PCTEST ENGINEERING LABORATORY, INC.
6660-B Dobbin Road, Columbia, MD 21045 USA
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MEASUREMENT REPORT
FCC Part 27 Certification

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

Date of Testing:
May 17 - 20, 2010
Test Site/Location:
PCTEST Lab., Columbia, MD, USA
Test Report Serial No.:
0Y1004290746.ACJ

FCC ID:	**ACJ9TGCF-19E**
APPLICANT:	**PANASONIC CORPORATION OF NORTH AMERICA**

Application Type:	Certification
FCC Classification:	Licensed Non-Broadcast Transmitter (TNB)
FCC Rule Part(s):	§2; §27 Subpart M
EUT Type:	ToughBook Model: CF-19
Model(s):	CF-19
Tx Frequency Range:	2501.4 - 2684.6MHz (TD-CDMA)
Max. RF Output Power:	0.318 W EIRP TD-CDMA (25.03 dBm)
Emission Designator(s):	8M35G7D (QPSK)
Test Device Serial No.:	*identical prototype* [S/N: 9JKSA00031]

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

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

Grant Conditions: Power output listed is EIRP for Part 27.

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

ACCREDITED
TESTING LABORATORY
CERTIFICATE #2041.01

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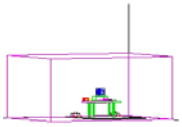
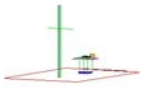


MEASUREMENT REPORT
FCC Part 27



§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; §27(M)
BASE MODEL:	CF-19
FCC ID:	ACJ9TGCF-19E
FCC CLASSIFICATION:	Licensed Non-Broadcast Transmitter (TNB)
EMISSION DESIGNATOR(S):	8M35G7D (QPSK)
MODE:	TD-CDMA
FREQUENCY TOLERANCE:	Emission must remain in band
Test Device Serial No.:	9JKSA00031 ☐ Production ☒ Pre-Production ☐ Engineering
DATE(S) OF TEST:	May 17 - 20, 2010
TEST REPORT S/N:	0Y1004290746.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.

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.

Deviation from Measurement Procedure……None

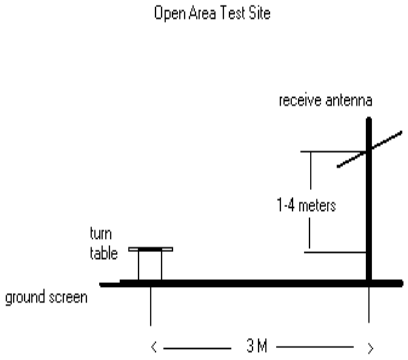


Figure 1-1. Diagram of 3-meter outdoor test range

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.

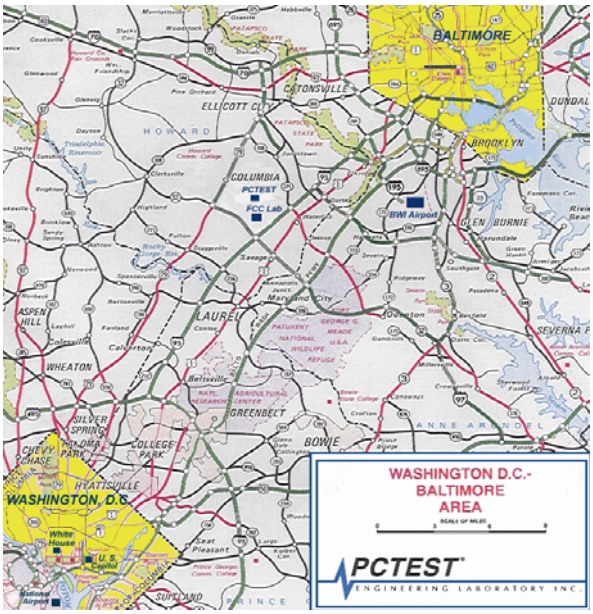


Figure 1-2. Map of the Greater Baltimore and Metropolitan Washington, D.C. area.

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Panasonic ToughBook Model: CF-19 FCC ID: ACJ9TGCF-19E**. The test data contained in this report pertains only to the emissions due to the EUT's TD-CDMA function. The EUT consisted of the following component(s):

Trade Name / Base Model	FCC ID	Description
Panasonic / Model: CF-19	ACJ9TGCF-19E	ToughBook Model: CF-19
Intel / Model: 512AN MMW	PD9512ANM	WLAN Module
Alps / Model: UGNZA	N/A	Bluetooth Module
IPWireless / Model: AAU	PKTPEMAAU	TD-CDMA PCI-E Mini Module

Table 2-1. EUT Equipment Description

The EUT was set to transmit at full power through test software installed in a laptop computer. An external trigger was used so that all measurements were made during the transmitter's "on" period.

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.

3.0 DESCRIPTION OF TESTS

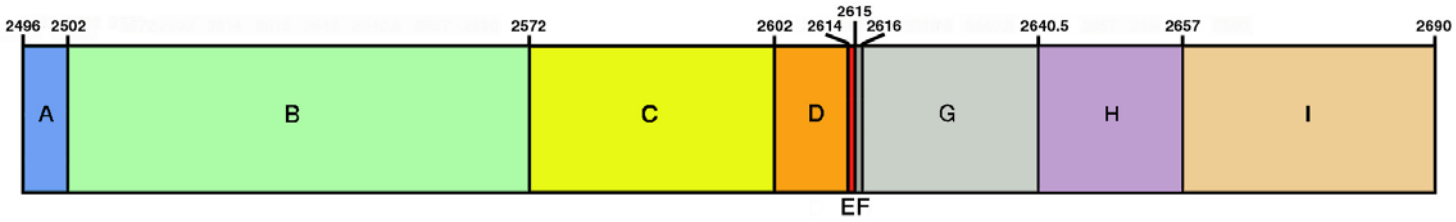
3.1 Occupied Bandwidth Emission Limits

§2.1049, §27.53(m)(6)

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

3.2 EBS/BRS - Frequency Blocks

§27.5(i)



BLOCK A: 2496MHz – 2502MHz (BRS)

BLOCK B: 2502MHz – 2572MHz (EBS)

BLOCK C: 2572MHz – 2602MHz (EBS)

BLOCK D: 2602MHz – 2614MHz (BRS)

BLOCK E: 2614MHz – 2615MHz (BRS)

BLOCK F: 2615MHz – 2616MHz (EBS)

BLOCK G: 2616MHz – 2640.5MHz (BRS)

BLOCK H: 2640.5MHz – 2657MHz (EBS)

BLOCK A: 2657MHz – 2690MHz (BRS)

3.3 Spurious and Harmonic Emissions at Antenna Terminal

§2.1051, §27.53(m)(4)(6)

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic.

3.4 Radiated Spurious and Harmonic Emissions

§2.1053, §27.53(m)(4)(6)

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 10th 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 at the maximum power setting. This unit was tested with its standard battery.

3.5 Frequency Stability / Temperature Variation

§2.1055, §27.54

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.

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.

4.0 TEST EQUIPMENT CALIBRATION DATA

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

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	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	12/2/2009	Annual	12/2/2010	3439A02645
Agilent	8447D	Broadband Amplifier	3/18/2010	Annual	3/18/2011	1937A03348
Agilent	8447D	Broadband Amplifier	3/18/2010	Annual	3/18/2011	2443A01900
Agilent	8449B	(1-26.5GHz) Pre-Amplifier	12/2/2009	Annual	12/2/2010	3008A00985
Agilent	85650A	Quasi-Peak Adapter	12/2/2009	Annual	12/2/2010	3303A01872
Agilent	85650A	Quasi-Peak Adapter	3/30/2010	Annual	3/30/2011	2043A00301
Agilent	8566B	(100Hz-22GHz) Spectrum Analyzer	3/30/2010	Annual	3/30/2011	2618A02866
Agilent	8566B	(100Hz-22GHz) Spectrum Analyzer	3/30/2010	Annual	3/30/2011	2542A11898
Agilent	8566B	(100Hz-22GHz) Spectrum Analyzer	12/2/2009	Annual	12/2/2010	3638A08713
Agilent	E4407B	ESA Spectrum Analyzer	3/30/2010	Annual	3/30/2011	US39210313
Agilent	E4448A	PSA (3Hz-50GHz) Spectrum Analyzer	10/1/2009	Annual	10/1/2010	US42510244
Agilent	E8257D	(250kHz-20GHz) Signal Generator	3/30/2010	Annual	3/30/2011	MY45470194
Agilent	N9020A	MXA Signal Analyzer	10/22/2009	Annual	10/22/2010	US46470561
Emco	3115	Horn Antenna (1-18GHz)	10/14/2009	Biennial	10/14/2011	9704-5182
Emco	3115	Horn Antenna (1-18GHz)	4/8/2010	Biennial	4/8/2012	9205-3874
Emco	3116	Horn Antenna (18 - 40GHz)	9/9/2008	Triennial	9/9/2011	9203-2178
Emco	3816/2	LISN	9/8/2008	Biennial	9/8/2010	9707-1077
Emco	3816/2	LISN	9/8/2008	Biennial	9/8/2010	9707-1079
Gigatronics	80701A	(0.05-18GHz) Power Sensor	9/9/2009	Annual	9/9/2010	1833460
Gigatronics	8651A	Universal Power Meter	9/9/2009	Annual	9/9/2010	8650319
MiniCircuits	VHF-3100+	High Pass Filter	N/A		N/A	30721
Sunol	DRH-118	Horn Antenna (1 - 18GHz)	5/14/2009	Biennial	5/14/2011	A050307
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	7/17/2009	Biennial	7/17/2011	A051107
Rohde & Schwarz	FSQ 26	Spectrum Analyzer	9/19/2009	Annual	9/19/2010	200452
Anritsu	ML2495A	Power Meter	10/12/2009	Annual	10/12/2010	941001

Table 4-1. Test Equipment

5.0 SAMPLE CALCULATIONS

Emission Designator

QPSK Modulation

Emission Designator = 9M62G7D

TD-CDMA BW = 9.62 MHz
G = Phase Modulation
7 = Quantized/Digital Info
D = Amplitude/Angle Modulated

Spurious Radiated Emission – TD-CDMA Band

Example: Middle Channel TD-CDMA Mode 2nd Harmonic (5200 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 3.2 dB at 5200 MHz. So 4.9 dB is added to the signal generator reading of –30.00 dBm yielding –25.1 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm – (-25.1) = 50.6 dBc.

6.0 TEST RESULTS

6.1 Summary

Company Name: Panasonic Corporation of North America

FCC ID: ACJ9TGCF-19E

FCC Classification: Licensed Non-Broadcast Transmitter (TNB)

Mode(s): TD-CDMA

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER MODE (Tx)					
2.1049, 27.53(l)(6)	Occupied Bandwidth	N/A	CONDUCTED	PASS	Section 7.0
2.1051, 27.53(ml)(4)(6)	Band Edge	< 43 + 10log$_{10}$ (P[Watts]) within 5.5MHz from the band edge		PASS	Section 7.0
2.1051, 27.53(m)(4)(6)	Conducted Spurious Emissions	< 55 + 10log$_{10}$ (P[Watts]) for all emissions greater than 5.5MHz from the band edge		PASS	Section 7.0
27.50(h)(2)	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP	RADIATED	PASS	Section 6.2
2.1053, 27.53(m)(4)	Undesirable Emissions	< 55 + 10log$_{10}$ (P[Watts]) for all out-of-band emissions		PASS	Section 6.3
2.1055, 27.54	Frequency Stability	Fundamental emissions must stay within the allotted band		PASS	Section 6.4
RECEIVER MODE (Rx) / DIGITAL EMISSIONS					
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

Table 6-1. Summary of Test Results

Note:

The conducted data shown in section 7.0 dated 2009 is still applicable to this device.

6.2 Equivalent Isotropic Radiated Power Output Data

§27.50(h)(2)

POWER: Maximum (TD-CDMA Mode)

Frequency [MHz]	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Battery Type
2501.40	-18.920	15.51	8.00	H	23.51	0.224	Standard
2593.00	-19.760	14.67	8.00	H	22.67	0.185	Standard
2684.60	-17.400	17.03	8.00	H	25.03	0.318	Standard

Table 6-2. Equivalent Isotropic Radiated Power Output Data

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 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. 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 spectrum analyzer reading. This level is recorded using the power meter. 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 at the maximum power setting. This unit was tested with its standard battery. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal position setup.The data reported in the table above was measured in this test setup.

6.3 TD-CDMA Radiated Measurements

§2.1053, §27.53(l)(4)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	2501.40	MHz		
CHANNEL:	12507			
MEASURED OUTPUT POWER:	25.030	dBm	=	0.318 W
MODULATION SIGNAL:	TD-CDMA (Internal)			
DISTANCE:	3	meters		
LIMIT:	55 + 10 $\log_{10}$ (W) =	50.03	dBc	

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
5002.80	-56.87	11.20	-45.67	H	70.7
7504.20	-89.04	11.10	-77.94	H	103.0
10005.60	-87.47	12.55	-74.91	H	99.9
12507.00	-80.35	12.70	-67.65	H	92.7
15008.40	-71.17	11.64	-59.53	H	84.6

Table 6-3. Radiated Spurious Data (TD-CDMA Mode)

NOTES:

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 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. 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 spectrum analyzer reading. This level is recorded using the power meter. 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 at the maximum power setting. This unit was tested with its standard battery. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal position setup. The data reported in the table above was measured in this test setup.

TD-CDMA Radiated Measurements (Cont'd)

§2.1053, §27.53(l)(4)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	2593.00	MHz		
CHANNEL:	12965			
MEASURED OUTPUT POWER:	25.030	dBm	=	0.318 W
MODULATION SIGNAL:	TD-CDMA (Internal)			
DISTANCE:	3	meters		
LIMIT:	55 + 10 $\log_{10}$ (W) =	50.03	dBc	

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
5186.00	-56.01	10.91	-45.10	H	70.1
7779.00	-89.01	11.34	-77.67	H	102.7
10372.00	-87.41	12.83	-74.58	H	99.6
12965.00	-79.69	13.10	-66.59	H	91.6
15558.00	-76.22	14.98	-61.24	H	86.3

Table 6-4. Radiated Spurious Data (TD-CDMA Mode)

NOTES:

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 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. 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 spectrum analyzer reading. This level is recorded using the power meter. 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 at the maximum power setting. This unit was tested with its standard battery. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal position setup. The data reported in the table above was measured in this test setup.

TD-CDMA Radiated Measurements (Cont'd)

§2.1053, §27.53(l)(4

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	2684.60	MHz		
CHANNEL:	13420			
MEASURED OUTPUT POWER:	25.030	dBm	=	0.318 W
MODULATION SIGNAL:	TD-CDMA (Internal)			
DISTANCE:	3	meters		
LIMIT:	55 + 10 $\log_{10}$ (W) =	50.03	dBc	

FREQ. (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	CORRECT GENERATOR LEVEL (dBm)	POL (H/V)	(dBc)
5369.20	-51.18	10.68	-40.51	H	65.5
8053.80	-88.87	11.51	-77.37	H	102.4
10738.40	-86.84	13.05	-73.80	H	98.8
13423.00	-78.56	13.13	-65.43	H	90.5
16107.60	-77.23	16.17	-61.07	H	86.1

Table 6-5. Radiated Spurious Data (TD-CDMA Mode)

NOTES:

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 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. 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 spectrum analyzer reading. This level is recorded using the power meter. 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 at the maximum power setting. This unit was tested with its standard battery. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal position setup. The data reported in the table above was measured in this test setup.

6.4 TD-CDMA Frequency Stability Measurements

§2.1055, §27.54

OPERATING FREQUENCY: 2,593,000,000 Hz

CHANNEL: 12965

REFERENCE VOLTAGE: 7.2 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (ºC)	FREQ. (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	7.20	+ 20 (Ref)	2,593,001,600	1600	0.000062
100 %		- 30	2,592,998,080	-1920	-0.000074
100 %		- 20	2,592,998,576	-1424	-0.000055
100 %		- 10	2,592,998,422	-1578	-0.000061
100 %		0	2,593,001,408	1408	0.000054
100 %		+ 10	2,592,998,893	-1107	-0.000043
100 %		+ 20	2,593,001,594	1594	0.000061
100 %		+ 30	2,592,998,360	-1640	-0.000063
100 %		+ 40	2,592,997,892	-2108	-0.000081
100 %		+ 50	2,592,997,984	-2016	-0.000078
115 %	8.28	+ 20	2,592,998,188	-1812	-0.000070
BATT. ENDPOINT	6.50	+ 20	2,592,997,891	-2109	-0.000081

Table 6-6. Frequency Stability Data (TD-CDMA Mode)

Note:

The frequency deviation was measured to ensure that the channels emissions remained within the authorized band with varying temperature and voltage.

TD-CDMA Frequency Stability Measurements (Cont'd)

§2.1055, §27.54

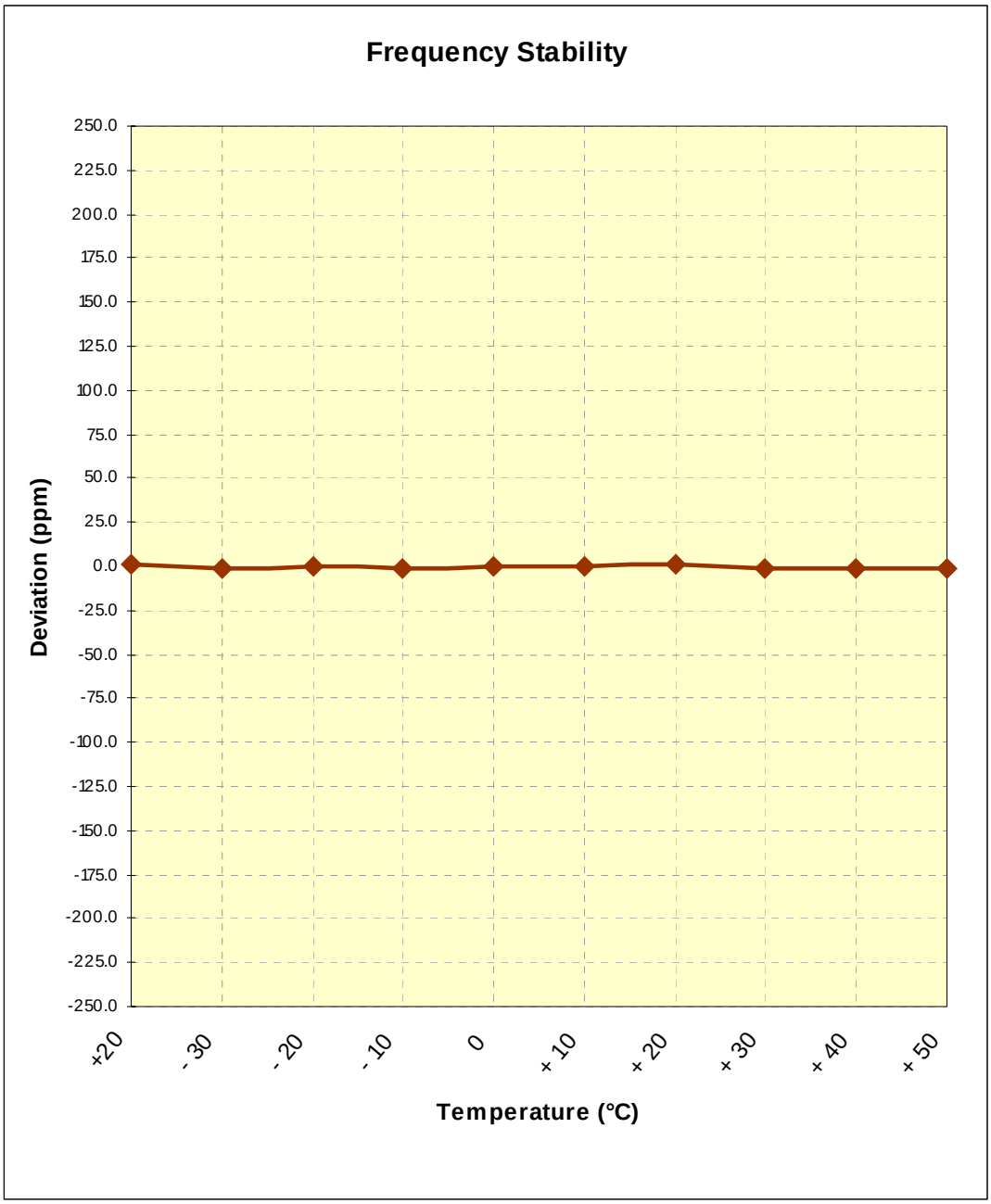
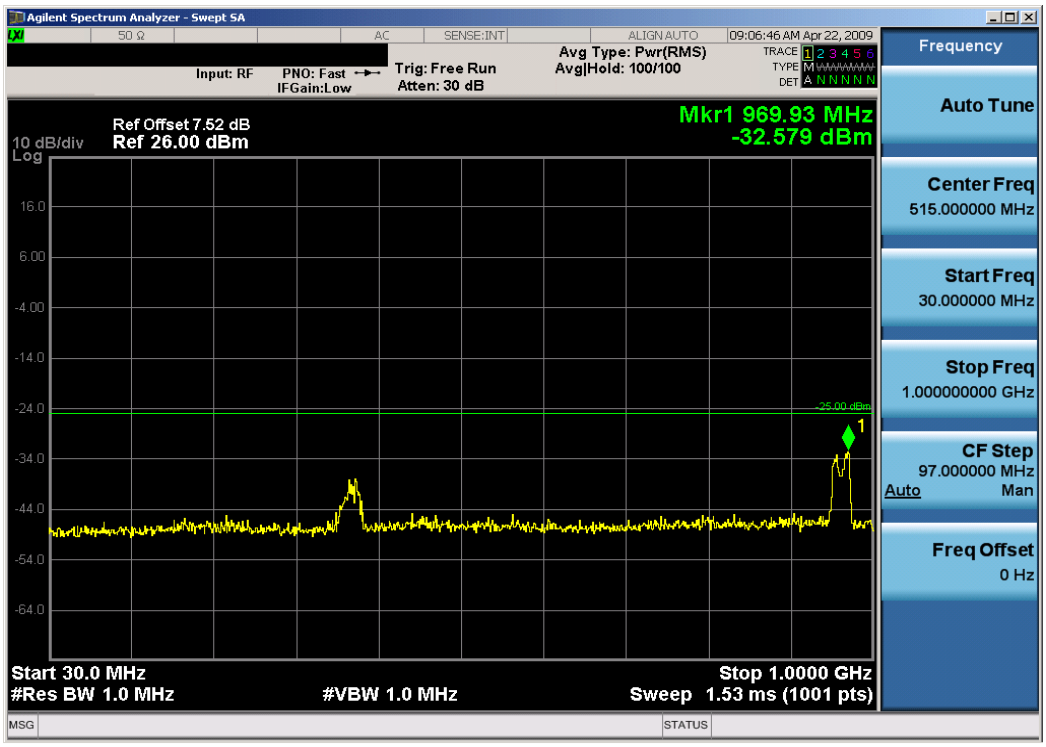


Figure 6-1. Frequency Stability Graph (TD-CDMA Mode)

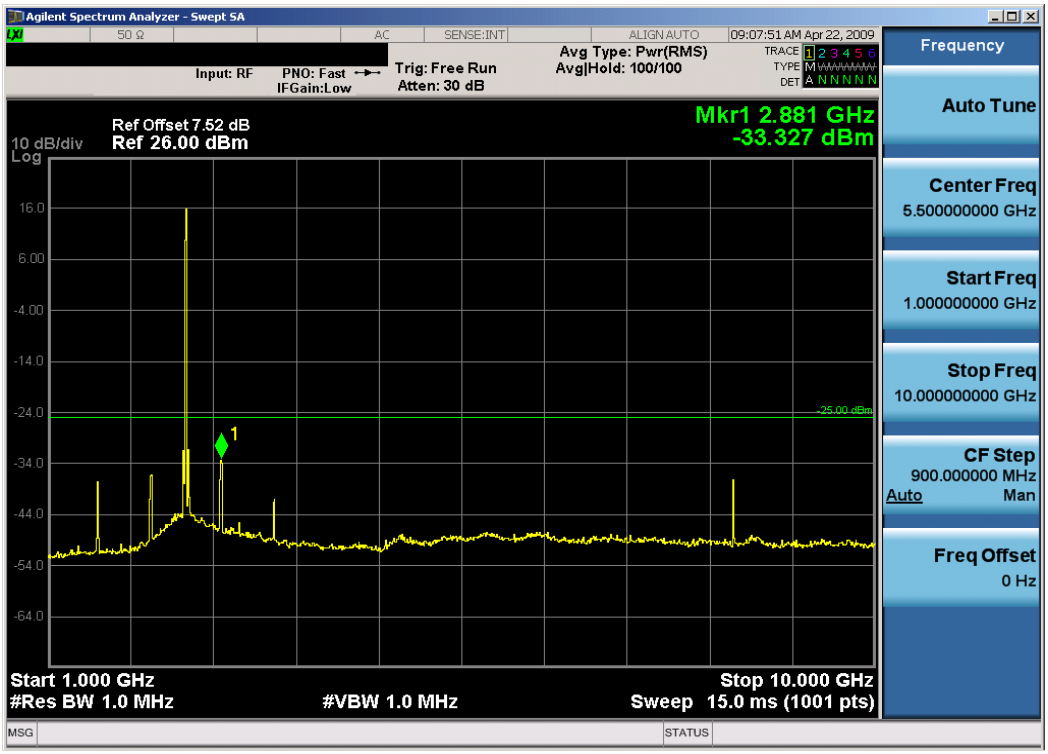
Note:

The frequency deviation was measured to ensure that the channels emissions remained within the authorized band with varying temperature and voltage.

7.0 PLOT(S) OF EMISSIONS

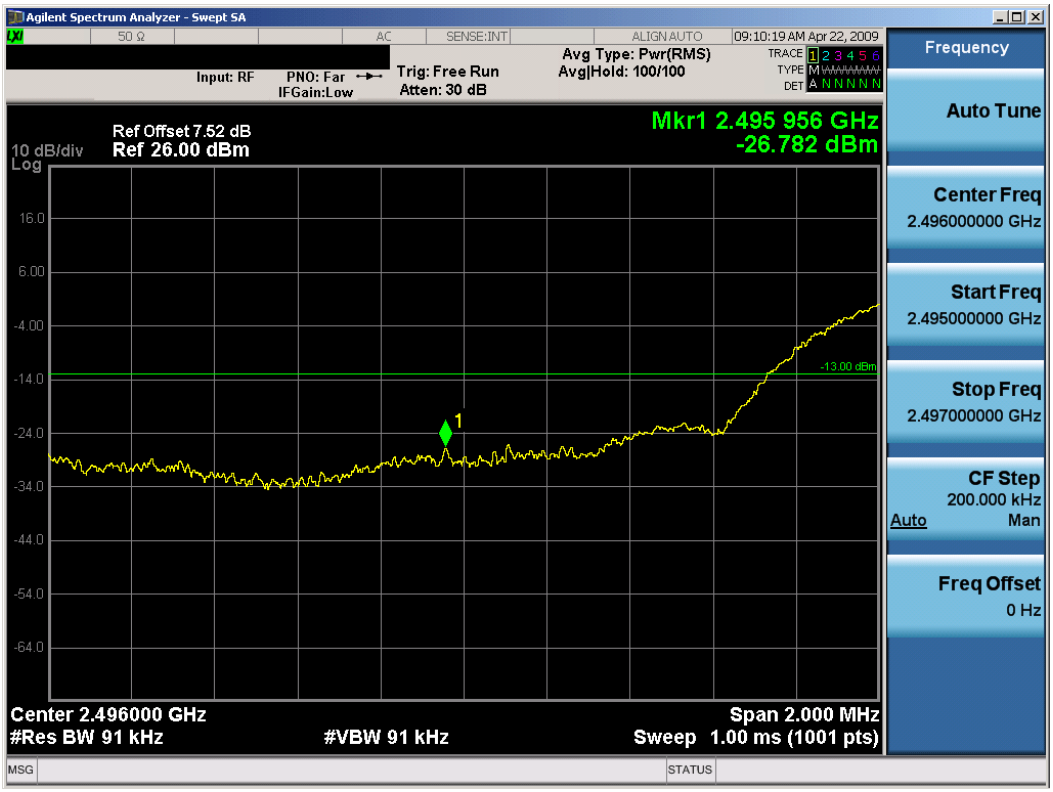


Plot 7-1. Conducted Spurious Plot (TD-CDMA Mode – Low Channel)

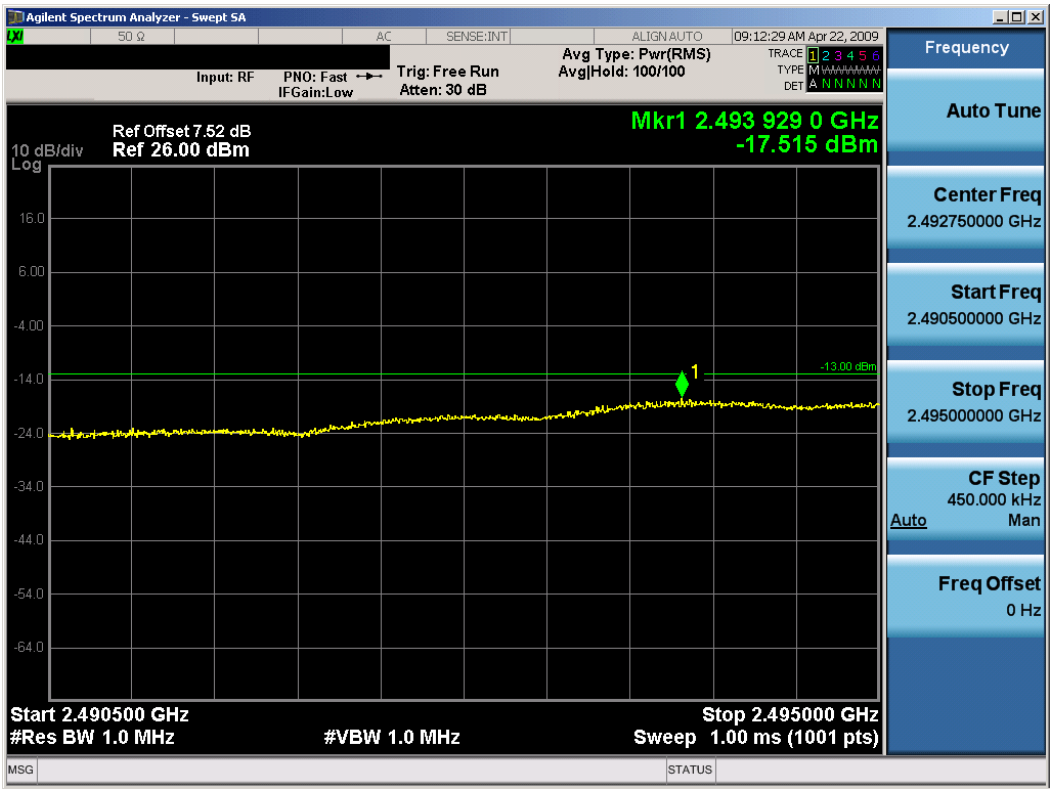


Plot 7-2. Conducted Spurious Plot (TD-CDMA Mode – Low Channel)

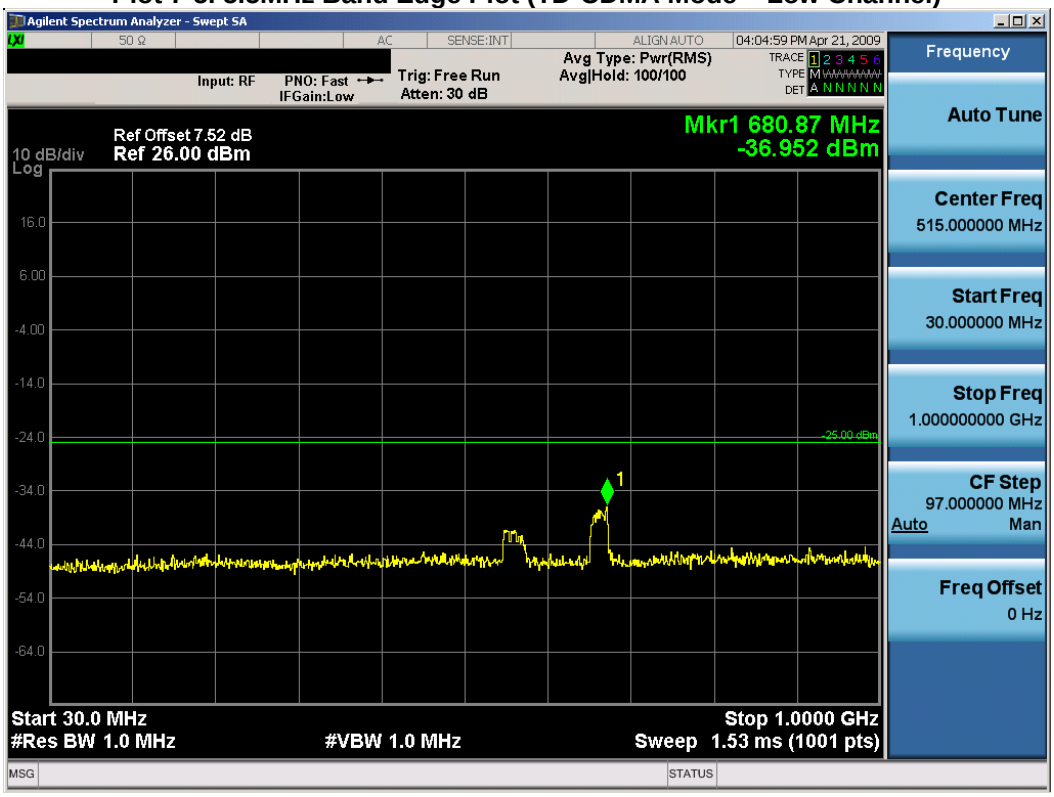
Plot 7-3. Conducted Spurious Plot (TD-CDMA Mode – Low Channel)



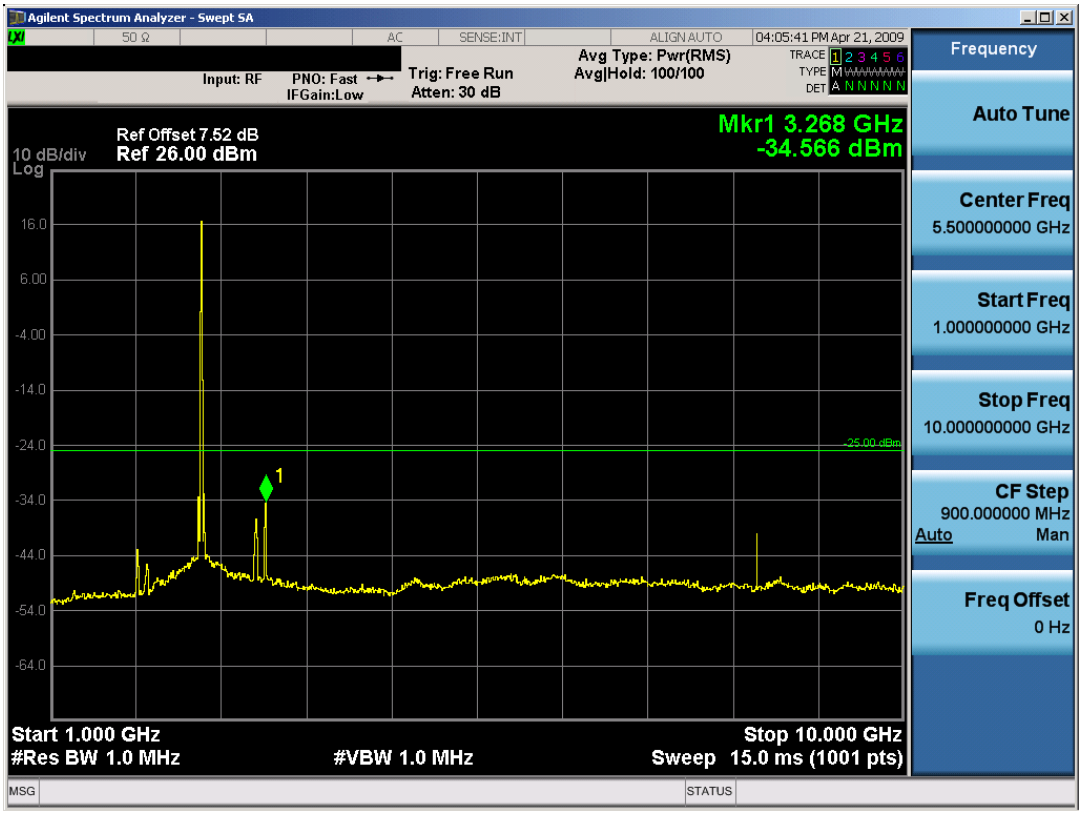
Plot 7-4. Band Edge Plot (TD-CDMA Mode – Low Channel)



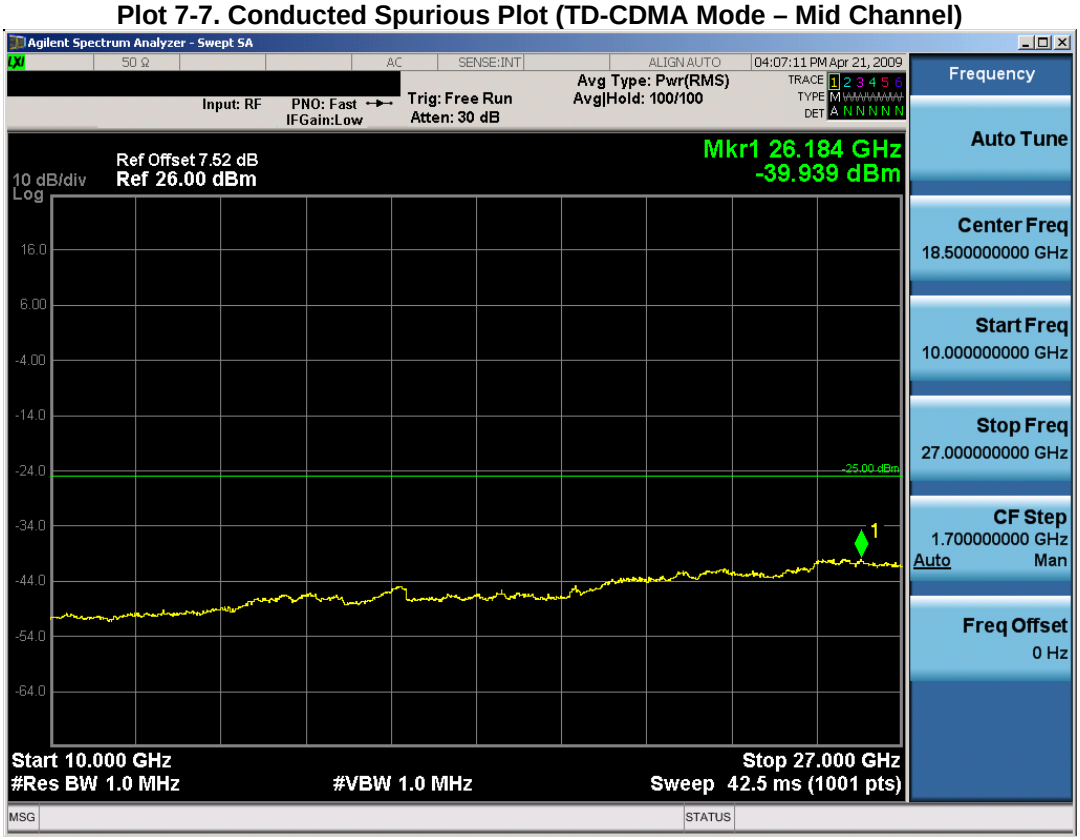
Plot 7-5. 5.5MHz Band Edge Plot (TD-CDMA Mode – Low Channel)



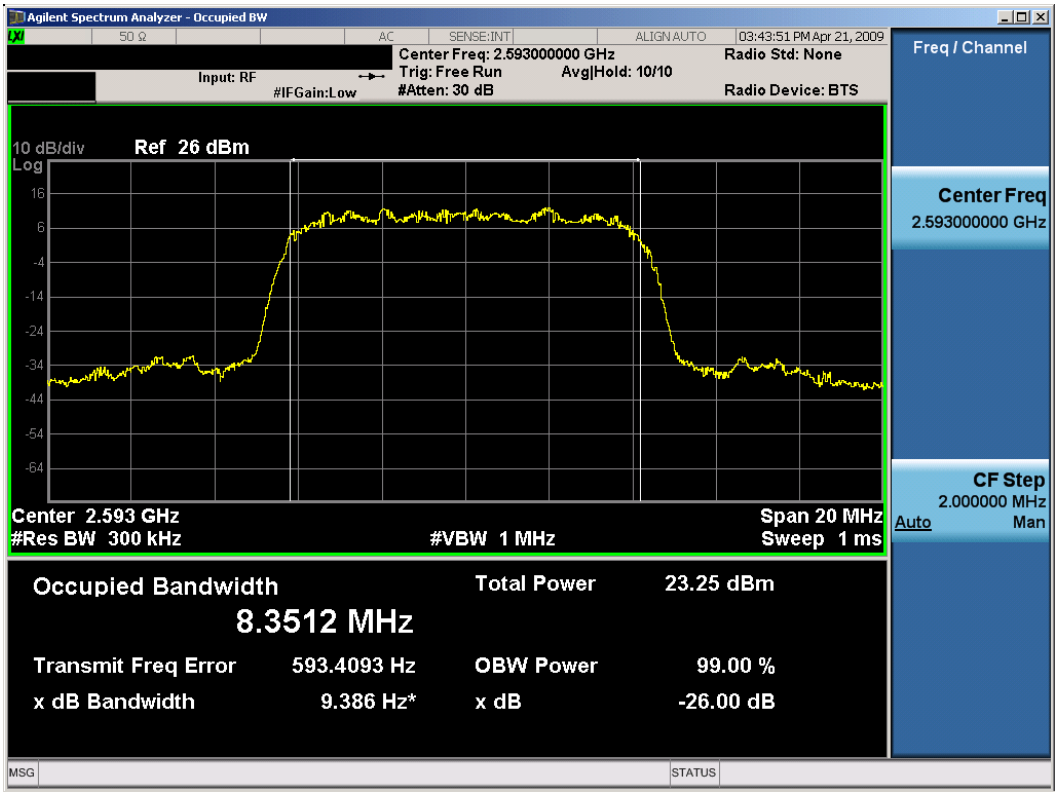
Plot 7-6. Conducted Spurious Plot (TD-CDMA Mode – Mid Channel)



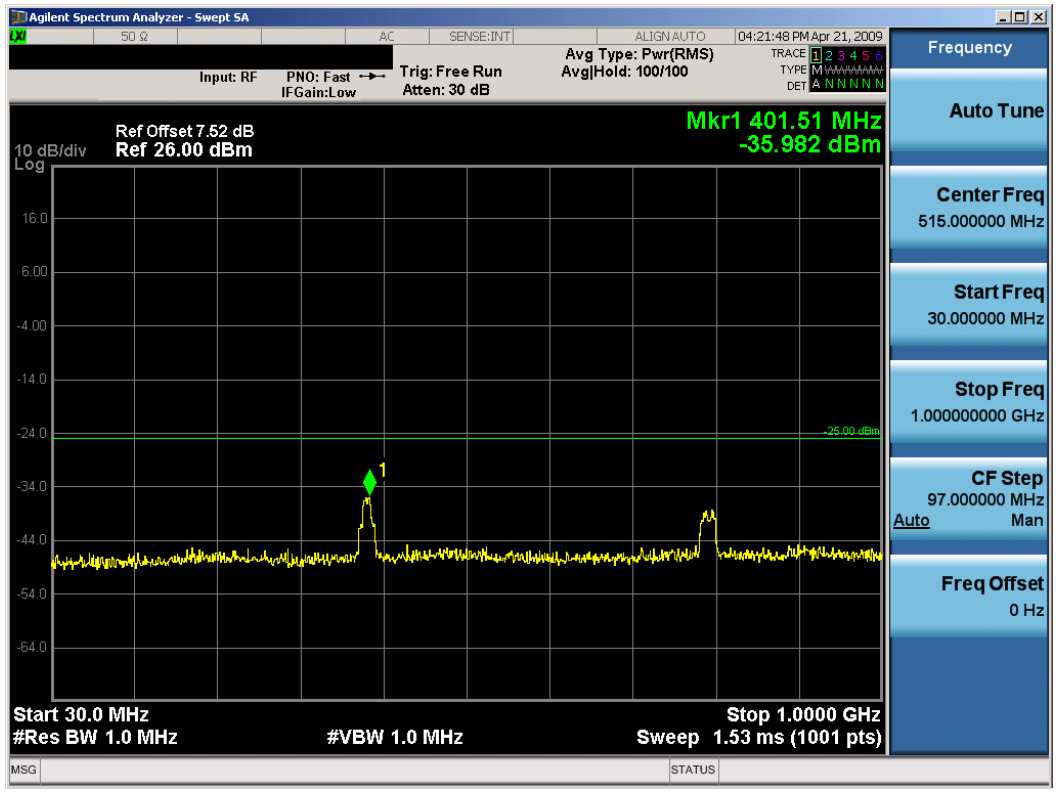
Plot 7-7. Conducted Spurious Plot (TD-CDMA Mode – Mid Channel)



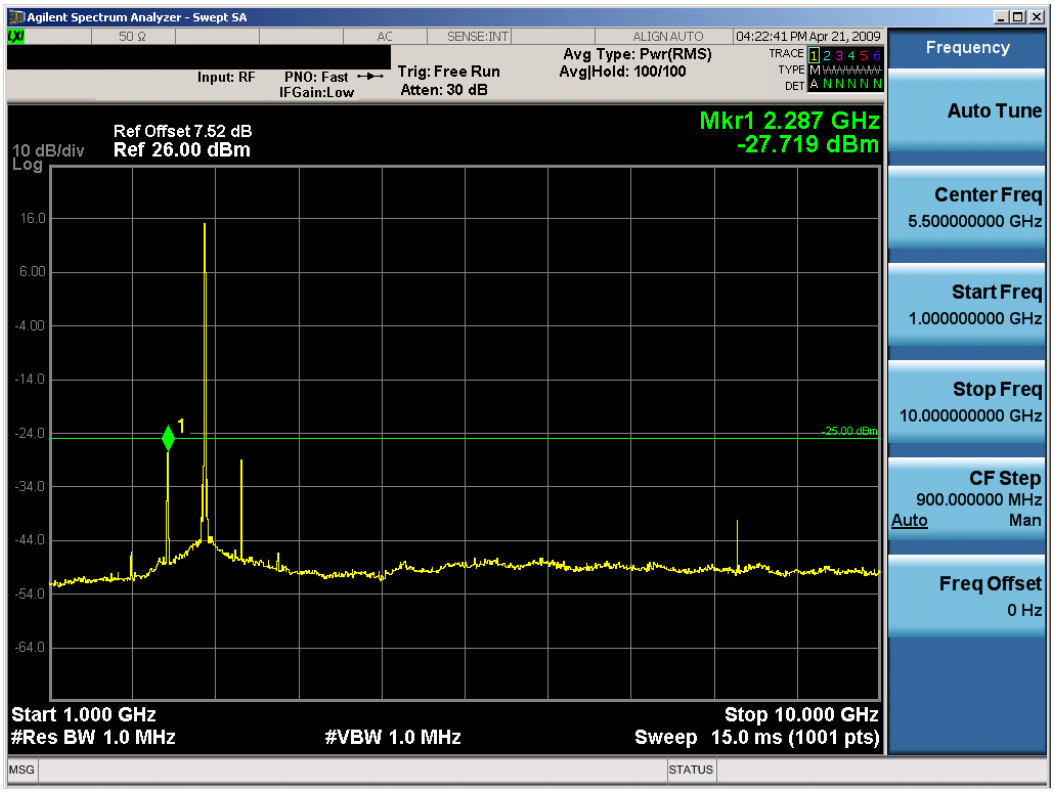
Plot 7-8. Conducted Spurious Plot (TD-CDMA Mode – Mid Channel)



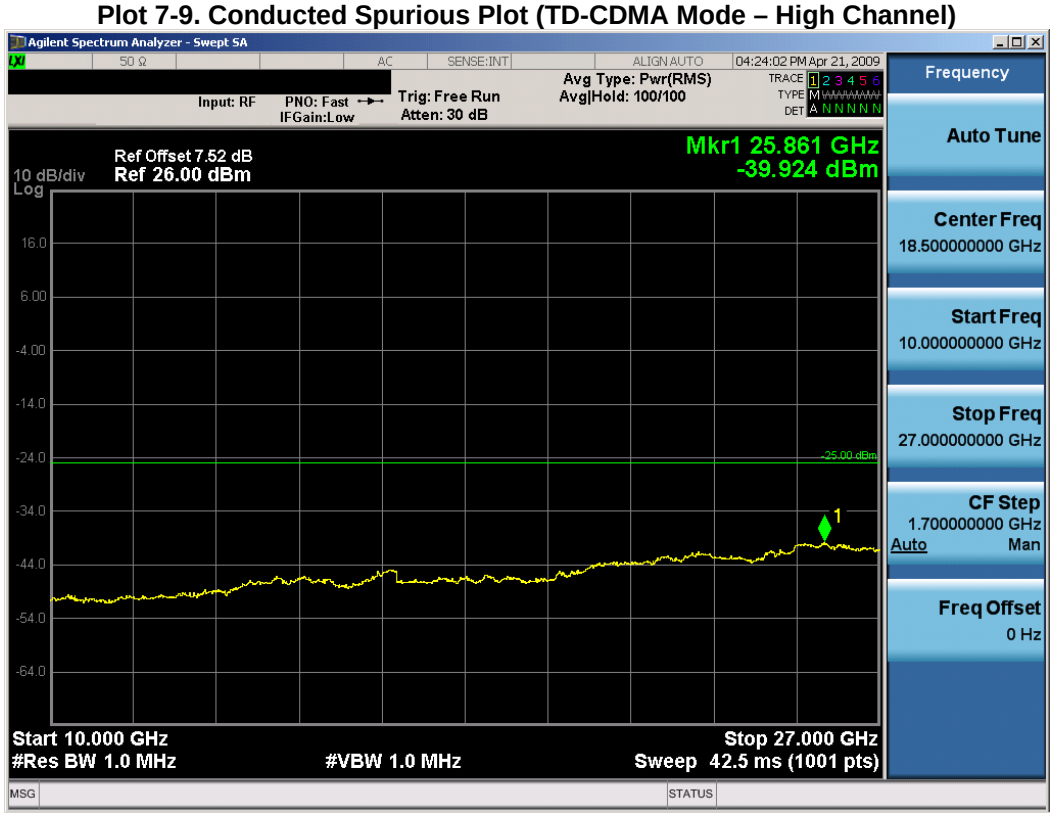
Plot 7-9. Occupied Bandwidth Plot (TD-CDMA Mode – Mid Channel)



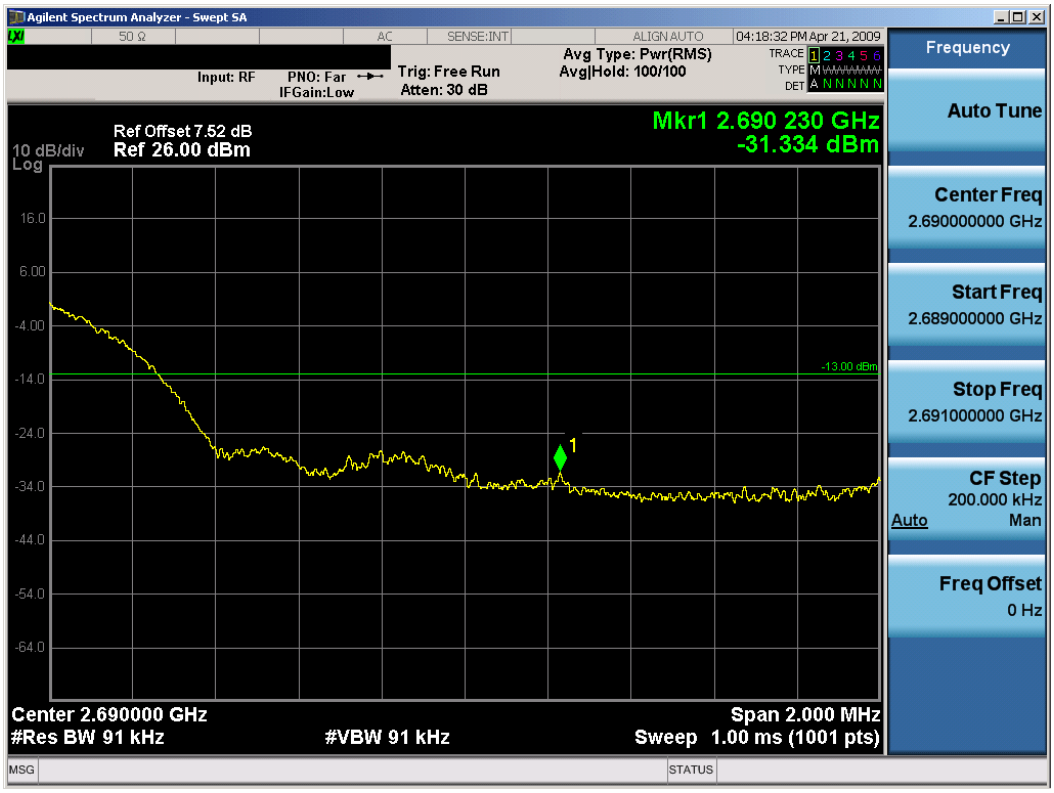
Plot 7-8. Conducted Spurious Plot (TD-CDMA Mode – High Channel)



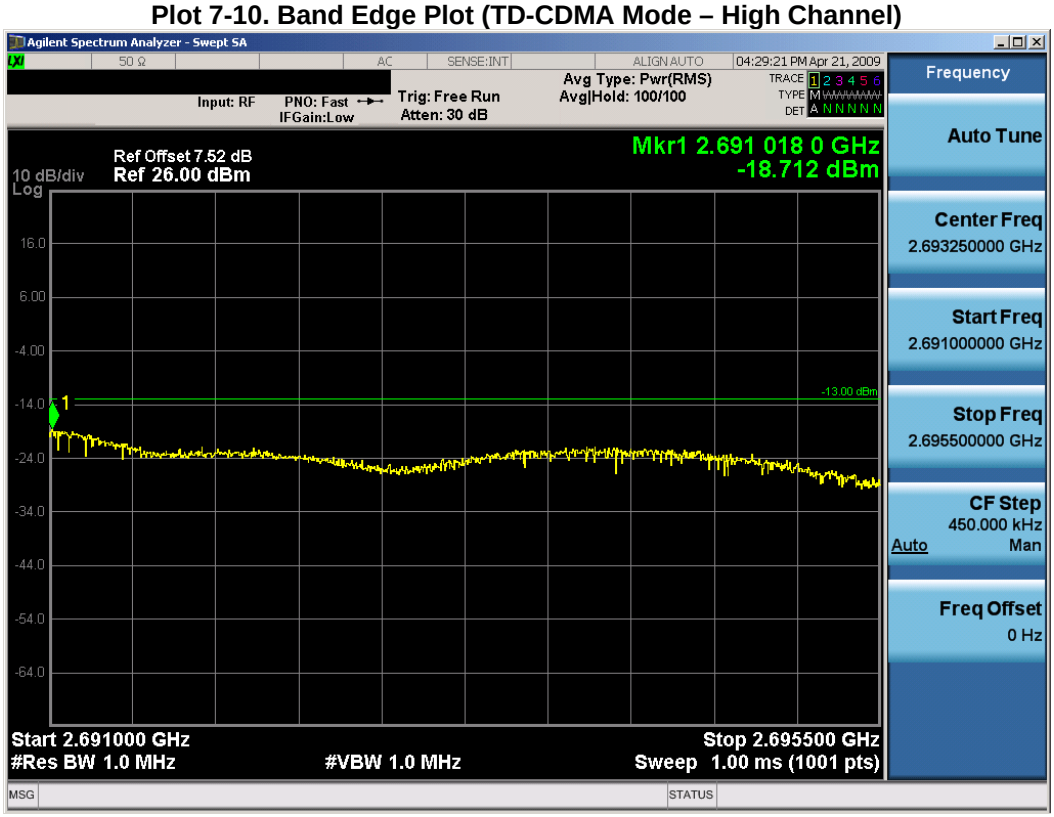
Plot 7-9. Conducted Spurious Plot (TD-CDMA Mode – High Channel)



Plot 7-9. Conducted Spurious Plot (TD-CDMA Mode – High Channel)



Plot 7-10. Band Edge Plot (TD-CDMA Mode – High Channel)



Plot 7-11. 5.5MHz Band Edge Plot (TD-CDMA Mode – High Channel)

8.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Panasonic ToughBook Model: CF-19 FCC ID: ACJ9TGCF-19E** complies with all the requirements of Parts 2 and 27 of the FCC rules.