

Test Report

FCC ID:2AI2S-TV7000

Date of issue: July 21, 2020

Report number: MTi19052207-1E1

Sample description: Bed-Side Hearing TV Speaker

Model(s): TV 7000, PTVSP50BK

Applicant: Shenzhen Transtar Electronics Co., Ltd

Address: Colinda Industrial Park, Opposite Side of No. 15, Furong Road,
Songgang, Bao'an, Shenzhen, China

Date of test: May 18, 2020 to July 07, 2020

Shenzhen Microtest Co., Ltd.
<http://www.mtitest.com>



Table of Contents

1	GENERAL DESCRIPTION	4
1.1	FEATURE OF EQUIPMENT UNDER TEST (EUT).....	4
1.2	OPERATION CHANNEL LIST	4
1.3	TEST FREQUENCY CHANNEL.....	4
1.4	EUT OPERATION MODE	4
1.5	ANCILLARY EQUIPMENT LIST.....	5
2	SUMMARY OF TEST RESULT.....	5
3	TEST FACILITIES AND ACCREDITATIONS	6
3.1	TEST LABORATORY	6
3.2	ENVIRONMENTAL CONDITIONS	6
3.3	MEASUREMENT UNCERTAINTY.....	6
3.4	TEST SOFTWARE	6
4	LIST OF TEST EQUIPMENT.....	7
5	TEST RESULT	8
5.1	ANTENNA REQUIREMENT	8
5.1.1	<i>Standard requirement</i>	8
5.1.2	<i>EUT Antenna</i>	8
5.2	AC POWER LINE CONDUCTED EMISSION	9
5.2.1	<i>Limits</i>	9
5.2.2	<i>Test setup</i>	9
5.2.3	<i>Test procedure</i>	10
5.2.4	<i>Test results</i>	10
5.3	FIELD STRENGTH OF FUNDAMENTAL AND HARMONIC EMISSIONS	15
5.3.1	<i>Limits</i>	15
5.3.2	<i>Test Method</i>	15
5.3.3	<i>Test Result</i>	16
5.4	20dB AND 99% BANDWIDTH	17
5.4.1	<i>Limits</i>	17
5.4.2	<i>Test method</i>	17
5.4.3	<i>Test result</i>	18
5.5	RADIATED SPURIOUS EMISSION	20
5.5.1	<i>Limit</i>	20
5.5.2	<i>Test method</i>	20
5.5.3	<i>Test Result</i>	21
5.5.4	<i>Band edge-radiated</i>	30
	PHOTOGRAPHS OF THE TEST SETUP	34
	PHOTOGRAPHS OF THE EUT	36



Test Result Certification

Applicant's name: Shenzhen Transtar Electronics Co., Ltd

Address: Colinda Industrial Park, Opposite Side of No. 15, Furong Road,
Songgang, Bao'an, Shenzhen, China

Manufacture's name: Shenzhen Transtar Electronics Co., Ltd

Address: Colinda Industrial Park, Opposite Side of No. 15, Furong Road,
Songgang, Bao'an, Shenzhen, China

Product name: Bed-Side Hearing TV Speaker

Trademark: PYLE TOSIMA TITI

Model name: TV 7000, PTVSP50BK

Standards: FCC Part 15.249

Test procedure: ANSI C63.10-2013

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

Tested by:

Danny Xu

July 07, 2020

Reviewed by:

Leo Su

July 21, 2020

Approved by:

Tom Xue

July 21, 2020

1 General description

1.1 Feature of equipment under test (EUT)

Equipment:	Bed-Side Hearing TV Speaker
Trade Name:	PYLE TOSIMA TITI
Model Name:	TV 7000
Serial Model:	PTVSP50BK
Model Difference:	All the models are of the same circuit and RF module, except the model No..
Operation Frequency:	2403 - 2475MHz
Modulation Type:	GFSK
Antenna Type:	PIFA antenna
Antenna Gain:	0dBi
Max. Field Strength:	80.22dBuV/m
Power Source:	DC 5V from adapter AC 120V/60Hz
Adapter information:	Model: LY003SPS-050150UH Input: 100-240V~ 50/60Hz 0.35A Output: DC 5V 1.5A
Battery:	N/A
Hardware version:	A8810S1-TX-V4.0C A8810S1-RX-V4.0C
Software version:	0022036CH 002980BEH

1.2 Operation channel list

Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)
0	2403	1	2438	2	2475
3	/				

1.3 Test Frequency Channel

Channel	Frequency(MHz)
Low	2403
Middle	2438
High	2475

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	No.102A & 302A, East Block, Hengfang Industrial Park, Xingye Road, Xixiang, Bao'an District, Shenzhen, Guangdong, China
FCC Registration No.	448573

3.2 Environmental conditions

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

3.3 Measurement uncertainty

The reported uncertainty of measurement $y \pm U$, where expanded 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	1×10^{-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 tonscent 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-E004	EMI Test Receiver	Rohde&schwarz	ESPI7	100314	2019/10/09	2020/10/08
MTI-E006	TRILOG Broadband Antenna	schwarzbeck	VULB 9163	9163-872	2019/10/13	2020/10/12
MTI-E007	Double Ridged Broadband Horn Antenna	schwarzbeck	BBHA 9120 D	9120D-1145	2019/10/13	2020/10/12
MTI-E014	amplifier	Hewlett-Packard	8447D	3113A06150	2019/10/09	2020/10/08
MTI-E036	Single path vehicle AMN(LISN)	Schwarzbeck	NNBM 8124	01175	2019/10/09	2020/10/08
MTI-E038	Low noise active vertical monopole antenna	Schwarzbeck	VAMP 9243	#565	2019/10/16	2020/10/15
MTI-E039	Biconical antenna	Schwarzbeck	BBA 9106	#164	2019/10/15	2020/10/14
MTI-E041	MXG Vector Signal Generator	Agilent	N5182A	MY49060455	2020/04/16	2021/04/15
MTI-E042	ESG Series Analog signal generator	Agilent	E4421B	GB40051240	2020/05/21	2021/05/20
MTI-E044	Thermometer clock humidity monitor	-	HTC-1	/	2020/04/17	2021/04/16
MTI-E062	Log Periodic Antenna	Schwarzbeck	VUSLP 9111B	#312	2020/04/11	2022/04/10
MTI-E063	Log Periodic Dipole Array Antenna	ETS-LINDGREN	3148B	00224524	2020/04/11	2022/04/10
MTI-E065	Amplifier	EMtrace	RP06A	00117	2020/04/29	2021/04/28
MTI-E071	PXA Signal Analyzer	Agilent	N9030A	MY51350296	2019/10/25	2020/10/24
MTI-E076	EMI Test Receiver	Rohde&schwarz	ESIB26	100273	2020/04/16	2021/04/15
MTI-E078	Synthesized Sweeper	Agilent	83752A	3610A01957	2020/04/16	2021/04/15
MTI-E079	DC Power Supply	Agilent	E3632A	MY40027695	2020/04/16	2021/04/15
MTI-E093	Artificial mains network	3ctest	LISN J50	ES3911805	2020/04/16	2021/04/15
MTI-E096	Power amplifier	Space-Dtronics	EWLNA0118G-P40	1852001	2020/04/29	2021/04/28
MTI-E097	Current Probe	SOLAR ELECTRONICS CO.	9207-1	220095-1	2020/04/17	2021/04/16
MTI-E098	Loop Sensor	SOLAR ELECTRONICS CO.	7334-1	220095-2	2020/04/21	2021/04/20
Note: the calibration interval of the above test instruments is 12 or 24 months and the calibrations are traceable to international system unit (SI).						

This test report is valid for the tested samples only. It cannot be reproduced except in full without prior written consent of Shenzhen Microtest Co., Ltd.

5 Test Result

5.1 Antenna requirement

5.1.1 Standard requirement

FCC PART 15.203 and 15.247(b);

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator 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 a PIFA antenna, which was permanently affixed to the device and un-replaced, complies with 15.203. In addition, the maximum antenna gain is 0dBi.



5.2 AC power line conducted emission

5.2.1 Limits

FCC §15.207;

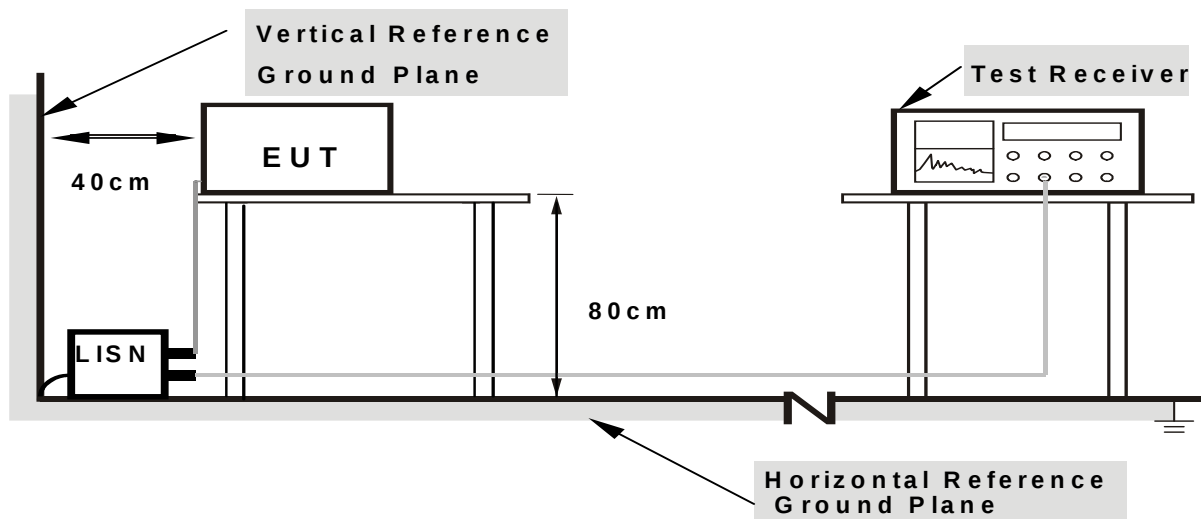
For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μ H/50 Ω 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

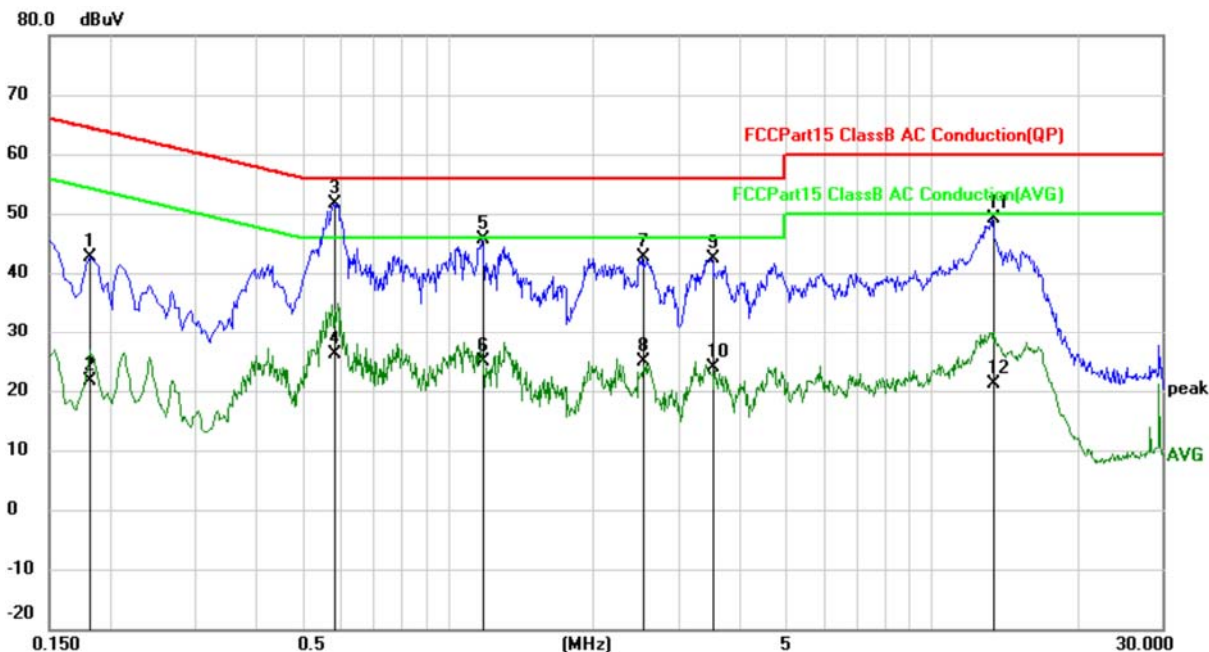
- c. The EUT was placed 0.8 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipment's powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.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



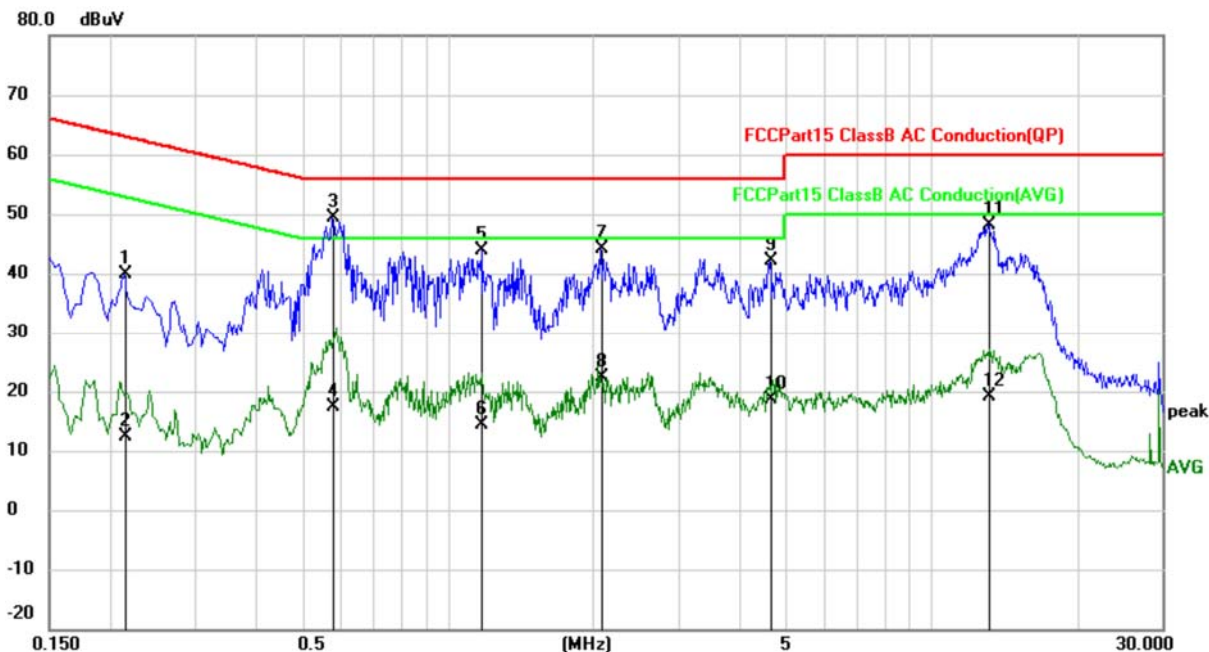
EUT:	Bed-Side Hearing TV Speaker	Model Name:	TV 7000
Pressure:	1010hPa	Phase:	L
Test Voltage:	DC 5V from adapter AC 120V/60Hz	Test Mode:	TX



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.1819	32.78	9.73	42.51	64.40	-21.89	QP
2		0.1819	11.84	9.73	21.57	54.40	-32.83	AVG
3	*	0.5820	41.73	9.93	51.66	56.00	-4.34	QP
4		0.5820	16.13	9.93	26.06	46.00	-19.94	AVG
5		1.1820	35.64	9.98	45.62	56.00	-10.38	QP
6		1.1820	15.00	9.98	24.98	46.00	-21.02	AVG
7		2.5380	32.54	10.01	42.55	56.00	-13.45	QP
8		2.5380	14.81	10.01	24.82	46.00	-21.18	AVG
9		3.5180	32.41	10.04	42.45	56.00	-13.55	QP
10		3.5180	13.91	10.04	23.95	46.00	-22.05	AVG
11		13.3420	38.85	10.29	49.14	60.00	-10.86	QP
12		13.3420	10.88	10.29	21.17	50.00	-28.83	AVG



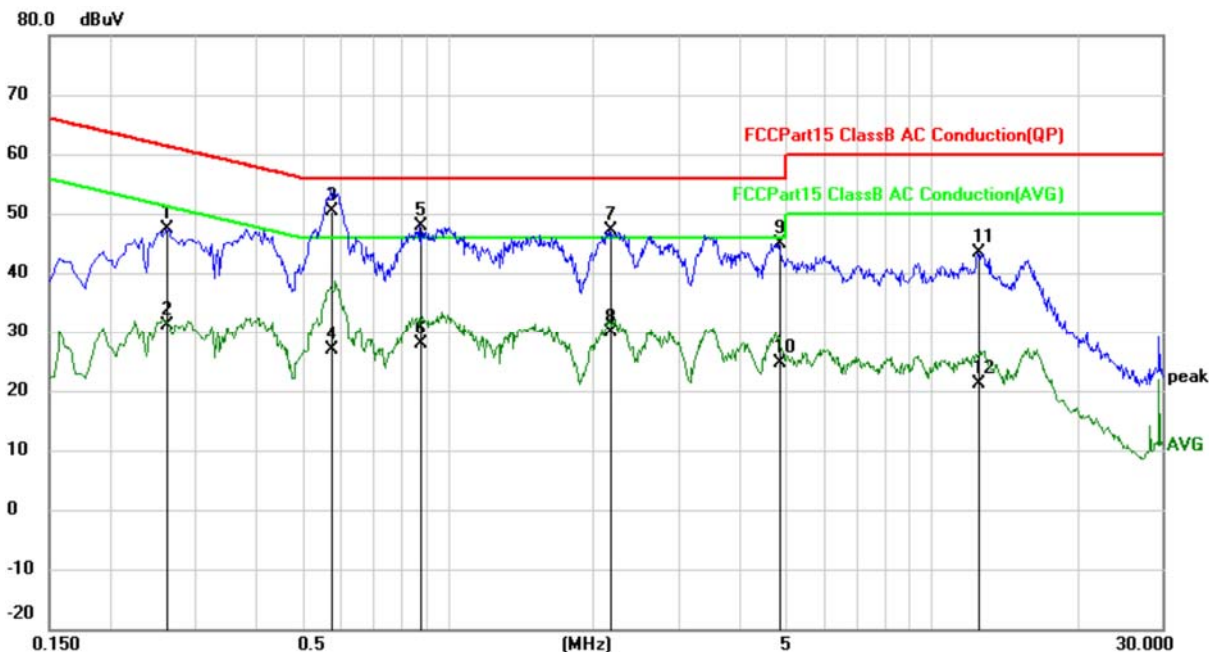
EUT:	Bed-Side Hearing TV Speaker	Model Name:	TV 7000
Pressure:	1010hPa	Phase:	N
Test Voltage:	DC 5V from adapter AC 120V/60Hz	Test Mode:	TX



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2140	30.16	9.73	39.89	63.05	-23.16	QP
2		0.2140	2.75	9.73	12.48	53.05	-40.57	AVG
3	*	0.5780	39.47	9.93	49.40	56.00	-6.60	QP
4		0.5780	7.34	9.93	17.27	46.00	-28.73	AVG
5		1.1740	33.81	9.98	43.79	56.00	-12.21	QP
6		1.1740	4.43	9.98	14.41	46.00	-31.59	AVG
7		2.0660	34.05	10.00	44.05	56.00	-11.95	QP
8		2.0660	12.43	10.00	22.43	46.00	-23.57	AVG
9		4.6460	32.13	10.06	42.19	56.00	-13.81	QP
10		4.6460	8.55	10.06	18.61	46.00	-27.39	AVG
11		13.0659	37.80	10.30	48.10	60.00	-11.90	QP
12		13.0659	8.83	10.30	19.13	50.00	-30.87	AVG



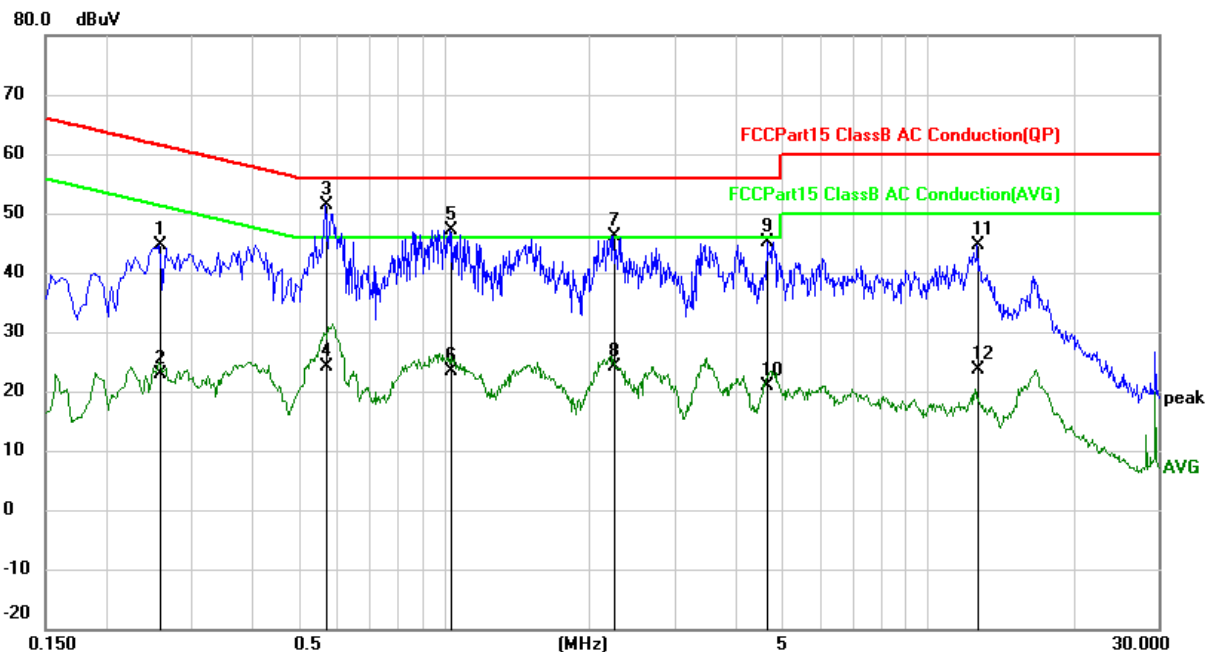
EUT:	Bed-Side Hearing TV Speaker	Model Name:	TV 7000
Pressure:	1010hPa	Phase:	L
Test Voltage:	DC 5V from adapter AC 240V/60Hz	Test Mode:	TX



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2620	37.57	9.74	47.31	61.37	-14.06	QP
2		0.2620	21.44	9.74	31.18	51.37	-20.19	AVG
3	*	0.5740	40.47	9.93	50.40	56.00	-5.60	QP
4		0.5740	16.86	9.93	26.79	46.00	-19.21	AVG
5		0.8780	37.83	9.97	47.80	56.00	-8.20	QP
6		0.8780	17.98	9.97	27.95	46.00	-18.05	AVG
7		2.1580	37.15	10.01	47.16	56.00	-8.84	QP
8		2.1580	19.79	10.01	29.80	46.00	-16.20	AVG
9		4.8260	34.90	10.07	44.97	56.00	-11.03	QP
10		4.8260	14.57	10.07	24.64	46.00	-21.36	AVG
11		12.4620	33.10	10.30	43.40	60.00	-16.60	QP
12		12.4620	10.84	10.30	21.14	50.00	-28.86	AVG



EUT:	Bed-Side Hearing TV Speaker	Model Name:	TV 7000
Pressure:	1010hPa	Phase:	N
Test Voltage:	DC 5V from adapter AC 240V/60Hz	Test Mode:	TX



No.	Mk.	Freq.	Reading Level	Correct Factor	Measurement	Limit	Over	
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector
1		0.2580	34.79	9.74	44.53	61.50	-16.97	QP
2		0.2580	13.12	9.74	22.86	51.50	-28.64	AVG
3	*	0.5700	41.56	9.93	51.49	56.00	-4.51	QP
4		0.5700	14.20	9.93	24.13	46.00	-21.87	AVG
5		1.0300	37.24	9.98	47.22	56.00	-8.78	QP
6		1.0300	13.29	9.98	23.27	46.00	-22.73	AVG
7		2.2460	36.13	10.01	46.14	56.00	-9.86	QP
8		2.2460	14.17	10.01	24.18	46.00	-21.82	AVG
9		4.6579	35.07	10.06	45.13	56.00	-10.87	QP
10		4.6579	10.87	10.06	20.93	46.00	-25.07	AVG
11		12.6580	34.31	10.30	44.61	60.00	-15.39	QP
12		12.6580	13.30	10.30	23.60	50.00	-26.40	AVG

Note:

Measurement = Reading Level + Correct Factor, Over= Measure-men- Limit,

Correct Factor = LISN modulus + Cable Loss



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

$20 \times \log(50000 \text{ uV/m}) = 94 \text{ dBuV/m}$

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 $f \geq 1\text{GHz}$, 100 kHz for $f < 1\text{GHz}$, VBW $\geq$ 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.

This test report is valid for the tested samples only. It cannot be reproduced except in full without prior written consent of Shenzhen Microtest Co., Ltd.



5.3.3 Test Result

Transmitter channel: 2403MHz

Frequency	Ant. Polarization	Emission level	Limits	Detector	Result
(MHz)	H / V	dB μ V/m	dB μ V/m		
2403	V	80.22	114	PK	
2403	H	68.51	114	PK	
2403	V	79.51	94	AV	
2403	H	67.47	94	AV	
4806	V	35.92	74	PK	
4806	H	36.40	74	PK	
4806	V	28.16	54	AV	
4806	H	28.37	54	AV	

Transmitter channel: 2438MHz

Frequency	Ant. Polarization	Emission level	Limits	Detector	Result
(MHz)	H / V	dB μ V/m	dB μ V/m		
2438	V	78.22	114	PK	
2438	H	67.59	114	PK	
2438	V	78.55	94	AV	
2438	H	66.37	94	AV	
4876	V	35.90	74	PK	
4876	H	35.79	74	PK	
4876	V	27.26	54	AV	
4876	H	27.17	54	AV	

Transmitter channel: 2475MHz

Frequency	Ant. Polarization	Emission level	Limits	Detector	Result
(MHz)	H / V	dB μ V/m	dB μ V/m		
2475	V	76.80	114	PK	
2475	H	68.98	114	PK	
2475	V	74.89	94	AV	
2475	H	64.13	94	AV	
4950	V	36.52	74	PK	
4950	H	36.51	74	PK	
4950	V	28.42	54	AV	
4950	H	28.93	54	AV	

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 $\geq 1\%$ of the 20 dB bandwidth

VBW $\geq$ 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)
2403	5.194
2438	3.500
2475	3.483

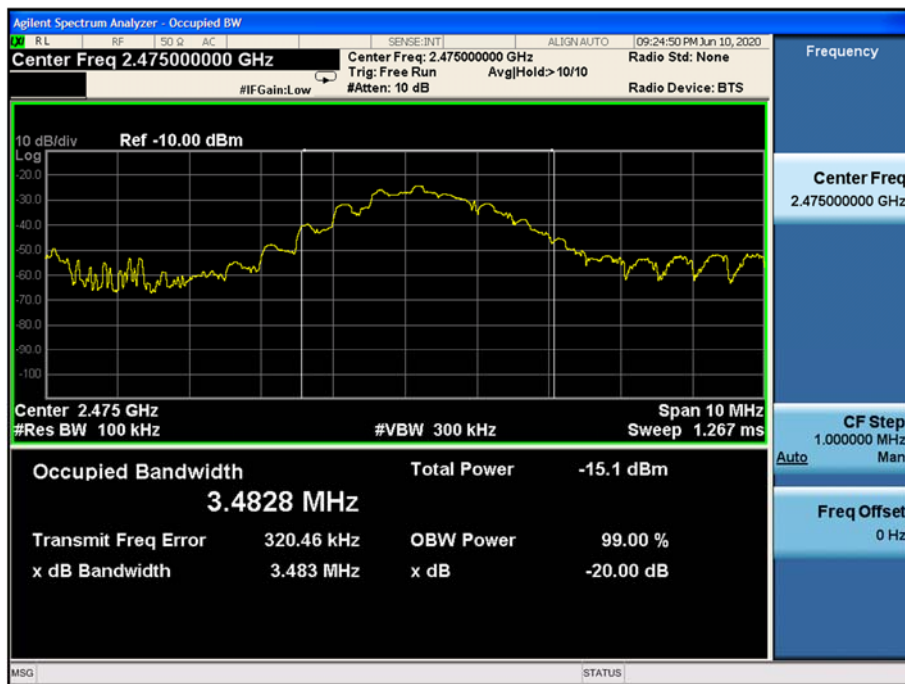
Test plots



This test report is valid for the tested samples only. It cannot be reproduced except in full without prior written consent of Shenzhen Microtest Co., Ltd.



2475MHz





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 ($\mu\text{V/m}$)
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 ($\mu\text{V/m}$)	Measurement Distance (m)
0.009 - 0.490	$2400/F(\text{kHz})$	300
0.490 - 1.705	$24000/F(\text{kHz})$	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

- 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.
- EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
- Use the following spectrum analyser settings:
 - Span = wide enough to fully capture the emission being measured
 - RBW = 1 MHz for $f \geq 1\text{GHz}$, 100 kHz for $f < 1\text{GHz}$
 - VBW $\geq$ RBW, Sweep = auto
 - Detector function = peak
 - Trace = max hold
- 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.
- 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.

5.5.3 Test Result

Note: If the PK measured values lower than average mode limit, the EUT shall be deemed to meet average limits and then no additional average mode measurement performed.

Below 30MHz

EUT:	Bed-Side Hearing TV Speaker	Model name. :	TV 7000
Pressure:	1010 hPa	Test voltage:	DC 12V from adapter AC 120V/60Hz
Test mode:	TX	Polarization :	--

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.

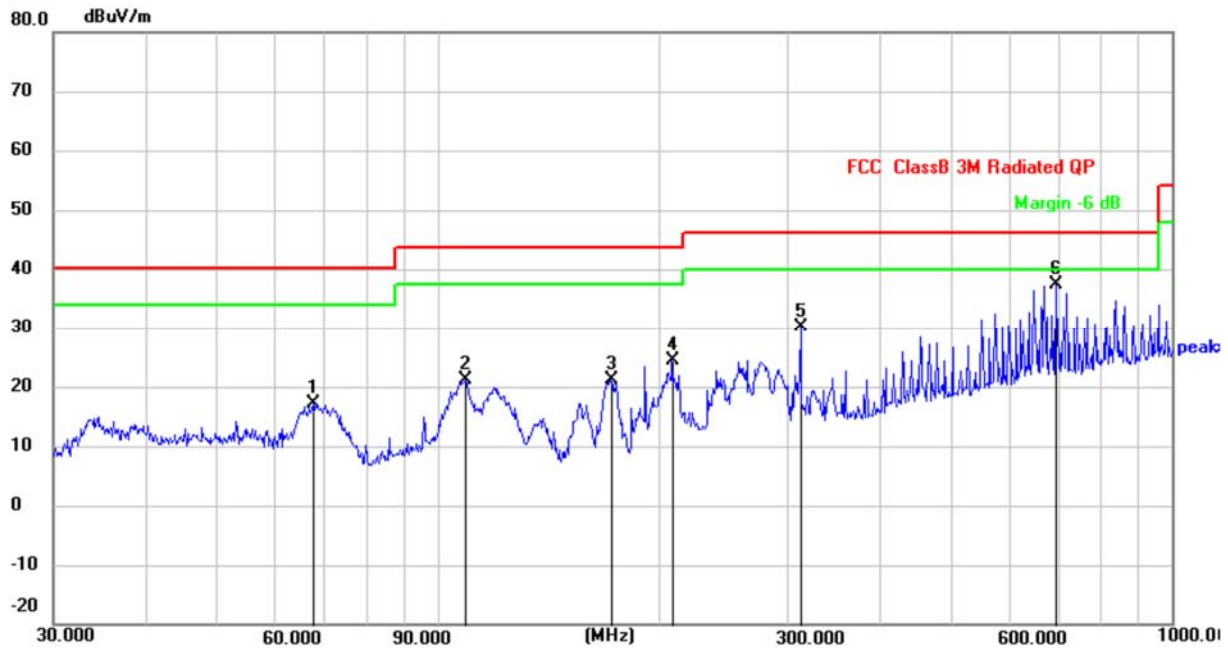
Distance extrapolation factor = $40 \log (\text{specific distance/test distance})$ (dB);

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



Radiation (30MHz – 1GHz)

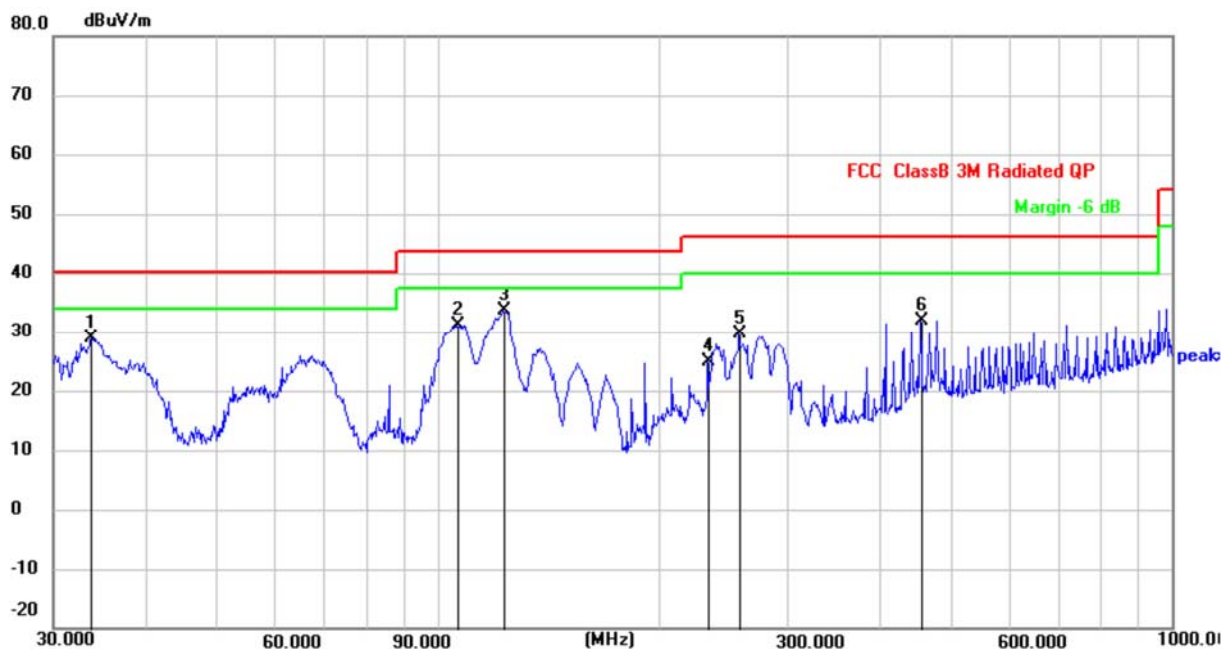
EUT:	Bed-Side Hearing TV Speaker	Model name:	TV 7000
Pressure:	1010hPa	Polarization:	H
Test voltage:	DC 5V from adapter AC 120V/60Hz	Test mode:	TX



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	67.7939	34.60	-17.43	17.17	40.00	-22.83	QP
2	109.0286	36.14	-15.04	21.10	43.50	-22.40	QP
3	172.1455	37.52	-16.27	21.25	43.50	-22.25	QP
4	208.9463	38.14	-13.78	24.36	43.50	-19.14	QP
5	312.4532	40.75	-10.67	30.08	46.00	-15.92	QP
6 *	696.2461	41.78	-4.40	37.38	46.00	-8.62	QP



EUT:	Bed-Side Hearing TV Speaker	Model name:	TV 7000
Pressure:	1010hPa	Polarization:	V
Test voltage:	DC 5V from adapter AC 120V/60Hz	Test mode:	TX

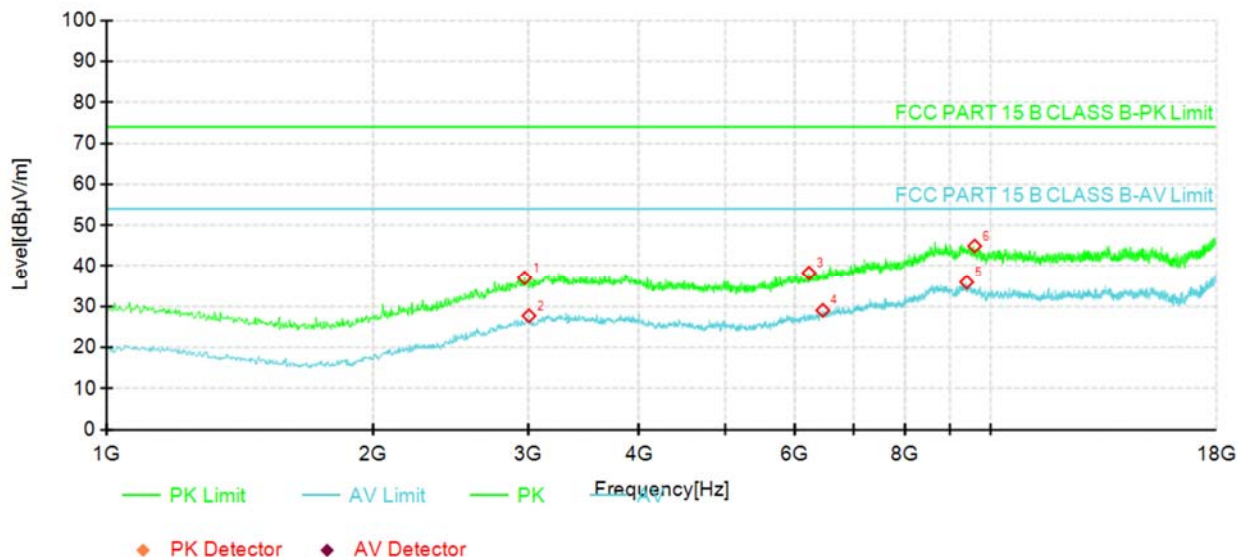


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	33.7986	45.05	-16.16	28.89	40.00	-11.11	QP
2	106.4783	46.06	-15.05	31.01	43.50	-12.49	QP
3 *	122.9417	50.12	-16.55	33.57	43.50	-9.93	QP
4	233.5533	37.82	-12.96	24.86	46.00	-21.14	QP
5	258.1000	41.90	-12.17	29.73	46.00	-16.27	QP
6	454.7084	40.28	-8.40	31.88	46.00	-14.12	QP



Above 1GHz:

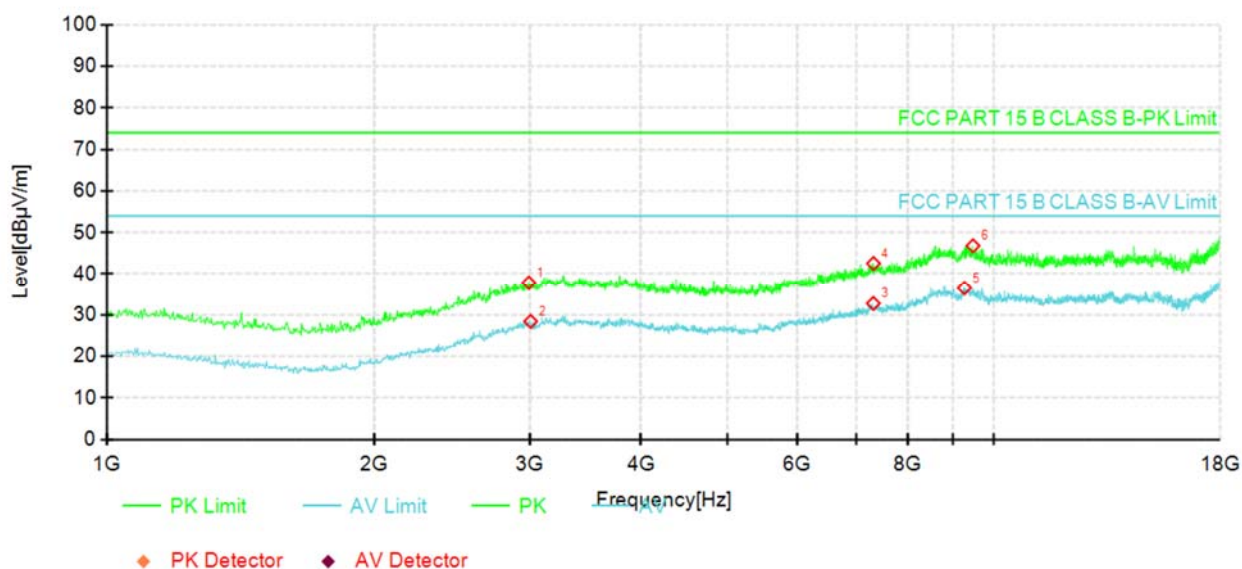
EUT:	Bed-Side Hearing TV Speaker	Model name:	TV 7000
Pressure:	1010hPa	Polarization:	H
Test voltage :	DC 5V from adapter AC 120V/60Hz	Test mode:	TX
Test channel:	2403MHz		



NO	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle [°]	Polarit y
1	2968.9938	37.03	-10.30	74.00	36.97	PK	150	295	Horizontal
2	3003.0006	27.71	-10.15	54.00	26.29	AV	150	339	Horizontal
3	6226.8454	38.26	-2.30	74.00	35.74	PK	150	132	Horizontal
4	6454.6909	29.05	-1.51	54.00	24.95	AV	150	110	Horizontal
5	9389.4779	35.95	3.65	54.00	18.05	AV	150	132	Horizontal
6	9586.7173	44.93	3.48	74.00	29.07	PK	150	201	Horizontal



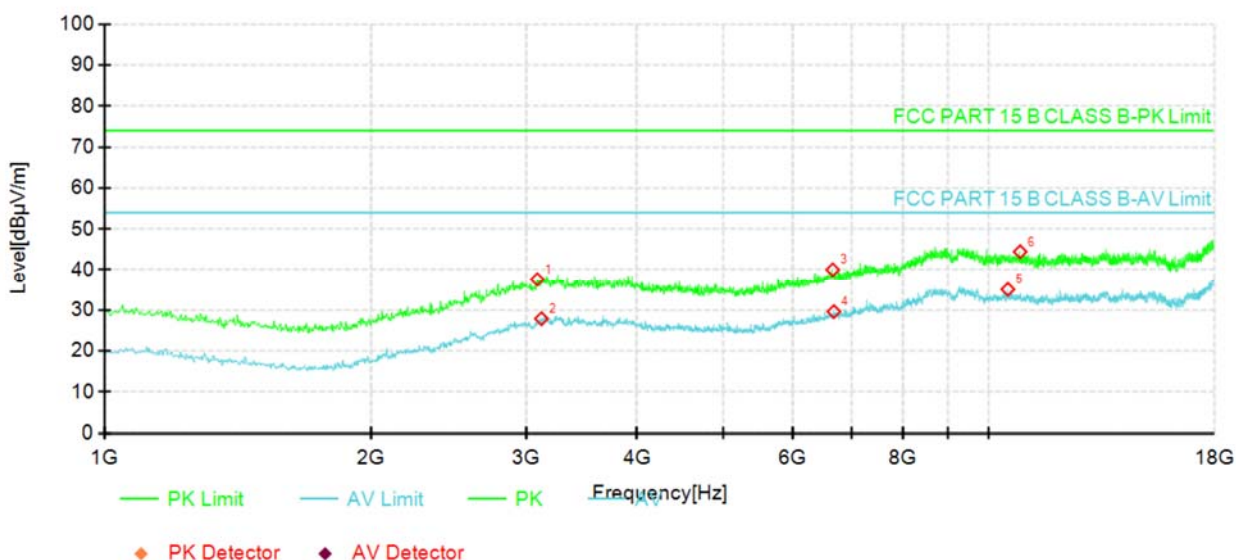
EUT:	Bed-Side Hearing TV Speaker	Model name:	TV 7000
Pressure:	1010hPa	Polarization:	V
Test voltage :	DC 5V from adapter AC 120V/60Hz	Test mode:	TX
Test channel:	2403MHz		



NO	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle [°]	Polarit y
1	2989.3979	37.84	-10.21	74.00	36.16	PK	150	271	Vertical
2	3003.0006	28.40	-10.15	54.00	25.60	AV	150	0	Vertical
3	7311.6623	32.74	1.25	54.00	21.26	AV	150	6	Vertical
4	7315.0630	42.55	1.25	74.00	31.45	PK	150	112	Vertical
5	9263.6527	36.50	3.54	54.00	17.50	AV	150	294	Vertical
6	9471.0942	46.81	3.68	74.00	27.19	PK	150	6	Vertical



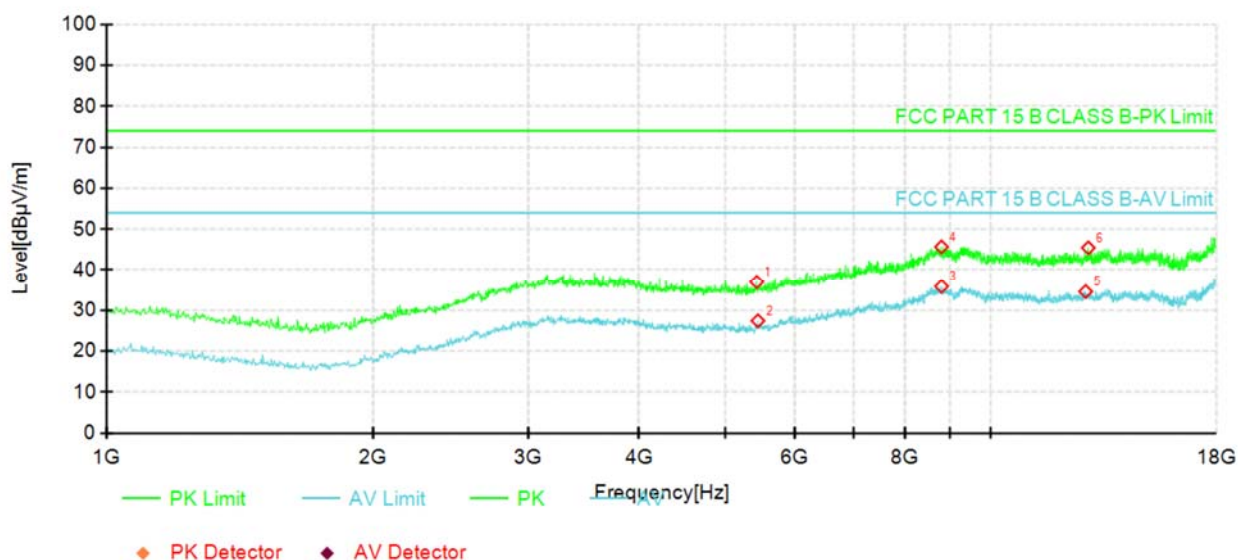
EUT:	Bed-Side Hearing TV Speaker	Model name:	TV 7000
Pressure:	1010hPa	Polarization:	H
Test voltage :	DC 5V from adapter AC 120V/60Hz	Test mode:	TX
Test channel:	2438MHz		



NO	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Detecto r	Height [cm]	Angle [°]	Polarit y
1	3084.6169	37.59	-9.93	74.00	36.41	PK	150	317	Horizontal
2	3118.6237	27.87	-9.87	54.00	26.13	AV	150	250	Horizontal
3	6658.7317	40.03	-0.63	74.00	33.97	PK	150	46	Horizontal
4	6679.1358	29.61	-0.55	54.00	24.39	AV	150	205	Horizontal
5	10508.301	35.06	3.96	54.00	18.94	AV	150	205	Horizontal
6	10848.369	44.45	4.31	74.00	29.55	PK	150	272	Horizontal



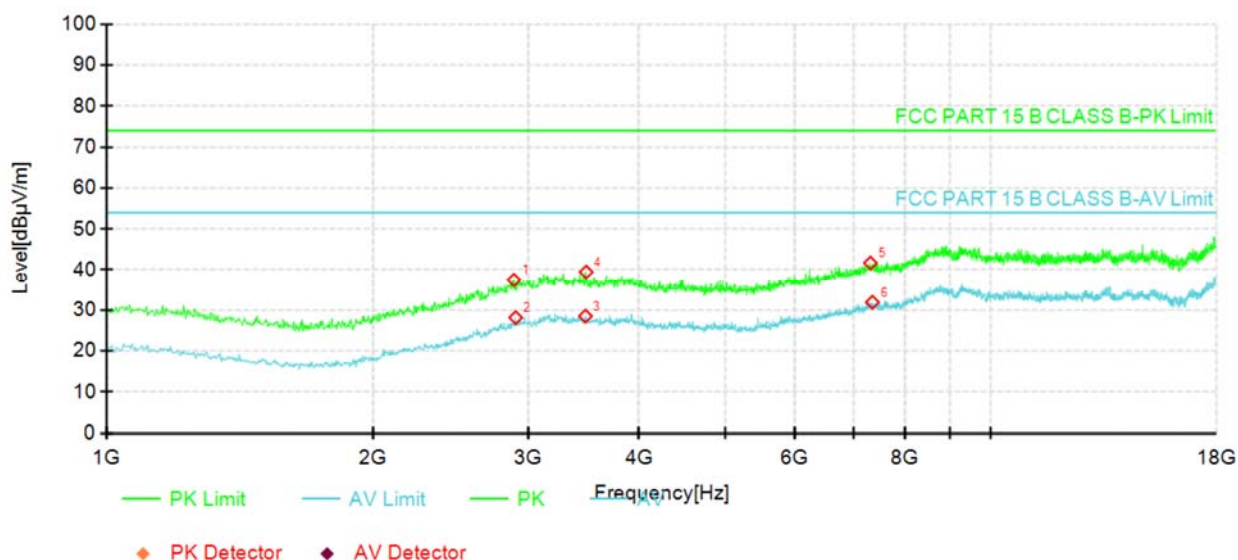
EUT:	Bed-Side Hearing TV Speaker	Model name:	TV 7000
Pressure:	1010hPa	Polarization:	V
Test voltage :	DC 5V from adapter AC 120V/60Hz	Test mode:	TX
Test channel:	2438MHz		



NO	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Detecto r	Height [cm]	Angle [°]	Polarit y
1	5434.4869	36.99	-4.48	74.00	37.01	PK	150	355	Vertical
2	5451.4903	27.41	-4.45	54.00	26.59	AV	150	1	Vertical
3	8794.3589	35.86	3.55	54.00	18.14	AV	150	66	Vertical
4	8794.3589	45.68	3.55	74.00	28.32	PK	150	44	Vertical
5	12800.360	34.59	4.68	54.00	19.41	AV	150	44	Vertical
6	12888.777	45.45	4.88	74.00	28.55	PK	150	44	Vertical



EUT:	Bed-Side Hearing TV Speaker	Model name:	TV 7000
Pressure:	1010hPa	Polarization:	H
Test voltage :	DC 5V from adapter AC 120V/60Hz	Test mode:	TX
Test channel:	2475MHz		

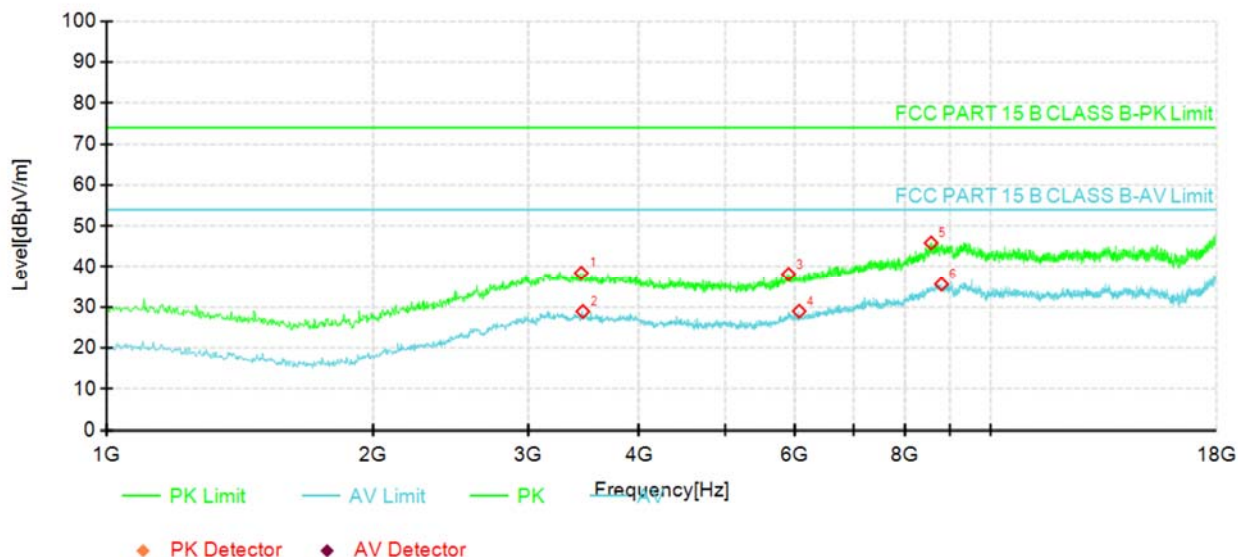


Suspected Data List

NO	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Detecto r	Height [cm]	Angle [°]	Polarit y
1	2887.3775	37.46	-10.65	74.00	36.54	PK	150	354	Horizontal
2	2900.9802	28.14	-10.60	54.00	25.86	AV	150	293	Horizontal
3	3479.0958	28.50	-9.96	54.00	25.50	AV	150	293	Horizontal
4	3485.8972	39.48	-9.96	74.00	34.52	PK	150	315	Horizontal
5	7308.2617	41.68	1.25	74.00	32.32	PK	150	180	Horizontal
6	7345.6691	31.90	1.26	54.00	22.10	AV	150	180	Horizontal



EUT:	Bed-Side Hearing TV Speaker	Model name:	TV 7000
Pressure:	1010hPa	Polarization:	V
Test voltage :	DC 5V from adapter AC 120V/60Hz	Test mode:	TX
Test channel:	2475MHz		



NO	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle [°]	Polarit y
1	3441.6883	38.45	-9.97	74.00	35.55	PK	150	360	Vertical
2	3455.2911	28.92	-9.97	54.00	25.08	AV	150	360	Vertical
3	5903.7808	38.16	-2.77	74.00	35.84	PK	150	339	Vertical
4	6070.4141	28.98	-2.54	54.00	25.02	AV	150	294	Vertical
5	8559.7119	45.86	3.60	74.00	28.14	PK	150	21	Vertical
6	8794.3589	35.62	3.55	54.00	18.38	AV	150	294	Vertical

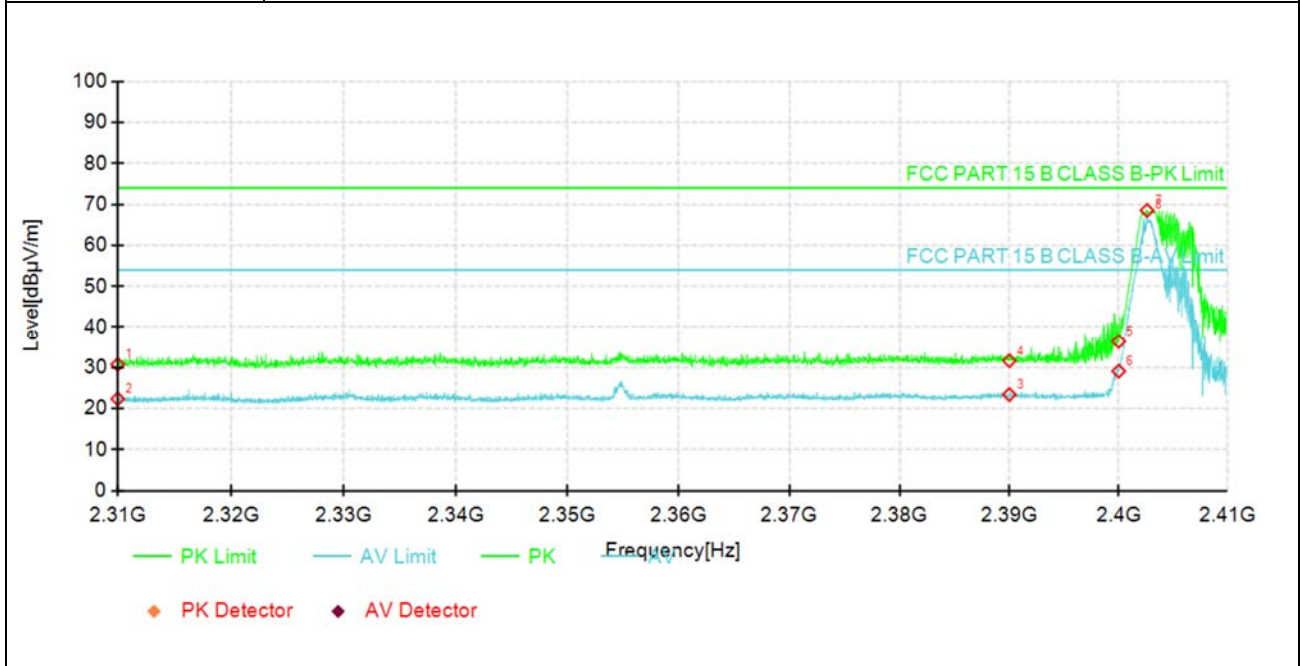


5.5.4 Band edge-radiated

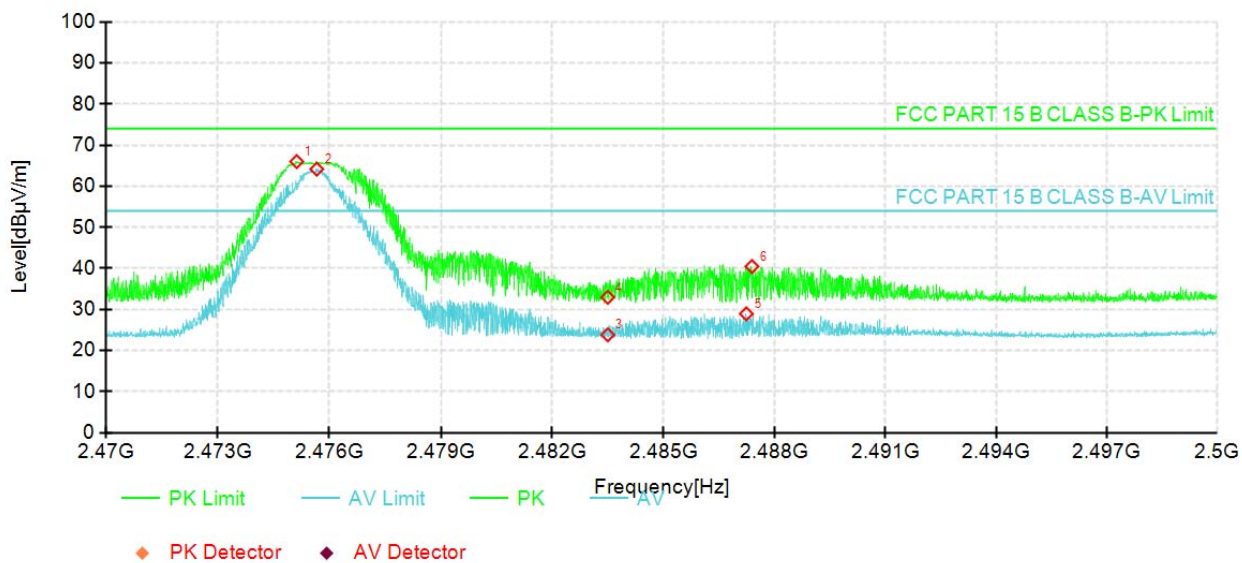
Note: (1) All Readings are Peak Value (VBW=3MHz) and AV Value (VBW=10Hz).
(2) Emission Level= Antenna Factor + Cable Loss + Read Level - Preamp Factor
(3) All other emissions more than 20dB below the limit.

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

EUT:	Bed-Side Hearing TV Speaker	Model name:	TV 7000
Pressure:	1010hPa	Polarization:	H
Test voltage :	DC 5V from adapter AC 120V/60Hz	Test mode:	TX
Test channel:	2403MHz		



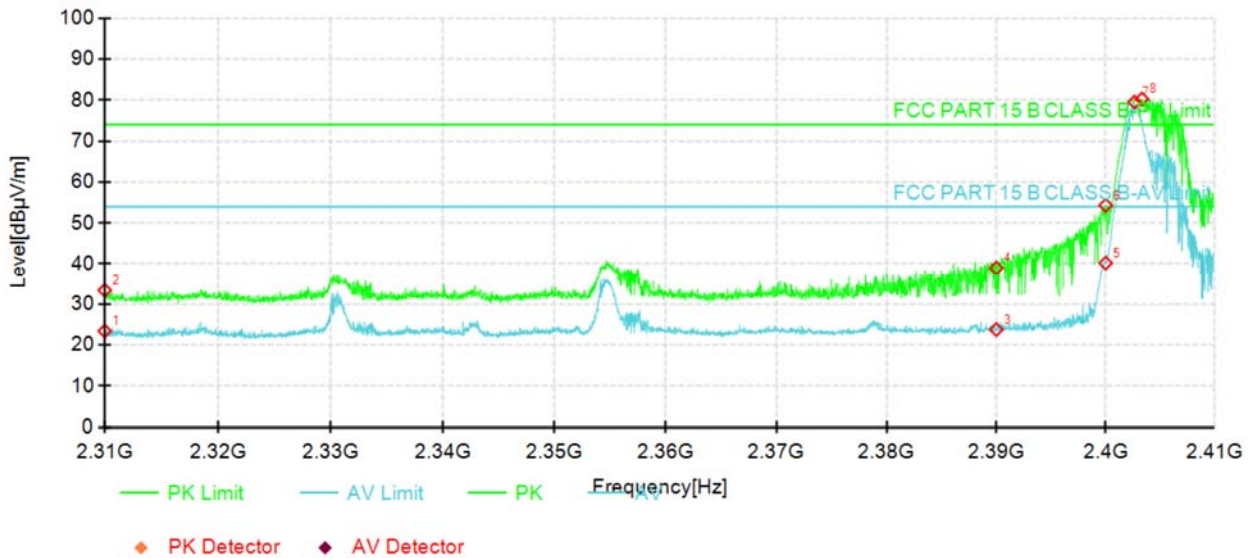
NO	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Detector	Height [cm]	Angle [°]	Polarit y
1	2310.0000	30.74	-12.03	74.00	43.26	PK	150	152	Horizontal
2	2310.0000	22.34	-12.03	54.00	31.66	AV	150	242	Horizontal
3	2390.0000	23.40	-11.86	54.00	30.60	AV	150	202	Horizontal
4	2390.0000	31.64	-11.86	74.00	42.36	PK	150	232	Horizontal
5	2400.0000	36.39	-11.84	74.00	37.61	PK	150	142	Horizontal
6	2400.0000	29.09	-11.84	54.00	24.91	AV	150	132	Horizontal
7	2402.6000	68.51	-11.83	74.00	5.49	PK	150	132	Horizontal
8	2402.6000	67.47	-11.83	54.00	-13.47	AV	150	132	Horizontal



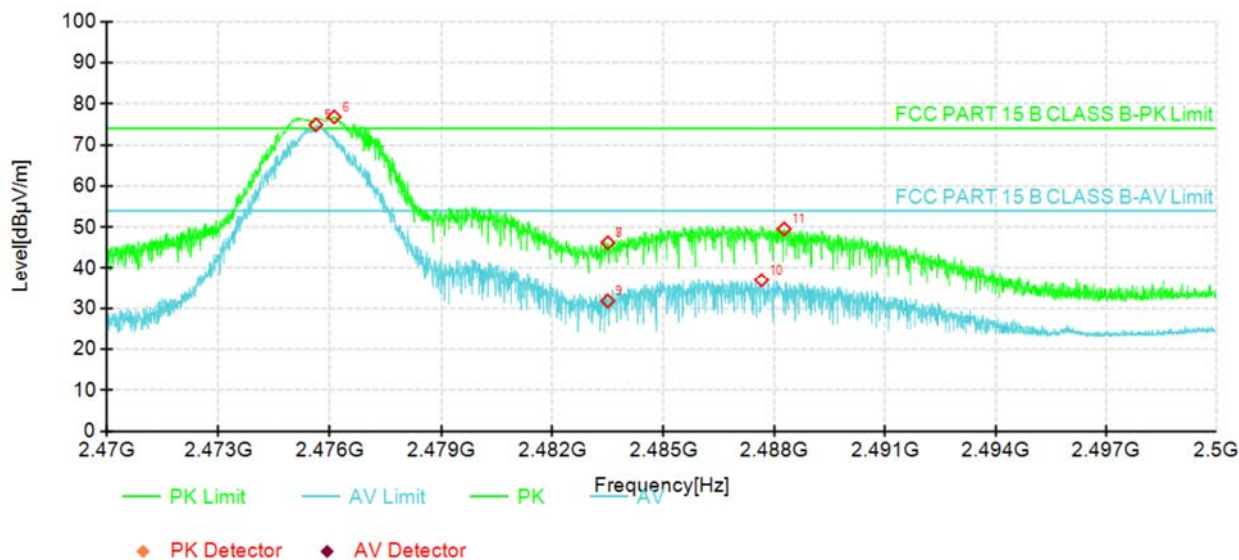
NO	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Detecto r	Height [cm]	Angle [°]	Polarit y
1	2475.1225	65.98	-11.52	74.00	8.02	PK	150	159	Horizontal
2	2475.6625	64.13	-11.52	54.00	-10.13	AV	150	148	Horizontal
3	2483.5000	23.83	-11.49	54.00	30.17	AV	150	99	Horizontal
4	2483.5000	32.96	-11.49	74.00	41.04	PK	150	99	Horizontal
5	2487.2425	28.93	-11.47	54.00	25.07	AV	150	138	Horizontal
6	2487.3925	40.46	-11.47	74.00	33.54	PK	150	148	Horizontal



EUT:	Bed-Side Hearing TV Speaker	Model name:	TV 7000
Pressure:	1010hPa	Polarization:	V
Test voltage :	DC 5V from adapter AC 120V/60Hz	Test mode:	TX
Test channel:	2475MHz		



NO	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Detecto r	Height [cm]	Angle [°]	Polarit y
1	2310.0000	23.40	-12.03	54.00	30.60	AV	150	359	Vertical
2	2310.0000	33.36	-12.03	74.00	40.64	PK	150	146	Vertical
3	2390.0000	23.76	-11.86	54.00	30.24	AV	150	156	Vertical
4	2390.0000	39.00	-11.86	74.00	35.00	PK	150	136	Vertical
5	2400.0000	40.21	-11.84	54.00	13.79	AV	150	146	Vertical
6	2400.0000	54.32	-11.84	74.00	19.68	PK	150	146	Vertical
7	2402.6500	79.51	-11.83	54.00	-25.51	AV	150	146	Vertical
8	2403.3250	80.22	-11.83	74.00	-6.22	PK	150	146	Vertical



NO	Freq. [MHz]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Detecto r	Height [cm]	Angle [°]	Polarit y
1	2475.6250	74.89	-11.52	54.00	-20.89	AV	150	152	Vertical
2	2476.1200	76.80	-11.52	74.00	-2.80	PK	150	142	Vertical
3	2483.5000	46.22	-11.49	74.00	27.78	PK	150	142	Vertical
4	2483.5000	31.80	-11.49	54.00	22.20	AV	150	142	Vertical
5	2487.6550	36.94	-11.47	54.00	17.06	AV	150	152	Vertical
6	2488.2700	49.58	-11.47	74.00	24.42	PK	150	152	Vertical



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 in the report No.: MTi19052207-1E1-1.

----END OF REPORT----