



360 Herndon Parkway  
Suite 1400  
Herndon, VA 20170  
<http://www.rheintech.com>

2001324 / PO 0070020947  
December 4 – 7, 2001  
FCC Part 22 and Part 24 Certification &  
Industry Canada RSS-129

Exhibit 1

## CERTIFICATE OF COMPLIANCE

### FCC PART 22 & 24 CERTIFICATION & INDUSTRY CANADA CERTIFICATION

|                                                                                                                                                                                                                                                               |                                                                                                                                                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Test Lab:</b><br><br>Rhein Tech Laboratories, Inc.    Phone: 703-689-0368<br>360 Herndon Parkway            Fax: 703-689-2056<br>Suite 1400                        Web Site: <a href="http://www.rheintech.com">www.rheintech.com</a><br>Herndon, VA 20170 | <b>Applicant Information</b><br><br>Sony Ericsson Mobile Communications (USA, Inc.)<br>7001 Development Drive<br>P.O. Box 13969<br>Research Triangle Park, NC 27709 USA<br>Phone: 919-472-1697 (Pierre Chery) |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                            |
|----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>FCC Classification:</b>       | <input checked="" type="checkbox"/> PCB – Licensed Base Station for Part 24<br><input type="checkbox"/> PCE – Part 24 Licensed Portable Transmitter held to ear<br><input type="checkbox"/> PCF – Part 24 Licensed Portable Transmitter held to face<br><input type="checkbox"/> PCT – Part 24 Licensed Portable Transmitter held to body                                                                                                         |                                                                                                                                                                                            |
| <b>FCC Rule Part(s):</b>         | <input type="checkbox"/> Part 22: Public Mobile Services<br><input type="checkbox"/> Subpart E – Paging and Radiotelephone Services<br><input type="checkbox"/> Subpart F – Rural Radiotelephone Services<br><input type="checkbox"/> Subpart G – Air-Ground Radiotelephone Services<br><input checked="" type="checkbox"/> Subpart H – Cellular Radiotelephone Services<br><input type="checkbox"/> Subpart I – Offshore Radiotelephone Services | <input type="checkbox"/> Part 24: Personal Communications Services<br><input type="checkbox"/> Subpart D – Narrowband PCS<br><input checked="" type="checkbox"/> Subpart E – Broadband PCS |
| <b>Industry Canada Standard:</b> | <input type="checkbox"/> RSS-118: Land and Subscriber Stations: Voice, Data and Tone Modulated, Angle Modulation Radiotelephone Transmitters and Receivers Operating in the Cellular Mobile Bands 824-849 MHz and 869-894 MHz<br><input type="checkbox"/> RSS-128: 800 MHz Dual-Mode TDMA Cellular Telephones<br><input checked="" type="checkbox"/> RSS-129: 800 MHz Dual Mode CDMA Cellular Telephones                                          |                                                                                                                                                                                            |

|                            |                                  |                              |                              |
|----------------------------|----------------------------------|------------------------------|------------------------------|
| <b>FCC ID:</b>             | AXATR-423-A2                     | <b>Max. RF Output Power:</b> | 2.773 W AMPS<br>0.200 W CDMA |
| <b>Equipment Type:</b>     | AMPS, CDMA                       | <b>Frequency Tolerance:</b>  | 2.5 ppm                      |
| <b>Tx Frequency Range:</b> | 824 - 849 MHz;<br>1850 -1910     | <b>Emission Designator:</b>  | 1M23F9W; 40K0F1D, 40K0F8W    |
| <b>Rx Frequency Range:</b> | 869 - 894 MHz;<br>1930 -1990 MHz | <b>Date of Test Report:</b>  | December 18, 2001            |
| <b>Model(s):</b>           | CM-42                            |                              |                              |

We, the undersigned, hereby declare that the equipment tested and referenced in this report conforms to the identified standard(s) as described in this test report. No modifications were made to the equipment during testing in order to achieve compliance with these standards.

Furthermore, there was no deviation from, additions to or exclusions from the FCC Part 2, FCC Part 15, FCC Part 22, FCC Part 24, Industry Canada RSS-129, ANSI C63.4, ANSI/TIA/EIA603 and ANSI/TIA/EIA 603-1.

Signature:

Date: December 18, 2001

Typed/Printed Name: Bruno Clavier

Position: Vice President of Operations  
(NVLAP Signatory)

Accredited by the National Voluntary Accreditation Program for the specific scope of accreditation under Lab Code 200061-0.

**Note: This report may not be used by the client to claim product endorsement by NVLAP or any agency of the U.S. Government.**



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## **1 GENERAL INFORMATION**

### **1.1 SCOPE**

FCC Rules Part 22.901: The rules in this subpart govern the licensing and operation of cellular radiotelephone systems.

FCC Rules Part 24 (E): The rules in this subpart govern Personal Communications Services – Broadband PCS.

IC RSS-129: This Radio Standards Specification (RSS) and the TIA/EIA-627 Compatibility Standard referred to in section 3.10 set out the minimum requirements for the certification (type-approval) of transmitters and receivers for the dual-mode (analog and digital CDMA) cellular telephone system in the 824-849 MHz and 869-894 MHz paired bands.

All measurements contained in this application were conducted in accordance with the FCC Rules and Regulations CFR47, Industry Canada RSS-129 and ANSI/TIA/EIA603-1992/-1-1998 Land Mobile FM or PM Communications Equipment Measurement and Performance Standards. The instrumentation utilized for the measurements conforms to the ANSI C63.4 standard for EMI and Field Strength Instrumentation. Calibration checks are performed regularly on the instruments, and all accessories including high pass filter, coaxial attenuator, preamplifier and cables.

### **1.2 TEST FACILITY**

The open area test site and conducted measurement facility used to collect the radiated data is located at 360 Herndon Parkway, Suite 1400, Herndon, Virginia 20170. This site has been fully described in a report and approved by the Federal Communication Commission to perform AC line conducted and radiated emissions testing (ANSI C63.4 1992).

### **1.3 RELATED SUBMITAL(S)/GRANT(S)**

This is an original application for Certification.



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Exhibit 1

## 2 EQUIPMENT INFORMATION

### 2.1 APPLICANT AND EQUIPMENT INFORMATION

Sony Ericsson Mobile Communications (USA, Inc.)  
7001 Development Drive  
P.O. Box 13969  
Research Triangle Park, NC 27709 USA  
Phone: 919-472-1697 (Pierre Chery)

|                                  |                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                   |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>FCC Classification:</b>       | <input checked="" type="checkbox"/> PCB – Licensed Base Station for Part 24<br><input type="checkbox"/> PCE – Part 24 Licensed Portable Transmitter held to ear<br><input type="checkbox"/> PCF – Part 24 Licensed Portable Transmitter held to face<br><input type="checkbox"/> PCT – Part 24 Licensed Portable Transmitter held to body                                                                                |                                                                                                                                                                   |
| <b>FCC Rule Part(s):</b>         | Part 22: Public Mobile Services<br><input type="checkbox"/> Subpart E – Paging and Radiotelephone Services<br><input type="checkbox"/> Subpart F – Rural Radiotelephone Services<br><input type="checkbox"/> Subpart G – Air-Ground Radiotelephone Services<br><input checked="" type="checkbox"/> Subpart H – Cellular Radiotelephone Services<br><input type="checkbox"/> Subpart I – Offshore Radiotelephone Services | Part 24: Personal Communications Services<br><input type="checkbox"/> Subpart D – Narrowband PCS<br><input checked="" type="checkbox"/> Subpart E – Broadband PCS |
| <b>Industry Canada Standard:</b> | <input type="checkbox"/> RSS-118: Land and Subscriber Stations: Voice, Data and Tone Modulated, Angle Modulation Radiotelephone Transmitters and Receivers Operating in the Cellular Mobile Bands 824-849 MHz and 869-894 MHz<br><input type="checkbox"/> RSS-128: 800 MHz Dual-Mode TDMA Cellular Telephones<br><input checked="" type="checkbox"/> RSS-129: 800 MHz Dual Mode CDMA Cellular Telephones                 |                                                                                                                                                                   |

|                            |                                 |                              |                              |
|----------------------------|---------------------------------|------------------------------|------------------------------|
| <b>FCC ID:</b>             | AXATR-423-A2                    | <b>Max. RF Output Power:</b> | 2.773 W AMPS<br>0.198 W CDMA |
| <b>Equipment Type:</b>     | AMPS, CDMA                      | <b>Frequency Tolerance:</b>  | 2.5 ppm                      |
| <b>Tx Frequency Range:</b> | 824 – 849 MHz;<br>1850-1910     | <b>Emission Designator:</b>  | 1M23F9W; 40K0F1D, 40K0F8W    |
| <b>Rx Frequency Range:</b> | 869 – 894 MHz;<br>1930-1990 MHz | <b>Date of Test Report:</b>  | December 18, 2001            |
| <b>Model(s):</b>           | CM-42                           |                              |                              |

### 2.2 JUSTIFICATION

To complete the test configuration required by the FCC, the receiver was connected to an external antenna, which receives a signal from a signal generator output. With the antenna installed, the receiver indicator was used to determine optional reception. The EUT's Intermediate frequencies (IF), Local Oscillators (LO), crystal oscillators and harmonics of each were investigated. All modes were investigated and tested including standby mode and receiving mode. The final radiated data was taken with the EUT locked to a set frequency in receive mode for Part 15 data.

The transmitter was tested at a high, mid, and low channel in the following frequency range (824 – 849 MHz and 1930 – 1990 MHz). The following frequencies were tested: 824.04, 836.49, 848.97, 1851.25, 1878.75, and 1908.75 MHz. Each transmitter frequency was measured independently in 3 orthogonal planes at 360° rotation.

The final radiated data was taken with the EUT locked to a set frequency.

### 2.3 EXERCISING THE EUT

The CM42 was tested using client based software to set all the parameters required for testing, such as power level, modulation type, frequency, and receive modes.



## 2.4 TEST SYSTEM DETAILS

The FCC Identifiers for all equipment, plus descriptions of all cables used in the tested system are:

**TABLE 2-1: EQUIPMENT UNDER TEST (EUT)**

| PART         | MANUFACTURER                              | MODEL | SERIAL NUMBER | FCC ID | CABLE DESCRIPTION | RTL BAR CODE |
|--------------|-------------------------------------------|-------|---------------|--------|-------------------|--------------|
| CM-42 MODULE | SONY ERICSSON<br>MOBILE<br>COMMUNICATIONS | CM-42 | TE60011MW2    | SAMPLE | UNSHIELDED        | 013967       |
| CM-42 MODULE | SONY ERICSSON<br>MOBILE<br>COMMUNICATIONS | CM-42 | TE60011MW3    | SAMPLE | UNSHIELDED        | 013966       |

**TABLE 2-2: SUPPORT EQUIPMENT**

| PART                                 | MANUFACTURER                              | MODEL   | SERIAL NUMBER | FCC ID | CABLE DESCRIPTION | RTL BAR CODE |
|--------------------------------------|-------------------------------------------|---------|---------------|--------|-------------------|--------------|
| POWER SUPPLY                         | HEWLETT<br>PACKARD                        | E3610A  | KR83020714    | N/A    | UNSHIELDED        | 013970       |
| POWER SUPPLY                         | HEWLETT<br>PACKARD                        | E3610A  | KR83020678    | N/A    | UNSHIELDED        | 013969       |
| DRADIO<br>COMMUNICATIONS<br>ANALYZER | ANRITSU                                   | MT8802A | MT17187       | N/A    | N/A               | 013965       |
| JUNCTION BOX                         | SONY ERICSSON<br>MOBILE<br>COMMUNICATIONS | N/A     | N/A           | N/A    | N/A               | N/A          |

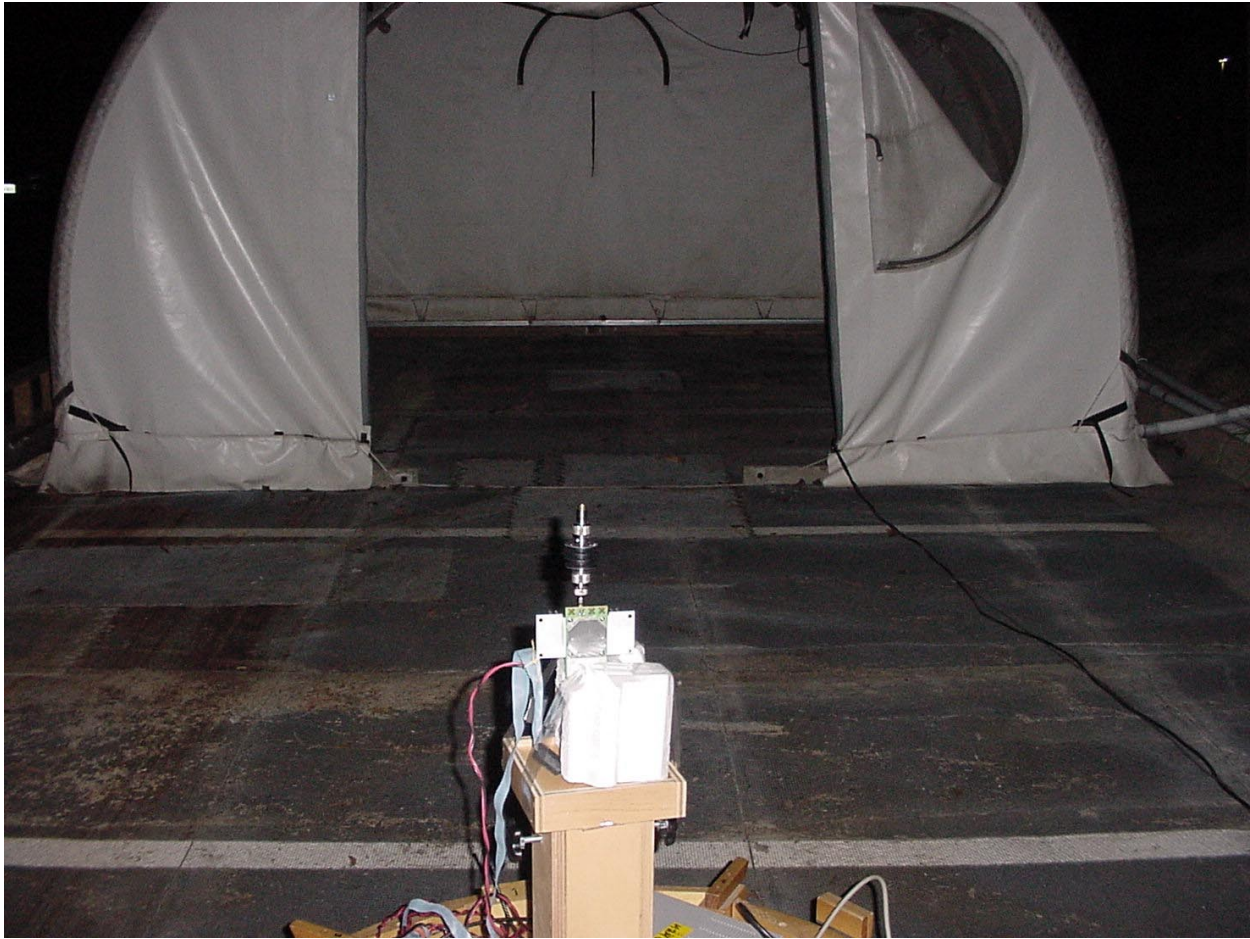


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Exhibit 1

## 2.5 CONFIGURATION OF TESTED SYSTEM



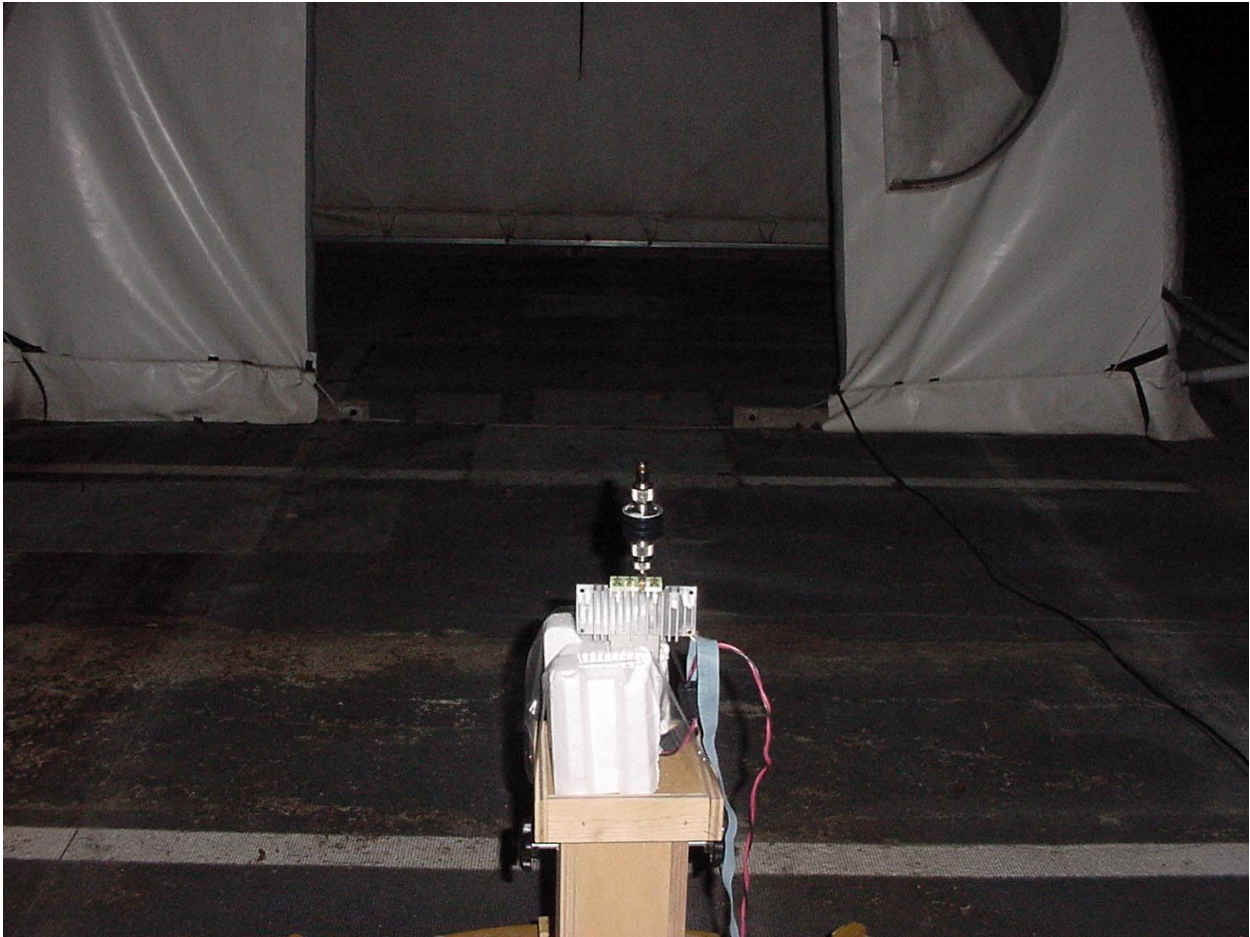
**PHOTOGRAPH 1: CONFIGURATION OF TESTED SYSTEM (FRONT VIEW)**



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Exhibit 1



**PHOTOGRAPH 2: CONFIGURATION OF TESTED SYSTEM (REAR VIEW)**



### 3 NECESSARY BANDWIDTH AND EMISSION BANDWIDTH - § 2.202

Type of Emission: F8W, F1D

Necessary Bandwidth and Emission Bandwidth:

40K0F1D

40K0F8W

#### Calculation for 40K0F8W

1/ Voice + SAT

Modulation: Voice is 2.5 kHz and SAT is 6kHz, thus the maximum modulation is  $M = 6$  kHz

Deviation: Voice is 12kHz and SAT is 2kHz, thus the maximum deviation is  $D = 12 + 2 = 14$  kHz

$B_n = 2 \times M + 2 \times D \times K$  with  $K = 1$

$B_n = 40$  kHz

2/ Signaling Tone (ST) + SAT

Modulation: ST is 10 kHz and SAT is 6kHz, thus the maximum modulation is  $M = 10$  kHz

Deviation: ST is 8kHz and SAT is 2kHz, thus the maximum deviation is  $D = 8 + 2 = 10$  kHz

$B_n = 2 \times M + 2 \times D \times K$  with  $K = 1$

$B_n = 40$  kHz

#### Calculation for 40K0F1D (wide Band Data)

1/ Voice + SAT

Modulation: Wideband Data is 10 kHz and SAT is 6kHz, thus the maximum modulation is  $M = 10$  kHz

Deviation: Wideband Data is 8kHz and SAT is 2kHz, thus the maximum deviation is  $D = 8 + 2 = 10$  kHz

$B_n = 2 \times M + 2 \times D \times K$  with  $K = 1$

$B_n = 40$  kHz



#### 4 DC VOLTAGES AND CURRENTS - PART §2.1033(C)(8)

The dc voltages applied to and dc currents into the several elements of the final radio frequency amplifying device for normal operation over the power range.

| LABEL     | LEVEL (VOLTS) | TOLERANCE | MAX. CURRENT |
|-----------|---------------|-----------|--------------|
| VCC_5V    | 5             | +/-10%    |              |
| VCC_12V   | 13.8          | +/-20%    |              |
| VDIG      | 2.9           | +/-2%     | 150 mA       |
| VCODEC    | 2.6           | +/-2%     | 100 mA       |
| VCORE     | 2.6           | +/-2%     | 100 mA       |
| VPA       | 4             | +/-3%     | 1000 mA      |
| VBT       | 3.1           | +/-2%     | 150 mA       |
| VBATTIN   | 5             |           |              |
| VTX       | 2.9           |           | 164 mA       |
| VRX       | 2.9           |           | 80 mA        |
| VSYNTH    | 2.9           |           | 150 mA       |
| VGPS      | 3.3           |           |              |
| VRTC      |               |           |              |
| VRXRF     | 2.9           | +/-2%     |              |
| 12V_PA    | 13.8          | +/-20%    | 1A           |
| 12V_SW    | 13.8          | +/-20%    | 1A           |
| VCC_10V   | 10            | +/-20%    | 5 mA         |
| VGRF      | 3.3           |           |              |
| VRXRF_PCB | 2.9           |           |              |
| VTCX0     | 2.8           | +/-2%     | 150 mA       |
| VGCORE    | 3.3           |           |              |

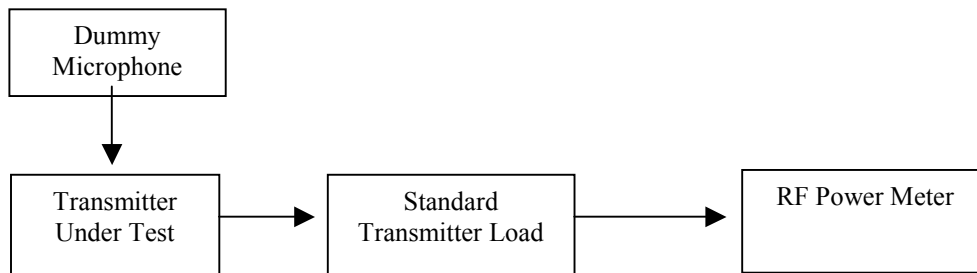


## 5 RF POWER OUTPUT - §2.1046

### 5.1 POWER OUTPUT TEST PROCEDURES

#### 5.1.1 ANSI/TIA/EIA-603-1992, SECTION 2.2.1 TEST PROCEDURE

Connect the equipment as illustrated below. Measure the transmitter output power during the defined duty cycle. The EUT was connected to a coaxial attenuator having a 50  $\Omega$  load impedance.



**FIGURE 5-1: ILLUSTRATION OF HOW THE EQUIPMENT IS CONNECTED**

#### 5.1.2 MEASUREMENTS REQUIRED: RF POWER OUTPUT - §2.1046

Transmitters other than single sideband, independent sideband and controlled carrier radiotelephone, power output shall be measured at the RF output terminals when the transmitter is adjusted in accordance with the tune-up procedure to give the values of current and voltage on the circuit elements specified in §2.1033(c)(8) of the FCC rules and regulations. The electrical characteristics of the radio frequency load attached to the output terminals when this test is made shall be stated.

In addition, transmitters that are single sideband, independent sideband and controlled carrier radiotelephone the transmitter shall be modulated during the test as follows. In all tests, the input level of the modulating signal shall be such as to develop rated peak envelope power or carrier power, as appropriate, for the transmitter.

#### 5.1.3 EFFECTIVE RADIATED POWER LIMITS - §22.913

Maximum ERP – The ERP of base transmitters and cellular repeaters must not exceed 500 Watts. The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.



## 5.2 POWER AND ANTENNA HEIGHT LIMITS - §24.232

HAAT is determined by subtracting average terrain elevation from antenna height above mean sea level.

Base stations are limited to 1640 watts peak equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT. Base station antenna heights may exceed 300 meters with a corresponding reduction in power.

**TABLE 5-1: REDUCED POWER FOR BASE STATION ANTENNA HEIGHTS OVER 300 METERS**

| HAAT in meters | Maximum EIRP (Watts) |
|----------------|----------------------|
| < 300          | 1640                 |
| ≤ 500          | 1070                 |
| < 1000         | 490                  |
| < 1500         | 270                  |
| ≤ 2000         | 160                  |

Mobile/Portable stations are limited to 2 watts EIRP peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

## 5.3 RF POWER OUTPUT TEST EQUIPMENT

**TABLE 5-2: RF POWER OUTPUT TEST EQUIPMENT**

| RTL Asset # | Manufacturer         | Model               | Part Type                         | Serial Number | Calibration Due |
|-------------|----------------------|---------------------|-----------------------------------|---------------|-----------------|
| 901184      | Agilent Technologies | E4416A              | EPM-P Power Meter, single channel | GB41050573    | 7/5/02          |
| 901186      | Agilent Technologies | E9323A (50MHz–6GHz) | Peak & Avg. Power Sensor          | US40410380    | 6/25/02         |



#### 5.4 POWER OUTPUT TEST DATA- §2.1046

TABLE 5-3: POWER OUTPUT DATA - §2.1046

**(800MHZ AMPS Mode)**

| Channel Number | Frequency Tuned | EUT Conducted Power (High Power) | EUT Conducted Power (Low Power) |
|----------------|-----------------|----------------------------------|---------------------------------|
|                | (MHz)           | (dBm)                            | (dBm)                           |
| 991            | 824.04          | 34.43                            | 24.3                            |
| 383            | 836.49          | 34.21                            | 24.0                            |
| 799            | 848.97          | 34.31                            | 24.0                            |

**( 800 MHz CDMA mode)**

| Channel Number | Frequency Tuned | EUT Conducted Power |
|----------------|-----------------|---------------------|
|                | (MHz)           | (dBm)               |
| 1013           | 824.70          | 23                  |
| 400            | 837.00          | 23                  |
| 777            | 848.31          | 23                  |

**( 1900 MHz PCS CDMA mode)**

| Channel Number | Frequency Tuned | EUT Conducted Power |
|----------------|-----------------|---------------------|
|                | (MHz)           | (dBm)               |
| 25             | 1851.25         | 23                  |
| 575            | 1878.75         | 23                  |
| 1175           | 1908.75         | 23                  |



## 6 MODULATION CHARACTERISTICS - §2.1047

### 6.1 MODULATION CHARACTERISTICS - §2.1047 TEST PROCEDURE

(a) *Voice modulated communication equipment.* A curve or equivalent data showing the frequency response of the audio modulating circuit over a range of 100 to 5000 Hz shall be submitted. For equipment required to have an audio low-pass filter, a curve showing the frequency response of the filter, or of all circuitry installed between the modulation limiter and the modulated stage shall be submitted.

(b) *Equipment which employs modulation limiting.* A curve or family of curves showing the percentage of modulation versus the modulation input voltage shall be supplied. The information submitted shall be sufficient to show modulation limiting capability throughout the range of modulating frequencies and input modulating signal levels employed.

### 6.2 MODULATION REQUIREMENTS - §22.915 TEST PROCEDURE

Cellular systems must be capable of providing service using the types of modulation described in the cellular system compatibility specification.

### 6.3 MODULATION CHARACTERISTICS TEST EQUIPMENT

TABLE 6-1: MODULATION CHARACTERISTICS TEST EQUIPMENT

| RTL Asset # | Manufacturer    | Model              | Part Type                   | Serial Number | Calibration Due |
|-------------|-----------------|--------------------|-----------------------------|---------------|-----------------|
| 901055      | Hewlett Packard | 8901A Opt. 002-003 | Modulation Analyzer         | 2545A04102    | 7/31/02         |
| 901057      | Hewlett Packard | 3336B              | Synthesizer/Level Generator | 2514A02585    | 7/13/02         |
| 901054      | Hewlett Packard | HP 3586B           | Selective Level Meter       | 1928A01892    | 7/16/02         |

### 6.4 MODULATION CHARACTERISTICS TEST DATA

| Type     | Measured | Rated |
|----------|----------|-------|
| Voice    | 11.96    | 12    |
| Wideband | 8.23     | 8     |
| SAT      | 1.81     | 2     |
| ST       | 7.61     | 8     |



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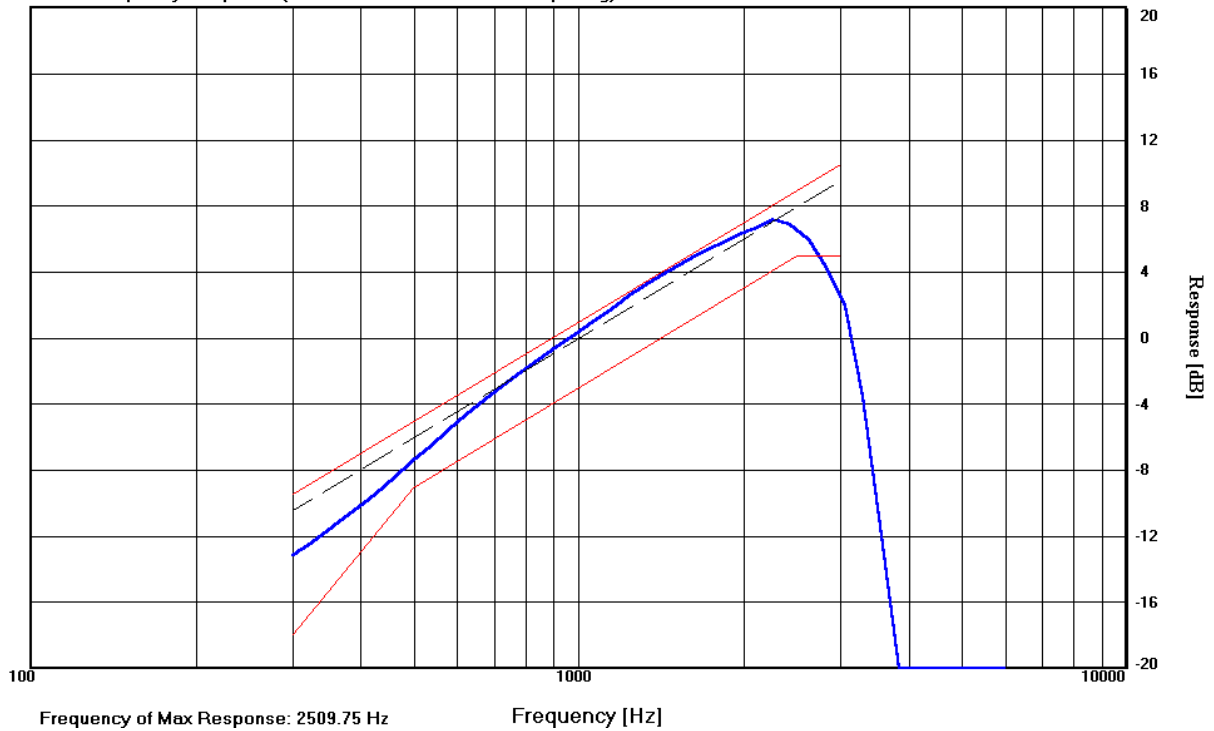
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Exhibit 1

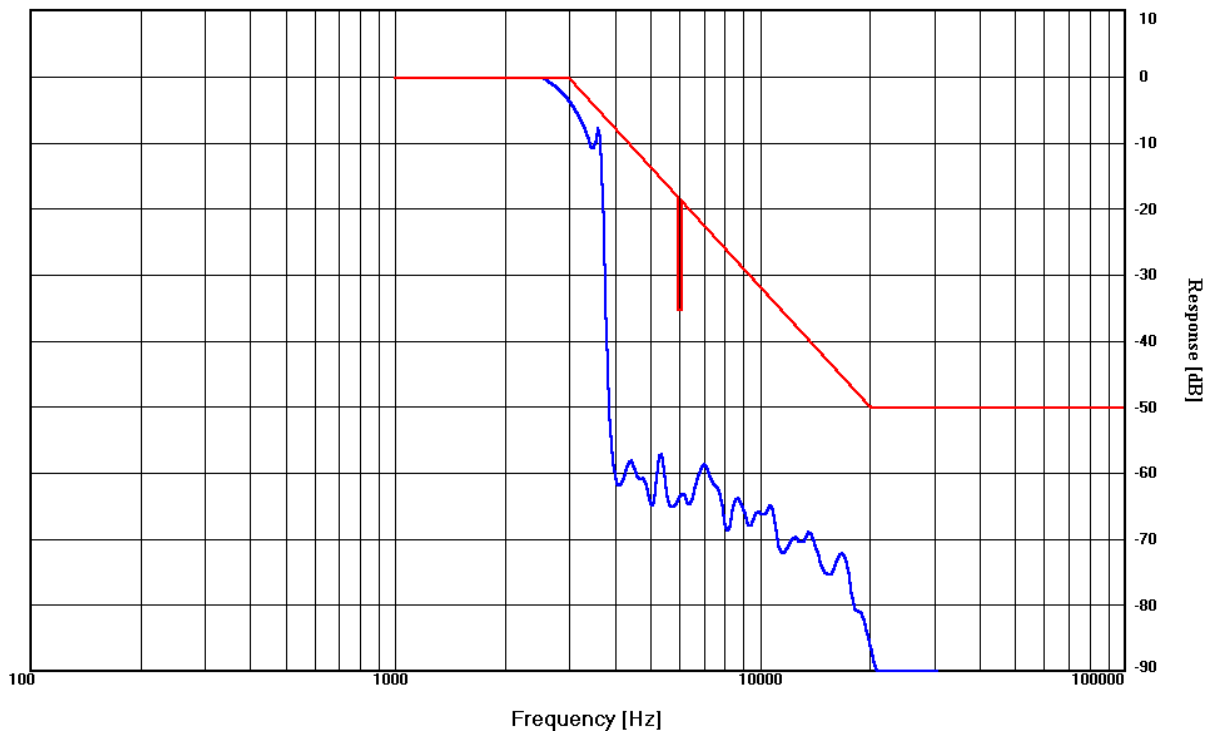
RTL

### Audio Frequency Response

Audio Frequency Response (836.49 MHz, 25 kHz Channel Spacing)

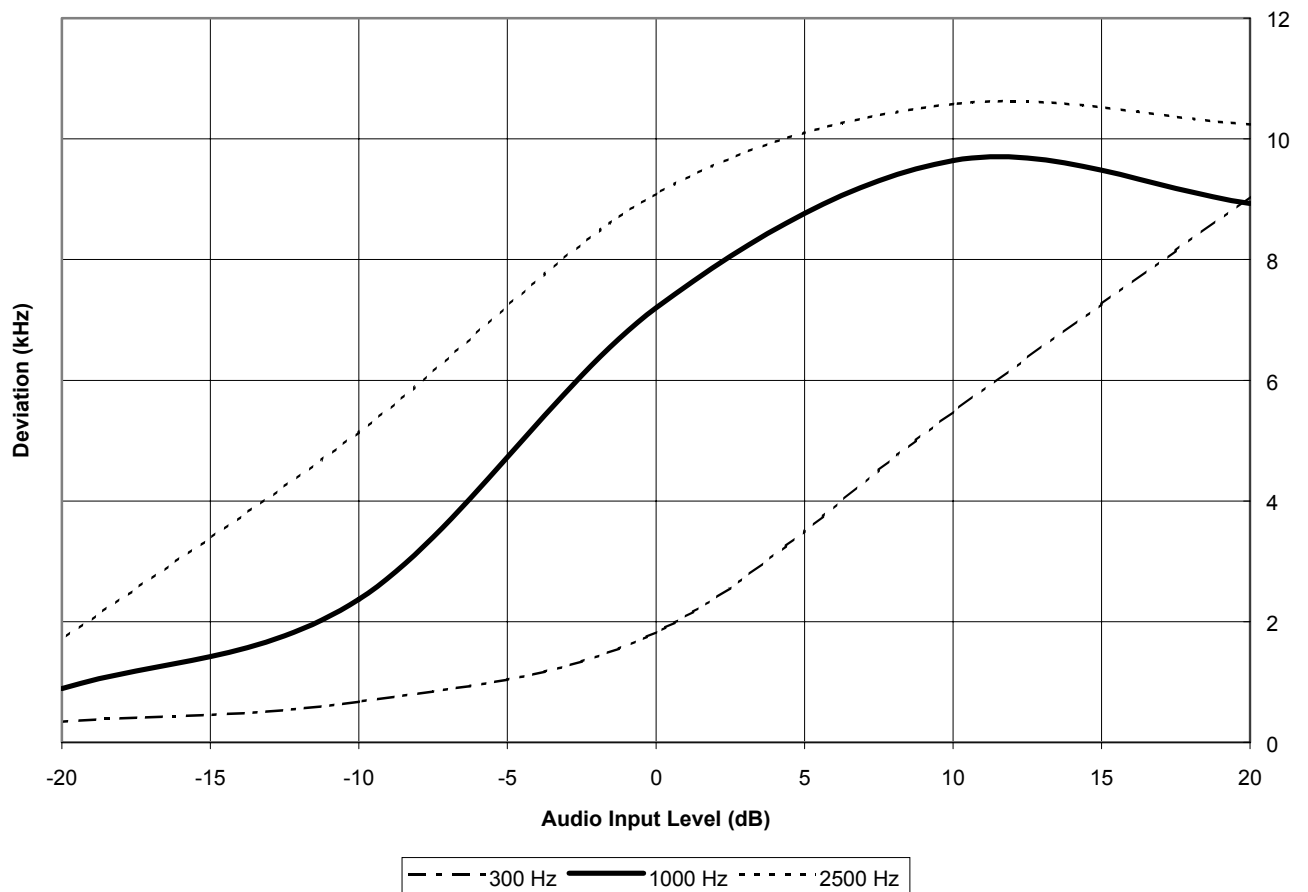


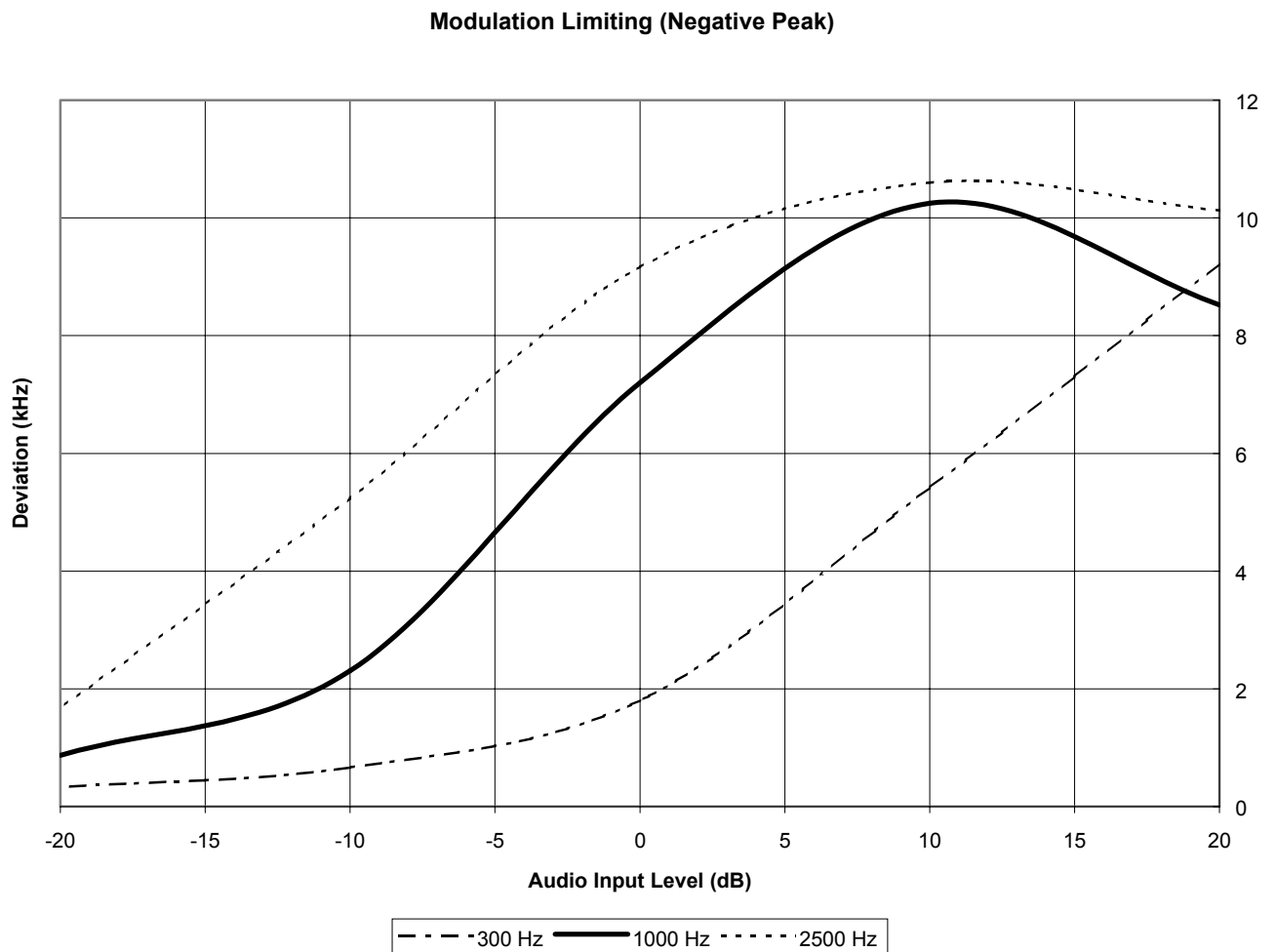
RTL





### Modulation Limiting (Positive Peak)







## 7 OCCUPIED BANDWIDTH - §2.1049

### 7.1 OCCUPIED BANDWIDTH - §2.1049 TEST PROCEDURE

The antenna output terminal of the EUT was connected to the input of a 50W spectrum analyzer through a matched 30dB attenuator. The radio transmitter was operating at maximum output power with and without internal data modulation. 100% of the in-band modulation was below the specified mask per §22.917 (C). Specified Limits:

- A. On any frequency removed from the assigned carrier frequency by more than 20kHz, up to and including 45kHz, the sideband was at least 26dB below the carrier.
- B. On any frequency removed from the assigned carrier frequency by more than 45kHz, up to and including 90kHz, the sideband was at least 45dB below the carrier.
- C. On any frequency removed from the assigned carrier frequency by more than 90kHz, up to the first multiple of the carrier frequency, the sideband was at least 60dB below the carrier of  $43 + \log_{10}$  (mean power output in Watts) dB, whichever was the smaller attenuation.

### 7.2 OCCUPIED BANDWIDTH TEST EQUIPMENT

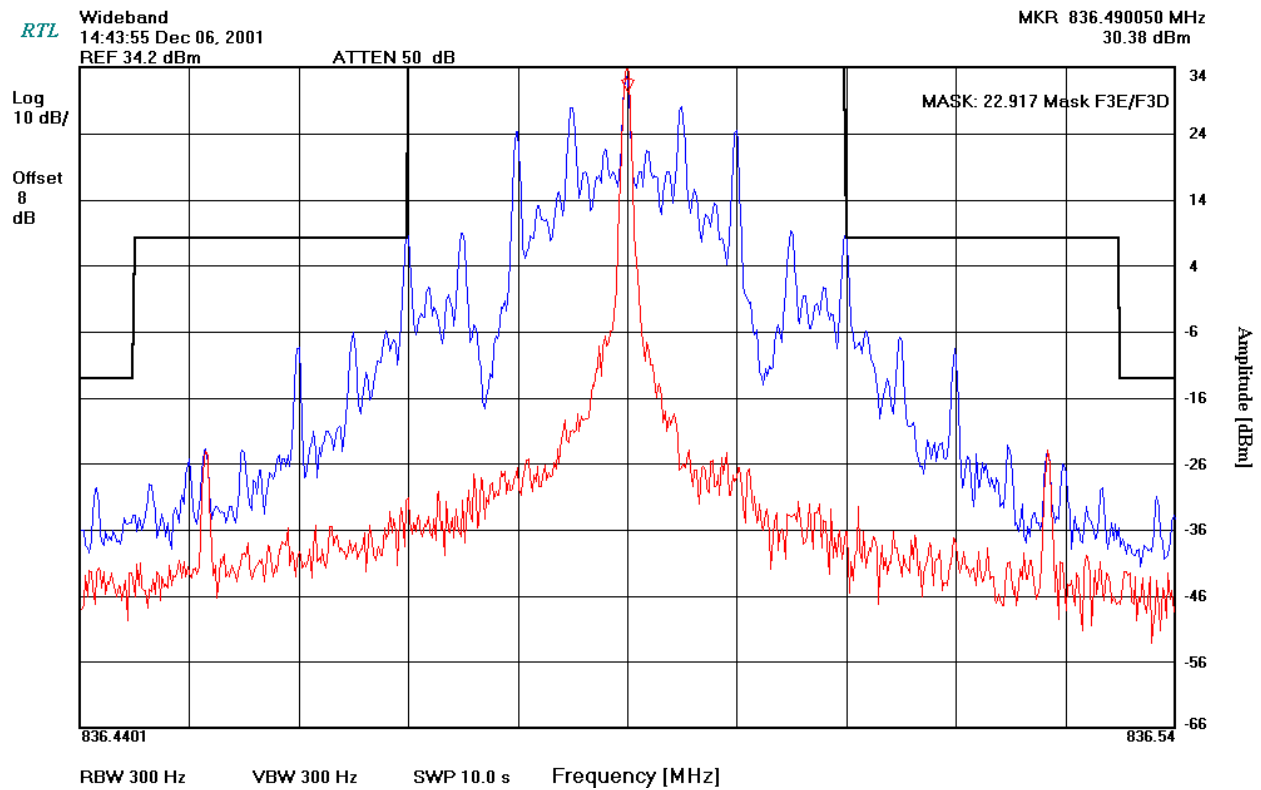
TABLE 7-1: OCCUPIED BANDWIDTH TEST EQUIPMENT

| RTL Asset # | Manufacturer    | Model | Part Type                                  | Serial Number | Calibration Due |
|-------------|-----------------|-------|--------------------------------------------|---------------|-----------------|
| 901020      | Hewlett Packard | 8564E | Portable Spectrum Analyzer (9kHz – 40 GHz) | 3943A01719    | 6/7/02          |



### 7.3 OCCUPIED BANDWIDTH TEST DATA

40 kHz Channel Bandwidth: Wideband data; 836.49 MHz



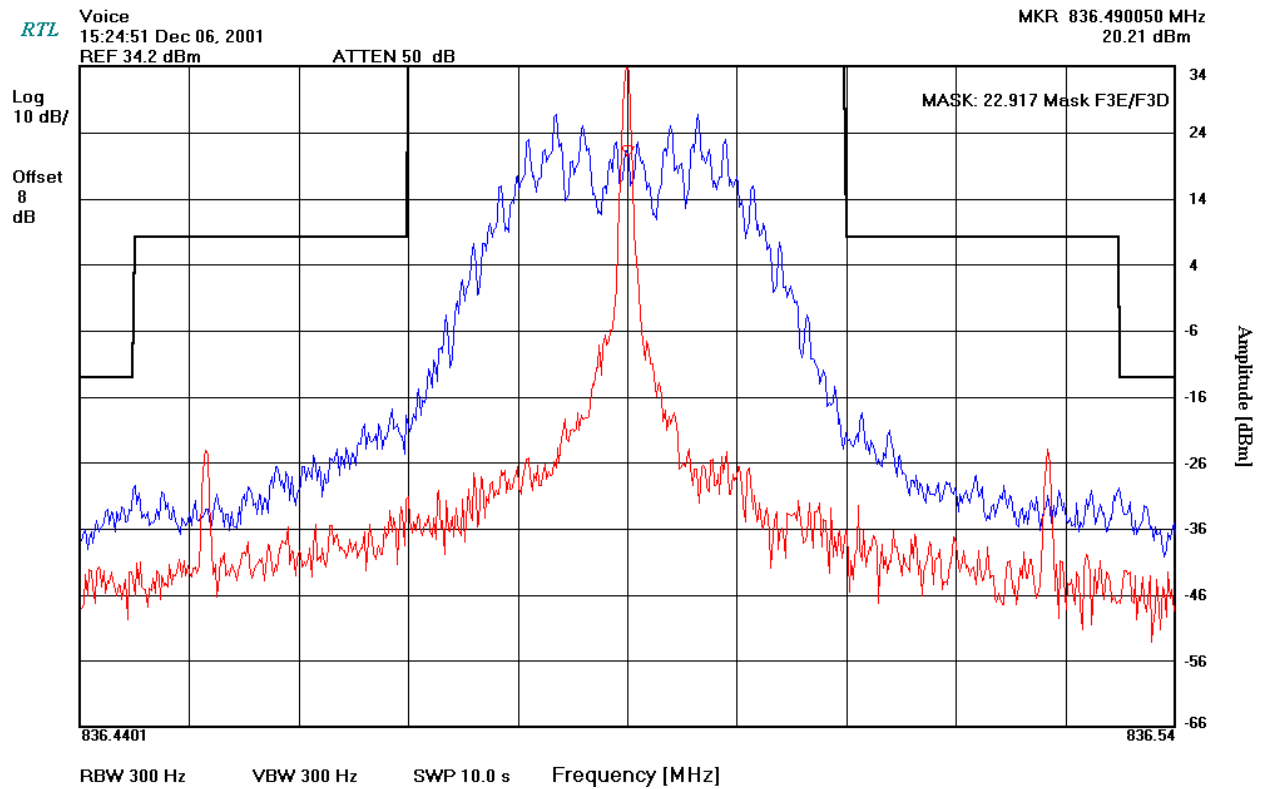


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Exhibit 1

40 kHz Channel Bandwidth: Voice; 836.49 MHz



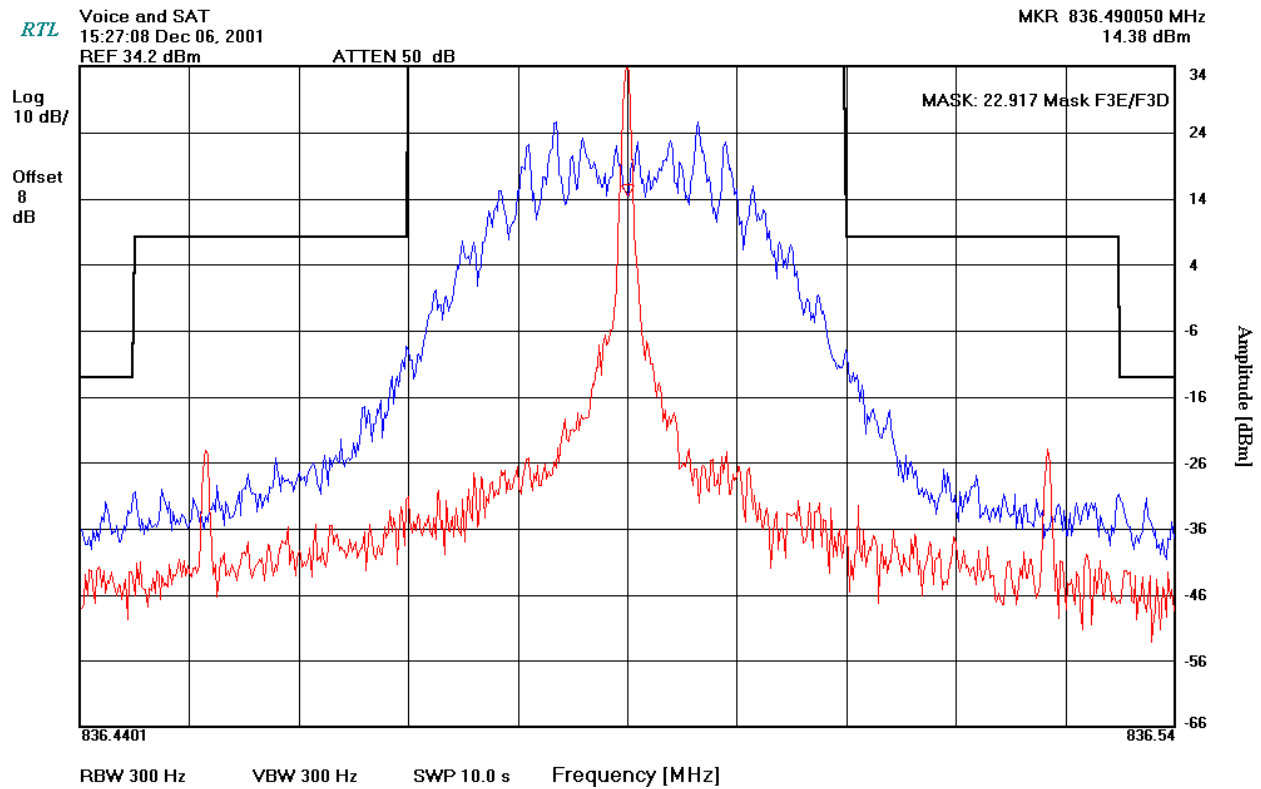


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Exhibit 1

40 kHz Channel Bandwidth: Voice and SAT; 836.49 MHz



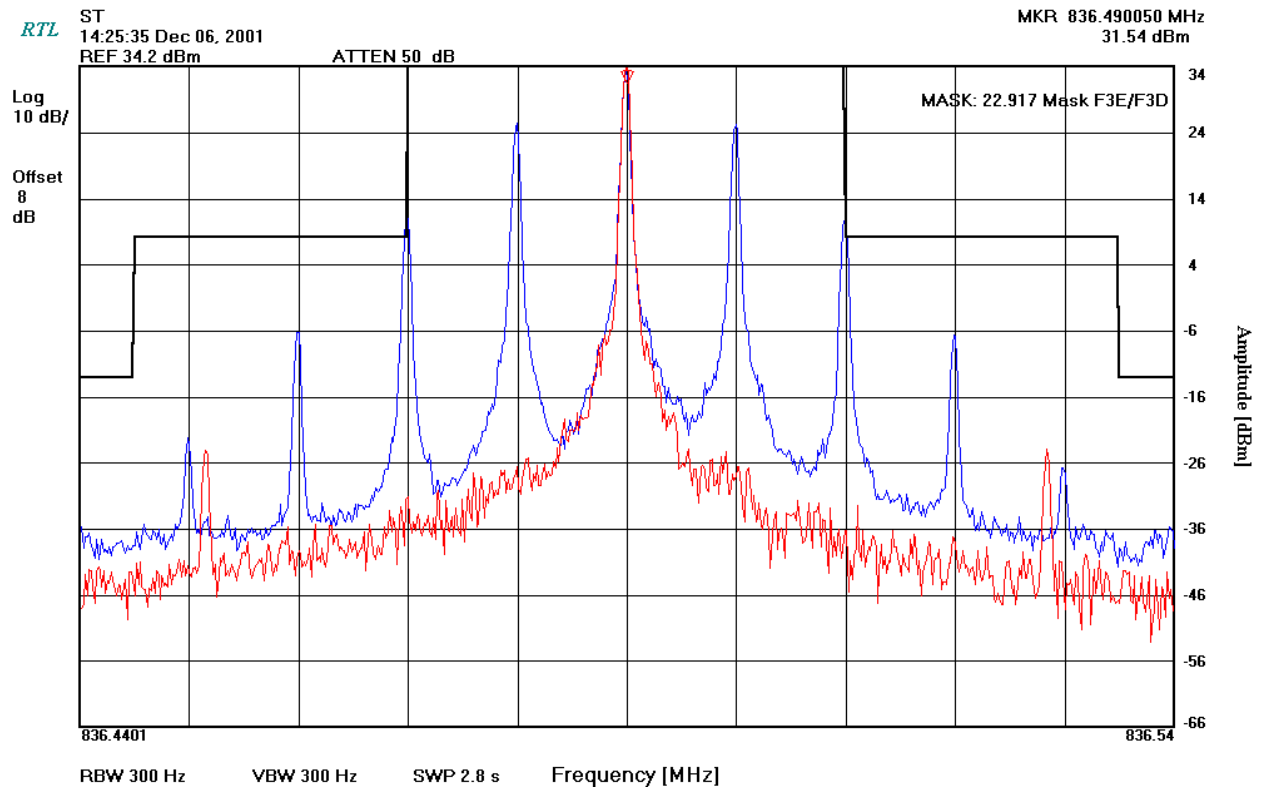


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Exhibit 1

40 kHz Channel Bandwidth: ST; 836.49 MHz



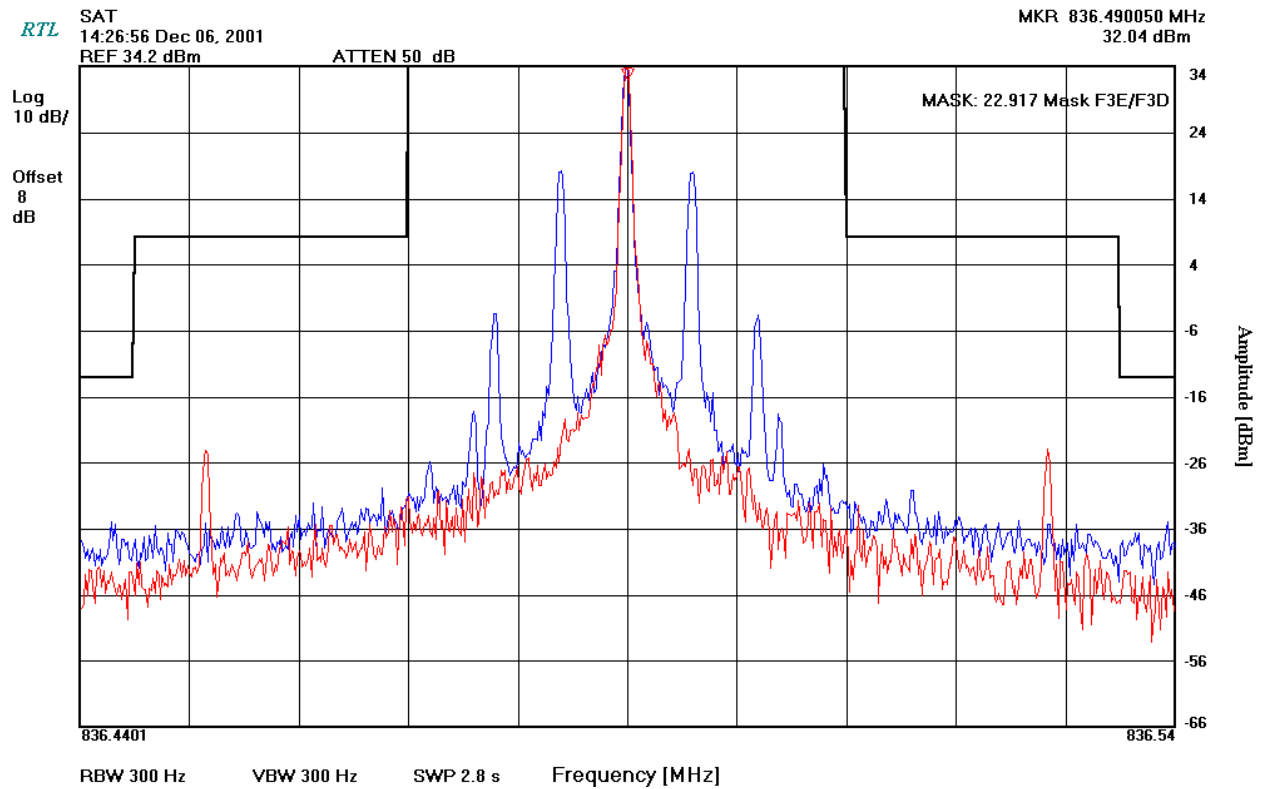


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Exhibit 1

40 kHz Channel Bandwidth: SAT; 836.49 MHz



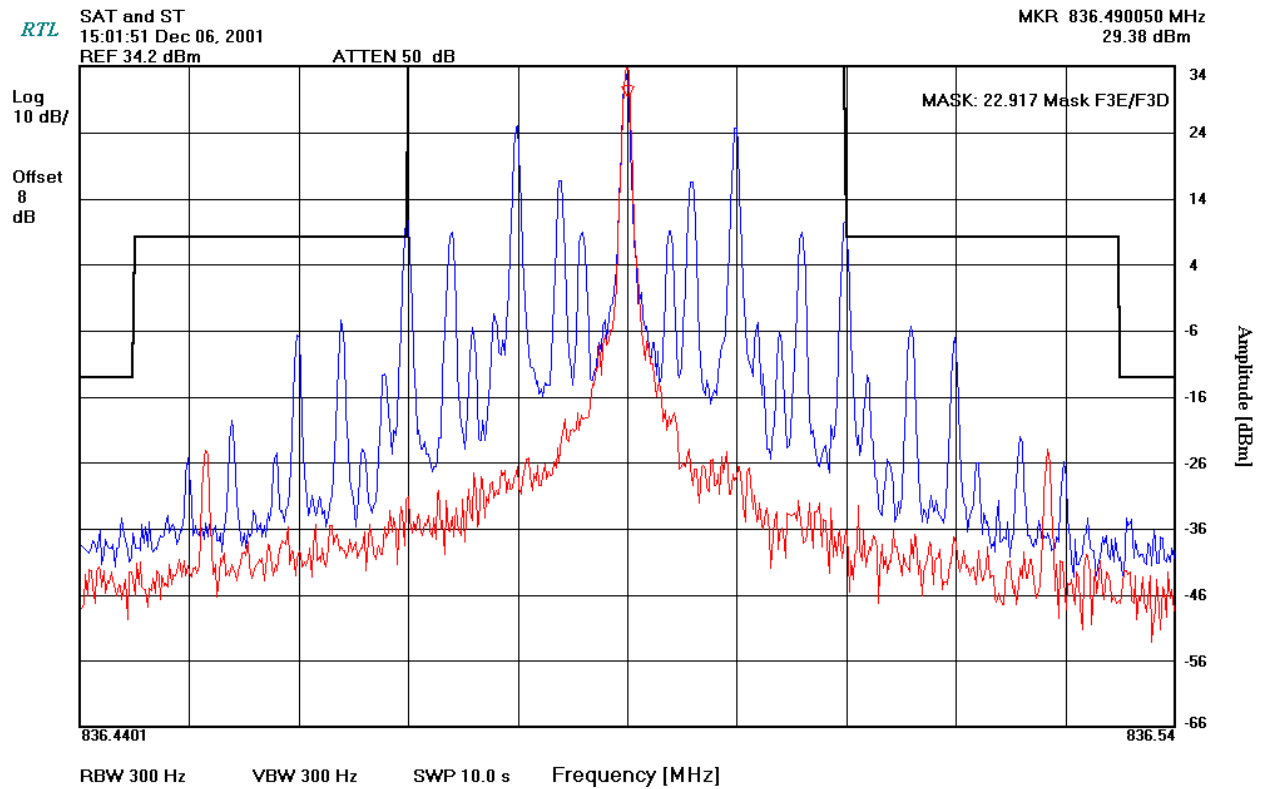


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Exhibit 1

40 kHz Channel Bandwidth: SAT and ST; 836.49 MHz



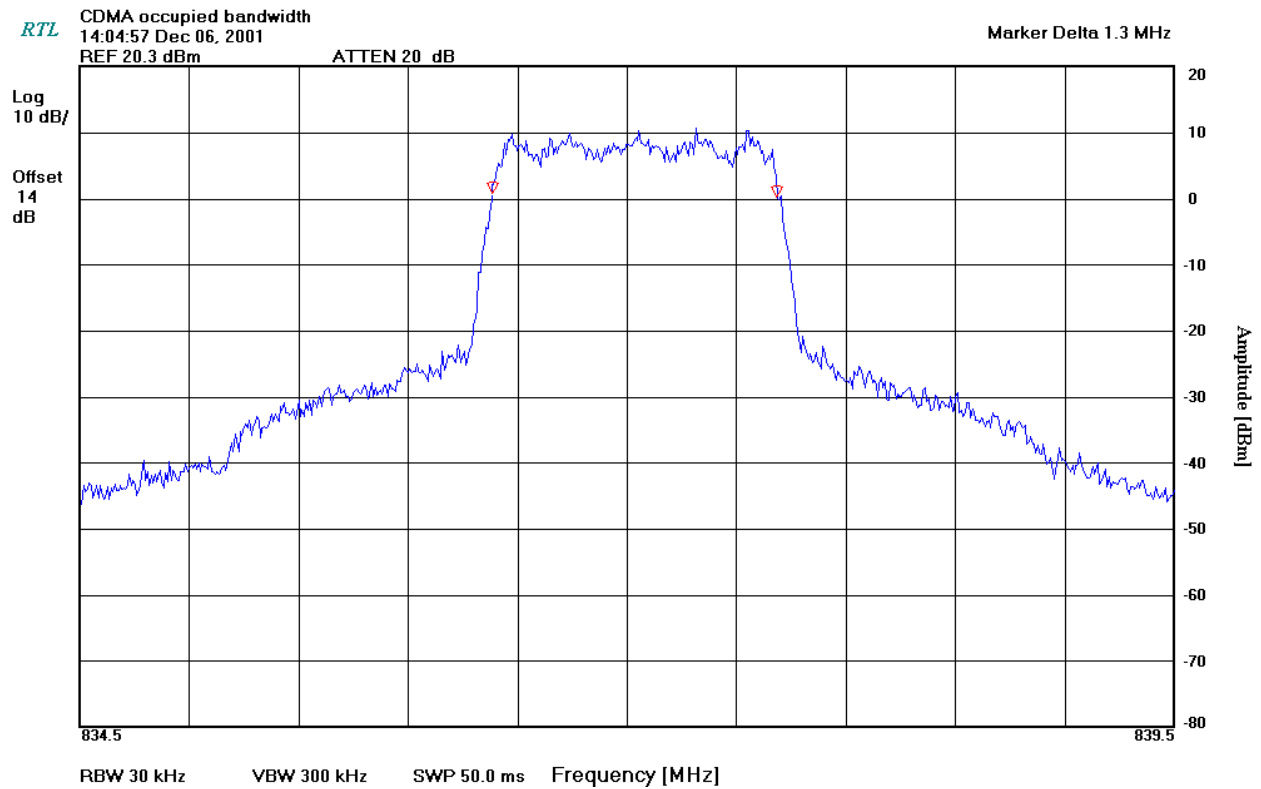


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Exhibit 1

CDMA Occupied Bandwidth (1.3 MHz): 837.00 MHz



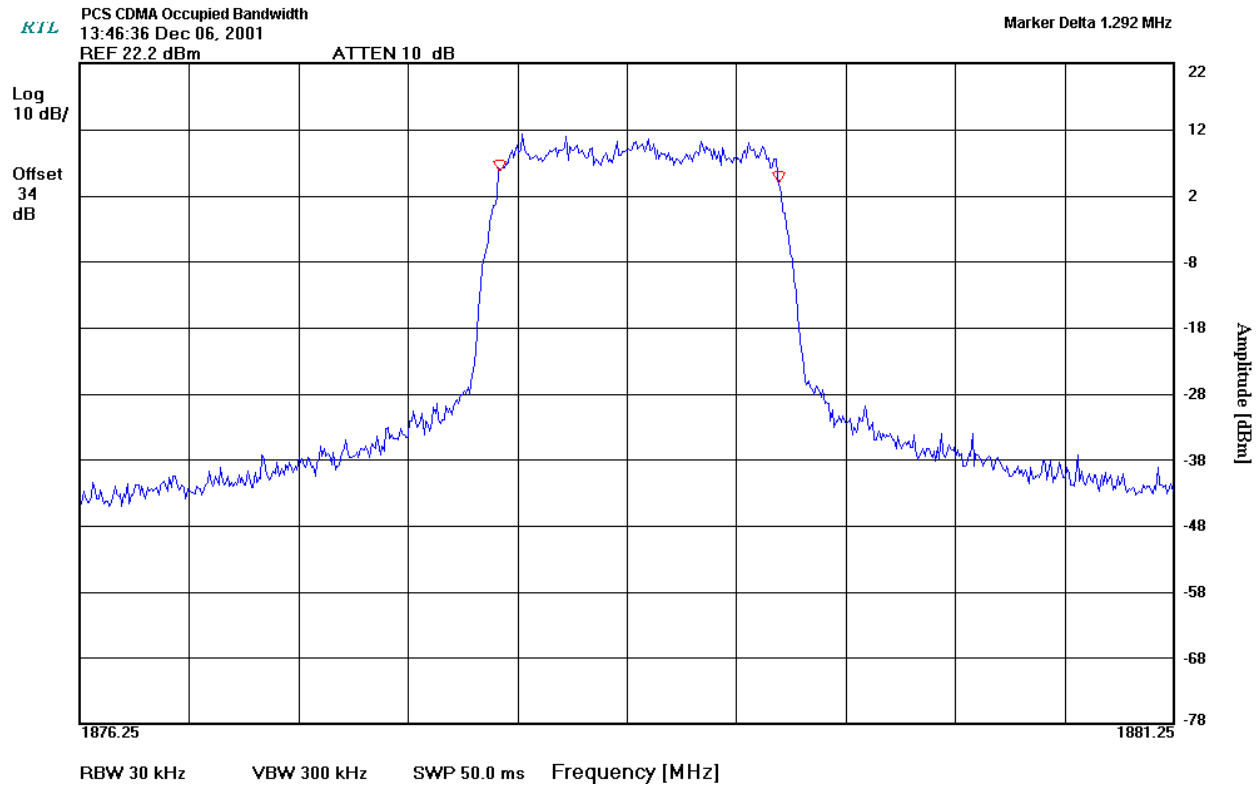


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Exhibit 1

PCS CDMA Occupied Bandwidth (1.292 MHz): 1878.75 MHz





## **8 SPURIOUS EMISSIONS AT ANTENNA TERMINAL - §2.1051**

### **8.1 SPURIOUS EMISSIONS TEST PROCEDURES**

#### **8.1.1 SPURIOUS EMISSIONS AT ANTENNA TERMINAL - §2.1051**

The level of the carrier and the various conducted spurious frequencies was measured by means of a calibrated spectrum analyzer. The antenna output terminal of the EUT was connected to the input of a 50  $\Omega$  spectrum analyzer through a matched 30dB attenuator and coaxial cable. The transmitter was operating at maximum power with internal data modulation.

#### **8.1.2 EMISSION LIMITATIONS FOR CELLULAR - §22.917**

(d) *F1D emission mask*. For F1D emissions, the mean power of emissions must be attenuated below the mean power of the unmodulated carrier (P) as follows:

- (1) On any frequency removed from the carrier frequency by more than 20 kHz but not more than 45 kHz: at least 26 dB;
- (2) On any frequency removed from the carrier frequency by more than 45 kHz, up to the first multiple of the carrier frequency: at least 60 dB or  $43 + 10 \log P$  dB, whichever is the lesser attenuation.

#### **8.1.3 MEASUREMENT PROCEDURE**

The following spectrum analyzer bandwidth settings should be used for measurement of spurious emissions. When operating in the radiotelephony mode or the supervisory audio tone mode: (1) Any emission not more than 45 kHz removed from the carrier frequency, 300 Hz. (2) Any emission more than 45 kHz removed from the carrier frequency, 30 kHz. When operating in the wideband data mode or the signaling tone mode: (1) Any emission not more than 60 kHz removed from the carrier frequency, 300 Hz. (2) Any emission more than 60 kHz removed from the carrier frequency, 30 kHz.

#### **8.1.4 EMISSION LIMITS - §24.133**

The power of any emission shall be attenuated below the transmitter power, as measure in accordance with FCC §24.132.



## 8.2 SPURIOUS EMISSIONS AT ANTENNA TERMINAL TEST EQUIPMENT

TABLE 8-1: SPURIOUS EMISSIONS AT ANTENNA TERMINAL TEST EQUIPMENT

| RTL Asset # | Manufacturer    | Model  | Part Type                                   | Serial Number | Calibration Due |
|-------------|-----------------|--------|---------------------------------------------|---------------|-----------------|
| 901020      | Hewlett Packard | 8564E  | Portable Spectrum Analyzer (9 kHz - 40 GHz) | 3943A01719    | 6/7/02          |
| 901057      | Hewlett Packard | 3336B  | Synthesizer/Level Generator                 | 2514A02585    | 7/13/02         |
| 900913      | Hewlett Packard | 85462A | EMI Receiver RF Section (9 KHz – 6.5 GHz)   | 3325A00159    | 12/5/02         |

## 8.3 SPURIOUS EMISSIONS TEST DATA

Cellular AMPS  
836.49 MHz  
Channel 383  
Conducted power = 34.21 dBm  
Limit = 47.21 dBc

| Frequency (MHz) | Level Measured (dBm) | Notch Insertion Loss (dB) | Corrected Level (dBc) | Margin (dB) |
|-----------------|----------------------|---------------------------|-----------------------|-------------|
| 1672.98         | -43.17               | -9.67                     | 67.71                 | -20.50      |
| 2509.47         | -41.83               | -12.33                    | 63.71                 | -16.50      |
| 3345.96         | -44.67               | -10.17                    | 68.71                 | -21.50      |
| 4182.45         | -44.33               | -11.00                    | 67.54                 | -20.33      |
| 5018.94         | -54.67               | -9.50                     | 79.38                 | -32.17      |
| 5855.43         | -65.33               | -13.33                    | 86.21                 | -39.00      |
| 6691.92         | -87.50               | -30.83                    | 90.88                 | -43.67      |
| 7528.41         | -68.83               | -10.17                    | 92.87                 | -45.66      |
| 8364.9          | -68.17               | -12.83                    | 89.55                 | -42.34      |



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Cellular CDMA  
837.00 MHz  
Channel 400  
Conducted power = 20.7 dBm  
Limit = 33.7 dBc

| Frequency (MHz) | Level Measured (dBm) | Notch Insertion Loss (dB) | Corrected Level (dBc) | Margin (dB) |
|-----------------|----------------------|---------------------------|-----------------------|-------------|
| 1674.00         | -85.23               | -10.23                    | 95.70                 | -62.00      |
| 2511.00         | -84.00               | -13.73                    | 90.97                 | -57.27      |
| 3348.00         | -77.17               | -10.57                    | 87.30                 | -53.60      |
| 4185.00         | -90.50               | -11.90                    | 99.30                 | -65.60      |
| 5022.00         | <-100                |                           |                       |             |
| 5859.00         | <-100                |                           |                       |             |
| 6696.00         | <-100                |                           |                       |             |
| 7533.00         | <-100                |                           |                       |             |
| 8370.00         | <-100                |                           |                       |             |

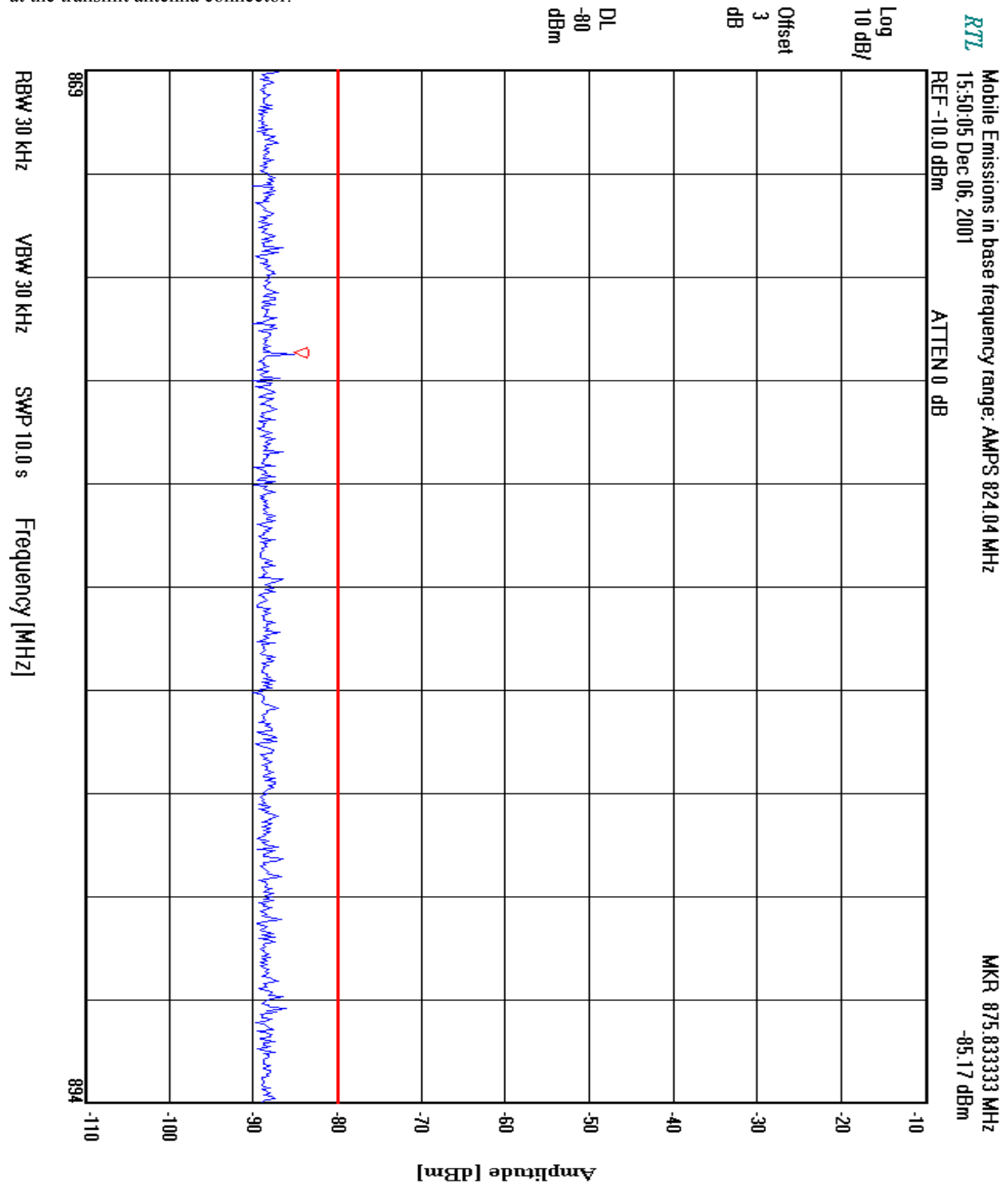
PCS CDMA  
1878.75 MHz  
Channel 575  
Conducted power = 22.56 dBm  
Limit = 35.56 dBc

| Frequency (MHz) | Level Measured (dBm) | Notch Insertion Loss (dB) | Corrected Level (dBc) | Margin (dB) |
|-----------------|----------------------|---------------------------|-----------------------|-------------|
| 3757.50         | -94.83               | -1.67                     | 115.72                | -80.16      |
| 5636.25         | -96.50               | -1.17                     | 117.89                | -82.33      |
| 7515.00         | <-100                |                           |                       |             |
| 9393.75         | <-100                |                           |                       |             |
| 11272.50        | <-100                |                           |                       |             |
| 13151.25        | <-100                |                           |                       |             |
| 15030.00        | <-100                |                           |                       |             |
| 16908.75        | <-100                |                           |                       |             |
| 18787.50        | <-100                |                           |                       |             |



#### 8.4 FCC PART 22.917 (F) MOBILE EMISSIONS IN BASE FREQUENCY RANGE

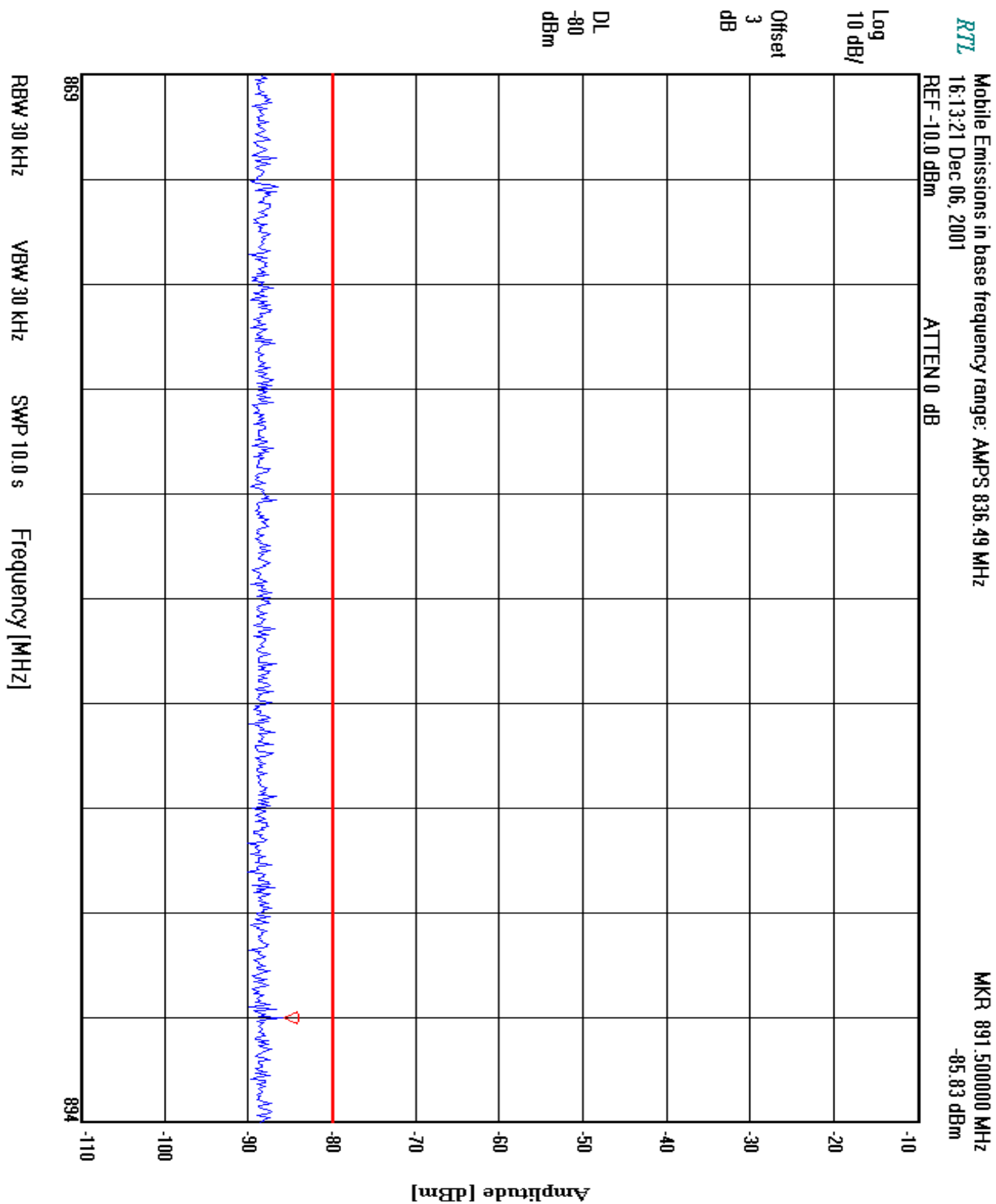
*Mobile emissions in base frequency range.* The mean power of any emissions appearing in the base station frequency range from cellular mobile transmitters operated must be attenuated to a level not to exceed 80 dBm at the transmit antenna connector.





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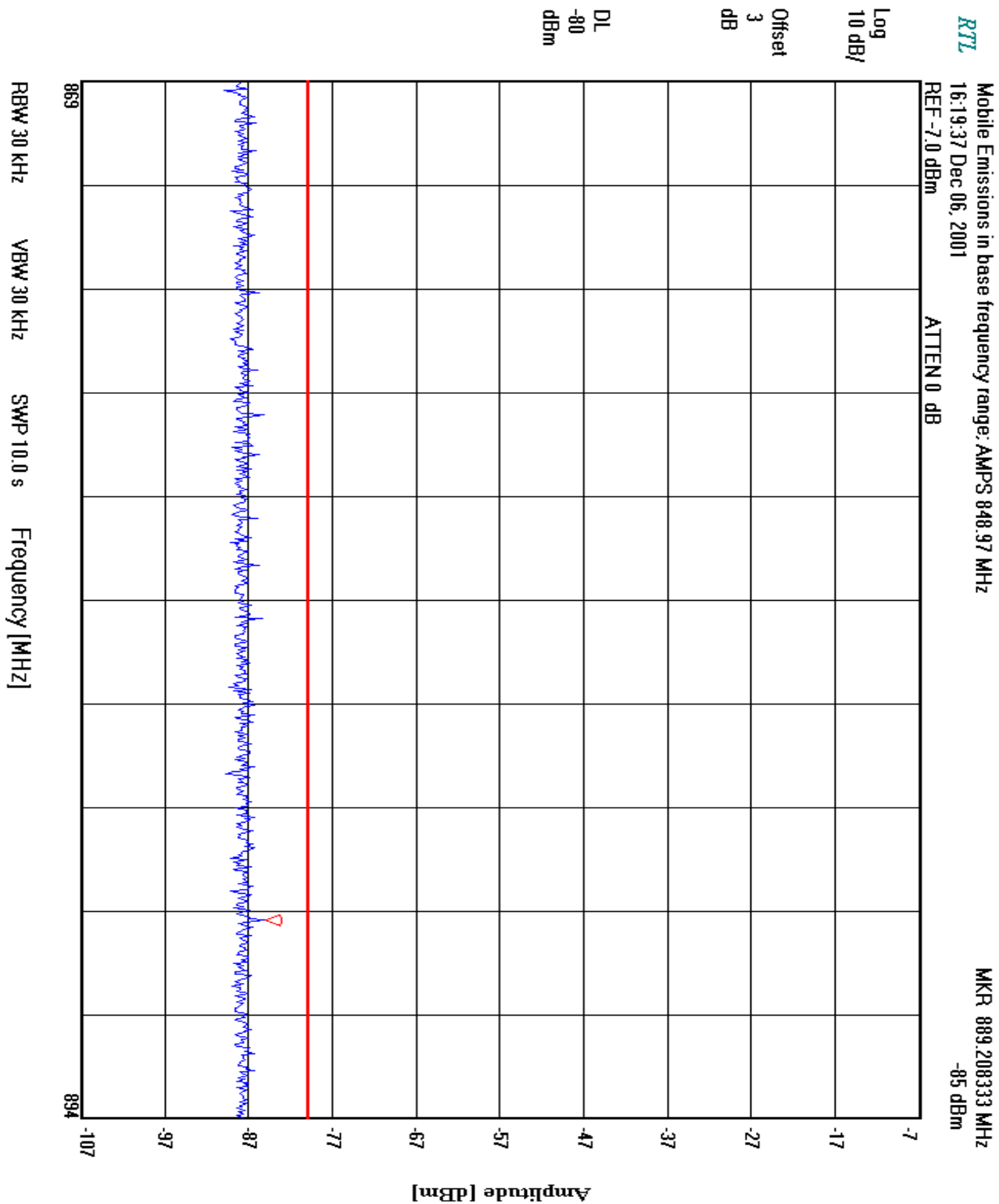
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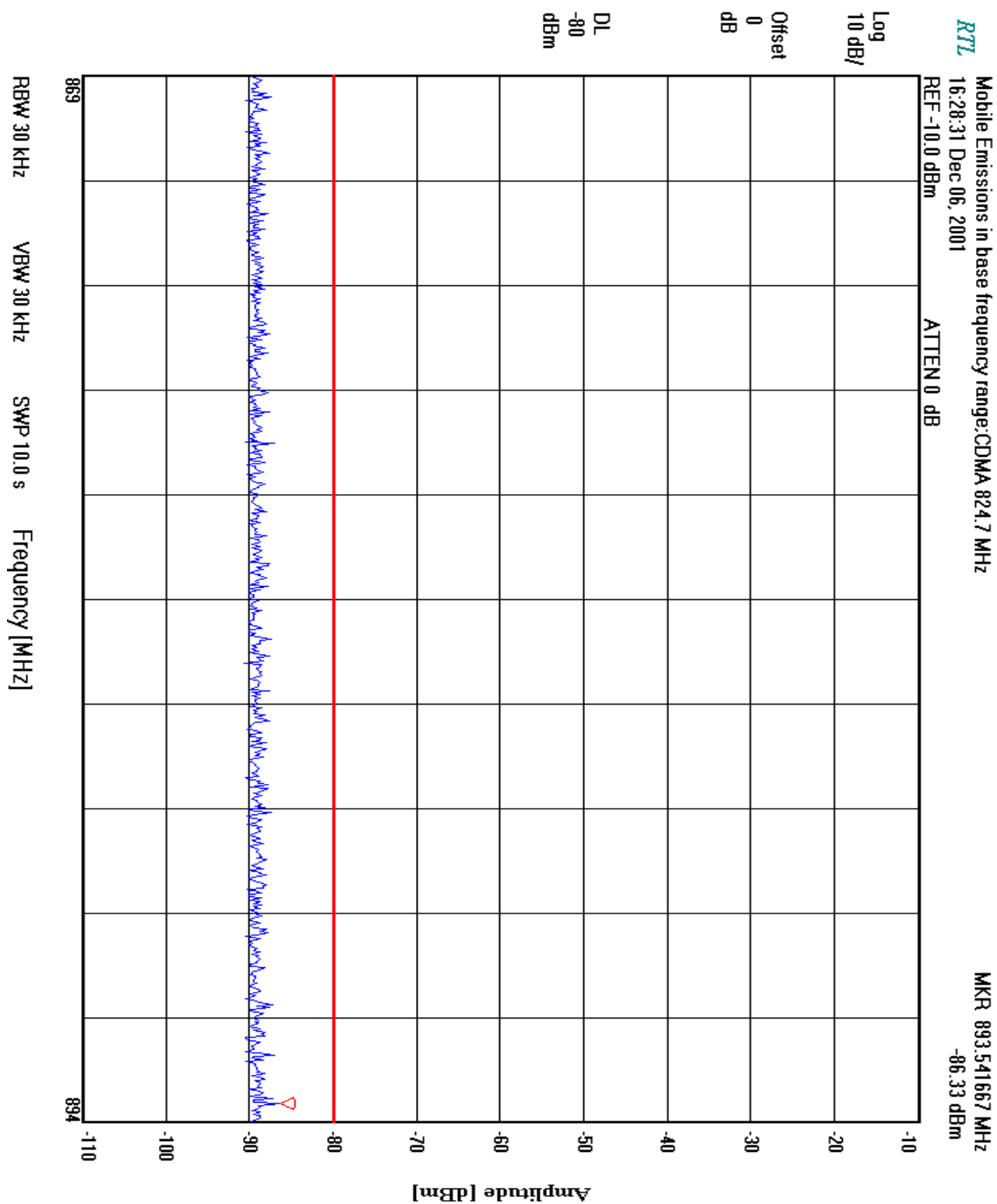
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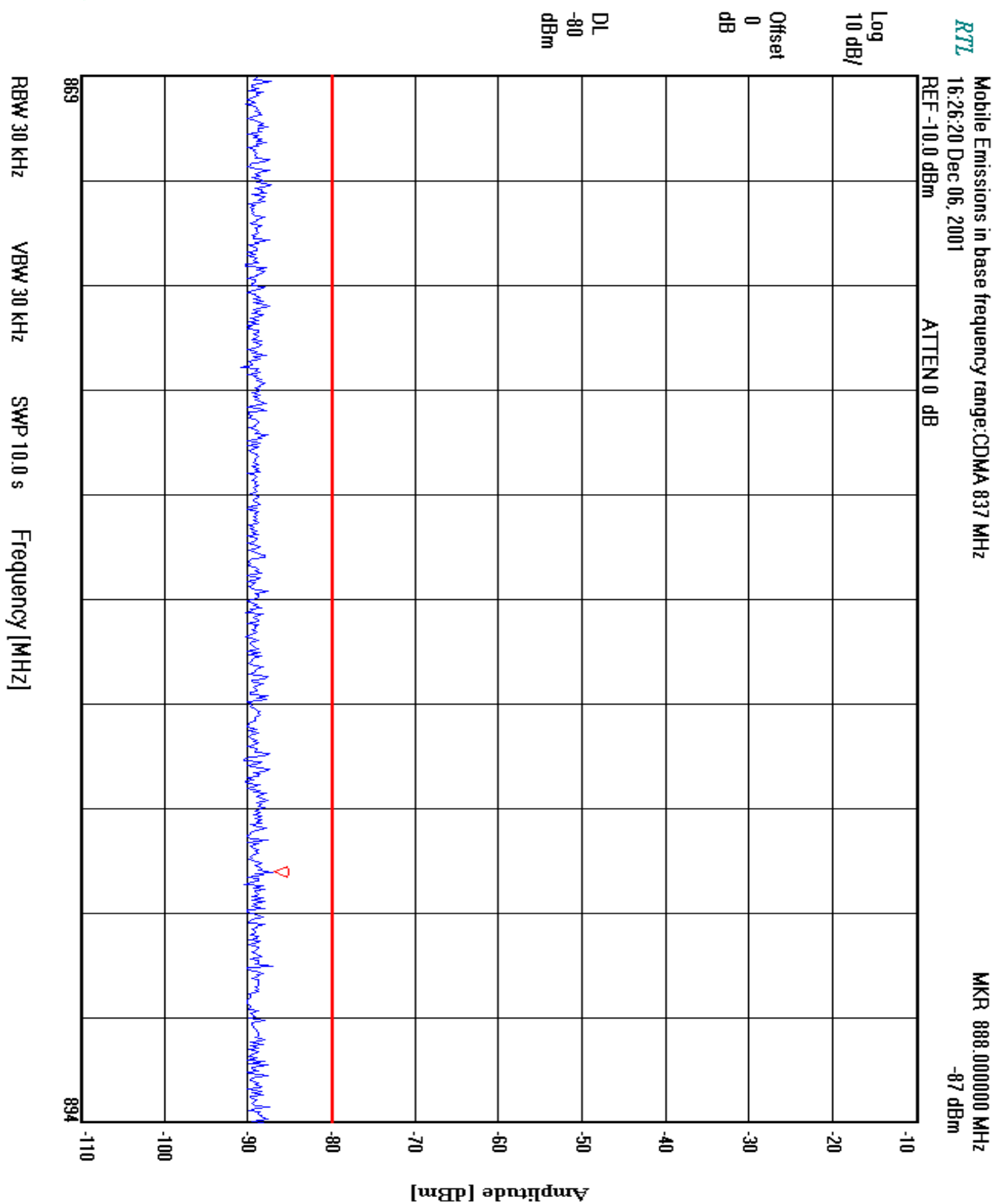
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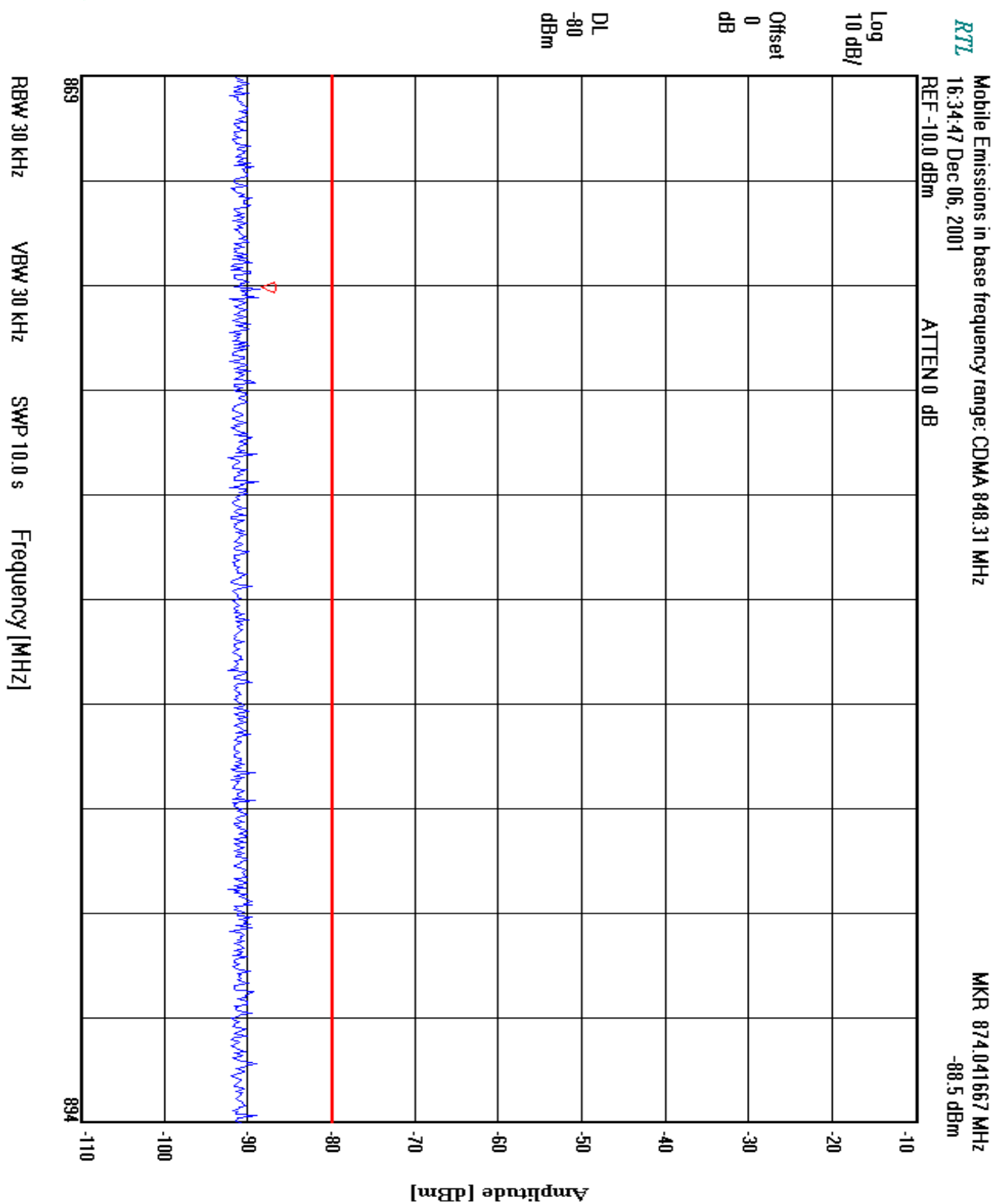
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## 9 RADIATED SPURIOUS AND HARMONIC EMISSIONS - §2.1053

### 9.1 RADIATED SPURIOUS AND HARMONIC EMISSIONS - §2.1053

Radiated and harmonic emissions were measured at our 3-meter outdoor site. The EUT was placed on the turntable with the transmitter transmitting into a non-radiating load. A receiving antenna located 3 meters from the turntable received any signal radiated from the transmitter and its operating accessories. The receiving antenna was varied from 1 to 4 meters and the polarization was varied to determine the worst-case emission level, the EUT was tested in 3 orthogonal planes.

### 9.2 RADIATED SPURIOUS TEST EQUIPMENT

TABLE 9-1: RADIATED SPURIOUS TEST EQUIPMENT

| RTL Asset # | Manufacturer         | Model               | Part Type                              | Serial Number | Calibration Due |
|-------------|----------------------|---------------------|----------------------------------------|---------------|-----------------|
| 901053      | Schaffner Chase      | CBL6112B            | Bi-Log Antenna (20 MHz – 2 GHz)        | 2648          | 5/22/02         |
| 901184      | Agilent Technologies | E4416A              | EPM-P Power Meter, single channel      | GB41050573    | 7/5/02          |
| 901186      | Agilent Technologies | E9323A (50MHz-6GHz) | Peak & Avg. Power Sensor               | US40410380    | 6/25/02         |
| 900931      | Hewlett Packard      | 8566B               | Spectrum Analyzer (100 Hz – 22 GHz)    | 3138A07771    | 5/16/02         |
| 900917      | Hewlett Packard      | 8648C               | Signal Generator (100kHz – 3200 MHz)   | 3537A01741    | 4/10/02         |
| 900928      | Hewlett Packard      | 83752A              | Syntesized Sweeper (0.01 GHz – 20 GHz) | 3610A00866    | 5/11/02         |



### 9.3 FIELD STRENGTH OF SPURIOUS RADIATION TEST DATA - §2.1053

Operating Frequency (MHz): 836.49  
Channel: 383  
Measured Cond. Pwr. (dBm): 34.21  
Measured ERP (dBm): N/A  
Modulation: Analog  
Distance: 3  
Limit: 47.21 dBc

**TABLE 9-2: FIELD STRENGTH DATA §2.1053 (CELLULAR AMPS)**

| Frequency (MHz) | Spectrum Analyzer Level (dBuV) | Signal Generator Level (dBm) | Cable Loss (dB) | Horn Antenna Gain (dBd) | POL (H/V) | ERP (dBc) | Margin (dB) |
|-----------------|--------------------------------|------------------------------|-----------------|-------------------------|-----------|-----------|-------------|
| 1672.98         | 41.60                          | -48.46                       | 1.3             | 4.72                    | H         | 79.25     | -32.04      |
| 2509.47         | 53.48                          | -41.45                       | 1.6             | 5.16                    | H         | 72.11     | -24.90      |
| 3345.96         | 46.74                          | -48.19                       | 2.1             | 7.01                    | H         | 77.49     | -30.28      |
| 4182.45         | 18.56                          | -69.75                       | 1.3             | 6.29                    | H         | 98.97     | -51.76      |
| 5018.94         | 13.93                          | -76.67                       | 1.7             | 8.95                    | H         | 103.63    | -56.42      |
| 5855.43         | 24.38                          | -65.85                       | 1.5             | 6.55                    | H         | 95.01     | -47.80      |
| 6691.92         | 19.43                          | -69.69                       | 3.1             | 7.65                    | H         | 99.35     | -52.14      |
| 7528.41         | 18.48                          | -71.45                       | 4.2             | 7.55                    | H         | 102.31    | -55.10      |
| 8364.9          | 17.59                          | -70.88                       | 3               | 8.35                    | H         | 99.74     | -52.53      |

The spectrum analyzer was set to the following settings:

1. Resolution Bandwidth  $\leq 100$  kHz
2. Video Bandwidth 10 Hz
3. Sweep Speed 5 Second
4. Detector Mode = Positive Peak

Notes:

ERP Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters in three orthogonal planes. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A horn antenna was substituted in place of the EUT. The horn was fed from a signal generator, and the level was adjusted to the same field strength level as the EUT. The conducted power from the signal generator was recorded. The final ERP level was determined by subtracting the cable loss and adding the dipole gain in dBd.



Operating Frequency (MHz): 837.00  
Channel: 400  
Measured Cond. Pwr. (dBm): 20.7  
Measured ERP (dBm): N/A  
Modulation: CDMA  
Distance: 3  
Limit: 33.7 dBc

**TABLE 9-3: FIELD STRENGTH DATA §2.1053 (CELLULAR CDMA)**

| Frequency (MHz) | Spectrum Analyzer Level (dBuV) | Signal Generator Level (dBm) | Cable Loss (dB) | Horn Antenna Gain (dBd) | POL (H/V) | ERP (dBc) | Margin (dB) |
|-----------------|--------------------------------|------------------------------|-----------------|-------------------------|-----------|-----------|-------------|
| 1674            | 21.21                          | -69.13                       | 1.3             | 4.72                    | H         | 86.41     | -52.71      |
| 2511            | 29.15                          | -65.99                       | 1.7             | 5.16                    | H         | 83.23     | -49.53      |
| 3348            | 41.26                          | -53.65                       | 2.0             | 7.02                    | H         | 69.33     | -35.63      |
| 4185            |                                |                              |                 |                         |           |           |             |
| 5022            |                                |                              |                 |                         |           |           |             |
| 5859            |                                |                              |                 |                         |           |           |             |
| 6696            |                                |                              |                 |                         |           |           |             |
| 7533            |                                |                              |                 |                         |           |           |             |
| 8370            |                                |                              |                 |                         |           |           |             |

The spectrum analyzer was set to the following settings:

5. Resolution Bandwidth  $\leq 100$  kHz
6. Video Bandwidth 10 Hz
7. Sweep Speed 5 Second
8. Detector Mode = Positive Peak

Notes:

ERP Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters in three orthogonal planes. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A horn antenna was substituted in place of the EUT. The horn was fed from a signal generator, and the level was adjusted to the same field strength level as the EUT. The conducted power from the signal generator was recorded. The final ERP level was determined by subtracting the cable loss and adding the dipole gain in dBd.



Operating Frequency (MHz): 1878.75  
Channel: 575  
Measured Cond. Pwr. (dBm): 22.56  
Measured ERP (dBm): N/A  
Modulation: CDMA  
Distance: 3  
Limit: 35.56

**TABLE 9-4: FIELD STRENGTH DATA §2.1053 (PCS CDMA)**

| Frequency (MHz) | Spectrum Analyzer Level (dBuV) | Signal Generator Level (dBm) | Cable Loss (dB) | Horn Antenna Gain (dBi) | POL (H/V) | EIRP (dBc) | Margin (dB) |
|-----------------|--------------------------------|------------------------------|-----------------|-------------------------|-----------|------------|-------------|
| 3757.50         |                                |                              |                 |                         |           | <100       |             |
| 5636.25         |                                |                              |                 |                         |           | <100       |             |
| 7515.00         |                                |                              |                 |                         |           | <100       |             |
| 9393.75         |                                |                              |                 |                         |           | <100       |             |
| 11272.50        |                                |                              |                 |                         |           | <100       |             |
| 13151.25        |                                |                              |                 |                         |           | <100       |             |
| 15030.00        |                                |                              |                 |                         |           | <100       |             |
| 16908.75        |                                |                              |                 |                         |           | <100       |             |
| 18787.50        |                                |                              |                 |                         |           | <100       |             |

The spectrum analyzer was set to the following settings:

9. Resolution Bandwidth  $\leq 100$  kHz
10. Video Bandwidth 10 Hz
11. Sweep Speed 5 Second
12. Detector Mode = Positive Peak

Notes:

ERP Measurements by Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna. The field of maximum intensity was found by rotating the EUT approximately 360 degrees through 3 orthogonal planes, and changing the height of the receive antenna from 1 to 4 meters. The field strength was recorded from a calibrated spectrum analyzer for each channel being tested. A horn antenna was substituted in place of the EUT. The horn was fed through a cable from a signal generator and the power at the signal generator was monitored. The level of the signal generator was adjusted to the same field strength level as the EUT. The conducted power of the signal generator was recorded. The horn gain was then determined and the EIRP level was determined by subtracting the cable loss and adding the horn gain in dBi.

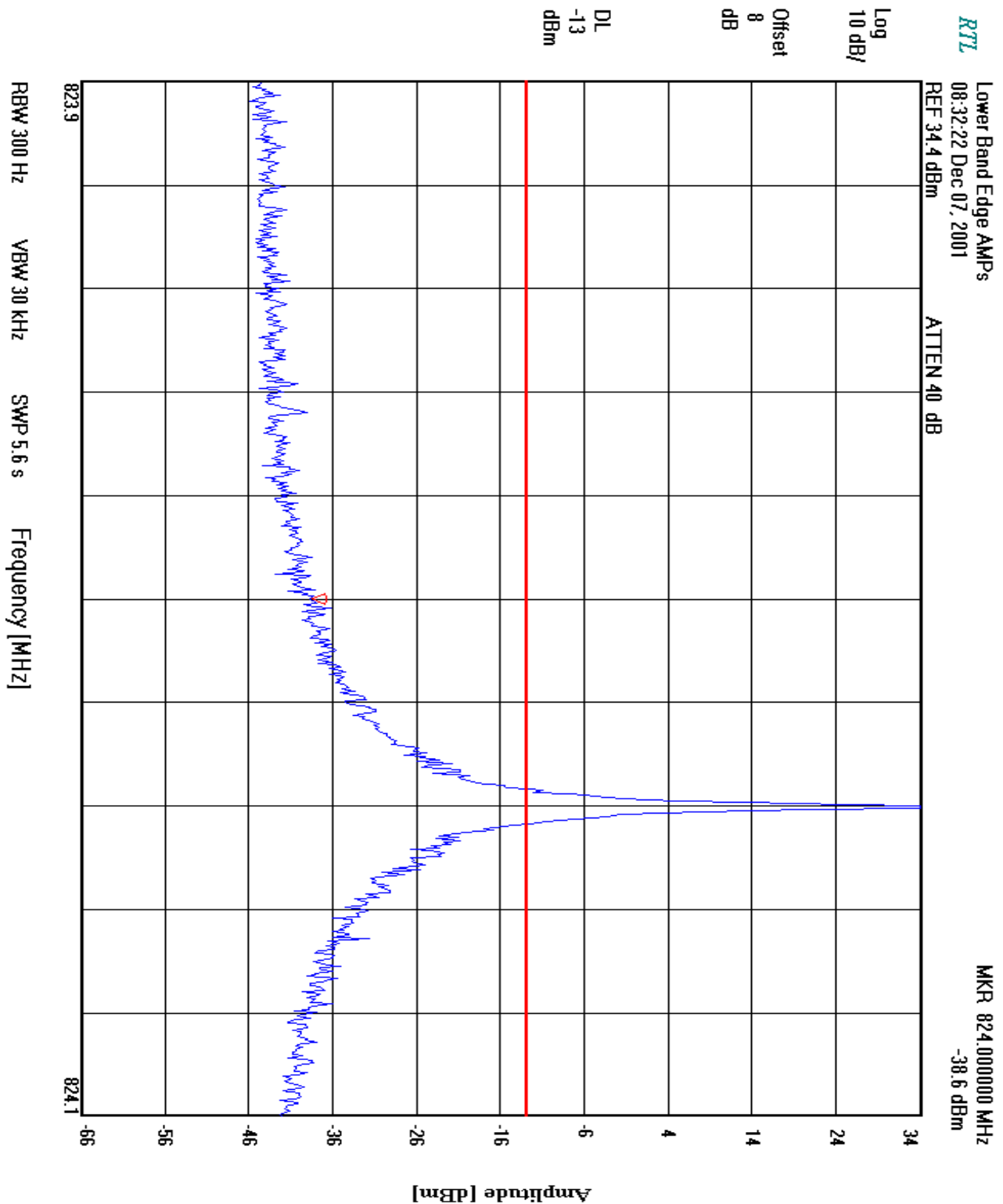


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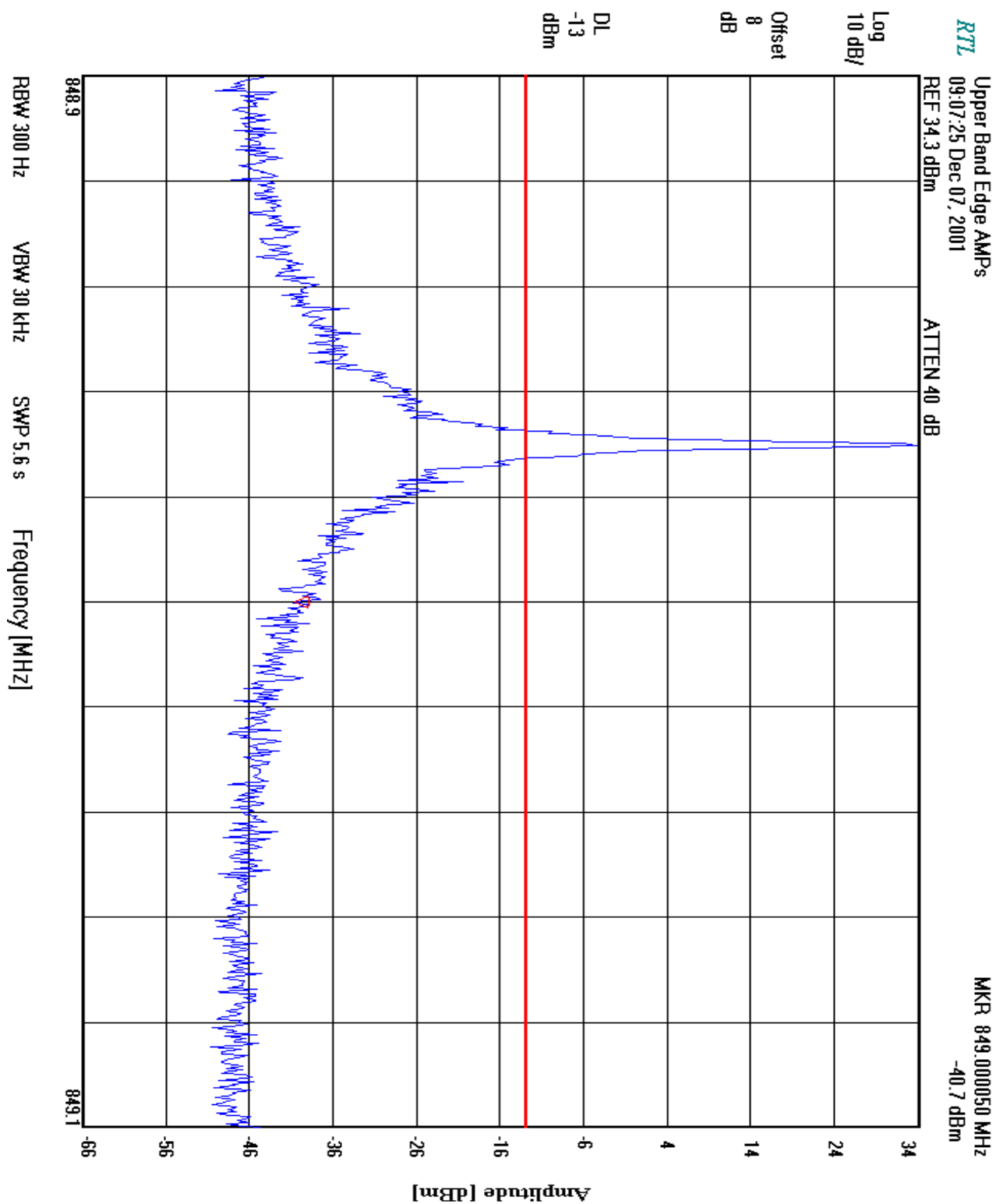
#### 9.4 FCC PART 22.901(D); PART 24.229 AND PART 24.238 - BAND-EDGE COMPLIANCE





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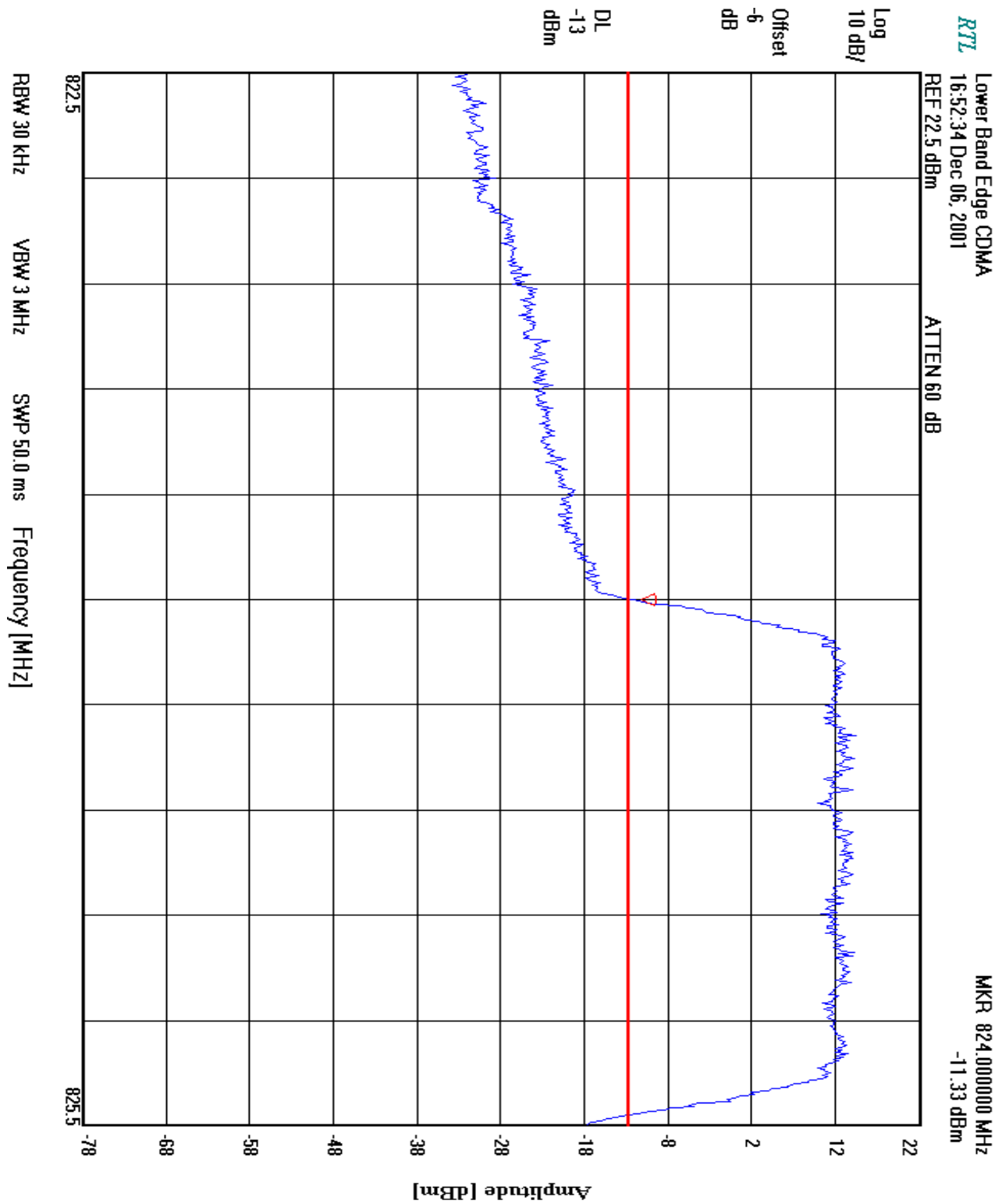




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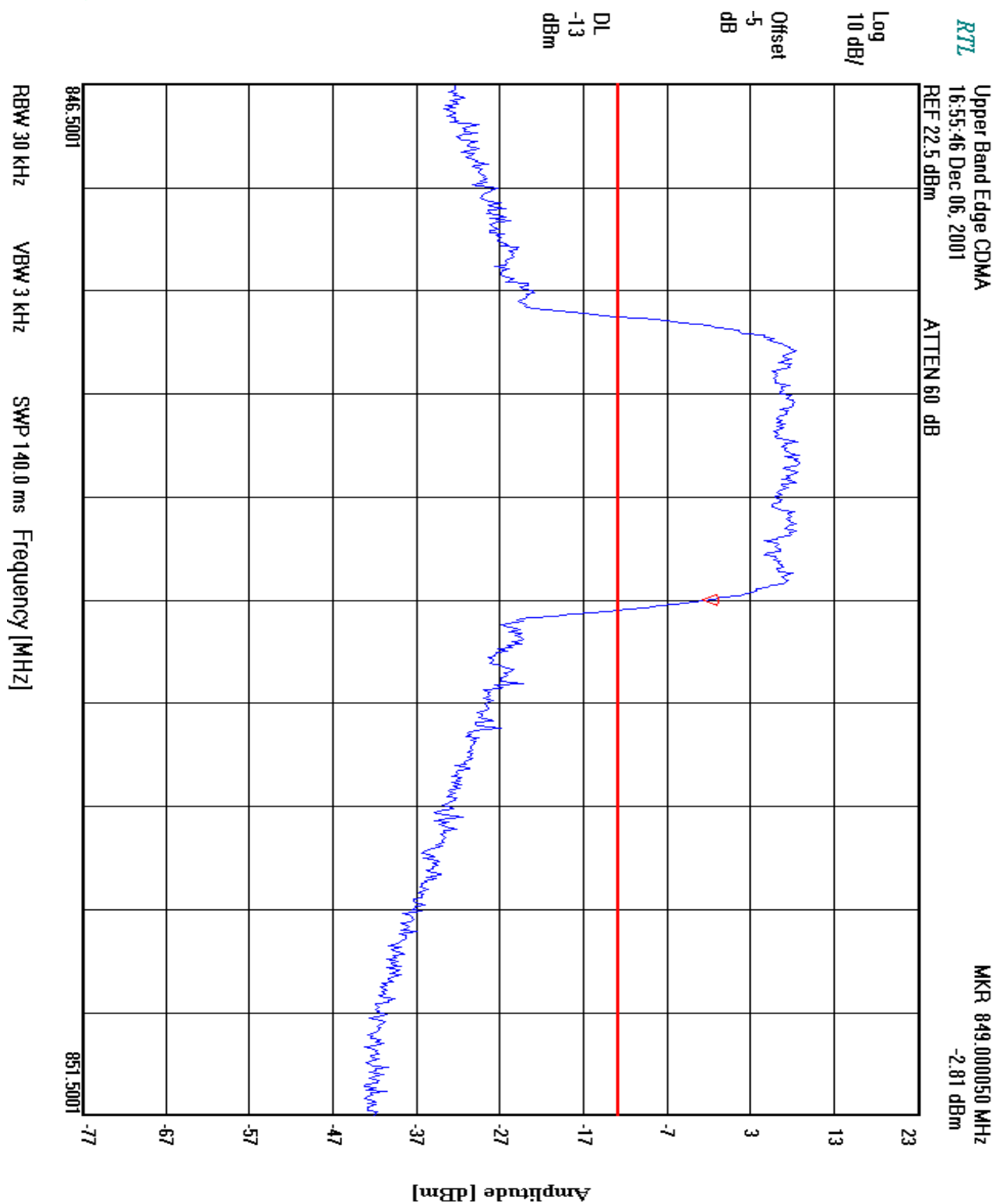
Exhibit 1





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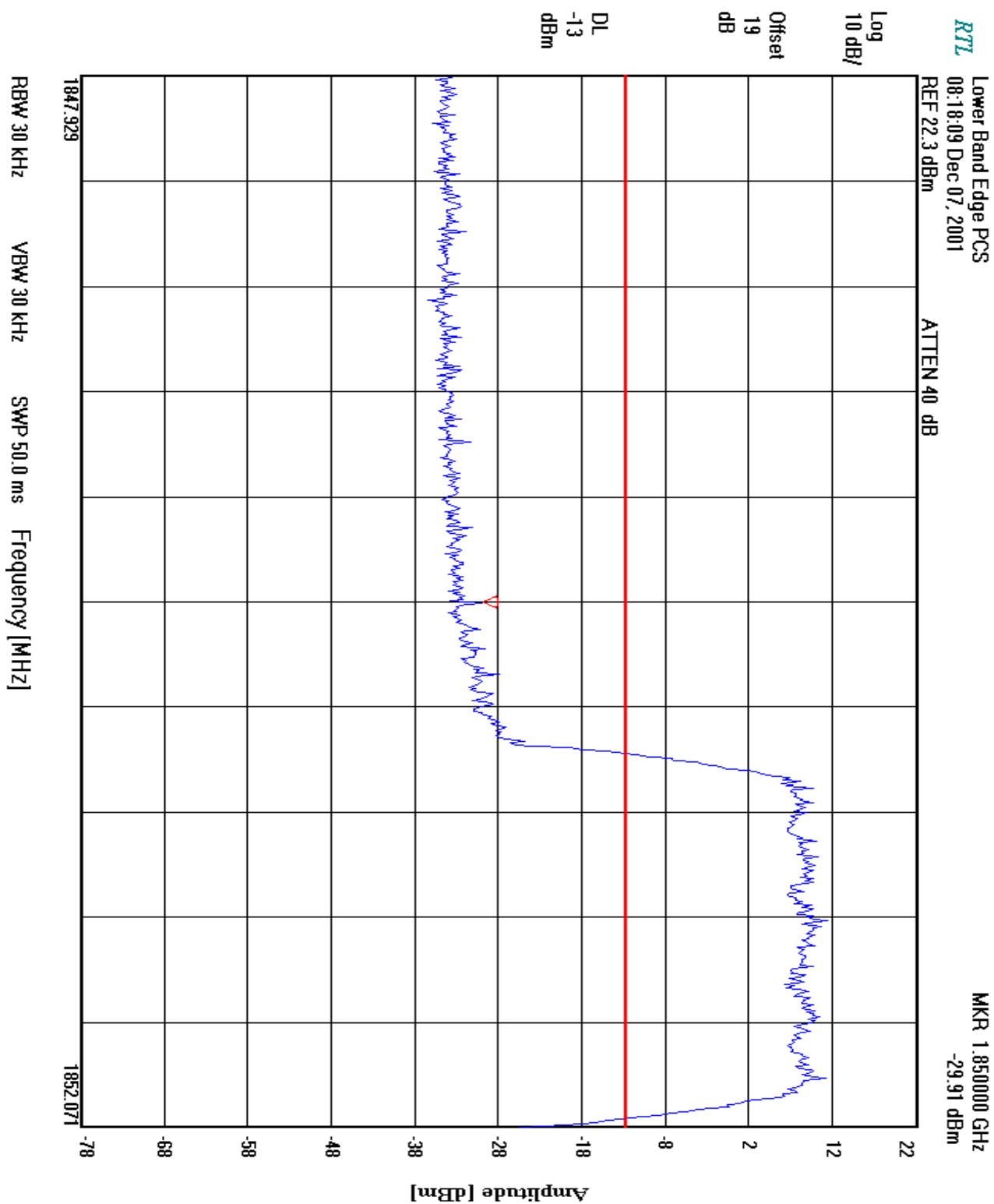
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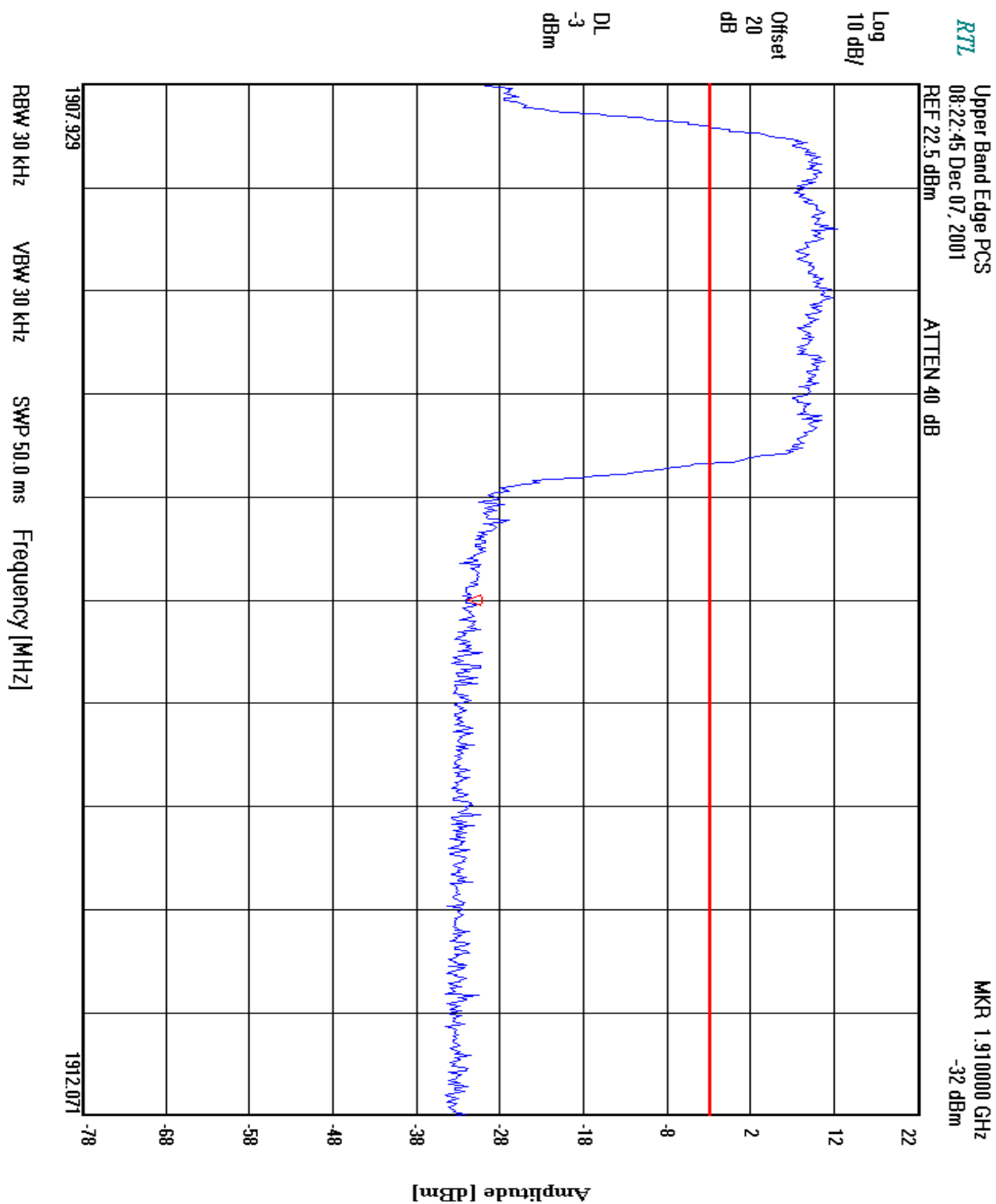
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## 10 FREQUENCY STABILITY / TEMPERATURE VARIATION - §2.1055

The frequency stability and RF power, measured at the antenna connector using a communications test set as the specified load, are plotted against supply voltage variations and temperature variations at the highest power levels for each modulation type. All measurements are made at the center of the frequency band.

### 10.1 MEASUREMENT METHOD:

The frequency stability of the transmitter was measured by:

1. Temperature: The temperature was varied from -30°C to +60°C at intervals no more than 10°C throughout the temperature range using an environmental chamber. A period of time sufficient to stabilize all of the components in the equipment shall be allowed prior to each frequency measurement.
2. Primary Supply Voltage: The primary supply voltage was 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. The EUT was tested down to the battery endpoint.

### 10.2 FREQUENCY STABILITY TEST EQUIPMENT

TABLE 10-1: FREQUENCY STABILITY TEST EQUIPMENT

| Manufacturer    | Model   | Part Type                     |
|-----------------|---------|-------------------------------|
| Anritsu         | MT8802A | Radio Communications Test Set |
| Hewlett Packard | E3631A  | Power Supply                  |
| Hewlett Packard | E3610A  | Power Supply                  |
| Hewlett Packard | E4418B  | Power Meter                   |
| ESPEC           | SH-240  | Temperature Chamber           |

### 10.3 TIME PERIOD AND PROCEDURE:

1. The carrier frequency of the transmitter was measured at room temperature (25°C to provide a reference).
2. The equipment was subjected to a “soak” at -30°C without any power applied.
3. After the “soak” at -30°C, the measurement of the carrier frequency of the transmitter was made within a three-minute interval after applying power to the transmitter.
4. Frequency measurements were made at 10°C intervals up to +60°C, then back to room temperature. A minimum period of one hour was provided to allow stabilization of the equipment at each temperature level.



#### 10.4 FREQUENCY TOLERANCE §22.355:

The minimum frequency stability shall 2.5 ppm for this device

**TABLE 10-2: FREQUENCY TOLERANCE §22.355**

| Frequency Range (MHz) | Base, Fixed (ppm) | Mobile ≤ 3 Watts (ppm) | Mobile ≤3 Watts (ppm) |
|-----------------------|-------------------|------------------------|-----------------------|
| 25 to 50              | 20.0              | 20.0                   | 50.0                  |
| 50 to 450             | 5.0               | 5.0                    | 50.0                  |
| 450 to 512            | 2.5               | 5.0                    | 5.0                   |
| 821 to 896            | 1.5               | 2.5                    | 2.5                   |
| 928 to 929            | 5.0               | N/A                    | N/A                   |
| 929 to 960            | 1.5               | N/A                    | N/A                   |
| 2110 to 2220          | 10.0              | N/A                    | N/A                   |

#### 10.5 FREQUENCY STABILITY § 24.235

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

#### 10.6 FREQUENCY STABILITY TEST DATA - §2.1055

Operating Frequency: 836.49; 837; and 1878.75 MHz  
Channel: 383; 400; and 575  
Reference Voltage: 5 and 13.8 VDC  
Deviation Limit: 0.00025 % or 2.5 ppm

**TABLE 10-3: FREQUENCY STABILITY DATA - §2.1055**

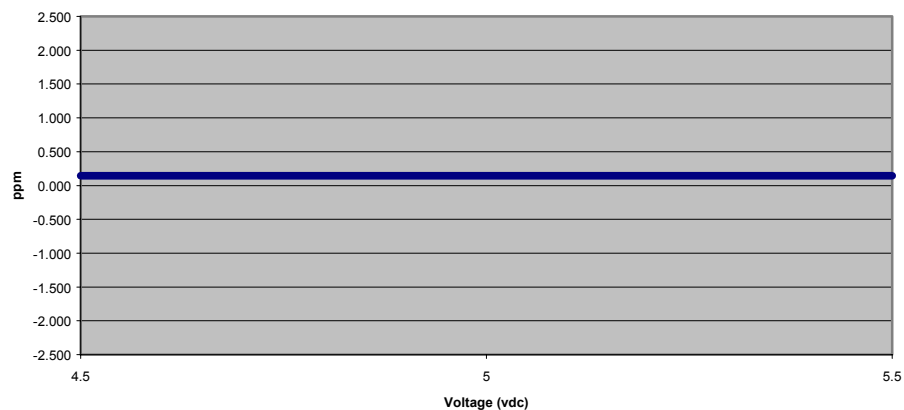
| Exhibit | Input Voltage         | Temperature (°C) | Modulation (Freq) |
|---------|-----------------------|------------------|-------------------|
| 1       | 5.0 ± 10%, 13.8 ± 20% | 25               | AMPS (800)        |
| 2       | 5.0, 13.8             | -30 to +50       | AMPS (800)        |
| 3       | 5.0 ± 10%, 13.8 ± 20% | 25               | CDMA (800)        |
| 4       | 5.0, 13.8             | -30 to +50       | CDMA (800)        |
| 5       | 5.0 ± 10%, 13.8 ± 20% | 25               | CDMA (1900)       |
| 6       | 5.0, 13.8             | -30 to +50       | CDMA (1900)       |



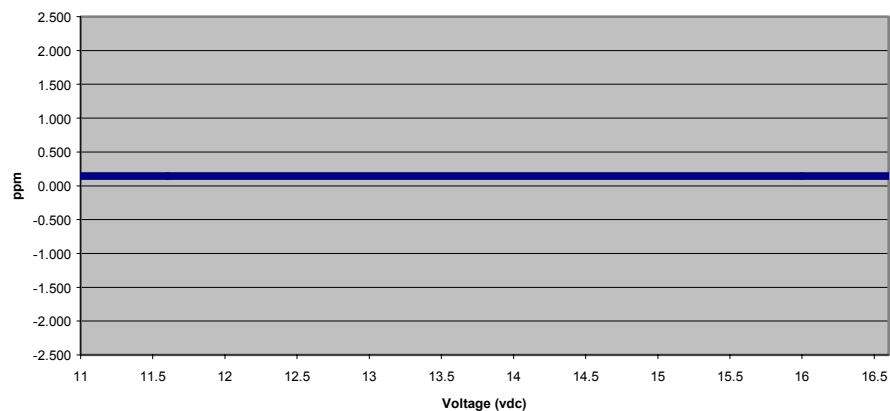
**EXHIBIT 10-1: VOLTAGE FREQUENCY STABILITY - §2.1055; AMPS (800)**

| Voltage<br>(5V nom./13.8V nom.) | Temperature<br>(°C) | Freq. Error<br>(Hz) |
|---------------------------------|---------------------|---------------------|
| 4.5/11.0                        | 25                  | 119.2               |
| 4.6/11.6                        | 25                  | 120.2               |
| 4.7/12.1                        | 25                  | 120.3               |
| 4.8/12.7                        | 25                  | 118.8               |
| 4.9/13.2                        | 25                  | 120.4               |
| 5.0/13.8                        | 25                  | 119.3               |
| 5.1/14.3                        | 25                  | 119.6               |
| 5.2/14.9                        | 25                  | 120.4               |
| 5.3/15.5                        | 25                  | 120.1               |
| 5.4/16.0                        | 25                  | 119.2               |
| 5.5/16.6                        | 25                  | 120.3               |

**Voltage Frequency Stability**



**Voltage Frequency Stability**

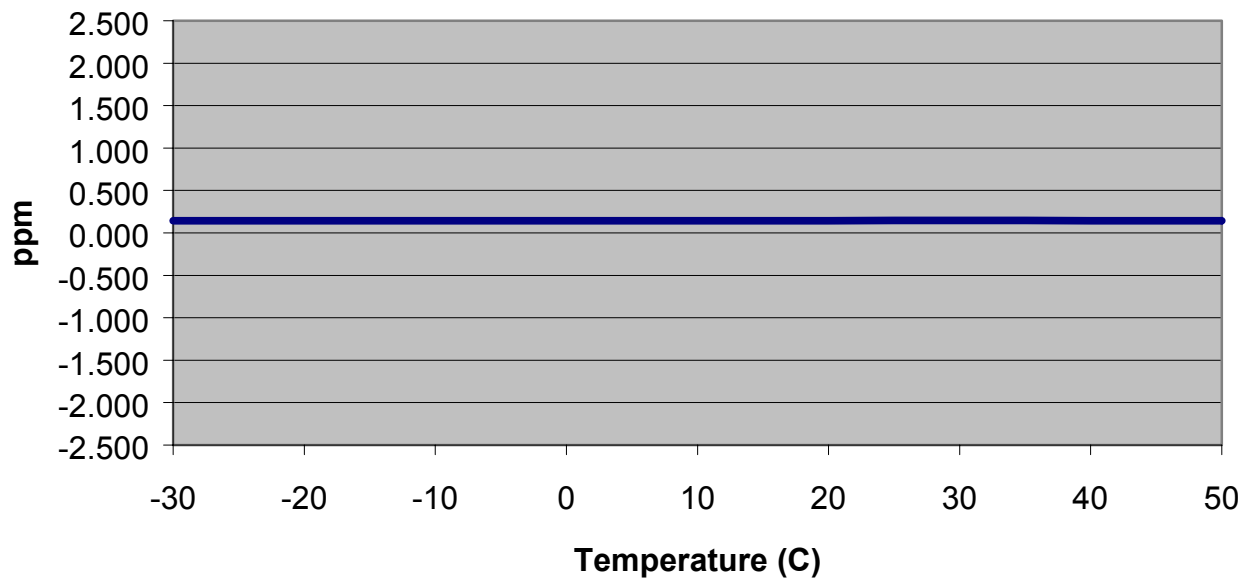




**EXHIBIT 10-2: TEMPERATURE FREQUENCY STABILITY - §2.1055; AMPS (800)**

| (°C) | (5V nom./13.8V nom.) | (Hz)  |
|------|----------------------|-------|
| -30  | 5.0/13.8             | 119.7 |
| -20  | 5.0/13.8             | 119.7 |
| -10  | 5.0/13.8             | 118.9 |
| 0    | 5.0/13.8             | 120.7 |
| 10   | 5.0/13.8             | 120.4 |
| 20   | 5.0/13.8             | 120.0 |
| 30   | 5.0/13.8             | 121.6 |
| 40   | 5.0/13.8             | 120.3 |
| 50   | 5.0/13.8             | 119.1 |

**Temperature Frequency Stability**

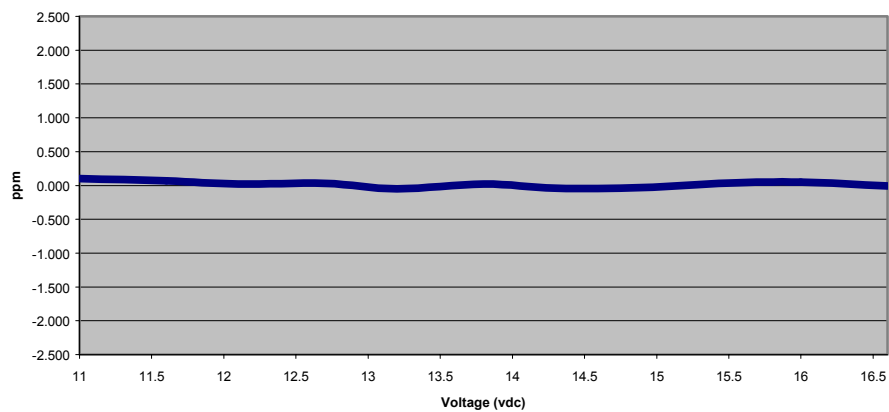




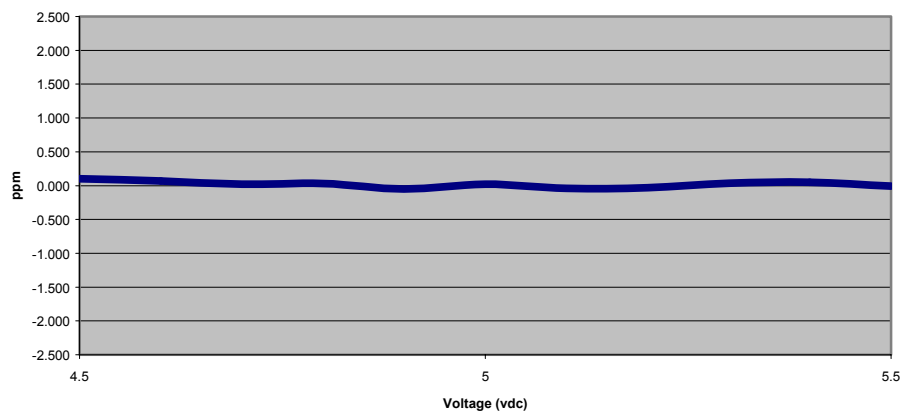
**EXHIBIT 10-3: VOLTAGE FREQUENCY STABILITY - §2.1055; CDMA (800)**

| Voltage<br>(5V nom./13.8V nom.) | Temperature<br>(°C) | Freq. Error<br>(Hz) |
|---------------------------------|---------------------|---------------------|
| 4.5/11.0                        | 25                  | 85.8                |
| 4.6/11.6                        | 25                  | 57.0                |
| 4.7/12.1                        | 25                  | 18.6                |
| 4.8/12.7                        | 25                  | 27.4                |
| 4.9/13.2                        | 25                  | -42.0               |
| 5.0/13.8                        | 25                  | 17.3                |
| 5.1/14.3                        | 25                  | -32.7               |
| 5.2/14.9                        | 25                  | -26.7               |
| 5.3/15.5                        | 25                  | 30.8                |
| 5.4/16.0                        | 25                  | 41.6                |
| 5.5/16.6                        | 25                  | -4.7                |

**Voltage Frequency Stability**



**Voltage Frequency Stability**

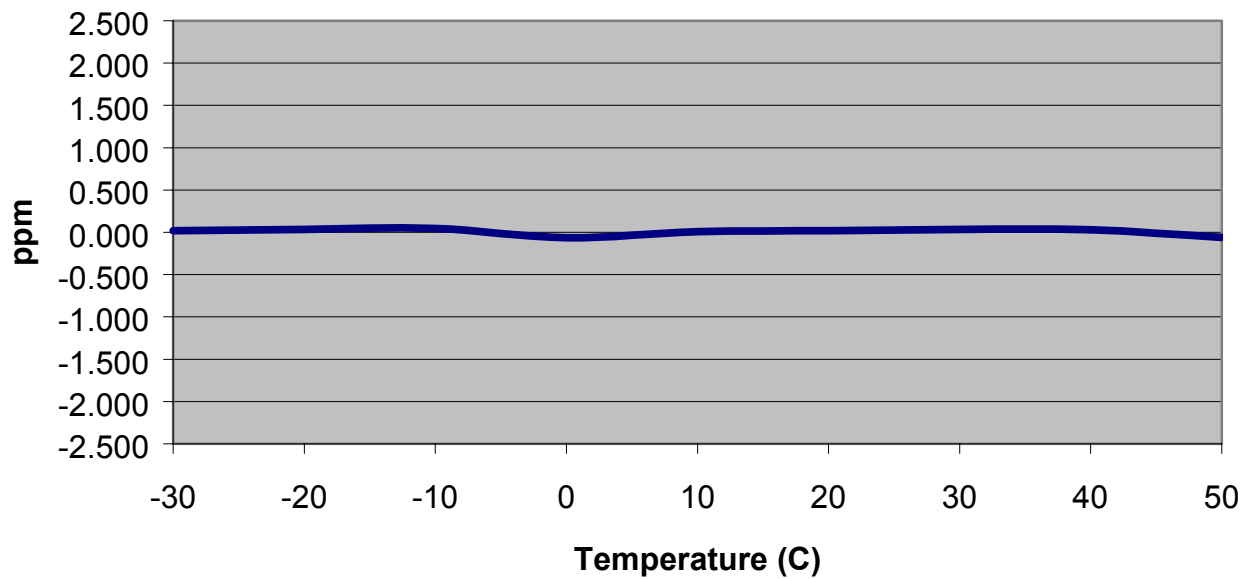




**EXHIBIT 10-4: TEMPERATURE FREQUENCY STABILITY - §2.1055; CDMA (800)**

| (°C) | (5V nom./13.8V nom.) | (Hz)  |
|------|----------------------|-------|
| -30  | 5.0/13.8             | 15.2  |
| -20  | 5.0/13.8             | 27.5  |
| -10  | 5.0/13.8             | 37.8  |
| 0    | 5.0/13.8             | -53.7 |
| 10   | 5.0/13.8             | 6.4   |
| 20   | 5.0/13.8             | 17.2  |
| 30   | 5.0/13.8             | 28.0  |
| 40   | 5.0/13.8             | 26.0  |
| 50   | 5.0/13.8             | -50.1 |

**Temperature Frequency Stability**

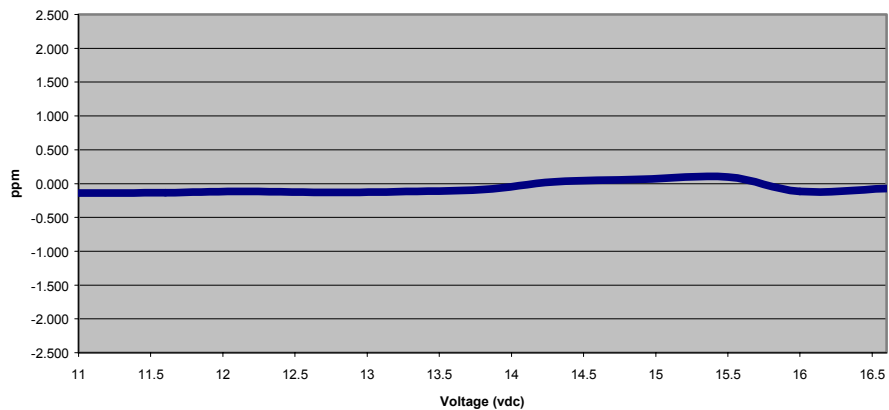




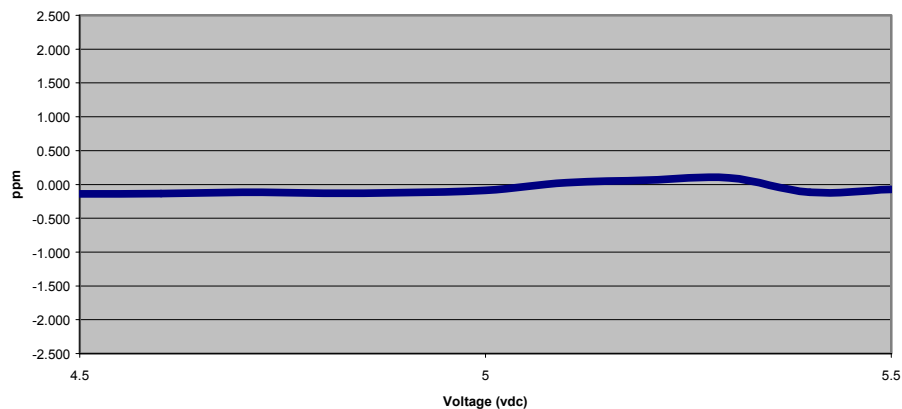
**EXHIBIT 10-5: VOLTAGE FREQUENCY STABILITY - §2.1055; CDMA (1900)**

| Voltage<br>(5V nom./13.8V nom.) | Temperature<br>(°C) | Freq. Error<br>(Hz) |
|---------------------------------|---------------------|---------------------|
| 4.5/11.0                        | 25                  | -117.7              |
| 4.6/11.6                        | 25                  | -112.7              |
| 4.7/12.1                        | 25                  | -95.0               |
| 4.8/12.7                        | 25                  | -109.4              |
| 4.9/13.2                        | 25                  | -100.1              |
| 5.0/13.8                        | 25                  | -71.3               |
| 5.1/14.3                        | 25                  | 21.7                |
| 5.2/14.9                        | 25                  | 54.3                |
| 5.3/15.5                        | 25                  | 80.0                |
| 5.4/16.0                        | 25                  | -97.0               |
| 5.5/16.6                        | 25                  | -61.8               |

**Voltage Frequency Stability**



**Voltage Frequency Stability**

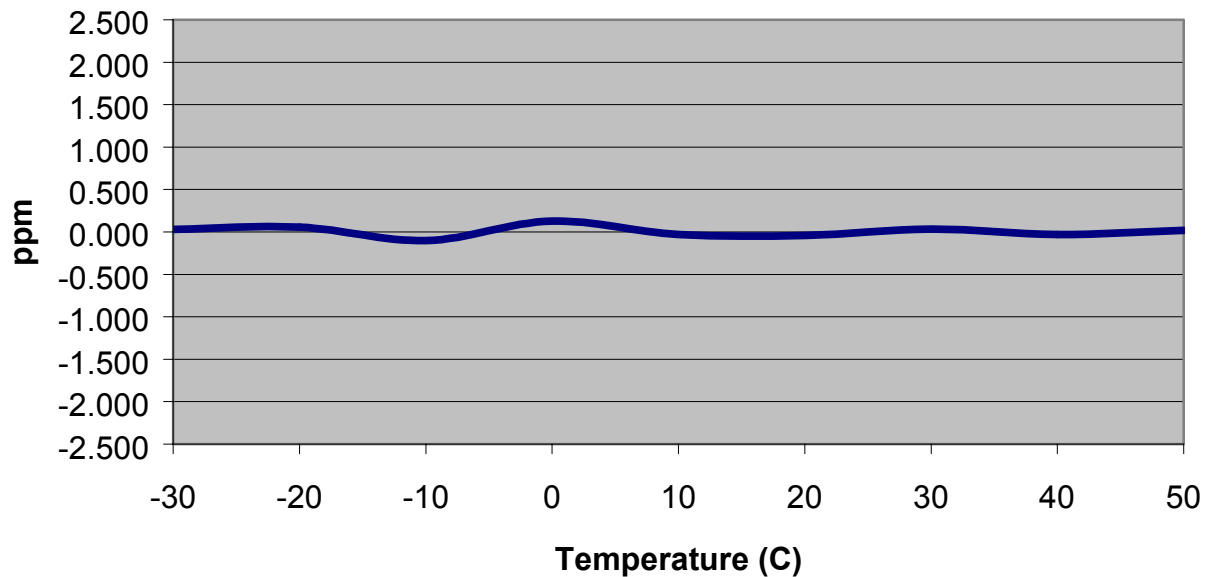




**EXHIBIT 10-6: TEMPERATURE FREQUENCY STABILITY - §2.1055; CDMA (1900)**

| (°C) | (5V nom./13.8V nom.) | (Hz)  |
|------|----------------------|-------|
| -30  | 5.0/13.8             | 26.6  |
| -20  | 5.0/13.8             | 48.5  |
| -10  | 5.0/13.8             | -85.1 |
| 0    | 5.0/13.8             | 107.2 |
| 10   | 5.0/13.8             | -25.4 |
| 20   | 5.0/13.8             | -35.3 |
| 30   | 5.0/13.8             | 28.4  |
| 40   | 5.0/13.8             | -23.8 |
| 50   | 5.0/13.8             | 16.5  |

**Temperature Frequency Stability**





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Exhibit 1

## 11 CONCLUSION

The data in this measurement report shows that the Sony Ericsson Mobile Communications (USA, Inc.), CM-42 FCC ID: AXATR-423-A2 complies with all the requirements of Parts 2 and 22.901 of the FCC Rules and Industry Canada RSS-129.