## 47 CFR PART 15B

# TEST REPORT

of

**HC-CG210**

| | |
|---|---|
| Model Name: | HC-CG210 |
| Brand Name: | Haier |
| Report No.: | SZ09020003E01 |
| FCC ID.: | SG70902HC-CG210 |

*prepared for*

**Qingdao Haier Telecom Co., Ltd.**
No.1,Haier Road,Hi-tech Zone,Qingdao,266101,P.R.China

*prepared by*

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LAB CODE 20081223-00

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# 1. Test Result Certification

| | |
|---|---|
| Equipment under Test: | HC-CG210 |
| Brand Name: | Haier |
| Model Name: | HC-CG210 |
| FCC ID: | SG70902HC-CG210 |
| Applicant: | Qingdao Haier Telecom Co., Ltd.<br>No.1,Haier Road,Hi-tech Zone,Qingdao,266101,P.R.China |
| Manufacturer: | Qingdao Haier Telecom Co., Ltd.<br>No.1,Haier Road,Hi-tech Zone,Qingdao,266101,P.R.China |
| Emission Designator: | 1M25F9W |
| Test Standards: | 47 CFR Part 2<br>47 CFR Part 15 Subpart B |
| Test Date(s): | February 17, 2009- February 27, 2009 |
| Test Result: | PASS |

*** We Hereby Certify That:**

The equipment under test was tested by Shenzhen Morlab Communications Technology Co., Ltd. The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the requirement of related FCC rules.

The test results of this report only apply for the tested sample equipment identified above. The test report shall be invalid without all the signatures of the test engineer, the reviewer and the approver.

Tested by: ..... Dated: 2009.3.4
Li Yi

Reviewed by: ..... Dated: 2009.03.04
Wei Yanquan

Approved by: ..... Dated: 2009.03.04
Shu Luan

# 2. General Information

## 2.1 Equipment under Test (EUT) Description

| | |
|---|---|
| Sample Description .....: | HC-CG210 |
| Model Name .....: | HC-CG210 |
| Serial No. .....: | (n.a, marked #1 by test site) |
| Hardware Version .....: | HW002 |
| Software Version .....: | SW001 |
| Modulation .....: | CDMA 1X |
| Frequency .....: | Tx:1851.25MHz -1908.75MHz Rx:1931.25MHz -1988.75MHz |
| Power Supply .....: | Battery |
| | Model Name: H15159 |
| | Brand name: Haier |
| | Capacitance: 1200mAh |
| | Rated voltage: 3.7V |
| | Manufacturer: SHENZHEN XWODA ELECTRONIC CO.LTD Building C, Tongfukang Industrial Zone, Shiyan Town, Baoan District, ShenZhen, China |
| Ancillary Equipment 1 : | AC Adapter (Charger for Battery) |
| | Model Name: H24142 |
| | Brand Name: Haier |
| | Rated Input: ~ 100-240V, 0.2A,50/60Hz |
| | Rated Output: ⎓ 5V, 550mA |
| | Manufacturer: Qingdao Zhongwei Electronics CO.,Ltd |
| | Manufacturer Address: Zhongwei industrial Park, Fushan Industial Area, Jiangshan Town Laixi City, Qingdao, Shandong, China |
| | Wire Length: 100cm |

NOTE:

1. The EUT is a model of CDMA 1X mobile station operating in Cellular band.
2. The normal configuration for the EUT is the Mobile Phone (MS) associated with ancillary equipments e.g. the Battery and/or the AC Adapter (Charger).
3. For detailed features about the EUT, please see user manual supplied by the applicant.

## 2.2 Test Standards and Results

The objective of the report is to perform tests according to 47 CFR Part 2, Part 15 Part 22 for FCC ID Certification:

| No. | Identity | Document Title |
|---|---|---|
| 1 | 47 CFR Part 2 (10-1-05 Edition) | Frequency Allocations and Radio Treaty Matters; General Rules and Regulations |
| 2 | 47 CFR Part 15 (10-1-05 Edition) | Radio Frequency Devices |

Test detailed items and the results are as below:

| No. | Rules | Test Type | Result | Date of Test |
|---|---|---|---|---|
| FCC Part 15 Requirement | | | | |
| 1 | §15.107 | Conducted Emissions | PASS | 2009-02-18 |
| 2 | §15.109 | Radiated Emissions | PASS | 2009-02-18 |

NOTE:

The tests were performed according to the method of measurements prescribed in ANSI C63.4 2003.

## Facilities and Accreditations

### 2.2.1 Facilities

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

All measurement facilities used to collect the measurement data are located at Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen, P. R. China. The site was constructed in conformance with the requirements of ANSI C63.7, ANSI C63.4 and CISPR Publication 22, the FCC registration number is 741109.

### 2.2.2 Test Equipments

| No. | Description | Specification | |
|---|---|---|---|
| 1 | System Simulator | Manufacturer:<br>Model No.:<br>Serial No.: | Rohde&Schwarz<br>CMU200<br>100448 |
| 2 | System Simulator | Manufacturer:<br>Model No.:<br>Serial No.: | Agilent<br>E5515C<br>GB43130131 |
| 3 | Spectrum Analyzer | Manufacturer:<br>Model No.:<br>Serial No.: | Agilent<br>E7405A<br>US44210471 |
| 4 | Telecommunication Antenna | Manufacturer:<br>Model No.:<br>Serial No.: | European Antennas<br>PSA-45010R/356<br>403688-001 |
| 5 | Trilogy Antenna | Manufacturer:<br>Model No.:<br>Serial No.: | Schwarzbeck<br>VULB 9163<br>9163-274 |
| 6 | Horn Antenna | Manufacturer:<br>Model No.:<br>Serial No.: | Schwarzbeck<br>BBHA 9120C<br>9120C-384 |
| 7 | Power Splitter | Manufacturer:<br>Model No.:<br>Serial No.: | WEINSCHEL<br>1506A<br>NW521 |
| 8 | Anechoic Chamber | Manufacturer: | Albatross Projects GmbH |
| 9 | DC Power Supply | Manufacturer: | Good Will Instrument Co., Ltd. |
| 10 | Temperature Chamber | Manufacturer: | Chongqing YinHe Experimental Equip. Co., Ltd. |

NOTE:

1. Equipments listed above have been calibrated and are in the period of validation.

### 2.2.3 Test Environment Conditions

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

| | |
|---|---|
| Temperature: | 20 - 25°C |
| Relative Humidity: | 40 - 60% |
| Atmospheric Pressure: | 86-106kPa |

# 3. 47 CFR Part 15B Requirements

## 3.1 General Information

### 3.1.1 Test Mode

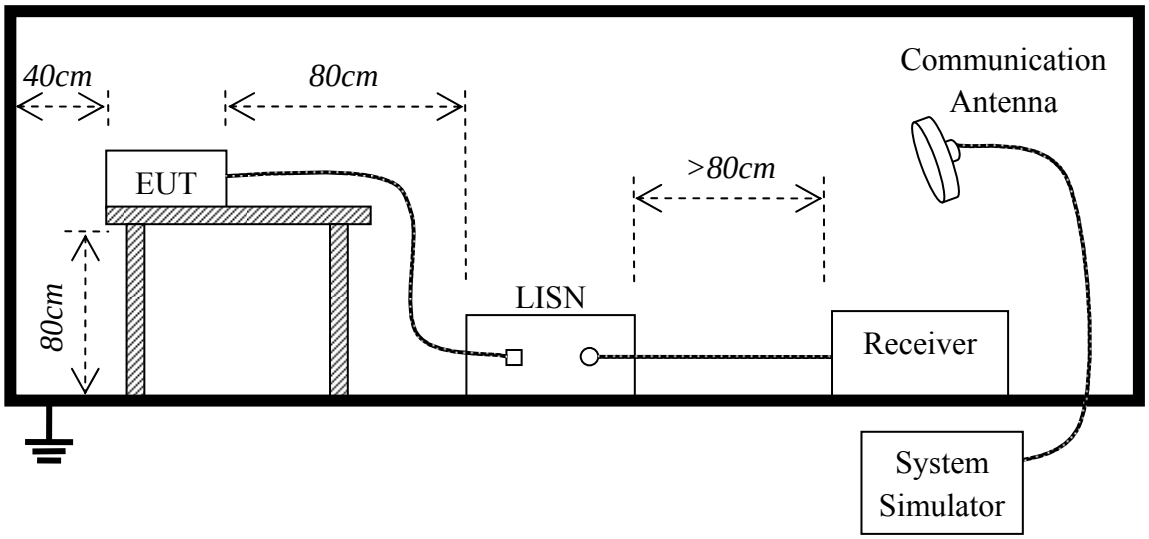
The EUT configuration of the emission tests was MS + Battery + Charger

Before the measurement, the lithium battery was completely discharge.

During the measurement, the lithium battery was installed into the MS, and the charger was connected to the MS. A communication link was established between the MS and a System Simulator (SS).

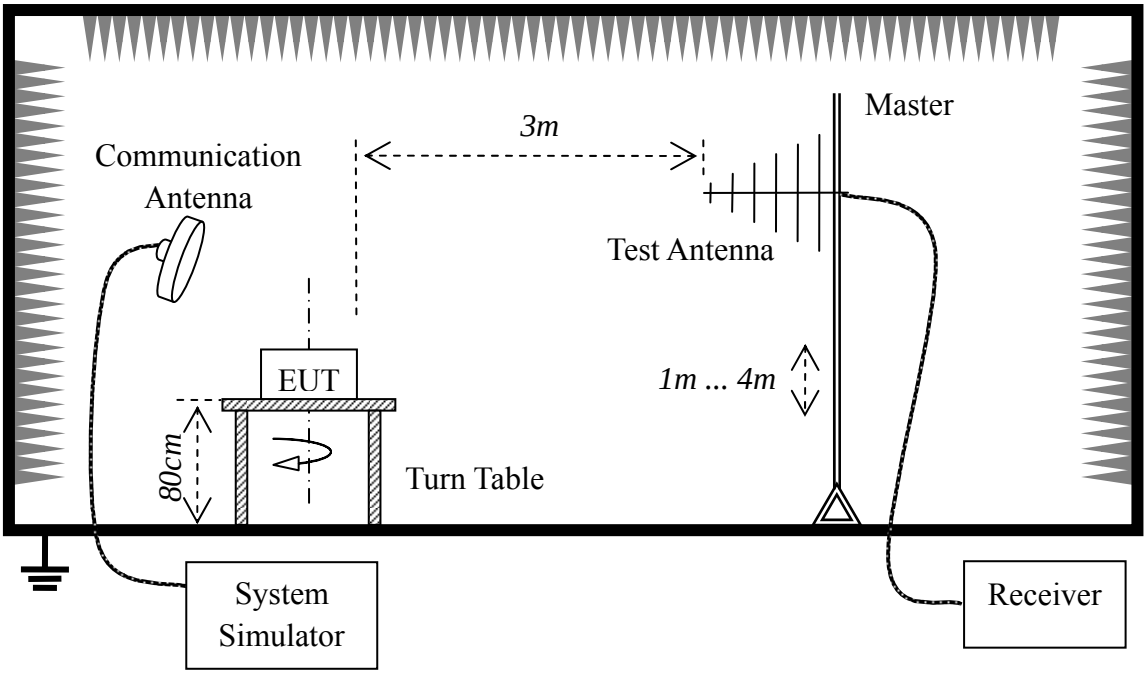
### 3.1.2 Test Setup

#### 3.1.2.1 Conducted Emission Test




1. The test is performed in a Shield Room; the factors of the test system are calibrated to correct the reading.
2. The EUT is placed on a 0.8 meters high insulating table and keeps 0.4 meters away from the conducting wall of the Shield Room.
3. The EUT is connected to the power mains through a Line Impedance Stabilization Network (LISN). The LISN provides 50Ω/50μH of coupling impedance for the measuring instrument.

### 3.1.2.2 Radiated Emission Test




1. The test is performed in a Semi-anechoic Chamber; the factors of the test system are calibrated to correct the reading.
2. The EUT is placed on a 0.8 meters high insulating table and keeps 3 meters away from the trilogy Test Antenna, which is mounted on the top of a variable-height antenna Master tower.

NOTE:

1. The test method is the substitution method according to TIA-603-C.

## 3.2 Conducted Emission

### 3.2.1 Requirement

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

| Frequency range (MHz) | Conducted Limit (dBμV) | |
|---|---|---|
| | Quasi-peak | Average |
| 0.15 - 0.50 | 66 to 56 | 56 to 46 |
| 0.50 - 5 | 56 | 46 |
| 5 - 30 | 60 | 50 |

NOTE:

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

### 3.2.2 Test Procedure

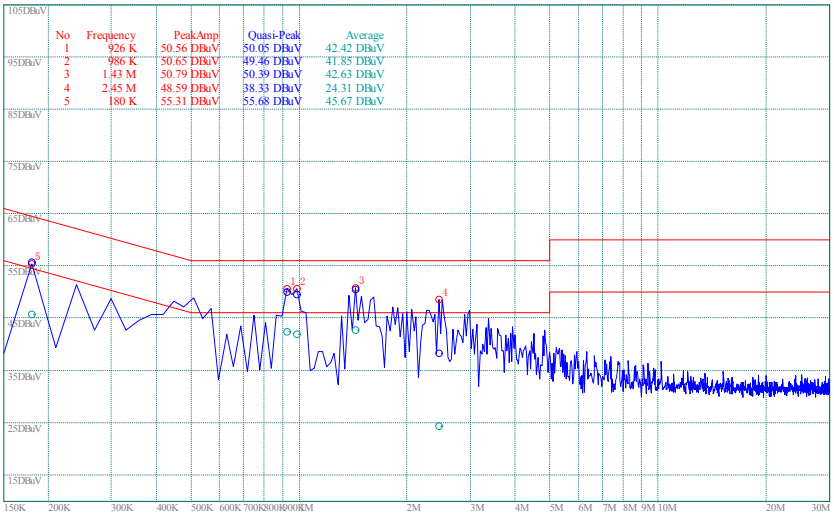
1. Perform test setup as described in section 3.1.2.1.
2. Each test mode in section 3.1.1 should be applied. At each test mode, the frequency range from 150 kHz to 30MHz is searched using the CISPR Quasi-Peak and/or the Average detector of the Receiver. If the emission levels measured with Quasi-Peak detector are lower than the Average Limit, it's not necessary to measure with Average detector.
3. The emission levels at both L phase and N phase should be tested.
4. Record the test result plot and distinct points.
5. In the test report show the worst test data.

### 3.2.3 Test Result

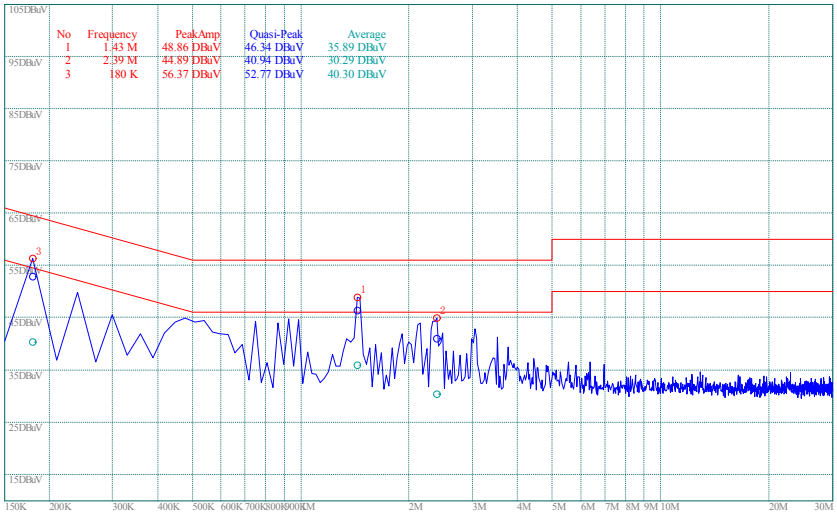
A. Test Verdict Recorded for Suspicious Points:

| No. | @Frequency (MHz) | Measured Emission Level (dBμV) | | | | Limit (dBμV) | | Verdict |
|---|---|---|---|---|---|---|---|---|
| | | PK | QP | AV | Phase | QP | AV | |
| 1 | 0.926 | 50.56 | 50.05 | 42.42 | L | 56.0 | 46.0 | PASS |
| 2 | 0.986 | 50.65 | 49.46 | 41.85 | L | 56.0 | 46.0 | PASS |
| 3 | 1.43 | 50.79 | 50.39 | 42.63 | L | 56.0 | 46.0 | PASS |
| 4 | 1.43 | 48.86 | 46.34 | 35.89 | N | 56.0 | 46.0 | PASS |
| 5 | 2.39 | 44.89 | 40.94 | 30.29 | N | 56.0 | 46.0 | PASS |

B. Test Plot




(Plot A: L Phase)




(Plot B: N Phase)

## 3.3 Radiated Emission

### 3.3.1 Requirement

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 range (MHz) | Field Strength | |
|---|---|---|
| | μV/m | 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) = 20*log[Field Strength (μV/m)].
2. In the emission tables above, the tighter limit applies at the band edges.

### 3.3.2 Test Procedure

1. Perform test setup as described in section 3.1.2.2.
2. Each test mode in section 3.1.1 should be applied. At each test mode, the Turn Table turns from 0 degrees to 360 degrees to find the maximum reading; for the suspected points, the Test Antenna varies from 1 meter to 4 meters to determine the maximum value of the field strength.
3. The Receiver is set to Peak Detector function and specified bandwidth with maximum hold mode. If the emission level of the EUT in peak mode is 6dB lower than the limit specified, then testing could be stopped and the peak values would be reported; otherwise the emission less than 6dB margins would be retested one by one using the quasi-peak method.
4. The emission levels at both horizontal and vertical polarizations should be tested.
5. Record the test result plot and distinct points.
6. In the test report show the worst test data.

### 3.3.3 Test Result

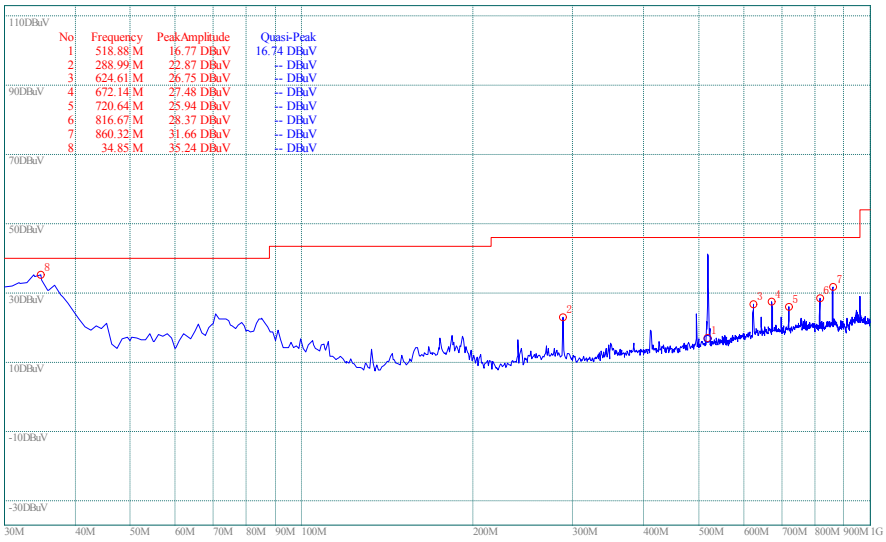
A. Test Verdict Recorded for Suspicious Points:

| No. | Frequency (MHz) | Emission Level (dBμV/m) | | | Quasi-Peak Limit (dBμV/m) | Result |
|---|---|---|---|---|---|---|
| | | Peak | Quasi-Peak | Antenna Polarization | | |
| 1 | 34.85 | 35.24 | -- | Vertical | 40.0 | PASS |
| 2 | 288.99 | 22.87 | -- | Vertical | 40.0 | PASS |
| 3 | 518.88 | 16.77 | 16.74 | Vertical | 46.0 | PASS |
| 4 | 32.91 | 33.58 | 30.19 | Horizontal | 40.0 | PASS |

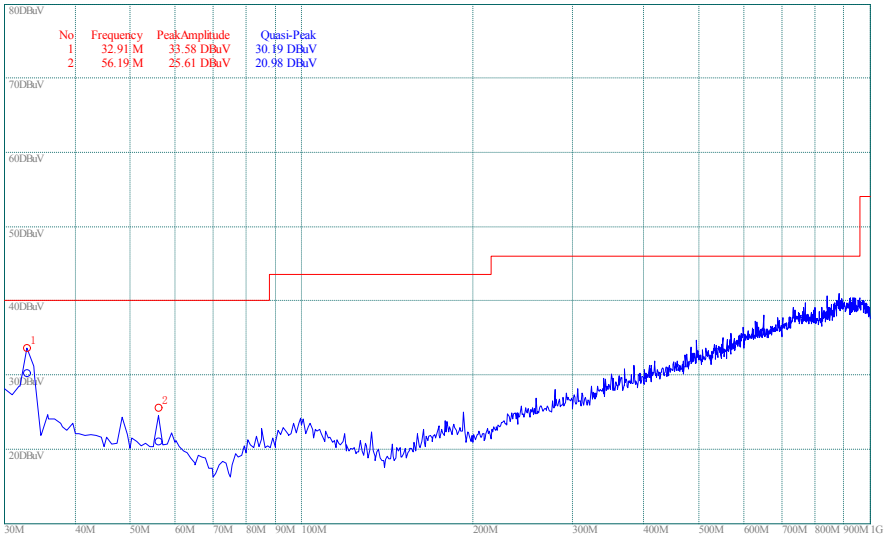
Note: "--" in the table above means that the emissions are too small to be measured and are at least 10 dB below the limit.

Following is the plots for emission measurement; please note that marked spikes with circle should be ignored because they are MS and SS carrier frequency.

B. Test Plot




(Plot A: Test Antenna Vertical)




(Plot B: Test Antenna Horizontal)

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