FCC RADIO TEST REPORT
FCC ID: OQ5IEMBP

Product：	Stage Pass IEM
Trade Name：	CADAUDIO
Model Name：	IEMBP
Serial Model：	N/A
Report No.：	BCTC-2015022316F

Prepared for

CAD Audio, LLC

6573 Cochran Road, Building I, Solon, Ohio, USA 44139

Prepared by

Shenzhen BCTC Technology Co., Ltd.

A.Floor 3, 44 Building, Tanglang Industrial Park B, Taoyuan Street,
Nanshan District, Shenzhen, China

TEST RESULT CERTIFICATION

Applicant's name	:	CAD Audio, LLC
Address	:	6573 Cochran Road, Building I, Solon, Ohio, USA 44139
Manufacture's Name	:	CAD Audio, LLC
Address	:	6573 Cochran Road, Building I, Solon, Ohio, USA 44139

Product description

Product name	:	Stage Pass IEM
Model and/or type reference	:	IEMBP
Serial Model	:	N/A
Standards	:	FCC Part15B:2013
Test procedure		ANSI C63.4-2003

This device described above has been tested by BCTC, 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.

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Date of Test	:	
Date (s) of performance of tests	:	13 Feb. 2015~03 Mar. 2015
Date of Issue	:	03 Mar. 2015
Test Result	:	**Pass**

Testing Engineer : Eric Yang

(Eric Yang)

Technical Manager : Sophie Lu

(Sophia Lee)

Authorized Signatory : Carson. Zhang

SHENZHEN BCTC TECHNOLOGY CO., LTD APPROVED

(Carson. Zhang)

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1. TEST SUMMARY

Test procedures according to the technical standards:

EMC Emission				
Standard	Test Item	Limit	Judgment	Remark
FCC Part15B:2013 ANSI C63.4: 2009	Conducted Emission	Class B	N/A	
	Radiated Emission	Class B	PASS	

NOTE: (1)" N/A" denotes test is not applicable in this Test Report

1.1 TEST FACILITY

Shenzhen BCTC Technology Co., Ltd.
Add.:No.101,Yousong Road,Longhua New District, Shenzhen,China
FCC Registration No.:187086

1.2 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** %。

A. Conducted Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
BCTC01	ANSI	150 KHz ~ 30MHz	3.2	

B. Radiated Measurement :

Test Site	Method	Measurement Frequency Range	U，(dB)	NOTE
BCTCA01	ANSI	30MHz ~ 1000MHz	4.7	
		1GHz ~6GHz	5.0	

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

<table>
<tr><td>Equipment</td><td>Stage Pass IEM</td></tr>
<tr><td>Brand Name</td><td>CADAUDIO</td></tr>
<tr><td>Model Name.</td><td>IEMBP</td></tr>
<tr><td>Serial No</td><td>N/A</td></tr>
<tr><td>Model Difference</td><td>N/A</td></tr>
<tr><td>Product Description</td><td>The EUT is a Wireless microphone receiver
<table><tr><td>Operating frequency:</td><td>470~489MHz (Only receiver)</td></tr><tr><td>Connecting I/O port:</td><td>Phones Port</td></tr></table>
Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.</td></tr>
<tr><td>Adapter</td><td>N/A</td></tr>
<tr><td>Battery</td><td>1.5V AA*2</td></tr>
</table>

2.2 DESCRIPTION OF TEST MODES

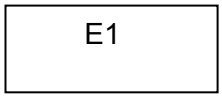
To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration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

Pretest Mode	Description
Mode 1	470MHz Receiver Mode
Mode 2	480MHz Receiver Mode
Mode 3	489MHz Receiver Mode

For Conducted Test	
Final Test Mode	Description
Mode 1	470MHz Receiver Mode
Mode 2	480MHz Receiver Mode
Mode 3	489MHz Receiver Mode

For Radiated Test	
Final Test Mode	Description
Mode 1	470MHz Receiver Mode
Mode 2	480MHz Receiver Mode
Mode 3	489MHz Receiver Mode

2.3 DESCRIPTION OF TEST SETUP



2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
E-1	Stage Pass IEM	CADAUDIO	IEMBP	N/A	EUT

Item	Shielded Type	Ferrite Core	Length	Note

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

2.5 MEASUREMENT INSTRUMENTS LIST

Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2014.07.06	2015.07.05	1 year
2	Test Receiver	R&S	ESPI	101318	2014.06.07	2015.06.06	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2014.07.06	2015.07.05	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2014.06.07	2015.06.06	1 year
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	2014.06.07	2015.06.06	1 year
6	Horn Antenna	EM	EM-AH-10180	2011071402	2014.07.06	2015.07.05	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2014.07.06	2015.07.05	1 year
8	Amplifier	EM	EM-30180	060538	2014.12.22	2015.12.21	1 year
9	Loop Antenna	ARA	PLA-1030/B	1029	2014.06.08	2015.06.07	1 year
10	Power Meter	R&S	NRVS	100696	2014.07.06	2015.07.05	1 year
11	Power Sensor	R&S	URV5-Z4	0395.1619.05	2014.07.06	2015.07.05	1 year

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2014.06.06	2015.06.05	1 year
2	LISN	R&S	ENV216	101313	2014.08.24	2015.08.23	1 year
3	LISN	EMCO	3816/2	00042990	2014.08.24	2015.08.23	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2014.06.07	2015.06.06	1 year
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	2014.06.07	2015.06.06	1 year
6	Absorbing clamp	R&S	MOS-21	100423	2014.06.08	2015.06.07	1 year

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *
0.50 -5.0	73.00	60.00	56.00	46.00
5.0 -30.0	73.00	60.00	60.00	50.00

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

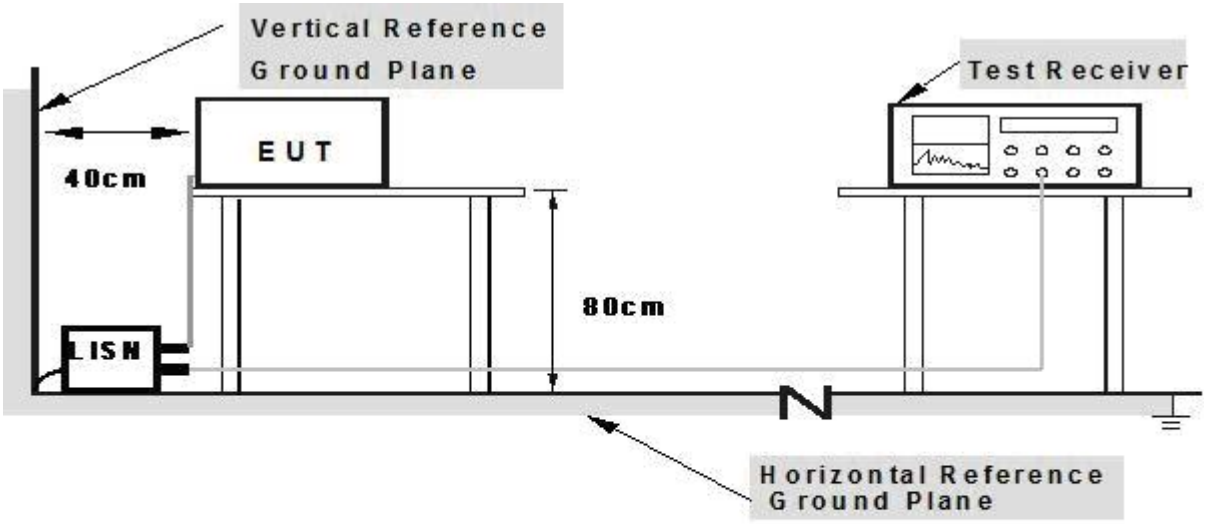
The following table is the setting of the receiver

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

3.1.2 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. 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.
c. 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.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 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

3.1.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

3.1.5 TEST RESULTS

EUT：	Stage Pass IEM	Model Name. ：	IEMBP
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase：	L
Test Voltage ：	N/A	Test Mode：	N/A

NOTE: To Conducted Emission, not suitable for battery devices.

3.2 RADIATED EMISSION MEASUREMENT

3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (at 10m)	Class B (at 3m)
	dBuV/m	dBuV/m
30 ~ 88	39.0	40.0
88 ~ 216	43.5	43.5
216 ~ 960	46.5	46.0
Above 960	49.5	54.0

Notes:

(1) The limit for radiated test was performed according to as following: FCC PART 15B /ICES-003.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

3.2.2 TEST PROCEDURE

a. The measuring distance of at 10 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.

b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

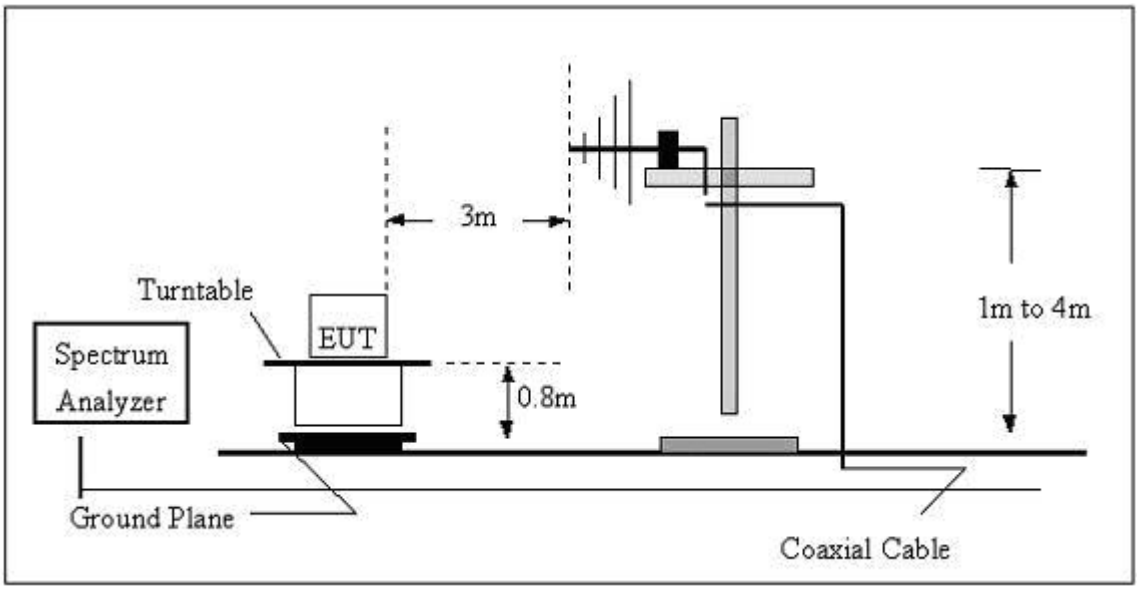
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured, above 1G Average detector mode will be instead.

e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP(AV) Limits and then no additional QP Mode measurement performed.

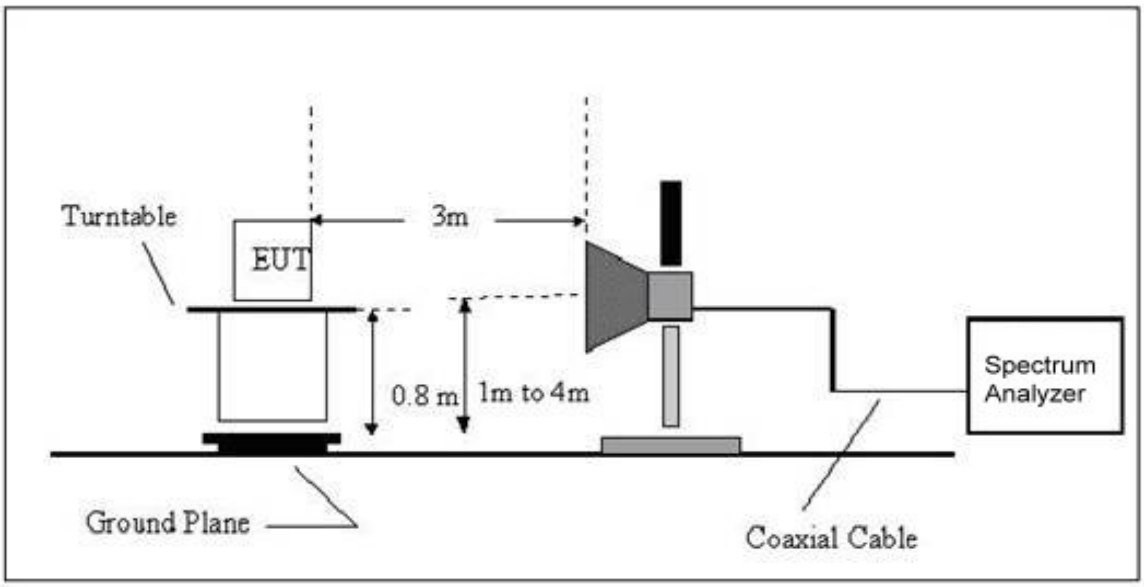
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.2.3 TEST SETUP

(A) Radiated Emission Test Set-Up Frequency Below 1 GHz



(B) Radiated Emission Test Set-Up Frequency Above 1GHz



3.2.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.5 TEST RESULTS(Blow 30MHZ)

EUT：	Stage Pass IEM	Model Name ：	IEMBP
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V
Test Mode ：	Mode 1/2/3	Polarization :	--

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

NOTE:

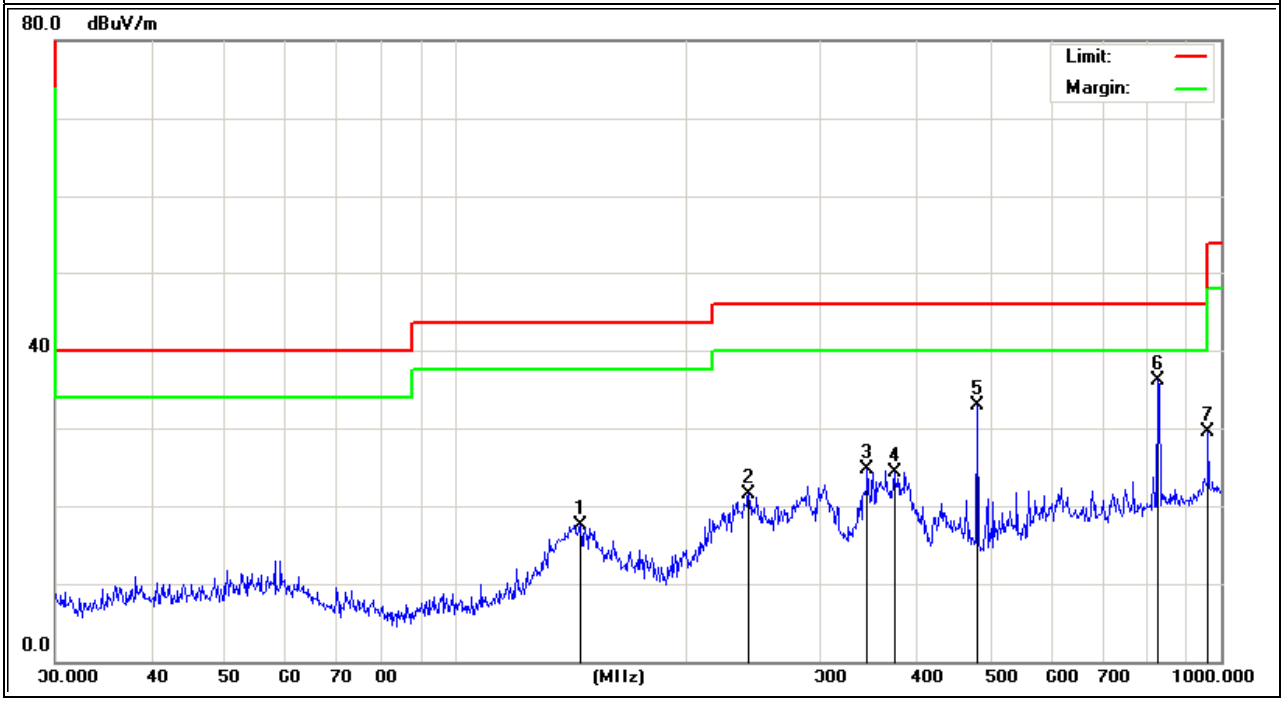
1.The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.
2.Distance extrapolation factor =40 log (specific distance/test distance)(dB);
3.Limit line = specific limits(dBuv) + distance extrapolation factor.

3.2.6 TEST RESULTS(30MHZ-1GHZ)

EUT：	Stage Pass IEM	Model Name ：	IEMBP
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V
Test Mode ：	Mode 1	Polarization：	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
145.3505	31.65	-14.08	17.57	43.5	-25.93	QP
240.8303	36.69	-15.24	21.45	46	-24.55	QP
345.5951	36.79	-12.02	24.77	46	-21.23	QP
374.6225	35.62	-11.3	24.32	46	-21.68	QP
470.5276	41.56	-8.69	32.87	46	-13.13	QP
827.4934	38.69	-2.5	36.19	46	-9.81	QP
962.1623	30.17	-0.64	29.53	54	-24.47	QP

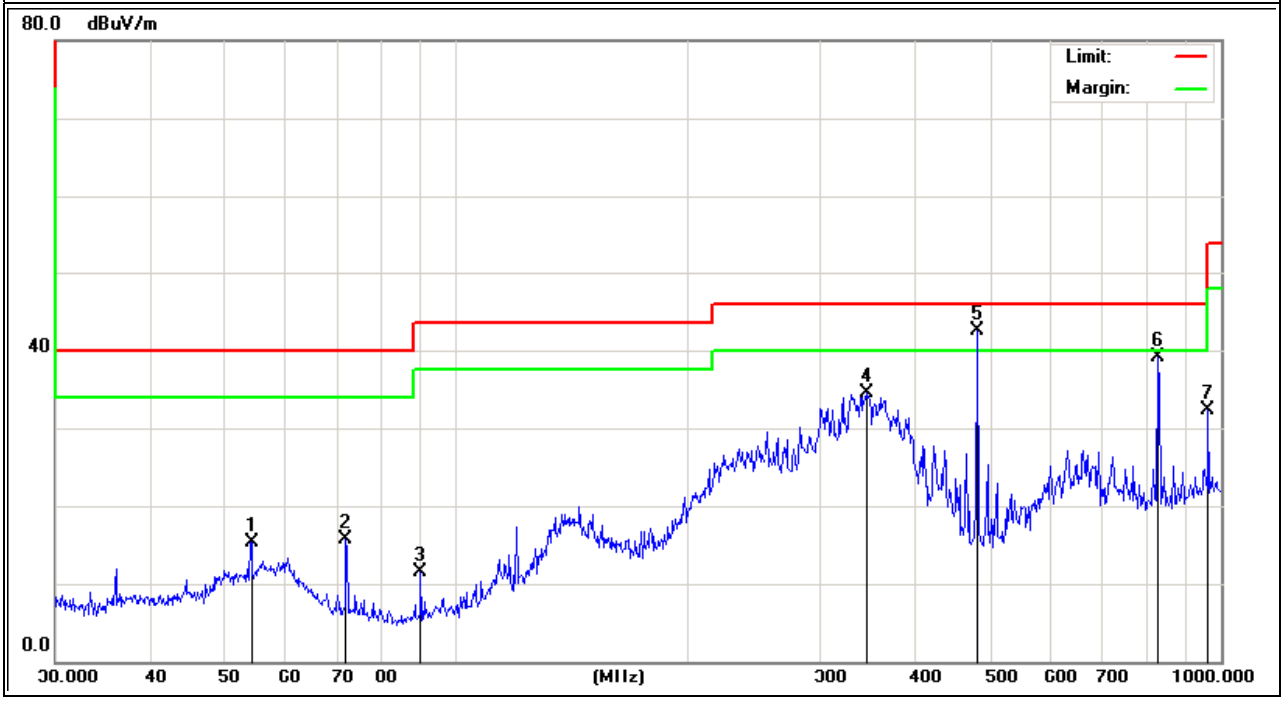
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Stage Pass IEM	Model Name ：	IEMBP
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V
Test Mode ：	Mode 1	Polarization：	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
54.0711	30.9	-15.65	15.25	40	-24.75	QP
71.8319	33.2	-17.44	15.76	40	-24.24	QP
89.9047	30.04	-18.6	11.44	43.5	-32.06	QP
344.3854	46.6	-12.04	34.56	46	-11.44	QP
470.5276	51.17	-8.69	42.48	46	-3.52	QP
827.4934	41.55	-2.5	39.05	46	-6.95	QP

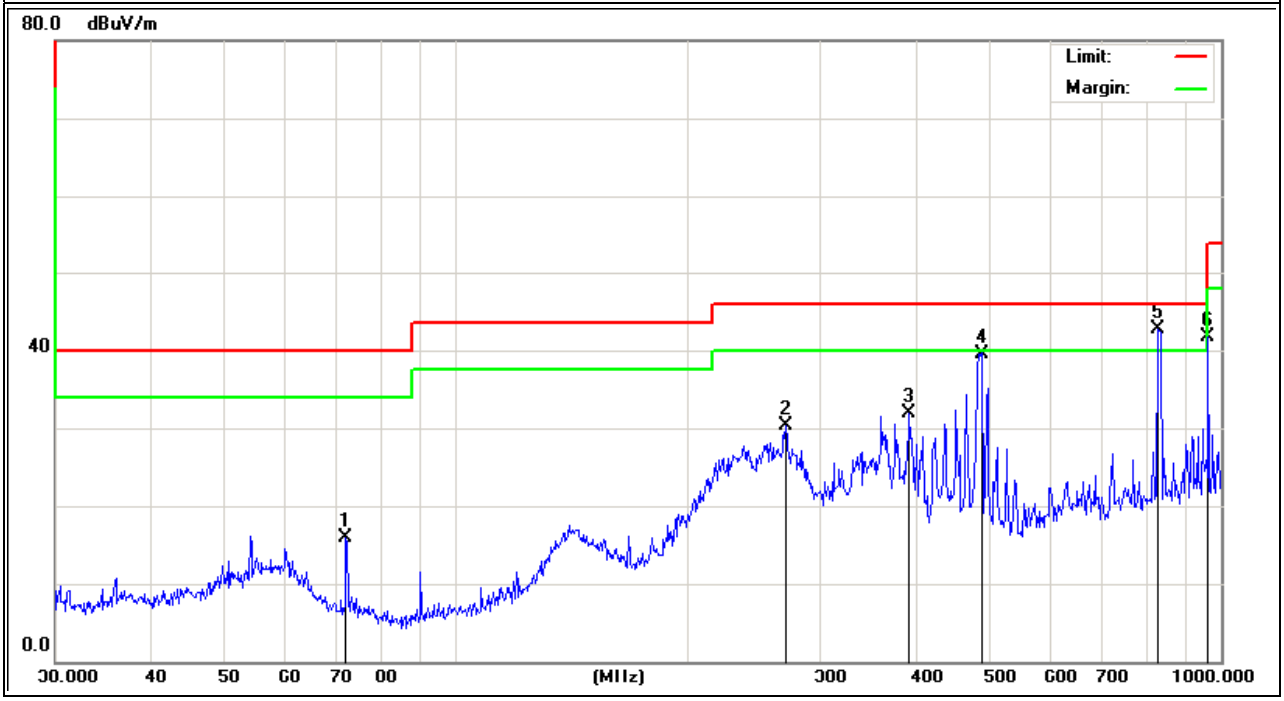
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Stage Pass IEM	Model Name ：	IEMBP
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V
Test Mode ：	Mode 2	Polarization：	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
71.8319	33.25	-17.44	15.81	40	-24.19	QP
270.3747	44.55	-14.21	30.34	46	-15.66	QP
392.0951	42.83	-10.84	31.99	46	-14.01	QP
480.3149	48.2	-8.6	39.6	46	-6.4	QP
827.4932	45.24	-2.5	42.74	46	-3.26	QP
962.1621	42.3	-0.64	41.66	54	-12.34	QP

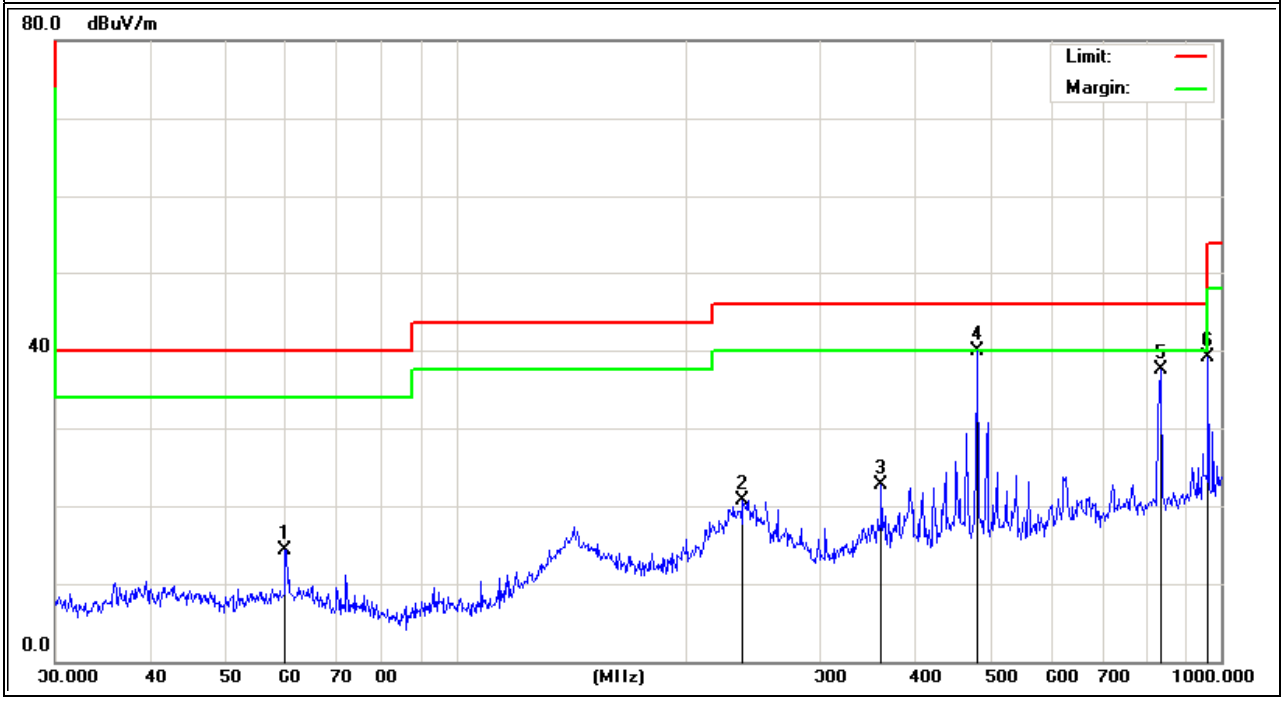
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Stage Pass IEM	Model Name ：	IEMBP
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V
Test Mode ：	Mode 2	Polarization：	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
59.8588	29.74	-15.42	14.32	40	-25.68	QP
236.6447	36.2	-15.46	20.74	46	-25.26	QP
360.4476	34.51	-11.72	22.79	46	-23.21	QP
480.5276	48.69	-8.69	40	46	-6	QP
833.317	39.98	-2.46	37.52	46	-8.48	QP
962.1622	39.79	-0.64	39.15	54	-14.85	QP

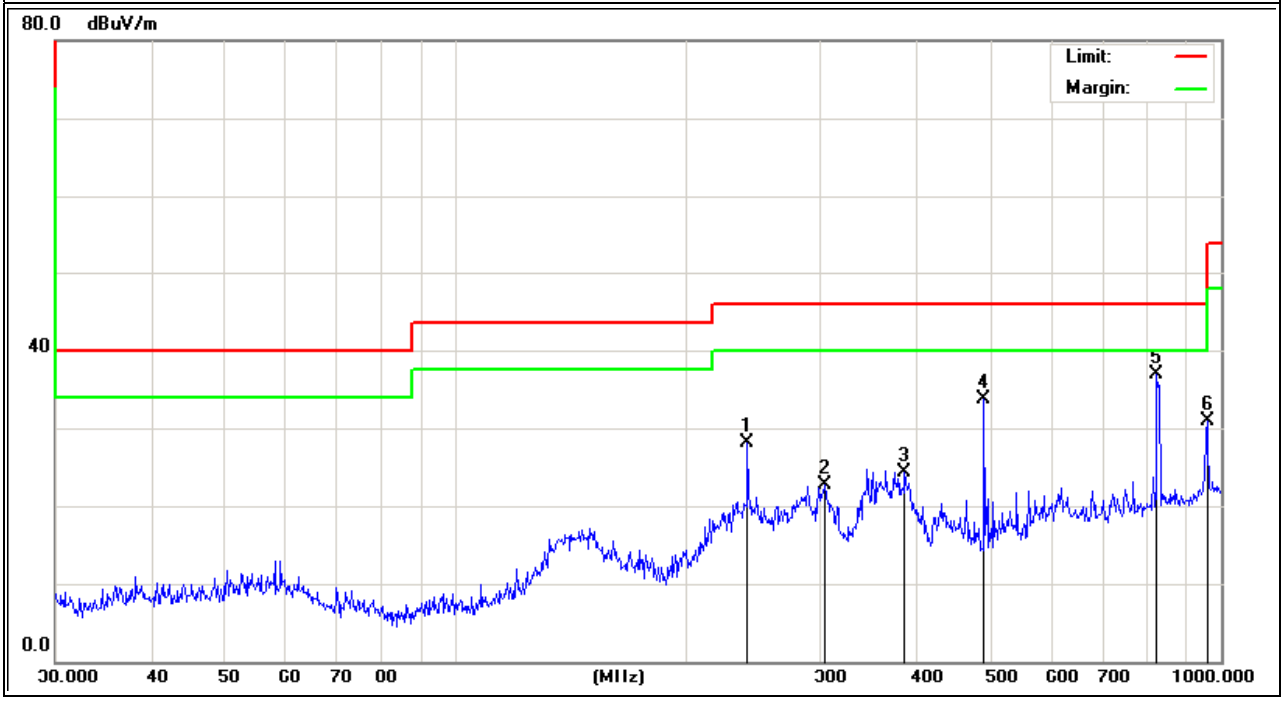
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Stage Pass IEM	Model Name ：	IEMBP
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V
Test Mode ：	Mode 3	Polarization：	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
239.9874	43.36	-15.26	28.1	46	-17.9	QP
304.6099	35.87	-13.11	22.76	46	-23.24	QP
386.6338	35.25	-10.97	24.28	46	-21.72	QP
489.7447	42.26	-8.56	33.7	46	-12.3	QP
824.5968	39.43	-2.53	36.9	46	-9.1	QP
958.7943	31.54	-0.64	30.9	46	-15.1	QP

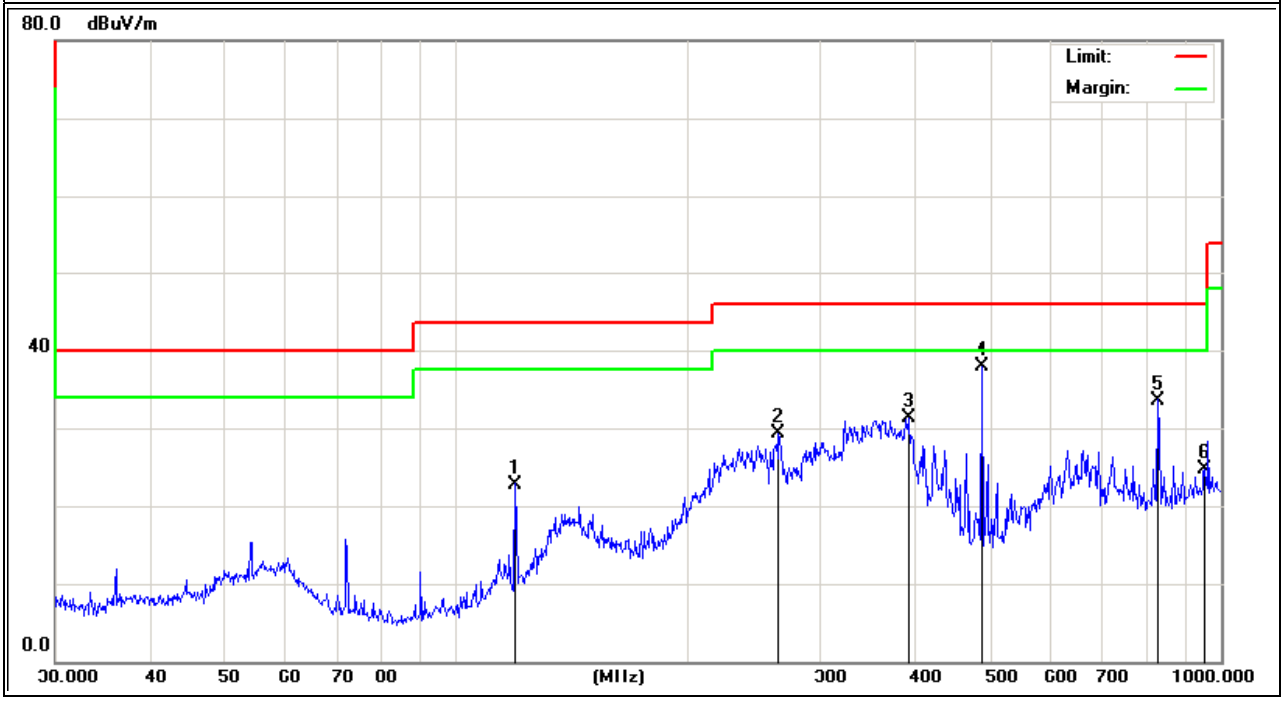
Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



EUT：	Stage Pass IEM	Model Name ：	IEMBP
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V
Test Mode ：	Mode 3	Polarization：	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
119.436	38.59	-15.79	22.8	43.5	-20.7	QP
264.7456	43.85	-14.45	29.4	46	-16.6	QP
390.7225	42.09	-10.87	31.22	46	-14.78	QP
489.7449	46.6	-8.6	38	46	-8	QP
827.4932	36.1	-2.5	33.6	46	-12.4	QP
952.0937	25.38	-0.68	24.7	46	-21.3	QP

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.



3.2.7 TEST RESULTS(1GHz-7GHz)

EUT：	Stage Pass IEM	Model Name ：	IEMBP
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V
Test Mode ：	Mode1	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
1280.43	51.92	-9.89	42.03	54	-11.97	peak
1920.883	51.69	-6.71	44.98	54	-9.02	peak

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT：	Stage Pass IEM	Model Name ：	IEMBP
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V
Test Mode ：	Mode1	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
1280.43	52.23	-9.89	42.34	54	-11.66	peak
1920.883	53.18	-6.71	46.47	54	-7.53	peak

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT：	Stage Pass IEM	Model Name ：	IEMBP
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V
Test Mode ：	Mode 2	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
1340.43	50.9	-9.24	41.66	54	-12.34	peak
2010.883	50.64	-6.87	43.77	54	-10.23	peak

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT：	Stage Pass IEM	Model Name ：	IEMBP
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V
Test Mode ：	Mode 2	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
1340.43	52.19	-9.24	42.95	54	-11.05	peak
2010.883	51.46	-6.87	44.59	54	-9.41	peak

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT：	Stage Pass IEM	Model Name ：	IEMBP
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V
Test Mode ：	Mode 3	Polarization :	Horizontal

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
1380.43	52.45	-9.78	42.66	54	-11.34	peak
2070.883	53.64	-7.03	46.61	54	-7.39	peak

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

EUT：	Stage Pass IEM	Model Name ：	IEMBP
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 3.0V
Test Mode ：	Mode 3	Polarization :	Vertical

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)	
2796.783	52.78	-9.78	43.00	54	-11.00	peak
4245.883	50.98	-7.03	43.95	54	-10.05	peak

Remark:
1. Factor = Antenna Factor + Cable Loss – Pre-amplifier.

5. EUT TEST PHOTO

Radiated Measurement Photos