47 CFR PART 15B, 22 H

TEST REPORT

of

HC-C3000

Model Name: HC-C3000
Trade Name: Haier
Report No.: SZ07110077E01
FCC ID: SG70711HC-C3000

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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TABLE OF CONTENTS

1. Test Result Certification

Equipment under Test:	HC-C3000
Trade Name:	Haier
Model Name:	HC-C3000
FCC ID:	SG70711HC-C3000
Applicant:	Qingdao Haier Telecom Co., Ltd. No.1,Haier Road,Hi-tech Zone,Qingdao,266101,P.R.China
Manufacturer:	Qingdao Haier Telecom Co., Ltd. No.1,Haier Road,Hi-tech Zone,Qingdao,266101,P.R.China
Test Standards:	47 CFR Part 2 47 CFR Part 15 Subpart B 47 CFR Part 22 Subpart H
Test Date:	November 21, 2007- November 21, 2007
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: Wei Yanquan Dated: 2007. 11. 28

Reviewed by: Yao Xiaofeng Dated: 2007. 11. 28

Approved by: Zeng Dexin Dated: 2007. 11. 28

Zeng Dexin

2. General Information

2.1 Equipment under Test (EUT) Description

EUT Type..... :	HC-C3000
Model Name ..... :	HC-C3000
Serial No. ..... :	(n.a, marked #1 by test site)
IMEI ..... :	(n.a)
Hardware Version ..... :	SP
Software Version ..... :	R00.01.60
Modulation Type..... :	CDMA
Emission Designators ..... :	1M25F9W
Power Supply..... :	Battery Brand name: Haier Mode no.: H11124 Capacitance: 800mAh Rated voltage: 3.7V Charge limited: 4.2±0.05V Manufacturer: Shenzhen XWODA Electronic Co. Ltd Manufacturer Address: Building C, Tong Fu Kang Industrial Zone,Shiyan Town,Baoan District, Shenzhen, China
Ancillary Equipments..... :	AC Adapter (Charger for Battery) Model Name: H24080 Brand Name: Haier Serial No.: (n.a. marked #1 by test site) Rated Input: ~ 100-240V, 0.2A, 50/60Hz Rated Output: ⎓ 5V, 550mA Manufacturer: ZHONG WEI FENG DA ELECTRONIC CO.LTD Manufacturer Address: Changyang Industory Area, Laixi Jiangshan Town, Qingdao City. Wire Length: 100cm

NOTE:

1. The EUT is a model of CDMA 1X mobile station operating in Cellular 800MHz band.
2. The EUT is similar to the EUT HC-C2001 (HC-C2000) we tested in report SZ07060050E01 which supports CDMA 800MHz bands. Here the EUT just added a FM function and equipped with different software. So we just tested the Radiated Emissions and Radiated Spurious Emission about the FM function. All the other data please see the report SZ07060050E01.
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 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
3	47 CFR Part 22 (10-1-05 Edition)	Public Mobile Services

Test detailed items and the results are as below:

No.	Rules	Test Type	Result
FCC Part 15 Requirement			
1	§15.109	Radiated Emissions	PASS
FCC Part 22 Requirement			
2	§2.1053 §2.1057 §22.917	Radiated Spurious Emission	PASS

2.3 Facilities and Accreditations

2.3.1 Facilities

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

2.3.2 Test Equipments

No.	Description	Specification
1	System Simulator	Manufacturer: Rohde&Schwarz Model No.: CMU200 Serial No.: 100448
2	System Simulator	Manufacturer: Agilent Model No.: E5515C Serial No.: GB43130131
3	Spectrum Analyzer	Manufacturer: Agilent Model No.: E7405A Serial No.: US44210471
4	Telecommunication Antenna	Manufacturer: European Antennas Model No.: PSA-45010R/356 Serial No.: 403688-001
5	Trilogy Antenna	Manufacturer: Schwarzbeck Model No.: VULB 9163 Serial No.: 9163-274
6	Horn Antenna	Manufacturer: Schwarzbeck Model No.: BBHA 9120C Serial No.: 9120C-384
7	Power Splitter	Manufacturer: WEINSCHEL Model No.: 1506A Serial No.: 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.

2.3.3 Test Environment Conditions

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

Temperature:	20 - 25°C
Relative Humidity:	40 - 50%
Atmospheric Pressure:	96kPa

3. 47 CFR Part 15B Requirements

3.1 General Information

3.1.1 Test Mode

The test modes of the EUT are showed as below:

(1) Call Mode:

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

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).

(2) Idle Mode:

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

Before the measurement, the lithium battery was completely discharge.

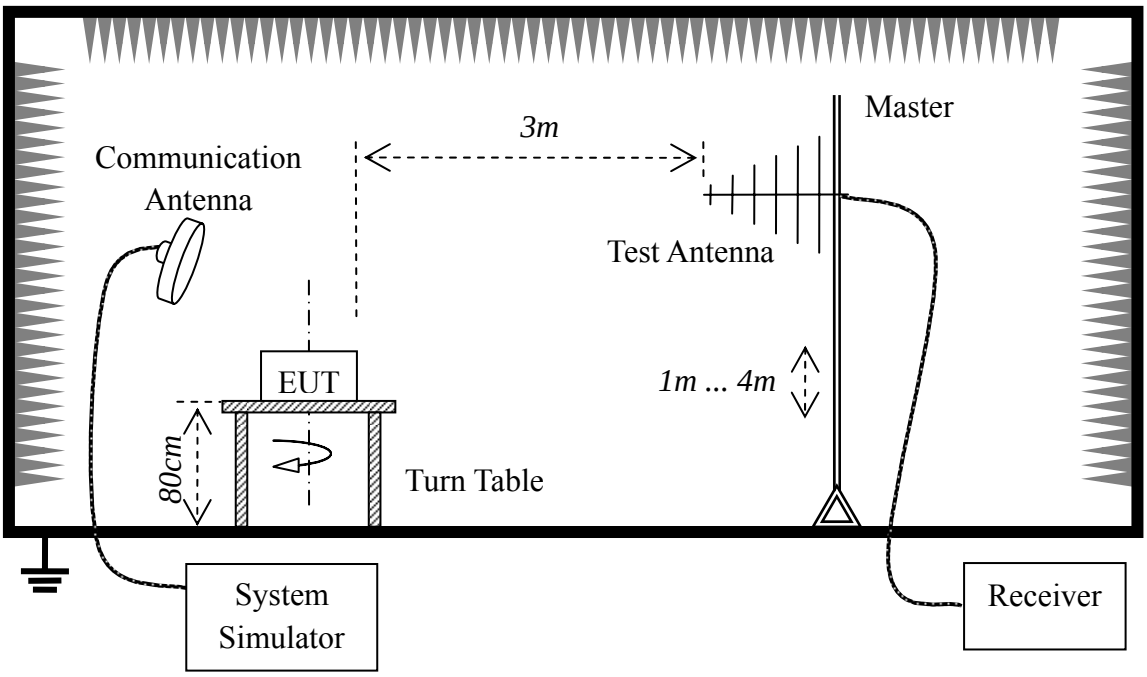
The MS was registered to the base station simulator but no call was set up.

NOTE:

1. All test modes are performed, only the worst cases are recorded in this report.
2. During the test, the FM function of the EUT was opened.

3.1.2 Test Setup

3.1.2.1 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.

3.2 Radiated Emission

3.2.1 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.

3.2.2 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 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.

3.2.3 Test Result

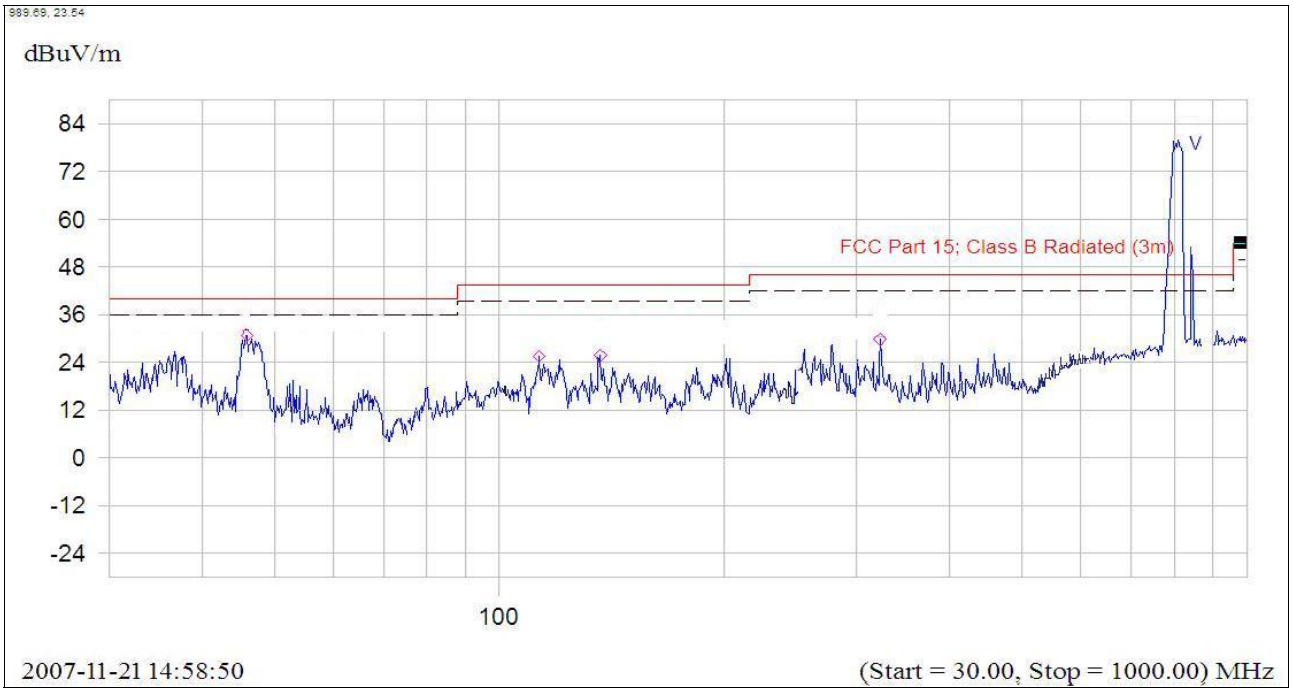
No.	Frequency (MHz)	Emission Level (dBμV/m)			Quasi-Peak Limit (dBμV/m)	Result
		Peak	Quasi-Peak	Antenna Polarization		
1	44.393	20.4	18.2	Vertical	40	PASS
2	113.029	24.2	19.7	Vertical	40	PASS
3	136.663	25.7	22.8	Vertical	40	PASS
4	(n.a)	(n.a)	(n.a)	Vertical	(n.a)	(n.a)
5	(n.a)	(n.a)	(n.a)	Vertical	(n.a)	(n.a)
6	(n.a)	(n.a)	(n.a)	Vertical	(n.a)	(n.a)
7	47.652	30.8	26.8	Horizontal	40	PASS
8	114.468	24.9	---	Horizontal	43.6	PASS
9	136.400	24.3	21.6	Horizontal	43.6	PASS
10	256.620	26.4	---	Horizontal	46	PASS
11	323.989	30.1	27.5	Horizontal	46	PASS
12	(n.a)	(n.a)	(n.a)	Horizontal	(n.a)	(n.a)

NOTE:

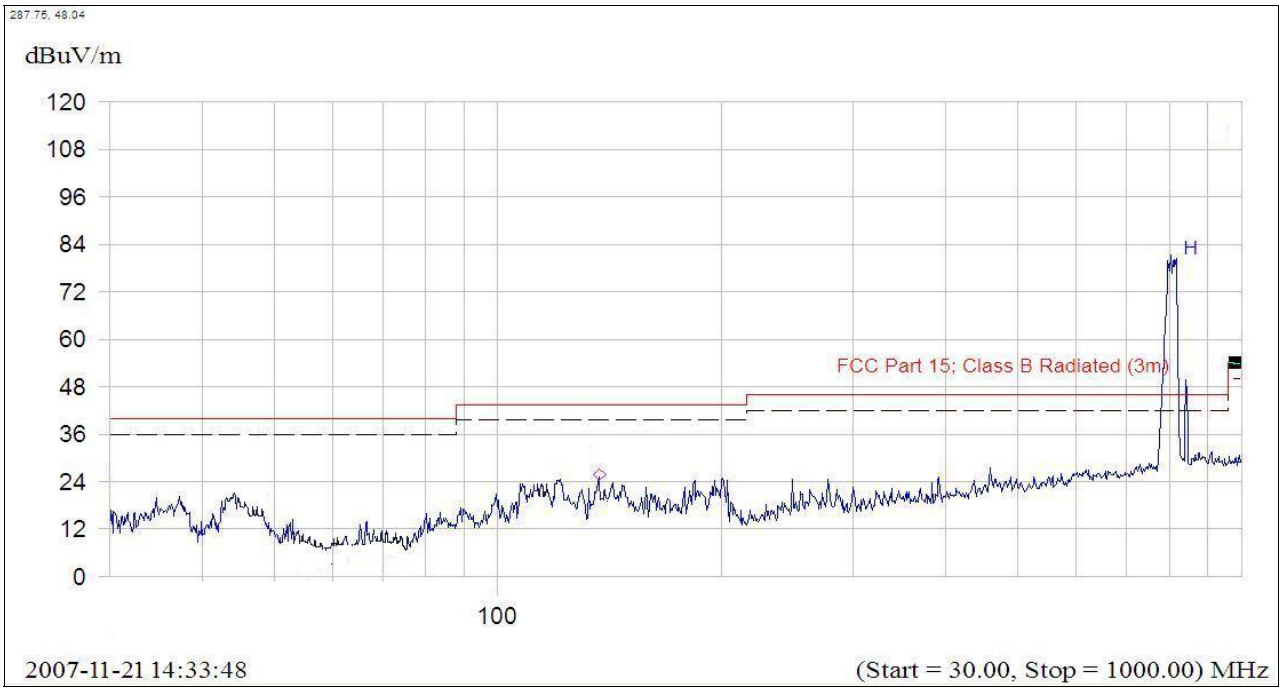
This test date is not degrade test date for the HC-C2001 (HC-C2000) in Report SZ07060050E01

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.

1. Plot when Test Antenna at Horizontal Polarization:



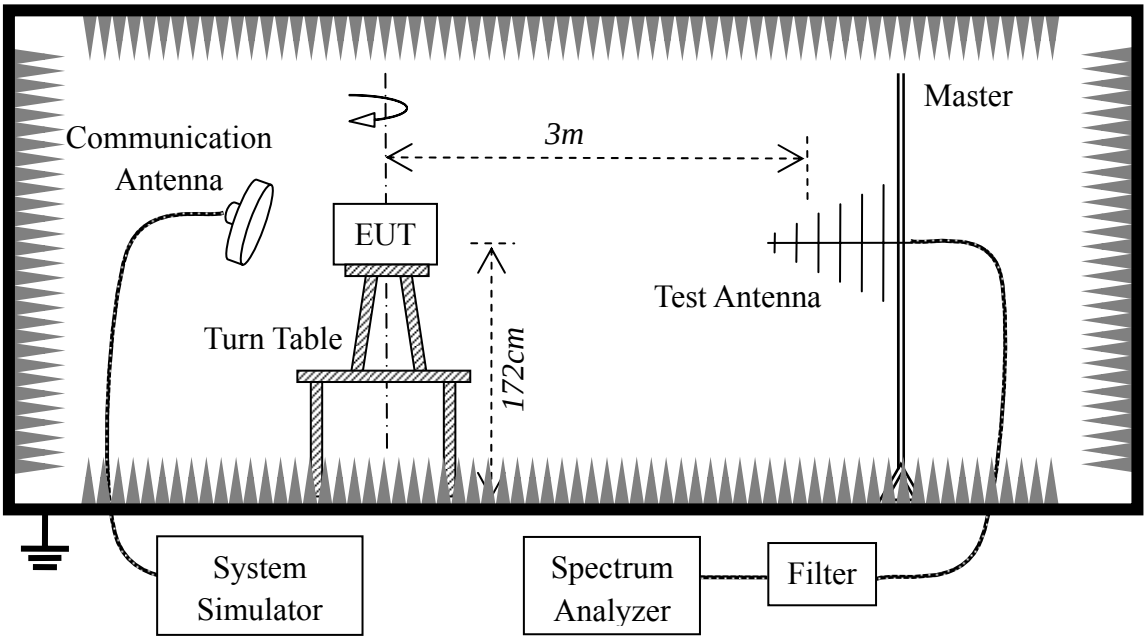
2. Plot when Test Antenna at Vertical Polarization:



4. 47 CFR Part 2, Part 22H Requirements

4.1 General Information

4.1.1 Radiated Power and Spurious Emission Tests



1. The test is performed in a full-Anechoic Chamber; the air loss of the site and the factors of the test system are pre-calibrated using the substitution method.
2. The EUT is configured as MS + Battery.
3. The EUT is placed on the vertical axis of a Turn Table 1.72 meters above the ground.
4. The Test Antenna is a bi-log one or a horn one, and the Test Antenna is at the same height as the EUT.
5. The EUT is commanded via the System Simulator (SS) to operate at the maximum output power. A communication link is established between the EUT and the SS.
6. The Spectrum Analyzer is set to max-peak detector function and maximum hold mode.

4.2 Radiated Spurious Emission

4.2.1 Requirement

According to FCC §22.917(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.

4.2.2 Test Procedure

1. Perform test system setup as section 4.1.1.
2. Make a limit line whose value is -13dBm on the Spectrum Analyzer, and set the RBW of the Spectrum Analyzer to 1MHz.
3. The low, middle and the high channels are selected to perform tests respectively. Set the TCH number to 9 as the low channel.
4. Employ the bi-log Test Antenna as the test system receiving antenna and set the frequency range of the Spectrum Analyzer from 30MHz to 3GHz.
5. The measurement is performed with the Test Antenna at both horizontal and vertical polarization respectively. Set the polarization of the Test Antenna to be horizontal.
6. Actuate the Turn Table to turn from 0 degrees to 360 degrees to find the maximum reading via the Spectrum Analyzer, mark the fundamental frequency and the harmonics thereof, after then record the harmonics and the plot.
7. Set the polarization of the Test Antenna to be vertical, then repeat step 6.
8. Employ the horn Test Antenna as the test system receiving antenna and set the frequency range of the Spectrum Analyzer from 3GHz to 10^{th} harmonic of the fundamental frequency (here used 10GHz), then repeat step 5 to 7.
9. Set the TCH number to 384 as the middle channel, then repeat step 4 to 8.
10. Set the TCH number to 758 as the high channel, then repeat step 4 to 8.

4.2.3 Test Result

4.2.3.1 Table for the Harmonics

NOTE: "---" in the table following means that the emission power was too small to be measured and was at least 12dB below the limit.

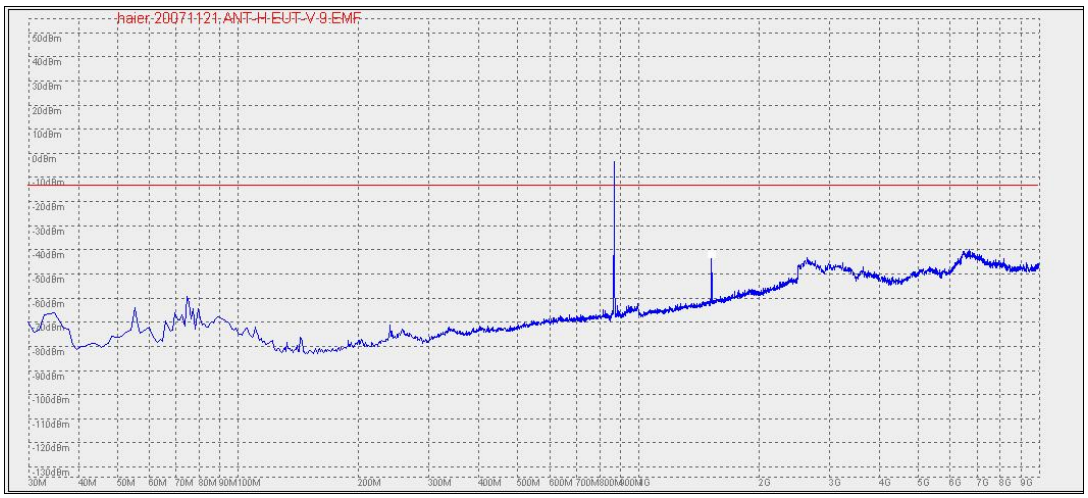
No.	Frequency (MHz)	Emission Power (dBm)	Limit (dBm)

		Test Antenna Vertical	Test Antenna Horizontal	
TCH number set to 9 (825.27MHz)				
1	1650.54	-41.13	-45.03	-13
2	2475.81	---	---	-13
3	3301.08	---	---	-13
4	4126.35	---	---	-13
5	4951.62	---	---	-13
6	5776.89	---	---	-13
7	6602.16	---	---	-13
8	7427.43	---	---	-13
9	8252.70	---	---	-13
TCH number set to 384 (836.52MHz)				
10	1673.04	-41.21	-45.24	-13
11	2509.56	---	---	-13
12	2509.56	---	---	-13
13	3346.08	---	---	-13
14	4182.6	---	---	-13
15	5855.64	---	---	-13
16	6692.16	---	---	-13
17	7528.68	---	---	-13
18	8365.20	---	---	-13
TCH number set to 758 (847.74MHz)				
19	1695.48	-40.75	-45.21	-13
20	2543.22	---	---	-13
21	3390.96	---	---	-13
22	4238.70	---	---	-13
23	5086.44	---	---	-13
24	5934.18	---	---	-13
25	6781.92	---	---	-13
26	7629.66	---	---	-13
27	8477.40	---	---	-13

Test Plot for the Whole Measurement Frequency Range:

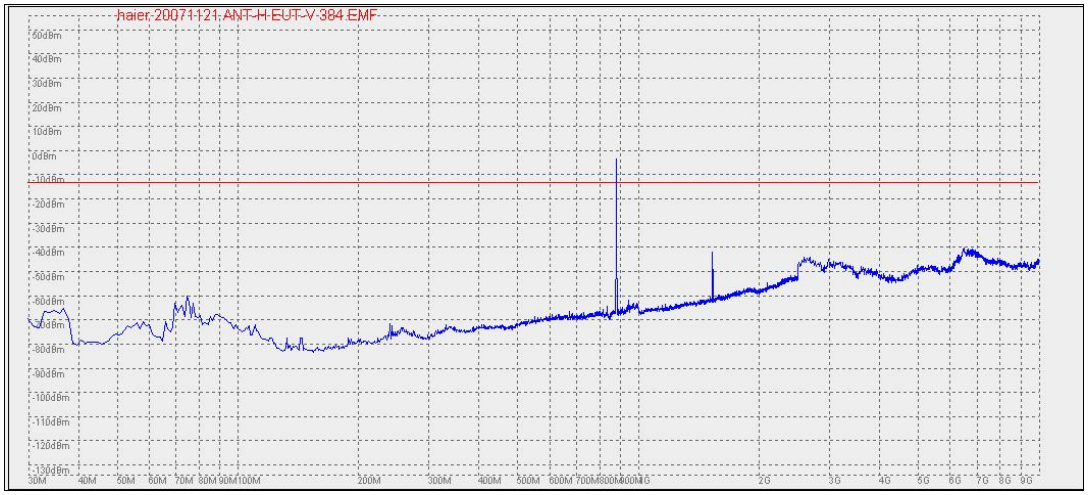
Note: the power of the EUT transmitting frequency should be ignored.

4.2.3.2 Test Plots:

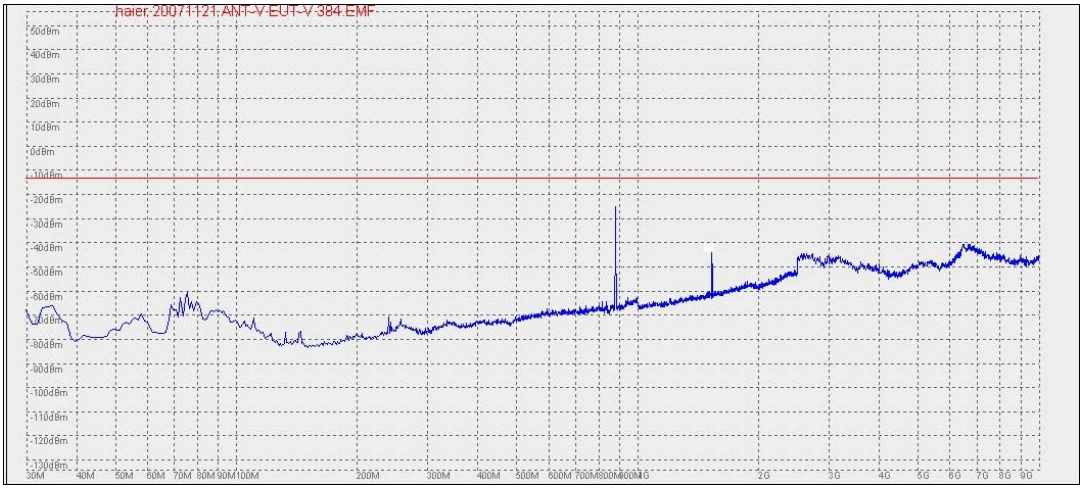


(Plot A.1: Channel = 9, Test Antenna Horizontal)

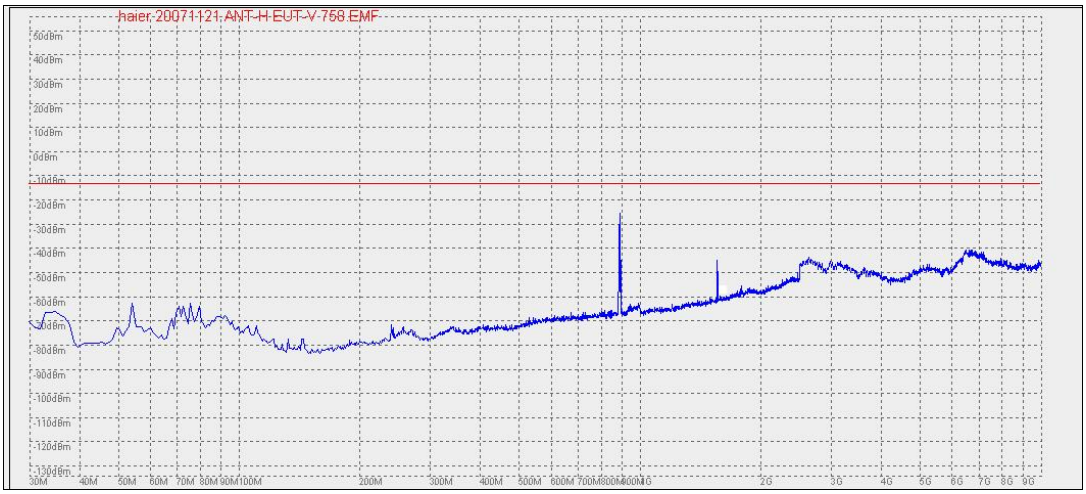
(Plot A.2: Channel = 9, Test Antenna Vertical)



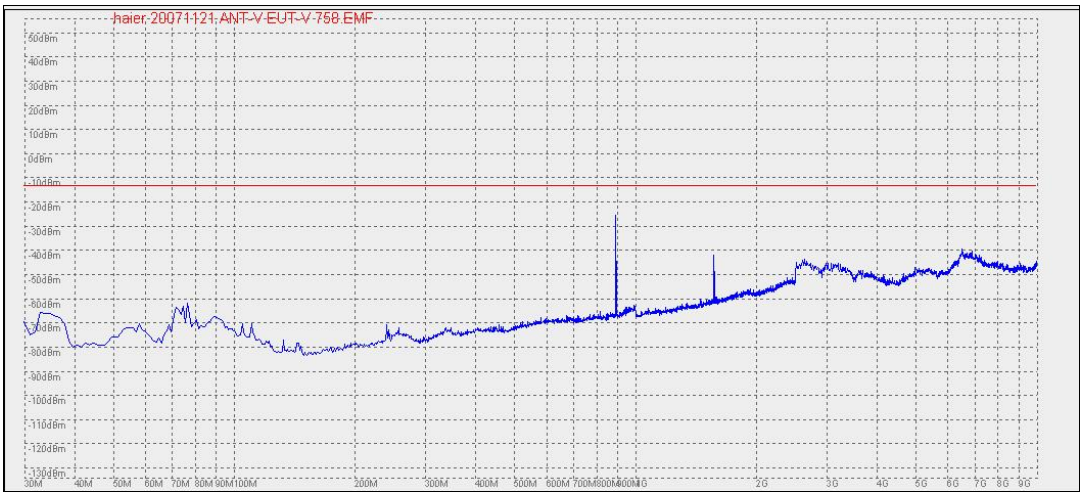
(Plot B.1: Channel = 384, Test Antenna Horizontal)



(Plot B.2: Channel = 384, Test Antenna Vertical)



(Plot C.1: Channel = 758, Test Antenna Horizontal)



(Plot C.2: Channel = 758, Test Antenna Vertical)

4.2.3.3 Test date for the HC-C2001 (HC-C2000) in Report SZ07060050E01

NOTE: "---" in the table following means that the emission power was too small to be measured and was at least 12dB below the limit.

No.	Frequency (MHz)	Emission Power (dBm)		Limit (dBm)
		Test Antenna Vertical	Test Antenna Horizontal	
TCH number set to 9 (825.27MHz)				
1	1650.54	-42.45	-44.65	-13
2	2475.81	---	---	-13
3	3301.08	---	---	-13
4	4126.35	---	---	-13
5	4951.62	---	---	-13
6	5776.89	---	---	-13
7	6602.16	---	---	-13
8	7427.43	---	---	-13
9	8252.70	---	---	-13
TCH number set to 384 (836.52MHz)				
10	1673.04	-42.36	-44.57	-13
11	2509.56	---	---	-13
12	2509.56	---	---	-13
13	3346.08	---	---	-13
14	4182.6	---	---	-13
15	5855.64	---	---	-13
16	6692.16	---	---	-13
17	7528.68	---	---	-13
18	8365.20	---	---	-13
TCH number set to 758 (847.74MHz)				
19	1695.48	-42.06	-44.57	-13
20	2543.22	---	---	-13
21	3390.96	---	---	-13
22	4238.70	---	---	-13
23	5086.44	---	---	-13
24	5934.18	---	---	-13
25	6781.92	---	---	-13
26	7629.66	---	---	-13
27	8477.40	---	---	-13

END OF REPORT