



# PCTEST ENGINEERING LABORATORY, INC.

6660-B Dobbin Road, Columbia, MD 21045 USA  
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http://www.pctestlab.com



## CERTIFICATE OF COMPLIANCE FCC Part 22 & 24 Certification

**Applicant Name:**  
Panasonic Corporation of North America  
One Panasonic Way, 4B-8  
Secaucus, NJ 07094  
United States

**Date of Testing:**  
May 26 - 27, 2008  
**Test Site/Location:**  
PCTEST Lab., Columbia, MD, USA  
**Test Report Serial No.:**  
0804240547.ACJ

<b>FCC ID:</b>	<b>ACJ9TGCF-308</b>
<b>APPLICANT:</b>	<b>PANASONIC CORPORATION OF NORTH AMERICA</b>

**Application Type:** Certification  
**FCC Classification:** PCS Licensed Transmitter (PCB)  
**FCC Rule Part(s):** §2; §22(H), §24(E)  
**EUT Type:** Toughbook Model: CF-30  
**Model(s):** CF-30  
**Tx Frequency Range:** 824.20 - 848.80MHz (Cell. GSM) / 1850.20 - 1909.80MHz (PCS GSM)  
826.40 - 846.60MHz (Cell. WCDMA) / 1852.4 - 1907.6MHz (PCS WCDMA)  
824.70 - 848.31MHz (Cell. CDMA) / 1851.25 - 1908.75MHz (PCS CDMA)  
**Max. RF Output Power:** 1.452 W ERP Cell. GSM (31.62 dBm) / 0.877 W EIRP PCS GSM (29.43 dBm)  
0.206 W ERP Cell. WCDMA (23.14 dBm) / 0.355 W EIRP PCS WCDMA (25.5 dBm)  
0.168 W ERP Cell. CDMA (22.25 dBm) / 0.421 W EIRP PCS CDMA (26.24 dBm)  
0.428 W ERP EDGE850 (26.31 dBm) 0.678 W EIRP EDGE1900 (28.31 dBm)  
**Emission Designator(s):** 246KGXW (Cellular GSM), 242KGXW (PCS GSM)  
245KG7W (EDGE850), 242KG7W (EDGE1900)  
4M16F9W (Cellular WCDMA), 4M17F9W (PCS WCDMA)  
1M27F9W (Cellular CDMA), 1M27F9W (PCS CDMA)  
**Test Device Serial No.:** *identical prototype* [S/N: 7JKSA00639]

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.

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.

**Grant Conditions:** Power output listed is ERP for Part 22 and EIRP for Part 24. This device also contains functions that are not operational in U.S. territories. This report is applicable only to U.S. operations.

*PCTEST certifies that no party to this application has been denied the FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.*



Randy Orlanez  
President



<b>FCC ID:</b> ACJ9TGCF-308		<b>FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)</b>	<b>Panasonic</b>	<b>Reviewed by:</b> Quality Manager
<b>Test Report S/N:</b> 0804240547.ACJ	<b>Test Dates:</b> May 26 - 27, 2008	<b>EUT Type:</b> Toughbook Model: CF-30		Page 1 of 78

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# MEASUREMENT REPORT

## FCC Part 22 & 24



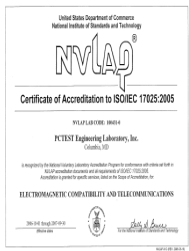
### §2.1033 General Information



**APPLICANT:** Panasonic Corporation of North America  
**APPLICANT ADDRESS:** One Panasonic Way, 4B-8  
 Secaucus, NJ 07094  
**TEST SITE:** PCTEST ENGINEERING LABORATORY, INC.  
**TEST SITE ADDRESS:** 6660-B Dobbin Road, Columbia, MD 21045 USA  
**FCC RULE PART(S):** §2; §22(H), §24(E)  
**BASE MODEL :** CF-30  
**FCC ID:** ACJ9TGCF-308  
**FCC CLASSIFICATION:** PCS Licensed Transmitter (PCB)  
 246KGXW (Cellular GSM), 242KGXW (PCS GSM)  
 245KG7W (EDGE850), 242KG7W (EDGE1900)  
**EMISSION DESIGNATOR(S):** 4M16F9W (Cellular WCDMA), 4M17F9W (PCS WCDMA)  
 1M27F9W (Cellular CDMA), 1M27F9W (PCS CDMA)  
**MODE:** GSM/EDGE/CDMA/WCDMA  
**FREQUENCY TOLERANCE:** ±0.00025 % (2.5 ppm)  
**Test Device Serial No.:** 7JKSA00639     Production     Pre-Production     Engineering  
**DATE(S) OF TEST:** May 26 - 27, 2008  
**TEST REPORT S/N:** 0804240547.ACJ

### Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab located in Columbia, MD 21045, U.S.A.

- PCTEST facility is an FCC registered (PCTEST Reg. No. 90864) 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 (IC-2451).
- 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 (IC-2451) 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.



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# 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.

## 1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity area, the Baltimore-Washington Intern't'l (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 in New Concept Business Park, Guilford Industrial Park, Columbia, Maryland. The site address is 6660-B Dobbin Road, Columbia, MD 21045. The test site is one of the highest points in the Columbia area with an elevation of 390 feet above mean sea level. The site coordinates are 39° 11'15" N latitude and 76° 49'38" W longitude. The facility is 1.5 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. There are no FM or TV transmitters within 15 miles of the site. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2003 on January 27, 2006 and Industry Canada.

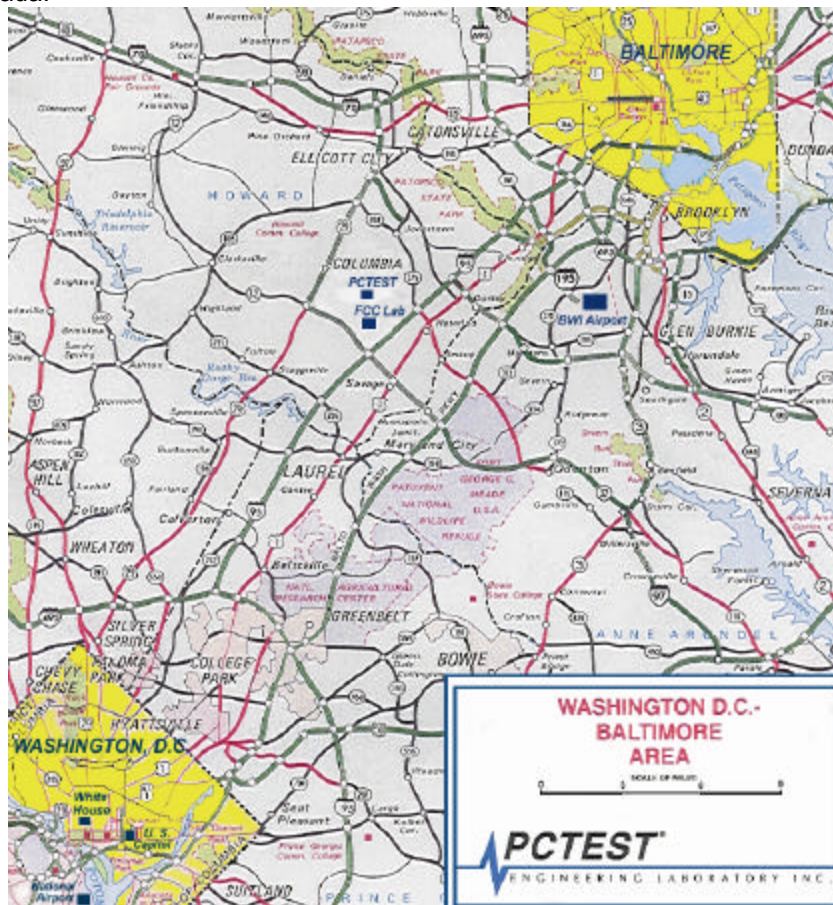




Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **Panasonic Toughbook Model: CF-30 FCC ID: ACJ9TGCF-308**. The EUT consisted of the following component(s):

Trade Name / Base Model	FCC ID	Description
Panasonic / Model: CF-30	ACJ9TGCF-308	Toughbook Model: CF-30
Intel / Model: 4965AG	PD94965AG	802.11a/b/g Wireless LAN Module
Alps / Model: UGNZA	N/A	Bluetooth Module
Qualcomm / Model: UNDP-1	J9CUNDP-1	CDMA/EvDO/GSM/EDGE/WCDMA Module

Table 2-1. EUT Equipment Description

### 2.2 EMI Suppression Device(s)/Modifications

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

### 2.3 Labeling Requirements

Per 2.925

The FCC identifier shall be permanently affixed to the equipment and shall be readily visible to the purchaser at the time of purchase.



Per 15.19; Docket 95-19

In addition to this requirement, a device subject to certification shall be labeled as follows:

*This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.*

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the trade name and FCC ID must be displayed on the device per Section 15.19(b)(2).

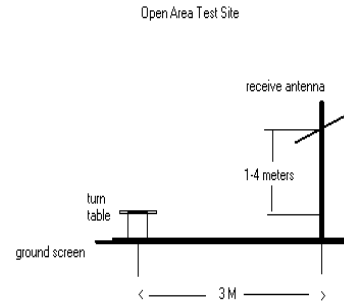
Please see attachment for FCC ID label and label location.

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### 3.0 DESCRIPTION OF TESTS

#### 3.1 Measurement Procedure

The radiated spurious measurements were made outdoors at a 3-meter test range (see Figure 3-1). The equipment under test is placed on a wooden turntable 3-meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration.



**Figure 3-1. Diagram of 3-meter outdoor test range**

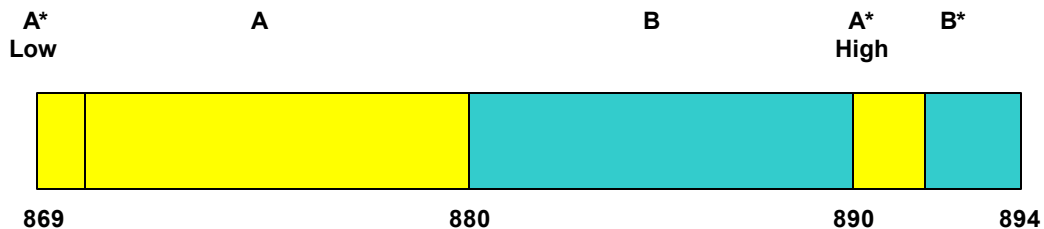
**Deviation from Measurement Procedure.....None**

#### 3.2 Occupied Bandwidth Emission Limits

§2.1049, 22.917(a), 24.238(a)

- a. On any frequency outside a licensee’s frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least  $43 + 10 \log(P)$  dB.
- b. Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. 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.
- c. When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee’s frequency block edges, both upper and lower, as the design permits.
- d. The measurement of emission power can be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

#### 3.3 Cellular - Base Frequency Blocks



**BLOCK 1: 869 – 880 MHz (A\* Low + A)**

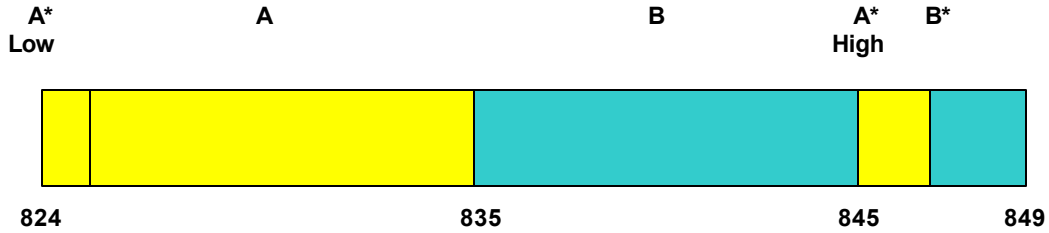
**BLOCK 3: 890 – 891.5 MHz (A\* High)**

**BLOCK 2: 880 – 890 MHz (B)**

**BLOCK 4: 891.5 – 894 MHz (B\*)**

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### 3.4 Cellular - Mobile Frequency Blocks



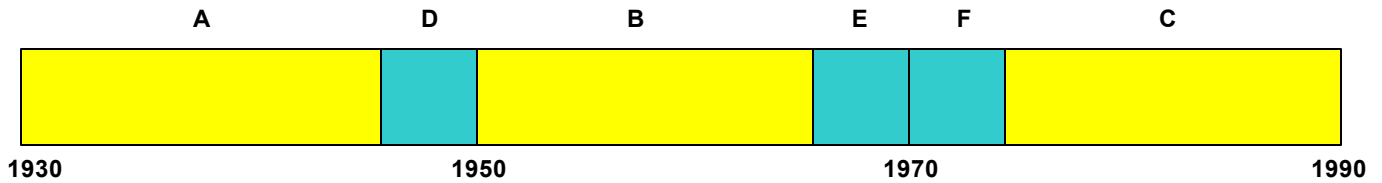
BLOCK 1: 824 – 835 MHz (A\* Low + A)

BLOCK 3: 845 – 846.5 MHz (A\* High)

BLOCK 2: 835 – 845 MHz (B)

BLOCK 4: 846.5 – 849 MHz (B\*)

### 3.5 PCS - Base Frequency Blocks



BLOCK 1: 1930 – 1945 MHz (A)

BLOCK 4: 1965 – 1970 MHz (E)

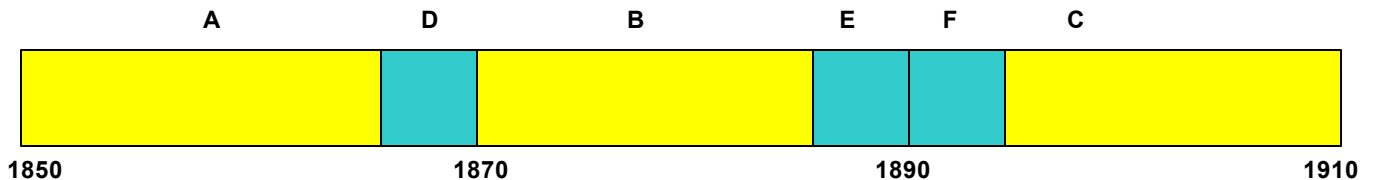
BLOCK 2: 1945 – 1950 MHz (D)

BLOCK 5: 1970 – 1975 MHz (F)

BLOCK 3: 1950 – 1965 MHz (B)

BLOCK 6: 1975 – 1990 MHz (C)

### 3.6 PCS - Mobile Frequency Blocks



BLOCK 1: 1850 – 1865 MHz (A)

BLOCK 4: 1885 – 1890 MHz (E)

BLOCK 2: 1865 – 1870 MHz (D)

BLOCK 5: 1890 – 1895 MHz (F)



BLOCK 3: 1870 – 1885 MHz (B)

BLOCK 6: 1895 – 1910 MHz (C)

### 3.7 Spurious and Harmonic Emissions at Antenna Terminal

§2.1051, 22.917(a), 24.238(a)

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 10<sup>th</sup> harmonic.

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### 3.8 Radiated Spurious and Harmonic Emissions

§2.1053, 22.917(a), 24.238(a)

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz.

Effective Radiated Power Output Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

Equivalent Isotropic Radiated Power Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

A Horn antenna was substituted in place of the EUT. This Horn antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. The conducted power at the terminals of the Horn antenna is measured. The difference between the gain of the horn and an isotropic antenna is taken into consideration and the EIRP is recorded.



Spurious and harmonic radiated emissions are measured outdoors at our 3-meter test range. The equipment under test is placed on a wooden turntable 3-meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10<sup>th</sup> harmonic. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive spectrum analyzer reading. This level is recorded. For readings above 1 GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration. This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits.

### 3.9 Frequency Stability / Temperature Variation

§2.1055, 22.355, 24.235

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 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.

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*Specification – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within  $\pm 0.00025\%$  ( $\pm 2.5$  ppm) of the center frequency.*

**Time Period and Procedure:**

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 one minute 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.



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## 4.0 TEST EQUIPMENT CALIBRATION DATA

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

Manufacturer	Model	Description	Calibration Date	Cal Interval	Calibration Due	Serial No.
-	263-10dB	(DC-18GHz) 10 dB Attenuator	N/A		N/A	N/A
-	No.165	(30MHz - 1000MHz) RG58 Coax Cable	N/A		N/A	N/A
-	No.166	(1000-26500MHz) Microwave RF Cable	N/A		N/A	N/A
-	No.167	(100kHz - 100MHz) RG58 Coax Cable	N/A		N/A	N/A
Agilent	11713A	Attenuation/Switch Driver	12/13/07	Annual	12/13/08	3439A02645
Agilent	8449B	(1-26.5GHz) Pre-Amplifier	12/13/07	Annual	12/12/08	3008A00985
Agilent	8495A	(0-70dB) DC-4GHz Attenuator	N/A		N/A	N/A
Agilent	85650A	Quasi-Peak Adapter	03/13/08	Annual	03/13/09	2043A00301
Agilent	8566B	(100Hz-22GHz) Spectrum Analyzer	12/13/07	Annual	12/13/08	3638A08713
Agilent	8566B	Opt. 462 Impulse Bandwidth	12/13/07	Annual	12/12/08	3701A22204
Agilent	8591A	(9kHz-1.8GHz) Spectrum Analyzer	09/18/07	Annual	09/18/08	3144A02458
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/11/07	Biennial	10/10/09	3613A00315
Agilent	8901A	Modulation Analyzer	06/18/07	Annual	06/18/08	2432A03467
Agilent	8903B	Audio Analyzer	06/01/07	Annual	06/01/08	3011A09025
Agilent	E4407B	ESA Spectrum Analyzer	03/13/08	Annual	03/13/09	US39210313
Agilent	E4432B	ESG-D Series Signal Generator	08/08/06	Biennial	08/08/08	US40053896
Agilent	E4448A	(3Hz-50GHz) Spectrum Analyzer	01/24/08	Annual	01/24/09	US42510244
Agilent	E5515C	Wireless Communications Test Set	06/08/07	Biennial	06/08/09	GB46110872
Agilent	E5515C	Wireless Communications Test Set	06/08/07	Biennial	06/08/09	GB46310798
Agilent	E5515C	Wireless Communications Test Set	08/31/07	Biennial	08/31/09	GB41450275
Agilent	E6651A	Mobile WiMAX Tester	08/23/07	Biennial	08/22/09	MY47310109
Agilent	E8257D	(250kHz-20GHz) Signal Generator	03/08/07	Biennial	03/08/09	MY45470194
Compliance Design	Roberts	Dipole Set	11/09/07	Biennial	11/08/09	146
Compliance Design	Roberts	Dipole Set	11/09/07	Biennial	11/08/09	147
Emco	3115	Horn Antenna (1-18GHz)	9/24/07	Biennial	9/23/09	9704-5182
Emco	3115	Horn Antenna (1-18GHz)	10/4/07	Biennial	10/3/09	9205-3874
Emco	3116	Horn Antenna (18 - 40GHz)	8/25/05	Triennial	8/24/08	9203-2178
Emco	3121C-DB4	Dipole Antenna	1/23/07	Biennial	1/22/09	00023951
Emco	3816/2	LISN	8/9/06	Biennial	8/8/08	9707-1077
Emco	3816/2	LISN	8/9/06	Biennial	8/8/08	9707-1079
Espec	ESX-2CA	Environmental Chamber	3/12/08	Annual	3/12/09	017620
Gigatronics	80701A	(0.05-18GHz) Power Sensor	6/20/07	Annual	6/19/08	1833460
Gigatronics	8651A	Universal Power Meter	6/19/07	Annual	6/18/08	8650319
K & L	11SH10	Band Pass Filter	N/A	Annual	N/A	1300/4000
K & L	11SH10	Band Pass Filter	N/A	Annual	N/A	4000/12000
MiniCircuits	VHF-1300+	High Pass Filter	N/A		N/A	30716
MiniCircuits	VHF-3100+	High Pass Filter	N/A		N/A	30721
Pasternack	PE2208-6	Bidirectional Coupler	N/A		N/A	
Rohde & Schwarz	CMU200	Base Station Simulator	5/24/07	Annual	5/23/08	836371/0079
Rohde & Schwarz	CMU200	Base Station Simulator	9/7/07	Annual	9/6/08	833855/0010
Rohde & Schwarz	CMU200	Base Station Simulator	12/6/07	Annual	12/5/08	107826
Rohde & Schwarz	CMU200	Base Station Simulator	12/13/07	Annual	12/13/08	109892
Rohde & Schwarz	NRVD	Dual Channel Power Meter	12/12/06	Biennial	12/11/08	101695
Rohde & Schwarz	NRVS	Single Channel Power Meter	7/3/07	Biennial	7/2/09	835360/0079
Rohde & Schwarz	NRV-Z32	Peak Power Sensor (100uW-2W)	12/21/06	Biennial	12/20/08	100155
Rohde & Schwarz	NRV-Z33	Peak Power Sensor (1mW-20W)	11/28/06	Biennial	11/27/08	100004
Rohde & Schwarz	NRV-Z53	Power Sensor	7/3/07	Biennial	7/2/09	846076/0007
Schwarzbeck	UHA9105	Dipole Antenna (400 - 1GHz) Rx	6/19/07	Biennial	6/18/09	9105-2404

**Table 4-1. Test Equipment**

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30	Page 10 of 78	

## 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)

### WCDMA Emission Designator

**Emission Designator = 4M16F9W**

WCDMA BW = 4.16 MHz  
 F = Frequency Modulation  
 9 = Composite Digital Info  
 W = Combination (Audio/Data) (Measured at the 99.75% power bandwidth)

### CDMA Emission Designator



**Emission Designator = 1M27F9W**

CDMA BW = 1.27 MHz  
 F = Frequency Modulation  
 9 = Composite Digital Info  
 W = Combination (Audio/Data) (Measured at the 99.75% power bandwidth)

### Spurious Radiated Emission - PCS Band

**Example: GSM Channel 512 PCS Mode 2<sup>nd</sup> Harmonic (3700.40 MHz)**

The receive 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 receive 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 25.501 dBm so this harmonic was 25.501 dBm - (-24.80) = 50.3 dBc.

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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## 6.0 TEST RESULTS

### 6.1 Summary

Company Name: Panasonic Corporation of North America  
 FCC ID: ACJ9TGCF-308  
 FCC Classification: PCS Licensed Transmitter (PCB)  
 Mode(s): GSM/EDGE/CDMA/WCDMA

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
<b>TRANSMITTER MODE (TX)</b>					
2.1049, 22.917(a), 24.238(a)	Occupied Bandwidth	N/A	CONDUCTED	PASS	Section 7.0
2.1051, 22.917(a), 24.238(a)	Band Edge / Conducted Spurious Emissions	< 43 + log <sub>10</sub> (P[Watts]) at Band Edge and for all out-of-band emissions		PASS	Section 7.0
2.1046	GSM/WCDMA Conducted Output Power	N/A		PASS	Section 6.2
22.913(a)(2)	Effective Radiated Power	< 7 Watts max. ERP (<6.3 Watts max. ERP (IC))	RADIATED	PASS	Section 6.3
24.232(c)	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP		PASS	Section 6.4
2.1053, 22.917(a), 24.238(a)	Undesirable Emissions	< 43 + log <sub>10</sub> (P[Watts]) for all out-of-band emissions		PASS	Sections 6.5, 6.6, 6.8, 6.9
2.1055, 22.355, 24.235	Frequency Stability	< 2.5 ppm		PASS	Sections 6.11, 6.12, 6.14, 6.15
<b>RECEIVER MODE (RX) / DIGITAL EMISSIONS</b>					
15.107	AC Conducted Emissions 150kHz – 30MHz	< FCC 15.107 limits	LINE CONDUCTED	PASS	Pt. 15B Test Report
15.109	General Field Strength Limits (Restricted Bands and Radiated Emissions Limits)	< FCC 15.109 limits	RADIATED (30MHz-1GHz) (1-25 GHz)	PASS	Pt. 15B Test Report
<b>RF EXPOSURE (SAR)</b>					
2.1091 / 2.1093	MPE Test	1 mW/cm <sup>2</sup> (MPE Limit) @ 20 cm	MPE	PASS	MPE Report

**Table 6-1. Summary of Test Results**

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30	Page 12 of 78	

## 6.2 Conducted Output Power

### §2.1046

A base station simulator (Rhode and Schwartz Model: CMU200) was used to establish communication with the **Panasonic Toughbook Model: CF-30 FCC ID: ACJ9TGCF-308**. The base station simulator parameters were set to produce the maximum power from the EUT. This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. The GSM and WCDMA conducted powers are reported below, respectively.

Band	Channel	GSM		GPRS		EDGE	
		Power Control Level	Conducted Power	Uplink / Downlink Slots Used	Conducted Power	Uplink / Downlink Slots Used	Conducted Power
			[dBm]		[dBm]		[dBm]
Cellular	128	5	32.92	1/1	32.98	1/1	27.50
	190	5	32.96	1/1	32.70	1/1	27.83
	251	5	32.93	1/1	32.64	1/1	27.71
PCS	512	0	29.33	1/1	28.34	1/1	26.65
	661	0	29.47	1/1	29.41	1/1	26.81
	810	0	29.35	1/1	29.30	1/1	26.53

Table 6-2. GSM Conducted Output Powers

Band	Channel	HSDPA Inactive	HSDPA Active
		Conducted Power	Conducted Power
		[dBm]	[dBm]
Cellular	4132	24.22	24.24
	4183	24.42	24.28
	4233	24.20	24.07
PCS	9262	24.54	24.30
	9400	24.25	24.24
	9538	24.08	23.92

Table 6-3. WCDMA Conducted Output Powers

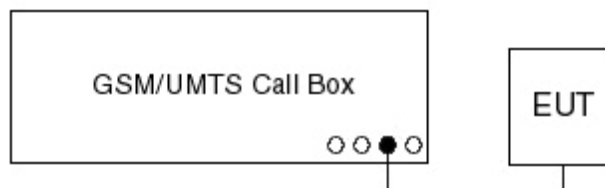




Figure 6-1. GSM/WCDMA Conducted Power Test Setup Diagram

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 13 of 78

### 6.3 Effective Radiated Power Output Data §22.913(a)(2)

**POWER: PCL "5" (Cellular GSM Mode)**

Frequency [MHz]	Mode	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBd]	Pol [H/V]	ERP [dBm]	ERP [Watts]	Battery Type
824.20	GSM850	-6.750	30.58	0.00	V	30.58	1.143	Standard
836.60	GSM850	-5.710	31.62	0.00	V	31.62	1.452	Standard
848.80	GSM850	-8.800	28.53	0.00	V	28.53	0.713	Standard
836.60	EDGE850	-11.020	26.31	0.00	V	26.31	0.428	Standard

**Table 6-4. Effective Radiated Power Output Data (GSM)**

**POWER: All "1" bits (Cellular WCDMA Mode)**



Frequency [MHz]	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBd]	Pol [H/V]	ERP [dBm]	ERP [Watts]	Battery Type
826.40	-16.410	20.91	0.00	V	20.91	0.123	Standard
836.60	-14.840	22.48	0.00	V	22.48	0.177	Standard
846.60	-14.180	23.14	0.00	V	23.14	0.206	Standard

**Table 6-5. Effective Radiated Power Output Data (WCDMA)**

**POWER: All "1" bits (Cellular CDMA Mode)**

Frequency [MHz]	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBd]	Pol [H/V]	ERP [dBm]	ERP [Watts]	Battery Type
824.70	-15.610	21.71	0.00	H	21.71	0.148	Standard
836.52	-15.070	22.25	0.00	H	22.25	0.168	Standard
848.31	-16.650	20.67	0.00	H	20.67	0.117	Standard

**Table 6-6. Effective Radiated Power Output Data (CDMA)**

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 14 of 78

## 6.4 Equivalent Isotropic Radiated Power Output Data §24.232(c)

### POWER: PCL "0" (PCS GSM Mode)

Frequency [MHz]	Mode	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Battery Type
1850.20	GSM1900	-15.130	21.23	8.00	V	29.23	0.838	Standard
1880.00	GSM1900	-15.760	20.60	8.00	V	28.60	0.724	Standard
1909.80	GSM1900	-14.930	21.43	8.00	V	29.43	0.877	Standard
1909.80	EDGE1900	-16.050	20.31	8.00	V	28.31	0.678	Standard

Table 6-7. Equivalent Isotropic Radiated Power Output Data (GSM)



### POWER: All "1" bits (PCS WCDMA Mode)

Frequency [MHz]	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Battery Type
1852.40	-18.860	17.50	8.00	V	25.50	0.355	Standard
1880.00	-18.980	17.38	8.00	V	25.38	0.345	Standard
1907.60	-19.470	16.89	8.00	V	24.89	0.308	Standard

Table 6-8. Equivalent Isotropic Radiated Power Output Data (WCDMA)

Frequency [MHz]	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Battery Type
1851.25	-18.120	18.24	8.00	H	26.24	0.421	Standard
1880.00	-20.460	15.90	8.00	H	23.90	0.245	Standard
1908.75	-19.970	16.39	8.00	H	24.39	0.275	Standard

Table 6-9. Equivalent Isotropic Radiated Power Output Data (CDMA)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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## 6.5 Cellular GSM Radiated Measurements

### §2.1053, 22.917(a)

#### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 824.20 MHz  
 CHANNEL: 128  
 MEASURED OUTPUT POWER: 31.620 dBm = 1.452 W  
 MODULATION SIGNAL: GSM (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W)$  44.62 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1648.40	-48.98	6.08	-42.90	V	74.5
2472.60	-47.24	6.53	-40.71	V	72.3
3296.80	-51.92	6.87	-45.05	V	76.7
4121.00	-43.80	7.21	-36.59	V	68.2
4945.20	-47.08	8.37	-38.71	V	70.3



**Table 6-10. Radiated Spurious Data (Cellular GSM Mode – Ch. 128)**

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 16 of 78

**Cellular GSM Radiated Measurements (Cont'd)**  
**§2.1053, 22.917(a)**

**Field Strength of SPURIOUS Radiation**

OPERATING FREQUENCY: 836.60 MHz  
 CHANNEL: 190  
 MEASURED OUTPUT POWER: 31.620 dBm = 1.452 W  
 MODULATION SIGNAL: GSM (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W)$  44.62 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1673.20	-45.65	6.09	-39.56	V	71.2
2509.80	-49.37	6.55	-42.81	V	74.4
3346.40	-52.99	6.89	-46.09	V	77.7
4183.00	-42.79	7.43	-35.36	V	67.0
5019.60	-46.13	8.35	-37.78	V	69.4



**Table 6-11. Radiated Spurious Data (Cellular GSM Mode – Ch. 190)**

**NOTES:**

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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**Cellular GSM Radiated Measurements (Cont'd)**  
§2.1053, 22.917(a)

**Field Strength of SPURIOUS Radiation**

OPERATING FREQUENCY: 848.80 MHz  
 CHANNEL: 251  
 MEASURED OUTPUT POWER: 31.620 dBm = 1.452 W  
 MODULATION SIGNAL: GSM (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W)$  44.62 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1697.60	-41.93	6.09	-35.83	V	67.5
2546.40	-51.72	6.57	-45.15	V	76.8
3395.20	-52.65	6.91	-45.74	V	77.4
4244.00	-46.48	7.65	-38.83	V	70.4
5092.80	-46.35	8.33	-38.02	V	69.6



**Table 6-12. Radiated Spurious Data (Cellular GSM Mode – Ch. 251)**

**NOTES:**

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 18 of 78

## 6.6 Cellular WCDMA Radiated Measurements

### §2.1053, 22.917(a)

#### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 826.40 MHz  
 CHANNEL: 4132  
 MEASURED OUTPUT POWER: 23.140 dBm = 0.206 W  
 MODULATION SIGNAL: WCDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W)$  36.14 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1652.80	-54.66	6.08	-48.57	V	71.7
2479.20	-51.71	6.54	-45.18	V	68.3
3305.60	-94.67	6.88	-87.80	V	110.9
4132.00	-92.64	7.25	-85.40	V	108.5
4958.40	-91.87	8.37	-83.51	V	106.6



**Table 6-13. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4132)**

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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**Cellular WCDMA Radiated Measurements (Cont'd)**  
**§2.1053, 22.917(a)**

**Field Strength of SPURIOUS Radiation**

OPERATING FREQUENCY: 836.60 MHz  
 CHANNEL: 4183  
 MEASURED OUTPUT POWER: 23.140 dBm = 0.206 W  
 MODULATION SIGNAL: WCDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W)$  36.14 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1673.20	-54.57	6.09	-48.48	V	71.6
2509.80	-55.89	6.55	-49.33	V	72.5
3346.40	-94.59	6.89	-87.70	V	110.8
4183.00	-92.80	7.40	-85.39	V	108.5
5019.60	-91.65	8.35	-83.30	V	106.4



**Table 6-14. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4183)**

**NOTES:**

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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**Cellular WCDMA Radiated Measurements (Cont'd)**  
**§2.1053, 22.917(a)**

**Field Strength of SPURIOUS Radiation**

OPERATING FREQUENCY: 846.60 MHz  
 CHANNEL: 4233  
 MEASURED OUTPUT POWER: 23.140 dBm = 0.206 W  
 MODULATION SIGNAL: WCDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W)$  36.14 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1693.20	-55.85	6.09	-49.76	V	72.9
2539.80	-55.85	6.57	-49.28	V	72.4
3386.40	-94.47	6.91	-87.56	V	110.7
4233.00	-93.00	7.62	-85.38	V	108.5
5079.60	-91.33	8.33	-83.00	V	106.1



**Table 6-15. Radiated Spurious Data (Cellular WCDMA Mode – Ch. 4233)**

**NOTES:**

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

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## 6.7 Cellular CDMA Radiated Measurements

### §2.1053, 22.917(a)

#### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 824.70 MHz  
 CHANNEL: 1013  
 MEASURED OUTPUT POWER: 22.250 dBm = 0.168 W  
 MODULATION SIGNAL: CDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W)$  35.25 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1649.40	-50.58	6.08	-44.49	H	66.7
2474.10	-55.74	6.53	-49.21	H	71.5
3298.80	-94.69	6.87	-87.82	H	110.1
4123.50	-92.61	7.21	-85.40	H	107.6
4948.20	-91.91	8.37	-83.54	H	105.8



**Table 6-16. Radiated Spurious Data (Cellular CDMA Mode – Ch. 1013)**

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

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**Cellular CDMA Radiated Measurements (Cont'd)**  
**§2.1053, 22.917(a)**

**Field Strength of SPURIOUS Radiation**

OPERATING FREQUENCY: 836.52 MHz  
 CHANNEL: 384  
 MEASURED OUTPUT POWER: 22.250 dBm = 0.168 W  
 MODULATION SIGNAL: CDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W)$  35.25 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1673.04	-50.45	6.09	-44.36	H	66.6
2509.56	-55.57	6.55	-49.01	H	71.3
3346.08	-94.57	6.89	-87.68	H	109.9
4182.60	-92.82	7.43	-85.39	H	107.6
5019.12	-91.61	8.35	-83.26	H	105.5



**Table 6-17. Radiated Spurious Data (Cellular CDMA Mode – Ch. 384)**

**NOTES:**

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

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**Cellular CDMA Radiated Measurements (Cont'd)**  
§2.1053, 22.917(a)

**Field Strength of SPURIOUS Radiation**

OPERATING FREQUENCY: 848.31 MHz  
 CHANNEL: 777  
 MEASURED OUTPUT POWER: 22.250 dBm = 0.168 W  
 MODULATION SIGNAL: CDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W)$  35.25 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1696.62	-50.33	6.09	-44.24	H	66.5
2544.93	-55.42	6.57	-48.86	H	71.1
3393.24	-94.45	6.91	-87.54	H	109.8
4241.55	-93.03	7.65	-85.38	H	107.6
5089.86	-91.28	8.33	-82.95	H	105.2



**Table 6-18. Radiated Spurious Data (Cellular CDMA Mode – Ch. 777)**

**NOTES:**

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

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## 6.8 PCS GSM Radiated Measurements

### §2.1053, 24.238(a)

#### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1850.20 MHz  
 CHANNEL: 512  
 MEASURED OUTPUT POWER: 29.430 dBm = 0.877 W  
 MODULATION SIGNAL: GSM (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W)$  42.43 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3700.40	-51.19	9.02	-42.17	H	71.6
5550.60	-46.11	10.40	-35.71	H	65.1
7400.80	-42.19	10.50	-31.69	H	61.1
9251.00	-86.42	11.85	-74.57	H	104.0
11101.20	-84.04	12.76	-71.29	H	100.7



Table 6-19. Radiated Spurious Data (PCS GSM Mode – Ch. 512)

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

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**PCS GSM Radiated Measurements (Cont'd)**  
§2.1053, 24.238(a)

**Field Strength of SPURIOUS Radiation**

OPERATING FREQUENCY: 1880.00 MHz  
 CHANNEL: 661  
 MEASURED OUTPUT POWER: 29.430 dBm = 0.877 W  
 MODULATION SIGNAL: GSM (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W)$  42.43 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3760.00	-50.23	8.99	-41.24	H	70.7
5640.00	-44.19	10.40	-33.79	H	63.2
7520.00	-42.54	10.62	-31.92	H	61.4
9400.00	-86.20	11.70	-74.50	H	103.9
11280.00	-83.30	12.69	-70.61	H	100.0



**Table 6-20. Radiated Spurious Data (PCS GSM Mode – Ch. 661)**

**NOTES:**

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

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**PCS GSM Radiated Measurements (Cont'd)**  
§2.1053, 24.238(a)

**Field Strength of SPURIOUS Radiation**

OPERATING FREQUENCY: 1909.80 MHz  
 CHANNEL: 810  
 MEASURED OUTPUT POWER: 29.430 dBm = 0.877 W  
 MODULATION SIGNAL: GSM (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W)$  42.43 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3819.60	-49.98	8.97	-41.01	H	70.4
5729.40	-44.16	10.40	-33.76	H	63.2
7639.20	-42.77	10.71	-32.05	H	61.5
9549.00	-86.01	11.64	-74.37	H	103.8
11458.80	-82.57	12.62	-69.95	H	99.4



**Table 6-21. Radiated Spurious Data (PCS GSM Mode – Ch. 810)**

**NOTES:**

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

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## 6.9 PCS WCDMA Radiated Measurements

### §2.1053, 24.238(a)

#### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1852.40 MHz  
 CHANNEL: 9262  
 MEASURED OUTPUT POWER: 25.500 dBm = 0.355 W  
 MODULATION SIGNAL: WCDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W)$  38.50 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3704.80	-46.57	9.01	-37.56	V	63.1
5557.20	-49.29	10.40	-38.89	V	64.4
7409.60	-87.05	10.51	-76.54	V	102.0
9262.00	-86.40	11.83	-74.57	V	100.1
11114.40	-83.99	12.75	-71.24	V	96.7



**Table 6-22. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9262)**

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

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**PCS WCDMA Radiated Measurements (Cont'd)**  
**§2.1053, 24.238(a)**

**Field Strength of SPURIOUS Radiation**

OPERATING FREQUENCY: 1880.00 MHz  
 CHANNEL: 9400  
 MEASURED OUTPUT POWER: 25.500 dBm = 0.355 W  
 MODULATION SIGNAL: WCDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W)$  38.50 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3760.00	-46.43	8.99	-37.44	V	62.9
5640.00	-48.19	10.40	-37.79	V	63.3
7520.00	-87.06	10.62	-76.44	V	101.9
9400.00	-86.20	11.70	-74.50	V	100.0
11280.00	-83.30	12.69	-70.61	V	96.1



**Table 6-23. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9400)**

**NOTES:**

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

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**PCS WCDMA Radiated Measurements (Cont'd)**  
**§2.1053, 24.238(a)**

**Field Strength of SPURIOUS Radiation**

OPERATING FREQUENCY: 1907.60 MHz  
 CHANNEL: 9538  
 MEASURED OUTPUT POWER: 25.500 dBm = 0.355 W  
 MODULATION SIGNAL: WCDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W)$  38.50 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3815.20	-41.30	8.97	-32.32	V	57.8
5722.80	-48.39	10.40	-37.99	V	63.5
7630.40	-86.98	10.71	-76.27	V	101.8
9538.00	-86.02	11.63	-74.39	V	99.9
11445.60	-82.62	12.62	-70.00	V	95.5



**Table 6-24. Radiated Spurious Data (PCS WCDMA Mode – Ch. 9538)**

**NOTES:**

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

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## 6.10 PCS CDMA Radiated Measurements

### §2.1053, 24.238(a)

#### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1851.25 MHz  
 CHANNEL: 25  
 MEASURED OUTPUT POWER: 26.240 dBm = 0.421 W  
 MODULATION SIGNAL: CDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W)$  39.24 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3702.50	-50.28	9.02	-41.27	H	67.5
5553.75	-48.80	10.40	-38.40	H	64.6
7405.00	-87.05	10.51	-76.54	H	102.8
9256.25	-86.41	11.84	-74.57	H	100.8
11107.50	-84.02	12.76	-71.26	H	97.5



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

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

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**PCS CDMA Radiated Measurements (Cont'd)**  
**§2.1053, 24.238(a)**

**Field Strength of SPURIOUS Radiation**

OPERATING FREQUENCY: 1880.00 MHz  
 CHANNEL: 600  
 MEASURED OUTPUT POWER: 26.240 dBm = 0.421 W  
 MODULATION SIGNAL: CDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W)$  39.24 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3760.00	-50.03	8.99	-41.04	H	67.3
5640.00	-48.49	10.40	-38.09	H	64.3
7520.00	-87.06	10.62	-76.44	H	102.7
9400.00	-86.20	11.70	-74.50	H	100.7
11280.00	-83.30	12.69	-70.61	H	96.9



**Table 6-26. Radiated Spurious Data (PCS CDMA Mode – Ch. 600)**

**NOTES:**

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 32 of 78

## PCS CDMA Radiated Measurements (Cont'd)

§2.1053, 24.238(a)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1908.75 MHz  
 CHANNEL: 1175  
 MEASURED OUTPUT POWER: 26.240 dBm = 0.421 W  
 MODULATION SIGNAL: CDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W)$  39.24 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3817.50	-49.79	8.97	-40.82	H	67.1
5726.25	-48.17	10.40	-37.77	H	64.0
7635.00	-86.98	10.71	-76.27	H	102.5
9543.75	-86.01	11.64	-74.38	H	100.6
11452.50	-82.60	12.62	-69.98	H	96.2



Table 6-27. Radiated Spurious Data (PCS CDMA Mode – Ch. 1175)

#### NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For CDMA signals, a peak detector is used, with RBW = VBW = 3 MHz. For WCDMA signals, a peak detector is used, with RBW = VBW = 5 MHz. For AMPS, GSM, and NADC TDMA signals, a peak detector is used, with RBW = VBW = 1 MHz. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This spurious level is recorded. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all configurations and the highest power is reported in WCDMA mode with HSDPA Active at 12.2 kbps RMC and TPC bits all set to "1" and in GSM mode and using a Power Control Level of "0" in the PCS Band and "5" in the Cellular Band. In CDMA mode, this device was tested under all R.C.s and S.O.s and the worst case is reported with RC3/SO55 with "All Up" power control bits. This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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## 6.11 Cellular GSM Frequency Stability Measurements

§2.1055, 22.355

OPERATING FREQUENCY: 836,600,000 Hz



CHANNEL: 190

REFERENCE VOLTAGE: 15.6 VDC

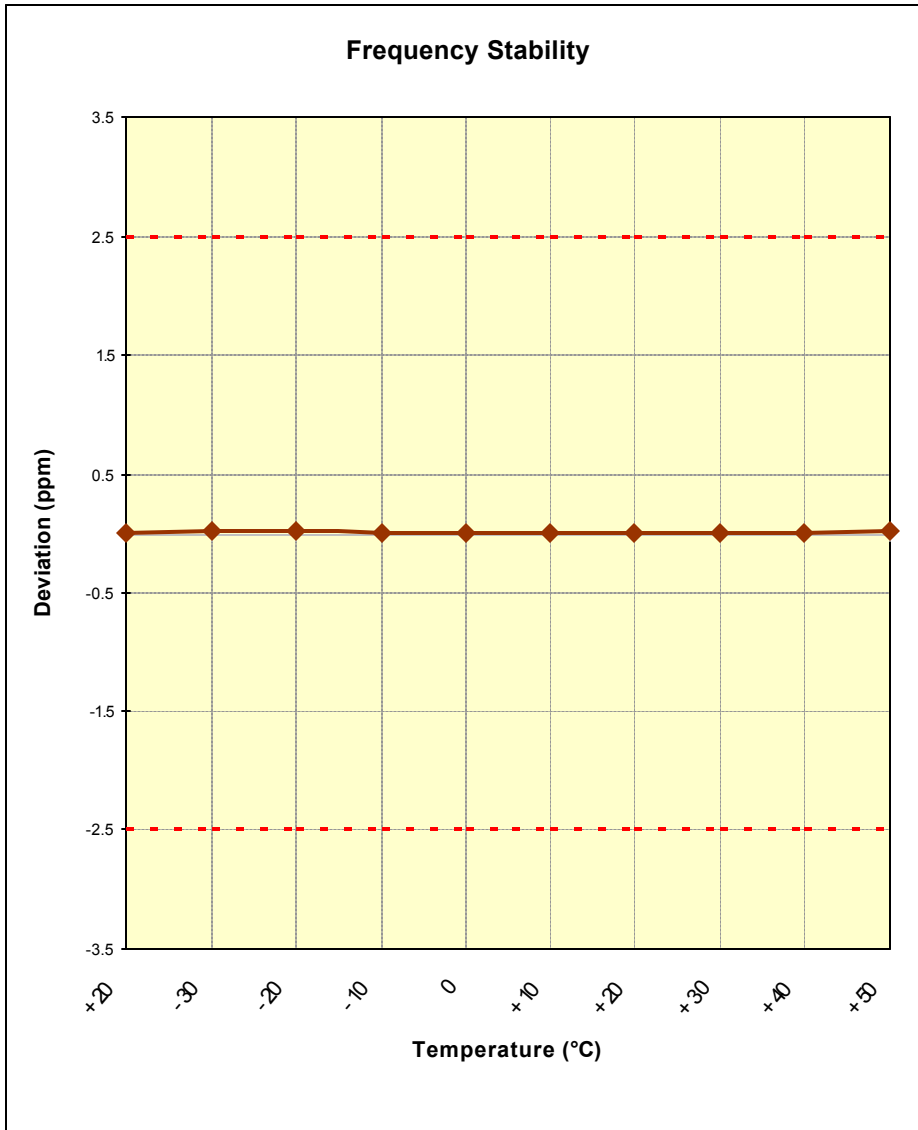
DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	15.60	+ 20 (Ref)	836,600,001	1	0.000000
100 %		- 30	836,600,016	16	0.000002
100 %		- 20	836,600,015	15	0.000002
100 %		- 10	836,600,002	2	0.000000
100 %		0	836,600,008	8	0.000001
100 %		+ 10	836,600,000	0	0.000000
100 %		+ 20	836,600,002	2	0.000000
100 %		+ 30	836,600,008	8	0.000001
100 %		+ 40	836,600,003	3	0.000000
100 %		+ 50	836,600,015	15	0.000002
115 %		17.94	+ 20	836,600,013	13
BATT. ENDPOINT	14.20	+ 20	836,600,009	9	0.000001



**Table 6-28. Frequency Stability Data (Cellular GSM Mode – Ch. 190)**

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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**Cellular GSM Frequency Stability Measurements (Cont'd)**  
§2.1055, 22.355



**Plot 6-1. Frequency Stability Graph (Cellular GSM Mode – Ch. 190)**

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 35 of 78

## 6.12 Cellular WCDMA Frequency Stability Measurements

§2.1055, 22.355

OPERATING FREQUENCY: 836,600,000 Hz



CHANNEL: 4183

REFERENCE VOLTAGE: 15.6 VDC

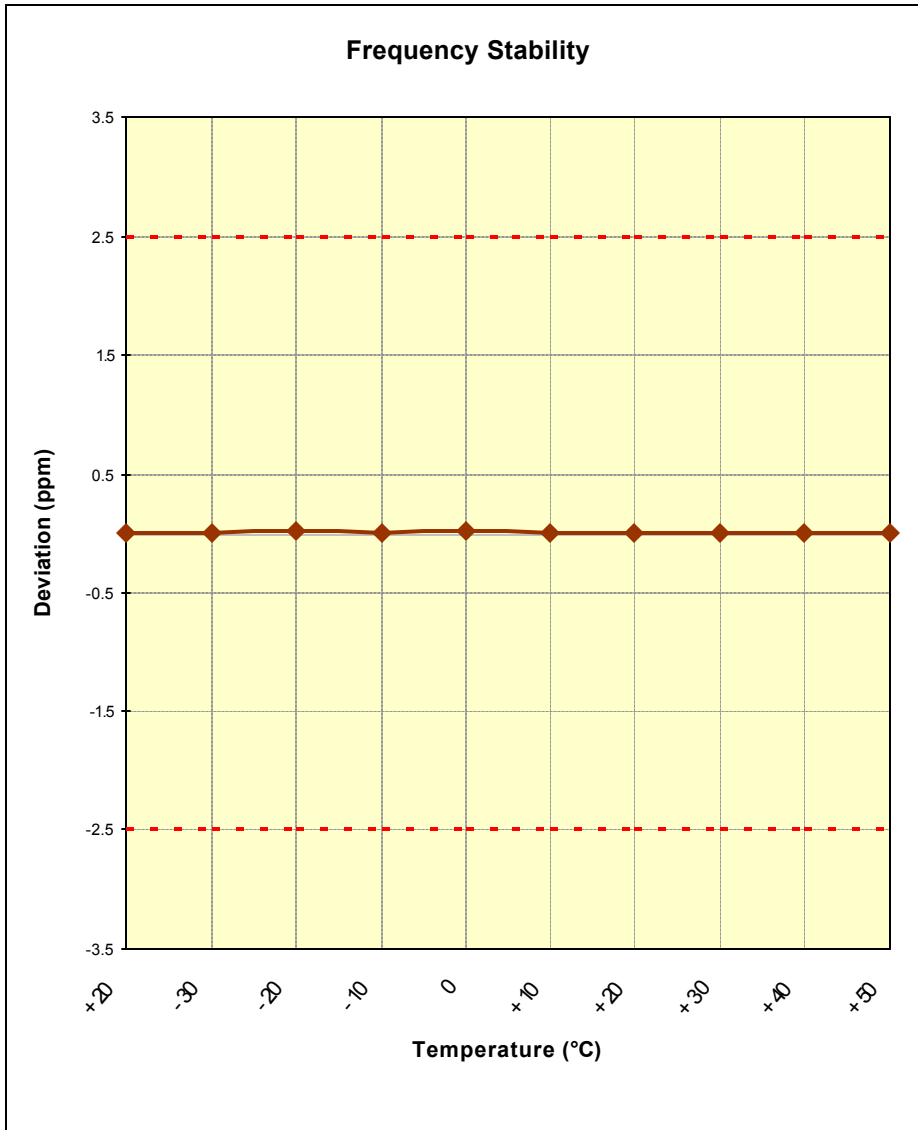
DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	15.60	+ 20 (Ref)	836,600,002	2	0.000000
100 %		- 30	836,600,008	8	0.000001
100 %		- 20	836,600,017	17	0.000002
100 %		- 10	836,600,006	6	0.000001
100 %		0	836,600,017	17	0.000002
100 %		+ 10	836,600,005	5	0.000001
100 %		+ 20	836,600,007	7	0.000001
100 %		+ 30	836,600,007	7	0.000001
100 %		+ 40	836,600,004	4	0.000000
100 %		+ 50	836,600,002	2	0.000000
115 %		17.94	+ 20	836,600,018	18
BATT. ENDPOINT	14.20	+ 20	836,600,011	11	0.000001



**Table 6-29. Frequency Stability Data (Cellular WCDMA Mode – Ch. 4183)**

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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**Cellular WCDMA Frequency Stability Measurements (Cont'd)**  
§2.1055, 22.355



**Plot 6-2. Frequency Stability Graph (Cellular WCDMA Mode – Ch. 4183)**

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30	Page 37 of 78	

### 6.13 Cellular CDMA Frequency Stability Measurements

§2.1055, 22.355

OPERATING FREQUENCY: 836,520,000 Hz



CHANNEL: 384

REFERENCE VOLTAGE: 15.6 VDC

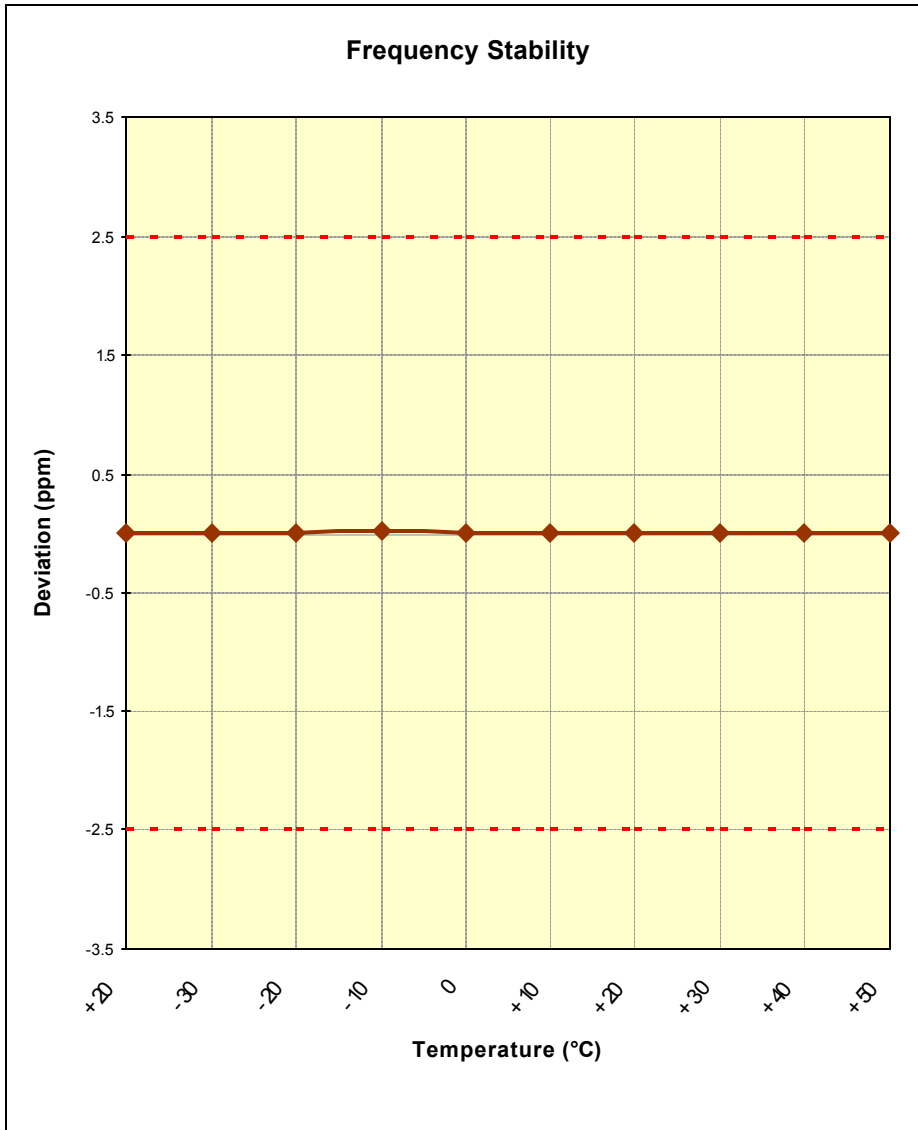
DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	15.60	+ 20 (Ref)	836,520,003	3	0.000000
100 %		- 30	836,520,012	12	0.000001
100 %		- 20	836,520,009	9	0.000001
100 %		- 10	836,520,016	16	0.000002
100 %		0	836,520,004	4	0.000001
100 %		+ 10	836,520,013	13	0.000001
100 %		+ 20	836,520,005	5	0.000001
100 %		+ 30	836,520,008	8	0.000001
100 %		+ 40	836,520,011	11	0.000001
100 %		+ 50	836,520,001	1	0.000000
115 %		17.94	+ 20	836,520,005	5
BATT. ENDPOINT	14.20	+ 20	836,520,007	7	0.000001



Table 6-30. Frequency Stability Data (Cellular CDMA Mode – Ch. 384)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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**Cellular CDMA Frequency Stability Measurements (Cont'd)**  
§2.1055, 22.355



**Plot 6-3. Frequency Stability Graph (Cellular CDMA Mode – Ch. 384)**

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 39 of 78

### 6.14 PCS GSM Frequency Stability Measurements

§2.1055, 24.235

OPERATING FREQUENCY: 1,880,000,000 Hz



CHANNEL: 661

REFERENCE VOLTAGE: 15.6 VDC

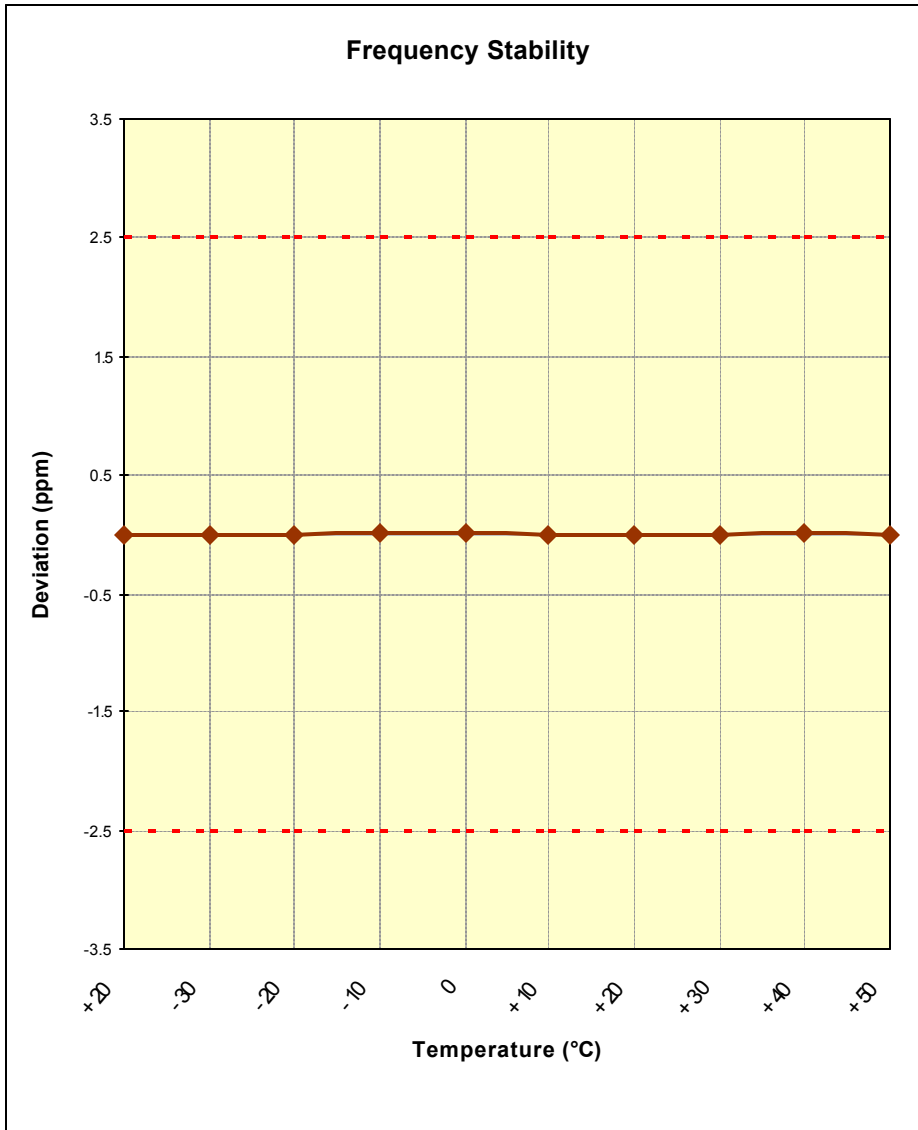
DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	15.60	+ 20 (Ref)	1,880,000,002	2	0.000000
100 %		- 30	1,880,000,011	11	0.000001
100 %		- 20	1,880,000,008	8	0.000000
100 %		- 10	1,880,000,019	19	0.000001
100 %		0	1,880,000,018	18	0.000001
100 %		+ 10	1,880,000,006	6	0.000000
100 %		+ 20	1,880,000,001	1	0.000000
100 %		+ 30	1,880,000,002	2	0.000000
100 %		+ 40	1,880,000,017	17	0.000001
100 %		+ 50	1,880,000,010	10	0.000001
115 %		17.94	+ 20	1,880,000,002	2
BATT. ENDPOINT	14.20	+ 20	1,880,000,013	13	0.000001



Table 6-31. Frequency Stability Data (PCS GSM Mode – Ch. 661)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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**PCS GSM Frequency Stability Measurements (Cont'd)**  
§2.1055, 24.235



**Plot 6-4. Frequency Stability Graph (PCS GSM Mode – Ch. 661)**

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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## 6.15 PCS WCDMA Frequency Stability Measurements

### §2.1055, 24.235

OPERATING FREQUENCY: 1,880,000,000 Hz



CHANNEL: 9400

REFERENCE VOLTAGE: 15.6 VDC

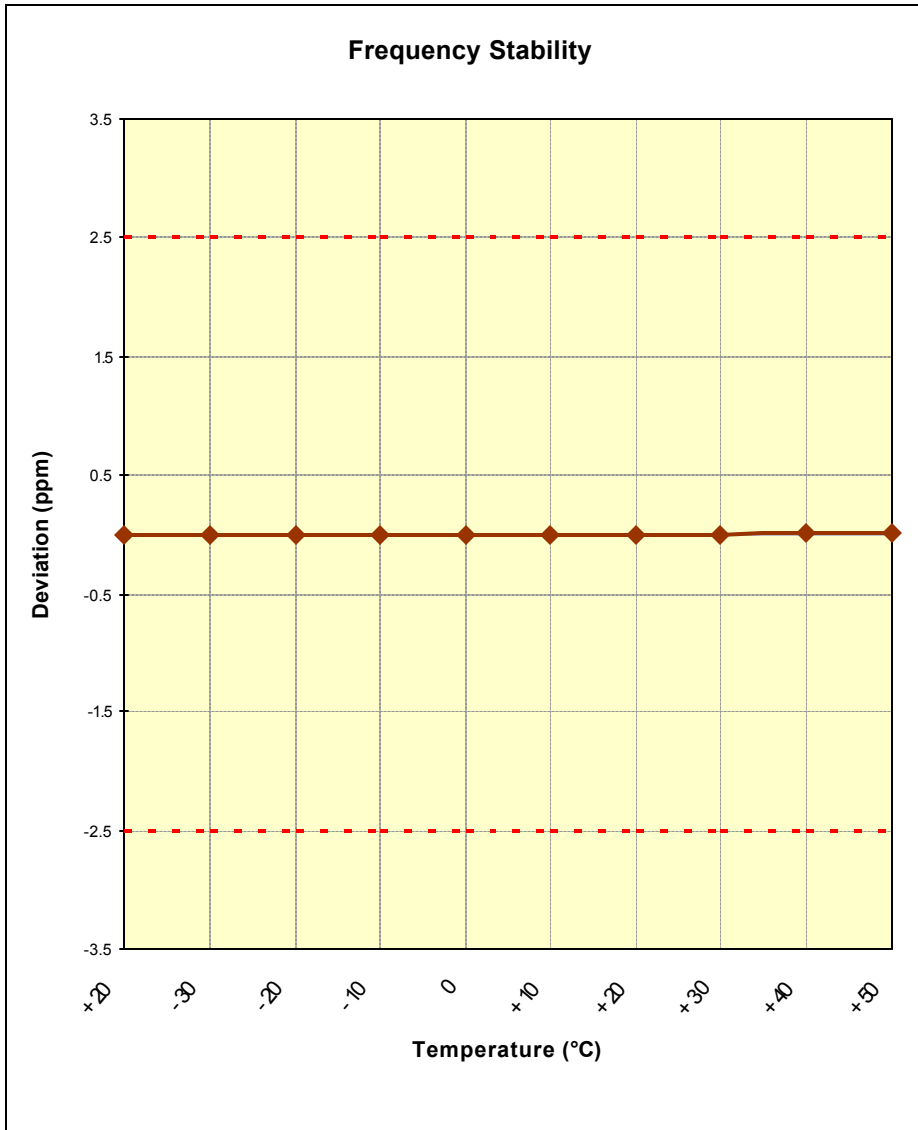
DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	15.60	+ 20 (Ref)	1,880,000,000	0	0.000000
100 %		- 30	1,880,000,004	4	0.000000
100 %		- 20	1,880,000,010	10	0.000001
100 %		- 10	1,880,000,005	5	0.000000
100 %		0	1,880,000,005	5	0.000000
100 %		+ 10	1,880,000,015	15	0.000001
100 %		+ 20	1,880,000,001	1	0.000000
100 %		+ 30	1,880,000,009	9	0.000000
100 %		+ 40	1,880,000,018	18	0.000001
100 %		+ 50	1,880,000,016	16	0.000001
115 %		17.94	+ 20	1,880,000,012	12
BATT. ENDPOINT	14.20	+ 20	1,880,000,004	4	0.000000



**Table 6-32. Frequency Stability Data (PCS WCDMA Mode – Ch. 9400)**

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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**PCS WCDMA Frequency Stability Measurements (Cont'd)**  
§2.1055, 24.235



**Plot 6-5. Frequency Stability Graph (PCS WCDMA Mode – Ch. 9400)**

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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## 6.16 PCS CDMA Frequency Stability Measurements

§2.1055, 24.235

OPERATING FREQUENCY: 1,880,000,000 Hz



CHANNEL: 600

REFERENCE VOLTAGE: 15.6 VDC

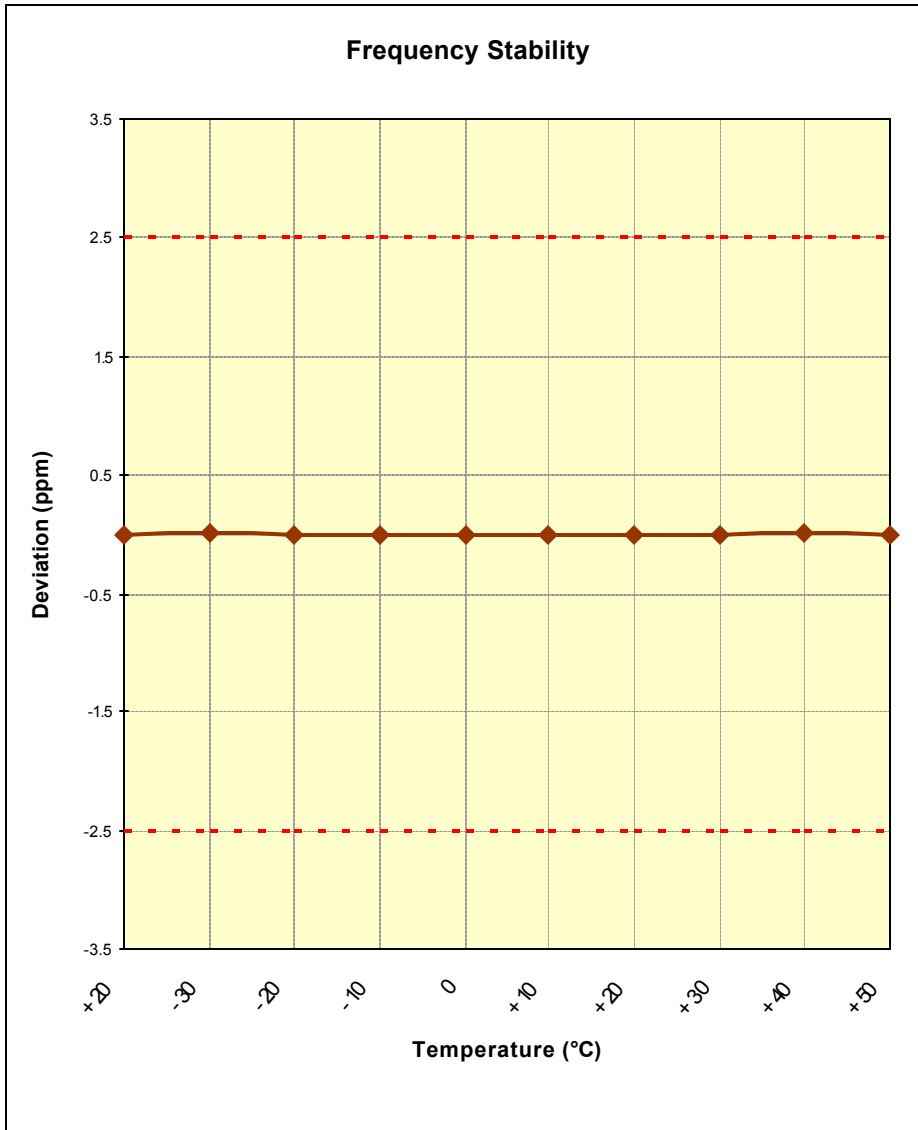
DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	15.60	+ 20 (Ref)	1,880,000,003	3	0.000000
100 %		- 30	1,880,000,017	17	0.000001
100 %		- 20	1,880,000,014	14	0.000001
100 %		- 10	1,880,000,015	15	0.000001
100 %		0	1,880,000,011	11	0.000001
100 %		+ 10	1,880,000,001	1	0.000000
100 %		+ 20	1,880,000,003	3	0.000000
100 %		+ 30	1,880,000,008	8	0.000000
100 %		+ 40	1,880,000,019	19	0.000001
100 %		+ 50	1,880,000,012	12	0.000001
115 %	17.94	+ 20	1,880,000,015	15	0.000001
BATT. ENDPOINT	14.20	+ 20	1,880,000,019	19	0.000001



Table 6-33. Frequency Stability Data (PCS CDMA Mode – Ch. 600)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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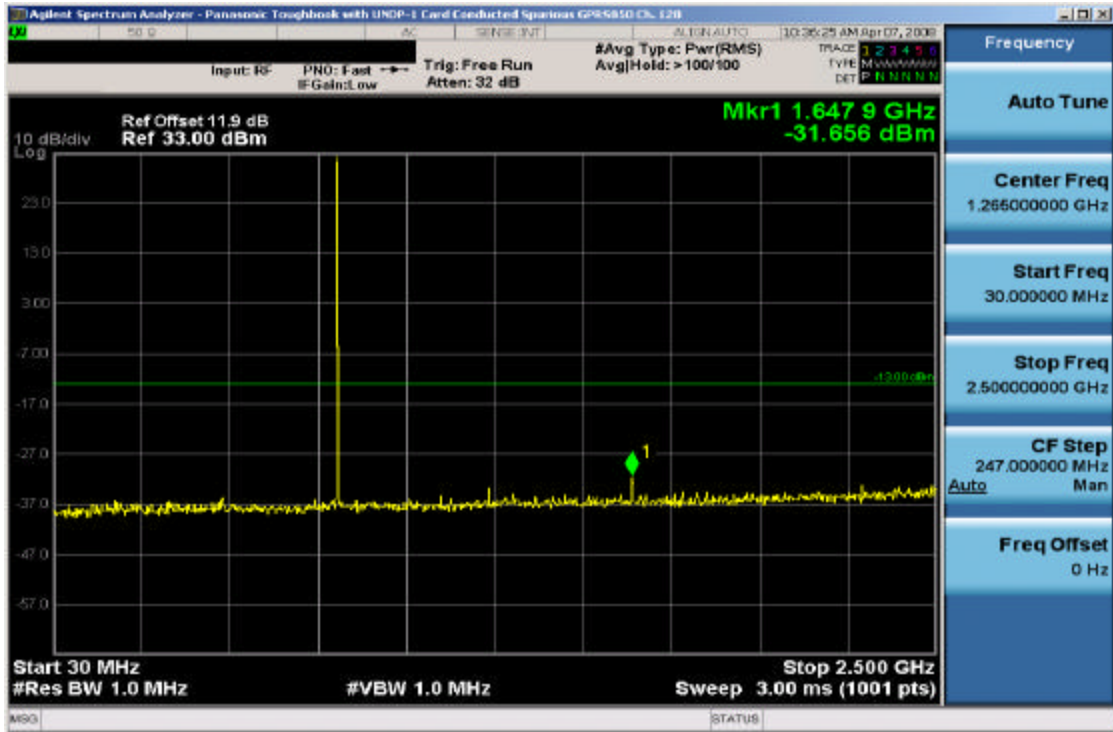
**PCS CDMA Frequency Stability Measurements (Cont'd)**  
§2.1055, 24.235



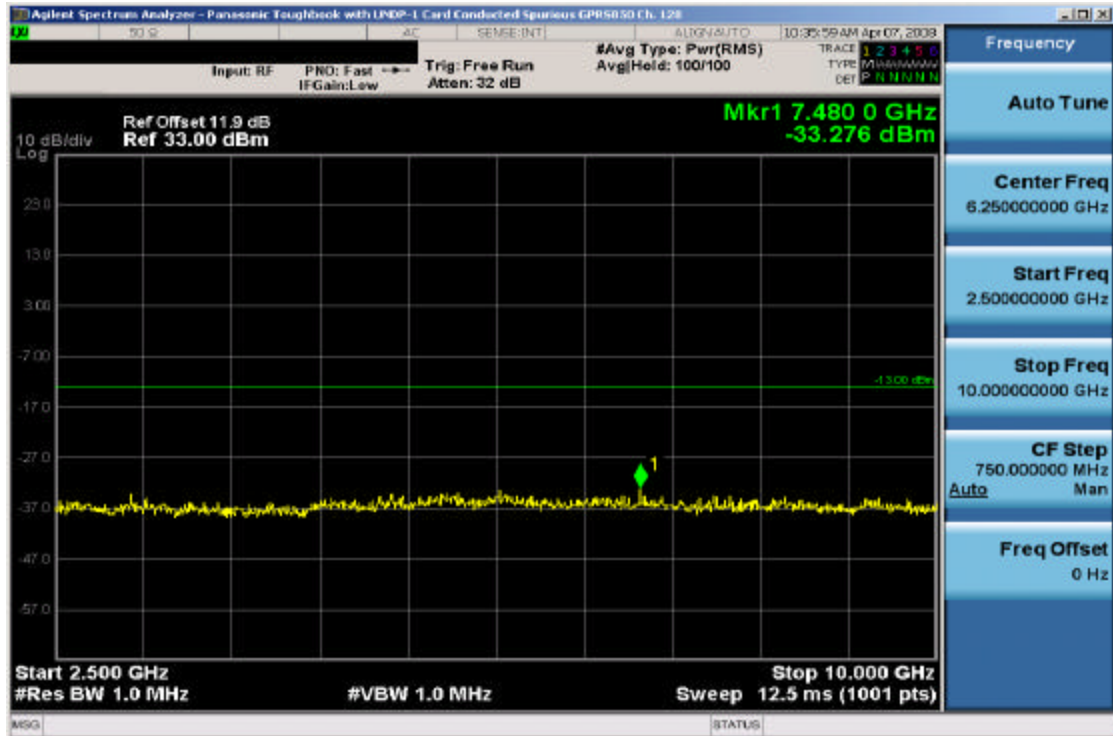
**Plot 6-6. Frequency Stability Graph (PCS CDMA Mode – Ch. 600)**

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 45 of 78

## 7.0 PLOTS OF EMISSIONS

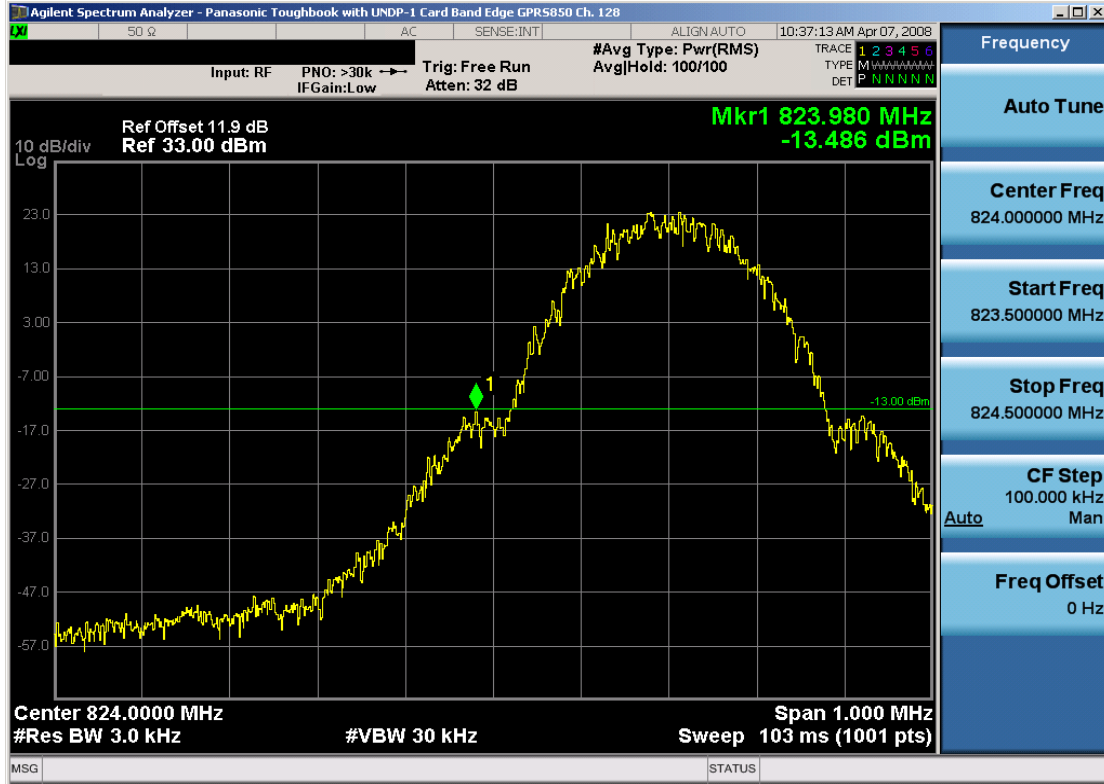


**Plot 7-1. Conducted Spurious Plot (Cellular GSM Mode – Ch. 128)**

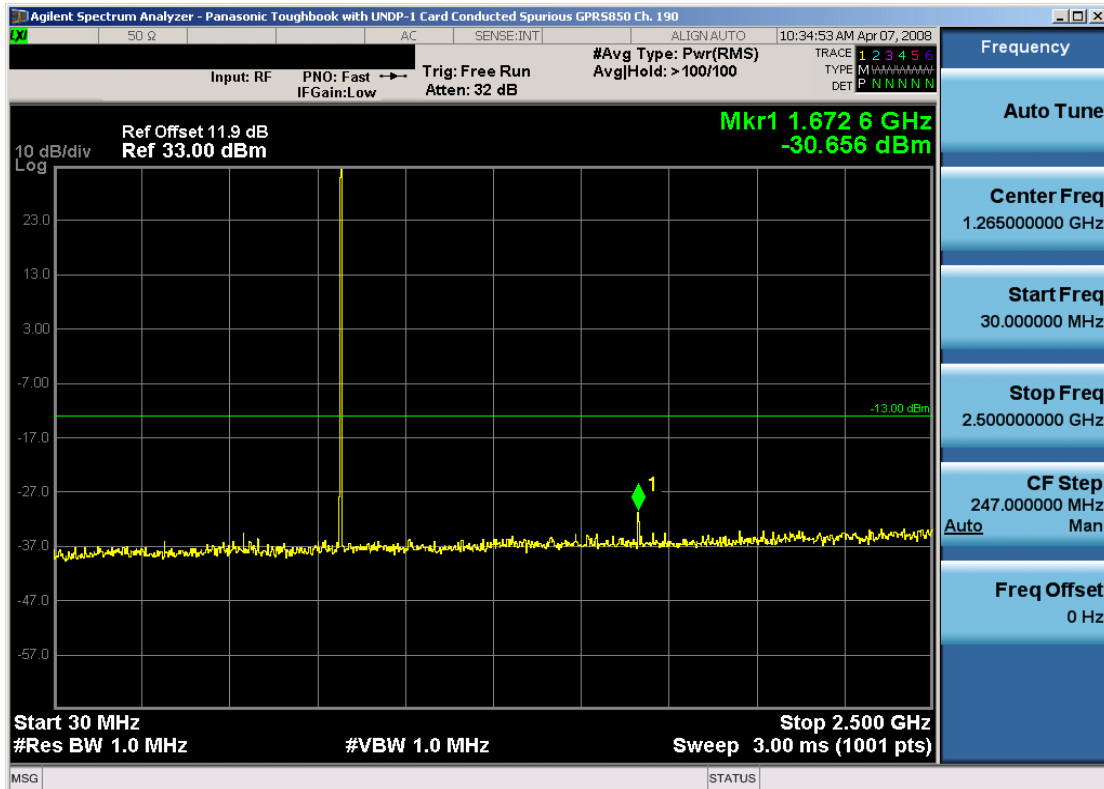


**Plot 7-2. Conducted Spurious Plot (Cellular GSM Mode – Ch. 128)**

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 46 of 78

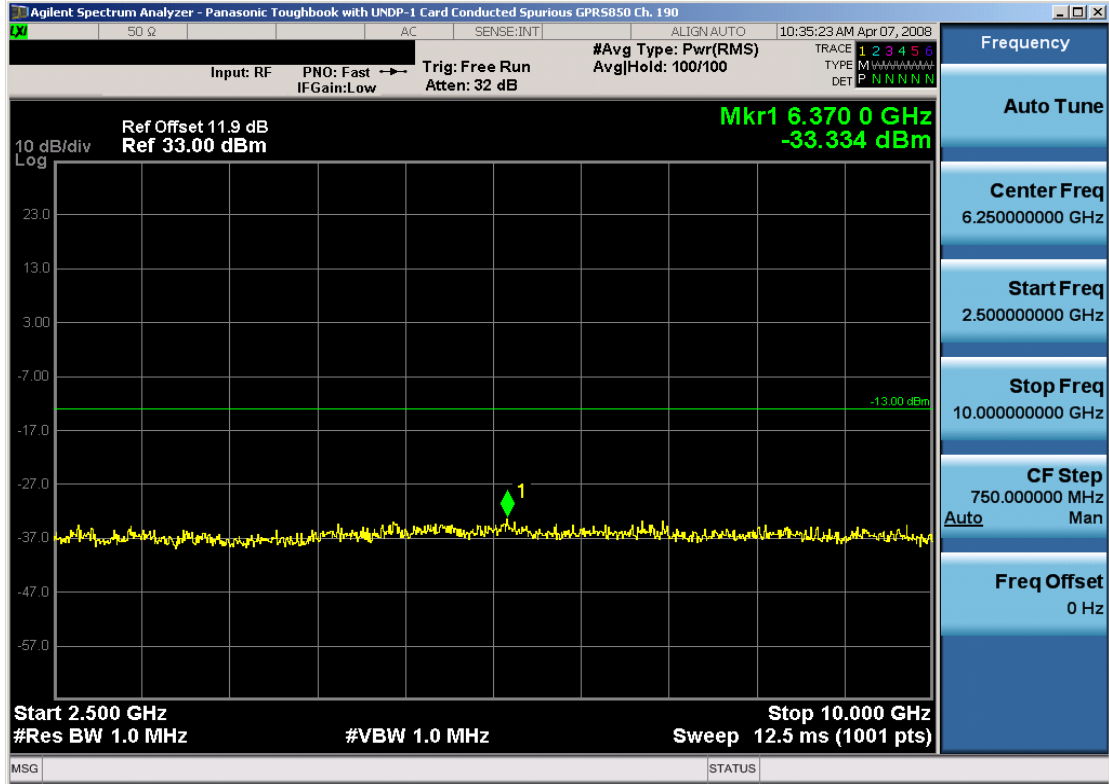


Plot 7-3. Band Edge Plot (Cellular GSM Mode – Ch. 128)

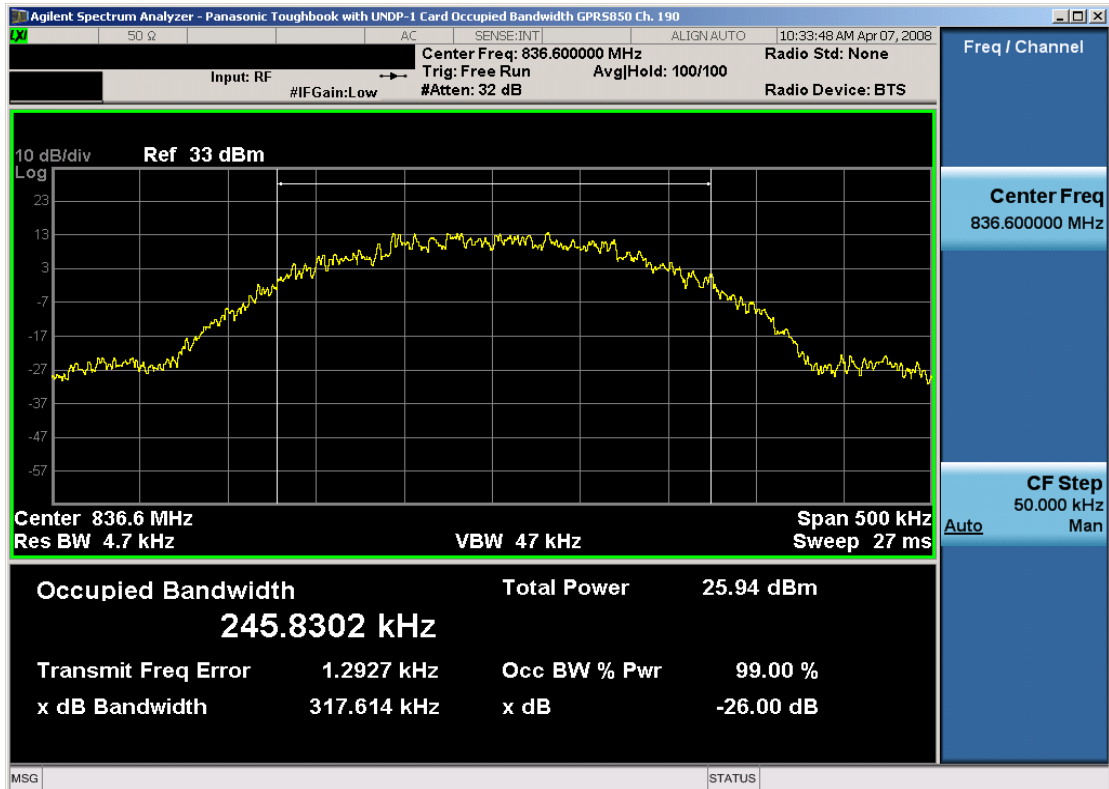


Plot 7-4. Conducted Spurious (Cellular GSM Mode – Ch. 190)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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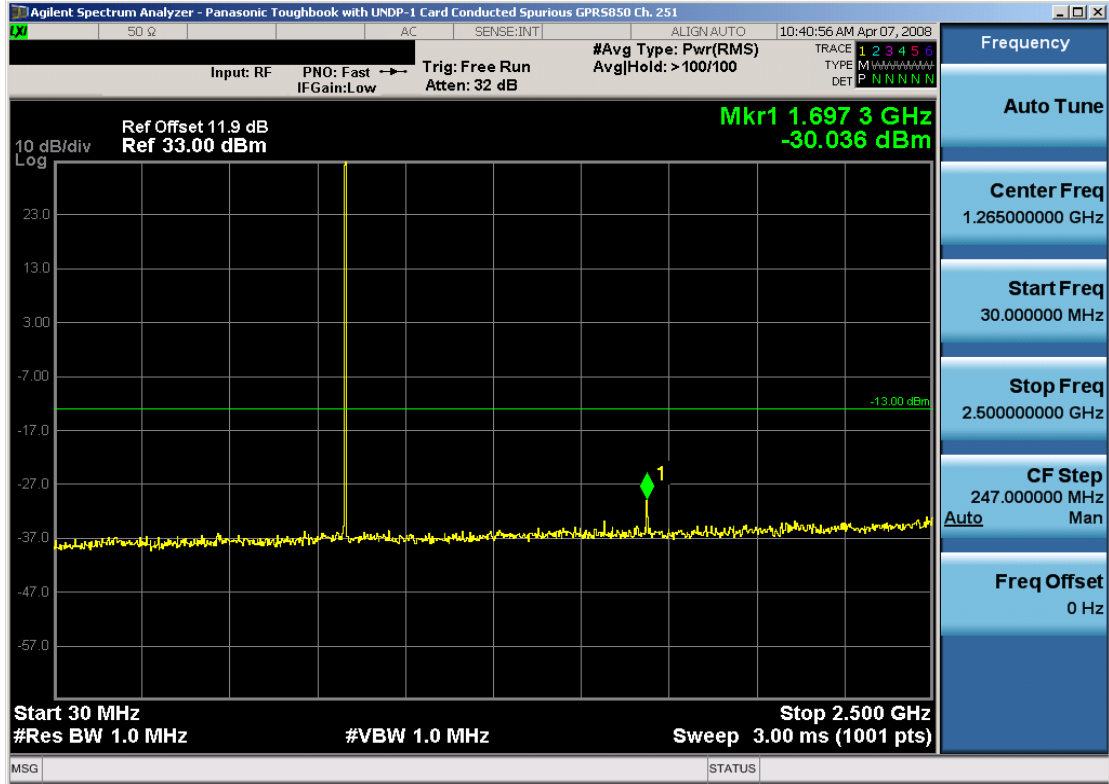


Plot 7-5. Conducted Spurious Plot (Cellular GSM Mode – Ch. 190)

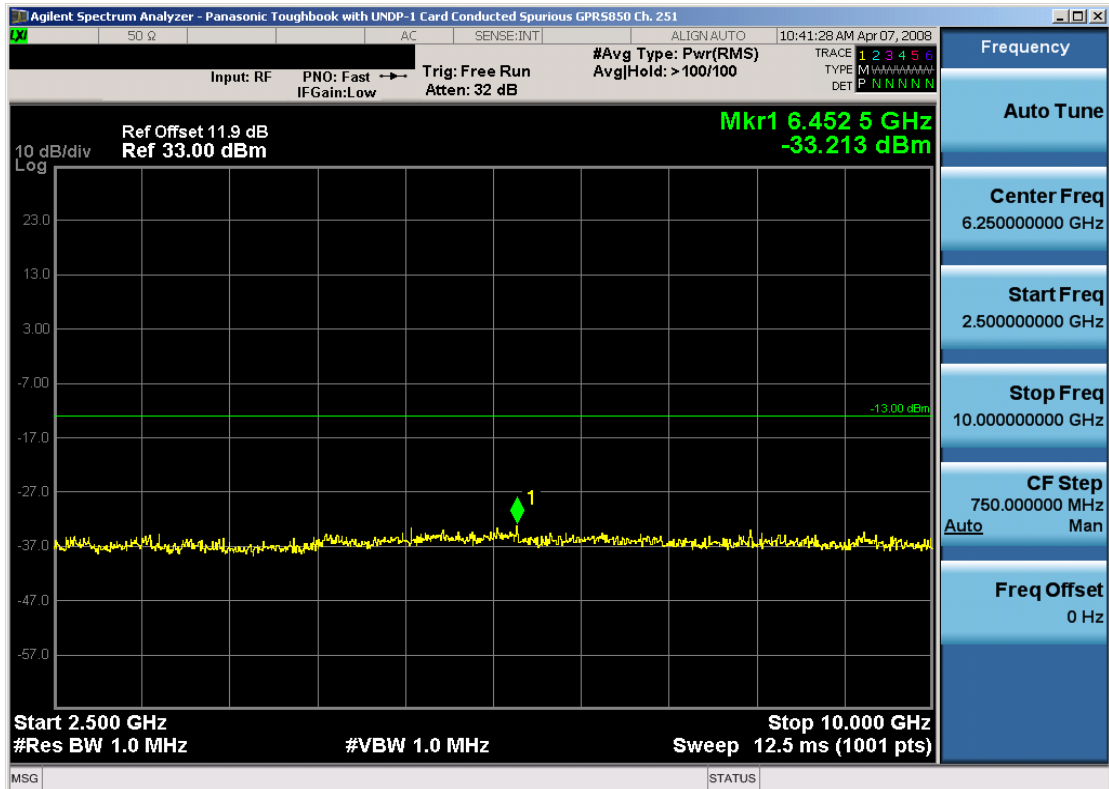


Plot 7-6. Occupied Bandwidth Plot (Cellular GSM Mode – Ch. 190)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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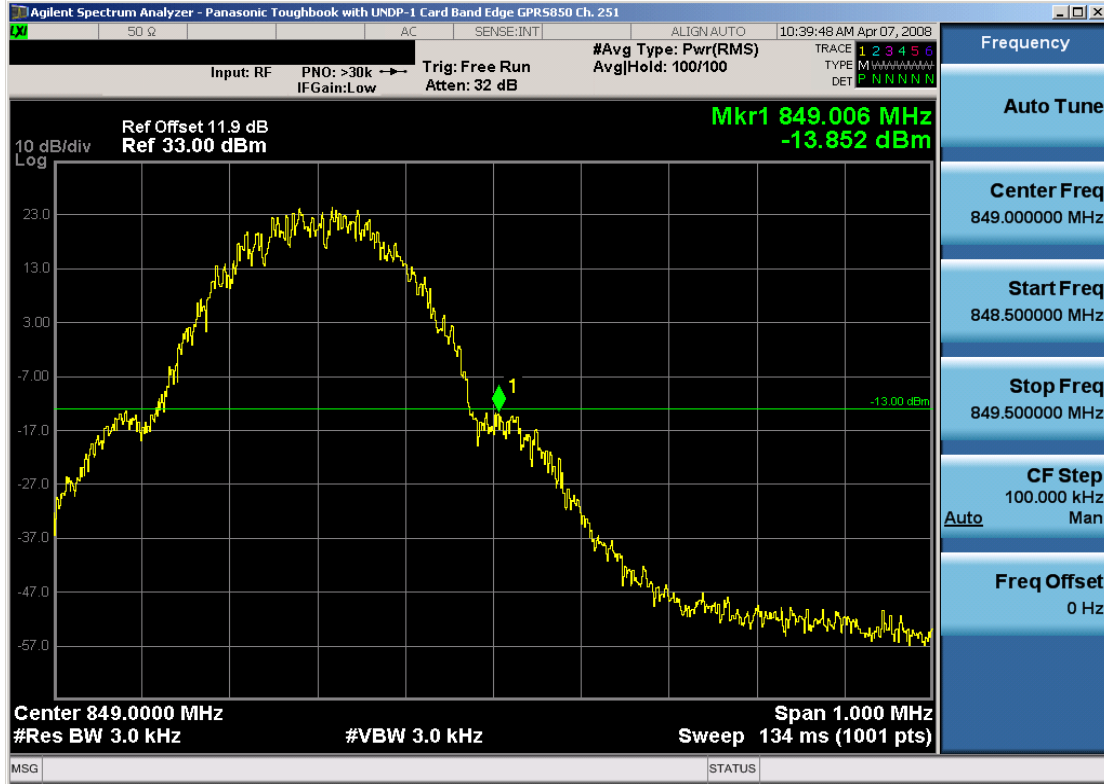


Plot 7-7. Conducted Spurious Plot (Cellular GSM Mode – Ch. 251)

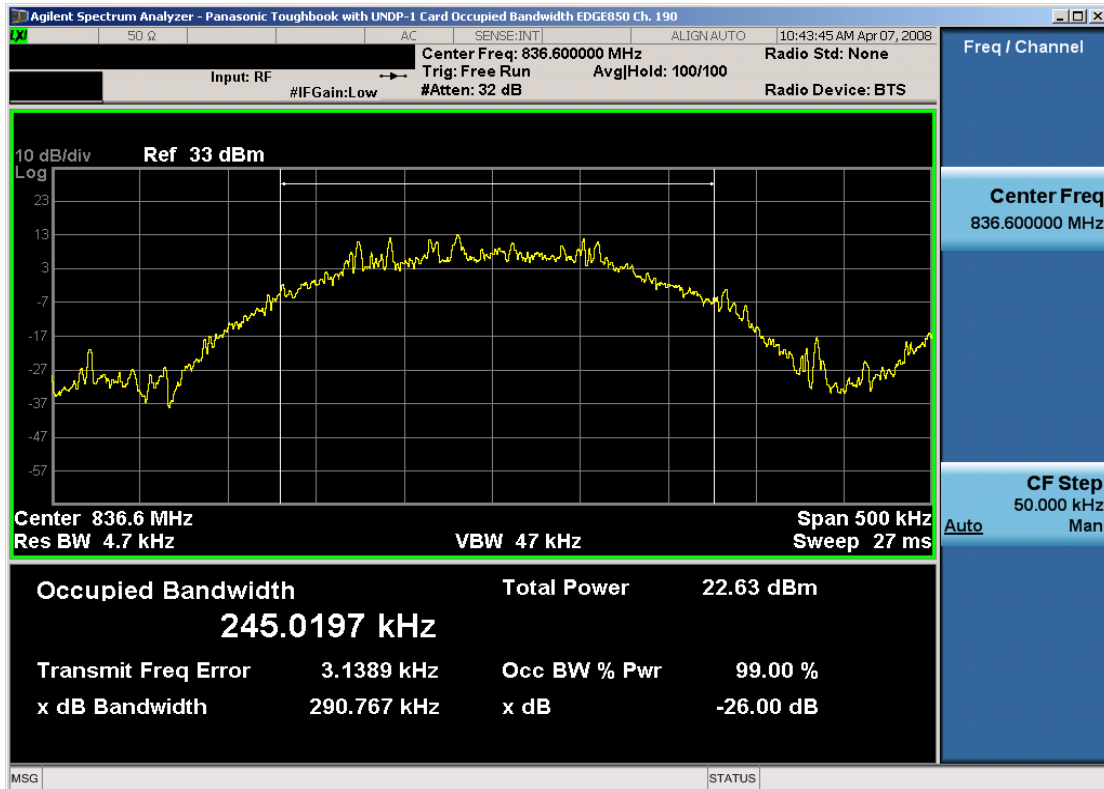


Plot 7-8. Conducted Spurious Plot (Cellular GSM Mode – Ch. 251)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 49 of 78

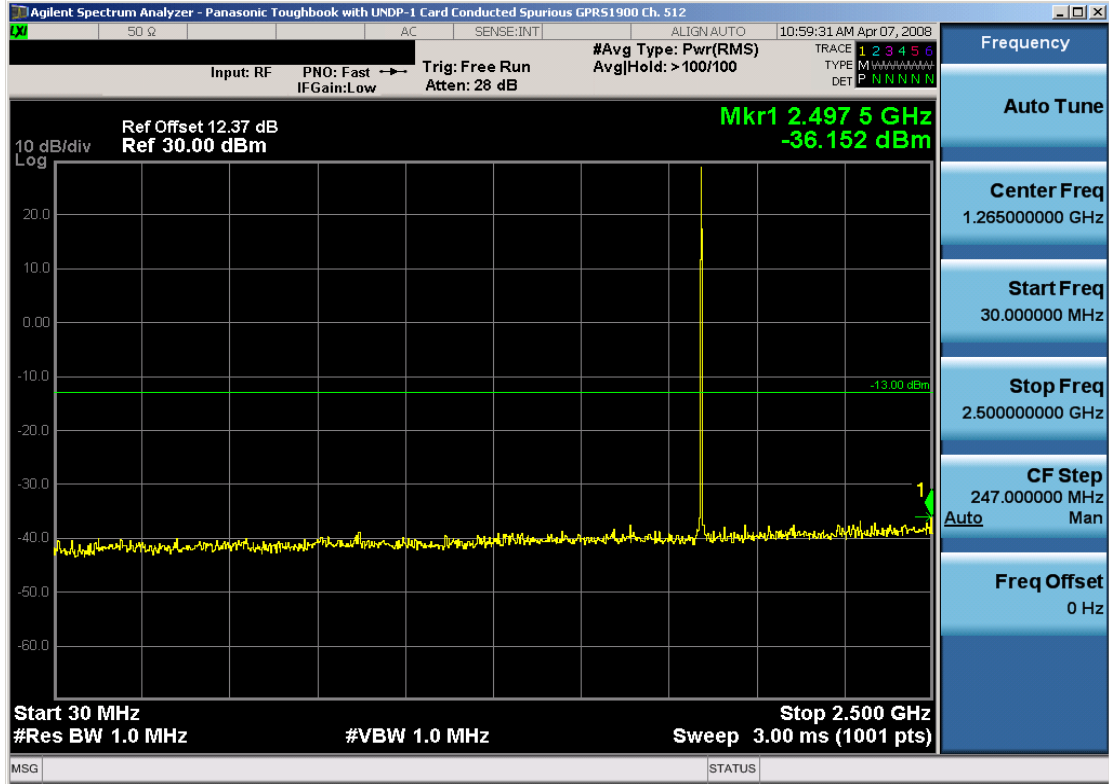


**Plot 7-9. Band Edge Plot (Cellular GSM Mode – Ch. 251)**

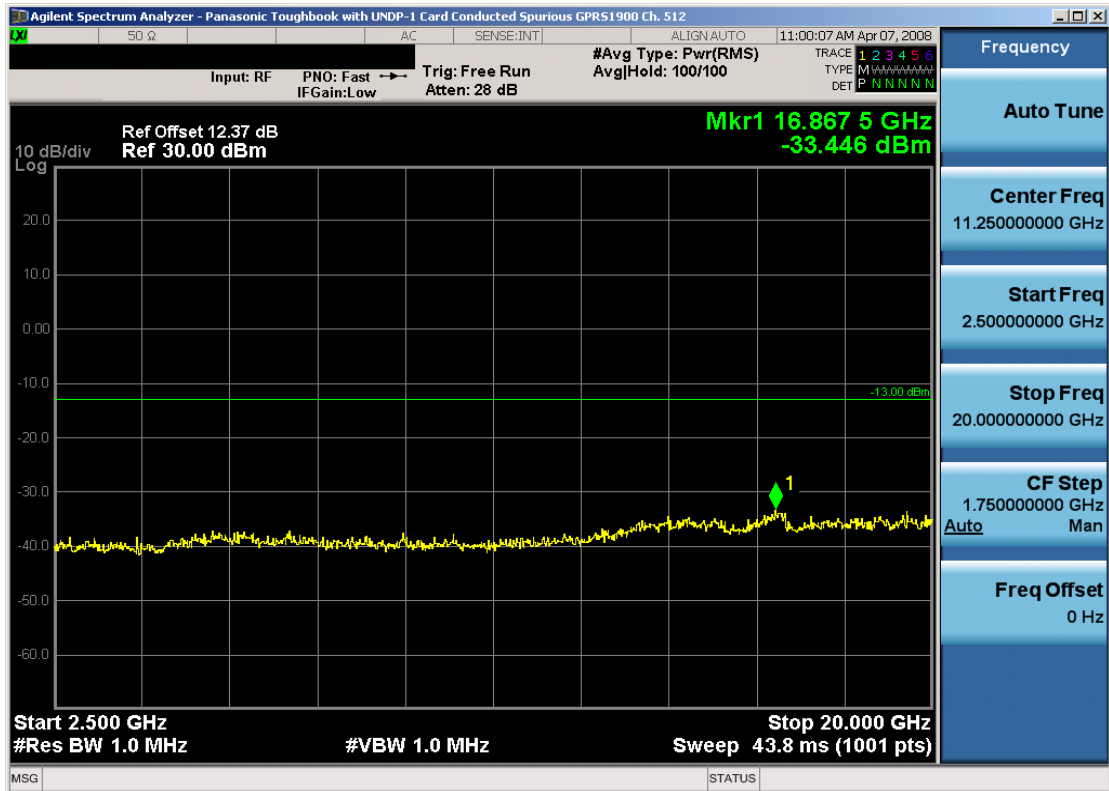


**Plot 7-10. Occupied Bandwidth Plot (EDGE850 Mode – Ch. 190)**

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)	<b>Panasonic</b>	Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 50 of 78

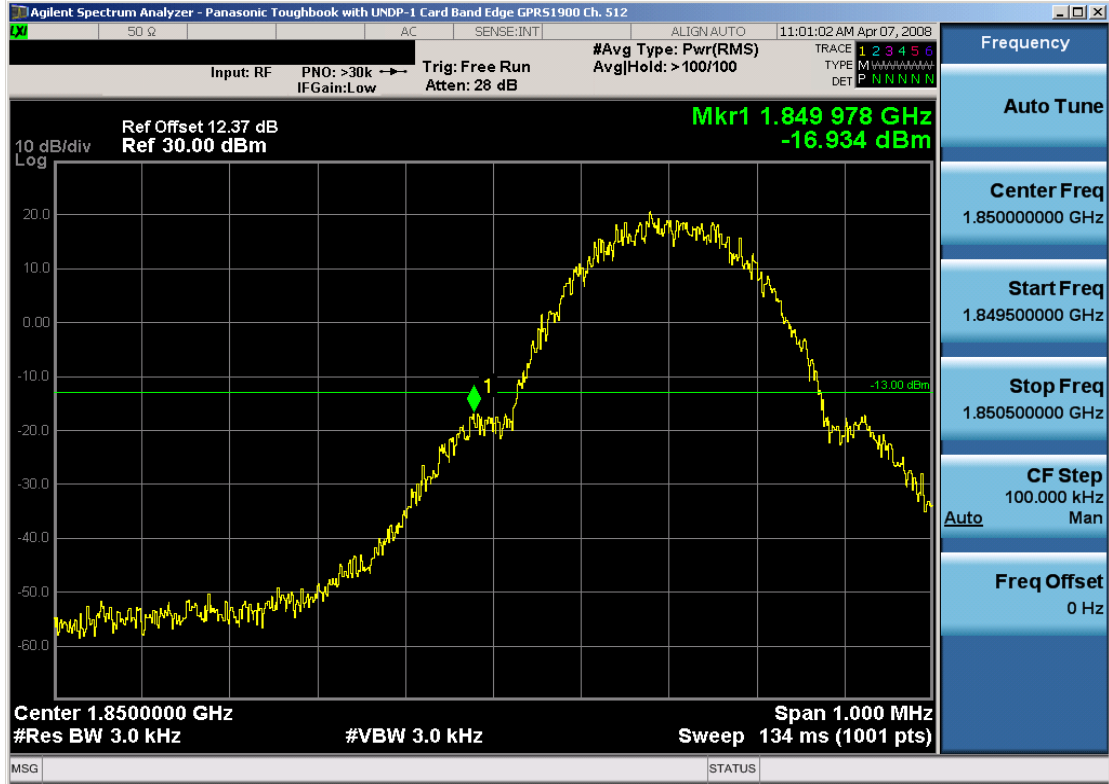


Plot 7-11. Conducted Spurious Plot (PCS GSM Mode – Ch. 512)

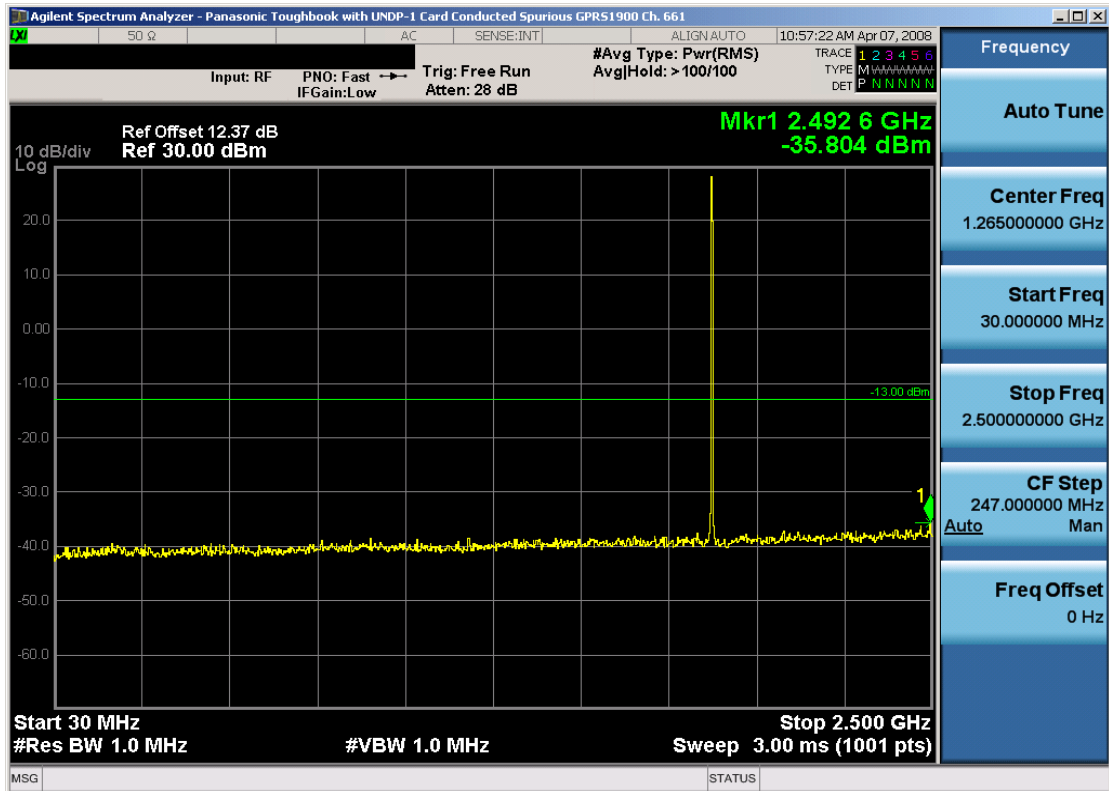


Plot 7-12. Conducted Spurious Plot (PCS GSM Mode – Ch. 512)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 51 of 78



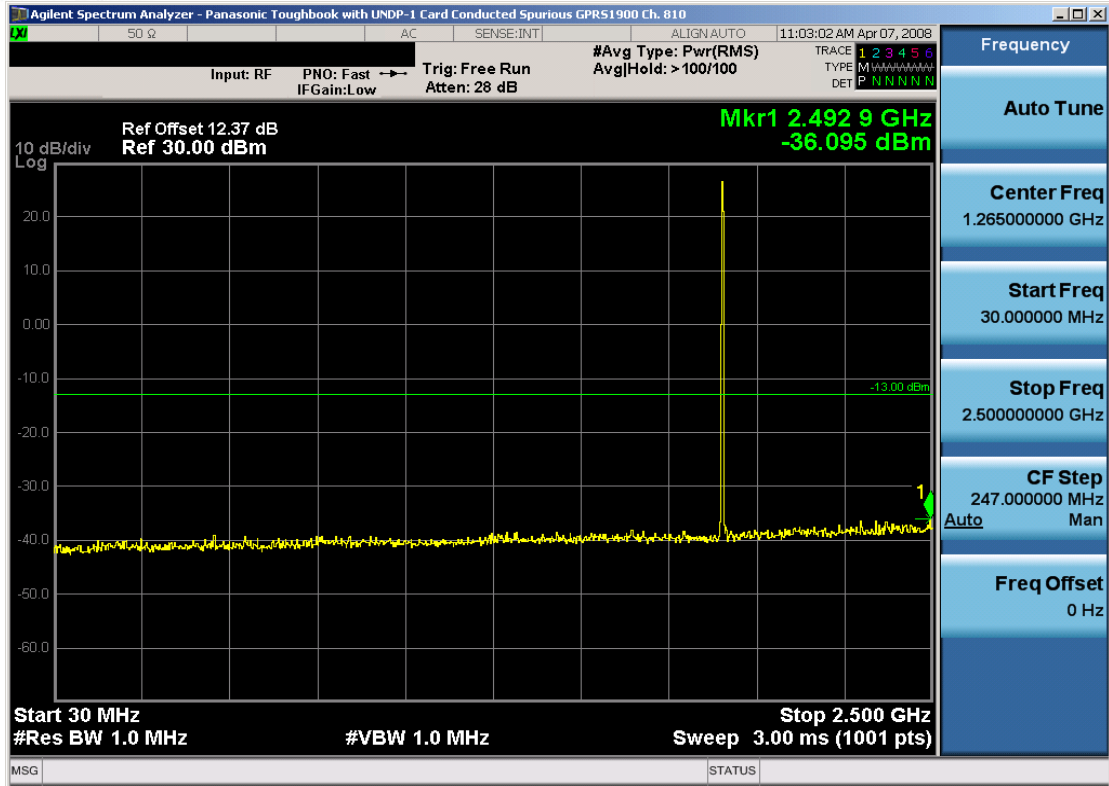
Plot 7-13. Band Edge Plot (PCS GSM Mode – Ch. 512)



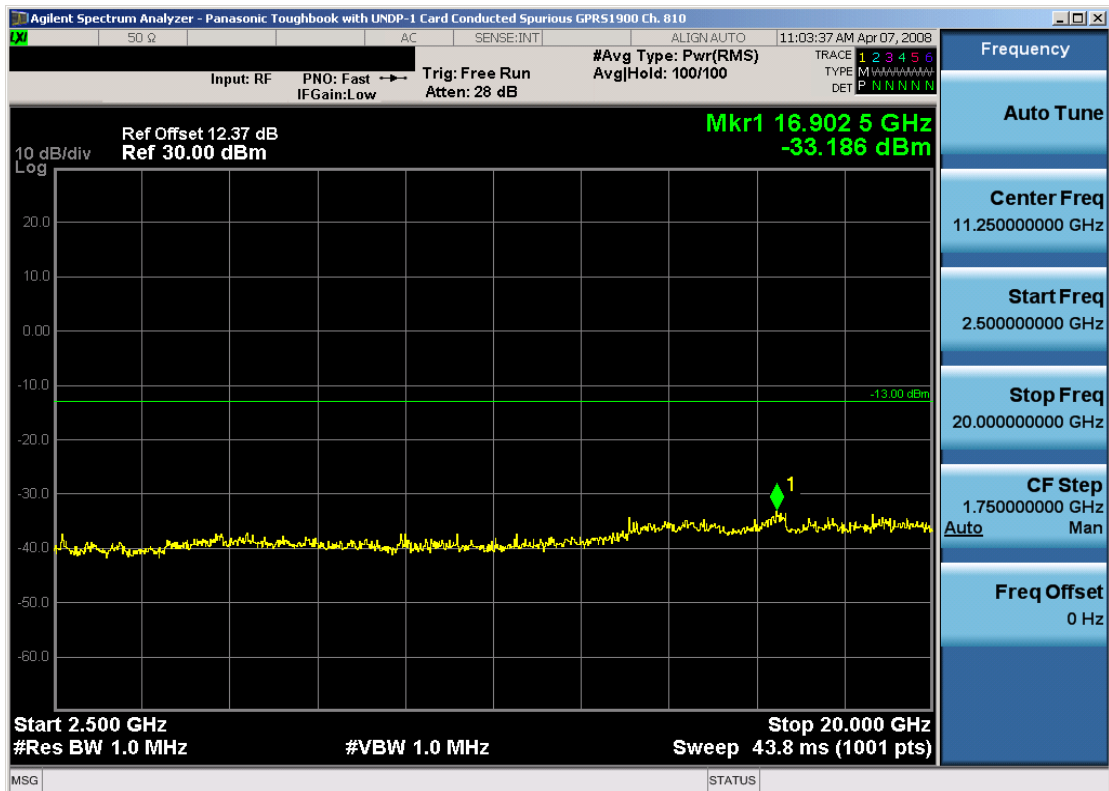
Plot 7-14. Conducted Spurious Plot (PCS GSM Mode – Ch. 661)

FCC ID: ACJ9TGCF-308	PCTEST Engineering Laboratory, Inc.	FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)	Panasonic	Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 52 of 78



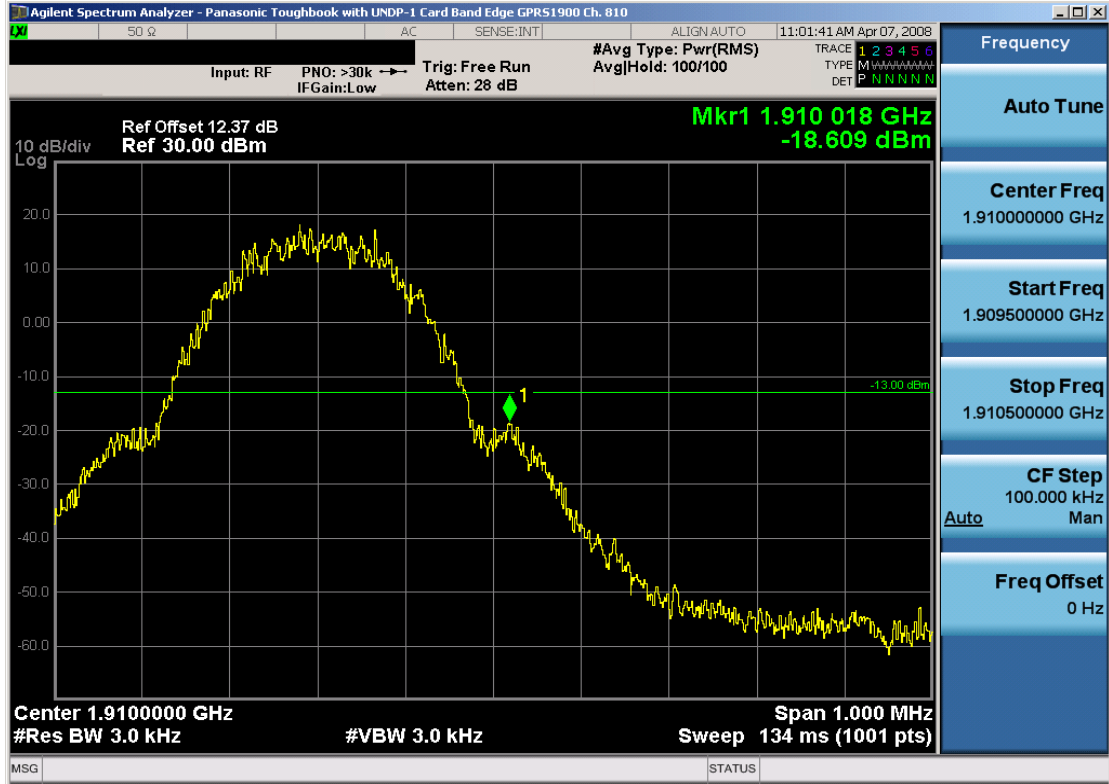


Plot 7-17. Conducted Spurious Plot (PCS GSM Mode – Ch. 810)

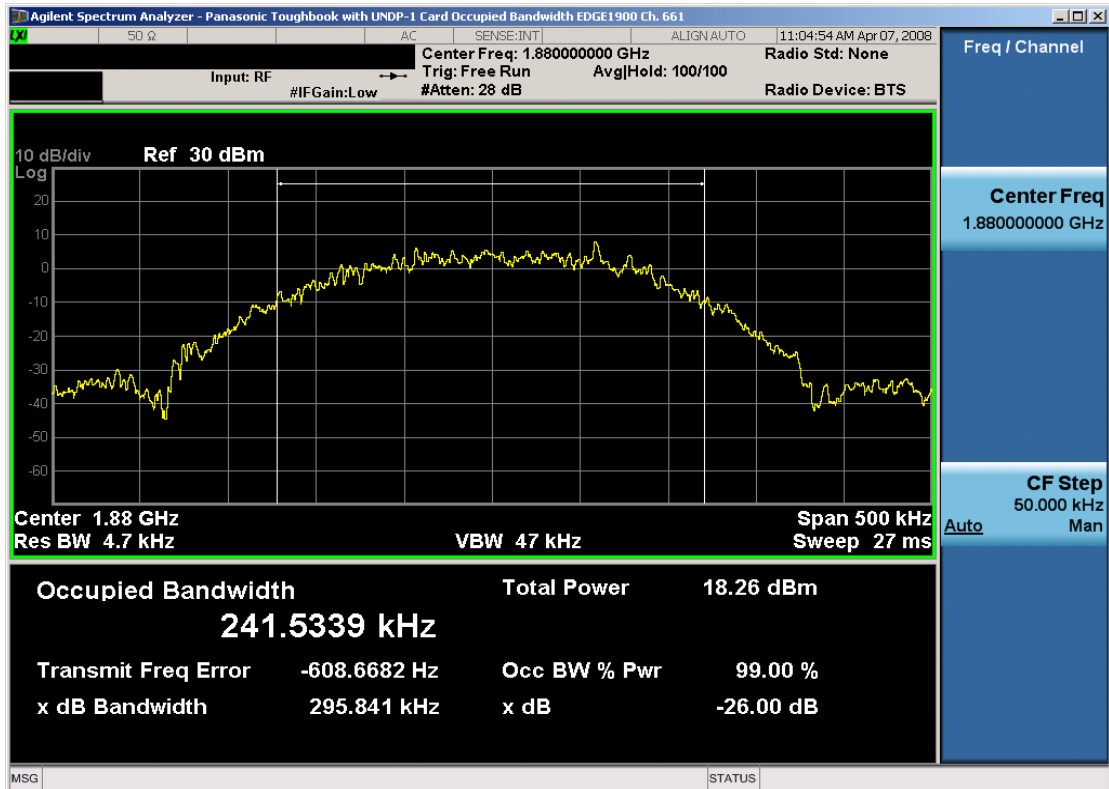


Plot 7-18. Conducted Spurious Plot (PCS GSM Mode – Ch. 810)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 54 of 78

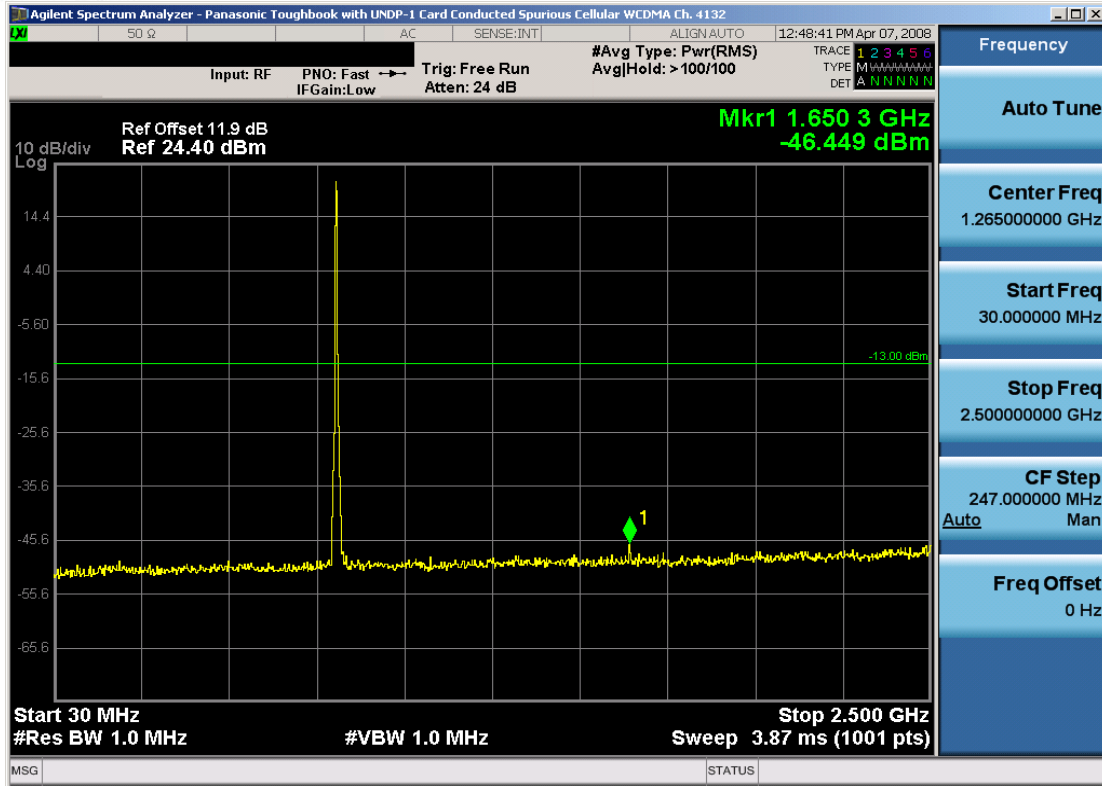


Plot 7-19. Band Edge Plot (PCS GSM Mode – Ch. 810)

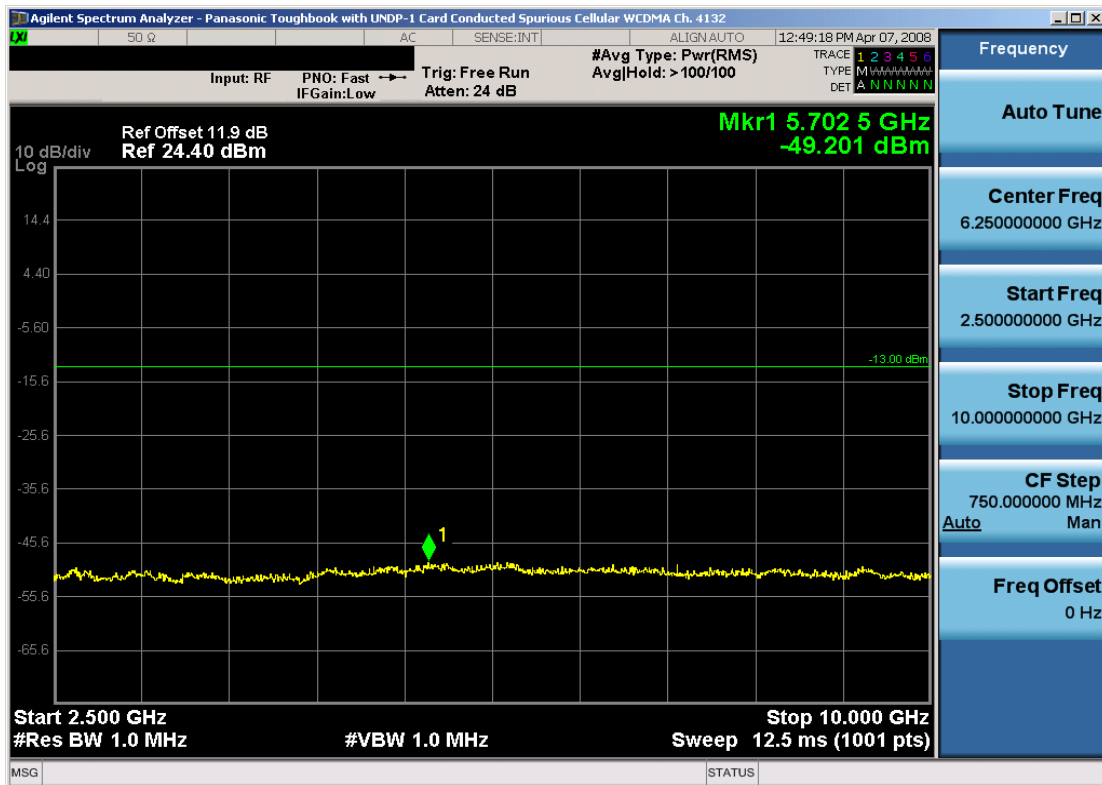


Plot 7-20. Occupied Bandwidth Plot (EDGE1900 Mode – Ch. 661)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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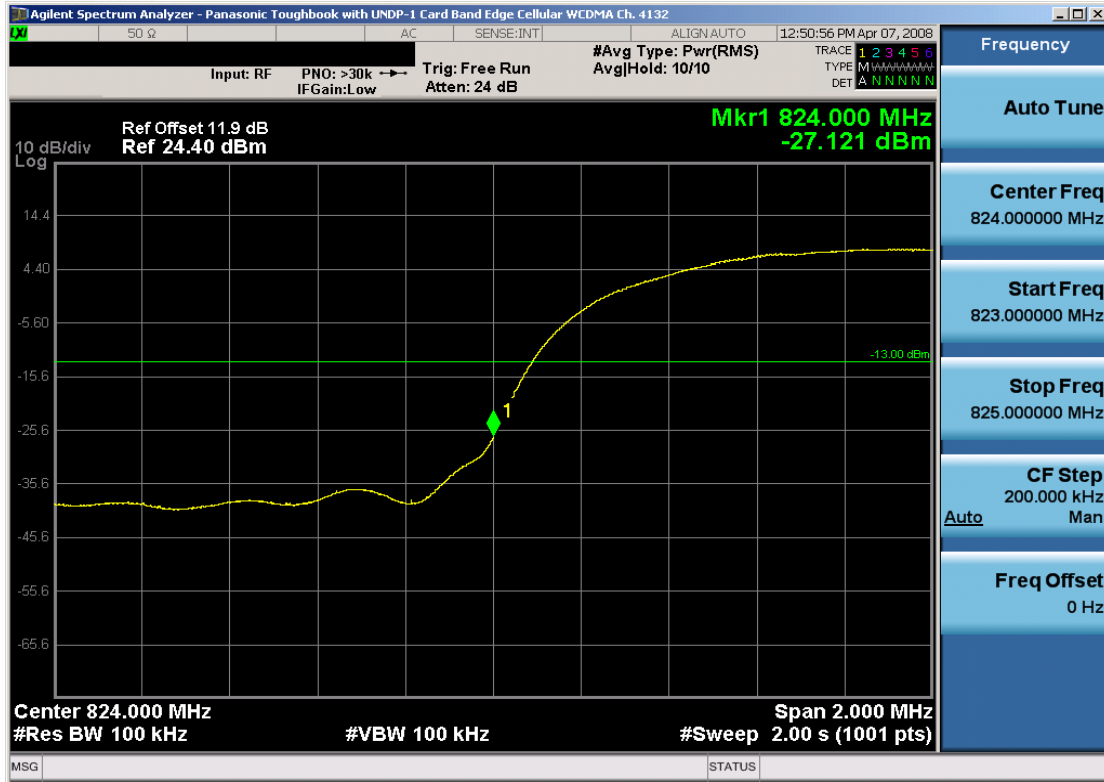


Plot 7-21. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4132)

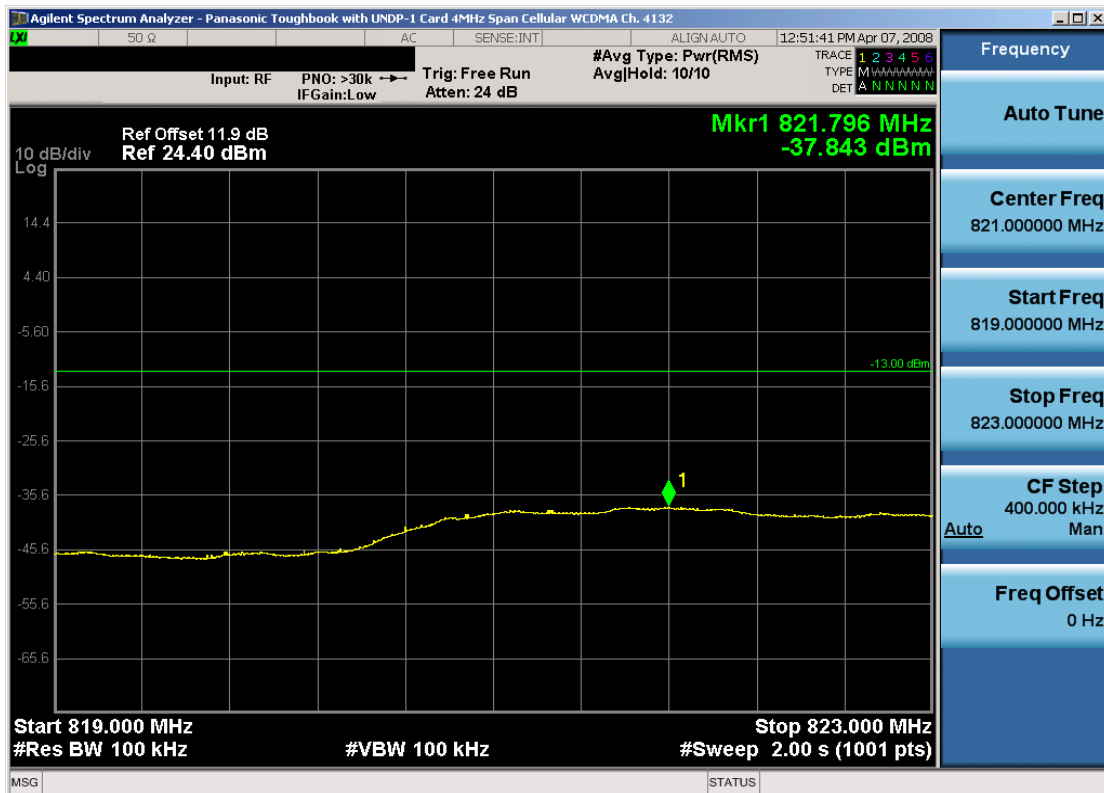


Plot 7-22. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4132)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 56 of 78

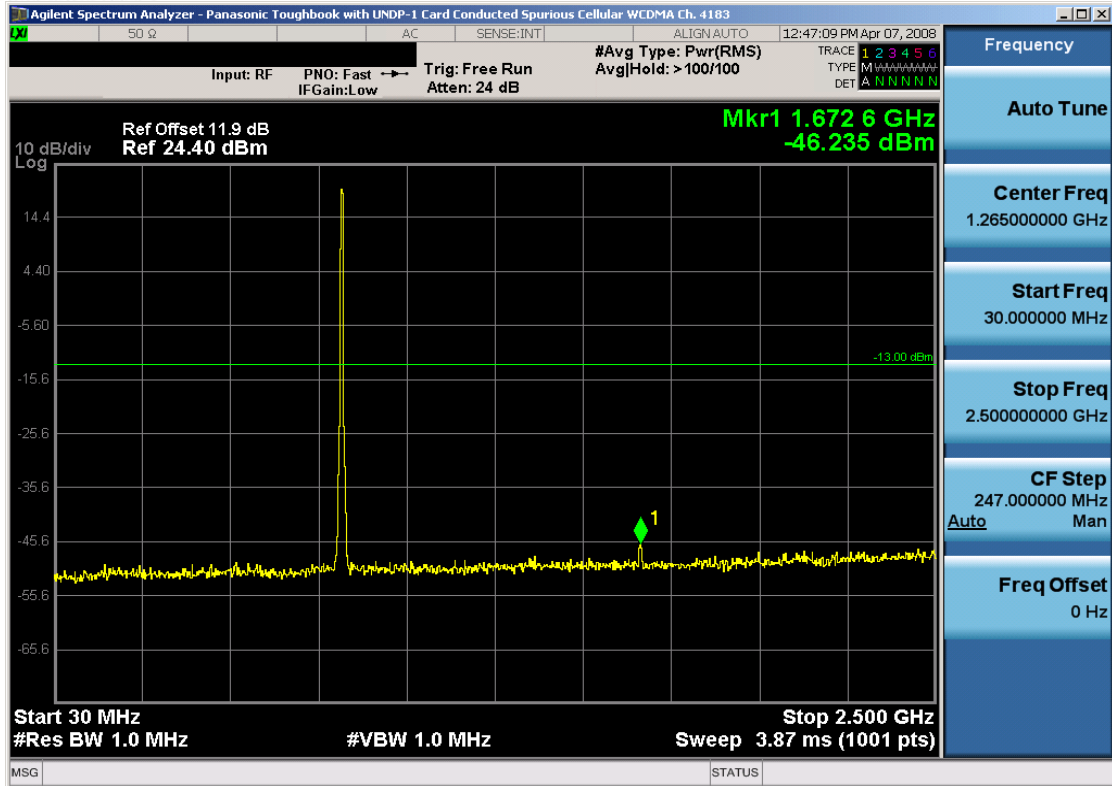


Plot 7-23. Band Edge Plot (Cellular WCDMA Mode – Ch. 4132)

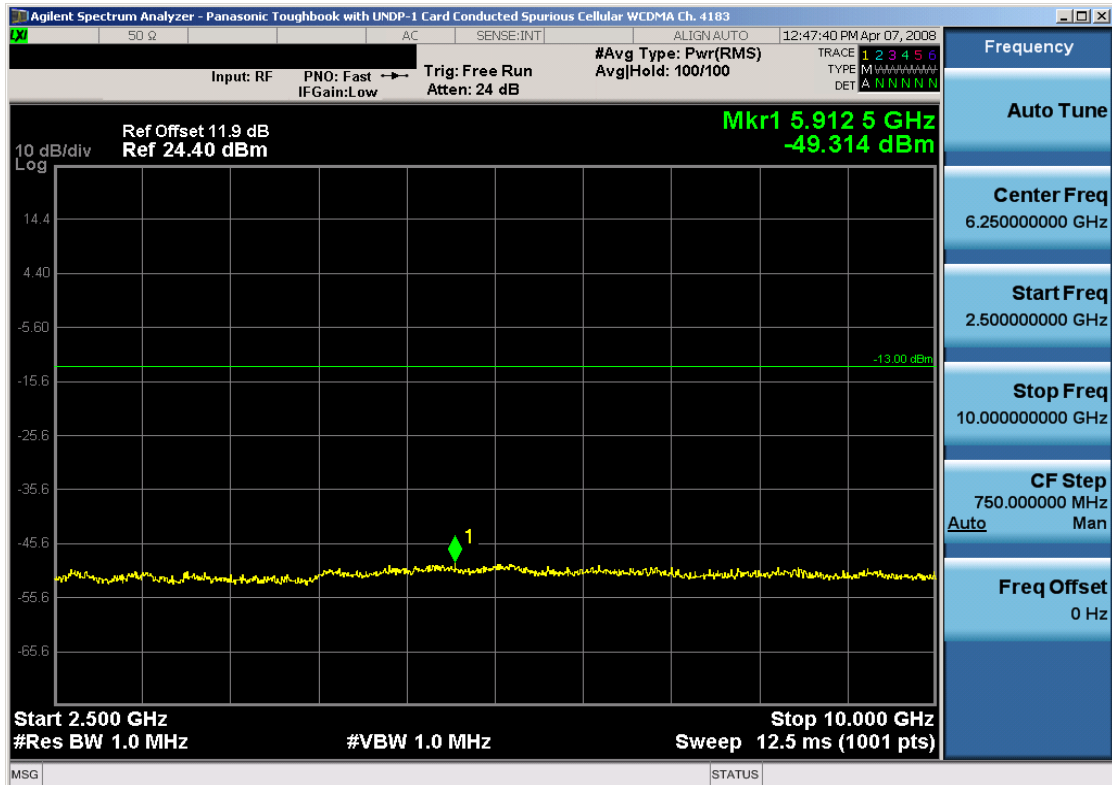


Plot 7-24. 4MHz Span Plot (Cellular WCDMA Mode – Ch. 4132)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 57 of 78

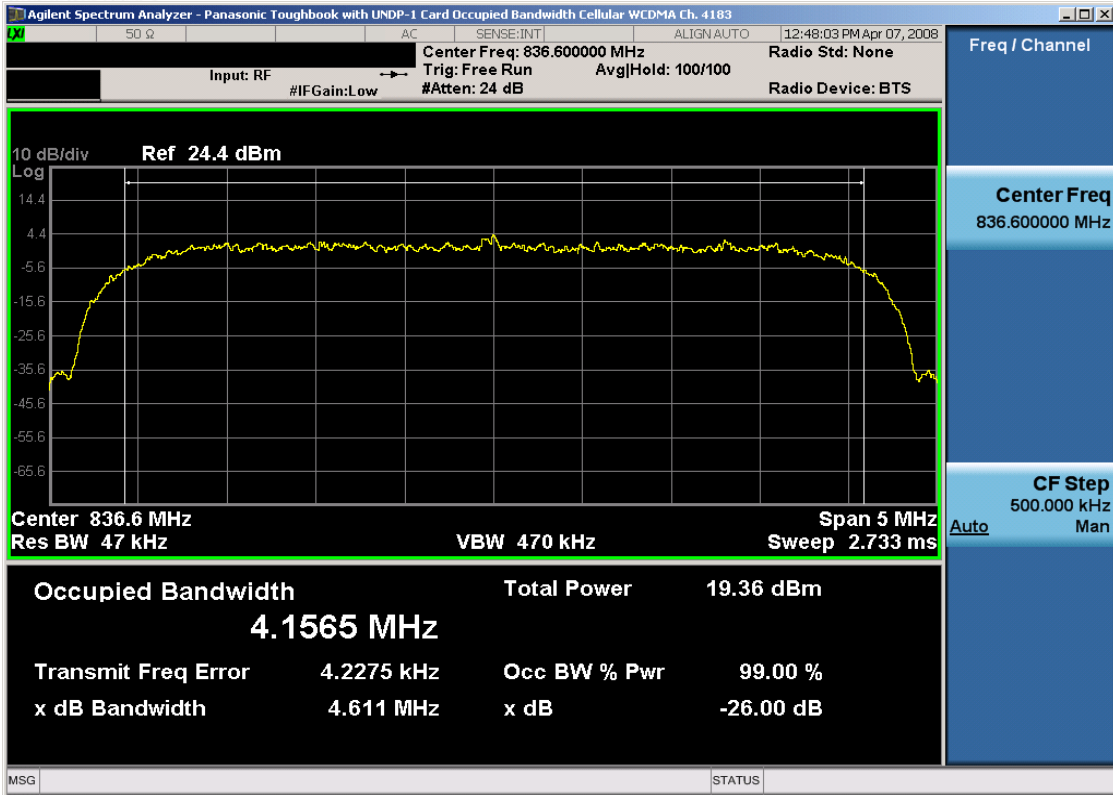


Plot 7-25. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4183)

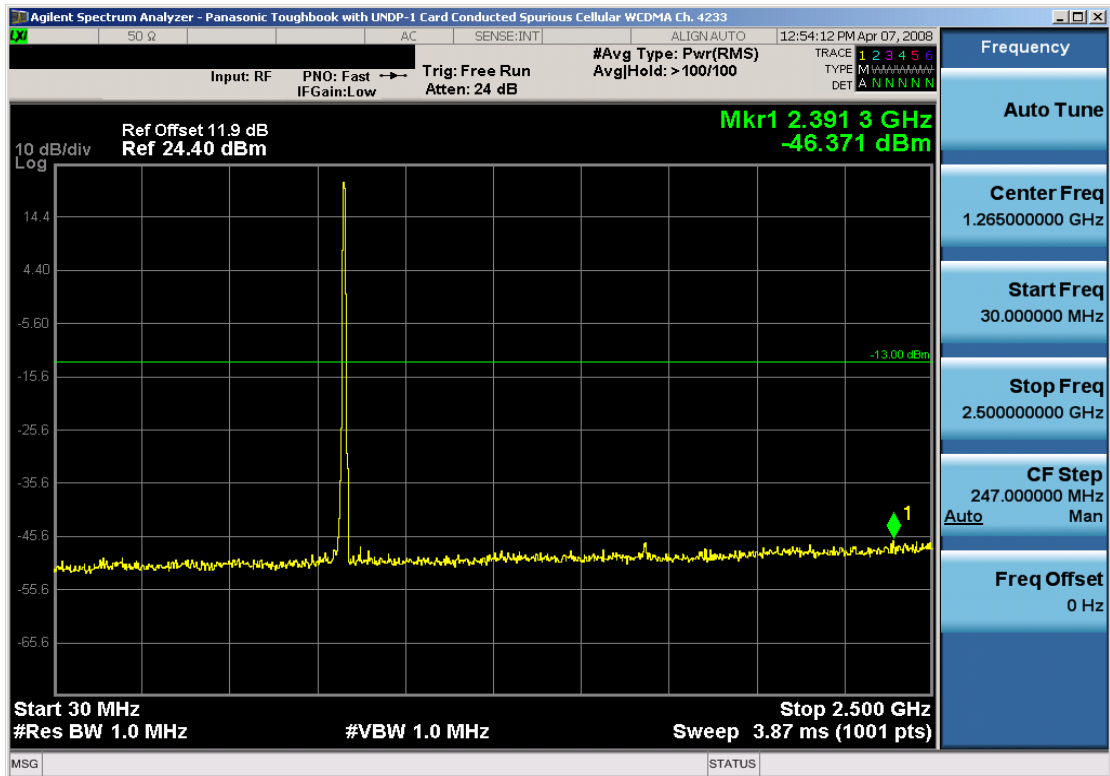


Plot 7-26. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4183)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 58 of 78

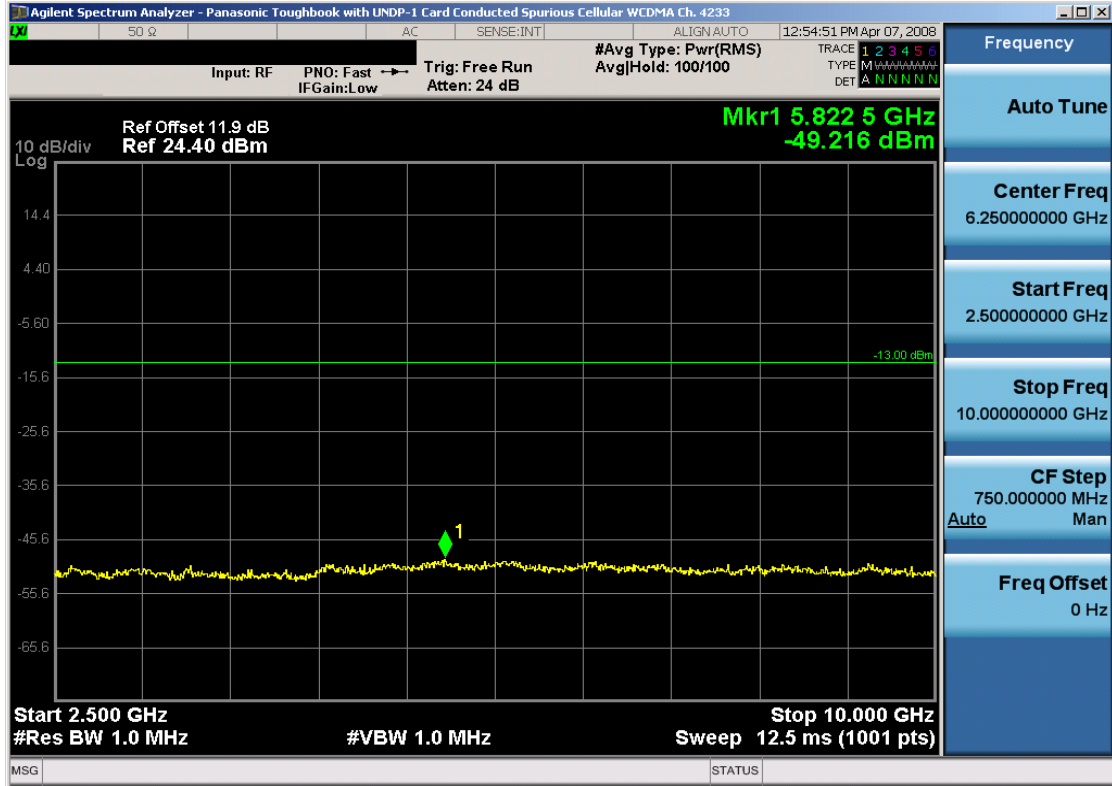


Plot 7-27. Occupied Bandwidth Plot (Cellular WCDMA Mode – Ch. 4183)

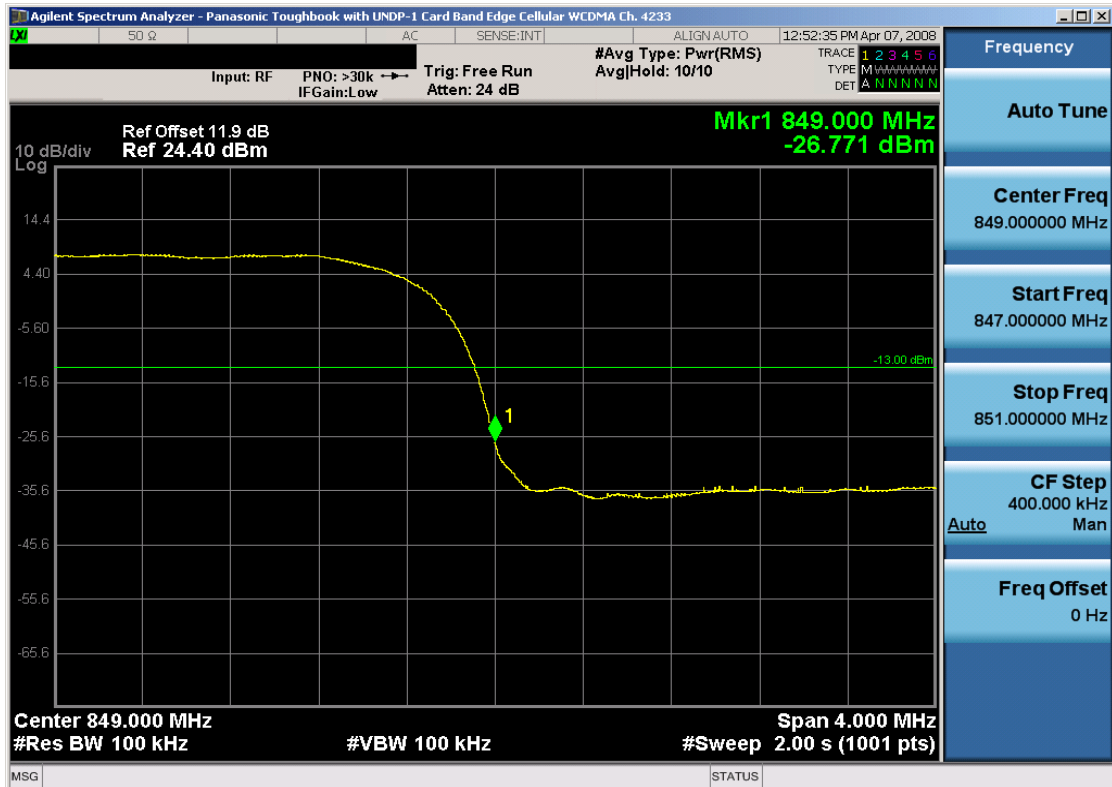


Plot 7-28. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4233)



FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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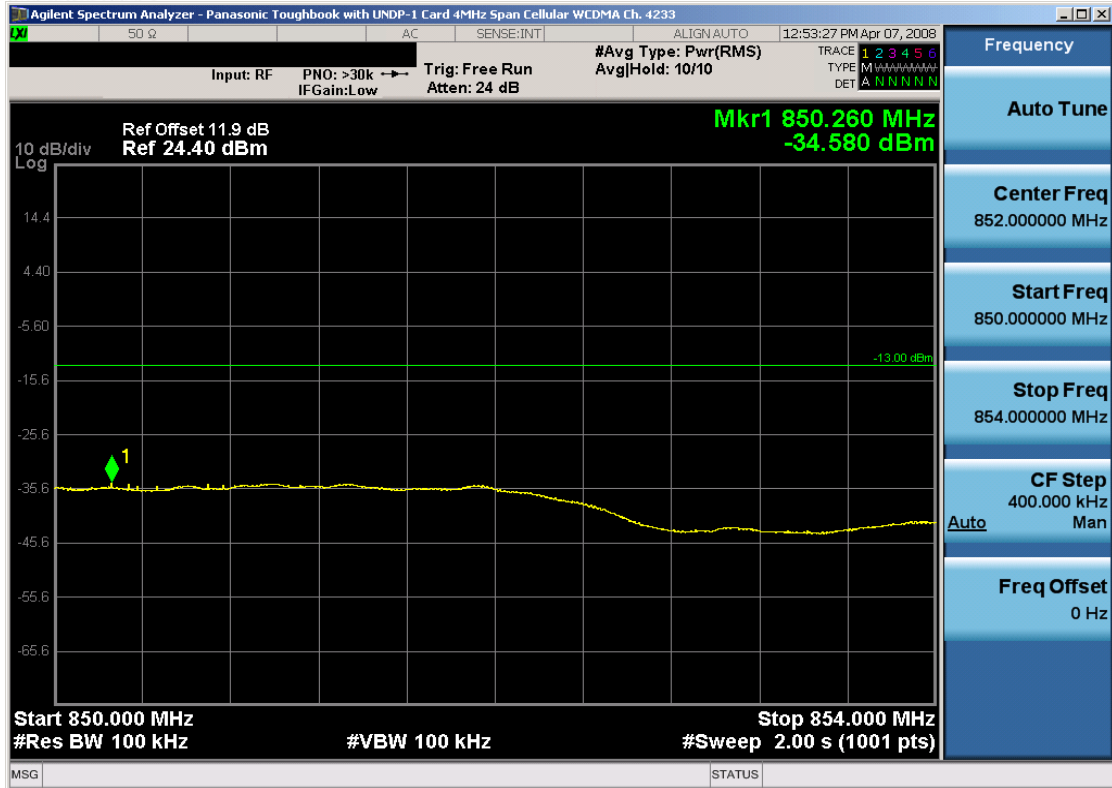


Plot 7-29. Conducted Spurious Plot (Cellular WCDMA Mode – Ch. 4233)

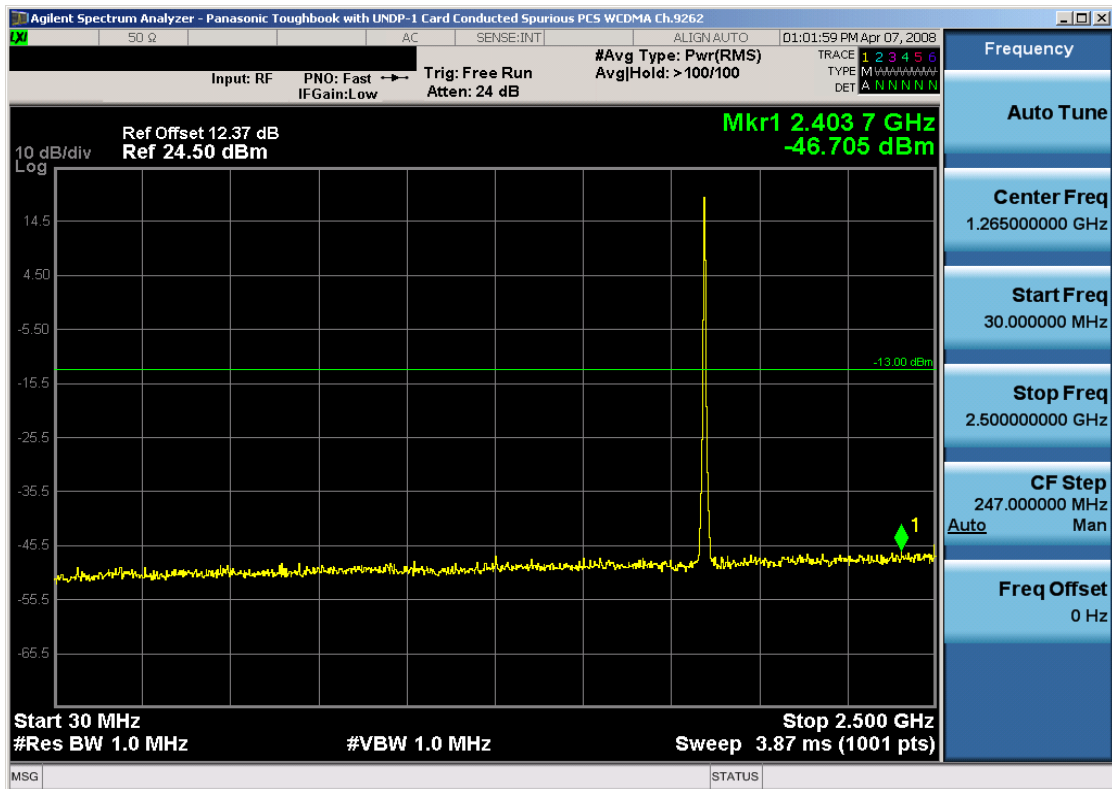


Plot 7-30. Band Edge Plot (Cellular WCDMA Mode – Ch. 4233)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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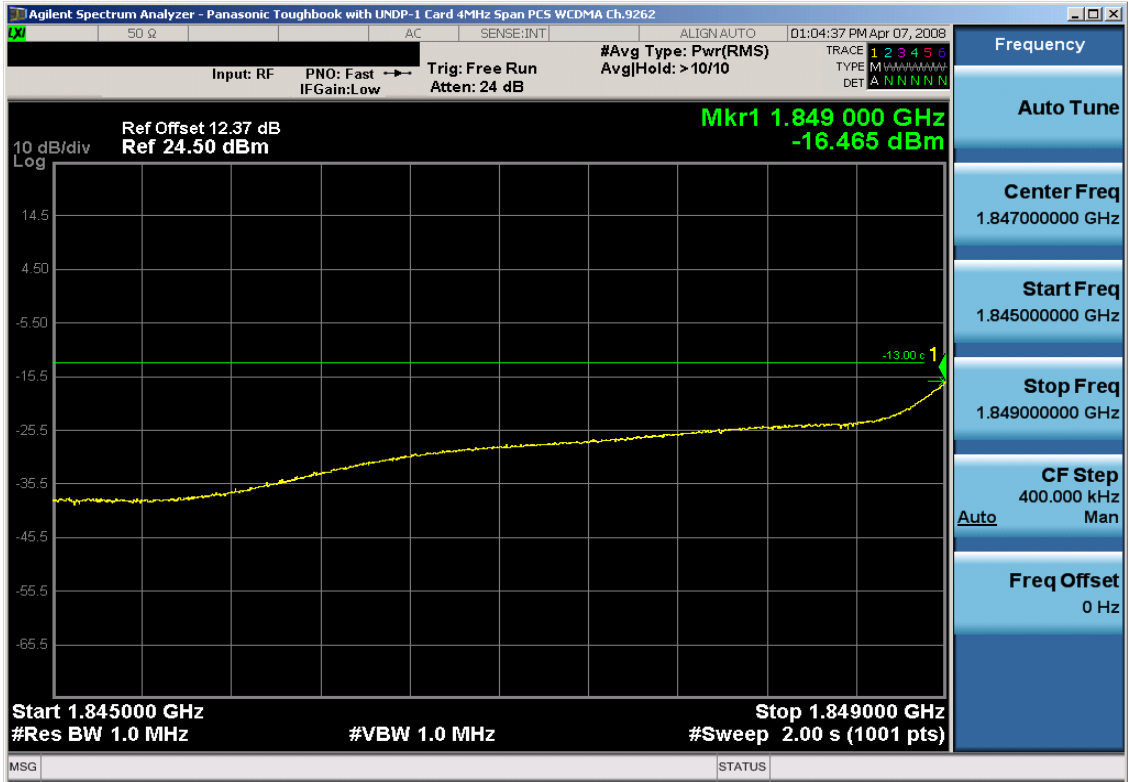
Plot 7-31. 4MHz Span Plot (Cellular WCDMA Mode – Ch. 4233)



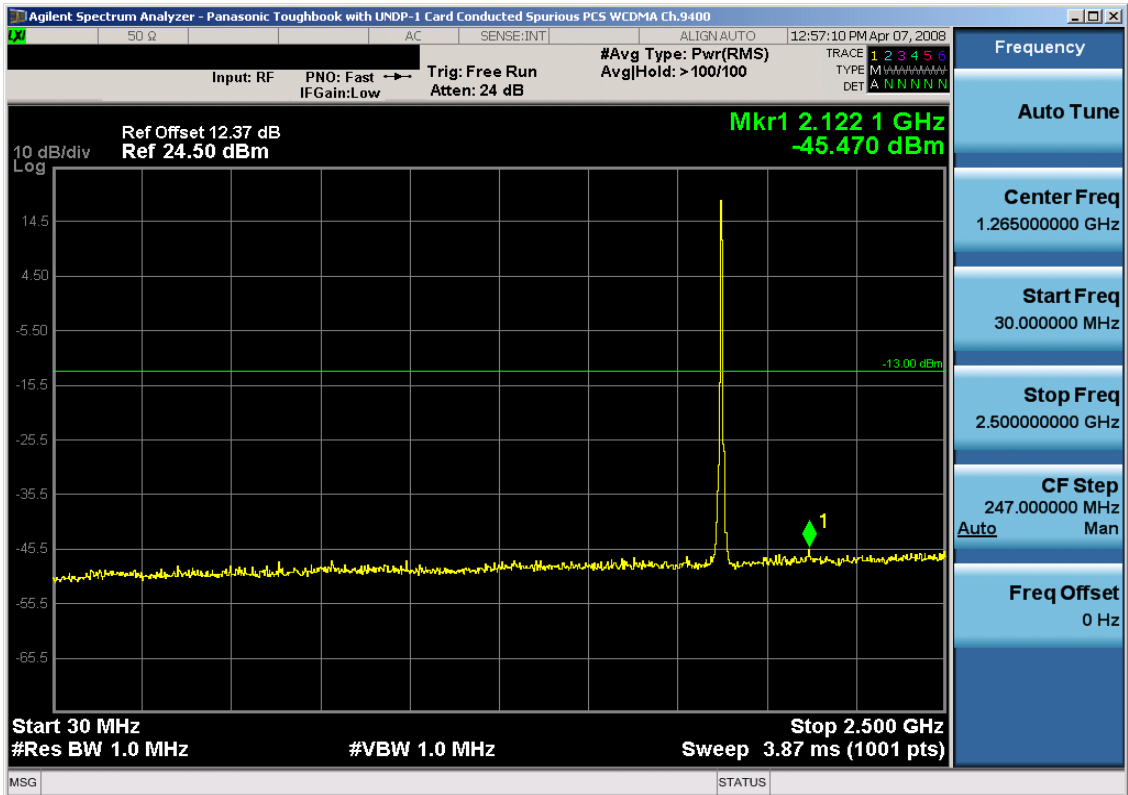
Plot 7-32. Conducted Spurious Plot (PCS WCDMA Mode – Ch. 9262)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 61 of 78



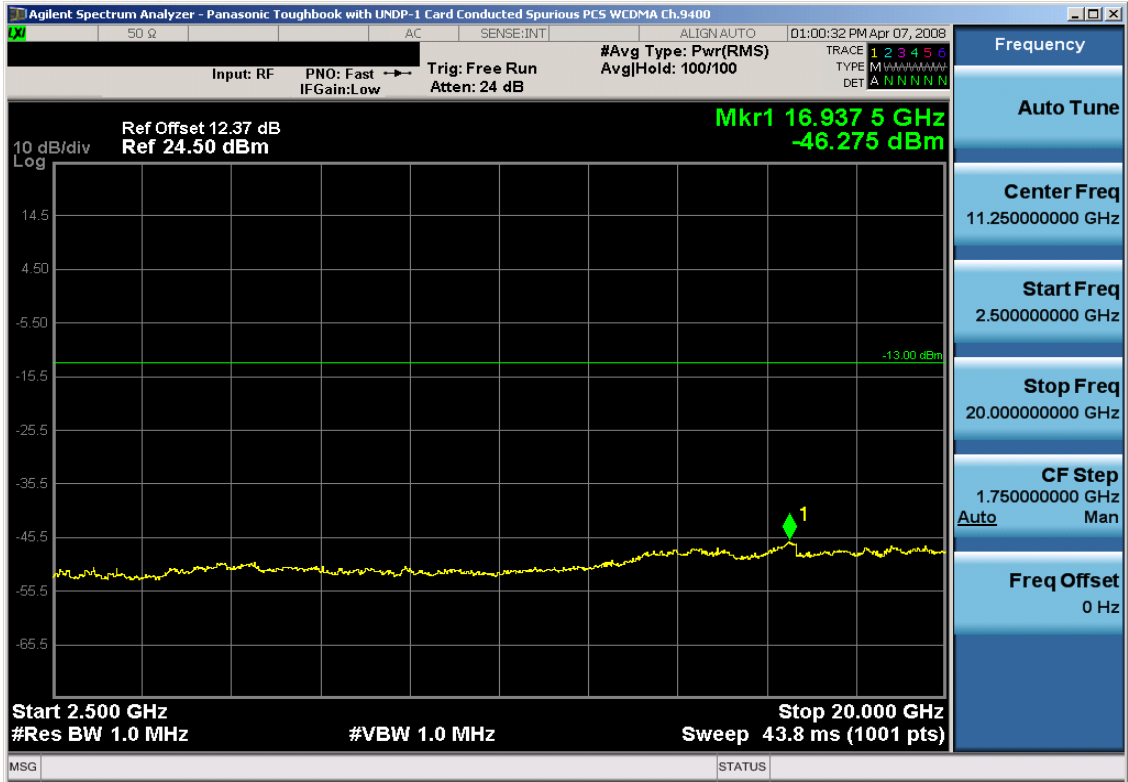


Plot 7-35. 4MHz Span Plot (PCS WCDMA Mode – Ch. 9262)

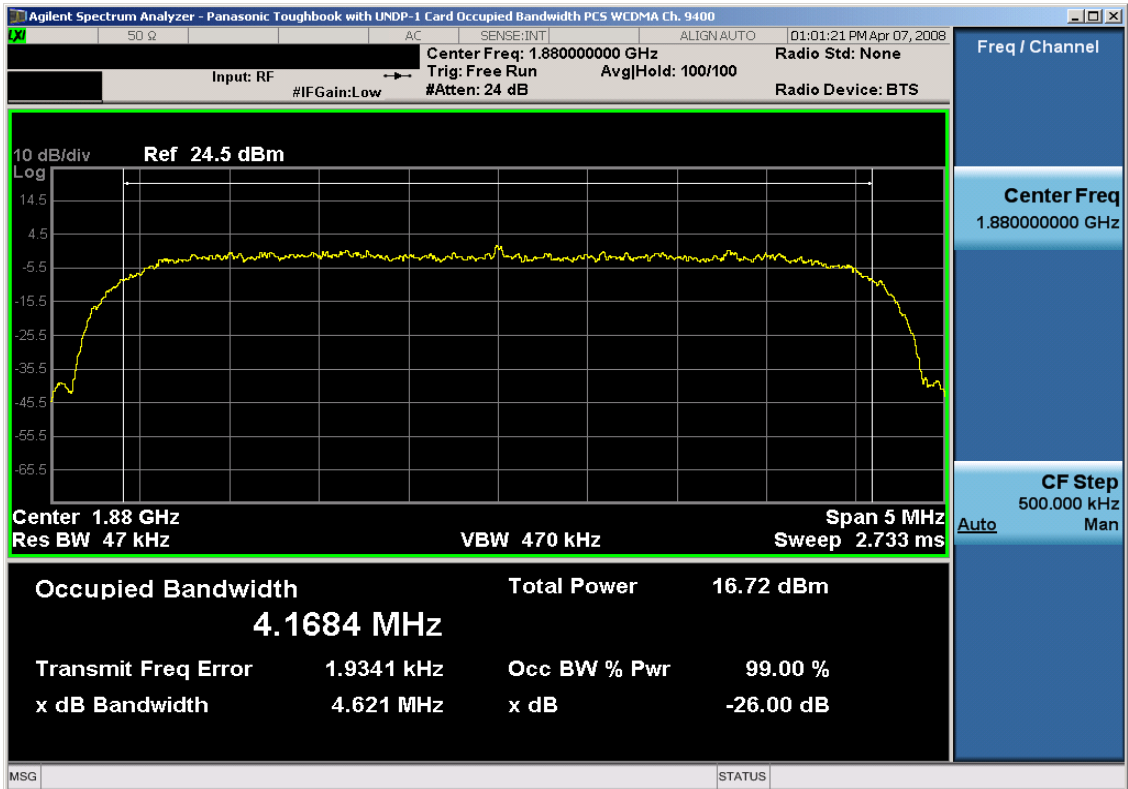


Plot 7-36. Conducted Spurious Plot (PCS WCDMA Mode – Ch. 9400)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 63 of 78



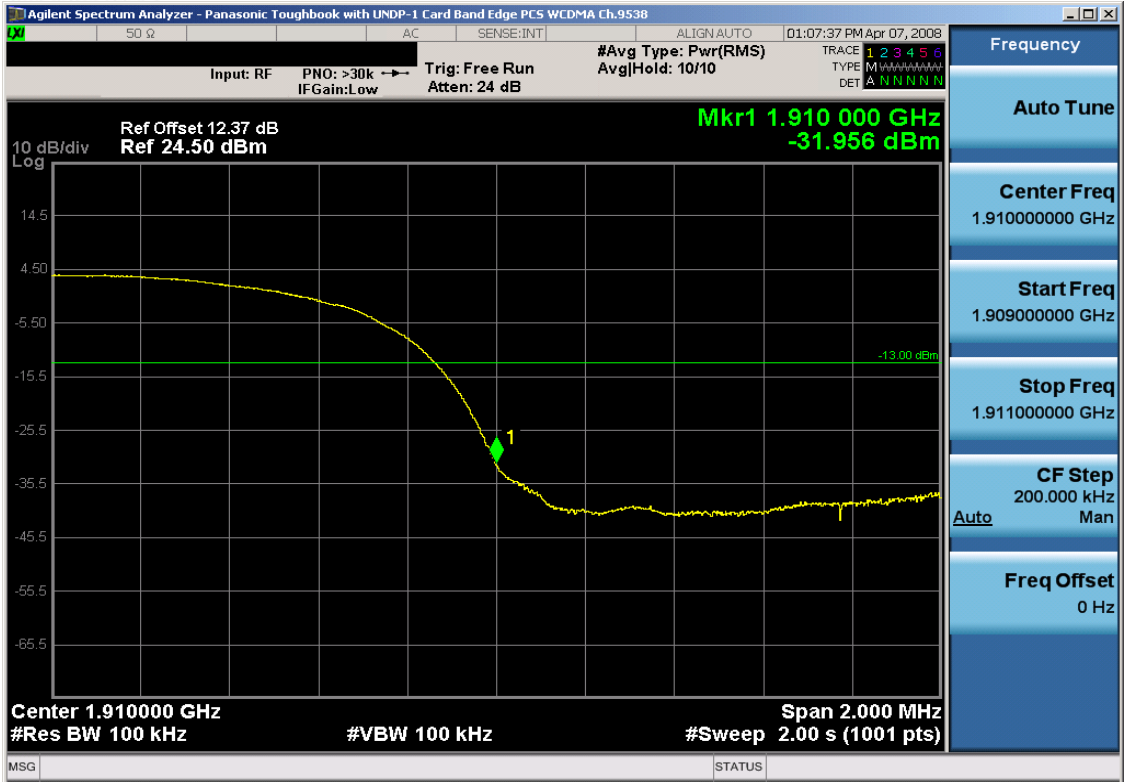
Plot 7-37. Conducted Spurious Plot (PCS WCDMA Mode – Ch. 9400)



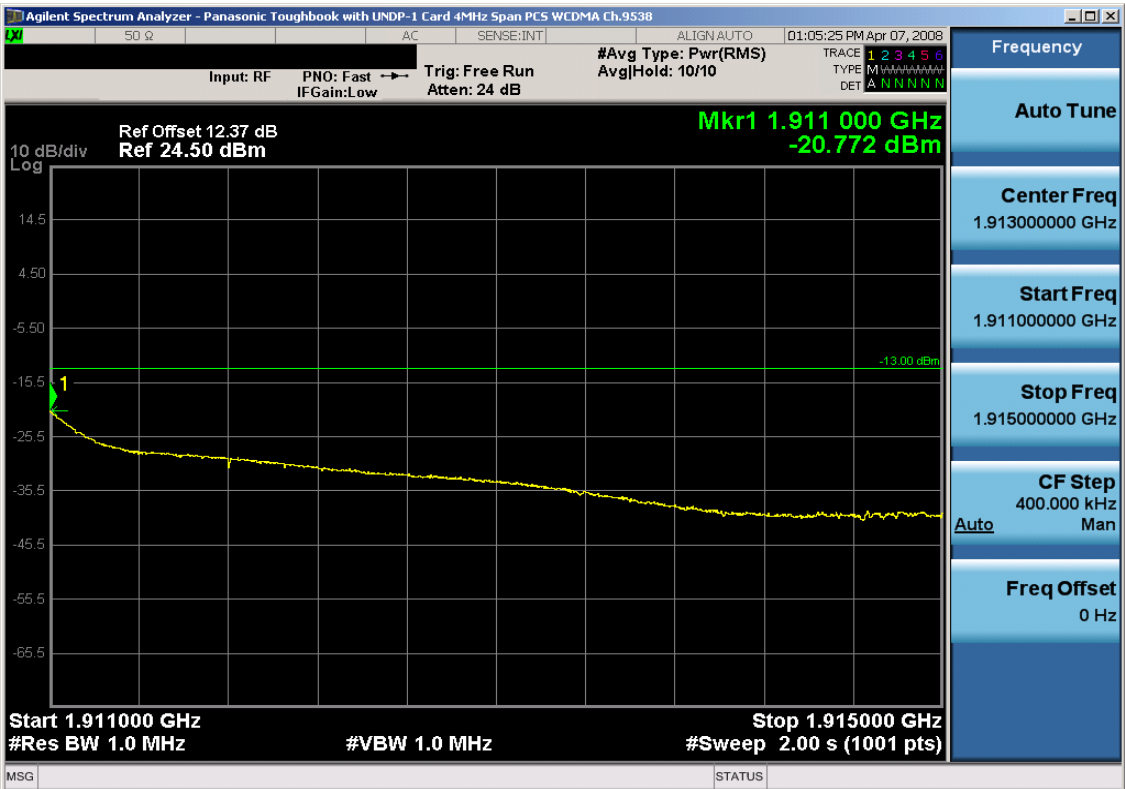
Plot 7-38. Occupied Bandwidth Plot (PCS WCDMA Mode – Ch. 9400)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 64 of 78





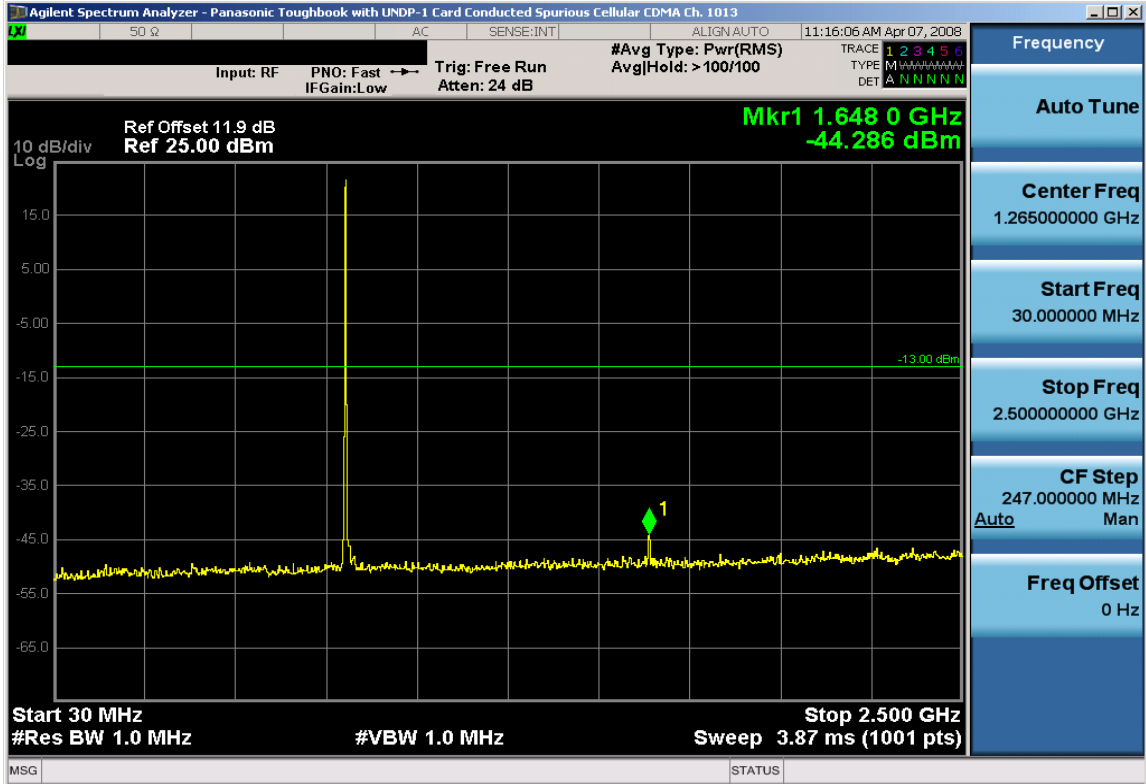


Plot 7-41. Band Edge Plot (PCS WCDMA Mode – Ch. 9538)

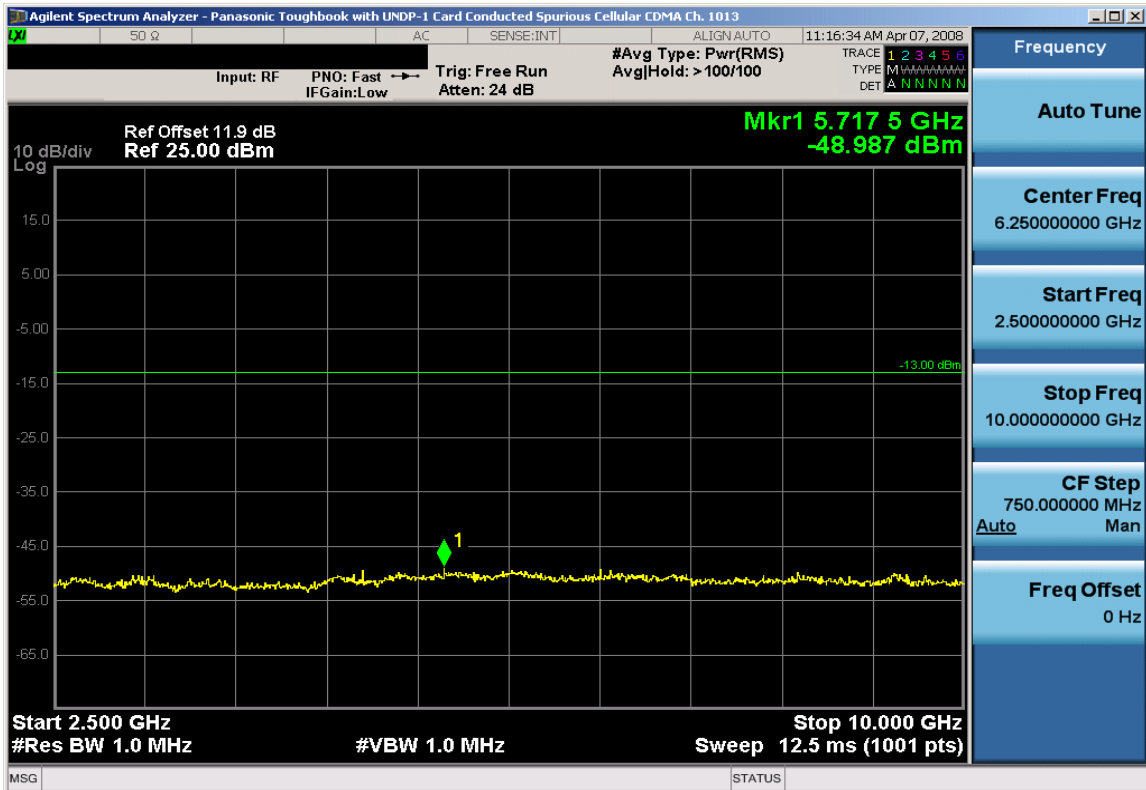


Plot 7-42. 4MHz Span Plot (PCS WCDMA Mode – Ch. 9538)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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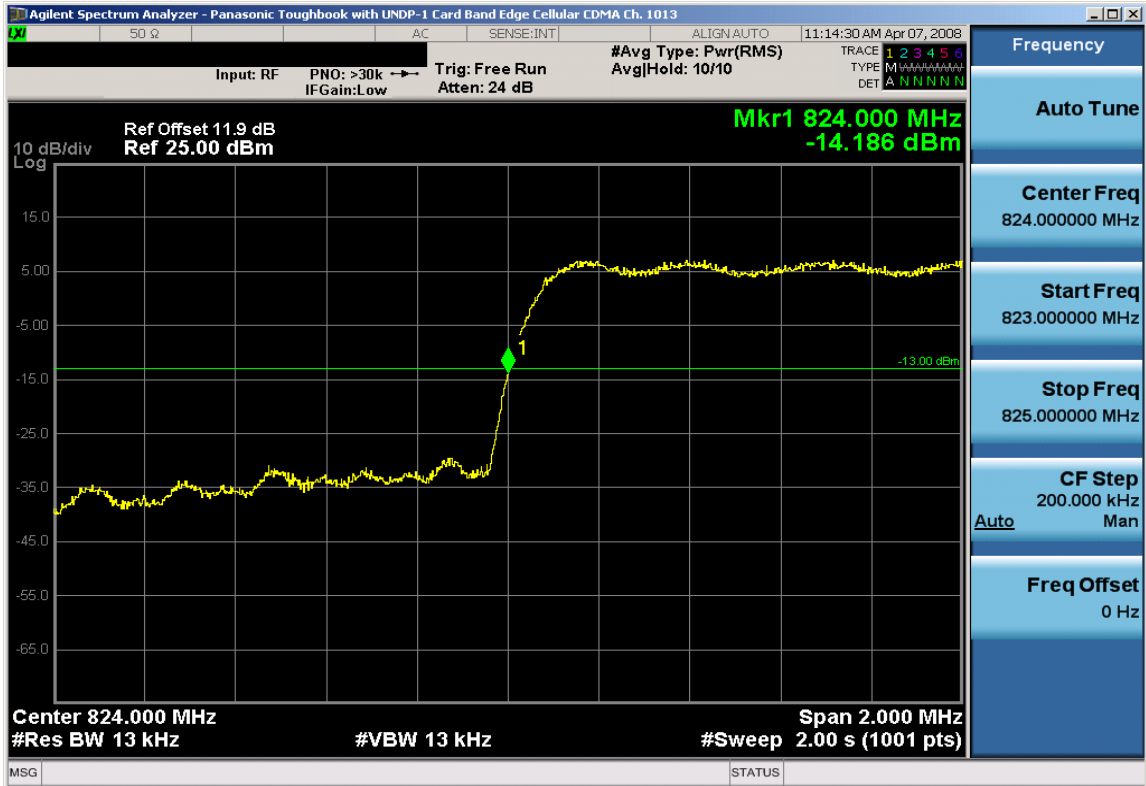


Plot 7-43. Conducted Spurious Plot (Cellular CDMA Mode – Ch. 1013)

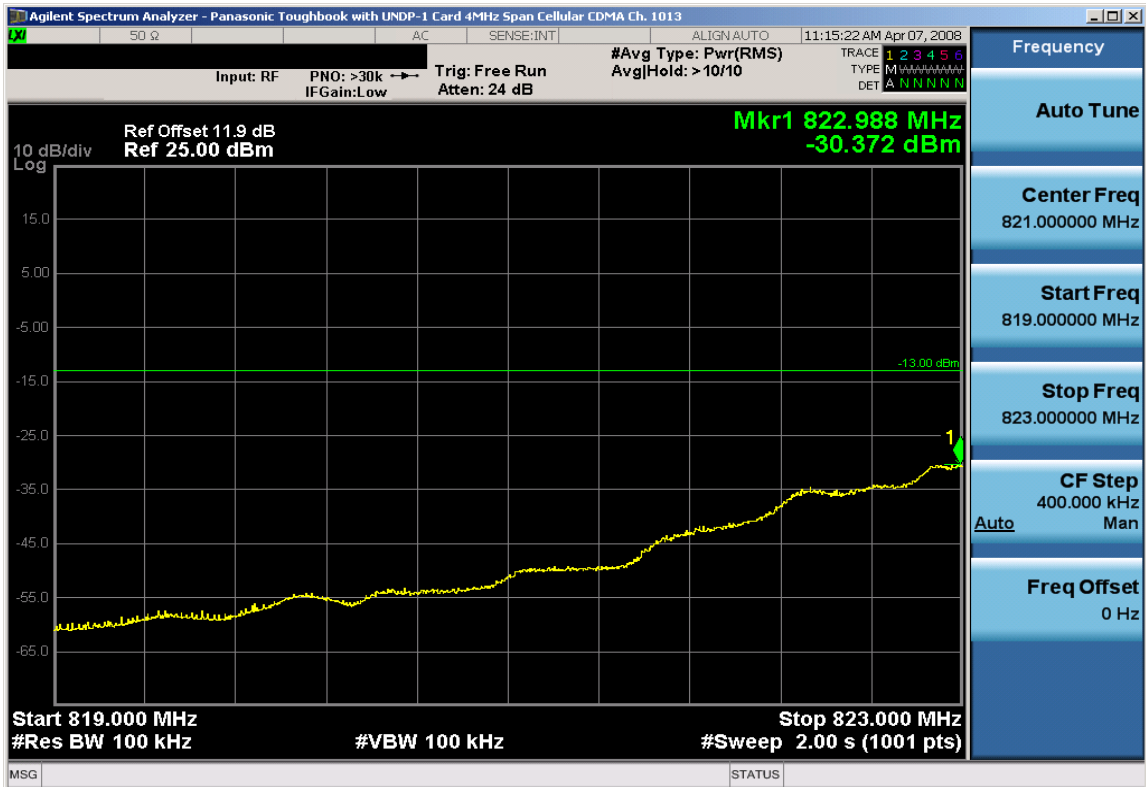


Plot 7-44. Conducted Spurious Plot (Cellular CDMA Mode – Ch. 1013)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0804240547.ACJ	Test Dates: May 26 - 27, 2008	EUT Type: Toughbook Model: CF-30		Page 67 of 78

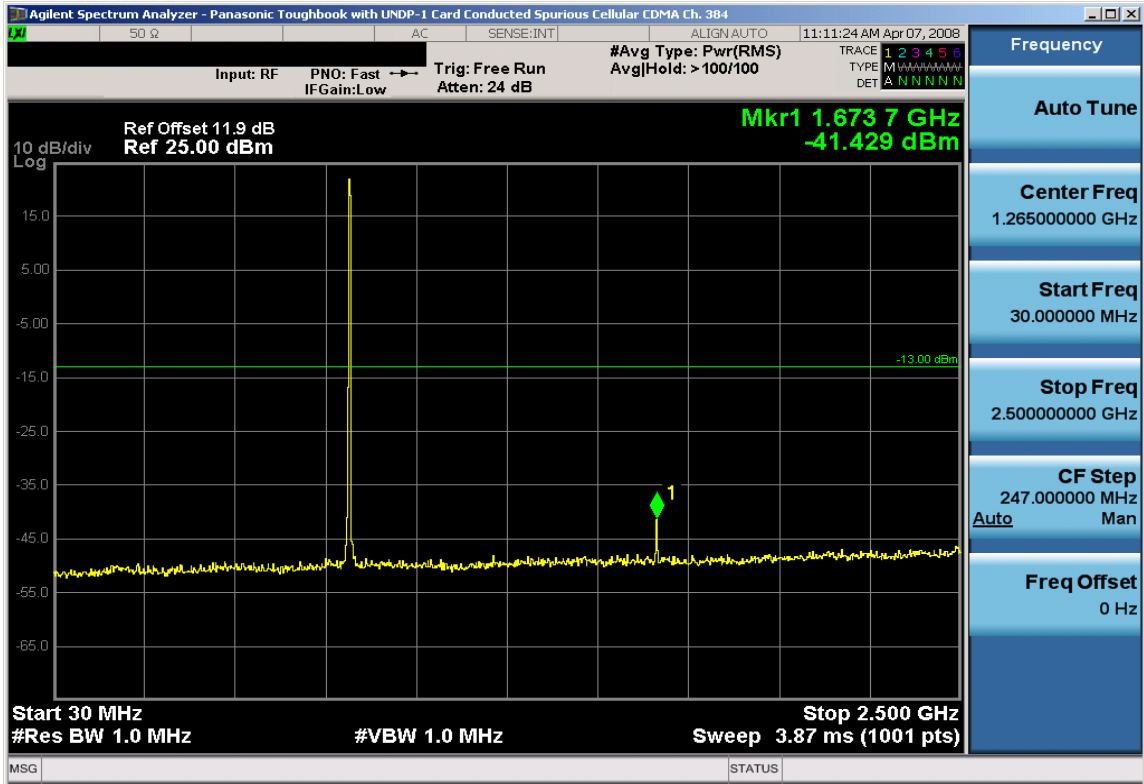


Plot 7-45. Band Edge Plot (Cellular CDMA Mode – Ch. 1013)

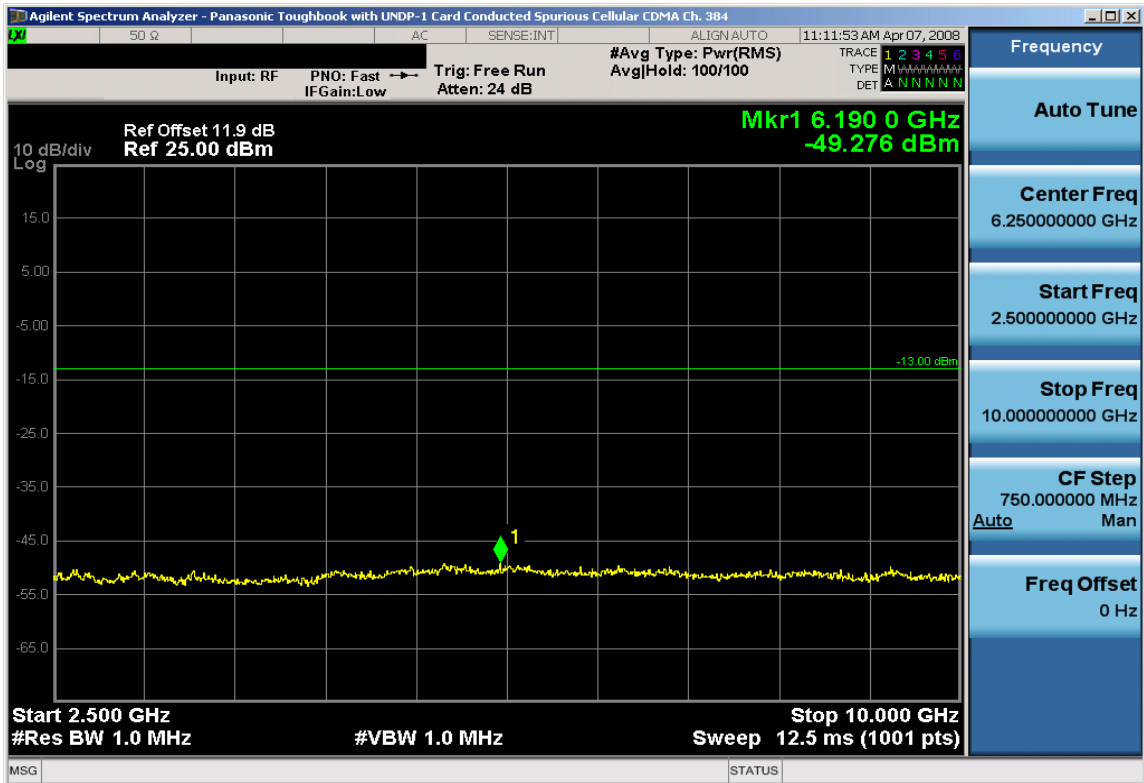


Plot 7-46. 4MHz Span Plot (Cellular CDMA Mode – Ch. 1013)

FCC ID: ACJ9TGCF-308	PCTEST Engineering Laboratory, Inc.	FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)	Panasonic	Reviewed by: Quality Manager
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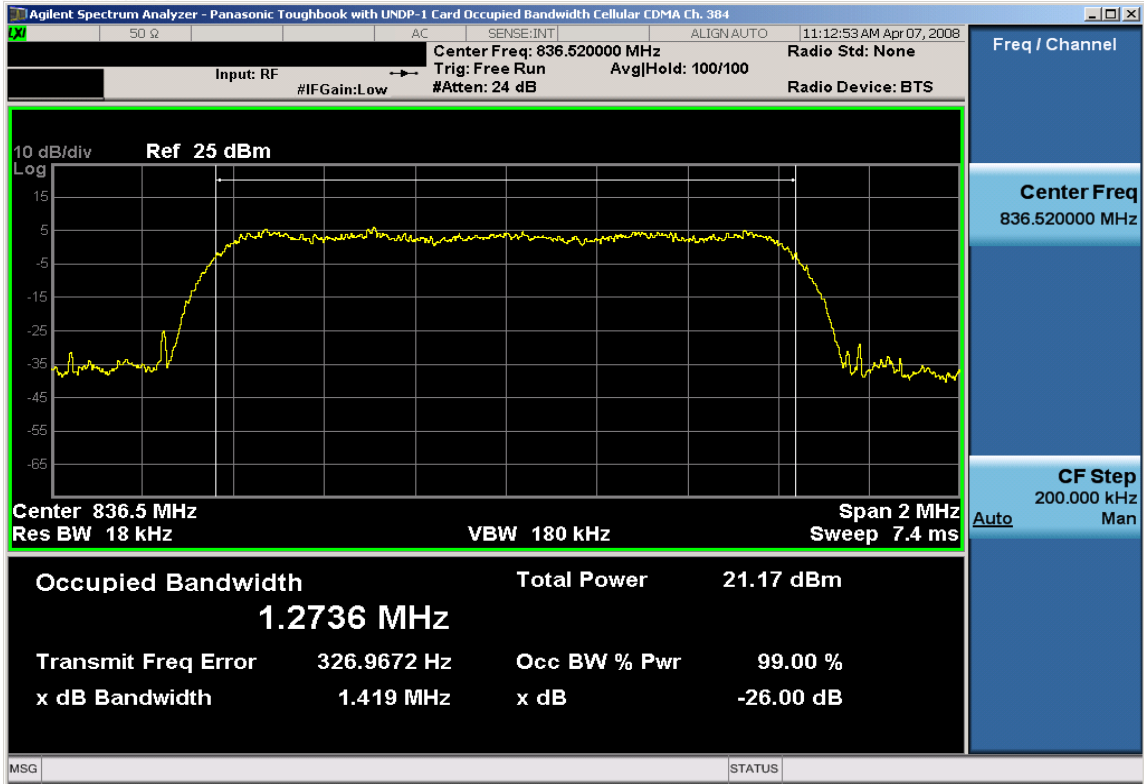


Plot 7-47. Conducted Spurious Plot (Cellular CDMA Mode – Ch. 384)

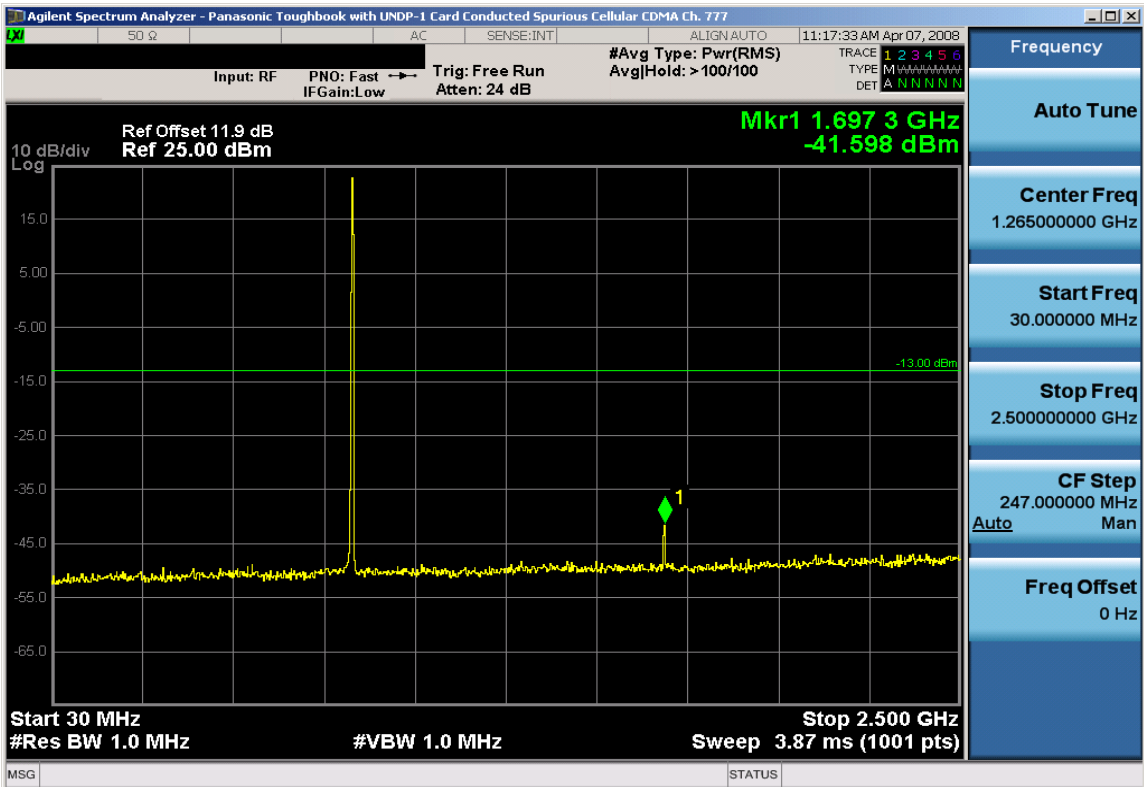


Plot 7-48. Conducted Spurious Plot (Cellular CDMA Mode – Ch. 384)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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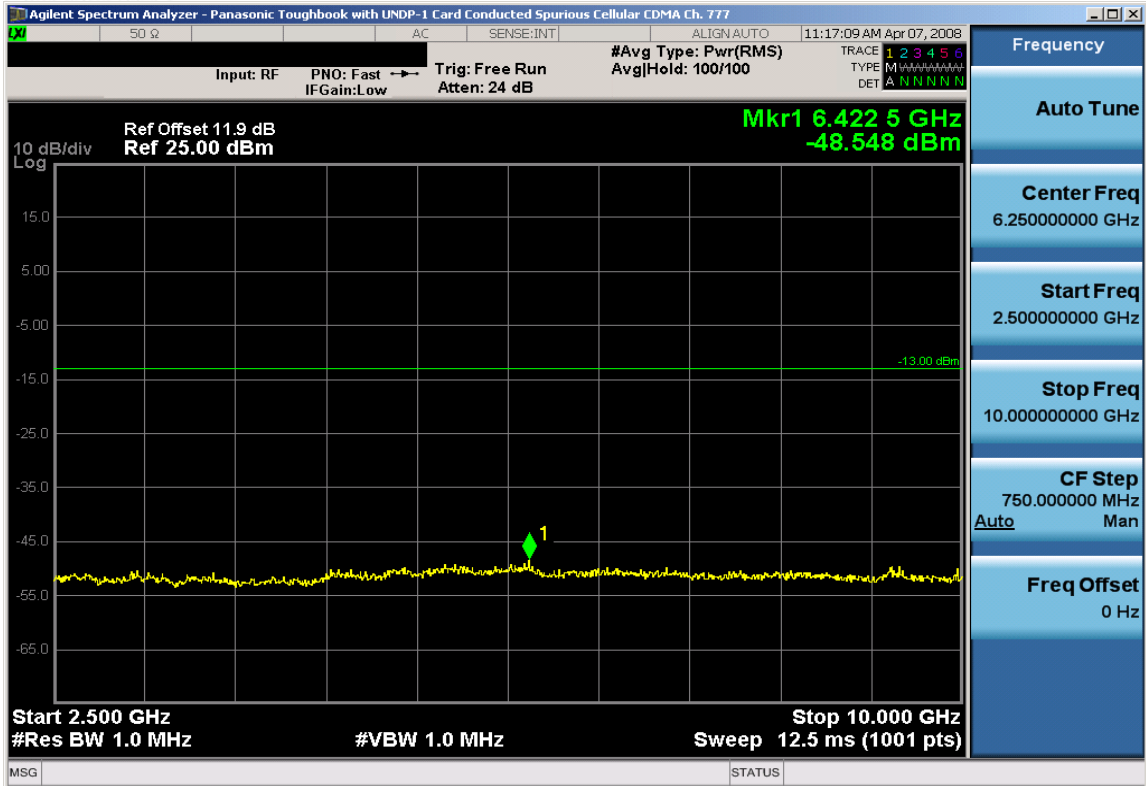


Plot 7-49. Occupied Bandwidth Plot (Cellular CDMA Mode – Ch. 1013)

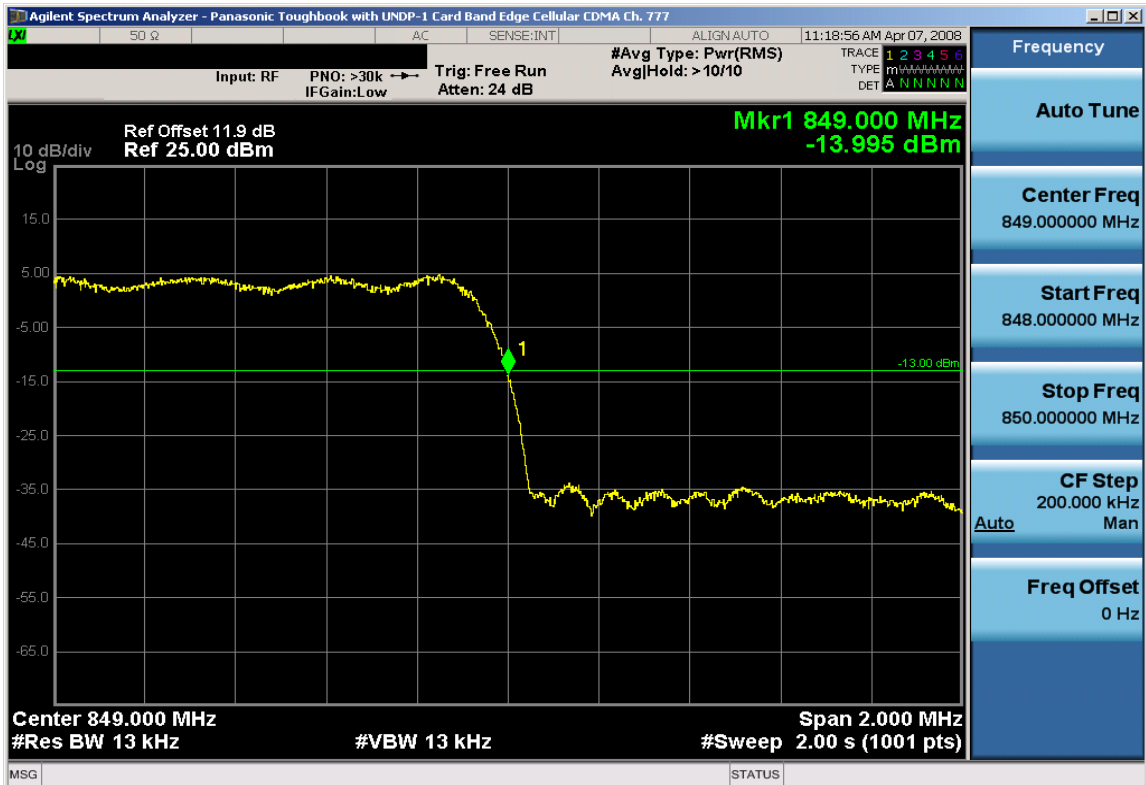


Plot 7-50. Conducted Spurious Plot (Cellular CDMA Mode – Ch. 777)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Plot 7-51. Conducted Spurious Plot (Cellular CDMA Mode – Ch. 777)

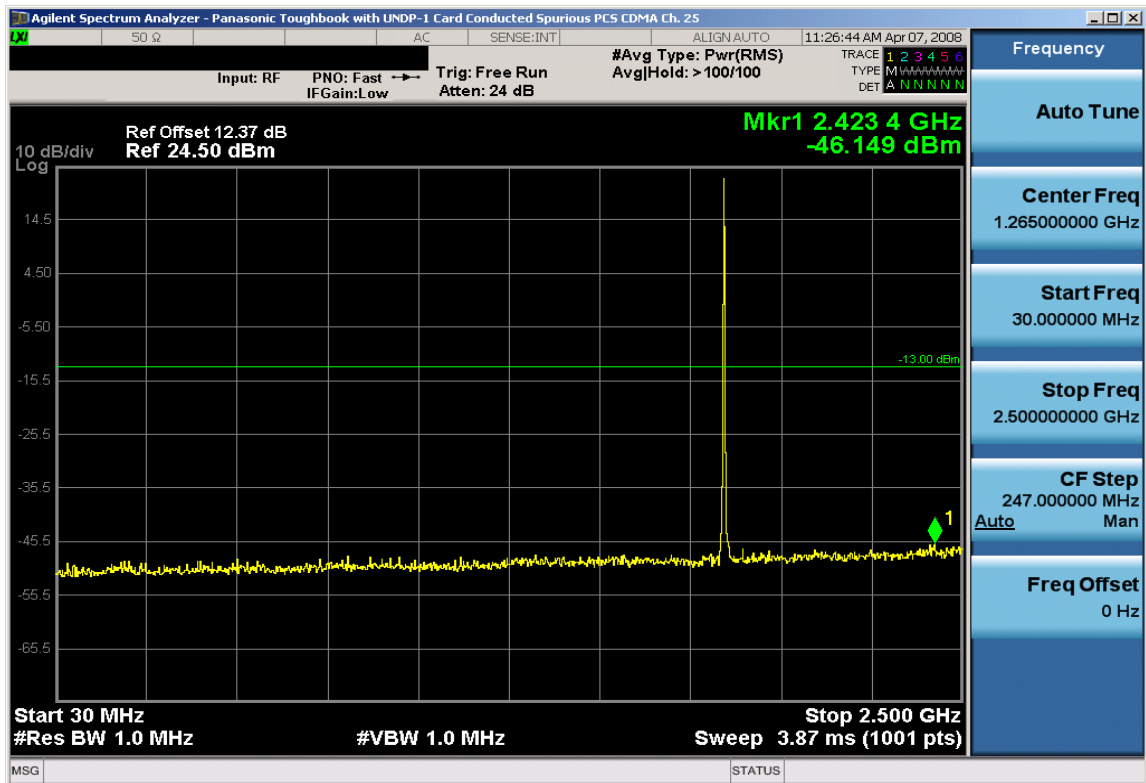


Plot 7-52. Band Edge Plot (Cellular CDMA Mode – Ch. 777)

FCC ID: ACJ9TGCF-308	PCTEST Engineering Laboratory, Inc.	FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)	Panasonic	Reviewed by: Quality Manager
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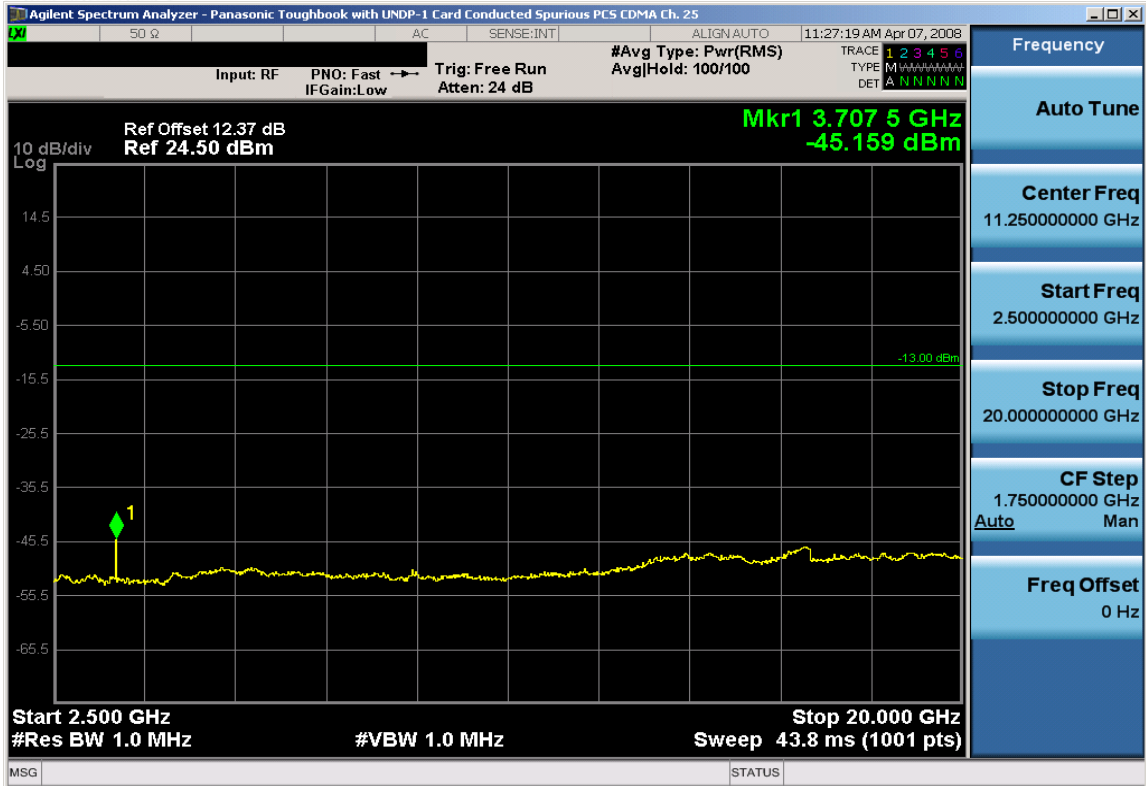


Plot 7-53. 4MHz Span Plot (Cellular CDMA Mode – Ch. 777)

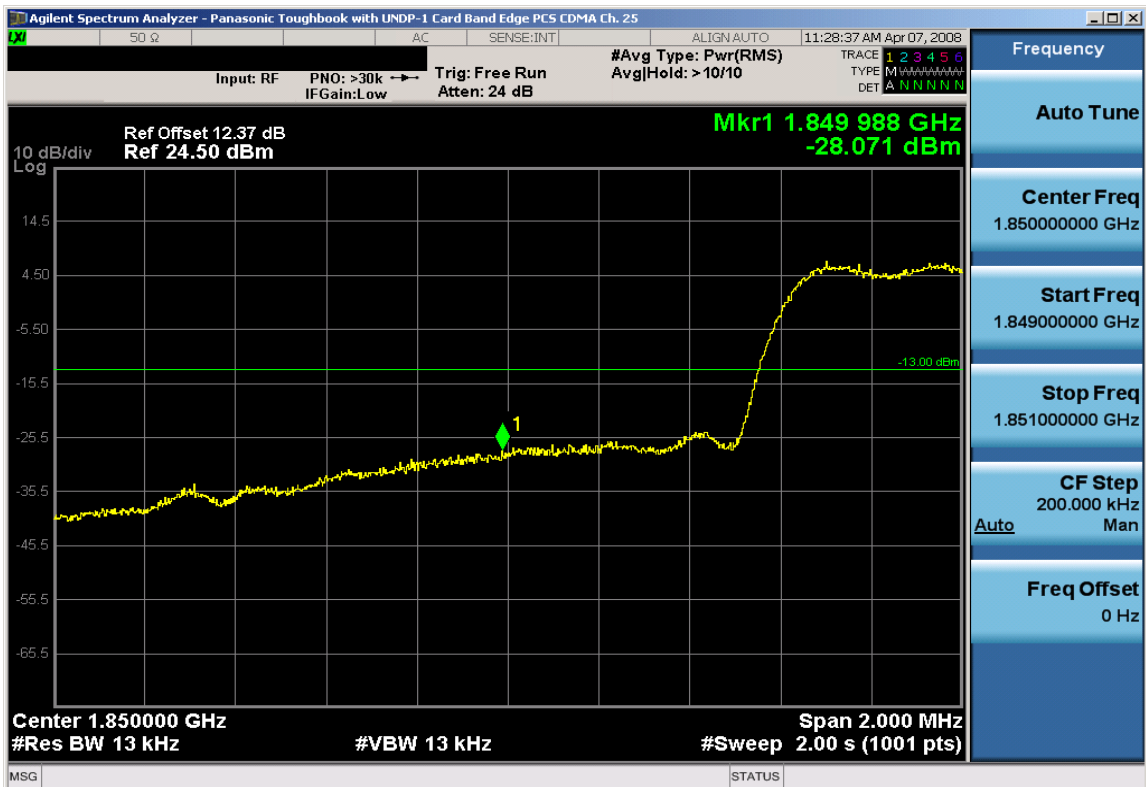


Plot 7-54. Conducted Spurious Plot (PCS CDMA Mode – Ch. 25)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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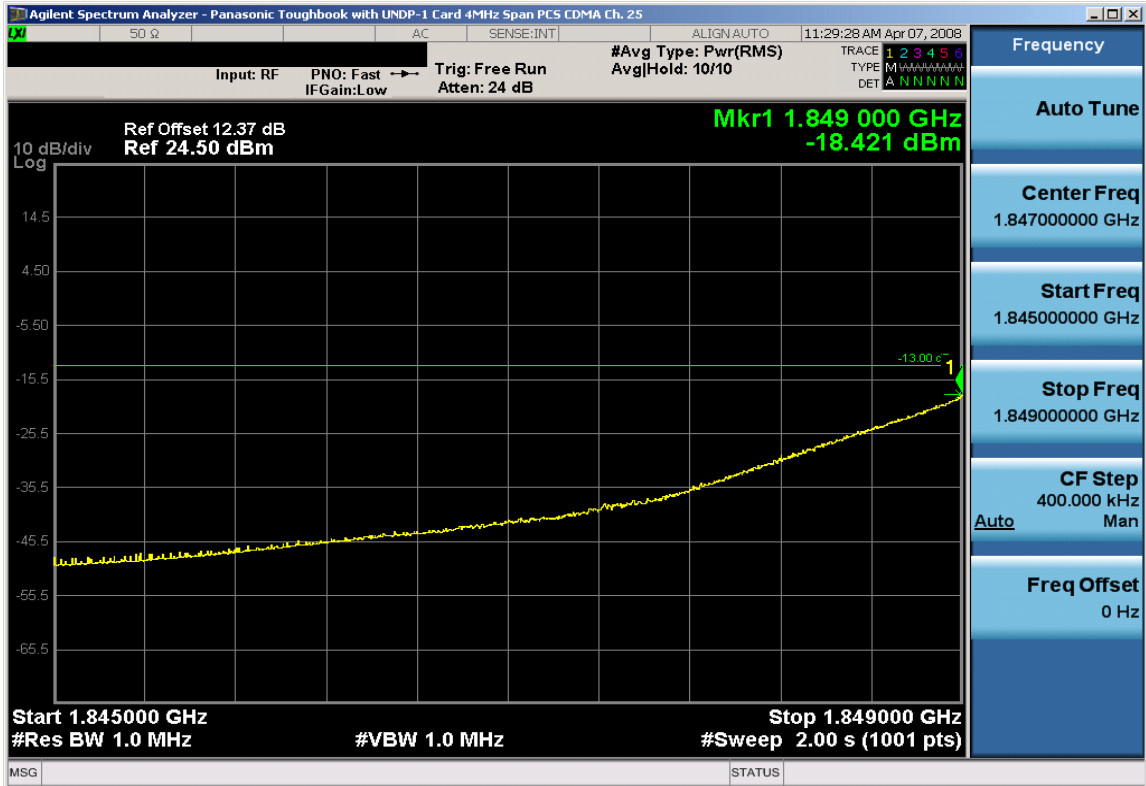


Plot 7-55. Conducted Spurious Plot (PCS CDMA Mode – Ch. 25)

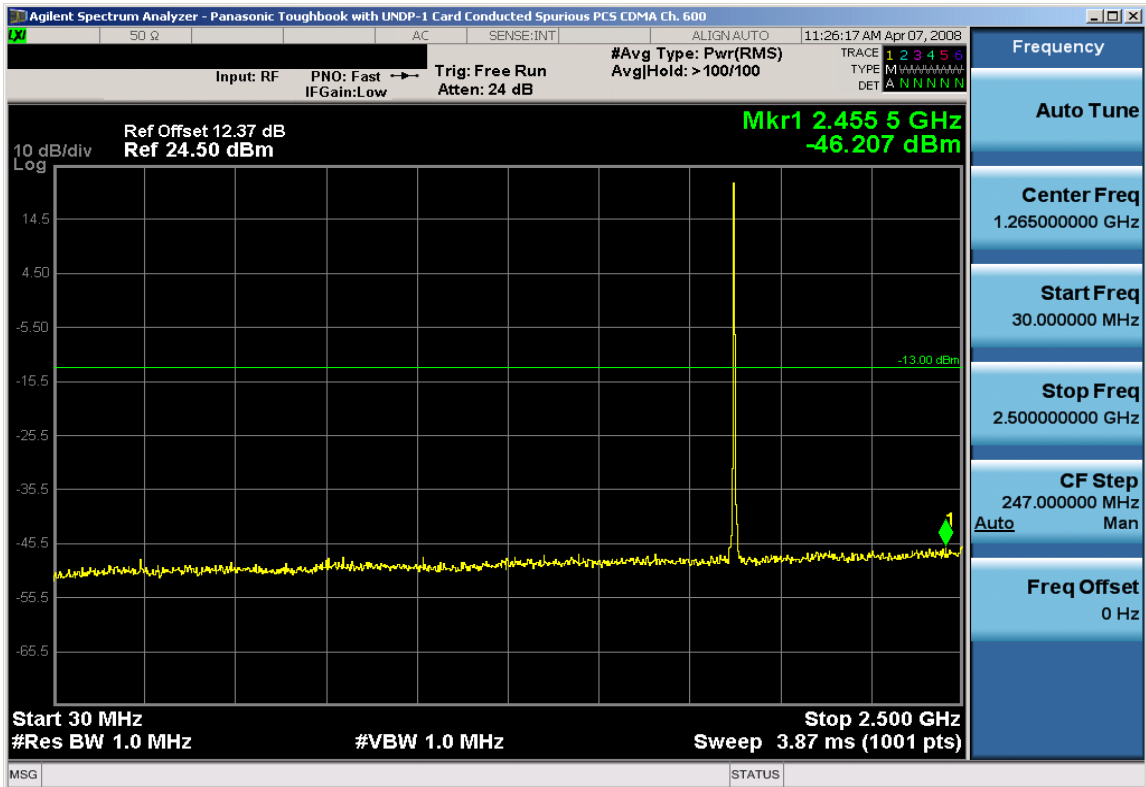


Plot 7-56. Band Edge Plot (PCS CDMA Mode – Ch. 25)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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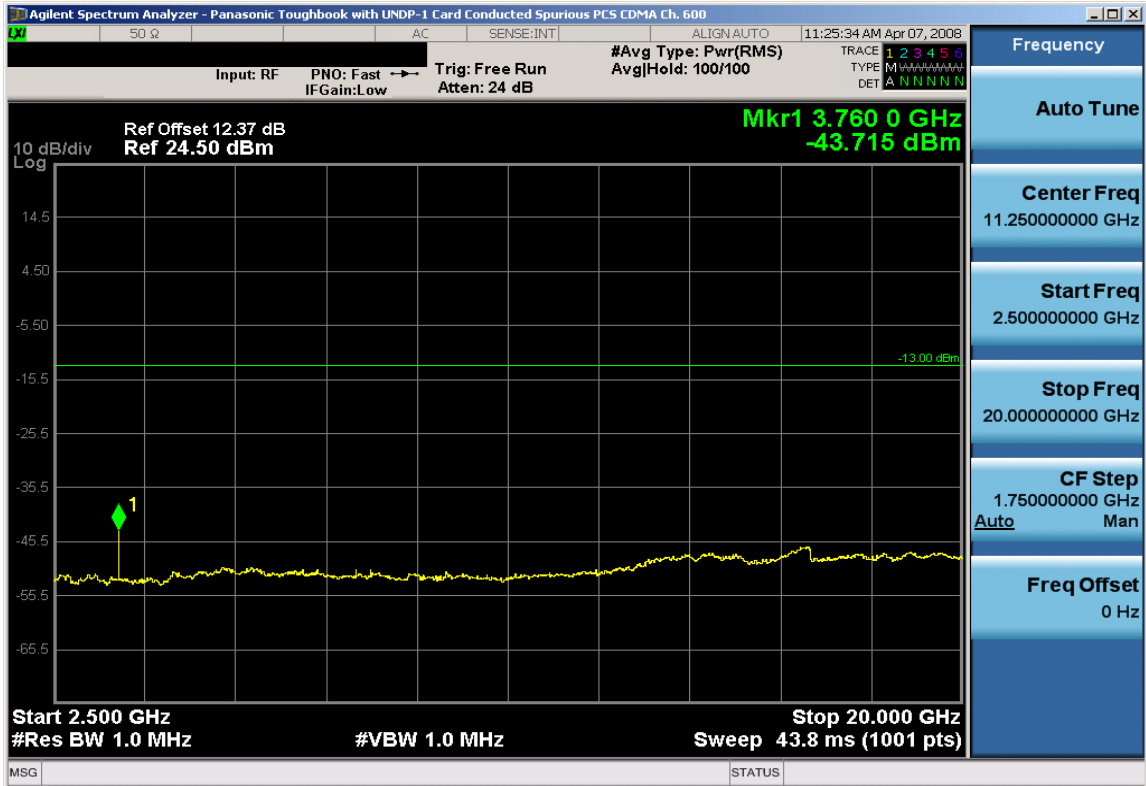


Plot 7-57. 4MHz Span Plot (PCS CDMA Mode – Ch. 25)

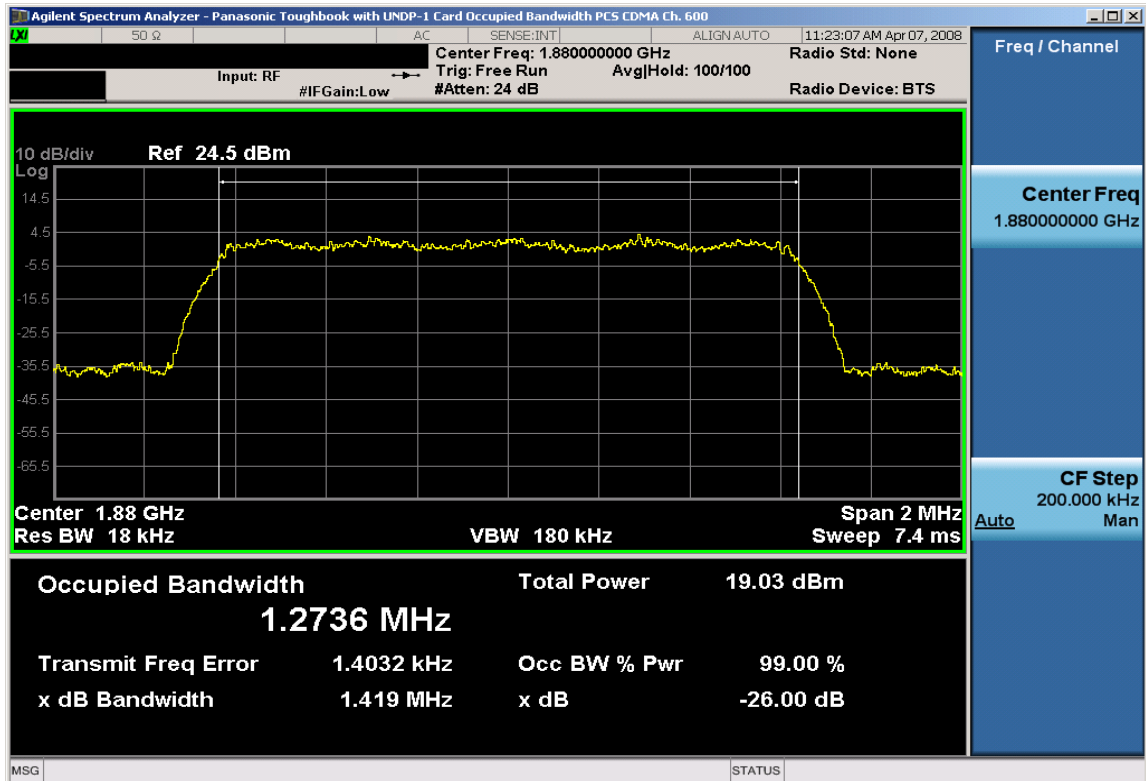


Plot 7-58. Conducted Spurious Plot (PCS CDMA Mode – Ch. 600)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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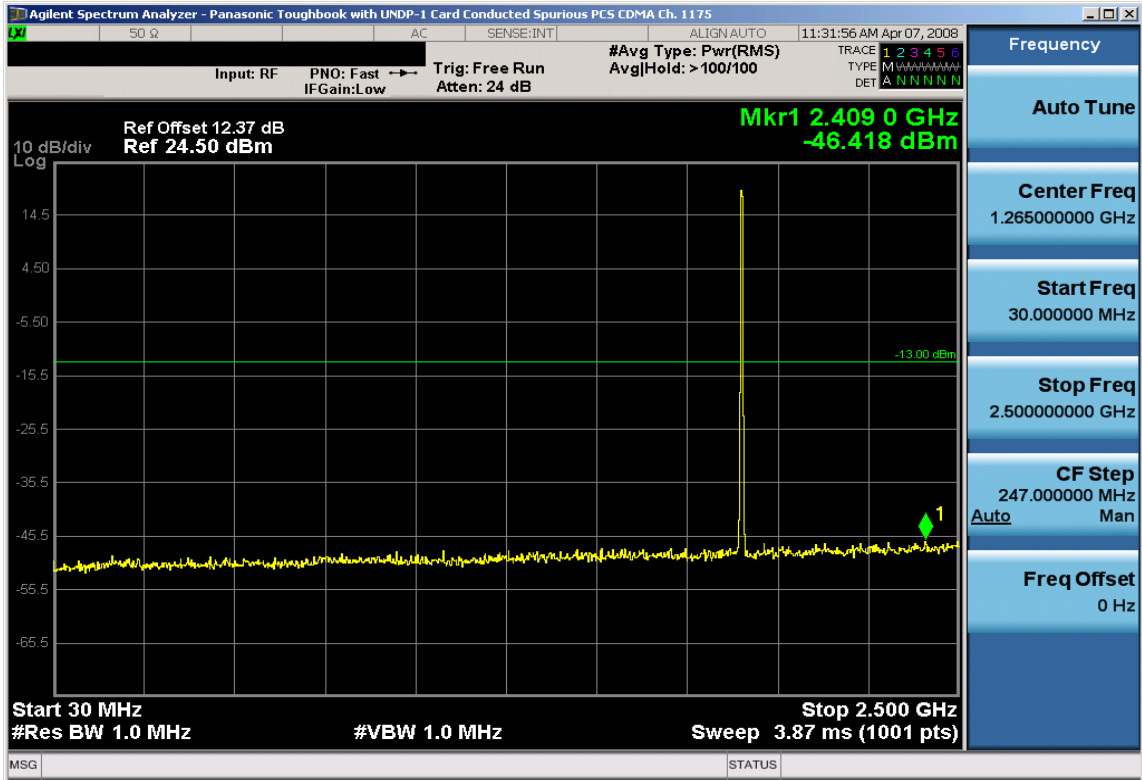


Plot 7-59. Conducted Spurious Plot (PCS CDMA Mode – Ch. 600)

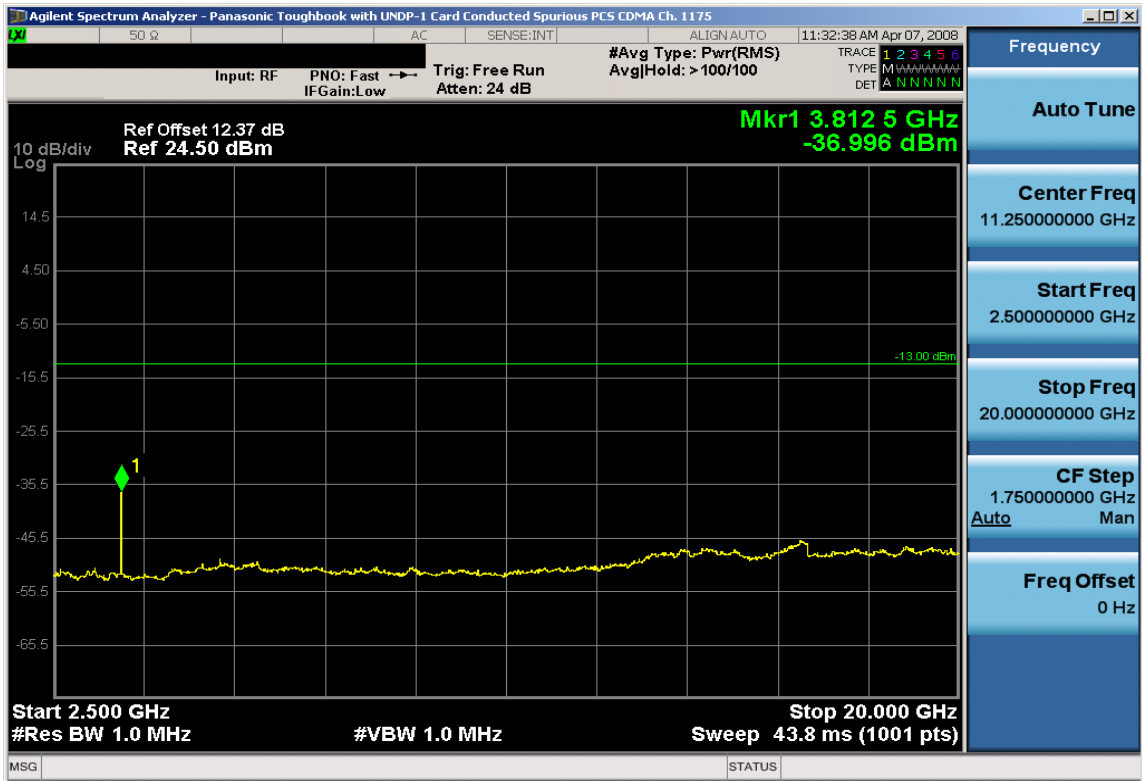


Plot 7-60. Occupied Bandwidth Plot (PCS CDMA Mode – Ch. 600)

FCC ID: ACJ9TGCF-308	PCTEST ENGINEERING LABORATORY, INC.	FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)	Panasonic	Reviewed by: Quality Manager
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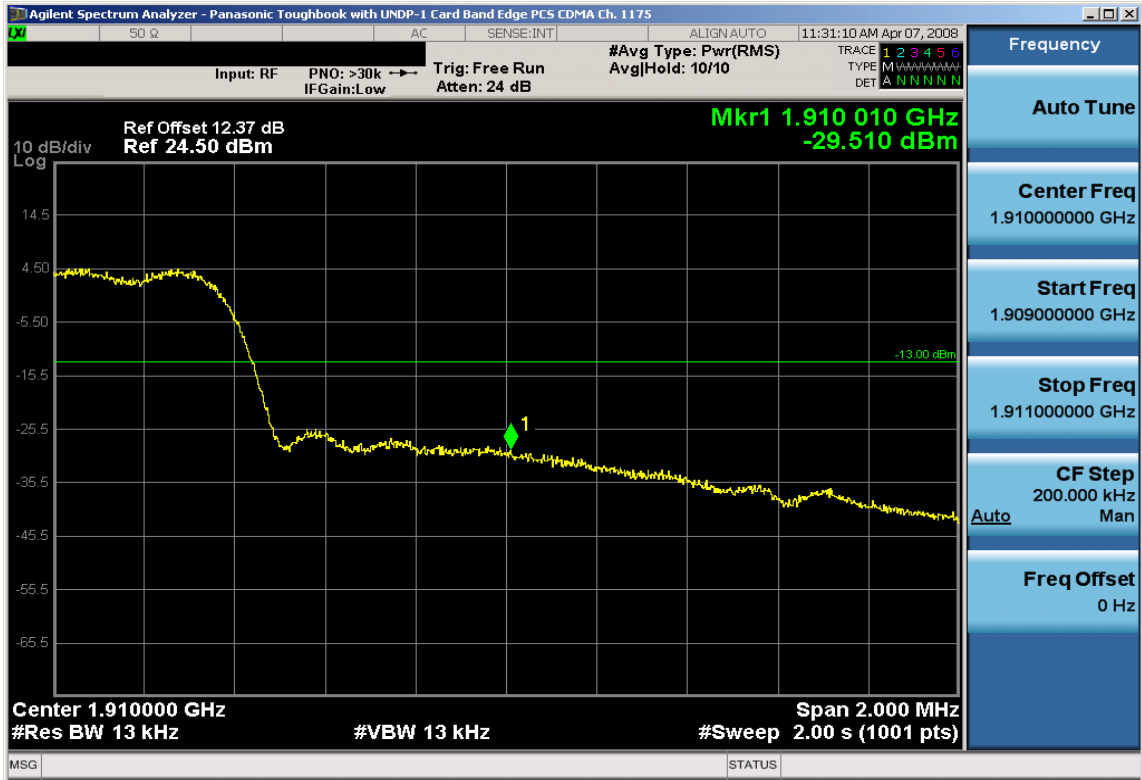


Plot 7-61. Conducted Spurious Plot (PCS CDMA Mode – Ch. 1175)

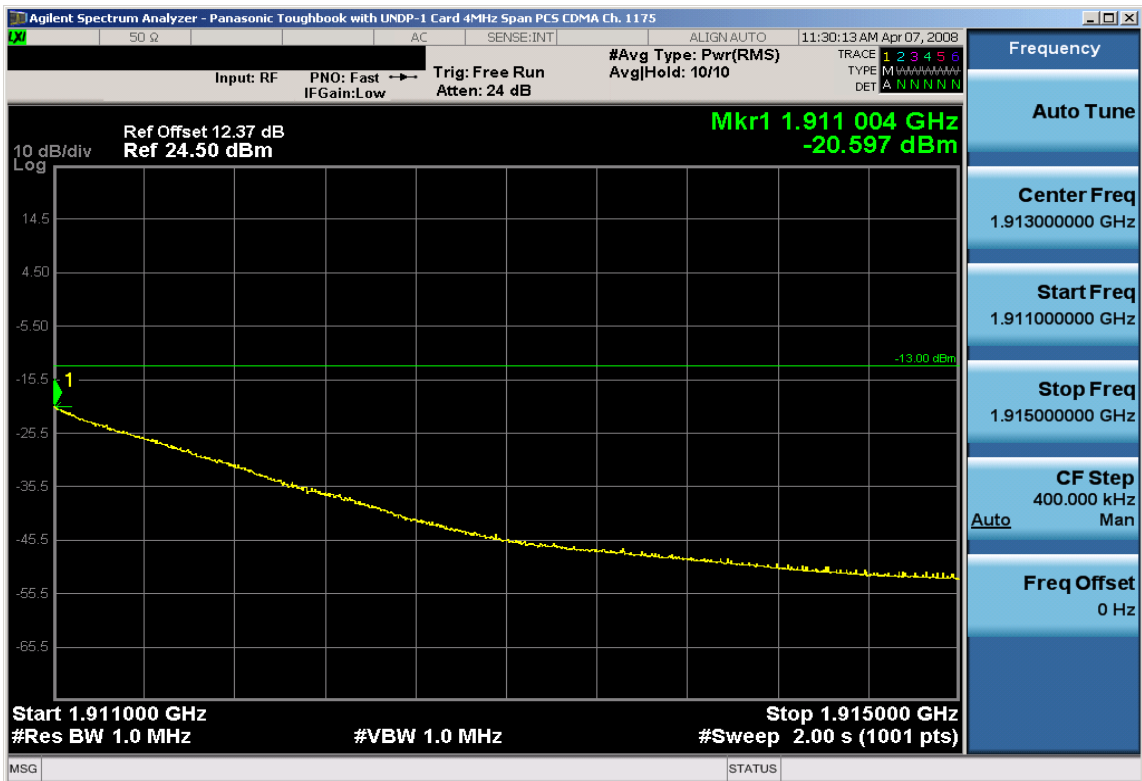


Plot 7-62. Conducted Spurious Plot (PCS CDMA Mode – Ch. 1175)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Plot 7-63. Band Edge Plot (PCS CDMA Mode – Ch. 1175)





Plot 7-64. 4MHz Span Plot (PCS CDMA Mode – Ch. 1175)

FCC ID: ACJ9TGCF-308		FCC Pt. 22/24 GSM/EDGE/CDMA/WCDMA TEST REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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## 8.0 CONCLUSION

The data collected show that the **Panasonic Toughbook Model: CF-30 FCC ID: ACJ9TGCF-308** complies with all the requirements of Parts 2, 22, and 24 of the FCC rules.

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