



PCTEST ENGINEERING LABORATORY, INC.

6660-B Dobbin Road, Columbia, MD 21045 USA

Tel. 410.290.6652 / Fax 410.290.6554

<http://www.pctestlab.com>



CERTIFICATE OF COMPLIANCE FCC Part 24 & 22 Certification

Applicant Name:

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

Date of Testing:

June 20 - June 23, 2006

Test Site/Location:

PCTEST Lab, Columbia, MD, USA

Test Report Serial No.:

0606010433

FCC ID:

ACJ9TGCF-T51

APPLICANT:

PANASONIC CORPORATION OF NORTH AMERICA

Application Type:

Certification

FCC Classification:

PCS Licensed Transmitter (PCB)

FCC Rule Part(s):

§24(E), §22(H); §2

EUT Type:

Notebook PC w/ Intel WLAN and Sierra EvDO Modem

Model(s):

CF-T5

Tx Frequency Range:

824.70 - 848.31MHz (Cellular CDMA) / 1851.25 - 1908.75MHz (PCS CDMA)

Rx Frequency Range:

869.70 - 893.31MHz (Cellular CDMA) / 1931.25 - 1988.75MHz (PCS CDMA)

Max. RF Output Power:

0.508 W ERP Cellular CDMA (EvDO) (27.060 dBm) /

0.356 W EIRP PCS CDMA (EvDO) (25.511 dBm) /

0.356 W EIRP PCS CDMA (EvDO) (25.511 dBm)

Emission Designator(s):

1M27F9W (Cellular CDMA (EvDO)) / 1M27F9W (PCS CDMA (EvDO))

Test Device Serial No.:

[S/N: 6BKSA00016R]

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



| PCTEST™ PT. 22/24 TEST REPORT | PCTEST™ FCC MEASUREMENT REPORT | | | Reviewed by: Quality Manager |
|----------------------------------|--|--|-------------------------|---------------------------------|
| Test Report S/N: 0606010433 | Test Dates: June 20 - June 23, 2006 | EUT Type: Notebook PC w/ Intel WLAN and Sierra EvDO Modem | FCC ID: ACJ9TGCF-T51 | Page 1 of 26 |

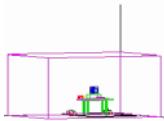


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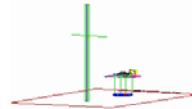
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1.0 SCOPE



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.



§2.1033 General Information

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

- **FCC ID:** ACJ9TGCF-T51
- **Quantity:** Quantity production is planned
- **Emission Designators:** 1M27F9W (Cellular CDMA (EvDO)) / 1M27F9W (PCS CDMA (EvDO))
- **Tx Freq. Range:** 824.70 - 848.31MHz (Cellular CDMA)
 1851.25 - 1908.75MHz (PCS CDMA)
- **Rx Freq. Range:** 869.70 - 893.31MHz (Cellular CDMA)
 1931.25 – 1988.75MHz (PCS CDMA)
- **Max. Power Rating:** 0.508 W ERP Cellular CDMA (EvDO) (27.060 dBm) /
 0.356 W EIRP PCS CDMA (EvDO) (25.511 dBm)
- **FCC Classification(s):** PCS Licensed Transmitter (PCB)
- **Equipment (EUT) Type:** Notebook PC w/ Intel WLAN and Sierra EvDO Modem
- **Modulation(s):** CDMA (EvDO)
- **Frequency Tolerance:** $\pm 0.00025\%$ (2.5 ppm)
- **FCC Rule Part(s):** § 24(E), §22(H)
- **Dates of Tests:** June 20 - June 23, 2006
- **Place of Tests:** PCTEST Lab, Columbia, MD U.S.A.
- **Test Report S/N:** 0606010433
- **Deviation from measurement procedure - None**

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2.0 INTRODUCTION

2.1 Testing Facility

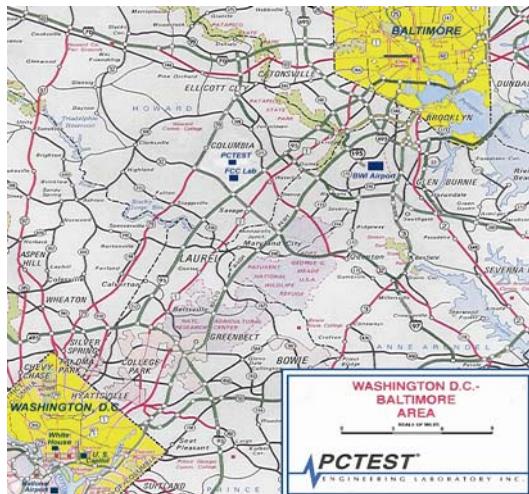


Figure 1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area.

These measurement tests were conducted at 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 on October 19, 1992.

2.2 Measurement Procedure

The radiated spurious measurements were made outdoors at a 3-meter test range (see Figure 2). 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.

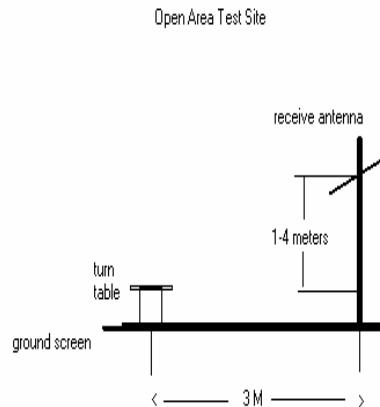


Figure 2. Diagram of 3-meter outdoor test range

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3.0 INSERTS

Function of Active Devices (Confidential)

Block & Schematic Diagrams (Confidential)

Operating Instructions

Parts List & Tune-Up Procedure (Confidential)

Description of Freq. Stabilization Circuit (Confidential)

Description for Suppression of Spurious Radiation, for Limiting Modulation, and Harmonic Suppression Circuits (Confidential)

* *These exhibits are not included.*

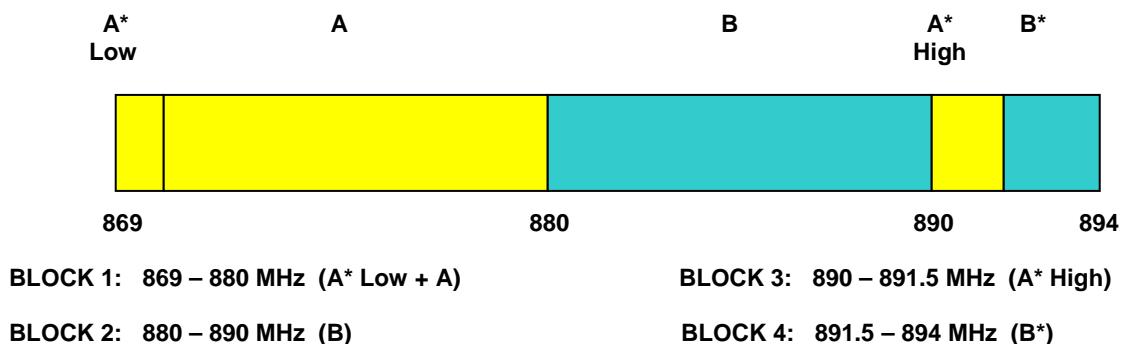
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4.0 DESCRIPTION OF TESTS

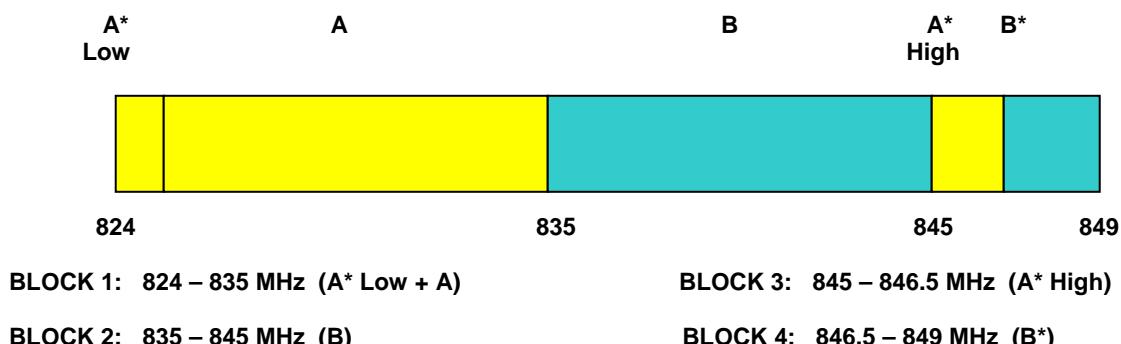
4.1 Occupied Bandwidth Emission Limits

- 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.

4.2 Cellular - Base Frequency Blocks



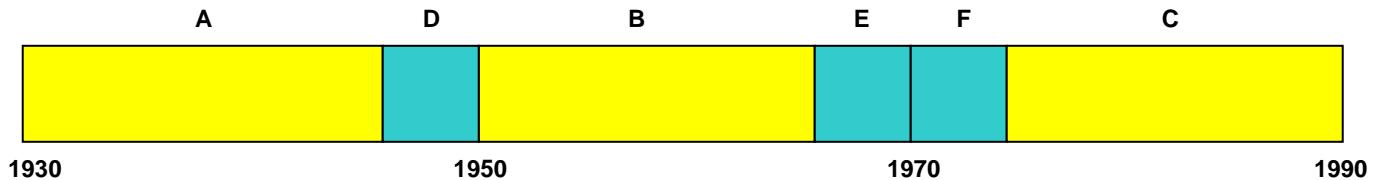
4.3 Cellular - Mobile Frequency Blocks



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4.4 PCS - Base Frequency Blocks



BLOCK 1: 1930 – 1945 MHz (A)

BLOCK 2: 1945 – 1950 MHz (D)

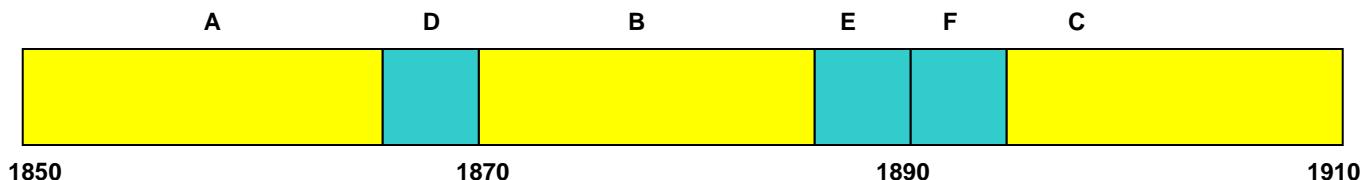
BLOCK 3: 1950 – 1965 MHz (B)

BLOCK 4: 1965 – 1970 MHz (E)

BLOCK 5: 1970 – 1975 MHz (F)

BLOCK 6: 1975 – 1990 MHz (C)

4.5 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)

| | | | | |
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4.6 Frequencies

At the input terminals of the spectrum analyzer, an isolator (RF pad) and a high-pass filter are connected between the test transceiver (for conducted tests) or the receive antenna (for radiated tests) and the analyzer. The high-pass filter (signals below 1.6 GHz) is to limit the fundamental frequency from interfering with the measurement of low-level spurious and harmonic emissions and to ensure that the preamplifier is not saturated.

4.7 Radiated Spurious and Harmonic Emissions

Radiation and harmonic 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. 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 R.C.s and S.O.s and the worst case is reported with EvDO FTAP with "All Up" power control bits.

4.8 Frequency Stability / Temperature Variation

The frequency stability of the transmitter is measured by:

- a.) **Temperature:** The temperature is varied from -30°C to +60°C using an environmental chamber.
- b.) **Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the voltage normally at the input to the device or at the power supply terminals if cables are not normally supplied.

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 ± 0.00025 (± 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 (22°C to 25°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 a three minute interval after applying power to the transmitter.
4. Frequency measurements are made at 10°C interval up to room temperature. At least a period of one and one half-hour is provided to allow stabilization of the equipment at each temperature level.

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4.8 Frequency Stability / Temperature Variation (Cont'd)

5. Again the transmitter carrier frequency and the individual oscillators is measured at room temperature to begin measurement of the upper temperature levels.
6. Frequency measurements are at 10 intervals starting at -30°C up to +50°C allowing at least two hours at each temperature for stabilization. In all measurements the frequency is measured within three minutes after re-applying power to the transmitter.
7. The artificial load is mounted external to the temperature chamber.

NOTE: The EUT is tested down to the battery endpoint.

| PCTEST™ PT. 22/24 TEST REPORT | PCTEST™ WIRELESS | | | FCC MEASUREMENT REPORT | Panasonic | Reviewed by: Quality Manager |
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5.0 CONDUCTED OUTPUT POWER

This device was tested under all R.C.s and S.O.s and the worst case is reported with EvDO FTAP with "All Up" power control bits.

5.1 SAR Measurement Conditions for CDMA2000

The following procedures were followed according to FCC "SAR Measurement Procedures for 3G Devices", May 2006.

5.2 Output Power Verification

See 3GPP2 C.S0011/TIA-98-E as recommended by "SAR Measurement Procedures for 3G Devices", May 2006.

1. If the mobile station (MS) supports Reverse TCH RC 1 and Forward TCH RC 1, set up a call using Fundamental Channel Test Mode 1 (RC=1/1) with 9600 bps data rate only.
2. Under RC1, C.S0011 Table 4.4.5.2-1, Table 5-1 parameters were applied.
3. If the MS supports the RC 3 Reverse FCH, RC3 Reverse SCH0 and demodulation of RC 3,4, or 5, set up a call using Supplemental Channel Test Mode 3 (RC 3/3) with 9600 bps Fundamental Channel and 9600 bps SCH0 data rate.
4. Under RC3, C.S0011 Table 4.4.5.2-2, Table 5-2 was applied.
5. FCHs were configured at full rate for maximum SAR with "All Up" power control bits.

| Parameter | Units | Value |
|--------------------------------------|--------------|-------|
| \bar{I}_{or} | dBm/1.23 MHz | -104 |
| $\frac{\text{Pilot } E_c}{I_{or}}$ | dB | -7 |
| $\frac{\text{Traffic } E_c}{I_{or}}$ | dB | -7.4 |

Table 5-1
Parameters for Max. Power for RC1

| Parameter | Units | Value |
|--------------------------------------|--------------|-------|
| \bar{I}_{or} | dBm/1.23 MHz | -86 |
| $\frac{\text{Pilot } E_c}{I_{or}}$ | dB | -7 |
| $\frac{\text{Traffic } E_c}{I_{or}}$ | dB | -7.4 |

Table 5-2
Parameters for Max. Power for RC3

| Band | Channel | SO2 | SO2 | SO55 | SO55 | TDSO SO32 | 1x EvDO Rev. 0 | 1x EvDO Rev. 0 |
|----------|---------|-------|-------|-------|-------|-----------|----------------|----------------|
| | | RC1/1 | RC3/3 | RC1/1 | RC3/3 | RC3/3 | (FTAP) | (RTAP) |
| Cellular | 1013 | 24.89 | 24.81 | 24.98 | 25.09 | 25.08 | 25.13 | 25.14 |
| | 384 | 24.52 | 24.62 | 24.70 | 24.62 | 24.86 | 25.01 | 24.98 |
| | 777 | 24.81 | 24.58 | 24.61 | 24.67 | 24.71 | 24.78 | 24.87 |
| PCS | 25 | 24.67 | 24.74 | 24.87 | 24.59 | 25.02 | 25.22 | 25.19 |
| | 600 | 24.61 | 24.74 | 24.86 | 24.76 | 24.95 | 25.16 | 25.11 |
| | 1175 | 24.81 | 24.68 | 24.84 | 24.67 | 25.06 | 25.11 | 25.21 |

Table 5-3
Maximum Power Output Table for CF-T5

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6.0 EFFECTIVE RADIATED POWER

6.1 Effective Radiated Power Output Data

POWER: High (CDMA Mode)

| Freq. Tuned (MHz) | REF. LEVEL (dBm) | POL (H/V) | ERP (W) | ERP (dBm) | BATTERY |
|-------------------|------------------|-----------|---------|-----------|----------|
| 824.70 | -14.213 | H | 0.508 | 27.060 | Standard |
| 836.52 | -14.653 | H | 0.476 | 26.780 | Standard |
| 848.31 | -15.393 | H | 0.416 | 26.190 | Standard |

Note: This unit was tested with its standard battery.

NOTES:

Effective Radiated Power Output Measurements by Substitution Method according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

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 = 5MHz. 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 R.C.s and S.O.s and the worst case is reported with EvDO FTAP with "All Up" power control bits.

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7.0 EQUIVALENT ISOTROPIC RADIATED POWER

7.1 Equivalent Isotropic Radiated Power Output Data

Radiated measurements at 3 meters

| | |
|-----------------|-----------------|
| Supply Voltage: | 11.1 VDC |
| Modulation: | PCS CDMA (EvDO) |

| FREQ. (MHz) | REF. LEVEL (dBm) | POL (H/V) | Azimuth (o angle) | EIRP (dBm) | EIRP (W) | Battery |
|----------------|------------------------|--------------|----------------------|---------------|-------------|----------|
| 1851.25 | -17.570 | H | 95 | 25.511 | 0.356 | Standard |
| 1880.00 | -18.289 | H | 95 | 24.962 | 0.313 | Standard |
| 1908.75 | -18.589 | H | 95 | 24.832 | 0.304 | Standard |

Note: This unit was tested with its standard battery.

NOTES:

Equivalent Isotropic Radiated Power Measurements by Substitution Method
according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

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 = 5MHz. 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 R.C.s and S.O.s and the worst case is reported with EvDO FTAP with "All Up" power control bits.

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8.0 RADIATED MEASUREMENTS

8.1 Cellular CDMA (EvDO) Radiated Measurements

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 824.70 MHz
 CHANNEL: 1013 (Low)
 MEASURED OUTPUT POWER: 27.060 dBm = 0.508 W
 MODULATION SIGNAL: CDMA (Internal)
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 40.06 dBc

| FREQ. (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | CORRECT GENERATOR LEVEL (dBm) | POL (H/V) | (dBc) |
|----------------|--|--|--|--------------|-------|
| 1649.40 | -59.63 | 6.10 | -53.53 | H | 80.6 |
| 2474.10 | -62.05 | 6.70 | -55.35 | V | 82.4 |
| 3298.80 | -67.19 | 6.80 | -60.39 | V | 87.4 |
| 4123.50 | -85.68 | 6.50 | -79.18 | H | 106.2 |
| 4948.20 | -84.38 | 7.00 | -77.38 | H | 104.4 |

NOTES:

Radiated Spurious Emission Measurements by Substitution Method
according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

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 = 5MHz. 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 R.C.s and S.O.s and the worst case is reported with EvDO FTAP with "All Up" power control bits.

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8.1 Cellular CDMA (EvDO) Radiated Measurements (Cont'd)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 836.52 MHz
 CHANNEL: 0384 (Mid)
 MEASURED OUTPUT POWER: 27.060 dBm = 0.508 W
 MODULATION SIGNAL: CDMA (Internal)
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 40.06 dBc

| FREQ. (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | CORRECT GENERATOR LEVEL (dBm) | POL (H/V) | (dBc) |
|----------------|--|--|--|--------------|-------|
| 1673.04 | -60.53 | 6.10 | -54.43 | V | 81.5 |
| 2509.56 | -62.06 | 6.70 | -55.36 | H | 82.4 |
| 3346.08 | -63.30 | 6.80 | -56.50 | H | 83.6 |
| 4182.60 | -63.01 | 6.50 | -56.51 | V | 83.6 |
| 5019.12 | -83.78 | 7.00 | -76.78 | H | 103.8 |

NOTES:

Radiated Spurious Emission Measurements by Substitution Method
 according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

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 = 5MHz. 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 R.C.s and S.O.s and the worst case is reported with EvDO FTAP with "All Up" power control bits.

| PCTEST™ PT. 22/24 TEST REPORT | FCC MEASUREMENT REPORT | | | Reviewed by: Quality Manager |
|----------------------------------|--|--|-------------------------|---------------------------------|
| Test Report S/N: 0606010433 | Test Dates: June 20 - June 23, 2006 | EUT Type: Notebook PC w/ Intel WLAN and Sierra EvDO Modem | FCC ID: ACJ9TGCF-T51 | Page 14 of 26 |



8.1 Cellular CDMA (EvDO) Radiated Measurements (Cont'd)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 848.31 MHz
 CHANNEL: 0777 (High)
 MEASURED OUTPUT POWER: 27.060 dBm = 0.508 W
 MODULATION SIGNAL: CDMA (Internal)
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 40.06 dBc

| FREQ. (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBd) | CORRECT GENERATOR LEVEL (dBm) | POL (H/V) | (dBc) |
|----------------|--|--|--|--------------|-------|
| 1696.62 | -50.24 | 6.10 | -44.14 | V | 71.2 |
| 2544.93 | -64.06 | 6.70 | -57.36 | V | 84.4 |
| 3393.24 | -64.51 | 6.80 | -57.71 | H | 84.8 |
| 4241.55 | -64.45 | 6.50 | -57.95 | H | 85.0 |
| 5089.86 | -83.98 | 7.00 | -76.98 | H | 104.0 |

NOTES:

Radiated Spurious Emission Measurements by Substitution Method
 according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

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 = 5MHz. 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 R.C.s and S.O.s and the worst case is reported with EvDO FTAP with "All Up" power control bits.

| PCTEST™ PT. 22/24 TEST REPORT | FCC MEASUREMENT REPORT | | | Reviewed by: Quality Manager |
|----------------------------------|--|--|-------------------------|---------------------------------|
| Test Report S/N: 0606010433 | Test Dates: June 20 - June 23, 2006 | EUT Type: Notebook PC w/ Intel WLAN and Sierra EvDO Modem | FCC ID: ACJ9TGCF-T51 | Page 15 of 26 |

8.2 PCS CDMA (EvDO) Radiated Measurements

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1851.25 MHz
 CHANNEL: 0025 (Low)
 MEASURED OUTPUT POWER: 25.511 dBm = 0.356 W
 MODULATION SIGNAL: CDMA (Internal)
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 38.51 dBc

| FREQ. (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | CORRECT GENERATOR LEVEL (dBm) | POL (H/V) | (dBc) |
|----------------|--|--|--|--------------|-------|
| 3702.50 | -52.65 | 8.70 | -43.95 | H | 69.5 |
| 5553.75 | -48.10 | 9.70 | -38.40 | V | 63.9 |
| 7405.00 | -53.92 | 9.90 | -44.02 | H | 69.5 |
| 9256.25 | -77.43 | 11.40 | -66.03 | V | 91.5 |
| 11107.50 | -77.33 | 12.10 | -65.23 | H | 90.7 |

NOTES:

Radiated Spurious Emission Measurements by Substitution Method
according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

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 = 5MHz. 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 R.C.s and S.O.s and the worst case is reported with EvDO FTAP with "All Up" power control bits.

| PCTEST™ PT. 22/24 TEST REPORT | FCC MEASUREMENT REPORT | | | Reviewed by: Quality Manager |
|----------------------------------|--|--|-------------------------|---------------------------------|
| Test Report S/N: 0606010433 | Test Dates: June 20 - June 23, 2006 | EUT Type: Notebook PC w/ Intel WLAN and Sierra EvDO Modem | FCC ID: ACJ9TGCF-T51 | Page 16 of 26 |



8.2 PCS CDMA (EvDO) Radiated Measurements (Cont'd)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1880.00 MHz
 CHANNEL: 0600 (Mid)
 MEASURED OUTPUT POWER: 25.511 dBm = 0.356 W
 MODULATION SIGNAL: CDMA (Internal)
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 38.51 dBc

| FREQ. (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | CORRECT GENERATOR LEVEL (dBm) | POL (H/V) | (dBc) |
|----------------|--|--|--|--------------|-------|
| 3760.00 | -48.80 | 8.70 | -40.10 | V | 65.6 |
| 5640.00 | -54.53 | 9.70 | -44.83 | V | 70.3 |
| 7520.00 | -54.43 | 9.90 | -44.53 | H | 70.0 |
| 9400.00 | -77.23 | 11.40 | -65.83 | V | 91.3 |
| 11280.00 | -77.13 | 12.10 | -65.03 | H | 90.5 |

NOTES:

Radiated Spurious Emission Measurements by Substitution Method
 according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

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 = 5MHz. 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 R.C.s and S.O.s and the worst case is reported with EvDO FTAP with "All Up" power control bits.

| PCTEST™ PT. 22/24 TEST REPORT | FCC MEASUREMENT REPORT | | | Reviewed by: Quality Manager |
|----------------------------------|--|--|-------------------------|---------------------------------|
| Test Report S/N: 0606010433 | Test Dates: June 20 - June 23, 2006 | EUT Type: Notebook PC w/ Intel WLAN and Sierra EvDO Modem | FCC ID: ACJ9TGCF-T51 | Page 17 of 26 |



8.2 PCS CDMA (EvDO) Radiated Measurements (Cont'd)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1908.75 MHz
 CHANNEL: 1175 (High)
 MEASURED OUTPUT POWER: 25.511 dBm = 0.356 W
 MODULATION SIGNAL: CDMA (Internal)
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 38.51 dBc

| FREQ. (MHz) | LEVEL @ ANTENNA TERMINALS (dBm) | SUBSTITUTE ANTENNA GAIN (dBi) | CORRECT GENERATOR LEVEL (dBm) | POL (H/V) | (dBc) |
|----------------|--|--|--|--------------|-------|
| 3817.50 | -40.24 | 8.70 | -31.54 | H | 57.1 |
| 5726.25 | -40.92 | 9.70 | -31.22 | V | 56.7 |
| 7635.00 | -53.70 | 9.90 | -43.80 | V | 69.3 |
| 9543.75 | -76.93 | 11.40 | -65.53 | H | 91.0 |
| 11452.50 | -76.93 | 12.10 | -64.83 | H | 90.3 |

NOTES:

Radiated Spurious Emission Measurements by Substitution Method
 according to ANSI/TIA/EIA-603-A-2001, Aug. 15, 2001:

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 = 5MHz. 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 R.C.s and S.O.s and the worst case is reported with EvDO FTAP with "All Up" power control bits.

| PCTEST™ PT. 22/24 TEST REPORT | FCC MEASUREMENT REPORT | | | Reviewed by: Quality Manager |
|----------------------------------|--|--|-------------------------|---------------------------------|
| Test Report S/N: 0606010433 | Test Dates: June 20 - June 23, 2006 | EUT Type: Notebook PC w/ Intel WLAN and Sierra EvDO Modem | FCC ID: ACJ9TGCF-T51 | Page 18 of 26 |



9.0 FREQUENCY STABILITY

9.1 Frequency Stability (Cellular CDMA (EvDO))

OPERATING FREQUENCY: 836,520,007 Hz

CHANNEL: 384

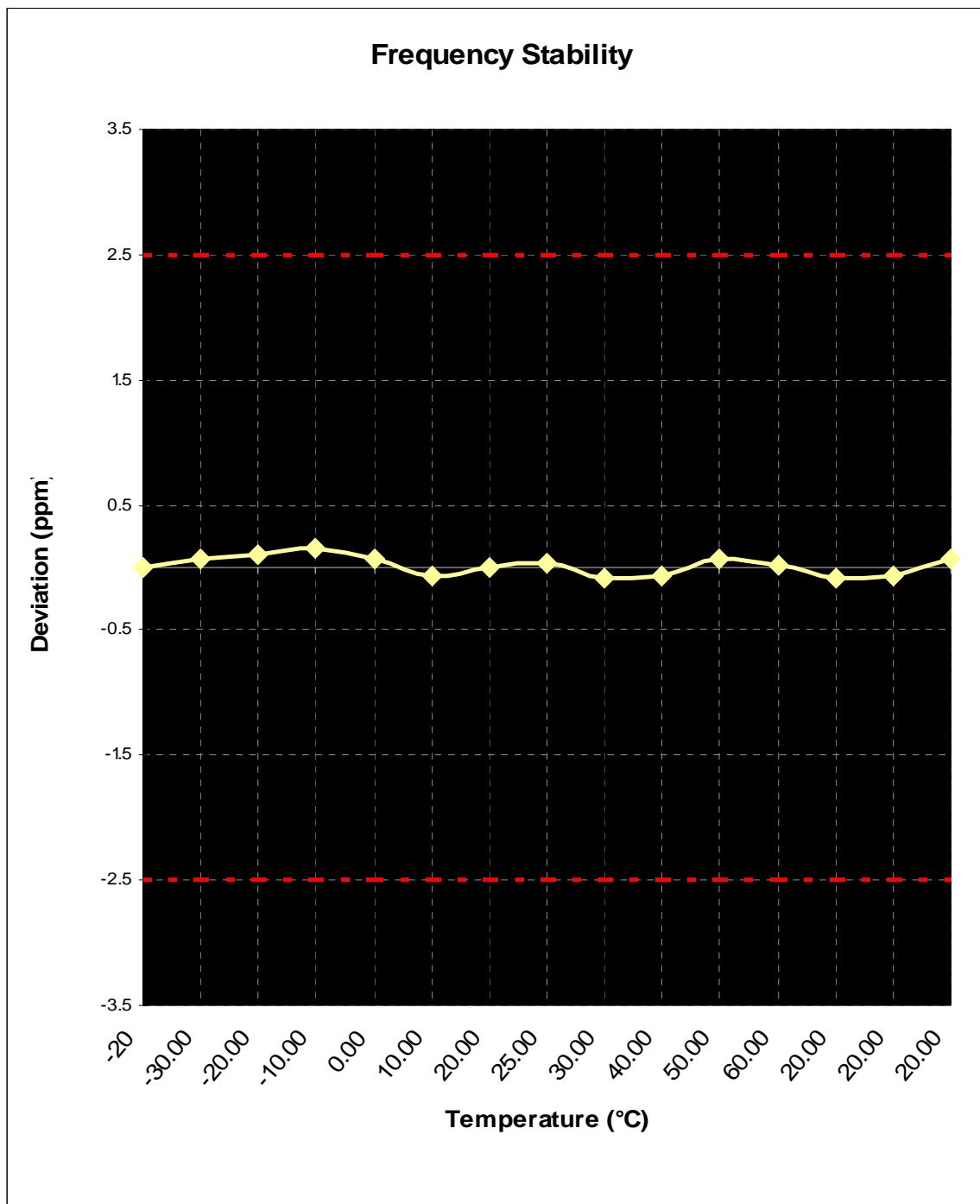
REFERENCE VOLTAGE: 11.1 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

| VOLTAGE (%) | POWER (VDC) | TEMP (°C) | FREQ. (Hz) | Freq. Dev. (Hz) | Deviation (%) |
|----------------|-------------|------------|-------------|-----------------|---------------|
| 100 % | 11.10 | + 20 (Ref) | 836,520,007 | 0.00 | 0.000000 |
| 100 % | | -30 | 836,519,957 | 50.19 | 0.000006 |
| 100 % | | -20 | 836,519,915 | 92.02 | 0.000011 |
| 100 % | | -10 | 836,519,882 | 125.48 | 0.000015 |
| 100 % | | 0 | 836,519,948 | 58.56 | 0.000007 |
| 100 % | | 10 | 836,520,057 | -50.19 | -0.000006 |
| 100 % | | 20 | 836,520,007 | 0.00 | 0.000000 |
| 100 % | | 25 | 836,519,974 | 33.46 | 0.000004 |
| 100 % | | 30 | 836,520,082 | -75.29 | -0.000009 |
| 100 % | | 40 | 836,520,066 | -58.56 | -0.000007 |
| 100 % | | 50 | 836,519,957 | 50.19 | 0.000006 |
| 100 % | | 60 | 836,519,990 | 16.73 | 0.000002 |
| 85 % | 9.44 | 20 | 836,520,082 | -75.29 | -0.000009 |
| 115 % | 12.77 | 20 | 836,520,066 | -58.56 | -0.000007 |
| BATT. ENDPOINT | 10.86 | 20 | 836,519,957 | 50.19 | 0.000006 |

| PCTEST™ PT. 22/24 TEST REPORT | FCC MEASUREMENT REPORT | | | Reviewed by: Quality Manager |
|--------------------------------|--|--|-------------------------|---------------------------------|
| Test Report S/N: 0606010433 | Test Dates: June 20 - June 23, 2006 | EUT Type: Notebook PC w/ Intel WLAN and Sierra EvDO Modem | FCC ID: ACJ9TGCF-T51 | Page 19 of 26 |

9.1 Frequency Stability (Cellular CDMA (EvDO)) (Cont'd)



| PCTEST™ PT. 22/24 TEST REPORT | FCC MEASUREMENT REPORT | | | Reviewed by: Quality Manager |
|----------------------------------|--|--|-------------------------|---------------------------------|
| Test Report S/N: 0606010433 | Test Dates: June 20 - June 23, 2006 | EUT Type: Notebook PC w/ Intel WLAN and Sierra EvDO Modem | FCC ID: ACJ9TGCF-T51 | Page 20 of 26 |



9.2 Frequency Stability (PCS CDMA (EvDO))

OPERATING FREQUENCY: 1,880,000,003 Hz

CHANNEL: 600

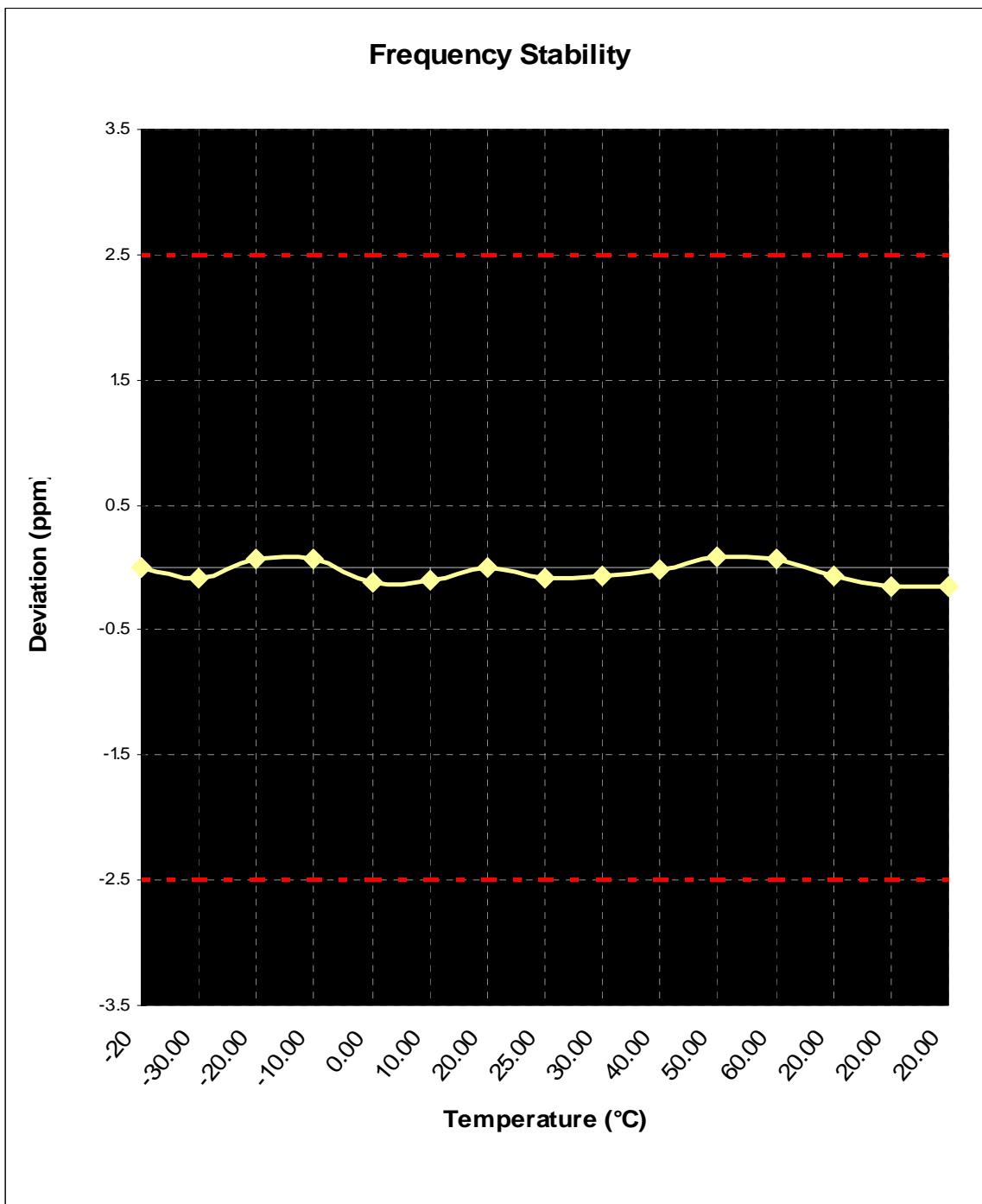
REFERENCE VOLTAGE: 11.1 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

| VOLTAGE (%) | POWER (VDC) | TEMP (°C) | FREQ. (Hz) | Freq. Dev. (Hz) | Deviation (%) |
|----------------|-------------|------------|---------------|-----------------|---------------|
| 100 % | 11.10 | + 20 (Ref) | 1,880,000,003 | 0.00 | 0.000000 |
| 100 % | | -30 | 1,880,000,172 | -169.20 | -0.000009 |
| 100 % | | -20 | 1,879,999,871 | 131.60 | 0.000007 |
| 100 % | | -10 | 1,879,999,890 | 112.80 | 0.000006 |
| 100 % | | 0 | 1,880,000,229 | -225.60 | -0.000012 |
| 100 % | | 10 | 1,880,000,210 | -206.80 | -0.000011 |
| 100 % | | 20 | 1,880,000,003 | 0.00 | 0.000000 |
| 100 % | | 25 | 1,880,000,153 | -150.40 | -0.000008 |
| 100 % | | 30 | 1,880,000,135 | -131.60 | -0.000007 |
| 100 % | | 40 | 1,880,000,041 | -37.60 | -0.000002 |
| 100 % | | 50 | 1,879,999,853 | 150.40 | 0.000008 |
| 100 % | | 60 | 1,879,999,871 | 131.60 | 0.000007 |
| 85 % | 9.44 | 20 | 1,880,000,116 | -112.80 | -0.000006 |
| 115 % | 12.77 | 20 | 1,880,000,285 | -282.00 | -0.000015 |
| BATT. ENDPOINT | 10.96 | 20 | 1,880,000,304 | -300.80 | -0.000016 |

| PCTEST™ PT. 22/24 TEST REPORT | PCTEST™ FCC MEASUREMENT REPORT | | | Reviewed by: Quality Manager |
|----------------------------------|--|--|-------------------------|---------------------------------|
| Test Report S/N: 0606010433 | Test Dates: June 20 - June 23, 2006 | EUT Type: Notebook PC w/ Intel WLAN and Sierra EvDO Modem | FCC ID: ACJ9TGCF-T51 | Page 21 of 26 |

9.2 Frequency Stability (PCS CDMA (EvDO)) (Cont'd)



| PCTEST™ PT. 22/24 TEST REPORT | FCC MEASUREMENT REPORT | | | Reviewed by: Quality Manager |
|----------------------------------|--|--|-------------------------|---------------------------------|
| Test Report S/N: 0606010433 | Test Dates: June 20 - June 23, 2006 | EUT Type: Notebook PC w/ Intel WLAN and Sierra EvDO Modem | FCC ID: ACJ9TGCF-T51 | Page 22 of 26 |



10.0 PLOT(S) OF EMISSIONS

(SEE ATTACHMENT A)

| PCTEST™ PT. 22/24 TEST REPORT | PCTEST™ FCC MEASUREMENT REPORT | | | Reviewed by: Quality Manager |
|----------------------------------|--|--|-------------------------|---------------------------------|
| Test Report S/N: 0606010433 | Test Dates: June 20 - June 23, 2006 | EUT Type: Notebook PC w/ Intel WLAN and Sierra EvDO Modem | FCC ID: ACJ9TGCF-T51 | Page 23 of 26 |



11.0 TEST EQUIPMENT

| TYPE | MODEL | CAL DUE DATE | S/N |
|-----------------------------------|--|--------------|------------------------|
| Signal Generator* | Rohde & Schwarz (0.1-1000MHz) | 9/11/2006 | 894215/012 |
| Ailtech/Eaton Receiver | NM 37/57A-SL (30-1000MHz) | 4/12/2007 | 0792-03271 |
| Ailtech/Eaton Receiver | NM 37/57A (30-1000MHz) | 3/11/2007 | 0805-03334 |
| Ailtech/Eaton Receiver | NM 17/27A (0.1-32MHz) | 9/17/2006 | 0608-03241 |
| Ailtech/Eaton Adapter | CCA-7 CISPR/ANSI QP Adapter | 3/11/2007 | 0194-04082 |
| Harmonic/Flicker | Test System HP 6841A (IEC 555-2/3) | 2/11/2007 | 3531A00115/ PCT468 |
| Shielded Screen Room | RF Lindgren Model 26-2/2-0 | N/A | 6710 (PCT270) |
| Shielded Semi-Anechoic Chamber | Ray Proof Model S81 | N/A | R2437 (PCT278) |
| Quasi-Peak Adapter | HP 85650A | 8/9/2006 | 2043A00301 |
| Microwave Spectrum Analyzer | Agilent E4448A (3Hz-50GHz) | 9/19/2006 | US42510244 |
| Microwave Spectrum Analyzer | HP 8566B (100Hz-22GHz) | 4/17/2007 | 2542A11898 |
| Spectrum Analyzer/Tracking Gen. | HP 8591A (100Hz-1.8GHz) | 9/12/2006 | 3144A02458 |
| Signal Generator* | HP 8640D (500Hz-1GHz) | 12/7/2007 | 3613A00315 |
| Signal Generator | HP 8648D (9kHz-4GHz) | 5/1/2007 | 3613A00315 |
| Spectrum Analyzer | HP 8594A | 11/2/2006 | 3051A00187 |
| Spectrum Analyzer (2) | HP 8591A | 10/15/2006 | 3034A01395, 3108A02053 |
| Audio Analyzer | HP 8903B | | 3011A09025 |
| Modulation Analyzer | HP 8901A | | 2432A03467 |
| Power Meter | HP 437B | | 3125U24437 |
| Power Sensor | HP 8482H (30mW-3W) | | 2237A02084 |
| Broadband Amplifier (2) | HP 8447D | | 1145A00470, 1937A03348 |
| Broadband Amplifier | HP 8447F | | 2443A03784 |
| Network Analyzer | HP 8753E (30kHz-3GHz) | | JP38020182 |
| Attenuator | HP 8495A (0-70dB) DC-4GHz | | |
| Horn Antenna | EMCO Model 3115 (1-18GHz) | | 9704-5182 |
| Horn Antenna | EMCO Model 3115 (1-18GHz) | | 9205-3874 |
| Horn Antenna | EMCO Model 3116 (18-40GHz) | | 9203-2178 |
| Biconical Antenna (4) | Eaton 94455/Eaton 94455-1/Singer 94455-1/Compliance Design | | 1295, 1332, 0355 |
| Log-Spiral Antenna (3) | Ailtech/Eaton 93490-1 | | 0608, 1103, 1104 |
| Roberts Dipoles | Compliance Design (1 set) | | |
| Ailtech Dipoles | DM-105A (1 set) | | 33448-111 |
| EMCO LISN (6) | 3816/2 | | 1079 |
| Microwave Preamplifier 40dB | Gain HP 83017A (0.5-26.5GHz) | | 3123A00181 |
| Microwave Cables | MicroCoax (1.0-26.5GHz) | | |
| Gigatronics Universal Power Meter | 8657A | | 1835256 |
| Gigatronics Power Sensor | 80701A (0.05-18GHz) | | 1833460 |
| Amplifier Research | 5S1G4 (5W, 800MHz-4.2GHz) | | 22322 |
| Microwave Survey Meter | Holiday Model 1501 (2.450GHz) | | 80931 |
| Digital Thermometer | Extech Instruments 421305 | | 426966 |
| Bi-Directional Coax Coupler | Narda 3020A (50-1000MHz) | | |
| Environmental Chamber | Associated Systems Model 1025 (Temperature/Humidity) | | PCT285 |

Table 11-1. Test Equipment

| PCTEST™ PT. 22/24 TEST REPORT | PCTEST™ FCC MEASUREMENT REPORT | | | Reviewed by: Quality Manager |
|----------------------------------|-----------------------------------|---|--------------|---------------------------------|
| Test Report S/N: | Test Dates: | EUT Type: | FCC ID: | |
| 0606010433 | June 20 - June 23, 2006 | Notebook PC w/ Intel WLAN and Sierra EvDO Modem | ACJ9TGCF-T51 | Page 24 of 26 |

12.0 SAMPLE CALCULATIONS

Emission Designator

Emission Designator = 1M25F9W

CDMA BW = 1.25 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: Channel 25 PCS Mode 2nd Harmonic (3702.50 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 3702.50 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.

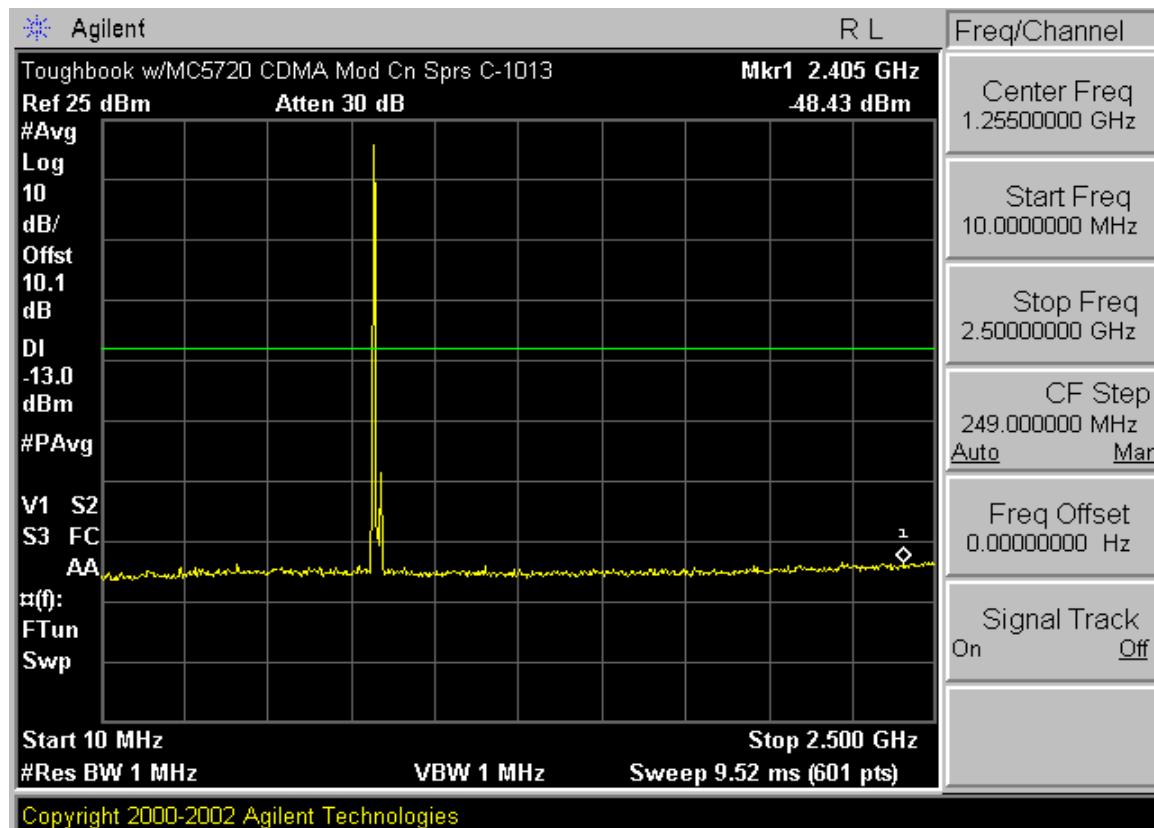
| PCTEST™ PT. 22/24 TEST REPORT | PCTEST™ FCC MEASUREMENT REPORT | | | Reviewed by: Quality Manager |
|----------------------------------|--|--|-------------------------|---------------------------------|
| Test Report S/N: 0606010433 | Test Dates: June 20 - June 23, 2006 | EUT Type: Notebook PC w/ Intel WLAN and Sierra EvDO Modem | FCC ID: ACJ9TGCF-T51 | Page 25 of 26 |



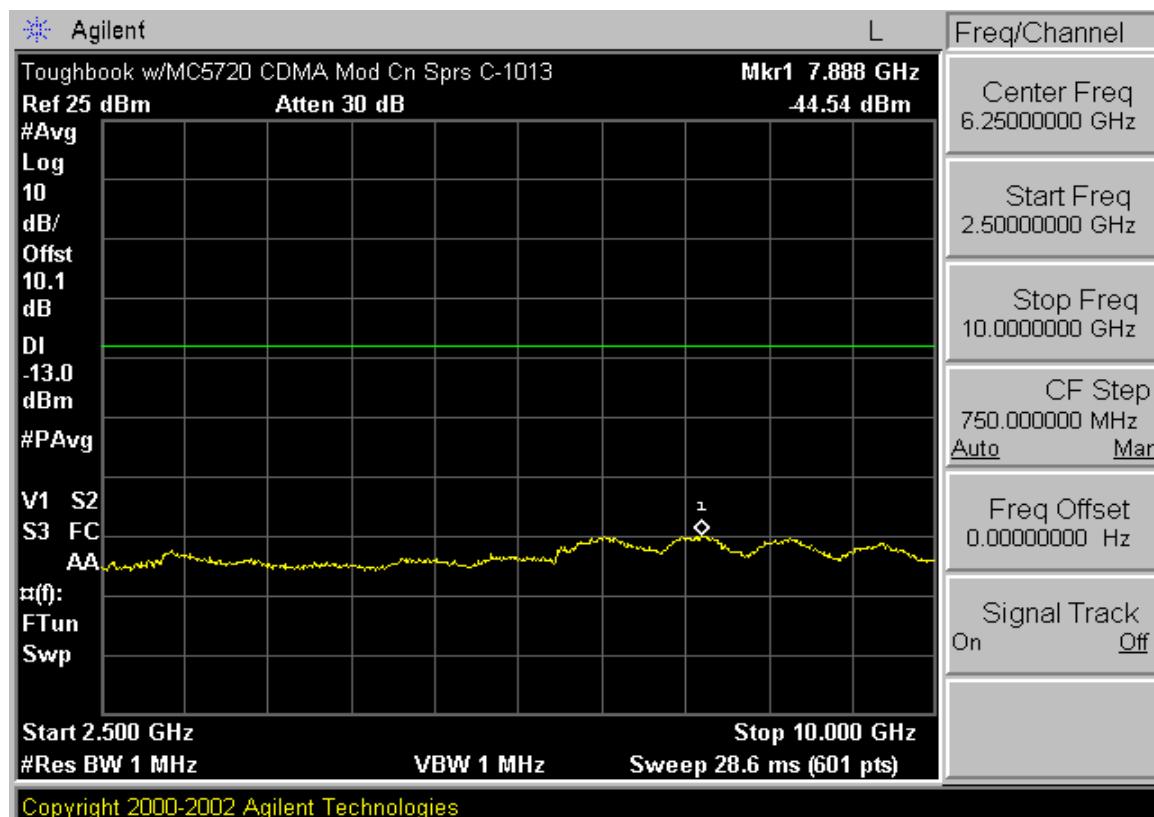
13.0 CONCLUSION

The data collected shows that the Panasonic Notebook PC w/ Intel WLAN and Sierra EvDO Modem FCC ID: ACJ9TGCF-T51 complies with all the requirements of Parts 2, 22, and 24 of the FCC rules.

| PCTEST™ PT. 22/24 TEST REPORT | PCTEST™ FCC MEASUREMENT REPORT | | | Reviewed by: Quality Manager |
|----------------------------------|--|--|-------------------------|---------------------------------|
| Test Report S/N: 0606010433 | Test Dates: June 20 - June 23, 2006 | EUT Type: Notebook PC w/ Intel WLAN and Sierra EvDO Modem | FCC ID: ACJ9TGCF-T51 | Page 26 of 26 |

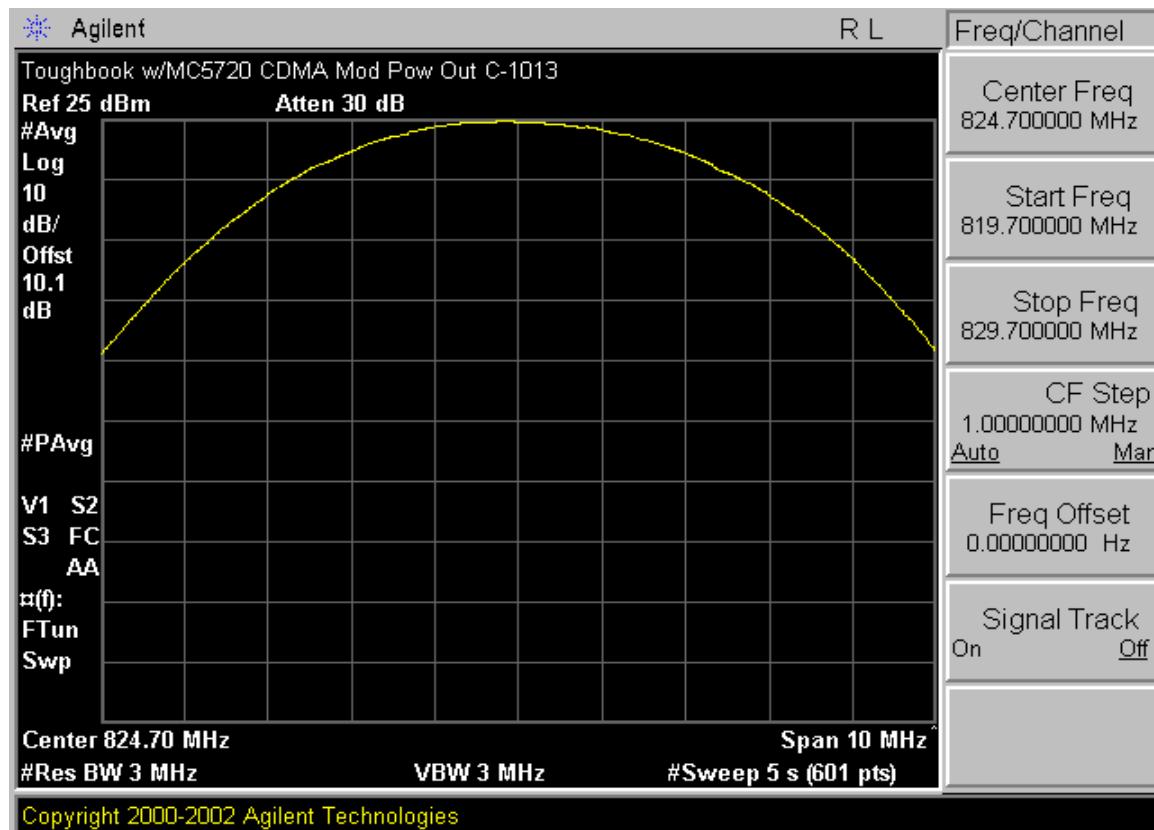


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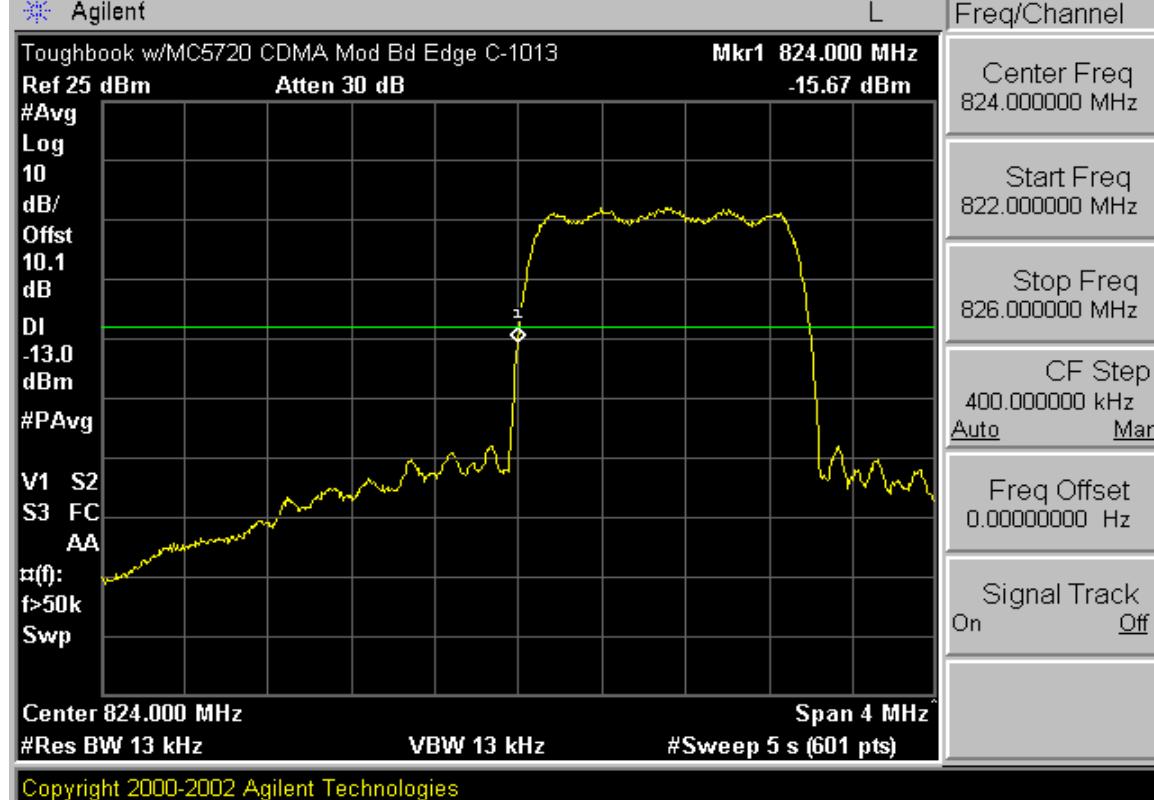


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| PCTEST™ PT. 22/24 CONDUCTED PLOTS | CDMA/EvDO MODE | | | Reviewed by: Quality Manager |
|-----------------------------------|--|--|-------------------------|---------------------------------|
| Test Report S/N: 0606010433 | Test Dates: June 20 - June 23, 2006 | EUT Type: Notebook PC w/ Intel WLAN and Sierra EvDO Modem | FCC ID: ACJ9TGCF-T51 | Page 1 of 15 |



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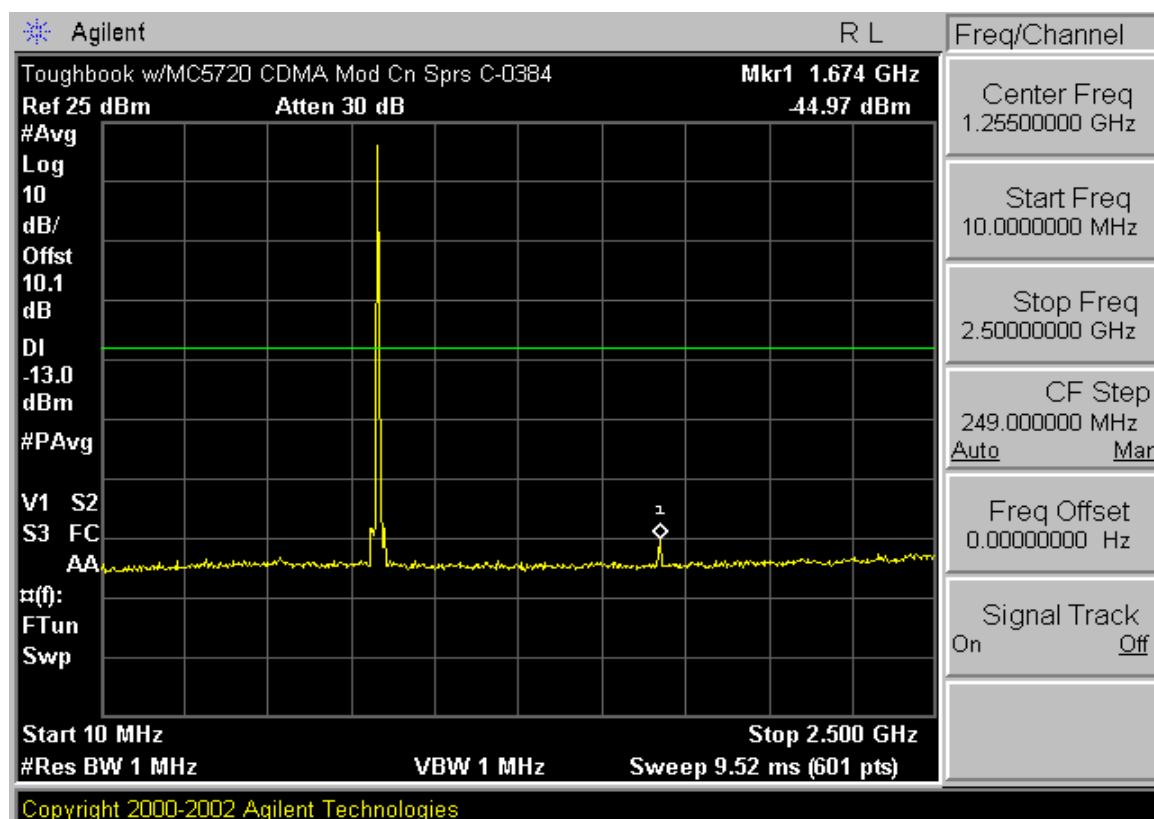


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| PCTEST™ PT. 22/24 CONDUCTED PLOTS | CDMA/EvDO MODE | | | Reviewed by: Quality Manager |
|-----------------------------------|--|--|-------------------------|---------------------------------|
| Test Report S/N: 0606010433 | Test Dates: June 20 - June 23, 2006 | EUT Type: Notebook PC w/ Intel WLAN and Sierra EvDO Modem | FCC ID: ACJ9TGCF-T51 | Page 2 of 15 |

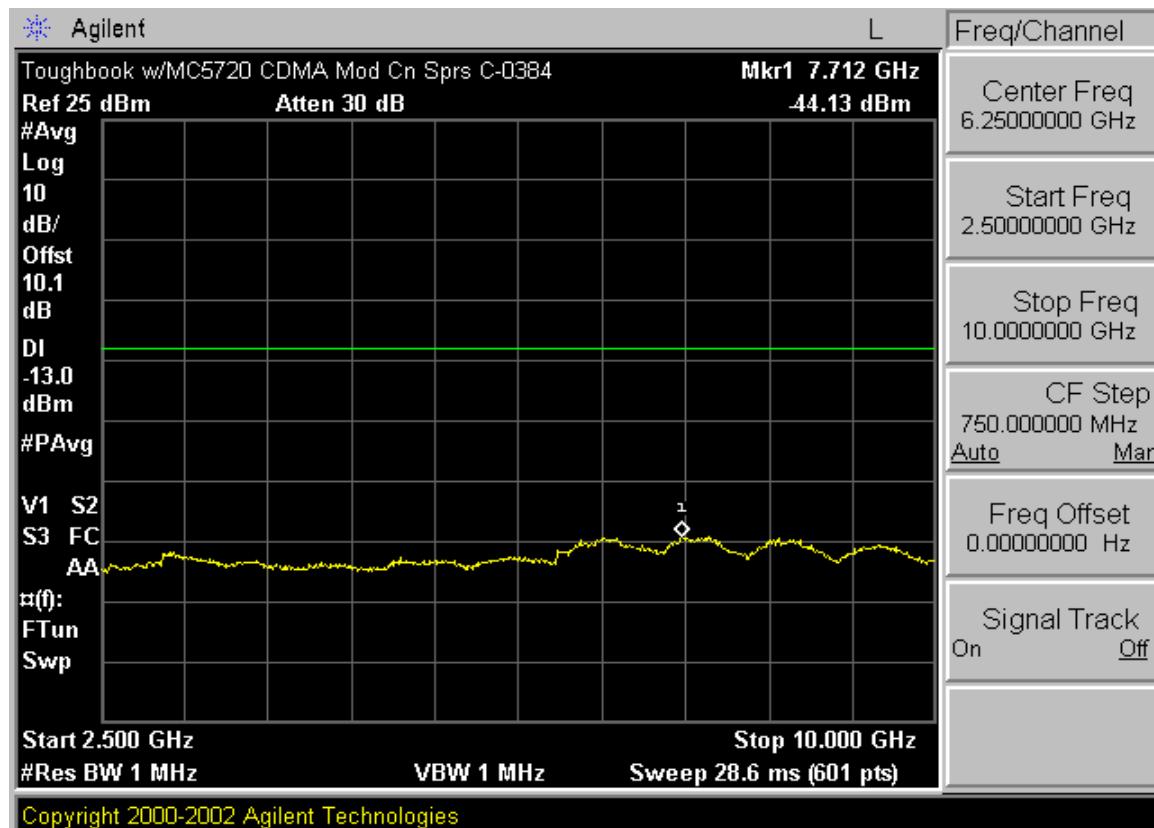


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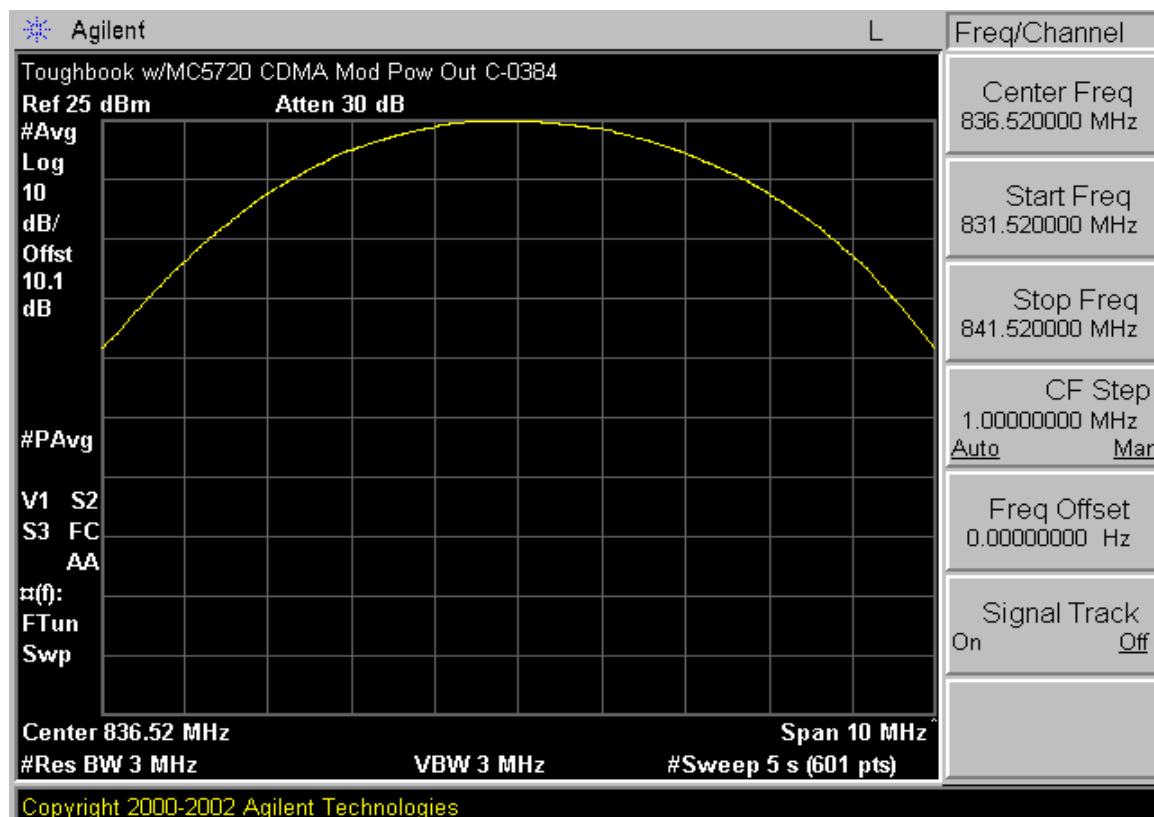


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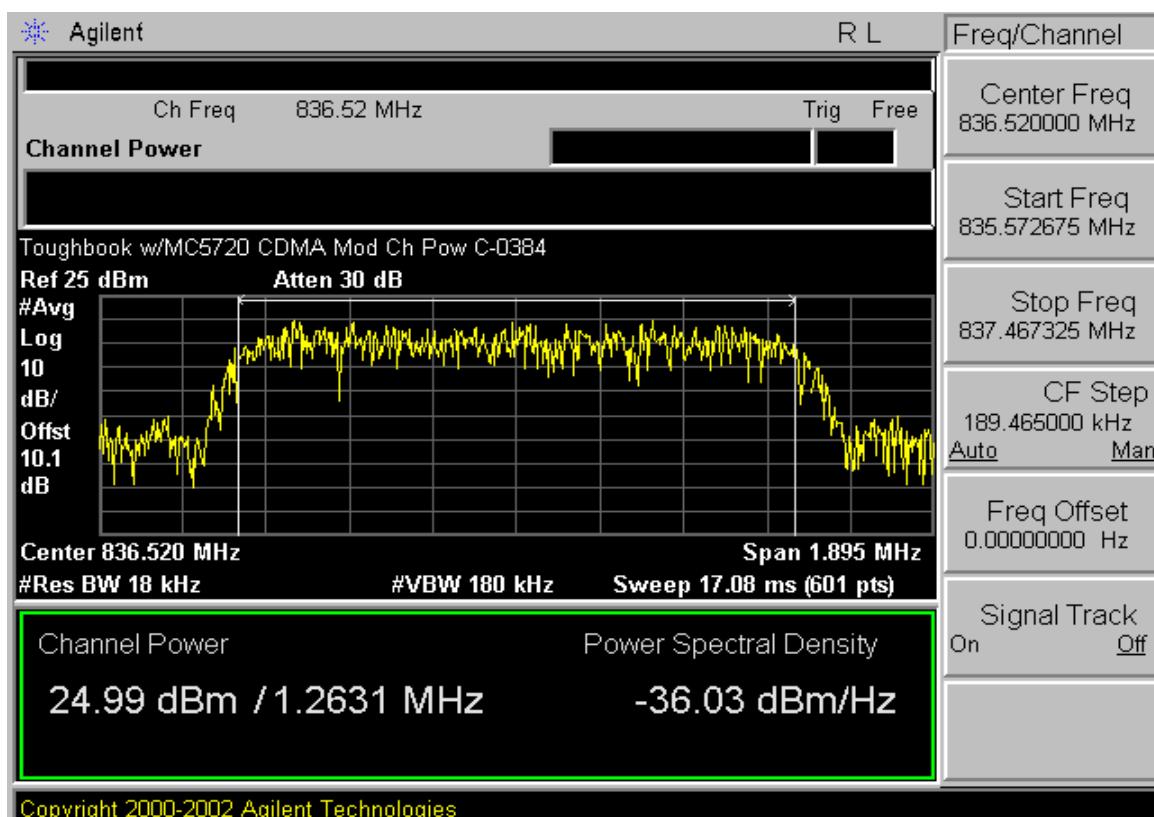
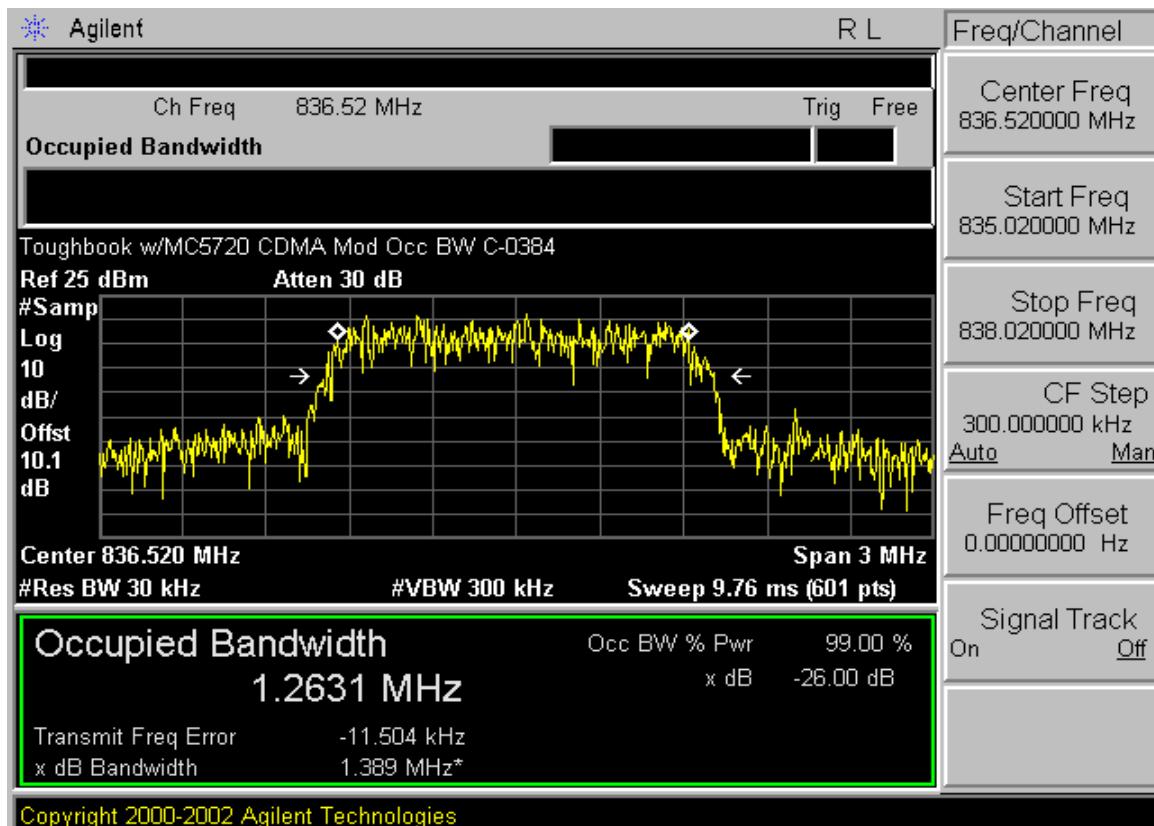


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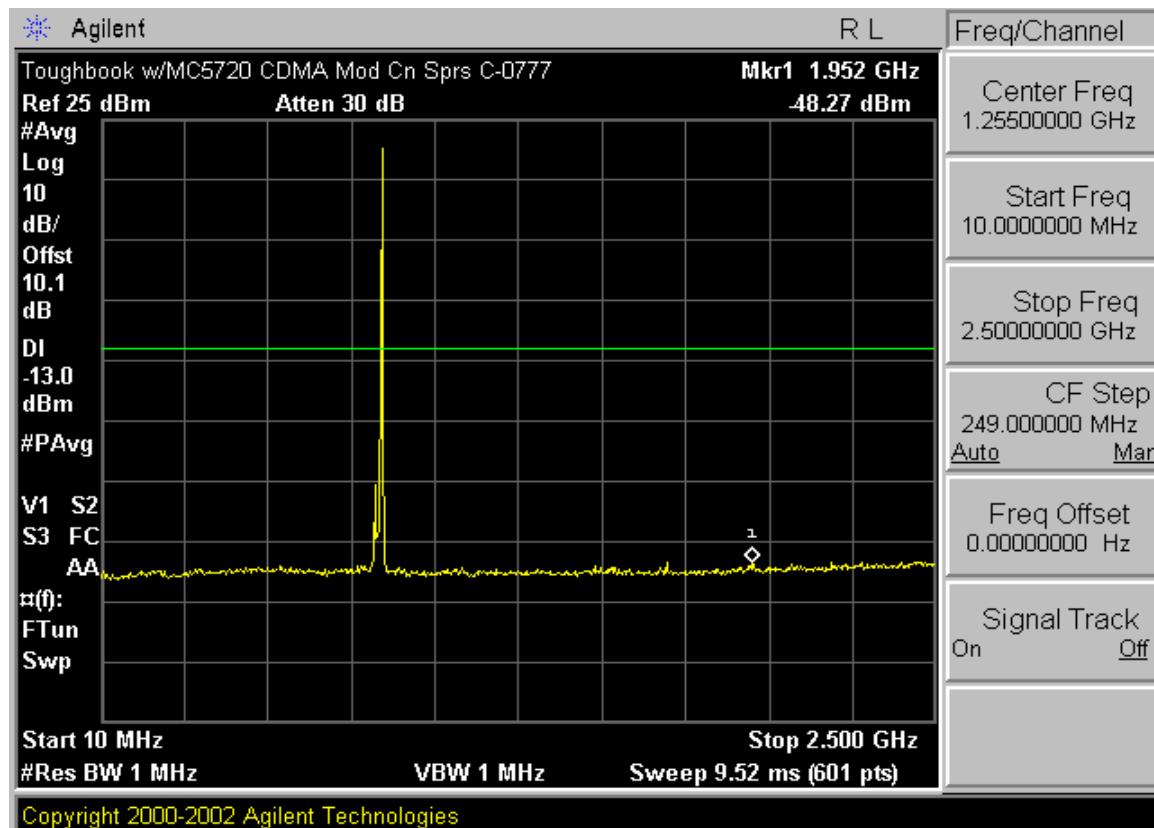


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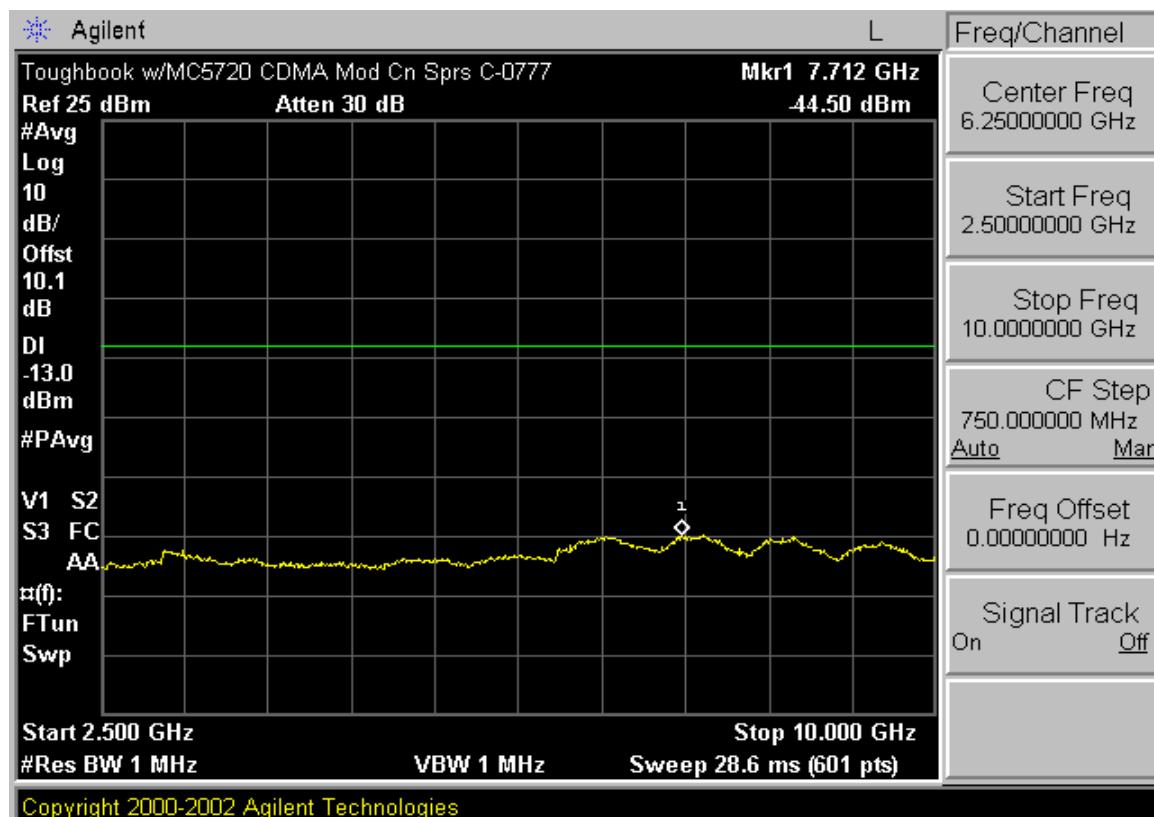
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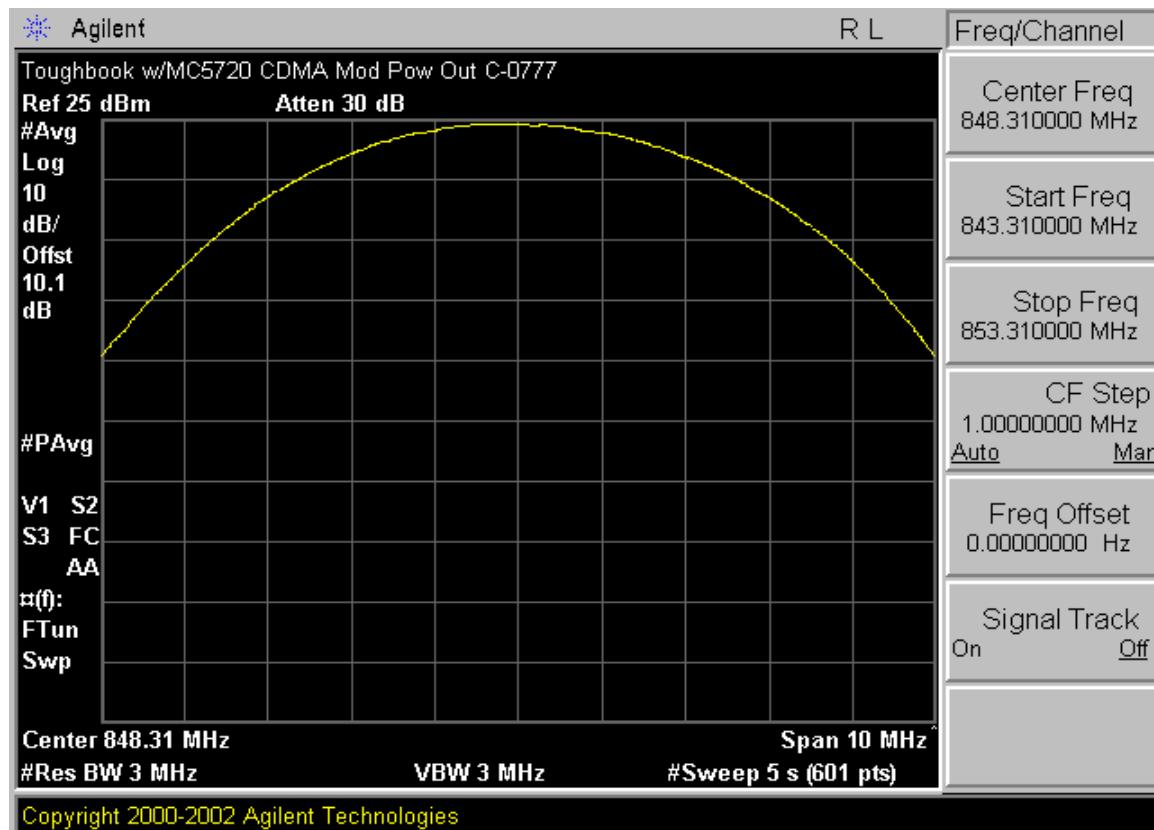


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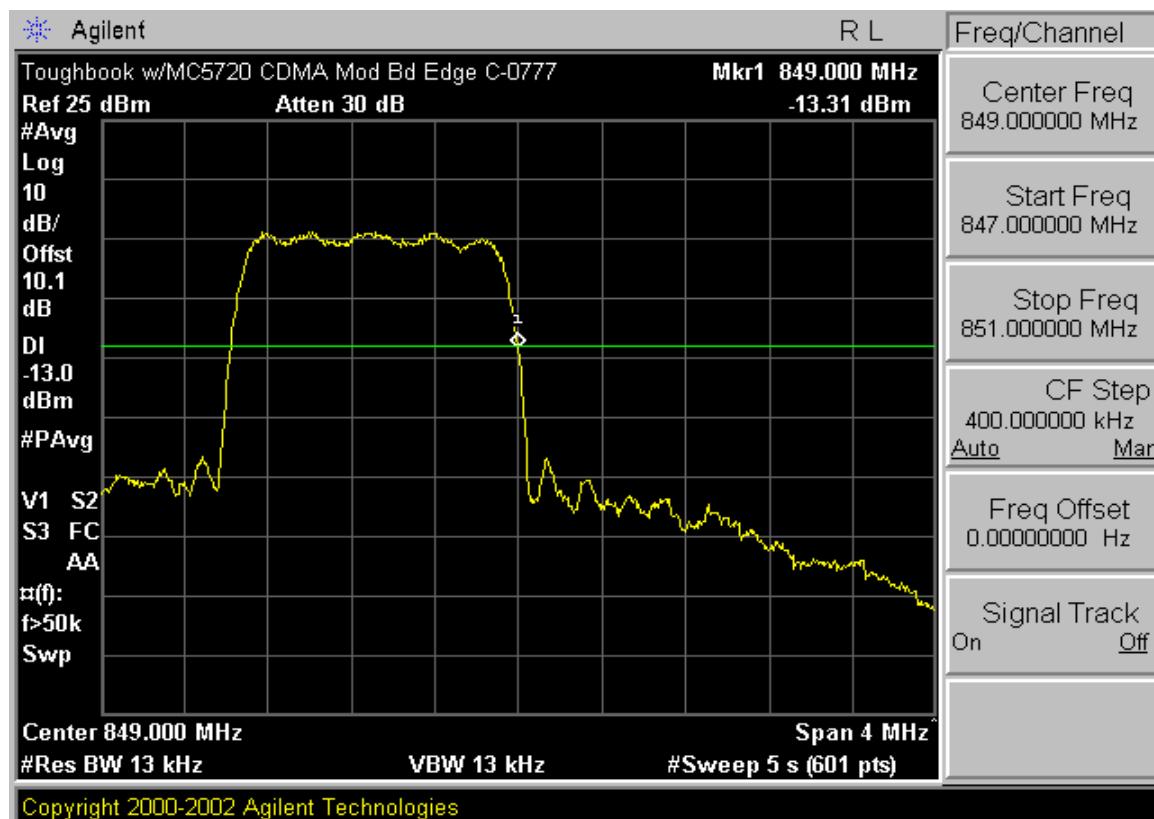


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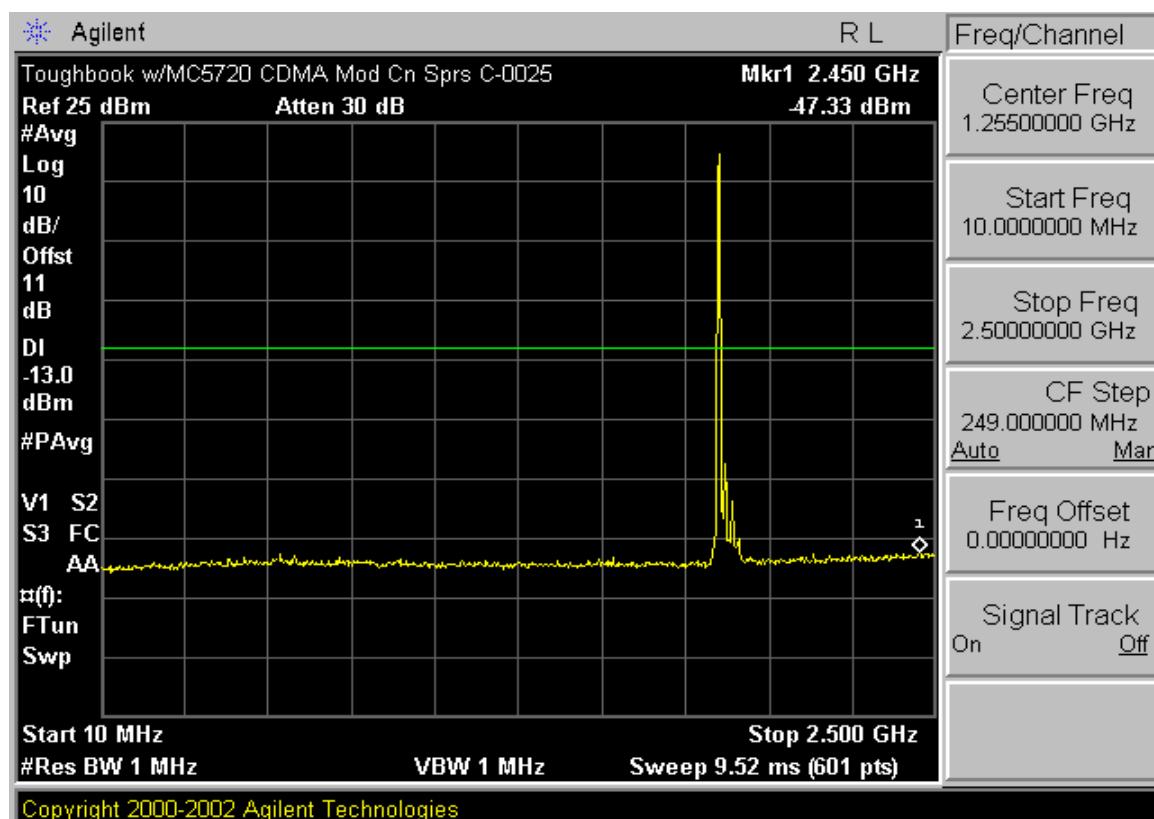


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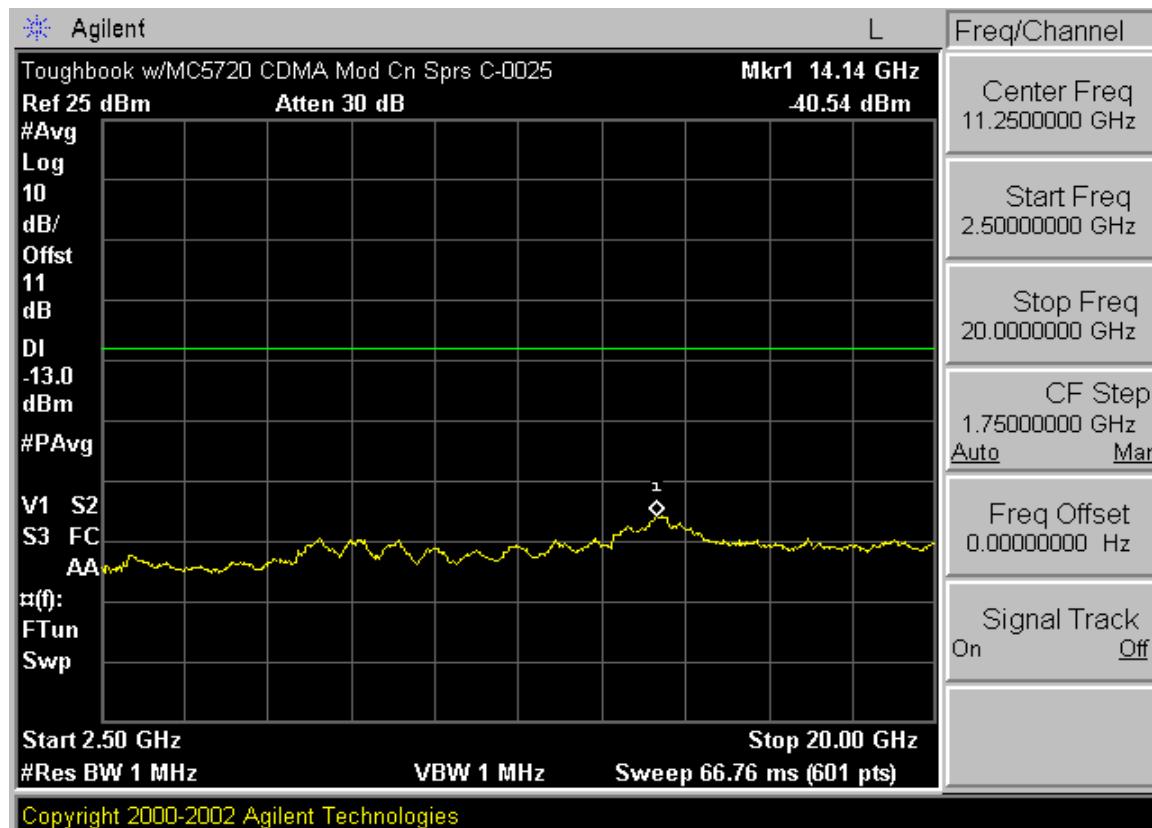


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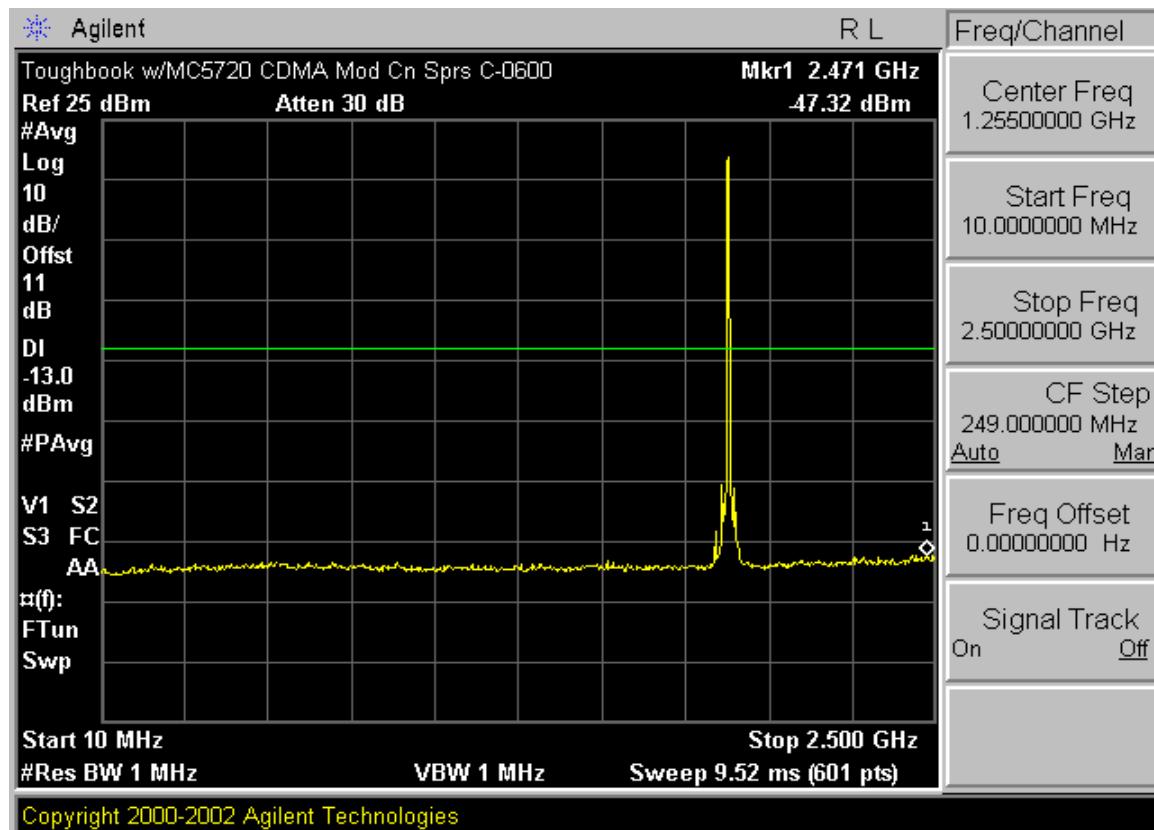
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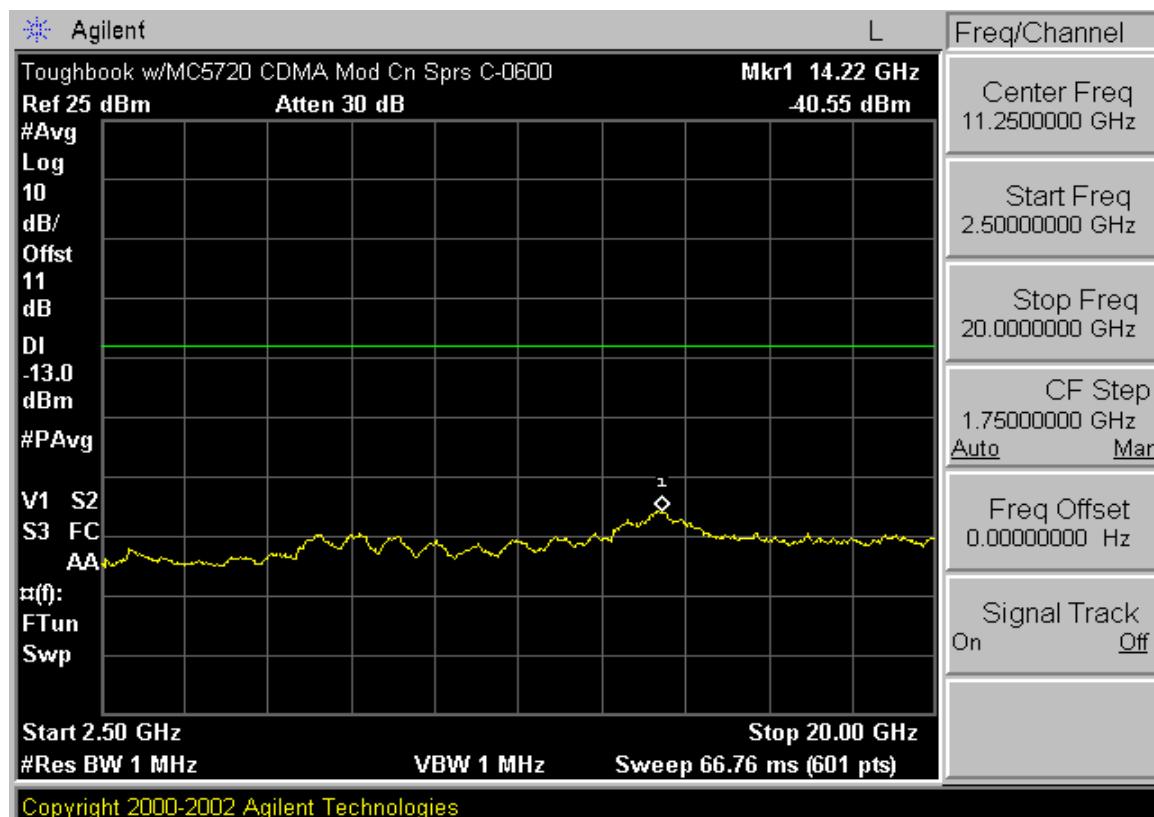
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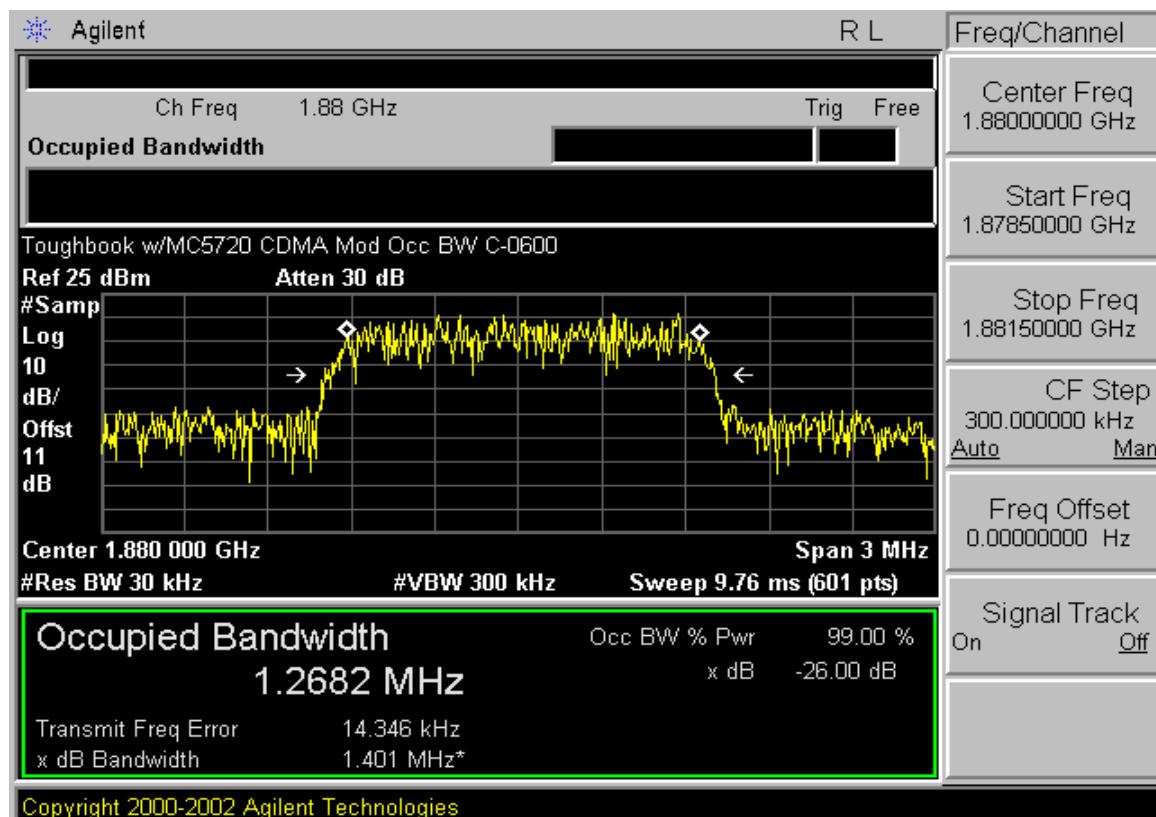
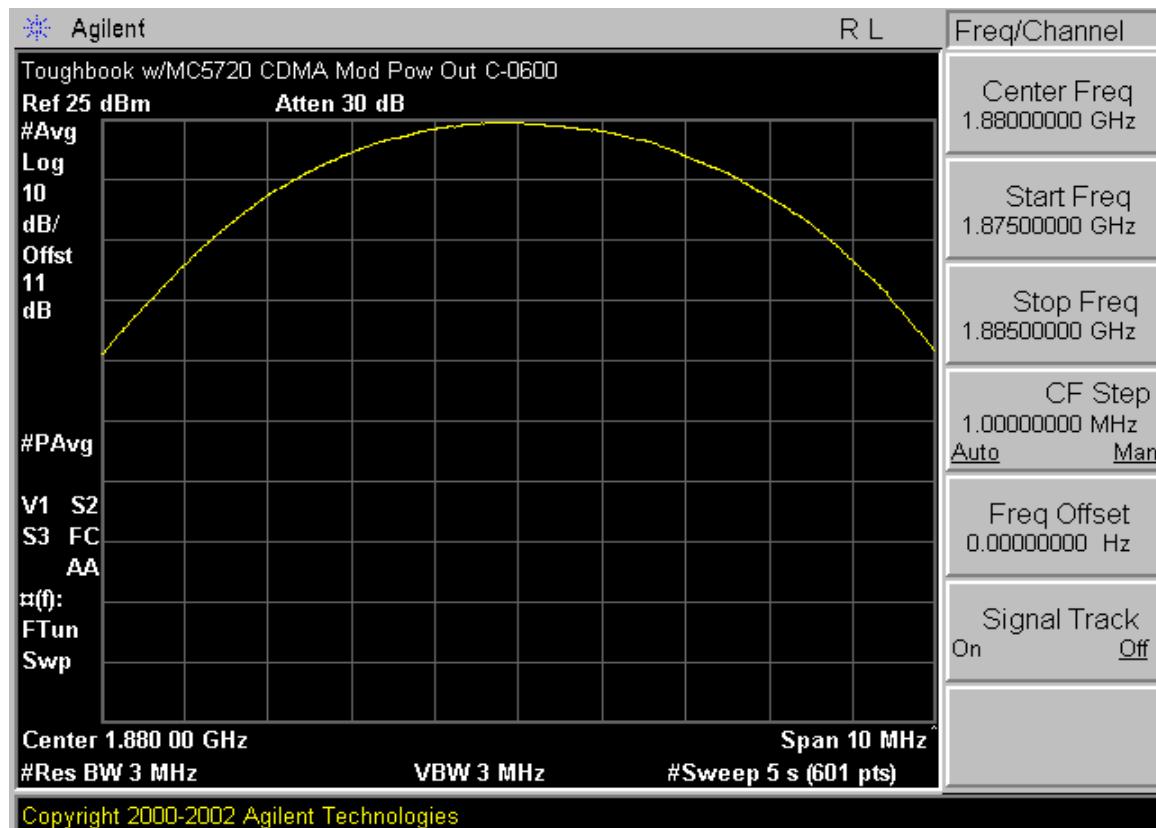


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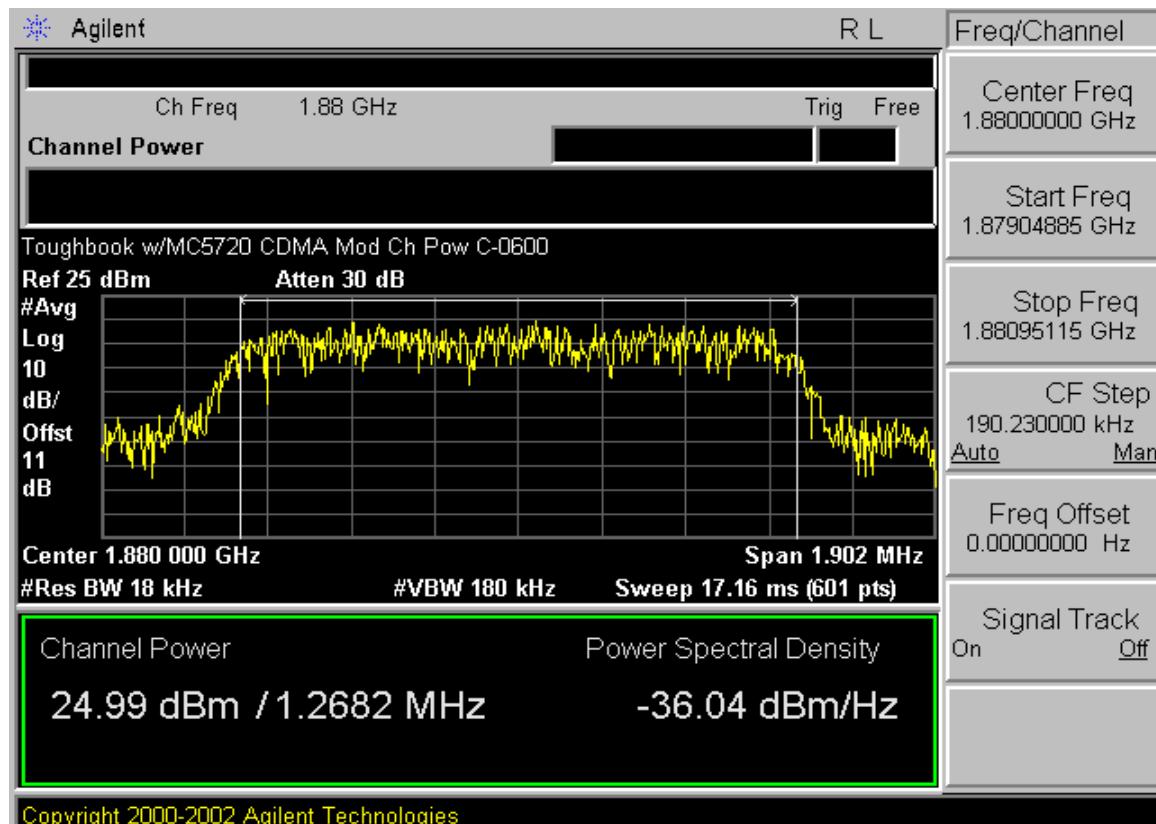


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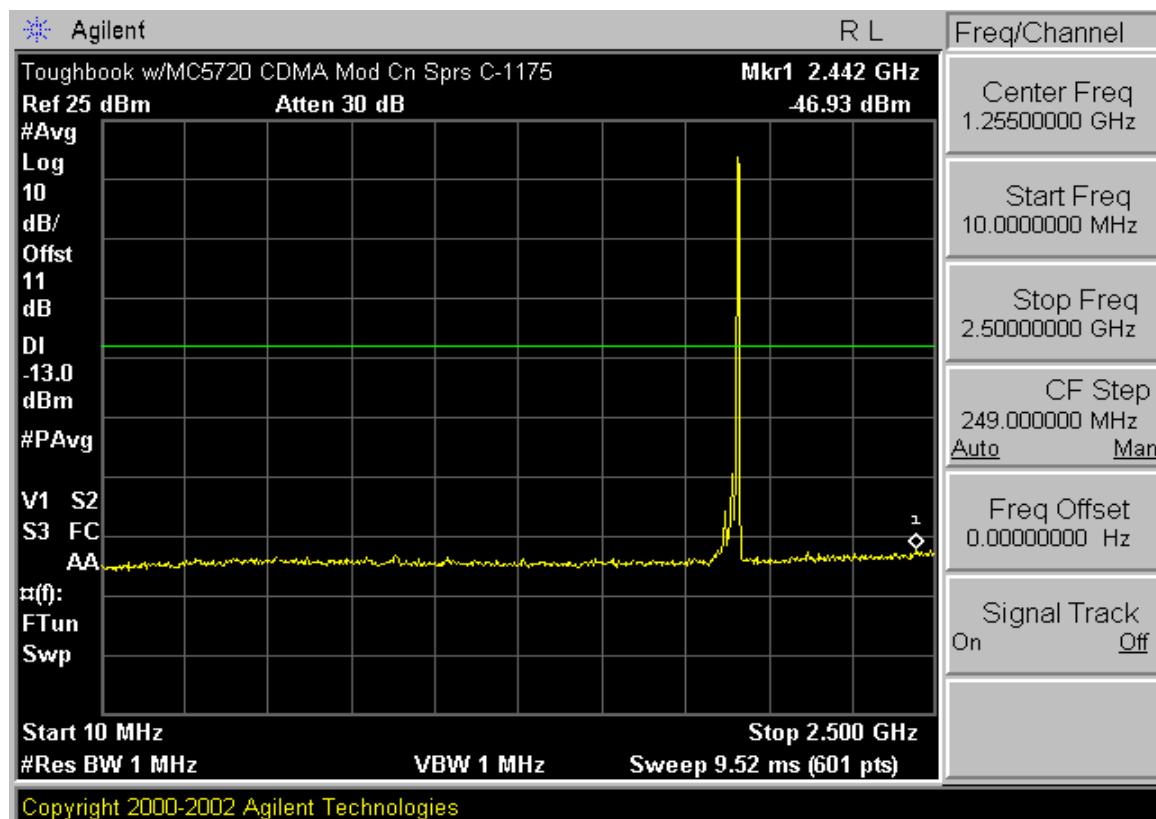
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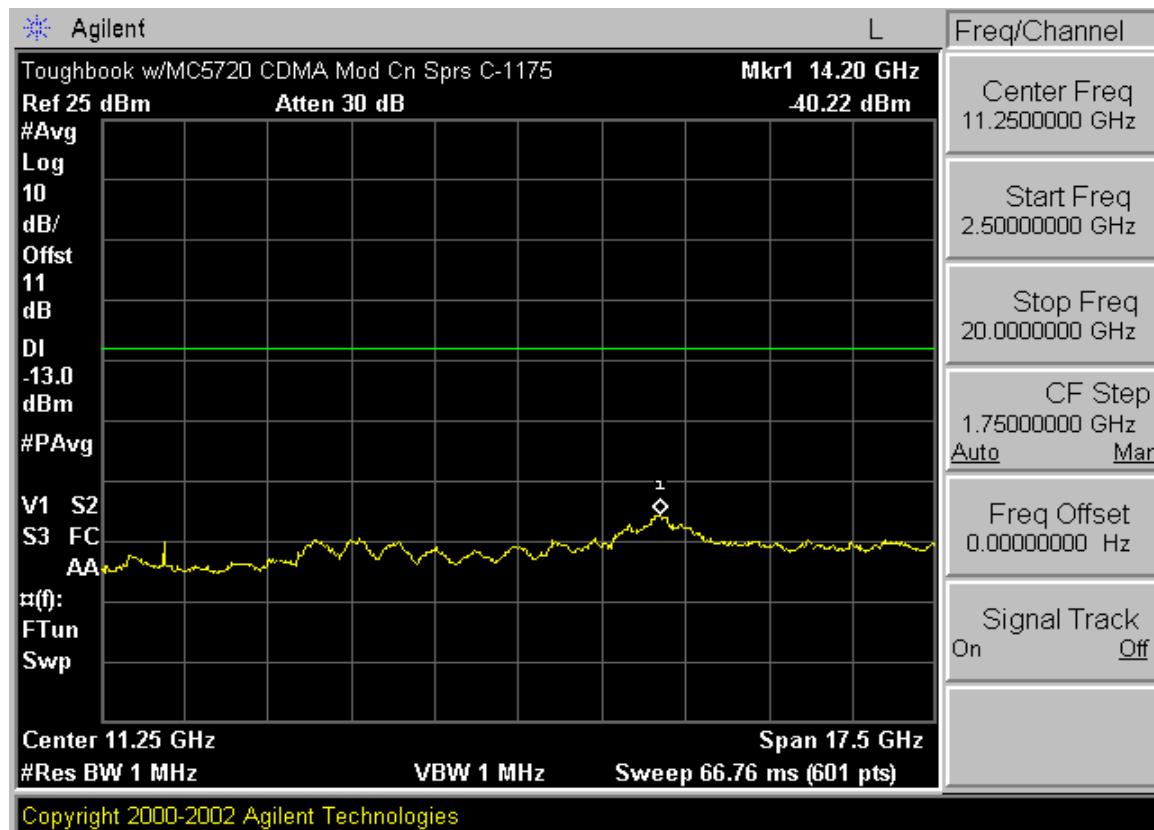


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