Report No: CCISE180503801

FCC REPORT

Applicant:	ACOUSTMAX INTERNATIONAL CO., LTD
Address of Applicant:	Unit D16/F Cheuk Nang Plaza 250 Hennessy Road Wanchai HongKong
Equipment Under Test (EUT)	
Product Name:	Wireless Microphone
Model No.:	MNPRO-MIC
FCC ID:	2AAIN-MNPRO-MIC
Applicable standards:	FCC CFR Title 47 Part 74 Subpart C Section 74.861
Date of sample receipt:	10 May, 2018
Date of Test:	10 May, to 23 May, 2018
Date of report issue:	24 May, 2018
Test Result:	PASS*

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

Authorized Signature:

Bruce Zhang
Laboratory Manager

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of theCCISproduct certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

This report may only be reproduced and distributed in full. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

2 Version

Version No.	Date	Description
00	*24 May, 2018*	*Original*

Tested by:  ***Date:*** *24 May, 2018*

Test Engineer

Reviewed by:  ***Date:*** *24 May, 2018*

Project Engineer

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4 Test Summary

Test Item	Section in CFR 47	Result
Effective Isotropic Radiated Power(EIRP)	FCC Part 74.861(e)(1)(i)	Pass
Modulation Characteristics	FCC Part 74.861(e)(3)	Pass
Frequency Tolerance	FCC Part 74.861(e)(4)	Pass
Operating Bandwidth	FCC Part 74.861(e)(5)	Pass
Emission Mask	FCC Part 74.861(e)(6)	Pass
Spurious Radiation	FCC Part 74.861(e)(6)(iii)	Pass

Remarks:

Pass: The EUT complies with the essential requirements in the standard.

5 General Information

5.1 Client Information

Applicant:	ACOUSTMAX INTERNATIONAL CO., LTD
Address:	Unit D16/F Cheuk Nang Plaza 250 Hennessy Road Wanchai HongKong
Manufacturer/ Factory:	United Sound Electronic CO., LTD
Address:	Industrial Park, Economic development zone, FengShun County, Meizhou City, GuangDong

5.2 General Description of E.U.T.

Product Name:	Wireless Microphone
Model No.:	MNPRO-MIC
Operation Frequency:	192.6MHz
Channel numbers:	1
Modulation type:	FM
Antenna Type:	Coil antenna
Antenna gain:	1dBi
Power supply:	DC 3V (1.5V AA*2)
Remark:	N/A

5.3 Test environment and test mode

Operating Environment:	
Temperature:	24.0 °C
Humidity:	54 % RH
Atmospheric Pressure:	1010 mbar
Test mode:	
Transmitting mode	Keep the EUT in continuous transmitting with modulation
The sample was placed 0.8m (below 1GHz)/1.5m (above 1GHz) above the ground plane of 3m chamber. Measurements in both horizontal and vertical polarities were performed. During the test, each emission was maximized by: having the EUT continuously working, investigated all operating modes, rotated about all 3 axis (X, Y & Z) and considered typical configuration to obtain worst position, manipulating interconnecting cables, rotating the turntable, varying antenna height from 1m to 4m in both horizontal and vertical polarizations. The emissions worst-case are shown in Test Results of the following pages. Duty cycle setting during the transmission is 100% with maximum power setting for all modulations.	

5.4 Description of Support Units

N/A

5.5 Laboratory Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **FCC - Registration No.: 727551**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been accredited as a testing laboratory by FCC (Federal Communications Commission). The Registration No. is 727551.

- **IC - Registration No.: 10106A-1**

The 3m Semi-anechoic chamber of Shenzhen Zhongjian Nanfang Testing Co., Ltd. has been Registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 10106A-1.

- **CNAS - Registration No.: CNAS L6048**

Shenzhen Zhongjian Nanfang Testing Co., Ltd. is accredited to ISO/IEC 17025:2005 General Requirements for the Competence of Testing and Calibration laboratories for the competence of testing. The Registration No. is CNAS L6048.

- **A2LA - Registration No.: 4346.01**

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2005 General requirements for the competence of testing and calibration laboratories. The test scope can be found as below link: https://portal.a2la.org/scopepdf/4346-01.pdf

5.6 Laboratory Location

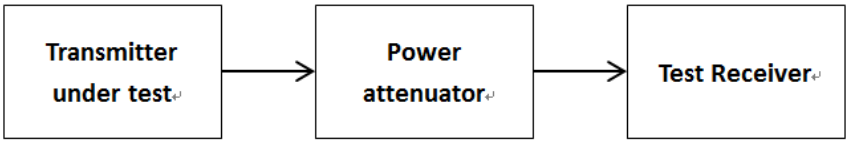
Shenzhen Zhongjian Nanfang Testing Co., Ltd.
Address: No. B-C, 1/F., Building 2, Laodong No.2 Industrial Park, Xixiang Road,
Bao'an District, Shenzhen, Guangdong, China
Tel: +86-755-23118282, Fax: +86-755-23116366
Email: info@ccis-cb.com, Website: http://www.ccis-cb.com

5.7 Test Instrumentslist

Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (mm-dd-yy)	Cal. Due date (mm-dd-yy)
1	EMI Test Receiver	Rohde & Schwarz	ESCI	CCIS0002	03-07-2018	03-06-2019
2	Loop Antenna	SCHWARZBECK	FMZB 1519 B	CCIS0188	03-16-2018	03-15-2019
2	BiConiLog Antenna	SCHWARZBECK MESS-ELEKTRONIK	VULB9163	CCIS0005	03-16-2018	03-15-2019
3	Double -ridged waveguide horn	SCHWARZBECK MESS-ELEKTRONIK	BBHA9120D	CCIS0006	03-16-2018	03-15-2019
4	Amplifier (10kHz-1.3GHz)	HP	8447D	CCIS0003	03-07-2018	03-06-2019
5	Amplifier (1GHz-18GHz)	Compliance Direction Systems Inc.	PAP-1G18	CCIS0011	03-07-2018	03-06-2019
6	Spectrum analyzer	Rohde & Schwarz	FSP30	CCIS0023	03-07-2018	03-06-2019
7	Cell site test set	HP	8921A	CCIS0190	03-19-2018	03-18-2019

6 Test results and Measurement Data

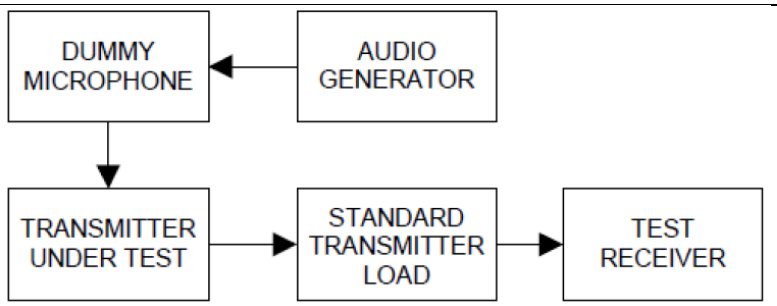
6.1 Conducted Output Power

Test Requirement:	FCC Part 74.861(e)(1)(i)
Test Method:	ANSI/TIA-603-D 2010
Limit:	50mW
Test setup:	
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:

Frequency (MHz)	Conducted Output Power (dBm)	Antenna Gain (dBi)	E.I.R.P (dBm)	E.I.R.P (mW)	Limit (mW)	Result
192.6	13.29	1	14.29	26.85	50.00	Pass

6.2 Modulation Characteristics

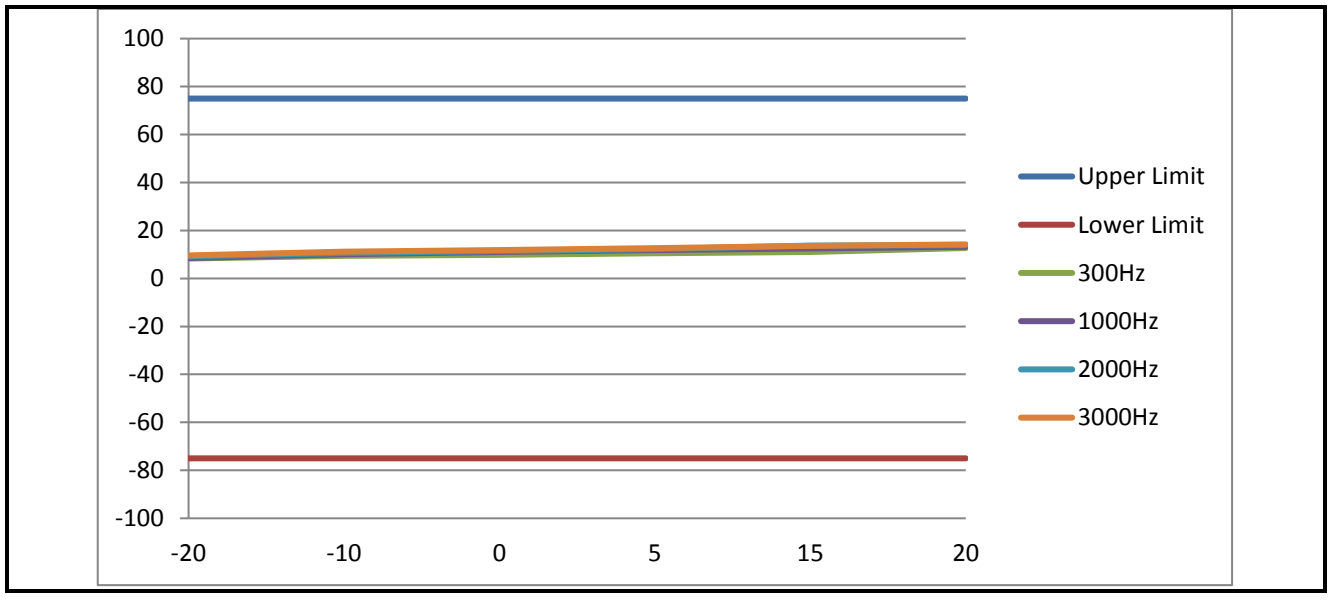
Test Requirement:	FCC Part 74.861(e)(3)
Test Method:	ANSI/TIA-603-D 2010
Limit:	±75KHz
Test setup:	
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data

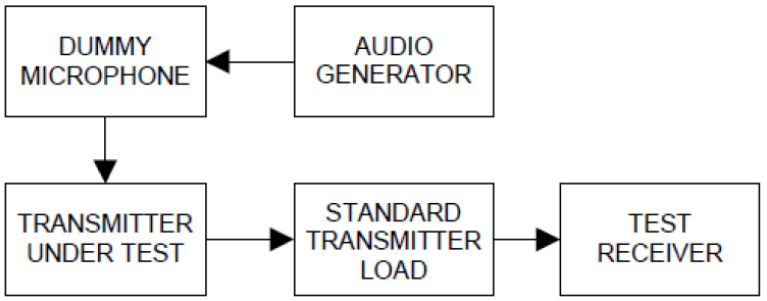
Input Level (dB) / Modulation	-20	-10	0	5	15	20
300Hz	8.3 kHz	9.4 kHz	9.9 kHz	10.5 kHz	11.1 kHz	12.7 kHz
1000Hz	8.5 kHz	10.1 kHz	11.0 kHz	11.8 kHz	12.5 kHz	13.2 kHz
2000Hz	9.2 kHz	10.6 kHz	11.4 kHz	12.2 kHz	13.7 kHz	13.9 kHz
3000Hz	9.6 kHz	11.2 kHz	11.9 kHz	12.7 kHz	13.6 kHz	14.2 kHz

Remark:
1. Rated system deviation: 11.0 kHz@1000Hz.
2. Maximum Deviation: 14.2 kHz < ±75 kHz.

Plots:



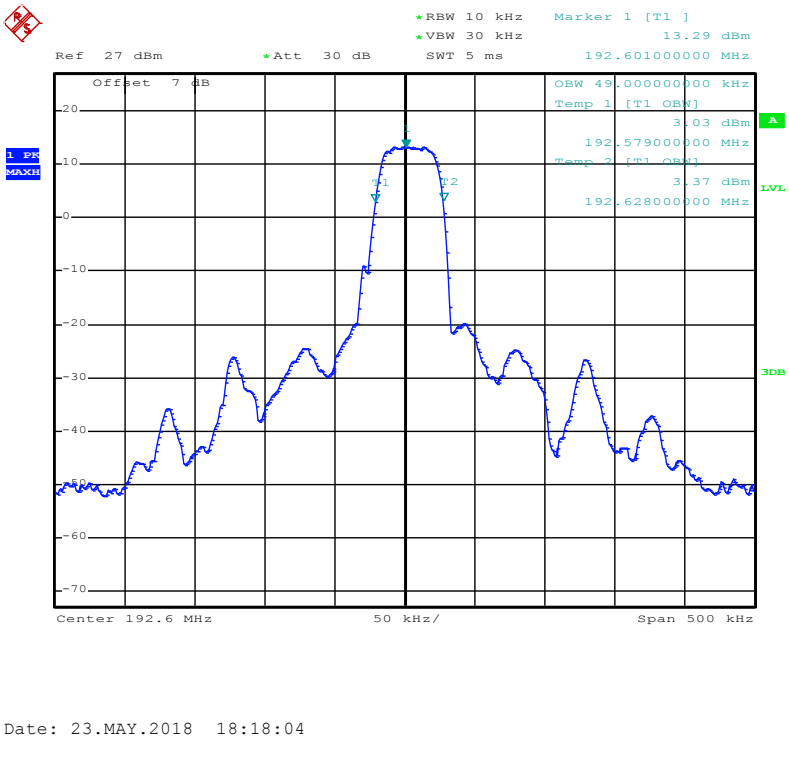
6.3 Operating Bandwidth

Test Requirement:	FCC Part 74.861(e)(5)
Test Method:	ANSI/TIA-603-D 2010
Limit:	200KHz
Test setup:	
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

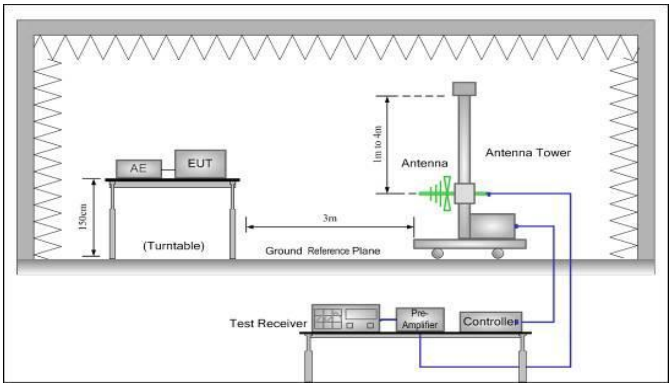
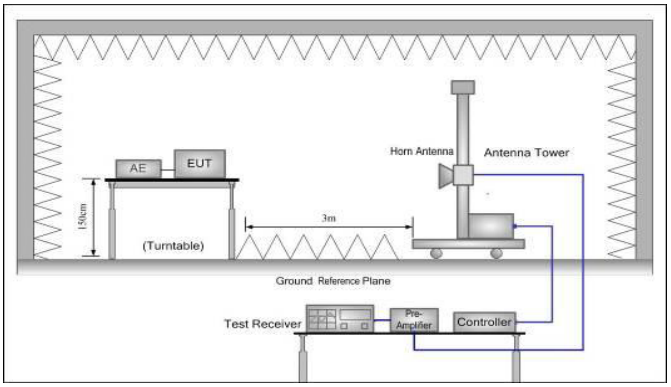
Measurement Data:

Frequency (MHz)	Test Result (KHz)	Limit (KHz)	Results
192.6	49	200	PASS

Test plots as below:



6.4 Spurious Radiation

Test Requirement:	FCC Part 74.861(e)(6)(iii)
Test Method:	ANSI/TIA-603-D 2010
Limit:	On any frequency removed from the operating frequency by more than 250 percent of the authorized bandwidth: at least 43 + 10log10 (mean output power in watts) dB (-13dB).
Test setup:	Below 1GHz  Above 1GHz 
Test procedure	1. The EUT was placed on the top of a rotating table 0.8m(below 1GHz) /1.5m(above 1GHz) above the ground at a 3 meter chamber. The table was rotated 360 degrees to determine the position of the highest radiation. 2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. 3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. 4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading. 5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. 6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using

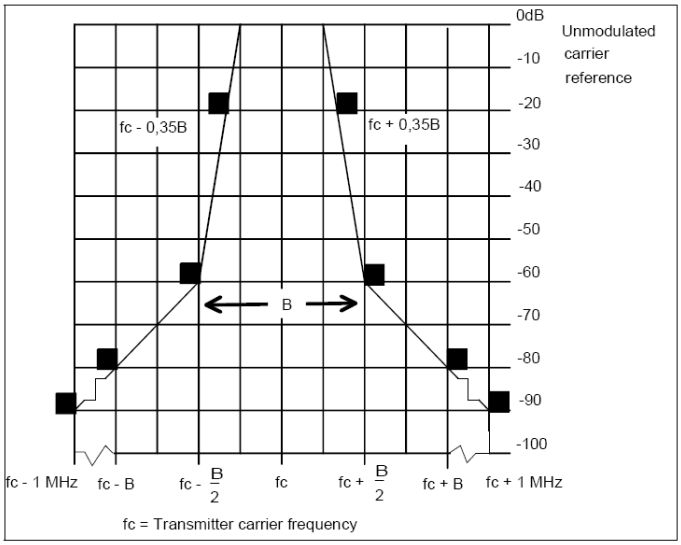
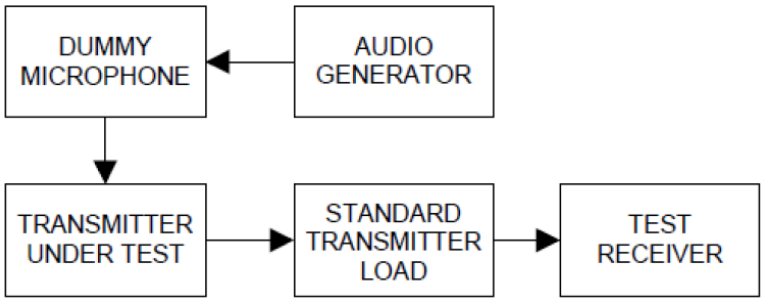
	peak, quasi-peak or average method as specified and then reported in a data sheet.
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Pass
Remark:	9 kHz to 30 MHz is noise floor, so only shows the data of above 30MHz in this report.

Measurement Data:

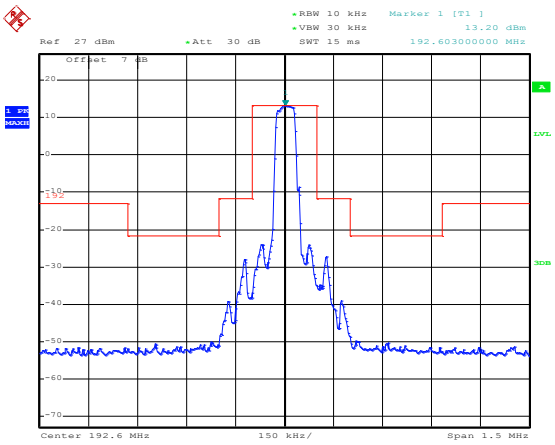
Below 1GHz								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
385.20	-73.66	25.23	3.09	0.00	-45.34	-13.00	-32.34	Vertical
577.80	-81.38	28.13	3.92	0.00	-49.33	-13.00	-36.33	Vertical
770.40	-91.92	30.72	4.36	0.00	-56.84	-13.00	-43.84	Vertical
963.00	-92.57	34.01	4.27	0.00	-54.29	-13.00	-41.29	Vertical
385.20	-60.74	25.23	3.09	0.00	-32.42	-13.00	-19.42	Horizontal
577.80	-82.47	28.13	3.92	0.00	-50.42	-13.00	-37.42	Horizontal
770.40	-91.63	30.72	4.36	0.00	-56.55	-13.00	-43.55	Horizontal
963.00	-93.41	34.01	4.27	0.00	-55.13	-13.00	-42.13	Horizontal

Above 1GHz								
Frequency (MHz)	Read Level (dBuV)	Antenna Factor (dB/m)	Cable Loss (dB)	Preamp Factor (dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	Polarization
1155.60	-45.36	36.04	3.25	41.13	-47.20	-13.00	-34.20	Vertical
1348.20	-61.92	36.82	3.54	41.04	-62.60	-13.00	-49.60	Vertical
1540.80	-61.68	37.16	3.78	41.03	-61.77	-13.00	-48.77	Vertical
1733.40	-61.25	37.36	4.03	41.14	-61.00	-13.00	-48.00	Vertical
1926.00	-61.70	37.42	4.26	41.50	-61.52	-13.00	-48.52	Vertical
1155.60	-48.51	36.04	3.25	41.13	-50.35	-13.00	-37.35	Horizontal
1348.20	-61.35	36.82	3.54	41.04	-62.03	-13.00	-49.03	Horizontal
1540.80	-61.54	37.16	3.78	41.03	-61.63	-13.00	-48.63	Horizontal
1733.40	-61.33	37.36	4.03	41.14	-61.08	-13.00	-48.08	Horizontal
1926.00	-61.08	37.42	4.26	41.50	-60.90	-13.00	-47.90	Horizontal

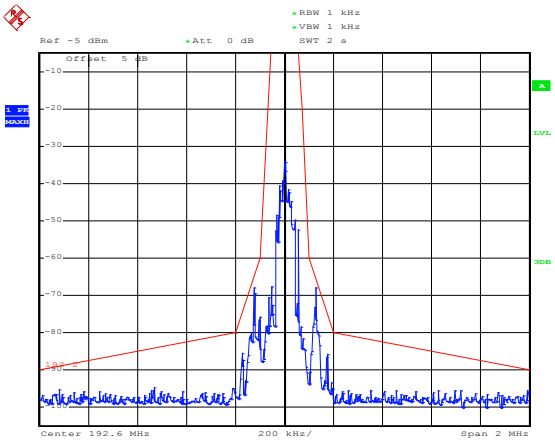
6.5 Emission Mask

Test Requirement:	FCC Part 74.861(e)(6)
Test Method:	ANSI/TIA-603-D 2010
Limit:	e6: (1) On any frequency removed from the operating frequency by more than 50 percent up to and including 100 percent of the authorized bandwidth: at least 25 dB. (2) On any frequency removed from the operating frequency by more than 100 percent up to and including 250 percent of the authorized bandwidth: at least 35 dB. (3) On any frequency removed from the operating frequency by more than 250 percent of the authorized bandwidth: at least 43 + $10\log_{10}$ (mean output power in watts) dB. e7: Analog emissions within the band from one megahertz below to one megahertz above the carrier frequency shall comply with the emission mask in section 8.3.1.2 of the European Telecommunications Institute Standard ETSI EN 300 4221 v1.4.2 (201108). 8.3.1.2 Limits 
Test setup:	
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Test plots:

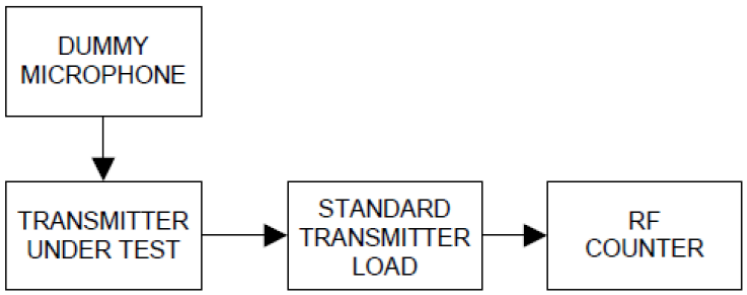


e6



e7

6.6 Frequency Tolerance

Test Requirement:	FCC Part 74.861(e)(4)
Test Method:	ANSI/TIA-603-D 2010
Limit:	±0.005%
Test setup:	
Test Instruments:	Refer to section 5.7 for details
Test mode:	Refer to section 5.3 for details
Test results:	Passed

Measurement Data:

Reference Frequency: 192.6MHz					
Power supplied (Vdc)	Temperature (℃)	Frequency Error	Frequency Tolerance	Limit (%)	Result
		MHz	%		
3.0	-30	0.0020	0.00104	±0.005	Pass
	-20	0.0022	0.00114		
	-10	0.0021	0.00109		
	0	0.0019	0.00099		
	10	0.0023	0.00119		
	20	0.0024	0.00125		
	30	0.0022	0.00114		
	40	0.0019	0.00099		
	50	0.0018	0.00093		

Reference Frequency: 192.6MHz					
Temperature (℃)	Power supplied (Vdc)	Frequency Error	Frequency Tolerance	Limit (%)	Result
		MHz	%		
25	3.30	0.0025	0.00130	±0.005	Pass
	3.00	0.0023	0.00119		
	2.70	0.0022	0.00114		