



Report No.:SZ11030003E02

47 CFR PART 15B

TEST REPORT

Issued to

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

For

CDMA 1x mobile phone

Model Name: HC-C53
Brand Name: Haier
FCC ID: SG70121HC-C53
Test Rule: 47 CFR Part 2
47 CFR Part 15 Subpart B
Test date: February 27, 2011 – March 9, 2011

by
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Date 2011.3.10

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Date 2011.3.10

CTIA Authorized Test Lab
LAB CODE 20081223-00
IEEE 1725

OFTA
電訊管理局



GCF
Official Observer of
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Bluetooth
BQTF

FCC
Reg. No.
741109

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Change History		
Issue	Date	Reason for change
1.0	September 20, 2010	First edition

1. General Information

1.1 Equipment under Test (EUT) Description

Description: CDMA 1x mobile phone
Serial No.....: (n.a, marked #1 by test site)
Hardware Version: P0V0
Software Version: C5310-HSP-S001.0-MOVILNET
Modulation: CDMA 1X
Emission Designator.....: 1M25F9W
Frequency: Tx: 1851.25 MHz -1908.75 MHz; Rx: 1931.25 MHz-1988.75 MHz
Manufacturer: Qingdao Haier Telecom Co.,ltd
No.1 Haier Road Hi-tech Zone Qingdao P.R.CHINA
Power Supply:: Battery
Model Name: 423450A
Brand name: BAK
Capacitance: 800mAh
Rated voltage: 3.7V
Manufacturer: ShenZhen BAK Battery CO.,LTD
Manufacturer Address: BAK Industrial Park,Kuichong
Street,Longgang District,Shenzhen
Accessory Equipment:..... AC Adapter (Charger for Battery)
Model Name: H21115
Brand Name: 利顺达
Serial No.: (n.a. marked #1 by test site)
Rated Input: ~ 100-240V, 50- 60Hz, 150mA
Rated Output: = 5.0V, 550mA
Manufacturer: Ningbo Lishunda Electronics Co.,Ltd
Manufacturer Address: No.13 Lishan Guangming Rd.Yuyao City,
Ningbo, Zhejiang, China

NOTE:

1. The EUT is a model of CDMA 1X mobile station operating in 1900 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.

1.2 Test Standards and Results

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

No.	Identity	Document Title
1	47 CFR Part 2 (10-1-09 Edition)	Frequency Allocations and Radio Treaty Matters; General Rules and Regulations
2	47 CFR Part 15 (10-1-09 Edition)	Radio Frequency Devices

Test detailed items and the results are as below:

No.	Rules	Test Type	Result
FCC Part 15 Requirement			
1	§15.107	Conducted Emissions	PASS
2	§15.109	Radiated Emissions	PASS

NOTE:

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

1.3 Facilities and Accreditations

1.3.1 Facilities

Shenzhen Morlab Communications Technology Co., Ltd. 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 L3572..

All measurement facilities used to collect the measurement data are located at 3/F, Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen, 518055 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.

1.3.2 Test Equipments

No.	Description	Specification	Cal. date
1	System Simulator	Manufacturer: Rohde&Schwarz Model No.: CMU200 Serial No.: 100448	2010.09
2	System Simulator	Manufacturer: Agilent Model No.: E5515C Serial No.: GB43130131	2010.09
3	Spectrum Analyzer	Manufacturer: Agilent Model No.: E7405A Serial No.: US44210471	2010.09
4	Telecommunication Antenna	Manufacturer: European Antennas Model No.: PSA-45010R/356 Serial No.: 403688-001	2010.09
5	Trilogy Antenna	Manufacturer: Schwarzbeck Model No.: VULB 9163 Serial No.: 9163-274	2010.09
6	Horn Antenna	Manufacturer: Schwarzbeck Model No.: BBHA 9120C Serial No.: 9120C-384	2010.09
7	Power Splitter	Manufacturer: WEINSCHEL Model No.: 1506A Serial No.: NW521	2010.09
8	Anechoic Chamber	Manufacturer: Albatross Projects GmbH	2010.09
9	DC Power Supply	Manufacturer: Good Will Instrument Co., Ltd.	2010.09
10	Temperature Chamber	Manufacturer: Chongqing YinHe	2010.09

No.	Description	Specification	Cal. date
		Experimental Equip. Co., Ltd.	

NOTE:

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

1.3.3 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

2. 47 CFR Part 15B Requirements

2.1 General Information

2.1.1 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) USB Test Mode

The EUT configuration of the emission tests is TransFlash Card + EUT + Battery + PC.

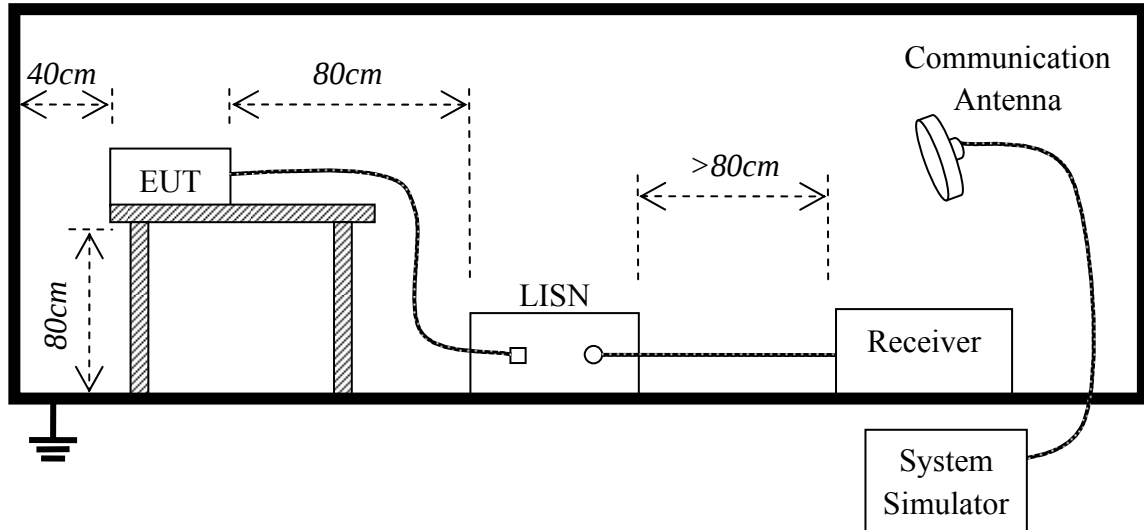
In this test mode, the EUT with a TransFlash Card embedded is connected with a PC via a special USB cable supplied by applicant. During the measurement, a communication link was established between the EUT and a System Simulator (SS), simultaneity, the date is transmitting between the PC and the TransFlash Card of the EUT.

NOTE:

1. All test modes are performed, only the worst cases are recorded in this report.

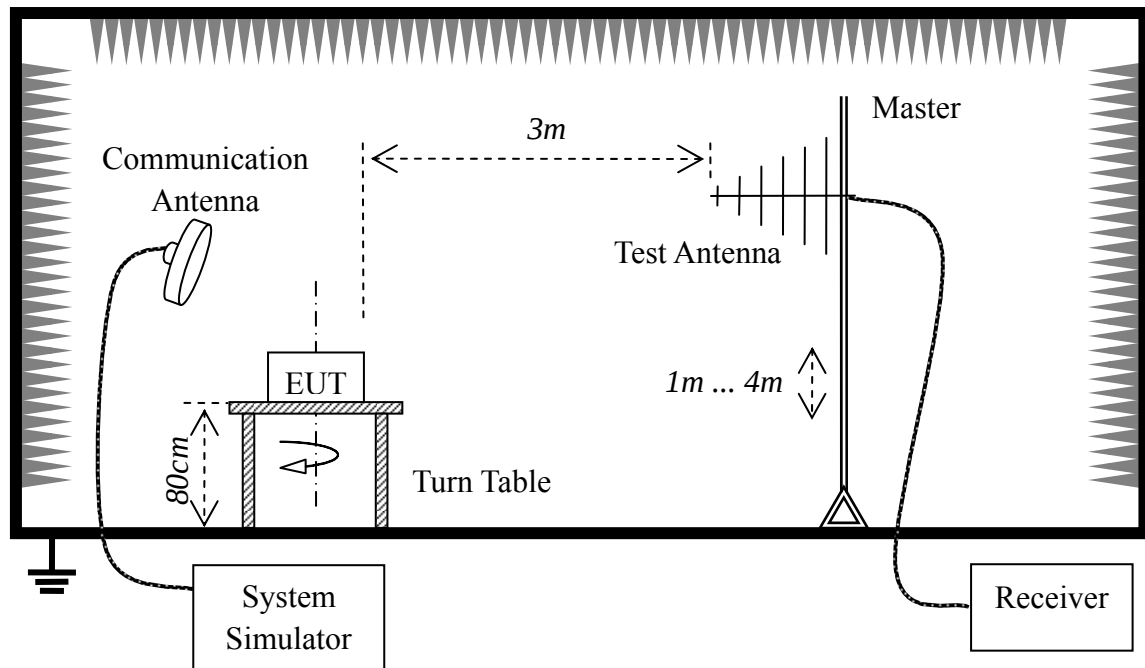
2.1.2 Test Setup

2.1.2.1 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 $50\Omega/50\mu\text{H}$ of coupling impedance for the measuring instrument.

2.1.2.2 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 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.

2.2 Conducted Emission

2.2.1 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 50 μ H/50 Ω line impedance stabilization network (LISN).

Frequency range (MHz)	Conducted Limit (dB μ V)	
	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.

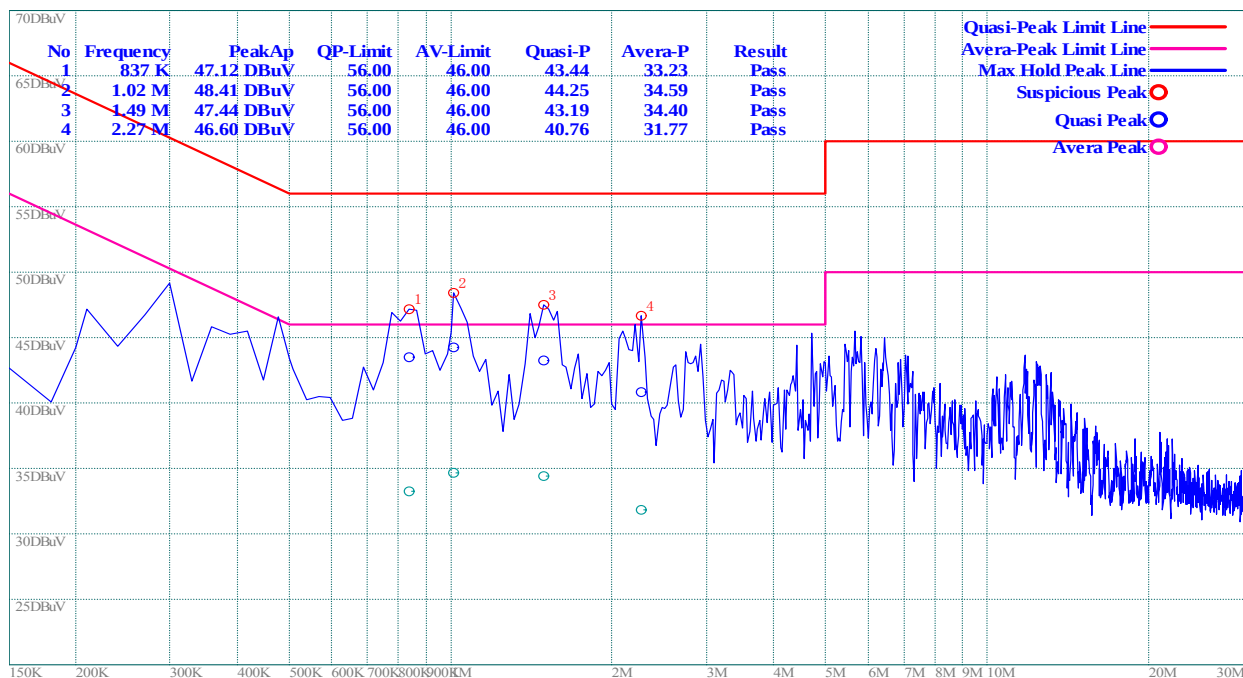
2.2.2 Test Procedure

1. Perform test setup as described in section 2.1.2.1.
2. Each test mode in section 2.1.1 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.

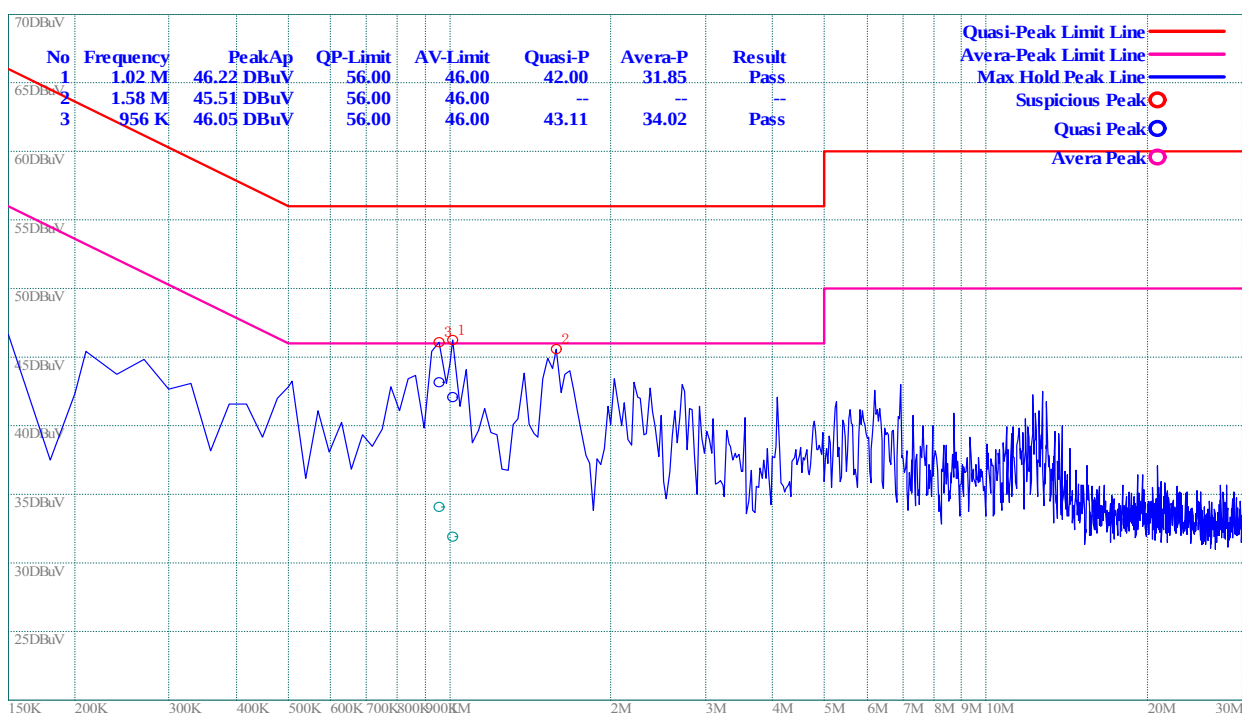
2.2.3 Test Result

(1) Call Mode

A. Test Plots and Suspicious Points:



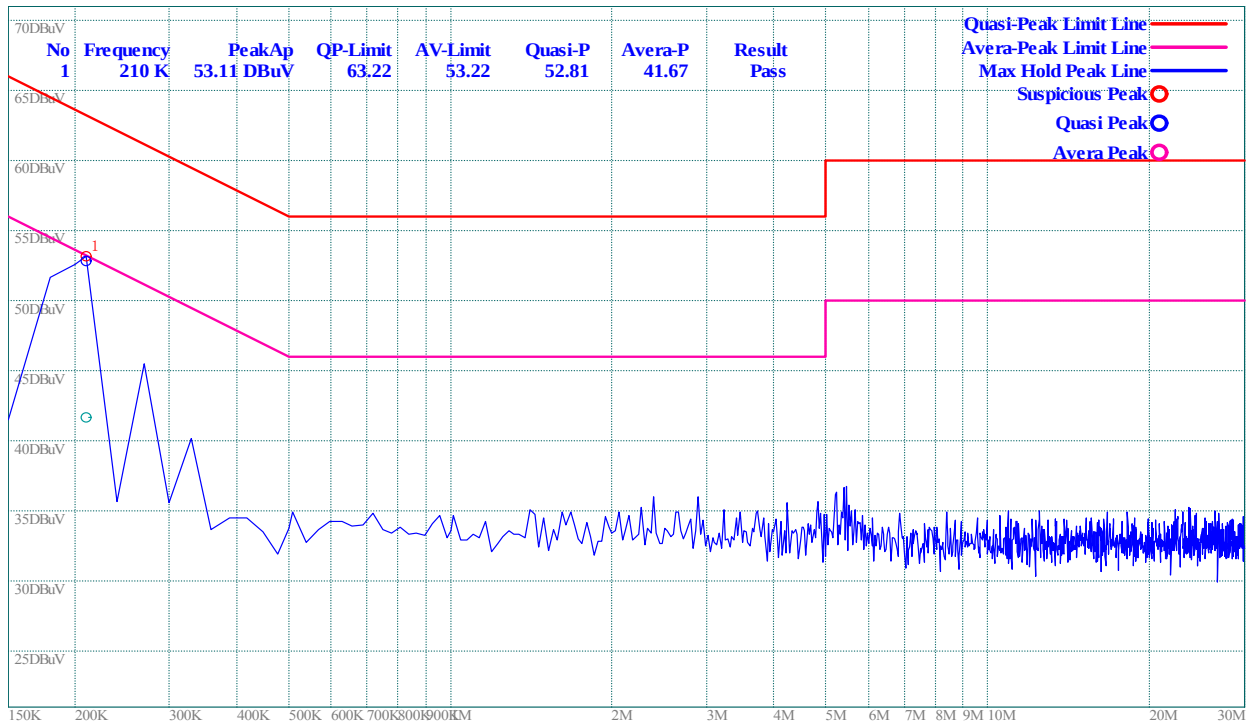
(Plot A: L Phase)



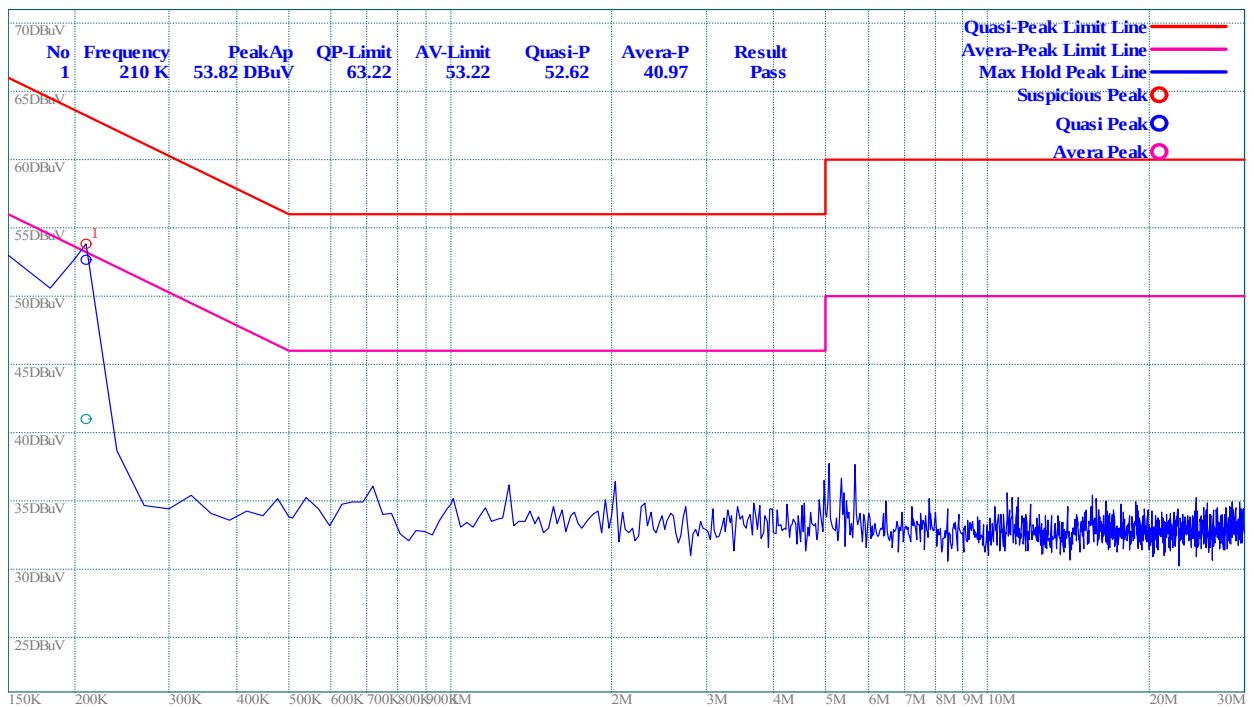
(Plot B: N Phase)

(2) USB Mode

A. Test Plots and Suspicious Points:



(Plot A: L Phase)



(Plot A: N Phase)

2.3 Radiated Emission

2.3.1 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	
	$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
30 - 88	100	40
88 - 216	150	43.5
216 - 960	200	46
Above 960	500	54

NOTE:

1. Field Strength ($\text{dB}\mu\text{V/m}$) = $20 \cdot \log[\text{Field Strength } (\mu\text{V/m})]$.
2. In the emission tables above, the tighter limit applies at the band edges.

2.3.2 Test Procedure

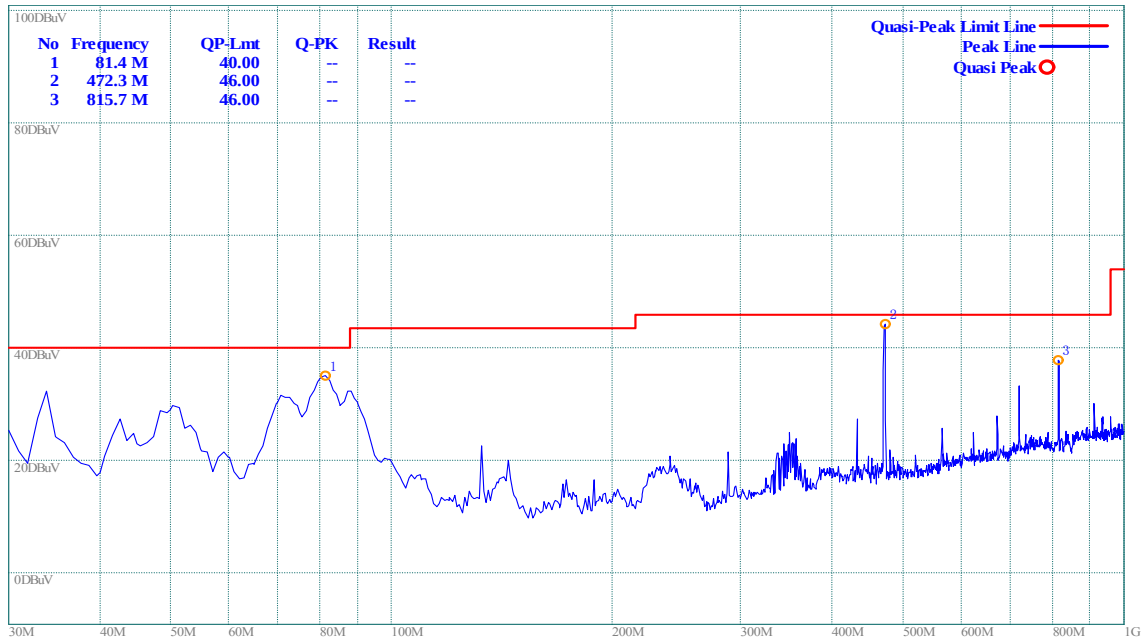
1. Perform test setup as described in section 2.1.2.2.
2. Each test mode in section 2.1.1 should be applied. At each test mode, the Turn Table turns from 0 degrees to 360 degrees to find the maximum reading; for the suspected points, the Test Antenna varies from 1 meter to 4 meters to determine the maximum 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.

2.3.3 Test Result

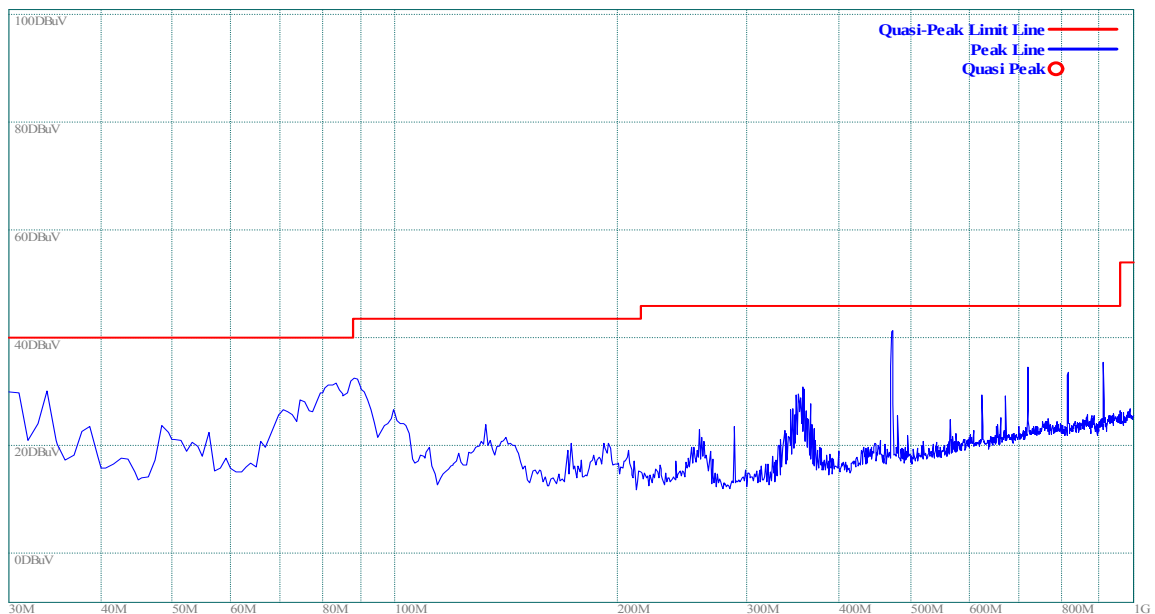
(1) Call Mode

A. Test Plots and Suspicious Points:

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.



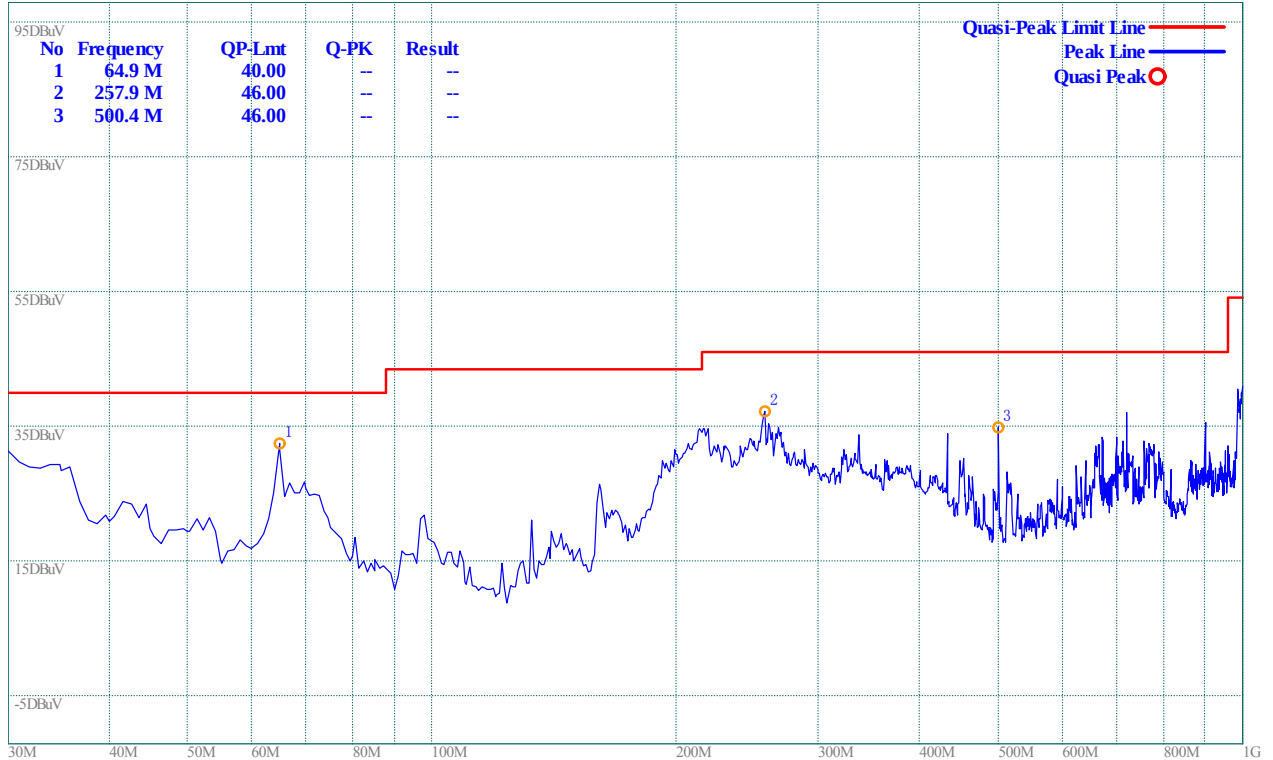
(Plot A: Test Antenna Vertical)



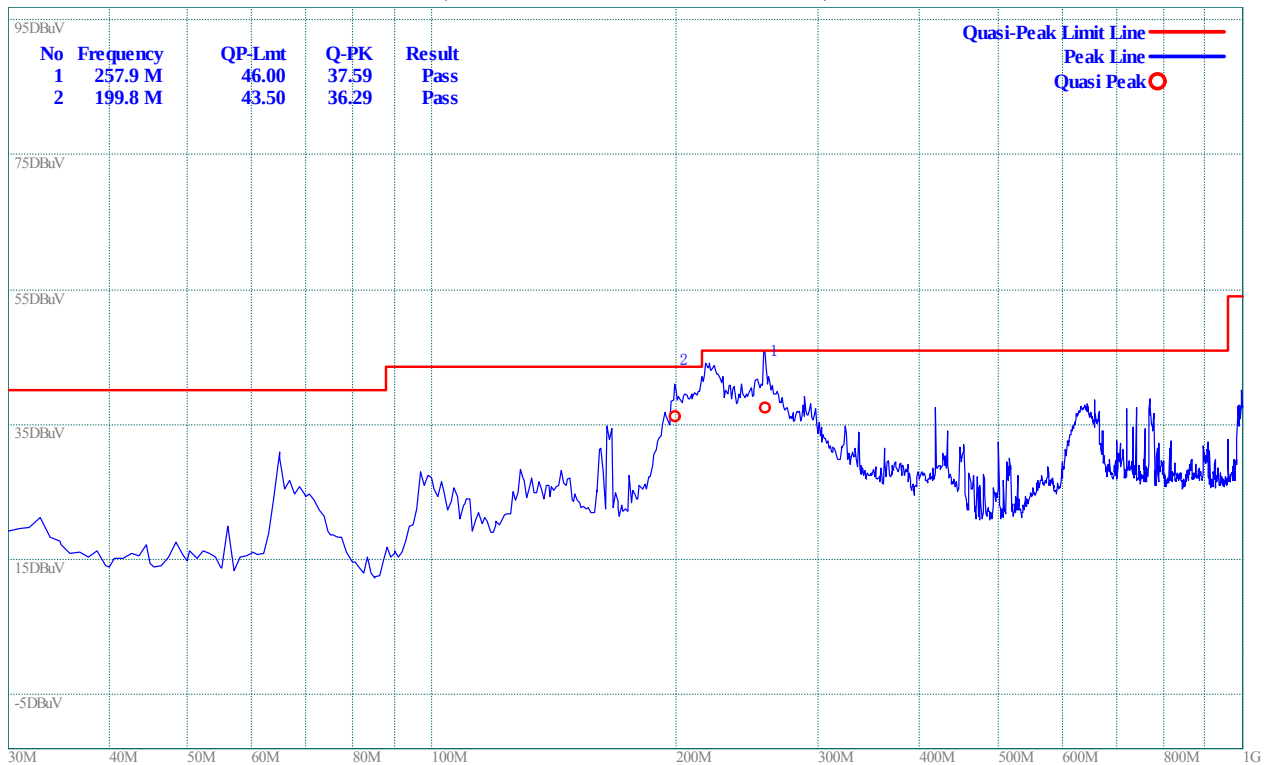
(Plot B: Test Antenna Horizontal)

(2)USB Mode

A. Test Plots and Suspicious Points:



(Plot A: Test Antenna Vertical)



(Plot B: Test Antenna Horizontal)

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