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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: 0.331W

Measured DC voltage: 3.6V

Measured DC current: 550mA.

Measured RF input: 3.46mW

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: 0.326W

Measured DC voltage: 3.6V

Measured DC current: 580mA.

Measured RF input: 2.98mW

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.

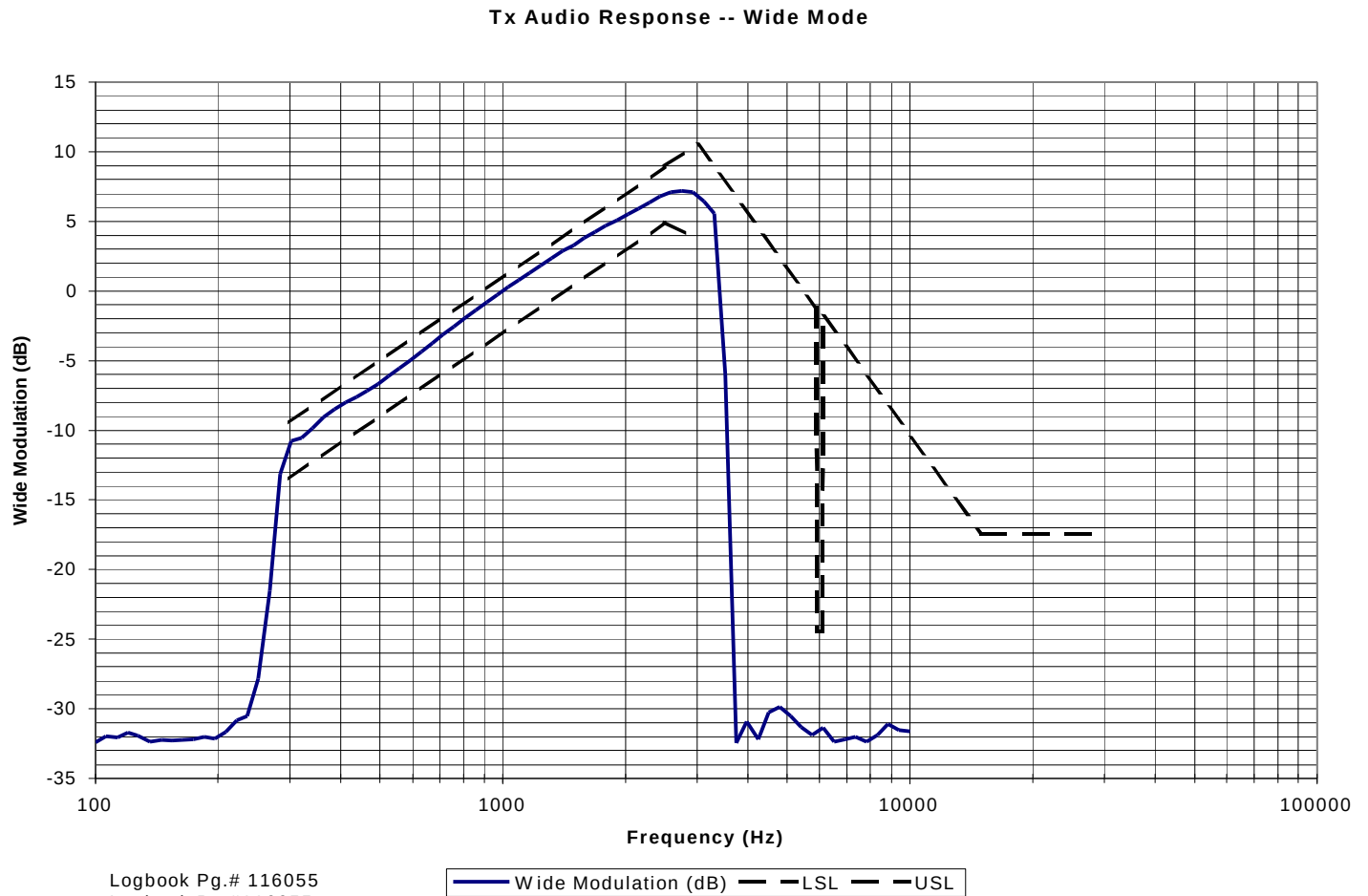
Maximum Effective Radiated Power: Analog Mode 26.0 dBm (0.398 W)

Maximum Effective Isotropic Radiated Power: Digital Mode 27.8 dBm (0.603 W)

AUDIO RESPONSE -GRAPH

Signature:

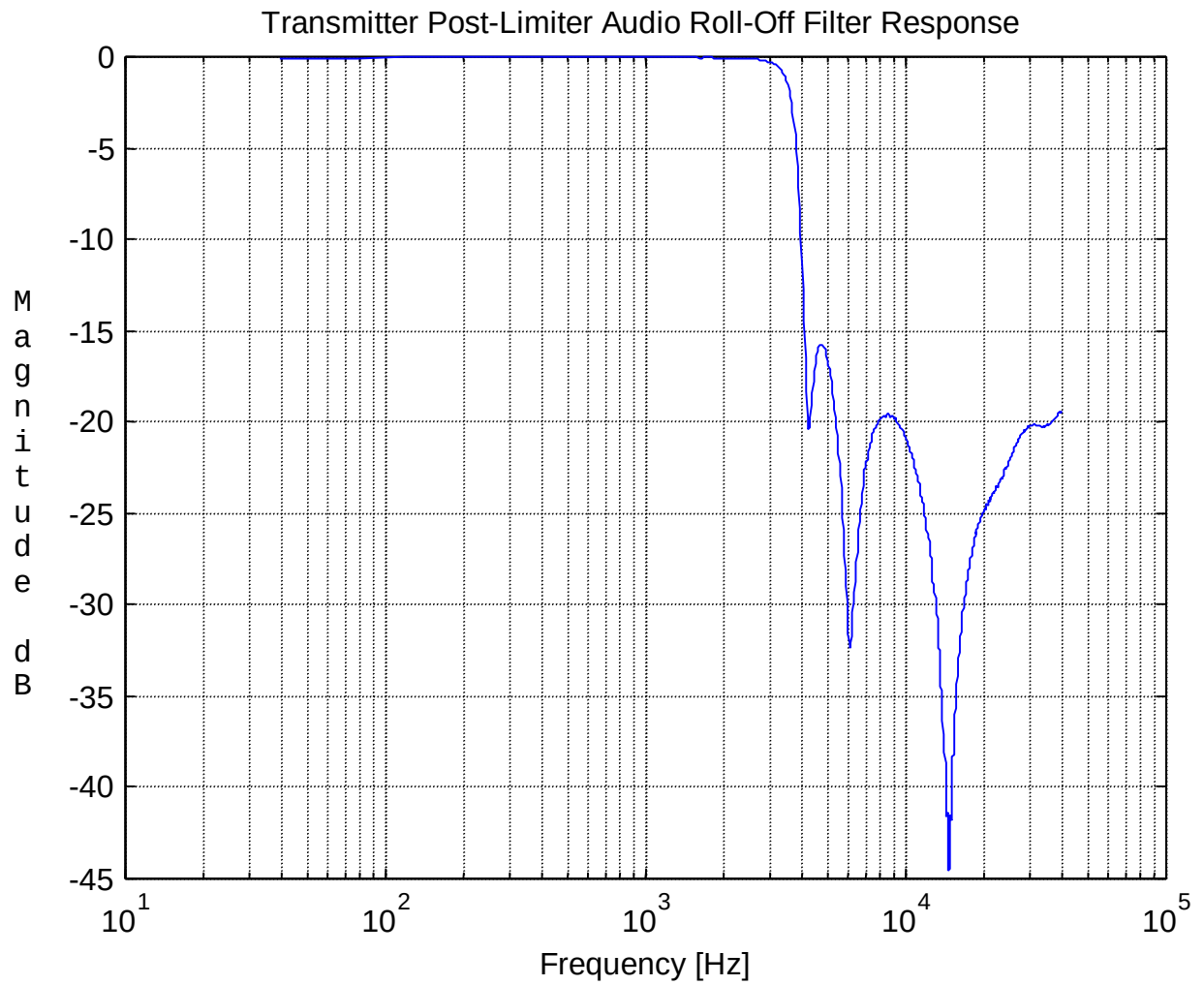
Date:



POST LIMITER LOW PASS FILTER RESPONSE -GRAPH

Signature:

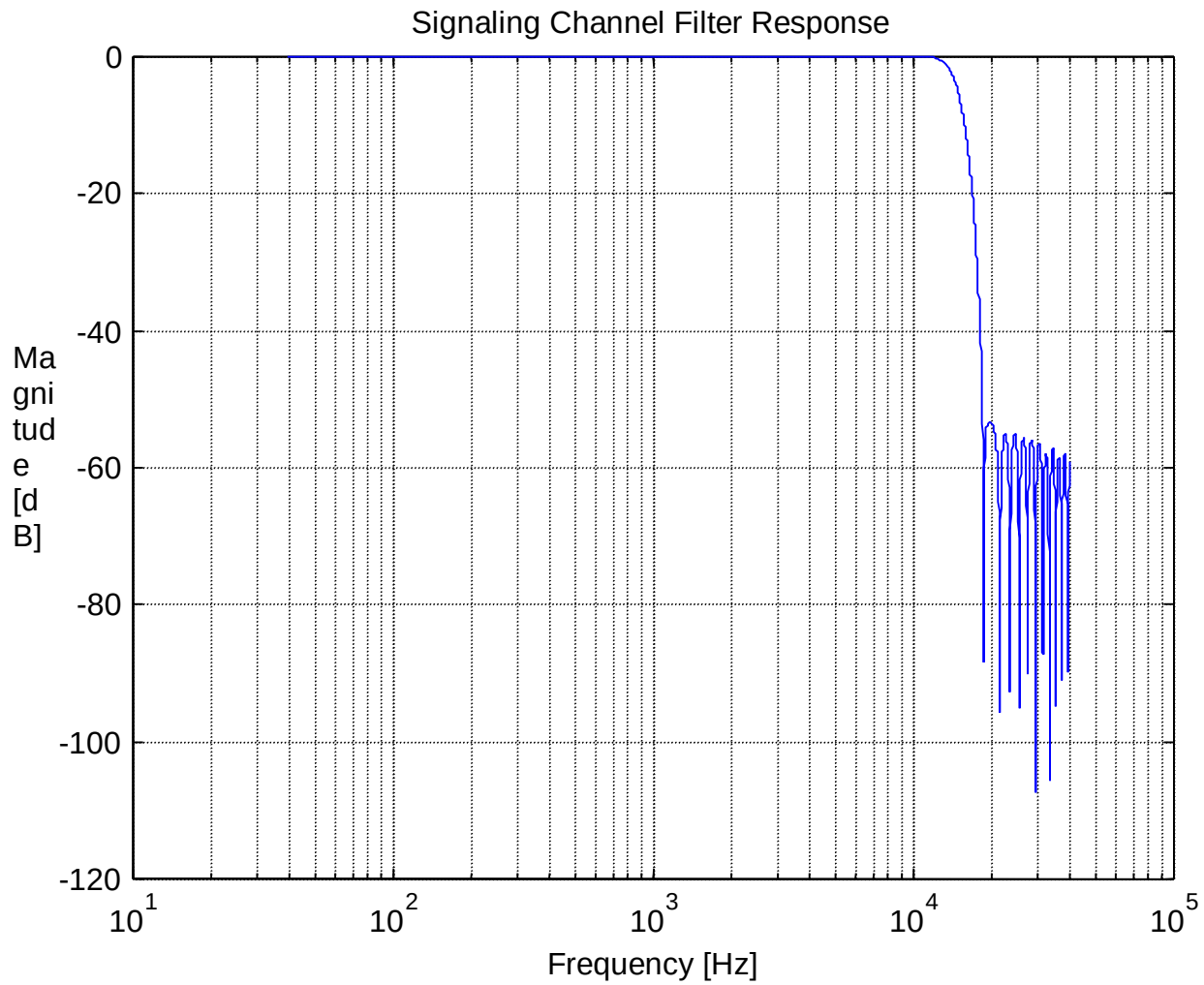
Date:



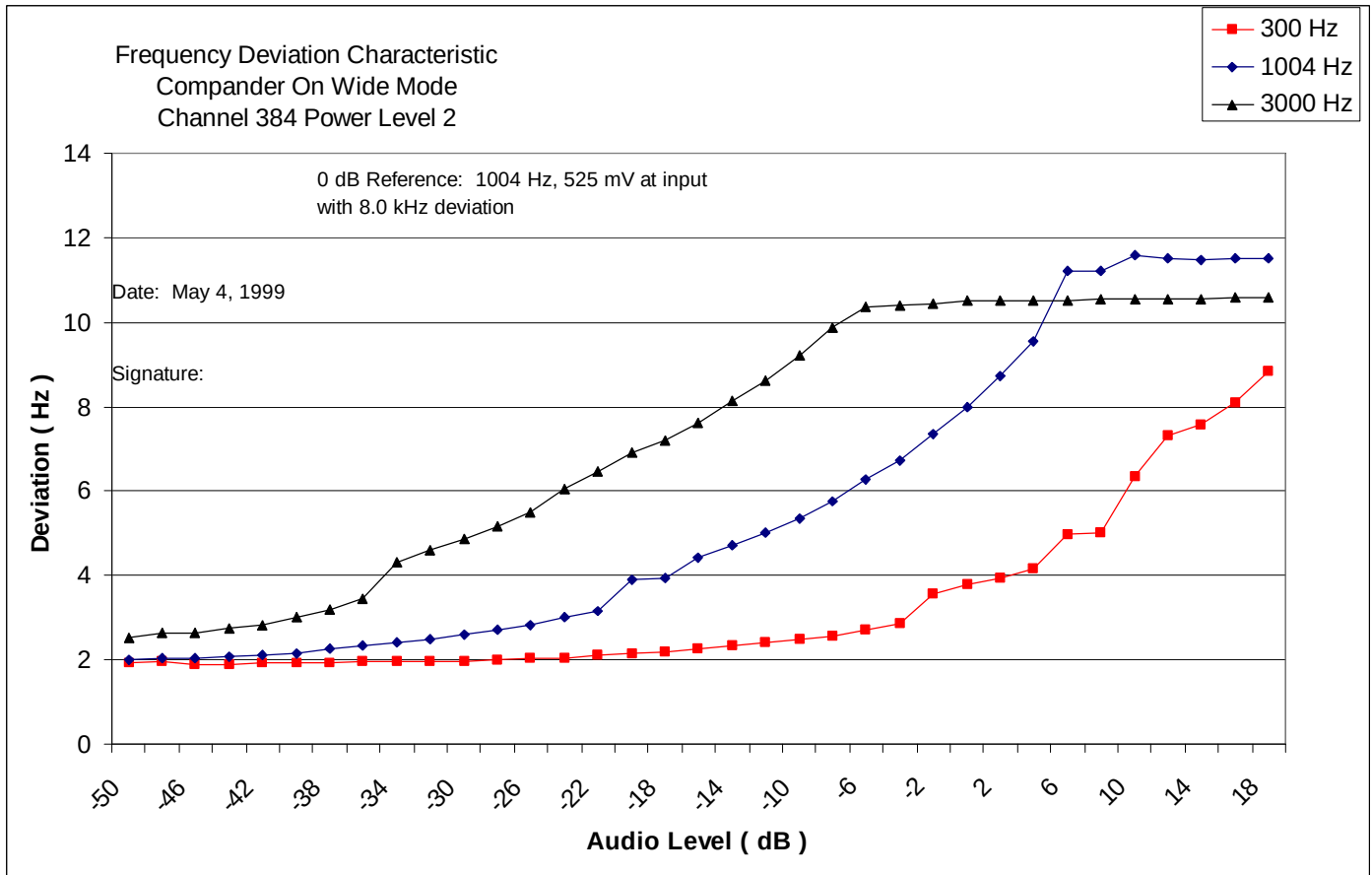
SIGNALING CHANNEL AUDIO ROLL-OFF FILTER RESPONSE - GRAPH

Signature:

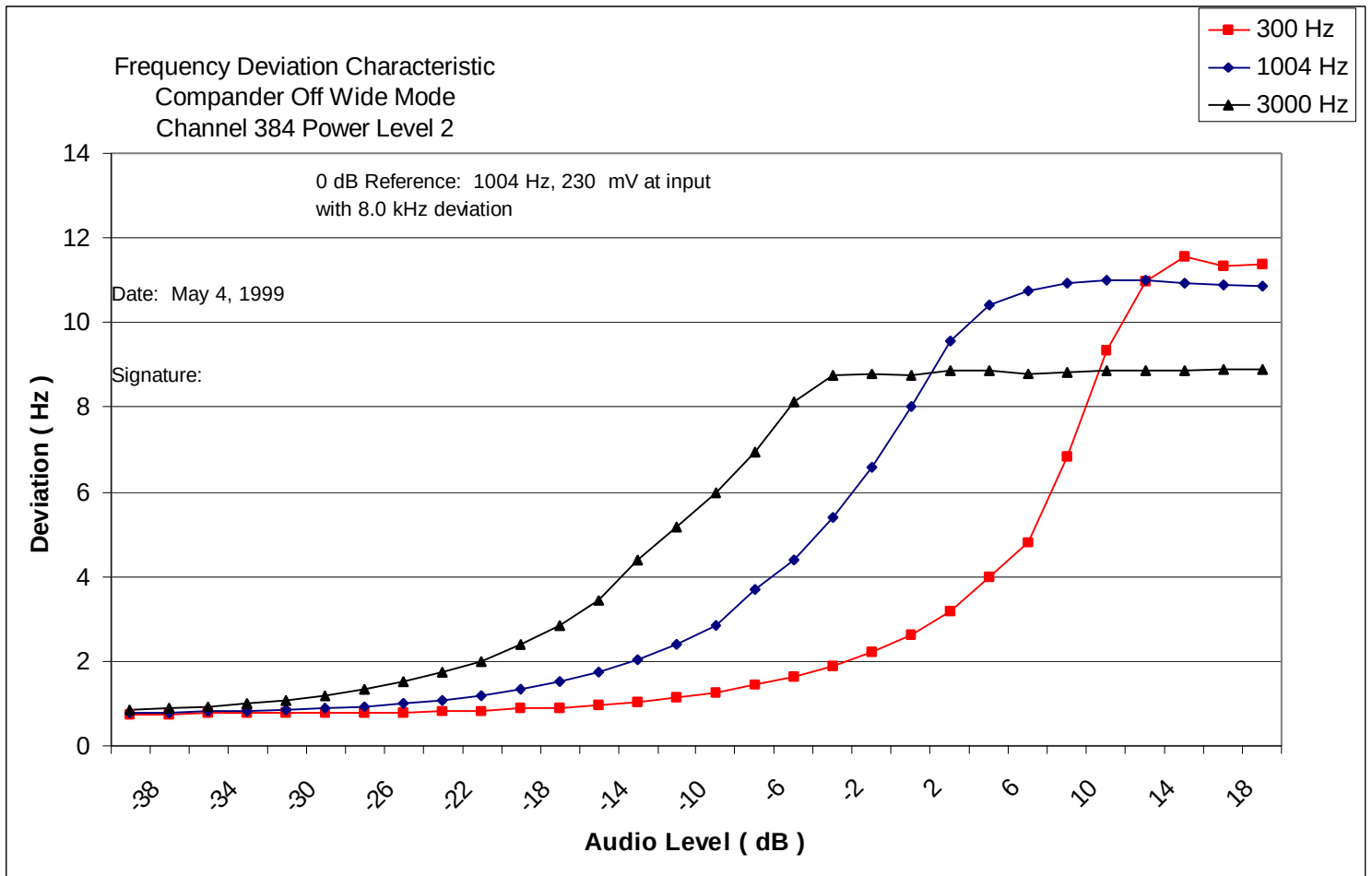
Date:



MODULATION LIMITING (COMPANDOR IN) -GRAPH



MODULATION LIMITING (COMPANDOR OUT) -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 = 30dBm)

RESOLUTION BANDWIDTH = 1000 Hz

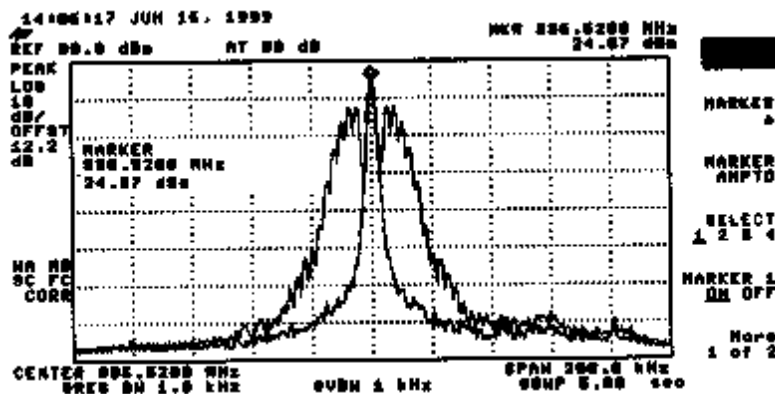
VIDEO BANDWIDTH = 1000 Hz

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

POWER LEVEL = 0.306W

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 $63 + 10 \log_{10}$ (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 = 30dBm)

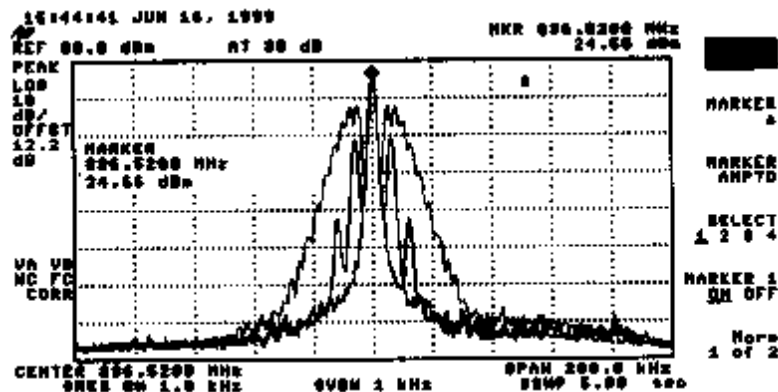
RESOLUTION BANDWIDTH = 1000 Hz

VIDEO BANDWIDTH = 1000 Hz

POWER LEVEL = 0.292W

MEASURED DATA:

1. Instantaneous Deviation Control set for a maximum of +/- 12 kHz
2. Tune and adjust to obtain the unmodulated carrier on the spectrum analyzer. Save trace of the unmodulated carrier.
3. Modulate the transmitter with signaling tone and 2500 Hz tone, 16 dB greater than that required to produce +/- 6kHz of deviation 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 $63 + 10 \log_{10}$ (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 = 30dBm)

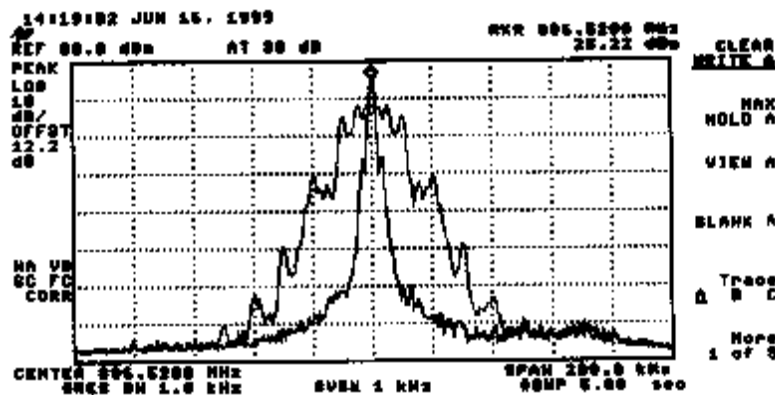
RESOLUTION BANDWIDTH = 1000 Hz

VIDEO BANDWIDTH = 1000 Hz

POWER LEVEL = 0.332W

MEASURED DATA:

1. Instantaneous Deviation Control set for a maximum of +/- 12 kHz
2. Tune and adjust to obtain the 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 $63 + 10 \log_{10}$ (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 = 30dBm)

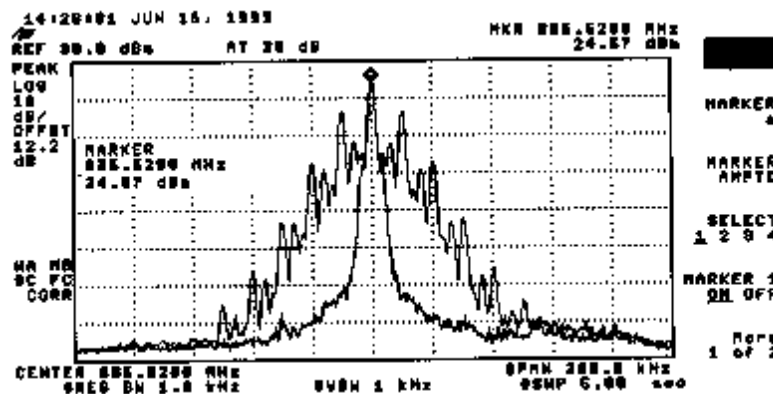
RESOLUTION BANDWIDTH = 1000 Hz

VIDEO BANDWIDTH = 1000 Hz

POWER LEVEL = 0.286W

MEASURED DATA:

1. Instantaneous Deviation Control set for a maximum of +/- 12 kHz
2. Tune and adjust to obtain the 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 $63 + 10 \log_{10}$ (mean output power in Watts) dB, whichever is the smaller attenuation.

BANDWIDTH MEASUREMENT DATA FOR TRANSMITTER TYPES F9W

DEVIATION OF THE CARRIER WITH QPSK MODULATION

HORIZONTAL SCALE = 1MHz / DIVISION

VERTICAL SCALE = 10 dB / DIVISION (ATTENUATION)

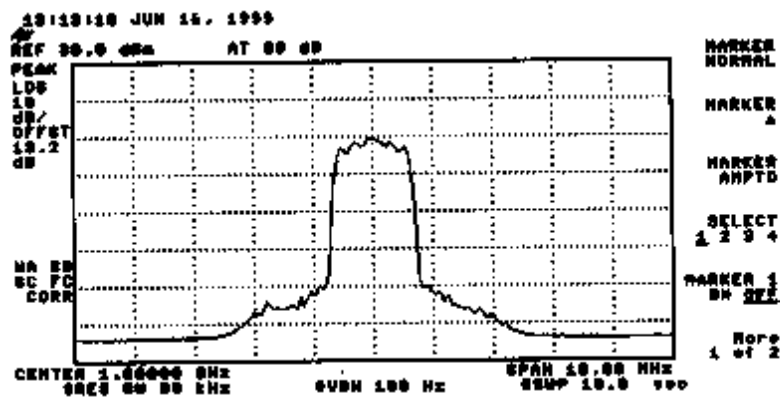
RESOLUTION BANDWIDTH = 30 kHz

VIDEO BANDWIDTH = 100 Hz

POWER LEVEL = 0.316W (Average Power in transmitter)

MEASURED DATA:

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



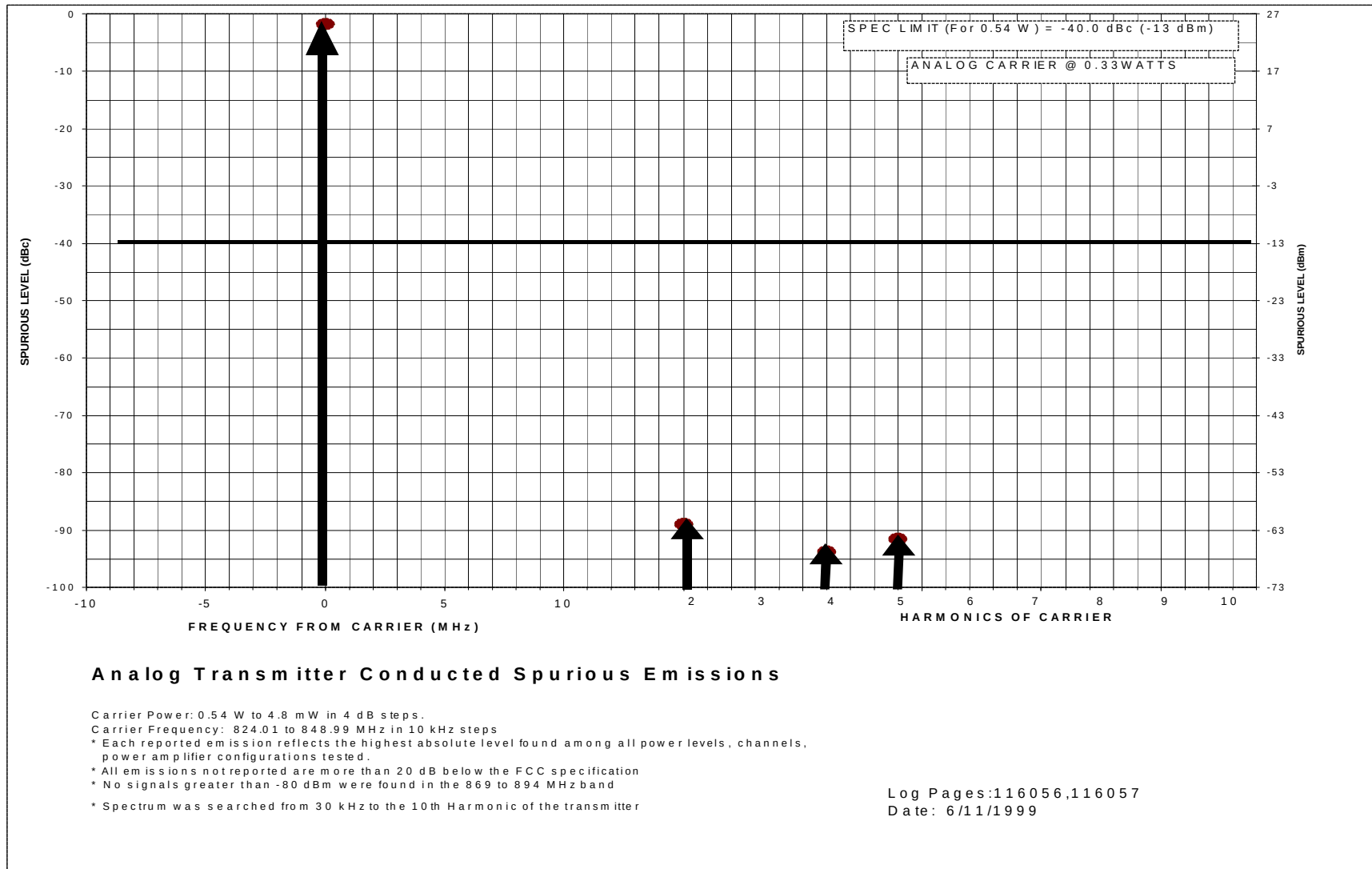
COMMENTS:

Modulation products in a bandwidth of 30 kHz ,centered +/- 1.25 MHz from the channel center frequency should be at least 45 dB and should be at least 42 dB below the mean output power level.

APPLICANT: MOTOROLA, INC.

TRANSCEIVER TYPE: IHDT56ZJ1

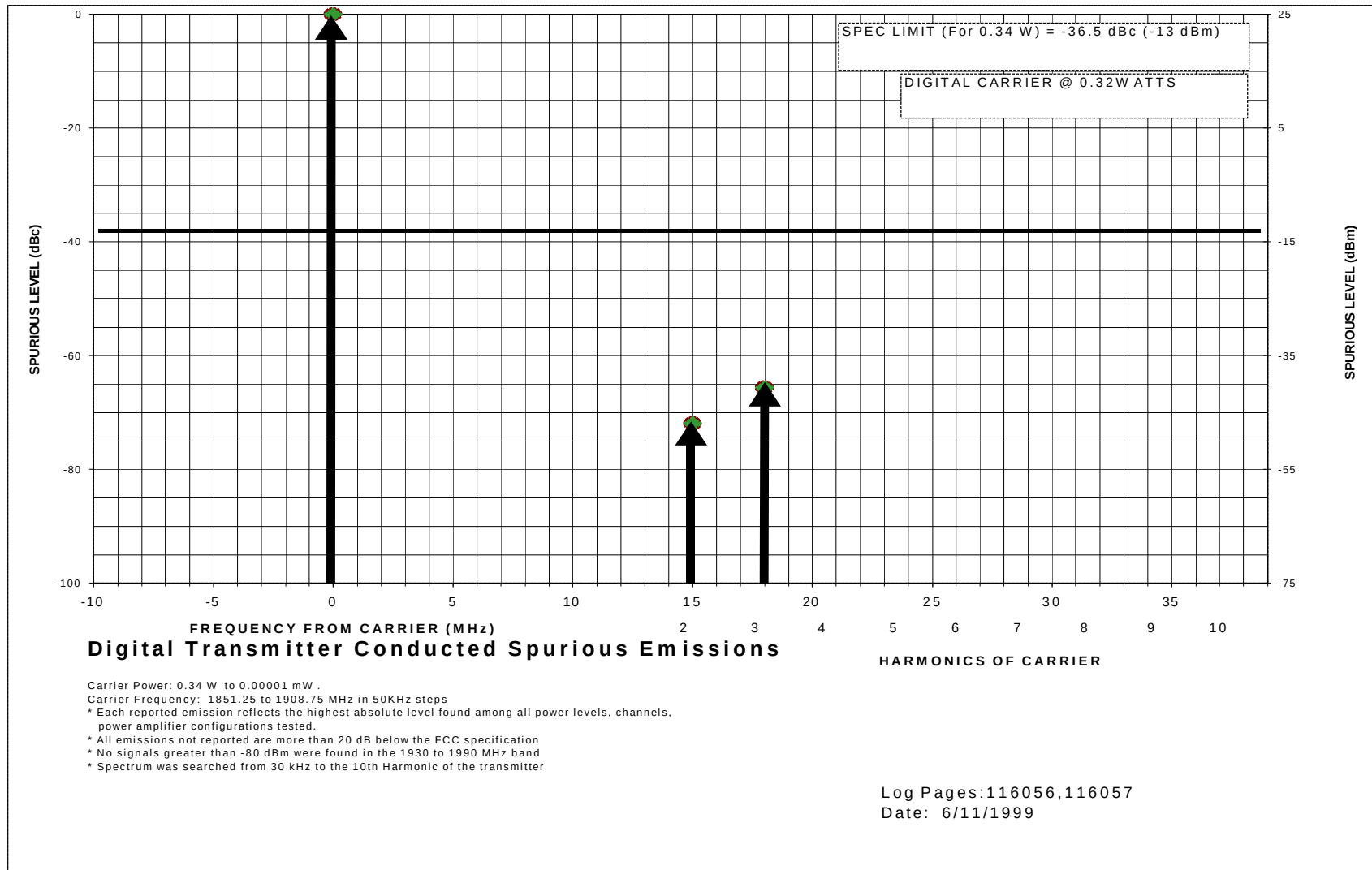
ANALOG CONDUCTED SPURIOUS AND HARMONIC EMISSIONS - GRAPH



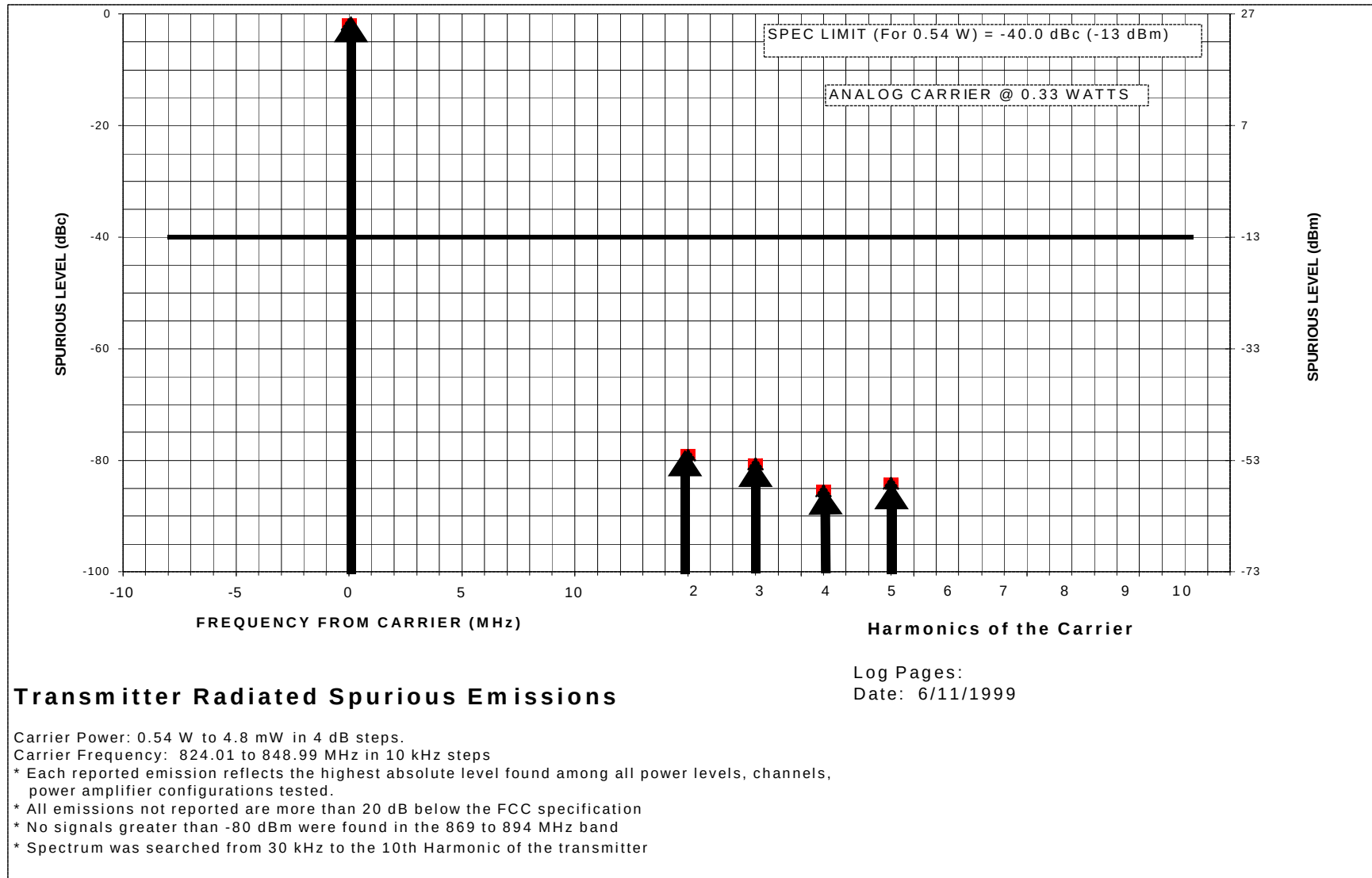
APPLICANT: MOTOROLA, INC.

TRANSCEIVER TYPE: IHDT56ZJ1

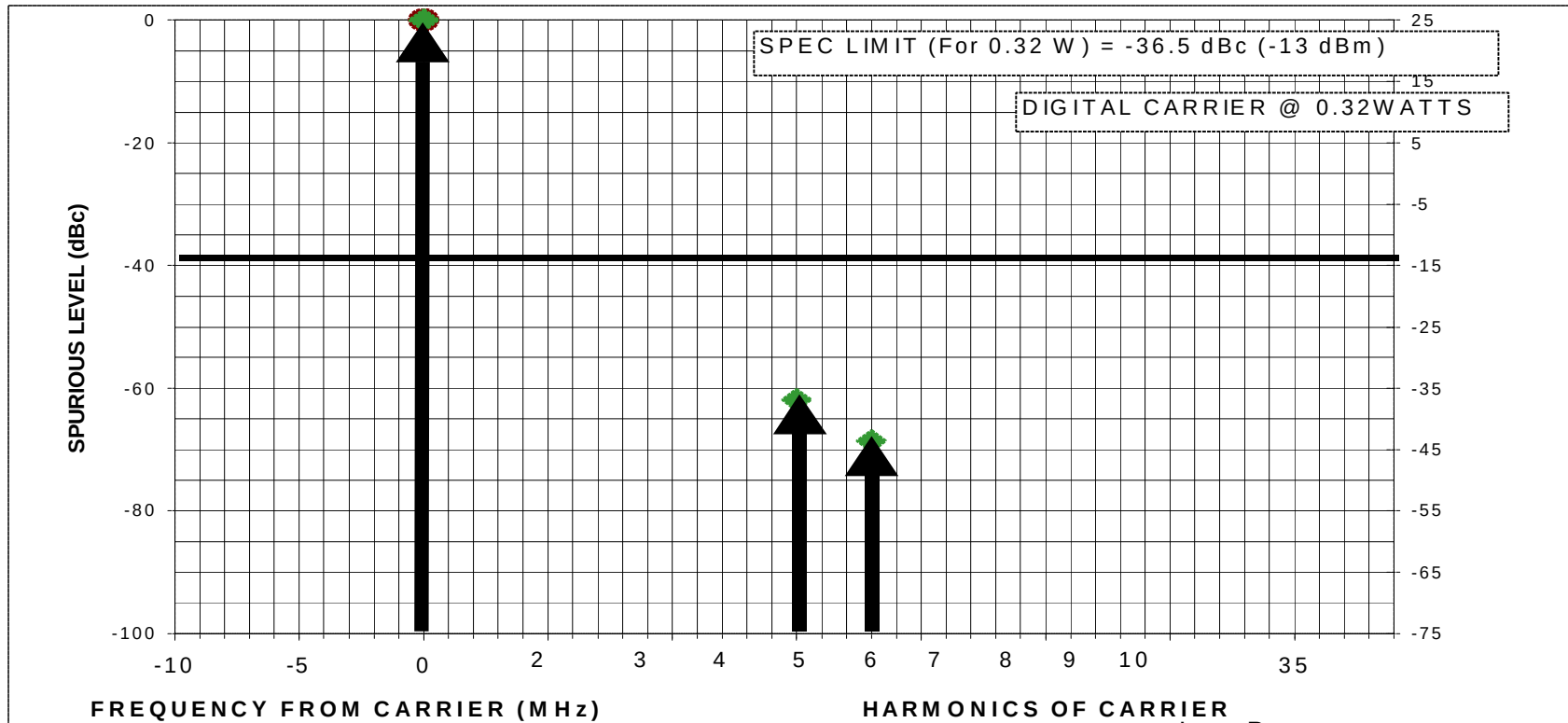
DIGITAL CONDUCTED SPURIOUS AND HARMONIC EMISSIONS - GRAPH



ANALOG RADIATED SPURIOUS AND HARMONIC EMISSIONS - GRAPH



DIGITAL RADIATED SPURIOUS AND HARMONIC EMISSIONS -GRAPH



Transmitter Radiated Spurious Emissions

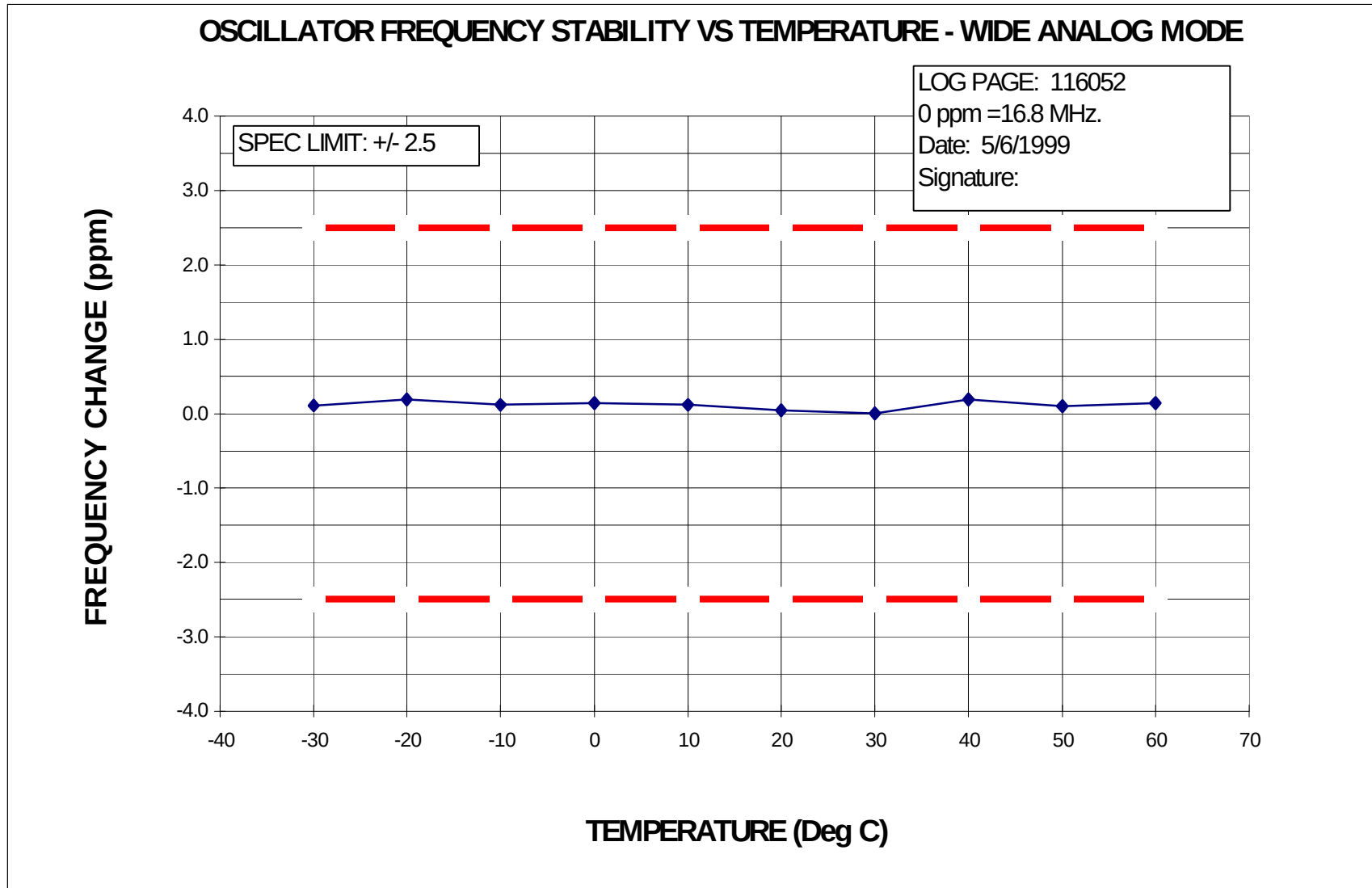
Log Pages:
Date: 6/11/1999

Carrier Power: 0.34 W to 0.00001 mW.

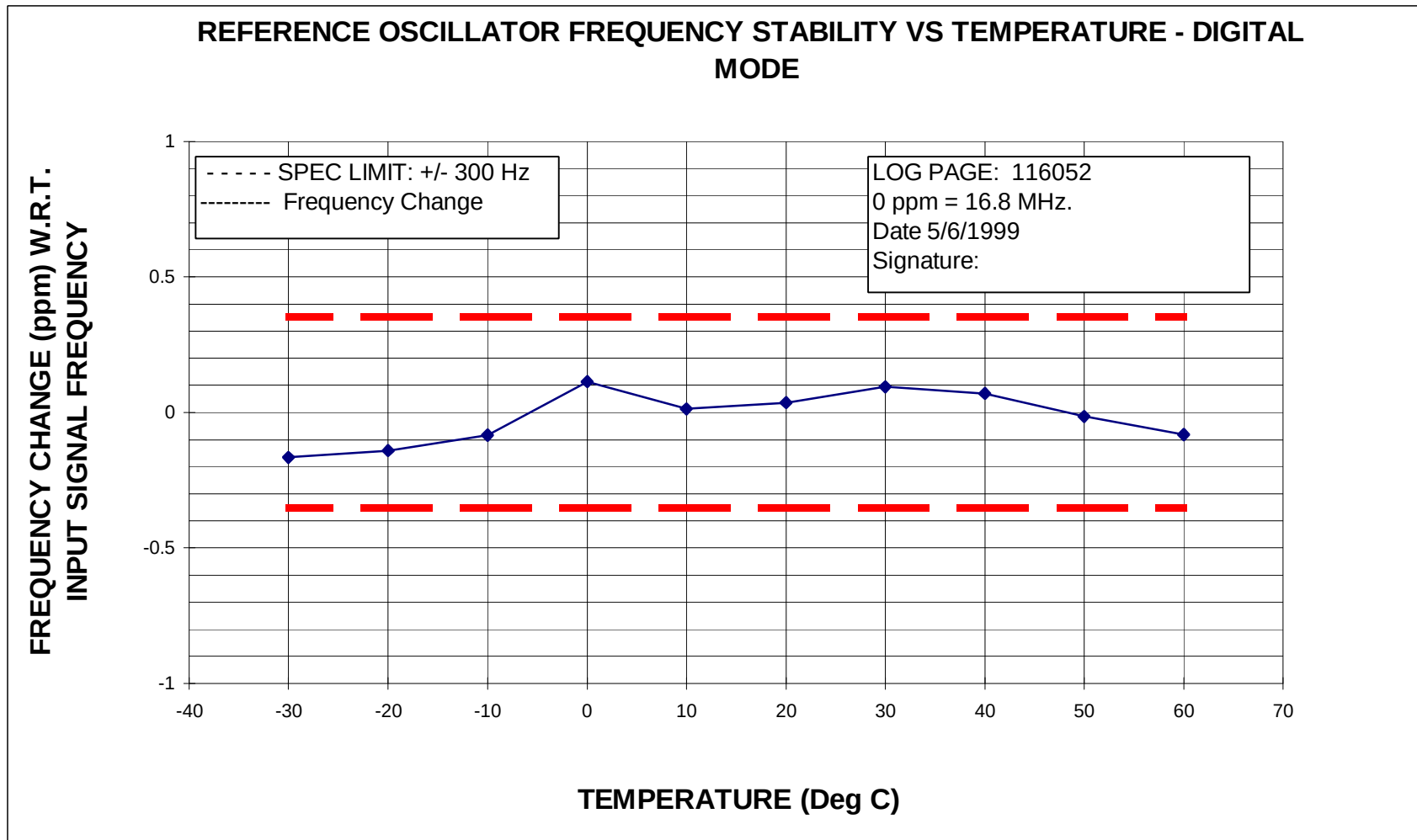
Carrier Frequency: 1851.25 to 1908.75 MHz in 50 KHz steps

- * Each reported emission reflects the highest absolute level found among all power levels, channels, power amplifier configurations tested.
- * All emissions not reported are more than 20 dB below the FCC specification
- * No signals greater than -80 dBm were found in the 1930 to 1990 MHz band
- * Spectrum was searched from 30 kHz to the 10th Harmonic of the transmitter

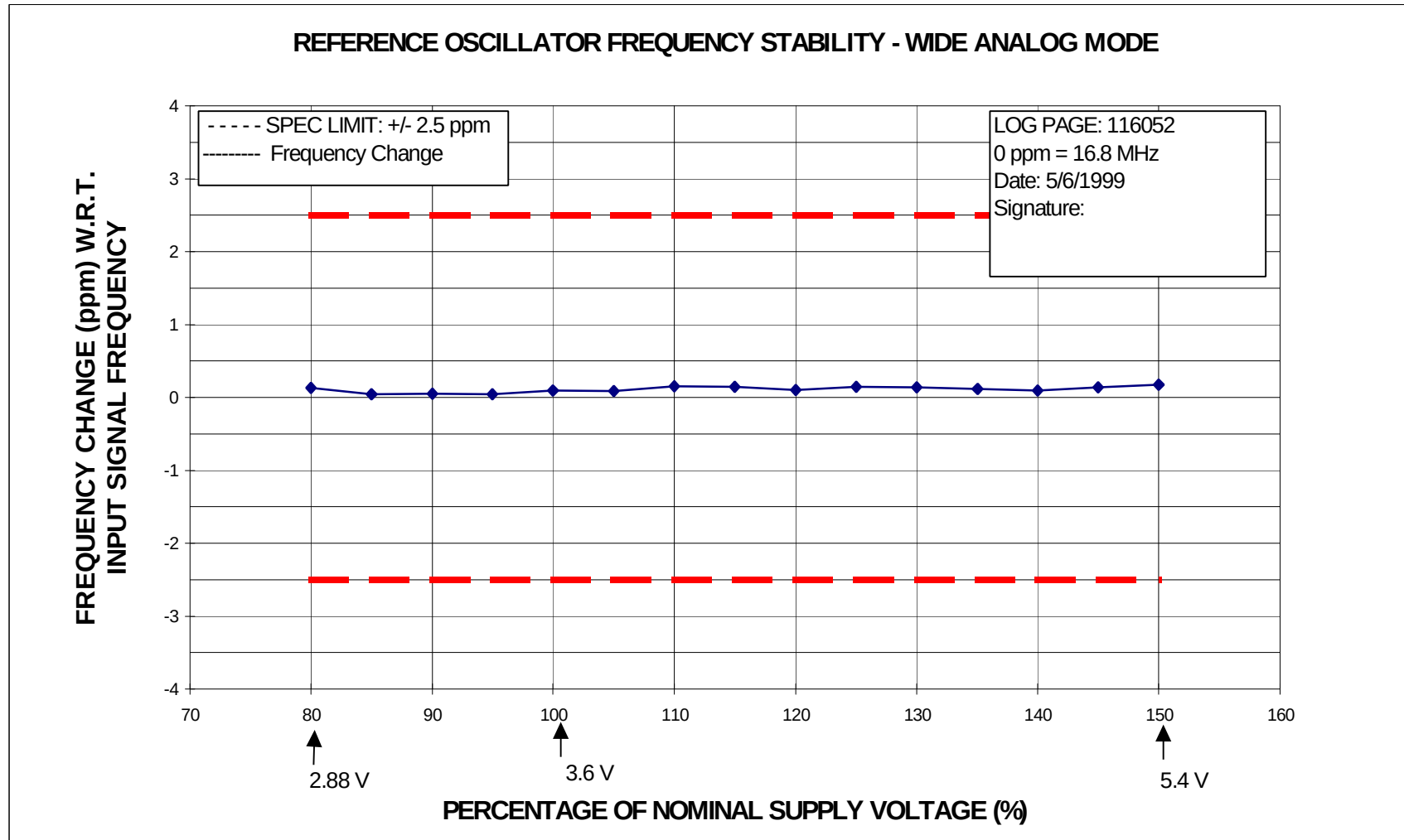
Frequency Change vs. Temperature (Wide Mode)-Graph



Frequency Change vs. Temperature (Digital Mode)-Graph



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



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

