Lab Code: 200707-0

TEST REPORT

For

Shenzhen Sinocastel Electronics Technology Investment Co., Ltd.

5/F, 5th Building, Software Park, No.2 Gaoxin C. 3rd Road, Hi-Tech. Industrial Park,
Nanshan, Shenzhen, Guangdong, China

FCC PART 22H, PART 24E

FCC ID: ZRT212

Report Type:	**Product Type:**
Original Report	OBD Smart

Test Engineer: Sula Huang

Report Number: RSZ110530005-00-22H&24E

Report Date: 2011-07-30

Reviewed By: Merry Zhao, EMC Engineer

Test Laboratory:
Bay Area Compliance Laboratories Corp. (Shenzhen)
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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Shenzhen Sinocastel Electronics Technology Investment Co.,Ltd.*'s product, model number: iDD-212G *(FCC ID: ZRT212)* (the "EUT") in this report is an *OBD Smart tracking system*, which was measured approximately: 6.5 cm (L) x 5.2 cm (W) x 3.0 cm (H), rated input voltage: DC 12 V battery.

Note: The serial models IDD-210G, IDD-210E, IDD-210W, IDD-211G, IDD-211E, IDD-211W, IDD-212E, IDD-212W, IDD-213G, IDD-213E, IDD-213W, IDD-214G, IDD-214E, IDD-214W, IDD-215G, IDD-215E, IDD-215W, IDD-216G, IDD-216E and IDD-216W are electrically identical with IDD-212G, the difference among them is explained in the attached declaration letter.

** All measurement and test data in this report was gathered from production sample serial number: 1105170 (Assigned by BACL, Shenzhen). The EUT was received on 2011-05-30.*

Objective

This type approval report is prepared on behalf of *Shenzhen Sinocastel Electronics Technology Investment Co.,Ltd.* in accordance with Part 2, Subpart J, Part 22 Subpart H, and Part 24 Subpart E of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC rules for output power, modulation characteristic, occupied bandwidth, and spurious emission at antenna terminal, spurious radiated emission, frequency stability, band edge and radiated margin.

Related Submittal(s)/Grant(s)

FCC ID: RI7GE865.

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 parts:

Part 22 Subpart H - Public Mobile Services
Part 24 Subpart E - Personal Communication Services

Applicable Standards: TIA/EIA 603-C, ANSI C63.4-2009.

All radiated and conducted emissions measurements were performed at Bay Area Compliance Laboratories Corp. 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.

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 EUT was configured for testing according to TIA/EIA-603-C.

The GSM/PCS test items were performed with the EUT operating at normal mode.

EUT Exercise Software

Iridium Serial Tool.exe which was provided by client.

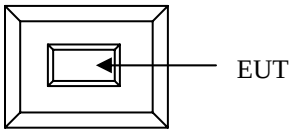
Equipment Modifications

No modifications were made to the EUT.

Local Support Equipment List and Details

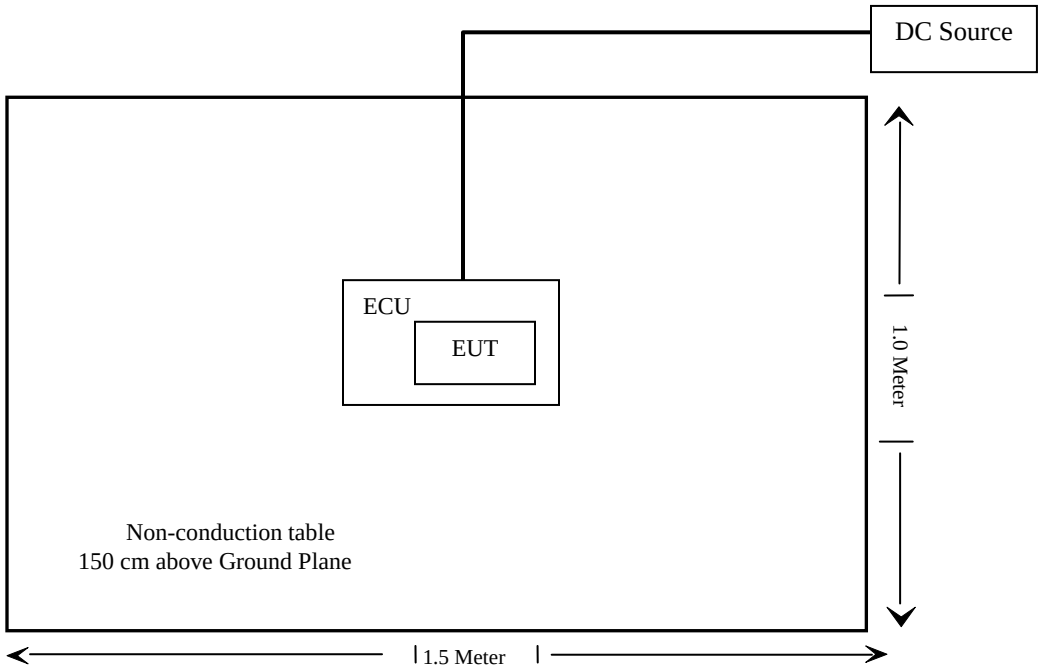
Manufacturer	Description	Model	Serial Number
Sinocastel Eletronics	ECU	WXE4-008	N/A

Configuration of Test Setup



ECU

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307, §2.1091	Maximum Permissible exposure (MPE)	Compliance
§2.1046; §22.913 (a); §24.232 (c)	RF Output Power	Compliance
§2.1049; §22.905 §22.917; §24.238	99% & -26 dB Occupied Bandwidth	N/A*
§2.1051, §22.917 (a); §24.238 (a)	Spurious Emissions at Antenna Terminal	N/A*
§2.1053 §22.917 (a); §24.238 (a)	Field Strength of Spurious Radiation	Compliance
§22.917 (a); §24.238 (a)	Out of band emission, Band Edge	N/A*
§2.1055 §22.355; §24.235	Frequency stability vs. temperature Frequency stability vs. voltage	N/A*

Note: N/A*: Please refer to FCC ID: RI7GE865.

FCC §1.1307 (b) (1) & §2.1091 - MAXIMUM PERMISSIBLE EXPOSURE (MPE)

Applicable Standard

According to FCC §1.1307 (b)(1) and §2.1091, systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy level in excess of the Commission's guidelines.

Limits for Maximum Permissible Exposure (MPE)

(B) Limits for General Population/Uncontrolled Exposure				
Frequency Range (MHz)	**Electric Field Strength (V/m)**	**Magnetic Field Strength (A/m)**	**Power Density (mW/cm^2)**	**Averaging Time (minutes)**
0.3–1.34	614	1.63	*(100)	30
1.34–30	824/f	2.19/f	*(180/f^2)	30
30–300	27.5	0.073	0.2	30
300–1500	/	/	f/1500	30
1500–100,000	/	/	1.0	30

f = frequency in MHz;
* = Plane-wave equivalent power density;

MPE Calculation

The MPE calculation as given in FCC OET Bulletin 65, page 19 is used to calculate the safe operating distance for the user.

$$S = PG/4\pi R^2$$

Where:

S= power density (in appropriate units, e.g. mW/cm^2);
P = power input to the antenna (in appropriate units, e.g., mW);
G = Antenna Gain (relative to an isotropic radiator)
R = distance to the center of radiation of the antenna (appropriate units, e.g., cm);

Frequency (MHz)	**Antenna Gain**		**Conducted Output Power**		**Evaluation Distance (cm)**	**Power Density (mW/cm^2)**	**MPE Limit (mW/cm^2)**
	(dBi)	**(numeric)**	**(dBm)**	**(mW)**			
Cellular Band (Part 22H)							
848.8	1.0	1.26	31.87	1538.15	20	0.386	0.566
PCS Band (Part 24E)							
1909.8	2.0	1.58	30.41	1099.01	20	0.345	1.0

Result: The device meets FCC MPE limit at 20 cm distance, RF exposure information has been addressed in the user manual.

FCC §2.1046, §22.913 (a) & §24.232 (c) - RF OUTPUT POWER

Applicable Standard

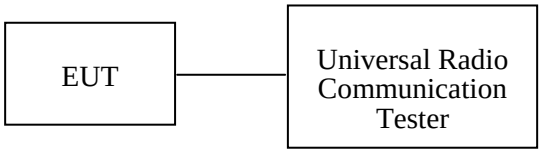
According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (c), mobile and portable stations are limited to 2 watts EIRP and the equipment must employ a means for limiting power to the minimum necessary for successful communications.

Test Procedure

Conducted method:

The RF output of the transmitter was connected to the wireless test set and the spectrum analyzer through sufficient attenuation.



Radiated method:

TIA 603-C section 2.2.17

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Horn Antenna	DRH-118	A052604	2011-05-05	2012-05-04
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2010-07-08	2011-07-07
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2010-07-05	2011-07-04
Mini-Circuits	Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
HP	Signal Generator	HP8657A	2849U00982	2010-10-28	2011-10-27
HP	Amplifier	HP8447D	2944A09795	2010-08-02	2011-08-02
HP	Synthesized Sweeper	8341B	2624A00116	2010-11-07	2011-11-06
COM POWER	Dipole Antenna	AD-100	041000	2010-09-25	2011-09-25
A.H. System	Horn Antenna	SAS-200/571	135	2011-05-17	2012-05-17
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2010-06-11	2011-06-10

*** 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 Data

Environmental Conditions

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

The testing was performed by Sula Huang on 2011-06-02.

Conducted Power:

Cellular Band (Part 22H)

Mode	Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)
GSM	128	824.2	31.22	38.45
	190	836.6	31.67	38.45
	251	848.8	31.87	38.45

Mode	Channel	Frequency (MHz)	Output Power (dBm)		Limit (dBm)
			1 slot	2slots	
GPRS	128	824.2	31.12	30.92	38.45
	190	836.6	31.55	31.36	38.45
	251	848.8	31.70	31.49	38.45

PCS Band (Part 24E)

Mode	Channel	Frequency (MHz)	Output Power (dBm)	Limit (dBm)
GSM	512	1850.2	28.40	33
	661	1880.0	29.52	33
	810	1909.8	30.41	33

Mode	Channel	Frequency (MHz)	Output Power (dBm)		Limit (dBm)
			1 slot	2slots	
GPRS	512	1850.2	28.25	28.22	33
	661	1880.0	28.86	28.82	33
	810	1909.8	28.42	28.14	33

ERP & EIRP:

ERP for Cellular Band (Part 22H)

Indicated		Table Angle Degree	Test Antenna		Substituted			Antenna Gain Correction (dBd)	Cable Loss (dB)	Absolute Level (dBm)	Part 22H Limit (dBm)
Frequency (MHz)	S.A. Reading (dBµV)		Height (m)	Polar (H/V)	Frequency (MHz)	S.G. Level (dBm)	Ant. Polar (H/V)				
High Channel											
848.8	89.51	205	1.2	H	848.8	25.2	H	0	0.9	24.30	38.45
848.8	97.52	360	1.7	V	848.8	30.5	V	0	0.9	29.60	38.45

EIRP for PCS Band (Part 24E)

Indicated		Table Angle Degree	Test Antenna		Substituted			Antenna Gain Correction (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Part 24E Limit (dBm)
Frequency (MHz)	S.A. Reading (dBµV)		Height (m)	Polar (H/V)	Frequency (MHz)	S.G. Level (dBm)	Ant. Polar (H/V)				
High Channel											
1909.8	91.93	205	2.2	H	1909.8	20.6	H	6.2	1.10	25.70	33
1909.8	96.74	22	1.1	V	1909.8	23.7	V	6.2	1.10	28.80	33

Note: Tested without the pre-amplifier.

FCC §2.1053, §22.917 & §24.238 - SPURIOUS RADIATED EMISSIONS

Applicable Standard

FCC §2.1053, §22.917 and §24.238.

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 lg (TX pwr in Watts/0.001) – the absolute level

Spurious attenuation limit in dB = 43 + 10 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	A052604	2011-05-05	2012-05-04
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2010-07-05	2011-07-04
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2010-07-08	2011-07-07
Mini-Circuits	Pre-Amplifier	ZVA-213+	T-E27H	2011-03-08	2012-03-07
HP	Signal Generator	HP8657A	2849U00982	2010-10-28	2011-10-27
HP	Pre-Amplifier	HP8447D	2944A09795	2010-08-02	2011-08-02
HP	Synthesized Sweeper	8341B	2624A00116	2010-11-07	2011-11-06
COM POWER	Dipole Antenna	AD-100	041000	2010-09-25	2011-09-25
A.H. System	Horn Antenna	SAS-200/571	135	2011-05-17	2012-05-17
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2010-06-11	2011-06-10

*** 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 Data

Environmental Conditions

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

The testing was performed by Sula Huang on 2011-06-02.

Test mode: Transmitting

Cellular Band (Part 22H)

Below 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBµV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBd)	Cable Loss (dB)			
High Channel											
992.25	41.26	150	1.5	H	992.25	-55.5	0	0.80	-56.30	-13	43.30
720.64	38.53	70	1.5	V	720.64	-57.4	0	0.76	-58.16	-13	45.16
540.23	36.43	242	1.2	V	540.23	-58.5	0	0.65	-59.15	-13	46.15
631.43	34.63	210	1.0	H	631.43	-60.3	0	0.77	-61.07	-13	48.07

Above 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBµV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBi)	Cable Loss (dB)			
High Channel											
1697.6	54.28	0	2.4	V	1697.6	-44.7	6.2	1.50	-40.00	-13	27.00
2546.4	50.15	12	2.1	V	2546.4	-45.4	7.3	2.19	-40.29	-13	27.29
1697.6	54.16	360	1.4	H	1697.6	-46.1	6.2	1.50	-41.40	-13	28.40
2546.4	49.22	0	1.9	H	2546.4	-48.8	7.3	2.19	-43.69	-13	30.69
3395.2	37.68	5	1.8	V	3395.2	-55.2	6.7	2.39	-50.89	-13	37.89
3395.2	39.53	0	2.1	H	3395.2	-55.3	6.7	2.39	-50.99	-13	37.99

PCS Band (Part 24E)

Below 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBµV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBd)	Cable Loss (dB)			
High Channel											
540.23	40.91	150	1.5	H	540.23	-54.2	0	0.65	-54.85	-13	41.85
720.64	40.12	210	1.0	H	720.64	-55.5	0	0.74	-56.24	-13	43.24
992.25	36.88	76	1.5	V	992.25	-60.1	0	0.80	-60.90	-13	47.90
906.85	35.42	243	1.2	V	906.85	-61.4	0	0.76	-62.16	-13	49.16

Above 1 GHz:

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	S.A. Reading (dBµV)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBi)	Cable Loss (dB)			
High Channel											
3819.8	54.30	158	1.5	V	3819.8	-38.5	6.9	2.45	-34.05	-13	21.05
3819.8	53.97	360	2.1	H	3819.8	-40.8	6.9	2.45	-36.35	-13	23.35
7639.6	40.58	175	1.5	H	7639.6	-44.0	7.6	2.95	-39.35	-13	26.35
7639.6	38.25	220	1.4	V	7639.6	-46.4	7.6	2.95	-41.75	-13	28.75
5729.7	43.45	185	1.8	V	5729.7	-53.2	8.3	2.80	-47.70	-13	34.70
5729.7	41.91	221	1.7	H	5729.7	-57.3	8.3	2.80	-51.80	-13	38.80

PRODUCT SIMILARITY DECLARATION LETTER

Shenzhen Sinocastel Electronics Technology Investment Co.,Ltd.
Add:5/F, 5th Building,Software Park,No.2 Gaoxin C. 3rd Road,Hi-Tech. Industrial Park,Nanshan,Shenzhen,Guangdong,China
Tel: 0755-86185127 Fax: 0755-86169366

Date: 2011-07-30

Product Smilarity Declaration

To whom it may concern:

We Shenzhen Sinocastel Electronics Technology Investment Co.,Ltd. hereby declare that our OBD Smart, Model Number:IDD-210G/IDD-210E/IDD-210W/IDD-211G/ IDD-211E/IDD-211W/IDD-212E/IDD-212W/IDD-213G/IDD-213E/IDD-213W/ IDD-214G/IDD-214E/IDD-214W/IDD-215G/IDD-215E/IDD-215W/IDD-216G and IDD-216E/ IDD-216W are electrical identical with the IDD-212G that was certified by BACL, They just different in model names, due to marking purposes.

Please contact me if you have any question.

Signature: Peter Kang
Peter Kang
Quality Control Department Manager

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