



47 CFR PART 15 SUBPART B

TEST REPORT

of

HIC

Model Name: EC W820
Trade Name: Huawei
Brand Name: vodafone
Report No.: SH10110003E01
FCC ID: QISEC-W820

prepared for

Huawei Technologies Co.,Ltd.

Bantian, Longgang District Shenzhen 518129, P.R. China

prepared by

Shenzhen Electronic Product Quality Testing Center

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CTIA Authorized Test Lab

LAB CODE 20081223-00

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1 TEST CERTIFICATION

Equipment under Test: HIC
 Trade Name: Huawei
 Brand Name: vodafone
 Model Name: EC W820
 FCC ID: QISEC-W820
 Applicant: Huawei Technologies Co.,Ltd.
 Applicant Address: Bantian,Longgang District Shenzhen 518129,P.R.China
 Manufacturer: Huawei Technologies Co.,Ltd.
 Manufacturer Address: Bantian,Longgang District Shenzhen 518129,P.R.China
 Test Standards: 47 CFR Part 15 Subpart B

Test Date(s): Nov.09, 2010 –Nov.12, 2010

Test Result: PASS

* We Hereby Certify That:

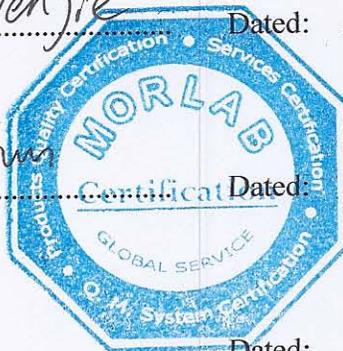
The equipment under test was tested by Shenzhen Electronic Product Quality Testing Center Morlab Laboratory. The test data, data evaluation, test procedures and equipment configurations shown in this report were made in accordance with the requirement of related FCC rules.

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: Zhang Wenjie Dated: 2010.12.6
 Zhang Wenjie

Reviewed by: Zhang Jun Dated: 2010.12.6
 Zhang Jun

Approved by: Wei Bei Dated: 2010.12.6
 Wei Bei



2 GENERAL INFORMATION

2.1 EUT Description

EUT Type.....: HIC
Model Name: EC W820
Serial No.....: (n/a)
IMEI: 352347038563762
Hardware Version : SH631A-MB-P1.0
Software Version: 20782.1.4.14.SP_0207-1
Modulation Type.....: GMSK/8PSK
Power Supply.....: Battery
Brand name: BYD
Mode Name.: BH61E
Capacitance: 2200mAh
Rated voltage: 3.7V
Charge limited: 4.2V
Manufacturer: BYD Company Limited
Manufacturer YAN AN RD,LONGGANG,KUICHONG,
Address SHENZHEN, GUANGDONG 518119 CHINA
Ancillary Equipment 1: AC Adapter (Charger for Battery)
Brand name: Ruide
Mode Name.: RD1202500-C55-00G
Rated Input: AC 100/240V,1000mA,50/60Hz
Rated Output: DC 12V,2500mA,Max30W
Manufacturer: Shenzhen Ruide Electronic Industrial Co.,Ltd
Manufacturer 2nd Floor,Block2,Minqi Scientific Zone,
Address Honghualing, Xili,Nanshan District,
Shenzhen ,China

Note 1: The EUT supports GSM/GPRS/EDGE/WCDMA/HSUPA/HSDPA/Bluetooth/WIFI and it supports GSM 850/900/1800/1900 MHz、 WCDMA 850/1900 MHz band .

Note 2: The normal configuration for the EUT is the MS associated with ancillary equipments e.g.theBattery.

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

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 Laboratories (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

3 TEST CONDITIONS SETTING

3.1 Test Mode

1. The test modes of the EUT are showed as below:

GSM 850	Speech link	■ Host + AC Adapter
	GPRS link	■ Host + AC Adapter
	EDGE link	■ Host + AC Adapter+ earphone ■ Host + PC
GSM 1900	Speech link	■ Host + AC Adapter+ earphone
	GPRS link	■ Host + AC Adapter+ earphone ■ Host + PC ■ Host+ AC Adapter
	EDGE link	■ Host + AC Adapter
WCDMA 850	Speech link	■ Host + PC
	HSDPA link	■ Host + AC Adapter
	HSUPA link	■ Host + AC Adapter + earphone ■ Host + PC
WCDMA 1900	Speech link	■ Host + PC
	HSDPA link	■ Host + AC Adapter
	HSUPA link	■ Host + AC Adapter + earphone ■ Host + PC
WIFI		■ Host + AC Adapter ■ Host + PC
Bluetooth		■ Host + AC Adapter + earphone ■ Host+ AC Adapter

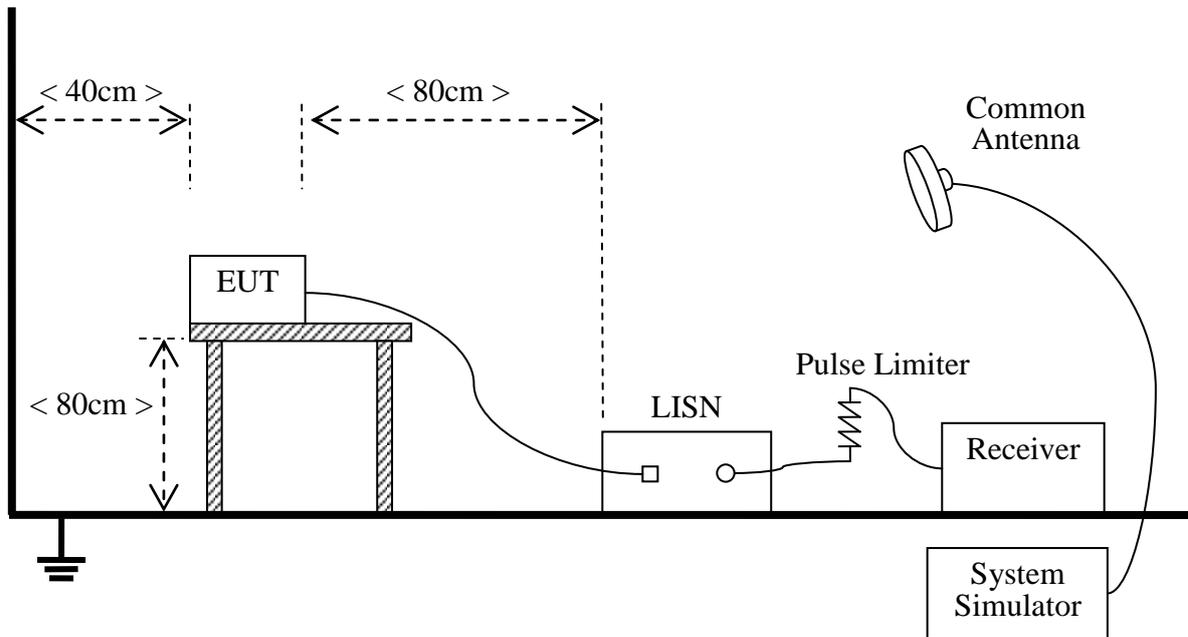
NOTE:

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

A. Test Setup:



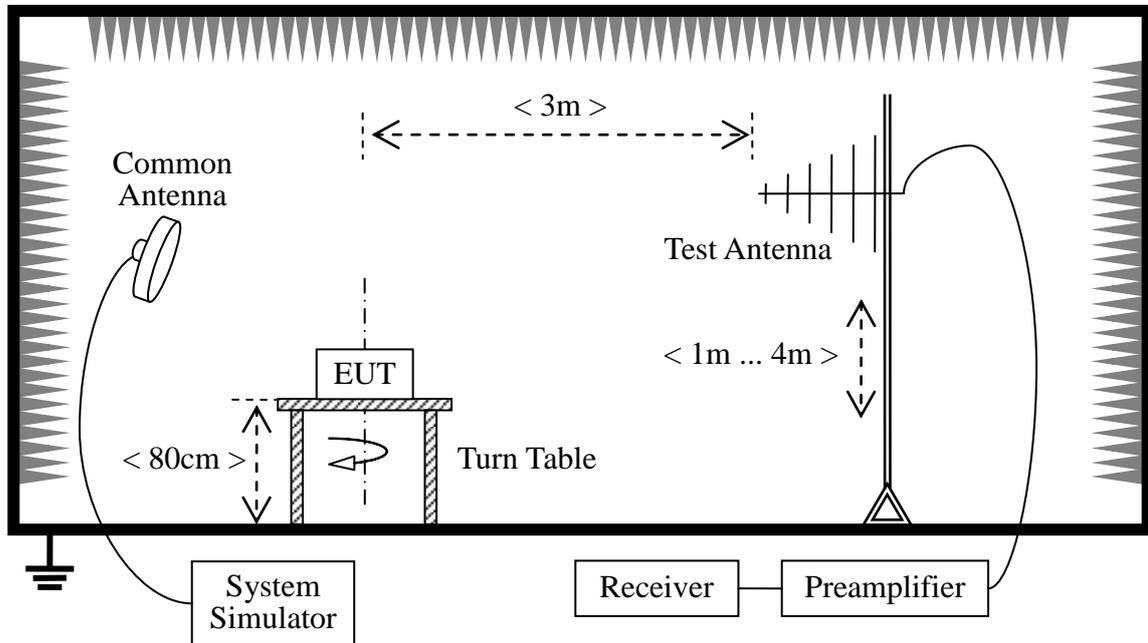
The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides $50\Omega/50\mu\text{H}$ of coupling impedance for the measuring instrument. The 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	Rohde&Schwarz	ESCI3	100666	2010.09	1year
LISN	Rohde&Schwarz	ENV216	812744	2010.09	1year
System Simulator	Rohde&Schwarz	CMU200	105571	2010.09	1year
Personal Computer	Lenovo	(n.a.)	(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).

B. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Receiver	Rohde&Schwarz	ESCI3	100666	2010.09	1year
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2010.09	1year
Test Antenna - Bi-Log	Rohde&Schwarz	HL562	100385	2010.09	1year
System Simulator	Rohde&Schwarz	CMU200	105571	2010.09	1year
Personal Computer	Lenovo	(n.a.)	(n.a.)	(n.a.)	(n.a.)

47 CFR PART 15B REQUIREMENTS

4 Conducted Emission

4.1 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)	
	Quai-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.

4.2 Test Description

See section 3.2.1 of this report.

4.3 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.

4.3.1.1 Test Mode

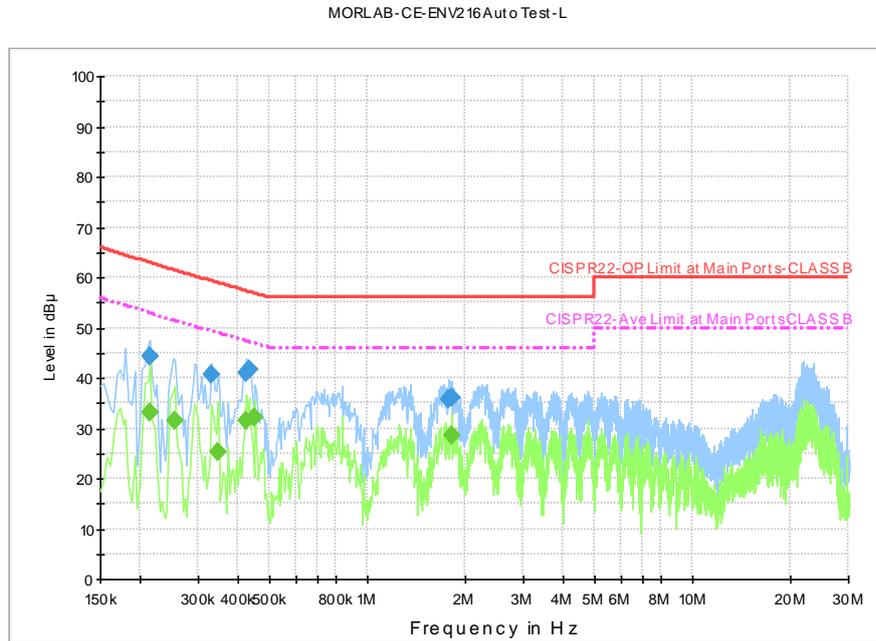
The EUT configuration of the emission tests is EUT + Ancillary Equipments.

A. Test Verdict Recorded for Suspicious Points:

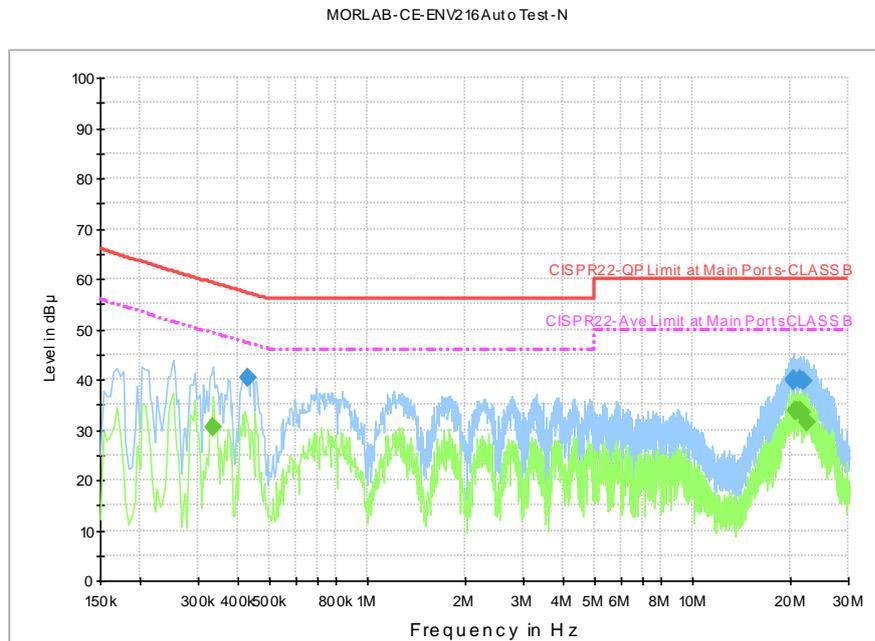
Frequency (MHz)	QuasiPeak (dBμ V)	Meas. Time (ms)	Band width (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμ V)	Comment
0.426112	40.3	1000.000	9.000	N	9.7	16.9	57.2	PASS
20.265169	39.9	1000.000	9.000	N	10.4	20.1	60.0	PASS
20.309944	39.8	1000.000	9.000	N	10.4	20.2	60.0	PASS
20.462925	39.9	1000.000	9.000	N	10.4	20.1	60.0	PASS
21.388275	40.1	1000.000	9.000	N	10.4	19.9	60.0	PASS
21.862144	39.7	1000.000	9.000	N	10.5	20.3	60.0	PASS
0.213431	44.3	1000.000	9.000	L1	9.6	18.6	62.9	PASS
0.329100	40.7	1000.000	9.000	L1	9.7	18.6	59.3	PASS
0.422381	41.0	1000.000	9.000	L1	9.7	16.3	57.3	PASS
0.433575	41.7	1000.000	9.000	L1	9.7	15.4	57.1	PASS
1.769362	35.8	1000.000	9.000	L1	9.8	20.2	56.0	PASS
1.802944	36.2	1000.000	9.000	L1	9.8	19.8	56.0	PASS

Frequency (MHz)	Average (dBμ V)	Meas. Time (ms)	Band width (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμ V)	Comment
0.332831	30.4	1000.000	9.000	N	9.7	18.8	49.2	PASS
20.656950	33.7	1000.000	9.000	N	10.4	16.3	50.0	PASS
20.776350	33.9	1000.000	9.000	N	10.4	16.1	50.0	PASS
21.246488	33.7	1000.000	9.000	N	10.4	16.3	50.0	PASS
21.668119	33.3	1000.000	9.000	N	10.5	16.7	50.0	PASS
22.447950	31.4	1000.000	9.000	N	10.5	18.6	50.0	PASS
0.213431	33.3	1000.000	9.000	L1	9.6	19.6	52.9	PASS
0.254475	31.6	1000.000	9.000	L1	9.7	19.8	51.4	PASS
0.344025	25.2	1000.000	9.000	L1	9.7	23.7	48.9	PASS
0.422381	31.4	1000.000	9.000	L1	9.7	15.9	47.3	PASS
0.448500	32.0	1000.000	9.000	L1	9.7	14.8	46.8	PASS
1.810406	28.4	1000.000	9.000	L1	9.8	17.6	46.0	PASS

B. Test Plot:



(Plot: L Phase)



(Plot: N Phase)

5 Radiated Emission

5.1 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	40.0
88 - 216	150	43.5
216 - 960	200	46.0
Above 960	500	54.0

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.

5.2 Test Description

See section 3.2.2 of this report.

5.3 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.

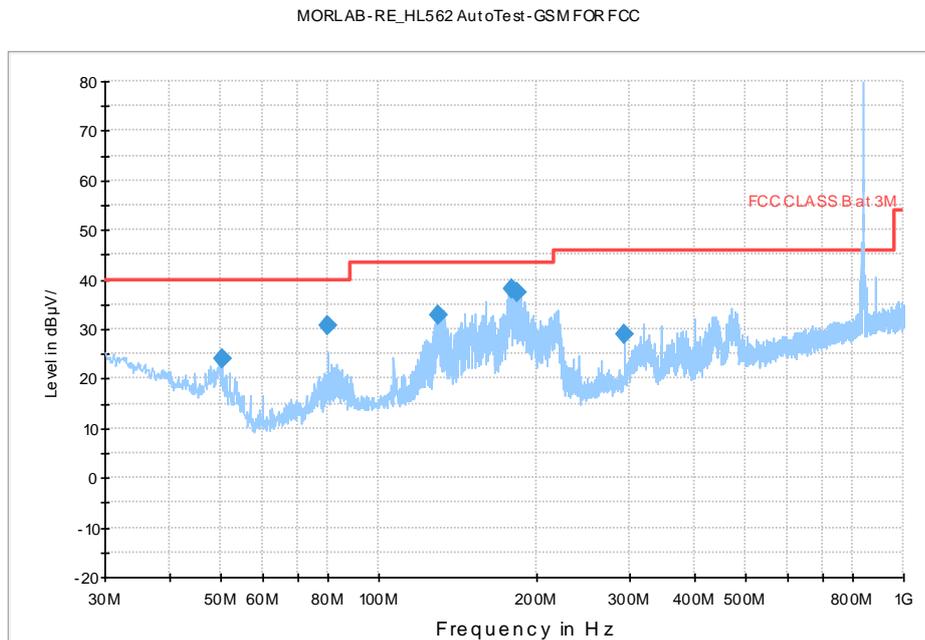
5.3.1.1 Test mode

The EUT configuration of the emission tests is EUT + Ancillary Equipments.

A. Test Verdict Recorded:

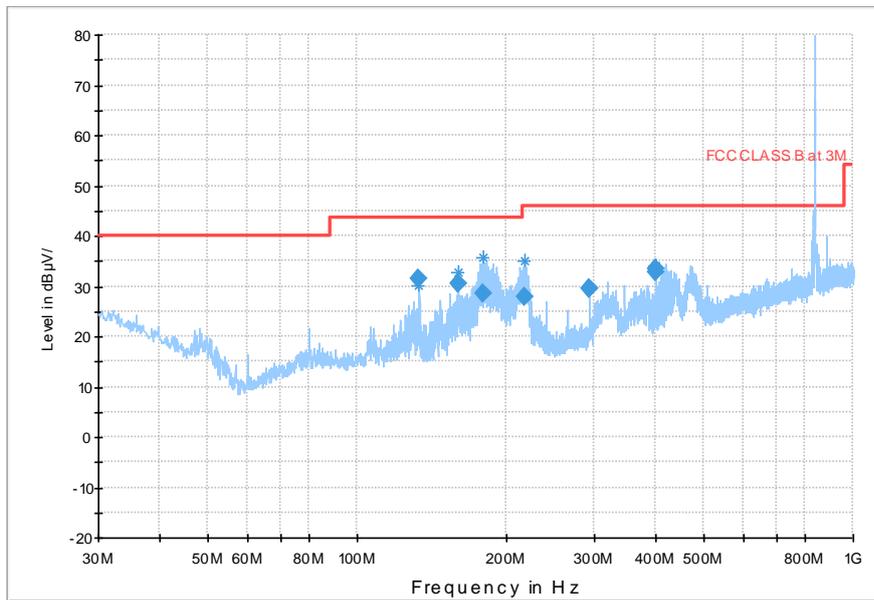
No.	@Frequency (MHz)	Measured Emission Level (dB μ V)		Limit (dB μ V)	Margin (dB)	Verdict
		QP	Polarity			
1	50.127500	24.0	V	40.0	16.0	PASS
2	79.955000	30.6	V	40.0	9.4	PASS
3	129.546250	32.9	V	43.5	10.6	PASS
4	179.016250	38.1	V	43.5	5.4	PASS
5	183.623750	37.5	V	43.5	6.0	PASS
6	293.112500	29.1	V	46.0	16.9	PASS
7	133.183750	31.6	H	43.5	11.9	PASS
8	159.858750	30.4	H	43.5	13.1	PASS
9	179.501250	28.7	H	43.5	14.8	PASS
10	217.573750	27.9	H	46.0	18.1	PASS
11	293.112500	29.4	H	46.0	16.6	PASS
12	399.691250	33.5	H	46.0	12.5	PASS

B. Test Plot:



(Plot: Test Antenna Vertical)

MORLAB-RE_HL562 AutoTest - GSM FOR FCC



(Plot: Test Antenna Horizontal)

**** END OF REPORT ****