



RADIATED SPURIOUS EMISSIONS PORTIONS OF
FCC CFR47 PART 22 SUBPART H
FCC CFR47 PART 24 SUBPART E

CERTIFICATION TEST REPORT
FOR
DUAL BAND CDMA MOBILE PHONE
MODEL NUMBER: C5120
FCC ID: V65C5120

REPORT NUMBER: 11U13866-1

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Prepared for

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9520 TOWNE CENTRE DRIVE
SAN DIEGO, CA 92121, U.S.A.

Prepared by

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Revision History

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: KYOCERA COMMUNICATIONS, INC.
9520 TOWNE CENTRE DRIVE
SAN DIEGO, CA 92121

EUT DESCRIPTION: DUAL BAND CDMA MOBILE PHONE

MODEL: C5120

SERIAL NUMBER: 268435457816716265

DATE TESTED: JUNE 20 AND 21, 2011

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

Compliance Certification Services, Inc. (UL 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 UL 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.

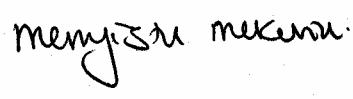
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For UL CCS By:



THU CHAN
ENGINEERING MANAGER
UL CCS

Tested By:



MENGISTU MEKURIA
EMC ENGINEER
UL CCS

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.

UL 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:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) +
Cable Loss (dB) – 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 CDMA Phone that is manufactured by Kyocera Communications, Inc.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum peak ERP & EIRP output powers as follows:

824 to 849 MHz Authorized Band

Frequency Range (MHz)	Modulation	ERP Output Power (dBm)	ERP Output Power (mW)
Low CH - 817.90	CDMA2000	30.10	1023.3
Mid CH - 836.52		29.94	986.3
High CH - 848.31		28.47	703.1

1850 to 1910 MHz Authorized Band

Frequency Range (MHz)	Modulation	EIRP Output Power (dBm)	EIRP Output Power (mW)
Low CH - 1851.25	CDMA2000	27.50	562.3
Mid CH - 1880.00		28.71	743.0
High CH - 1908.75		27.39	548.3

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, and Z-Positions, and the worst position among X, Y, and Z with slid out, AC/DC adapter and headset, after the investigations, the worst-position was turned out to be slid out Z-position with AC Adapter for cell band and Y-Position with AC Adapter and headset for PCS band.

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) > 65535
 > 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 Adapter	Kyocera	SCP-3OADT	SSW-2001	DoC
Headset	N/A	N/A	N/A	N/A

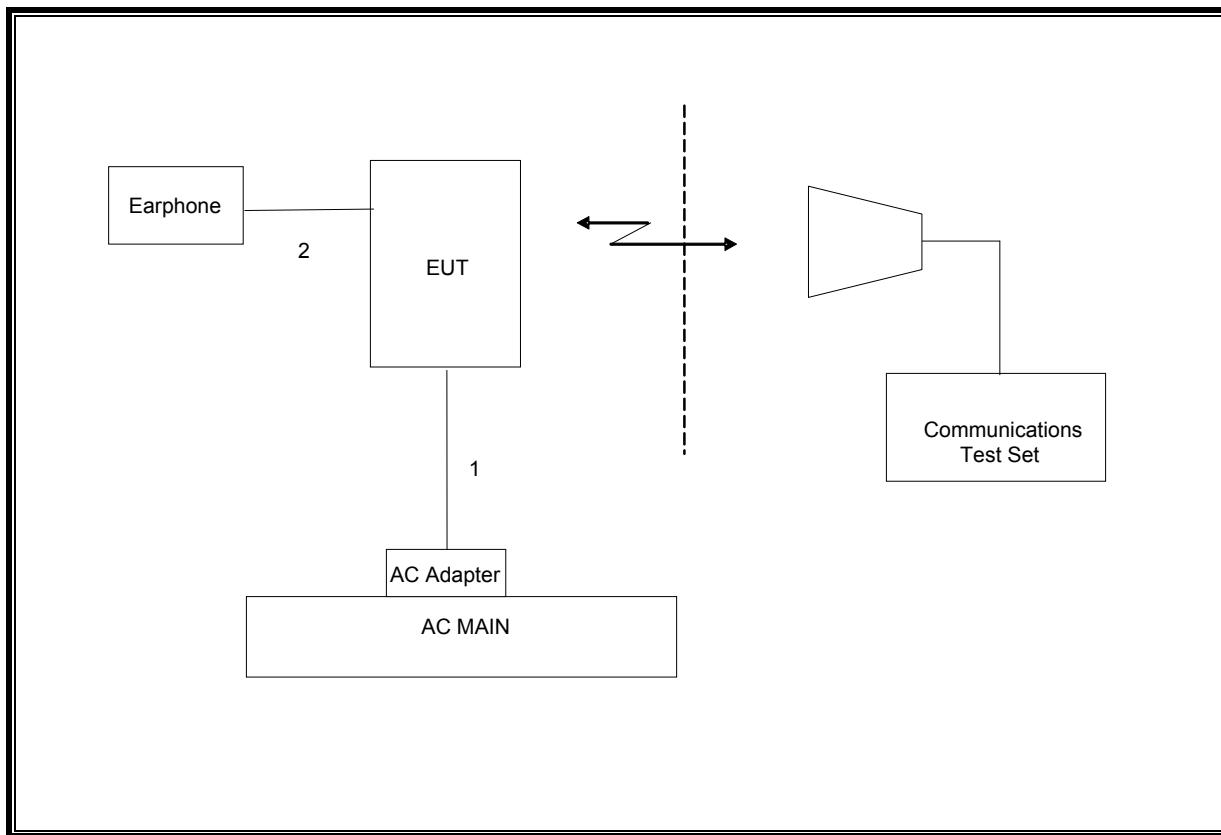
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	DC	1	US 115V	Un-shielded	1.5m	NA
2	Mic	1	Earphone	Un-shielded	1m	Mic on the Cable

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
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01176	08/10/11
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	07/14/11
Communications Test Set	Agilent / HP	E5515C	C01086	07/17/11
Vector signal generator, 6	Agilent / HP	E4438C	None	09/28/11
Preamplifier, 1300 MHz	Agilent / HP	8447D	C00885	01/26/12
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
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	07/12/11
Antenna, Horn, 18 GHz	EMCO	3115	C00943	06/28/11
Antenna, Horn, 18 GHz	EMCO	3115	C00945	06/29/11

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 PEAK OUTPUT POWER (ERP)

High Frequency Substitution Measurement Compliance Certification Services Chamber B																
Company:	KYOCERA															
Project #:	11U13866															
Date:	06-20-11															
Test Engineer:	MENGISTU MEKURIA															
Configuration:	EUT ALONE															
Mode:	TX, CELL BAND CDMA MODE															
<u>Test Equipment:</u>																
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	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes								
824.70	30.60	V	0.5	0.0	30.10	38.5	-8.3									
824.70	19.30	H	0.5	0.0	18.80	38.5	-19.6									
836.52	30.44	V	0.5	0.0	29.94	38.5	-8.5									
836.52	18.14	H	0.5	0.0	17.64	38.5	-20.8									
848.31	28.97	V	0.5	0.0	28.47	38.5	-10.0									
846.31	18.40	H	0.5	0.0	17.90	38.5	-20.6									
Rev. 3.17.11																

PCS PEAK OUTPUT POWER (EIRP)

High Frequency Fundamental Measurement Compliance Certification Services Chamber B																
Company:	KYOCERA															
Project #:	11U13866															
Date:	06/20/11															
Test Engineer:	MENGISTU MEKURIA															
Configuration:	EUT ALONE															
Mode:	TX, PCS BAND CDMA MODE															
<u>Test Equipment:</u>																
Receiving: Horn T59, and Camber B SMA Cables																
Substitution: Horn T60 Substitution, 6ft SMA Cable (208947003) Warehouse																
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Cable Loss (dB)	Antenna Gain (dBi)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes								
1.851	18.5	V	0.85	8.01	25.64	33.0	-7.4									
1.851	20.3	H	0.85	8.01	27.50	33.0	-5.5									
1.880	18.3	V	0.85	8.13	25.53	33.0	-7.5									
1.880	21.4	H	0.85	8.13	28.71	33.0	-4.3									
1.909	18.0	V	0.85	8.13	25.31	33.0	-7.7									
1.909	20.1	H	0.85	8.13	27.39	33.0	-5.6									
Rev. 3.17.11																

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)(g)(1)(2).

RESULTS

CELL SPURIOUS & HARMONIC (ERP)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement									
Company:	KYOCERA								
Project #:	11U13866								
Date:	06-21-11								
Test Engineer:	MENGISTU MEKURIA								
Configuration:	EUT ALONE								
Mode:	TX, CELL BAND CDMA MODE								
Chamber		Pre-amplifier		Filter		Limit			
5m Chamber B		T145 8449B		Filter 1		FCC Part 22			
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (824.7MHz)									
1.649	-11.4	V	3.0	35.5	1.0	45.9	-13.0	-32.9	
2.474	-5.0	V	3.0	35.4	1.0	39.4	-13.0	-26.4	
3.299	-19.9	V	3.0	35.5	1.0	54.4	-13.0	-41.4	
1.649	-10.2	H	3.0	35.5	1.0	44.7	-13.0	-31.7	
2.474	-4.2	H	3.0	35.4	1.0	38.6	-13.0	-25.6	
3.299	-21.2	H	3.0	35.5	1.0	55.8	-13.0	-42.8	
Mid Channel (836.52MHz)									
1.673	-2.3	V	3.0	35.5	1.0	36.8	-13.0	-23.8	
2.510	-4.5	V	3.0	35.4	1.0	38.9	-13.0	-25.9	
3.526	-18.2	V	3.0	35.4	1.0	52.6	-13.0	-39.6	
1.673	-3.8	H	3.0	35.5	1.0	38.3	-13.0	-25.3	
2.510	-4.3	H	3.0	35.4	1.0	38.7	-13.0	-25.7	
3.346	-19.5	H	3.0	35.5	1.0	54.0	-13.0	-41.0	
High Channel (848.31MHz)									
1.697	5.2	V	3.0	35.5	1.0	29.3	-13.0	-16.3	
2.545	-5.9	V	3.0	35.4	1.0	40.3	-13.0	-27.3	
3.393	-20.1	V	3.0	35.5	1.0	54.6	-13.0	-41.6	
1.697	1.1	H	3.0	35.5	1.0	33.4	-13.0	-20.4	
2.545	-6.5	H	3.0	35.4	1.0	41.0	-13.0	-28.0	
3.393	-20.9	H	3.0	35.5	1.0	55.4	-13.0	-42.4	

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								
Project #:	11U13866								
Date:	20/6/2011								
Test Engineer:	MENGISTU MEKURIA								
Configuration:	EUT with AC Adapter and earphone								
Mode:	TX, PCS, CDMA2000								
Chamber		Pre-amplifier		Filter		Limit			
5m Chamber B		T145 8449B		Filter 1		FCC Part 24			
f GHz	SG reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Ch, 1851.25MHz									
3.70	-9.4	H	3.0	35.4	1.0	-43.7	-13.0	-30.7	
5.55	11.0	H	3.0	35.4	1.0	-23.4	-13.0	-10.4	
7.41	-16.4	H	3.0	35.7	1.0	-51.1	-13.0	-38.1	
9.26	-9.6	H	3.0	35.6	1.0	-44.2	-13.0	-31.2	
3.70	-9.8	H	3.0	35.4	1.0	-44.1	-13.0	-31.1	
5.55	4.1	H	3.0	35.4	1.0	-30.3	-13.0	-17.3	
7.41	-16.5	H	3.0	35.7	1.0	-51.2	-13.0	-38.2	
9.26	-10.3	H	3.0	35.6	1.0	-44.9	-13.0	-31.9	
Mid Ch, 1880MHz									
3.76	-9.0	V	3.0	35.3	1.0	-43.4	-13.0	-30.4	
5.64	5.3	V	3.0	35.4	1.0	-29.1	-13.0	-16.1	
7.52	-18.3	V	3.0	35.7	1.0	-53.0	-13.0	-40.0	
3.76	-10.3	H	3.0	35.3	1.0	-44.7	-13.0	-31.7	
5.64	2.2	H	3.0	35.4	1.0	-32.2	-13.0	-19.2	
7.52	-15.9	H	3.0	35.7	1.0	-50.6	-13.0	-37.6	
High Ch, 1908.75MHz									
3.82	-9.7	V	3.0	35.3	1.0	-44.0	-13.0	-31.0	
5.73	3.8	V	3.0	35.4	1.0	-30.7	-13.0	-17.7	
7.64	-17.7	V	3.0	35.7	1.0	-52.4	-13.0	-39.4	
3.82	-10.6	H	3.0	35.3	1.0	-44.9	-13.0	-31.9	
5.73	-0.1	H	3.0	35.4	1.0	-34.5	-13.0	-21.5	
7.64	-15.6	H	3.0	35.7	1.0	-50.3	-13.0	-37.3	

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