NVLAP LAB CODE 200707-0

FCC PART 22 H/24 E

MEASUREMENT AND TEST REPORT

For

Shenzhen Coson Electronic Co., Ltd.

17 F, Ying Long Building, No. 6025, Shen Nan Middle Road,

Shenzhen, Guangdong, China

FCC ID: XPW-HMT5800RWG01

Report Type:	**Product Type:**
Original Report	RFID Hand-Held Mobile Terminal

Test Engineer:	Vicent Kang
Report Number:	RSZ09081052-22H24E
Report Date:	2010-05-25
Reviewed By:	Merry Zhao EMC Engineer
Prepared By:	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

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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *SHENZHEN COSON ELECTRONIC CO., LTD.*'s product, model number: *SD5800 (FCC ID: XPW-HMT5800RWG01)* or the "EUT" as referred to in this report is a *RFID hand-held mobile terminal, which* measures approximately 27.0 cm L x 11.5 cm W x 17.0 cm H, rated input voltage: DC 15V adapter or DC 11.1V battery.

Adapter information
Manufacture: Artesyn technologies (Z.S.);
Model: SSL40-7615;
Input: AC 100-240V 100-120VA 50/60Hz;
Output: 15VDC, 2.6A

Frequency Range:
Cellular Band: 824-849 MHz (TX), 869-894 MHz (RX)
PCS Band: 1850-1910 MHz (TX), 1930-1990 MHz (RX)

Modulation Mode: GMSK

Transmitter Output Power:
Cellular Band: 33±2 dBm, PCS Band: 30±2 dBm

** All measurement and test data in this report was gathered from production sample serial number: 0908816 (Assigned by BACL). The EUT was received on 2009-08-10*

EUT Photo

Please see additional photos in Exhibit B&C

Objective

This type approval report is prepared on behalf of *SHENZHEN COSON ELECTRONIC 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.

Occupied bandwidth, Spurious emissions at antenna terminals, Band edges, Frequency stability, all above test data, Please refer to the FCC ID: IHDT56HQ1, which was issued by HLKMON LABORATORIES on July 20, 2007, and was granted on August 16, 2007.

Related Submittal(s)/Grant(s)

FCC Part 15.247 RFID and Wi-Fi submissions with FCC ID: XPW-HMT5800RWG01.

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 C63.4-2003.

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 in 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 November 21, 2007. 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. 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 a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0).

NVLAP LAB CODE 200707-0

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

SYSTEM TEST CONFIGURATION

Justification

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

The final qualification test was performed with the EUT operating at normal mode.

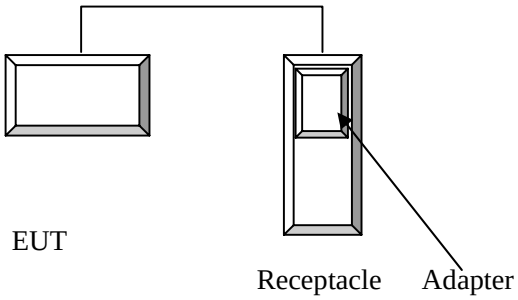
Equipment Modifications

No modifications were made to the EUT.

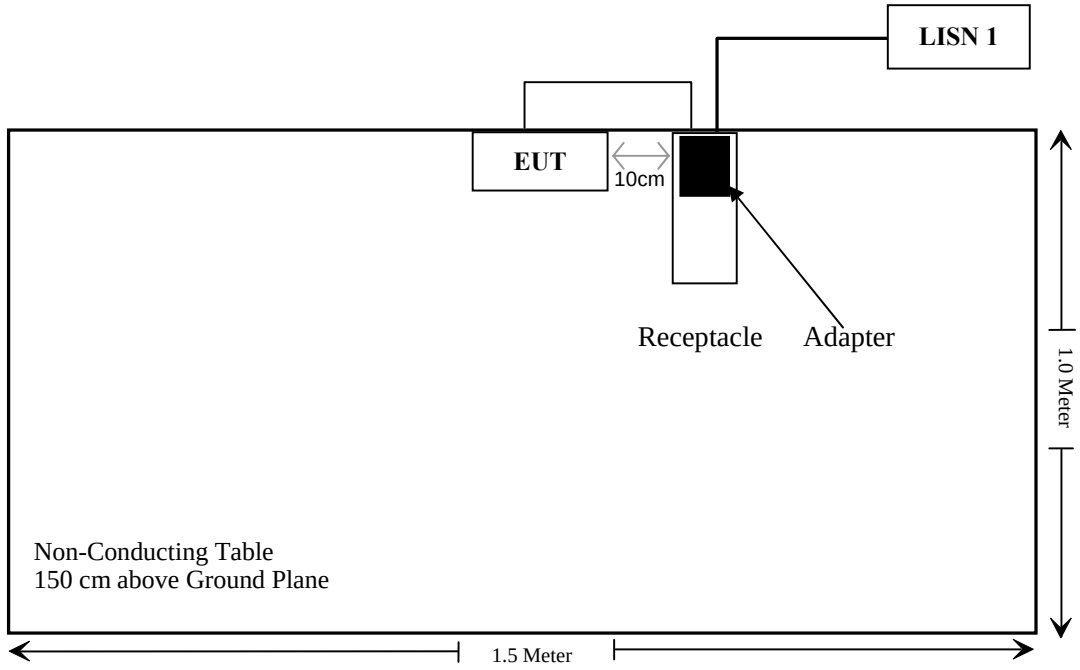
External I/O Cable

Cable Description	Length (m)	From Port	To
Unshielded Detachable Power Cable with a Core	0.85	Adapter	EUT

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
§1.1307, §2.1093	RF Exposure (SAR)	Compliant*
§2.1046; § 22.913 (a), § 24.232 (c)	RF Output Power	Compliant
§ 2.1047	Modulation Characteristics	N/A
§ 2.1049 § 22.917, § 24.238	Occupied Bandwidth	Please refer to FCC ID: IHDT56HQ1
§ 2.1051, § 22.917 (a), § 24.238 (a)	Spurious Emissions at Antenna Terminal	Please refer to FCC ID: IHDT56HQ1
§ 2.1053 § 22.917 (a), § 24.238 (a)	Field Strength of Spurious Radiation	Compliant
§ 22.917 (a), § 24.238 (a)	Out of band emission, Band Edge	Please refer to FCC ID: IHDT56HQ1
§ 2.1055 § 22.355, § 24.235	Frequency stability vs. temperature Frequency stability vs. voltage	Please refer to FCC ID: IHDT56HQ1

Note: *Please refer to the SAR report: R1002118-FCC-SAR.

FCC§1.1307 & §2.1093 - RF EXPOSURE

Applicable Standard

FCC §1.1307 and §2.1093.

Test Result

Compliance

The EUT is a portable device which needs SAR evaluation; please refer to BACL SAR Report: R1002118-FCC-SAR.

FCC§2.1047 - MODULATION CHARACTERISTIC

According to FCC §2.1047(d), Part 22H & 24E there is no specific requirement for digital modulation, therefore modulation characteristic is not presented.

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

Applicable Standard

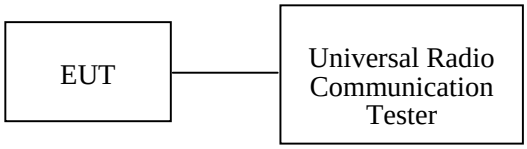
According to FCC §2.1046 and §22.913 (a), the ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 watts.

According to FCC §2.1046 and §24.232 (C), in no case may the peak output power of a base station transmitter exceed 2 watt EIRP.

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	2008-09-25	2009-09-25
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2009-08-28	2010-08-27
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2009-03-11	2010-03-11
HP	Preamplifier	8449B	3008A00277	2008-09-12	2009-09-11
HP	Signal Generator	HP8657A	2849U00982	2008-10-16	2009-10-15
HP	Amplifier	HP8447D	2944A09795	2009-08-02	2010-08-02
HP	Synthesized Sweeper	8341B	2624A00116	2008-11-07	2009-11-06
COM POWER	Dipole Antenna	AD-100	041000	2008-09-25	2009-09-25
A.H. System	Horn Antenna	SAS-200/571	135	2009-05-17	2010-05-17
Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2009-05-09	2010-05-09

*** 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 Vicent Kang on 2009-09-10

Conducted Power:

Please refer to FCC ID: IHDT56HQ1, which was issued by HLKMON LABORATORIES on July 20, 2007, and was granted on August 16, 2007.

Radiated Power (ERP and EIRP):

Cellular Band (Part 22H)

Indicated		Table Angle Degree	Test Antenna		Substituted			Antenna Gain Cord. (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Part 22H	
Frequency (MHz)	Amp. Reading (dBμV/m)		Height (m)	Polar (H/V)	Frequency (MHz)	S.G. Level (dBm)	Polar (H/V)				Limit (dBm)	Result
Low Channel												
824.2	128.93	290	1.40	H	824.2	26.4	H	0	0.69	27.09	38.45	Pass
824.2	132.82	311	1.12	V	824.2	30.6	V	0	0.69	31.29	38.45	Pass
Middle Channel												
836.6	127.11	293	1.88	H	836.6	25.2	H	0	0.69	25.89	38.45	Pass
836.6	133.33	7	1.16	V	836.6	31.3	V	0	0.69	31.99	38.45	Pass
High Channel												
848.8	125.26	93	1.32	H	848.8	23.7	H	0	0.69	24.39	38.45	Pass
848.8	132.33	11	1.17	V	848.8	30.2	V	0	0.69	30.89	38.45	Pass

PCS Band (Part 24E)

Indicated		Table Angle Degree	Test Antenna		Substituted			Antenna Gain Cord. (dBi)	Cable Loss (dB)	Absolute Level (dBm)	Part 24E	
Frequency (MHz)	Amp. Reading (dBμV/m)		Height (m)	Polar (H/V)	Frequency (MHz)	S.G. Level (dBm)	Polar (H/V)				Limit (dBm)	Result
Low Channel												
1850.2	118.97	138	1.8	H	1850.2	20.5	H	6.2	1.02	25.68	33	Pass
1850.2	120.62	68	1.6	V	1850.2	22.7	V	6.2	1.02	27.88	33	Pass
Middle Channel												
1880.0	116.42	140	2.0	H	1880	18.3	H	6.2	1.03	23.47	33	Pass
1880.0	120.10	68	2.0	V	1880	22.4	V	6.2	1.03	27.57	33	Pass
High Channel												
1909.8	117.11	130	1.7	H	1909.8	19.4	H	6.2	1.03	24.57	33	Pass
1909.8	119.15	68	2.0	V	1909.8	21.5	V	6.2	1.03	26.67	33	Pass

FCC§2.1049, §22.917, §22.905 & §24.238 - OCCUPIED BANDWIDTH

Applicable Standards

FCC §2.1049, §22.917, §22.905 and §24.238.

Test Result

Please refer to FCC ID: IHDT56HQ1

FCC§2.1051, §22.917(a), & §24.238(a) - SPURIOUS EMISSIONS AT ANTENNA TERMINALS

Applicable Standards

FCC§2.1051, §22.917(a) and §24.238(a).

The spectrum was to be investigated to the tenth harmonics of the highest fundamental frequency as specified in § 2.1051.

Test Result

Please refer to FCC ID: IHDT56HQ1

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

Applicable Standards

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 (TXpwr 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	2008-09-25	2009-09-25
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2009-03-11	2010-03-11
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2009-08-28	2010-08-27
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Rohde & Schwarz	Universal Radio Communication Tester	CMU200	109038	2009-05-09	2010-05-09

*** 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 Vicent Kang on 2009-09-10.

Cellular Band, 30 MHz-10 GHz

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	Amplitude Reading (dBμV/m)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBi)	Cable Loss (dB)			
Middle Channel											
1673.2	76.40	235	1.40	H	1673.2	-26.6	6.2	0.98	-21.38	-13	8.38
1673.2	72.56	256	1.30	V	1673.2	-30.5	6.2	0.98	-25.28	-13	12.28
727.2	63.70	281	1.00	V	727.2	-35.3	0	0.64	-35.94	-13	22.94
727.2	63.67	320	1.24	H	727.2	-35.5	0	0.64	-36.14	-13	23.14
2509.8	55.71	95	1.30	V	2509.8	-45.3	7.3	1.19	-39.19	-13	26.19
2509.8	51.72	114	1.60	H	2509.8	-48.4	7.3	1.19	-42.29	-13	29.29
3346.4	48.81	0	2.00	H	3346.4	-49.8	6.8	1.39	-44.39	-13	31.39
4183.0	47.46	136	1.90	V	4183.0	-50.7	7.6	1.59	-44.69	-13	31.69
3346.4	48.05	72	2.00	V	3346.4	-50.2	6.8	1.39	-44.79	-13	31.79
4183.0	45.75	223	1.00	H	4183.0	-52.2	7.6	1.59	-46.19	-13	33.19

PCS Band, 30 MHz-20 GHz

Indicated		Table Angle Degree	Test Antenna		Substituted				Absolute Level (dBm)	Limit (dBm)	Margin (dB)
Frequency (MHz)	Amplitude Reading (dBμV/m)		Height (m)	Polar (H/V)	Frequency (MHz)	Level (dBm)	Ant. Gain (dBi)	Cable Loss (dB)			
Middle Channel											
727.2	64.49	312	1.24	H	727.2	-34.7	0	0.64	-35.34	-13	22.34
727.2	63.37	288	1.00	V	727.2	-35.6	0	0.64	-36.24	-13	23.24
3760.0	54.46	160	1.10	V	3760.0	-44.3	6.7	1.50	-39.10	-13	26.10
3760.0	50.94	255	2.00	H	3760.0	-47.5	6.7	1.50	-42.30	-13	29.30
5640.0	43.65	160	1.60	V	5640.0	-51.2	8.3	1.76	-44.66	-13	31.66
5640.0	43.05	70	1.5	H	5640.0	-51.7	8.3	1.76	-45.16	-13	32.16

FCC §22.917(a) & §24.238(a) - BAND EDGES

Applicable Standards

According to FCC §22.917(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

According to FCC §24.238(a), the power of any emissions outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P) dB.

Test Result

Please refer to FCC ID: IHDT56HQ1

FCC§2.1055, §22.355 & §24.235 - FREQUENCY STABILITY

Applicable Standard

FCC§ 2.1055 (a), § 2.1055 (d), §22.355 & §24.235

According to FCC §22.355, the carrier frequency of each transmitter in the Public Mobile Services must be maintained within the tolerances given in Table below:

Frequency Tolerance for Transmitters in the Public Mobile Services

Frequency Range (MHz)	Base, fixed (ppm)	Mobile ≤ 3 watts (ppm)	Mobile ≤ 3 watts (ppm)
25 to 50	20.0	20.0	50.0
50 to 450	5.0	5.0	50.0
450 to 512	2.5	5.0	5.0
821 to 896	1.5	2.5	2.5
928 to 929.	5.0	N/A	N/A
929 to 960.	1.5	N/A	N/A
2110 to 2220	10.0	N/A	N/A

According to FCC §24.235, the frequency stability shall be sufficient to ensure that the fundamental emissions stays within the authorized frequency block.

Test Result

Please refer to FCC ID: IHDT56HQ1

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