FCC TEST REPORT

of

CDMA 1X Digital Mobile Phone

FCC ID： Q78-ZTEX195

Brand Name： ZTE

Model No.： ZTE X195

Serial No.： 234670400178

Report No.： FCC07-8454

Date： October 25, 2007

Prepared for

ZTE Corporation

ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park,
Nanshan District, Shenzhen, Guangdong, 518077, P.R.China

Prepared by

ShenZhen Electronic Product Quality Testing Center

Electronic Testing Building, Shahe Road, Xili, Nanshan District, ShenZhen, 518055, P.R.China
Tel: 86 755 26627338 Fax: 86 755 26627238

This test report consists of **51** pages in total. It may be duplicated completely for legal use with the approval of the applicant. It should not be reproduced except in full, without the written approval of our laboratory. The client should not use it to claim product endorsement by SET. The test results in the report only apply to the tested sample. The test report shall be invalid without all the signatures of testing engineers, reviewer and approver.

Table of Contents

1 Test Report Certification 5
2 General Information 6
2.1 Description of EUT 6
2.2 Objective 7
2.3 Test Standards and Results 7
2.4 List of Equipments Used 8
2.5 Test Facility 8
2.6 Environmental conditions 8
3 Conducted Emission Test 9
3.1 Limits of Conducted Emission 9
3.2 Test Procedure 9
3.3 Test Setup 10
3.4 EUT Setup and Operating Conditions 10
3.5 Test Results 10
4 Radiated Emission Test 12
4.1 Limits of Radiated Emission 12
4.2 Test Procedure 12
4.3 Test Setup 13
4.4 EUT Setup and Operating Conditions 13
4.5 Test Results 13
5 Frequencies 15
5.1 Frequency Blocks Available for Broadband PCS 15
5.2 Test Procedure 15
5.3 Test Setup 16
5.4 EUT Setup and Operating Conditions 16
5.6 Test Results 16
6 Conducted RF Output Power Test 18
6.1 RF Power Output Test Requirement 18

6.2 Test Procedure 18
6.3 Test Setup 18
6.4 EUT Setup and Operating Conditions 18
6.5 Test Results 19
7 Occupied Bandwidth Test 21
7.1 Definition 21
7.2 Test Procedure 21
7.3 Test Setup 21
7.4 EUT Setup and Operating Conditions 21
7.5 Test Results 22
8 Conducted Spurious Emission Test 24
8.1 Limits of Conducted Spurious Emission 24
8.2 Test Procedure 24
8.3 Test Setup 24
8.4 EUT Setup and Operating Conditions 24
8.5 Test Results 25
9 Transmitter Radiated Power (EIRP/ERP) Test 29
9.1 Limits of EIRP/ERP 29
9.2 Test Procedure 29
9.3 Test Setup 30
9.4 EUT Setup and Operating Conditions 30
9.5 Test Results 31
10 Radiated Spurious Emission Test 33
10.1 Limits of Radiated Spurious Emission 33
10.2 Test Procedure 33
10.3 Test Setup 33
10.4 EUT Setup and Operating Conditions 33
10.5 Test Results 34
11 Frequency Stability Test 40
11.1 Requirement of Frequency Stability 40

11.2 Test Procedure 40
11.3 Test Setup 40
11.4 EUT Setup and Operating Conditions 41
11.5 Test Results 41
Appendix I：Photographs of the EUT 42
Appendix II：Photographs of the Test Configuration 49

1 Test Report Certification

Product: CDMA 1X Digital Mobile Phone

FCC ID: Q78-ZTEX195

Model No.: ZTE X195

Applicant: ZTE Corporation

Applicant Address: ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518077, P.R.China

Manufacturer: ZTE Corporation

Manufacturer Address: ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park, Nanshan District, Shenzhen, Guangdong, 518077, P.R.China

Test Standards: 47 CFR Part 2

47 CFR Part 15, Subpart B

47 CFR Part 24, Subpart E

Test Result: **PASS**

We, Shenzhen Electronic Product Quality Testing Center, hereby certify that the submitted samples of the above item, as detailed in chapter 2.1 of this report, has been tested in our facility. The test record, data evaluation and test configuration represented herein are true and accurate accounts of measurements of the sample's EMC characteristics under the conditions herein specified.

Tested by: Sheng Yongpan, Date: Oct. 25, 2007

Sheng Yongpan

Checked by: Smart Li, Date: Oct. 25, 2007

Smart Li

Approved by: Wang Keqin, Date: Oct. 26, 2007

Wang Keqin

2 General Information

2.1 Description of EUT

EUT1	
Description:	CDMA 1X Digital Mobile Phone
Model No.:	ZTE X195
Emission Designator:	1M25F9W
Modulation:	CDMA 1X
Frequency:	Tx: 1851.25-1908.75MHz; Rx: 1931.25-1988.75MHz
Power:	200mW (CDMA Class III)
Serial No.:	234670400178
Hardware Version:	Cg5B
Software Version:	CH_X195V1.0.0B05
EUT2	
Description:	Lithium-ion Battery
Model No.:	Li3710T42P3h553457
Serial No.:	10090604260203418
Manufacturer:	ZTE CORPORATION
Capacitance:	800mAh
Rated Voltage:	3.7V
Charge Limit:	4.2V
EUT3	
Description:	AC/DC Adaptor (Charger)
Model No.:	STC-A22O50F18
Serial No.:	800607280001271
Manufacturer:	ZTE CORPORATION
Rated Input:	a.c. 100-240V, 50/60Hz, 200mA
Rated Output:	d.c. 5.0V, 700mA
Length of DC cable:	180cm

NOTE:

1. The EUT is a model of CDMA 1X (PCS band) Mobile Station (MS). It consists of Hand Telephone Set and normal options: Lithium Battery and Charger, as listed above.
2. Please refer to Appendix I for the photographs of the EUT. For a more detailed features description about the EUT, please refer to User's Manual.

2.2 Objective

Perform EMC test according to FCC rules Part 2, Part 15 and Part 24 for FCC ID Certification.

2.3 Test Standards and Results

The EUT has been tested according to 47 CFR

- Part 2 Frequency Allocations and Radio Treaty Matters: General Rules and Regulations (10-1-05 Edition)
- Part 15 Radio Frequency Devices (10-1-05 Edition)
- Part 24 Personal Communications Services (10-1-05 Edition)

Test items and the results are as bellow:

?	FCC Rules	Test Type	Result	Test Date
1	§15.107	Conducted Emission (Charger AC mains port)	PASS	2007.10.16
2	§15.109	Radiated Emission (Charger enclosure port)	PASS	2007.10.25
3	§2.106 §24. 229	Frequencies	PASS	2007.10.22
4	§2.1046	Conducted RF Output Power at Antenna Terminal	PASS	2007.10.22
5	§2.1049	Occupied Bandwidth	PASS	2007.10.22
6	§2.1051 §2.1057 §24.238	Conducted Spurious Emission at Antenna Terminal	PASS	2007.10.22
7	§24.232	Transmitter Radiated Power (EIRP/ERP)	PASS	2007.10.22
8	§2.1053 §2.1057 §24.238	Radiated Spurious Emission	PASS	2007.10.22
9	§2.1055 §24.235	Frequency Stability	PASS	2007.10.22

2.4 List of Equipments Used

Description	Manufacturer	Model No.	Cal. Due Date	Serial No.
Test Receiver	Schwarzbeck	FCKL1528	2008.06.02	A0304230
Test Receiver	Rohde & Schwarz	ESIB26	2008.06.02	A0304218
LISN	Schwarzbeck	NSLK8127	2008.06.02	A0304233
Test Receiver	Rohde & Schwarz	ESIB26	2008.06.02	A0304218
Loop Antenna	Rohde & Schwarz	HFH2-Z2	2008.06.02	A0304220
Ultra Broadband Ant.	Rohde & Schwarz	HL562	2008.06.02	A0304224
Horn Ant.	Rohde & Schwarz	HF906	2008.06.02	100150
Universal Radio Communication Tester	Rohde & Schwarz	CMU200	2008.06.02	A0304212
3G Communication Antenna	European Antennas	PSA 75301R/170	2008.06.02	A0304213
Temperature Chamber	JAPAN TABAI	PSL-4G	2008.02.10	A8708056
Regulated DC Power Supply	Jiangbo	JB-305	--	A0412374
Shield Room	Nanbo Tech	Site 3	2008.01.04	A9901141
Shield Room	Nanbo Tech	Site 1	2008.01.04	A0304188
Anechoic Chamber	Albatross	EMC12.8× 6.8× 6.4m3	2008.04.10	A0304210

2.5 Test Facility

Shenzhen Electronic Product Quality Testing Center (SET) is a third party testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS). according to ISO/IEC 17025. The accreditation certificate number is L1659.

The EMC chamber site No.1 (EMC12.8× 6.8× 6.4(m)), and the radiated and conducted Emission test equipments of SET are constructed and calibrated to meet the FCC requirements ANSI C63.4:2001 and CISPR 22/EN 55022. The FCC Registration Number is **261302**.

The EMC chamber site No.1 (EMC12.8× 6.8× 6.4(m)) also complies with Canada standard RSS 212, and acceptable to Industry Canada for the performance of radiated measurements. The Industry Canada Registration Number is **IC 5915**.

2.6 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 15-35ºC
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

3 Conducted Emission Test

3.1 Limits of Conducted Emission

According to FCC §15.107, the radio frequency voltage that is conducted back onto the AC power line on any frequency within the band 150 kHz to 30 MHz shall not exceed the limits in the following table, as measured using a 50 μH/50 ohms line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dBmV), Class B digital device	
	Quasi-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 30	60	50

NOTE:

1. The lower limit shall apply at the band edges.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

3.2 Test Procedure

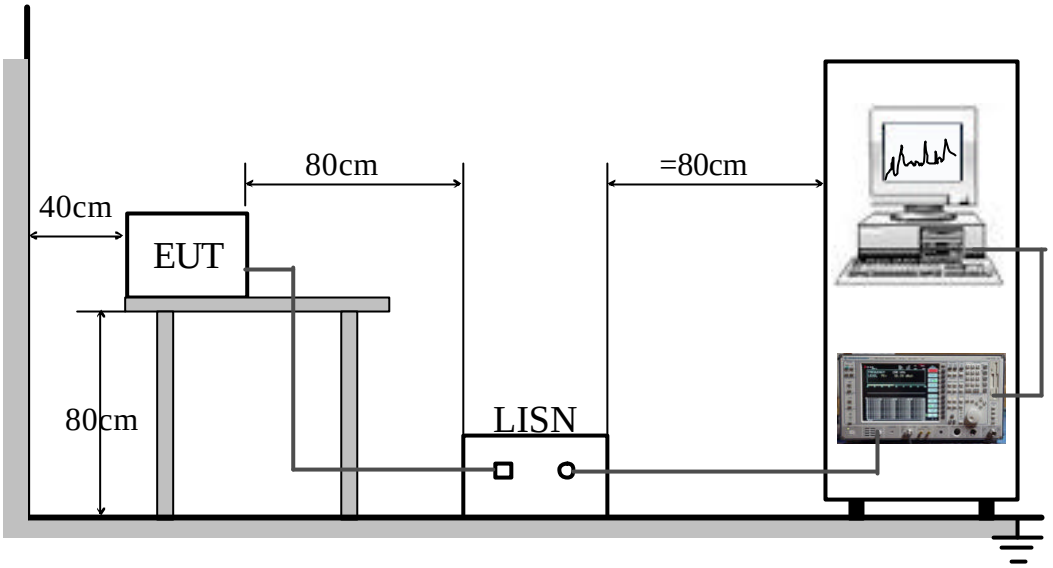
a. The EUT was placed on a 0.8m high insulating table and kept 0.4 meters from the conducting wall of shielded room.

b. The EUT was connected to the power mains through a line impedance stabilization network (LISN). The LISN provide 50? /50μ H of coupling impedance for the measuring instrument.

c. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

d. The frequency range from 150 kHz to 30 MHz was searched using CISPR Quasi-Peak and Average detector.

3.3 Test Setup



For the actual test configuration, please refer to the related item - Photographs of the Test Configuration.

3.4 EUT Setup and Operating Conditions

The EUT configuration of the emission tests was MS + Battery + Charger.

Before the measurement, the battery was completely discharge.

During the measurement, the MS were in charging state. A communication link was established between the MS and a System Simulator (SS). The MS operated at CDMA 1X (PCS 1900MHz band) mid channel and maximum output power.

The charger was powered by 120V 60Hz AC mains supply.

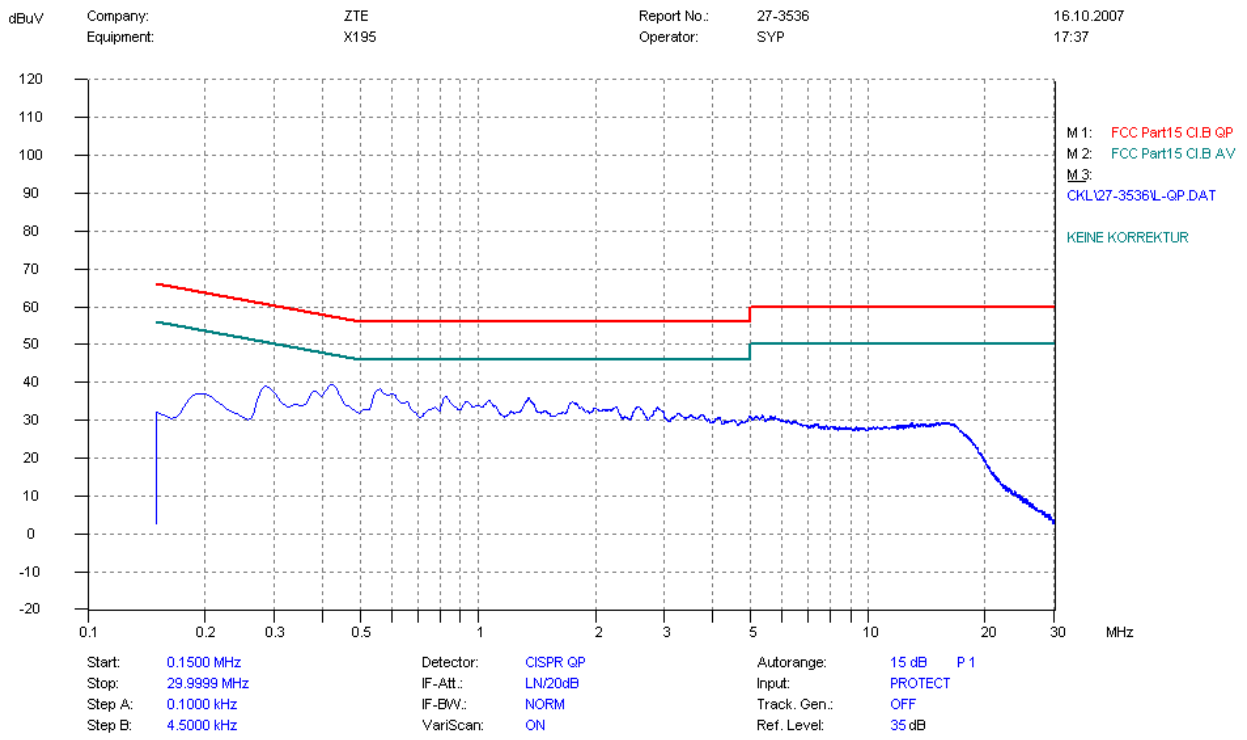
3.5 Test Results

No.	Freq. (MHz)	Limit Value (dBmV)		Emission Level (dBmV)	
		QP	AV	QP	AV
1	0.1905	64.0	54.0	37.0	--
2	0.2850	60.7	50.7	38.9	--
3	0.4200	57.4	47.4	39.5	--
4	0.5595	56.0	46.0	38.3	--
5	0.9780	56.0	46.0	38.0	--
6	1.0680	56.0	46.0	35.3	--

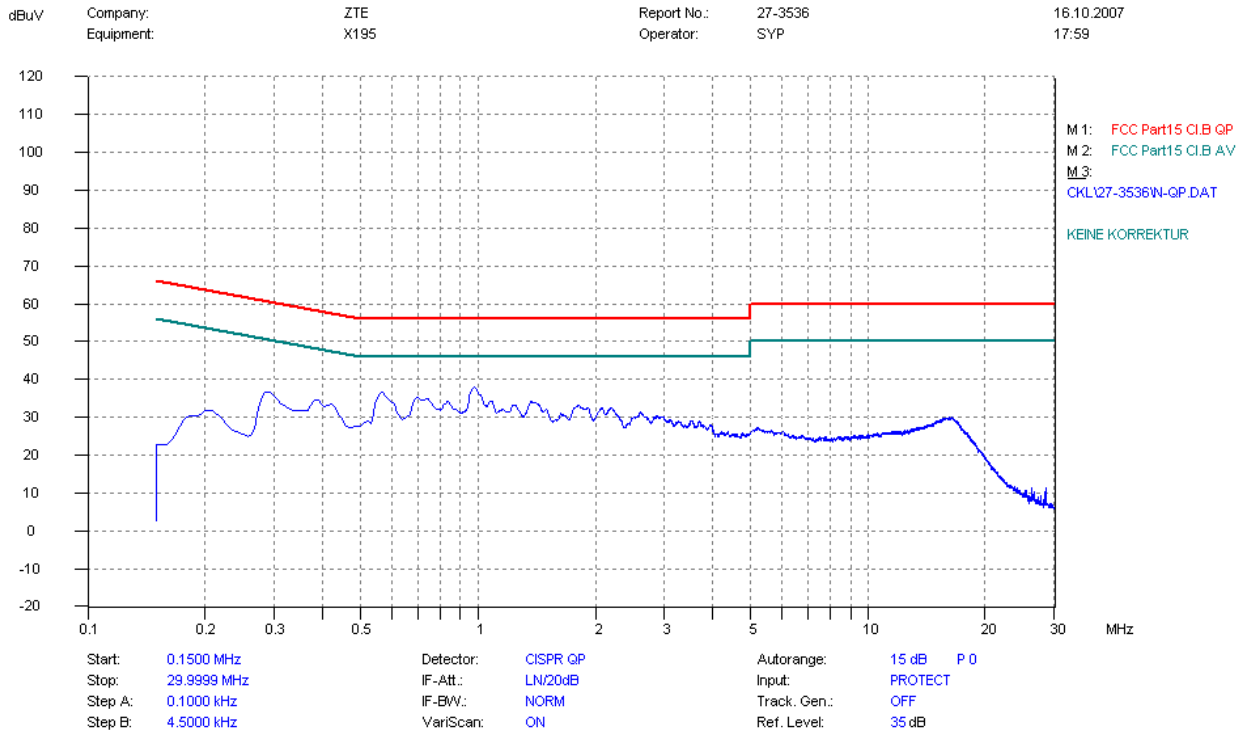
NOTE:

1. QP and AV are abbreviations of the quasi-peak and average individually.
2. If the emission levels measured with QP detector are lower than AV limits, there is unnecessary to measure with AV detector.
3. The emission levels recorded above is the larger ones of both L phase and N phase.

1. Mains terminal disturbance voltage, L phase



2. Mains terminal disturbance voltage, N phase



4 Radiated Emission Test

4.1 Limits of Radiated Emission

According to FCC §15.109, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (μV/m)	Field Strength (dBμV/m)
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

NOTE:

1. Field Strength (dBμV/m) =20log Field Strength (μV/m).
2. In the emission tables above, the tighter limit applies at the band edges.

4.2 Test Procedure

a. The EUT was placed on the top of a ratable 0.8 meters above the ground at a semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

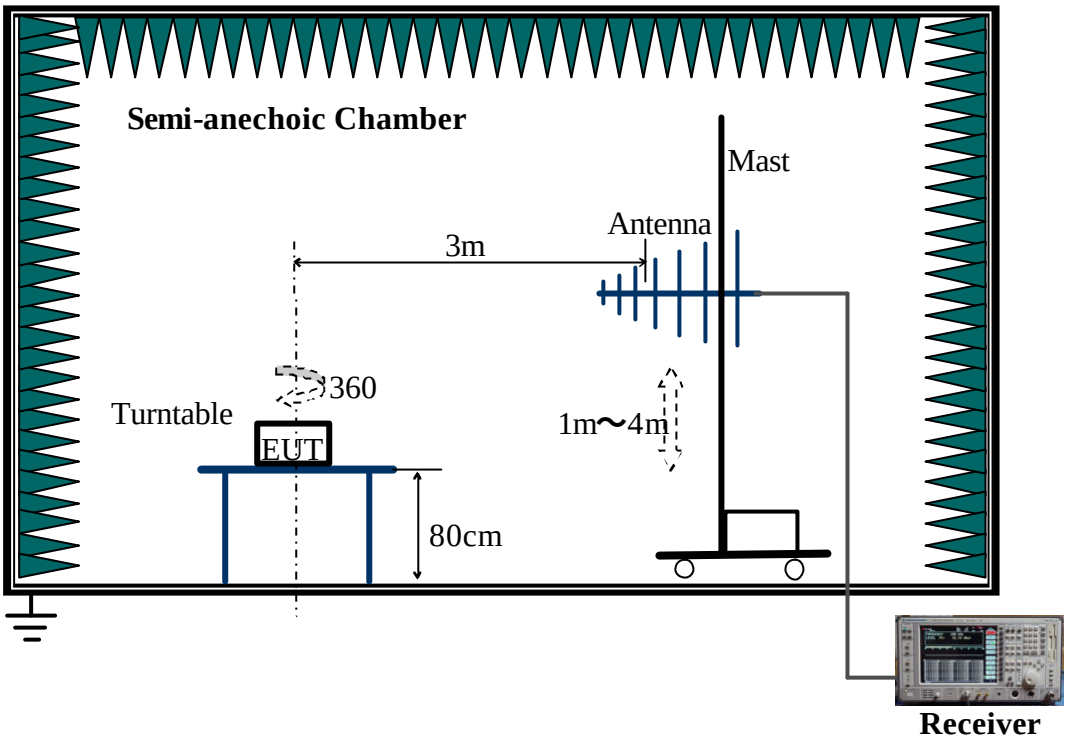
c. The antenna is a broadband antenna, and its height is varied from one meter to four meter above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to the heights from 1 to 4 meters and the ratable table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detector Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emission that did not have 10 dB margins would be retested one by one using the quasi-peak method.

4.3 Test Setup



For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.

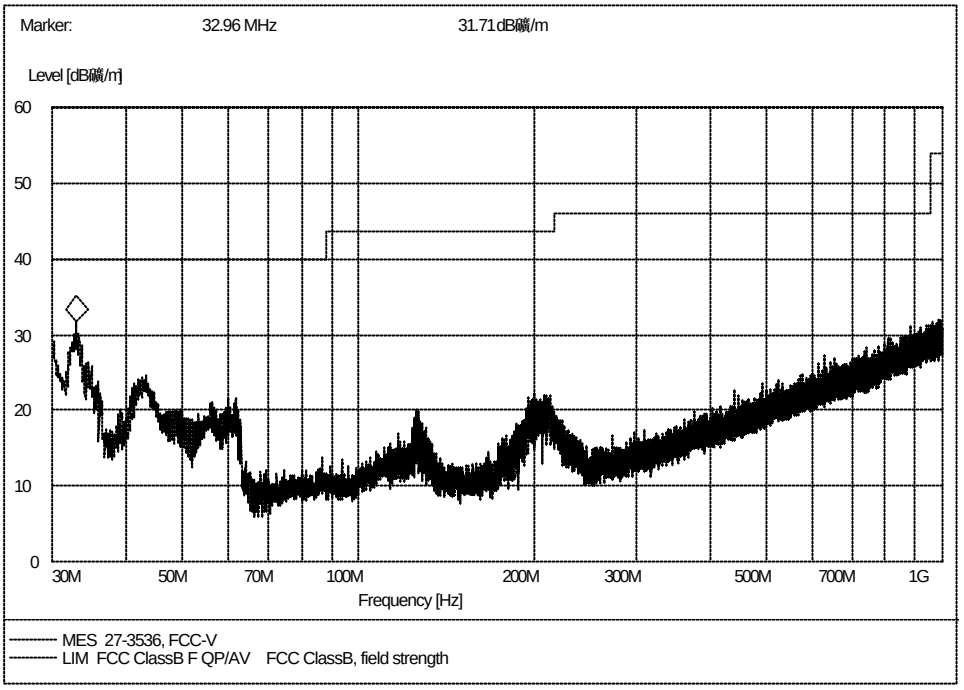
4.4 EUT Setup and Operating Conditions

Same as 3.4

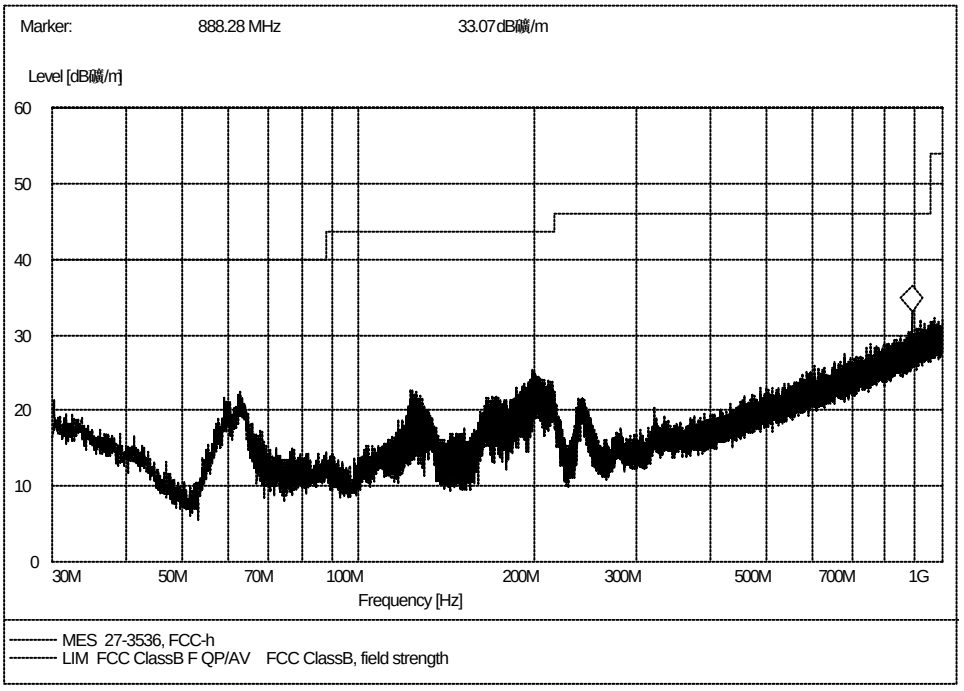
4.5 Test Results

No.	Frequency (MHz)	Antenna Polarization	Antenna Height (cm)	Table Angle (Degree)	QP Limits (dBmV/m)	Emission Level (dBmV/m)
1	30.44	Vertical	100	0	40	24.95
2	32.56	Vertical	100	30	40	23.48
3	97.72	Vertical	100	0	43.5	20.02
4	33.68	Horizontal	100	0	40	22.42
5	47.96	Horizontal	100	70	40	27.85
6	52.56	Horizontal	100	0	40	24.70

1. Radiation disturbances, maxpeak detector, antenna polarization: Vertical



2. Radiation disturbances, maxpeak detector, antenna polarization: Horizontal



5 Frequencies

5.1 Frequency Blocks Available for Broadband PCS

According to FCC §24.229, the frequencies available in the Broadband PCS service are listed as bellow, in accordance with the frequency allocations table of FCC §2.106.

(a) The following frequency blocks are available for assignment on an MTA basis:

Block A: 1850–1865 MHz paired with 1930–1945 MHz; and

Block B: 1870–1885 MHz paired with 1950–1965 MHz.

(b) The following frequency blocks are available for assignment on a BTA basis:

Block C: 1895–1910 MHz paired with 1975–1990 MHz;

Block D: 1865–1870 MHz paired with 1945–1950 MHz;

Block E: 1885–1890 MHz paired with 1965–1970 MHz; and

Block F: 1890–1895 MHz paired with 1970–1975 MHz.

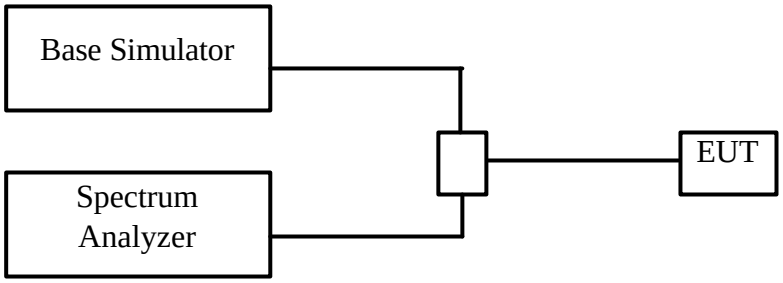
5.2 Test Procedure

a. The EUT was coupled to the spectrum analyzer and the base station simulator through a power divider. The lost of the cables the test system is calibrated to correct the reading.

b. The spectrum analyzer was set to Maxpeak Detector function and Maximum Hold mode.

c. The resolution bandwidth of the spectrum analyzer was set to at least 1% of the emission bandwidth of the fundamental emission of the transmitter. For GSM signal, VBW=RBW=3 kHz; for CDMA signal, VBW=RBW=30 kHz.

5.3 Test Setup



For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.

5.4 EUT Setup and Operating Conditions

The EUT configuration of the emission tests was MS + Battery.

A communication link was established between the MS and a System Simulator (SS).

The MS operated at the maximum output power.

The CDMA 1X (PCS band) channel No.25 (low) and 1175 (high) were measured respectively.

5.6 Test Results

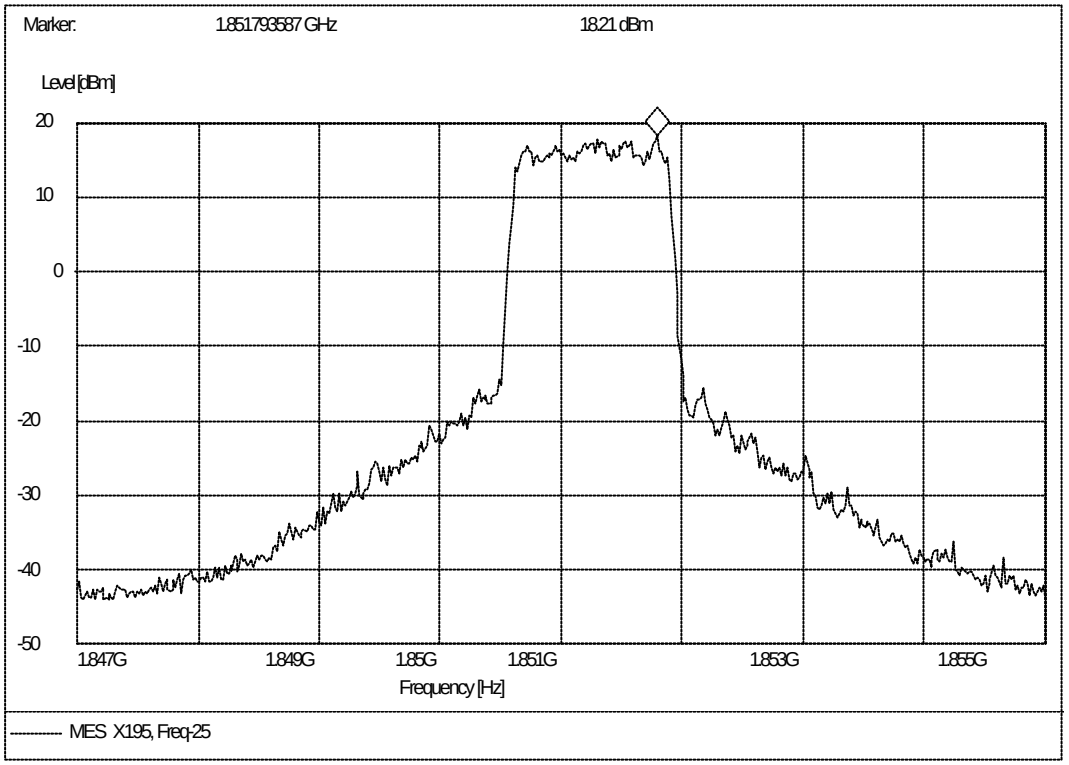
The transmitter frequency arrangement of the CDMA 1X (PCS band) is

$F(n) = 1850.000 + 0.050*n,\ 0 \leqq n \leqq 1199$

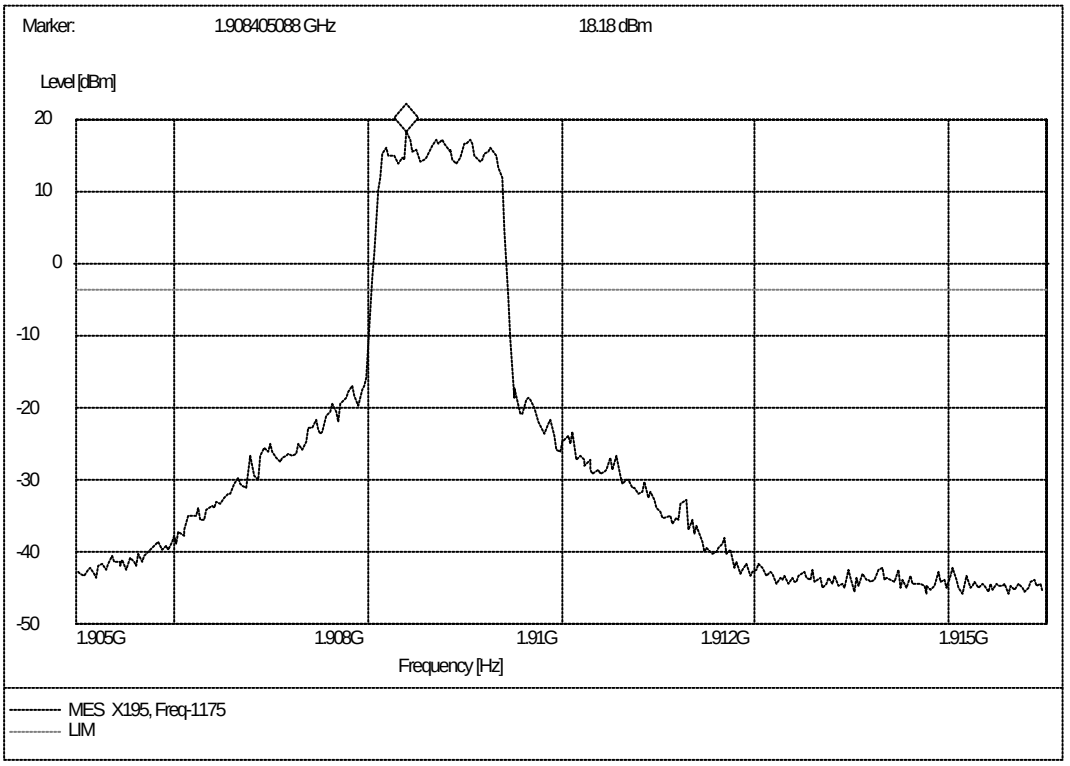
The transmitting frequency range of the EUT is from 1851.25MHz (Channel 25) to 1908.75MHz (Channel 1175).

The measured frequencies are as the following plots.

1. Lowest channel No.25



2. Highest channel No.1175



6 Conducted RF Output Power Test

6.1 RF Power Output Test Requirement

According to FCC §2.1046 (a), for transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in § 2.1033(c)(8). The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

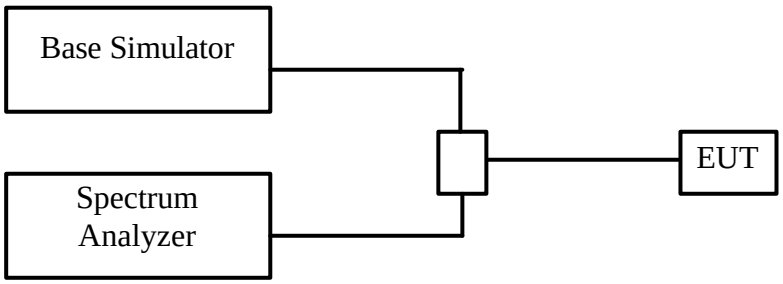
6.2 Test Procedure

a. The EUT was coupled to the spectrum analyzer and the base station simulator through a power divider. The radio frequency load attached to the EUT antenna terminal was 50 Ohm. The lost of the cables the test system is calibrated to correct the reading.

b. The spectrum analyzer was set to Maxpeak Detector function and Maximum Hold mode.

c. The resolution bandwidth of the spectrum analyzer was comparable to the emission bandwidth. For GSM signal, VBW=RBW=1 MHz; for CDMA signal, VBW=RBW=3 MHz.

6.3 Test Setup



For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.

6.4 EUT Setup and Operating Conditions

The EUT configuration of the emission tests was MS + Battery.
A communication link was established between the MS and a System Simulator (SS).
The MS operated at the maximum output power.

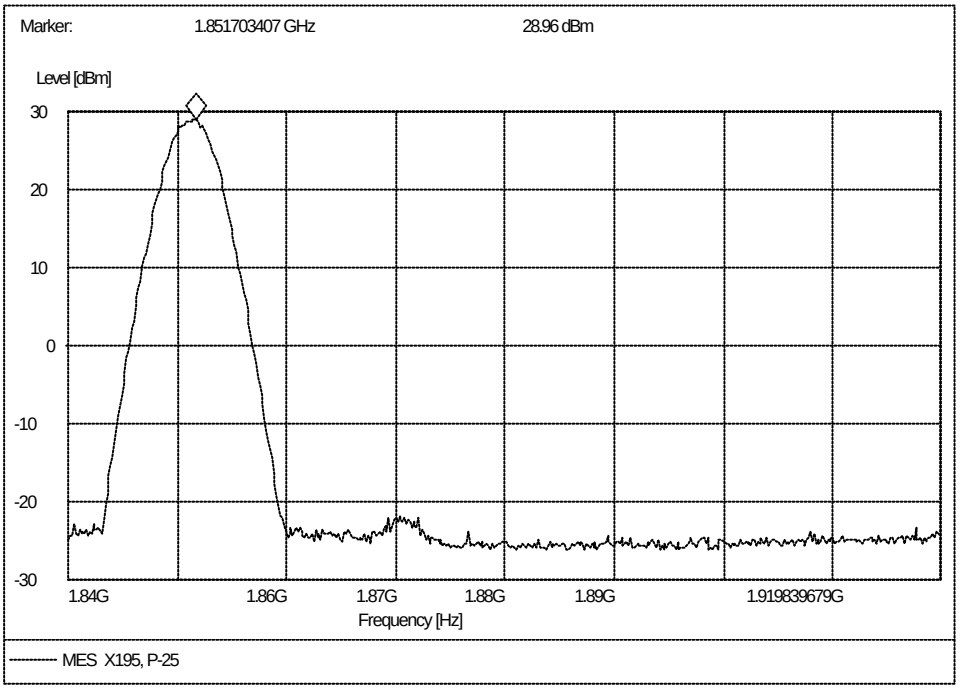
The CDMA 1X (PCS band) channel No.25 (low), 600 (middle) and 1175 (high) were measured respectively.

6.5 Test Results

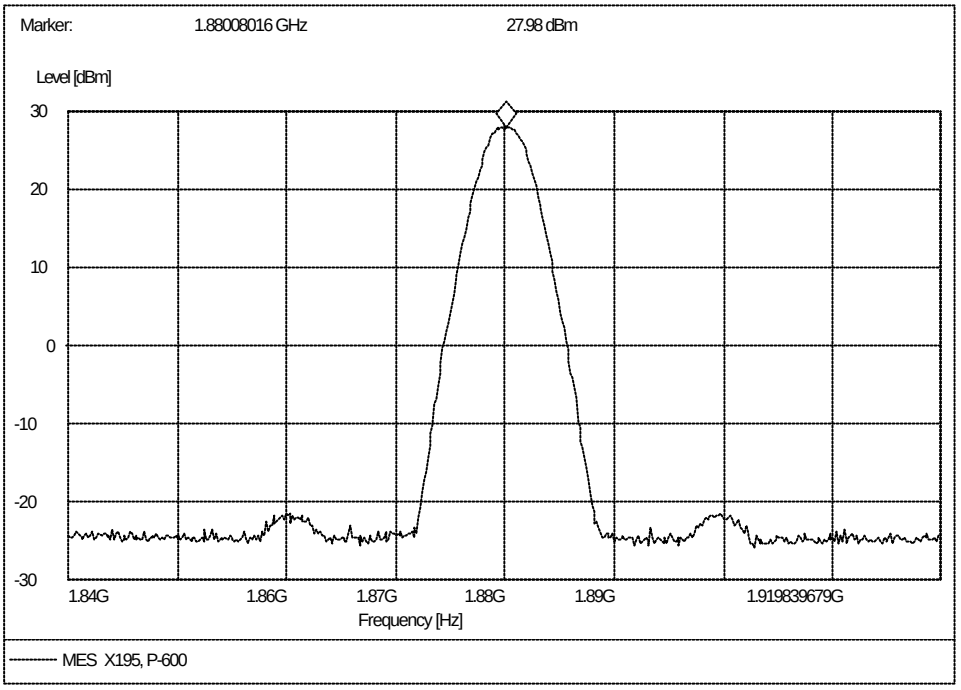
No.	CDMA 1X Channel No.	Frequency (MHz)	Measured Power (dBm)	Rated Power (dBm)
1	25	1851.70	28.96	23
2	600	1880.08	27.98	23
3	1175	1908.78	28.50	23

Test Plots

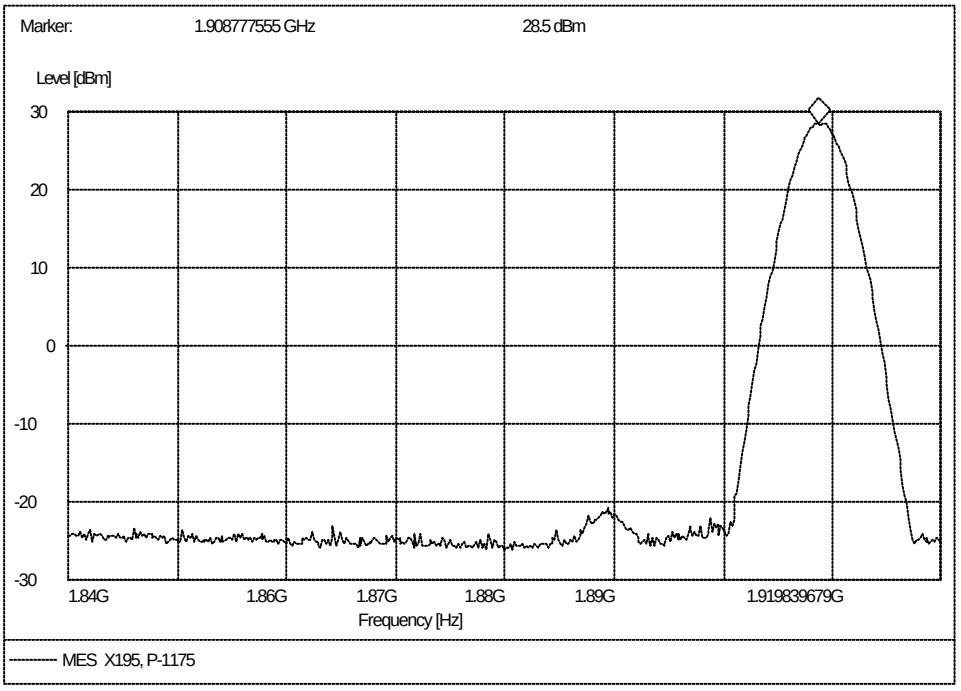
1. Lowest channel No.25



2. Middle channel No.600



3. Highest channel No.1175



7 Occupied Bandwidth Test

7.1 Definition

According to FCC §2.1049, the occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission.

Occupied bandwidth is also known as the 99% emission bandwidth, or 20dB bandwidth (10log 1%=20dB) taking the total RF output power as reference.

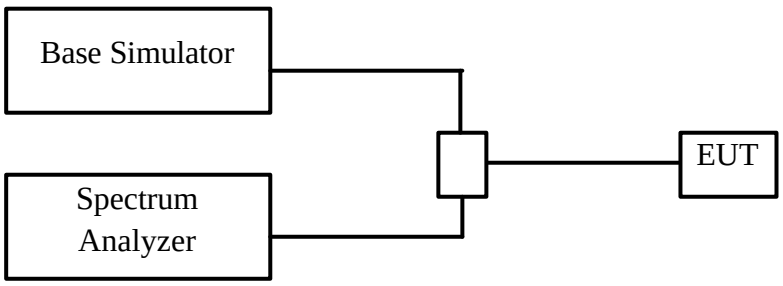
7.2 Test Procedure

a. The EUT was coupled to the spectrum analyzer and the base station simulator through a power divider. The lost of the cables the test system is calibrated to correct the reading.

b. The spectrum analyzer was set to Maxpeak Detector function and Maximum Hold mode.

c. The resolution bandwidth of the spectrum analyzer was set to at least 1% of the emission bandwidth. For GSM signal, VBW=RBW=3 kHz; for CDMA signal, VBW=RBW=30 kHz.

7.3 Test Setup



For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.

7.4 EUT Setup and Operating Conditions

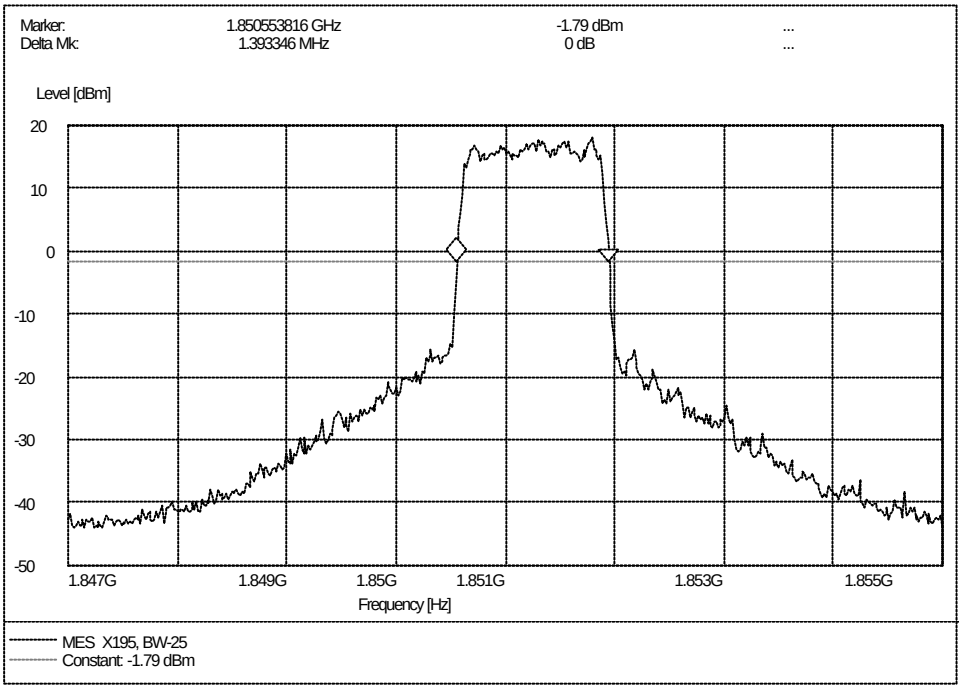
The EUT configuration of the emission tests was MS + Battery.
A communication link was established between the MS and a System Simulator (SS).
The MS operated at the maximum output power.

The CDMA 1X (PCS band) channel No.25 (low), 600 (middle) and 1175 (high) were measured respectively.

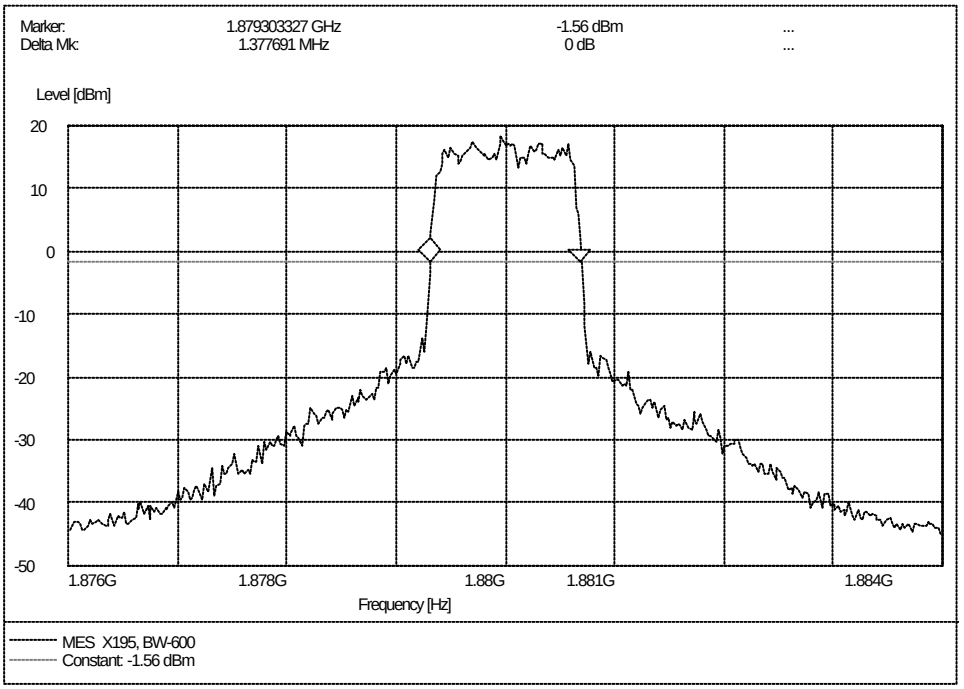
7.5 Test Results

The occupied bandwidth was measured to be about 1.4MHz. Refer to the following plots.

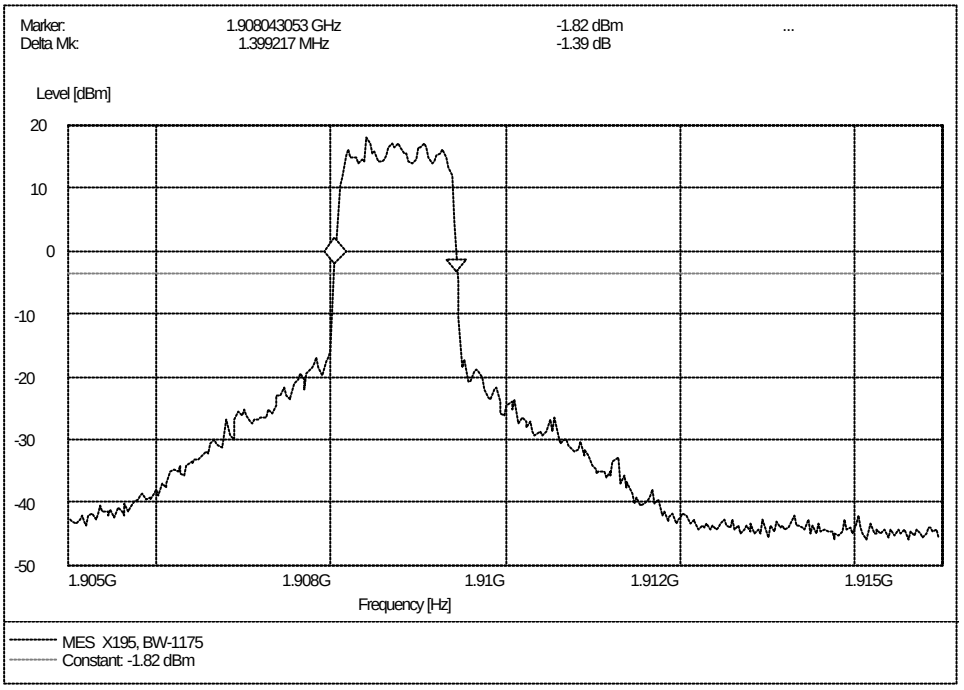
1. Lowest channel No.25



2. Middle channel No.600



3. Highest channel No.1175



8 Conducted Spurious Emission Test

8.1 Limits of Conducted Spurious Emission

According to FCC §24.238 (a), the power of any emission 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. This calculated to be -13dBm.

According to FCC §24.238 (b), in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. Thus the 26dB emission bandwidth is measurement for showing compliance at the band-edges

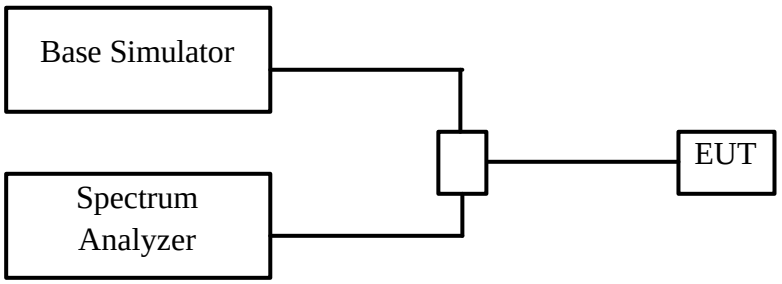
8.2 Test Procedure

a. The EUT was coupled to the spectrum analyzer and the base station simulator through a power divider. The lost of the cables the test system is calibrated to correct the reading.

b. The spectrum analyzer was set to Maxpeak Detector function and Maximum Hold mode. The resolution bandwidth was set to 1MHz. The measuring frequencies are from 9 kHz to 10th harmonic of the fundamental frequency.

c. In the 1 MHz bands immediately outside and adjacent to the frequency block, the resolution bandwidth of the spectrum analyzer was set to at least 1% of the emission bandwidth of the fundamental emission of the transmitter. For GSM signal, the resolution bandwidth was 3 kHz; for CDMA signal, the resolution bandwidth was 30 kHz.

8.3 Test Setup



8.4 EUT Setup and Operating Conditions

The EUT configuration of the emission tests was MS + Battery.
A communication link was established between the MS and a System Simulator (SS).
The MS operated at the maximum output power.

The CDMA 1X (PCS band) channel No.25 (low), 600 (middle) and 1175 (high) were measured respectively.

8.5 Test Results

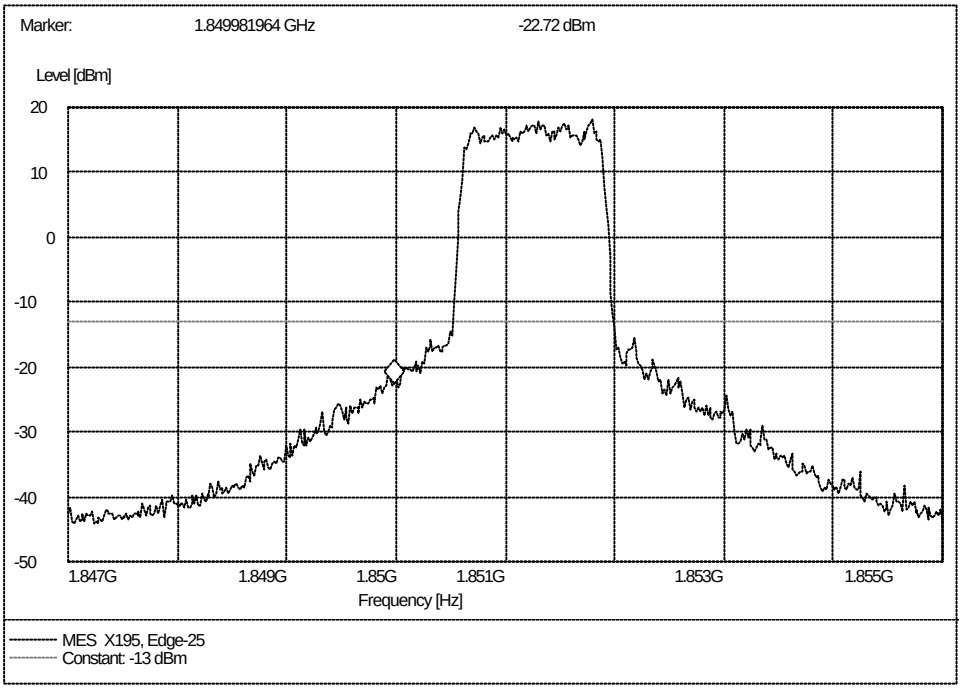
No.	Frequency (MHz)	Emission Power (dBm)	Limit (dBm)
CDMA 1X(PCS Band) Channel No. 25 (1851.25 MHz)			
1	3702.50	-37.58	-13
2	5553.75	--	-13
3	7405.00	--	-13
4	9256.25	--	-13
5	11107.50	--	-13
6	12958.75	--	-13
7	14810.00	--	-13
8	16661.25	--	-13
9	18512.50	--	-13
CDMA 1X(PCS Band) Channel No. 600 (1880.00 MHz)			
10	3760.00	-32.14	-13
11	5640.00	--	-13
12	7520.00	--	-13
13	9400.00	--	-13
14	11280.00	--	-13
15	13160.00	--	-13
16	15040.00	--	-13
17	16920.00	--	-13
18	18800.00	--	-13
CDMA 1X(PCS Band) Channel No. 1175 (1908.75 MHz)			
19	3817.50	-34.01	-13
20	5726.25	--	-13
21	7635.00	--	-13
22	9543.75	--	-13
23	11452.50	--	-13
24	13361.25	--	-13
25	15270.00	--	-13
26	17178.75	--	-13
27	19087.50	--	-13

NOTE:

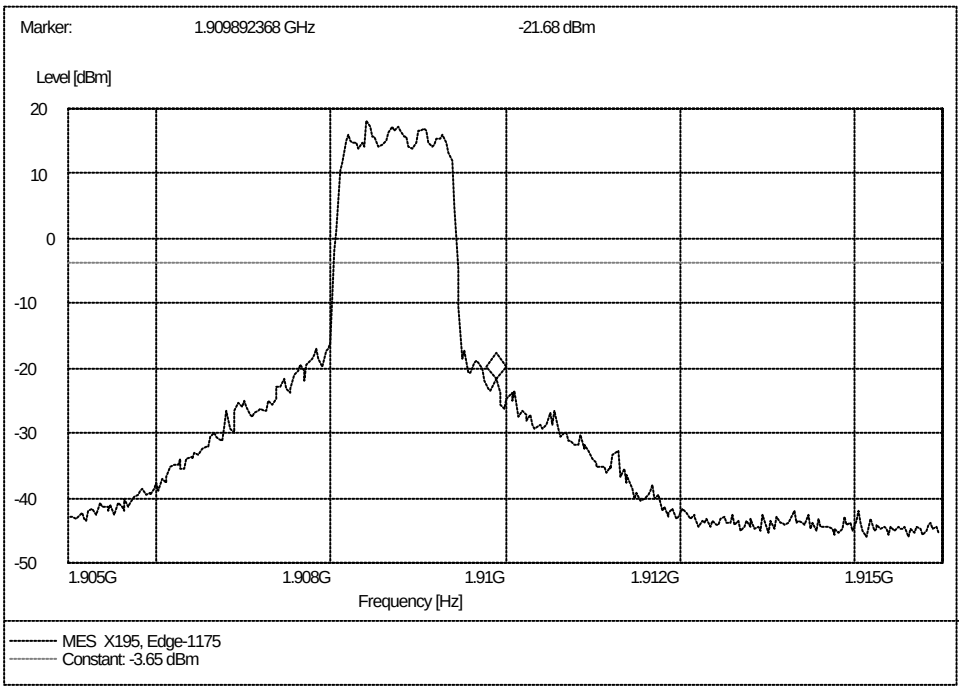
1. The spurious radiations from 9 kHz to 10th harmonic of the fundamental frequency are researched. Only the harmonics are record in the table above.
2. "--" in the table above means that the emissions are too small to be measured and are at least 12 dB below the limit.

Plot of Band-Edge Emission

1. Lowest channel No.25



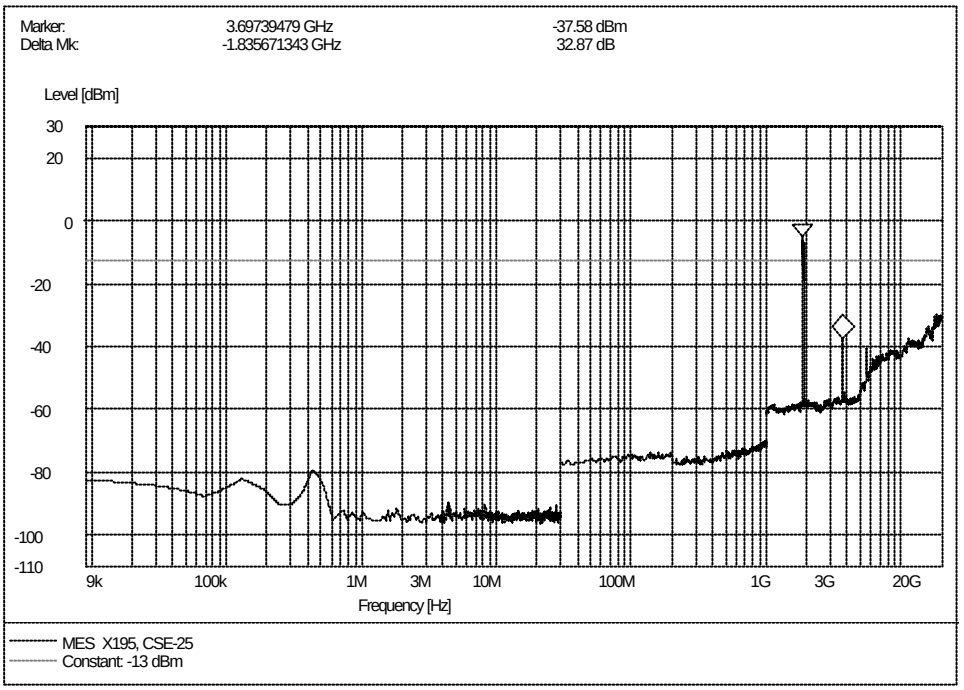
2. Highest channel No.1175



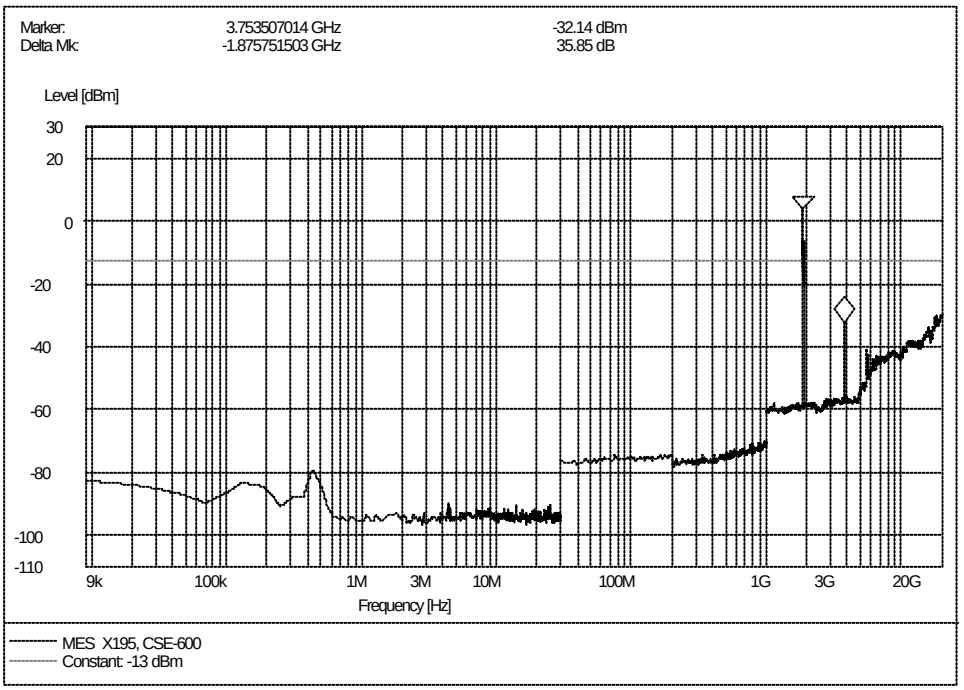
Plot of Spurious Emission

(Note: The marker point is the MS transmitting frequency which should be ignored.)

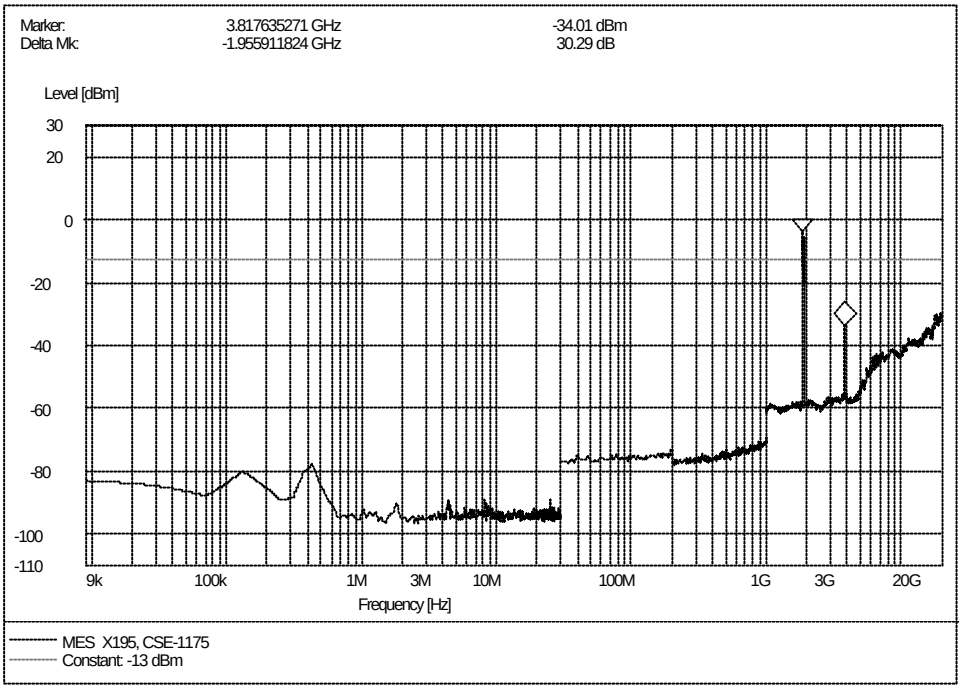
1. Lowest channel No.25



2. Middle channel No.600



3. Highest channel No.1175



9 Transmitter Radiated Power (EIRP/ERP) Test

9.1 Limits of EIRP/ERP

According to FCC §24.232, the broadband PCS mobile stations are limited to 2 watts (33dBm) **EIRP** peak power.

9.2 Test Procedure

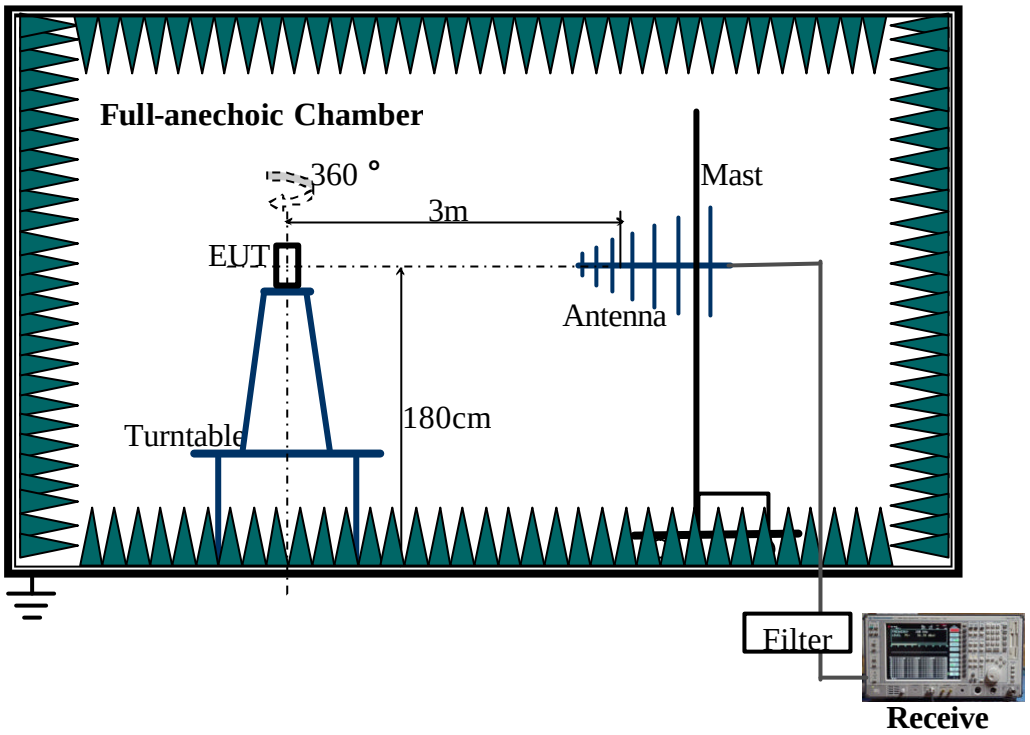
a. The radiated power measurement was performed in a full anechoic chamber. The air lost of the site and the factors of the test system is pre-calibrated using substitution method.

b. The EUT was placed on the vertical axis of a turntable 1.8 meters above the ground. The table was turned from 0 degrees to 360 degrees to find the maximum reading.

d. In the frequency range 30 MHz to 3 GHz, ultra-broadband bi-log antenna was used. In the frequency range above 3 GHz, horn antenna was used. The antenna was at the same height as the EUT. Since the there was no reflection from the chamber floor and the site was pre-calibrated, the antenna height need not to be changed as the open site method. The polarization of the receiving antenna was the same as that of the EUT transmitting antenna.

c. The spectrum analyzer was set to Maxpeak Detector and Maximum Hold mode. The resolution bandwidth was comparable to the emission bandwidth. For GSM signal, VBW=RBW=1MHz; for CDMA signal, VBW=RBW=3MHz.

9.3 Test Setup



For the actual test configuration, please refer to the related item-Photographs of the Test Configuration.

9.4 EUT Setup and Operating Conditions

The EUT configuration of the emission tests was MS + Battery.
A communication link was established between the MS and a System Simulator (SS).
The MS operated at the maximum output power.

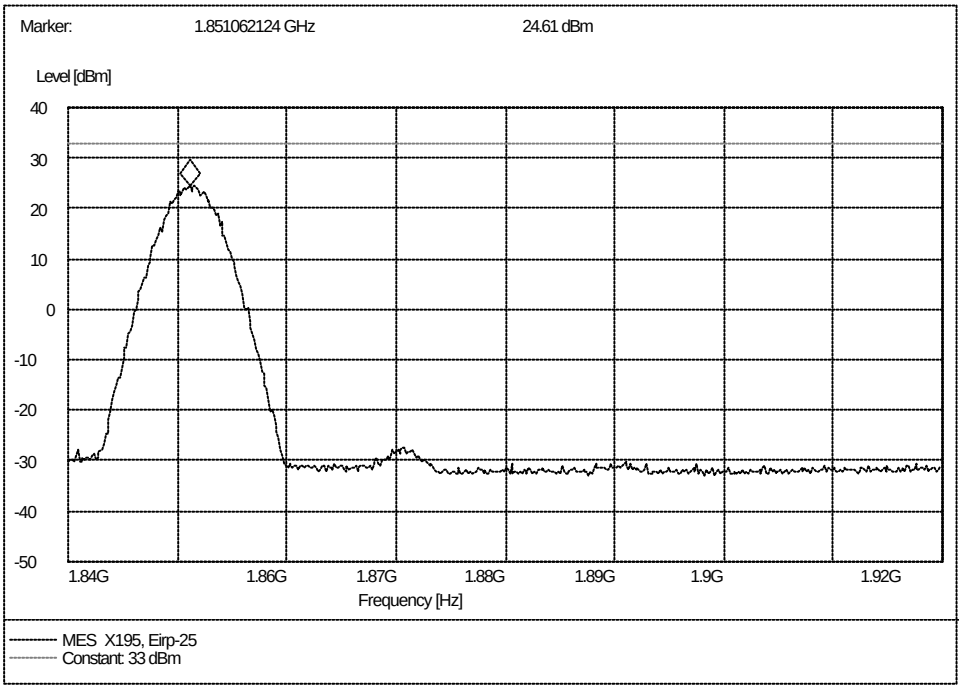
The CDMA 1X (PCS band) channel No.25 (low), 600 (middle) and 1175 (high) were measured respectively.

9.5 Test Results

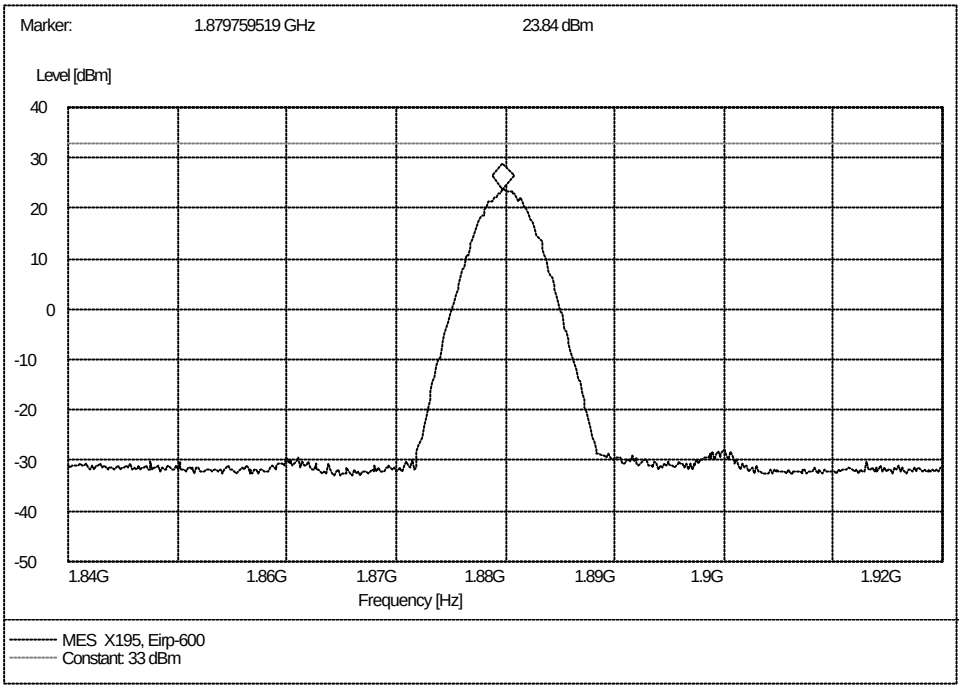
No.	CDMA 1X Channel No.	Frequency (MHz)	EIRP (dBm)	EIRP (W)	Limit EIRP (W)
1	25	1851.25	24.61	0.289	2
2	600	1879.76	23.84	0.242	2
3	1175	1909.26	23.05	0.202	2

Test Plots

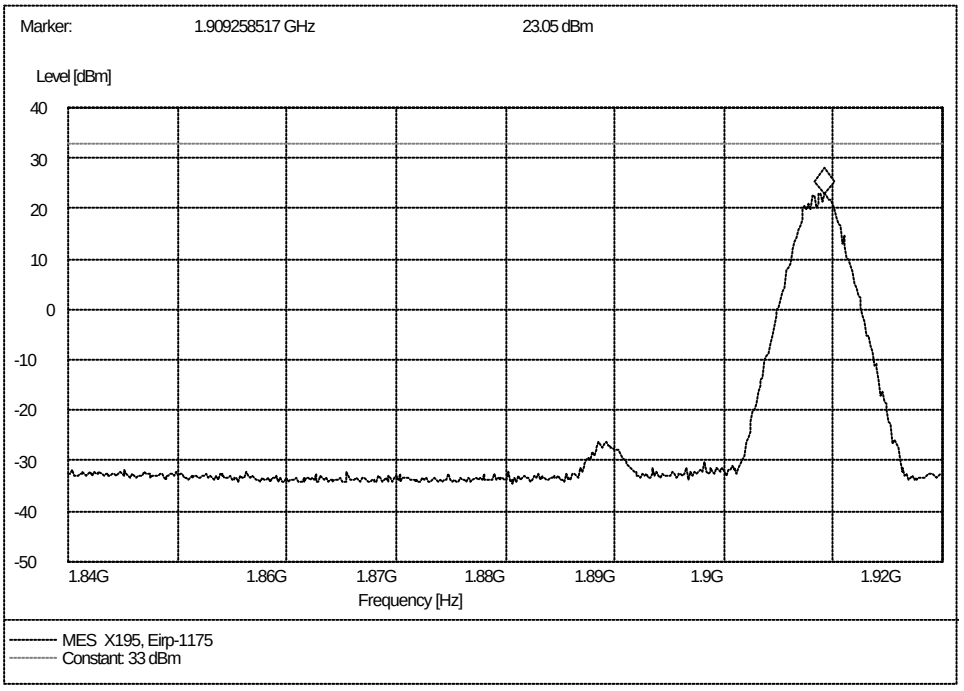
1. Lowest channel No.25



2. Middle channel No.600



3. Highest channel No.1175



10 Radiated Spurious Emission Test

10.1 Limits of Radiated Spurious Emission

According to FCC §24.238 (a), the power of any emission 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. This calculated to be -13dBm.

10.2 Test Procedure

a. The radiated power measurement was performed in a full anechoic chamber. The air lost of the site and the factors of the test system is pre-calibrated using substitution method.

b. The EUT was placed on the vertical axis of a turntable 1.8 meters above the ground. The table was turned from 0 degrees to 360 degrees to find the maximum reading.

c. In the frequency range 30 MHz to 3 GHz, ultra-broadband bi-log antenna was used. In the frequency range above 3 GHz, horn antenna was used. The antenna was at the same height as the EUT. Since the there was no reflection from the chamber floor and the site was pre-calibrated, the antenna height need not to be changed as the open site method. The measurement was performed with the antenna at horizontal and vertical polarization respectively.

d. The spectrum analyzer was set to Maxpeak Detector function and Maximum Hold mode. The resolution bandwidth was set to 1MHz. The measuring frequencies are from 30 MHz to 10th harmonic of the fundamental frequency.

e. In the 1 MHz bands immediately outside and adjacent to the frequency block, the resolution bandwidth of the spectrum analyzer was set to at least 1% of the emission bandwidth of the fundamental emission of the transmitter. For GSM signal, the resolution bandwidth was 3kHz; for CDMA signal, the resolution bandwidth was 30kHz.

10.3 Test Setup

Same as 9.3

10.4 EUT Setup and Operating Conditions

The EUT configuration of the emission tests was MS + Battery.
A communication link was established between the MS and a System Simulator (SS).
The MS operated at the maximum output power.

The CDMA 1X (PCS band) channel No.25 (low), 600 (middle) and 1175 (high) were measured respectively.

10.5 Test Results

No.	Frequency (MHz)	ERP (dBm) Antenna: Vertical	ERP (dBm) Antenna: Horizontal	Limit (dBm)
CDMA 1X(PCS Band) Channel No. 25 (1851.25 MHz)				
1	3702.50	-34.48	-33.3	-13
2	5553.75	--	--	-13
3	7405.00	--	--	-13
4	9256.25	--	--	-13
5	11107.50	--	--	-13
6	12958.75	--	--	-13
7	14810.00	--	--	-13
8	16661.25	--	--	-13
9	18512.50	--	--	-13
CDMA 1X(PCS Band) Channel No. 600 (1880.00 MHz)				
10	3760.00	-34.75	-33.74	-13
11	5640.00	--	--	-13
12	7520.00	--	--	-13
13	9400.00	--	--	-13
14	11280.00	--	--	-13
15	13160.00	--	--	-13
16	15040.00	--	--	-13
17	16920.00	--	--	-13
18	18800.00	--	--	-13
CDMA 1X(PCS Band) Channel No. 1175 (1908.75 MHz)				
19	3817.50	-36.38	-32.10	-13
20	5726.25	--	--	-13
21	7635.00	--	--	-13
22	9543.75	--	--	-13
23	11452.50	--	--	-13
24	13361.25	--	--	-13
25	15270.00	--	--	-13
26	17178.75	--	--	-13
27	19087.50	--	--	-13

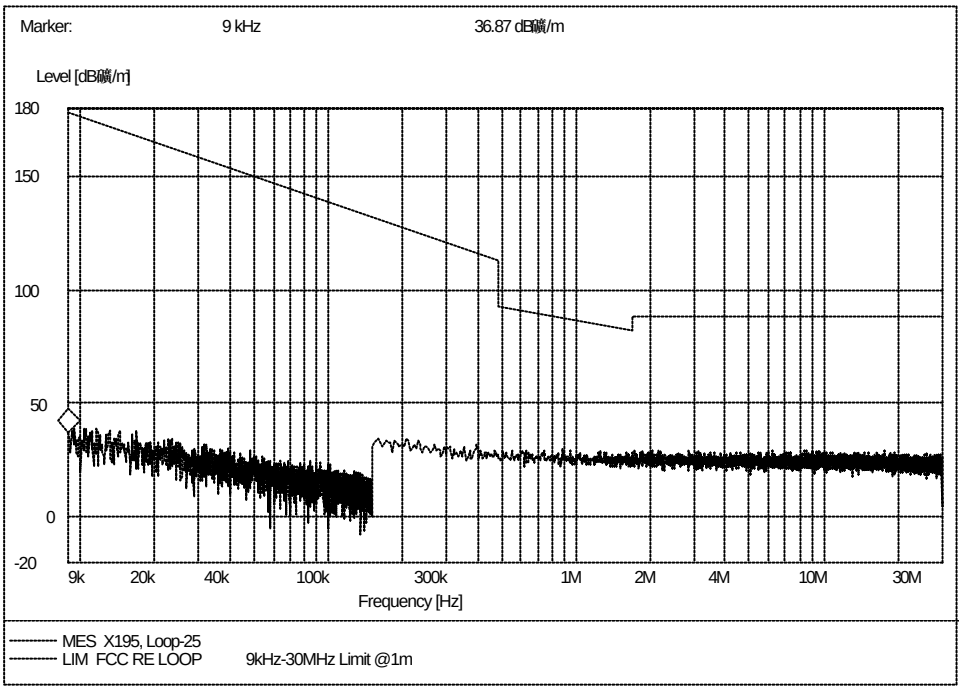
NOTE:

1. V and H are the antenna polarizations: Vertical and Horizontal.
2. The spurious radiations from 9 kHz to 10th harmonic of the fundamental frequency are researched. Only the harmonics are record in the table above.
3. "--" in the table above means that the emissions are too small to be measured and are at least 12 dB below the limit.

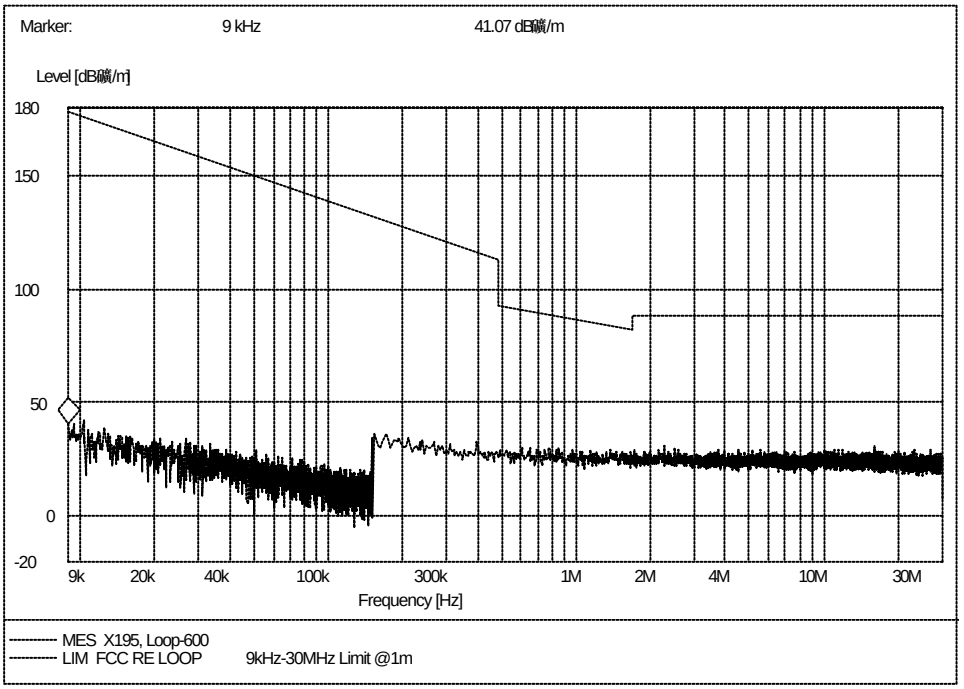
Plot of Spurious Emission

I. 9kHz to 30MHz

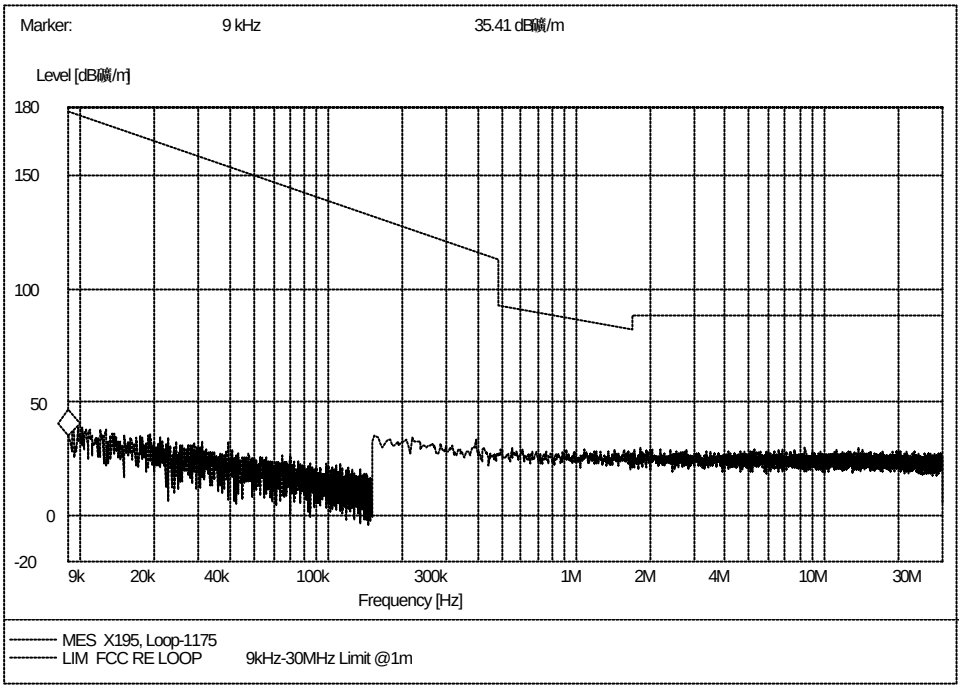
1. Lowest channel No.25



2. Middle channel No.600



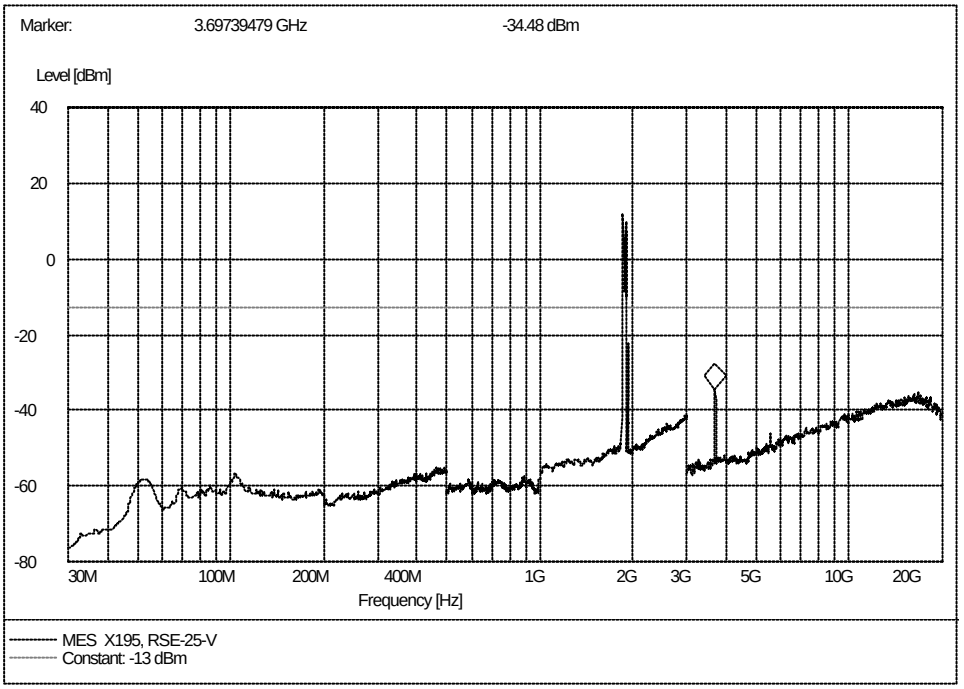
3. Highest channel No.1175



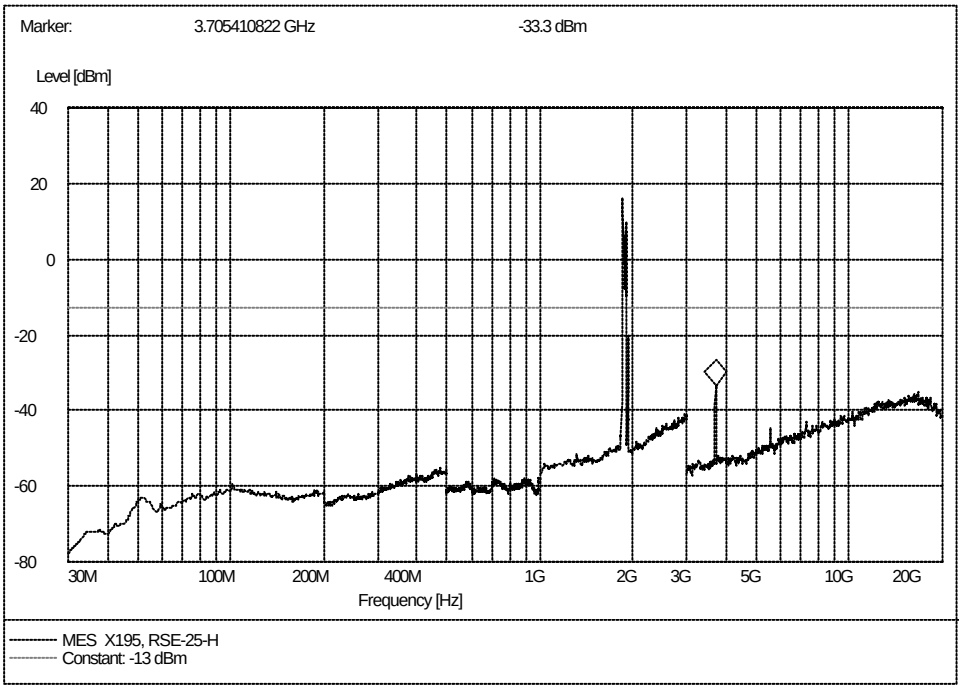
II. Above 30MHz

(Note: The marker point is the MS transmitting frequency which should be ignored.)

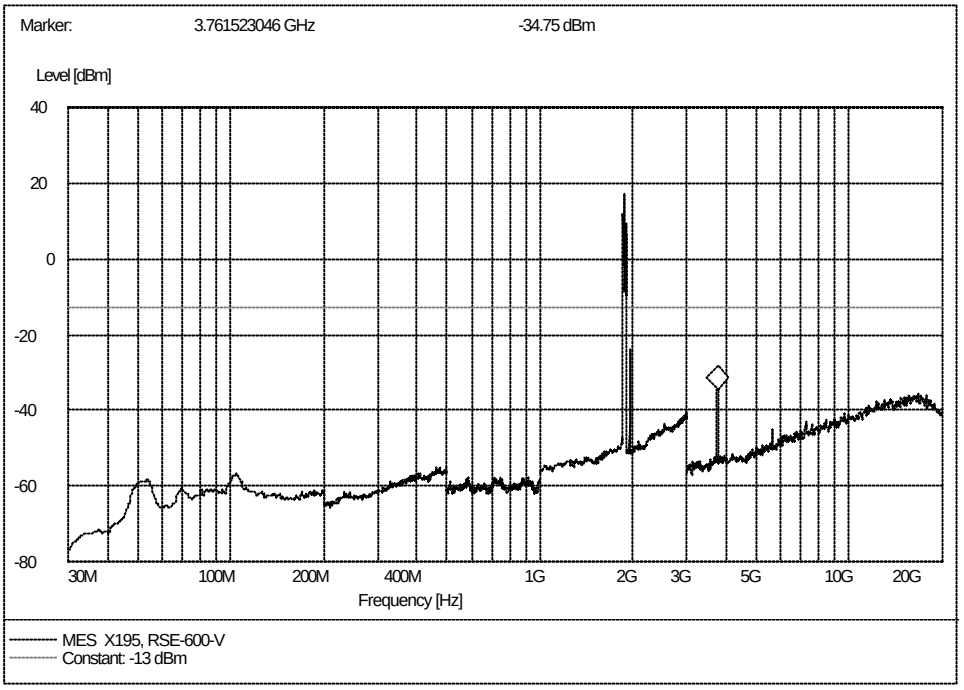
1. Lowest channel No.25, antenna vertical



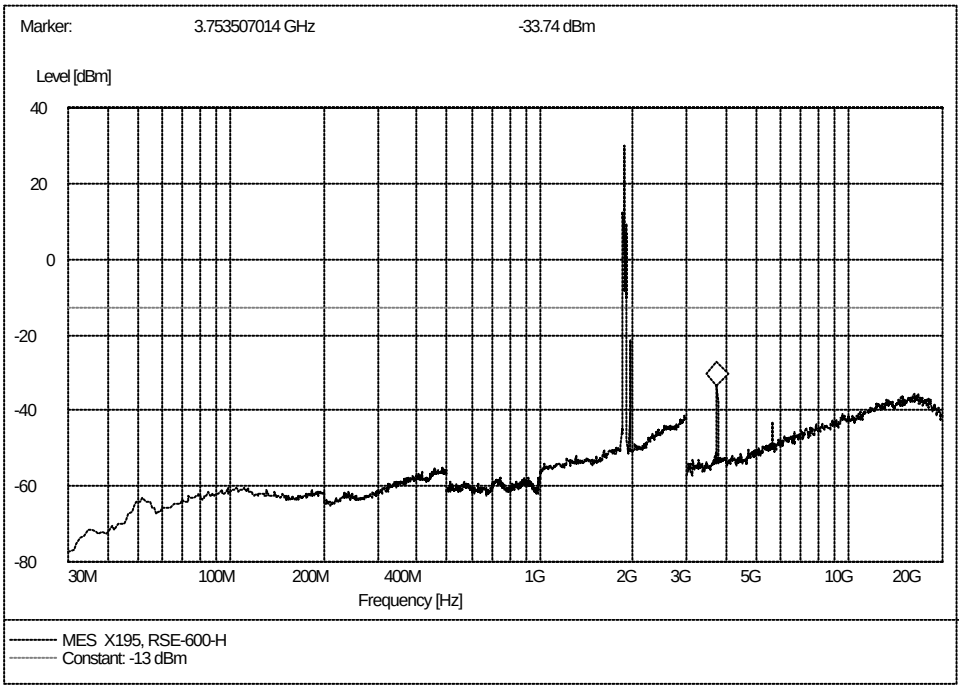
2. Lowest channel No.25, antenna horizontal



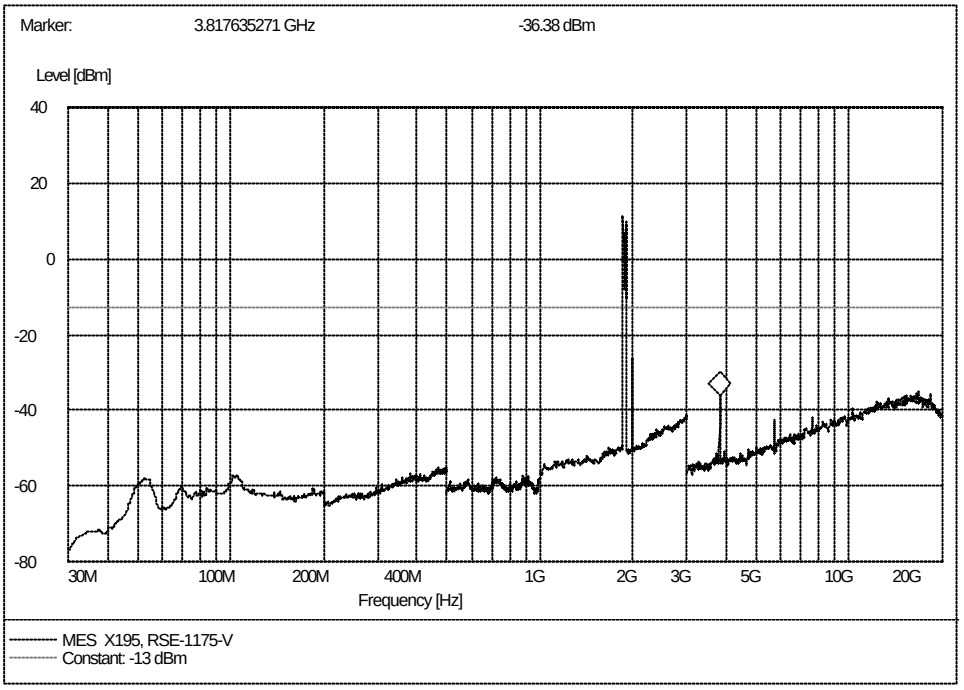
3. Middle channel No.600, antenna vertical



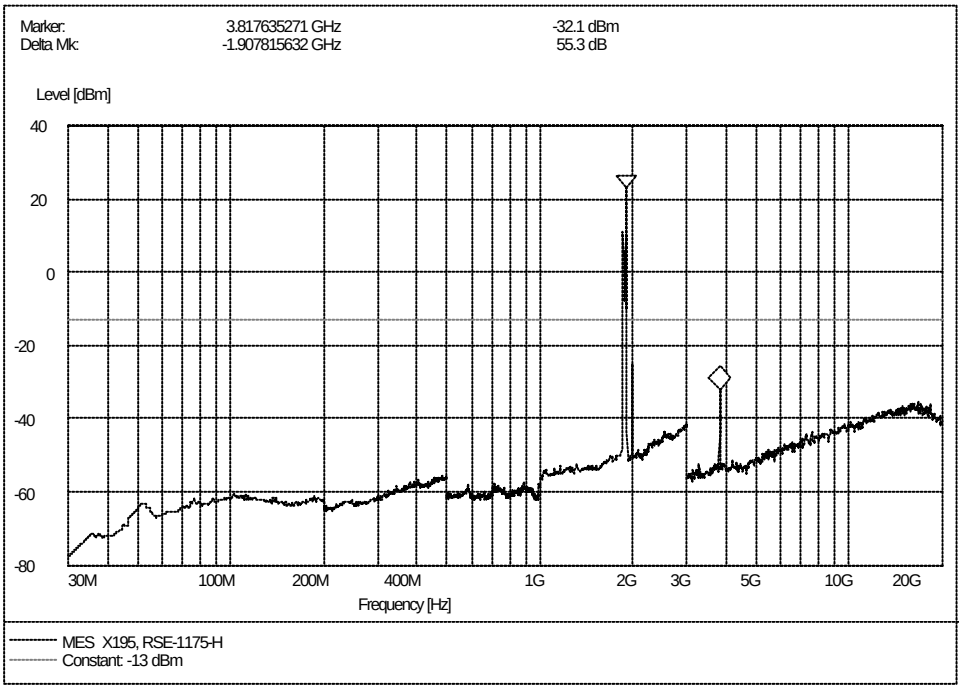
4. Middle channel No.600, antenna horizontal



5. Highest channel No.1175, antenna vertical



6. Highest channel No.1175, antenna horizontal



11 Frequency Stability Test

11.1 Requirement of Frequency Stability

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

According to FCC §2.1055, the test conditions are:

- **Temperature**: The temperature is varied from -30ºC to +50ºC at intervals of not more than 10ºC.
- **Primary Supply Voltage**: For hand carried battery powered equipment, the primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacture. The supply voltage shall be measured at the input to the cable normally provided with the equipment, or at the power supply terminals if cables are not normally provided.

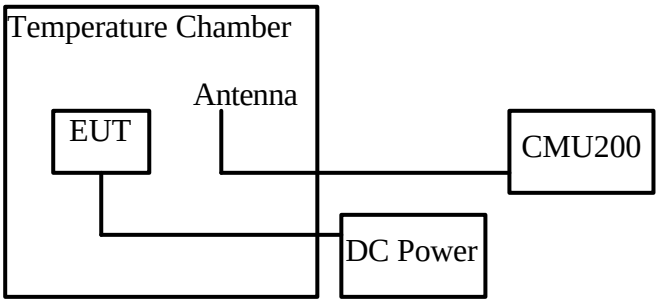
11.2 Test Procedure

a. The temperature was varied from -30ºC to +50ºC at intervals of 10ºC. At each temperature level, the EUT was powered off and put in the temperature chamber for 2 hour.

b. After sufficient stabilization, the EUT was turned on and a communication link was established. The frequency was measured within three minutes.

c. For extreme supply voltage measurement, the EUT was tested at room temperature.

11.3 Test Setup



11.4 EUT Setup and Operating Conditions

The EUT configuration of the emission tests was MS + Battery.
A communication link was established between the MS and a System Simulator (SS).
The MS operated at the maximum output power.

The CDMA 1X (PCS band) channel No.25 (low), 600 (middle) and 1175 (high) were measured respectively.

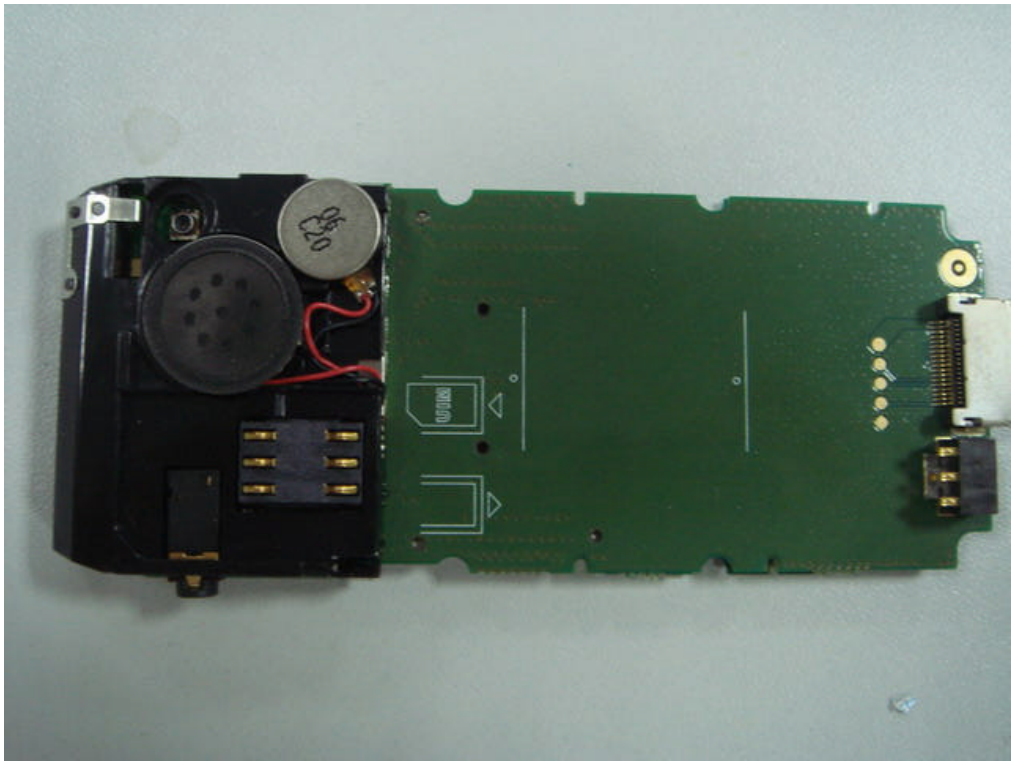
11.5 Test Results

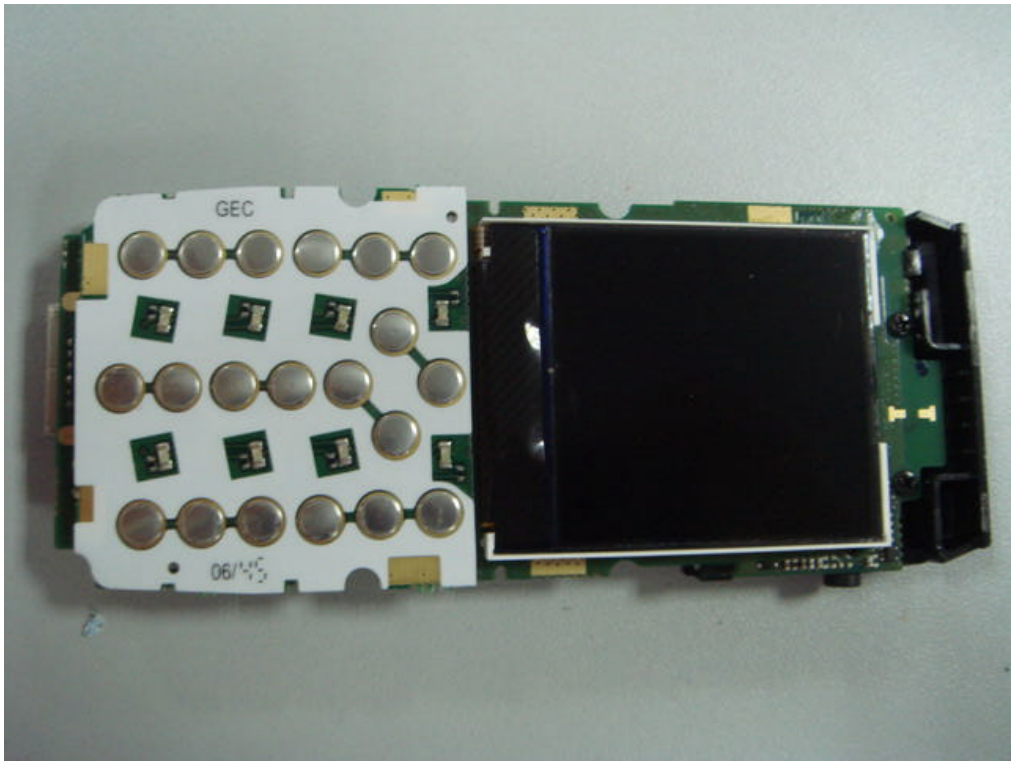
No.	Test Conditions		Frequency Deviation (Hz)			
	Voltage	Temperature (ºC)	25CH	600CH	1175CH	Limit (±1ppm)
1	3.7V (V_{nom})	-30	-16	-7	20	25CH, ±1850Hz 600CH, ±1880Hz 1175CH, ±1910Hz
2		-20	1	-8	11	
3		-10	15	1	14	
4		0	9	-2	-17	
5		+10	19	-20	16	
6		+20	20	4	13	
7		+30	10	17	12	
8		+40	6	-5	-20	
9		+50	0	-17	-2	
10	4.2V (V_{max})	+22	20	-13	-2	
11	3.4V (V_{min})	+22	4	-15	-9	

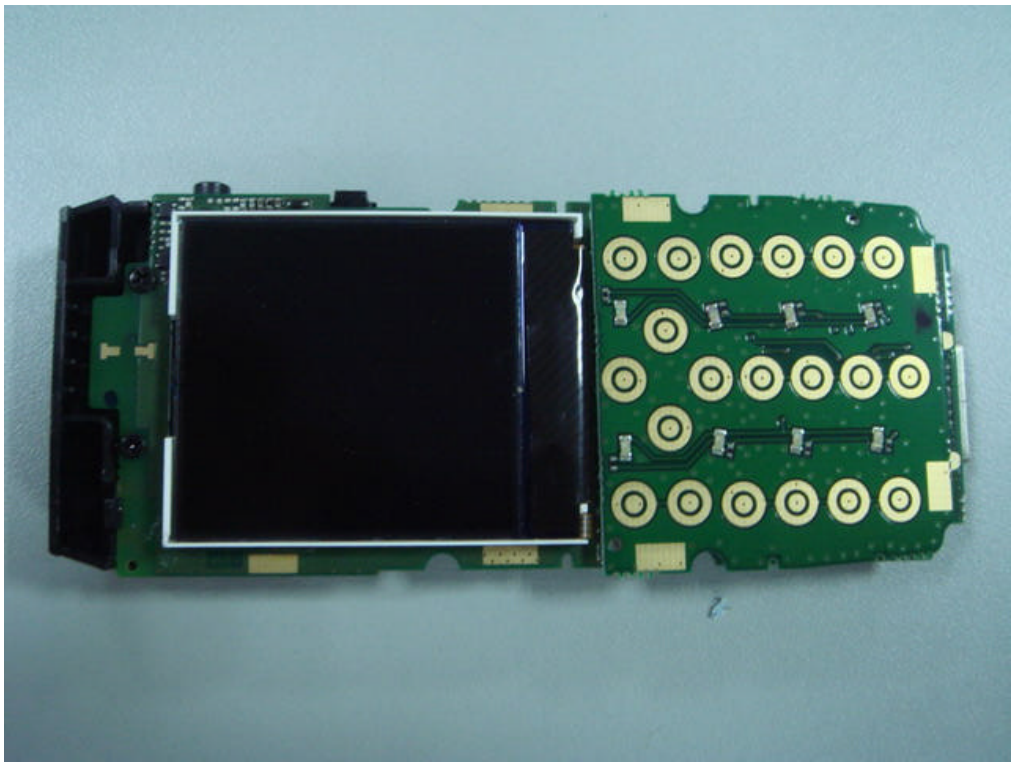
Appendix I：Photographs of the EUT

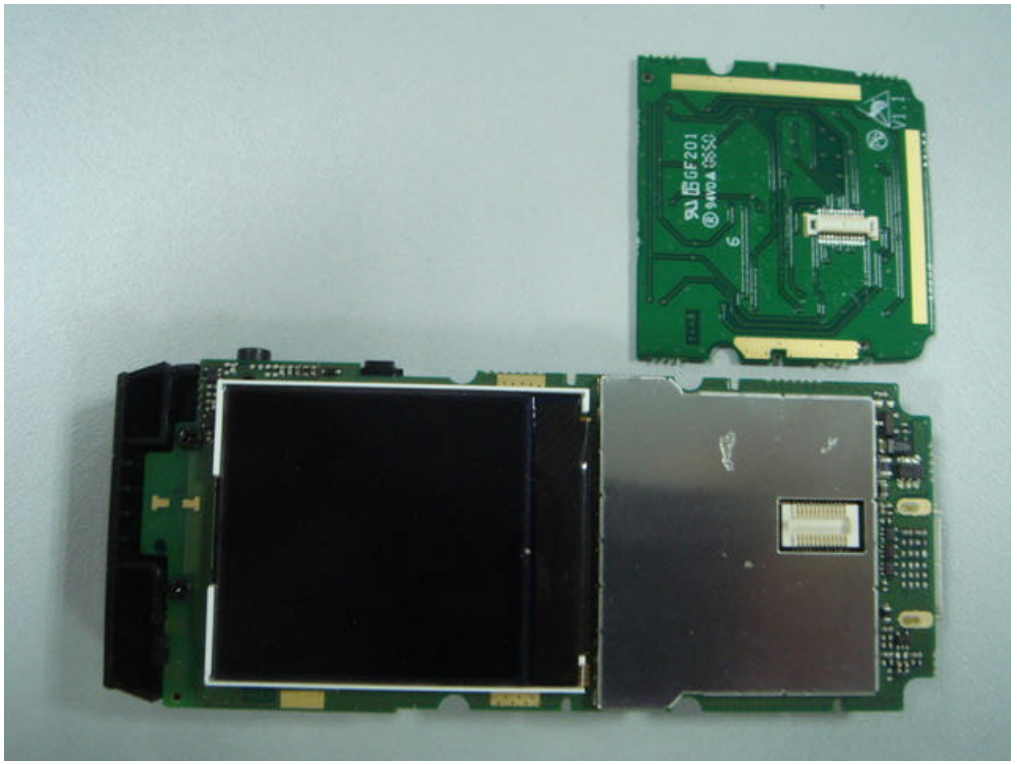
1. Appearance of the MS

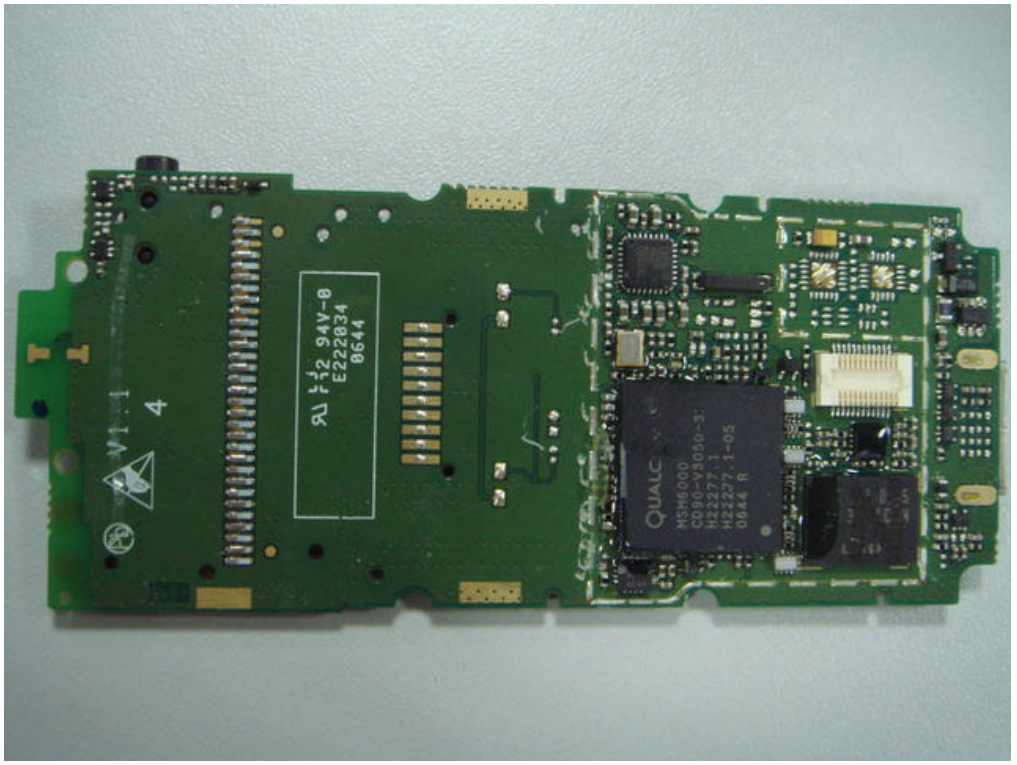
2. Inside of the MS

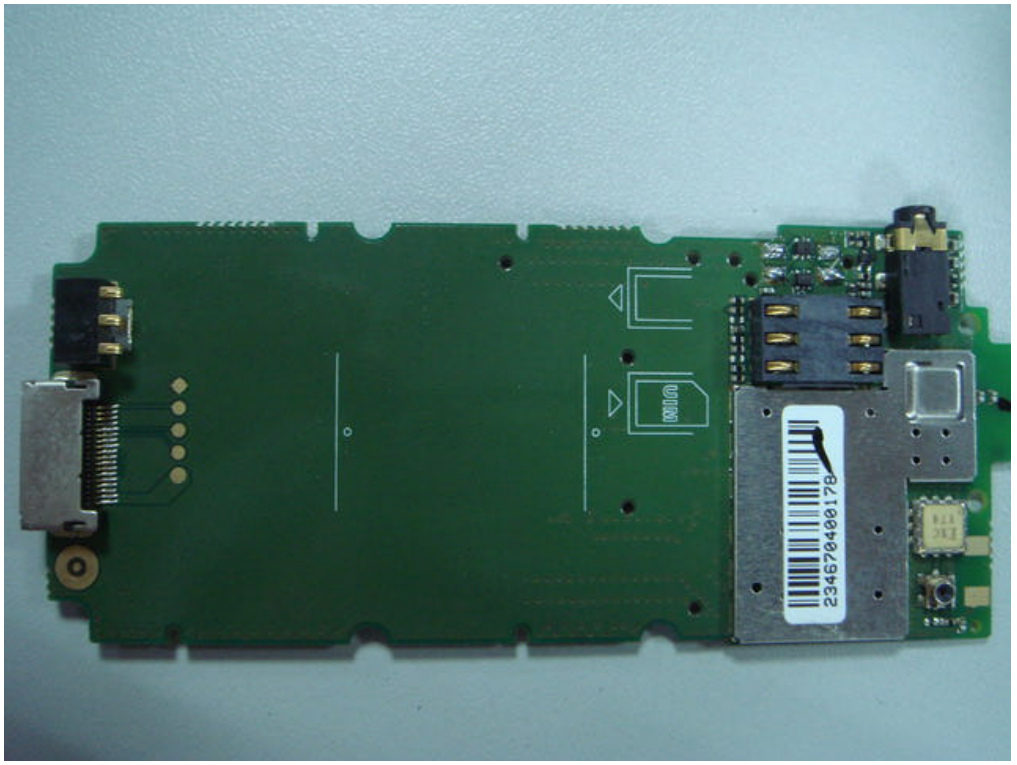



GEC



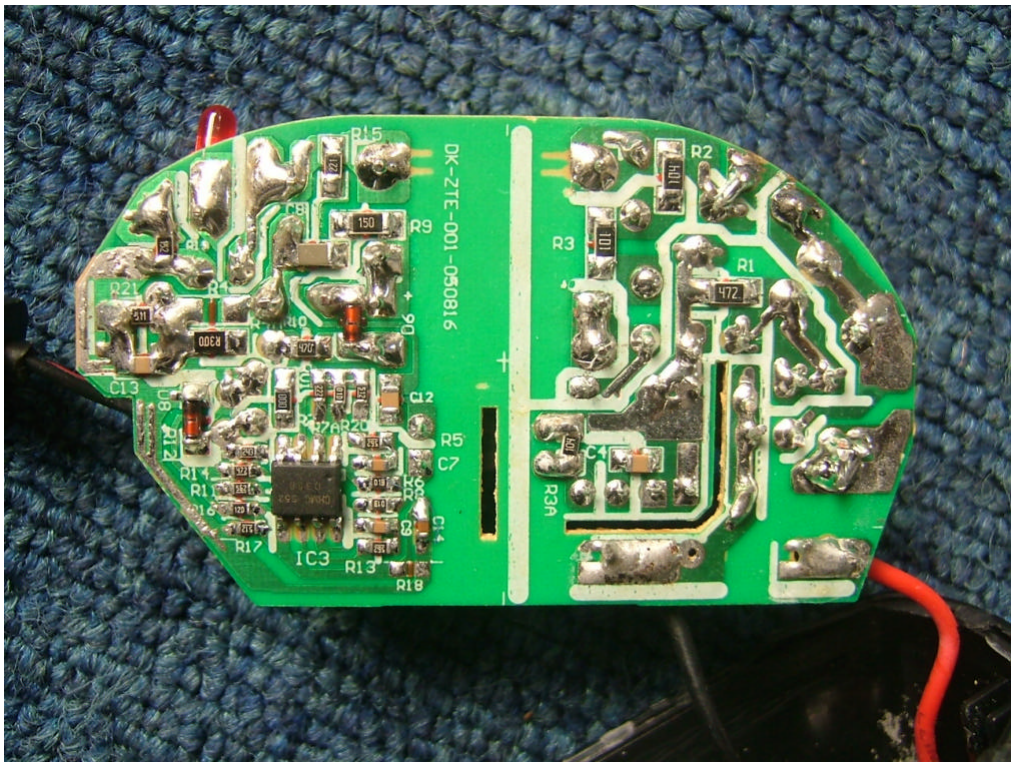



V1.1
4
94V-0
E222034
0644
QUALC
MSM6000
C090-V3050-3
H2277.1
H2277.1-05
0644 R


234670400170

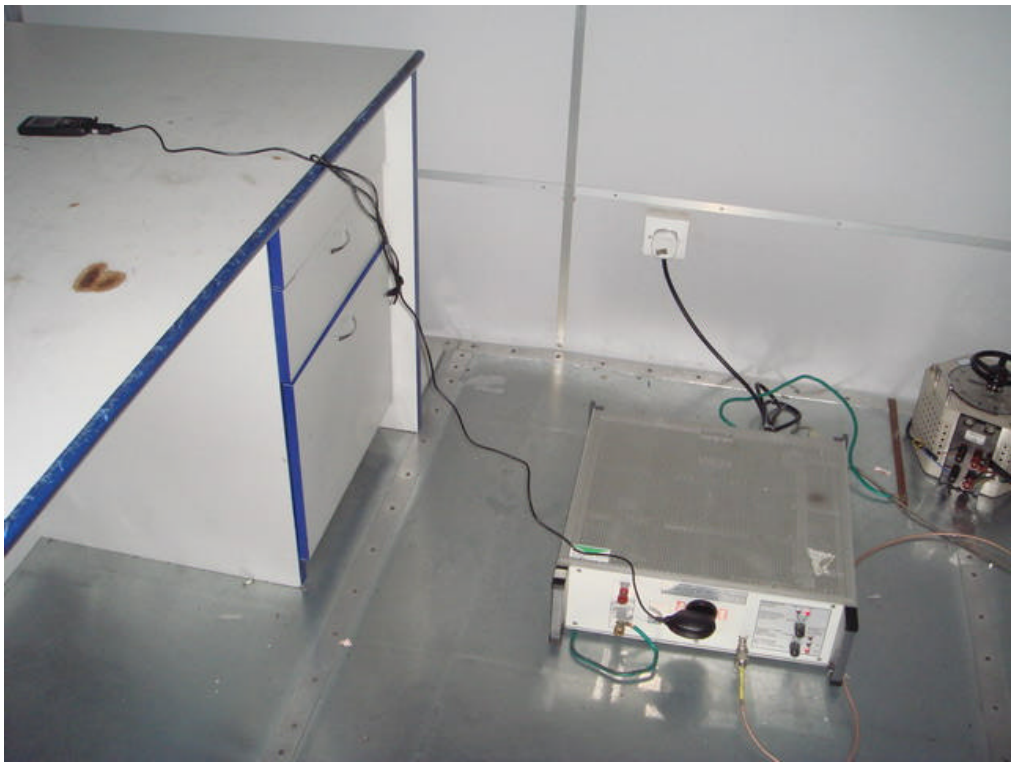
3. Appearance of the Charger

4. Inside of the Charger

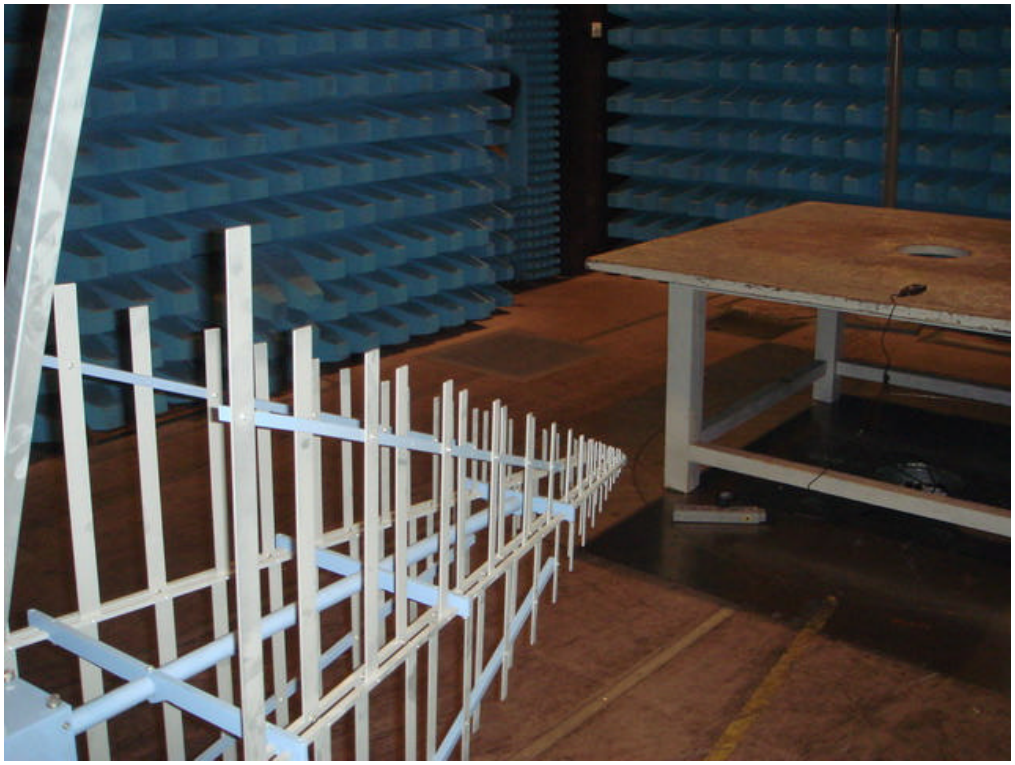

R15
R9
150
R2
R3
R1
472
R21
C13
C12
R5
C7
R3A
C4
R17
IC3
R13
R18
C14
DK-ZTE-001-050816

Appendix II：Photographs of the Test Configuration

1. Conducted Emission Test

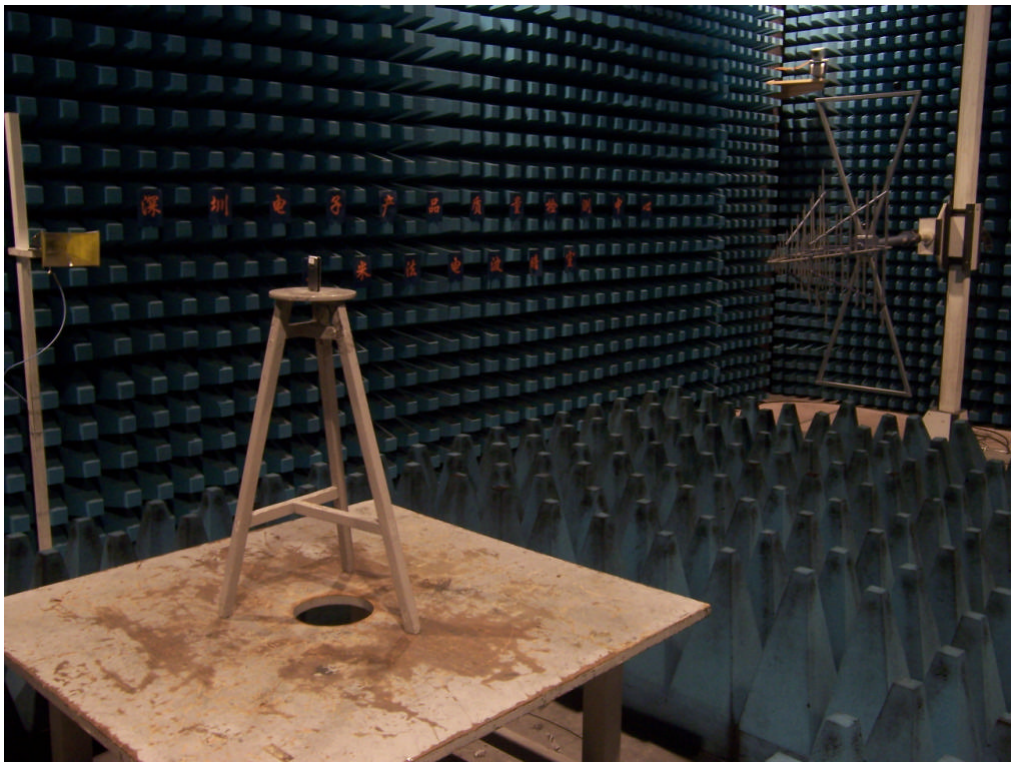
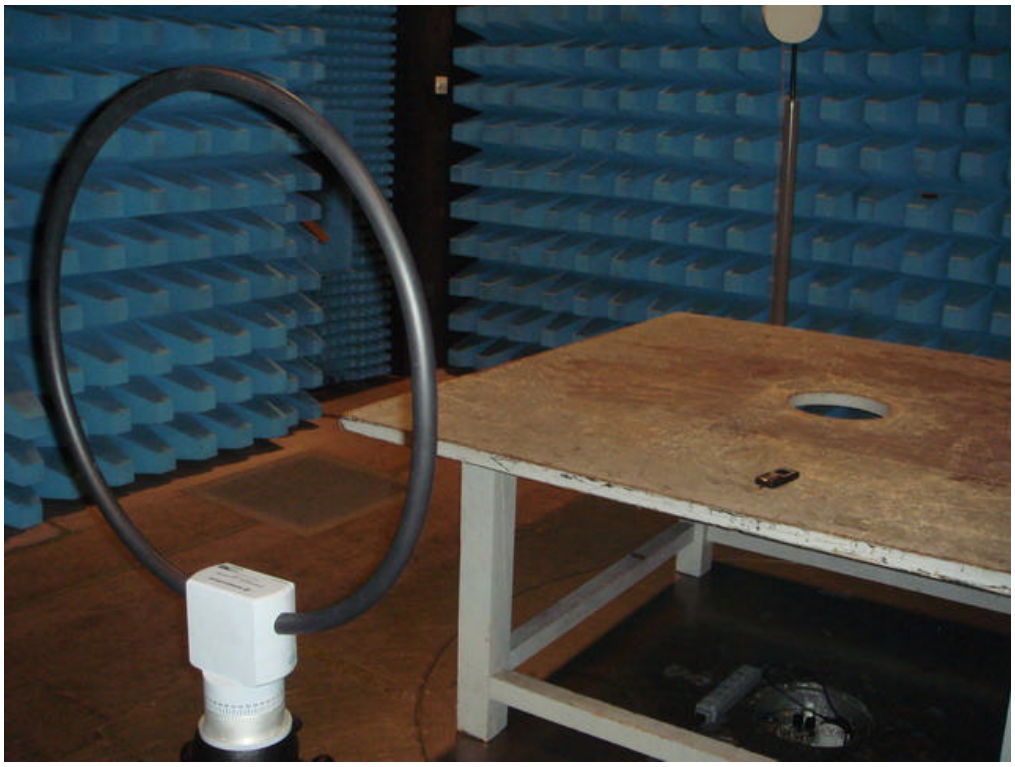


2. Radiated Emission Test



3. Conducted RF Test

4. Radiated RF Test



5. Radiated RF Test (9kHz~30MHz)