SUBMITTED MEASURED DATA INDEX

EXHIBIT 6A RF Output Power

Exhibit Summary:

Exhibit 6A contains both average and peak output powers for the mobile station. In all cases, the peak output power is within the required mask (this mask is specified in the JTC standards, TIA PN3389 Vol. 1, Chap. 7, and is not an FCC requirement).

Contents:

Method of Measurement:

1. Setup the mobile station for maximum output power with pseudo random data modulation.
2. Use HP 8991A Peak Power Analyzer to obtain peak and average output power levels.
3. Repeat measurements for carrier frequencies at 1850.2 MHz, 1880.2 MHz, and 1909.8 MHz. Channels 512, 661, and 810 respectively (bottom, middle, and top of operational frequency range).

Measurement Limits:

Power Step	Nominal Peak Output Power (dBm)	Tolerance (dB)
0	30	+/- 2

Conducted Power Measurements:

Frequency (MHz)	Power Step	Peak Output Power (dBm)	Average Output Power (dBm)
1850.2	0	29.98	21.87
1880.2	0	29.98	19.43
1909.8	0	29.98	19.98

EXHIBIT 6B EIRP Test

Description:
Exhibit 6B is the test for the maximum radiated power from the phone.

Rule Part 24.232(b) specifies that "Mobile/portable stations are limited to 2 watts e.i.r.p. peak power…" and 24.232(c) specifies that "Peak transmit power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage."

Method of Measurement:

1. In an anechoic antenna test chamber, a half-wave dipole antenna for the frequency band of interest is placed at the reference center of the chamber. An RF Signal source for the frequency band of interest is connected to the dipole with a cable that has been constructed to not interfere with the radiation pattern of the antenna. A known (measured) power (Pin) is applied to the input of the dipole, and the power received (Pr) at the chamber's probe antenna is recorded.
2. A "reference path loss" is established as Pin + 2.1 - Pr.
3. The EUT is substituted for the dipole at the reference center of the chamber. The EUT is put into CW test mode and a scan is performed to obtain the radiation pattern.
4. From the radiation pattern, the coordinates where the maximum antenna gain occurs is identified.
5. The EUT is then put into pulse mode at its maximum power level (Power Step 0).
6. "Gated mode" power measurements are performed with the receiving antenna placed at the coordinates determined in Step 3 to determine the output power as defined in FCC Rule 24.232 (b) and (c). The "reference path loss" from Step 1 is added to this result.
7. This value is EIRP since the measurement is calibrated using a half-wave dipole antenna of known gain (2.1 dBi) and known input power (Pin).
8. ERP can be calculated from EIRP by subtracting the gain of the dipole, ERP = EIRP - 2.1dBi.

EIRP Limits:

	EIRP (dBm)
Burst Average	<33

EIRP Measurements:

	EIRP (dBm)	ERP (dBm)
Modulation Average	N/A	
Burst Average	**31.29**	

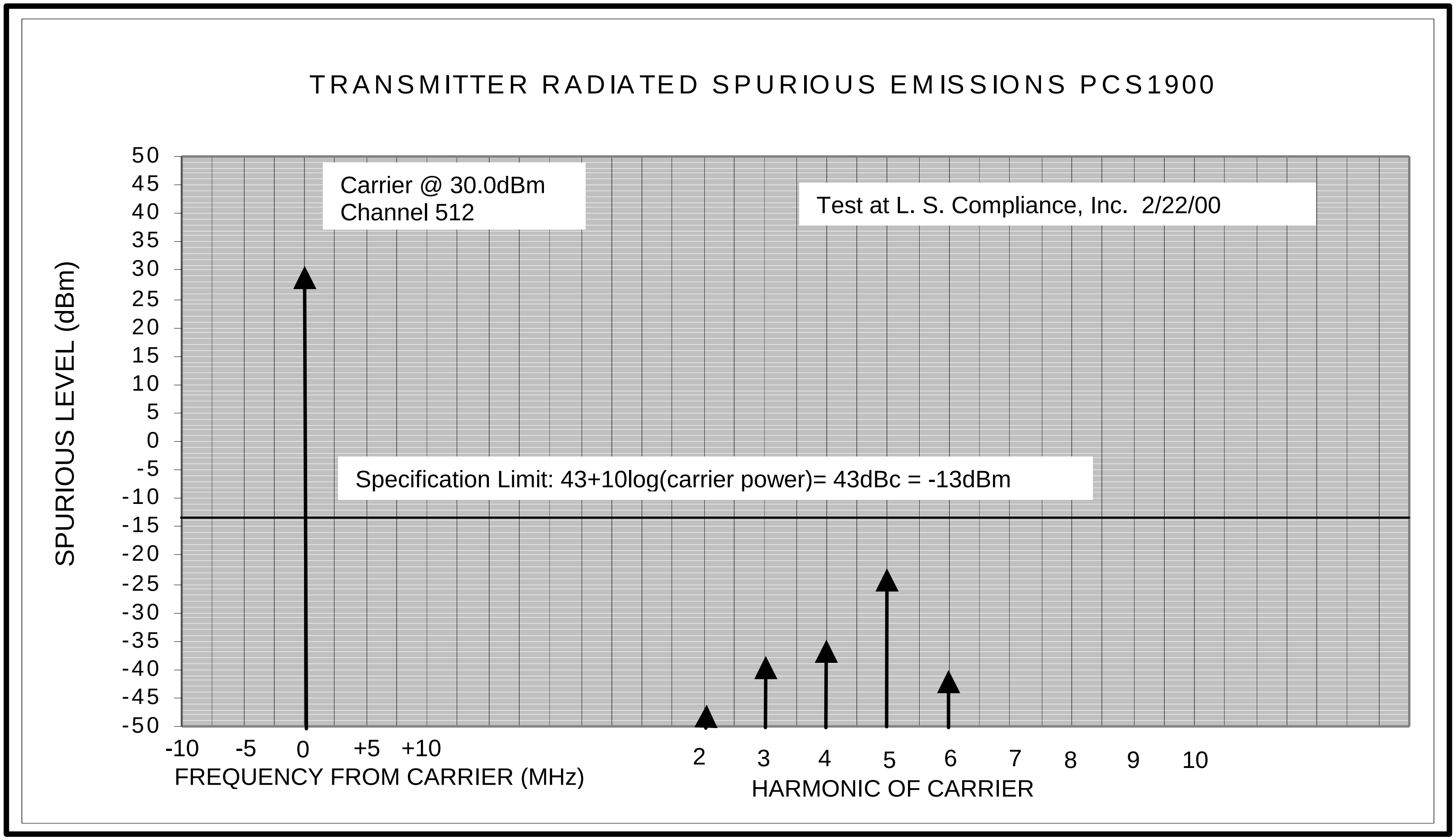
EXHIBIT 6C Voltages and Currents into Final Amplifying Devices

Exhibit Summary:

Exhibit 6C contains the voltages and currents applied to the TX Driver and TX Final Power Amplifier for the entire mobile station operating power range.

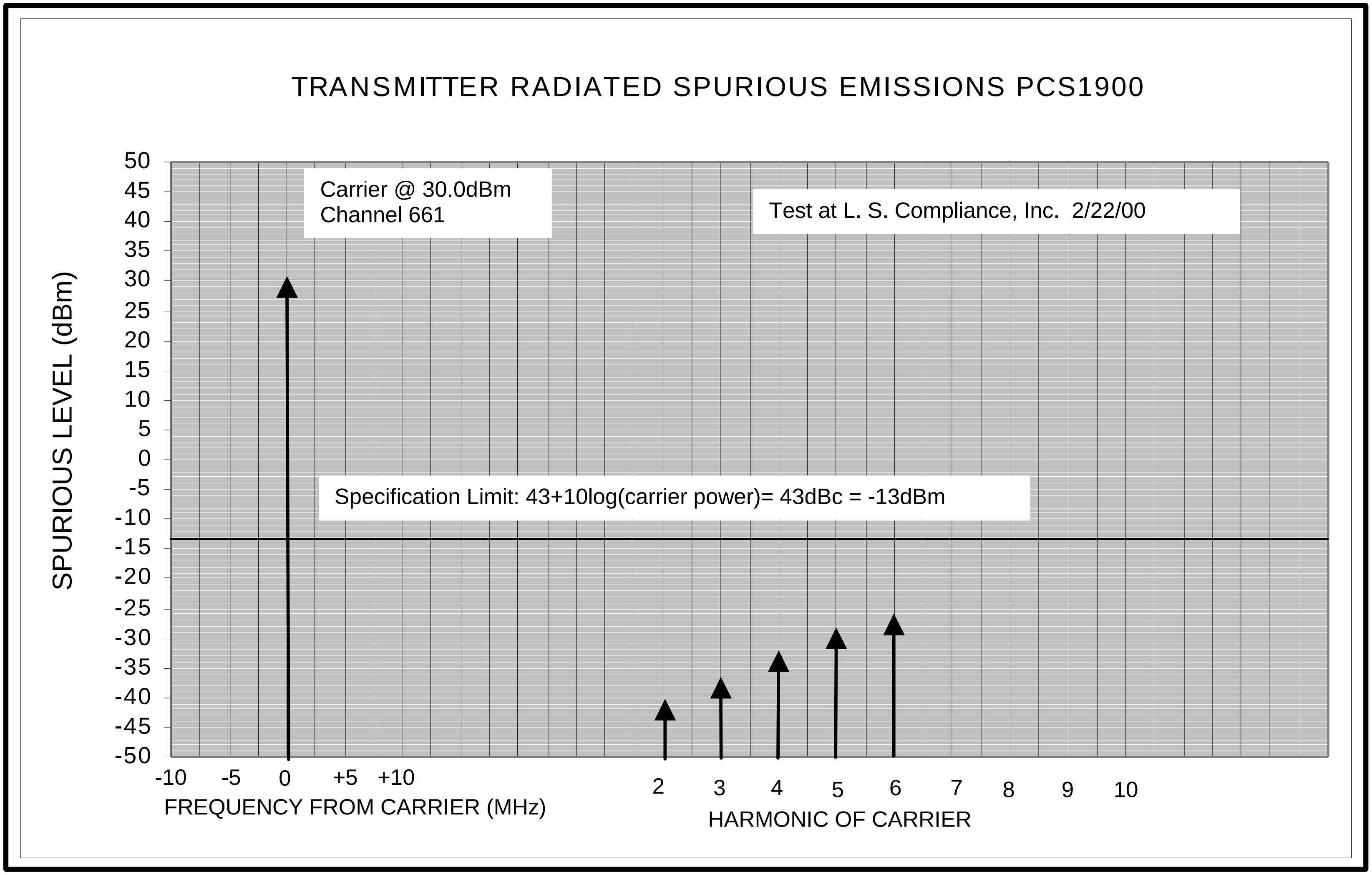
Power Step	Power Output Spec. (dBm)	Power Output Meas. (dBm)	Vcc (Q331) (VDC)	Ic (Q331) (A)	Vdd (Q370) (VDC)	Id(Q370) (A)
0	30 +/-2	28.78	3.6	0.177	3.6	0.954
1	28 +/-3	27.76	3.6	0.160	3.6	0.762
2	26 +/-3	25.68	3.6	0.136	3.6	0.543
3	24 +/-3	23.82	3.6	0.120	3.6	0.417
4	22 +/-3	21.72	3.6	0.105	3.6	0.315
5	20 +/-3	19.77	3.6	0.093	3.6	0.241
6	18 +/-3	17.82	3.6	0.084	3.6	0.189
7	16 +/-3	15.81	3.6	0.076	3.6	0.146
8	14 +/-3	13.81	3.6	0.069	3.6	0.112
9	12 +/-4	11.82	3.6	0.063	3.6	0.086
10	10 +/-4	9.59	3.6	0.057	3.6	0.062
11	8 +/-4	8.55	3.6	0.055	3.6	0.053
12	6 +/-4	5.58	3.6	0.049	3.6	0.032
13	4 +/-4	5.58	3.6	0.049	3.6	0.032
14	2 +/-5	3.03	3.6	0.042	3.6	0.016
15	0 +/-5	1.47	3.6	0.037	3.6	0.007

EXHIBIT 6D RADIATED SPURIOUS EMISSION



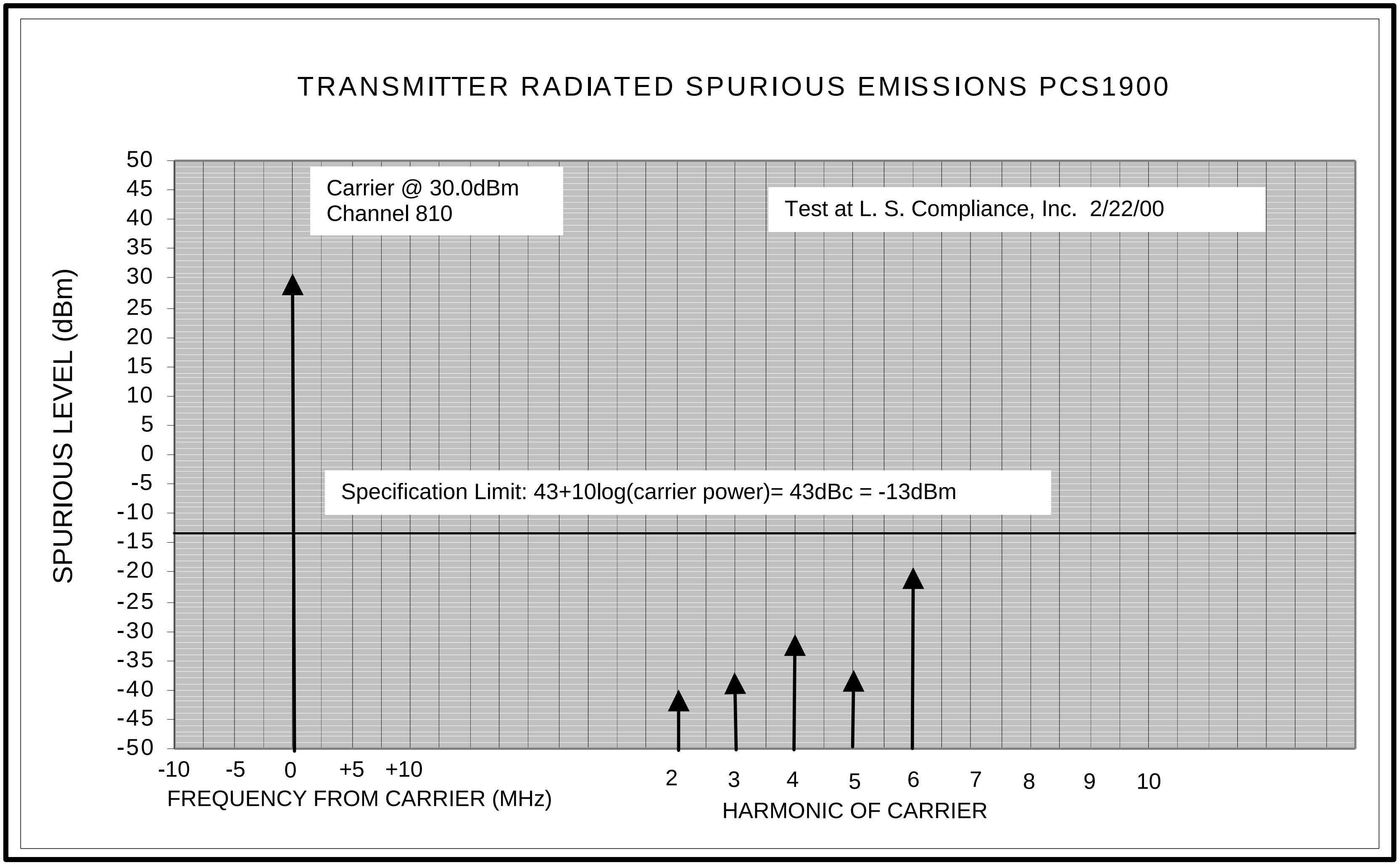
Notes:
1. Each reported emission reflects the highest absolute level found for the specified channel at the highest radiated power.
2. The spectrum was searched from 1 GHz to 20 GHz (past the 10th harmonic of the transmitter).
3. Low, mid and high channels were tested and in each case the harmonic level past the 7th harmonic was below the noise floor of the spectrum analyzer.
4. A single battery pack Part No. AANH4012A was used.

Figure 6D1 Channel 512 Transmitter Radiated Emission



Notes:
1. Each reported emission reflects the highest absolute level found for the specified channel at the highest radiated power.
2. The spectrum was searched from 1 GHz to 20 GHz (past the 10^{th} harmonic of the transmitter).
3. Low, mid and high channels were tested and in each case the harmonic level past the 7^{th} harmonic was below the noise floor of the spectrum analyzer.
4. A single battery pack Part No. AANH4012A was used.

Figure 6D2 Channel 661 Transmitter Radiated Emission



Notes:
1. Each reported emission reflects the highest absolute level found for the specified channel at the highest radiated power.
2. The spectrum was searched from 1 GHz to 20 GHz (past the 10^{th} harmonic of the transmitter).
3. Low, mid and high channels were tested and in each case the harmonic level past the 7^{th} harmonic was below the noise floor of the spectrum analyzer.
4. A single battery pack Part No. AANH4012A was used

Figure 6D3 Channel 810 Transmitter Radiated Emission.

OCCUPIED BANDWIDTH

Exhibit Summary:
Exhibit 6E contains measurement data pertaining to occupied bandwidth. For each carrier frequency measured, the plots show the modulation spectrum of the carrier measured by two methods: the 99% power bandwidth, and the -26 dBC bandwidth. The following figures illustrate the results of both bandwidth definitions as measured using a Hewlett Packard spectrum analyzer.

Contents:

Measurement Procedure:
This section describes the procedures used to measure occupied bandwidth. A theoretical occupied bandwidth of approximately 246.0 kHz was determined as described in EXHIBIT 12.

1. Determine the measurement bandwidth: Part 24.238 (a) requires a measurement bandwidth of at least 1% of the occupied bandwidth. For 246.0 kHz, this equates to a resolution bandwidth of at least 2.46 kHz. For this testing, a resolution bandwidth 3.0 kHz was used.

2. Outline measurement frequencies: Table 6E.1 lists the measurement frequencies for the bottom, middle, and top of the PCS frequency band. For each frequency at which an occupied bandwidth measurement is made a transmitter output power was set to Power Step 0 (+30 dBm nominal).

USPCS Channel	Transmitter Frequency
512	1850.2 MHz
661	1880.0 MHz
810	1909.8 MHz

Table 6E.1 Occupied bandwidth measurement frequencies.

3. Connect test set-up: Employing a cable and a 6dB attenuator pad, connect the mobile station to a spectrum analyzer (HP 8561E).

4. Configure the mobile station: Set TX frequency, power level and activate internal pseudo random data sequence. The sequence used in the radio is a part of the CCIT sequence defined by GSM recs. The sequence is stored in RAM and each timeslot that a pseudo random modulation stream is desired, a seed is generated for this table that will pick the byte to start with. The next 116 data bits are then used for the data to be transmitted. The bit rate of the internal test signal is equivalent to the GSM specification of 270.833 kBits/s.

5. Use the built in Power Bandwidth function of the spectrum analyzer to create a measured plot of the spectrum yielding the 99% occupied bandwidth.

6. Repeat for all required frequencies adjusting the spectrum analyzer as necessary.

7. Set the markers to the points above and below the carrier frequency which are 26dB down from the peak level and record the bandwidth between the markers.

8. Repeat for all required frequencies adjusting the spectrum analyzer as necessary.

Occupied Bandwidth Results

Similar to conducted emissions, occupied bandwidth measurements are only provided for selected frequencies in order to reduce the amount of submitted data. Data were taken at the extreme and mid frequencies of the USPCS frequency band. Table 6E.2 lists the measured 99% power and -26dBC occupied bandwidths. Spectrum analyzer plots are included on the following pages.

Frequency	**99% Occupied BW**	**-26dBC Bandwidth**
1850.2 MHz	248.3 kHz	347 kHz
1880.0 MHz	248.3 kHz	340 kHz
1909.8 MHz	245.0 kHz	318 kHz

Table 6E.2 Occupied bandwidth results.

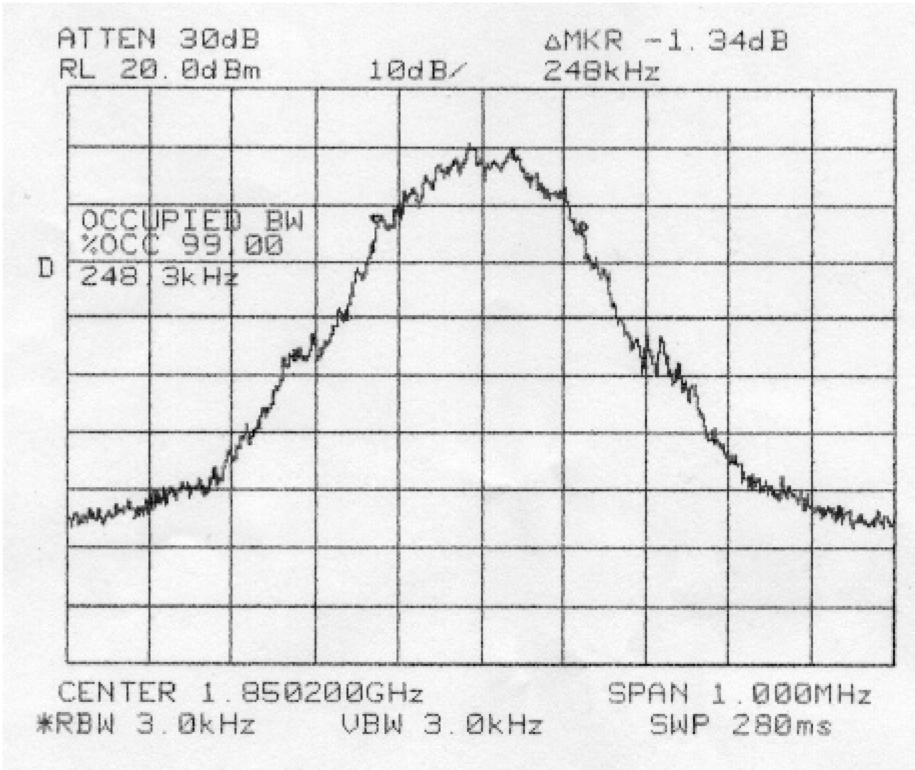


Figure 6E.1 Channel 512, 99% Power Bandwidth

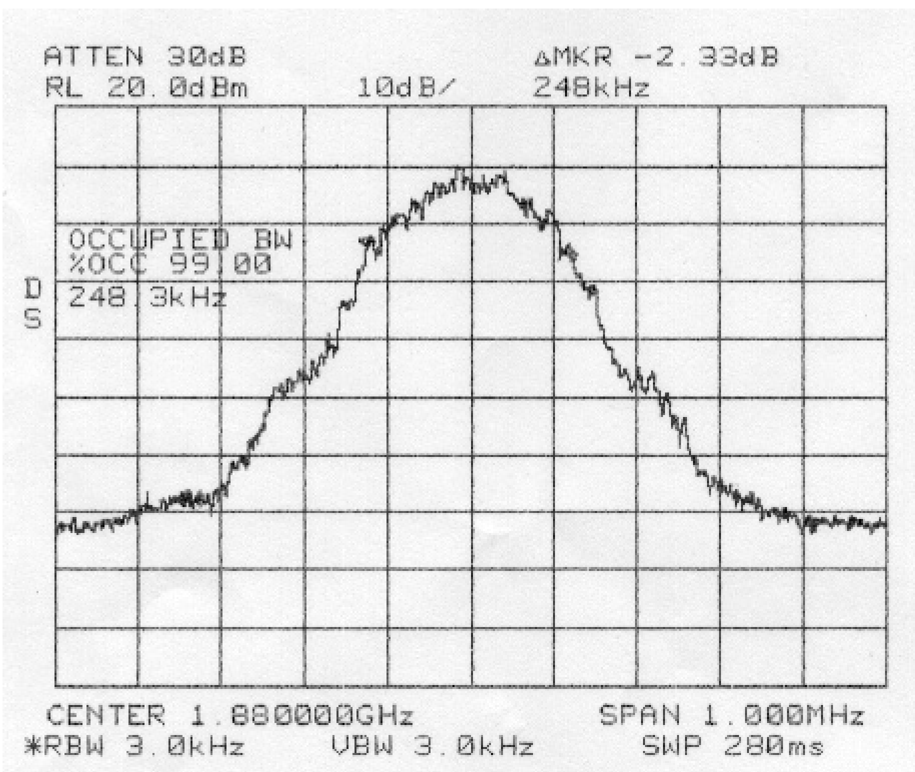


Figure 6E.2 Channel 661, 99% Power Bandwidth

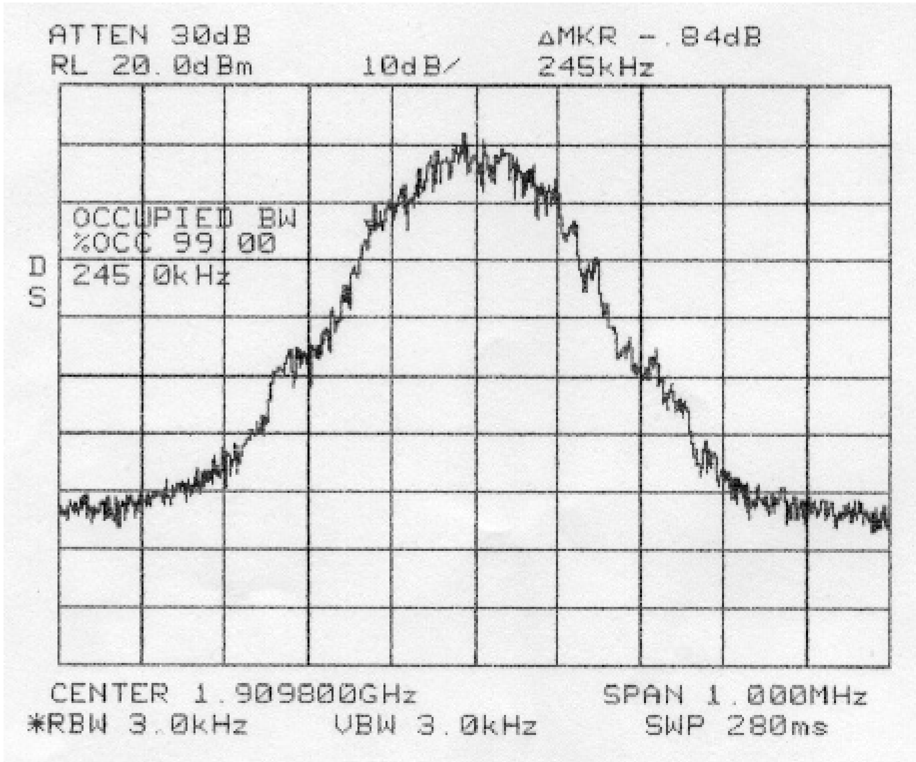


Figure 6E.3 Channel 810, 99% Power Bandwidth

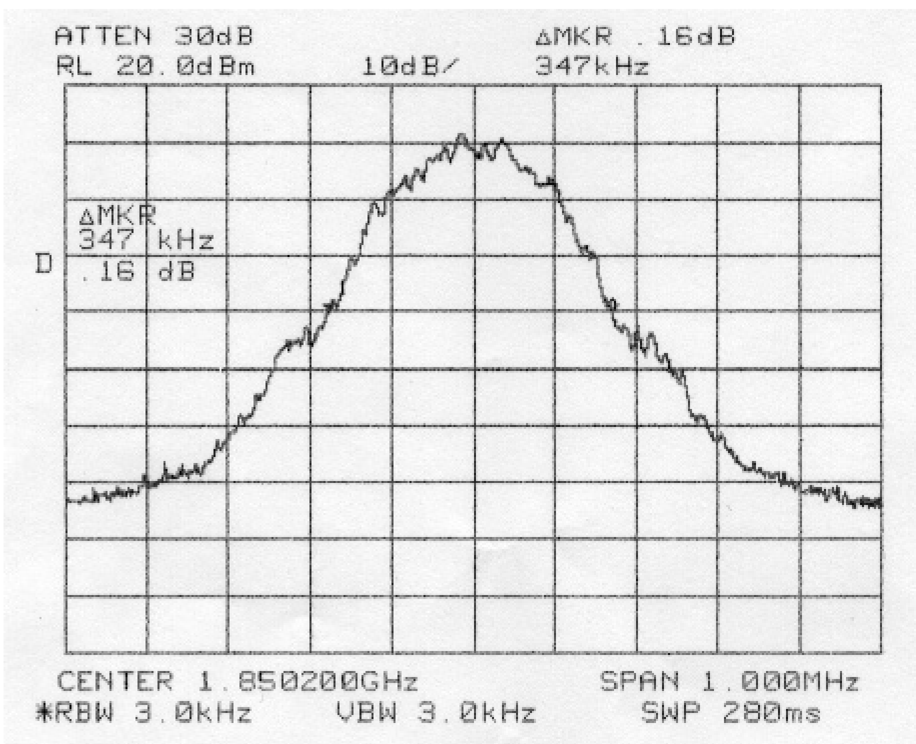


Figure 6E.4 Channel 512, -26dBc Bandwidth

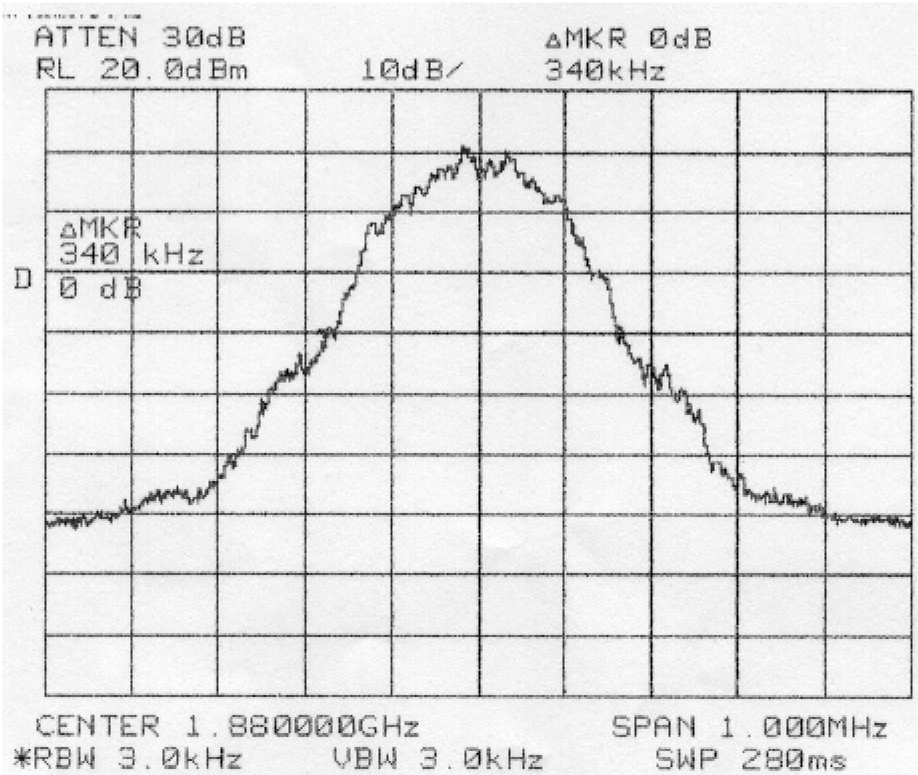


Figure 6E.5 Channel 661, -26dBc Bandwidth

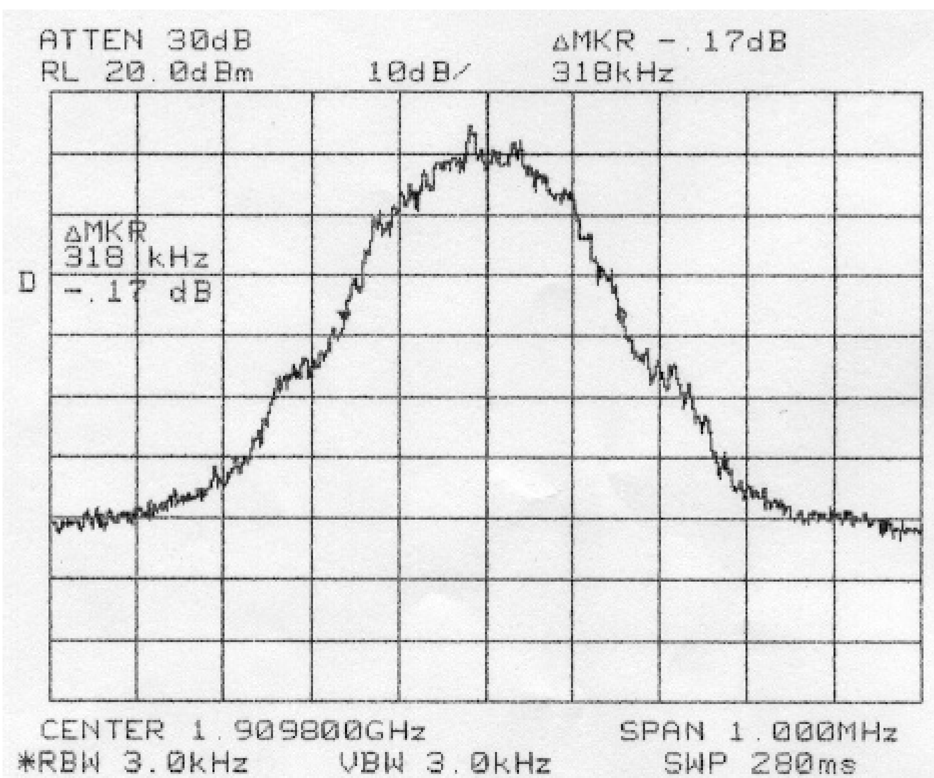
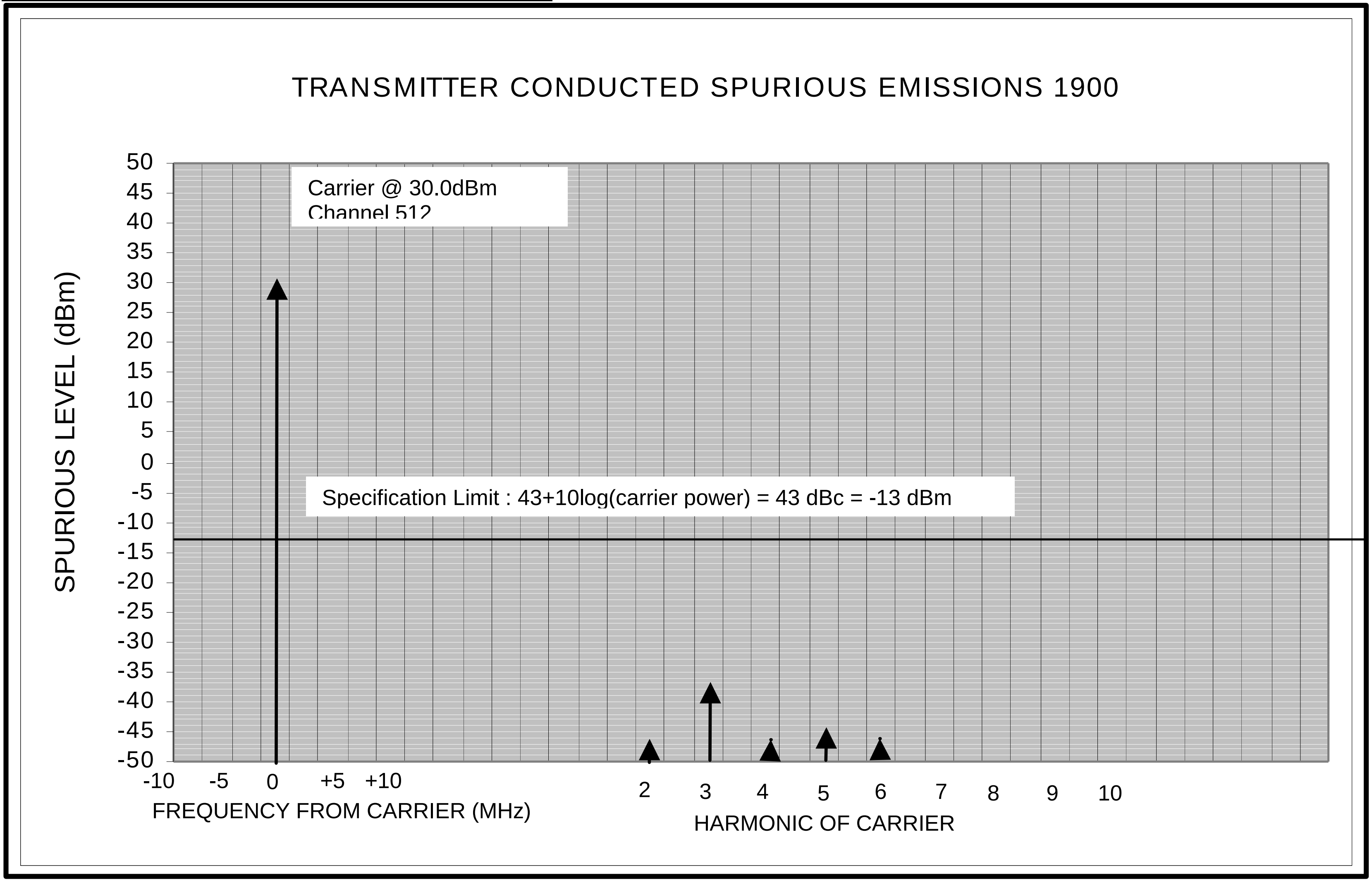


Figure 6E.6 Channel 810, -26dBc Bandwidth

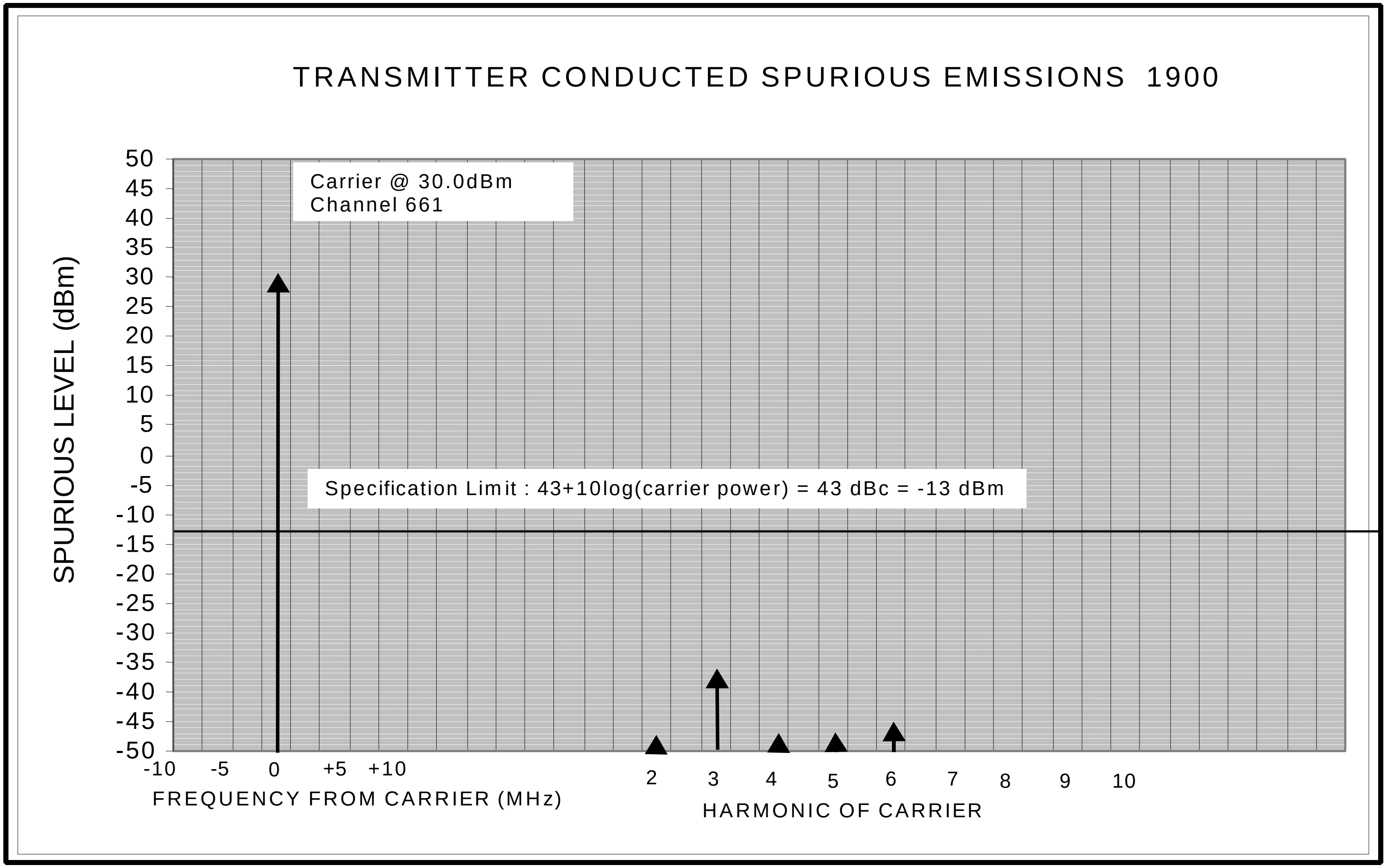
EXHIBIT 6F Conducted Spurious Emissions



Notes:

1. The spectrum was searched from 1 GHz to 12.8 GHz (past the 6th harmonic of the transmitter).
2. Low, mid and high channels were tested.
3. Each reported emission reflects the highest absolute level found for the specified channel at the highest radiated power.
4. A single battery pack Part No. AANH4012A was used

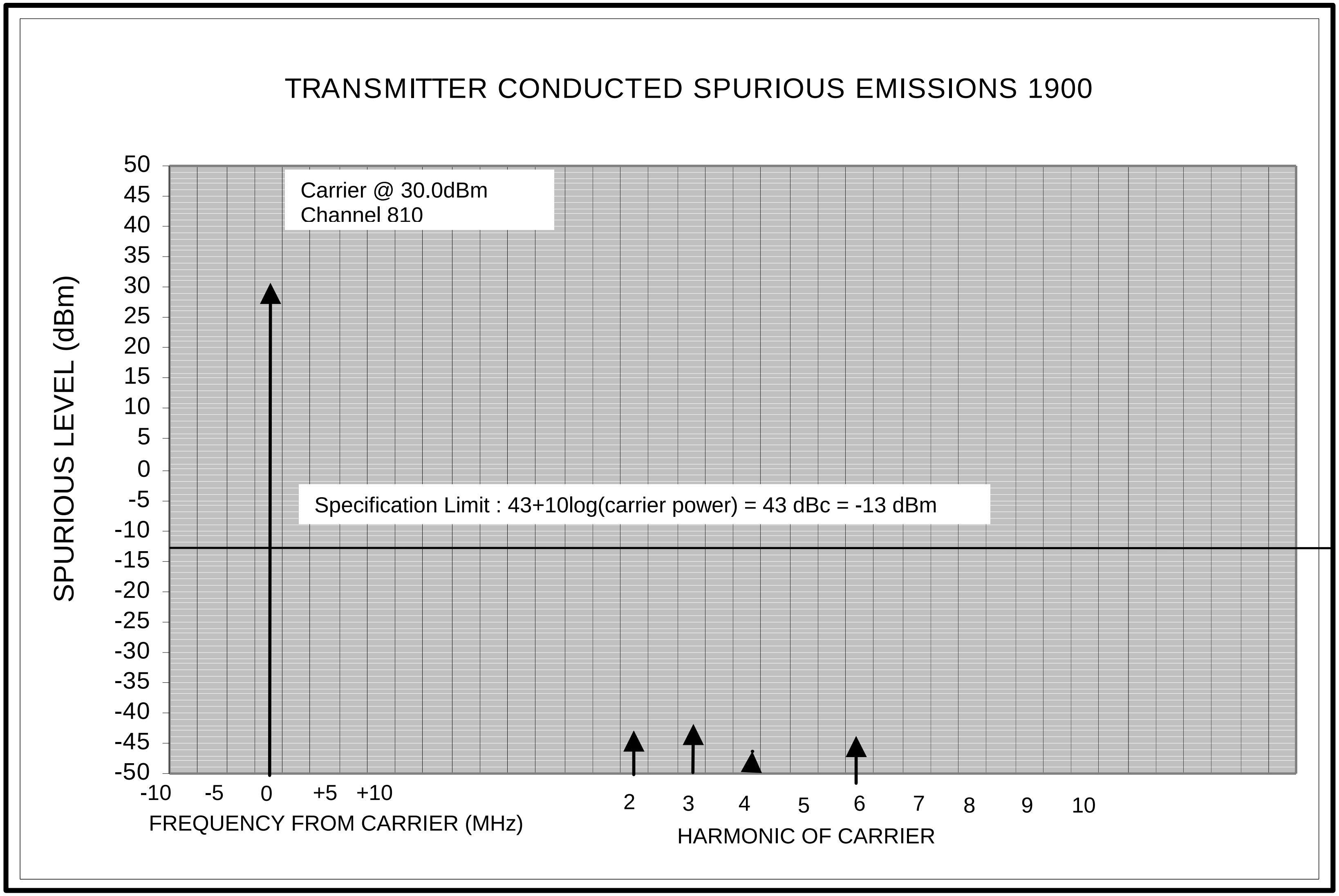
Figure 6F1 Channel 512 Transmitter Conducted Spurious Emission



Notes:

1. The spectrum was searched from 1 GHz to 12.8 GHz (past the 6^{th} harmonic of the transmitter).
2. Low, mid and high channels were tested.
3. Each reported emission reflects the highest absolute level found for the specified channel at the highest radiated power.
4. A single battery pack Part No. AANH4012A was used

Figure 6F2 Channel 661 Transmitter Conducted Spurious Emission



Notes:
1. The spectrum was searched from 1 GHz to 12.8 GHz (past the 6th harmonic of the transmitter).
2. Low, mid and high channels were tested.
3. Each reported emission reflects the highest absolute level found for the specified channel at the highest radiated power.
4. A single battery pack Part No. AANH4012A was used

Figure 6F3 Channel 810 Transmitter Conducted Spurious Emission

EXHIBIT 6G Frequency Stability

Exhibit Summary:

EXHIBIT 6G contains measurement data pertaining to frequency stability.

Contents:

Method of Measurement:

In order to measure the carrier frequency under the condition of AFC lock, see EXHIBIT 12, it is necessary to make measurements with the mobile station in a “call mode”. This is accomplished with the use of a ROHDE & SCHWARZ CMD55 Digital Radio Communication Tester.

1. Measure the carrier frequency at room temperature.

2. Subject the mobile station to overnight soak at -30 C.

3. With the mobile station, powered via 3.6 Volts, connected to the CMD55 and in a simulated call on channel 661 (center channel), measure the carrier frequency. These measurements should be made within 2 minutes of powering up the mobile station, to prevent significant self-warming.

4. Repeat the above measurements at 10 C increments from -30 C to +60 C. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.

5. Remeasure carrier frequency at room temperature with nominal 3.6 Volts. Vary supply voltage from minimum 2.95 Volts to maximum 4.55 Volts, in 0.2 Volt increments remeasuring carrier frequency at each voltage. Pause at 3.6 Volts for 1 1/2 hours unpowered, to allow any self-heating to stabilize, before continuing.

6. Subject the mobile station to overnight soak at +60 C.

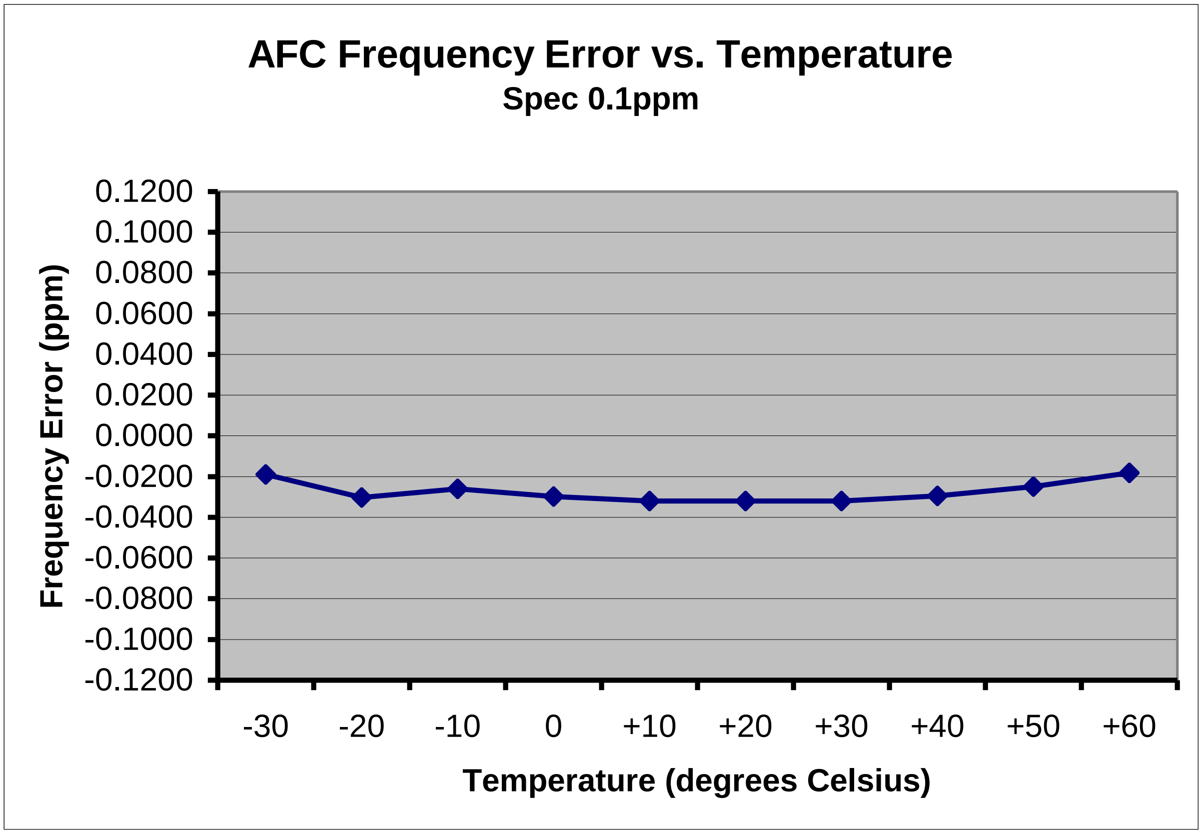
7. With the mobile station, powered via 3.6 Volts, connected to the CMD 55 and in a simulated call on channel 661 (center channel), measure the carrier frequency. These measurements should be made within 2 minutes of powering up the mobile station, to prevent significant self-warming.

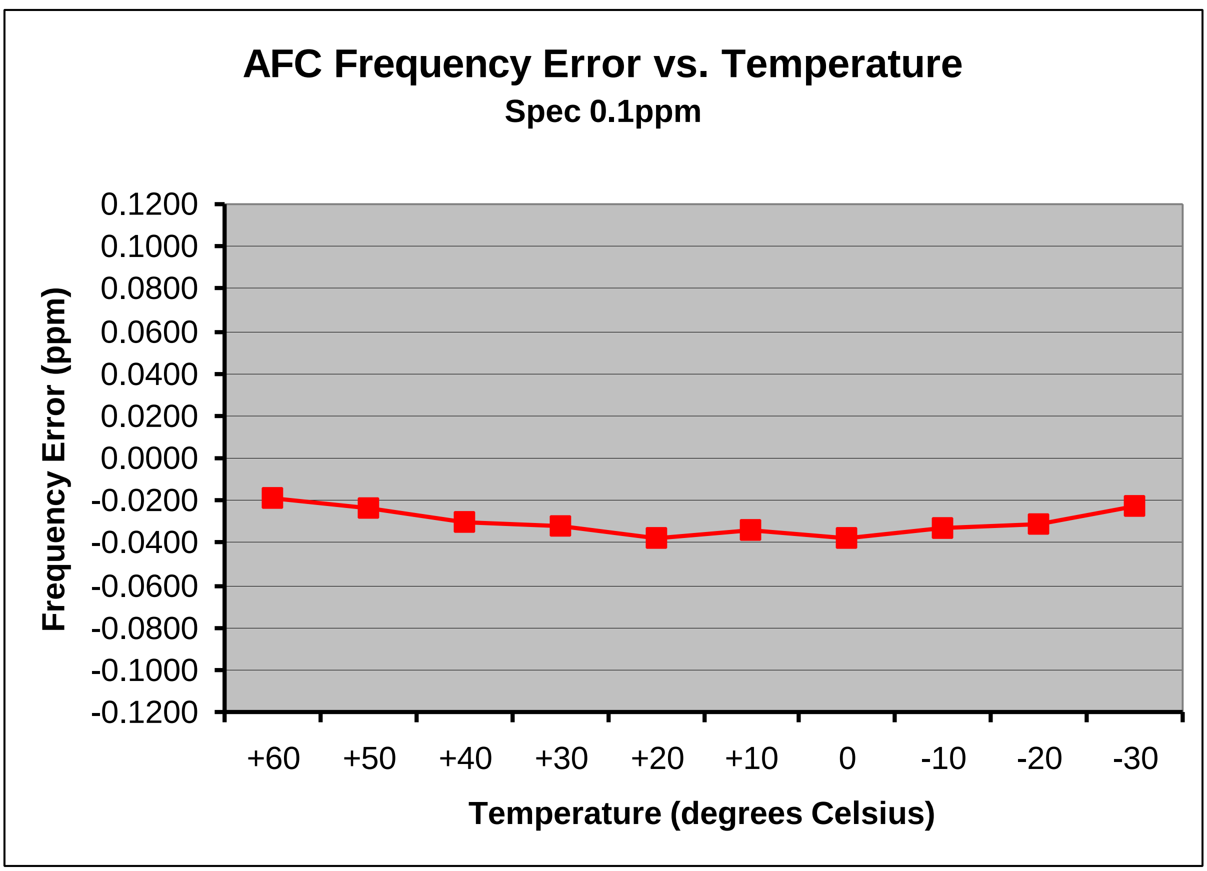
8. Repeat the above measurements at 10 C increments from +60 C to -30 C. Allow at least 1 1/2 hours at each temperature, unpowered, before making measurements.

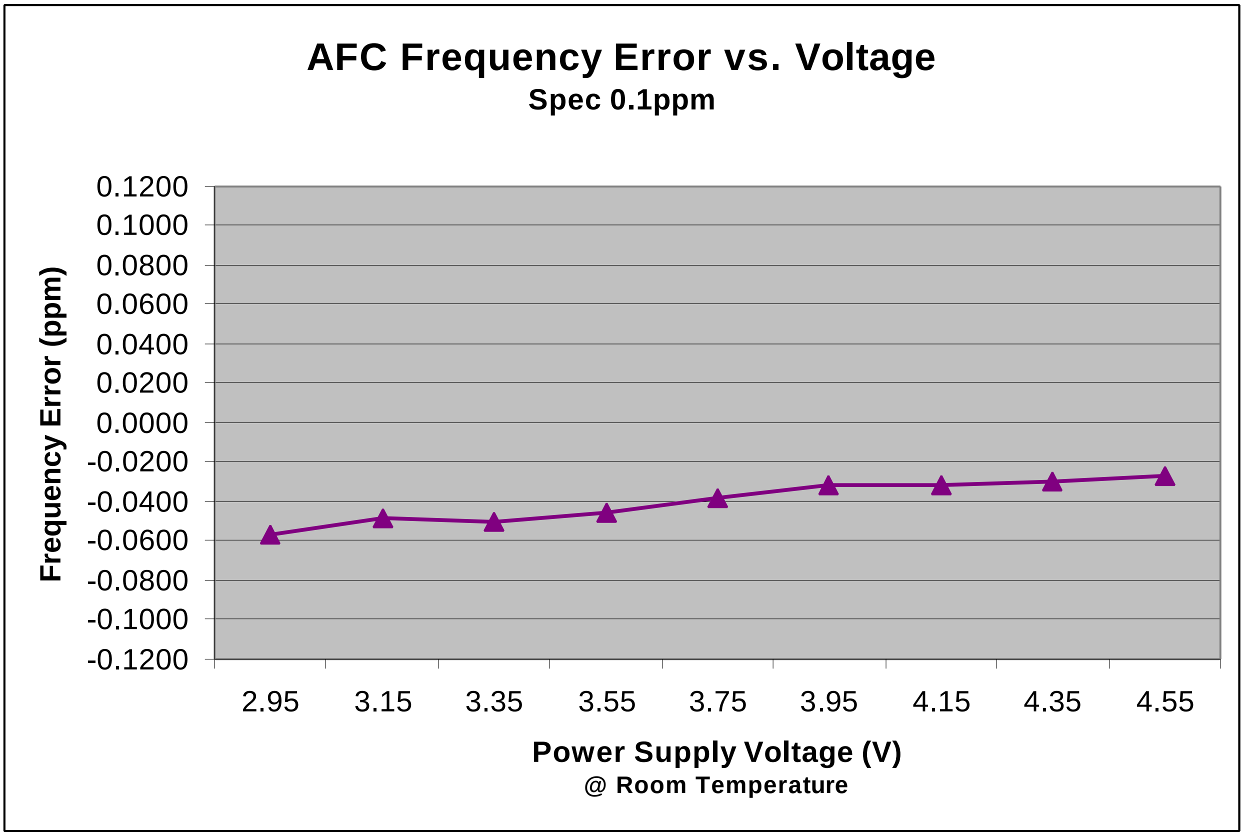
9. At all temperature levels hold the temperature to +/- 0.5 C during the measurement procedure.

Measurement Limit:
According to the JTC standard, the frequency stability of the carrier shall be accurate to within 0.1 ppm of the received frequency from the base station. This accuracy is sufficient to meet Sec. 24.235, Frequency Stability. The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

As this transceiver is considered "Hand carried, battery powered equipment…," Section 2.1055(d)(2) applies. This requires that the lower voltage for frequency stability testing be specified by the manufacturer. This transceiver is specified to operate with an input voltage of between 2.95 Vdc and 4.5 Vdc, with a nominal voltage of 3.6 Vdc (based on operation off of a 3-cell Nickel-Metal Hydride battery pack). Operation above or below these voltage limits is prohibited by transceiver software in order to prevent improper operation as well as to protect components from overstress. These voltages represent a tolerance of + 25 % and - 18 %. For the purposes of measuring frequency stability these voltage limits are to be used.


AFC Frequency Error vs. Temperature
Spec 0.1ppm
Frequency Error (ppm)
0.1200
0.1000
0.0800
0.0600
0.0400
0.0200
0.0000
-0.0200
-0.0400
-0.0600
-0.0800
-0.1000
-0.1200
-30
-20
-10
0
+10
+20
+30
+40
+50
+60
Temperature (degrees Celsius)


AFC Frequency Error vs. Temperature
Spec 0.1ppm
Frequency Error (ppm)
0.1200
0.1000
0.0800
0.0600
0.0400
0.0200
0.0000
-0.0200
-0.0400
-0.0600
-0.0800
-0.1000
-0.1200
+60
+50
+40
+30
+20
+10
0
-10
-20
-30
Temperature (degrees Celsius)


AFC Frequency Error vs. Voltage
Spec 0.1ppm
Frequency Error (ppm)
0.1200
0.1000
0.0800
0.0600
0.0400
0.0200
0.0000
-0.0200
-0.0400
-0.0600
-0.0800
-0.1000
-0.1200
2.95
3.15
3.35
3.55
3.75
3.95
4.15
4.35
4.55
Power Supply Voltage (V)
@ Room Temperature