TEST REPORT

Report No.:	BCTC2605624979E
Applicant:	Universal Electronics, Inc.
Product Name:	Portable Universal Wireless Microphone
Test Model:	MPD44C
Tested Date:	2026-07-16 to 2026-08-19
Issued Date:	2026-08-19

Shenzhen BCTC Technology Co., Ltd.

FCC ID: A5CMPD44C

Product Name:	Portable Universal Wireless Microphone
Trademark:	N/A
Model/Type reference:	MPD44C
Prepared For:	Universal Electronics, Inc.
Address:	5610 Parkersburg Dr. Houston, Texas, United States 77036
Manufacturer:	Enping Rongsheng Electronics Factory
Address:	Factory Building 1 (2 floors), Area B, Zone 2, Enping Industrial Park, Jiangmen Industrial Transfer Park, Enping City, Jiangmen City, Guangdong Province, China
Prepared By:	Shenzhen BCTC Technology Co., Ltd.
Address:	Room 101M, Unit 1, Building1, Pengyuan, No.18, Lilang Road, Shanglilang, Nanwan Subdistrict, Longgang District, Shenzhen, Guangdong, China.
Sample Received Date:	2025-07-16
Sample tested Date:	2026-07-16 to 2026-08-19
Issue Date:	2026-08-19
Report No.:	BCTC2605624979E
Test Standards:	47 CFR Part 15 Subpart C (clause 15.236) ANSI C63.10-2020
Test Results:	PASS

Prepared by :	Reviewer by :	Approved by:
Louis.zeng	mike zheng	Sewen Guo
Louis Zeng	Mike Zheng	Sewen Guo

The test report is effective only with both signature and specialized stamp. This result(s) shown in this report refer only to the sample(s) tested. Without written approval of Shenzhen BCTC Technology Co., Ltd., this report can't be reproduced except in full. The tested sample(s) and the sample information are provided by the client.

Table Of Content

(Note: N/A Means Not Applicable)

1. Version

Report No.	Issue Date	Description	Approved
BCTC2605624979E	2026-08-19	Original	Valid

2. Test Summary

The Product has been tested according to the following specifications:

No.	Test Parameter	Clause No.	Results
1	Conducted Emission	15.207	PASS
2	Radiated Spurious Emission	15.236(g)	PASS*
3	RF Output Power (EIRP)	15.236(d)	PASS
4	99% Occupied Bandwidth	15.236(f)(2)	PASS
5	Emission Mask (Necessary Bandwidth)	15.236(g)	PASS*
6	Frequency Tolerance	15.236(f)(3)	PASS
Note : "*" indicates that the test results are determined base on 47 CFR Part 15 Subpart C (clause 15.236) and ETSI EN 300 422-1 V2.2.1 (2021-11). And the test results are took into account measurement uncertainty (see section 3 for measurement uncertainty information)			

3. Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2:2011/AMD2:2018. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

No.	Item	Uncertainty
1	3m chamber Radiated spurious emission(9kHz-30MHz)	U=3.7dB
2	3m chamber Radiated spurious emission(30MHz-1GHz)	U=4.8dB
3	3m chamber Radiated spurious emission(1GHz-18GHz)	U=5.5dB
4	3m chamber Radiated spurious emission(18GHz-40GHz)	U=5.0dB
5	Conducted Emission(150kHz-30MHz)	U=3.0dB
6	Occupied Bandwidth	U=3.46%
7	Conducted output power uncertainty	U=0.55dB
8	Frequency Error	U= 53.50 Hz
9	Frequency Drift	U=0.64 KHz
10	Temperature	U= 0.59 ℃
11	Humidity	U= 5.3 %

4. Product Information And Test Setup

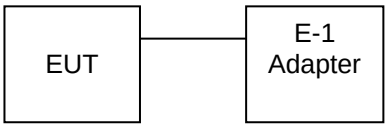
4.1 Product Information

Model/Type Reference:	MPD44C
Model Differences:	N/A
Hardware Version:	N/A
Software Version:	N/A
Operation Frequency:	657.5MHz-660.5MHz
Type of Modulation:	pi/4 DQPSK ☐Analogue Systems ☒Digital Systems
Number Of Channel	5CH
Antenna installation:	PCB antenna
Antenna Gain:	-2.71dBi Remark: ☒ The antenna gain of the product comes from the antenna report provided by the customer, and the test data is affected by the customer information. Antenna gain information is provided by the client and the laboratory is not responsible for its authenticity. ☐ The antenna gain of the product is provided by the customer, and the test data is affected by the customer information. Antenna gain information is provided by the client and the laboratory is not responsible for its authenticity.
Ratings:	DC 3.7V from battery, DC 5V from USB

4.2 Test Setup Configuration

See test photographs attached in *EUT TEST SETUP PHOTOGRAPHS* for the actual connections between Product and support equipment.

Conducted Emission:



Radiated Spurious Emission

4.3 Support Equipment

No.	Device Type	Brand	Model	Series No.	Note
E-1	Adapter	N/A	CD289	N/A	N/A

Item	Shielded Type	Ferrite Core	Length	Note
C-1	N/A	N/A	100cm	N/A

Notes:
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.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

4.4 Channel List

Channel No.	1	2	3	4	5
Frequency (MHz)	657.5	658	658.5	660	660.5

4.5 Test Mode

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Test Mode	Description
Mode 1	Transmitting (CH00: 657.5 MHz)
Mode 2	Transmitting (CH49: 658.5 MHz)
Mode 3	Transmitting (CH99: 660.5 MHz)
Mode 4	Charging

Note:
(1) The measurements are performed at the highest, middle, lowest available channels.
(2) Fully-charged battery is used during the test

5. Test Facility And Test Instrument Used

5.1 Test Facility

All measurement facilities used to collect the measurement data are located at
Shenzhen BCTC Technology Co., Ltd.
Address: Room 101M, Unit 1, Building1, Pengyuan, No.18, Lilang Road, Shanglilang, Nanwan Subdistrict, Longgang District, Shenzhen, Guangdong, China.
The site and apparatus are constructed in conformance with the requirements of ANSI C63.4a-2017 and CISPR 16-1-1:2019 other equivalent standards.
FCC Test Firm Registration Number: 754702
ANAB certificate registration number is: CN3479

5.2 Test Instrument Used

Conducted emissions Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Receiver	R&S	ESCI	101421	2025.08.30	2026.08.29
AMN	SCHWHRZBECK	NSLK8128	05152	2026.01.22	2027.01.21
AMN	SCHWHRZBECK	NSLK8127	8127739	2025.09.16	2026.09.15
Pulse Limiter	SCHWHRZBECK	VTSD 9561-F-N	00547	2025.08.30	2026.08.29
Temperature & Humidity	Wetest	HTC-1	/	2025.09.01	2026.08.31
Software	EZ-EMC	Ver.EMC-CON 3A1	/	/	/

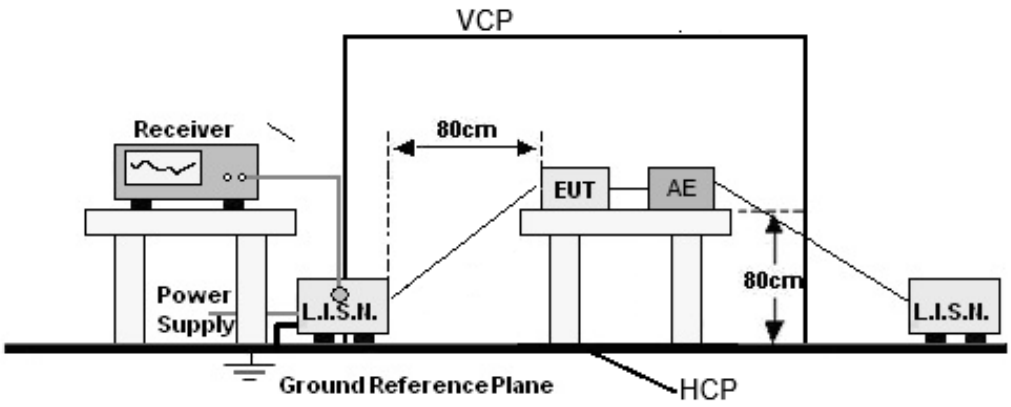
Radiated disturbance 2#					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Shielded room	ChengYu	9*6*6	/	2023.09.25	2026.09.24
Loop Antenna	Schwarzbeck	FMZB1519B	00014	2026.01.05	2027.01.04
Broadband antenna	SCHWHRZBECK	VULB9168	01620	2025.08.29	2026.08.28
Horn antenna(1 GHz -18GHz)	SCHWARZBECK	BBHA 9120 D	2792	2025.08.29	2026.08.28
Horn antenna (18 GHz -40GHz)	SCHWARZBECK	BBHA9170	00822	2025.12.29	2026.12.28
Receiver	R&S	ESR	1316	2025.08.30	2026.08.29
Spectrum Analyzer	R&S	FSV40	101328	2026.01.22	2027.01.21
Amplifier	SCHWHRZBECK	BBV9744	568	2025.08.30	2026.08.29
Amplifier	EMC INSTRUMENTS	EMC0518A45SE E	EMT-SZ2 233	2025.08.30	2026.08.29

	CORPORATION				
Amplifier (18GHz-40GHz)	MITEQ	TTA1840-35-HG	2034381	2026.05.09	2027.05.08
RF cable 3#（9kHz-6GHz）	Yunyi	10M	/	2025.08.30	2026.08.29
RF cable 9# (9kHz-1GHz)	Yunyi	2M	/	2025.10.28	2026.10.27
RF cable 5# (1GHz -18GHz)	SKET	9M	18038626	2025.08.30	2026.08.29
RF cable 6# (1GHz -18GHz)	SKET	5M	#10	2025.09.05	2026.09.04
RF cable 10# (18GHz-40GHz)	/	2M	2M	2026.05.09	2027.05.08
RF cable 11# (18GHz-40GHz)	/	2.5M	2.5M	2026.05.09	2027.05.08
Temperature & Humidity	Wetest	HTC-1	/	2025.09.05	2026.09.04
Software	EZ-EMC	Ver.FA-03A2	/	/	/

RF Conducted Test					
Equipment	**Manufacturer**	**Model#**	**Serial#**	**Last Cal.**	**Next Cal.**
Spectrum Analyzer	Keysight	N9020A	MY51287403	2025.08.30	2026.08.29
Signal Generator	Keysight	N5182A	MY50144088	2025.08.30	2026.08.29
Power Sensor	Keysight	U2001	MY51250006	2025.10.28	2026.10.27
Temperature & Humidity	Wetest	HTC-1	/	2025.09.01	2026.08.31
Communication test set	R&S	CMW500	157483	2025.08.30	2026.08.29
Radio frequency control box	MWRFtest	MW100-RFCB	\	\	\
Software	MWRFtest	MTS 8310	V 3.0.0.0	\	\
D.C. Power Supply	Elektro-Automatik GmbH & Co.KG	D-41747 Viersen	6230316	2025.09.30	2026.08.29
Temperature and humidity test chamber	Auchno	OJN-9606-408L	19120183	2025.07.09	2026.07.08
				2026.07.07	2027.07.06

6. Conducted Emissions

6.1 Block Diagram Of Test Setup



6.2 Limit

Frequency (MHz)	Limit (dBuV)	
	Quas-peak	Average
0.15 -0.5	66 - 56 *	56 - 46 *
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00

Notes:
1. *Decreasing linearly with logarithm of frequency.
2. The lower limit shall apply at the transition frequencies.

6.3 Test procedure

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

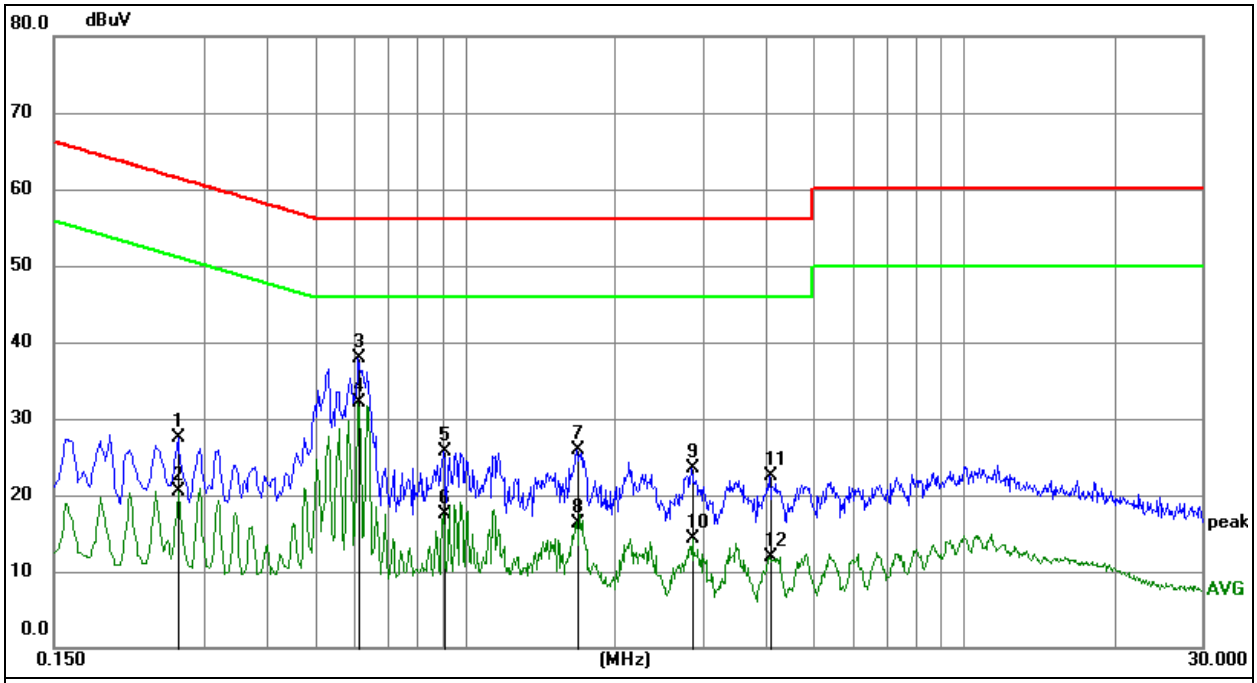
a. The Product was placed on a nonconductive table 0.8 m above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
b. The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.
c. For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

6.4 EUT operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

6.5 Test Result

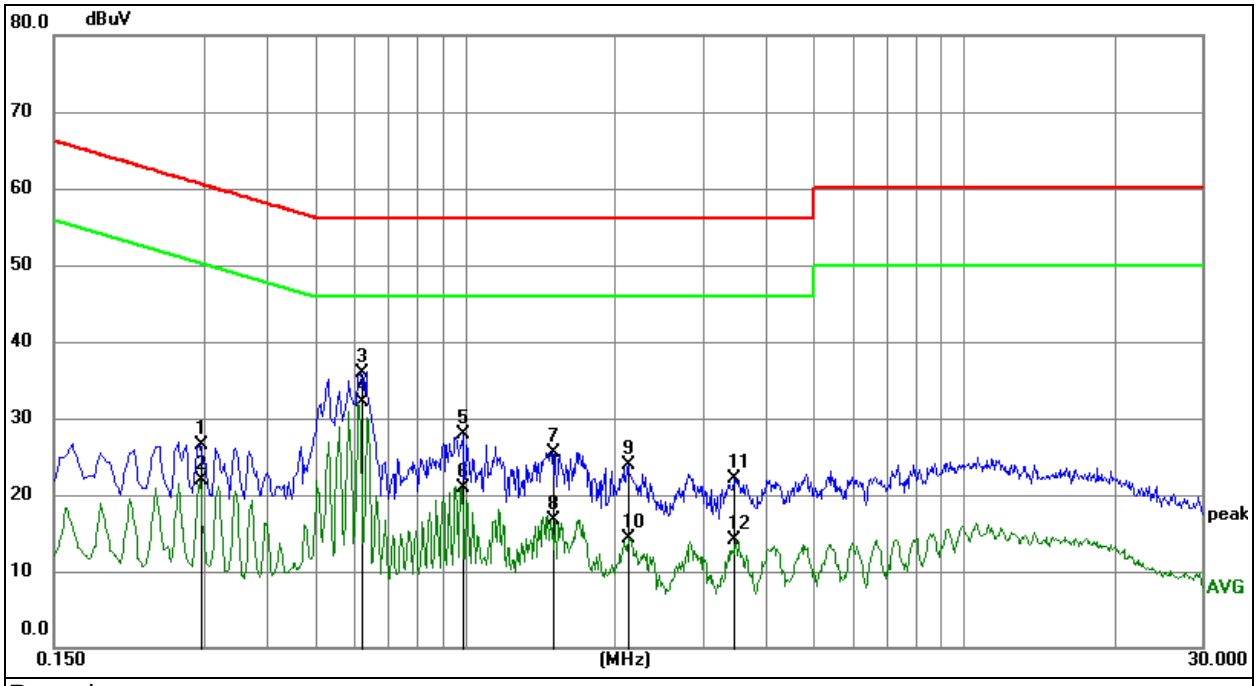
Temperature:	24.4 ℃	Relative Humidity:	57 %
Pressure:	101KPa	Phase :	L
Test Mode:	Mode 4	Remark:	N/A



Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = LISN factor + Cable Loss+ Limiter (10dB).
3. Margin = (Reading+ Factor)–Limit

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2670	16.95	10.51	27.46	61.21	-33.75	QP	P
2	0.2670	9.92	10.51	20.43	51.21	-30.78	AVG	P
3	0.6134	27.37	10.53	37.90	56.00	-18.10	QP	P
4 *	0.6134	21.51	10.53	32.04	46.00	-13.96	AVG	P
5	0.9060	15.14	10.53	25.67	56.00	-30.33	QP	P
6	0.9060	6.90	10.53	17.43	46.00	-28.57	AVG	P
7	1.6800	15.30	10.55	25.85	56.00	-30.15	QP	P
8	1.6800	5.85	10.55	16.40	46.00	-29.60	AVG	P
9	2.8455	12.93	10.55	23.48	56.00	-32.52	QP	P
10	2.8455	3.71	10.55	14.26	46.00	-31.74	AVG	P
11	4.0830	11.75	10.67	22.42	56.00	-33.58	QP	P
12	4.0830	1.21	10.67	11.88	46.00	-34.12	AVG	P

Temperature:	24.4 ℃	Relative Humidity:	57 %
Pressure:	101KPa	Phase :	N
Test Mode:	Mode 4	Remark:	N/A



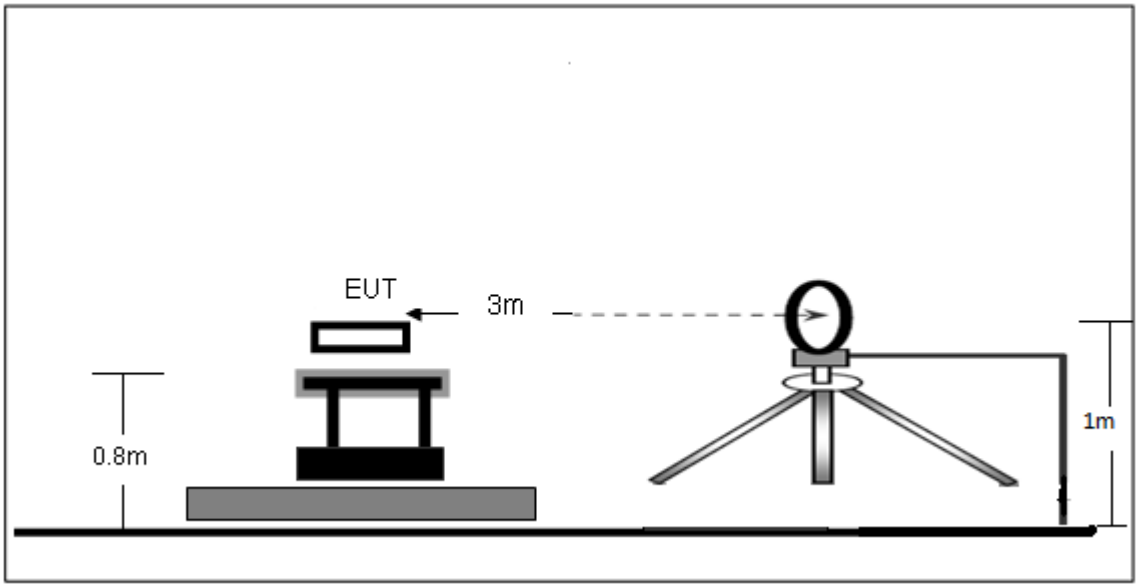
Remark:
1. All readings are Quasi-Peak and Average values.
2. Factor = LISN factor + Cable Loss+ Limiter (10dB).
3. Margin = (Reading+ Factor)–Limit

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.2940	16.06	10.51	26.57	60.41	-33.84	QP	P
2	0.2940	11.35	10.51	21.86	50.41	-28.55	AVG	P
3	0.6180	25.37	10.53	35.90	56.00	-20.10	QP	P
4 *	0.6180	21.57	10.53	32.10	46.00	-13.90	AVG	P
5	0.9915	17.35	10.53	27.88	56.00	-28.12	QP	P
6	0.9915	10.31	10.53	20.84	46.00	-25.16	AVG	P
7	1.4955	15.01	10.53	25.54	56.00	-30.46	QP	P
8	1.4955	6.20	10.53	16.73	46.00	-29.27	AVG	P
9	2.1255	13.42	10.55	23.97	56.00	-32.03	QP	P
10	2.1255	3.84	10.55	14.39	46.00	-31.61	AVG	P
11	3.4665	11.53	10.60	22.13	56.00	-33.87	QP	P
12	3.4665	3.54	10.60	14.14	46.00	-31.86	AVG	P

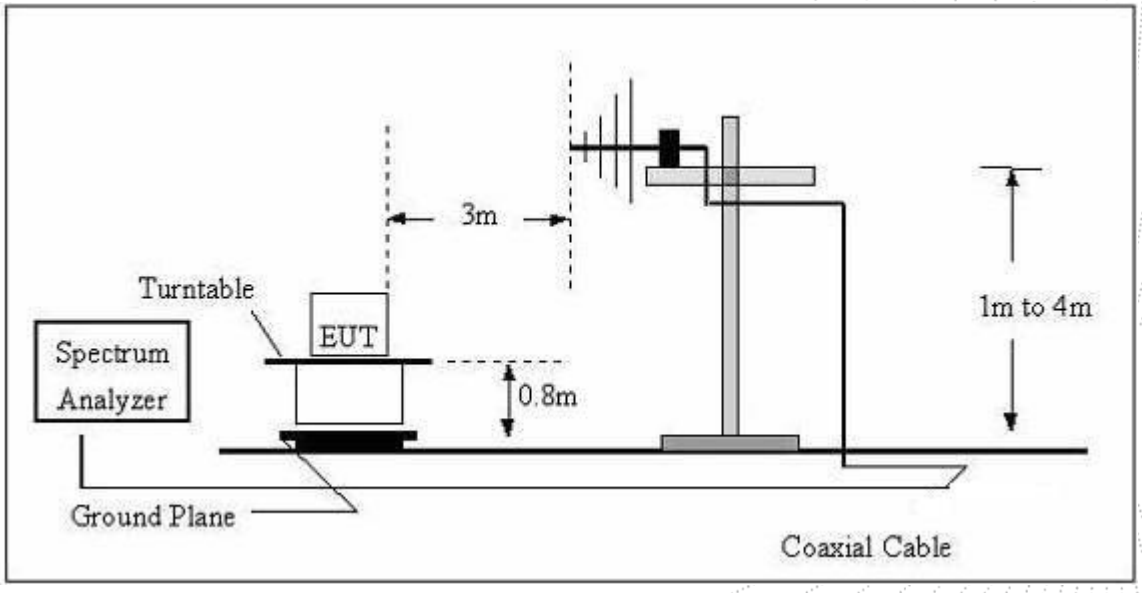
7. Radiated Emissions

7.1 Block Diagram Of Test Setup

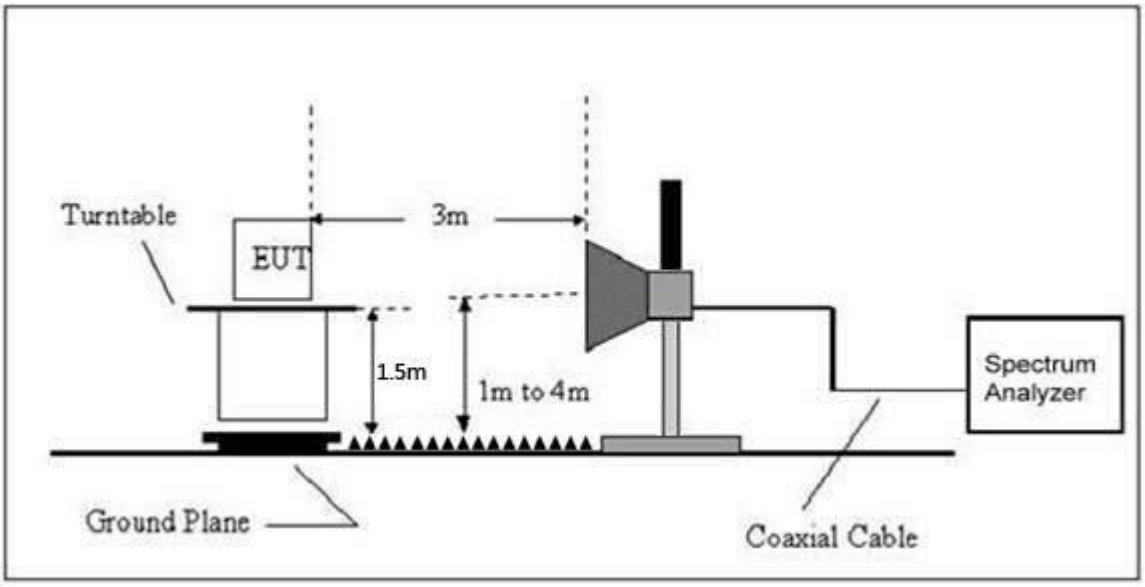
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



7.2 Limit

According to FCC 15.236(g), Emissions outside of this band shall comply with the limits specified in section 4.2.4.1.2 of ETSI EN 300 422-1 V2.2.1 (2021-11).

Table 4: Transmitter unwanted emission limits (from ERC Recommendation 74-01 [2])

Frequency range	Maximum power	RBW
9 kHz - 150 kHz	-36 dBm	1 kHz
150 kHz - 30 MHz	-36 dBm	10 kHz
30 MHz - 1 GHz	-36 dBm	F_c + 2,5 B ≤ f ≤ f_c + 4 B: 1 kHz F_c + 4 B < f ≤ f_c + 10 B: 10 kHz f > f_c + 10 B: 100 kHz f < f_c - 10 B: 100 kHz f_c - 10 B ≤ f < f_c - 4 B: 10 kHz f_c - 4 B ≤ f ≤ f_c - 2,5 B: 1 kHz
except:		
47 MHz - 74 MHz 87,5 MHz - 118 MHz	-54 dBm	100 kHz
174 MHz - 230 MHz 470 MHz - 862 MHz	-54 dBm	F_c + 2,5 B ≤ f ≤ f_c + 4 B: 1 kHz F_c + 4 B < f ≤ f_c + 10 B: 10 kHz f > f_c + 10 B: 100 kHz f < f_c - 10 B: 100 kHz f_c - 10 B ≤ f < f_c - 4 B: 10 kHz f_c - 4 B ≤ f ≤ f_c - 2,5 B: 1 kHz
1 GHz < *f* ≤ F_{upper}	-30 dBm	F_c + 2,5 B ≤ f ≤ f_c + 10 B: 30 kHz F_c + 10 B < f ≤ f_c + 12 B: 300 kHz f > f_c + 12 B: 1 MHz f < f_c - 12 B: 1 MHz f_c - 12 B ≤ f < f_c - 10 B: 300 kHz f_c - 10 B ≤ f ≤ f_c - 2,5 B: 30 kHz

7.3 Test Procedure

Receiver Parameter	Setting
Attenuation	Auto
9kHz~150kHz	RBW 200Hz for QP
150kHz~30MHz	RBW 9kHz for QP
30MHz~1000MHz	RBW 120kHz for QP

Spectrum Parameter	Setting
1-12.75GHz	RBW 1 MHz /VBW 1 MHz for Peak, RBW 1 MHz / VBW 10Hz for Average

Below 1GHz test procedure as below:
a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. 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.
d. 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 (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. 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.

Above 1GHz test procedure as below:
a. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
c. 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.
d. 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.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. 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. Othe rwise 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.
g. Test the EUT in the lowest channel, the Highest channel.
Note: Both horizontal and vertical antenna polarities were tested and performed pretest to three orthogonal axis. The worst case emissions were reported.

7.4 EUT Operating Conditions

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

7.5 Test Result

Below 30MHz

Temperature:	26.7 ℃	Relative Humidity:	54%
Pressure:	101KPa	Test Voltage :	DC 3.7V
Test Mode:	Mode 1-3		

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

Note:

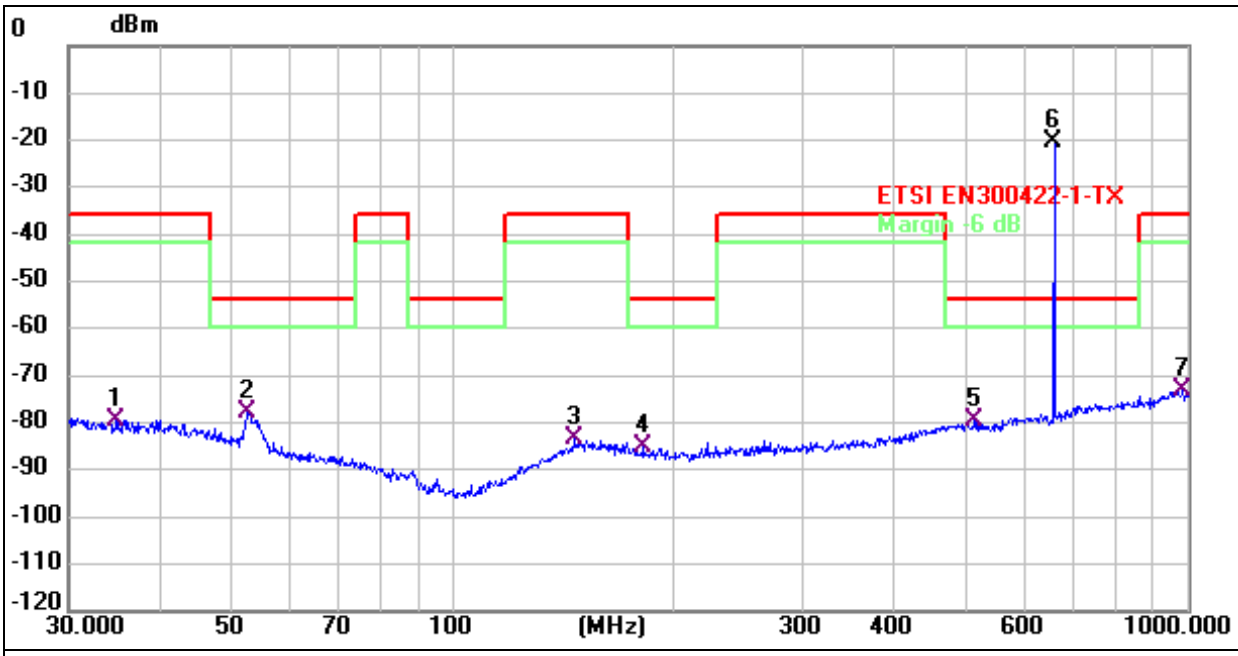
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =40 log (specific distance/test distance)(dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.

Between 30MHz – 1GHz

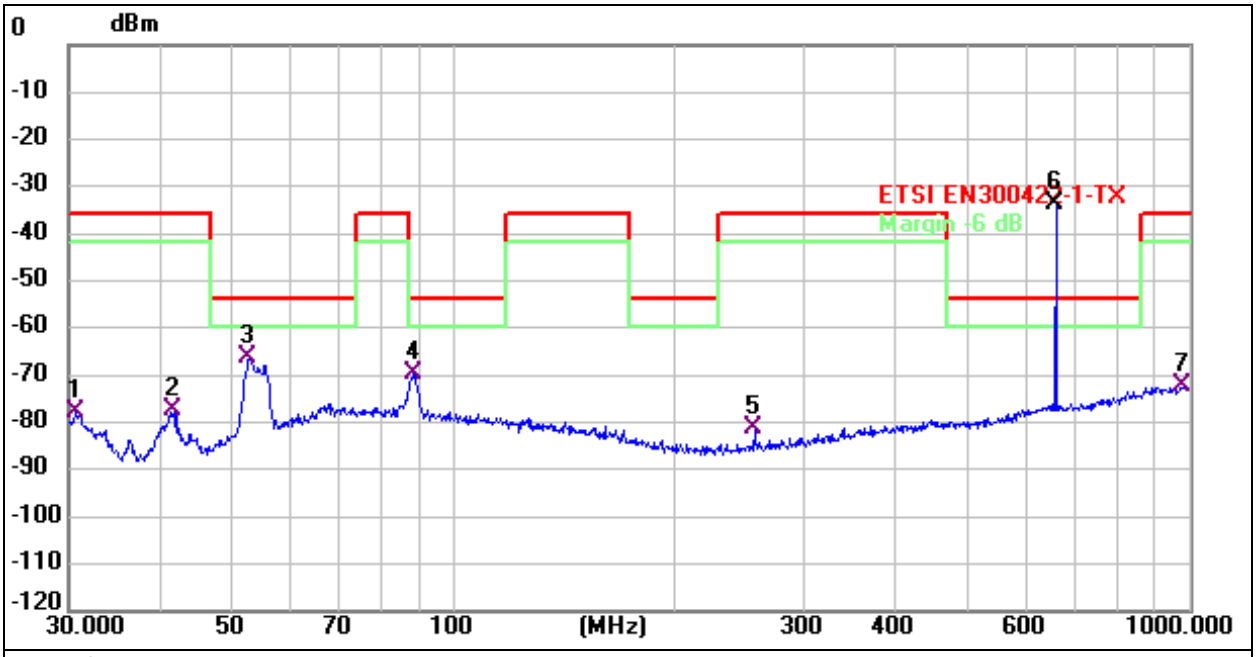
Temperature:	26.7 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Horizontal
Frequency	657.5 MHz	Test Voltage	DC 3.7V



Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Level = Reading + Factor
3. Margin = Level - Limit

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	34.8782	-79.42	0.08	-79.34	-36.00	-43.34	QP
2	52.6984	-74.04	-3.55	-77.59	-54.00	-23.59	QP
3	146.6304	-78.55	-4.88	-83.43	-36.00	-47.43	QP
4	181.3682	-79.65	-5.58	-85.23	-54.00	-31.23	QP
5	513.0331	-79.33	-0.38	-79.71	-54.00	-25.71	QP
6 *	657.5282	-21.39	1.02	-20.37	/	/	peak
7	983.8842	-79.11	5.88	-73.23	-36.00	-37.23	QP

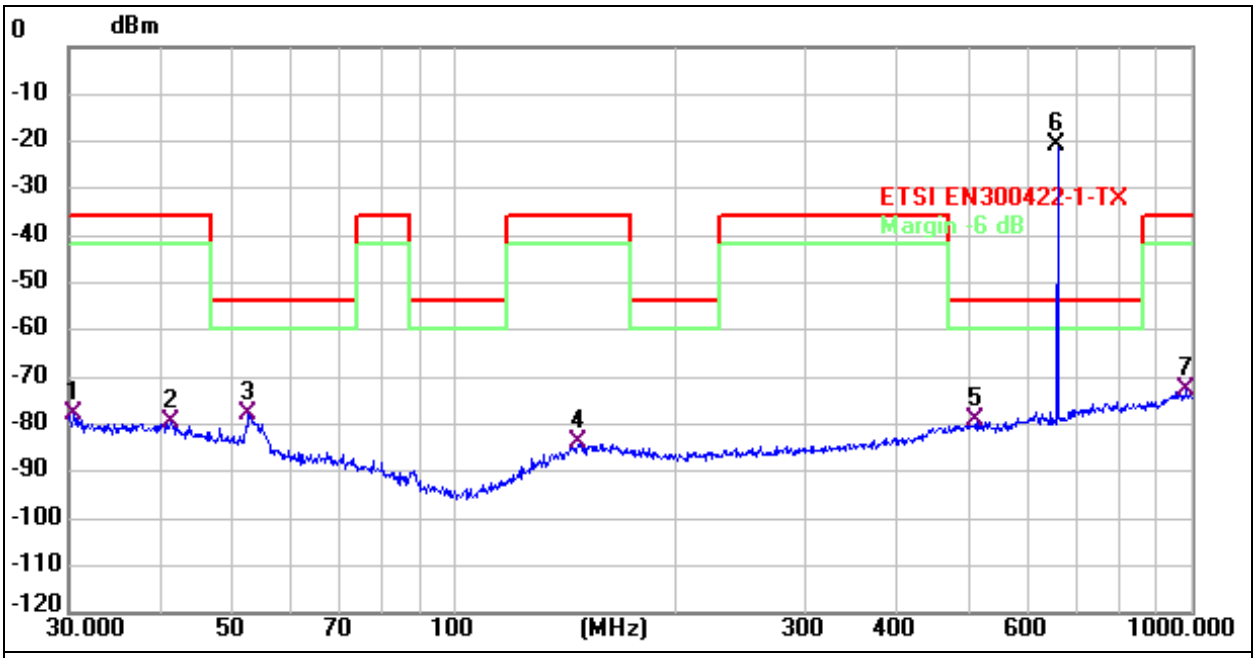
Temperature:	26.7 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Frequency	657.5 MHz	Test Voltage	DC 3.7V



Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Level = Reading + Factor
3. Margin = Level - Limit

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	30.6916	-68.00	-9.94	-77.94	-36.00	-41.94	QP
2	41.6643	-70.51	-6.75	-77.26	-36.00	-41.26	QP
3	52.7107	-63.52	-2.51	-66.03	-54.00	-12.03	QP
4	88.1565	-71.52	1.98	-69.54	-54.00	-15.54	QP
5	255.7427	-76.35	-5.01	-81.36	-36.00	-45.36	QP
6 *	657.5282	-37.04	3.23	-33.81	/	/	peak
7	981.8164	-79.03	6.94	-72.09	-36.00	-36.09	QP

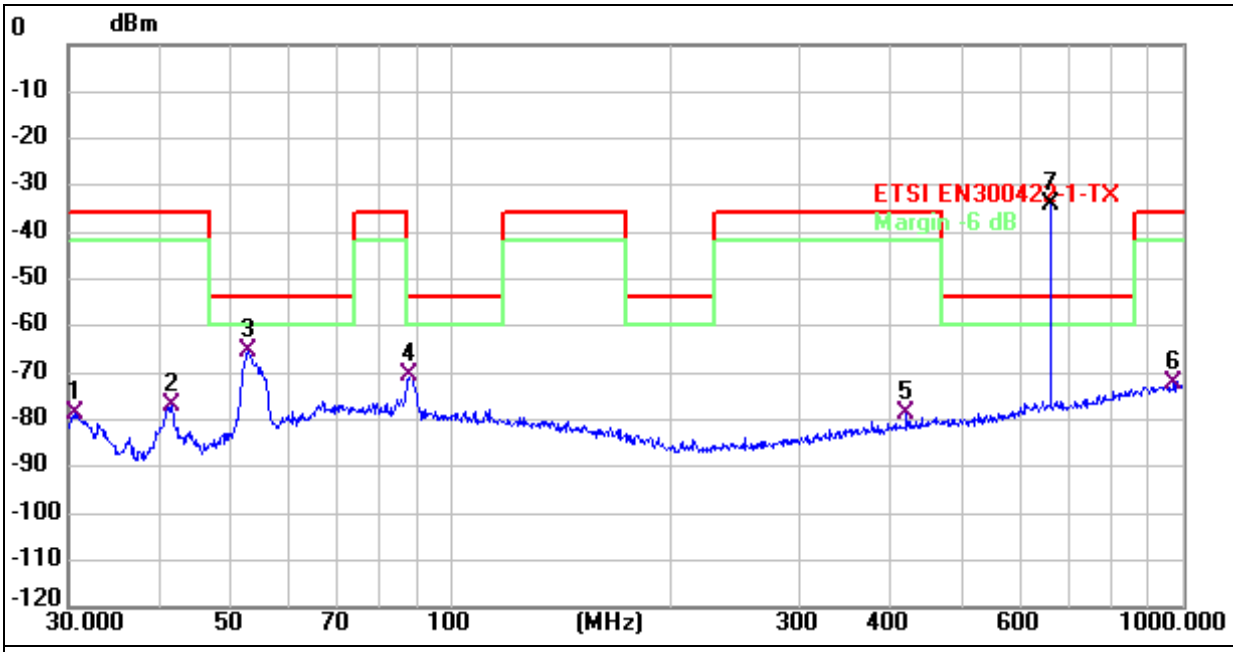
Temperature:	26.7 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Horizontal
Frequency	658.5 MHz	Test Voltage	DC 3.7V



Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Level = Reading + Factor
3. Margin = Level - Limit

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	30.4558	-78.04	0.32	-77.72	-36.00	-41.72	QP
2	41.3683	-78.88	-0.54	-79.42	-36.00	-43.42	QP
3	52.5385	-74.32	-3.49	-77.81	-54.00	-23.81	QP
4	147.7141	-79.24	-4.67	-83.91	-36.00	-47.91	QP
5	511.8352	-78.72	-0.38	-79.10	-54.00	-25.10	QP
6 *	658.5281	-21.75	1.06	-20.69	/	/	peak
7	984.4594	-78.72	5.88	-72.84	-36.00	-36.84	QP

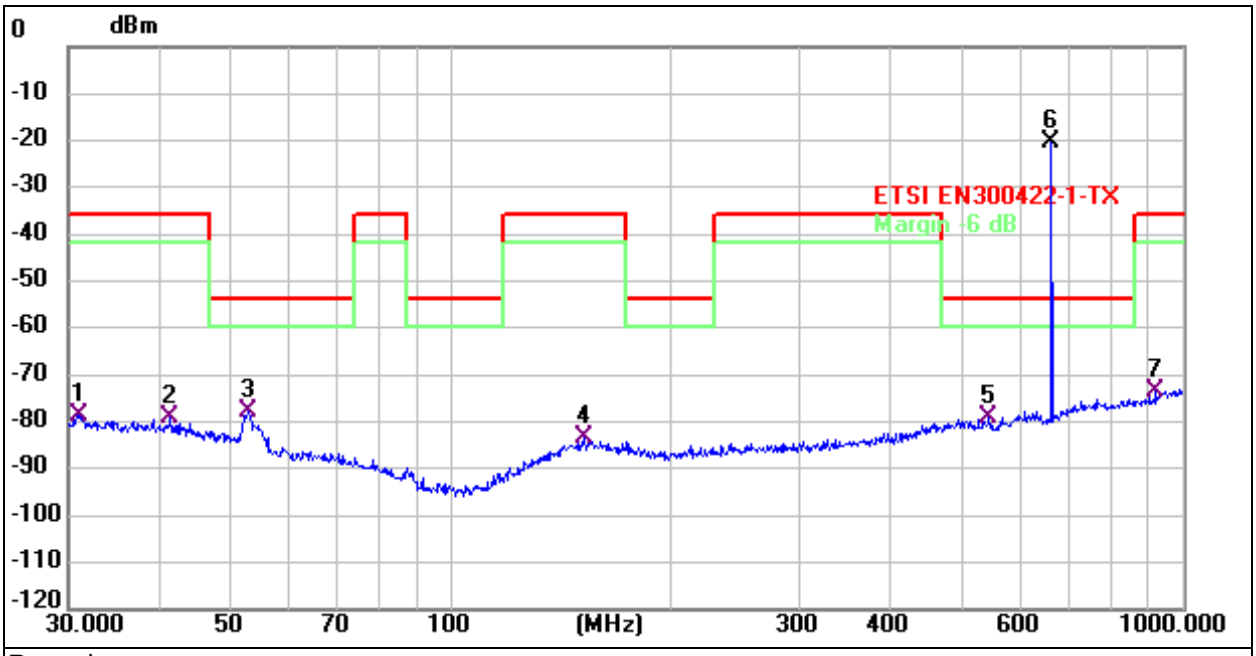
Temperature:	26.7 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Frequency	658.5 MHz	Test Voltage	DC 3.7V



Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Level = Reading + Factor
3. Margin = Level - Limit

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	30.7455	-68.90	-9.93	-78.83	-36.00	-42.83	QP
2	41.5670	-69.96	-6.78	-76.74	-36.00	-40.74	QP
3	52.9453	-63.10	-2.43	-65.53	-54.00	-11.53	QP
4	88.0329	-72.65	1.99	-70.66	-54.00	-16.66	QP
5	419.1081	-77.72	-1.02	-78.74	-36.00	-42.74	QP
6	972.3374	-79.05	6.88	-72.17	-36.00	-36.17	QP
7 *	658.8360	-37.27	3.23	-34.04	/	/	peak

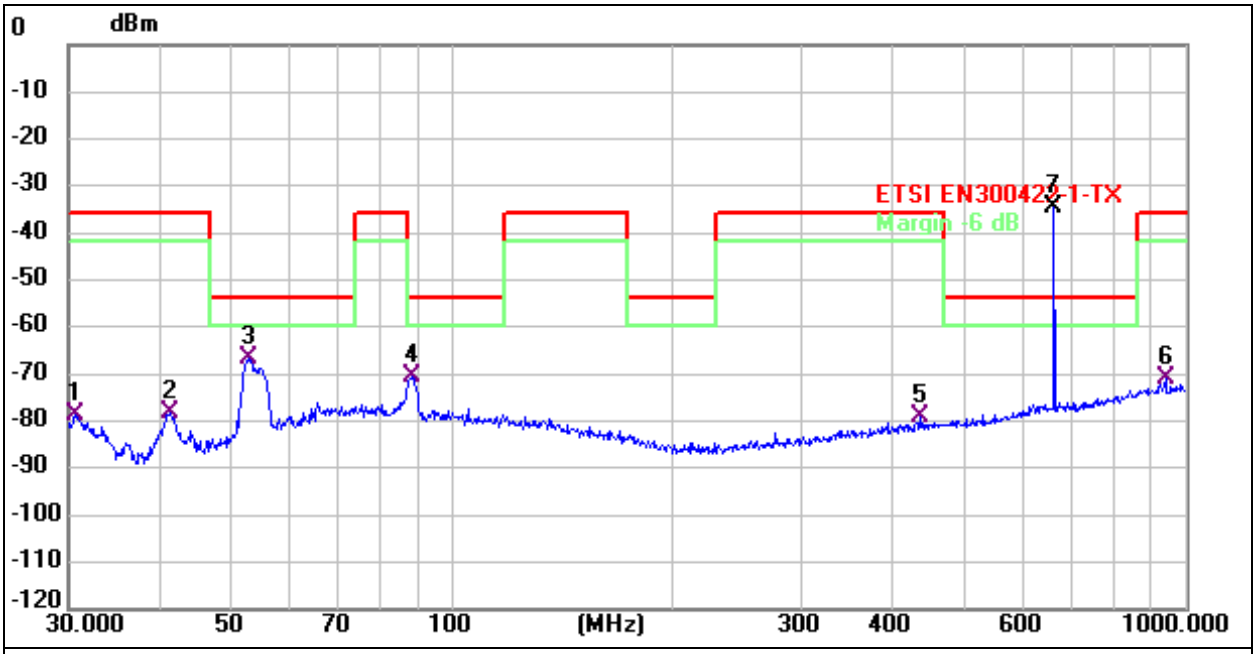
Temperature:	26.7 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Horizontal
Frequency	660.5 MHz	Test Voltage	DC 3.7V



Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Level = Reading + Factor
3. Margin = Level - Limit

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	31.0706	-78.83	0.29	-78.54	-36.00	-42.54	QP
2	41.4215	-78.58	-0.55	-79.13	-36.00	-43.13	QP
3	52.9453	-74.28	-3.63	-77.91	-54.00	-23.91	QP
4	152.1297	-78.94	-4.32	-83.26	-36.00	-47.26	QP
5	543.2742	-78.57	-0.60	-79.17	-54.00	-25.17	QP
6 *	661.1504	-21.69	1.16	-20.53	-54.00	33.47	peak
7	919.2866	-78.35	4.98	-73.37	/	/	QP

Temperature:	26.7 ℃	Relative Humidity:	54%
Pressure:	101KPa	Phase :	Vertical
Frequency	660.5 MHz	Test Voltage	DC 3.7V



Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.
2. Level = Reading + Factor
3. Margin = Level - Limit

No.	Frequency (MHz)	Reading (dBm)	Factor (dB)	Level (dBm)	Limit (dBm)	Margin (dB)	Detector
1	30.6379	-68.86	-9.96	-78.82	-36.00	-42.82	QP
2	41.4215	-71.26	-6.84	-78.10	-36.00	-42.10	QP
3	52.7600	-64.06	-2.49	-66.55	-54.00	-12.55	QP
4	88.3421	-72.34	1.96	-70.38	-54.00	-16.38	QP
5	435.5898	-78.24	-0.68	-78.92	-36.00	-42.92	QP
6	938.8326	-77.83	6.69	-71.14	-36.00	-35.14	QP
7 *	661.1503	-37.77	3.23	-34.54	/	/	peak

Above 1GHz

Polar (H/V)	Frequency (MHz)	Reading Level (dBm)	Correct Factor (dB)	Measure-ment (dBm)	Limits (dBm)	Margin (dB)	Detector Type
Low Channel (657.5MHz)							
H	1315.00	-41.15	-7.56	-48.71	-30.00	-18.71	PK
H	1972.50	-43.52	-4.35	-47.87	-30.00	-17.87	PK
H	2630.00	-41.46	-3.25	-44.71	-30.00	-14.71	PK
H	3287.50	-42.41	-0.38	-42.79	-30.00	-12.79	PK
V	1315.00	-45.72	-6.60	-52.32	-30.00	-22.32	PK
V	1972.50	-48.28	-3.98	-52.26	-30.00	-22.26	PK
V	2630.00	-43.99	-2.95	-46.94	-30.00	-16.94	PK
V	3287.50	-44.96	-0.09	-45.05	-30.00	-15.05	PK
Middle Channel (658.5MHz)							
H	1317.00	-43.49	-7.54	-51.03	-30.00	-21.03	PK
H	1975.50	-46.73	-4.35	-51.08	-30.00	-21.08	PK
H	2634.00	-43.46	-3.23	-46.69	-30.00	-16.69	PK
H	3292.50	-45.98	-0.37	-46.35	-30.00	-16.35	PK
V	1317.00	-39.08	-6.61	-45.69	-30.00	-15.69	PK
V	1975.50	-48.37	-3.98	-52.35	-30.00	-22.35	PK
V	2634.00	-45.41	-2.93	-48.34	-30.00	-18.34	PK
V	3292.50	-40.29	-0.09	-40.38	-30.00	-10.38	PK
High Channel (660.5MHz)							
H	1321.00	-41.66	-7.50	-49.16	-30.00	-19.16	PK
H	1981.50	-45.67	-4.36	-50.03	-30.00	-20.03	PK
H	2642.00	-40.99	-3.19	-44.18	-30.00	-14.18	PK
H	3302.50	-44.11	-0.35	-44.46	-30.00	-14.46	PK
V	1321.00	-45.34	-6.62	-51.96	-30.00	-21.96	PK
V	1981.50	-47.32	-3.97	-51.29	-30.00	-21.29	PK
V	2642.00	-42.52	-2.90	-45.42	-30.00	-15.42	PK
V	3302.50	-47.15	-0.08	-47.23	-30.00	-17.23	PK

Remark:
Absolute Level = Receiver Reading + Factor
Factor = Antenna Factor + Cable Loss – Pre-amplifier.

8. RF Output Power(EIRP)

8.1 Block Diagram Of Test Setup

8.2 Limit

According to FCC 15.236 (d)
(1) In the bands allocated and assigned for broadcast television and in the 600 MHz service band: 50 mW EIRP
(2) In the 600 MHz guard band and the 600 MHz duplex gap: 20 mW EIRP.

8.3 Test Procedure

1. Remove the antenna from the EUT and then connect a low RF cable from the antenna port to the spectrum.
2. Set the spectrum analyzer: RBW = 1MHz. VBW = 3MHz. Sweep = auto; Detector Function = Peak.
3. Keep the EUT in transmitting at lowest, medium and highest channel individually. Record the max value.

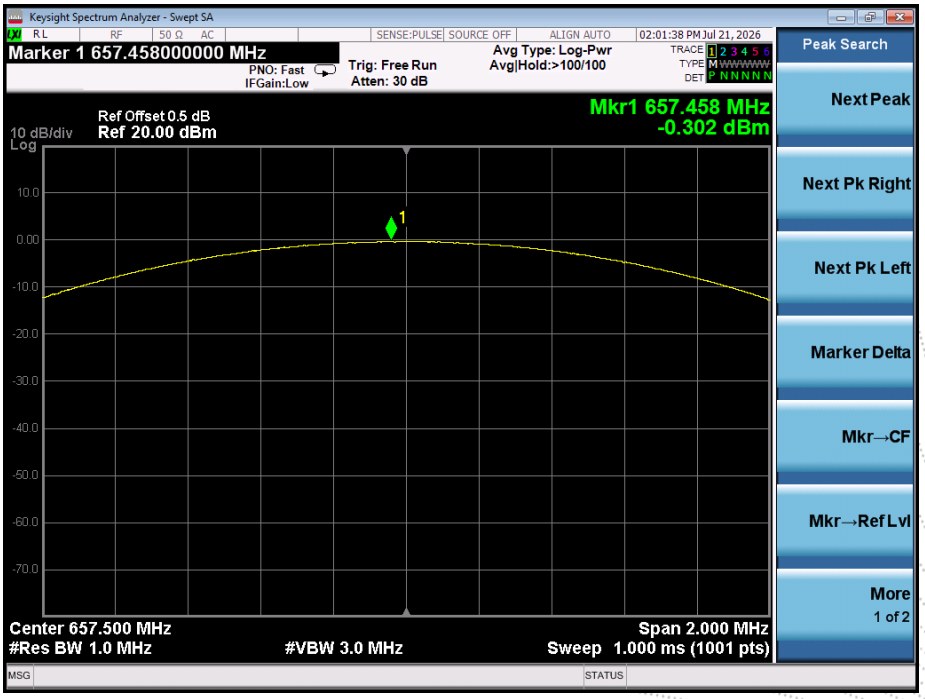
8.4 Test Result

Temperature:	26 ℃	Relative Humidity:	54 %
Pressure:	101KPa	Test Voltage :	DC 3.7V

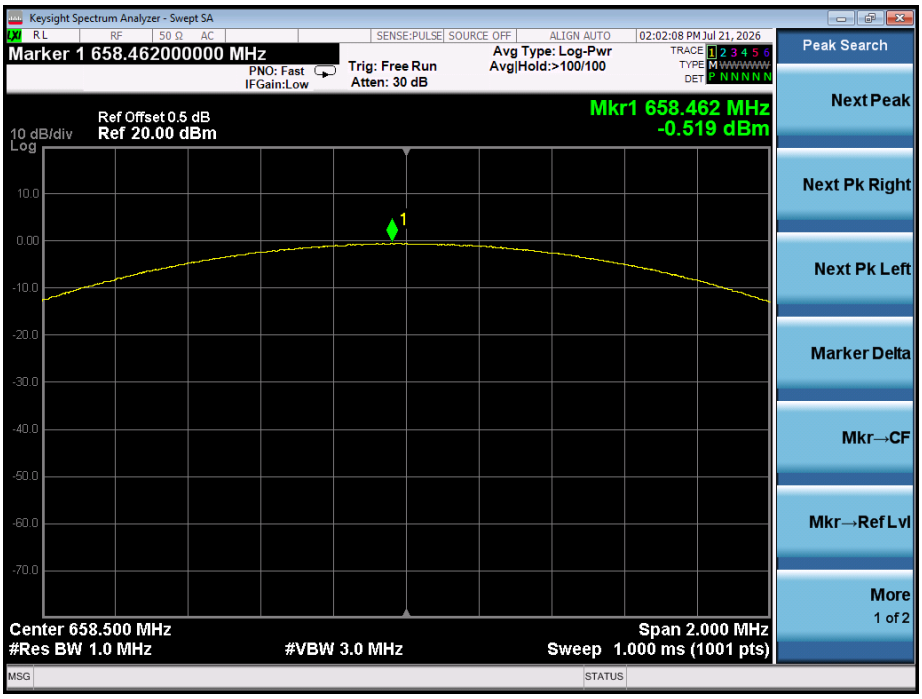
Frequency	Conducted Output Power	Antenna Gain	EIRP	EIRP	FCC Limit	Result
(MHz)	(dBm)	(dBi)	(dBm)	(mW)	(mW)	
657.5	-0.302	-2.71	-3.01	0.50	20	PASS
658.5	-0.519	-2.71	-3.23	0.48	20	PASS
660.5	-0.894	-2.71	-3.60	0.44	20	PASS

Remark:
EIRP (dBm) = Conducted Output Power (dBm) + Antenna Gain (dBi)

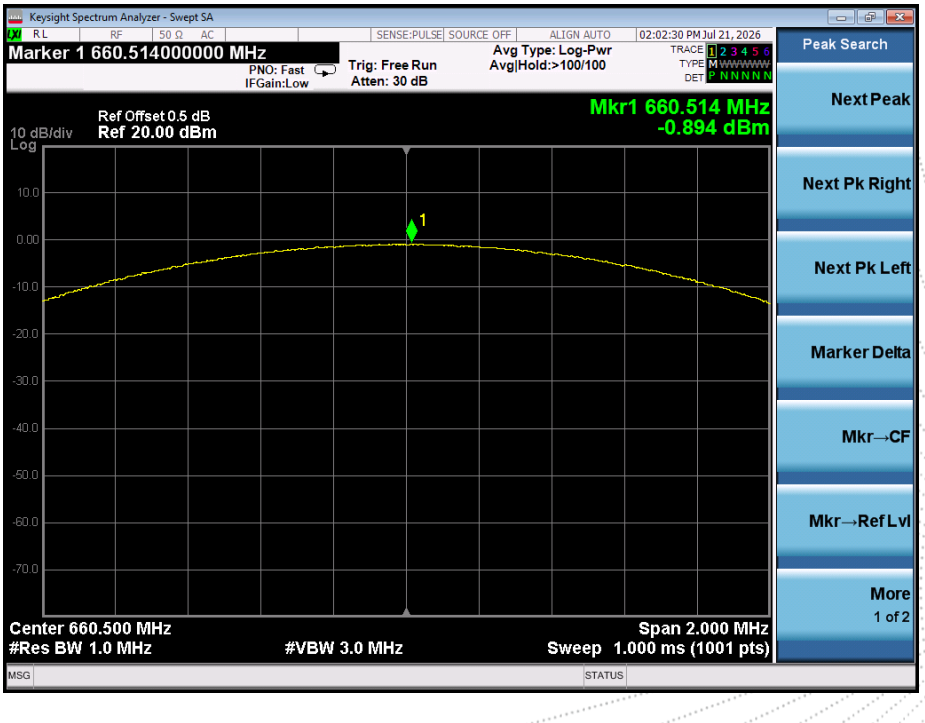
Low Channel (657.5MHz)



Middle Channel (658.5MHz)

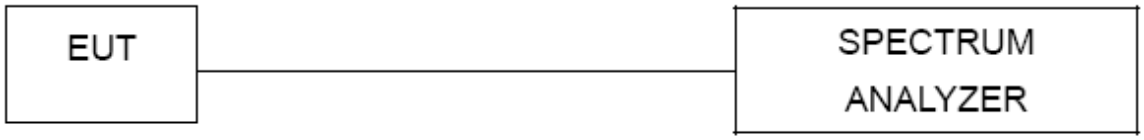


High Channel (660.5MHz)



9. Occupied Bandwidth

9.1 Block Diagram Of Test Setup



9.2 Limit

According to FCC 15.236(f)(2)
One or more adjacent 25 kHz segments within the assignable frequencies may be combined to form a channel whose maximum bandwidth shall not exceed 200 kHz. The operating bandwidth shall not exceed 200 kHz.

9.3 Test Procedure

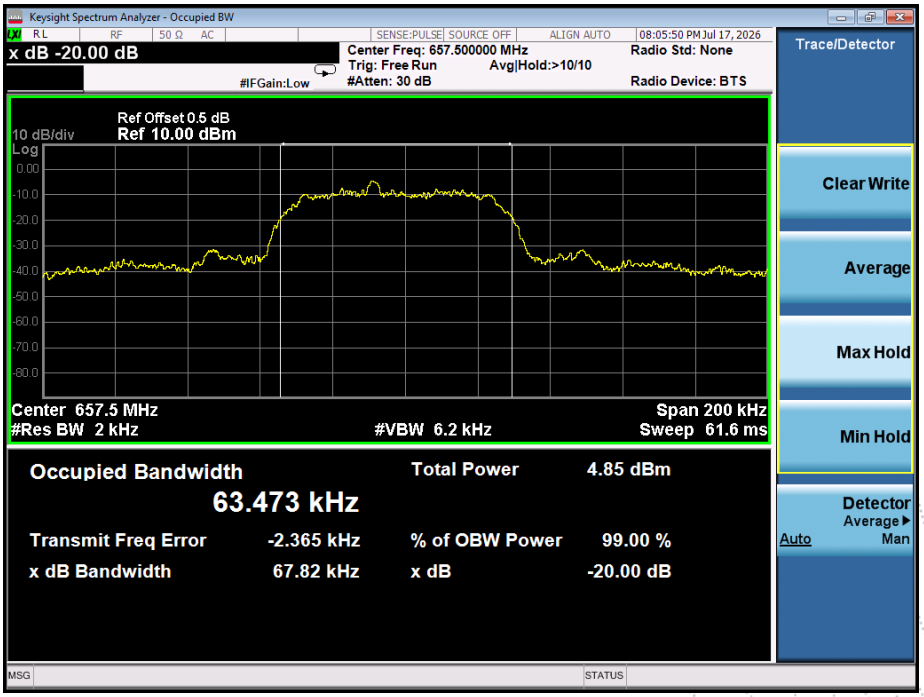
According to TIA-603 for additional Test Set-Up procedures, the occupied bandwidth of emission was measured with a Spectrum Analyzer connected to the antenna terminal while EUT was operating in 2.5kHz tone at an input level 16 dB greater than that necessary to produce 50 percent modulation. Then mark the 99% Occupied Bandwidth and record it.

9.4 Test Result

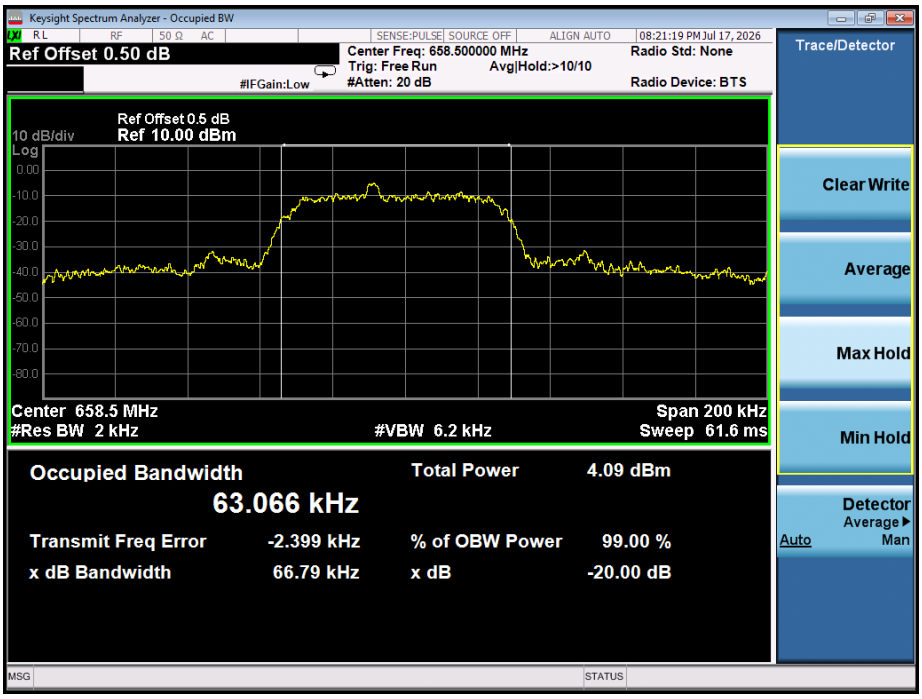
Temperature:	26 ℃	Relative Humidity:	54 %
Pressure:	101KPa	Test Voltage :	DC 3.7V

Test Channel	Frequency (MHz)	99% Bandwidth (kHz)	Limit (kHz)
Low	657.5	63.473	200
Middle	658.5	63.066	200
High	660.5	62.467	200

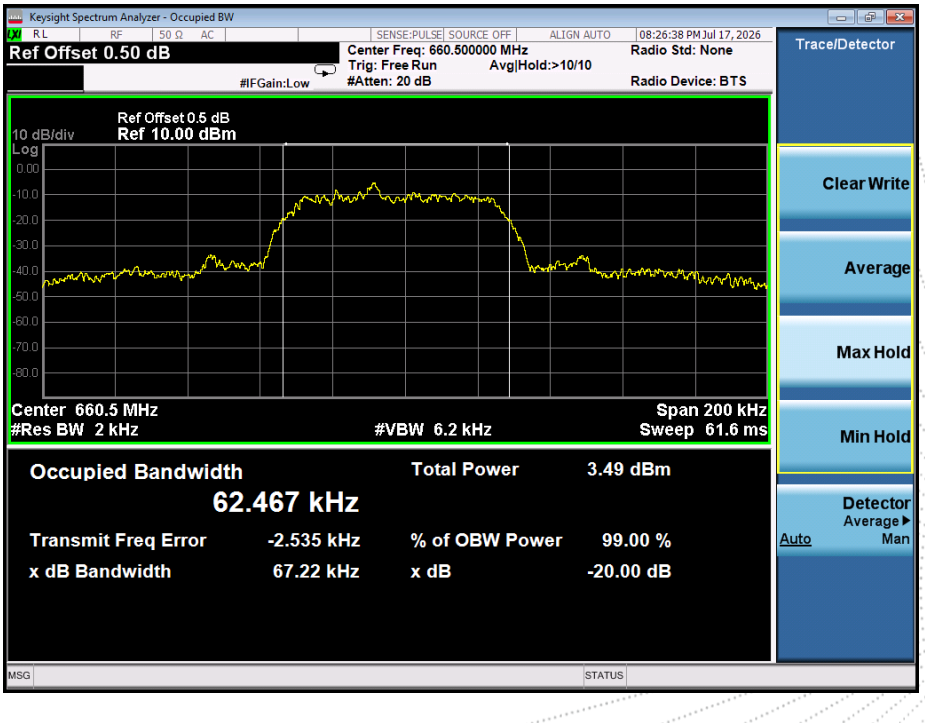
Low Channel (657.5MHz)



Middle Channel (658.5MHz)

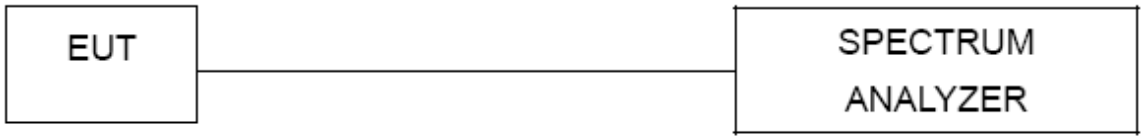


High Channel (660.5MHz)



10. Emission Mask (Necessary Bandwidth)

10.1 Block Diagram Of Test Setup



10.2 Limit

According to FCC 15.236(g)
Emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in section 4.2.4.2.2 of ETSI EN 300 422-1 V2.2.1 (2021-11), Electromagnetic compatibility and Radio spectrum Matters (ERM); Wireless microphones in the 25 MHz to 3 GHz frequency range; Part 1: Technical characteristics and methods of measurement.

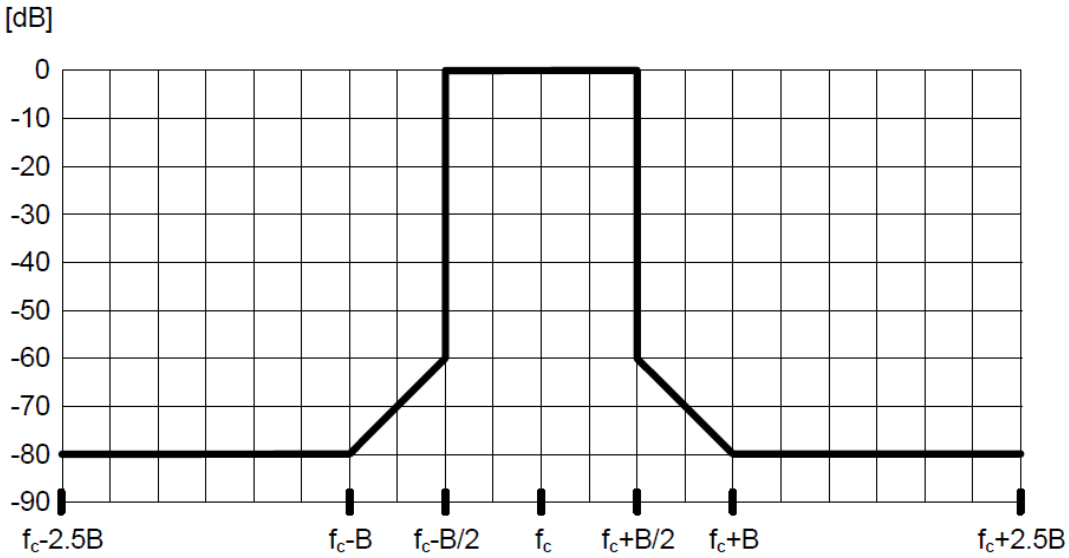


Figure 1: Transmit spectral power mask for equipment employing analogue modulation, RBW = 1 kHz

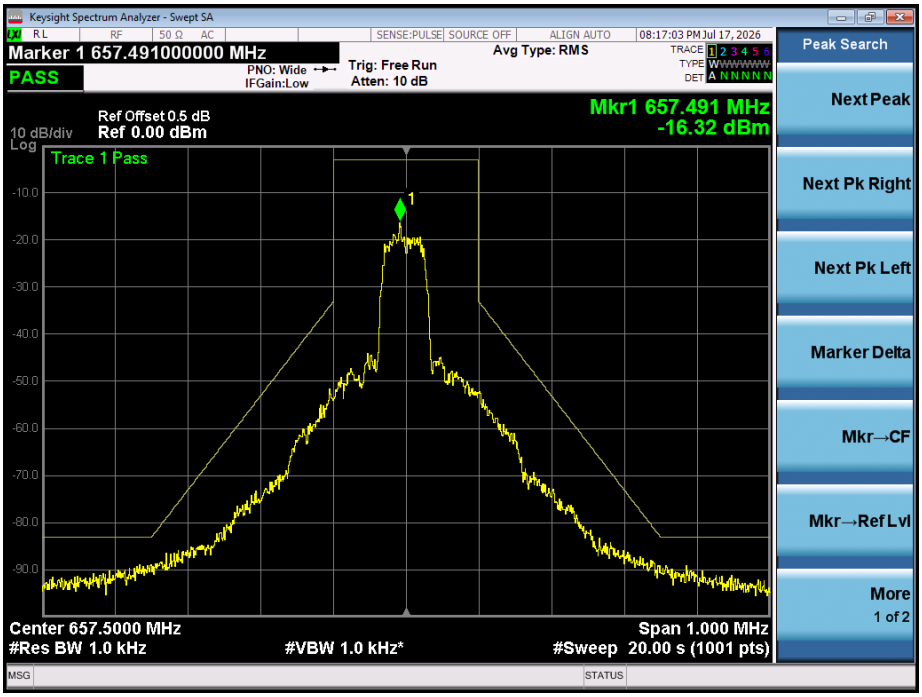
Figure 2: Transmit spectral power mask for equipment employing digital modulation, except WMAS, RBW = 1 kHz

10.3 Test Procedure

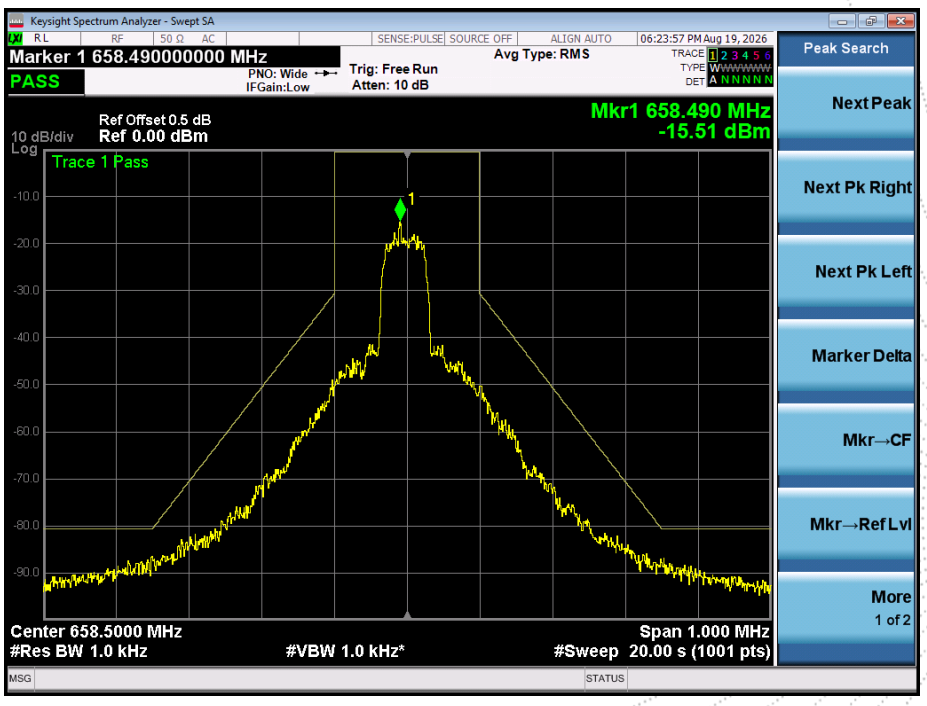
Method of Measurement for Analogue Systems in ETSI EN 300 422-1 V2.2.1 (2021-11) section 5.4.3.2.1.1
Method of Measurement for Digital Systems in ETSI EN 300 422-1 V2.2.1 (2021-11) section 5.4.3.2.1.2

10.4 Test Result

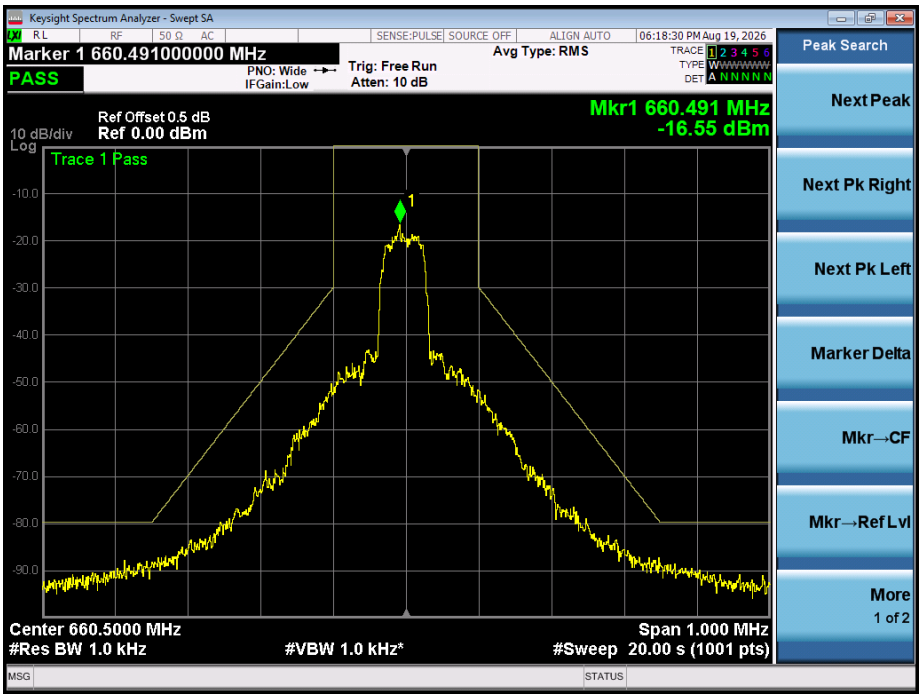
Emission Mask (657.5MHz)



Emission Mask (658.5MHz)



Emission Mask (660.5MHz)



11. Frequency Tolerance

11.1 Block Diagram Of Test Setup

11.2 Limit

According to FCC 15.236(f)(3)
The frequency tolerance of the carrier signal shall be maintained within ±0.005% of the operating frequency over a temperature variation of −20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. Battery operated equipment shall be tested using a new battery.

11.3 Test Procedure

1, Setup the configuration of the ambient temperature form -20ºC to 50ºC with sufficient time. And measure the different power of the EUT with an artificial power from highest to end point voltage.
2, Set frequency counter center frequency to the right frequency needs to be measured.

11.4 Test Result

Temperature:	26℃	Relative Humidity:	54%
Test Mode:	Unmodulated	Test Voltage:	DC 3.7V

Test conditions		Frequency Error		
		657.5 MHz	658.5 MHz	660.5 MHz
T_{min} (-30°C)	V_{min}(3.15V)	657.4910	658.4910	660.4910
	V_{max}(4.26V)	657.4902	658.4873	660.4906
T(-20°C)	V_{nom}(3.7V)	657.4885	658.4868	660.4906
T(-10°C)	V_{nom}(3.7V)	657.4868	658.4837	660.4873
T(0°C)	V_{nom}(3.7V)	657.4851	658.4810	660.4853
T(10°C)	V_{nom}(3.7V)	657.4827	658.4795	660.4838
T_{nom}(20°C)	V_{nom}(3.7V)	657.4797	658.4791	660.4808
T(30°C)	V_{nom}(3.7V)	657.4784	658.4770	660.4775
T(40°C)	V_{nom}(3.7V)	657.4770	658.4747	660.4771
T_{max}(50°C)	V_{min}(3.15V)	657.4747	658.4738	660.4733
	V_{max}(4.26V)	657.4740	658.4727	660.4694
Max. frequency error (ppm)		-13.69	-13.67	-13.63
Limit (ppm)		±50ppm		

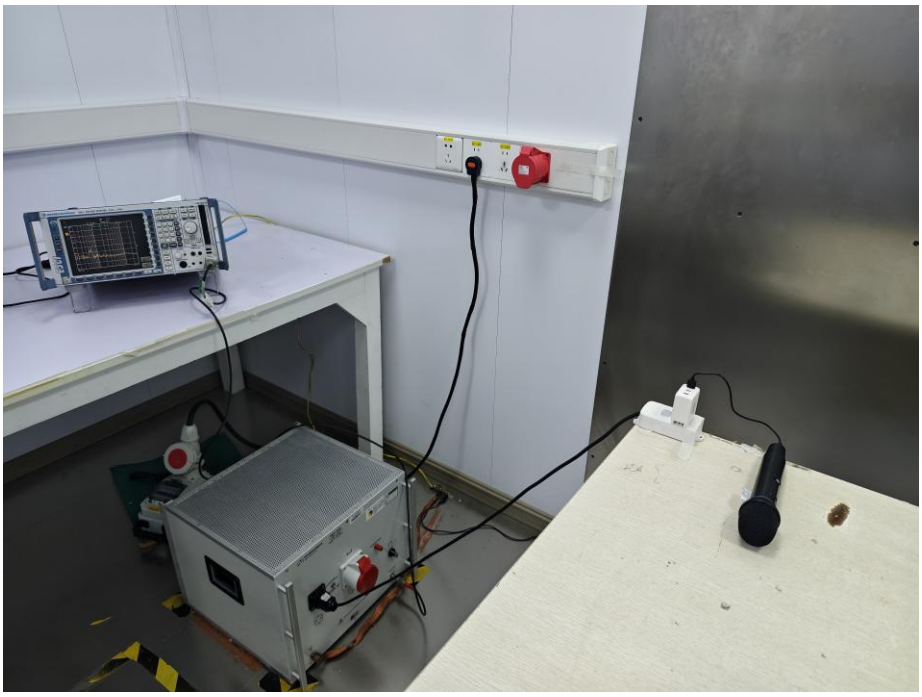
12. EUT Photographs

EUT Photo

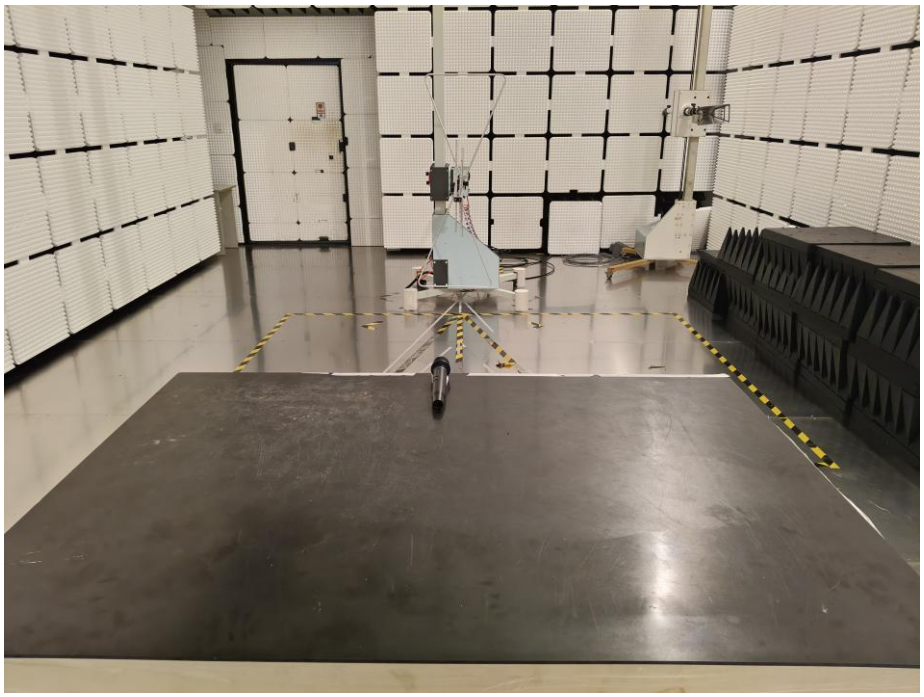
NOTE: Appendix-Photographs Of EUT Constructional Details.

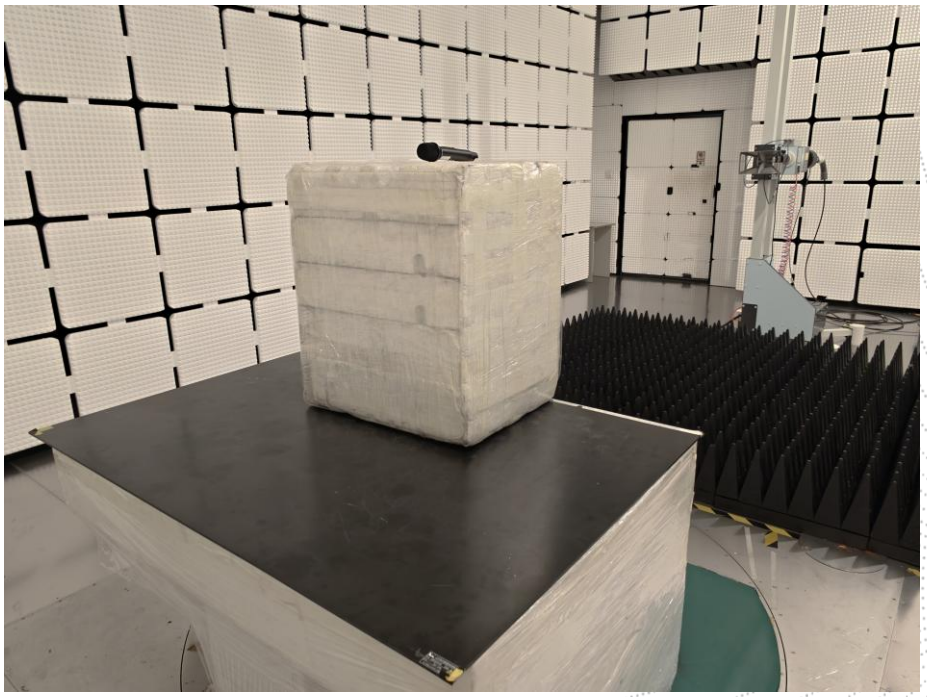
13. EUT Test Setup Photographs

Conducted emissions



Radiated Measurement Photos





STATEMENT

1. The equipment lists are traceable to the International System of Units (SI)

2. The test report can not be partially copied unless prior written approval is issued from our lab.

3. The test report is invalid without the "special seal for inspection and testing".

4. The test report is invalid without the signature of the approver.

5. The test process and test result is only related to the Unit Under Test.

6. Sample information is provided by the client and the laboratory is not responsible for its authenticity.

7. The quality system of our laboratory is in accordance with ISO/IEC 17025:2017.

8. If there is any objection to this test report, the client should inform issuing laboratory within 15 days from the date of receiving test report.

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