

**SUBMITTED MEASURED DATA INDEX**

<b>EXHIBIT</b>	<b>MEASUREMENT</b>
9A	RF Power Output-Measured Data (Revised)
9B-1	Audio Response Wide Mode - Graph
9B-2	Audio Response Narrow Mode - Graph
9C	Post Limiter Low Pass Filter Response - Graph
9D-1	Signaling Channel Audio Roll-Off Filter Response-Graph
9D-2	DSAT Audio Roll-Off Filter Response - Graph
9E-1	Modulation Limiting (Compander In Wide Mode) - Graph
9E-2	Modulation Limiting (Compander Out Wide Mode) - Graph
9E-3	Modulation Limiting (Compander In Narrow Mode) - Graph
9E-4	Modulation Limiting (Compander Out Narrow Mode) - Graph
9F-1	Occupied Bandwidth, Audio (Wide Mode) - Plot (Revised)
9F-2	Occupied Bandwidth, Audio and SAT - Plot (Revised)
9F-3	Occupied Bandwidth, Signaling Tone and SAT - Plot (Revised)
9F-4	Occupied Bandwidth, Wide band Data - Plot (Revised)
9F-5	Occupied Bandwidth, Audio (Narrow Mode) - Plot (Revised)
9F-6	Occupied Bandwidth, Audio and DSAT- Plot (Revised)
9F-7	Occupied Bandwidth, Audio and Data (Digital Mode) - Plot (Revised)
9G	Conducted Spurious and Harmonic Emissions - Graph (Revised)
9H	Radiated Spurious and Harmonic Emissions - Graph (Revised)
9J-1	Frequency Change vs. Temperature (Wide Mode) - Graph
9J-2	Frequency Change vs. Temperature (Narrow Mode) - Graph
9J-3	Frequency Change vs. Temperature (Digital Mode) - Graph
9K-1	Frequency Change vs. Supply Voltage (Wide Mode) - Graph
9K-2	Frequency Change vs. Supply Voltage (Narrow Mode) - Graph
9K-3	Frequency Change vs. Supply Voltage (Digital Mode) - Graph

**RF POWER OUTPUT DATA**

The input supply to the transmitter was set at 3.6 Volts. The RF power output was measured with the indicated voltage and current applied into the final RF amplifying device(s).

**ANALOG MODE**

Measured RF output: 0.540 W

Measured DC voltage: 3.6 V

Measured DC current: 635 mA (Alternate P.A.: 550 mA)

Measured RF input: 5.01 mW

**DIGITAL MODE**

In Digital Mode the values measured for RF Output, DC Current and RF Input Power are all average values which reflect a 100% transmit duty cycle in CDMA operation.

Measured RF output: 0.251 W

Measured DC voltage: 3.6 V

Measured DC current: 570 mA (Alternate P.A.: 400 mA)

Measured RF input: 1.585 mW

**Effective Radiated Power**

Since the unit is intended for use with a provided antenna (and "non-standard" RF connector), EIRP is measured. The dipole antenna substitution method was used. The result indicated is the maximum EIRP found over the channels and radio orientations tested. The maximum was found in Analog mode with the antenna in the extended position.

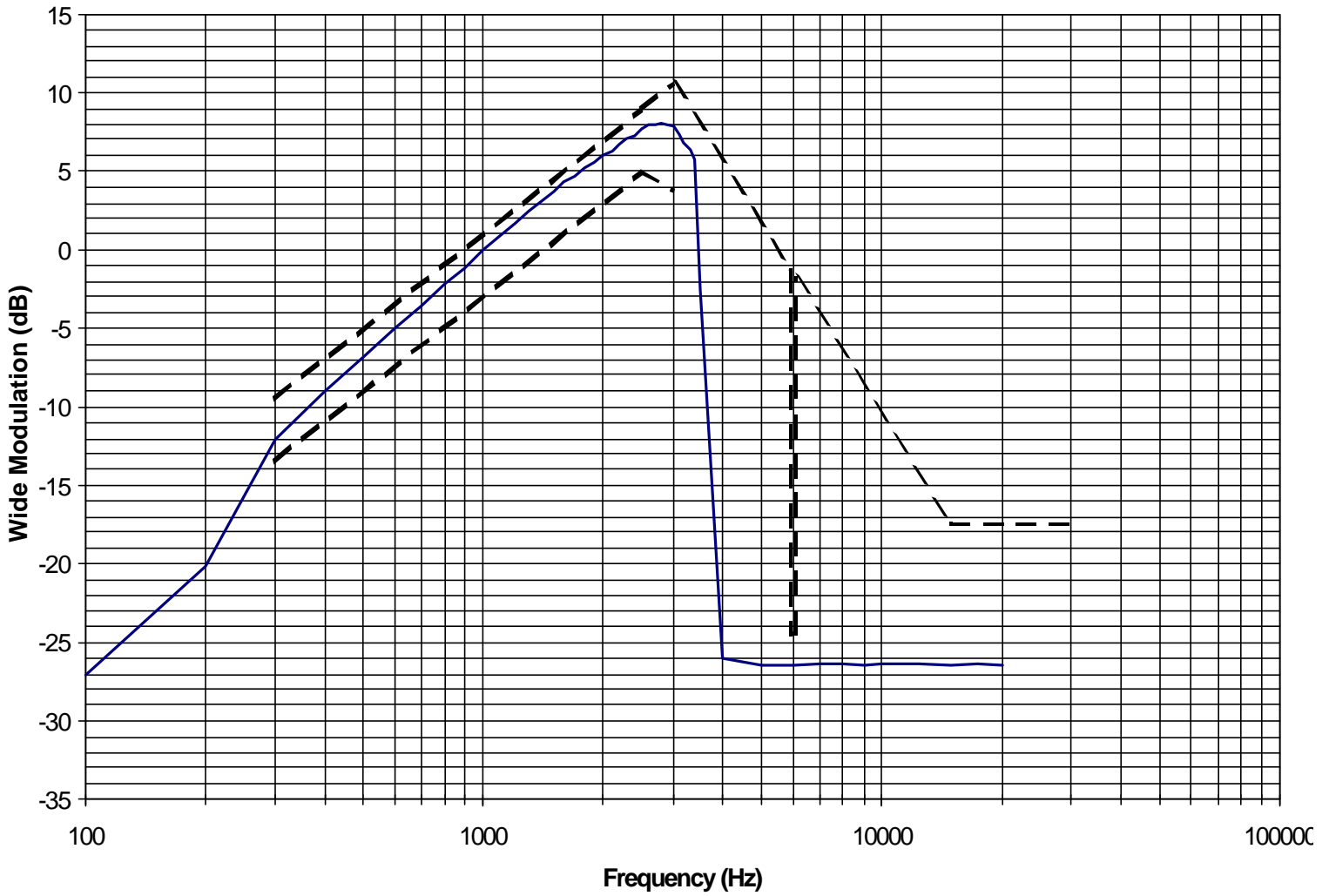
Maximum Effective Isotropic Radiated Power: 28.5 dBm (0.708 W)

**Audio Response Wide Mode -Graph**

Signature:

Date:

**Tx Audio Response – Wide Mode**



Logbook Pg.# 272356

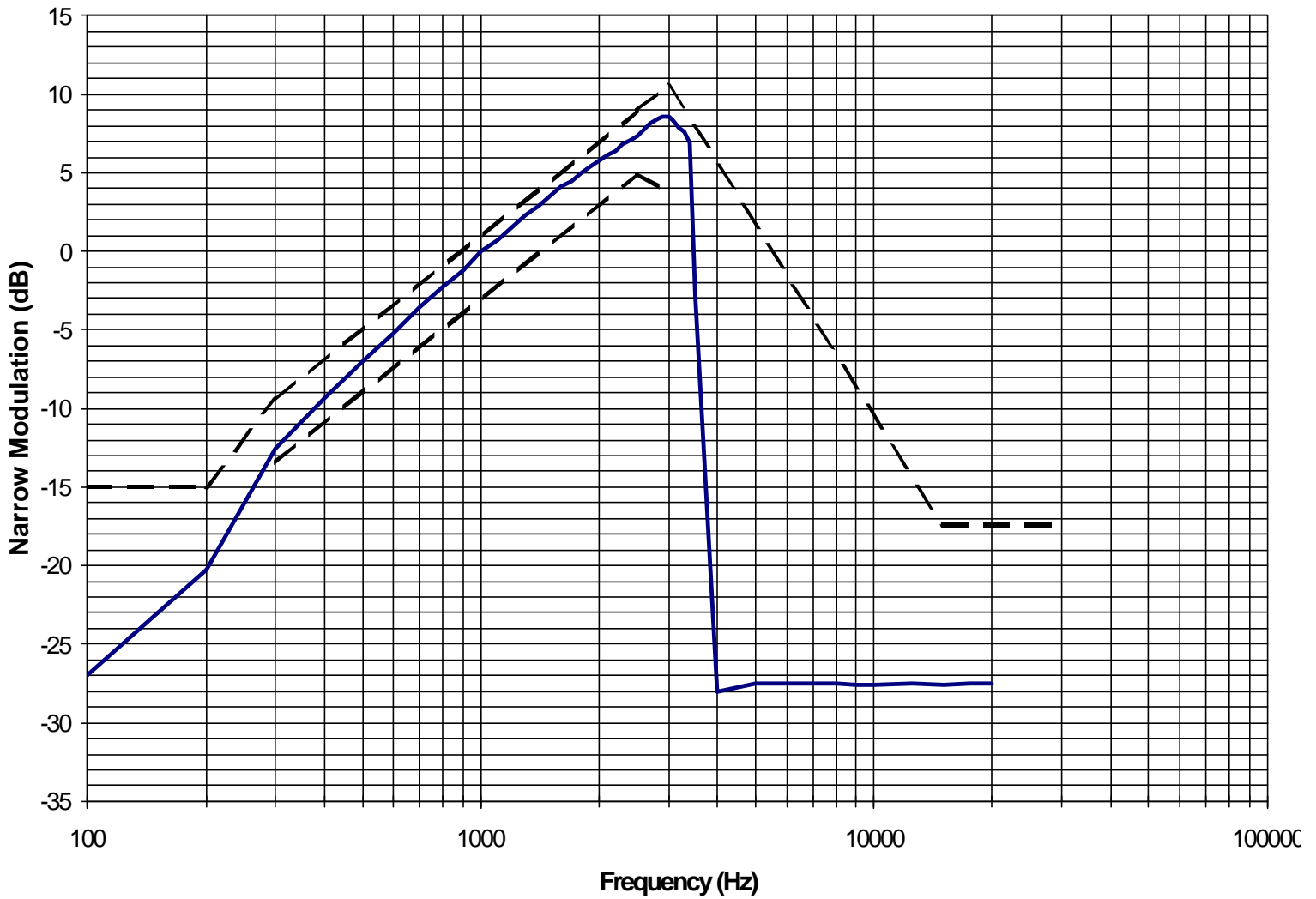
— Wide Modulation (dB) — — LSL — — USL

**Audio Response Narrow Mode-Graph**

Signature:

Date:

**TX Audio Response – Narrow Mode**



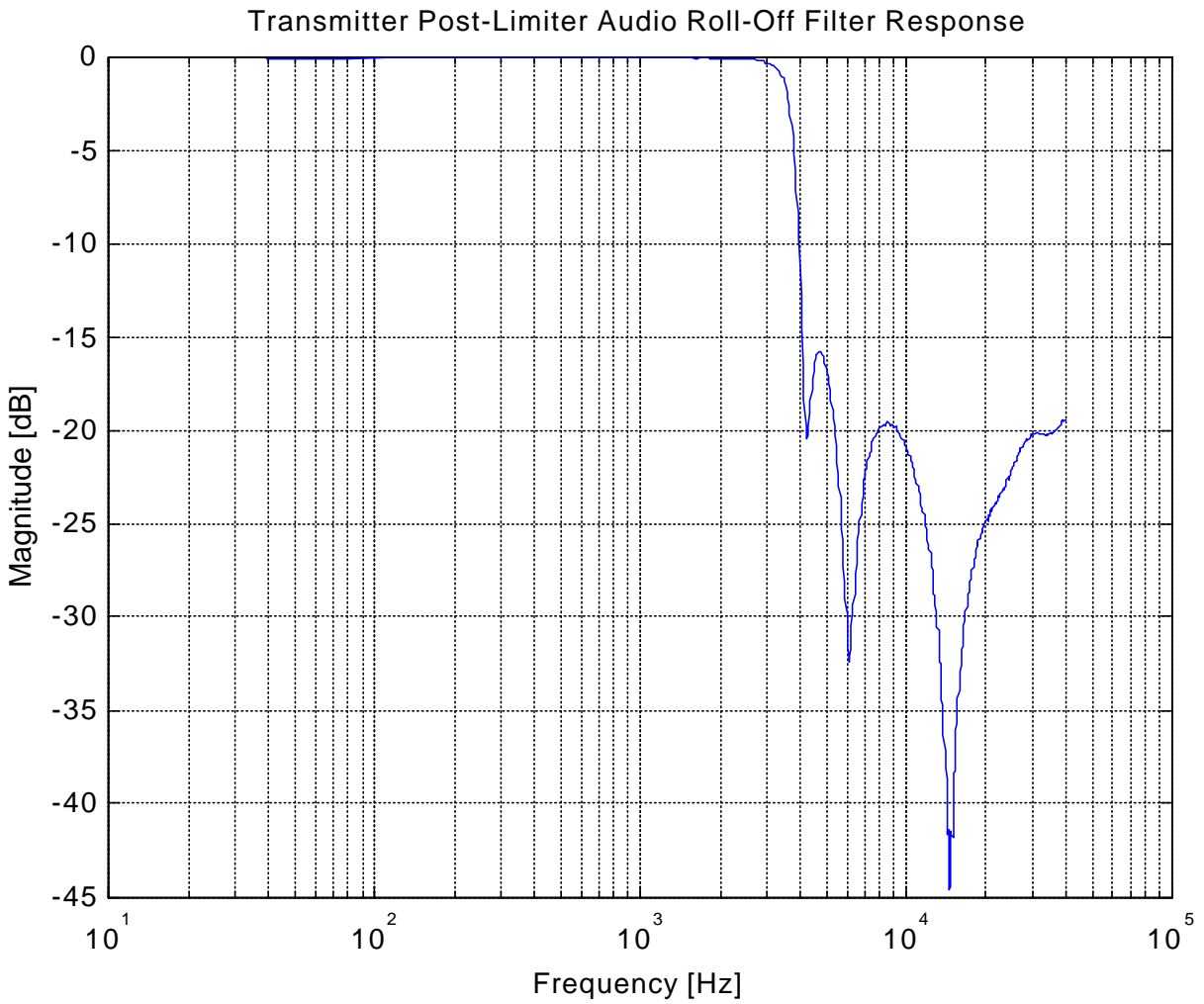
Logbook Pg.# 272356

— Narrow Modulation (dB)    - - - LSL    - - - USL

**Post Limiter Low Pass Filter Response-Graph**

Signature:

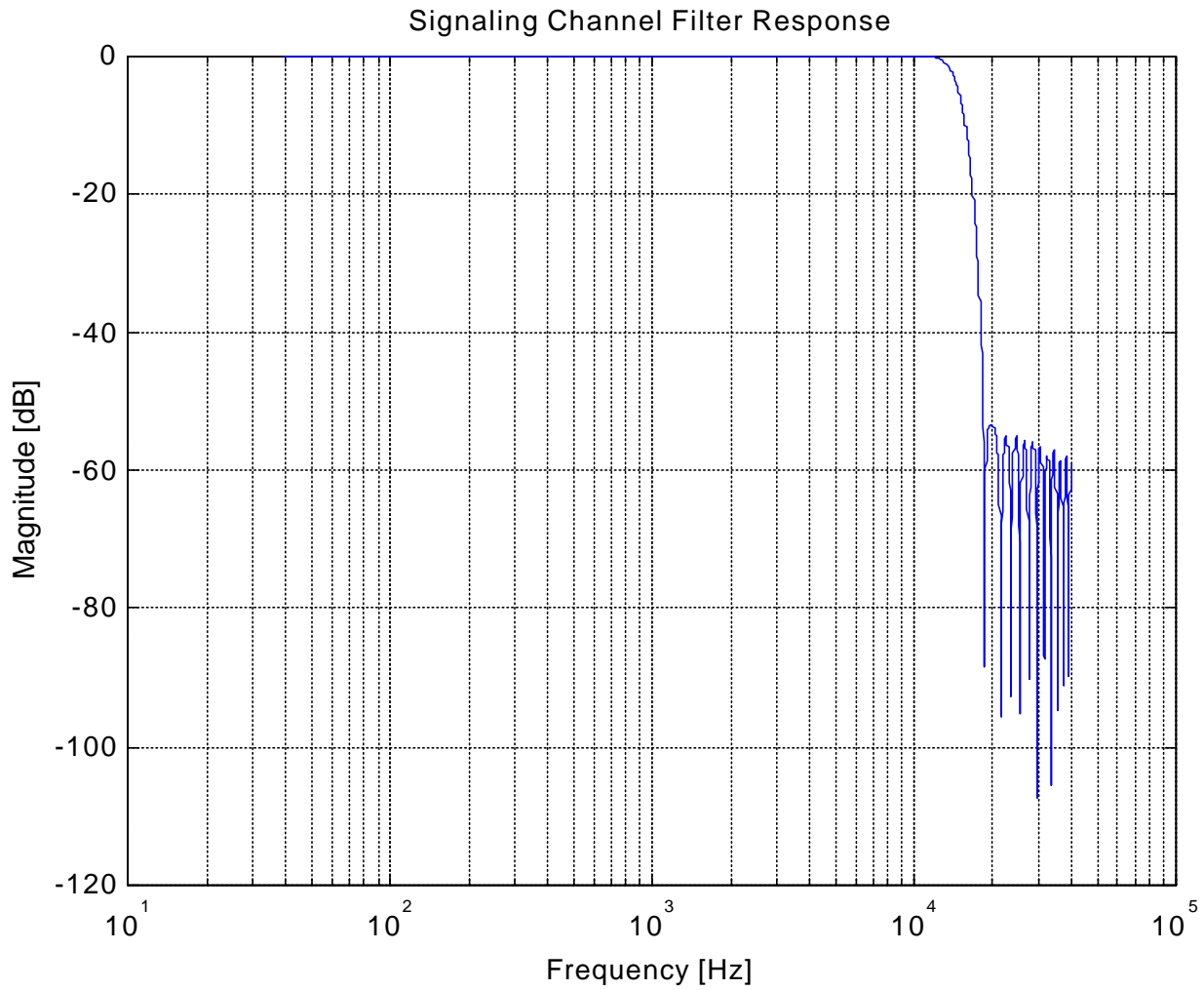
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**Signaling Channel Audio Roll-Off Filter Response-Graph**

Signature:

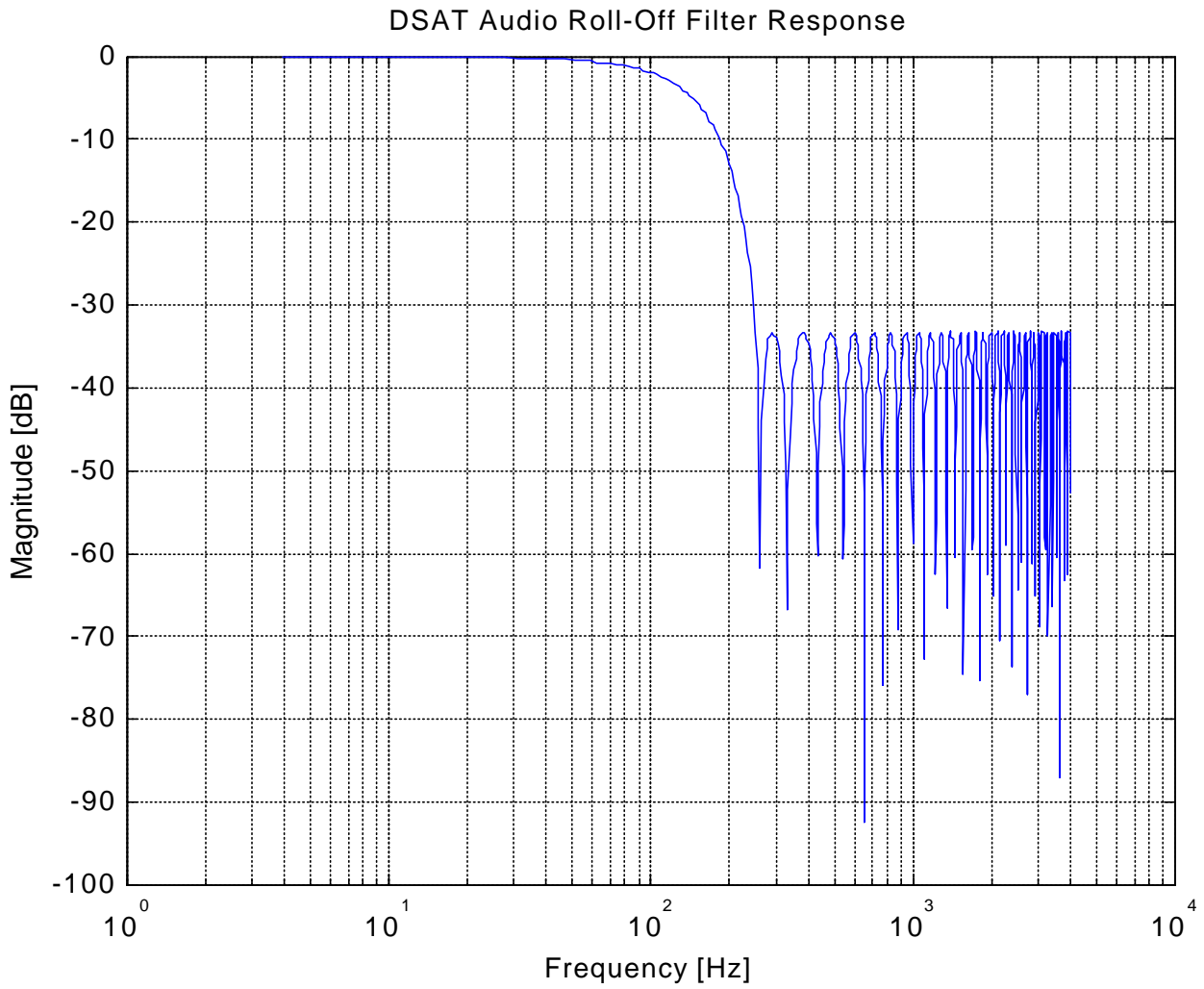
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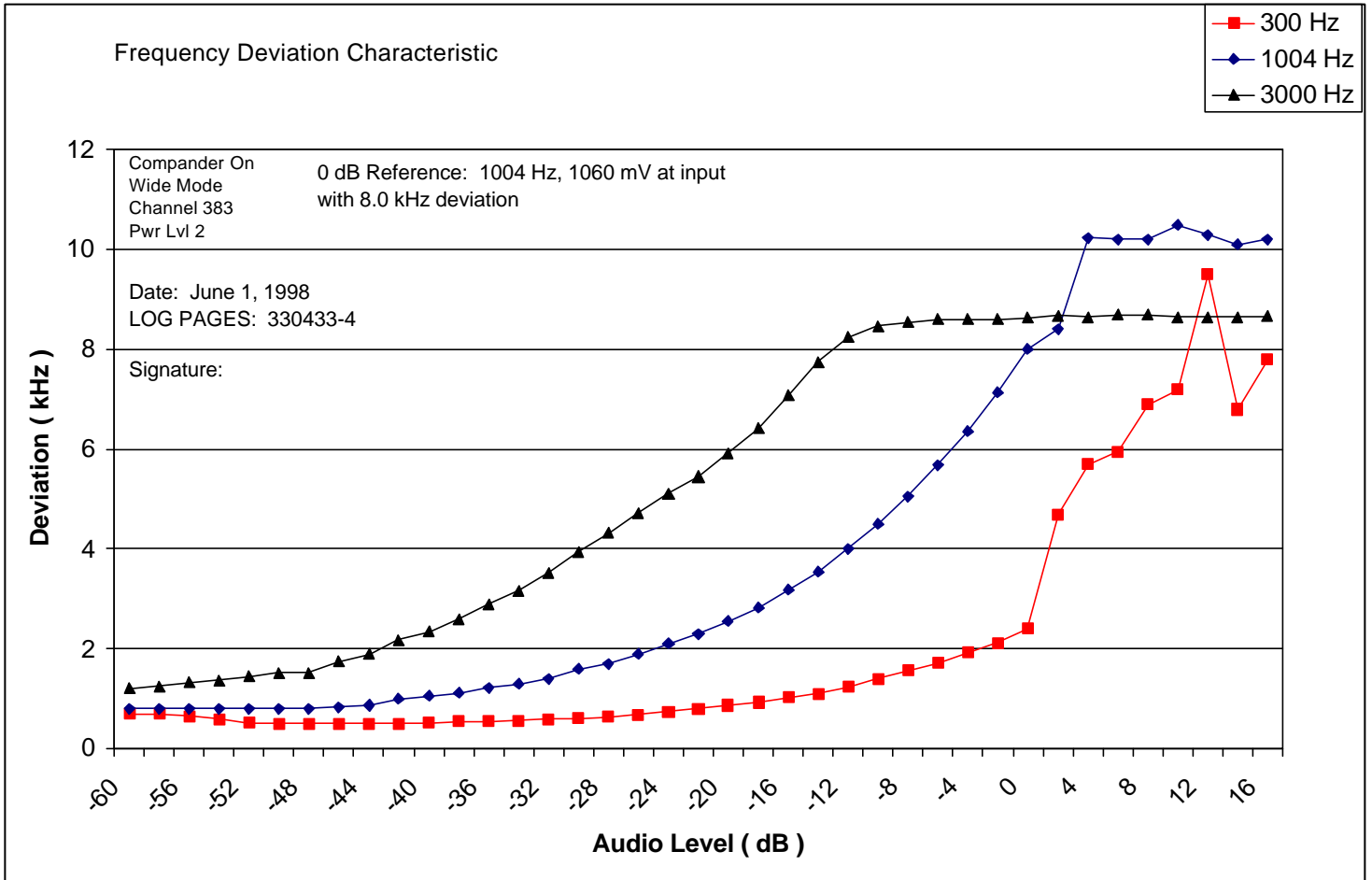
**DSAT Audio Roll-Off Filter Response-Graph**

Signature:

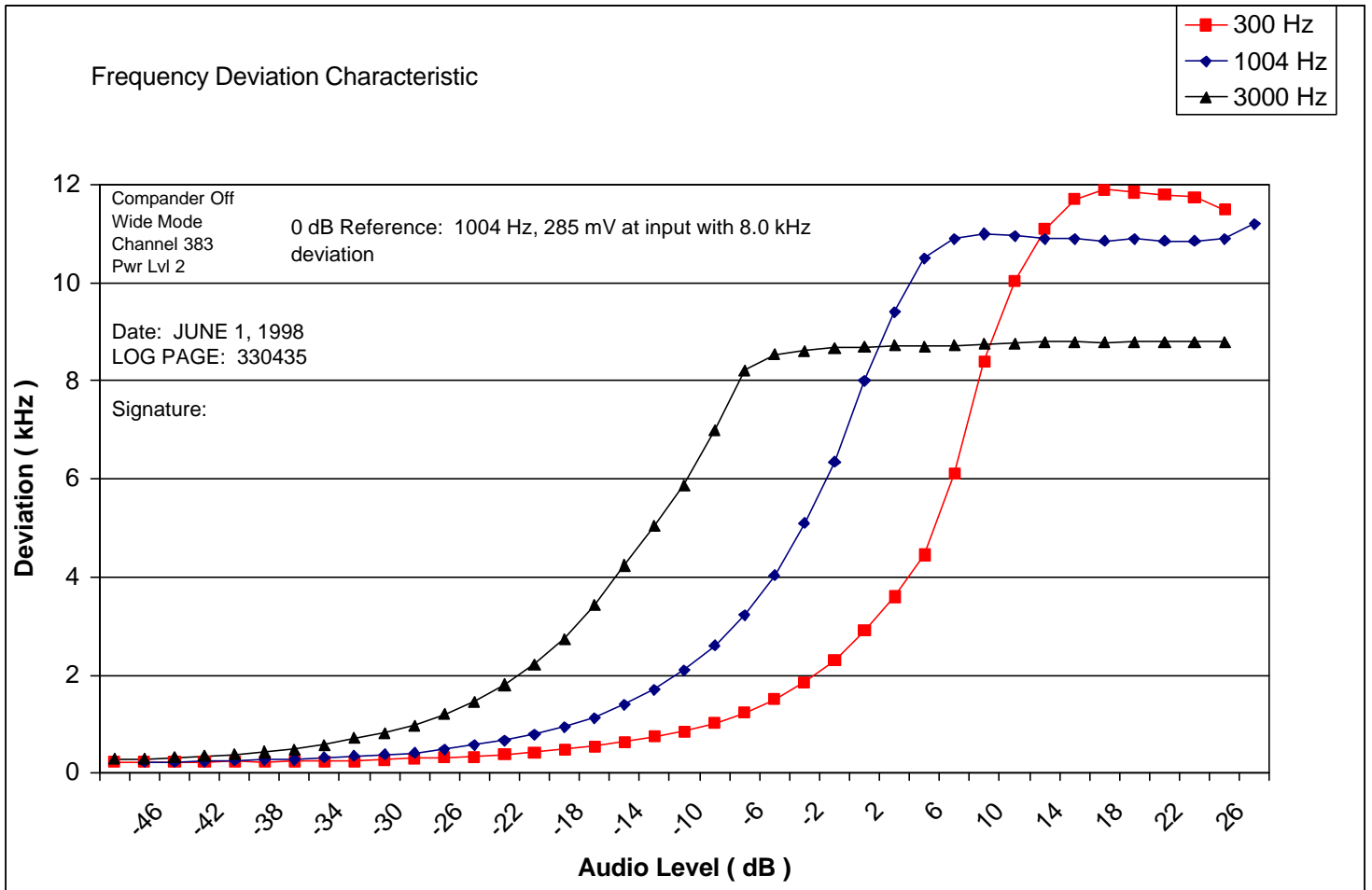
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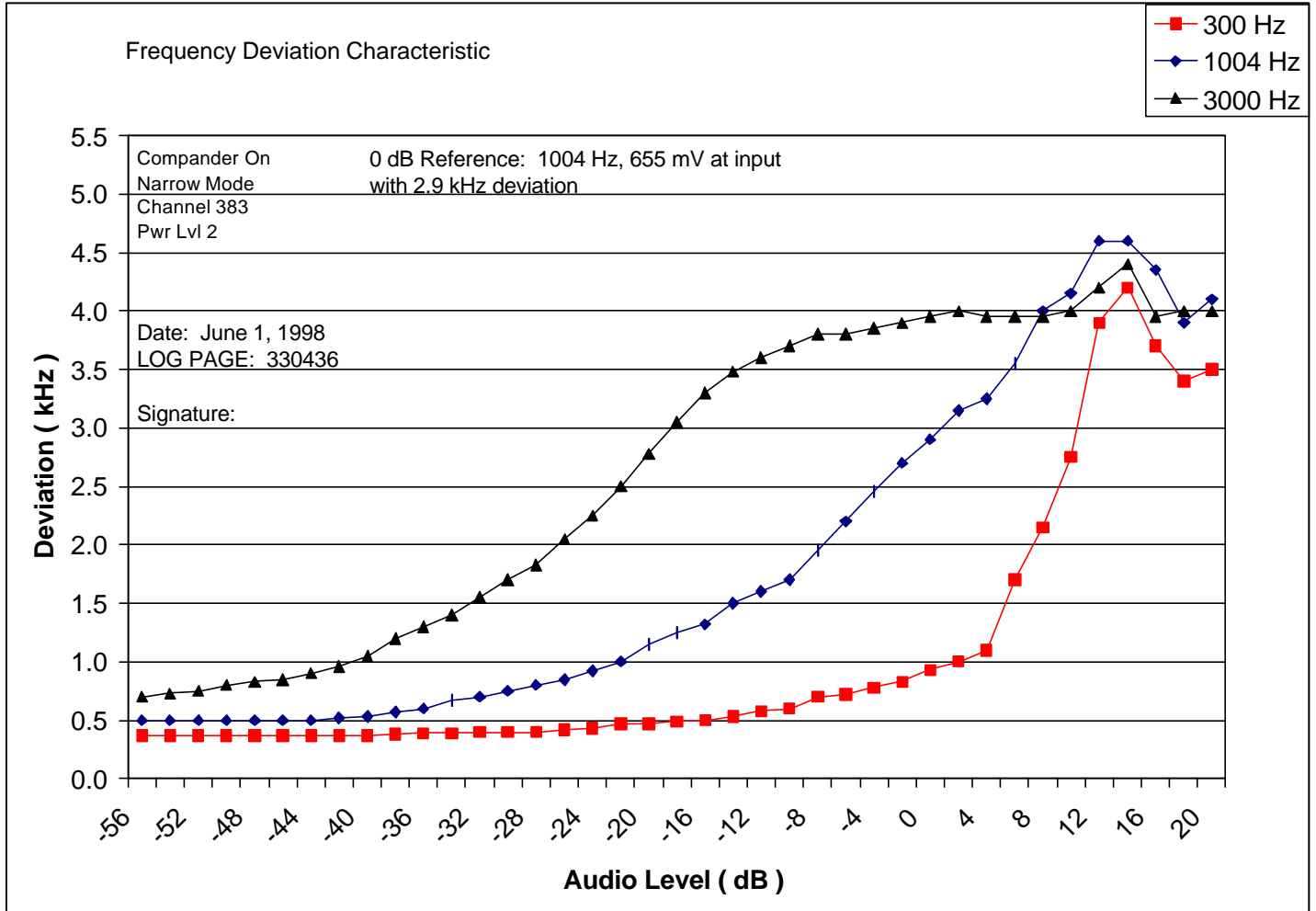
**Modulation Limiting (Compander In Wide Mode)-Graph**



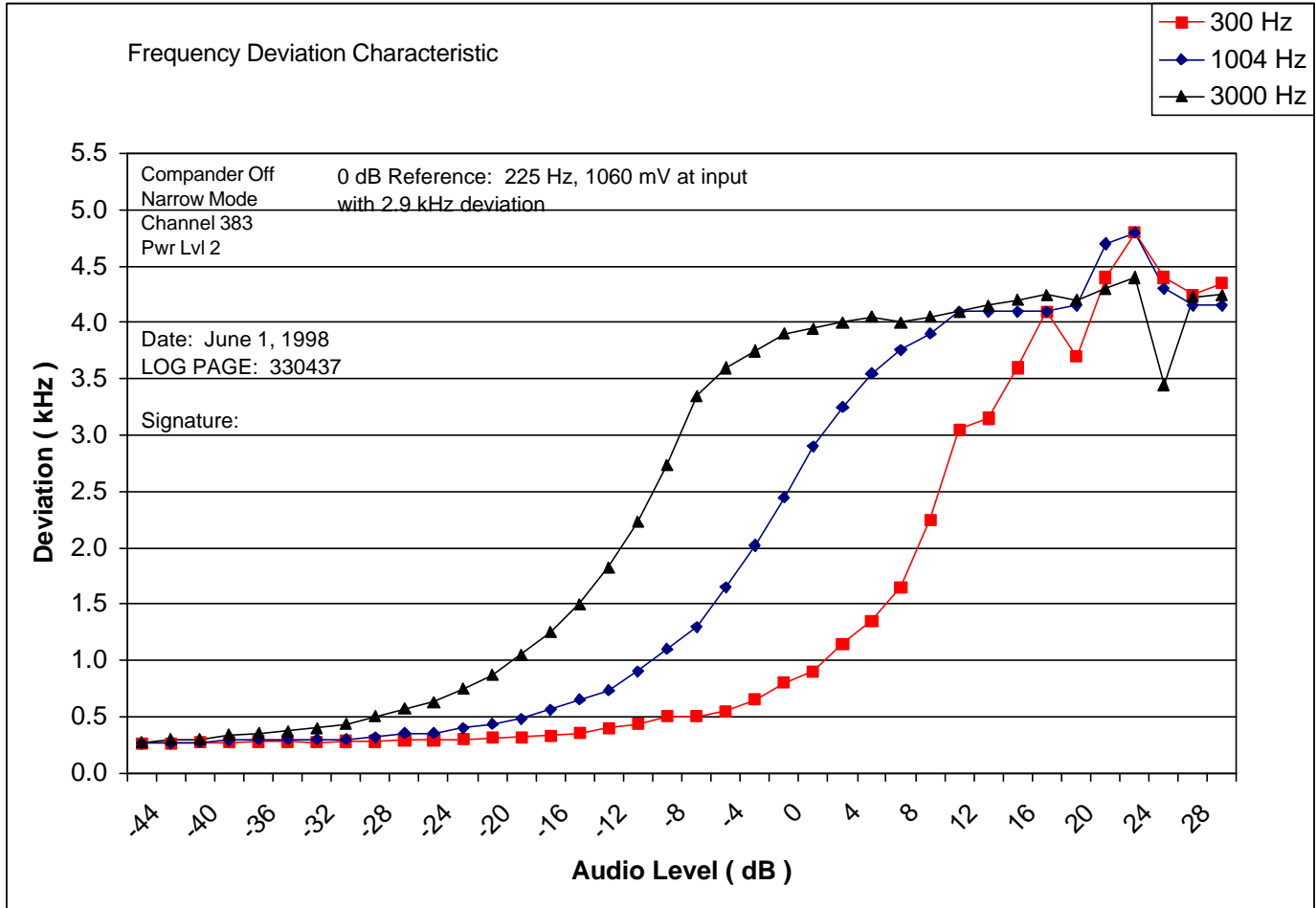
**Modulation Limiting (Compander Out Wide Mode)-Graph**



**Modulation Limiting (Componder In Narrow Mode)-Graph**



**Modulation Limiting (Componder Out Narrow Mode)-Graph**



**BANDWIDTH MEASUREMENT DATA FOR TRANSMITTER TYPES F8W**

**DEVIATION OF THE CARRIER WITH 2500 Hz AUDIO MODULATION**

**HORIZONTAL SCALE = 20 kHz / DIVISION**

**VERTICAL SCALE = 10 dB / DIVISION (REFERENCE LEVEL = 30 dBm)**

**RESOLUTION BANDWIDTH = 300 Hz**

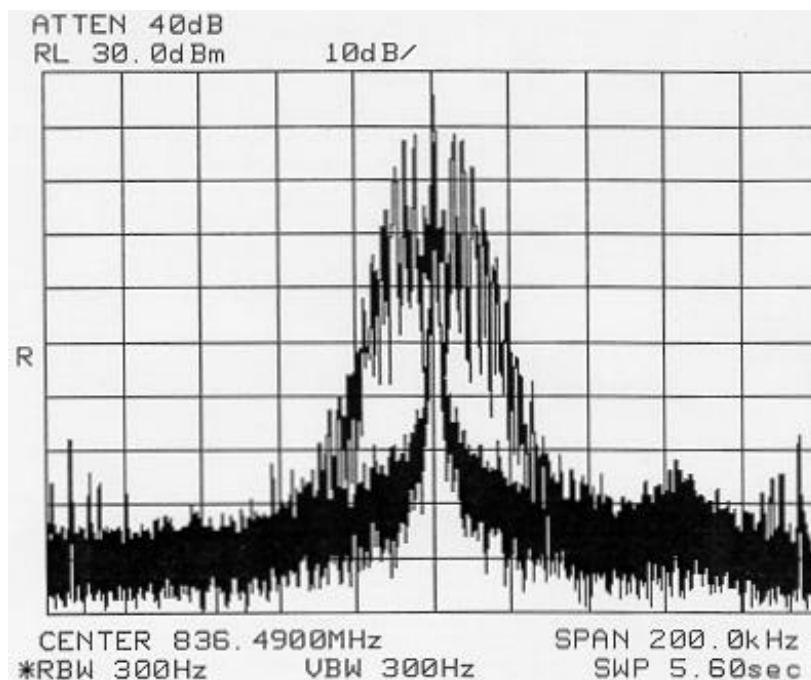
**VIDEO BANDWIDTH = 300 Hz**

**AUDIO LEVEL = 16 dB GREATER THAN LEVEL REQUIRED TO PRODUCE +/- 6 kHz**

**POWER LEVEL = 0.54 W**

**MEASURED DATA:**

1. Instantaneous Deviation Control set for a maximum of +/- 12 kHz.
2. Tune and adjust to obtain unmodulated carrier on the spectrum analyzer. Save trace of the unmodulated carrier.
3. Modulate the transmitter with the 2500 Hz tone, 16 dB greater than that required to produce +/- 6 kHz modulation. Photograph the sideband display while it is superimposed upon the unmodulated carrier.



**SPEC LIMITS:**

- a. On any frequency removed from the assigned carrier frequency by more than 20 kHz, up to and including 45 kHz, the sideband is at least 26 dB below the carrier.
- b. On any frequency removed from the assigned carrier frequency by more than 45 kHz, up to the first multiple of the carrier frequency, the sideband is at least 60 dB below the carrier or  $63 + 10\log_{10}(\text{mean output power in Watts})$  dB, whichever is the smaller attenuation.

**BANDWIDTH MEASUREMENT DATA FOR TRANSMITTER TYPES F8W**

**DEVIATION OF THE CARRIER WITH 2500 Hz AUDIO MODULATION AND SUPERVISORY AUDIO TONE**

**HORIZONTAL SCALE = 20 kHz / DIVISION**

**VERTICAL SCALE = 10 dB / DIVISION (REFERENCE LEVEL = 30 dBm)**

**RESOLUTION BANDWIDTH = 300 Hz**

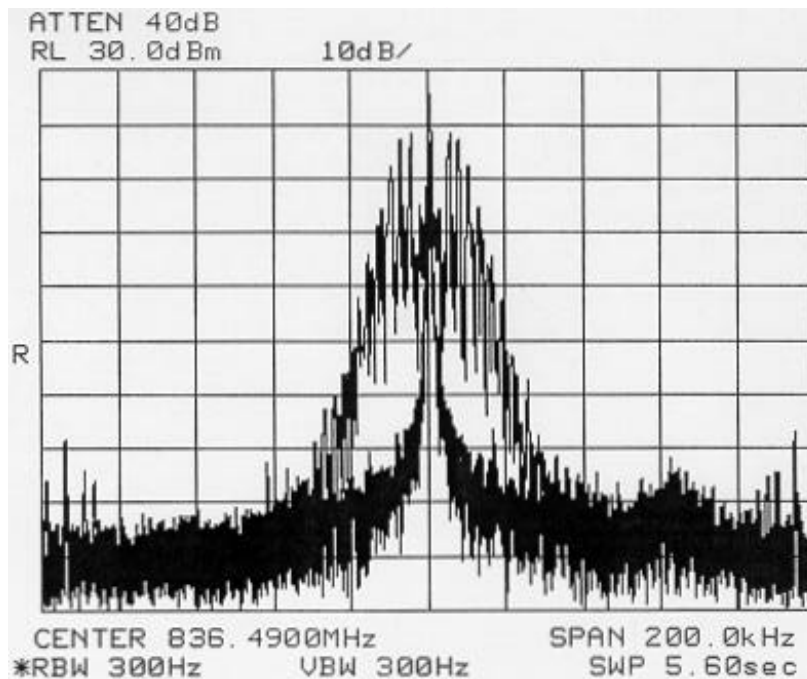
**VIDEO BANDWIDTH = 300 Hz**

**AUDIO LEVEL = 16 dB GREATER THAN LEVEL REQUIRED TO PRODUCE +/- 6 kHz**

**POWER LEVEL = 0.54 W**

**MEASURED DATA:**

1. Instantaneous Deviation Control set for a maximum of +/- 12 kHz.
2. Tune and adjust to obtain unmodulated carrier on the spectrum analyzer. Save trace of the unmodulated carrier.
3. Modulate the transmitter with signaling tone with the 2500 Hz tone, 16 dB greater than that required to produce +/- 6 kHz modulation add SAT with +/- 2kHz of deviation. Photograph the sideband display while it is superimposed upon the unmodulated carrier.



**SPEC LIMITS:**

- a. On any frequency removed from the assigned carrier frequency by more than 20 kHz, up to and including 45 kHz, the sideband is at least 26 dB below the carrier.
- b. On any frequency removed from the assigned carrier frequency by more than 45 kHz, up to the first multiple of the carrier frequency, the sideband is at least 60 dB below the carrier or  $63 + 10\log_{10}(\text{mean output power in Watts})$  dB, whichever is the smaller attenuation.

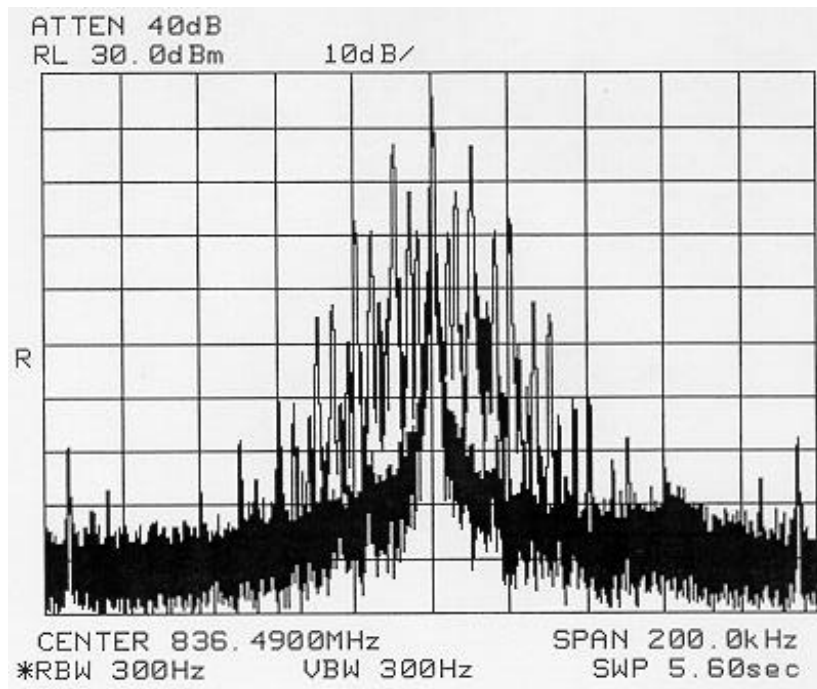
**BANDWIDTH MEASUREMENT DATA FOR TRANSMITTER TYPES F1D**

**DEVIATION OF THE CARRIER WITH 10 kHz SIGNALING TONE AND SUPERVISORY AUDIO TONE**

**HORIZONTAL SCALE = 20 kHz / DIVISION**  
**VERTICAL SCALE = 10 dB / DIVISION (REFERENCE LEVEL = 30 dBm)**  
**RESOLUTION BANDWIDTH = 300 Hz**  
**VIDEO BANDWIDTH = 300 Hz**  
**POWER LEVEL = 0.54 W**

**MEASURED DATA:**

1. Instantaneous Deviation Control set for a maximum of +/- 12 kHz.
2. Tune and adjust to obtain unmodulated carrier on the spectrum analyzer. Save trace of the unmodulated carrier.
3. Modulate the transmitter with signaling tone with +/- 8 kHz deviation and add SAT with +/- 2kHz of deviation. Photograph the sideband display while it is superimposed upon the unmodulated carrier.



**SPEC LIMITS:**

- a. On any frequency removed from the assigned carrier frequency by more than 20 kHz, up to and including 45 kHz, the sideband is at least 26 dB below the carrier.
- b. On any frequency removed from the assigned carrier frequency by more than 45 kHz, up to and including 90 kHz, the sideband is at least 45 dB below the carrier.
- c. On any frequency removed from the assigned carrier frequency by more than 90 kHz, up to the first multiple of the carrier frequency, the sideband is at least 60 dB below the carrier or  $63 + 10\log_{10}(\text{mean output power in Watts})$  dB, whichever is the smaller attenuation.

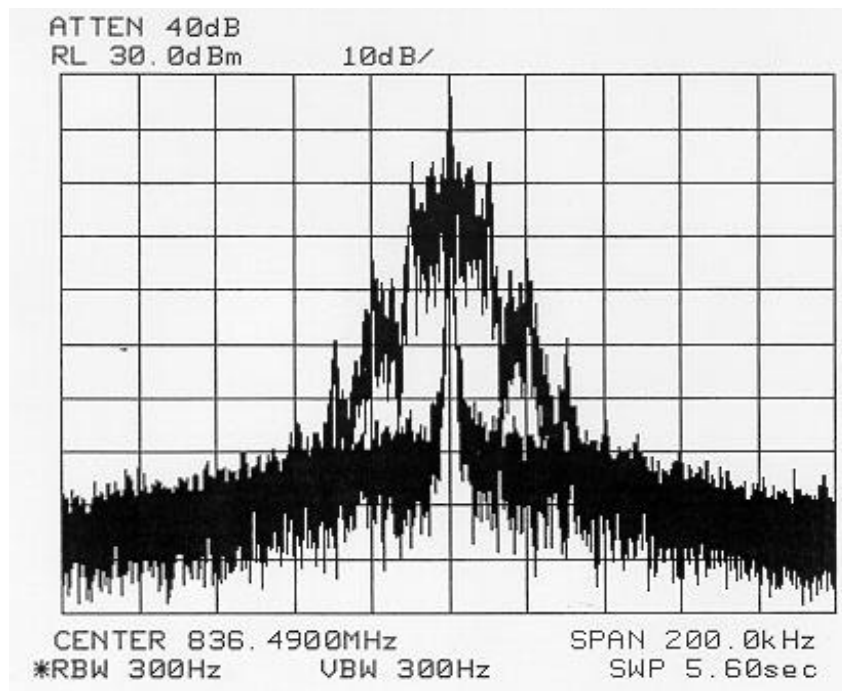
**BANDWIDTH MEASUREMENT DATA FOR TRANSMITTER TYPES F1D**

**DEVIATION OF THE CARRIER WITH WIDE BAND DATA**

**HORIZONTAL SCALE = 20 kHz / DIVISION**  
**VERTICAL SCALE = 10 dB / DIVISION (REFERENCE LEVEL = 30 dBm)**  
**RESOLUTION BANDWIDTH = 300 Hz**  
**VIDEO BANDWIDTH = 300 Hz**  
**POWER LEVEL = 0.54 W**

**MEASURED DATA:**

1. Instantaneous Deviation Control set for a maximum of +/- 12 kHz.
2. Tune and adjust to obtain unmodulated carrier on the spectrum analyzer. Save trace of the unmodulated carrier.
3. Modulate the transmitter with wide band data with +/- 8 kHz. Photograph the sideband display while it is superimposed upon the unmodulated carrier.



**SPEC LIMITS:**

- a. On any frequency removed from the assigned carrier frequency by more than 20 kHz, up to and including 45 kHz, the sideband is at least 26 dB below the carrier.
- b. On any frequency removed from the assigned carrier frequency by more than 45 kHz, up to and including 90 kHz, the sideband is at least 45 dB below the carrier.
- c. On any frequency removed from the assigned carrier frequency by more than 90 kHz, up to the first multiple of the carrier frequency, the sideband is at least 60 dB below the carrier or  $63 + 10\log_{10}(\text{mean output power in Watts})$  dB, whichever is the smaller attenuation.

**BANDWIDTH MEASUREMENT DATA FOR TRANSMITTER TYPES F9W**

**DEVIATION OF THE CARRIER WITH 2500 Hz AUDIO MODULATION (NARROW MODE)**

**HORIZONTAL SCALE = 10 kHz / DIVISION**

**VERTICAL SCALE = 10 dB / DIVISION (REFERENCE LEVEL = 30 dBm)**

**RESOLUTION BANDWIDTH = 300 Hz**

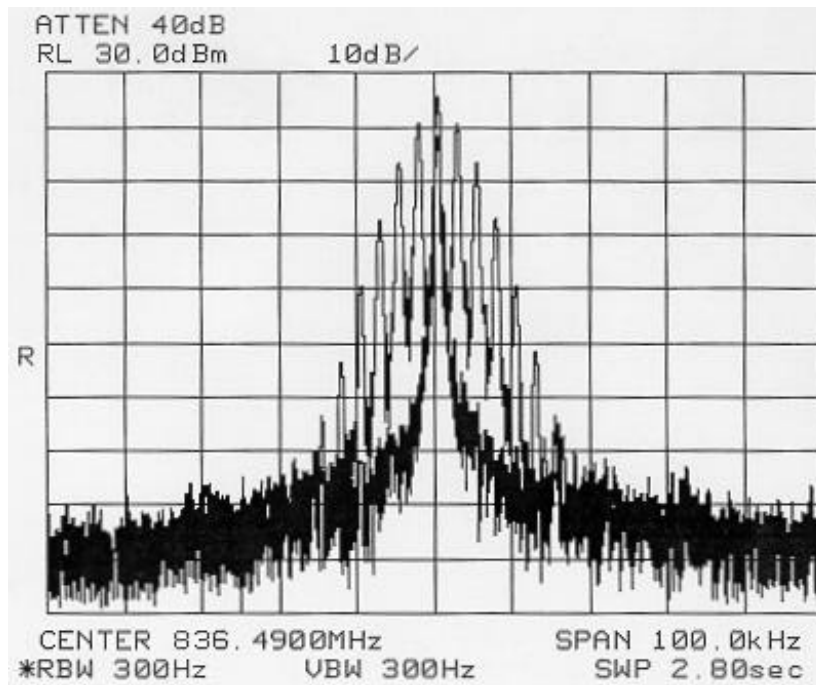
**VIDEO BANDWIDTH = 300 Hz**

**AUDIO LEVEL = 16 dB GREATER THAN LEVEL REQUIRED TO PRODUCE +/- 2.5 kHz**

**POWER LEVEL = 0.54 W**

**MEASURED DATA:**

1. Instantaneous Deviation Control set for a maximum of +/- 5 kHz.
2. Tune and adjust to obtain unmodulated carrier on the spectrum analyzer. Save trace of the unmodulated carrier.
3. Modulate the transmitter with the 2500 Hz tone, 16 dB greater than that required to produce +/- 2.5 kHz modulation. Photograph the sideband display while it is superimposed upon the unmodulated carrier.



**SPEC LIMITS:**

- a. On any frequency removed from the assigned carrier frequency by more than 9 kHz, up to and including 45 kHz, the sideband is at least 24 dB below the carrier.
- b. On any frequency removed from the assigned carrier frequency by more than 45 kHz, up to the first multiple of the carrier frequency, the sideband is at least 60 dB below the carrier or  $43 + 10\log_{10}(\text{mean output power in Watts})$  dB, whichever is the smaller attenuation.

**BANDWIDTH MEASUREMENT DATA FOR TRANSMITTER TYPES F9W**

**DEVIATION OF THE CARRIER WITH 2500 Hz AUDIO MODULATION AND DSAT (NARROW MODE)**

**HORIZONTAL SCALE = 10 kHz / DIVISION**

**VERTICAL SCALE = 10 dB / DIVISION (REFERENCE LEVEL = 30 dBm)**

**RESOLUTION BANDWIDTH = 300 Hz**

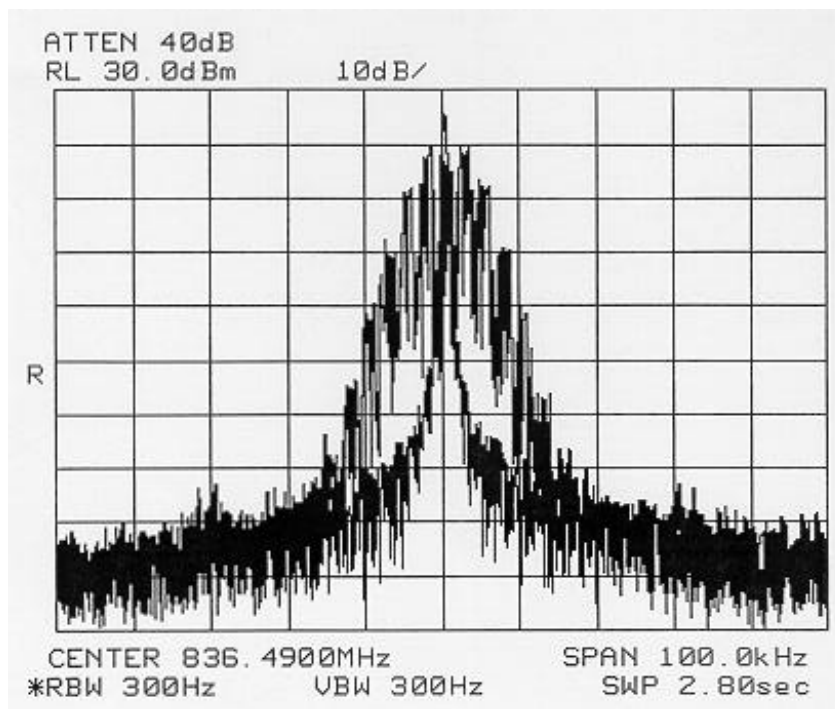
**VIDEO BANDWIDTH = 300 Hz**

**AUDIO LEVEL = 16 dB GREATER THAN LEVEL REQUIRED TO PRODUCE +/- 2.5 kHz**

**POWER LEVEL = 0.54 W**

**MEASURED DATA:**

1. Instantaneous Deviation Control set for a maximum of +/- 5 kHz.
2. Tune and adjust to obtain unmodulated carrier on the spectrum analyzer. Save trace of the unmodulated carrier.
3. Modulate the transmitter with the 2500 Hz tone, 16 dB greater than that required to produce +/- 2.5 kHz modulation and add DSAT with +/- 700 Hz deviation. Photograph the sideband display while it is superimposed upon the unmodulated carrier.



**SPEC LIMITS:**

- a. On any frequency removed from the assigned carrier frequency by more than 15 kHz, up to and including 45 kHz, the sideband is at least 26 dB below the carrier.
- b. On any frequency removed from the assigned carrier frequency by more than 45 kHz, up to the first multiple of the carrier frequency, the sideband is at least 60 dB below the carrier or  $43 + 10\log_{10}(\text{mean output power in Watts})$  dB, whichever is the smaller attenuation.

**BANDWIDTH MEASUREMENT DATA FOR TRANSMITTER TYPES F9W**

**DEVIATION OF THE CARRIER WITH OQPSK MODULATION**

**HORIZONTAL SCALE = 1 MHz / DIVISION**

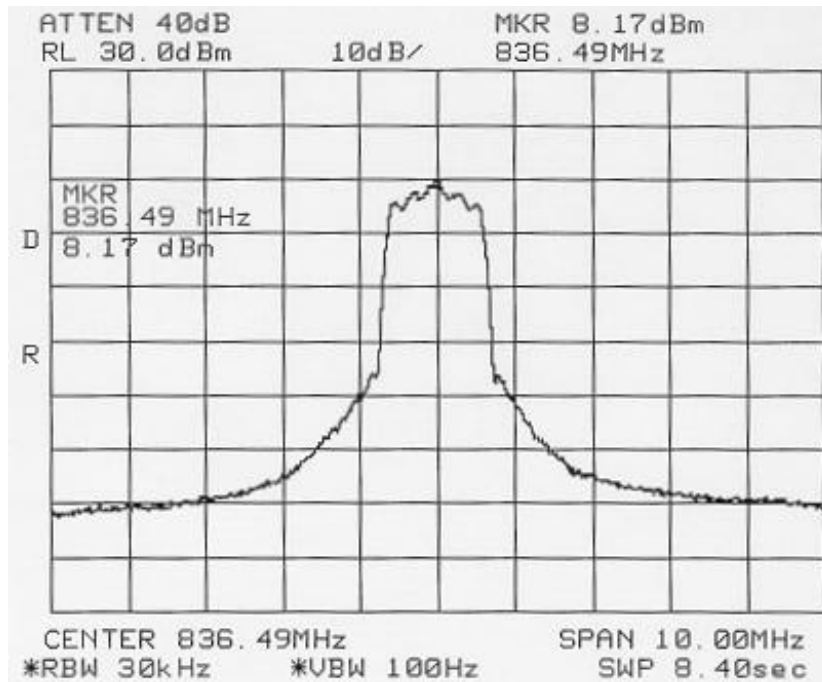
**VERTICAL SCALE = 10 dB / DIVISION (ATTENUATION)**

**RESOLUTION BANDWIDTH = 30 KHz**

**POWER LEVEL = 0.250 W (Average Power in transmitter)**

**MEASURED DATA:**

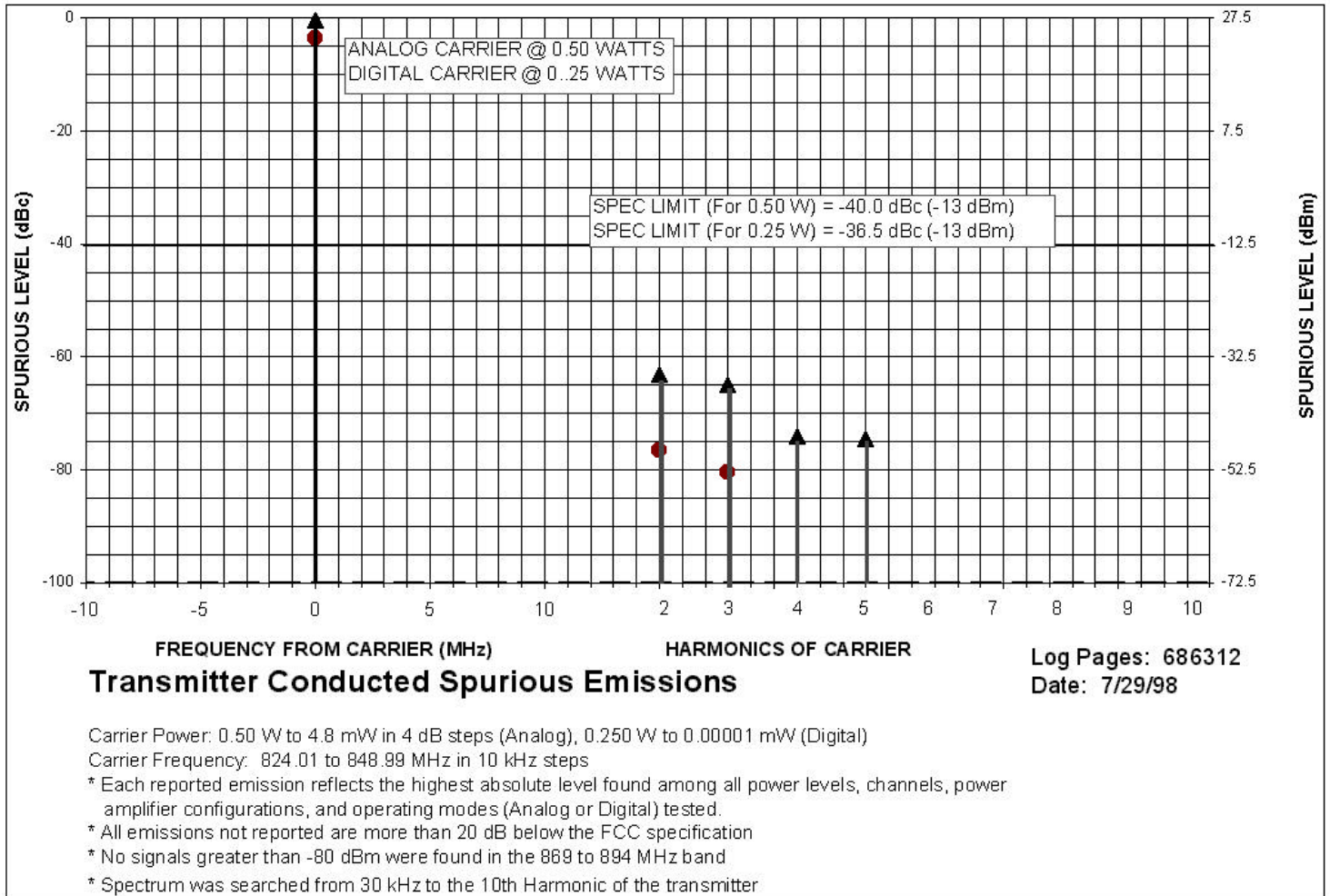
1. Modulate the transmitter with OQPSK modulation, using pseudo random data. Obtain image on spectrum analyzer.



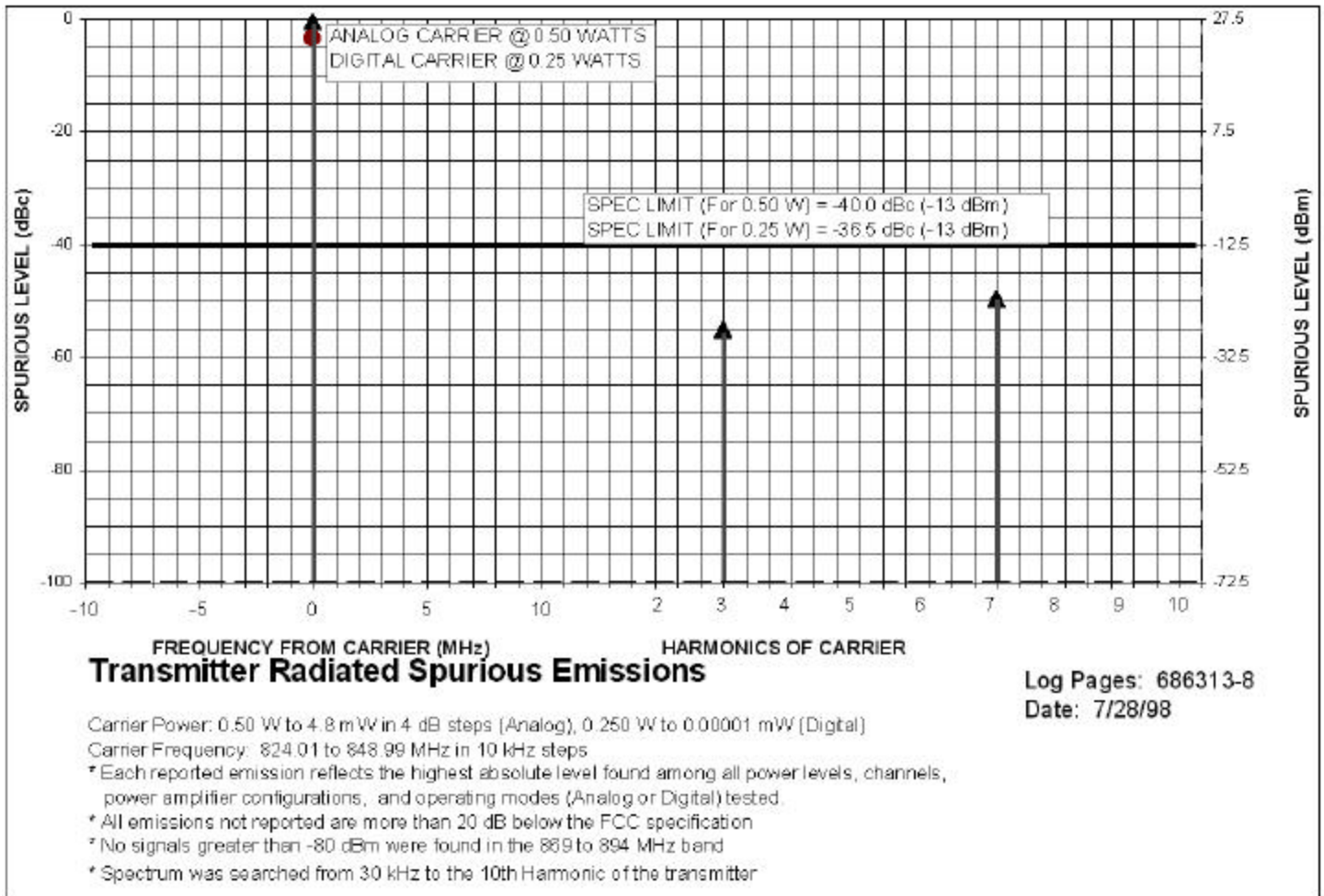
**COMMENTS:**

**Modulation products in a bandwidth of 30 kHz centered  $\pm 900$  kHz from the channel center frequency should be at least 45 dB and shall be at least 42 dB below the mean output power level.**

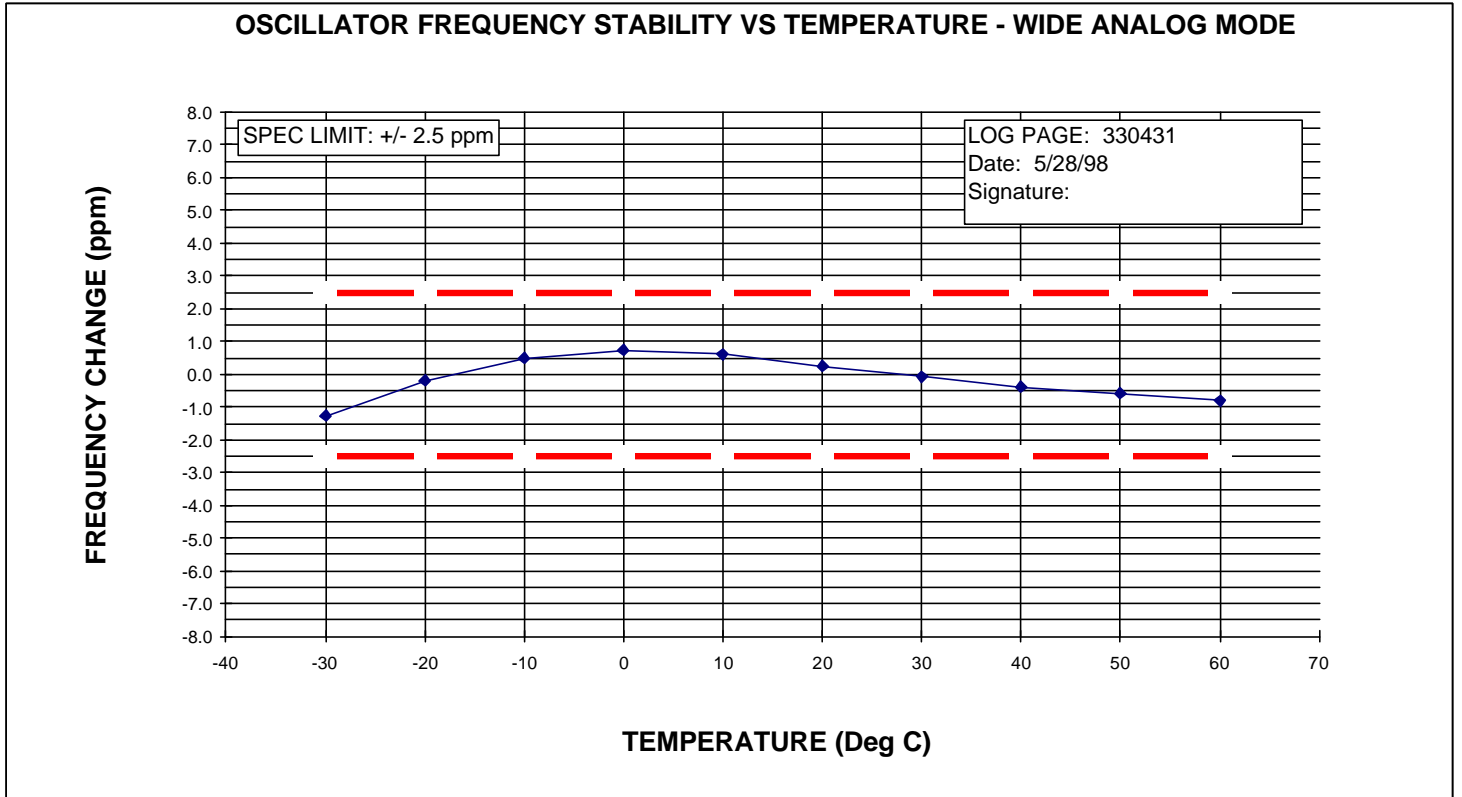
**Conducted Spurious and Harmonic Emissions-Graph**



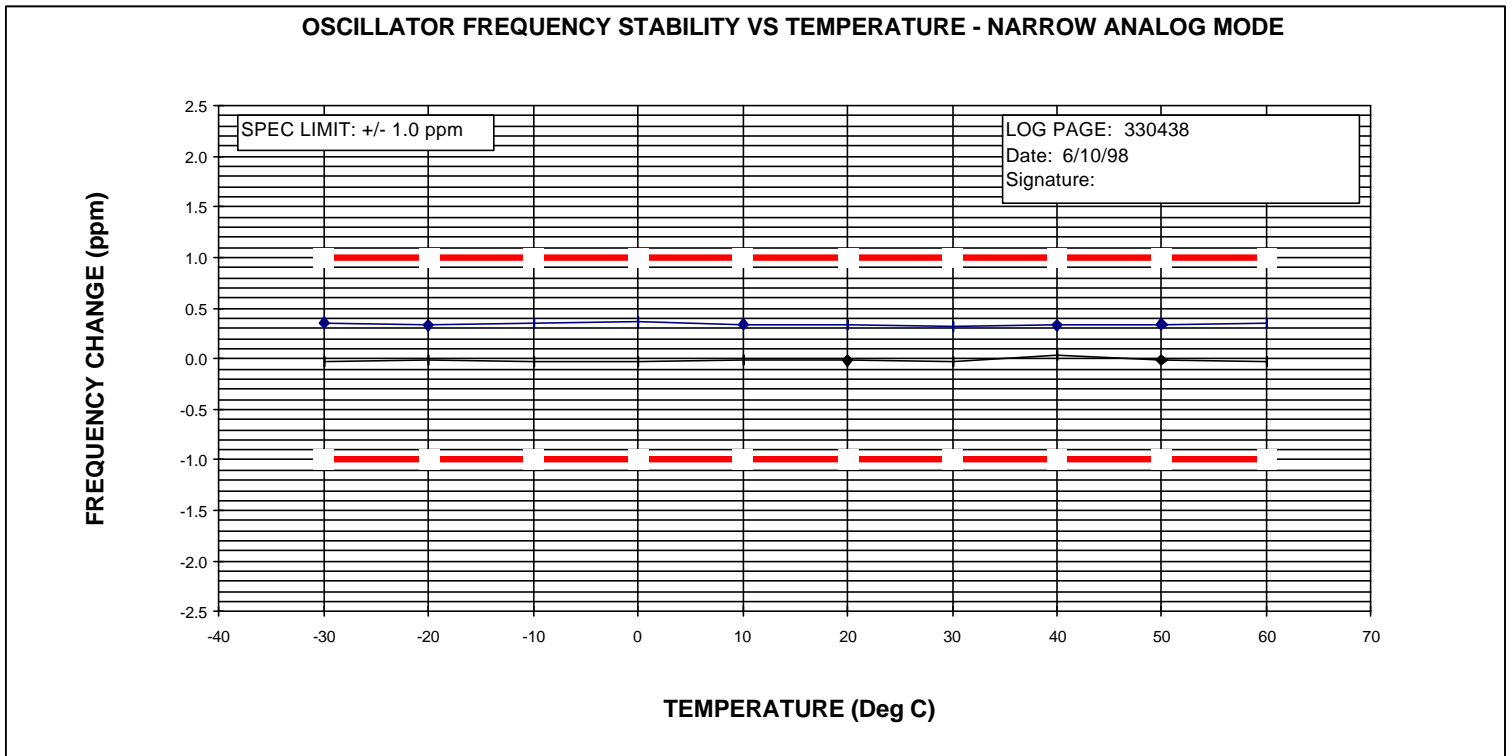
**Radiated Spurious and Harmonic Emissions-Graph**



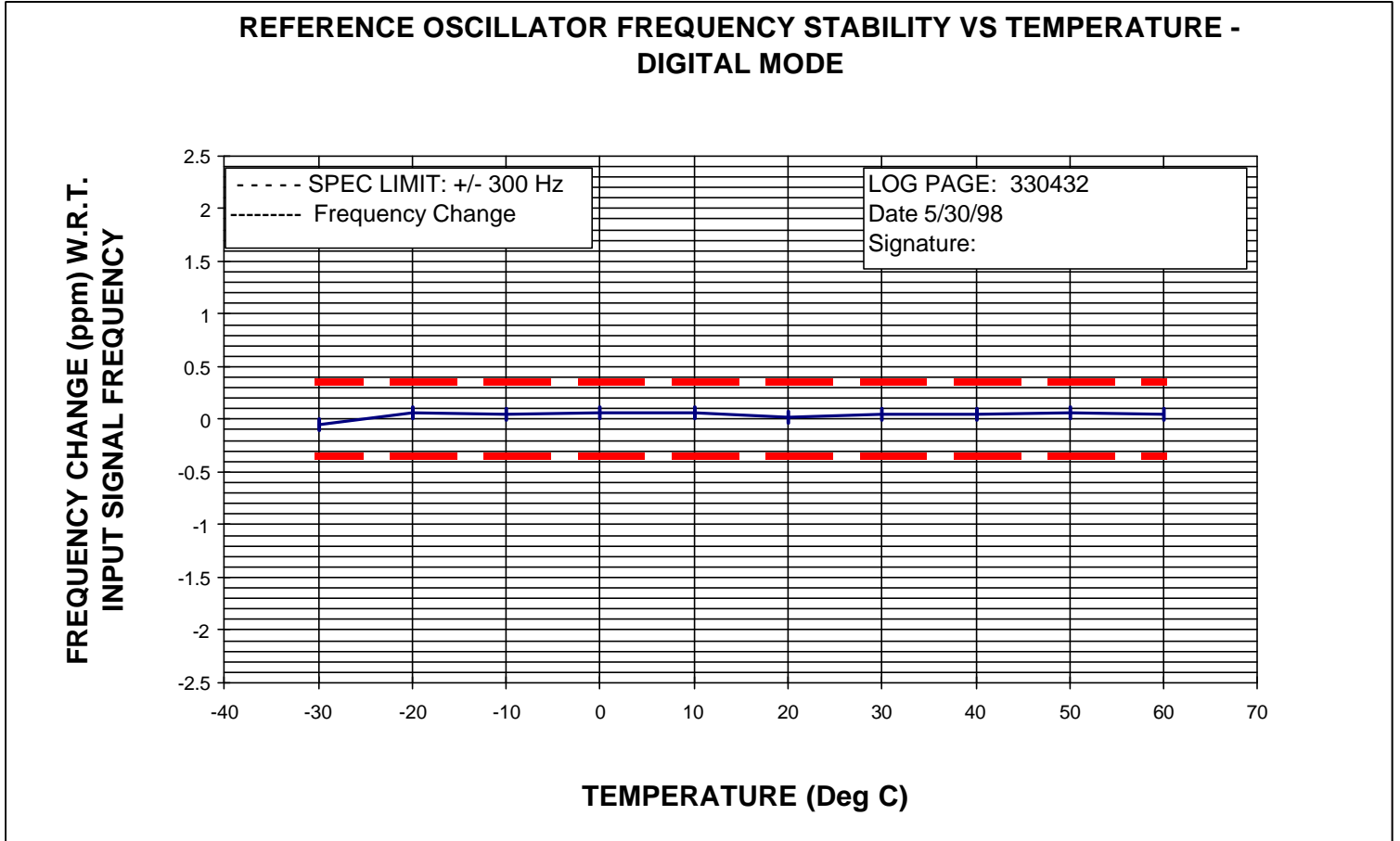
**Frequency Change vs. Temperature (Wide Mode)-Graph**



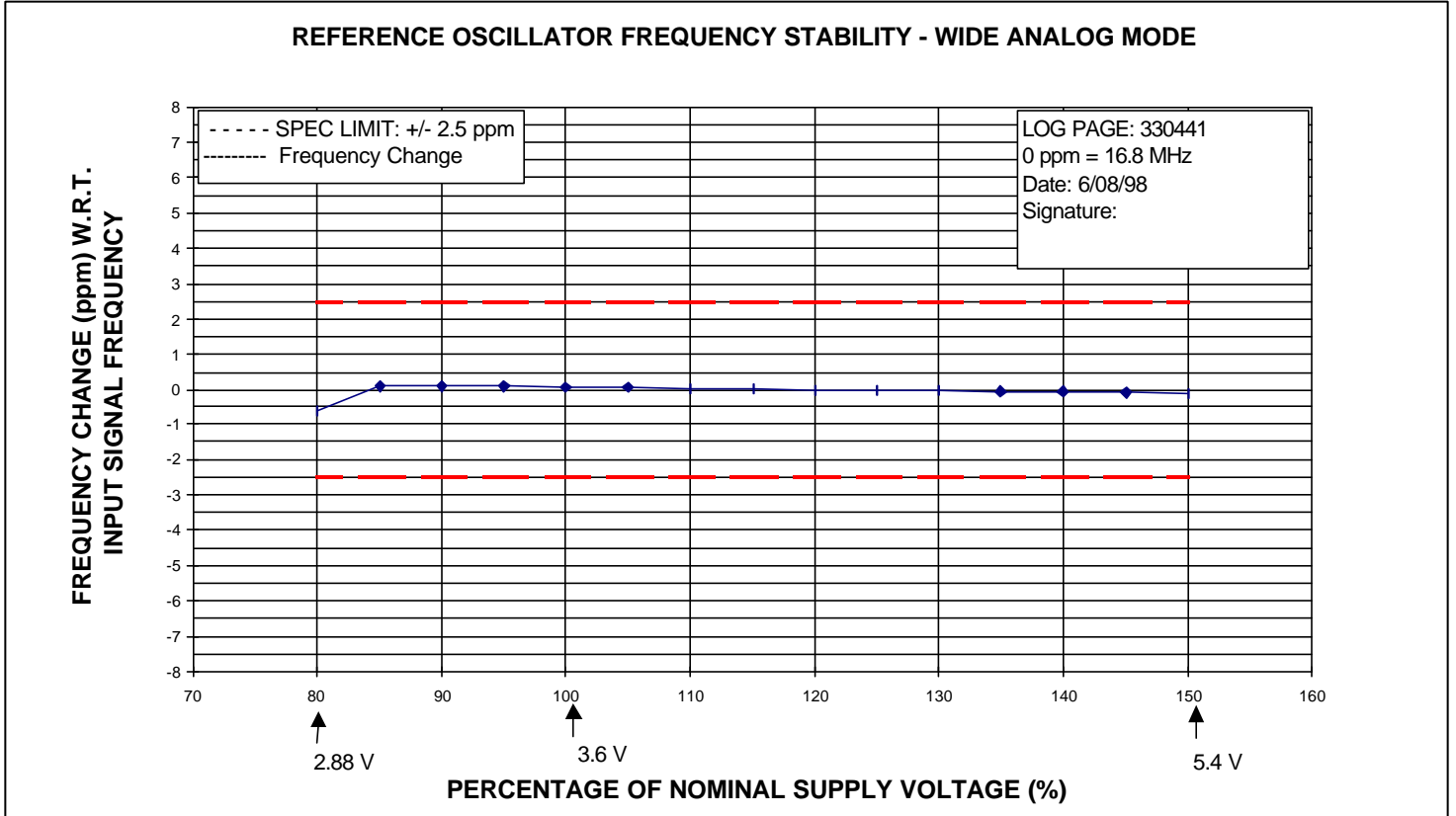
**Frequency Change vs. Temperature (Narrow Mode)-Graph**



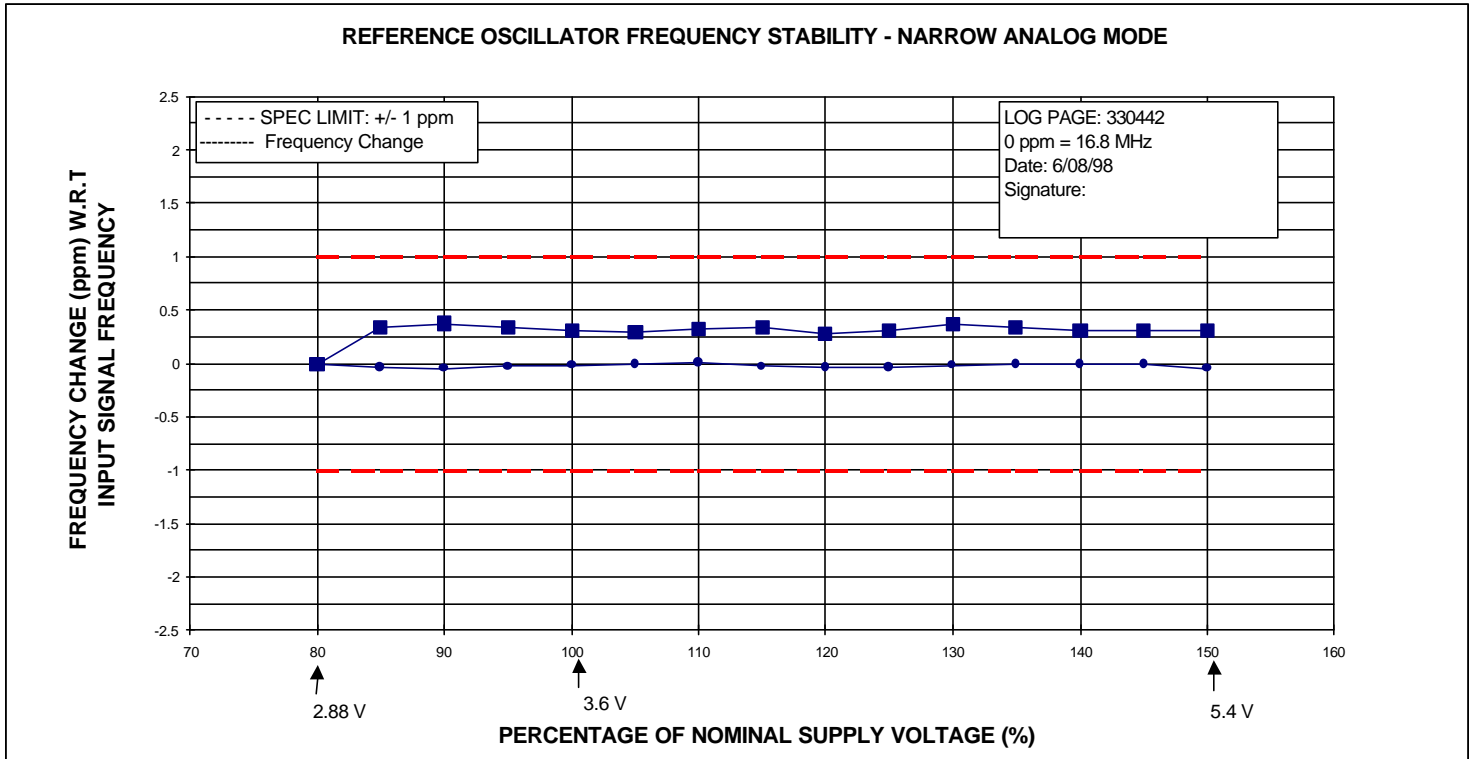
**Frequency Change vs. Temperature (Digital Mode)-Graph**



**Frequency Change vs. Supply Voltage (Wide Mode)-Graph**



**Frequency Change vs. Supply Voltage (Narrow Mode)-Graph**



**Frequency Change vs. Supply Voltage (Digital Mode)-Graph**

