47 CFR PART 15B

TEST REPORT

Of

3G QWERTY HAC Compatible Bar wireless phone

Trade Name: S810
Brand Name: Verykool
Model Name: S810
Report No.: SZ10070019E01
FCC ID.: WA6S810

prepared for

Verykool USA Inc
4350 Executive Dr. #100, San Diego, CA 92121

prepared by

Shenzhen Morlab Communications Technology Co., Ltd.
Morlab Laboratory
3/F, Electronic Testing Building, Shahe Road, Xili,
Nanshan District, Shenzhen, 518055 P. R. China
Tel: +86 755 86130398
Fax: +86 755 86130218

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Change History		
Issue	Date	Reason for change
1.0	September 25, 2010	First edition

1. TEST CERTIFICATION

Equipment under Test:	3G QWERTY HAC Compatible Bar wireless phone
Trade Name:	S810
Brand Name:	Verykool
Model Name:	S810
FCC ID:	WA6S810
Applicant:	Verykool USA Inc 4350 Executive Dr. #100, San Diego, CA 92121
Manufacturer:	Verykool Wireless Technology Ltd. Room 1701, Reward Building C, No.203, 2nd Section of WangJing, Li Ze Zhong Yuan, ChaoYang District, Beijing, P.R. of China 100102
Emission Designator	300KGXW/4M20F9W
Test Standards:	47 CFR Part 15 Subpart B
Test Date(s):	August 31, 2010 – September 10, 2010
Test Result:	PASS

*** We Hereby Certify That:**

The equipment under test was tested by Shenzhen Morlab Communications Technology Co., Ltd. Morlab Laboratory. 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: Tian Junjie Dated: 2010.9.25
Tian Junjie

Reviewed by: Ni Yong Dated: 2010.09.25
Ni Yong

Approved by: Shu Luan Dated: 2010.9.25
Shu Luan

2. GENERAL INFORMATION

2.1 EUT Description

EUT Type ..... 3G QWERTY HAC Compatible Bar wireless phone
Model Name..... S810
Serial No. ..... (n.a, marked #1 by test site)
Hardware Version..... P1.2
Software Version ..... S810_0031
Modulation Type GMSK/8PSK/WCDMA/FHSS
Power Supply ..... Battery
Model Name: H12M20902-7260
Brand name: BAK
Capacitance: 1000mAh
Rated voltage: 3.7V
Manufacturer: Shenzhen BAK Battery Co., Ltd
Manufacturer Address: BAK INDUSTRIAL ZONE KUICHONG ST LONGGANG DISTRICT SHENZHEN, GUANGDONG, CHINA
Ancillary Equipment 1 .... AC Adapter (Charger for Battery)
Model Name: ETPCA-050050UYU7
Brand Name: Tech-Power
Serial No.: (n.a. marked #1 by test site)
Rated Input: ~ 47- 63Hz, Max4W
Rated Output: ⎓ Max 2.75W
Manufacturer: TECH-POWER INTERNATIONAL CO., LTD
Manufacturer Address: NO 16, Longwangmiao Industry Zone，Baishixia, Fuyong Town, Bao'an, Shenzhen, China

Note 1: The EUT is a 3G QWERTY HAC Compatible Bar wireless phone; it supports GSM 850MHz, 1900MHz, GPRS, EDGE, WCDMA850, WCDMA1900, HSDP and ISM 2.4GHz Bluetooth module.

Note 2: The EUT is equipped with a T-Flash card slot; equipped with a special port which can be connected to the ancillary equipments supplied by the manufacturer e.g. the AC Adapter and the USB Adapter Cable.

Note 3: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

2.2 Test Standards and Results

The objective of the report is to perform testing according to 47 CFR Part 15 Subpart B:

No.	Identity	Document Title
1	47 CFR Part 15 (10-1-09 Edition)	Radio Frequency Devices

Test detailed items/section required by FCC rules and results are as below:

No.	Section	Description	Result
1	15.107	Conducted Emission	PASS
2	15.109	Radiated Emission	PASS

NOTE:

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

2.3 Facilities and Accreditations

2.3.1 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 test site is 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 Environment Conditions

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

Temperature (℃):	15 - 35
Relative Humidity (%):	30 -60
Atmospheric Pressure (kPa):	86-106

2.3.3 Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the "Guide to the Expression of Uncertainty in Measurement" (GUM) published by ISO.

Uncertainty of Conducted Emission:	±1.8dB
Uncertainty of Radiated Emission:	±3.1dB

3. TEST CONDITIONS SETTING

3.1 Test Mode

1. GSM Test Mode

(1) The first test mode (GSM850 with Bluetooth earphone)

The EUT configuration of the emission tests is EUT + Battery + Charger+ Bluetooth earphone.

During the measurement of Traffic operating mode, a communication link was established between the EUT and a System Simulator (SS). The EUT operated at GSM 850MHz mid ARFCN (190) and maximum output power (level 5).

A communication link was established between the EUT and the Bluetooth earphone, and maintained until test end.

(2) The second test mode (GSM850)

The EUT configuration of the emission tests is EUT + Battery + Charger.

During the measurement of Traffic operating mode, a communication link was established between the EUT and a System Simulator (SS). The EUT operated at GSM 850MHz mid ARFCN (190) and maximum output power (level 5).

(3) The third test mode (GPRS- GSM850)

The EUT configuration of the emission tests is EUT + Battery + Charger.

In this test mode, a GPRS link was established between the EUT and a System Simulator (SS); date was transmitted between EUT and System Simulator (SS), and maintained during the measurement.

(4) The fourth test mode (EDGE- GSM850)

The EUT configuration of the emission tests is EUT + Battery + Charger.

In this test mode, a EDGE link was established between the EUT and a System Simulator (SS); date was transmitted between EUT and System Simulator (SS), and maintained during the measurement.

(5) The fifth test mode (GSM1900 with Bluetooth earphone)

The EUT configuration of the emission tests is EUT + Battery + Charger+ Bluetooth earphone.

During the measurement of Traffic operating mode, a communication link was established between the EUT and a System Simulator (SS). The EUT operated at GSM 1900MHz mid ARFCN (661) and maximum output power (level 5).

A communication link was established between the EUT and the Bluetooth earphone, and maintained until test end.

(6) The sixth test mode (GSM1900)

The EUT configuration of the emission tests is EUT + Battery + Charger.

During the measurement of Traffic operating mode, a communication link was established between the EUT and a System Simulator (SS). The EUT operated at GSM 1900MHz mid

ARFCN (661) and maximum output power (level 0).

(7) The seventh test mode (GPRS- GSM1900)

The EUT configuration of the emission tests is EUT + Battery + Charger.

In this test mode, a GPRS link was established between the EUT and a System Simulator (SS); date was transmitted between EUT and System Simulator (SS), and maintained during the measurement.

(8) The eighth test mode (EDGE- GSM1900)

The EUT configuration of the emission tests is EUT + Battery + Charger.

In this test mode, a EDGE link was established between the EUT and a System Simulator (SS); date was transmitted between EUT and System Simulator (SS), and maintained during the measurement.

(9) The ninth test mode (Idle)

The EUT configuration of the emission tests is EUT + Battery + Charger.

During the test, The EUT was synchronized to the BCCH, listening to the CCCH and able to respond to paging message. Periodic location updating was disabled.

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

2. WCDMA Test Mode

(1) The first test mode (WCDMA-850MHz)

The EUT configuration of the emission tests is EUT + Battery + Charger.

During the measurement of Traffic operating mode, a communication link was established between the EUT and a System Simulator (SS). The EUT operated at WCDMA 850MHz mid channel (4175) and maximum output power.

(2) The second test mode (850MHz-HSDPA)

The EUT configuration of the emission tests is EUT + Battery + Charger.

In this test mode, a HSDPA link was established between the EUT and a System Simulator (SS); date was transmitted between EUT and System Simulator (SS), and maintained during the measurement.

(3) The third test mode (WCDMA-1900MHz)

The EUT configuration of the emission tests is EUT + Battery + Charger.

During the measurement of Traffic operating mode, a communication link was established between the EUT and a System Simulator (SS). The EUT operated at WCDMA 1900MHz mid channel (9400) and maximum output power.

(4) The fourth test mode (1900MHz-HSDPA)

The EUT configuration of the emission tests is EUT + Battery + Charger.

In this test mode, a HSDPA link was established between the EUT and a System Simulator (SS); date was transmitted between EUT and System Simulator (SS), and maintained during the measurement.

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

3. USB Test Mode

(1) The first test mode (USB)

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

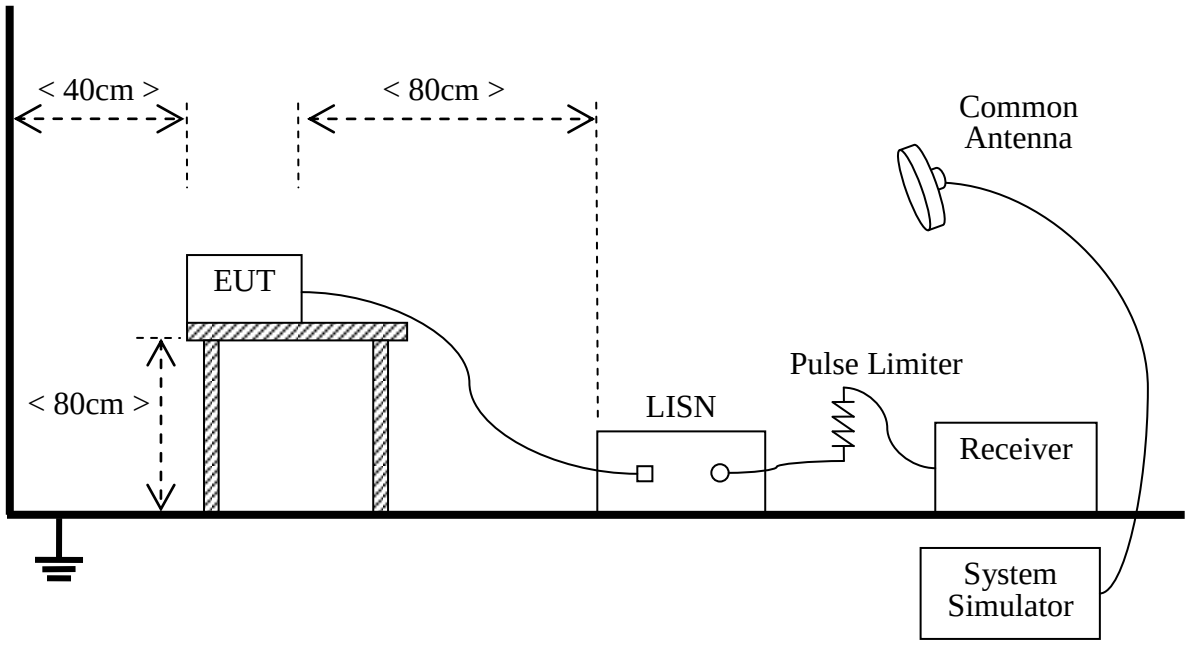
In this test mode, the EUT with a TransFlash Card embedded is connected with a PC via a special USB cable supplied by applicant. During the measurement, a communication link was established between the EUT and a System Simulator (SS), simultaneity, the date is transmitting between the PC and the TransFlash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

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

3.2 Test Setup and Equipments List

3.2.1 Conducted Emission

Test Setup:



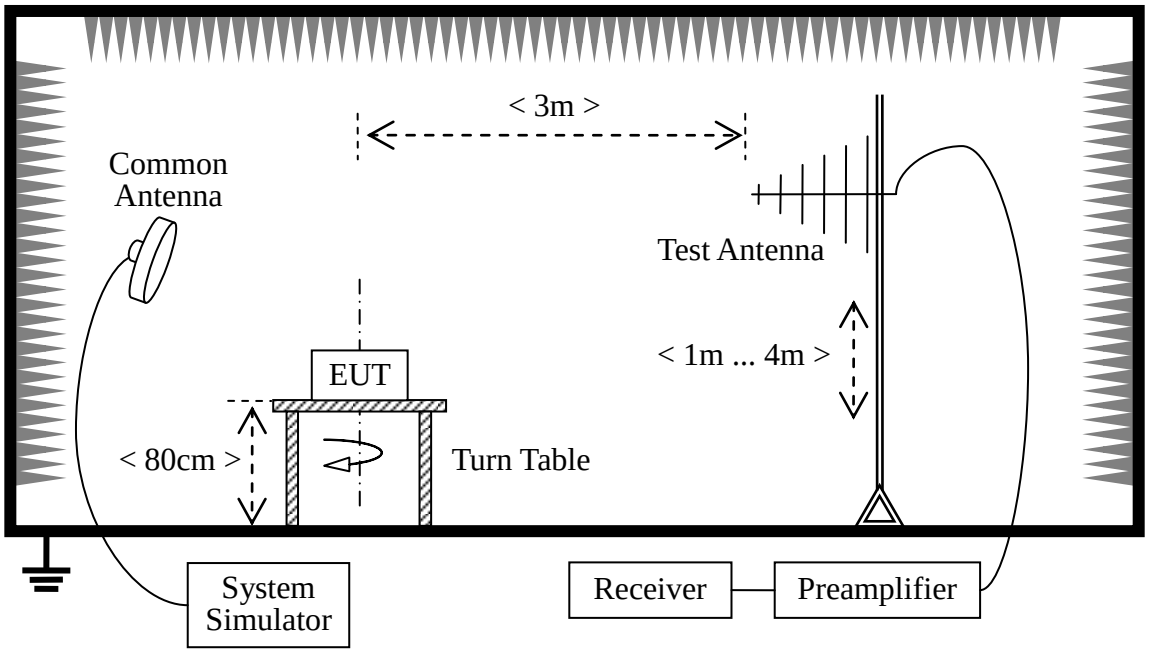
The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides 50Ω/50μH of coupling impedance for the measuring instrument. The Common Antenna is used for the call between the EUT and the System Simulator (SS). A Pulse Limiter is used to protect the measuring instrument. The factors of the whole test system are calibrated to correct the reading.

Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Receiver	Agilent	E7405A	US44210471	2009.09	1year
LISN	Schwarzbeck	NSLK 8127	812744	2009.09	1year
Pulse Limiter (20dB)	Schwarzbeck	VTSD 9561-D	9391	(n.a.)	(n.a.)
System Simulator	Agilent	E5515C	GB43130131	2009.09	1year
Personal Computer	IBM	IBM_T20	(n.a)	(n.a.)	(n.a.)
Bluetooth-Headset	Nokia	HS-36W	(n.a.)	(n.a.)	(n.a.)
T-Flash Card	SanDisk	256MB	(n.a.)	(n.a.)	(n.a.)

3.2.2 Radiated Emission

A. Test Setup:



The test is performed in a 3m Semi-Anechoic Chamber; the antenna factor, cable loss and so on of the site (factors) is calculated to correct the reading. The EUT is placed on a 0.8m high insulating Turn Table, and keeps 3m away from the Test Antenna, which is mounted on a variable-height antenna master tower. The Common Antenna is used for the call between the EUT and the System Simulator (SS).

Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Receiver	Agilent	E7405A	US44210471	2009.09	1year
Semi-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2009.09	2year
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2009.09	1year
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2009.09	1year
System Simulator	Agilent	E5515C	GB43130131	2009.09	1year
Personal Computer	IBM	IBM_T20	(n.a)	(n.a.)	(n.a.)
Bluetooth-Headset	Nokia	HS-36W	(n.a.)	(n.a.)	(n.a.)
T-Flash Card	SanDisk	256MB	(n.a.)	(n.a.)	(n.a.)

4. 47 CFR PART 15B REQUIREMENTS

4.1 Conducted Emission

4.1.1 Requirement

According to FCC section 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:

a) The limit subjects to the Class B digital device.

b) The lower limit shall apply at the band edges.

c) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50MHz.

4.1.2 Test Description

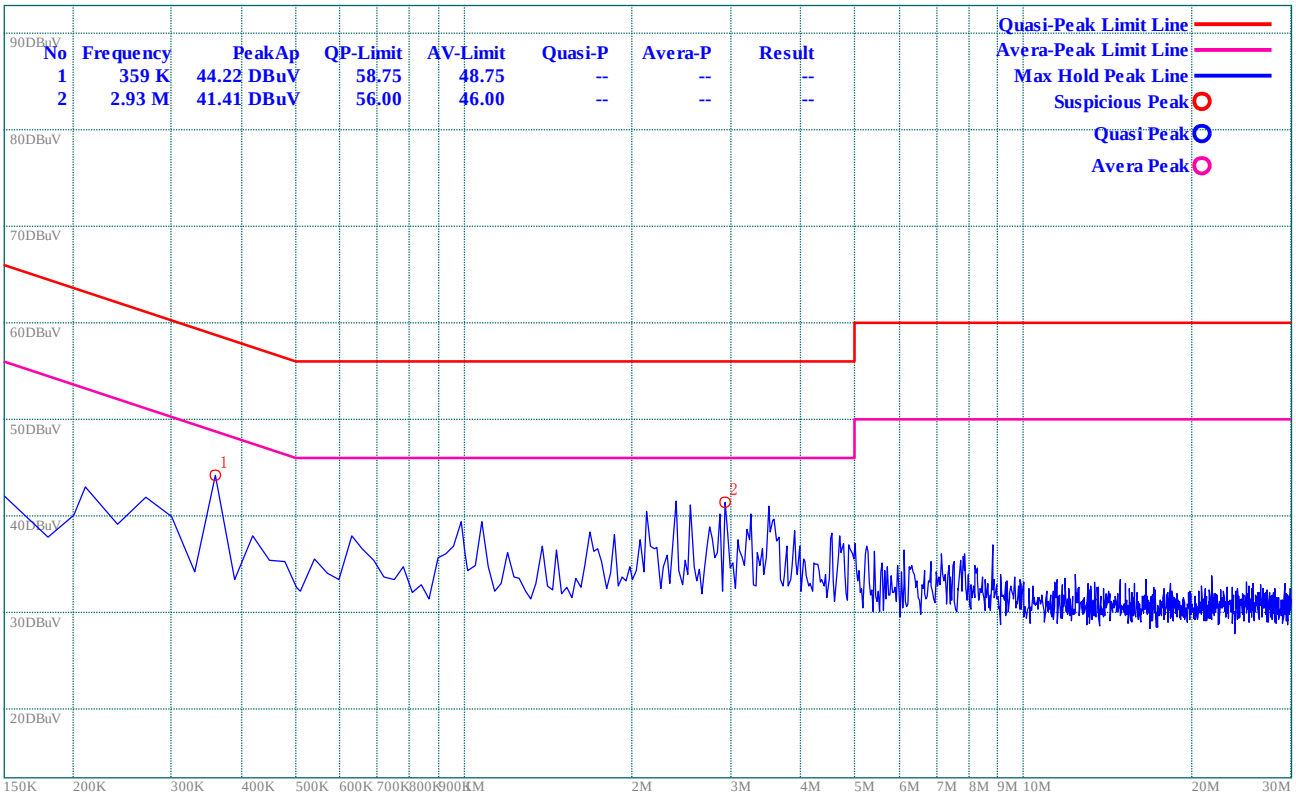
See section 3.2.1 of this report.

4.1.3 Test Result

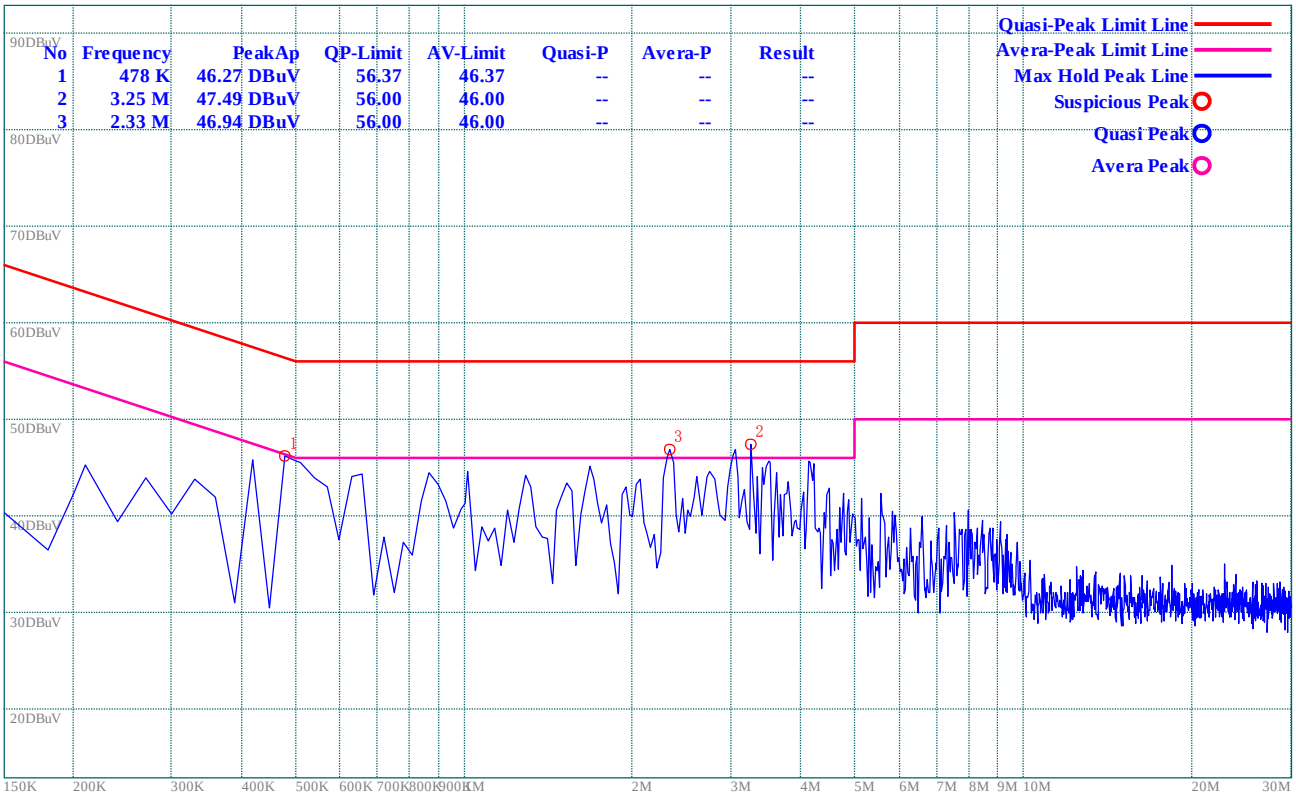
The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed. All test modes are considered, refer to recorded points and plots below.

4.1.3.1 Traffic Test Mode

A. Test Plot and Suspicious Points:



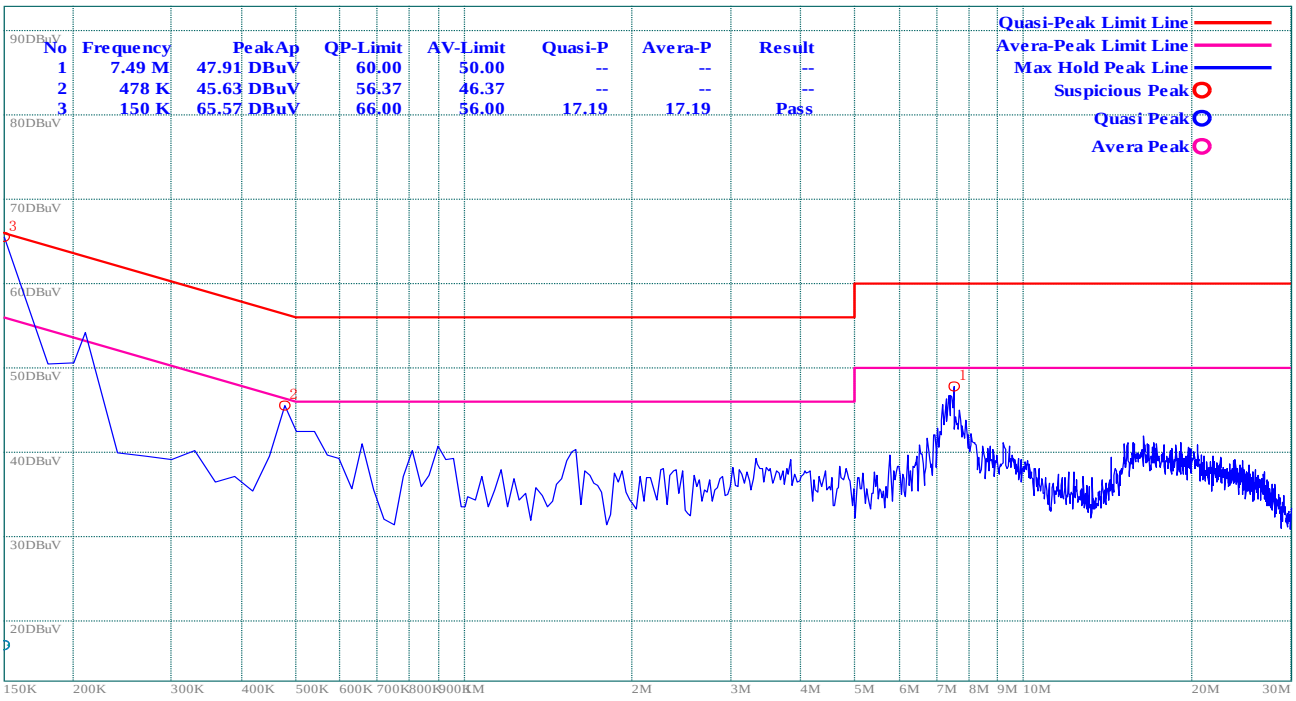
(Plot A: L Phase)



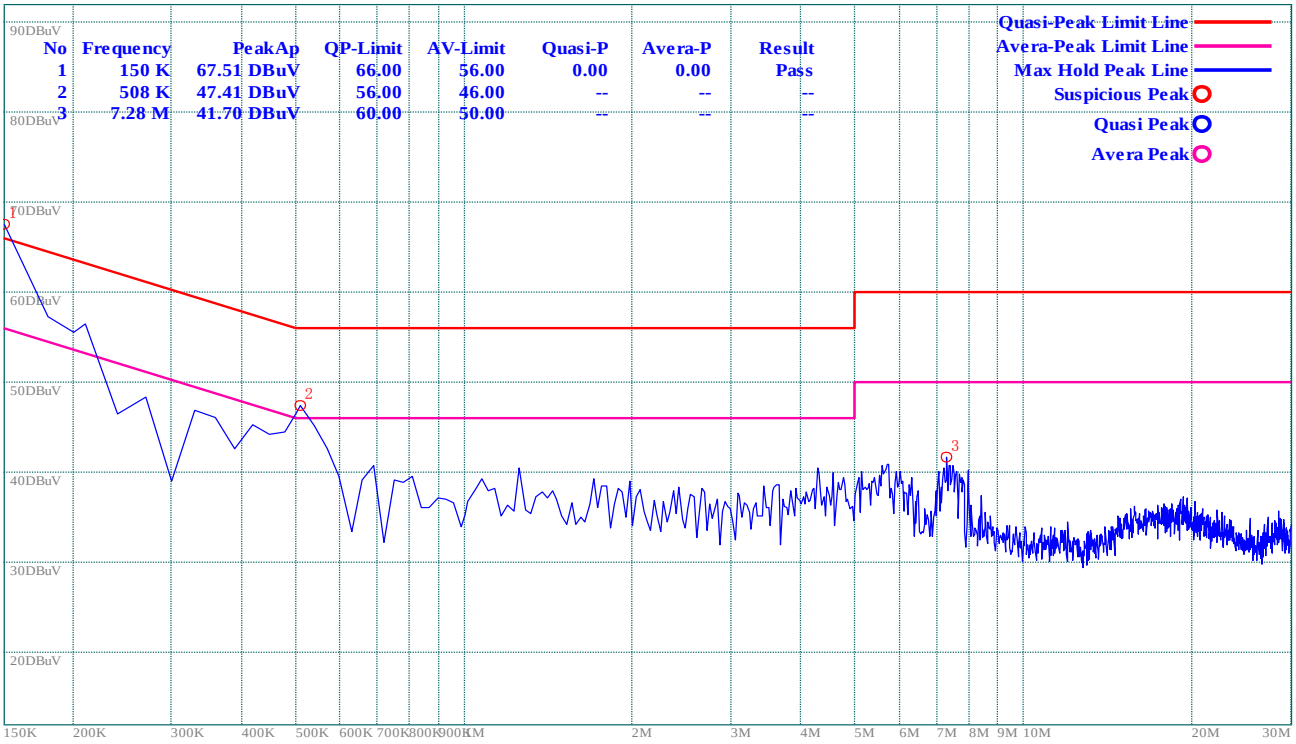
(Plot B: N Phase)

4.1.3.3 USB Test Mode

A. Test Plot and Suspicious Points:



(Plot A: L Phase)



(Plot B: N Phase)

4.2 Radiated Emission

4.2.1 Requirement

According to FCC section 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:

a) Field Strength (dBμV/m) = 20*log[Field Strength (μV/m)].

b) In the emission tables above, the tighter limit applies at the band edges.

4.2.2 Test Description

See section 3.2.2 of this report.

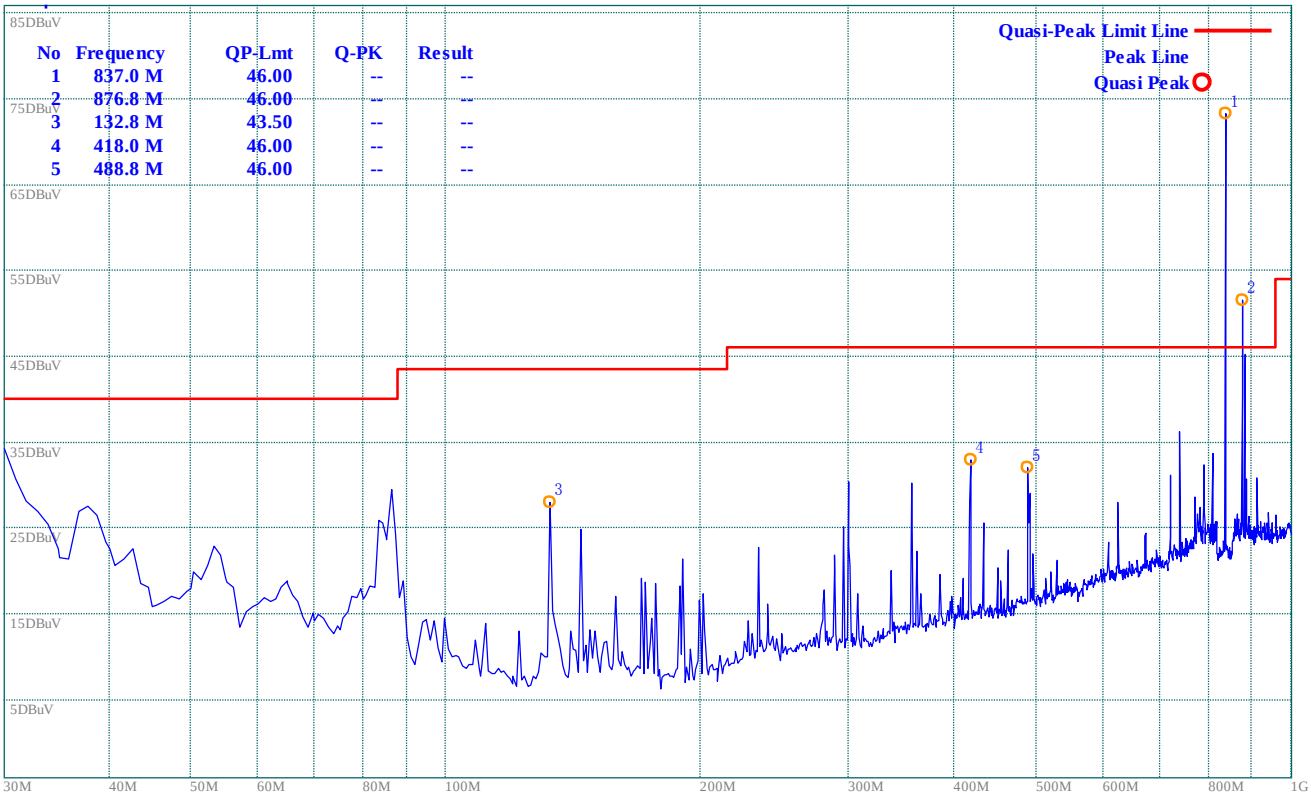
4.2.3 Test Result

The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform the tests. All test modes are considered, refer to recorded points and plots below.

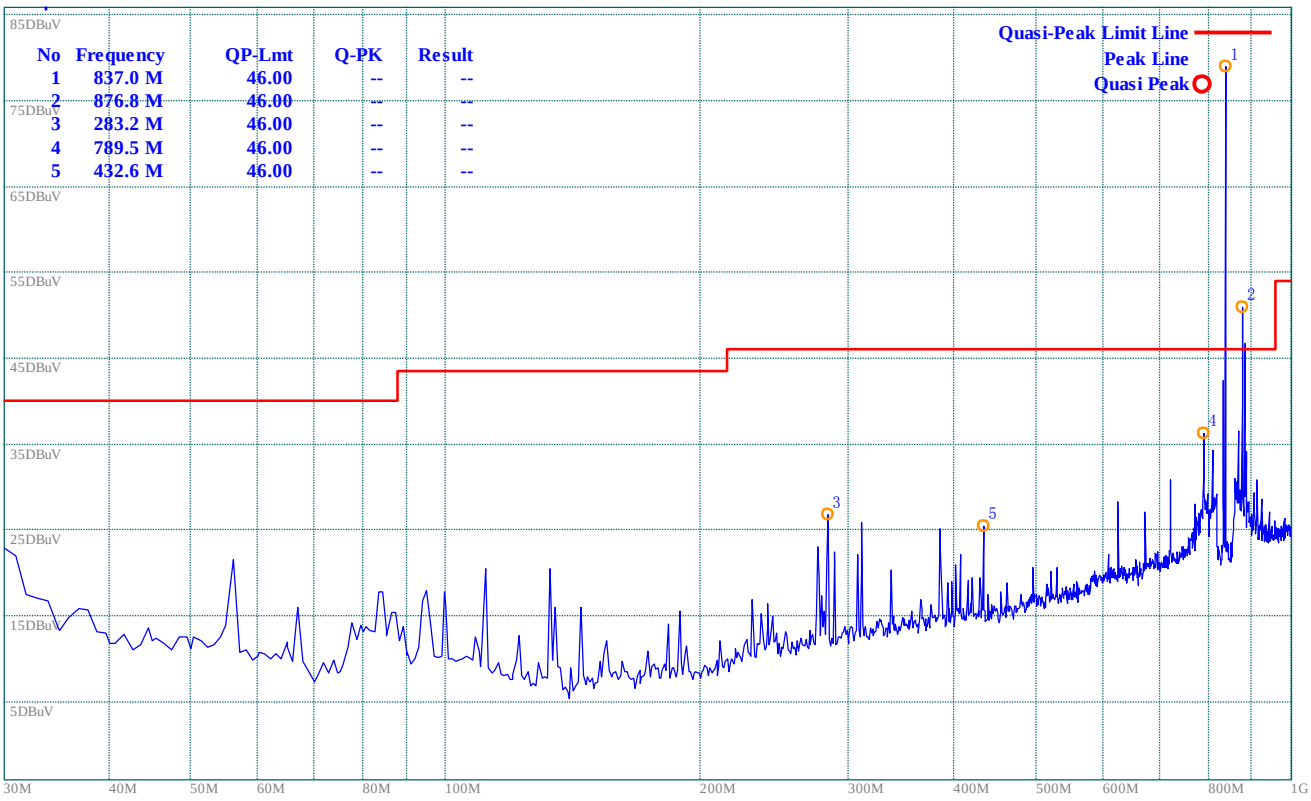
4.2.3.1 GSM Test Mode

A. Test Plot and Suspicious Points:

Note: Following is the plots for emission measurement; please note that marked spikes near 850MHz with circle should be ignored because they are MS and SS carrier frequency.



(Plot A: Test Antenna Vertical)

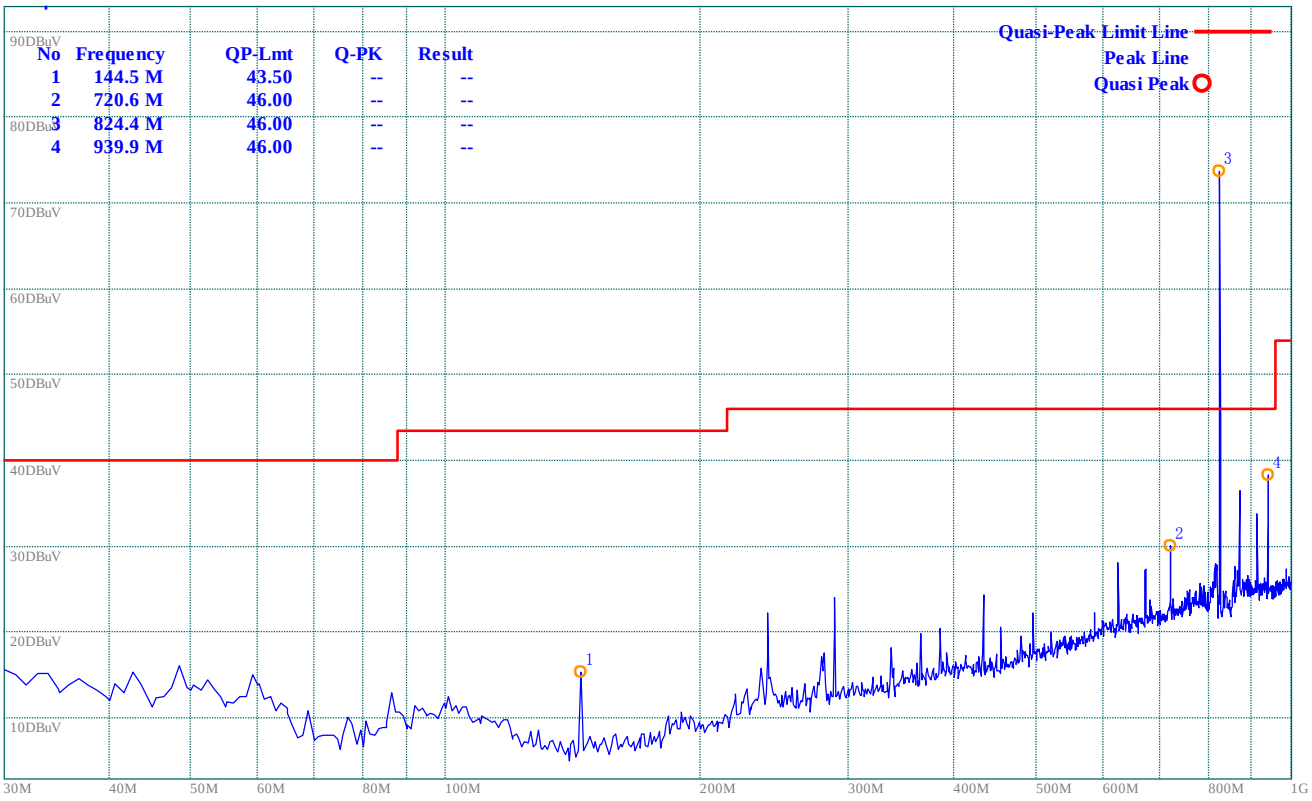


(Plot B: Test Antenna Horizontal)

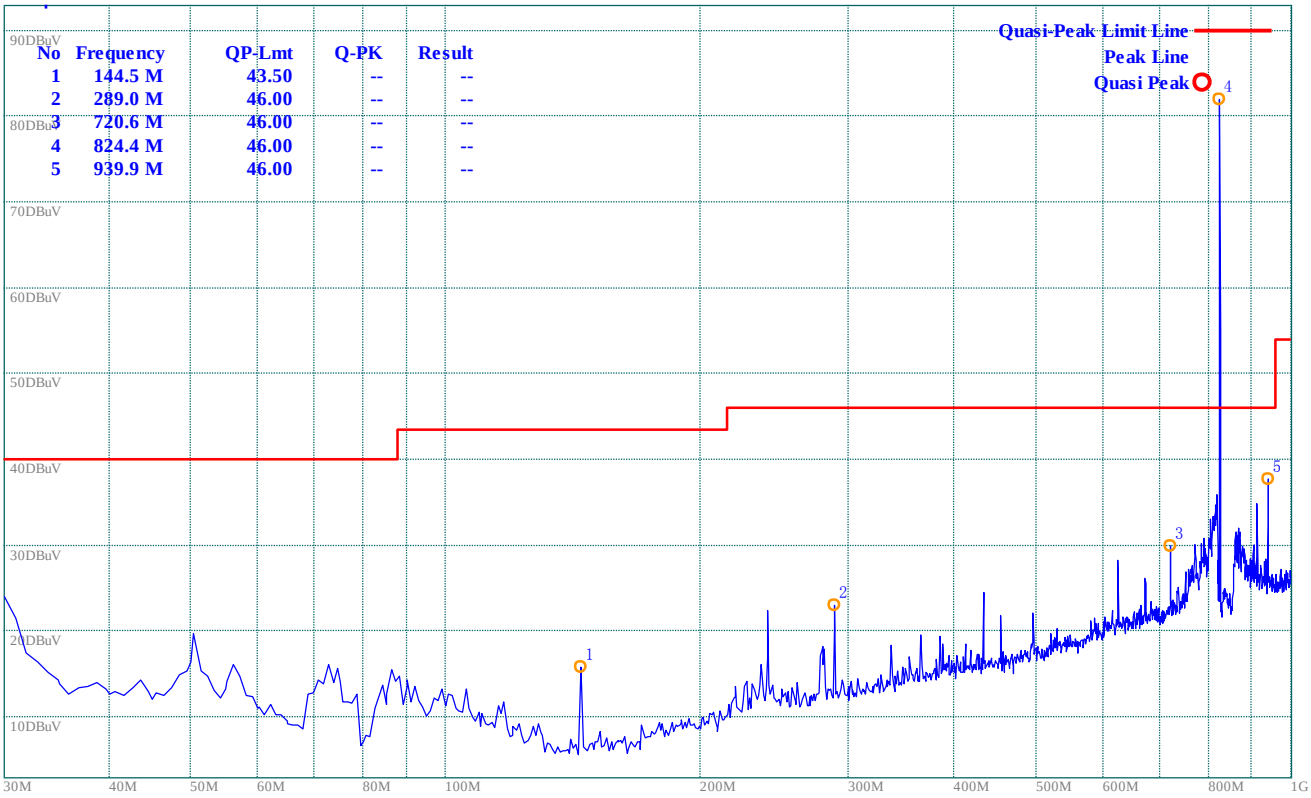
4.2.3.2 WCDMA Test Mode

B. Test Plot and Suspicious Points:

Note: Following is the plots for emission measurement; please note that marked spikes near 850MHz with circle should be ignored because they are MS and SS carrier frequency.

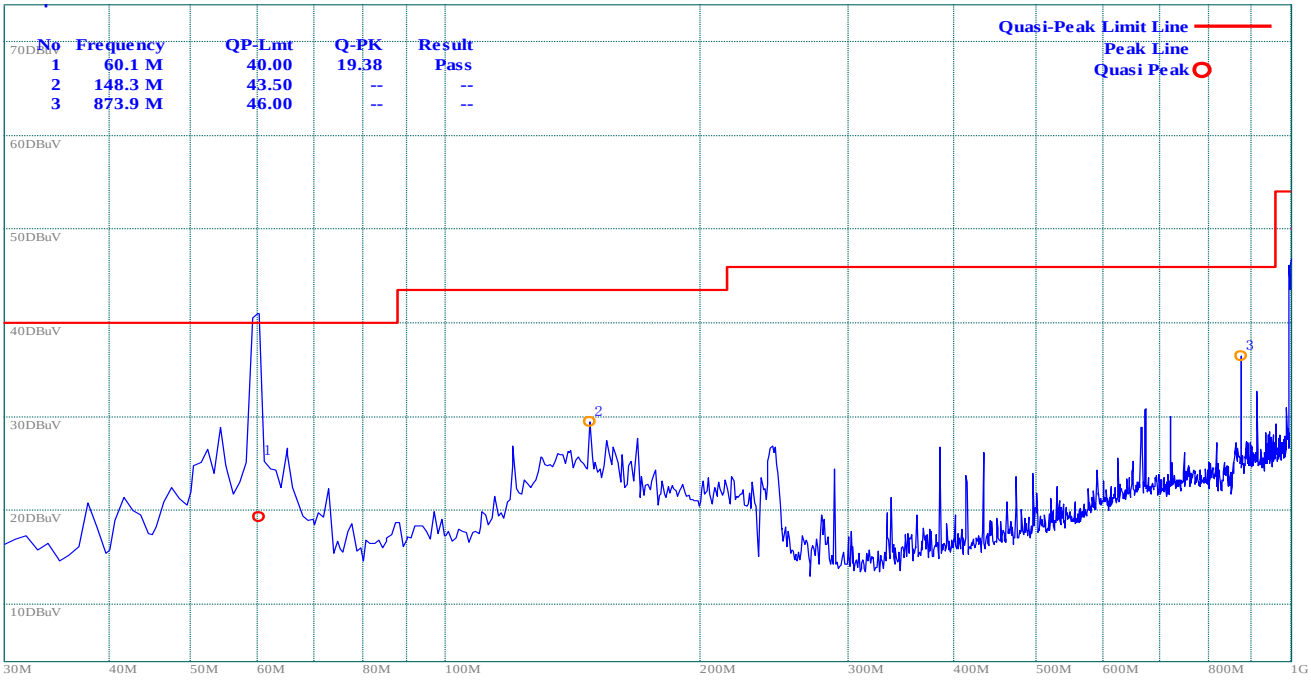


(Plot A: Test Antenna Vertical)

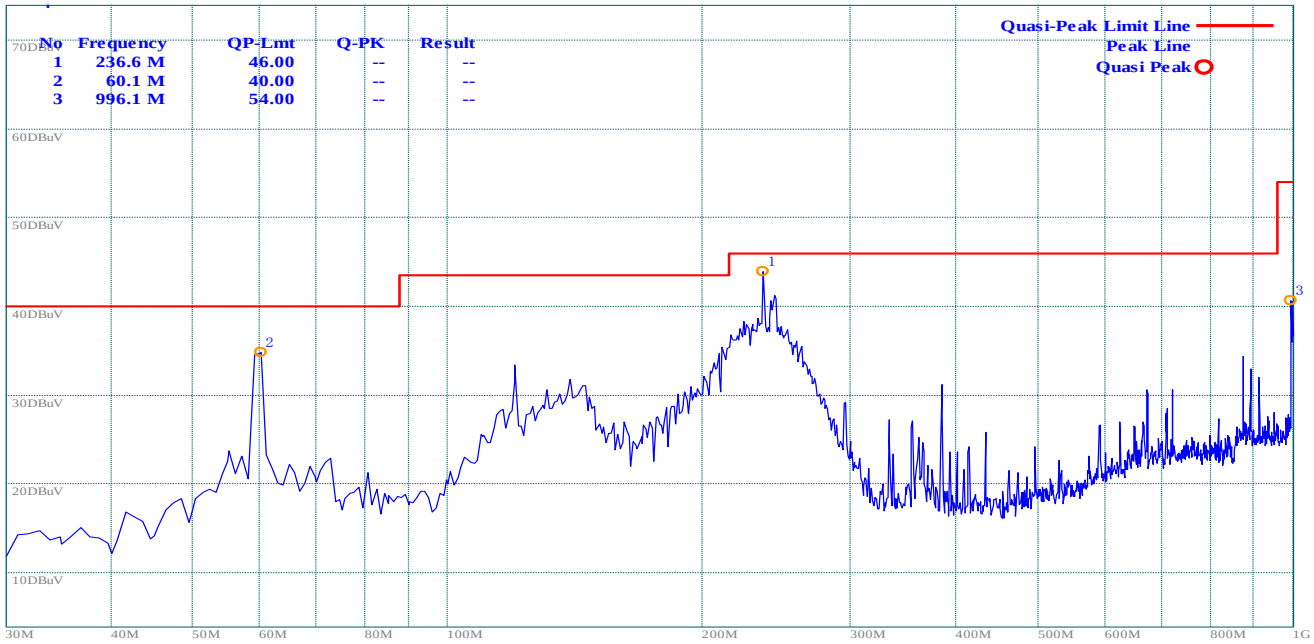


4.2.3.3 USB Test Mode

C. Test Plot and Suspicious Points:



(Plot A: Test Antenna Vertical)



(Plot B: Test Antenna Horizontal)

** END OF REPORT **