



FCC PART 95

MEASUREMENT AND TEST REPORT

For

Win Channel Electronics Company Ltd.

No.85, Tonggu xia road, Shangjiao, Changan Town, DongGuan City, GuangDong, China

FCC ID: Y7SFRS-328US

Report Type: Product Type:

Original Report FRS/GMRS Radio

Test Engineer: Eric Lee

Report Number: RSZ120507001-00

Report Date: 2012-05-31

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Reviewed By: EMC Engineer

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Note: This test report is prepared for the customer shown above and for the device 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*, NIST, or any agency of the Federal Government. * This report contains data that are not covered by the NVLAP accreditation and are marked with an asterisk "★" (Rev.2)

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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *Win Channel Electronics Company Ltd.*'s product, model number: 328US (FCC ID: Y7SFRS-328US) or the "EUT" in this report was a FRS/GMRS radio, which was measured approximately: 12.5 cm (L) x 6.0 cm (W) x 4.0 cm (H), rated input voltage: DC 3.6 V (1.2V AAA*3) battery.

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*Note: The serial product, model DX2500 and 328US are electrically identical, only model number and trade names are different due to marketing purposes, we select 328US to test, which were explained in the attached declaration letter.

* All measurement and test data in this report was gathered from production sample serial number: 1205008 (Assigned by BACL, Shenzhen). The EUT was received on 2012-05-07.

Objective

This report is prepared on behalf of *Win Channel Electronics Company Ltd.* in accordance with Part 2 and Part 95, Subpart A & Subpart B & Subpart E 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 A, B and Subpart E of the Federal Communication Commissions rules with TIA-603-C, Land Mobile FM or PM-Communications Equipment-Measurement and Performance Standards.

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 C63.4-2009.

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.

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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

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SYSTEM TEST CONFIGURATION

Description of Test Configuration

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

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Equipment Modifications

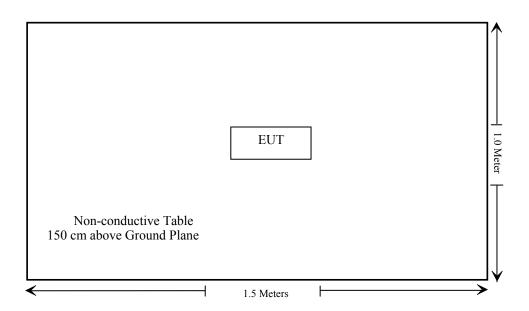
Bay Area Compliance Laboratories Corp. (Shenzhen) has not done any modification on the EUT.

Configuration of Test Setup



Note: We tested lying orientation, side orientation and standing orientation, the standing orientation is the worst mode, so we select the standing orientation to test.

Block Diagram of Test Setup



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SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§2.1093	RF Exposure	Compliance
\$2.1046, \$95.639(a), \$95.639(d)	RF Output Power	Compliance
§2.1047, §95.637(a)	Modulation Characteristic	Compliance
§2.1049, §95.633(a) (c)	Authorized Bandwidth & Emission Mask	Compliance
§2.1053, §95.635(b) (7)	Spurious Radiated Emissions	Compliance
\$2.1055(d), \$95.626(b), \$95.621	Frequency Stability	Compliance

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FCC §2.1093 - RF EXPOSURE INFORMATION

Applicable Standard

According to FCC §2.1093 and §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.

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According to FCC OET KDB447498 D01 section 5, Push-to-talk (PTT) devices:

a) RF exposure is evaluated with a duty factor of 50% when the actual operating duty factor is \leq 50%. Devices supporting higher duty factors shall be evaluated at the maximum duty factor; for example, devices supporting operator-assisted PSTN calls. Contact the FCC Laboratory when unable to test a device at the required duty factor due to hardware limitations or other reasons.

b) Portable PTT devices

i) The power thresholds and operating conditions in Table 1 are used to determine SAR test requirements for PTT radios required to comply with the general population exposure limit. When the occupational exposure limit applies, these power thresholds are increased by a factor of five (5) to determine the test requirements. SAR is required for PTT devices with maximum output power greater than these thresholds.28 SAR evaluation is also required for separation distances smaller than those in Table 1. Contact the FCC Laboratory to determine if SAR evaluation is necessary for other frequencies or when the SAR is very low.

Table 1 - SAR Evaluation Power Thresholds for PTT devices, $f \le 0.5$ GHz

Exposure Conditions	mW
Held to face ≥ 2.5 cm	250
Body-worn ≥ 1.5 cm	200
Body-worn ≥ 1.0 cm	150
Notes:	

ii) Additional SAR evaluation with a SAM phantom is required for PTT devices with held-to-ear operating mode 29 Contact the FCC Laboratory for device operating and test configurations.

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.

Result

According to FCC KDB447498 generic portable criteria

The Max output power: 380.19 mW, Duty factor: 50%

The time-averaged output power is: 380.19*0.5= 190.095 mW < 250 mW

Stand-alone SAR evaluation for held-face is not required.

Note: The device does not have the body-worn capability.

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^{1.} The time-averaged output power, corresponding to the required PTT duty factor, is compared with these thresholds.

^{2.} The closest distance between the user and the device or its antenna is used to determine the power thresholds.

FCC §2.1046, §95.639(a) & §95.639(d) - RF OUTPUT POWER

Applicable Standard

Per FCC §2.1046, §95.639(a) and §95.639(d), No FRS Unit, under any condition of modulation, shall exceed a 0.5 W effective radiated power (ERP).

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Per FCC §95.639 (a) (1), No GMRS transmitter, under any condition of modulation, shall exceed 50 W Carrier power when transmitting emission type A1D, F1D, G1D, A3E, F3E or G3E.

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.

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 emissions were measured by the substitution.

Test Equipment List and Details

Manufacturer	Description	Model NO.	Serial NO.	Calibration Date	Calibration Due Date
НР	Signal Generator	HP8657A	2849U00982	2011-10-28	2012-10-27
Rohde & Schwarz	EMI Test Receiver	ESCI	101122	2011-11-17	2012-11-16
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2012-11-27
Com Power	Dipole Antenna	AD-100	041000	2011-09-25	2012-09-25

^{*} 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 Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	56%
ATM Pressure:	100.0kPa

The testing was performed by Eric Lee on 2012-05-12.

Test Mode: Transmitting

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Indica	ated	Table	Test .	Ant.	S	ubstituted		Absolute	FCC I	Part 95
Frequency (MHz)	S.A. Reading (dBµV)	Angle Degree	Height (m)	Polar (H/V)	Level	Ant. Gain (dBd)	Cable Loss (dB)	Level (dBm)	ERP (mW)	Limit (Watt)
	GMRS Channel 18									
462.625	110.83	172	1.8	Н	21.8	0	0.6	21.2	131.83	50
462.625	114.34	195	2.1	V	26.4	0	0.6	25.8	380.19	50
	FRS Channel 11									
467.6325	111.32	184	1.8	Н	22.3	0	0.6	21.7	147.91	0.5
467.6325	114.26	253	1.9	V	26.3	0	0.6	25.7	371.54	0.5

Test Result: Compliance.

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FCC §2.1047 & §95.637(a) - MODULATION CHARACTERISTIC

Applicable Standard

FCC §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.

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- (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.
- (d) A GMRS transmitter that transmits emission type F3E must not exceed a peak frequency deviation of plus or minus 5 kHz.

Test Equipment List and Details

Manufacturer	Description	Model No.	Serial No.	Calibration Date	Calibration Due Date
НР	RF Communication Test Set	HP8920A	3438A05201	2011-06-14	2012-06-13

^{*} **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-C

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	56
ATM Pressure:	100.0 Pa

The testing was performed by Eric Lee on 2012-05-15

Please refer to the following tables and plots.

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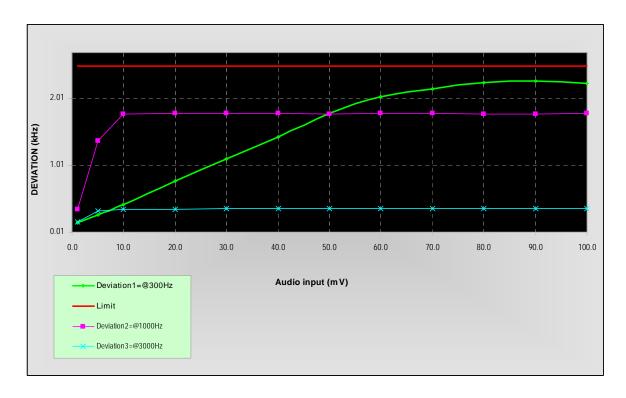
Test Mode: Transmitting

TRANSMITTER FREQUENCY DEVIATION

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GMRS - Channel 18(462.6250 MHz)

Audio Input Level	Fre	FCC Limit		
(mV)	(@ 300 Hz)	(@ 1000 Hz)	(@ 3000 Hz)	(kHz)
1.0	0.156	0.353	0.162	5.0
5.0	0.272	1.379	0.324	5.0
10.0	0.427	1.782	0.356	5.0
20.0	0.782	1.792	0.357	5.0
30.0	1.105	1.794	0.359	5.0
40.0	1.439	1.789	0.362	5.0
50.0	1.787	1.781	0.359	5.0
60.0	2.042	1.787	0.362	5.0
70.0	2.157	1.792	0.361	5.0
80.0	2.252	1.785	0.369	5.0
90.0	2.275	1.781	0.365	5.0
100.0	2.236	1.786	0.365	5.0

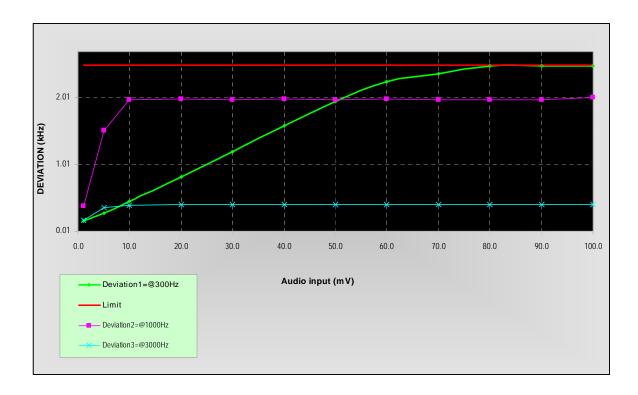


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FRS – Channel 11 (467.6375 MHz)

Audio Input	Fre	FCC Limit		
Level (mV)	(@ 300 Hz)	(@ 1000 Hz)	(@ 3000 Hz)	(kHz)
1.0	0.16	0.389	0.177	2.5
5.0	0.286	1.524	0.369	2.5
10.0	0.459	1.985	0.402	2.5
20.0	0.827	1.995	0.409	2.5
30.0	1.205	1.983	0.408	2.5
40.0	1.589	1.997	0.412	2.5
50.0	1.956	1.982	0.414	2.5
60.0	2.248	1.988	0.409	2.5
70.0	2.371	1.982	0.415	2.5
80.0	2.488	1.98	0.413	2.5
90.0	2.489	1.986	0.408	2.5
100.0	2.484	2.012	0.413	2.5

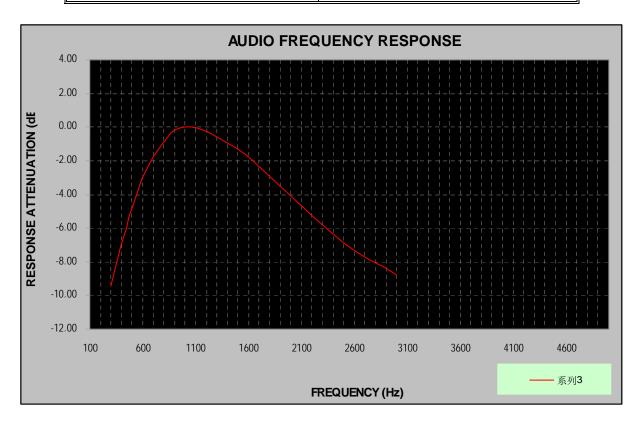


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Audio Frequency Response

GMRS - Channel 18(462.6250 MHz)

Audio Frequency (Hz)	Response Attenuation (dB)
100	-
200	-
300	-9.42
500	-4.88
700	-1.72
1000	0.00
1500	-1.31
2000	-4.10
2500	-6.86
3000	-8.78
3500	-
4000	-
5000	-

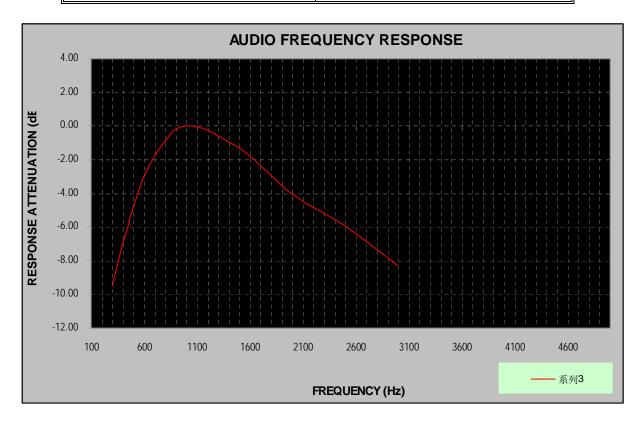


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Audio Frequency Response

FRS – Channel 11 (467.6375 MHz)

Audio Frequency (Hz)	Response Attenuation (dB)
100	-
200	-
300	-9.47
500	-4.85
700	-1.68
1000	0.00
1500	-1.27
2000	-4.01
2500	-5.95
3000	-8.31
3500	-
4000	-
5000	-

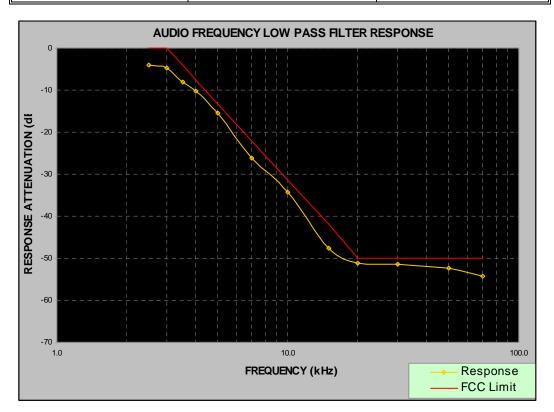


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Audio frequency Low Pass Filter Response

GMRS - Channel 18 (462.6250 MHz)

Audio Frequency (kHz)	Response Attenuation (dB)	FCC Limit (dB)
2.5	-4.68	0.0
3.0	-5.02	0.0
3.5	-8.25	-4.0
4.0	-11.67	-7.5
5.0	-16.35	-13.3
7.0	-28.21	-22.1
10.0	-34.69	-31.4
15.0	-47.21	-42.0
20.0	-51.11	-50.0
30.0	-50.97	-50.0
50.0	-52.01	-50.0
70.0	-53.16	-50.0

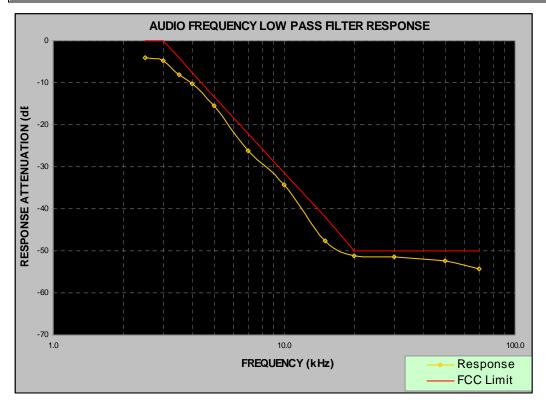


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Audio frequency Low Pass Filter Response

FRS – Channel 11 (467.6375 MHz)

Audio Frequency (kHz)	Response Attenuation (dB)	FCC Limit (dB)
2.5	-4.11	0.0
3.0	-4.68	0.0
3.5	-8.21	-4.0
4.0	-10.34	-7.5
5.0	-15.36	-13.3
7.0	-26.15	-22.1
10.0	-34.21	-31.4
15.0	-47.62	-42.0
20.0	-51.21	-50.0
30.0	-51.36	-50.0
50.0	-52.34	-50.0
70.0	-54.21	-50.0



Test result: Compliance.

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FCC §2.1049 & §95.633(a) (c) - AUTHOURIZED BANDWIDTH AND EMISSION MASK

Applicable Standard

Per FCC §2.1049 and FCC §95.633(a) (c), the authorized bandwidth for emission type F3E or F2D transmitted by an FRS Unit is 12.5 kHz.and The authorized bandwidth for emission type F1D, G1D, F3E or G3E transmitted by an GMRS Unit is 20 kHz.

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Test Procedure

TIA-603-C, section 2.2.11

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
НР	RF Communication Test Set	HP8920A	3438A05201	2011-06-14	2012-06-13
Rohde&Schwarz	EMI Test Receiver	ESCI	101122	2011-11-17	2012-12-16

^{*} **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 Data

Environmental Conditions

Temperature:	25 ℃	
Relative Humidity:	56%	
ATM Pressure:	100.0 kPa	

The testing was performed by Eric Lee on 2012-05-17.

Test Mode: Transmitting

Emission Designator:

Bn=2M + 2DK

Where M = 3 KHz, D = 2.5 KHz, K = 1

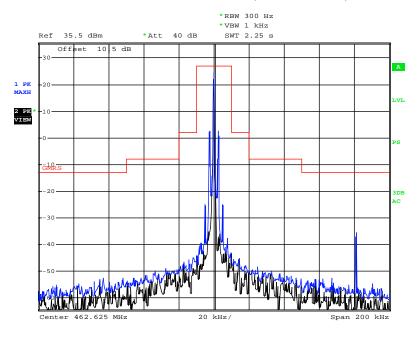
Bn = 2*3 + 2*2.5 = 11KHz

Type of emission: 11K0F3E

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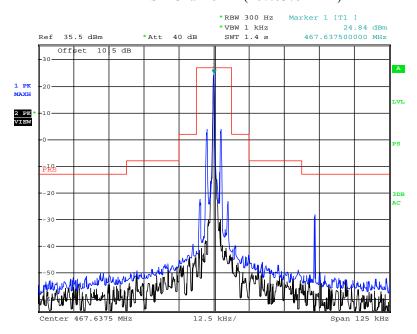
Emission Mask

GMRS - Channel 18 (462.6250 MHz)



Date: 17.MAY.2012 10:37:41

FRS – Channel 11 (467.6375 MHz)



Date: 17.MAY.2012 10:27:29

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FCC §2.1053 & §95.635(b) (7) - RADIATED SPURIOUS EMISSION

Applicable Standard

FCC §2.1053 and §95.635

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.

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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 = $43+10 \text{ Log}_{10}$ (power out in Watts)

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Horn Antenna	DRH-118	A052304	2011-12-01	2012-11-30
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2012-11-27
HP	Spectrum Analyzer	8593A	2919A00242	2012-03-09	2013-03-08
HP	Amplifier	2VA-213+	T-E27H	2012-03-08	2013-03-07
НР	Signal Generator	HP8657A	2849U00982	2011-10-21	2012-10-20
HP	Amplifier	HP8447D	2944A09795	2011-11-24	2012-11-23
НР	Synthesized Sweeper	8341B	2624A00116	2012-04-11	2013-04-10
COM POWER	Dipole Antenna	AD-100	041000	2011-09-25	2012-09-25
A.H. System	Horn Antenna	SAS-200/571	135	2011-05-17	2012-05-17

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

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Test Data

Environmental Conditions

Temperature:	25℃
Relative Humidity:	56%
ATM Pressure:	100.0 kPa

The testing was performed by Eric Lee on 2012-05-12.

Test Mode: Transmitting

GMRS: Channel 18 (462.625 MHz)

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Indicat	ted	Table	Test A	ntenna	Substituted		Absolute			
Frequency (MHz)	Receiver Reading (dBuV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Antenna Gain Correction	Cable Loss (dB)	Level (dBm)	Limit (dBm)	Margin (dB)
925.25	64.63	27	1.0	V	-32.3	0	0.71	-33.00	-13	20.00
925.25	62.97	246	1.3	Н	-34.0	0	0.71	-34.70	-13	21.70
1387.875	60.76	35	1.6	Н	-39.2	7.0	0.84	-33.04	-13	20.04
1387.875	66.48	135	1.8	V	-34.5	7.0	0.84	-28.34	-13	15.34
1850.5	50.23	11	1.6	Н	-53.4	9.2	1.00	-45.20	-13	32.20
1850.5	58.82	133	1.7	V	-41.1	9.2	1.00	-32.90	-13	19.90

FRS: Channel 11 (467.6375 MHz)

Indicat	ed	Table	Test A	ntenna		Substituted		Absolute	te	
Frequency (MHz)	Receiver Reading (dBuV)	Angle Degree	Height (m)	Polar (H/V)	Level (dBm)	Antenna Gain Correction	Cable Loss (dB)	Level (dBm)	Limit (dBm)	Margin (dB)
935.275	68.29	300	1.0	V	-28.7	0	0.72	-29.40	-13	16.40
935.275	65.68	233	2.1	Н	-31.3	0	0.72	-32.00	-13	19.00
1402.9125	60.24	44	1.9	Н	-40.8	7.5	0.88	-34.18	-13	21.18
1402.9125	68.92	46	1.6	V	-32.1	7.5	0.88	-25.48	-13	12.48
1870.55	52.72	47	1.8	Н	-50.9	9.2	1.00	-42.70	-13	29.70
1870.55	57.96	38	1.8	V	-41.9	9.2	1.00	-33.70	-13	20.70

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FCC§2.1055 (d), §95.626(b) & §95.621 - FREQUENCY STABILITY

Applicable Standard

According to FCC §2.1055(a) (1), the frequency stability shall be measured with variation of ambient temperature from –30 °C to +50 °C, 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.

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According to FCC §95.626(b), Each FRS Unit must be maintained within a frequency tolerance of 0.00025 %(2.5 ppm).

According to FCC §95.621, Each GMRS transmitter for mobile station, small base station and control station operation must be maintained within a frequency tolerance of 0.0005 %(5 ppm).

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 Frequency Counter.

Frequency Stability vs. Voltage:

- 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.

The output frequency was recorded for each voltage.

Test Equipment List and Details

Manufacturer	Description	Model NO.	Serial NO.	Calibration Date	Calibration Due Date
Hewlett-Packard	Frequency Counter	5342A	2317A08289	2012-04-15	2013-04-14
WUHUAN	Temperature & Humidity Chamber	HTP205	20021115	2012-05-09	2013-05-08

^{*} **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.

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Test Data

Environmental Conditions

Temperature:	25℃
Relative Humidity:	56%
ATM Pressure:	100.0 kPa

The testing was performed by Eric Lee on 2012-05-16.

Test Mode: Transmitting

GMRS

Report No.: RSZ120507001-00

Ref	Reference Frequency: 462.625 MHz, Limit: ±5 ppm						
Environment Temperature (℃)	Power Supplied (V_{DC})	Measurement Frequency (MHz)	Frequency Error (ppm)				
	Frequency Stability	ty Ver. Temperature					
50	3.6	462.625165	0.357				
40	3.6	462.625097	0.210				
30	3.6	462.625123	0.266				
20	3.6	462.625203	0.439				
10	3.6	462.625184	0.398				
0	3.6	462.625176	0.380				
-10	3.6	462.625105	0.227				
-20	3.6	462.625242	0.523				
-30	3.6	462.625161	0.348				
	Frequency Stability Ver. Input Voltage						
20	3.2	462.625148	0.320				

FRS

Refer	Reference Frequency: 467.6375 MHz, Limit: ±2.5 ppm							
Environment Temperature (°C)	Power Supplied (V _{DC})	Measurement Frequency (MHz)	Frequency Error (ppm)					
	Frequency Stabili	ty Ver. Temperature						
50	3.6	467.637643	0.306					
40	3.6	467.637576	0.163					
30	3.6	467.637601	0.216					
20	3.6	467.637588	0.188					
10	3.6	467.637579	0.169					
0	3.6	467.637672	0.368					
-10	3.6	467.637625	0.267					
-20	3.6	467.637611	0.237					
-30	3.6	467.637575	0.160					
	Frequency Stability Ver. Input Voltage							
20	3.2	467.637613	0.242					

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PRODUCT SIMILARITY DECLARATION LETTER

















Report No.: RSZ120507001-00

Win Channel Electronics Company Ltd.

No.85, Tong gu xia Road, Shangiiao Management District, Changan Town, Dongguan City, Guangdong, China Tel: 0769-8160 6591 Fax: 0769-8160 6716

Product Similarity Declaration

To Whom It May Concern,

We, WIN CHANNEL ELECTRONICS COMPANY LIMITED, hereby declare that our FRS/GMRS, Model Number: DX2500 is electrically identical with the Model Number: 328US that was certified by BACL. The difference between them is the model number due to marketing purposes. Each model has its own trade name as following,

Model Number	Trade Name
328US	WE
DX2500	DISCOVERY EXPEDITION

Please contact me if you have any question.

Signature:

Print Name: Catalina Cheung

Title: Manager

Date: 18-May-2012

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

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