

Submitted Measured Data

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**RF Power Output Data**

Frequency, MHz	484.975	Power Supply Voltage, V	Current, A
Measured High Power Level, W	54.0	13.6	8.02
Measured Medium Power Level, W	27.0	13.6	5.15
Measured Low Power Level, W	4.00	13.6	2.18

Frequency, MHz	508.375	Power Supply Voltage, V	Current, A
Measured High Power Level, W	48.0	13.6	7.68
Measured Medium Power Level, W	24.0	13.6	5.06
Measured Low Power Level, W	4.00	13.6	2.16

Frequency, MHz	519.375	Power Supply Voltage, V	Current, A
Measured High Power Level, W	30.0	13.6	5.78
Measured Medium Power Level, W	15.0	13.6	4.13
Measured Low Power Level, W	4.00	13.6	2.15

EXHIBIT 6A

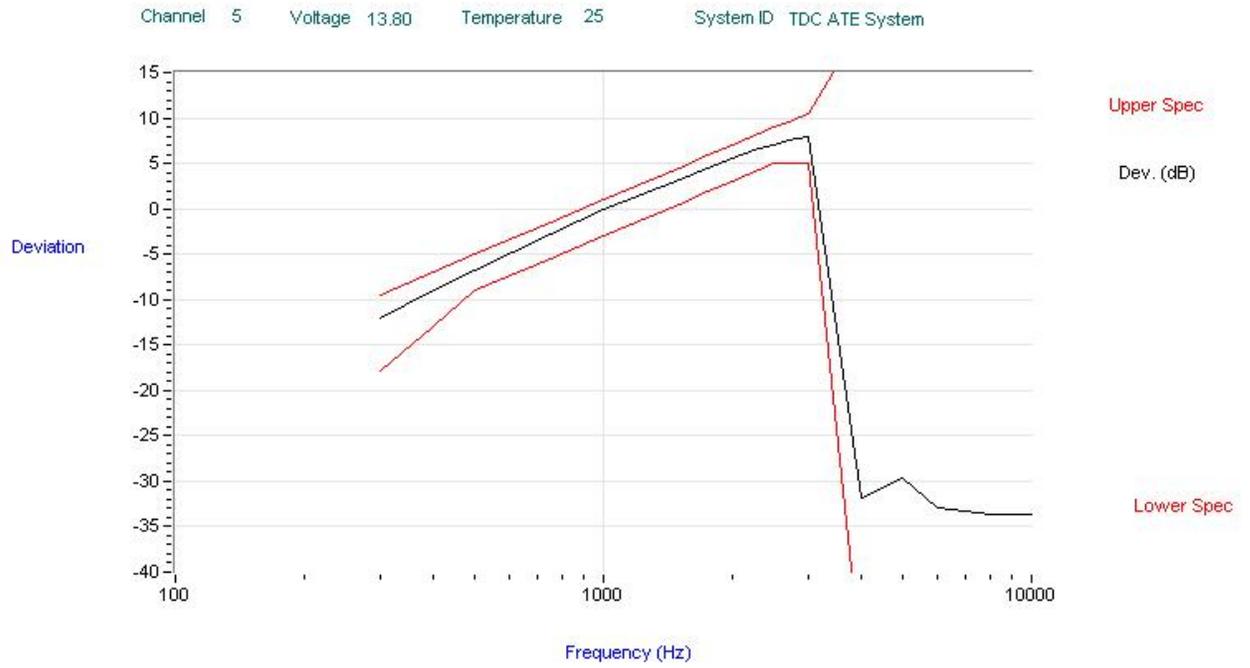


EXHIBIT 6B-1

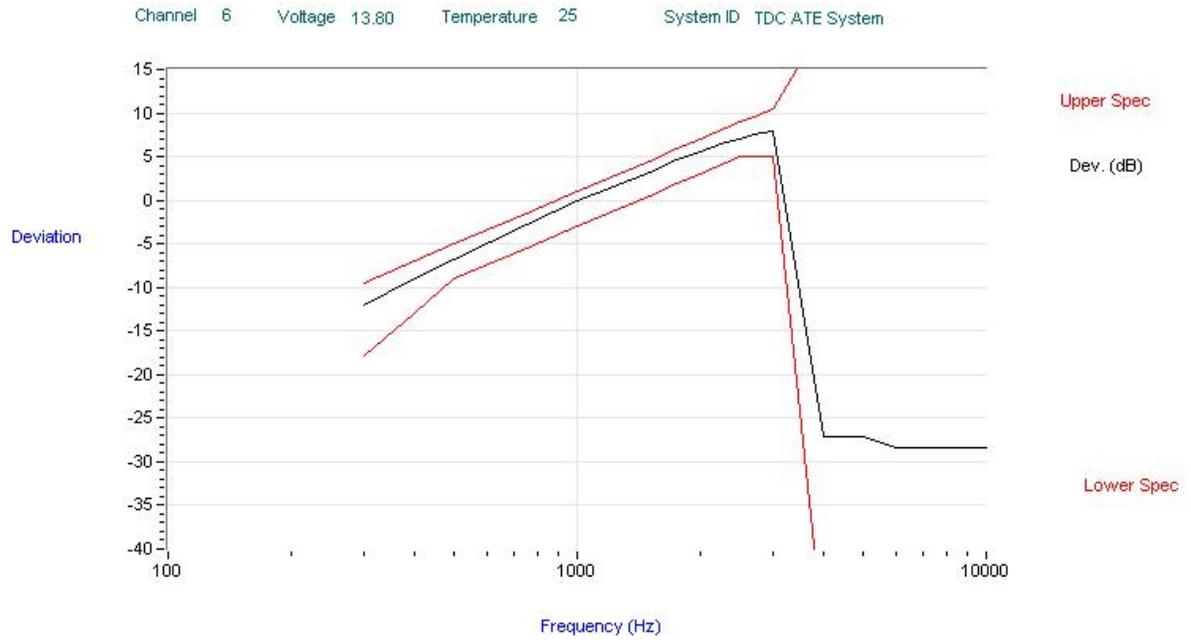


EXHIBIT 6B-2

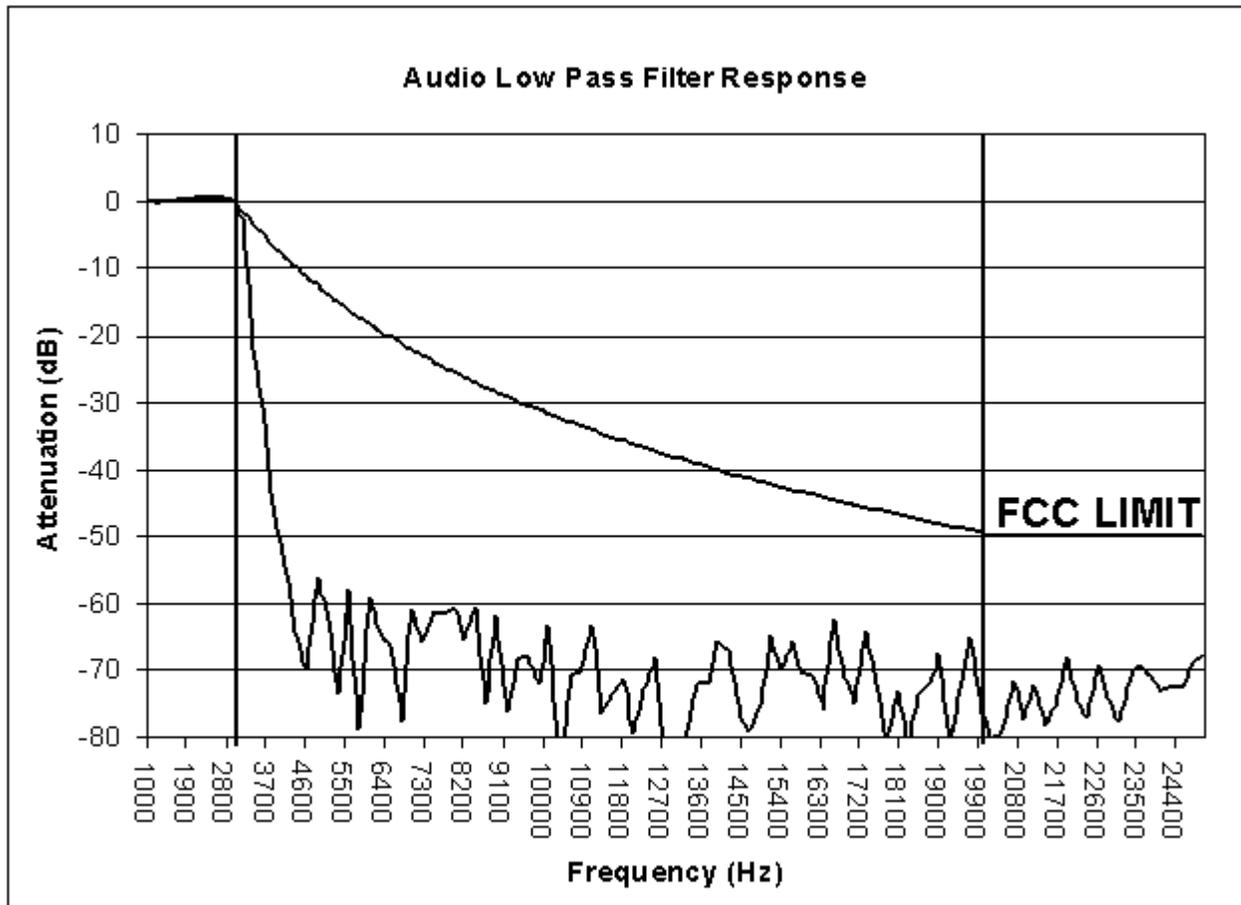


EXHIBIT 6C

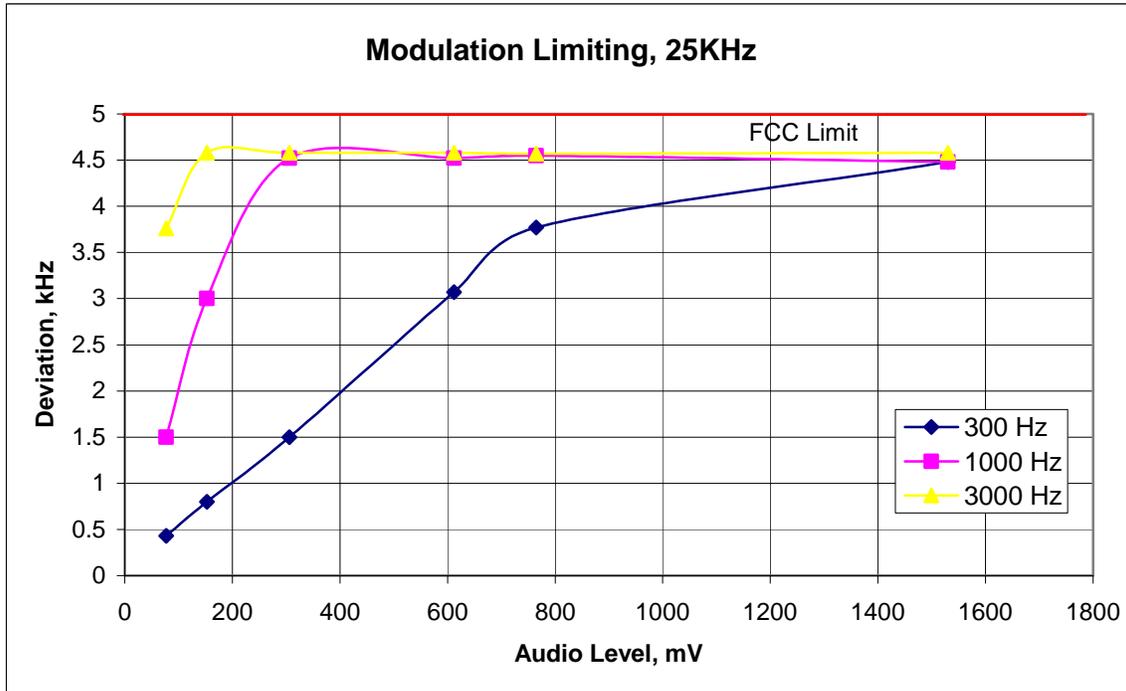


EXHIBIT 6D-1

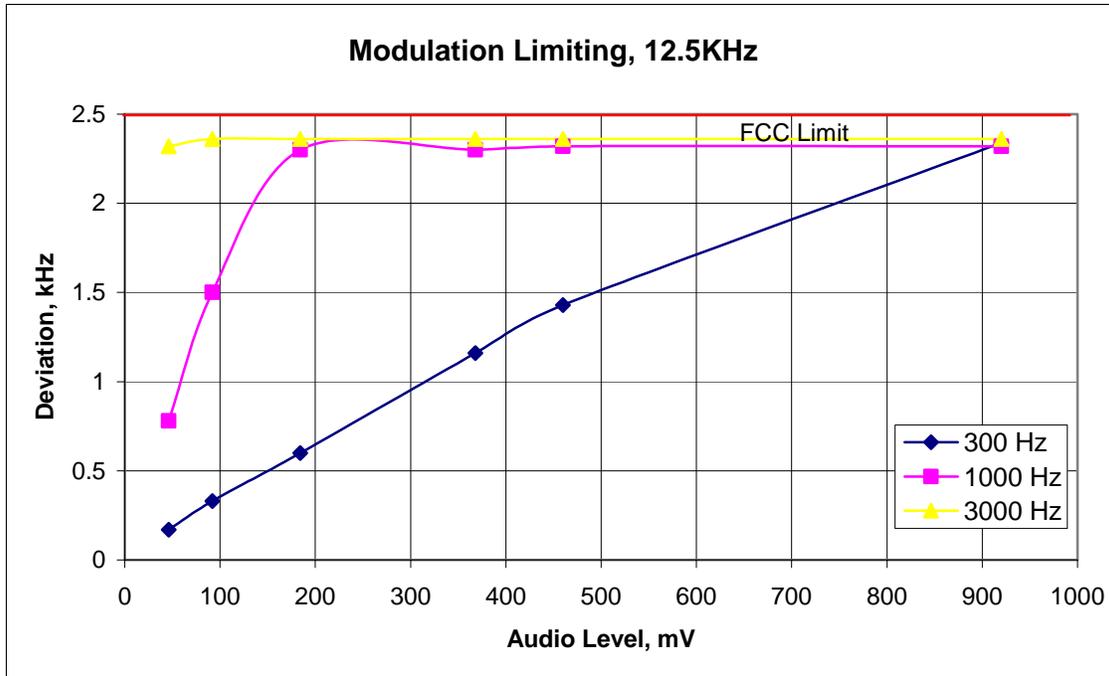


EXHIBIT 6D-2

Occupied Bandwidth Data

## BANDWIDTH CALCULATIONS:

Carson's Rule for FM modulation is utilized to compute the bandwidth shown in the FCC emission designator. Carson's Rule is:

$$BW = 2 * (M + D) \text{ where: } BW = \text{Bandwidth}$$

$$M = \text{Maximum modulating frequency}$$

$$D = \text{Deviation}$$

Shown below are the calculations required for FCC ID: AZ492FT4862

## EXHIBIT 6E-1

Standard Audio Modulation (25 kHz Channelization, Analog Voice):

Emission Designator 16K0F3E

In this case, the maximum modulating frequency is 3 kHz with a 5 kHz deviation.

$$BW = 2(M+D) = 2*(3 \text{ kHz} + 5 \text{ kHz}) = 16 \text{ kHz} \implies 16K0$$

F3E portion of the designator indicates voice.

Therefore, the entire designator for 25 kHz channelization analog voice is 16K0F3E.

## EXHIBIT 6E-2

Standard Audio Modulation (12.5 kHz Channelization, Analog Voice):

Emission Designator 11K0F3E

In this case, the maximum modulating frequency is 3.0 kHz with a 2.5 kHz deviation.

$$BW = 2(M+D) = 2*(3.0 \text{ kHz} + 2.5 \text{ kHz}) = 11 \text{ kHz} \implies 11K0$$

F3E portion of the designator indicates voice.

Therefore, the entire designator for 12.5 kHz channelization analog voice is 11K0F3E.

## EXHIBIT 6E-3

Digital (12.5 kHz Channelization, Digital Data):

Emission Designator 8K10F1D

Measurements per Rule Part 2.202 Section C (4) were done because Part 2.202 Section g Table III A, 1 formulation produces an excessive result using the value of K recommended in the Table. Therefore, the 99% energy rule (title 47CFR 2.989) was used for digital mode and is more accurate than Carson's rule. It basically states that 99% of the modulation energy falls within X KHz, in this case, 8.10 kHz. Measurements were performed in accordance with TIA/EIA 102.CAAB Section 2.2.5.2. The emission mask was obtained from 47CFR 90.210(d).

F1D portion of the designator indicates digital data.

Therefore, the entire designator for 12.5 kHz channelization digital data is 8K10F1D.

## EXHIBIT 6E-4

Digital (12.5 kHz Channelization, Digital Voice):

Emission Designator 8K10F1E

Measurements per Rule Part 2.202 Section C (4) were done because Part 2.202 Section g Table III A, 1 formulation produces an excessive result using the value of K recommended in the Table. Therefore, the 99% energy rule (title 47CFR 2.989) was used for digital mode and is more accurate than Carson's rule. It basically states that 99% of the modulation energy falls within X KHz, in this case, 8.10 kHz. Measurements

were performed in accordance with TIA/EIA 102.CAAB Section 2.2.5.2. The emission mask was obtained from 47CFR 90.210(d).

F1E portion of the designator indicates digital voice.  
Therefore, the entire designator for 12.5 kHz channelization digital voice is 8K10F1E.

EXHIBIT 6E-5  
Digital (12.5 kHz Channelization, Digital Voice Encryption):  
Emission Designator 8K10F1E (Per 47CFR 90.212(b))

Measurements per Rule Part 2.202 Section C (4) were done because Part 2.202 Section g Table III A, 1 formulation produces an excessive result using the value of K recommended in the Table. Therefore, the 99% energy rule (title 47CFR 2.989) was used for digital mode and is more accurate than Carson's rule. It basically states that 99% of the modulation energy falls within X KHz, in this case, 8.10 kHz. Measurements were performed in accordance with TIA/EIA 102.CAAB Section 2.2.5.2. The emission mask was obtained from 47CFR 90.210(d).

F1E portion of the designator indicates digital voice.  
Therefore, the entire designator for 12.5 kHz channelization digital voice (with encryption) is 8K10F1E.

EXHIBIT 6E-6  
Secure Mode (20.0 kHz Channelization, Digital Voice Encryption):  
Emission Designator 20K0F1E

In this case, the maximum modulating frequency is 6.0 kHz with a 4.0 kHz deviation.  
 $BW = 2(M+D) = 2*(6.0 \text{ kHz} + 4.0 \text{ kHz}) = 20 \text{ kHz} \implies 20K0$   
F1E portion of the designator indicates digital voice.

Therefore, the entire designator for 20.0 kHz channelization secure mode (digital voice encryption) is 20K0F1E.

Note: The 90.203(j) efficiency standard for "F1D" emission is met by sending 2 bits at a time, at a rate of 4800 symbols/second. This yields 9600 bits/second, which is achieved using the modulation technique described in the note below. Modulation results from one of the digital 4-level standard symbol patterns applied to the modulation at a rate of 9600 bits/second. The modulation technique is 4-level FM. The information bits are commonly represented by a symbol that corresponds to one of 4 levels of FM deviation according to the following table.

<u>Information Bits</u>	<u>Symbol</u>	<u>C4FM Deviation</u>
01	+3	+1.8 kHz
00	+1	+0.6 kHz
10	-1	-0.6 kHz
11	-3	-1.8 kHz

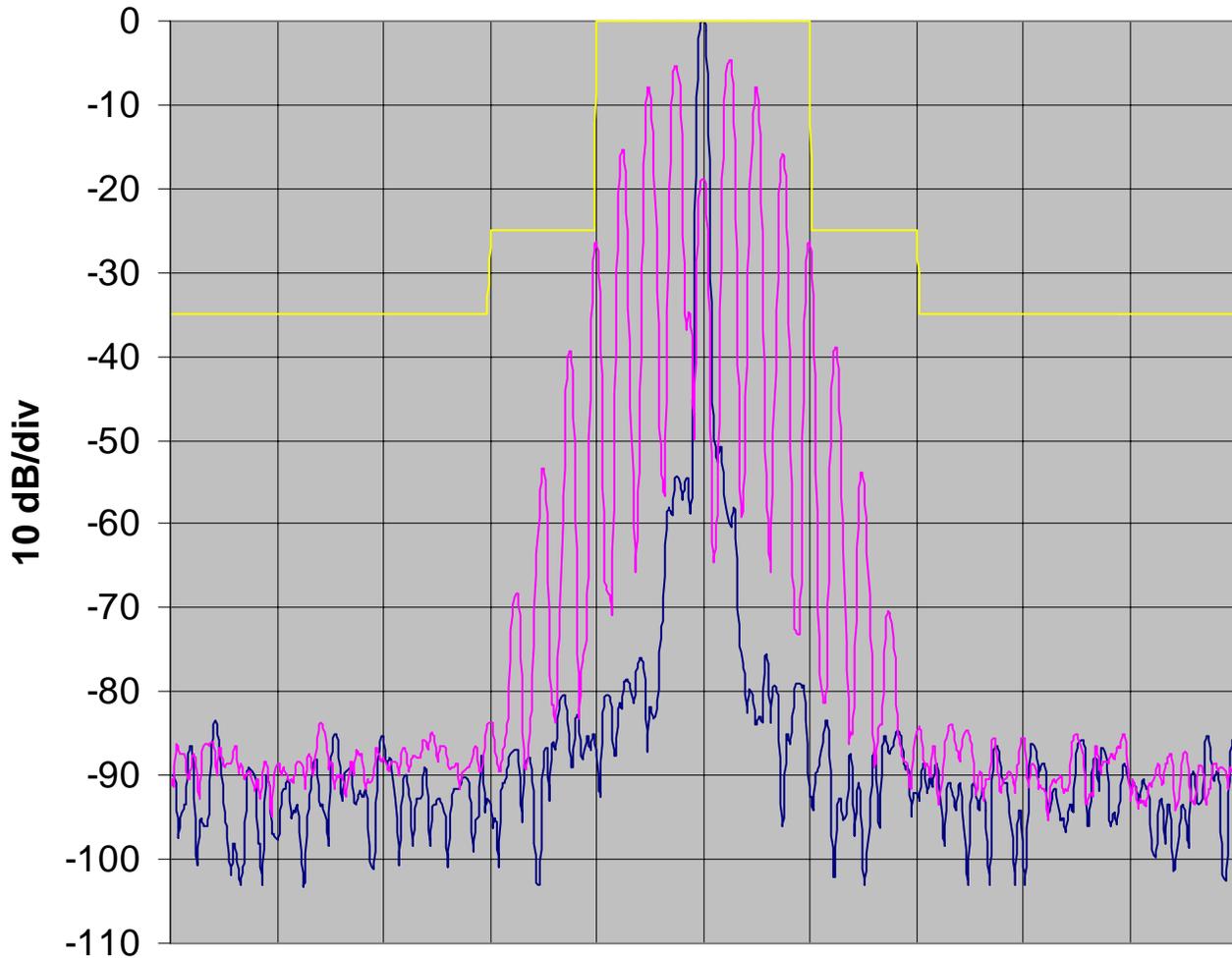
For example, an 8-bit binary pattern of 0010 1101 would be sent as symbols +1, -1, -3, +3, which would cause a modulation signal (Frequency-Shift-Keyed) of +1.8 kHz, -600 Hz, -1.8 kHz, and +1.8 kHz. This results in 9600 bits/second of information being sent on a 12.5 kHz channel, which is the equivalent of 4800 bits/second per 6.25 kHz.

Note: The "F1D" and "F1E" signal parameters are described as follows: The modulation is 4-level FSK with +/-600 Hz and +/-1.8 kHz shifting (+/-600 Hz and +/-1.8 kHz are the 4 distinct levels of signals). The digital voice test pattern is created by a 2500 Hz sine wave modulated at a level that is 16 dB above that required to produce 50% deviation at the radio output. The digital data test signal is generated by an internally generated pseudo random test pattern based on ITU-T 0.153 (formally CCITT V.52).

OCCUPIED BANDWIDTH (EMISSION DESIGNATOR 16K0F3E)

Freq: 485 MHz Power: 49.5 Watts Spacing: 25.0 kHz

Analog Voice Channel

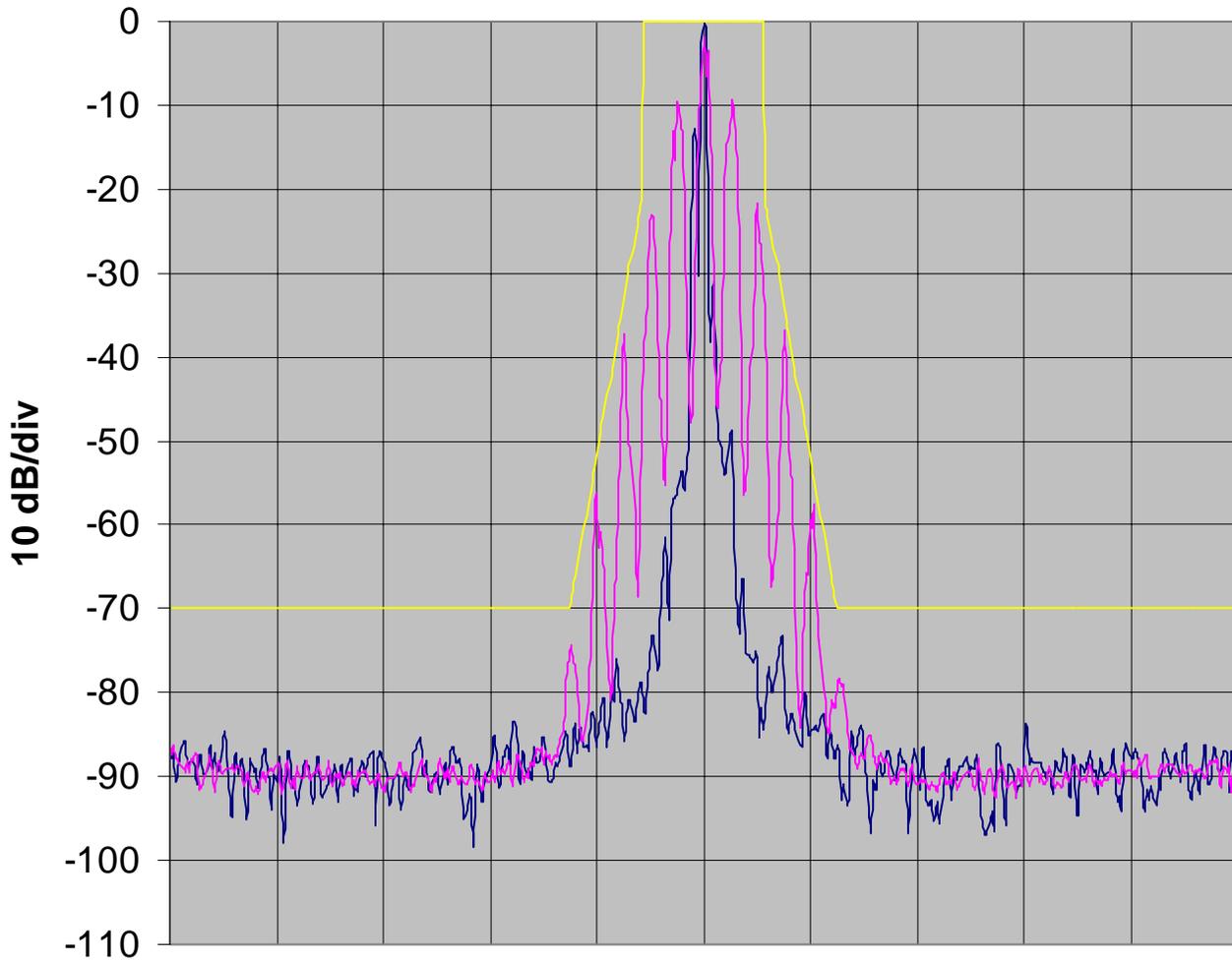


Mask B  
Exhibit 6E-1

OCCUPIED BANDWIDTH (EMISSION DESIGNATOR 11K0F3E)

Freq: 485 MHz Power: 49.5 Watts Spacing: 12.5 kHz

Analog Voice Channel

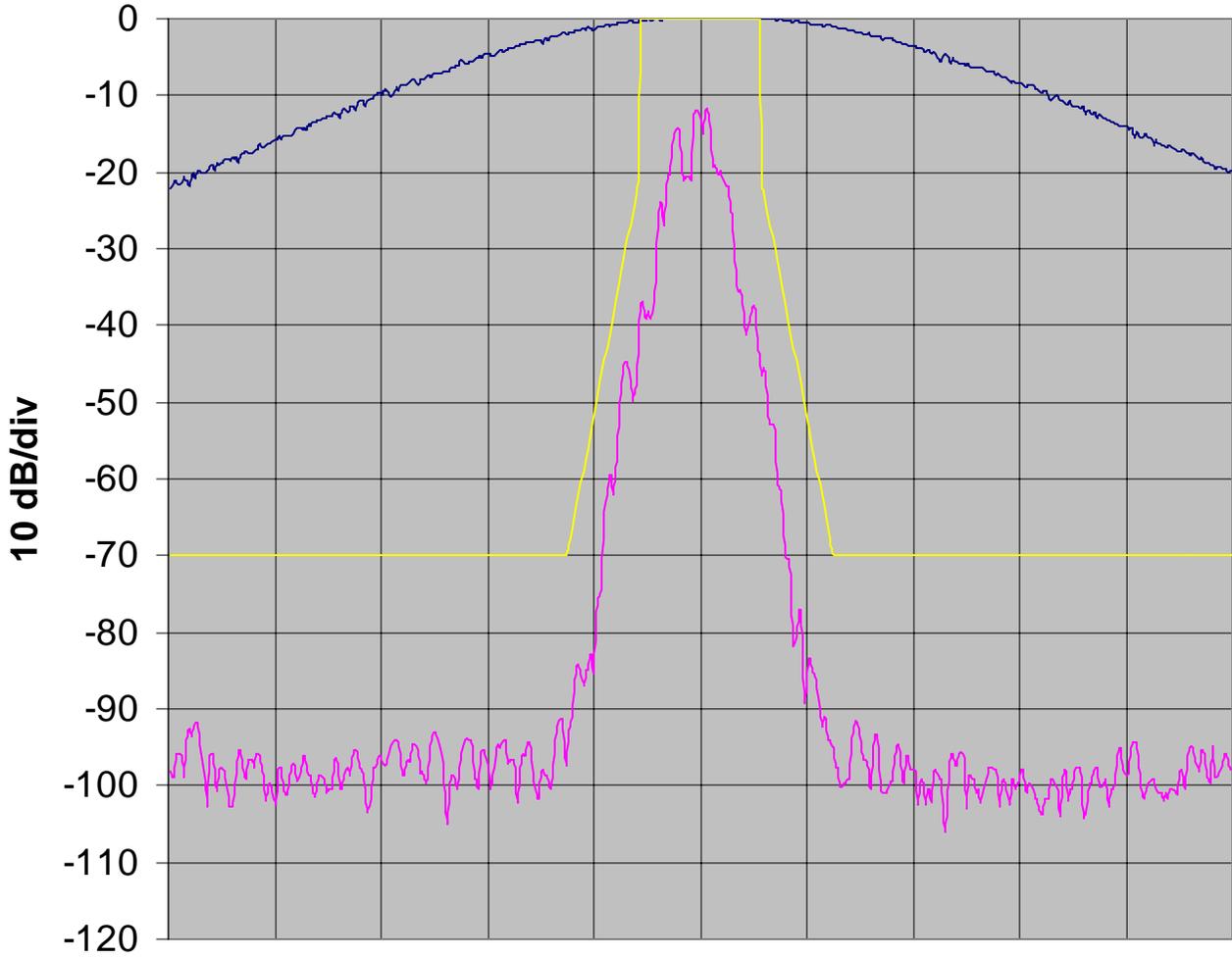


Mask D  
Exhibit 6E-2

OCCUPIED BANDWIDTH (EMISSION DESIGNATOR 8K10F1D)

Freq: 485 MHz Power: 49.5 Watts Spacing: 12.5 kHz

Digital Data Channel

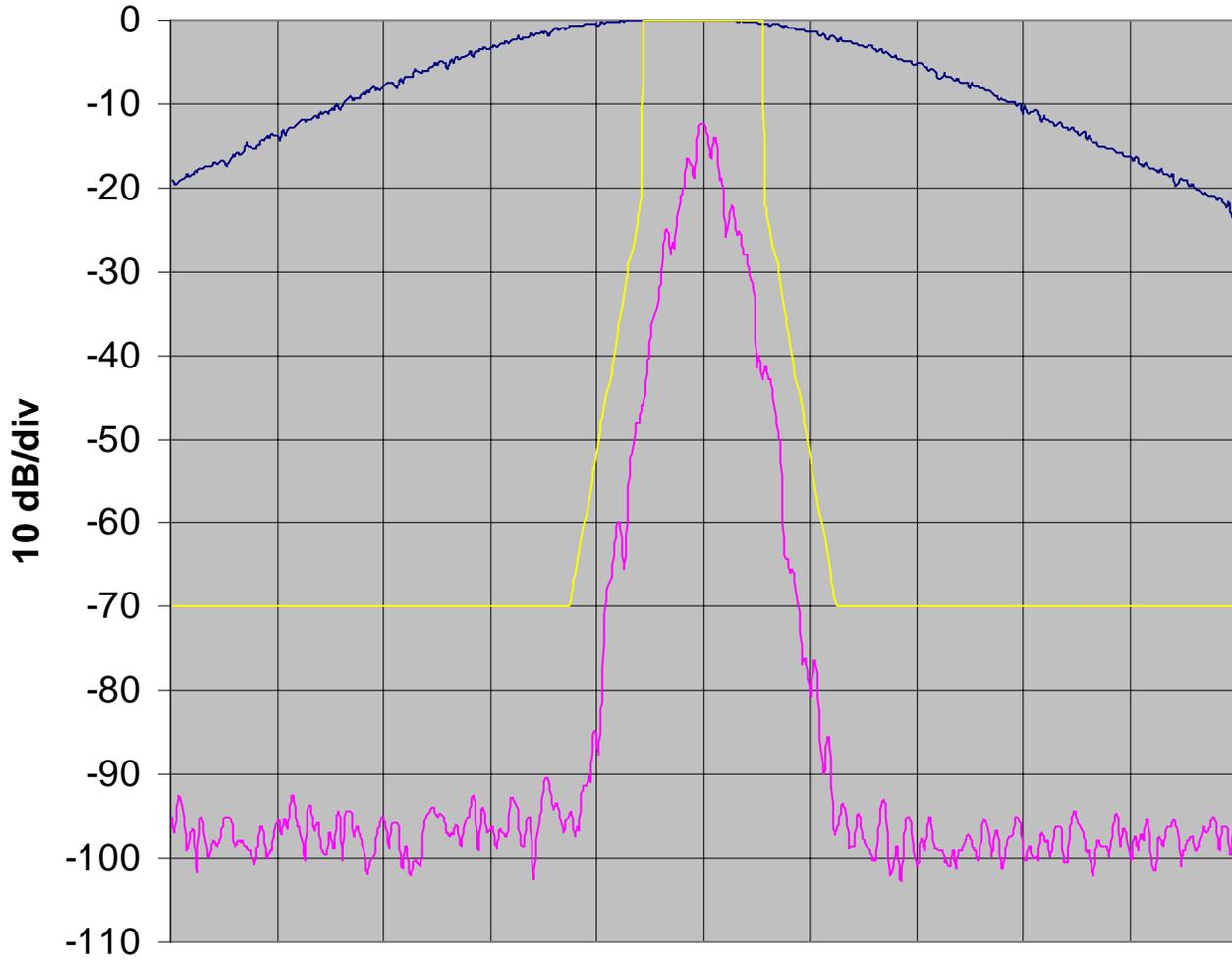


Mask D  
Exhibit 6E-3

OCCUPIED BANDWIDTH (EMISSION DESIGNATOR 8K10F1E)

Freq: 485 MHz Power: 49.5 Watts Spacing: 12.5 kHz

Digital Voice Channel

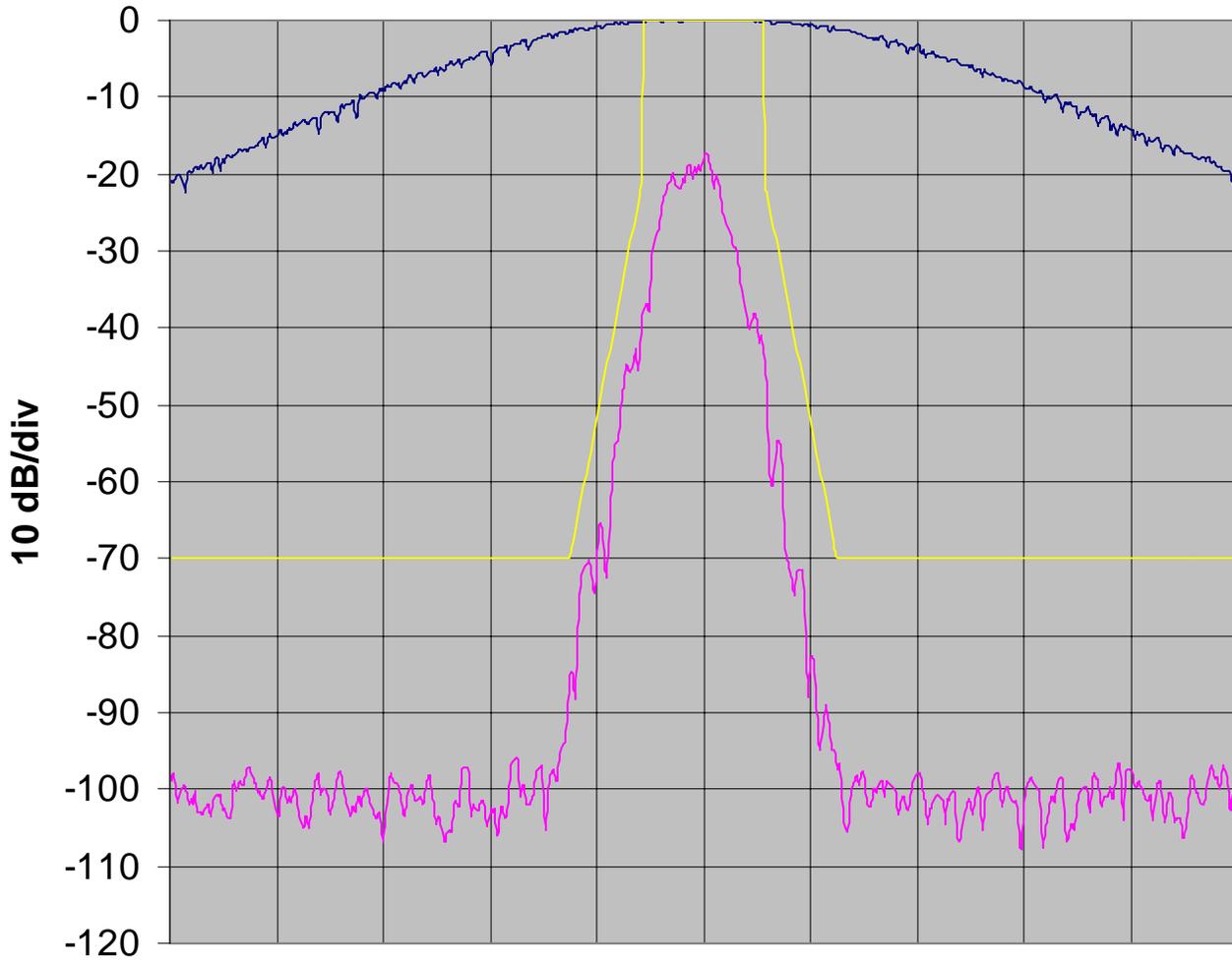


Mask D  
Exhibit 6E-4

OCCUPIED BANDWIDTH (EMISSION DESIGNATOR 8K10F1E)

Freq: 485 MHz Power: 49.5 Watts Spacing: 12.5 kHz

Digital Mode, Digital Voice Encryption

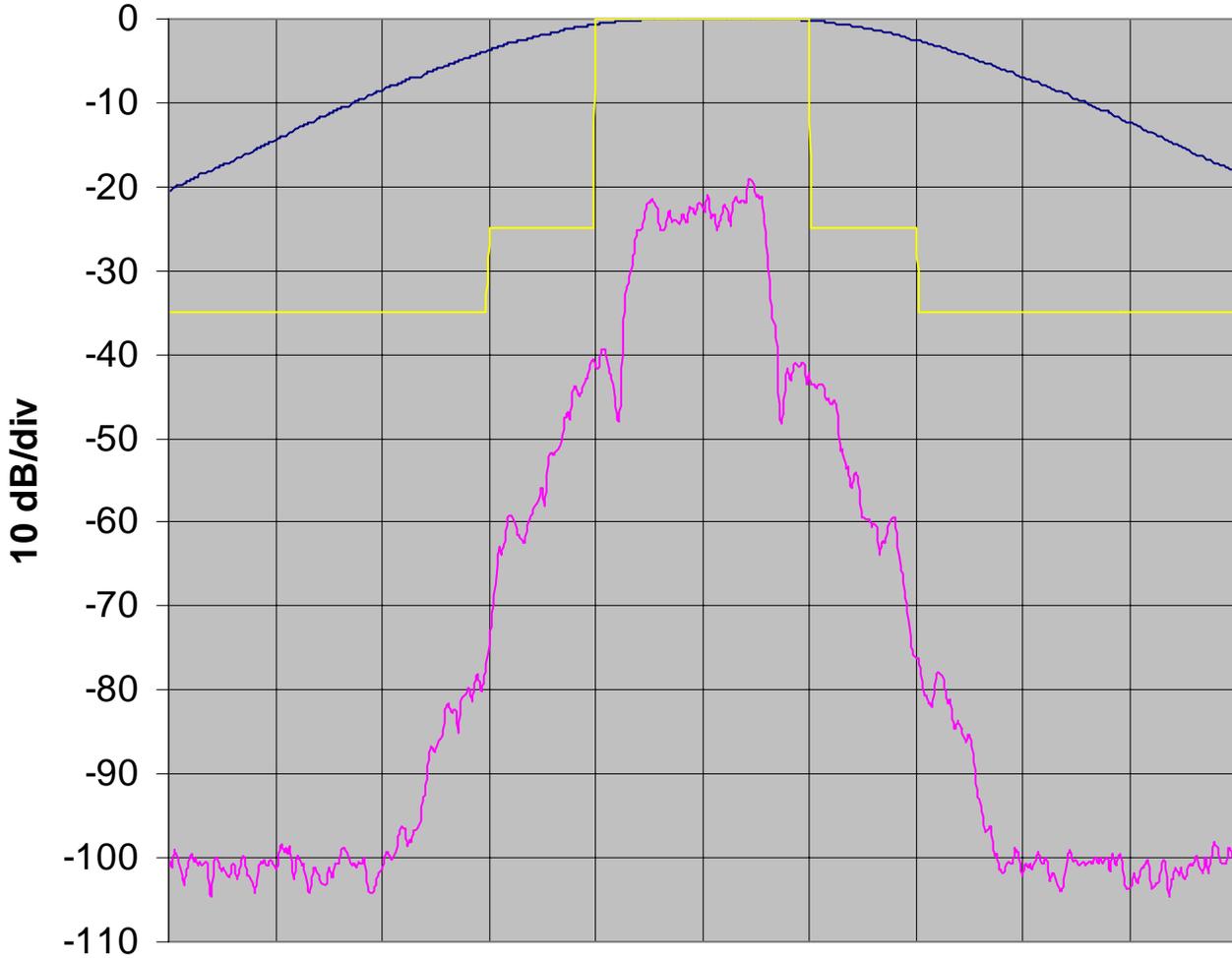


Mask D  
Exhibit 6E-5

OCCUPIED BANDWIDTH (EMISSION DESIGNATOR 20K0F1E)

Freq: 485 MHz Power: 49.5 Watts Spacing: 20.0 kHz

Secure Mode, Digital Voice Encryption



Mask B  
Exhibit 6E-6

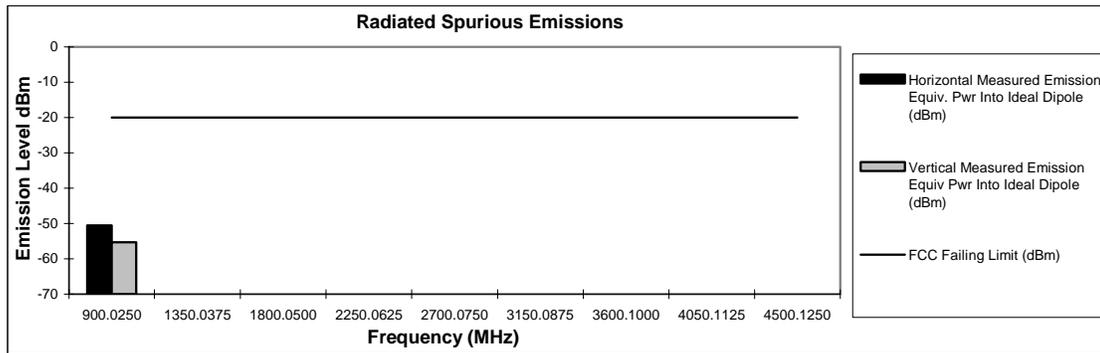
**Transmit Radiated Spurious Emissions: Millenium**

**Tx Power: 49.5 Watts**

**450.0125 MHz**

**Channel Spacing 12.5kHz | S/N 585CEU0356**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
900.0250	-20	-50.58	-55.30
1350.0375	-20	*	*
1800.0500	-20	*	*
2250.0625	-20	*	*
2700.0750	-20	*	*
3150.0875	-20	*	*
3600.1000	-20	*	*
4050.1125	-20	*	*
4500.1250	-20	*	*



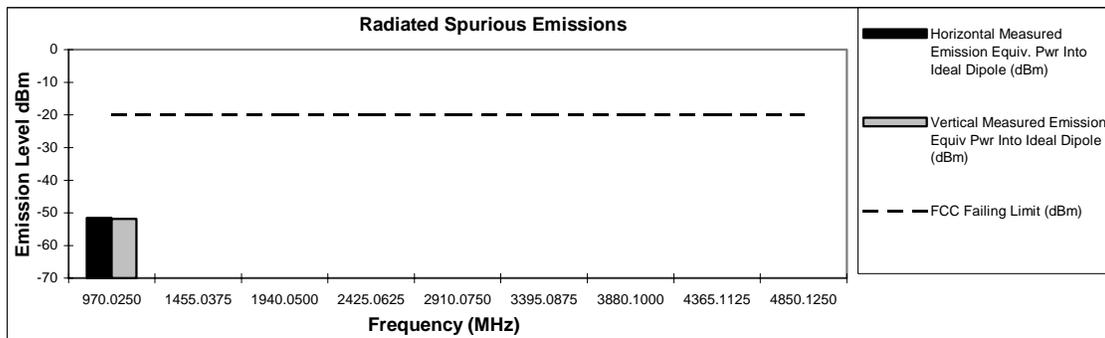
**Transmit Radiated Spurious Emissions: Millenium**

**Tx Power: 49.5 Watts**

**485.0125 MHz**

**Channel Spacing 12.5kHz | S/N 585CEU0356**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
970.0250	-20	-51.60	-51.89
1455.0375	-20	*	*
1940.0500	-20	*	*
2425.0625	-20	*	*
2910.0750	-20	*	*
3395.0875	-20	*	*
3880.1000	-20	*	*
4365.1125	-20	*	*
4850.1250	-20	*	*



\* Indicates the spurious emission could not be detected due to noise limitations or ambients.

The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

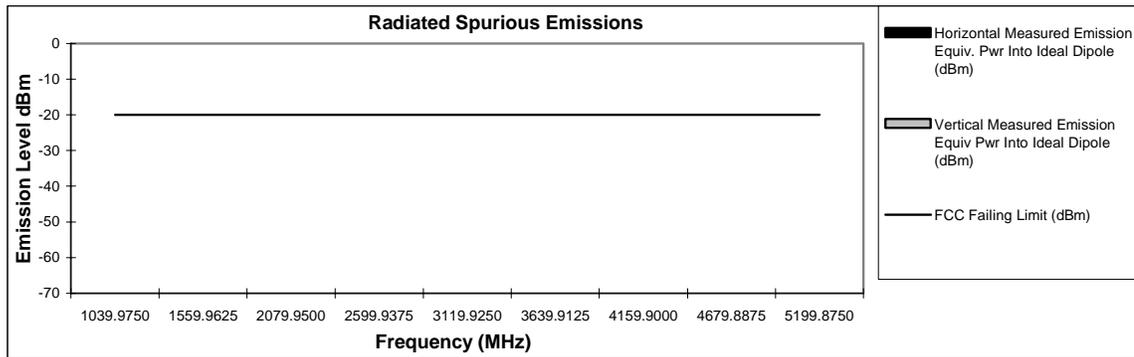
**Transmit Radiated Spurious Emissions: Millenium**

**Tx Power: 49.5 Watts**

**519.9875 MHz**

**Channel Spacing 12.5kHz | S/N 585CEU0356**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1039.9750	-20	*	*
1559.9625	-20	*	*
2079.9500	-20	*	*
2599.9375	-20	*	*
3119.9250	-20	*	*
3639.9125	-20	*	*
4159.9000	-20	*	*
4679.8875	-20	*	*
5199.8750	-20	*	*



\* Indicates the spurious emission could not be detected due to noise limitations or ambients.

The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

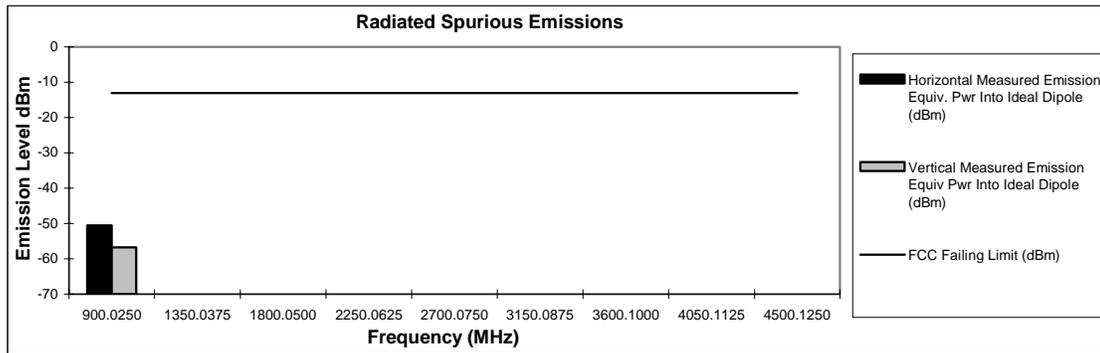
**Transmit Radiated Spurious Emissions: Millenium**

**Tx Power: 49.5 Watts**

**450.0125 MHz**

**Channel Spacing 25kHz | S/N 585CEU0356**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
900.0250	-13	-50.55	-56.70
1350.0375	-13	*	*
1800.0500	-13	*	*
2250.0625	-13	*	*
2700.0750	-13	*	*
3150.0875	-13	*	*
3600.1000	-13	*	*
4050.1125	-13	*	*
4500.1250	-13	*	*



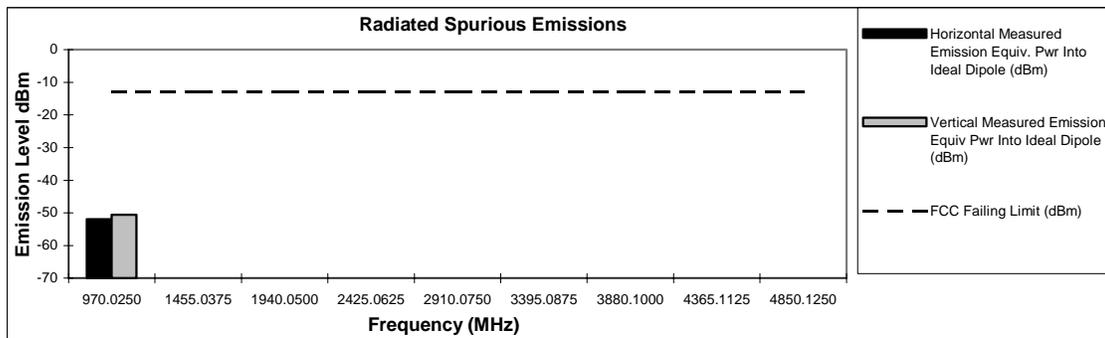
**Transmit Radiated Spurious Emissions: Millenium**

**Tx Power: 49.5 Watts**

**485.0125 MHz**

**Channel Spacing 25kHz | S/N 585CEU0356**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
970.0250	-13	-51.96	-50.59
1455.0375	-13	*	*
1940.0500	-13	*	*
2425.0625	-13	*	*
2910.0750	-13	*	*
3395.0875	-13	*	*
3880.1000	-13	*	*
4365.1125	-13	*	*
4850.1250	-13	*	*



\* Indicates the spurious emission could not be detected due to noise limitations or ambients.

The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

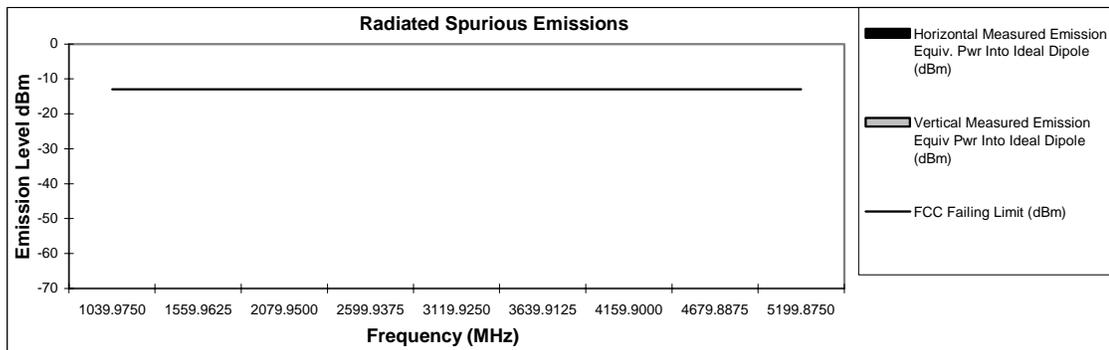
**Transmit Radiated Spurious Emissions: Millenium**

**Tx Power: 49.5 Watts**

**519.9875 MHz**

**Channel Spacing 25kHz | S/N 585CEU0356**

Frequency (MHz)	FCC Failing Limit (dBm)	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv Pwr Into Ideal Dipole (dBm)
1039.9750	-13	*	*
1559.9625	-13	*	*
2079.9500	-13	*	*
2599.9375	-13	*	*
3119.9250	-13	*	*
3639.9125	-13	*	*
4159.9000	-13	*	*
4679.8875	-13	*	*
5199.8750	-13	*	*

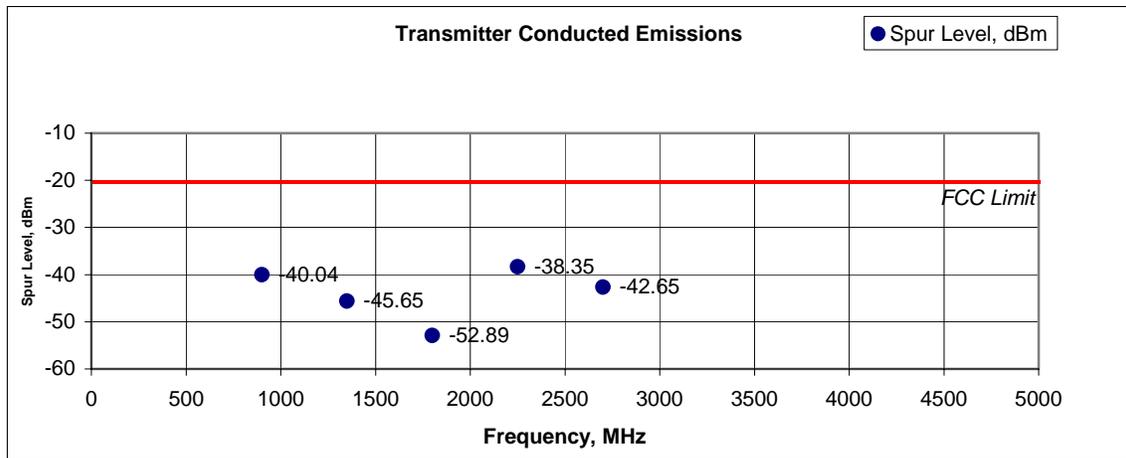


\* Indicates the spurious emission could not be detected due to noise limitations or ambients.

The data presented here was taken using the substitution method as found in the TIA/EIA-603 document.

Transmitter Conducted Spurious Emissions

<b>Frequency, MHz</b>	<b>450.0125</b>	
<b>Power</b>	<b>49.5W</b>	
<b>Channel Spacing</b>	<b>12.5kHz</b>	
<b>Spurious Frequency, MHz</b>	<b>Spur Level, dBm</b>	<b>FCC Limit, dBm</b>
900.025	-40.04	-20
1350.0375	-45.65	-20
1800.05	-52.89	-20
2250.0625	-38.35	-20
2700.075	-42.65	-20
3150.0875	<-60	-20
3600.1	<-60	-20
4050.1125	<-60	-20
4500.125	<-60	-20

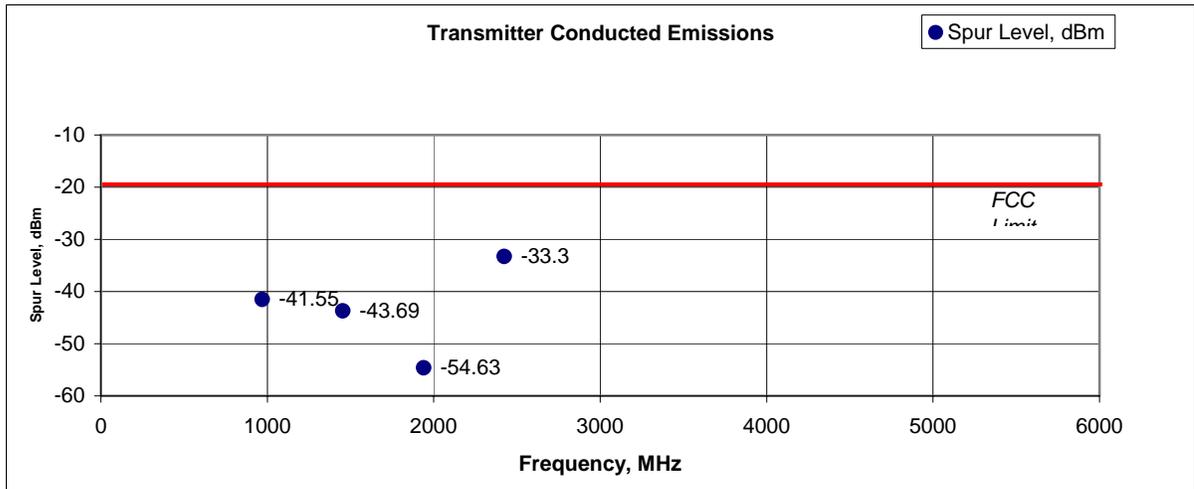


All transmitter conducted spurious emissions are measured to the 10th harmonic.  
Exhibit 6G – 1 (12.5kHz Ch Sp)

**Transmitter Conducted Spurious Emissions**

**Frequency, MHz**            **485.0125**  
**Power**                        **49.5W**  
**Channel Spacing**           **12.5kHz**

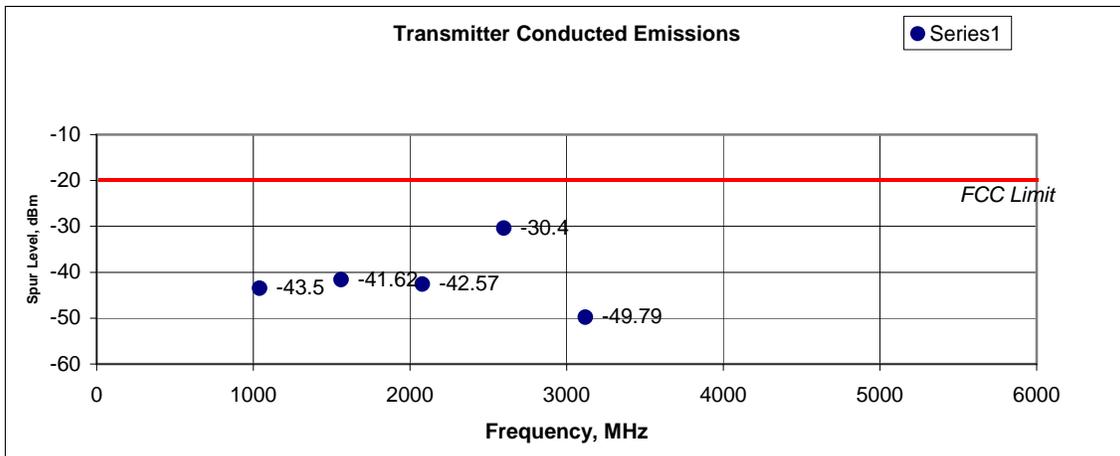
Spurious Frequency, MHz	Spur Level, dBm	FCC Limit, dBm
970.025	-41.55	-20
1455.0375	-43.69	-20
1940.05	-54.63	-20
2425.0625	-33.3	-20
2910.075	<-60	-20
3395.0875	<-60	-20
3880.1	<-60	-20
4365.1125	<-60	-20
4850.125	<-60	-20



All transmitter conducted spurious emissions are measured to the 10th harmonic.

**Transmitter Conducted Spurious Emissions**

<b>Frequency</b>	<b>519.9875, MHz</b>	
<b>Power</b>	<b>49.5W</b>	
<b>Channel Spacing</b>	<b>12.5kHz</b>	
<b>Spurious Frequency, MHz</b>	<b>Spur Level, dBm</b>	<b>FCC Limit, dBm</b>
1039.975	-43.5	-20
1559.9625	-41.62	-20
2079.95	-42.57	-20
2599.9375	-30.4	-20
3119.925	-49.79	-20
3639.9125	<-60	-20
4159.9	<-60	-20
4679.8875	<-60	-20
5199.875	<-60	-20



All transmitter conducted spurious emissions are measured to the 10th harmonic.

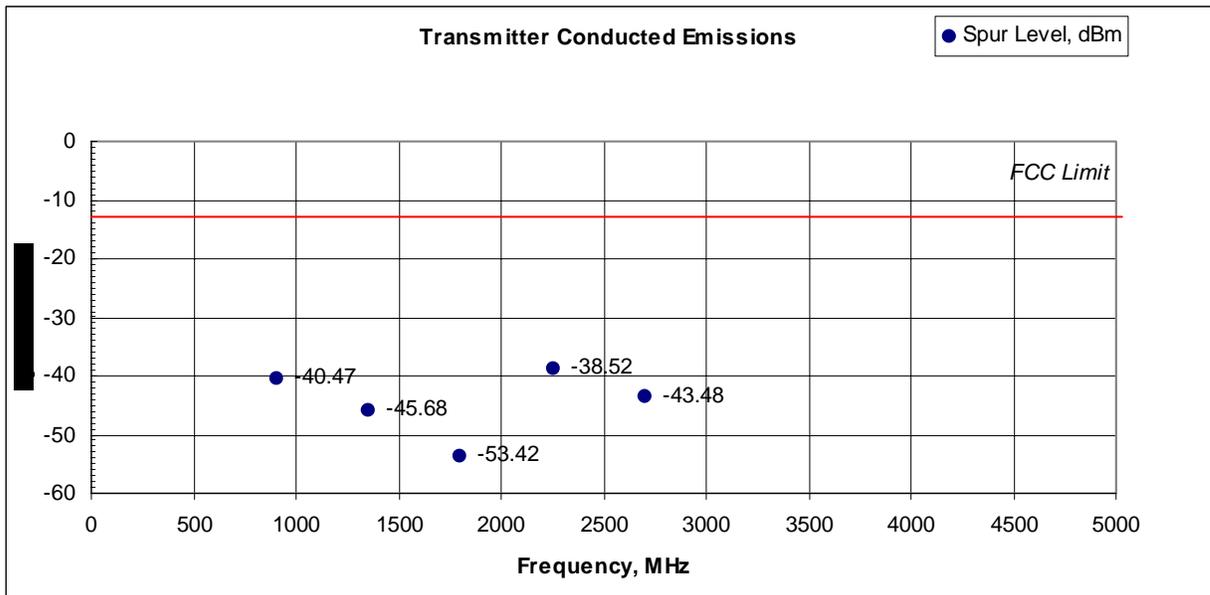
Exhibit 6G – 3 (12.5kHz Ch Sp)

**Transmitter Conducted Spurious Emissions**

**Transmitter Conducted Spurious Emissions**

**Frequency, MHz**            **450.0125**  
**Power**                        **49.5W**  
**Channel Spacing**           **25.0 kHz**

Spurious Frequency, MHz	Spur Level, dBm	FCC Limit, dBm
900.025	-40.47	-13
1350.0375	-45.68	-13
1800.05	-53.42	-13
2250.0625	-38.52	-13
2700.075	-43.48	-13
3150.0875	< -60	-13
3600.1	< -60	-13
4050.1125	< -60	-13
4500.125	< -60	-13

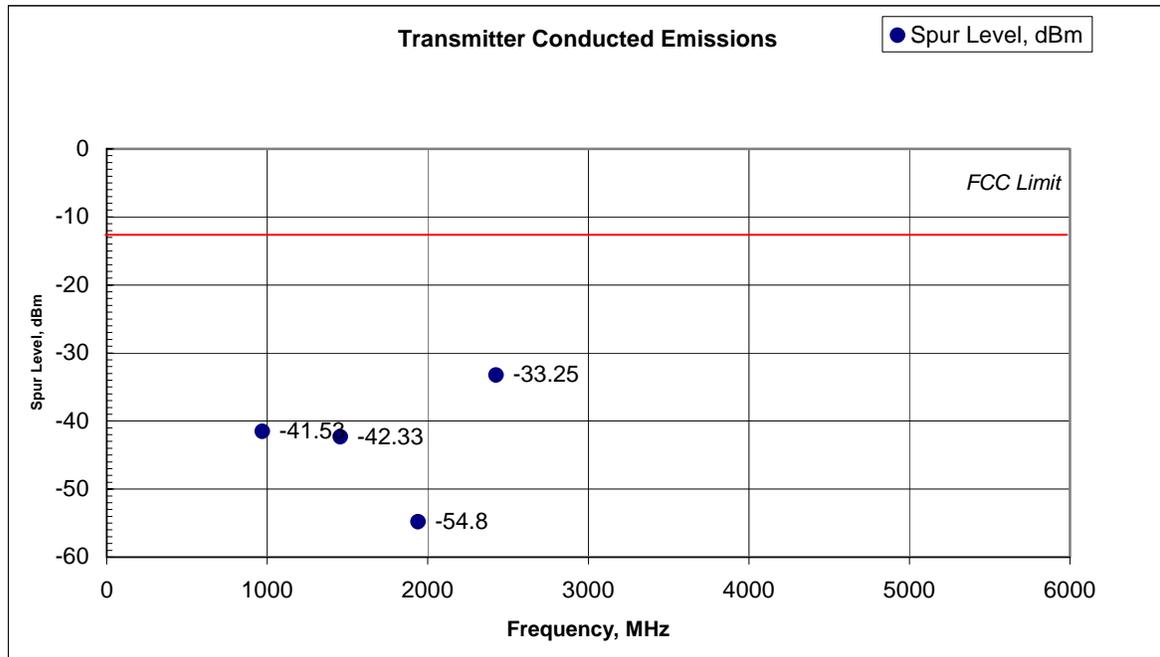


All transmitter conducted spurious emissions are measured to the 10th harmonic.  
 Exhibit 6G – 4 (25kHz Ch Sp)

**Transmitter Conducted Spurious Emissions**

**Frequency, MHz**            **485.0125**  
**Power**                        **49.5W**  
**Channel Spacing**         **25.0kHz**

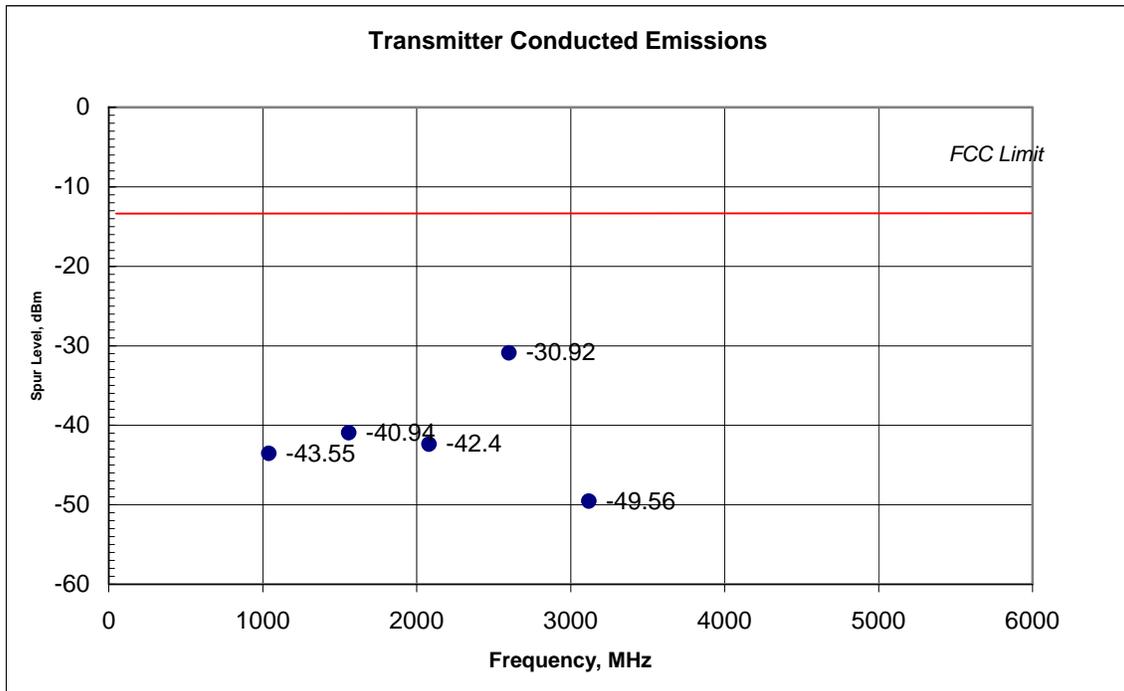
Spurious Frequency, MHz	Spur Level, dBm	FCC Limit, dBm
970.025	-41.53	-13
1455.0375	-42.33	-13
1940.05	-54.8	-13
2425.0625	-33.25	-13
2910.075	<-60	-13
3395.0875	<-60	-13
3880.1	<-60	-13
4365.1125	<-60	-13
4850.125	<-60	-13



All transmitter conducted spurious emissions are measured to the 10th harmonic.

**Transmitter Conducted Spurious Emissions**

<b>Frequency, MHz</b>	<b>519.9875</b>	
<b>Power</b>	<b>49.5W</b>	
<b>Channel Spacing</b>	<b>25 kHz</b>	
<b>Spurious Frequency, MHz</b>	<b>Spur Level, dBm</b>	<b>FCC Limit, dBm</b>
1039.975	-43.55	-13
1559.9625	-40.94	-13
2079.95	-42.4	-13
2599.9375	-30.92	-13
3119.925	-49.56	-13
3639.9125	<-60	-13
4159.9	<-60	-13
4679.8875	<-60	-13
5199.875	<-60	-13



All transmitter conducted spurious emissions are measured to the 10th harmonic.

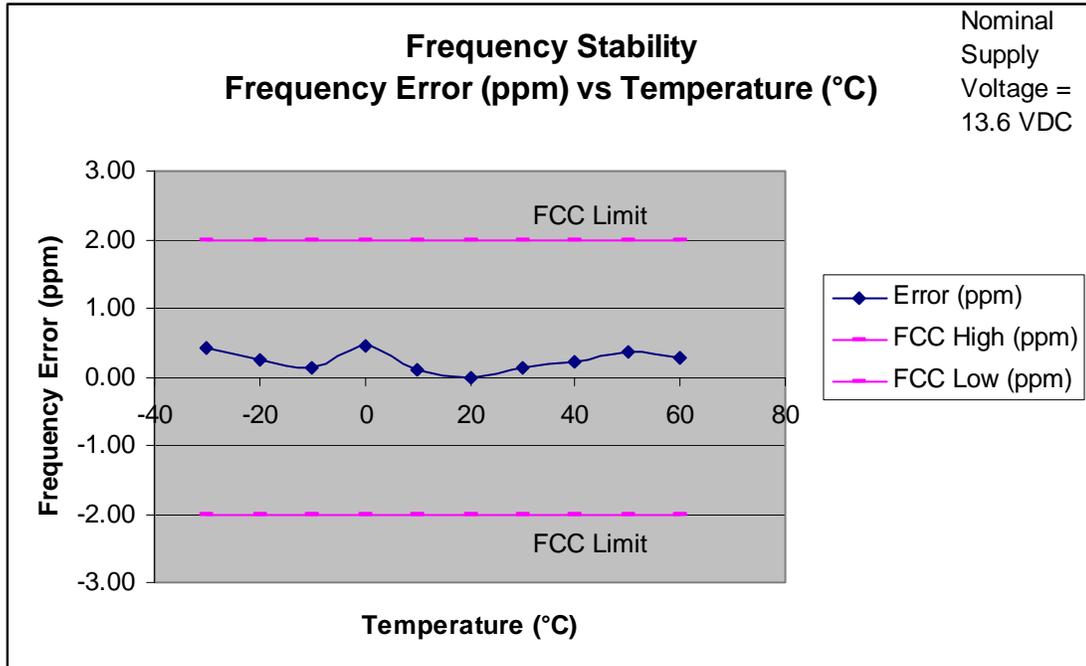


EXHIBIT 6H-1

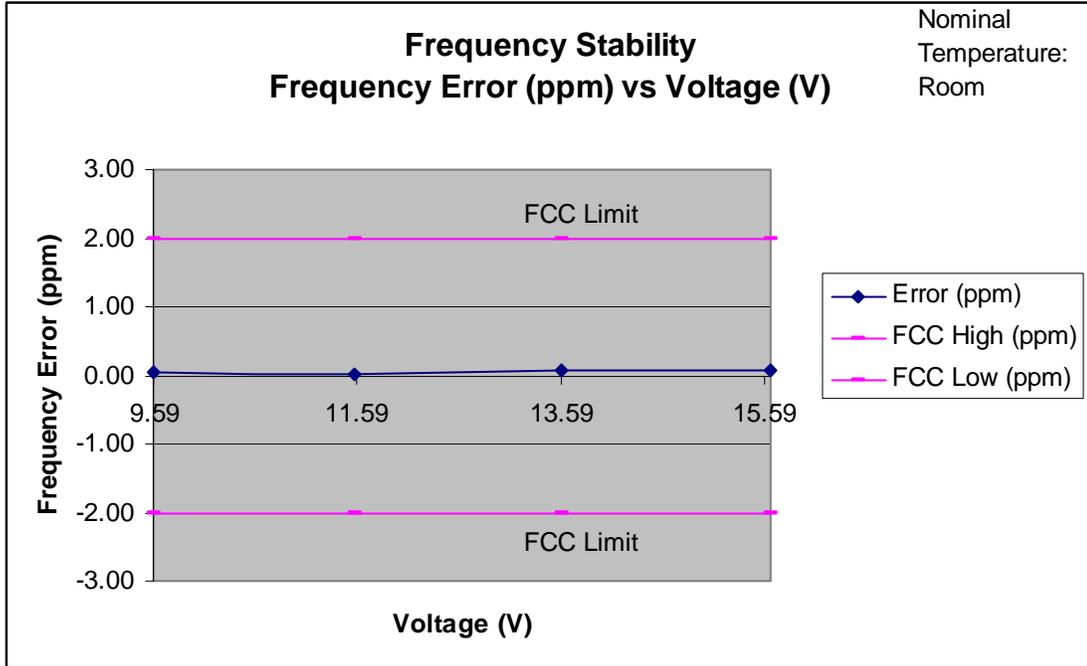


EXHIBIT 6H-2

Transmitter Transient Frequency Behaviour  
Frequency=485.0125 MHz & Chan. Spacing = 25 kHz

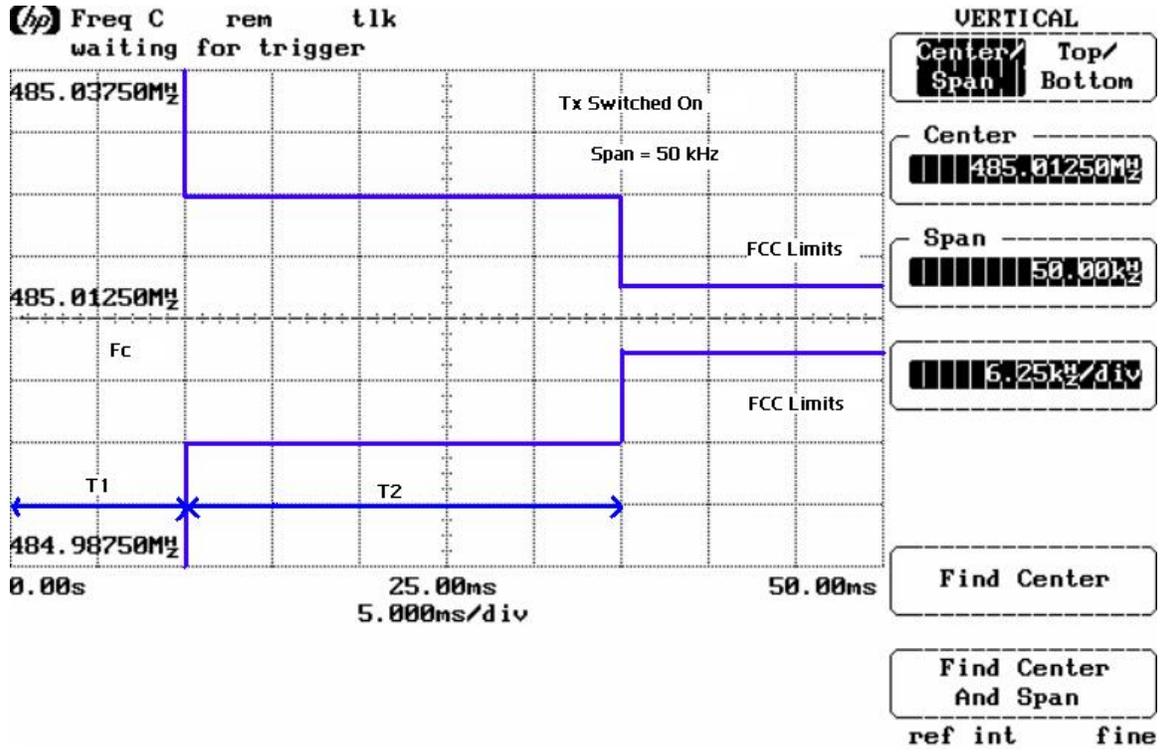


EXHIBIT 6I-1

Transmitter Transient Frequency Behaviour  
Frequency=485.0125 MHz & Chan. Spacing = 12.5 kHz

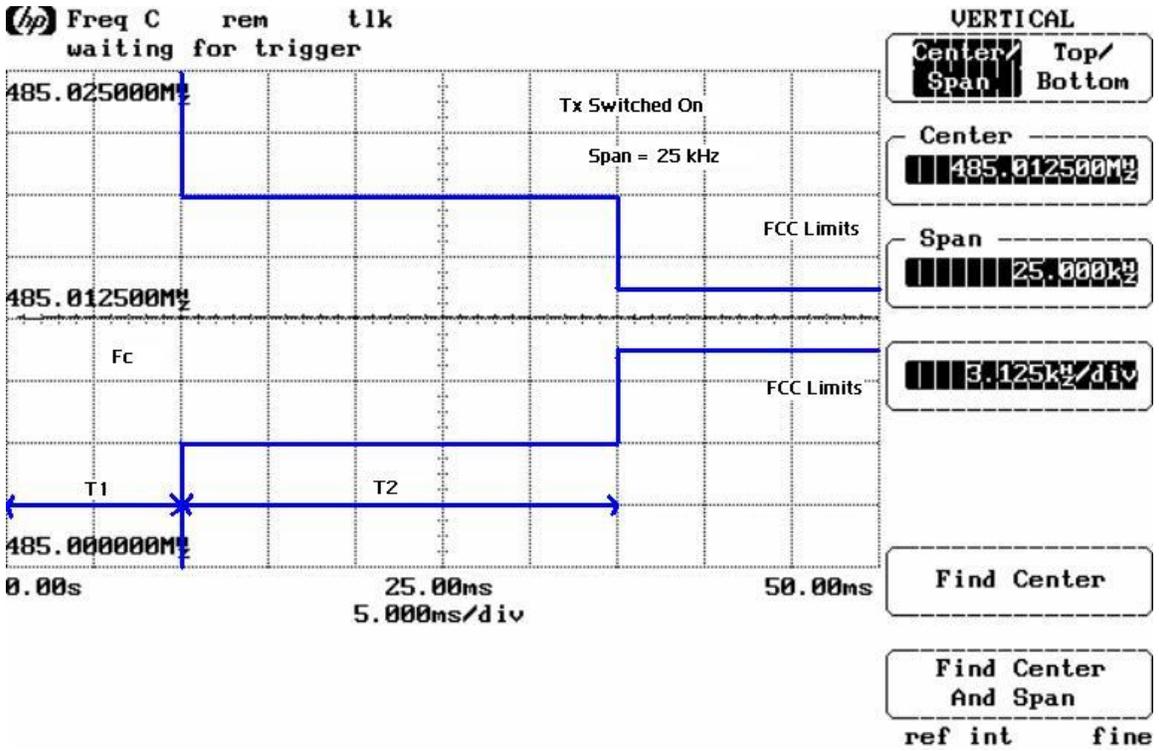


EXHIBIT 6I-2

Transmitter Transient Frequency Behaviour  
Frequency=485.0125 MHz & Chan. Spacing = 25 kHz

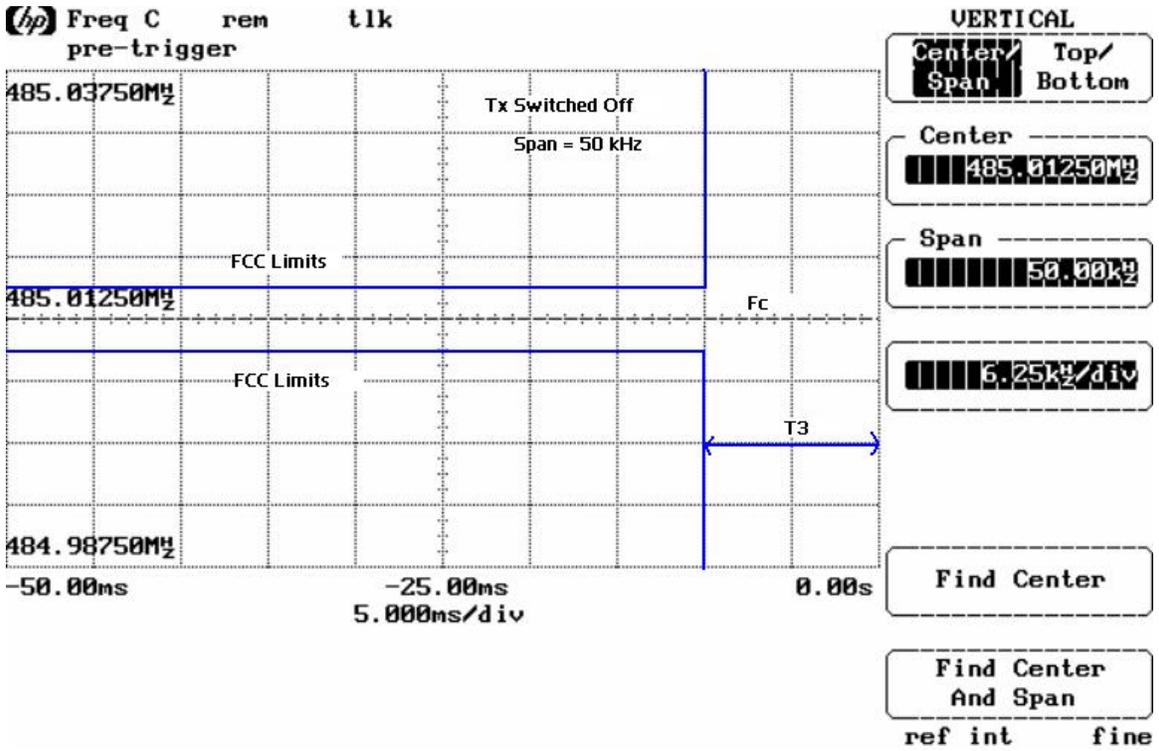


EXHIBIT 6I-3

