FCC Part 74 Subpart H

EMI TEST REPORT

of

E.U.T. : Wireless Microphone
FCC ID. : 2ACHNWR930D
Model No. : WM-915
Working Frequency : 614~694 MHz

for

APPLICANT : CHANFUL VOICE TECHNIC CO.,LTD.
ADDRESS : No.89,Sec.1Huanzhong E.Rd.,Tanzi Dist.,Taichung City427,Taiwan (R.O.C)

Test Performed by

ELECTRONICS TESTING CENTER (ETC) , TAIWAN
NO. 34. LIN 5, DINGFU VIL., LINKOU DIST.,
NEW TAIPEI CITY, TAIWAN, 24442, R.O.C.
TEL : (02)26023052 FAX : (02)26010910
http:// www.etc.org.tw ; e-mail:emc@etc.org.tw

Report Number : 14-04-RBF-041-01

TEST REPORT CERTIFICATION

Applicant	:	CHANFUL VOICE TECHNIC CO.,LTD. No.89,Sec.1Huanzhong E.Rd.,Tanzi Dist.,Taichung City427,Taiwan (R.O.C)
Manufacturer	:	CHANFUL VOICE TECHNIC CO.,LTD. No.89,Sec.1Huanzhong E.Rd.,Tanzi Dist.,Taichung City427,Taiwan (R.O.C)
Description of EUT	:	
a) Type of EUT	:	Wireless Microphone
b) Trade Name	:	AV-ART
c) Model No.	:	WM-915
d) FCC ID	:	2ACHNWR930D
e) Working Frequency	:	614~694 MHz
f) Power Supply	:	Battery DC1.5V*2

Regulation Applied: FCC Rules and Regulations Part 74 Subpart H

I HEREBY CERTIFY THAT; The data shown in this report were made in accordance with the procedures given in ANSI C63.4 and the energy emitted by the device was founded to be within the limits applicable. I assume full responsibility for accuracy and completeness of these data.

Issued Date : May 29, 2014

Test Engineer : Jiapeng Chen

(Jiapeng Chen, Engineer)

Approve & Authorized Signer : S S Liou

S. S. Liou, Section Manager
EMC Dept. II of ELECTRONICS
TESTING CENTER, TAIWAN

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1. GENERAL INFORMATION

1.1 Product Description

a) Type of EUT	:	Wireless Microphone
b) Trade Name	:	AV-ART
c) Model No.	:	WM-915
d) FCC ID	:	2ACHNWR930D
e) Working Frequency	:	614~694 MHz
f) Power Supply	:	Battery DC1.5V*2
g) Emission Designator	:	133KF3E 2M+2DK=2x(4kHz)+2x(62.5kHz)x1=133kHz

1.2 Test Methodology

Both conducted and radiated testing were performed according to the procedures in chapter 13 of ANSI C63.4 (2003). Test also follow “TIA-603-C(2004)-Land Mobile FM or PM Communications Equipment Measurement and Performance Standsrds” and section 2.1046, 2.1047, 2.1049, 2.1051, 2.1053, and 2.1055 of Part 2 of CFR 47.

1.3 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located on the roof top of Building at NO. 34. LIN 5, DINGFU VIL., LINKOU DIST.,NEW TAIPEI CITY, TAIWAN, 24442, R.O.C.

This site has been fully described in a report submitted to your office, and accepted in a letter dated Jan. 11, 2011.

2. REQUIREMENTS OF PROVISIONS

2.1 Definition

Intentional radiator:
A device that intentionally generates and emits radio frequency energy by radiation or induction.

2.2 Frequencies Available

According to sec. 74.802 of Part 74, the following frequencies are available for low power auxiliary station :

Frequencies (MHz)

26.100-26.480	455.000-456.000
54.000-72.000	470.000-488.000
76.000-88.000	488.000-494.000
161.625-161.775	494.000-608.000
174.000-216.000	614.000-806.000
450.000-451.000	944.000-952.000

2.3 Requirements for Radio Equipment on Certification

(1) RF Output Power
For transmitters, the power output shall be measured at the RF output terminals.

(2) Modulation Characteristics
For Voice Modulated Communication Equipment, a curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be submitted.

(3) Occupied Bandwidth
For radiotelephone transmitter, other than single sideband or indenpent sideband transmitter, when modulateed by a 2.5kHz tone at an input level 16 dB greater than that necessary to produce 50 percent modulation.

(4) Spurious Emissions at Antenna Terminals
The radio frequency voltage or power generated within the equipment and appearing on a spurious frequency shall be checked at the equipment output terminal when properly loaded with a suitable artificial antenna.

(5) Field Strength of Spurious Emissions

Measurements shall be made to detect spurious emission that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal condition of installation and operation.

(6) Frequencies Tolerance

a) The frequency stability shall be measured with variation of ambient temperature.
b) The frequency stability shall be measured with variation of primary supply voltage.

2.4 Labeling Requirement

Each equipment for which a type acceptance application is filed on or after May 1,1981, shall bear an identification plate or label pursuant to §2.925（Identification of equipment） and §2.926（FCC identifier）.

3. OUTPUT POWER MEASUREMENT

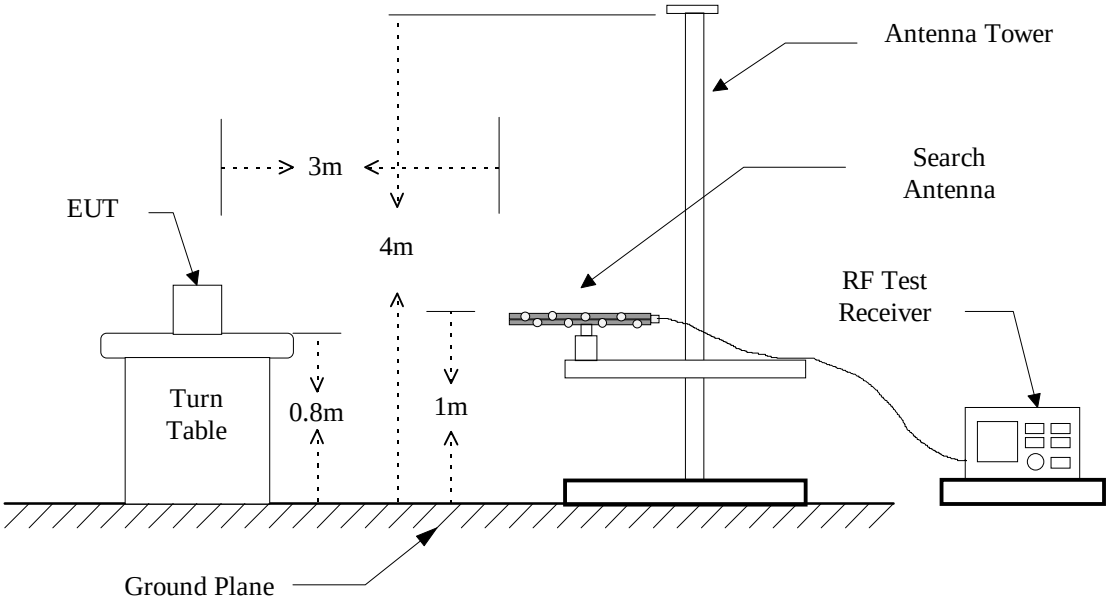
3.1 Provision Applicable

According to §74.861(e)(1)(ii), the output power shall not exceed 250 milliwatts.

3.2 Measurement Procedure

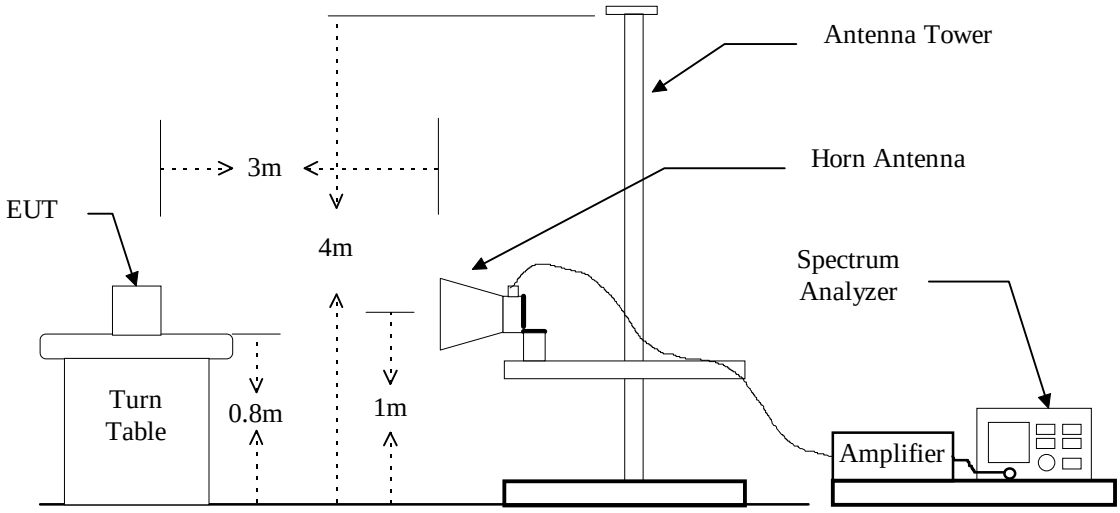
1. Setup the configuration per figure 1 and 2 for frequencies measured below and above 1 GHz respectively, adjusting the input voltage to produce the maximum power.
2. Adjust the analyzer for each frequency measured in chapter 6 on a 1 MHz frequency span and 1MHz resolution bandwidth.
3. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ° to 360 °, and record the highest value indicated on spectrum analyzer as reference value.
4. Repeat step 3 until all frequencies need to be measured were complete.
5. Repeat step 4 with search antenna in vertical polarized orientations.
6. Replace the EUT with a tuned dipole antenna (horn antenna for above 1 GHz) relative to each frequency in horizontally polarized orientation and as the same polarized orientation with search antenna. Connect the tuned dipole antenna to a standard signal generator (SG) via a low loss cable. Power on the SG and tune the right frequency in measuring as well as set SG at a appreciated output level. Rise and lower the search antenna to get the highest value on spectrum analyzer, and then hold this position. Adjust the SG output to get a identical value derived from step 3 on spectrum analyzer. Record this value for result calculated.
7. Repeat step 6 until all frequencies need to be measured were complete.
8. Repeat step 7 with both dipole antenna (horn antenna for above 1 GHz) and search antenna in vertical polarized orientations.

Figure 1 : Frequencies measured below 1 GHz configuration



Note: For substitution method, replace the EUT with a tuned dipole antenna relative to each frequency and connect to a standard signal generator (SG) via a low loss cable.

Figure 2 : Frequencies measured above 1 GHz configuration



Note: For substitution method, replace the EUT with a horn antenna and connect to a standard signal generator (SG) via a low loss cable.

3.3 Test Data

Operated mode : TX
Temperature : 20 °C
Test Date : May 06, 2014
Humidity : 62 %

Frequency (MHz)	Meter Reading (dB μ V/m)	SG Reading (dBm)	Cable Loss (dB)	Antenna Gain	Result (dBm)	Output Power (mW)	Limit (mW)
614.225	69.2	-1.2	2.3	----	-3.5	0.447	250.0

Frequency (MHz)	Meter Reading (dB μ V/m)	SG Reading (dBm)	Cable Loss (dB)	Antenna Gain	Result (dBm)	Output Power (mW)	Limit (mW)
654.425	62.8	-8.4	2.4	----	-10.8	0.083	250.0

Frequency (MHz)	Meter Reading (dB μ V/m)	SG Reading (dBm)	Cable Loss (dB)	Antenna Gain	Result (dBm)	Output Power (mW)	Limit (mW)
693.025	66.6	-3.1	2.3	----	-5.4	0.288	250.0

Note: For measured frequency below 1GHz, a tuned dipole antenna is used.

3.4 Result Calculation

Result calculation is as following :

Result = SG Reading + Cable Loss + Antenna Gain Corrected

Antenna Gain Corrected : is used for antenna other than dipole to convert radiated power to ERP.

$$mW = \log^{-1}[\frac{Result(dBm)}{10}]$$

3.5 Test Equipment

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
EMI Test Receiver	Rohde & Schwarz	ESCI	2013/08/02	2014/08/01
Dipole Antenna	Schwarzbeck	897;898	2013/09/07	2014/09/07
Log-periodic Antenna	EMCO	3146	2013/10/25	2014/10/24
Amplifier	HP	8447D	2014/05/03	2015/05/02
Signal generator	HP	83732B	2013/09/14	2014/09/13

4. MODULATION CHARACTERISTICS

4.1 Provisions Applicable

According to § 2.1047 (a), for Voice Modulated Communication Equipment, the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be measured.

4.2 Measurement Method

A) Modulation Limit

1. Position the EUT as shown in figure 3, adjust the audio input frequency to 100 Hz and the input level from 0V to maximum permitted input voltage with recording each carrier frequency deviation responding to respective input level.

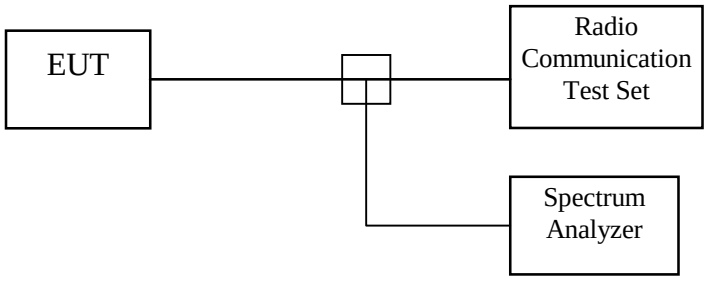
2. Repeat step 1 with changing the input frequency for 200, 500, 1000, 3000, and 5000 Hz in sequence.

B) Frequency response of all circuits

1. Position the EUT as shown in figure 3.

2. Vary the modulating frequency from 100 Hz to 15000 Hz with constant input voltage (derived from 5.4(a) of this test report), and observe the change in output.

Figure 3 : Modulation characteristic measurement configuration



4.3 Measurement Instrument

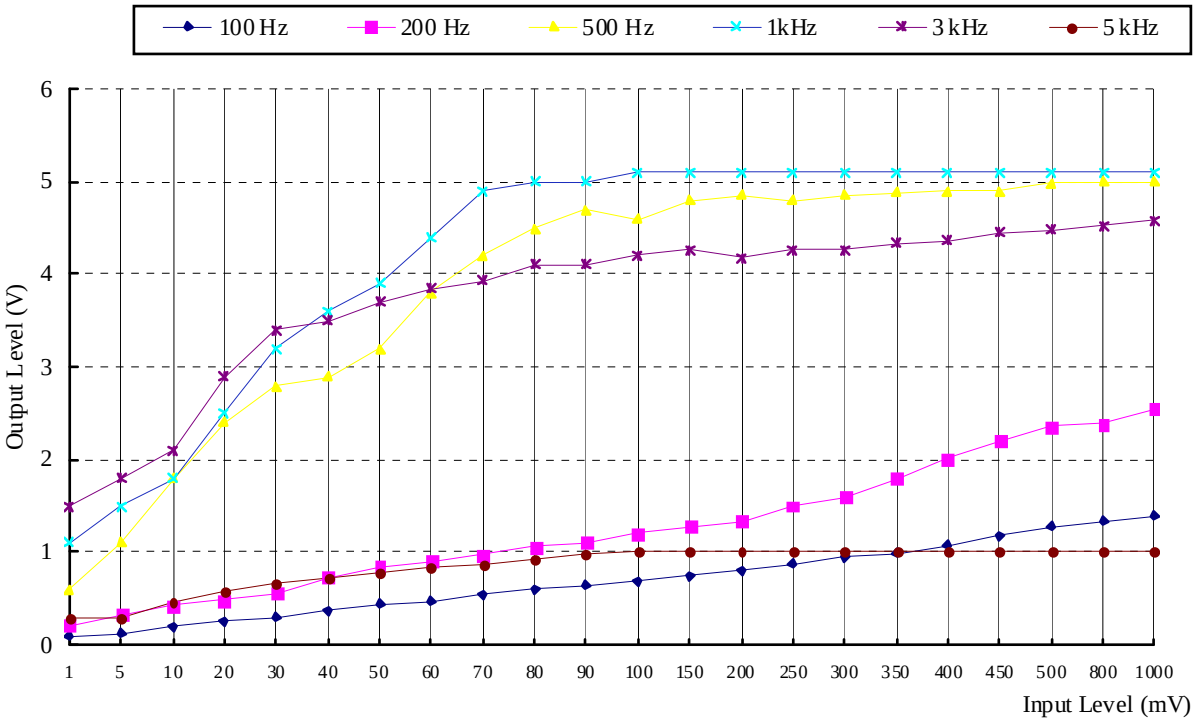
Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Communications Service Monitor	AEROFLEX	2945B	2014/05/13	2015/05/12
Spectrum Analyzer	Rohde & Schwarz	FSP40	2012/09/20	2013/09/20

4.4 Measurement Result

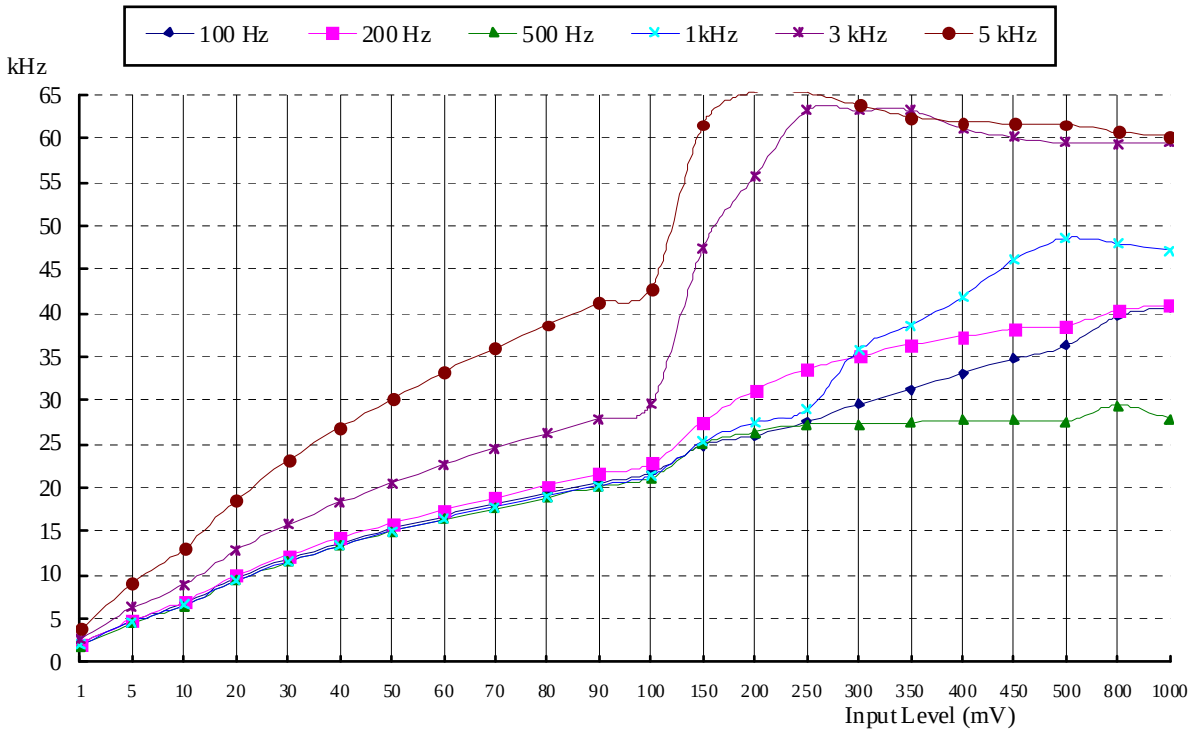
RF Frequency : 614.225MHz;

Test Date : May 14, 2014 Temperature : 20 °C Humidity : 60 %

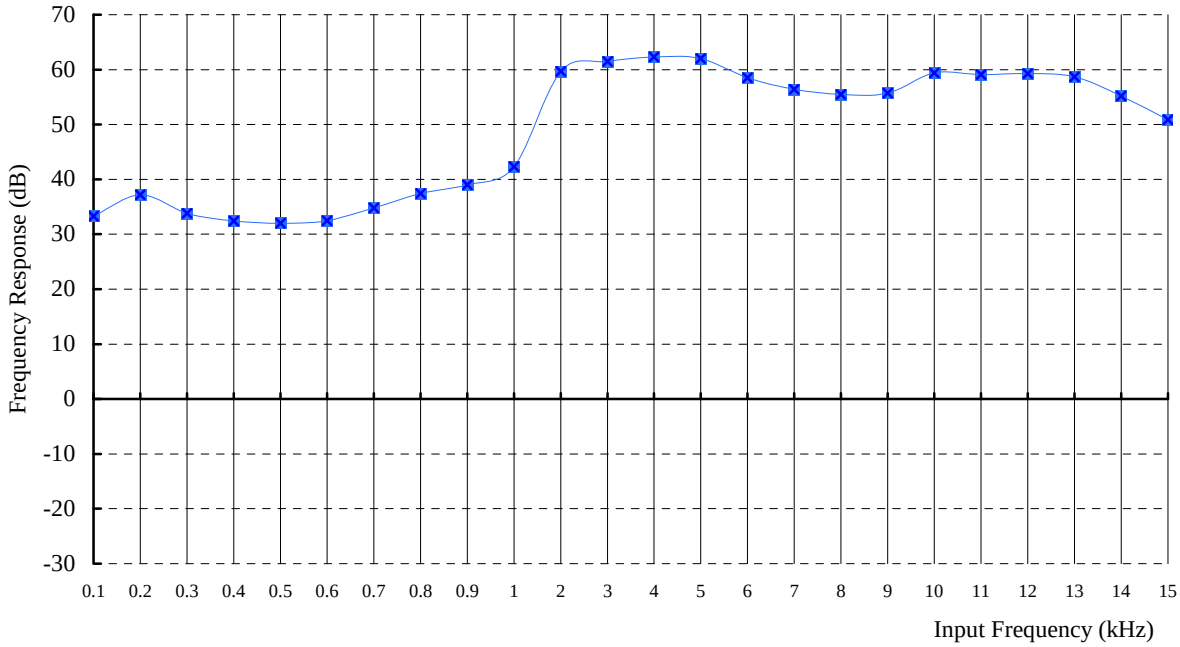
A). Frequency response



B). Modulation Limit



C). Frequency response of all circuits



5. OCCUPIED BANDWIDTH OF EMISSION

5.1 Provisions Applicable

According to §2.1049 (c)(1), For radiotelephone transmitter, other than single sideband or indenpent sideband transmitter, when modulateed by a 2.5kHz tone at an input level 16 dB greater than that necessary to produce 50 percent modulation.
According to §74.861(e)(5), the frequency emission bandwidth shall not exceed 200 kHz.

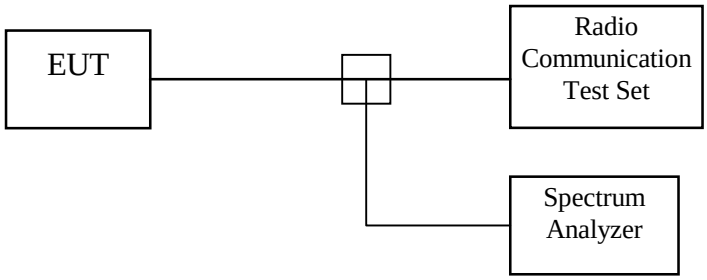
5.2 Measurement Method

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.

2. Position the EUT as shown in figure 4, and Install new batteries in the EUT. Turn on the EUT ant set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.

3. Apply a 2.5 kHz modulation signal to EUT and measure the frequencies of the modulated signal from the EUT where it is the specified number of dB below the reference level set in step 2. This is the occupied bandwidth specified.

Figure 4 : Occupied bandwidth measurement configuration



5.3 Occupied Bandwidth Test Equipment

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Communications Service Monitor	AEROFLEX	2945B	2014/05/13	2015/05/12
Spectrum Analyzer	Rohde & Schwarz	FSP40	2014/01/21	2015/01/20

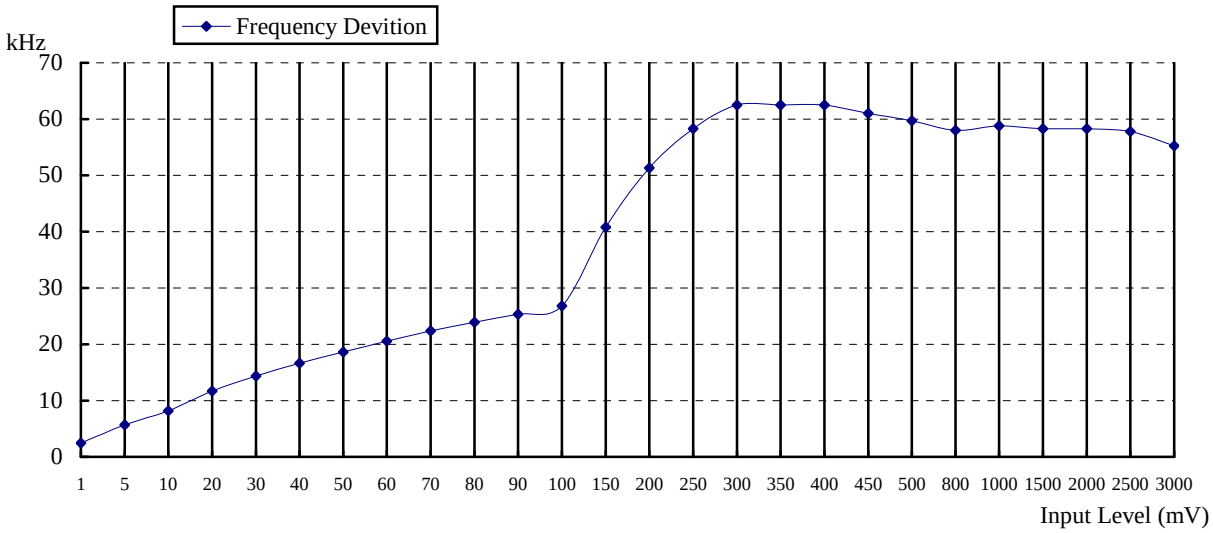
5.4 Bandwidth Measured

5.4.1 Input Level Derived

RF Frequency : 614.225MHz;

Test Date : May 14, 2014 Temperature : 20 °C Humidity : 60 %

Input Audio Frequency : 2.5 kHz, Sine Wave

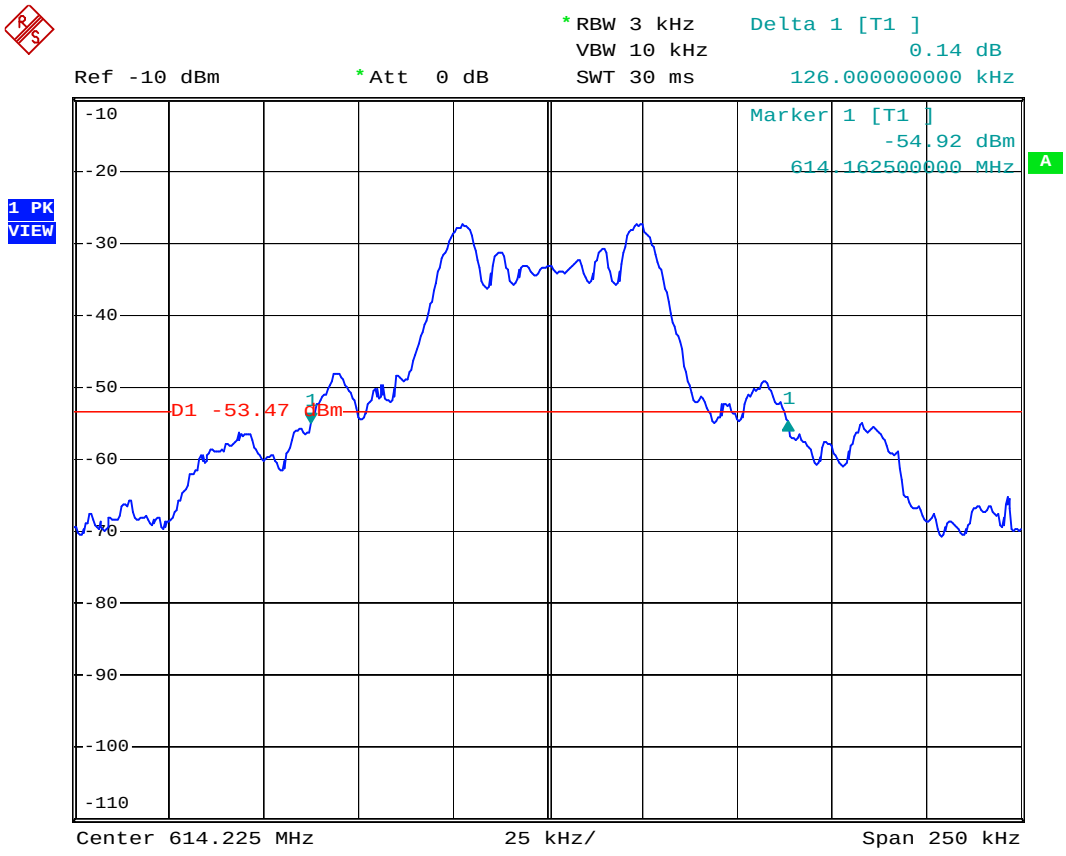


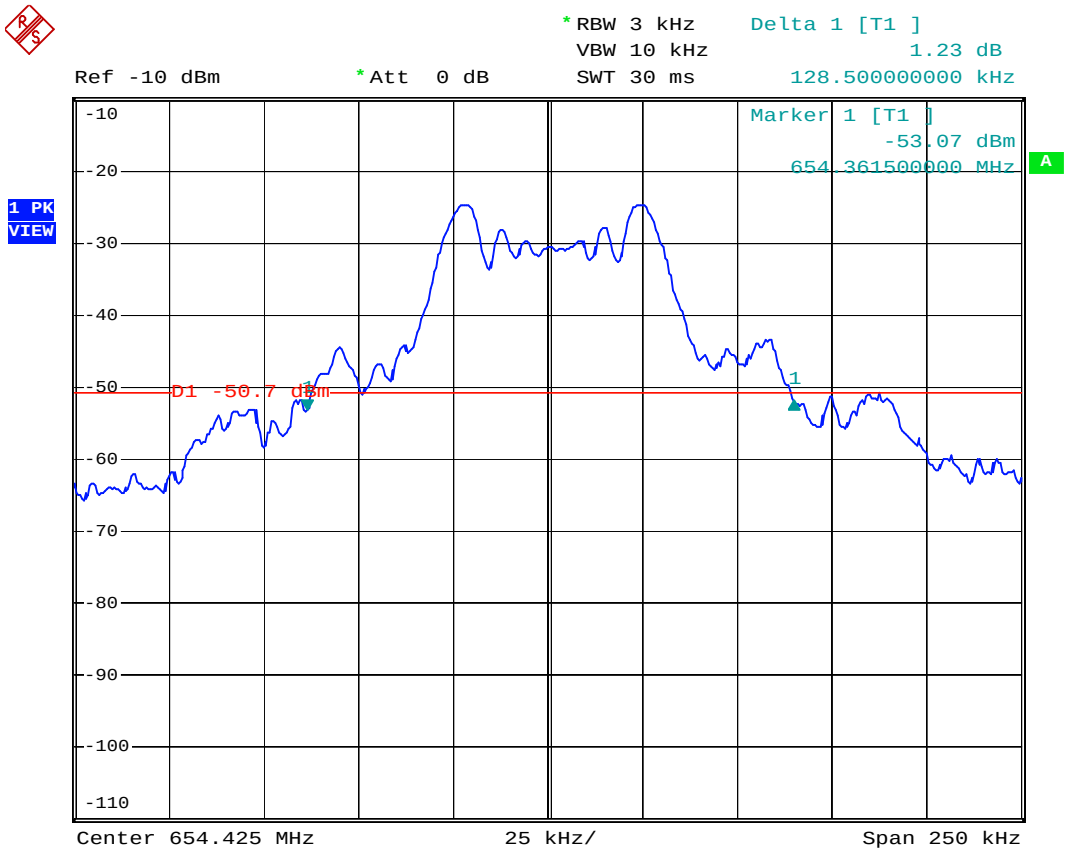
The Level input to produce 50% modulation is 100 mV, therefore the magnitude 16 dB greater than it is 630 mV.

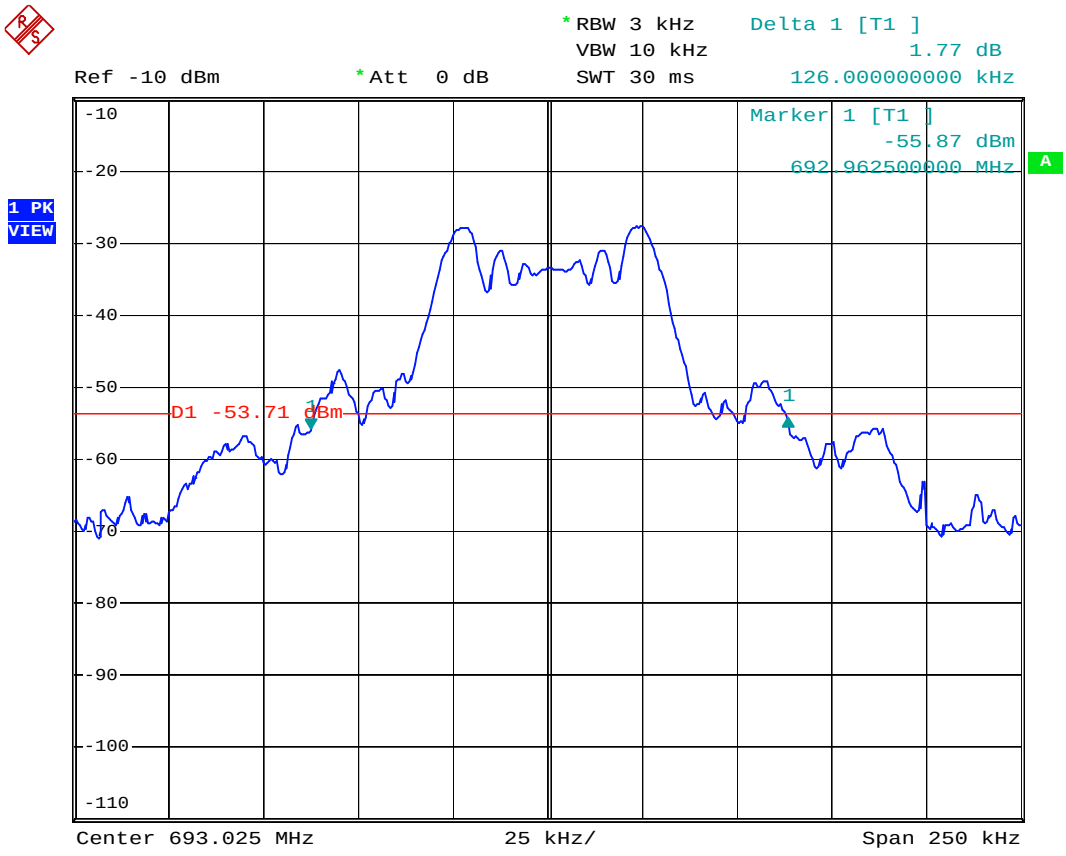
5.4.2 Occupied Bandwidth Plotted

Test Date : May 14, 2013 Temperature : 20 °C Humidity : 60 %

RF Frequency (MHz)	26 dB Bandwidth (kHz)
614.225	126.000kHz
654.425	128.500kHz
693.025	126.000kHz


*RBW 3 kHz
VBW 10 kHz
SWT 30 ms
Delta 1 [T1]
0.14 dB
126.000000000 kHz
Ref -10 dBm
*Att 0 dB
Marker 1 [T1]
-54.92 dBm
614.162500000 MHz
1 PK
VIEW
A
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
D1 -53.47 dBm
Center 614.225 MHz
25 kHz/
Span 250 kHz


*RBW 3 kHz
VBW 10 kHz
SWT 30 ms
Delta 1 [T1]
1.23 dB
128.500000000 kHz
Ref -10 dBm
*Att 0 dB
Marker 1 [T1]
-53.07 dBm
654.361500000 MHz
A
1 PK
VIEW
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
D1 -50.7 dBm
1
Center 654.425 MHz
25 kHz/
Span 250 kHz


*RBW 3 kHz
VBW 10 kHz
SWT 30 ms
Delta 1 [T1]
1.77 dB
126.000000000 kHz
Ref -10 dBm
*Att 0 dB
Marker 1 [T1]
-55.87 dBm
692.962500000 MHz
A
1 PK
VIEW
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
D1 -53.71 dBm
1
1
Center 693.025 MHz
25 kHz/
Span 250 kHz

6. FIELD STRENGTH OF EMISSION

6.1 Provisions Applicable

According to §2.1053, measurements shall be made to detect spurious emission that may be radiated directly from the cabinet, control circuits, power leads, or intermediate circuit elements under normal condition of installation and operation. Information submitted shall include the relative radiated power of spurious emission with reference to the rated power output of the transmitter, assuming all emissions are radiated from a halfwave dipole antenna.

According to §74.861(e)(6), the mean power of emissions shall be attenuated below the mean output power of the transmitter in accordance with the follwing sceedule:

(i) 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.

(ii) 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.

(iii) on any frequency removed from the operating frequency by more than 250 percent of the authorized bandwidth shall be attenuated below the unmodulated carrier by at least 43 plus 10 Log(output power in watts) dB.

6.2 Measurement Procedure

1. Setup the configuration per figure 1 and 2 for frequencies measured below and above 1 GHz respectively, adjusting the input voltage to produce the maximum power as measured in chapter 3.
2. Adjust the analyzer for each frequency measured in chapter 6 on a 1 MHz frequency span and 1MHz resolution bandwidth.
3. The search antenna is to be raised and lowered over a range from 1 to 4 meters in horizontally polarized orientation. Position the highness when the highest value is indicated on spectrum analyzer, then change the orientation of EUT on test table over a range from 0 ° to 360 °, and record the highest value indicated on spectrum analyzer as reference value.
4. Repeat step 3 until all frequencies need to be measured were complete.
5. Repeat step 4 with search antenna in vertical polarized orientations.
6. Replace the EUT with a tuned dipole antenna (horn antenna for above 1 GHz) relative to each frequency in horizontally polarized orientation and as the same polarized orientation with search antenna. Connect the tuned dipole antenna to a standard signal generator (SG) via a low loss cable. Power on the SG and tune the right frequency in measuring as well as set SG at a appreciated output level. Rise and lower the search antenna to get the highest value on spectrum analyzer, and then hold this position. Adjust the SG output to get a identical value derived from step 3 on spectrum analyzer. Record this value for result calculated.

7. Repeat step 6 until all frequencies need to be measured were complete.
8. Repeat step 7 with both dipole antenna (horn antenna for above 1 GHz) and search antenna in vertical polarized orientations.

6.3 Measuring Instrument

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Spectrum Analyzer	Rohde & Schwarz	FSP40	2014/01/21	2015/01/20
Double Ridged Antenna	EMCO	3115	2013/08/02	2014/08/01
Double Ridged Antenna	EMCO	3115	2014/04/29	2015/04/28
Log-periodic Antenna	EMCO	3146	2013/10/25	2014/10/24
Biconical Antenna	EMCO	3110	2013/10/25	2014/10/24
Dipole Antenna	Schwarzbeck	897;898	2013/09/07	2014/09/07
Amplifier	HP	8449B	2014/01/15	2015/01/14
Amplifier	HP	8447D	2014/05/03	2015/05/02
Signal generator	HP	83732B	2013/09/14	2014/09/13

Measuring instrument setup in frequency band measured is as following :

Frequency Band (MHz)	Instrument	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	Spectrum Analyzer	Peak	100 kHz	100 kHz
Above 1000	Spectrum Analyzer	Peak	1 MHz	1 MHz

6.4 Measuring Data

6.4.1. Emission Test Data

a. Tx Frequency: 614.225MHz

Operated mode : TX
Temperature : 20°C
Test Date :May 06, 2014
Humidity : 62%

Unmodulated carrier output power is -3.5 dBm , or 0.447 mW (ERP).
The limit of spurious or harmonics is calculated as following :
-3.5-[43+10log(carrier output power in W)], or -13dBm

Frequency (MHz)	Meter Reading (dBuV) H	V	SG Reading (dBm) H	V	Amp Gain (dB)	Antenna Gain (dB)	Antenna Gain Corr'	Cable Loss (dB)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
1228.450	48.9	49.2	-62.7	-62.4	---	6.6	-2.0	2.3	-58.4	-60.1	-13.0	-45.4
1842.675	---	---	---	---	---	7.6	-2.0	2.9	---	---	-13.0	---
2456.900	---	---	---	---	---	9.1	-2.0	3.3	---	---	-13.0	---
3071.125	---	---	---	---	---	9.0	-2.0	3.8	---	---	-13.0	---
3685.350	---	---	---	---	---	9.2	-2.0	4.1	---	---	-13.0	---
4299.575	---	---	---	---	---	9.6	-2.0	4.5	---	---	-13.0	---
4913.800	---	---	---	---	---	9.7	-2.0	4.8	---	---	-13.0	---
5528.025	---	---	---	---	---	10.0	-2.0	5.1	---	---	-13.0	---
6142.250	---	---	---	---	---	10.8	-2.0	5.4	---	---	-13.0	---

Note :
1. Remark "---" means that the emission level is too weak to be detected.
2. For measured frequency below 1GHz, a tuned dipole antenna is used.
3. Result calculation is as following :
   Result = SG Reading +Cable Loss +Antenna Gain +Antenna Gain Corrected
   Antenna Gain Corrected : is used for antenna other than dipole to convert radiated power to ERP.

b. Tx Frequency: 654.425 MHz

Operated mode : TX Test Date :May 06, 2014
Temperature : 20°C Humidity : 62%

Unmodulated carrier output power is -10.8 dBm , or 0.083 mW (ERP).
The limit of spurious or harmonics is calculated as following :
-10.8-[43+10log(carrier output power in W)], or -13dBm

Frequency (MHz)	Meter Reading (dBuV) H	V	SG Reading (dBm) H	V	Amp Gain (dB)	Antenna Gain	Antenna Gain Corr'	Cable Loss (dB)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
1308.850	48.6	49.1	-62.7	-62.1	---	7.0	-2.0	2.4	-60.1	-59.5	-13.0	-46.5
1963.275	---	---	---	---	---	7.5	-2.0	3.0	---	---	-13.0	---
2617.700	---	---	---	---	---	9.2	-2.0	3.4	---	---	-13.0	---
3272.125	---	---	---	---	---	9.2	-2.0	3.9	---	---	-13.0	---
3926.550	---	---	---	---	---	9.0	-2.0	4.3	---	---	-13.0	---
4580.975	---	---	---	---	---	10.0	-2.0	4.6	---	---	-13.0	---
5235.400	---	---	---	---	---	9.8	-2.0	5.0	---	---	-13.0	---
5889.825	---	---	---	---	---	10.6	-2.0	5.3	---	---	-13.0	---
6544.250	---	---	---	---	---	10.9	-2.0	5.6	---	---	-13.0	---

Note :
1. Remark "---" means that the emission level is too weak to be detected.
2. For measured frequency below 1GHz, a tuned dipole antenna is used.
3. Result calculation is as following :
   Result = SG Reading +Cable Loss +Antenna Gain +Antenna Gain Corrected
   Antenna Gain Corrected : is used for antenna other than dipole to convert radiated power to ERP.

c. Tx Frequency: 693.025 MHz

Operated mode : TX Test Date :May 06, 2014
Temperature : 20°C Humidity : 62%

Unmodulated carrier output power is -5.4 dBm , or 0.288 mW (ERP).
The limit of spurious or harmonics is calculated as following :

-5.4-[43+10log(carrier output power in W)], or -13dBm

Frequency (MHz)	Meter Reading (dBuV) H	V	SG Reading (dBm) H	V	Amp Gain (dB)	Antenna Gain	Antenna Gain Corr'	Cable Loss (dB)	Result (dBm) H	V	Limit (dBm)	Margin (dB)
1386.050	48.0	51.1	-62.9	-59.8	---	7.3	-2.0	2.4	-60.0	-56.9	-13.0	-43.9
2079.075	---	---	---	---	---	7.8	-2.0	3.0	---	---	-13.0	---
2772.100	---	---	---	---	---	9.1	-2.0	3.5	---	---	-13.0	---
3465.125	---	---	---	---	---	9.4	-2.0	4.0	---	---	-13.0	---
4158.150	---	---	---	---	---	9.3	-2.0	4.4	---	---	-13.0	---
4851.175	---	---	---	---	---	9.8	-2.0	4.8	---	---	-13.0	---
5544.200	---	---	---	---	---	10.1	-2.0	5.1	---	---	-13.0	---
6237.225	---	---	---	---	---	10.8	-2.0	5.4	---	---	-13.0	---
6930.250	---	---	---	---	---	10.6	-2.0	5.8	---	---	-13.0	---

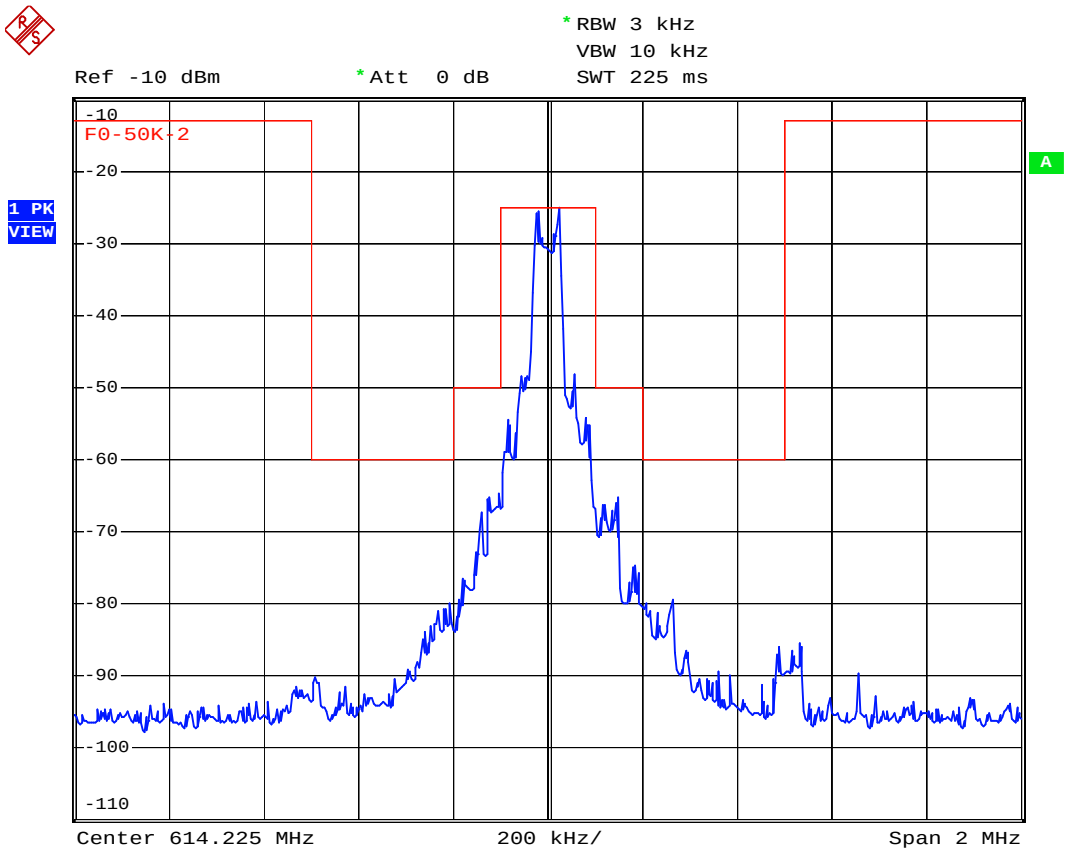
Note :

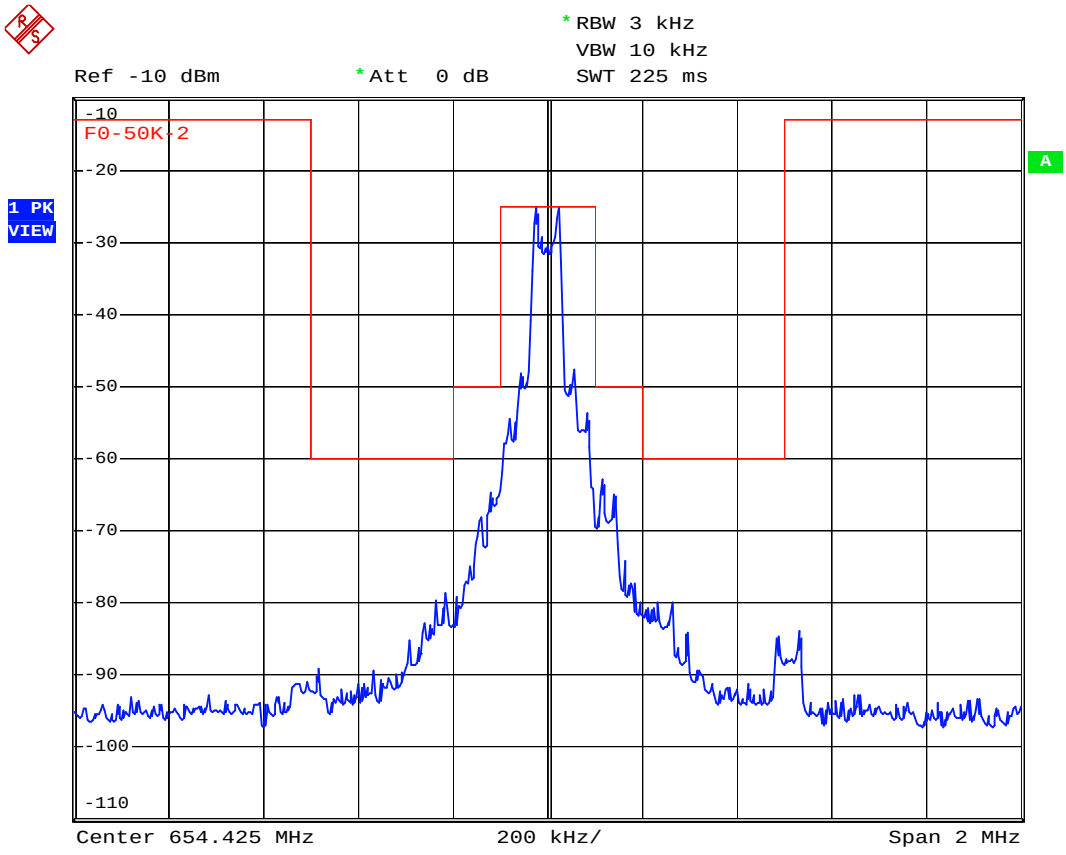
1. Remark "---" means that the emission level is too weak to be detected.
2. For measured frequency below 1GHz, a tuned dipole antenna is used.
3. Result calculation is as following :

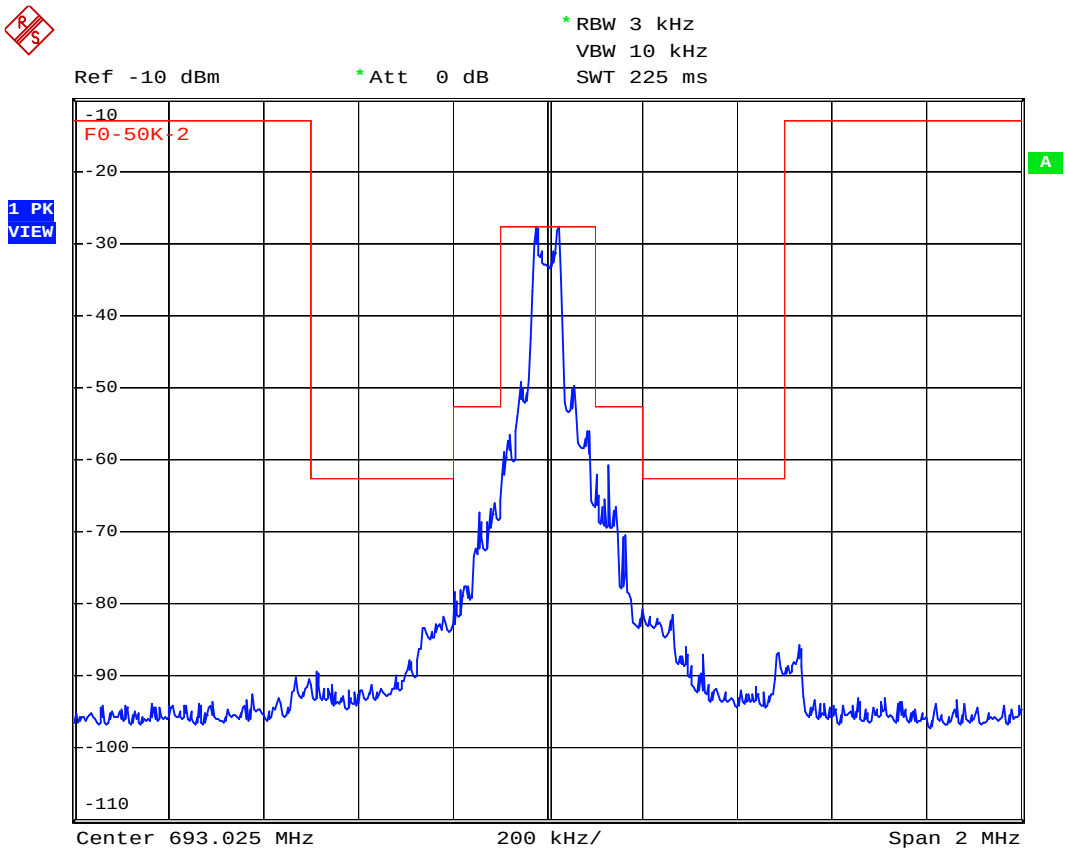
   Result = SG Reading +Cable Loss +Antenna Gain +Antenna Gain Corrected

   Antenna Gain Corrected : is used for antenna other than dipole to convert radiated power to ERP.

6.4.2 Emission mask plots



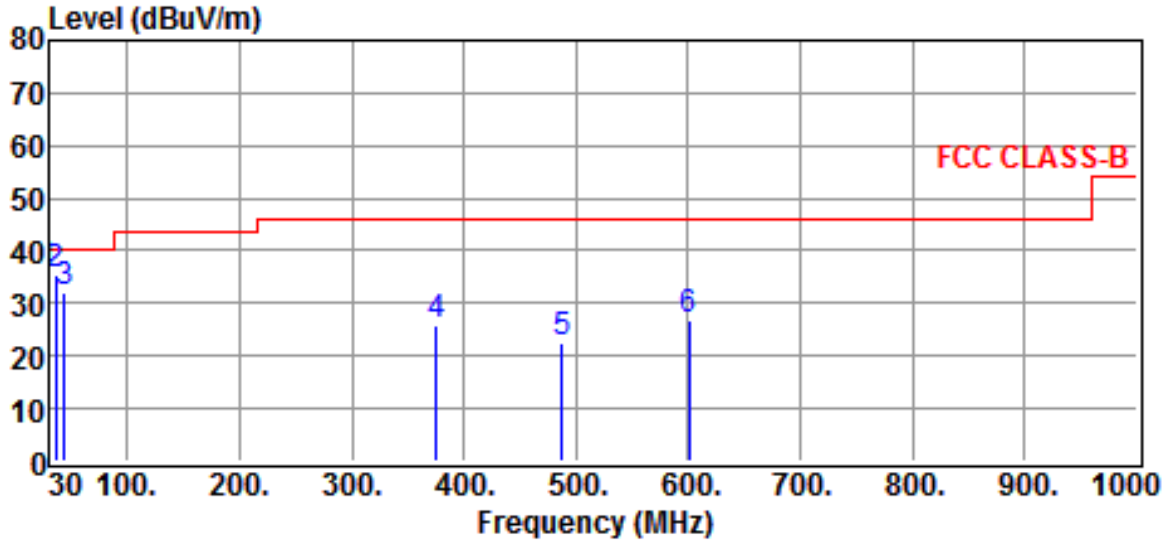

*RBW 3 kHz
VBW 10 kHz
Ref -10 dBm
*Att 0 dB
SWT 225 ms
-10
F0-50K-2
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
1 PK
VIEW
A
Center 654.425 MHz
200 kHz/
Span 2 MHz


*RBW 3 kHz
VBW 10 kHz
Ref -10 dBm
*Att 0 dB
SWT 225 ms
-10
F0-50K-2
A
1 PK
VIEW
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
Center 693.025 MHz
200 kHz/
Span 2 MHz

6.5 Other Emission

a) Emission frequencies below 1 GHz

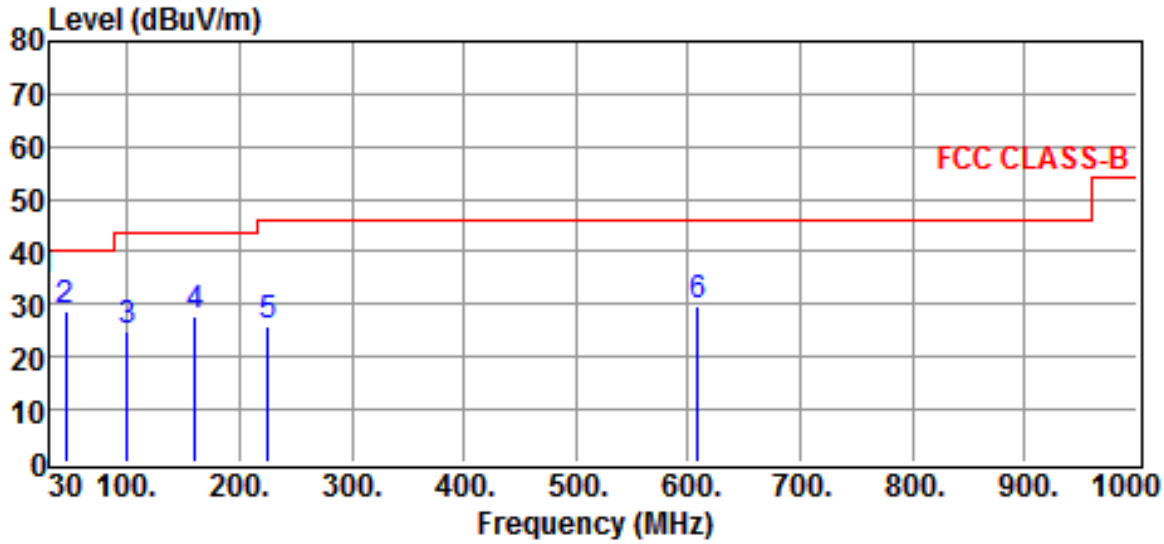
Test Date : May 06, 2014 Temperature : 20 °C Humidity : 62 %



Site	:Open Site	Date	:2014-05-06
EUT	:Wireless Microphone	Ant. Pol.	:HORIZONTAL
Model	:WM-915	Detector	:Jiapeng
Power Rating	:DC 3.0V	Engineer	:TX
Limit	:FCC CLASS-B	Temp.	:20˚C
Memo	:	Humi.	:62 %

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
30.0000	19.9	15.9	35.8	40.0	-4.2	QP
35.8200	21.2	14.4	35.6	40.0	-4.4	QP
43.5800	19.0	12.9	31.9	40.0	-8.1	QP
375.3200	7.4	18.5	25.9	46.0	-20.1	QP
487.8400	1.1	21.3	22.4	46.0	-23.6	QP
600.3600	3.9	23.0	26.9	46.0	-19.1	QP

Note :
1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss
3. The margin value=Limit - Result



Site	:Open Site	Date	:2014-05-06
EUT	:Wireless Microphone	Ant. Pol.	:VERTICAL
Model	:WM-915	Detector	:Jiapeng
Power Rating	:DC 3.0V	Engineer	:TX
Limit	:FCC CLASS-B	Temp.	:20°C
Memo	:	Humi.	:62 %

Freq MHz	Reading dBuV	Correction Factor dB	Result dBuV/m	Limits dBuV/m	Over limit dB	Detector
30.0000	18.4	15.9	34.3	40.0	-5.7	QP
45.5200	16.2	12.6	28.8	40.0	-11.2	QP
99.8400	13.3	11.4	24.7	43.5	-18.8	QP
159.9800	13.8	14.2	28.0	43.5	-15.5	QP
225.9400	11.6	14.2	25.8	46.0	-20.2	QP
608.1200	6.7	23.1	29.8	46.0	-16.2	QP

Note :
1. Result = Reading + Corrected Factor
2. Corrected Factor = Antenna Factor + Cable Loss
3. The margin value=Limit - Result

b) Emission frequencies above 1 GHz

Radiated emission frequencies above 1 GHz to 25 GHz were too low to be measured with a pre-amplifier of 35 dB.

6.6 Radiated Measurement Photos

7. FREQUENCY STABILITY MEASUREMENT

7.1 Provisions Applicable

According to §2.1055 (a)(1), the frequency stability shall be measured with variation of ambient temperature from -30℃to +50℃centigrade, and according to §2.1055 (d)(2), the frequency stability shall be measured with variation of primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.

According to §74.861(e)(4), the frequency tolerance of the transmitter shall be 0.005 percent.

7.2 Measurement Procedure

A) Frequency stability versus environmental temperature

1. Setup the configuration per figure 5 for frequencies measured at ambient temperature if it is within 15℃to 25℃. Otherwise, an environmental chamber set for a temperature of 20℃shall be used.

2. Turn on EUT and set SA center frequency to the right frequency needs to be measured. Then set SA RBW to 30 kHz, VBW to 100kHz and frequency span to 500 kHz. Record this frequency to be a reference.

3. Set the temperature of chamber to 50℃. Allow sufficient time (approximately 30 min) for the temperature of the chamber to stabilize. While maintaining a constant temperature inside the chamber, turn the EUT on and measure the EUT operating frequency.

4. Repeat step 2 with a 10℃decreased per stage until the lowest temperature -30℃is measured, record all measurement frequencies.

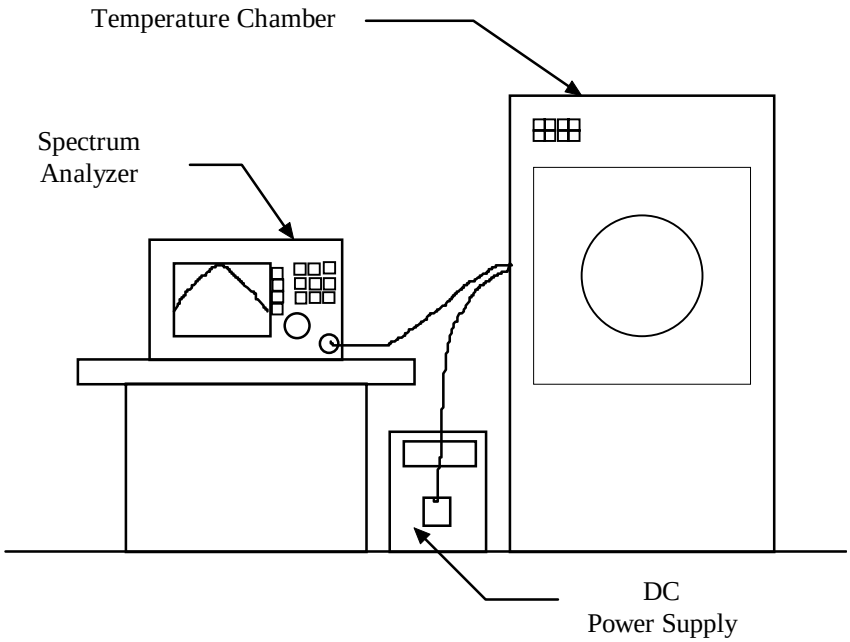
B) Frequency stability versus input voltage

1. Setup the configuration per figure 7 for frequencies measured at ambient temperature if it is within 15℃to 25℃. Otherwise, an environmental chamber set for a temperature of 20℃shall be used. Install new batteries in the EUT.

2. Set SA center frequency to the right frequency needs to be measured. Then set SA RBW to 30 kHz, VBW to 100kHz and frequency span to 500 kHz. Record this frequency to be a reference.

3. For non hand carried, battery operated device, supply the EUT primary voltage with 85 and 115 percent of the nominal value and record the frequency.

Figure 5 : Frequency stability measurement configuration



7.3 Measurement Instrument

Equipment	Manufacturer	Model No.	Calibration Date	Next Cal. Date
Spectrum Analyzer	Rohde & Schwarz	FSP40	2014/01/21	2015/01/20
Temperature Chamber	MALLIER	MCT-2X-M	2014/05/03	2015/05/02

7.4 Measurement Data

Test Date : May 07, 2014 Temperature : 20 °C Humidity : 62 %

A. Tx Frequency 614.225MHz

A1. Frequency stability versus enviroment tempture

Reference Frequency :614.225 MHz		Limit：0.005%					
Enviroment	Power	Frequency measured with time elapsed					
Tempture	Supplied	2 minute		5 minute		10 minute	
(℃)	(Vdc)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	3.0	614.2359	0.00177	614.2274	0.00039	614.2399	0.00242
40		614.2373	0.00200	614.2355	0.00171	614.2368	0.00192
30		614.2455	0.00334	614.2089	-0.00263	614.2100	-0.00245
20		614.2244	-0.00009	614.2330	0.00130	614.2381	0.00214
10		614.2119	-0.00213	614.2322	0.00116	614.2421	0.00279
0		614.2318	0.00110	614.2240	-0.00016	614.2221	-0.00046
-10		614.2254	0.00007	614.2247	-0.00006	614.2021	-0.00373
-20		614.2025	-0.00366	614.2078	-0.00279	614.2211	-0.00064
-30		614.2058	-0.00313	614.2063	-0.00304	614.2074	-0.00287

A2. Frequency stability versus supplied voltage (85% - 115%)

Reference Frequency : 614.225 MHz		Limit：0.005%					
Enviroment	Power	Frequency measured with time elapsed					
Tempture	Supplied	2 minute		5 minute		10 minute	
(℃)	(Vac)	(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
25	2.55	614.2040	-0.00343	614.2123	-0.00206	614.2330	0.00131
25	3.45	614.2403	0.00250	614.2474	0.00364	614.2458	0.00339

Test Date : May 07, 2014 Temperature : 20 °C Humidity : 62 %

B. Tx Frequency 654.425MHz

B1. Frequency stability versus enviroment tempture

Reference Frequency : 654.425MHz		Limit：0.005%					
Enviroment Tempture (℃)	Power Supplied (Vdc)	Frequency measured with time elapsed					
		2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	3.0	654.4040	-0.00321	654.4007	-0.00372	654.4316	0.00101
40		654.4431	0.00277	654.4087	-0.00248	654.4321	0.00108
30		654.4163	-0.00133	654.4322	0.00110	654.4179	-0.00108
20		654.4083	-0.00256	654.4480	0.00351	654.4385	0.00207
10		654.4413	0.00250	654.4432	0.00278	654.4334	0.00129
0		654.4188	-0.00095	654.4059	-0.00292	654.4023	-0.00348
-10		654.4143	-0.00164	654.4175	-0.00115	654.4300	0.00077
-20		654.4203	-0.00072	654.4094	-0.00239	654.4478	0.00348
-30		654.4249	-0.00001	654.4451	0.00308	654.4263	0.00019

B2. Frequency stability versus supplied voltage (85% - 115%)

Reference Frequency : 654.425MHz		Limit：0.005%					
Enviroment Tempture (℃)	Power Supplied (Vac)	Frequency measured with time elapsed					
		2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
25	2.55	654.4217	-0.00050	654.4439	0.00289	654.4117	-0.00204
25	3.45	654.4154	-0.00146	654.4443	0.00295	654.4196	-0.00082

Test Date : May 07, 2014 Temperature : 20 °C Humidity : 62 %

C. Tx Frequency 693.025MHz

C1. Frequency stability versus enviroment tempture

Reference Frequency : 693.025 MHz		Limit：0.005%					
Enviroment Tempture (℃)	Power Supplied (Vdc)	Frequency measured with time elapsed					
		2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
50	3.0	693.0414	0.00237	693.0277	0.00039	693.0337	0.00126
40		693.0437	0.00270	693.0331	0.00116	693.0107	-0.00207
30		693.0496	0.00355	693.0148	-0.00147	693.0193	-0.00082
20		693.0328	0.00113	693.0036	-0.00309	693.0150	-0.00144
10		693.0411	0.00232	693.0339	0.00128	693.0424	0.00251
0		693.0300	0.00072	693.0421	0.00246	693.0416	0.00240
-10		693.0385	0.00195	693.0301	0.00073	693.0488	0.00344
-20		693.0266	0.00022	693.0213	-0.00053	693.0371	0.00175
-30		693.0381	0.00188	693.0147	-0.00149	693.0102	-0.00213

C2. Frequency stability versus supplied voltage (85% - 115%)

Reference Frequency : 693.025 MHz		Limit：0.005%					
Enviroment Tempture (℃)	Power Supplied (Vac)	Frequency measured with time elapsed					
		2 minute		5 minute		10 minute	
		(MHz)	(%)	(MHz)	(%)	(MHz)	(%)
25	2.55	693.0170	-0.00115	693.0491	0.00348	693.0376	0.00182
25	3.45	693.0500	0.00361	693.0127	-0.00178	693.0245	-0.00007

8 CONDUCTED EMISSION MEASUREMENT

8.1 Standard Applicable

This EUT is excused from investigation of conducted emission, for it is powered by DC battery only. According to §15.207 (d), measurements to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.