



## TEST REPORT

**Report No.: HK10051144-1**

**Sunco (China East) Electronics Co., Ltd.**

Application  
For  
Certification

(Original Grant)

**(FCC ID: YG8CE-701)**

Transceiver

Prepared and Checked by:

Approved by:

Signed On File  
Cheung Hung Ngai, Mark  
Lead Engineer

---

Chan Chi Hung, Terry  
Senior Lead Engineer  
Date: June 3, 2010

- The test report only allows to be revised within the retention period unless further standard or the requirement was noticed.
- This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

**Intertek Testing Services Hong Kong Ltd.**

2/F., Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong.

Tel: (852) 2173 8888 Fax: (852) 2785 5487 Website: [www.hk.intertek-etlsemko.com](http://www.hk.intertek-etlsemko.com)

## INTERTEK TESTING SERVICES

---

### GENERAL INFORMATION

**Sunco (China East) Electronics Co., Ltd.**  
**MODEL: CE-701**

**FCC ID: YG8CE-701**

Grantee:	Sunco (China East) Electronics Co., Ltd.
Grantee Address:	Unit 101, 1/F., Block 2, Kodak House, 39 Healthy Street East, Quarry Bay, Hong Kong.
Contact Person:	Alan Ng
Tel:	852-28055445
Fax:	852-25641238
e-mail:	sunco@sunco.com.hk
Manufacturer:	N/A
Manufacturer Address:	N/A
Brand Name:	N/A
Model:	WE55000
Additional Model:	CE-701
Type of EUT:	Transceiver
Description of EUT:	WWE Text Messenger (WE55000) 100 Metres SMS Sender (CE-701)
Serial Number:	N/A
FCC ID:	YG8CE-701
Date of Sample Submitted:	May 24, 2010
Date of Test:	May 31, 2010
Report No.:	HK10051144-1
Report Date:	June 3, 2010
Environmental Conditions:	Temperature: +10 to 40°C Humidity: 10 to 90%

---

## INTERTEK TESTING SERVICES

---

### SUMMARY OF TEST RESULT

**Sunco (China East) Electronics Co., Ltd.**

**MODEL: WE55000**

**FCC ID: YG8CE-701**

TEST SPECIFICATION	REFERENCE	RESULTS
Maximum Peak Output Power	15.247(b), (c) / RSS-210 A8.4	N/A
Hopping Channel Carrier Frequencies Separation	15.247(e) / RSS-210 A8.1	N/A
20dB Bandwidth of the Hopping Channel	15.247(a) / RSS-210 A8.1	N/A
Number of Hopping Frequencies	15.247(e) / RSS-210 A8.1	N/A
Average Time of Occupancy of Hopping Frequency	15.247(e) / RSS-210 A8.1	N/A
Antennae Conducted Spurious Emissions	15.247(d) / RSS-210 A8.5	N/A
Radiated Spurious Emissions	15.247(d) / RSS-210 A8.5	N/A
RF Exposure Compliance	15.247(i) / RSS-Gen 5.5	N/A
Transmitter Power Line Conducted Emissions	15.207 / RSS-Gen 7.2.2	N/A
Transmitter Field Strength	15.227 / RSS-310 3.8	N/A
Transmitter Field Strength	15.229 / RSS-210 A2.7	N/A
Transmitter Field Strength, Bandwidth and Timing Requirement	15.231(a) / RSS-210 A1.1.1	N/A
Transmitter Field Strength, Bandwidth and Timing Requirement	15.231(e) / RSS-210 A1.1.5	N/A
Transmitter Field Strength and Bandwidth Requirement	15.239 / RSS-210 A2.8	N/A
Transmitter Field Strength and Bandwidth Requirement	15.249 / RSS-210 A2.9	N/A
Transmitter Field Strength and Bandwidth Requirement	15.235 / RSS-310 3.9	Pass
Receiver / Digital Device Radiated Emissions	15.109 / ICES-003	N/A
Digital Device Conducted Emissions	15.107 / ICES-003	N/A

- Note: 1. The EUT uses a permanently attached antenna which, in accordance to section 15.203, is considered sufficient to comply with the provisions of this section.
2. Pursuant to FCC part 15 Section 15.215(c), the 20 dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over expected variations in temperature and supply voltage were considered.

---

# INTERTEK TESTING SERVICES

---

## Table of Contents

1.0	<b><u>General Description</u></b> .....	1
1.1	Product Description .....	1
1.2	Related Submittal(s) Grants.....	1
1.3	Test Methodology .....	1
1.4	Test Facility .....	1
2.0	<b><u>System Test Configuration</u></b> .....	2
2.1	Justification .....	2
2.2	EUT Exercising Software.....	2
2.3	Special Accessories .....	2
2.4	Equipment Modification .....	2
2.5	Measurement Uncertainty.....	2
2.6	Support Equipment List and Description .....	3
3.0	<b><u>Emission Results</u></b> .....	3
3.1	Field Strength Calculation.....	3
3.2	Radiated Emission Configuration Photograph.....	4
3.3	Radiated Emission Data .....	4
4.0	<b><u>Equipment Photographs</u></b> .....	8
5.0	<b><u>Product Labelling</u></b> .....	8
6.0	<b><u>Technical Specifications</u></b> .....	8
7.0	<b><u>Instruction Manual</u></b> .....	8
8.0	<b><u>Miscellaneous Information</u></b> .....	8
8.1	Measured Bandedge .....	8
8.2	Emissions Test Procedures .....	9
9.0	<b><u>Equipment List</u></b> .....	10

---

## INTERTEK TESTING SERVICES

---

### 1.0 **General Description**

#### 1.1 Product Description

The equipment under test (EUT) is a transceiver for a SMS Messenger operating at 49.860 MHz. The EUT is powered by 4 x AAA size batteries. Once turn on the EUT, which can transmit or receive messenger data via RF Signal. The EUT can transmit message to another SMS messenger when using the same ID codes. The screen of EUT shows the message is sent out successfully and a new message received when the EUT ringing and send back a ring signal to sender accordingly.

The Model: CE-701 is the same as the Model: WE55000 in hardware aspect. The difference in model number and item name only.

Antenna Type : External, Integral

For electronic filing, the brief circuit description is saved with filename: descri.pdf.

#### 1.2 Related Submittal(s) Grants

The Verification of receiver for this transmitter (with FCC ID: YG8CE-701) is being processed as the same time of this application.

#### 1.3 Test Methodology

Radiated emission measurements was performed according to the procedures in ANSI C63.4 (2003). All radiated measurements were performed in an Open Area Test Site. Preliminary scans were performed in the Open Area Test Site only to determine worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the “**Justification Section**” of this Application.

#### 1.4 Test Facility

The open area test site and conducted measurement facility used to collect the radiated data is located at Garment Centre, 576 Castle Peak Road, Kowloon, Hong Kong. This test facility and site measurement data have been placed on file with the FCC.

---

## INTERTEK TESTING SERVICES

---

### 2.0 **System Test Configuration**

#### 2.1 Justification

The system was configured for testing in a typical fashion (as a customer would normally use it), and in the confines as outlined in ANSI C63.4 (2003).

The EUT was powered by 4 new AAA size batteries during test.

For maximizing emissions, the EUT was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. This step by step procedure for maximizing emissions led to the data reported in Exhibit 3.0.

The unit was operated standalone and placed in the center of the turntable.

The equipment under test (EUT) was configured for testing in a typical fashion (as a customer would normally use it). The EUT was mounted to a plastic stand if necessary and placed on the wooden turntable, which enabled the engineer to maximize emissions through its placement in the three orthogonal axes.

#### 2.2 EUT Exercising Software

There was no special software to exercise the device. Once the unit is powered up, it transmits the RF signal continuously.

#### 2.3 Special Accessories

There are no special accessories necessary for compliance of this product.

#### 2.4 Equipment Modification

Any modifications installed previous to testing by Sunco (China East) Electronics Co., Ltd. will be incorporated in each production model sold/leased in the United States.

No modifications were installed by Intertek Testing Services Hong Kong Ltd.

#### 2.5 Measurement Uncertainty

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

---

## INTERTEK TESTING SERVICES

---

### 2.6 Support Equipment List and Description

N/A.

### 3.0 **Emission Results**

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

#### 3.1 Field Strength Calculation

The field strength is calculated by adding the Antenna Factor and Cable Factor, and subtracting the Amplifier Gain (if any), Average Factor (optional) from the measured reading. The basic equation with a sample calculation is as follows:

$$FS = RA + AF + CF - AG - AV$$

where       $FS$  = Field Strength in dB $\mu$ V/m  
               $RA$  = Receiver Amplitude (including preamplifier) in dB $\mu$ V  
               $CF$  = Cable Attenuation Factor in dB  
               $AF$  = Antenna Factor in dB  
               $AG$  = Amplifier Gain in dB  
               $AV$  = Average Factor in dB

In the following table(s), the reading shown on the data table reflects the preamplifier gain. An example for the calculations in the following table is as follows:

$$FS = RR + LF$$

where       $FS$  = Field Strength in dB $\mu$ V/m  
               $RR = RA - AG - AV$  in dB $\mu$ V  
               $LF = CF + AF$  in dB

Assume a receiver reading of 52.0 dB $\mu$ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB are added. The amplifier gain of 29 dB and average factor of 5 dB are subtracted, giving a field strength of 27 dB $\mu$ V/m. This value in dB $\mu$ V/m was converted to its corresponding level in  $\mu$ V/m.

$$\begin{aligned} RA &= 52.0 \text{ dB}\mu\text{V/m} \\ AF &= 7.4 \text{ dB} & RR &= 18.0 \text{ dB}\mu\text{V} \\ CF &= 1.6 \text{ dB} & LF &= 9.0 \text{ dB} \\ AG &= 29.0 \text{ dB} \\ AV &= 5.0 \text{ dB} \\ FS &= RR + LF \\ FS &= 18 + 9 = 27 \text{ dB}\mu\text{V/m} \end{aligned}$$

$$\text{Level in } \mu\text{V/m} = \text{Common Antilogarithm } [(27 \text{ dB}\mu\text{V/m})/20] = 22.4 \mu\text{V/m}$$

## **INTERTEK TESTING SERVICES**

---

### **3.2 Radiated Emission Configuration Photograph**

#### **Worst Case Radiated Emission at 49.860 MHz**

For electronic filing, the worst case radiated emission configuration photographs are saved with filename: radiated photos.pdf.

### **3.3 Radiated Emission Data**

The data on the following page lists the significant emission frequencies, the limit and the margin of compliance. Numbers with a minus sign are below the limit.

Judgment: Passed by 3.6 dB



## INTERTEK TESTING SERVICES

Applicant: Sunco (China East) Electronics Co., Ltd.

Date of Test: June 3, 2010

Model: WE55000

Mode: TX

Table 1

### Radiated Emissions

Polarization	Frequency (MHz)	Reading (dB $\mu$ V)	Pre-Amp (dB)	Antenna Factor (dB)	Average Factor (-dB)	Net at 3m (dB $\mu$ V/m)	Limit at 3m (dB $\mu$ V/m)	Margin (dB)
V	49.860	81.4	16	11.0	0.0	76.4	80.0	-3.6
V	99.720	40.6	16	12.0	-	36.6	43.5	-6.9
H	149.580	36.1	16	14.0	-	34.1	43.5	-9.4
H	199.440	34.4	16	16.0	-	34.4	43.5	-9.1
H	249.300	29.7	16	20.0	-	33.7	46.0	-12.3
H	299.160	28.7	16	22.0	-	34.7	46.0	-11.3
H	349.020	26.0	16	24.0	-	34.0	46.0	-12.0
H	398.880	24.2	16	25.0	-	33.2	46.0	-12.8
H	448.740	25.1	16	26.0	-	35.1	46.0	-10.9
H	498.600	24.4	16	26.0	-	34.4	46.0	-11.6

NOTES: 1. Peak Detector Data unless otherwise stated.

2. All measurements were made at 3 meters. Harmonic emissions not detected at the 3-meter distances were measured at 0.3-meter and an inverse proportional extrapolation was performed to compare the signal level to the 3-meter limit. No other harmonic emissions than those reported were detected at a test distance of 0.3-meter.

3. Negative sign in the column shows value below limit.

4. Horn antenna is used for the emissions over 1000MHz.

---

## INTERTEK TESTING SERVICES

---

### 4.0 **Equipment Photographs**

For electronic filing, the photographs are saved with filename: external photos.pdf and internal photos.pdf.

### 5.0 **Product Labelling**

For electronics filing, the FCC ID label artwork and the label location are saved with filename: label.pdf.

### 6.0 **Technical Specifications**

For electronic filing, the block diagram and schematic of the tested EUT are saved with filename: block.pdf and circuit.pdf respectively.

### 7.0 **Instruction Manual**

For electronic filing, a preliminary copy of the Instruction Manual is saved with filename: manual.pdf.

This manual will be provided to the end-user with each unit sold/leased in the United States.

### 8.0 **Miscellaneous Information**

This miscellaneous information includes details of the measured bandwidth.

#### 8.1 **Measured Bandwidth**

The plot saved in be.pdf which shows the fundamental emission is confined in the specified band. The field strength of any emission appearing between the band edges and up to 10kHz above and below the band edges (49.81 and 49.91 MHz) is at least 26 dB below the carrier level. And at 49.81 & 49.91 MHz, there are at least 50 dB below the carrier level. It meets requirement of Section 15.235(b).

Pursuant to FCC part 15 Section 15.215(c), the 20dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over excepted variations in temperature and supply voltage were considered.

---

## INTERTEK TESTING SERVICES

---

### 8.2 Emissions Test Procedures

The following is a description of the test procedure used by Intertek Testing Services in the measurements of transmitters operating under Part 15, Subpart C rules.

The test set-up and procedures described below are designed to meet the requirements of ANSI C63.4 - 2003.

The transmitting equipment under test (EUT) is placed on a wooden turntable which is four feet in diameter and approximately one meter in height above the ground plane. During the radiated emissions test, the turntable is rotated and any cables leaving the EUT are manipulated to find the configuration resulting in maximum emissions. The EUT is adjusted through all three orthogonal axes to obtain maximum emission levels. The antenna height and polarization are varied during the testing to search for maximum signal levels.

Detector function for radiated emissions is in peak mode. Average readings, when required, are taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings.

The frequency range scanned is from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or 40 GHz, whichever is lower. For line conducted emissions, the range scanned is 150 kHz to 30 MHz.

---

## INTERTEK TESTING SERVICES

---

### 8.2 Emissions Test Procedures (cont'd)

The EUT is warmed up for 15 minutes prior to the test.

AC power to the unit is varied from 85% to 115% nominal and variation in the fundamental emission field strength is recorded. If battery powered, a new, fully charged battery is used.

Conducted measurements are made as described in ANSI C63.4 - 2003.

The IF bandwidth used for measurement of radiated signal strength was 10 kHz for emission below 30 MHz and 120 kHz for emission from 30 MHz to 1000 MHz.

Transmitter measurements are normally conducted at a measurement distance of three meters. However, to assure low enough noise floor in the restricted bands and above 1 GHz, signals are acquired at a distance of one meter or less. All measurements are extrapolated to three meters using inverse scaling, but those measurements taken at a closer distance are so marked.

### 9.0 Equipment List

#### Radiated Emissions Test

Equipment	EMI Test Receiver	Log Periodic Antenna	Biconical Antenna
Registration No.	EW-0014	EW-0446	EW-0954
Manufacturer	ROHDESCHWARZ	EMCO	EMCO
Model No.	ESVS30	3146	3104C
Calibration Date	Jun 01, 2009	Apr 26, 2010	Apr 14, 2010
Calibration Due Date	Jun 01, 2010	Oct 26, 2011	Oct 14, 2011

Equipment	14m Double Shield RF Cable (20MHz - 6GHz)	14m Double Shield RF Cable (9kHz - 6GHz)	Spectrum Analyzer
Registration No.	EW-2528	EW-2375	EW-2188
Manufacturer	RADIALL	RADIALL	AGILENTTECH
Model No.	nm / br5d / sma 14m	n m/br56/bnc m 14m	E4407B
Calibration Date	Feb 18, 2010	Sept 11, 2009	Dec 25, 2009
Calibration Due Date	Feb 23, 2011	Sept 12, 2010	Dec 31, 2010