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FCC PART 15 SUBPART C TEST REPORT

Part 15.247

Report Reference No.....:	**CTL1411182761-WW**
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.....:	Dec. 16, 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.....:	**USA 111 INC.**
Address .....:	5885 Green Pointe Dr. Suite B Groveport OH, 43125 United States
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 .....:	**Mobile phone**
FCC ID……..:	**2ADOV-IRULUV1**
Trade Mark .....:	iRULU
Model/Type reference .....:	V1
GSM/WCDMA	
Transmit .....:	2G:GSM 850: 824~849MHz, PCS 1900: 1850~1910MHz 3G:WCDMA Band II: 1850-1910MHz, WCDMA Band V: 824~849MHz
Receive .....:	2G:GSM 850: 869~894MHz, PCS 1900: 1930~1990MHz 3G:WCDMA Band II: 1930~1990MHz, WCDMA Band V: 869~894MHz
Release Version .....:	2G:R99 3G:Rel-6

Type of modulation ..... :	2G: GMSK for GSM/GPRS
	3G: QPSK
GPRS Type ..... :	Class B
GPRS Class ..... :	Class 12
GPS	
work frequency ..... :	1575.42MHz
Type of modulation ..... :	BPSK
Bluetooth	
Work frequency ..... :	2402~2480MHz
Version ..... :	V3.0, V4.0
Type of modulation ..... :	FHSS
Data Rate ..... :	1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps(8DPSK)
Wi-Fi	
Work frequency ..... :	802.11b/g/n(20MHz): 2412~2462MHz,
	802.11n(40MHz): 2422~2452MHz
Type of modulation ..... :	802.11b DSSS, 802.11g/n: OFDM
Data Rate ..... :	802.11b: 1/2/5.5/11 Mbps
	802.11g: 6/9/12/18/24/36/48/54 Mbps
	802.11n: up to 150 Mbps
Antenna Gain ..... :	-2.0 dBi for GSM850 and WCDMA Band V
	-2.0 dBi for PCS1900 and WCDMA Band II
	-3.0 dBi for Bluetooth and Wi-Fi
Antenna type ..... :	Internal
IMEI ..... :	356878021568635/356878021568643
Harware version ..... :	E2109_V1.1
Software version ..... :	Android 4.4.2
Result ..... :	**Positive**

TEST REPORT

Test Report No. :	CTL1411182761-WW	Dec. 16, 2014 Date of issue

Equipment under Test	:	Mobile phone
Model /Type	:	V1
Applicant	:	**USA111 INC.**
Address	:	5885 Green Pointe Dr. Suite B Groveport OH, 43125 United States
Manufacturer		**SHENZHEN GOTRON ELECTRONIC CO., LTD**
Address		Room 15C, Block C of Electronic& Technology Building,2070 Shennan Middle Road, Shenzhen 518000 P.R.China

Test Result according to the standards on page 5:	**Positive**

The test report merely corresponds to the test sample.
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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1. TEST STANDARDS

The tests were performed according to following standards:

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

ANSI C63.10-2009: 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. 22, 2014

Testing commenced on : Nov. 22, 2014

Testing concluded on : Dec. 16, 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)		

DC 3.7V from battery

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.

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)

A Mobile phone with UMTS/GSM, Bluetooth, GPS and wifi function.
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

Manufacturer :
Model No. :
Manufacturer :
Model No. :

2.6. NOTE

1. The EUT is an 802.11b/g/n **Mobile phone**,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)	CTL1411182761-WW

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 SISO function,Physically,the EUT provides two completed transmitter and two completed receivers.

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

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

This submittal(s) (test report) is intended for FCCID: **2ADOV-IRULUV1** 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:

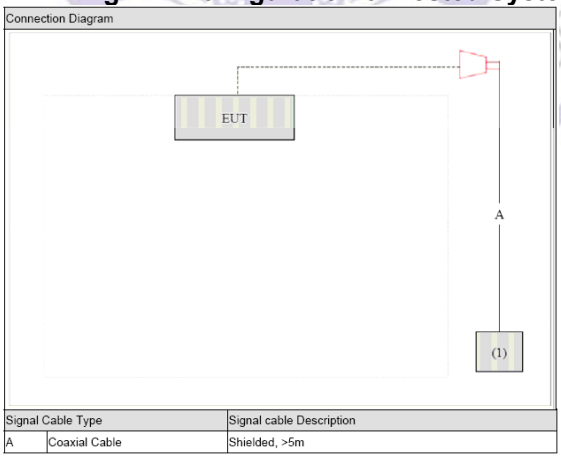
Temperature: 15-35 ° C

Humidity: 30-60 %

Atmospheric pressure: 950-1050mbar

3.4. Configuration of Tested System

Fig. 2-1 Configuration of Tested System



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	1~26.5GHz	4.32dB	(1)
Conducted Disturbance	0.15~30MHz	3.20dB	(1)

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

3.7. 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
RF Cable	HUBER+SUHNER	SF104	/	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.

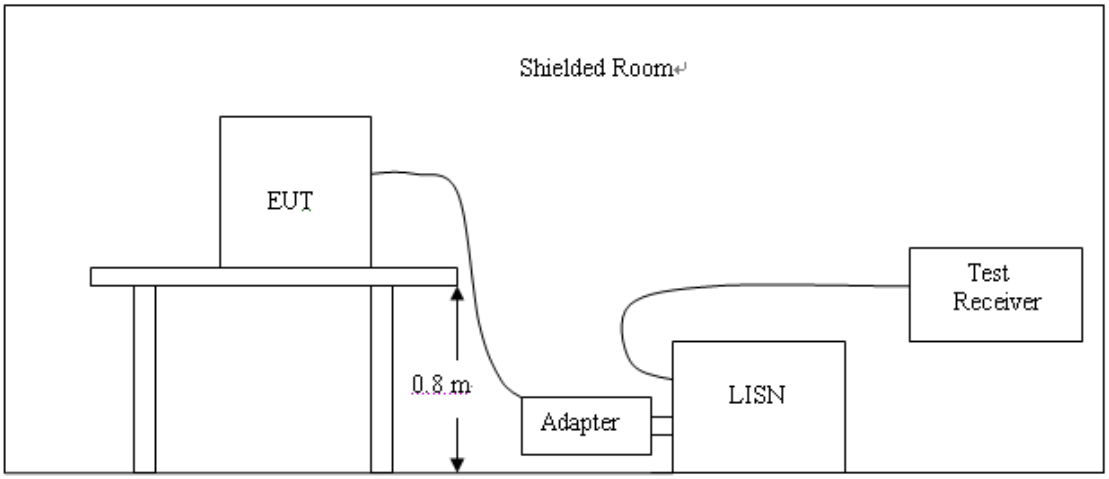
Test Items	Mode	Data Rate	Channel
AC Power Conducted Emission	Normal Link	11 Mbps	1
Maximum Peak Conducted Output Power Power Spectral Density 6dB Bandwidth Spurious RF conducted emission	11b/DSSS	11 Mbps	1/6/11
	11g/OFDM	54 Mbps	1/6/11
	11n(20MHz)/OFDM	65Mbps	1/6/11
	11n(40MHz)/OFDM	150Mbps	3/6/9
Radiated 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.

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.

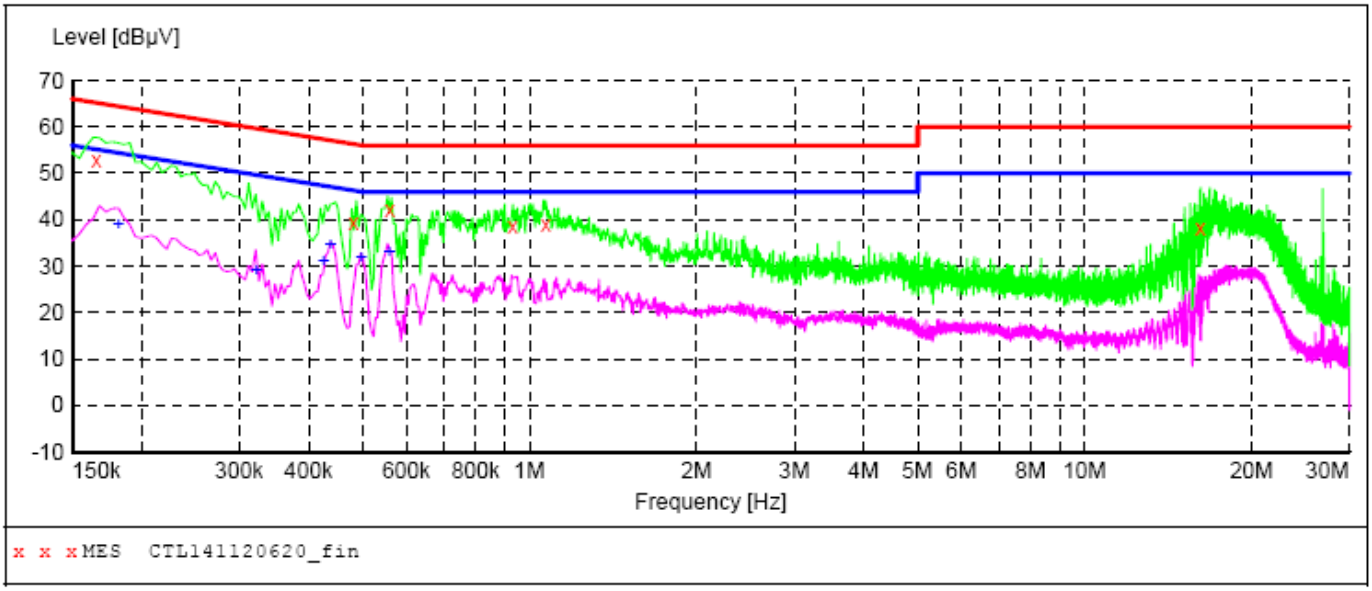
1. Please follow the guidelines in ANSI C63.4-2009.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All 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: "CTL141120620_fin"

11/20/2014 4:38PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.166000	52.70	10.2	65	12.5	QP	N	GND
0.482000	39.50	10.2	56	16.8	QP	N	GND
0.560000	42.30	10.2	56	13.7	QP	N	GND
0.932000	38.60	10.3	56	17.4	QP	N	GND
1.070000	39.00	10.3	56	17.0	QP	N	GND
16.172000	38.30	10.7	60	21.7	QP	N	GND

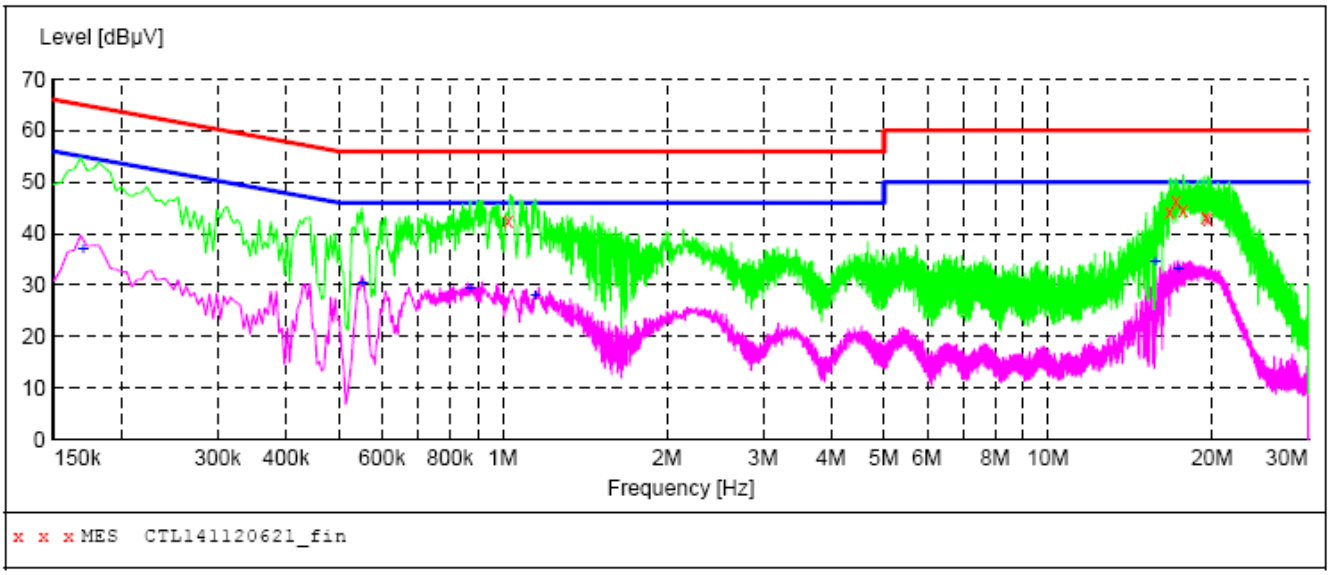
MEASUREMENT RESULT: "CTL141120620_fin2"

11/20/2014 4:38PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.182000	38.90	10.2	54	15.5	AV	N	GND
0.322000	29.20	10.2	50	20.5	AV	N	GND
0.426000	31.20	10.2	47	16.1	AV	N	GND
0.438000	34.70	10.2	47	12.4	AV	N	GND
0.498000	31.90	10.2	46	14.1	AV	N	GND
0.560000	33.00	10.2	46	13.0	AV	N	GND

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

Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "CTL141120621_fin"

11/20/2014 4:42PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
1.022000	42.50	10.3	56	13.5	QP	L1	GND
16.688000	44.10	10.8	60	15.9	QP	L1	GND
17.126000	46.40	10.8	60	13.6	QP	L1	GND
17.666000	44.60	10.8	60	15.4	QP	L1	GND
19.436000	43.10	10.9	60	16.9	QP	L1	GND
19.634000	42.90	10.9	60	17.1	QP	L1	GND

MEASUREMENT RESULT: "CTL141120621_fin2"

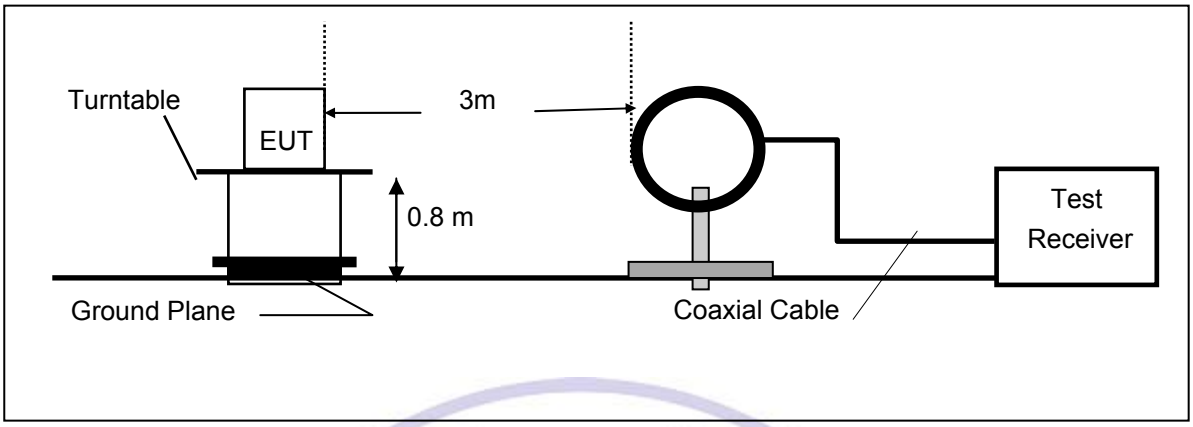
11/20/2014 4:42PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.170000	37.10	10.2	55	17.9	AV	L1	GND
0.554000	30.40	10.2	46	15.6	AV	L1	GND
0.872000	29.50	10.2	46	16.5	AV	L1	GND
1.148000	28.10	10.3	46	17.9	AV	L1	GND
15.734000	34.70	10.7	50	15.3	AV	L1	GND
17.342000	33.20	10.8	50	16.8	AV	L1	GND

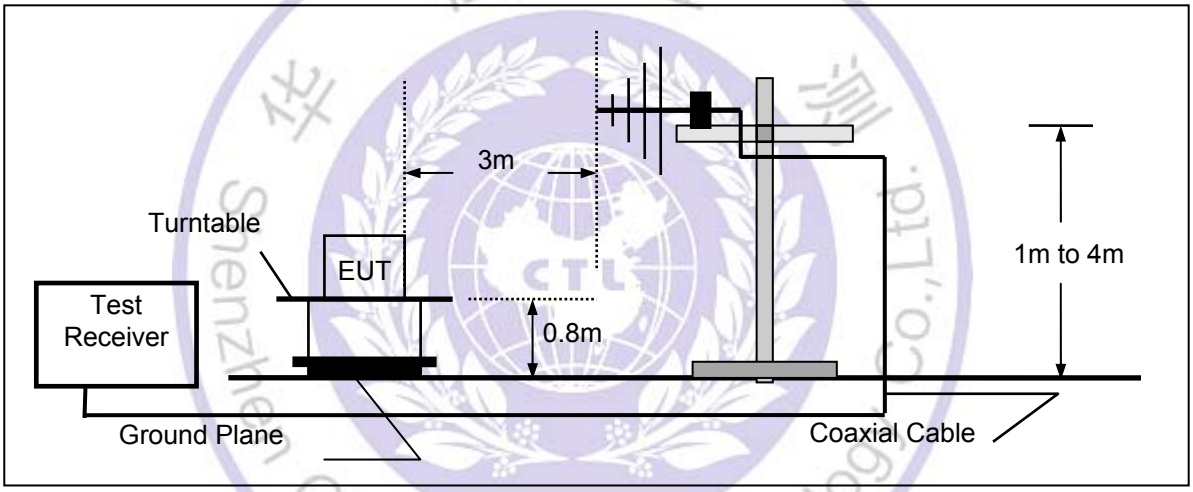
4.2. Radiated Emission Test

TEST CONFIGURATION

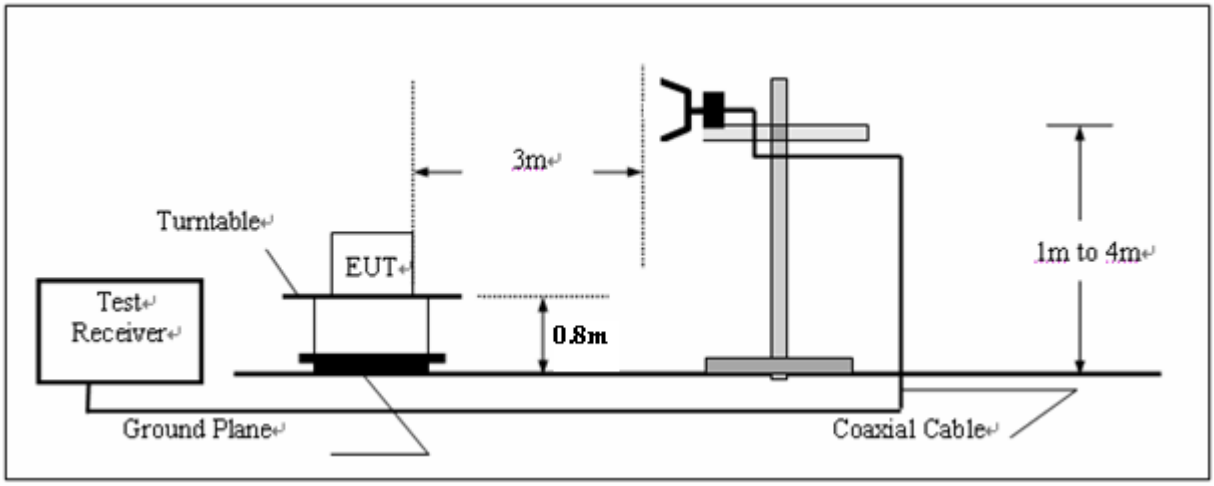
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(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.

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

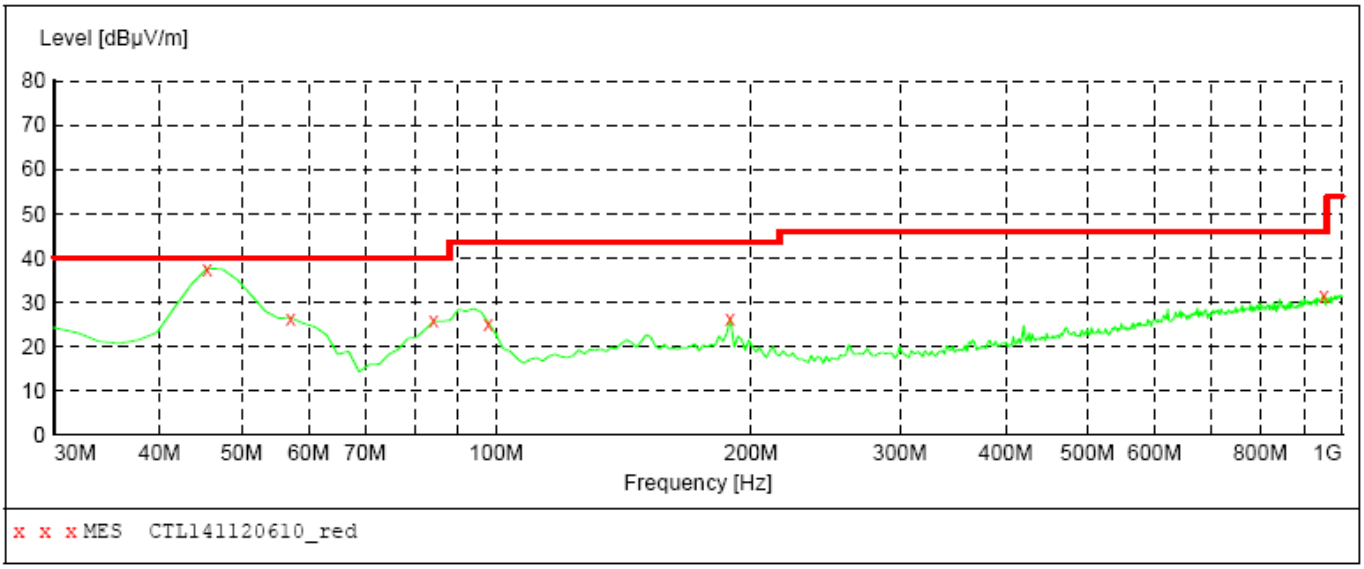
Note: The amplitude of spurious emissions that are attenuated by more than 20dB below the permissible value has no need to be reported.

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



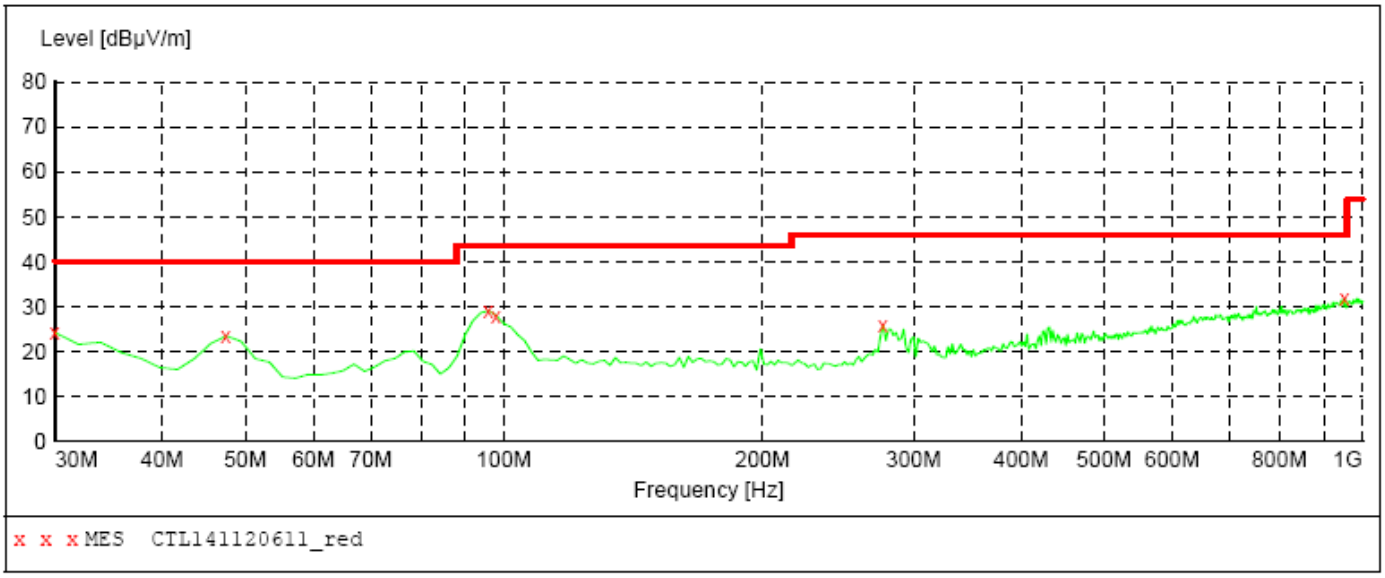
MEASUREMENT RESULT: "CTL141120610_red"

11/20/2014 4:02PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
45.520000	37.60	10.0	40.0	2.4	---	0.0	0.00	VERTICAL
57.160000	26.40	8.3	40.0	13.6	---	0.0	0.00	VERTICAL
84.320000	25.70	9.2	40.0	14.3	---	0.0	0.00	VERTICAL
97.900000	25.20	11.1	43.5	18.3	---	0.0	0.00	VERTICAL
189.080000	26.30	13.4	43.5	17.2	---	0.0	0.00	VERTICAL
951.500000	31.40	26.7	46.0	14.6	---	0.0	0.00	VERTICAL

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: "CTL141120611_red"

11/20/2014 4:04PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.000000	24.10	21.1	40.0	15.9	---	0.0	0.00	HORIZONTAL
47.460000	23.40	9.1	40.0	16.6	---	0.0	0.00	HORIZONTAL
95.960000	29.00	10.6	43.5	14.5	---	0.0	0.00	HORIZONTAL
97.900000	28.00	11.1	43.5	15.5	---	0.0	0.00	HORIZONTAL
276.380000	25.80	15.4	46.0	20.2	---	0.0	0.00	HORIZONTAL
953.440000	31.70	26.7	46.0	14.3	---	0.0	0.00	HORIZONTAL

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	72.3	30.8	103.1	Fundamental	/	PK
	V	307.4	12.8	14.8	27.6	46	18.4	QP
	V	500.0	15.2	19.7	34.9	46	11.1	QP
	V	3200.0	46.3	-0.6	45.7	54(note3)	8.3	PK
	V	4825.0	46.5	2.6	49.1	54(note3)	4.9	PK
	V	7239.0	57.3	8.1	65.4	74	8.6	PK
	V	7236.0	38.0	8.9	46.9	54	7.1	AV
	H	24000.0	59.7	-8.9	50.8	54(note3)	3.2	PK
6	V	2437.0	71.5	31.2	102.7	Fundamental	/	PK
	V	317.1	12.9	15.2	28.1	46	17.9	QP
	V	571.6	12.4	21.2	33.6	46	12.4	QP
	V	3200.0	45.7	-0.6	45.1	54(note3)	8.9	PK
	V	4876.0	46.1	2.8	48.9	54(note3)	5.1	PK
	V	7315.5	55.9	8.8	64.7	74	9.3	PK
	V	7311.0	38.1	8.1	46.2	54	7.8	AV
	H	24000.0	59.8	-8.9	50.9	54(note3)	3.1	PK
11	V	2462.0	72.2	30.9	103.1	Fundamental	/	PK
	V	326.3	14.2	14.9	29.1	46	16.9	QP
	H	582.0	9.2	21.2	30.4	46	15.6	QP
	V	3200.0	47.3	-0.6	46.7	54(note3)	7.3	PK
	V	4927.0	42.2	3.0	45.2	54(note3)	8.8	PK
	V	7383.5	57.8	8.9	66.7	74	7.3	PK
	V	7386.0	34.9	8.9	43.8	54	10.2	AV
	H	24000.0	59.6	-8.9	50.7	54(note3)	3.3	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	70.5	31.9	102.4	Fundamental	/	PK
	H	245.8	16.0	15.7	31.7	46	14.3	QP
	H	541.4	14.9	21.3	36.2	46	9.8	QP
	V	3200.0	47.9	-0.6	47.3	54(note3)	6.7	PK
	V	4824.0	45.6	2.6	48.2	54(note3)	5.8	PK
	V	7236.0	56.5	8.9	65.4	74	8.6	PK
	V	7239.0	38.2	8.9	47.1	54	6.9	AV
	H	24000.0	59.7	-8.9	50.8	54(note3)	3.2	PK
6	V	2437.0	70.9	31.2	102.1	Fundamental	/	PK
	V	359.6	17.4	14.8	32.2	46	13.8	QP
	V	638.9	18.3	21.2	39.5	46	6.5	QP
	V	3200.0	47.4	-0.6	46.8	54(note3)	7.2	PK
	V	4876.0	45.3	2.8	48.1	54(note3)	5.9	PK
	V	7298.5	57.4	8.8	66.2	74	7.8	PK
	H	7298.9	39.2	8.8	48.0	54	6.0	AV
	H	24000.0	59.6	-8.9	50.7	54(note3)	3.3	PK
11	V	2462.3	72.2	30.9	103.1	Fundamental	/	PK
	H	698.7	5.9	21.2	27.1	46	18.9	QP
	V	282.6	20.9	14.7	35.6	46	10.4	QP
	V	3200.0	44.8	-0.6	44.2	54(note3)	9.8	PK
	V	4927.0	43.3	3.0	46.3	54(note3)	7.7	PK
	V	7386.0	60.0	8.9	68.9	74	5.1	PK
	V	7392.0	37.5	8.9	46.4	54	7.6	AV
	H	24000.0	59.6	-8.9	50.7	54(note3)	3.3	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)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	V	2412.1	71.4	30.7	102.1	Fundamental	/	PK
	H	542.9	6.2	21.2	27.4	46	18.6	QP
	H	362.8	17.7	15.1	32.8	46	13.2	QP
	V	3200.0	46.2	-0.6	45.6	54(note3)	8.4	PK
	V	4824.0	44.3	2.6	46.9	54(note3)	7.1	PK
	V	7236.0	56.3	8.9	65.2	74	8.8	PK
	V	7239.0	40.1	8.9	49.0	54	5.0	AV
	H	24000.0	59.5	-8.9	50.6	54(note3)	3.4	PK
6	V	2437.0	70.6	31.2	101.8	Fundamental	/	PK
	H	597.6	5.4	21.2	26.6	46	19.4	QP
	H	320.3	15.9	16.0	31.9	46	14.1	QP
	V	3200.0	47.0	-0.6	46.4	54(note3)	7.6	PK
	V	4876.0	44.9	2.8	47.7	54(note3)	6.3	PK
	V	7307.0	57.5	8.8	66.3	74	7.7	PK
	V	7310.6	36.6	8.8	45.4	54	8.6	AV
	H	24000.0	59.5	-8.9	50.6	54(note3)	3.4	PK
11	V	2462.0	70.7	30.9	101.6	Fundamental	/	PK
	H	364.3	14.1	14.7	28.8	46	17.2	QP
	H	541.9	13.0	21.2	34.2	46	11.8	QP
	V	3200.0	48.2	-0.6	47.6	54(note3)	6.4	PK
	V	4924.0	46.4	3.0	49.4	54(note3)	4.6	PK
	V	7375.0	58.1	9.0	67.1	74	6.9	PK
	V	7378.3	37.9	9.0	46.9	54	7.1	AV
	H	24000.0	59.6	-8.9	50.7	54(note3)	3.3	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)

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
3	V	2423.6	69.6	31.8	101.4	Fundamental	/	PK
	H	341.9	10.9	16.0	26.9	46	19.1	QP
	H	564.0	12.5	21.2	33.7	46	12.3	QP
	V	3200.0	45.8	-0.6	45.2	54(note3)	8.8	PK
	V	4844.0	44.7	2.6	47.3	54(note3)	6.7	PK
	V	7290.0	60.3	8.8	69.1	74	4.9	PK
	H	7290.7	38.4	8.8	47.2	54	6.8	AV
	H	24000.0	59.3	-8.9	50.4	54(note3)	3.6	PK
6	V	2437.0	70.8	31.2	102.0	Fundamental	/	PK
	H	291.9	18.3	14.8	33.1	46	12.9	QP
	H	553.3	11.0	21.2	32.2	46	13.8	QP
	V	3200.0	46.9	-0.6	46.3	54(note3)	7.7	PK
	V	4874.0	45.1	2.8	47.9	54(note3)	6.1	PK
	V	7349.2	59.1	9.0	68.1	74	5.9	PK
	V	7358.0	37.7	9.0	46.7	54	7.3	AV
	H	24000.0	59.7	-8.9	50.8	54(note3)	3.2	PK
9	V	2453.6	70.7	30.9	101.6	Fundamental	/	PK
	H	586.3	9.9	21.2	31.1	46	14.9	QP
	H	294.3	22.6	14.8	37.4	46	8.6	QP
	V	3200.0	45.8	-0.6	45.2	54(note3)	8.8	PK
	V	4904.0	44.0	2.9	46.9	54(note3)	7.1	PK
	V	7349.4	55.8	9.0	64.8	74	9.2	PK
	V	7349.5	35.7	9.0	44.7	54	9.3	AV
	H	24000.0	59.3	-8.9	50.4	54(note3)	3.6	PK

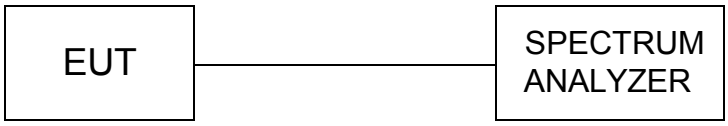
Note: 1. Measure Level = Reading Level + Factor.

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

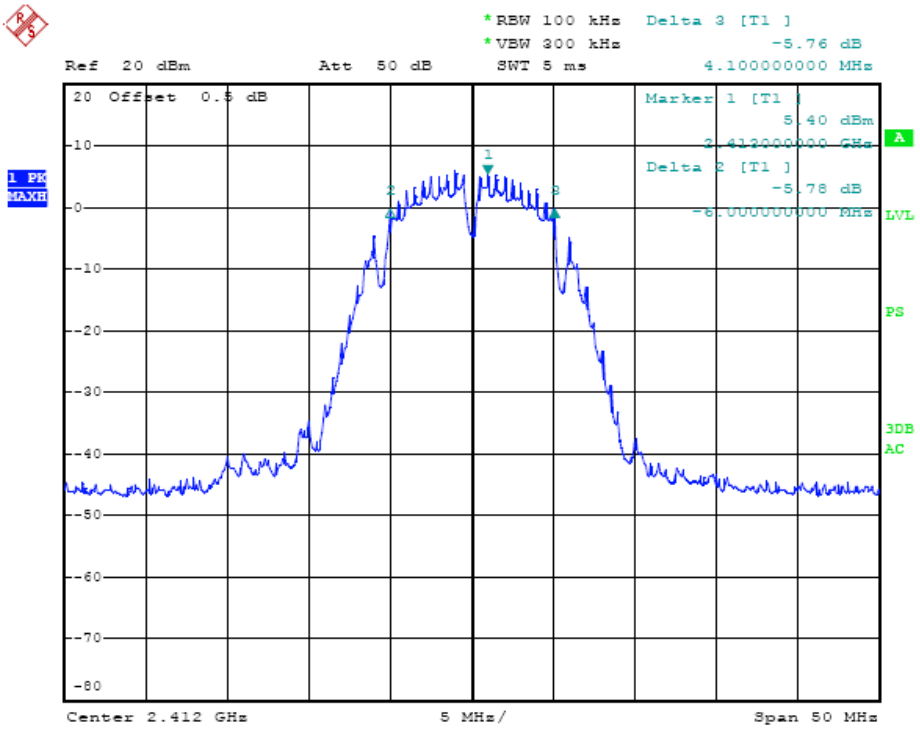
For digital modulation systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

TEST RESULTS

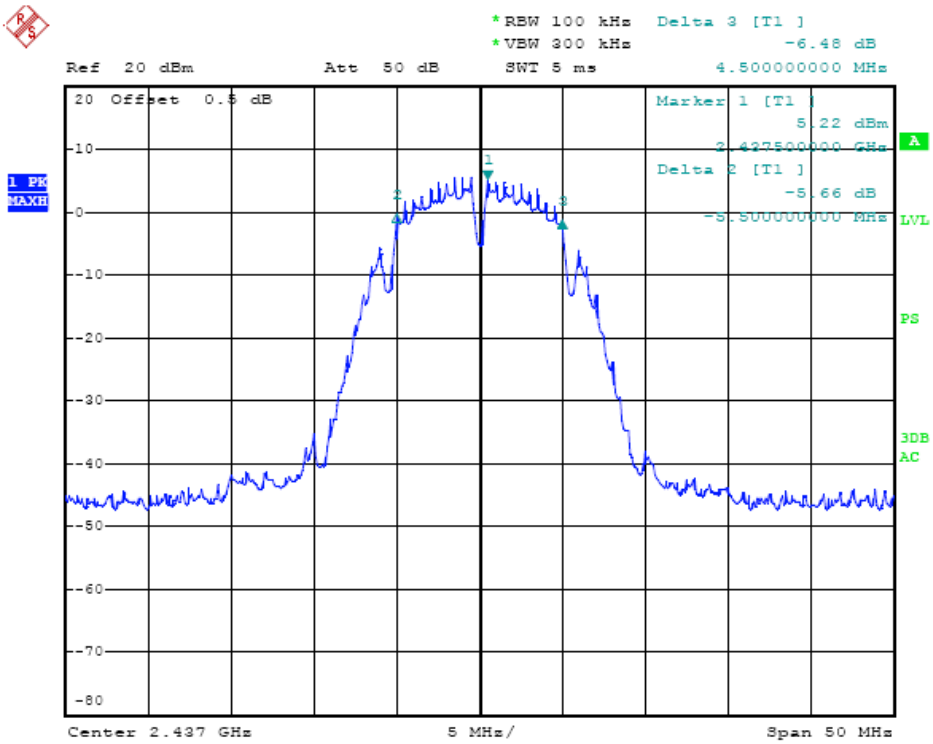
Product	:	Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	10100	500	Pass
06	2437	10000	500	Pass
11	2462	10000	500	Pass

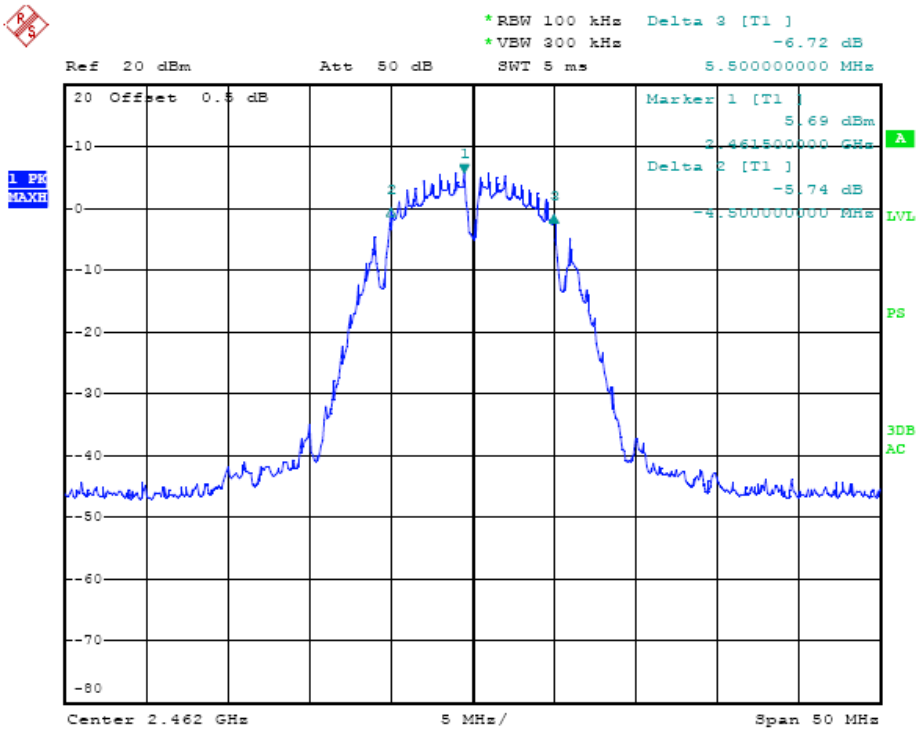
Channel 01 (2412MHz)



Channel 06 (2437MHz)



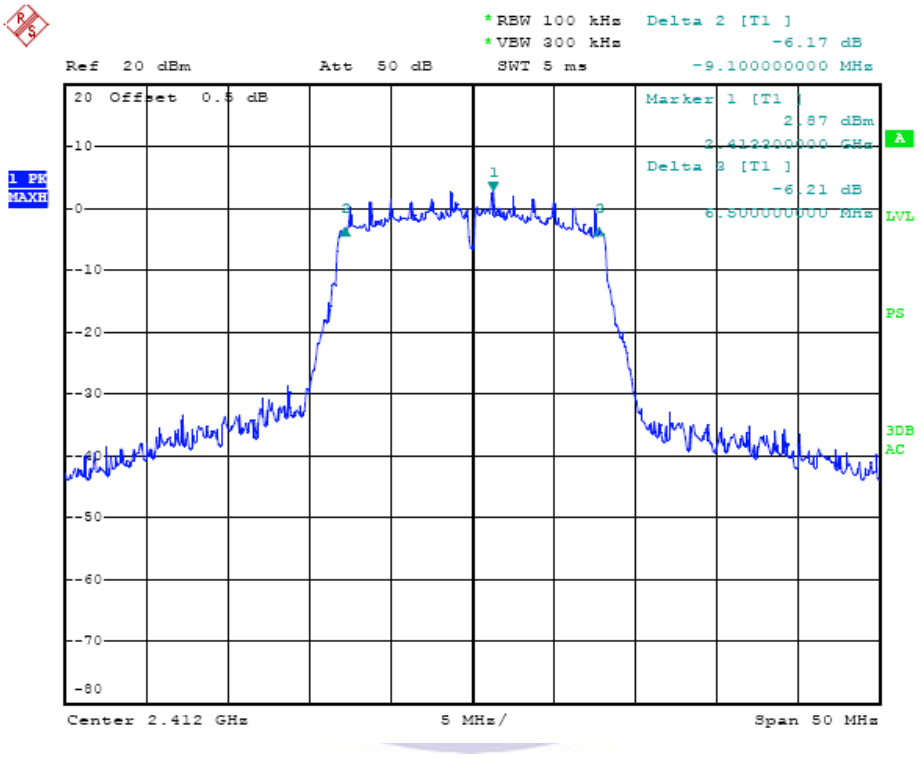
Channel 11 (2462MHz)



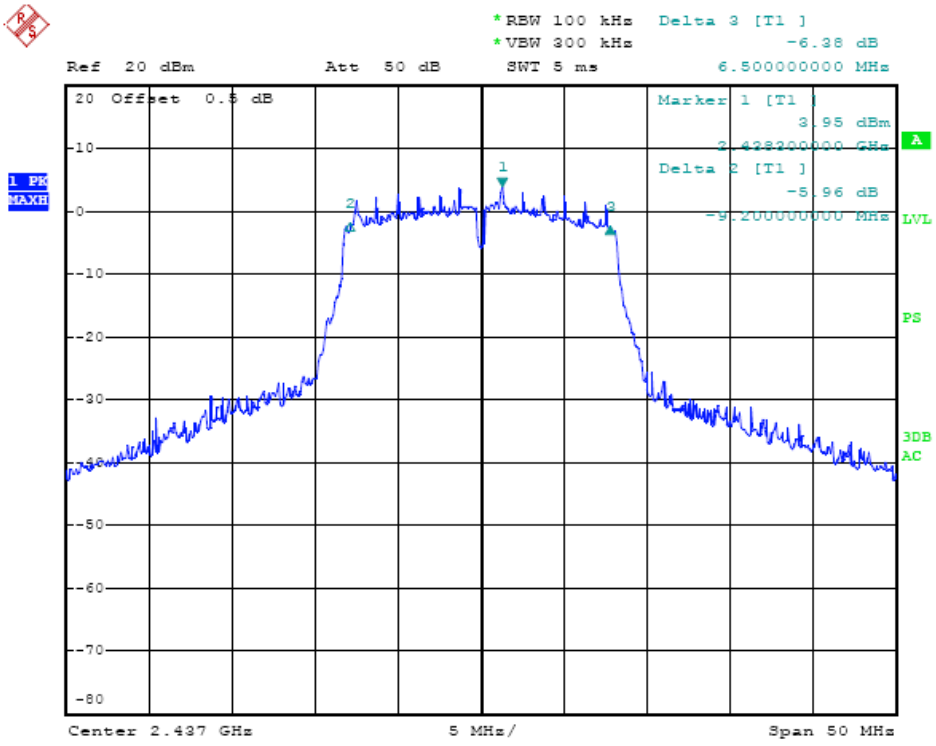
Product	:	Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	15600	500	Pass
06	2437	15700	500	Pass
11	2462	15800	500	Pass

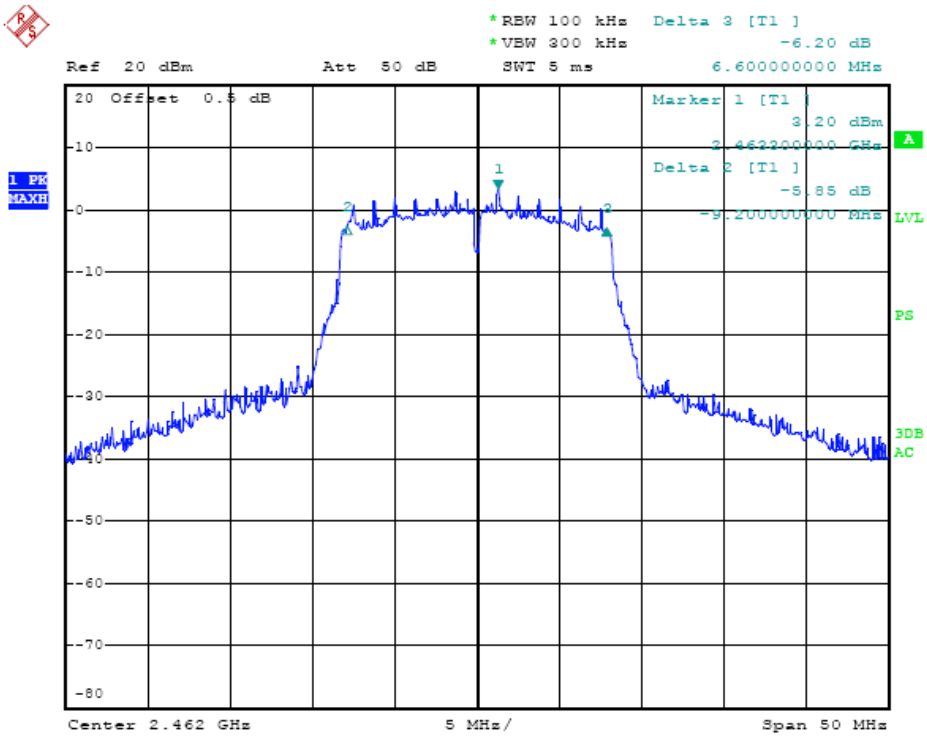
Channel 01 (2412MHz)



Channel 06 (2437MHz)



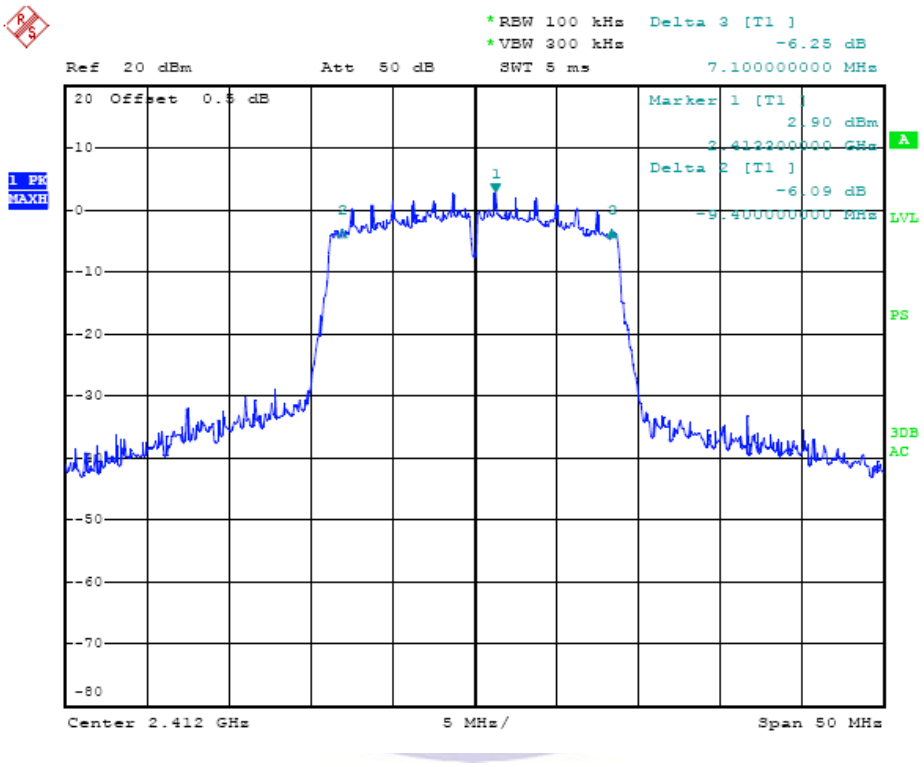
Channel 11 (2462MHz)



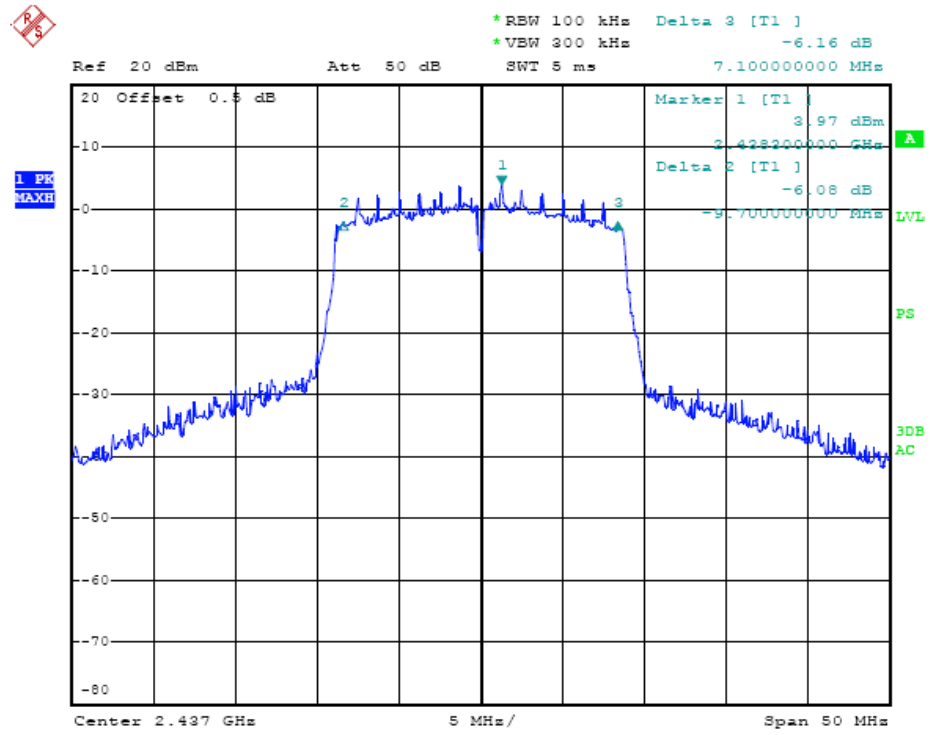
Product	:	Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
01	2412	16500	500	Pass
06	2437	16800	500	Pass
11	2462	16800	500	Pass

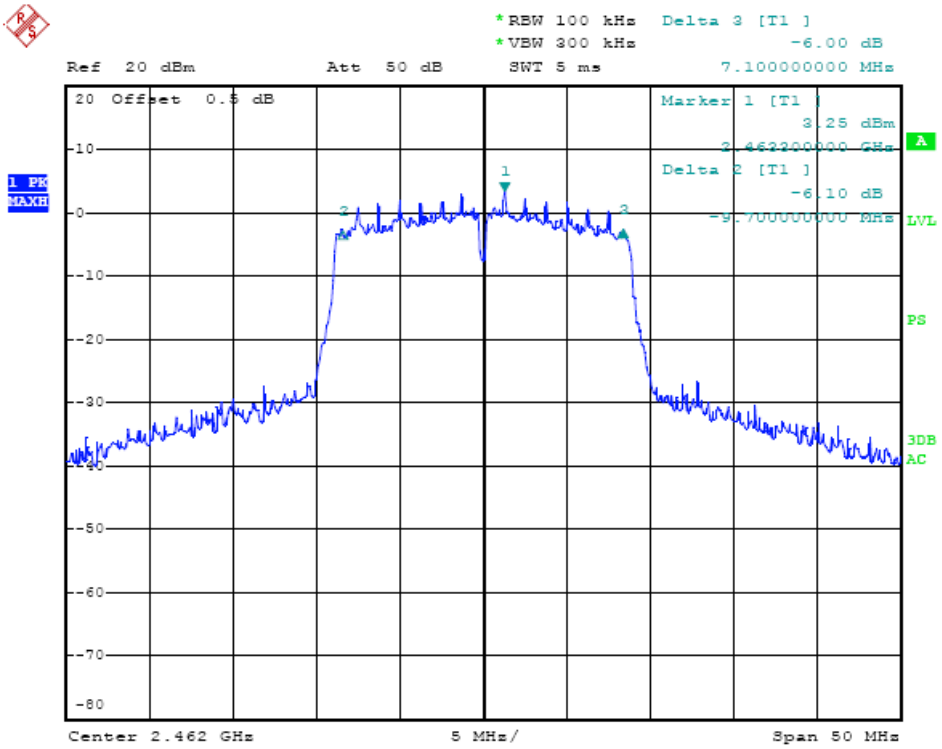
Channel 01 (2412MHz)



Channel 06 (2437MHz)



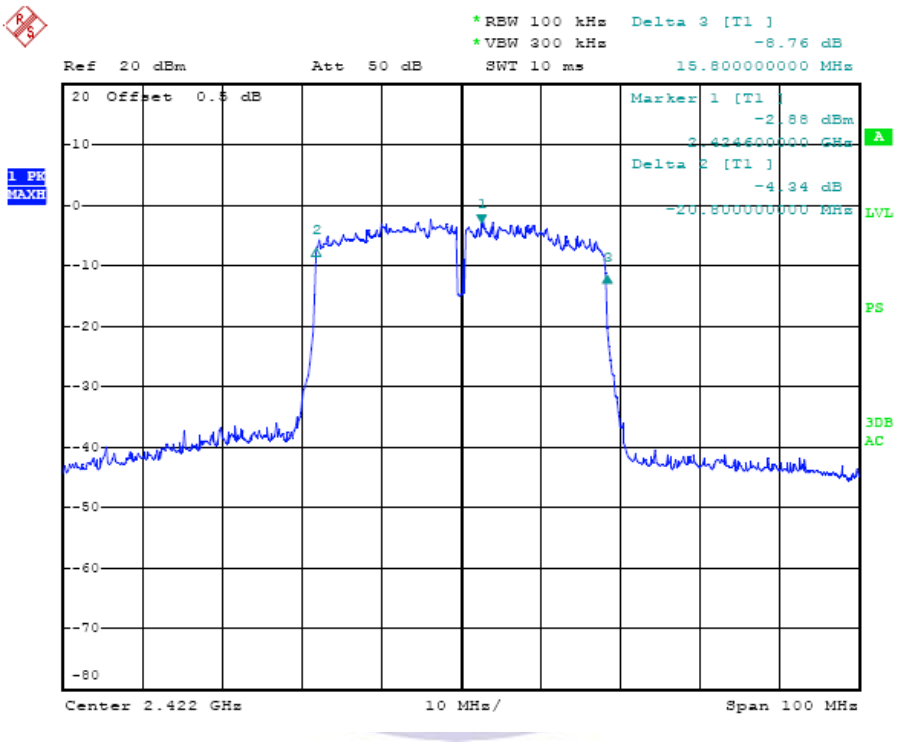
Channel 11 (2462MHz)



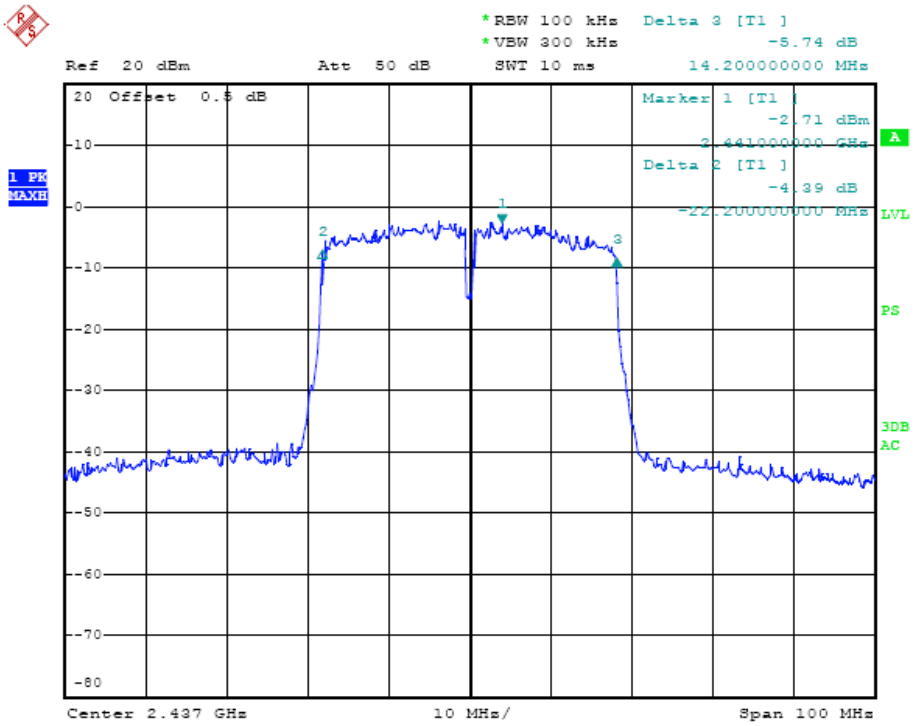
Product	:	Mobile Phone
Test Item	:	6dB Occupied Bandwidth
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz)

Channel No.	Frequency (MHz)	Occupied Bandwidth (kHz)	Limit (kHz)	Result
03	2422	36600	500	Pass
06	2437	36400	500	Pass
09	2452	36400	500	Pass

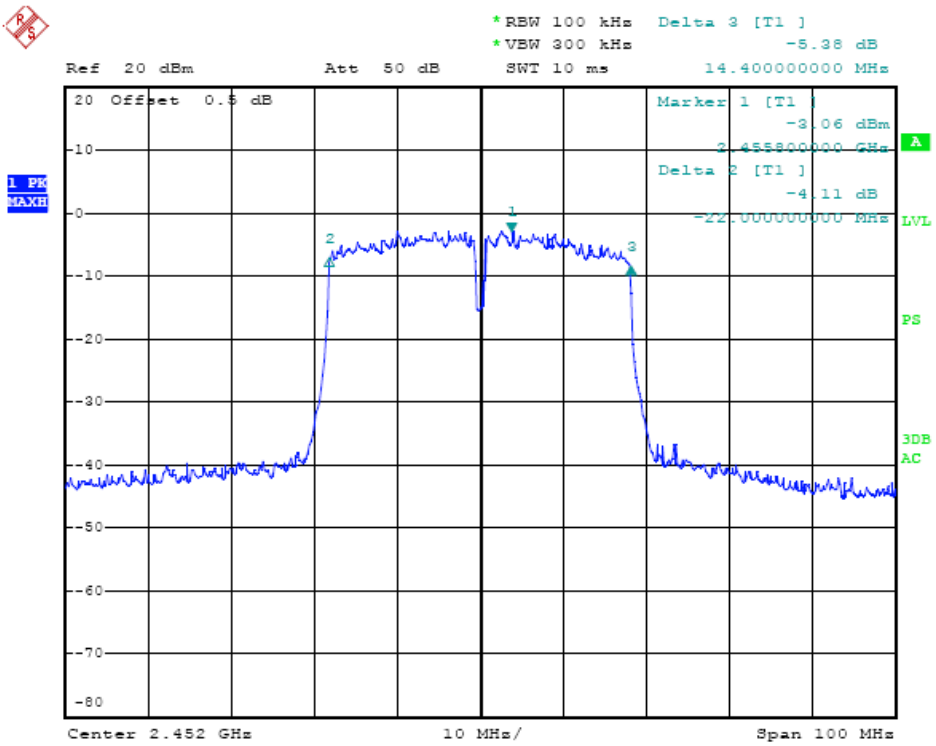
Channel 03 (2422MHz)



Channel 06 (2437MHz)

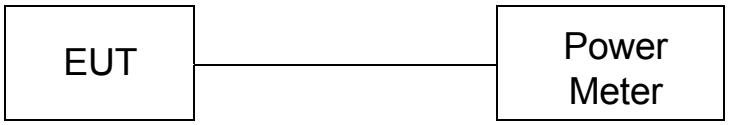


Channel 09 (2452MHz)



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

Product	:	Mobile Phone
Test Item	:	Power Output
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
1	2412	9.68	30.00	Pass
6	2437	9.49	30.00	Pass
11	2462	9.51	30.00	Pass

Product	:	Mobile Phone
Test Item	:	Power Output
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
1	2412	9.14	30.00	Pass
6	2437	9.09	30.00	Pass
11	2462	9.06	30.00	Pass

Product	:	Mobile Phone
Test Item	:	Power Output
Test Mode	:	Mode 3: Transmit by 802.11n(20MHz)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
1	2412	8.71	30.00	Pass
6	2437	8.86	30.00	Pass
11	2462	8.83	30.00	Pass

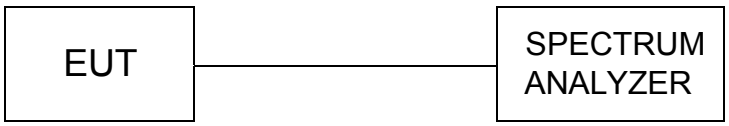
Product	:	Mobile Phone
Test Item	:	Power Output
Test Mode	:	Mode 4: Transmit by 802.11n(40MHz)

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
3	2422	8.43	30.00	Pass
6	2437	8.29	30.00	Pass
9	2452	8.36	30.00	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. Set RBW=100kHz and VBM= 300KHz to measure the peak field strength and set RBW to 1MHz and VBW to 10Hz to measure the average radiated field strength.

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

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

- Span: Set Span for minimum 50 MHz - Reference Level: 110 dBμV (corrected for gains and losses of test antenna factor, preamp gain and cable loss) - Attenuation: 10 dB

- Sweep Time: Coupled - Resolution Bandwidth: Up to and including 1 GHz = ≥ 100 kHz

- Resolution Bandwidth: Above 1 GHz = 1 MHz - Video Bandwidth: Below 1 GHz = 300 kHz

- Video Bandwidth: Up to and including 1 GHz =≥ 3 MHz for peak and10 Hz for average

- Detector: Peak

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

LIMIT

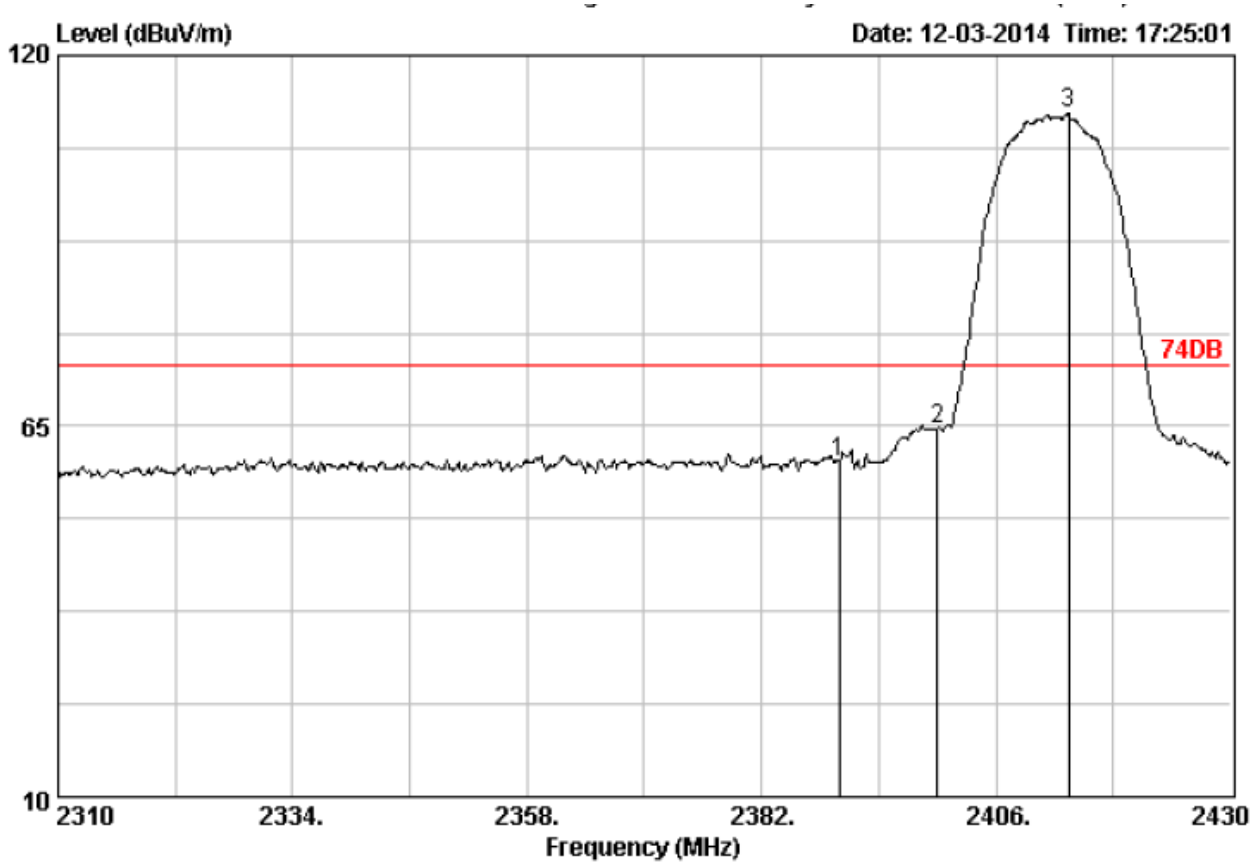
1. Below -20dB of the highest emission level in operating band.

2. Fall in the restricted bands listed in section 15.205. The maximum permitted average field strength is listed in section 15.209(see Section 15.205(c)).

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

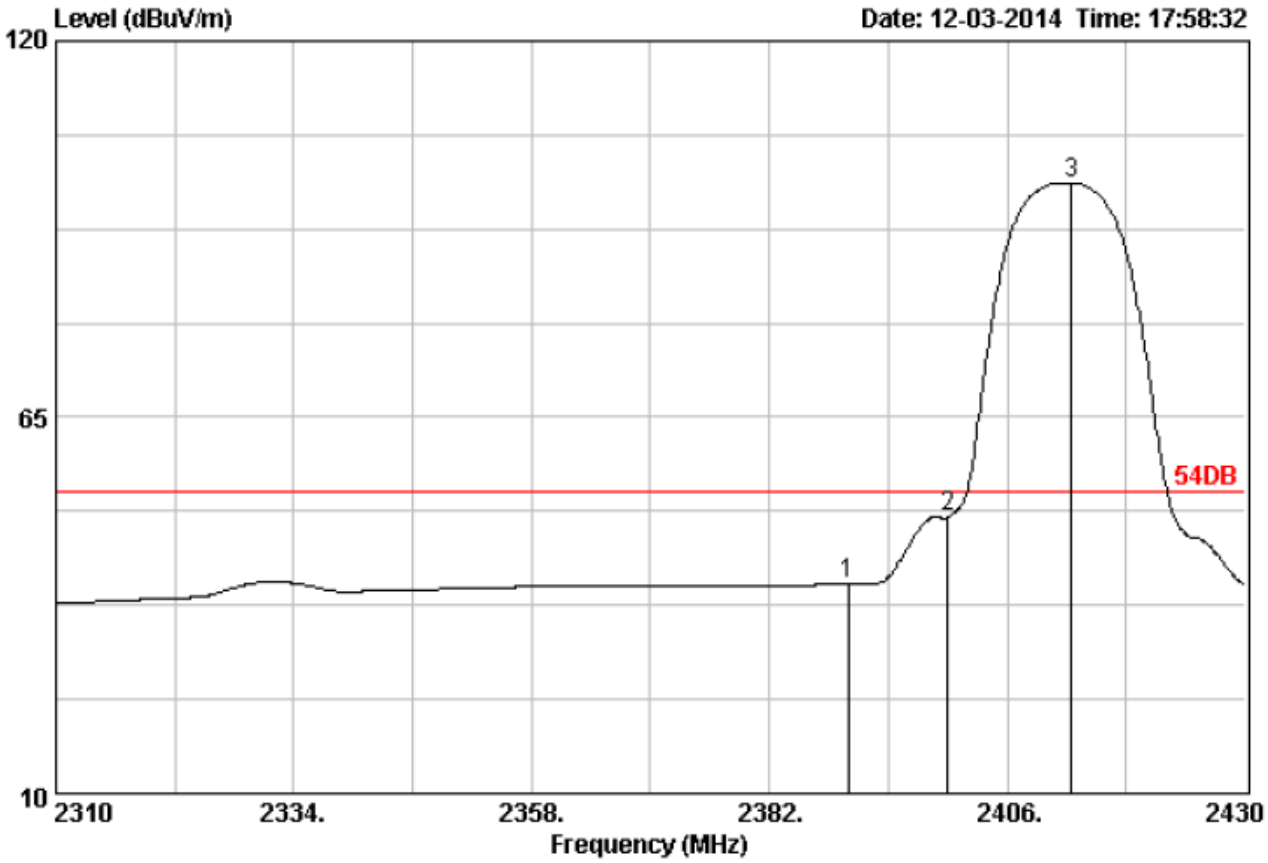
TEST RESULTS

Transmitting mode: 802.11b




```
Site no.      : 3m Chamber                Data no. : 1105
Dis. / Ant.   : 3m   DRH-118              Ant. pol. : HORIZONTAL
Limit         : 74DB
Env. / Ins.   : 23*C/54%
Engineer      :
EUT           :
Power         :
M/N           :
Test Mode     :
```

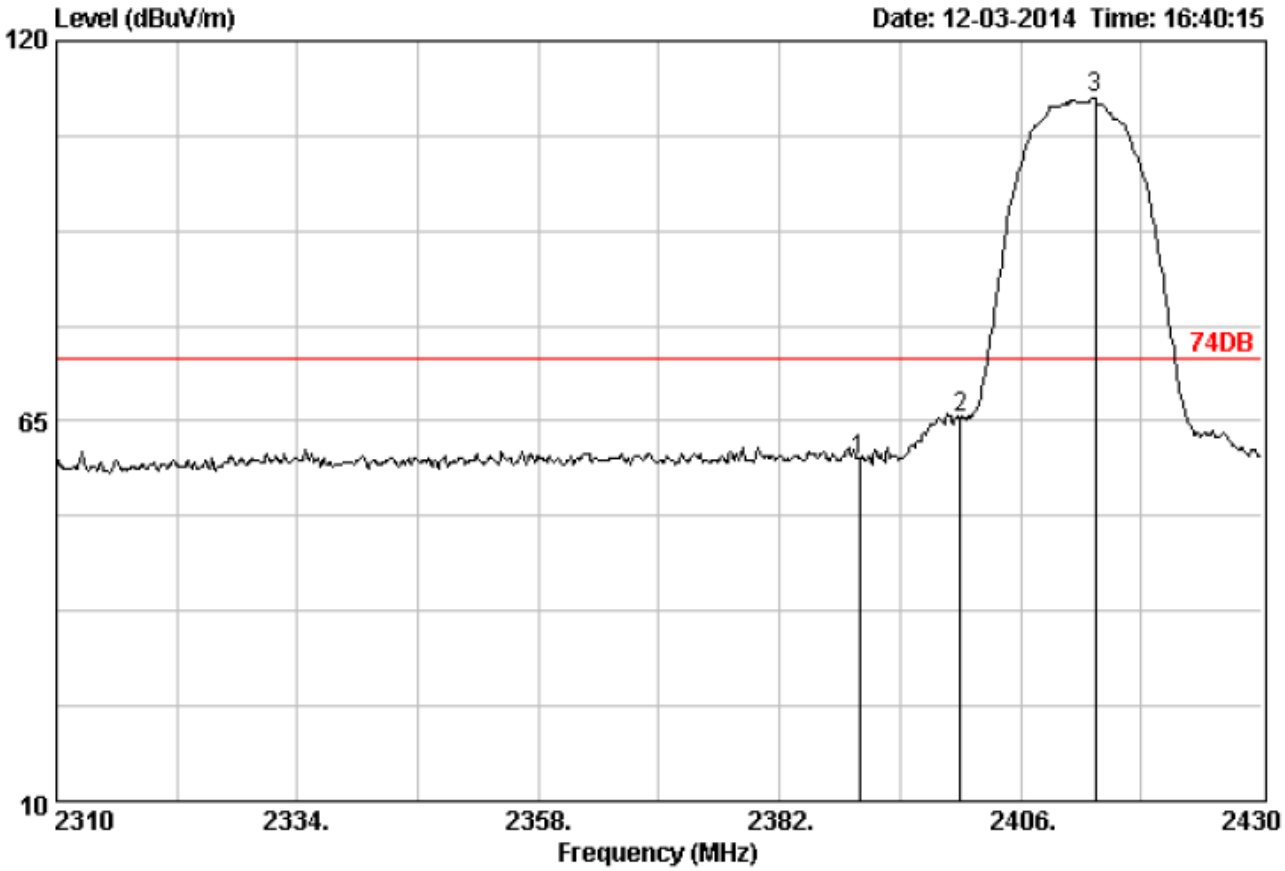
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	61.71	59.74	74.00	14.26	Peak
2	2400.00	28.78	4.61	66.62	64.65	74.00	9.35	Peak
3	2413.44	28.81	4.63	113.22	111.30	74.00	-37.30	Peak



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. : 1110
Ant. pol. : HORIZONTAL

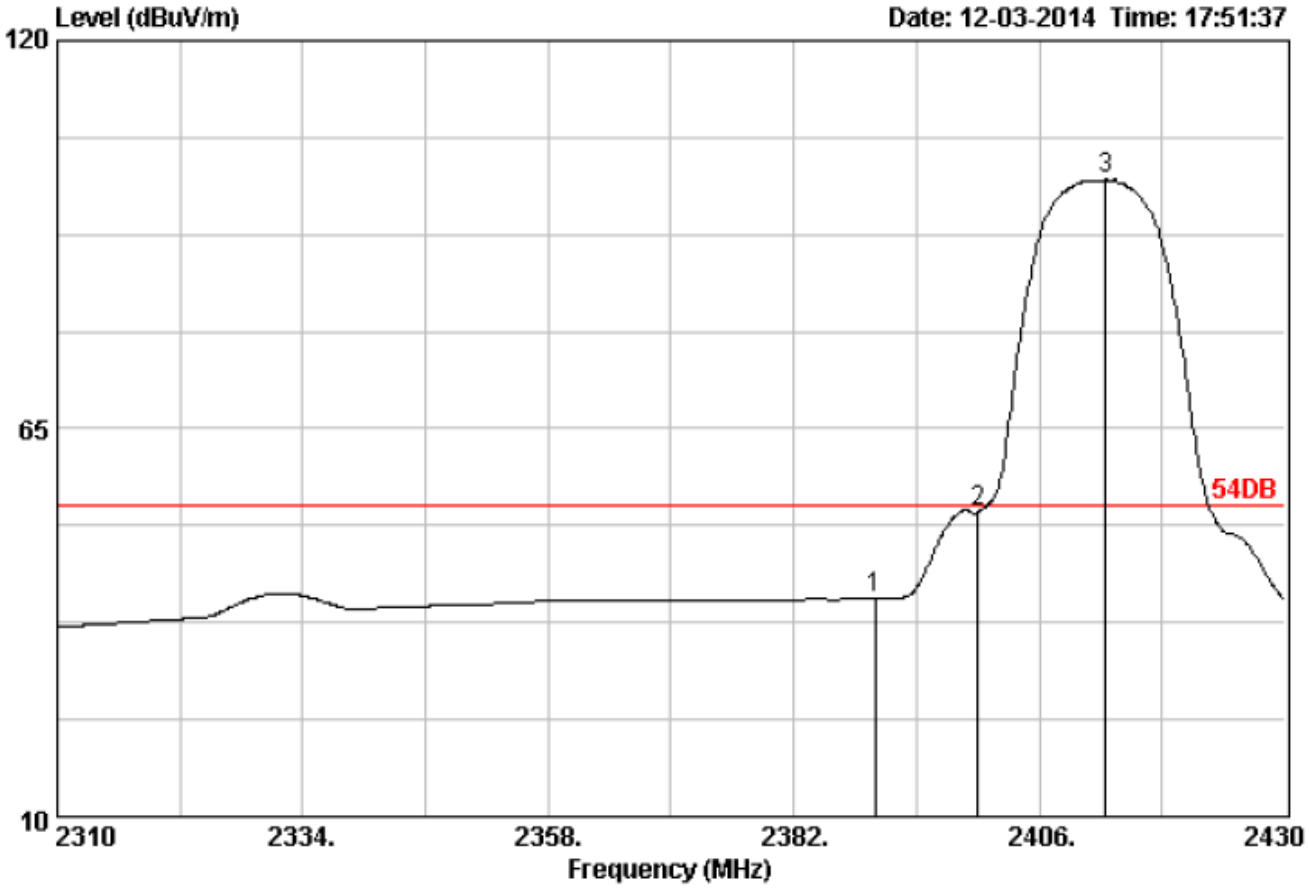
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	42.57	40.60	54.00	13.40	Average
2	2400.00	28.78	4.61	52.28	50.31	54.00	3.69	Average
3	2412.48	28.81	4.63	101.20	99.28	54.00	-45.28	Average



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

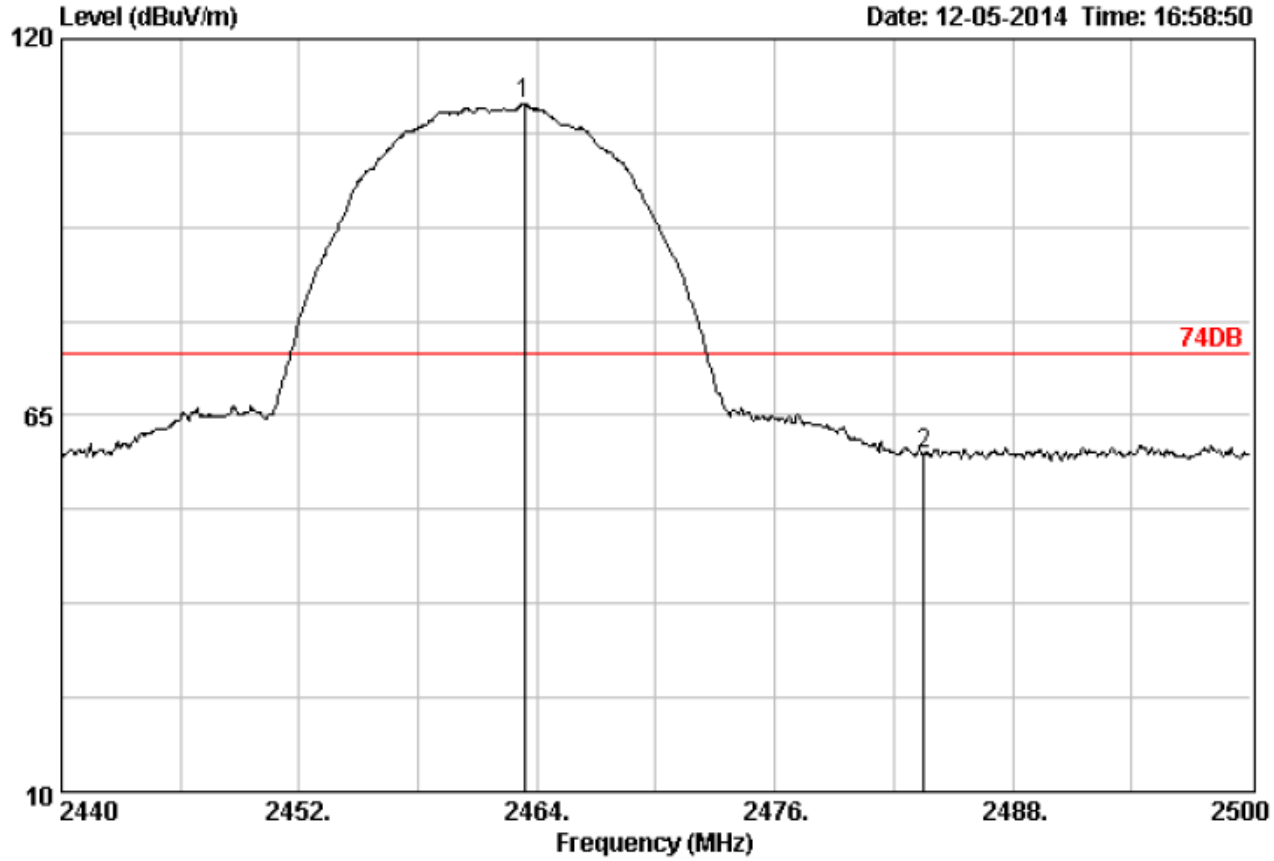
Data no. : 1100
Ant. pol. : VERTICAL

	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	61.39	59.42	74.00	14.58	Peak
2	2400.00	28.78	4.61	67.32	65.35	74.00	8.65	Peak
3	2413.44	28.81	4.63	113.66	111.74	74.00	-37.74	Peak



Site no. : 3m Chamber Data no. : 1109
Dis. / Ant. : 3m DRH-118 Ant. pol. : VERTICAL
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

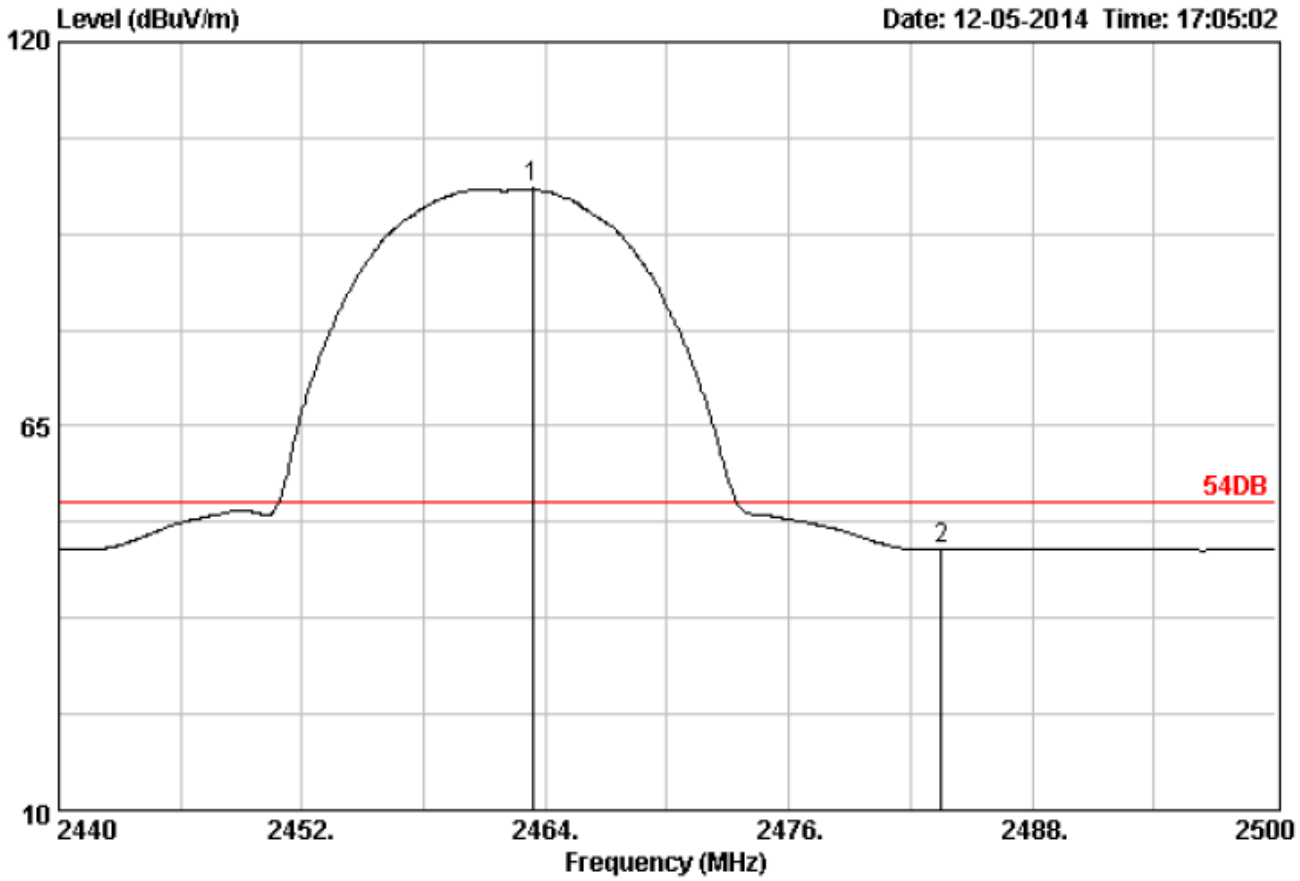
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	42.91	40.94	54.00	13.06	Average
2	2400.00	28.78	4.61	55.10	53.13	54.00	0.87	Average
3	2412.48	28.81	4.63	102.19	100.27	54.00	-46.27	Average



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. : 1141
Ant. pol. : HORIZONTAL

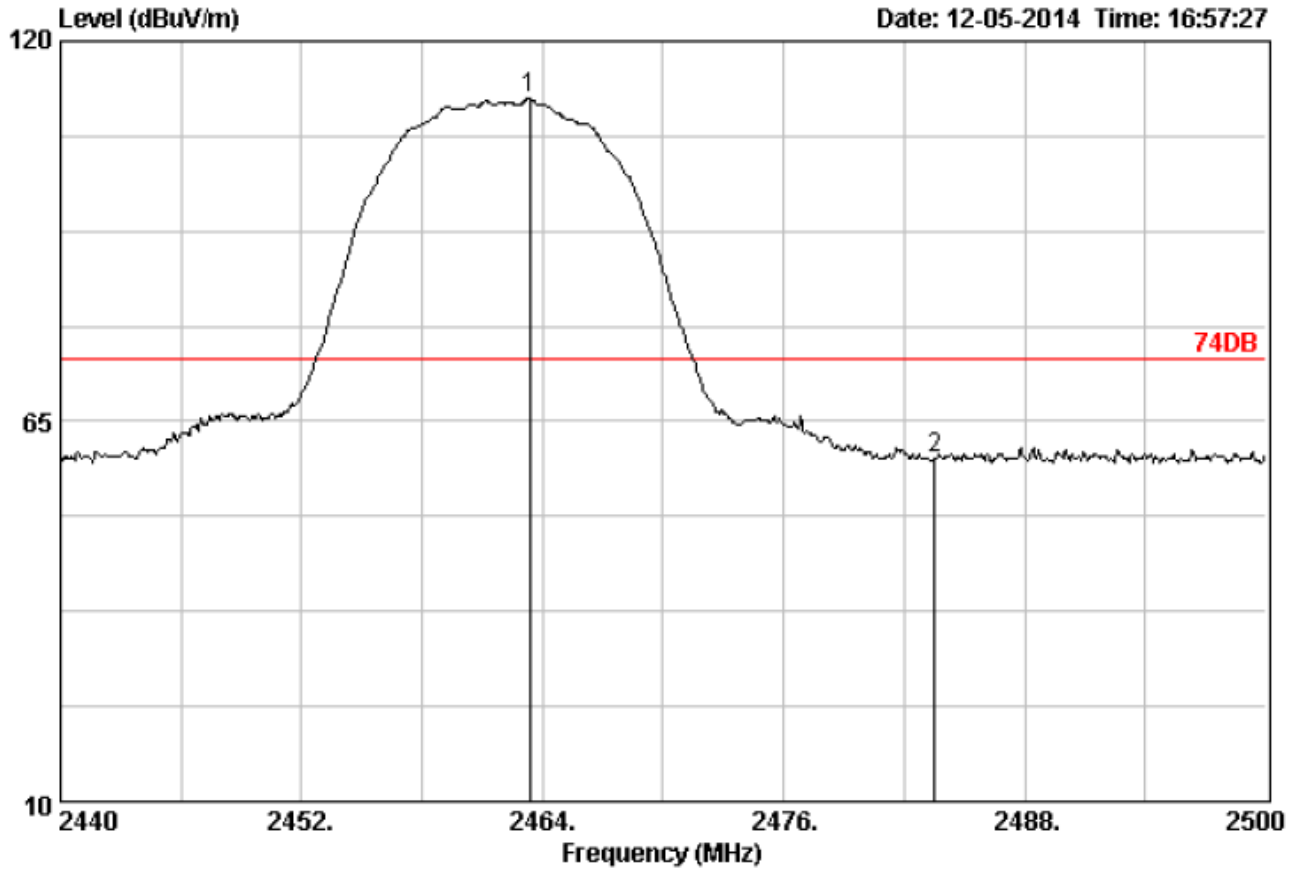
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2463.34	28.90	4.68	112.24	110.45	74.00	-36.45	Peak
2	2483.50	28.93	4.70	61.01	59.26	74.00	14.74	Peak



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. : 1142
Ant. pol. : HORIZONTAL

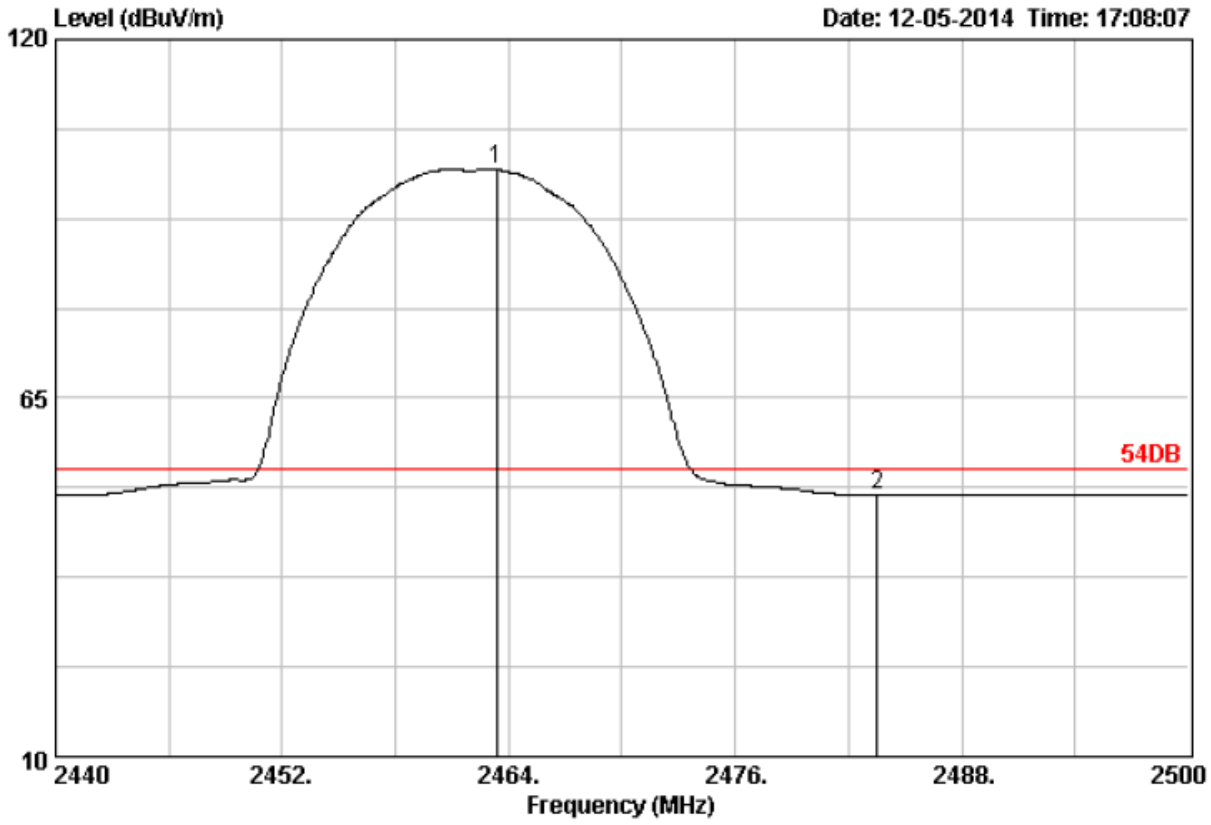
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2463.34	28.90	4.68	100.83	99.04	54.00	-45.04	Average
2	2483.50	28.93	4.70	49.03	47.28	54.00	6.72	Average



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. : 1140
Ant. pol. : VERTICAL

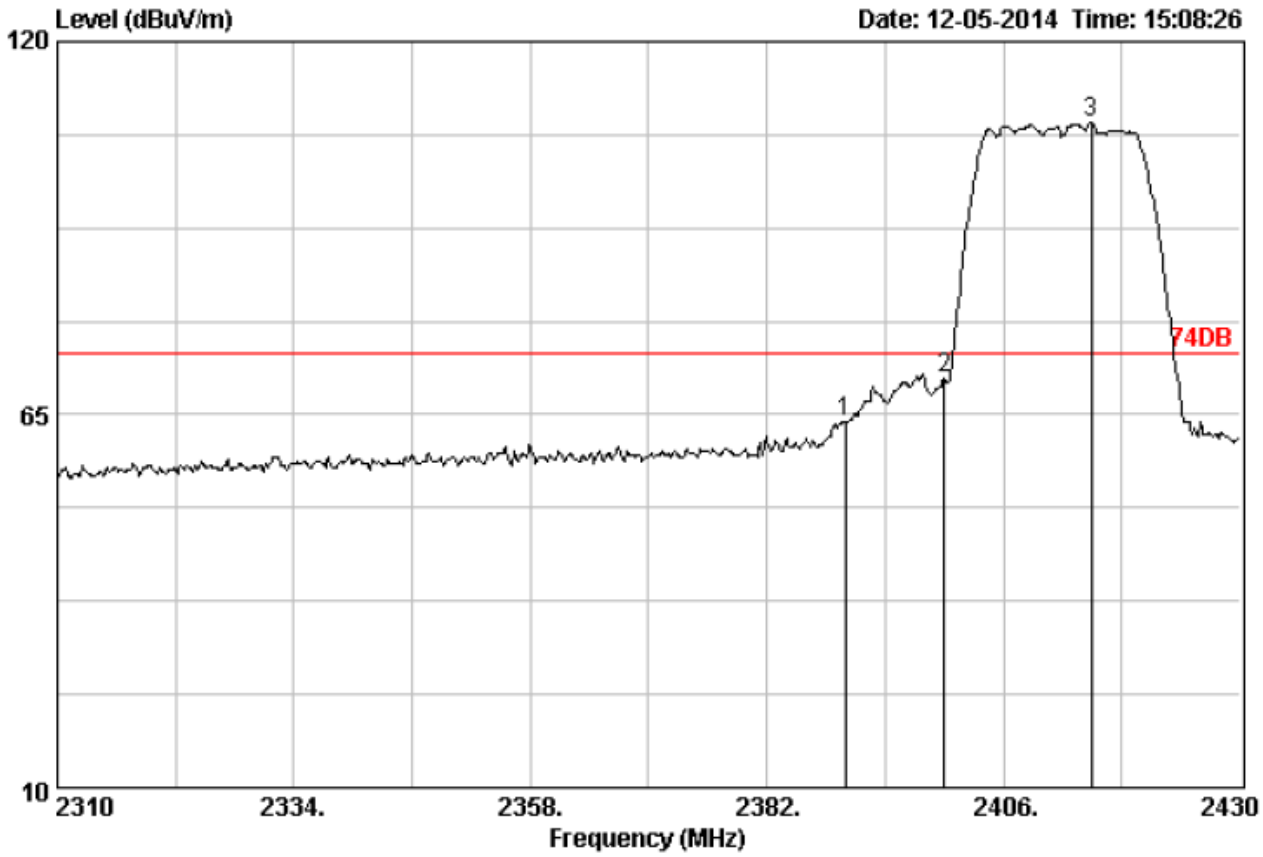
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2463.34	28.90	4.68	113.41	111.62	74.00	-37.62	Peak
2	2483.50	28.93	4.70	61.26	59.51	74.00	14.49	Peak



Site no. : 3m Chamber Data no. : 1143
Dis. / Ant. : 3m DRH-118 Ant. pol. : VERTICAL
Limit : 54DB
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	2463.34	28.90	4.68	101.94	100.15	54.00	-46.15	Average
2	2483.50	28.93	4.70	51.89	50.14	54.00	3.86	Average

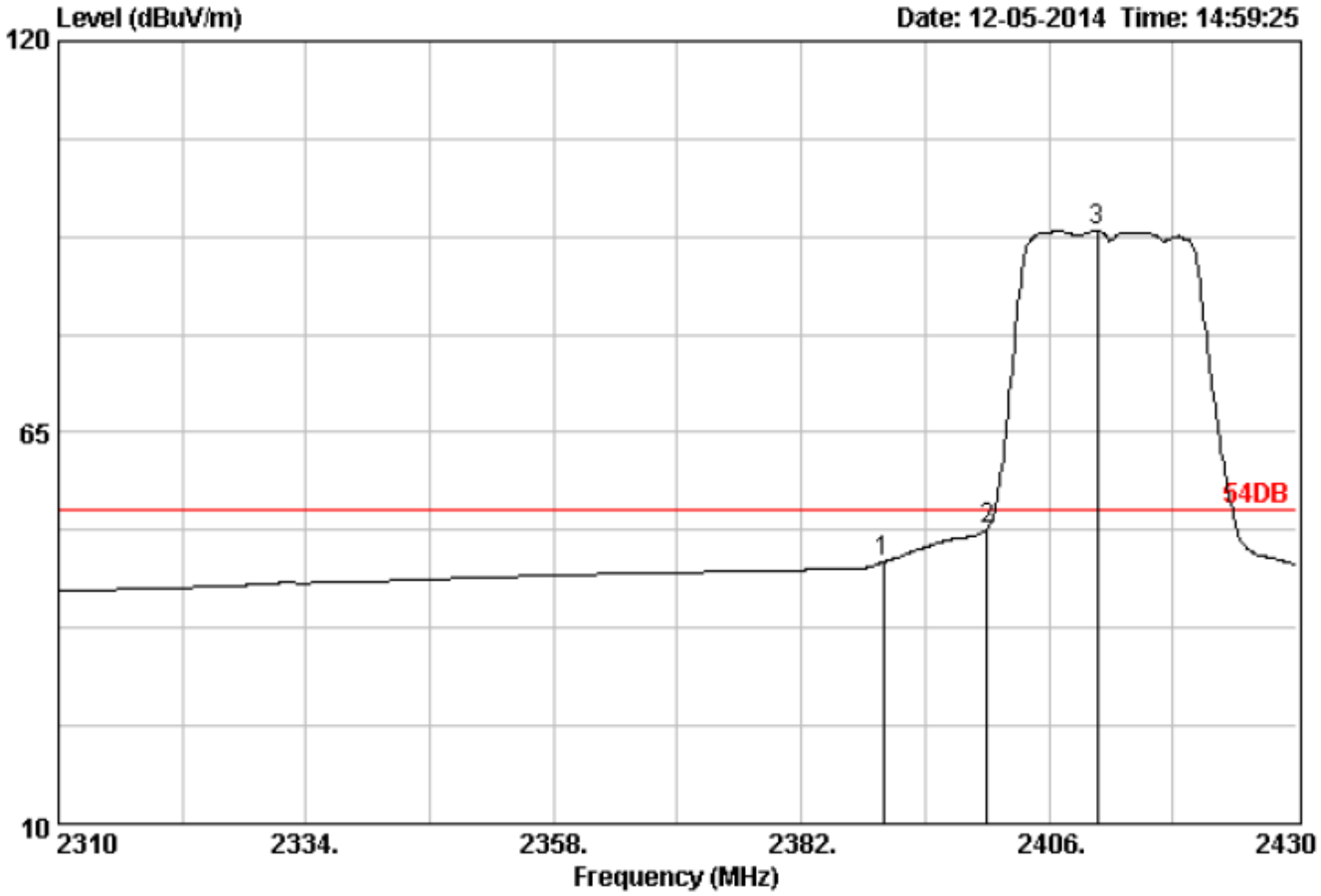
For 802.11g Mode:



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. : 1125
Ant. pol. : HORIZONTAL

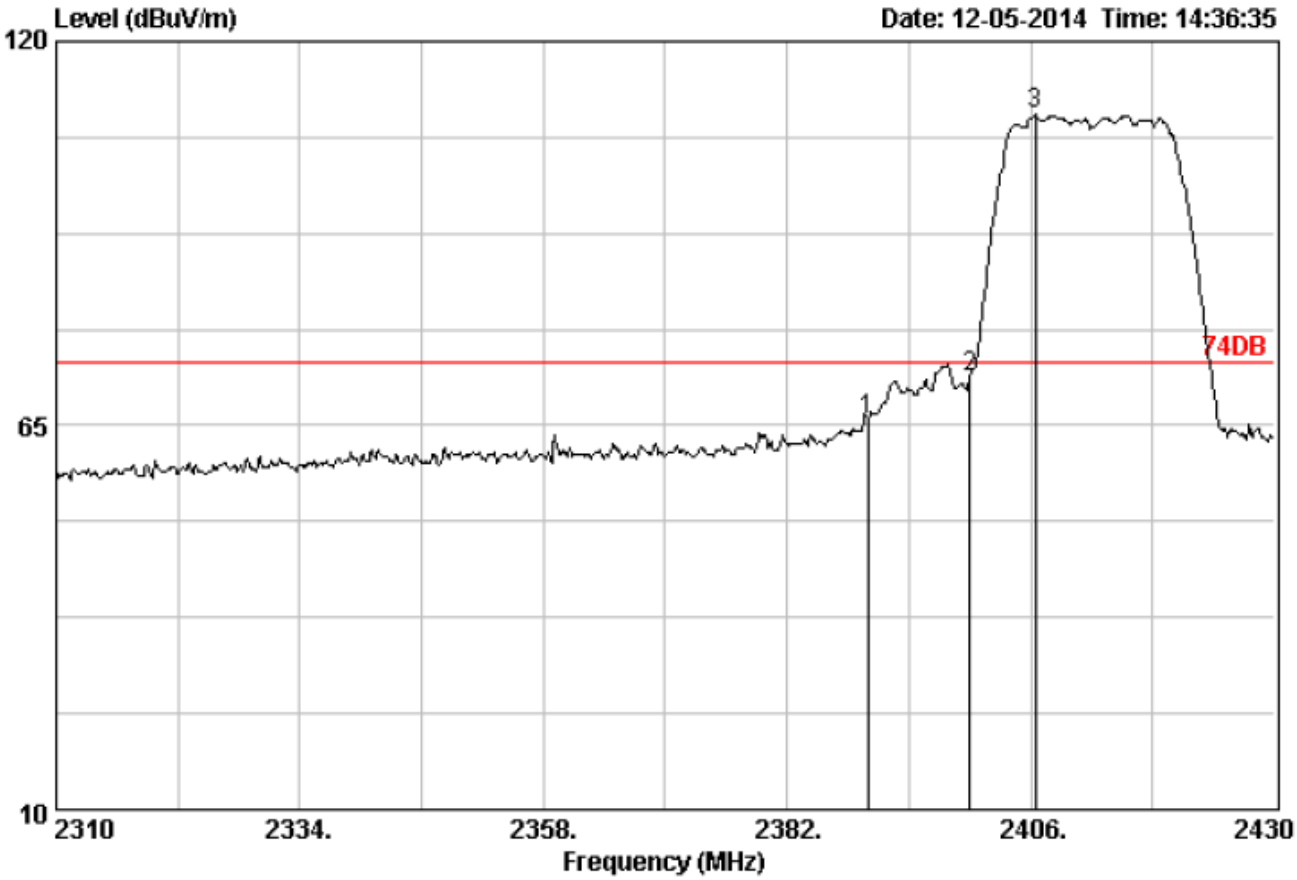
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	65.82	63.85	74.00	10.15	Peak
2	2400.00	28.78	4.61	72.20	70.23	74.00	3.77	Peak
3	2414.88	28.81	4.63	110.00	108.08	74.00	-34.08	Peak



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. : 1124
Ant. pol. : HORIZONTAL

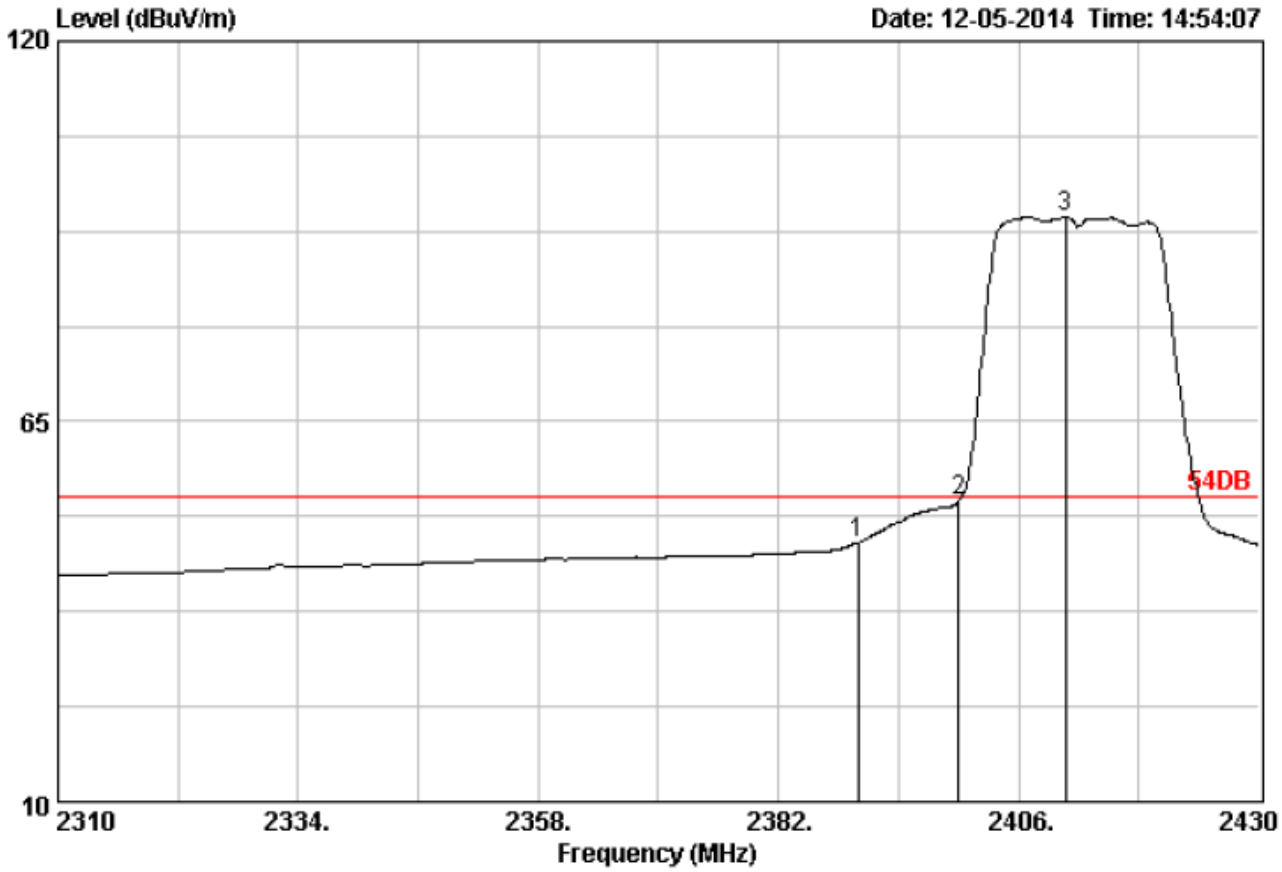
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	48.76	46.79	54.00	7.21	Average
2	2400.00	28.78	4.61	53.39	51.42	54.00	2.58	Average
3	2410.68	28.81	4.63	95.24	93.32	54.00	-39.32	Average



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. : 1120
Ant. pol. : VERTICAL

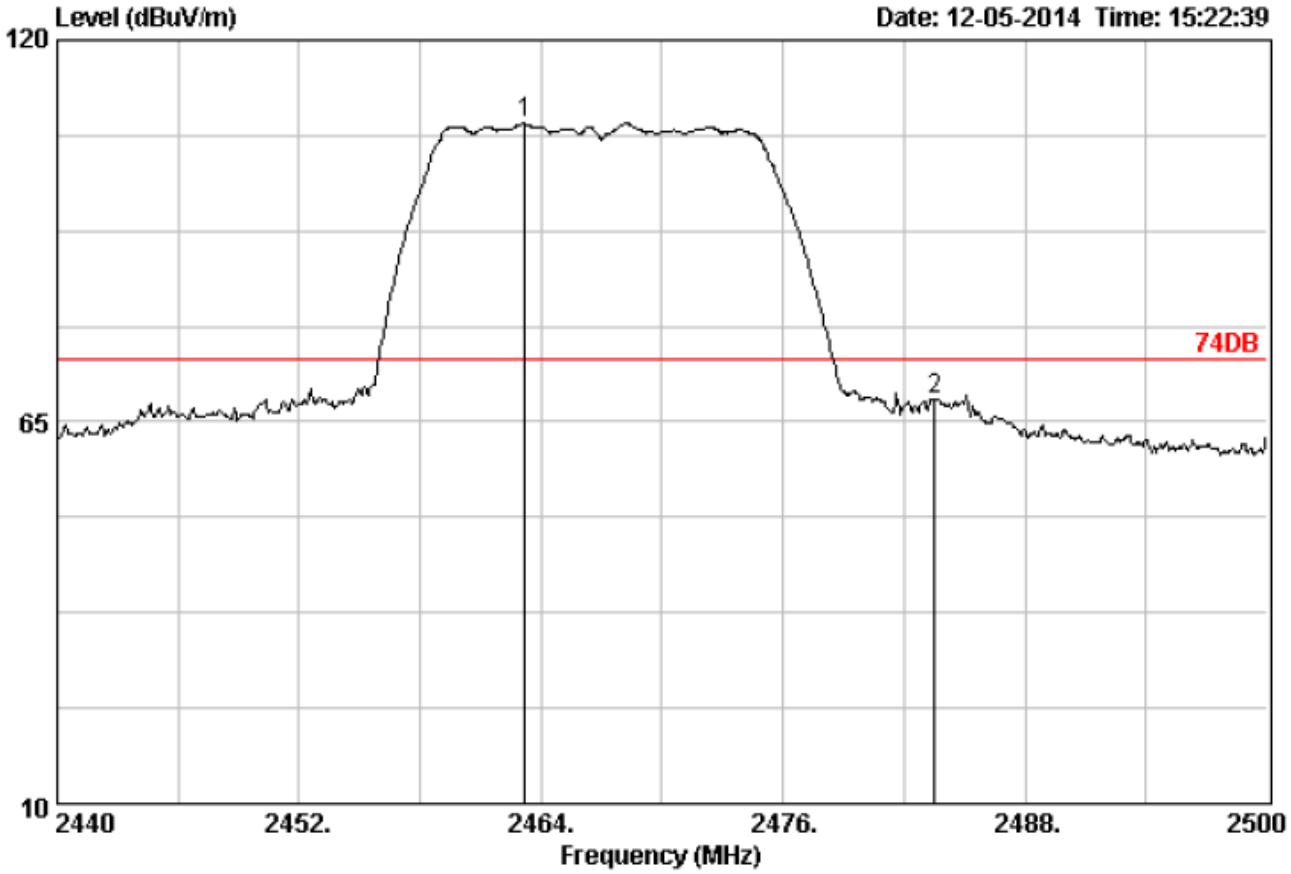
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	67.76	65.79	74.00	8.21	Peak
2	2400.00	28.78	4.61	73.97	72.00	74.00	2.00	Peak
3	2406.48	28.81	4.63	111.40	109.48	74.00	-35.48	Peak



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. : 1123
Ant. pol. : VERTICAL

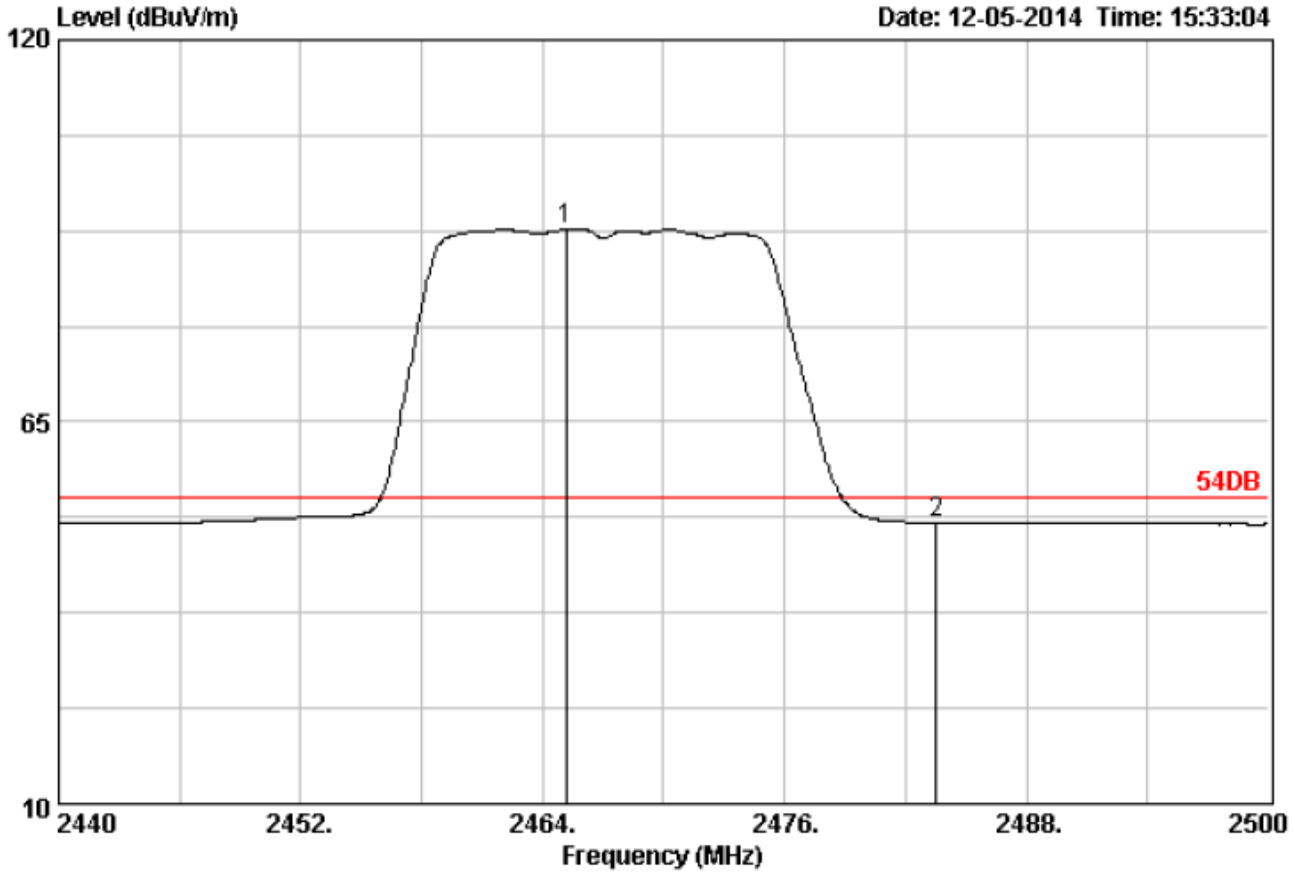
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	49.48	47.51	54.00	6.49	Average
2	2400.00	28.78	4.61	55.55	53.58	54.00	0.42	Average
3	2410.68	28.81	4.63	96.41	94.49	54.00	-40.49	Average



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. : 1128
Ant. pol. : HORIZONTAL

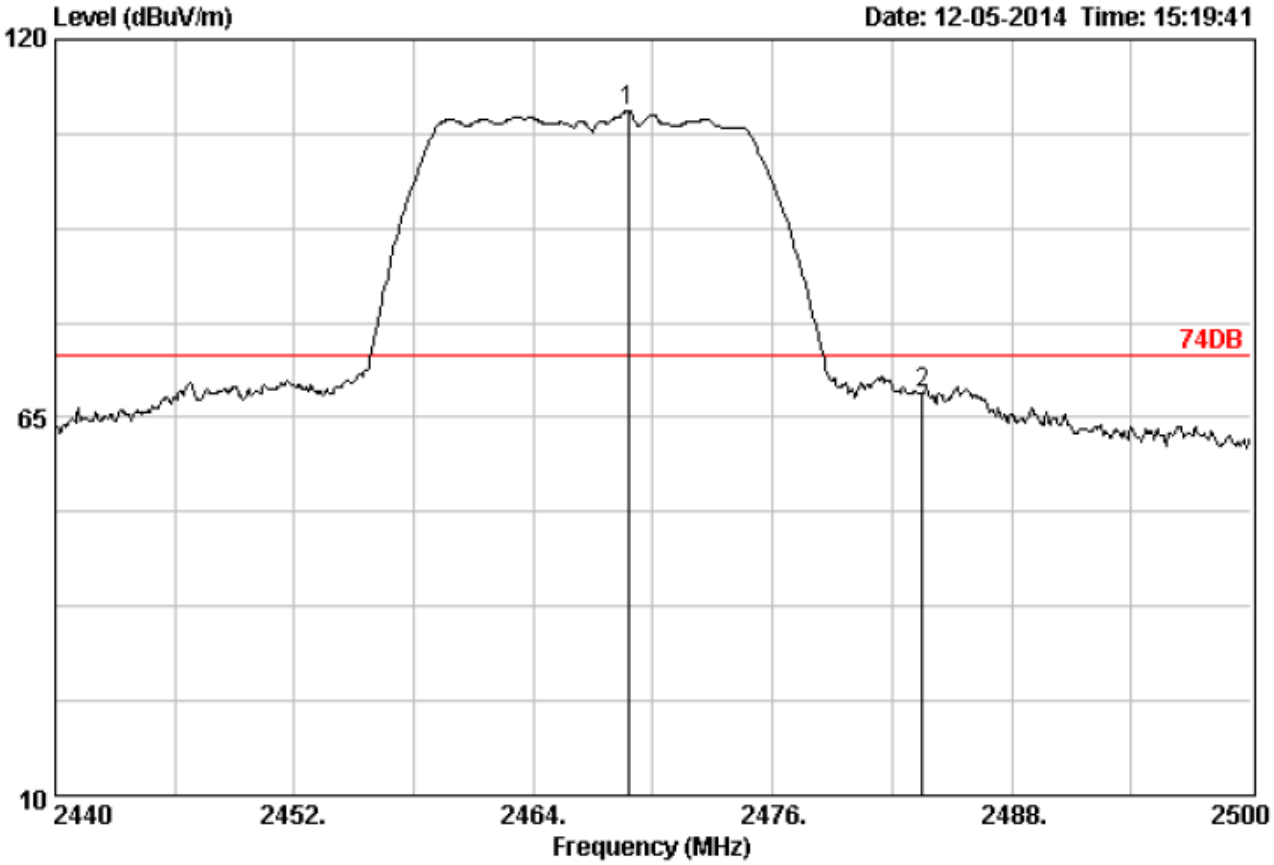
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2463.22	28.90	4.68	109.80	108.01	74.00	-34.01	Peak
2	2483.50	28.93	4.70	69.94	68.19	74.00	5.81	Peak



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. : 1130
Ant. pol. : HORIZONTAL

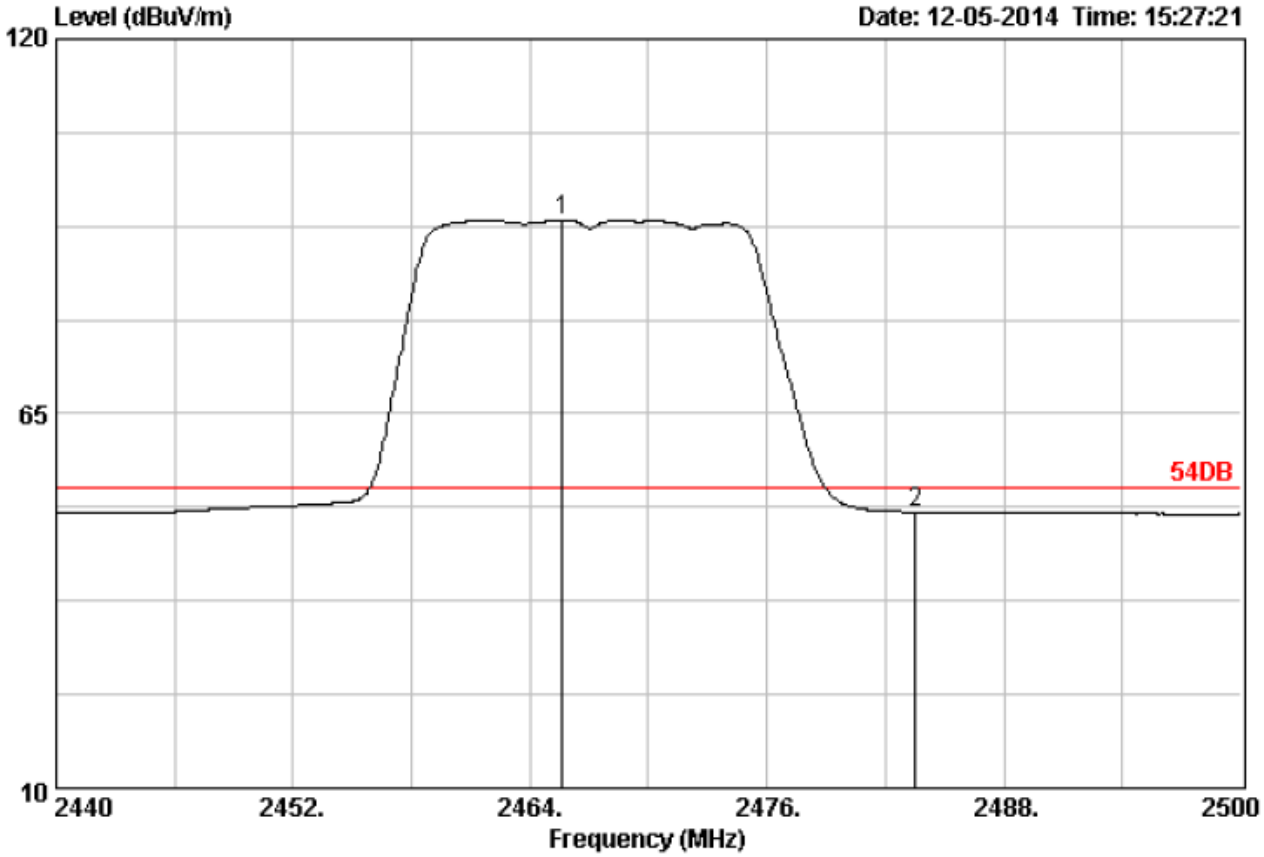
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2465.14	28.90	4.68	94.47	92.68	54.00	-38.68	Average
2	2483.50	28.93	4.70	52.20	50.45	54.00	3.55	Average



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. : 1127
Ant. pol. : VERTICAL

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2468.74	28.90	4.68	111.35	109.56	74.00	-35.56	Peak
2	2483.50	28.93	4.70	70.17	68.42	74.00	5.58	Peak

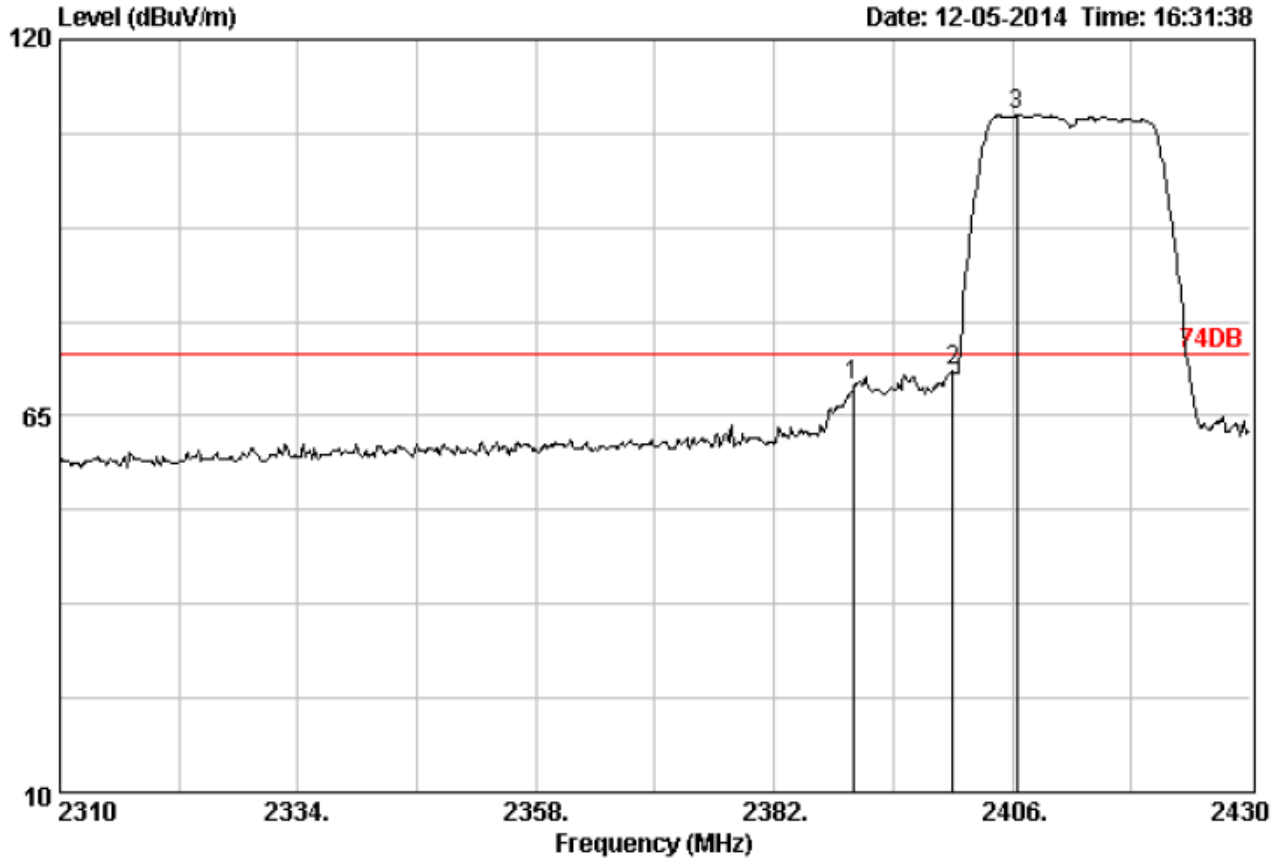


Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 1129
Ant. pol. : VERTICAL

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2465.62	28.90	4.68	95.28	93.49	54.00	-39.49	Average
2	2483.50	28.93	4.70	52.29	50.54	54.00	3.46	Average

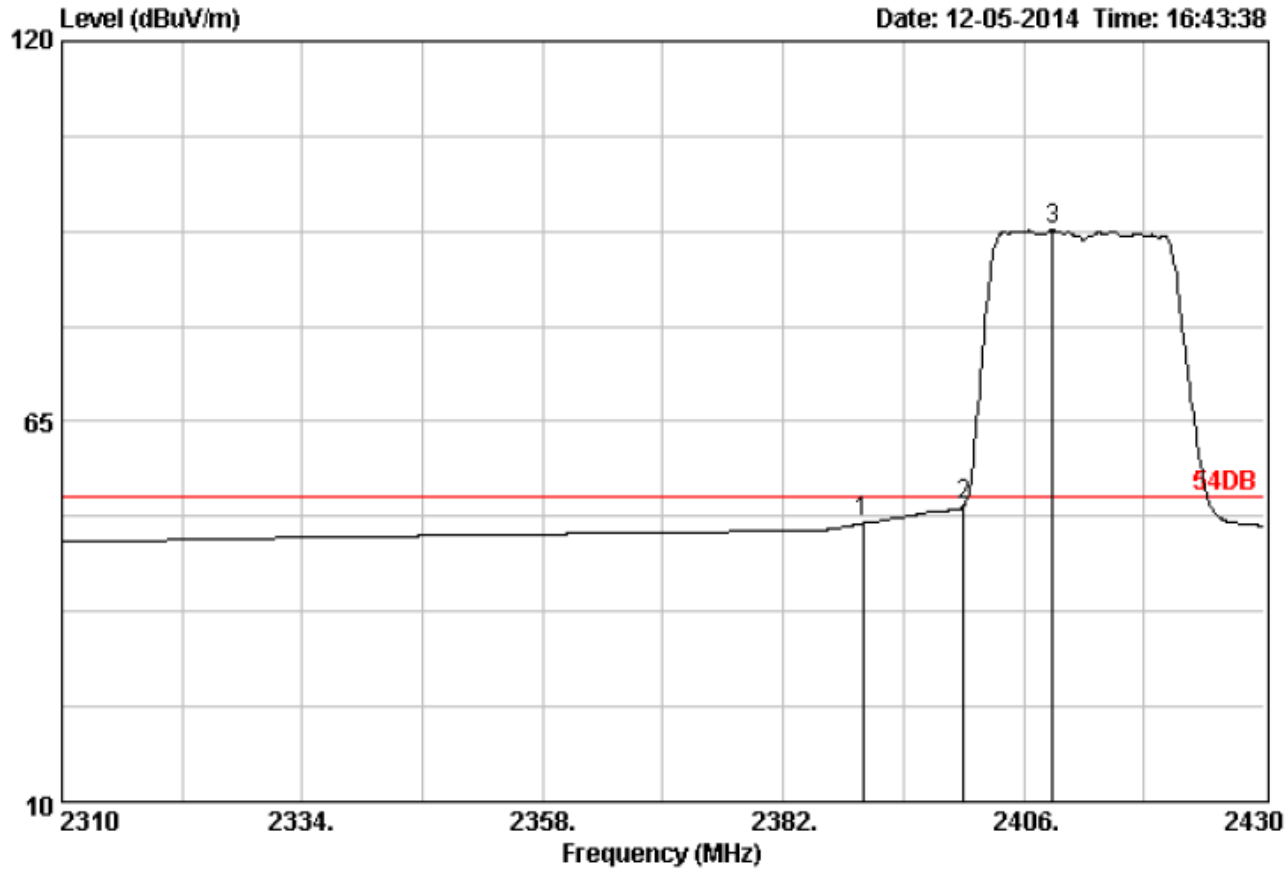
For 802.11n (20MHz) Mode:



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. : 1137
Ant. pol. : HORIZONTAL

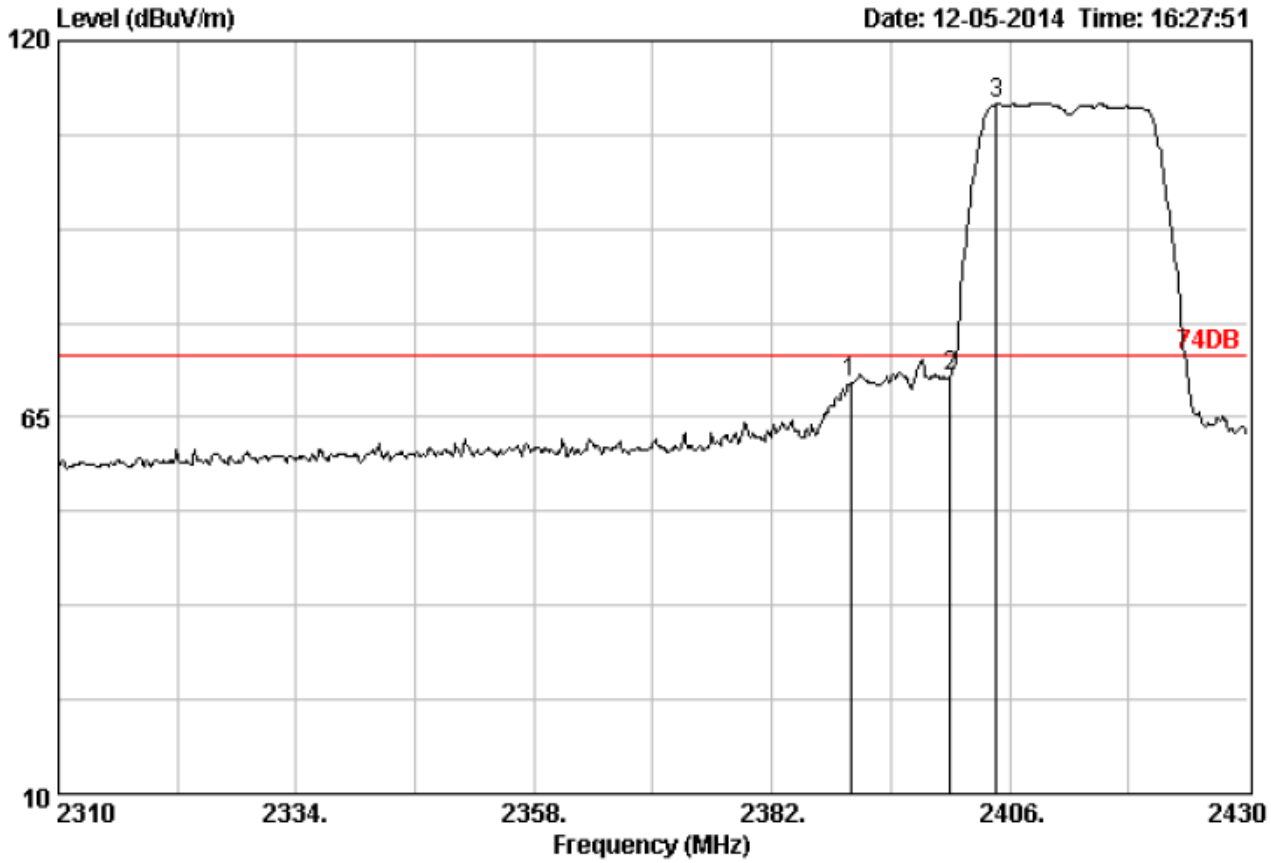
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	71.39	69.42	74.00	4.58	Peak
2	2400.00	28.78	4.61	73.50	71.53	74.00	2.47	Peak
3	2406.48	28.81	4.63	110.88	108.96	74.00	-34.96	Peak



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

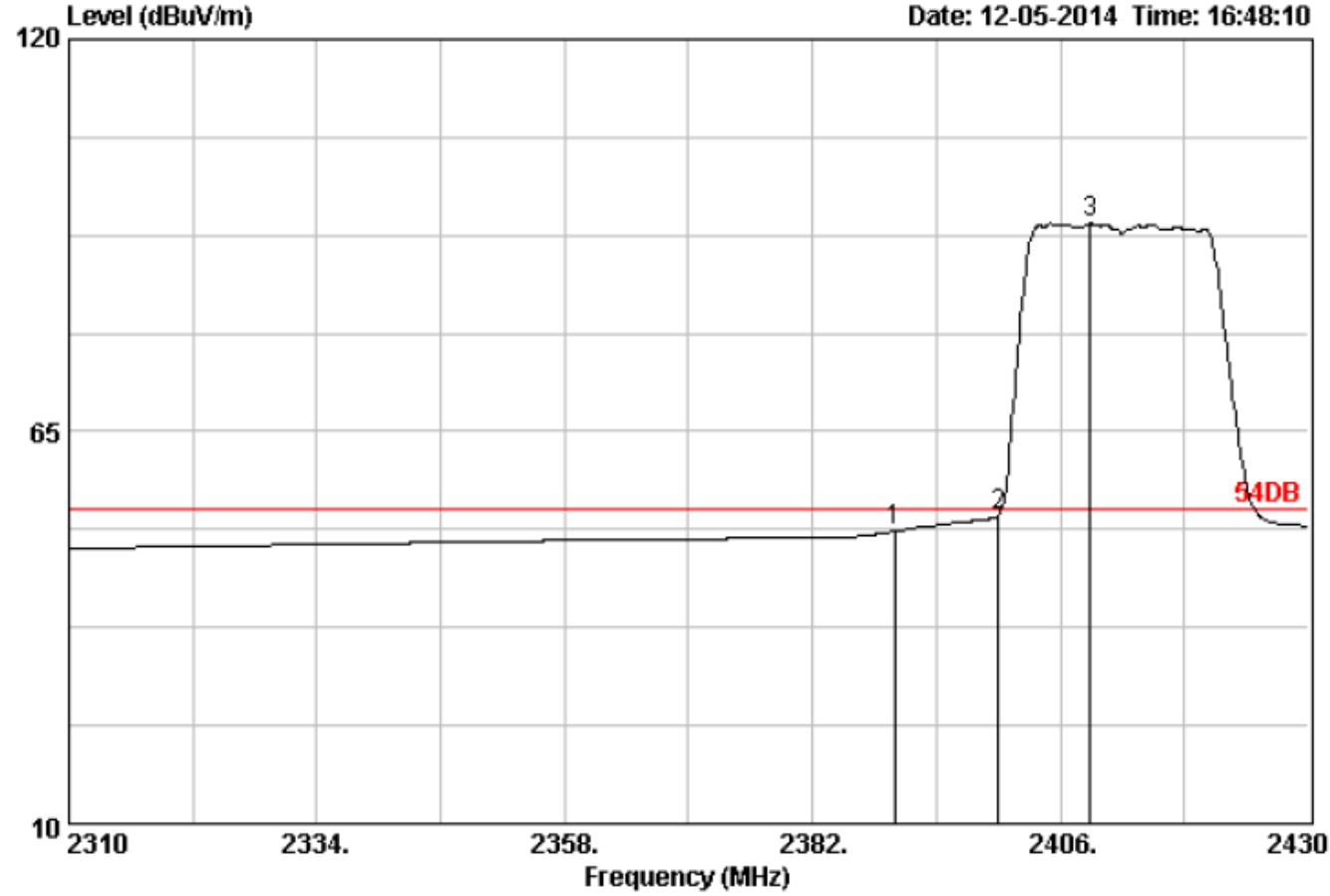
Data no. : 1138
Ant. pol. : HORIZONTAL

	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	52.27	50.30	54.00	3.70	Average
2	2400.00	28.78	4.61	54.77	52.80	54.00	1.20	Average
3	2408.88	28.81	4.63	94.57	92.65	54.00	-38.65	Average



Site no. : 3m Chamber Data no. : 1136
Dis. / Ant. : 3m DRH-118 Ant. pol. : VERTICAL
Limit : 74DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

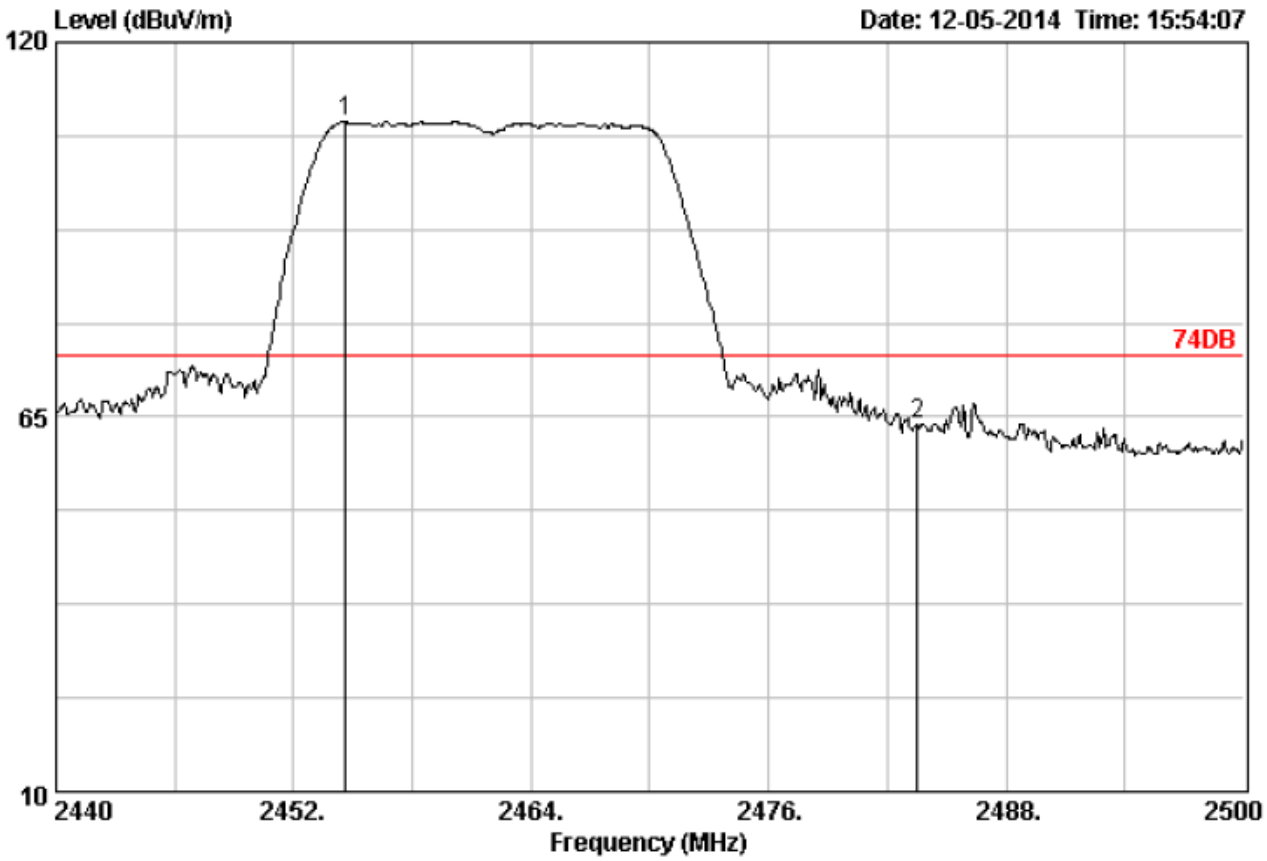
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	71.99	70.02	74.00	3.98	Peak
2	2400.00	28.78	4.61	72.94	70.97	74.00	3.03	Peak
3	2404.68	28.81	4.63	112.82	110.90	74.00	-36.90	Peak



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. : 1139
Ant. pol. : VERTICAL

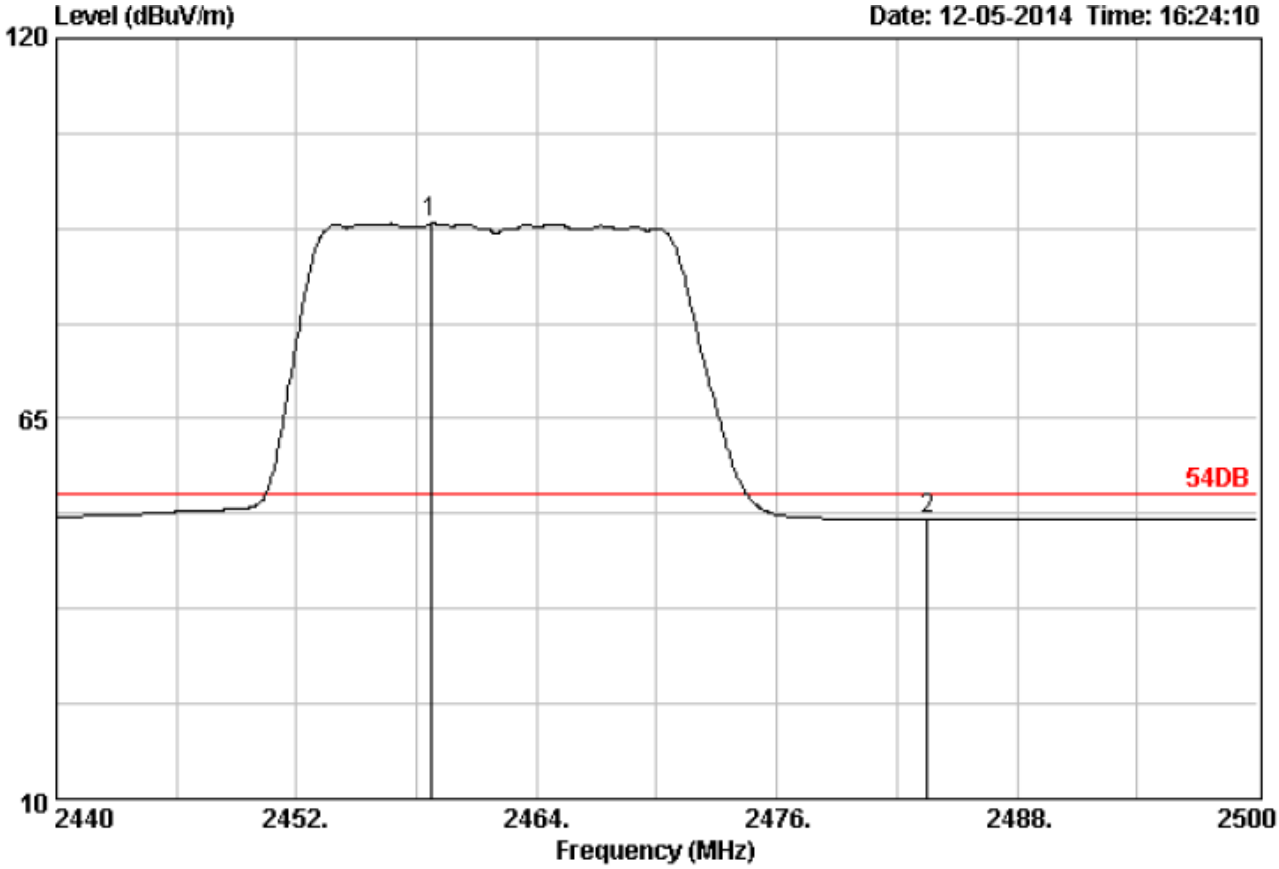
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	53.02	51.05	54.00	2.95	Average
2	2400.00	28.78	4.61	55.26	53.29	54.00	0.71	Average
3	2408.88	28.81	4.63	96.07	94.15	54.00	-40.15	Average



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. : 1133
Ant. pol. : HORIZONTAL

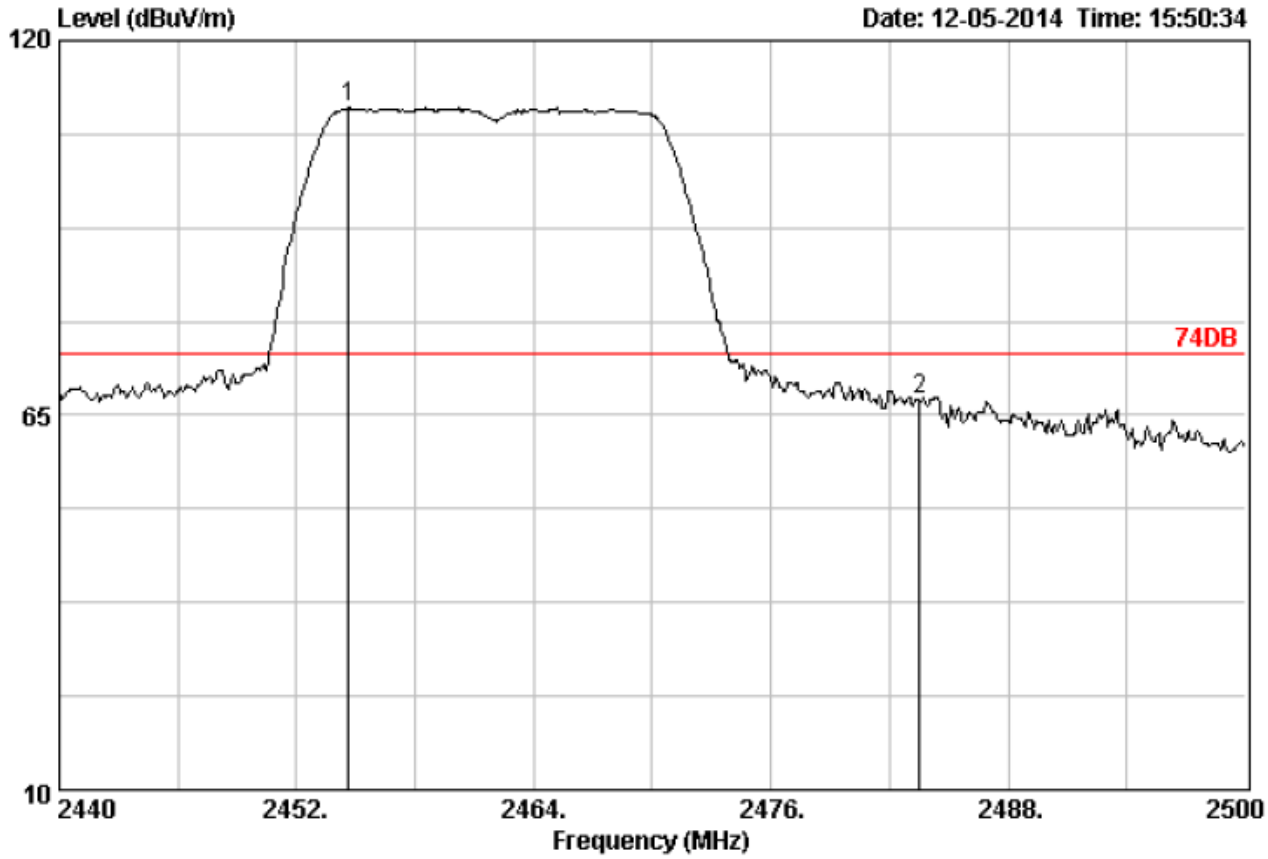
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2454.64	28.90	4.68	110.11	108.32	74.00	-34.32	Peak
2	2483.50	28.93	4.70	65.60	63.85	74.00	10.15	Peak



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. : 1135
Ant. pol. : HORIZONTAL

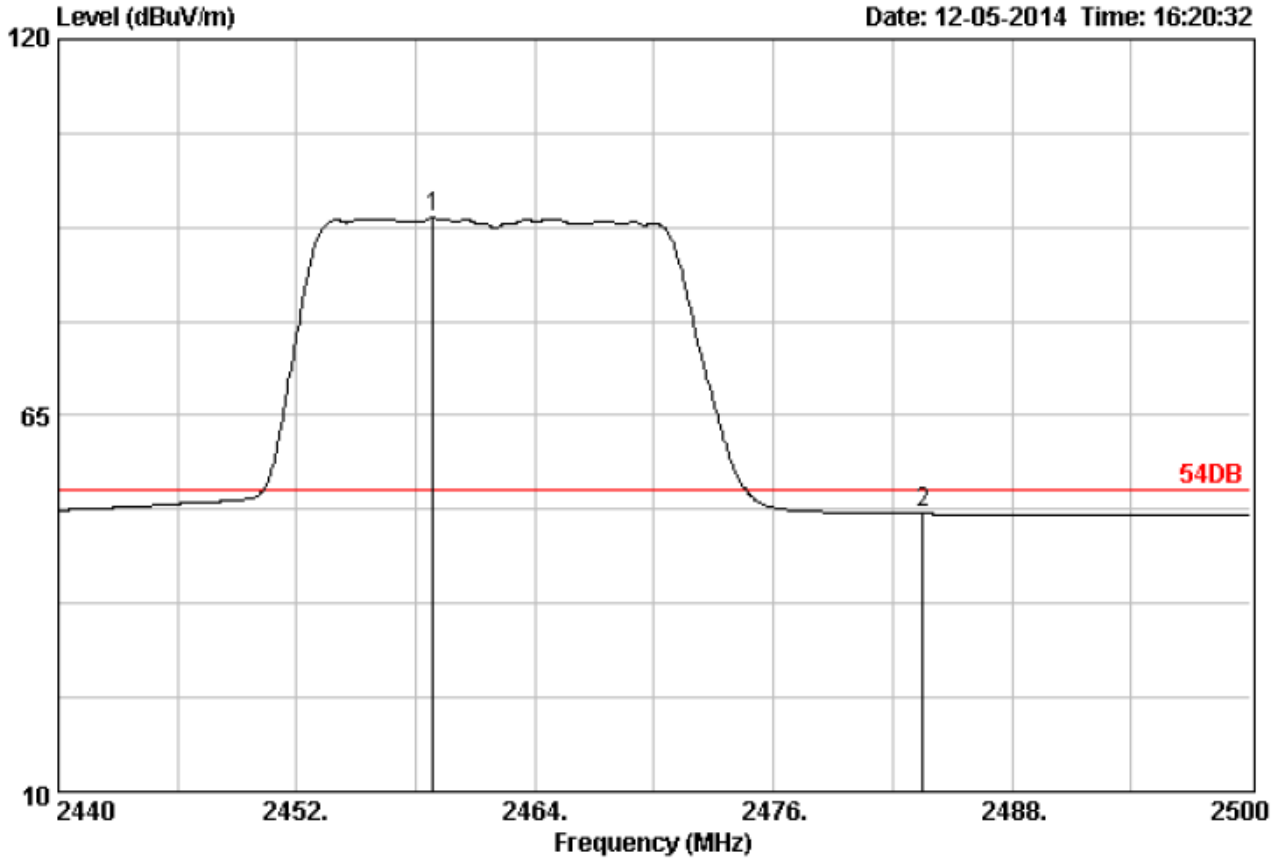
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2458.72	28.90	4.68	95.01	93.22	54.00	-39.22	Average
2	2483.50	28.93	4.70	52.14	50.39	54.00	3.61	Average



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. : 1132
Ant. pol. : VERTICAL

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2454.64	28.90	4.68	111.93	110.14	74.00	-36.14	Peak
2	2483.50	28.93	4.70	69.00	67.25	74.00	6.75	Peak

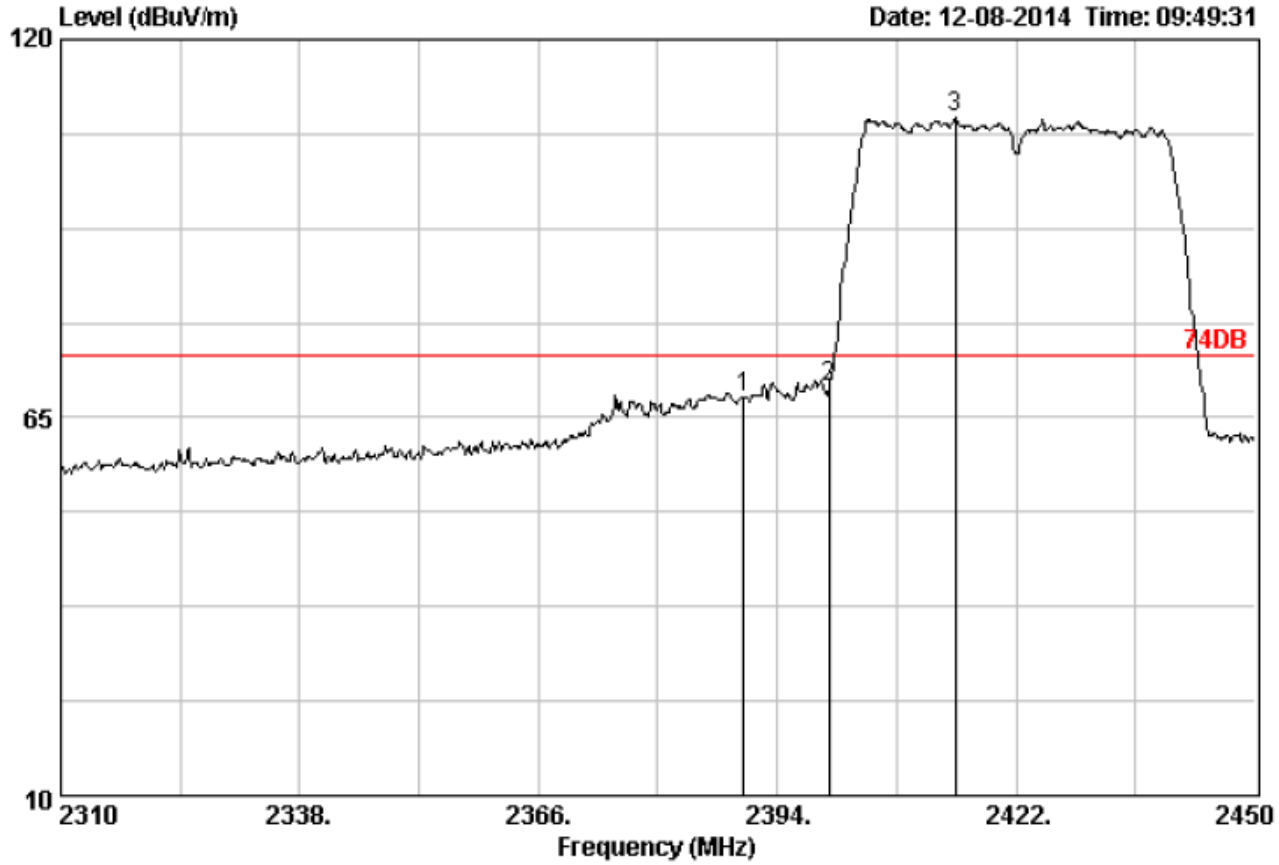


Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 1134
Ant. pol. : VERTICAL

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2458.84	28.90	4.68	95.62	93.83	54.00	-39.83	Average
2	2483.50	28.93	4.70	52.36	50.61	54.00	3.39	Average

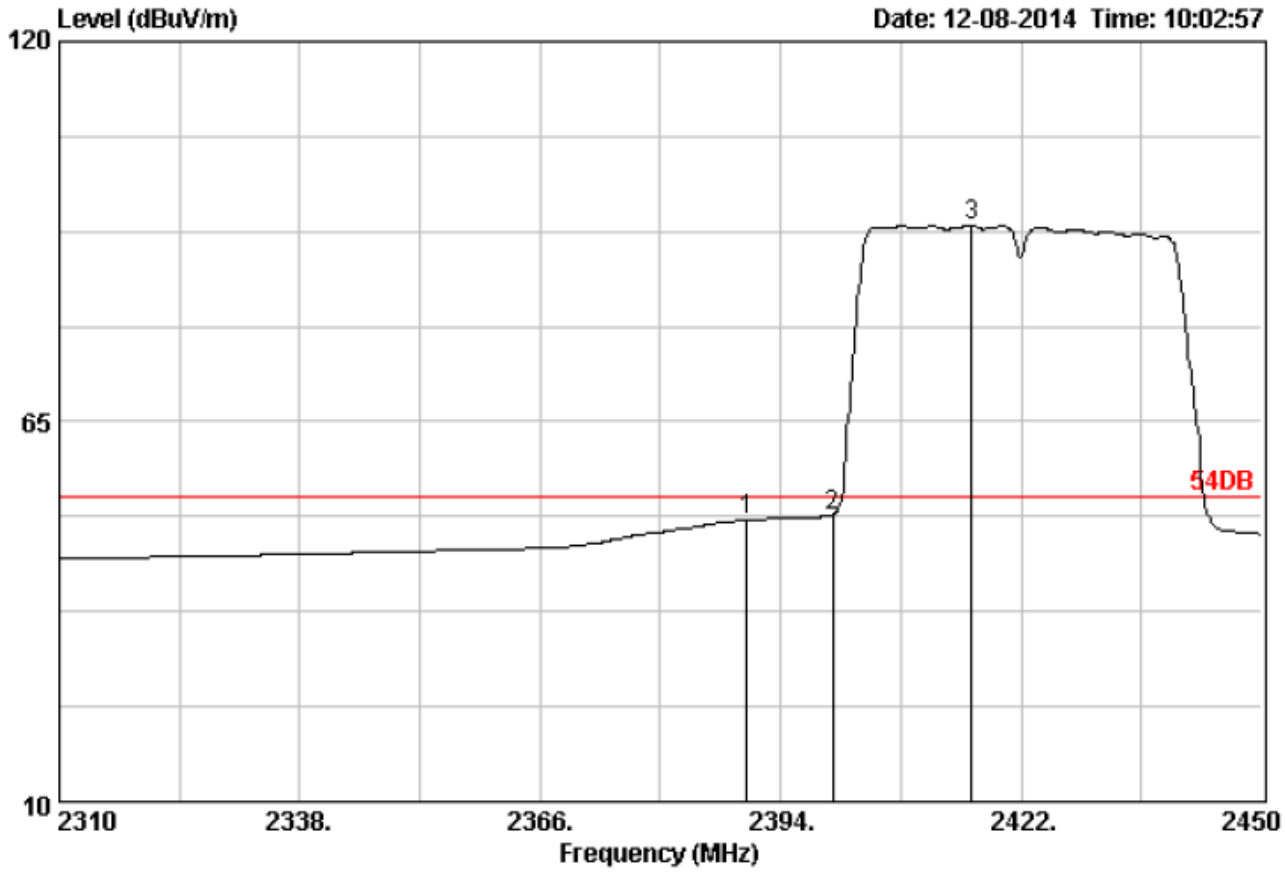
For 802.11n (40MHz) Mode:



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. : 1145
Ant. pol. : HORIZONTAL

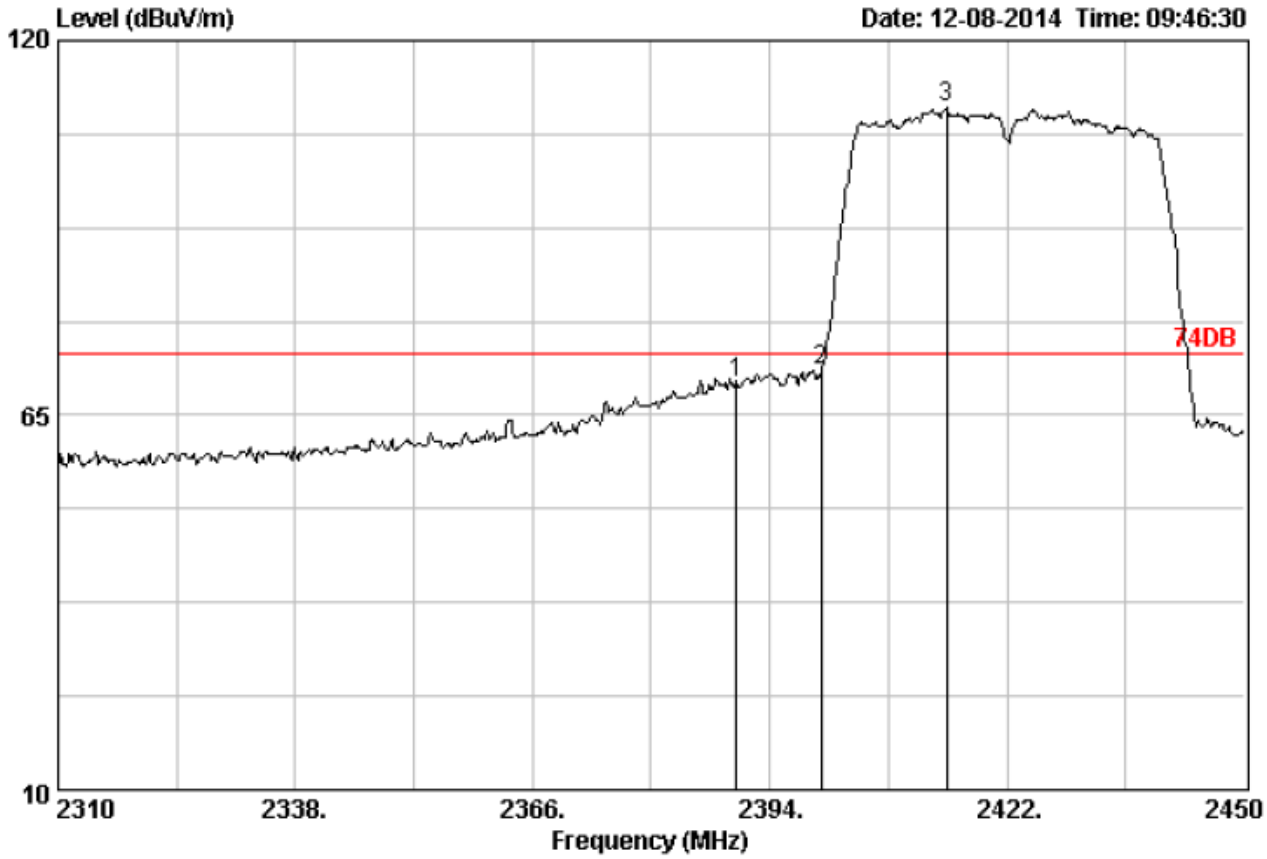
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	69.76	67.79	74.00	6.21	Peak
2	2400.00	28.78	4.61	71.34	69.37	74.00	4.63	Peak
3	2414.86	28.81	4.63	110.44	108.52	74.00	-34.52	Peak



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. : 1147
Ant. pol. : HORIZONTAL

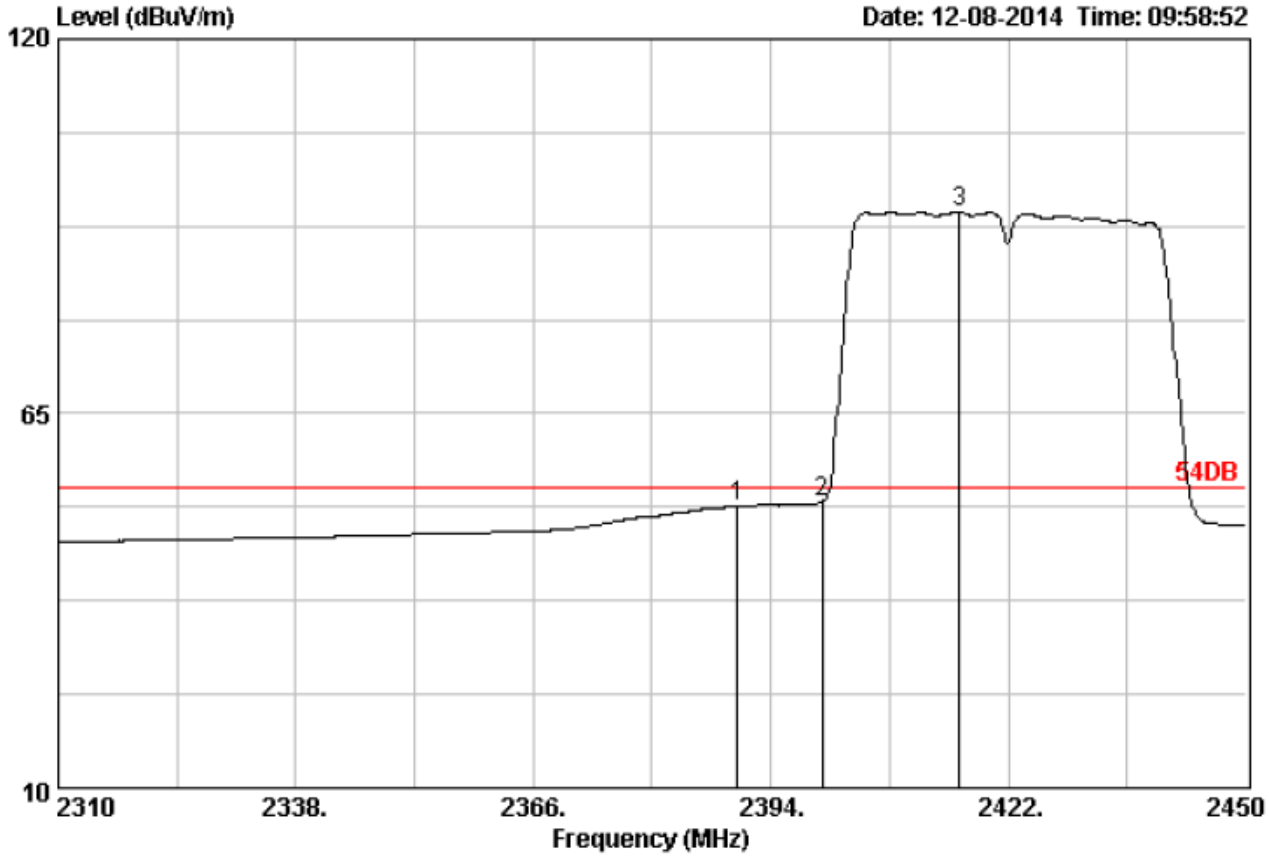
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	52.74	50.77	54.00	3.23	Average
2	2400.00	28.78	4.61	53.47	51.50	54.00	2.50	Average
3	2416.26	28.81	4.63	95.25	93.33	54.00	-39.33	Average



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. : 1144
Ant. pol. : VERTICAL

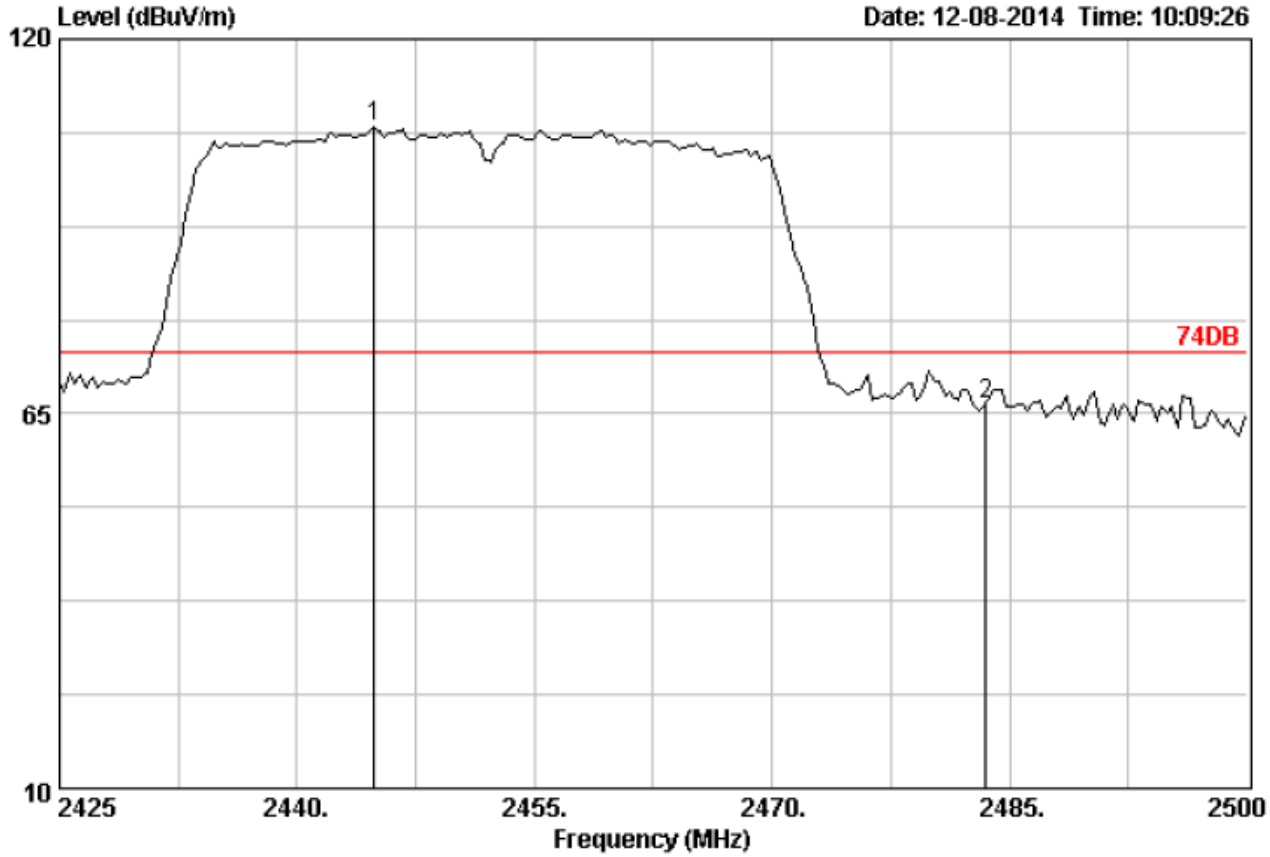
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	71.72	69.75	74.00	4.25	Peak
2	2400.00	28.78	4.61	73.42	71.45	74.00	2.55	Peak
3	2414.86	28.81	4.63	111.97	110.05	74.00	-36.05	Peak



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. : 1146
Ant. pol. : VERTICAL

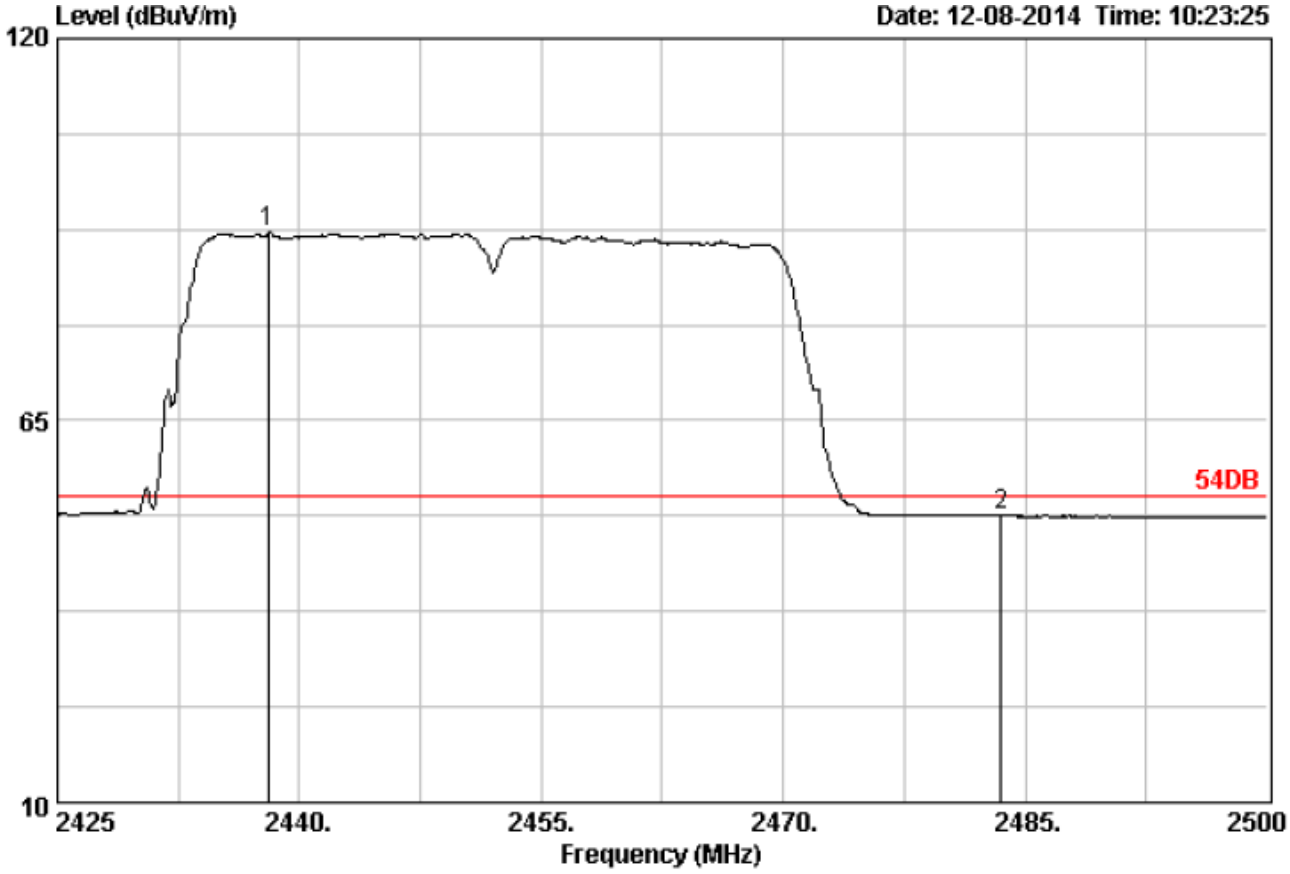
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.78	4.61	53.36	51.39	54.00	2.61	Average
2	2400.00	28.78	4.61	54.01	52.04	54.00	1.96	Average
3	2416.26	28.81	4.63	96.49	94.57	54.00	-40.57	Average



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. : 1148
Ant. pol. : HORIZONTAL

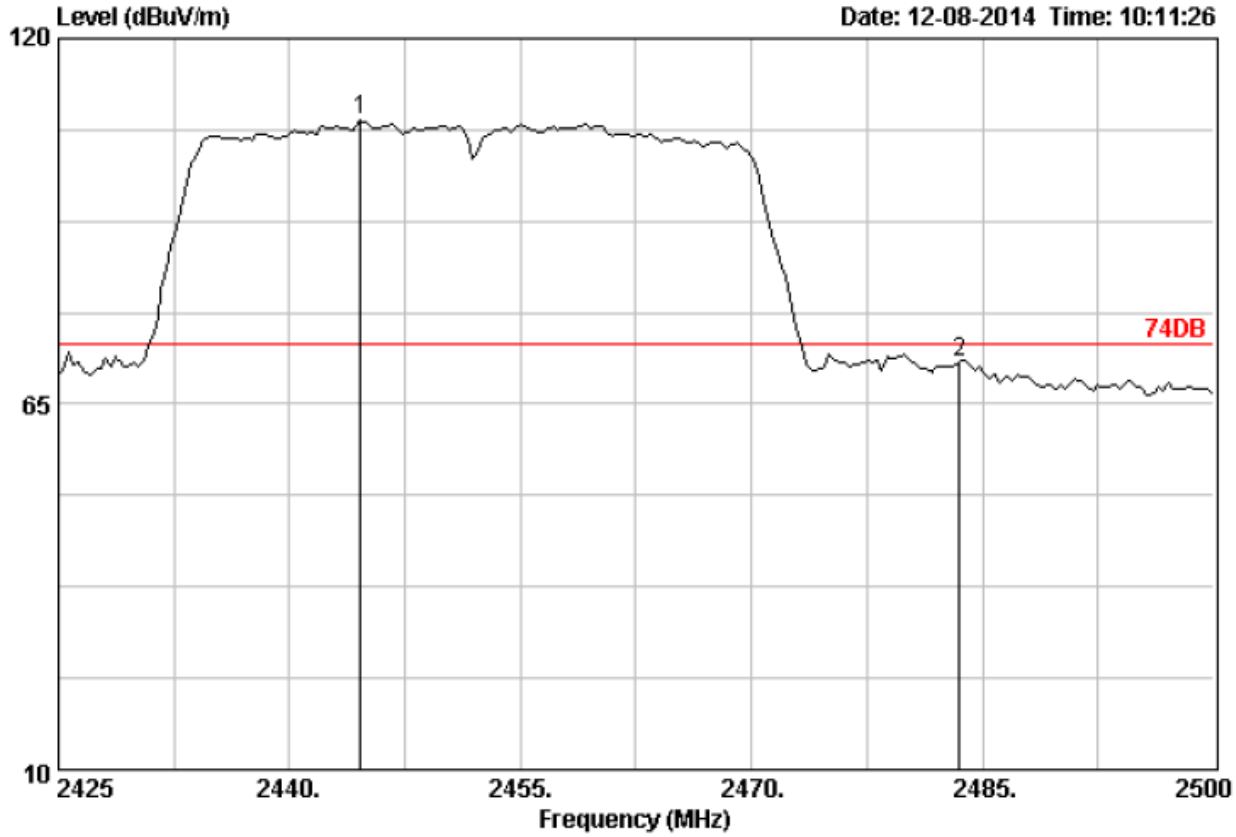
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2444.86	28.87	4.66	108.94	107.10	74.00	-33.10	Peak
2	2483.50	28.93	4.70	68.25	66.50	74.00	7.50	Peak



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. : 1151
Ant. pol. : HORIZONTAL

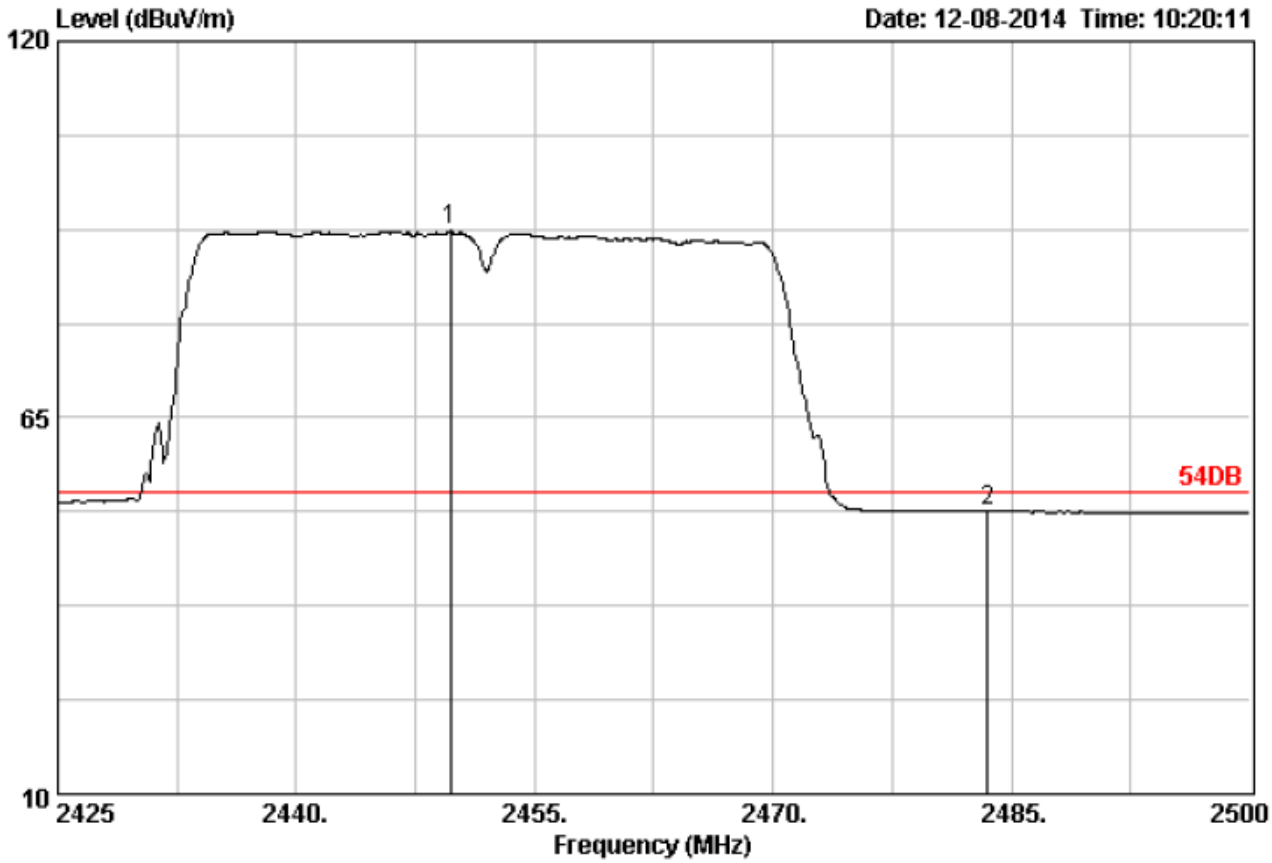
	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2438.05	28.87	4.66	93.91	92.07	54.00	-38.07	Average
2	2483.50	28.93	4.70	53.02	51.27	54.00	2.73	Average



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. : 1149
Ant. pol. : VERTICAL

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2444.58	28.87	4.66	109.44	107.60	74.00	-33.60	Peak
2	2483.50	28.93	4.70	73.07	71.32	74.00	2.68	Peak



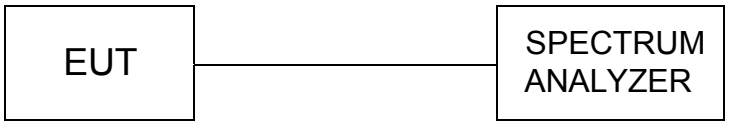
Site no. : 3m Chamber
Dis. / Ant. : 3m DRH-118
Limit : 54DB
Env. / Ins. : 23*C/54%
Engineer :
EUT :
Power :
M/N :
Test Mode :

Data no. : 1150
Ant. pol. : VERTICAL

	Freq. (MHz)	Ant. Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2449.68	28.87	4.66	94.16	92.32	54.00	-38.32	Average
2	2483.50	28.93	4.70	53.02	51.27	54.00	2.73	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 and RSS-210 requirements.

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

LIMIT

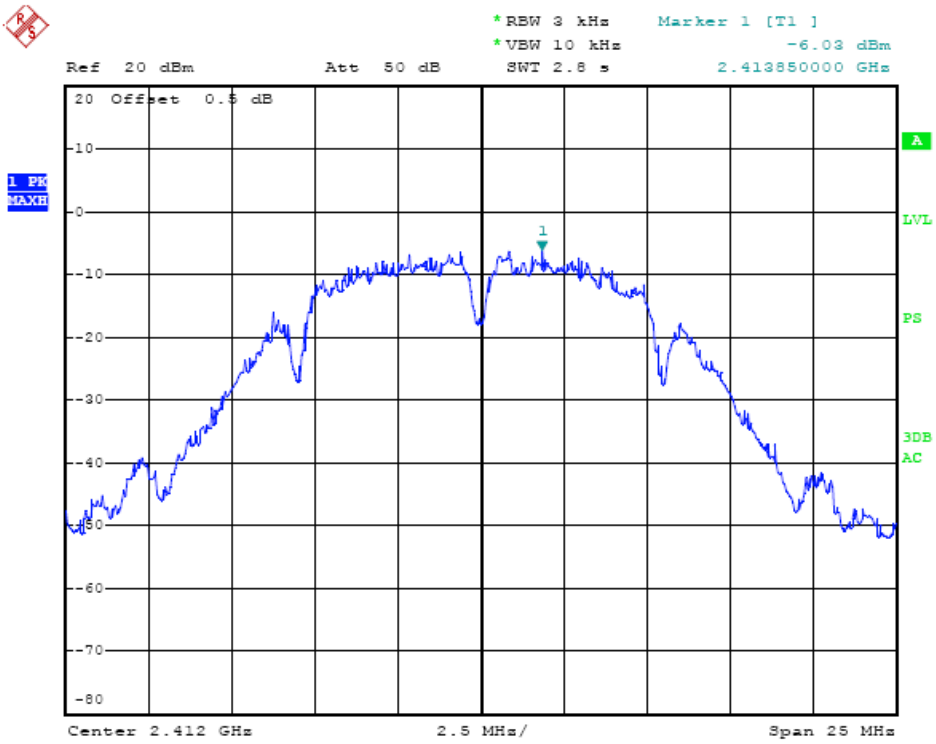
For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

TEST RESULTS

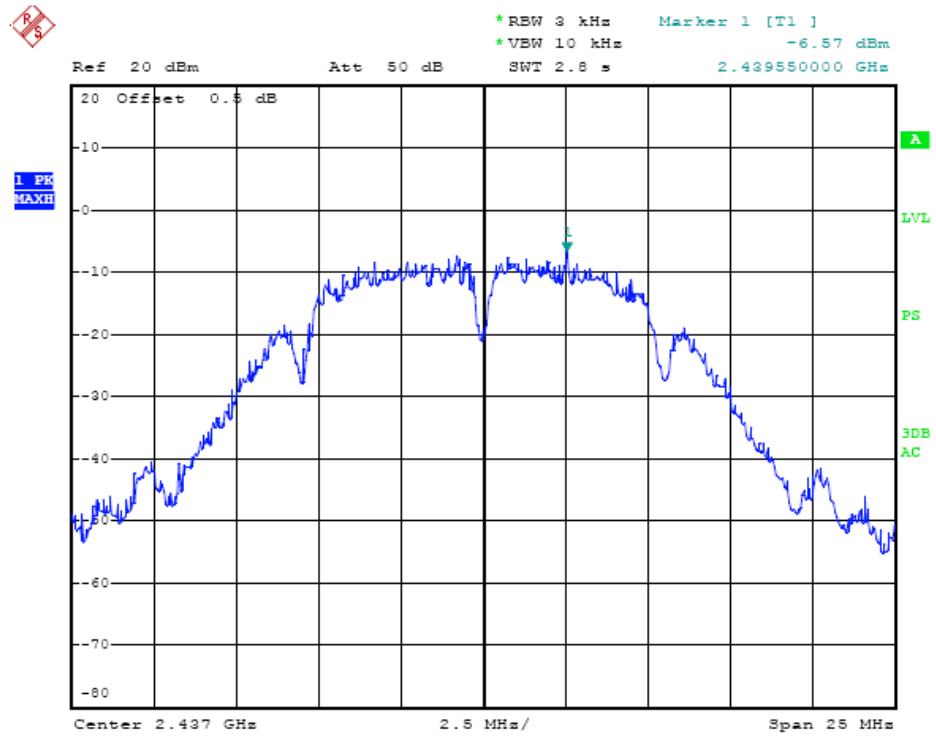
Product	:	Mobile Phone
Test Item	:	Power Spectral Density
Test Mode	:	Mode 1: Transmit by 802.11b

Channel No.	Frequency (MHz)	Measurement PPSD (dBm/3KHz)	Limit (dBm/3KHz)	Result
01	2412	-6.03	8	Pass
06	2437	-6.57	8	Pass
11	2462	-5.03	8	Pass

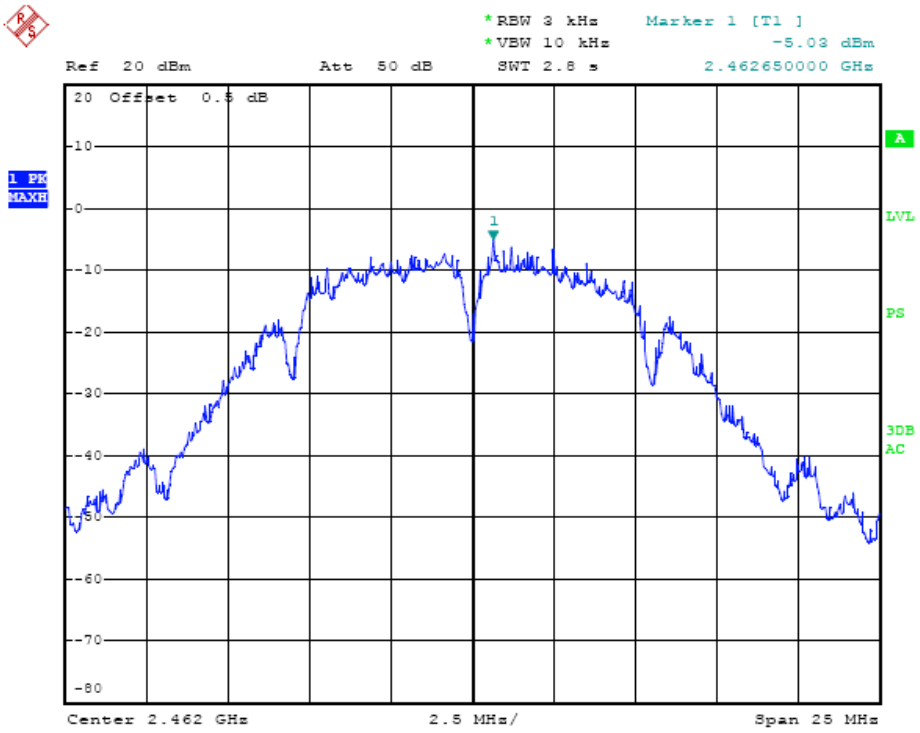
Channel 01 (2412MHz)



Channel 06 (2437MHz)



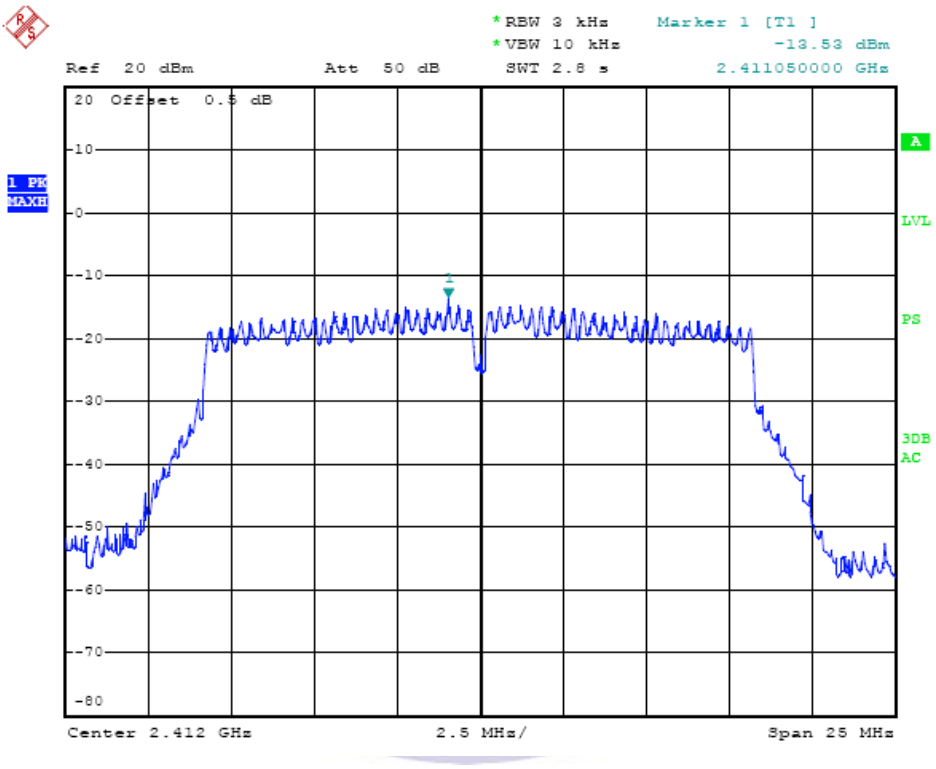
Channel 11 (2462MHz)



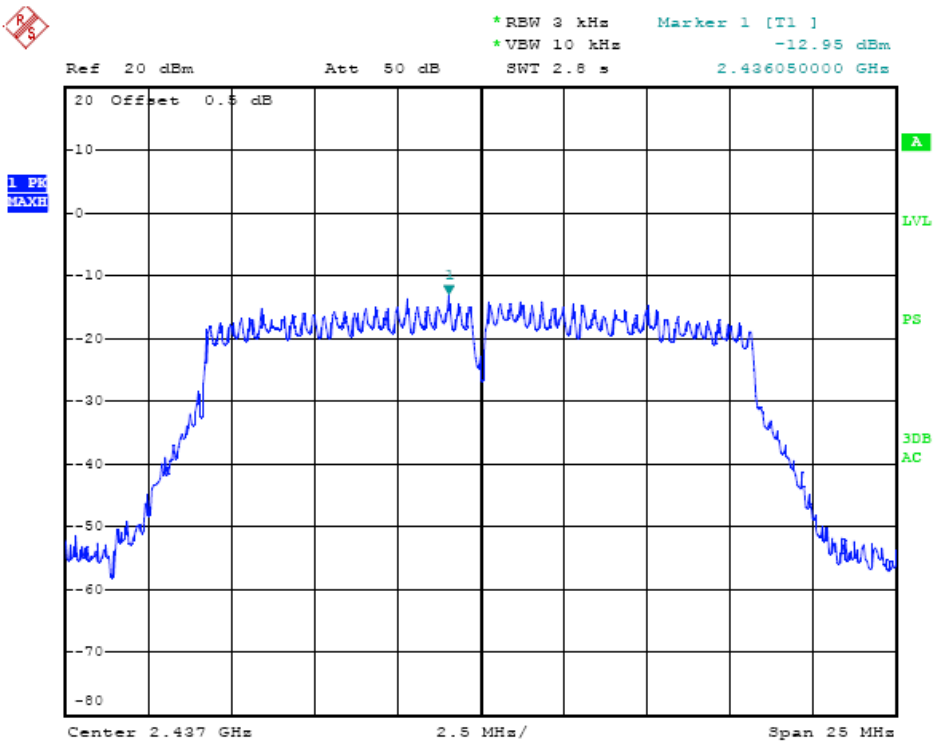
Product	:	Mobile Phone
Test Item	:	Power Spectral Density
Test Mode	:	Mode 2: Transmit by 802.11g

Channel No.	Frequency (MHz)	Measurement PPSD (dBm/3KHz)	Limit (dBm/3KHz)	Result
01	2412	-13.53	8	Pass
06	2437	-12.95	8	Pass
11	2462	-12.91	8	Pass

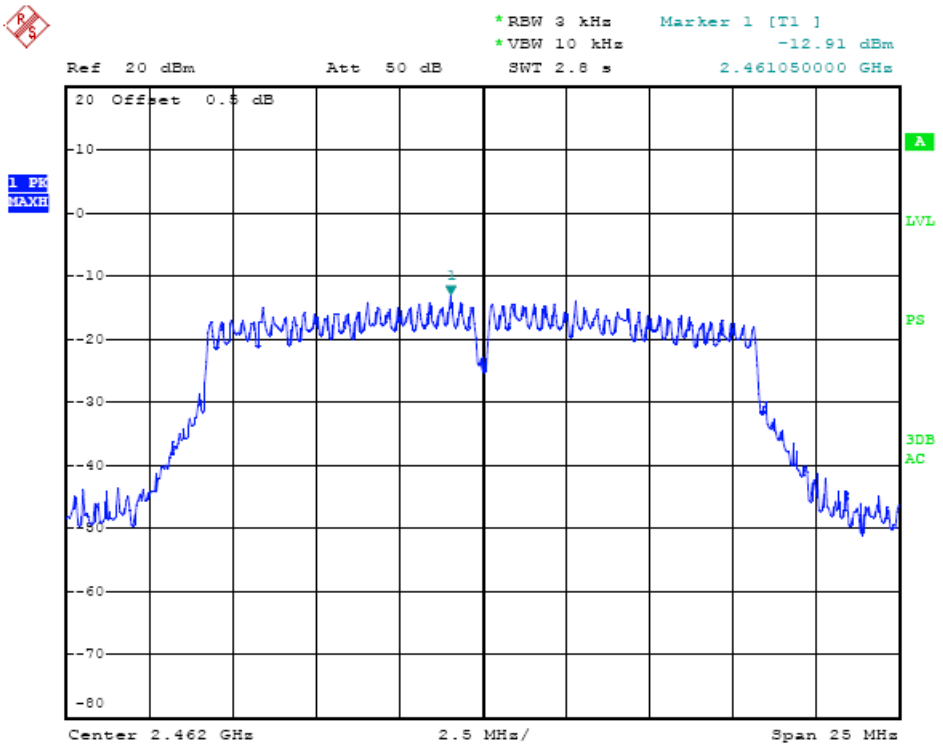
Channel 01 (2412MHz)



Channel 06 (2437MHz)



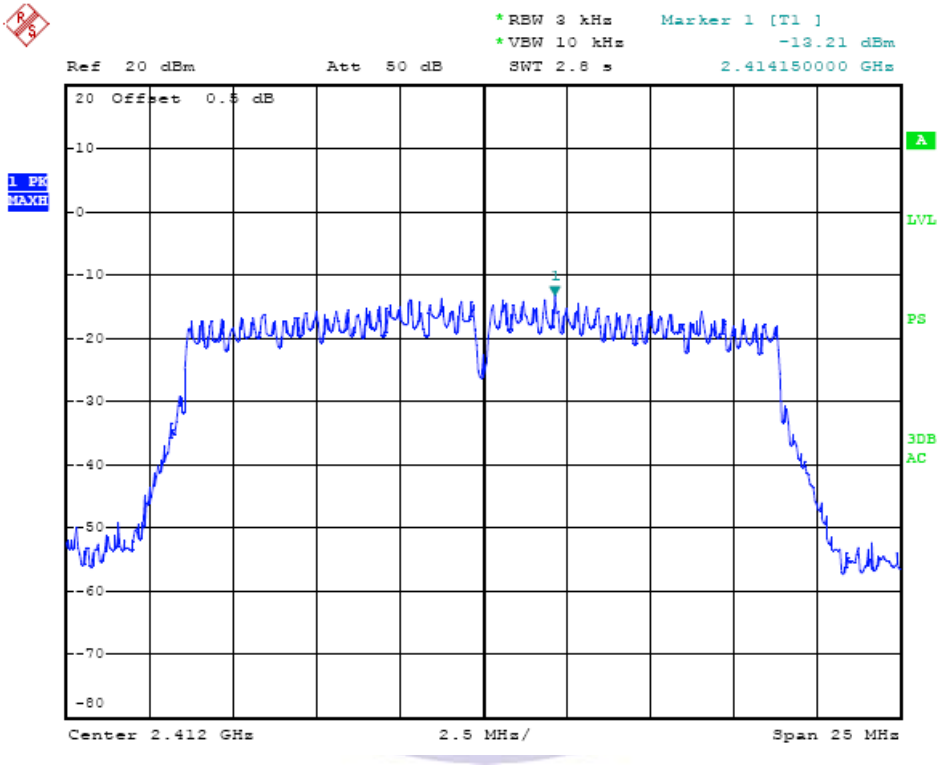
Channel 11 (2462MHz)



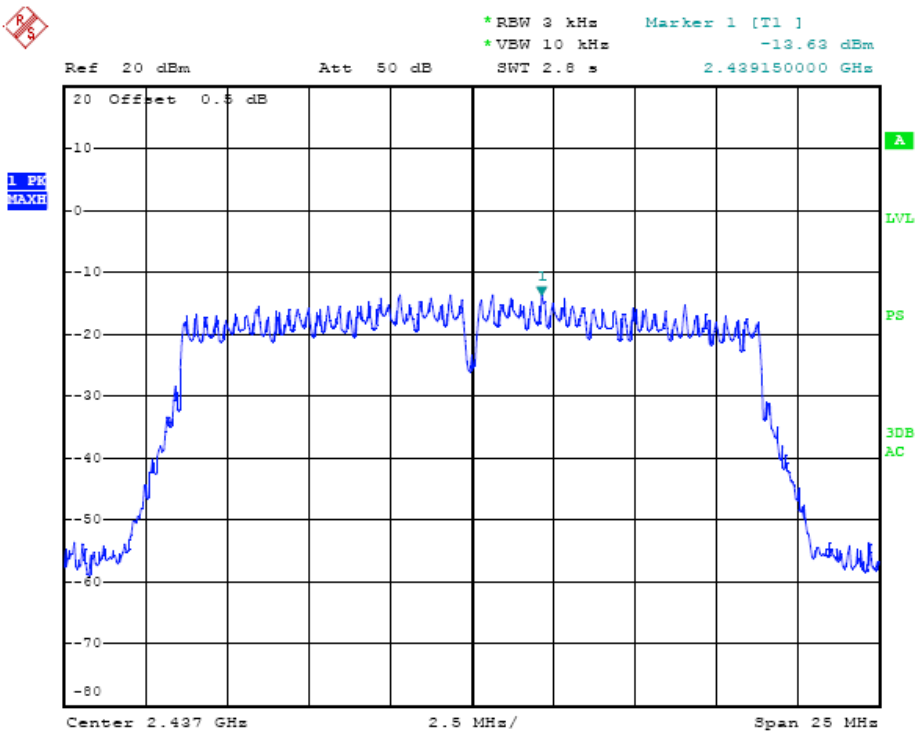
Product	:	Mobile Phone
Test Item	:	Power Spectral Density
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm/3KHz)	Limit (dBm/3KHz)	Result
01	2412	-13.21	8	Pass
06	2437	-13.63	8	Pass
11	2462	-13.34	8	Pass

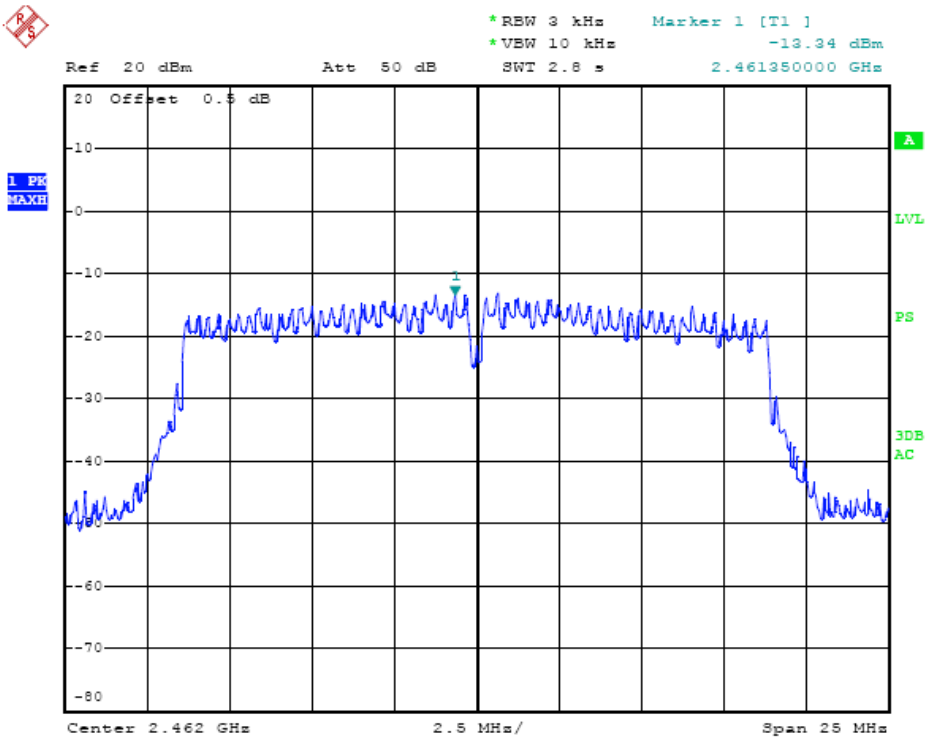
Channel 01 (2412MHz)



Channel 06 (2437MHz)



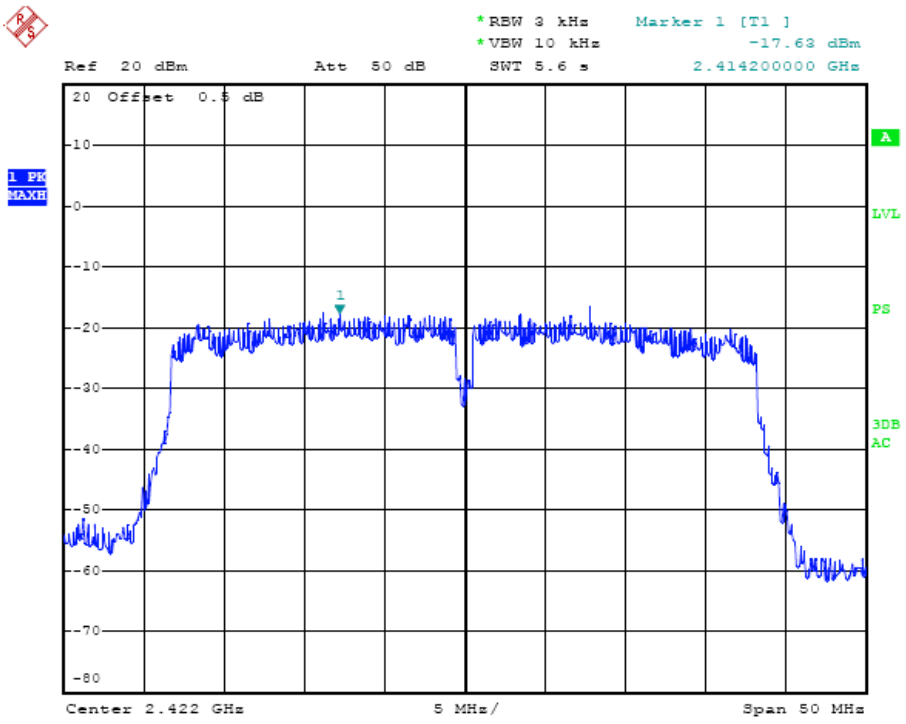
Channel 11 (2462MHz)



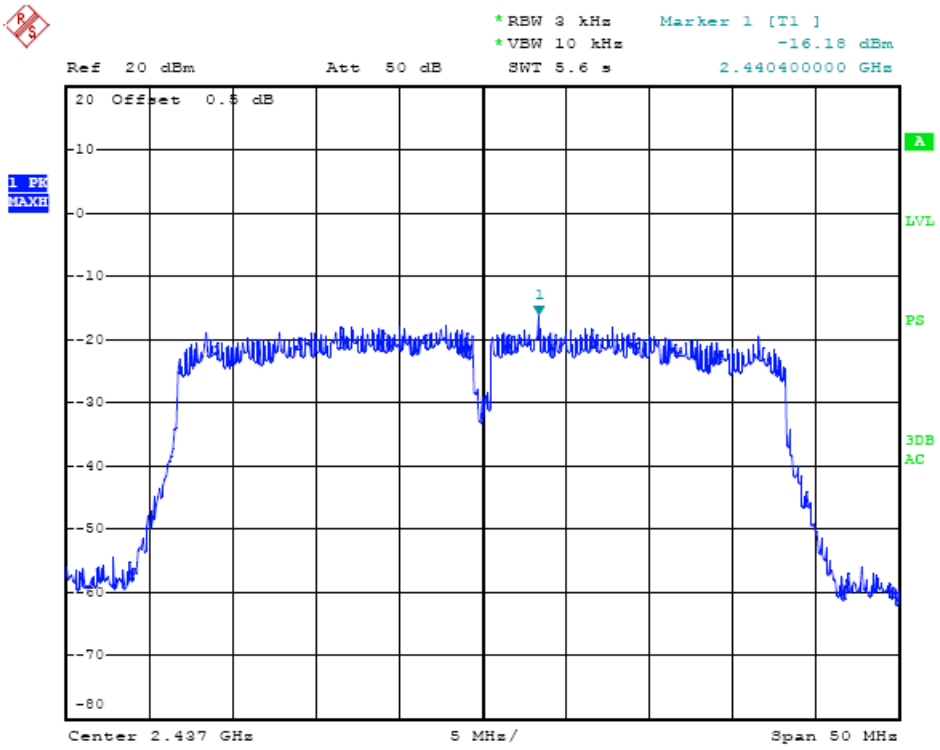
Product	:	Mobile Phone
Test Item	:	Power Spectral Density
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz)

Channel No.	Frequency (MHz)	Measurement PPSD (dBm/3KHz)	Limit (dBm/3KHz)	Result
03	2422	-17.63	8	Pass
06	2437	-16.18	8	Pass
09	2452	-17.66	8	Pass

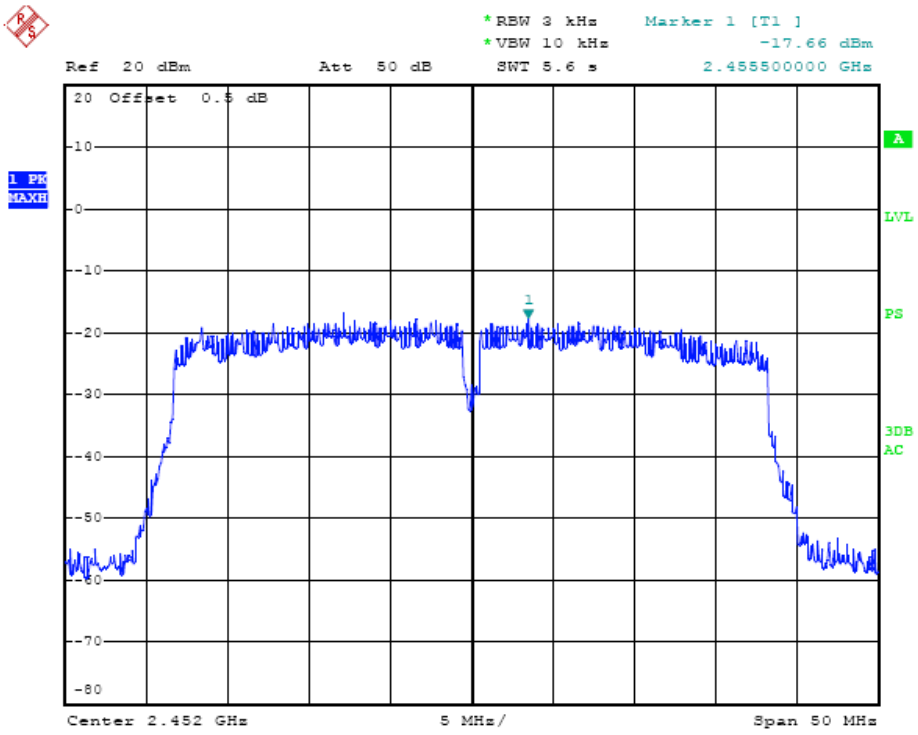
Channel 03 (2422MHz)



Channel 06 (2437MHz)

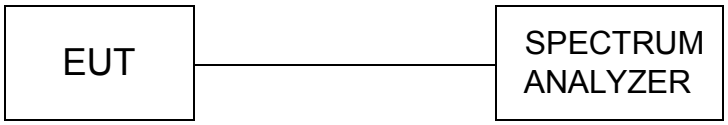


Channel 09 (2452MHz)



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.

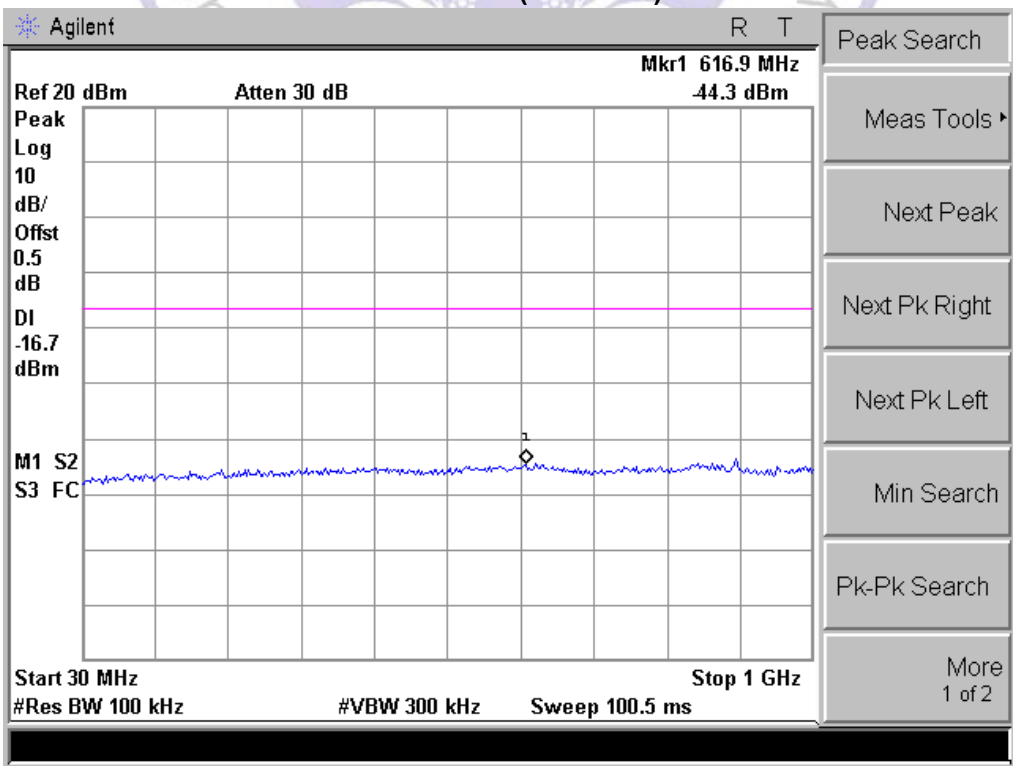
LIMIT

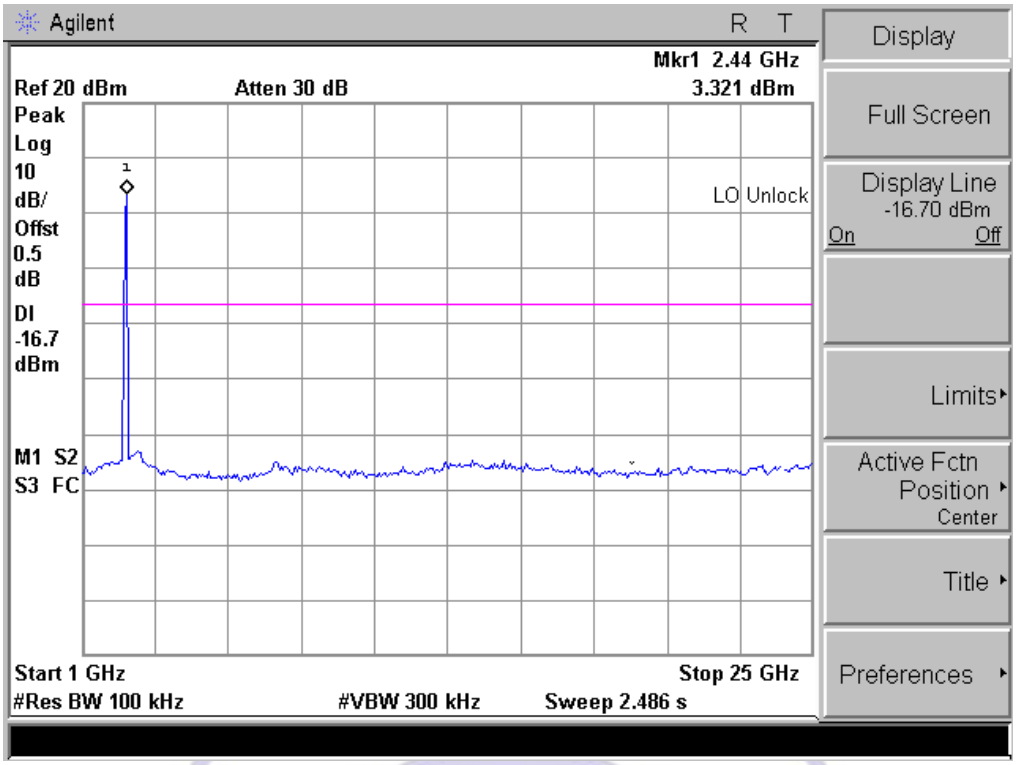
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the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

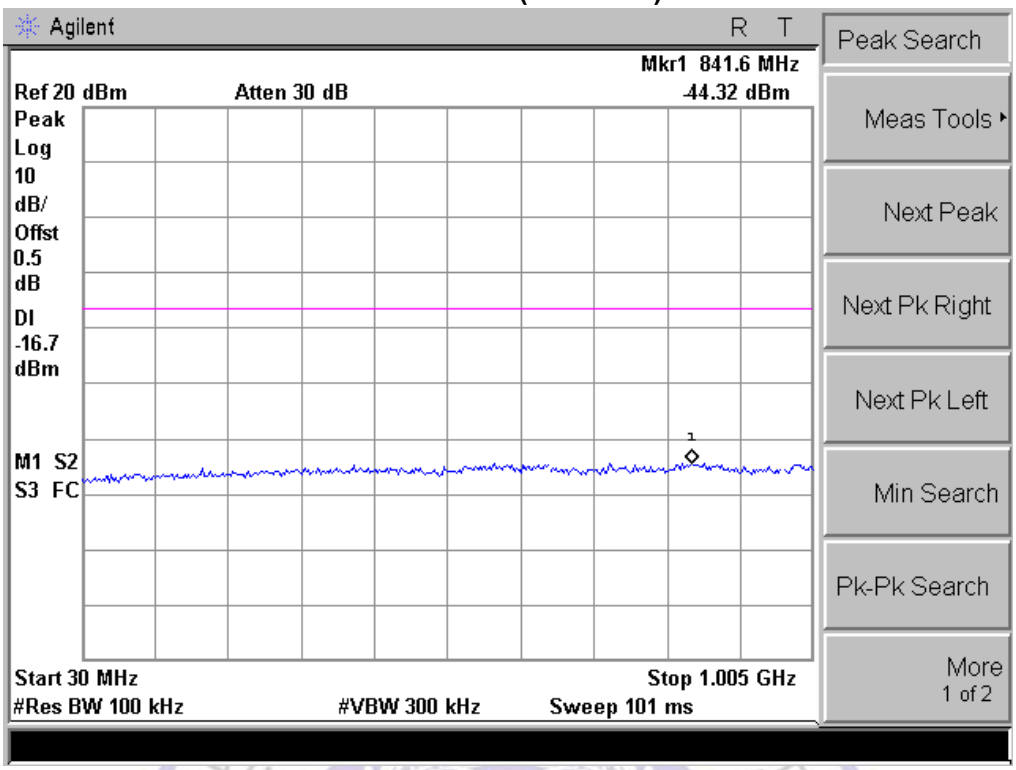
Product	:	Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Mode	:	Mode 1: Transmit by 802.11b

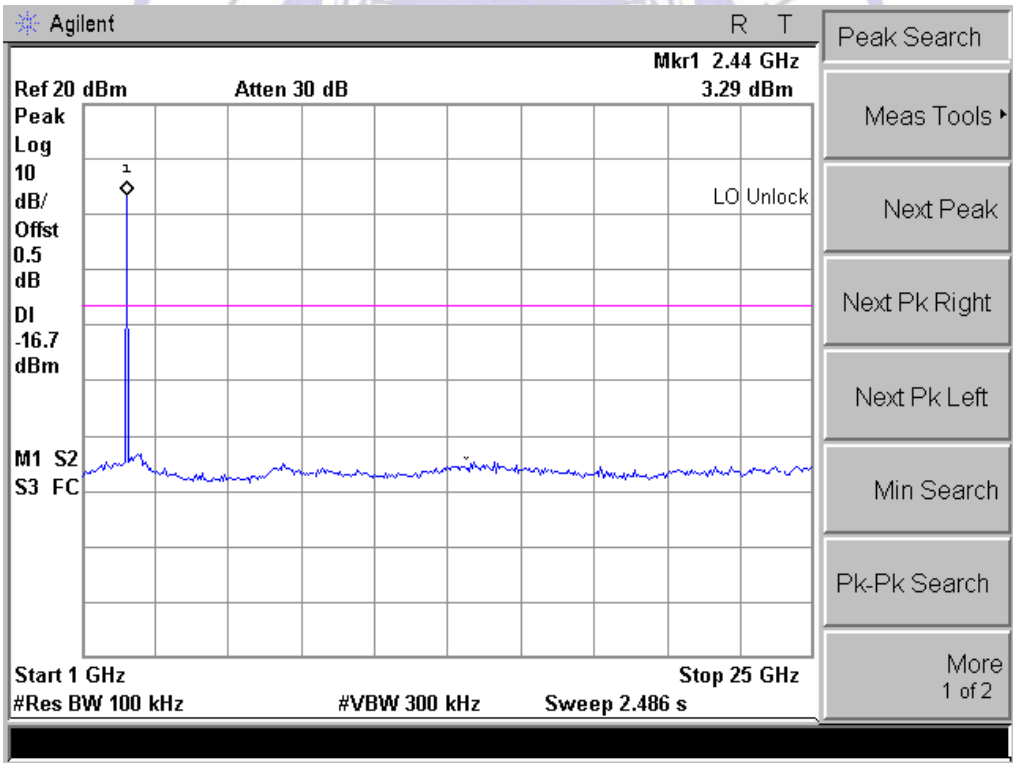
Channel 01 (2412MHz)



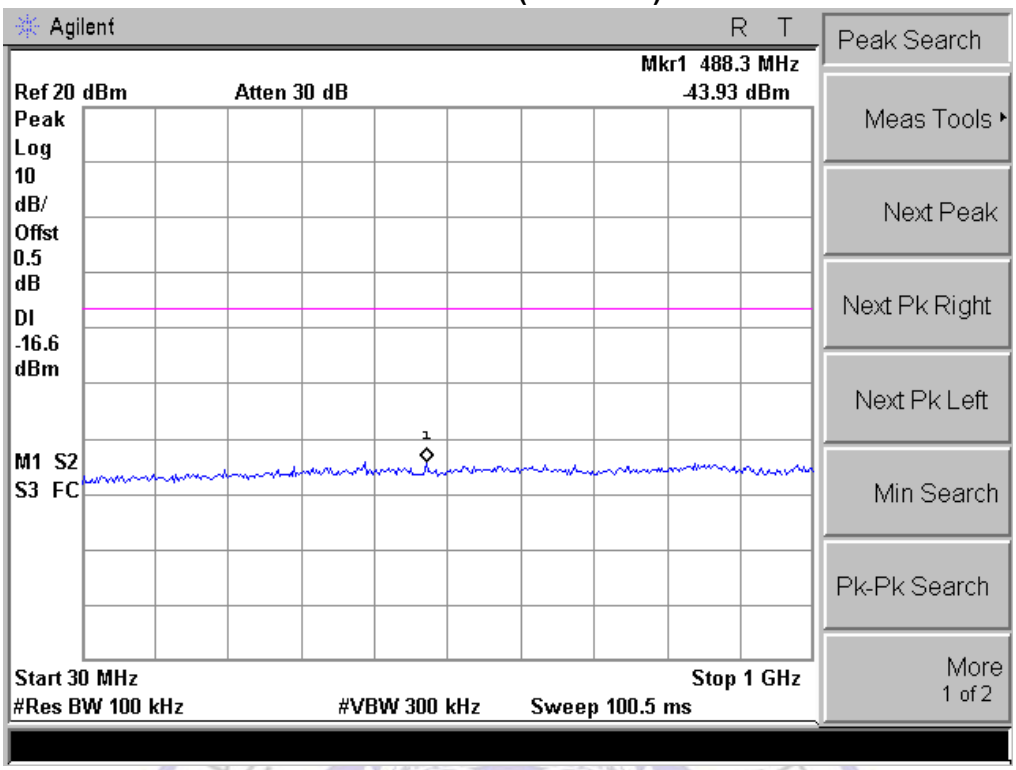


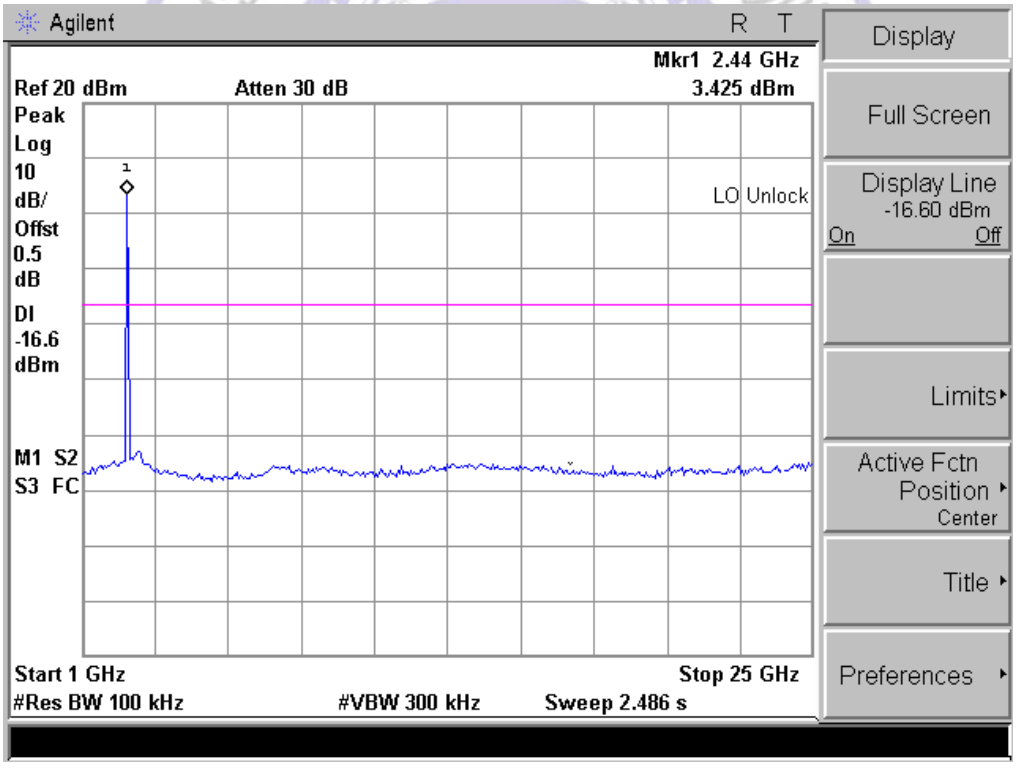
Channel 06 (2437MHz)





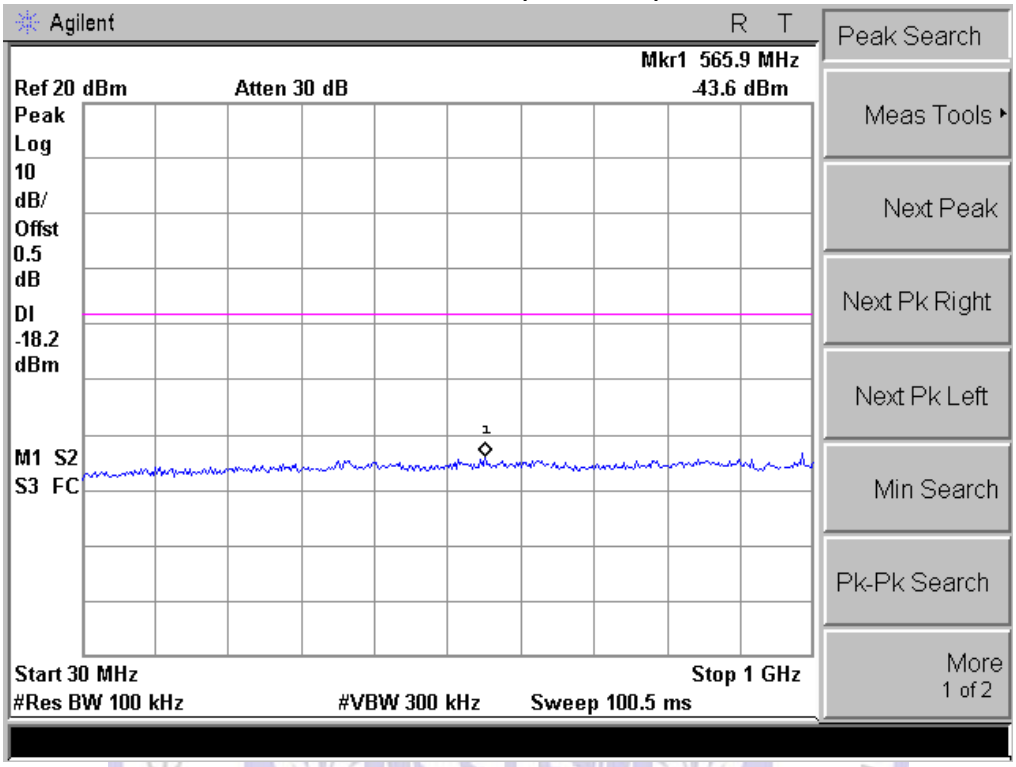
Channel 11 (2462MHz)

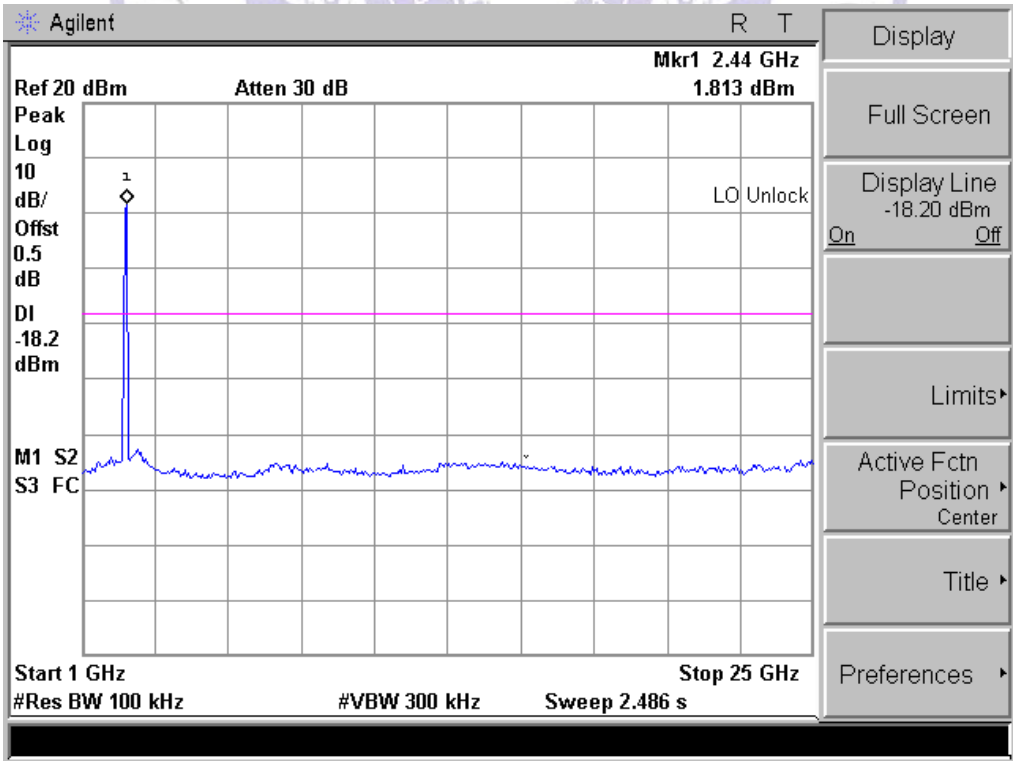




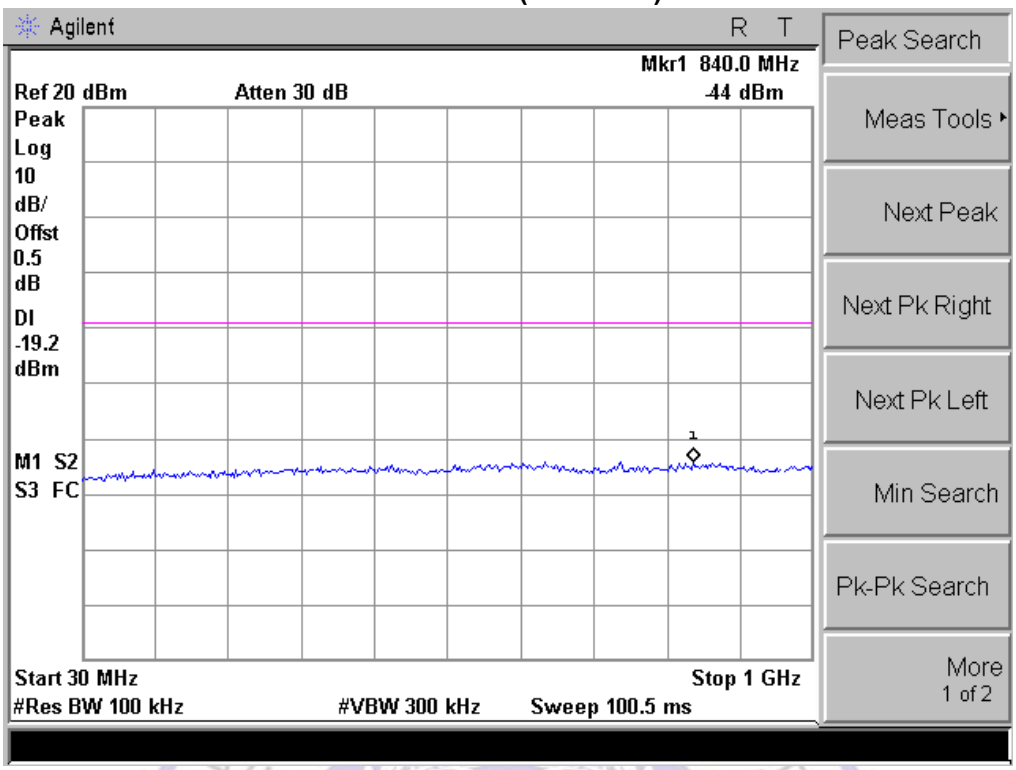
Product	:	Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Mode	:	Mode 2: Transmit by 802.11g

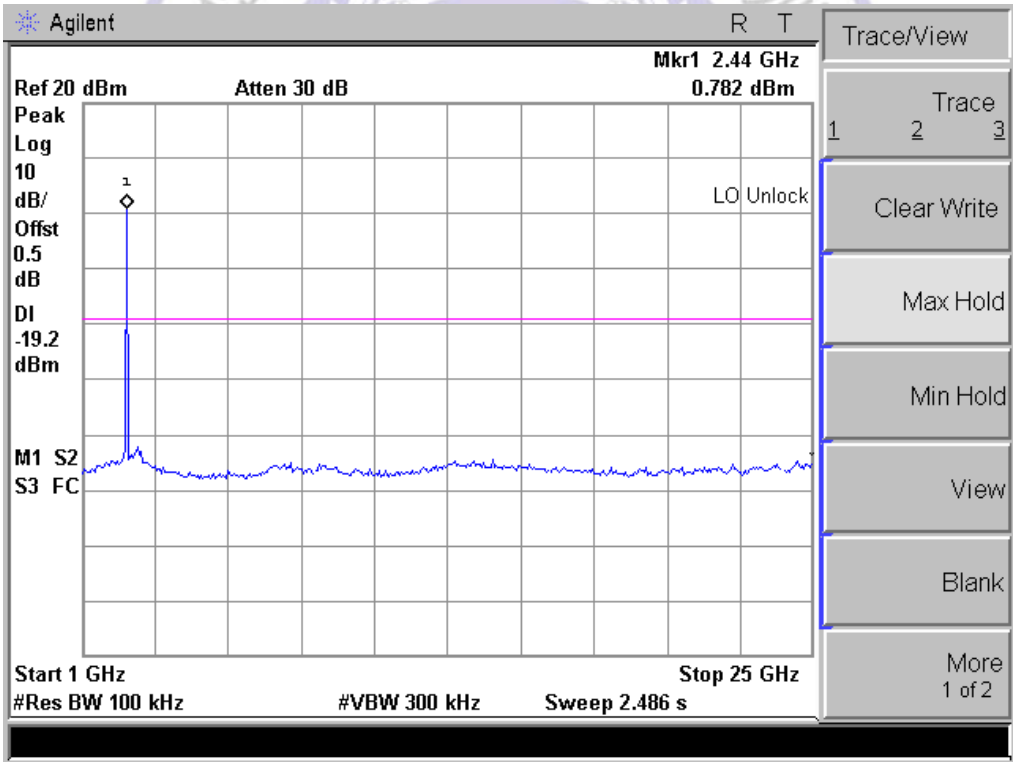
Channel 01 (2412MHz)



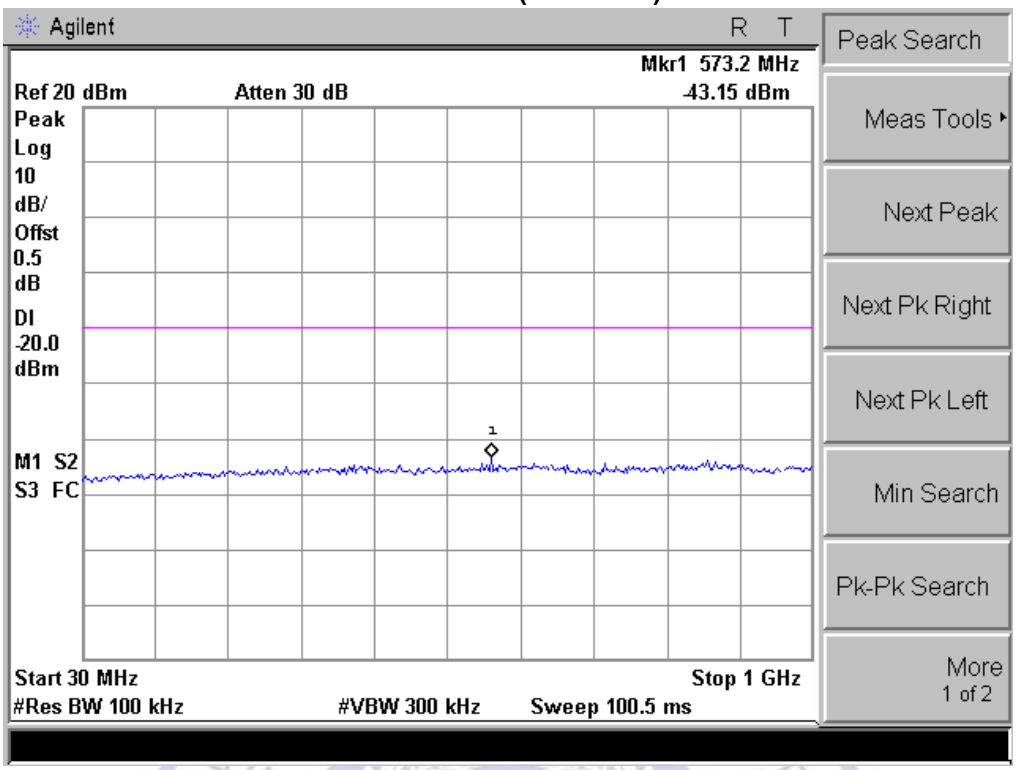


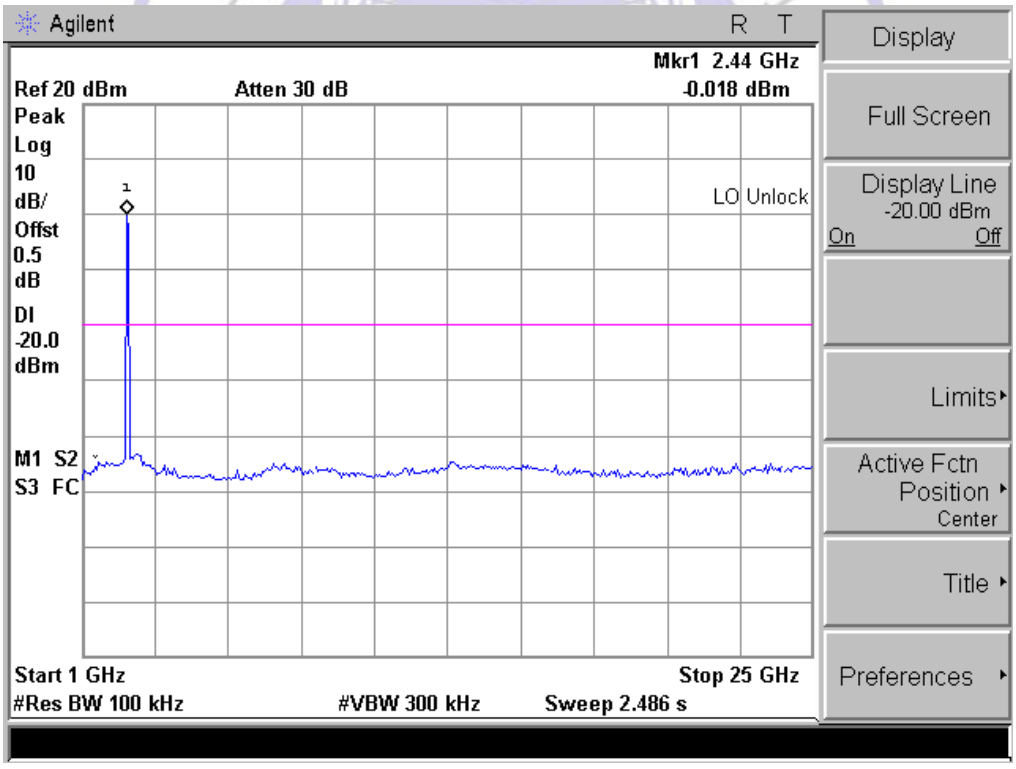
Channel 06 (2437MHz)





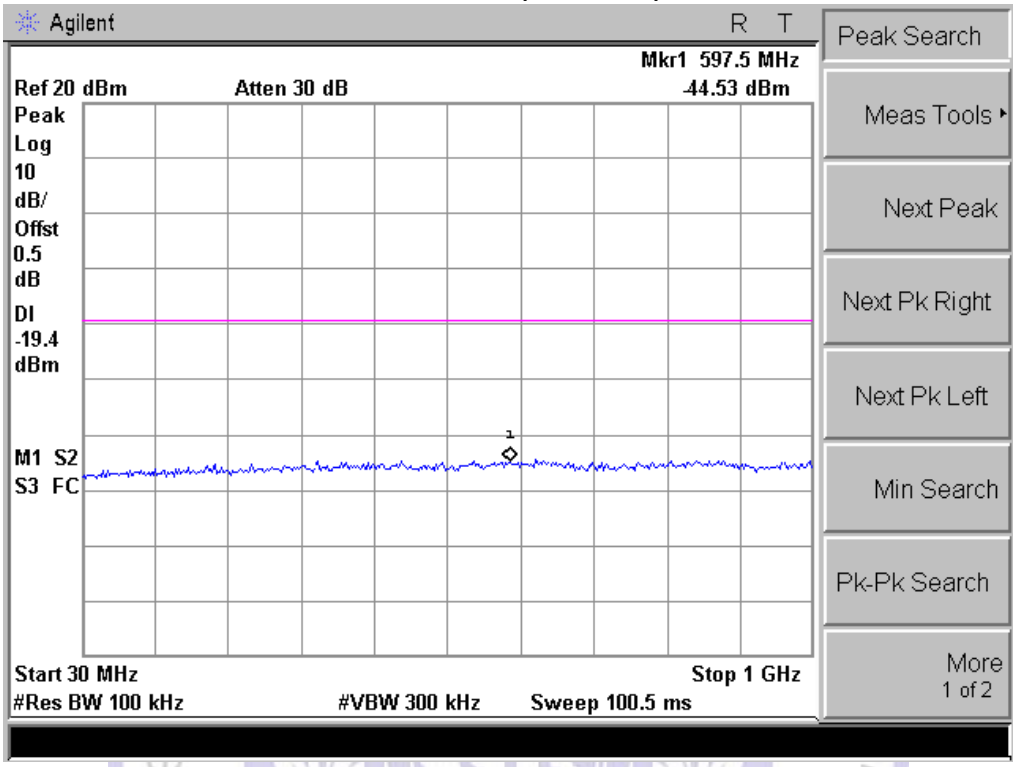
Channel 11 (2462MHz)

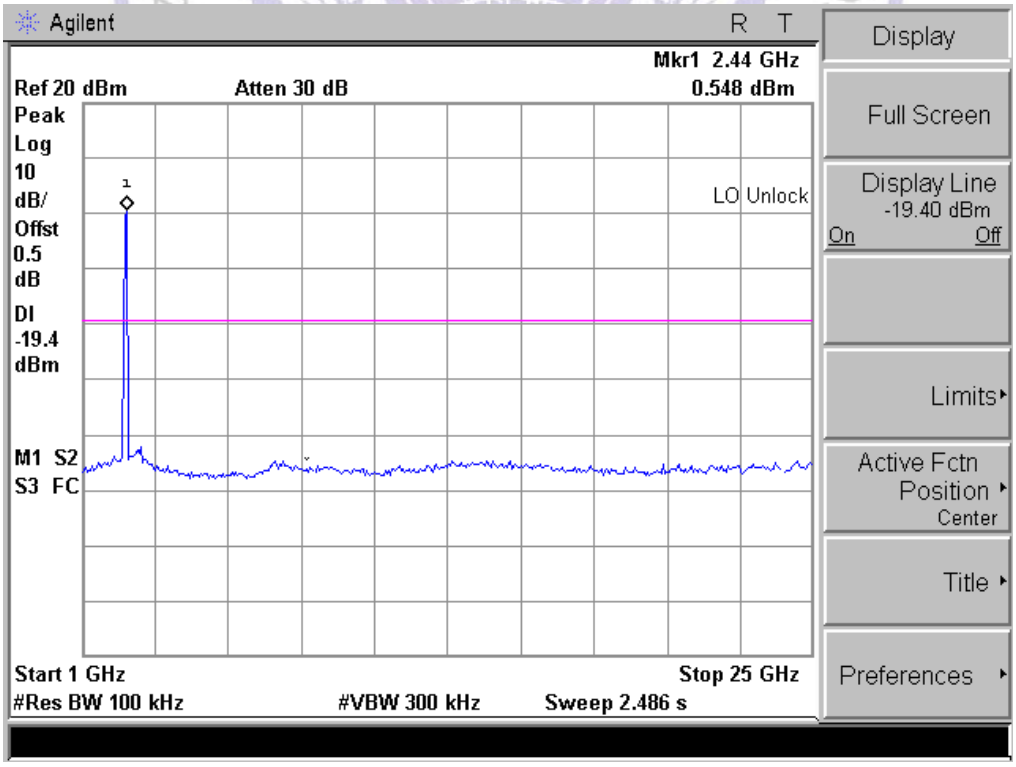




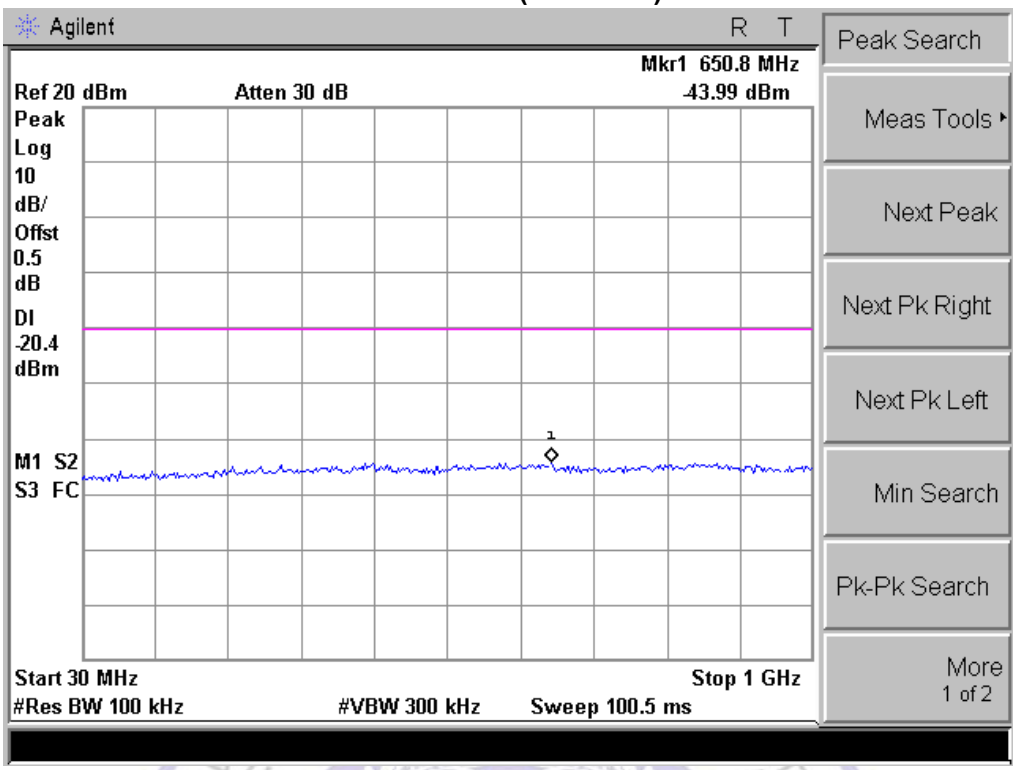
Product	:	Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Mode	:	Mode 3: Transmit by 802.11n (20MHz)

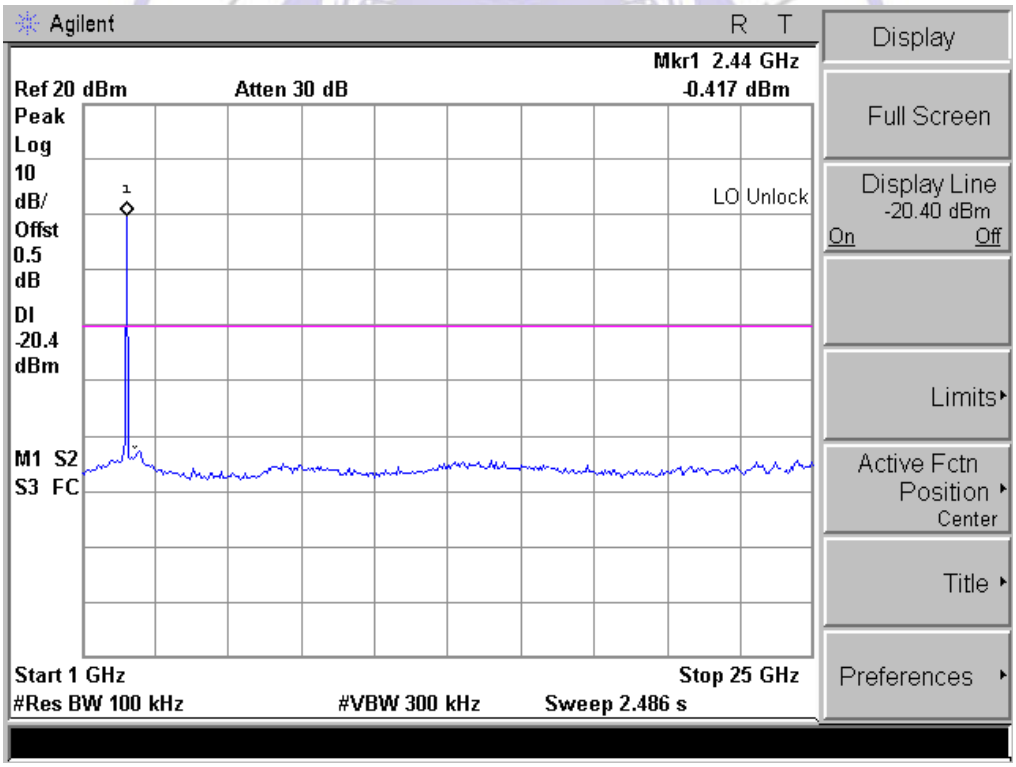
Channel 01 (2412MHz)



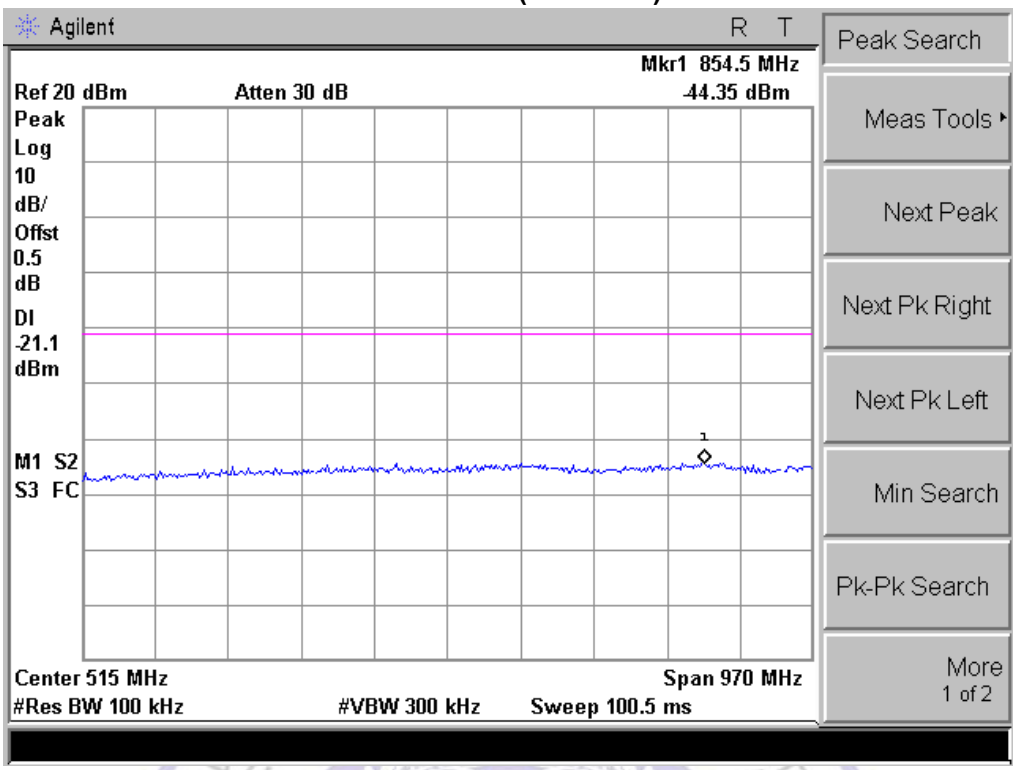


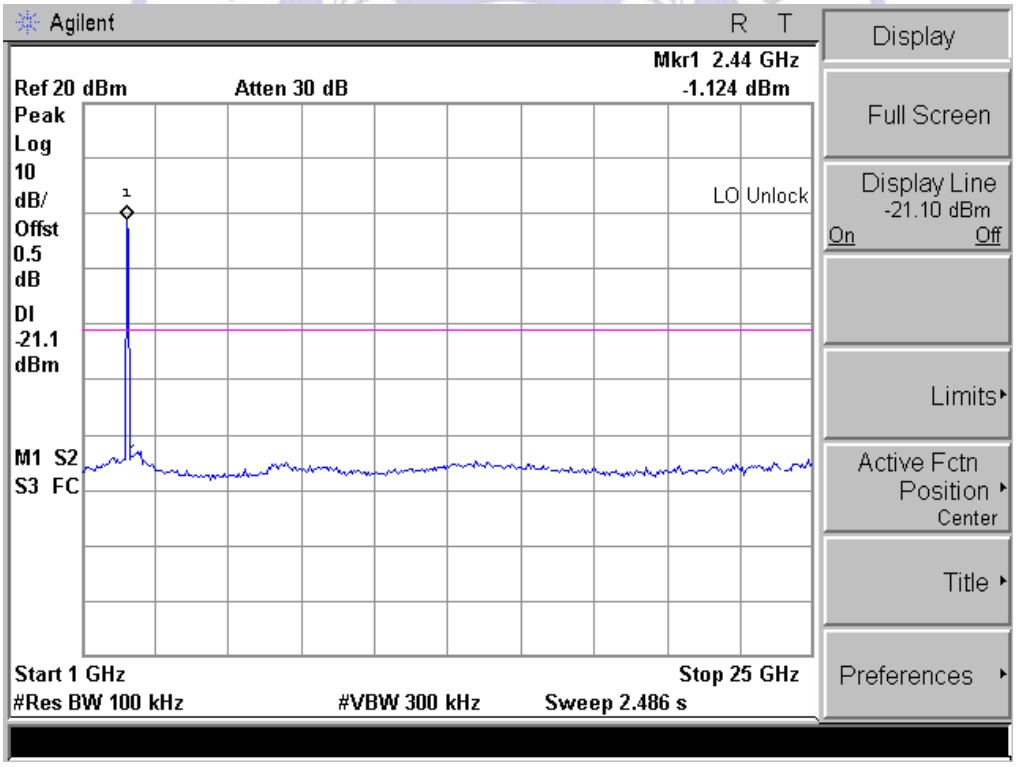
Channel 06 (2437MHz)





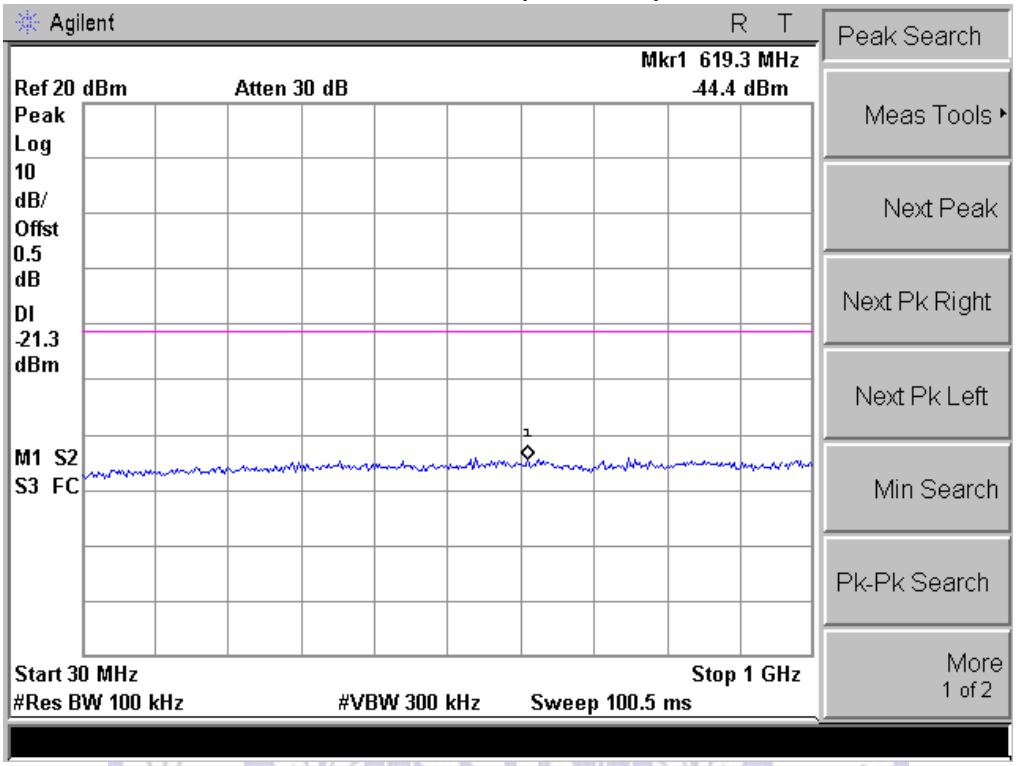
Channel 11 (2462MHz)

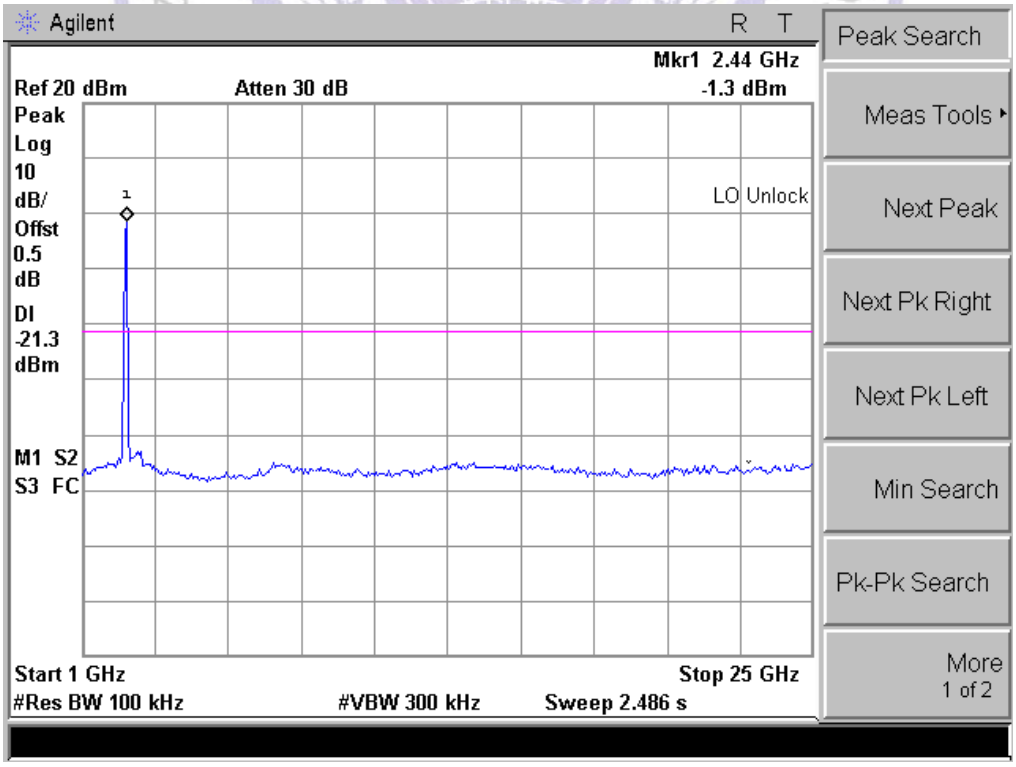




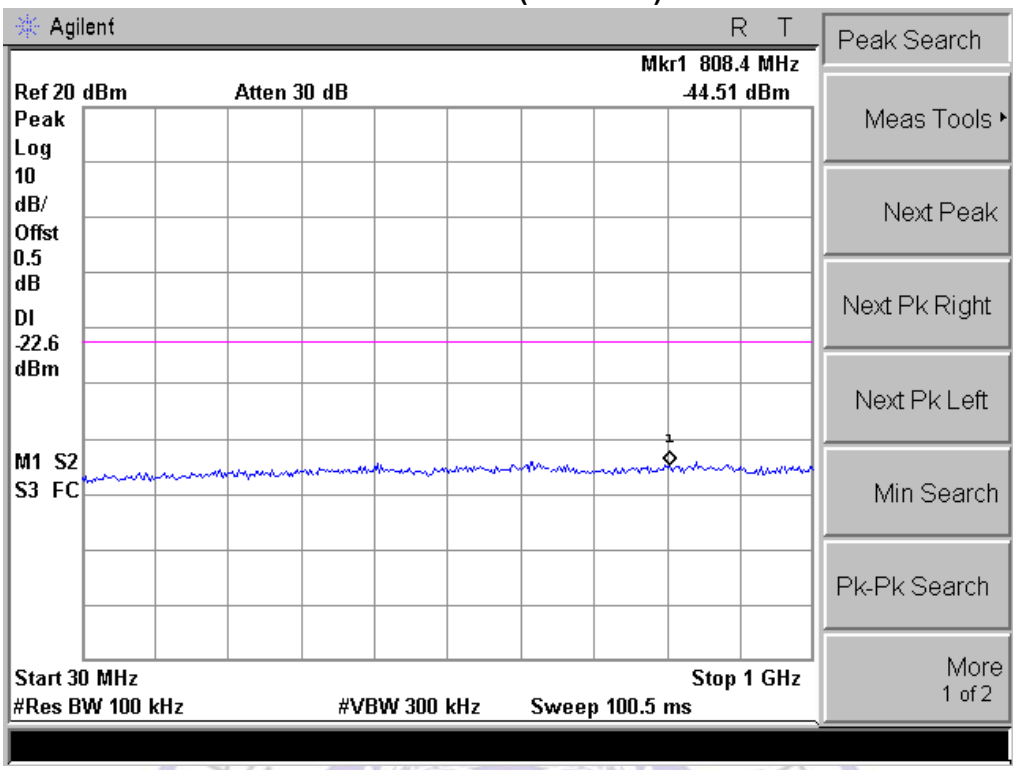
Product	:	Mobile Phone
Test Item	:	RF Antenna Conducted Spurious
Test Mode	:	Mode 4: Transmit by 802.11n (40MHz)

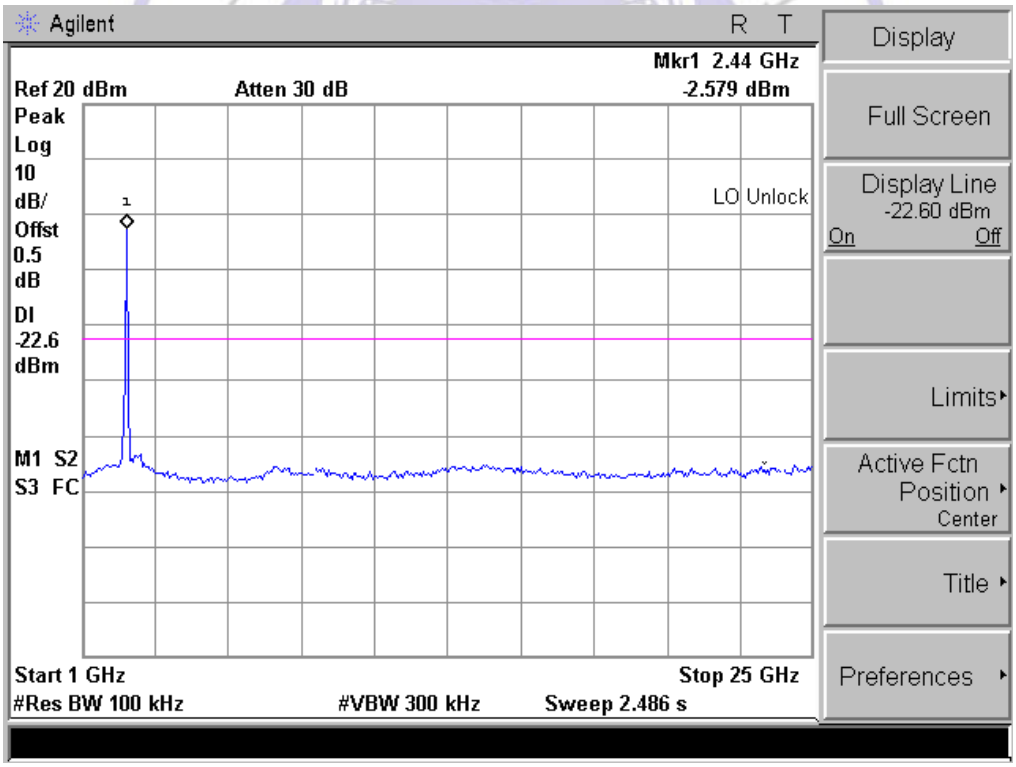
Channel 03 (2422MHz)



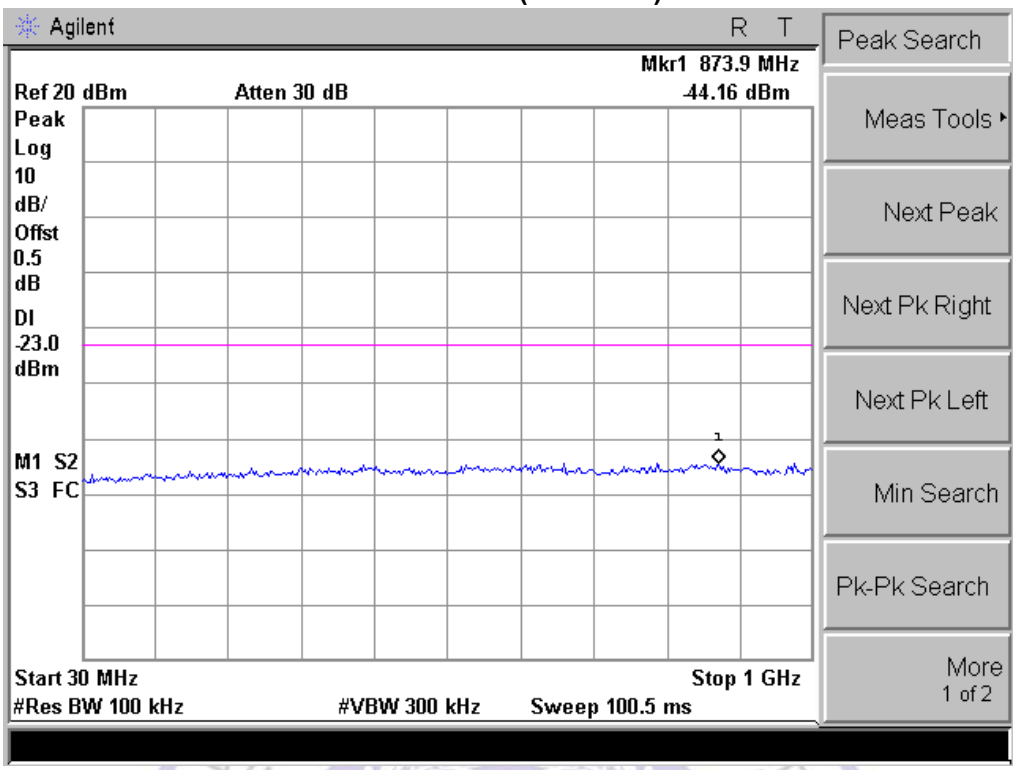


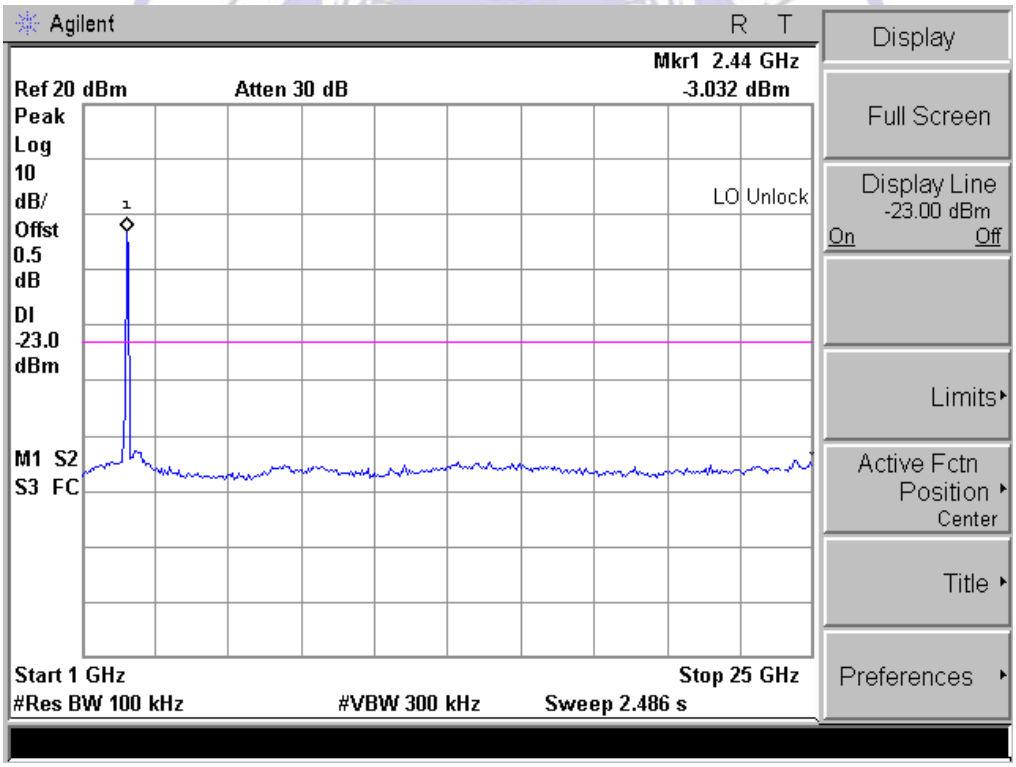
Channel 06 (2437MHz)





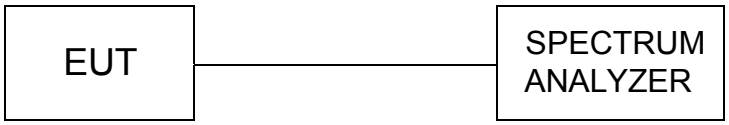
Channel 09 (2452MHz)





4.8. Operation Frequency Range of 20dB Bandwidth

TEST CONFIGURATION



TEST PROCEDURE

The EUT was tested according to KDB 558074 D01 v03r02 for compliance to FCC 47CFR 15.247 requirements.
Set RBW = 100 kHz, Span greater than RBW.

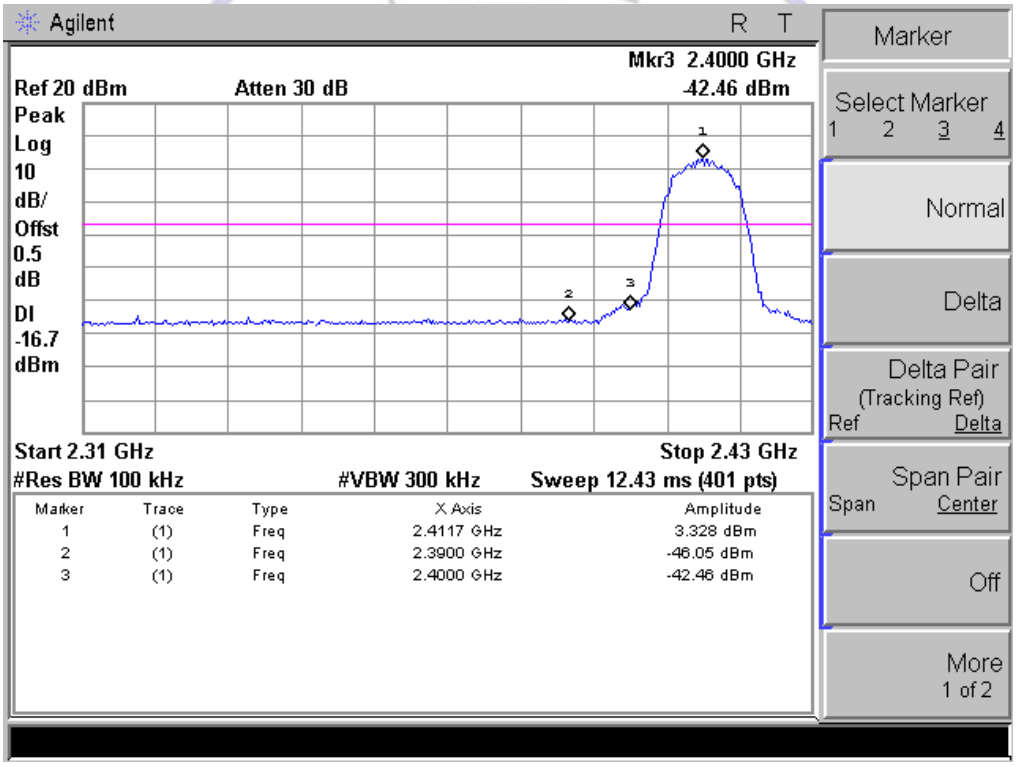
LIMIT

20 dB bandwidth of the emission is contained within the operation frequency band.

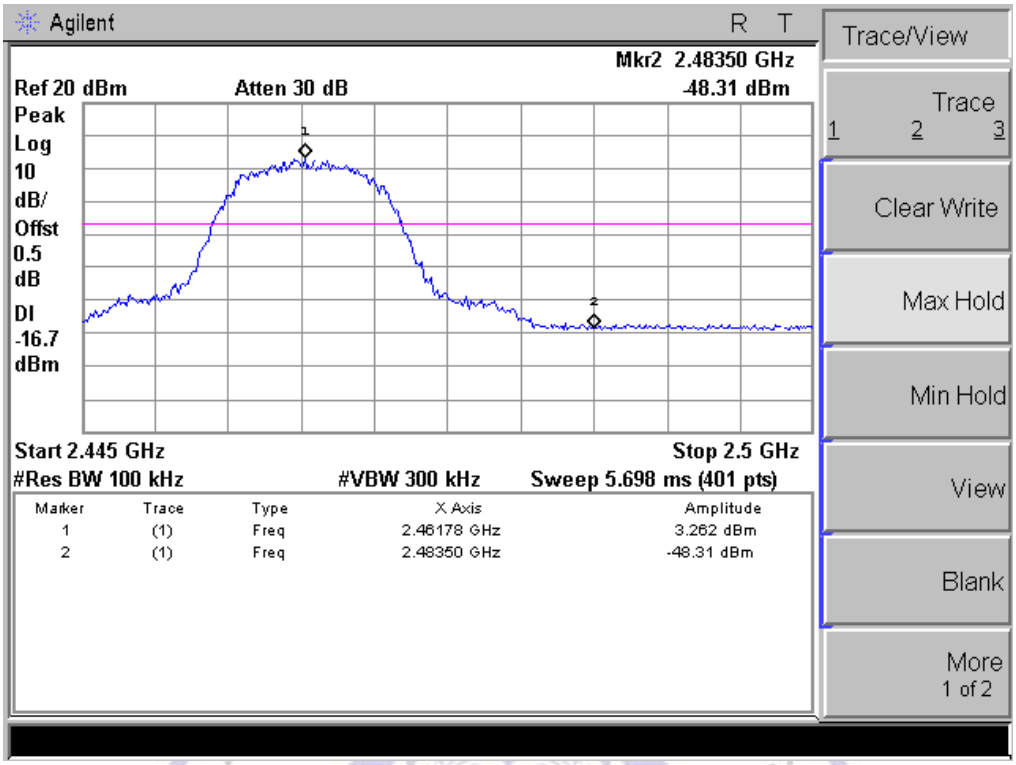
TEST RESUTL

For 802.11b Mode:

CH1

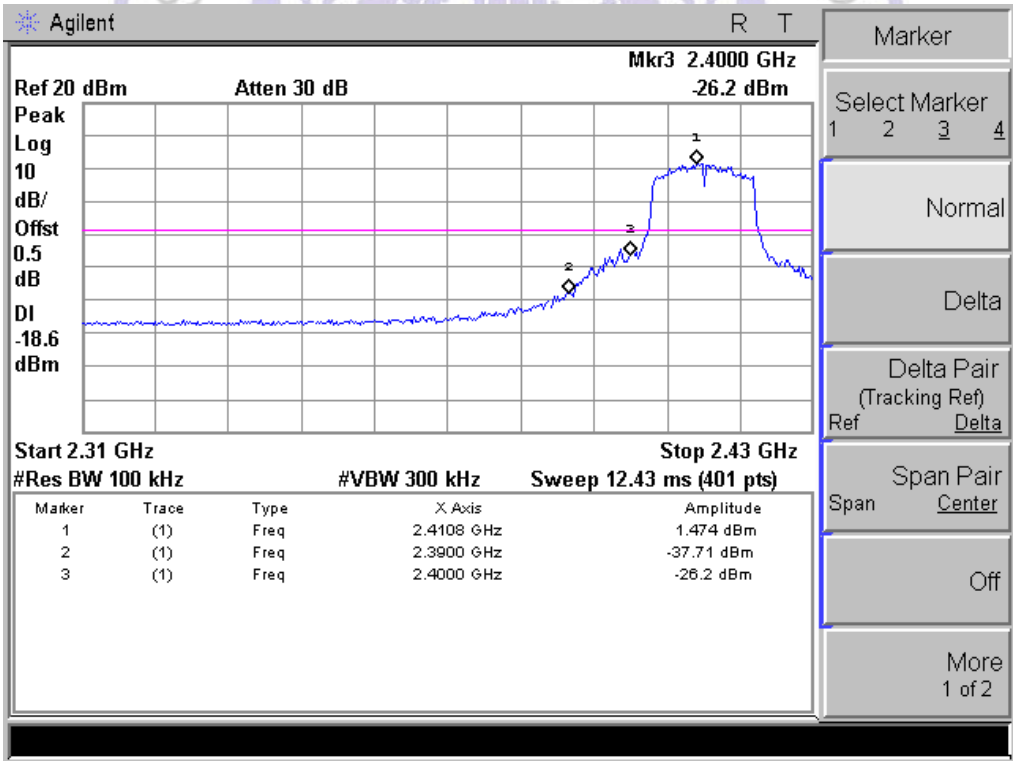


CH11

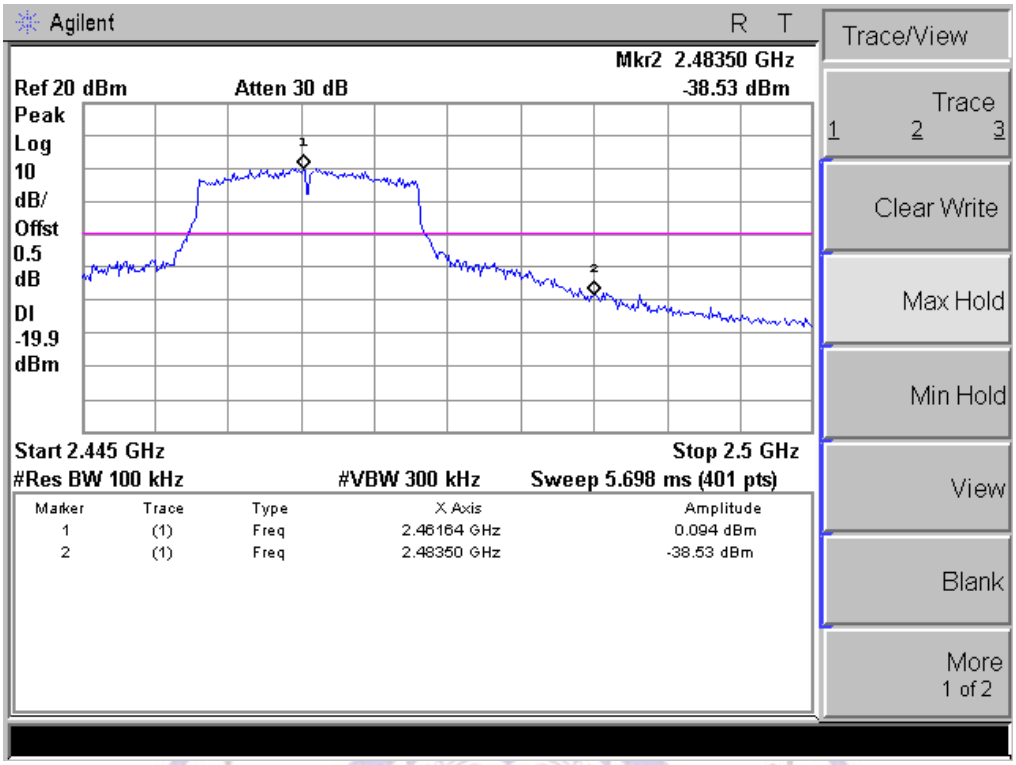


For 802.11g Mode:

CH1

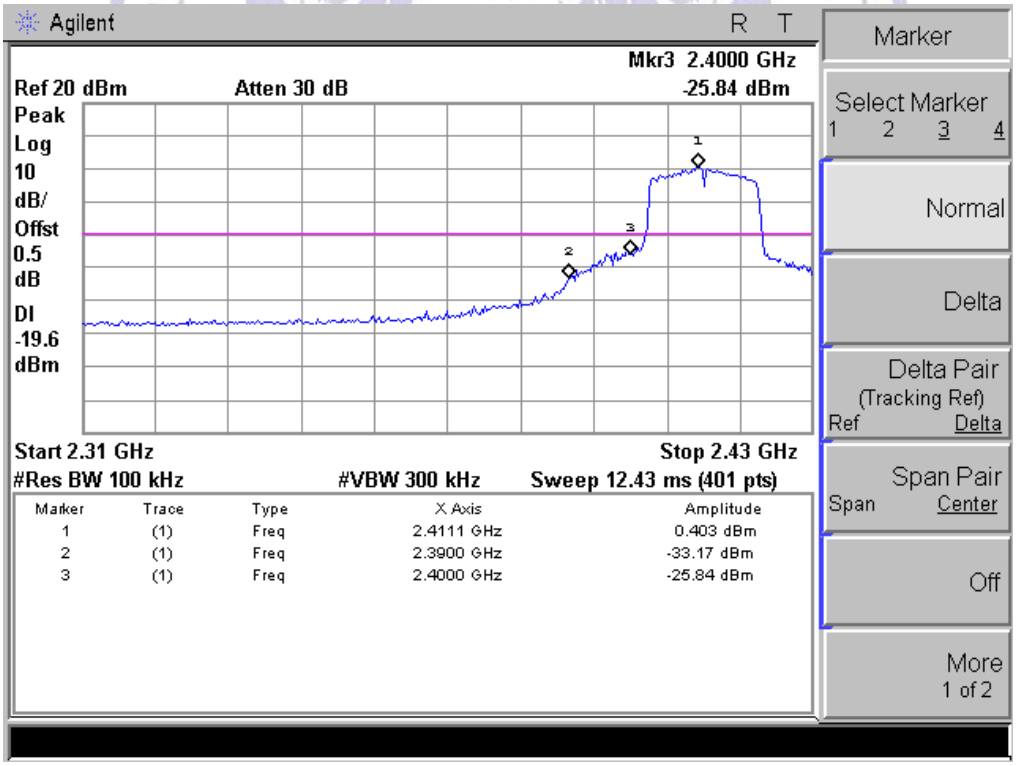


CH11

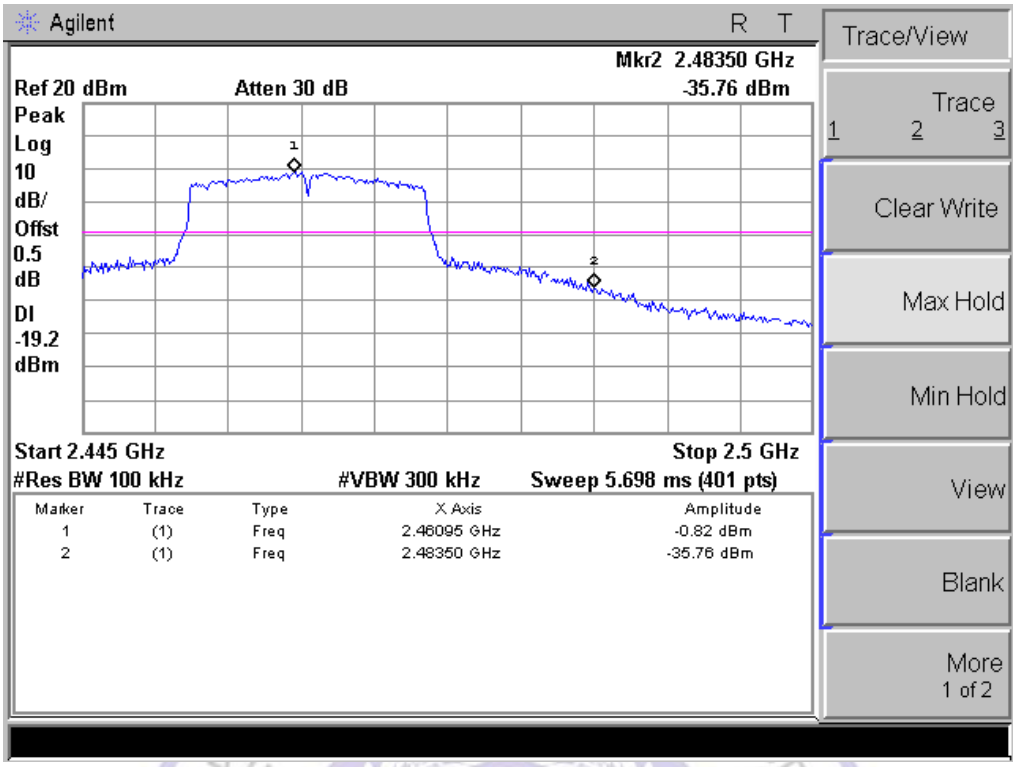


For 802.11n (20MHz) Mode:

CH1

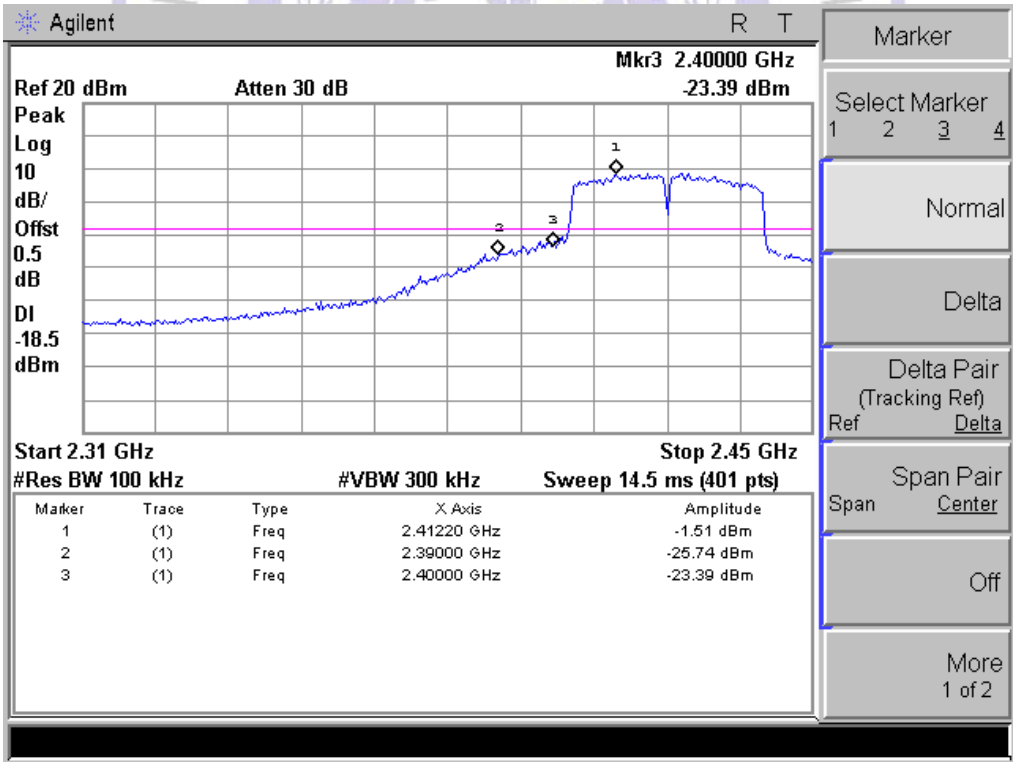


CH11

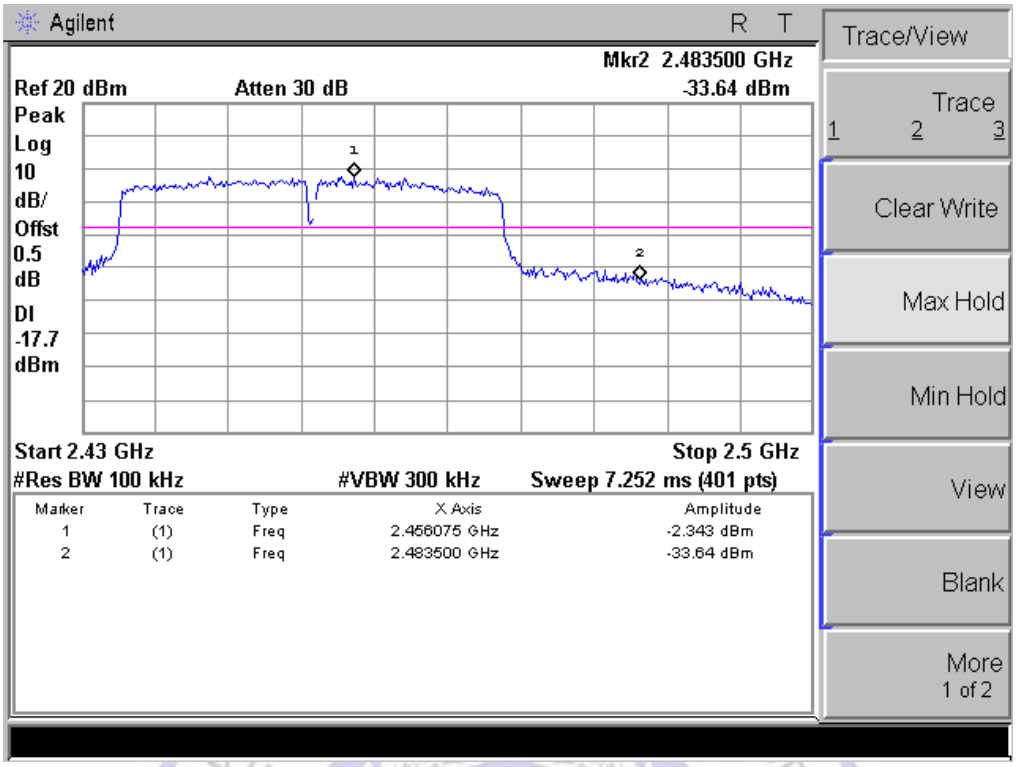


For 802.11n (40MHz) Mode:

CH3



CH9



4.9. 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 -3.0 dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Please see EUT photo for details.

4.10. RF Exposure

STANDARD APPLICABLE

According to § 1.1307 (b)(1), system operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

This is a portable device. Per KDB 447498 D01 v05, the device used distance is 5mm from body.

LIMIT

LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm2)	Average Time (Minutes)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

MEASUREMENT RESULTS

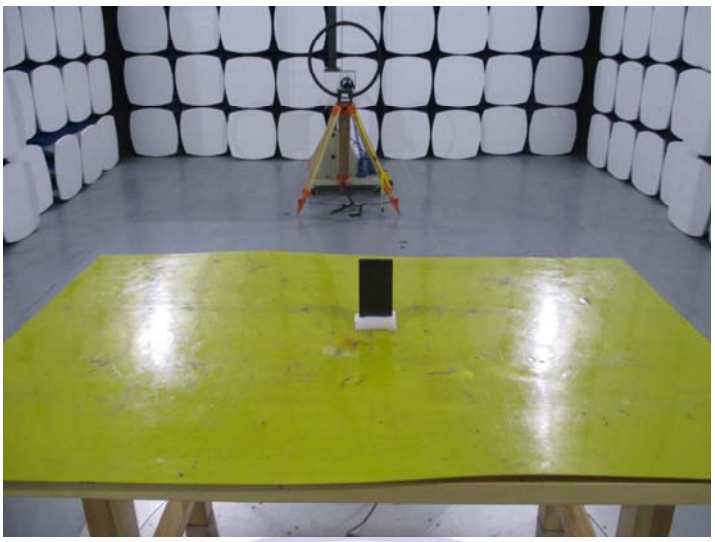
Per KDB 447498 D01 V05

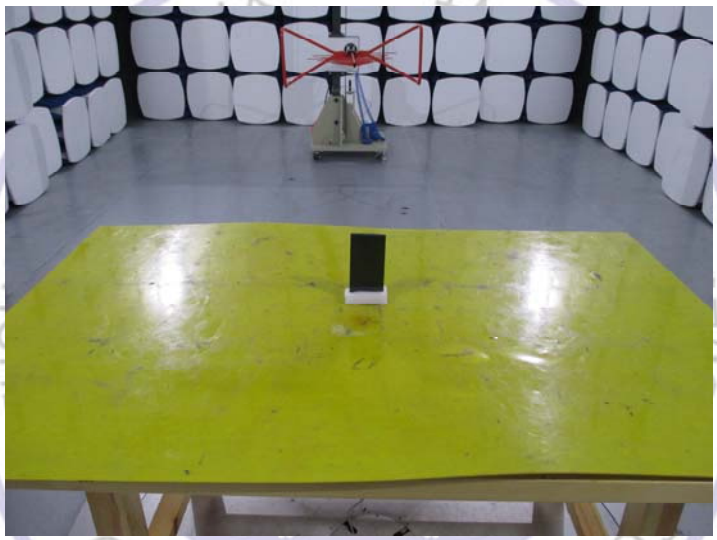
This is a Wi-Fi function and the Max peak output power is 9.68dBm (9.29mW) at 2412MHz.

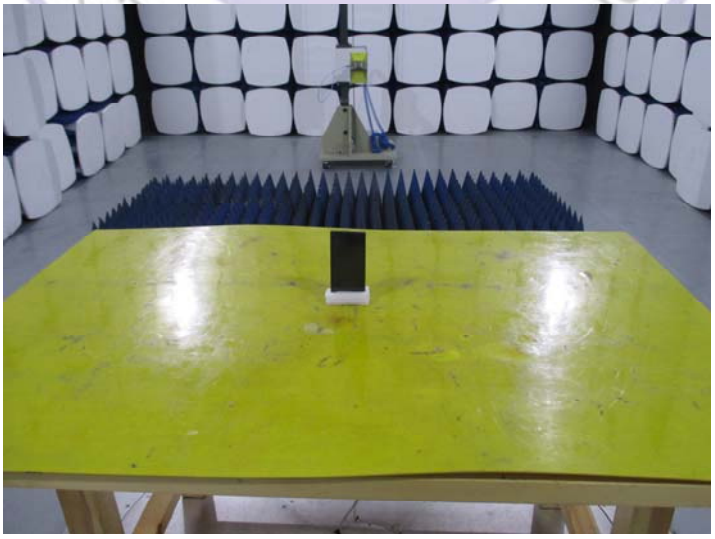
$9.29*\sqrt{2.412}/5=2.885<3$

The SAR measurement is not necessary.

5. Test Setup Photos of the EUT

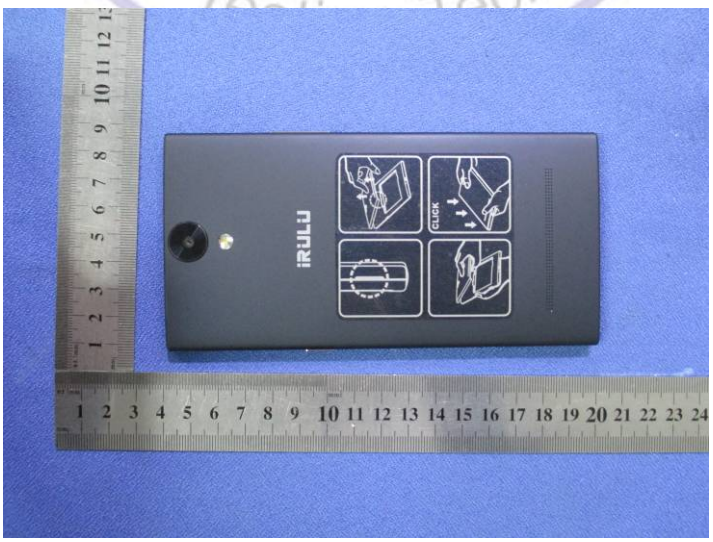




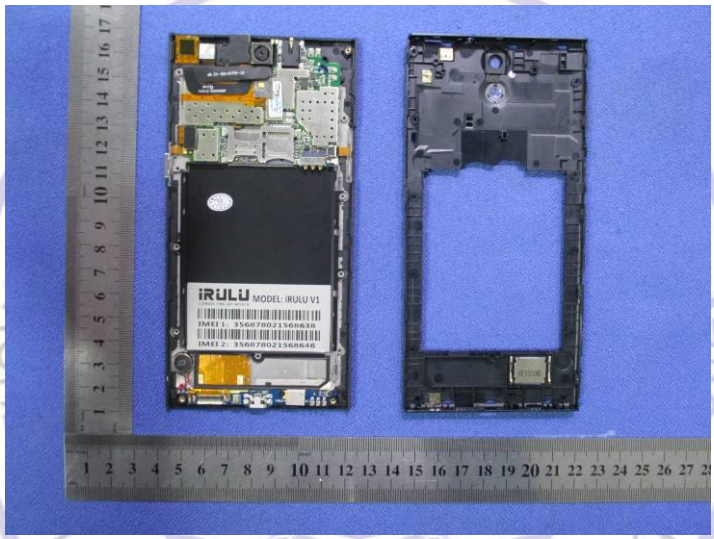


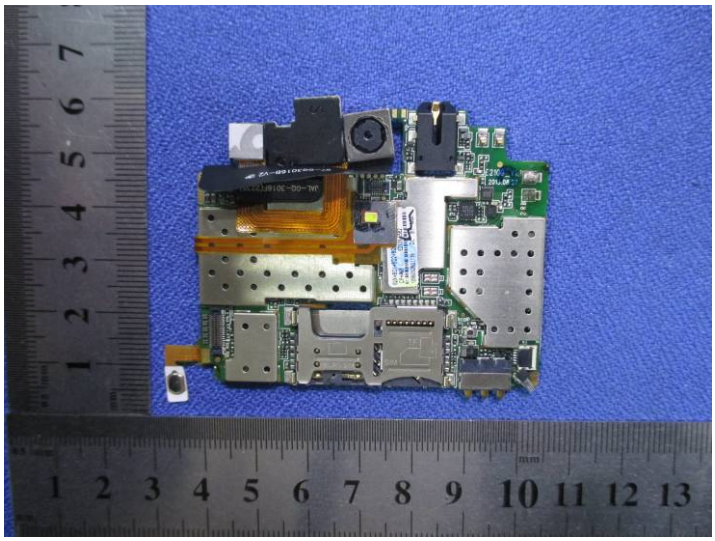
6. External and Internal Photos of the EUT

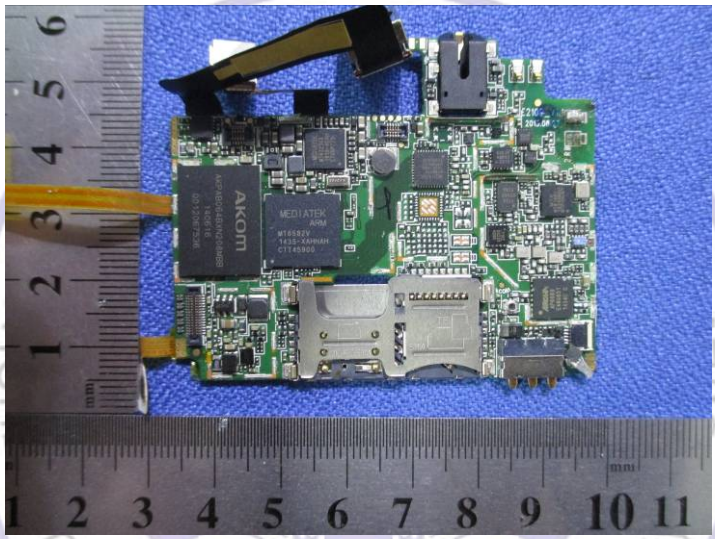
External Photos of EUT

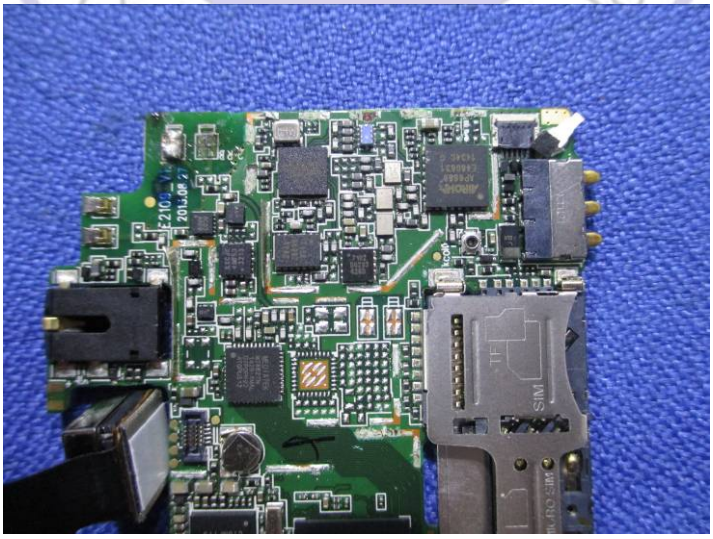


Internal Photos of EUT

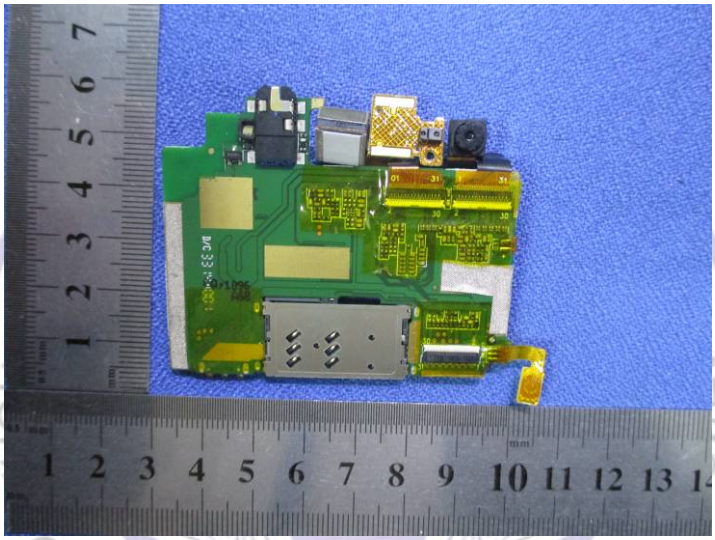


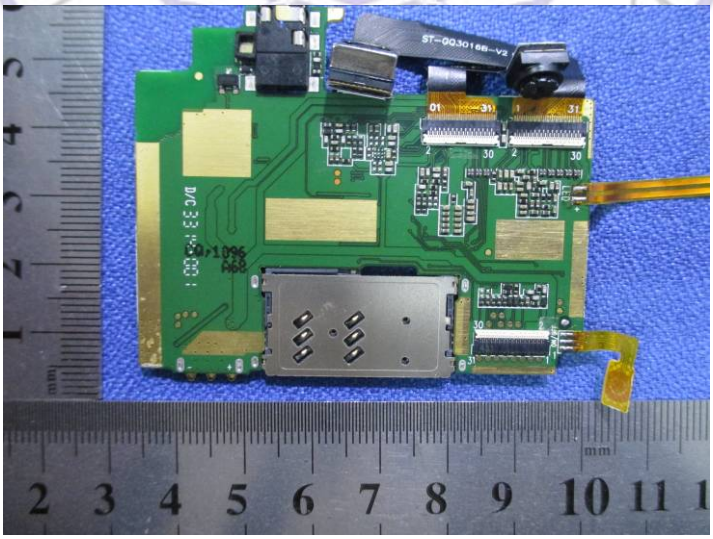


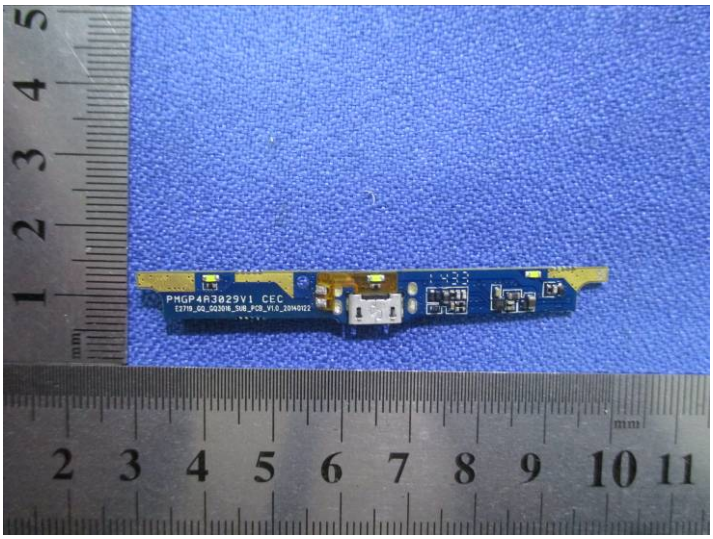

Akom
MEDIATEK
ARM

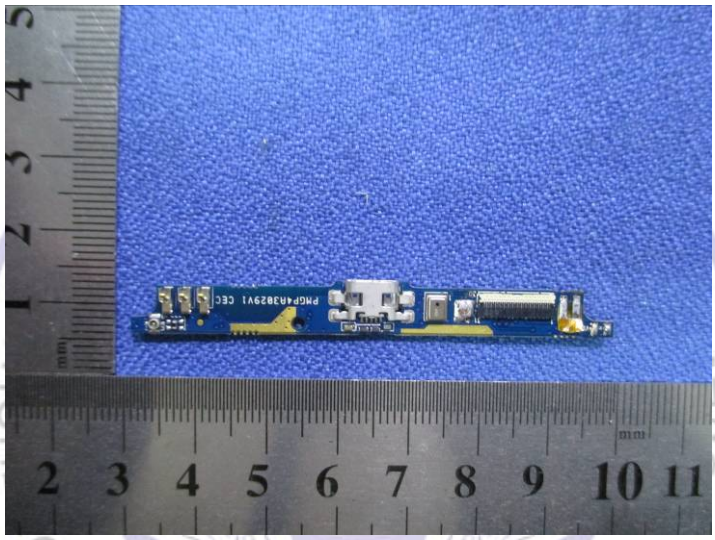

TF
SIM


AKOM
AKPAB064BXN208MBB
140616
0012067536









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