FCC PART 90 TYPE APPROVAL

EMI MEASUREMENT AND TEST REPORT

For

Shenzhen HYT Science & Technology Co., Ltd

HYT Tower, Shenzhen Hi-Tech Industrial Park North, Beihuan Rd., Nanshan District, Shenzhen, P.R.C.

FCC ID: R74TC-600V

December 27, 2005

This Report Concerns: ☒ Original Report	**Equipment Type:** Two-way radio
Test Engineer:	Jandy Su Louise Lu
Report No.:	RSZ05120203
Test Date:	December 19-23, 2005
Reviewed By:	Chris Zeng
Prepared By:	Bay Area Compliance Lab Corp. (ShenZhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone, ShenZhen, Guangdong 518038, P.R.China Tel: +86-755-33320018 Fax: +86-755-33320008

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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *Shenzhen HYT Science & Technology Co., Ltd*'s product, model number: TC-600V or the "EUT" as referred to in this report is a Two-way radio. The EUT is measured approximately 8.3 cm L x 4.0cmW x 22.8cmH, rated input voltage: DC 7.2 V Battery, with detachable Antenna 11.8cm.

** The test data gathered are from production sample, serial number: 05930G0001, provided by the manufacturer, we received the EUT on 2005-12-2.*

Objective

This Type approval report is prepared on behalf of *Shenzhen HYT 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 EIA 137-A, TIA EIA 98-C, TIA603-C and ANSI 63.4-2003, American National Standard for Method of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All emissions measurement was performed and Bay Area Compliance Lab 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 Lab Corp. (ShenZhen) to collect test data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone, ShenZhen, Guangdong 518038, P.R.China.

Test site at Bay Area Compliance Lab 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 November 04, 2004. 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 and Industrial Canada registration test site No.: 5500A. 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 Lab Corp. (ShenZhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0). The current scope of accreditations can be found at http://ts.nist.gov/ts/htdocs/210/214/scopes/2007070.htm

External I/O Cable

Cable Description	Length (M)	From/Port	To
Unshielded detachable Earphone Cable	1.30	EUT	Earphone

SYSTEM TEST CONFIGURATION

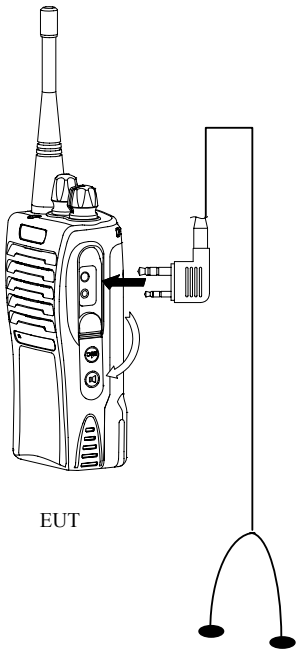
Description of Test Configuration

The system was configured for testing in a typical fashion (as normally used by a typical user).

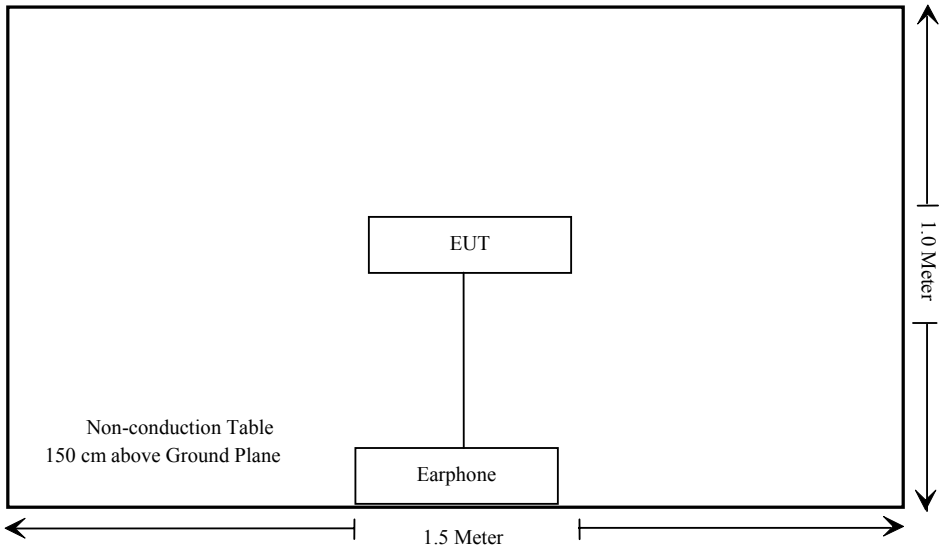
Equipment Modifications

Bay Area Compliance Lab Corp. (ShenZhen) has not done any modification on the EUT.

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§1.1310, §2.1093	RF Exposure	Compliant, refer to SAR report
§2.1046, §90.205	Conducted Output Power	Compliant
§2.1047 §90.207	Modulation Characteristic	Compliant
§2.1049, §90.209	Occupied Bandwidth	Compliant
§2.1051, §90.210	Spurious Emissions AT Antenna Terminals	Compliant
§2.1053 §90.210	Spurious Radiated Emissions	Compliant
§ 2.1055 § 90.213	Frequency stability	Compliant
§ 90.214	Transient Frequency Behavior	Compliant

§2.1046, and §90.205 - CONDUCTED OUTPUT POWER

Applicable Standard

According to FCC §2.1046, and §90.205, maximum ERP is dependent upon the station's antenna HAAT and required service area.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde&Schwarz	EMI Test Receiver	ESCI	100035	2005-8-17	2006-8-17

*** Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

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
100kHz	300kHz

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	1005mbar

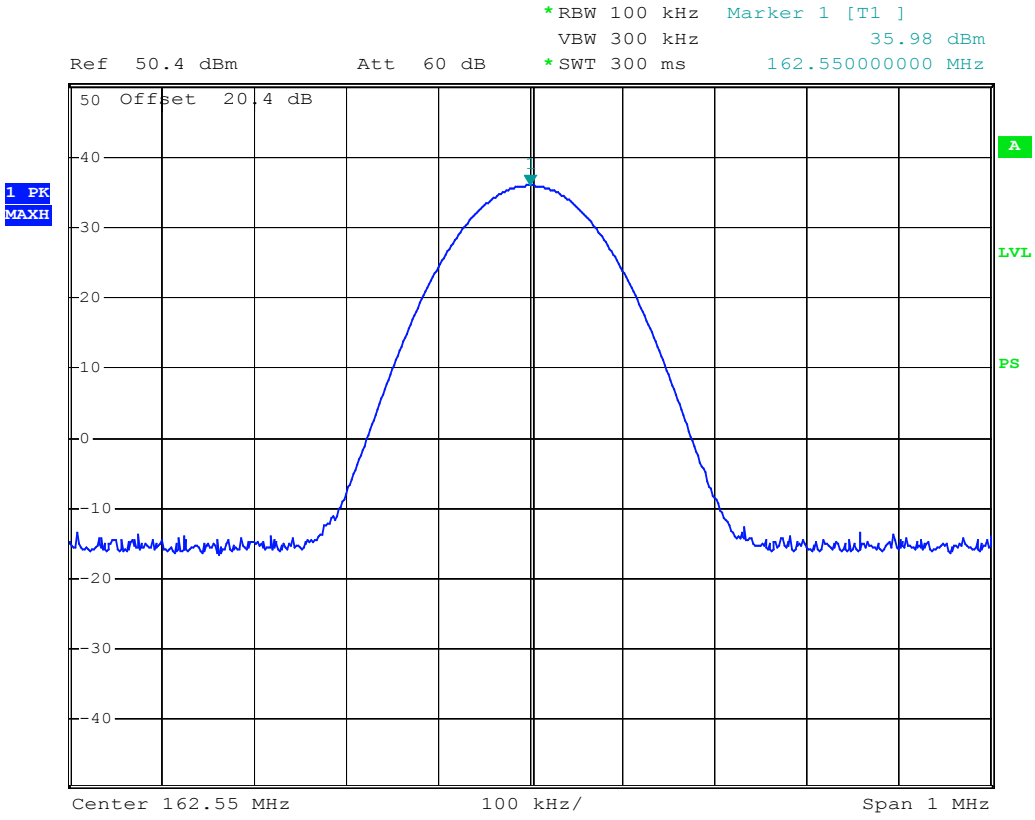
The testing was performed by Jandy Su on 2005-12-19.

Test Result: Pass

Test Mode: Transmitting

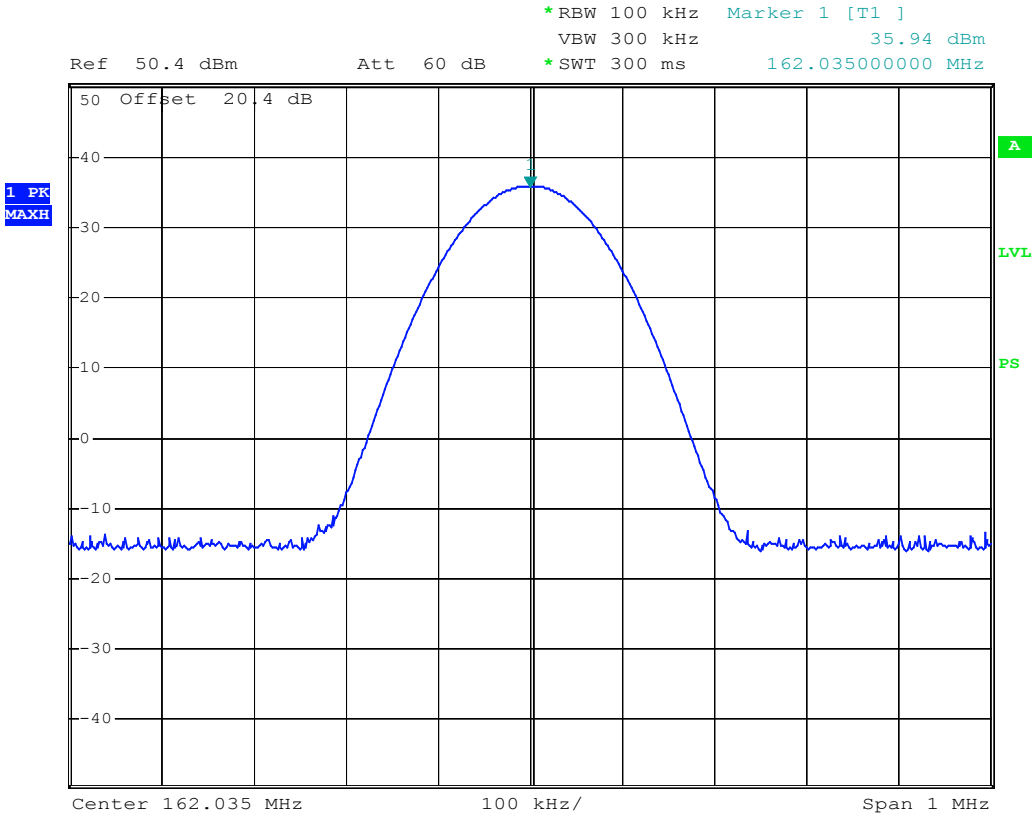
Frequency Spacing (kHz)	Frequency (MHz)	Output Power in dBm	Output Power in W
12.5	162.550	35.98	3.96
25.0	162.035	35.94	3.93

Note: The power output may depend on the intended use of the EUT. For all tests, the EUT was set to maximum conditions.



HYT TC-600V Conducted output power 12.5kHz

Date: 19.DEC.2005 14:01:59



HYT TC-600V Conducted output power 25kHz

Date: 19.DEC.2005 14:01:06

§2.1047, and §90.207 - MODULATION CHARACTERISTIC

Applicable Standard

§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 Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde&Schwarz	Spectrum Analyzer	FSEM30	849720/019	2005-11-10	2006-11-10
HP	Modulation Analyzer	8901B	3438A05208	2005-2-28	2006-2-28
NANYAN	Audio Generator	NY2201	019829	2005-12-23	2006-12-23

*** Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

Test Method: TIA/EIA-603 2.2.3

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	1005mbar

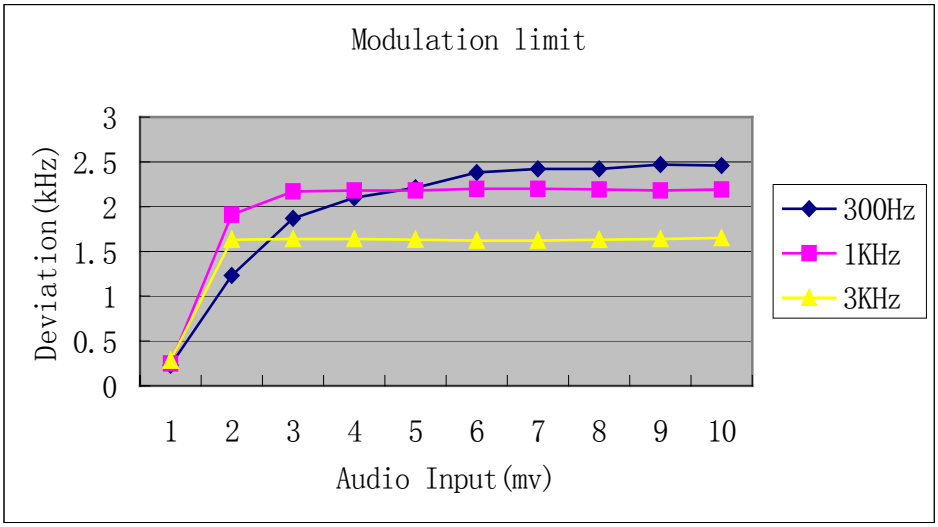
The testing was performed by Jandy Su on 2005-12-21.

Test Result: Pass

Test Mode: Transmitting

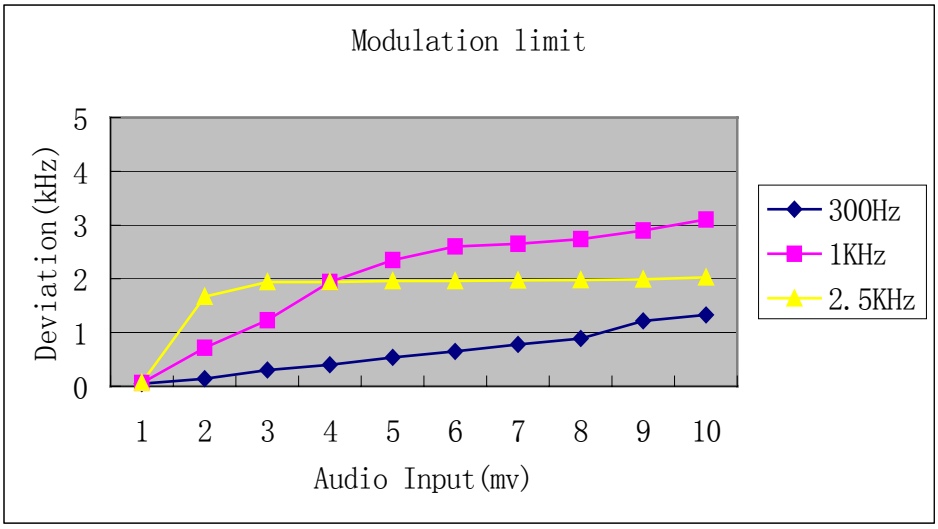
For 12.5 kHz Channel Bandwidth:

Audio Input (mV)	300Hz Deviation (kHz)	1kHz Deviation (kHz)	3kHz Deviation (kHz)
0	0.23	0.25	0.28
4	1.23	1.91	1.63
8	1.87	2.17	1.64
12	2.10	2.18	1.64
16	2.21	2.18	1.63
20	2.38	2.20	1.62
24	2.42	2.20	1.62
28	2.42	2.19	1.63
32	2.47	2.18	1.64
36	2.46	2.19	1.65

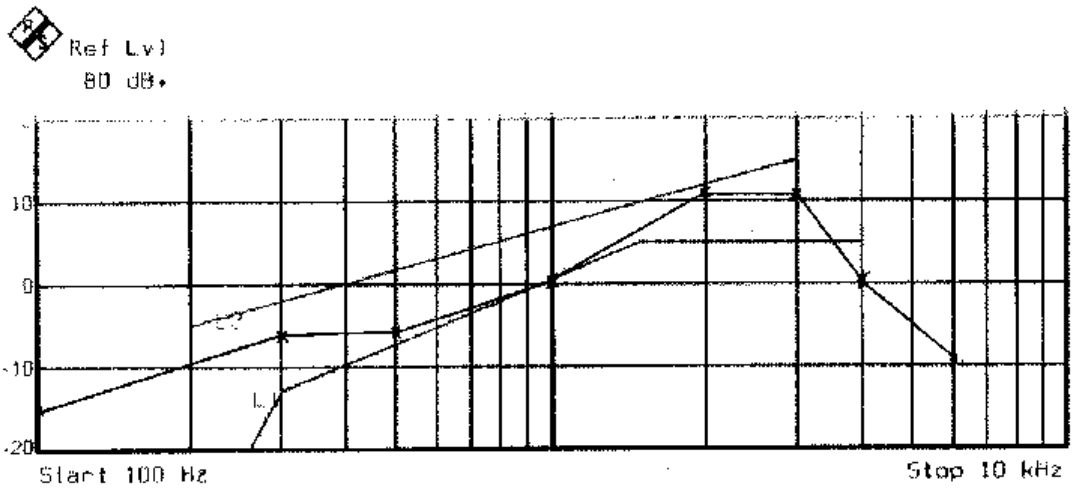


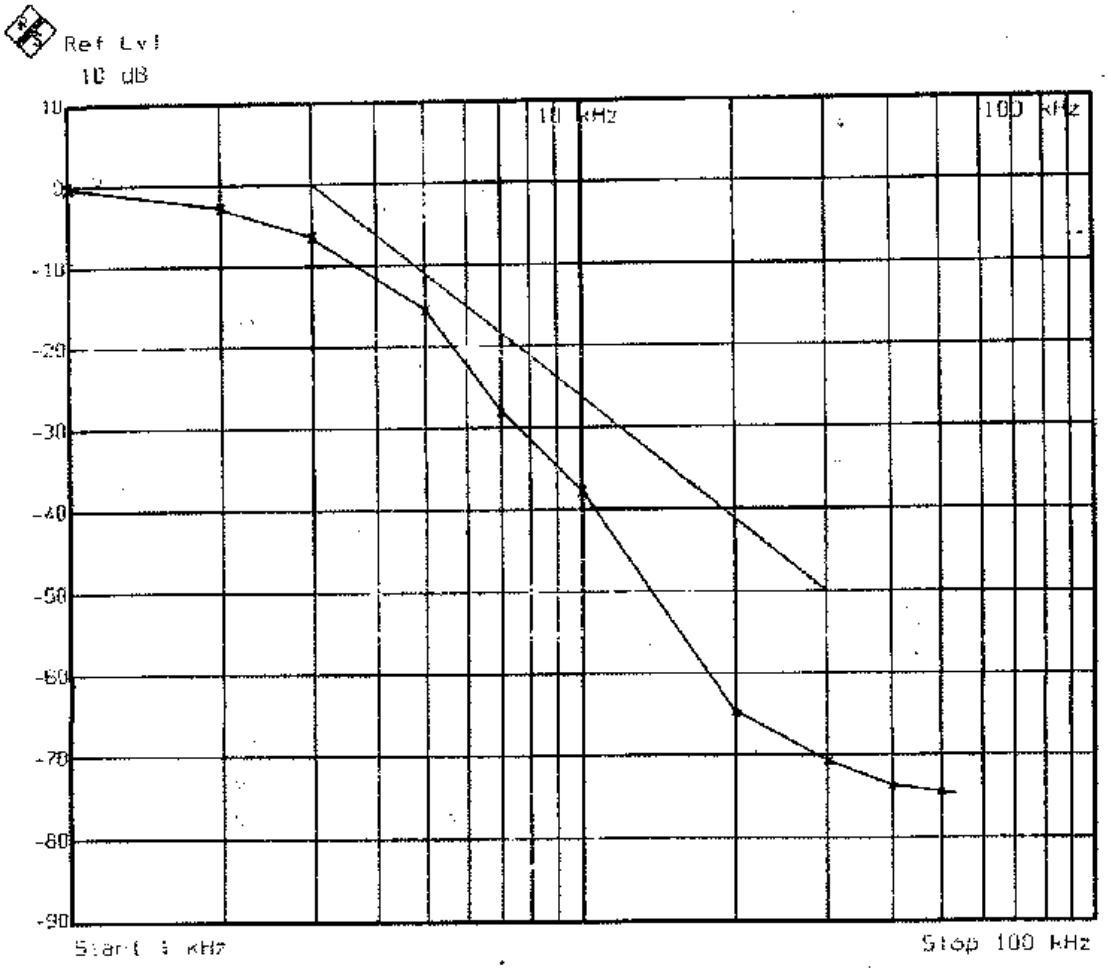
For 25 kHz Channel Bandwidth:

Audio Input (mV)	300Hz Deviation (kHz)	1kHz Deviation (kHz)	3kHz Deviation (kHz)
0	0.05	0.06	0.07
4	0.14	0.72	1.67
8	0.30	1.23	1.94
12	0.40	1.94	1.94
16	0.54	2.35	1.96
20	0.65	2.60	1.96
24	0.78	2.65	1.97
28	0.89	2.74	1.98
32	1.22	2.90	1.99
36	1.33	3.10	2.03



Audio Low Pass Filter Characteristic





Date:

§2.1049, and § 90.209 – OCCUPIED BANDWIDTH

Applicable Standard

§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 5.625kHz 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 5.626kHz but no more than 12.5kHz, at least 7.27 (f_d –2.88kHz) dB.

3) On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 12.5kHz at least:

50+10logP=50+10log(3.96)=55.56dB

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+10logP=43+10log(3.93)=48.94dB

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde&Schwarz	EMI Test Receiver	ESCI	100035	2005-8-17	2006-8-17
HP	Modulation Analyzer	8901B	3438A05208	2005-2-28	2006-2-28
NANYAN	Audio Generator	NY2201	019829	2005-12-23	2006-12-23

*** Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

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 ±50 KHz from the carrier frequency.

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	1005mbar

The testing was performed by Jandy Su on 2005-12-19.

Test Result: Pass.

Test Mode: Transmitting

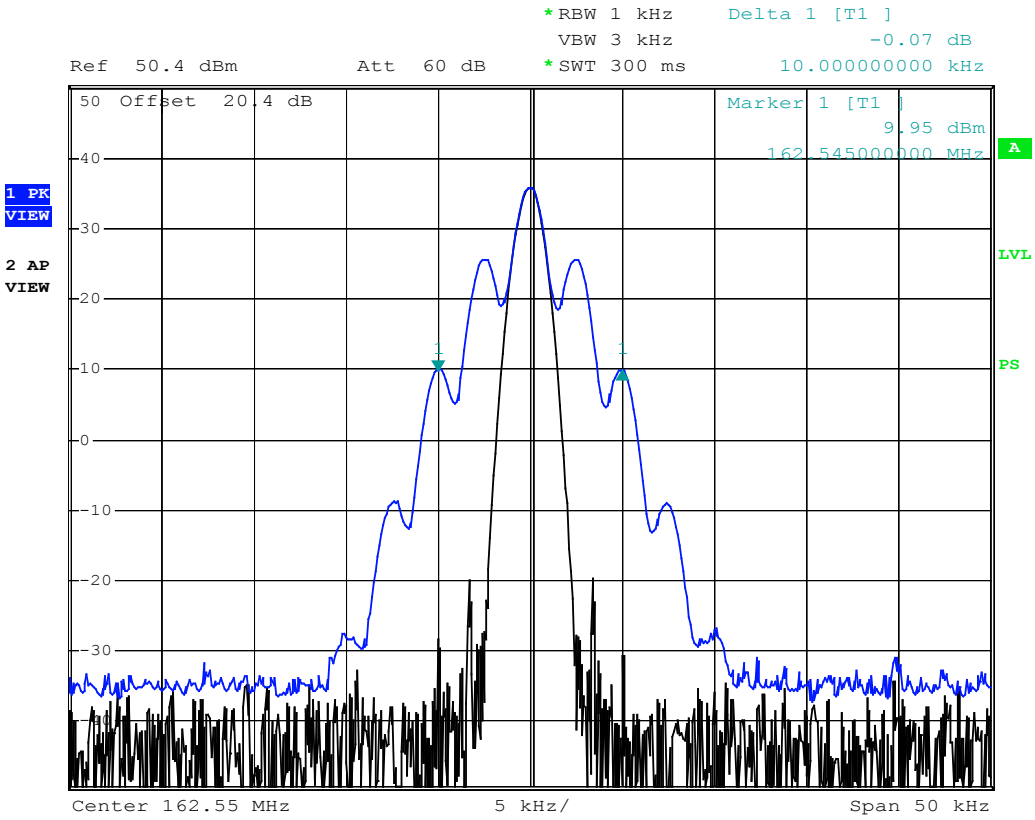
Please refer to the hereinafter plots.

Emission Designator:

For 12.5KHz Channel Spacing: 2M+2D = 2x3+2x2.5 = 11K0F3E

For 25 KHz Channel Spacing: 2M+2D = 2x3+2x5 = 16K0F3E

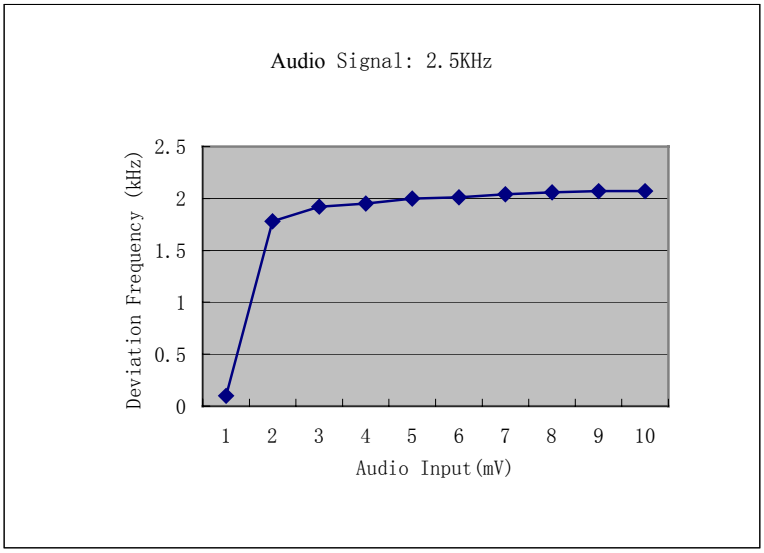
Emission Mask D-For 12.5 kHz Channel Bandwidth:



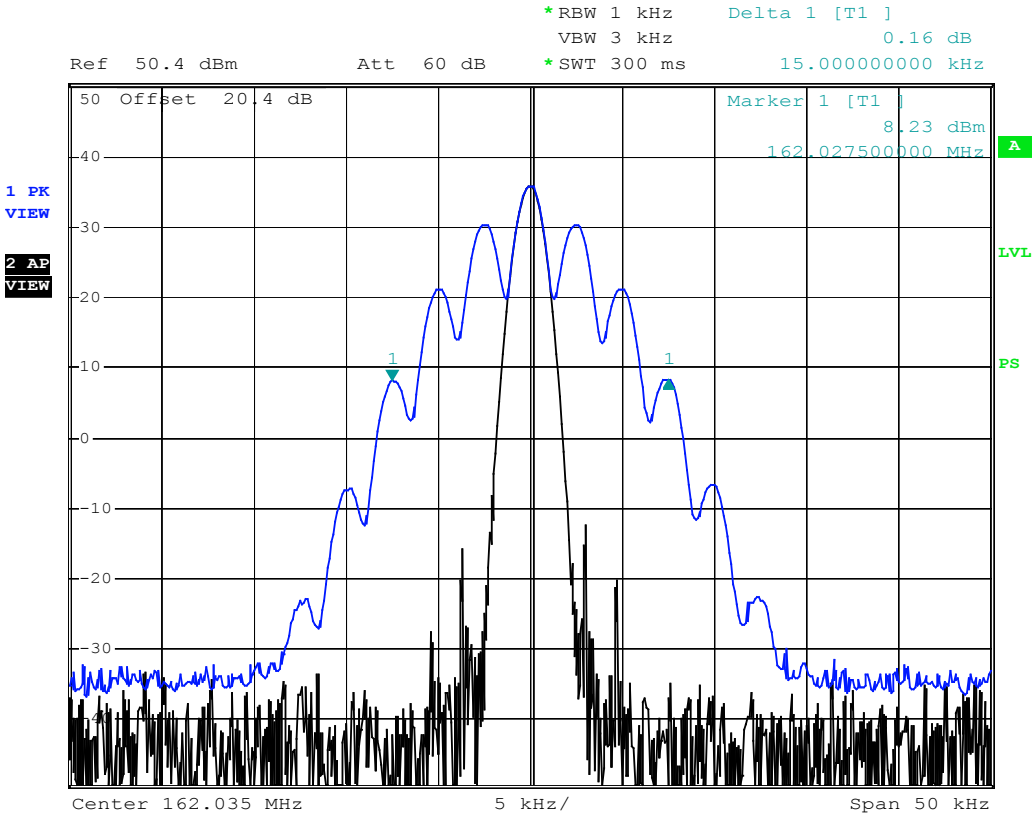
HYT TC-600V Occupied bandwidth 12.5kHz

Date: 19.DEC.2005 13:55:05

Audio Input (mV)	Frequency Deviation (KHz)
0	0.10
4	1.78
8	1.92
12	1.95
16	2.00
20	2.01
24	2.04
28	2.06
32	2.07
36	2.07



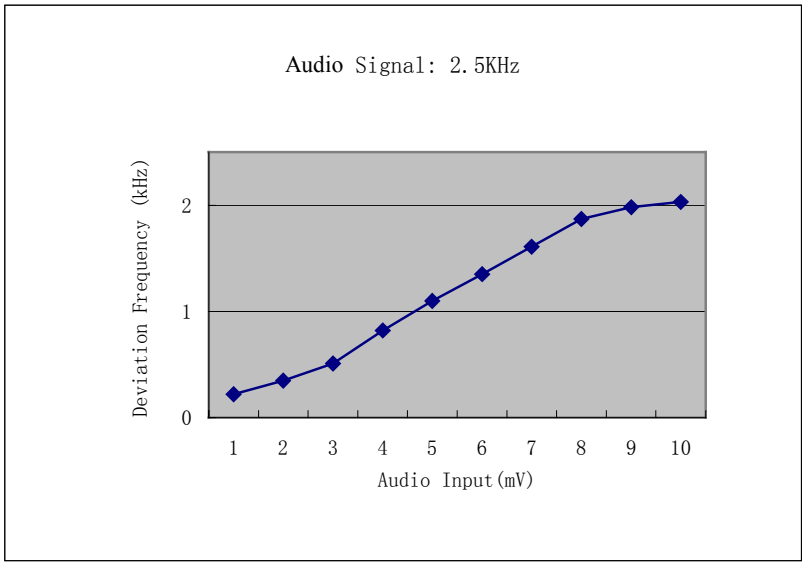
Emission Mask B-For 25 kHz Channel Bandwidth:



HYT TC-600V Occupied bandwidth 25kHz

Date: 19.DEC.2005 13:59:10

Audio Input (mV)	Frequency Deviation (KHz)
0	0.22
4	0.35
8	0.51
12	0.82
16	1.10
20	1.35
24	1.61
28	1.87
32	1.98
36	2.03



§2.1051 and §90.210 - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standard

§90.210 (12.5kHz bandwidth only)

On any frequency removed from the center of the authorized bandwidth by a displacement frequency (f_d in kHz) of more than 12.5kHz at least:

50+10logP=50+10log(3.96)=55.56dB

§2.1051and §90.210 (25kHz bandwidth and 20 kHz bandwith)

On any frequency removed from the center of the assigned channel by more than 250 percent at least:

43+10logP=43+10log(3.93)=48.94dB

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde&Schwarz	EMI Test Receiver	ESCI	100035	2005-8-17	2006-8-17

*** Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

The RF output of the transceiver was connected to a spectrum analyzer through appropriate attenuation. The resolution bandwidth of the spectrum analyzer was set at 100 kHz. Sufficient scans were taken to show any out of band emissions up to 10th harmonic.

Test Data

Environmental Conditions

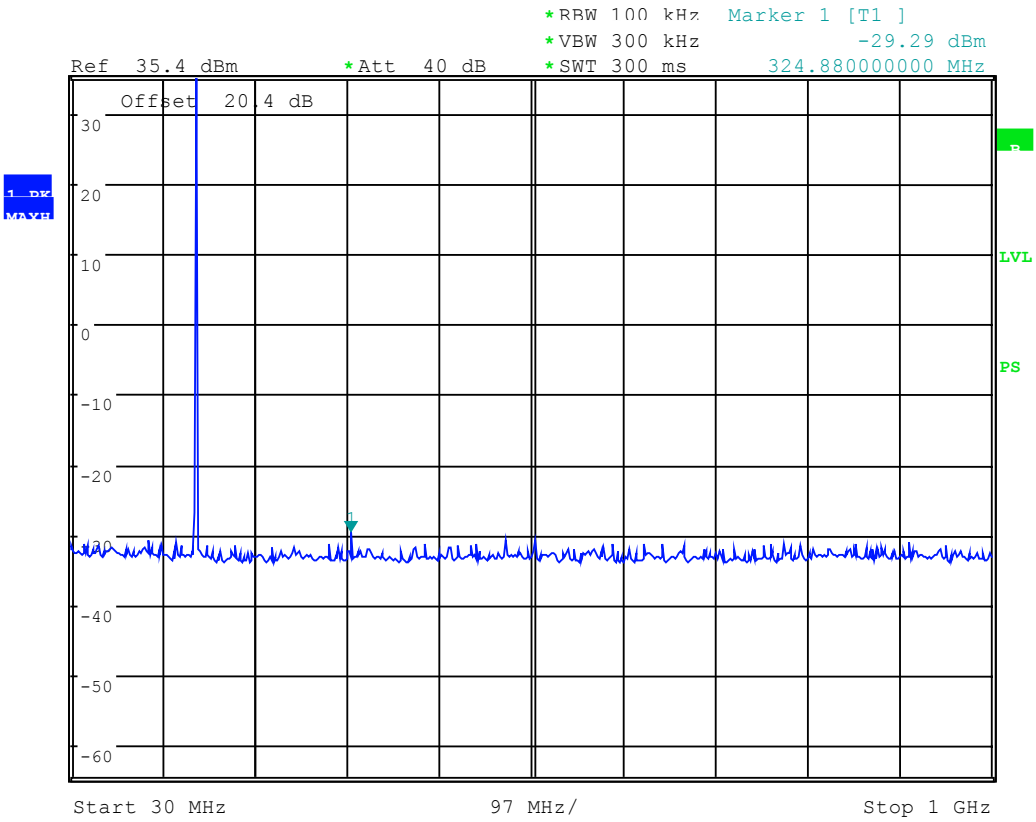
Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	1005mbar

The testing was performed by Jandy Su on 2005-12-23.

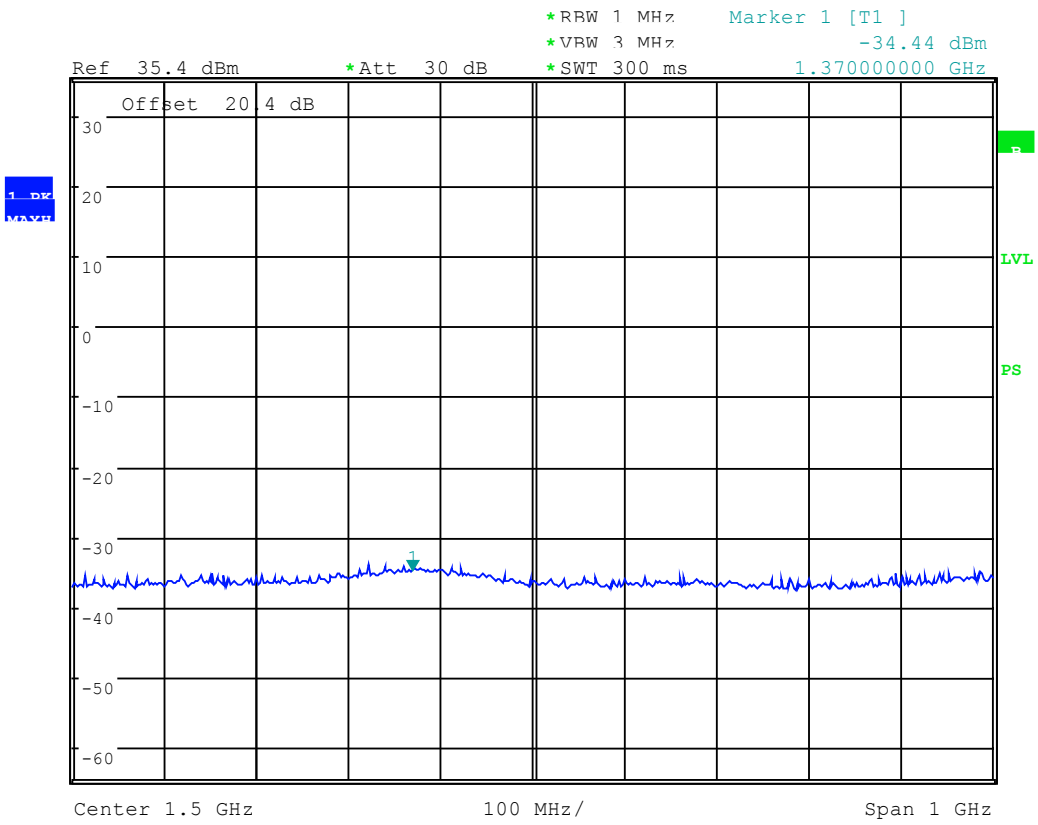
Test Result: Pass

Test Mode: Transmitting

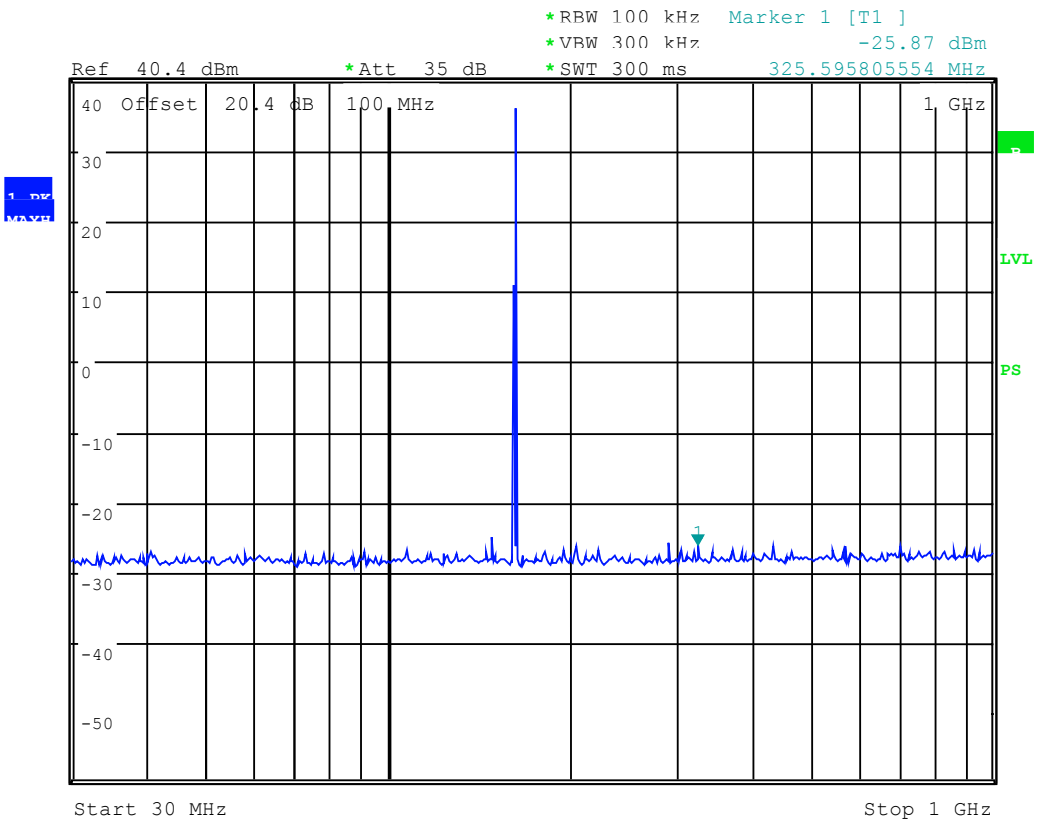
For 12.5 kHz Channel Bandwidth:



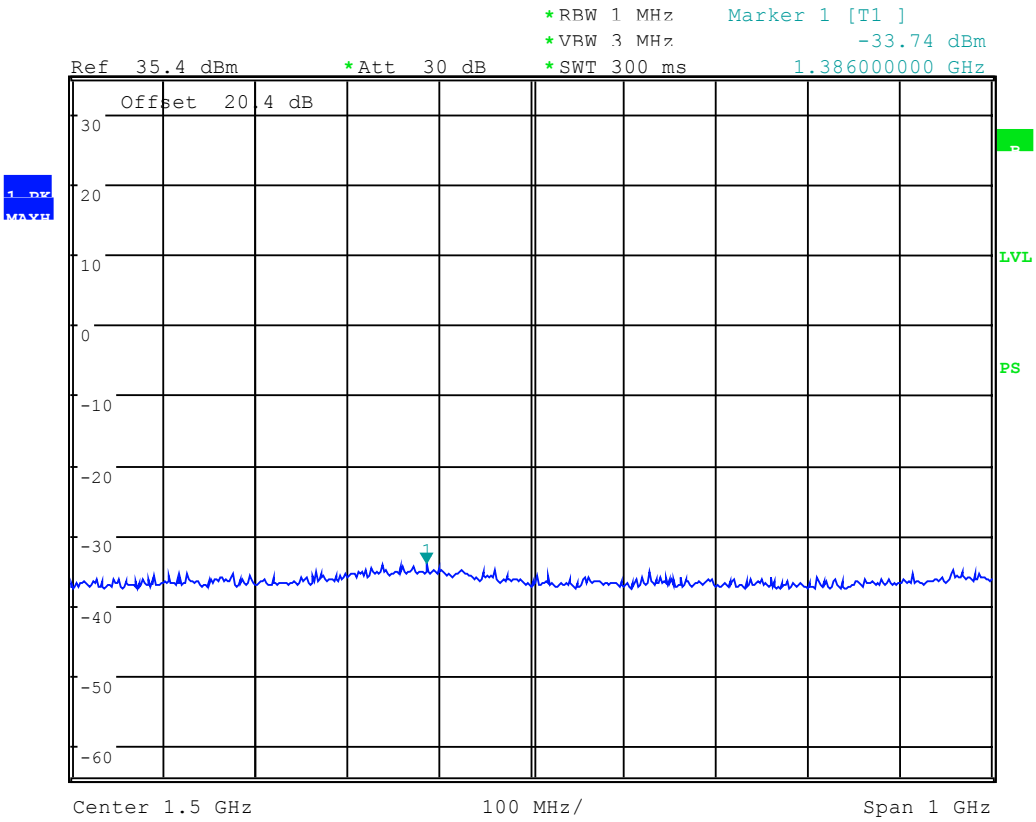
For 12.5 kHz Channel Bandwidth:



For 25 kHz Channel Bandwidth:



For 25 kHz Channel Bandwidth:



§2.1053 and §90.210 - RADIATED SPURIOUS EMISSION

Applicable Standard

§2.1053 and §90.210

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Signal Generator	HP8657A	2849U00982	2005-2-28	2006-2-28
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2005-11-10	2006-11-10
Electro-mechanics	Antenna	3146	9603-4421	2004-12-30	2005-12-30
COM POWER	Dipole Antenna	AD-100	041000	N/A	N/A

*** Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

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 =43+10 Log_{10} (power out in Watts)

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

Test Results Summary

For 12.5 kHz Channel Bandwidth:
-7.64 dB at 325.10 MHz

For 25.0 kHz Channel Bandwidth:
-9.89 dB at 324.070 MHz

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	1005mbar

The testing was performed by Louise Lu on 2005-12-21.

Test Mode: Transmitting

Indicated		Table	Test Antenna		Substituted			Antenna	Cable	Absolute		
Frequency MHz	Meter Reading dBuV/m	Angle Degree	Height Meter	Polar H/V	Frequency MHz	Level dBm	Polar H/V	Gain Correction	Loss dB	Level dBm	Limit dBm	Margin dB
For 12.5 kHz Channel Bandwidth												
325.10	44.12	30	1.6	H	325.10	-20.0	H	3.7	3.79	-27.64	-20	-7.64
325.10	35.27	0	1.5	V	325.10	-28.9	V	3.7	3.79	-28.99	-20	-8.99
812.75	37.56	60	1.6	V	812.75	-34.7	V	4.8	7.08	-36.98	-20	-16.98
812.75	36.21	30	1.7	H	812.75	-36.3	H	4.8	7.08	-38.58	-20	-18.58
487.65	27.72	30	1.7	V	487.65	-43.1	V	5.9	5.24	-42.44	-20	-22.44
650.20	26.66	180	1.8	V	650.20	-43.8	V	4.5	6.33	-45.63	-20	-25.63
650.20	27.11	0	1.5	H	650.20	-44.0	H	4.5	6.33	-45.68	-20	-25.68
487.65	37.03	30	1.7	H	487.65	-31.5	H	5.9	5.24	-48.83	-20	-28.83
975.30	27.41	60	1.6	V	975.30	-51.5	V	4.9	7.92	-54.52	-20	-34.52
For 25 kHz Channel Bandwidth												
324.070	41.55	30	1.6	H	324.070	-22.8	H	3.7	3.79	-22.89	-13	-9.89
486.105	40.84	0	1.5	H	486.105	-28.3	H	5.9	5.24	-27.64	-13	-14.64
324.070	32.20	180	1.8	V	324.070	-32.0	V	3.7	3.79	-32.09	-13	-19.09
648.140	31.08	60	1.6	V	648.140	-38.7	V	4.5	6.33	-40.53	-13	-27.53
486.105	27.59	0	1.5	V	486.105	-42.8	V	5.9	5.24	-42.14	-13	-29.14
810.175	31.87	180	1.8	V	810.175	-41.8	V	4.8	7.08	-44.08	-13	-31.08
810.175	30.23	60	1.6	H	810.175	-43.4	H	4.8	7.08	-45.68	-13	-32.68
648.140	25.13	0	1.5	H	648.140	-47.0	H	4.5	6.33	-48.83	-13	-35.83
972.210	28.13	30	1.7	V	972.210	-50.0	V	4.9	7.92	-53.02	-13	-40.02

§2.1055 (d) and §90.213- FREQUENCY STABILITY

Applicable Standard

§2.1055 (d)

§90.213
For output power > 2 watts, the limit is 5.0ppm.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
NANYAN	Audio Generator	NY2201	019829	2005-12-23	2006-12-23
Hewlett-Packard	Frequency Counter	5342A	2317A08289	2005-1-26	2006-1-26

*** Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

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 f Spectrum Analyzer 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 Spectrum Analyzer.

Frequency Stability vs. Voltage: An external variable DC power supply Source. The voltage was set to 115% of the nominal value and was then decreased until the transmitter light no longer illuminated; i.e., the end point. The output frequency was recorded for each voltage.

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	1005mbar

The testing was performed by Jandy Su on 2005-12-21.

Test Result: Pass

Test Mode: Transmitting

FOR 12.5kHz channel separation

Reference Frequency: 162.5500MHz, Limit: 5.0 ppm			
Environment Temperature	Power Supplied	Frequency Measure with Time Elapsed	
(°C)	(Vdc)	MCF (MHz)	PPM Error
50	7.2	162.5501	+0.62
40	7.2	162.5501	+0.62
30	7.2	162.5500	0.00
20	7.2	162.5500	0.00
10	7.2	162.5500	0.00
0	7.2	162.5449	-0.62
-10	7.2	162.5449	-0.62
-20	7.2	162.5449	-0.62
-30	7.2	162.5448	-1.24

Frequency Stability Versus Input Voltage

Reference Frequency: 162.5500 MHz, Limit: 5.0 ppm		
Power Supplied	Frequency Measure with Time Elapsed	
(Vdc)	Frequency (MHz)	PPM Error
5.86	162.5501	+0.62

Note: 1) Limit 5ppm is for EUT operating with 12.5KHz channel bandwidth.
2) The end point is 5.86Vdc.

FOR 25kHz channel separation

Reference Frequency: 162.0350MHz, Limit: 5.0 ppm			
Environment Temperature	Power Supplied	Frequency Measure with Time Elapsed	
(°C)	(Vdc)	MCF (MHz)	PPM Error
50	7.2	162.0351	+0.62
40	7.2	162.0351	+0.62
30	7.2	162.0350	0.00
20	7.2	162.0350	0.00
10	7.2	162.0350	0.00
0	7.2	162.0350	0.00
-10	7.2	162.0349	-0.62
-20	7.2	162.0349	-0.62
-30	7.2	162.0349	-0.62

Frequency Stability Versus Input Voltage

Reference Frequency: 162.0350 MHz, Limit: 5.0 ppm		
Power Supplied	Frequency Measure with Time Elapsed	
(Vdc)	Frequency (MHz)	PPM Error
5.86	162.0350	0

Note: 1) Limit 5ppm is for EUT operating with 25KHz channel bandwidth.
2) The end point is 5.86Vdc.

§90.214 - TRANSIENT FREQUENCY BEHAVIOR

Applicable Standard

§90.214

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
TEKTRONIX	Digital Phosphor Oscilloscope	TDS 7104	B020518	2005-1-24	2006-1-24
HP	Modulation Analyzer	8901B	3438A05208	2005-2-28	2006-2-28
HP	Signal Generator	HP8657A	2849U00982	2005-2-28	2006-2-28

*** Statement of Traceability:** Bay Area Compliance Lab Corp. (ShenZhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Procedure

TIA/EIA-603 2.2.19

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	50%
ATM Pressure:	1005mbar

The testing was performed by Jandy Su on 2005-12-21.

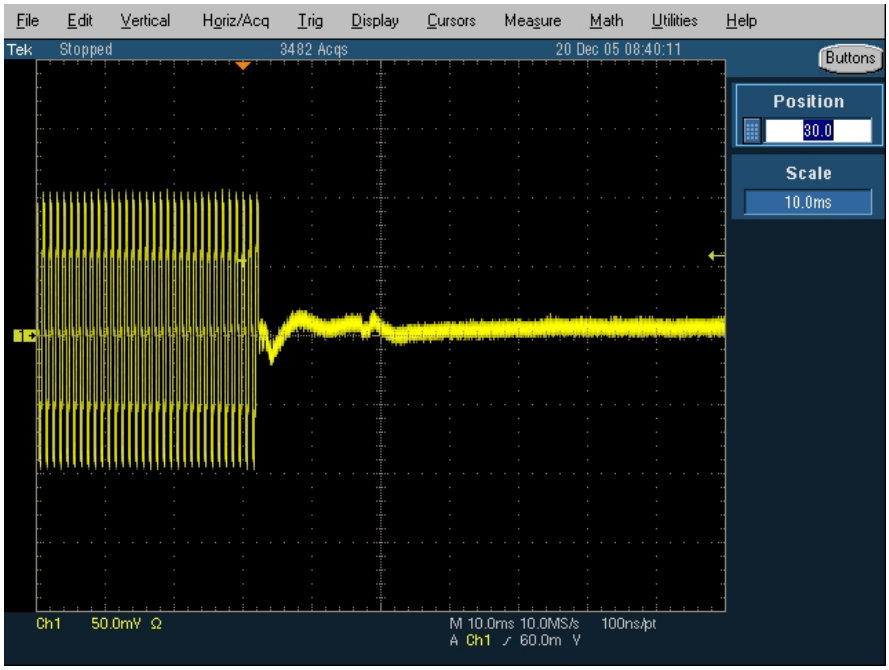
Test Result: Pass

Test Mode: Transmitting

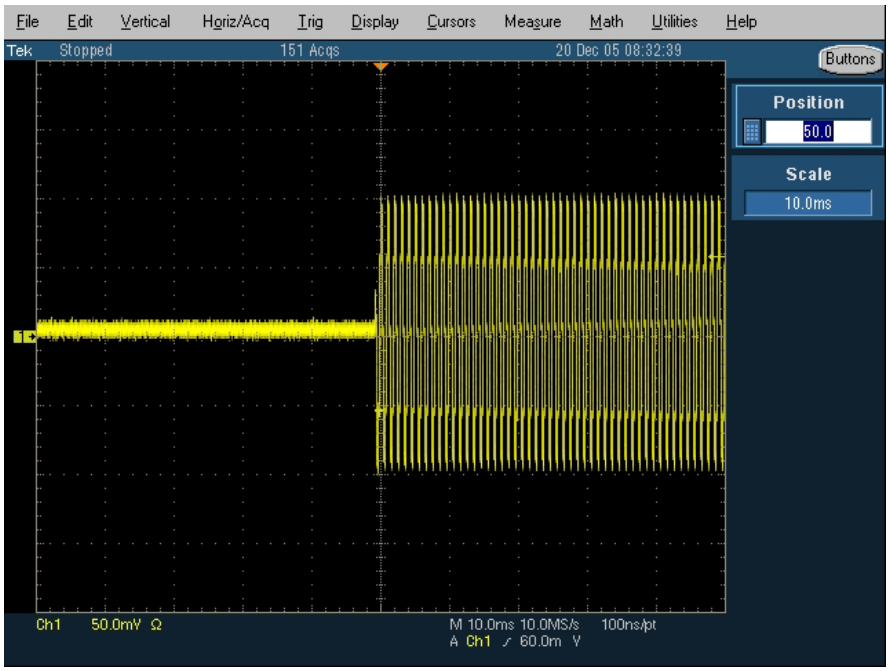
Operation Frequency	Channel Separation	Transient Period	Transient Frequency	Result
162.5500 MHz	12.5 kHz	t1=5ms	<+/-12.5 kHz	Pass
		t2=20 ms	<+/-6.25 kHz	
		t3=5 ms	<+/-12.5 kHz	
162.0350 MHz	25 kHz	t1=5 ms	<+/-25 kHz	Pass
		t2=20 ms	<+/-12.5 kHz	
		t3=5 ms	<+/-25 kHz	

For 12.5 kHz

Turn on

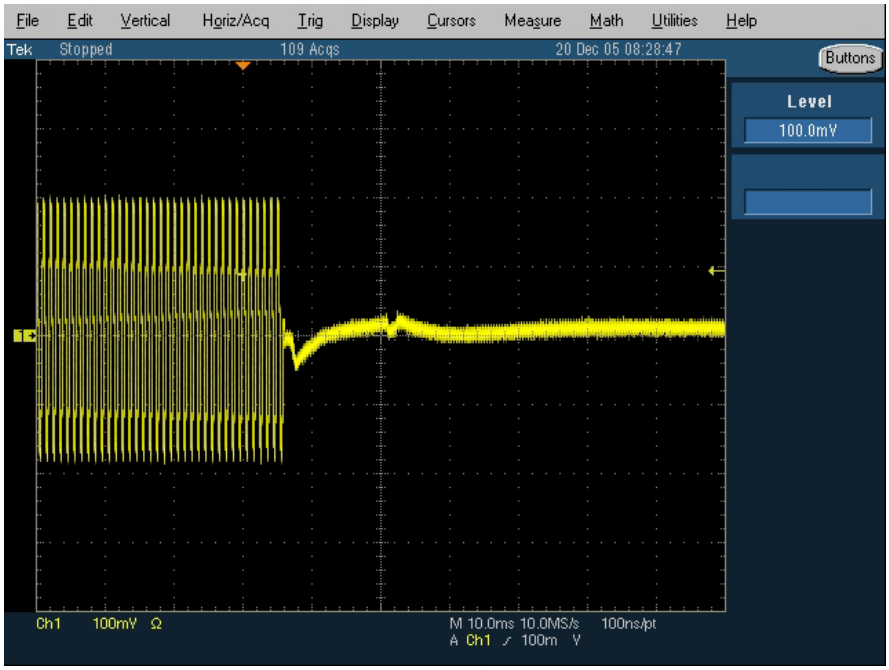


Turn off



For 25 kHz

Turn on



Turn off