

Exhibit 6A1

RF POWER OUTPUT**Para. 2.1046 (a) and 22.913 (a)**

The RF power at the band ends and 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 levels for each modulation type.

<u>Exhibit</u>	<u>Input Voltage</u>	<u>Temperature</u>	<u>P_o</u>	<u>Modulation</u>	<u>Power Level</u>
6A2	6.0, 13.6	Varied	3 W	Analog	0 (CLASS 1)
6A3	6.0 Varied \pm 15%	+25 C	3 W	Analog	0 (CLASS 1)
6A4	13.6 Varied \pm 20%	+25 C	3 W	Analog	0 (CLASS 1)
6A5	6.0	Varied	0.355 W	Analog	0 (CLASS 4)
6A6	6.0 Varied \pm 15%	+25 C	0.355 W	Analog	0 (CLASS 4)
6A7	6.0	Varied	0.355 W	Digital	0 (CLASS 4)
6A8	6.0 Varied \pm 15%	+25 C	0.355 W	Digital	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 13.6V input is varied over its 20% rated range of 10.9 VDC to 16.3 VDC. The 13.6 V supply voltage is only used by the CLASS 1 AMPS mode (not used with CLASS 4 mode). The manufacturer's specified temperature range is -40°C to $+70^{\circ}\text{C}$. 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 3 watts (burst) of output power to an RF connector designed for attachment to a customer-supplied cable and antenna. 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.

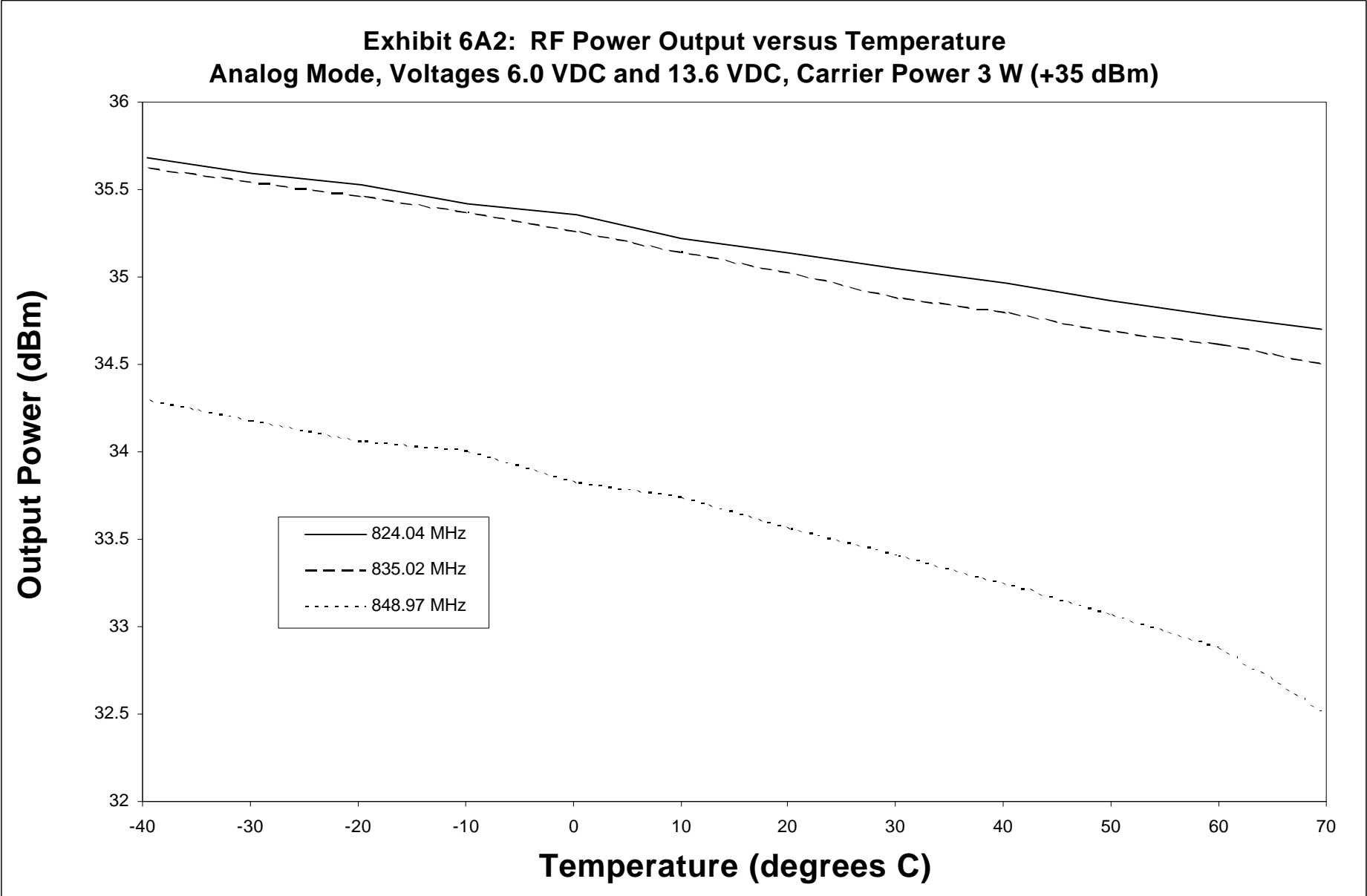
There are two modes of operation:

1. CLASS 1 Burst Modem Transceiver (AMPS only)
2. CLASS 4 Dual Mode Transceiver (AMPS and DAMPS)

The CLASS 1 burst modem transceiver is designed to send a burst of data as a CLASS 1 AMPS cellular mobile, with 3 Watts at the antenna connector. Typical applications will trigger registrations of less than 120 ms in duration at most every 15 minutes. Once the DM10 determines that data is to be sent, the transceiver initiates a call and then transmits a 4.5-second data burst, which includes a training sequence and V.27 data. After the 4.5 second data burst is sent, the burst transmitter is disabled by the software for 30 to 50 seconds in order to protect the hardware that has been designed to dissipate heat appropriately for this duty cycle. The disable time varies dependent on the duration of the cellular system network connection time. A more detailed discussion is presented in Exhibit 11, RF Exposure Evaluation.

The second mode of operation is as a CLASS 4 terminal, dual mode (AMPS and DAMPS), with nominally 0.355 Watts at the antenna connector. Typical applications include meter reading, security alarm communications, location-on-demand systems, fixed wireless local loop, and vehicular emergency communications.

The DM10 is capable of operating in either of the modes described above, and can "switch" between modes by reregistering with the cellular system (identifying its CLASS type and technology).



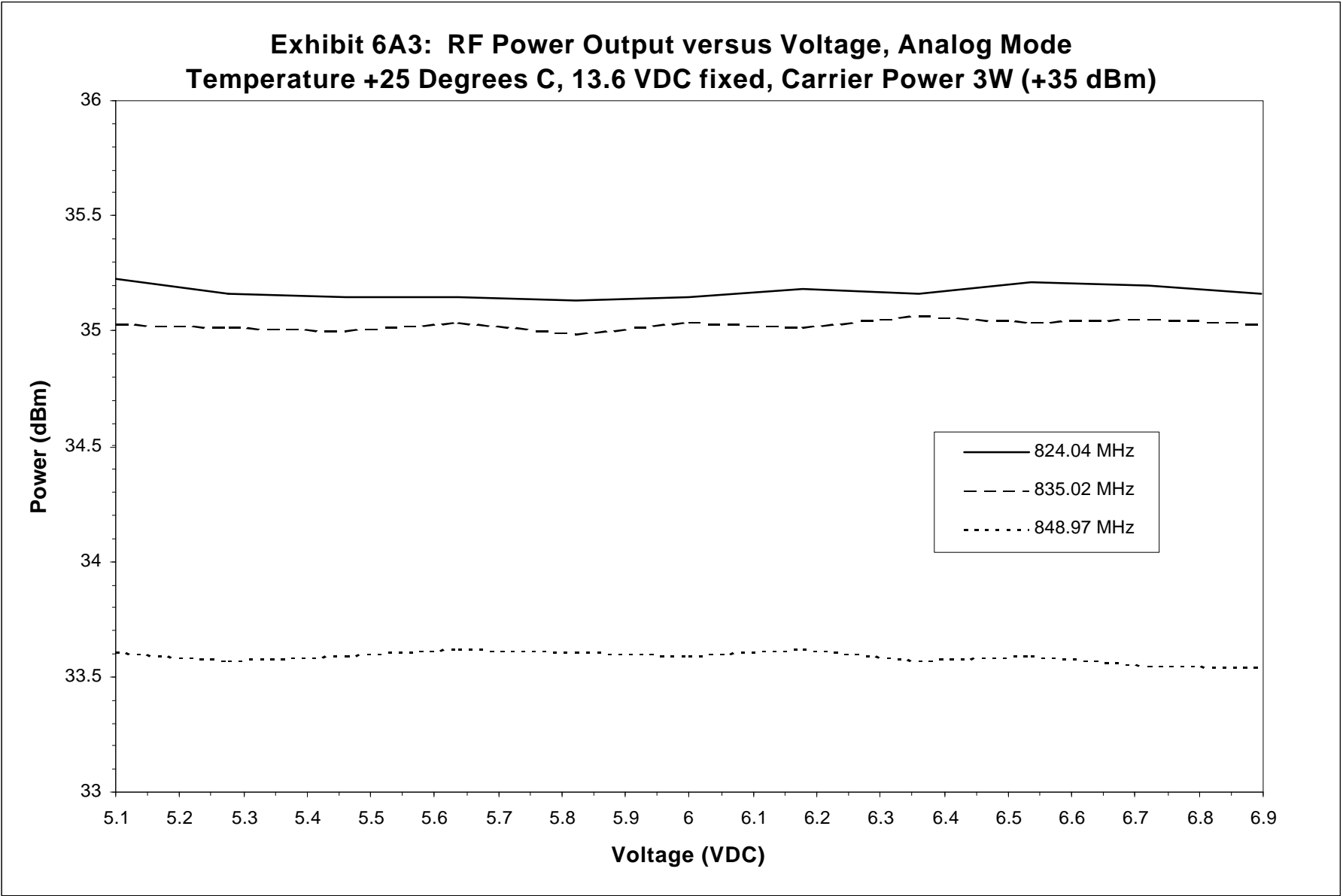


Exhibit 6A4: RF Power Output versus Voltage, Analog Mode
Temperature +25 Degrees C, 6.0 VDC fixed, Carrier Power 3W (+35 dBm)

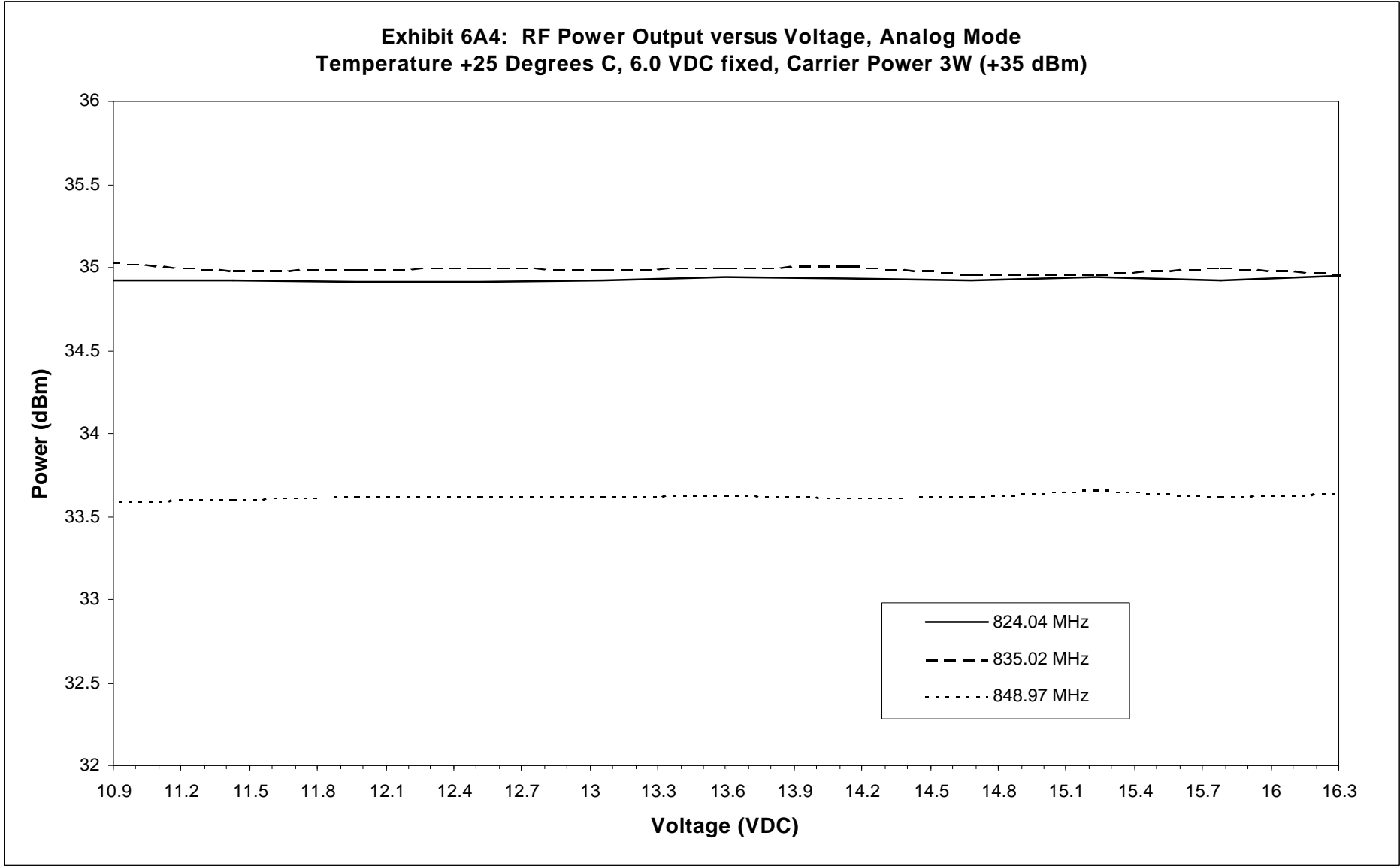
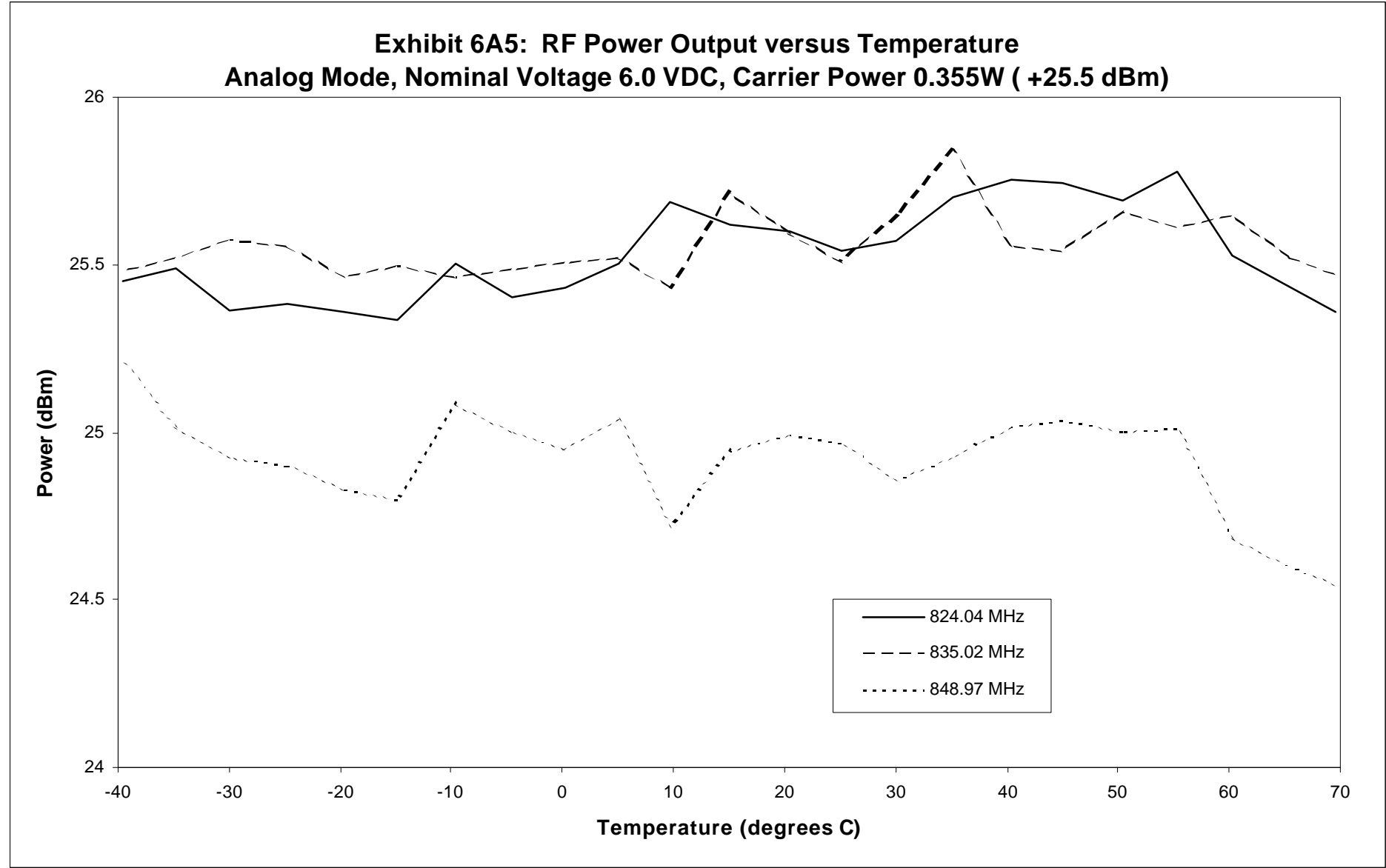


Exhibit 6A5: RF Power Output versus Temperature
Analog Mode, Nominal Voltage 6.0 VDC, Carrier Power 0.355W (+25.5 dBm)



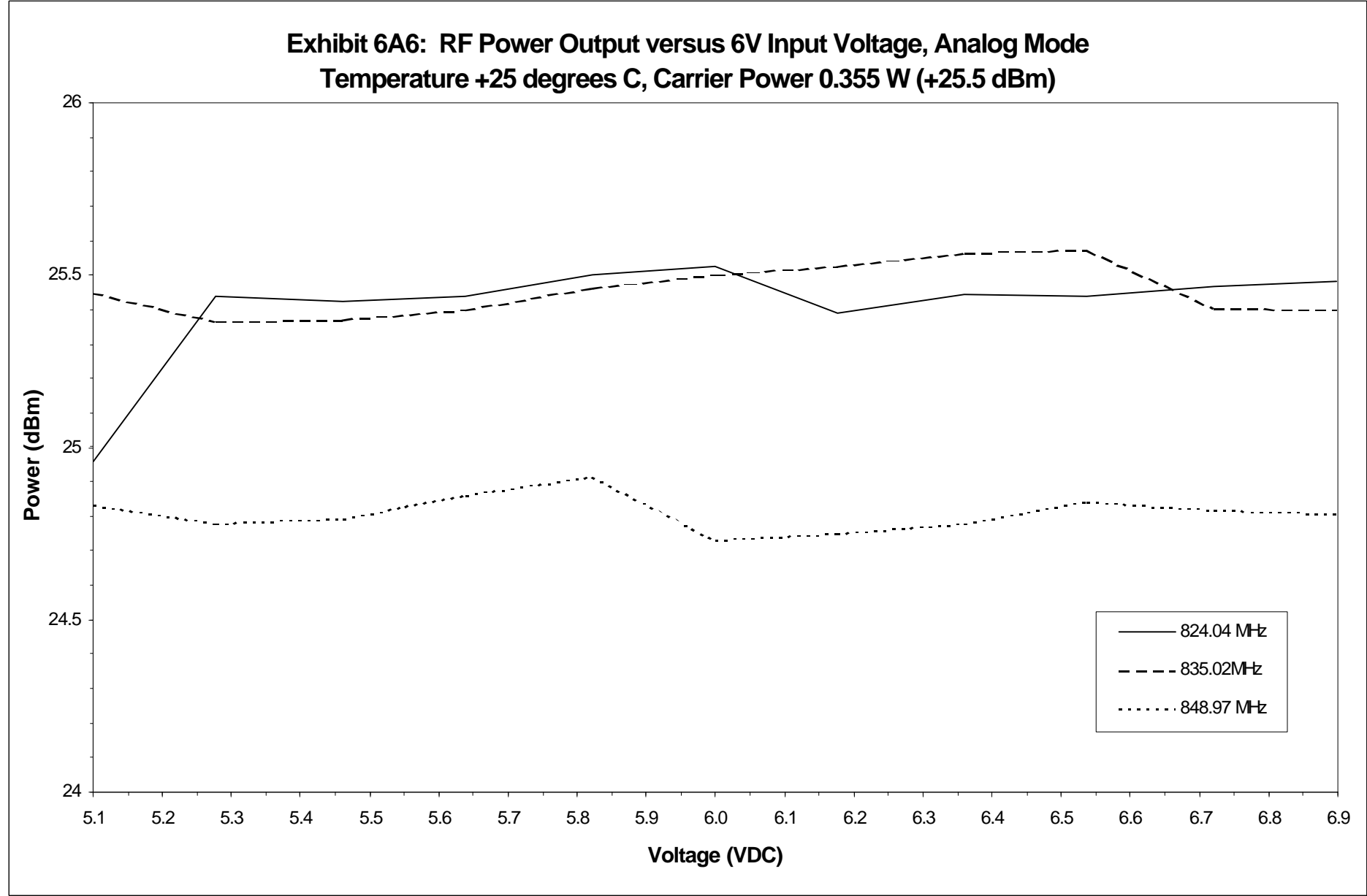
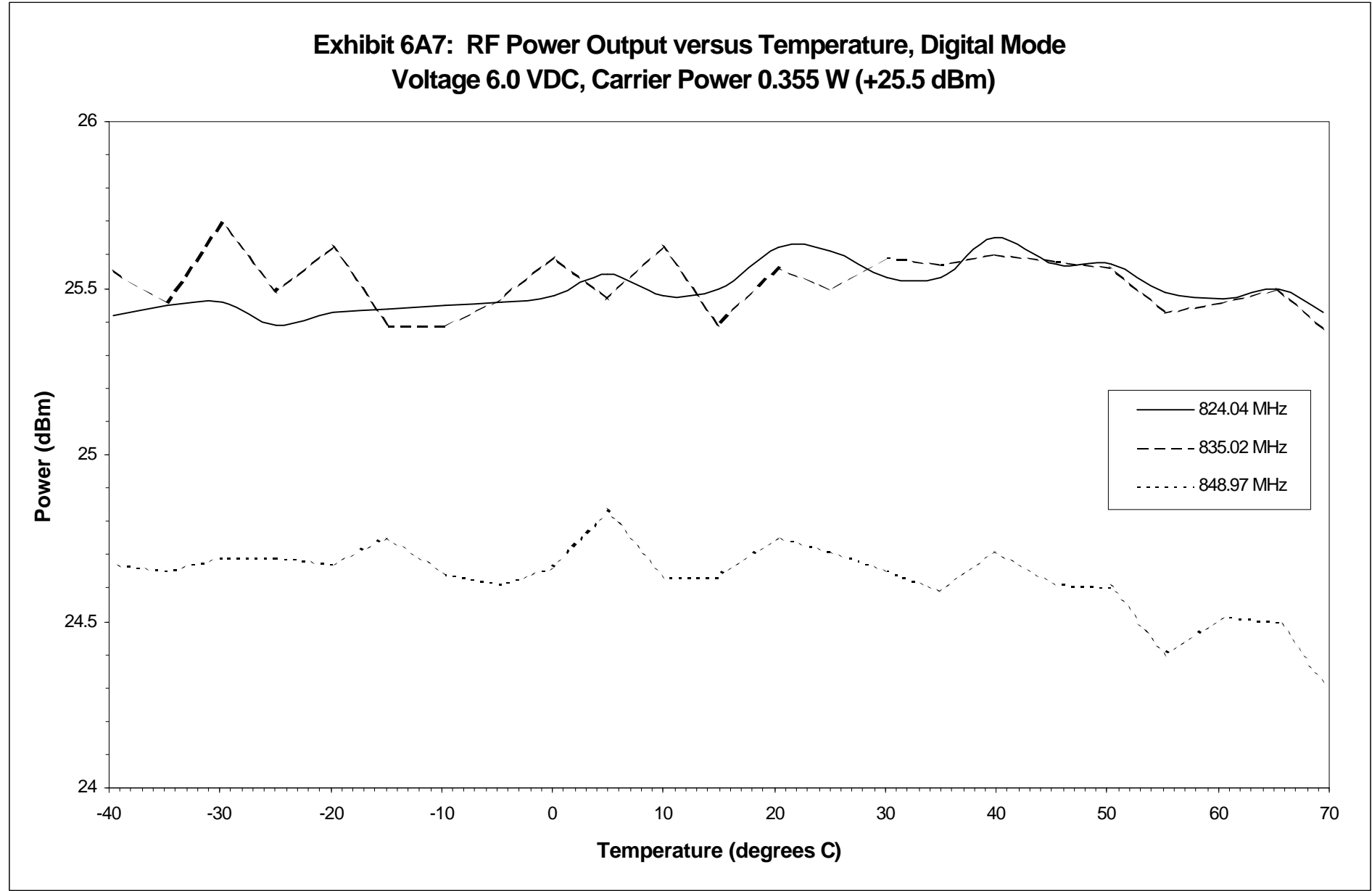


Exhibit 6A7: RF Power Output versus Temperature, Digital Mode
Voltage 6.0 VDC, Carrier Power 0.355 W (+25.5 dBm)



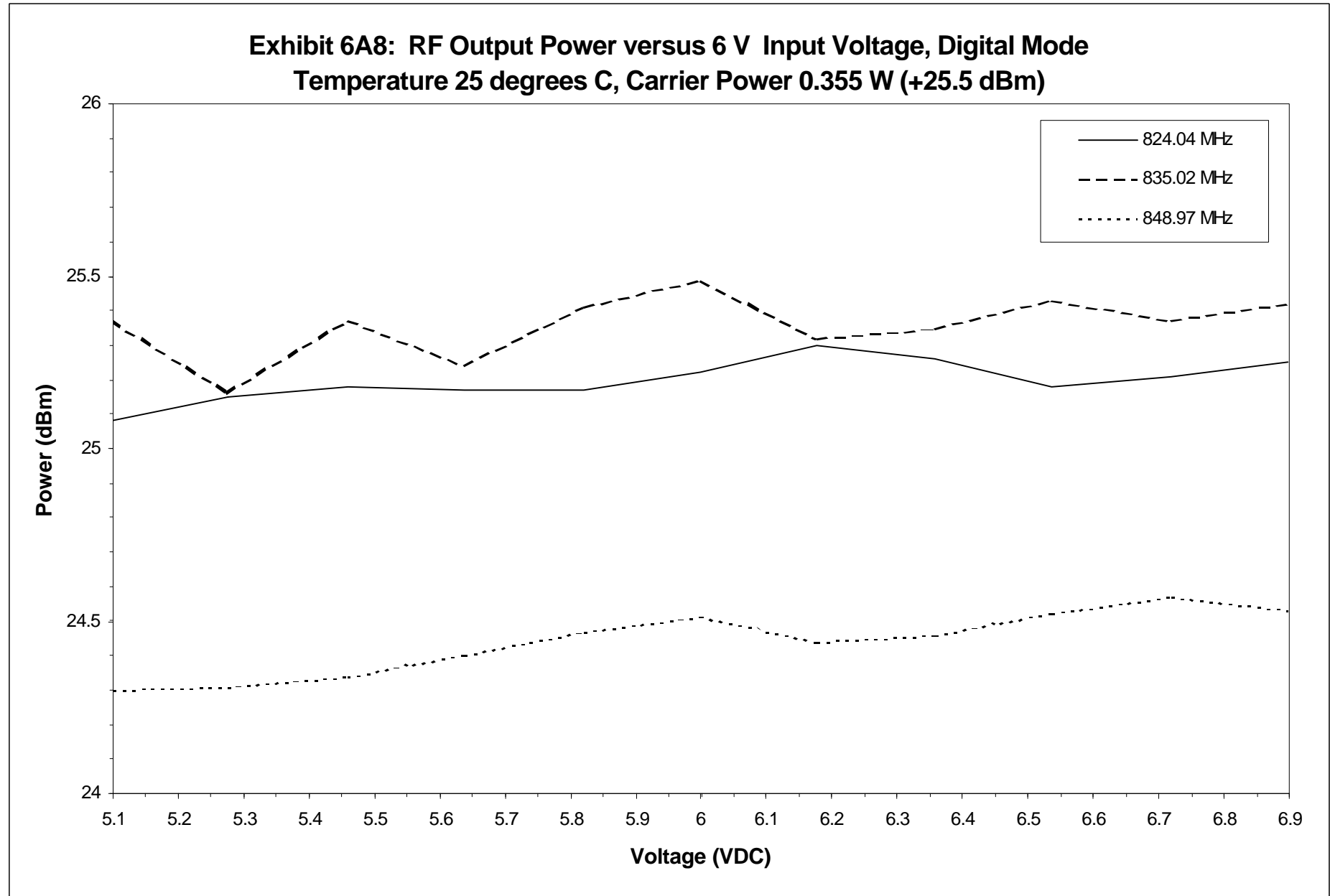


Exhibit 6B1

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:

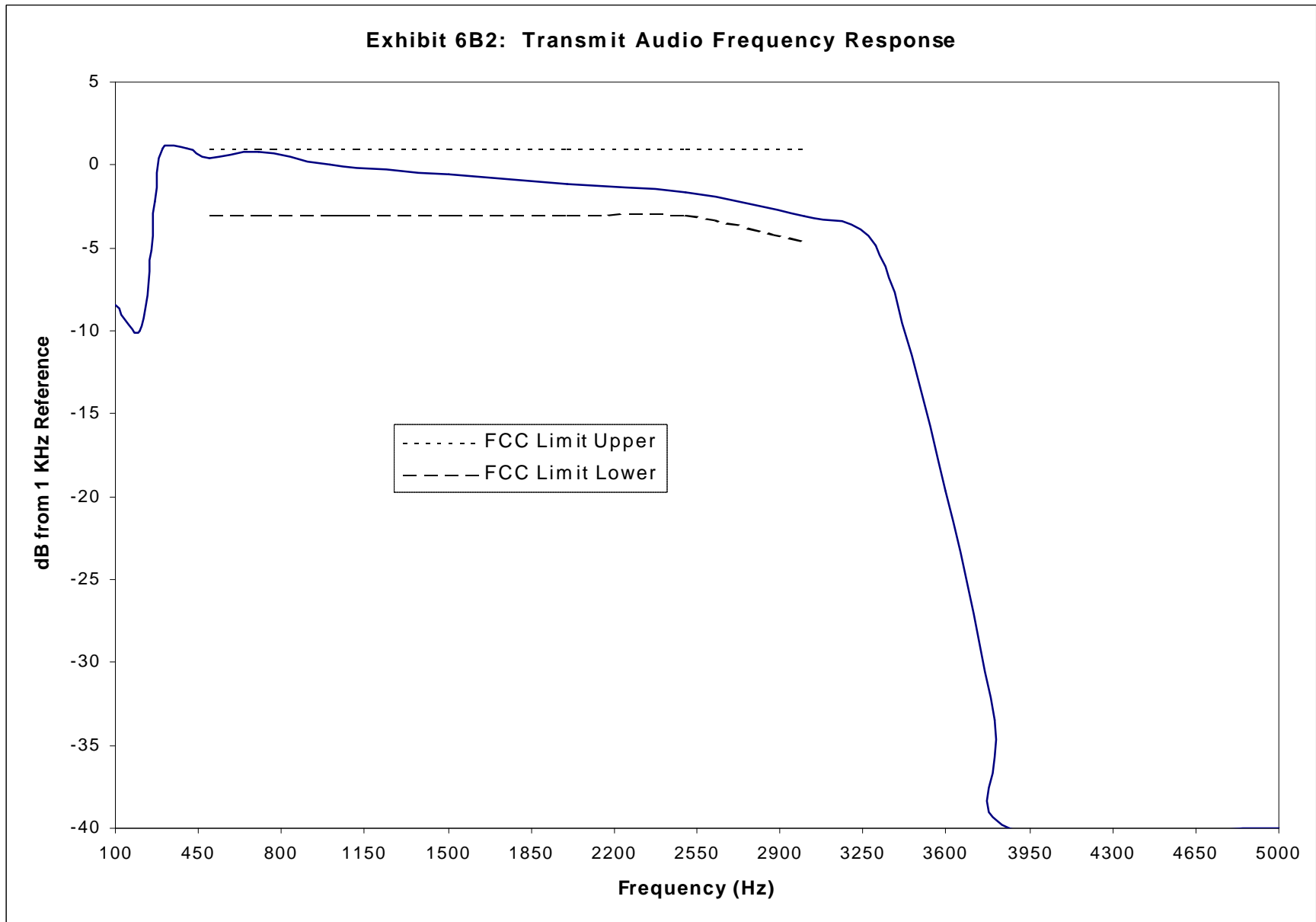
Exhibit

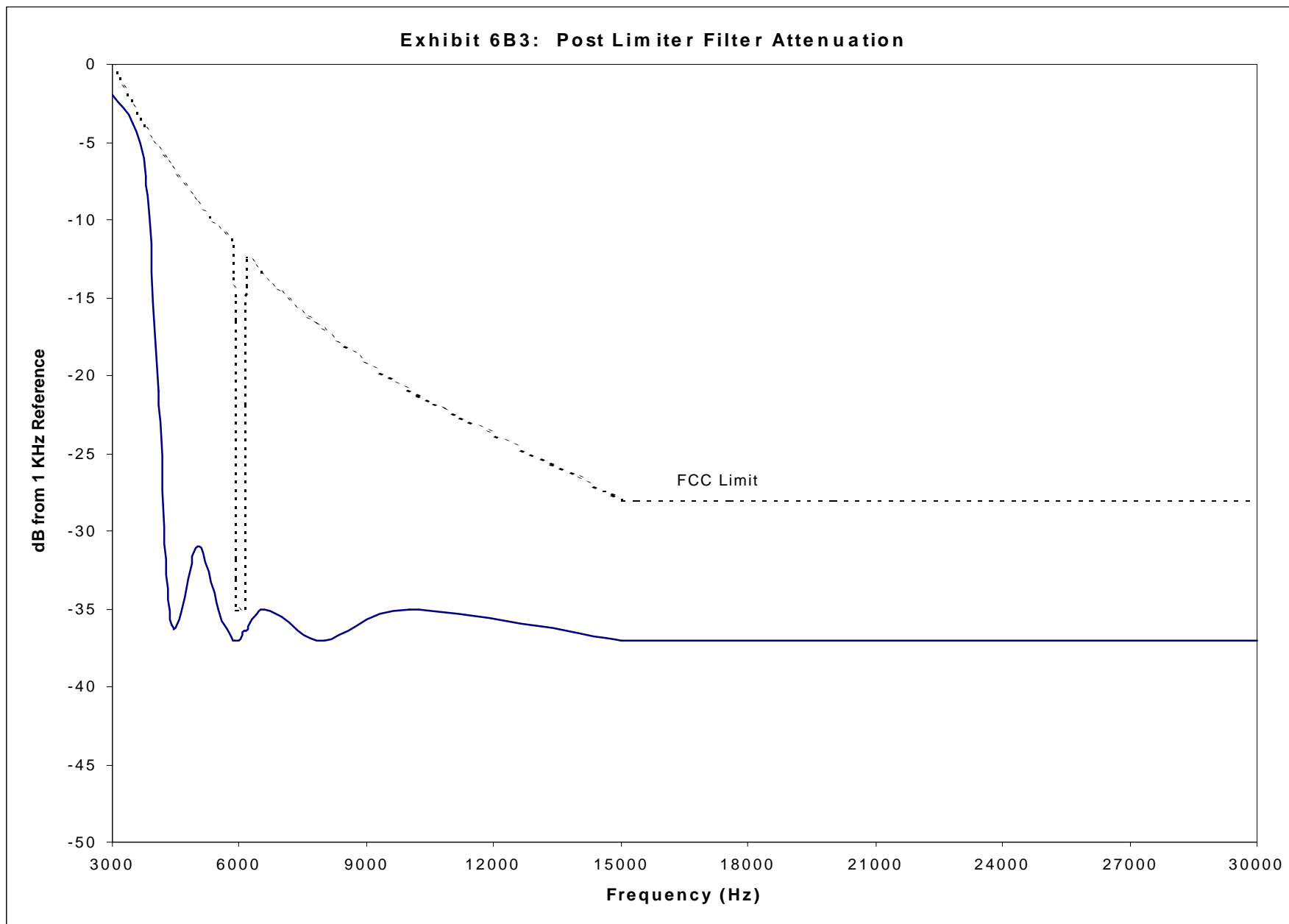
6B2	Transmit Audio Frequency Response	2.1047 (a)	IS-137A para. 3.3.1.2.2.2
6B3	Post Limiter Filter Attenuation	22.915 (d)(1)	IS-137A para. 3.3.1.2.2.2
6B4	Modulation Limiting vs. Input Voltage	2.1047 (b)	
6B5	Modulation Limiting vs. Frequency	22.915 (b)(1)	IS-137A para. 3.3.1.2.3.2

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)





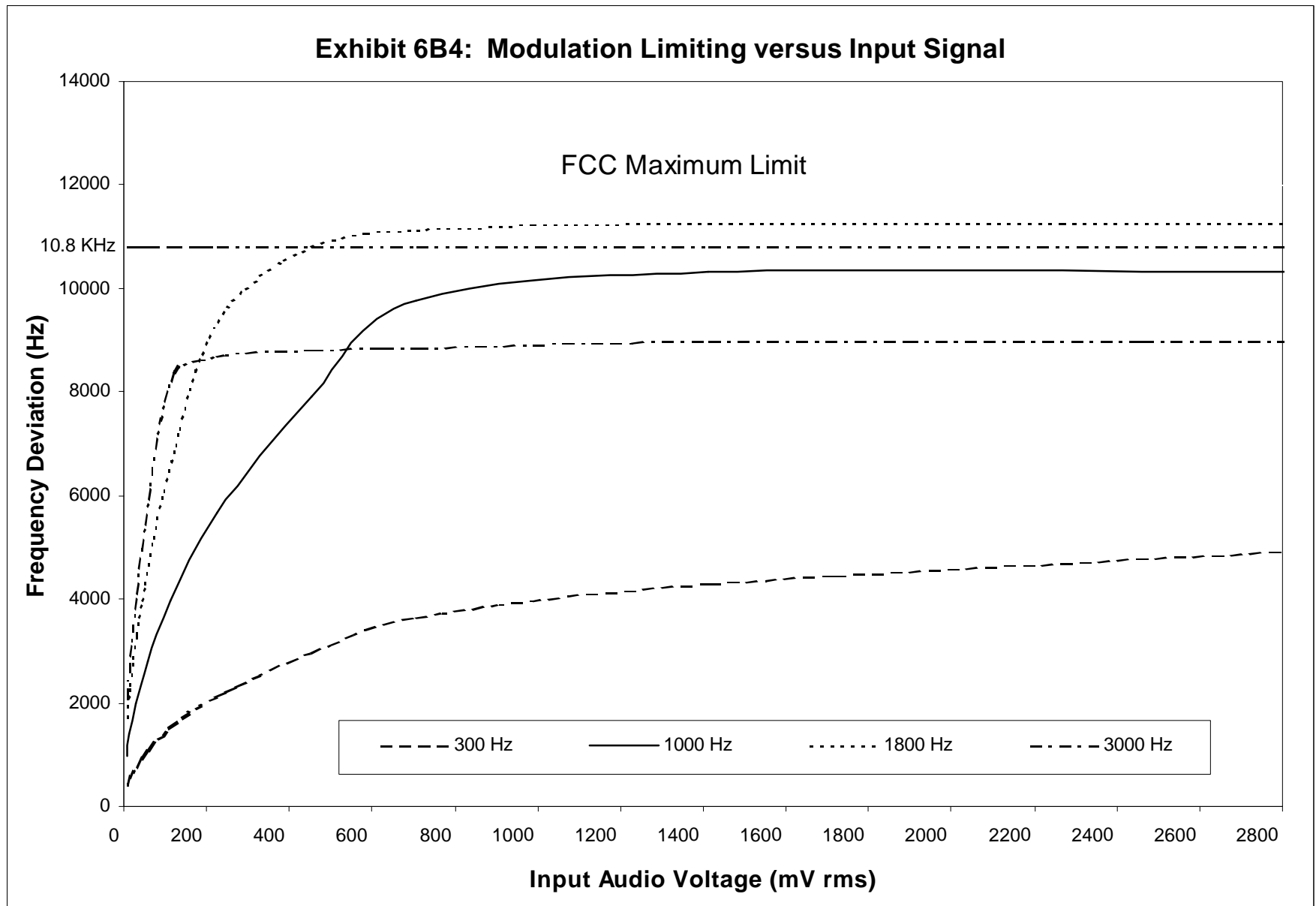


Exhibit 6C1

OCCUPIED BANDWIDTH

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

<u>Exhibit #</u>	<u>Description</u>	<u>Power Level</u>
6C2	Unmodulated Carrier	0, CLASS 1
6C3	SAT and Voice	0, CLASS 1
6C4	SAT and Signal Tone	0, CLASS 1
6C5	SAT and DTMF #3	0, CLASS 1
6C6	SAT and 10kb/s Wideband Data	0, CLASS 1
6C7	Unmodulated Carrier	0, CLASS 4
6C8	SAT and Voice	0, CLASS 4
6C9	SAT and Signal Tone	0, CLASS 4
6C10	SAT and DTMF #3	0, CLASS 4
6C11	SAT and 10kb/s Wideband Data	0, CLASS 4
6C12	Wideband Data 48.6 kb/s Data	0, CLASS 4

Note: The method of measuring occupied bandwidth of a US Digital Cellular signal is different from that of analog FM signal. The traditional method for specifying occupied bandwidth of a FM signal is to use a mask drawn over the spectral plot of the modulated signal.

A different method is employed for the US DAMPS system. This is described in the EIA/TIA IS-137A document, section 3.2.1.2. The method used in the digital application is to measure average power within a 30KHz bandwidth corresponding to a channel bandwidth for the system. This measurement is used to determine and specify power in neighboring channels relative to the fundamental occupied channel (i.e.: The average power in the adjacent channels compared to the average power in the fundamental channel for specifying occupied bandwidth).

The power in each channel is an average of all the energy within the channel. This is less than peak levels within the channel due to the nature of an 'average' power measurement. This characteristic of measuring 'average' power prohibits the use of a spectral mask. The mask could only be drawn relative to the spectral peaks and would not give an indication of the average power as specified in EIA/TIA IS-137A, section 3.2.1.2. Consequently, the only way to accurately measure and specify occupied bandwidth of a US DAMPS signal is with special equipment designed to collect all energy within a specified bandwidth and display the average power of this energy. This cannot be done with a simple spectrum analyzer measurement as was traditionally possible for FM only signals.

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 1 Power Level 0
 Carrier Frequency 835.02MHz, Carrier Power 34.91dBm

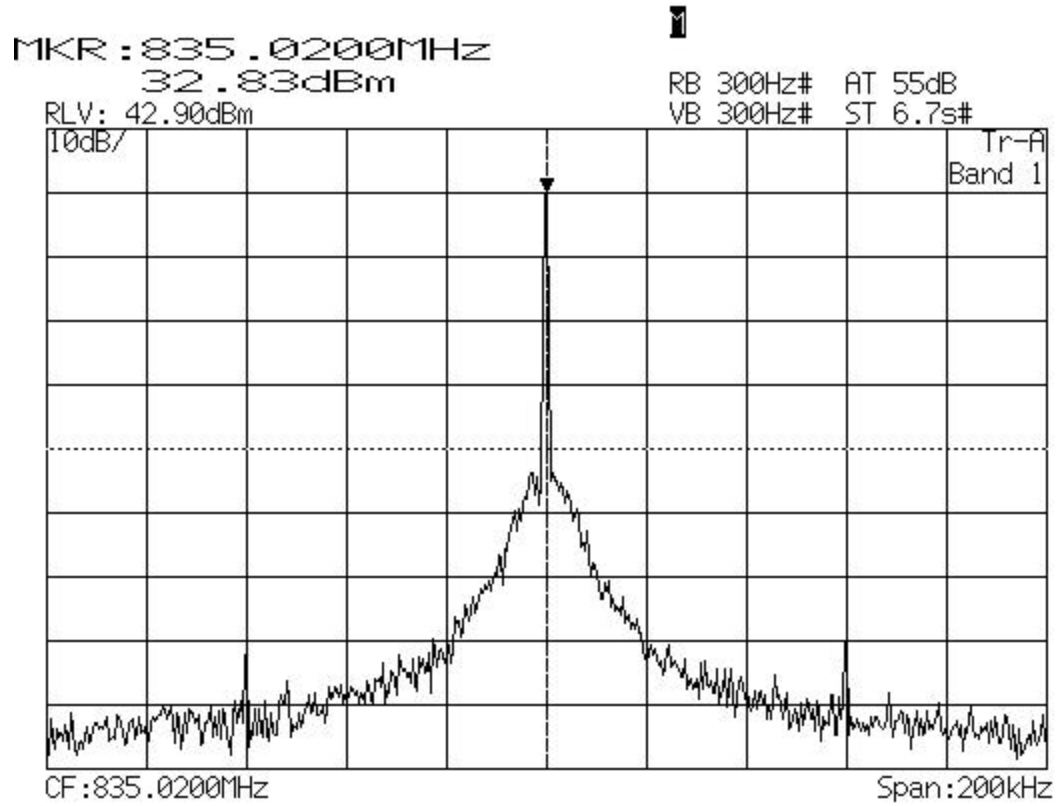


Exhibit 6C3: CLASS 1 Power Level 0, Carrier Power 34.91dBm
Carrier Frequency 835.02MHz, F3E Emission Mask
Voice Tone 2500Hz, SAT 6000Hz, Total Deviation 11000Hz

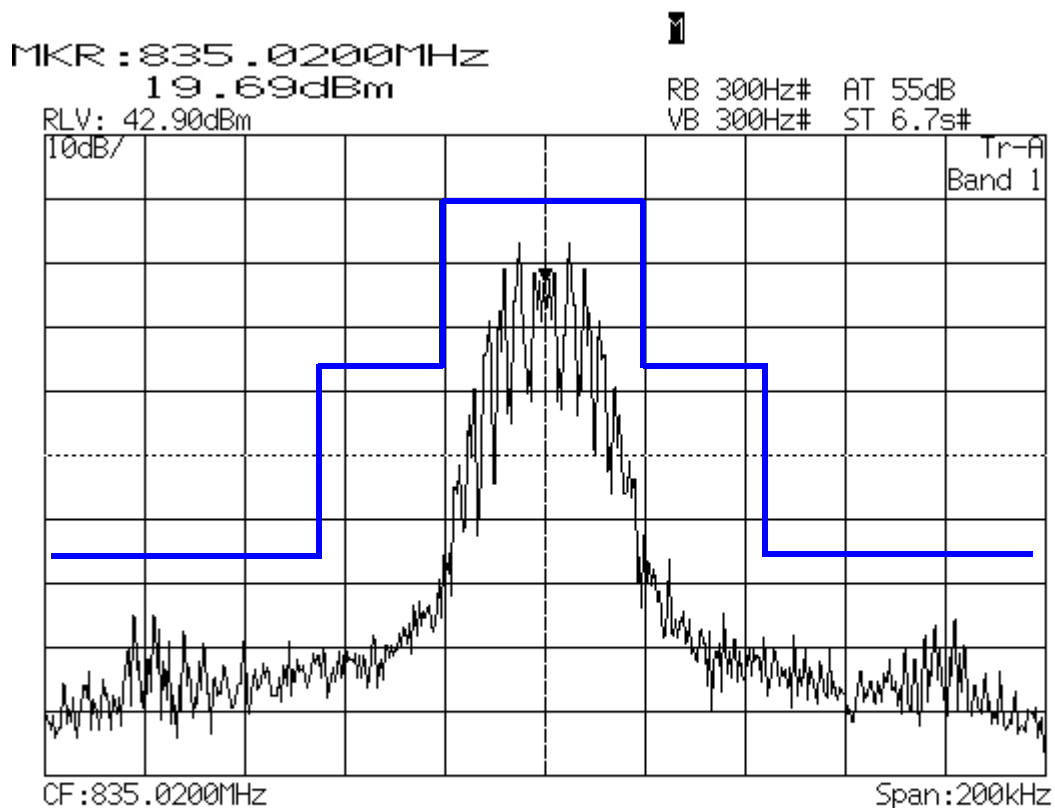


Exhibit 6C4: CLASS 1 Power Level 0, Carrier Power 34.91dBm
Carrier Frequency 835.02MHz,
SAT and Signaling Tone, F3E Emission Mask

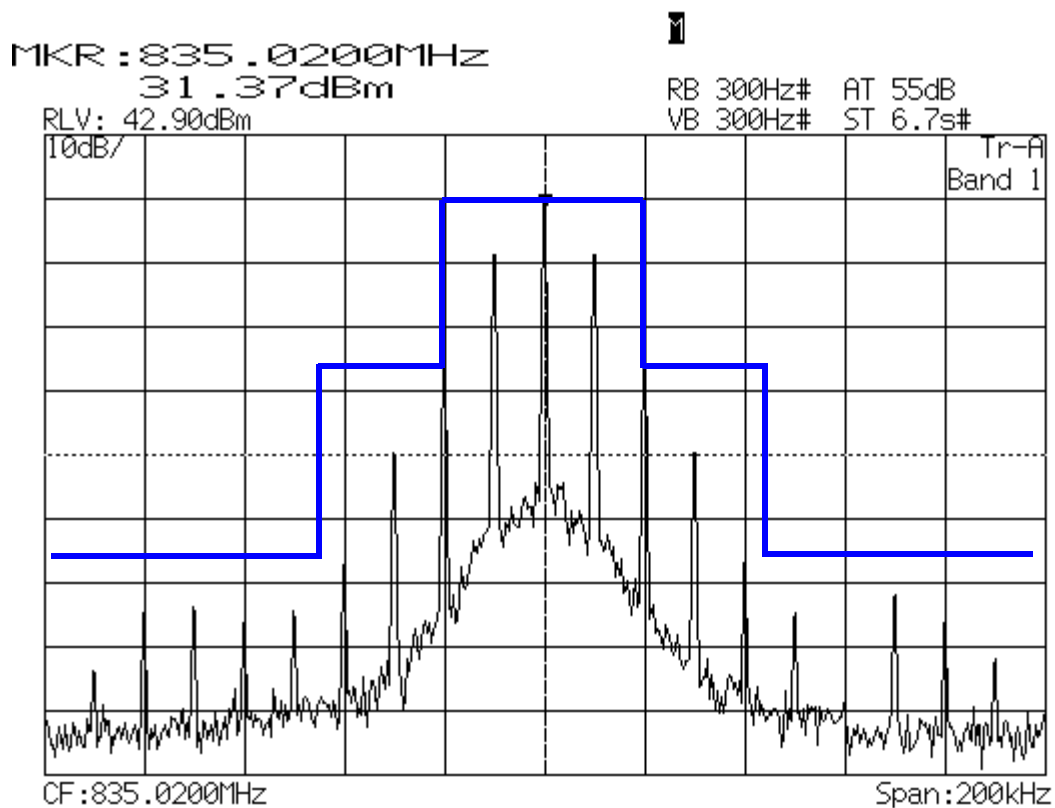


Exhibit 6C5: CLASS 1 Power Level 0, Carrier Power 34.91dBm
Carrier Frequency 835.02MHz,
SAT and DTMF #3, F3E Emission Mask

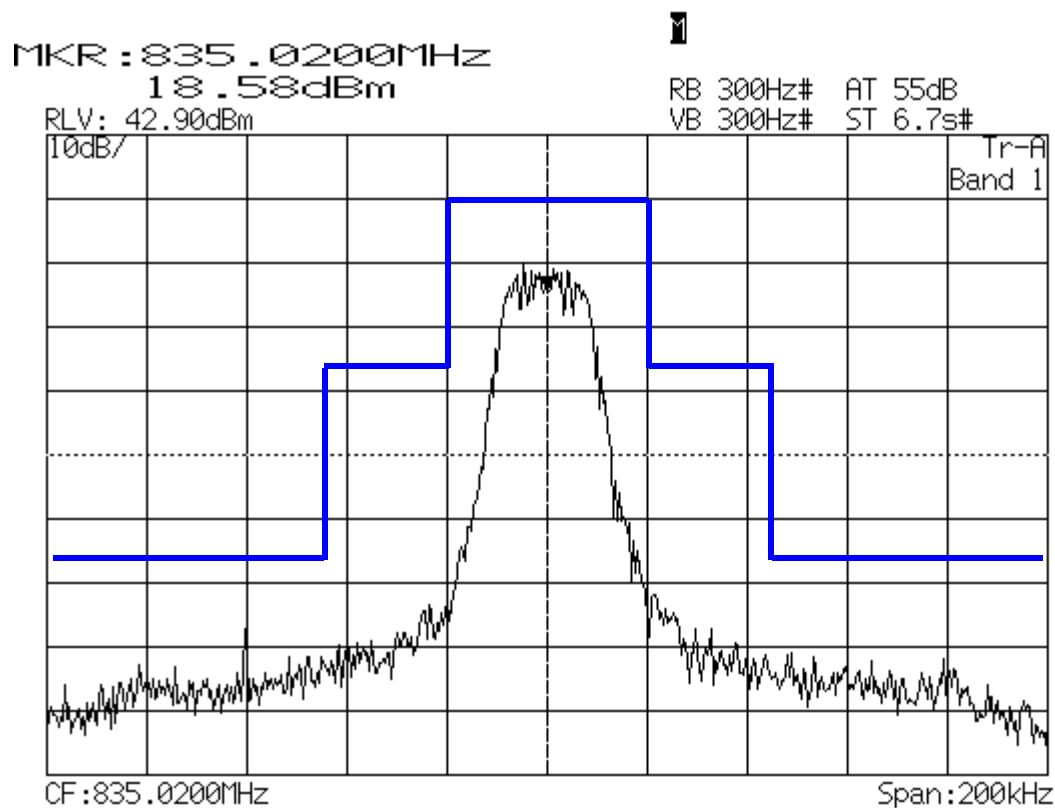


Exhibit 6C6: CLASS 1 Power Level 0, Carrier Power 34.91dBm
Carrier Frequency 835.02MHz,
SAT and Wideband 10kb/s Digital data, F1D Emission Mask

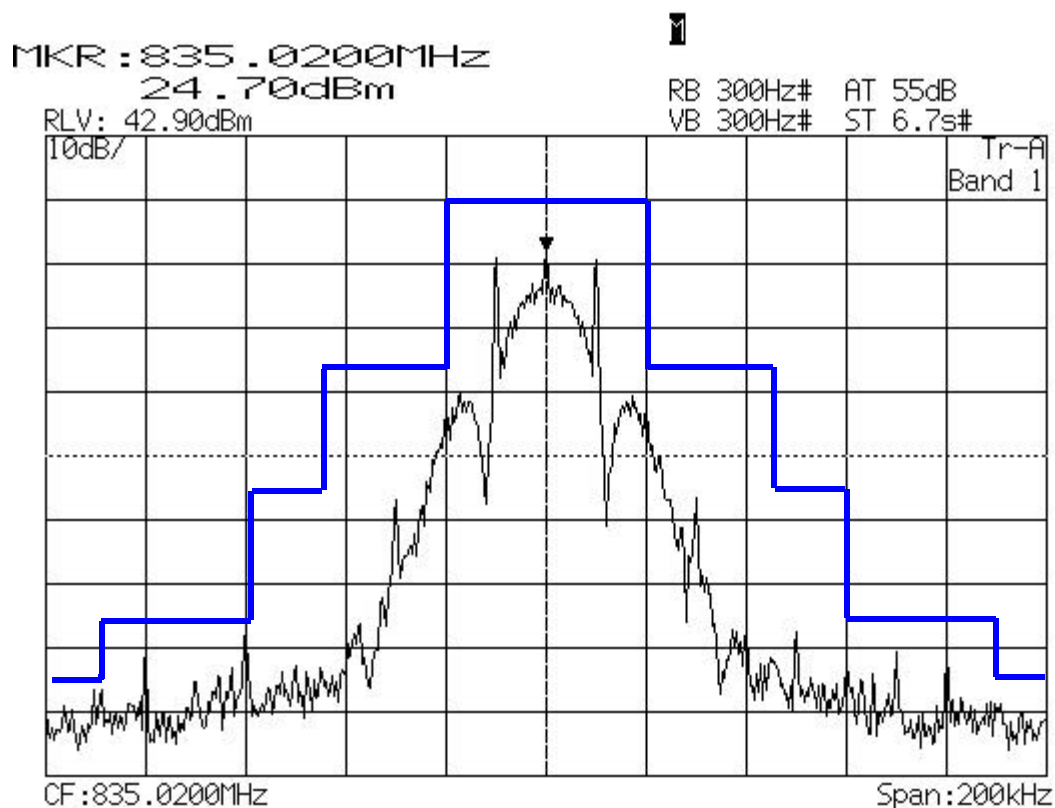


Exhibit 6C7: Unmodulated Carrier. Class 4 Power Level 0 = 0.355 W
Carrier Frequency 835.02MHz

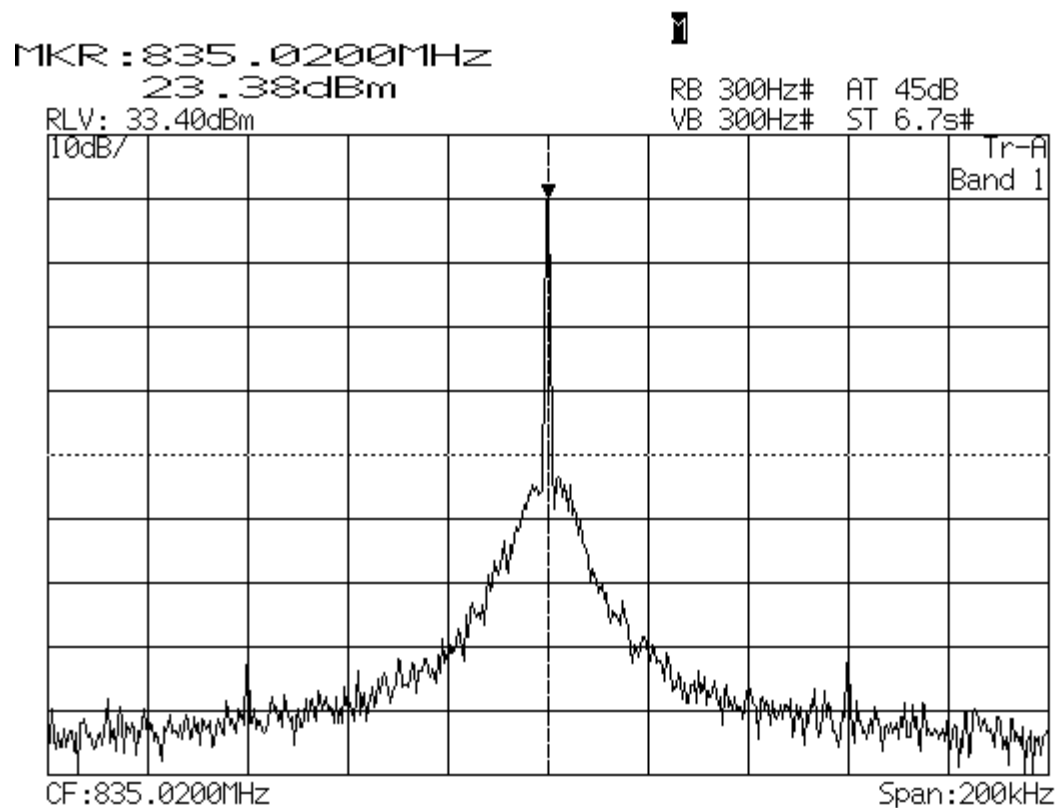


Exhibit 6C8: CLASS 4 Power Level 0 = 0.355 W
Carrier Frequency 835.02MHz, F3E Emission Mask
Voice Tone 2500Hz, SAT 6000Hz, Total Deviation 11000Hz

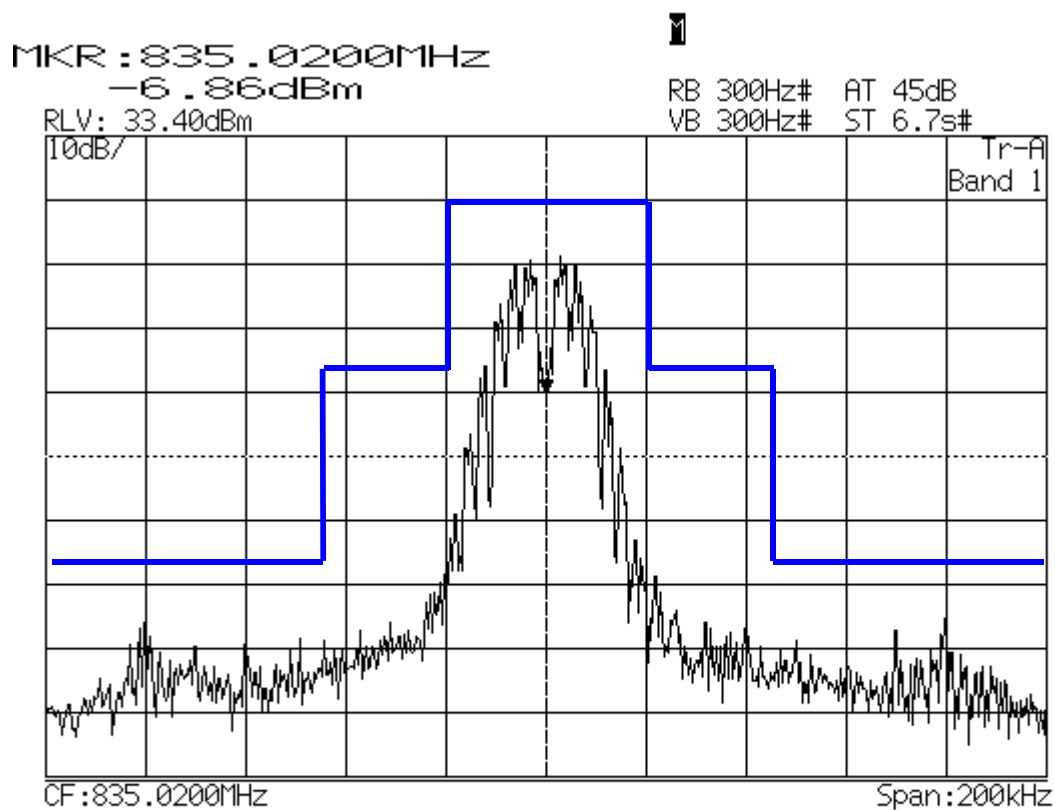


Exhibit 6C9: Class 4 Power Level 0 = 0.355 W
Carrier Frequency 835.02MHz
SAT and Signaling Tone, F3E Emission Mask

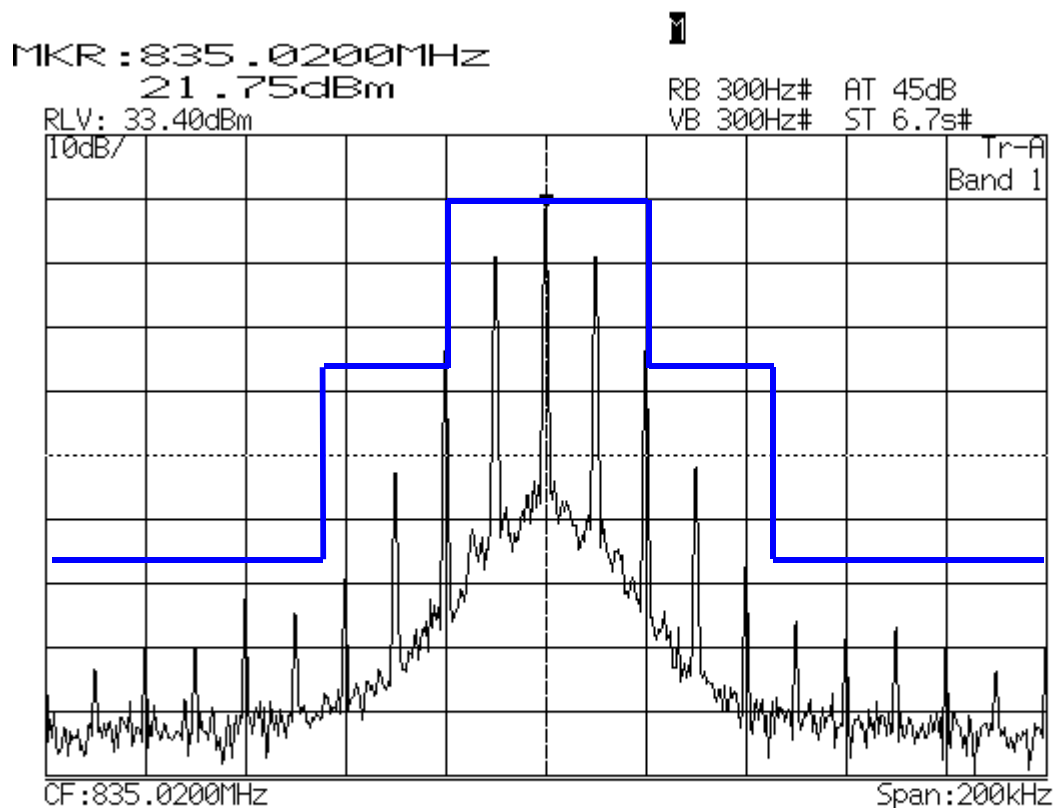


Exhibit 6C10: Class 4 Power Level 0/2 = 0.355 W
Carrier Frequency 835.02MHz
SAT and DTMF#3, F3E Emission Mask

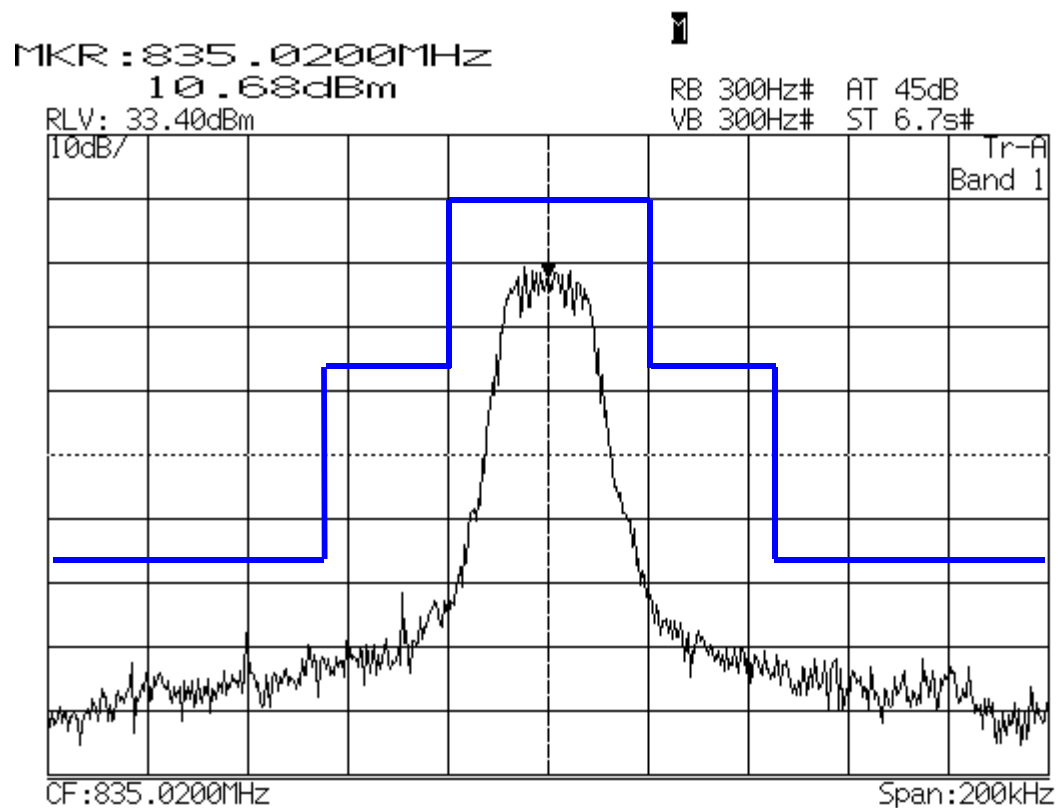


Exhibit 6C11: Class 4 Power Level 0 = 0.355 W
Carrier Frequency 835.02MHz
SAT and Wideband 10kb/s Digital data, F1D Emission Mask

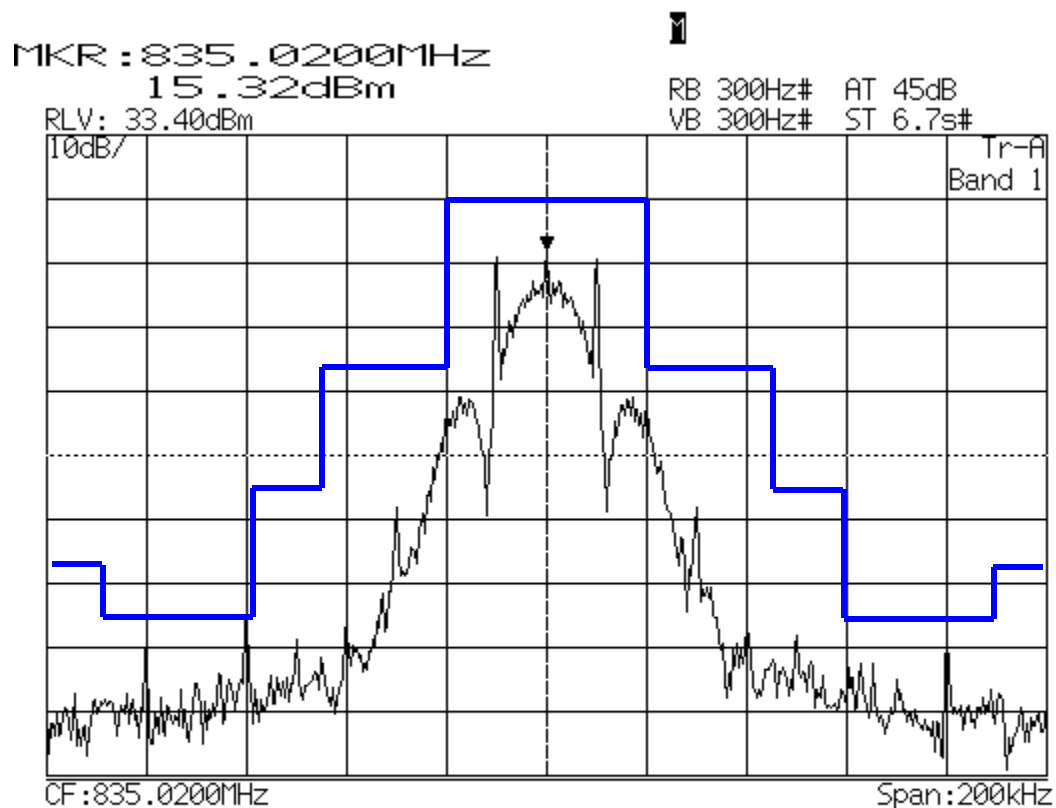


Exhibit 6C12: Class 4 Power Level 0 = 0.355 W (+25.5 dBm)
Carrier Frequency 835.02MHz, Wideband data 48.6 Kb/s

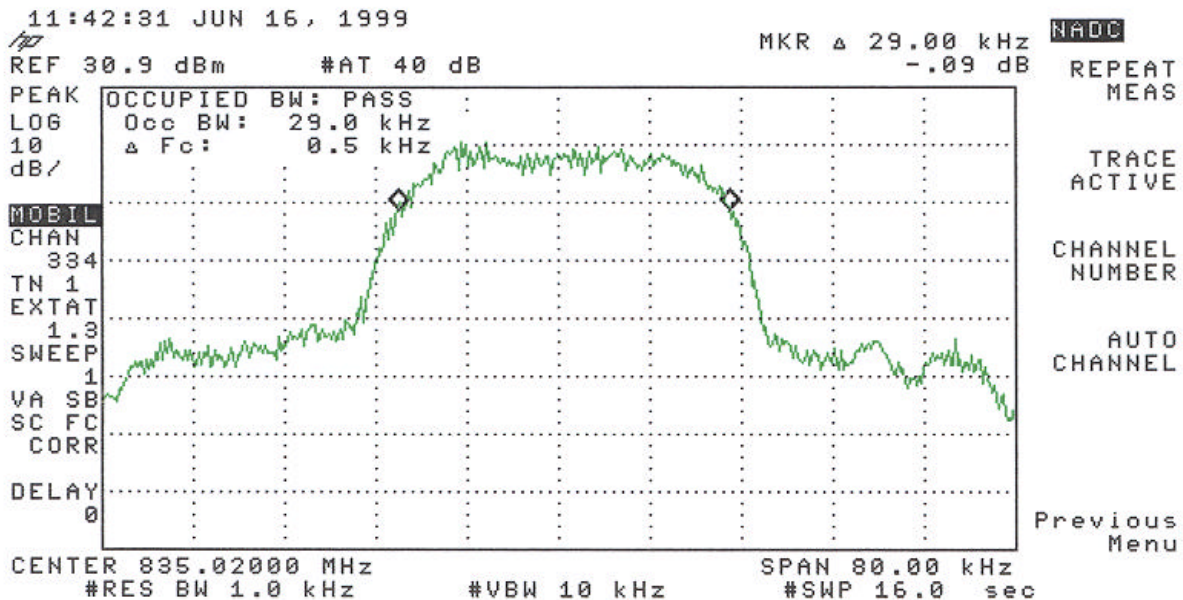
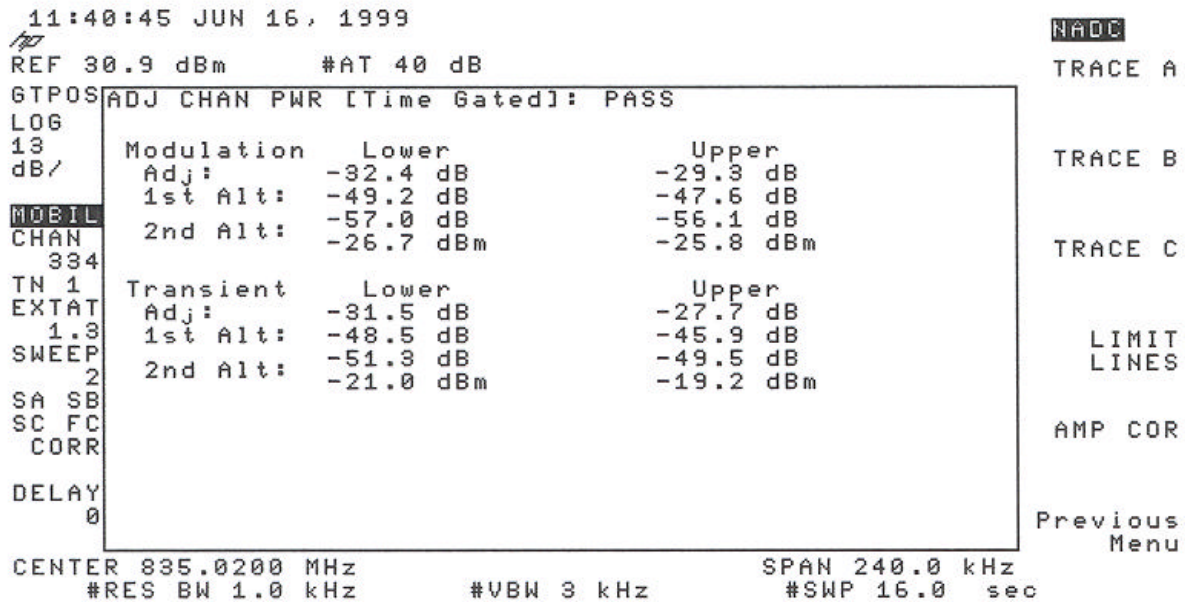


Exhibit 6D1

SPURIOUS EMISSIONS (CONDUCTED)

Per 2.1051 Conducted Spurious emissions were measured at the antenna connector with a spectrum analyzer per EIA/TIA IS-137A.

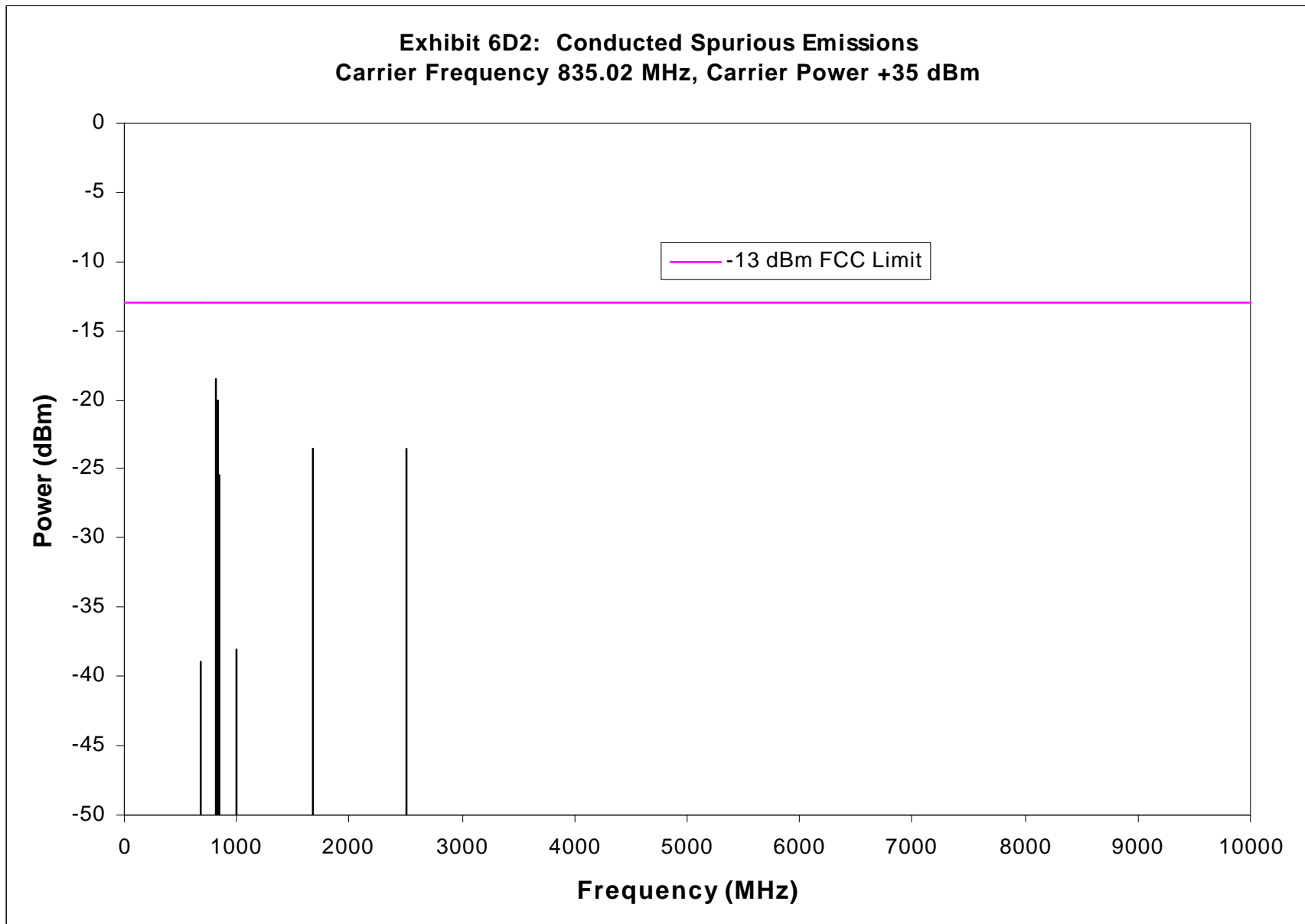
<u>EXHIBIT #</u>	<u>FREQUENCY</u>	<u>Output Power</u>
6D2	835.02	3 W (CLASS 1 PL0)
6D3	835.02	.005 W (CLASS 1 PL7)
6D4	835.02	.355 W (CLASS 4 PL0)
6D5	835.02	.0003 W (CLASS 4 PL10)

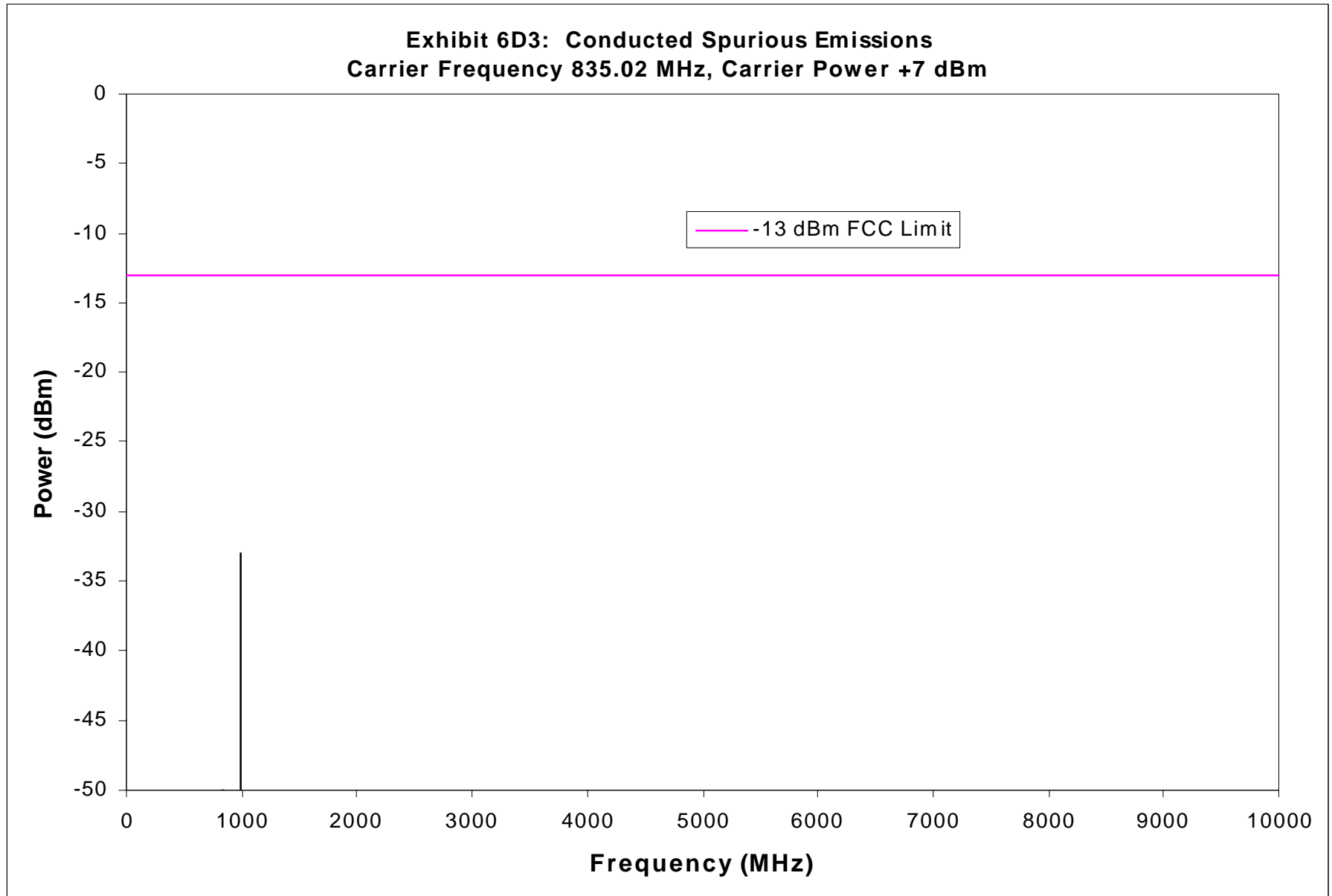
NOTE: For exhibits 6D2 and 6D4, there are several spurs within 20 dB of the FCC limit within the transmitter passband, resulting in a thicker line centered at 835 MHz. The maximum output is as indicated on the plots; each spur is well below the FCC limit of -13 dBm.

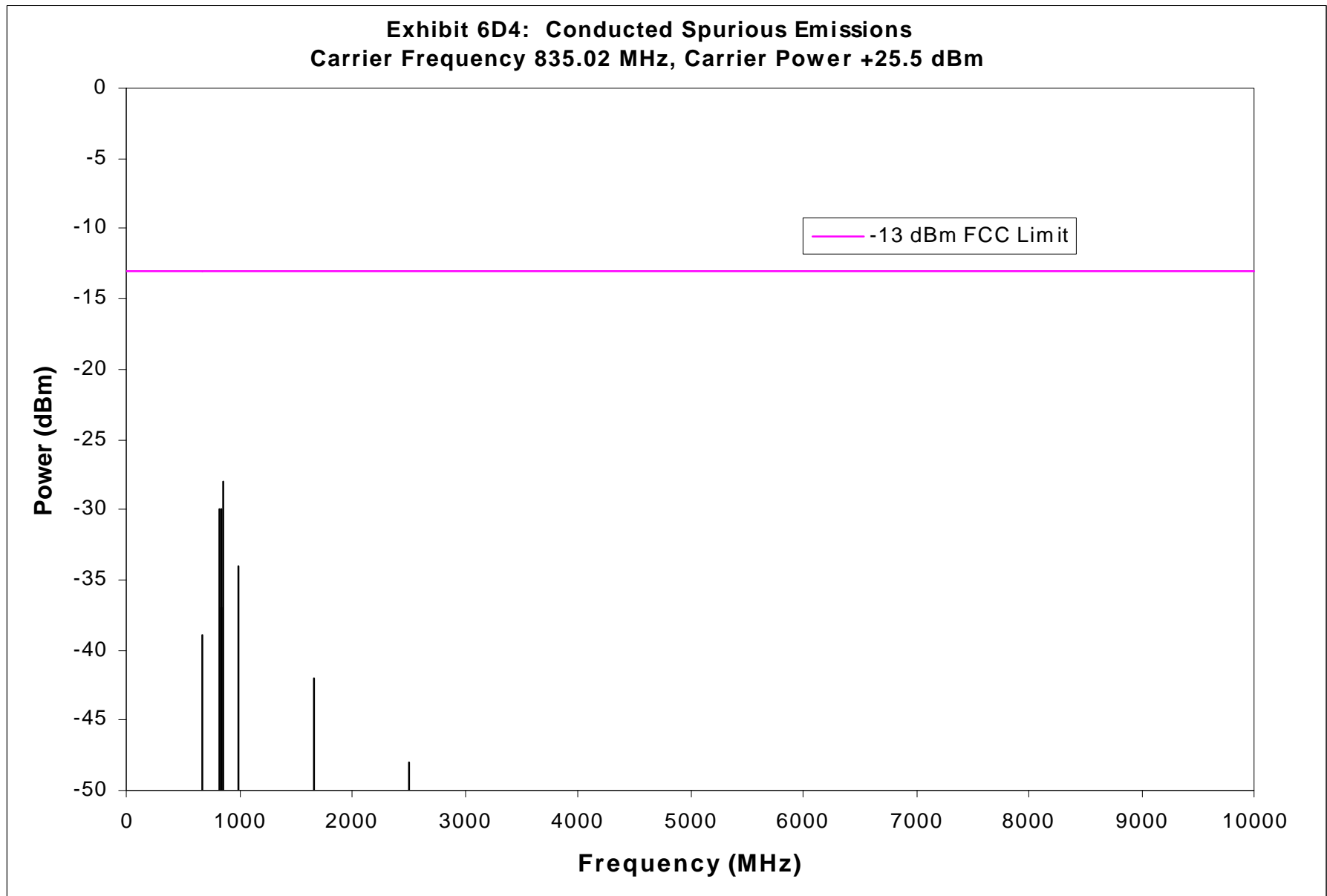
These measurements were made per EIA/TIA IS-137A using the following equipment:

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.







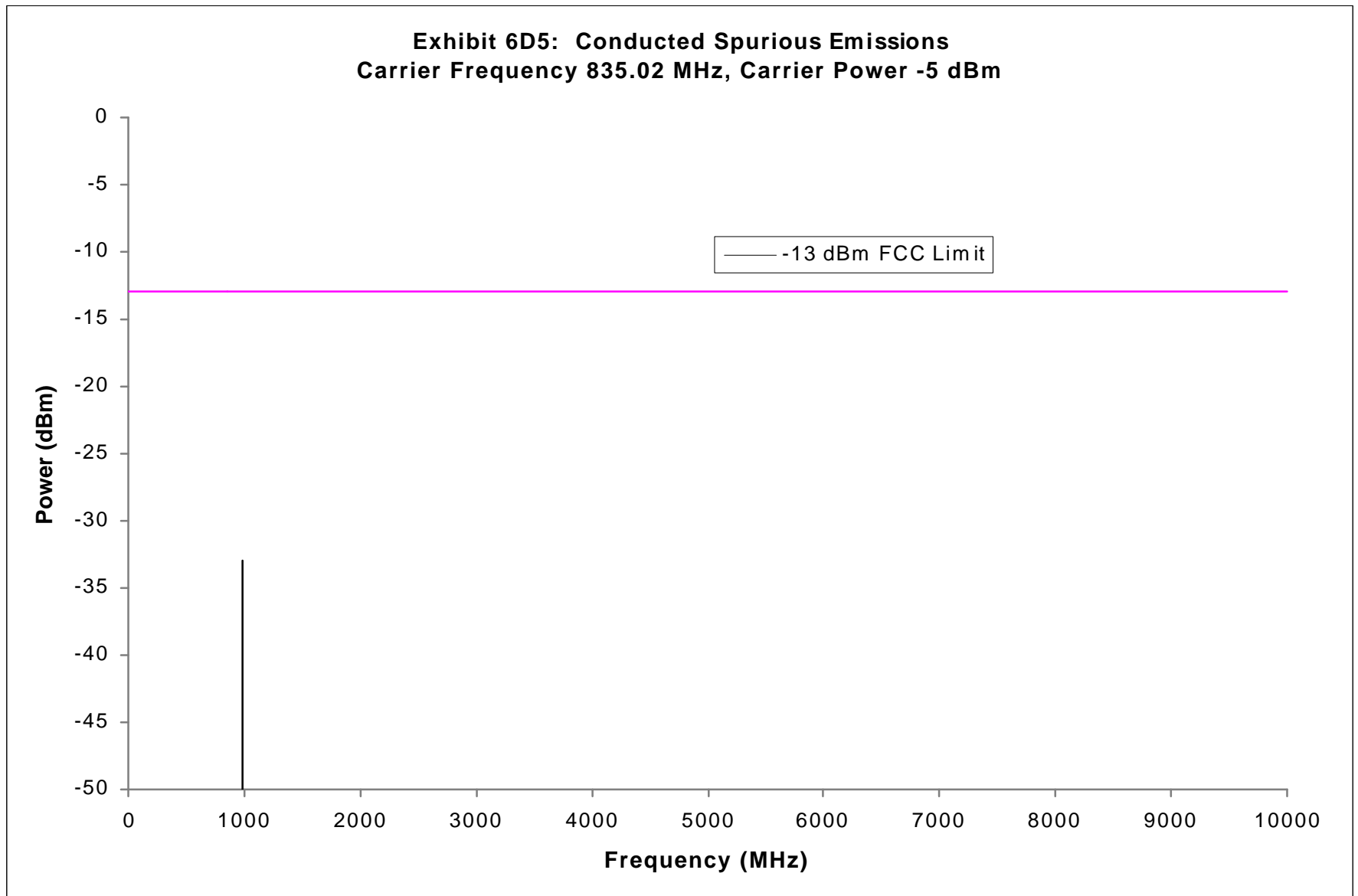


Exhibit 6E1

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 1 and CLASS 4, at low, middle, and high ends of the band. The worst case plots for each power level are shown below. Measurements recorded are peak measurements.

<u>EXHIBIT</u>	<u>FREQUENCY</u>	<u>OUTPUT POWER</u>
6E2	824.04 MHz	3 W
6E3	824.04 MHz	0.355 W

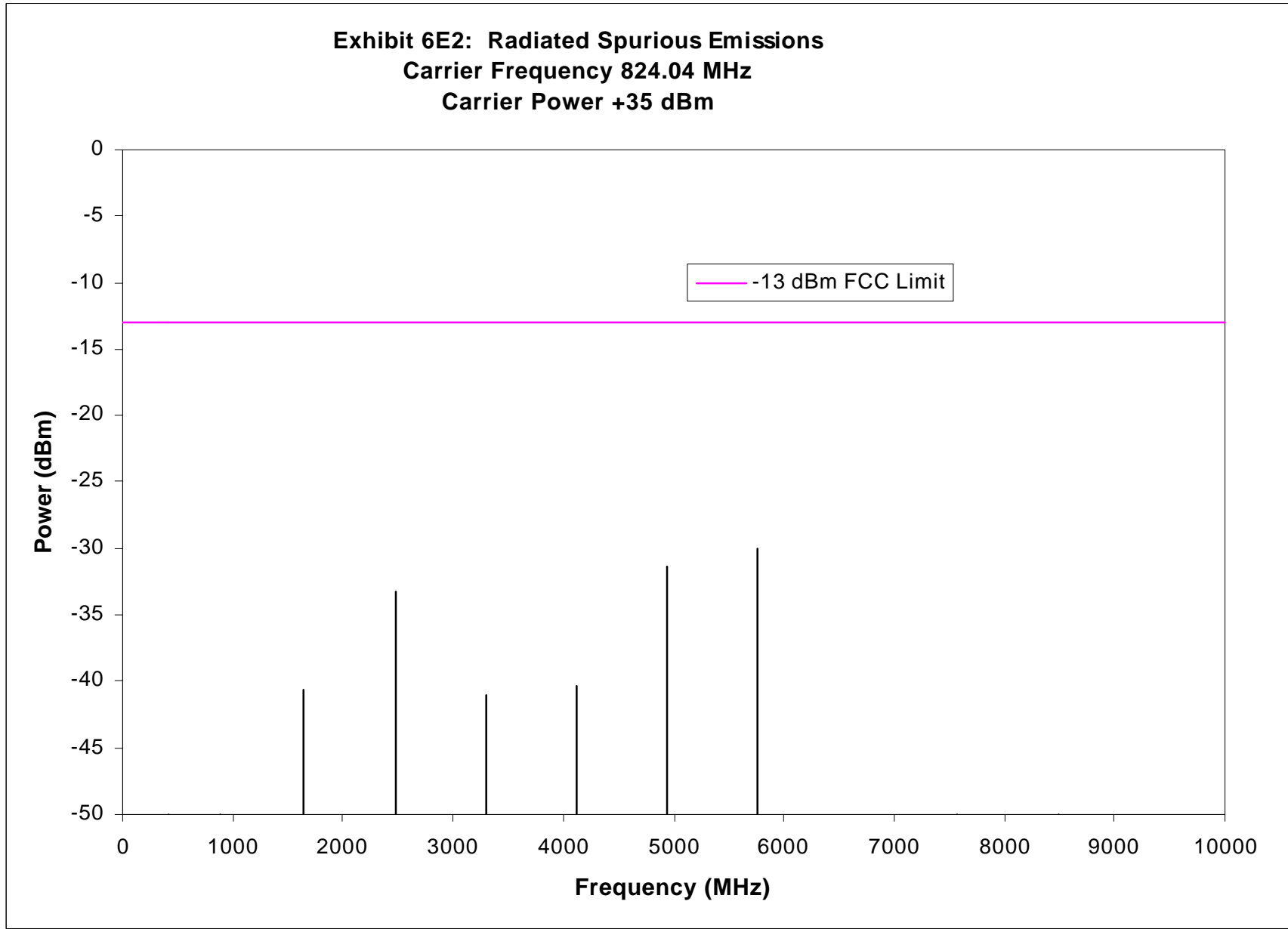
The measurements were made per EIA/TIA IS-137A using the following equipment:

Receive Equipment:

<u>Item</u>	<u>Description</u>	<u>Manufacturer</u>
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:

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



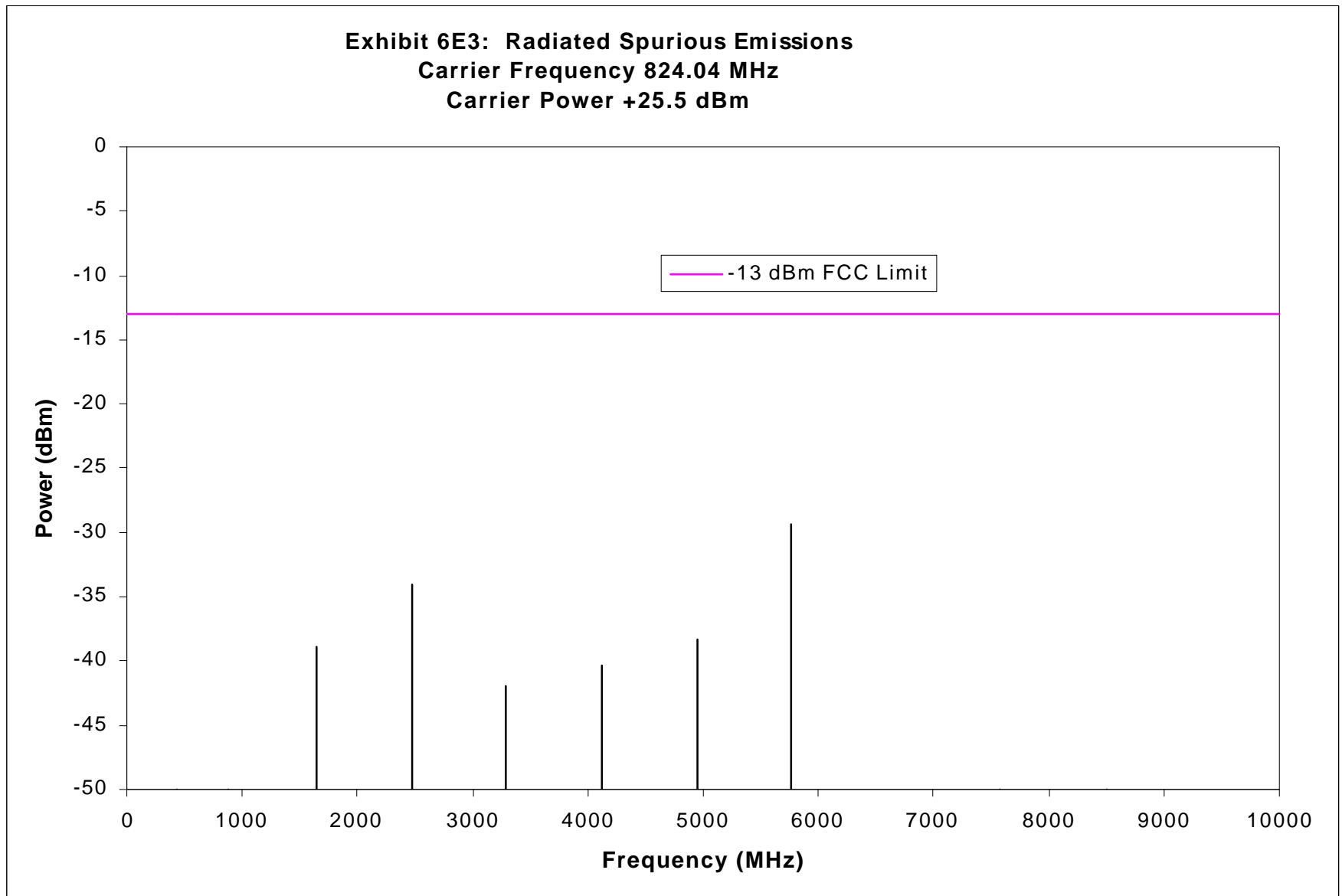


EXHIBIT 6F1

FREQUENCY STABILITY

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

Variation of output frequency as a result of varying either voltage or temperature is shown in Exhibits 6F2 through 6F6.

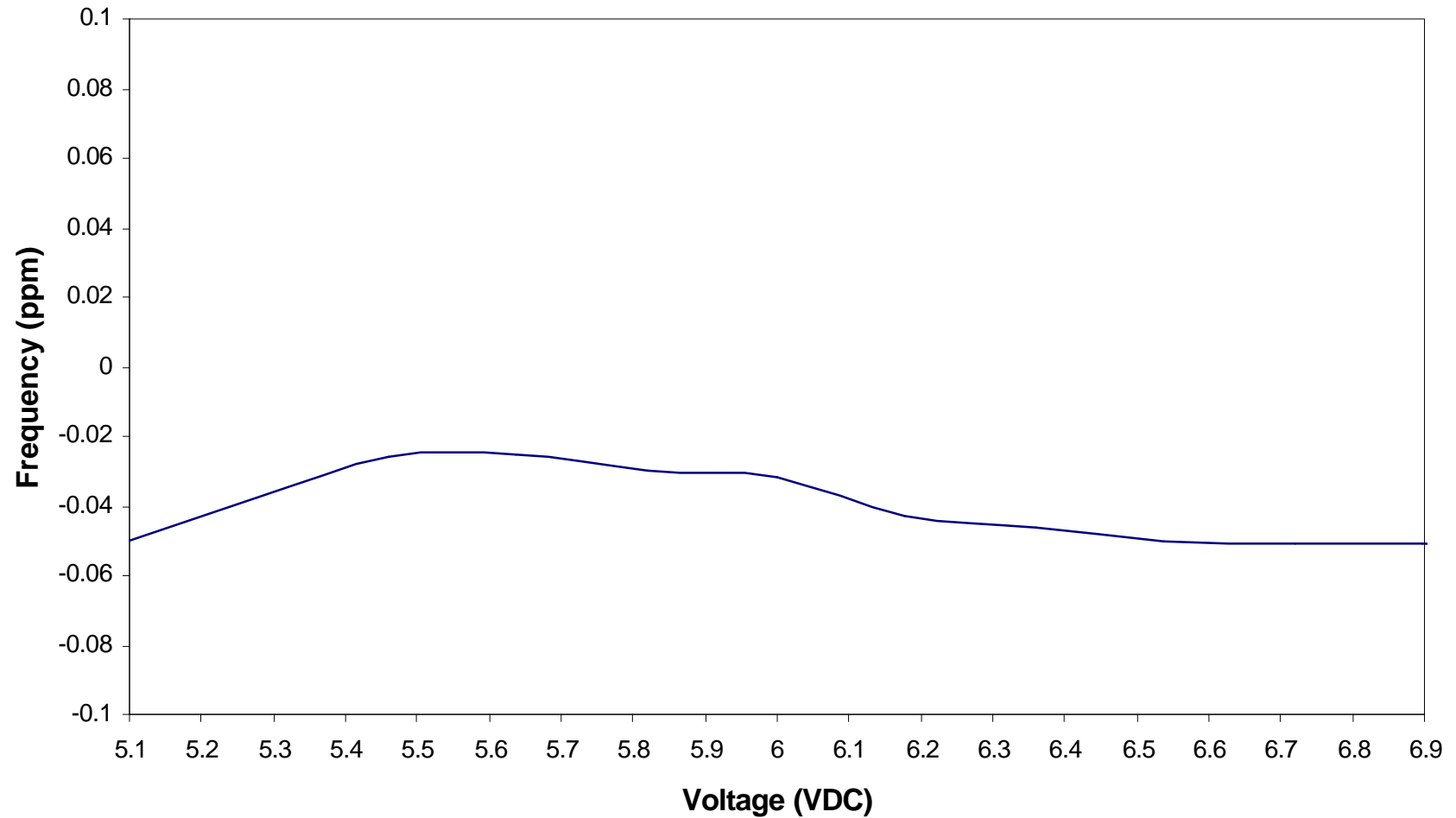
<u>EXHIBIT #</u>	<u>Input Voltage</u>	<u>Temperature</u>	<u>Mode</u>
6F2	6.0 V Varied $\pm 15\%$	+25 °C	Analog (CLASS 1)
6F3	13.6 V Varied $\pm 20\%$	+25 °C	Analog (CLASS 1)
6F4	6.0 VDC, 13.6 VDC	Varied	Analog (CLASS 1)
6F5	6.0 V Varied $\pm 15\%$	+25 °C	Digital (CLASS 4)
6F6	6.0 VDC	Varied	Digital (CLASS 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 13.6V input is varied over its 20% rated range of 10.9 VDC to 16.3 VDC. The 13.6 V supply voltage is only used by the CLASS 1 AMPS mode (not used with CLASS 4 mode). The manufacturer's specified temperature range is -40°C to $+70^{\circ}\text{C}$.

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, Analog Modulation
Carrier Frequency 835.02 MHz, Carrier Power +35 dBm, Temperature 25 degrees C



**Exhibit 6F3: Transmitter Frequency Error versus Voltage, Analog Modulation
Carrier Frequency 835.02 MHz, Carrier Power +35 dBm, Temperature 25 degrees C**

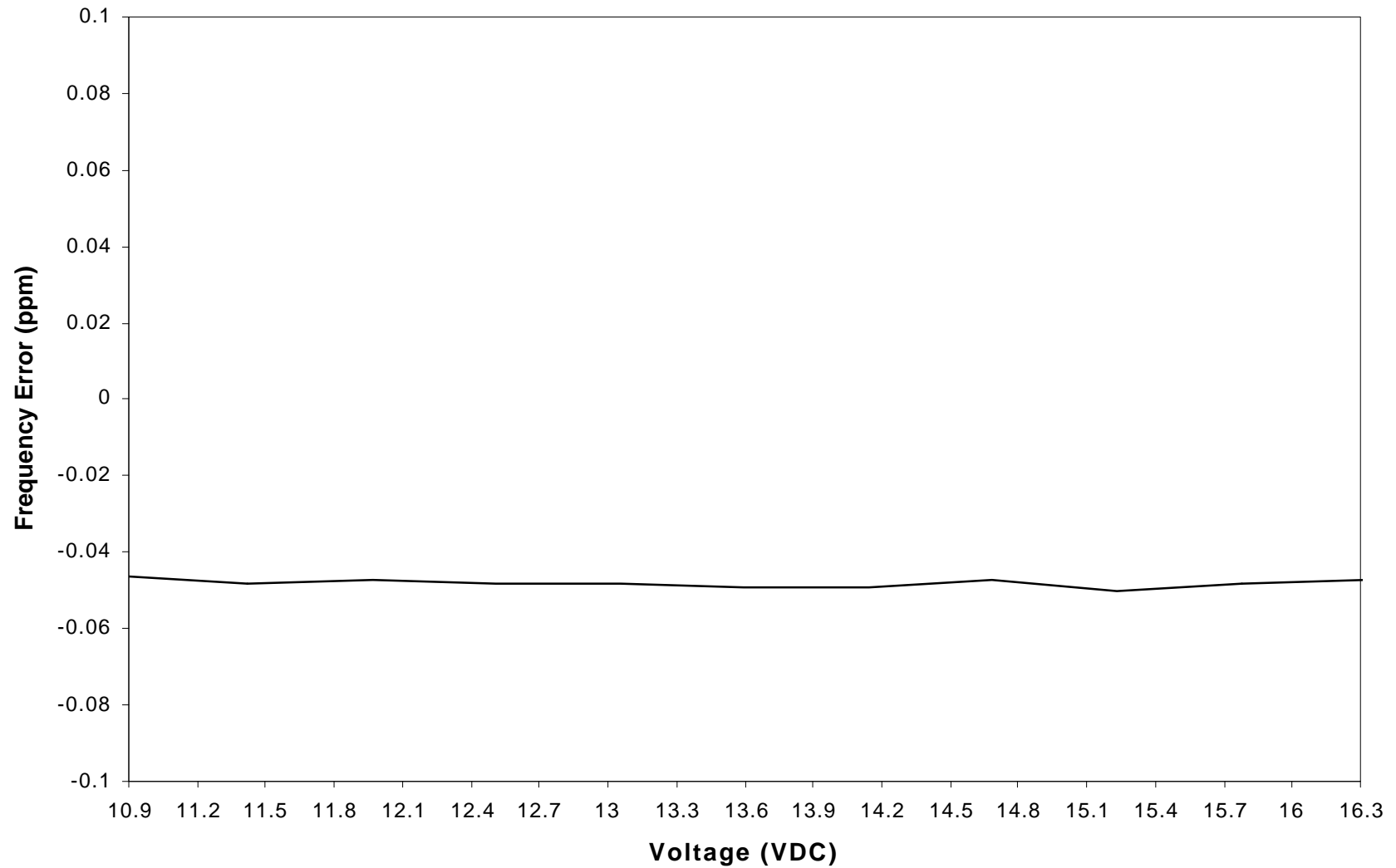


Exhibit 6F4: Transmitter Frequency Error versus Temperature, Analog Modulation
Voltages 6.0 VDC and 13.6 VDC, CarrierPower +35 dBm, Frequency 835.02 MHz

