TEST REPORT

Applicant:	SHENZHEN DUMBO MODEL CO., LTD.
Address of Applicant:	C301, Kedasi Industrial Park, Xintian Market, Guanlan Town, Longhua District, Shenzhen, Guangdong, China
Manufacturer:	SHENZHEN DUMBO MODEL CO., LTD.
Address of Manufacturer:	C301, Kedasi Industrial Park, Xintian Market, Guanlan Town, Longhua District, Shenzhen, Guangdong, China
Equipment Under Test (EUT)	
Product Name:	Pistol Grip Transmitter
Model No.:	X10P-350, X5P-350, X5PM-350, X5PA-350, X5PMA-350, X5E-150, X5EM-150, X5EA-150, X5EMA-150, X10PA-350, X6PM-350, X6EM-150, X10E-150, X10EA-150, X4E-150, X4P-350, X4EM-150, X4PM-350
Trade Mark:	DUMBORC
FCC ID:	2ATHVX10P-350
Applicable standards:	FCC CFR Title 47 Part 15 Subpart C Section 15.249
Date of sample receipt:	August 18, 2022
Date of Test:	August 19-25, 2022
Date of report issued:	August 26, 2022
Test Result :	PASS *

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

Authorized Signature:

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	*August 26, 2022*	*Original*

Prepared By: ***Date:*** *August 26, 2022*

Project Engineer

Check By: ***Date:*** *August 26, 2022*

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

4.1 Measurement Uncertainty

Test Item	Frequency Range	Measurement Uncertainty	Notes
Radiated Emission	9kHz-30MHz	3.1dB	(1)
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:	Pistol Grip Transmitter
Model No.:	X10P-350, X5P-350, X5PM-350, X5PA-350, X5PMA-350, X5E-150, X5EM-150, X5EA-150, X5EMA-150, X10PA-350, X6PM-350, X6EM-150, X10E-150, X10EA-150, X4E-150, X4P-350, X4EM-150, X4PM-350
Test Model No.:	X10P-350
Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits. The only difference is model name for commercial purpose.	
Serial No.:	20220818001
Test sample(s) ID:	GTS202208000069-1
Sample(s) Status	Engineered sample
Operation Frequency:	2402MHz~2478.8MHz
Channel numbers:	65
Modulation type:	GFSK
Antenna Type:	Integral antenna
Antenna gain:	2.0dBi (declare by Applicant)
Power supply:	TX: DC 6.0V RX: DC 4.8-12V

Note:The report is only for TX device

Operation Frequency each of channel							
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
01	2402.00	18	2422.40	35	2442.80	52	2463.20
02	2403.20	19	2423.60	36	2444.00	53	2464.40
03	2404.40	20	2424.80	37	2445.20	54	2465.60
04	2405.60	21	2426.00	38	2446.40	55	2466.80
05	2406.80	22	2427.20	39	2447.60	56	2468.00
06	2408.00	23	2428.40	40	2448.80	57	2469.20
07	2409.20	24	2429.60	41	2450.00	58	2470.40
08	2410.40	25	2430.80	42	2451.20	59	2471.60
09	2411.60	26	2432.00	43	2452.40	60	2472.80
10	2412.80	27	2433.20	44	2453.60	61	2474.00
11	2414.00	28	2434.40	45	2454.80	62	2475.20
12	2415.20	29	2435.60	46	2456.00	63	2476.40
13	2416.40	30	2436.80	47	2457.20	64	2477.60
14	2417.60	31	2438.00	48	2458.40	65	2478.80
15	2418.80	32	2439.20	49	2459.60		
16	2420.00	33	2440.40	50	2460.80		
17	2421.20	34	2441.60	51	2462.00		

The test frequencies are below:

Channel	Frequency
The lowest channel	2402.0MHz
The middle channel	2441.6MHz
The Highest channel	2478.8MHz

5.2 Test mode

Transmitting mode	Keep the EUT in continuously transmitting mode.
Remark: New 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)	83.61	84.19	82.17

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**

Designation Number: CN5029

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.

● **IC —Registration No.: 9079A**

CAB identifier: CN0091

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

● **NVLAP (LAB CODE:600179-0)**

Global United Technology Services Co., Ltd., is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP).

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

5.8 Additional Instructions

Test Software	Special test command provided by manufacturer
Power level setup	Default

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	April 22, 2022	April 21, 2023
4	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9168	GTS640	March 21, 2022	March 20, 2023
5	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120 D	GTS208	June 12, 2022	June 11, 2023
6	Horn Antenna	ETS-LINDGREN	3160	GTS217	June 23, 2022	June 22, 2023
7	EMI Test Software	AUDIX	E3	N/A	N/A	N/A
8	Coaxial Cable	GTS	N/A	GTS213	April 22, 2022	April 21, 2023
9	Coaxial Cable	GTS	N/A	GTS211	April 22, 2022	April 21, 2023
10	Coaxial cable	GTS	N/A	GTS210	April 22, 2022	April 21, 2023
11	Coaxial Cable	GTS	N/A	GTS212	April 22, 2022	April 21, 2023
12	Amplifier(100kHz-3GHz)	HP	8347A	GTS204	April 22, 2022	April 21, 2023
13	Amplifier (18-26GHz)	Rohde & Schwarz	AFS33-18002 650-30-8P-44	GTS218	June 23, 2022	June 22, 2023
14	Band filter	Amindeon	82346	GTS219	June 23, 2022	June 22, 2023
15	Power Meter	Anritsu	ML2495A	GTS540	June 23, 2022	June 22, 2023
16	Power Sensor	Anritsu	MA2411B	GTS541	June 23, 2022	June 22, 2023
17	Wideband Radio Communication Tester	Rohde & Schwarz	CMW500	GTS575	April 22, 2022	April 21, 2023
18	Splitter	Agilent	11636B	GTS237	June 23, 2022	June 22, 2023
19	Loop Antenna	ZHINAN	ZN30900A	GTS534	Nov. 30, 2021	Nov. 29, 2022
20	Broadband Preamplifier	SCHWARZBECK	BBV9718	GTS535	April 22, 2022	April 21, 2023
21	Breitband hornantenna	SCHWARZBECK	BBHA 9170	GTS579	Oct. 17, 2021	Oct. 16, 2022
22	Amplifier	TDK	PA-02-02	GTS574	Oct. 17, 2021	Oct. 16, 2022
23	Amplifier	TDK	PA-02-03	GTS576	Oct. 17, 2021	Oct. 16, 2022
24	PSA Series Spectrum Analyzer	Rohde & Schwarz	FSP	GTS578	June 23, 2022	June 22, 2023
25	Amplifier(1GHz-26.5GHz)	HP	8449B	GTS601	April 22, 2022	April 21, 2023

RF Conducted Test:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	MXA Signal Analyzer	Agilent	N9020A	GTS566	April 22, 2022	April 21, 2023
2	EMI Test Receiver	R&S	ESCI 7	GTS552	April 22, 2022	April 21, 2023
3	Spectrum Analyzer	Agilent	E4440A	GTS536	April 22, 2022	April 21, 2023
4	MXG vector Signal Generator	Agilent	N5182A	GTS567	April 22, 2022	April 21, 2023
5	ESG Analog Signal Generator	Agilent	E4428C	GTS568	April 22, 2022	April 21, 2023
6	USB RF Power Sensor	DARE	RPR3006W	GTS569	April 22, 2022	April 21, 2023
7	RF Switch Box	Shongyi	RFSW3003328	GTS571	April 22, 2022	April 21, 2023
8	Programmable Constant Temp & Humi Test Chamber	WEWON	WHTH-150L-40-880	GTS572	April 22, 2022	April 21, 2023

General used equipment:						
Item	**Test Equipment**	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal.Date (mm-dd-yy)**	**Cal.Due date (mm-dd-yy)**
1	Humidity/ Temperature Indicator	KTJ	TA328	GTS243	April 25, 2022	April 24, 2023
2	Barometer	KUMAO	SF132	GTS647	July 26, 2022	July 25, 2023

7 Test results and Measurement Data

7.1 Antenna requirement

Standard requirement:	FCC Part15 C Section 15.203
15.203 requirement: 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. **15.247(c) (1)(i) requirement:** (i) Systems operating in the 2400-2483.5 MHz band that is used exclusively for fixed. Point-to-point operations may employ transmitting antennas with directional gain greater than 6dBi provided the maximum conducted output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6dBi.	
EUT Antenna:	
The antenna is integral antenna, the best case gain of the are antennas 2dBi, 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)

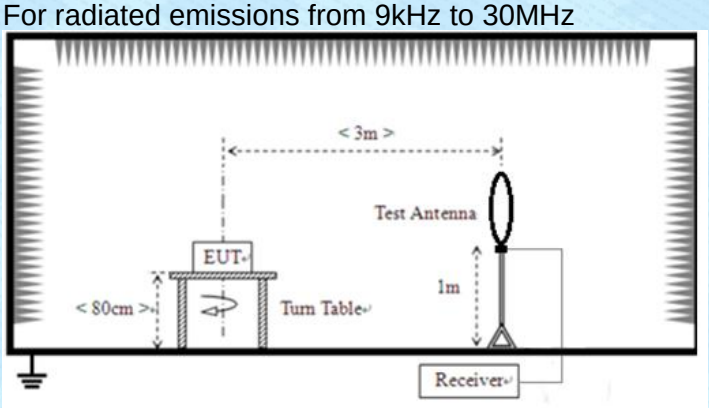
Frequency	Limit (uV/m)	Remark
0.009MHz-0.490MHz	2400/F(kHz) @300m	Quasi-peak Value
0.490MHz-1.705MHz	24000/F(kHz) @30m	Quasi-peak Value
1.705MHz-30.0MHz	30 @30m	Quasi-peak Value
30MHz-88MHz	100 @3m	Quasi-peak Value
88MHz-216MHz	150 @3m	Quasi-peak Value
216MHz-960MHz	200 @3m	Quasi-peak Value
960MHz-1GHz	500 @3m	Quasi-peak Value
Above 1GHz	500 @3m	Average Value
	5000 @3m	Peak Value

Limit: (band edge)

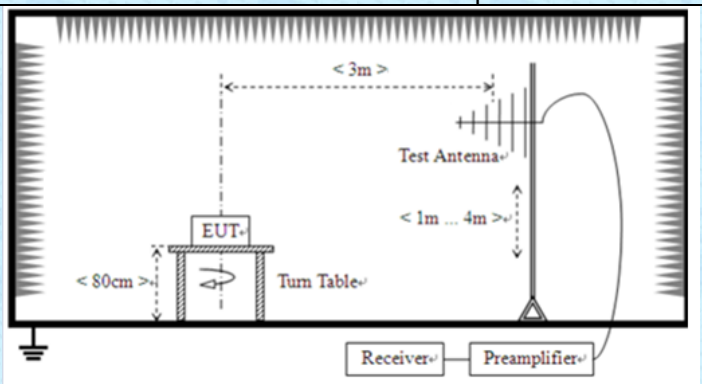
Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

Test setup:

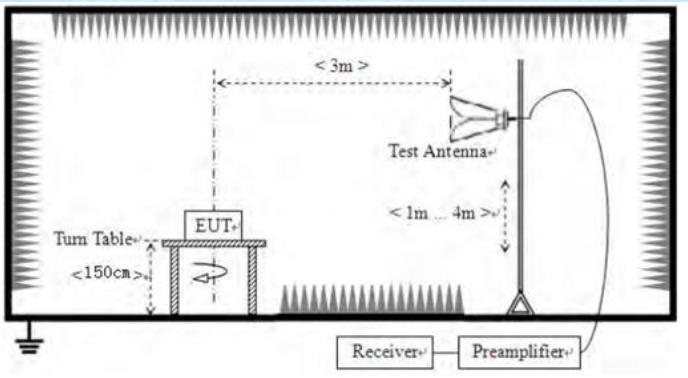
For radiated emissions from 9kHz to 30MHz



For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



Test Procedure:	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. 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. 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. 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. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 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.					
Test Instruments:	Refer to section 6.0 for details					
Test mode:	Refer to section 5.2 for details					
Test environment:	Temp.:	25 °C	Humid.:	52%	Press.:	1012mbar
Test voltage:	DC 3.0V					
Test results:	Pass					

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
2402.00	91.37	27.43	2.93	38.88	82.85	114.00	-31.15	Vertical
2402.00	81.61	27.43	2.93	38.88	73.09	114.00	-40.91	Horizontal
2441.60	92.66	27.55	2.96	38.98	84.19	114.00	-29.81	Vertical
2441.60	82.18	27.55	2.96	38.98	73.71	114.00	-40.29	Horizontal
2478.80	89.46	27.64	2.99	39.05	81.04	114.00	-32.96	Vertical
2478.80	79.12	27.64	2.99	39.05	70.70	114.00	-43.30	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
2402.00	78.89	27.43	2.93	38.88	70.37	94.00	-23.63	Vertical
2402.00	69.86	27.43	2.93	38.88	61.34	94.00	-32.66	Horizontal
2441.60	83.38	27.55	2.96	38.98	74.91	94.00	-19.09	Vertical
2441.60	70.26	27.55	2.96	38.98	61.79	94.00	-32.21	Horizontal
2478.80	79.31	27.64	2.99	39.05	70.89	94.00	-23.11	Vertical
2478.80	71.22	27.64	2.99	39.05	62.80	94.00	-31.20	Horizontal

Note: RBW>20dB BW, VBW> RBW, PK detector is for PK value, AV detector is for AV value .

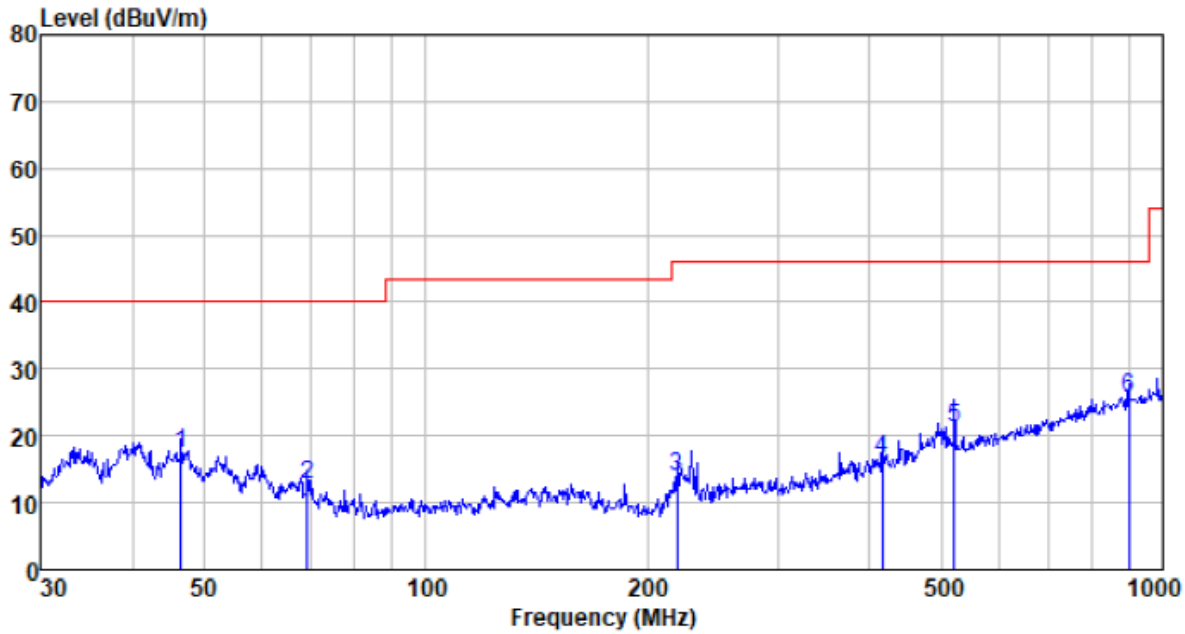
7.2.2 Spurious emissions

■ **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.

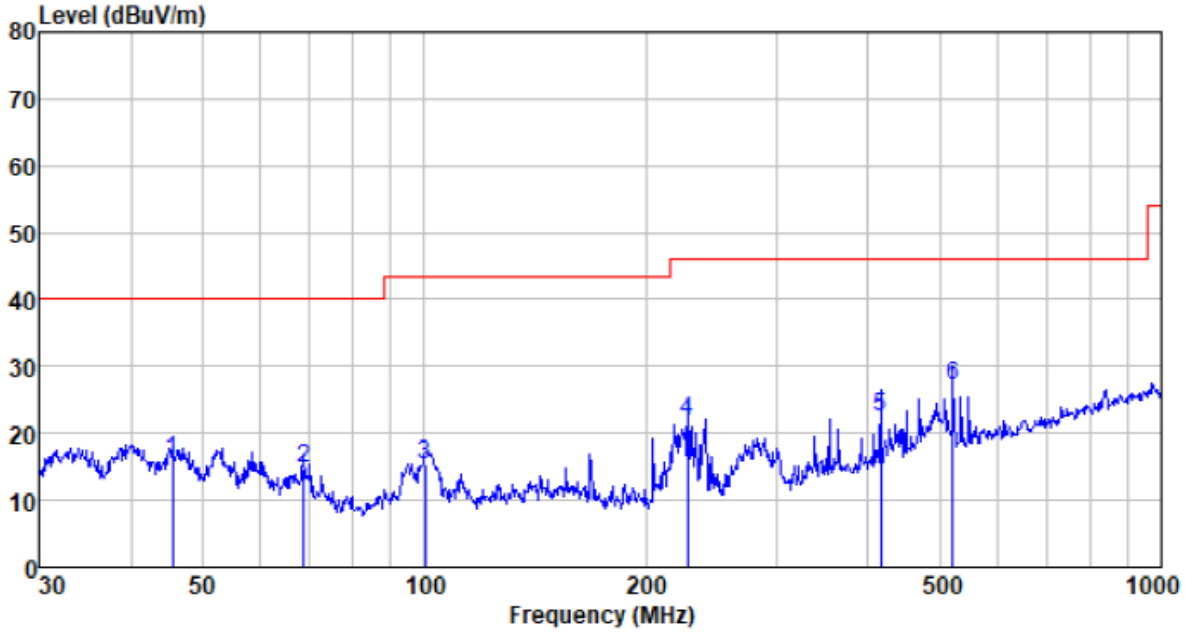
■ **Below 1GHz**

Test channel:	Lowest	Polarization:	Horizontal



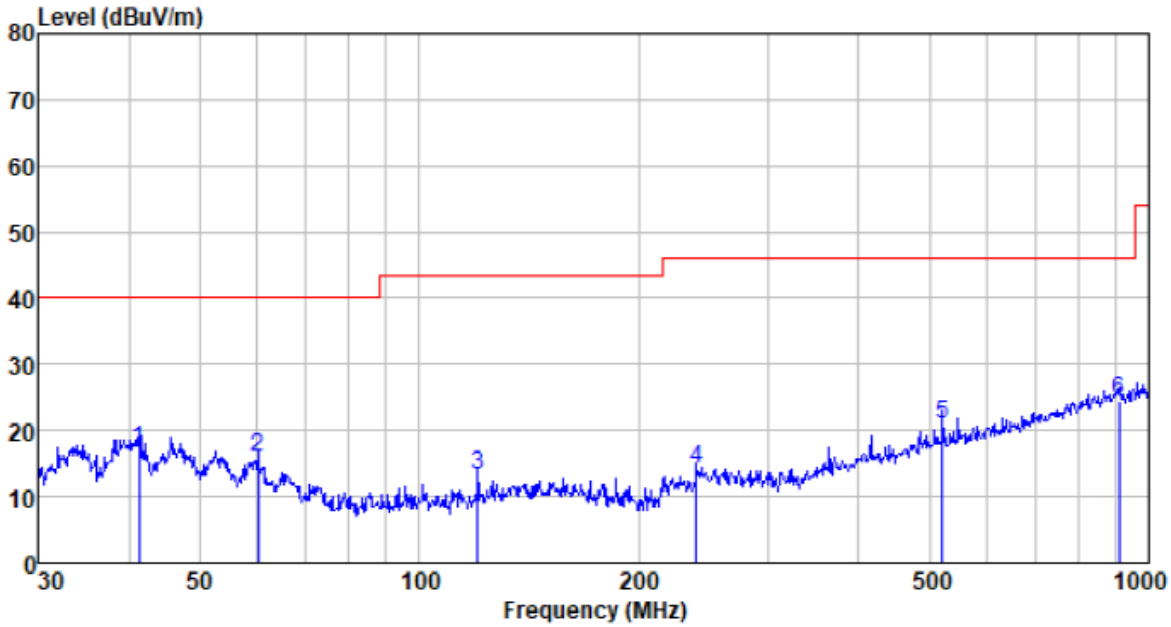
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
46.503	39.02	13.30	0.74	35.50	17.56	40.00	-22.44	QP
69.114	36.91	10.67	0.93	35.83	12.68	40.00	-27.32	QP
219.075	38.47	10.25	1.95	36.67	14.00	46.00	-32.00	QP
416.179	34.56	16.04	2.93	37.03	16.50	46.00	-29.50	QP
520.888	37.06	17.98	3.39	37.12	21.31	46.00	-24.69	QP
900.147	34.37	23.90	4.85	37.35	25.77	46.00	-20.23	QP

Test channel:	Lowest	Polarization:	Vertical



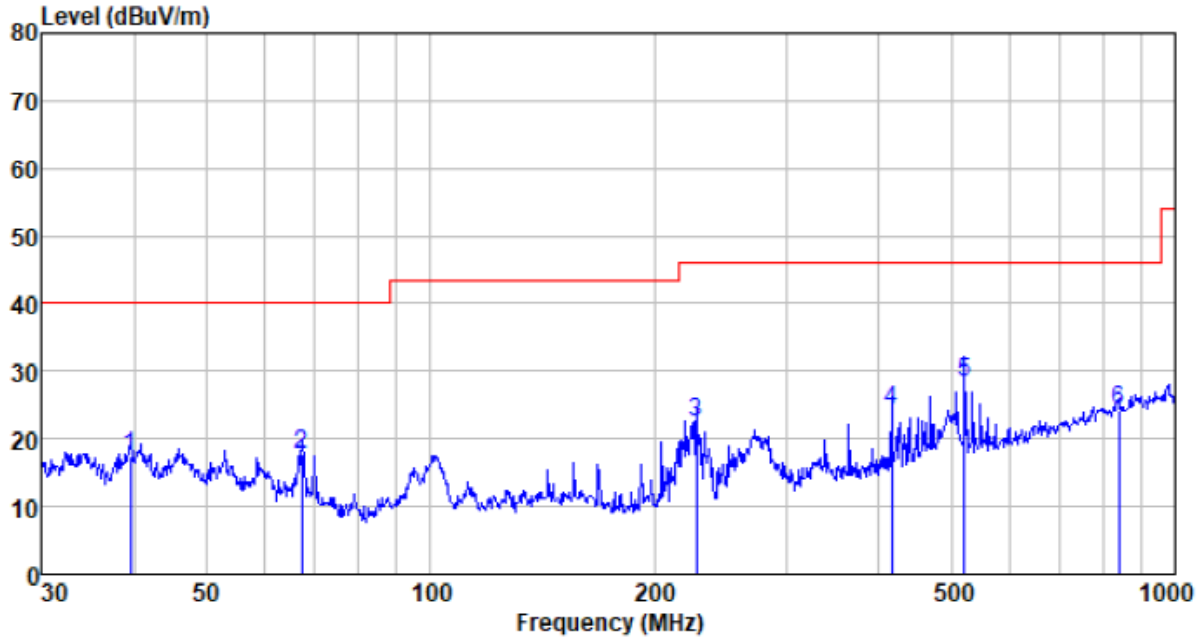
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
45.535	37.48	13.33	0.72	35.47	16.06	40.00	-23.94	QP
68.631	39.00	10.77	0.93	35.83	14.87	40.00	-25.13	QP
100.229	40.39	9.72	1.19	36.10	15.20	43.50	-28.30	QP
227.691	45.86	10.81	2.01	36.70	21.98	46.00	-24.02	QP
416.179	40.63	16.04	2.93	37.03	22.57	46.00	-23.43	QP
520.888	42.97	17.98	3.39	37.12	27.22	46.00	-18.78	QP

Test channel:	Middle	Polarization:	Horizontal



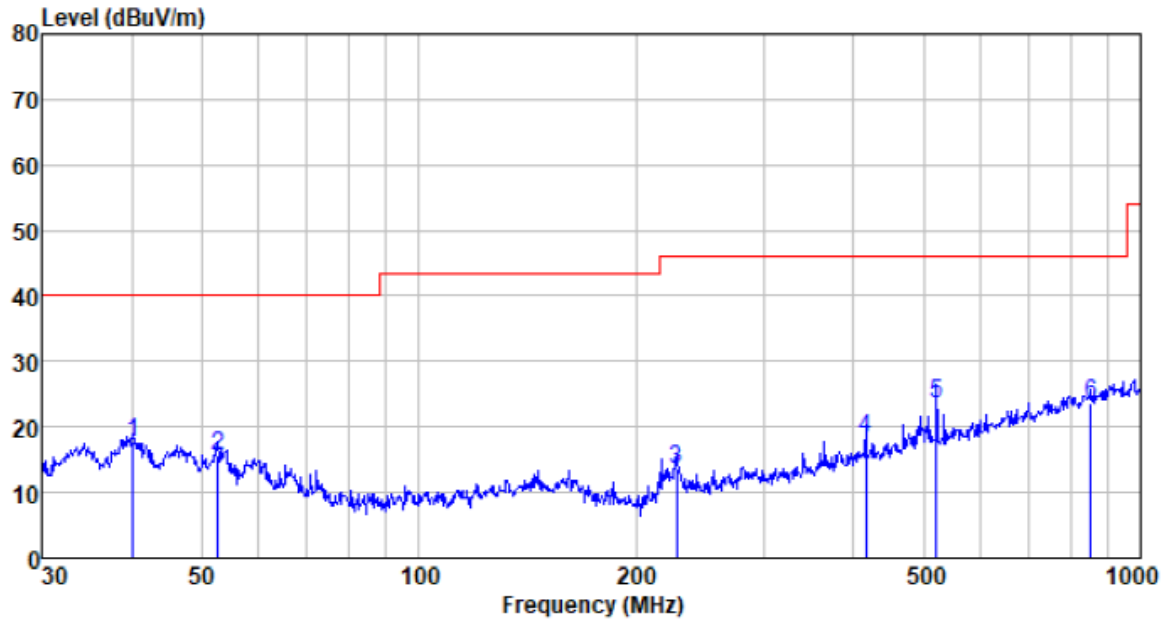
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
41.277	38.23	13.46	0.68	35.34	17.03	40.00	-22.97	QP
60.069	38.21	12.58	0.86	35.73	15.92	40.00	-24.08	QP
120.277	37.03	11.22	1.36	36.23	13.38	43.50	-30.12	QP
239.987	37.16	11.60	2.07	36.74	14.09	46.00	-31.91	QP
520.888	36.65	17.98	3.39	37.12	20.90	46.00	-25.10	QP
909.667	33.08	23.98	4.88	37.36	24.58	46.00	-21.42	QP

Test channel:	Middle	Polarization:	Vertical



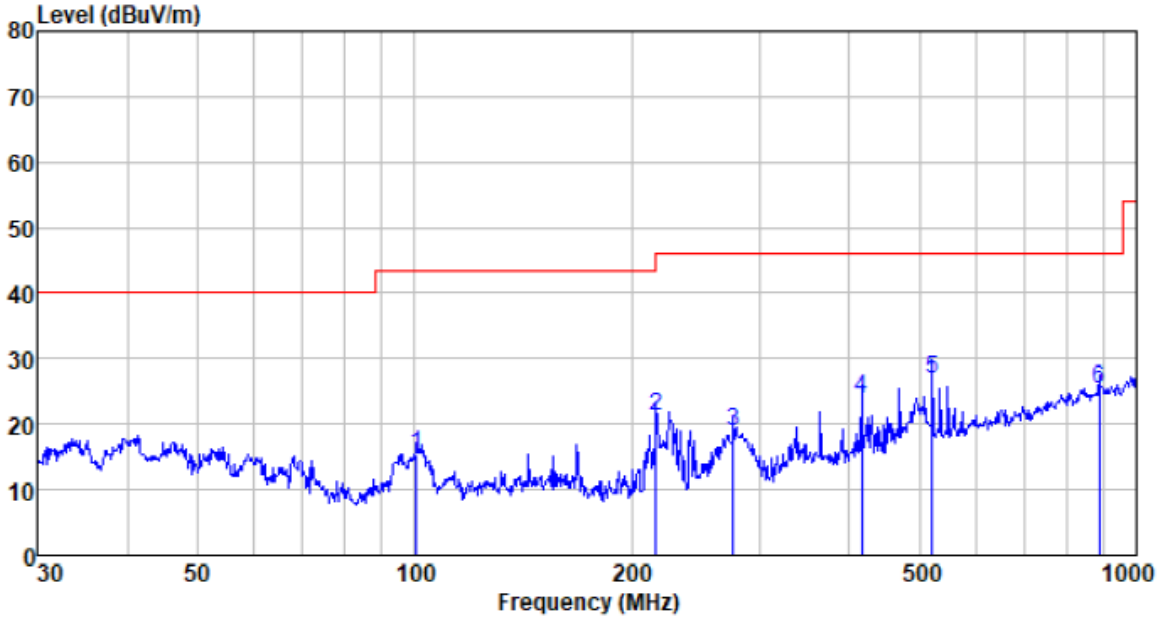
Freq MHz	Reading level dBuV	Antenna factor dB/m	Cable loss dB	Preamp factor dB	level dBuV/m	Limit level dBuV/m	Over limit dB	Remark
39.576	38.58	13.44	0.66	35.28	17.40	40.00	-22.60	QP
67.202	41.62	11.06	0.92	35.81	17.79	40.00	-22.21	QP
227.691	46.40	10.81	2.01	36.70	22.52	46.00	-23.48	QP
416.179	42.37	16.04	2.93	37.03	24.31	46.00	-21.69	QP
520.888	43.98	17.98	3.39	37.12	28.23	46.00	-17.77	QP
839.182	33.63	23.19	4.62	37.32	24.12	46.00	-21.88	QP

Test channel:	Highest	Polarization:	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
40.135	38.99	13.50	0.66	35.30	17.85	40.00	-22.15	QP
52.575	37.40	13.03	0.79	35.64	15.58	40.00	-24.42	QP
227.691	37.50	10.81	2.01	36.70	13.62	46.00	-32.38	QP
416.179	36.32	16.04	2.93	37.03	18.26	46.00	-27.74	QP
520.888	39.34	17.98	3.39	37.12	23.59	46.00	-22.41	QP
854.025	32.93	23.37	4.68	37.33	23.65	46.00	-22.35	QP

Test channel:	Highest	Polarization:	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
100.581	40.38	9.75	1.19	36.10	15.22	43.50	-28.28	QP
216.024	45.91	10.09	1.93	36.66	21.27	46.00	-24.73	QP
276.124	40.92	12.60	2.25	36.84	18.93	46.00	-27.07	QP
416.179	42.05	16.04	2.93	37.03	23.99	46.00	-22.01	QP
520.888	42.55	17.98	3.39	37.12	26.80	46.00	-19.20	QP
887.610	34.30	23.76	4.80	37.35	25.51	46.00	-20.49	QP

■ **Above 1GHz**

Test channel:	Lowest

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
4804.00	35.35	31.22	4.63	37.68	33.52	74.00	-40.48	Vertical
7206.00	30.53	36.25	6.52	37.81	35.49	74.00	-38.51	Vertical
9608.00	30.31	37.97	7.98	37.93	38.33	74.00	-35.67	Vertical
12010.00	*					74.00		Vertical
14412.00	*					74.00		Vertical
4804.00	39.24	31.22	4.63	37.68	37.41	74.00	-36.59	Horizontal
7206.00	32.12	36.25	6.52	37.81	37.08	74.00	-36.92	Horizontal
9608.00	29.55	37.97	7.98	37.93	37.57	74.00	-36.43	Horizontal
12010.00	*					74.00		Horizontal
14412.00	*					74.00		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
4804.00	24.53	31.22	4.63	37.68	22.70	54.00	-31.30	Vertical
7206.00	19.44	36.25	6.52	37.81	24.40	54.00	-29.60	Vertical
9608.00	18.64	37.97	7.98	37.93	26.66	54.00	-27.34	Vertical
12010.00	*					54.00		Vertical
14412.00	*					54.00		Vertical
4804.00	28.55	31.22	4.63	37.68	26.72	54.00	-27.28	Horizontal
7206.00	21.49	36.25	6.52	37.81	26.45	54.00	-27.55	Horizontal
9608.00	18.21	37.97	7.98	37.93	26.23	54.00	-27.77	Horizontal
12010.00	*					54.00		Horizontal
14412.00	*					54.00		Horizontal

Test channel:	Middle

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
4883.20	35.75	31.33	4.69	37.62	34.15	74.00	-39.85	Vertical
7324.80	30.80	36.43	6.63	37.77	36.09	74.00	-37.91	Vertical
9766.40	30.55	38.10	8.03	37.95	38.73	74.00	-35.27	Vertical
12208.00	*					74.00		Vertical
14649.60	*					74.00		Vertical
4883.20	39.72	31.33	4.69	37.62	38.12	74.00	-35.88	Horizontal
7324.80	32.41	36.43	6.63	37.77	37.70	74.00	-36.30	Horizontal
9766.40	29.82	38.10	8.03	37.95	38.00	74.00	-36.00	Horizontal
12208.00	*					74.00		Horizontal
14649.60	*					74.00		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
4883.20	24.86	31.33	4.69	37.62	23.26	54.00	-30.74	Vertical
7324.80	19.66	36.43	6.63	37.77	24.95	54.00	-29.05	Vertical
9766.40	18.84	38.10	8.03	37.95	27.02	54.00	-26.98	Vertical
12208.00	*					54.00		Vertical
14649.60	*					54.00		Vertical
4883.20	28.92	31.33	4.69	37.62	27.32	54.00	-26.68	Horizontal
7324.80	21.73	36.43	6.63	37.77	27.02	54.00	-26.98	Horizontal
9766.40	18.44	38.10	8.03	37.95	26.62	54.00	-27.38	Horizontal
12208.00	*					54.00		Horizontal
14649.60	*					54.00		Horizontal

Test channel:	Highest

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
4957.60	35.84	31.41	4.77	37.56	34.46	74.00	-39.54	Vertical
7436.40	30.86	36.62	6.73	37.73	36.48	74.00	-37.52	Vertical
9915.20	30.60	38.27	8.08	37.98	38.97	74.00	-35.03	Vertical
12394.00	*					74.00		Vertical
14872.80	*					74.00		Vertical
4957.60	39.83	31.41	4.77	37.56	38.45	74.00	-35.55	Horizontal
7436.40	32.49	36.62	6.73	37.73	38.11	74.00	-35.89	Horizontal
9915.20	29.89	38.27	8.08	37.98	38.26	74.00	-35.74	Horizontal
12394.00	*					74.00		Horizontal
14872.80	*					74.00		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
4957.60	24.97	31.41	4.77	37.56	23.59	54.00	-30.41	Vertical
7436.40	19.74	36.62	6.73	37.73	25.36	54.00	-28.64	Vertical
9915.20	18.90	38.27	8.08	37.98	27.27	54.00	-26.73	Vertical
12394.00	*					54.00		Vertical
14872.80	*					54.00		Vertical
4957.60	29.05	31.41	4.77	37.56	27.67	54.00	-26.33	Horizontal
7436.40	21.82	36.62	6.73	37.73	27.44	54.00	-26.56	Horizontal
9915.20	18.52	38.27	8.08	37.98	26.89	54.00	-27.11	Horizontal
12394.00	*					54.00		Horizontal
14872.80	*					54.00		Horizontal

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. *For above 18GHz, no emission found.*

7.2.3 Bandedge emissions

All of the restriction bands were tested, and only the data of worst case was exhibited.

Test channel:	Lowest channel

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
2310.00	47.83	27.14	2.81	38.64	39.14	74.00	-34.86	Horizontal
2390.00	52.32	27.37	2.91	38.84	43.76	74.00	-30.24	Horizontal
2400.00	54.09	27.41	2.92	38.86	45.56	74.00	-28.44	Horizontal
2310.00	48.85	27.14	2.81	38.64	40.16	74.00	-33.84	Vertical
2390.00	53.89	27.37	2.91	38.84	45.33	74.00	-28.67	Vertical
2400.00	55.62	27.41	2.92	38.86	47.09	74.00	-26.91	Vertical

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
2310.00	37.26	27.14	2.81	38.64	28.57	54.00	-25.43	Horizontal
2390.00	38.79	27.37	2.91	38.84	30.23	54.00	-23.77	Horizontal
2400.00	40.53	27.41	2.92	38.86	32.00	54.00	-22.00	Horizontal
2310.00	37.56	27.14	2.81	38.64	28.87	54.00	-25.13	Vertical
2390.00	39.91	27.37	2.91	38.84	31.35	54.00	-22.65	Vertical
2400.00	40.84	27.41	2.92	38.86	32.31	54.00	-21.69	Vertical

Test channel:	Highest channel

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
2483.50	50.52	27.82	2.99	39.05	42.28	74.00	-31.72	Horizontal
2500.00	48.75	27.70	3.01	39.10	40.36	74.00	-33.64	Horizontal
2483.50	52.19	27.82	2.99	39.05	43.95	74.00	-30.05	Vertical
2500.00	50.22	27.70	3.01	39.10	41.83	74.00	-32.17	Vertical

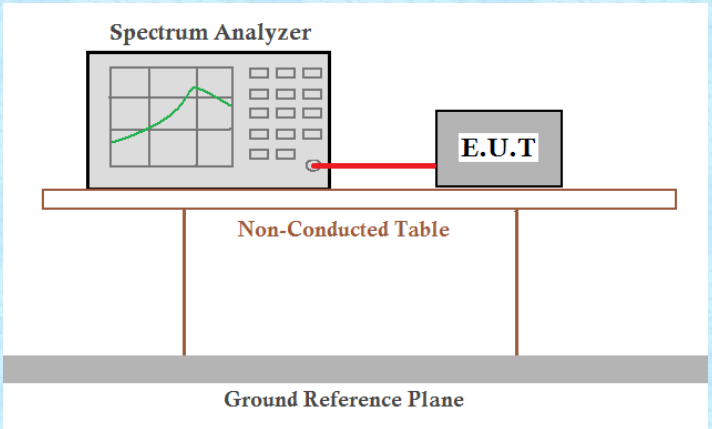
Average value:

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
2483.50	38.15	27.82	2.99	39.05	29.91	54.00	-24.09	Horizontal
2500.00	37.44	27.70	3.01	39.10	29.05	54.00	-24.95	Horizontal
2483.50	37.48	27.82	2.99	39.05	29.24	54.00	-24.76	Vertical
2500.00	37.77	27.70	3.01	39.10	29.38	54.00	-24.62	Vertical

Remark:

1. *Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor*

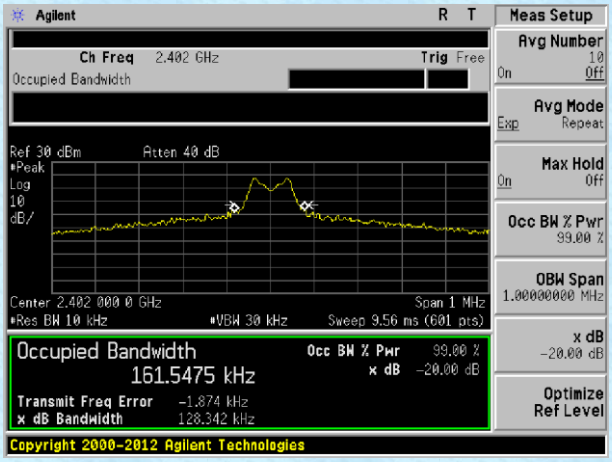
7.3 20dB Occupy Bandwidth

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:	
Test Instruments:	Refer to section 6.0 for details
Test mode:	Refer to section 5.2 for details
Test results:	Pass

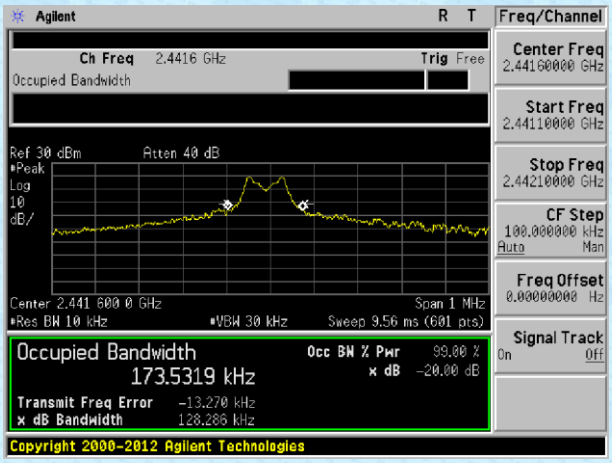
Measurement Data

Test channel	20dB bandwidth(MHz)	Result
Lowest	0.128	Pass
Middle	0.128	Pass
Highest	0.142	Pass

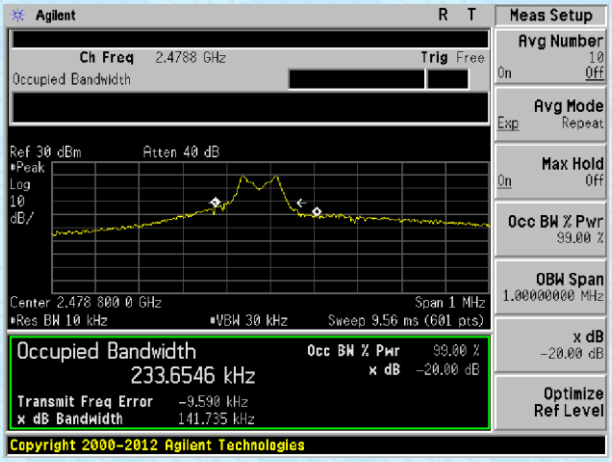
Test plot as follows:



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------