

# TEST REPORT

**Applicant:** SKY RICH STAR LIMITED

**Address of Applicant:** Unit E, 10/F, Worldwide Centre, 123 Tung Chau Street, Tai Kok Tsui Kowloon, Hong Kong, China

**Manufacturer/Factory:** Zhongshan Quaxin Lighting Electrical Co., Ltd.

**Address of Manufacturer/Factory:** Hong Ji Street, Shalang, Long Ping Cun, West District, ZHONGSHAN Guangdong 528411 China

**Equipment Under Test (EUT)**

Product Name: Solar LED Light

Model No.: Q91EL1001-08, Q91EL1001-78, Q91EL1002-08, Q91EL1002-78, Q91EL10##-## (Where "#" is used to denote numbers or blank for commercial purpose)

**FCC ID:** 2AP2L-Q91EL1001

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart C Section 15.249

**Date of sample receipt:** October 12, 2020

**Date of Test:** October 13-30, 2020

**Date of report issued:** October 30, 2020

**Test Result :** PASS \*

\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

A circular stamp for GTS (Global United Technology Services Co., Ltd.) is overlaid with a handwritten signature. The stamp contains the text 'GLOBAL UNITED TECHNOLOGY SERVICES CO., LTD.', 'GTS', and '2019'. The signature is written in black ink and appears to be 'Robinson Luo'.

**Robinson Luo**

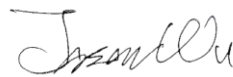
**Laboratory Manager**

This results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

## 2 Version

Version No.	Date	Description
00	October 30, 2020	Original

Prepared By:

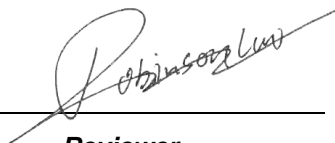


Date:

October 30, 2020

Project Engineer

Check By:



Date:

October 30, 2020

Reviewer

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## 4 Test Summary

Test Item	Section in CFR 47	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	N/A
Field strength of the fundamental signal	15.249 (a)	Pass
Spurious emissions	15.249 (a) (d)/15.209	Pass
Band edge	15.249 (d)/15.205	Pass
20dB Occupied Bandwidth	15.215 (c)	Pass

*Remarks:*

1. Pass: The EUT complies with the essential requirements in the standard.
2. Test according to ANSI C63.10:2013.

### 4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	30MHz-200MHz	3.8039dB	(1)
Radiated Emission	200MHz-1GHz	3.9679dB	(1)
Radiated Emission	1GHz-18GHz	4.29dB	(1)
Radiated Emission	18GHz-40GHz	3.30dB	(1)
AC Power Line Conducted Emission	0.15MHz ~ 30MHz	3.44dB	(1)

Note (1): The measurement uncertainty is for coverage factor of k=2 and a level of confidence of 95%.

## 5 General Information

### 5.1 General Description of EUT

Product Name:	Solar LED Light
Model No.:	Q91EL1001-08, Q91EL1001-78, Q91EL1002-08, Q91EL1002-78, Q91EL10##-## (Where "#" is used to denote numbers or blank for commercial purpose)
Test Model No:	Q91EL1001-08
Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits. The differences are appearance color and model name for commercial purpose.	
Serial No.:	QXQ91EL100108
Test sample(s) ID:	GTS202010000019-1
Sample(s) Status	Engineered sample
Operation Frequency:	2420MHz, 2450MHz, 2470MHz
Channel numbers:	3
Modulation type:	GFSK
Antenna Type:	Integral Antenna
Antenna gain:	1.5dBi(declare by applicant)
Power supply:	DC 3.7V 600mAh or Powered by solar power

#### Operation Frequency each of channel

Channel	Frequency
The lowest channel	2420MHz
The middle channel	2450MHz
The Highest channel	2470MHz

## 5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
Remark: full battery is used during all test.	

### Per-test mode.

We have verified the construction and function in typical operation, The EUT was placed on three different polar directions; i.e. X axis, Y axis, Z axis. which was shown in this test report and defined as follows:

Axis	X	Y	Z
Field Strength(dBuV/m)	83.45	84.90	82.14

## 5.3 Description of Support Units

None.

## 5.4 Deviation from Standards

None.

## 5.5 Abnormalities from Standard Conditions

None.

## 5.6 Test Facility

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

- **FCC —Registration No.: 381383**

Global United Technology Services Co., Ltd., Shenzhen 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 files. Registration 381383.

- **IC —Registration No.: 9079A**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A

- **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP). LAB CODE:600179-0

## 5.7 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Address: No. 123-128, Tower A, Jinyuan Business Building, No.2, Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, Guangdong, China 518102

Tel: 0755-27798480

Fax: 0755-27798960

## 6 Test Instruments list

Radiated Emission:						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (mm-dd-yy)	Cal.Due date (mm-dd-yy)
1	3m Semi- Anechoic Chamber	ZhongYu Electron	9.2(L)*6.2(W)* 6.4(H)	GTS250	July. 02 2020	July. 01 2025
2	Control Room	ZhongYu Electron	6.2(L)*2.5(W)* 2.4(H)	GTS251	N/A	N/A
3	EMI Test Receiver	Rohde & Schwarz	ESU26	GTS203	June. 25 2020	June. 24 2021
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	GTS214	June. 25 2020	June. 24 2021
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June. 25 2020	June. 24 2021
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June. 25 2020	June. 24 2021
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	June. 25 2020	June. 24 2021
9	Coaxial Cable	GTS	N/A	GTS211	June. 25 2020	June. 24 2021
10	Coaxial cable	GTS	N/A	GTS210	June. 25 2020	June. 24 2021
11	Coaxial Cable	GTS	N/A	GTS212	June. 25 2020	June. 24 2021
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	June. 25 2020	June. 24 2021
13	Amplifier(2GHz-20GHz)	HP	84722A	GTS206	June. 25 2020	June. 24 2021
14	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June. 25 2020	June. 24 2021
15	Band filter	Amindeon	82346	GTS219	June. 25 2020	June. 24 2021
16	Power Meter	Anritsu	ML2495A	GTS540	June. 25 2020	June. 24 2021
17	Power Sensor	Anritsu	MA2411B	GTS541	June. 25 2020	June. 24 2021
18	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	June. 25 2020	June. 24 2021
19	Splitter	Agilent	11636B	GTS237	June. 25 2020	June. 24 2021
20	Loop Antenna	ZHINAN	ZN30900A	GTS534	June. 25 2020	June. 24 2021
21	Breitband hornantenne	SCHWARZBECK	BBHA 9170	GTS579	Oct. 18 2020	Oct. 17 2021
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 18 2020	Oct. 17 2021
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 18 2020	Oct. 17 2021
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June. 25 2020	June. 24 2021

<b>RF Conducted Test:</b>						
<b>Item</b>	<b>Test Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Cal.Date (mm-dd-yy)</b>	<b>Cal.Due date (mm-dd-yy)</b>
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	June. 25 2020	June. 24 2021
2	EMI Test Receiver	R&S	ESCI 7	GTS552	June. 25 2020	June. 24 2021
3	Spectrum Analyzer	Agilent	E4440A	GTS533	June. 25 2020	June. 24 2021
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	June. 25 2020	June. 24 2021
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	June. 25 2020	June. 24 2021
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	June. 25 2020	June. 24 2021
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	June. 25 2020	June. 24 2021
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	June. 25 2020	June. 24 2021

<b>General used equipment:</b>						
<b>Item</b>	<b>Test Equipment</b>	<b>Manufacturer</b>	<b>Model No.</b>	<b>Inventory No.</b>	<b>Cal.Date (mm-dd-yy)</b>	<b>Cal.Due date (mm-dd-yy)</b>
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	June. 25 2020	June. 24 2021
2	Barometer	ChangChun	DYM3	GTS255	June. 25 2020	June. 24 2021

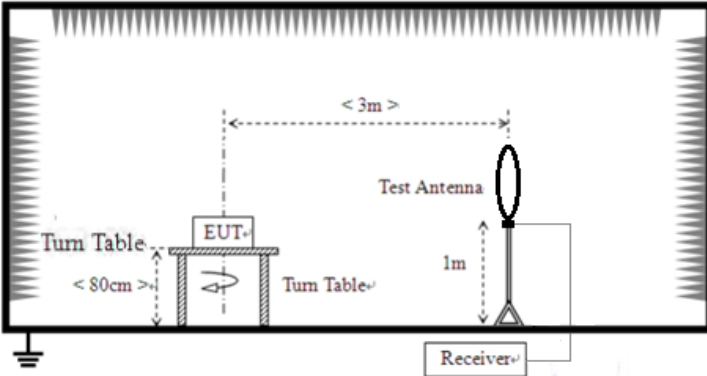


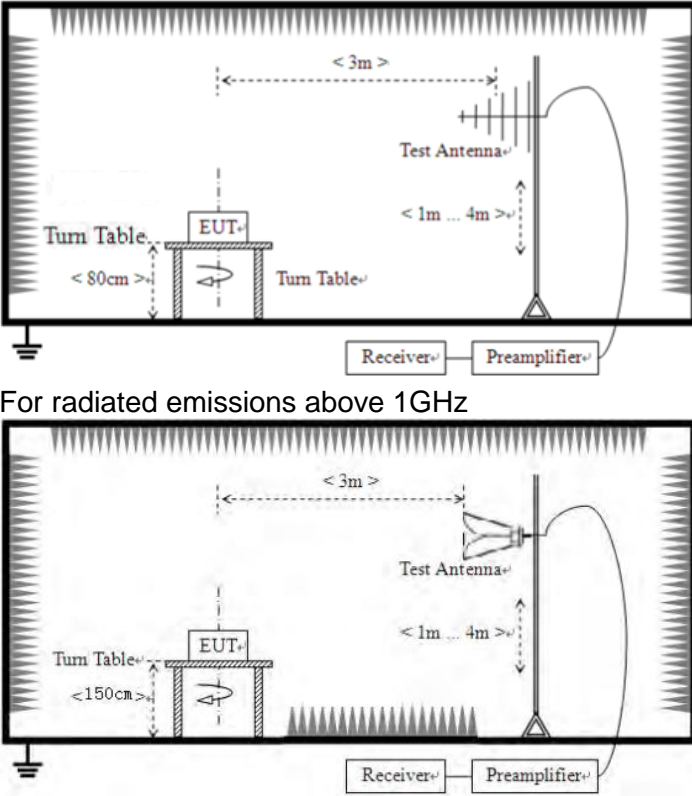
## 7 Test results and Measurement Data

### 7.1 Antenna requirement

<b>Standard requirement:</b>	FCC Part15 C Section 15.203
<b>15.203 requirement:</b> 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.	
<b>EUT Antenna:</b>	
The antenna is integral antenna, the best case gain of the antenna is 1.5dBi, reference to the appendix II for details	

## 7.2 Radiated Emission Method

Test Requirement:	FCC Part15 C Section 15.209				
Test Method:	ANSI C63.10:2013				
Test Frequency Range:	9kHz to 25GHz				
Test site:	Measurement Distance: 3m				
Receiver setup:	Frequency	Detector	RBW	VBW	Remark
	9kHz-150kHz	Quasi-peak	200Hz	300Hz	Quasi-peak Value
	150kHz-30MHz	Quasi-peak	9kHz	10kHz	Quasi-peak Value
	30MHz-1GHz	Quasi-peak	120KHz	300KHz	Quasi-peak Value
	Above 1GHz	Peak	1MHz	3MHz	Peak Value
Peak		1MHz	10Hz	Average Value	
Limit: (Field strength of the fundamental signal)	Frequency	Limit (dBuV/m @3m)		Remark	
	2400MHz-2483.5MHz	94.00		Average Value	
		114.00		Peak Value	
Limit: (Spurious Emissions)	Frequency	Limit (uV/m)		Remark	
	0.009MHz-0.490MHz	2400/F(kHz) @300m		Quasi-peak Value	
	0.490MHz-1.705MHz	24000/F(kHz) @30m		Quasi-peak Value	
	1.705MHz-30.0MHz	30 @30m		Quasi-peak Value	
	30MHz-88MHz	100 @3m		Quasi-peak Value	
	88MHz-216MHz	150 @3m		Quasi-peak Value	
	216MHz-960MHz	200 @3m		Quasi-peak Value	
	960MHz-1GHz	500 @3m		Quasi-peak Value	
	Above 1GHz	500 @3m		Average Value	
5000 @3m		Peak Value			
Limit: (band edge)	Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.				
Test setup:	<p>For radiated emissions from 9kHz to 30MHz</p>  <p>For radiated emissions from 30MHz to 1GHz</p>				

	 <p>For radiated emissions above 1GHz</p>						
<p>Test Procedure:</p>	<ol style="list-style-type: none"> <li>1. The EUT was placed on the top of a rotating table (0.8m for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</li> </ol>						
<p>Test Instruments:</p>	<p>Refer to section 6.0 for details</p>						
<p>Test mode:</p>	<p>Refer to section 5.2 for details</p>						
<p>Test environment:</p>	<table border="1"> <tr> <td>Temp.:</td> <td>25 °C</td> <td>Humid.:</td> <td>52%</td> <td>Press.:</td> <td>1012mbar</td> </tr> </table>	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar		
<p>Test results:</p>	<p>Pass</p>						
<p>Test voltage:</p>	<p>DC3.7V</p>						

**Measurement data:**

**7.2.1 Field Strength of The Fundamental Signal**

**Peak value:**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2420.00	83.29	27.49	2.94	36.88	76.84	114.00	-37.16	Vertical
2420.00	85.74	27.49	2.94	36.88	79.29	114.00	-34.71	Horizontal
2450.00	82.15	27.57	2.96	36.90	75.78	114.00	-38.22	Vertical
2450.00	91.27	27.57	2.96	36.90	84.90	114.00	-29.10	Horizontal
2470.00	80.86	27.62	2.98	36.92	74.54	114.00	-39.46	Vertical
2470.00	84.71	27.62	2.98	36.92	78.39	114.00	-35.61	Horizontal

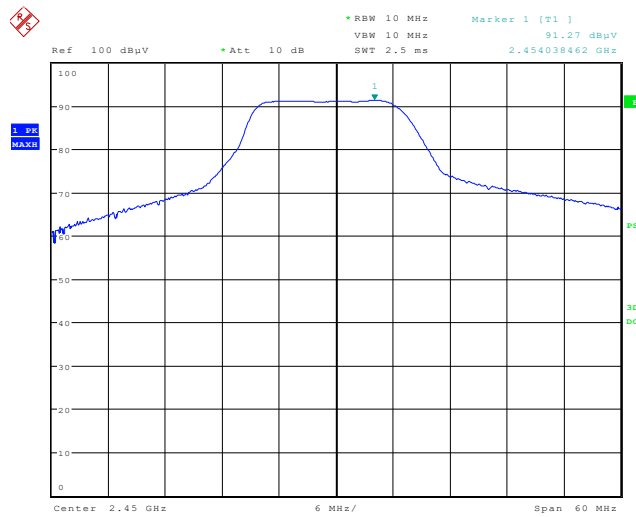
**Average value:**

Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
2420.00	78.47	27.49	2.94	36.88	72.02	94.00	-21.98	Vertical
2420.00	80.97	27.49	2.94	36.88	74.52	94.00	-19.48	Horizontal
2450.00	76.26	27.57	2.96	36.90	69.89	94.00	-24.11	Vertical
2450.00	90.54	27.57	2.96	36.90	84.17	94.00	-9.83	Horizontal
2470.00	75.52	27.62	2.98	36.92	69.20	94.00	-24.80	Vertical
2470.00	79.13	27.62	2.98	36.92	72.81	94.00	-21.19	Horizontal

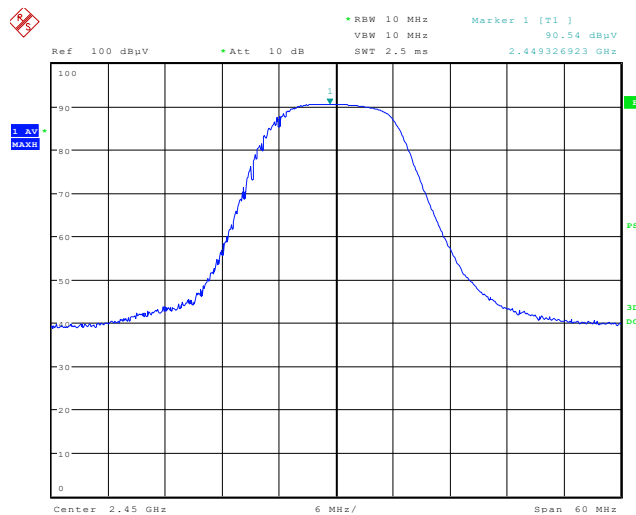
Note: For fundamental frequency , RBW>20dB BW, VBW>=RBW, PK detector for PK value, RMS detector for AV value

Test plot as follows:

Only show the worst case: 2450MHz, Horizontal



PK detector is for PK value



RMS detector is for AV value

## 7.2.2 Spurious emissions

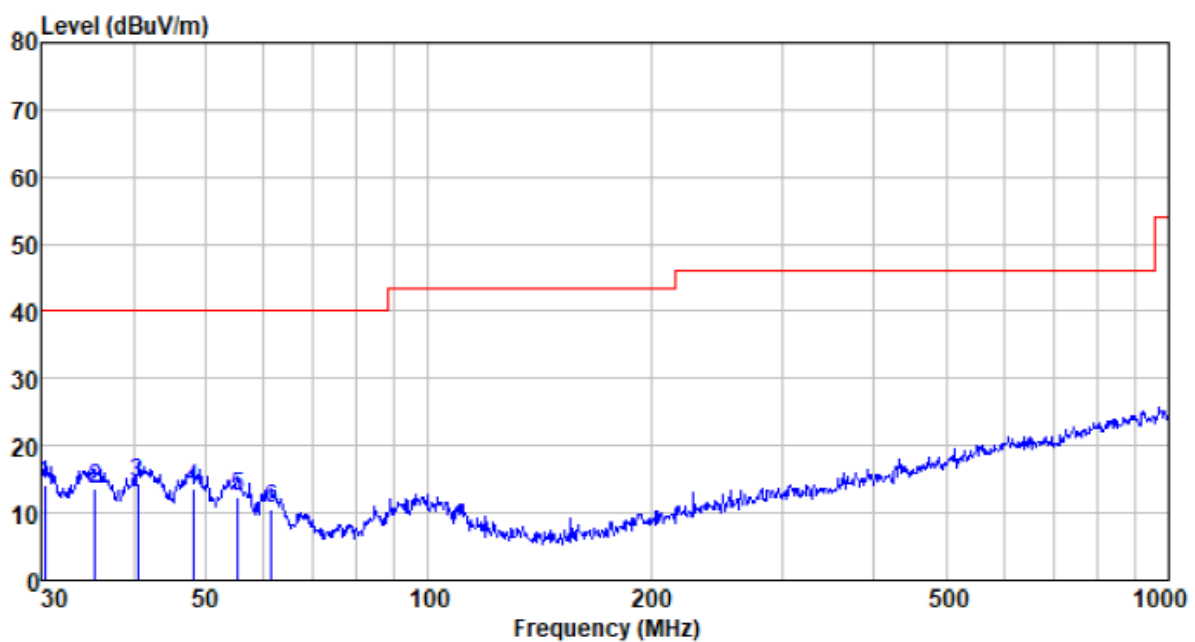
### ■ Below 30MHz

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o), the test result no need to reported.

### ■ Below 1GHz

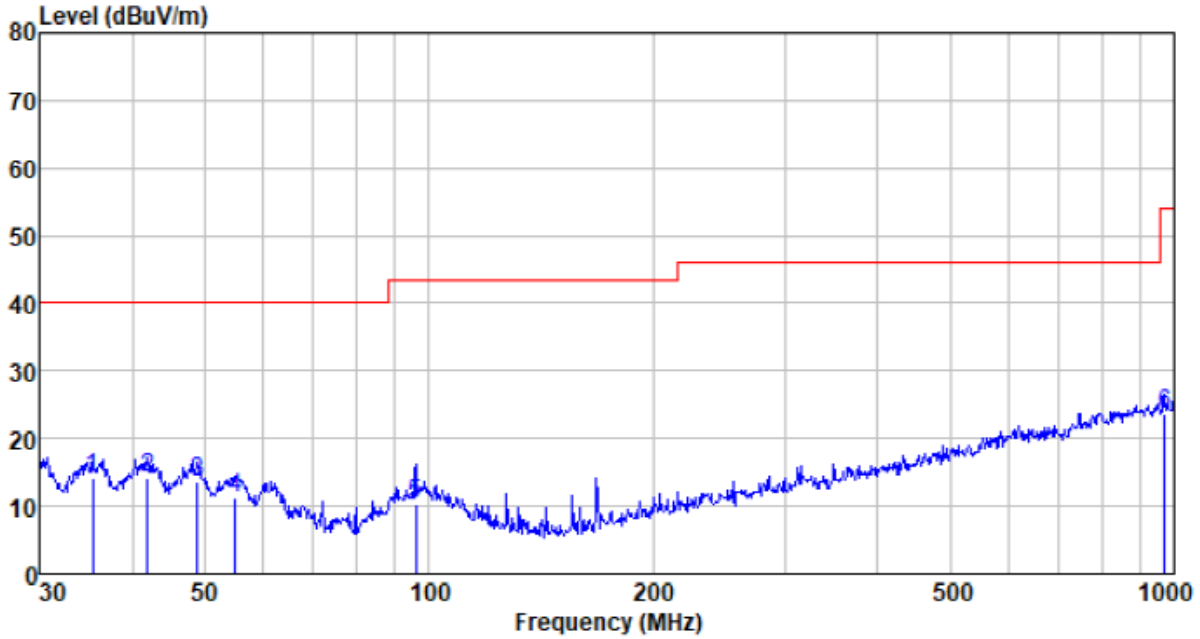
Test channel:	Lowest channel
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Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
30.317	37.29	11.21	0.55	35.02	14.03	40.00	-25.97	QP
35.499	37.02	11.42	0.61	35.39	13.66	40.00	-26.34	QP
40.559	37.20	12.21	0.67	35.70	14.38	40.00	-25.62	QP
48.163	36.76	12.28	0.75	36.09	13.70	40.00	-26.30	QP
55.221	36.05	11.78	0.82	36.26	12.39	40.00	-27.61	QP
61.346	35.24	10.84	0.87	36.34	10.61	40.00	-29.39	QP

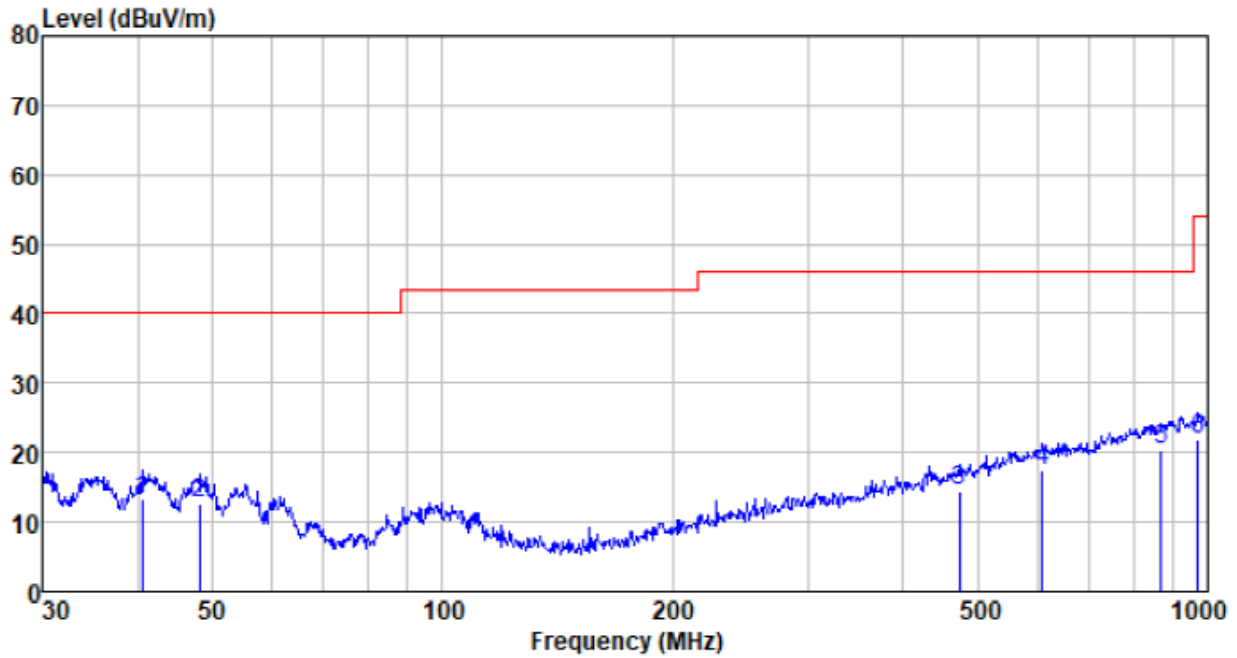
Vertical:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
35.375	37.43	11.39	0.61	35.38	14.05	40.00	-25.95	QP
41.860	36.98	12.22	0.68	35.77	14.11	40.00	-25.89	QP
48.843	36.71	12.29	0.76	36.13	13.63	40.00	-26.37	QP
55.027	35.01	11.78	0.82	36.25	11.36	40.00	-28.64	QP
96.099	34.25	11.65	1.16	36.69	10.37	43.50	-33.13	QP
972.337	33.44	22.59	5.12	37.53	23.62	54.00	-30.38	QP

Test channel:	Middle channel
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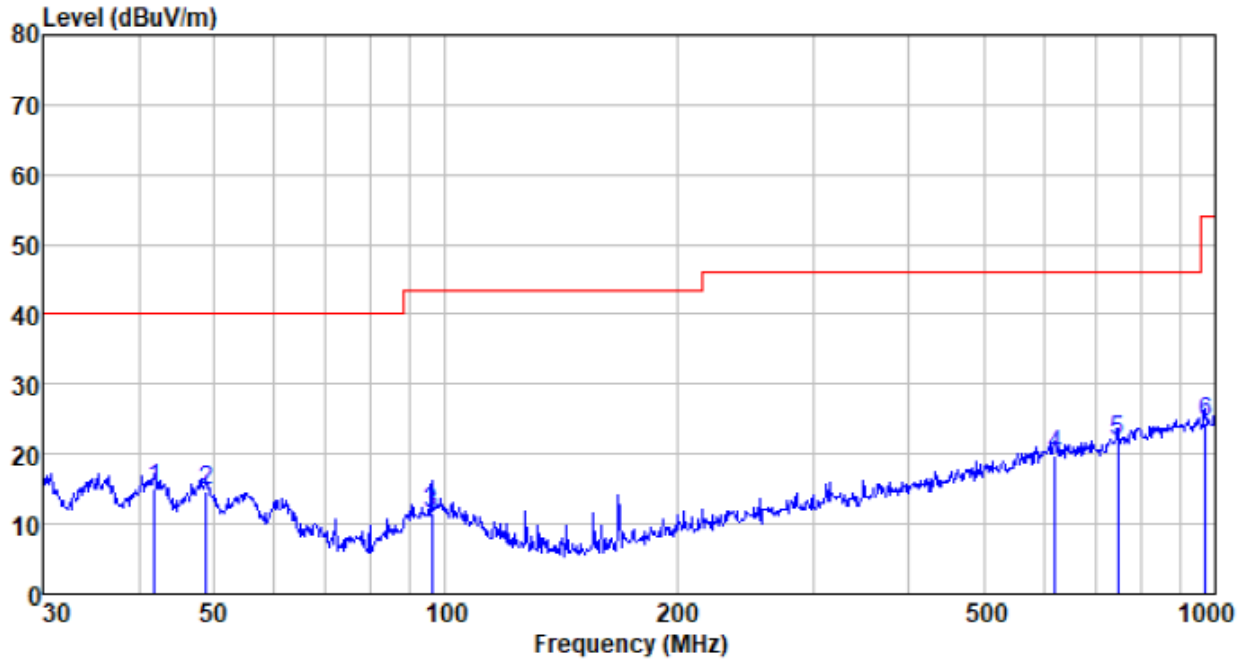
Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
40.559	36.20	12.21	0.67	35.70	13.38	40.00	-26.62	QP
48.163	35.76	12.28	0.75	36.09	12.70	40.00	-27.30	QP
473.835	31.83	16.81	3.20	37.51	14.33	46.00	-31.67	QP
607.787	31.63	19.51	3.75	37.55	17.34	46.00	-28.66	QP
869.130	31.20	22.02	4.74	37.61	20.35	46.00	-25.65	QP
972.337	31.58	22.59	5.12	37.53	21.76	54.00	-32.24	QP



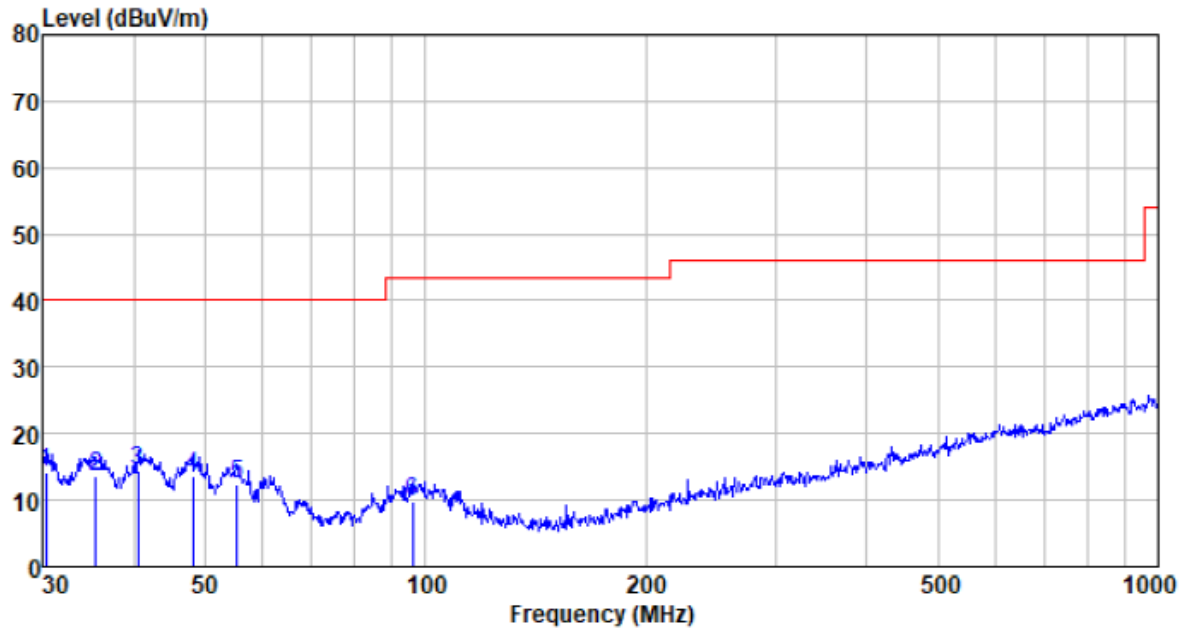
Vertical:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
41.860	37.98	12.22	0.68	35.77	15.11	40.00	-24.89	QP
48.843	37.71	12.29	0.76	36.13	14.63	40.00	-25.37	QP
96.099	35.25	11.65	1.16	36.69	11.37	43.50	-32.13	QP
618.537	34.03	19.52	3.80	37.56	19.79	46.00	-26.21	QP
747.483	34.64	20.47	4.27	37.63	21.75	46.00	-24.25	QP
972.337	34.44	22.59	5.12	37.53	24.62	54.00	-29.38	QP

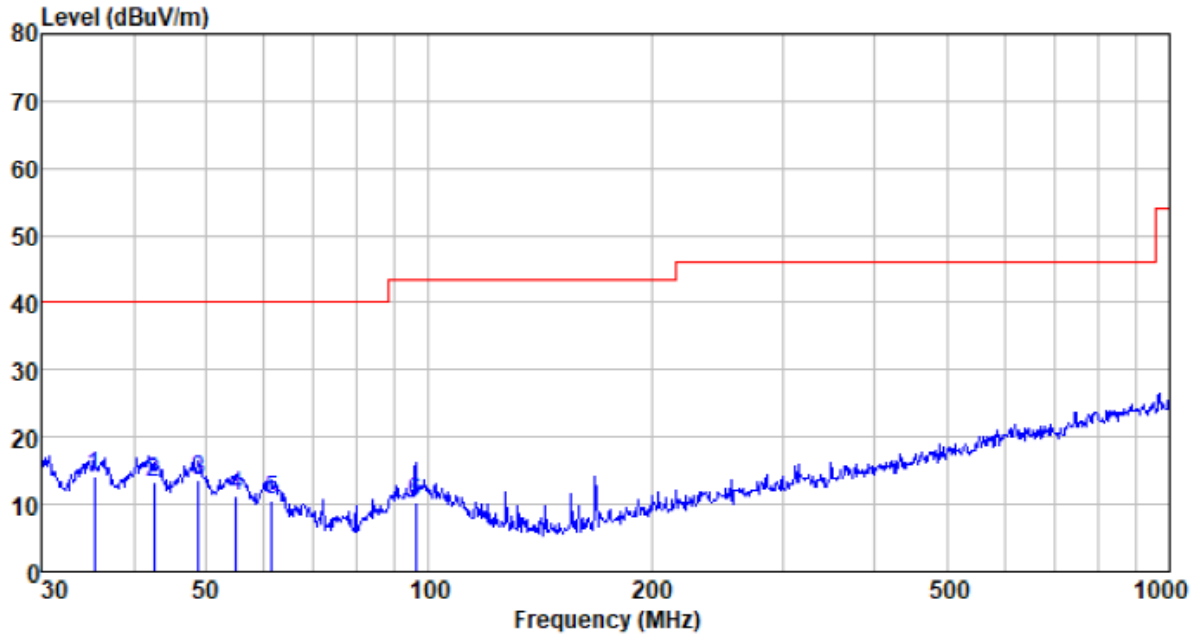
Test channel:	Highest channel
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Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
30.317	37.29	11.21	0.55	35.02	14.03	40.00	-25.97	QP
35.499	37.02	11.42	0.61	35.39	13.66	40.00	-26.34	QP
40.559	37.20	12.21	0.67	35.70	14.38	40.00	-25.62	QP
48.163	36.76	12.28	0.75	36.09	13.70	40.00	-26.30	QP
55.221	36.05	11.78	0.82	36.26	12.39	40.00	-27.61	QP
96.099	33.53	11.65	1.16	36.69	9.65	43.50	-33.85	QP

Vertical:

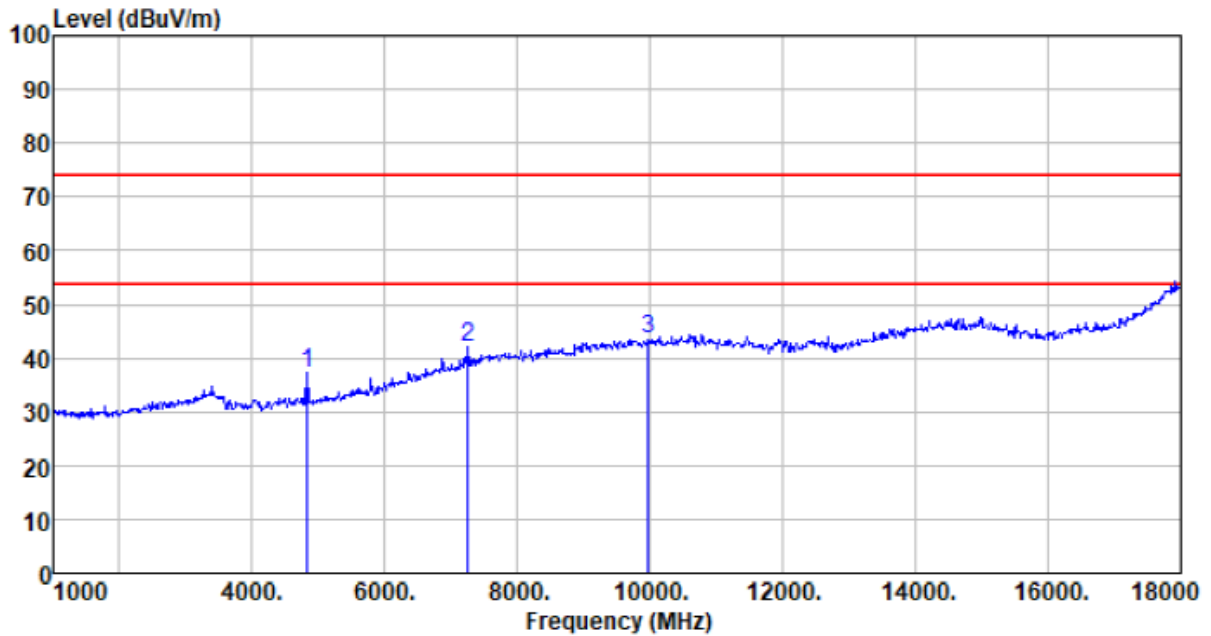


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
35.375	37.43	11.39	0.61	35.38	14.05	40.00	-25.95	QP
42.600	36.07	12.23	0.69	35.81	13.18	40.00	-26.82	QP
48.843	36.71	12.29	0.76	36.13	13.63	40.00	-26.37	QP
55.027	35.01	11.78	0.82	36.25	11.36	40.00	-28.64	QP
61.346	35.34	10.84	0.87	36.34	10.71	40.00	-29.29	QP
96.099	34.25	11.65	1.16	36.69	10.37	43.50	-33.13	QP

■ Above 1GHz

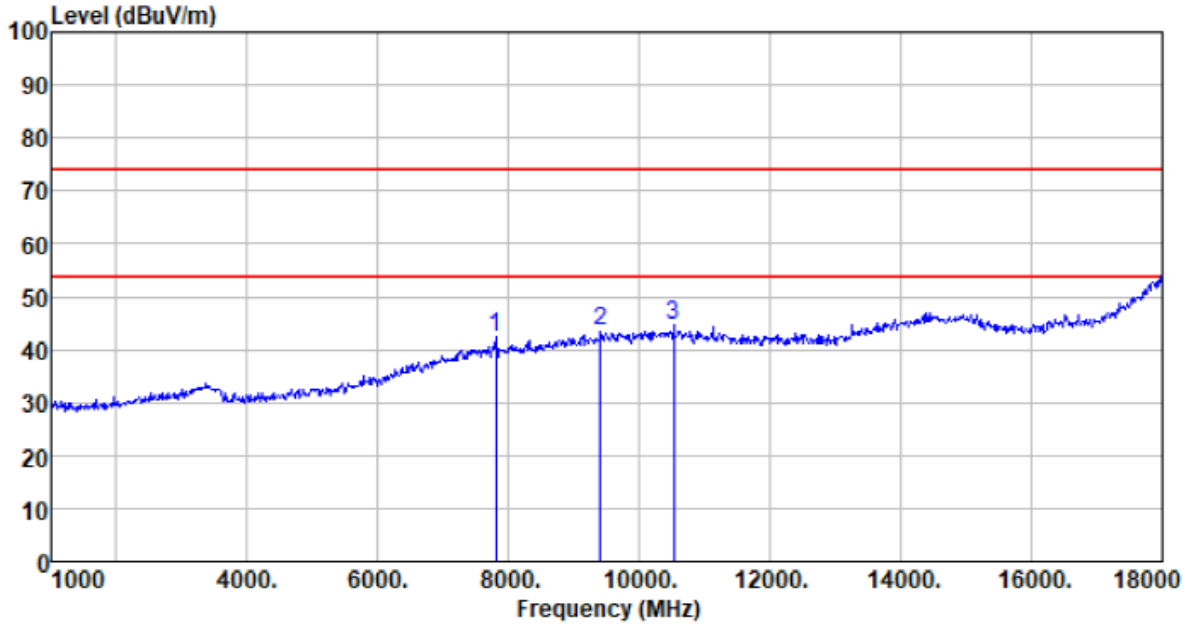
Test channel:	Lowest channel
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Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4825.000	39.14	31.24	4.63	37.74	37.27	74.00	-36.73	Peak
7256.000	34.74	36.30	6.55	35.62	41.97	74.00	-32.03	Peak
9976.000	32.40	38.37	8.11	35.18	43.70	74.00	-30.30	Peak

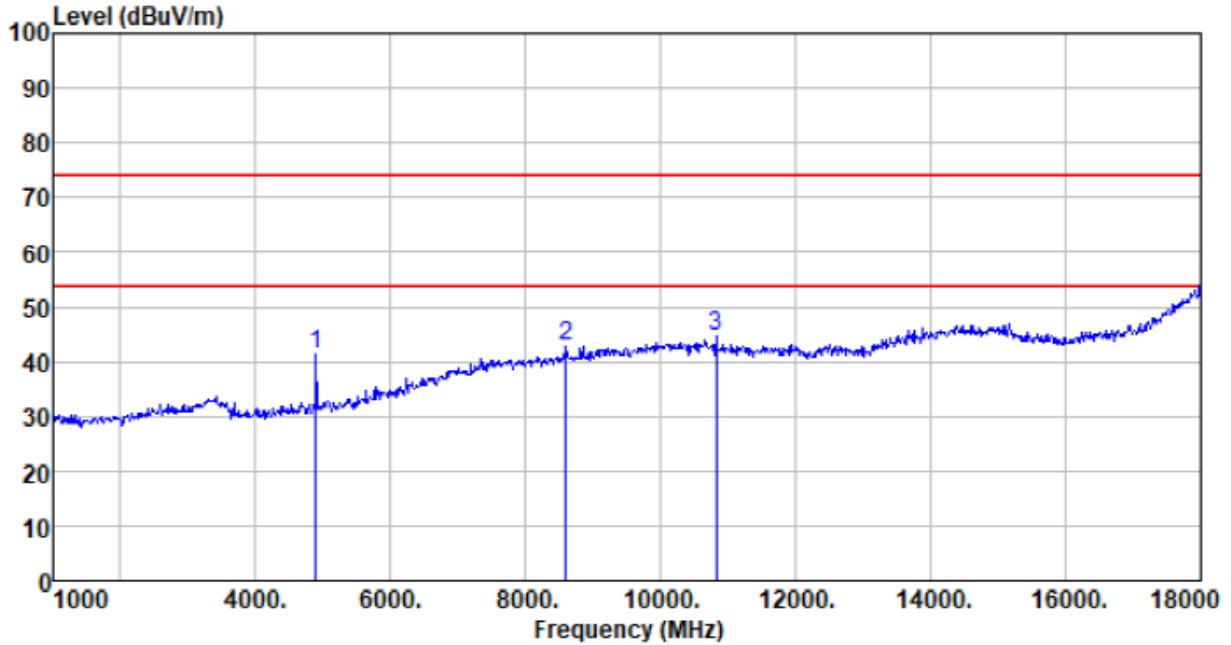
Vertical:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
7800.000	33.92	37.18	6.77	35.45	42.42	74.00	-31.58	Peak
9398.000	32.79	37.74	7.86	34.78	43.61	74.00	-30.39	Peak
10520.000	32.90	39.20	8.34	35.82	44.62	74.00	-29.38	Peak

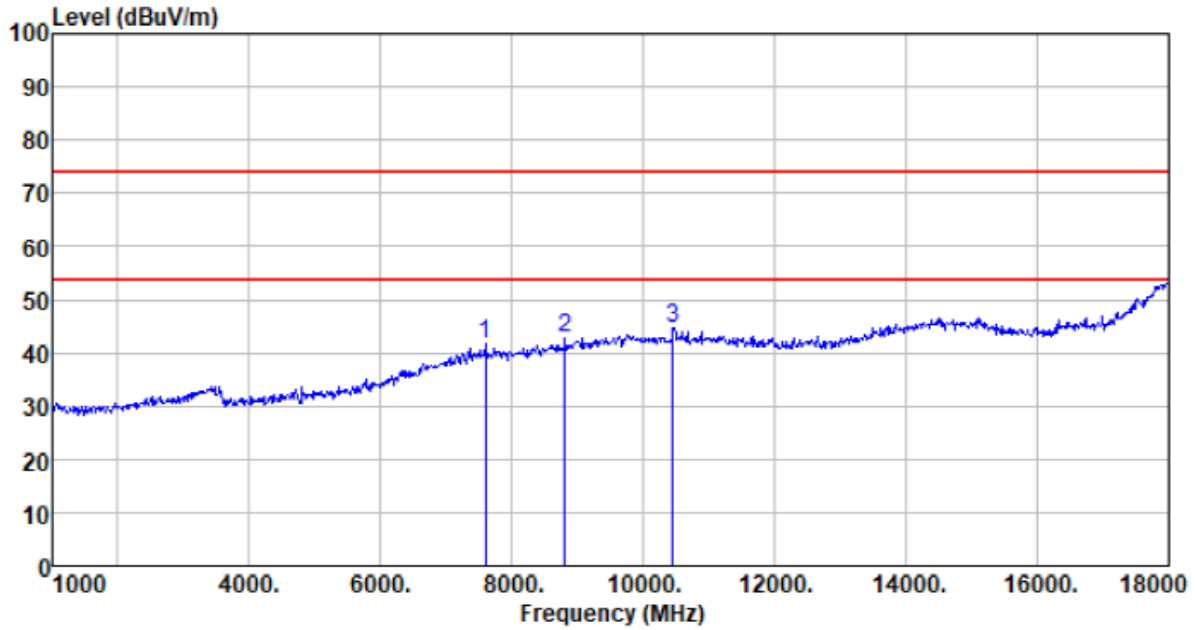
Test channel:	Middle channel
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Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4893.000	43.14	31.33	4.71	37.76	41.42	74.00	-32.58	Peak
8599.000	33.16	37.34	7.21	34.85	42.86	74.00	-31.14	Peak
10826.000	32.97	39.26	8.46	36.18	44.51	74.00	-29.49	Peak

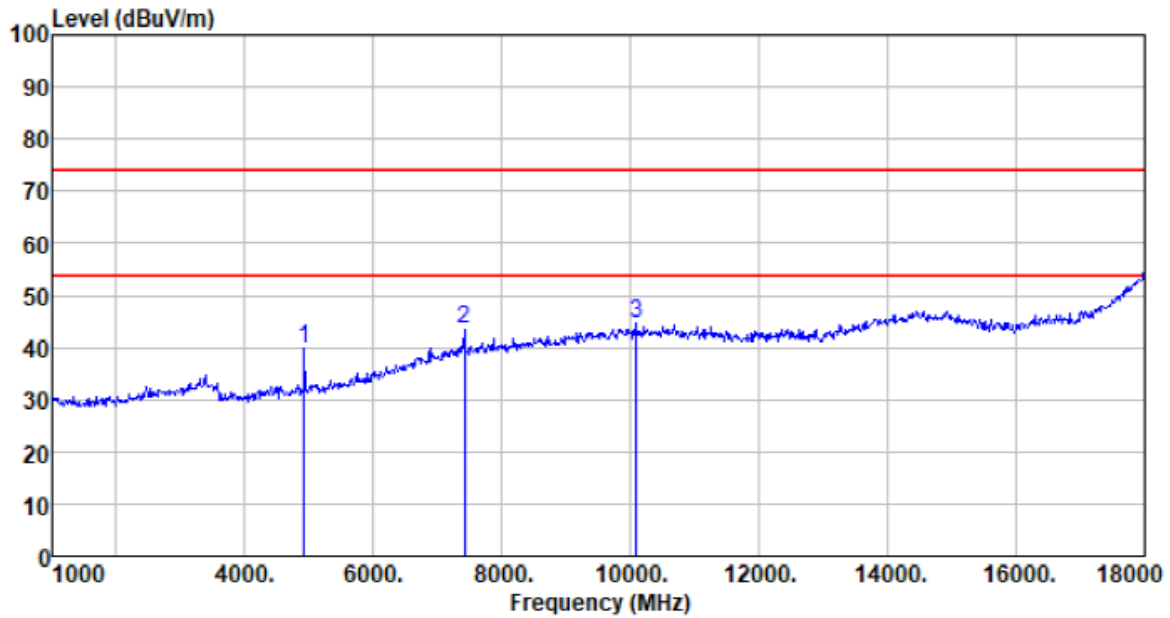
Vertical:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
7596.000	33.37	36.94	6.81	35.51	41.61	74.00	-32.39	Peak
8803.000	32.76	37.43	7.40	34.65	42.94	74.00	-31.06	Peak
10452.000	33.11	39.11	8.31	35.75	44.78	74.00	-29.22	Peak

Test channel:	Highest channel
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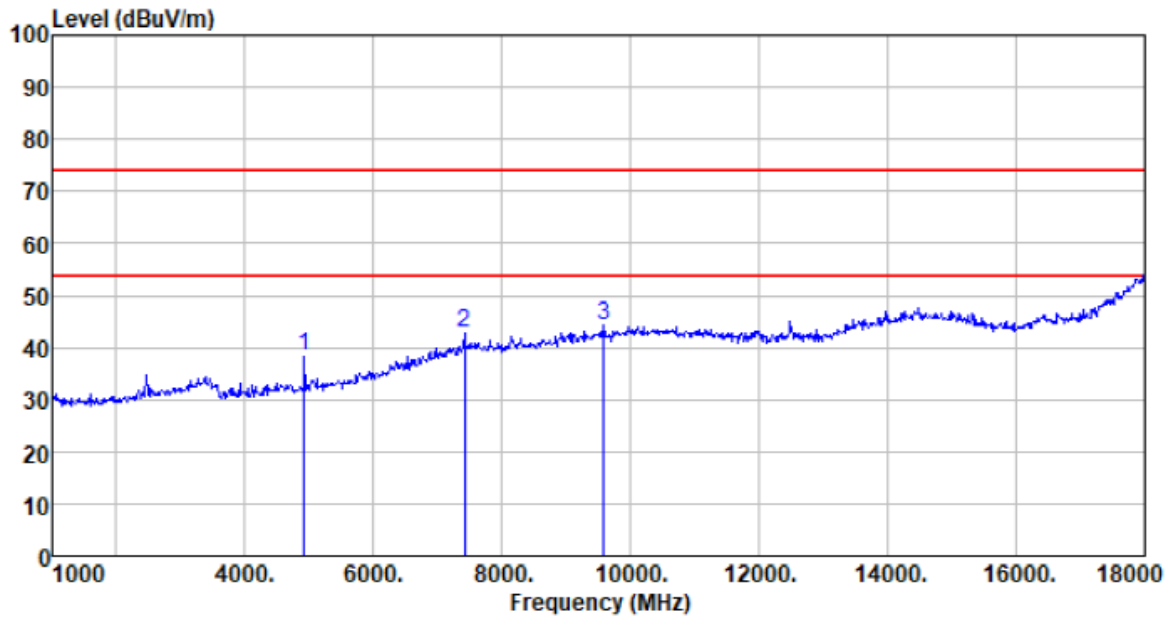
Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4927.000	41.38	31.39	4.75	37.77	39.75	74.00	-34.25	Peak
7409.000	35.93	36.62	6.73	35.57	43.71	74.00	-30.29	Peak
10095.000	33.22	38.54	8.16	35.31	44.61	74.00	-29.39	Peak



Vertical:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
4927.000	40.04	31.39	4.75	37.77	38.41	74.00	-35.59	Peak
7409.000	35.07	36.62	6.73	35.57	42.85	74.00	-31.15	Peak
9585.000	33.41	37.90	7.96	34.92	44.35	74.00	-29.65	Peak

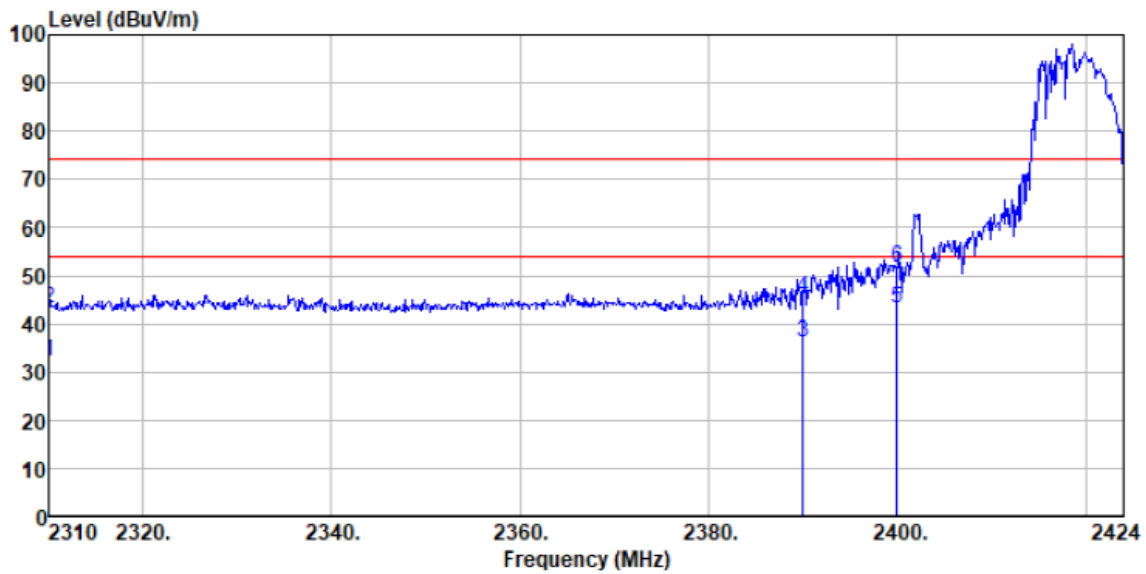
Remarks:

1. *Final Level = Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*
2. *The emission levels of other frequencies are very lower than the limit and not show in test report.*
3. *“\*”, means this data is the too weak instrument of signal is unable to test.*

### 7.2.3 Bandedge emissions

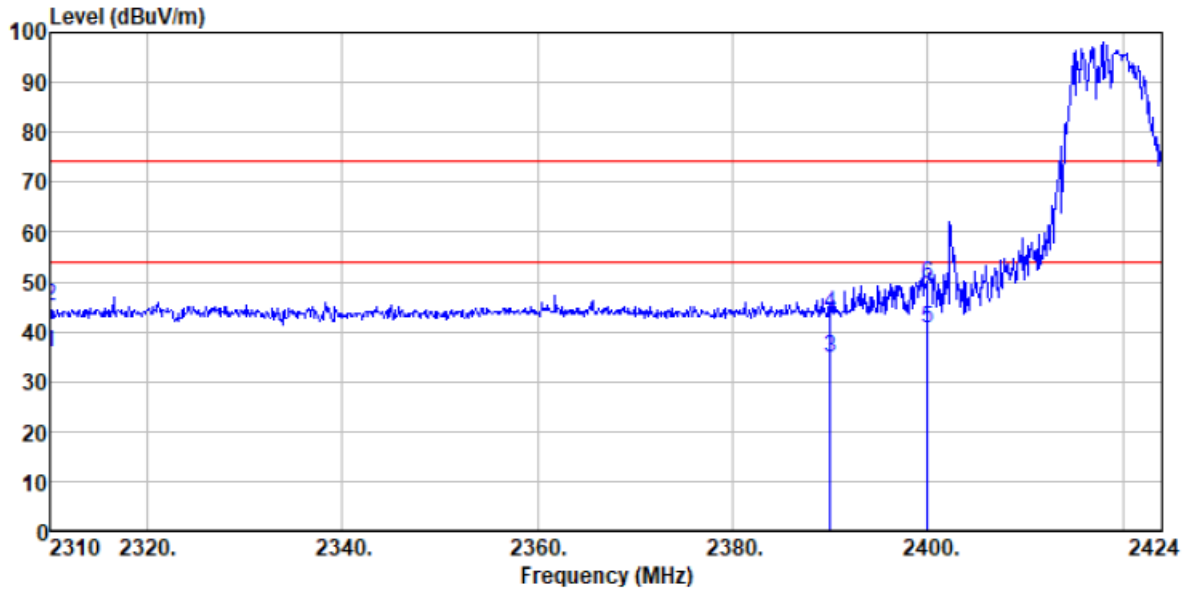
Test channel:	Lowest channel
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Horizontal:



	Read Freq	Antenna Level	Preamp Factor	Cable Loss	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dB	dBuV/m	dB	
1	2310.000	32.45	27.14	30.43	2.81	31.97	54.00 -22.03 Average
2	2310.000	43.75	27.14	30.43	2.81	43.27	74.00 -30.73 Peak
3	2390.028	36.14	27.37	30.24	2.91	36.18	54.00 -17.82 Average
4	2390.028	45.27	27.37	30.24	2.91	45.31	74.00 -28.69 Peak
5	2399.946	43.16	27.41	30.26	2.91	43.22	54.00 -10.78 Average
6	2399.946	51.77	27.41	30.26	2.91	51.83	74.00 -22.17 Peak

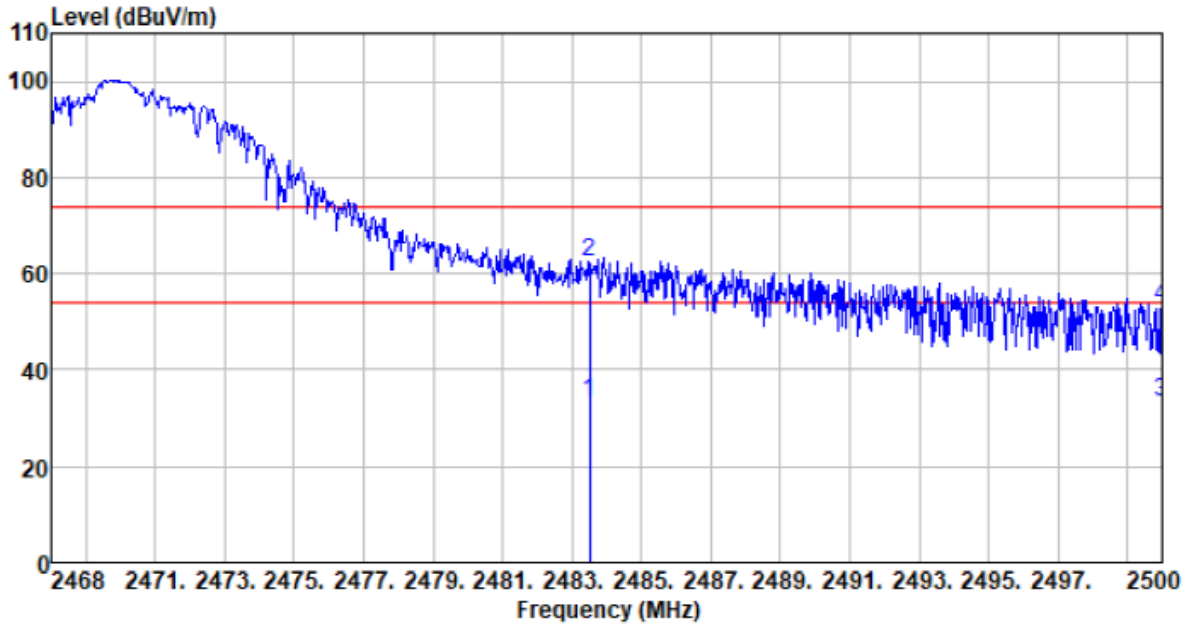
Vertical:



	Read	Antenna	Preamp	Cable	Limit	Over		
Freq	Level	Factor	Factor	Loss	Level	Line	Limit	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2310.000	36.15	27.14	30.43	2.81	35.67	54.00	-18.33 Average
2	2310.000	45.44	27.14	30.43	2.81	44.96	74.00	-29.04 Peak
3	2390.028	34.65	27.37	30.24	2.91	34.69	54.00	-19.31 Average
4	2390.028	43.48	27.37	30.24	2.91	43.52	74.00	-30.48 Peak
5	2399.946	40.60	27.41	30.26	2.91	40.66	54.00	-13.34 Average
6	2399.946	49.29	27.41	30.26	2.91	49.35	74.00	-24.65 Peak

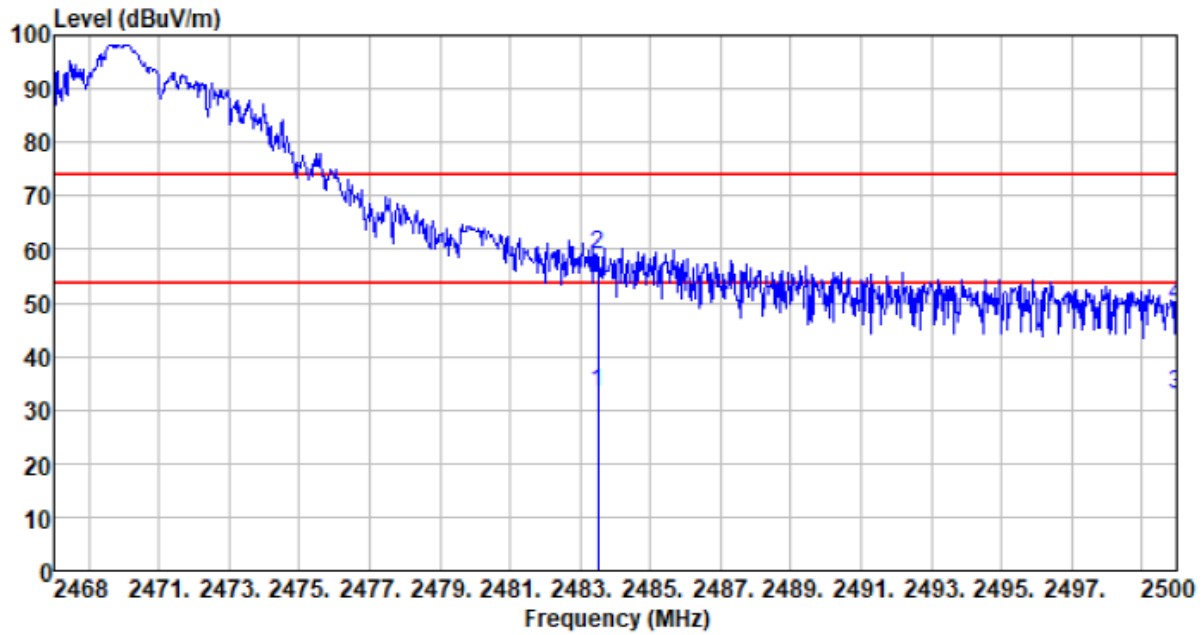
Test channel:	Highest channel
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Horizontal:



Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2483.500	32.84	27.66	2.99	30.12	33.37	54.00	-20.63	Average
2483.500	62.01	27.66	2.99	30.12	62.54	74.00	-11.46	Peak
2500.000	32.82	27.70	3.01	30.13	33.40	54.00	-20.60	Average
2500.000	52.44	27.70	3.01	30.13	53.02	74.00	-20.98	Peak

Vertical:

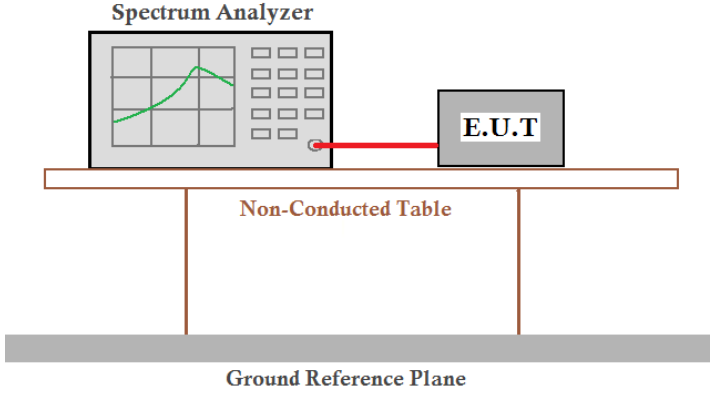


Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
2483.500	32.74	27.66	2.99	30.12	32.74	54.00	-20.73	Average
2483.500	58.39	27.66	2.99	30.12	58.92	74.00	-15.08	Peak
2500.000	32.16	27.70	3.01	30.13	32.74	54.00	-21.26	Average
2500.000	48.97	27.70	3.01	30.13	49.55	74.00	-24.45	Peak

Remark:

1. Final Level = Receiver Read level + Antenna Factor + Cable Loss – Pre-amplifier Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

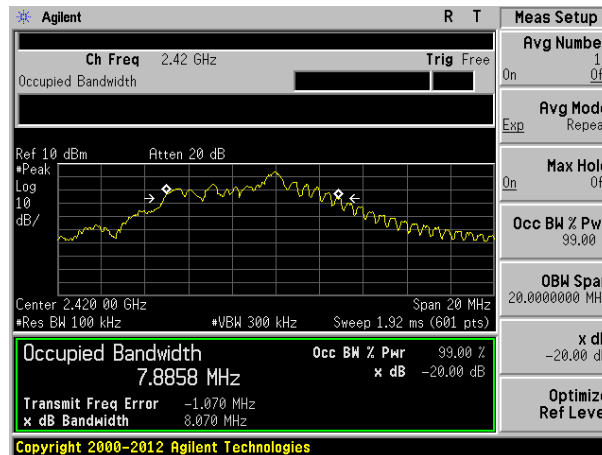
### 7.3 20dB Occupy Bandwidth

Test Requirement:	FCC Part15 C Section 15.249/15.215
Test Method:	ANSI C63.10:2013
Limit:	Operation Frequency range 2400MHz~2483.5MHz
Test setup:	 <p>The diagram illustrates the test setup. A Spectrum Analyzer is connected to an E.U.T. (Equipment Under Test) via a red cable. Both are placed on a Non-Conducted Table, which is supported by a Ground Reference Plane.</p>
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

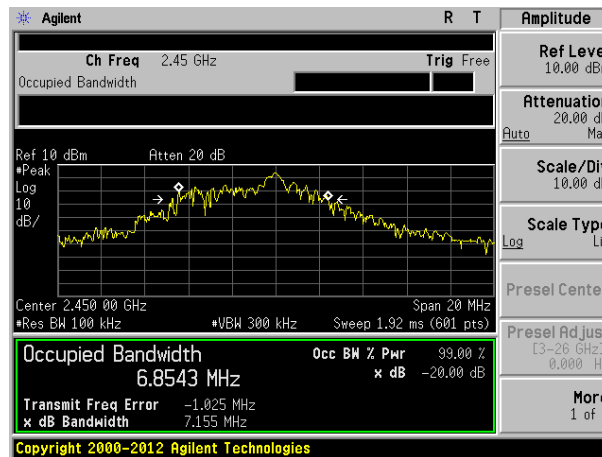
#### Measurement Data

Test channel	20dB bandwidth(MHz)	Result
Lowest	8.070	Pass
Middle	7.155	Pass
Highest	6.259	Pass

Test plot as follows:



Lowest channel



Middle channel



Highest channel

## 8 Test Setup Photo

Reference to the **appendix I** for details.

## 9 EUT Constructional Details

Reference to the **appendix II** for details.

-----End-----