FCC PART 95

EMI MEASUREMENT AND TEST REPORT

For

MGA Entertainment (HK) Ltd

9th Floor, Tower 6, The Gateway, Harbour City, 9 Canton Road, Tsimshatsui, Kowloon, Hong Kong

FCC ID: LU9337966

May 8, 2006

This Report Concerns: ☒ Original Report	**Equipment Type:** TextMe!Walkie-Talkies
Test Engineer:	Charmi Peng
Report No.:	RSZ06042001
Test Date:	April 27, 2006
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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *MGA Entertainment (HK) Ltd*'s product, model number: 337966/339021/338000/339038 or the "EUT" as referred to in this report is a TextMe!Walkie-Talkies. The EUT is measured approximately 15 cm L x 7 cmW x 4 cmH, rated input voltage: DC 6 V Battery, with permanent Antenna 5 cm.

The series products, model 337966/339021/338000/339038, we select 337966 to test.

** The test data gathered are from production sample, serial number: 0604036, provided by the manufacturer, we received the EUT on 2006-4-20.*

Objective

This Type approval report is prepared on behalf of *MGA Entertainment (HK) Ltd* in accordance with Part 2, Subpart J, and Part 95 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 Part 95 Subpart B and Subpart E of the Federal Communication Commissions rules.

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

SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

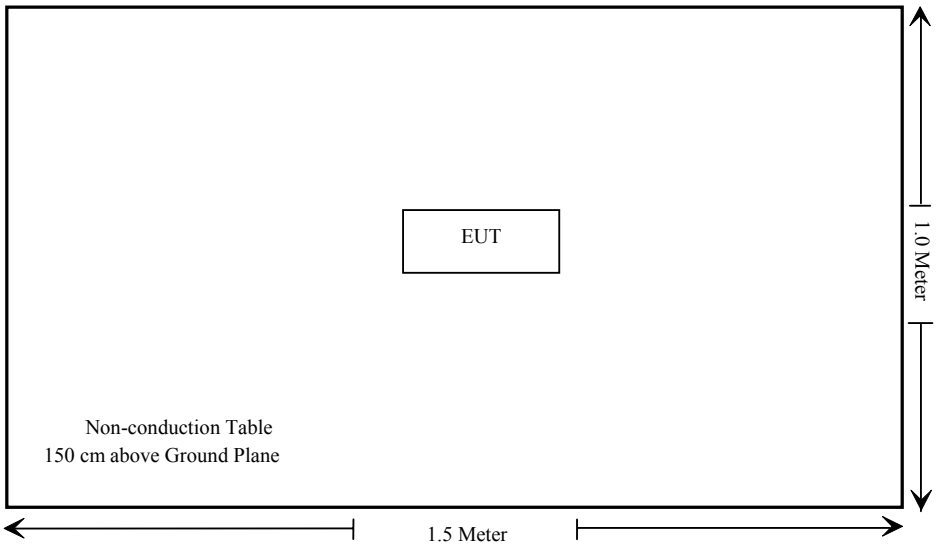
Equipment Modifications

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

Configuration of Test Setup

EUT

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§2.1046, §95.639(d)	RF Output Power	Compliant
§2.1047 §95.637(a)	Modulation Characteristic	Compliant
§95.635 (b)(1) §95.635 (b)(3) §95.635(b)(7)	Unwanted Radition	Compliant
§2.1049, §95.633(c)	Occupied Bandwidth	Compliant
§2.1053 §95.635(b) (7)	Spurious Radiated Emissions	Compliant
§ 2.1055 § 95.627(b)	Frequency stability	Compliant

§1.1307(b) (1) RF EXPOSURE

Standard Applicable

According to § 1.1307(b)(1), systems operating under the provisions of this section shall be operated in a manner that ensure that the public is not exposed to radio frequency energy level in excess of the Commission's guideline.

According to FCC Exclusion list, In the following table, fGHz is mid-band frequency in GHz, and d is the distance to a person'sbody, excluding hands, wrists, feet, and ankles.

Exposure category	low threshold	high threshold
general population	$(60/f_{GHz})$ mW, $d < 2.5$ cm $(120/f_{GHz})$ mW, $d \geq 2.5$ cm	$(900/f_{GHz})$ mW, $d < 20$ cm
occupational	$(375/f_{GHz})$ mW, $d < 2.5$ cm $(900/f_{GHz})$ mW, $d \geq 2.5$ cm	$(2250/f_{GHz})$ mW, $d < 20$ cm

Routine SAR evaluation refers to that specifically required by § 2.1093, using measurements or computer simulation. When routine SAR evaluation is not required, portable transmitters with output power greater than the applicable low threshold require SAR evaluation to qualify for TCB approval.

Measurement Result:

This is a portable device and the Max peak output power is 89mW<258mW=(60/0.462GHz)mW*2

The SAR measurement is not necessary.

§2.1046, and §95.639(d) - RF OUTPUT POWER

Applicable Standard

Per FCC §2.1046, and §95.639(d), No FRS Unit, under any condition of modulation, shall exceed a 0.500 w effective radiated power (ERP).

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Signal Generator	HP8657A	2849U00982	2006-2-28	2007-2-28
Agilent	Spectrum Analyzer	8564E	3943A01781	2005-12-8	2006-12-8
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2005-4-28	2006-4-28
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 tenth 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

Test Data

Environmental Conditions

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

The testing was performed by Deny Xiong on 2006-4-27.

Test Mode: Transmitting

Indicated		Table	Test Antenna		Substituted			Antenna Gain dBi	Cable Loss dB	FCC Part 95		
Frequency MHz	Meter Reading dBuV/m	Angle Degree	Height Meter	Polar H/V	Frequency MHz	Level dBm	Polar H/V			Absolute Level dBm	Absolute Level in W	Limit in W
462.6625	90.93	90	1.0	V	462.66	24.37	V	0	5.07	19.3	0.085	0.5
462.6875	91.74	90	1.0	V	462.66	24.57	V	0	5.07	19.5	0.089	0.5

Test Result: Pass

§2.1047, and §95.637(a) - MODULATION CHARACTERISTIC

Applicable Standard

§2.1047 & §95.637:

(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.

(c) A FRS Unit that transmits emission type F3E must not exceed peak frequency deviation of plus or minus 2.5 kHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Modulation Analyzer	8901B	3438A05208	2006-2-28	2007-2-28
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

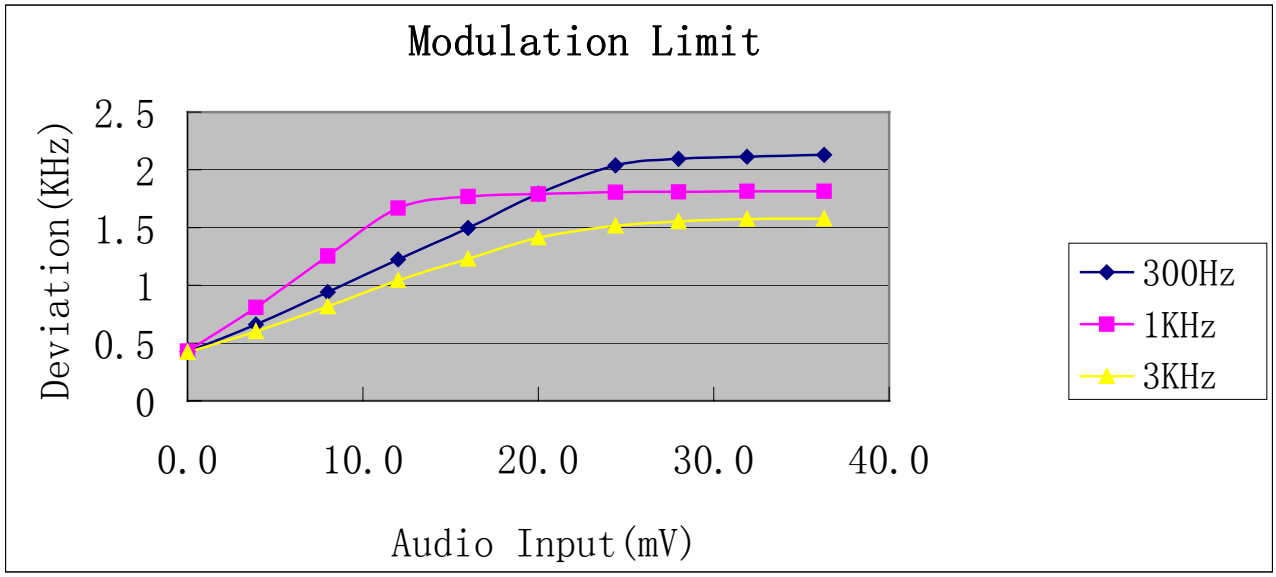
The testing was performed by Charmi Peng on 2006-4-27.

Test Result: Pass

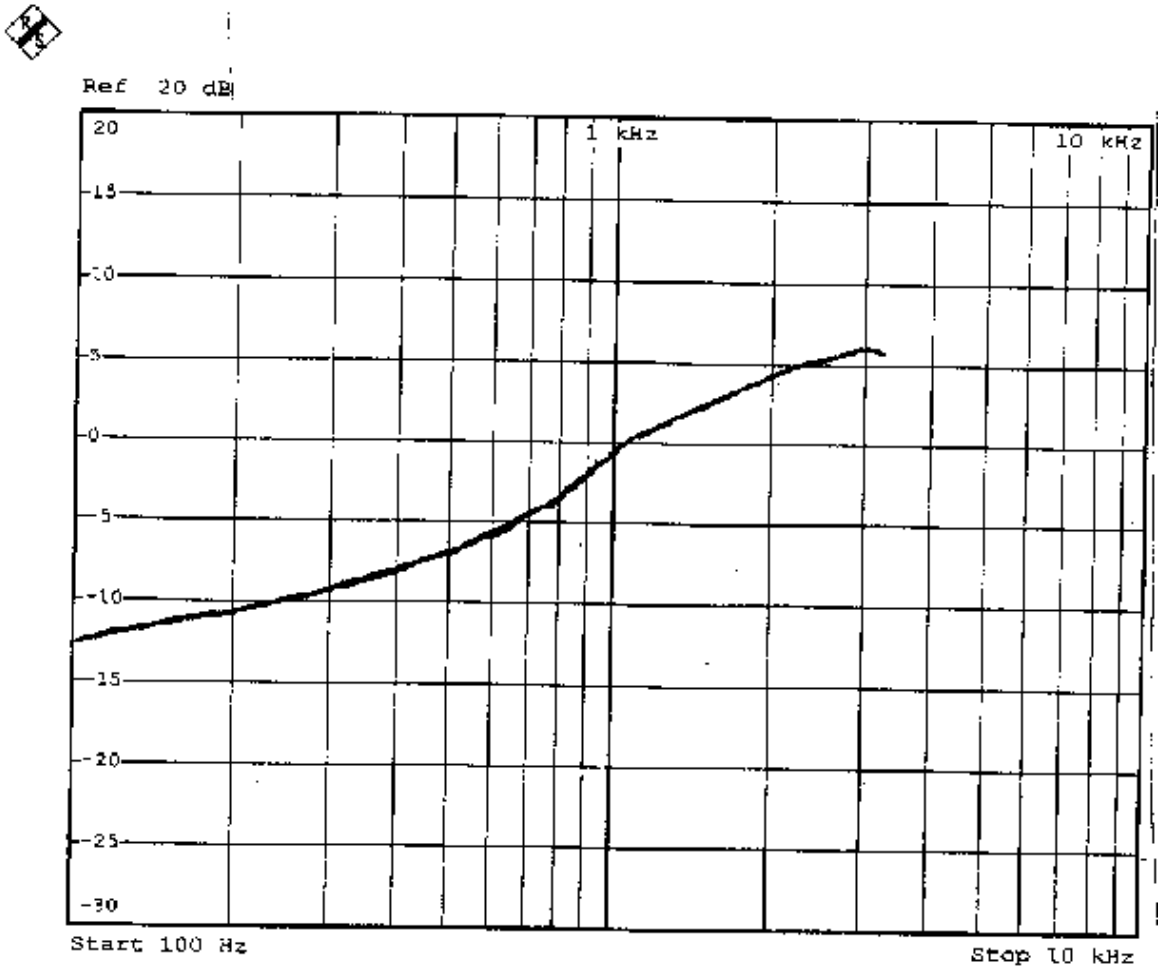
Test Mode: Transmitting

For 12.5 kHz Channel Bandwidth:

Audio Input (mV)	300Hz Deviation (kHz)	1kHz Deviation (kHz)	3kHz Deviation (kHz)
0.0	0.427	0.432	0.420
4.0	0.661	0.808	0.602
8.0	0.942	1.255	0.816
12.0	1.225	1.670	1.045
16.0	1.496	1.768	1.229
20.0	1.793	1.792	1.413
24.0	2.039	1.806	1.516
28.0	2.096	1.809	1.554
32.0	2.115	1.815	1.575
36.0	2.131	1.816	1.578



Audio Frequency Response:



§2.1049, and § 95.633(c) – OCCUPIED BANDWIDTH

Applicable Standard

Per FCC §2.1049 and FCC §95.633 (c), the authorized bandwidth for emission type F3E or F2D transmitted by an FRS Unit is 12.5 kHz.

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
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 antenna was disconnected from the transmitter and the short cable was connected to the transmitter RF output.

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

Test Data

Environmental Conditions

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

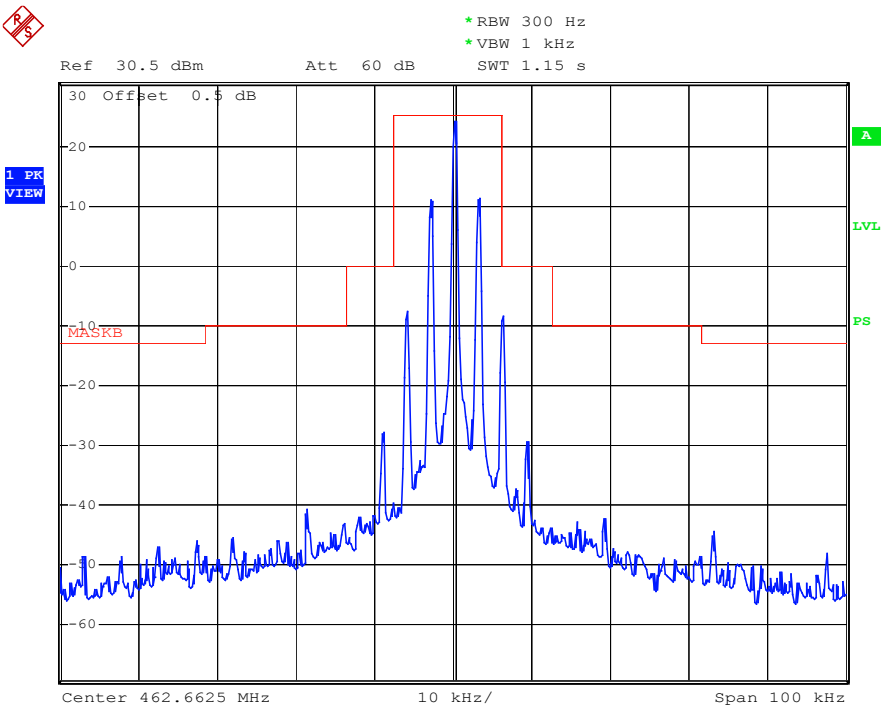
The testing was performed by Charmi Peng on 2006-4-27.

Test Result: Pass.

Test Mode: Transmitting

Please refer to the hereinafter plots.

Emission mask:



MGA TextMe! Walkie-Talkie M/N:337966/339021 Unwanted emissio

n Talk channel

Date: 27.APR.2006 14:48:45

§2.1053 and §95.635(b)(7) - RADIATED SPURIOUS EMISSION

Applicable Standard

§2.1053 and §95.635

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Signal Generator	HP8657A	2849U00982	2006-2-28	2007-2-28
Agilent	Spectrum Analyzer	8564E	3943A01781	2005-12-8	2006-12-8
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2005-4-28	2006-4-28
COM POWER	Dipole Antenna	AD-100	041000	N/A	N/A
SUNOL SCIENCES	Horn Antenna	DRH-118	A052604	2005-7-20	2006-7-20

*** 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 tenth 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)

Test Results Summary

For Talk channel: -18.73 dB at 1850.80 MHz.
For SMS channel: -16.12 dB at 2313.50 MHz.

Test Data

Environmental Conditions

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

The testing was performed by Deny Xiong on 2006-4-27.

Test Mode: Transmitting (Talk channel)

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 dBi	Loss dB	Level dBm	Limit dBm	Margin dB
1850.80	72.83	56	1.8	V	1850.80	-37.4	V	6.1	0.43	-31.73	-13	-18.73
2313.50	69.50	87	1.2	H	2313.50	-39.5	H	7.0	0.32	-32.82	-13	-19.82
2313.50	68.00	90	1.4	V	2313.50	-40.5	V	7.0	0.32	-33.82	-13	-20.82
2776.00	65.33	54	1.2	V	2776.00	-41.3	V	7.4	0.51	-34.41	-13	-21.41
2776.00	64.50	157	1.2	H	2776.00	-42.9	H	7.4	0.51	-36.01	-13	-23.01
925.32	37.32	60	1.0	V	925.32	-28.9	V	0	7.62	-36.52	-13	-23.52
1850.80	66.50	152	1.4	H	1850.80	-44.0	H	6.1	0.43	-38.33	-13	-25.33
925.32	34.72	45	1.2	H	925.32	-31.6	H	0	7.62	-39.22	-13	-26.22
1388.00	63.00	26	1.3	V	1388.00	-51.8	V	6.5	0.33	-45.63	-13	-32.63
1388.00	55.33	324	1.2	H	1388.00	-59.6	H	6.5	0.33	-53.43	-13	-40.43
3238.00	52.33	214	1.4	H	3238.00	-63.6	H	6.7	0.57	-57.47	-13	-44.47
3238.00	51.50	23	1.3	V	3238.00	-64.0	V	6.7	0.57	-57.87	-13	-44.87

Test Mode: Transmitting (SMS channel)

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 dBi	Loss dB	Level dBm	Limit dBm	Margin dB
2313.50	72.83	87	1.2	V	2313.50	-35.8	V	7.0	0.32	-29.12	-13	-16.12
1850.80	72.17	56	1.8	V	1850.80	-38.0	V	6.1	0.43	-32.33	-13	-19.33
2313.50	67.50	90	1.4	H	2313.50	-41.2	H	7.0	0.32	-34.52	-13	-21.52
925.32	37.12	60	1.0	V	925.32	-28.6	V	0	7.62	-36.22	-13	-23.22
2776.00	63.50	54	1.2	V	2776.00	-43.4	V	7.4	0.51	-36.51	-13	-23.51
2776.00	63.40	157	1.2	H	2776.00	-44.2	H	7.4	0.51	-37.31	-13	-24.31
925.32	36.28	45	1.2	H	925.32	-29.8	H	0	7.62	-37.42	-13	-24.42
1850.80	65.33	152	1.4	H	1850.80	-45.2	H	6.1	0.43	-39.53	-13	-26.53
1388.00	63.33	324	1.2	V	1388.00	-51.0	V	6.5	0.33	-44.83	-13	-31.83
1388.00	55.37	26	1.3	H	1388.00	-59.4	H	6.5	0.33	-53.23	-13	-40.23
3238.00	50.62	23	1.3	H	3238.00	-64.1	H	6.7	0.57	-57.97	-13	-44.97
3238.00	50.67	214	1.4	V	3238.00	-66.3	V	6.7	0.57	-60.17	-13	-47.17

§95.635(b)(1), §95.635(b)(3), §95.635(b)(7)-UNWANTED RADITION

Applicable Standard

Per FCC §95.635 (b)(1), at least 25 dB (decibels) on any frequency removed from the center of the authorized bandwidth by more than 50% up to and including 100% of the authorized bandwidth.

Per FCC §95.635 (b)(3), at least 35 dB on any frequency removed from the center of the authorized bandwidth by more than 100% up to and including 250% of the authorized bandwidth.

Per FCC §95.635 (b)(7), at least 43 + 10 log10 (T) dB on any frequency removed from the center of the authorized bandwidth by more than 250%.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Agilent	Spectrum Analyzer	8564E	3943A01781	2005-12-8	2006-12-8
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

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

2. Position the EUT as shown without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.

3. Set the SA on Max-Hold Mode, and then keep the EUT in transmitting mode. Record all the signals from each channel until each one has been recorded.

4. Set the SA on View mode and then plot the result on SA screen.

5. Repeat above procedures until all frequencies measured were complete.

6. Spurious attenuation limits in dB = 43dB + 10Log10(power out in Watts)

Test Data

Environmental Conditions

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

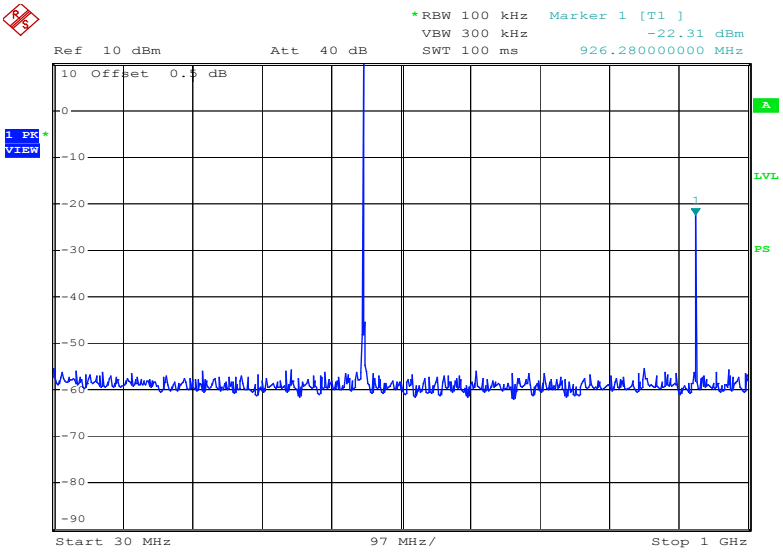
The testing was performed by Charmi Peng on 2006-4-27.

Test Result: Pass

Test Mode: Transmitting

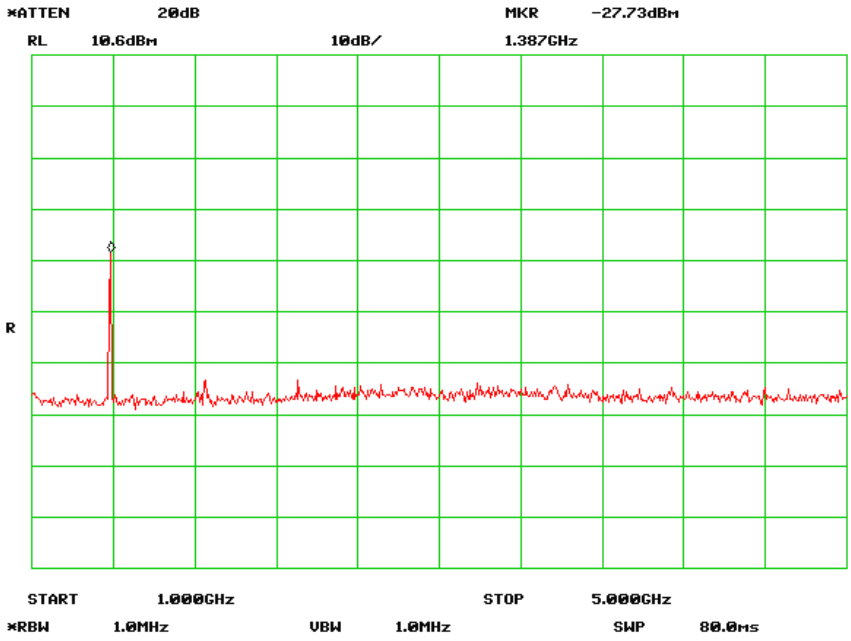
Please refer to the hereinafter plots.

For Talk channel:
(30M-1G)

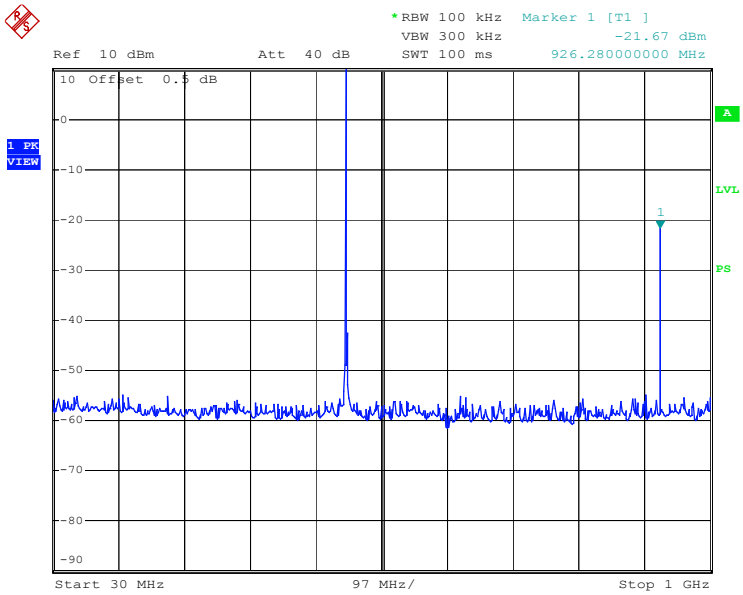


MGA TextMe! Walkie-Talkie M/N:337966/339021 Unwanted emissio
n(Spurious emssion) Talk channel(30M-1G)
Date: 27.APR.2006 15:11:23

(1G-5G)

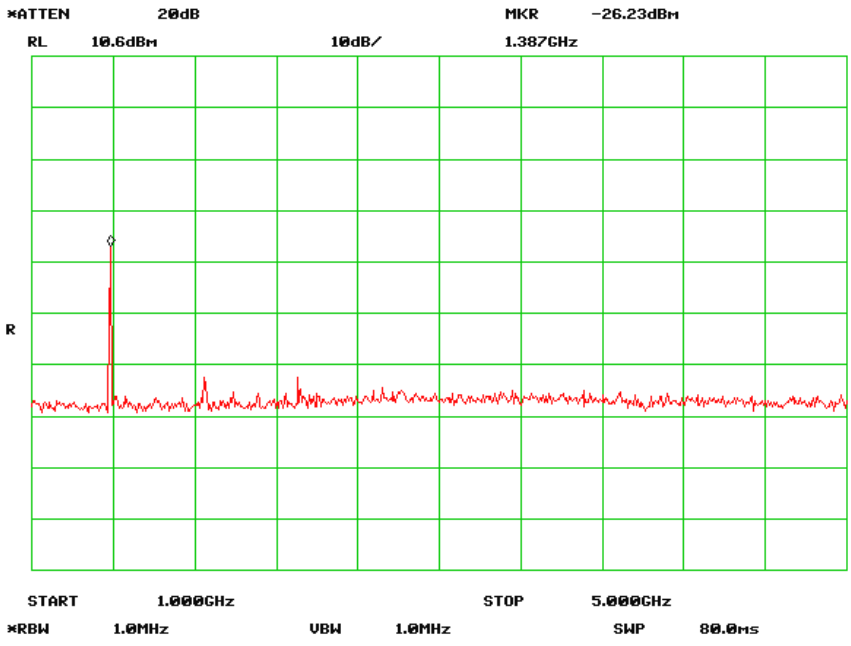

*ATTEN 20dB
MKR -27.73dBm
RL 10.6dBm
10dB/
1.387GHz
R
START 1.000GHz
STOP 5.000GHz
*RBW 1.0MHz
VBW 1.0MHz
SWP 80.0ms

For SMS Channel:
(30M-1G)



MGA TextMe! Walkie-Talkie M/N:337966/339021 Unwanted emissio
n(Spurious emssion) SMS channel(30M-1G)
Date: 27.APR.2006 15:12:37

(1G-5G)



§2.1055 (d) and §95.627(b)- FREQUENCY STABILITY

Applicable Standard

According to FCC §2.1055(a)(1), the frequency stability shall be measure with variation of ambient temperature from –30ºC to +50ºC, and according to FCC 2.1055(d)(2), the frequency stability shall be measured with reducing primary supply voltage to the battery operating end point which is specified by the manufacturer.

According to FCC §95.627(b), Each FRS Unit must be maintained within a frequency tolerance of 0.00025%.

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

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 Charmi Peng on 2006-4-27.

Test Result: Pass

Test Mode: Transmitting

For Talk Channel

Reference Frequency: 462.6625 MHz, Limit: 2.5 ppm			
Environment Temperature (°C)	Power Supplied (Vdc)	Frequency Measure with Time Elapsed	
		MCF (MHz)	PPM Error
40	5	462.661862	-1.379
30	5	462.662252	-0.536
20	5	462.662532	+0.069
10	5	462.662831	+0.715
0	5	462.663512	+2.187

Frequency Stability Versus Input Voltage

Reference Frequency: 462.6625 MHz, Limit: 2.5 ppm		
Power Supplied (Vdc)	Frequency Measure with Time Elapsed	
	Frequency (MHz)	PPM Error
4.5	462.662495	-0.011

For SMS Channel

Reference Frequency: 462.6875 MHz, Limit: 2.5 ppm			
Environment Temperature (°C)	Power Supplied (Vdc)	Frequency Measure with Time Elapsed	
		MCF (MHz)	PPM Error
40	5	462.688123	+1.346
30	5	462.687258	-0.523
20	5	462.687545	+0.097
10	5	462.688136	+1.375
0	5	462.688541	+2.250

Frequency Stability Versus Input Voltage

Reference Frequency: 462.6875 MHz, Limit: 2.5 ppm		
Power Supplied (Vdc)	Frequency Measure with Time Elapsed	
	Frequency (MHz)	PPM Error
4.5	462.687510	+0.022