

## ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT

### FCC PART 15 SUBPART B REQUIREMENT

*OF*

GSM Mobile Phone

FCC ID: WUMBSTPWRV90

MODEL No.: V90+

LISTIED MODELS: V90, 6690, 6890, V66, 630i

BRAND NAME: Bestpower

REPORT NO: SCS-SZE081023001

ISSUE DATE: Nov 11, 2008

*Prepared for*

Bestpower Direct Export Co. Ltd  
21F,Building A, Guo Qi Plaza, Shang Bu Nan Road,  
Fu Tian District, Shenzhen, China

*Prepared by*

Standard Compliance Services (ShenZhen) Co., Ltd.

*d.b.a.*

Standard Compliance Services (ShenZhen) Co., Ltd.  
RM.315, Big New Building, NO.3083, Nanxin RD., Nanshan,  
Shenzhen, Guangdong, China

Tel: 86-755-86174050

Fax: 86-755-86174237

**VERIFICATION OF COMPLIANCE**

Applicant:	Bestpower Direct Export Co. Ltd 21F,Building A, Guo Qi Plaza, Shang Bu Nan Road, Fu Tian District, Shenzhen, China
Product Description:	GSM Mobile Phone
Brand Name:	Bestpower
Model Number:	V90+ (Representative model for test)
Listed Models:	V90, 6690, 6890, V66, 630i
File Number:	SCS-SZE081023001
Date of Test:	Oct 22, 2008 ~ Oct 30, 2008

**We hereby certify that:**

The above equipment was tested by Standard Compliance Services (ShenZhen) Co., Ltd. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.4 (2003) and the energy emitted by the sample EUT tested as described in this report is in compliance with conducted emission and radiated emission limits of FCC Rules Part 15.107 and Part 15.109.

The test results of this report relate only to the tested sample identified in this report.

**Approved By**

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**Lisa Chen / Manager****Reviewed By**

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**Fred / Engineer**

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## 1. GENERAL INFORMATION

### 1.1 Product Description

The EUT is a GSM Mobile Phone, FCC Class B Digital Device (*for more details, refer to the user's manual of the EUT*).

A major technical descriptions of EUT is described as following:

The series models V90+, V90 ,6690 ,6890 ,V66 ,630i have the same circuit diagram, PCB layout , only the model name are difference intend for market requirement.

### 1.2 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for FCC ID: WUMBSTPWRV90 filing to comply with Section 15.107 and 15.109 of the FCC Part 15, Subpart B Rules.

### 1.3 Test Methodology

Both conducted and radiated testing was performed according to the procedures in ANSI C63.4 (2003). Radiated testing was performed at an antenna to EUT distance 3 meters.

### 1.4 Test Facility

The fully anechoic chamber test site and conducted measurement facility used to collect the radiated data is located on the address of QuieTek Technology (Suzhou) Co., Ltd. No.99, Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone, Suzhou, China

The fully anechoic chamber Test Sites and the Line Conducted labs are constructed and calibrated to meet the FCC requirements in documents ANSI C63.4: 2003 and CISPR 22/EN 55022 requirements.

### 1.5 Special Accessories

Not available for this EUT intended for grant.

### 1.6 Equipment Modifications

Not available for this EUT intended for grant.

## 1.7. Laboratory Information

### Suzhou Testing Laboratory :

No.99 Hongye Rd., Suzhou Industrial Park Loufeng Hi-Tech Development Zone., SuZhou, China  
TEL : +86-512-6251-5088 / FAX : 86-512-6251-5098 E-Mail : [service@quietek.com](mailto:service@quietek.com)



## 2. SYSTEM TEST CONFIGURATION

### 2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

### 2.2 EUT Exercise

The Device was operated in the normal operating mode.

### 2.3 Test Procedure

#### 2.3.1 Conducted Emissions

The EUT is placed on support table which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4-2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using CISPR Quasi-Peak and average detector mode.

#### 2.3.2 Radiated Emissions

The EUT is a placed on as turn table which is 0.8 m above ground plane. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

### 2.4 Limitation

**(1) Conducted Emission**

According to section 15.107(a) Conducted Emission Limits is as following.

Frequency range MHz	Limits dB(uV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

Note

1.The lower limit shall apply at the transition frequencies

2.The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

**(2) Radiated Emission**

According to section 15.109(a) Radiated Emission Limits is as following.

Frequency (MHz)	Distance (m)	Maximum Field Strength Limit (dBuV/m/ Q.P.)
30-88	3	40
88-216	3	43.5
216-960	3	46
above 960	3	54

**2.5 Configuration of Tested System**

**Fig. 2-1 Configuration of Tested System**

**3. DESCRIPTION OF TEST MODES**

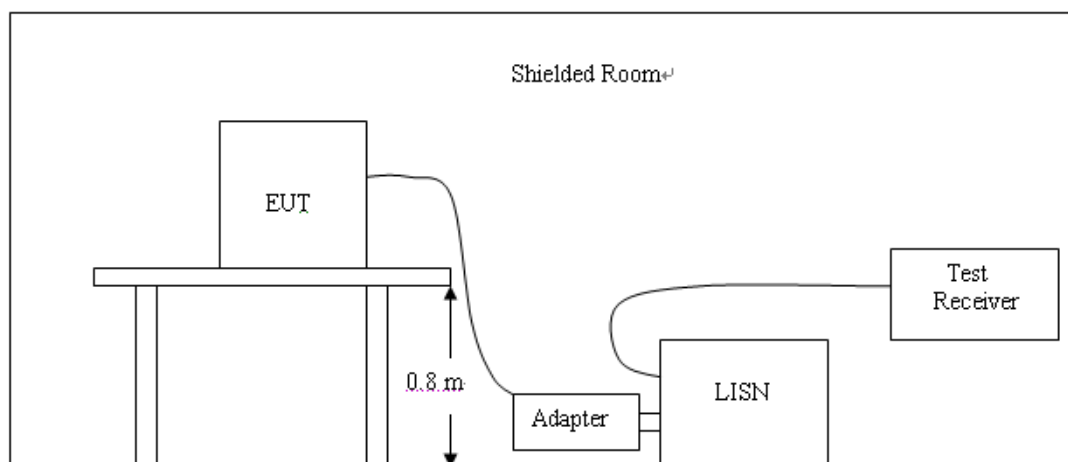
The EUT has been tested under normal operating condition.

## 4. CONDUCTED EMISSIONS TEST

### 4.1 Measurement Procedure:

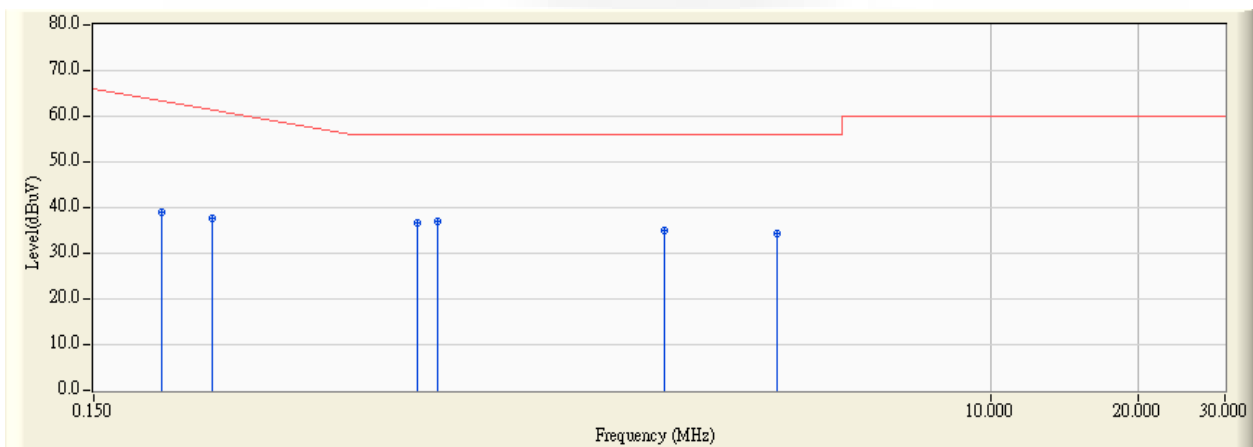
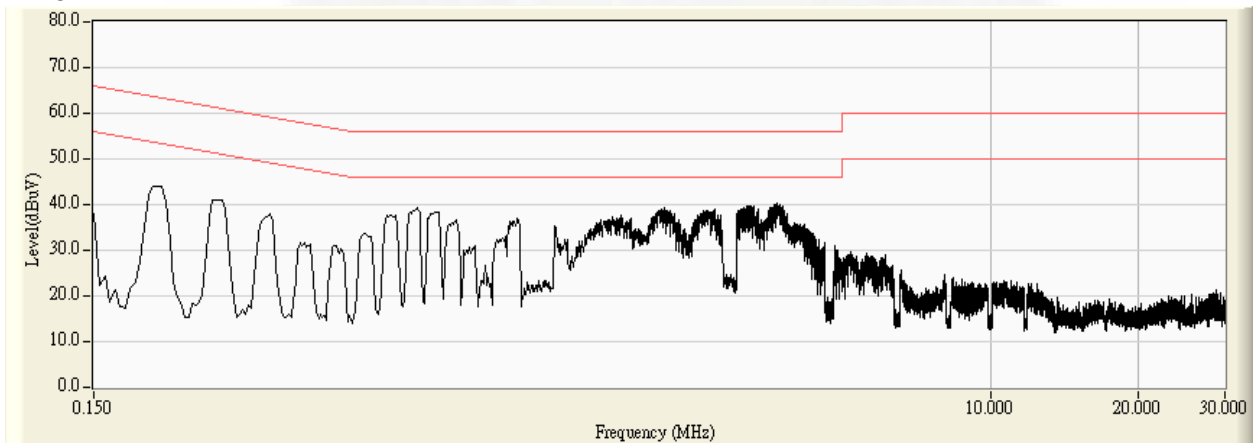
1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4.
2. Support equipment, if needed, was placed as per ANSI C63.4.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.
4. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
5. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
6. During the above scans, the emissions were maximized by cable manipulation.

### 4.2 Test SET-UP (Block Diagram of Configuration)



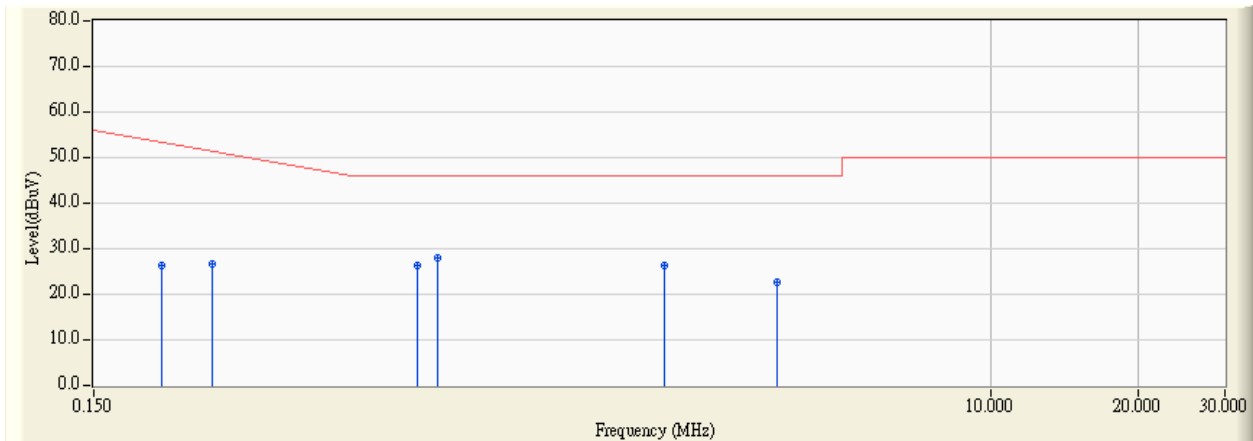
**4.3 Measurement Equipment Used:**

Name	Manufacture	M / N	S / N	Calibrated date
Two-Line V-Network	R&S	ENV216	100013	2008.11
Two-Line V-Network	R&S	ENV216	100014	2008.11
EMI Test Receiver	R&S	ESCI	100726	2008.11
ISN	Schaffner	ISN T400	21648	2008.11
PLC ISN	Teseq GmbH	ISN PLC 25-16	24047	2008.11
PLC ISN	Teseq GmbH	ISN PLC 25-30	23387	2008.11
Matching Network	SHX	TZ5	06062902	2008.11
Matching Network	SHX	TZ5	06062903	2008.11
Combining Network	SHX	N-50KKK	N/A	2008.11
Power Analyzer	California	PACS-1	72419	2008.11
AC Power Source	California	5001iX-208	56741	2008.11

**4.4 Measurement Result:****Line1:**



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.206	9.526	29.500	39.026	-25.374	64.400	QUASIPeAK
2		0.262	9.469	28.200	37.669	-25.131	62.800	QUASIPeAK
3		0.682	9.674	26.900	36.574	-19.426	56.000	QUASIPeAK
4	*	0.750	9.687	27.300	36.987	-19.013	56.000	QUASIPeAK
5		2.170	9.690	25.300	34.990	-21.010	56.000	QUASIPeAK
6		3.678	9.790	24.500	34.290	-21.710	56.000	QUASIPeAK

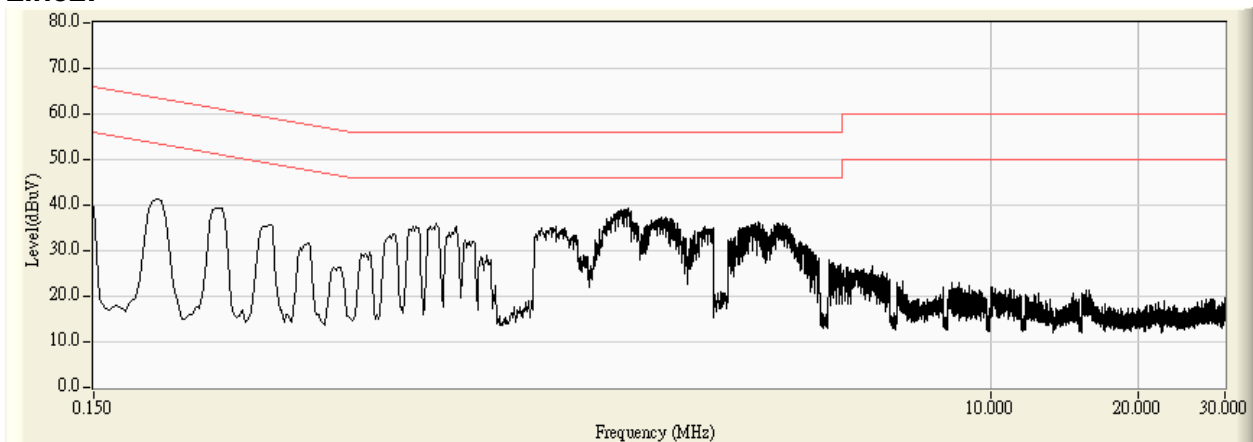


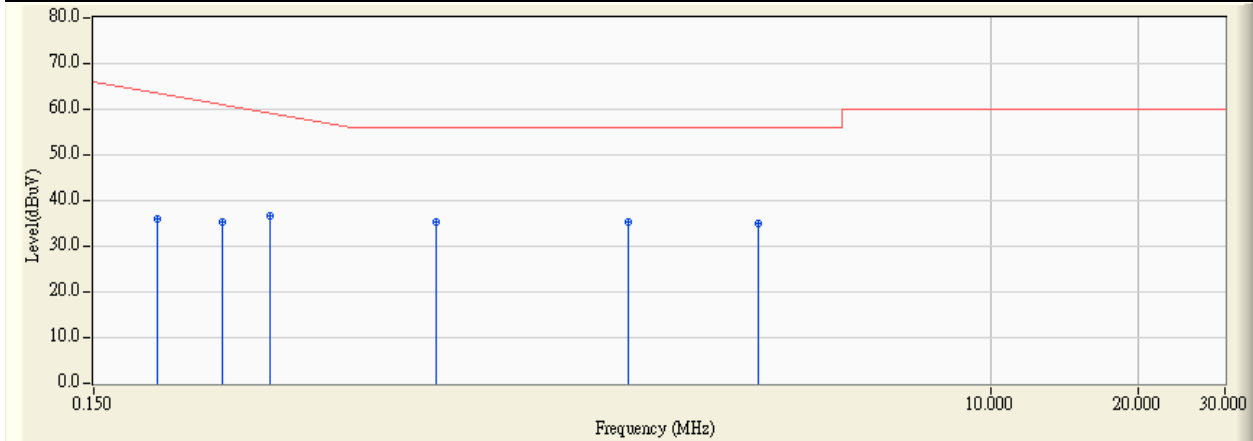
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.206	9.526	16.800	26.326	-28.074	54.400	AVERAGE
2		0.262	9.469	17.300	26.769	-26.031	52.800	AVERAGE
3		0.682	9.674	16.800	26.474	-19.526	46.000	AVERAGE
4	*	0.750	9.687	18.400	28.087	-17.913	46.000	AVERAGE
5		2.170	9.690	16.500	26.190	-19.810	46.000	AVERAGE
6		3.678	9.790	12.900	22.690	-23.310	46.000	AVERAGE

## Note:

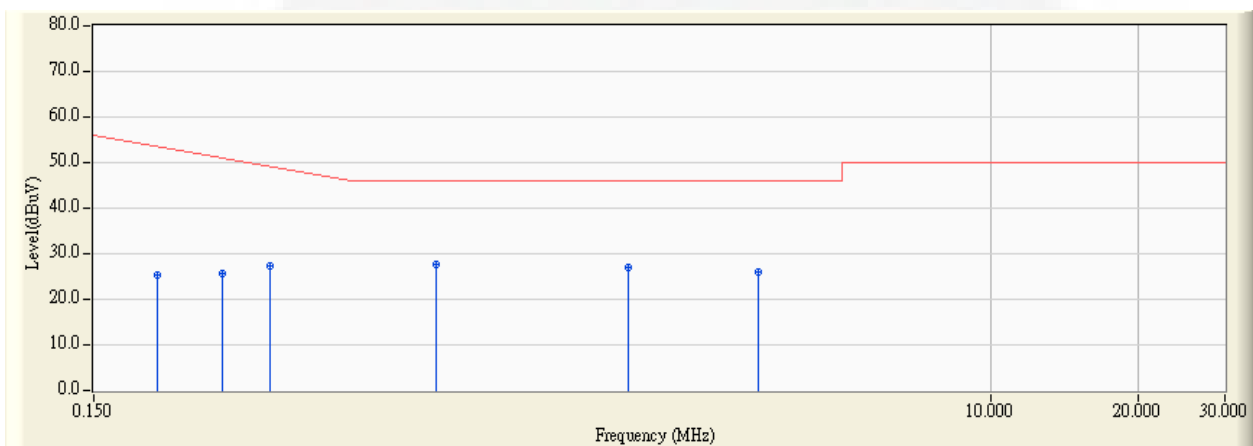
1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

## Line2:





		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.202	9.648	26.300	35.948	-28.566	64.514	QUASIPeAK
2		0.274	9.590	25.800	35.390	-27.067	62.457	QUASIPeAK
3		0.342	9.601	27.200	36.801	-23.713	60.514	QUASIPeAK
4	*	0.746	9.770	25.600	35.370	-20.630	56.000	QUASIPeAK
5		1.830	9.680	25.600	35.280	-20.720	56.000	QUASIPeAK
6		3.366	9.690	25.400	35.090	-20.910	56.000	QUASIPeAK



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.202	9.648	15.600	25.248	-29.266	54.514	AVERAGE
2		0.274	9.590	16.200	25.790	-26.667	52.457	AVERAGE
3		0.342	9.601	17.600	27.201	-23.313	50.514	AVERAGE
4	*	0.746	9.770	18.000	27.770	-18.230	46.000	AVERAGE
5		1.830	9.680	17.200	26.880	-19.120	46.000	AVERAGE
6		3.366	9.690	16.300	25.990	-20.010	46.000	AVERAGE

## Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

## 5. RADIATED EMISSION TEST

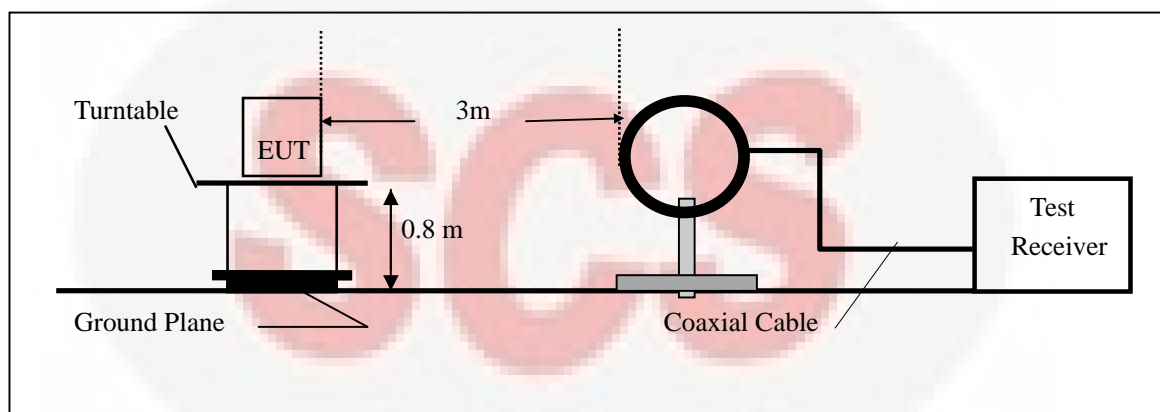
### 5.1 Measurement Procedure

Radiation Emission Measurement Limits According to FCC Part 15 Section 15.109.

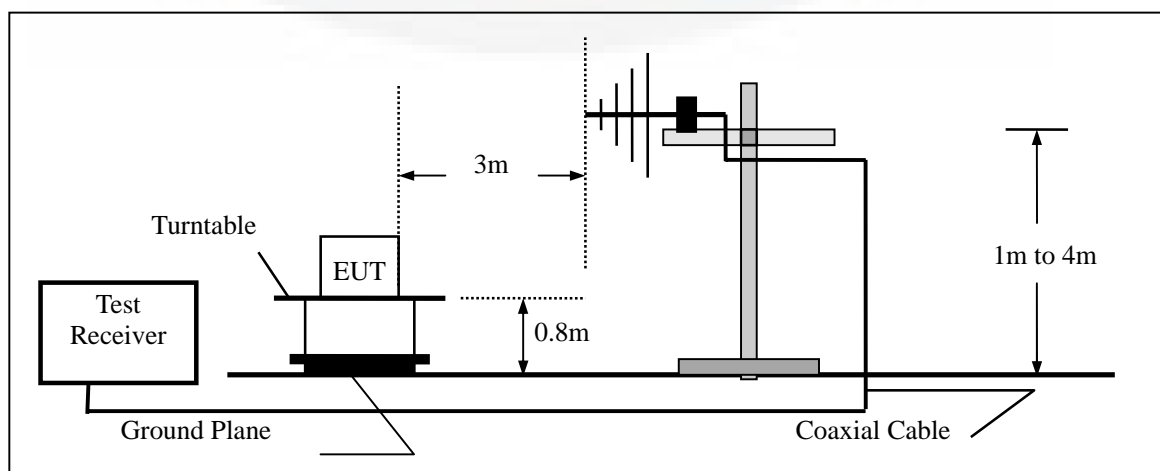
1. The EUT was placed on a turn table which is 0.8m above ground plane.
2. Maximum procedure was performed by raising the receiving antenna from 1m to 4m and rotating the turn table from 0° to 360° to acquire the highest emissions from EUT
3. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
4. Repeat above procedures until all frequency measurements have been completed.

### 5.2 Test SET-UP (Block Diagram of Configuration)

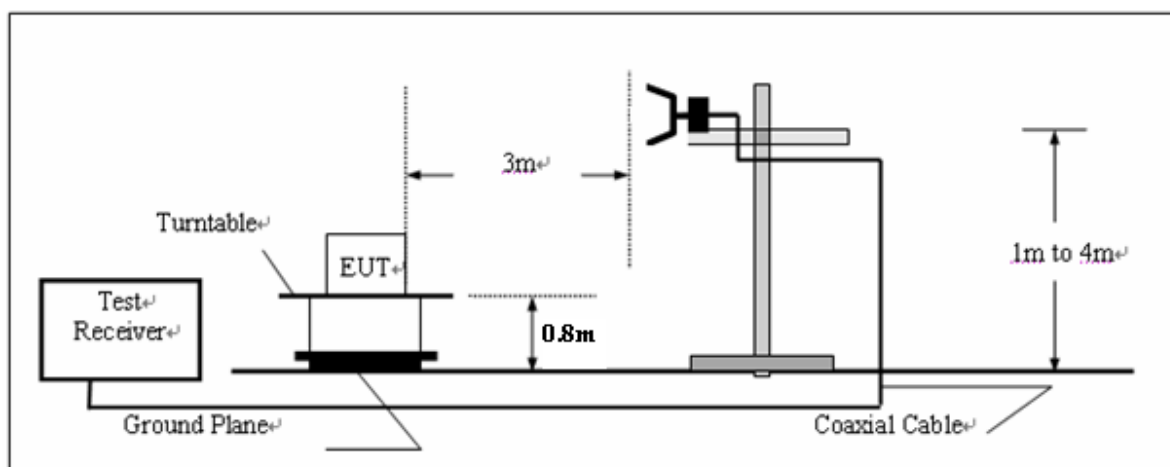
(A) Radiated Emission Test Set-Up, Frequency Below 30MHz



(B) Radiated Emission Test Set-Up, Frequency Below 1000MHz



## (C) Radiated Emission Test Set-Up, Frequency above 1000MHz



## 5.3 Measurement Equipment Used:

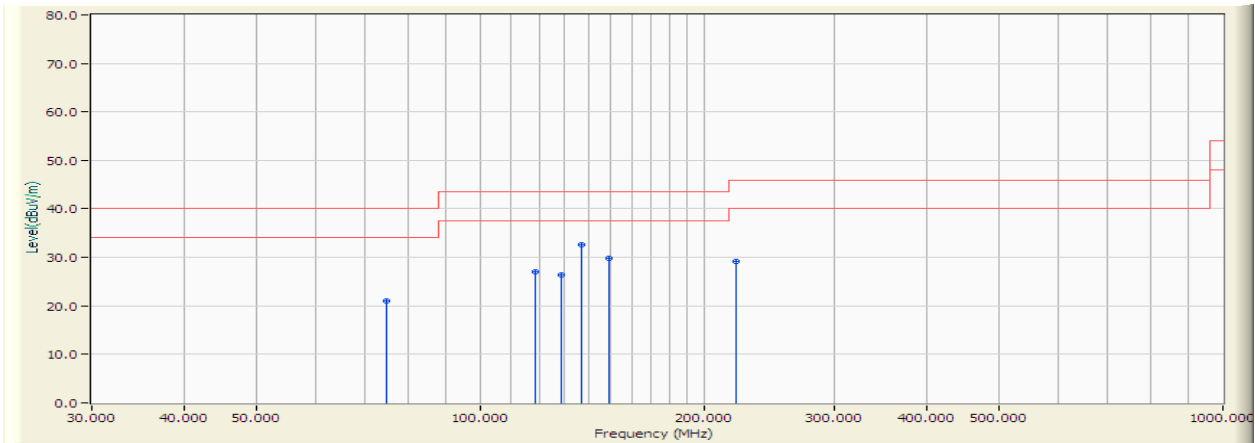
Name	Manufacture	M / N	S / N	Calibrated date
Spectrum Analyzer	Agilent	E4408B	MY45102679	2008.11
EMI Test Receiver	R&S	ESCI	100573	2008.11
Preamplifier	Quietek	AP-025C	QT-AP003	2008.11
Preamplifier	Quietek	AP-180C	CHM-0602012	2008.11
Bilog Type Antenna	Schaffner	CBL6112B	2932	2008.11
50ohm Coaxial Switch	Anritsu	MP59B	6200447304	2008.11
Coaxial Cable	Huber+Suhner	AC2-C	04	2008.11
Temperature/Humidity Meter	Zhicheng	ZC1-2	QT-TH002	2008.03

## 5.4 Field Strength Calculation

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

$$FS = RA + AF + CL - AG$$

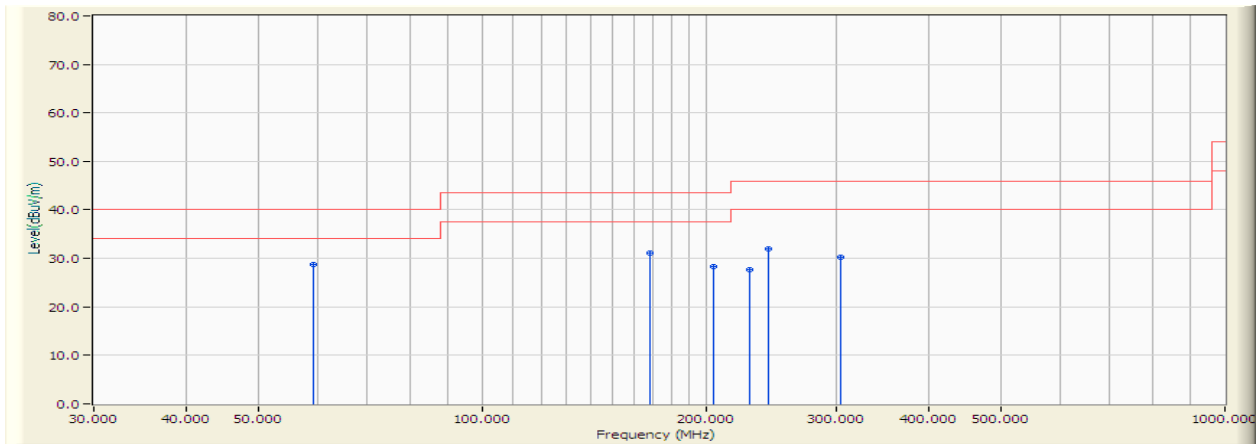
Where FS = Field Strength	CL = Cable Attenuation Factor (Cable Loss)
RA = Reading Amplitude	AG = Amplifier Gain
AF = Antenna Factor	

**Measurement Results:****Horizontal:**

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		74.675	-15.248	36.200	20.953	-19.047	40.000	QUASIPeAK
2		118.700	-9.224	36.200	26.976	-16.524	43.500	QUASIPeAK
3		128.475	-9.119	35.600	26.481	-17.019	43.500	QUASIPeAK
4	*	136.700	-9.609	42.200	32.591	-10.909	43.500	QUASIPeAK
5		148.800	-10.553	40.300	29.747	-13.753	43.500	QUASIPeAK
6		221.500	-11.722	40.800	29.078	-16.922	46.000	QUASIPeAK

**Note:**

1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

**Vertical:**

		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	59.200	-15.923	44.600	28.677	-11.323	40.000	QUASIPeAK
2	*	168.200	-11.392	42.500	31.108	-12.392	43.500	QUASIPeAK
3		204.600	-11.714	40.000	28.286	-15.214	43.500	QUASIPeAK
4		228.800	-10.792	38.400	27.608	-18.392	46.000	QUASIPeAK
5		243.400	-8.942	40.900	31.958	-14.042	46.000	QUASIPeAK
6		304.000	-6.678	37.000	30.322	-15.678	46.000	QUASIPeAK

**Note:**

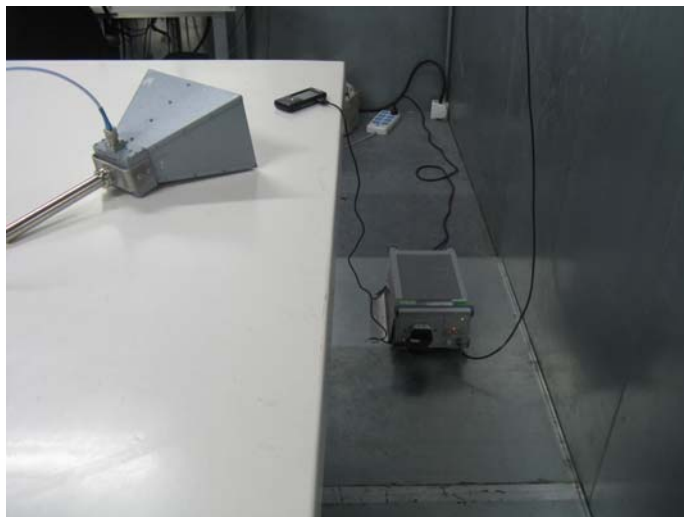
1. All Readings below 1GHz are Quasi-Peak, above are performed with peak and/or average measurements as necessary.
2. " \* ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

## APPENDIX 1

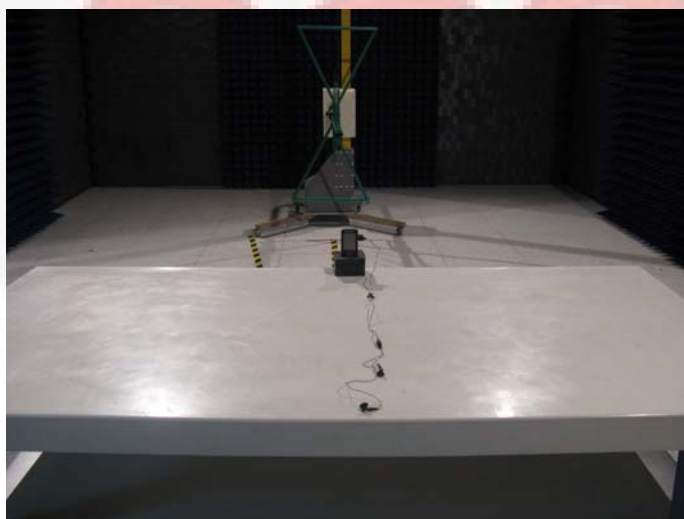
### PHOTOGRAPHS OF SET UP

SCS

***Conducted Emission Test Setup Photo***



***Radiated Emission Test Setup Photo***





## APPENDIX 2

### PHOTOGRAPHS OF EUT

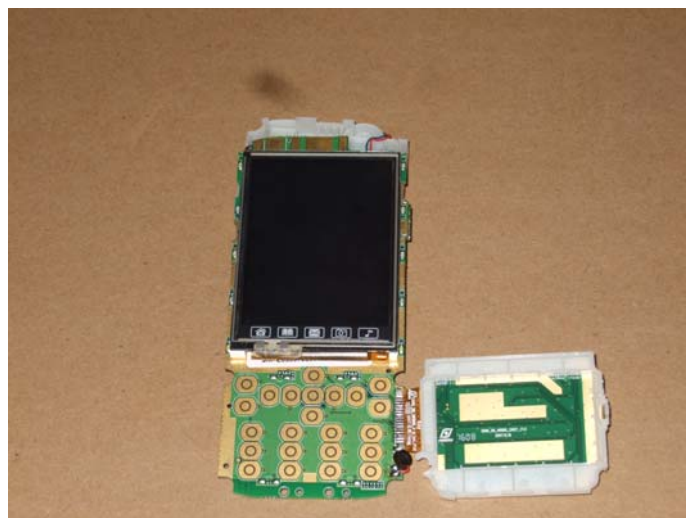
***External Photos of EUT***



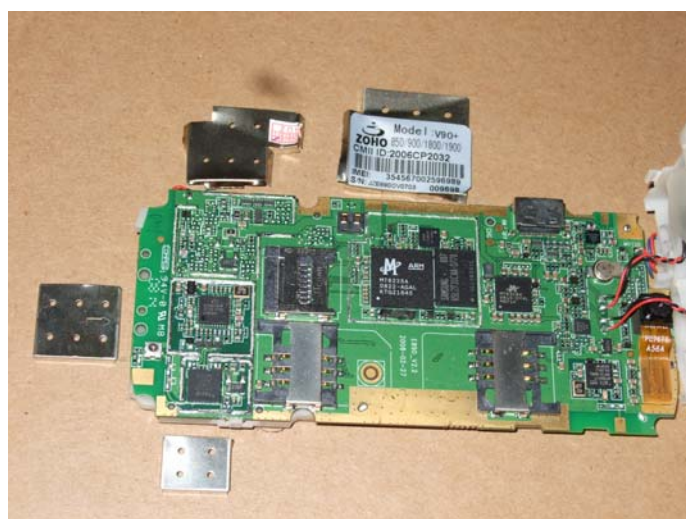


### *Internal Photos of EUT*











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SCS