



# **FCC 47 CFR PART 15 SUBPART C TEST REPORT**

**For**

**Product Name: All-in-one system with speakers, amplifiers, radio, Bluetooth,  
streaming via Ethernet and Wifi, HDMI in/out**

**Brand Name: GENEVA**

**Model No.: Geneva Sound System Model XXL**

**FCC ID:ZXX-MODELXXL**

**IC :10107A-MODELXXL**

**Test Report Number:**

**C130918R02-RPB**

**Issued for**

**G-Lab GmbH**

**Schiffbaustrasse 10, 8005 Zürich, Switzerland**

**Issued by**

**Compliance Certification Services Inc.**

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**TESTING CERT #2541.01**

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**SUMMARY OF TEST RESULT**

Report Section	FCC Rule	IC Rule	Description	Limit	Result
3.1	15.247(a)(1)	RSS-210 A8.4(2)	Number of Channels	≥ 15Channels	Pass
3.2	15.247(a)(1)	RSS-210 A8.1(b)	Hopping Channel Separation	≥2/3 of 20dB BW	Pass
3.3	15.247(a)(1)	RSS-210 A8.1(d)	Dwell Time of Each Channel	≤0.4sec in 31.6sec period	Pass
3.4	15.247(a)(1)	RSS-210 A8.1(a)	20dB Bandwidth	NA	Pass
3.5		RSS-Gen 4.6.1	99% Bandwidth	-	Pass
3.2	15.247(d)	RSS-210 A8.5	Peak Output Power	≤ 1W for 1Mbps ≤125mW for 2,3Mbps	Pass
3.4	15.247(d)	RSS-210 A8.5	Conducted Band Edges and Spurious Emission	≤ 20dBc	Pass
3.5	15.247(d)	RSS-210 A8.5	Radiated Band Edges and Spurious Emission	15.209(a) &15.247(d)	Pass
3.6	15.207	RSS-210 Gen 7.2.4	AC Conducted Emission	15.207(a)	Pass
3.7	15.203 &15.247(b)	RSS-210 A8.4	Antenna Requirement	N/A	Pass



## 1 TEST RESULT CERTIFICATION

<b>Product Name:</b>	All-in-one system with speakers, amplifiers, radio, Bluetooth, streaming via Ethernet and Wifi, HDMI in/out
<b>Trade Name:</b>	GENEVA
<b>Model Name.:</b>	Geneva Sound System Model XXL
<b>Series Model:</b>	N/A
<b>Applicant Discrepancy:</b>	Initial
<b>Device Category:</b>	PORTABLE DEVICES
<b>Date of Test:</b>	September 17, 2013
<b>Applicant:</b>	<b>G-Lab GmbH</b> Schiffbaustrasse 10, 8005 Zürich, Switzerland
<b>Manufacturer:</b>	<b>Hansong(Nanjing) Technology Ltd</b> 8th Kangping Road,Jiangning Economy and Technology Development Zone,Nanjing,211100
<b>Application Type:</b>	Certification

APPLICABLE STANDARDS	
STANDARD	TEST RESULT
FCC 47 CFR Part 15 Subpart C	No non-compliance noted
Canada RSS-210 Issue 8	No non-compliance noted
Canada RSS-Gen Issue 3	No non-compliance noted

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4:2009 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

**Approved by:**

**Tested by:**

Jeff.Fang  
RF Manager  
Compliance Certification Services Inc.

Blent.Wang  
Test Engineer  
Compliance Certification Services Inc.



## 2 EUT DESCRIPTION

<b>Product Name:</b>	All-in-one system with speakers, amplifiers, radio, Bluetooth, streaming via Ethernet and Wifi, HDMI in/out
<b>Trade Name:</b>	GENEVA
<b>Model Name.:</b>	Geneva Sound System Model XXL
<b>Model Discrepancy:</b>	N/A
<b>Power Rating :</b>	Power supply: INPUT: 100-240V~ 50-60HZ FUSE:T6.3A 250V
<b>Frequency Range :</b>	Bluetooth:2402 ~ 2480 MHz
<b>Transmit Power :</b>	0.70dBm(1.17mW)
<b>Modulation Technique :</b>	FHSS
<b>Transmit Data Rate :</b>	GFSK(1 Mbps), $\pi/4$ -DQPSK(2 Mbps),8-DPSK(3 Mbps)
<b>Number of Channels :</b>	79 Channels
<b>Antenna Specification :</b>	PCB Antenna

### Remark:

1. This submittal(s) (test report) is intended for **FCC ID:ZXX-MODELXXL** to comply with Section 15.207, 15.209 and 15.247 of the FCC Part 15, Subpart C Rules.
2. This submittal(s) (test report) is intended for **IC : 10107A-MODELXXL** filing to comply with Canada RSS-210 Issue 8 and Canada RSS-Gen Issue 3 Rules.



## 3 TEST METHODOLOGY

The tests documented in this report were performed in accordance with ANSI C63.4 and FCC CFR 47 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, 2.1055, 2.1057, 15.207, 15.209 ,15.247, RSS-210 and RSS-Gen.

### 3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

### 3.2 EXERCISE EUT

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

### 3.3 GENERAL TEST PROCEDURES

#### Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-peak and average detector modes.

#### Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4.

### 3.4 MODIFICATION

N/A



## 3.5 FCC PART 15.205 RESTRICTED BANDS OF OPERATIONS

- (a) Except as shown in paragraph (d) of this section, only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.0900 - 0.1100	16.420 - 16.423	399.9 - 410.0	4.50 - 5.15
0.4950 - 0.505 <sup>(1)</sup>	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960.0 - 1240	7.25 - 7.75
4.1250 - 4.1280	25.50 - 25.67	1300 - 1427	8.025 - 8.500
4.17725 - 4.17775	37.50 - 38.25	1435.0 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73.0 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.2150 - 6.2180	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108.00 - 121.94	1718.8 - 1722.2	13.25 - 13.40
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.50
8.2910 - 8.2940	149.90 - 150.05	2310 - 2390	15.35 - 16.20
8.3620 - 8.3660	156.52475 - 156.52525	2483.5 - 2500.0	17.7 - 21.4
8.37625 - 8.38675	156.7 - 156.9	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	162.0125 - 167.1700	3260 - 3267	23.6 - 24.0
12.2900 - 12.2930	167.72 - 173.20	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	240 - 285	3345 - 3358	36.43 - 36.5 <sup>(2)</sup>
12.57675 - 12.57725	322.0 - 335.4	3600 - 4400	
13.3600 - 13.4100			

<sup>1</sup> Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz.

<sup>2</sup> Above 38.6

- (b) Except as provided in paragraphs (d) and (e), the field strength of emissions appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.



## 4 INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards, facilities and accreditations

## 5 FACILITIES AND ACCREDITATIONS

### 5.1 FACILTIES

All measurement facilities used to collect the measurement data are located at CCS China Kunshan Lab at 10#Weiye Rd, Innovation Park Eco. & Tec. Development Zone Kunshan city JiangSu, (215300), CHINA.

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22.

### 5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### 5.3 LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 200581-0 to perform Electromagnetic Interference tests according to FCC Part 15 and CISPR 22 requirements. In addition, the test facilities are listed with Industry Canada, Certification and Engineering Bureau, IC5743 for 10m chamber 10m, IC5743 for 10m chamber 3m.



## 5.4 TABLE OF ACCREDITATIONS

Our laboratories are accredited and approved by the following accreditation body according to ISO/IEC 17025.

<b>Taiwan</b>	TAF
<b>USA</b>	A2LA

The measuring facility of laboratories has been authorized or registered by the following approval agencies.

<b>Canada</b>	Industry Canada
<b>Japan</b>	VCCI
<b>Taiwan</b>	BSMI
<b>USA</b>	FCC

Copies of granted accreditation certificates are available for downloading from our web site,  
<http://www.ccsrf.com>



## 5.5 LIST OF MEASURING EQUIPMENT

Conducted Emissions Test Site				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	RS	FSU26	200789	2014-6-30
Bluetooth Tester	RS	CBT	100189	N.C.R
OSCILLOSCOPE	Agilent	DSO6104A	MY44002585	2014-3-14
Peak and Avg Power Sensor	Agilent	E9327A	US40441788	2014-3-14
EPM-P Series Power Meter	Agilent	E4416A	GB41292714	2014-3-14
Power SPLITTER	Mini-Circuits	ZN2PD-9G	SF078500430	N.C.R
DC POWER SUPPLY	AGILENT	E3632A	MY50340053	2014-3-14
Temp. / Humidity Chamber	TERCHY	MHK-120AK	X30109	2014-1-24
Test Software	EZ-EMC			

977 Chamber				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Spectrum Analyzer	Agilent	E4446A	MY44020154	2014-4-16
Pre-Amplifier	MITEQ	JS41-00101800-32-10P	1675713	2013-10-8
Pre-Amplifier	MITEQ	NSP400-NF	870731	2014-4-26
Bilog Antenna	Sunol Sciences	JB1	A062604	2014-5-2
Horn-antenna	SCHWARZBECK	BBHA9120D	D:267	2014-4-28
Turn Table	CT	CT123	4165	N.C.R
Antenna Tower	CT	CTERG23	3256	N.C.R
Controller	CT	CT100	95637	N.C.R
Test Software	EZ-EMC			

Conducted Emission				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
EMI TEST RECEIVER	R&S	ESCI3	100781	2014-3-14
V (V-LISN)	Schwarzbeck	NNLK 8129	8129-143	2014-3-14
LISN (EUT)	FCC	FCC-LISN-50/250-50-2-02	SN:05012	2014-3-14
TRANSIENT LIMITER	SCHAFFNER	CFL9206	1710	2014-3-14
Test Software	EZ-EMC			

**Remark:** Each piece of equipment is scheduled for calibration once a year.



## 5.6 SETUP CONFIGURATION

See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

## 5.7 SUPPORT EQUIPMENT

No.	Device Type	Brand	Model	Series No.	FCC ID
1.	Notebook	DELL	E5430	CN8YYW1	N/A

### Remark:

- 1.All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
- 2.Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.



## 6 FCC PART 15.247 REQUIREMENTS

### 6.1 PEAK POWER

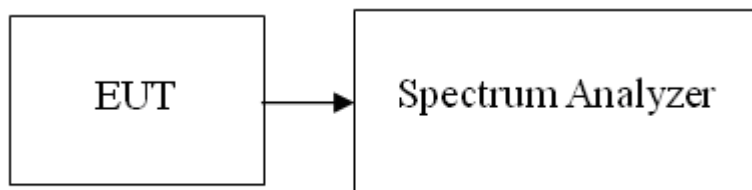
#### Limit

The maximum peak output power of the intentional radiator shall not exceed the following:

1. According to §15.247(a)(1), Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.
2. According to §15.247(b)(3), for systems using digital modulation in the bands of 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz: 1 Watt.
3. According to §15.247(b)(4), the conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

**Remark:** Each piece of equipment is scheduled for calibration once a year.

#### Test Configuration



#### Test Procedure

The transmitter output is connected to the spectrum analyzer. Set the RBW = 3MHz , VBW = 3MHz, Detector = Peak, Trace mode = max hold, Sweep = auto couple. Record the max reading.

Repeat the above procedure until the measurements for all frequencies are completed.



## Test Results

No non-compliance noted

### Test RESULTS

#### 1M GFSK Modulation mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Limit (mW)	Result
Low	2402	0.55	1.14	125	PASS
Mid	2441	<b>0.65</b>	<b>1.16</b>		PASS
High	2480	0.38	1.09		PASS

#### 3M 8-DPSK Modulation mode

Channel	Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Limit (mW)	Result
Low	2402	0.45	1.11	125	PASS
Mid	2441	<b>0.70</b>	<b>1.17</b>		PASS
High	2480	0.41	1.10		PASS



# Compliance Certification Services Inc.

Report No: C130918R02-RPB

FCC ID: ZXX-MODELXL

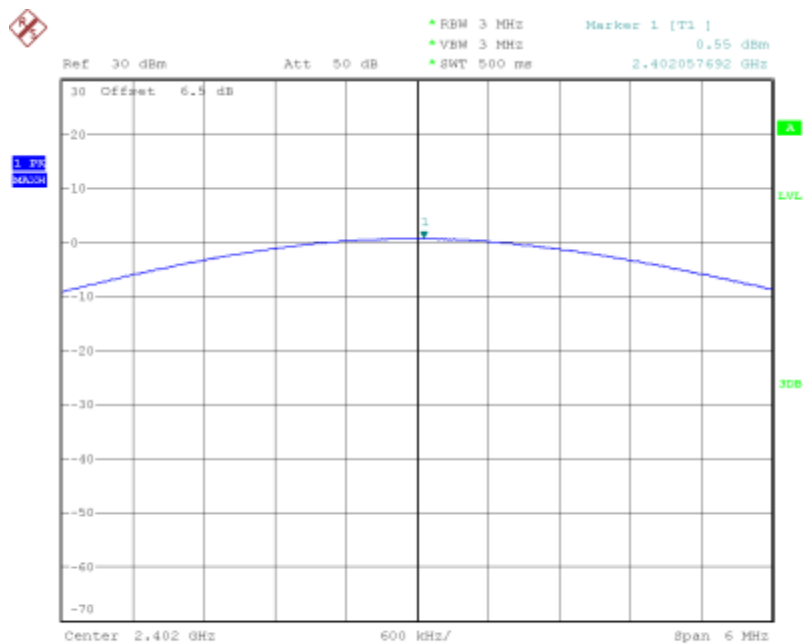
Date of Issue :September 25, 2013

IC :10107A-MODELXXL

## Test Data

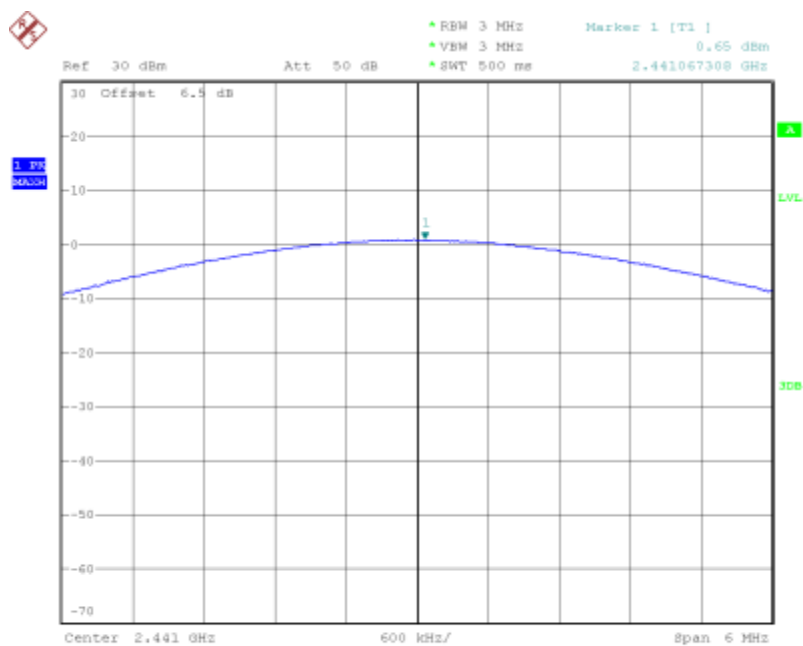
### 1M

### Ch low



Date: 18.SEP.2013 11:49:33

### CH Mid



Date: 18.SEP.2013 11:50:09



# Compliance Certification Services Inc.

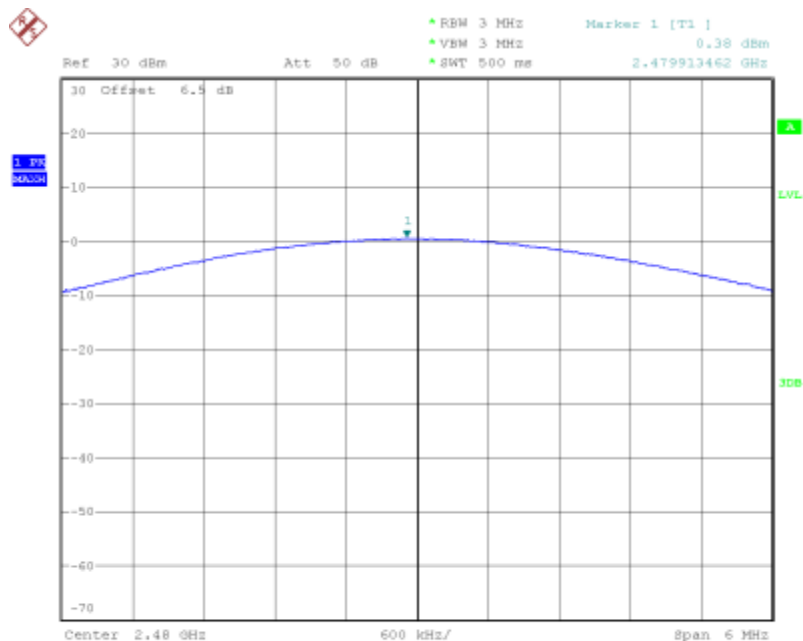
Report No: C130918R02-RPB

FCC ID: ZXX-MODELXL

Date of Issue :September 25, 2013

IC :10107A-MODELXXL

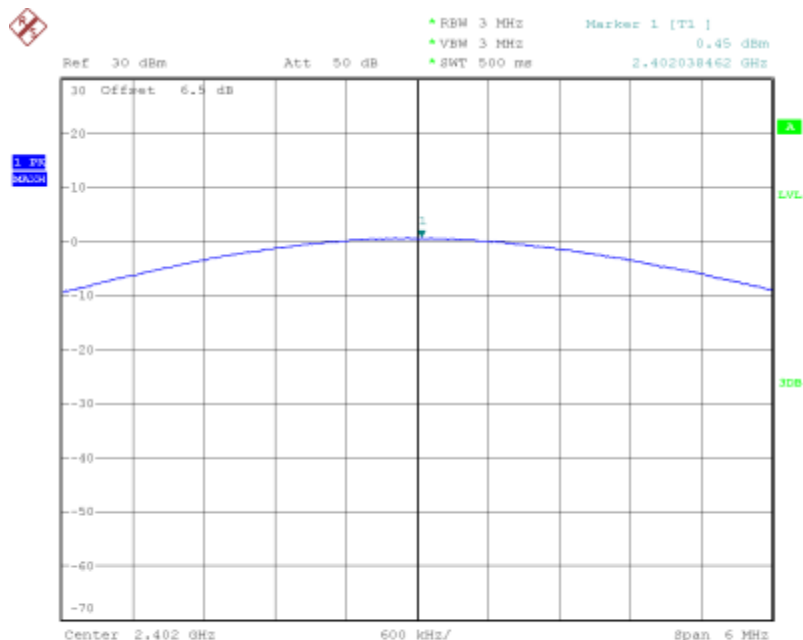
## CH High



Date: 18.SEP.2013 11:50:30

## 3M

## Ch low



Date: 18.SEP.2013 11:56:29



# Compliance Certification Services Inc.

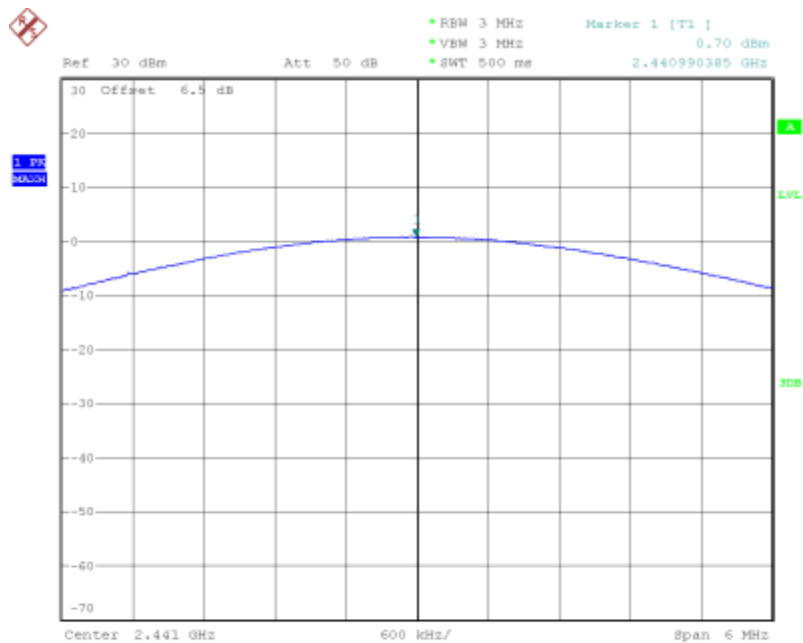
Report No: C130918R02-RPB

FCC ID: ZXX-MODELXL

Date of Issue :September 25, 2013

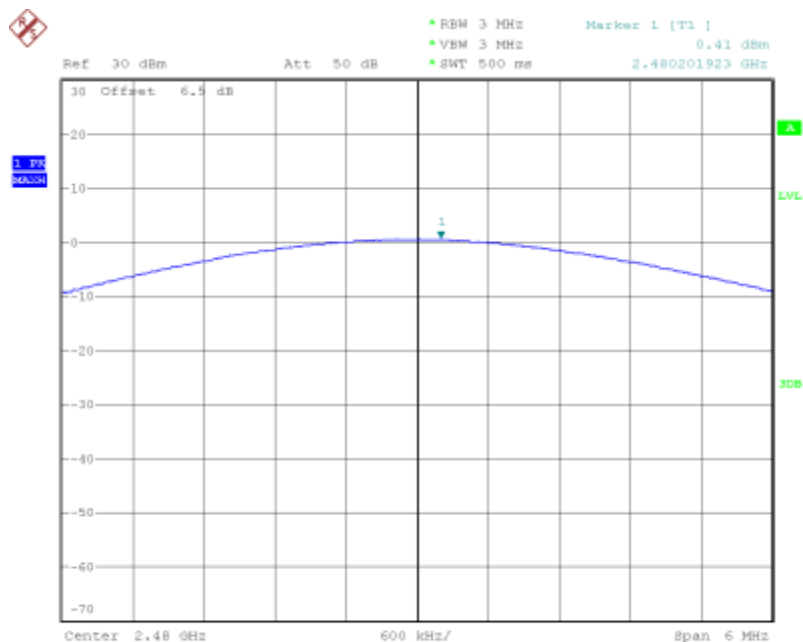
IC :10107A-MODELXXL

## Ch mid



Date: 18.SEP.2013 11:56:56

## Ch High



Date: 18.SEP.2013 11:57:22

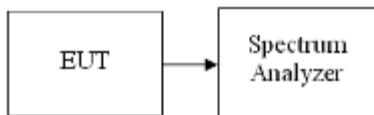


## 6.2 PEAK POWER SPECTRAL DENSITY

### Limit

1. For direct sequence systems, the peak power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.
2. The direct sequence operating of the hybrid system, with the frequency hopping operation turned off, shall comply with the power density requirements of paragraph (d) of this section.

### Test Configuration



### Test Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 3kHz, VBW = 10kHz, Span = 300kHz, Sweep=100s
4. Record the max. reading.
5. Repeat the above procedure until the measurements for all frequencies are completed.

### Test Results

NA (this test item is not required for FHSS modulation technical)

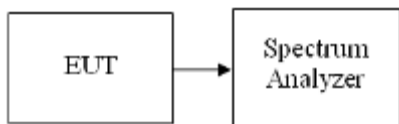


## 6.3 HOPPING CHANNEL BANDWIDTH

### Limit

According to §15.247(a)(1), Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

### Test Configuration



### Test Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set the spectrum analyzer as RBW = 30kHz, VBW = 100kHz, Span = 2MHz, Sweep = auto.
4. Max hold, mark 2 peaks of hopping channel and record the 2 peaks frequency.



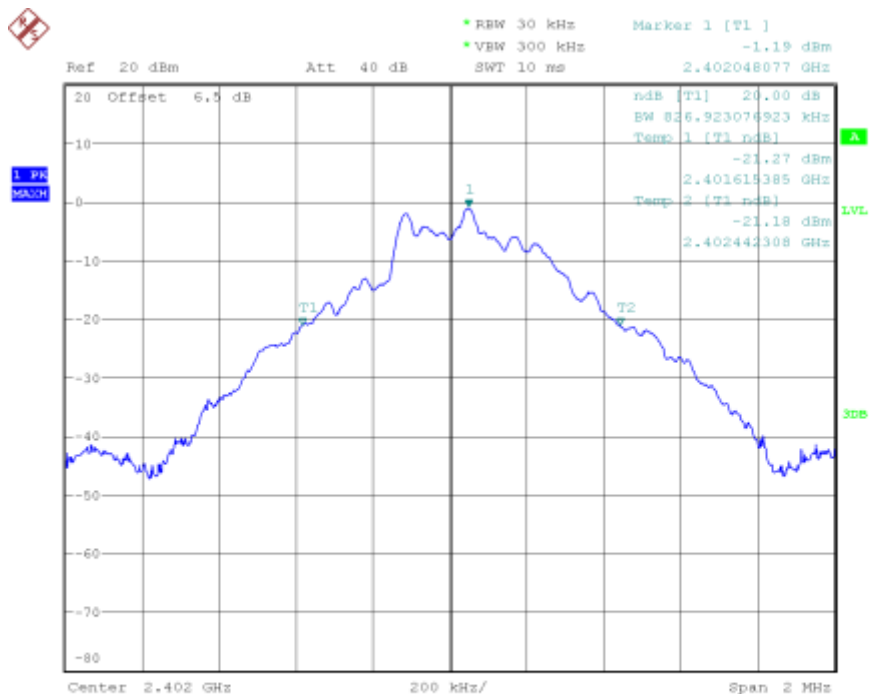
## Test Results of 20dB Bandwidth

No non-compliance noted

Operation Mode:	1 Mbps	Test Date:	September 18, 2013
Temperature:	24°C	Tested by:	Blent.Wang

Channel	Frequency(MHz)	20dB Bandwith(MHz)
00	2402	0.827
39	2441	0.824
78	2480	0.811

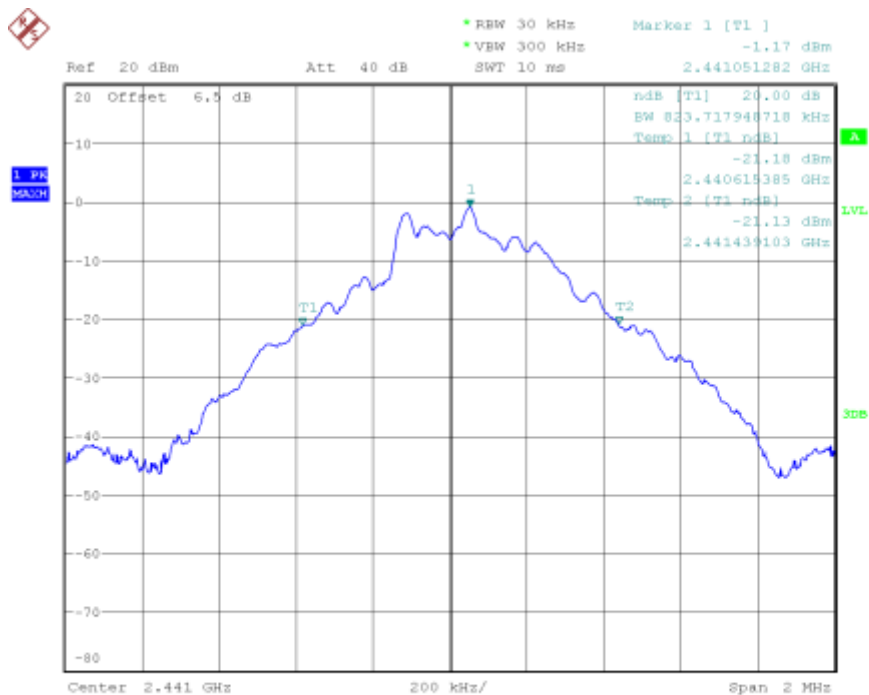
## 20 dB Bandwidth Plot on Channel 00



Date: 18.SEP.2013 12:41:08

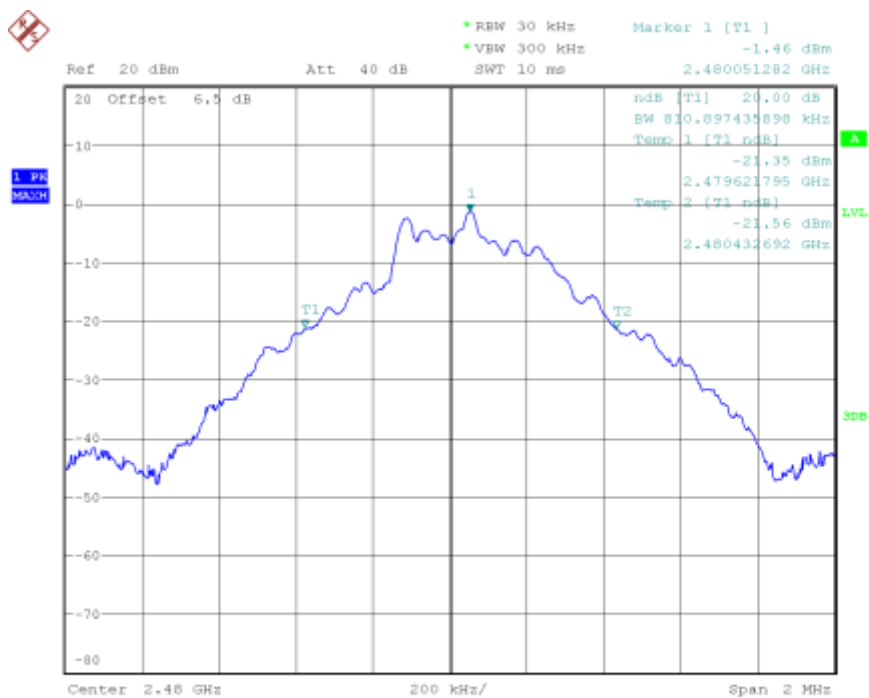


## 20 dB Bandwidth Plot on Channel 39



Date: 18.SEP.2013 12:41:40

## 20 dB Bandwidth Plot on Channel 78



Date: 18.SEP.2013 12:42:00



# Compliance Certification Services Inc.

Report No: C130918R02-RPB

FCC ID: ZXX-MODELXL

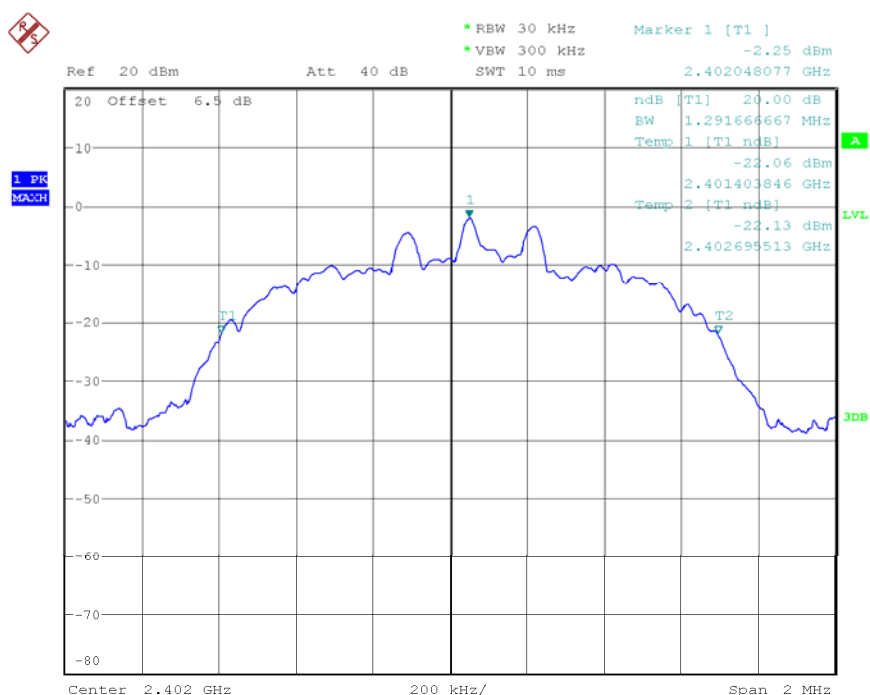
Date of Issue :September 25, 2013

IC :10107A-MODELXXL

Operation Mode:	3 Mbps	Test Date:	September 18, 2013
Temperature:	24°C	Tested by:	Blent.Wang

Channel	Frequency(MHz)	20dB Bandwith(MHz)
00	2402	1.292
39	2441	1.288
78	2480	1.285

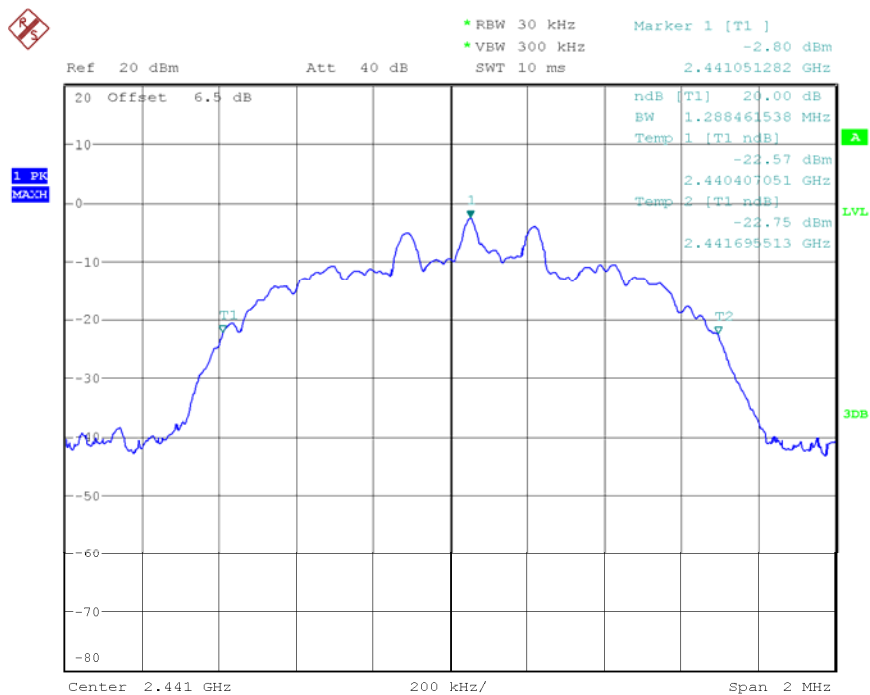
## 20 dB Bandwidth Plot on Channel 00



Date: 18.SEP.2013 12:44:39

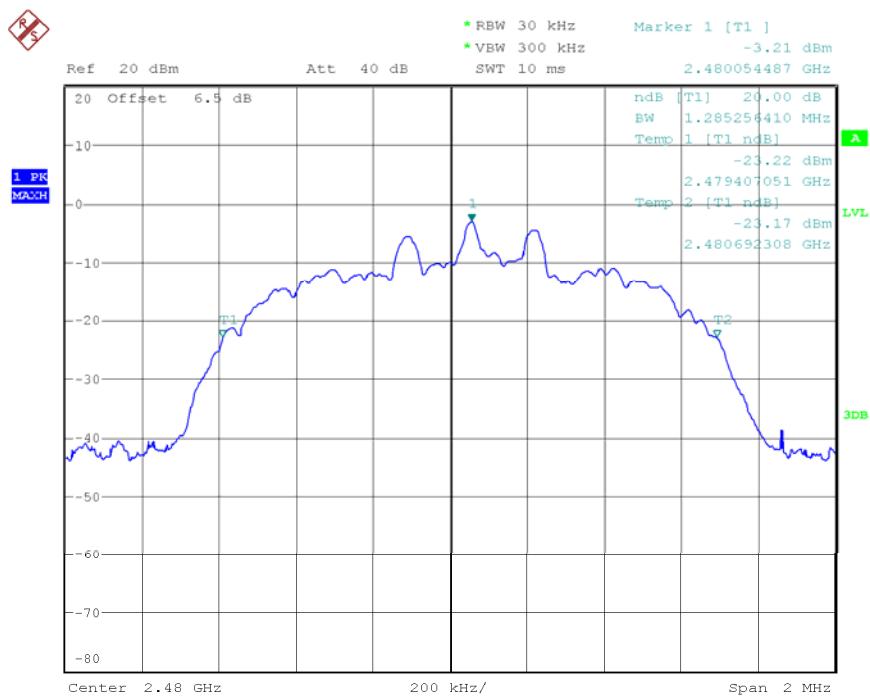


## 20 dB Bandwidth Plot on Channel 39



Date: 18.SEP.2013 12:45:16

## 20 dB Bandwidth Plot on Channel 78



Date: 18.SEP.2013 12:46:28



Date of Issue :September 25, 2013

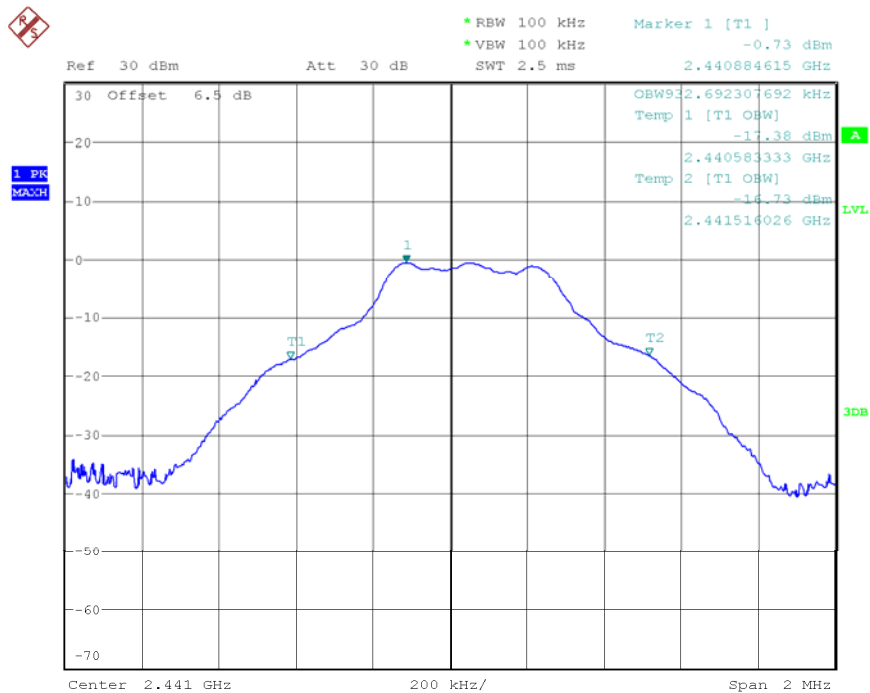
## Test Result of 99% Occupied Bandwidth

Channel	Frequency(MHz)	99% Occupied Bandwidth(MHz)
00	2402	0.929
39	2441	0.933
78	2480	0.923



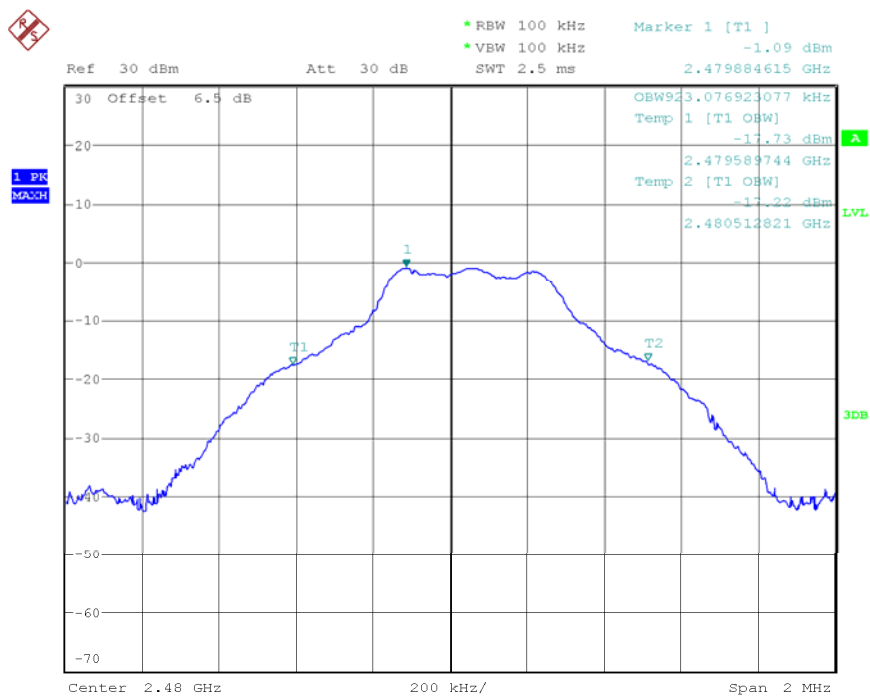


## 99% Bandwidth Plot on Channel 39



Date: 22.SEP.2013 15:11:33

## 99% Bandwidth Plot on Channel 78



Date: 22.SEP.2013 15:11:50



# Compliance Certification Services Inc.

Report No: C130918R02-RPB

FCC ID: ZXX-MODELXL

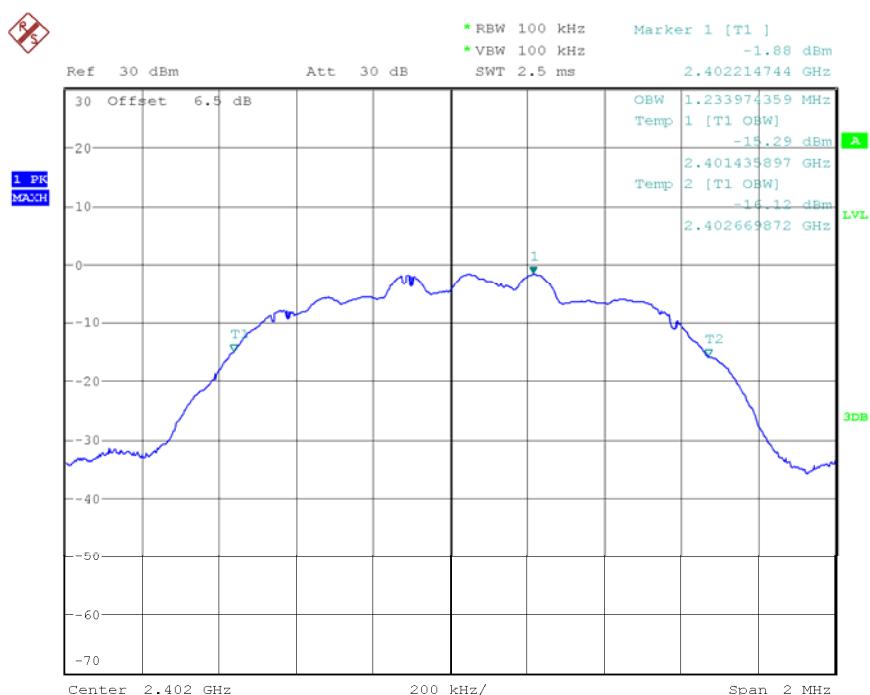
Date of Issue :September 25, 2013

IC :10107A-MODELXXL

Operation Mode:	3 Mbps	Test Date:	September 22, 2013
Temperature:	24°C	Tested by:	Blent.Wang

Channel	Frequency(MHz)	99% Occupied Bandwidth(MHz)
00	2402	1.234
39	2441	1.224
78	2480	1.221

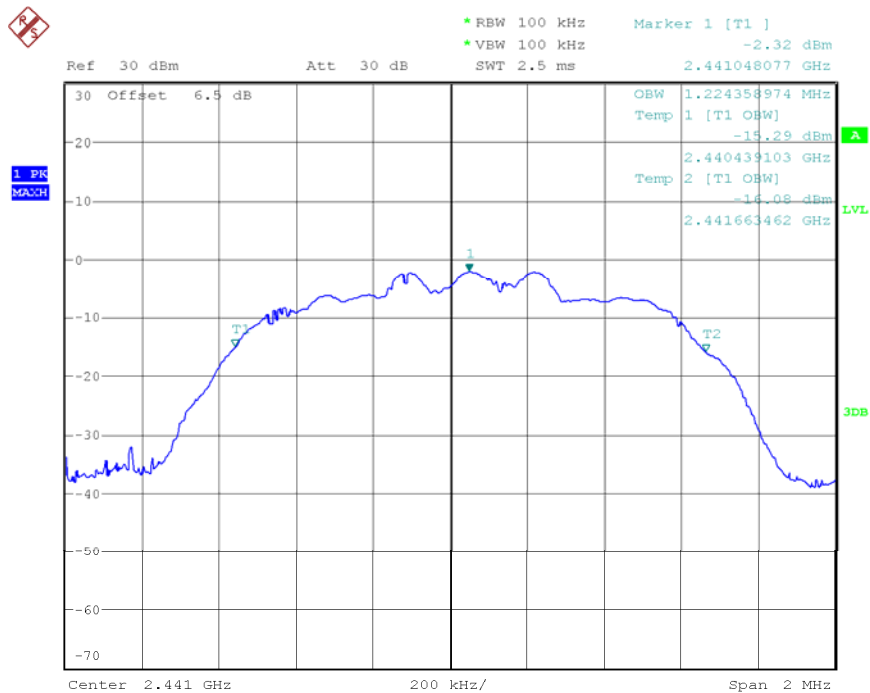
## 99% Bandwidth Plot on Channel 00



Date: 22.SEP.2013 15:12:28

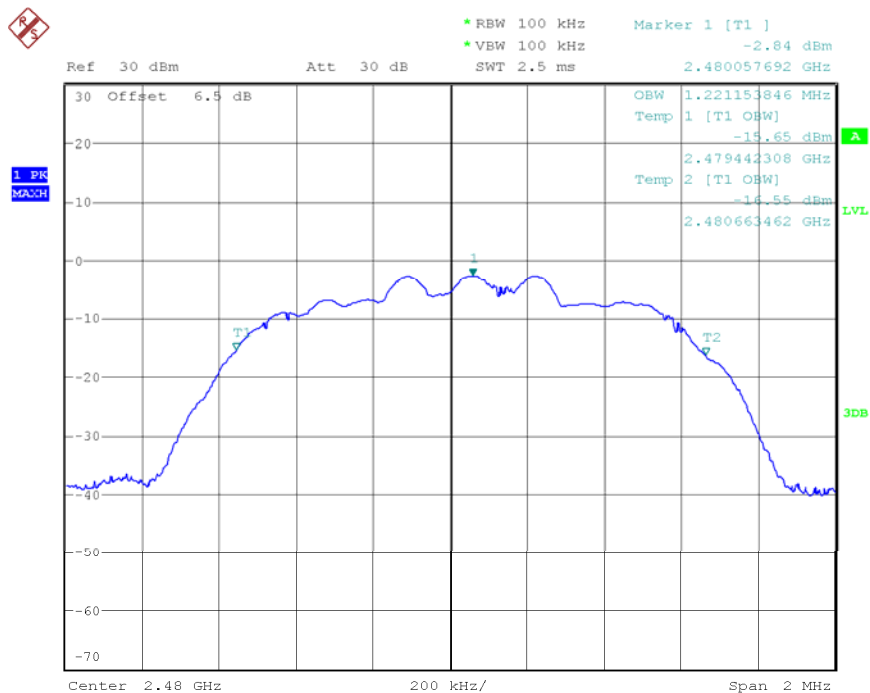


## 99% Bandwidth Plot on Channel 39



Date: 22.SEP.2013 15:12:49

## 99% Bandwidth Plot on Channel 78



Date: 22.SEP.2013 15:13:21

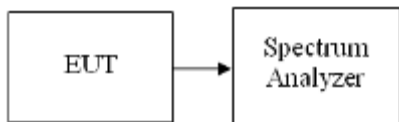


## 6.4 HOPPING CHANNEL SEPARATION

### LIMIT

According to §15.247(a)(1) Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

### Test Configuration



### TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = middle of hopping channel.
4. Set the spectrum analyzer as RBW = 30kHz, VBW = 100kHz, Span = 3MHz, Sweep = auto.
5. Max hold, mark 2 peaks of hopping channel and record the 2 peaks frequency.



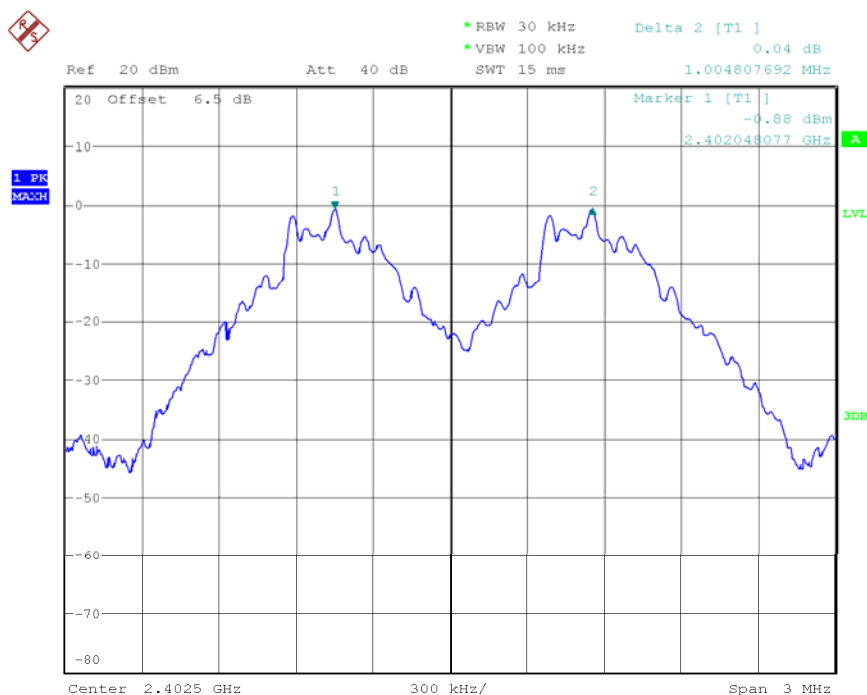
## TEST RESULTS

No non-compliance noted

Operation Mode:	1 Mbps	Test Date:	September 18, 2013
Temperature:	24°C	Tested by:	Blent.Wang

Channel	Frequency	Separation	(2/3 of 20dB BW)	Result
	(MHz)	(MHz)	Limits (MHz)	
0~1	2402~2403	1.005	0.551	Pass
38~39	2440~2441	1.005	0.549	Pass
77~78	2479~2480	1.000	0.541	Pass

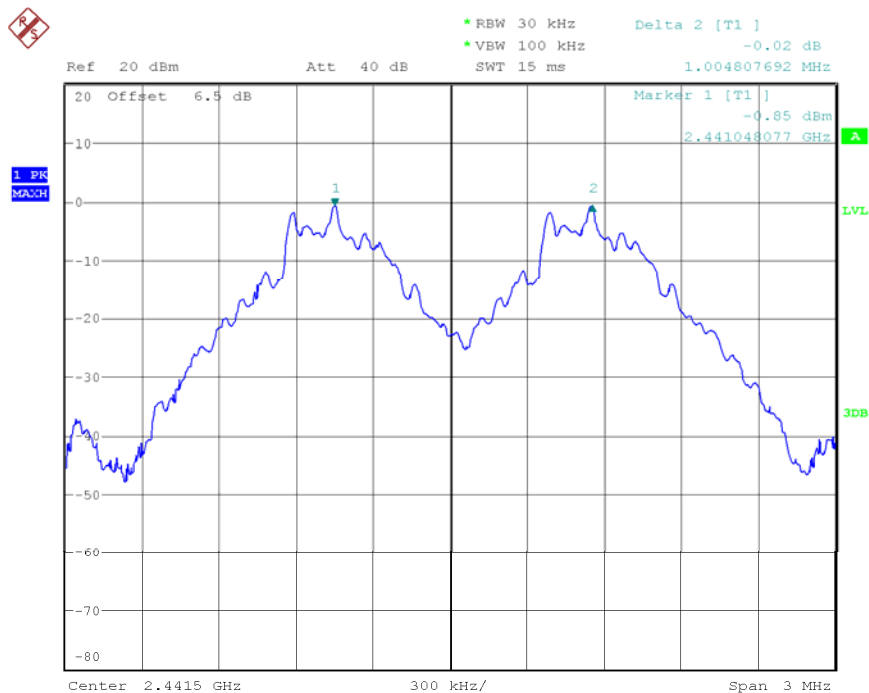
Channel Separation Plot on Channel 00-01



Date: 18.SEP.2013 14:47:12

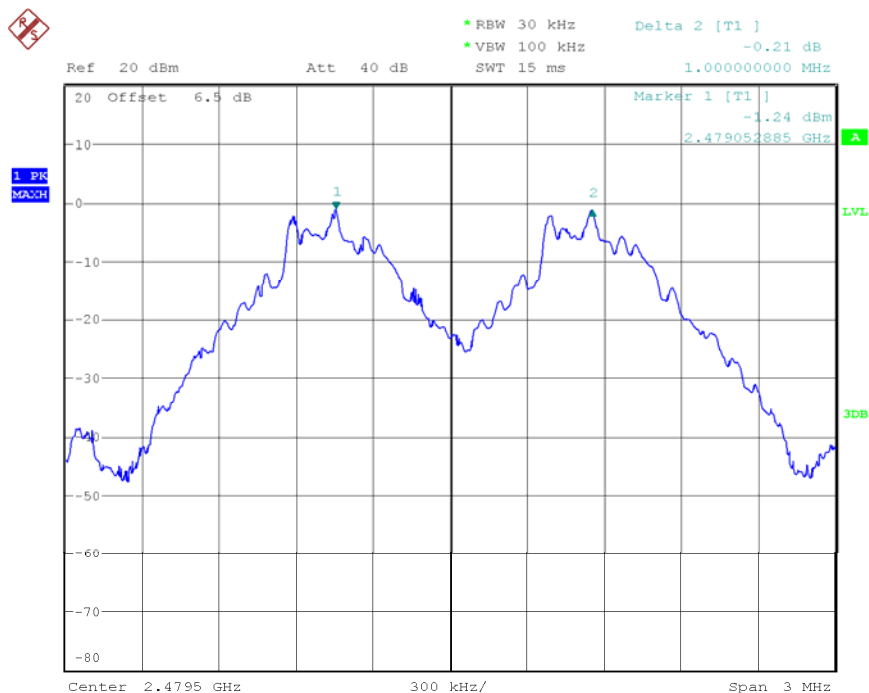


## Channel Separation Plot on Channel 38-39



Date: 18.SEP.2013 14:47:47

## Channel Separation Plot on Channel 77-78



Date: 18.SEP.2013 14:48:43



# Compliance Certification Services Inc.

Report No: C130918R02-RPB

FCC ID: ZXX-MODELXL

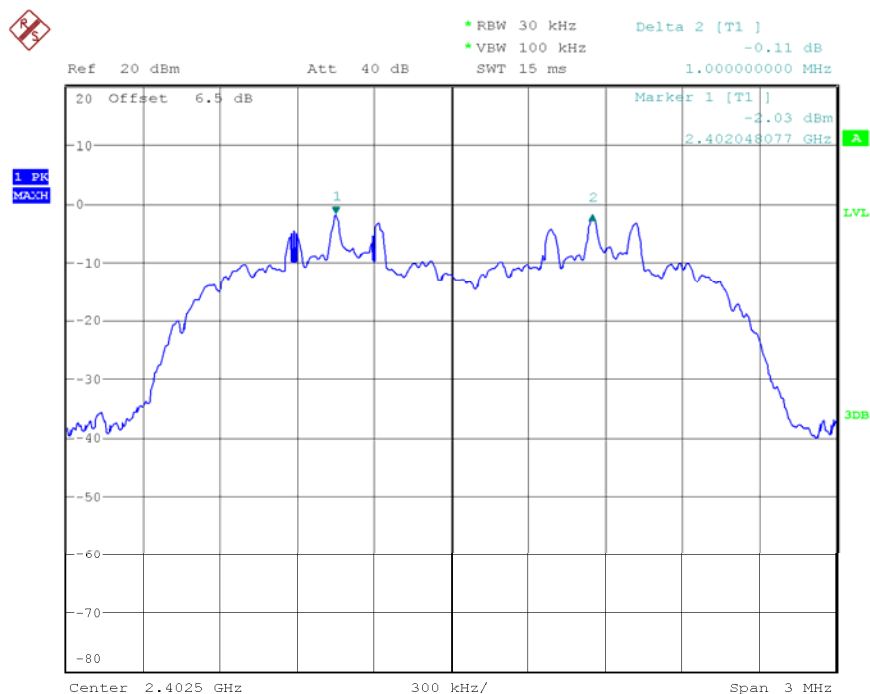
Date of Issue :September 25, 2013

IC :10107A-MODELXXL

Operation Mode:	3 Mbps	Test Date:	September 18, 2013
Temperature:	24°C	Tested by:	Blent.Wang

Channel	Frequency	Separation	(2/3 of 20dB BW)	Result
	(MHz)	(MHz)	Limits (MHz)	
0~1	2402~2403	1.000	0.861	Pass
38~39	2440~2441	1.005	0.859	Pass
77~78	2479~2480	1.005	0.857	Pass

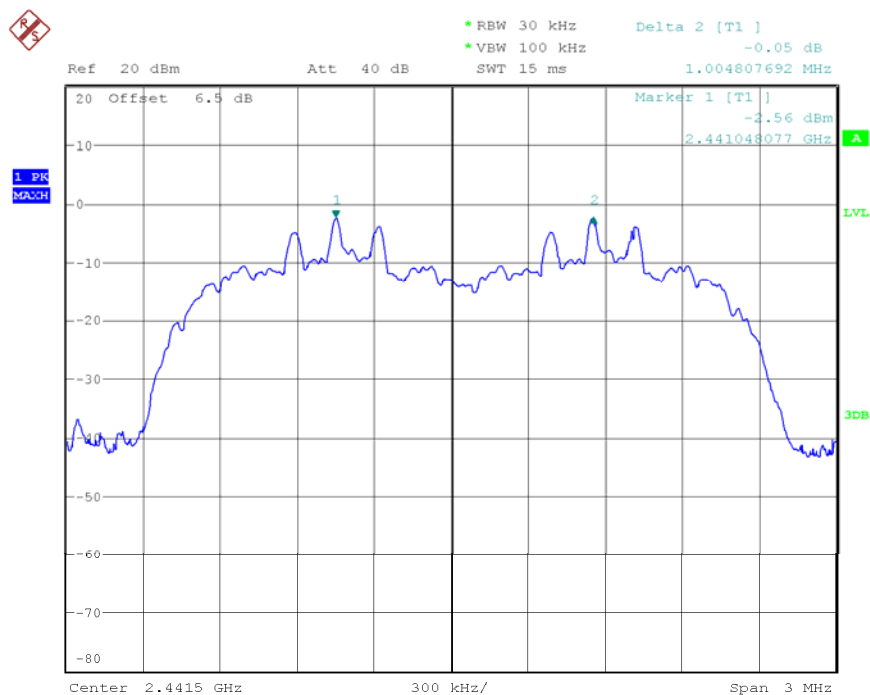
## Channel Separation Plot on Channel 00-01



Date: 18.SEP.2013 14:50:20

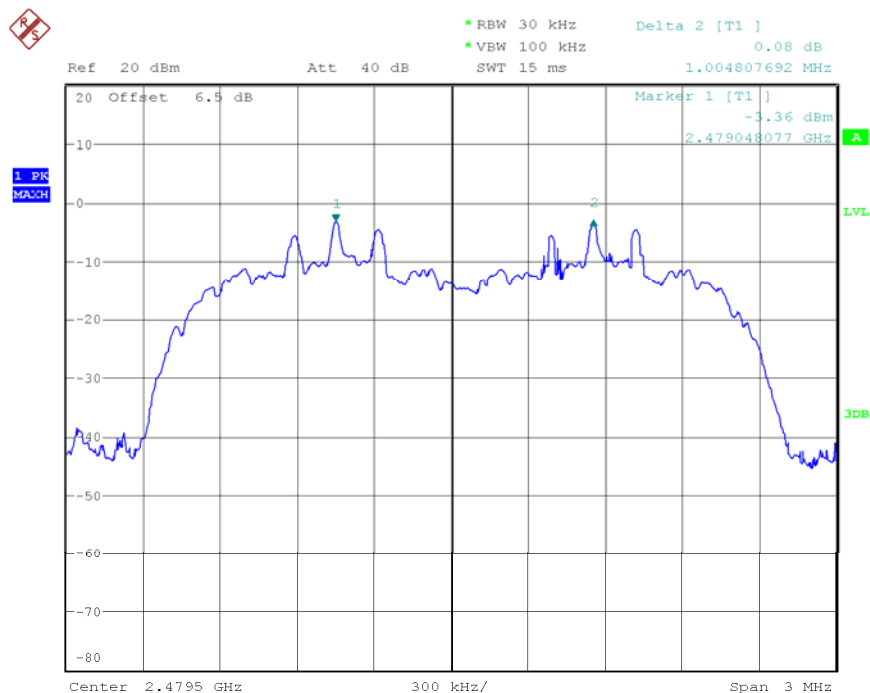


## Channel Separation Plot on Channel 38-39



Date: 18.SEP.2013 14:51:17

## Channel Separation Plot on Channel 77-78



Date: 18.SEP.2013 14:52:42

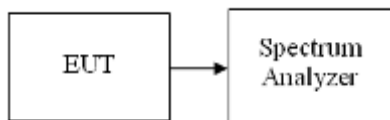


## 6.5 NUMBER OF HOPPING FREQUENCY

### LIMIT

According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz bands shall use at least 15 hopping frequencies.

### Test Configuration



### TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set spectrum analyzer Start=2400MHz, Stop = 2441.5MHz, Sweep = auto and Start=2441.5MHz, Stop = 2483.5MHz, Sweep = auto.
4. Set the spectrum analyzer as RBW, VBW=1MHz.
5. Max hold, view and count how many channel in the band.

### TEST RESULTS

*No non-compliance noted*

### Test Data

Operation Mode:	1 Mbps	Test Date:	September 18, 2013
Temperature:	24°C	Tested by:	Blent.Wang

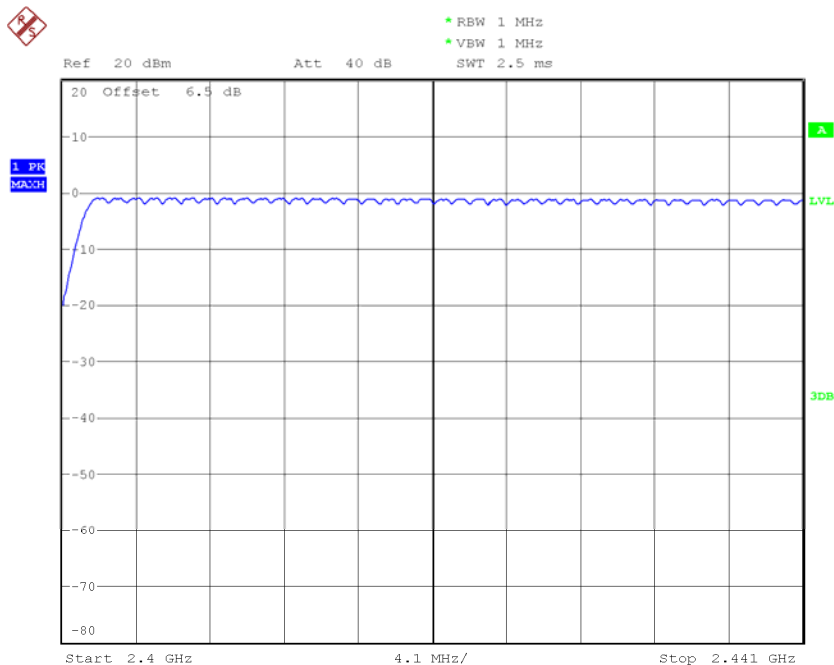
Result (No. of CH)	Limit (No. of CH)	Result
79	>15	PASS



## Test Plot

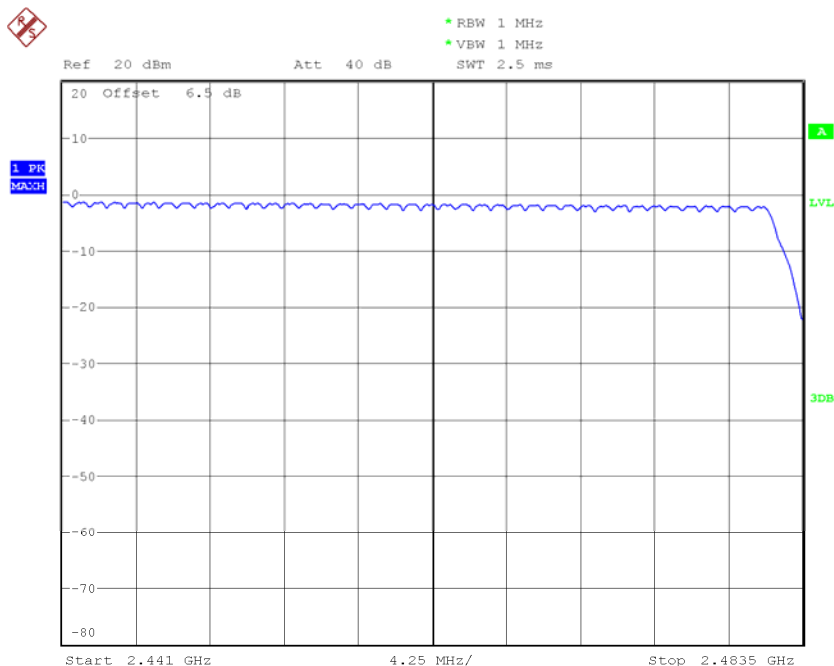
### Channel Number

2.4 GHz – 2.4415 GHz



Date: 18.SEP.2013 13:06:50

### 2.4415 GHz – 2.4835 GHz



Date: 18.SEP.2013 13:11:07

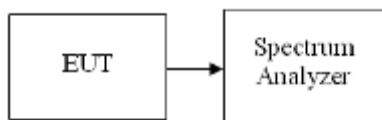


## 6.6 TIME OF OCCUPANCY (DWELL TIME)

### LIMIT

According to §15.247(a)(1)(iii), Frequency hopping systems operating in the 2400MHz-2483.5 MHz bands. The average time of occupancy on any channels shall not greater than 0.4 s within a period 0.4 s multiplied by the number of hopping channels employed.

### Test Configuration



### TEST PROCEDURE

1. Place the EUT on the table and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to the spectrum analyzer.
3. Set center frequency of spectrum analyzer = operating frequency.
4. Set the spectrum analyzer as RBW, VBW=1MHz, Span = 0Hz, Sweep = auto.
5. Repeat above procedures until all frequency measured were complete.

### TEST RESULTS

*No non-compliance noted*

#### Test Data

1M

DH 1

$$0.409 * (1600/2)/79 * 31.6 = 130.88(\text{ms})$$

Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
0.409	130.88	31.60	400	PASS

DH 3

$$1.659 * (1600/4)/79 * 31.6 = 265.44 (\text{ms})$$

Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
1.659	265.44	31.60	400	PASS

DH 5

$$2.917 * (1600/6)/79 * 31.6 = 311.15 (\text{ms})$$

Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
2.917	311.15	31.60	400	PASS



3M

DH 1

$$0.417 * (1600/2)/79 * 31.6 = 133.44 \text{ (ms)}$$

Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
0.417	133.44	31.60	400	PASS

DH 3

$$1.667 * (1600/4)/79 * 31.6 = 266.72 \text{ (ms)}$$

Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
1.667	266.72	31.60	400	PASS

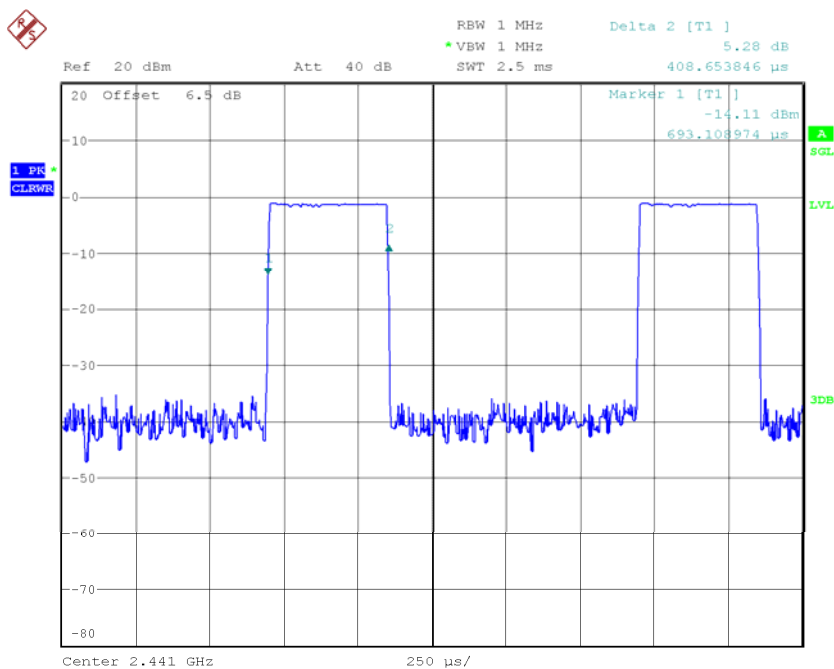
DH 5

$$2.917 * (1600/6)/79 * 31.6 = 311.15 \text{ (ms)}$$

Pulse Time (ms)	Total of Dwell (ms)	Period Time (s)	Limit (ms)	Result
2.917	311.15	31.60	400	PASS

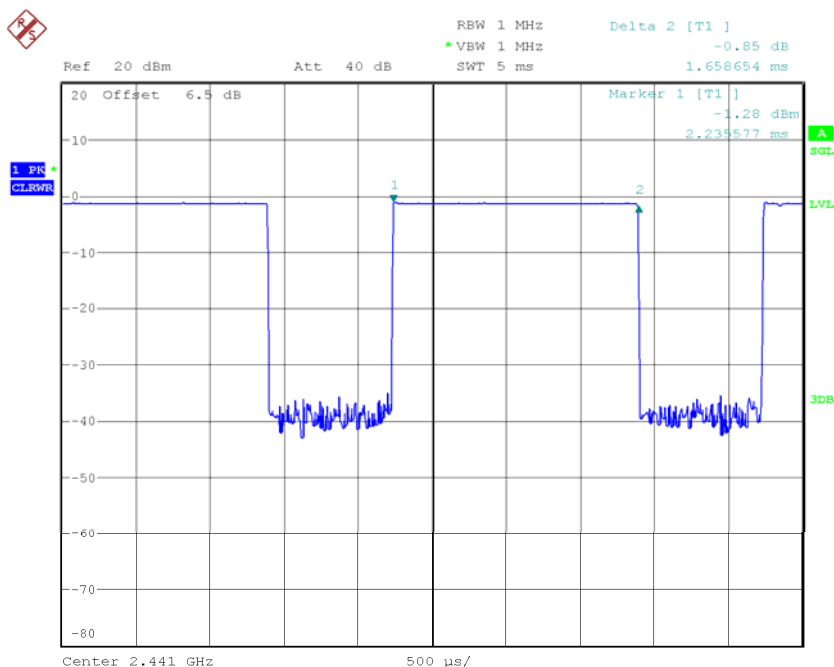


## 1M-DH1



Date: 25.SEP.2013 11:09:12

## 1M-DH3



Date: 25.SEP.2013 11:13:03



# Compliance Certification Services Inc.

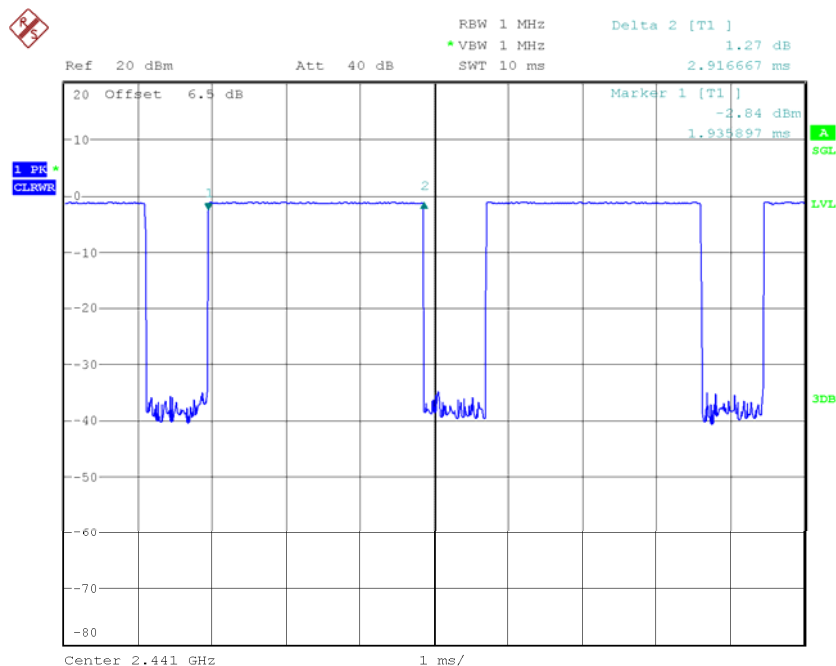
Report No: C130918R02-RPB

FCC ID: ZXX-MODELXL

Date of Issue :September 25, 2013

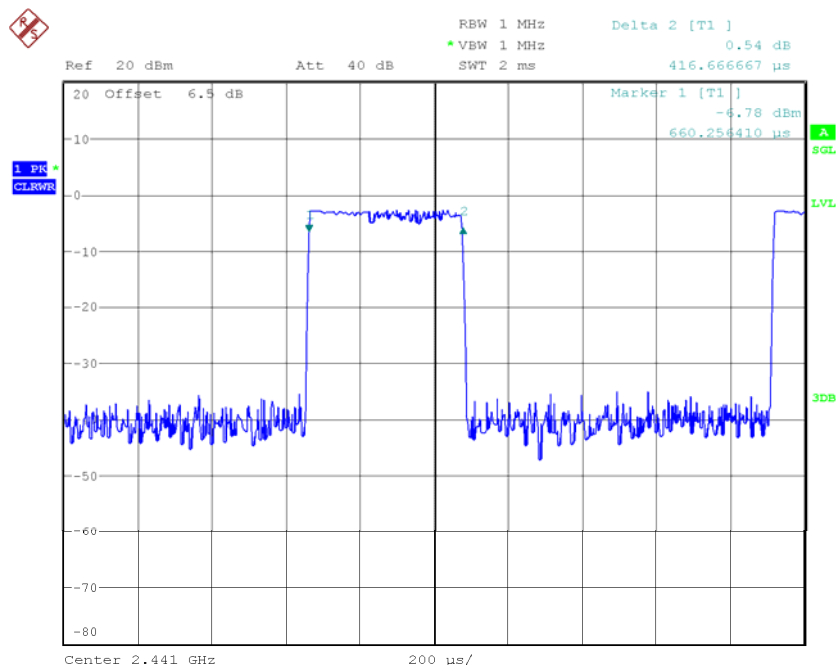
IC :10107A-MODELXXL

## 1M-DH5



Date: 25.SEP.2013 11:14:31

## 3M-DH1



Date: 25.SEP.2013 11:16:08



# Compliance Certification Services Inc.

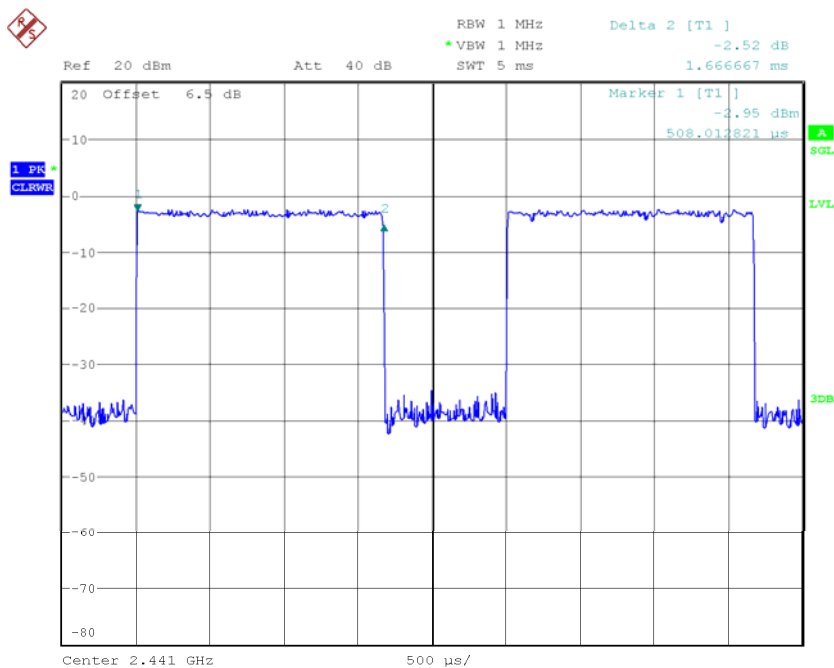
Report No: C130918R02-RPB

FCC ID: ZXX-MODELXL

Date of Issue :September 25, 2013

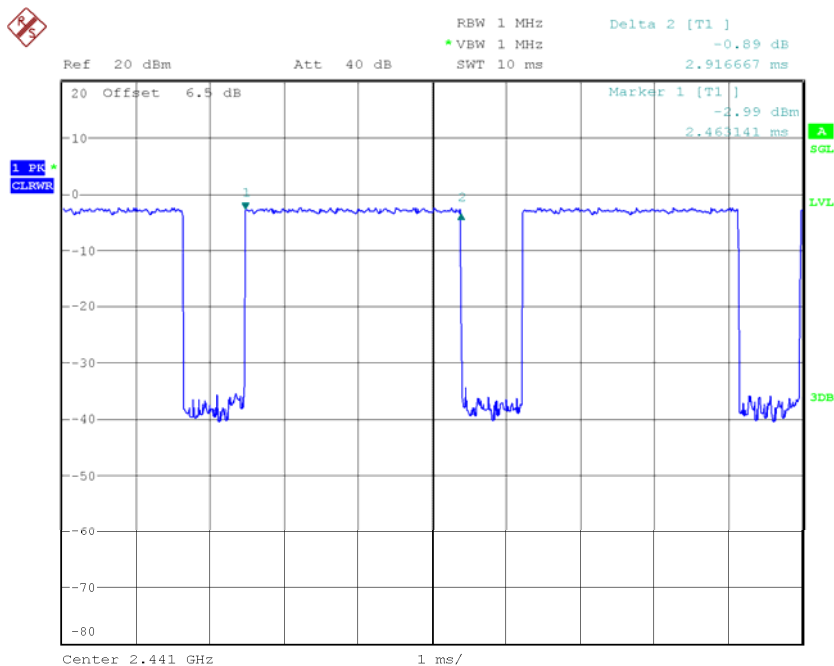
IC :10107A-MODELXXL

## 3M-DH3



Date: 25.SEP.2013 11:16:49

## 3M-DH5



Date: 25.SEP.2013 11:17:39



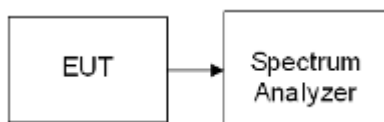
## 6.7 SPURIOUS EMISSION

### Conducted Measurement

#### 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. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

#### Test Configuration



#### TEST PROCEDURE

Conducted RF measurements of the transmitter output were made to confirm that the EUT antenna port conducted emissions meet the specified limit and to identify any spurious signals that require further investigation or measurements on the radiated emissions site.

The transmitter output is connected to the spectrum analyzer. The resolution bandwidth is set to 100 KHz. The video bandwidth is set to 100 KHz.

Measurements are made over the 30MHz to 26GHz range with the transmitter set to the lowest, middle, and highest channels.

#### TEST RESULTS

*No non-compliance noted*



# Compliance Certification Services Inc.

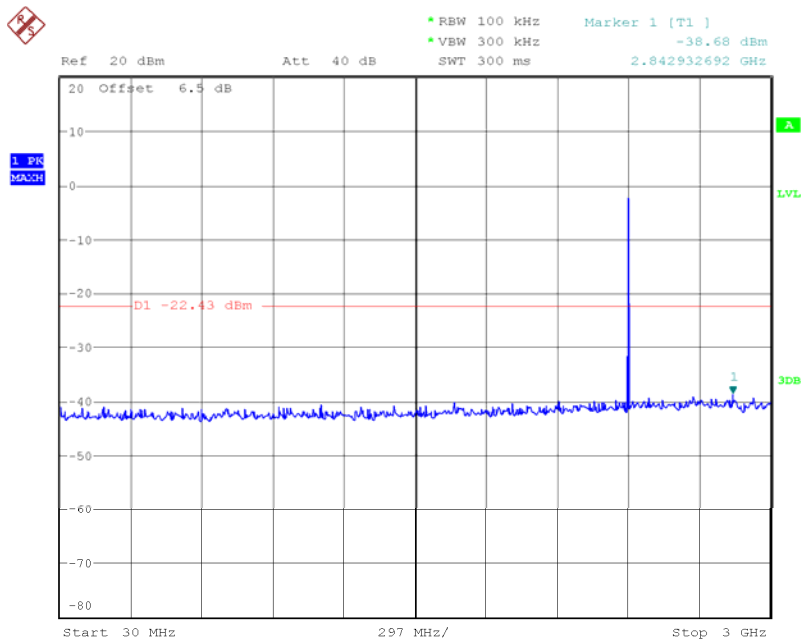
Report No: C130918R02-RPB

FCC ID: ZXX-MODELXL

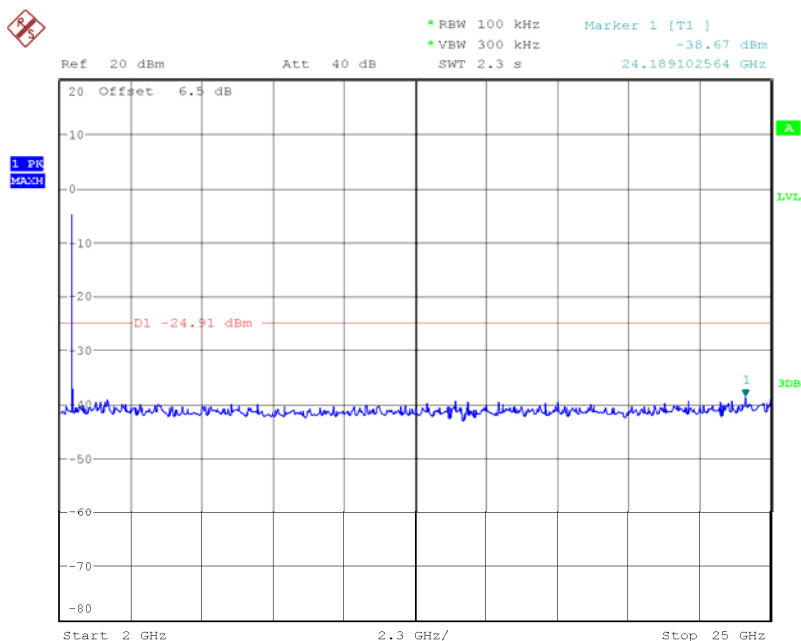
Date of Issue :September 25, 2013

IC :10107A-MODELXXL

Operation Mode:	1 Mbps	Test Date:	September 18, 2013
Test Channel:	00	Tested by:	Blent.Wang
Humidity:	52 % RH	Temperature:	24°C



Date: 18.SEP.2013 15:42:45



Date: 18.SEP.2013 15:43:39



# Compliance Certification Services Inc.

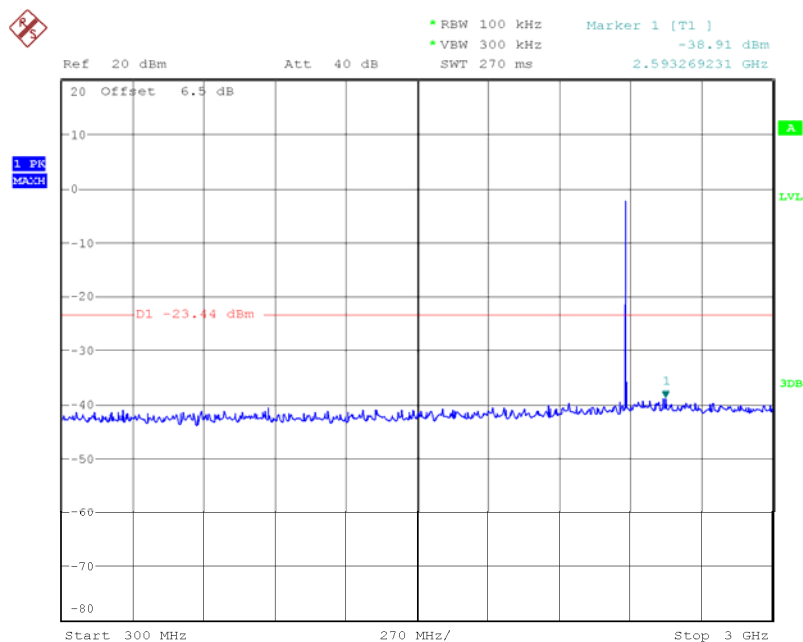
Report No: C130918R02-RPB

FCC ID: ZXX-MODELXL

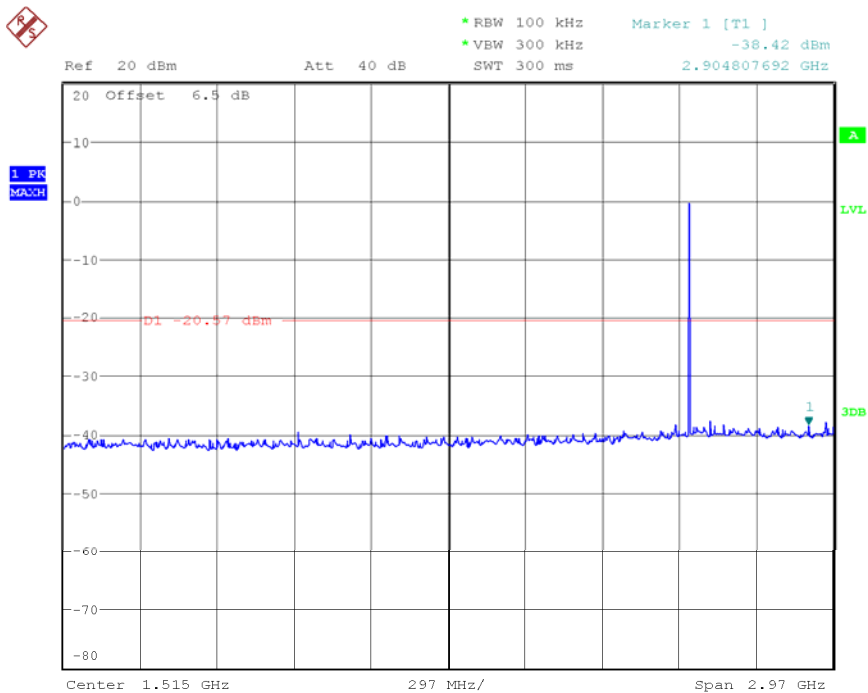
Date of Issue :September 25, 2013

IC :10107A-MODELXXL

Operation Mode:	1 Mbps	Test Date:	September 18, 2013
Test Channel:	39	Tested by:	Blent.Wang
Humidity:	52 % RH	Temperature:	24°C



Date: 18.SEP.2013 15:44:47



Date: 25.SEP.2013 17:37:56



# Compliance Certification Services Inc.

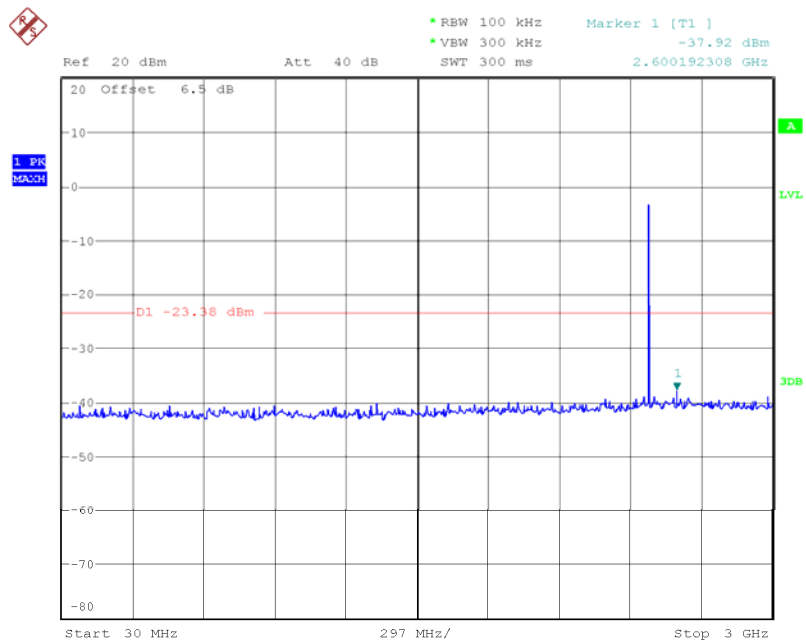
Report No: C130918R02-RPB

FCC ID: ZXX-MODELXL

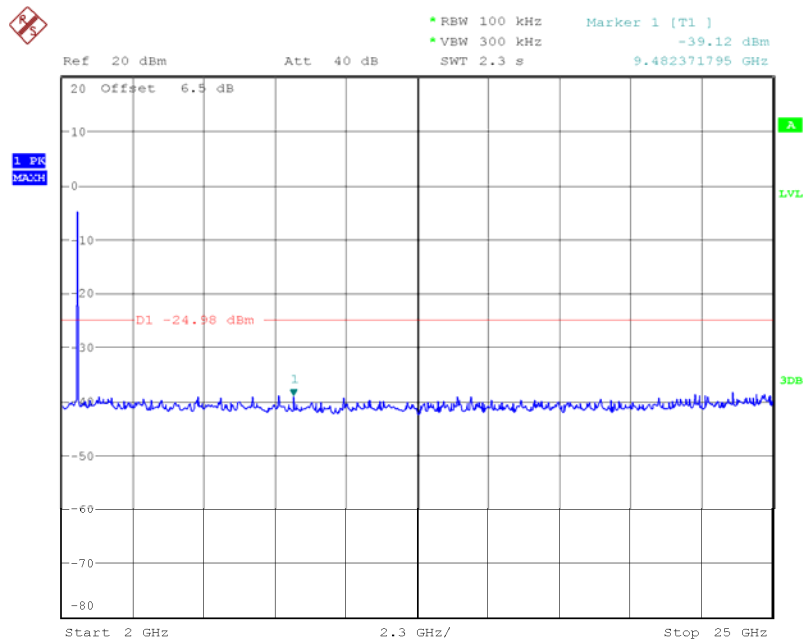
Date of Issue :September 25, 2013

IC :10107A-MODELXXL

Operation Mode:	1 Mbps	Test Date:	September 18, 2013
Test Channel:	78	Tested by:	Blent.Wang
Humidity:	52 % RH	Temperature:	24°C



Date: 18.SEP.2013 15:47:45



Date: 18.SEP.2013 15:48:58



# Compliance Certification Services Inc.

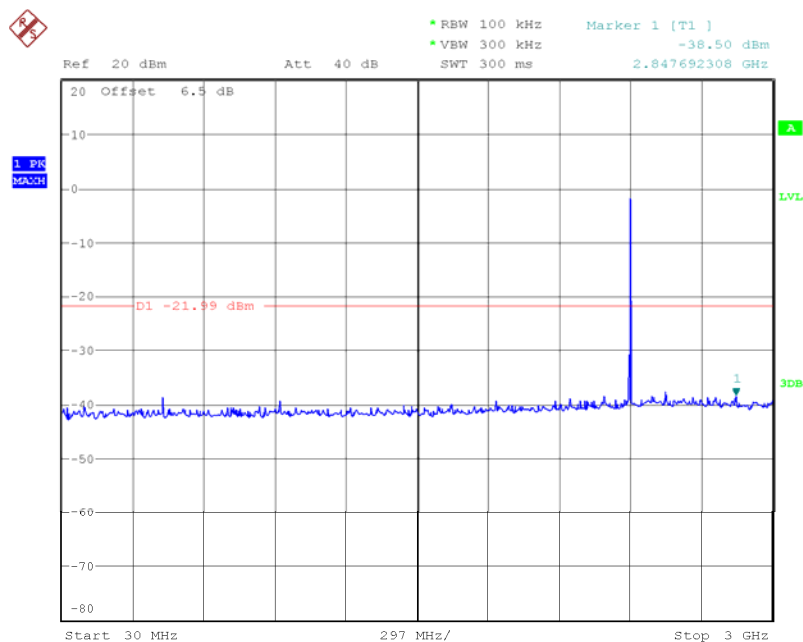
Report No: C130918R02-RPB

FCC ID: ZXX-MODELXL

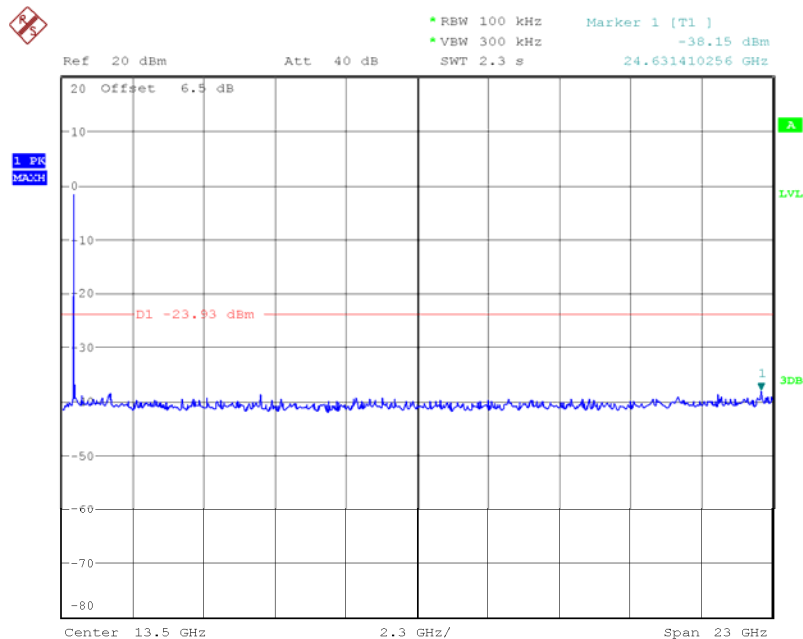
Date of Issue :September 25, 2013

IC :10107A-MODELXXL

Operation Mode:	3 Mbps	Test Date:	September 25, 2013
Test Channel:	00	Tested by:	Blent.Wang
Humidity:	52 % RH	Temperature:	24°C



Date: 25.SEP.2013 17:20:37



Date: 25.SEP.2013 17:22:57



# Compliance Certification Services Inc.

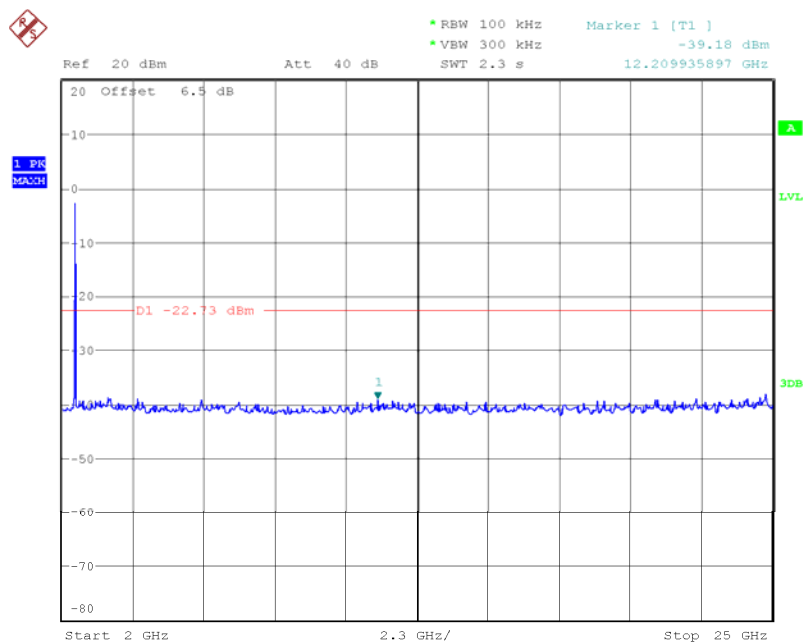
Report No: C130918R02-RPB

FCC ID: ZXX-MODELXL

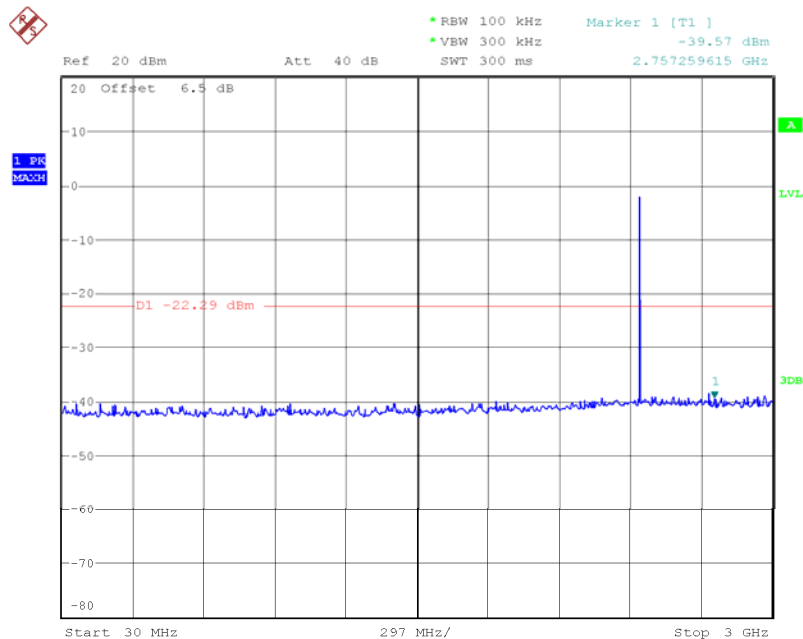
Date of Issue :September 25, 2013

IC :10107A-MODELXXL

Operation Mode:	3 Mbps	Test Date:	September 25, 2013
Test Channel:	39	Tested by:	Blent.Wang
Humidity:	52 % RH	Temperature:	24°C



Date: 25.SEP.2013 17:27:37



Date: 25.SEP.2013 17:33:25



# Compliance Certification Services Inc.

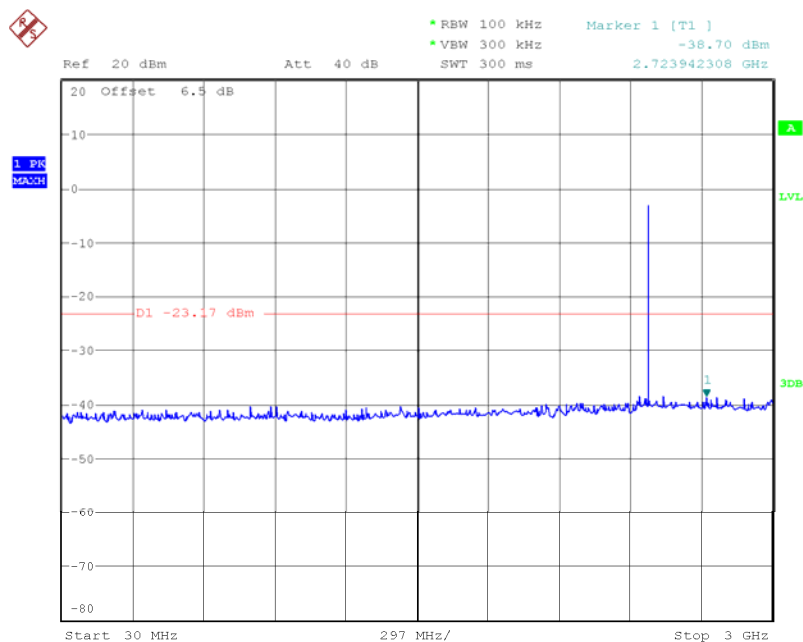
Report No: C130918R02-RPB

FCC ID: ZXX-MODELXL

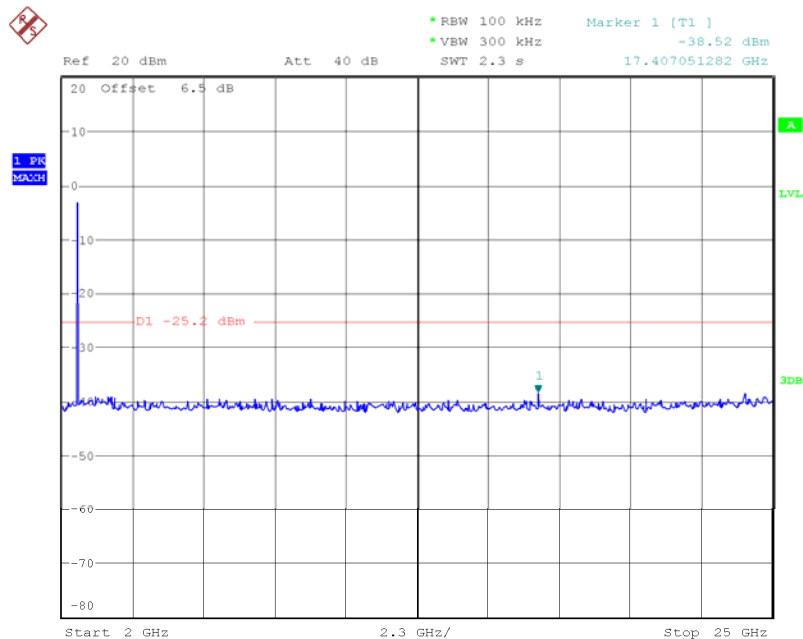
Date of Issue :September 25, 2013

IC :10107A-MODELXXL

Operation Mode:	3 Mbps	Test Date:	September 25, 2013
Test Channel:	78	Tested by:	Blent.Wang
Humidity:	52 % RH	Temperature:	24°C



Date: 25.SEP.2013 17:29:03



Date: 25.SEP.2013 17:30:25



## 6.8 Radiated Band Edge and Spurious Emission Measurement

### LIMIT

1. Except as provided elsewhere in this Subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

Frequency (MHz)	Field Strength (mV/m)	Measurement Distance (m)
30-88	100*	3
88-216	150*	3
216-960	200*	3
Above 960	500	3

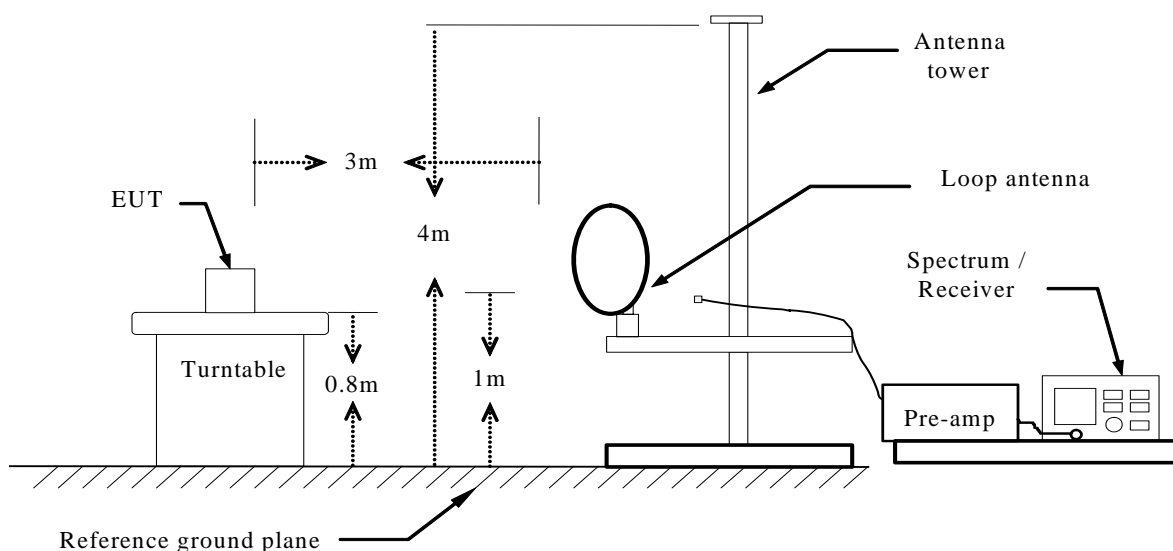
**Remark:** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this Section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this Part, e.g., Sections 15.231 and 15.241.

2. In the above emission table, the tighter limit applies at the band edges.

Frequency (Hz)	Field Strength ( $\mu\text{V/m}$ at 3-meter)	Field Strength (dB $\mu\text{V/m}$ at 3-meter)
30-88	100	40
88-216	150	43.5
216-960	200	46
Above 960	500	54

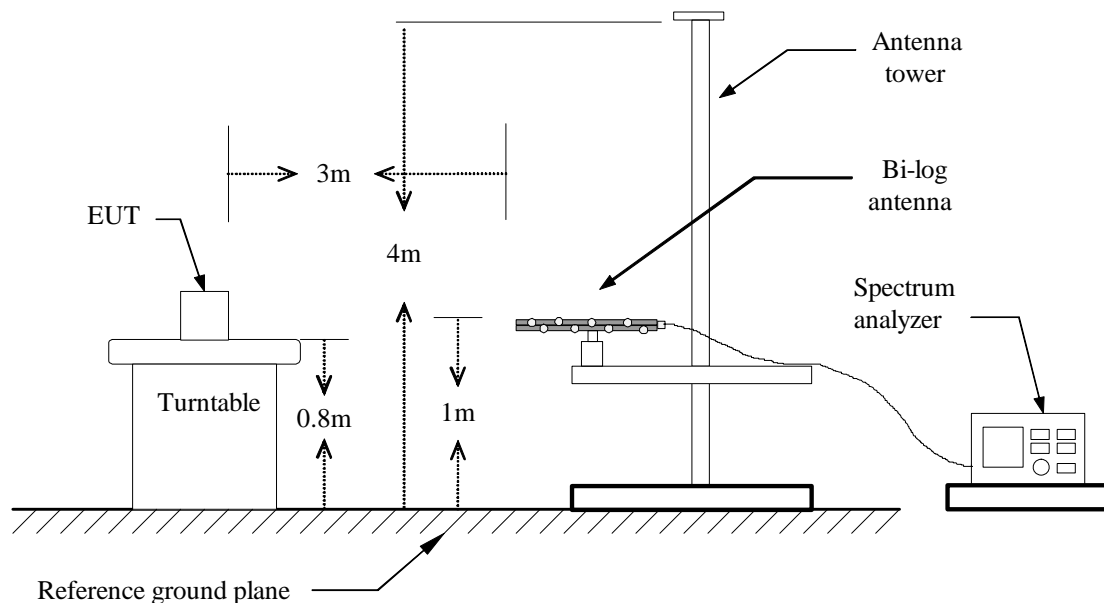
### Test Configuration

#### Below 30MHz

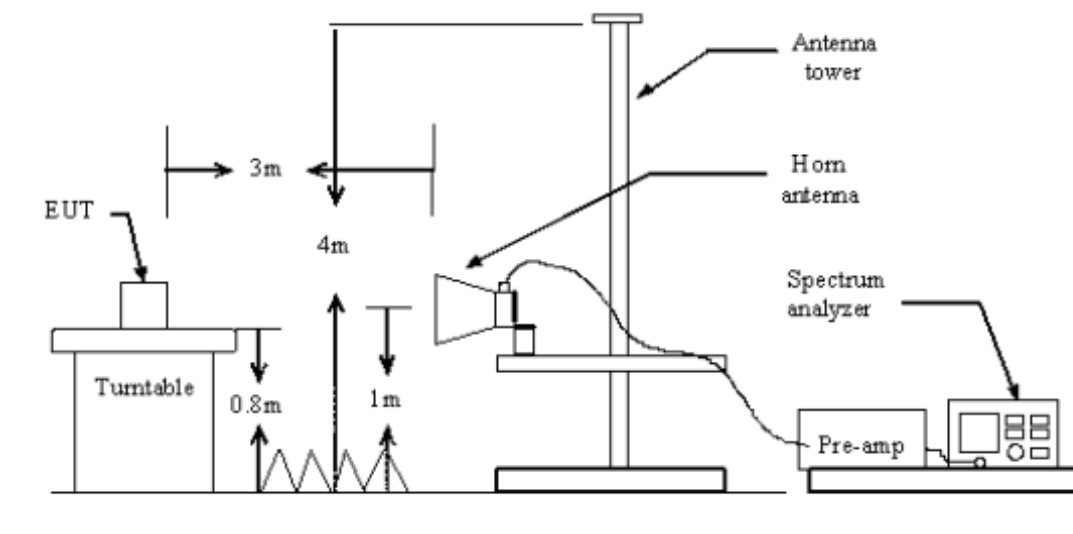




## Below 1 GHz



## Above 1 GHz





## **TEST PROCEDURE**

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Set the spectrum analyzer in the following setting as:

Below 1GHz:

RBW=100kHz / VBW=300kHz / Sweep=AUTO

Above 1GHz:

(a) PEAK: RBW=VBW=1MHz / Sweep=AUTO

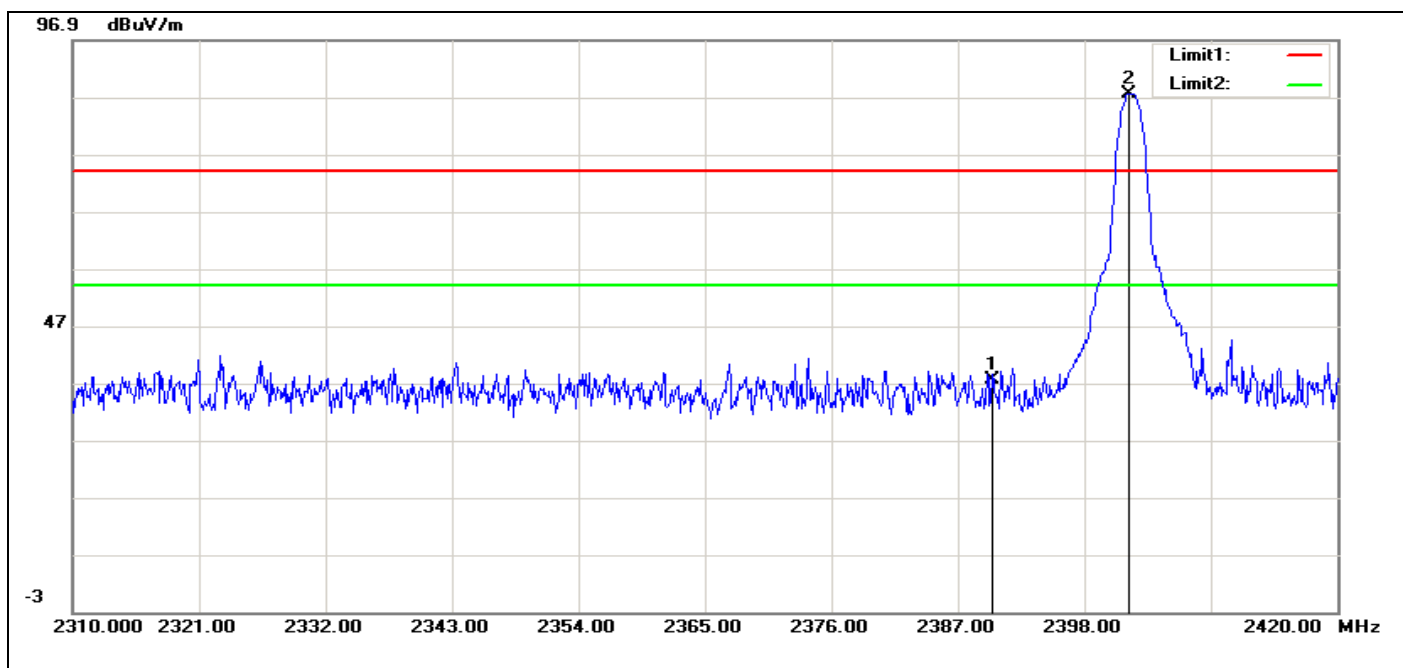
(b) AVERAGE: RBW=1MHz / VBW=10Hz / Sweep=AUTO

7. Repeat above procedures until the measurements for all frequencies are complete.



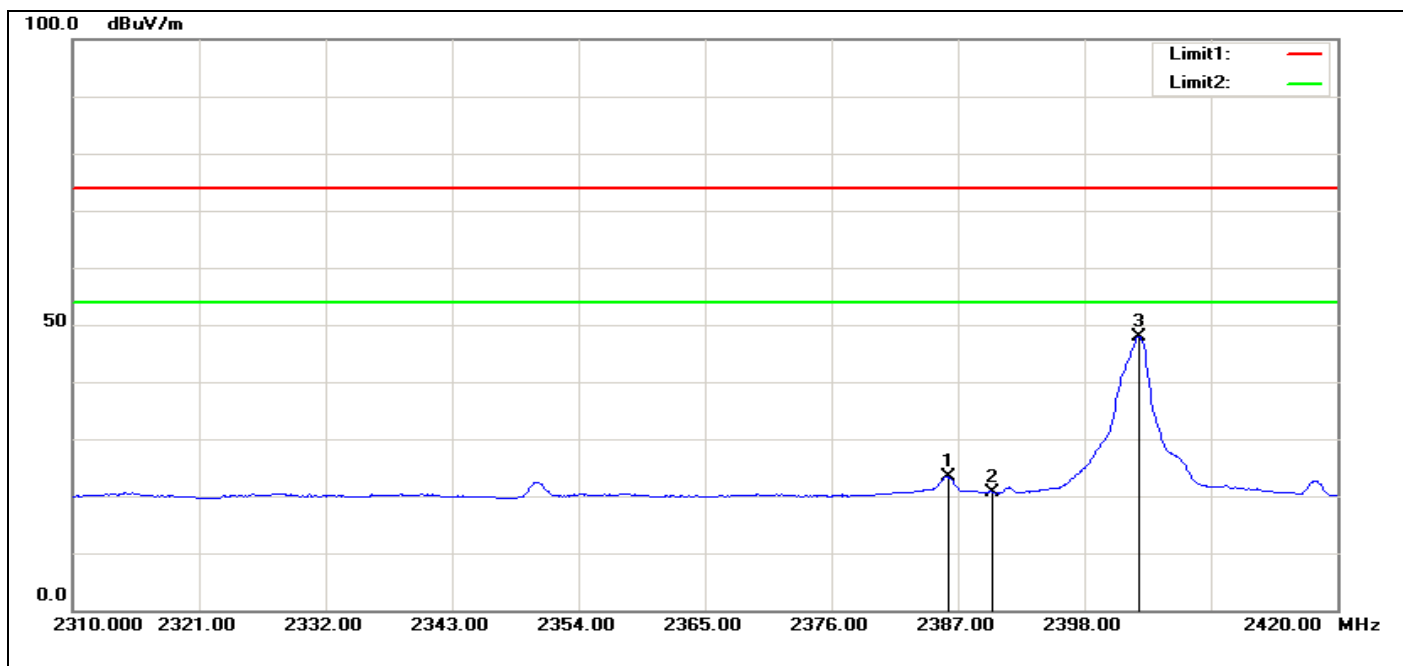
## RESTRICTED BANDEDGE (1Mbps, Low Channel, Horizontal)

### PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	51.77	-14.28	37.49	74.00	-36.51	101	231	peak
2	2401.850	101.75	-14.27	87.48	74.00	13.48	101	272	peak

### AVG

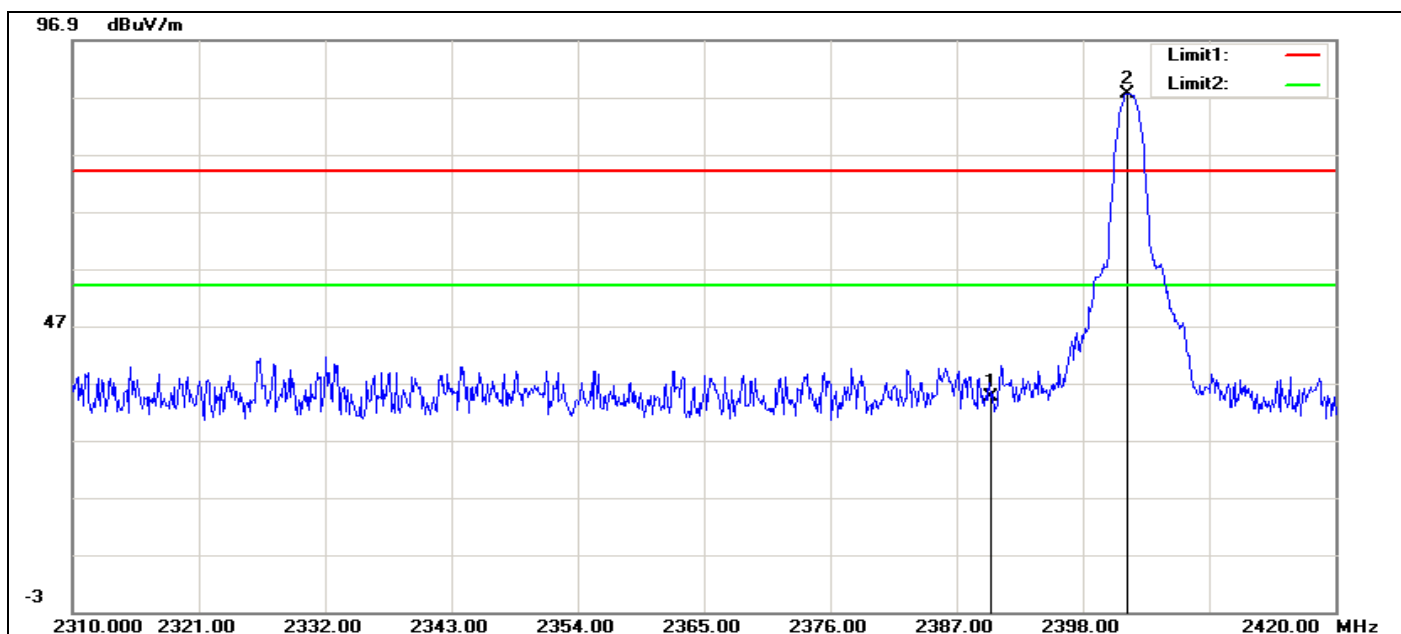


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2386.120	37.62	-14.28	23.34	54.00	-30.66	101	333	AVG
2	2390.000	34.89	-14.28	20.61	54.00	-33.39	101	231	AVG
3	2402.730	62.16	-14.27	47.89	54.00	-6.11	101	272	AVG



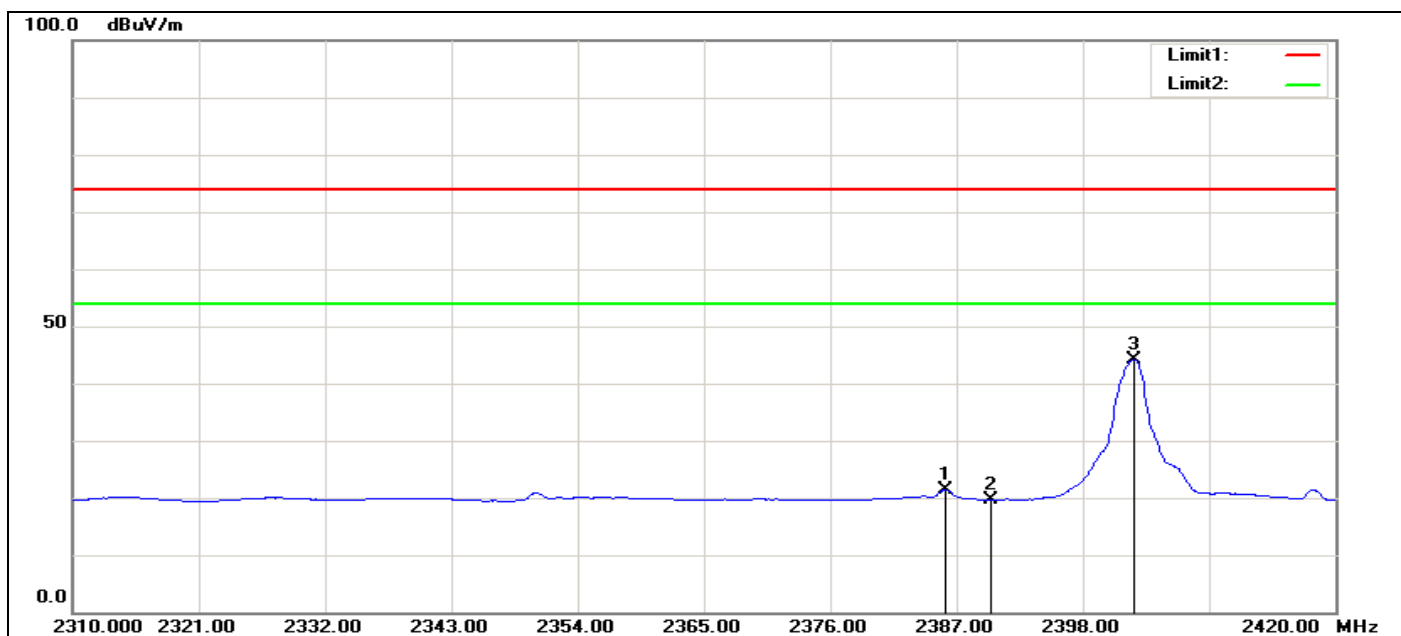
## RESTRICTED BANDEDGE (1Mbps, Low Channel, Vertical)

### PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	48.69	-14.28	34.41	74.00	-39.59	100	183	peak
2	2401.850	101.80	-14.27	87.53	74.00	13.53	100	97	peak

### AVG

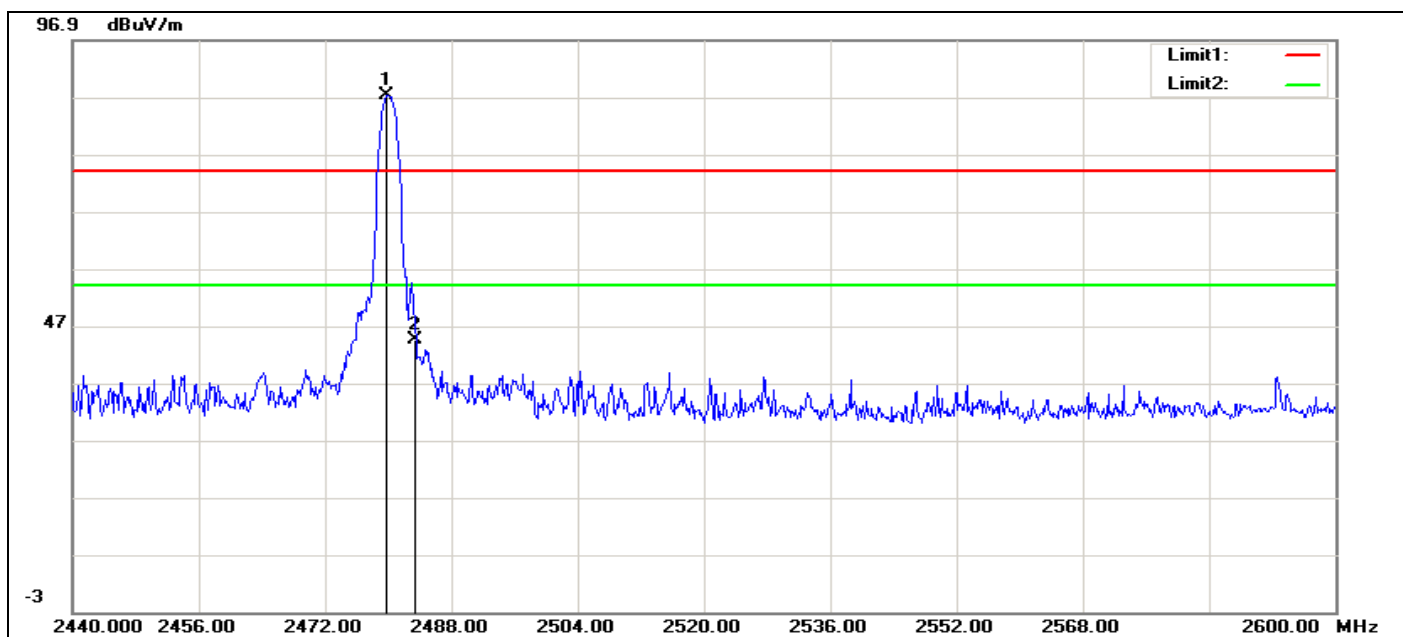


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2386.010	35.67	-14.28	21.39	54.00	-32.61	100	82	AVG
2	2390.000	33.86	-14.28	19.58	54.00	-34.42	100	183	AVG
3	2402.400	58.42	-14.27	44.15	54.00	-9.85	100	87	AVG



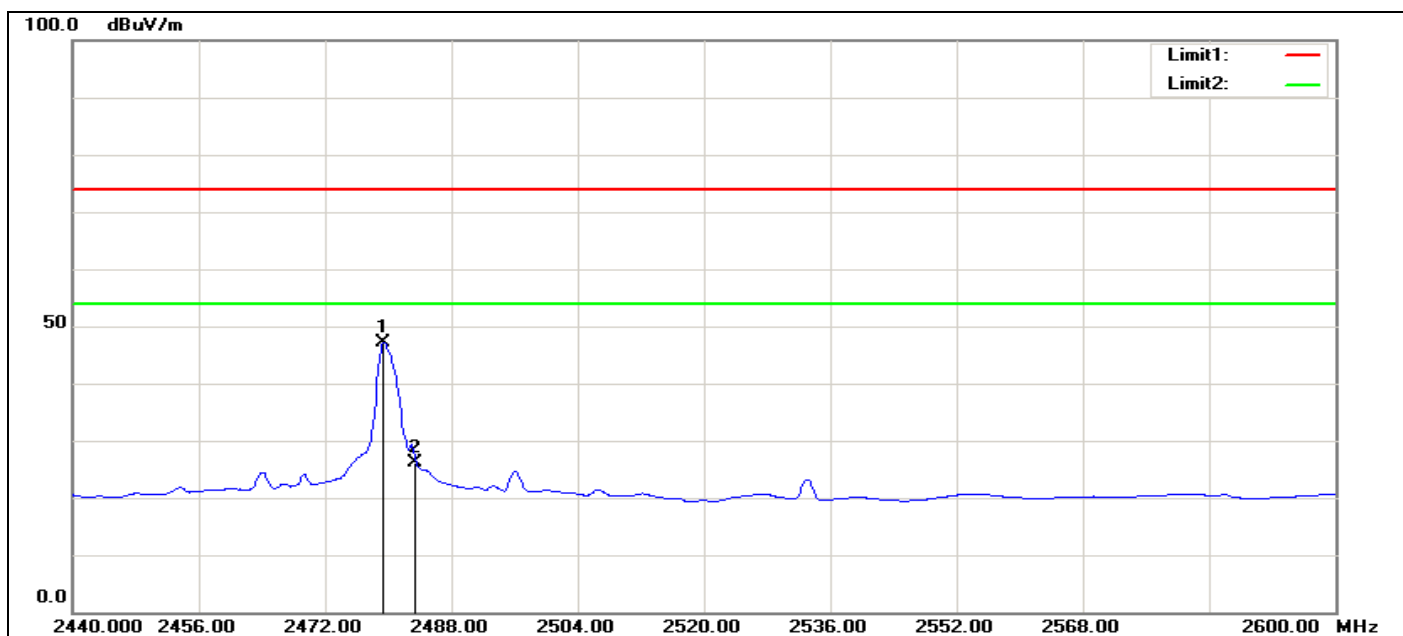
## RESTRICTED BANDEDGE (1Mbps Mode, High Channel, Horizontal)

### PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2479.840	100.84	-13.67	87.17	74.00	13.17	100	135	peak
2	2483.500	58.11	-13.65	44.46	74.00	-29.54	100	288	peak

### AVG

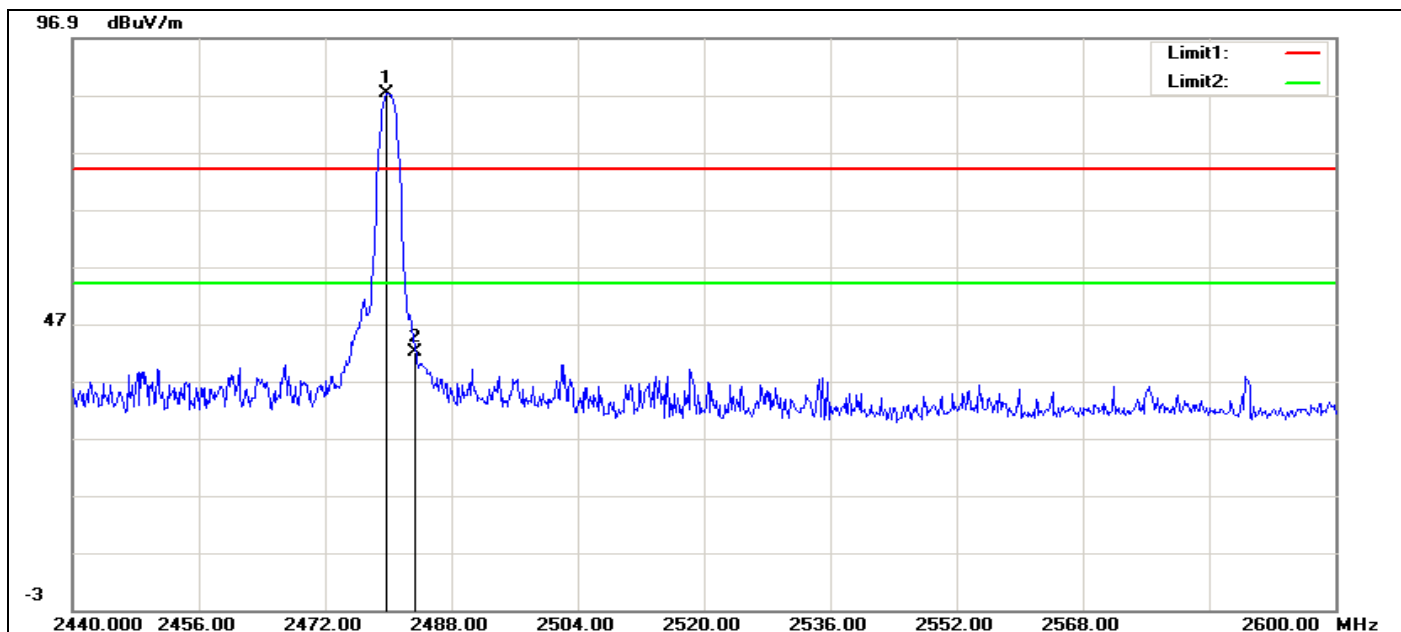


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2479.360	60.90	-13.68	47.22	54.00	-6.78	100	323	AVG
2	2483.500	39.76	-13.65	26.11	54.00	-27.89	100	288	AVG



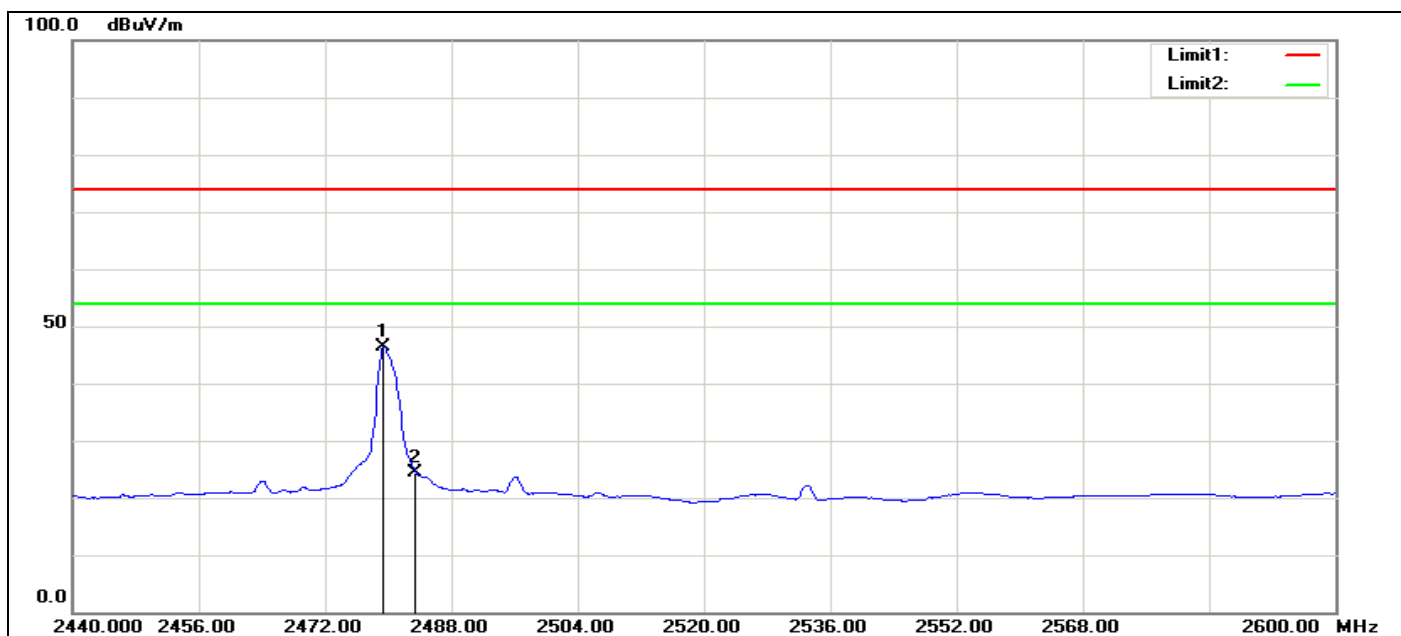
## RESTRICTED BANDEDGE (1Mbps, High Channel, Vertical)

### PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2479.840	100.84	-13.67	87.17	74.00	13.17	100	121	peak
2	2483.500	55.62	-13.65	41.97	74.00	-32.03	100	126	peak

### AVG

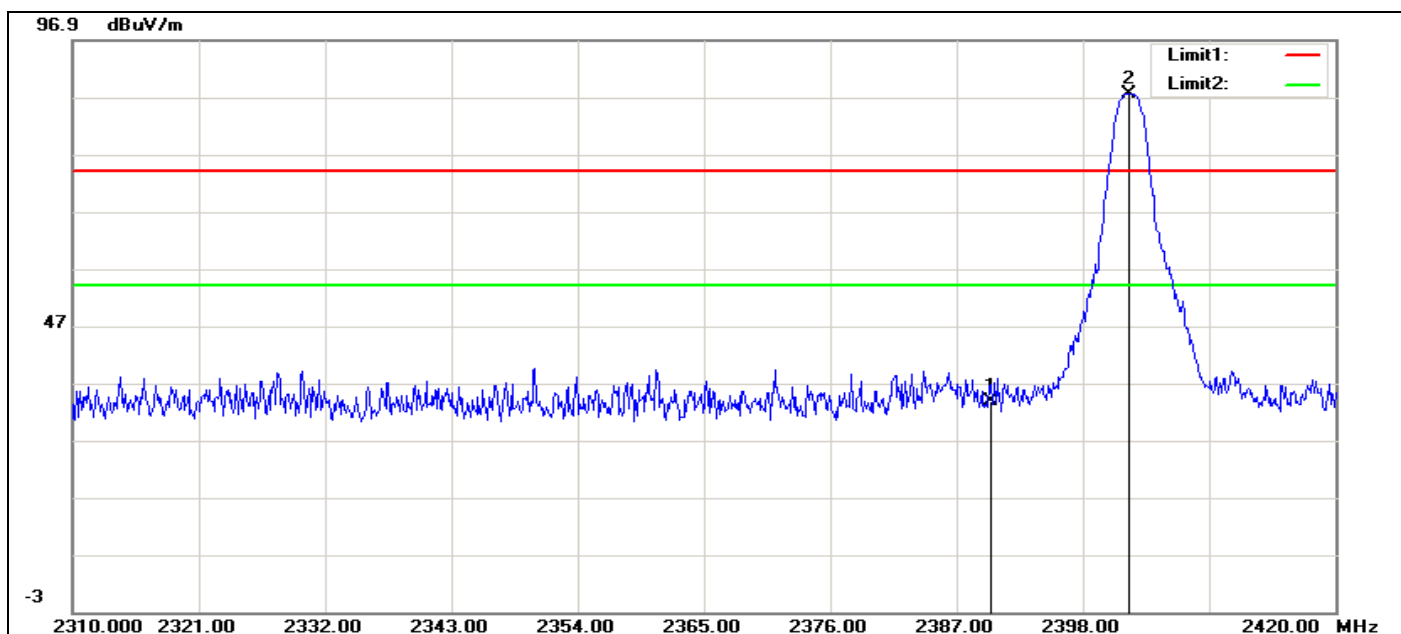


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2479.360	60.09	-13.68	46.41	54.00	-7.59	100	283	AVG
2	2483.500	38.10	-13.65	24.45	54.00	-29.55	100	126	AVG



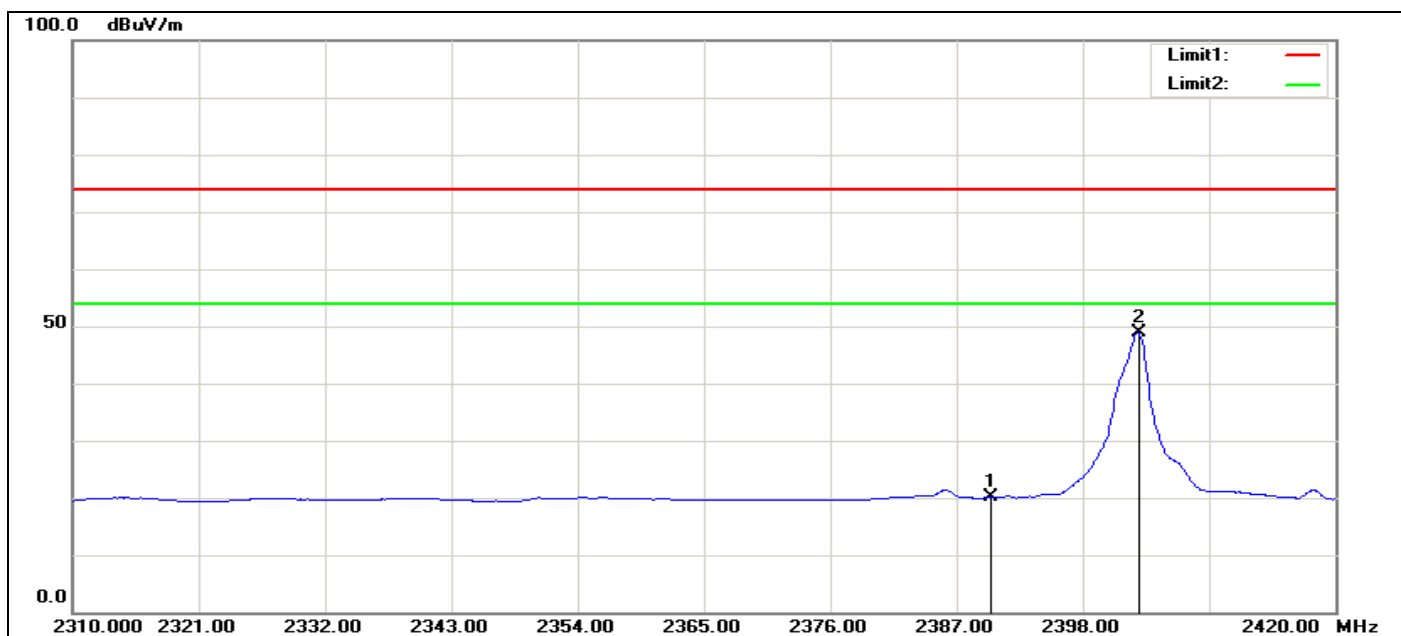
## RESTRICTED BANDEDGE (3Mbps, Low Channel, Horizontal)

### PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	47.97	-14.28	33.69	74.00	-40.31	100	286	peak
2	2401.960	101.79	-14.27	87.52	74.00	13.52	100	134	peak

### AVG

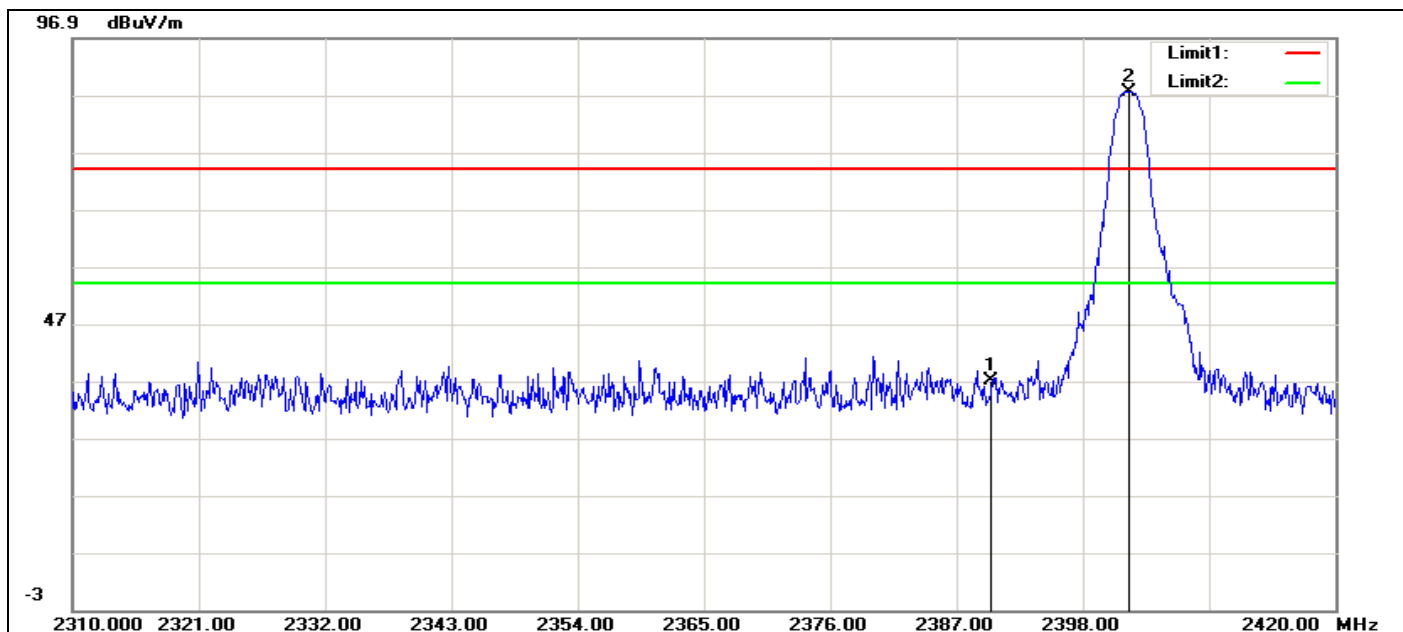


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	34.39	-14.28	20.11	54.00	-33.89	100	286	AVG
2	2402.840	63.03	-14.27	48.76	54.00	-5.24	100	286	AVG



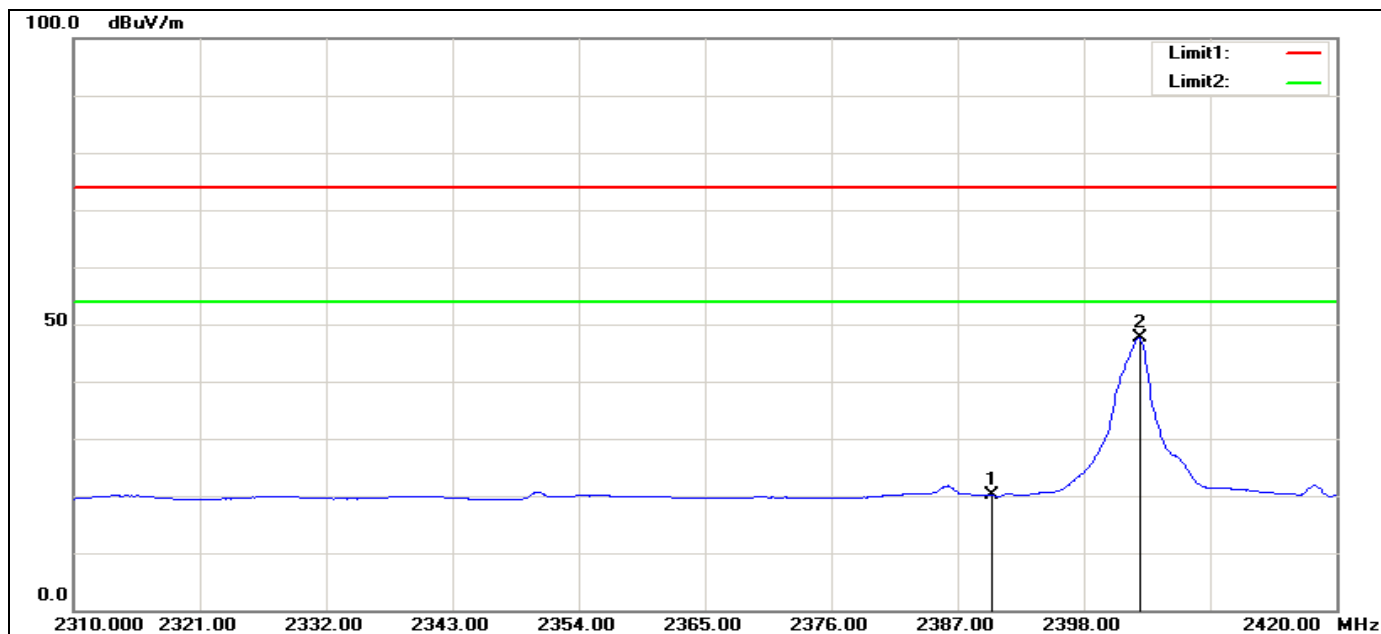
## RESTRICTED BANDEDGE (3Mbps, Low Channel, Vertical)

### PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	51.30	-14.28	37.02	74.00	-36.98	100	255	peak
2	2401.960	101.79	-14.27	87.52	74.00	13.52	100	98	peak

### AVG

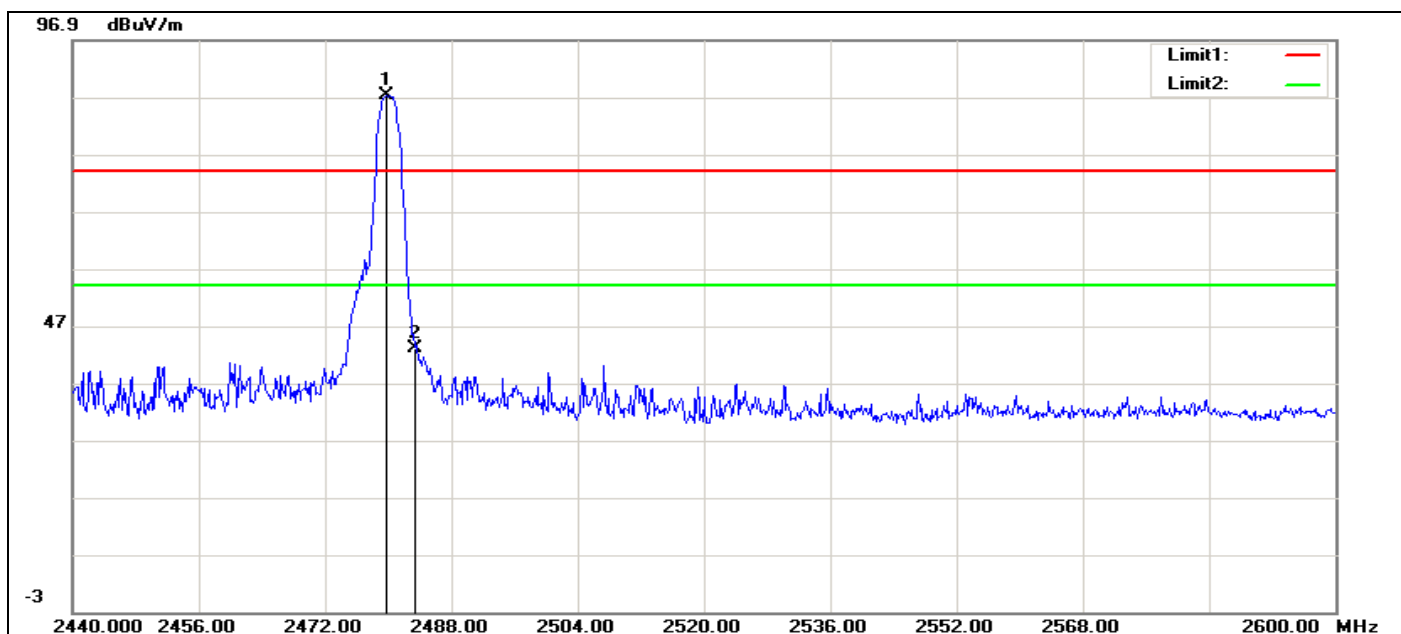


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2390.000	34.32	-14.28	20.04	54.00	-33.96	100	255	AVG
2	2402.840	61.80	-14.27	47.53	54.00	-6.47	100	73	AVG



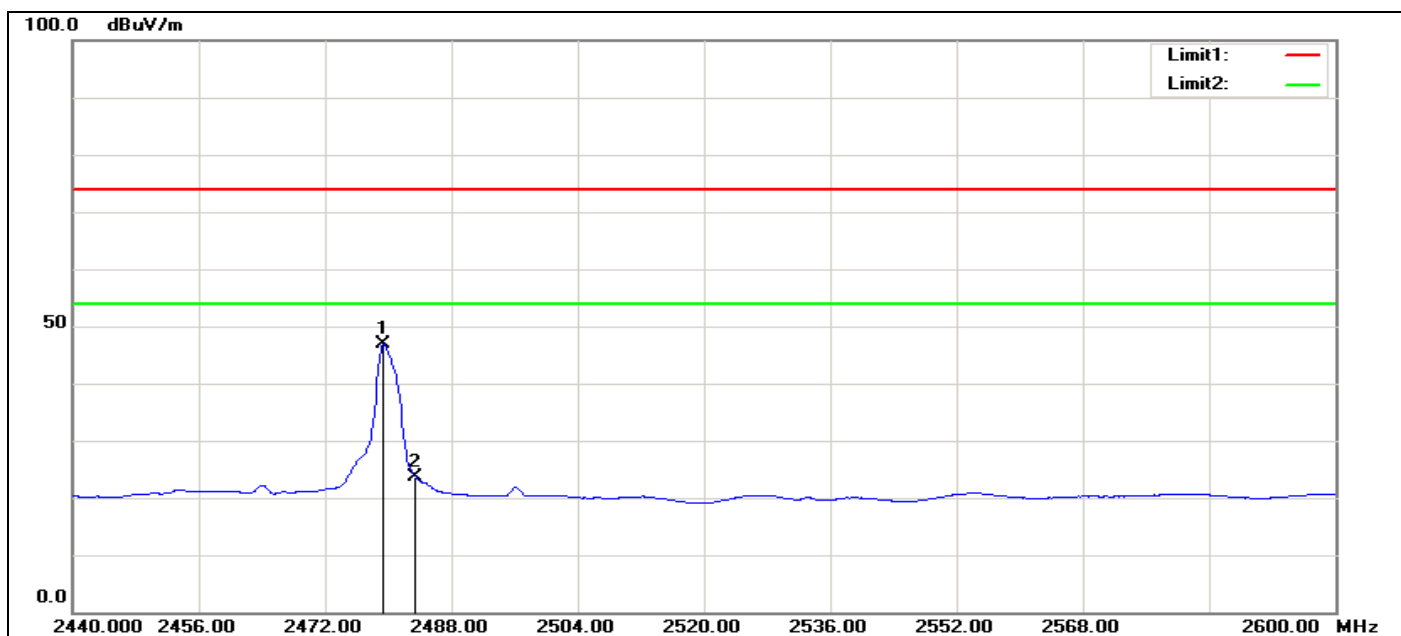
## RESTRICTED BANDEDGE (3Mbps, High Channel, Horizontal)

### PEAK



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2479.840	100.88	-13.67	87.21	74.00	13.21	100	136	peak
2	2483.500	56.59	-13.65	42.94	74.00	-31.06	100	145	peak

### AVG

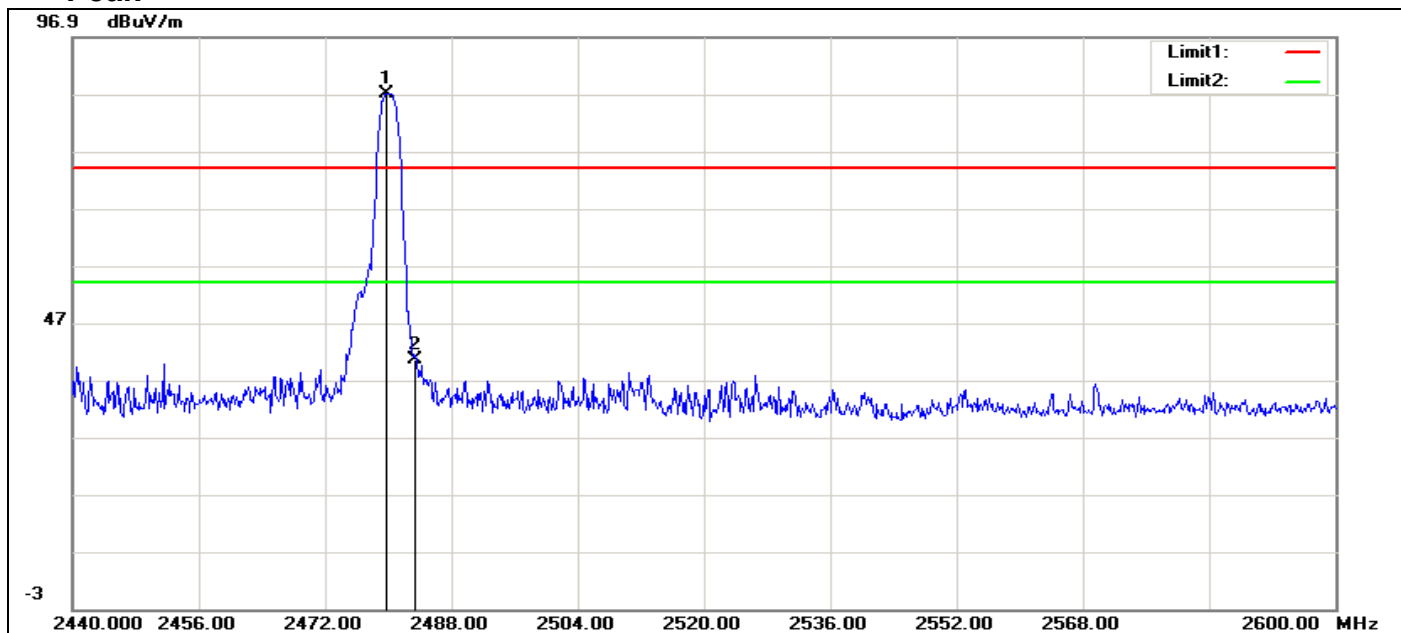


No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2479.360	60.49	-13.68	46.81	54.00	-7.19	100	141	AVG
2	2483.500	37.16	-13.65	23.51	54.00	-30.49	100	145	AVG



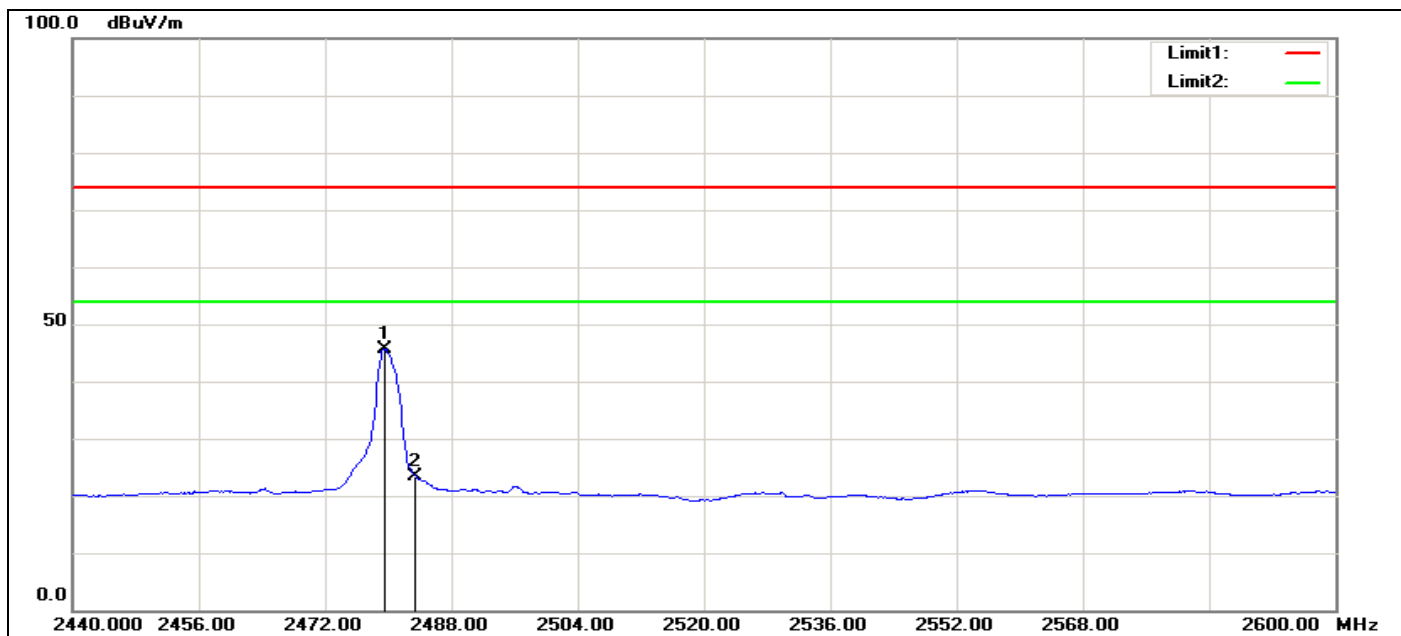
## RESTRICTED BANDEDGE (3Mbps, High Channel, Vertical)

### Peak



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2479.840	100.81	-13.67	87.14	74.00	13.14	100	191	peak
2	2483.500	54.11	-13.65	40.46	74.00	-33.54	100	69	peak

### AVG



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	2479.520	59.42	-13.68	45.74	54.00	-8.26	100	75	AVG
2	2483.500	36.93	-13.65	23.28	54.00	-30.72	100	69	AVG



## TEST RESULT OF RADIATED EMISSION

### 30MHz-1GHz

Operation Mode: 1 Mbps

Test Date: September 24, 2013

Test Channel: CH78

Tested by: Blent.Wang

Temperature: 25°C

Polarity: Ver. / Hor.

### Horizontal

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	118.2700	23.33	14.82	38.15	43.50	-5.35	204	274	peak
2	144.4600	27.14	14.58	41.72	43.50	-1.78	100	319	peak
3	205.5700	26.56	13.23	39.79	43.50	-3.71	204	360	peak
4	242.4300	31.12	13.84	44.96	46.00	-1.04	100	60	peak
5	255.0400	26.92	13.90	40.82	46.00	-5.18	100	55	peak
6	299.6600	28.16	14.72	42.88	46.00	-3.12	100	166	peak

### Vertical

No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	30.0000	14.51	22.71	37.22	40.00	-2.78	204	264	peak
2	62.0100	26.52	8.28	34.80	40.00	-5.20	276	0	Peak
3	146.4000	27.21	14.21	41.42	43.50	-2.08	204	304	Peak
4	210.4200	27.33	13.13	40.46	43.50	-3.04	204	40	Peak
5	221.0900	29.46	13.36	42.82	46.00	-3.18	164	360	Peak
6	930.1600	16.81	25.35	42.16	46.00	-3.84	100	90	Peak

### Notes:

1. Measuring frequencies from 9 KHz to the 1GHz, No emission found between lowest internal used/generated frequency to 30 MHz.
2. Radiated emissions measured in frequency range from 9 KHz to 1000MHz were made with an instrument using Peak detector mode.
3. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
4. The IF bandwidth of SPA between 30MHz to 1GHz was 100kHz.



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## Above 1 GHz

Operation Mode: 1 Mbps

Test Date: September 24, 2013

Test Channel: CH00

Tested by: Blent.Wang

Temperature: 25°C

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4808.000	V	61.34	-8.03	53.31	74.00	-20.69	PEAK
7477.000	V	43.92	-0.37	43.55	74.00	-30.45	PEAK
4808.000	H	57.18	-8.03	49.15	74.00	-24.85	PEAK
7205.000	H	44.27	-0.57	43.70	74.00	-30.30	PEAK

Operation Mode: 1 Mbps

Test Date: September 24, 2013

Test Channel: CH39

Tested by: Blent.Wang

Temperature: 25°C

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4876.000	V	53.63	-7.68	45.95	74.00	-28.05	PEAK
7647.000	V	45.09	0.28	45.37	74.00	-28.63	PEAK
4876.000	H	53.75	-7.68	46.07	74.00	-27.93	PEAK
7766.000	H	44.46	0.57	45.03	74.00	-28.97	PEAK

Operation Mode: 1 Mbps

Test Date: September 24, 2013

Test Channel: CH78

Tested by: Blent.Wang

Temperature: 25°C

Polarity: Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4961.000	V	58.38	-7.59	50.79	74.00	-23.21	PEAK
7749.000	V	46.23	0.60	46.83	74.00	-27.17	PEAK
4961.000	H	55.94	-7.59	48.35	74.00	-25.65	PEAK
7596.000	H	44.16	-0.08	44.08	74.00	-29.92	PEAK



# Compliance Certification Services Inc.

Report No: C130918R02-RPB

FCC ID: ZXX-MODELXL

Date of Issue :September 25, 2013

IC :10107A-MODELXXL

**Operation Mode:** 3 Mbps**Test Date:** September 24, 2013**Test Channel:** CH00**Tested by:** Blent.Wang**Temperature:** 25°C**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4808.000	V	60.23	-8.03	52.20	74.00	-21.80	PEAK
7664.000	V	44.49	0.40	44.89	74.00	-29.11	PEAK
4808.000	H	53.34	-8.03	45.31	74.00	-28.69	PEAK
7749.000	H	44.34	0.60	44.94	74.00	-29.06	PEAK

**Operation Mode:** 3 Mbps**Test Date:** September 24, 2013**Test Channel:** CH39**Tested by:** Blent.Wang**Temperature:** 25°C**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4876.000	V	48.18	-7.68	40.50	74.00	-33.50	PEAK
7766.000	V	44.92	0.57	45.49	74.00	-28.51	PEAK
4876.000	H	46.31	-7.68	38.63	74.00	-35.37	PEAK
7766.000	H	44.18	0.57	44.75	74.00	-29.25	PEAK

**Operation Mode:** 3 Mbps**Test Date:** September 24, 2013**Test Channel:** CH78**Tested by:** Blent.Wang**Temperature:** 25°C**Polarity:** Ver. / Hor.

Frequency (MHz)	Ant. Pol. (H/V)	Reading (dBuV)	Correction Factor (dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark
4961.000	V	51.64	-7.59	44.05	74.00	-29.95	PEAK
7647.000	V	44.93	0.28	45.21	74.00	-28.79	PEAK
4961.000	H	48.81	-7.59	41.22	74.00	-32.78	PEAK
7732.000	H	44.95	0.62	45.57	74.00	-28.43	PEAK



**Remark:**

1. *Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency.*
2. *Measurements above show only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin>20dB from the applicable limit) and considered that's already beyond the background noise floor.*
3. *Radiated emissions measured in frequency above 1000MHz were made with an instrument using Peak detector mode and average detector mode of the emission shown in Actual FS column.*
4. *Spectrum setting:*
  - a. *Peak Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 1MHz, Sweep time = Auto.*
  - b. *AV Setting 1GHz to 10th harmonics of fundamental, RBW = 1MHz, VBW = 10Hz, Sweep time = Auto.*



## 6.9 POWERLINE CONDUCTED EMISSIONS

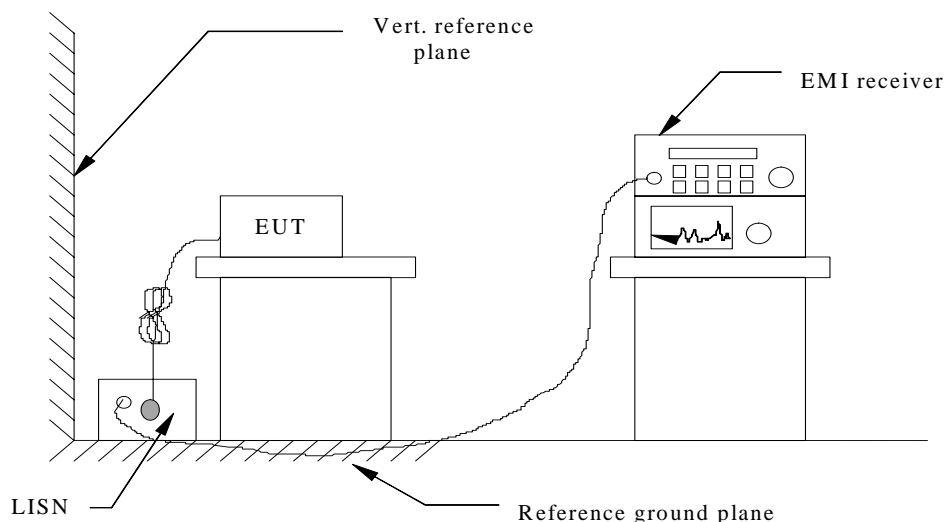
### LIMIT

For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dB $\mu$ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

### Test Configuration



See test photographs attached in Appendix 1 for the actual connections between EUT and support equipment.

### TEST PROCEDURE

1. The EUT was placed on a table, which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all frequency measured were complete.

### TEST RESULTS

The initial step in collecting conducted data is a spectrum analyzer peak scan of the measurement range. Significant peaks are then marked as shown on the following data page, and these signals are then quasi-peaked.



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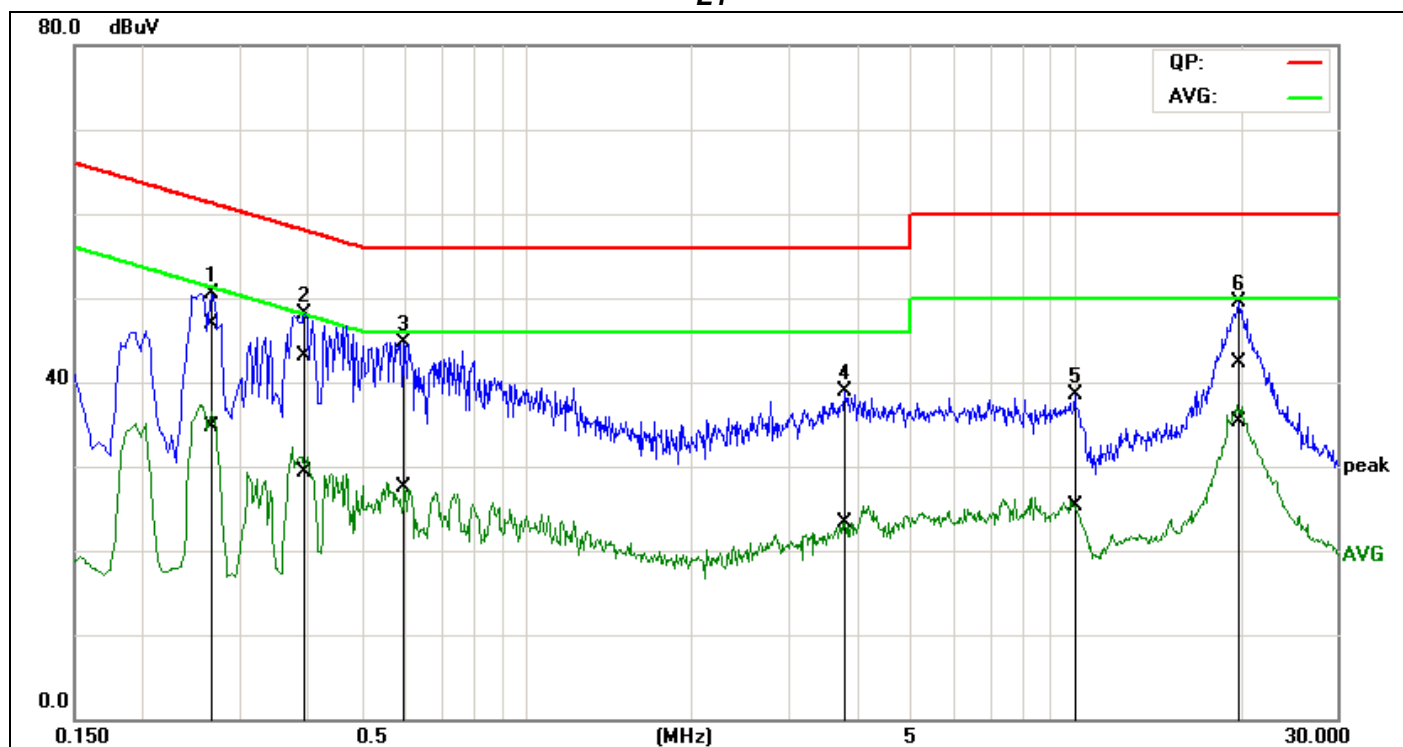
Date of Issue :September 25, 2013

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## Test Data

<b>Model:</b> Geneva Sound System Model XXL	<b>Test Mode:</b> Mode 1
<b>Temperature:</b> 23°C	<b>Humidity:</b> 51% RH
<b>Tested by:</b> Blent.Wang	<b>Test Results:</b> Pass

### L1



No.	Frequency	QuasiPeak	Average	Correction	QuasiPeak	Average	QuasiPeak	Average	QuasiPeak	Average	Remark
	(MHz)	reading	reading	factor	result	result	limit	limit	margin	margin	
		(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.2683	27.35	15.03	19.65	47.00	34.68	61.17	51.17	-14.17	-16.49	Pass
2	0.3936	23.26	9.59	19.75	43.01	29.34	57.99	47.99	-14.98	-18.65	Pass
3*	0.5980	24.88	7.63	19.83	44.71	27.46	56.00	46.00	-11.29	-18.54	Pass
4	3.8200	18.70	3.15	20.15	38.85	23.30	56.00	46.00	-17.15	-22.70	Pass
5	10.0060	17.72	4.58	20.77	38.49	25.35	60.00	50.00	-21.51	-24.65	Pass
6	19.8850	21.27	14.28	21.12	42.39	35.40	60.00	50.00	-17.61	-14.60	Pass



# Compliance Certification Services Inc.

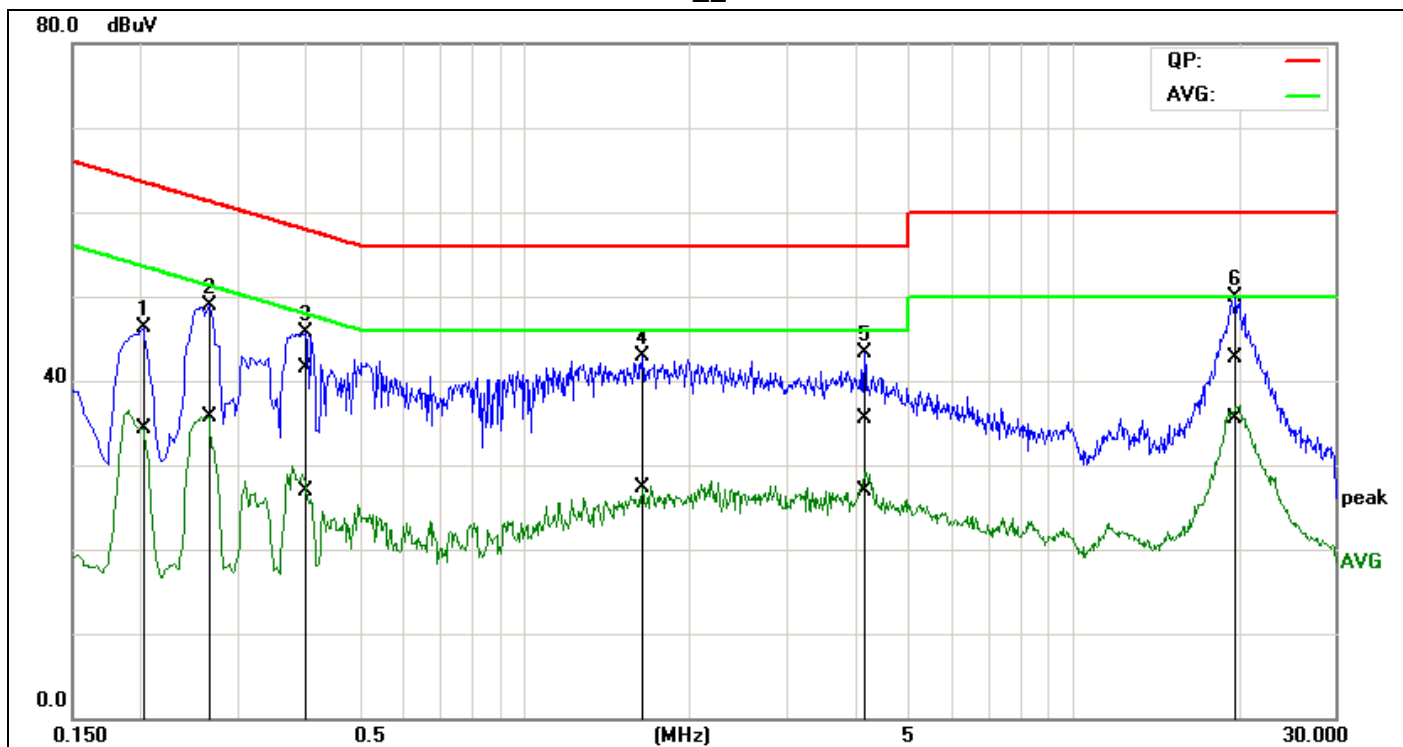
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## L2



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.2020	26.74	14.71	19.64	46.38	34.35	63.52	53.53	-17.14	-19.18	Pass
2*	0.2660	29.29	16.05	19.69	48.98	35.74	61.24	51.24	-12.26	-15.50	Pass
3	0.3964	21.77	7.03	19.78	41.55	26.81	57.93	47.93	-16.38	-21.12	Pass
4	1.6420	22.97	7.31	19.92	42.89	27.23	56.00	46.00	-13.11	-18.77	Pass
5	4.1275	15.24	6.75	20.20	35.44	26.95	56.00	46.00	-20.56	-19.05	Pass
6	19.8162	21.59	14.37	21.07	42.66	35.44	60.00	50.00	-17.34	-14.56	Pass

### Remark:

- 1.The measuring frequencies range between 0.15 MHz and 30 MHz.
- 2.The emissions measured in the frequency range between 0.15 MHz and 30MHz were made with an instrument using Quasi-peak detector and Average detector.
- 3.“—” denotes the emission level was or more than 2dB below the Average limit, and no re-check was made.
- 4.The IF bandwidth of SPA between 0.15MHz and 30MHz was 10KHz. The IF bandwidth of Test Receiver between 0.15MHz and 30MHz was 9kHz.

END OF REPORT