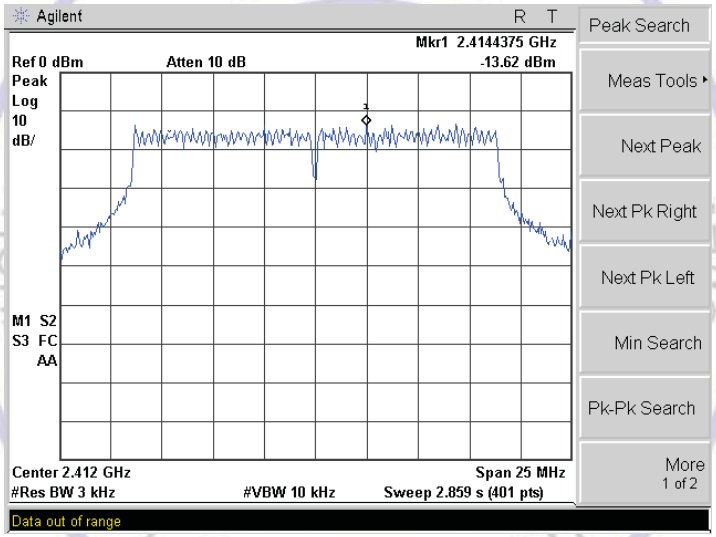


For 802.11n (20MHz) Mode:

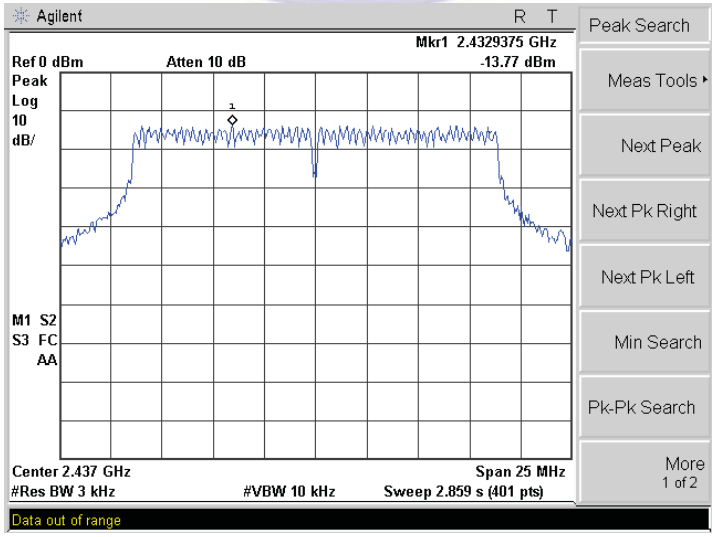
CH1 @ANT 1



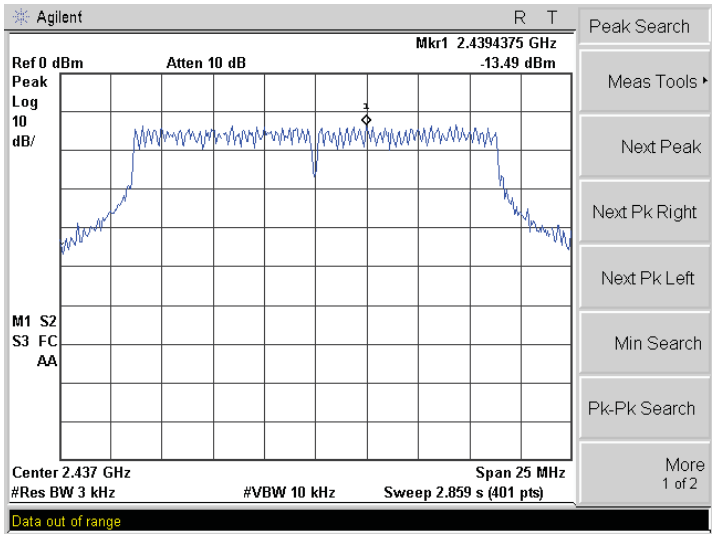
CH1 @ANT 2



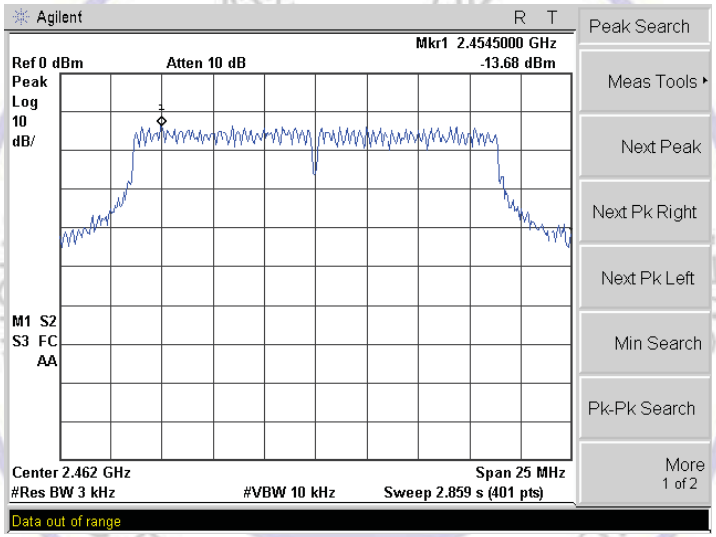
CH6 @ANT 1



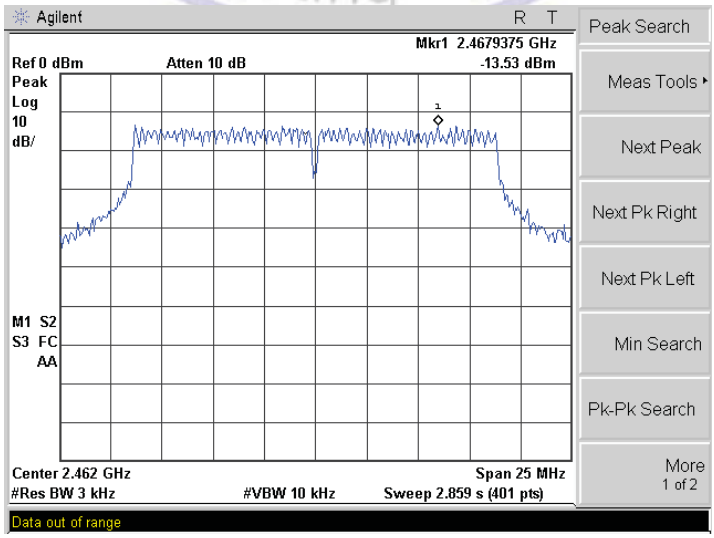
CH6 @ANT 2



CH11 @ANT 1

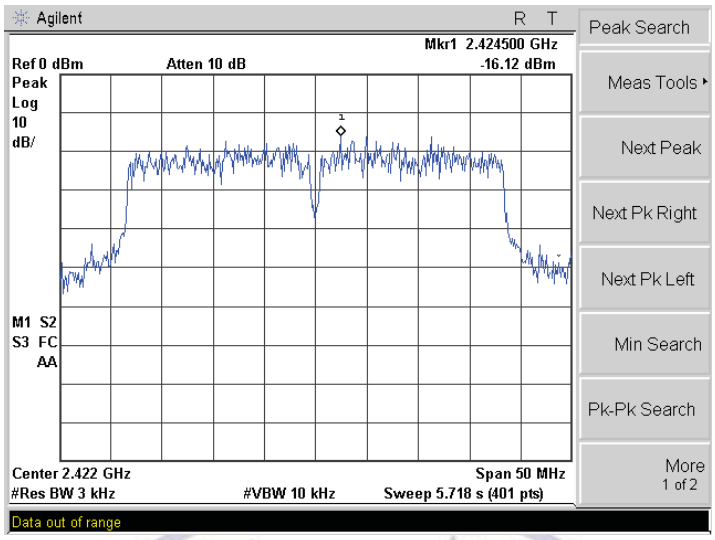


CH11 @ANT 2

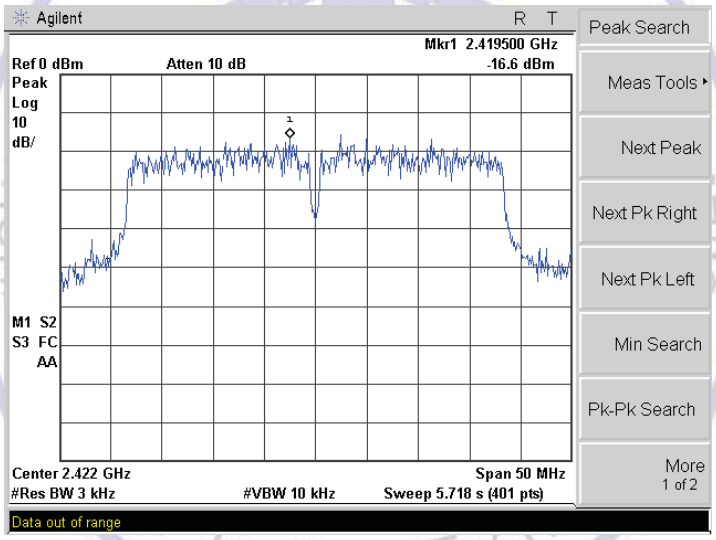


For 802.11n (40MHz) Mode:

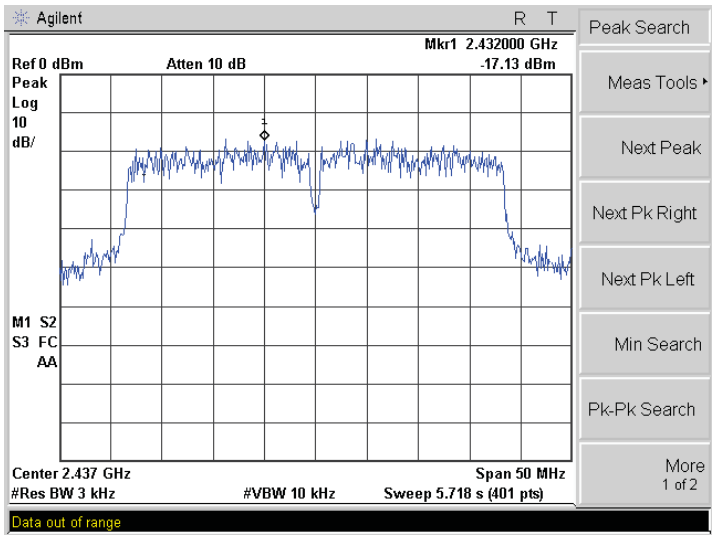
CH3 @ANT 1



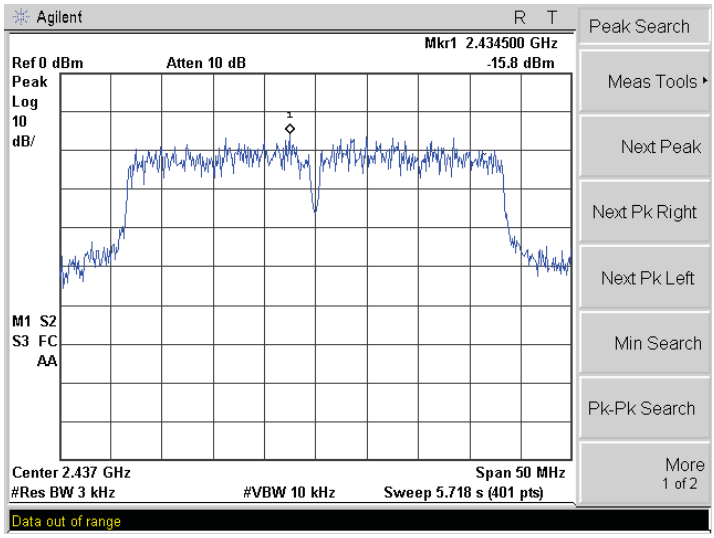
CH3 @ANT 2



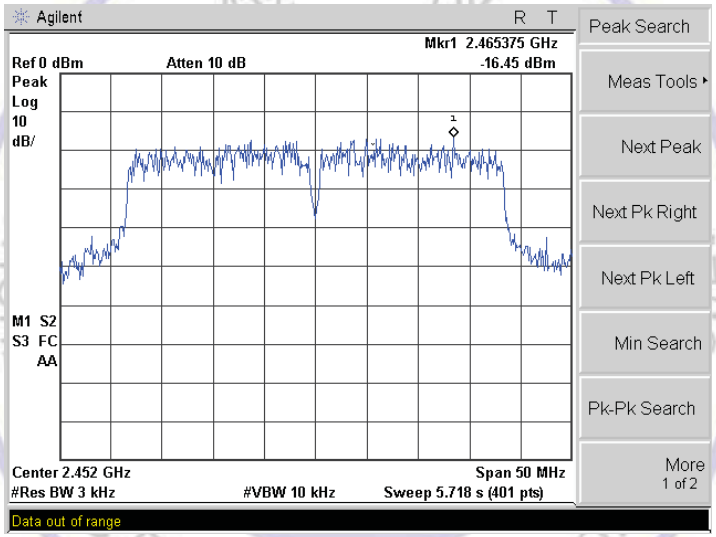
CH6 @ANT 1



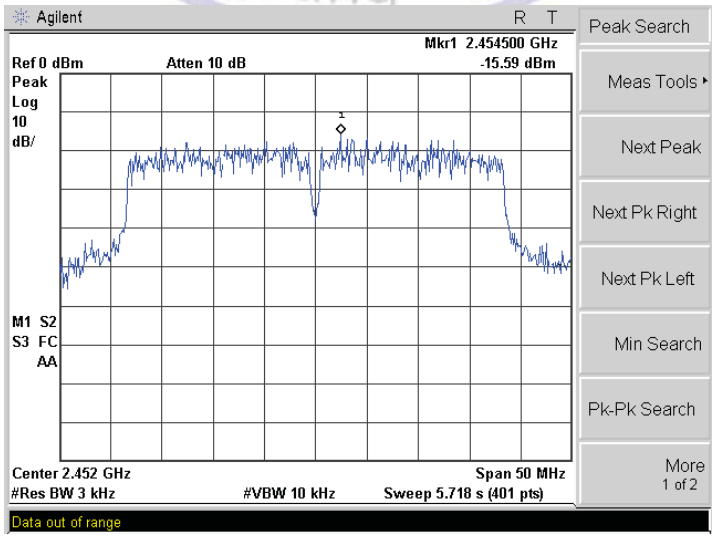
CH6 @ANT 2



CH9 @ANT 1

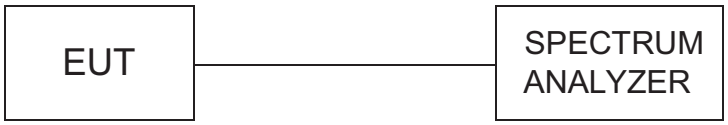


CH9 @ANT 2



4.7. Spurious RF Conducted Emission

TEST CONFIGURATION



TEST PROCEDURE

The EUT was tested according to KDB558074 D01 v03r02 for compliance to FCC 47CFR 15.247 requirements.

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 frequeny range from 30MHz to 26.5GHz.

LIMIT

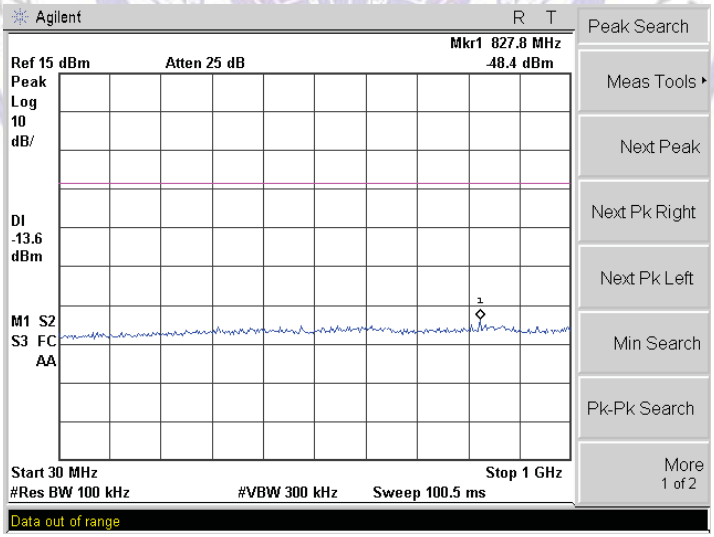
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the 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.

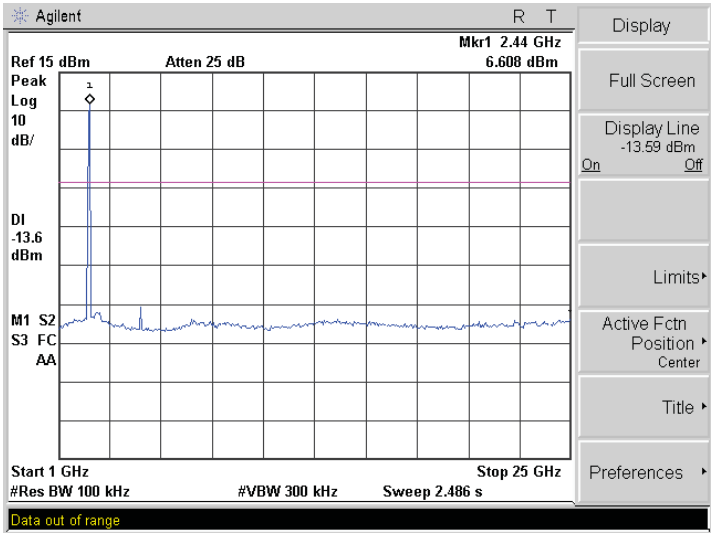
TEST RESULTS

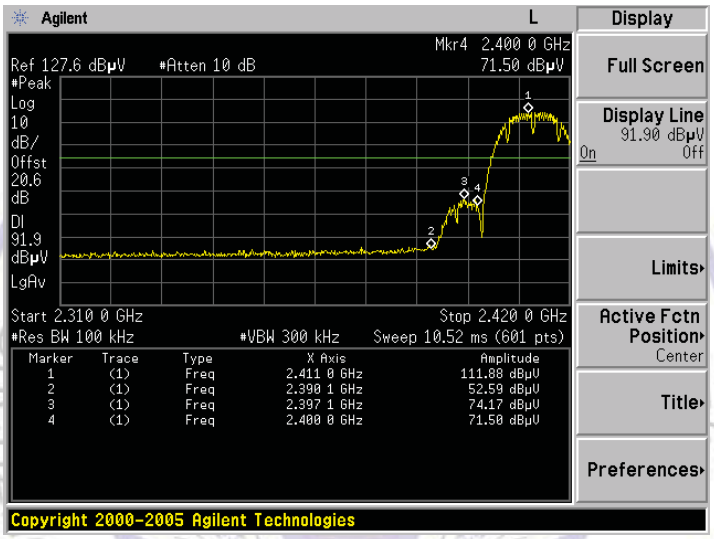
Photos of Spurious RF Conducted Emission Measurement

For 802.11b Mode:

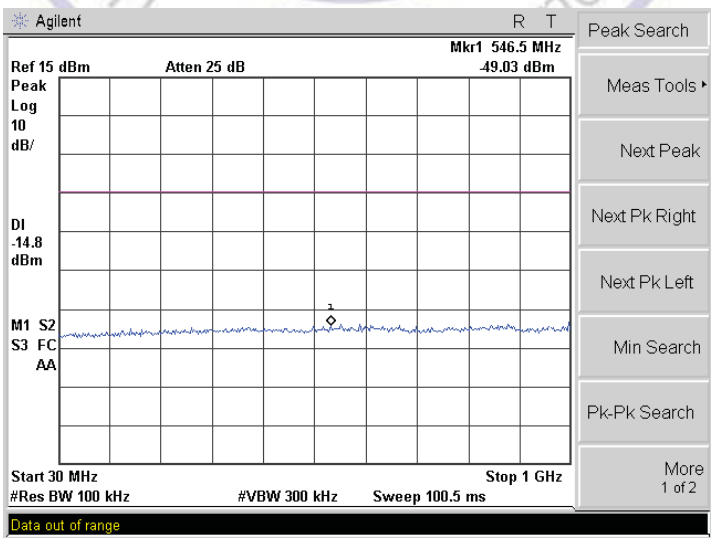
CH1 @ANT1

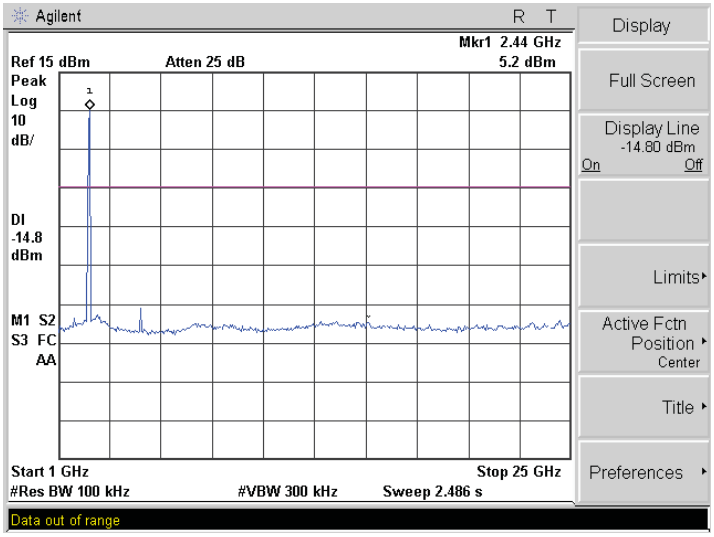


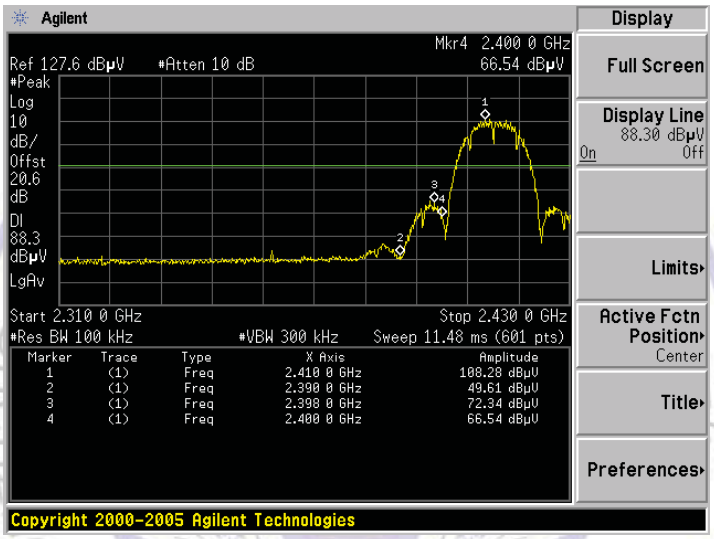

Agilent
R T
Mkr1 2.44 GHz
Ref 15 dBm
Atten 25 dB
6.608 dBm
Peak
Log
10
dB/
Dl
-13.6
dBm
M1 S2
S3 FC
AA
Start 1 GHz
Stop 25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.486 s
Data out of range
Display
Full Screen
Display Line
-13.59 dBm
On Off
Limits
Active Fctn
Position
Center
Title
Preferences


Agilent
L
Mkr4 2.400 0 GHz
Ref 127.6 dBµV
#Atten 10 dB
71.50 dBµV
#Peak
Log
10
dB/
Offst
20.6
dB
Dl
91.9
dBµV
LgAv
Start 2.310 0 GHz
Stop 2.420 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 10.52 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.411 0 GHz 111.88 dBµV
2 (1) Freq 2.390 1 GHz 52.59 dBµV
3 (1) Freq 2.397 1 GHz 74.17 dBµV
4 (1) Freq 2.400 0 GHz 71.50 dBµV
Copyright 2000-2005 Agilent Technologies
Display
Full Screen
Display Line
91.90 dBµV
On Off
Limits
Active Fctn
Position
Center
Title
Preferences

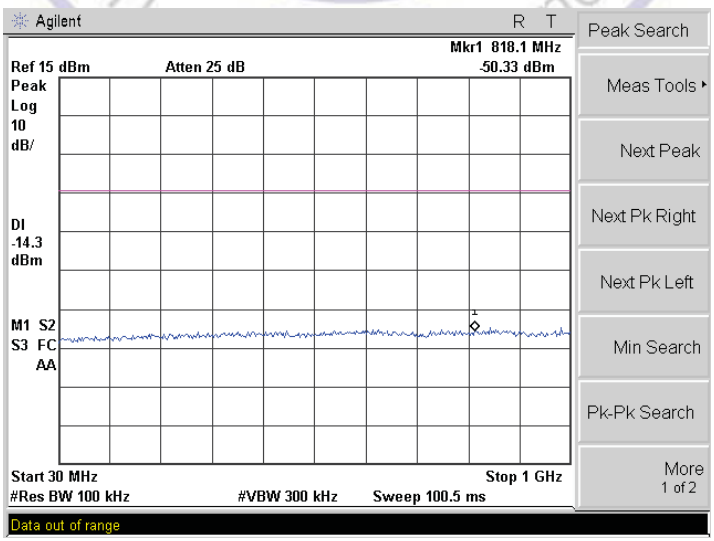
CH1 @ANT 2

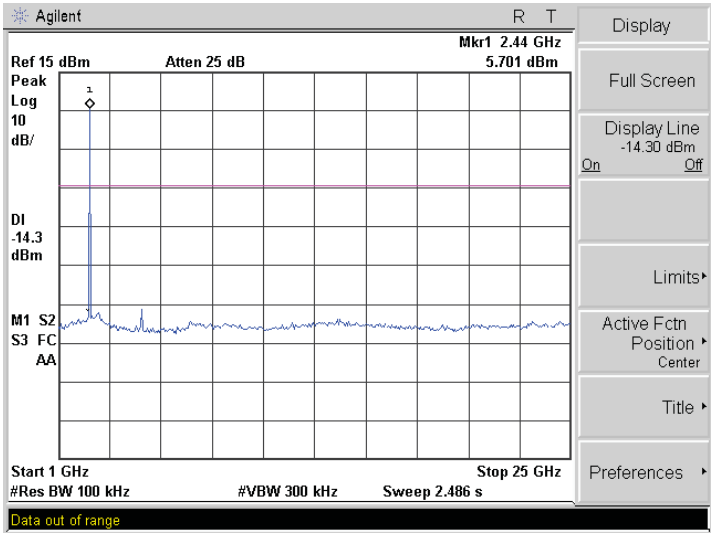

Agilent
R T
Mkr1 546.5 MHz
Ref 15 dBm
Atten 25 dB
-49.03 dBm
Peak
Log
10
dB/
Dl
-14.8
dBm
M1 S2
S3 FC
AA
Start 30 MHz
Stop 1 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 100.5 ms
Data out of range
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2


Agilent
R T
Mkr1 2.44 GHz
Ref 15 dBm
Atten 25 dB
5.2 dBm
Peak
Log
10
dB/
Dl
-14.8
dBm
M1 S2
S3 FC
AA
Start 1 GHz
Stop 25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.486 s
Data out of range
Display
Full Screen
Display Line
-14.80 dBm
On Off
Limits
Active Fctn
Position
Center
Title
Preferences

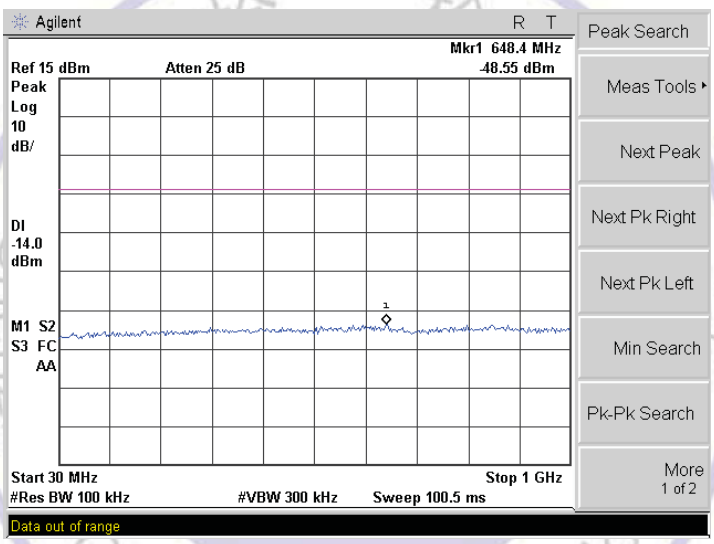

Agilent
Mkr4 2.400 0 GHz
Ref 127.6 dBµV
#Atten 10 dB
66.54 dBµV
#Peak
Log
10
dB/
Offst
20.6
dB
Dl
88.3
dBµV
LgAv
Start 2.310 0 GHz
Stop 2.430 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 11.48 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.410 0 GHz 108.28 dBµV
2 (1) Freq 2.390 0 GHz 49.61 dBµV
3 (1) Freq 2.398 0 GHz 72.34 dBµV
4 (1) Freq 2.400 0 GHz 66.54 dBµV
Copyright 2000-2005 Agilent Technologies
Display
Full Screen
Display Line
88.30 dBµV
On Off
Limits
Active Fctn
Position
Center
Title
Preferences

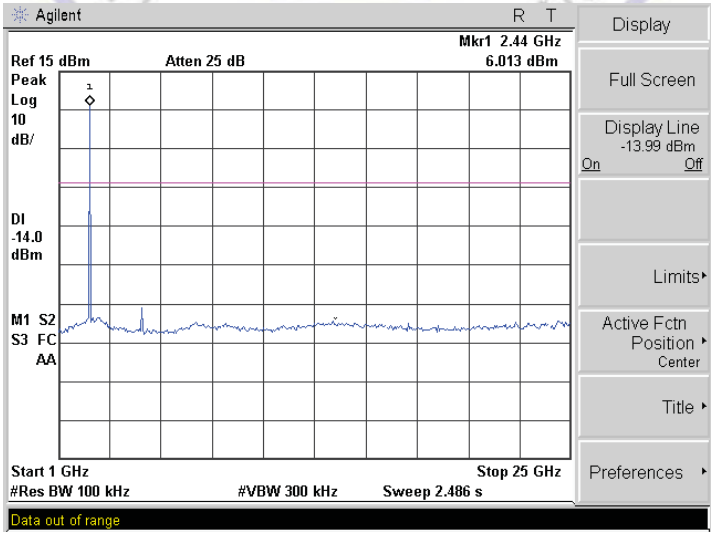
CH6 @ANT 1


Agilent
R T
Mkr1 818.1 MHz
Ref 15 dBm
Atten 25 dB
-50.33 dBm
Peak
Log
10
dB/
Dl
-14.3
dBm
M1 S2
S3 FC
AA
Start 30 MHz
Stop 1 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 100.5 ms
Data out of range
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

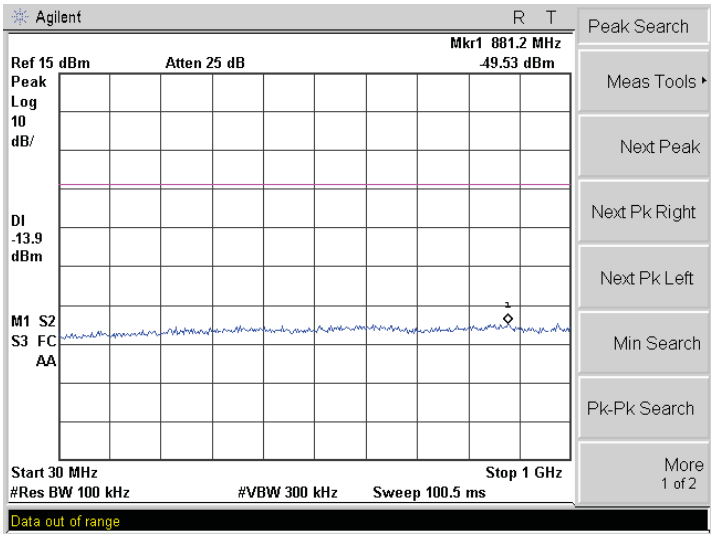

Agilent
R T
Mkr1 2.44 GHz
Ref 15 dBm
Atten 25 dB
5.701 dBm
Peak
Log
10
dB/
Dl
-14.3
dBm
M1 S2
S3 FC
AA
Start 1 GHz
Stop 25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.486 s
Data out of range
Display
Full Screen
Display Line
-14.30 dBm
On Off
Limits
Active Fctn
Position
Center
Title
Preferences

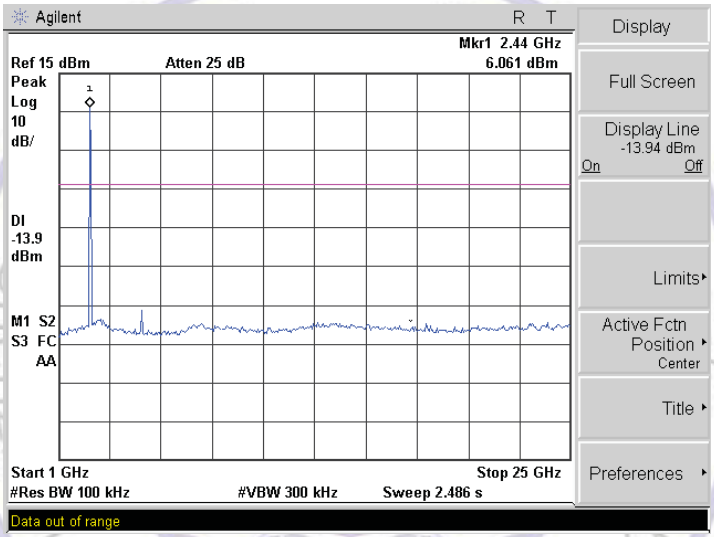
CH6 @ANT 2

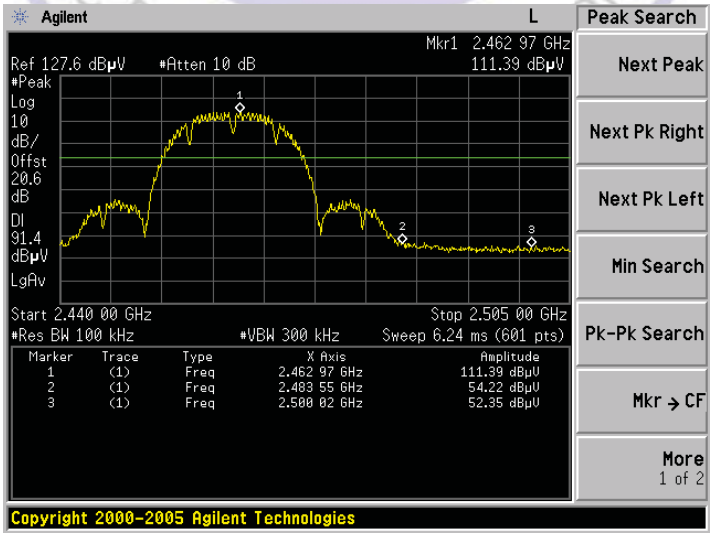

Agilent
R T
Mkr1 648.4 MHz
Ref 15 dBm
Atten 25 dB
-48.55 dBm
Peak
Log
10
dB/
Dl
-14.0
dBm
M1 S2
S3 FC
AA
Start 30 MHz
Stop 1 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 100.5 ms
Data out of range
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2


Agilent
R T
Mkr1 2.44 GHz
Ref 15 dBm
Atten 25 dB
6.013 dBm
Peak
Log
10
dB/
Dl
-14.0
dBm
M1 S2
S3 FC
AA
Start 1 GHz
Stop 25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.486 s
Data out of range
Display
Full Screen
Display Line
-13.99 dBm
On Off
Limits
Active Fctn
Position
Center
Title
Preferences

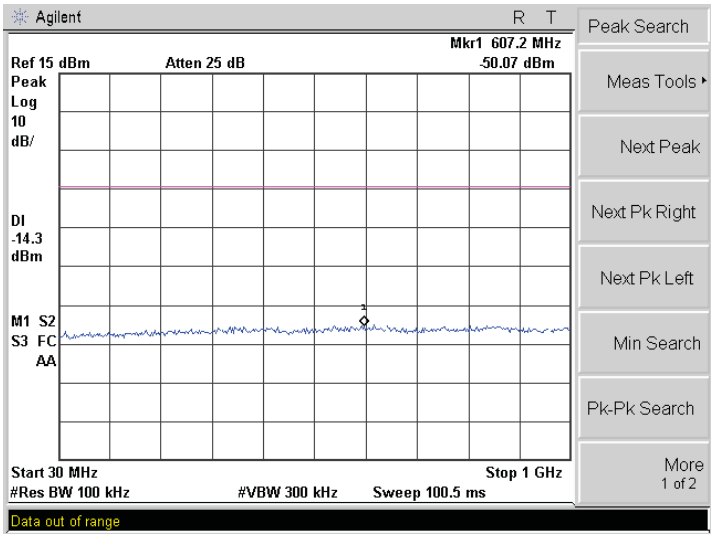
CH11 @ANT 1

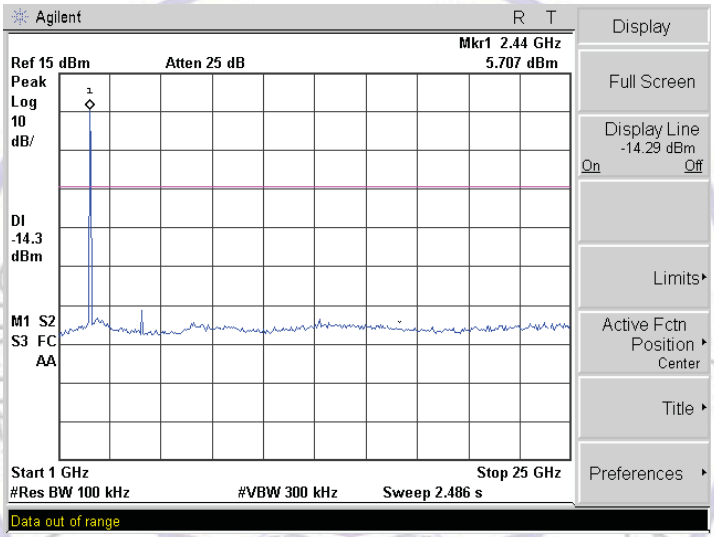

Agilent
R T
Mkr1 881.2 MHz
Ref 15 dBm
Atten 25 dB
-49.53 dBm
Peak
Log
10
dB/
DI
-13.9
dBm
M1 S2
S3 FC
AA
Start 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1 GHz
Sweep 100.5 ms
Data out of range
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

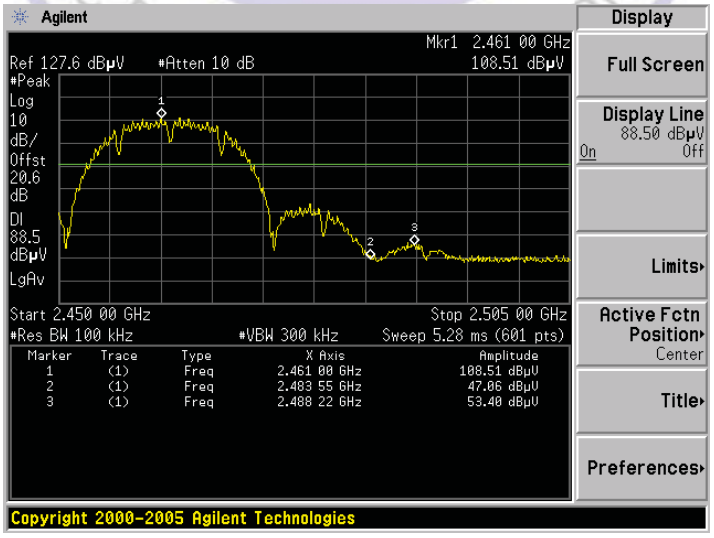

Agilent
R T
Mkr1 2.44 GHz
Ref 15 dBm
Atten 25 dB
6.061 dBm
Peak
Log
10
dB/
DI
-13.9
dBm
M1 S2
S3 FC
AA
Start 1 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25 GHz
Sweep 2.486 s
Data out of range
Display
Full Screen
Display Line
-13.94 dBm
On
Off
Limits
Active Fctn
Position
Center
Title
Preferences


Agilent
L
Mkr1 2.462 97 GHz
Ref 127.6 dBµV
#Atten 10 dB
111.39 dBµV
#Peak
Log
10
dB/
Offst
20.6
dB
Dl
91.4
dBµV
LgAv
Start 2.440 00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.505 00 GHz
Sweep 6.24 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.462 97 GHz 111.39 dBµV
2 (1) Freq 2.483 55 GHz 54.22 dBµV
3 (1) Freq 2.500 02 GHz 52.35 dBµV
Copyright 2000-2005 Agilent Technologies
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
Mkr → CF
More
1 of 2

CH11 @ANT 2

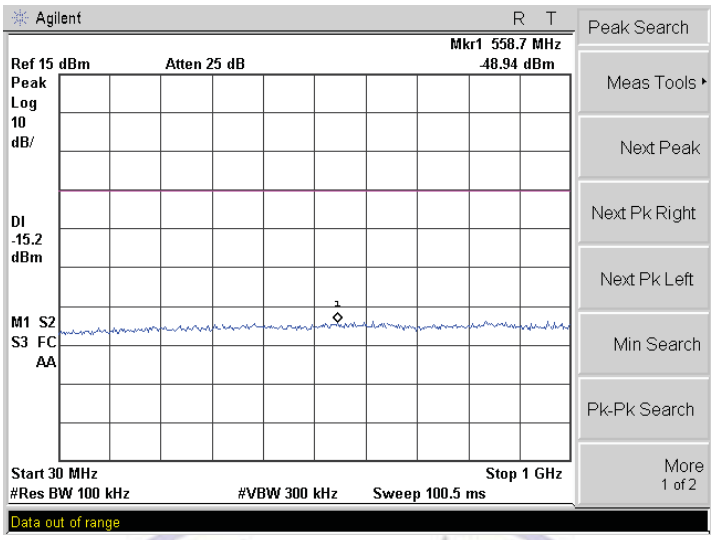

Agilent
R T
Mkr1 607.2 MHz
Ref 15 dBm
Atten 25 dB
-50.07 dBm
Peak
Log
10
dB/
DI
-14.3
dBm
M1 S2
S3 FC
AA
Start 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1 GHz
Sweep 100.5 ms
Data out of range
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

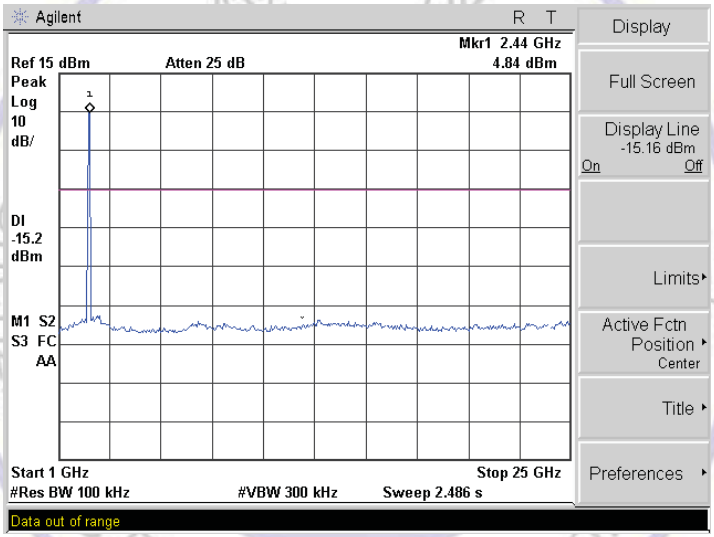

Agilent
R T
Mkr1 2.44 GHz
Ref 15 dBm
Atten 25 dB
5.707 dBm
Peak
Log
10
dB/
DI
-14.3
dBm
M1 S2
S3 FC
AA
Start 1 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25 GHz
Sweep 2.486 s
Data out of range
Display
Full Screen
Display Line
-14.29 dBm
On
Off
Limits
Active Fctn
Position
Center
Title
Preferences

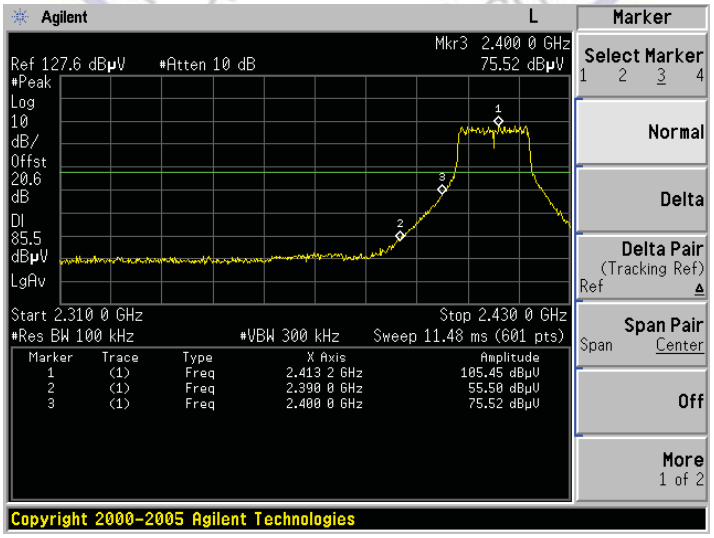

Agilent
Mkr1 2.461 00 GHz
Ref 127.6 dBµV
#Atten 10 dB
108.51 dBµV
#Peak
Log
10
dB/
Offst
20.6
dB
DI
88.5
dBµV
LgAv
Start 2.450 00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.505 00 GHz
Sweep 5.28 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.461 00 GHz 108.51 dBµV
2 (1) Freq 2.483 55 GHz 47.06 dBµV
3 (1) Freq 2.488 22 GHz 53.40 dBµV
Copyright 2000-2005 Agilent Technologies
Display
Full Screen
Display Line
88.50 dBµV
On
Off
Limits
Active Fctn
Position
Center
Title
Preferences

For 802.11g Mode:

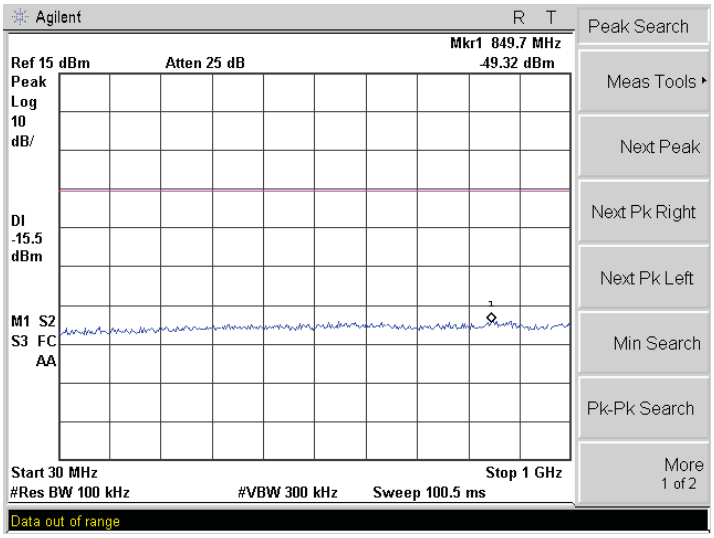
CH1 @ANT1

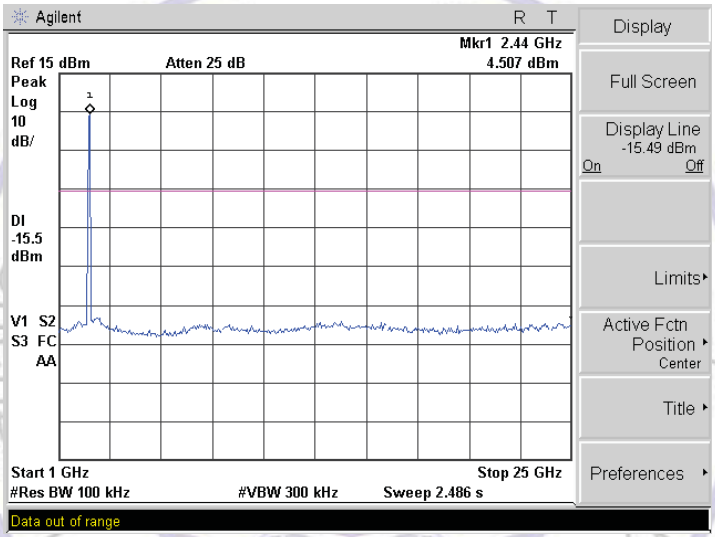


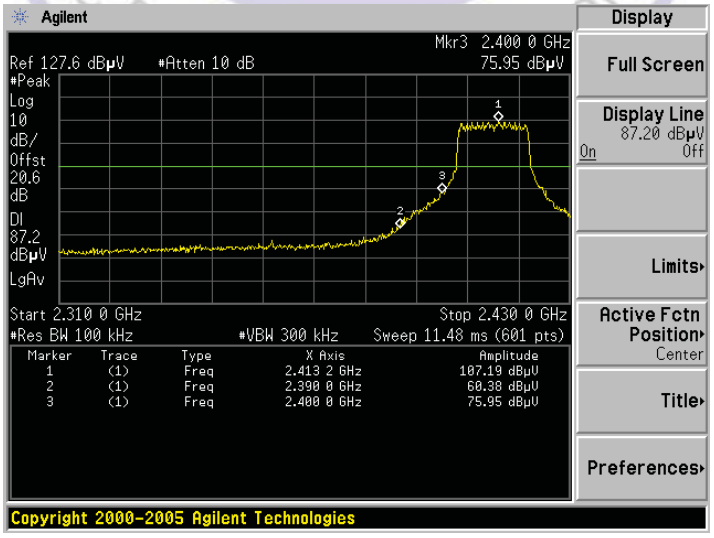




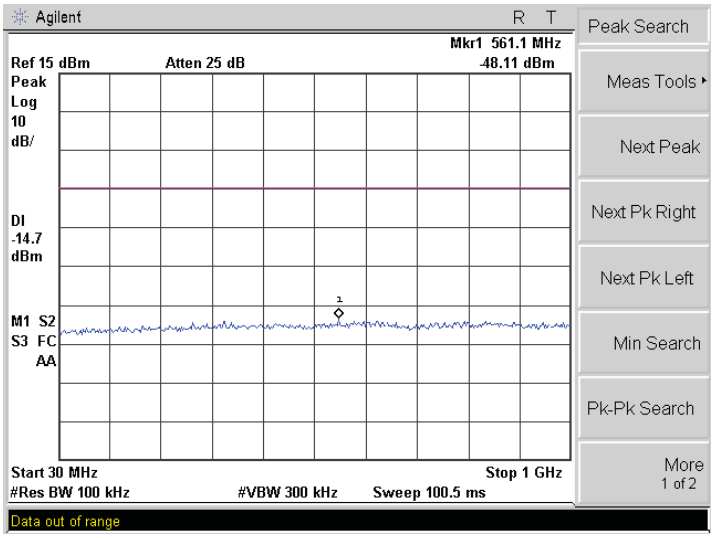
CH1 @ANT 2

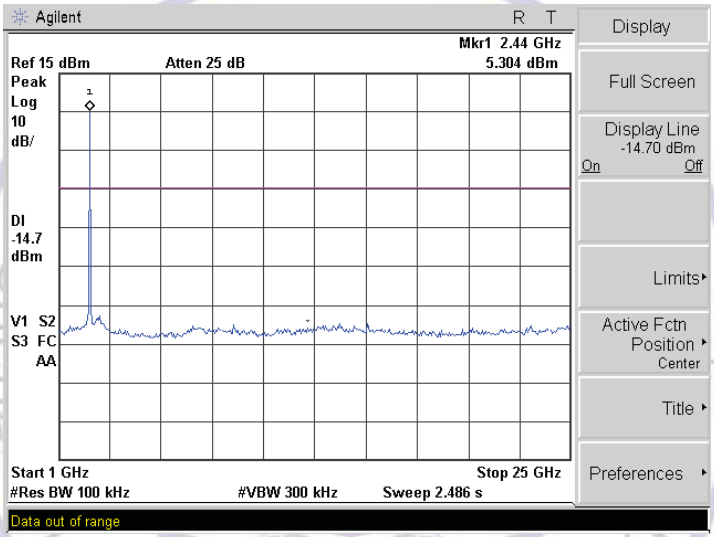

Agilent
R T
Mkr1 849.7 MHz
Ref 15 dBm
Atten 25 dB
-49.32 dBm
Peak
Log
10
dB/
DI
-15.5
dBm
M1 S2
S3 FC
AA
Start 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1 GHz
Sweep 100.5 ms
Data out of range
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2


Agilent
R T
Mkr1 2.44 GHz
Ref 15 dBm
Atten 25 dB
4.507 dBm
Peak
Log
10
dB/
DI
-15.5
dBm
V1 S2
S3 FC
AA
Start 1 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25 GHz
Sweep 2.486 s
Data out of range
Display
Full Screen
Display Line
-15.49 dBm
On
Off
Limits
Active Fctn
Position
Center
Title
Preferences

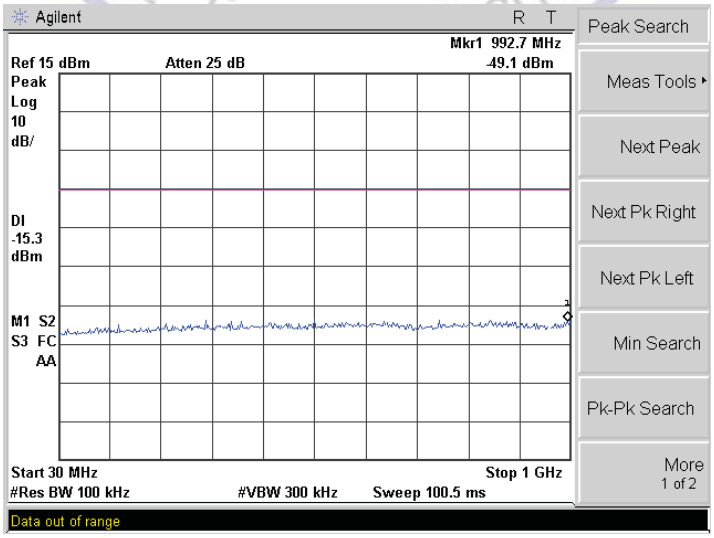

Agilent
Mkr3 2.400 0 GHz
Ref 127.6 dBµV
#Atten 10 dB
75.95 dBµV
#Peak
Log
10
dB/
Offst
20.6
dB
DI
87.2
dBµV
LgAv
Start 2.310 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.430 0 GHz
Sweep 11.48 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.413 2 GHz 107.19 dBµV
2 (1) Freq 2.390 0 GHz 68.38 dBµV
3 (1) Freq 2.400 0 GHz 75.95 dBµV
Copyright 2000-2005 Agilent Technologies
Display
Full Screen
Display Line
87.20 dBµV
On
Off
Limits
Active Fctn
Position
Center
Title
Preferences

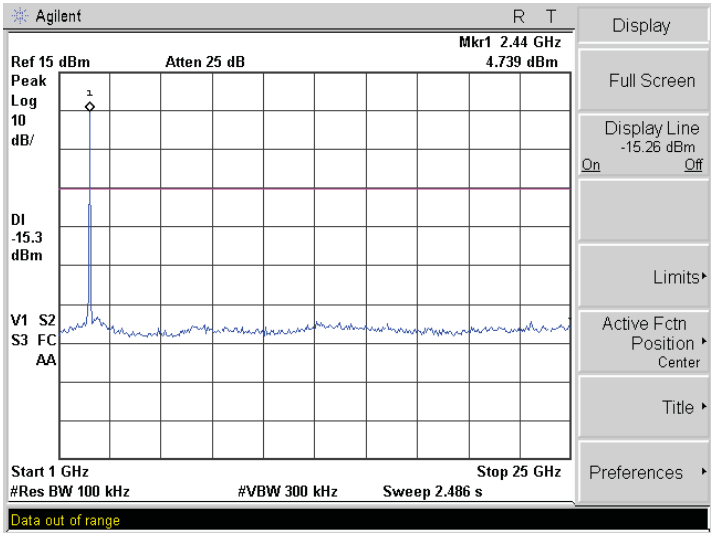
CH6 @ANT 1



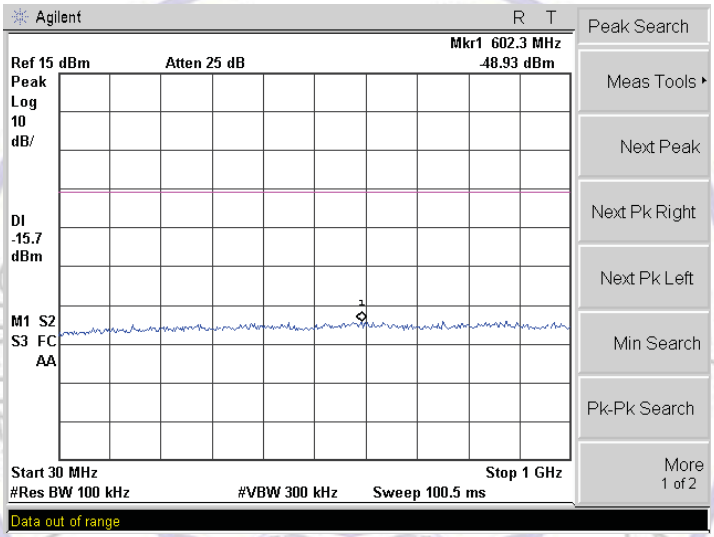


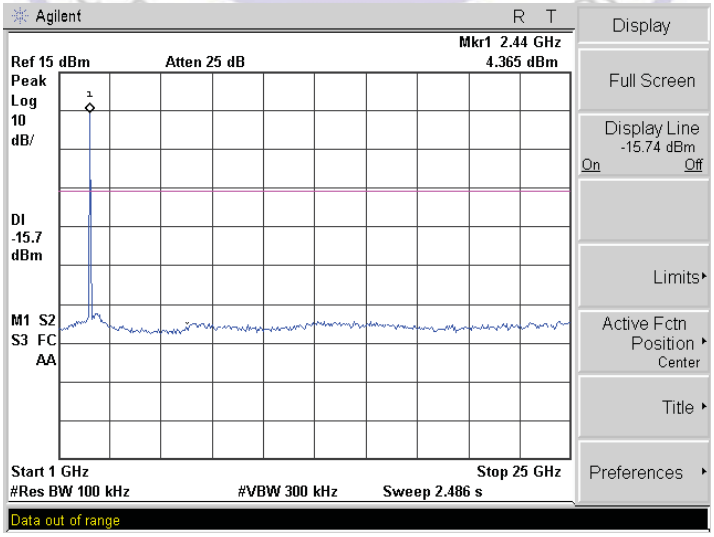
CH6 @ANT 2

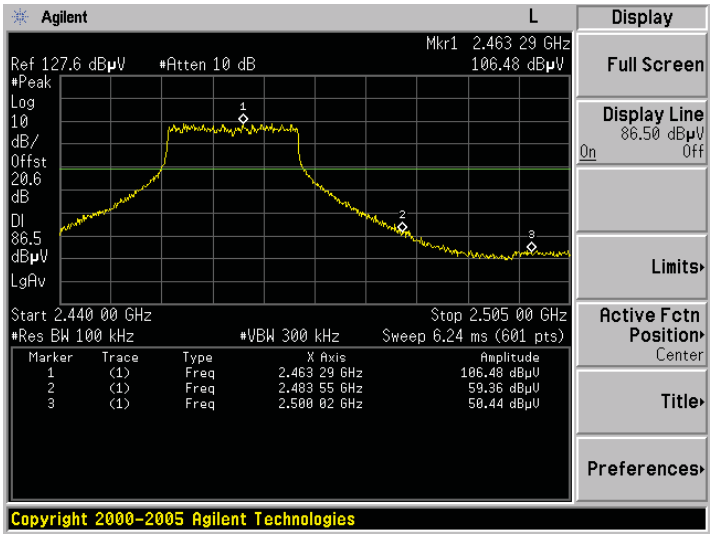



Agilent
R T
Mkr1 2.44 GHz
Ref 15 dBm
Atten 25 dB
4.739 dBm
Peak
Log
10
dB/
Dl
-15.3
dBm
V1 S2
S3 FC
AA
Start 1 GHz
Stop 25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.486 s
Data out of range
Display
Full Screen
Display Line
-15.26 dBm
On Off
Limits
Active Fctn
Position
Center
Title
Preferences

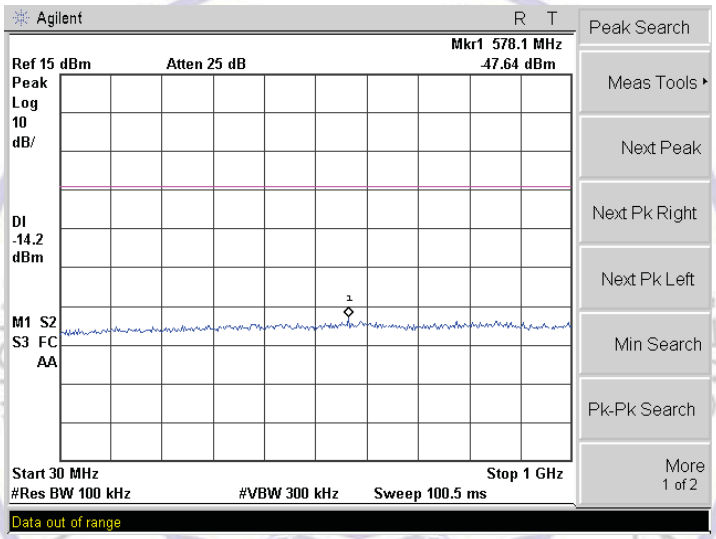
CH11 @ANT 1

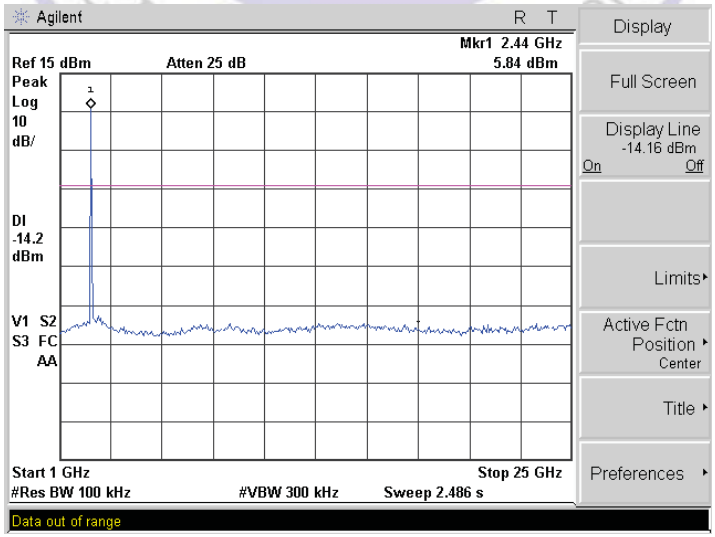

Agilent
R T
Mkr1 602.3 MHz
Ref 15 dBm
Atten 25 dB
-48.93 dBm
Peak
Log
10
dB/
Dl
-15.7
dBm
M1 S2
S3 FC
AA
Start 30 MHz
Stop 1 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 100.5 ms
Data out of range
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

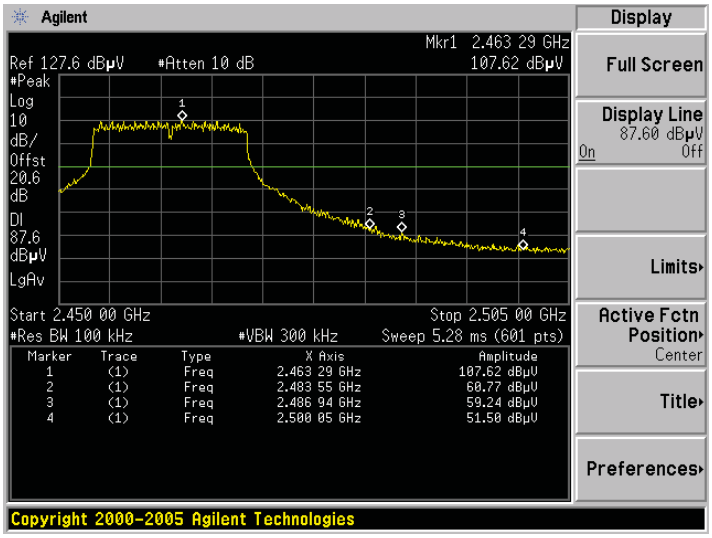

Agilent
R T
Mkr1 2.44 GHz
Ref 15 dBm
Atten 25 dB
4.365 dBm
Peak
Log
10
dB/
Dl
-15.7
dBm
M1 S2
S3 FC
AA
Start 1 GHz
Stop 25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.486 s
Data out of range
Display
Full Screen
Display Line
-15.74 dBm
On Off
Limits
Active Fctn
Position
Center
Title
Preferences


Agilent
L
Display
Mkr1 2.463 29 GHz
Ref 127.6 dBµV
#Atten 10 dB
106.48 dBµV
#Peak
Log
10
dB/
Offst
20.6
dB
Dl
86.5
dBµV
LgAv
Full Screen
Display Line
86.50 dBµV
On
Off
Limits
Active Fctn
Position
Center
Title
Preferences
Start 2.440 00 GHz
Stop 2.505 00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 6.24 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.463 29 GHz 106.48 dBµV
2 (1) Freq 2.483 55 GHz 59.36 dBµV
3 (1) Freq 2.500 02 GHz 50.44 dBµV
Copyright 2000-2005 Agilent Technologies

CH11 @ANT 2

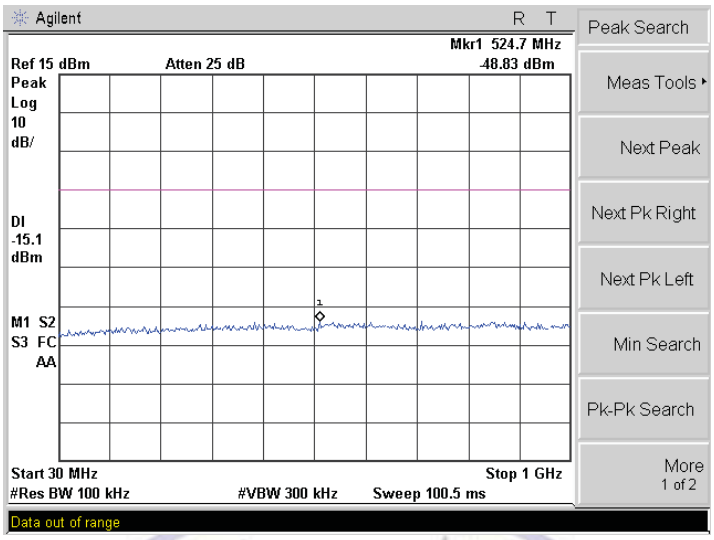

Agilent
R T
Peak Search
Mkr1 578.1 MHz
Ref 15 dBm
Atten 25 dB
-47.64 dBm
Peak
Log
10
dB/
Meas Tools
Next Peak
Dl
-14.2
dBm
Next Pk Right
Next Pk Left
M1 S2
S3 FC
AA
Min Search
Pk-Pk Search
More
1 of 2
Start 30 MHz
Stop 1 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 100.5 ms
Data out of range

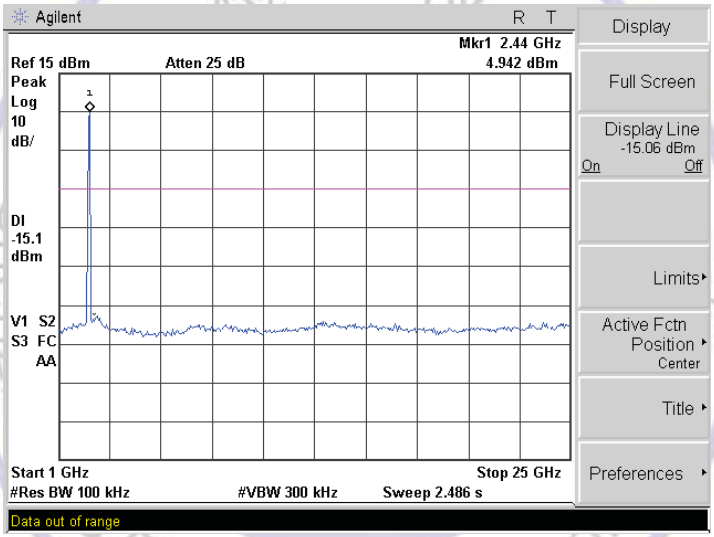

Agilent
R T
Display
Mkr1 2.44 GHz
Ref 15 dBm
Atten 25 dB
5.84 dBm
Peak
Log
10
dB/
Full Screen
Display Line
-14.16 dBm
On
Off
Dl
-14.2
dBm
Limits
V1 S2
S3 FC
AA
Active Fctn
Position
Center
Title
Preferences
Start 1 GHz
Stop 25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.486 s
Data out of range

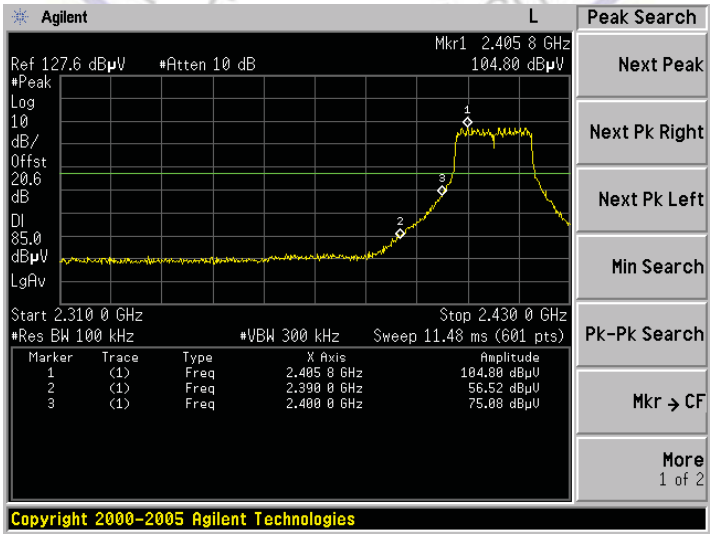


For 802.11n (20MHz) Mode:

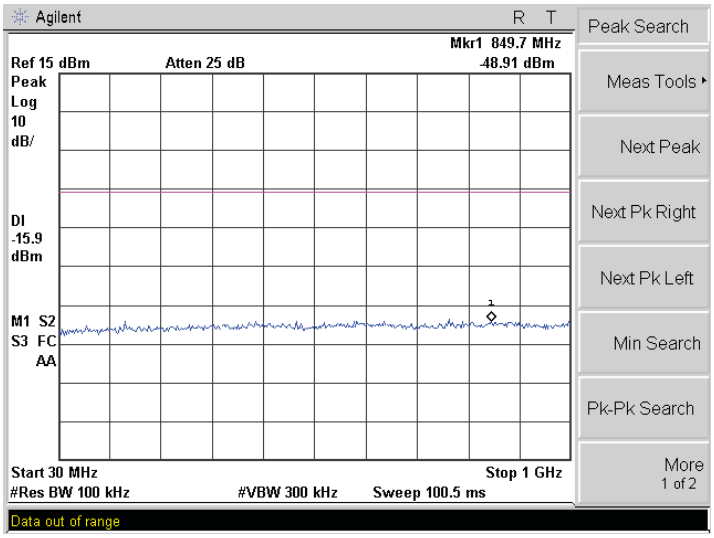
CH1 @ANT1

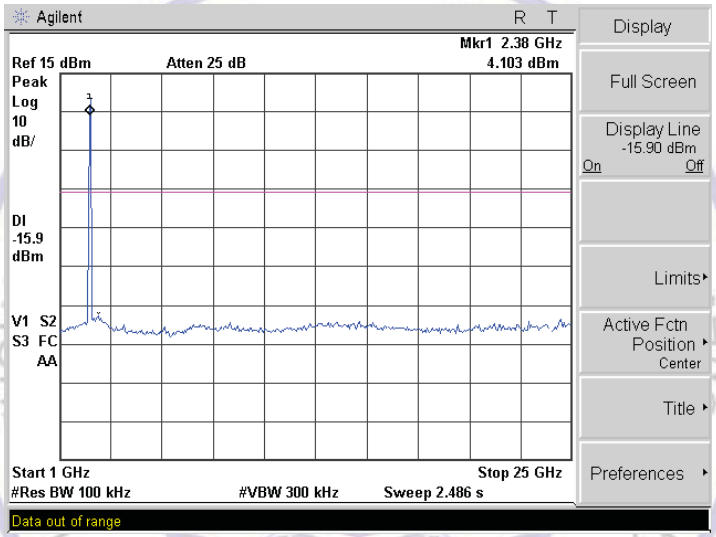


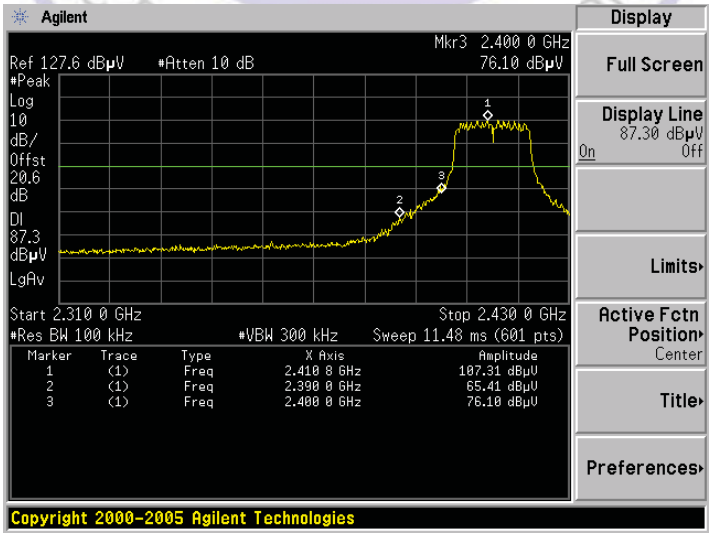




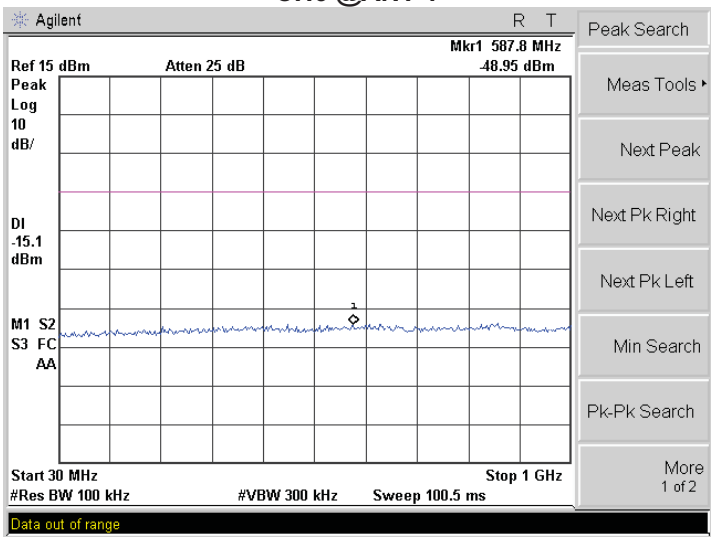
CH1 @ANT 2

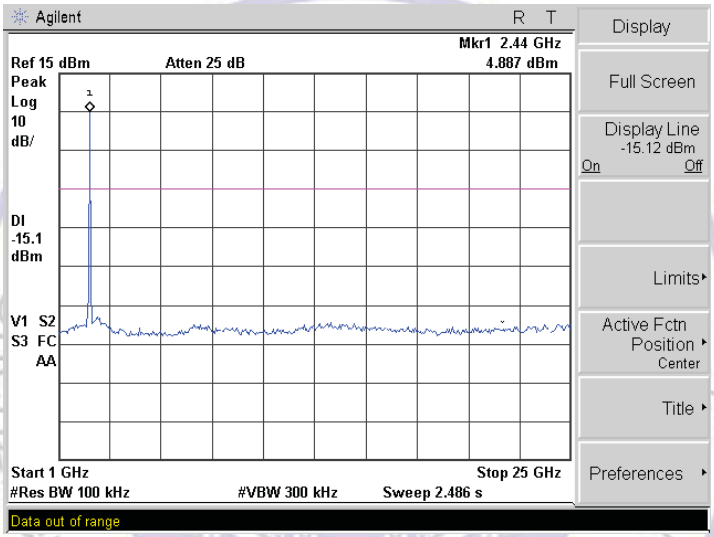

Agilent
R T
Mkr1 849.7 MHz
Ref 15 dBm
Atten 25 dB
-48.91 dBm
Peak
Log
10
dB/
Dl
-15.9
dBm
M1 S2
S3 FC
AA
Start 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1 GHz
Sweep 100.5 ms
Data out of range
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2


Agilent
R T
Mkr1 2.38 GHz
Ref 15 dBm
Atten 25 dB
4.103 dBm
Peak
Log
10
dB/
Dl
-15.9
dBm
V1 S2
S3 FC
AA
Start 1 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25 GHz
Sweep 2.486 s
Data out of range
Display
Full Screen
Display Line
-15.90 dBm
On Off
Limits
Active Fctn
Position
Center
Title
Preferences

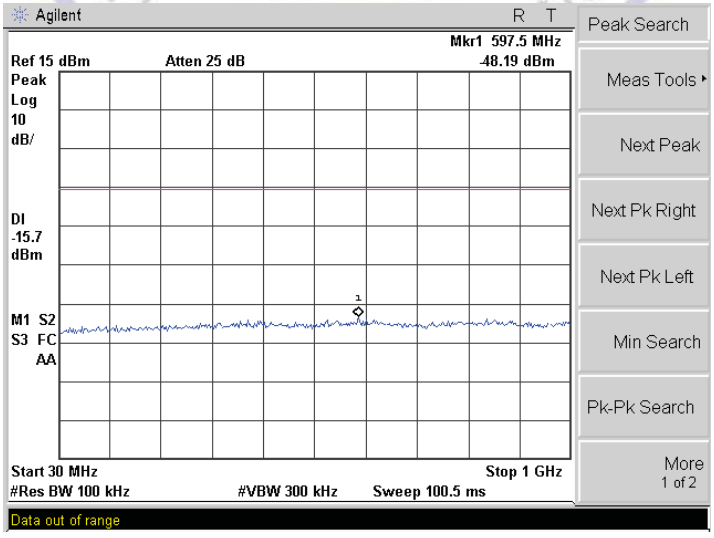

Agilent
Mkr3 2.400 0 GHz
Ref 127.6 dBµV
#Atten 10 dB
76.10 dBµV
#Peak
Log
10
dB/
Offst
20.6
dB
Dl
87.3
dBµV
LgAv
Start 2.310 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.430 0 GHz
Sweep 11.48 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.410 8 GHz 107.31 dBµV
2 (1) Freq 2.390 0 GHz 65.41 dBµV
3 (1) Freq 2.400 0 GHz 76.10 dBµV
Copyright 2000-2005 Agilent Technologies
Display
Full Screen
Display Line
87.30 dBµV
On Off
Limits
Active Fctn
Position
Center
Title
Preferences

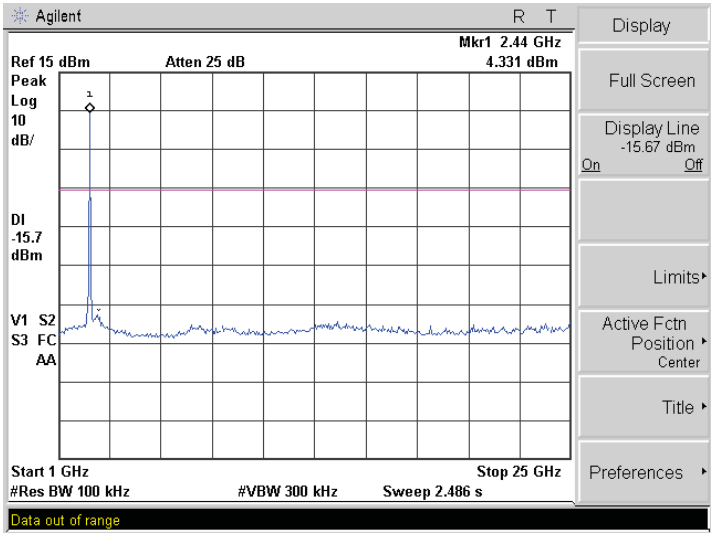
CH6 @ANT 1



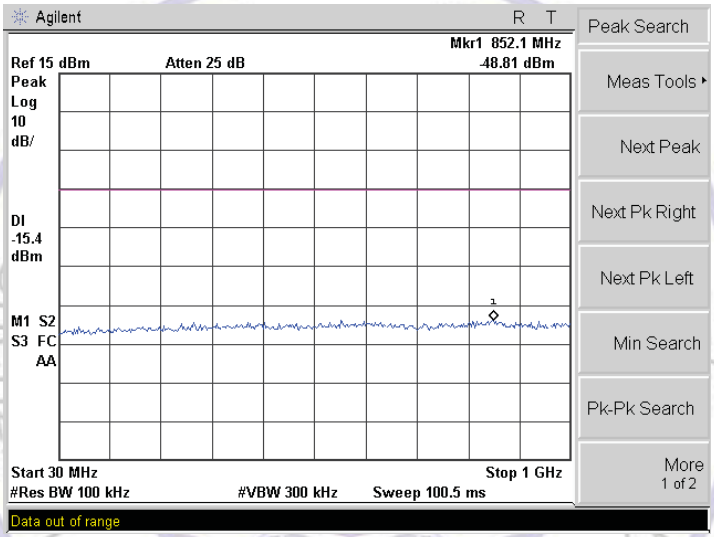


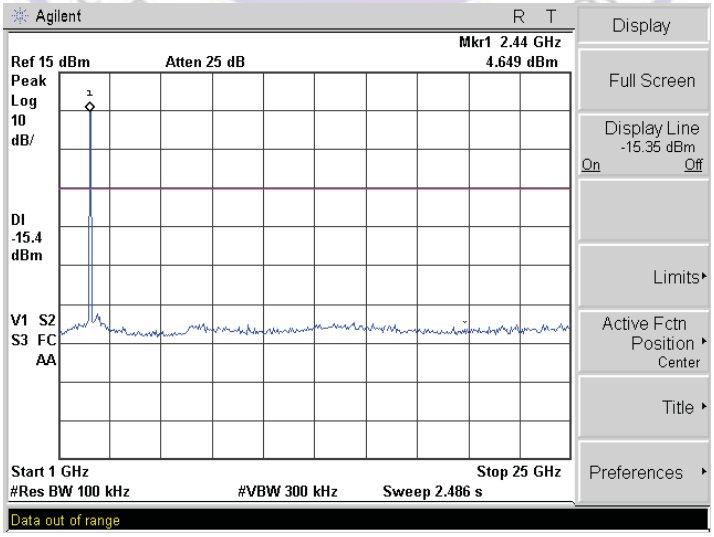
CH6 @ANT 2

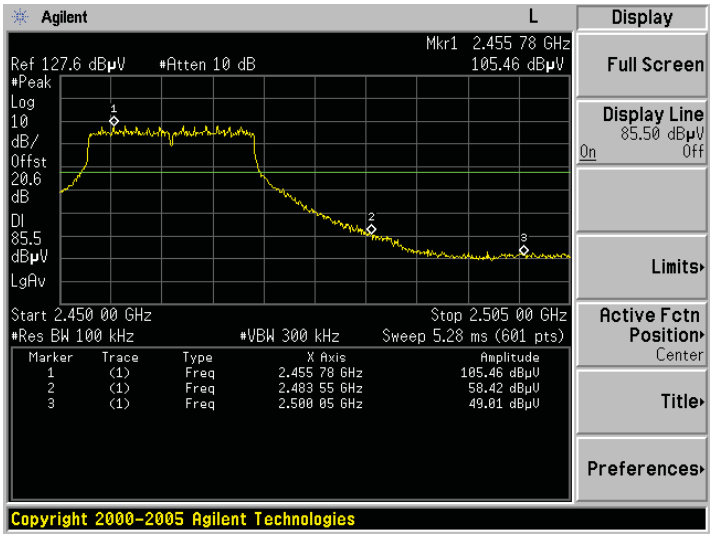



Agilent
R T
Mkr1 2.44 GHz
Ref 15 dBm
Atten 25 dB
4.331 dBm
Peak
Log
10
dB/
Dl
-15.7
dBm
V1 S2
S3 FC
AA
Start 1 GHz
Stop 25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.486 s
Data out of range
Display
Full Screen
Display Line
-15.67 dBm
On Off
Limits
Active Fctn
Position
Center
Title
Preferences

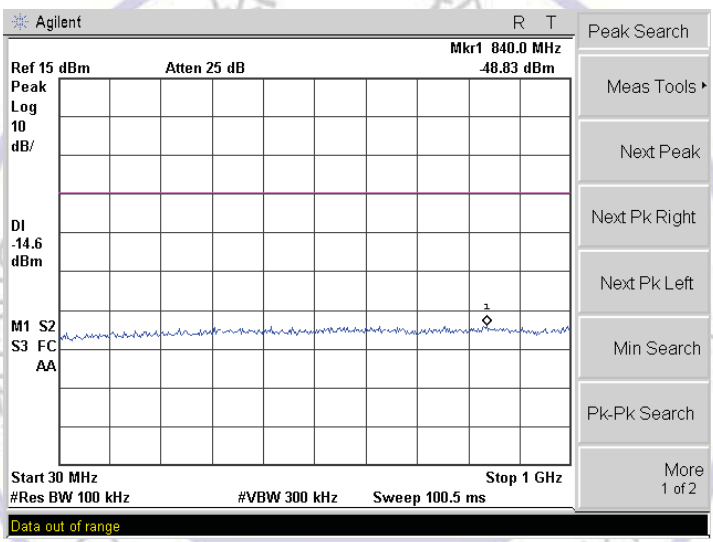
CH11 @ANT 1

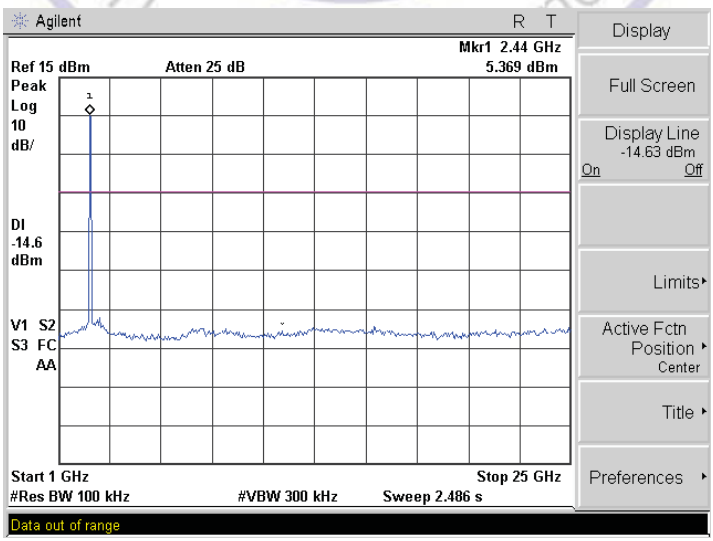

Agilent
R T
Mkr1 852.1 MHz
Ref 15 dBm
Atten 25 dB
-48.81 dBm
Peak
Log
10
dB/
Dl
-15.4
dBm
M1 S2
S3 FC
AA
Start 30 MHz
Stop 1 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 100.5 ms
Data out of range
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

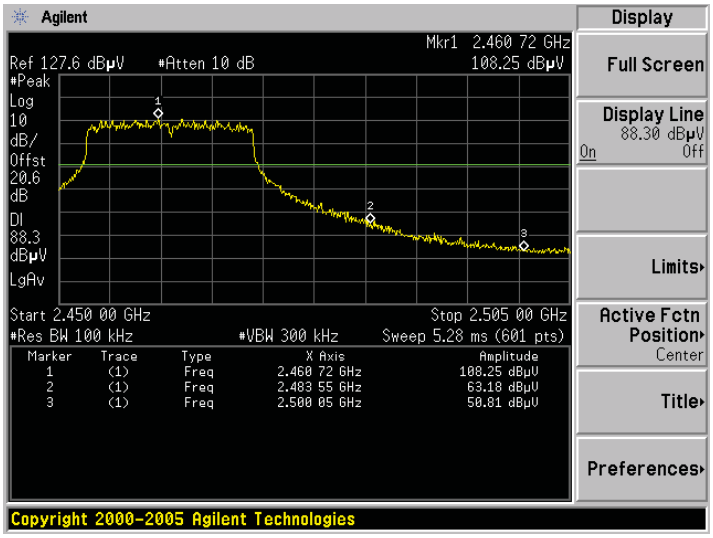

Agilent
R T
Mkr1 2.44 GHz
Ref 15 dBm
Atten 25 dB
4.649 dBm
Peak
Log
10
dB/
Dl
-15.4
dBm
V1 S2
S3 FC
AA
Start 1 GHz
Stop 25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.486 s
Data out of range
Display
Full Screen
Display Line
-15.35 dBm
On Off
Limits
Active Fctn
Position
Center
Title
Preferences


Agilent
L
Display
Mkr1 2.455 78 GHz
Ref 127.6 dBµV
#Atten 10 dB
105.46 dBµV
#Peak
Log
10
dB/
Offst
20.6
dB
Dl
85.5
dBµV
LgAv
Full Screen
Display Line
85.50 dBµV
On
Off
Limits
Active Fctn
Position
Center
Title
Preferences
Start 2.450 00 GHz
Stop 2.505 00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 5.28 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.455 78 GHz 105.46 dBµV
2 (1) Freq 2.483 55 GHz 58.42 dBµV
3 (1) Freq 2.500 05 GHz 49.01 dBµV
Copyright 2000-2005 Agilent Technologies

CH11 @ANT 2

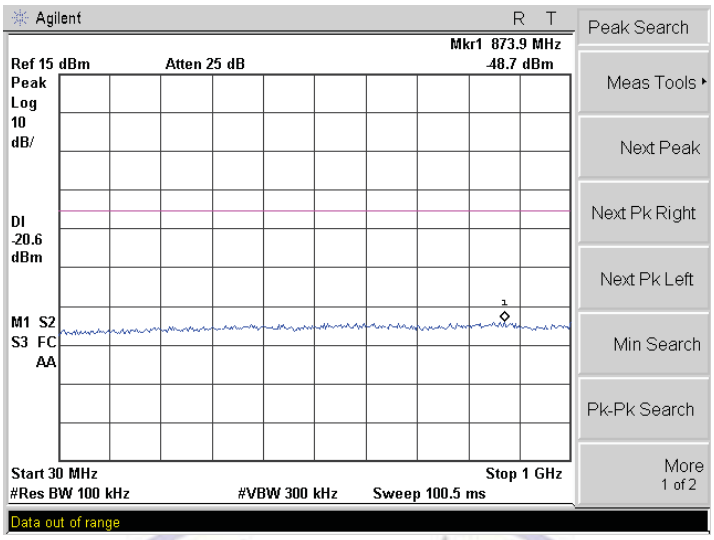

Agilent
R T
Peak Search
Mkr1 840.0 MHz
Ref 15 dBm
Atten 25 dB
-48.83 dBm
Peak
Log
10
dB/
Dl
-14.6
dBm
M1 S2
S3 FC
AA
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2
Start 30 MHz
Stop 1 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 100.5 ms
Data out of range

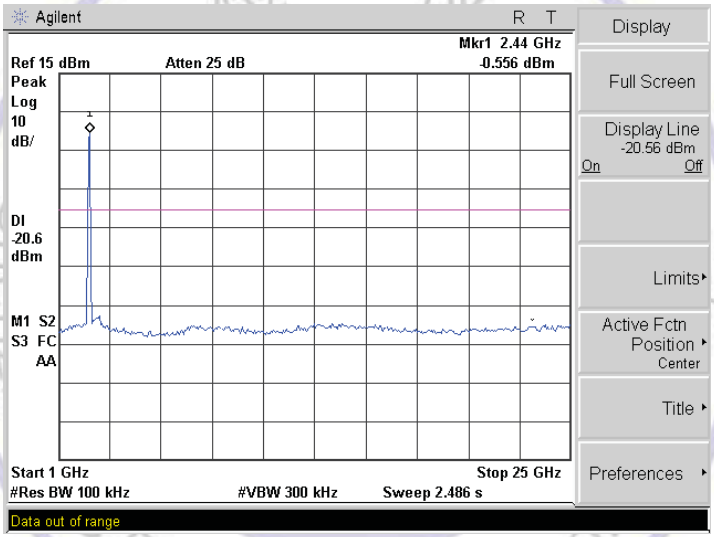

Agilent
R T
Display
Mkr1 2.44 GHz
Ref 15 dBm
Atten 25 dB
5.369 dBm
Peak
Log
10
dB/
Dl
-14.6
dBm
V1 S2
S3 FC
AA
Full Screen
Display Line
-14.63 dBm
On
Off
Limits
Active Fctn
Position
Center
Title
Preferences
Start 1 GHz
Stop 25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.486 s
Data out of range

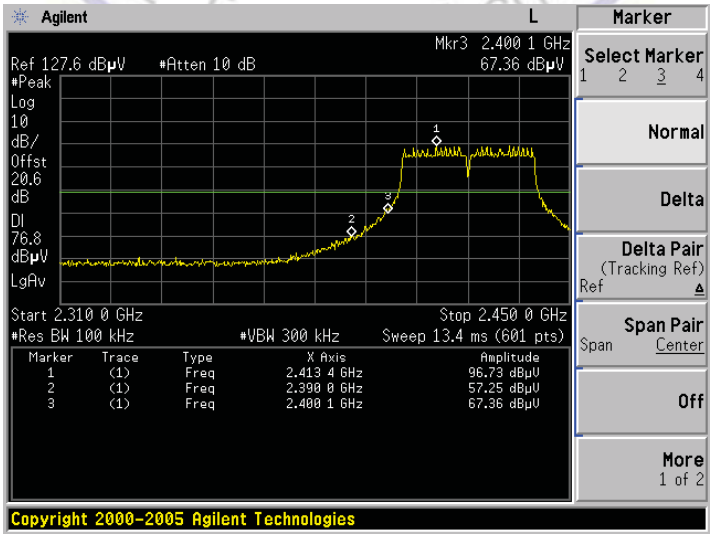


For 802.11n (40MHz) Mode:

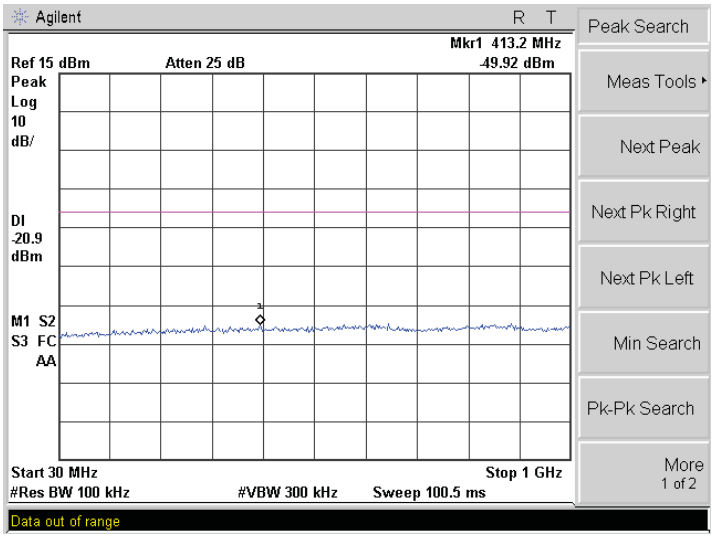
CH3 @ANT1

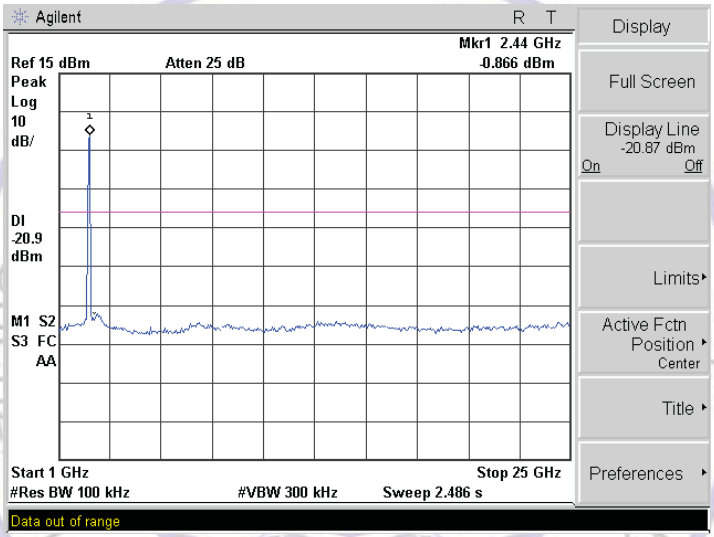


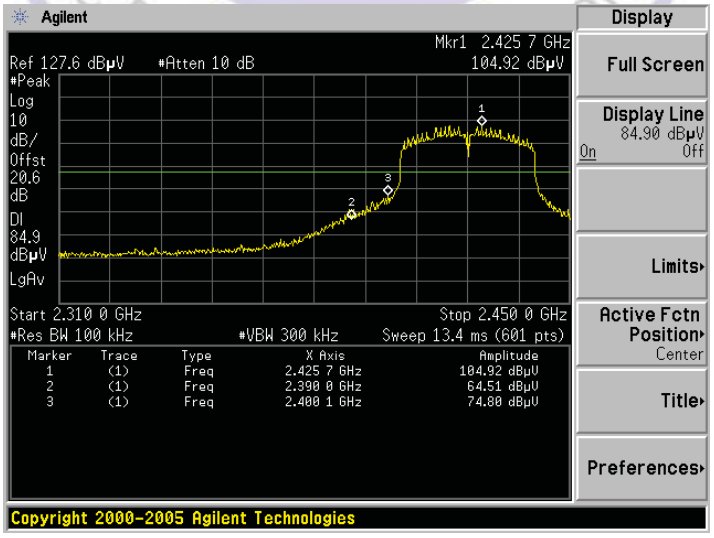




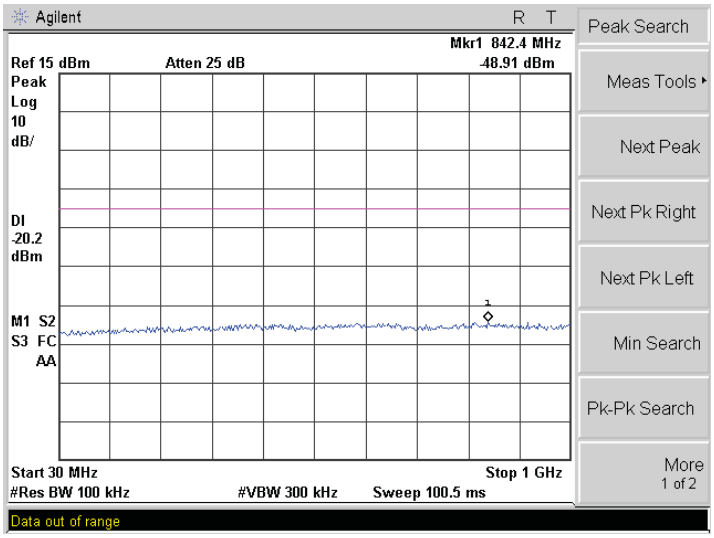
CH3 @ANT 2

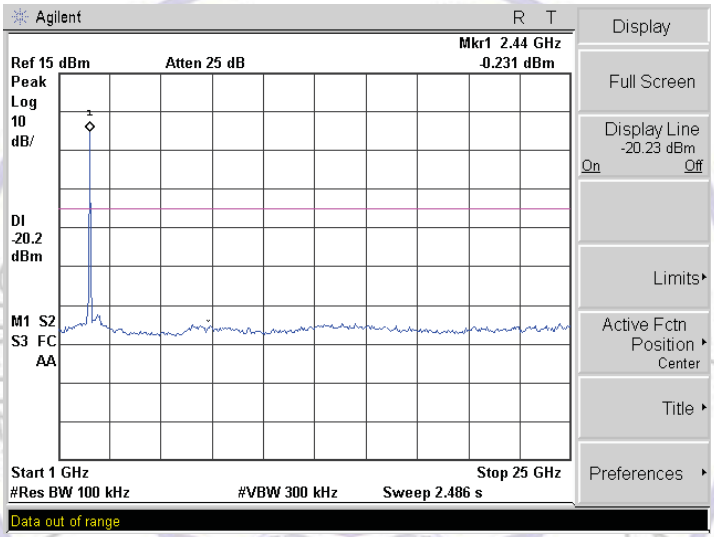

Agilent
R T
Mkr1 413.2 MHz
Ref 15 dBm
Atten 25 dB
-49.92 dBm
Peak
Log
10
dB/
Dl
-20.9
dBm
M1 S2
S3 FC
AA
Start 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1 GHz
Sweep 100.5 ms
Data out of range
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2


Agilent
R T
Mkr1 2.44 GHz
Ref 15 dBm
Atten 25 dB
-0.866 dBm
Peak
Log
10
dB/
Dl
-20.9
dBm
M1 S2
S3 FC
AA
Start 1 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25 GHz
Sweep 2.486 s
Data out of range
Display
Full Screen
Display Line
-20.87 dBm
On
Off
Limits
Active Fctn
Position
Center
Title
Preferences

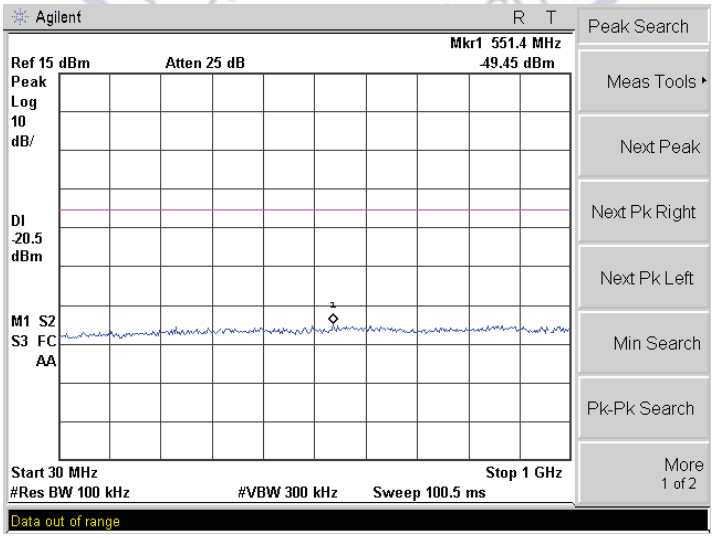

Agilent
Mkr1 2.425 7 GHz
Ref 127.6 dBµV
#Atten 10 dB
104.92 dBµV
#Peak
Log
10
dB/
Offst
20.6
dB
Dl
84.9
dBµV
LgAv
Start 2.310 0 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.450 0 GHz
Sweep 13.4 ms (601 pts)
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.425 7 GHz 104.92 dBµV
2 (1) Freq 2.390 0 GHz 64.51 dBµV
3 (1) Freq 2.400 1 GHz 74.80 dBµV
Copyright 2000-2005 Agilent Technologies
Display
Full Screen
Display Line
84.90 dBµV
On
Off
Limits
Active Fctn
Position
Center
Title
Preferences

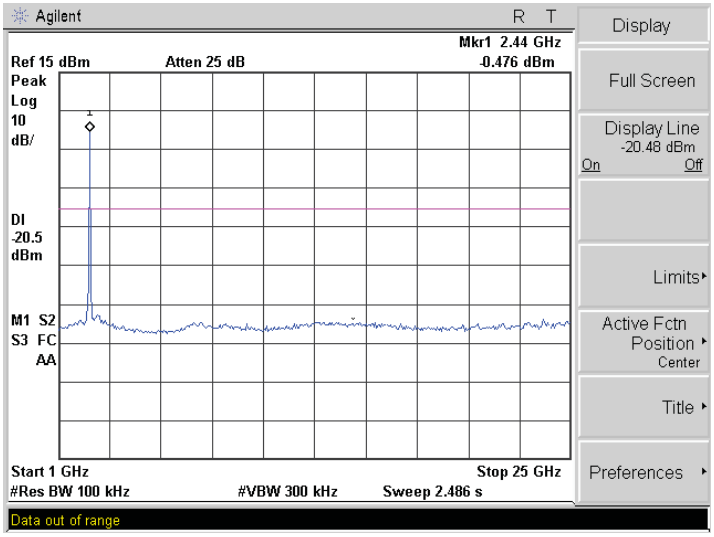
CH6 @ANT 1



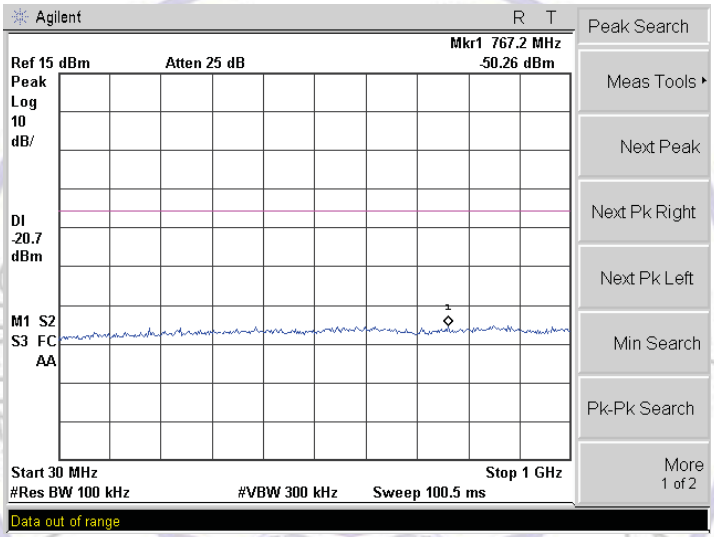


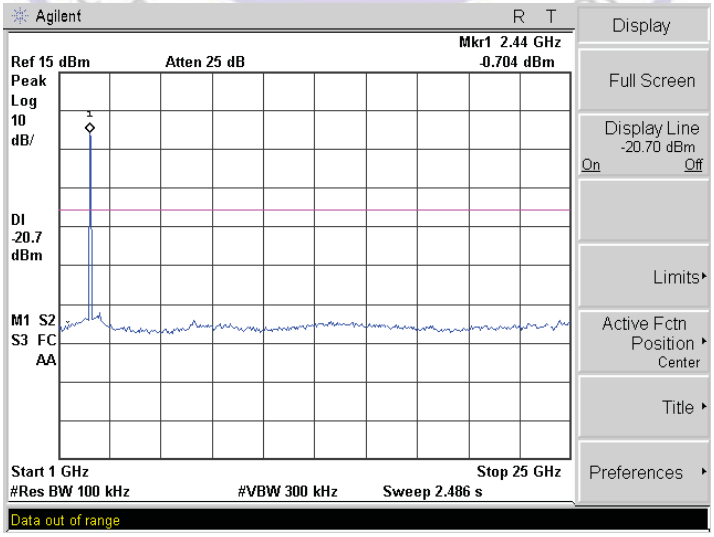
CH6 @ANT 2

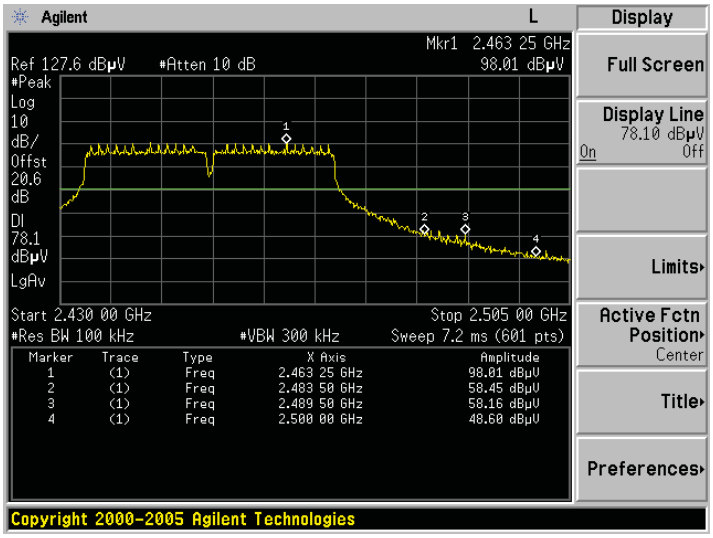



Agilent
R T
Mkr1 2.44 GHz
Ref 15 dBm
Atten 25 dB
-0.476 dBm
Peak
Log
10
dB/
Dl
-20.5
dBm
M1 S2
S3 FC
AA
Start 1 GHz
Stop 25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.486 s
Data out of range
Display
Full Screen
Display Line
-20.48 dBm
On
Off
Limits
Active Fctn
Position
Center
Title
Preferences

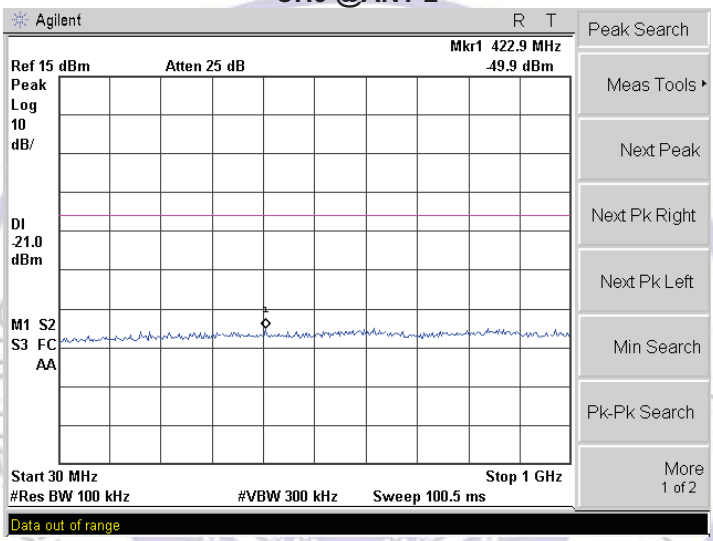
CH9 @ANT 1

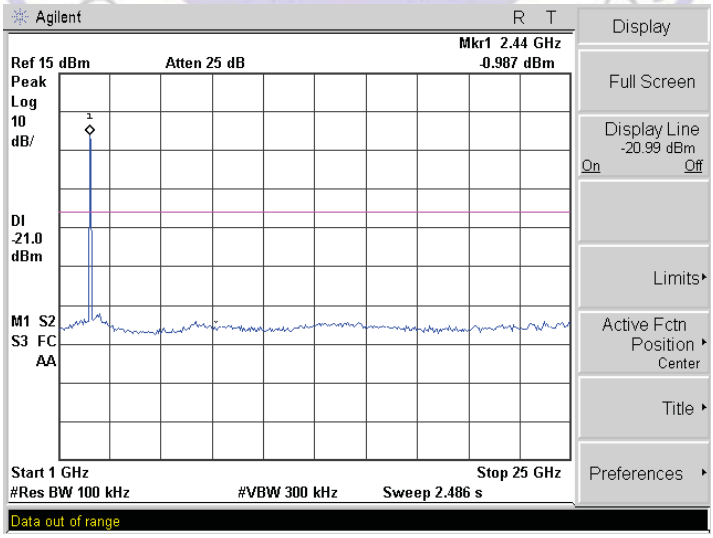

Agilent
R T
Mkr1 767.2 MHz
Ref 15 dBm
Atten 25 dB
-50.26 dBm
Peak
Log
10
dB/
Dl
-20.7
dBm
M1 S2
S3 FC
AA
Start 30 MHz
Stop 1 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 100.5 ms
Data out of range
Peak Search
Meas Tools
Next Peak
Next Pk Right
Next Pk Left
Min Search
Pk-Pk Search
More
1 of 2

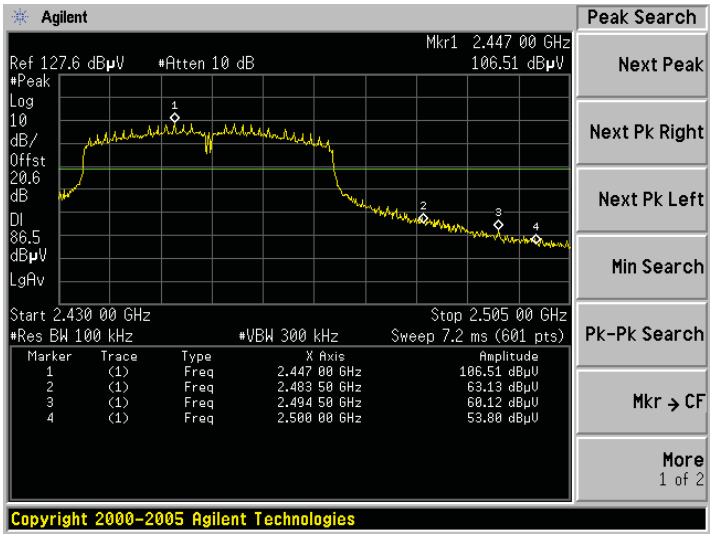

Agilent
R T
Mkr1 2.44 GHz
Ref 15 dBm
Atten 25 dB
-0.704 dBm
Peak
Log
10
dB/
Dl
-20.7
dBm
M1 S2
S3 FC
AA
Start 1 GHz
Stop 25 GHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 2.486 s
Data out of range
Display
Full Screen
Display Line
-20.70 dBm
On
Off
Limits
Active Fctn
Position
Center
Title
Preferences


Agilent
L
Display
Mkr1 2.463 25 GHz
Ref 127.6 dBµV
#Atten 10 dB
98.01 dBµV
#Peak
Log
10
dB/
Offst
20.6
dB
Dl
78.1
dBµV
LgAv
Full Screen
Display Line
78.10 dBµV
On
Off
Limits
Start 2.430 00 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.505 00 GHz
Sweep 7.2 ms (601 pts)
Active Fctn
Position
Center
Marker Trace Type X Axis Amplitude
1 (1) Freq 2.463 25 GHz 98.01 dBµV
2 (1) Freq 2.483 50 GHz 58.45 dBµV
3 (1) Freq 2.489 50 GHz 58.16 dBµV
4 (1) Freq 2.500 00 GHz 48.60 dBµV
Title
Preferences
Copyright 2000-2005 Agilent Technologies

CH9 @ANT 2


Agilent
R T
Peak Search
Mkr1 422.9 MHz
Ref 15 dBm
Atten 25 dB
-49.9 dBm
Peak
Log
10
dB/
Meas Tools
Next Peak
Dl
-21.0
dBm
Next Pk Right
Next Pk Left
M1 S2
S3 FC
AA
Min Search
Pk-Pk Search
Start 30 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1 GHz
Sweep 100.5 ms
More
1 of 2
Data out of range


Agilent
R T
Display
Mkr1 2.44 GHz
Ref 15 dBm
Atten 25 dB
-0.987 dBm
Peak
Log
10
dB/
Full Screen
Display Line
-20.99 dBm
On
Off
Dl
-21.0
dBm
Limits
M1 S2
S3 FC
AA
Active Fctn
Position
Center
Title
Start 1 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 25 GHz
Sweep 2.486 s
Preferences
Data out of range



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.

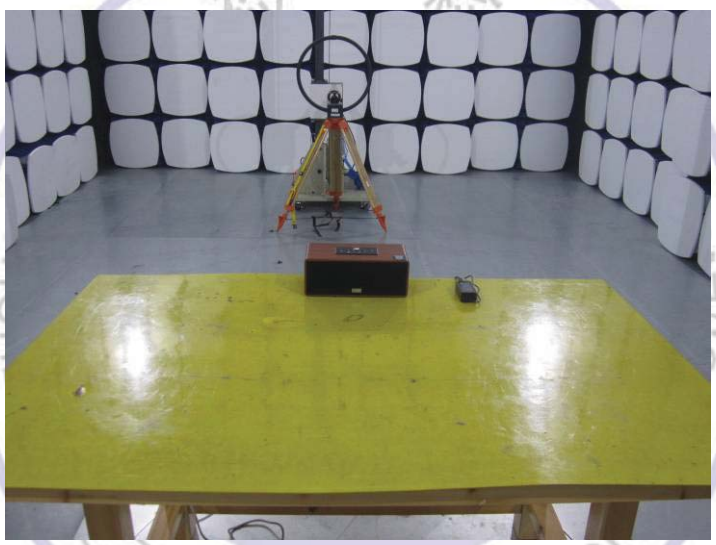
Refer to statement below for compliance.

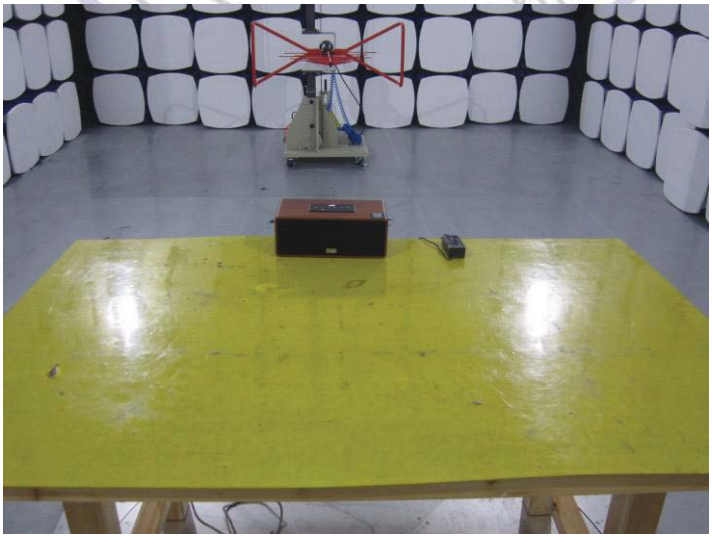
The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

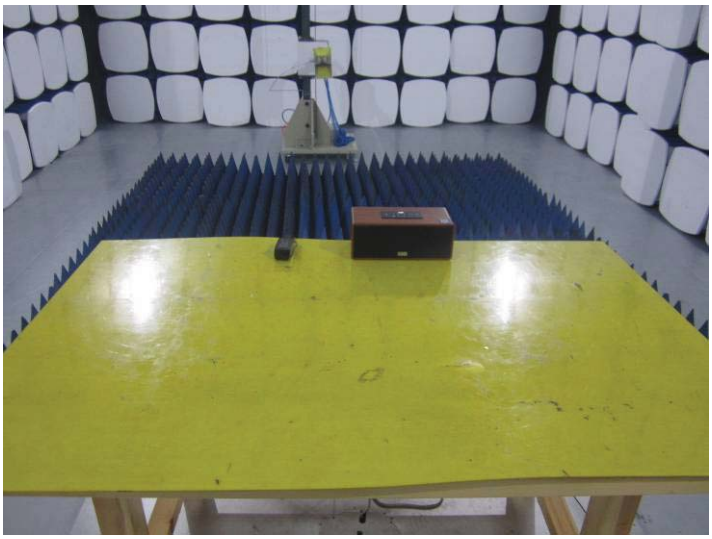
ANTENNA CONNECTED CONSTRUCTION

The directional gains of antenna used for transmitting is 1.0 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Please see EUT photo for details.

5. Test Setup Photos of the EUT





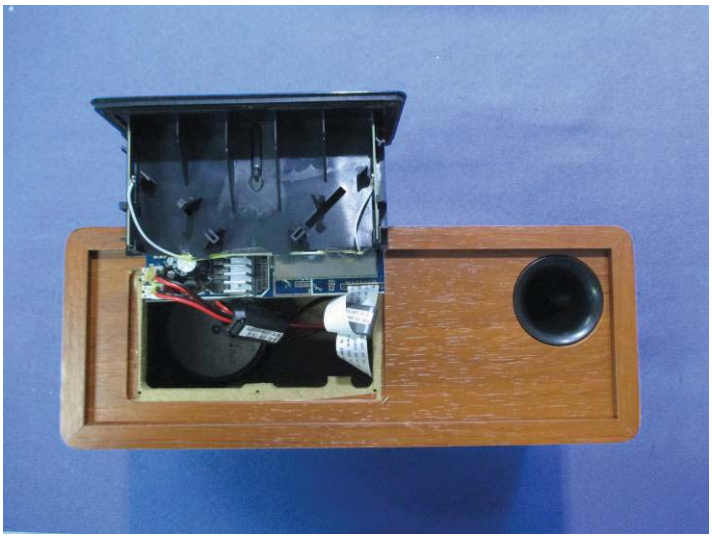


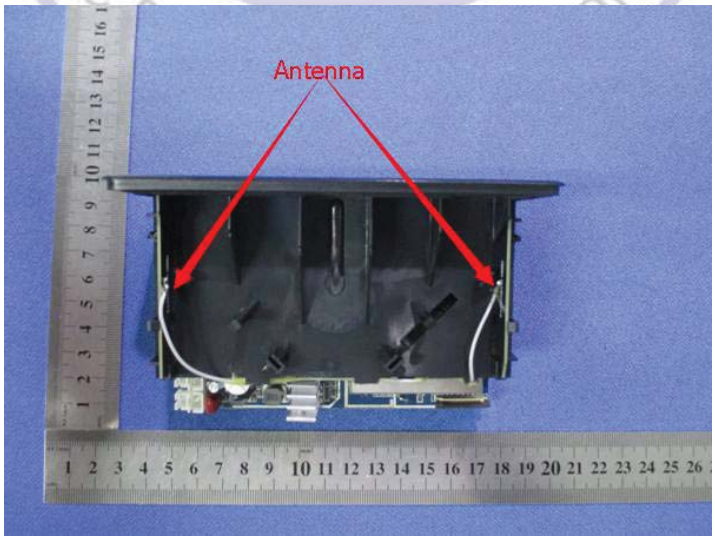
6. External and Internal Photos of the EUT

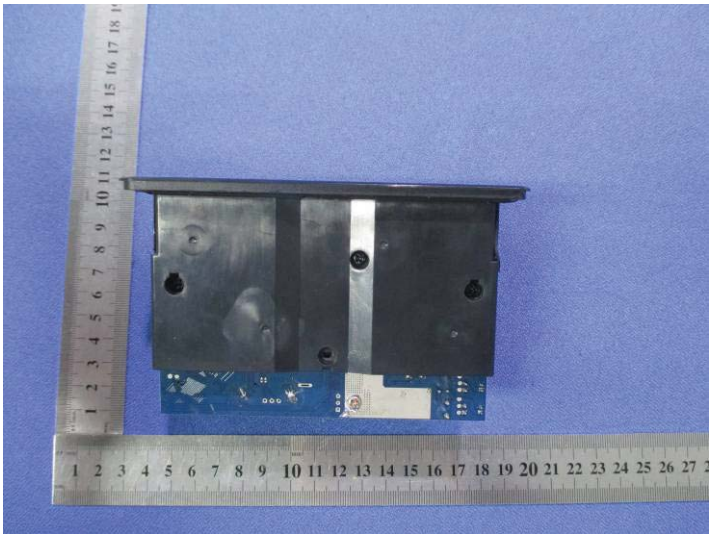
External Photos of EUT

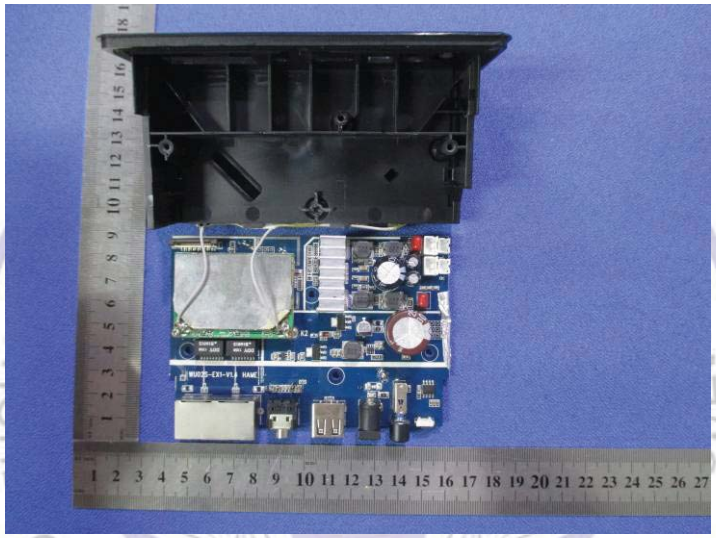

DREAMSOUND MINI

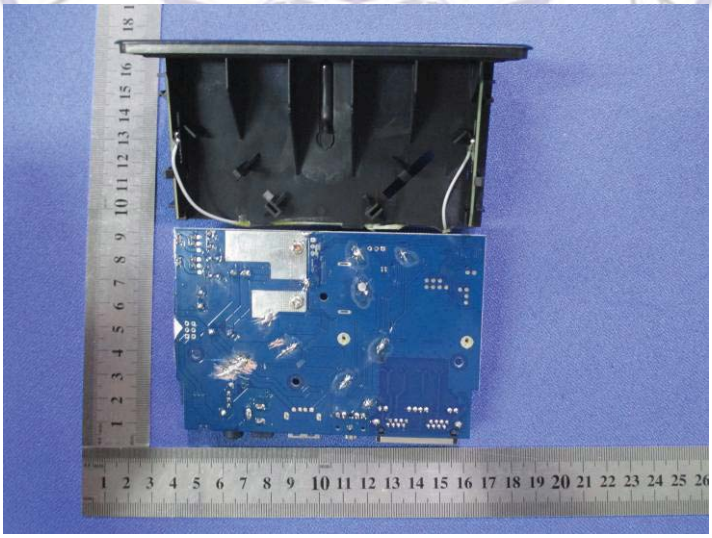
Internal Photos of EUT

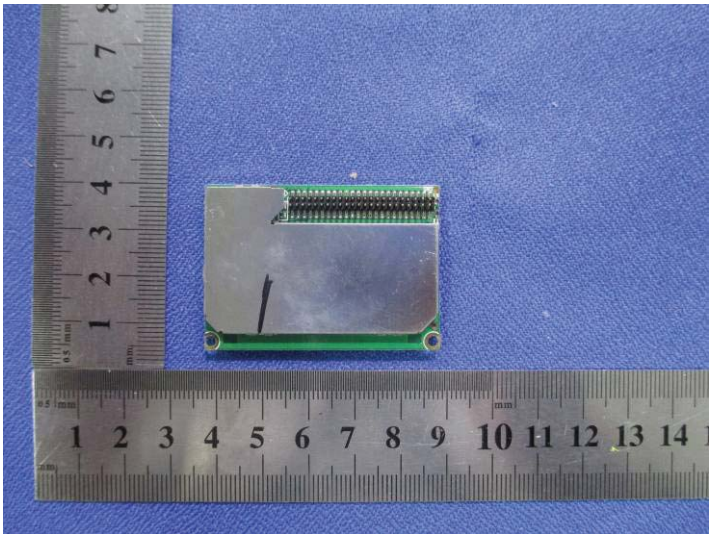


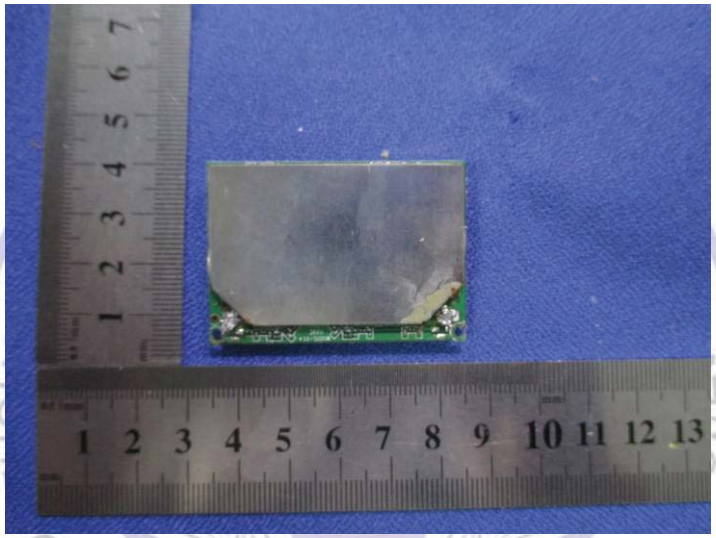


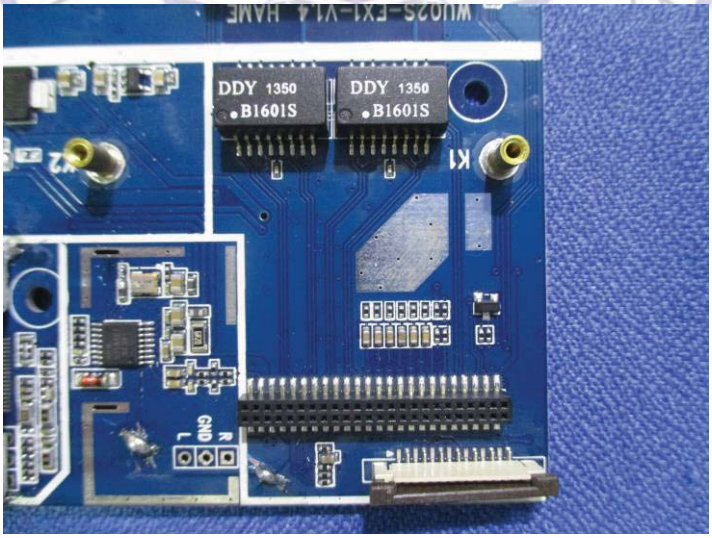


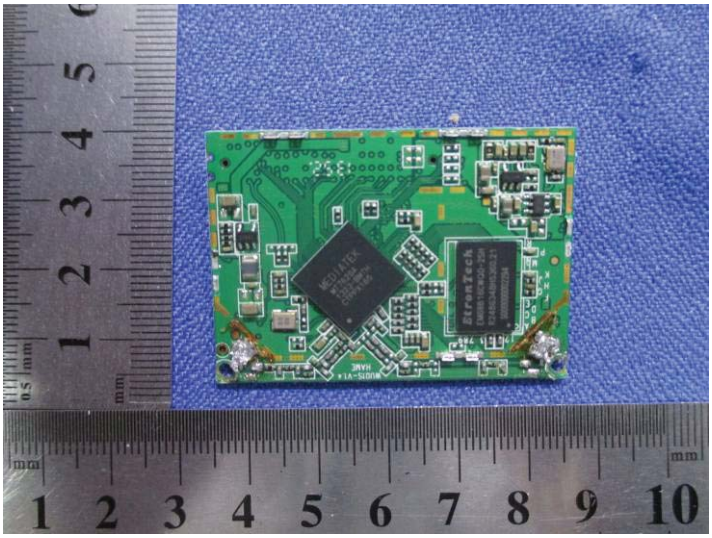


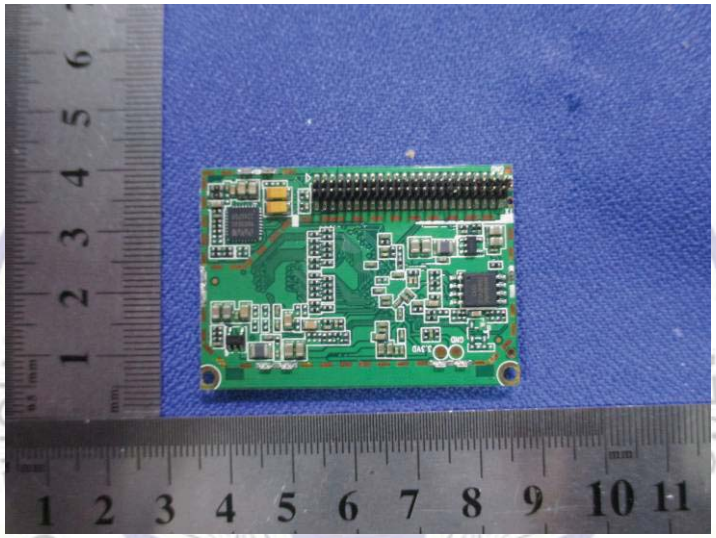


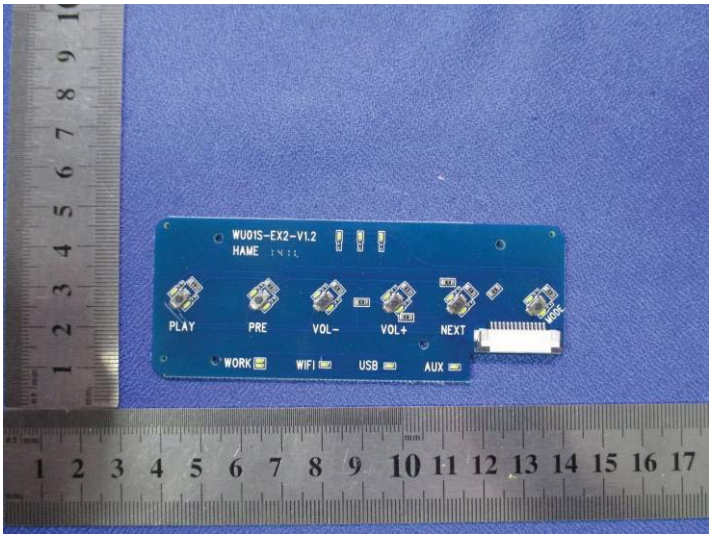


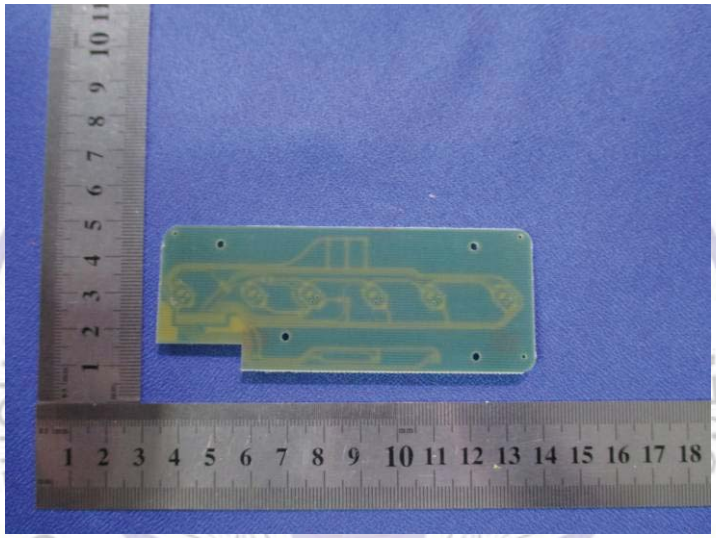



DDY 1350
B1601S
DDY 1350
B1601S









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