



**RADIATED SPURIOUS EMISSIONS PORTIONS OF
FCC CFR47 PART 22 SUBPART H
FCC CFR47 PART 24 SUBPART E
CERTIFICATION TEST REPORT
FOR**

DUAL-BAND 1xRTT CDMA PHONE WITH BLUETOOTH + EDR

FCC MODEL NUMBER: E4100

FCC ID: V65E4100

REPORT NUMBER: 10U13354-3

ISSUE DATE: AUGUST 23, 2010

Prepared for

**KYOCERA COMMUNICATIONS, INC
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>
---	08/23/10	Initial Issue	T. Chan

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: KYOCERA COMMUNICATIONS, INC
10300 CAMPUS POINT DRIVE
SAN DIEGO, CA 92121, USA

EUT DESCRIPTION: DUAL-BAND 1xRTT CDMA PHONE WITH BLUETOOTH

MODEL: E4100

SERIAL NUMBER: 268435457816709148

DATE TESTED: AUGUST 19-20, 2010

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22H AND 24E	PASS (Radiated Portion)

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:

Tested By:



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ENGINEERING MANAGER
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EMC ENGINEER
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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 Part 22, 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 Dual-band CDMA Phone that manufactured by Kyocera Wireless Communications, Inc.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum output powers ERP for Cell band with peak detector & EIRP for PCS band with average detector as follows:

824 to 849 MHz Authorized Band

Frequency Range (MHz)	Modulation	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low CH - 824.70	CDMA2000	28.4	691.8
Mid CH - 836.52		28.4	691.8
High CH - 848.31		27.5	562.3

1850 to 1910 MHz Authorized Band

Frequency Range (MHz)	Modulation	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low CH - 1851.25	CDMA2000	29.8	955.0
Mid CH - 1880.00		31.0	1258.9
High CH - 1908.75		30.3	1071.5

5.3. SOFTWARE AND FIRMWARE

The EUT is linked with Agilent Communication Test Set.

5.4. 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, Z, and Natural Open-Orientations, and the worst orientation among them with AC/DC adapter and Headset. After the investigations, the worst-orientations were turned out to be a X-Orientation with AC/DC adapter for Cell band and PCS band with phone at open position.

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) > 1
> 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.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC/DC Adapter	Sanyo	SCP-28ADT	710	N/A
Headset	N/A	N/A	N/A	N/A

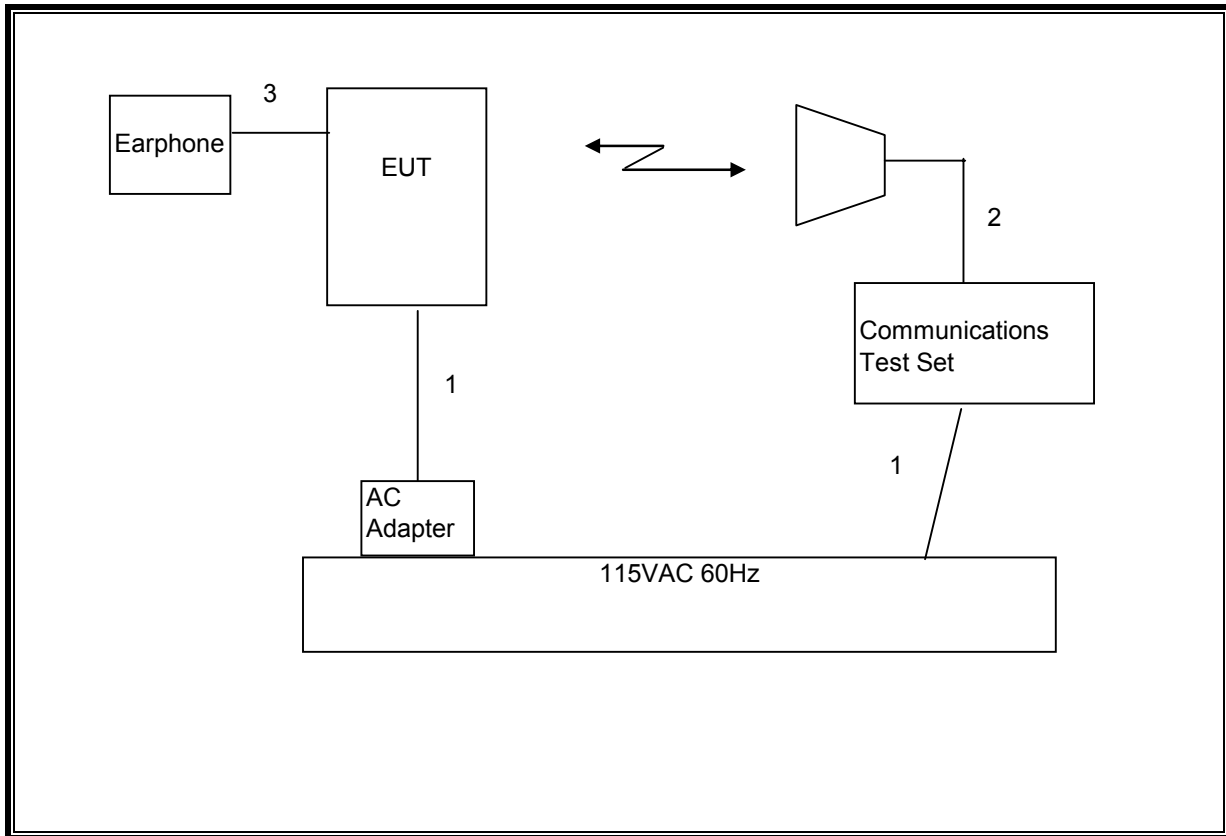
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	2	US 115V	Un-shielded	2m	NA
2	In/Out	1	Horn	Un-shielded	2m	NA
3	Audio	1	Earphone	Un-shielded	2m	NA

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	C01063	7/14/2011
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	7/12/2010
Antenna, Horn, 18 GHz	EMCO	3115	C00783	6/29/2011
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	08/31/10
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00778	01/06/11
Communications Test Set	Agilent / HP	E5515C	C01086	12/04/11
Dipole	Speag	D900V2	N/A	11/16/11
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02689	CNR
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR
Signal Generator	R & S	SMP04	C00953	02/16/11
Communications Test Set	Agilent / HP	E5515C	N/A	02/22/11
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01179	08/24/10

7. LIMITS AND RESULTS

7.1. RADIATED OUTPUT POWER

LIMITS

22.913(a) The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

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.

TEST PROCEDURE

ANSI / TIA / EIA 603 Clause 2.2.17.

RESULTS

CELL OUTPUT POWER (ERP)

High Frequency Substitution Measurement Compliance Certification Services Chamber B							
Company:	KYOCERA						
Project #:	10U13354						
Date:	8/19/2010						
Test Engineer:	Chin Pang						
Configuration:	EUT with AC Adapter						
Mode:	TX, CELL BAND						
Test Equipment:							
Receiving: Sunol T130, and 3m Chamber N-type Cable (Setup this one for testing EUT)							
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.							
f MHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch							
824.70	-14.3	V	32.6	18.3	38.5	-20.2	
824.70	-2.0	H	30.4	28.4	38.5	-10.0	
Mid Ch							
836.52	-14.0	V	32.7	18.7	38.5	-19.8	
836.52	-2.3	H	30.7	28.4	38.5	-10.0	
High Ch							
848.31	-15.5	V	32.0	16.5	38.5	-22.0	
848.31	-3.3	H	30.8	27.5	38.5	-11.0	
Rev. 1.24.7							

PCS OUTPUT POWER (EIRP)

High Frequency Fundamental Measurement Compliance Certification Services Chamber B							
Company:		KYOCERA					
Project #:		10U13354					
Date:		8/19/2010					
Test Engineer:		Chin Pang					
Configuration:		EUT WITH AC ADAPTER					
Mode:		TX, PCS BAND					
Test Equipment:							
Receiving: Horn T59, 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
Low Ch							
1.851	-10.4	V	40.2	29.8	33.0	-3.2	
1.851	-13.9	H	39.5	25.6	33.0	-7.4	
Mid Ch							
1.880	-9.3	V	40.3	31.0	33.0	-2.0	
1.880	-14.0	H	40.1	26.1	33.0	-6.9	
High Ch							
1.909	-9.9	V	40.2	30.3	33.0	-2.7	
1.909	-14.2	H	40.1	25.9	33.0	-7.1	
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

Note: No emissions were detected within 20dB range to the limit from the frequency 30 – 1000MHz.

CELL SPURIOUS & HARMONIC (ERP)

Compliance Certification Services
Above 1GHz High Frequency Substitution Measurement

Company: KYOCERA WIRELESS
Project #: 10U13354
Date: 8/19/2010
Test Engineer: Chin Pang
Configuration: EUT WITH AC ADAPTER AND HEADSET
Mode: TX, Cell Band, 1xRTT Mode

Chamber

5m Chamber B

Pre-amplifier

T144 8449B

Filter

Filter 1

Limit

FCC PART 22

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
Low Ch										
1.649	-52.2	H	3.0	37.2	38.2	1.0	-52.1	-13.0	-39.1	
2.474	-57.3	H	3.0	39.8	37.5	1.0	-53.9	-13.0	-40.9	
3.299	-63.0	H	3.0	44.0	37.1	1.0	-55.2	-13.0	-42.2	
1.649	-53.2	V	3.0	36.8	38.2	1.0	-53.6	-13.0	-40.6	
2.474	-58.3	V	3.0	41.7	37.5	1.0	-53.1	-13.0	-40.1	
3.299	-61.8	V	3.0	44.1	37.1	1.0	-53.8	-13.0	-40.8	
Mid Ch										
1.673	-54.0	H	3.0	37.5	38.1	1.0	-53.7	-13.0	-40.7	
2.510	-60.6	H	3.0	39.9	37.5	1.0	-57.2	-13.0	-44.2	
3.346	-64.5	H	3.0	44.1	37.1	1.0	-56.5	-13.0	-43.5	
1.673	-48.7	V	3.0	37.1	38.1	1.0	-48.7	-13.0	-35.7	
2.510	-59.4	V	3.0	41.8	37.5	1.0	-54.0	-13.0	-41.0	
3.346	-63.7	V	3.0	44.3	37.1	1.0	-55.5	-13.0	-42.5	
High Ch										
1.697	-53.7	H	3.0	37.7	38.1	1.0	-53.1	-13.0	-40.1	
2.545	-50.3	H	3.0	40.1	37.5	1.0	-46.6	-13.0	-33.6	
3.393	-64.0	H	3.0	44.3	37.1	1.0	-55.8	-13.0	-42.8	
1.697	-50.5	V	3.0	37.4	38.1	1.0	-50.2	-13.0	-37.2	
2.545	-63.7	V	3.0	42.0	37.5	1.0	-58.2	-13.0	-45.2	
3.393	-64.8	V	3.0	44.4	37.1	1.0	-56.5	-13.0	-43.5	

Rev. 03.03.09
 Note: No other emissions were detected above the system noise floor.

PCS Spurious & Harmonic (EIRP)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
Company:		KYOCERA WIRELESS								
Project #:		10U13354								
Date:		8/19/2010								
Test Engineer:		Chin Pang								
Configuration:		EUT WITH AC ADAPTER AND HEADSET								
Mode:		TX, PCS 1xRTT MODE								
Chamber		Pre-amplifier			Filter			Limit		
5m Chamber B		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
Low Ch										
3.702	-50.2	H	3.0	45.3	36.8	1.0	-40.7	-13.0	-27.7	
5.554	-61.3	H	3.0	50.0	36.3	1.0	-46.6	-13.0	-33.6	
9.256	-60.3	H	3.0	55.1	37.0	1.0	-41.3	-13.0	-28.3	
3.702	-48.5	V	3.0	45.1	36.8	1.0	-39.2	-13.0	-26.2	
5.554	-57.1	V	3.0	49.2	36.3	1.0	-43.2	-13.0	-30.2	
9.256	-54.5	V	3.0	53.6	37.0	1.0	-36.9	-13.0	-23.9	
Mid Ch										
3.760	-50.1	H	3.0	45.5	36.8	1.0	-40.3	-13.0	-27.3	
5.640	-60.5	H	3.0	50.2	36.3	1.0	-45.6	-13.0	-32.6	
9.400	-61.4	H	3.0	55.2	37.0	1.0	-42.2	-13.0	-29.2	
3.760	-48.3	V	3.0	45.3	36.8	1.0	-38.8	-13.0	-25.8	
5.640	-59.5	V	3.0	49.3	36.3	1.0	-45.5	-13.0	-32.5	
9.400	-55.2	V	3.0	53.7	37.0	1.0	-37.5	-13.0	-24.5	
High Ch										
3.817	-49.8	H	3.0	45.7	36.7	1.0	-39.8	-13.0	-26.8	
5.726	-60.4	H	3.0	50.3	36.3	1.0	-45.4	-13.0	-32.4	
9.544	-60.2	H	3.0	55.4	37.1	1.0	-40.9	-13.0	-27.9	
3.817	-43.5	V	3.0	45.4	36.7	1.0	-33.8	-13.0	-20.8	
5.726	-58.8	V	3.0	49.4	36.3	1.0	-44.7	-13.0	-31.7	
9.544	-59.3	V	3.0	53.9	37.1	1.0	-41.5	-13.0	-28.5	
Rev. 03.03.09										
Note: No other emissions were detected above the system noise floor.										