



**RADIATED EMISSIONS PORTION OF  
FCC CFR47 PART 24 SUBPART E**

**CLASS II PERMISSIVE CHANGE  
CERTIFICATION TEST REPORT**

**FOR**

**TRI-BAND 1xRTT CDMA PHONE WITH BLUETOOTH**

**FCC MODEL NUMBER: K48-02**

**FCC ID: OVF-K4802**

**REPORT NUMBER: 09U12890-1**

**ISSUE DATE: NOVEMBER 9, 2009**

*Prepared for*

**KYOCERA WIRELESS CORP  
10300 CAMPUS POINT DRIVE  
SAN DIEGO, CA 92121, U.S.A.**

*Prepared by*

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**NVLAP LAB CODE 200065-0**

Revision History

<u>Rev.</u>	<u>Issue Date</u>	<u>Revisions</u>	<u>Revised By</u>
--	11/09/09	Initial Issue	T. Chan

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# 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** KYOCERA WIRELESS  
10300 CAMPUS POINT DRIVE  
SAN DIEGO, CA 92121, USA

**EUT DESCRIPTION:** TRI-BAND 1XR TT CDMA PHONE WITH BLUETOOTH

**MODEL:** K48-02

**SERIAL NUMBER:** F0000032711025

**DATE TESTED:** OCTOBER 30 TO NOVEMBER 1, 2009

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
Radiated Emissions Portion of FCC Part 24E	Pass

Compliance Certification Services, Inc. (CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

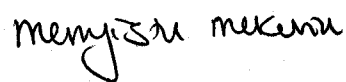
**Note:** The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:



THU CHAN  
EMC MANAGER  
COMPLIANCE CERTIFICATION SERVICES

Tested By:



MENGISTU MEKURIA  
EMC ENGINEER  
COMPLIANCE CERTIFICATION SERVICES

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-C, FCC CFR 47 Part 2, FCC CFR 47, and FCC CFR Part 24.

## 3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

## 4. CALIBRATION AND UNCERTAINTY

### 4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

### 4.2. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

$$\text{Field Strength (dBuV/m)} = \text{Measured Voltage (dBuV)} + \text{Antenna Factor (dB/m)} + \text{Cable Loss (dB)} - \text{Preamp Gain (dB)}$$

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

### 4.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

Uncertainty figures are valid to a confidence level of 95%.

## 5. EQUIPMENT UNDER TEST

### 5.1. DESCRIPTION OF EUT

The EUT is a Bluetooth featured Tri-band CDMA Phone that manufactured by Kyocera Wireless Corporations

### 5.2. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The major change filed under this application is extended a PCS band 1850MHz – 1915MHz for Industrial Canada, so the FCC still needs to re-perform the test on PCS band 1850MHz – 1910MHz.

### 5.3. MAXIMUM OUTPUT POWER

The transmitter has a maximum EIRP output powers as follows:

1850 to 1910 MHz Authorized Band

Frequency Range (MHz)	Modulation	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low CH - 1851.25	CDMA2000	25.70	371.5
Mid CH - 1880.00		26.50	446.7
High CH - 1908.75		25.50	354.8

### 5.4. SOFTWARE AND FIRMWARE

The EUT is linked with Agilent Communication Test Set.

### 5.5. WORST-CASE CONFIGURATION AND MODE

The worst-position was the EUT with highest emissions. To determine the worst-case, the EUT was investigated for X, Y, and Z-Positions, and the worst position among X, Y, and Z with AC/DC adapter, X-position with AC/DC adapter for PCS bands.

## PROCEDURE USED TO ESTABLISH TEST SIGNAL

### **3G-CDMA2000 1xRTT**

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

<u>Application</u>	<u>Rev. License</u>
CDMA2000 Mobil Test	B.10.11, L

#### 1xRTT

- Call Setup > Shift & Preset
- Protocol Rev > 6 (IS-2000-0)
- Radio Config (RC) > RC3 (Fwd3, Rvs3)
- FCH Service Option (SO) Setup > 55
- Traffic Data Rate > Full
- TDSO SCH Info > F-SCH Parameters > F-SCH Data Rate > 153.6 kbps  
> R-SCH Parameters > R-SCH Data Rate > 153.6 kbps
- Cell Info > Cell Parameters > System ID (SID) > 4395  
> Network ID (NID) > 0

Once "Active Cell" show "Connected " then change "Rvs Power Ctrl" from "Active bits" to "**All Up bits**" to get the maximum power.

Worst-case Measurement Result @ Low, Middle and High Channel

Worst-case Measurement Result for Low, Middle and High Channel under Radio Configuration RC3 and Service Option 55.

## 5.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC/DC Adapter	Kyocera	TXTVL10103	737S-001	DoC

### I/O CABLES

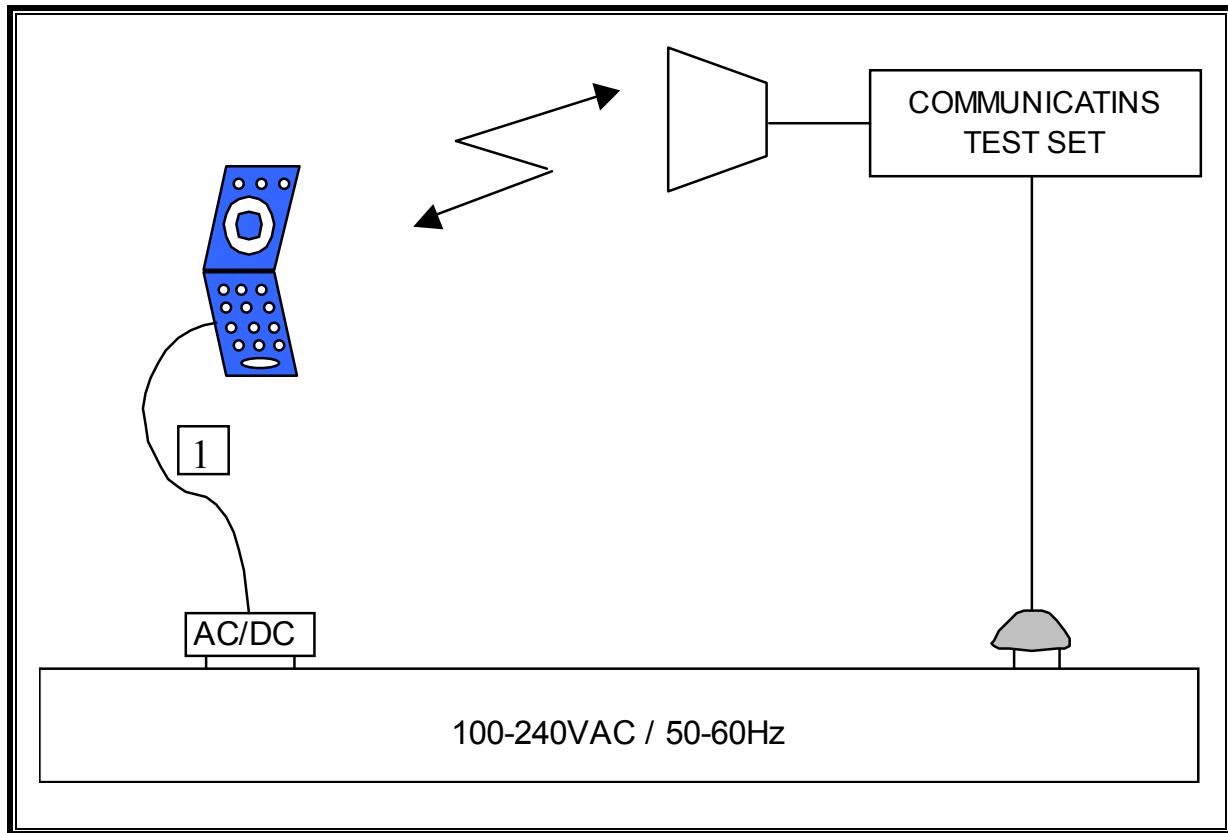
I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC Input	1	Mini-USB	Un-Shielded	2.0 m	N/A

### TEST SETUP

The EUT is a CDMA phone and is tested as a standalone configuration. Communications Test Set is used to link the device under test.



**SETUP DIAGRAM FOR TESTS**



## 6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	02/04/10
Antenna, Horn, 18 GHz	EMCO	3115	C00945	01/29/10
Antenna, Horn, 18 GHz	EMCO	3115	C00943	01/29/10
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR
Signal Generator	R & S	SMP04	C00953	02/16/11
Communications Test Set	R & S	CMU200	C001131	04/16/10
Communications Test Set	Agilent / HP	E5515C	C01086	06/16/10
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01179	08/24/10

## **7. LIMITS AND RESULTS**

### **7.1. RADIATED OUTPUT POWER**

#### **LIMITS**

24.232(b) & RSS133 § 6.4 Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

RSS-132 § 4.4 The maximum ERP shall be 6.3 Watts for mobile stations.

#### **TEST PROCEDURE**

ANSI / TIA / EIA 603 Clause 2.2.17.

#### **RESULTS**

**PCS OUTPUT POWER (EIRP)**

High Frequency Fundamental Measurement Compliance Certification Services Chamber A							
<b>Company:</b>		KYOCERA WIRELESS					
<b>Project #:</b>		09U12890					
<b>Date:</b>		10/30/2009					
<b>Test Engineer:</b>		MENGISTU MEKURIA					
<b>Configuration:</b>		EUT ALONE					
<b>Mode:</b>		TX PCS BAND					
<b>Test Equipment:</b>							
Receiving: Horn T73, and Camber B SMA Cables							
Substitution: Horn T72 Substitution, 6ft SMA Cable (208947003) Warehouse							
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
1.851	-24.8	V	40.4	15.6	33.0	-17.4	
1.851	-14.1	H	39.7	25.7	33.0	-7.3	
1.880	-23.9	V	39.9	16.0	33.0	-17.0	
1.880	-13.6	H	40.1	26.5	33.0	-6.5	
1.909	-25.0	V	39.8	14.9	33.0	-18.2	
1.909	-14.7	H	40.2	25.5	33.0	-7.5	
Rev. 1.24.7							

## **7.2. FIELD STRENGTH OF SPURIOUS RADIATION**

### **LIMIT**

§22.917 (e) and §24.238 (a), RSS-132 § 4.5.1, & RSS-133 § 6.5.1 (a) (i) & (b): Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least  $43 + 10 \log (P)$  dB.

### **TEST PROCEDURE**

ANSI / TIA / EIA 603 Clause 3.2.12 & FCC 22.917 (b), FCC 24.238 (b), & FCC 27.53 (g)(1)(2)(3).

### **RESULTS**

**PCS Spurious & Harmonic (EIRP)**

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement											
<b>Company:</b>		KYOCERA WIRELESS									
<b>Project #:</b>		09U12890									
<b>Date:</b>		10/30/2009									
<b>Test Engineer:</b>		MENGISTU MEKURIA									
<b>Configuration:</b>		EUT ALONE									
<b>Mode:</b>		TX PCS BAND									
Chamber		Pre-amplifier			Filter			Limit			
5m Chamber A		T144 8449B			Filter 1			FCC PART 24			
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
<b>Low Ch (1851.25 MHz)</b>											
3.703	-42.2	V	3.0	44.9	36.8	1.0	-33.1	-13.0	-20.1		
5.554	-57.9	V	3.0	49.3	36.3	1.0	-43.9	-13.0	-30.9		
9.256	-63.5	V	3.0	54.2	37.0	1.0	-45.2	-13.0	-32.2		
3.703	-45.1	H	3.0	45.0	36.8	1.0	-35.9	-13.0	-22.9		
5.554	-56.6	H	3.0	49.9	36.3	1.0	-42.0	-13.0	-29.0		
9.256	-66.9	H	3.0	55.3	37.0	1.0	-47.6	-13.0	-34.6		
<b>Mid Ch (1880.00 MHz)</b>											
3.760	-41.2	V	3.0	45.1	36.8	1.0	-31.9	-13.0	-18.9		
5.640	-56.9	V	3.0	49.4	36.3	1.0	-42.8	-13.0	-29.8		
9.400	-62.4	V	3.0	54.4	37.0	1.0	-44.0	-13.0	-31.0		
3.760	-39.1	H	3.0	45.2	36.8	1.0	-29.7	-13.0	-16.7		
5.640	-54.6	H	3.0	50.1	36.3	1.0	-39.8	-13.0	-26.8		
9.400	-62.9	H	3.0	55.4	37.0	1.0	-43.5	-13.0	-30.5		
<b>Hi Ch (1908.75 MHz)</b>											
3.818	-39.5	V	3.0	45.2	36.7	1.0	-30.0	-13.0	-17.0		
5.726	-59.9	V	3.0	49.5	36.3	1.0	-45.7	-13.0	-32.7		
9.544	-62.4	V	3.0	54.6	37.1	1.0	-43.9	-13.0	-30.9		
3.818	-41.3	H	3.0	45.3	36.7	1.0	-31.6	-13.0	-18.6		
5.726	-61.9	H	3.0	50.2	36.3	1.0	-47.0	-13.0	-34.0		
9.544	-63.0	H	3.0	55.6	37.1	1.0	-43.5	-13.0	-30.5		
Rev. 03.03.09											

## 8. SETUP PHOTOS

### RADIATED RF MEASUREMENT SETUP FOR PORTABLE CONFIGURATION

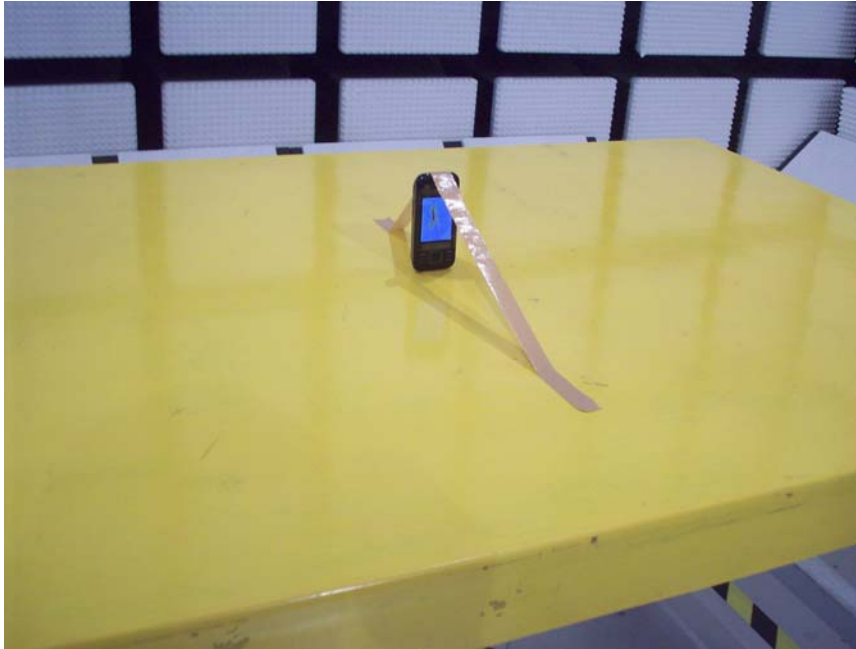


Y-AXIS PHOTO





Z-AXIS PHOTO



X-AXIS SLIDE OUT PHOTO





**END OF REPORT**