Exhibit 6

# INDEX OF TEST RESULTS

**Exhibit #**   **Description**

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**6B**      **800 MHz band / Part 22 / AMPS : Modulation Characteristics**

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**6L**      **800 MHz band / Part 22 / DAMPS : Frequency Stability**

Exhibit 6A1

## 800 MHz AMPS RF POWER OUTPUT

**Para. 2.1046 (a) and 22.913 (a)**

The RF power at the band center, 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 level.
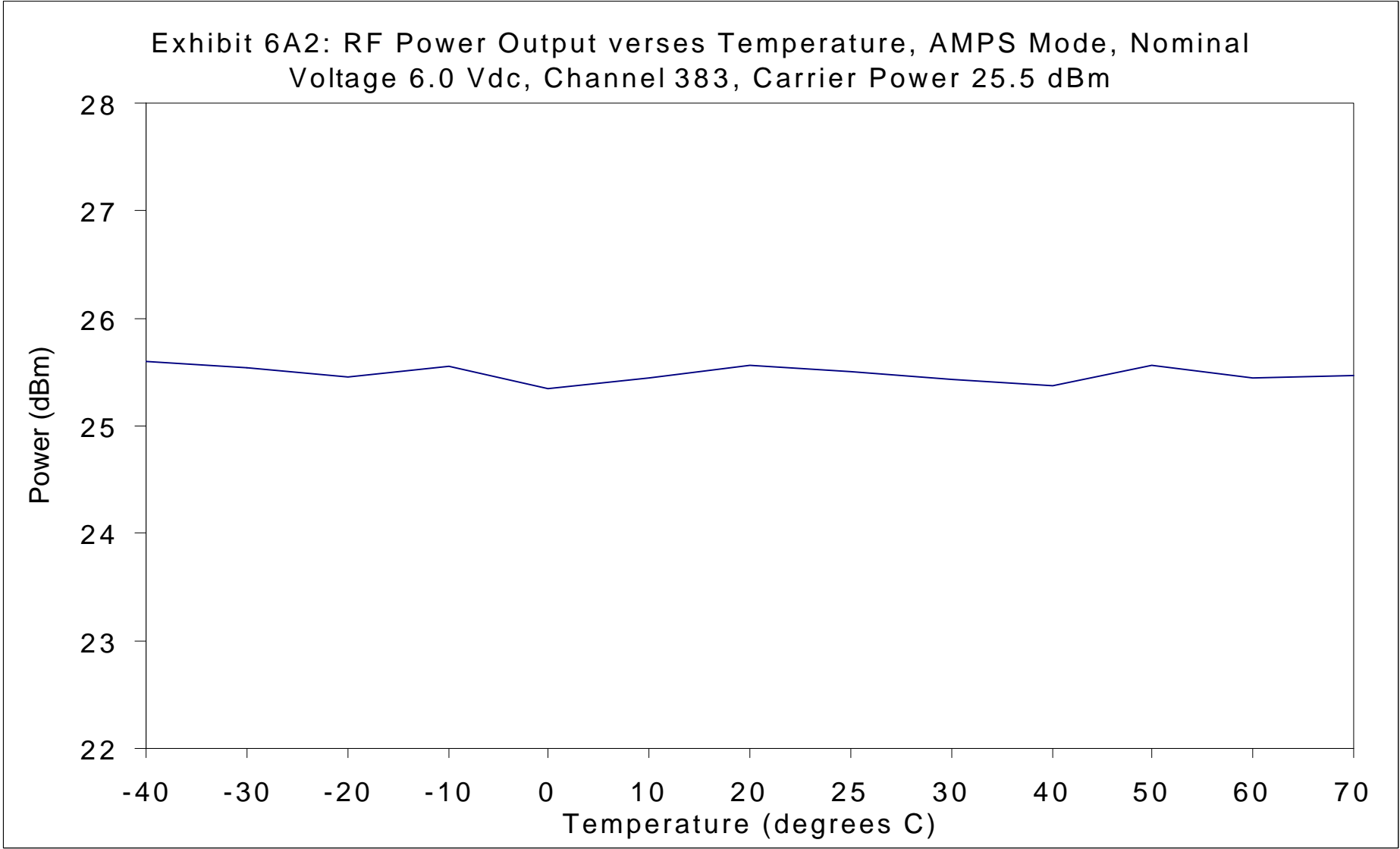
| Exhibit | Input Voltage | Temperature | $P_o$ | Modulation (Freq) | Power Level |
|---|---|---|---|---|---|
| 6A2 | 6.0 | Varied | 0.355 W | Analog (800) | 0 (CLASS 4) |
| 6A3 | 6.0 Varied $\pm$ 15% | +25 C | 0.355 W | Analog (800) | 0 (CLASS 4) |

Note: The 6V input voltage is varied $\pm$ 15%, even though the manufacturer's rated supply voltage is 5.2 VDC to 6.8 VDC.  The manufacturer's specified temperature range is –40 $^o$C to +70 $^o$C.  The output power is calibrated at the center of the band at room temperature.

These measurements were made per EIA/TIA IS-137A using the following equipment:

Anritsu MT8801B          Radio Communication Analyzer
HP E3632A                DC Power Supply (2)
ESPEC Model SH-240  Temperature Chamber

The DM10 Transceiver has been designed as an OEM module for use by various OEM integrators.  The transmitter section delivers up to 0.355 watts of output power to an RF connector designed for attachment to a customer-supplied cable and antenna. Since an antenna and cable are not provided to the customer, the substitution method per IS-137A of measuring effective radiated power data, and a comparison to SAR measurements, is not available.
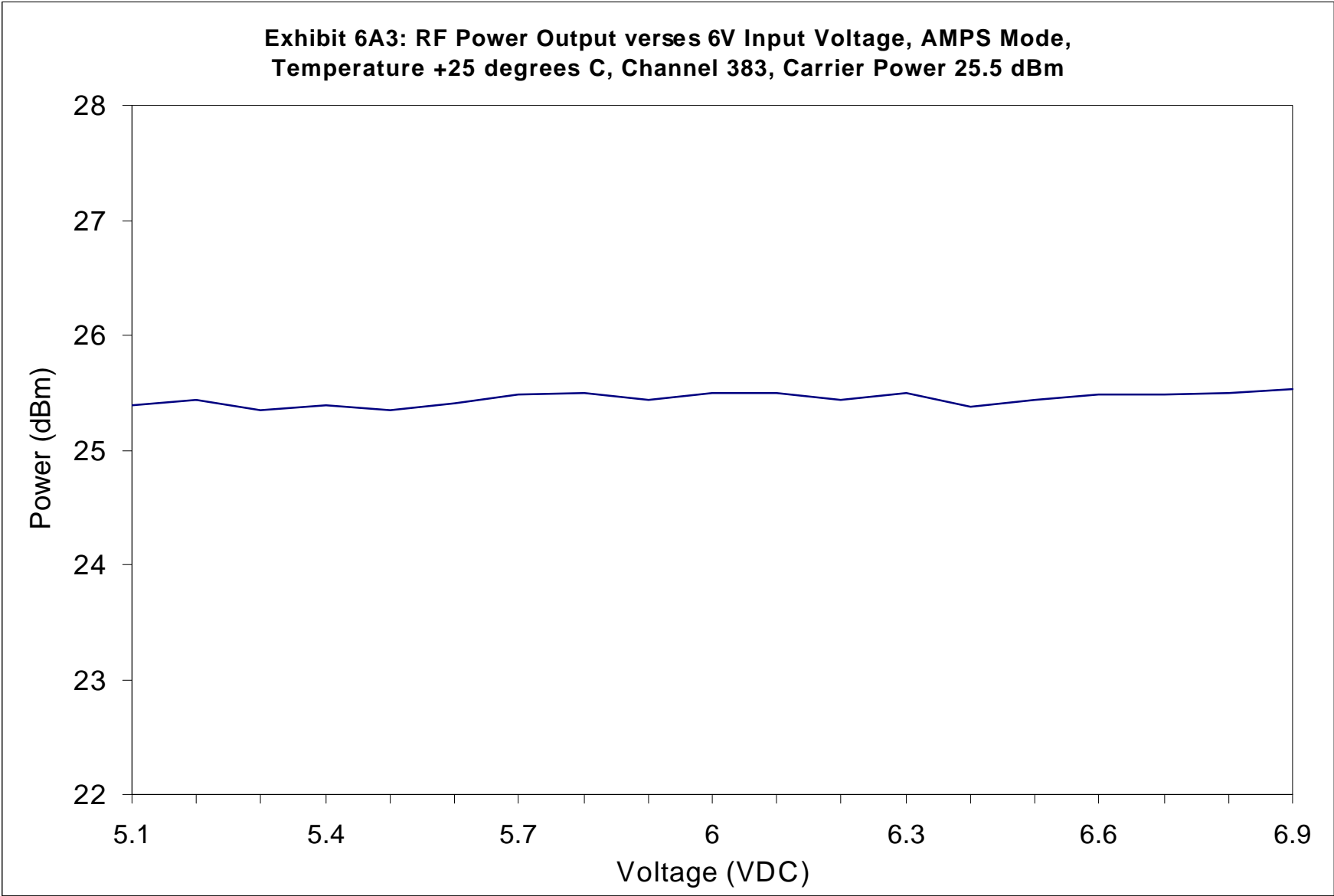
## Exhibit 6A2: RF Power Output verses Temperature, AMPS Mode, Nominal Voltage 6.0 Vdc, Channel 383, Carrier Power 25.5 dBm

**Exhibit 6A3: RF Power Output verses 6V Input Voltage, AMPS Mode,
Temperature +25 degrees C, Channel 383, Carrier Power 25.5 dBm**

Exhibit 6B1

## 800 MHz AMPS MODULATION CHARACTERISTICS

**Para. 2.1047 (a), (b) and 22.915 (b)(1), (d)(1)**

The frequency and amplitude response to audio inputs measured per TIA/EIA IS-137A are shown on the following:
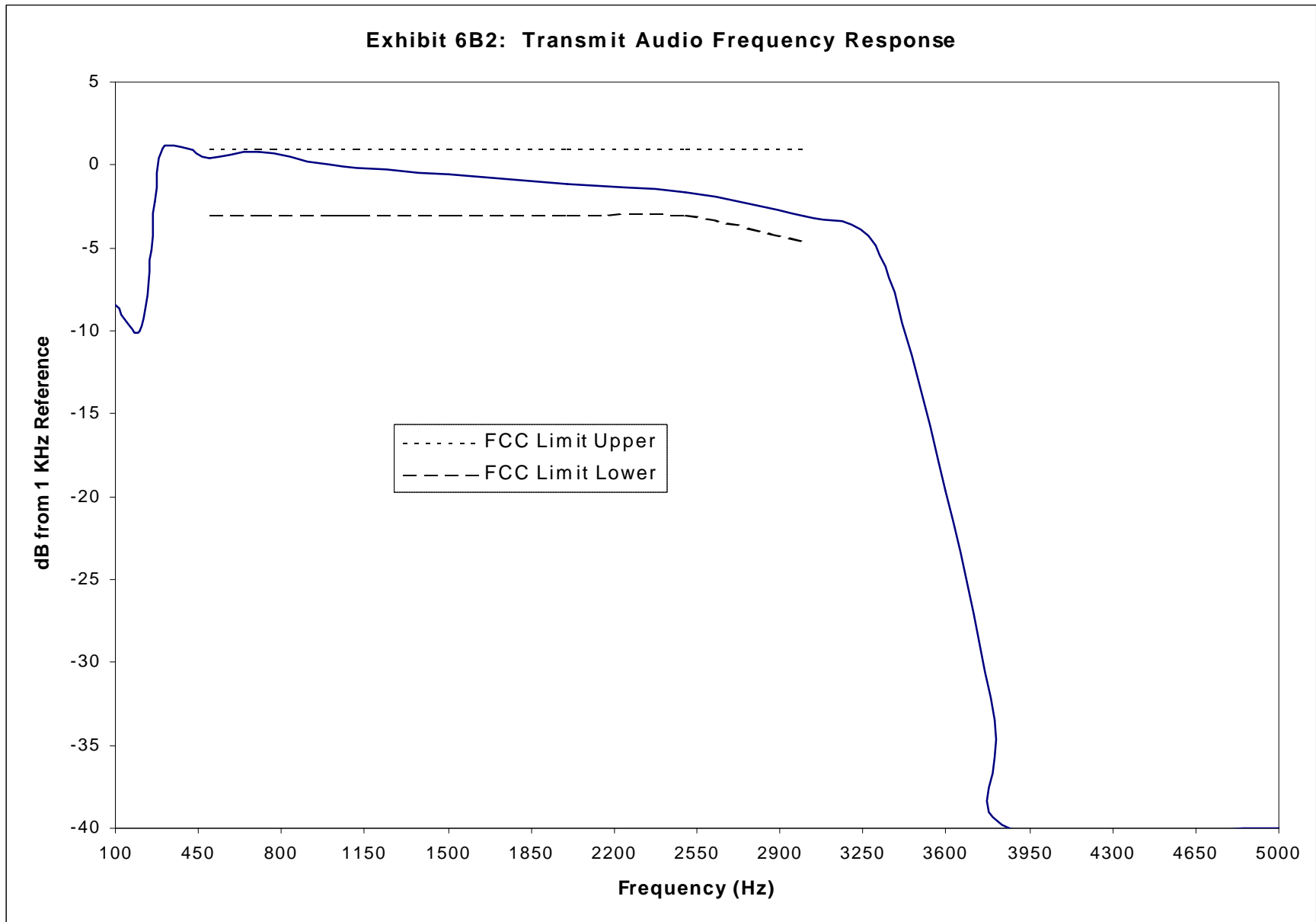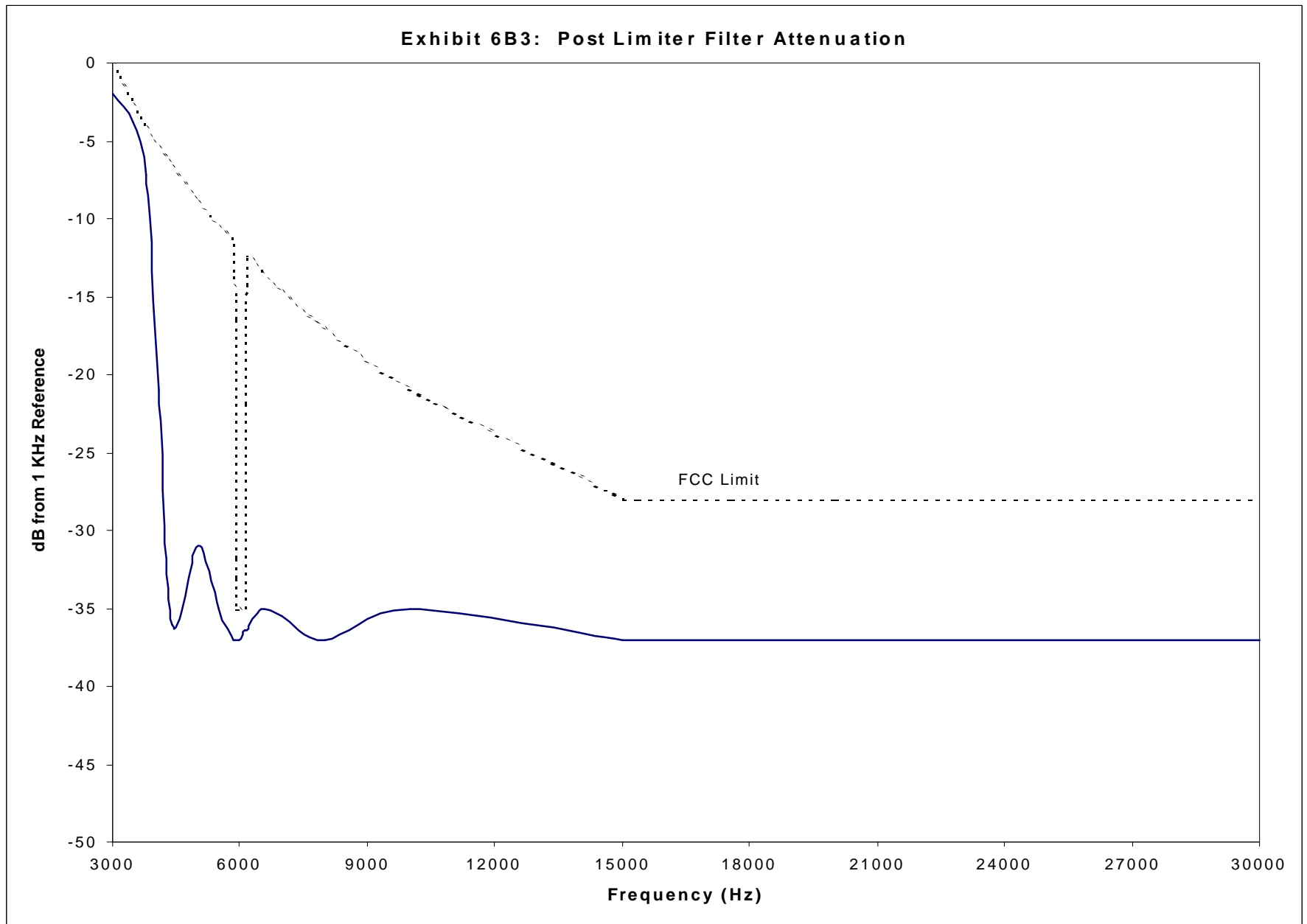
Exhibit #

| 6B2 | Transmit Audio Frequency Response | 2.1047 (a) | IS-137A para. 3.3.1.2.2.2 |
| 6B3 | Post Limiter Filter Attenuation | 22.915 (d)(1) | IS-137A para. 3.3.1.2.2.2 |
| 6B4 | Modulation Limiting vs. Input Voltage | 2.1047 (b) | |

NOTE:  Exhibit 6B4 Modulation Limiting versus Input Signal – the plot includes the audio frequency (1800 Hz) that produced the highest level of deviation.

These measurements were made per TIA/EIA IS-137A using the following equipment:

| HP8901B | Modulation Analyzer |
| HP8903B | Audio Analyzer |
| HP8904A | Multifunction Synthesizer |
| HP E3632A | DC Power Supply (2) |

**Exhibit 6B2: Transmit Audio Frequency Response**

**Exhibit 6B3:  Post Limiter Filter Attenuation**



FCC Limit

dB from 1 KHz Reference

Frequency (Hz)
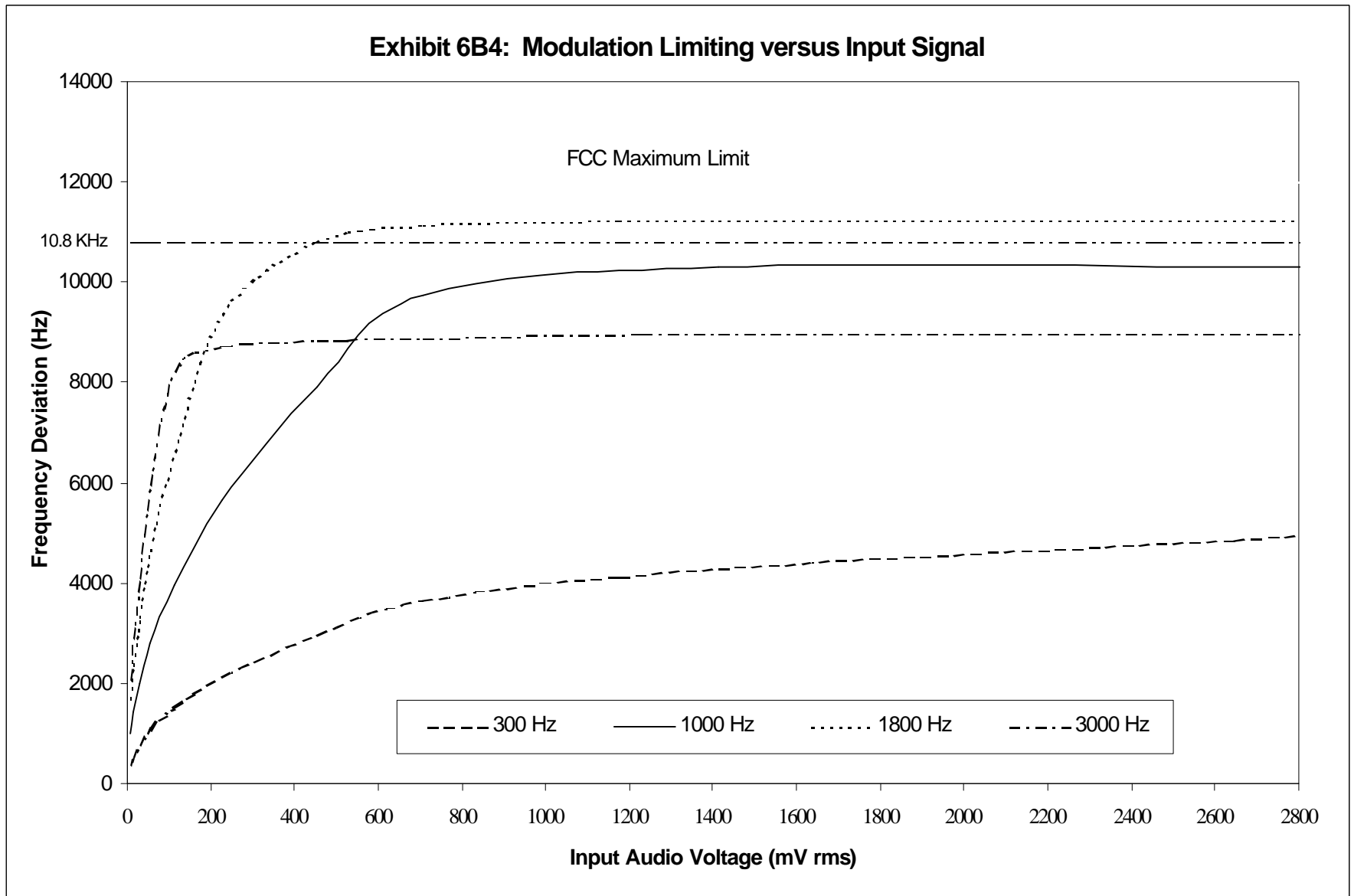
Exhibit 6B4:  Modulation Limiting versus Input Signal

Exhibit 6C1

# OCCUPIED BANDWIDTH

Per 2.1049 (c) (1) and 22.917 (d), the exhibits presented show the modulations that co-exist in a cellular system:

| Exhibit # | Description | Power Level | Frequency (MHz) |
|-----------|-------------|-------------|-----------------|
| 6C2 | Unmodulated Carrier | 0, CLASS 4 | 836.52 MHz |
| 6C3 | SAT and Voice | 0, CLASS 4 | 836.52 MHz |
| 6C4 | SAT and Signal Tone | 0, CLASS 4 | 836.52 MHz |
| 6C5 | SAT and DTMF #3 | 0, CLASS 4 | 836.52 MHz |
| 6C6 | SAT and 10kb/s Wideband Data | 0, CLASS 4 | 836.52 MHz |

These measurements were made per EIA/TIA IS-137A using the following equipment:

| | |
|---|---|
| Anritsu MT8801B | Radio Communication Analyzer |
| HP8593E | Spectrum Analyzer |
| HP E3632A | DC Power Supply (2) |

**Exhibit 6C2**: Unmodulated Carrier.  Class 4 Power Level 0 = 0.355 W
Carrier Frequency 836.52

MKR:836.5192MHz
    24.21dBm
RLV: 34.30dBm

RB 300Hz#   AT 50dB
VB 300Hz#   ST 6.7s#

10dB/

Tr-A
Band 1

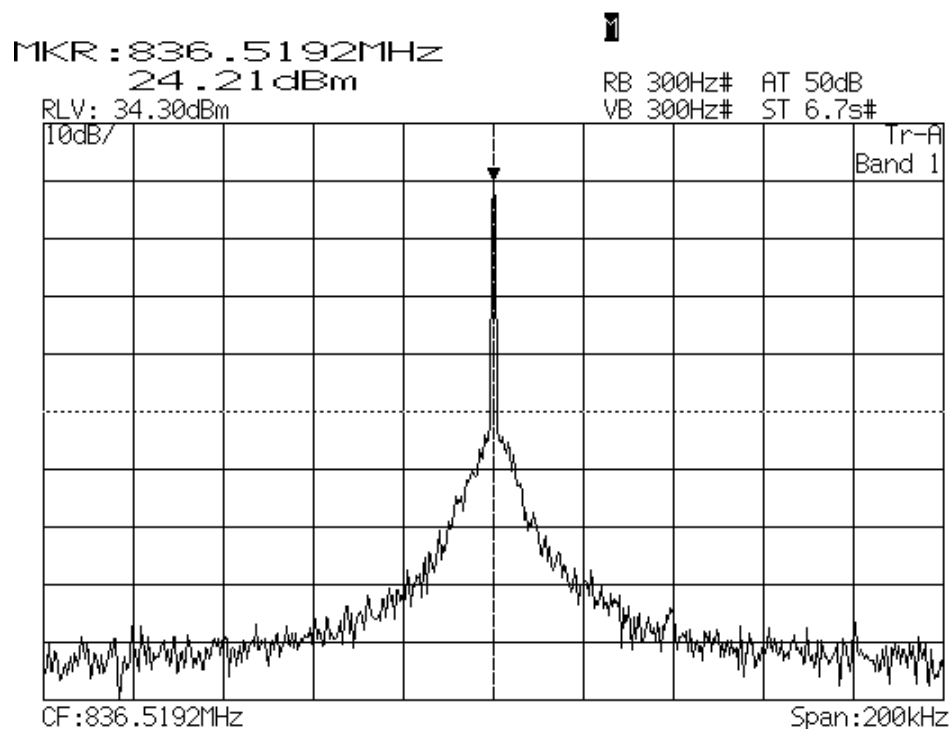CF:836.5192MHz                                      Span:200kHz

**Exhibit 6C3**: CLASS 4 Power Level 0 = 0.355 W
Carrier Frequency 836.52 MHz, F3E Emission Mask
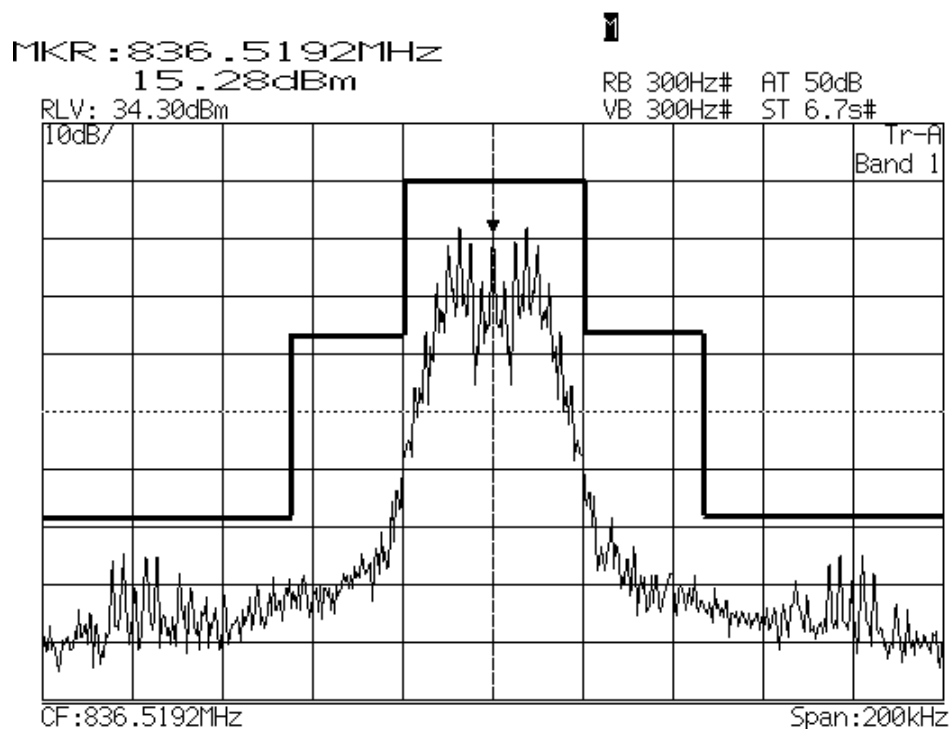Voice Tone 2500Hz, SAT 6000Hz, Total Deviation 11000Hz

**Exhibit 6C4**: Class 4 Power Level 0 = 0.355 W
Carrier Frequency 836.52 MHz
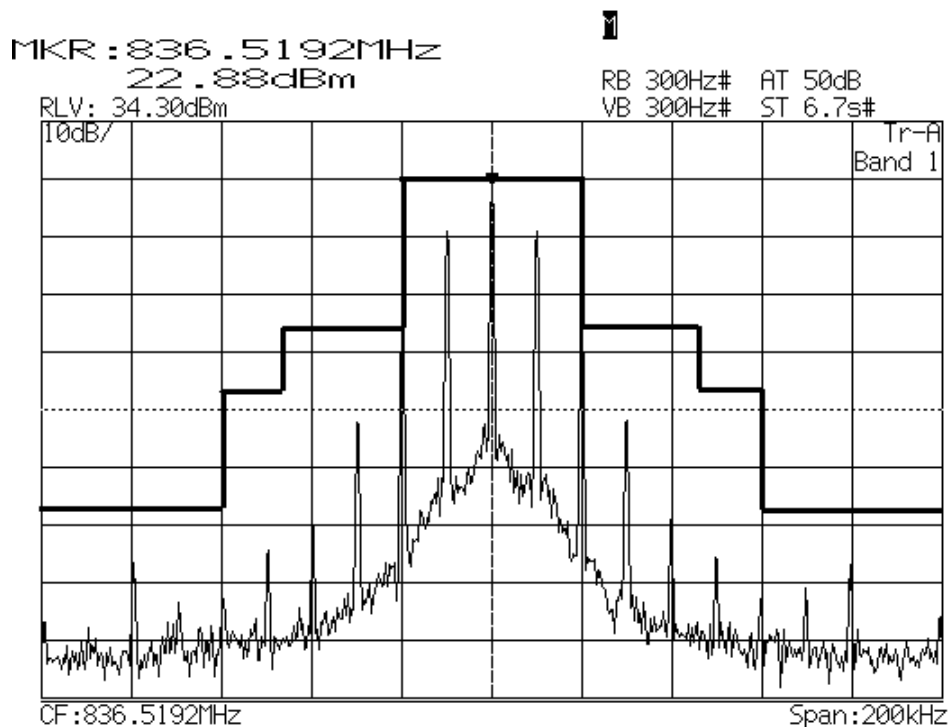SAT and Signaling Tone,  F3E Emission Mask

MKR:836.5192MHz
22.88dBm
RLV: 34.30dBm

RB 300Hz#   AT 50dB
VB 300Hz#   ST 6.7s#

10dB/

Tr-A
Band 1

CF:836.5192MHz                                          Span:200kHz

**Exhibit 6C5**: Class 4 Power Level 0/2 = 0.355 W
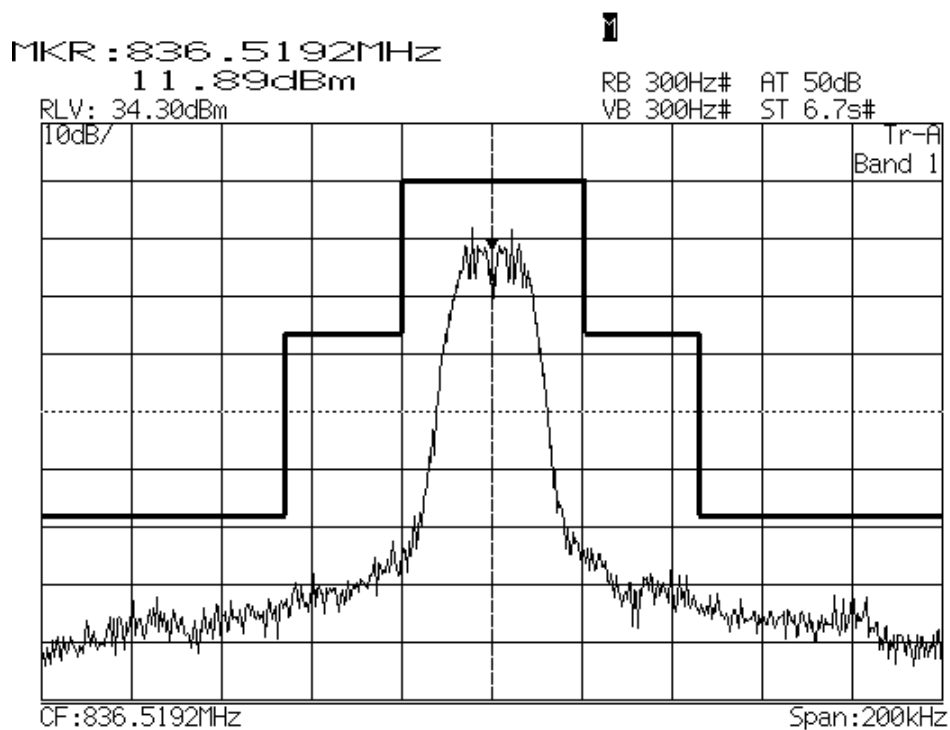Carrier Frequency 836.52 MHz
SAT and DTMF#3, F3E Emission Mask

**Exhibit 6C6**: Class 4 Power Level 0 = 0.355 W
Carrier Frequency 836.52 MHz
SAT and Wideband 10kb/s Digital data, F1D Emission Mask



MKR:836.5192MHz
16.50dBm
RLV: 34.30dBm
10dB/

RB 300Hz#   AT 50dB
VB 300Hz#   ST 6.7s#
Tr-A
Band 1

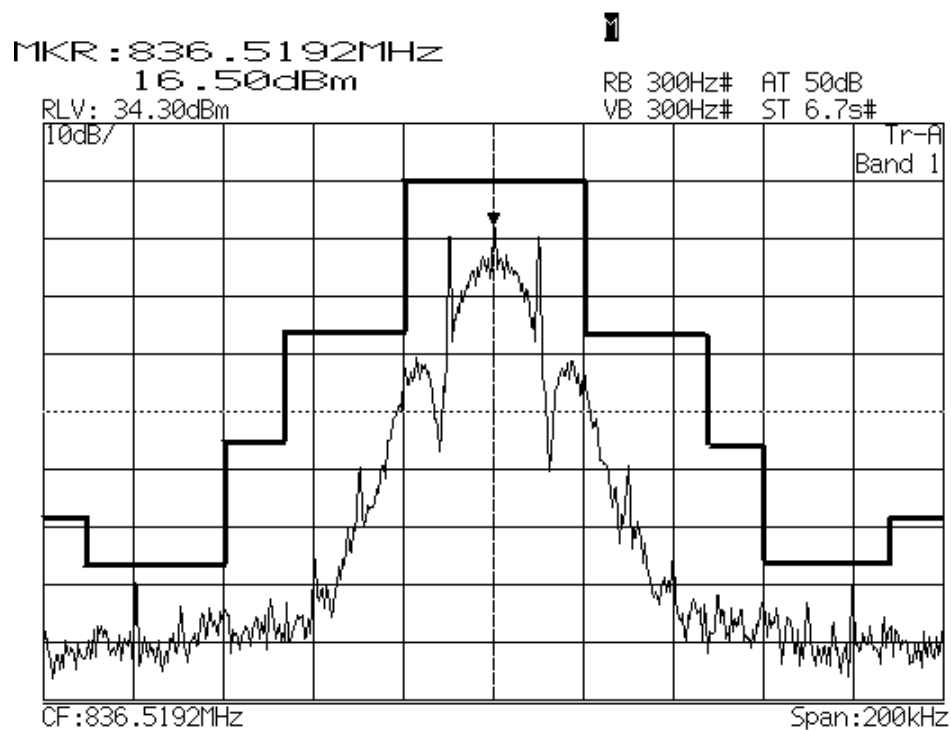CF:836.5192MHz                                        Span:200kHz

Exhibit 6D1

## 800 MHz AMPS SPURIOUS EMISSIONS (CONDUCTED)

Per 2.1051 Conducted Spurious emissions were measured at the antenna connector with a spectrum analyzer per EIA/TIA IS-137A.
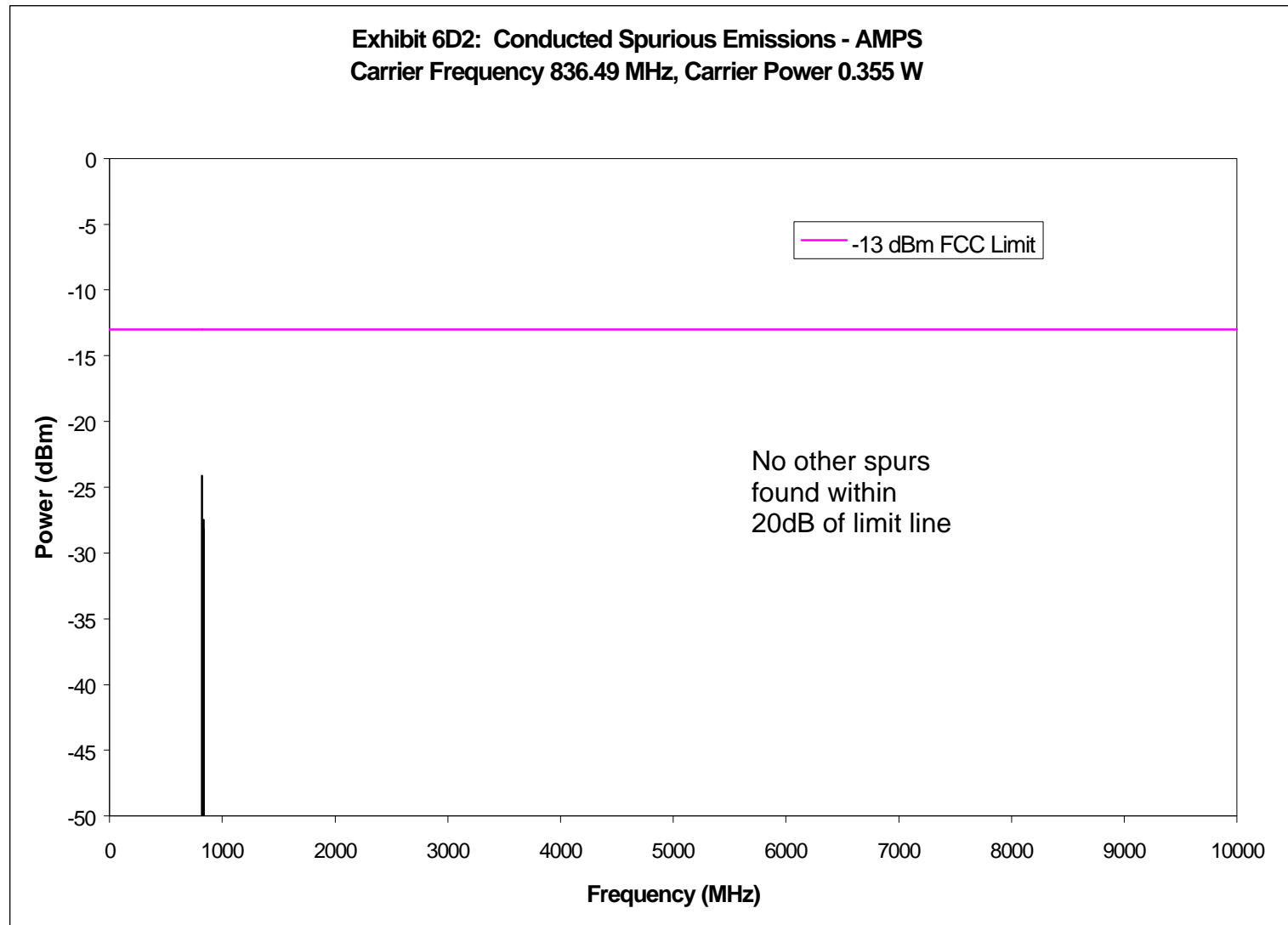
| EXHIBIT # | FREQUENCY | Output Power |
|-----------|-----------|--------------|
| 6D2 | 836.49 MHz | .355 W (CLASS 4 PL0) |
| 6D3 | 836.49 MHz | .005 W (CLASS 4 PL7) |

Note:  The spectrum was examined through the 10th harmonic of the carrier at the highest and lowest power level at the center of the band.  Measurements recorded are peak measurements.

These measurements were made per EIA/TIA IS-137A using the following equipment:

    HP8593E        Spectrum Analyzer
    HP E3632A      DC Power Supply (2)

Per 22.917 (f), the transmitter emissions in the base station transmit frequency range (869 – 894 MHz) have been verified to be attenuated below –80 dBm.

**Exhibit 6D2:  Conducted Spurious Emissions - AMPS
Carrier Frequency 836.49 MHz, Carrier Power 0.355 W**



No other spurs
found within
20dB of limit line

**Exhibit 6D3:  Conducted Spurious Emissions - AMPS**
**Carrier Frequency 836.49 MHz, Carrier Power 0.005 W**



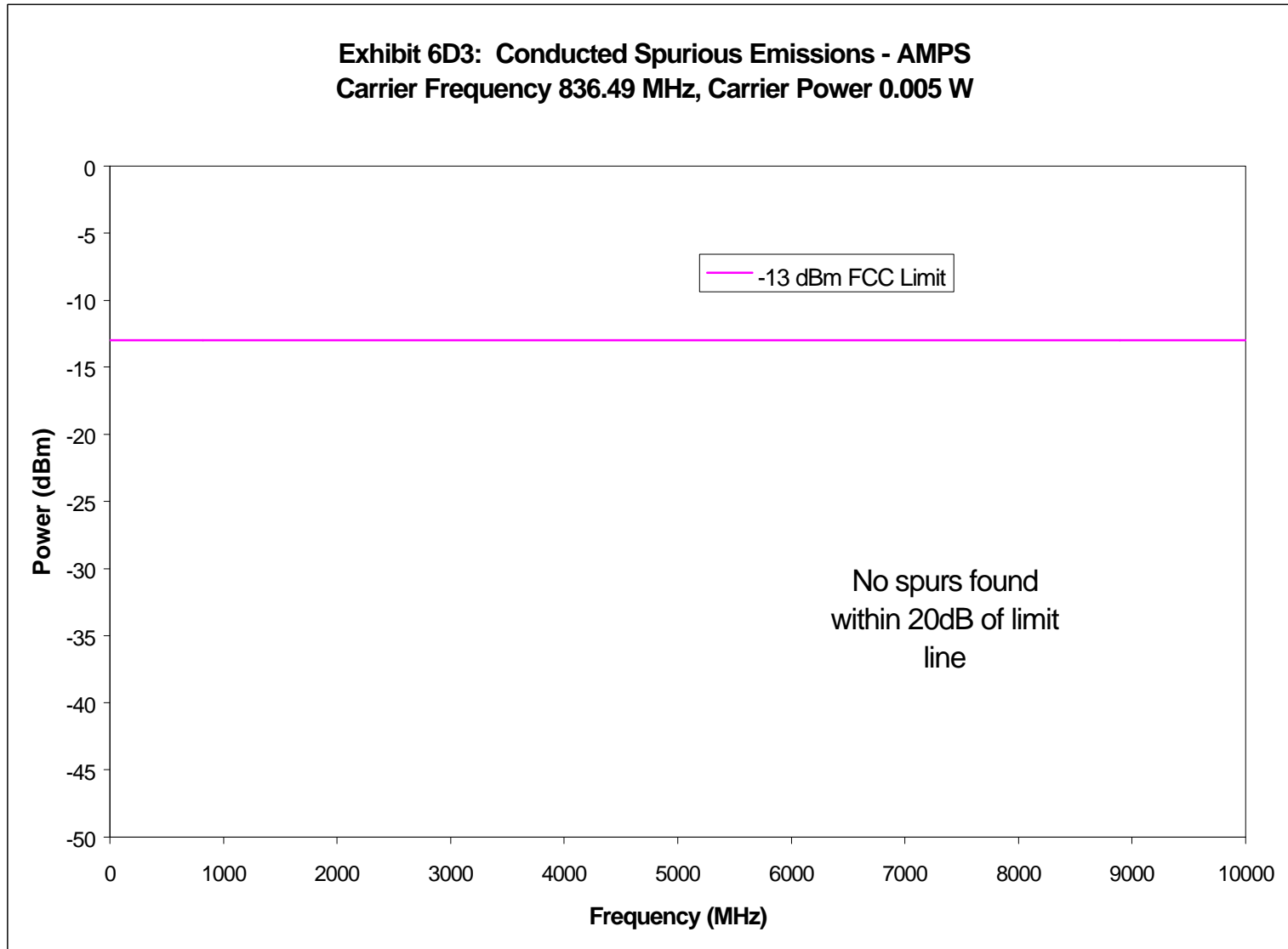No spurs found
within 20dB of limit
line

Exhibit 6E1

## 800 MHz AMPS SPURIOUS EMISSIONS  (Radiated)

Per 2.1053 and 22.917 (e), field strength of spurious radiation was measured at Underwriters Laboratories Inc. Research Triangle Park, NC site.  Underwriter Laboratories Inc. Research Triangle site is NVLAP and FCC registered.  The measurement procedure is per EIA/TIA IS-137A conducted on a 3 meter test site. Results are shown on the following Exhibits.

Note:  The spectrum was examined through the 10th harmonic of the carrier at the highest power level fat low, middle, and high ends of the band.  The worst case plots is shown below.  Measurements recorded are peak measurements.

| EXHIBIT | FREQUENCY | OUTPUT POWER |
|---------|-----------|--------------|
| 6E2 | 824 MHz | 0.355 W |

The measurements were made per EIA/TIA IS-137A using the following equipment:

**Receive Equipment:**

| Item | Description | Manufacturer |
|------|-------------|--------------|
| ATA033 | 52 ft Cable, N-N | UL |
| ATA034 | 52 ft Cable, N-N | UL |
| AT0020 | Horn Antenna, 1-18 GHz | Electro-metrics |
| SAR001 | EMI Receiver | Hewlett-Packard |

**For Substitution Calibration:**

| Item | Description | Manufacturer |
|------|-------------|--------------|
| FGR022 | Signal Generator | Hewlett-Packard |
| ATA055 | 6 ft Cable, N-N | UL |
| AT0005 | Horn Antenna, 1-18 GHz | Electro-metrics |

**Exhibit 6E2:  Radiated Spurious Emissions - AMPS**
**Carrier Frequency 824 MHz, Carrier Power +25.5 dBm**

——— -13 dBm FCC Limit

No other spurs found
within 20dB of limit line
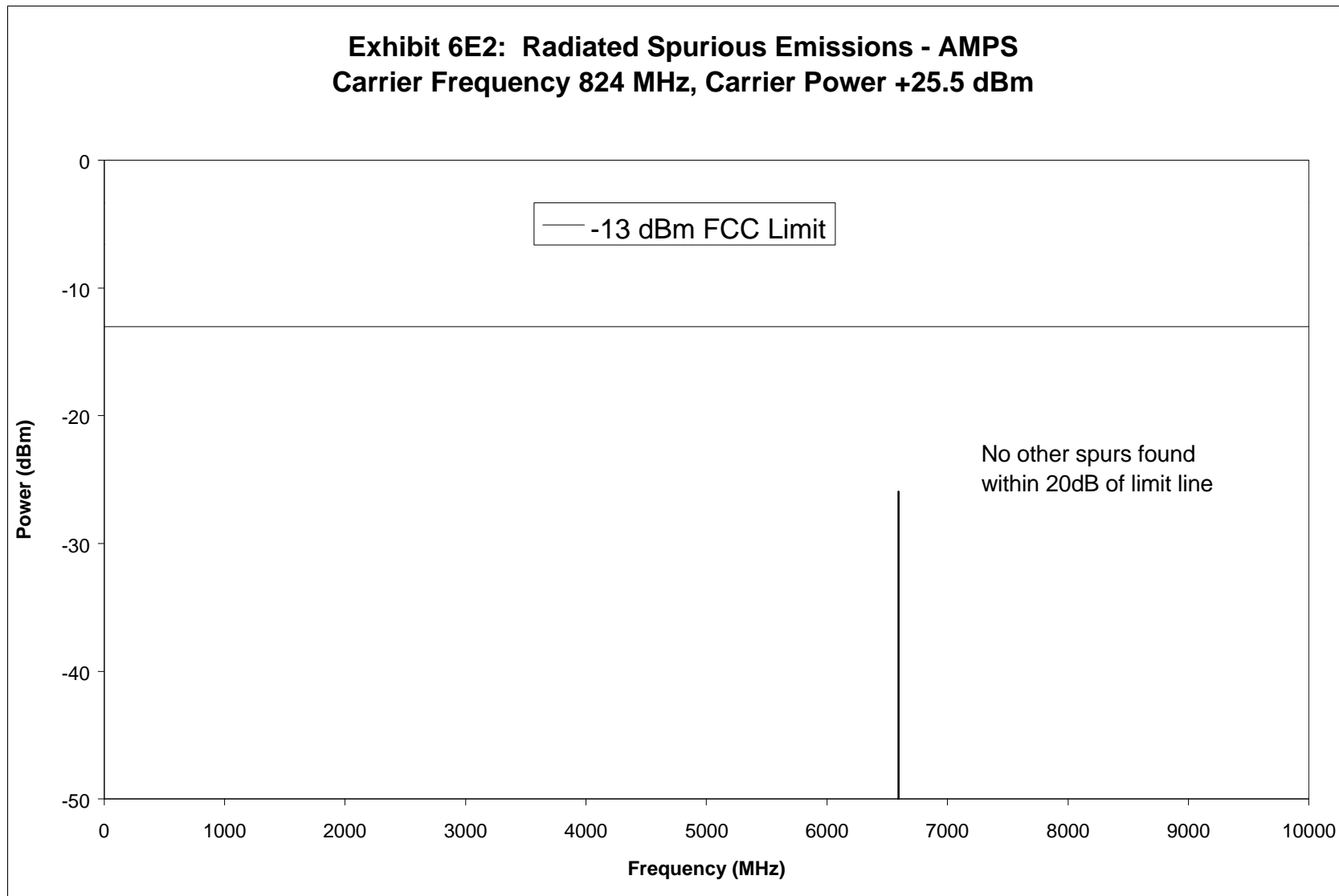
Power (dBm)

Frequency (MHz)

EXHIBIT 6F1                    **800 MHz AMPS FREQUENCY STABILITY**
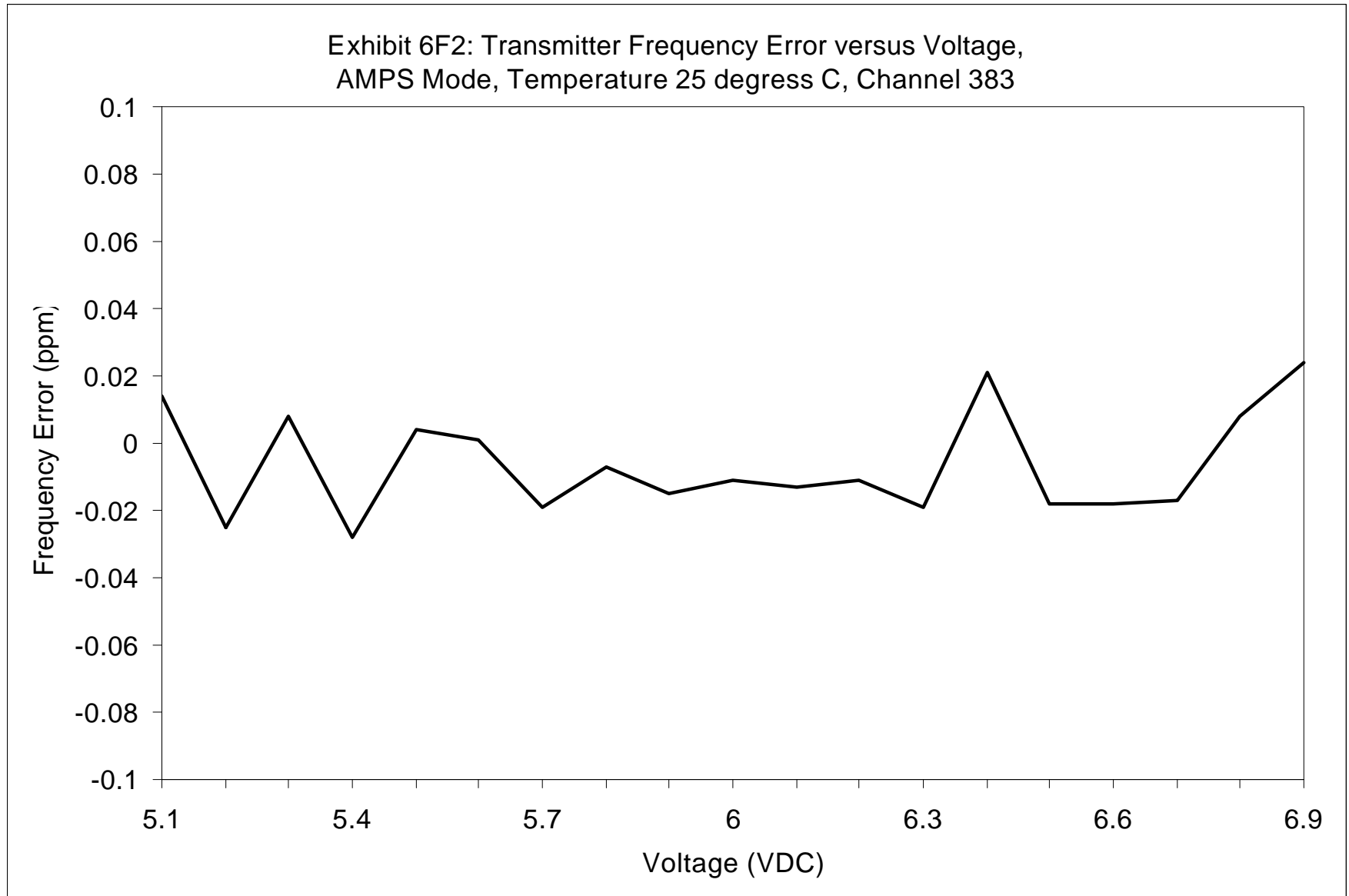
Per 2.1055 (a)(1),(b),(d)(1)

Variation of output frequency as a result of varying voltage or temperature is shown in Exhibits 6F2 and 6F3.

| EXHIBIT # | Input Voltage | Temperature | Mode | Frequency |
|-----------|---------------|-------------|------|-----------|
| 6F2 | 6.0 V Varied $\pm$ 15% | +25 $^o$C | Analog (CLASS 4) | 836.49 MHz |
| 6F3 | 6.0 VDC | Varied | Analog (CLASS 4) | 836.49 MHz |

Note:   The 6V input voltage is varied $\pm$ 15%, even though the manufacturer's rated supply voltage is 5.2 VDC to 6.8 VDC. The manufacturer's specified temperature range is –40 $^o$C to +70 $^o$C.

These measurements were made per EIA/TIA IS-137A using the following equipment:

Anritsu MT8801B        Radio Communication Analyzer
HP E3632A              DC Power Supply (2)
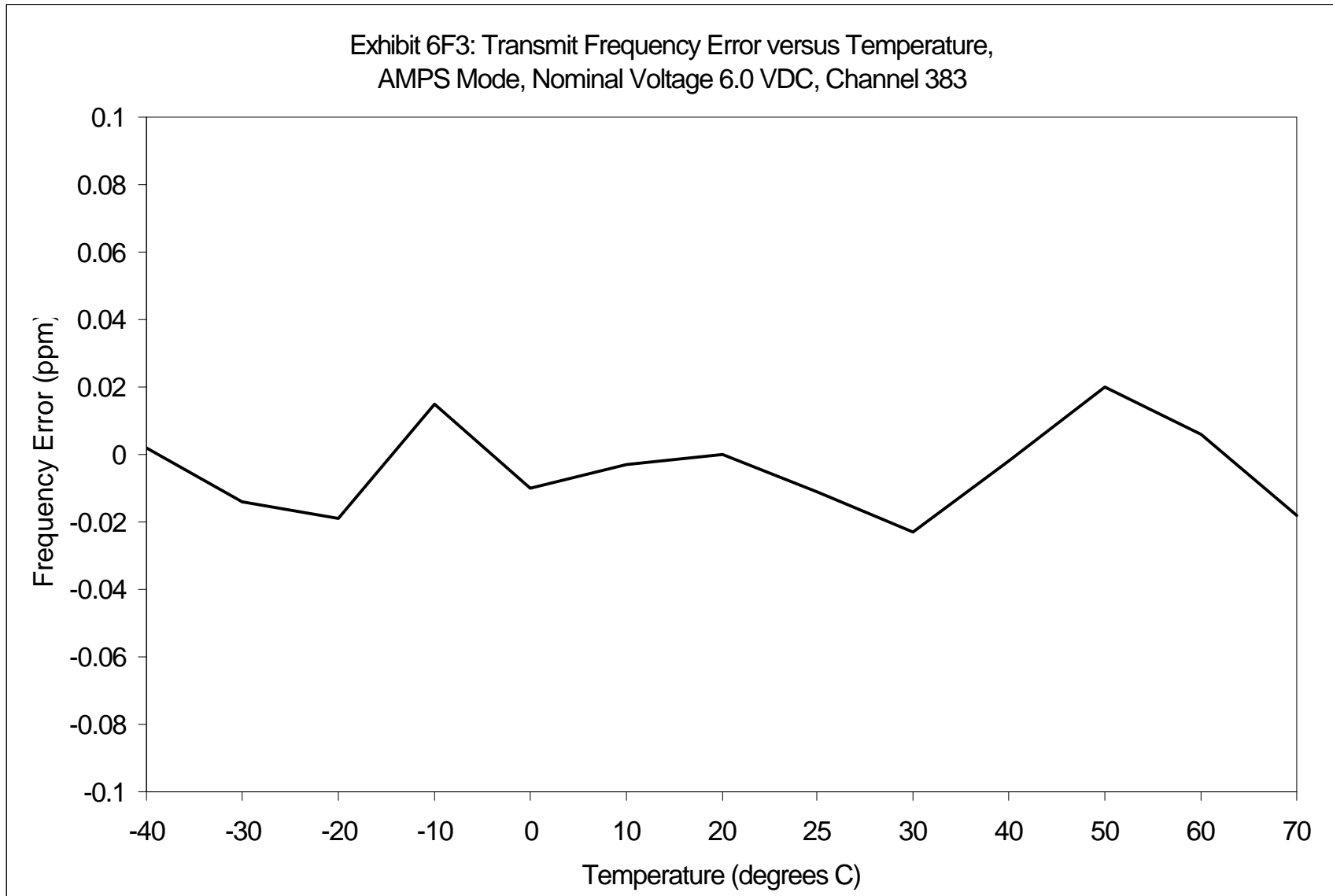ESPEC Model SH-240  Temperature Chamber

Exhibit 6F2: Transmitter Frequency Error versus Voltage, AMPS Mode, Temperature 25 degress C, Channel 383

Exhibit 6F3: Transmit Frequency Error versus Temperature, AMPS Mode, Nominal Voltage 6.0 VDC, Channel 383

Exhibit 6G1

## 800 MHz DAMPS RF POWER OUTPUT

**Para. 2.1046 (a) and 22.913 (a)**

The RF power at the band center, 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 level.
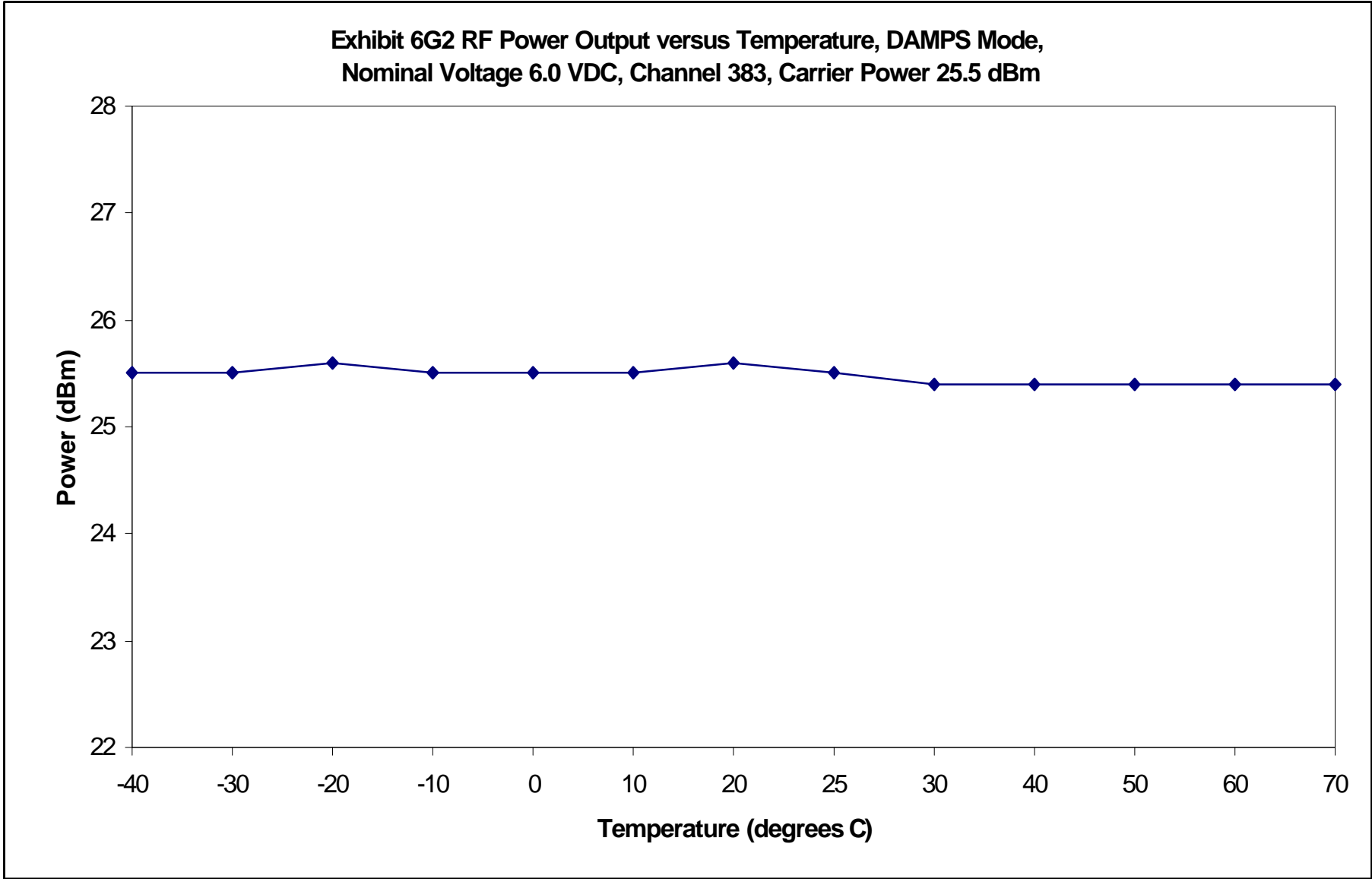
| Exhibit | Input Voltage | Temperature | $P_o$ | Modulation (Freq) | Power Level |
|---------|---------------|-------------|-------|-------------------|-------------|
| 6G2 | 6.0 | Varied | 0.355 W | Digital (800) | 0 (CLASS 4) |
| 6G3 | 6.0 Varied $\pm$ 15% | +25 C | 0.355 W | Digital (800) | 0 (CLASS 4) |

Note: The 6V input voltage is varied $\pm$ 15%, even though the manufacturer's rated supply voltage is 5.2 VDC to 6.8 VDC.  The manufacturer's specified temperature range is –40 $^o$C to +70 $^o$C.  The output power is calibrated at the center of the band at room temperature.

These measurements were made per EIA/TIA IS-137A using the following equipment:

Anritsu MT8801B          Radio Communication Analyzer
HP E3632A                DC Power Supply (2)
ESPEC Model SH-240   Temperature Chamber

The DM20 Transceiver has been designed as an OEM module for use by various OEM integrators. Since an antenna and cable is not provided to the customer, the substitution method per IS-137A of measuring effective radiated power data is not available.
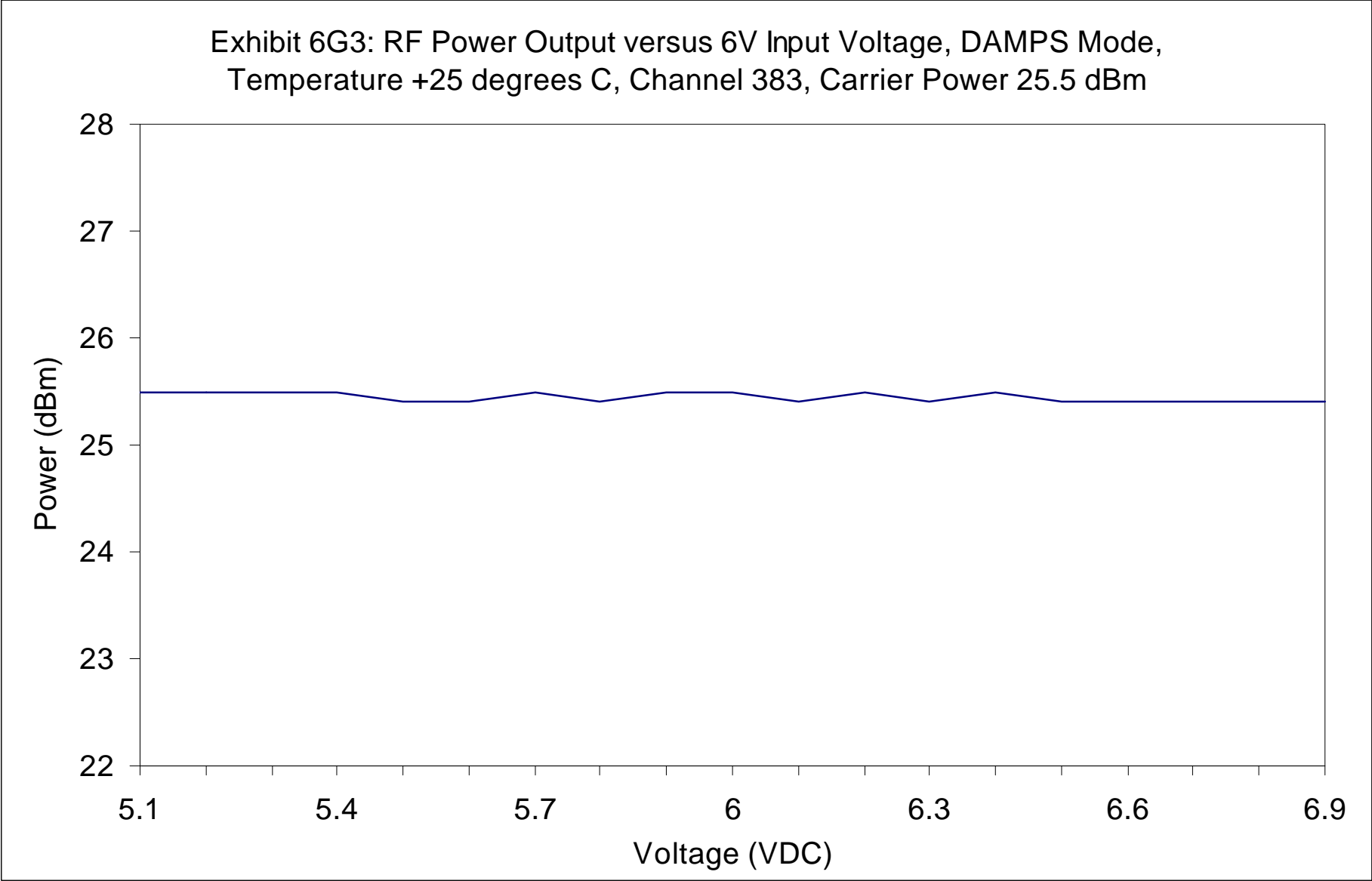
**Exhibit 6G2 RF Power Output versus Temperature, DAMPS Mode, Nominal Voltage 6.0 VDC, Channel 383, Carrier Power 25.5 dBm**

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Exhibit 6G3: RF Power Output versus 6V Input Voltage, DAMPS Mode,
Temperature +25 degrees C, Channel 383, Carrier Power 25.5 dBm

EXHIBIT 6H1

## 800 MHz: DAMPS MODULATION CHARACTERISTICS

Part 2.1047
**Definition**
The transceiver shall be capable of generating $\pi/4$ shifted differentially encoded quadrature phase shift keying signals.  The transmitted signal is given by:

$$S(t) = \sum_n g(t-nT) \cos(\phi n) \cos(\omega ct) - \sum_n g(t-nT) \sin(\phi n) \sin(\omega ct)$$

where g(t) is the pulse shaping function that corresponds to a square root raised cosine baseband filter with roll off factor of 0.35, $\omega c$ is the radian carrier frequency, T is the symbol period, and $\phi n$ is the absolute phase corresponding to the nth symbol interval.  The symbol rate (1/T) is 24.3 k symbols /sec.

The modulation accuracy requirement is specified by setting limits on the RMS difference between the actual transmitted signal waveform and the ideal signal waveform.  The ideal waveform is derived mathematically from the specification of modulation shown above.  The specified requirement is error vector magnitude.

For this measurement, frequency accuracy shall meet the requirements of Section 3.1 prior to measurement.

The average carrier frequency error is the difference between the average carrier frequency of the actual transmitted waveform and the average signal waveform carrier frequency.

The ideal modulation is defined above.  The definition is such that, observing an ideal transmitter through an ideal root raised-cosine receiver filter at the correct sampling instants one symbol apart would result in the sequence of values given by:

$$S(k)=S(k-1)e^{j\{\pi/4+B(k)*\pi/2\}}$$

where B(k) = 0,1,2,3 according to the following table:

| Xk | Yk | B(k) |
|----|----|----|
| 0  | 0  | 0  |
| 0  | 1  | 1  |
| 1  | 1  | 2  |
| 1  | 0  | 3  |

In the forward channel, S(k) forms part of a continuous data stream.  In the reverse channel, the transit bursts from the mobile are truncated by power up and down ramping.  In this case, S(6) is the first sample that enters into demodulation, which yields the first two information bits by comparing S(6) with S(7).  The last information bits lie in the comparison of S(162) and S(161).

The ideal transmit and receive filters in cascade form a raised cosine Nyquist filter having an impulse response going through zero at symbol period intervals, so there is no inter-symbol interference at the ideal sampling points.  The ideal signal sampler therefore, take on one of the eight values defined above, at the output of the receive filter.

This section defines how the output signal from a transmitter is to be evaluated against the ideal signal.

Let Z(k) be the complex vectors produced by observing the real transmitter through an ideal measuring receive filter at instants k, one symbol period apart.  With S(k) defined as above, the transmitter is modeled as:

$$Z(k) = [C0 + C1 * [S(k)+E(k)]] * W^k$$

where:

k = n/24.3KHz

$W = e^{dr=jda}$ accounts for both a frequency offset giving "da" radians per symbol phase rotation and an amplitude changes of "dr" nepers per symbol:

C0 is a constant origin offset representing quadrature modulator imbalance,
C1 is a complex constant representing the arbitrary phase and output power of the transmitter, and
E(k) is the residual vector error on sample S(k)

The sum square vector error is then:

$$\sum_{k=MIN}^{k=MAX} |E(k)|2 \qquad \sum_{k=MIN}^{k=MAX} |\{[Z(k) * W^{-k} -C0]/C1\} -S(k)|$$

C0, C1 and W shall be chosen to minimize this expression and are then used to compute the individual vector errors E(k) on each symbol.  The symbol timing phase of the receiver output samples used to compute the vector error shall also be chosen to give the lowest value.

The values of MAX and MIN for the reverse channel (mobile station transmitter) are:

MIN = 6
MAX    = 162

The RMS vector error is then computed as the square root of the sum-square vector divided by the number of symbols in the slot, (157 in the reverse direction).

**Method of Measurement**

Connect the mobile station to the Standard Test Source and Modulation Accuracy Equipment.  Modulate the Standard Test Source with pseudo-random Data Field bits.  The mobile station shall transpond the Data Field bits using the TDMAON command.  Use the Modulation Accuracy Measurement Equipment to measure the modulation accuracy of the mobile station.

**Minimum Standard**

The RMS vector error in any burst shall be less than 12.5%.  In addition, the normalized error vector magnitude during the first 10 symbols (20 bits) of a burst following the ramp-up, must have an RMS value of less than 25% when averaged over 10 bursts within a 1 minute interval.  The minimum standard for frequency offset is specified in section  3.1.2.2.3 of IS 137.  The origin offset in any burst shall be less than -20 dBc.

Exhibit 6I1

## 800 MHz DAMPS OCCUPIED BANDWIDTH

Per 2.1049 (c) (1) and 22.917 (d), the exhibit presented shows the modulation that exists in a DAMPS cellular system:

| Exhibit # | Description | Power Level | Frequency (MHz) |
|-----------|-------------|-------------|-----------------|
| 6I2 | 48.6 kb/s Wideband Data | 0, CLASS 4 | 835.02 MHz |

These measurements were made per EIA/TIA IS-137A using the following specialized test equipment with a measurement personality specific to this measurement:

HP8593E       Spectrum Analyzer
HP E3632A     DC Power Supply (2)

**Exhibit 6I2**: Class 4 Power Level 0 = 0.355 W (+25.5 dBm)
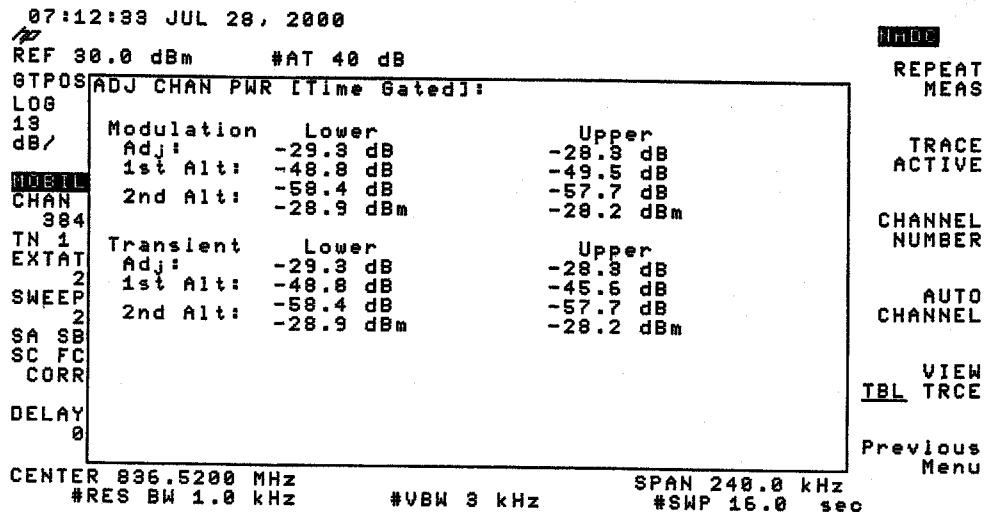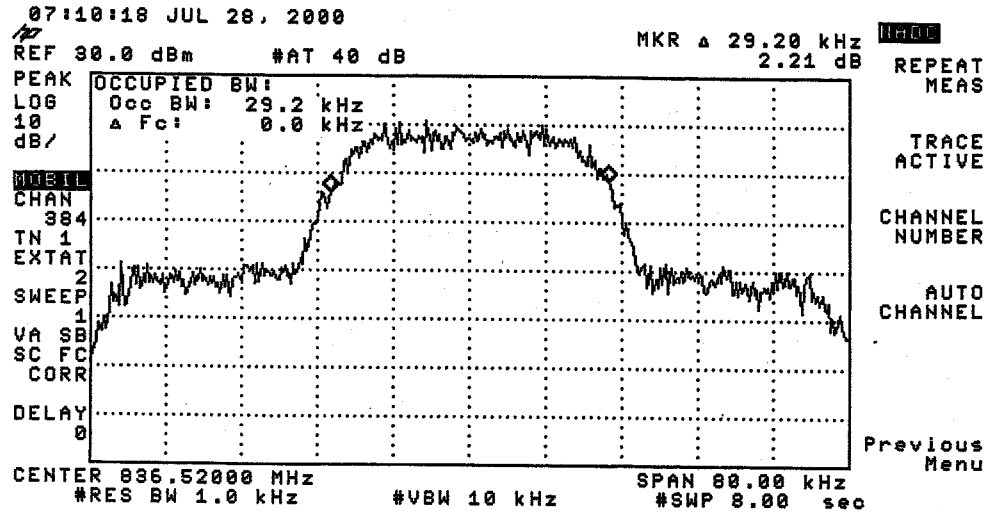Carrier Frequency 835.02MHz, Wideband data 48.6 Kb/s

Exhibit 6J1
## 800 MHz DAMPS SPURIOUS EMISSIONS (CONDUCTED)

Per 2.1051 Conducted Spurious emissions were measured at the antenna connector with a spectrum analyzer per EIA/TIA IS-137A. The conducted spurious has been tested up to the 10th harmonic, reporting all spurious within 20 dB of the FCC limit.

| EXHIBIT # | FREQUENCY | Output Power |
|-----------|-----------|--------------|
| 6J2 | 836.49 MHz | .355 W (CLASS 4 PL0) |
| 6J3 | 836.49 MHz | .0003 W (CLASS 4 PL10) |

Note:  The spectrum was examined through the 10th harmonic of the carrier at the highest and lowest power level for at the center of the band.  Measurements recorded are peak measurements.

These measurements were made per EIA/TIA IS-137A using the following equipment:

HP8593E        Spectrum Analyzer
HP E3632A      DC Power Supply (2)

Per 22.917 (f), the transmitter emissions in the base station transmit frequency range (869 – 894 MHz) have been verified to be attenuated below –80 dBm.

**Exhibit 6J2:  Conducted Spurious Emissions - DAMPS**
**Carrier Frequency 836.49 MHz, Carrier Power 0.355 W**

No other spurs found
within 20dB of limit line

─── -13 dBm FCC Limit

Power (dBm)

Frequency (MHz)

**Exhibit 6J3:  Conducted Spurious Emissions - DAMPS**
**Carrier Frequency 836.49 MHz, Carrier Power 0.0003 W**

_-13 dBm FCC Limit_

No spurs found within
20dB of limit line

Power (dBm)

0
-5
-10
-15
-20
-25
-30
-35
-40
-45
-50

0      1000   2000   3000   4000   5000   6000   7000   8000   9000   10000
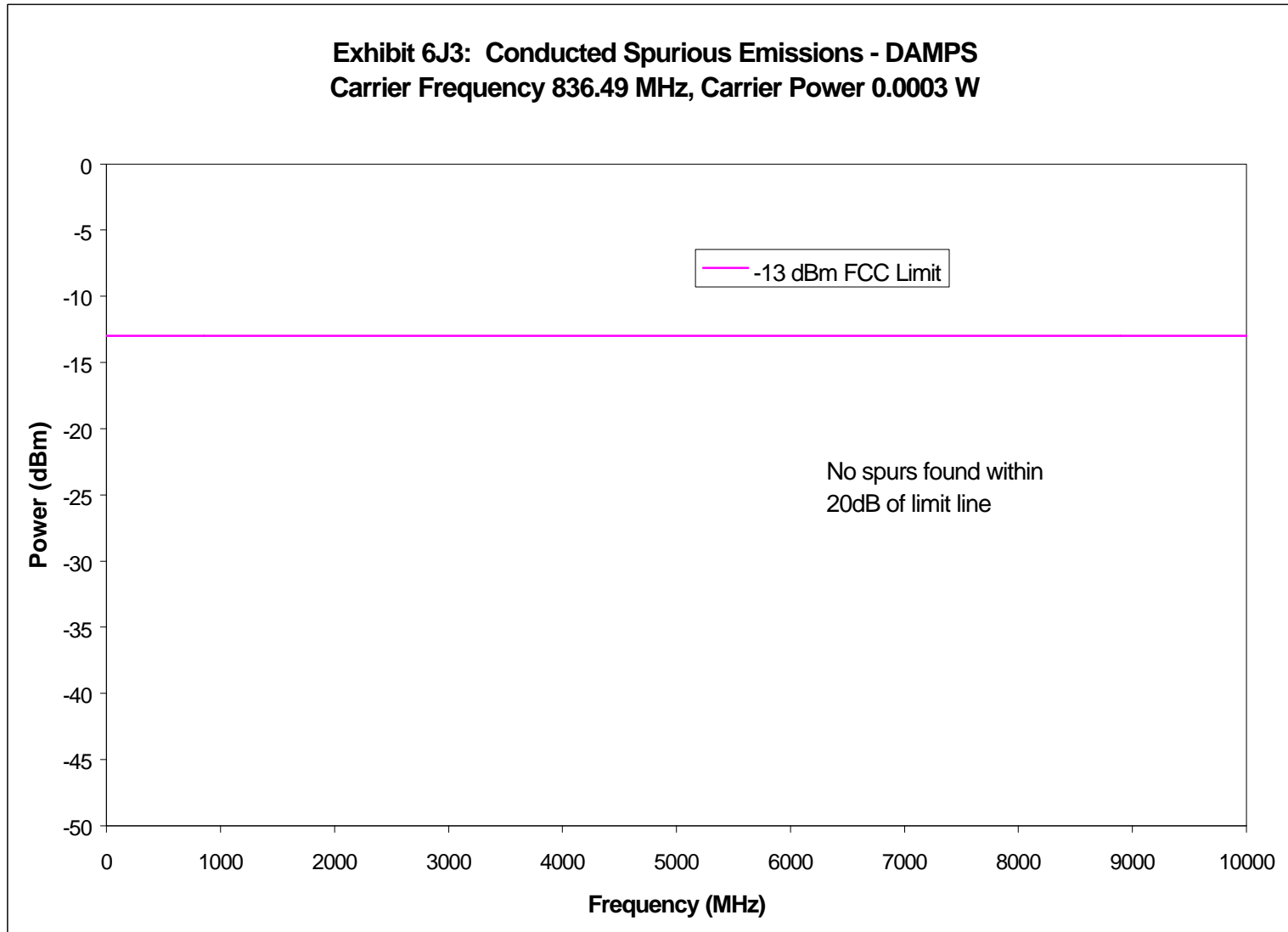
**Frequency (MHz)**
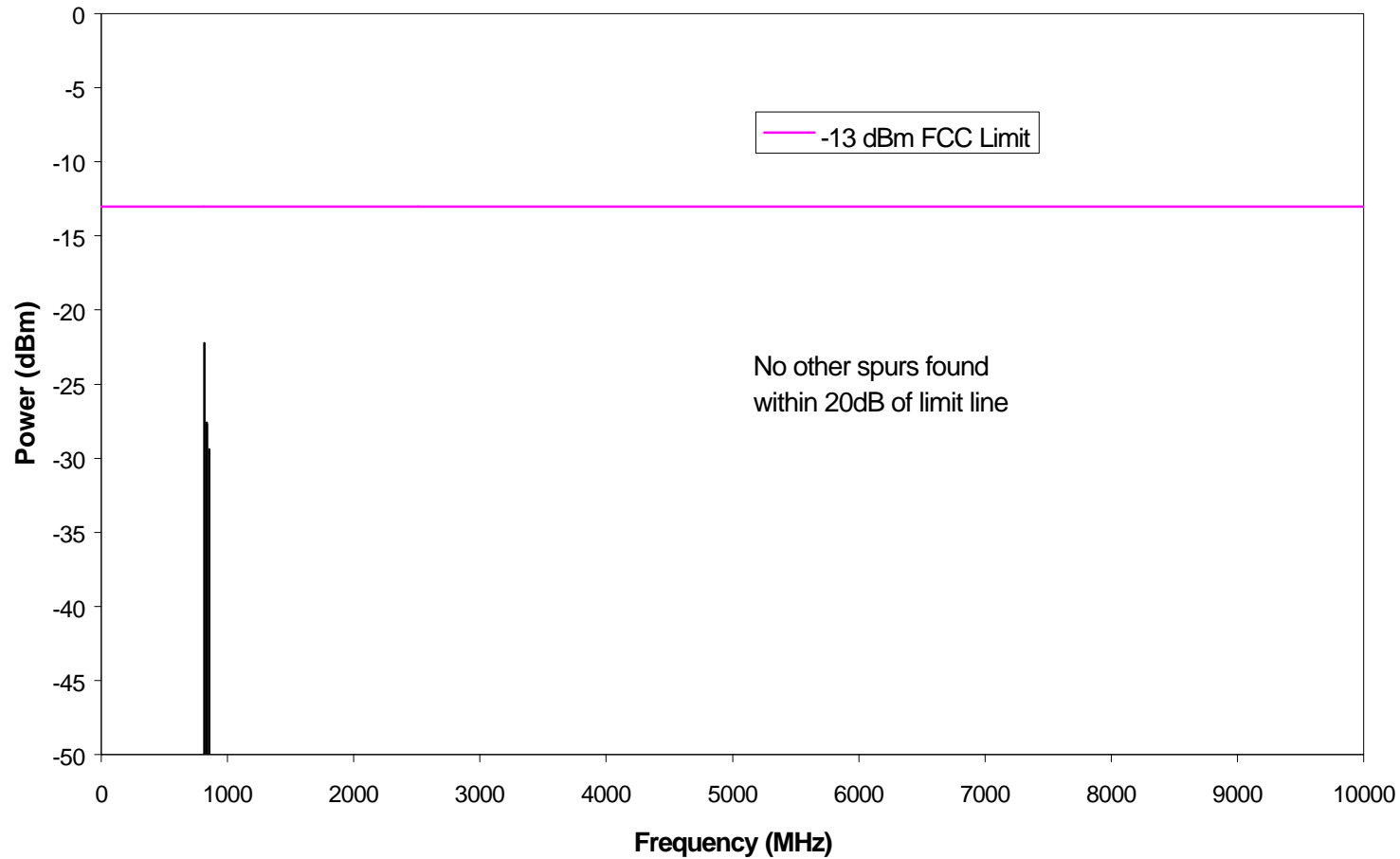
Exhibit 6K1
## 800 MHz DAMPS SPURIOUS EMISSIONS  (Radiated)

Per 2.1053 and 22.917 (e), field strength of spurious radiation was measured at Underwriters Laboratories Inc. Research Triangle Park, NC site.  Underwriter Laboratories Inc. Research Triangle site is NVLAP and FCC registered.  The measurement procedure is per EIA/TIA IS-137A conducted on a 3 meter test site.  Results are shown on the following Exhibits.

Note:  The spectrum was examined through the 10th harmonic of the carrier at the highest power level for CLASS 4, at low, middle, and high ends of the band.  The worst case plot is shown below.  Measurements recorded are peak measurements.

| EXHIBIT | FREQUENCY | OUTPUT POWER |
|---------|-----------|--------------|
| 6K2 | 824.04 MHz | 0.355 W |

The measurements were made per EIA/TIA IS-137A using the following equipment:


**Receive Equipment:**

| Item | Description | Manufacturer |
|------|-------------|--------------|
| ATA033 | 52 ft Cable, N-N | UL |
| ATA034 | 52 ft Cable, N-N | UL |
| AT0020 | Horn Antenna, 1-18 GHz | Electro-metrics |
| SAR001 | EMI Receiver | Hewlett-Packard |

**For Substitution Calibration:**

| Item | Description | Manufacturer |
|------|-------------|--------------|
| FGR022 | Signal Generator | Hewlett-Packard |
| ATA055 | 6 ft Cable, N-N | UL |
| AT0005 | Horn Antenna, 1-18 GHz | Electro-metrics |

**Exhibit 6K2:  Radiated Spurious Emissions - DAMPS**
**Carrier Frequency 824 MHz, Carrier Power +25.5 dBm**

─── -13 dBm FCC Limit

No other spurs
found within
20dB of limit line
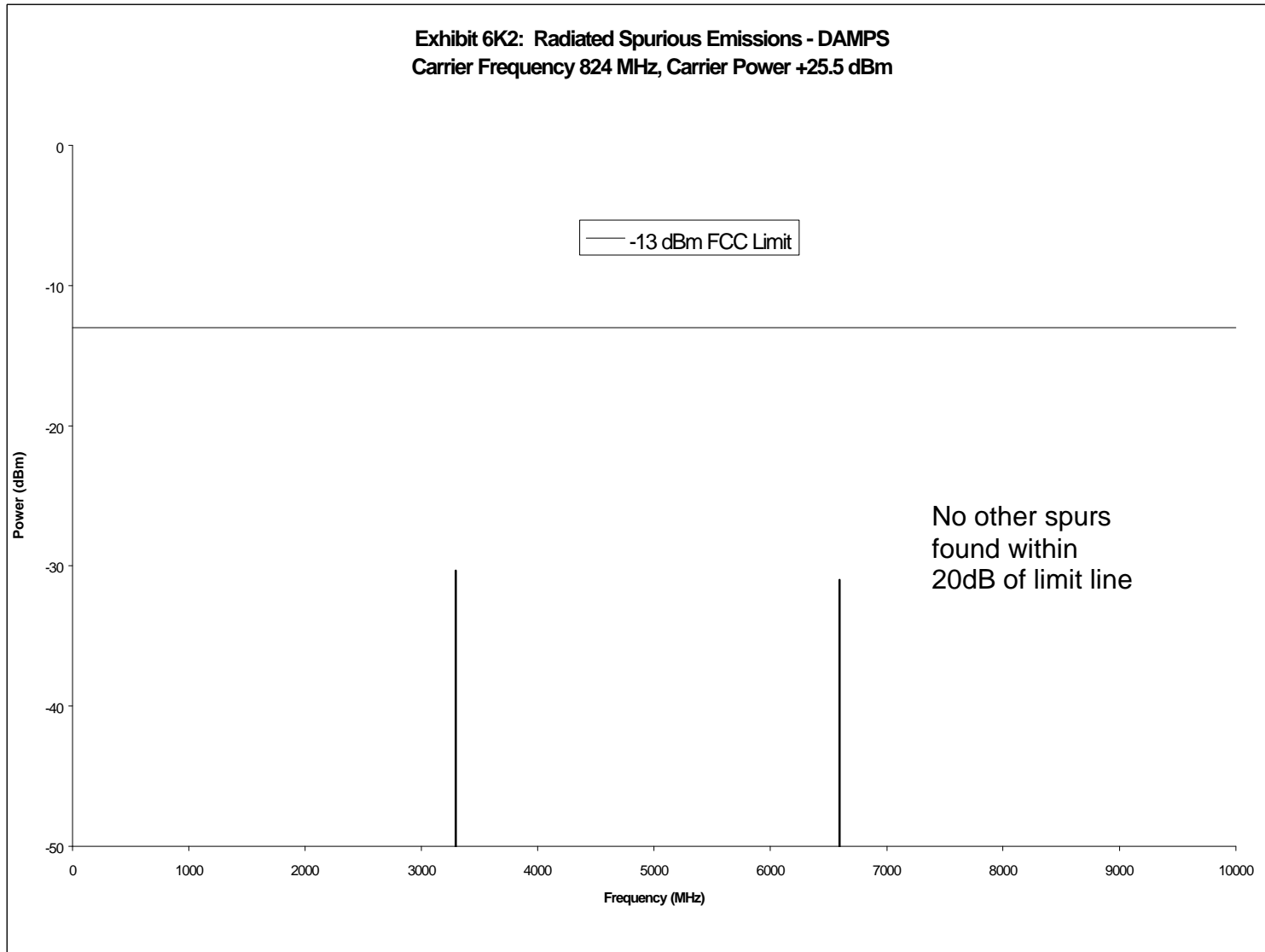
Power (dBm)

Frequency (MHz)

EXHIBIT 6L1                 **800 MHz DAMPS FREQUENCY STABILITY**

Per 2.1055 (a)(1),(b),(d)(1)

Variation of output frequency as a result of varying voltage or temperature is shown in Exhibits 6L2 and 6L3.

| EXHIBIT # | Input Voltage | Temperature | Mode | Frequency |
|---|---|---|---|---|
| 6L2 | 6.0 V Varied $\pm$ 15% | +25 $^o$C | Digital (CLASS 4) | 836.49 MHz |
| 6L3 | 6.0 VDC | Varied | Digital (CLASS 4) | 836.49 MHz |

Note:    The 6V input voltage is varied $\pm$ 15%, even though the manufacturer's rated supply voltage is 5.2 VDC to 6.8 VDC.  The manufacturer's specified temperature range is –40 $^o$C to +70 $^o$C.

These measurements were made per EIA/TIA IS-137A using the following equipment:

Anritsu MT8801B          Radio Communication Analyzer
HP E3632A                   DC Power Supply (2)
ESPEC Model SH-240  Temperature Chamber

Exhibit 6L2: Transmitter Frequency Error versus Voltage,
DAMPS Mode, Temperature 25 degress C, Channel 383

Exhibit 6L3: Transmit Frequency Error versus Temperature,
DAMPS Mode, Nominal Voltage 6.0 VDC, Channel 383