



# PCTEST ENGINEERING LABORATORY, INC.

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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:**  
March 19 - 21, 2007  
**Test Site/Location:**  
PCTEST Lab., Columbia, MD, USA  
**Test Report Serial No.:**  
0702280125.ACJ

**FCC ID:** ACJ9TGCF-195

**APPLICANT:** PANASONIC CORPORATION OF NORTH AMERICA


**Application Type:** Certification  
**FCC Classification:** PCS Licensed Transmitter (PCB)  
**FCC Rule Part(s):** §2; §22(H), §24(E)  
**EUT Type:** Toughbook Model: CF-19  
**Model(s):** CF-19  
**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)  
**Max. RF Output Power:** 0.774 W ERP Cell GSM (28.890 dBm)/1.038 W EIRP PCS GSM (30.160 dBm)  
0.270 W ERP EDGE850 (24.310 dBm)/0.337 W EIRP EDGE1900 (25.280 dBm)  
0.086 W ERP WCDMA850 (19.350 dBm)/0.107 W EIRP WCDMA1900 (20.290 dBm)  
**Emission Designator(s):** 315KGXW (Cellular GSM), 317KGXW (PCS GSM)  
301KG7W (EDGE850), 318KG7W (EDGE1900)  
4M65F9W (Cellular WCDMA), 4M64F9W (PCS WCDMA)  
**Test Device Serial No.:** *identical prototype* [S/N: N/A]

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.

*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 Ortanez  
President

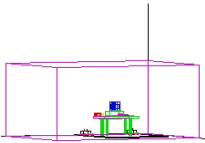


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Test Report S/N: 0702280125.ACJ	Test Dates: March 19 - 21, 2007	EUT Type: Toughbook Model: CF-19		Page 1 of 56

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# MEASUREMENT REPORT

## FCC Part 22 & 24



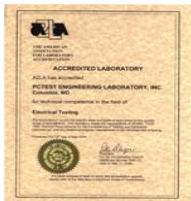
### §2.1033 General Information



**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)  
**MODEL NAME:** CF-19  
**FCC ID:** ACJ9TGCF-195  
**FCC CLASSIFICATION:** PCS Licensed Transmitter (PCB)  
**EMISSION DESIGNATOR(S):** 315KGXW (Cellular GSM), 317KGXW (PCS GSM)  
 301KG7W (EDGE850), 318KG7W (EDGE1900)  
 4M65F9W (Cellular WCDMA), 4M64F9W (PCS WCDMA)  
**MODE:** GSM/EDGE/UMTS  
**FREQUENCY TOLERANCE:** ±0.00025 % (2.5 ppm)  
**Test Device Serial No.:** N/A       Production     Pre-Production     Engineering  
**DATE(S) OF TEST:** March 19 - 21, 2007  
**TEST REPORT S/N:** 0702280125.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 Measurement Procedure

The radiated spurious measurements were made outdoors at a 3-meter test range (see Figure 1-1). 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.

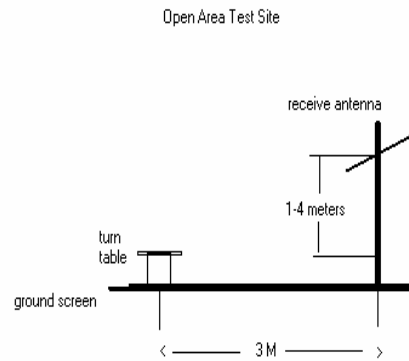


Figure 1-1. Diagram of 3-meter outdoor test range

Deviation from Measurement Procedure.....None

## 1.2 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.

## 1.3 Testing Facility

These measurements 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.

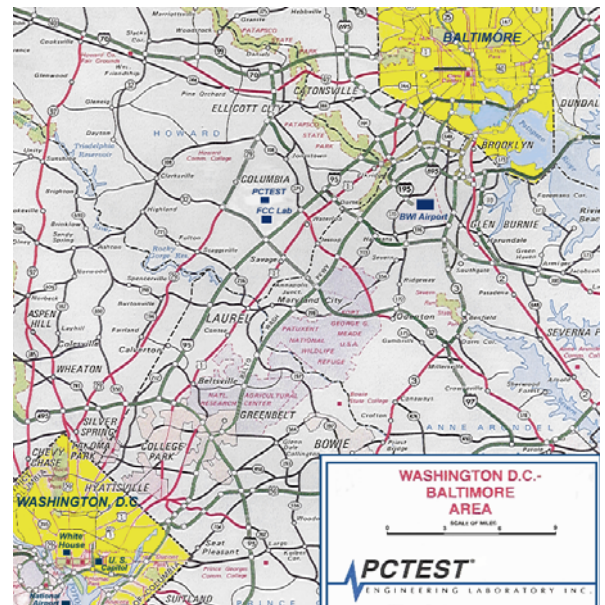


Figure 1-2. Map of the Greater Baltimore and Metropolitan Washington, D.C. area.

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## 2.0 PRODUCT INFORMATION

### 2.1 Equipment Description

The Equipment Under Test (EUT) is the **Panasonic Toughbook Model: CF-19 FCC ID: ACJ9TGCF-195**. The EUT consisted of the following component(s):

Trade Name / Model	FCC ID	Description
Panasonic / Model: CF-19	ACJ9TGCF-195	Toughbook Model: CF-19
Intel / Model: WM3945ABG	PD9WM3945ABG	Wireless LAN module
Taiyo Yuden / Model: EYSF1CSMX	N/A	Bluetooth module
Novatel / Model: EU860D	NBZNRM-EU860D	GPRS/EDGE/UMTS module

**Table 2-1. EUT Equipment Description**

Note: The data found in this report pertains only to the emissions from the CF-19 Toughbook due to the Novatel GPRS/EDGE/UMTS module.

### 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 15.19; Docket 95-19

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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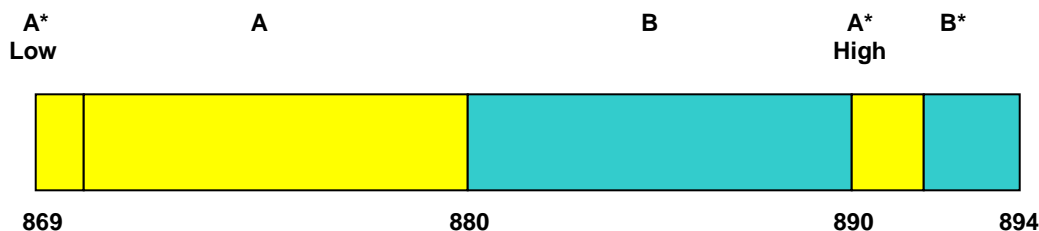
## 3.0 DESCRIPTION OF TESTS

### 3.1 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.

### 3.2 Cellular - Base Frequency Blocks



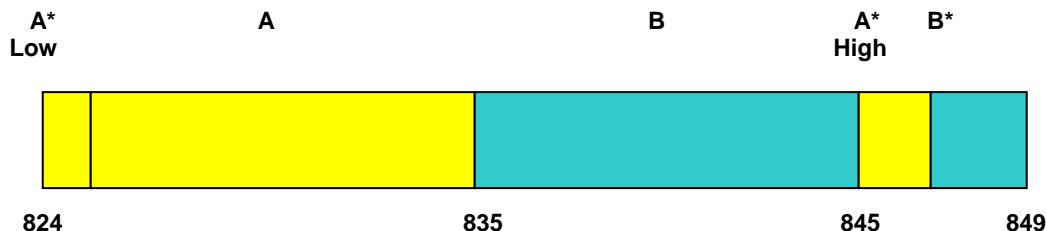
**BLOCK 1:** 869 – 880 MHz (A\* Low + A)

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

**BLOCK 2:** 880 – 890 MHz (B)

**BLOCK 4:** 891.5 – 894 MHz (B\*)

### 3.3 Cellular - Mobile Frequency Blocks





**BLOCK 1:** 824 – 835 MHz (A\* Low + A)

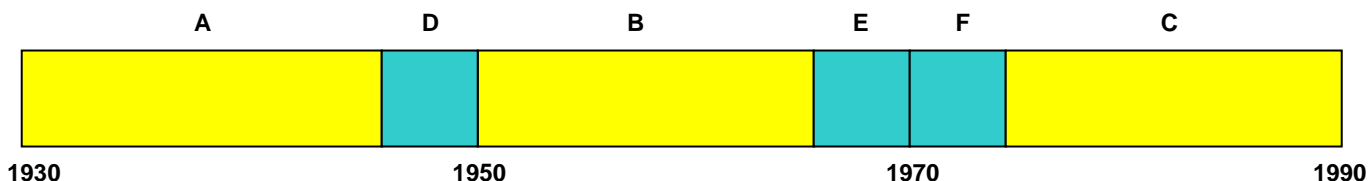
**BLOCK 3:** 845 – 846.5 MHz (A\* High)

**BLOCK 2:** 835 – 845 MHz (B)

**BLOCK 4:** 846.5 – 849 MHz (B\*)

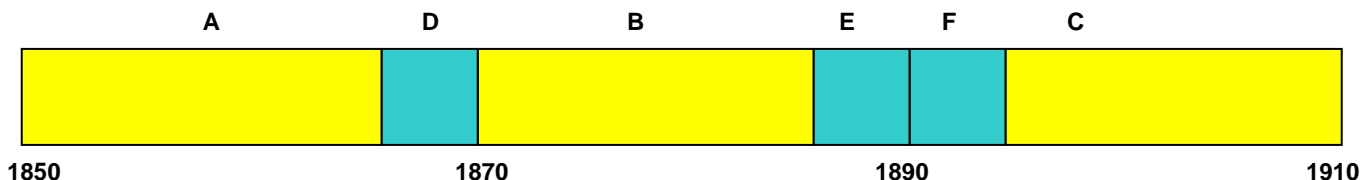
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### 3.4 PCS - Base Frequency Blocks



- BLOCK 1: 1930 – 1945 MHz (A)
- BLOCK 2: 1945 – 1950 MHz (D)
- BLOCK 3: 1950 – 1965 MHz (B)
- BLOCK 4: 1965 – 1970 MHz (E)
- BLOCK 5: 1970 – 1975 MHz (F)
- BLOCK 6: 1975 – 1990 MHz (C)

### 3.5 PCS - Mobile Frequency Blocks



- BLOCK 1: 1850 – 1865 MHz (A)
- BLOCK 2: 1865 – 1870 MHz (D)
- BLOCK 3: 1870 – 1885 MHz (B)
- BLOCK 4: 1885 – 1890 MHz (E)
- BLOCK 5: 1890 – 1895 MHz (F)
- BLOCK 6: 1895 – 1910 MHz (C)

### 3.6 Spurious and Harmonic Emissions at Antenna Terminal



§2.1051, 22.917(a), 24.238(a); RSS-129 (8.1.1), RSS-133 (6.5.1)

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.

### 3.7 Radiated Spurious and Harmonic Emissions

§2.1053, 22.917(a), 24.238(a); RSS-129 (8.1.1), RSS-133 (6.5.1(i))

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 UMTS 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.

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### 3.8 Frequency Stability / Temperature Variation

§2.1055, 22.355, 24.235; RSS-132 (4.3) / RSS-133 (6.3)



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.

*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 and the individual oscillators is measured at room temperature (20°C to provide a reference).
2. The equipment is subjected to an overnight “soak” at -30°C without any power applied.
3. After the overnight “soak” at -30°C (usually 14-16 hours) 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 and the individual oscillators is made within one minute after applying power to the transmitter.
4. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. At least a period of 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 / Equipment	Calibration Date	Cal Interval	Calibration Due	Serial No.
Agilent	E4404B/E4407B ESA Spectrum Analyzer	04/20/06	Annual	04/20/07	US39210313
Agilent	E5515C Wireless Communications Test Set	07/27/06	Annual	07/27/07	GB41450275
Agilent	E5515C Wireless Communications Test Set	10/06/06	Annual	10/06/07	GB43193972
Agilent	E4432B ESG-D Series Signal Generator	08/08/06	Annual	08/08/07	US40053896
Agilent	8648D (9kHz-4GHz) Signal Generator	10/01/06	Annual	10/01/07	3613A00315
Agilent	E5515C Wireless Communications Test Set	10/26/06	Biennial	10/25/08	GB46310798
EMCO	Model 3115 (1-18GHz) Horn Antenna	08/24/06	Biennial	08/23/08	9203-2178
EMCO	Model 3115 (1-18GHz) Horn Antenna	08/25/06	Biennial	08/24/08	9704-5182
Gigatronics	8657A Universal Power Meter	04/07/06	Annual	04/07/07	8650319
Gigatronics	80701A (0.05-18GHz) Power Sensor	04/11/06	Annual	04/11/07	1833460
Rohde & Schwarz	NRVS Power Meter	06/01/05	Biennial	06/01/07	835360/079
Rohde & Schwarz	NRV-Z53 Power Sensor	06/01/05	Biennial	06/01/07	846076/007
Rohde & Schwarz	CMU200 Base Station Simulator	11/08/06	Annual	11/08/07	107826
Rohde & Schwarz	CMU200 Base Station Simulator	07/26/06	Annual	07/26/07	833855/010
Rohde & Schwarz	CMU200 Base Station Simulator	04/20/06	Annual	04/20/07	836371/079
Agilent	HP 8566B (100Hz-22GHz)	12/21/06	Annual	12/21/07	3638A08713
Agilent	E4448A (3Hz-50GHz)	09/22/06	Annual	09/22/07	US42510244
Gigatronics	80701A (0.05-18GHz) Power Sensor	08/04/06	Annual	08/04/07	1835299
Agilent	HP 85650A Quasi-Peak Adapter	12/21/06	Annual	12/21/07	2043A00301
Agilent	HP 8449B (1-26.5GHz) Pre-Amplifier	12/12/06	Annual	12/12/07	3008A00985
Agilent	HP 11713A Attenuation/Switch Driver	12/12/06	Annual	12/12/07	N/A
Agilent	HP 85685A (20Hz-2GHz) Preselector	12/12/06	Annual	12/12/07	N/A
Agilent	HP 8566B Opt. 462 Impulse Bandwidth	12/12/06	Annual	12/12/07	3701A22204
EMCO	3115 (1-18GHz) Horn Antenna	08/25/05	Biennial	08/25/07	9205-3874
Compliance Design	A100 Roberts Dipoles	08/31/05	Biennial	08/31/07	5118
EMCO	Dipole Pair	09/21/06	Biennial	09/20/08	23951
SOLAR	8012-50 LISN (2)	11/18/05	Biennial	11/18/07	0313233, 0310234
Agilent	HP 8901A Modulation Analyzer	06/05/06	Annual	06/05/07	2432A03467
Agilent	HP 8903 B Audio Analyzer	06/01/06	Annual	06/01/07	3011A09025
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
Agilent	HP 8495A (0-70dB) DC-4GHz Attenuator	N/A		N/A	N/A
-	263-10dB (DC-18GHz) 10 dB Attenuator	N/A		N/A	N/A
Pasternack	PE2208-6 Bidirectional Coupler	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

**Table 4-1. Test Equipment**

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## 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)

### 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.

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## 6.0 TEST RESULTS

### 6.1 Summary

Company Name: Panasonic Corporation of North America  
 FCC ID: ACJ9TGCF-195  
 FCC Classification: PCS Licensed Transmitter (PCB)  
 Mode(s): GSM/EDGE/UMTS

FCC Part Section(s)	RSS Section	Test Description	Test Limit	Test Condition	Test Result	Reference
<b>TRANSMITTER MODE (TX)</b>						
2.1049, 22.917(a), 24.238(a)	N/A	Occupied Bandwidth	N/A	CONDUCTED	PASS	Section 7.0
2.1051, 22.917(a), 24.238(a)	RSS-132 (4.5.1) / RSS-133 (6.5.1)	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	N/A	GSM/WCDMA Conducted Output Power	N/A		PASS	Section 6.2
22.913(a)(2)	RSS-132 (4.4) [SRSP-503(5.1.3)]	Effective Radiated Power	< 7 Watts max. ERP (<6.3 Watts max. ERP (IC))	RADIATED	PASS	Section 6.3
24.232(c)	RSS-133 (6.4) [SRSP-510 (5.1.2)]	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP		PASS	Section 6.4
2.1053, 22.917(a), 24.238(a)	RSS-132 (4.5.1) / RSS-133 (6.5.1)	Undesirable Emissions	< 43 + log <sub>10</sub> (P[Watts]) for all out-of-band emissions		PASS	Sections 6.5, 6.6
2.1055, 22.355, 24.235	RSS-132 (4.3) / RSS-133 (6.3)	Frequency Stability	< 2.5 ppm		PASS	Sections 6.7, 6.8
<b>RECEIVER MODE (RX) / DIGITAL EMISSIONS</b>						
15.107	RSS-Gen (7.2.2)	AC Conducted Emissions 150kHz – 30MHz	< FCC 15.207 limits or < RSS-Gen table 2 limits	LINE CONDUCTED	PASS	Pt. 15B Test Report
15.109	RSS-132 (4.6) / RSS-133(6.7(a) / [RSS-Gen (7.2.2)] / RSS-210 (7.3)	General Field Strength Limits (Restricted Bands and Radiated Emissions Limits)	< FCC 15.209 limits or < RSS-210 table 3 limits	RADIATED (30MHz-1GHz) (1-25 GHz)	PASS	Pt. 15B Test Report
<b>RF EXPOSURE (SAR)</b>						
2.1091 / 2.1093	RSS-102	SAR Test	1.6 W/kg (SAR Limit)	SAR	PASS	SAR Report

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

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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## 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-19 FCC ID: ACJ9TGCF-195**. 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 UMTS 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. The WCDMA and GSM conducted powers are reported below. The power was not measured in AMR mode because the module in this setup is not intended for use AMR mode use.

Band	Channel	Number of Slots Used	GPRS	EDGE
			Conducted Power	Conducted Power
			[dBm]	[dBm]
Cellular	128	1	32.04	27.25
	190	1	32.21	27.40
	251	1	32.31	27.44
PCS	512	1	29.10	26.49
	661	1	29.16	26.45
	810	1	29.05	26.29

Table 6-2. GSM Conducted Output Powers

Band	Channel	HSDPA Inactive		HSDPA Active	
		12.2 kbps RMC	12.2 kbps AMR	12.2 kbps RMC	12.2 kbps AMR
		[dBm]	[dBm]	[dBm]	[dBm]
UMTS	4132	22.98	N/A	22.96	N/A
	4175	23.17	N/A	23.19	N/A
	4233	22.83	N/A	22.81	N/A
PCS	9262	22.72	N/A	22.79	N/A
	9400	23.01	N/A	22.50	N/A
	9538	22.97	N/A	22.42	N/A

Table 6-3. UMTS Conducted Output Powers

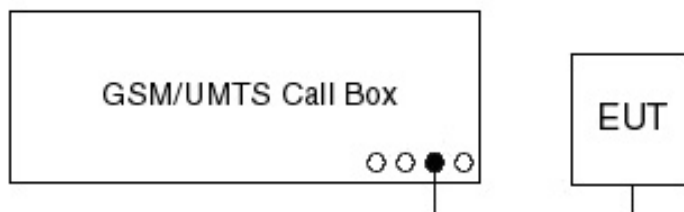


Figure 6-1. GSM/UMTS Conducted Power Test Setup Diagram

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### 6.3 Effective Radiated Power Output Data

§22.913(a)(2); RSS-132 (4.4) [SRSP-503(5.1.3)]

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

Frequency [MHz]	Mode	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBd]	PoI [H/V]	ERP [dBm]	ERP [Watts]	Battery Type
824.20	GPRS850	-9.770	30.54	-1.65	V	28.89	0.774	Standard
836.60	GPRS850	-11.380	28.93	-1.65	V	27.28	0.535	Standard
848.80	GPRS850	-13.540	26.77	-1.65	V	25.12	0.325	Standard
824.20	EDGE850	-14.350	25.96	-1.65	V	24.31	0.270	Standard

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

#### POWER: All "1" bits (Cellular UMTS Mode)

Frequency [MHz]	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBd]	PoI [H/V]	ERP [dBm]	ERP [Watts]	Battery Type
826.40	-19.310	21.00	-1.65	V	19.35	0.086	Standard
835.00	-20.180	20.13	-1.65	V	18.48	0.070	Standard
846.60	-21.900	18.41	-1.65	V	16.76	0.047	Standard



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

#### NOTES:

Effective Radiated Power Output 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. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

This device was tested under all configurations and the highest power is reported in UMTS 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. This unit was tested with its standard battery.

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## 6.4 Equivalent Isotropic Radiated Power Output Data

§24.232(c); RSS-133 (6.4) [SRSP-510 (5.1.2)]

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

Frequency [MHz]	Mode	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	PoI [H/V]	EIRP [dBm]	EIRP [Watts]	Battery Type
1850.20	GPRS1900	-12.010	18.69	8.00	V	26.69	0.467	Standard
1880.00	GPRS1900	-8.540	22.16	8.00	V	30.16	1.038	Standard
1909.80	GPRS1900	-11.680	19.02	8.00	V	27.02	0.504	Standard
1880.00	EDGE1900	-13.420	17.28	8.00	V	25.28	0.337	Standard

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

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

Frequency [MHz]	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	PoI [H/V]	EIRP [dBm]	EIRP [Watts]	Battery Type
1852.40	-20.420	11.96	8.00	V	19.96	0.099	Standard
1880.00	-20.090	12.29	8.00	V	20.29	0.107	Standard
1907.60	-23.330	9.05	8.00	V	17.05	0.051	Standard

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

#### NOTES:

Equivalent Isotropic Radiated Power 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 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.

This device was tested under all configurations and the highest power is reported in UMTS 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. This unit was tested with its standard battery.

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## 6.5 Cellular Band Radiated Measurements

§2.1053, 22.917(a); RSS-132 (4.5.1)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 824.20 MHz  
 CHANNEL: 128  
 MEASURED OUTPUT POWER: 28.890 dBm = 0.774 W  
 MODULATION SIGNAL: GSM (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  41.89 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1648.40	-68.79	6.16	-62.63	V	91.5
2472.60	-71.70	7.26	-64.45	V	93.3
3296.80	-77.89	7.40	-70.49	V	99.4
4121.00	-86.76	7.59	-79.18	V	108.1
4945.20	-85.85	8.47	-77.38	V	106.3

**Table 6-8. 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 UMTS 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. This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-195	PCTEST	FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)	Panasonic	Reviewed by: Quality Manager
Test Report S/N: 0702280125.ACJ	Test Dates: March 19 - 21, 2007	EUT Type: Toughbook Model: CF-19		Page 15 of 56



## Cellular Band Radiated Measurements (Cont'd)

§2.1053, 22.917(a); RSS-132 (4.5.1)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 836.60 MHz  
 CHANNEL: 190  
 MEASURED OUTPUT POWER: 28.890 dBm = 0.774 W  
 MODULATION SIGNAL: GSM (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  41.89 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1673.20	-70.11	6.18	-63.93	V	92.8
2509.80	-69.26	7.30	-61.96	V	90.8
3346.40	-90.10	7.42	-82.68	V	111.6
4183.00	-87.03	7.75	-79.28	V	108.2
5019.60	-85.24	8.46	-76.78	V	105.7

**Table 6-9. 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 UMTS 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. This unit was tested with its standard battery.

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## Cellular Band Radiated Measurements (Cont'd)

§2.1053, 22.917(a); RSS-132 (4.5.1)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 848.80 MHz  
 CHANNEL: 251  
 MEASURED OUTPUT POWER: 28.890 dBm = 0.774 W  
 MODULATION SIGNAL: GSM (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  41.89 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1697.60	-71.53	6.19	-65.34	V	94.2
2546.40	-74.35	7.30	-67.06	V	95.9
3395.20	-78.75	7.44	-71.31	V	100.2
4244.00	-87.08	7.91	-79.18	V	108.1
5092.80	-85.44	8.46	-76.98	V	105.9

**Table 6-10. 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 UMTS 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. This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-195	PCTEST	FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)	Panasonic	Reviewed by: Quality Manager
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## Cellular Band Radiated Measurements (Cont'd)

§2.1053, 22.917(a); RSS-132 (4.5.1)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 826.40 MHz  
 CHANNEL: 4132  
 MEASURED OUTPUT POWER: 19.350 dBm = 0.086 W  
 MODULATION SIGNAL: WCDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  32.35 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1652.80	-74.99	6.16	-68.83	V	88.2
2479.20	-78.60	7.26	-71.35	V	90.7
3305.60	-78.59	7.40	-71.19	V	90.5
4132.00	-86.76	7.59	-79.18	V	98.5
4958.40	-85.85	8.47	-77.38	V	96.7

**Table 6-11. Radiated Spurious Data (Cellular UMTS 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 UMTS 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. This unit was tested with its standard battery.

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## Cellular Band Radiated Measurements (Cont'd)

§2.1053, 22.917(a); RSS-132 (4.5.1)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 835.00 MHz  
 CHANNEL: 4175  
 MEASURED OUTPUT POWER: 19.350 dBm = 0.086 W  
 MODULATION SIGNAL: WCDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  32.35 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1670.00	-73.41	6.18	-67.23	V	86.6
2505.00	-77.66	7.30	-70.36	V	89.7
3340.00	-83.22	7.42	-75.80	V	95.1
4175.00	-87.03	7.75	-79.28	V	98.6
5010.00	-85.24	8.46	-76.78	V	96.1

**Table 6-12. Radiated Spurious Data (Cellular UMTS Mode – Ch. 4175)**

#### 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 UMTS 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. This unit was tested with its standard battery.

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## Cellular Band Radiated Measurements (Cont'd)

§2.1053, 22.917(a); RSS-132 (4.5.1)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 846.60 MHz  
 CHANNEL: 4233  
 MEASURED OUTPUT POWER: 19.350 dBm = 0.086 W  
 MODULATION SIGNAL: WCDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  32.35 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
1693.20	-72.33	6.19	-66.14	V	85.5
2539.80	-76.45	7.30	-69.16	V	88.5
3386.40	-89.72	7.44	-82.28	V	101.6
4233.00	-87.08	7.91	-79.18	V	98.5
5079.60	-85.44	8.46	-76.98	V	96.3

**Table 6-13. Radiated Spurious Data (Cellular UMTS 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 UMTS 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. This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-195	PCTEST	FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)	Panasonic	Reviewed by: Quality Manager
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## 6.6 PCS Band Radiated Measurements

§2.1053, 24.238(a); RSS-133 (6.5.1)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1850.20 MHz  
 CHANNEL: 512  
 MEASURED OUTPUT POWER: 30.160 dBm = 1.038 W  
 MODULATION SIGNAL: GSM (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  43.16 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3700.40	-54.28	9.54	-44.75	V	74.9
5550.60	-54.46	10.66	-43.80	V	74.0
7400.80	-80.67	11.14	-69.53	V	99.7
9251.00	-77.18	11.15	-66.03	V	96.2
11101.20	-77.98	12.75	-65.23	V	95.4

**Table 6-14. 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 UMTS 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. This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-195	PCTEST	FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)	Panasonic	Reviewed by: Quality Manager
Test Report S/N: 0702280125.ACJ	Test Dates: March 19 - 21, 2007	EUT Type: Toughbook Model: CF-19	Page 21 of 56	



## PCS Band Radiated Measurements (Cont'd)

§2.1053, 24.238(a); RSS-133 (6.5.1)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1880.00 MHz  
 CHANNEL: 661  
 MEASURED OUTPUT POWER: 30.160 dBm = 1.038 W  
 MODULATION SIGNAL: GSM (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  43.16 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3760.00	-61.90	9.51	-52.40	V	82.6
5640.00	-65.19	10.76	-54.43	V	84.6
7520.00	-80.24	11.01	-69.23	V	99.4
9400.00	-77.15	11.32	-65.83	V	96.0
11280.00	-77.77	12.74	-65.03	V	95.2

**Table 6-15. 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 UMTS 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. This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-195	PCTEST	FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)	Panasonic	Reviewed by: Quality Manager
Test Report S/N: 0702280125.ACJ	Test Dates: March 19 - 21, 2007	EUT Type: Toughbook Model: CF-19	Page 22 of 56	



**PCS Band Radiated Measurements (Cont'd)**

**§2.1053, 24.238(a); RSS-133 (6.5.1)**

**Field Strength of SPURIOUS Radiation**

OPERATING FREQUENCY: 1909.80 MHz  
 CHANNEL: 810  
 MEASURED OUTPUT POWER: 30.160 dBm = 1.038 W  
 MODULATION SIGNAL: GSM (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  43.16 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3819.60	-58.82	9.48	-49.34	V	79.5
5729.40	-55.38	10.86	-44.52	V	74.7
7639.20	-80.06	11.03	-69.03	V	99.2
9549.00	-77.02	11.49	-65.53	V	95.7
11458.80	-77.55	12.72	-64.83	V	95.0

**Table 6-16. 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 UMTS 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. This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0702280125.ACJ	Test Dates: March 19 - 21, 2007	EUT Type: Toughbook Model: CF-19		Page 23 of 56



## PCS Band Radiated Measurements (Cont'd)

§2.1053, 24.238(a); RSS-133 (6.5.1)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1852.40 MHz  
 CHANNEL: 9262  
 MEASURED OUTPUT POWER: 20.290 dBm = 0.107 W  
 MODULATION SIGNAL: WCDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  33.29 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3704.80	-61.78	9.54	-52.25	V	72.5
5557.20	-59.06	10.66	-48.40	V	68.7
7409.60	-80.67	11.14	-69.53	V	89.8
9262.00	-77.18	11.15	-66.03	V	86.3
11114.40	-77.98	12.75	-65.23	V	85.5

**Table 6-17. Radiated Spurious Data (PCS UMTS 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 UMTS 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. This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-195	PCTEST	FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)	Panasonic	Reviewed by: Quality Manager
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## PCS Band Radiated Measurements (Cont'd)

§2.1053, 24.238(a); RSS-133 (6.5.1)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1880.00 MHz  
 CHANNEL: 9400  
 MEASURED OUTPUT POWER: 20.290 dBm = 0.107 W  
 MODULATION SIGNAL: WCDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10} (W) =$  33.29 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3760.00	-59.30	9.51	-49.80	V	70.1
5640.00	-60.39	10.76	-49.63	V	69.9
7520.00	-80.24	11.01	-69.23	V	89.5
9400.00	-77.15	11.32	-65.83	V	86.1
11280.00	-77.77	12.74	-65.03	V	85.3

**Table 6-18. Radiated Spurious Data (PCS UMTS 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 UMTS 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. This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-195	PCTEST	FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)	Panasonic	Reviewed by: Quality Manager
Test Report S/N: 0702280125.ACJ	Test Dates: March 19 - 21, 2007	EUT Type: Toughbook Model: CF-19		Page 25 of 56



## PCS Band Radiated Measurements (Cont'd)

§2.1053, 24.238(a); RSS-133 (6.5.1)

### Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1907.60 MHz  
 CHANNEL: 9538  
 MEASURED OUTPUT POWER: 20.290 dBm = 0.107 W  
 MODULATION SIGNAL: WCDMA (Internal)  
 DISTANCE: 3 meters  
 LIMIT:  $43 + 10 \log_{10}(W) =$  33.29 dBc

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
3815.20	-61.02	9.48	-51.54	V	71.8
5722.80	-55.28	10.86	-44.42	V	64.7
7630.40	-80.06	11.03	-69.03	V	89.3
9538.00	-77.02	11.49	-65.53	V	85.8
11445.60	-77.55	12.72	-64.83	V	85.1

**Table 6-19. Radiated Spurious Data (PCS UMTS 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 UMTS 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. This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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**6.7 Cellular Band Frequency Stability Measurements**  
§2.1055, 22.355; RSS-132 (4.3)

OPERATING FREQUENCY: 836,600,000 Hz  
 CHANNEL: 190  
 REFERENCE VOLTAGE: 11.7 VDC  
 DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

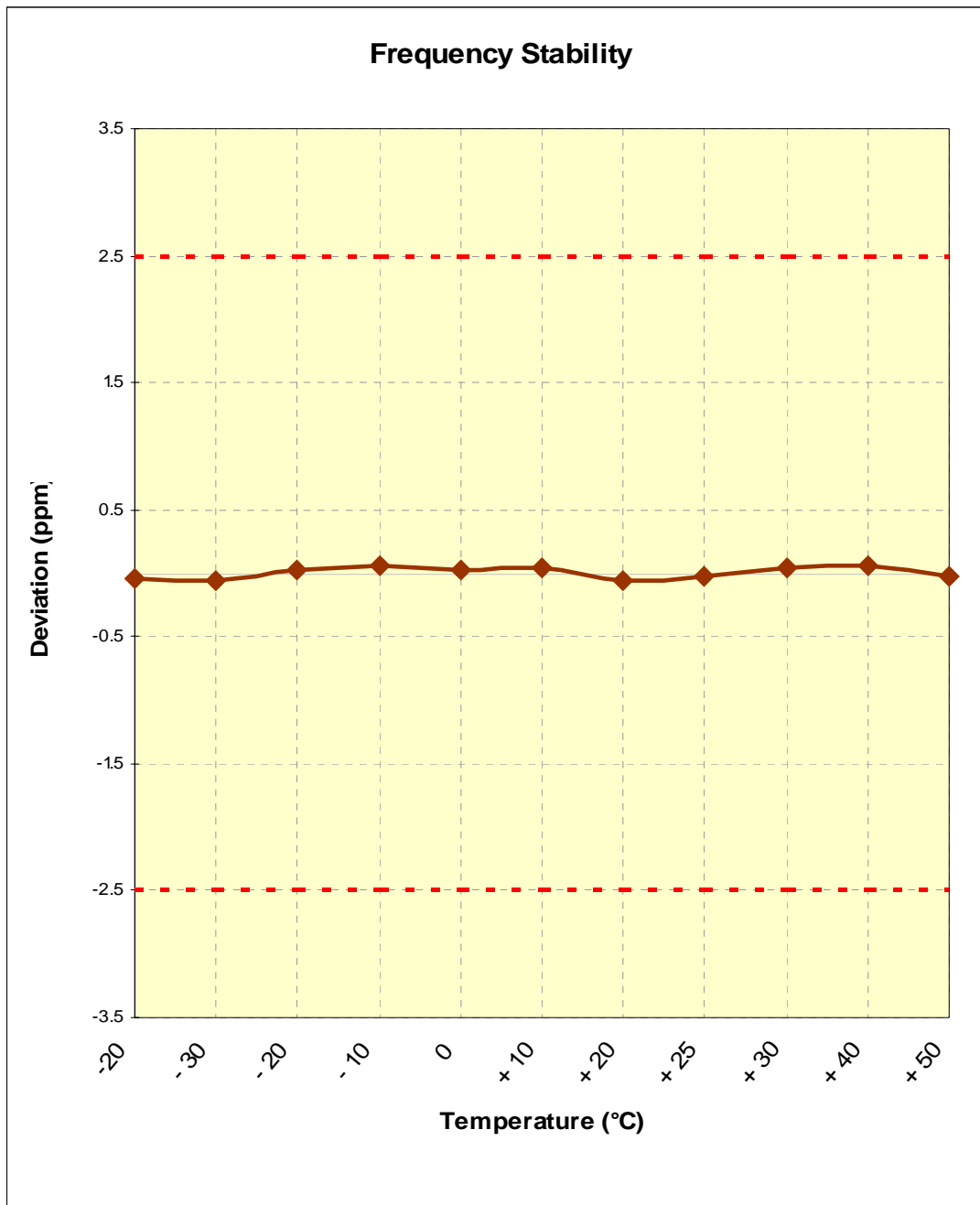
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQ. (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	11.70	+ 20 (Ref)	836,599,960	-40	-0.000005
100 %		- 30	836,599,957	-43	-0.000005
100 %		- 20	836,600,024	24	0.000003
100 %		- 10	836,600,045	45	0.000005
100 %		0	836,600,025	25	0.000003
100 %		+ 10	836,600,033	33	0.000004
100 %		+ 20	836,599,957	-43	-0.000005
100 %		+ 25	836,599,976	-24	-0.000003
100 %		+ 30	836,600,038	38	0.000005
100 %		+ 40	836,600,045	45	0.000005
100 %		+ 50	836,599,981	-19	-0.000002
115 %		13.46	+ 20	836,599,983	-17
BATT. ENDPOINT	9.51	+ 20	836,600,042	42	0.000005

**Table 6-20. Frequency Stability Data (Cellular GSM Mode – Ch. 190)**

**Note:** This unit was tested with its standard battery.



FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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**Cellular Band Frequency Stability Measurements (Cont'd)**  
§2.1055, 22.355; RSS-132 (4.3)



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

**Note:** This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0702280125.ACJ	Test Dates: March 19 - 21, 2007	EUT Type: Toughbook Model: CF-19	Page 28 of 56	



## Cellular Band Frequency Stability Measurements (Cont'd)

§2.1055, 22.355; RSS-132 (4.3)

OPERATING FREQUENCY: 835,000,000 Hz

CHANNEL: 4175

REFERENCE VOLTAGE: 11.7 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQ. (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	11.70	+ 20 (Ref)	836,599,993	-7	-0.000001
100 %		- 30	836,600,024	24	0.000003
100 %		- 20	836,599,965	-35	-0.000004
100 %		- 10	836,600,013	13	0.000002
100 %		0	836,600,021	21	0.000003
100 %		+ 10	836,600,001	1	0.000000
100 %		+ 20	836,600,036	36	0.000004
100 %		+ 25	836,599,974	-26	-0.000003
100 %		+ 30	836,600,034	34	0.000004
100 %		+ 40	836,599,964	-36	-0.000004
100 %		+ 50	836,599,975	-25	-0.000003
115 %		13.46	+ 20	836,599,953	-47
BATT. ENDPOINT	9.51	+ 20	836,600,048	48	0.000006

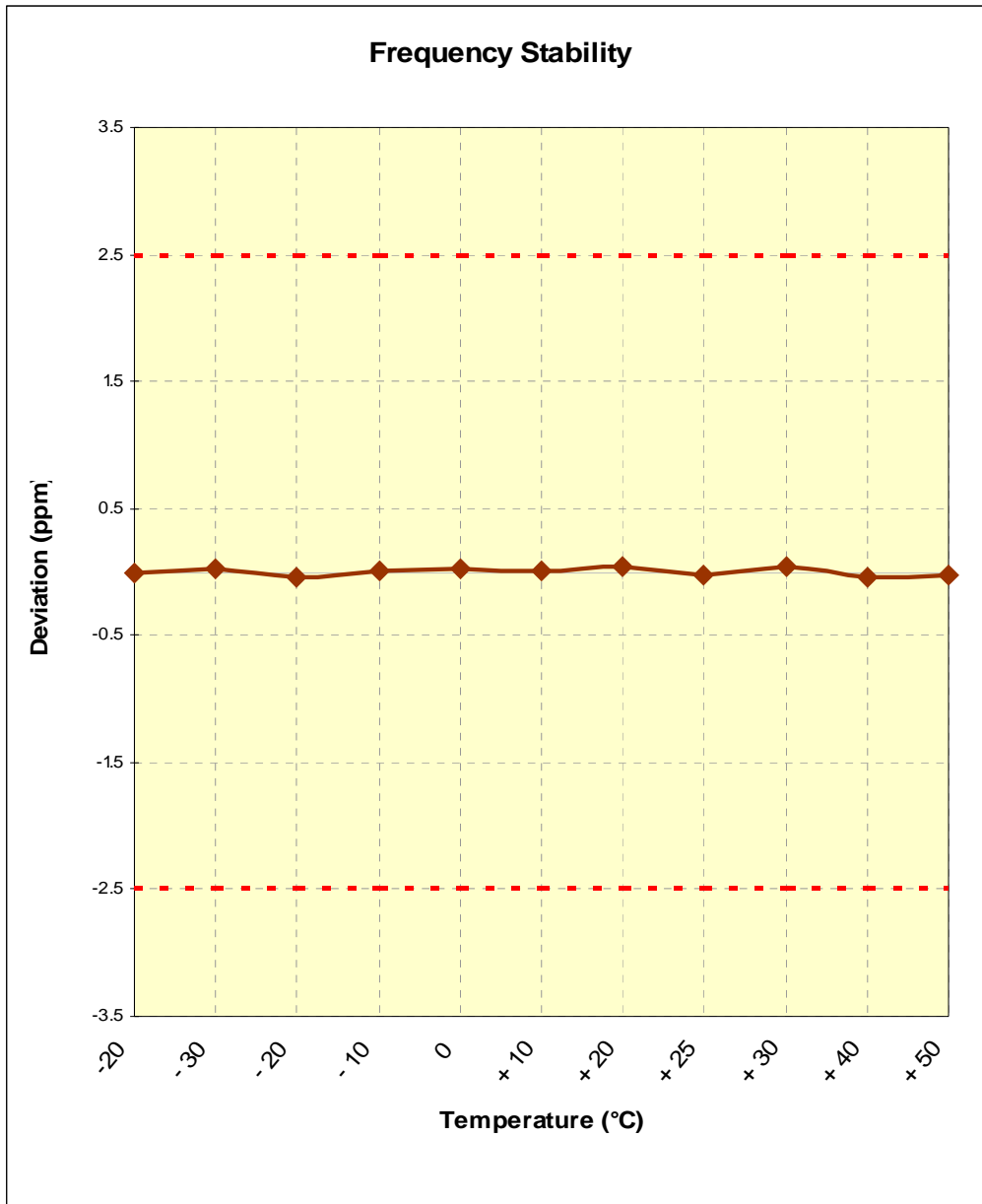
**Table 6-21. Frequency Stability Data (Cellular UMTS Mode – Ch. 4175)**

**Note:**

This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0702280125.ACJ	Test Dates: March 19 - 21, 2007	EUT Type: Toughbook Model: CF-19		Page 29 of 56



**Cellular Band Frequency Stability Measurements (Cont'd)**  
§2.1055, 22.355; RSS-132 (4.3)



**Plot 6-2. Frequency Stability Graph (Cellular UMTS Mode – Ch. 4175)**

**Note:**

This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0702280125.ACJ	Test Dates: March 19 - 21, 2007	EUT Type: Toughbook Model: CF-19	Page 30 of 56	



**6.8 PCS Band Frequency Stability Measurements**  
§2.1055, 24.235; RSS-133 (6.3)

OPERATING FREQUENCY: 1,880,000,000 Hz

CHANNEL: 661

REFERENCE VOLTAGE: 11.7 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

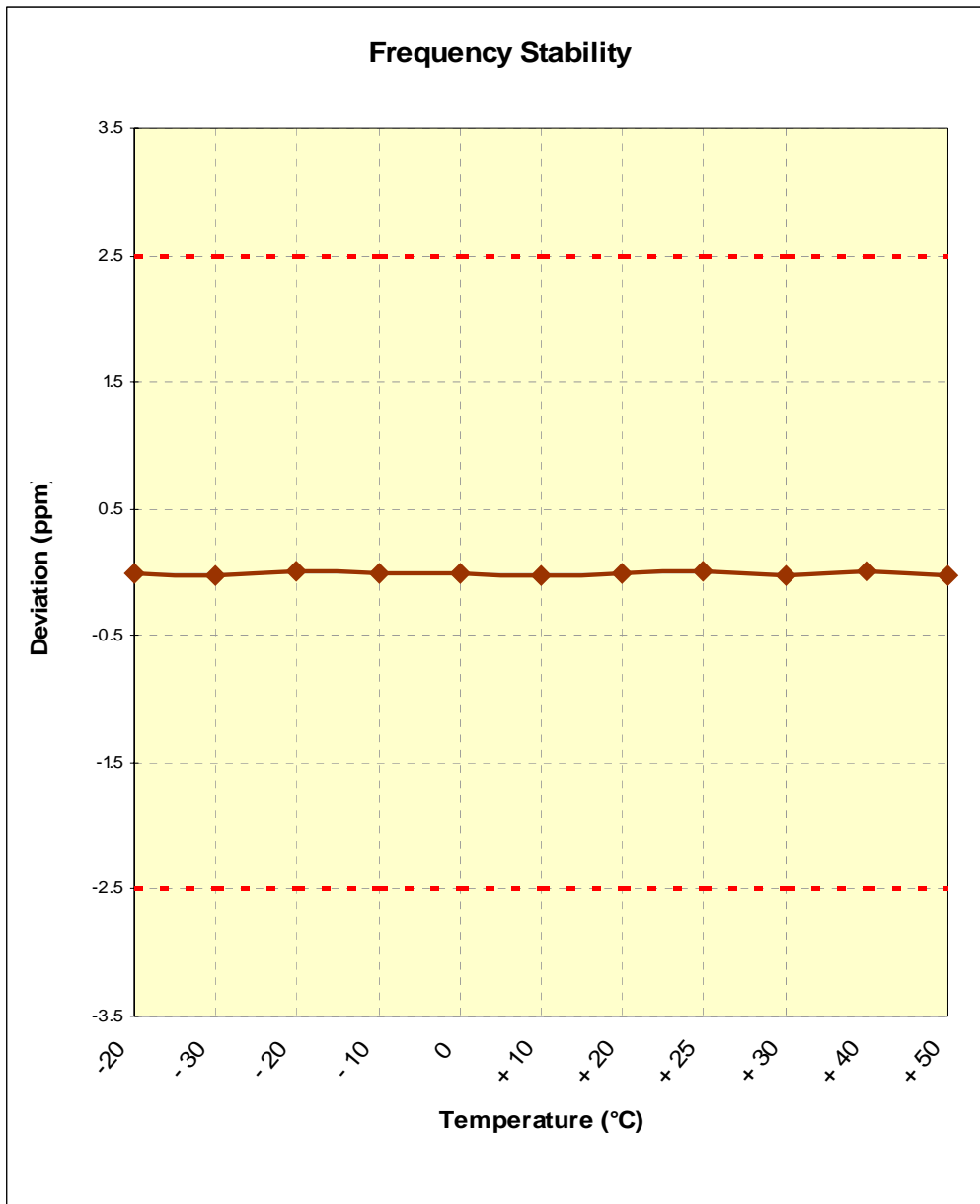
VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQ. (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	11.70	+ 20 (Ref)	1,879,999,985	-15	-0.000001
100 %		- 30	1,879,999,957	-43	-0.000002
100 %		- 20	1,880,000,003	3	0.000000
100 %		- 10	1,879,999,978	-22	-0.000001
100 %		0	1,879,999,970	-30	-0.000002
100 %		+ 10	1,879,999,958	-42	-0.000002
100 %		+ 20	1,879,999,986	-14	-0.000001
100 %		+ 25	1,880,000,018	18	0.000001
100 %		+ 30	1,879,999,968	-32	-0.000002
100 %		+ 40	1,880,000,001	1	0.000000
100 %		+ 50	1,879,999,959	-41	-0.000002
115 %		13.46	+ 20	1,879,999,983	-17
BATT. ENDPOINT	9.51	+ 20	1,879,999,959	-41	-0.000002

**Table 6-22. Frequency Stability Data (PCS GSM Mode – Ch. 661)**

**Note:** This unit was tested with its standard battery.



FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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**PCS Band Frequency Stability Measurements (Cont'd)**  
§2.1055, 24.235; RSS-133 (6.3)



**Plot 6-3. Frequency Stability Graph (PCS GSM Mode – Ch. 661)**

**Note:** This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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## PCS Band Frequency Stability Measurements (Cont'd)

§2.1055, 24.235; RSS-133 (6.3)

OPERATING FREQUENCY: 1,880,000,000 Hz

CHANNEL: 9400

REFERENCE VOLTAGE: 11.7 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQ. (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	11.70	+ 20 (Ref)	1,880,000,040	40	0.000002
100 %		- 30	1,879,999,982	-18	-0.000001
100 %		- 20	1,879,999,975	-25	-0.000001
100 %		- 10	1,880,000,024	24	0.000001
100 %		0	1,879,999,979	-21	-0.000001
100 %		+ 10	1,880,000,015	15	0.000001
100 %		+ 20	1,879,999,985	-15	-0.000001
100 %		+ 25	1,880,000,005	5	0.000000
100 %		+ 30	1,879,999,975	-25	-0.000001
100 %		+ 40	1,880,000,002	2	0.000000
100 %		+ 50	1,879,999,996	-4	0.000000
115 %	13.46	+ 20	1,880,000,000	0	0.000000
BATT. ENDPOINT	9.51	+ 20	1,879,999,983	-17	-0.000001

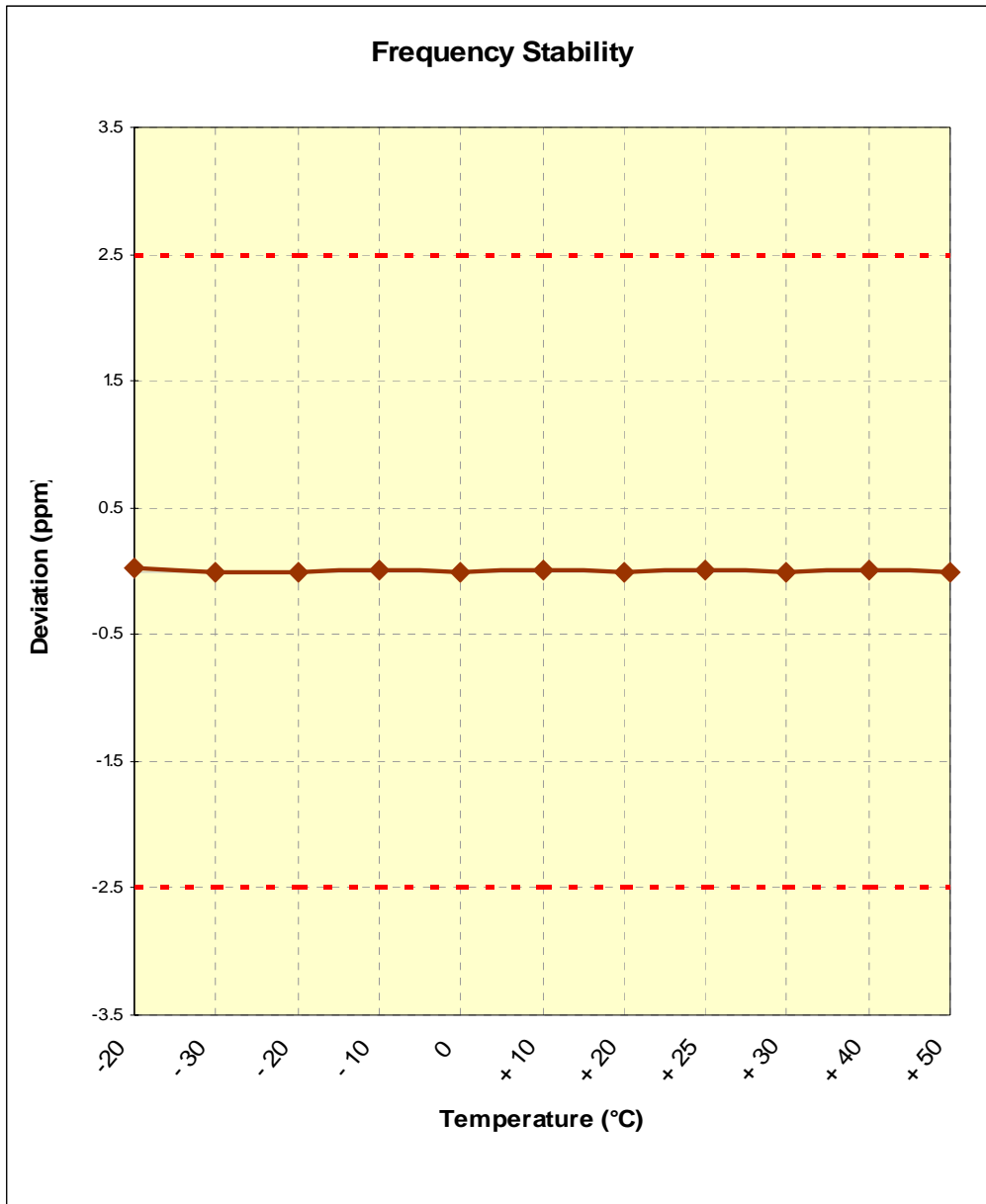
**Table 6-23. Frequency Stability Data (PCS UMTS Mode – Ch. 9400)**

**Note:**

This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0702280125.ACJ	Test Dates: March 19 - 21, 2007	EUT Type: Toughbook Model: CF-19		Page 33 of 56

**PCS Band Frequency Stability Measurements (Cont'd)**  
§2.1055, 24.235; RSS-133 (6.3)



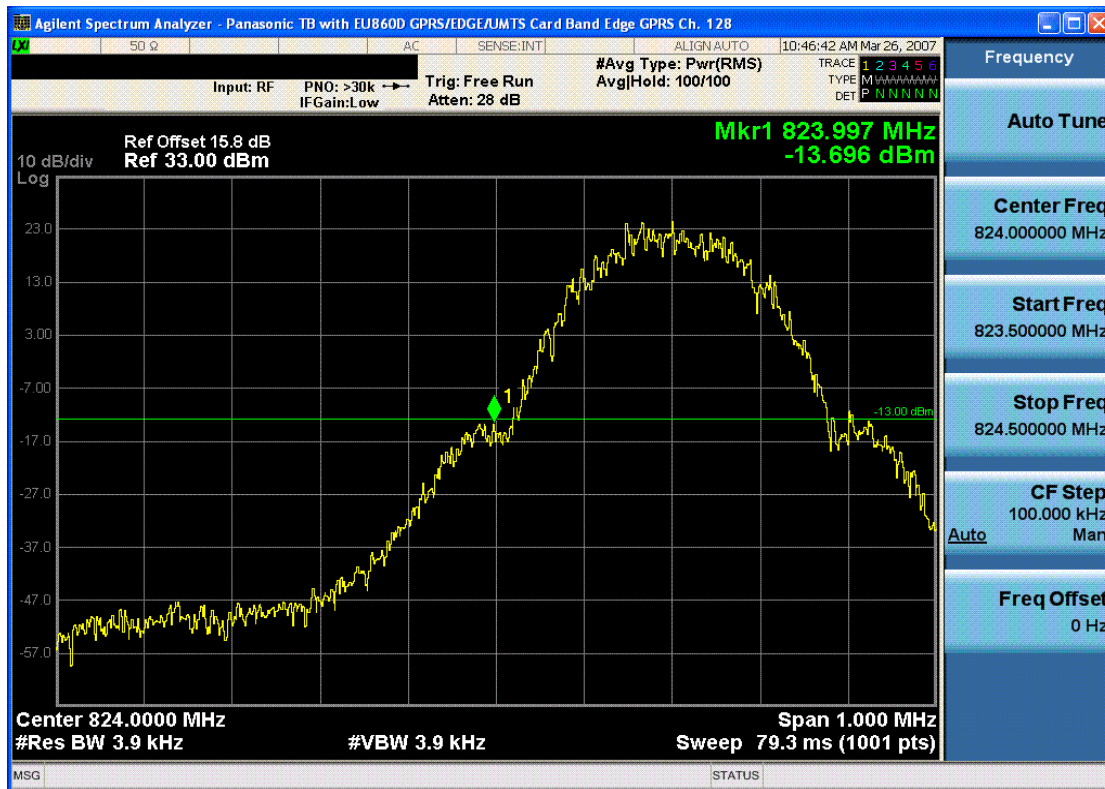
**Plot 6-4. Frequency Stability Graph (PCS UMTS Mode – Ch. 9400)**

**Note:**

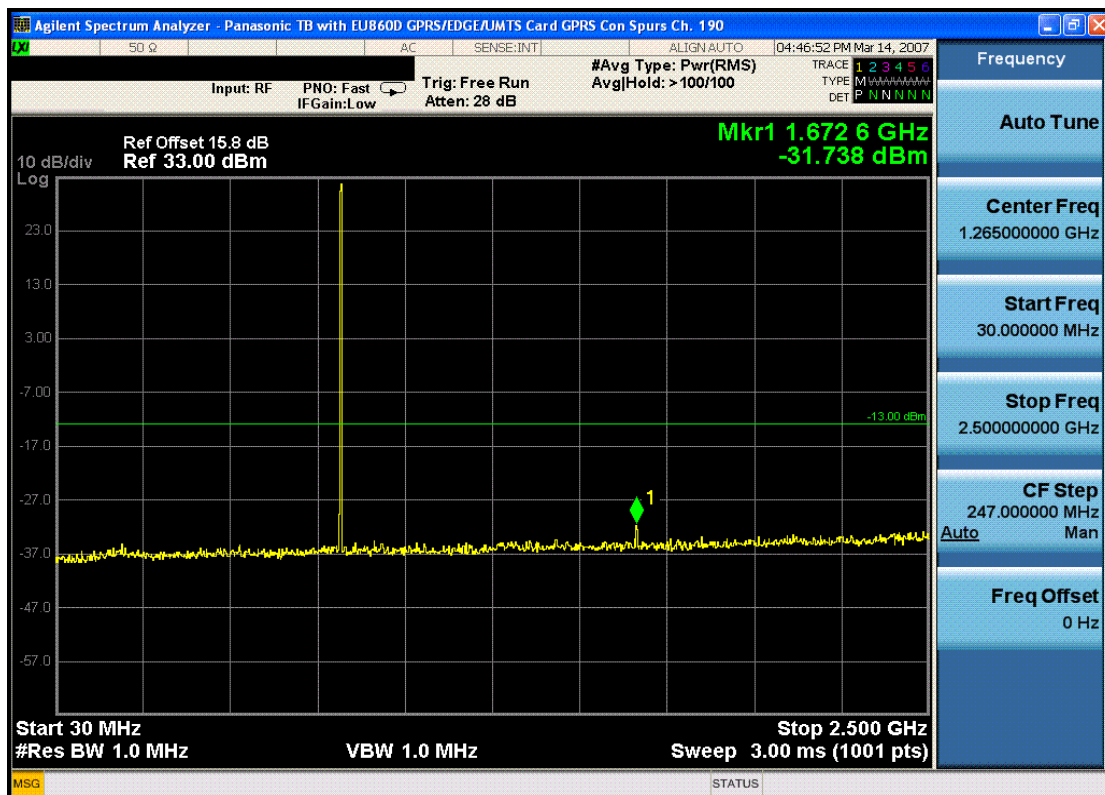
This unit was tested with its standard battery.

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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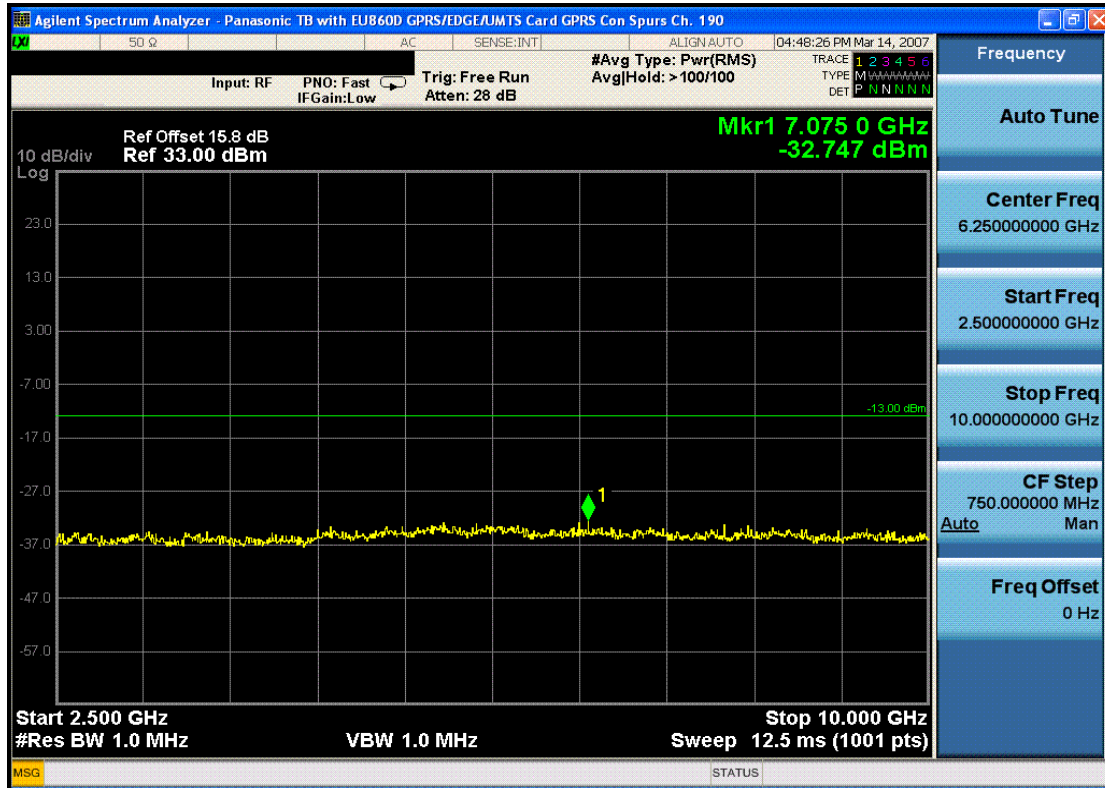


Plot 7-3. Band Edge Plot (Cellular GSM Mode – Ch. 128)

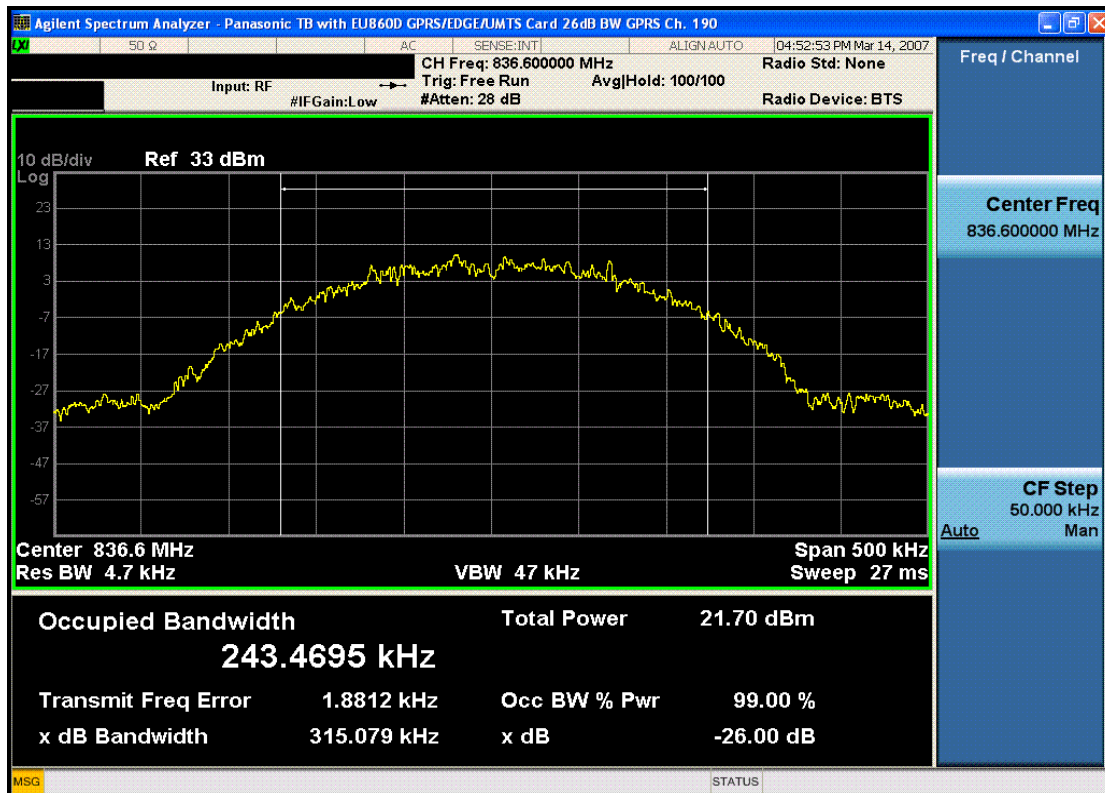


Plot 7-4. Conducted Spurious (Cellular GSM Mode – Ch. 190)

FCC ID: ACJ9TGCF-195	PCTEST	FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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Plot 7-5. Conducted Spurious Plot (Cellular GSM Mode – Ch. 190)

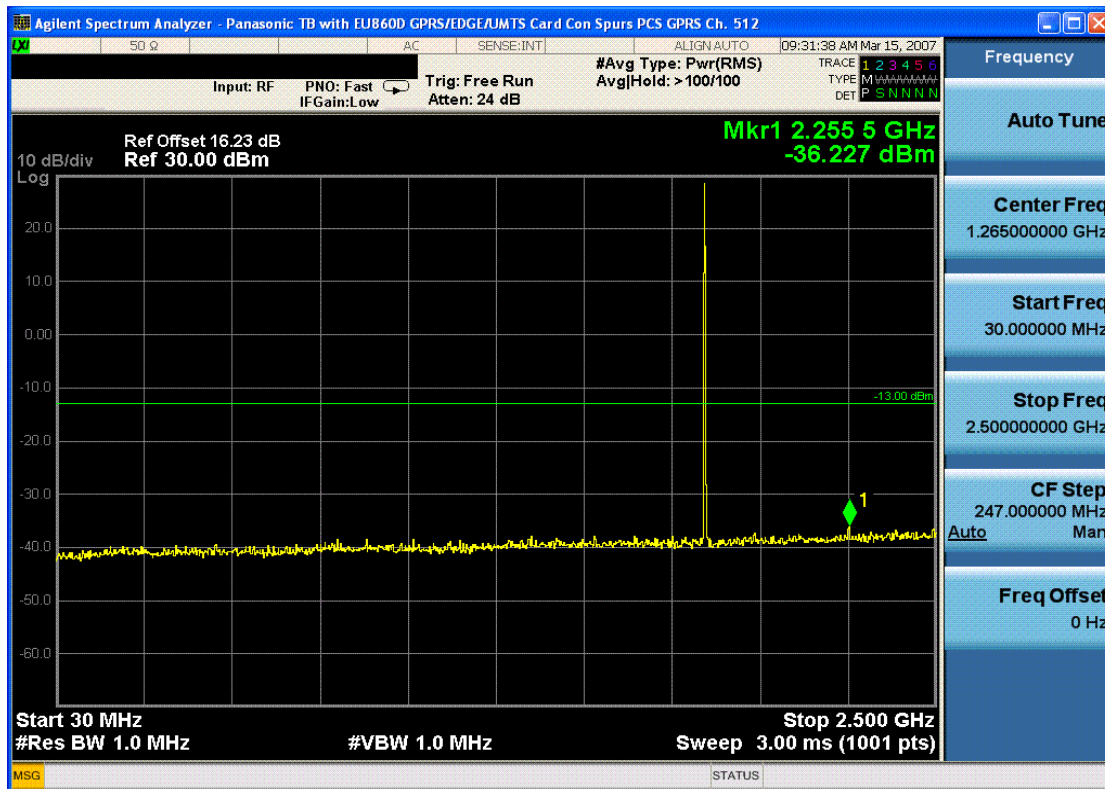


Plot 7-6. Occupied Bandwidth Plot (Cellular GSM Mode – Ch. 190)

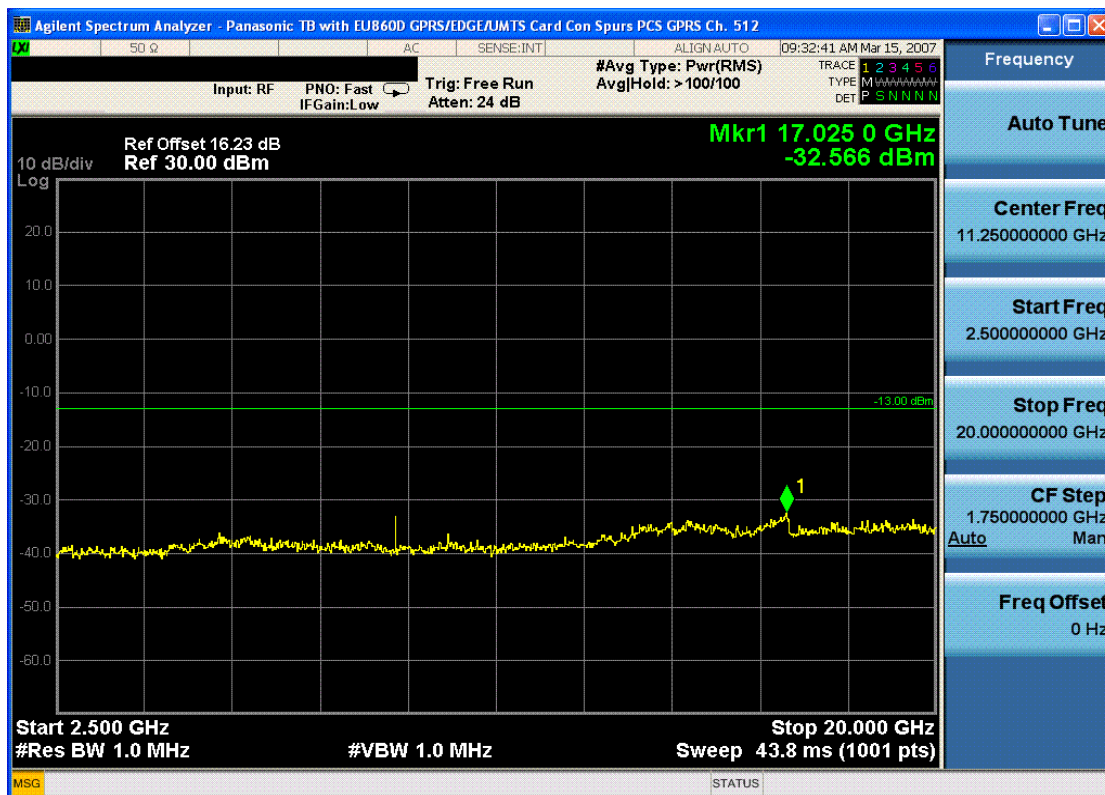
FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0702280125.ACJ	Test Dates: March 19 - 21, 2007	EUT Type: Toughbook Model: CF-19		Page 37 of 56







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

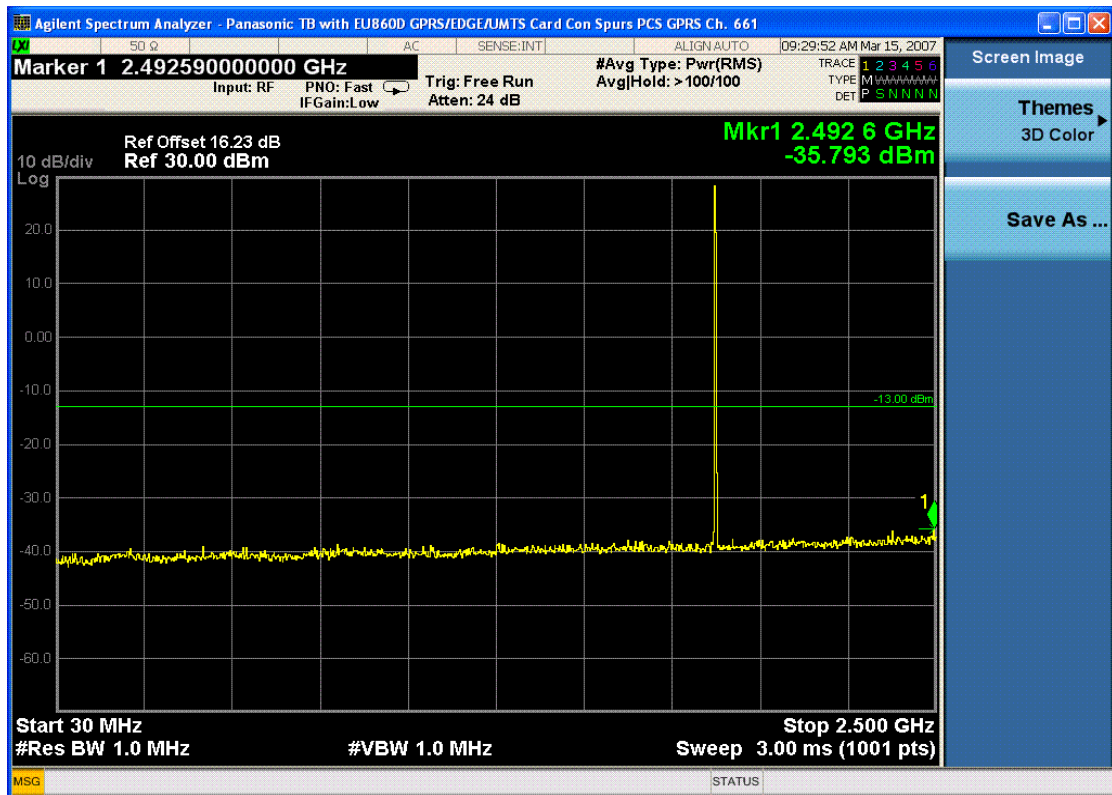


Plot 7-12. Conducted Spurious Plot (PCS GSM Mode – Ch. 512)

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Plot 7-13. Band Edge Plot (PCS GSM Mode – Ch. 512)

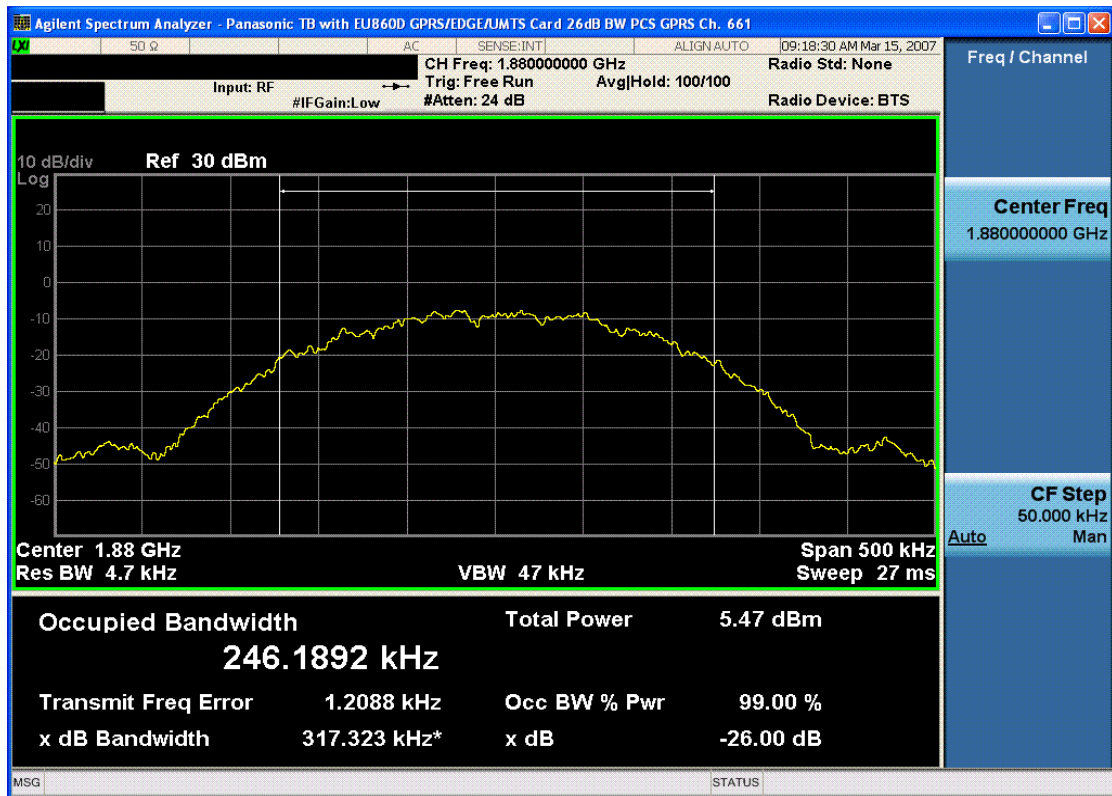


Plot 7-14. Conducted Spurious Plot (PCS GSM Mode – Ch. 661)

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N: 0702280125.ACJ	Test Dates: March 19 - 21, 2007	EUT Type: Toughbook Model: CF-19	Page 41 of 56

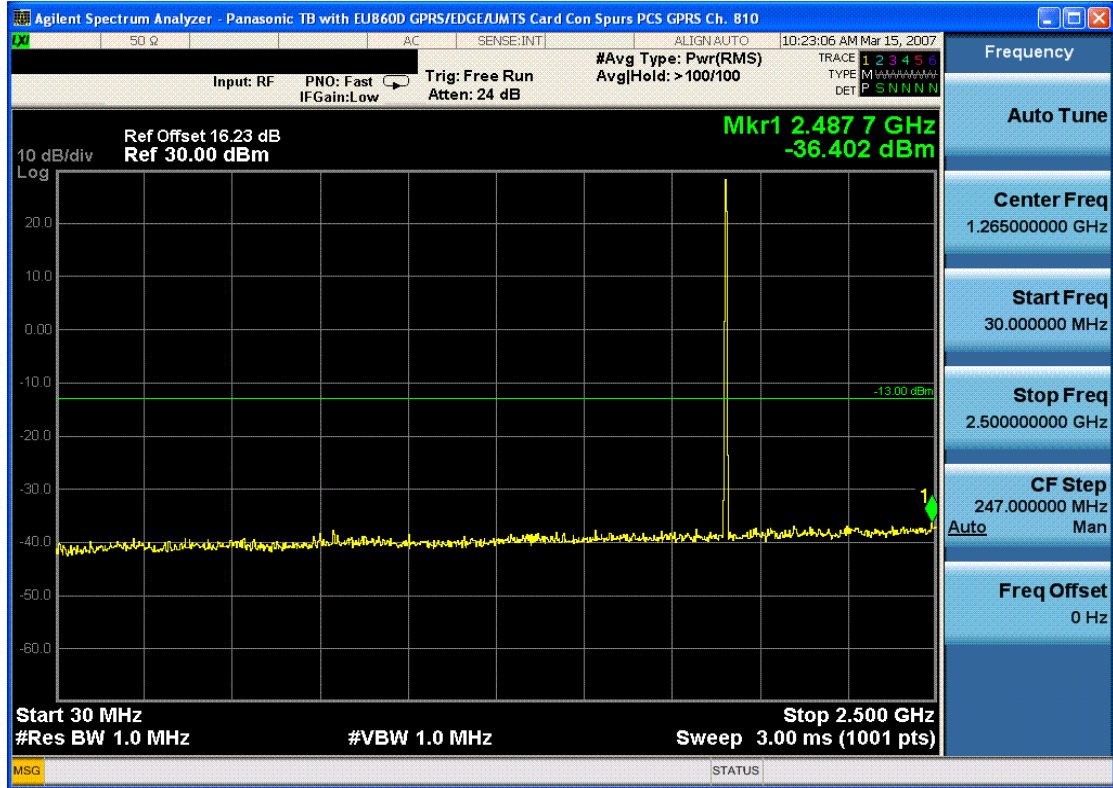


Plot 7-15. Conducted Spurious Plot (PCS GSM Mode – Ch. 661)

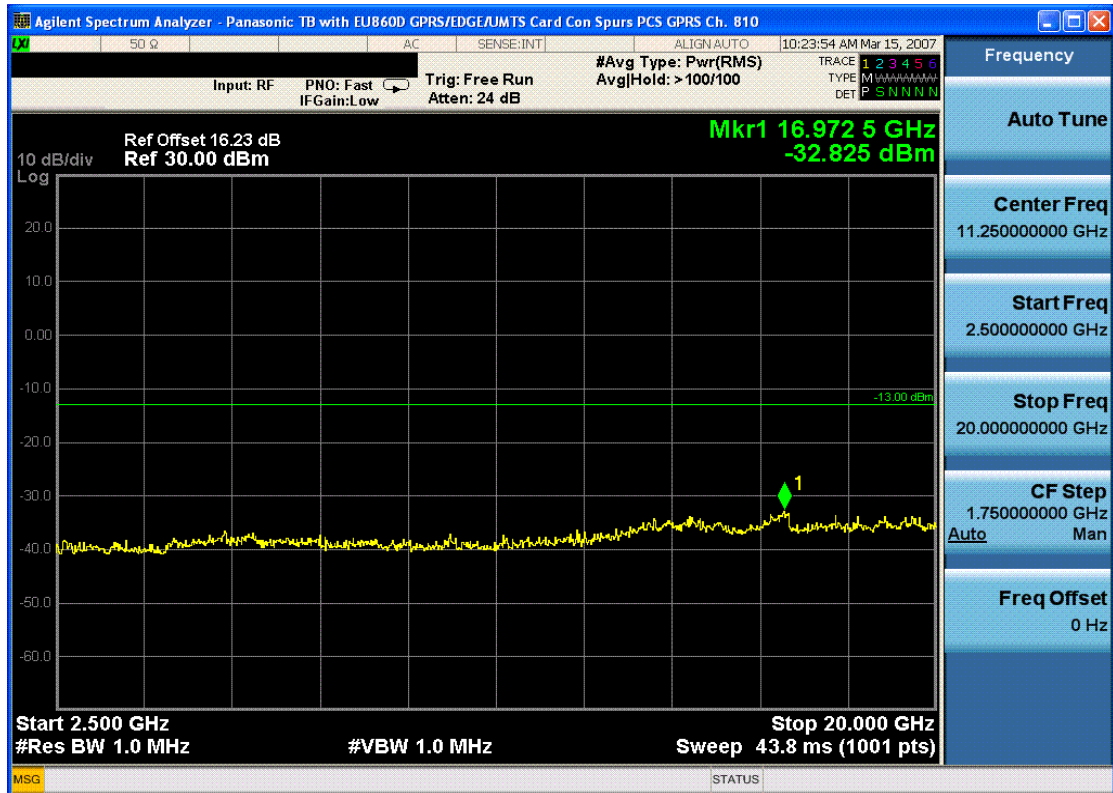


Plot 7-16. Occupied Bandwidth Plot (PCS GSM Mode – Ch. 661)

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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Plot 7-17. Conducted Spurious Plot (PCS GSM Mode – Ch. 810)

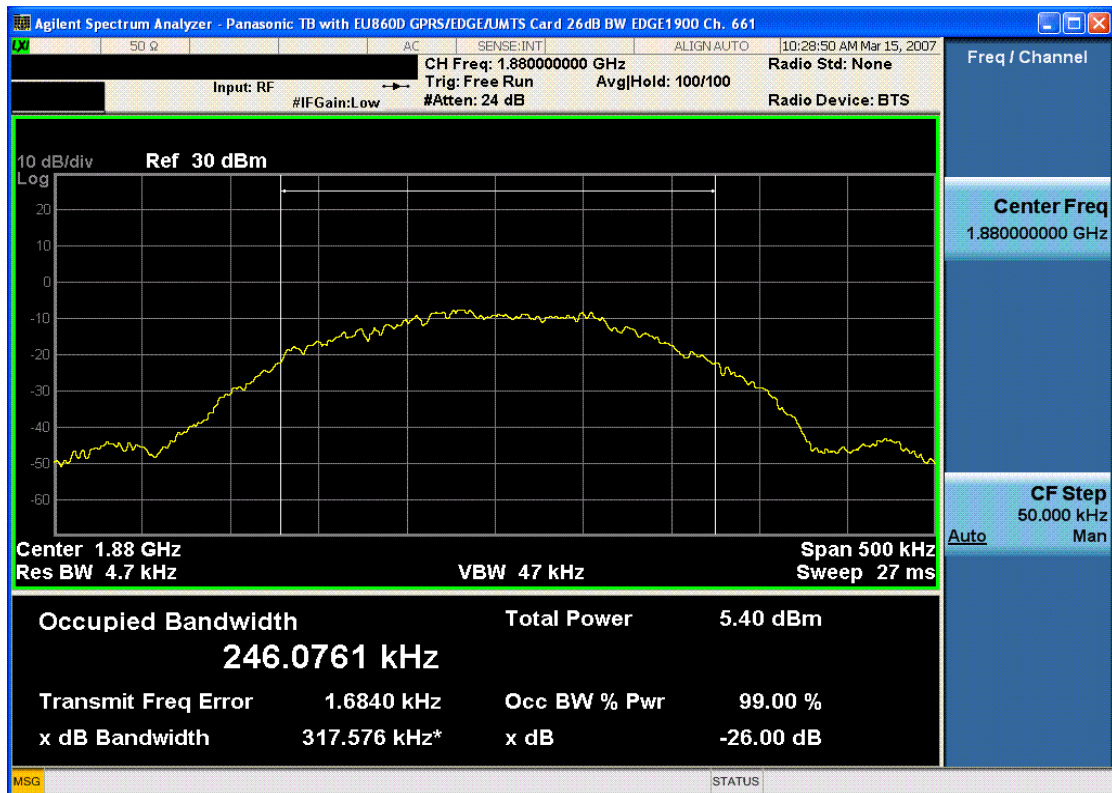


Plot 7-18. Conducted Spurious Plot (PCS GSM Mode – Ch. 810)

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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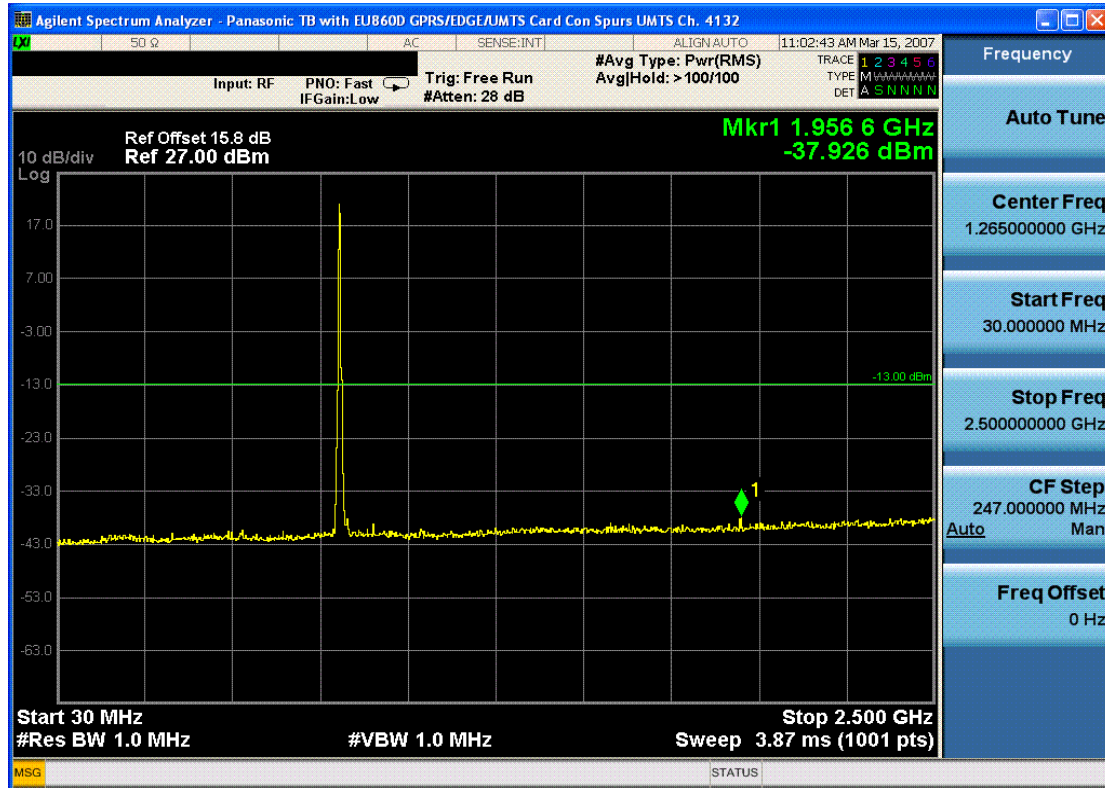


Plot 7-19. Band Edge Plot (PCS GSM Mode – Ch. 810)

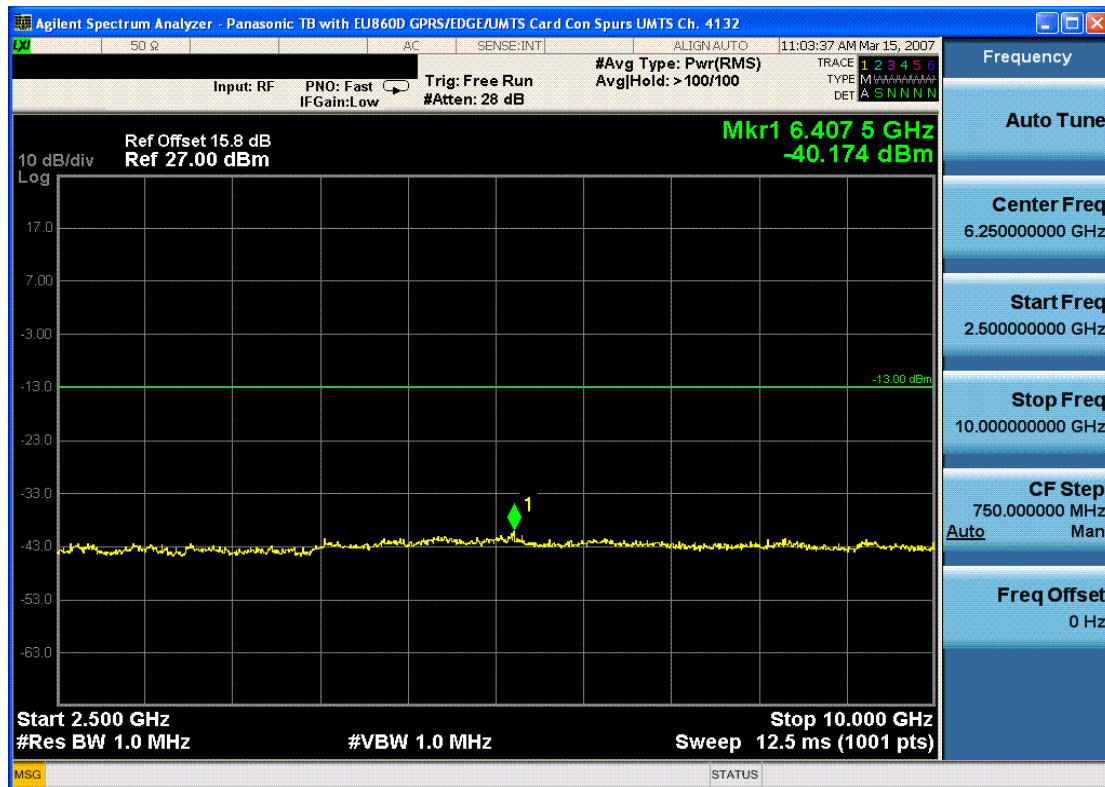


Plot 7-20. Occupied Bandwidth Plot (EDGE1900 Mode – Ch. 661)

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0702280125.ACJ	Test Dates: March 19 - 21, 2007	EUT Type: Toughbook Model: CF-19		Page 44 of 56

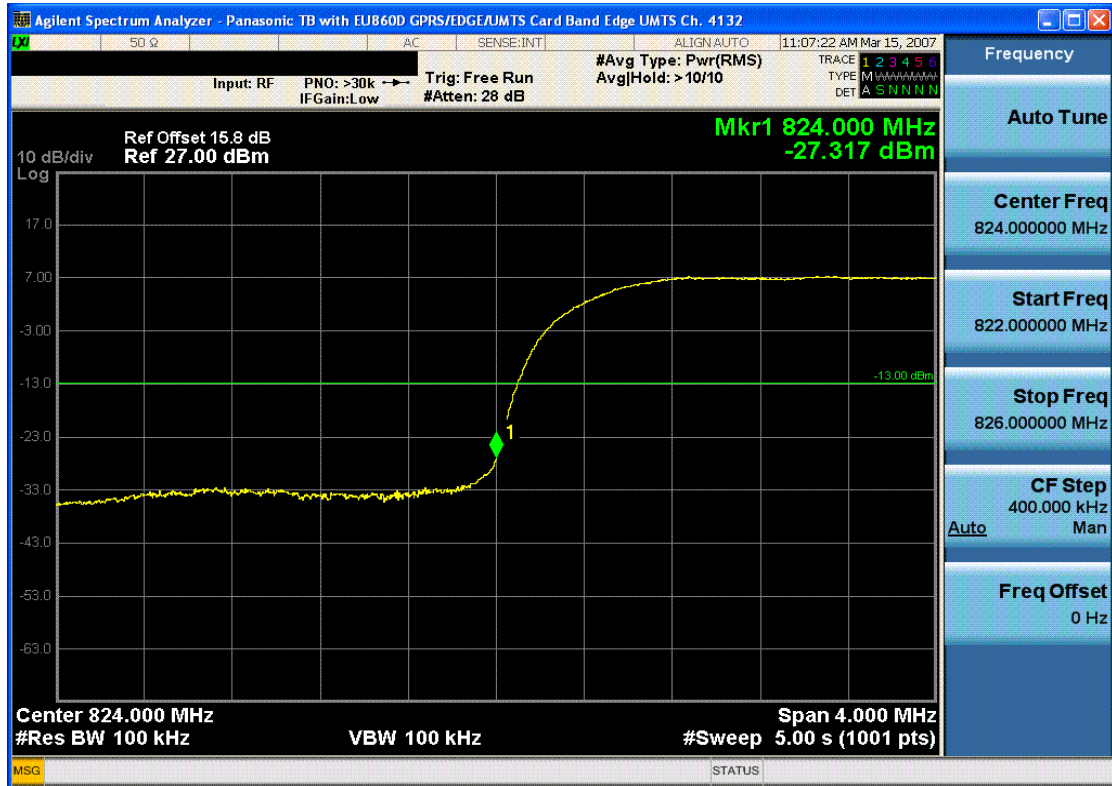


Plot 7-21. Conducted Spurious Plot (Cellular UMTS Mode – Ch. 4132)



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

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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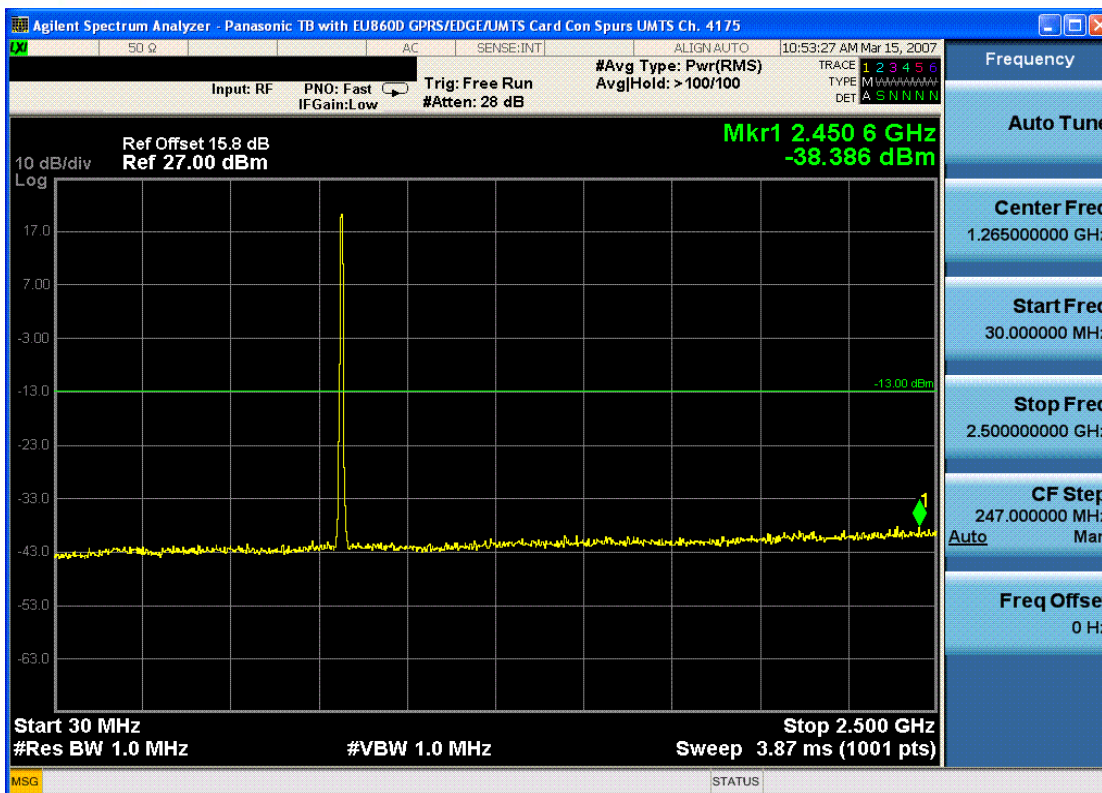


Plot 7-23. Band Edge Plot (Cellular UMTS Mode – Ch. 4132)

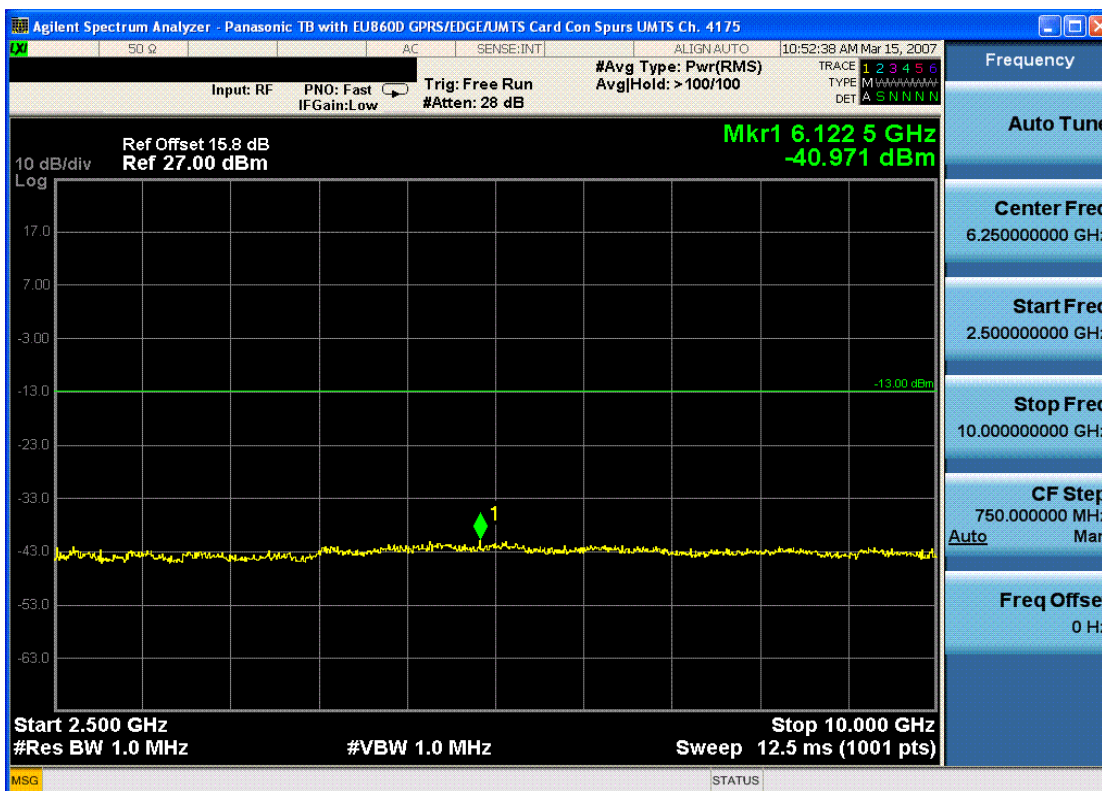


Plot 7-24. 4MHz Span Plot (Cellular UMTS Mode – Ch. 4132)

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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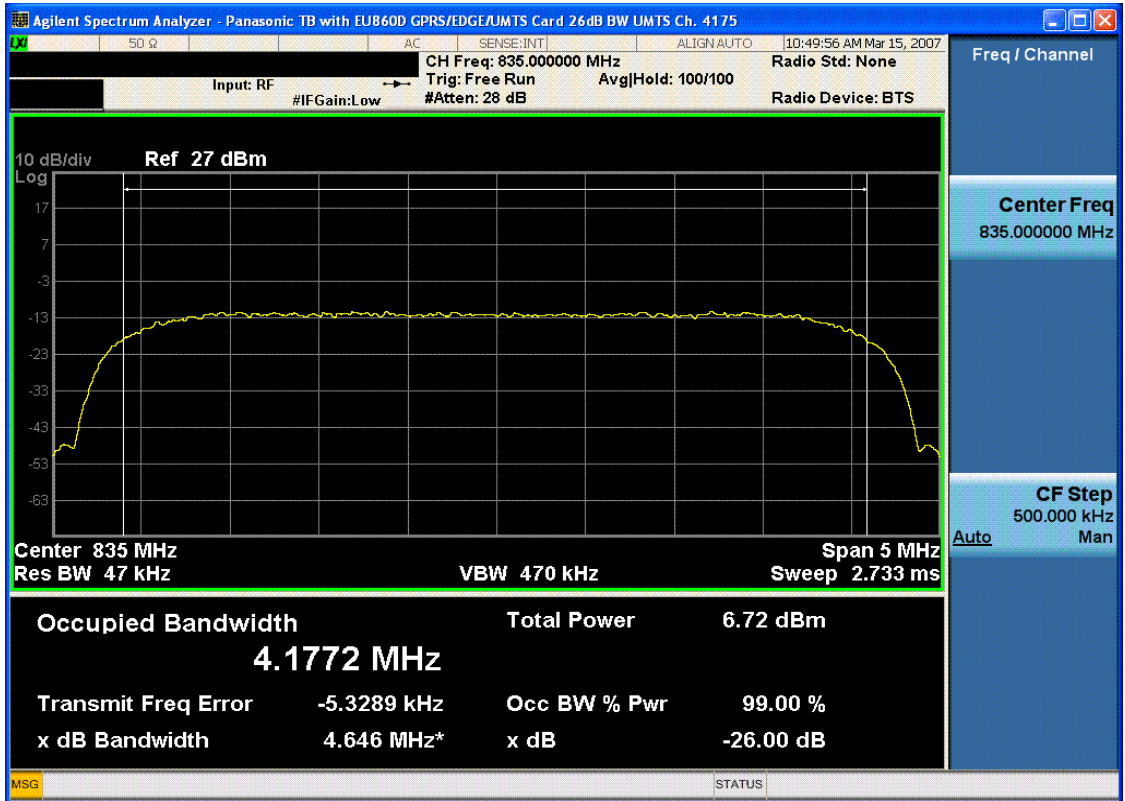


Plot 7-25. Conducted Spurious Plot (Cellular UMTS Mode – Ch. 4175)

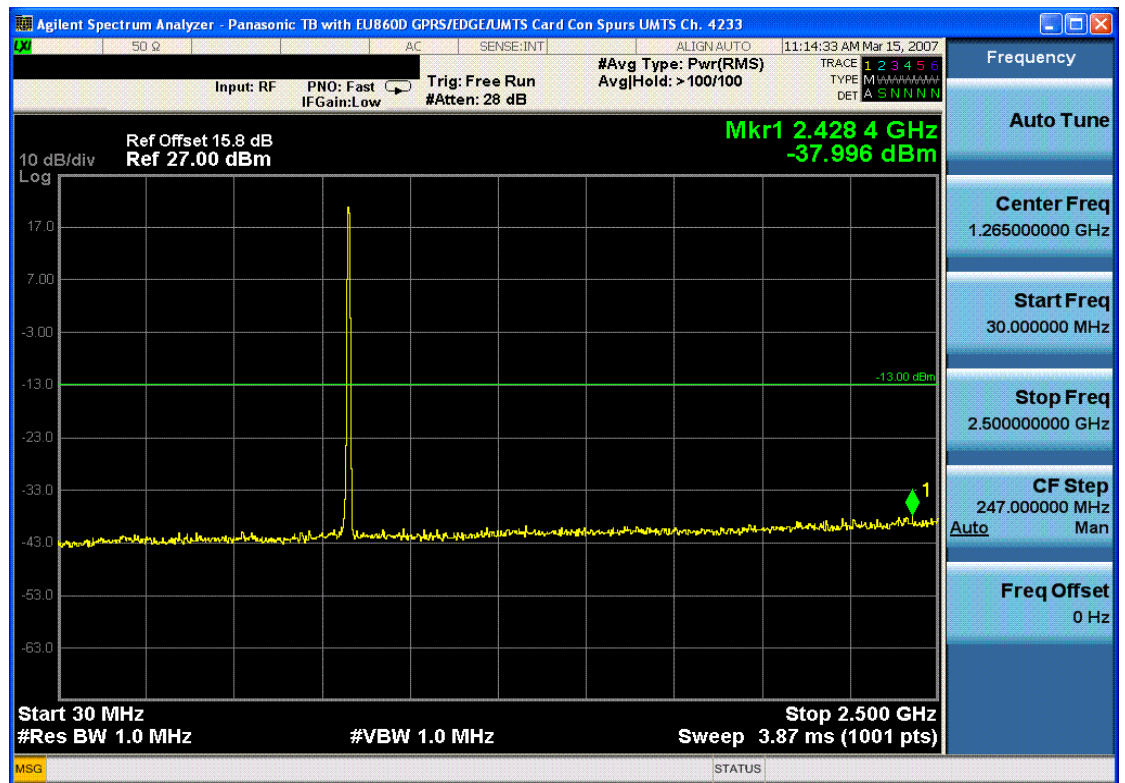


Plot 7-26. Conducted Spurious Plot (Cellular UMTS Mode – Ch. 4175)

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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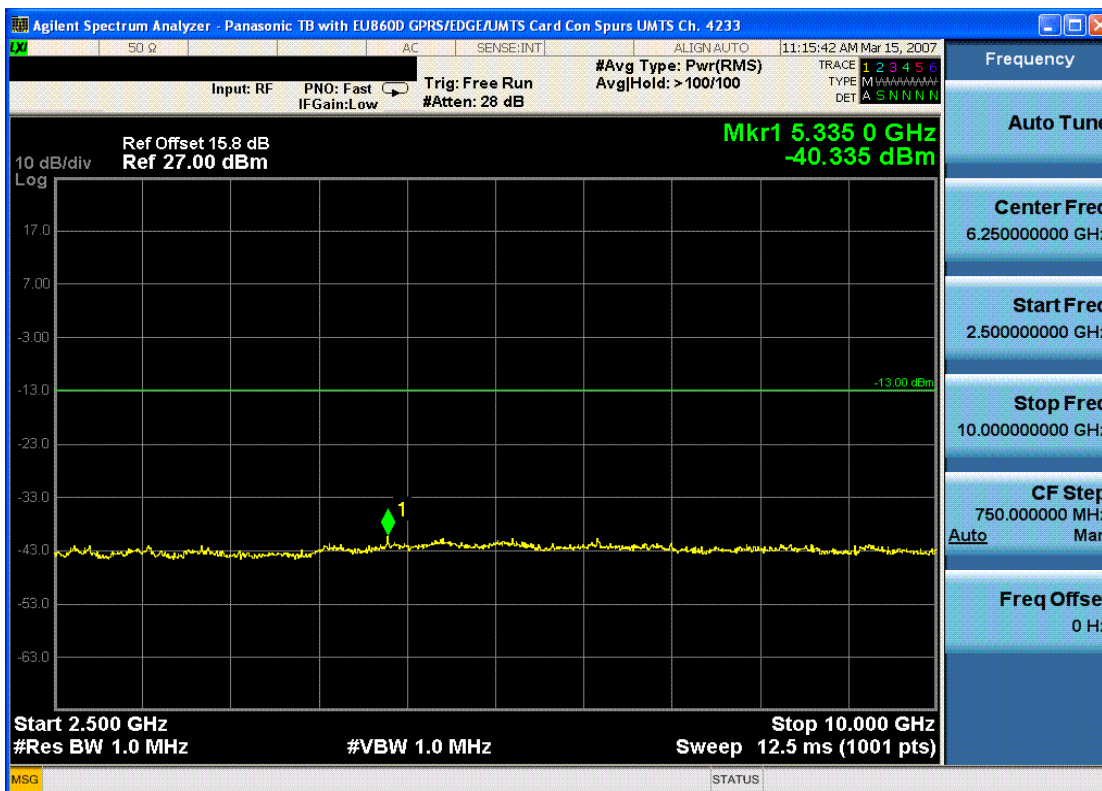


Plot 7-27. Occupied Bandwidth Plot (Cellular UMTS Mode – Ch. 4175)

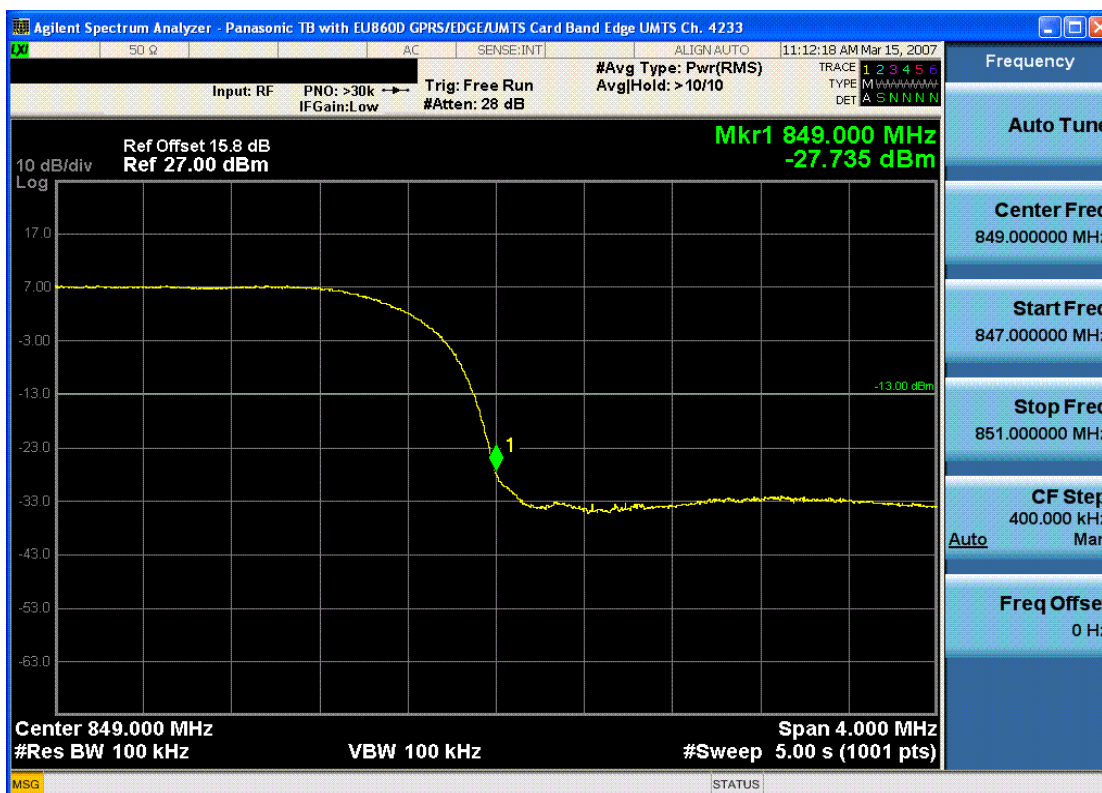


Plot 7-28. Conducted Spurious Plot (Cellular UMTS Mode – Ch. 4233)

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Plot 7-29. Conducted Spurious Plot (Cellular UMTS Mode – Ch. 4233)

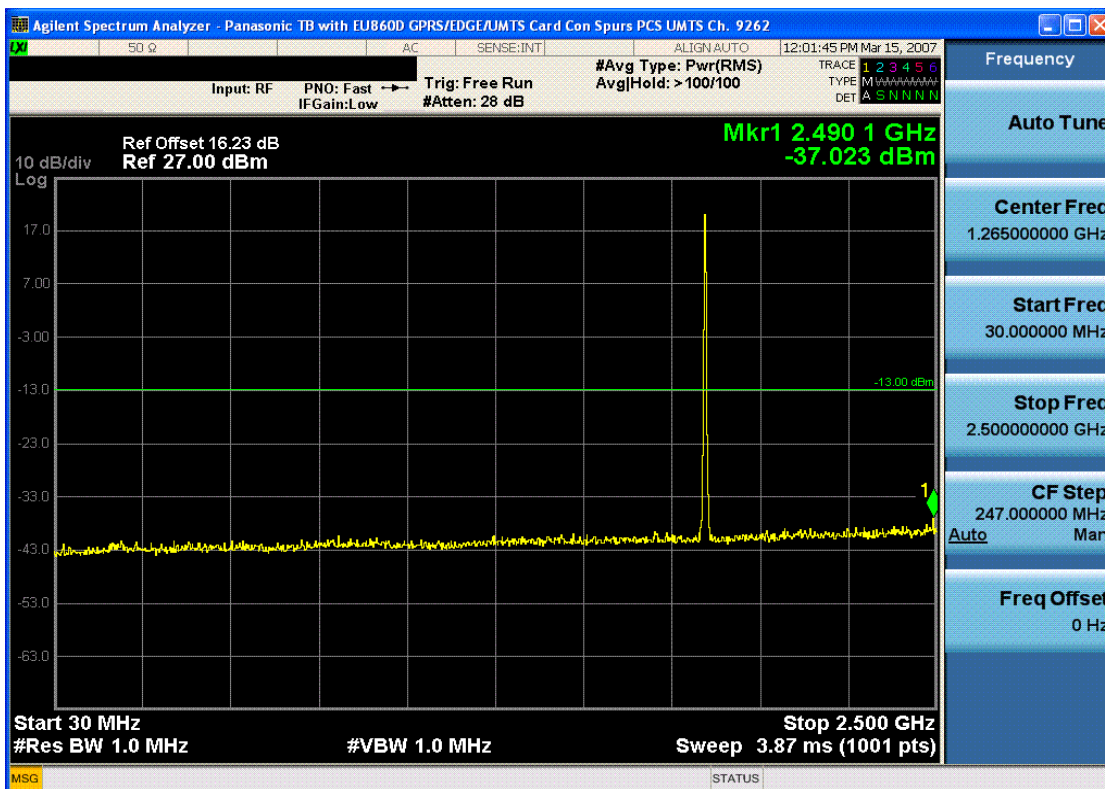


Plot 7-30. Band Edge Plot (Cellular UMTS Mode – Ch. 4233)

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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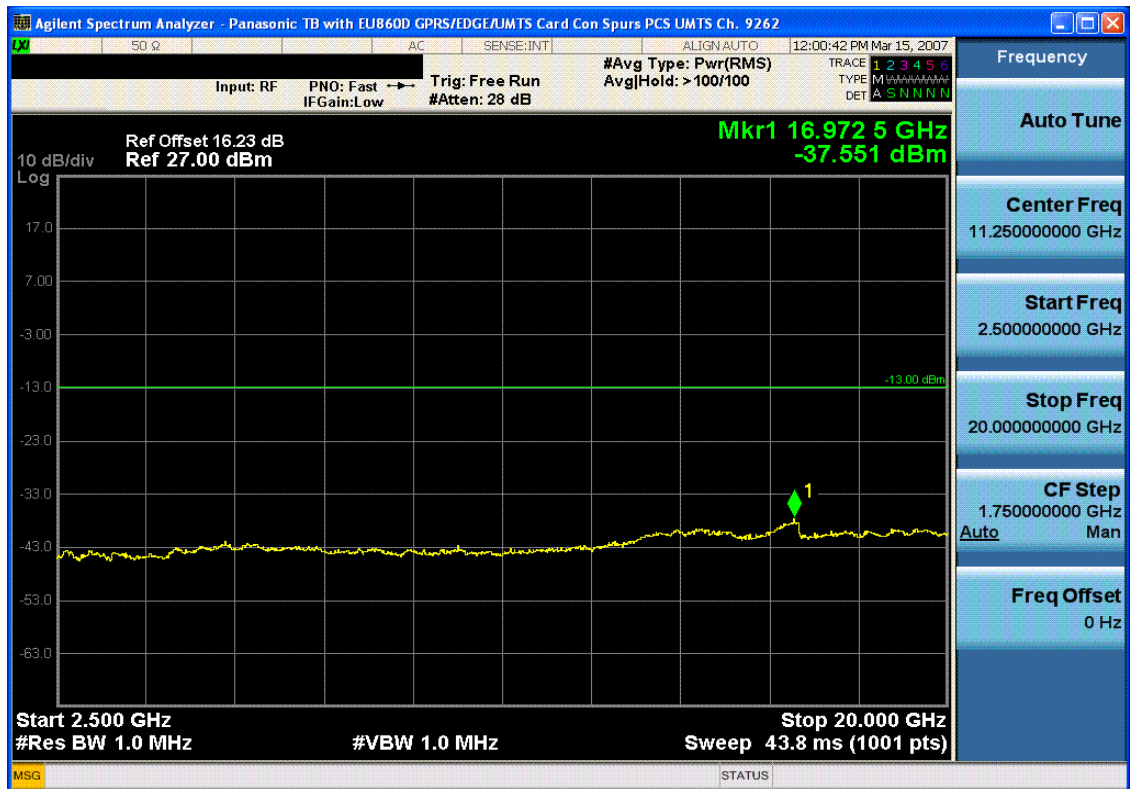


Plot 7-31. 4MHz Span Plot (Cellular UMTS Mode – Ch. 4233)

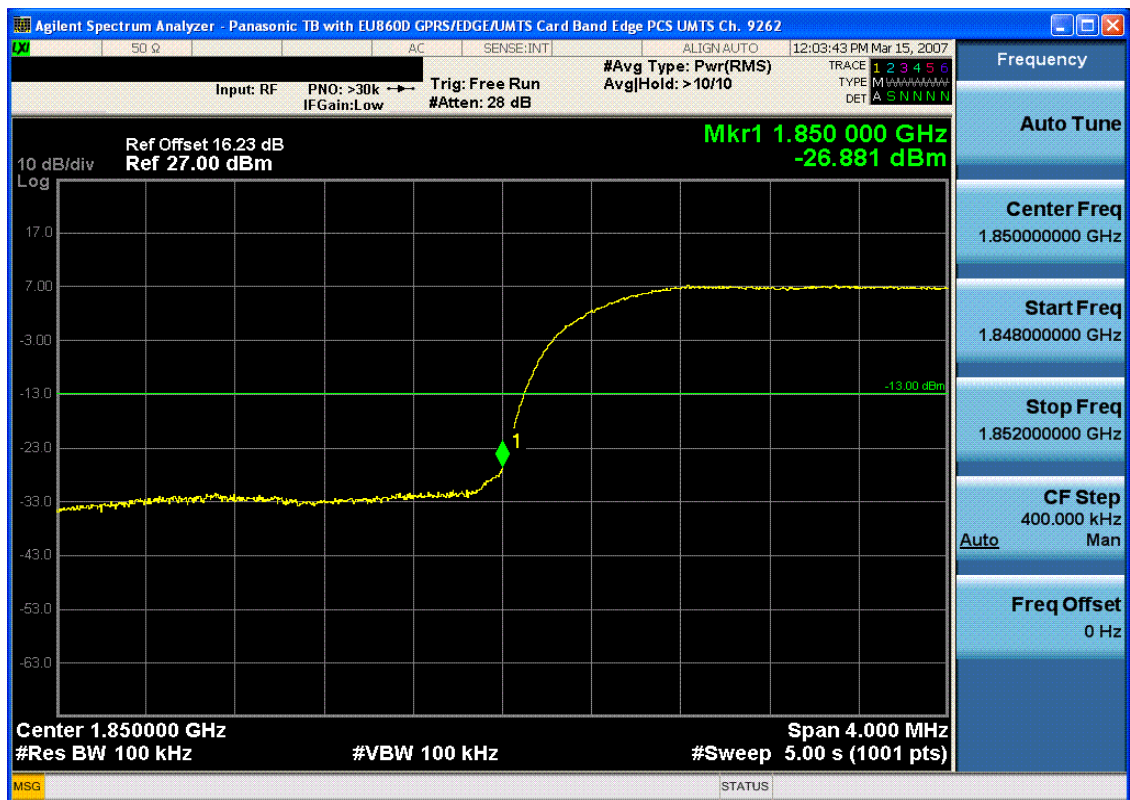


Plot 7-32. Conducted Spurious Plot (PCS UMTS Mode – Ch. 9262)

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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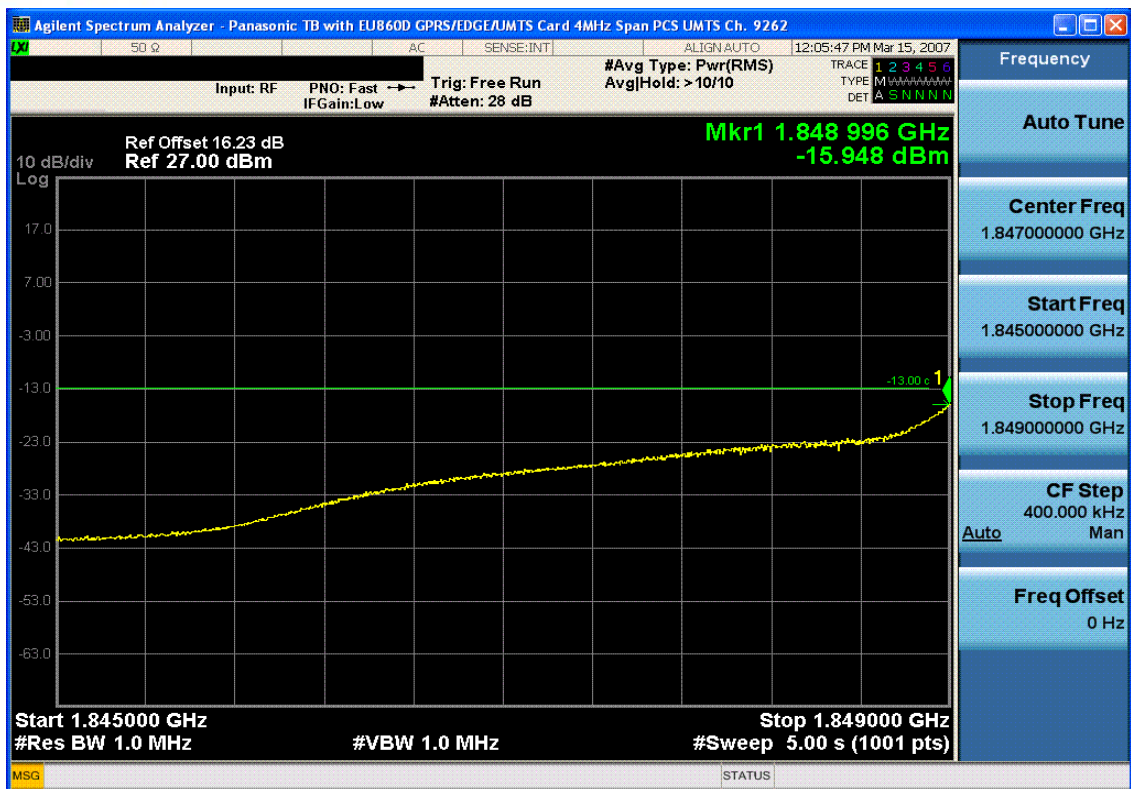


Plot 7-33. Conducted Spurious Plot (PCS UMTS Mode – Ch. 9262)

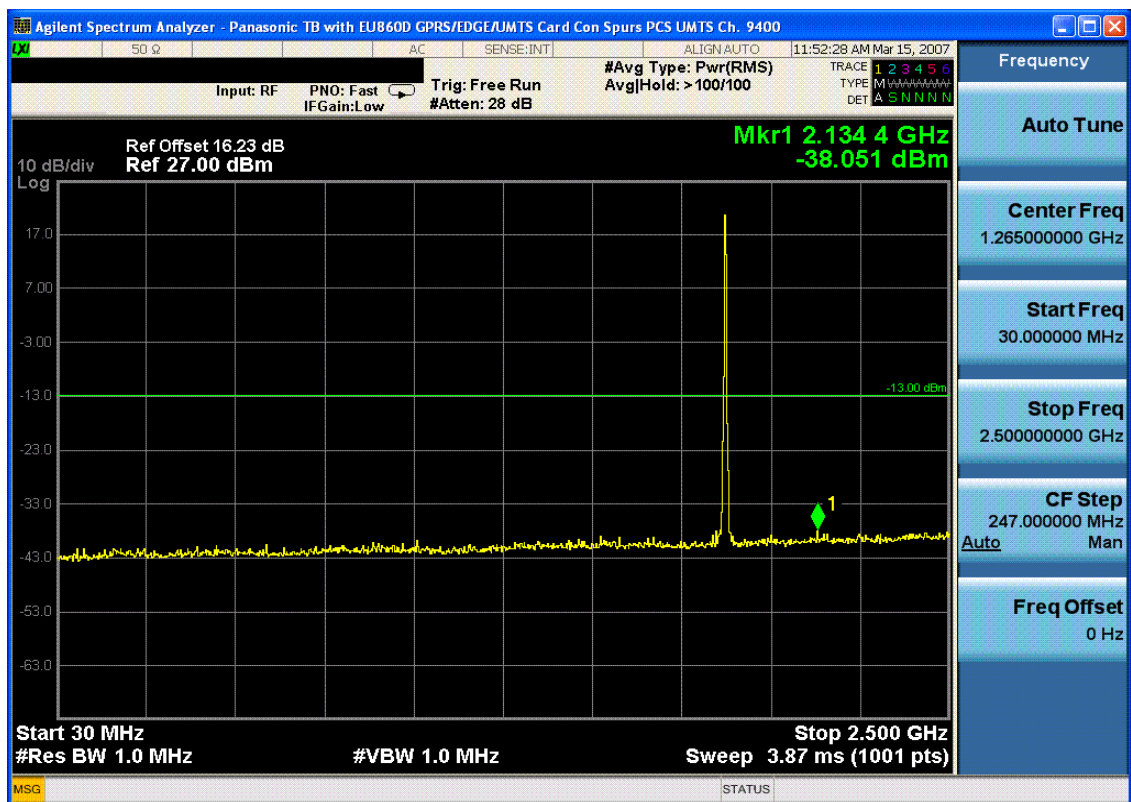


Plot 7-34. Band Edge Plot (PCS UMTS Mode – Ch. 9262)

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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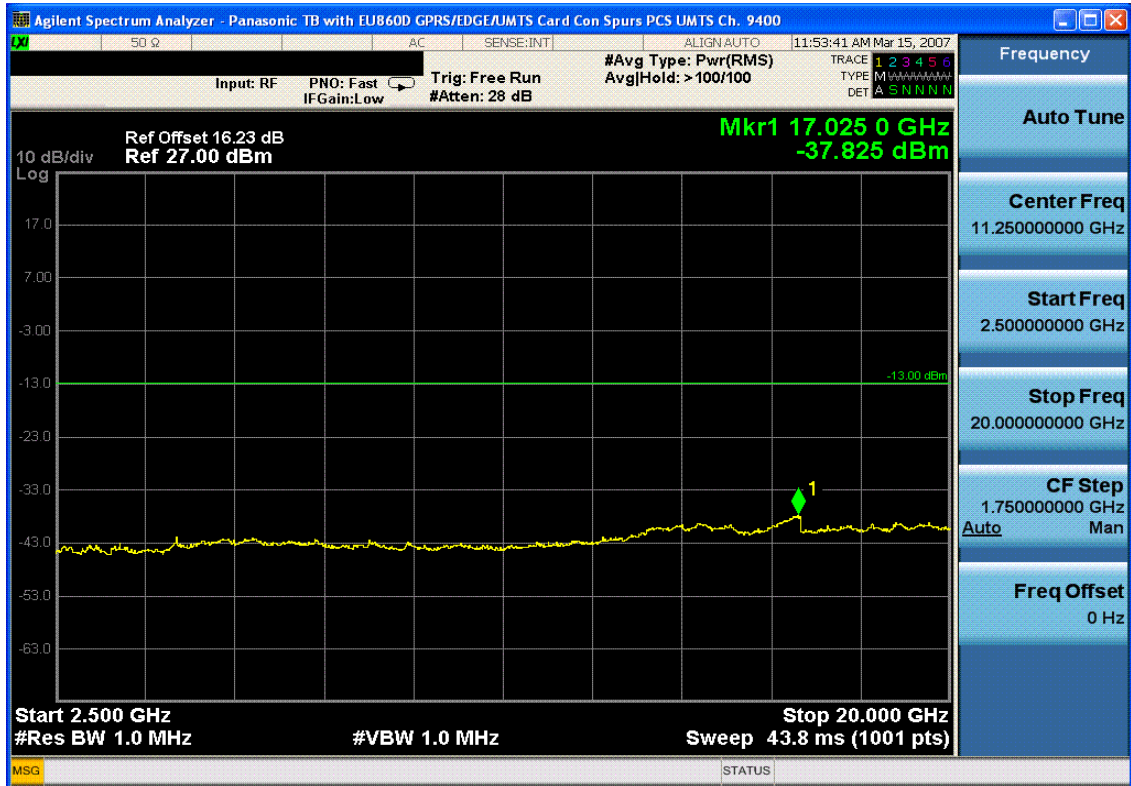


Plot 7-35. 4MHz Span Plot (PCS UMTS Mode – Ch. 9262)

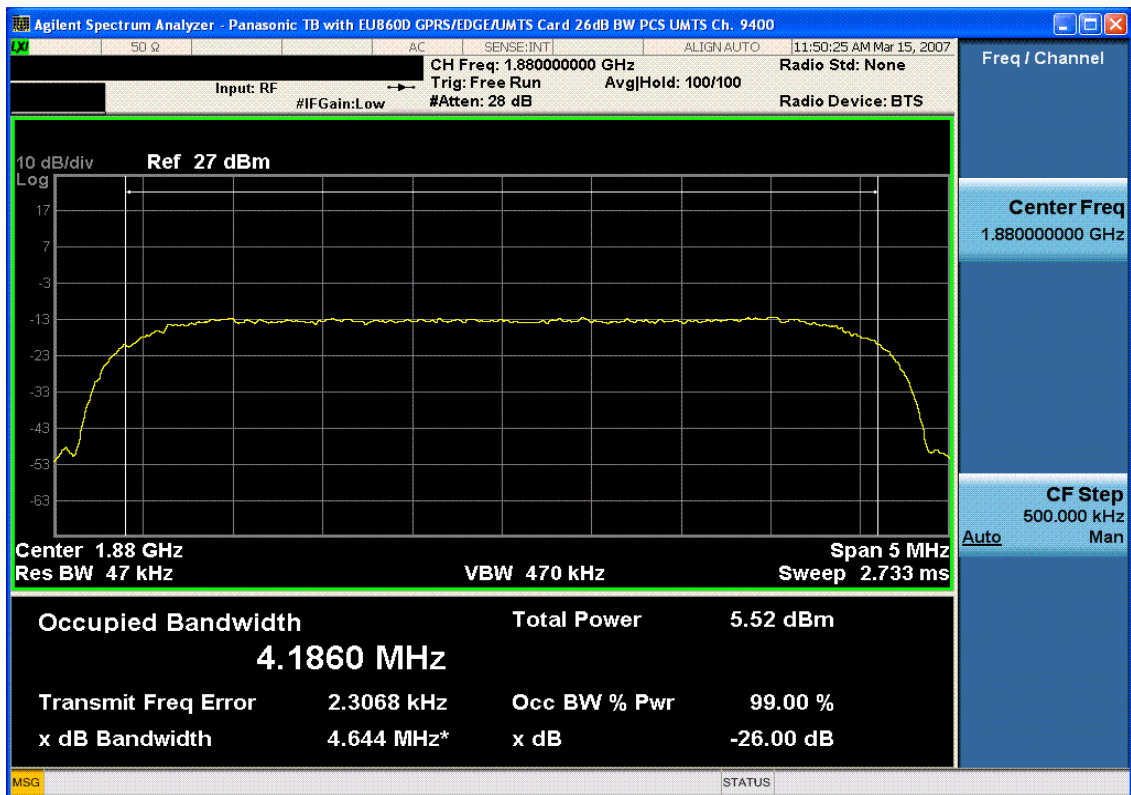


Plot 7-36. Conducted Spurious Plot (PCS UMTS Mode – Ch. 9400)

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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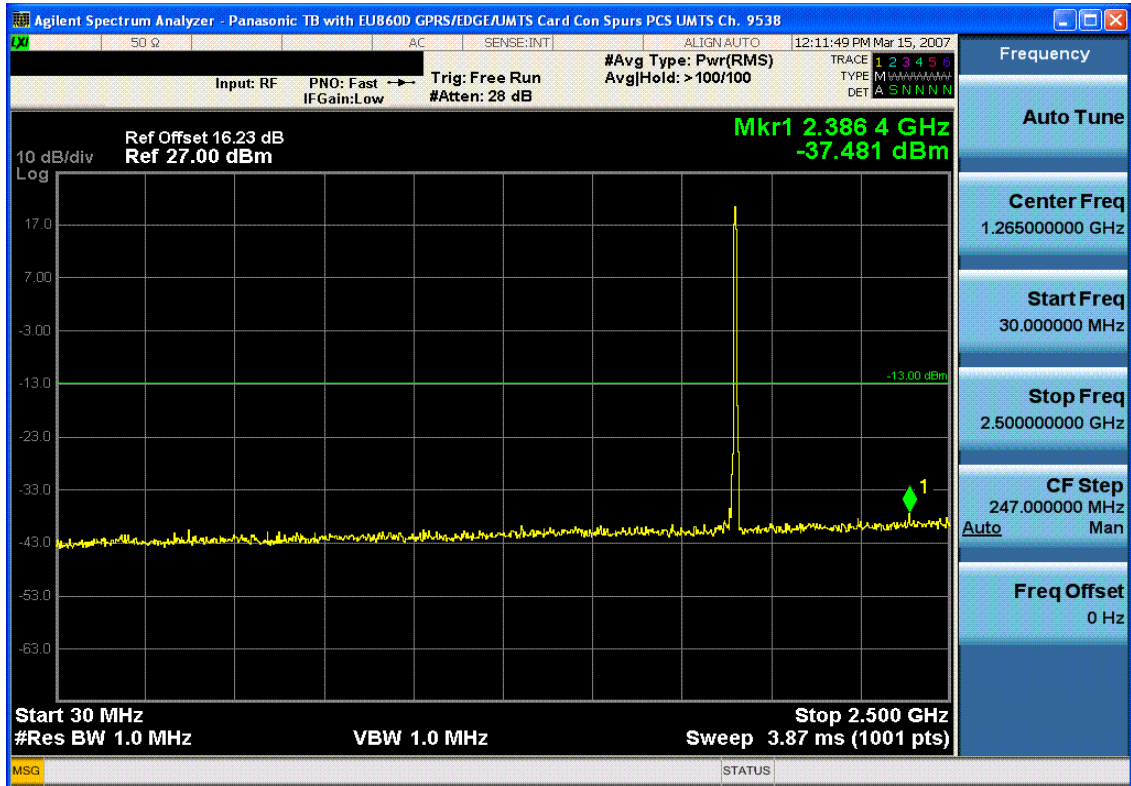


Plot 7-37. Conducted Spurious Plot (PCS UMTS Mode – Ch. 9400)

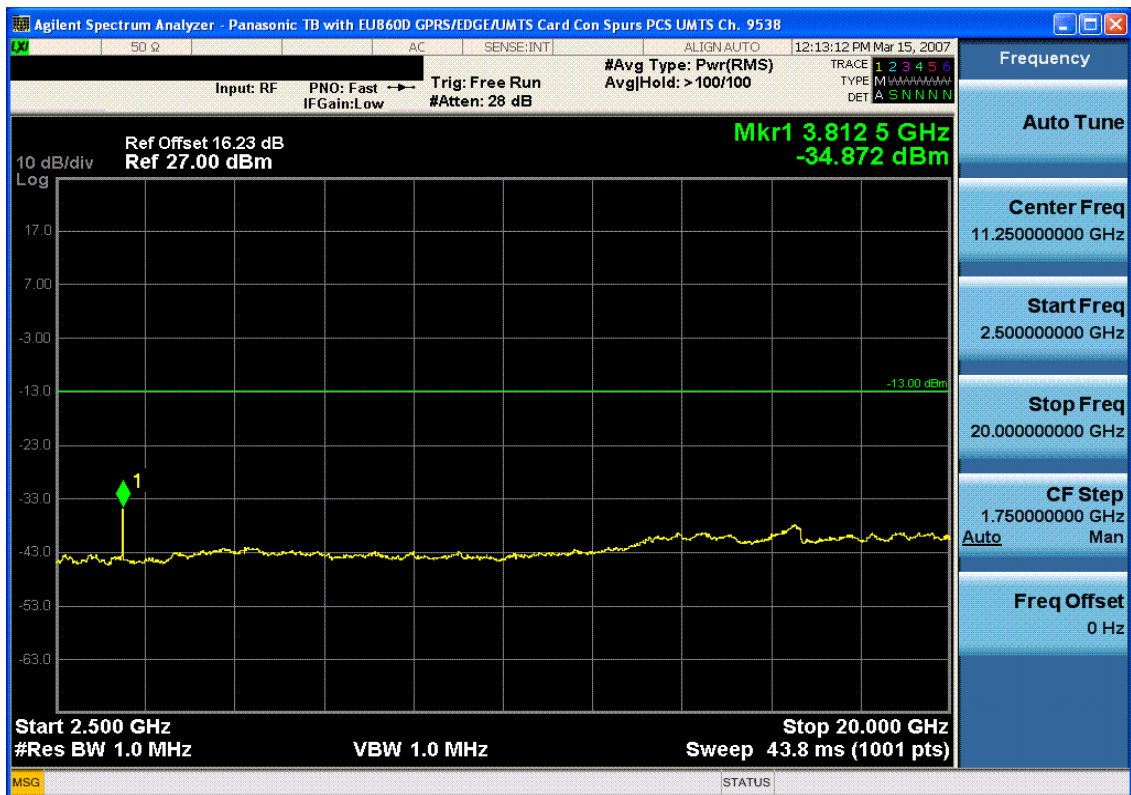


Plot 7-38. Occupied Bandwidth Plot (PCS UMTS Mode – Ch. 9400)

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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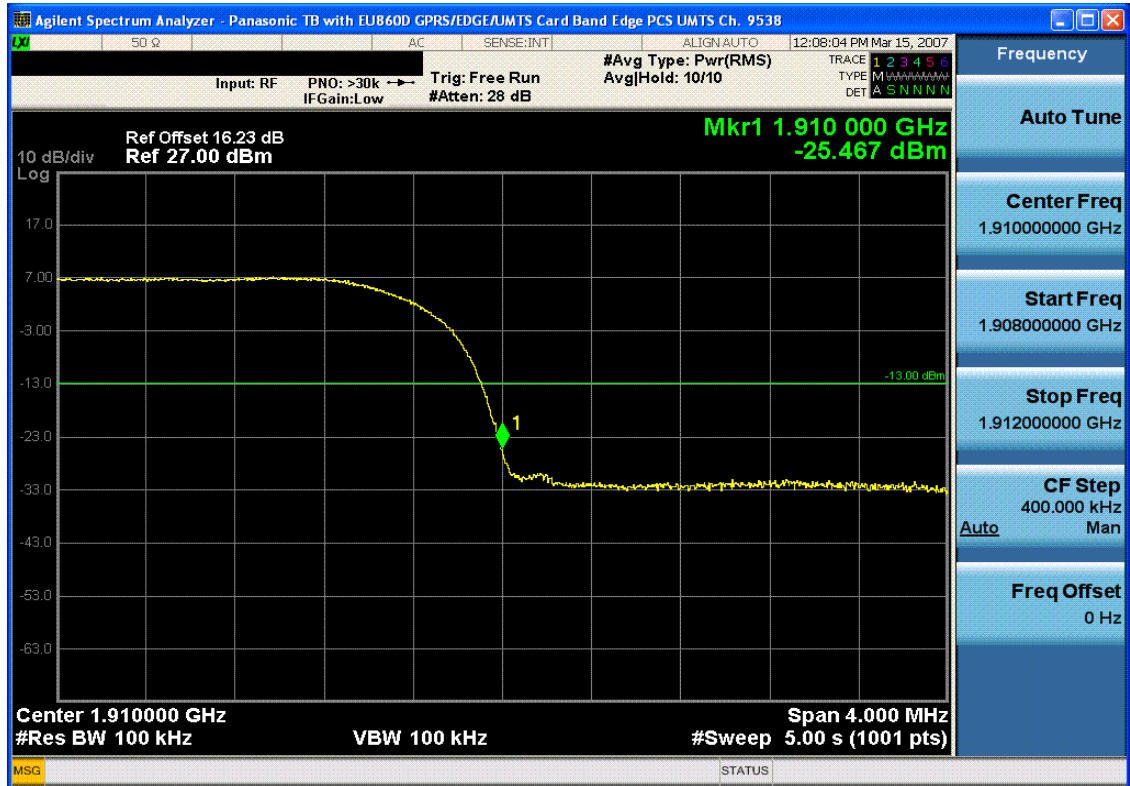


Plot 7-39. Conducted Spurious Plot (PCS UMTS Mode – Ch. 9538)

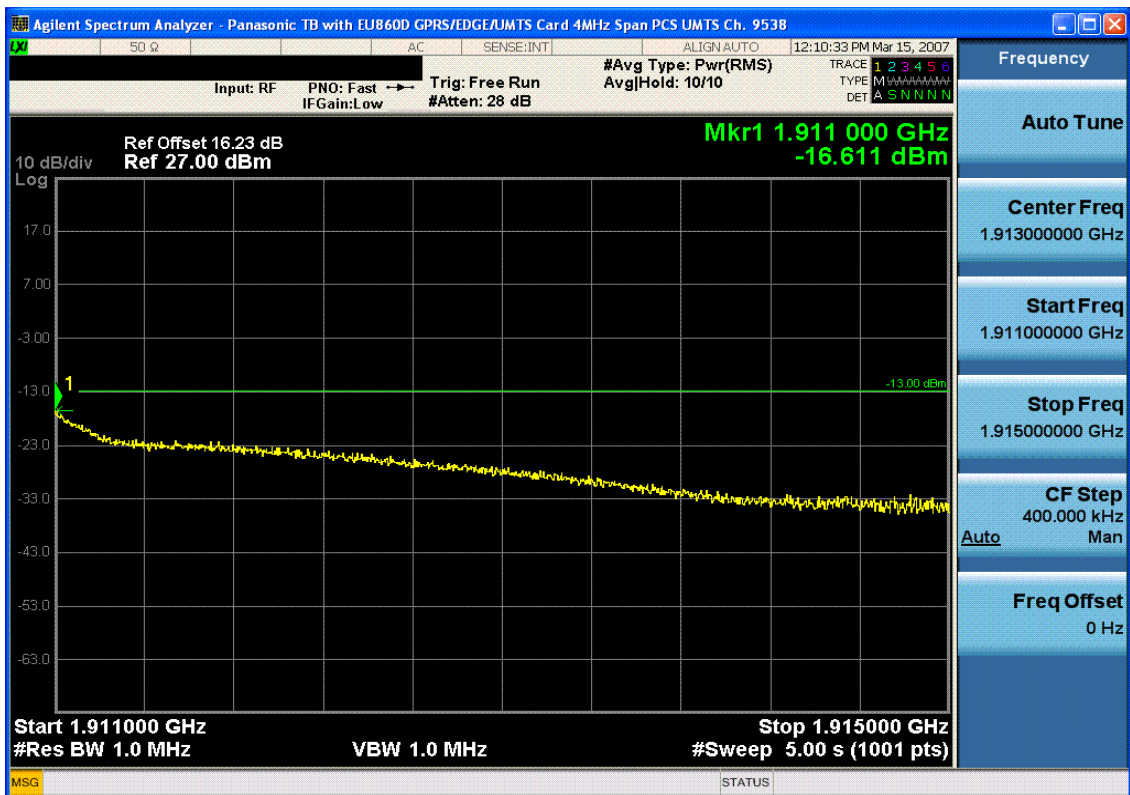


Plot 7-40. Conducted Spurious Plot (PCS UMTS Mode – Ch. 9538)

FCC ID: ACJ9TGCF-195		FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Plot 7-41. Band Edge Plot (PCS UMTS Mode – Ch. 9538)





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

FCC ID: ACJ9TGCF-195	PCTEST	FCC Pt. 22/24 GSM/EDGE/UMTS MEASUREMENT REPORT (CERTIFICATION)	Panasonic	Reviewed by: Quality Manager
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## 8.0 CONCLUSION

The data collected show that the **Panasonic Toughbook Model: CF-19 FCC ID: ACJ9TGCF-195** complies with all the requirements of Parts 2, 22, and 24 of the FCC rules.

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<b>Test Report S/N:</b> 0702280125.ACJ	<b>Test Dates:</b> March 19 - 21, 2007	<b>EUT Type:</b> Toughbook Model: CF-19	Page 56 of 56