



# FCC PART 90

## TEST REPORT

For

### SHENZHEN COVALUE COMMUNICATIONS CO., LTD.

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Shenzhen, Guangdong, China

**FCC ID: Y4GCU780-1**

<b>Report Type:</b> Original Report	<b>Product Type:</b> Two way radio
<b>Test Engineer:</b> <u>Brown Lu</u>	<i>Brown Lu</i>
<b>Report Number:</b> <u>R1DG121022010-00</u>	
<b>Report Date:</b> <u>2013-03-22</u>	
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**Note:** This test report is prepared for the customer shown above and for the equipment described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP\*, or any agency of the Federal Government.

\* This report may contain data that are not covered by the NVLAP accreditation and shall be marked with an asterisk "★"

**TABLE OF CONTENTS**

**GENERAL INFORMATION.....4**

    PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT).....4

    OBJECTIVE .....4

    RELATED SUBMITTAL(S)/GRANT(S).....4

    TEST METHODOLOGY .....4

    TEST FACILITY .....5

**SYSTEM TEST CONFIGURATION.....6**

    DESCRIPTION OF TEST CONFIGURATION .....6

    EQUIPMENT MODIFICATIONS .....6

    BLOCK DIAGRAM OF TEST SETUP .....6

**SUMMARY OF TEST RESULTS.....7**

**FCC §1.1307(b) & §2.1093 - RF EXPOSURE.....8**

    APPLICABLE STANDARD .....8

**FCC §2.1046 & §90.205- RF OUTPUT POWER.....9**

    APPLICABLE STANDARD .....9

    TEST PROCEDURE .....9

    TEST EQUIPMENT LIST AND DETAILS.....9

    TEST DATA .....9

**FCC §2.1047 & §90.207 - MODULATION CHARACTERISTIC.....11**

    APPLICABLE STANDARD .....11

    TEST PROCEDURE .....11

    TEST EQUIPMENT LIST AND DETAILS.....11

    TEST DATA .....11

**FCC §2.1049, §90.209 & §90.210 – OCCUPIED BANDWIDTH & EMISSION MASK .....18**

    APPLICABLE STANDARD .....18

    TEST PROCEDURE .....18

    TEST EQUIPMENT LIST AND DETAILS.....19

    TEST DATA .....19

**FCC §2.1051 & §90.210 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS .....22**

    APPLICABLE STANDARD .....22

    TEST PROCEDURE .....22

    TEST EQUIPMENT LIST AND DETAILS.....22

    TEST DATA .....22

**FCC §2.1053 & §90.210 - RADIATED SPURIOUS EMISSIONS .....24**

    APPLICABLE STANDARD .....24

    TEST PROCEDURE .....24

    TEST EQUIPMENT LIST AND DETAILS.....24

    TEST DATA .....24

**FCC §2.1055 & §90.213- FREQUENCY STABILITY.....26**

    APPLICABLE STANDARD .....26

    TEST PROCEDURE .....26

    TEST EQUIPMENT LIST AND DETAILS.....26

    TEST DATA .....26

**FCC §90.214 - TRANSIENT FREQUENCY BEHAVIOR.....28**

APPLICABLE STANDARD .....28  
TEST EQUIPMENT LIST AND DETAILS.....28  
TEST PROCEDURE .....28  
TEST DATA .....28

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## GENERAL INFORMATION

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### Product Description for Equipment under Test (EUT)

The *SHENZHEN COVALUE COMMUNICATIONS CO., LTD.*'s product, model number: *CU780-1 (FCC ID: Y4GCU780-1)* (the "EUT") in this report was a *Two way radio*, which was measured approximately: 13.5 cm (L) x 6.5 cm (W) x 4.2 cm (H), rated input voltage: DC 7.4 V Li-ion battery.

Technical specifications:

Frequency range: 136-174 MHz

Output power: 1.079 W (Low), 5.383 W (High) (Conducted power)

Modulation: FM E<sub>j</sub> cpp

Channel spacing: 12.5 kHz

*\* All measurement and test data in this report was gathered from production sample serial number: 121022010 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2012-10-22.*

### Objective

This test report is prepared on behalf of *SHENZHEN COVALUE COMMUNICATIONS CO., LTD.* in accordance with Part 2 and Part 90 of the Federal Communication Commissions rules.

### Related Submittal(s)/Grant(s)

No related submittal(s).

### Test Methodology

All tests and measurements indicated in this document were performed in accordance with the Code of federal Regulations Title 47 Part 2, Sub-part J as well as the following individual parts:

Part 90 – Private Land Mobile Radio Service

Applicable Standards: TIA 603-D and ANSI 63.4-2009.

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Shenzhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

## Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on December 06, 2010. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2003.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 382179. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



The current scope of accreditations can be found at <http://ts.nist.gov/Standards/scopes/2007070.htm>.

## SYSTEM TEST CONFIGURATION

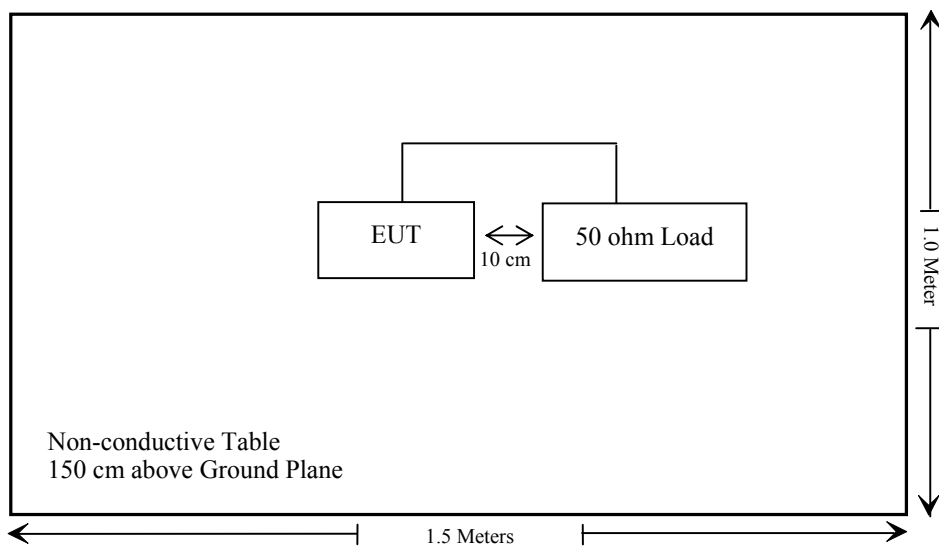
### Description of Test Configuration

The system was configured for testing in a test mode which has been done in the factory.

### Equipment Modifications

No modification was made to the EUT tested.

### Block Diagram of Test Setup



**SUMMARY OF TEST RESULTS**

<b>FCC Rules</b>	<b>Description of Test</b>	<b>Results</b>
§1.1307 (b); §2.1093	RF Exposure	Compliance
§2.1046; §90.205	RF Output Power	Compliance
§2.1047; §90.207	Modulation Characteristic	Compliance
§2.1049; §90.209; §90.210	Occupied Bandwidth & Emission Mask	Compliance
§2.1051; §90.210	Spurious Emission at Antenna Terminal	Compliance
§2.1053; §90.210	Spurious Radiated Emissions	Compliance
§2.1055; §90.213	Frequency Stability	Compliance
§90.214	Transient Frequency Behavior	Compliance

Note: The uncertainty of any RF tests which use conducted method measurement is 0.96 dB.

The uncertainty of any radiation emissions measurement is 4.0 dB.

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## **FCC §1.1307(b) & §2.1093 - RF EXPOSURE**

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### **Applicable Standard**

According to FCC §1.1307(b) and §2.1093, portable device operates Part 90 should be subjected to routine environmental evaluation for RF exposure prior or equipment authorization or use.

**Result:** Compliance.

Please refer to SAR Report Number: R12120312-FCC-SAR.



## **FCC §2.1046 & §90.205- RF OUTPUT POWER**

### **Applicable Standard**

FCC §2.1046 and §90.205.

### **Test Procedure**

Conducted RF Output Power:

TIA-603-D section 2.2.1

Radiated method:

TIA 603-D section 2.2.17

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

Spectrum Analyzer setting:

<b><i>RBW</i></b>	<b><i>Video B/W</i></b>
100 kHz	300 kHz

### **Test Equipment List and Details**

<b>Manufacturer</b>	<b>Description</b>	<b>Model</b>	<b>Serial Number</b>	<b>Calibration Date</b>	<b>Calibration Due Date</b>
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2011-11-24	2012-11-23
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2014-11-27
HP	Synthesized Sweeper	8341B	2624A00116	2012-04-11	2013-04-10
COM POWER	Dipole Antenna	AD-100	041000	2012-06-06	2013-06-05

\* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Institute of Metrology (NIM)

### **Test Data**

#### **Environmental Conditions**

<b>Temperature:</b>	23~25 °C
<b>Relative Humidity:</b>	55~56 %
<b>ATM Pressure:</b>	100.0~100.1 kPa

*The testing was performed by Brown Lu on 2012-11-11 and 2013-02-20.*

Test Mode: Transmitting

Test Result: Compliance. Please refer to following table.

**Conducted Power:**

Channel Spacing (kHz)	Frequency (MHz)	Output Power (dBm)	Output Power (W)	Power level
12.5	136.5	37.25	5.309	High
	136.5	30.09	1.021	Low
	155.5	37.31	5.383	High
	155.5	30.25	1.059	Low
	173.5	37.21	5.260	High
	173.5	30.33	1.079	Low

**ERP: (High Power)**

Frequency (MHz)	Receiver	TurnTable	Rx Antenna		Substituted			Absolute Level (dBm)
	Reading (dBµV)	Angle Degree	Height (m)	Polar (H/V)	SG Level (dBm)	Cable loss (dB)	Antenna Gain (dB)	
<b>Channel Spacing: 12.5 kHz</b>								
136.5	102.19	150	1.5	V	17.1	0.26	0	16.84
155.5	113.25	178	1.6	V	29.2	0.27	0	28.93
173.5	97.26	283	1.7	V	15.3	0.28	0	15.02

## **FCC §2.1047 & §90.207 - MODULATION CHARACTERISTIC**

### **Applicable Standard**

FCC§2.1047 & §90.207:

- (a) Equipment which utilizes voice modulated communication shall show the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz. for equipment which is required to have a low pass filter, the frequency response of the filter, or all of the circuitry installed between the modulation limited and the modulated stage shall be supplied.
- (b) Equipment which employs modulation limiting, a curve showing the percentage of modulation versus the modulation input voltage shall be supplied.

### **Test Procedure**

Test Method: TIA/EIA-603 2.2.3

### **Test Equipment List and Details**

<b>Manufacturer</b>	<b>Description</b>	<b>Model No.</b>	<b>Serial No.</b>	<b>Calibration Date</b>	<b>Calibration Due Date</b>
HP	RF Communication Test Set	8920	3438A05201	2012-06-14	2013-06-13

\* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Institute of Metrology (NIM)

### **Test Data**

#### **Environmental Conditions**

<b>Temperature:</b>	23~25 °C
<b>Relative Humidity:</b>	55~56 %
<b>ATM Pressure:</b>	100.0~100.1 kPa

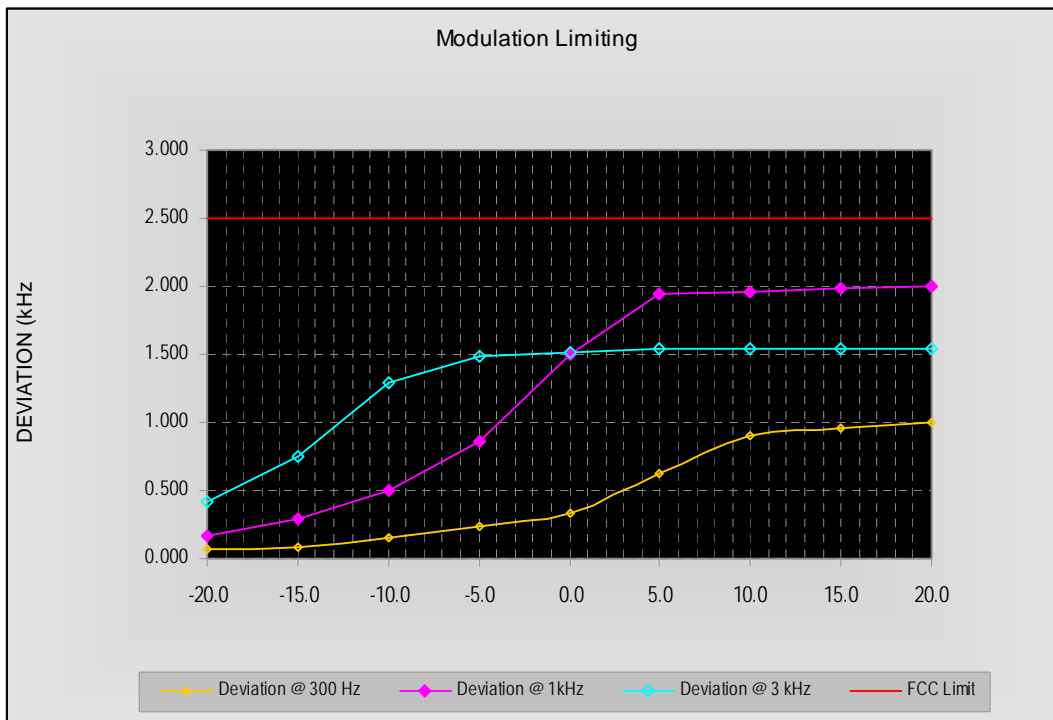
*The testing was performed by Brown Lu on 2012-11-11 and 2013-02-20.*

*Test Mode: Transmitting*

**MODULATION LIMITING**

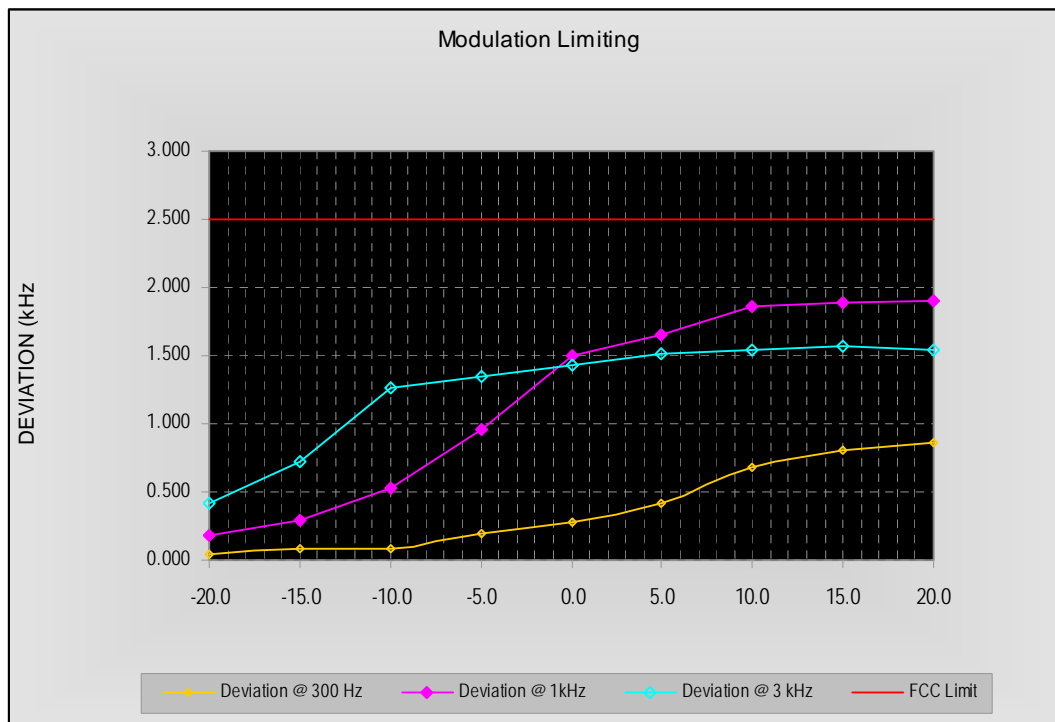
Carrier Frequency: 155.5 MHz, Channel Separation=12.5 kHz, Low Power

Audio Input Level (dB)	Frequency Deviation (kHz)			FCC Limit (kHz)
	@ 300 Hz	@ 1kHz	@ 3 kHz	
20.0	1.004	2.001	1.540	2.5
15.0	0.953	1.982	1.544	2.5
10.0	0.902	1.962	1.544	2.5
5.0	0.628	1.944	1.548	2.5
0.0	0.339	1.500	1.514	2.5
-5.0	0.233	0.864	1.493	2.5
-10.0	0.158	0.495	1.292	2.5
-15.0	0.087	0.289	0.745	2.5
-20.0	0.068	0.169	0.418	2.5



Carrier Frequency: 155.5 MHz, Channel Separation=12.5 kHz, High Power

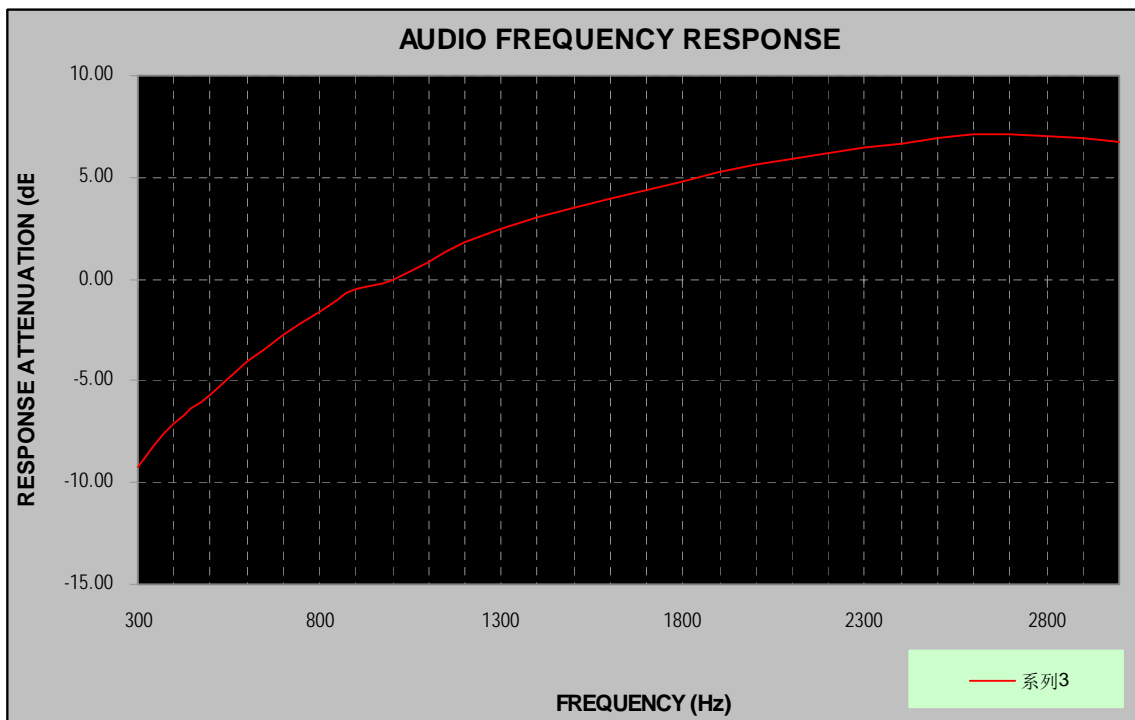
Audio Input Level (dB)	Frequency Deviation (kHz)			FCC Limit (kHz)
	@ 300 Hz	@ 1kHz	@ 3 kHz	
20.0	0.868	1.896	1.536	2.5
15.0	0.812	1.887	1.563	2.5
10.0	0.675	1.868	1.542	2.5
5.0	0.417	1.656	1.512	2.5
0.0	0.283	1.500	1.428	2.5
-5.0	0.192	0.956	1.342	2.5
-10.0	0.088	0.524	1.265	2.5
-15.0	0.078	0.287	0.723	2.5
-20.0	0.043	0.175	0.410	2.5



**Audio Frequency Response**

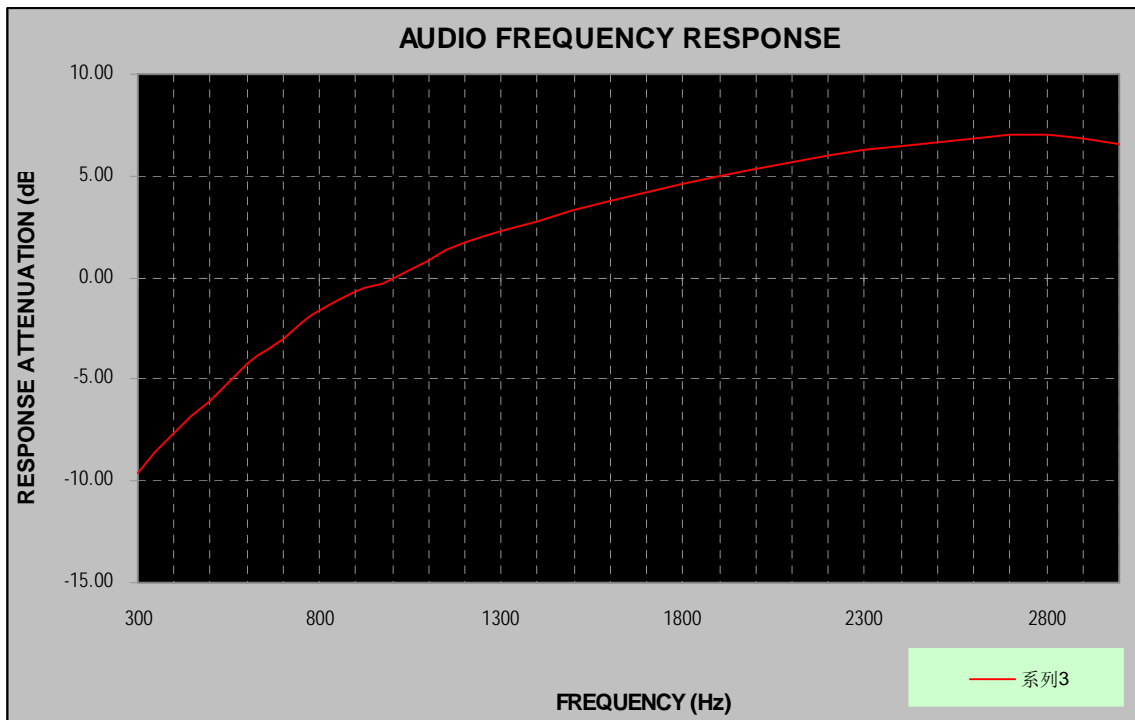
Carrier Frequency: 155.5 MHz, Channel Separation=12.5 kHz, Low Power

Audio Frequency (Hz)	Response Attenuation (dB)
300	-9.27
400	-7.13
500	-5.71
600	-4.01
700	-2.76
800	-1.58
900	-0.50
1000	0.00
1200	1.81
1400	3.01
1600	3.96
1800	4.84
2000	5.60
2200	6.21
2400	6.67
2600	7.10
2800	7.07
3000	6.78



Carrier Frequency: 155.5 MHz, Channel Separation=12.5 kHz, High Power

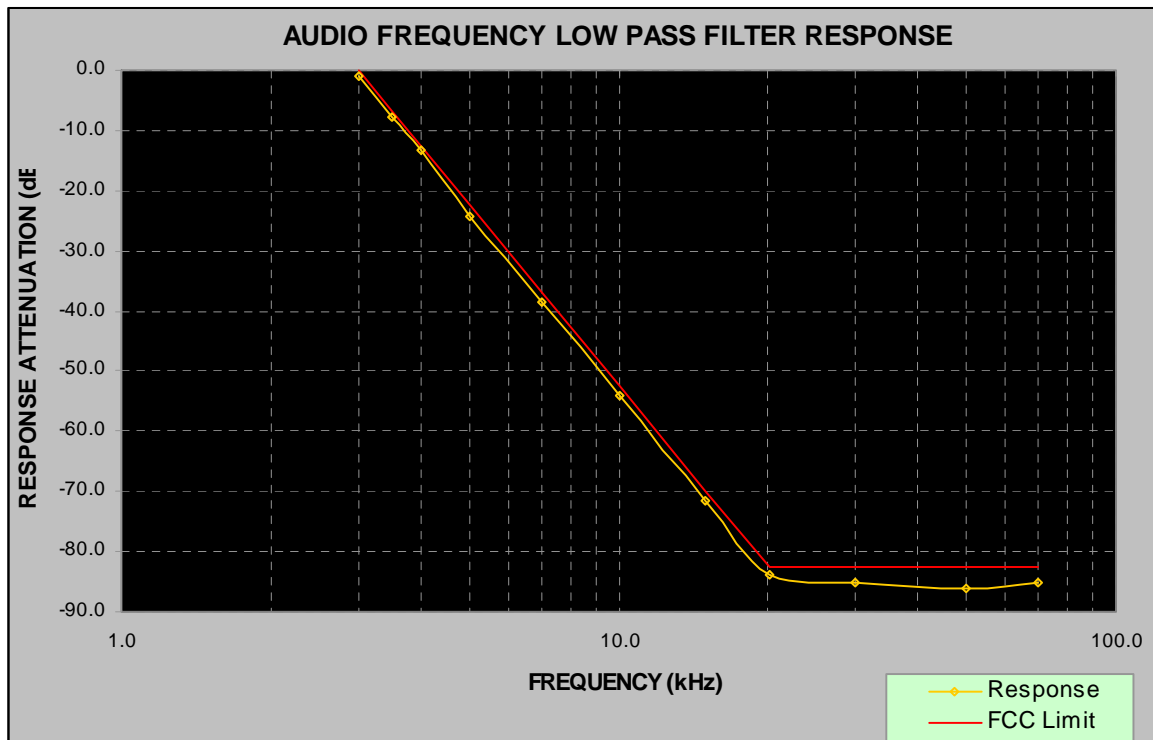
Audio Frequency (Hz)	Response Attenuation (dB)
300	-9.63
400	-7.62
500	-6.09
600	-4.24
700	-3.00
800	-1.64
900	-0.71
1000	0.00
1200	1.70
1400	2.77
1600	3.81
1800	4.63
2000	5.35
2200	5.97
2400	6.47
2600	6.82
2800	7.03
3000	6.56



**Audio Frequency Low Pass Filter Response**

Carrier Frequency: 155.5 MHz, Channel Separation=12.5 kHz, Low Power

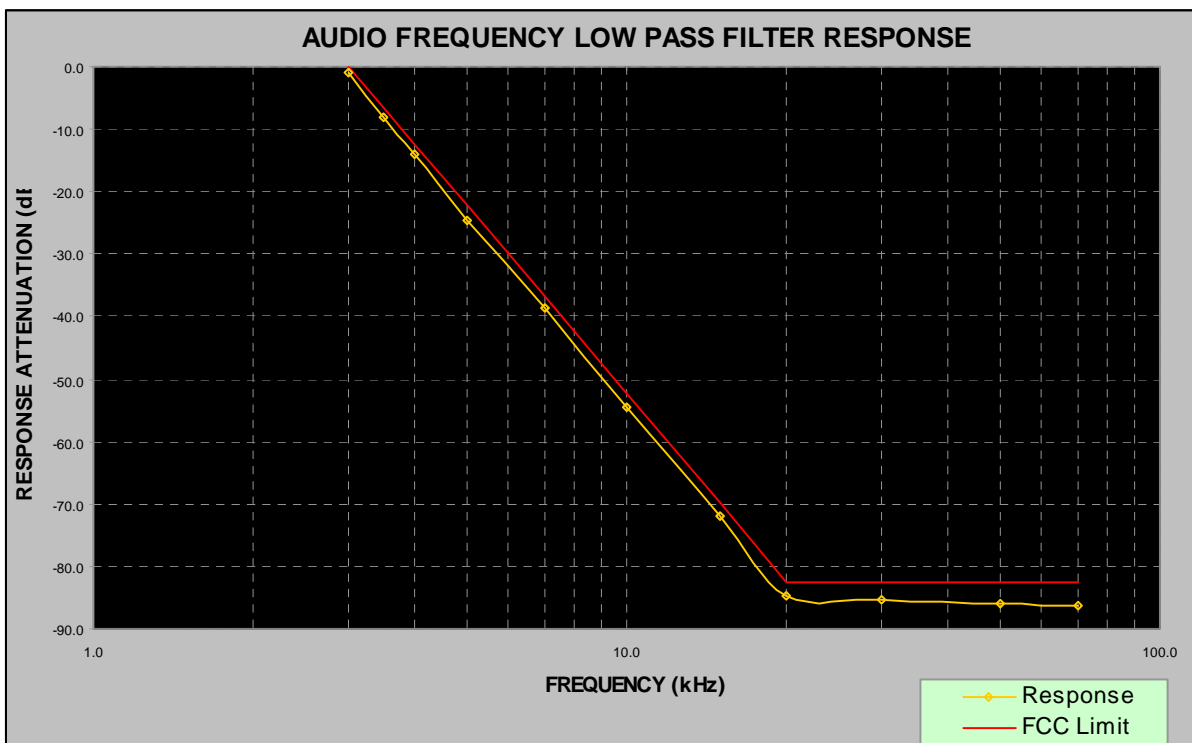
Audio Frequency (kHz)	Response Attenuation (dB)	FCC Limit (dB)
3.0	-1.0	0.0
3.5	-7.7	-6.7
4.0	-13.4	-12.5
5.0	-24.4	-22.2
7.0	-38.6	-36.8
10.0	-54.0	-52.3
15.0	-71.6	-69.9
20.0	-83.7	-82.5
30.0	-85.3	-82.5
50.0	-86.1	-82.5
70.0	-85.3	-82.5





Carrier Frequency: 155.5 MHz, Channel Separation=12.5 kHz, High Power

Audio Frequency (kHz)	Response Attenuation (dB)	FCC Limit (dB)
3.0	-0.9	0.0
3.5	-8.1	-6.7
4.0	-13.9	-12.5
5.0	-24.5	-22.2
7.0	-38.6	-36.8
10.0	-54.5	-52.3
15.0	-71.8	-69.9
20.0	-84.7	-82.5
30.0	-85.3	-82.5
50.0	-85.8	-82.5
70.0	-86.2	-82.5



## **FCC §2.1049, §90.209 & §90.210 – OCCUPIED BANDWIDTH & EMISSION MASK**

### **Applicable Standard**

FCC §2.1049, §90.209 and §90.210

Emission Mask D—12.5 kHz channel bandwidth equipment. For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

- 1) For any frequency removed from the center of the authorized bandwidth  $f_0$  to 5.625 kHz removed from  $f_0$ , 0dB.
- 2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of more than 5.626 kHz but no more than 12.5 kHz, at least  $7.27(f_d - 2.88)$  dB.
- 3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of more than 12.5 kHz at least:

$$50+10\log P$$

Emission Mask B. For transmitters that are equipped with an audio low-pass filter, the power of any emission must be attenuated below the unmodulated carrier power (P) as follows:

- 1) For any frequency removed from the center of the assigned channel 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 center of the assigned channel by more than 100 percent up to and including 250 percent, at least 35 dB.
- 3) On any frequency removed from the center of the assigned channel by more than 250 percent at least:

$$43+10\log P$$

The resolution bandwidth was 300 Hz or greater for measuring up to 250 kHz from the edge of the authorized frequency segment, and 30 kHz or greater for measuring more than 250 kHz from the authorized frequency segment.

### **Test Procedure**

The RF output of the transmitter was connected to the input of the spectrum analyzer through sufficient attenuation.

The resolution bandwidth of the spectrum analyzer was set at 100 Hz and the spectrum was recorded in the frequency band  $\pm 35$  kHz from the carrier frequency.

**Test Equipment List and Details**

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2011-11-24	2013-11-23
HP	RF Communication Test Set	8920	3438A05201	2012-06-14	2013-06-13

\* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Institute of Metrology (NIM)

**Test Data****Environmental Conditions**

<b>Temperature:</b>	20~25 °C
<b>Relative Humidity:</b>	50~56 %
<b>ATM Pressure:</b>	100.0~101.0 kPa

*The testing was performed by Brown Lu from 2012-10-28 to 2013-03-11.*

*Result: Compliance. Please refer to the following table and plot.*

Channel Spacing (kHz)	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Bandwidth (kHz)	Power level
12.5	155.5	5.21	10.12	High

**Emission Designator:**

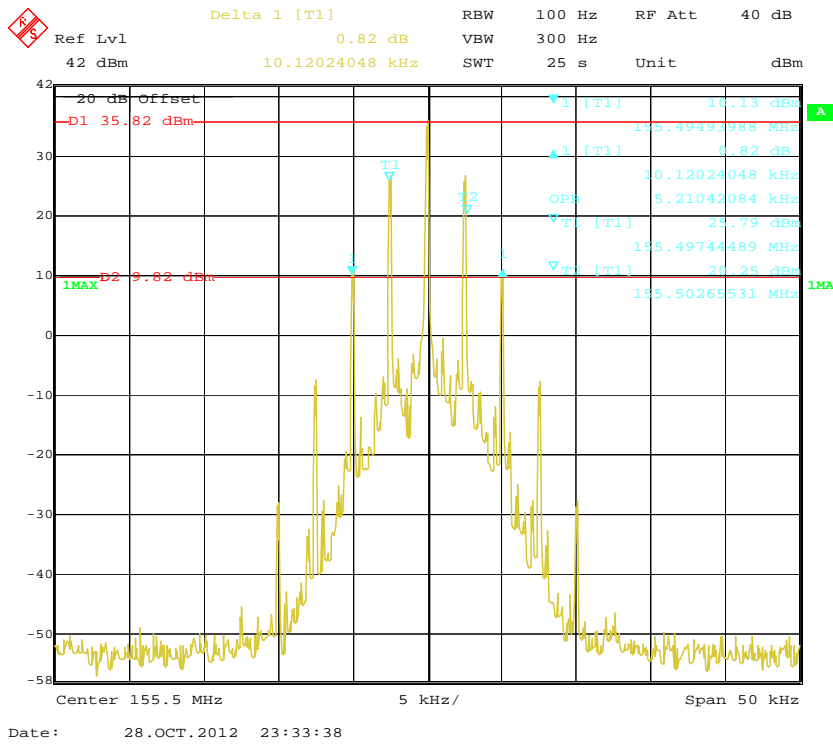
$$B_n = 2M + 2DK$$

Where M = 3 kHz, D = 2.0 kHz, K = 1

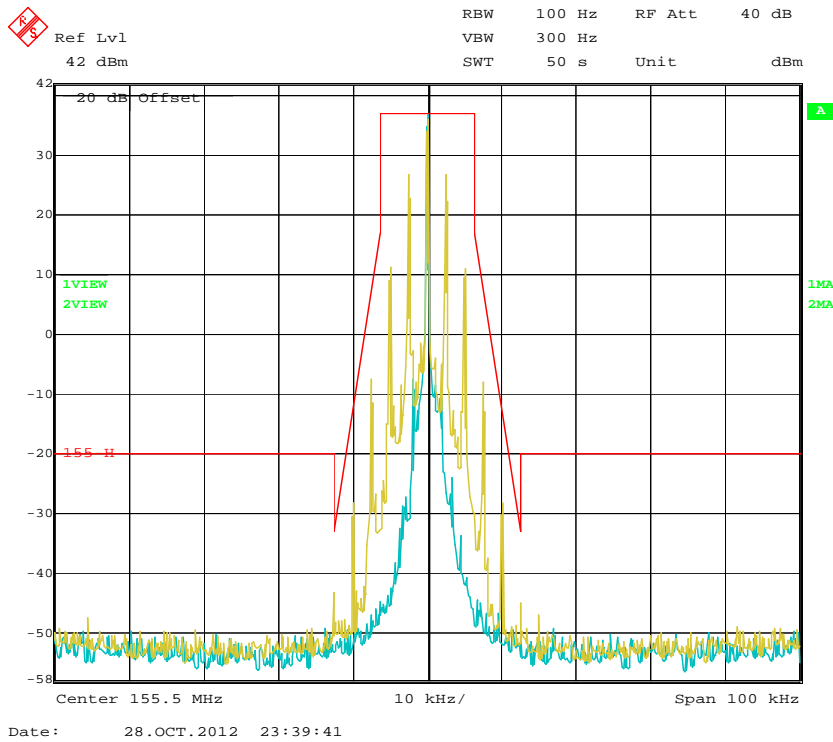
$$B_n = 2*3 + 2*2.0 = 10.0 \text{ kHz}$$

Type of emission: 10K0F3E

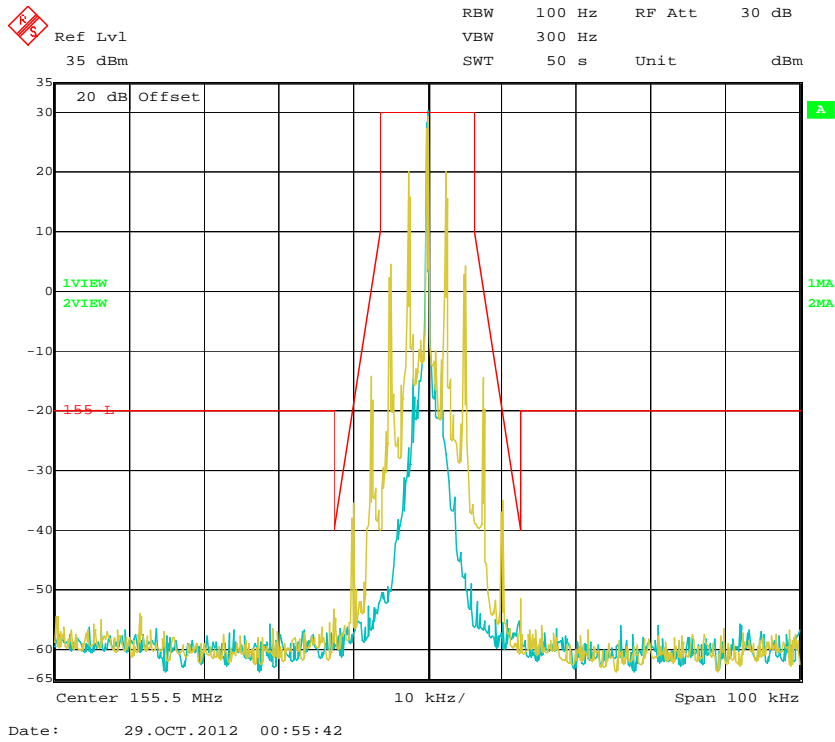
**Occupied Bandwidth-155.5 MHz (High power), Channel Spacing=12.5 kHz**



**Emission Mask D – 155.5 MHz (High Power), Channel Spacing=12.5 kHz**



Emission Mask D – 155.5 MHz (Low Power), Channel Spacing=12.5 kHz



## FCC §2.1051 & §90.210 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

### Applicable Standard

Emission Mask D—12.5 kHz channel bandwidth equipment. For transmitters designed to operate with a 12.5 kHz channel bandwidth, any emission must be attenuated below the power (P) of the highest emission contained within the authorized bandwidth as follows:

- 1) For any frequency removed from the center of the authorized bandwidth  $f_0$  to 5.625 kHz removed from  $f_0$ , 0 dB.
- 2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of more than 5.626 kHz but no more than 12.5 kHz, at least 7.27 ( $f_d - 2.88$  kHz) dB.
- 3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of more than 12.5 kHz at least:

$$50 + 10 \log P$$

### Test Procedure

The RF output of the EUT was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 1MHz. Sufficient scans were taken to show any out of band emissions up to 10<sup>th</sup> harmonic.

### Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2011-11-24	2013-11-23

\* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Institute of Metrology (NIM)

### Test Data

#### Environmental Conditions

<b>Temperature:</b>	20~24 °C
<b>Relative Humidity:</b>	50~55 %
<b>ATM Pressure:</b>	100.0~101.0 kPa

*The testing was performed by Brown Lu from 2012-10-25 to 2013-03-11.*

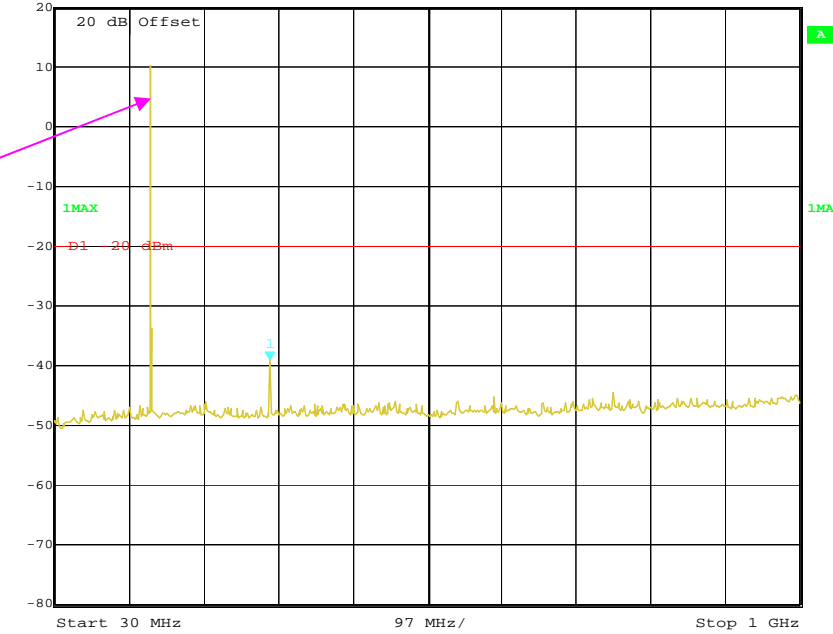
*Test Mode: Transmitting*

Please refer to the following plots.

**30 MHz - 1 GHz (Channel Spacing: 12.5 kHz, Middle Channel: 155.5 MHz)**

	Ref Lvl	Marker 1 [T1]	RBW	100 kHz	RF Att	20 dB
	20 dBm	-39.02 dBm	VBW	300 kHz		
		309.91983968 MHz	SWT	245 ms	Unit	dBm

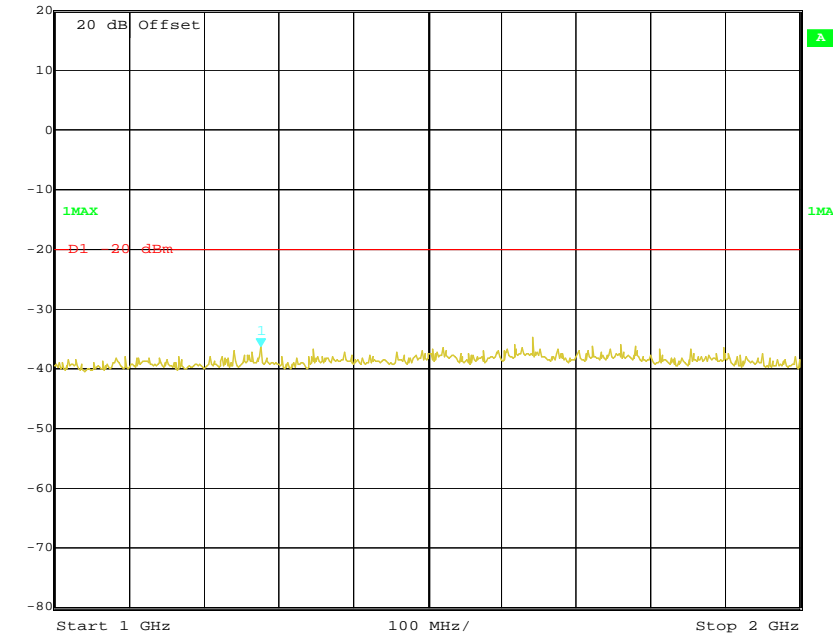
Fundamental test with Band Reject Filter



Date: 25.OCT.2012 23:30:31

**1 GHz - 2 GHz (Channel Spacing: 12.5 kHz, Middle Channel: 155.5 MHz)**

	Ref Lvl	Marker 1 [T1]	RBW	1 MHz	RF Att	20 dB
	20 dBm	-36.44 dBm	VBW	3 MHz		
		1.27655311 GHz	SWT	5 ms	Unit	dBm



Date: 25.OCT.2012 23:28:12

## FCC §2.1053 & §90.210 - RADIATED SPURIOUS EMISSIONS

### Applicable Standard

FCC §2.1053 and §90.210

### Test Procedure

The transmitter was placed on a wooden turntable, and it was transmitting into a non-radiating load, which was also placed on the turntable.

The measurement antenna was placed at a distance of 3 meters from the EUT. During the tests, the antenna height and polarization as well as EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. The test was performed by placing the EUT on 3-orthogonal axis.

The frequency range up to teeth harmonic of the fundamental frequency was investigated.

Remove the EUT and replace it with substitution antenna. A signal generator was connected to the substitution antenna by a non-radiating cable. The absolute levels of the spurious emissions were measured by the substitution.

Spurious emissions in dB = 10 lg (TXpwr in Watts/0.001)-the absolute level

Spurious attenuation limit in dB = 50 + 10 Log<sub>10</sub> (power out in Watts) for EUT with a 12.5 kHz channel bandwidth.

### Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
Sunol Sciences	Horn Antenna	DRH-118	A052304	2011-12-01	2014-11-30
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2014-11-27
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2011-11-24	2012-11-23
HP	Signal Generator	8657A	3217A04699	2011-12-19	2012-12-18
A.H. System	Horn Antenna	SAS-200/571	135	2012-02-11	2015-02-10
HP	Synthesized Sweeper	8341B	2624A00116	2012-05-17	2013-05-16

\* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Institute of Metrology (NIM)

### Test Data

#### Environmental Conditions

<b>Temperature:</b>	25 °C
<b>Relative Humidity:</b>	56 %
<b>ATM Pressure:</b>	100.1 kPa

*The testing was performed by Brown Lu on 2012-11-11.*



Test Mode: Transmitting(worst case)

**30 MHz-2 GHz:**

Frequency (MHz)	Receiver Reading (dBµV)	Turn Table Angle Degree	Rx Antenna		Substituted			Absolute Level (dBm)	FCC Part 90	
			Height (m)	Polar (H / V)	SG Level (dBm)	Cable loss(dB)	Antenna Gain(dB)		Limit (dBm)	Margin (dB)
Middle Channel: 155.5MHz, Channel spacing: 12.5 kHz										
311	63.24	145	1.7	H	-33.3	0.38	0	-33.68	-20	13.68
311	60.76	115	1.8	V	-35.2	0.38	0	-35.58	-20	15.58
1244.5	42.72	36	1.8	H	-55.7	0.80	8.50	-48.00	-20	28.00
1244.5	43.11	115	1.7	V	-57.9	0.80	8.50	-50.20	-20	30.20

Remark:	
(1)	Absolute level (dBm) = Substituted SG level -Cable loss + Antenna Gain
(2)	Measuring frequencies from 30 MHz to the 2 GHz.
(3)	Margin=Limit-Absolute Level

## FCC §2.1055 & §90.213- FREQUENCY STABILITY

### Applicable Standard

FCC §2.1055 & §90.213

### Test Procedure

Frequency Stability vs. Temperature:

The EUT was placed inside the temperature chamber. The Power leads and RF output cable exited the chamber through an opening made for the purpose.

After the temperature stabilized for approximately 20 minutes, the frequency output was recorded from the counter.

The frequency stability shall be measured with variation of primary supply voltage as follows:

- (1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment.
- (2) For hand carried, battery powered equipment, reduce primary supply voltage to the battery operating end point which shall be specified by the manufacturer.

### Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
Hewlett-Packard	Frequency Counter	5343A	2232A00827	2012-04-15	2013-04-14
ESPEC	Temperature & Humidity Chamber	EL-10KA	09107726	2011-11-24	2012-11-23

\* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Institute of Metrology (NIM).

### Test Data

#### Environmental Conditions

<b>Temperature:</b>	20~25 °C
<b>Relative Humidity:</b>	50~56 %
<b>ATM Pressure:</b>	100.0~101.0 kPa

*The testing was performed by Brown Lu from 2012-11-11 to 2013-03-11.*

*Test Mode: Transmitting*

Reference Frequency: 155.5 MHz, Channel Separation : 12.5 kHz				
Test Environment		Frequency Measure with Time Elapsed		
Temperature (°C)	Power Supplied (V <sub>DC</sub> )	Measured Frequency (MHz)	Frequency Error (ppm)	Limit (ppm)
Frequency Stability versus Temperature				
50	7.4	155.500017	0.1093	5.0
40	7.4	155.500015	0.0965	5.0
30	7.4	155.500011	0.0707	5.0
20	7.4	155.500009	0.0579	5.0
10	7.4	155.500010	0.0643	5.0
0	7.4	155.500012	0.0772	5.0
-10	7.4	155.500014	0.0900	5.0
-20	7.4	155.500015	0.0965	5.0
-30	7.4	155.500016	0.1029	5.0
Frequency Stability versus Voltage				
20	6.3	155.500014	0.0900	5.0

Note: the battery operation end point is 6.3V which is specified by manufacturer.

## FCC §90.214 - TRANSIENT FREQUENCY BEHAVIOR

### Applicable Standard

Regulations: FCC §90.214

Test method: ANSI/TIA-603-D 2010, section 2.2.19.3

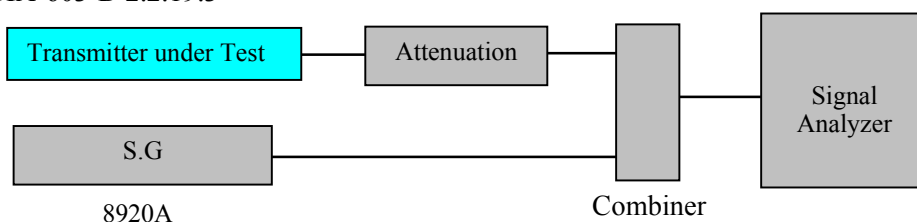
### Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2011-11-24	2013-11-23
HP	RF Communications Test Set	HP8920A	3438A05201	2012-06-14	2013-06-13

\* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to National Institute of Metrology (NIM)

### Test Procedure

TIA-603-D 2.2.19.3



### Test Data

#### Environmental Conditions

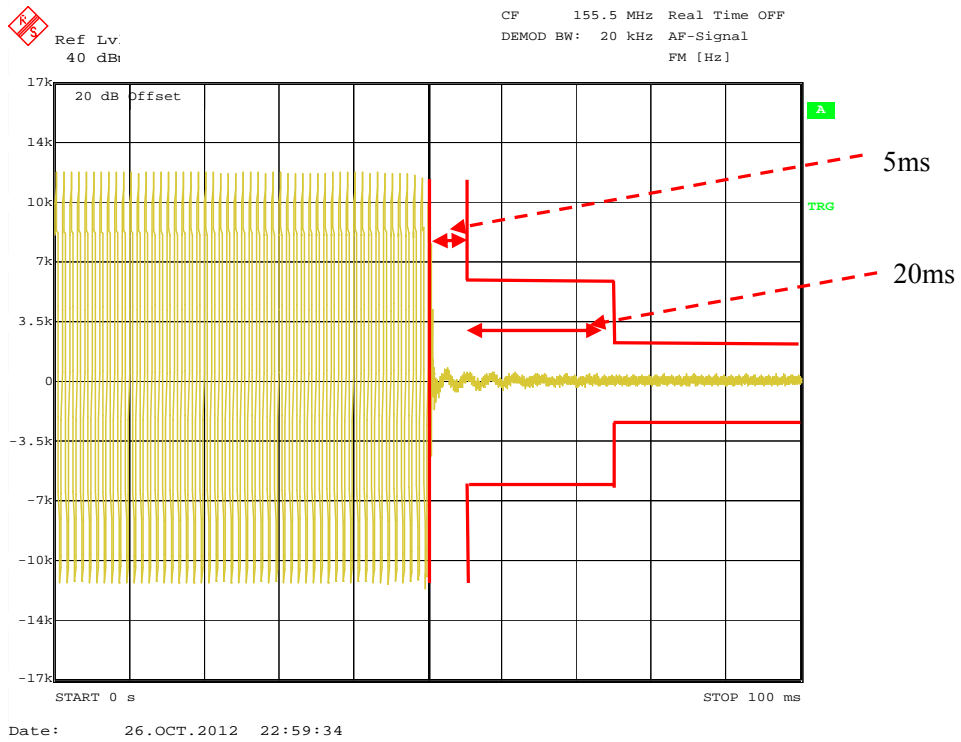
Temperature:	20~25 °C
Relative Humidity:	50~56 %
ATM Pressure:	100.0~101.0 kPa

The testing was performed by Brown Lu from 2012-10-26 to 2013-03-11.

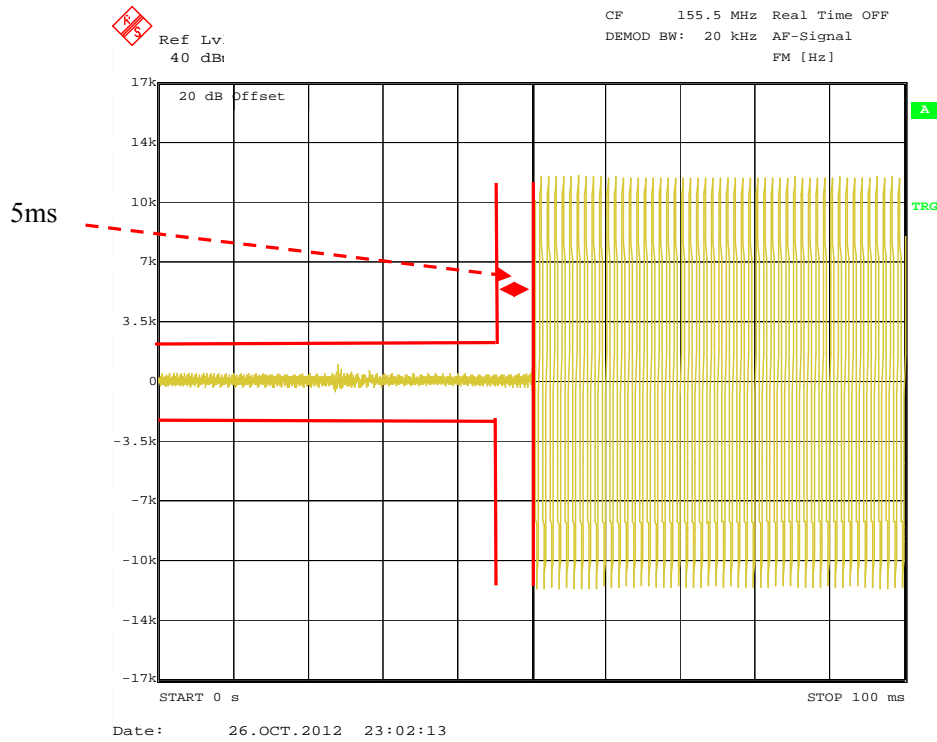
Operation Frequency (MHz)	Channel Separation (kHz)	Time Period (ms)	Maximum frequency difference (kHz)	Result
155.5	12.5	< 5.0(t <sub>1</sub> )	± 12.5 kHz	Pass
		< 20.0(t <sub>2</sub> )	± 6.25 kHz	
		< 5.0(t <sub>3</sub> )	± 12.5 kHz	

Please refer to the following plots.

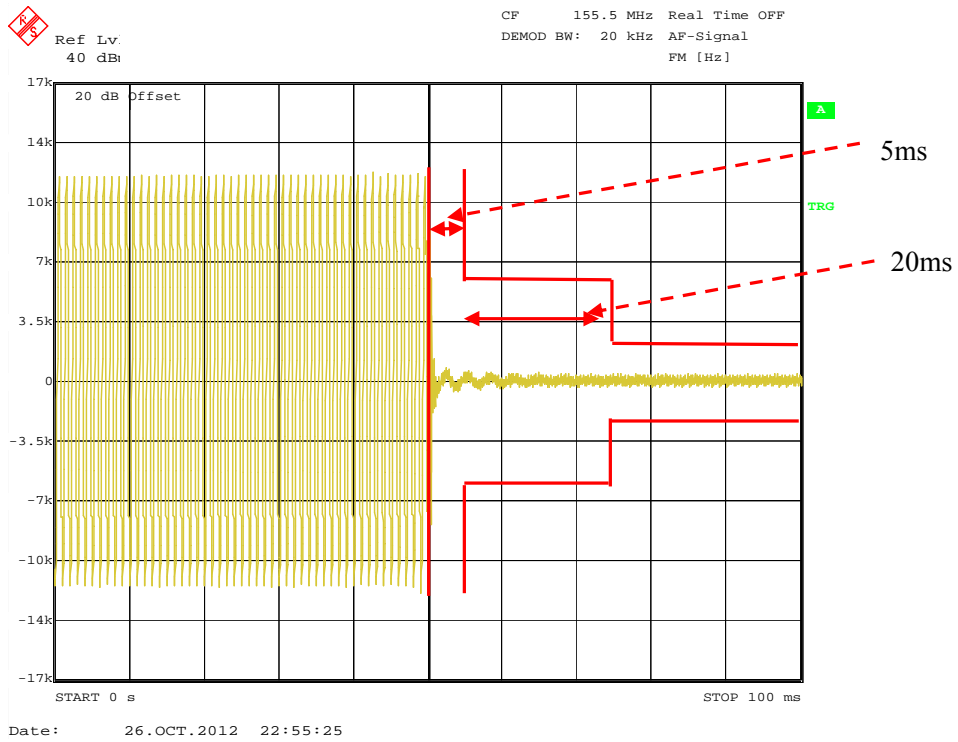
### Turn on (Low Power, Channel Spacing=12.5 kHz)



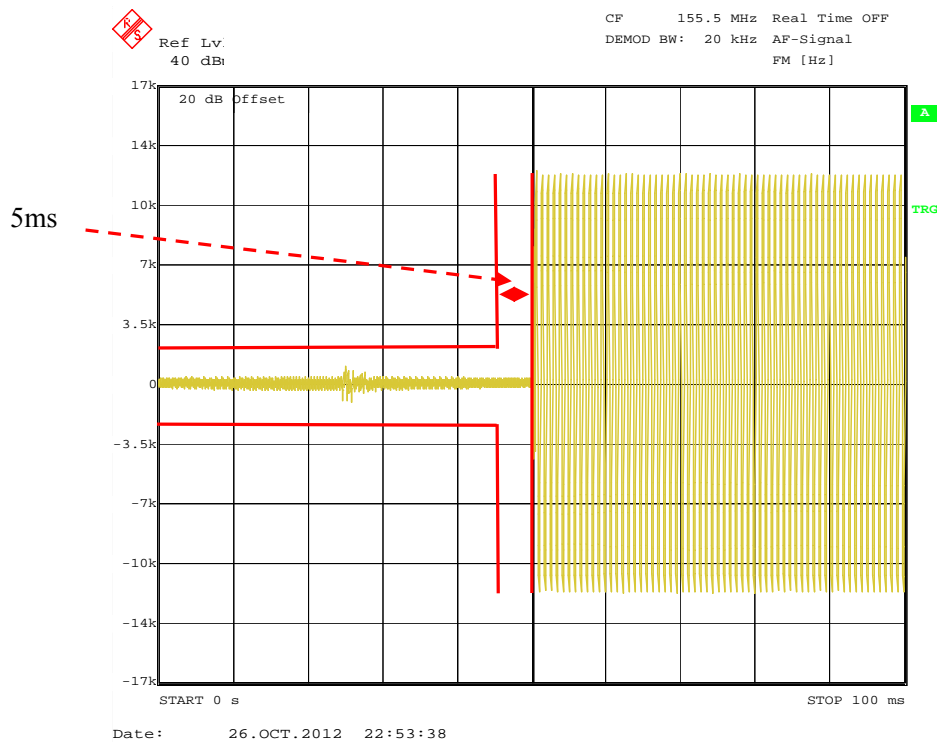
### Turn off (Low Power, Channel Spacing=12.5 kHz)



### Turn on (High Power, Channel Spacing=12.5 kHz)



### Turn off (High Power, Channel Spacing=12.5 kHz)



\*\*\*\*\* END OF REPORT \*\*\*\*\*