Test Report

Report No.:	MTi20052711-13E1
Date of issue:	Mar. 12, 2021
Applicant:	Shenzhen Listener Pro Technology Co., Ltd.
Product name:	Audio Transceiver
Model(s):	LP-PT100, LP-PT101, LP-PT102, LP-PT103, LP-PT104, LP-PT105, LP-PT106, LP-PT107, LP-PT108, LP-PT109, TC1
FCC ID:	2AVIY-LP-PT100

Shenzhen Microtest Co., Ltd.
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TEST RESULT CERTIFICATION

Applicant's name ..... :	Shenzhen Listener Pro Technology Co., Ltd.
Address ..... :	Room 203, D# Building, Duocai Science City, 5# Guanle Road, Luhu Community, Guanhu Street, Longhua District, Shenzhen, China
Manufacturer's Name ..... :	Shenzhen Listener Pro Technology Co., Ltd.
Address ..... :	Room 203, D# Building, Duocai Science City, 5# Guanle Road, Luhu Community, Guanhu Street, Longhua District, Shenzhen, China
Product description	
Product name ..... :	Audio Transceiver
Trademark ..... :	Listener Pro
Model Name ..... :	LP-PT100
Serial Model.....	LP-PT101, LP-PT102, LP-PT103, LP-PT104, LP-PT105, LP-PT106, LP-PT107, LP-PT108, LP-PT109, TC1
Standards ..... :	FCC Part 15.249
Test procedure ..... :	ANSI C63.10-2013
Date of Test	
Date (s) of performance of tests .....:	Dec. 21, 2020 ~ Mar. 04, 2021
Test Result.....:	Pass

This device described above has been tested by Shenzhen Microtest Co., Ltd. and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

Testing Engineer : Danny Xu

(Danny Xu)

Technical Manager : Leo Su

(Leo Su)

Authorized Signatory : Tom Xue

(Tom Xue)

1 General description

1.1 Feature of equipment under test (EUT)

Equipment:	Audio Transceiver
Trade Name:	Listener Pro
Model Name:	LP-PT100
Serial Model:	LP-PT101, LP-PT102, LP-PT103, LP-PT104, LP-PT105, LP-PT106, LP-PT107, LP-PT108, LP-PT109, TC1
Model Difference:	All the models are the same circuit and RF module, except the model No. and color.
Operation Frequency:	2402.6 – 2479.3MHz
Modulation Type:	FLRC
Antenna Type:	External antenna
Antenna Gain:	3dBi
Max. Field Strength:	105.74dBuV/m
Power Source:	DC 5V from adapter AC 120V/60Hz or DC 3.7V from battery
Battery:	DC 3.7V 1500mAh
Hardware version:	V01
Software version:	V01

1.2 Operation channel list

Channel No.	Frequency (MHz)	Channel No.	Frequency (MHz)
1	2402.6	16	2462.4
2	2403.9	17	2463.7
3	2405.2	18	2465.0
4	2406.5	19	2466.3
5	2407.8	20	2467.6
6	2409.1	21	2468.9
7	2410.4	22	2470.2
8	2450.7	23	2471.5
9	2453.3	24	2472.8
10	2454.6	25	2474.1
11	2455.9	26	2475.4
12	2457.2	27	2476.7
13	2458.5	28	2478.0
14	2459.8	29	2479.3
15	2461.1	/	/

1.3 Test Frequency Channel

Channel	Frequency(MHz)
Low	2402.6
Middle	2450.7
High	2479.3

1.4 EUT operation mode

During testing, RF test program provided by the manufacture to control the Tx operation followed the test requirement.

1.5 Ancillary equipment list

Equipment	Model	S/N	Manufacturer
/	/	/	/

2 Summary of Test Result

Test procedures according to the technical standards:

Item	FCC Part No.	Description of Test	Result
1	FCC Part15.203	Antenna Requirement	Pass
2	FCC Part15.207	AC power line conducted emission	Pass
3	FCC Part15.249(a)	Field strength of fundamental and harmonic emissions	Pass
4	FCC Part 15.215	20dB and 99% Bandwidth	Pass
5	FCC Part15.249(d)	Radiated spurious emission	Pass

3 Test Facilities and Accreditations

3.1 Test laboratory

Test Laboratory	Shenzhen Microtest Co., Ltd
Location	101, No. 7, Zone 2, Xinxing Industrial Park, Fuhai Avenue, Xinhe Community, Fuhai Street, Bao' an District, Shenzhen, Guangdong, China.
FCC Registration No.	448573

3.2 Environmental conditions

Temperature:	15ºC~35ºC
Humidity	20%~75%
Atmospheric pressure	98kPa~101kPa

3.3 Measurement uncertainty

The reported uncertainty of measurement y ± U，where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2，providing a level of confidence of approximately 95 %

RF frequency	1 x 10-7
RF power, conducted	± 1 dB
Conducted emission(150kHz~30MHz)	± 2.5 dB
Radiated emission(30MHz~1GHz)	± 4.2 dB
Radiated emission (above 1GHz)	± 4.3 dB
Temperature	±1 degree
Humidity	± 5 %

3.4 Test software

Software Name	Manufacturer	Model	Version
Bluetooth and WiFi Test System	Shenzhen JS tonscend co,.ltd	JS1120-3	2.5.77.0418

4 List of test equipment

Equipment No.	Equipment Name	Manufacturer	Model	Serial No.	Calibration date	Due date
MTI-E043	EMI Test Receiver	Rohde&schwarz	ESCI7	101166	2020/06/04	2021/06/03
MTI-E044	TRILOG Broadband Antenna	schwarabeck	VULB 9163	9163-1338	2020/06/05	2021/06/04
MTI-E047	Amplifier	Hewlett-Packard	8447F	3113A06150	2020/06/04	2021/06/03
MTI-E089	ESG Vector Signal Generator	Agilent	N5182A	MY49060455	2020/06/03	2021/06/02
MTI-E058	ESG Series Analog Ssignal Generator	Agilent	E4421B	GB40051240	2020/07/03	2021/07/04
MTI-E062	PXA Signal Analyzer	Agilent	N9030A	MY51350296	2020/06/04	2021/06/03
MTI-E066	MXA Signal Analyzer	Agilent	N9020A	MY50143483	2020/06/04	2021/06/03
MTI-E078	Synthesized Sweeper	Agilent	83752A	3610A01957	2020/06/04	2021/06/03
MTI-E079	DC Power Supply	Agilent	E3632A	MY40027695	2020/06/04	2021/06/03
MTI-E045	Double Ridged Broadband Horn Antenna	schwarabeck	BBHA 9120D	9120D-2278	2020/06/05	2021/06/04
MTI-E021	EMI Test Receiver	Rohde&schwarz	ESCS30	100210	2020/06/04	2021/06/03
MTI-E022	Pulse Limiter	Schwarzbeck	VSTD 9561-F	00679	2020/06/03	2021/06/02
MTI-E023	Artificial mains network	Schwarzbeck	NSLK 8127	NSLK 8127 #841	2020/06/04	2021/06/03
MTI-E046	Active Loop Antenna	Schwarzbeck	FMZB 1519 B	00044	2020/06/05	2021/06/04
MTI-E048	Amplifier	Agilent	8449B	3008A02400	2020/07/03	2021/07/04
MTI-E072	Thermometer Clock Humidity Monitor	-	HTC-1	/	2020/06/07	2021/06/06

Note: the calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

5 Test Result

5.1 Antenna requirement

5.1.1 Standard requirement

FCC PART 15.203;

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. 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.

This requirement does not apply to carrier current devices or to devices operated under the provisions of §§15.211, 15.213, 15.217, 15.219, 15.221, or §15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

5.1.2 EUT Antenna

The antenna is an External antenna, which was permanently affixed to the device and un-replaced, complies with 15.203. In addition, the maximum antenna gain is 3dBi.

5.2 AC power line conducted emission

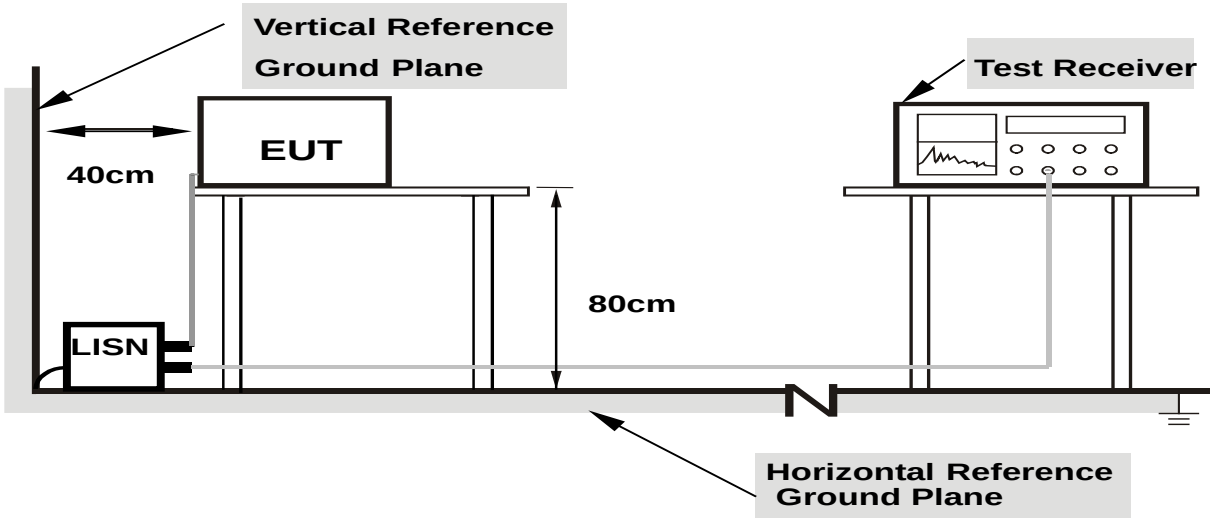
5.2.1 Limits

FCC §15.207;

For an intentional radiator that 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 within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50μH/50Ω line impedance stabilization network (LISN).

Frequency (MHz)	Quasi-peak	Average
0.15 -0.5	66 - 56 note2	56 - 46 note2
0.50 -5.0	56.00	46.00
5.0 -30.0	60.00	50.00
Note1: The tighter limit applies at the band edges. Note2: The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.		

5.2.2 Test setup



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

5.2.3 Test procedure

a. 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.

b. The following table is the setting of the receiver

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

c. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment's powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.

d. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.

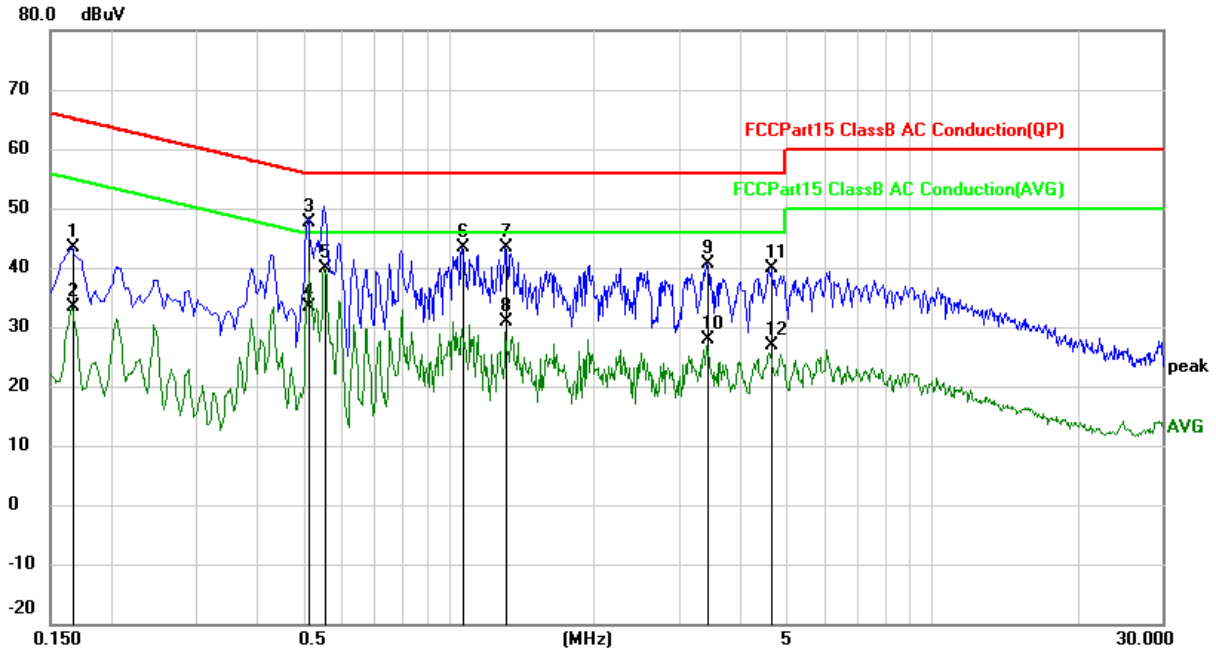
e. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.

f. LISN at least 80 cm from nearest part of EUT chassis.

For the actual test configuration, please refer to the related Item –EUT Test Photos.

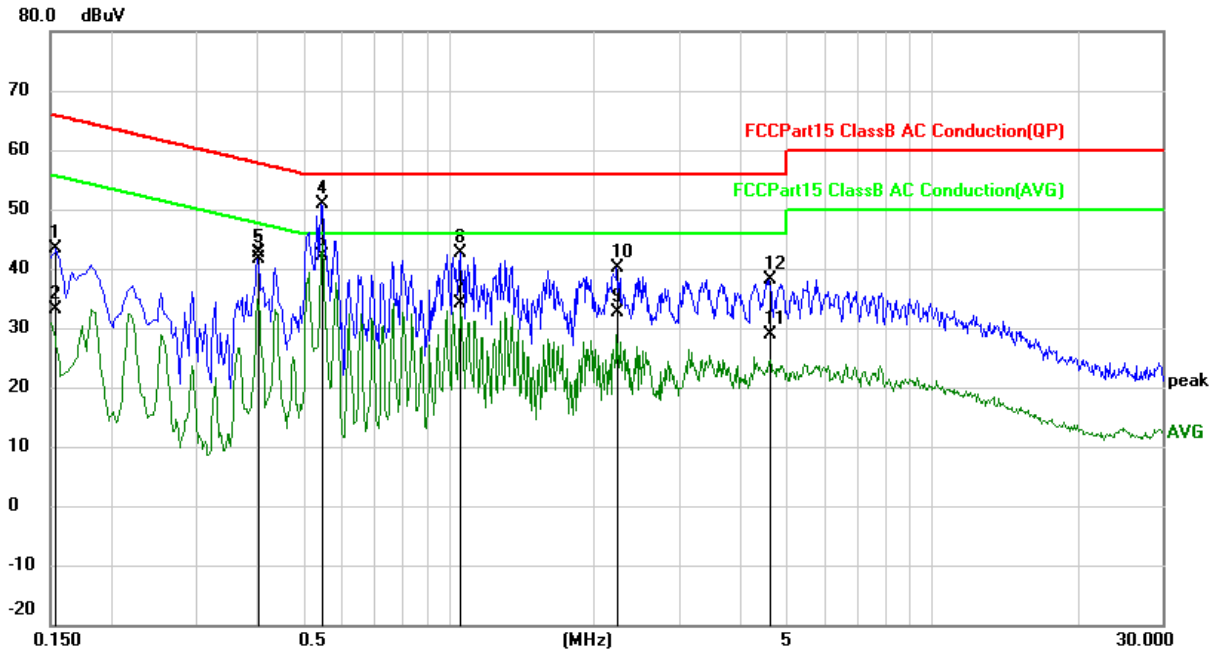
5.2.4 Test results

EUT:	Audio Transceiver	Model Name :	LP-PT100
Pressure:	101kPa	Polarization:	N
Test voltage:	DC 5V from adapter AC 120V/60Hz	Test mode:	Mode 1



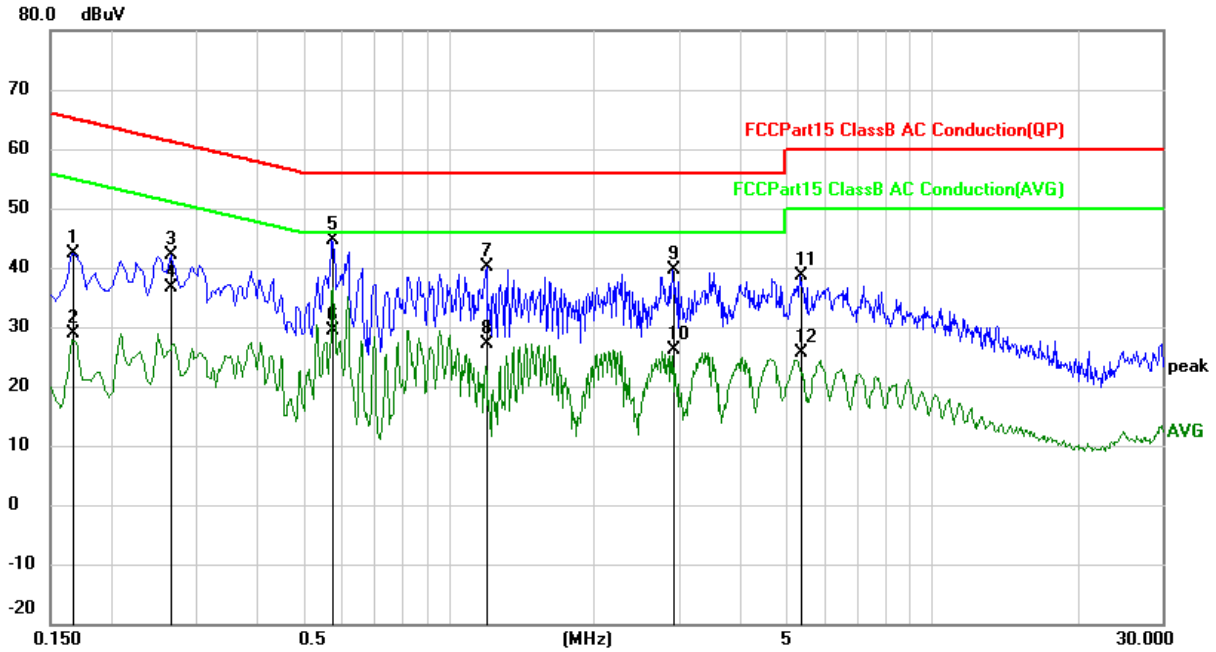
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1660	32.44	10.93	43.37	65.16	-21.79	QP
2		0.1660	22.44	10.93	33.37	55.16	-21.79	AVG
3		0.5101	36.63	10.92	47.55	56.00	-8.45	QP
4		0.5101	22.43	10.92	33.35	46.00	-12.65	AVG
5	*	0.5540	28.89	10.96	39.85	46.00	-6.15	AVG
6		1.0660	32.19	11.22	43.41	56.00	-12.59	QP
7		1.3140	32.01	11.27	43.28	56.00	-12.72	QP
8		1.3140	19.49	11.27	30.76	46.00	-15.24	AVG
9		3.4180	29.34	11.39	40.73	56.00	-15.27	QP
10		3.4180	16.38	11.39	27.77	46.00	-18.23	AVG
11		4.6700	28.49	11.39	39.88	56.00	-16.12	QP
12		4.6700	15.41	11.39	26.80	46.00	-19.20	AVG

EUT:	Audio Transceiver	Model Name :	LP-PT100
Pressure:	101kPa	Polarization:	L
Test voltage:	DC 5V from adapter AC 120V/60Hz	Test mode:	Mode 1



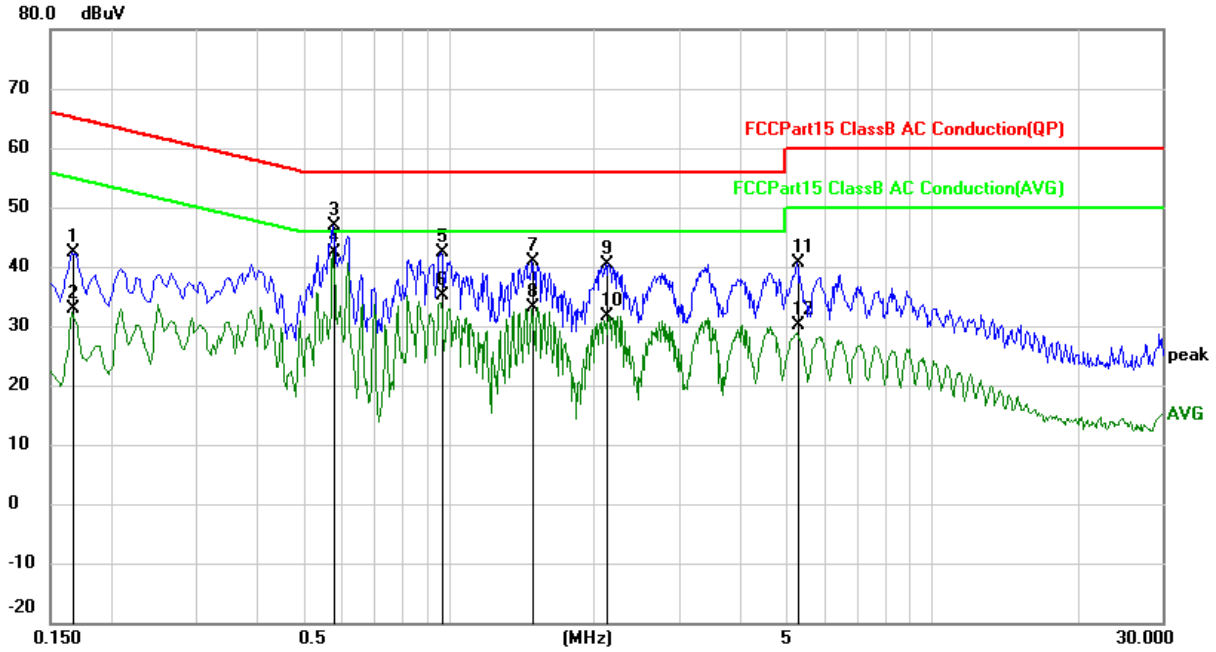
No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1539	32.39	10.94	43.33	65.79	-22.46	QP
2		0.1539	22.11	10.94	33.05	55.79	-22.74	AVG
3		0.4020	30.79	10.89	41.68	57.81	-16.13	QP
4		0.5460	40.03	10.96	50.99	56.00	-5.01	QP
5		0.4020	31.71	10.89	42.60	47.81	-5.21	AVG
6	*	0.5460	31.24	10.96	42.20	46.00	-3.80	AVG
7		1.0580	22.83	11.22	34.05	46.00	-11.95	AVG
8		1.0580	31.48	11.22	42.70	56.00	-13.30	QP
9		2.2300	21.26	11.39	32.65	46.00	-13.35	AVG
10		2.2300	28.67	11.39	40.06	56.00	-15.94	QP
11		4.6020	17.54	11.38	28.92	46.00	-17.08	AVG
12		4.6020	26.79	11.38	38.17	56.00	-17.83	QP

EUT:	Audio Transceiver	Model Name :	LP-PT100
Pressure:	101kPa	Polarization:	N
Test voltage:	DC 5V from adapter AC 240V/60Hz	Test mode:	Mode 1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1660	31.38	10.99	42.37	65.16	-22.79	QP
2		0.1660	17.90	10.99	28.89	55.16	-26.27	AVG
3		0.2660	31.23	11.00	42.23	61.24	-19.01	QP
4		0.2660	25.71	11.00	36.71	51.24	-14.53	AVG
5	*	0.5740	33.64	11.08	44.72	56.00	-11.28	QP
6		0.5740	18.18	11.08	29.26	46.00	-16.74	AVG
7		1.1980	28.79	11.30	40.09	56.00	-15.91	QP
8		1.1980	15.86	11.30	27.16	46.00	-18.84	AVG
9		2.9060	28.27	11.38	39.65	56.00	-16.35	QP
10		2.9060	14.63	11.38	26.01	46.00	-19.99	AVG
11		5.3420	27.25	11.50	38.75	60.00	-21.25	QP
12		5.3420	14.21	11.50	25.71	50.00	-24.29	AVG

EUT:	Audio Transceiver	Model Name :	LP-PT100
Pressure:	101kPa	Polarization:	L
Test voltage:	DC 5V from adapter AC 240V/60Hz	Test mode:	Mode 1



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1660	31.29	10.99	42.28	65.16	-22.88	QP
2		0.1660	21.90	10.99	32.89	55.16	-22.27	AVG
3		0.5780	35.83	11.09	46.92	56.00	-9.08	QP
4	*	0.5780	31.21	11.09	42.30	46.00	-3.70	AVG
5		0.9660	31.03	11.26	42.29	56.00	-13.71	QP
6		0.9660	23.95	11.26	35.21	46.00	-10.79	AVG
7		1.4940	29.47	11.33	40.80	56.00	-15.20	QP
8		1.4940	21.68	11.33	33.01	46.00	-12.99	AVG
9		2.1180	28.97	11.40	40.37	56.00	-15.63	QP
10		2.1180	20.32	11.40	31.72	46.00	-14.28	AVG
11		5.2740	29.18	11.50	40.68	60.00	-19.32	QP
12		5.2740	18.56	11.50	30.06	50.00	-19.94	AVG

5.3 Field strength of fundamental and harmonic emissions

5.3.1 Limits

FCC §15.249(a);

The field strength of fundamental and harmonic emissions, measured at 3 m, shall not

exceed 50 mV/m and 0.5 mV/m respectively.

The field strength limits shall be measured using an average detector, except for the fundamental emission in the frequency band 902-928 MHz, which is based on measurements using an International Special Committee on Radio Interference (CISPR) quasi-peak detector

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902-928 MHz	50	500
2400-2483.5 MHz	50	500
5725-5875 MHz	50	500
24.0-24.25 GHz	250	2500

Frequency	Field Strength(dBuv/m)	Detector
Fundamental	114	PK
Fundamental	94	AV
Harmonic emissions	74	PK
Harmonic emissions	54	AV

Note: 50mV/m=50000uv/m

20*log(50000uV/m)=94dBuv/m

PK limit reference 15.249(e)

5.3.2 Test Method

1. The EUT is placed on a turntable, which is 0.8m above ground plane for test frequency range below 1GHz, and 1.5m above ground plane for test frequency range above 1GHz.

2. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.

3. Use the following spectrum analyser settings:

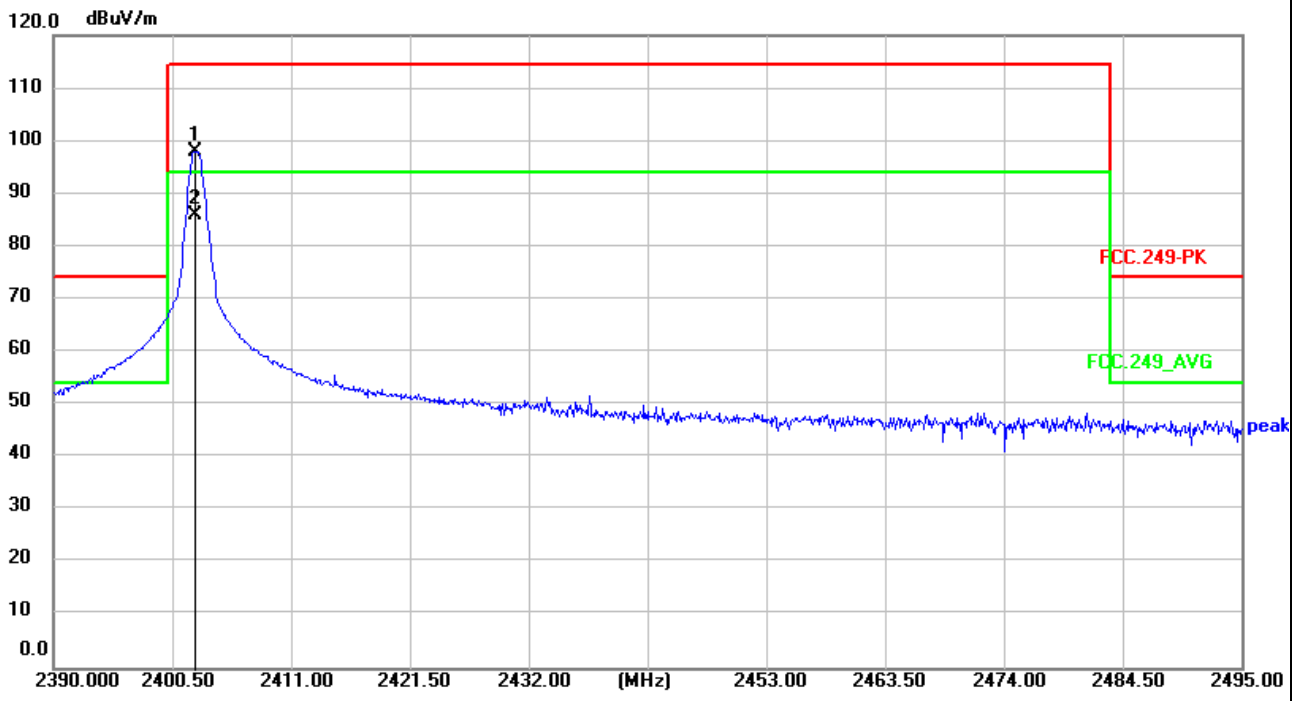
Span = wide enough to fully capture the emission being measured, RBW = 1 MHz for f ≥ 1GHz, 100 kHz for f < 1 GHz, VBW ≥ RBW, Sweep = auto, Detector function = peak, Trace = max hold

4. Follow the guidelines in ANSI C63.4-2014 with respect to maximizing the emission by rotating the EUT, adjusting the measurement antenna height and polarization, etc. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, submit this data. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

5. The peak level, once corrected, must comply with the limit specified in Section 15.209. Set the RBW = 1MHz, VBW = 10Hz, Detector = PK for AV value, while maintaining all of the other instrument settings.

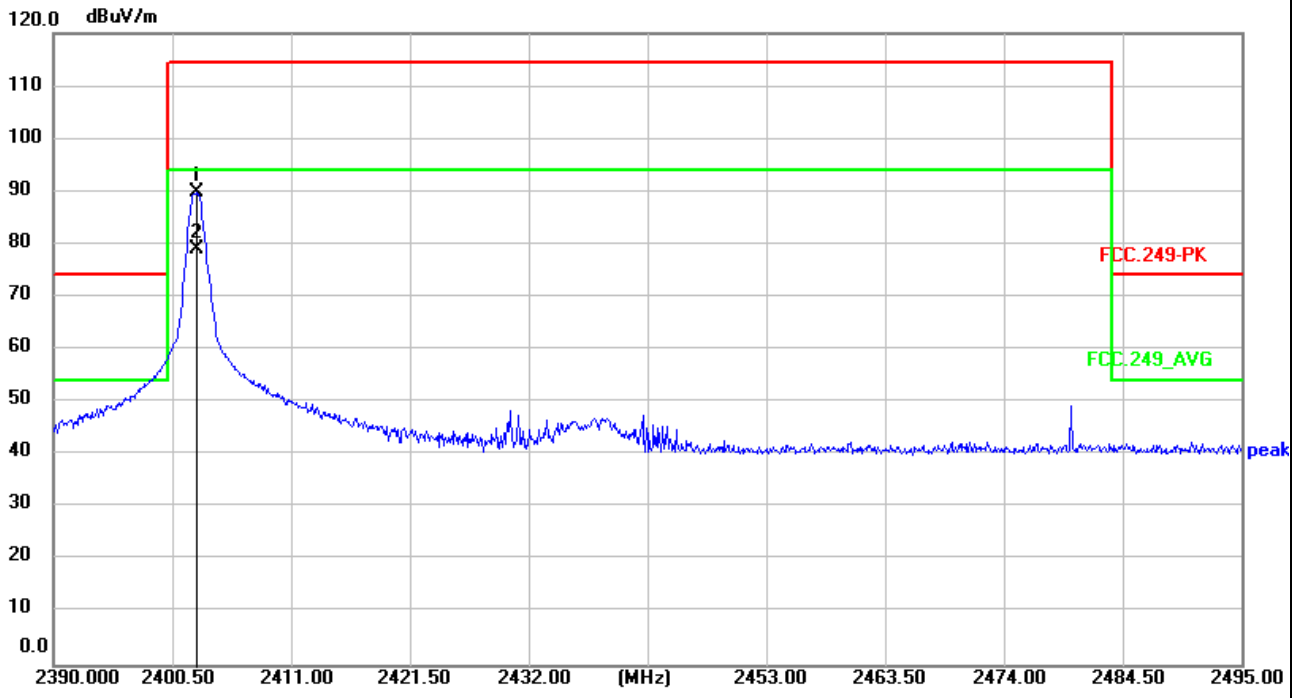
5.3.3 Test Result

EUT:	Audio Transceiver	Model Name:	LP-PT100
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2402.6MHz



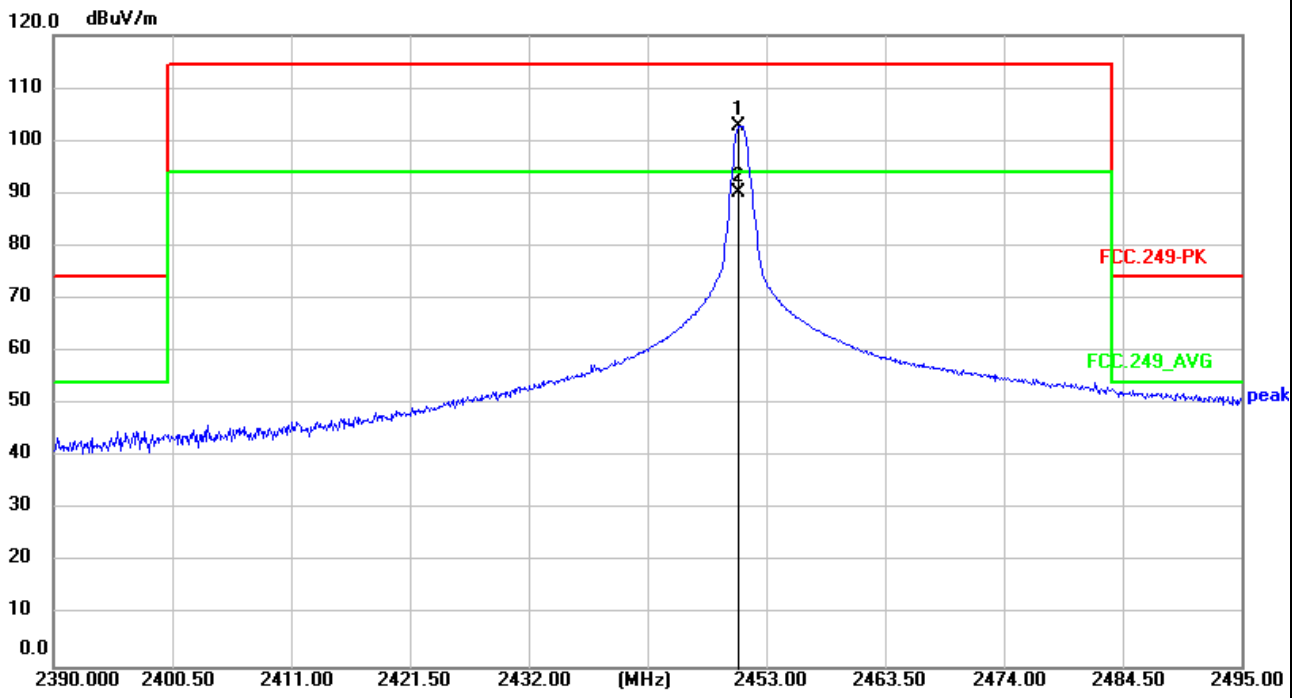
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2402.495	100.83	-2.84	97.99	114.00	-16.01	peak
2 *	2402.495	88.94	-2.84	86.10	94.00	-7.90	AVG

EUT:	Audio Transceiver	Model Name:	LP-PT100
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2402.6MHz



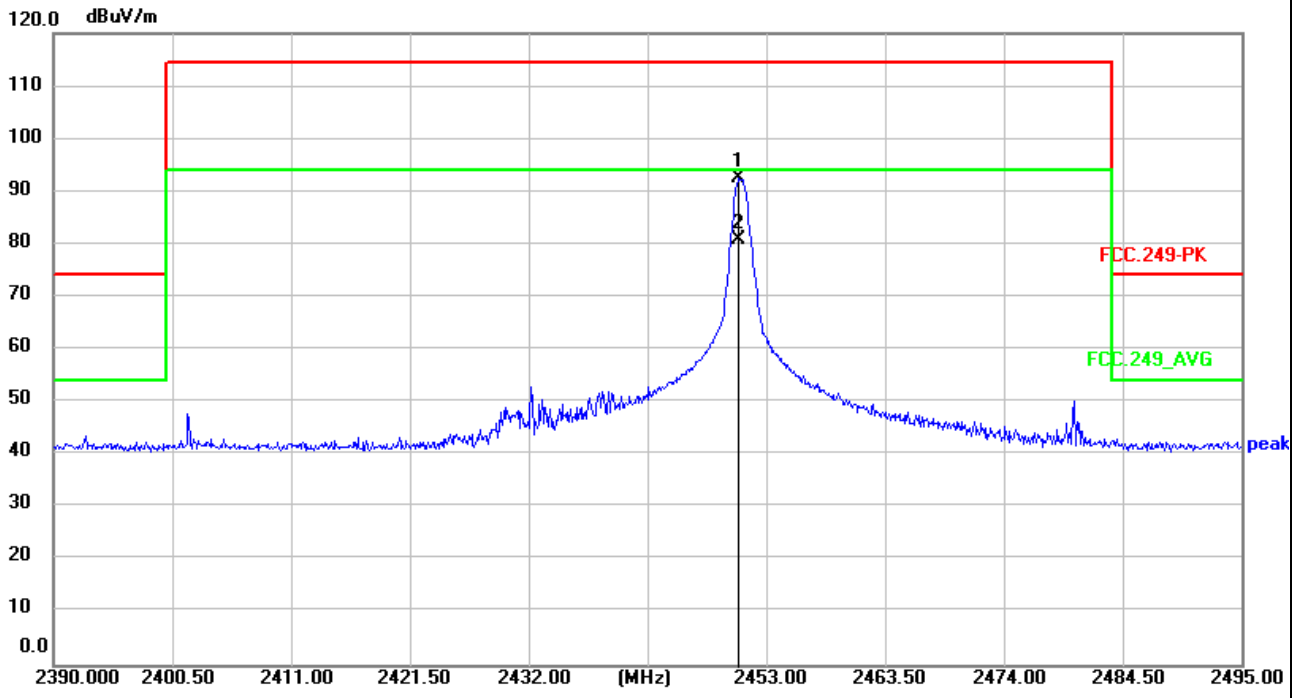
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2402.705	92.57	-2.84	89.73	114.00	-24.27	peak
2 *	2402.705	81.92	-2.84	79.08	94.00	-14.92	AVG

EUT:	Audio Transceiver	Model Name:	LP-PT100
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2450.7MHz



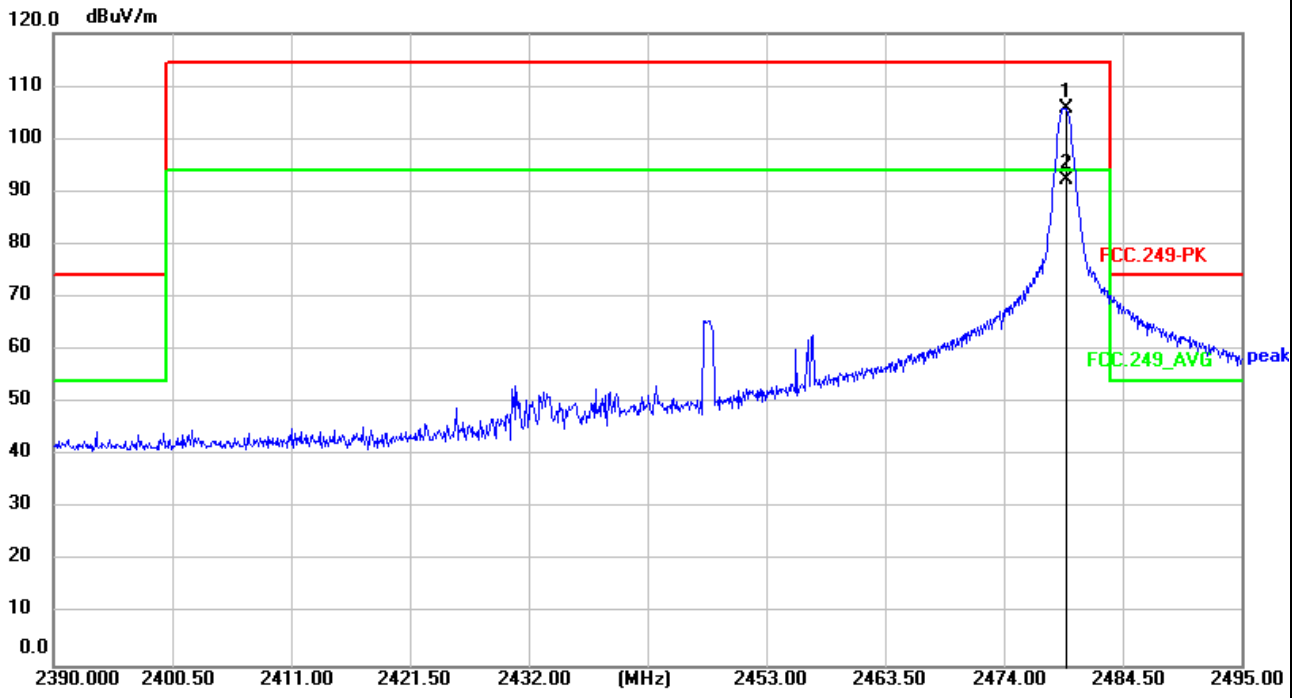
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2450.585	105.76	-2.90	102.86	114.00	-11.14	peak
2 *	2450.585	93.05	-2.90	90.15	94.00	-3.85	AVG

EUT:	Audio Transceiver	Model Name:	LP-PT100
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2450.7MHz



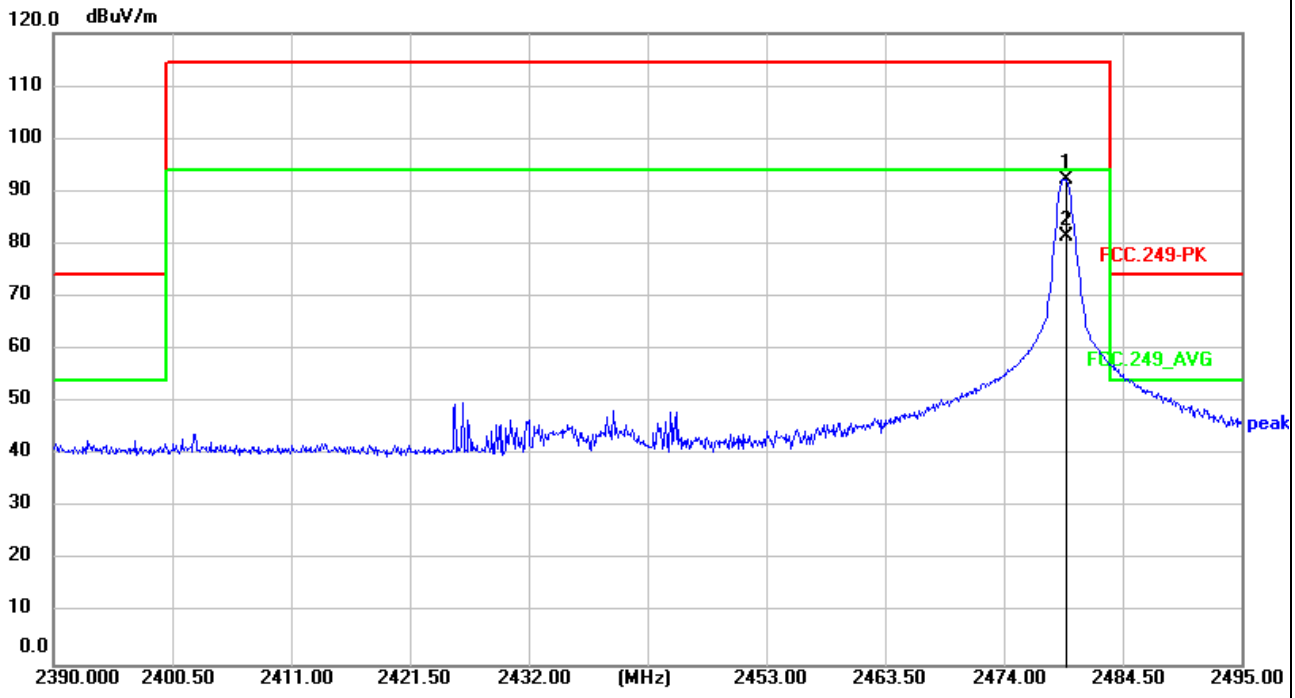
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2450.585	95.30	-2.90	92.40	114.00	-21.60	peak
2 *	2450.585	83.72	-2.90	80.82	94.00	-13.18	AVG

EUT：	Audio Transceiver	Model Name. ：	LP-PT100
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 3.7V from battery	Test Mode ：	TX-2479.3MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2479.460	108.66	-2.92	105.74	114.00	-8.26	peak
2 *	2479.460	95.21	-2.92	92.29	94.00	-1.71	AVG

EUT:	Audio Transceiver	Model Name:	LP-PT100
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2479.3MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2479.460	95.26	-2.92	92.34	114.00	-21.66	peak
2 *	2479.460	84.25	-2.92	81.33	94.00	-12.67	AVG

5.4 20dB and 99% bandwidth

5.4.1 Limits

FCC §15.215(c)

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in § 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

5.4.2 Test method

Use the following spectrum analyzer settings:

For 20 dB bandwidth

Span = approximately 2 to 3 times the 20 dB bandwidth, centered on a hopping channel

RBW ≥1% of the 20 dB bandwidth

VBW ≥RBW

Sweep = auto

Detector function = peak

Trace = max hold

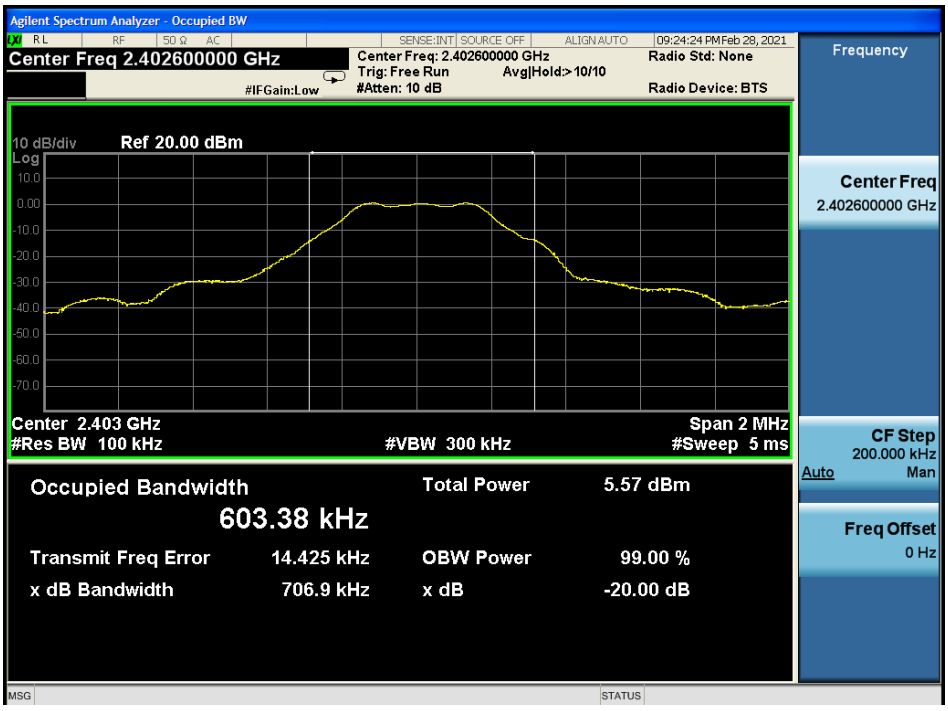
The EUT should be transmitting at its maximum data rate. Allow the trace to stabilize. Use the marker-to-peak function to set the marker to the peak of the emission. Use the marker-delta function to measure 20 dB down one side of the emission. Reset the marker-delta function, and move the marker to the other side of the emission, until it is (as close as possible to) even with the reference marker level. The marker-delta reading at this point is the 20 dB bandwidth and 99% occupied bandwidth of the emission

5.4.3 Test result

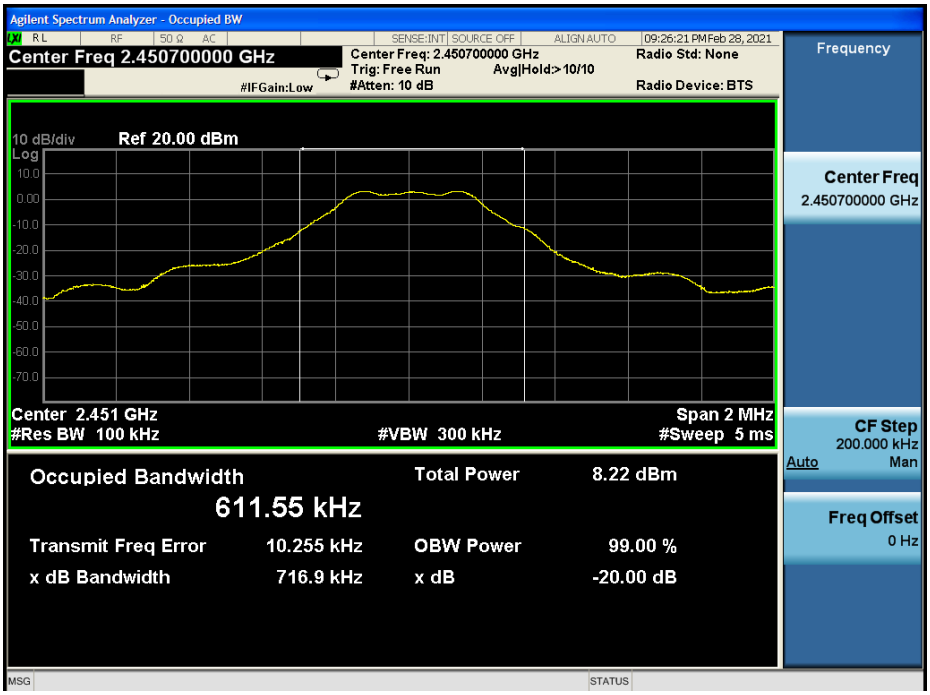
Frequency (MHz)	20dB bandwidth (MHz)
2402.6	0.7069
2450.7	0.7169
2479.3	0.7169

Test plots

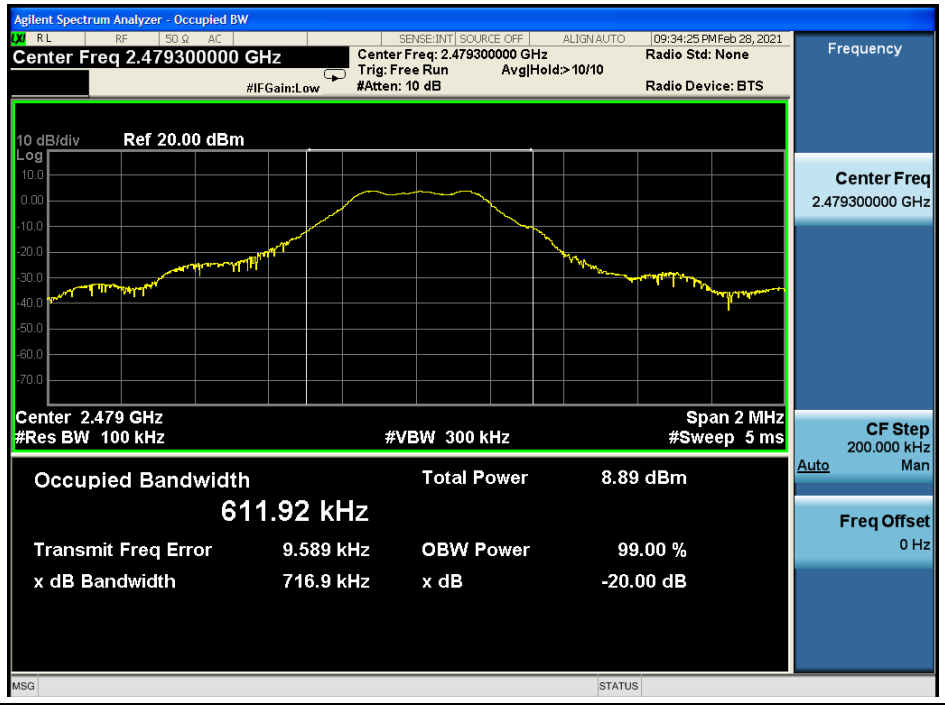
2402.6MHz



2450.7MHz



2479.3MHz



5.5 Radiated spurious emission

5.5.1 Limit

FCC PART 15.249(a);

Except as provided in paragraph (a) of this section, the field strength of emissions from intentional radiators operated within these frequency bands shall comply with the following:

Frequency (MHz)	Field Strength of Fundamental (mV/m)	Field Strength of Harmonics (μV/m)
902-928	50	500
2400-2483.5	50	500
5725-5875	50	500

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 §15.209, whichever is the lesser attenuation.

According to FCC section 15.209 (a), 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 (μV/m)	Measurement Distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30
30 - 88	100	3
88 - 216	150	3
216 - 960	200	3
Above 960	500	3

5.5.2 Test method

a) The EUT is placed on a turntable, which is 0.8m above ground plane for test frequency range blew 1GHz, and 1.5m above ground plane for test frequency range above 1GHz.

b) EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.

c) Use the following spectrum analyser settings:

1) Span = wide enough to fully capture the emission being measured

2) RBW = 1 MHz for f ≥ 1GHz, 100 kHz for f < 1 GHz

3) VBW ≥ RBW, Sweep = auto

4) Detector function = peak

5) Trace = max hold

d) Follow the guidelines in ANSI C63.4-2014 with respect to maximizing the emission by rotating the EUT, adjusting the measurement antenna height and polarization, etc. The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, submit this data. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

e) The peak level, once corrected, must comply with the limit specified in Section 15.209. Set the RBW = 1MHz, VBW = 10Hz, Detector = PK for AV value, while maintaining all of the other instrument settings.

5.5.2.1Test Result

Below 30MHz

EUT：	Audio Transceiver	Model name. ：	LP-PT100
Pressure：	1010 hPa	Test voltage：	DC 3.7V from battery
Test mode：	TX	Polarization :	--

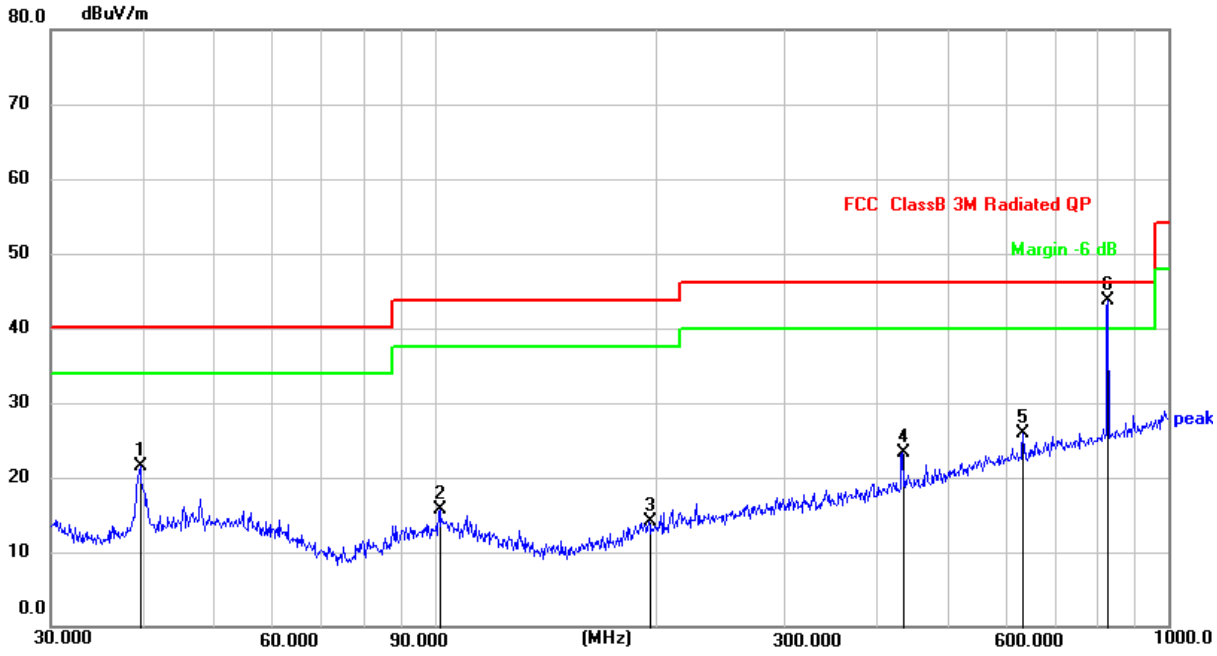
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	Pass
--	--	--	--	Pass

Note:

1. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
2. Distance extrapolation factor =40 log (specific distance/test distance)(dB);
3. Limit line = specific limits (dBuV) + distance extrapolation factor.

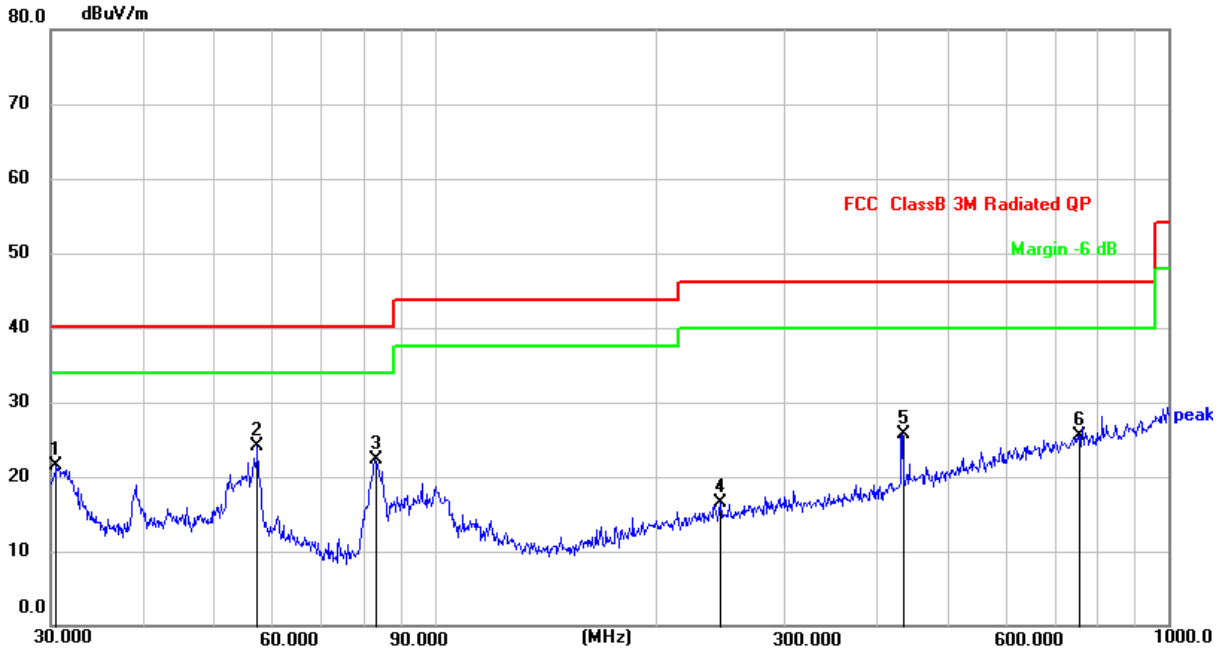
30MHz-1GHz

EUT:	Audio Transceiver	Model Name:	LP-PT100
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2402.6MHz



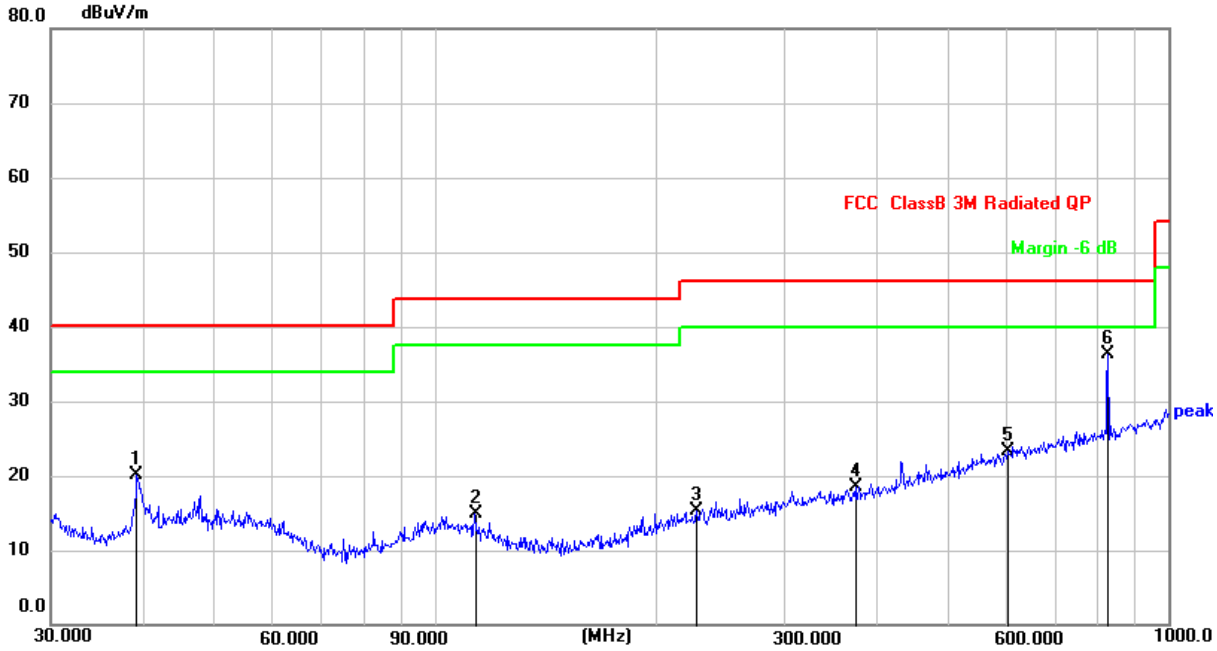
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	39.7146	34.04	-12.54	21.50	40.00	-18.50	QP
2	101.6443	28.28	-12.54	15.74	43.50	-27.76	QP
3	195.8220	26.04	-11.89	14.15	43.50	-29.35	QP
4	434.0651	29.97	-6.64	23.33	46.00	-22.67	QP
5	633.9073	28.72	-2.77	25.95	46.00	-20.05	QP
6 *	827.4934	43.26	0.50	43.76	46.00	-3.24	QP

EUT:	Audio Transceiver	Model Name:	LP-PT100
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2402.6MHz



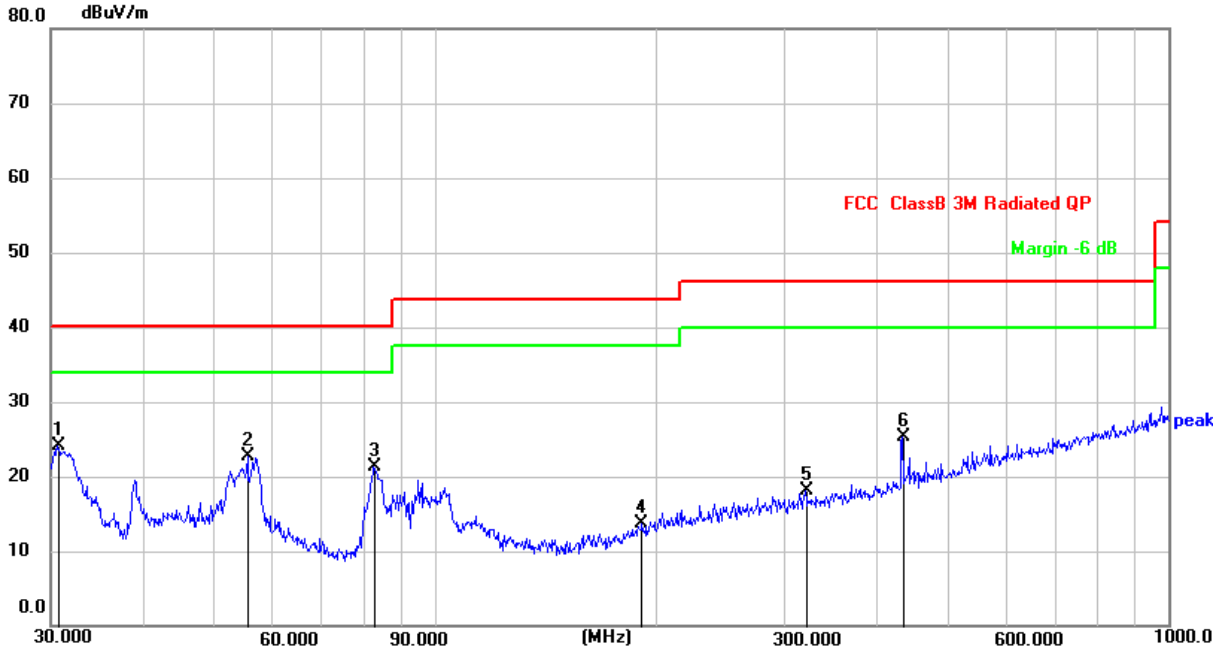
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.5306	36.27	-14.86	21.41	40.00	-18.59	QP
2 *	57.3923	36.46	-12.42	24.04	40.00	-15.96	QP
3	82.9385	37.66	-15.45	22.21	40.00	-17.79	QP
4	245.0900	26.32	-9.91	16.41	46.00	-29.59	QP
5	434.0651	32.35	-6.64	25.71	46.00	-20.29	QP
6	752.7432	25.94	-0.39	25.55	46.00	-20.45	QP

EUT:	Audio Transceiver	Model Name:	LP-PT100
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2450.7MHz



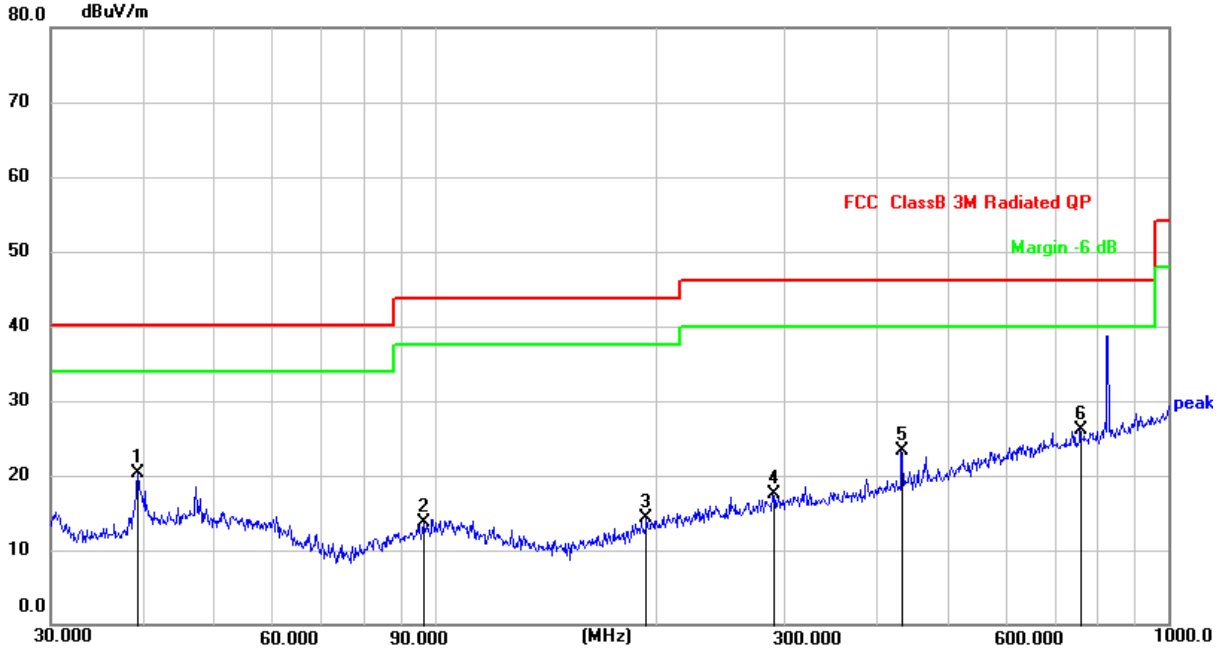
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	39.2991	32.80	-12.64	20.16	40.00	-19.84	QP
2	113.3163	27.91	-12.95	14.96	43.50	-28.54	QP
3	227.6906	25.91	-10.58	15.33	46.00	-30.67	QP
4	374.6225	26.43	-7.99	18.44	46.00	-27.56	QP
5	603.5392	26.36	-3.13	23.23	46.00	-22.77	QP
6 *	827.4934	35.79	0.50	36.29	46.00	-9.71	QP

EUT:	Audio Transceiver	Model Name:	LP-PT100
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2450.7MHz



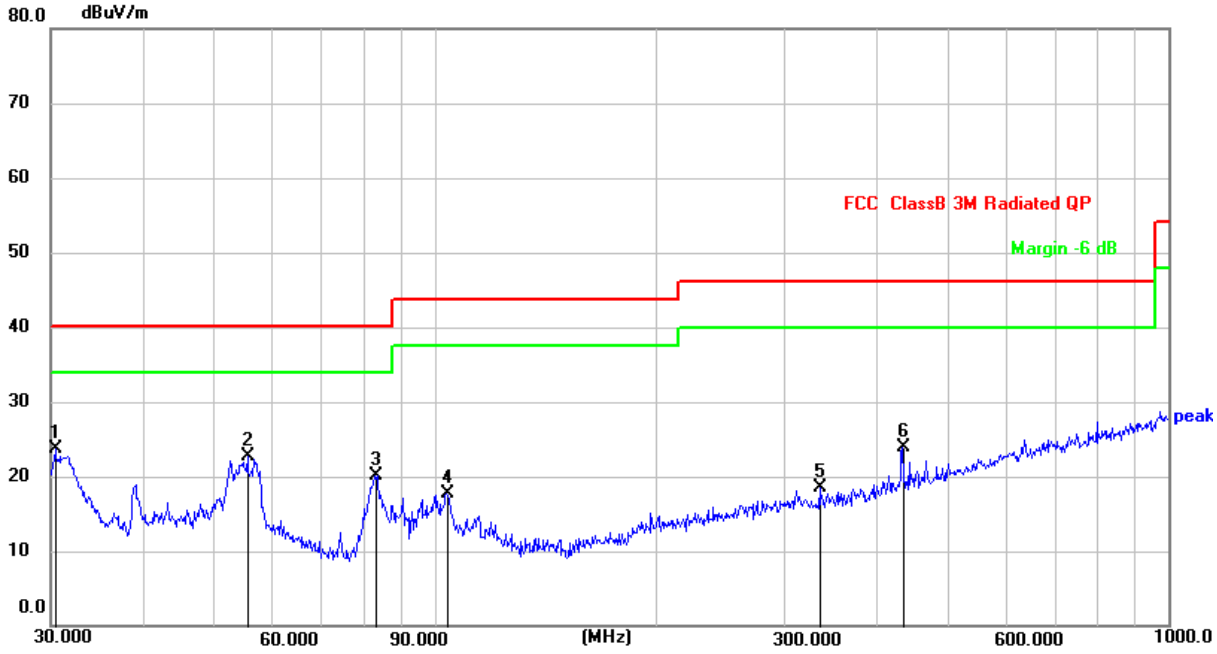
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	30.6379	38.94	-14.83	24.11	40.00	-15.89	QP
2	55.6094	34.96	-12.23	22.73	40.00	-17.27	QP
3	82.6482	36.81	-15.51	21.30	40.00	-18.70	QP
4	191.7450	25.84	-12.13	13.71	43.50	-29.79	QP
5	319.9370	26.71	-8.65	18.06	46.00	-27.94	QP
6	434.0651	31.96	-6.64	25.32	46.00	-20.68	QP

EUT：	Audio Transceiver	Model Name. ：	LP-PT100
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 3.7V from battery	Test Mode ：	TX-2479.3MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	39.4371	32.86	-12.61	20.25	40.00	-19.75	QP
2	96.7749	26.70	-13.03	13.67	43.50	-29.83	QP
3	194.4534	26.19	-11.97	14.22	43.50	-29.28	QP
4	289.0021	26.35	-8.92	17.43	46.00	-28.57	QP
5	432.5457	29.90	-6.67	23.23	46.00	-22.77	QP
6	758.0408	26.42	-0.37	26.05	46.00	-19.95	QP

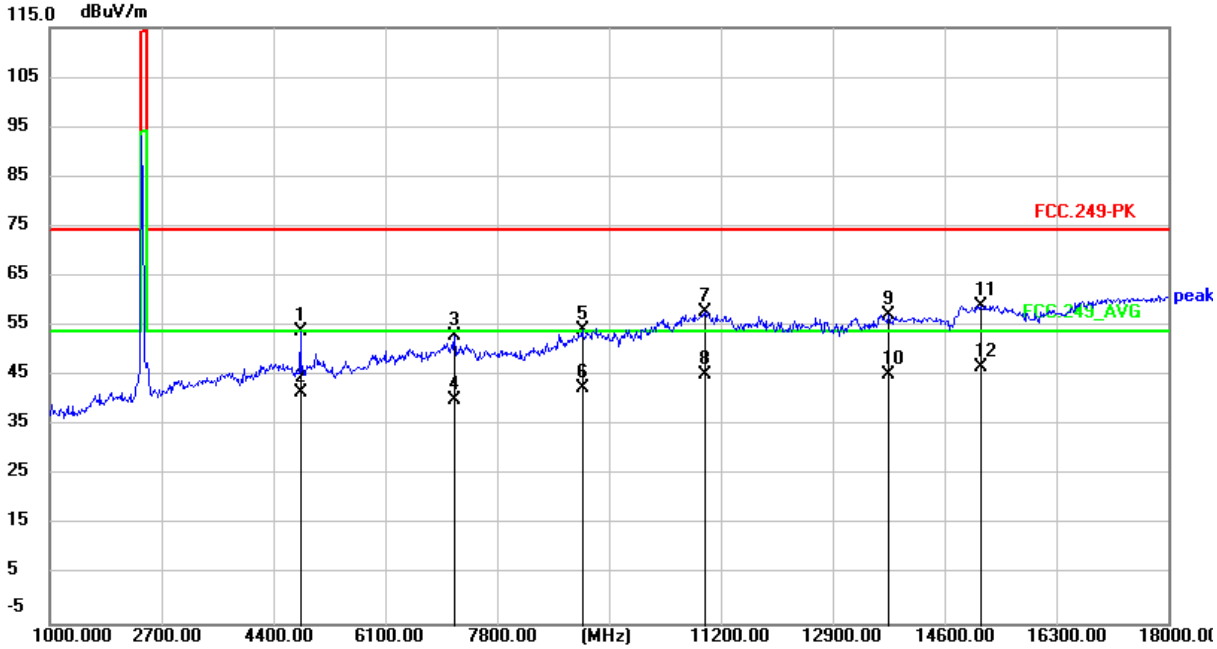
EUT:	Audio Transceiver	Model Name:	LP-PT100
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2479.3MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	30.4238	38.65	-14.89	23.76	40.00	-16.24	QP
2	55.6094	34.93	-12.23	22.70	40.00	-17.30	QP
3	82.9385	35.56	-15.45	20.11	40.00	-19.89	QP
4	103.8055	30.18	-12.54	17.64	43.50	-25.86	QP
5	334.8589	27.11	-8.61	18.50	46.00	-27.50	QP
6	434.0651	30.46	-6.64	23.82	46.00	-22.18	QP

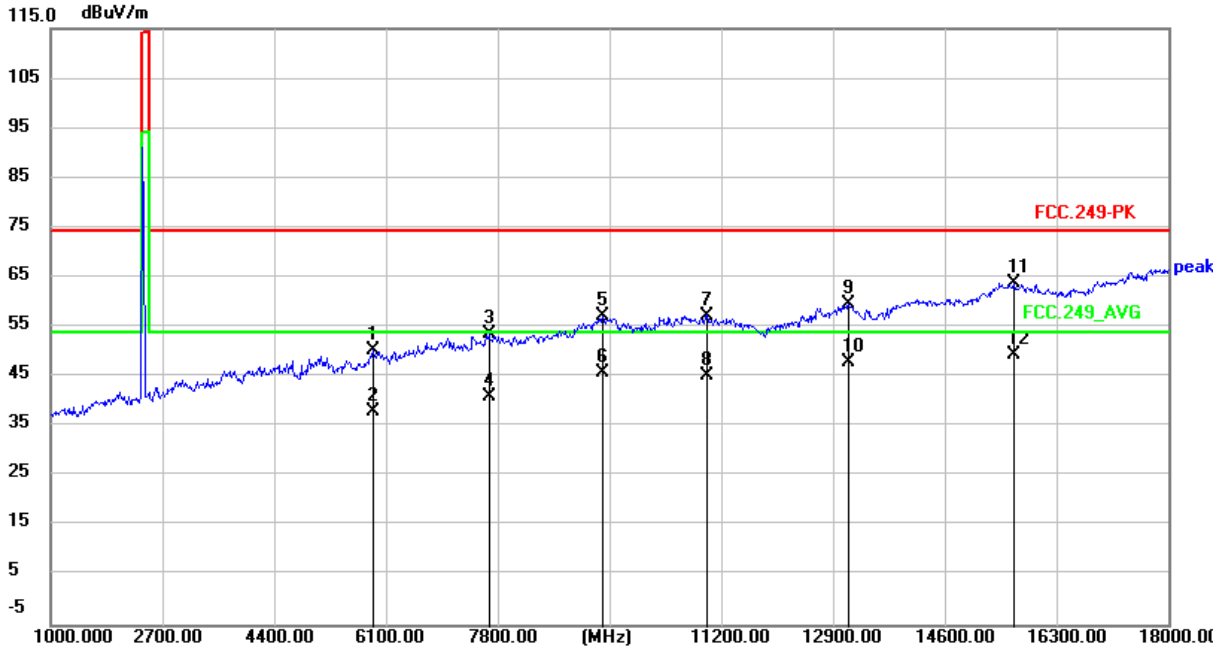
1GHz-18GHz:

EUT：	Audio Transceiver	Model Name. ：	LP-PT100
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 3.7V from battery	Test Mode ：	TX-2402.6MHz



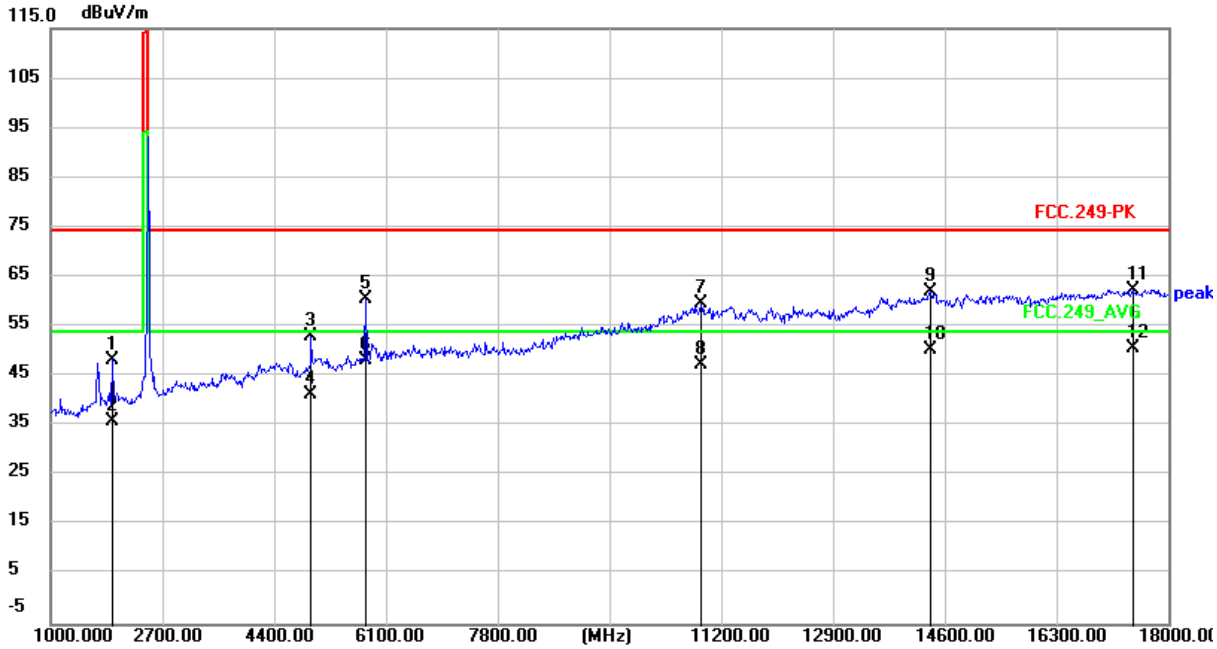
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4808.000	50.04	3.94	53.98	74.00	-20.02	peak
2	4808.000	37.84	3.94	41.78	54.00	-12.22	AVG
3	7154.000	43.56	9.42	52.98	74.00	-21.02	peak
4	7154.000	30.70	9.42	40.12	54.00	-13.88	AVG
5	9092.000	41.38	12.88	54.26	74.00	-19.74	peak
6	9092.000	29.68	12.88	42.56	54.00	-11.44	AVG
7	10962.000	38.36	19.63	57.99	74.00	-16.01	peak
8	10962.000	25.59	19.63	45.22	54.00	-8.78	AVG
9	13750.000	38.70	18.54	57.24	74.00	-16.76	peak
10	13750.000	26.67	18.54	45.21	54.00	-8.79	AVG
11	15161.000	42.16	16.77	58.93	74.00	-15.07	peak
12 *	15161.000	30.01	16.77	46.78	54.00	-7.22	AVG

EUT:	Audio Transceiver	Model Name:	LP-PT100
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2402.6MHz



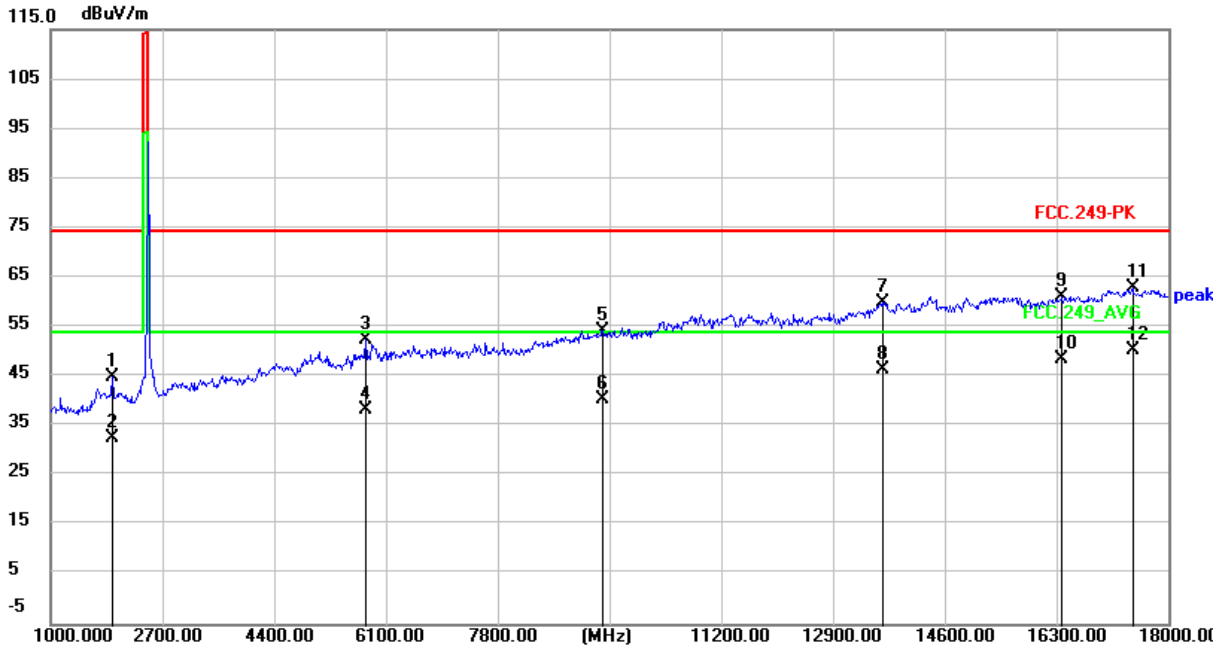
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	5913.000	42.95	7.42	50.37	74.00	-23.63	peak
2	5913.000	30.74	7.42	38.16	54.00	-15.84	AVG
3	7664.000	44.79	8.90	53.69	74.00	-20.31	peak
4	7664.000	32.22	8.90	41.12	54.00	-12.88	AVG
5	9398.000	43.33	14.04	57.37	74.00	-16.63	peak
6	9398.000	31.74	14.04	45.78	54.00	-8.22	AVG
7	10979.000	37.68	19.72	57.40	74.00	-16.60	peak
8	10979.000	25.49	19.72	45.21	54.00	-8.79	AVG
9	13138.000	41.67	17.96	59.63	74.00	-14.37	peak
10	13138.000	29.93	17.96	47.89	54.00	-6.11	AVG
11	15654.000	49.21	14.77	63.98	74.00	-10.02	peak
12 *	15654.000	34.69	14.77	49.46	54.00	-4.54	AVG

EUT:	Audio Transceiver	Model Name:	LP-PT100
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2450.7MHz



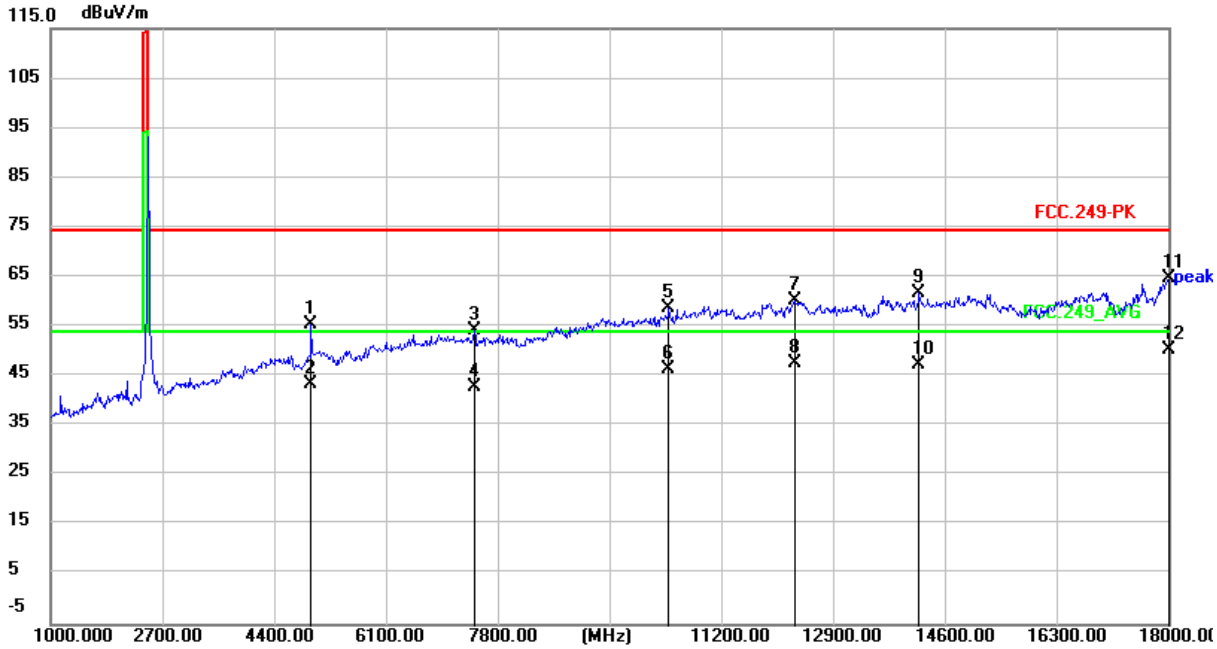
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1935.000	52.09	-3.69	48.40	74.00	-25.60	peak
2	1935.000	39.79	-3.69	36.10	54.00	-17.90	AVG
3	4961.000	47.42	5.63	53.05	74.00	-20.95	peak
4	4961.000	35.69	5.63	41.32	54.00	-12.68	AVG
5	5794.000	55.52	5.06	60.58	74.00	-13.42	peak
6	5794.000	43.15	5.06	48.21	54.00	-5.79	AVG
7	10894.000	40.30	19.25	59.55	74.00	-14.45	peak
8	10894.000	27.98	19.25	47.23	54.00	-6.77	AVG
9	14379.000	43.09	18.96	62.05	74.00	-11.95	peak
10	14379.000	31.52	18.96	50.48	54.00	-3.52	AVG
11	17456.000	40.03	22.42	62.45	74.00	-11.55	peak
12 *	17456.000	28.36	22.42	50.78	54.00	-3.22	AVG

EUT:	Audio Transceiver	Model Name:	LP-PT100
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2450.7MHz



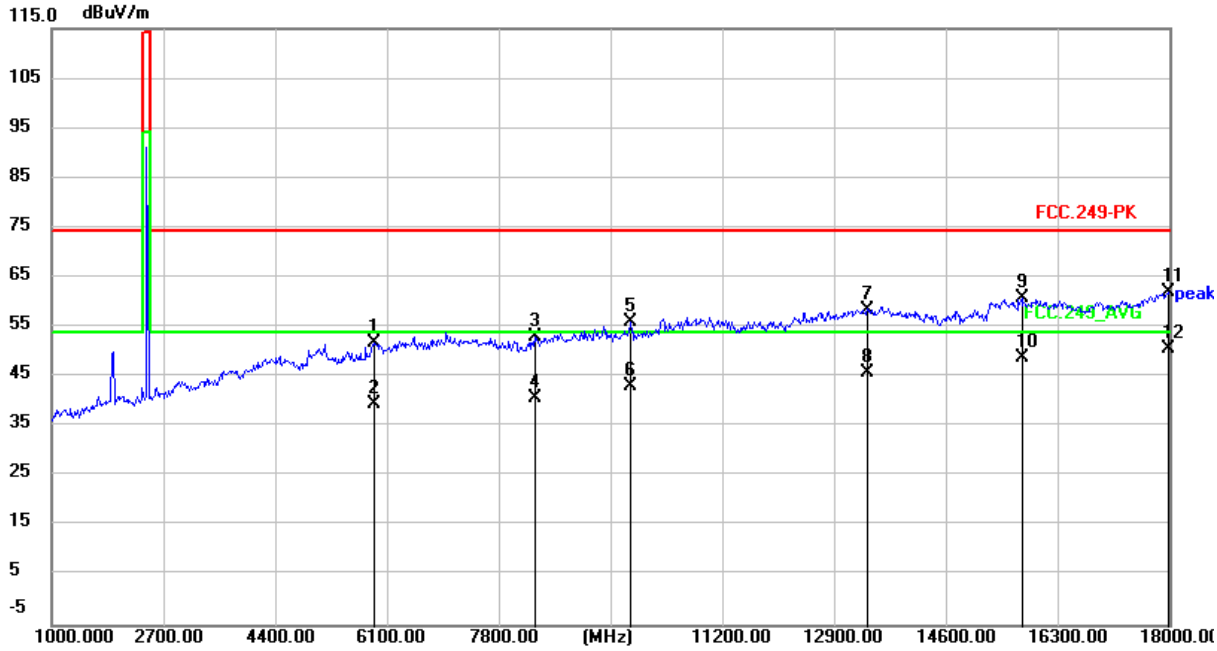
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	1935.000	48.59	-3.69	44.90	74.00	-29.10	peak
2	1935.000	36.34	-3.69	32.65	54.00	-21.35	AVG
3	5794.000	47.52	5.06	52.58	74.00	-21.42	peak
4	5794.000	33.17	5.06	38.23	54.00	-15.77	AVG
5	9398.000	40.30	14.04	54.34	74.00	-19.66	peak
6	9398.000	26.46	14.04	40.50	54.00	-13.50	AVG
7	13648.000	41.58	18.43	60.01	74.00	-13.99	peak
8	13648.000	27.89	18.43	46.32	54.00	-7.68	AVG
9	16385.000	45.85	15.28	61.13	74.00	-12.87	peak
10	16385.000	33.26	15.28	48.54	54.00	-5.46	AVG
11	17456.000	40.53	22.42	62.95	74.00	-11.05	peak
12 *	17456.000	27.93	22.42	50.35	54.00	-3.65	AVG

EUT:	Audio Transceiver	Model Nam:	LP-PT100
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2479.3MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	4961.000	49.85	5.63	55.48	74.00	-18.52	peak
2	4961.000	37.87	5.63	43.50	54.00	-10.50	AVG
3	7443.000	45.11	9.03	54.14	74.00	-19.86	peak
4	7443.000	33.87	9.03	42.90	54.00	-11.10	AVG
5	10401.000	41.98	16.79	58.77	74.00	-15.23	peak
6	10401.000	29.79	16.79	46.58	54.00	-7.42	AVG
7	12322.000	43.05	17.26	60.31	74.00	-13.69	peak
8	12322.000	30.34	17.26	47.60	54.00	-6.40	AVG
9	14209.000	42.99	18.89	61.88	74.00	-12.12	peak
10	14209.000	28.36	18.89	47.25	54.00	-6.75	AVG
11	18000.000	35.17	29.56	64.73	74.00	-9.27	peak
12 *	18000.000	20.70	29.56	50.26	54.00	-3.74	AVG

EUT：	Audio Transceiver	Model Name：	LP-PT100
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 3.7V from battery	Test Mode：	TX-2479.3MHz

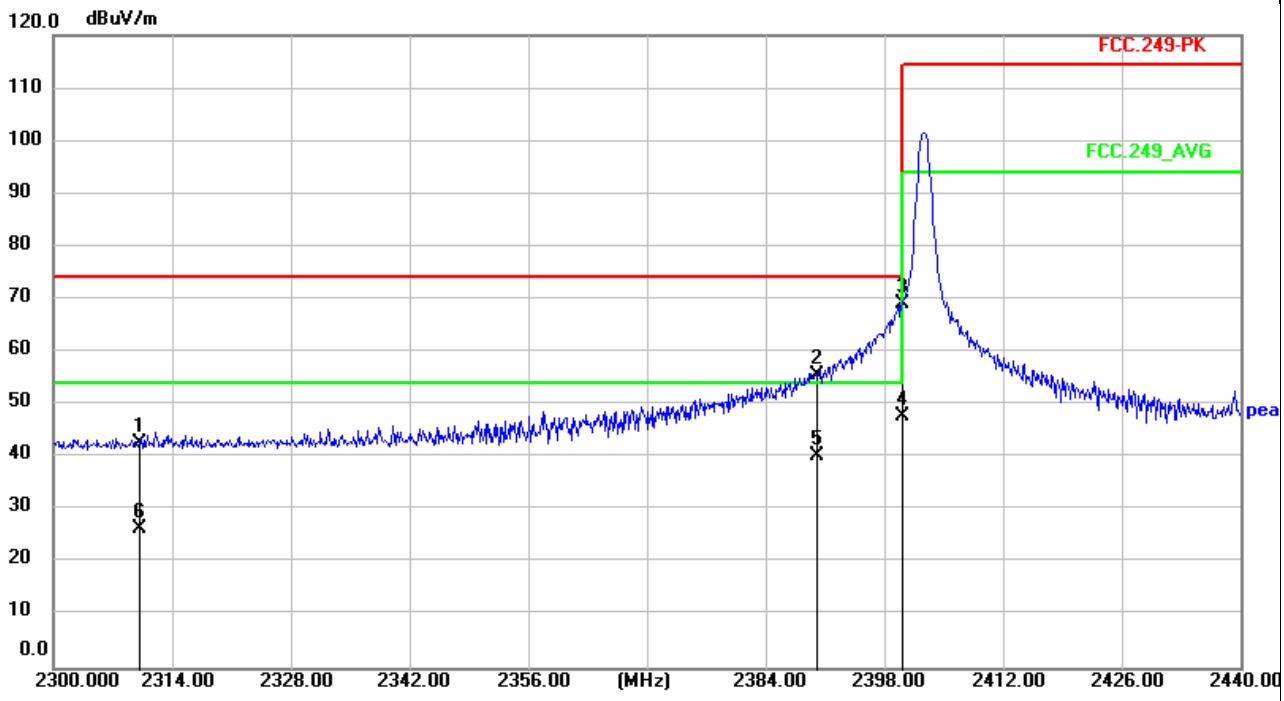


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	5896.000	44.27	7.43	51.70	74.00	-22.30	peak
2	5896.000	32.13	7.43	39.56	54.00	-14.44	AVG
3	8344.000	42.93	10.04	52.97	74.00	-21.03	peak
4	8344.000	30.74	10.04	40.78	54.00	-13.22	AVG
5	9806.000	40.91	15.04	55.95	74.00	-18.05	peak
6	9806.000	28.17	15.04	43.21	54.00	-10.79	AVG
7	13410.000	40.40	18.20	58.60	74.00	-15.40	peak
8	13410.000	27.69	18.20	45.89	54.00	-8.11	AVG
9	15756.000	46.33	14.49	60.82	74.00	-13.18	peak
10	15756.000	34.27	14.49	48.76	54.00	-5.24	AVG
11	17983.000	32.72	29.33	62.05	74.00	-11.95	peak
12 *	17983.000	21.34	29.33	50.67	54.00	-3.33	AVG

5.5.3 Band edge-radiated

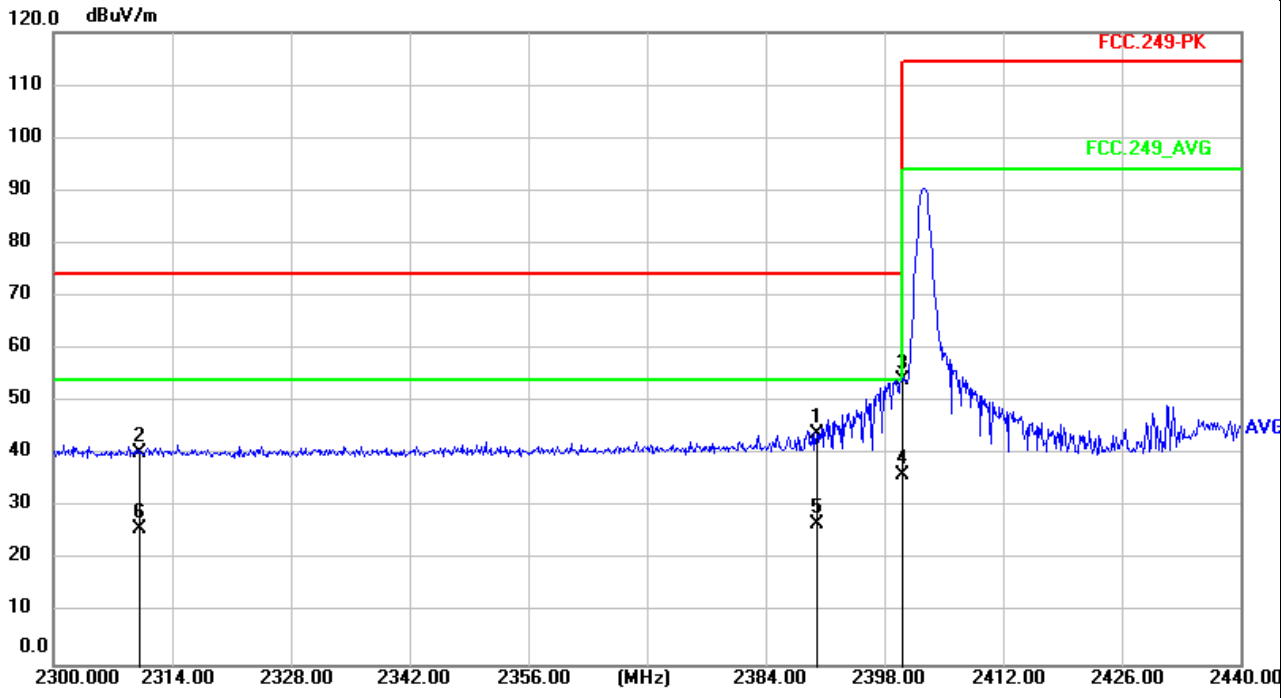
All the modulation modes have been tested, and the worst result was report as below:

EUT:	Audio Transceiver	Model Name:	LP-PT100
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2402.6MHz



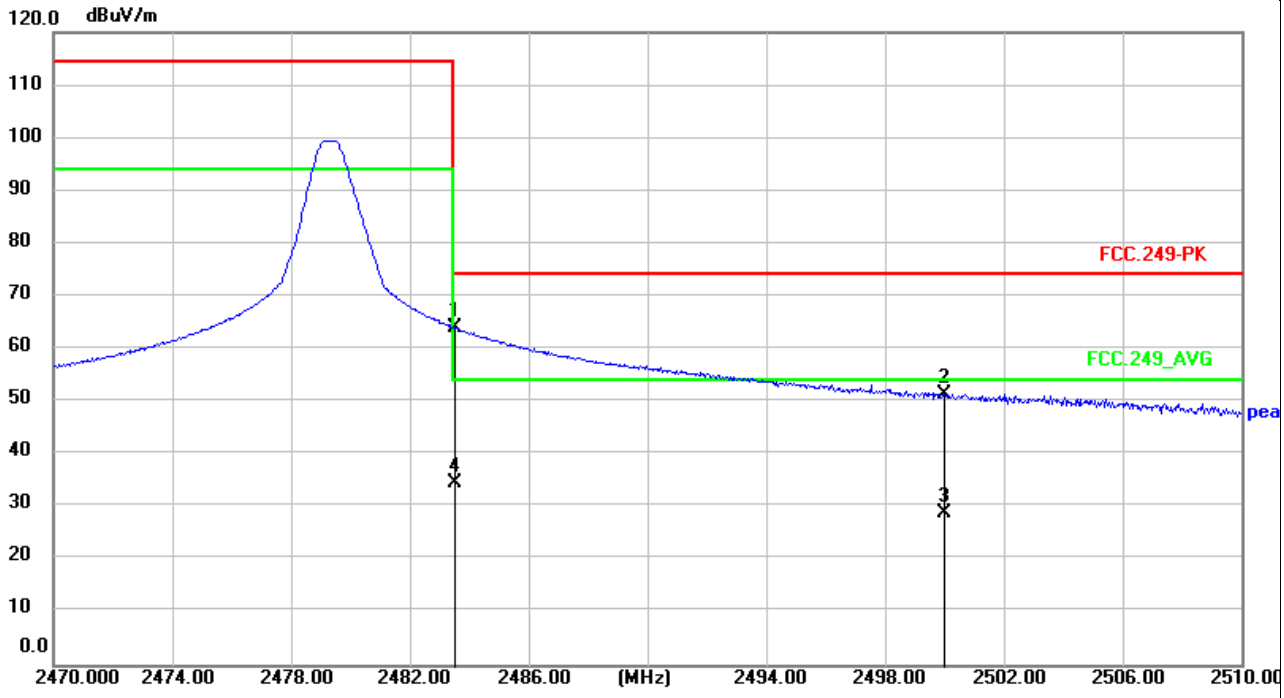
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2310.000	46.35	-3.61	42.74	74.00	-31.26	peak
2	2390.000	58.45	-2.93	55.52	74.00	-18.48	peak
3 *	2400.000	72.11	-2.84	69.27	74.00	-4.73	peak
4	2400.000	50.65	-2.84	47.81	54.00	-6.19	AVG
5	2390.000	43.27	-2.93	40.34	54.00	-13.66	AVG
6	2310.000	30.27	-3.61	26.66	54.00	-27.34	AVG

EUT:	Audio Transceiver	Model Name:	LP-PT100
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2402.6MHz



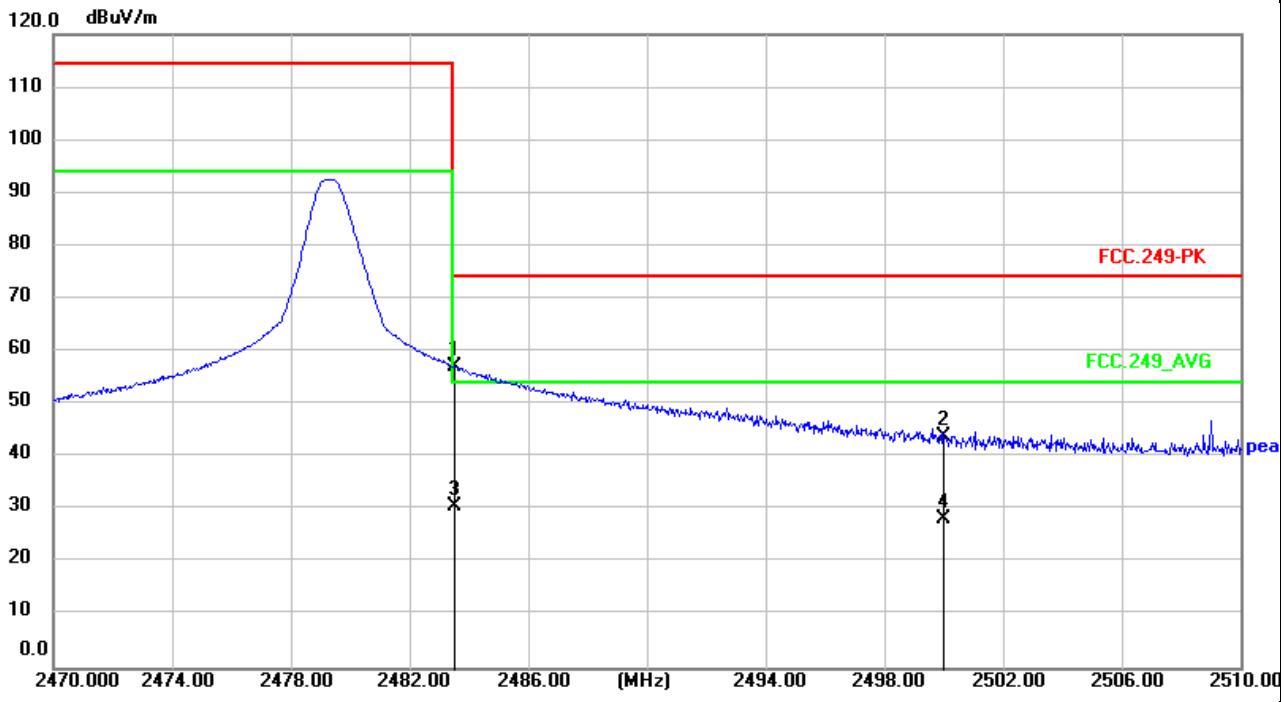
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	2390.000	46.81	-2.93	43.88	74.00	-30.12	peak
2	2310.000	43.86	-3.61	40.25	74.00	-33.75	peak
3	2400.000	57.00	-2.84	54.16	74.00	-19.84	peak
4 *	2400.000	39.08	-2.84	36.24	54.00	-17.76	AVG
5	2390.000	29.75	-2.93	26.82	54.00	-27.18	AVG
6	2310.000	29.42	-3.61	25.81	54.00	-28.19	AVG

EUT:	Audio Transceiver	Model Name:	LP-PT100
Pressure:	101kPa	Polarization:	Horizontal
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2479.3MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	2483.500	66.84	-2.93	63.91	74.00	-10.09	peak
2	2500.000	54.27	-2.94	51.33	74.00	-22.67	peak
3	2500.000	31.84	-2.94	28.90	54.00	-25.10	AVG
4	2483.500	37.55	-2.93	34.62	54.00	-19.38	AVG

EUT:	Audio Transceiver	Model Name:	LP-PT100
Pressure:	101kPa	Polarization:	Vertical
Test voltage:	DC 3.7V from battery	Test Mode:	TX-2479.3MHz



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	2483.500	59.99	-2.93	57.06	74.00	-16.94	peak
2	2500.000	46.78	-2.94	43.84	74.00	-30.16	peak
3	2483.500	33.56	-2.93	30.63	54.00	-23.37	AVG
4	2500.000	31.38	-2.94	28.44	54.00	-25.56	AVG

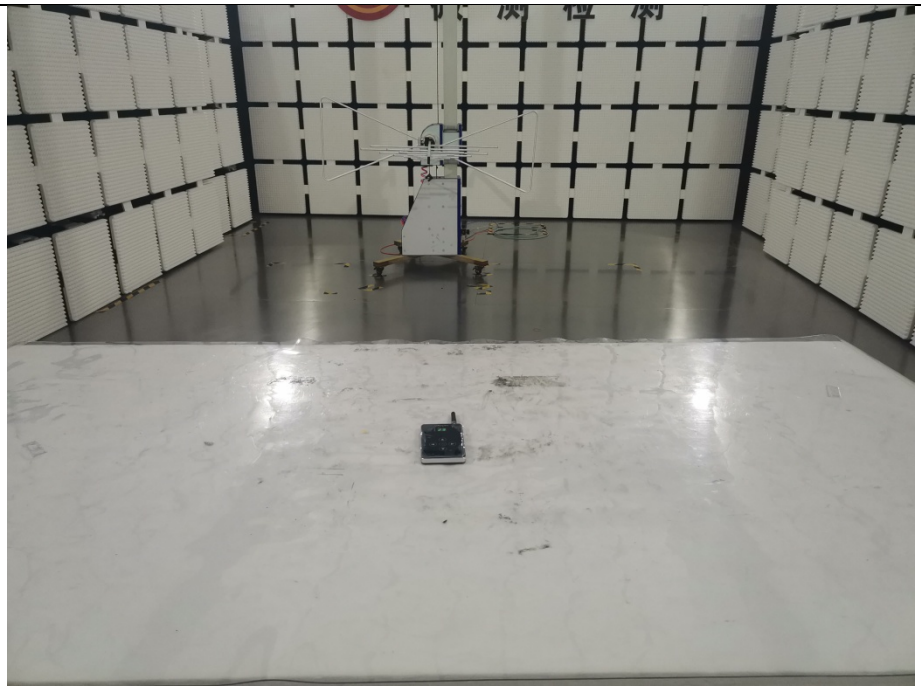
Note:

1.All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).

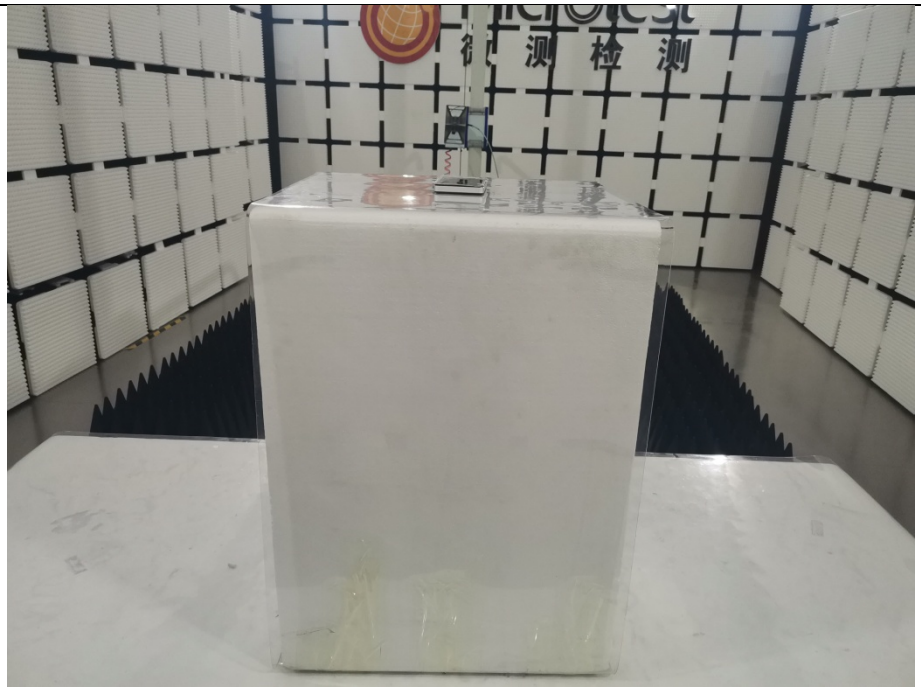
2.Emission Level= Antenna Factor + Cable Loss + Read Level - Preamp Factor.

Photographs of the Test Setup

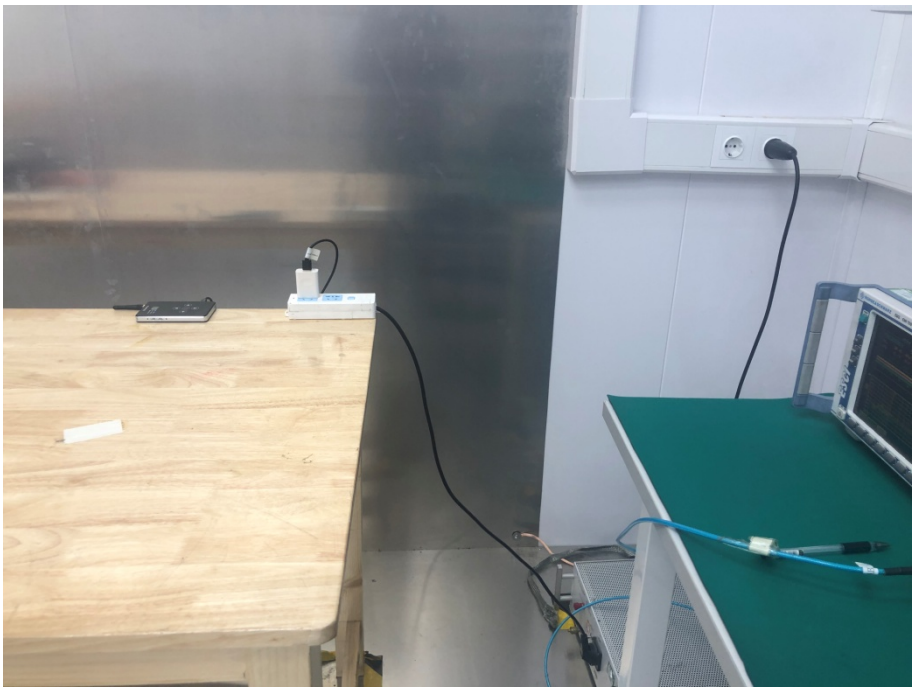
Radiated emission – below 1GHz



Radiated emission – above 1GHz



Conducted emission



Photographs of the EUT

See the APPENDIX 1- EUT PHOTO.

----END OF REPORT----