Lab Code: 200707-0

TEST REPORT

For

Racing Electronics

840 Derita Road, Concord, North Carolina 28027, USA

FCC PART 15 CLASS B

FCC ID: WZ5-RE1000

Report Type:	Product Type:
Original Report	Racing Scanner

Test Engineer:	Grace Xi
Report Number:	RSZ110705001-00
Report Date:	2011-08-18
Reviewed By:	Merry Zhao EMC Engineer
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Racing Electronics*'s product, model number: *RE1000 (FCC ID: WZ5-RE1000)* ("EUT") in this report is a *Racing Scanner*, which was measured approximately: 15.0 cm (L) x 5.5 cm (W) x 2.7 cm (H), rated input voltage: DC 3*1.5V battery.

** All measurement and test data in this report was gathered from production sample serial number: 1107003 (Assigned by applicant). The EUT was received on 2011-07-05.*

Objective

This report is prepared on behalf of *Racing Electronics* in accordance with Part 2-Subpart J, Part 15-Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to determine the compliance of EUT with FCC Part 15B, Class B.

Related Submittal(s)/Grant(s)

N/A

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.

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

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

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing according to ANSI C63.4-2003 Standards.

Test mode 1: standby

Test mode 2: receiving (low, middle, high channel)

Test mode 3: Scan all bands

EUT Exercise Software

N/A

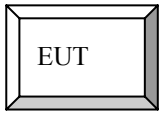
Equipment Modifications

No modification was made to the unit tested.

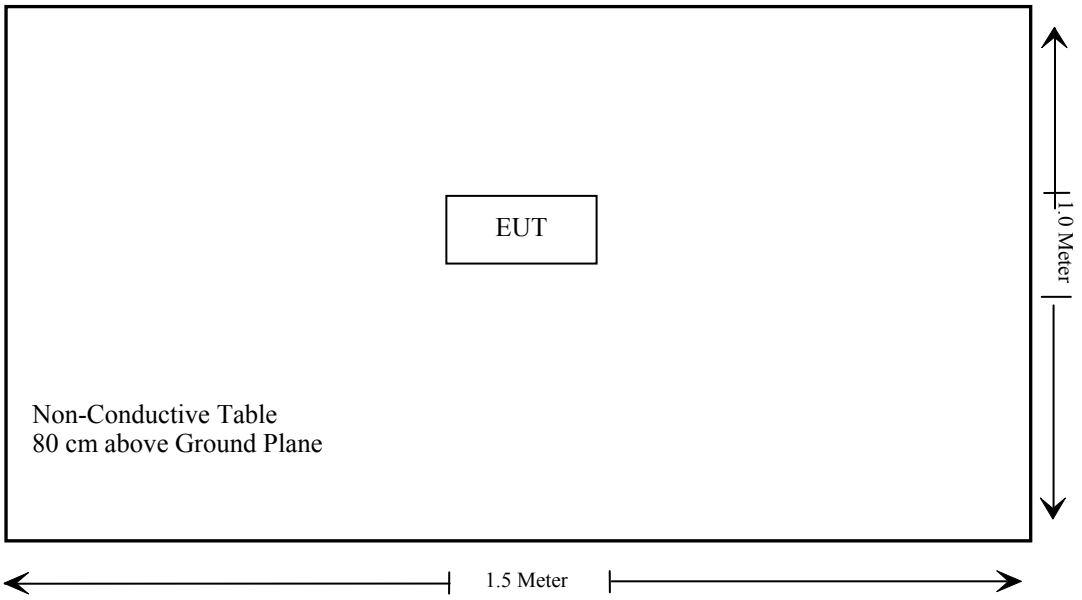
Local Support Equipment List and Details

N/A

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	AC Line Conducted Emissions	N/A*
§15.109	Radiated Spurious Emissions	Compliance
§15.121 (b)	Cellular Band Rejection	Compliance

Note: * The EUT is battery operation.

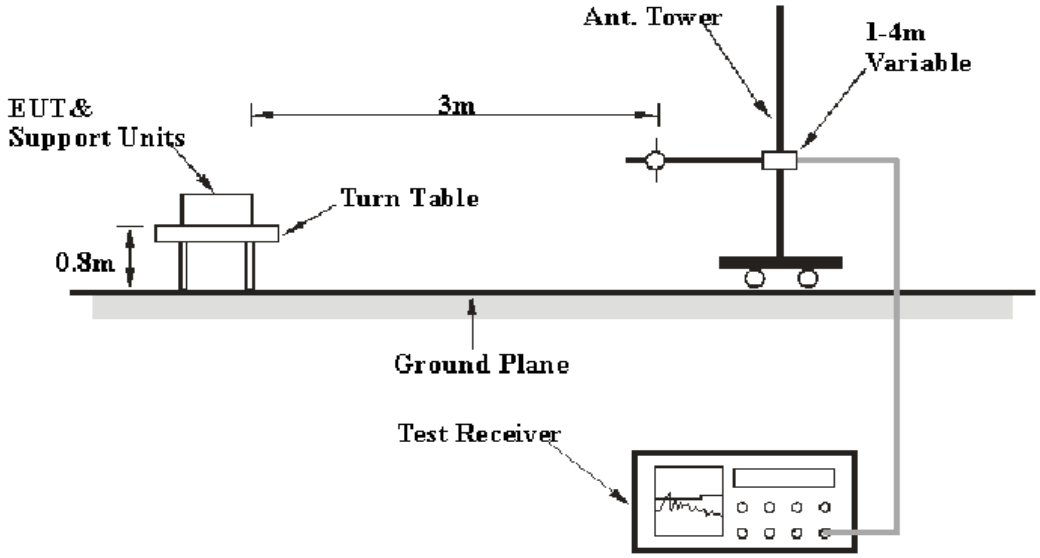
FCC §15.109 - RADIATED SPURIOUS EMISSIONS

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is ±4.0 dB. (k=2, 95% level of confidence)

EUT Setup



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC Part 15.109, Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 2000 MHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

Frequency Range	***RBW***	***VBW***	***Detector***
30 MHz – 1000 MHz	100 kHz	300 kHz	QP
1000 MHz – 2000 MHz	1 MHz	3 MHz	Peak
1000 MHz – 2000 MHz	1 MHz	10Hz	Ave

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	HP8447D	2944A09795	2011-08-02	2012-08-01
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2010-11-11	2011-11-10
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2011-07-05	2012-07-04
Mini-Circuits	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
Sunol Sciences	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2011-07-08	2012-07-07

*** 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.

Test Procedure

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

All data was recorded in the Quasi-peak detection mode from 30 MHz to 1 GHz, and peak and average for above 1 GHz.

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Loss and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

Corrected Amplitude = Meter Reading + Antenna Loss + Cable Loss - Amplifier Gain

The "**Margin**" column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Results Summary

According to the data in the following table, the EUT complied with the FCC §15.109 Class B, with the worst margin reading of:

23.3 dB at **30.184140 MHz** in the **Horizontal** polarization

Test Data

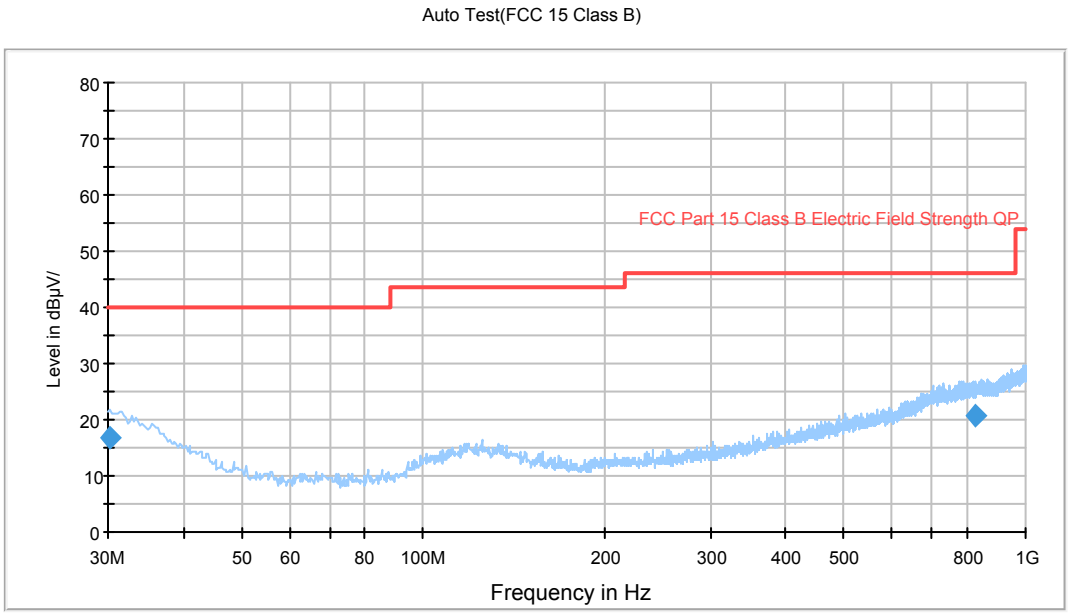
Environmental Conditions

Temperature:	25 °C
Relative Humidity:	48 %
ATM Pressure:	100.0 kPa

The testing was performed by Grace Xi from 2011-07-22 to 2011-08-16.

1): Test Mode 1: Standby

Below 1 GHz:

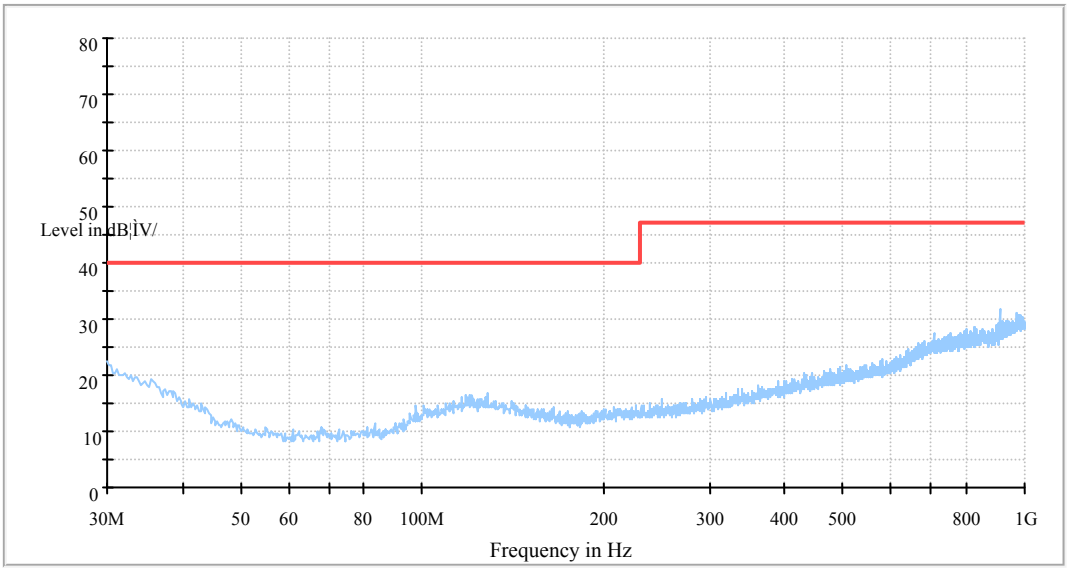


Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna Height (cm)	Antenna Polarity (H/V)	Turntable Position (degree)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
30.184140	16.7	202.0	H	11.0	-5.5	40.0	23.3
826.644000	20.8	304.0	H	158.0	-1.4	46.0	25.2

Above 1 GHz:

Note: The data which below 20 dB of the limit was not recorded.

2): Test Mode 2: Receiving (low, middle, high channel)-(worst case)

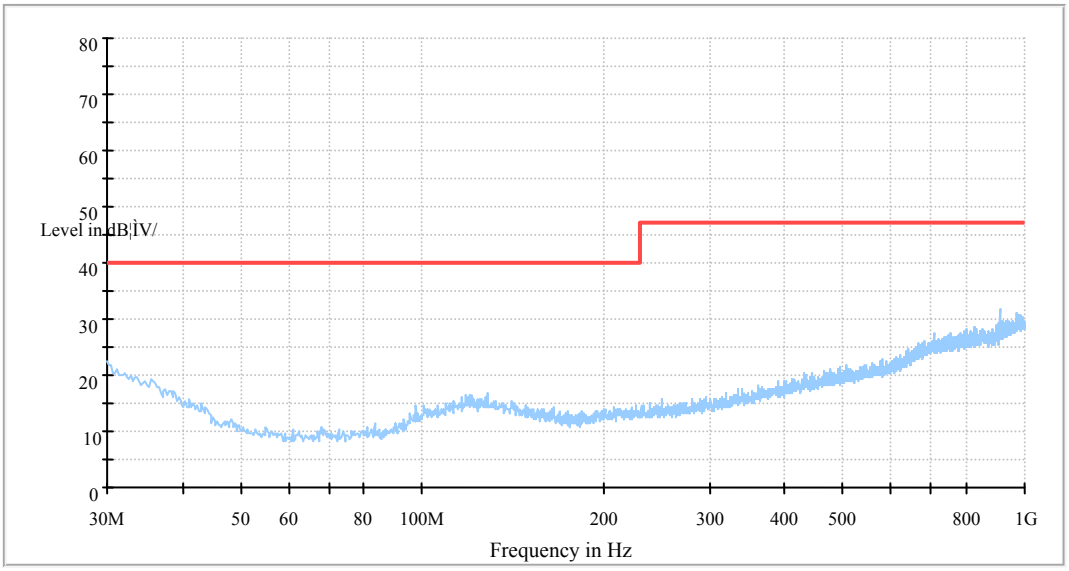


Note: The data which below 20 dB of the limit was not recorded.

Above 1 GHz:

Note: The data which below 20 dB of the limit was not recorded.

3): Test Mode 3: Scan all bands



Note: The data which below 20 dB of the limit was not recorded.

Above 1 GHz:

Note: The data which below 20 dB of the limit was not recorded.

FCC §15.121 (B) - CELLULAR BAND REJECTION

Standard Applicable

Scanning receivers shall reject any signals from the Cellular Radiotelephone Service frequency bands that are 38 dB or lower based upon a 12 dB SINAD measurement, which is considered the threshold where a signal can be clearly discerned from any interference that may be present;

Test Method

A modulated signal generator is set to each of the above cellular band frequencies. The RF output level is set to 60 dBµV (66dB above the -6 dBµV level associated with the squelched threshold). The scanning receiver is set to scan all frequency ranges. Any image frequency that is detected by the scanning receiver is noted. The RF output of the signal generator is adjusted to achieve 12 dB SINAD on the receiver headphone output. This RF level is noted.

The image rejection ratio is determined by: RF SG – (-6 dBuV)

For example: If the level required to produce an image emission that causes a 12 dB SINAD response from the scanning receiver is 60 dBµV, then the image rejection ratio would be: 60 – (-6) = 66 dB.

Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	45 %
ATM Pressure:	100.2kPa

The testing was performed by Grace Xi on 2011-08-18.

Cellular Frequency (MHz)	Squelched Threshold (dBµV)	RF Input Level (dBµV)	Image Rejection Rate (dB)	Limit (dB)
824.02	-6	54.5	60.5	38
836.52	-6	56.3	62.3	38
848.98	-6	59.8	65.8	38
869.02	-6	60.5	66.5	38
881.52	-6	60.3	66.3	38
893.98	-6	60.8	66.8	38

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