

PCTEST ENGINEERING LABORATORY, INC.

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MEASUREMENT REPORT

FCC Part 22 & 24

Applicant Name:

Kyocera Corporation 9520 Towne Centre Drive, Suite 200 San Diego, CA 92121 United States

Date of Testing: June 23 - July 15, 2015 Test Site/Location: PCTEST Lab., Columbia, MD, USA Test Report Serial No.: 0Y1506221313.V65

FCC ID:

V65E4281

APPLICANT:

KYOCERA CORPORATION

Application Type: Model(s): EUT Type: FCC Classification: FCC Rule Part(s): Test Procedure(s): Test Device Serial No.: Certification E4281 Portable Handset PCS Licensed Transmitter Held to Ear (PCE) §2 §22(H) §24(E) ANSI/TIA-603-C-2004, KDB 971168 v02r02 *identical prototype* [S/N: 4281D033 & 4281D036]

			ERP/EIRP		
Mode	Tx Frequency (MHz)	Emission Designator	Max. Power (W)	Max. Power (dBm)	
GSM850	824.2 - 848.8	243KGXW	1.544	31.89	
EDGE850	824.2 - 848.8	242KG7W	0.542	27.34	
GSM1900	1850.2 - 1909.8	244KGXW	1.074	30.31	
EDGE1900	1850.2 - 1909.8	246KG7W	0.490	26.90	
CDMA850	824.70 - 848.31	1M27F9W	0.185	22.67	
CDMA1900	1851.25 - 1908.75	1M28F9W	0.238	23.76	

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Randy Ortanez President



FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCER3	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dogo 1 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 1 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015

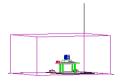


TABLE OF CONTENTS

FCC P	ART 22	2 & 24 MEASUREMENT REPORT	3
1.0	INTR	ODUCTION	4
	1.1	SCOPE	4
	1.2	TESTING FACILITY	4
2.0	PRO	DUCT INFORMATION	5
	2.1	EQUIPMENT DESCRIPTION	5
	2.2	DEVICE CAPABILITIES	5
	2.3	TEST CONFIGURATION	5
	2.4	EMI SUPPRESSION DEVICE(S)/MODIFICATIONS	5
3.0	DESC	CRIPTION OF TESTS	6
	3.1	EVALUATION PROCEDURE	6
	3.2	CELLULAR - BASE FREQUENCY BLOCKS	6
	3.3	CELLULAR - MOBILE FREQUENCY BLOCKS	6
	3.4	PCS - BASE FREQUENCY BLOCKS	6
	3.5	PCS - MOBILE FREQUENCY BLOCKS	7
	3.6	RADIATED MEASUREMENTS	7
4.0	TEST	EQUIPMENT CALIBRATION DATA	8
5.0	SAM	PLE CALCULATIONS	9
6.0	TEST	RESULTS	10
	6.1	SUMMARY	10
	6.2	OCCUPIED BANDWIDTH	11
	6.3	SPURIOUS AND HARMONIC EMISSIONS AT ANTENNA TERMINAL	15
	6.4	BAND EDGE EMISSIONS AT ANTENNA TERMINAL	
	6.5	PEAK-AVERAGE RATIO	42
	6.6	RADIATED POWER (ERP/EIRP)	45
	6.7	RADIATED SPURIOUS EMISSIONS MEASUREMENTS	
	6.8	FREQUENCY STABILITY / TEMPERATURE VARIATION	56
7.0	CON	CLUSION	65

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 2 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset	Fage 2 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.		V 2.9 06/10/2015





MEASUREMENT REPORT FCC Part 22 & 24



§2.1033 General Information

APPLICANT:	Kyocera Corporation
APPLICANT ADDRESS:	9520 Towne Centre Drive, Suite 200
	San Diego, CA 92121, United States
TEST SITE:	PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS:	7185 Oakland Mills Road, Columbia, MD 21046 USA
FCC RULE PART(S):	§2 §22(H) §24(E)
BASE MODEL:	E4281
FCC ID:	V65E4281
FCC CLASSIFICATION:	PCS Licensed Transmitter Held to Ear (PCE)
MODE:	CDMA/EvDO/GSM/GPRS/EDGE
FREQUENCY TOLERANCE:	±0.00025 % (2.5 ppm)
Test Device Serial No.:	4281D033 & 4281D036 Production Production Engineering
DATE(S) OF TEST:	June 23 - July 15, 2015
TEST REPORT S/N:	0Y1506221313.V65

Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab located in Columbia, MD 21046, U.S.A.

• PCTEST facility is an FCC registered (PCTEST Reg. No. 159966) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (2451B-1).



EC 17025-2005

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- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing Aid Compatibility (HAC) testing, CTIA Test Plans, and wireless testing for FCC and Industry Canada Rules.
- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and Industry Canada Standards (RSS).
- PCTEST facility is an IC registered (2451B-1) test laboratory with the site description on file at Industry Canada.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS, CDMA, and EvDO wireless devices and for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO, and CDMA 1xRTT.

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCER3	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 2 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 3 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission and the Industry Canada Certification and Engineering Bureau.

1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity, the Baltimore-Washington Internt'I (BWI) airport, the city of Baltimore and the Washington, DC area. (*See Figure 1-1*).

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility located at 7185 Oakland Mills Road, Columbia, MD 21046. The site coordinates are 39° 10'23" N latitude and 76° 49'50" W longitude. The facility is 0.4 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2009 on February 15, 2012.

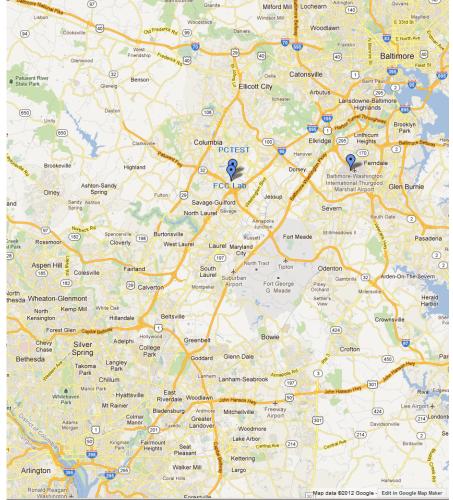


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege 4 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 4 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Kyocera Portable Handset FCC ID: V65E4281**. The test data contained in this report pertains only to the emissions due to the EUT's 2G/3G licensed transmitters.

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA/EvDO Rev0/A (BC0, BC1, BC10), 850/1900 GSM/GPRS/EDGE, Bluetooth (1x, EDR)

2.3 Test Configuration

The Kyocera Portable Handset FCC ID: V65E4281 was tested per the guidance of ANSI/TIA-603-C-2004 and KDB 971168 v02r02. See Section 6.0 of this test report for a description of the radiated and antenna port conducted emissions tests.

2.4 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 5 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 5 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015

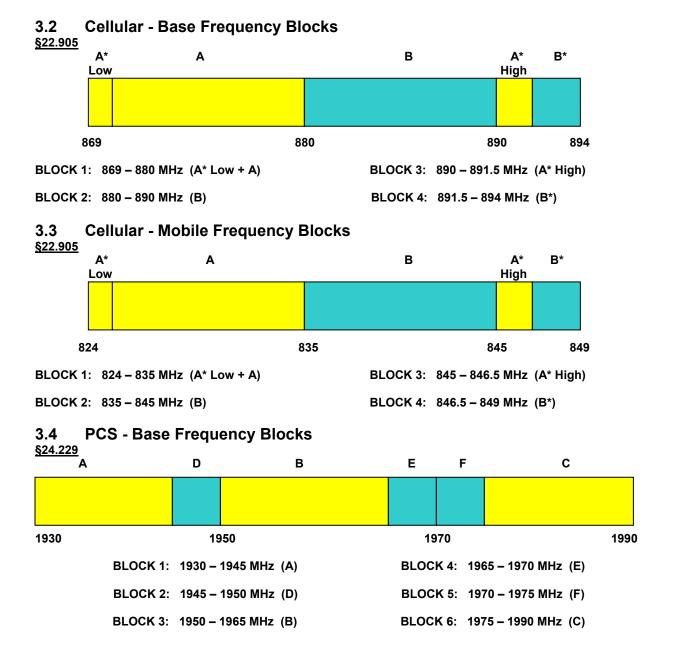


3.0 DESCRIPTION OF TESTS

3.1 Evaluation Procedure

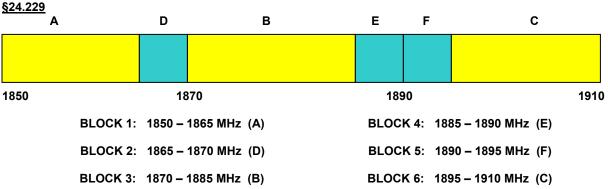
The measurement procedures described in the "Land Mobile FM or PM – Communications Equipment – Measurements and Performance Standards" (ANSI/TIA-603-C-2004) and "Measurement Guidance for Certification of Licensed Digital Transmitters" (KDB 971168 v02r02) were used in the measurement of the **Kyocera Portable Handset FCC ID: V65E4281.**





FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 6 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 0 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015





3.5 PCS - Mobile Frequency Blocks

3.6 Radiated Measurements

§2.1053 §22.913(a.2) §22.917(a) §24.232(c) §24.238(a)

The radiated test facilities consisted of an indoor 3 meter semi-anechoic chamber used for final measurements and exploratory measurements, when necessary. The measurement area is contained within the semi-anechoic chamber which is shielded from any ambient interference. The test site inside the chamber is a 6m x 5.2m elliptical, obstruction-free area in accordance with Clause 5, Figure 5.7 of ANSI C63.4-2009. For measurements above 1GHz absorbers are arranged on the floor between the turn table and the antenna mast in such a way so as to maximize the reduction of reflections. For measurements below 1GHz, the absorbers are removed. An ETS Lindgren Model 2188 raised turntable is used for radiated measurement. It is a continuously rotatable, remote-controlled, metallic turntable and 2 meters (6.56 ft.) in diameter. The turn table is flush with the raised floor of the chamber in order to maintain its function as a ground plane. A 78cm high PVC support structure is placed on top of the turntable. A $\frac{3}{4}$ " (~1.9cm) sheet of high density polyethylene is used as the table top and is placed on top of the PVC supports to bring the total height of the table to 80cm.

The equipment under test was transmitting while connected to its integral antenna and is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height is adjusted between 1 and 4 meter height, the turntable is rotated through 360 degrees, and the EUT is manipulated through all orthogonal planes representative of its typical use to achieve the highest reading on the receive spectrum analyzer.

Per the guidance of ANSI/TIA-603-C-2004, a half-wave dipole is then substituted in place of the EUT. For emissions above 1GHz, a horn antenna is substituted in place of the EUT. The substitute antenna is driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer level previously recorded from the spurious emission from the EUT. The power of the emission is calculated using the following formula:

 $P_{d [dBm]} = P_{g [dBm]} - cable loss [dB] + antenna gain [dBd/dBi]$

Where, P_d is the dipole equivalent power, P_g is the generator output into the substitution antenna, and the antenna gain is the gain of the substitute antenna used relative to either a half-wave dipole (dBd) or an isotropic source (dBi). The substitute level is equal to $P_{g \text{ [dBm]}}$ – cable loss $_{\text{[dB]}}$.

Radiated power levels are investigated with the receive antenna vertically polarized while radiated spurious emissions levels are investigated with the receive antenna horizontally and vertically polarized per ANSI/TIA-603-C-2004.

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	🔇 KYOCERƏ	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 7 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 7 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



4.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST).

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	RE1	Radiated Emissions Cable Set (UHF/EHF)	10/24/2014	Annual	10/24/2015	N/A
-	LTx2	Licensed Transmitter Cable Set	10/16/2014	Annual	10/16/2015	N/A
Agilent	8447D	Broadband Amplifier	6/12/2015	Annual	6/12/2016	1937A03348
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/28/2014	Annual	10/28/2015	3613A00315
Agilent	E5515C	Wireless Communications Test Set	2/23/2015	Biennial	2/23/2017	GB41450275
Agilent	N9038A	MXE EMI Receiver	3/24/2015	Annual	3/24/2016	MY51210133
Agilent	N9030A	PXA Signal Analyzer (26.5GHz)	7/22/2014	Annual	7/22/2015	MY49432391
Anritsu	ML2495A	Power Meter	10/31/2013	Biennial	10/31/2015	941001
Anritsu	MA2411B	Pulse Sensor	4/8/2014	Biennial	4/8/2016	846215
Com-Power	PAM-118A	Pre-Amplifier	4/10/2015	Annual	4/10/2016	551042
Emco	6502	Active Loop Antenna (10k - 30 MHz)	6/24/2014	Biennial	6/24/2016	267
Espec	ESX-2CA	Environmental Chamber	3/17/2015	Annual	3/17/2016	17620
K & L	13SH10-1000/U1000	N Type High Pass Filter	12/1/2014	Annual	12/1/2015	4
K & L	11SH10-3075/U18000	High Pass Filter	12/1/2014	Annual	12/1/2015	3
Rohde & Schwarz	CMU200	Base Station Simulator		N/A		836536/0005
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Tx	11/1/2013	Biennial	11/1/2015	91052522TX
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Rx	11/1/2013	Biennial	11/1/2015	91052523RX
Seekonk	NC-100	Torque Wrench 5/16", 8" Ibs	3/18/2014	Biennial	3/18/2016	N/A
Sunol	DRH-118	Hom Antenna (1 - 18GHz)	7/19/2013	Biennial	7/19/2015	A050307
Sunol	DRH-118	Horn Antenna (1-18 GHz)	7/19/2013	Biennial	7/19/2015	A042511
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	1/28/2014	Biennial	1/28/2016	A051107
VWR	62344-734	Thermometer with Clock	2/20/2014	Biennial	2/20/2016	140140420

Table 4-1. Test Equipment

Note:

1. Equipment with a calibration date of "N/A" shown in this list was not used to make direct calibrated measurements.

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 8 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 6 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



5.0 SAMPLE CALCULATIONS

GSM Emission Designator

Emission Designator = 250KGXW

GSM BW = 250 kHz G = Phase Modulation X = Cases not otherwise covered W = Combination (Audio/Data)

EDGE Emission Designator

Emission Designator = 250KG7W

EDGE BW = 250 kHz G = Phase Modulation 7 = Quantized/Digital Info W = Combination (Audio/Data)

CDMA Emission Designator

Emission Designator = 1M25F9W

CDMA BW = 1.25 MHz F = Frequency Modulation 9 = Composite Digital Info W = Combination (Audio/Data)

Spurious Radiated Emission

Example: Spurious emission at 3700.40 MHz

The receive spectrum analyzer reading at 3 meters with the EUT on the turntable was -81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of -81.0 dBm on the spectrum analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 3700.40 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.50 dBm so this harmonic was 25.50 dBm -(-24.80) = 50.3 dBc.

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	ICERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 9 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 9 01 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



6.0 TEST RESULTS

6.1 Summary

Company Name:	Kyocera Corporation
FCC ID:	<u>V65E4281</u>
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
Mode(s):	CDMA/GSM/GPRS/EDGE

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER	MODE (TX)	_			
2.1049	Occupied Bandwidth	N/A		PASS	Section 6.2
2.1051 22.917(a) 24.238(a)	Conducted Band Edge / Spurious Emissions	> 43 + log ₁₀ (P[Watts]) at Band Edge and for all out-of-band emissions		PASS	Sections 6.3, 6.4
24.232(d)	Peak-Average Ratio	< 13 dB	CONDUCTED	PASS	Section 6.5
2.1046	Transmitter Conducted Output Power	N/A		PASS	RF Exposure Report
2.1055 22.355 24.235	Frequency Stability	< 2.5 ppm (Part 22) Emission must remain in band (Part 24)		PASS	Section 6.8
22.913(a.2)	Effective Radiated Power	< 7 Watts max. ERP		PASS	Section 6.6
24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP	RADIATED	PASS	Section 6.6
2.1053 22.917(a) 24.238(a)	Radiated Spurious Emissions	rious > 43 + log ₁₀ (P[Watts]) for all out-of-band emissions		PASS	Section 6.7

Table 6-1. Summary of Test Results

Notes:

- 1) All modes of operation and data rates were investigated. The test results shown in the following sections represent the worst case emissions.
- 2) The analyzer plots were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables, directional couplers, and attenuators used as part of the system to maintain a link between the call box and the EUT at all frequencies of interest.
- 3) All antenna port conducted emissions testing was performed on a test bench with the antenna port of the EUT connected to the spectrum analyzer through calibrated cables, attenuators, and couplers.
- 4) For conducted spurious emissions, automated test software was used to measure emissions and capture the corresponding plots necessary to show compliance. The measurement software utilized is PCTEST "2G/3G Automation," Version 3.2.

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	🕵 KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 10 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 10 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



6.2 Occupied Bandwidth §2.1049

Test Overview

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. All modes of operation were investigated and the worst case configuration results are reported in this section.

Test Procedure Used

KDB 971168 v02r02 - Section 4.2

Test Settings

- The signal analyzer's automatic bandwidth measurement capability was used to perform the 99% occupied bandwidth and the 26dB bandwidth. The bandwidth measurement was not influenced by any intermediate power nulls in the fundamental emission.
- 2. RBW = 1 5% of the expected OBW
- 3. VBW \geq 3 x RBW
- 4. Detector = Peak
- 5. Trace mode = max hold
- 6. Sweep = auto couple
- 7. The trace was allowed to stabilize
- 8. If necessary, steps 2 7 were repeated after changing the RBW such that it would be within

1 – 5% of the 99% occupied bandwidth observed in Step 7

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

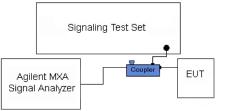


Figure 6-1. Test Instrument & Measurement Setup

Test Notes

None.

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 11 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 11 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015









Plot 6-2. Occupied Bandwidth Plot (EDGE850 Mode - Ch. 190)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 12 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset	Page 12 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.		V 2.9 06/10/2015









Plot 6-4. Occupied Bandwidth Plot (EDGE1900 Mode - Ch. 661)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 13 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 13 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015





Plot 6-5. Occupied Bandwidth Plot (Cellular CDMA Mode - Ch. 384)



Plot 6-6. Occupied Bandwidth Plot (PCS CDMA Mode – Ch. 600)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 14 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 14 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



6.3 Spurious and Harmonic Emissions at Antenna Terminal §22.1051 §22.917(a) §24.238(a)

Test Overview

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

Test Procedure Used

KDB 971168 v02r02 – Section 6.0

Test Settings

- 1. Start frequency was set to 30MHz and stop frequency was set to 10GHz for Cell, 20GHz for PCS (separated into at least two plots per channel)
- 2. Detector = RMS
- 3. Trace mode = trace average for continuous emissions, max hold for pulse emissions
- 4. Sweep time = auto couple
- 5. The trace was allowed to stabilize
- 6. Please see test notes below for RBW and VBW settings

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

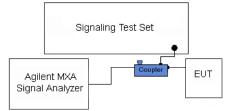


Figure 6-2. Test Instrument & Measurement Setup

Test Notes

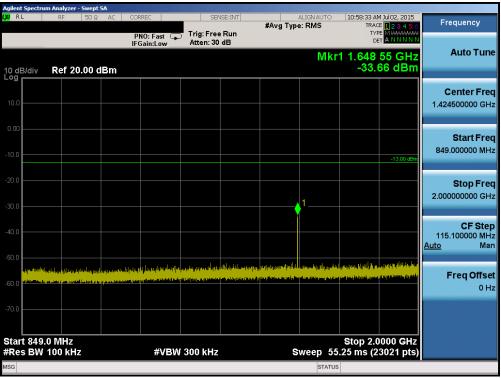
Compliance with the applicable limits is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater for Part 22 and 1 MHz or greater for Part 24. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 15 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 15 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



		Analyzer - Swe									
l <mark>XI</mark> RI	-	RF 50	Ω AC C	ORREC	SEN	ISE:INT	#Avg Type	ALIGN AUTO	10:58:23 A TRA	M Jul 02, 2015 CE 123456 PE M WWWWW	Frequency
				PNO: Fast 🖵 IFGain:Low	Trig: Free Atten: 30			R.A.	D		Auto Tune
10 dE Log I	3/div	Ref 20.00	dBm					IVII	-39.	80 MHz 93 dBm	
10.0											Center Freq 426.500000 MHz
0.00 -10.0										-13.00 dBm	Start Freq 30.000000 MHz
-20.0 -30.0											Stop Freq 823.000000 MHz
-40.0 -50.0										1	CF Step 79.300000 MHz <u>Auto</u> Man
-50.0	pullantya fi data ana ang	tin fillen finder finder finderen Texter finderen finderen	terg Lang ₍ 16 Å), og af bis (n 18 gestaf og statister i Lagi) forsk	<mark>tale transformation (per fin 1997 - De Calendar Joya (</mark> fin	l policie di Institutione na segui estato ficione	ا و در با این الارد بر با الارد بر الارد بر الارد بر الارد بر الارد بر الارد بر الارد بر الارد بر	het (pylangustertensys) (s) (Sin (datagenetic) (s) (datagenetic)	n ar entristanos a constantanos	an an Arrent an an Arrent an A Arrent an Arrent an A	a balanta (perindan serit) 1996 - Yang Salaman (perinda) 1996 - Yang Salaman (perinda)	Freq Offset 0 Hz
-70.0 Star	t 30.0	MHz							Stop 8	23.0 MHz	
		100 kHz		#VBW	300 kHz		S	weep 38	.06 ms (1	5861 pts)	
MSG								STATUS	5		

Plot 6-7. Conducted Spurious Plot (Cellular GSM Mode – Ch. 128)



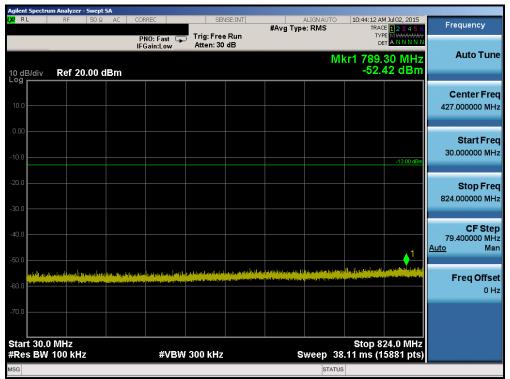
Plot 6-8. Conducted Spurious Plot (Cellular GSM Mode – Ch. 128)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dage 16 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset	Page 16 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.		V 2.9 06/10/2015



X/RL	RF 50 :	Ω AC O	ORREC	SEN	ISE:INT		ALIGN AUTO		4 Jul 02, 2015	F
			PNO: Fast 🕞 FGain:Low	Trig: Free Atten: 20	Run dB	#Avg Typ	e: RMS	TYF	^{2E} 123456 ^{DE} M WAAWAA TANNNNN	Frequency
10 dB/div	Ref 10.00		Cam.Euw				MI	(r1 2.47) -20.	35 GHz 85 dBm	Auto Tune
0.00										Center Free 6.000000000 GH
10.0 20.0	1								-13.00 dBm	Start Fre 2.000000000 GH
30.0										Stop Fre 10.000000000 GH
50.0 <mark>hujete</mark> 60.0					ng palata ana pang kana dar Dag sang ang kana ana pang kana pang kana pang kana pang kana pang kana pang kana p Dag sang pang kana pa	na and an proving a fir Legendric consideration		, dagan bergena yang melaku 1999 - Agan Antoning, gan bahar	, p ^{aranta} pengakana _{Par} titi tapapatén	CF Stej 800.000000 MH <u>Auto</u> Ma
70.0										Freq Offse 0 H
-80.0 Start 2.00								Stop 10	.000 GHz	
Res BW	1.0 MHz		#VBW	3.0 MHz		s	weep 13	.87 ms (1	6001 pts)	





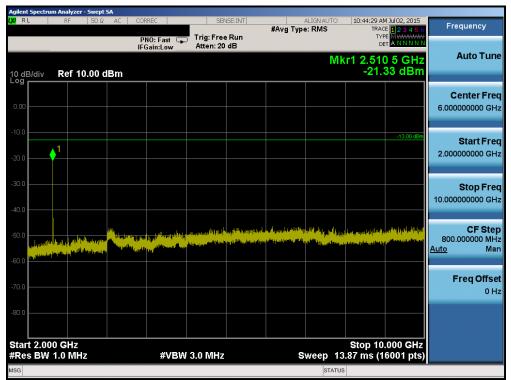
Plot 6-10. Conducted Spurious Plot (Cellular GSM Mode – Ch. 190)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCER3	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 17 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 17 01 05
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Agilent Spectru X/ RL	m Analyzer - Swept			051				10.11.00.0		
XI RL	RF 50 Ω	AC CO	DRREC		JSE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRAC	M Jul 02, 2015 CE <mark>1 2 3 4 5 6</mark>	Frequency
			PNO: Fast 🖵 FGain:Low	Trig: Free Atten: 30				TY D		
							Mkr	1 1.673	10 GHz	Auto Tune
10 dB/div Log	Ref 20.00 d	IBm						-33.	01 dBm	
										Center Fred
10.0										1.424500000 GHz
0.00										Start Freq
-10.0									-13.00 dBm	849.000000 MHz
									-10.00 000	
-20.0										Stop Freq
-30.0							1			2.000000000 GHz
							I Y			
40.0										CF Step 115.100000 MHz
-50.0										<u>Auto</u> Man
و يو و و ال	ally for the second sector of the	الأرغور والشروين التراري		<u>allusitens</u> liikoo		les work to all the dark	որեներիներին	والدامية ومعير وتأتون	l baleare kapere eks	
60.0 <mark>().10.20.20.2</mark>	di ana ana ana ana ana ana ana	فحطره أمتحتكم إمريافه	والمتأذلين أتشتري بالإير	antra j po das de Antra de Las del	hili dan kana	أحكامك كالشرائي كي	i nationali in the sector of t	أنطريك أريطك أخطاعه	a de principal de la constant de la c	Freq Offset 0 Hz
-70.0										
Start 849. Res BW			#VBW	300 kHz		s	weep 55		0000 GHz 3021 pts)	
ISG							STATUS			



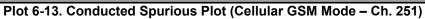


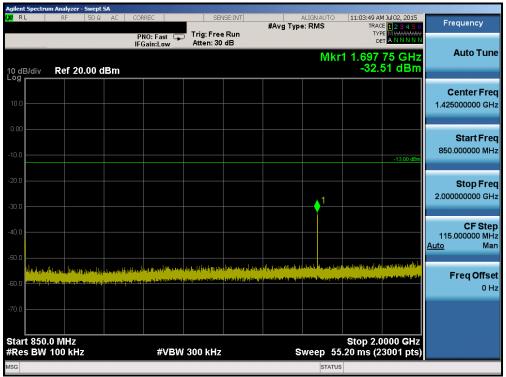
Plot 6-12. Conducted Spurious Plot (Cellular GSM Mode – Ch. 190)

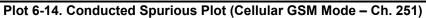
FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	🕵 KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 18 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 10 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



		m Analyzer									_		
lxi Ri	L	RF	50 Ω	AC	CORREC		I	ISE:INT	#Avg Typ	ALIGN AUTO e: RMS	TRA	M Jul 02, 2015 CE <mark>1 2 3 4 5 6</mark>	Frequency
					PNO: Fa	ow ow	Trig: Free Atten: 30				TY D	PE M WAAWAAAA ET A N N N N N	
										M	kr1 731.	60 MHz	Auto Tune
10 dE Log	3/div	Ref 2	0.00 d	Bm							-51.	64 dBm	
													Center Freq
10.0	<u> </u>												427.000000 MHz
0.00													Start Freq
-10.0												-13.00 dBm	30.000000 MHz
												-13.00 dBh	
-20.0													Stop Freq
-30.0													824.000000 MHz
-30.0													
-40.0	<u> </u>												CF Step 79.400000 MHz
												1	<u>Auto</u> Man
-50.0							di sada sa kasa			المعانية المحالية	a had to be started by	والمعاولة والمقاربة والمعاول	
-60.0								Contrational design and the Host of	a likela olik ita fara da sela				Freq Offset
													0 Hz
-70.0													
	t 30.0										Stop 8	24.0 MHz	
	s BW	100 kH	z		#	VBW	300 kHz		s			5881 pts)	
MSG										STATUS	5		





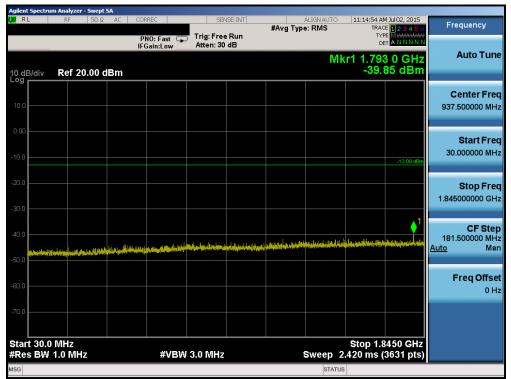


FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	🕵 KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 19 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 19 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



Agilent Spectru X/ RL	រ <mark>m Analyzer - Swe</mark> p RF 50 ន		RREC	051	SE:INT		ALIGNAUTO	11,02,56 81	M 2402 2015	
A RL	RF 50 %	AL LU	RREL			#Avg Typ		TRAC	M Jul 02, 2015 CE <mark>1 2 3 4 5 6</mark>	Frequency
			NO: Fast 🕞 Gain:Low	Trig: Free Atten: 20				DI	PE M WAAWAAAA ET A N N N N N	
							MI	(r1 2.54	7 0 GHz	Auto Tui
10 dB/div Log	Ref 10.00	dBm						-20.	05 dBm	
										Center Fre
0.00										6.00000000 GI
-10.0										
-10.0	<u>1</u>								-13.00 dBm	Start Fre
-20.0	• ·									2.000000000 GI
-30.0										Stop Fre
-40.0										10.00000000 GI
40.0										
-50.0		and the state of t	The second s	ender de la	a la provinsi da se	يونيو مي مي وروانيو. والتصوية بين من الله	(all all a spectra based)	and the state of t	and the second sec	CF Ste 800.000000 MI
الأيمين أراد	and property of the second	a state and	and the second		All the set of					<u>Auto</u> Ma
-60.0										
-70.0										Freq Offs
										01
-80.0										
Start 2.00							1	Stop 10	.000 GHz	
	1.0 MHz		#VBW	3.0 MHz		s			6001 pts)	
SG							STATUS	5		





Plot 6-16. Conducted Spurious Plot (PCS GSM Mode - Ch. 512)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	🥵 KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dage 20 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 20 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



	m Analyzer - Swept										
LXIRL	RF 50 Ω	AC COI	RREC	SEN	ISE:INT	#Avg Typ	ALIGN AUTO		M Jul 02, 2015 CE <mark>1 2 3 4 5 6</mark>	Frequency	
			NO: Fast 🖵	Trig: Free Atten: 30				TY	PE MWAAAAAAA ET A N N N N N		
		IF I	Gain:Low	Atten: 30	ab					Auto T	une
		-					IVIP	-35	5 0 GHz 88 dBm		
10 dB/div Log	Ref 20.00 d	вm	1			1	1	-00.			
										Center F	rea
10.0										5.955000000	
0.00											
										Start F	
-10.0									-13.00 dBm	1.91000000	GHz
-20.0										Stop F	rea
										10.000000000	_
-30.0						1-					
		al.			a aluxador a		المعد ا			CF S	ton
-40.0	leptere lepter the state	a decidence		AND DESCRIPTION OF THE PARTY OF T	anton, Malan Mahan Alta Anton, Malan Mahan	n na statistické statistické statistické statistické statistické statistické statistické statistické statistic Na statistické statistické statistické statistické statistické statistické statistické statistické statistické s	ante a miniki ku kuka		interaction of a second se	809.000000	
and particular	and the second secon	a state in a	No. Alternation					an because a		Auto	Man
-50.0											
										Freq Off	fset
-60.0											0 Hz
-70.0											
Start 1.91	0 GHz							Stop 10	.000 GHz		
#Res BW			#VBW	3.0 MHz		S	weep 14	.02 ms (1	6181 pts)		
MSG							STATUS				
								1			-





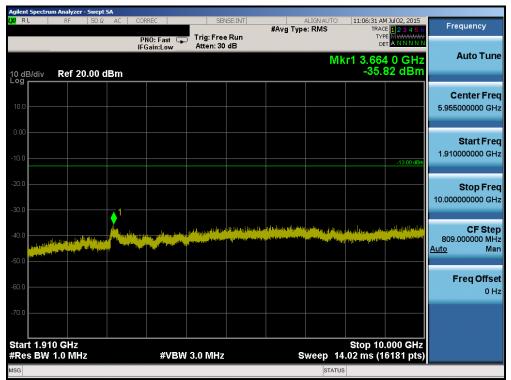
Plot 6-18. Conducted Spurious Plot (PCS GSM Mode - Ch. 512)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	🥵 KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 21 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 21 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



	m Analyzer - Swept SA					
LXIRL	RF 50 Ω .	AC CORREC	SENSE:INT	#Avg Type: RMS	11:06:16 AM Jul 02, 2015 TRACE 1 2 3 4 5 6	Frequency
		PNO: Fast 😱 IFGain:Low	Trig: Free Run Atten: 30 dB		TYPE MWWWWW DET A N N N N N	
10 dB/div	Ref 20.00 dB			MI	(r1 1.676 0 GHz -41.23 dBm	Auto Tune
10.0						Center Freq 940.000000 MHz
-10.0					-13.00 dBm	Start Freq 30.000000 MHz
-20.0						Stop Freq 1.85000000 GHz
-40.0	na sa	Lasinahaifista paratakanaidhiiteed	na filitili kan ka ing pangan di ka ka ing pa	n kan kan kan kan kan kan kan kan kan ka	1 Line of the state of	CF Step 182.000000 MHz <u>Auto</u> Man
-60.0						Freq Offset 0 Hz
-70.0	MUz				Stop 1.8500 GHz	
#Res BW		#VBW	3.0 MHz	Sweep 2	2.427 ms (3641 pts)	
MSG				STATU	3	





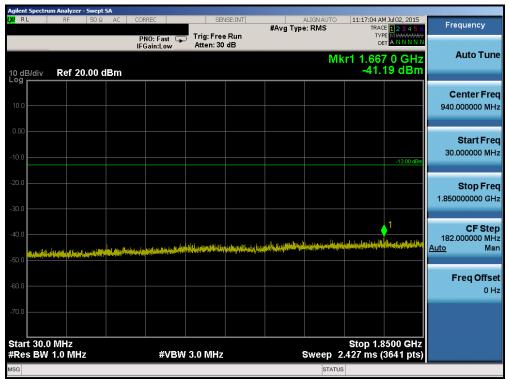
Plot 6-20. Conducted Spurious Plot (PCS GSM Mode - Ch. 661)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	😵 KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 22 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 22 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



	n Analyzer - Swept									
LXI RL	RF 50 Ω	AC (CORREC	SEN	NSE:INT	#Avg Typ	ALIGN AUTO		4 Jul 02, 2015 E <mark>1 2 3 4 5 6</mark>	Frequency
			PNO: Fast 🖵 IFGain:Low	Trig: Free Atten: 20				TYP		
			IFGalli.LUW	Theorem 20	40		Mkr	1 19 20/		Auto Tune
10 dB/div Log	Ref 10.00 c	lBm						-34.4	4 0 GHz 47 dBm	
										Center Freq
0.00										15.00000000 GHz
-10.0									-13.00 dBm	Start Freq
-20.0										10.000000000 GHz
-20.0										
-30.0									1	Stop Freq
							a alda taka			20.000000000 GHz
-40.0	trapental opposite the				. بالفارية وأقدر و ي	ilan Kitas And	Contraction of the second s	Contraction of the second s		20.000000000000
والملو فبالتأويان	hand the first second second	uuuuu ya Marin	an a shapililiya ya waxa Mana waxa ka	And the set of the set		No association and the				CF Step
-50.0	in a serie of the provide state of the	تغافر والأكر فخر	a dan se ta a tribula se se a sediri							1.000000000 GHz
										<u>Auto</u> Man
-60.0										
-70.0										Freq Offset
										0 Hz
-80.0										
Start 10.0	00 GHz							Stop 20	.000 GHz	
#Res BW			#VBW	3.0 MHz		S	weep 25	.33 ms (2	0001 pts)	
MSG							STATUS	;		





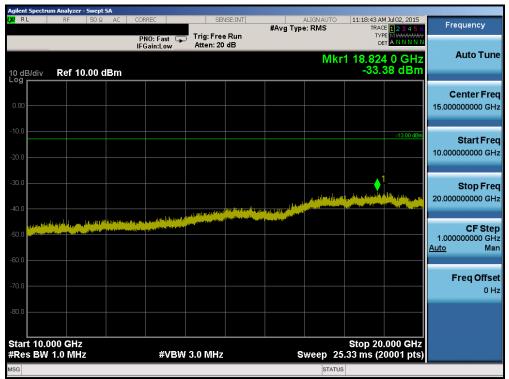
Plot 6-22. Conducted Spurious Plot (PCS GSM Mode - Ch. 810)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	ERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 23 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 23 01 05
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	n Analyzer - Swept									
LX/IRL	RF 50 Ω	AC CC	RREC	SEN	JSE:INT	#Avg Typ	ALIGN AUTO		M Jul 02, 2015 E 1 2 3 4 5 6	Frequency
		F	NO: Fast 🖵	Trig: Free Atten: 30		5 M		TYF		
		ŀ	Gain:Low	Atten: 30	ab		8.41			Auto Tune
10 dB/div	Ref 20.00 d	IBm					IVIP	-34.	50 GHz 80 dBm	
Log										
										Center Freq
10.0										5.957500000 GHz
0.00										Start Freq
-10.0										1.915000000 GHz
-10.0									-13.00 dBm	
-20.0										Oton Eror
										Stop Freq 10.00000000 GHz
-30.0 1										10.000000000 GHZ
←						الماليولين بيري يوادينه من دي المدينة منه من يوري معادر م	الم والأرسيا		the start block	
-40.0	TITLE COLOR STRUCT			A DECEMBER OF STREET, ST	and the second s				and the property of the second se	CF Step 808.50000 MHz
And States	and the second second									<u>Auto</u> Man
-50.0										
										Freq Offset
-60.0										0 Hz
-70.0										
Start 1.91								Stop 10	.000 GHz	
#Res BW	1.0 MHz		#VBW	3.0 MHz		s	weep 14	.01 ms (1	6171 pts)	
MSG							STATUS	5		



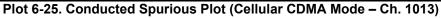


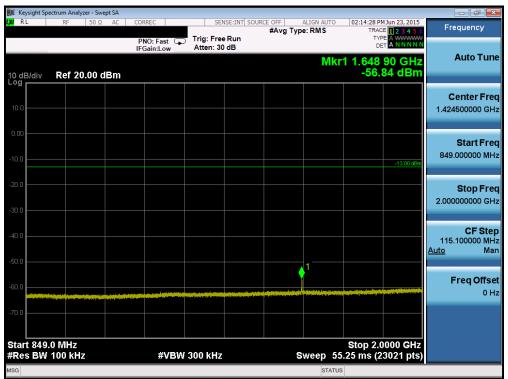
Plot 6-24. Conducted Spurious Plot (PCS GSM Mode - Ch. 810)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	🕵 KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 24 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 24 01 05
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		ctrum Ana	lyzer - Swe	pt SA										×
l xi Ri	L	RF	50 Ω	AC	CORREC		SE	NSE:INT SO		ALIGN AUTO	02:14:17 PM	1 Jun 23, 2015	Frequency	,
					PNO: F IFGain:I	ast 🖵	Trig: Fre Atten: 3		#Avg I	ype: RMS	TYP DE	E 1 2 3 4 5 6 E A WWWW T A N N N N N		
10 dE Log i	3/div	Ref 2	0.00 d	Bm						M	kr1 822. -32.	90 MHz 17 dBm	Auto T	une
10.0													Center F 426.500000	
0.00 -10.0												-13.00 dBm	Start F 30.000000	
-20.0 -30.0												1	Stop F 823.000000	
-40.0													CF S 79.300000 <u>Auto</u>	Step MHz Man
-50.0												a la seconda de la constante d	Freq Of	f fset 0 Hz
-70.0														
	t 30.0 s BW		z		-	≠vвw	300 kHz	2		Sweep 38		23.0 MHz 5861 pts)		
MSG										STATUS	3			



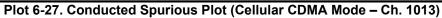


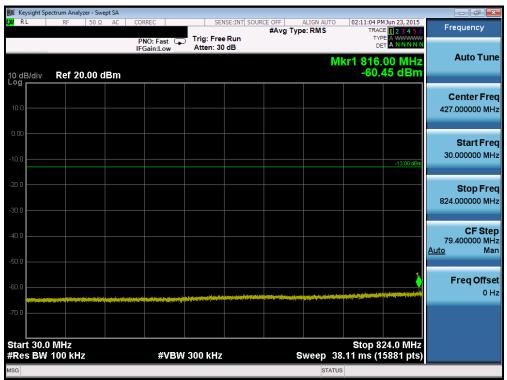
Plot 6-26. Conducted Spurious Plot (Cellular CDMA Mode – Ch. 1013)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 25 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 25 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



	ectrum Anal	/zer - Swep	ot SA									
L <mark>XI</mark> RL	RF	50 Ω	AC	CORREC		SE	NSE:INT SO		ALIGN AUTO	02:14:39 PI	MJun 23, 2015 E 1 2 3 4 5 6	Frequency
				PNO: Fa IFGain:L	ast 🖵 .ow	Trig: Fre Atten: 2		<i></i>		TYF DE		
10 dB/div Log	Ref 1	0.00 dl	Bm						Mł	r1 2.47 -43.	4 0 GHz 38 dBm	Auto Tune
0.00												Center Freq 6.000000000 GHz
-10.0											-13.00 dBm	Start Freq 2.000000000 GHz
-30.0	1											Stop Freq 10.000000000 GHz
-50.0		-				Concert Manager				d discrimination		CF Step 800.000000 MHz <u>Auto</u> Man
-60.0												Freq Offset 0 Hz
-80.0										Otop 10		
start 2.00 #Res BW		z		#	VBW :	3.0 MHz			Sweep 13	.87 ms (1	.000 GHz 6001 pts)	
MSG									STATUS	5		





Plot 6-28. Conducted Spurious Plot (Cellular CDMA Mode – Ch. 384)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	🕵 KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 26 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 26 of 65
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	ectrum Analyzer - Swe	pt SA							
LXI RL	RF 50 Ω	AC	CORREC		SENSE:INT SC	ALIGN AUTO	02:11:16 PM Jun TRACE	23456	Frequency
			PNO: Fast IFGain:Low	Atten:	ree Run 30 dB				Auto Tuno
10 dB/div Log	Ref 20.00 d	Bm				Mkr	1 1.673 65 -58.87	GHz dBm	Auto Tune
									Center Freq
10.0									1.424500000 GHz
0.00									Start Freq
-10.0								13.00 dBm	849.000000 MHz
-20.0									Stop Freq
-30.0									2.000000000 GHz
-40.0									CF Step
								A	115.100000 MHz <u>uto</u> Man
-50.0						▲ 1			
-60.0	traductil in the second descent of the			an Barata na hIraka na mangatak Mangana pangana pangana pangana					Freq Offset 0 Hz
-70.0									
Start 849 #Res BW			#\/	300 kH	7	Sween 55	Stop 2.000 .25 ms (2302) GHz	
//SG	TWV KHZ					SWEEP 55	· · ·	- pts/	





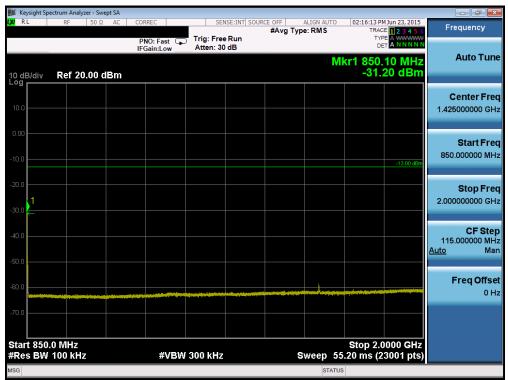
Plot 6-30. Conducted Spurious Plot (Cellular CDMA Mode – Ch. 384)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	🕵 КУОСЕКА	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 27 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 27 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



	ight Spect		yzer - Swe										
L <mark>XI</mark> RL		RF	50 Ω	AC	CORREC		SE	NSE:INT SO		ALIGN AUTO	02:15:36 P	M Jun 23, 2015 DE 1 2 3 4 5 6	Frequency
					PNO: F IFGain:L	ast 🖵 .ow	Trig: Fre Atten: 3		#C 19	ype. Kina	TYI DI	PE A WWWWW ET A NNNNN	
10 dB/ Log —	div	Ref 2	0.00 d	Bm						M	kr1 816. -61.	.00 MHz 10 dBm	Auto Tune
10.0 —													Center Fred 427.000000 MH:
-10.00												-13.00 dBm	Start Free 30.000000 MH;
-20.0 -													Stop Fred 824.000000 MH;
-40.0													CF Step 79.400000 MH: <u>Auto</u> Mar
-60.0	liter circuit in		tin tin tak										Freq Offse 0 Hz
-70.0													
Start #Res			z		4	¢γΒ₩	300 kHz			Sweep 38	8 Stop 1 Ms (1	24.0 MHz 5881 pts)	
MSG										STATUS	3		-





Plot 6-32. Conducted Spurious Plot (Cellular CDMA Mode – Ch. 777)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	OCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 28 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 26 01 05
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	ectrum A	nalyzer - Swe	ept SA									
L <mark>XI</mark> RL	RF	50 Ω	AC	CORREC		SEN	SE:INT SO		ALIGN AUTO		M Jun 23, 2015	Frequency
				PNO: F IFGain:I	ast 😱 _ow	Trig: Free Atten: 20		#Avg I	ype: RMS	TY D	CE 1 2 3 4 5 6 PE A WWWW ET A NNNNN	
10 dB/div Log	Ref	10.00 d	IBm						MI	(r1 2.54 -44.	4 0 GHz 63 dBm	Auto Tune
0.00												Center Freq 6.00000000 GHz
-10.0											-13.00 dBm	Start Freq 2.000000000 GHz
-30.0	↓ 1-											Stop Freq 10.000000000 GHz
-50.0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			~~~							CF Step 800.000000 MHz <u>Auto</u> Man
-70.0												Freq Offset 0 Hz
-80.0 Start 2.00										Stop 10	.000 GHz	
#Res BW	1.0 N	lHz			#VBW 3	3.0 MHz			Sweep 13		6001 pts)	
	_											



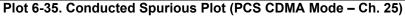


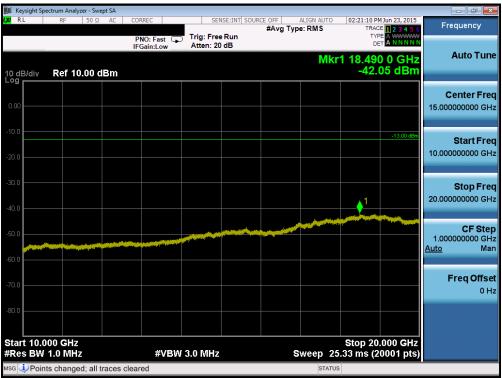
Plot 6-34. Conducted Spurious Plot (PCS CDMA Mode - Ch. 25)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 20 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 29 of 65
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	ectrum Analyzer	- Swept SA								
LXI RL	RF	50Ω AC	CORREC		SENSE:INT SC		ALIGN AUTO	02:21:00 PM Ju	in 23, 2015	Frequency
			PNO: Fa IFGain:Lo		: Free Run en: 30 dB	#AV9 I		TYPE DET	A NNNNN	
10 dB/div Log	Ref 20.0	0 dBm					Mk	r1 9.931 -43.99	5 GHz 9 dBm	Auto Tune
10.0										Center Freq 5.955000000 GHz
-10.0									-13.00 dBm	Start Freq 1.910000000 GHz
-20.0										Stop Freq 10.000000000 GHz
-40.0		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~								CF Step 809.000000 MHz <u>Auto</u> Man
-60.0										Freq Offset 0 Hz
-70.0								Stop 10 0		
#Res BW			#	VBW 3.0 P	MHz		Sweep 14	Stop 10.0 02 ms (161.	81 pts)	
MSG							STATUS			





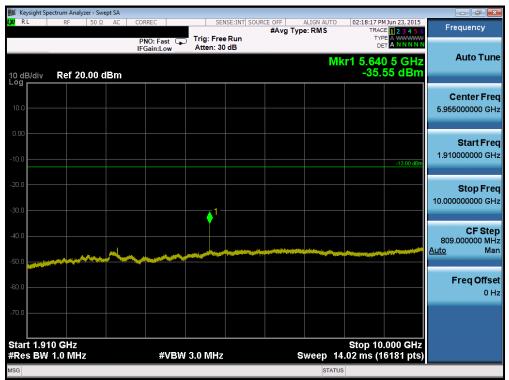
Plot 6-36. Conducted Spurious Plot (PCS CDMA Mode - Ch. 25)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCER3	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 30 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 50 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



	ectrum Analyzer -	Swept SA							
L <mark>XI</mark> RL	RF 50	Ω AC	CORREC	SEI	SE:INT SOU	ALIGN AUTO		1 Jun 23, 2015 E 1 2 3 4 5 6	Frequency
			PNO: Fast (IFGain:Low	Trig: Free Atten: 30			TYP DE		
10 dB/div Log	Ref 20.0	0 dBm				 Mk	(r1 1.83) -50.0	55GHz 09dBm	Auto Tune
10.0									Center Freq 940.000000 MHz
-10.0								-13.00 dBm	Start Freq 30.000000 MHz
-20.0									Stop Freq 1.85000000 GHz
-40.0								1	CF Step 182.000000 MHz <u>Auto</u> Man
-60.0	naa	*****	499-179-1 <mark>-</mark> 0-0 ² -079-1-2-1-79-						Freq Offset 0 Hz
-70.0 Start 30.0							Stop <u>1.8</u>	500 GHz	
#Res BW	1.0 MHz		#VB	W 3.0 MHz		Sweep 2		3641 pts)	
MSG						STATUS			





Plot 6-38. Conducted Spurious Plot (PCS CDMA Mode - Ch. 600)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		2000 21 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset	F	Page 31 of 65
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	ectrum Analyzer	Swept SA							
🗶 RL	RF 5	0Ω AC	CORREC	SENSE:INT S	OURCE OFF A #Avg Type	LIGN AUTO	TRAC	MJun 23, 2015 E 1 2 3 4 5 6	Frequency
			PNO: Fast G	Trig: Free Run Atten: 20 dB			TYF		
10 dB/div Log	Ref 10.0	0 dBm				Mkr	1 18.52 -42.:	8 5 GHz 22 dBm	Auto Tune
0.00									Center Fred 15.000000000 GHz
10.0									
-20.0								-13.00 dBm	Start Freq 10.000000000 GHz
-30.0									Stop Freq
-40.0							1		20.000000000 GHz
-50.0									CF Step 1.000000000 GHz
60.0									<u>Auto</u> Mar
-70.0									Freq Offse 0 Hz
-80.0									
Start 10.0 #Res BW			#VBV	/ 3.0 MHz	S	weep <u>25</u>	Stop 20 .33 ms <u>(</u> 2	.000 GHz 0001 pts)	
ISG						STATUS			





Plot 6-40. Conducted Spurious Plot (PCS CDMA Mode – Ch. 1175)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dega 22 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 32 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



	ectrum Analyze	er - Swep	ot SA									
XIRL	RF	50 Ω	AC	CORREC		SEI	NSE:INT SO		ALIGN AUTO		M Jun 23, 2015	Frequency
				PNO: Fa	ast 😱 .ow	Trig: Free Atten: 30		#Avg I	Type: RMS	TY	CE 1 2 3 4 5 6 PE A WWWW ET A NNNNN	
10 dB/div Log	Ref 20.	.00 dl	Bm						Mk	ar1 5.72 -36.	7 0 GHz 33 dBm	Auto Tune
10.0												Center Freq 5.957500000 GHz
-10.0											-13.00 dBm	Start Freq 1.915000000 GHz
-20.0						1						Stop Freq 10.000000000 GHz
-40.0		~~~~			~~~							CF Step 808.500000 MHz <u>Auto</u> Man
-60.0												Freq Offset 0 Hz
-70.0	5 GHz									Stop 10	.000 GHz	
#Res BW				\$	¢νΒ₩	3.0 MHz			Sweep 14	.01 ms (1	6171 pts)	
MSG									STATUS			





Plot 6-42. Conducted Spurious Plot (PCS CDMA Mode – Ch. 1175)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCER3	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 33 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 33 01 05
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6.4 Band Edge Emissions at Antenna Terminal §2.1051 §22.917(a) §24.238(a)

Test Overview

All out of band emissions are measured with a spectrum analyzer connected to the antenna terminal of the EUT while the EUT is operating at maximum power, and at the appropriate frequencies. All data rates were investigated to determine the worst case configuration. All modes of operation were investigated and the worst case configuration results are reported in this section.

The minimum permissible attenuation level of any spurious emission is $43 + \log_{10}(P_{[Watts]})$, where P is the transmitter power in Watts.

Test Procedure Used

KDB 971168 v02r02 – Section 6.0

Test Settings

- 1. Start and stop frequency were set such that the band edge would be placed in the center of the plot
- 2. Span was set large enough so as to capture all out of band emissions near the band edge
- 3. RBW > 1% of the emission bandwidth
- 4. VBW <u>></u> 3 x RBW
- 5. Detector = RMS
- 6. Number of sweep points $\geq 2 \times \text{Span/RBW}$
- 7. Trace mode = trace average for continuous emissions, max hold for pulse emissions
- 8. Sweep time = auto couple
- 9. The trace was allowed to stabilize

<u>Test Setup</u>

The EUT and measurement equipment were set up as shown in the diagram below.

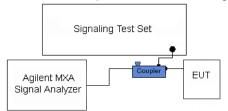


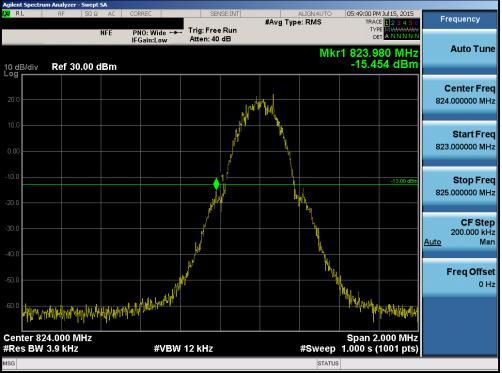
Figure 6-3. Test Instrument & Measurement Setup

Test Notes

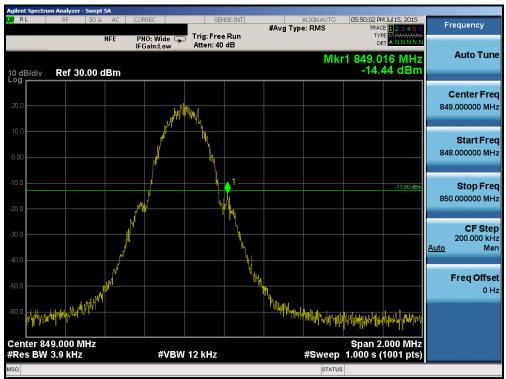
Per 22.917(b), 24.238(b), in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed to demonstrate compliance with the out-of-band emissions limit. The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	🕵 KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege 24 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 34 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015





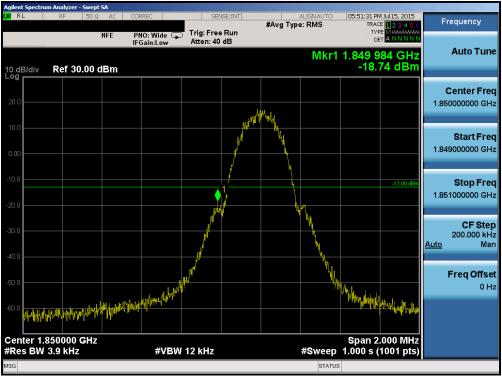
Plot 6-43. Band Edge Plot (Cellular GSM Mode – Ch. 128)

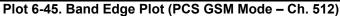


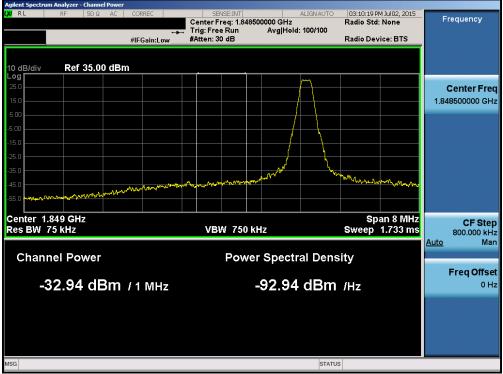
Plot 6-44. Band Edge Plot (Cellular GSM Mode - Ch. 251)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	🕵 KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dago 25 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 35 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015





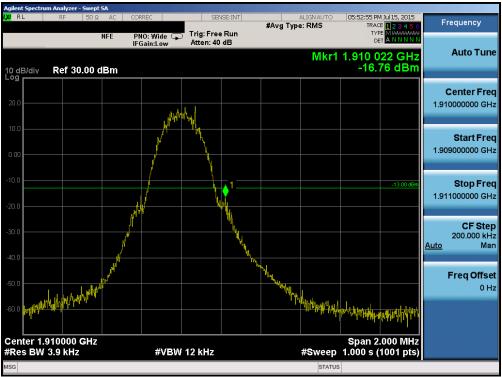


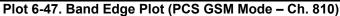


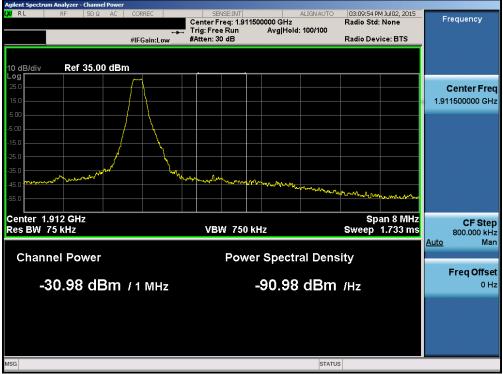
Plot 6-46. 4MHz Span Plot (PCS GSM Mode - Ch. 512)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCER3	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 26 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 36 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015





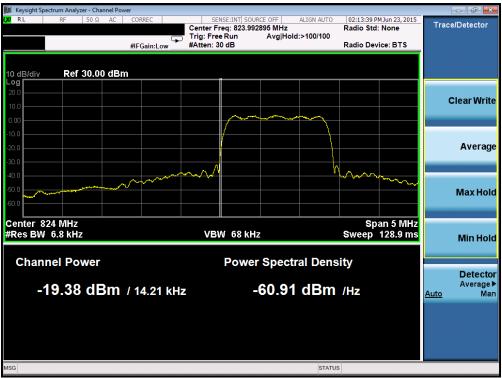


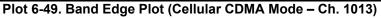


Plot 6-48. 4MHz Span Plot (PCS GSM Mode - Ch. 810)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dego 27 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 37 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015





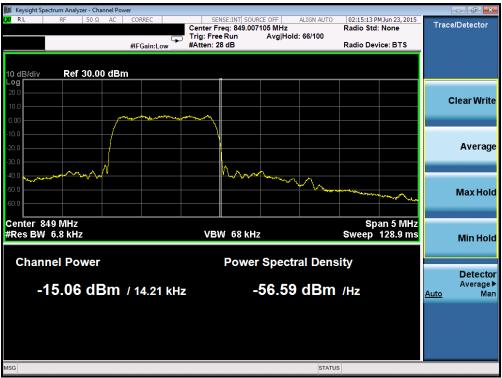




Plot 6-50. 4MHz Span Plot (Cellular CDMA Mode – Ch. 1013)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 38 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 36 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015





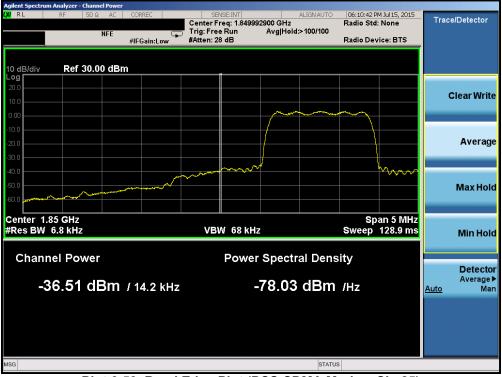




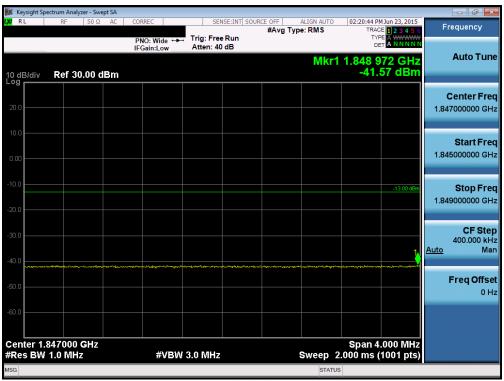
Plot 6-52. 4MHz Span Plot (Cellular CDMA Mode – Ch. 777)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 39 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 39 01 05
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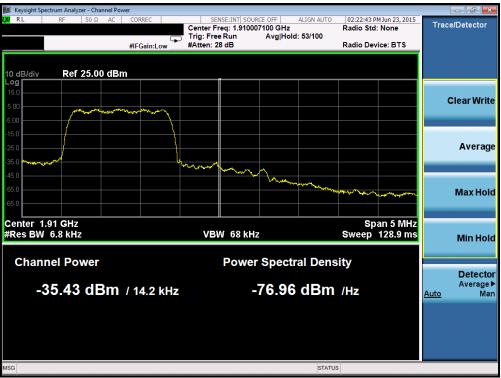
Plot 6-53. Band Edge Plot (PCS CDMA Mode - Ch. 25)



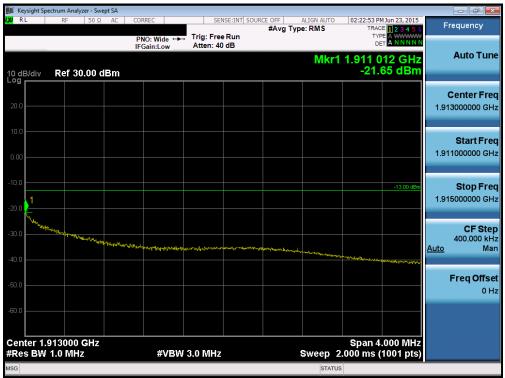
Plot 6-54. 4MHz Span Plot (PCS CDMA Mode - Ch. 25)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	(YOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 40 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 40 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015









Plot 6-56. 4MHz Span Plot (PCS CDMA Mode - Ch. 1175)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 41 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 41 01 65
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6.5 Peak-Average Ratio §24.232(d)

Test Overview

A peak to average ratio measurement is performed at the conducted port of the EUT. The spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

Test Procedure Used

KDB 971168 v02r02 - Section 5.7.1

Test Settings

- 1. The signal analyzer's CCDF measurement profile is enabled
- 2. Frequency = carrier center frequency
- 3. Measurement BW > Emission bandwidth of signal
- 4. The signal analyzer was set to collect one million samples to generate the CCDF curve
- 5. The measurement interval was set depending on the type of signal analyzed. For continuous signals (>98% duty cycle), the measurement interval was set to 1ms. For burst transmissions, the spectrum analyzer is set to use an internal "RF Burst" trigger that is synced with an incoming pulse and the measurement interval is set to less than the duration of the "on time" of one burst to ensure that energy is only captured during a time in which the transmitter is operating at maximum power

<u>Test Setup</u>

The EUT and measurement equipment were set up as shown in the diagram below.

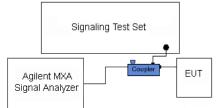


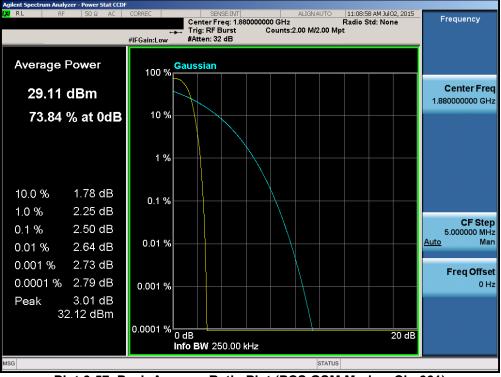
Figure 6-4. Test Instrument & Measurement Setup

Test Notes

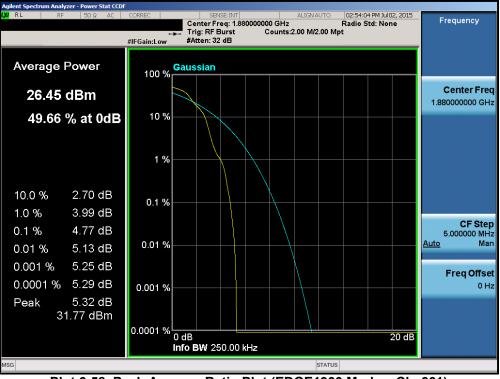
None

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Dogo 42 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset	Page 42 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.		V 2.9 06/10/2015





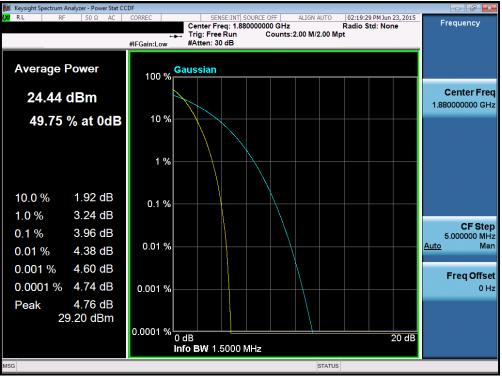




Plot 6-58. Peak-Average Ratio Plot (EDGE1900 Mode – Ch. 661)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manage
Test Report S/N:	Test Dates:	EUT Type:	Page 43 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset	Fage 43 01 05
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Plot 6-59. Peak-Average Ratio Plot (PCS CDMA Mode - Ch. 600)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 44 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 44 01 05
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6.6 Radiated Power (ERP/EIRP) §22.913(a)(2) 24.232(c)

Test Overview

Effective Radiated Power (ERP) and Equivalent Isotropic Radiated Power (EIRP) measurements are performed using the substitution method described in ANSI/TIA-603-C-2004 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically polarized broadband horn antennas. All measurements are performed as RMS average measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 v02r02 - Section 5.2.1

ANSI/TIA-603-C-2004 – Section 2.2.17

Test Settings

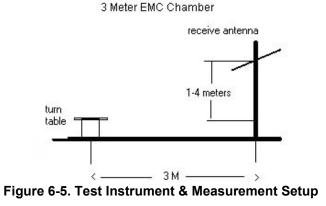
- Radiated power measurements are performed using the signal analyzer's "channel power" measurement capability for signals with continuous operation. For signals with burst transmission, the signal analyzer's "time domain power" measurement capability is used
- 2. RBW = 1 5% of the expected OBW, not to exceed 1MHz
- 3. VBW \geq 3 x RBW
- 4. Span = 1.5 times the OBW
- 5. No. of sweep points \geq 2 x span / RBW
- 6. Detector = RMS
- 7. Trigger is set to "free run" for signals with continuous operation with the sweep times set to "auto". Trigger is set to enable triggering only on full power bursts with the sweep time set less than or equal to the transmission burst duration
- 8. The integration bandwidth was roughly set equal to the measured OBW of the signal for signals with continuous operation. For signals with burst transmission, the "gating" function was enabled to ensure that measurements are performed during times in which the transmitter is operating at its maximum power
- 9. Trace mode = trace averaging (RMS) over 100 sweeps
- 10. The trace was allowed to stabilize

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 45 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 45 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.



Test Notes

- This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest power is reported in GSM mode using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band.
- 2) This device was tested under all RC and SO combinations and the worst case is reported with RC3/SO55 with "All Up" power control bits.
- 3) This unit was tested with its standard battery.
- 4) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.

Frequency [MHz]	Mode	Battery Type	Substitute Level [dBm]	Ant. Gain [dBd]	Ant. Pol. [H/V]	ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.20	GSM850	Standard	33.07	-1.65	V	31.42	1.388	38.45	-7.03
836.60	GSM850	Standard	33.63	-1.74	V	31.89	1.544	38.45	-6.56
848.80	GSM850	Standard	31.75	-1.84	V	29.91	0.979	38.45	-8.54
836.60	EDGE850	Standard	29.08	-1.74	V	27.34	0.542	38.45	-11.11

Table 6-2. ERP (Cellular GSM)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager	
Test Report S/N:	Test Dates:	EUT Type:		Daga 46 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 46 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



Frequency [MHz]	Mode	Battery Type	Substitute Level [dBm]	Ant. Gain [dBd]		ERP [dBm]	ERP [Watts]	ERP Limit [dBm]	Margin [dB]
824.70	CDMA850	Standard	22.62	-1.65	V	20.97	0.125	38.45	-17.48
836.52	CDMA850	Standard	23.69	-1.74	V	21.95	0.157	38.45	-16.50
848.31	CDMA850	Standard	24.51	-1.84	V	22.67	0.185	38.45	-15.78

Table 6-3. ERP (Cellular CDMA)

Frequency [MHz]	Mode	Battery Type	Substitute Level [dBm]	Ant. Gain [dBi]	Ant. Pol. [H/V]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1850.20	GSM1900	Standard	22.03	7.97	V	30.00	1.001	33.01	-3.01
1880.00	GSM1900	Standard	19.68	8.02	V	27.70	0.589	33.01	-5.31
1909.80	GSM1900	Standard	22.20	8.11	V	30.31	1.074	33.01	-2.70
1909.80	EDGE1900	Standard	18.79	8.11	V	26.90	0.490	33.01	-6.11

Table 6-4. EIRP (PCS GSM)

Frequency [MHz]	Mode	Battery Type	Substitute Level [dBm]	Ant. Gain [dBi]	Ant. Pol. [H/V]	EIRP [dBm]	EIRP [Watts]	EIRP Limit [dBm]	Margin [dB]
1851.25	CDMA1900	Standard	15.79	7.97	V	23.76	0.238	33.01	-9.25
1880.00	CDMA1900	Standard	13.71	8.02	V	21.73	0.149	33.01	-11.28
1908.75	CDMA1900	Standard	11.59	8.10	V	19.69	0.093	33.01	-13.32

Table 6-5. EIRP (PCS CDMA)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCER3	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 47 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 47 01 05
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6.7 Radiated Spurious Emissions Measurements §2.1053 §22.917(a) 24.238(a)

Test Overview

Radiated spurious emissions measurements are performed using the substitution method described in ANSI/TIA-603-C-2004 with the EUT transmitting into an integral antenna. Measurements on signals operating below 1GHz are performed using horizontally and vertically polarized tuned dipole antennas. Measurements on signals operating above 1GHz are performed using vertically and horizontally polarized broadband horn antennas. All measurements are performed as peak measurements while the EUT is operating at maximum power, and at the appropriate frequencies.

Test Procedures Used

KDB 971168 v02r02 - Section 5.8

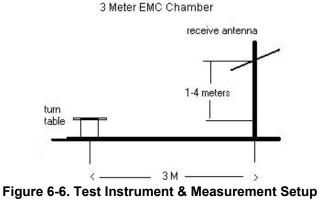
ANSI/TIA-603-C-2004 - Section 2.2.12

Test Settings

- 1. RBW = 100kHz for emissions below 1GHz and 1MHz for emissions above 1GHz
- 2. VBW \geq 3 x RBW
- 3. Span = 1.5 times the OBW
- 4. No. of sweep points \geq 2 x span / RBW
- 5. Detector = Peak
- 6. Trace mode = max hold
- 7. The trace was allowed to stabilize

Test Setup

The EUT and measurement equipment were set up as shown in the diagram below.

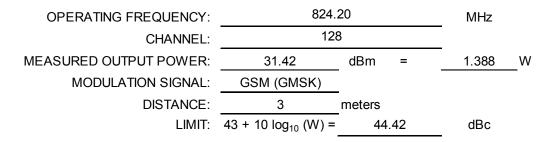


FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 48 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 46 01 05
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Test Notes

- This device employs GSM, GPRS, and EDGE capabilities. The EUT was tested under all configurations and the highest power is reported in GSM mode using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band.
- 2) This device was tested under all RC and SO combinations and the worst case is reported with RC3/SO55 with "All Up" power control bits.
- 3) This unit was tested with its standard battery.
- 4) The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case setup is reported in the tables below.
- 5) The spectrum is measured from 9kHz to the 10th harmonic of the fundamental frequency of the transmitter. The worst-case emissions are reported.
- 6) Emissions below 18GHz were measured at a 3 meter test distance while emissions above 18GHz were measured at a 1 meter test distance with the application of a distance correction factor.



Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1648.40	-57.32	6.35	-50.98	V	82.4
2472.60	-49.28	6.60	-42.68	V	74.1
3296.80	-69.65	6.96	-62.69	V	94.1
4121.00	-70.69	7.59	-63.09	V	94.5

Table 6-6. Radiated Spurious Data (Cellular GSM Mode – Ch. 128)

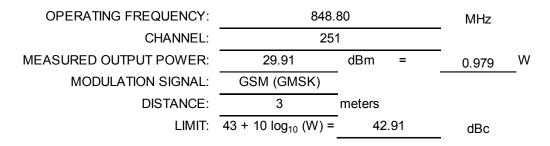
FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	🕵 KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 49 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 49 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



OPERATING FREQUENCY:	836.60		MHz	
CHANNEL:	190	0		
MEASURED OUTPUT POWER:	31.89	dBm =	1.544	W
MODULATION SIGNAL:	GSM (GMSK)	- -		
DISTANCE:	3	meters		
LIMIT:	43 + 10 log ₁₀ (W) =	44.89	dBc	

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1673.20	-57.71	6.19	-51.53	V	83.4
2509.80	-52.93	6.58	-46.35	V	78.2
3346.40	-59.99	7.16	-52.83	V	84.7
4183.00	-71.05	8.00	-63.05	V	94.9

Table 6-7. Radiated Spurious Data (Cellular GSM Mode – Ch. 190)



Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1697.60	-46.00	6.03	-39.97	V	69.9
2546.40	-44.46	6.71	-37.75	V	67.7
3395.20	-69.09	7.36	-61.73	V	91.6
4244.00	-70.97	8.27	-62.70	V	92.6

Table 6-8. Radiated Spurious Data (Cellular GSM Mode – Ch. 251)

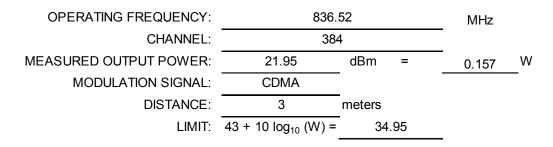
FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	IDCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege 50 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 50 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



OPERATING FREQUENCY:	824.	70	MHz
CHANNEL:	101	3	_
MEASURED OUTPUT POWER:	20.97	dBm =	0.125 W
MODULATION SIGNAL:	CDMA		
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	33.97	_

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1649.40	-60.73	6.34	-54.39	V	75.4
2474.10	-60.32	6.59	-53.73	V	74.7
3298.80	-68.95	6.97	-61.98	V	83.0
4123.50	-69.27	7.61	-61.66	V	82.6

Table 6-9. Radiated Spurious Data (Cellular CDMA Mode – Ch. 1013)



Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1673.04	-61.44	6.19	-55.26	V	77.2
2509.56	-61.87	6.58	-55.29	V	77.2
3346.08	-69.46	7.16	-62.30	V	84.3
4182.60	-70.11	7.99	-62.12	V	84.1

Table 6-10. Radiated Spurious Data (Cellular CDMA Mode – Ch. 384)

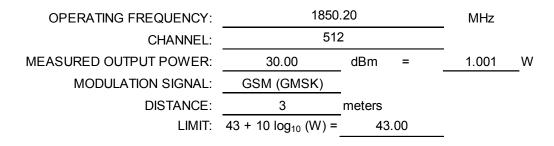
FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	DCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga E1 of CE
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 51 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



OPERATING FREQUENCY:	848.31		MHz
CHANNEL:	777	7	
MEASURED OUTPUT POWER:	22.67	dBm =	0.185 W
MODULATION SIGNAL:	CDMA		
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	35.67	

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBd]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
1696.62	-56.41	6.04	-50.38	V	73.1
2544.93	-58.07	6.71	-51.36	V	74.0
3393.24	-69.67	7.35	-62.32	V	85.0
4241.55	-70.40	8.26	-62.14	V	84.8

Table 6-11. Radiated Spurious Data (Cellular CDMA Mode – Ch. 777)



Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
3700.40	-50.53	9.93	-40.60	V	70.6
5550.60	-48.98	11.11	-37.87	V	67.9
7400.80	-52.48	10.74	-41.74	V	71.7
9251.00	-65.00	12.31	-52.69	V	82.7

 Table 6-12. Radiated Spurious Data (PCS GSM Mode – Ch. 512)

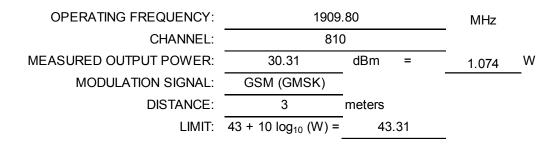
FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	ERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 52 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 52 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



OPERATING FREQUENCY:	1880.00		MHz	
CHANNEL:	661		-	
MEASURED OUTPUT POWER:	27.70	dBm =	0.589	W
MODULATION SIGNAL:	GSM (GMSK)			_
DISTANCE:	3	meters		
LIMIT:	43 + 10 log ₁₀ (W) =	40.70		

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
3760.00	-50.82	9.70	-41.12	V	71.1
5640.00	-50.16	11.25	-38.92	V	68.9
7520.00	-52.16	10.99	-41.17	V	71.2
9400.00	-63.35	12.26	-51.09	V	81.1

Table 6-13. Radiated Spurious Data (PCS GSM Mode – Ch. 661)



Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
3819.60	-46.53	9.48	-37.05	V	67.1
5729.40	-50.53	11.30	-39.23	V	69.2
7639.20	-50.38	11.22	-39.16	V	69.2
9549.00	-63.15	12.35	-50.80	V	80.8

 Table 6-14. Radiated Spurious Data (PCS GSM Mode – Ch. 810)

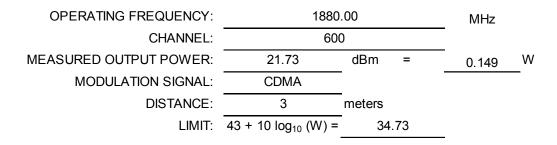
FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Daga 52 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 53 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



OPERATING FREQUENCY: 1851.		.25	MHz
CHANNEL:	25		
MEASURED OUTPUT POWER:	23.76	dBm =	0.238 W
MODULATION SIGNAL:	CDMA		
DISTANCE:	3	meters	
LIMIT:	43 + 10 log ₁₀ (W) =	36.76	

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
3702.50	-52.91	9.92	-42.99	V	66.8
5553.75	-47.78	11.11	-36.67	V	60.4
7405.00	-58.76	10.75	-48.02	V	71.8
9256.25	-64.06	12.31	-51.76	V	75.5

Table 6-15. Radiated Spurious Data (PCS CDMA Mode – Ch. 25)



Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
3760.00	-53.71	9.70	-44.01	V	67.8
5640.00	-49.13	11.25	-37.89	V	61.7
7520.00	-59.03	10.99	-48.04	V	71.8
9400.00	-63.32	12.26	-51.06	V	74.8

Table 6-16. Radiated Spurious Data (PCS CDMA Mode – Ch. 600)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	YOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Dege E4 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 54 of 65
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



OPERATING FREQUENCY:	1908	.75	MHz	
CHANNEL:	117	5		
MEASURED OUTPUT POWER:	19.69	dBm =	0.093	W
MODULATION SIGNAL:	CDMA			-
DISTANCE:	3	meters		
LIMIT:	43 + 10 log ₁₀ (W) =	32.69		

Frequency [MHz]	Level at Antenna Terminals [dBm]	Substitute Antenna Gain [dBi]	Spurious Emission Level [dBm]	Ant. Pol. [H/V]	[dBc]
3817.50	-50.97	9.49	-41.48	V	65.2
5726.25	-48.33	11.30	-37.04	V	60.8
7635.00	-60.17	11.22	-48.95	V	72.7
9543.75	-63.45	12.34	-51.11	V	74.9

 Table 6-17. Radiated Spurious Data (PCS CDMA Mode – Ch. 1175)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	(YOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 55 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Page 55 01 65
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Test Overview and Limit

Frequency stability testing is performed in accordance with the guidelines of ANSI/TIA-603-C-2004. The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

For Part 22, the frequency stability of the transmitter shall be maintained within $\pm 0.00025\%$ (± 2.5 ppm) of the center frequency. For Part 24, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Test Procedure Used

ANSI/TIA-603-C-2004

Test Settings

- 1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
- 2. The equipment is turned on in a "standby" condition for fifteen minutes before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
- 3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

Test Setup

The EUT was connected via an RF cable to a spectrum analyzer with the EUT placed inside an environmental chamber.

Test Notes

None

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	CERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 56 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 50 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



OPERATING FREQUENCY: 836,600,000 Hz CHANNEL: 190

REFERENCE VOLTAGE: 3.70

VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	836,599,969	-31	-0.0000037
100 %		- 30	836,599,973	-27	-0.0000032
100 %		- 20	836,599,968	-32	-0.0000038
100 %		- 10	836,599,983	-17	-0.0000020
100 %		0	836,599,975	-25	-0.000030
100 %		+ 10	836,599,978	-22	-0.0000026
100 %		+ 20	836,599,969	-31	-0.0000037
100 %		+ 30	836,599,982	-18	-0.0000022
100 %		+ 40	836,599,960	-40	-0.0000048
100 %		+ 50	836,599,969	-31	-0.0000037
BATT. ENDPOINT	3.30	+ 20	836,599,964	-36	-0.0000043

Table 6-18. Frequency Stability Data (Cellular GSM Mode – Ch. 190)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	🕵 KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 57 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 57 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



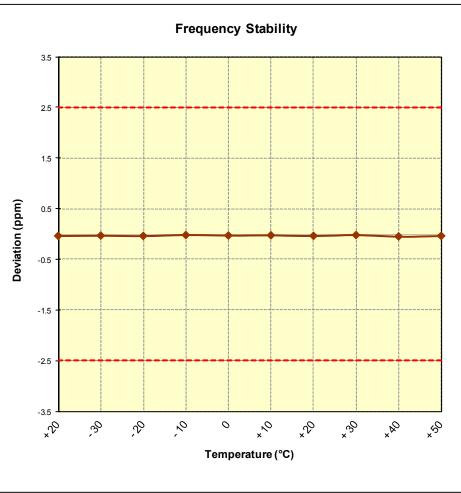


Figure 6-7. Frequency Stability Graph (Cellular GSM Mode – Ch. 190)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	🕵 KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 58 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 56 01 05
© 2015 PCTEST	Engineering Laboratory, Inc.			V 2.9 06/10/2015



OPERATING FREQUENCY: 836,520,000 Hz CHANNEL: 384

REFERENCE VOLTAGE: 3.70

VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	836,519,968	-32	-0.000038
100 %		- 30	836,519,981	-19	-0.0000023
100 %		- 20	836,519,976	-24	-0.0000029
100 %		- 10	836,519,963	-37	-0.0000044
100 %		0	836,520,011	11	0.0000013
100 %		+ 10	836,519,974	-26	-0.0000031
100 %		+ 20	836,519,968	-32	-0.000038
100 %		+ 30	836,519,965	-35	-0.0000042
100 %		+ 40	836,519,973	-27	-0.0000032
100 %		+ 50	836,519,966	-34	-0.0000041
BATT. ENDPOINT	3.30	+ 20	836,519,961	-39	-0.0000047

Table 6-19. Frequency Stability Data (Cellular CDMA Mode – Ch. 384)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 59 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset	Fage 59 01 05
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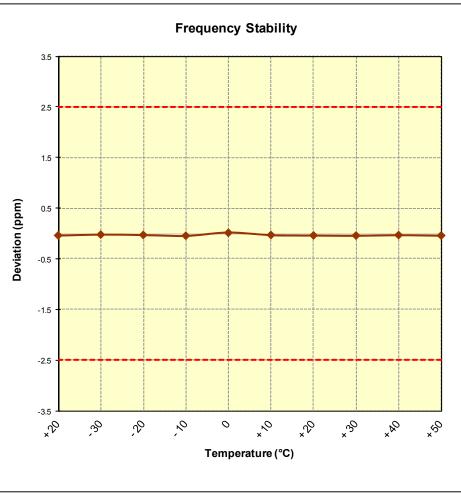


Figure 6-8. Frequency Stability Graph (Cellular CDMA Mode – Ch. 384)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 60 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 60 01 05
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OPERATING FREQUENCY:	1,880,000,000	Hz
CHANNEL:	661	-
REFERENCE VOLTAGE:	3.70	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	1,879,999,968	-32	-0.0000017
100 %		- 30	1,879,999,971	-29	-0.0000015
100 %		- 20	1,879,999,978	-22	-0.0000012
100 %		- 10	1,879,999,980	-20	-0.0000011
100 %		0	1,879,999,973	-27	-0.0000014
100 %		+ 10	1,879,999,965	-35	-0.0000019
100 %		+ 20	1,879,999,968	-32	-0.0000017
100 %		+ 30	1,879,999,972	-28	-0.0000015
100 %		+ 40	1,879,999,968	-32	-0.0000017
100 %		+ 50	1,879,999,972	-28	-0.0000015
BATT. ENDPOINT	3.30	+ 20	1,879,999,964	-36	-0.0000019

Table 6-20. Frequency Stability Data (PCS GSM Mode – Ch. 661)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 61 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 01 01 05
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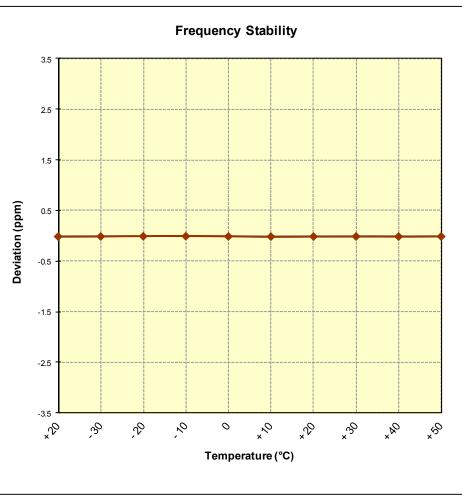


Figure 6-9. Frequency Stability Graph (PCS GSM Mode – Ch. 661)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 62 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 02 01 05
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Frequency Stability / Temperature Variation

OPERATING FREQUENCY:	1,880,000,000	Hz
CHANNEL:	600	
REFERENCE VOLTAGE:	3.70	VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	1,879,999,965	-35	-0.0000019
100 %		- 30	1,879,999,973	-27	-0.0000014
100 %		- 20	1,880,000,015	15	0.000008
100 %		- 10	1,879,999,976	-24	-0.0000013
100 %		0	1,879,999,978	-22	-0.0000012
100 %		+ 10	1,879,999,971	-29	-0.0000015
100 %		+ 20	1,879,999,965	-35	-0.0000019
100 %		+ 30	1,879,999,972	-28	-0.0000015
100 %		+ 40	1,879,999,968	-32	-0.0000017
100 %		+ 50	1,879,999,964	-36	-0.0000019
BATT. ENDPOINT	3.30	+ 20	1,879,999,961	-39	-0.0000021

 Table 6-21. Frequency Stability Data (PCS CDMA Mode – Ch. 600)

Note:

Based on the results of the frequency stability test at the center channel the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain inband when the maximum measured frequency deviation noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	CERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 63 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 03 01 05
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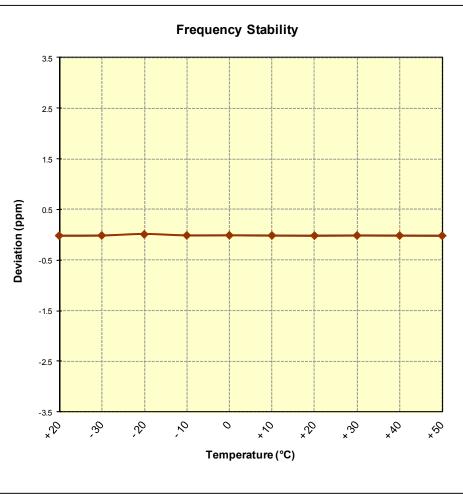


Figure 6-10. Frequency Stability Graph (PCS CDMA Mode – Ch. 600)

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	KYOCERa	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:		Page 64 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset		Fage 04 01 05
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7.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Kyocera Portable Handset FCC ID: V65E4281** complies with all the requirements of Parts 22 & 24 of the FCC rules.

FCC ID: V65E4281		FCC Pt. 22 & 24 CDMA/EvDO/GSM/GPRS/EDGE MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N:	Test Dates:	EUT Type:	Page 65 of 65
0Y1506221313.V65	June 23 - July 15, 2015	Portable Handset	Fage 05 01 05
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