

47 CFR PART 15 SUBPART B**TEST REPORT**

of

GSM 850/900/1800/1900 GPRS Mobile Phone

Model Name: PAM
Trade Name: TechFaith Wireless
FCC ID: UJQ-05838T

*prepared for***TechFaith Wireless Technology Limited.**

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1. Test Result Certification

Equipment under Test: GSM 850/900/1800/1900 GPRS Mobile Phone

Trade Name: TechFaith Wireless

Model Name: PAM

FCC ID: UJQ-05838T

Applicant: TechFaith Wireless Technology Limited.

2/F M8 West, No.1 Jiu Xian Qiao Dong Road, Chao Yang District,
Beijing, 100016 P. R. China

Manufacturer: TechFaith Wireless Technology Limited.

2/F M8 West, No.1 Jiu Xian Qiao Dong Road, Chao Yang District,
Beijing, 100016 P. R. China

Test Standards: 47 CFR Part 15 Subpart B

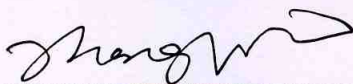
Test Result: PASS

* 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:

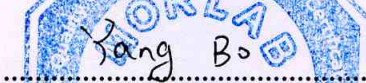


Dated:

2006.12.30

Zhang Weimin

Reviewed by:



Dated:

2006.12.30

Yang Bo

Approved by:



Dated:

2006.12.30

Shu Luan



2. General Information

2.1 Equipment under Test (EUT) Description

EUT₁ / MS:

Description: GSM 850/900/1800/1900 GPRS Mobile Phone
Model Name: PAM
IMEI: ---
Serial No.....: 1051608000001396
Hardware Version: P1
Software Version: TF_WM5_PAM_VER_01.04_CE

EUT₂ / Battery:

Description: Lithium-ion Battery
Model Name: PAM
Trade Name: TechFaith Wireless
Serial No.....: ---
Manufacturer: Shenzhen XWODA Group Co., Ltd.
Capacitance.....: 1280mAh
Rated Voltage.....: 3.7V
Charge Limit Voltage.....: 4.2V

EUT₃ / Charger:

Description: AC Adapter
Model Name: TPCA-053065E
Trade Name: TechFaith Wireless
Serial No.....: TC0638000660
Manufacturer: Tech-power international Co., Ltd.
Rated Input: ~ 100-240V, 50/60Hz, 0.2A
Rated Output.....: = 5.05-5.55V, 550-780mA
Length of DC Cable.....: 125cm

NOTE:

1. The EUT consists of EUT₁/MS and normal options EUT₂/Battery and EUT₃/Charger.
2. For the detailed function of the EUT and test mode used, please refer to section 3.1.1.
3. For detailed features about the EUT, please see user manual supplied by applicant.

2.2 Test Standards and Results

The objective of the report is to perform EMC tests according to 47 CFR Part 15 Subpart B, and the EUT is classified as a Class B digital device:

No.	Identity	Document Title
1	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
1	§15.107	Conducted Emission	PASS	2006-11-21
2	§15.109	Radiated Emission	PASS	2006-11-21

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 Board for Laboratories (CNAL) 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	System Simulator	Manufacturer: Will'teck Model No.: 4403 Serial No.: 0811211
4	Receiver	Manufacturer: Agilent Model No.: E7405A Serial No.: US44210471
5	LISN	Manufacturer: Schwarzbeck Model No.: NSLK8127 Serial No.: 8127449
6	Telecommunication Antenna	Manufacturer: European Antennas Model No.: PSA-45010R/356 Serial No.: 403688-001
7	Trilogy Antenna	Manufacturer: Schwarzbeck Model No.: VULB 9163 Serial No.: 9163-274
8	Anechoic Chamber	Manufacturer: Albatross Projects GmbH
9	Shield Room	Manufacturer: Albatross Projects GmbH

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

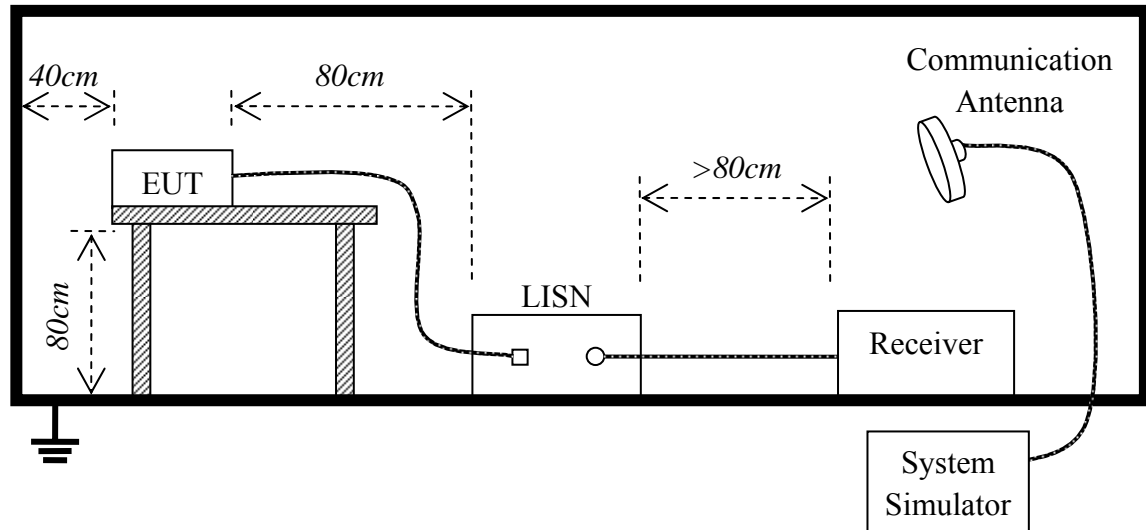
3.1.1 EUT Function and Test Mode

According to the function of the EUT, several Test Modes listed below should be used (also refer to section 3.1.2 for the test setup):

No.	Test Mode	Specification
1	CALL	<p>The EUT serves mainly as a mobile phone.</p> <p>The EUT configuration of the emission test is <u>MS + Battery + Charger + Bluetooth Headset</u>. During the measurement, the EUT is charging empty Battery. The Charger is powered by 120V 60Hz AC mains supply.</p> <p>The EUT is commanded via a System Simulator (SS) to operate at GSM850 band, and at the maximum output power i.e. Power Control Level (PCL) = 5, Power Class = 4.</p> <p>The TCH number is set to middle ARFCN 190. The BCCH number of the SS used here is 180. A communication link is established between the EUT and the SS, and the audio downlink is routed to the Bluetooth Headset (Manufacturer: Nokia, Model: HS-36W).</p> <p>The WLAN function of the MS is activated. The EUT accesses to the internet through a WLAN wireless router (Manufacturer: D-LINK, Model: DI-624+A), and keeps transmitting and receiving data with a network termination.</p>
2	USB	<p>The EUT serves mainly as a computer peripheral.</p> <p>The EUT configuration of the emission test is <u>MS + Battery + Personal Computer</u>. The EUT is connected to a USB port of the Personal Computer (A Laptop Computer of Manufacturer: Hewlett-Packard, Model: Pavilion ze2202, or a Desktop Computer of Manufacturer: Lenovo, Model: M6400) via a USB cable. The charger of the Laptop Computer is powered by 120V 60Hz AC mains supply.</p> <p>During the measurement, the EUT keeps transmitting and receiving files continuously with the Personal Computer.</p>

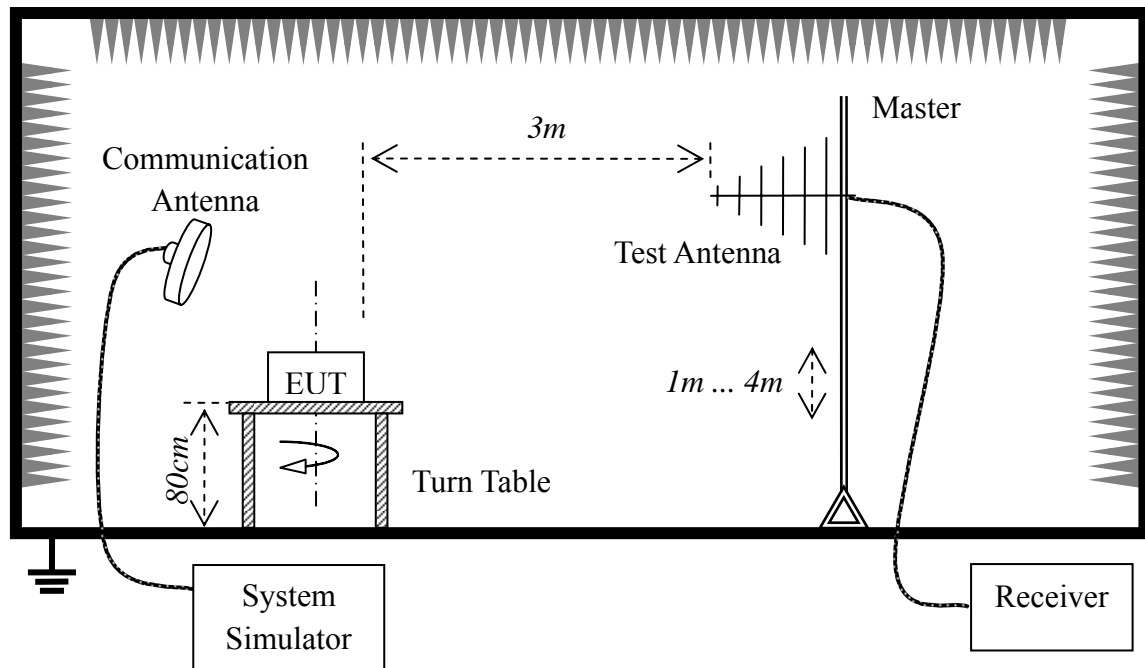
3.1.2 Test Setup

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 $50\Omega/50\mu\text{H}$ 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 Test Antenna, which is mounted on the top of a variable-height antenna Master tower.

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 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
0.50 - 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

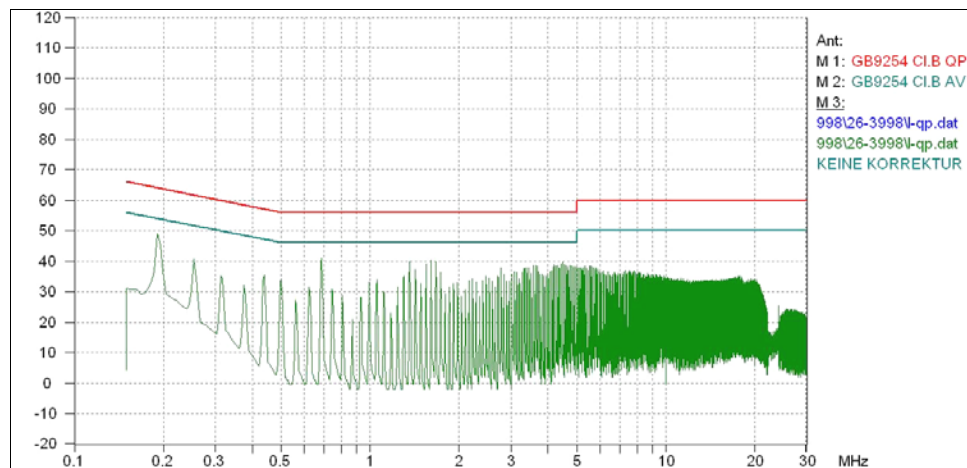
1. Perform test setup as described in section 3.1.2.1.
2. Each test mode in section 3.1.1 should be applied. At each test mode, the frequency range from 150kHz to 30MHz is searched using the CISPR Quasi-Peak and/or the Average detector of the Receiver. If the emission levels measured with Quasi-Peak 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 suspect points.

3.2.3 Test Result

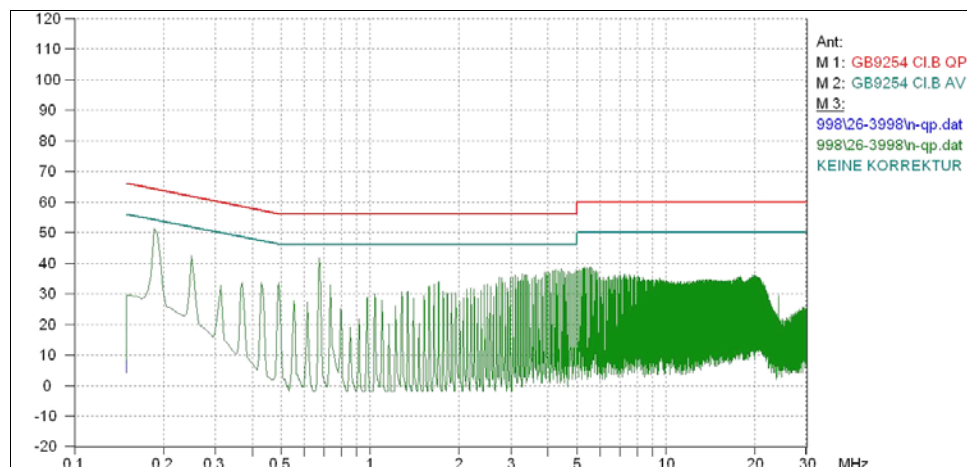
3.2.3.1 CALL Test Mode

No.	Frequency (MHz)	Emission Level (dBμV)			Limit (dBμV)		Result
		Quasi-Peak	Average	Phase (L/N)	Quasi-Peak	Average	
1	0.1905	49.07	---	N	< 64.0	< 54.0	PASS
2	0.2535	40.57	---	N	< 61.6	< 51.6	PASS
3	0.6855	40.88	---	L	< 56	< 46	PASS
4	1.5450	39.02	---	L	< 56	< 46	PASS
5	1.6080	40.36	---	L	< 56	< 46	PASS
6	1.6665	39.77	---	L	< 56	< 46	PASS

1. Plot for L Phase:



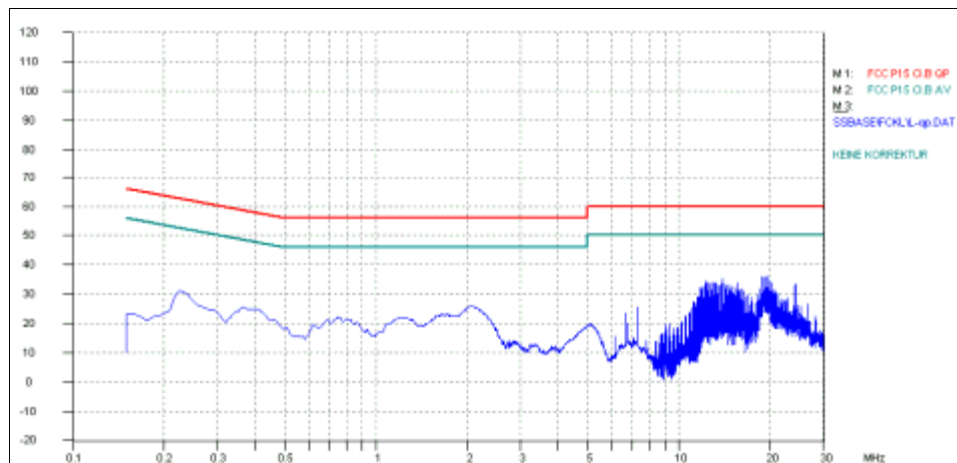
2. Plot for N Phase:



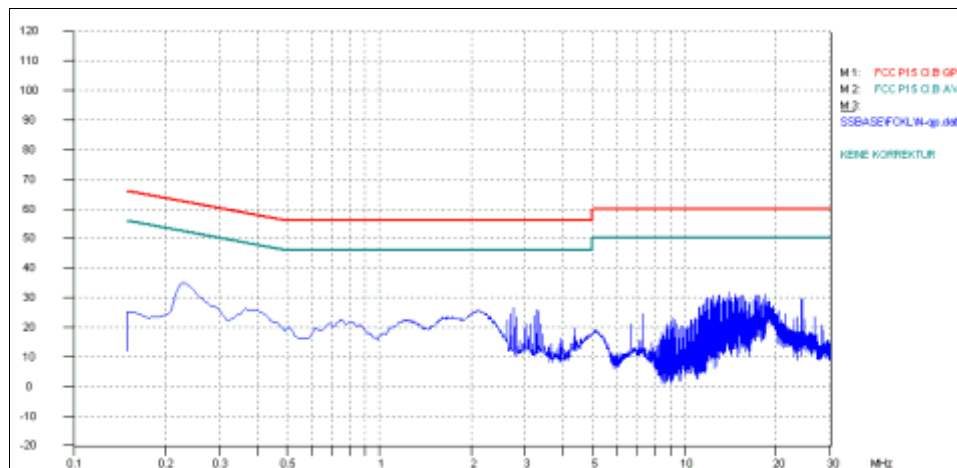
3.2.3.2 USB Test Mode:

No.	Frequency (MHz)	Emission Level (dBμV)			Limit (dBμV)		Result
		Quasi-Peak	Average	Phase (L/N)	Quasi-Peak	Average	
1	0.2265	31.0	---	N	< 62.6	< 52.6	PASS
2	0.3660	25.5	---	N	< 58.6	< 48.6	PASS
3	2.0400	25.9	---	L	< 56.0	< 46.0	PASS
4	7.2685	25.5	---	L	< 60.0	< 50.0	PASS
5	13.8895	35.0	---	L	< 60.0	< 50.0	PASS
6	19.2660	35.7	---	L	< 60.0	< 50.0	PASS

1. Plot for L Phase:



2. Plot for 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	
	$\mu\text{V/m}$	$\text{dB}\mu\text{V/m}$
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.

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.

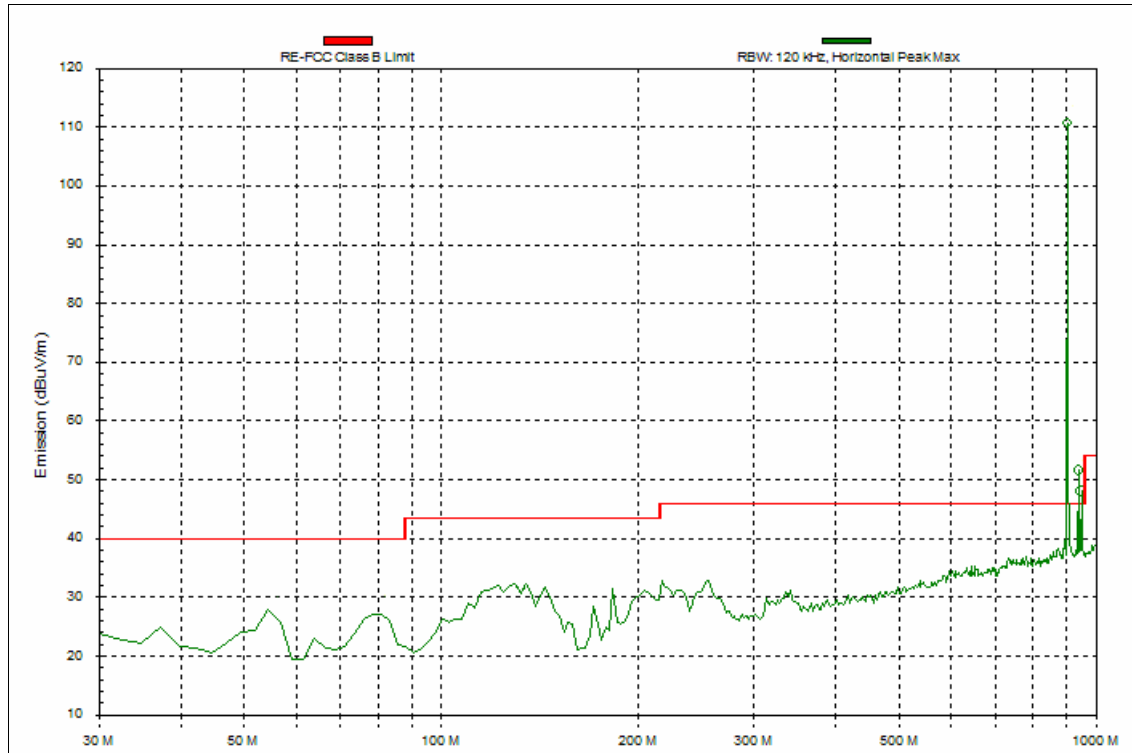
3.3.3 Test Result

3.3.3.1 CALL Test Mode

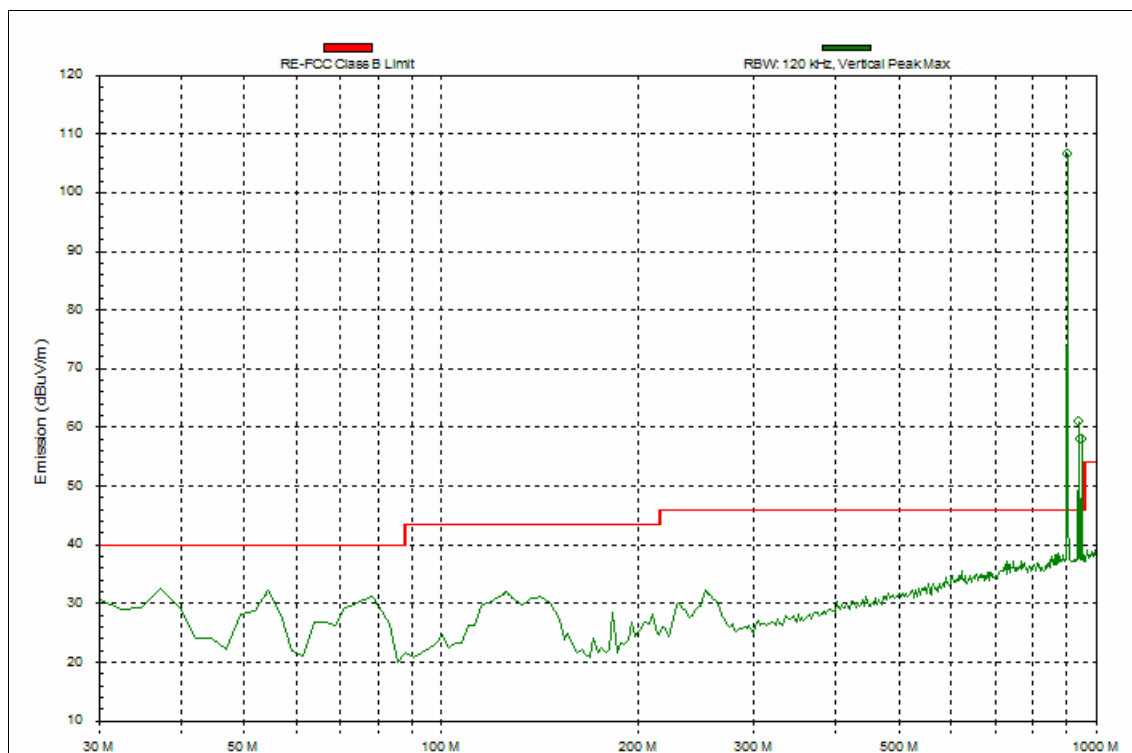
No.	Frequency (MHz)	Emission Level (dB μ V/m)			Quasi-Peak Limit (dB μ V/m)	Result
		Peak	Quasi-Peak	Antenna Polarization		
1	54.25	32.2	---	Vertical	< 40	PASS
2	124.575	31.58	---	Vertical	< 40	PASS
3	253.1	32.21	---	Vertical	< 46	PASS
4	54.25	27.95	---	Horizontal	< 40	PASS
5	134.275	32.22	---	Horizontal	< 43.5	PASS
6	182.775	31.39	---	Horizontal	< 43.5	PASS

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:



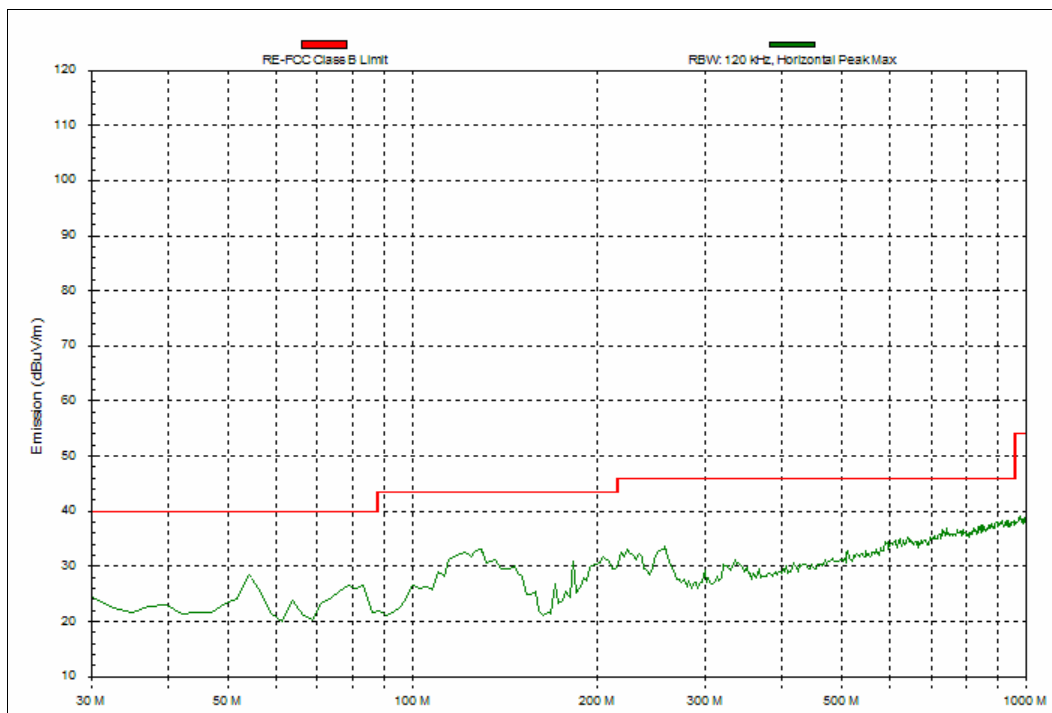
2. Plot when Test Antenna at Vertical Polarization:



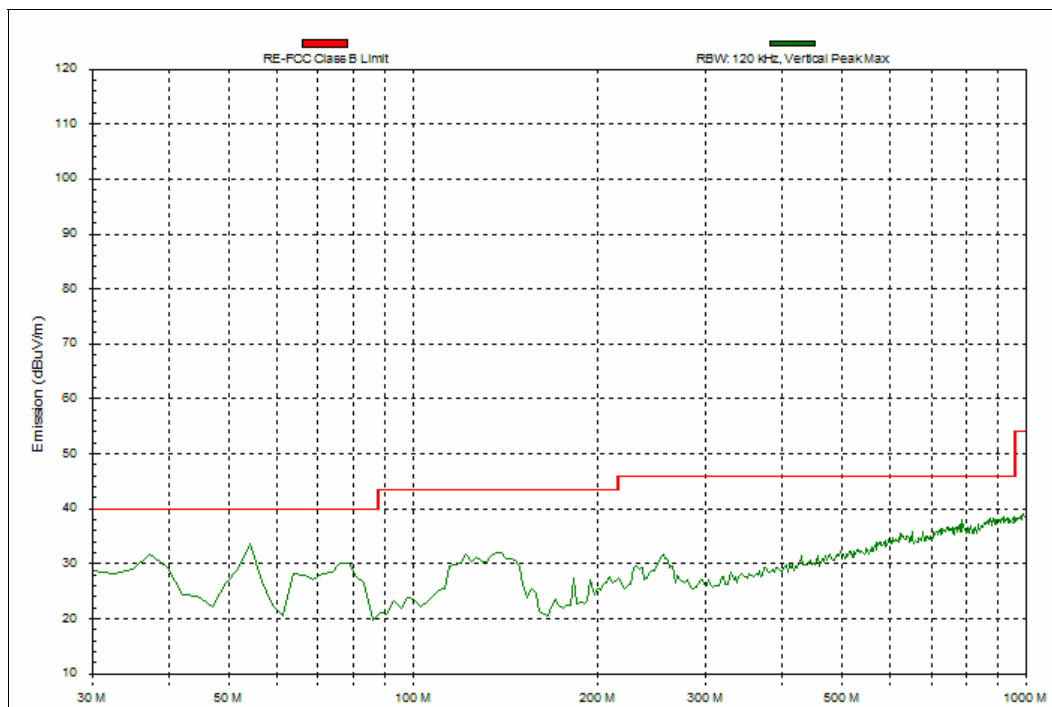
3.3.3.2 USB Test Mode

No.	Frequency (MHz)	Emission Level (dB μ V/m)			Quasi-Peak Limit (dB μ V/m)	Result
		Peak	Quasi-Peak	Antenna Polarization		
1	54.25	33.53	---	Vertical	40	PASS
2	136.7	32.15	---	Vertical	43.5	PASS
3	182.775	27.49	---	Vertical	43.5	PASS
4	54.25	28.47	---	Horizontal	40	PASS
5	129.425	33.09	---	Horizontal	43.5	PASS
6	182.775	30.81	---	Horizontal	43.5	PASS

1. Plot when Test Antenna at Horizontal Polarization:



2. Plot when Test Antenna at Vertical Polarization:



**** END OF REPORT ****