FCC PART 90

TEST REPORT

For

Xiamen Puxing Electronics Science & Technology Co., Ltd.

F3-4, NO.11 Xianghong Road, Torch Hi-tech Zone, XiangAn District, Xiamen, Fujian, China

FCC ID: AUJPXDZ973K001

Report Type:	**Product Type:**
Original Report	Two way radio

Test Engineer:	Rocky Kang
Report Number:	RSZ130711002-00
Report Date:	2013-10-30
Reviewed By:	Alvin Huang RF Leader
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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.

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
SUPPORT EQUIPMENT LIST AND DETAILS 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 **17**
APPLICABLE STANDARD 17
TEST EQUIPMENT LIST AND DETAILS 17
TEST PROCEDURE 17
TEST DATA 17
FCC §2.1049 & §90.209 & §90.210 – OCCUPIED BANDWIDTH & EMISSION MASK **28**
APPLICABLE STANDARD 28
TEST EQUIPMENT LIST AND DETAILS 28
TEST PROCEDURE 28
TEST DATA 29
FCC §2.1051 & §90.210 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS **34**
APPLICABLE STANDARD 34
TEST EQUIPMENT LIST AND DETAILS 34
TEST PROCEDURE 34
TEST DATA 34
FCC §2.1053 & §90.210 - RADIATED SPURIOUS EMISSIONS **37**
APPLICABLE STANDARD 37
TEST EQUIPMENT LIST AND DETAILS 37
TEST PROCEDURE 37
TEST DATA 38
FCC §2.1055 & §90.213- FREQUENCY STABILITY **39**
APPLICABLE STANDARD 39
TEST EQUIPMENT LIST AND DETAILS 39
TEST PROCEDURE 39

TEST DATA 39
FCC §90.214 - TRANSIENT FREQUENCY BEHAVIOR.....41
APPLICABLE STANDARD 41
TEST EQUIPMENT LIST AND DETAILS.....41
TEST PROCEDURE 41
TEST DATA 42

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Xiamen Puxing Electronics Science & Technology Co., Ltd.*'s product, model number: *PX-UV973 (FCC ID: AUJPXDZ973K001)* or the "EUT" in this report was a *Two way radio*, which was measured approximately: 26.8 cm (L) x 6.3 cm (W) x 3.8 cm (H), rated with input voltage: DC 7.4V battery.

** All measurement and test data in this report was gathered from production sample serial number: 1307034 (Assigned by BACL, Shenzhen). The EUT supplied by the applicant was received on 2013-07-11.*

Objective

This test report is prepared on behalf of *Xiamen Puxing Electronics Science & Technology 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.

Measurement uncertainty with radiated emission is 5.91 dB for 30MHz-1GHz.and 4.92 dB for above 1GHz, 1.95dB for conducted measurement.

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 C63.4-2009.

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.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

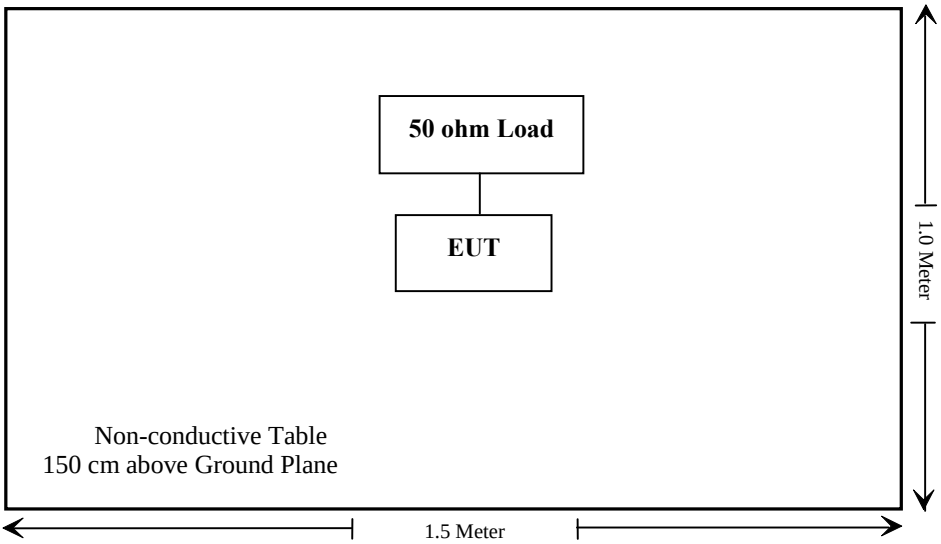
Equipment Modifications

No modification was made to the EUT tested.

Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
N/A	50 ohm Load	N/A	N/A

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§1.1307 (b)(1), §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

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

Applicable Standard

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

Result: Compliance.

Please refer to SAR Report Number: R1306059 -SAR.

FCC §2.1046 & §90.205 - RF Output Power

Applicable Standard

FCC §2.1046 and §90.205

Test Procedure

Conducted RF Output Power:

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

Spectrum Analyzer Setting:

R B/W	Video B/W
100 kHz	300 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2012-11-24	2013-11-23

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements, traceable to National Primary Standards and International System of Units (SI).

Test Data

Environmental Conditions

Temperature:	24~26 ℃
Relative Humidity:	54~56 %
ATM Pressure:	100.0~100.1 kPa

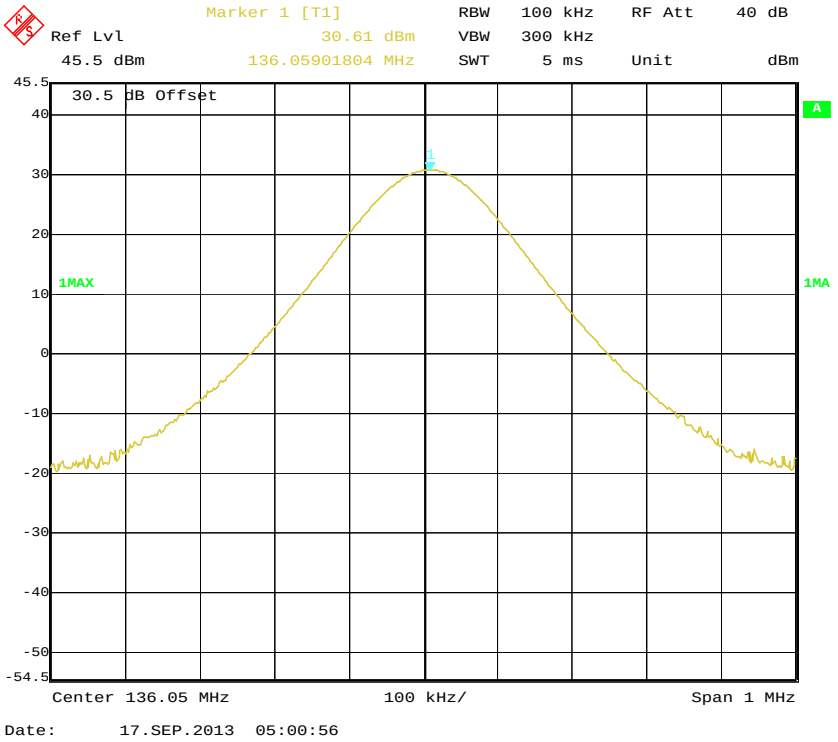
The testing was performed by Rocky Kang on 2013-07-06 and 2013-09-17.

Test Mode: Transmitting

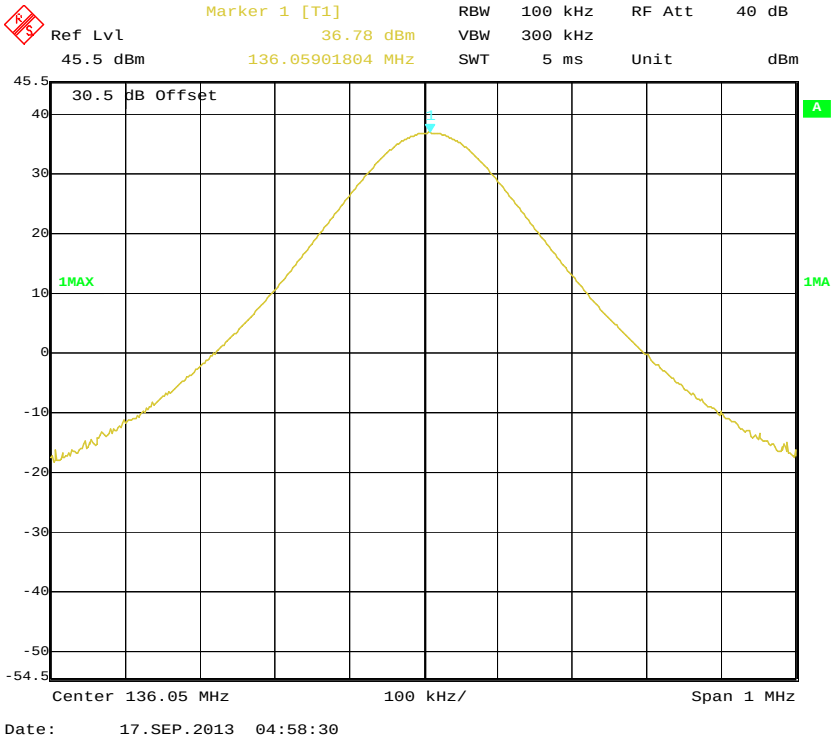
Test Result: Compliance. Please refer to following table.

Frequency (MHz)	Modulation	Power level	Conducted Output Power (dBm)	Conducted Output Power (W)
136.05	Analog	High	36.78	4.76
		Low	30.61	1.15
155.05	Analog	High	36.68	4.66
		Low	29.79	0.95
173.95	Analog	High	36.65	4.62
		Low	29.08	0.81
400.05	Analog	High	36.42	4.39
		Low	30.54	1.13
435.05	Analog	High	36.31	4.28
		Low	30.35	1.08
469.95	Analog	High	36.19	4.16
		Low	30.14	1.03

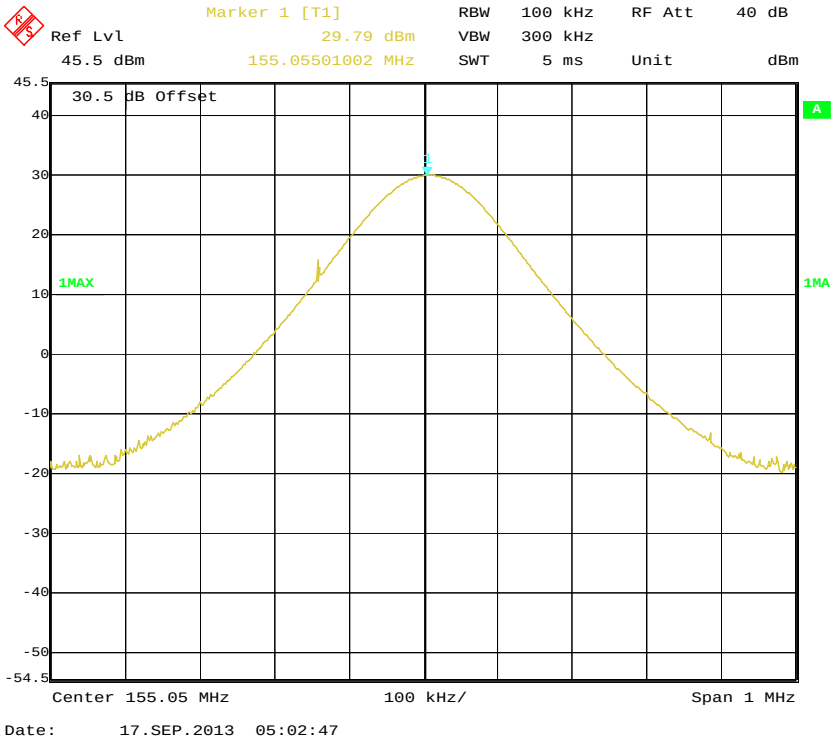
Low Power (136.05 MHz)



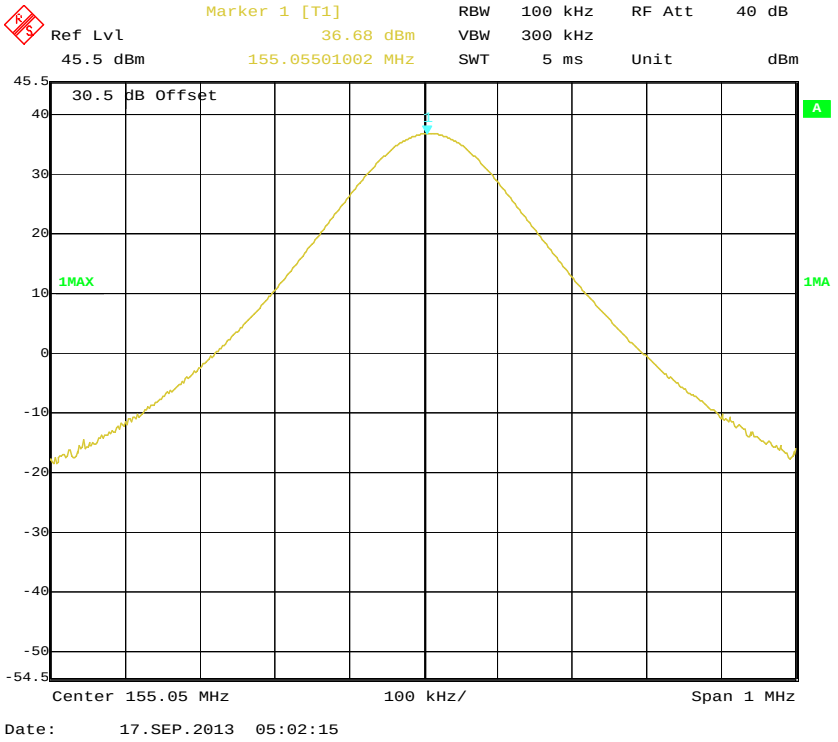
High Power (136.05 MHz)



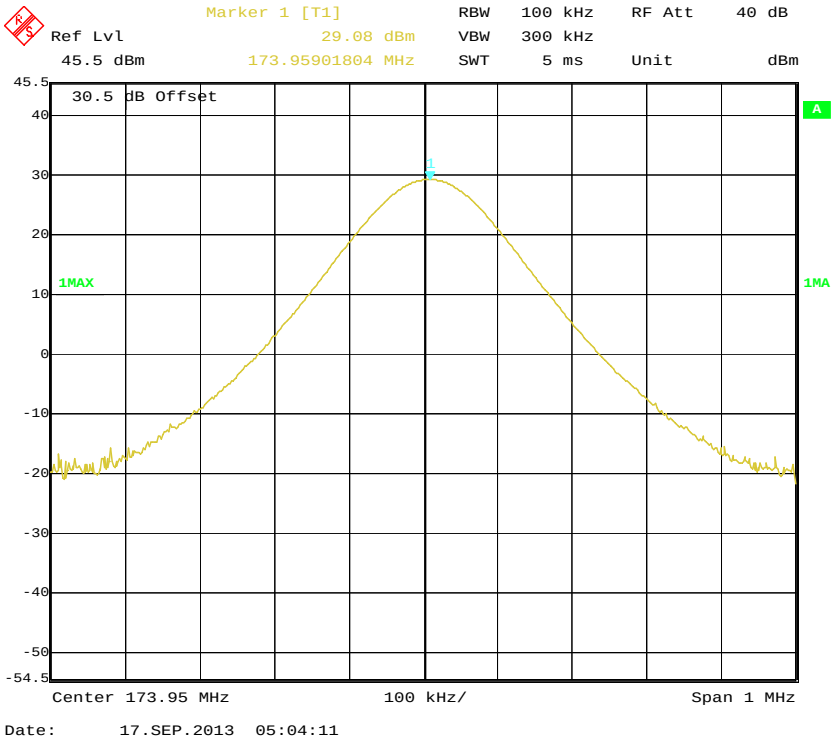
Low Power (155.05 MHz)



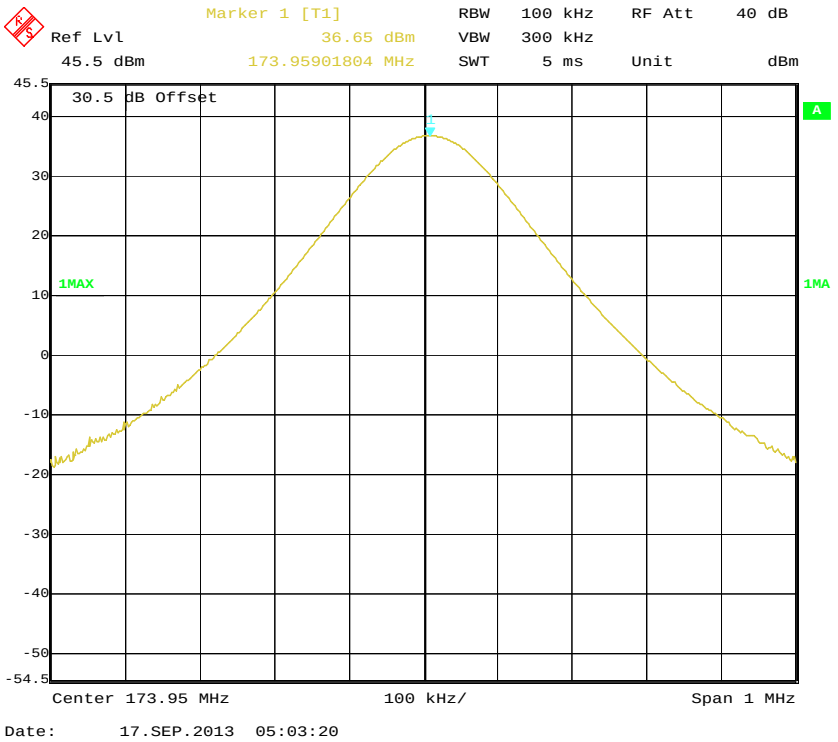
High Power (155.05 MHz)



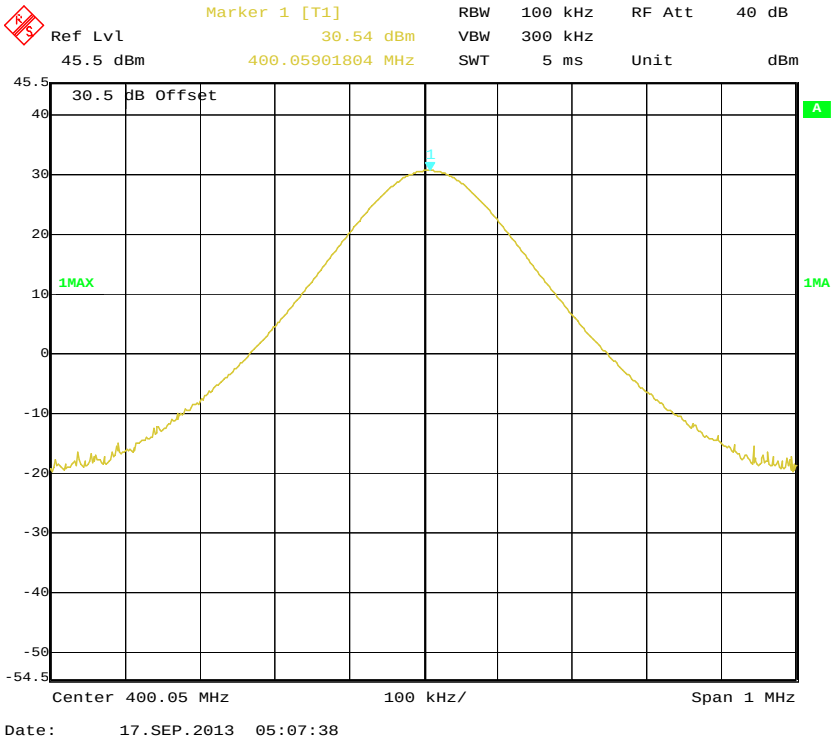
Low Power (173.95 MHz)



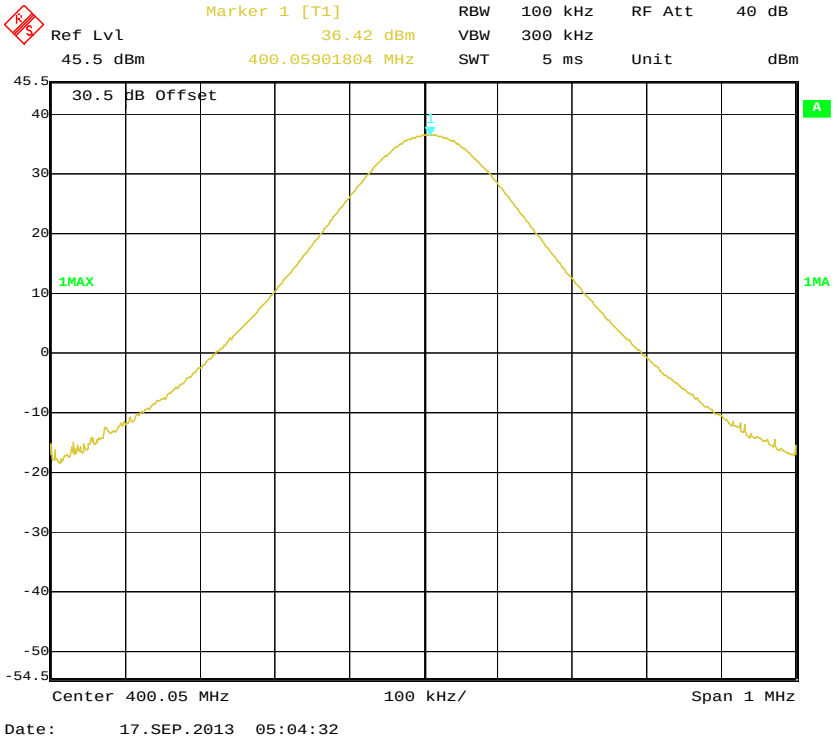
High Power (173.95 MHz)



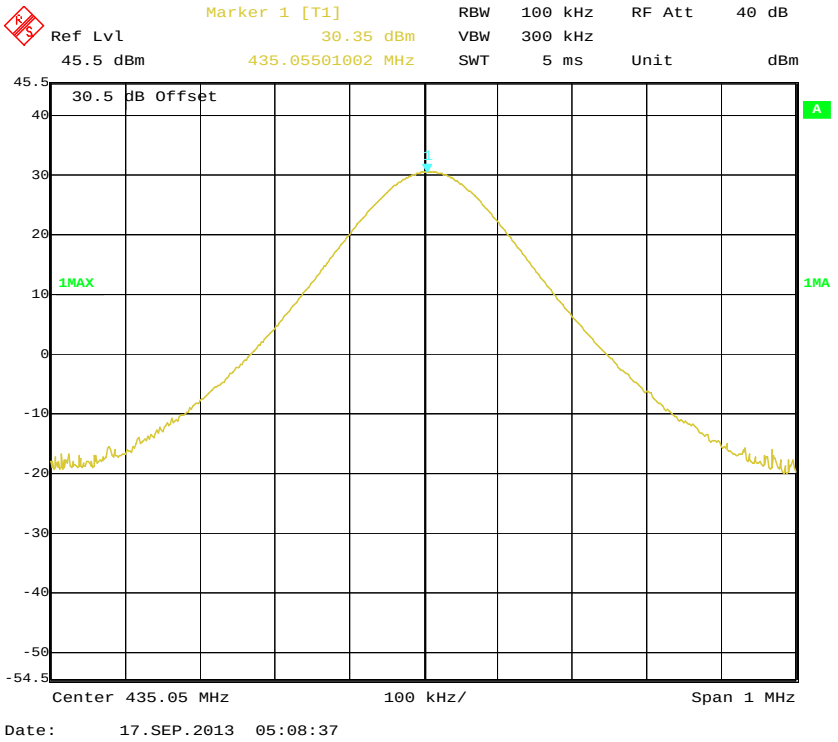
Low Power (400.05 MHz)



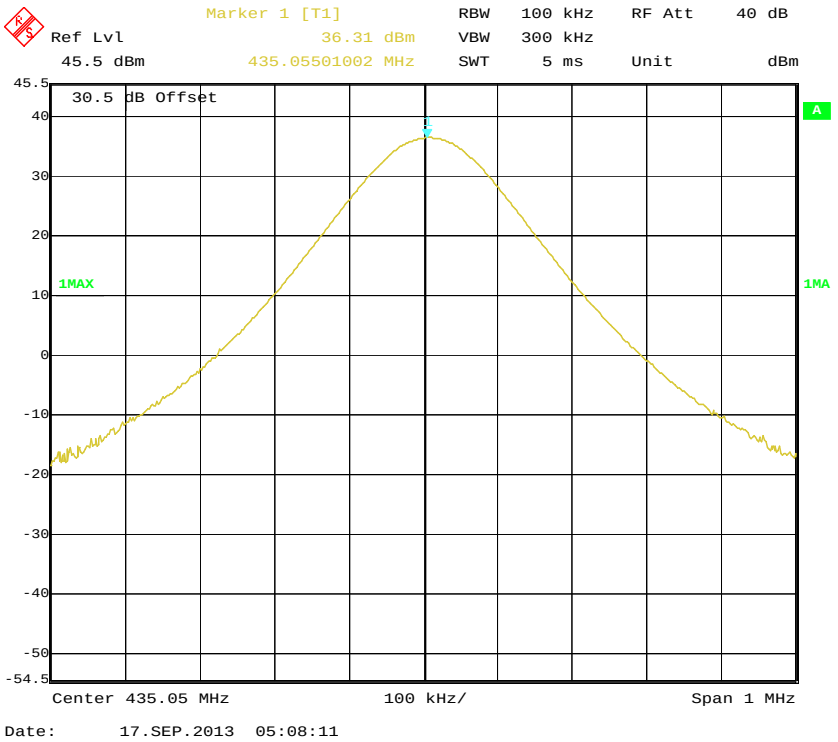
High Power (400.05 MHz)



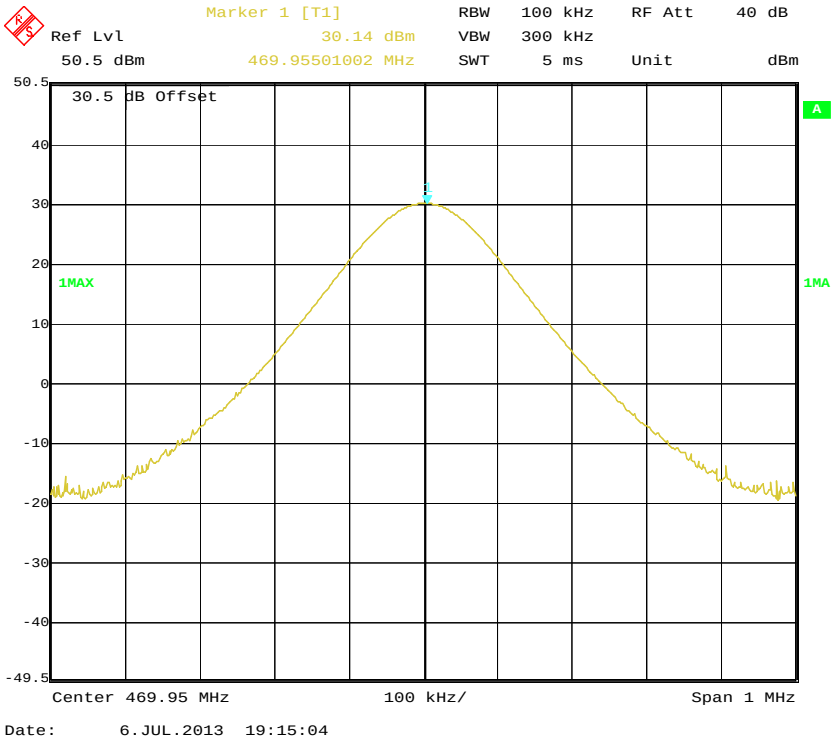
Low Power (435.05 MHz)



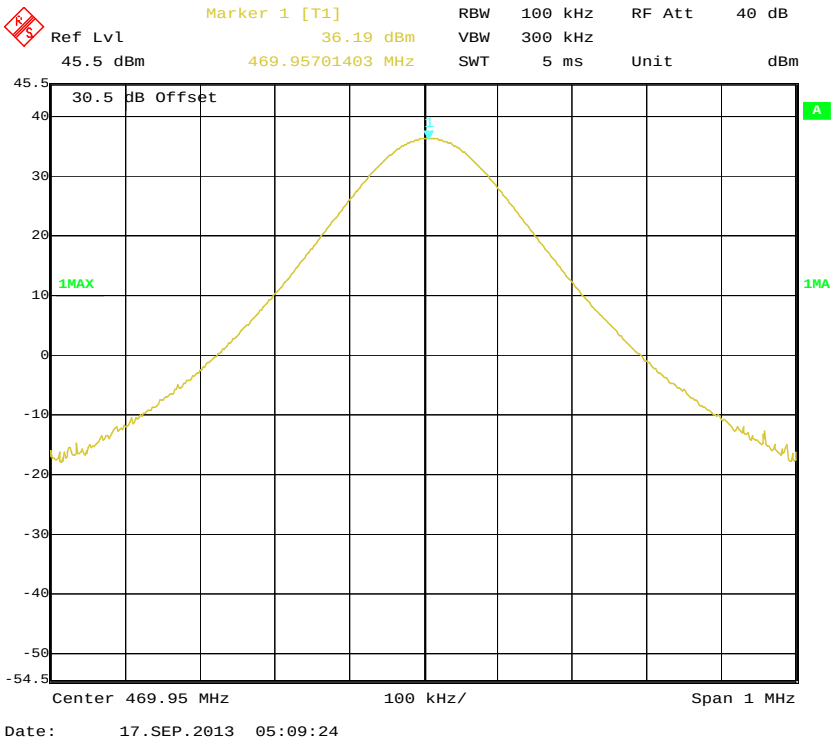
High Power (435.05 MHz)



Low Power (469.95 MHz)



High Power (469.95 MHz)



FCC §2.1047 §90.207 - MODULATION CHARACTERISTIC

Applicable Standard

FCC§2.1047 and §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 Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
HP	RF Communication Test Set	8920A	3438A05201	2013-06-14	2014-06-13
LEADER	MILLIVOLTMETER	LMV-181A	6041126	2013-05-09	2014-05-08

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements, traceable to National Primary Standards and International System of Units (SI).

Test Procedure

Test Method: TIA/EIA-603 2.2.3

Test Data

Environmental Conditions

Temperature:	24~27℃
Relative Humidity:	53~56 %
ATM Pressure:	100.0~100.2 kPa

The testing was performed by Rocky Kang from 2013-07-25 to 2013-10-29.

Test Mode: Transmitting

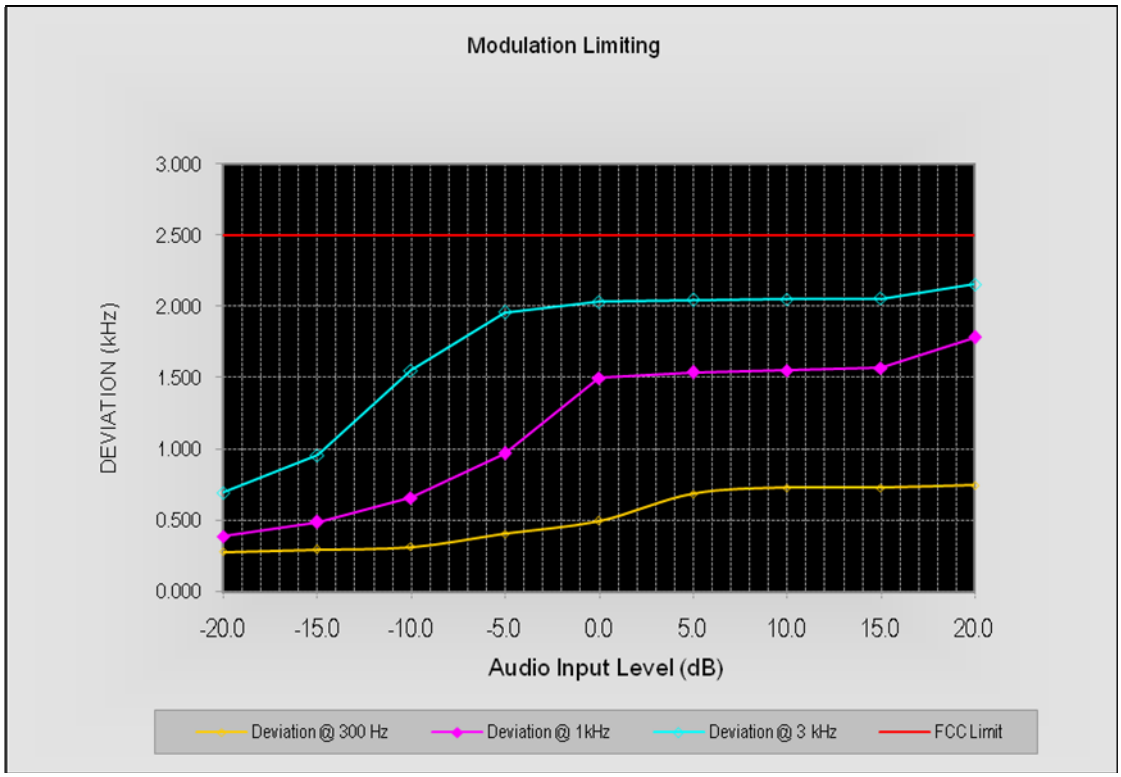
Result: Compliance.

Analog Modulation:

MODULATION LIMITING

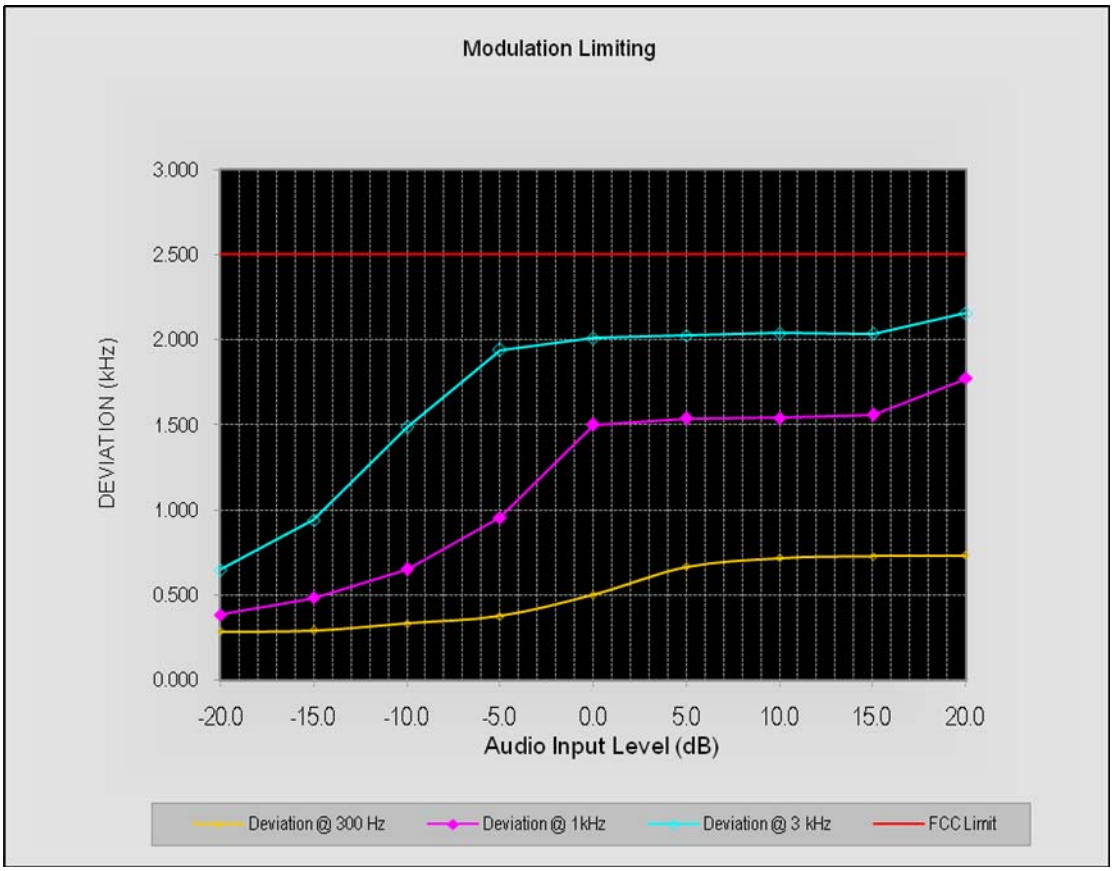
Carrier Frequency: 155.05 MHz, Channel Separation=12.5 kHz, Low Power

Audio Input Level [dB]	Frequency Deviation (kHz)			Limit [kHz]
	@ 300 Hz	@ 1kHz	@ 3 kHz	
20.0	0.746	1.784	2.156	2.5
15.0	0.731	1.572	2.058	2.5
10.0	0.728	1.554	2.051	2.5
5.0	0.687	1.541	2.048	2.5
0.0	0.498	1.500	2.033	2.5
-5.0	0.406	0.972	1.958	2.5
-10.0	0.316	0.659	1.553	2.5
-15.0	0.296	0.488	0.958	2.5
-20.0	0.281	0.388	0.694	2.5



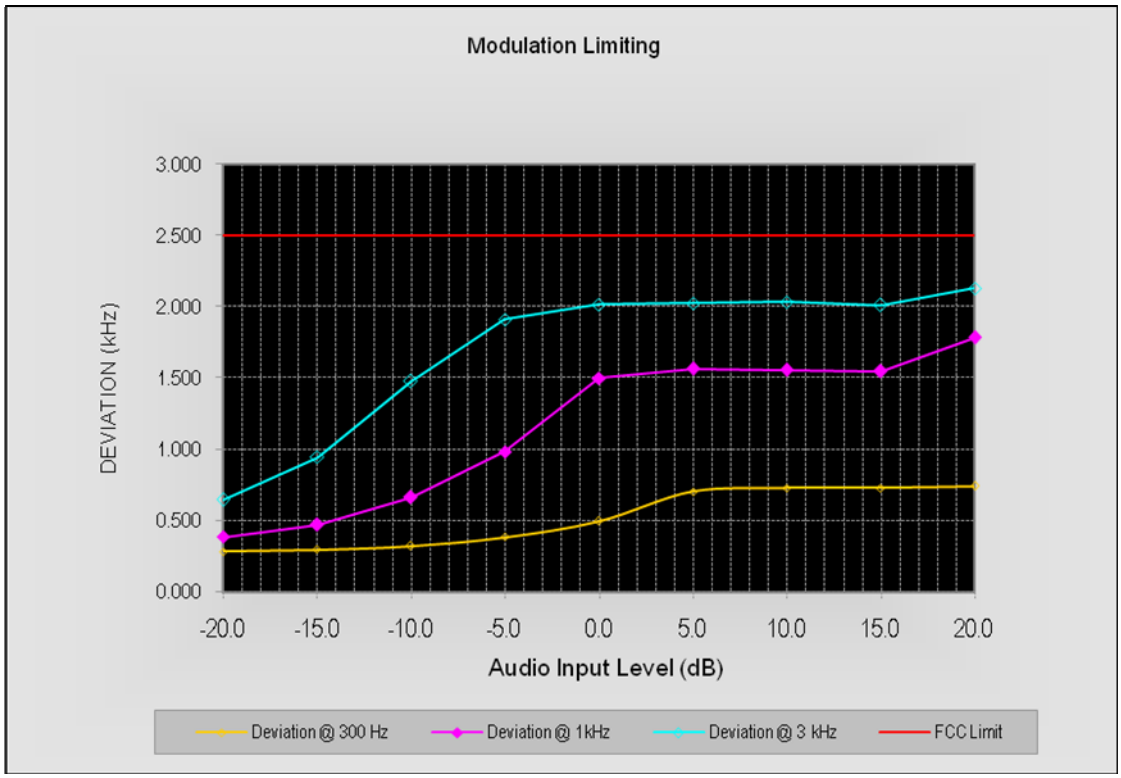
Carrier Frequency: 155.055 MHz, Channel Separation=12.5 kHz, High Power

Audio Input Level [dB]	Frequency Deviation (kHz)			Limit [kHz]
	@ 300 Hz	@ 1kHz	@ 3 kHz	
20.0	0.732	1.774	2.151	2.5
15.0	0.728	1.561	2.038	2.5
10.0	0.719	1.542	2.041	2.5
5.0	0.667	1.537	2.026	2.5
0.0	0.502	1.500	2.012	2.5
-5.0	0.376	0.957	1.942	2.5
-10.0	0.334	0.650	1.486	2.5
-15.0	0.292	0.484	0.941	2.5
-20.0	0.285	0.385	0.646	2.5



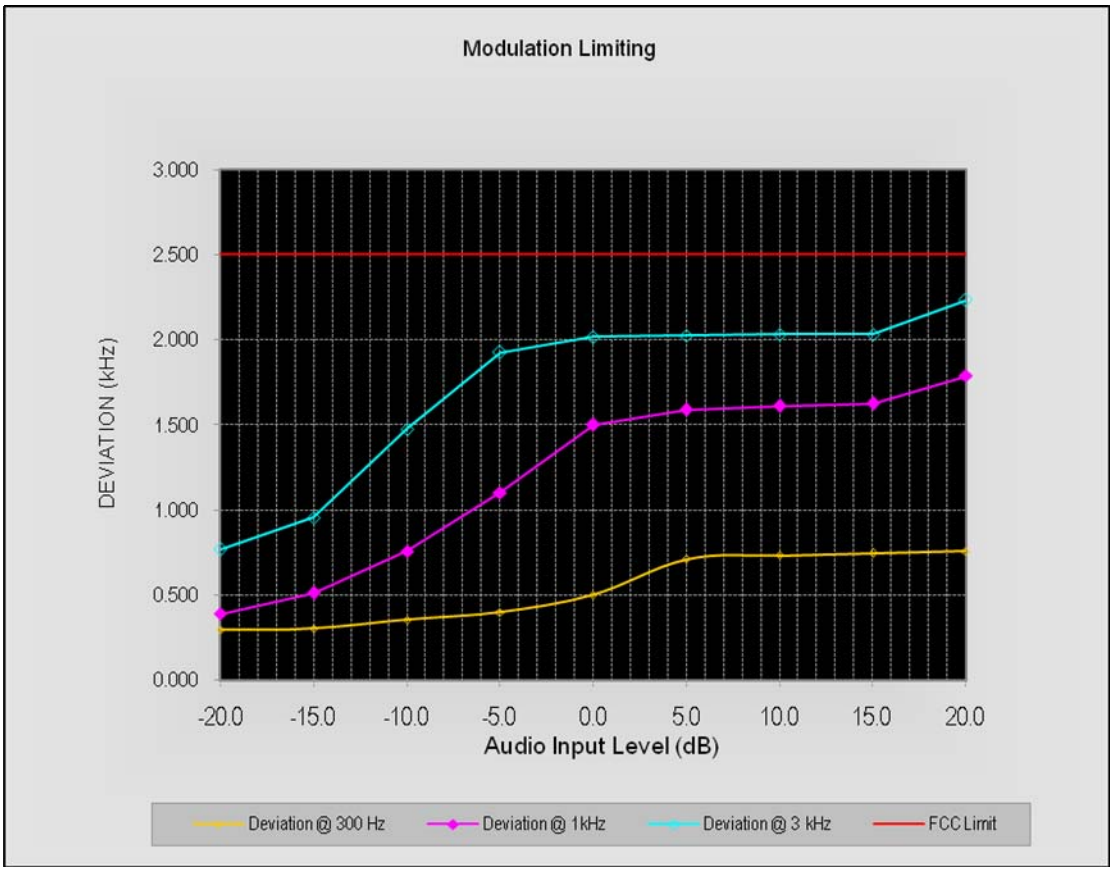
Carrier Frequency: 435.05 MHz, Channel Separation=12.5 kHz, Low Power

Audio Input Level [dB]	Frequency Deviation (kHz)			Limit [kHz]
	@ 300 Hz	@ 1kHz	@ 3 kHz	
20.0	0.742	1.785	2.132	2.5
15.0	0.732	1.547	2.012	2.5
10.0	0.731	1.558	2.034	2.5
5.0	0.704	1.565	2.024	2.5
0.0	0.497	1.500	2.015	2.5
-5.0	0.385	0.985	1.912	2.5
-10.0	0.322	0.664	1.478	2.5
-15.0	0.298	0.471	0.946	2.5
-20.0	0.282	0.386	0.648	2.5



Carrier Frequency: 435.05 MHz, Channel Separation=12.5 kHz, High Power

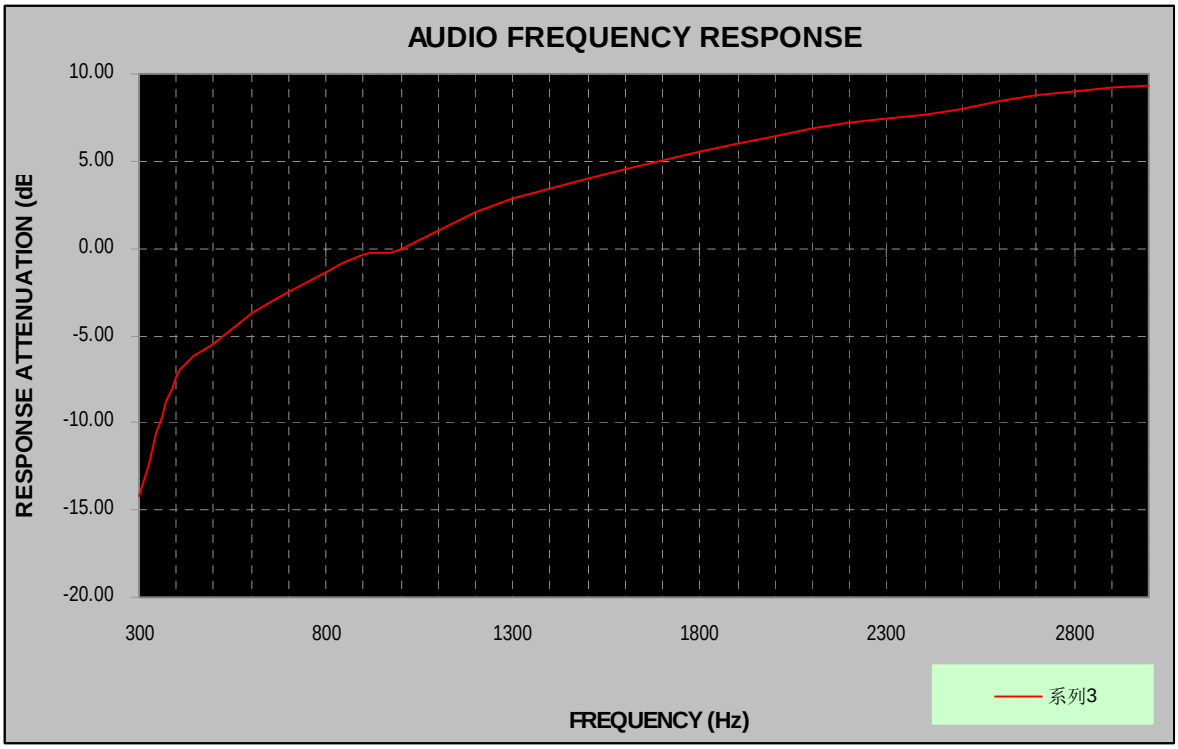
Audio Input Level [dB]	Frequency Deviation (kHz)			Limit [kHz]
	@ 300 Hz	@ 1kHz	@ 3 kHz	
20.0	0.756	1.789	2.233	2.5
15.0	0.745	1.625	2.031	2.5
10.0	0.733	1.611	2.034	2.5
5.0	0.711	1.589	2.024	2.5
0.0	0.502	1.500	2.018	2.5
-5.0	0.399	1.102	1.926	2.5
-10.0	0.355	0.756	1.477	2.5
-15.0	0.302	0.511	0.954	2.5
-20.0	0.296	0.389	0.768	2.5



Audio Frequency Response

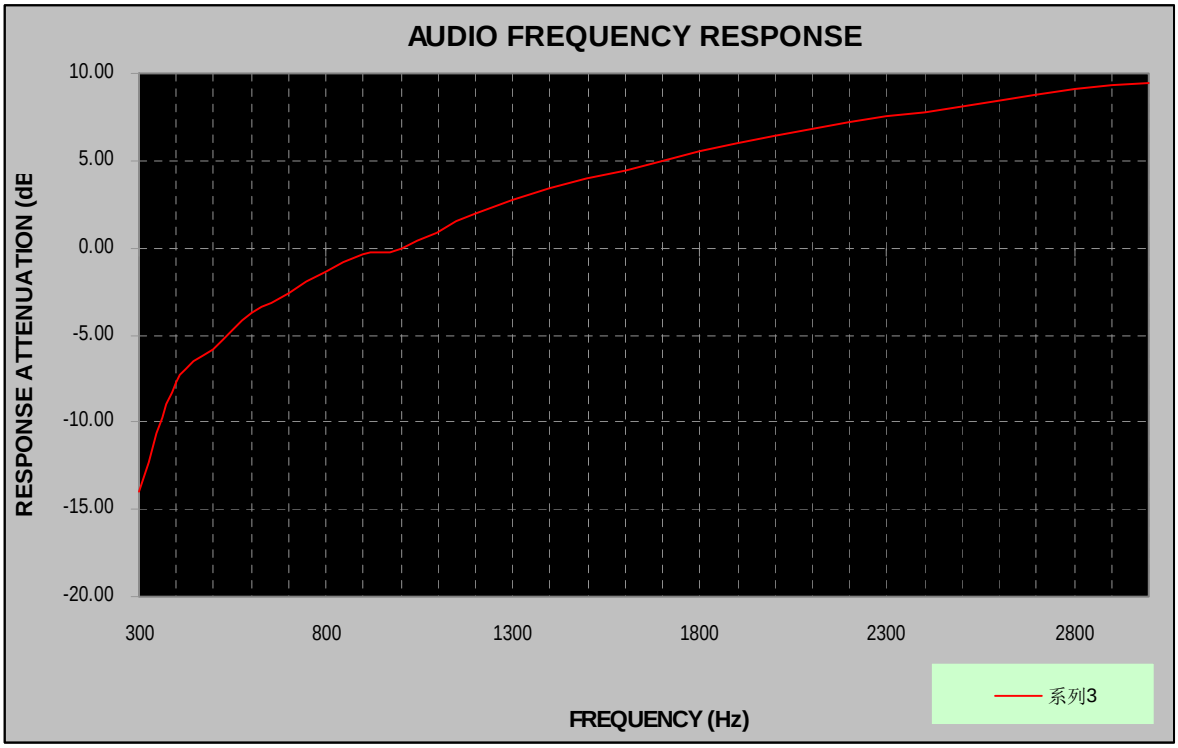
Carrier Frequency: 155.05 MHz, Channel Separation=12.5 kHz, Low Power

Audio Frequency (Hz)	Response Attenuation (dB)
300	-14.15
400	-7.41
500	-5.51
600	-3.77
700	-2.50
800	-1.39
900	-0.34
1000	0.00
1200	2.10
1400	3.37
1600	4.56
1800	5.51
2000	6.44
2200	7.19
2400	7.66
2600	8.45
2800	8.99
3000	9.28



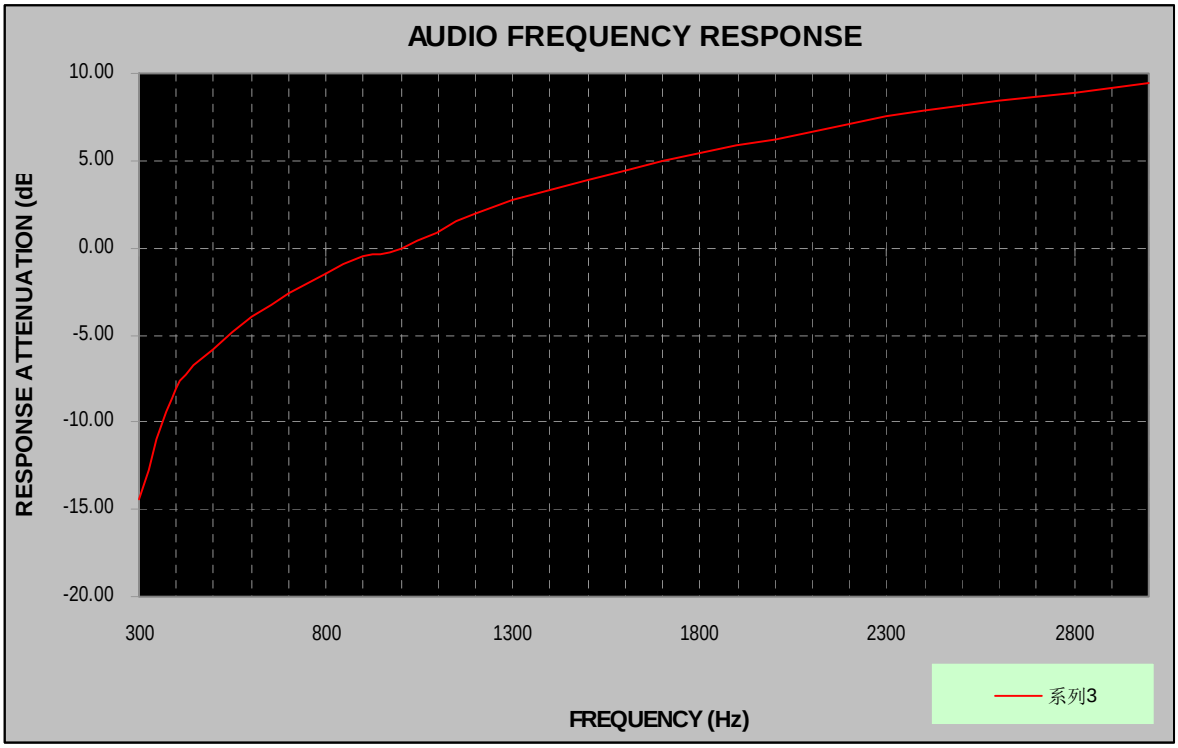
Carrier Frequency: 155.05 MHz, Channel Separation=12.5 kHz, High Power

Audio Frequency (Hz)	Response Attenuation (dB)
300	-13.98
400	-7.79
500	-5.85
600	-3.69
700	-2.57
800	-1.35
900	-0.39
1000	0.00
1200	1.94
1400	3.41
1600	4.46
1800	5.53
2000	6.40
2200	7.16
2400	7.78
2600	8.48
2800	9.10
3000	9.40



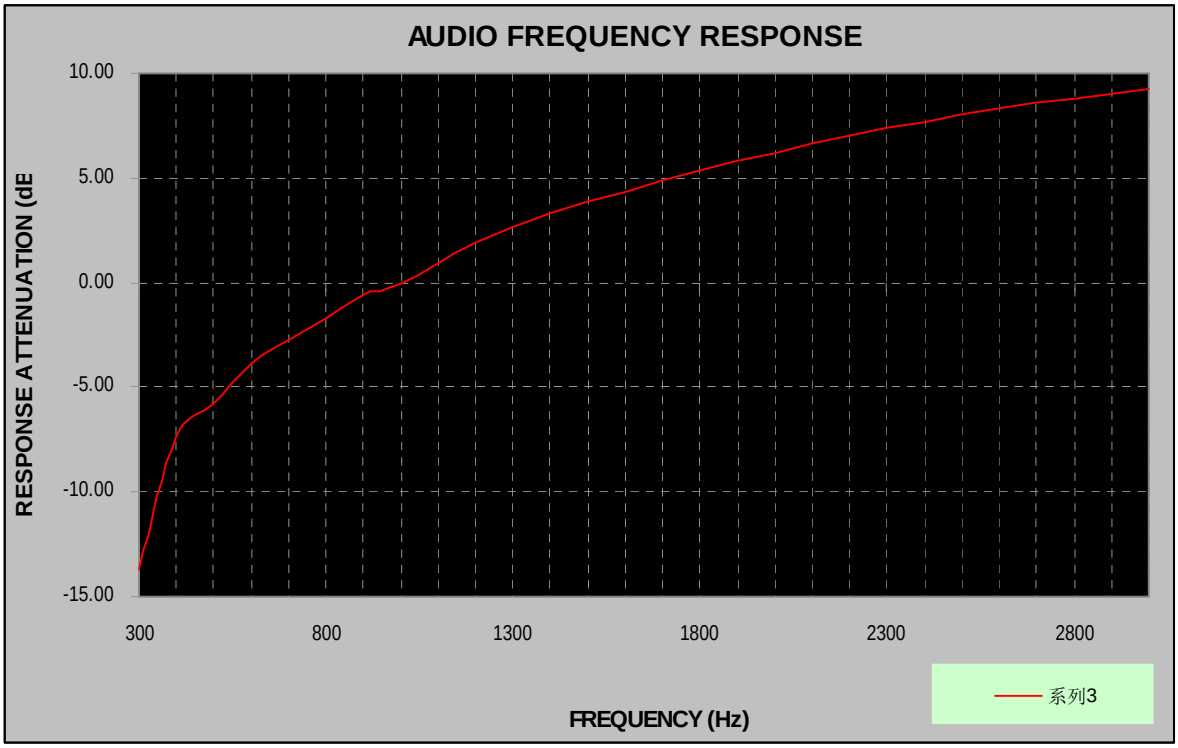
Carrier Frequency: 435.05 MHz, Channel Separation=12.5 kHz, Low Power

Audio Frequency (Hz)	Response Attenuation (dB)
300	-14.42
400	-8.05
500	-5.81
600	-3.99
700	-2.57
800	-1.49
900	-0.50
1000	0.00
1200	1.97
1400	3.31
1600	4.44
1800	5.44
2000	6.24
2200	7.13
2400	7.88
2600	8.46
2800	8.89
3000	9.39



Carrier Frequency: 435.05 MHz, Channel Separation=12.5 kHz, High Power

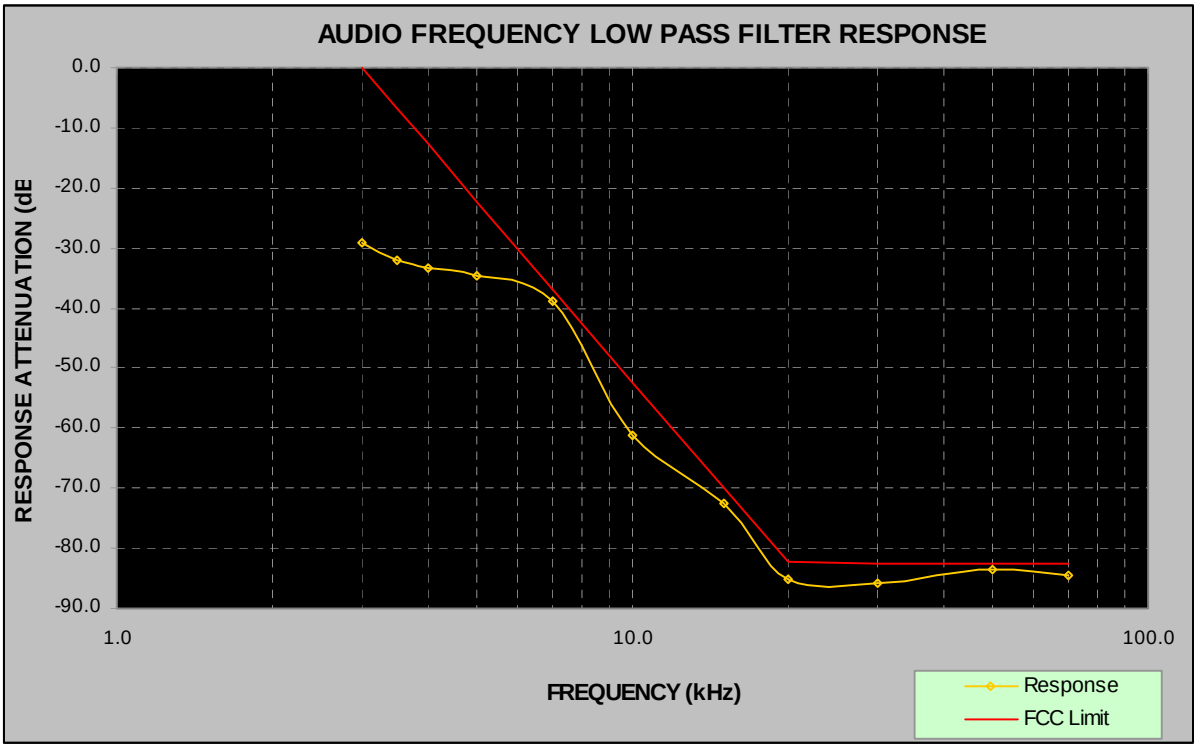
Audio Frequency (Hz)	Response Attenuation (dB)
300	-13.72
400	-7.41
500	-5.81
600	-3.82
700	-2.69
800	-1.70
900	-0.61
1000	0.00
1200	1.95
1400	3.26
1600	4.36
1800	5.35
2000	6.24
2200	7.07
2400	7.71
2600	8.31
2800	8.78
3000	9.28



Audio Frequency Low Pass Filter Response

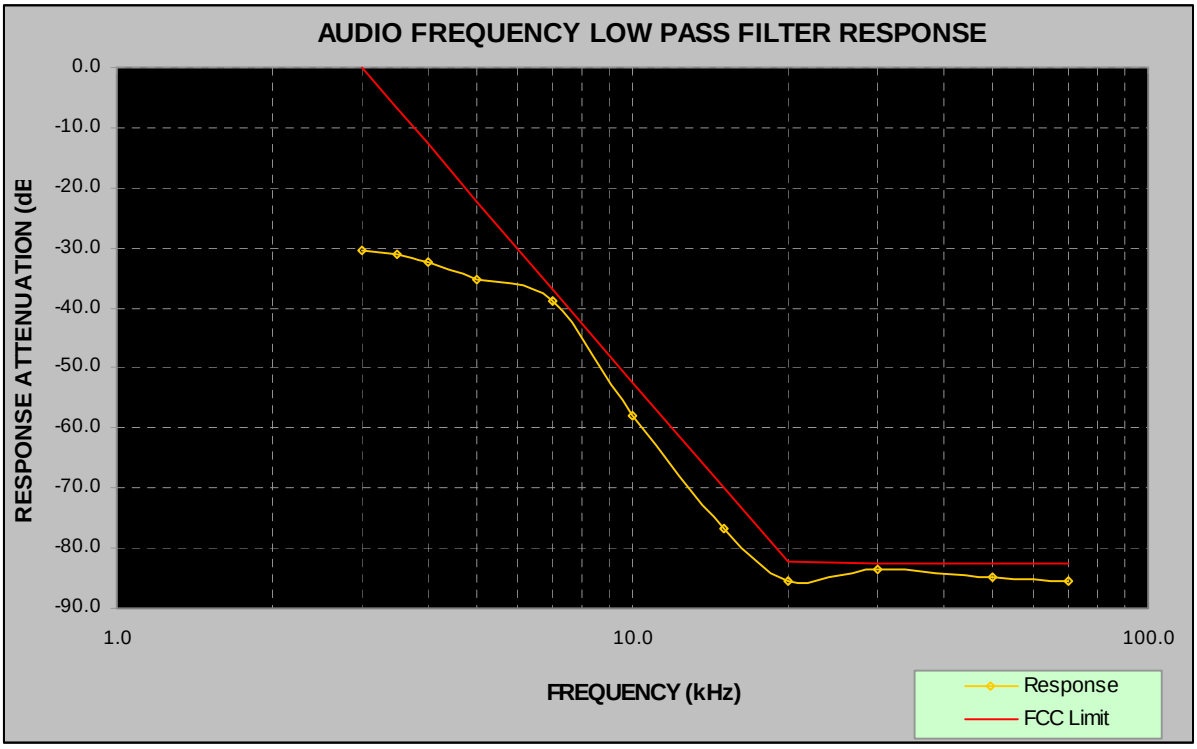
Carrier Frequency: 155.05 MHz, Channel Separation=12.5 kHz

Audio Frequency (kHz)	Response Attenuation (dB)	FCC Limit (dB)
3.0	-29.2	0.0
3.5	-32.2	-6.7
4.0	-33.5	-12.5
5.0	-34.5	-22.2
7.0	-38.7	-36.8
10.0	-61.2	-52.3
15.0	-72.5	-69.9
20.0	-85.3	-82.5
30.0	-85.9	-82.5
50.0	-83.4	-82.5
70.0	-84.6	-82.5



Carrier Frequency: 435.05 MHz, Channel Separation=12.5 kHz

Audio Frequency (kHz)	Response Attenuation (dB)	FCC Limit (dB)
3.0	-30.5	0.0
3.5	-31.2	-6.7
4.0	-32.3	-12.5
5.0	-35.4	-22.2
7.0	-38.8	-36.8
10.0	-57.9	-52.3
15.0	-76.6	-69.9
20.0	-85.5	-82.5
30.0	-83.6	-82.5
50.0	-84.7	-82.5
70.0	-85.4	-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 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) dB or 70 dB, whichever is the lesser attenuation.

Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2012-11-24	2013-11-23
HP	RF Communication Test Set	8920A	3438A05201	2013-06-14	2014-06-13

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements, traceable to National Primary Standards and International System of Units (SI).

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 300 Hz and the spectrum was recorded in the frequency band ±35 kHz from the carrier frequency.

Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	55 %
ATM Pressure:	100.1 kPa

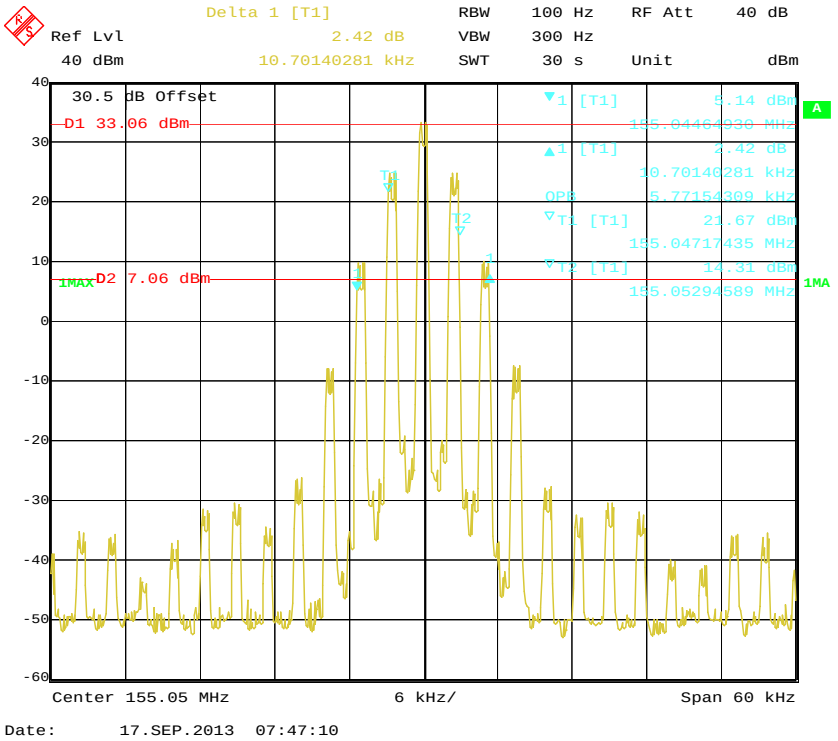
The testing was performed by Rocky Kang on 2013-10-23.

Test Mode: Transmitting

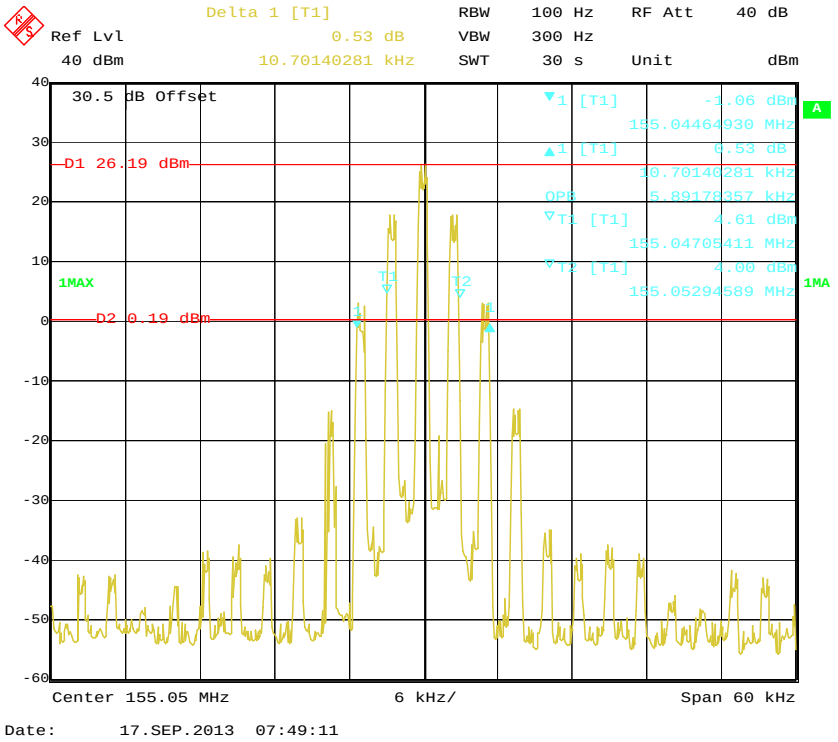
Modulation	Frequency (MHz)	99% Occupied Bandwidth (kHz)	26 dB Emissions Bandwidth (kHz)	Power Level
Analog Modulation	155.05	5.77	10.70	High Power
		5.89	10.70	Low Power
Analog Modulation	435.05	5.77	10.82	High Power
		5.89	10.70	Low Power
Limit: 11.25 kHz for 12.5 kHz Channel Separation				

Test Results: Compliance, please refer to the following plots.

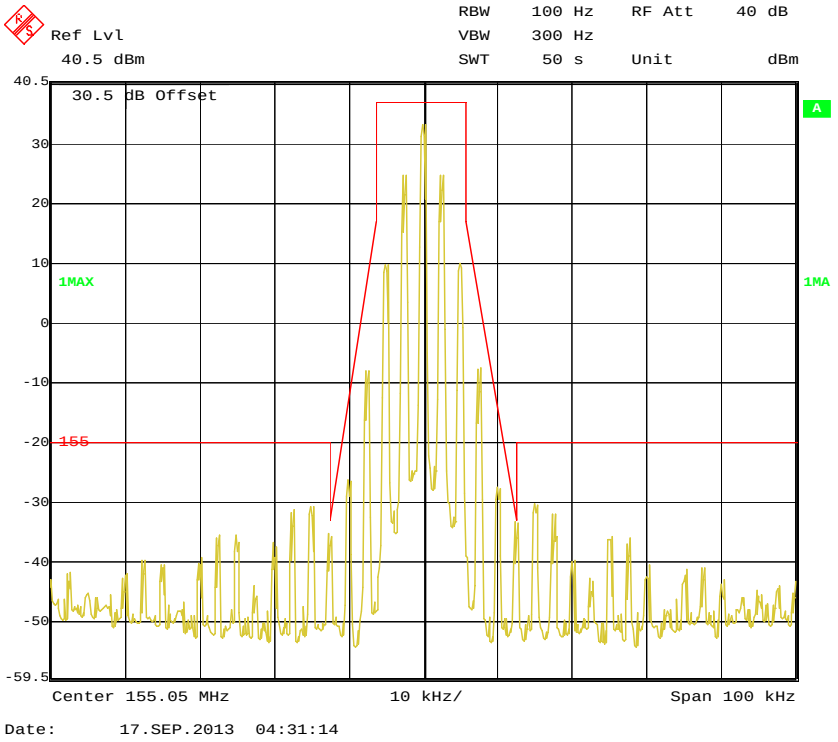
99% Occupied Bandwidth & 26 dB Emissions Bandwidth, 155.05 MHz, High Power



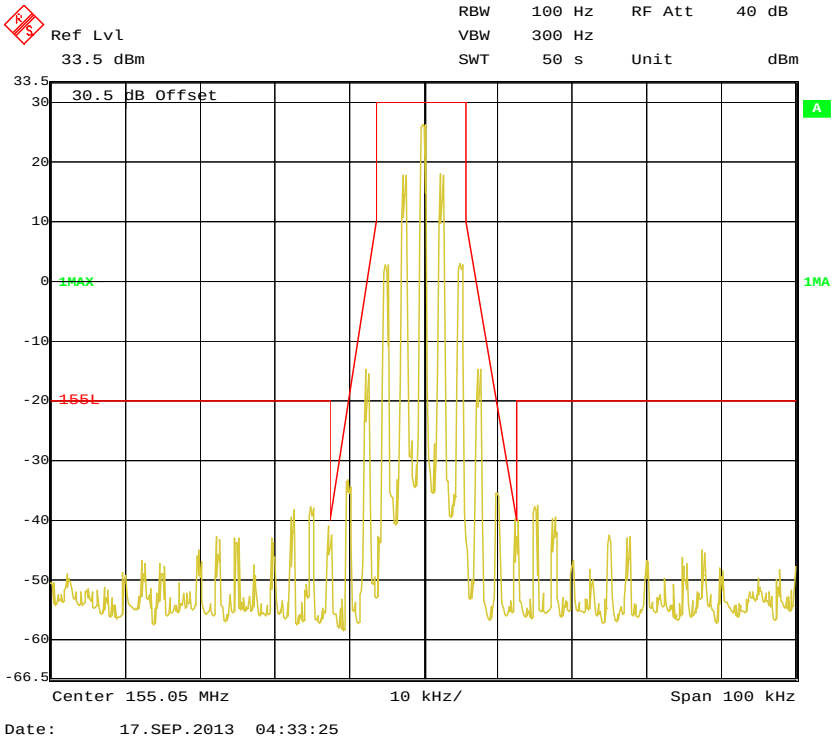
99% Occupied Bandwidth & 26 dB Emissions Bandwidth, 155.05 MHz, Low Power



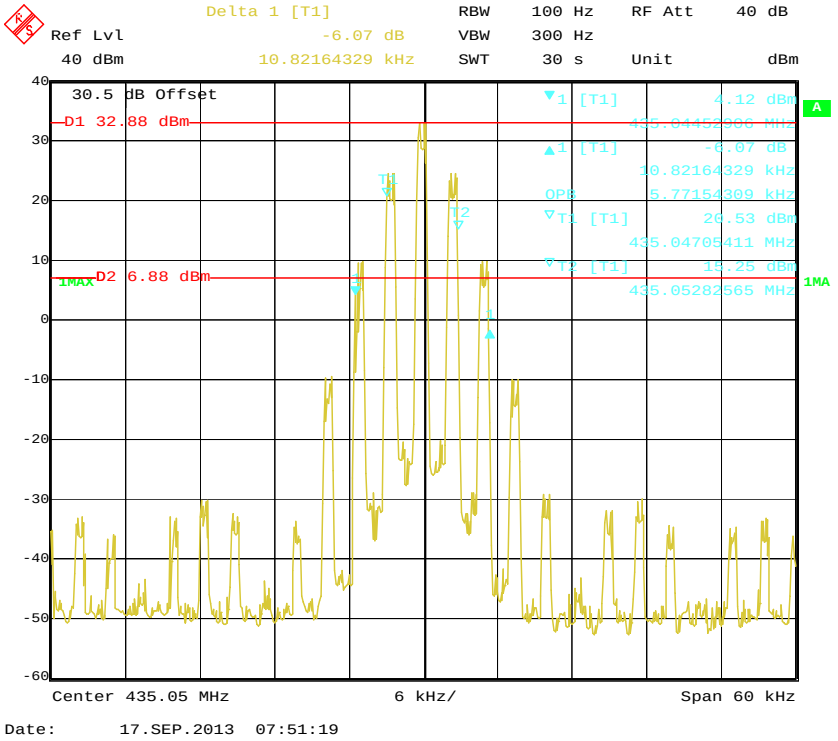
Emission Mask, 155.05 MHz, High Power



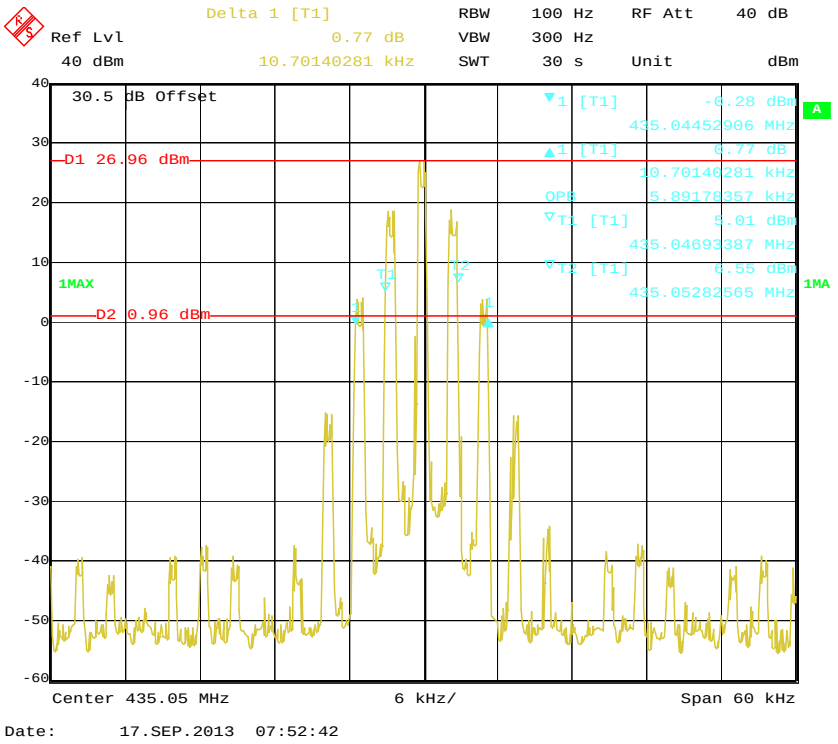
Emission Mask, 155.05 MHz, Low Power



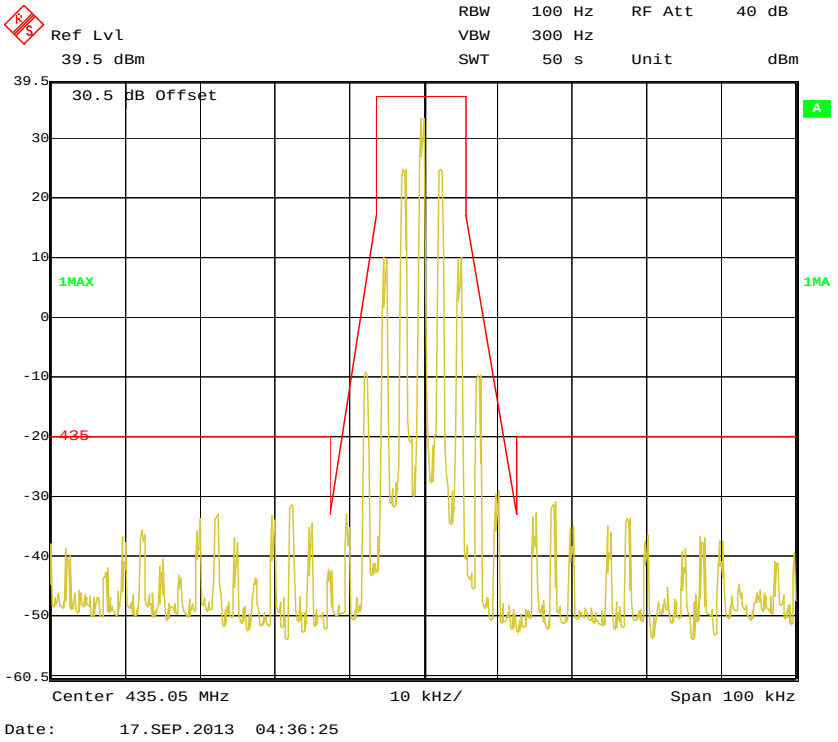
99% Occupied Bandwidth & 26 dB Emissions Bandwidth, 435.05 MHz, High Power



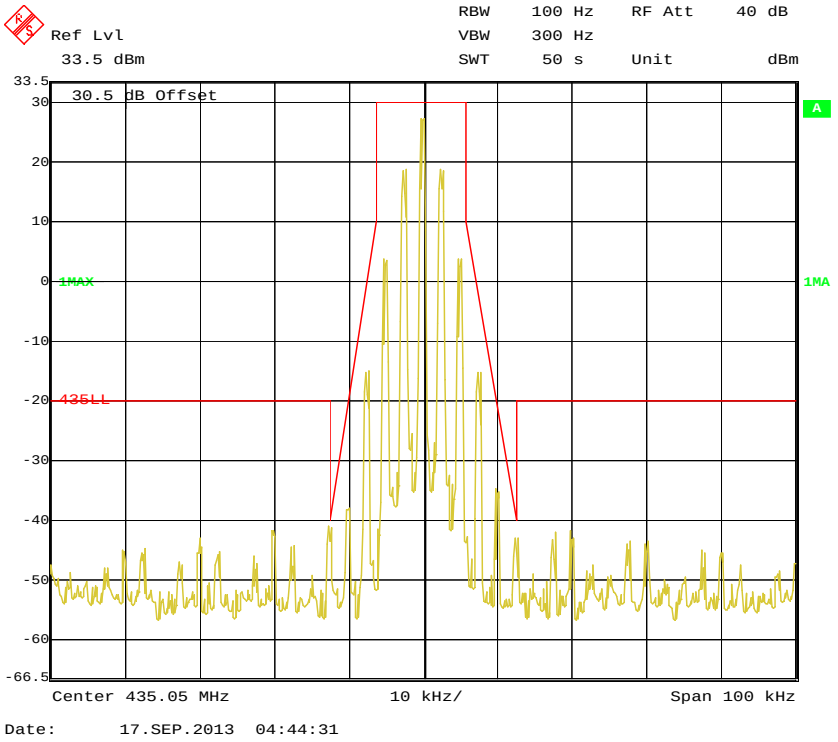
99% Occupied Bandwidth & 26 dB Emissions Bandwidth, 435.05 MHz, Low Power



Emission Mask, 435.05 MHz, High Power



Emission Mask, 435.05 MHz, Low Power



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) dB or 70 dB, whichever is the lesser attenuation.

Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2012-11-24	2013-11-23

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements, traceable to National Primary Standards and International System of Units (SI).

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 100 kHz for below 1GHz, and 1MHz for above 1GHz. sufficient scans were taken to show any out of band emissions up to 10th harmonic.

Test Data

Environmental Conditions

Temperature:	24~26 ℃
Relative Humidity:	54~56 %
ATM Pressure:	100.0~100.1 kPa

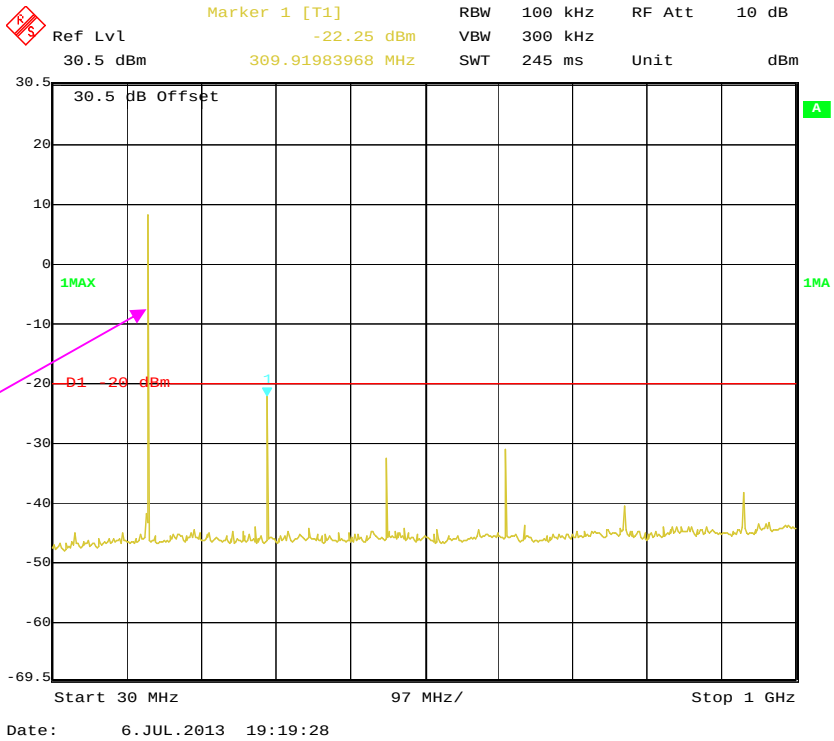
The testing was performed by Rocky Kang on 2013-07-08 and 2013-10-23.

Test Mode: Transmitting

Please refer to the following plots.

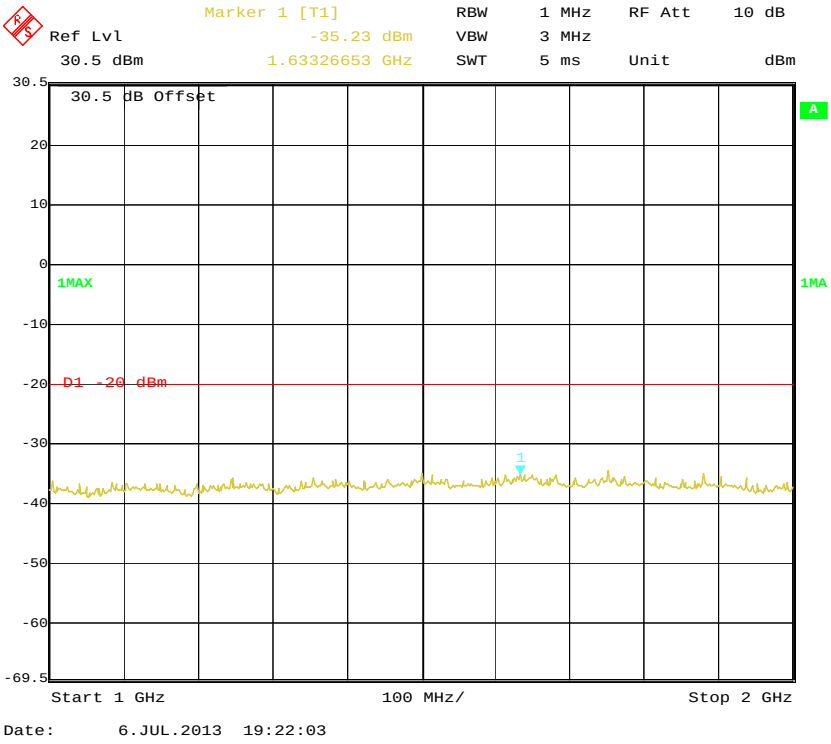
Analog Modulation (155.05 MHz):

30 MHz – 1 GHz, Spacing Channel 12.5 kHz



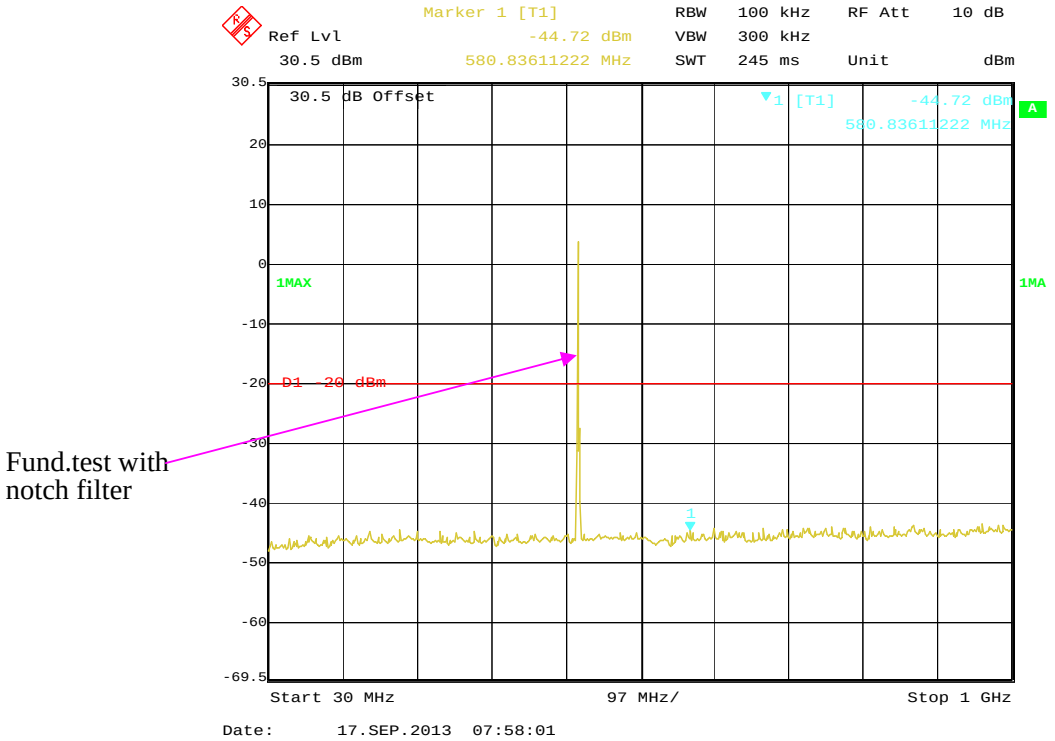
Fund.test with notch filter

1 GHz – 2 GHz, Spacing Channel 12.5 kHz

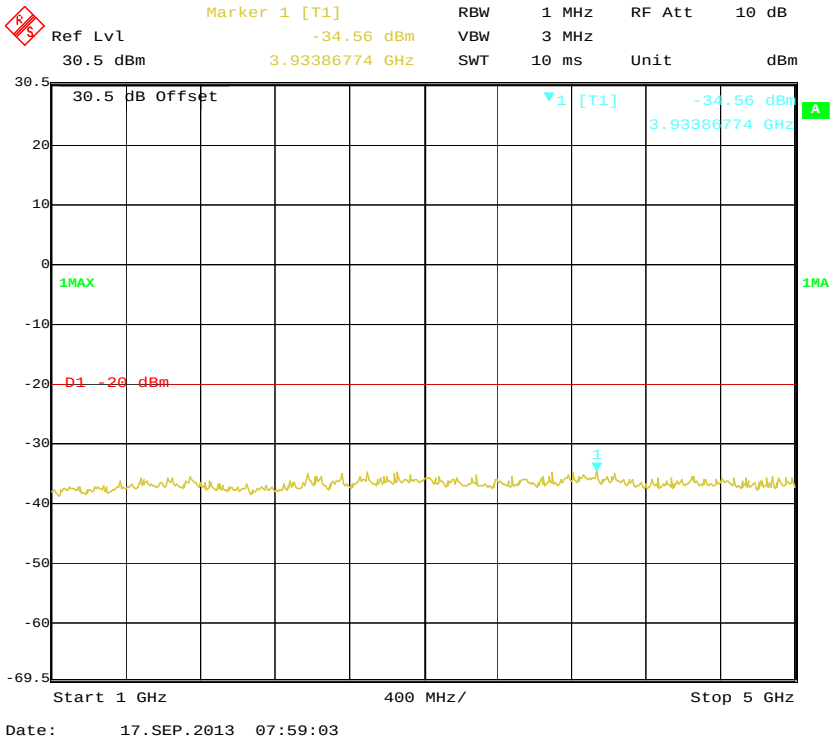


Analog Modulation (435.05 MHz):

30 MHz – 1 GHz, Spacing Channel 12.5 kHz



1 GHz – 5 GHz, Spacing Channel 12.5 kHz



FCC §2.1053 & §90.210 - RADIATED SPURIOUS EMISSIONS

Applicable Standard

FCC §2.1053 and §90.210

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	101122	2013-05-09	2014-05-09
HP	Amplifier	8447E	1937A01046	2012-08-09	2013-08-09
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2014-11-27
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2012-11-24	2013-11-23
Sunol Sciences	Horn Antenna	DRH-118	A052304	2011-12-01	2014-11-30
HP	Synthesized Sweeper	8341B	2624A00116	2013-05-09	2014-05-09
Mini-Circuits	Amplifier	ZVA-213+	N/A	2012-11-24	2013-11-23
A.H. System	Horn Antenna	SAS-200/571	135	2012-02-11	2015-02-10
COM POWER	Dipole Antenna	AD-100	041000	2013-06-06	2014-06-05

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements, traceable to National Primary Standards and International System of Units (SI).

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 1g (TXpwr in Watts/0.001)-the absolute level

Spurious attenuation limit in dB =50+10 Log_{10} (power out in Watts) for EUT with a 12.5 kHz channel bandwidth.

Test Data

Environmental Conditions

Temperature:	27 ℃
Relative Humidity:	56 %
ATM Pressure:	100.2 kPa

The testing was performed by Rocky Kang on 2013-07-16.

Test Mode: Transmitting

30 MHz – 5 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)
Analog Modulation, 155.05 MHz, Channel Spacing 12.5 kHz										
310.10	38.54	68	1.6	H	-58.0	1.51	0	-59.51	-20	39.51
310.10	44.25	66	1.5	V	-52.3	1.51	0	-53.81	-20	33.81
620.20	35.65	153	1.7	H	-61.2	3.53	0	-64.73	-20	44.73
620.20	38.88	112	1.5	V	-57.6	3.53	0	-61.13	-20	41.13
1395.45	44.75	68	1.7	H	-55.9	0.88	9.00	-47.78	-20	27.78
1395.45	42.16	132	1.8	V	-59.3	0.88	9.00	-51.18	-20	31.18
Analog Modulation, 435.05 MHz, Channel Spacing 12.5 kHz										
870.10	57.04	76	1.5	H	-39.2	3.86	0	-43.06	-20	23.06
870.10	64.70	147	1.6	V	-31.5	3.86	0	-35.36	-20	15.36
3480.40	47.27	68	1.7	H	-50.4	2.23	10.70	-41.93	-20	21.93
3480.40	57.38	132	1.8	V	-38.2	2.23	10.70	-29.73	-20	9.73
3915.45	41.68	68	1.7	H	-54.4	3.20	10.40	-47.20	-20	27.20
3915.45	45.23	132	1.8	V	-50.1	3.20	10.40	-42.90	-20	22.90

Note:
Absolute Level = SG Level - Cable loss + Antenna Gain
Margin = Limit - Absolute Level

FCC §2.1055 & §90.213- FREQUENCY STABILITY

Applicable Standard

FCC §2.1055 and §90.213

Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
Hewlett-Packard	Frequency Counter	5343A	2232A00827	2013-05-09	2014-05-09
ESPEC	Temperature & Humidity Chamber	EL-10KA	09107726	2012-11-02	2013-11-01
Long Wei	DC Power Supply	TPR-6420D	398363	N/A	N/A

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements, traceable to National Primary Standards and International System of Units (SI).

Test Procedure

Frequency Stability vs. Temperature: The equipment under test was connected to an external DC power supply and the RF output was connected to a frequency counter via feed-through attenuators. The EUT was placed inside the temperature chamber. The DC 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.

Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	54 %
ATM Pressure:	100.0 kPa

The testing was performed by Rocky Kang on 2013-07-25.

Test Mode: Transmitting

For Analog Modulation

Reference Frequency: 155.05 MHz, Limit: 5.0 ppm, 12.5 kHz			
Test Environment		**Frequency Measure with Time Elapsed**	
Temperature (℃)	**Power Supplied (V_{DC})**	**Measured Frequency error (MHz)**	**Frequency Error (ppm)**
Frequency Stability versus Input Temperature			
50	7.4	155.05006	0.39
40	7.4	155.05001	0.06
30	7.4	155.05007	0.45
20	7.4	155.05009	0.58
10	7.4	155.05006	0.39
0	7.4	155.05012	0.77
-10	7.4	155.05011	0.71
-20	7.4	155.05006	0.39
-30	7.4	155.05001	0.06
Frequency Stability versus Input Voltage			
20	6.3	155.05006	0.39

Reference Frequency: 435.05 MHz, Limit: 2.5 ppm, 12.5 kHz			
Test Environment		**Frequency Measure with Time Elapsed**	
Temperature (℃)	**Power Supplied (V_{DC})**	**Measured Frequency error (MHz)**	**Frequency Error (ppm)**
Frequency Stability versus Input Temperature			
50	7.4	435.05008	0.18
40	7.4	435.05008	0.18
30	7.4	435.04996	-0.09
20	7.4	435.04995	-0.11
10	7.4	435.05002	0.05
0	7.4	435.05002	0.05
-10	7.4	435.05006	0.14
-20	7.4	435.04992	-0.18
-30	7.4	435.04993	-0.16
Frequency Stability versus Input Voltage			
20	6.3	435.04993	-0.16

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

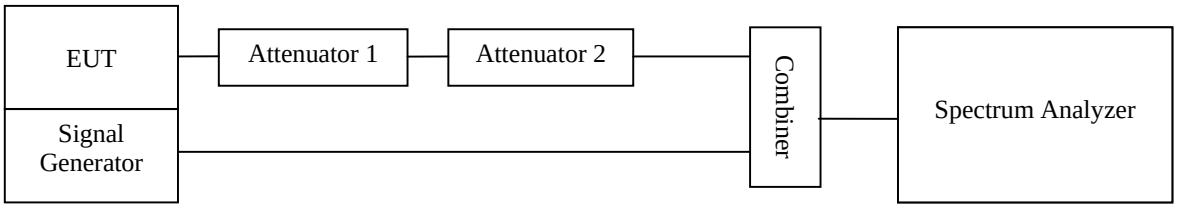
Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
Rohde & Schwarz	Signal Analyzer	FSIQ26	8386001028	2012-11-24	2013-11-23
HP	RF Communication Test Set	8920A	3438A05201	2013-06-14	2014-06-13

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed in accordance to requirements, traceable to National Primary Standards and International System of Units (SI).

Test Procedure

a) Connect the EUT and test equipment as shown on the following block diagram.
b) Set the Spectrum Analyzer to measure FM deviation, and tune the RF frequency to the transmitter assigned frequency.
c) Set the signal generator to the assigned transmitter frequency and modulate it with a 1 kHz tone at ±12.5 kHz deviation and set its output level to -100dBm.
d) Turn on the transmitter.
e) Supply sufficient attenuation via the RF attenuator to provide an input level to the Spectrum Analyzer that is 40 dB below the maximum allowed input power when the transmitter is operating at its rated power level. Note this power level on the Spectrum Analyzer as P_0.
f) Turn off the transmitter.
g) Adjust the RF level of the signal generator to provide RF power equal to P_0. This signal generator RF level shall be maintained throughout the rest of the measurement.
h) Remove the attenuation 1, so the input power to the Spectrum Analyzer is increased by 30 dB when the transmitter is turned on.
i) Adjust the vertical amplitude control of the spectrum analyzer to display the 1000 Hz at ±4 divisions vertically centered on the display. Set trigger mode of the Spectrum Analyzer to “Video”, and tune the “trigger level” on suitable level. Then set the “tiger offset” to -10ms for turn on and -15ms for turn off.
j) Turn on the transmitter and the transient wave will be captured on the screen of Spectrum Analyzer. Observe the stored display. The instant when the 1 kHz test signal is completely suppressed is considered to be t_{on}. The trace should be maintained within the allowed divisions during the period t_1 and t_2.

k) Then turn off the transmitter, and another transient wave will be captured on the screen of Spectrum Analyzer. The trace should be maintained within the allowed divisions during the period t_3.



Test Data

Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	54 %
ATM Pressure:	100.0 kPa

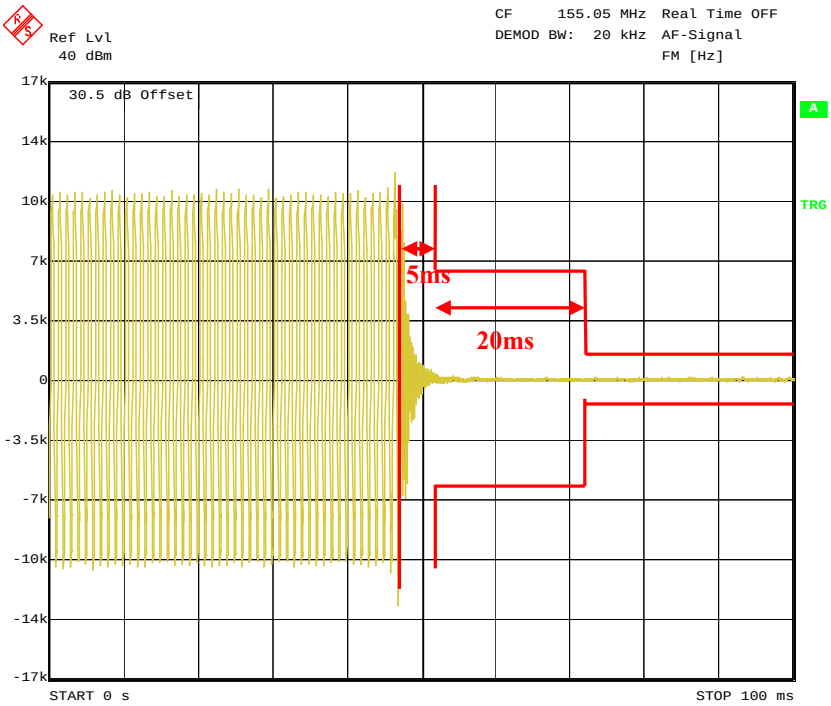
The testing was performed by Rocky Kang on 2013-07-25.

Test Mode: Transmitting

Frequency (MHz)	Channel Separation (kHz)	Transient Period (ms)	Transient Frequency	Result
155.05	12.5	<5 (t1)	+/-12.5 kHz	Pass
		<20 (t2)	+/-6.25 kHz	
		<5 (t3)	+/-12.5 kHz	
435.05	12.5	<10 (t1)	+/-12.5 kHz	Pass
		<25 (t2)	+/-6.25 kHz	
		<10 (t3)	+/-12.5 kHz	

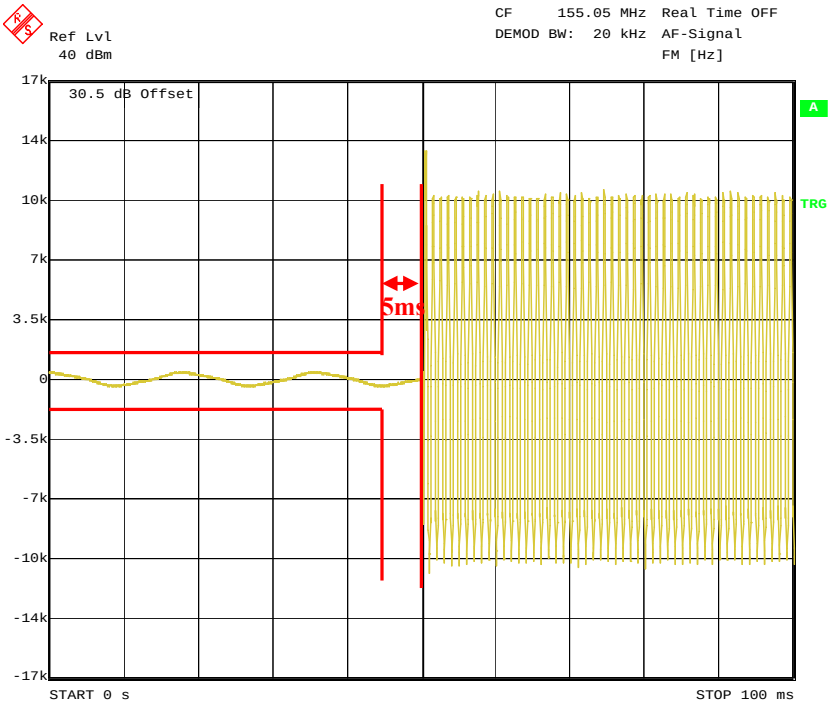
Please refer to the following plots.

Analog Modulation, 155.05 MHz, Turn on



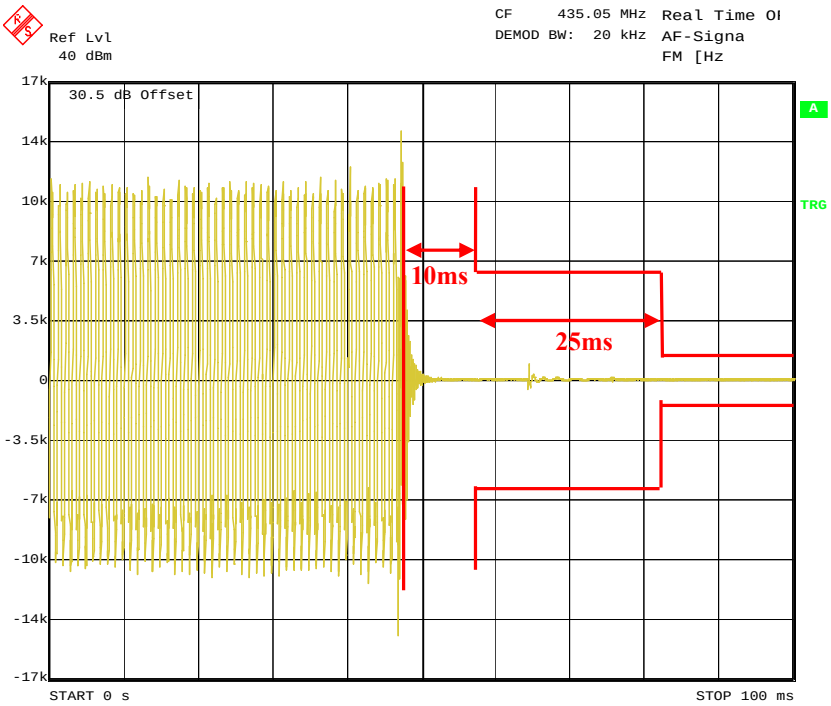
Date: 25.JUL.2013 14:00:25

Analog Modulation, 155.05 MHz, Turn off



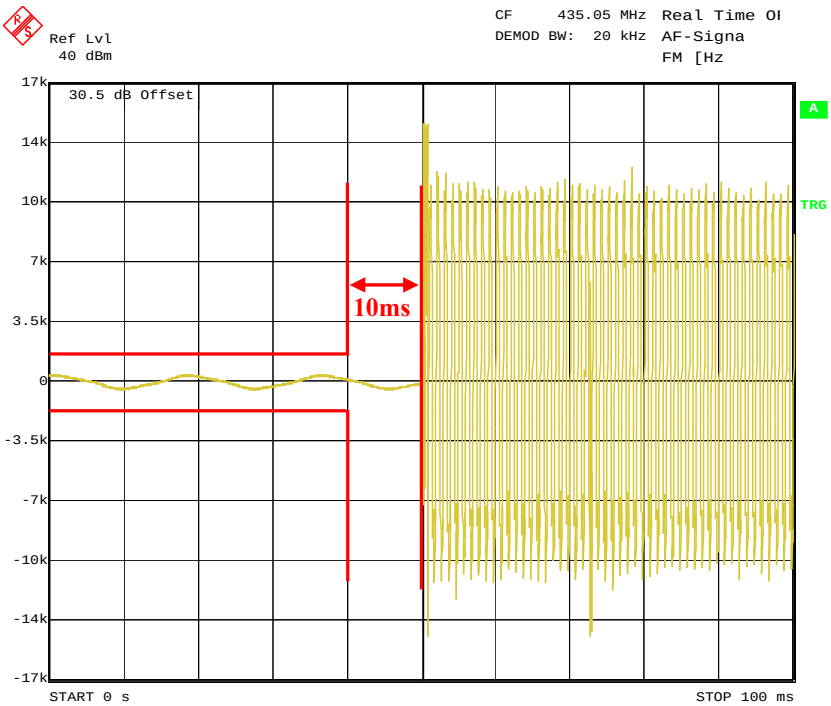
Date: 25.JUL.2013 14:01:29

Analog Modulation, 435.05 MHz, Turn on



Date: 25.JUL.2013 14:10:25

Analog Modulation, 435.05 MHz, Turn off



Date: 25.JUL.2013 14:12:26

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