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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: 0.478W  
Measured DC voltage: 3.6V  
Measured DC current: 598mA.  
Measured RF input: 5mW

**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: 0.251W  
Measured DC voltage: 3.6V  
Measured DC current: 441mA.  
Measured RF input: 2.5mW

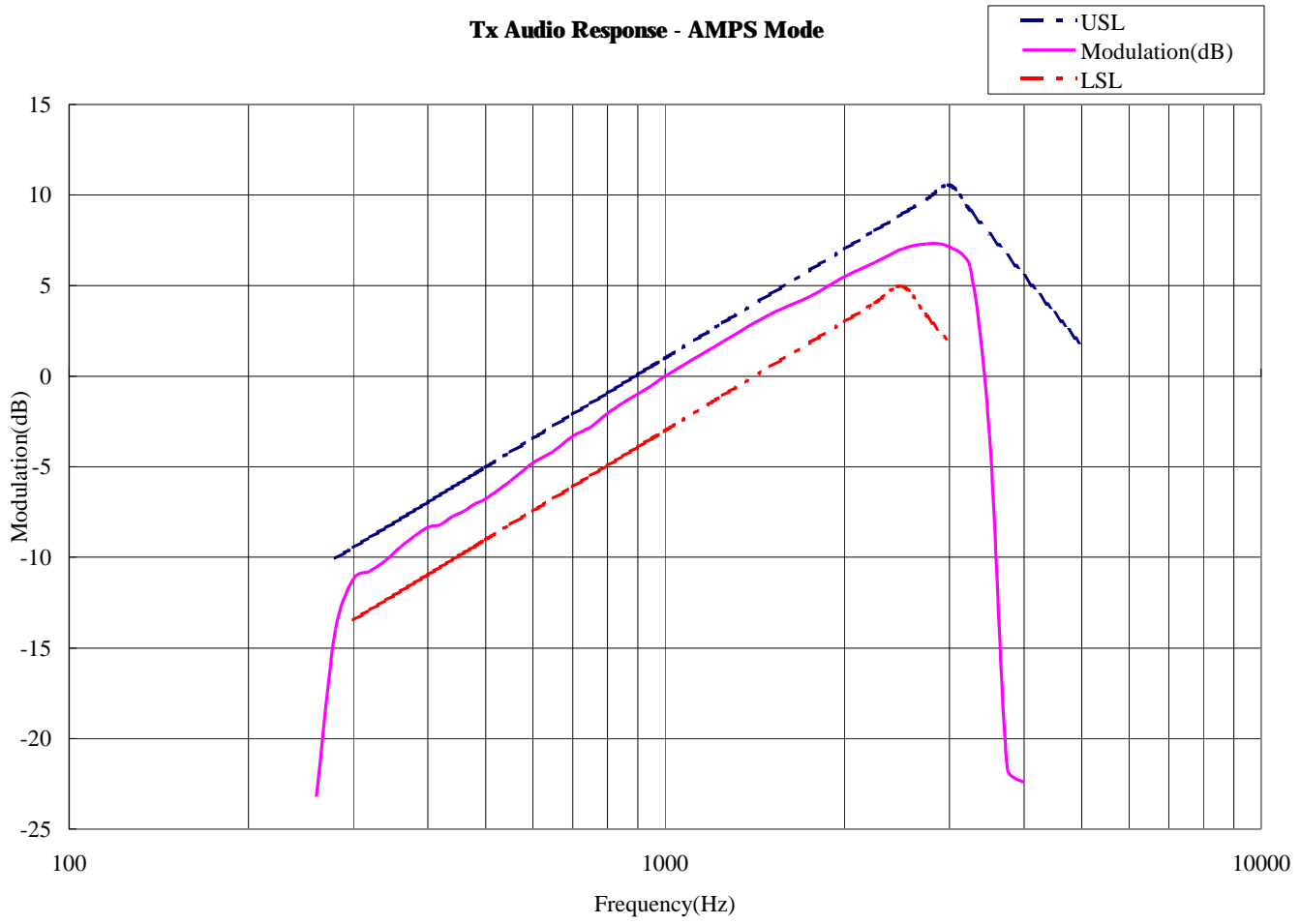
**EFFECTIVE RADIATED POWER**

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.

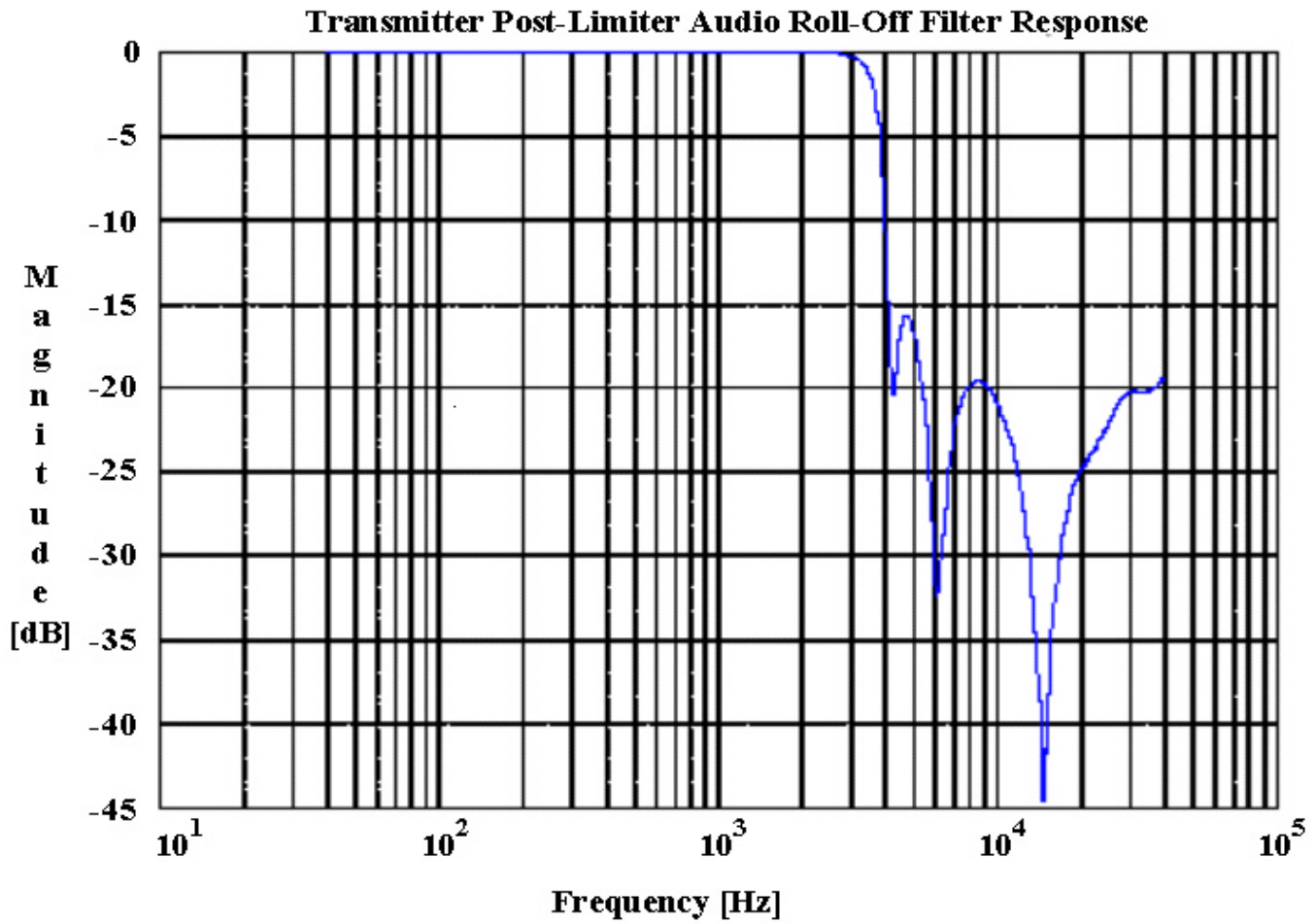
ANALOG MODE : Maximum Effective Isotropic Radiated Power : 0.537 W

800MHz DIGITAL MODE : Maximum Effective Isotropic Radiated Power : 0.282 W

### AUDIO RESPONSE -GRAPH

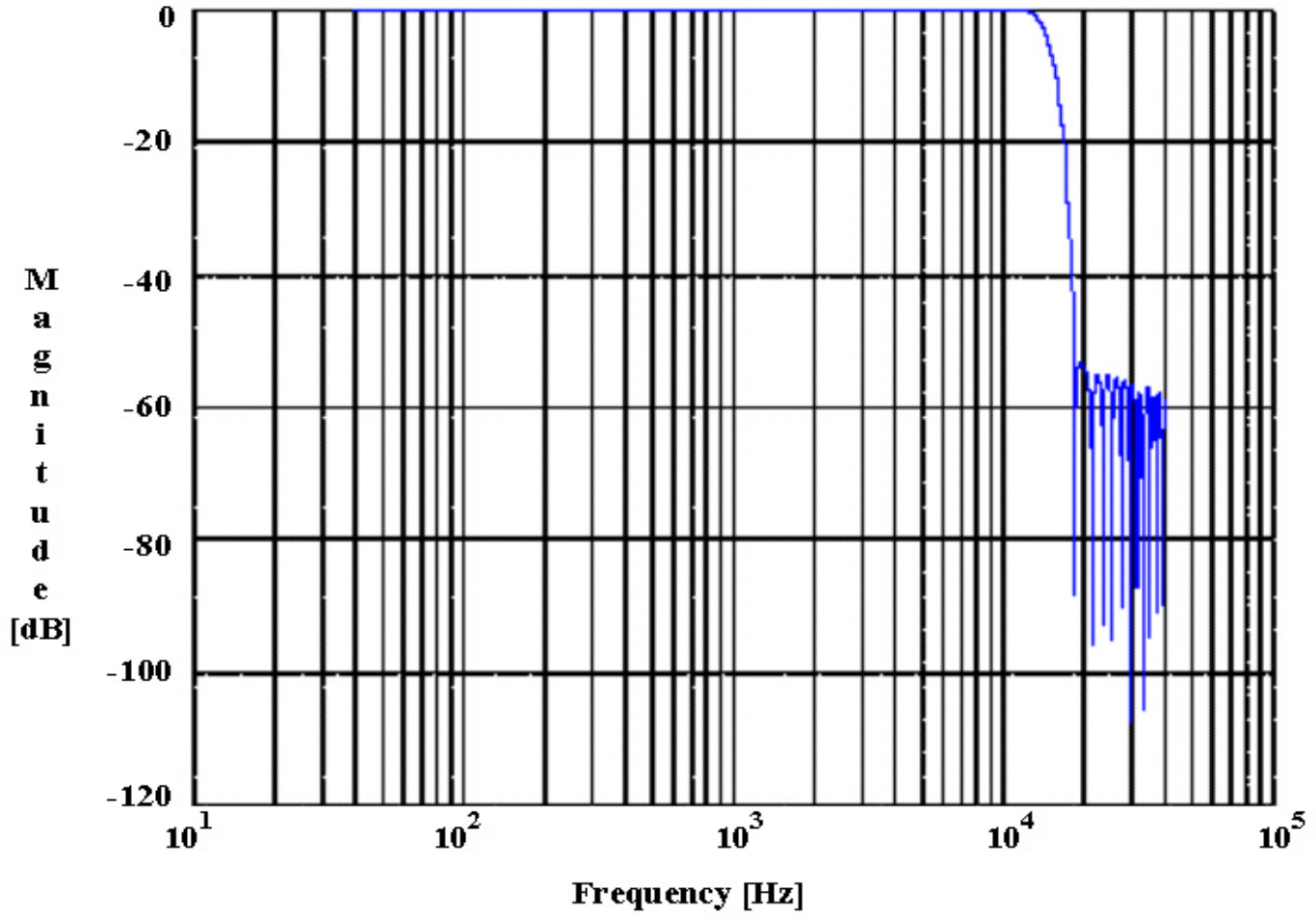


**POST LIMITER LOW PASS FILTER RESPONSE - GRAPH**

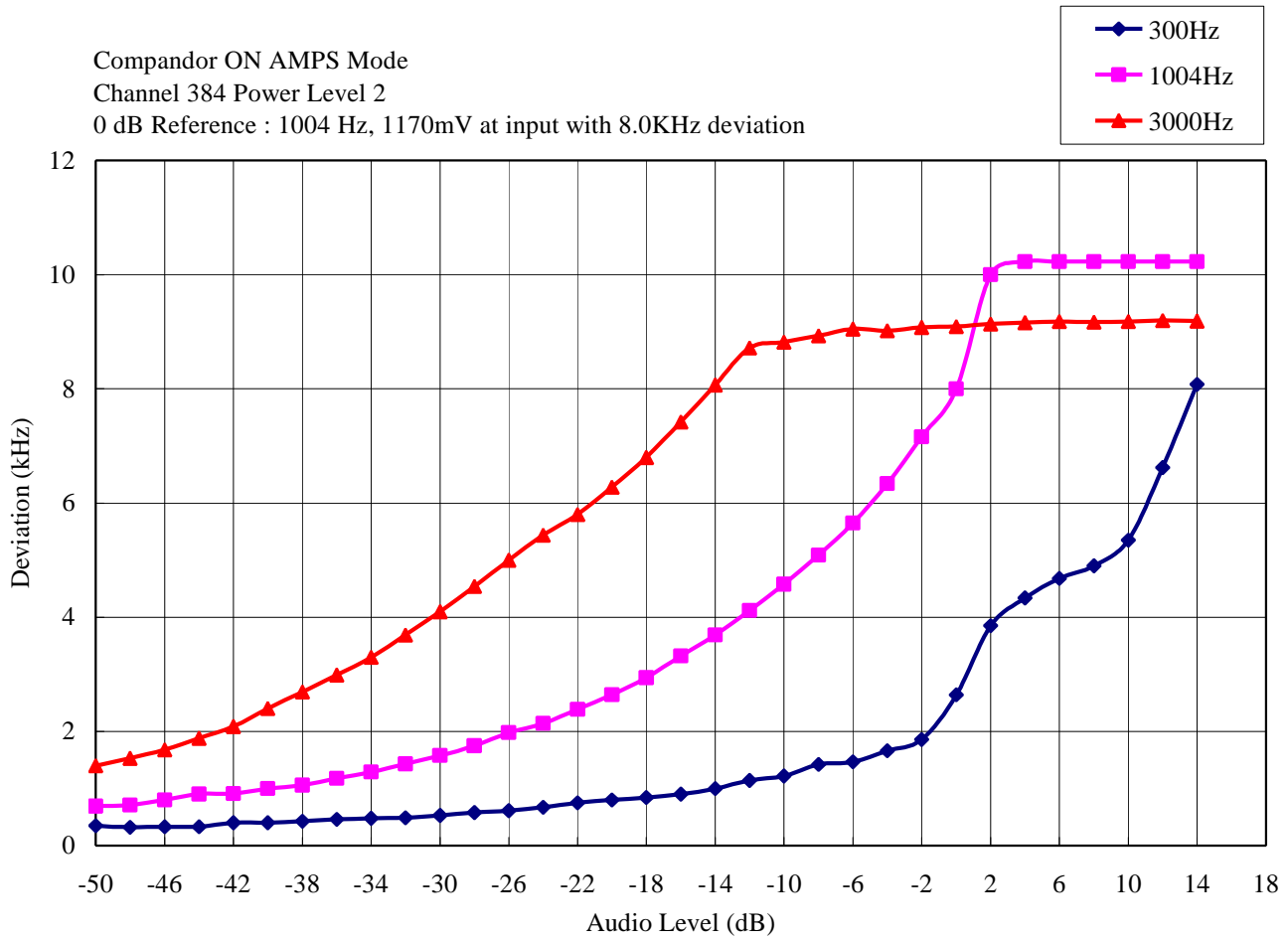


**SIGNALING CHANNEL AUDIO ROLL-OFF FILTER RESPONSE - GRAPH**

**Signaling Channel Filter Response**



**MODULATION LIMITING (COMPANDOR IN) - GRAPH**



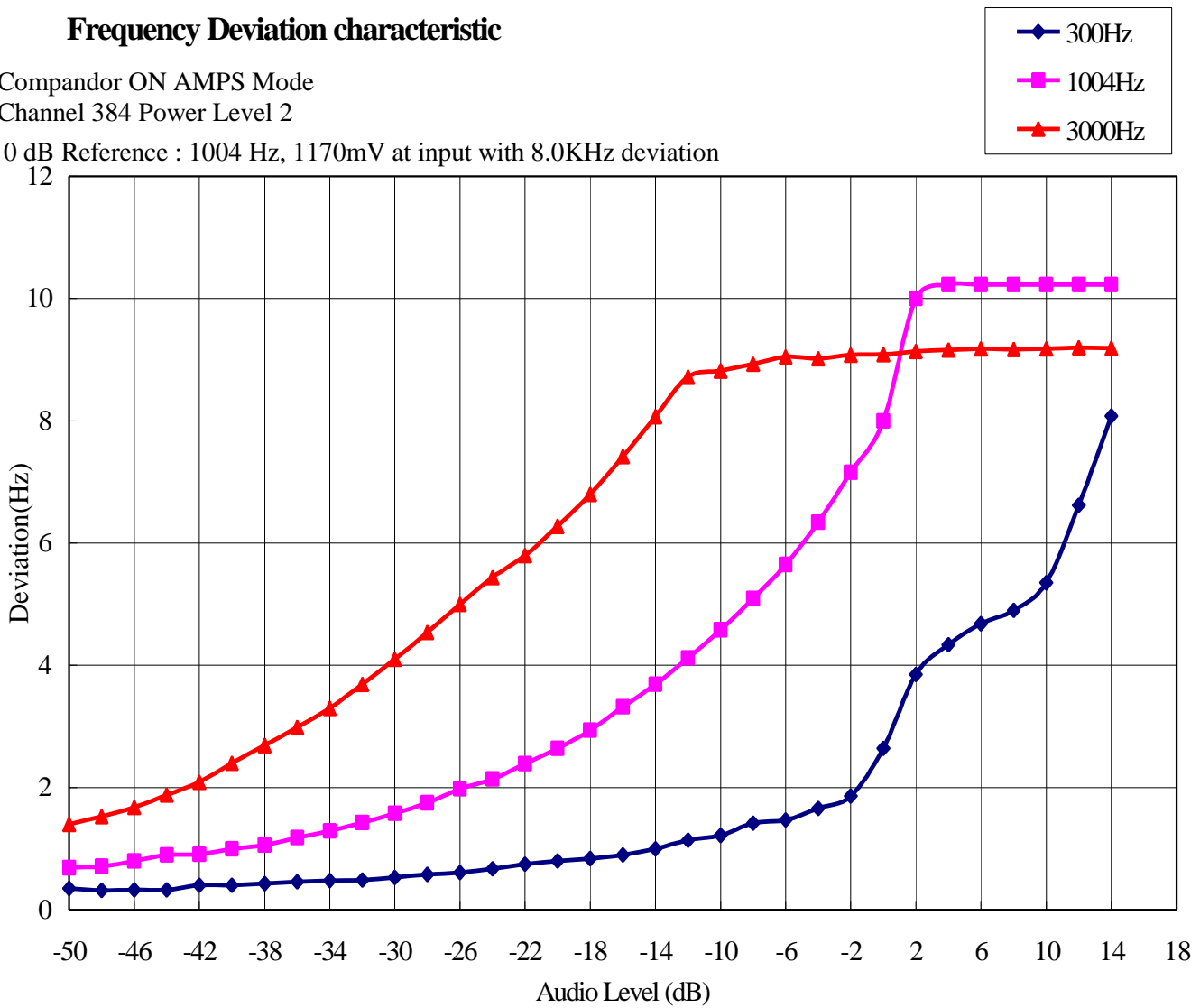
**MODULATION LIMITING (COMPANDOR OUT) - GRAPH**

**Frequency Deviation characteristic**

Compandor ON AMPS Mode

Channel 384 Power Level 2

0 dB Reference : 1004 Hz, 1170mV at input with 8.0KHz deviation



**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

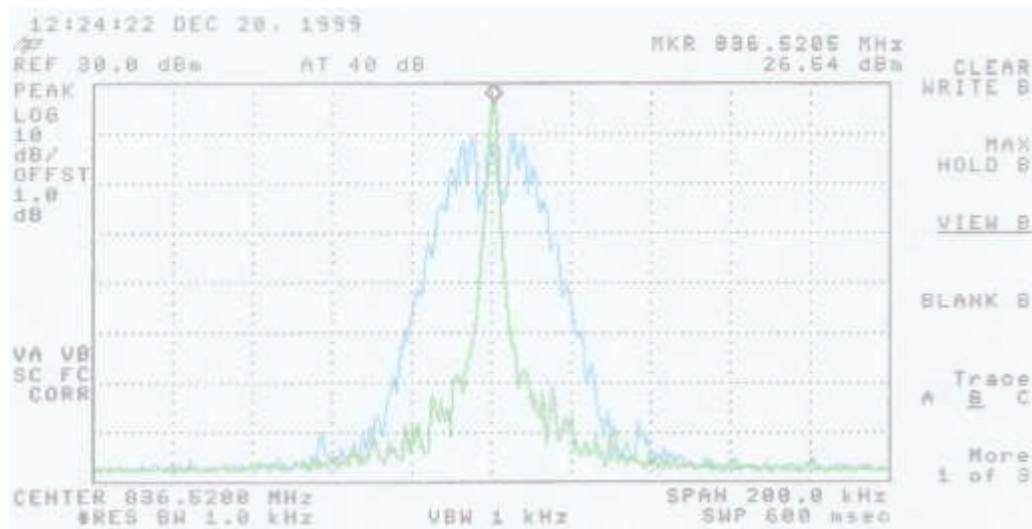
VIDEO BANDWIDTH = 1000 Hz

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

POWER LEVEL = 0.454W

MEASURED DATA:

1. Instantaneous Deviation Control set for a maximum of +/- 12kHz
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 60dB below the carrier or  $63 + 10 \log_{10}$  (mean output power in Watts) dB, whichever is the smaller attenuation.

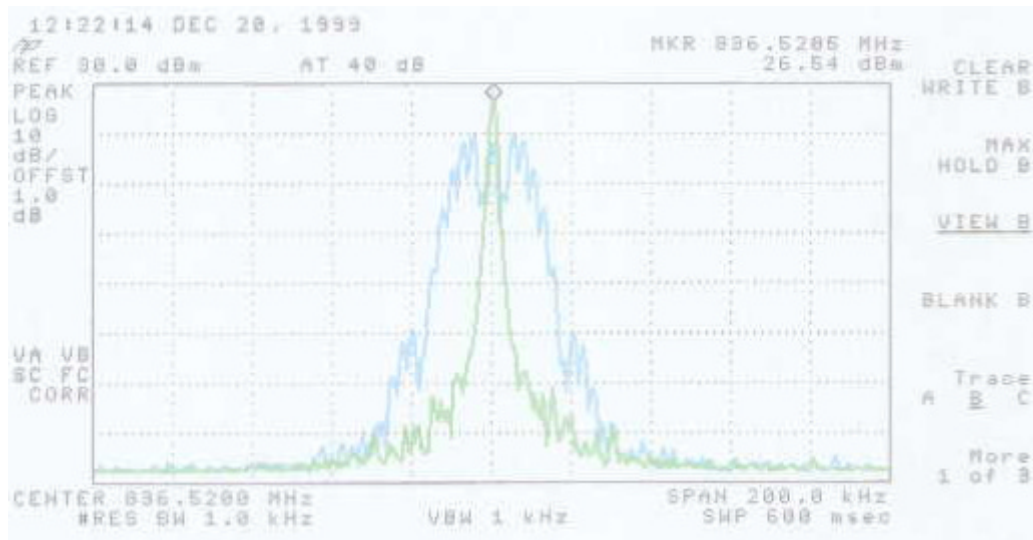
**BANDWIDTH MEASUREMENT DATA FOR TRANSMITTER TYPES F8W**

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 = 0.465W

**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 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 the first multiple of the carrier frequency, the sideband is at least 60 dB below the carrier of 63 + 10 log<sub>10</sub> (mean output power in Watts) dB, whichever is the smaller attenuation.

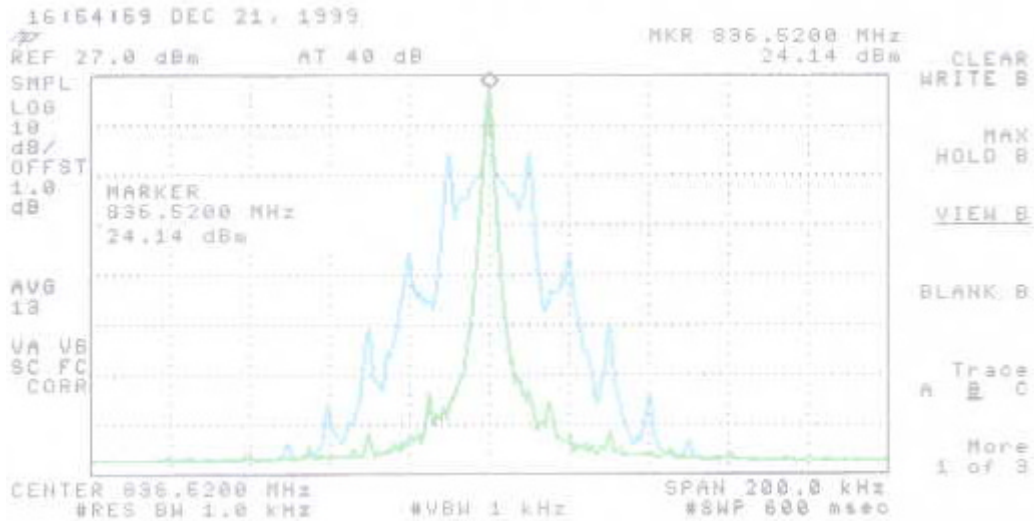
**BANDWIDTH MEASUREMENT DATA FOR TRANSMITTER TYPES F1D**

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  
 VIDE BANDWIDTH = 1000 Hz  
 POWER LEVEL = 0.261W

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.

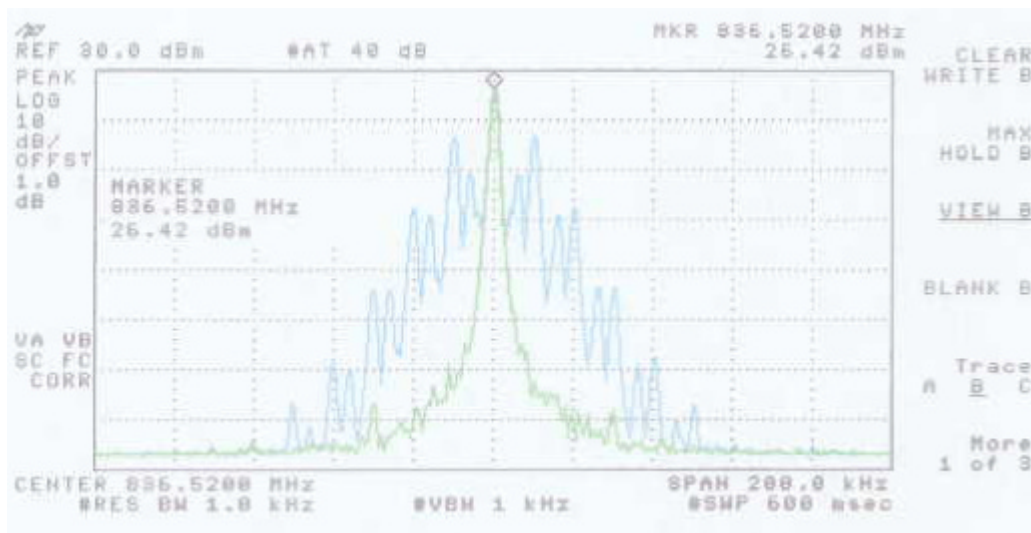
**BANDWIDTH MEASUREMENT DATA FOR TRANSMITTER TYPES F1D**

DEVIATION OF THE CARRIER WITH 10kHz 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 = 0.454W

MEASURED DATA:

1. Instantaneous Deviation Control set for a maximum of +/- 12 kHz
2. Tune and adjust to obtain the unmodulated 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.

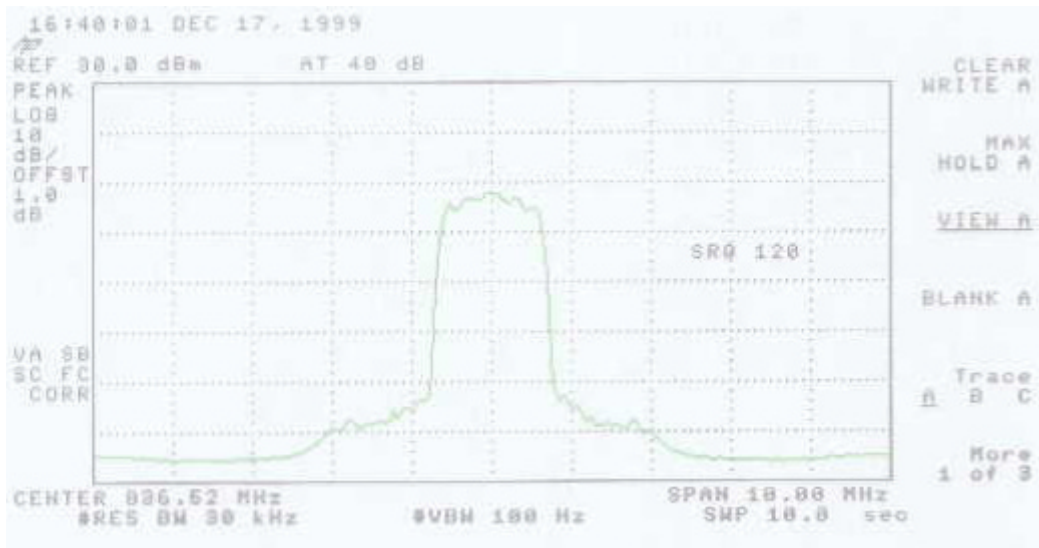
**BANDWIDTH MEASUREMENT DATA FOR TRANSMITTER TYPES F9W**

DEVIATION OF THE CARRIER WITH OQPSK MODULATION

HORIZONTAL SCALE = 1MHz / DIVISION  
 VERTICAL SCALE = 10 dB / DIVISION (ATTENUATION)  
 RESOLUTION BANDWIDTH = 30 kHz  
 VIDEO BANDWIDTH = 100 Hz  
 POWER LEVEL = 0.263W (Average Power in transmitter)

MEASURED DATA

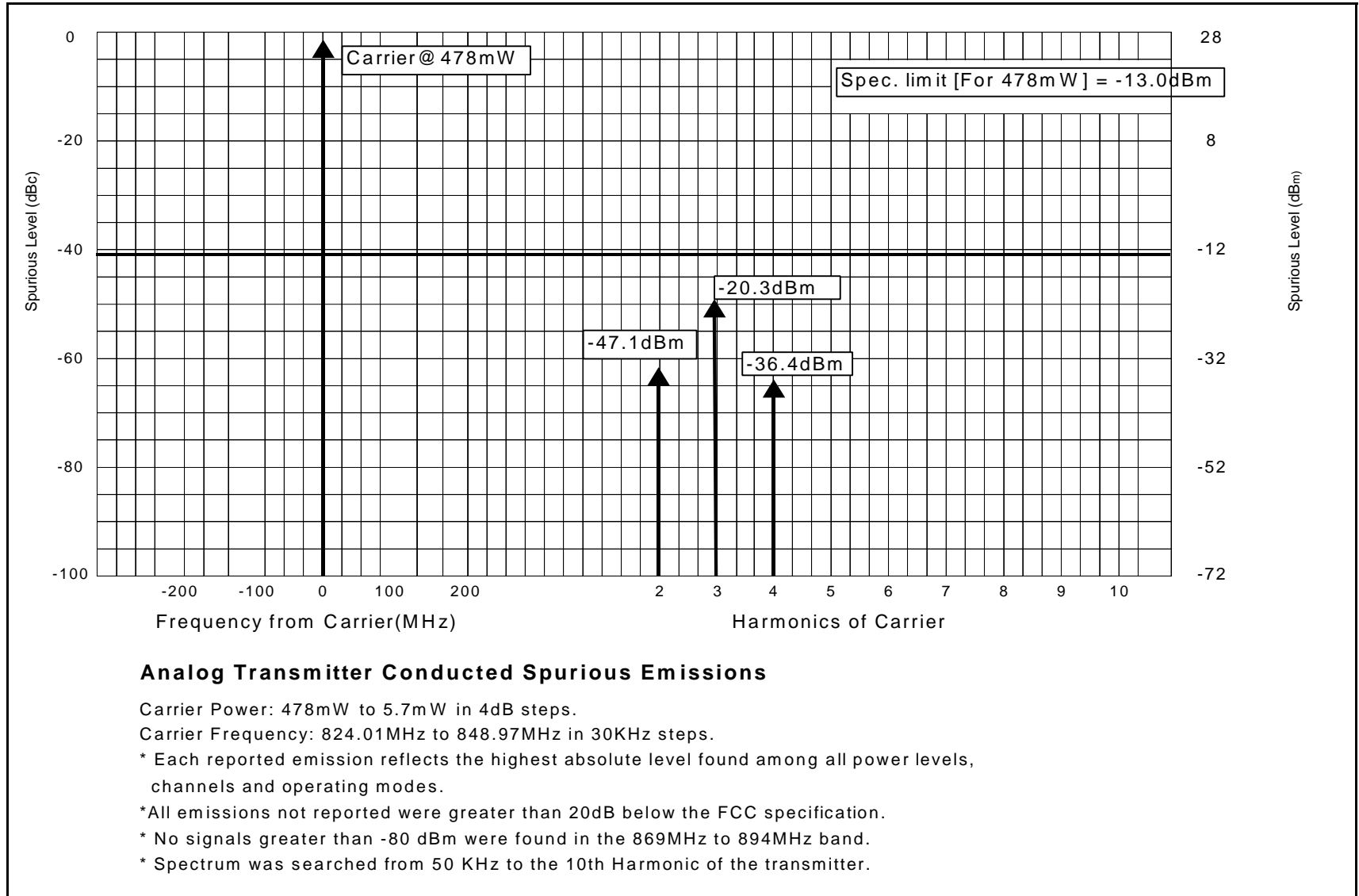
1. Modulate the transmitter with OQPSK modulation, using pseudo random data. Obtain image on spectrum analyzer.



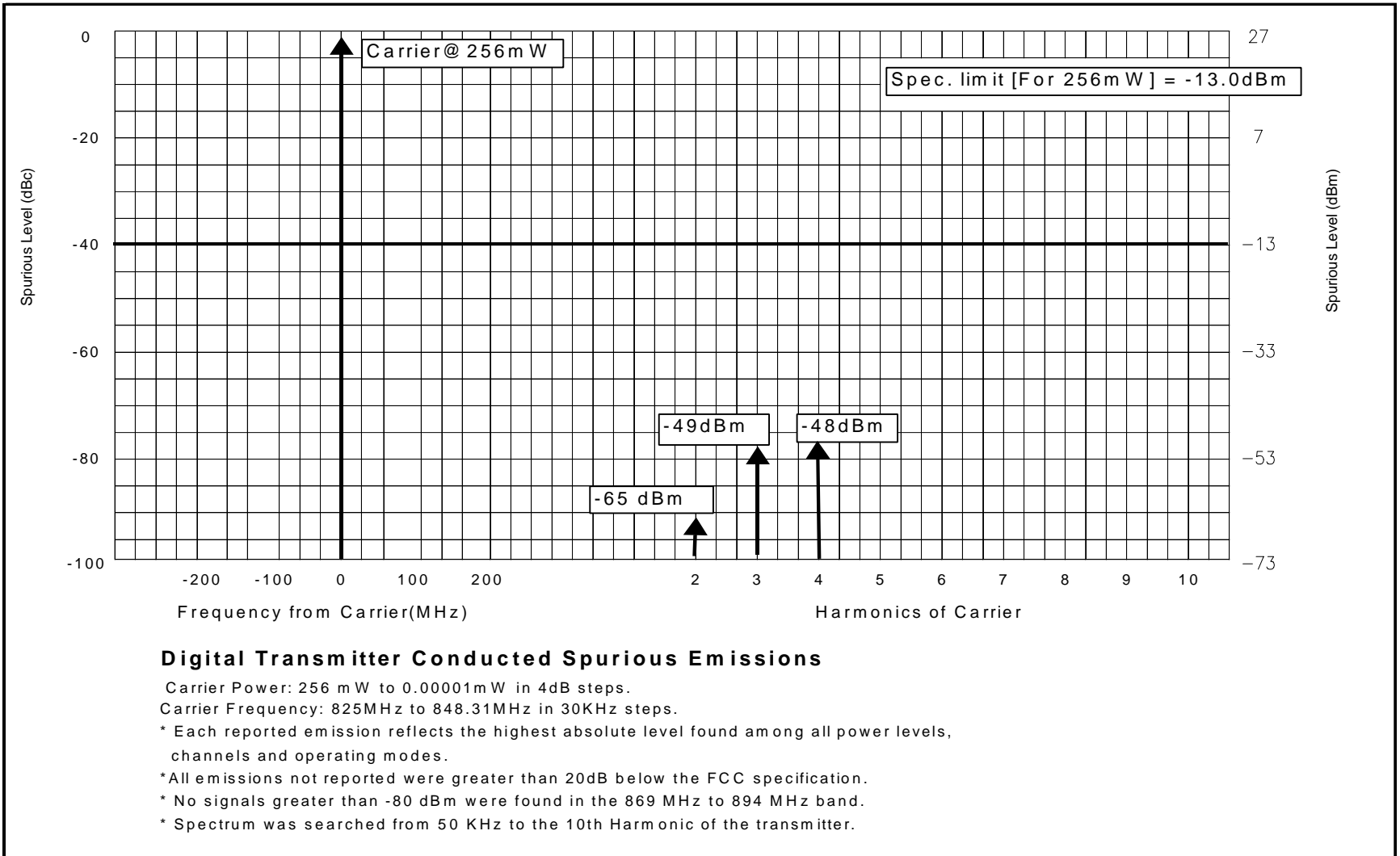
COMMENTS:

Modulation products in a bandwidth of 30kHz, 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.

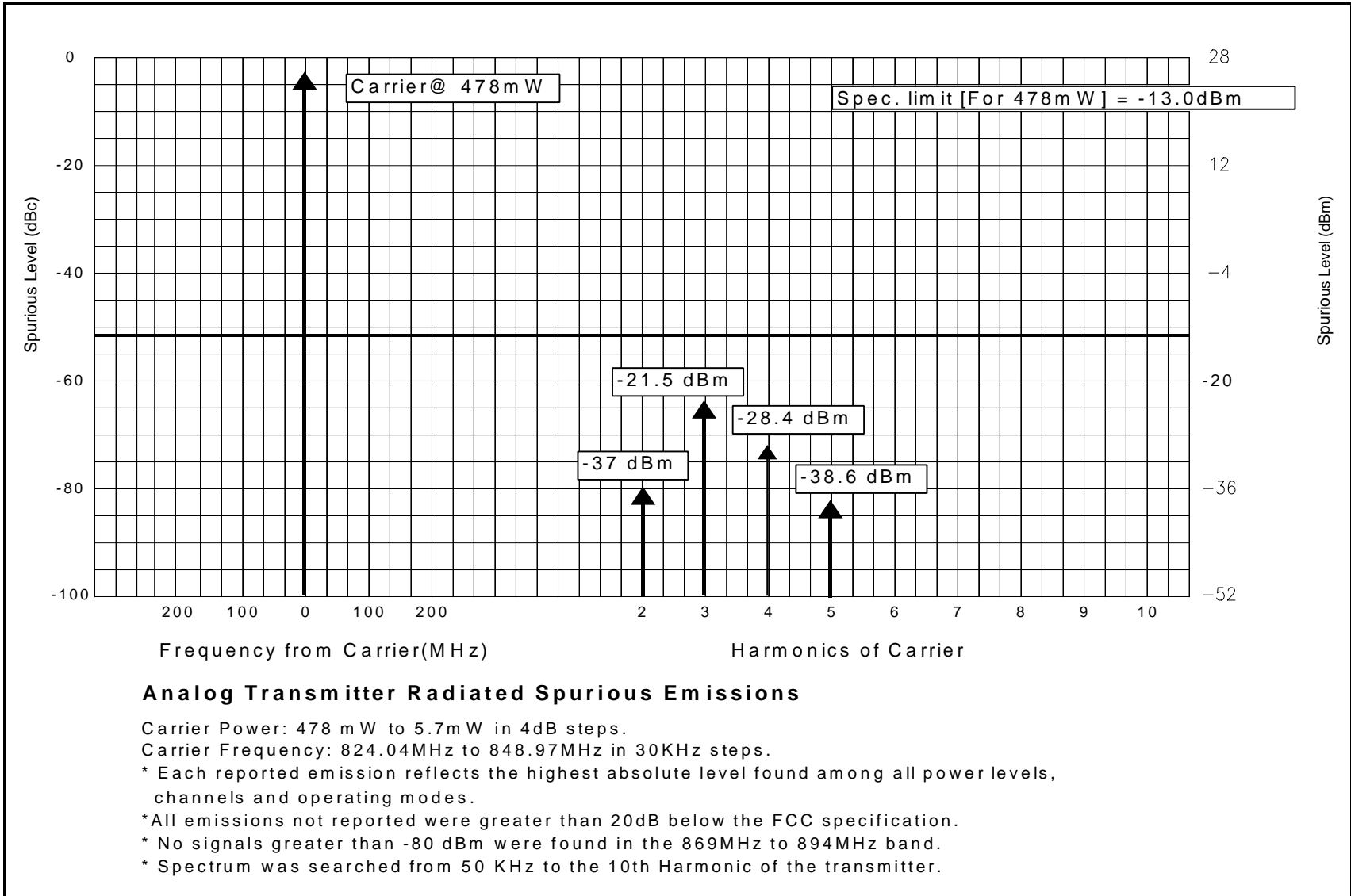
**Transmitter Conducted Spurious and Harmonic Emissions 800 - Graph**



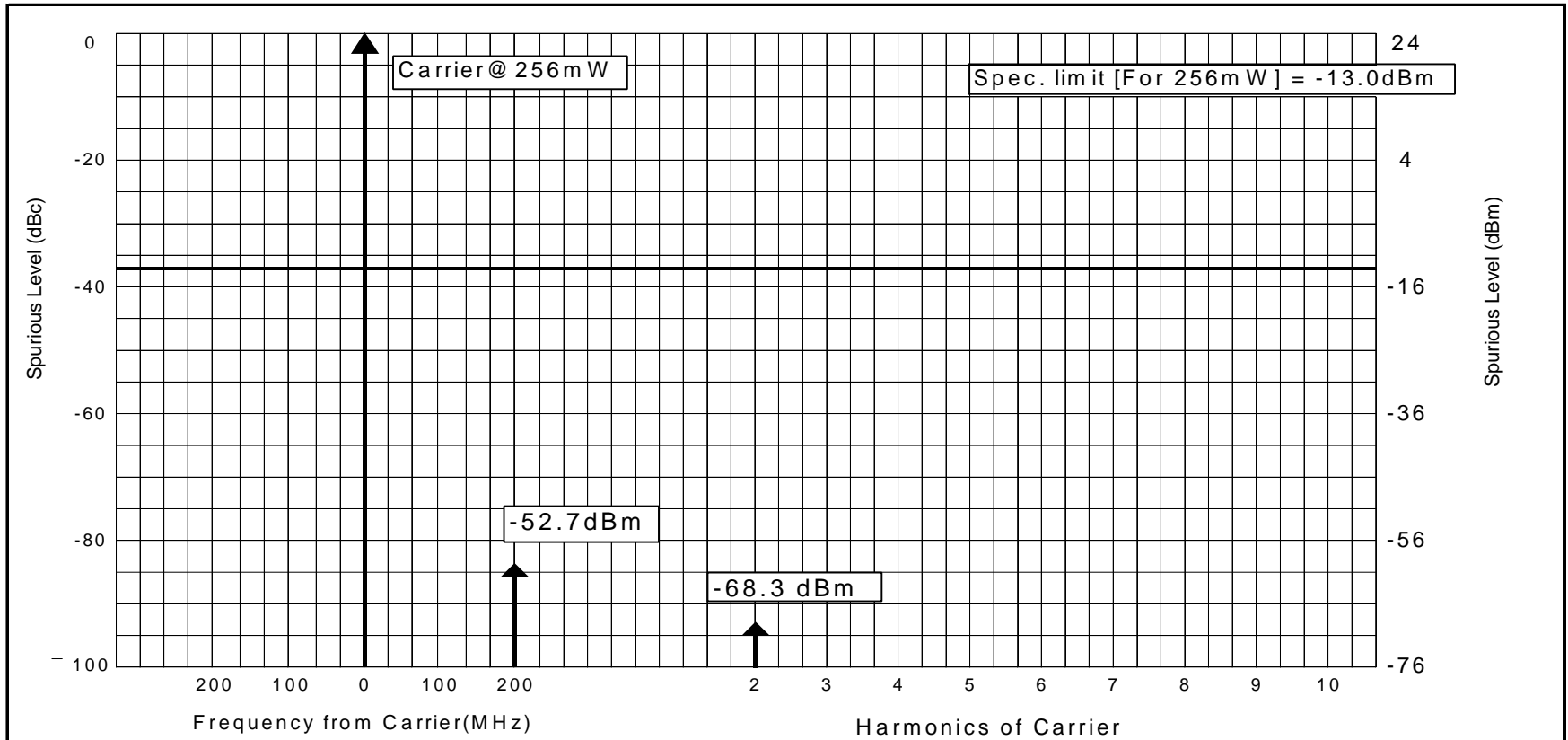
**Transmitter Conducted Spurious and Harmonic Emissions 800 - Graph**



### Transmitter Radiated Spurious and Harmonic Emissions 800 - Graph



**Transmitter Radiated Spurious and Harmonic Emissions CDMA 800 - Graph**



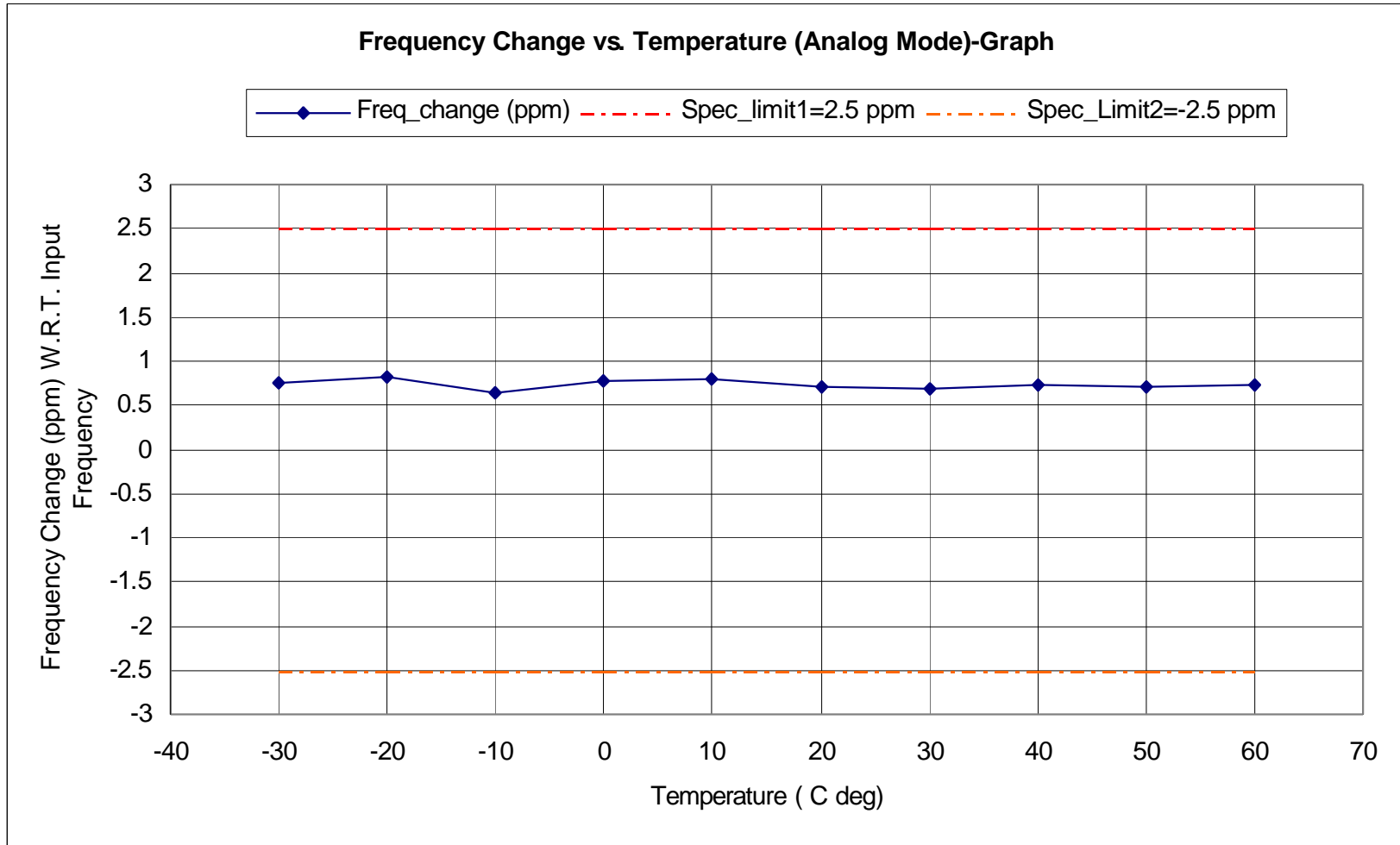
**Digital Transmitter Radiated Spurious Emissions**

Carrier Power: 256mW to 0.00001mW in 4dB steps.

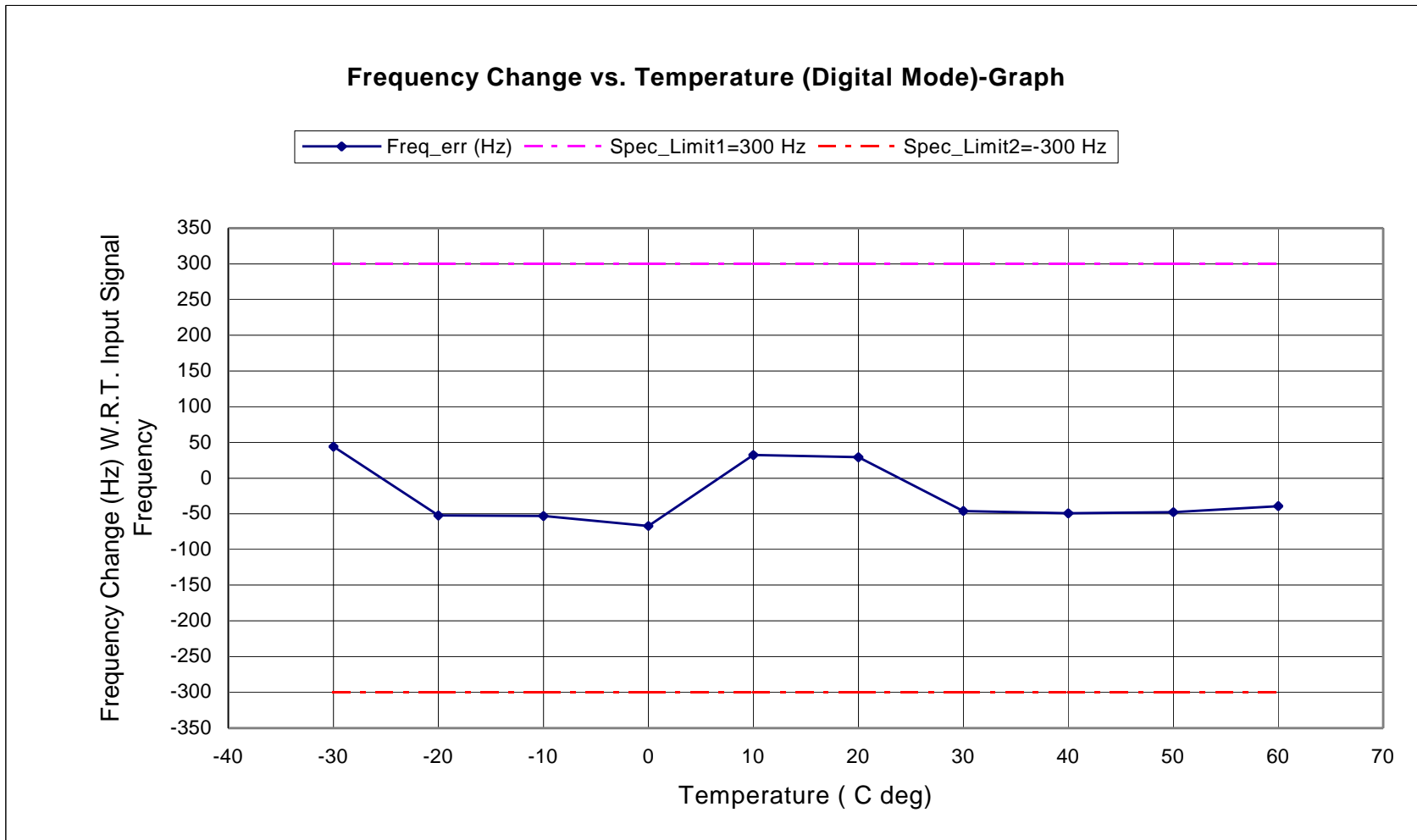
Carrier Frequency: 825MHz to 848.31MHz in 30KHz steps.

- \* Each reported emission reflects the highest absolute level found among all power levels, channels and operating modes.
- \* All emissions not reported were greater than 20dB below the FCC specification.
- \* No signals greater than -80 dBm were found in the 869MHz to 894MHz band.
- \* Spectrum was searched from 50 KHz to the 10th Harmonic of the transmitter.

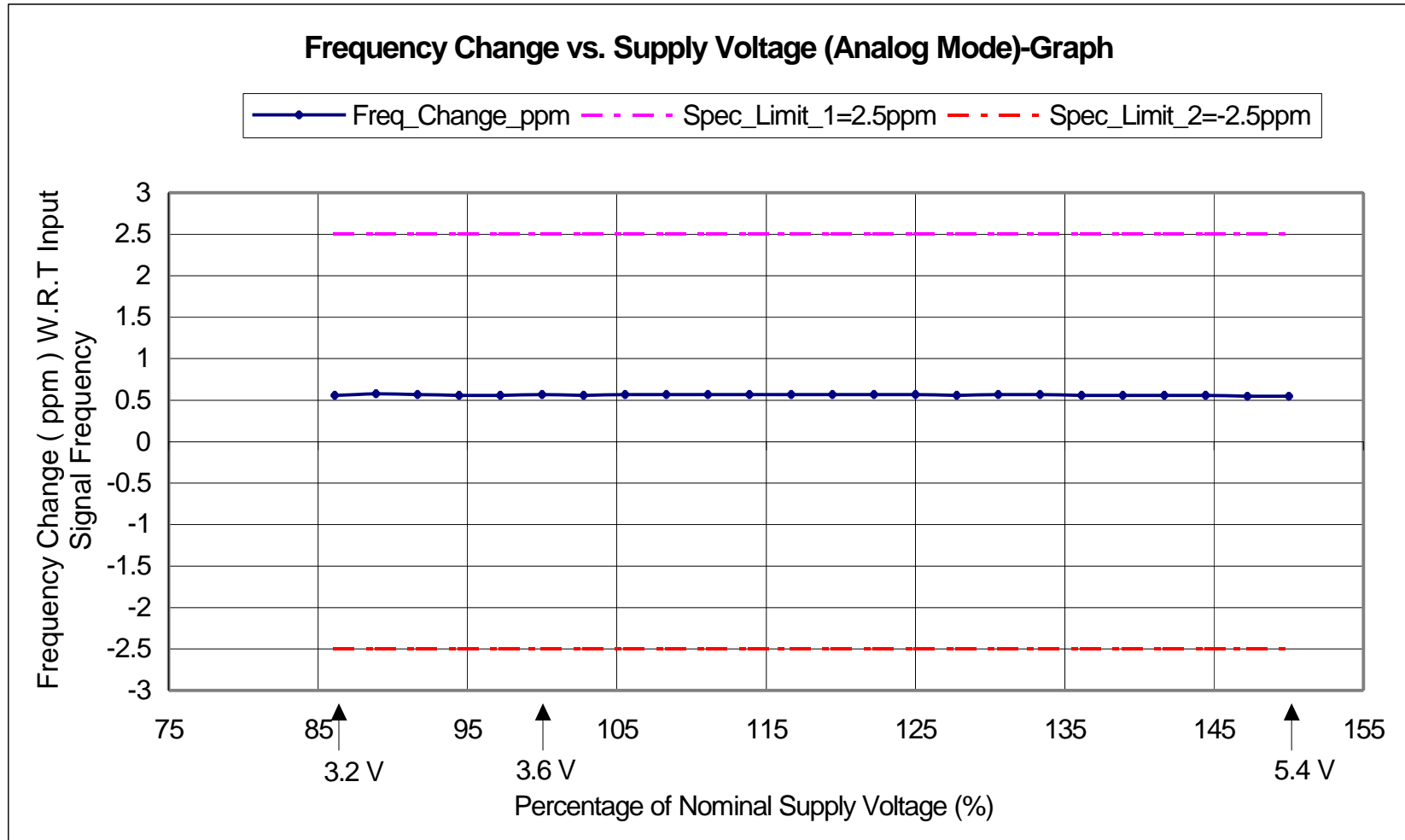
### Frequency Change vs. Temperature ( Analog Mode)-Graph



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



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



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

