

47 CFR PART 15B

TEST REPORT

of

GSM Mobile Phone

Brand Name: S1
Model Name: S1
Report No.: SZ09090103E03
FCCID.: RV2S1Q

prepared for

Ezze Mobile Tech., Inc

2F, Samyoung Bldg., 106-2 Banpo-dong, Seocho-ku, Seoul, Korea

prepared by

Shenzhen Electronic Product Quality Testing Center

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



Bluetooth®

CTIA Authorized Test Lab

LAB CODE 20081223-00

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Change History		
Issue	Date	Reason for change
1.0	February 26, 2010	First edition
1.1	March 04, 2010	Change the FCCID

1. TEST CERTIFICATION

Equipment under Test: GSM Mobile Phone

Brand Name: S1

Model Name: S1

FCC ID: RV2S1Q

Applicant: Ezze Mobile Tech., Inc

2F, Samyoung Bldg., 106-2 Banpo-dong, Seocho-ku, Seoul, Korea

Manufacturer: Ezze Mobile Tech

2F, Samyoung Bldg., 106-2 Banpo-dong, Seocho-ku, Seoul, Korea

Emission Designator 300KGXW

Test Standards: 47 CFR Part 15 Subpart B

Test Date(s): October 20, 2009 - October 26, 2009

Test Result: PASS

* We Hereby Certify That:

The equipment under test was tested by Shenzhen Electronic Product Quality Testing Center 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:

Mo Huina

Mo Huina

Dated:

2010.3.4

Reviewed by:

Deng Jiankun

Deng Jiankun

Dated:

2010.3.4

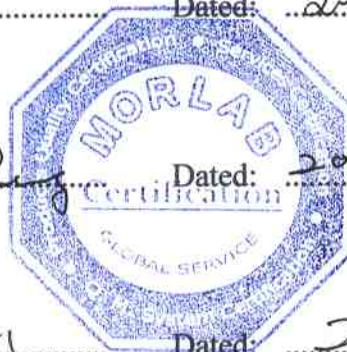
Approved by:

Shu Luan

Shu Luan

Dated:

2010.3.4



2. GENERAL INFORMATION

2.1 EUT Description

EUT Type GSM Mobile Phone
Model Name S1
Serial No. (n.a, marked #1 by test site)
Hardware Version V1.0
Software Version V1.0
Modulation Type GMSK
Power Supply Battery
Brand Name: S1
Model No.: S1
Serial No.: (n.a. marked #1 by test site)
Capacitance: 700mAh
Rated Voltage: 3.7V
Charge Limit: 4.2±0.05V
Manufacturer: SHENZHEN ZHIYIN ELECTRONIC CO., LTD
Ancillary Equipment 1 ... AC Adapter (Charger for Battery)
Brand Name: DE MING Electronic Limited
Model Name: YF-0510228
Serial No.: (n.a. marked #1 by test site)
Rated Input: ~ 100-265V, 100mA, 50/60Hz
Rated Output: ≡ 5V, 1000mA, Max 5.0W
Manufacturer: Yu-Feng Electornic Limited

Note 1: The EUT is a GSM Mobile Phone. It supports GSM 900MHz, GSM 1800MHz, GSM1900MHz and ISM 2.4GHz Bluetooth module. GSM 1900MHz are tested in this report.

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 (10-1-05 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 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 L1659.

All measurement facilities used to collect the measurement data are located at Electronic Testing Building, Shahe Road, Xili, Nanshan District, Shenzhen 518055 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 (°C):	20 - 25
Relative Humidity (%):	40 - 60
Atmospheric Pressure (kPa):	96

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:	$\pm 1.8\text{dB}$
Uncertainty of Radiated Emission:	$\pm 3.1\text{dB}$

3. TEST CONDITIONS SETTING

3.1 Test Mode

1. GSM Test Mode

(1) The first test mode (GSM)

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 (GSM with earphone)

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

(3) The third test mode (GPRS)

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); data 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.

2. USB Test Mode

(1) The first test mode (USB)

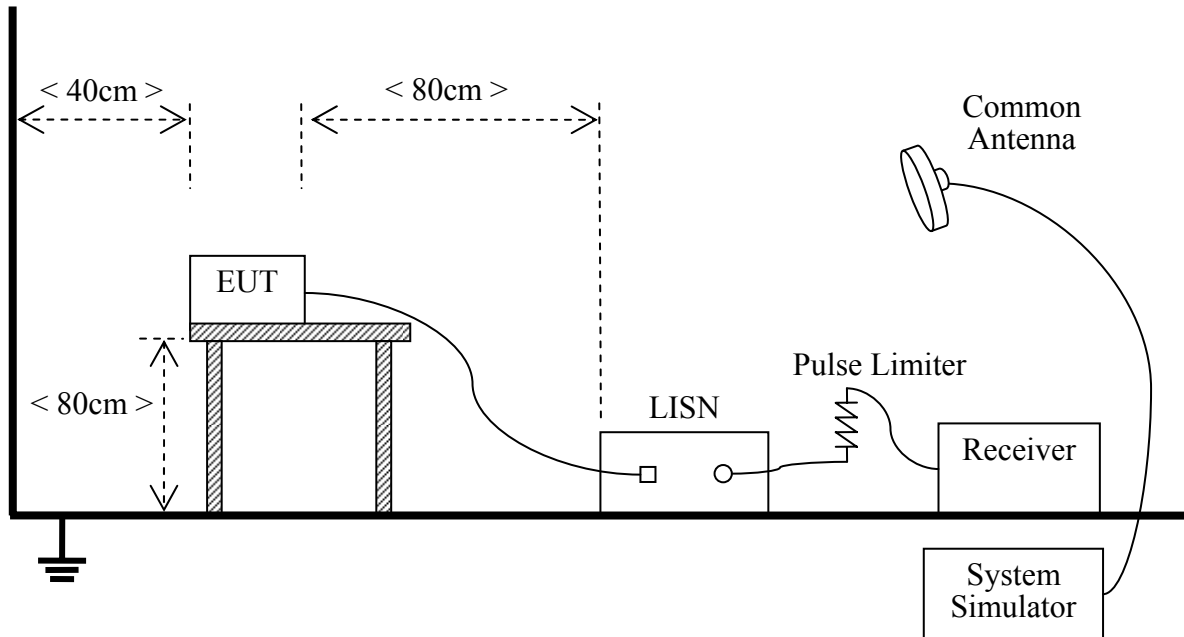
The EUT configuration of the emission tests is TransFlash Card + EUT + Battery + PC.

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), simultaneously, the data is transmitting between the PC and the TransFlash Card of the EUT.

3.2 Test Setup and Equipments List

3.2.1 Conducted Emission

A. Test Setup:



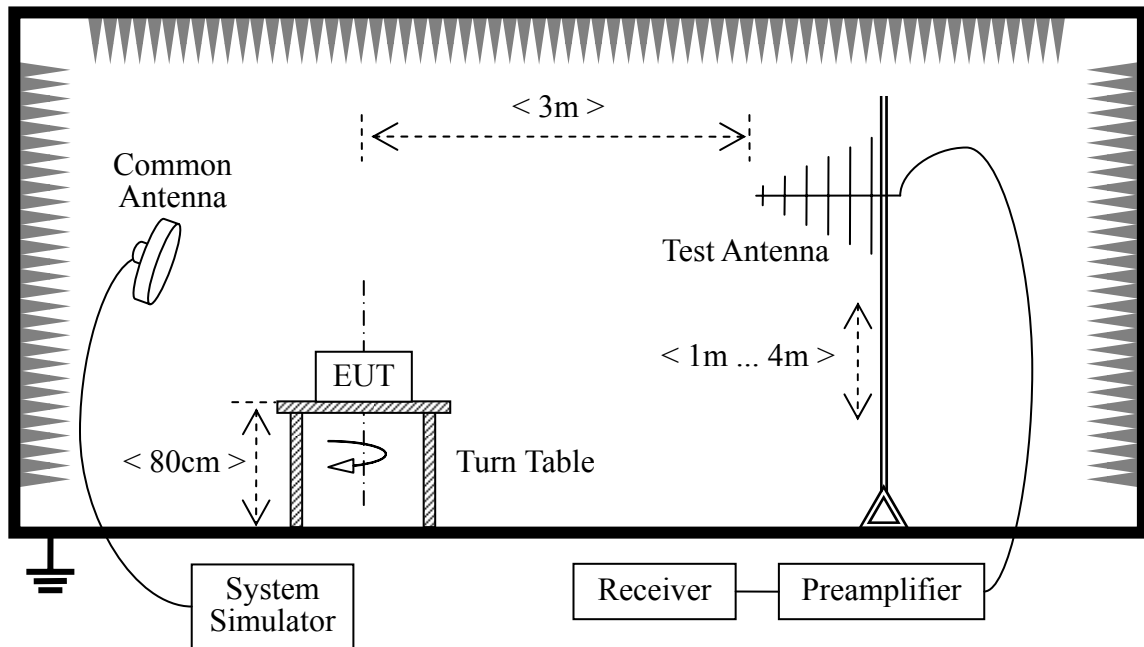
The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides $50\Omega/50\mu\text{H}$ of coupling impedance for the measuring instrument. The 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.

B. 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

C. 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).

D. 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 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:

- The limit subjects to the Class B digital device.
- The lower limit shall apply at the band edges.
- 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.

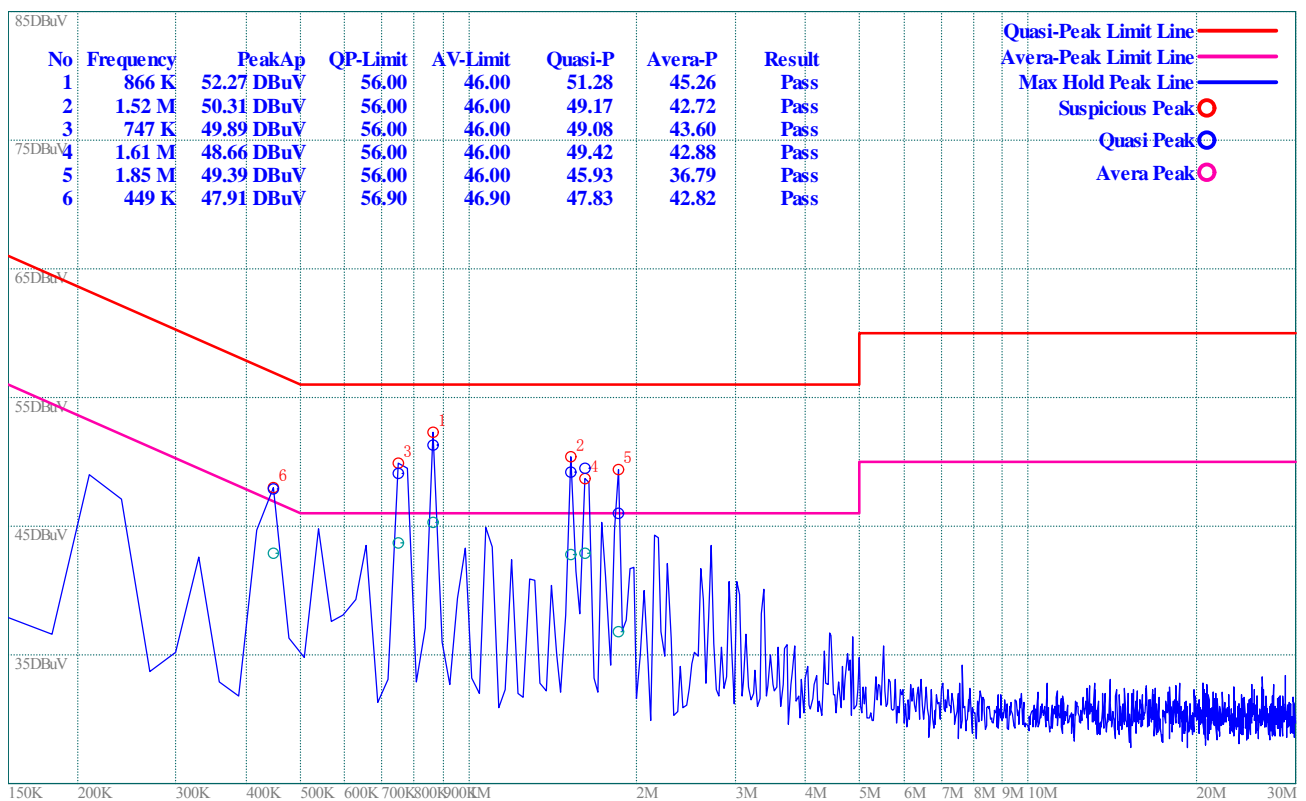
4.1.3.1 GSM Test Mode

A. Test Verdict Recorded for Suspicious Points:

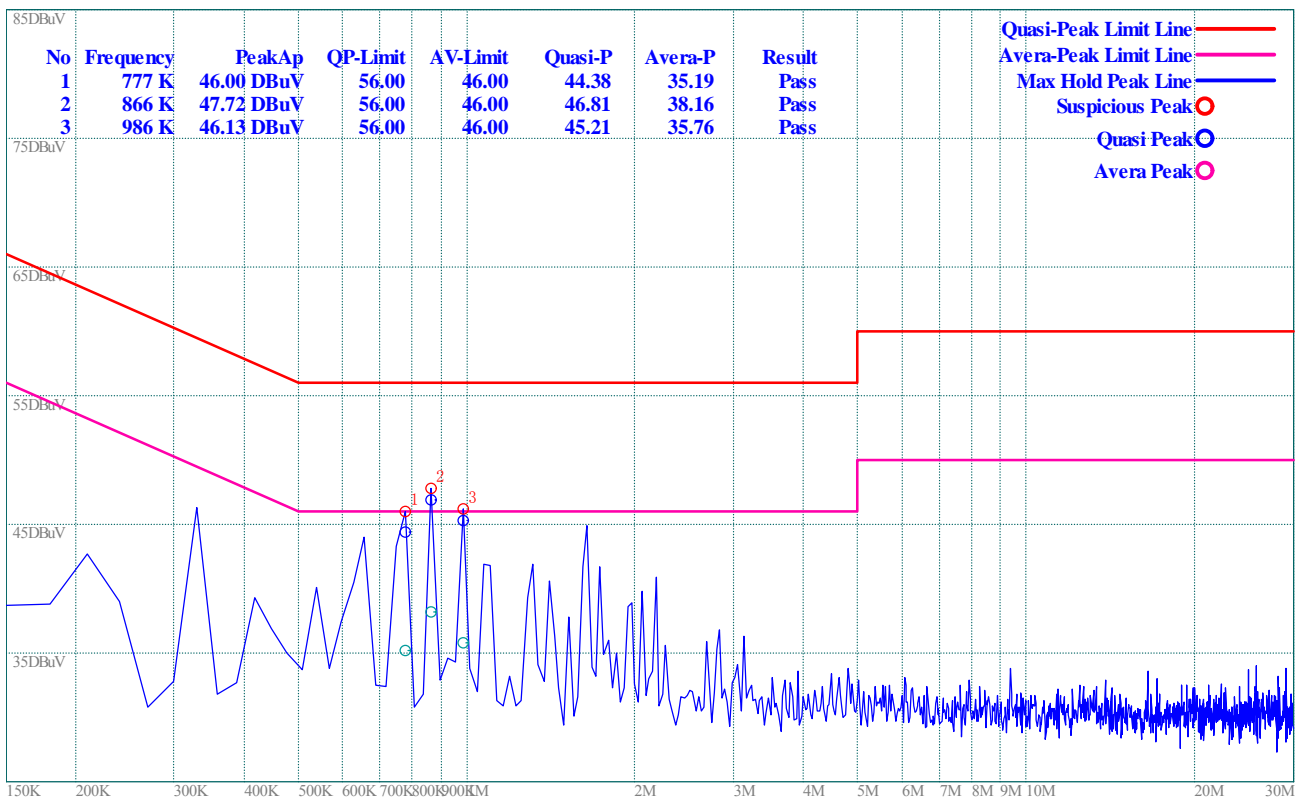
No.	@Frequency	Measured Emission Level (dB μ V)				Limit (dB μ V)		Verdict
		PK	QP	AV	Phase	QP	AV	
1	866 K	52.27	51.28	45.262	L	56	46	PASS
2	1.52 M	50.31	49.17	42.725	L	56	46	PASS

No.	@Frequency	Measured Emission Level (dB μ V)				Limit (dB μ V)		Verdict
		PK	QP	AV	Phase	QP	AV	
3	747 K	49.89	49.08	43.604	L	56	46	PASS
4	1.61 M	48.66	49.42	42.884	L	56	46	PASS
5	1.85 M	49.39	45.93	36.79	L	56	46	PASS
6	449 K	47.91	47.83	42.82	L	56.9	46.9	PASS
7	777 K	46	44.38	35.195	N	56	46	PASS
8	866 K	47.72	46.81	38.157	N	56	46	PASS
9	986 K	46.13	45.21	35.758	N	56	46	PASS

B. Test Plot:



(Plot A: L Phase)



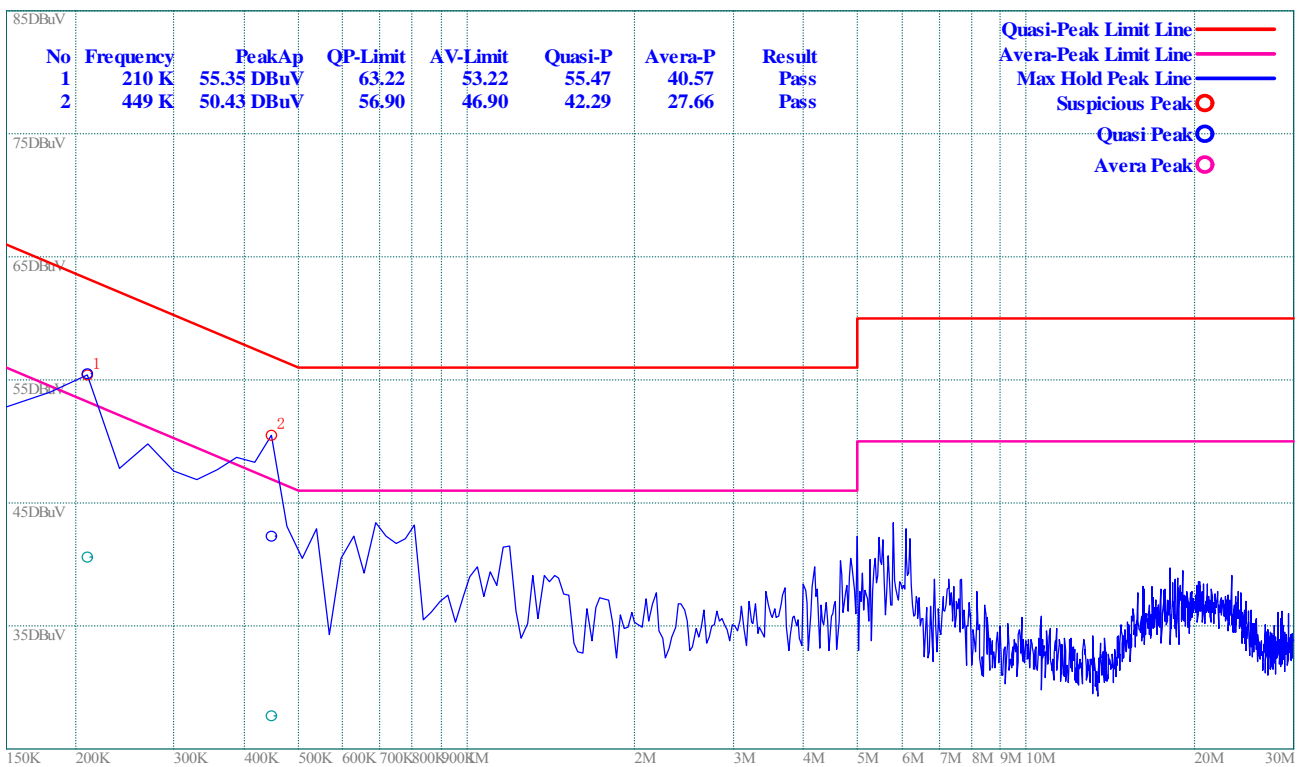
(Plot B: N Phase)

4.1.3.2 USB Test Mode

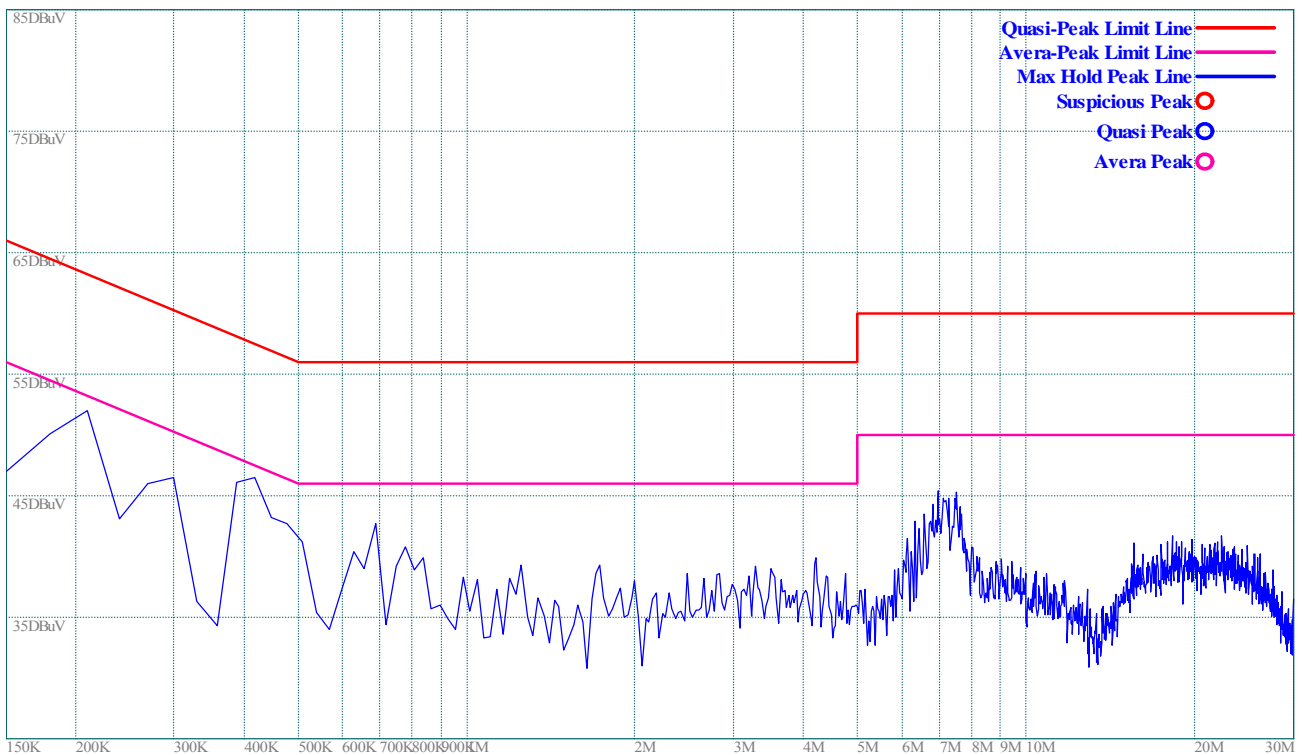
A. Test Verdict Recorded for Suspicious Points:

No.	@Frequency	Measured Emission Level (dBμV)				Limit (dBμV)		Verdict
		PK	QP	AV	Phase	QP	AV	
1	210 K	55.35	55.47	40.568	L	63.22	53.217	PASS
2	449 K	50.43	42.29	27.657	L	56.9	46.903	PASS

B. Test Plot:



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

NOTE:

- Field Strength ($\text{dB}\mu\text{V/m}$) = $20 \cdot \log[\text{Field Strength } (\mu\text{V/m})]$.
- 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

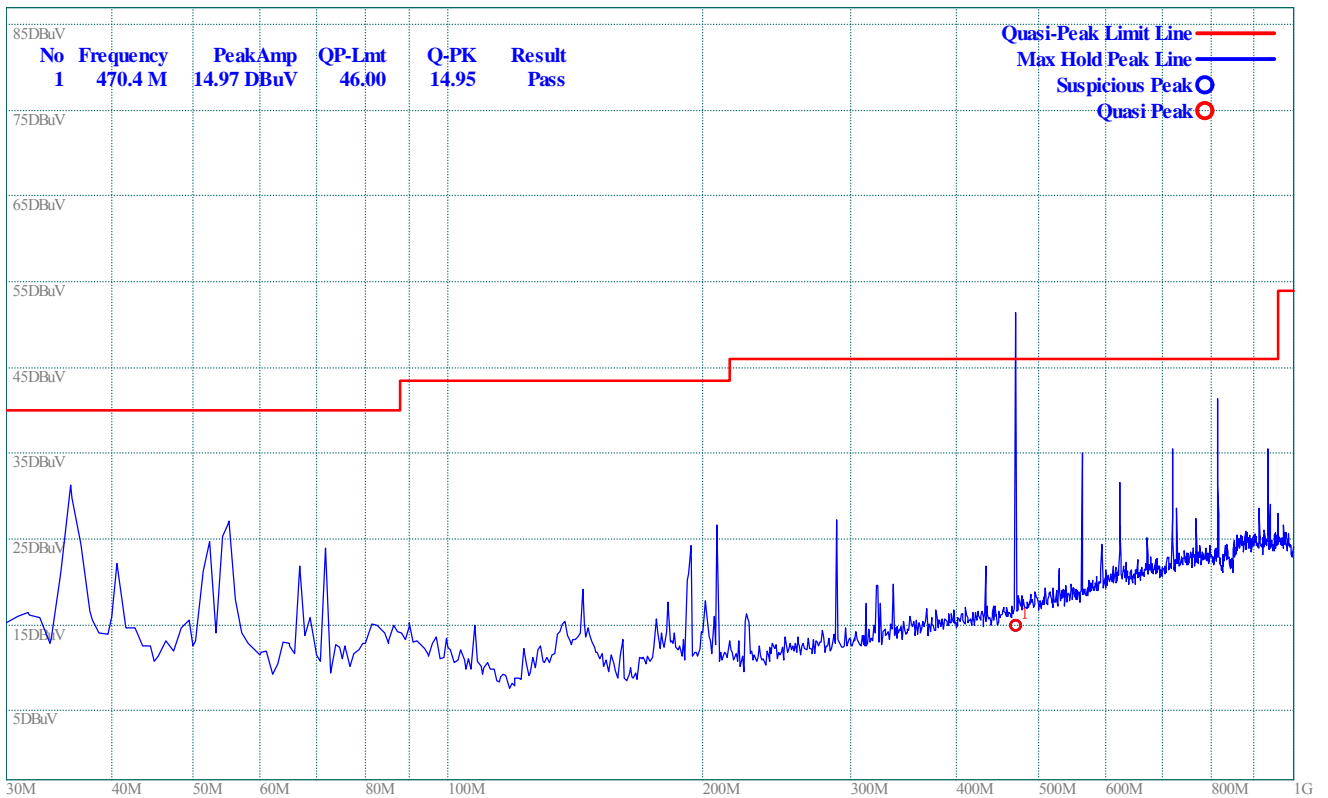
The maximum radiated emission is searched using PK, QP and AV detectors; the emission levels more than the limits, and that have narrow margins from the limits will be re-measured with AV and QP detectors. Both the vertical and the horizontal polarizations of the Test Antenna are considered to perform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

4.2.3.1 GSM Test Mode

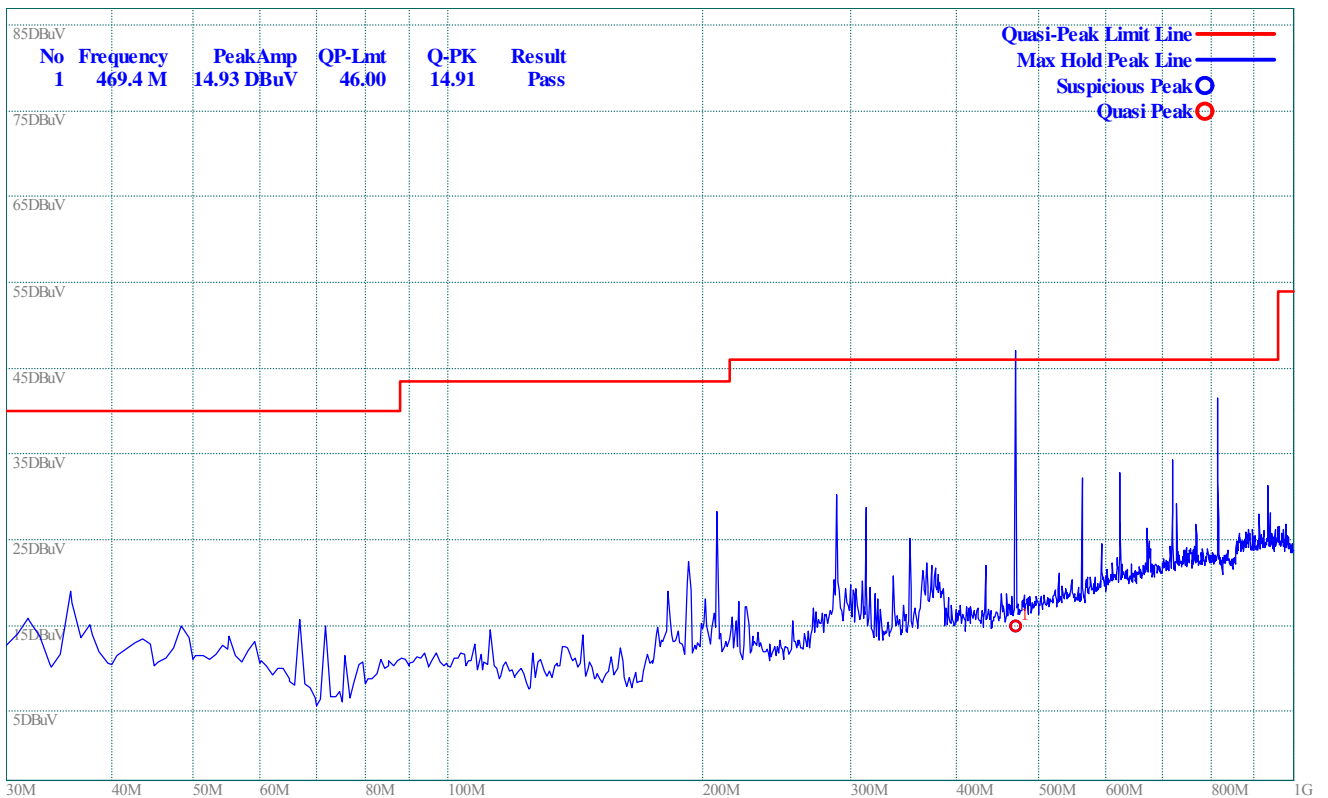
A. Test Verdict Recorded for Suspicious Points:

No.	@Frequency (MHz)	Emission Level ($\text{dB}\mu\text{V/m}$)			Quasi-Peak Limit ($\text{dB}\mu\text{V/m}$)	Result
		PK	QP	Antenna Polarization		
1	469.4	14.93	14.91	Vertical	46	PASS
2	470.4	14.97	14.95	Horizontal	46	PASS

B. Test Plots



(Plot A: Test Antenna Vertical)



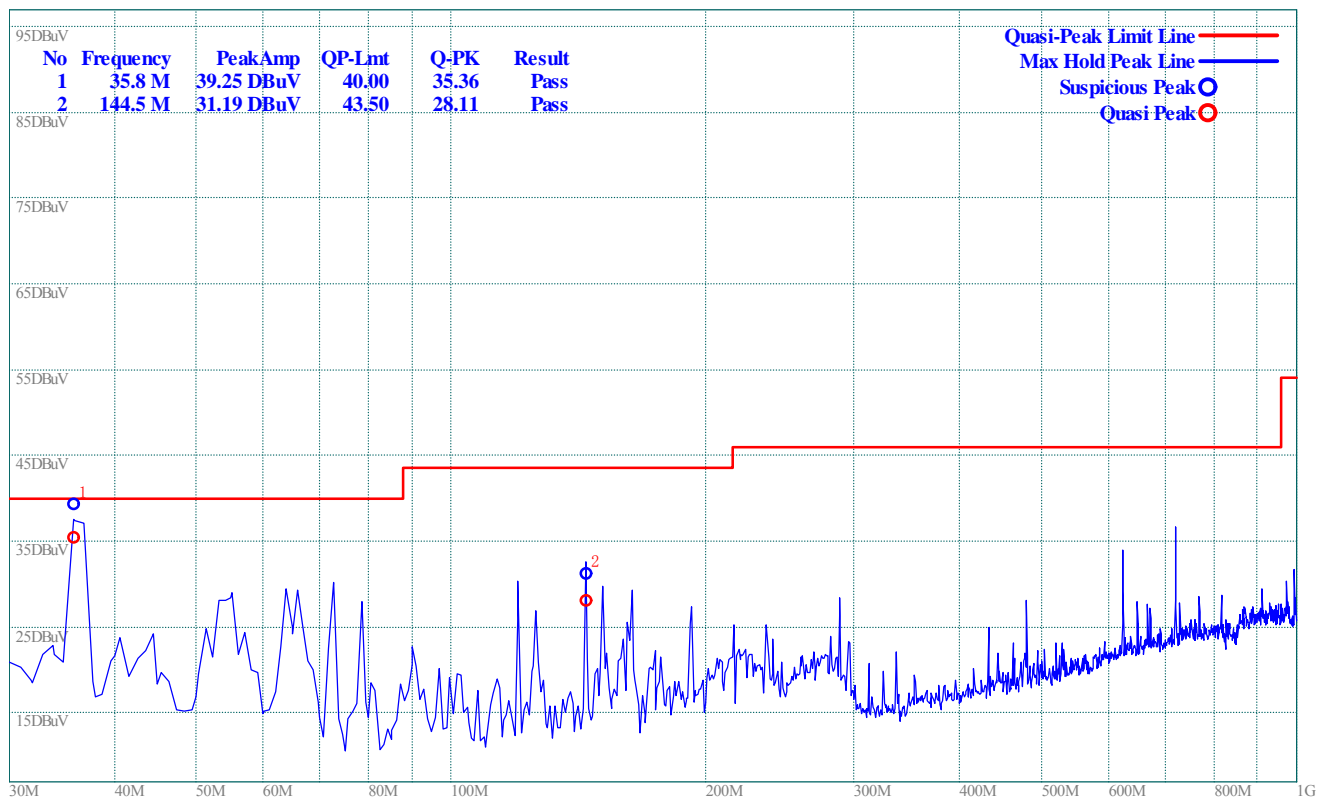
(Plot B: Test Antenna Horizontal)

4.2.3.2 USB Test Mode

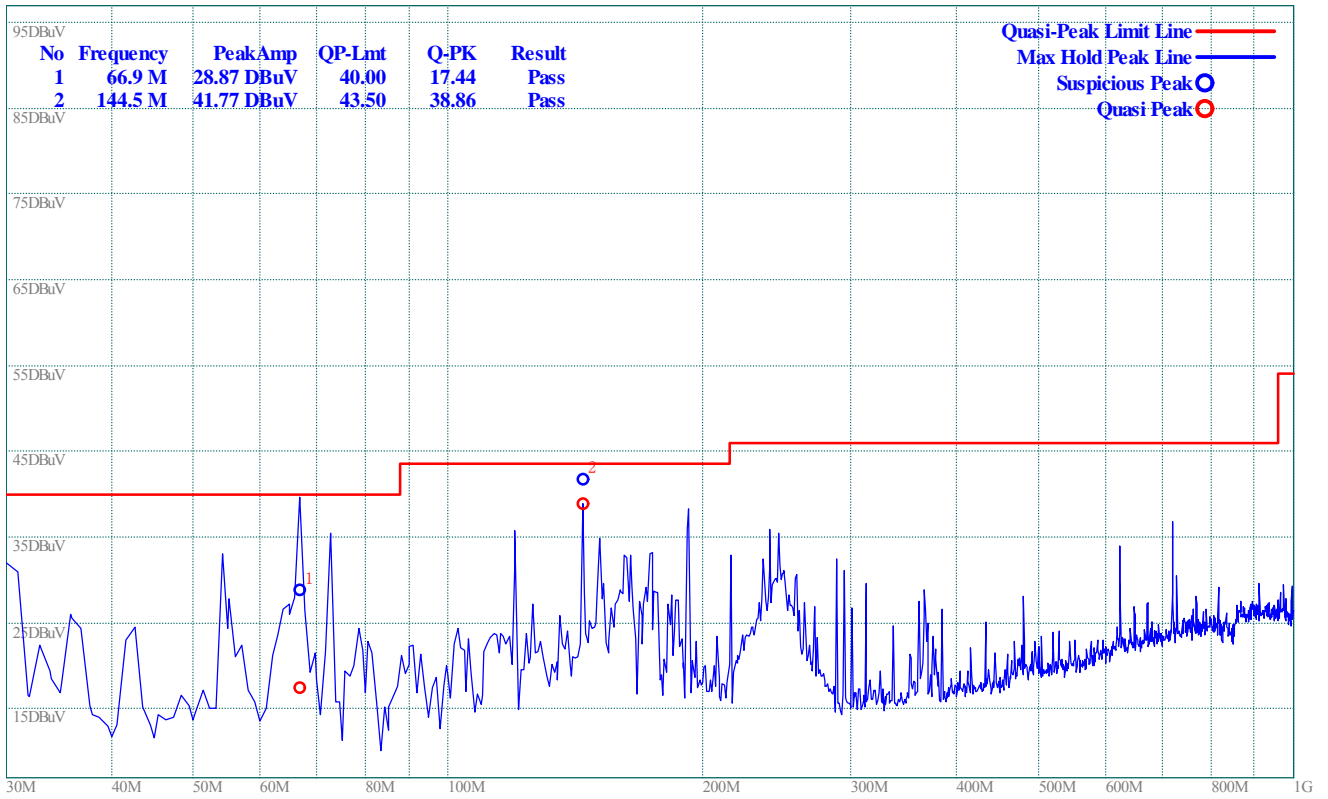
A. Test Verdict Recorded for Suspicious Points:

No.	@Frequency (MHz)	Emission Level (dB μ V/m)			Quasi-Peak Limit (dB μ V/m)	Result
		PK	QP	Antenna Polarization		
1	35.8	39.25	35.36	Vertical	40.00	PASS
2	144.5	31.19	28.11	Vertical	43.50	PASS
3	66.9	28.87	17.44	Horizontal	40.00	PASS
4	144.5	41.77	38.86	Horizontal	43.50	PASS

B. Test Plots:



(Plot A: Test Antenna Vertical)



(Plot B: Test Antenna Horizontal)

** END OF REPORT **