



47 CFR PART 15 SUBPART B

TEST REPORT

of

Quad-band multimedia GSM phone

Model Name: N110
Trade Name: (n.a.)
Report No.: SZ07010021E03
FCC ID: T6QN110

prepared for

KCMobile Co., Ltd.

3F., Seochoworld Officetel, 1355-3, SeoCho-Dong,
SeoCho-Gu, Seoul 137-862, Korea

prepared by

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1. TEST CERTIFICATION

Equipment under Test: Quad-band multimedia GSM phone

Trade Name: (n.a.)

Model Name: N110

FCC ID: T6QN110

Applicant: KCMobile Co., Ltd.

3F., Seochoworld Officetel, 1355-3, SeoCho-Dong, SeoCho-Gu,
Seoul 137-862, Korea

Manufacturer: KCMobile Co., Ltd.

3F., Seochoworld Officetel, 1355-3, SeoCho-Dong, SeoCho-Gu,
Seoul 137-862, Korea

Test Standards: 47 CFR Part 15 Subpart B

EUT Received Date: February 14, 2007

Test Date(s): March 1, 2007 - March 6, 2007

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:

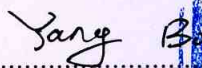


Zhang Weimin

Dated:

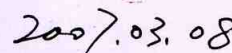


Reviewed by:

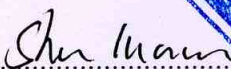


Yang Bo

Dated:

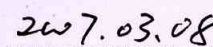


Approved by:



Shu Luan

Dated:



2. GENERAL INFORMATION

2.1 EUT Description

EUT Type.....: Quad-band multimedia GSM phone
Model Name: N110
Serial No.....: (n.a.)
IMEI: 355500009032954
Hardware Version: J1_MAIN_Rev03
Software Version: N110_155MXTC
Modulation Type.....: GMSK
Power Supply.....: Lithium-ion Battery
Trade Name: KCM
Model Name: N110
Manufacturer: Shenzhen Zhiyin Electronic Co., Ltd.
Serial No.: 0701000270
Capacitance: 550mAh
Rated Voltage: 3.7VDC
Ancillary Equipment 1: AC Adapter (Charger)
Trade Name: KCM
Model Name: N100
Manufacturer: Shenzhen Zhongtian Electronic Co., Ltd.
Serial No.: (n.a., marked #2 by test site)
Rated Input: ~ 100-240V, 50/60Hz, 90mA
Rated Output: = 5.2V, 600mA
Wire Length: 125cm
Ancillary Equipment 2: USB Adapter Cable
Manufacturer: (n.a.)
Model Name: (n.a.)
Serial No.: (n.a., marked #1 by test site)
Wire Length: 125cm

Note 1: The EUT, called "MS" for short, is classified as a Class B digital device.

Note 2: For a more detailed description, please refer to Specification or User's Manual supplied by the applicant and/or manufacturer.

2.2 EUT Function

The EUT supports GPRS function.

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 (Charger) and the USB Adapter Cable.

The EUT outfits an inner Camera.

2.3 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	Date of Test
1	15.107	Conducted Emission	PASS	2007-03-05
2	15.109	Radiated Emission	PASS	2007-03-06

2.4 Facilities and Accreditations

2.4.1 Facilities

Shenzhen Electronic Product Quality Testing Center Morlab Laboratory 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 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.

2.4.2 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):	960

3. TEST CONDITIONS SETTING

3.1 Test Mode

According to the functions of the EUT, several Test Modes listed below should be tested (also refer to section 3.2 for the test setup information):

A. "CALL__MS" Test Mode:

The EUT serves mainly as a mobile phone.

The EUT configuration is MS + Battery + Charger. During the measurement, the Charger which is powered by 120V 60Hz AC mains supply keeps charging the emptied Battery.

The EUT is commanded via a System Simulator to operate at GSM 850MHz band, and to work at the maximum output power i.e. Power Control Level (PCL) = 5, Power Class = 4; the operating channel number is set to middle ARFCN 190. A call is established between the EUT and the System Simulator.

B. "USB__MS_PC" Test Mode:

The EUT serves mainly as a Personal Computer peripheral.

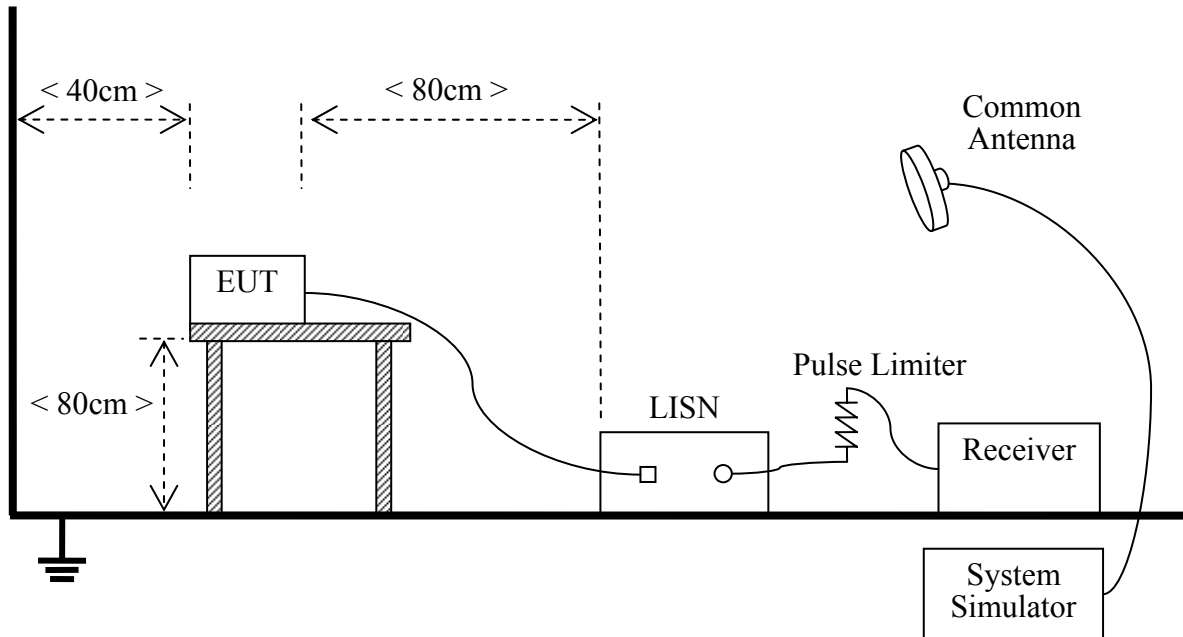
The EUT configuration is MS + Battery + USB Adapter Cable + Personal Computer. The EUT with a T-Flash Card (supplied by the test site) outfitted is connected to a USB port of a Personal Computer (supplied by the test site) via the USB Adapter Cable. The charger of the Personal Computer is powered by 120V 60Hz AC mains supply.

During the measurement, the EUT keeps transmitting and receiving files continuously with the Personal Computer.

3.2 Test Setup and Equipments List

3.2.1 Conducted Emission

A. Test Setup:



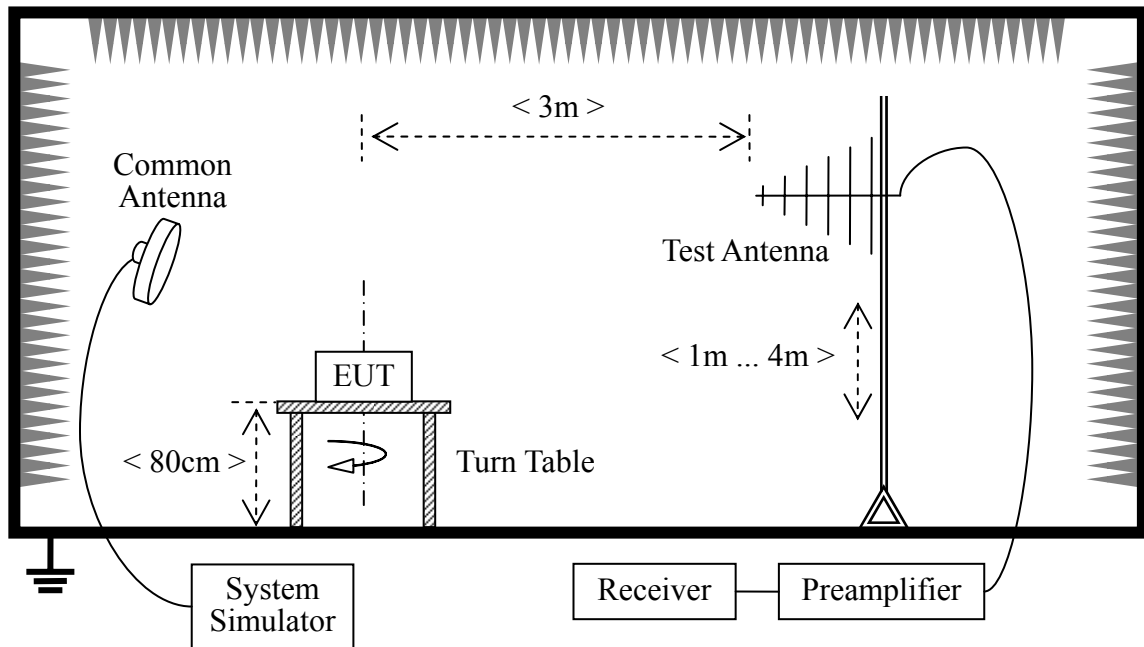
The EUT is placed on a 0.8m high insulating table, which stands on the grounded conducting floor, and keeps 0.4m away from the grounded conducting wall. The EUT is connected to the power mains through a LISN which provides $50\Omega/50\mu\text{H}$ of coupling impedance for the measuring instrument. The 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	2006.07	1year
LISN	Schwarzbeck	NSLK 8127	812744	2006.08	1year
Pulse Limiter (20dB)	Schwarzbeck	VTSD 9561-D	9391	(n.a.)	(n.a.)
System Simulator	Agilent	E5515C	GB43130131	2006.06	1year
Personal Computer	HP	Pavilion ze2202	CNF5460DNL	(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).

B. Equipments List:

Description	Manufacturer	Model	Serial No.	Cal. Date	Cal. Due
Receiver	Agilent	E7405A	US44210471	2006.07	1year
Full-Anechoic Chamber	Albatross	9m*6m*6m	(n.a.)	2006.08	2year
Test Antenna - Bi-Log	Schwarzbeck	VULB 9163	9163-274	2006.07	1year
Test Antenna - Horn	Schwarzbeck	BBHA 9120C	9120C-384	2006.07	1year
System Simulator	Agilent	E5515C	GB43130131	2006.06	1year
Personal Computer	HP	Pavilion ze2202	CNF5460DNL	(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)	
	Quai-peak	Average
0.15 - 0.50	66 to 56	56 to 46
0.50 - 5	56	46
0.50 - 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.

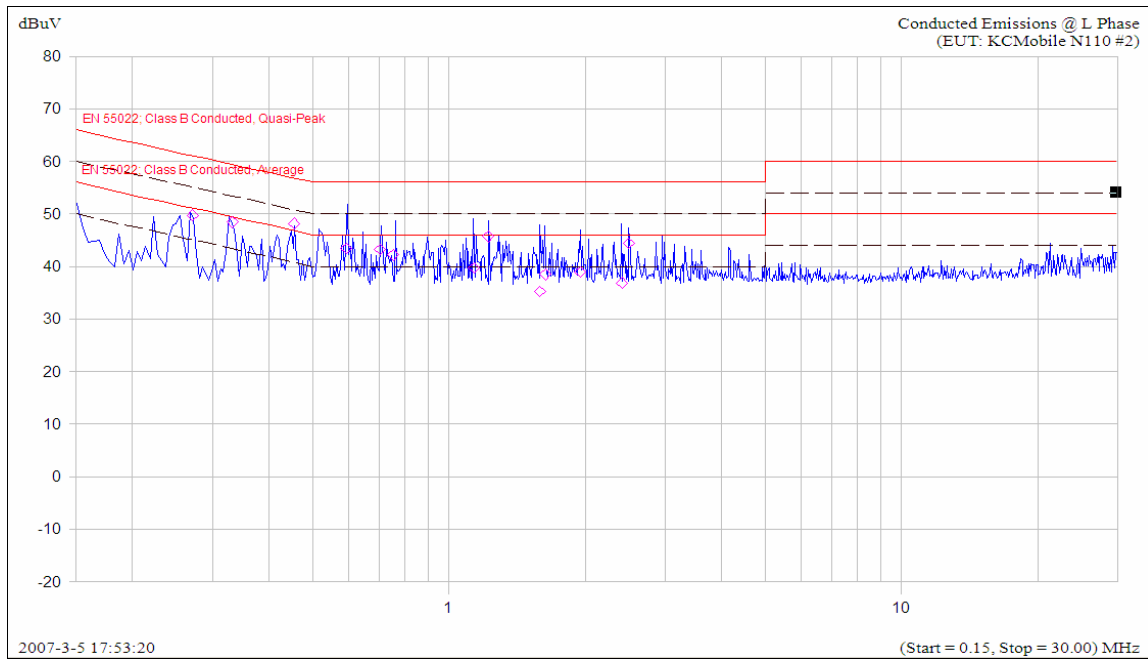
A. "CALL_MS" Test Mode:

Test Verdict Recorded for Suspicious Points

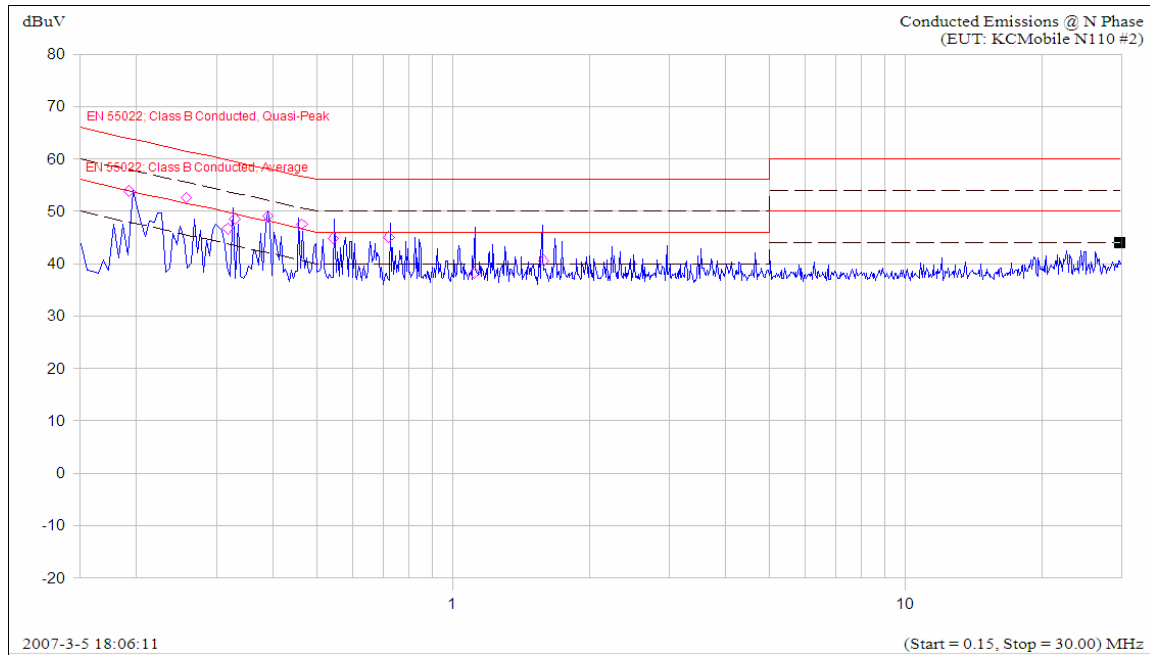
No.	@Frequency (MHz)	Measured Emission Level (dB μ V)				Limit (dB μ V)		Verdict
		PK	QP	AV	Phase	QP	AV	
1	0.193	53.8	47.6	24.3	N	63.9	53.9	PASS
2	0.257	52.6	45.4	24.6	N	61.5	51.5	PASS
3	0.330	48.6	37.9	23.3	N	59.5	49.5	PASS

No.	@Frequency (MHz)	Measured Emission Level (dB μ V)				Limit (dB μ V)		Verdict
		PK	QP	AV	Phase	QP	AV	
4	0.390	49.1	39.8	23.4	N	58.1	48.1	PASS
5	0.463	47.5	37.8	24.2	N	56.6	46.6	PASS
6	0.722	45.0	33.1	22.4	N	56.0	46.0	PASS
7	0.271	49.7	39.8	32.3	L	61.1	51.1	PASS
8	0.333	48.4	36.6	23.2	L	59.4	49.4	PASS
9	0.455	48.2	41.1	25.6	L	56.8	46.8	PASS
10	0.594	43.4	38.2	26.4	L	56.0	46.0	PASS
11	1.221	45.7	37.7	23.1	L	56.0	46.0	PASS
12	2.499	44.4	32.7	21.5	L	56.0	46.0	PASS

Test Plot



(Plot A: L Phase)



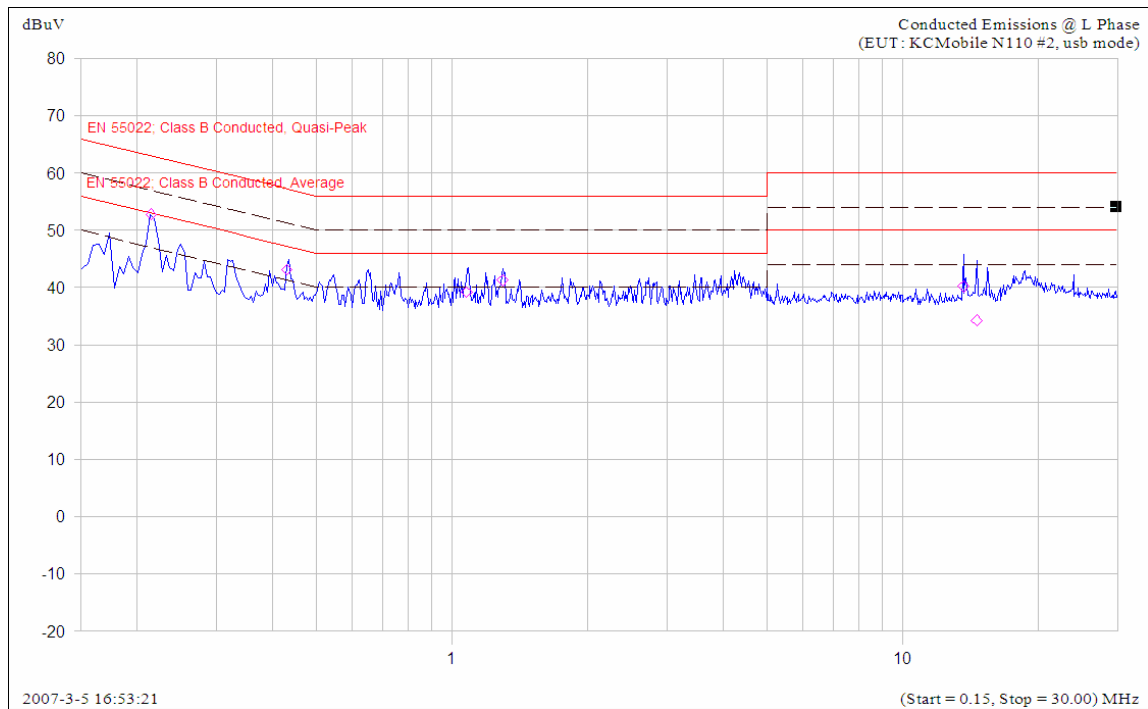
(Plot B: N Phase)

B. "USB_MS_PC" Test Mode:

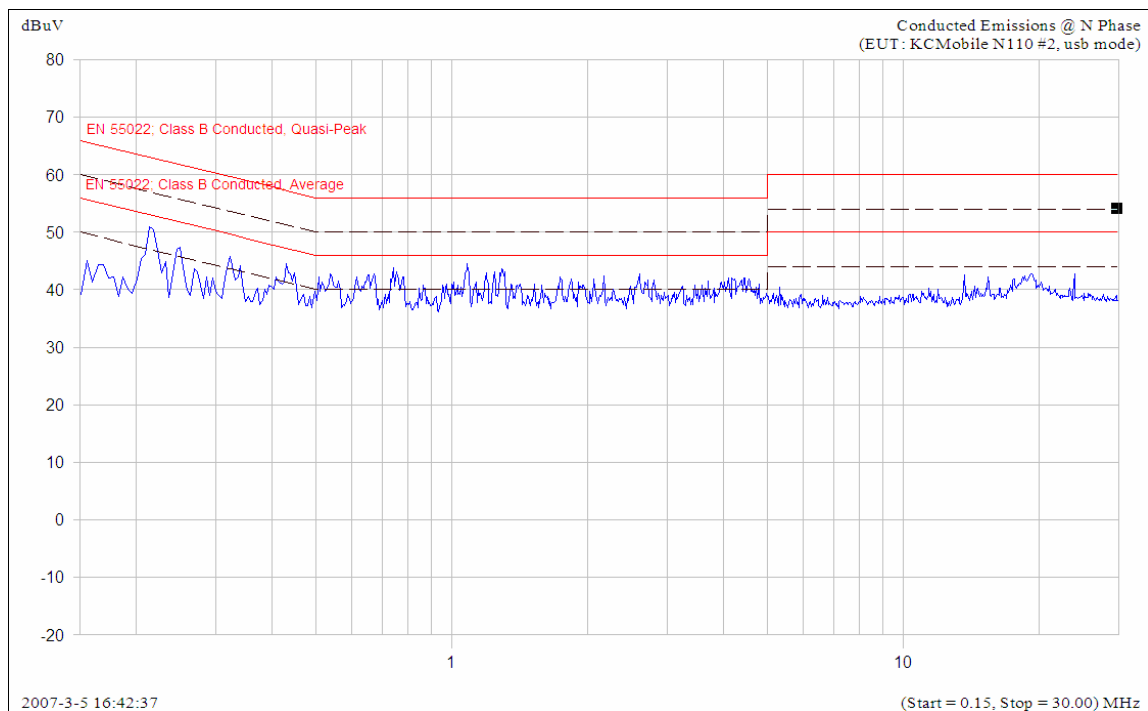
Test Verdict Recorded for Suspicious Points

No.	@Frequency (MHz)	Measured Emission Level (dBμV)				Limit (dBμV)		Verdict
		PK	QP	AV	Phase	QP	AV	
1	0.213	51.2	47.2	39.4	N	63.1	53.1	PASS
2	0.251	48.0	44.7	39.2	N	61.7	51.7	PASS
3	0.322	43.0	38.5	36.0	N	59.7	49.7	PASS
4	0.435	42.9	39.1	35.0	N	57.2	47.2	PASS
5	0.748	41.0	36.6	29.1	N	56.0	46.0	PASS
6	1.079	43.2	39.5	33.0	N	56.0	46.0	PASS
7	0.215	52.8	50.0	42.2	L	63.0	53.0	PASS
8	0.430	43.1	40.3	33.9	L	57.3	47.3	PASS
9	1.077	39.2	38.1	30.8	L	56.0	46.0	PASS
10	1.295	41.3	38.2	30.0	L	56.0	46.0	PASS
11	13.643	40.2	33.2	26.5	L	60.0	50.0	PASS
12	14.596	34.3	29.2	25.8	L	60.0	50.0	PASS

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.

A. "CALL_MS" Test Mode:

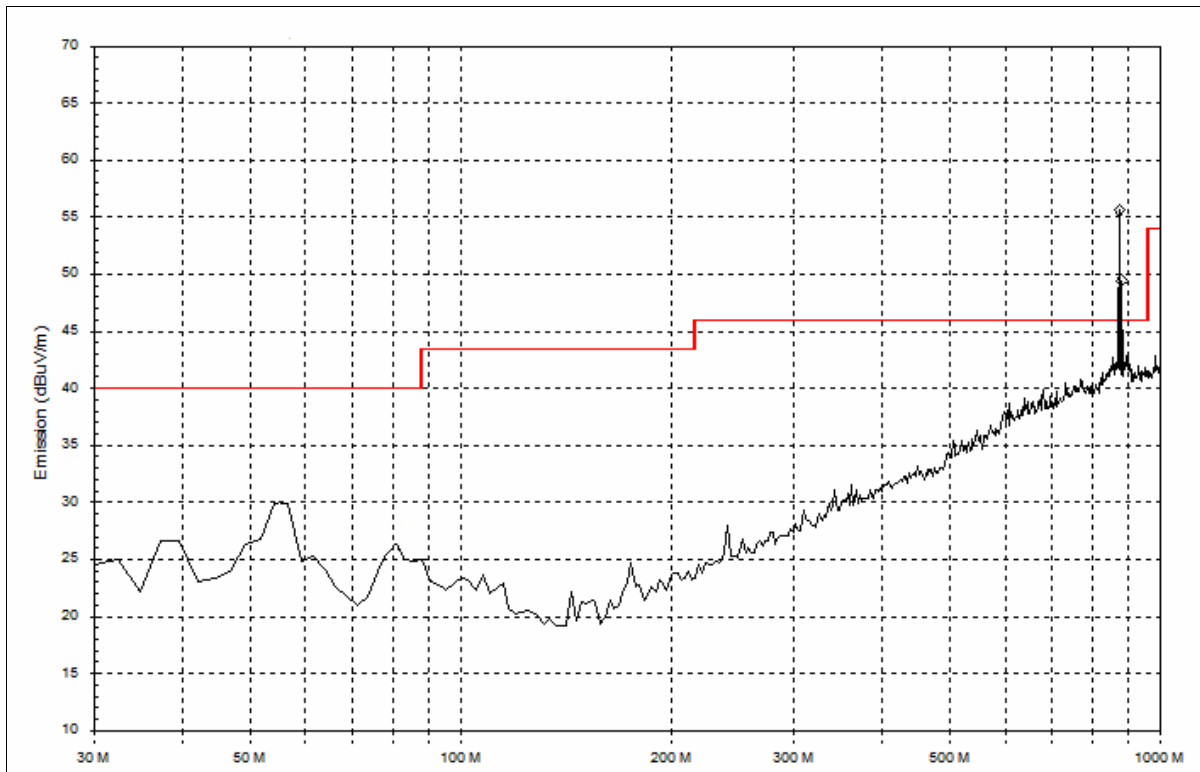
Test Verdict Recorded for Suspicious Points

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	54.25	29.95	---	Vertical	40.0	PASS
2	80.925	26.25	---	Vertical	40.0	PASS
3	175.5	24.67	---	Vertical	43.5	PASS
4	(n.a.)	(n.a.)	(n.a.)	Vertical	(n.a.)	PASS
5	(n.a.)	(n.a.)	(n.a.)	Vertical	(n.a.)	PASS
6	(n.a.)	(n.a.)	(n.a.)	Vertical	(n.a.)	PASS
7	93.05	28.44	---	Horizontal	43.5	PASS
8	163.375	24.67	---	Horizontal	43.5	PASS

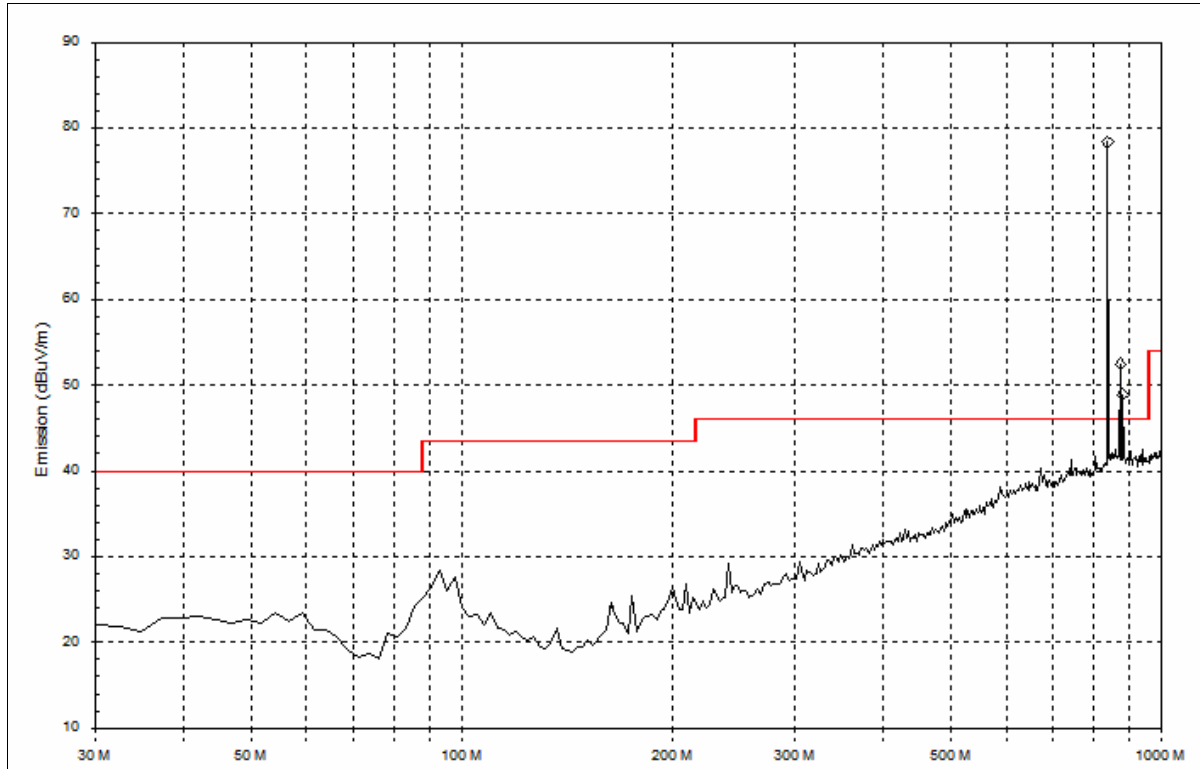
No.	@Frequency (MHz)	Emission Level (dB μ V/m)			Quasi-Peak Limit (dB μ V/m)	Result
		PK	QP	Antenna Polarization		
9	175.5	25.49	---	Horizontal	43.5	PASS
10	209.45	26.87	---	Horizontal	43.5	PASS
11	199.75	26.45	---	Horizontal	43.5	PASS
12	(n.a.)	(n.a.)	(n.a.)	Horizontal	(n.a.)	PASS

Test Plot

Note: 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)



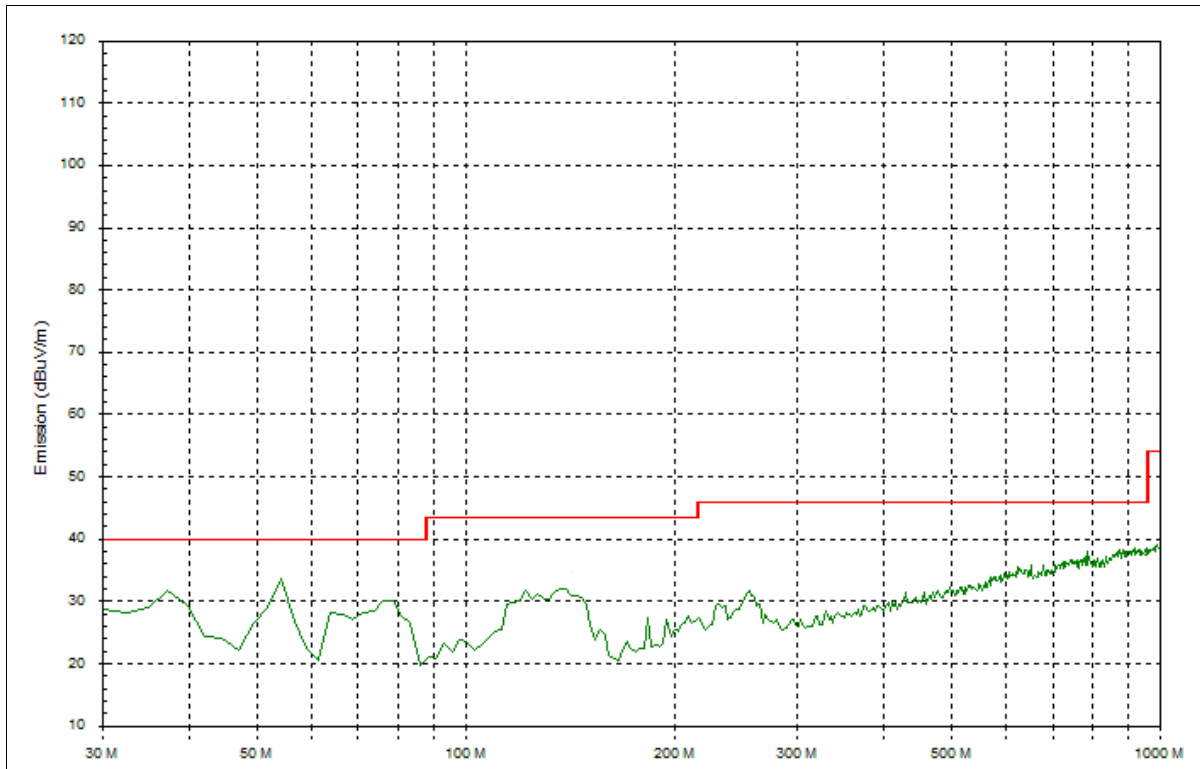
(Plot B: Test Antenna Horizontal)

B. "USB_MS_PC" Test Mode:

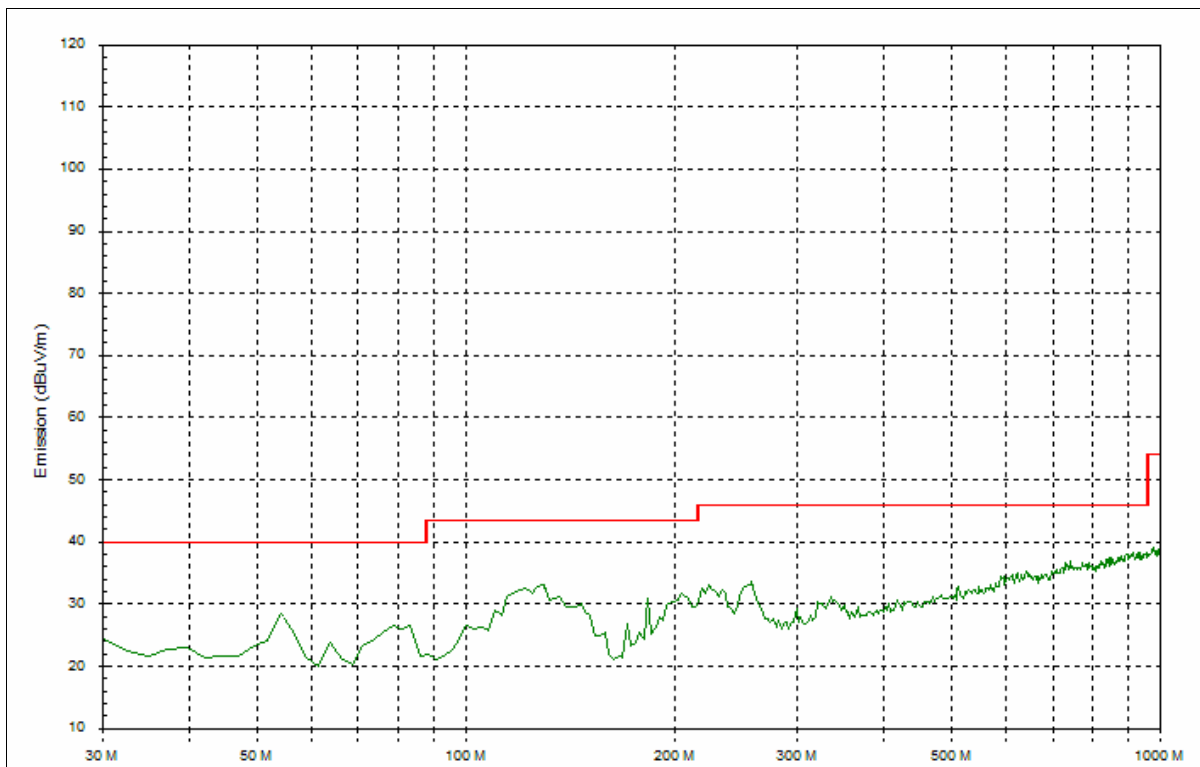
Test Verdict Recorded for Suspicious Points

No.	@Frequency (MHz)	Emission Level (dB μ V/m)			Quasi-Peak Limit (dB μ V/m)	Result
		PK	QP	Antenna Polarization		
1	54.25	33.53	---	Vertical	40.0	PASS
2	136.70	32.15	---	Vertical	43.5	PASS
3	182.78	27.49	---	Vertical	43.5	PASS
4	(n.a.)	(n.a.)	(n.a.)	Vertical	(n.a.)	PASS
5	(n.a.)	(n.a.)	(n.a.)	Vertical	(n.a.)	PASS
6	(n.a.)	(n.a.)	(n.a.)	Vertical	(n.a.)	PASS
7	54.25	28.47	---	Horizontal	40.0	PASS
8	129.43	33.09	---	Horizontal	43.5	PASS
9	182.78	30.81	---	Horizontal	43.5	PASS
10	(n.a.)	(n.a.)	(n.a.)	Horizontal	(n.a.)	PASS
11	(n.a.)	(n.a.)	(n.a.)	Horizontal	(n.a.)	PASS
12	(n.a.)	(n.a.)	(n.a.)	Horizontal	(n.a.)	PASS

Test Plot



(Plot A: Test Antenna Vertical)



(Plot B: Test Antenna Horizontal)

**** END OF REPORT ****