



Nemko USA, Inc
11696 Sorrento Valley Rd., Suite F
San Diego, CA 92121-1024

EMC TEST REPORT
Kyocera Wireless Corp.
3 MODE CELLUAR MOBILE PHONES

Model: **KX9A and KX9C**

RADIATED EMISSIONS

FCC, PART 2.1053

FCC, PART 15.109

FCC, PART 22 SUBPART H

FCC, PART 24 SUBPART E

INDUSTRY CANADA, RSS-129

INDUSTRY CANADA, RSS-133

TEST REPORT # 2005 050283 KX9A/C FCC

25-283-KYO

NEMKO USA, INC.
11696 SORRENTO VALLEY ROAD SUITE F
SAN DIEGO, CA 92121
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EMC Test Report
For
Kyocera Wireless Corp.

Test Number : 25-283-KYO

Product Name : **3 MODE CELLUAR MOBILE PHONES**

Regulation : FCC, Part 15.109, Part 15.209
: FCC, Part 22, Subpart H, Part 24, Subpart E
: Industry Canada, RSS-129, RSS-133

Date : MAY 19, 2005

Report Reviewed

Accepted by: _____

Kyocera Wireless Corp.
10300 Campus Point Drive
San Diego, CA 92121
Phone: **858 882-2879**
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Report Issued By: *FR Fleury*

For Ricky Hill, Senior EMC Engineer

Tested By:

Mike Krumweide

Mike Krumweide, EMC Test Engineer

Administrative Data

Regulation : FCC, Part 15.109
: FCC, Part 22, Subpart H, Part 24, Subpart E
: Industry Canada, RSS-129, RSS-133

Level : Not Applicable

Test Method : ANSI C63.4 – 2002
: CSA C108. - M1983

Test Type : Verification
Manufacturer : **Kyocera Wireless Corp.**
EUT Type/:Model # : **KX9A and KX9C**
Date(s) of Test : April 21, 2005 to April 22, 2005
Customer Personnel : John Turner, Engineer

Nemko Personnel : R. Hill, Senior EMC Engineer
: Alan Laudani, EMC Test Engineer
: Mike Krumweide, EMC Test Engineer

Test Location : OPEN Area Test Site
Nemko USA, Inc.
11696 Sorrento Valley Road, Suite F
San Diego, CA 92121

EUT Description

The **KX9A and KX9C** is a **3 MODE CELLUAR MOBILE PHONES**. The EUT was exercised by setting it to continuously transmit at required test frequencies or the set receive mode through external control from laptop and control software. The laptop was then removed from the test setup. Its function is to provide wireless communications for personal use. The EUT was exercised in PCS Transmit and Receive for radiated emissions.

Design Modifications for Compliance.

The tests were run in a typical configuration including the following support equipment and cable connections.

DEVICE	MANUFACTURER	POWER CABLE
	MODEL # SERIAL #	
EUT - 3 MODE CELLUAR MOBILE PHONES	Kyocera Wireless Corp. Model: KX9A SN: 92-X----18X3DS	N/A
EUT - 3 MODE CELLUAR MOBILE PHONES	Kyocera Wireless Corp. Model: KX9C SN: 93-X----18X43R	N/A

CONNECTION	I/O CABLE
No connections	

REASON FOR TEST

The EUT was tested to qualify for FCC Part 15.109, 15.209 and Part 24, and RSS-133.

CHANGES MADE DURING TEST

The following design modifications were made to the EUT during testing.

No design modifications were made to the EUT during testing.

DEVIATIONS FROM STANDARD TEST METHOD

-- None

CERTIFICATION AND TEST SUMMARY

<i>Test Type</i>	<i>In Accordance with Document</i>	<i>Frequency Range Investigated</i>	<i>EUT Complies</i>
Radiated Spurious Emissions	FCC, Part 22, Subpart H, Part 24, Subpart E Industry Canada, RSS-129, RSS-133	824 – 19090 MHz	PASS

The **3 MODE CELLUAR MOBILE PHONES** complied with FCC Part 15.109, Part 15.209, and Parts 22 & 24, Industry Canada, RSS-129 and RSS133 when tested in the system configuration defined herein.

1. DESCRIPTION OF TEST SITE AND EQUIPMENT

1.1. Description of Test Site

The test site is located at 11696 Sorrento Valley Road, Suite F, San Diego, CA 92121. The site is physically located 18 miles Northwest of downtown San Diego. The general area is a valley 1.5 miles east of the Pacific Ocean. This particular part of the valley tends to minimize ambient levels, i.e. radio and TV broadcast stations and land mobile communications. The three and ten-meter Open Area Test Site (OATS) is located behind the office/lab building. It conforms to the normalized site attenuation limits and construction specifications as set in the EN 55022 (1998), CISPR 16 (2000) and 22 (1997) and ANSI C63.4-2002 documents. The OATS normalized site attenuation characteristics are verified for compliance every.

DESCRIPTION OF TESTING METHODS

1.2. Introduction

As required in 47 CFR, Parts 2 and 15, the methods employed to test the radiated and conducted emissions (as applicable) of the EUT are those contained within the American National Standards Institute (ANSI) document C63.4-2002, titled "Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz." All applicable FCC Rule Sections that provide further guidance for performance of such testing are also observed.

For General Test Configuration please refer to Figure 1 on the following page.

Digital devices sold in Canada are required to comply with the Interference Causing Equipment Standard for Digital Apparatus, ICES-003. These test methods and limits are specified in the Canadian Standards Association's (CSA) Standard C108.8-M1983 (1-1-94 version) and are "essentially equivalent" with FCC, Part 15 and CISPR 22 (EN55022) rules for unintentional radiators per EMCAB-3, Issue 3 (May 1998). No further testing is required for compliance to ICES-003.

Figure 1. General EUT Test Setup Picture



Nemko USA
Kyocera Wireless Corp.
KX9A
25-283-KYO
2005 040283 C FCC

CONFIGURATION LEGEND

1. EUT: **3 MODE CELLUAR MOBILE PHONES**
2. 80cm Non-Conductive Support Table

1.3. Configuration and Methods of Measurements for Radiated Emissions

Section 8 of ANSI C63.4 determines the general configuration and procedures for measuring the radiated emissions of equipment under test. Initially, the primary emission frequencies are identified inside the test lab by positioning a broadband receive antenna one meter from the EUT to locate frequencies of significant radiation. Next, the EUT and associated system are placed on a turntable on a ten meter open area test site (registered with the FCC in accord with its Rules and ANSI C63.4) and the receive antenna is located at a distance of ten meters from the EUT.

The EUT and associated system are configured to operate continuously, representing a “normally operating” mode. All significant radiated emissions are recorded when maximum radiation on each frequency is observed, in accordance with part 8 of ANSI C63.4-1992 and Section 15.33 of the FCC Rules. To ensure that the maximum emission at each discrete frequency of interest is observed, the receive antenna is varied in height from one to four meters and rotated to horizontal and vertical polarities, and the turntable is also rotated to determine the worst emitting configuration. The numerical results of the test are included herein to demonstrate compliance.

The numerical results that are applied to the emissions limits are arrived at by the following method:

Example: $A = RR + CL + AF$

A = Amplitude dBuV/M

RR = Receiver Reading dBuV

CL = cable loss dB

AF = antenna factor dBm-1

Example Frequency = 110MHz

18.5 dBuV (spectrum analyzer reading)

+3.0 dB (cable loss @ frequency)

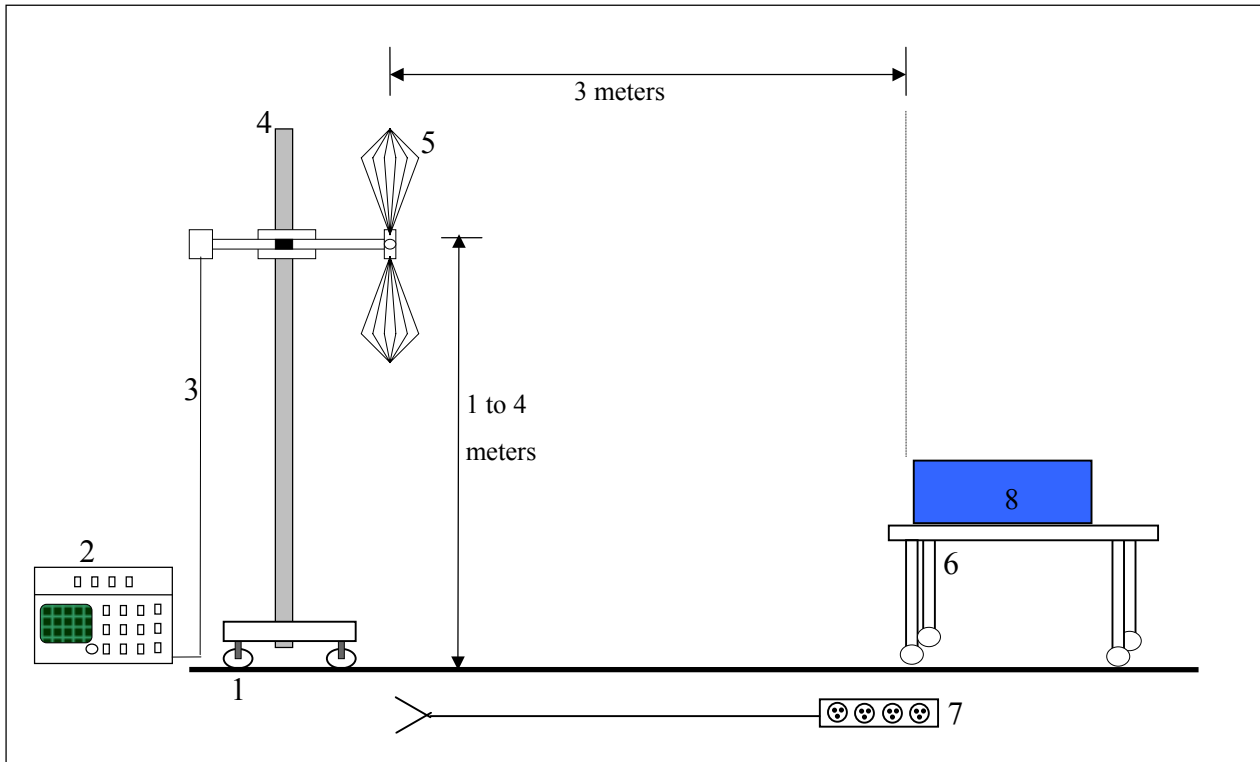
21.5 dBuV

+15.4 dBm-1 (antenna factor @ frequency)

36.9 dBuV/M Final adjusted value

The final adjusted value is then compared to the appropriate emission limit to determine compliance.

For Radiated Emissions Test Configuration please refer to Figure 4 on the following page.

Figure 2. Radiated Emissions Test Setup Diagram*NOT TO SCALE***CONFIGURATION LEGEND**

1. Ground plane (11 X 17 meters)
2. Spectrum Analyzer with Quasi-Peak Adapter
3. Coax interconnect from Receive Antenna to Spectrum Analyzer
4. Antenna Mast with motorized mounting assembly
5. Receive Antenna (basic relative position)
6. Non-Conducting table 80 cm above ground plane
7. AC power for devices
8. EUT: 3 MODE CELLUAR MOBILE PHONES

2. TEST RESULTS

2.1. Radiated Emissions Test Data

FCC Part 2, 22 & 24 Emissions Substitution

- 1) Methodology Used: TIA/EIA603 (see attached excerpt).
- 2) The Substitution Method is used for fundamental power levels and spurious emissions when RF emission signals are measured within 20 dB of the limit.
- 3) Formula Used to calculate the values:
 - a) $\text{Measured value} + \text{antenna factor} + \text{cable loss} - \text{preamplifier} = \text{Max Level}$
 - b) $\text{Margin} = \text{Max level} - \text{Limit}$
 - c) $\text{Signal Generator power level} - \text{cable loss} + \text{antenna gain} = \text{ERP Part 22 or EIRP Part 24}$
 - d) $\text{Substituted Margin} = \text{ERP (or EIRP)} - \text{Limit}$

Note: gain for dipole = 0; antenna factor is not the same as antenna gain

Note: The signal generator power level is the power required when transmitting into the substituting antenna to duplicate the Measured Value. Substituted margin is reported in 731 forms pertaining to certification grants and Class II Permissive Changes when a direct conducted power reading cannot be performed.

Note: Per FCC Part 2:1051 the FCC does not require reporting of Spurious Emissions when they are more than 20dB below the permissible limit, therefore no signal substitution measurements will be performed on these signals.

SUBSTITUTION WAS NOT REQUIRED WITH THE EMISSION LEVELS MEASURED.

Radiated Emissions Data

Job #: 25-283-KYO Test #: 1
Page 1 of 1

Client Name : Kyocera Wireless Corp.
EUT Name : 3 Mode Cellular Phone
EUT Model # : KX9A
EUT Part # :
EUT Serial # : 92--X----18X3DS
EUT Config. : FM Tx Harmonics

Specification : FCC Part 22

Rod. Ant. #: NA Temp. (deg. C) : 20
Bicon Ant. #: NA Humidity (%) : 50
Log Ant. #: 112 EUT Voltage : NA
DRG Ant. #: 752 EUT Frequency : NA
Dipole Ant. #: NA Phase: NA
Cable#: 40ft Location: RN# 90579
Preamp#: 842 Distance: 3m
Spec An. #: 835 ERP conversion factor 7
QP #: NA
PreSelect#: NA

Reference :

Date : 04/21/05
Time :
Staff : A. Laudani

Peak Bandwidth: 1 MHz
Video Bandwidth 1 MHz

Meas. Freq. (MHz)	Vertical (dBuV) pk	Horizontal (dBuV) pk	CF (db)	Max Level (dBm) pk	Spec. Limit (ERP) (dBm) pk	Margin dB pk	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
1648.08	72.8	59.0	-11.1	-35.6	-13.0	-22.6		1.0	Pass	*
2472.12	69.4	65.2	-7.4	-35.3	-13.0	-22.3		1.0	Pass	*
3296.16	54.5	56.0	-4.4	-45.7	-13.0	-32.7		1.0	Pass	*
4120.20			-1.2		-13.0			1.0		Noise floor
4944.24			-1.2		-13.0			1.0		Noise floor
5768.28			2.0		-13.0			1.0		Noise floor
6592.32			3.3		-13.0			1.0		Noise floor
7416.36			6.2		-13.0			1.0		Noise floor
8240.40			8.9		-13.0			1.0		Noise floor
9064.44			9.3		-13.0			1.0		Noise floor
1672.98	73.0	58.7	-11.1	-35.4	-13.0	-22.4		1.0	Pass	*
2509.47	57.7	56.6	-7.1	-46.7	-13.0	-33.7		1.0	Pass	*
3345.96	59.7	61.6	-4.4	-40.1	-13.0	-27.1		1.0	Pass	*
4182.45			-1.2		-13.0			1.0		Noise floor
5018.94			1.8		-13.0			1.0		Noise floor
5855.43			2.0		-13.0			1.0		Noise floor
6691.92			3.3		-13.0			1.0		Noise floor
7528.41			6.4		-13.0			1.0		Noise floor
8364.90			8.9		-13.0			1.0		Noise floor
9201.39			9.3		-13.0			1.0		Noise floor
1697.94	74.6	66.9	-11.1	-33.8	-13.0	-20.8		1.0	Pass	*
2546.91	63.9	57.3	-7.1	-40.5	-13.0	-27.5		1.0	Pass	*
3395.88	56.6	58.0	-4.4	-43.7	-13.0	-30.7		1.0	Pass	*
4244.85			-1.2		-13.0			1.0		Noise floor
5093.82			1.8		-13.0			1.0		Noise floor
5942.79			2.0		-13.0			1.0		Noise floor
6791.76			3.3		-13.0			1.0		Noise floor
7640.73			6.4		-13.0			1.0		Noise floor
8489.70			8.9		-13.0			1.0		Noise floor
9338.67			9.3		-13.0			1.0		Noise floor
10187.64			12.1		-13.0			1.0		Noise floor

No signals observed, even at lower RBW

Radiated Emissions Data

Job # : 25-283-KYO Test # : 2
 Page 1 of 1

Client Name : Kyocera Wireless Corp.
 EUT Name : 3 Mode Cellular Phone
 EUT Model # : KX9A
 EUT Part # :
 EUT Serial # : 92--X----18X3DS
 EUT Config. : CDMA Tx Harmonics

Specification : FCC Part 22
 Rod. Ant. # : NA Temp. (deg. C) : 20
 Bicon Ant.# : NA Humidity (%) : 54
 Log Ant.# : 112 EUT Voltage : NA
 DRG Ant. # : 752 EUT Frequency : NA
 Dipole Ant.# : NA Phase : NA
 Cable# : 40ft Location : RN# 90579
 Preamp# : 842 Distance : 3m
 Spec An.# : 835 ERP conversion factor : 7
 QP # : NA
 PreSelect# : NA

Reference :
 Date : 4/21/05
 Time :
 Staff : A. Laudani
 Photo ID :
 Peak Bandwidth : 1 MHz
 Video Bandwidth : 1 MHz

Meas. Freq. (MHz)	Vertical (dBuV) pk	Horizontal (dBuV) pk	CF (db)	Max Level (dBm) pk	Spec. Limit (ERP) (dBm) pk	Margin dB pk	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
1649.40	60.7	53.7	-11.1	-47.7	-13.0	-34.7		1.0	Pass	*
2474.64			-7.4		-13.0			1.0		Noise floor
3298.80	49.7	50.1	-4.4	-51.6	-13.0	-38.6		1.0	Pass	*
4123.50			-1.2		-13.0			1.0		Noise floor
4948.20			-1.2		-13.0			1.0		Noise floor
5772.90			2.0		-13.0			1.0		Noise floor
6597.60			3.3		-13.0			1.0		Noise floor
7422.30			6.2		-13.0			1.0		Noise floor
8247.00			8.9		-13.0			1.0		Noise floor
9071.70			9.3		-13.0			1.0		Noise floor
1672.98	60.0	54.6	-11.1	-48.4	-13.0	-35.4		1.0	Pass	*
2509.47			-7.1		-13.0			1.0		Noise floor
3345.96			-4.4		-13.0			1.0		Noise floor
4182.45			-1.2		-13.0			1.0		Noise floor
5018.94			1.8		-13.0			1.0		Noise floor
5855.43			2.0		-13.0			1.0		Noise floor
6691.92			3.3		-13.0			1.0		Noise floor
7528.41			6.4		-13.0			1.0		Noise floor
8364.90			8.9		-13.0			1.0		Noise floor
9201.39			9.3		-13.0			1.0		Noise floor
1696.62	67.9	55.9	-11.1	-40.5	-13.0	-27.5		1.0	Pass	*
2544.93	53.8	50.4	-7.1	-50.6	-13.0	-37.6		1.0	Pass	*
3393.24	52.4	55.4	-4.4	-46.3	-13.0	-33.3		1.0	Pass	*
4241.55			-1.2		-13.0			1.0		Noise floor
5089.86			1.8		-13.0			1.0		Noise floor
5938.17			2		-13.0			1.0		Noise floor
6786.48			3.3		-13.0			1.0		Noise floor
7634.79			6.4		-13.0			1.0		Noise floor
8483.10			8.9		-13.0			1.0		Noise floor
9331.41			9.34		-13.0			1.0		Noise floor

No signals observed, even at lower RBW

Radiated Emissions Data

Job #: 25-283-KYO
Page 1Test #: 3
of 1

Client Name : Kyocera Wireless Corp.
 EUT Name : 3 Mode Cellular Phone
 EUT Model #: KX9A
 EUT Part # :
 EUT Serial #: 92--X---18X3DS
 EUT Config. : PCS Tx Harmonics

Specification : FCC Part 24

Reference :

Rod. Ant. #: NA Temp. (deg. C) : 20
 Bicon Ant. #: NA Humidity (%) : 50
 Log Ant. #: 112 EUT Voltage : NA
 DRG Ant. #: 752 EUT Frequency : NA
 Dipole Ant. #: NA Phase: NA
 Cable #: 40ft Location: RN# 90579
 Preamp #: 842 Distance: 3m
 Spec An. #: 835 EIRP conversion factor : 5.5
 QP #: NA
 PreSelect #: NA

Date : 4/21/05
 Time :
 Staff : A. Laudani
 Photo ID :
 Peak Bandwidth: 1 MHz
 Video Bandwidth: 1 MHz

Meas. Freq. (MHz)	Vertical (dBuV) pk	Horizontal (dBuV) pk	CF (db)	Max Level (dBm) pk	Spec. Limit (EIRP) (dBm) pk	Margin dB pk	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
3702.50	56.9	50.9	-3.3	-41.7	-13.0	-28.7		1.0	Pass	*
5553.75			2.0		-13.0			1.0		Noise floor
7405.00			6.2		-13.0			1.0		Noise floor
9256.25			9.3		-13.0			1.0		Noise floor
11107.50			13.6		-13.0			1.0		Noise floor
12958.75			16.0		-13.0			1.0		Noise floor
14810.00			23.2		-13.0			1.0		Noise floor
16661.25			24.3		-13.0			1.0		Noise floor
18512.50			34.4		-13.0			1.0		Noise floor
20363.75			34.4		-13.0			1.0		Noise floor
3760.00			-3.3		-13.0			1.0		Noise floor
5640.00	52.5	54.1	2.0	-39.2	-13.0	-26.2		1.0	Pass	*
7520.00	50.2	48.9	6.4	-38.7	-13.0	-25.7		1.0	Pass	*
9400.00			9.3		-13.0			1.0		Noise floor
11280.00			13.6		-13.0			1.0		Noise floor
13160.00			20.3		-13.0			1.0		Noise floor
15040.00			23.4		-13.0			1.0		Noise floor
16920.00			24.3		-13.0			1.0		Noise floor
18800.00			34.4		-13.0			1.0		Noise floor
20680.00			34.4		-13.0			1.0		Noise floor
3817.50			-3.3		-13.0			1.0		Noise floor
5726.25	53.7	53.9	2.0	-39.4	-13.0	-26.4		1.0	Pass	*
7635.00			6.4		-13.0			1.0		Noise floor
9543.75			9.2		-13.0			1.0		Noise floor
11452.50			13.6		-13.0			1.0		Noise floor
13361.25			20.3		-13.0			1.0		Noise floor
15270.00			23.4		-13.0			1.0		Noise floor
17178.75			28.8		-13.0			1.0		Noise floor
19087.50			34.4		-13.0			1.0		Noise floor
20996.25			34.4		-13.0			1.0		Noise floor

No signals observed, even at lower RBW

Radiated Emissions Data

Job #: 25-283-KYO Test #: 4
Page 1 of 1

Client Name : Kyocera Wireless Corp.
EUT Name : 3 Mode Cellular Phone
EUT Model # : KX9A
EUT Part # :
EUT Serial # : 92--X----18X3DS
EUT Config. : PCS TX Synth

Specification : FCC Part 15.209

Rod. Ant. # : NA Temp. (deg. C) : 20
Bicon Ant. # : NA Humidity (%) : 50
Log Ant. # : 112 EUT Voltage : NA
DRG Ant. # : 752 EUT Frequency : NA
Dipole Ant. # : NA Phase : NA
Cable# : 40ft Location : RN# 90579
Preamp# : 842 Distance : 3m
Spec An. # : 835
QP # : NA
PreSelect# : NA

Reference :

Date : 4/21/05
Time :
Staff : A. Laudani
Photo ID :
Peak Measurement Bandwidth: 1 MHz/ 1 MHz
Average Measurement Bandwidth: 1 MHz/ 10 Hz

Meas. Freq. (MHz)	Vertical (dBuV)		Horizontal (dBuV)		CF (db)	Max Level (dBuV/m)		Spec. Limit (dBuV/m)		Margin dB		EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
	pk	av	pk	av		pk	av	pk	av	pk	av				
1504.0	50.4	38.4	51.6	40.3	-11.1	40.5	29.2	74.0	54.0	-33.5	-24.8		1.0	Pass	*
3008.0	43.3	33.9	50.6	37.8	-4.4	46.2	33.4	74.0	54.0	-27.8	-20.6		1.0	Pass	*
4512.0					-1.2			74.0	54.0				1.0		Noise floor
6016.0					3.0			74.0	54.0				1.0		Noise floor
7520.0					6.4			74.0	54.0				1.0		Noise floor
9024.0					9.3			74.0	54.0				1.0		Noise floor
10528.0					11.6			74.0	54.0				1.0		Noise floor
12032.0					16.5			74.0	54.0				1.0		Noise floor
13536.0					20.6			74.0	54.0				1.0		
15040.0					23.4			74.0	54.0				1.0		
1481.0	45.3	34.1	51.7	40.1	-13.1	38.6	27.0	74.0	54.0	-35.4	-27.0		1.0	Pass	*
2962.0	48.6	35.9	52.9	40.8	-7.1	45.8	33.7	74.0	54.0	-28.2	-20.3		1.0	Pass	*
4443.0					-1.2			74.0	54.0				1.0		Noise floor
5924.0					2.0			74.0	54.0				1.0		Noise floor
7405.0					6.2			74.0	54.0				1.0		Noise floor
8886.0					8.2			74.0	54.0				1.0		Noise floor
10367.0					12.1			74.0	54.0				1.0		Noise floor
12032.0					16.5			74.0	54.0				1.0		Noise floor
13329.0					20.3			74.0	54.0				1.0		
14810.0					23.2			74.0	54.0				1.0		
1527.0	52.0	39.3	51.7	39.0	-11.1	40.9	28.2	74.0	54.0	-33.1	-25.8		1.0	Pass	*
3054.0					-4.4			74.0	54.0				1.0		Noise floor
4581.0					-1.2			74.0	54.0				1.0		Noise floor
6108.0					3.0			74.0	54.0				1.0		Noise floor
7635.0					6.4			74.0	54.0				1.0		Noise floor
9162.0					9.3			74.0	54.0				1.0		Noise floor
10689.0					11.6			74.0	54.0				1.0		Noise floor
12216.0					16.5			74.0	54.0				1.0		Noise floor
13743.0					20.6			74.0	54.0				1.0		
15270.0					23.4			74.0	54.0				1.0		

No signals observed, even at lower RBW

Radiated Emissions Data

Job #: 25-283-KYO Test #: 5
 Page 1 of 1

Client Name : Kyocera Wireless Corp.
 EUT Name : 3 Mode Cellular Phone
 EUT Model # : KX9A
 EUT Part # :
 EUT Serial # : 92--X----18X3DS
 EUT Config. : PCS RX

Specification : FCC Part 15.109
 Rod. Ant. #: NA Temp. (deg. C) : 16
 Bicon Ant. #: NA Humidity (%) : 77
 Log Ant. #: 112 EUT Voltage : NA
 DRG Ant. #: 752 EUT Frequency : NA
 Dipole Ant. #: NA Phase : NA
 Cable #: 40ft Location: RN# 90579
 Preamp #: 842 Distance: 3m
 Spec An #: 835
 QP #: NA
 PreSelect #: NA

Reference :
 Date : 4/21/05
 Time :
 Staff : A. Laudani
 Photo ID :
 Peak Measurement Bandwidth: 1 MHz/ 1 MHz
 Average Measurement Bandwidth: 1 MHz/ 10 Hz

Meas. Freq. (MHz)	Vertical (dBuV)		Horizontal (dBuV)		CF (dB)	Max Level (dBuV/m)		Spec. Limit (dBuV/m)		Margin dB		EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
	pk	av	pk	av		pk	av	pk	av	pk	av				
1716.7					-11.1			74.0	54.0						Noise floor
3433.3					-4.4			74.0	54.0						Noise floor
5150.0					1.8			74.0	54.0						Noise floor
6866.6					3.3			74.0	54.0						Noise floor
8583.3					8.2			74.0	54.0						Noise floor
10300.0					12.1			74.0	54.0						Noise floor
12016.6					16.5			74.0	54.0						Noise floor
13733.3					20.6			74.0	54.0						
15449.9					23.4			74.0	54.0						
17166.6					28.8			74.0	54.0						
18883.3					34.4			74.0	54.0						
1742.2					-11.1			74.0	54.0						Noise floor
3484.4					-4.4			74.0	54.0						Noise floor
5226.6					1.8			74.0	54.0						Noise floor
6968.8					3.3			74.0	54.0						Noise floor
8711.0					8.2			74.0	54.0						Noise floor
10453.2					12.1			74.0	54.0						Noise floor
12195.4					16.5			74.0	54.0						Noise floor
13937.6					20.6			74.0	54.0						
15679.8					20.9			74.0	54.0						
17422.0					28.8			74.0	54.0						
19164.2					34.4			74.0	54.0						
1767.8					-11.1			74.0	54.0						Noise floor
3535.5					-3.3			74.0	54.0						Noise floor
5303.3					1.8			74.0	54.0						Noise floor
7071.1					6.2			74.0	54.0						Noise floor
8838.8					8.2			74.0	54.0						Noise floor
10606.6					11.6			74.0	54.0						Noise floor
12374.4					16.5			74.0	54.0						Noise floor
14142.1					23.9			74.0	54.0						
15909.9					20.9			74.0	54.0						
17677.7					32.6			74.0	54.0						
19445.4					34.4			74.0	54.0						

No signals observed, even at lower RBW

Radiated Emissions Data

Job # : 25-283-KYO Test # : 6
 Page 1 of 1

Client Name : Kyocera Wireless Corp.
 EUT Name : 3 Mode Cellular Phone
 EUT Model # : KX9A
 EUT Part # :
 EUT Serial # : 92-X----18X3DS
 EUT Config. : CDMA RX

Specification : FCC Part 15.109
 Rod. Ant. # : NA Temp. (deg. C) : 16
 Bicon Ant.# : NA Humidity (%) : 77
 Log Ant.# : 112 EUT Voltage : NA
 DRG Ant. # : 752 EUT Frequency : NA
 Dipole Ant.# : NA Phase : NA
 Cable# : 40ft Location : RN# 90579
 Preamp# : 842 Distance : 3m
 Spec An.# : 835
 QP # : NA
 PreSelect# : NA

Reference :
 Date : 4/21/05
 Time :
 Staff : A. Laudani
 Photo ID :
 Peak Measurement Bandwidth: 1 MHz/ 1 MHz
 Average Measurement Bandwidth: 1 MHz/ 10 Hz

Meas. Freq. (MHz)	Vertical (dBuV)		Horizontal (dBuV)		CF (db)	Max Level (dBuV/m)		Spec. Limit (dBuV/m)		Margin dB		EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
	pk	av	pk	av		pk	av	pk	av	pk	av				
1739.4					-11.1			74.0	54.0						Noise floor
3478.8					-4.4			74.0	54.0						Noise floor
5218.2					1.8			74.0	54.0						Noise floor
6957.6					3.3			74.0	54.0						Noise floor
8697.0					8.2			74.0	54.0						Noise floor
10436.4					12.1			74.0	54.0						Noise floor
12175.8					16.5			74.0	54.0						Noise floor
13915.2					20.6			74.0	54.0						
15654.6					20.9			74.0	54.0						
17394.0					28.8			74.0	54.0						
19133.4					34.4			74.0	54.0						
1763.0					-11.1			74.0	54.0						Noise floor
3526.0					-3.3			74.0	54.0						Noise floor
5289.0					1.8			74.0	54.0						Noise floor
7052.0					6.2			74.0	54.0						Noise floor
8815.0					8.2			74.0	54.0						Noise floor
10578.0					11.6			74.0	54.0						Noise floor
12341.0					16.5			74.0	54.0						Noise floor
14104.0					23.9			74.0	54.0						
15867.0					20.9			74.0	54.0						
17630.0					32.6			74.0	54.0						
19393.0					34.4			74.0	54.0						
1786.6					-11.1			74.0	54.0						Noise floor
3573.2					-3.3			74.0	54.0						Noise floor
5359.9					1.8			74.0	54.0						Noise floor
7146.5					6.2			74.0	54.0						Noise floor
8933.1					8.2			74.0	54.0						Noise floor
10719.7					11.6			74.0	54.0						Noise floor
12506.3					16.0			74.0	54.0						
14293.0					23.9			74.0	54.0						
16079.6					22.9			74.0	54.0						
17866.2					32.6			74.0	54.0						
19652.8					34.4			74.0	54.0						

No signals observed, even at lower RBW

Radiated Emissions Data

Job # : 25-283-KYO Test # : 7
 Page 1 of 1

Client Name : Kyocera Wireless Corp.
 EUT Name : 3 Mode Cellular Phone
 EUT Model # : KX9A
 EUT Part # :
 EUT Serial # : 92-X----18X3DS
 EUT Config. : FM RX

Specification : FCC Part 15.109

Rod. Ant. # : NA Temp. (deg. C) : 16
 Bicon Ant. # : NA Humidity (%) : 77
 Log Ant. # : 112 EUT Voltage : NA
 DRG Ant. # : 752 EUT Frequency : NA
 Dipole Ant. # : NA Phase : NA
 Cable # : 40ft Location : RN# 90579
 Preamp # : 842 Distance : 3m
 Spec An. # : 835
 QP # : NA
 PreSelect # : NA

Reference :

Date : 4/21/05
 Time :
 Staff : A. Laudani
 Photo ID :
 Peak Measurement Bandwidth: 1 MHz/ 1 MHz
 Average Measurement Bandwidth: 1 MHz/ 10 Hz

nf= noise floor

Meas. Freq. (MHz)	Vertical (dBuV)		Horizontal (dBuV)		CF (db)	Max Level (dBuV/m)		Spec. Limit (dBuV/m)		Margin dB		EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
	pk	av	pk	av		pk	av	pk	av	pk	av				
1738.1					-11.1			74.0	54.0						Noise floor
3476.2					-4.4			74.0	54.0						Noise floor
5214.3					1.8			74.0	54.0						Noise floor
6952.4					3.3			74.0	54.0						Noise floor
8690.5					8.2			74.0	54.0						Noise floor
10428.6					12.1			74.0	54.0						Noise floor
12166.7					16.5			74.0	54.0						Noise floor
13904.8					20.6			74.0	54.0						
15642.9					20.9			74.0	54.0						
17381.0					28.8			74.0	54.0						
19119.1					34.4			74.0	54.0						
1763.0					-11.1			74.0	54.0						Noise floor
3526.0					-3.3			74.0	54.0						Noise floor
5289.0					1.8			74.0	54.0						Noise floor
7052.0					6.2			74.0	54.0						Noise floor
8815.0					8.2			74.0	54.0						Noise floor
10578.0					11.6			74.0	54.0						Noise floor
12341.0					16.5			74.0	54.0						Noise floor
14104.0					23.9			74.0	54.0						Noise floor
15867.0					20.9			74.0	54.0						
17630.0					32.6			74.0	54.0						
19393.0					34.4			74.0	54.0						
1787.8					-11.1			74.0	54.0						Noise floor
3575.6					-3.3			74.0	54.0						Noise floor
5363.4					1.8			74.0	54.0						Noise floor
7151.2					6.2			74.0	54.0						Noise floor
8939.0					8.2			74.0	54.0						Noise floor
10726.7					11.6			74.0	54.0						Noise floor
12514.5					16.0			74.0	54.0						Noise floor
14302.3					23.9			74.0	54.0						
16090.1					22.9			74.0	54.0						
17877.9					32.6			74.0	54.0						
19665.7					34.4			74.0	54.0						

No signals observed, even at lower RBW

Radiated Emissions Data

Job # : 25-283-KYO Test # :
 Page 1 of 1

Client Name : Kyocera
 EUT Name : Cellular Phone
 EUT Model # : KX9C
 EUT Part # :
 EUT Serial # : 93-X----18X43R
 EUT Config. :
 FM Tx Harmonics
 Specification : FCC Part 22
 Rod. Ant. # : NA Temp. (deg. C) :
 Bicon Ant.#: NA Humidity (%) :
 Log Ant.#: NA EUT Voltage : NA
 DRG Ant. # : 752 EUT Frequency : NA
 Dipole Ant.#: NA Phase: NA
 Cable#: 40ft Location: RN#: 90579
 Preamp#: 842 Distance: 3m
 Spec An.#: 835
 QP #: NA
 PreSelect#: NA

Reference :
 Date : 04/25/05
 Time :
 Staff : Mike Krumweide
 Peak Bandwidth: 1 MHz
 Video Bandwidth 1 MHz

Meas. Freq. (MHz)	Vertical (dBuV) pk	Horizontal (dBuV) pk	CF (db)	Max Level (dBm) pk	Spec. Limit (ERP) (dBm) pk	Margin dB pk	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
1672.98	60.8	56.5	-11.1	-45.53	-13.0	-32.5			Pass	*
2509.47	56.9	56.7	-7.1	-57.2	-13.0	-44.2			Pass	*
3345.96	65.3	66.7	-4.4	-44.7	-13.0	-31.7			Pass	*
4182.45			-1.2		-13.0					Noise floor
5018.94			1.8		-13.0					Noise floor
5855.43			2		-13.0					Noise floor
6691.92			3.3		-13.0					Noise floor
7528.41			6.4		-13.0					Noise floor
8364.9			8.9		-13.0					Noise floor
9201.39			9.34		-13.0					Noise floor
1648.08	65.9	59.3	-11.1	-52.2	-13.0	-39.2			Pass	*
2472.12	56	60.6	-7.4	-53.8	-13.0	-40.8			Pass	*
3296.16	62	63.3	-4.4	-48.1	-13.0	-35.1			Pass	*
4120.2			-1.2		-13.0					Noise floor
4944.24			-1.2		-13.0					Noise floor
5768.28			2		-13.0					Noise floor
6592.32			3.3		-13.0					Noise floor
7416.36			6.2		-13.0					Noise floor
8240.4			8.9		-13.0					Noise floor
9064.44			9.34		-13.0					Noise floor
1697.94	61.1	55.7	-11.1	-57	-13.0	-44.0			Pass	*
2546.91	58.9	57.4	-7.1	-56.7	-13.0	-43.7			Pass	*
3395.88	67.7	67.8	-4.4	-43.6	-13.0	-30.6			Pass	*
4244.85	49.7	50.2	-1.2	-58	-13.0	-45.0			Pass	*
5093.82			1.8		-13.0					Noise floor
5942.79			2		-13.0					Noise floor
6791.76			3.3		-13.0					Noise floor
7640.73			6.4		-13.0					Noise floor
8489.7			8.9		-13.0					Noise floor
9338.67			9.34		-13.0					Noise floor

No signal observed, even at lower RBW

Radiated Emissions Data

Job # : 25-283-KYO Test # :
 Page 1 of 1

Client Name : Kyocera
 EUT Name : Cellular Phone
 EUT Model # : KX9C
 EUT Part # :
 EUT Serial # : 93-X----18X43R
 EUT Config. :
 CDMA TX
 Specification : FCC Part 22
 Rod. Ant. # : NA Temp. (deg. C) :
 Bicon Ant. # : NA Humidity (%) :
 Log Ant. # : NA EUT Voltage : NA
 DRG Ant. # : 752 EUT Frequency : NA
 Dipole Ant. # : NA Phase : NA
 Cable# : 40ft Location : RN#: 90579
 Preamp# : 842 Distance : 3m
 Spec An. # : 835
 QP # : NA
 PreSelect# : NA

Reference :
 Date : 04/25/05
 Time :
 Staff : Mike Krumweide
 Photo ID :
 Peak Bandwidth: 1 MHz
 Video Bandwidth 1 MHz

Meas. Freq. (MHz)	Vertical (dBuV) pk	Horizontal (dBuV) pk	CF (db)	Max Level (dBm) pk	Spec. Limit (ERP) (dBm) pk	Margin dB pk	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
1672.98	53.6	52.6	-11.1	-52.73	-13.0	-39.7			Pass	*
2509.47	53.7	55.2	-7.1	-47.13	-13.0	-34.1			Pass	*
3345.96	53.7	55.4	-4.4	-44.23	-13.0	-31.2			Pass	*
4182.45			-1.2		-13.0					Noise floor
5018.94			1.8		-13.0					Noise floor
5855.43			2		-13.0					Noise floor
6691.92			3.3		-13.0					Noise floor
7528.41			6.4		-13.0					Noise floor
8364.9			8.9		-13.0					Noise floor
9201.39			8.9		-13.0					Noise floor
1649.4	54.8	52.9	-11.1	-51.53	-13.0	-38.5			Pass	*
2474.1	53.3	52.9	-7.4	-49.33	-13.0	-36.3			Pass	*
3298.8	53.2	53.9	-4.4	-45.73	-13.0	-32.7			Pass	*
4123.5			-1.2		-13.0					Noise floor
4948.2			-1.2		-13.0					Noise floor
5772.9			2		-13.0					Noise floor
6597.6			3.3		-13.0					Noise floor
7422.3			6.2		-13.0					Noise floor
8247			8.9		-13.0					Noise floor
9071.7			8.9		-13.0					Noise floor
1696.62			-11.1		-13.0					Noise floor
2544.93	57.7	55.8	-7.1	-46.53	-13.0	-33.5			Pass	*
3393.24	56.1	57.2	-4.4	-42.43	-13.0	-29.4			Pass	*
4241.55			-1.2		-13.0					Noise floor
5089.86			1.8		-13.0					Noise floor
5938.17			2		-13.0					Noise floor
6786.48			3.3		-13.0					Noise floor
7634.79			6.4		-13.0					Noise floor
8483.1			8.9		-13.0					Noise floor
9331.41			9.34		-13.0					Noise floor

No signal observed, even at lower RBW

Radiated Emissions Data

Job # : 25-283-KYO Test # :
 Page 1 of 1

Client Name : Kyocera
 EUT Name : Cellular Phone
 EUT Model # : KX9C
 EUT Part # :
 EUT Serial # : 93-X----18X43R
 EUT Config. :
 PCS Tx Harmonics
 Specification : FCC Part 24
 Rod. Ant. # : NA Temp. (deg. C) :
 Bicon Ant. # : NA Humidity (%) :
 Log Ant. # : NA EUT Voltage : NA
 DRG Ant. # : 752 EUT Frequency : NA
 Dipole Ant. # : NA Phase : NA
 Cable # : 40ft Location : RN# 90579
 Preamp # : 842 Distance : 3m
 Spec An. # : 835
 QP # : NA
 PreSelect # : NA

Reference :
 Date : 04/25/05
 Time :
 Staff : Mike Krumweide
 Photo ID : 0
 Peak Bandwidth : 1 MHz
 Video Bandwidth : 1 MHz

Meas. Freq. (MHz)	Vertical (dBuV) pk	Horizontal (dBuV) pk	CF (db)	Max Level (dBm) pk	Spec. Limit (ERIP) (dBm) pk	Margin dB pk	EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
3760			-3.3	-49.33	-13.0					Noise floor
5640	53.2	53.9	2	-41.33	-13.0	-28.3			Pass	*
7520	49.9	49.4	6.4	-40.93	-13.0	-27.9			Pass	*
9400			9.34	-41.59	-13.0					Noise floor
11280			13.6	-38.33	-13.0					Noise floor
13160			20.3	-31.83	-13.0					Noise floor
15040			23.4	-33.93	-13.0					Noise floor
16920			24.3	-35.43	-13.0					Noise floor
18800			34.4	-36.73	-13.0					Noise floor
20690			34.4	-36.13	-13.0					Noise floor
3702.5			-3.3	-49.13	-13.0					Noise floor
5553.75	51.2	52	2	-43.23	-13.0	-30.2			Pass	*
7405	50.1	52.9	6.2	-38.13	-13.0	-25.1			Pass	*
9256.25			9.34	-40.99	-13.0					Noise floor
11107.5			13.6	-38.43	-13.0					Noise floor
12958.8			16	-37.13	-13.0					Noise floor
14810			23.2	-32.43	-13.0					Noise floor
16661.3			24.3	-36.53	-13.0					Noise floor
18512.5			34.4	-36.13	-13.0					Noise floor
20363.8			34.4	-37.13	-13.0					Noise floor
3817.5			-3.3	-50.83	-13.0					Noise floor
5726.25	56.1	56.2	2	-39.03	-13.0	-26.0			Pass	*
7635	48.3	48.7	6.4	-42.13	-13.0	-29.1			Pass	*
9543.75			9.24	-42.49	-13.0					Noise floor
11452.5			13.6	-39.73	-13.0					Noise floor
13361.3			20.3	-33.63	-13.0					Noise floor
15270			23.4	-34.33	-13.0					Noise floor
17178.8			28.8	-31.93	-13.0					Noise floor
19087.5			34.4	-37.43	-13.0					Noise floor
20996.3			34.4	-38.13	-13.0					Noise floor

No signal observed, even at lower RBW

Radiated Emissions Data

Job # : 25-283-KYO Test # : _____
 Page 1 of 1

Client Name : Kyocera
 EUT Name : Cellular Phone
 EUT Model # : KX9C
 EUT Part # :
 EUT Serial # : 93-X----18X43R
 EUT Config. :
 Specification : PCS TX Synth
 FCC Part 15.109
 Rod. Ant. # : NA Temp. (deg. C) : 22
 Bicon Ant. # : NA Humidity (%) : 40
 Log Ant. # : NA EUT Voltage : NA
 DRG Ant. # : 752 EUT Frequency : NA
 Dipole Ant. # : NA Phase : NA
 Cable # : 40ft Location : RN#: 90579
 Preamp # : N/A Distance : 3m
 Spec An. # : 835
 QP # : NA
 PreSelect # : NA

Reference :
 Date : 04/25/05
 Time :
 Staff : Mike Krumweide
 Photo ID :
 Peak Measurement Bandwidth: 1 MHz/ 1 MHz
 Average Measurement Bandwidth: 1 MHz/ 10 Hz

Meas. Freq. (MHz)	Vertical (dBuV)		Horizontal (dBuV)		CF (db)	Max Level (dBuV/m)		Spec. Limit (dBuV/m)		Margin dB		EUT Rotation	Ant. Height	Pass Fail	Comment
	pk	av	pk	av		pk	av	pk	av	pk	av				
1504					28.9			74.0	54.0						No Preamp, Noise floor
3008					-4.4			74.0	54.0						Noise floor
4512					-1.2			74.0	54.0						Noise floor
6016					3			74.0	54.0						Noise floor
7520	49.9		49.4		6.4	56.3	6.4	74.0	54.0	-17.7				Pass	** see Note
9024					9.34			74.0	54.0						Noise floor
10528					11.6			74.0	54.0						Noise floor
12032					16.5			74.0	54.0						Noise floor
13536					20.6			74.0	54.0						Noise floor
15040					23.4			74.0	54.0						Noise floor
16544					24.3			74.0	54.0						Noise floor
1481					26.9			74.0	54.0						No Preamp, Noise floor
2962					-7.1			74.0	54.0						Noise floor
4443					-1.2			74.0	54.0						Noise floor
5924					2			74.0	54.0						Noise floor
7405	50.9		52.1		6.2	58.3	6.2	74.0	54.0	-15.7				Pass	** see Note
8886					8.2			74.0	54.0						Noise floor
10367					12.1			74.0	54.0						Noise floor
12032					16.5			74.0	54.0						Noise floor
13329					20.3			74.0	54.0						Noise floor
14810					23.2			74.0	54.0						Noise floor
1527					28.9			74.0	54.0						No Preamp, Noise floor
3054					-4.4			74.0	54.0						Noise floor
4581					-1.2			74.0	54.0						Noise floor
6108					3			74.0	54.0						Noise floor
7635	48.3		48.7		6.4	55.1	6.4	74.0	54.0	-18.9				Pass	** see Note
9162					9.34			74.0	54.0						Noise floor
10689					11.6			74.0	54.0						Noise floor
12216					16.5			74.0	54.0						Noise floor
13743					20.6			74.0	54.0						Noise floor
15270					23.4			74.0	54.0						Noise floor

No signal observed, even at lower RBW

Note: This frequency is also a harmonic of the fundamental Transmit

Radiated Emissions Data

Job #: 25-283-KYO Test #: _____
 Page 1 of 1

Client Name : Kyocera
 EUT Name : Cellular Phone
 EUT Model #: KX9C
 EUT Part # :
 EUT Serial #: 93-X----18X43R
 EUT Config. :
 PCS RX
 Specification : FCC Part 15.109
 Rod. Ant. #: NA Temp. (deg. C) :
 Bicon Ant. #: NA Humidity (%) :
 Log Ant. #: NA EUT Voltage : NA
 DRG Ant. #: 752 EUT Frequency : NA
 Dipole Ant. #: NA Phase: NA
 Cable#: 40ft Location: RN#: 90579
 Preamp#: 842 Distance: 3m
 Spec An. #: 835
 QP #: NA
 PreSelect#: NA

Reference :
 Date : 04/25/05
 Time :
 Staff : Mike Krumweide
 Photo ID:
 Peak Measurement Bandwidth: 1 MHz/ 1 MHz
 Average Measurement Bandwidth: 1 MHz/ 10 Hz

Meas. Freq. (MHz)	Vertical (dBuV)		Horizontal (dBuV)		CF (db)	Max Level (dBuV/m)		Spec. Limit (dBuV/m)		Margin dB		EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
	pk	av	pk	av		pk	av	pk	av	pk	av				
1716.66	53	40.1	53.4	40.6	-11.1	42.3	29.5	74.0	54.0	-31.7	-24.5			Pass	*
3433.32					-4.4			74.0	54.0						Noise floor
5149.98					1.8			74.0	54.0						Noise floor
6866.64					3.3			74.0	54.0						Noise floor
8583.3					8.2			74.0	54.0						Noise floor
10299.96					12.1			74.0	54.0						Noise floor
12016.62					16.5			74.0	54.0						Noise floor
13733.28					20.6			74.0	54.0						
15449.94					23.4			74.0	54.0						
17166.6					28.8			74.0	54.0						
18883.26					34.4			74.0	54.0						
1742.22	53.7	40.8	53.7	41	-11.1	42.6	29.9	74.0	54.0	-31.4	-24.1			Pass	*
3484.442					-4.4			74.0	54.0						Noise floor
5226.664					1.8			74.0	54.0						Noise floor
6968.886					3.3			74.0	54.0						Noise floor
8711.108					8.2			74.0	54.0						Noise floor
10453.33					12.1			74.0	54.0						Noise floor
12195.552					16.5			74.0	54.0						Noise floor
13937.774					20.6			74.0	54.0						
15679.996					20.9			74.0	54.0						
17422.218					28.8			74.0	54.0						
19164.44					34.4			74.0	54.0						
1767.77	53.9	41.1	54.8	42.1	-11.1	43.7	31	74.0	54.0	-30.3	-23.0			Pass	*
3535.54					-3.3			74.0	54.0						Noise floor
5303.31					1.8			74.0	54.0						Noise floor
7071.08					6.2			74.0	54.0						Noise floor
8838.85					8.2			74.0	54.0						Noise floor
10606.62					11.6			74.0	54.0						Noise floor
12374.39					16.5			74.0	54.0						Noise floor
14142.16					23.9			74.0	54.0						
15909.93					20.9			74.0	54.0						
17677.7					32.6			74.0	54.0						
19445.47					34.4			74.0	54.0						

No signal observed, even at lower RBW

Radiated Emissions Data

Job #: 25-283-KYO Test #: _____
 Page 1 of 1

Client Name : Kyocera
 EUT Name : Cellular Phone
 EUT Model # : KX9C
 EUT Part # :
 EUT Serial # : 93-X----18X43R
 EUT Config. :
 Specification : CDMA RX
 FCC Part 15.109
 Rod. Ant. #: NA Temp. (deg. C) :
 Bicon Ant. #: NA Humidity (%) :
 Log Ant. #: NA EUT Voltage : NA
 DRG Ant. # : 752 EUT Frequency : NA
 Dipole Ant. #: NA Phase: NA
 Cable#: 40ft Location: RN#: 90579
 Preamp#: 842 Distance: 3m
 Spec An. #: 835
 QP #: NA
 PreSelect#: NA

Reference :
 Date : 04/25/05
 Time :
 Staff : Mike Krumweide
 Photo ID:
 Peak Measurement Bandwidth: 1 MHz/ 1 MHz
 Average Measurement Bandwidth: 1 MHz/ 10 Hz

Meas. Freq. (MHz)	Vertical (dBuV)		Horizontal (dBuV)		CF (db)	Max Level (dBuV/m)		Spec. Limit (dBuV/m)		Margin dB		EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
	pk	av	pk	av		pk	av	pk	av	pk	av				
1762.98	53.8	40.8	53.9	41.3	-11.1	42.8	30.2	74.0	54.0	-31.2	-23.8			Pass	*
3525.96					-3.3			74.0	54.0						Noise floor
5288.94					1.8			74.0	54.0						Noise floor
7051.92					6.2			74.0	54.0						Noise floor
8814.9					8.2			74.0	54.0						Noise floor
10577.88					11.6			74.0	54.0						Noise floor
12340.86					16.5			74.0	54.0						Noise floor
14103.84					23.9			74.0	54.0						
15866.82					20.9			74.0	54.0						
17629.8					32.6			74.0	54.0						
19392.78					34.4			74.0	54.0						
1739.4	52.9	40.3	53.4	40.7	-11.1	42.3	29.6	74.0	54.0	-31.7	-24.4			Pass	*
3478.8					-4.4			74.0	54.0						Noise floor
5218.2					1.8			74.0	54.0						Noise floor
6957.6					3.3			74.0	54.0						Noise floor
8697					8.2			74.0	54.0						Noise floor
10436.4					12.1			74.0	54.0						Noise floor
12175.8					16.5			74.0	54.0						Noise floor
13915.2					20.6			74.0	54.0						
15654.6					20.9			74.0	54.0						
17394					28.8			74.0	54.0						
19133.4					34.4			74.0	54.0						
1786.62	53.9	40.9	54.7	42.6	-11.1	43.6	31.5	74.0	54.0	-30.4	-22.5			Pass	*
3573.24					-3.3			74.0	54.0						Noise floor
5359.86					1.8			74.0	54.0						Noise floor
7146.48					6.2			74.0	54.0						Noise floor
8933.1					8.2			74.0	54.0						Noise floor
10719.72					11.6			74.0	54.0						Noise floor
12506.34					16			74.0	54.0						Noise floor
14292.96					23.9			74.0	54.0						
16079.58					22.9			74.0	54.0						
17862.2					32.6			74.0	54.0						
19652.82					34.4			74.0	54.0						

No signal observed, even at lower RBW

Radiated Emissions Data

Job # : 25-283-KYO Test # :
 Page 1 of 1

Client Name : Kyocera
 EUT Name : Cellular Phone
 EUT Model # : KX9C
 EUT Part # :
 EUT Serial # : 93-X----18X43R
 EUT Config. :
 FM RX
 Specification : FCC Part 15.109
 Rod. Ant. # : NA Temp. (deg. C) :
 Bicon Ant.#: NA Humidity (%) :
 Log Ant.#: NA EUT Voltage : NA
 DRG Ant. # : 752 EUT Frequency : NA
 Dipole Ant.#: NA Phase: NA
 Cable#: 40ft Location: RN#: 90579
 Preamp#: 842 Distance: 3m
 Spec An.#: 835
 QP #: NA
 PreSelect#: NA

Reference :
 Date : 04/25/05
 Time :
 Staff : Mike Krumweide
 Photo ID:
 Peak Measurement Bandwidth: 1 MHz/ 1 MHz
 Average Measurement Bandwidth: 1 MHz/ 10 Hz

Meas. Freq. (MHz)	Vertical (dBuV)		Horizontal (dBuV)		CF (db)	Max Level (dBuV/m)		Spec. Limit (dBuV/m)		Margin dB		EUT Rotation	Ant. Height	Pass Fail Unc.	Comment
	pk	av	pk	av		pk	av	pk	av	pk	av				
1763	53.7	40.8	53.7	40.6	-11.1	42.6	29.7	74.0	54.0	-31.4	-24.3			Pass	*
3526					-3.3			74.0	54.0						Noise floor
5289					1.8			74.0	54.0						Noise floor
7052					6.2			74.0	54.0						Noise floor
8815					8.2			74.0	54.0						Noise floor
10578					11.6			74.0	54.0						Noise floor
12341					16.5			74.0	54.0						Noise floor
14104					23.9			74.0	54.0						
15867					20.9			74.0	54.0						
17630					32.6			74.0	54.0						
19393					34.4			74.0	54.0						
1738.1	53.3	40.6	53.9	40.9	-11.1	42.8	29.8	74.0	54.0	-31.2	-24.2			Pass	*
3476.2					-4.4			74.0	54.0						Noise floor
5214.3					1.8			74.0	54.0						Noise floor
6952.4					3.3			74.0	54.0						Noise floor
8690.5					8.2			74.0	54.0						Noise floor
10428.6					12.1			74.0	54.0						Noise floor
12166.7					16.5			74.0	54.0						Noise floor
13904.8					20.6			74.0	54.0						
15642.9					20.9			74.0	54.0						
17381					28.8			74.0	54.0						
19119.1					34.4			74.0	54.0						
1787.96	53.2	40.3	53.8	41.8	-11.1	42.7	30.7	74.0	54.0	-31.3	-23.3			Pass	*
3575.92					-3.3			74.0	54.0						Noise floor
5363.88					1.8			74.0	54.0						Noise floor
7151.84					6.2			74.0	54.0						Noise floor
8939.8					8.2			74.0	54.0						Noise floor
10727.76					11.6			74.0	54.0						Noise floor
12515.72					16			74.0	54.0						Noise floor
14303.68					23.9			74.0	54.0						
16091.64					22.9			74.0	54.0						
17879.6					32.6			74.0	54.0						
19667.56					34.4			74.0	54.0						

No signal observed, even at lower RBW

RADIATED EMISSIONS TEST EQUIPMENT

Asset Number	Description	Model Number	Serial Number	Last Cal	Cal Due
752	Antenna, DRWG, EMCO	3115	4943	12/29/04	12/29/05
835	Spectrum Analyzer, Rhode & Schwartz	RHDFSEK	829058/005	12/30/04	12/30/05
842	Hifreq Preamp, Nemko	Nemko	NA	12/30/04	12/30/05

Photograph 1. FCC, Part 22/24 KX9A Test Configuration



Photograph 2. FCC, Part 22/24 KX9C Test Configuration



APPENDIX A

A. Radiated Emissions Measurement Uncertainties

1. Introduction

ISO Standard 17025 and ANSI/NCSL Z540-1(1994) require that all measurements contained in a test report be “traceable”. “Traceability” is defined in the *International Vocabulary of Basic and General Terms in Metrology* (ISO: 1993) as: “the property of the result of a measurement... whereby it can be related to stated references, usually national or international standards, through an unbroken chain of comparisons, *all having stated uncertainties*”.

The purposes of this Appendix are to “state the *Measurement Uncertainties*” of the conducted emissions and radiated emissions measurements contained in Section 5 of this Test Report, and to provide a practical explanation of the meaning of these measurement uncertainties.

2. Statement of the Worst-Case Measurement Uncertainties for the Conducted and Radiated Emissions Measurements Contained in This Test Report

Table 1: Worst-Case Expanded Uncertainty "U" of Measurement for a k=2 Coverage Factor

Radiated Emissions Measurement Detection Systems	Applicable Frequency Range	"U" for a k=2 Coverage Factor
HP8568B Spectrum Analyzer with QPA & HP8447F Preamplifier	30 MHz - 200 MHz	+4.0 dB, -4.1 dB
HP8568B Spectrum Analyzer with QPA & HP8447F Preamplifier	200 MHz-1000 MHz	+/- 3.5 dB
HP8566B Spectrum Analyzer with QPA & Preselector	30 MHz - 200 MHz	+3.9 dB, -4.0 dB
HP8566B Spectrum Analyzer with QPA & Preselector	200 MHz-1000 MHz	+/- 3.4 dB
HP8566B Spectrum Analyzer with QPA & HP 8449A Preamplifier	1 GHz - 18 GHz	+2.5 dB, -2.6 dB
HP8566B Spectrum Analyzer with QPA & HP8449A Preamplifier	18 GHz - 40 GHz	+/- 3.4 dB

NOTES:

1. Applies to 3 and 10 meter measurement distances
2. Applies to all valid combinations of Transducers (i.e. LISNs, Line Voltage Probes, and Antennas, as appropriate)
3. Excludes the Repeatability of the EUT

3. Practical Explanation of the Meaning of Radiated Emissions Measurement Uncertainties

In general, a “Statement of Measurement Uncertainty” means that with a certain (specified) confidence level, the “true” value of a measurand will be between a (stated) upper bound and a (stated) lower bound.

In the specific case of EMC Measurements in this test report, the measurement uncertainties of the conducted emissions measurements and the radiated emissions measurements have been calculated in accordance with the method detailed in the following documents:

- *ISO Guide to the Expression of Uncertainty in Measurement* (ISO, 1993)
- NIS 81:1994, *The Treatment of Uncertainty in EMC Measurements* (NAMAS, 1994)
- NIST Technical Note 1297(1994), *Guidelines for Evaluating and Expressing the Uncertainty of NIST Measurement Results* (NIST, 1994)

The calculation method used in these documents requires that the stated uncertainty of the measurements be expressed as an “*expanded uncertainty*”, U , with a $k=2$ coverage factor. The practical interpretation of this method of expressing measurement uncertainty is shown in the following example:

EXAMPLE: Assume that at 39.51 MHz, the (measured) radiated emissions level was equal to +26.5 dBuV/m, and that the ± 2 standard deviations (i.e. 95% confidence level) measurement uncertainty was ± 3.4 dB.

In the example above, the phrase “ $k = 2$ Coverage Factor” simply means that the measurement uncertainty is stated to cover ± 2 standard deviations (i.e. a 95% confidence interval) about the measurand. The measurand is the radiated emissions measurement of +26.5 dBuV/m at 39.51 MHz, and the 95% bounds for the uncertainty are -3.4 dB to $+3.4$ dB. One can thus be 95% confident that the “true” value of the radiated emissions measurement is between +23.1 dBuV/m and +29.5 dBuV/m. *In effect, this means that in the above example there is only a 2.5% chance that the “true” radiated emissions value exceeds +29.5 dBuV/m.*

APPENDIX B

B. Nemko USA, Inc.'s Test Equipment & Facilities Calibration Program

Nemko USA, Inc. operates a comprehensive Periodic Calibration Program in order to ensure the validity of all test data. Nemko USA's Periodic Calibration Program is fully compliant to the requirements of NVLAP Policy Guide PG-1-1988, ANSI/NCSL Z540-1 (1994), ISO 10012-1 (1993-05-01), ISO Standard 17025, ISO-9000 and EN 45001. Nemko USA, Inc.'s calibrations program therefore meets or exceed the US national commercial and military requirements [N.B. ANSI/NCSL Z540-1 (1994) replaces MIL-STD-45662A].

Specifically, all of Nemko USA's *primary reference standard devices* (e.g. vector voltmeters, multimeters, attenuators and terminations, RF power meters and their detector heads, oscilloscope mainframes and plug-ins, spectrum analyzers, RF preselectors, quasi-peak adapters, interference analyzers, impulse generators, signal generators and pulse/function generators, field-strength meters and their detector heads, etc.) and certain *secondary standard devices* (e.g. RF Preamplifiers used in CISPR 11/22 and FCC Part 15/18 tests) are periodically recalibrated by:

- A Nemko USA-approved independent (third party) metrology laboratory that uses NIST-traceable standards and that is ISO Guide 25-accredited as a calibration laboratories by NIST; or,
- A Nemko USA-approved independent (third party) metrology laboratory that uses NIST-traceable standards and that is ISO Guide 25-accredited as a calibration laboratory by another accreditation body (such as A2LA) that is mutually recognized by NIST; or,
- A manufacturer of Measurement and Test Equipment (M&TE), if the manufacturer uses NIST-traceable standards and is ISO Guide 25-accredited as calibration laboratory either by NIST or by another accreditation body (such as A2LA) that is mutually recognized by NIST; or
- A manufacturer of M&TE (or by a Nemko USA-approved independent third party metrology laboratory) that is not ISO Guide 25-accredited. (In these cases, Nemko USA conducts an annual audit of the manufacturer or metrology laboratory for the purposes of proving traceability to NIST, ensuring that adequate and repeatable calibration procedures are being applied, and verifying conformity with the other requirements of ISO Guide 25).

In all cases, the entity performing the Calibration is required to furnish Nemko USA with a calibration test report and/or certificate of calibration, and a “calibration sticker” on each item of M&TE that is successfully calibrated.

Calibration intervals are normally one year, except when the manufacture advises a shorter interval (e.g. the HP 8568B Spectrum Analyzer is recalibrated every six months) or if US Government directives or client requirements demand a shorter interval. Items of instrumentation/related equipment which fail during routine use, or which suffer visible mechanical damage (during use or while in transit), are sidelined pending repair and recalibration. (Repairs are carried out either in-house [if minor] or by a Nemko USA-approved independent [third party] metrology laboratory, or by the manufacturer of the item of M&TE).

Each antenna used for CISPR 11 and CISPR 22 and FCC Part 15 and Part 18 radiated emissions testing (and for testing to the equivalent European Norms) is calibrated annually by either a NIST (or A2LA) ISO Standard 17025-Accredited third-party Antenna Calibration Laboratory or by the antenna’s OEM if the OEM is NIST or A2LA ISO Standard 17025-accredited as an antenna calibration laboratory. The antenna calibrations are performed using the methods specified in Annex G.5 of CISPR 16-1(1993) or ANSI C63.5-1991, including the “Three-Antenna Method”. Certain other kinds of antennas (e.g. magnetic-shielded loop antennas) are calibrated annually by either a NIST (or A2LA) ISO Standard 17025-accredited third-party antenna calibration laboratory, or by the antenna’s OEM if the OEM is NIST or A2LA ISO Standard 17025-accredited as an antenna calibration laboratory using the procedures specified in the latest version of SAE ARP-958.

In accordance with FCC and other regulations, Nemko USA recalibrates its suite of antennas used for radiated emissions tests on an annual basis. These calibrations are performed as a precursor to the FCC-required annual revalidation of the Normalized Site Attenuation properties of Nemko USA’s Open Area Test Site. Nemko USA, Inc. uses the procedures given in both Subclause 16.6 and Annex G.2 of CISPR 16-1 (1993), and, ANSI C63.4-1992 when performing the normalized site attenuation measurements.

APPENDIX C

C. FCC and NVLAP Accreditation

United States Department of Commerce National Institute of Standards and Technology		
ISO/IEC 17025:1999 ISO 9002:1994	Certificate of Accreditation	
NEMKO USA, INC. - SAN DIEGO EMC DIVISION SAN DIEGO, CA	<i>is recognized by the National Voluntary Laboratory Accreditation Program for satisfactory compliance with criteria set forth in NIST Handbook 150:2001, all requirements of ISO/IEC 17025:1999, and relevant requirements of ISO 9002:1994. Accreditation is awarded for specific services, listed on the Scope of Accreditation, for:</i>	ELECTROMAGNETIC COMPATIBILITY AND TELECOMMUNICATIONS
December 31, 2005	Effective through	
		For the National Institute of Standards and Technology NVLAP Lab Code: 200116-0

NVLAP-01C (06-01)



ISO/IEC 17025:1999
ISO 9002:1994

Scope of Accreditation



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NVLAP LAB CODE 200116-0

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Mr. Ricky Hill

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NVLAP Code Designation / Description

Emissions Test Methods:

12/CIS14	CISPR 14-1 (March 30, 2000): Limits and Methods of Measurement of Radio interference Characteristics of Household Electrical Appliances, Portable Tools and Similiar Electrical Apparatus - Part 1: Emissions
12/CIS14a	EN 55014-1 (1993), A1 (1997), A2 (1999):
12/CIS14b	AS/NZS 1044 (1995):
12/CIS14c	CNS 13783-1: Electromagnetic Compatibility Requirements for household appliances, electric tools and similar apparatus - Part 1: Emissions
12/CIS22	IEC/CISPR 22 (1997) & EN 55022 (1998) + A1(2000): Limits and methods of measurement of radio disturbance characteristics of information technology equipment
12/CIS22a	IEC/CISPR 22 (1993) and EN 55022 (1994): Limits and methods of measurement of radio disturbance characteristics of information technology equipment, Amendment 1 (1995) and Amendment 2 (1996)

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NEMKO USA, INC. - SAN DIEGO EMC DIVISION

<i>NVLAP Code</i>	<i>Designation / Description</i>
12/CIS22b	CNS 13438 (1997): Limits and Methods of Measurement of Radio Interference Characteristics of Information Technology Equipment
12/EM02a	IEC 61000-3-2, Edition 2.1 (2001-10), EN 61000-3-2 (2000), and AS/NZS 2279.1 (2000): Electromagnetic compatibility (EMC) Part 3-2: Limits - Limits for harmonic current emissions (equipment input current ≤ 16 A)
12/EM03b	IEC 61000-3-3, Edition 1.1(2002-03) & EN 61000-3-3, A1(2001): EMC - Part 3-3: Limits - Limitations of voltage changes, voltage fluctuations and flicker, in public low-voltage supply-systems, for equipment with rated current ≤ 16 A per phase and not subject to conditional connections
12/F18	FCC OST/MP-5 (1986): FCC Methods of Measurement of Radio Noise Emissions for ISM Equipment (cited in FCC Method 47 CFR Part 18 - Industrial, Scientific, and Medical Equipment)
12/FCC15b	ANSI C63.4 (2001) with FCC Method 47 CFR Part 15, Subpart B: Unintentional Radiators
12/T51	AS/NZS CISPR 22 (2002) and AS/NZS 3548 (1997): Electromagnetic Interference - Limits and Methods of Measurement of Information Technology Equipment

December 31, 2005

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A handwritten signature, likely of a representative of the National Institute of Standards and Technology, is shown above the text 'For the National Institute of Standards and Technology'.

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ISO/IEC 17025:1999
ISO 9002:1994

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**ELECTROMAGNETIC COMPATIBILITY
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NVLAP LAB CODE 200116-0

NEMKO USA, INC. - SAN DIEGO EMC DIVISION

NVLAP Code Designation / Description

Immunity Test Methods:

12/I01	IEC 61000-4-2, Ed. 2.1 (2001), A1, A2; EN 61000-4-2: Electrostatic Discharge Immunity Test
12/I02	IEC 61000-4-3, Ed. 2.0 (2002-03); EN 61000-4-3 (2002): Radiated Radio-Frequency Electromagnetic Field Immunity Test
12/I03	IEC 61000-4-4(1995), A1(2000), A2(2001); EN 61000-4-4: Electromagnetic compatibility (EMC) - Part 4-4: Testing and measurement techniques - Electrical Fast Transient/Burst Immunity Test
12/I04	IEC 61000-4-5, Ed. 1.1 (2001-04); EN 61000-4-5: Electromagnetic compatibility (EMC) - Part 4-5: Testing and measurement techniques - Surge immunity test
12/I05	IEC 61000-4-6, Ed. 2.0 (2003-05); EN 61000-4-6: Electromagnetic compatibility (EMC) - Part 4-6: Testing and measurement techniques - Immunity to conducted disturbances, induced by radio-frequency fields
12/I06	IEC 61000-4-8, Ed. 1.1 (2001); EN 61000-4-8: Electromagnetic compatibility (EMC) - Part 4-8: Testing and measurement techniques - Power frequency magnetic field immunity test
12/I07	IEC 61000-4-11, Ed. 1.1 (2001-03); EN 61000-4-11: Voltage Dips, Short Interruptions and Voltage Variations Immunity Tests

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