

Transmitter Measured Data – Pursuant 47 CFR 2.1033(c), 2.1041

	<u>MEASUREMENT</u>	<u>EXHIBIT</u>	<u>REFERENCE</u>
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	3. Modulation Limiting vs. Frequency	6B-3	2.1047(b)
	4. Modulation Limiting vs. Audio Level	6B-4	2.1047(b)
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	2. 12.5 kHz Audio (Voice)	6C-2	2.1049(c)(1)
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6A. RF Power Output Data – Pursuant 47 CFR 2.1033(c)8, 2.1046(a)

The RF power output was measured with the indicated voltage applied to, current into, and RF power into the final RF power amplifier.

Measured at 136.025MHz

At the maximum power setting:

Measured RF Output Power:	5 Watts
Measured DC Voltage:	7.50 Volts
Measured DC Current:	1.85 Amps
Primary Supply Voltage	13.8 Volts

At the minimum power setting:

Measured RF Output Power:	0.275 Watts
Measured DC Voltage:	7.50 Volts
Measured DC Current:	0.50 Amps
Primary Supply Voltage	13.8 Volts

Measured at 155.025MHz

At the maximum power setting:

Measured RF Output Power:	5 Watts
Measured DC Voltage:	7.50 Volts
Measured DC Current:	1.85 Amps
Primary Supply Voltage:	13.8 Volts

At the minimum power setting:

Measured RF Output Power:	0.275 Watts
Measured DC Voltage:	7.50 Volts
Measured DC Current:	0.50 Amps
Primary Supply Voltage:	13.8 Volts

Measured at 173.875MHz

At the maximum power setting:

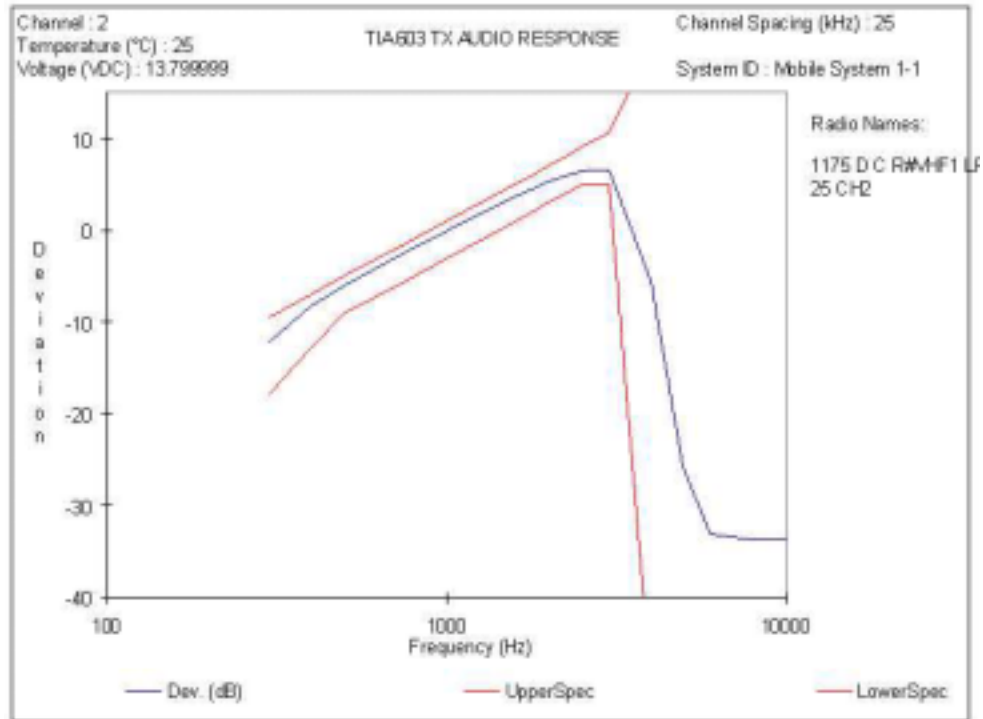
Measured RF Output Power:	5 Watts
Measured DC Voltage:	7.50 Volts
Measured DC Current:	1.85 Amps
Primary Supply Voltage:	13.8 Volts

At the minimum power setting:

Measured RF Output Power:	0.275 Watts
Measured DC Voltage:	7.50 Volts
Measured DC Current:	0.50 Amps
Primary Supply Voltage:	13.8 Volts

6B-1. Audio Response – Pursuant 47 CFR 2.1033(c)14, 2.1047(a)

25 kHz channel spacing. Measured at 155.025 MHz.



12.5 kHz channel spacing. Measured at 155.025 MHz.

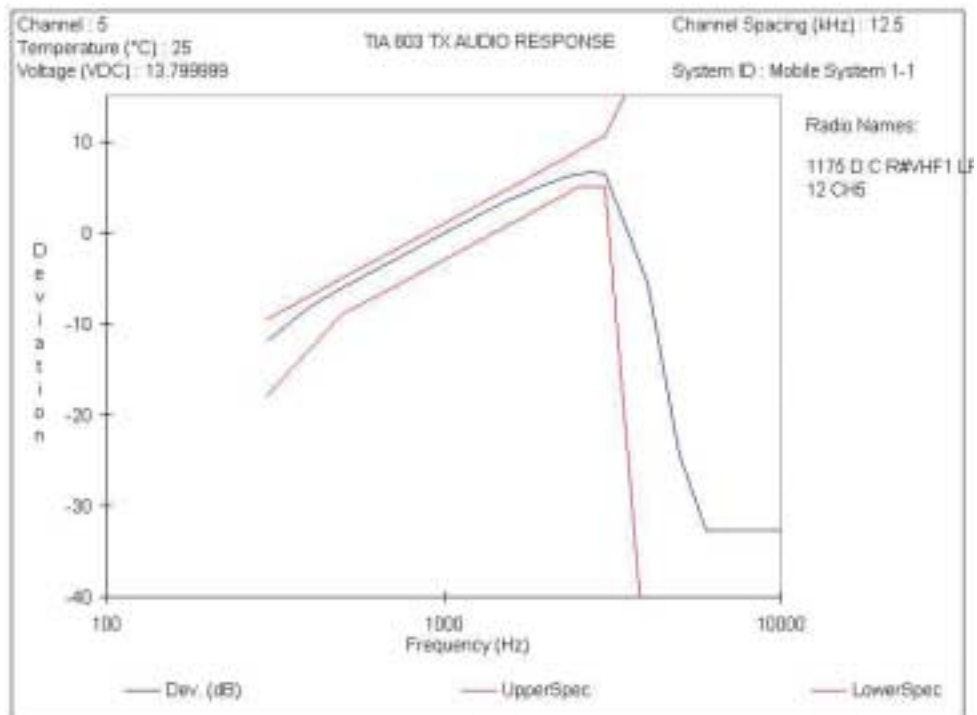
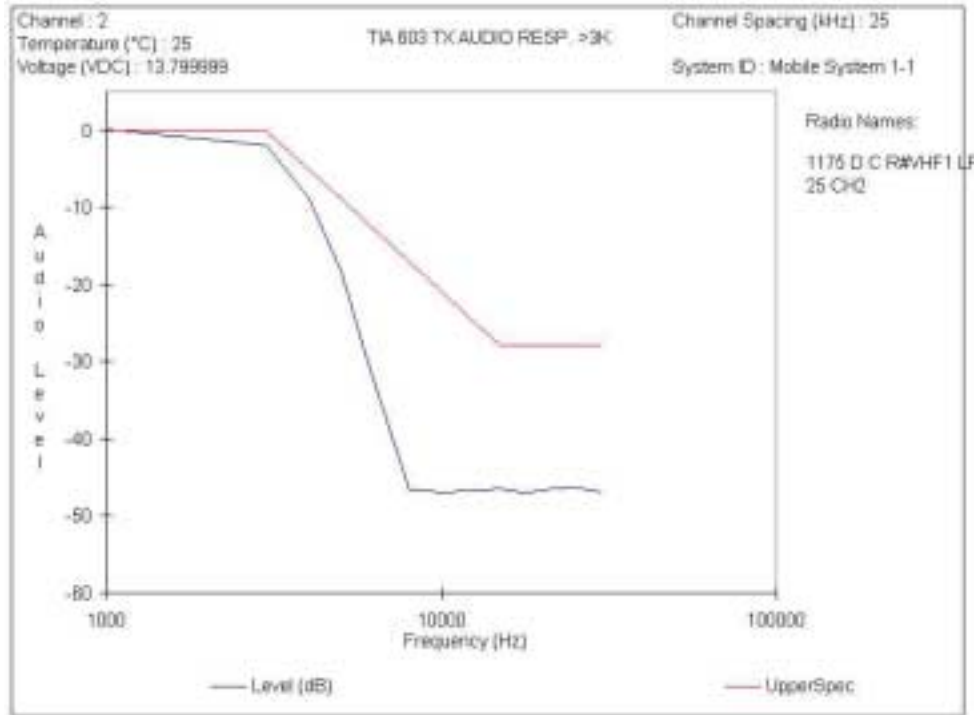


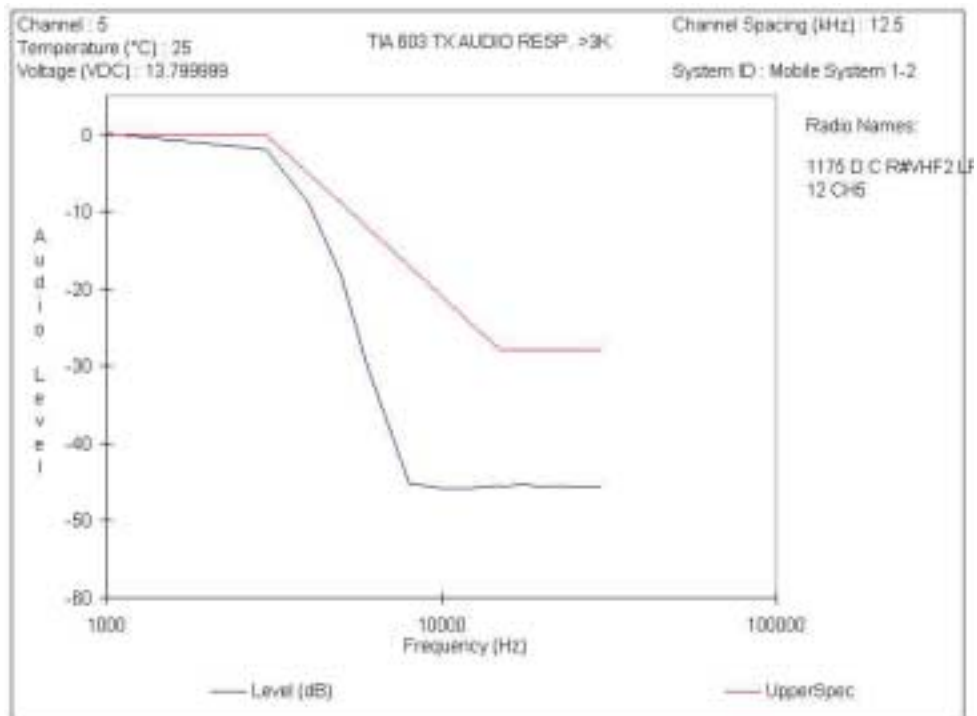
EXHIBIT 6B-1

6B-2. Low Pass Filter Response – Pursuant 47 CFR 2.1033(c)14, 2.1047(a)

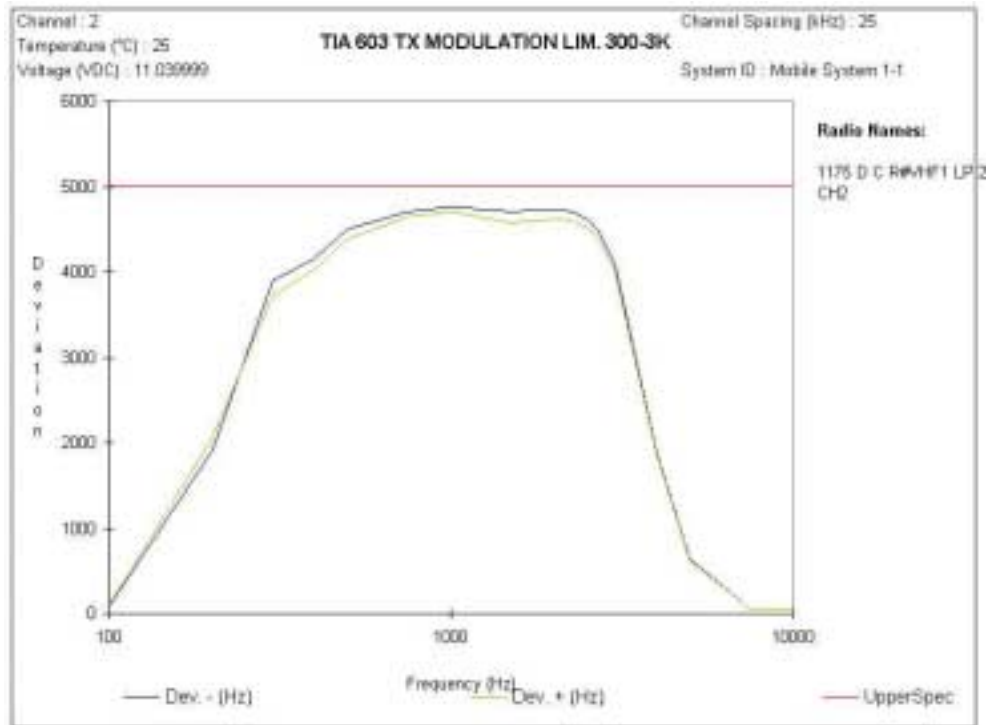
25KHz channel spacing. Measured Frequency: 155.025 MHz.



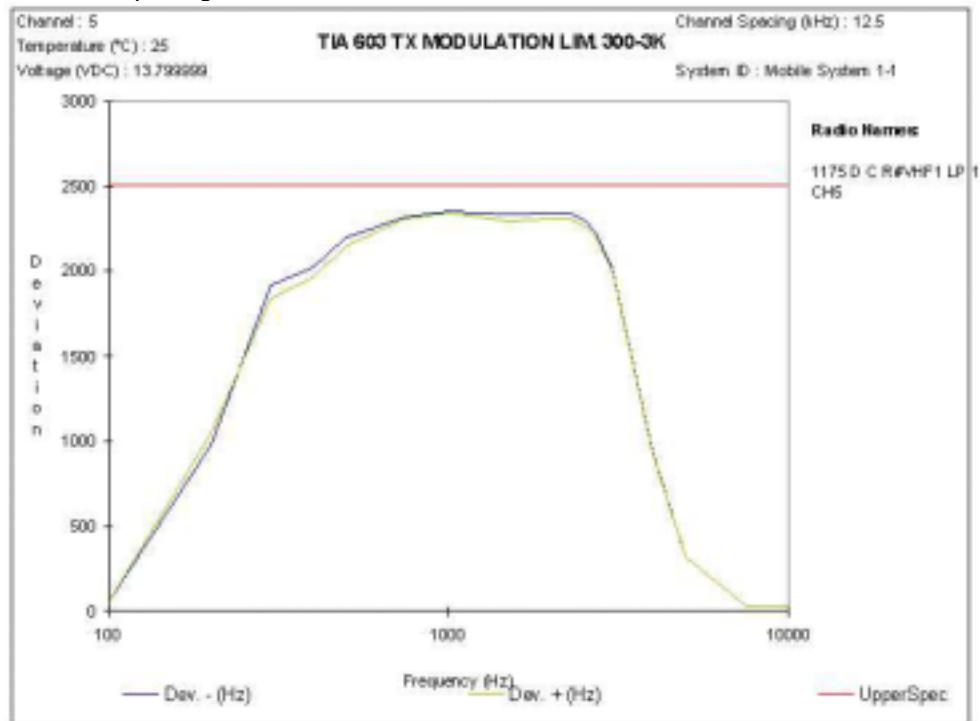
12.5KHz channel spacing. Measured Frequency: 155.025 MHz.



6B-3. Modulation Limiting versus Frequency – Pursuant 47 CFR 2.1033(c)14, 2.1047(b)
25 kHz channel spacing. Measured at 155.025 MHz.

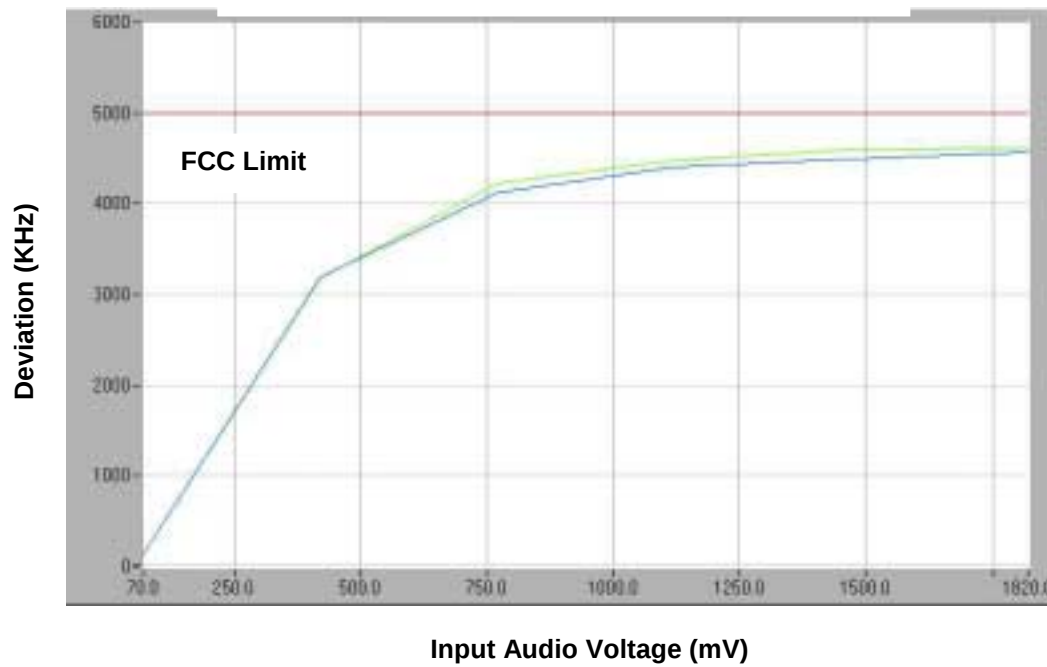


12.5 kHz channel spacing. Measured at 155.025 MHz.

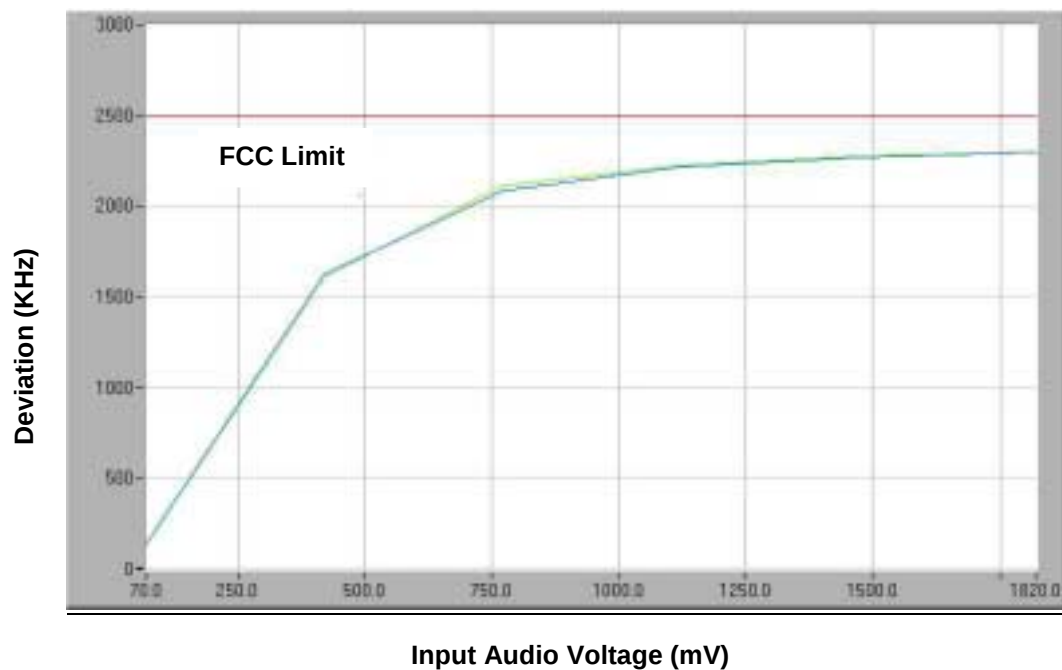


6B-4. Modulation Limiting vs. Audio Level – Pursuant 47 CFR 2.1033(c)14, 2.1047(b)

**Modulation Limiting, Deviation vs Input Audio
VHF 155.025MHz, 25 KHz Channels**



**Modulation Limiting, Deviation vs Input Audio
VHF 155.025MHz, 12.5 KHz Channels**



6C. Occupied Bandwidth – Pursuant 47 CFR 2.1033(c),14, 2.1049**Necessary Bandwidth Calculations**

Carson's Rule for FM modulation is utilized to compute the bandwidth shown in the FCC emission designator for each type of modulation employed by the product. Carson's Rule is

$$BW = 2 * (M + D) \quad \text{where} \quad \begin{array}{l} BW = \text{Required bandwidth} \\ M = \text{Maximum modulating frequency} \\ D = \text{Deviation} \end{array}$$

Shown below are the calculations required for FCC ID: AZ492FT3802.

EXHIBIT 6C-1: 25 kHz Channel Spacing, Voice (2500 Hz Audio Tone)
Emission Designator: 16K0F3E

This modulation represents voice and so is band-limited to below 3 kHz by a bandpass filter. Therefore the maximum modulating frequency is 3 kHz with a 5 kHz deviation.

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

The modulation is a single FM voice channel, so the rest of the designator is F3E.

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

EXHIBIT 6C-2: 12.5 kHz Channel Spacing, Voice (2500 Hz Audio Tone)
Emission Designator: 11K0F3E

This modulation represents voice and so is band-limited to below 3 kHz by a bandpass filter. Therefore the maximum modulating frequency is 3 kHz with a 2.5 kHz deviation.

$$BW = 2 * (M + D) = 2 * (3 \text{ kHz} + 2.5 \text{ kHz}) = 11 \text{ kHz} \rightarrow 11K0$$

The modulation is a single FM voice channel, so the rest of the designator is F3E.

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

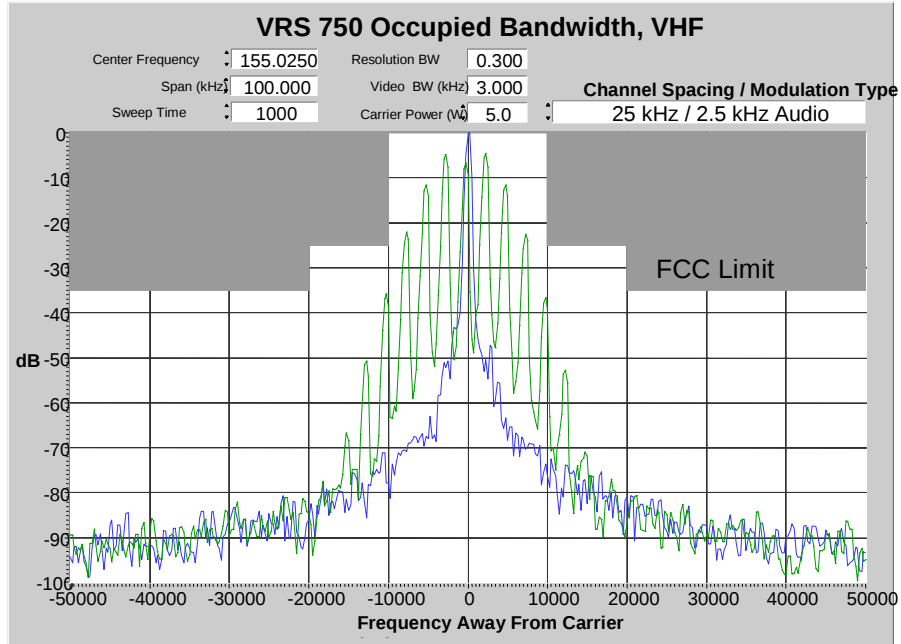
6C-1. Occupied Bandwidth – 25 kHz Audio – Pursuant 2.1049(c)(1)

High power. Measured at 155.025 MHz and 5 W.

Modulation: Voice (2500 Hz Audio Tone)

Modulation Designator: 16K0F3E

Channelization: 25 kHz (Mask B)

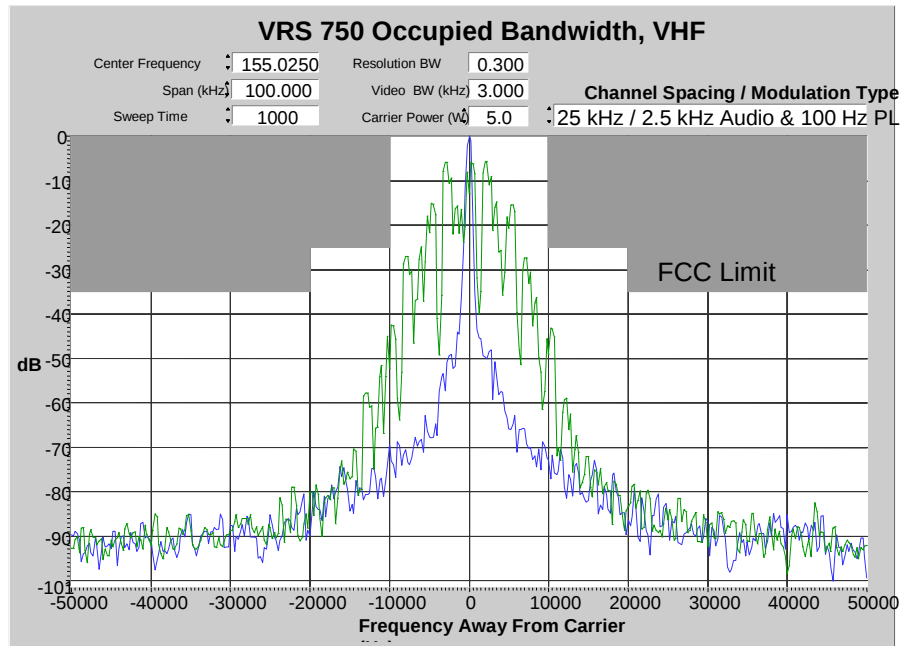


High power. Measured at 155.025 MHz and 5 W.

Modulation: Voice (2500 Hz Audio Tone with PL)

Modulation Designator: 16K0F3E

Channelization: 25 kHz (Mask B)



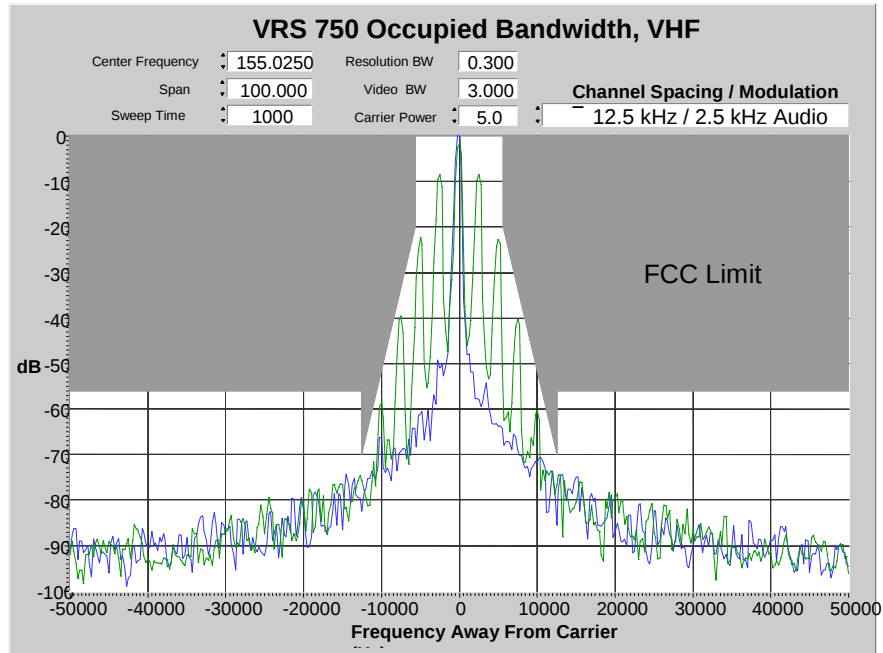
6C- 2. Occupied Bandwidth – 12.5 kHz Audio – Pursuant 2.1049(c)(1)

High power. Measured at 155.025 MHz and 5 W.

Modulation: Voice (2500 Hz Audio Tone)

Modulation Designator: 11K0F3E

Channelization: 12.5 kHz (Mask D)

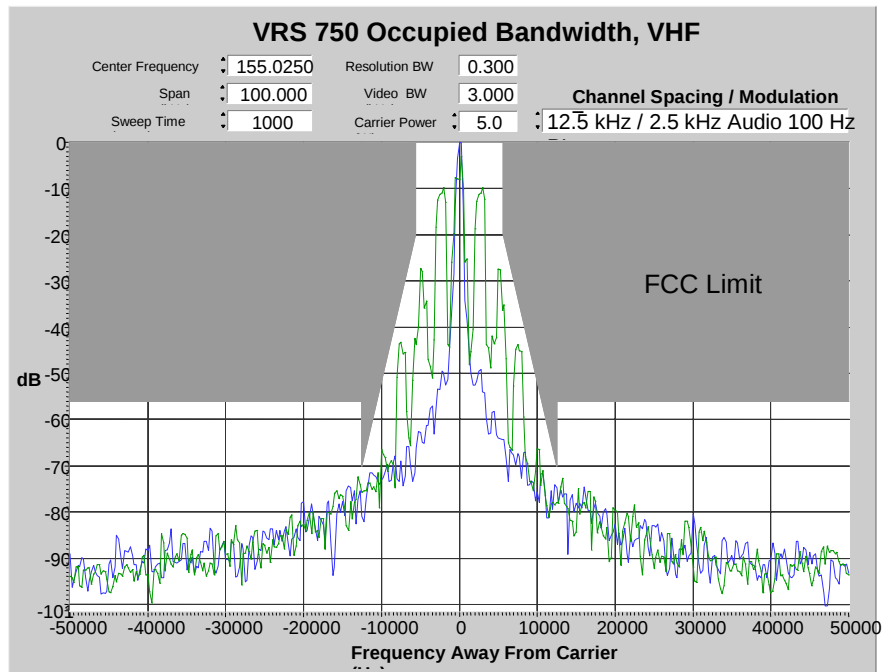


High power. Measured at 155.025 MHz and 5 W.

Modulation: Voice (2500 Hz Audio Tone with PL)

Modulation Designator: 11K0F3E

Channelization: 12.5 kHz (Mask D)



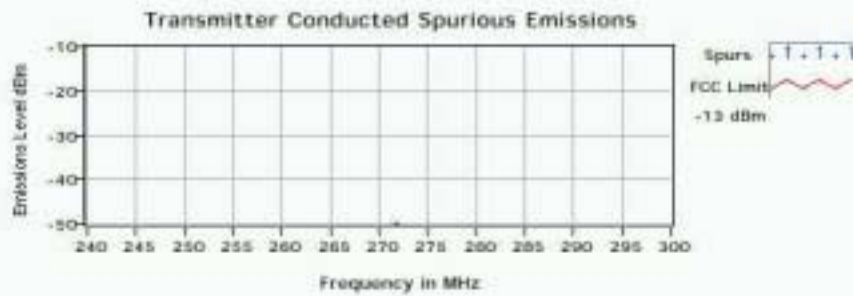
6D. Conducted Spurious Emissions – Pursuant 2.1051

Transmitter Conducted Spurious Emissions FCC ID: AZ492FT3802

136.02500 MHz

Power 275mW

Spur Frequency	FCC Limit	Measured Value (dBm)
271.80000	-13.0	-49.9



Motorola Plantation ATE Lab

Test Performed By: Jerry Simpson

Mon, Jun 25, 2001

Exhibit: 6

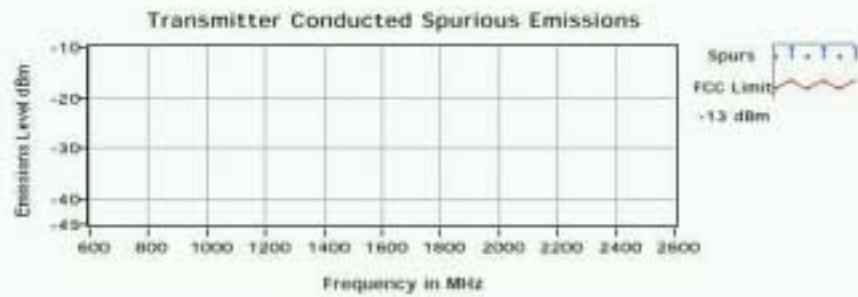
6D. Conducted Spurious Emissions (cont.)

Transmitter Conducted Spurious Emissions FCC ID: AZ492FT3802

155.02500 MHz

Power 275mW

Spur Frequency	FCC Limit	Measured Value (dBm)
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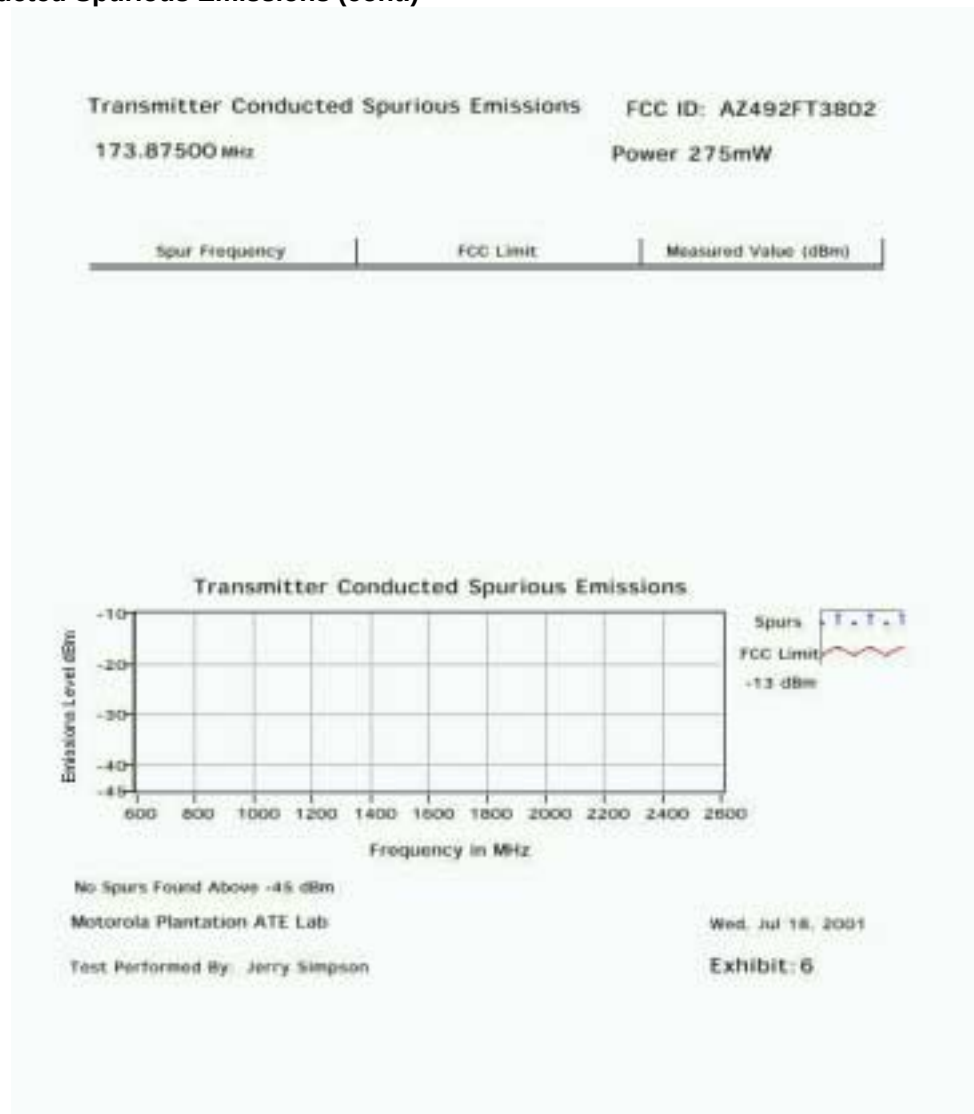
No Spurs Found Above -45 dBm

Motorola Plantation ATE Lab

Test Performed By: Jerry Simpson

Tue, Jul 10, 2001

Exhibit: 6

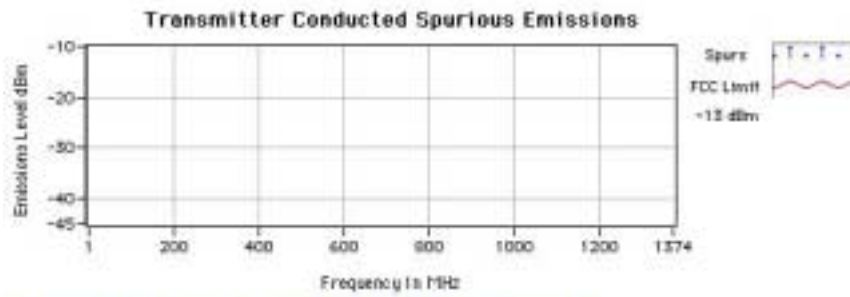
6D. Conducted Spurious Emissions (cont.)

6D. Conducted Spurious Emissions (cont.)**Transmitter Conducted Spurious Emissions**

FREQ: 136.02500 MHz

Power 5.0W

Spur Frequency	FCC Limit	Measured Value (dBm)
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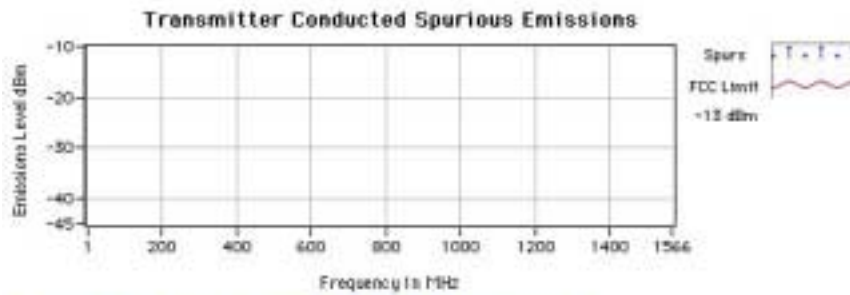
**All Transmitter Spurious Emissions Tested to the 10th Harmonic****No Spurs Found Above -45 dBm****Motorola Plantation ATE Lab****Wed, Sep 5, 2001**Test Performed By: **Jerry Simpson**

6D. Conducted Spurious Emissions (cont.)**Transmitter Conducted Spurious Emissions**

FREQ: 155.02500 MHz

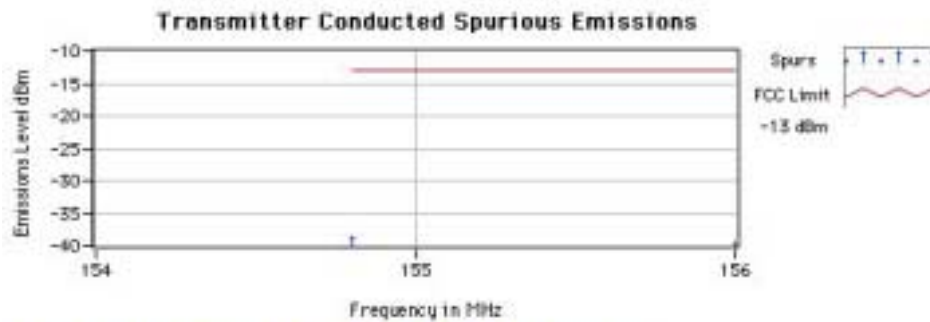
Power 5.0W

Spur Frequency	FCC Limit	Measured Value (dBm)
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**All Transmitter Spurious Emissions Tested to the 10th Harmonic****No Spurs Found Above -45 dBm****Motorola Plantation ATE Lab****Tue, Sep 4, 2001**Test Performed By: **Jerry Simpson**

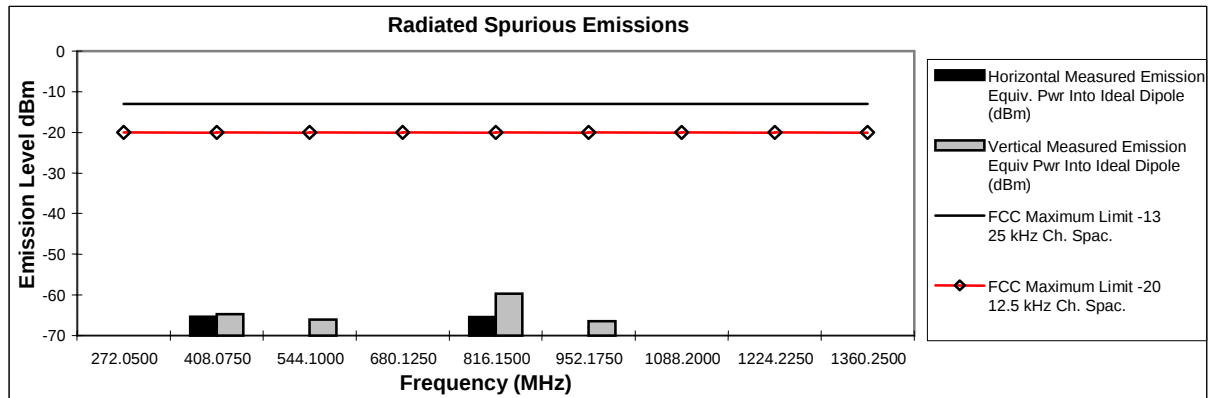
6D. Conducted Spurious Emissions (cont.)**Transmitter Conducted Spurious Emissions****FREQ: 173.87500 MHz****Power 5.0W**

Spur Frequency	FCC Limit	Measured Value (dBm)
154.80000	-13.0	-38.9
156.00000	-13.0	-39.8

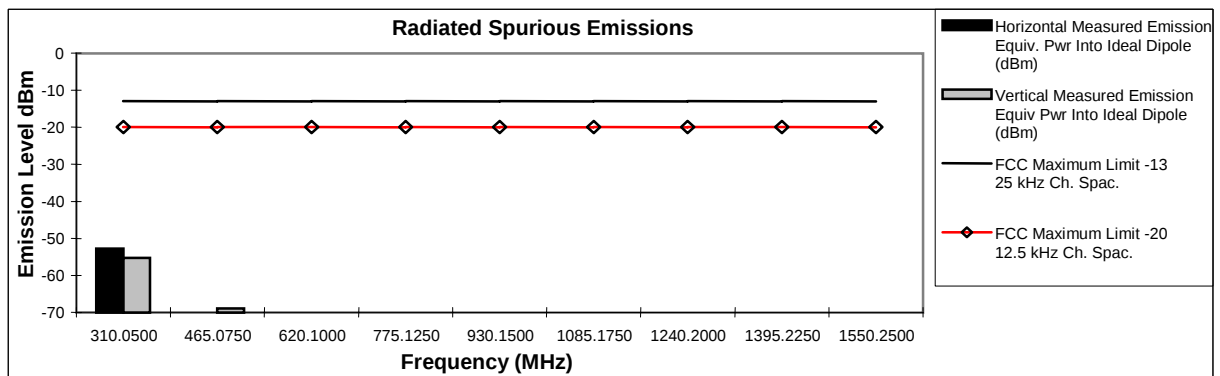
**All Transmitter Spurious Emissions Tested to the 10th Harmonic****Motorola Plantation ATE Lab****Wed, Sep 5, 2001**Test Performed By: **Jerry Simpson**

6E. Radiated Spurious Emissions – Pursuant 2.1053**136.025 MHz 5 Watts**

Frequency (MHz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)
272.0500	-13	-20	-72.67	-73.22
408.0750	-13	-20	-65.37	-64.76
544.1000	-13	-20	-72.08	-66.07
680.1250	-13	-20	-76.28	-73.57
816.1500	-13	-20	-65.46	-59.72
952.1750	-13	-20	-70.83	-66.54
1088.2000	-13	-20	*	*
1224.2250	-13	-20	*	*
1360.2500	-13	-20	*	*

**155.025 MHz 5 Watts**

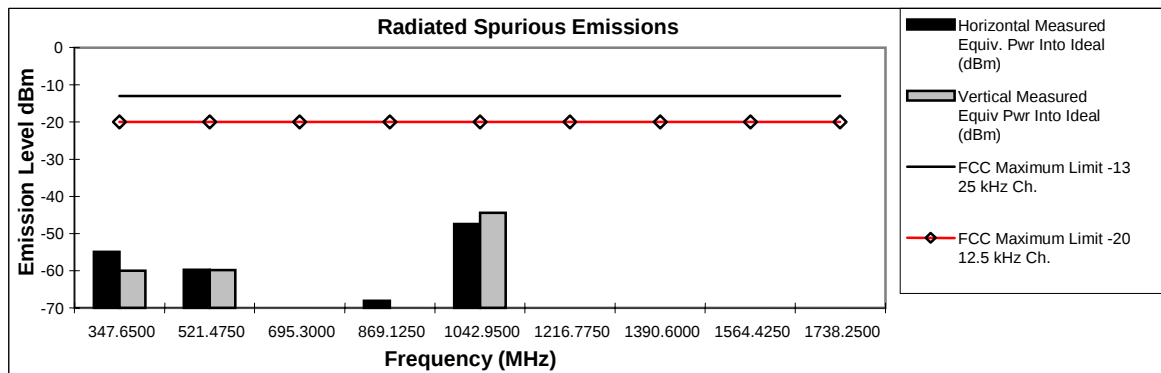
Frequency (MHz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)
310.0500	-13	-20	-52.79	-55.22
465.0750	-13	-20	-71.01	-68.89
620.1000	-13	-20	*	*
775.1250	-13	-20	-71.79	-72.57
930.1500	-13	-20	-74.12	-73.37
1085.1750	-13	-20	*	*
1240.2000	-13	-20	*	*
1395.2250	-13	-20	*	*
1550.2500	-13	-20	*	*



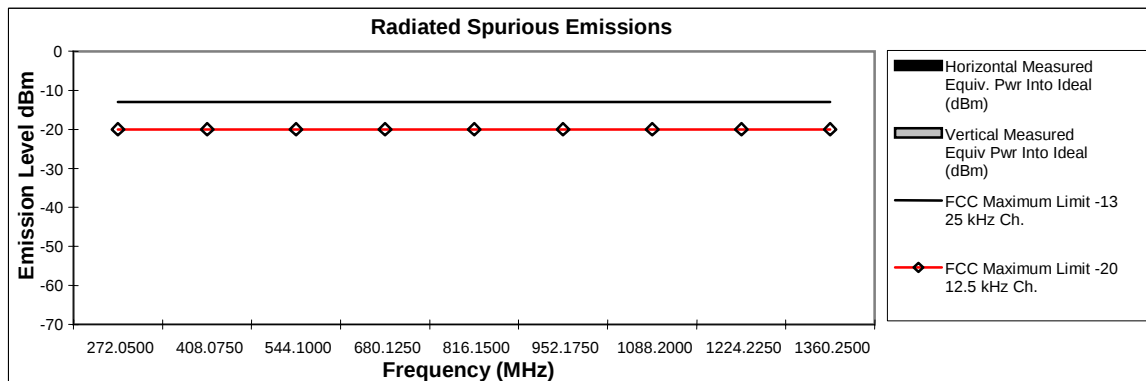
* Indicates the spurious emission was less than -70dBm or could not be detected due to noise limitations or ambients.

6E. Radiated Spurious Emissions (cont.)**173.825 MHz 5 Watts**

Frequency (MHz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)
347.6500	-13	-20	-54.88	-59.98
521.4750	-13	-20	-59.69	-59.81
695.3000	-13	-20	*	*
869.1250	-13	-20	-68.02	*
1042.9500	-13	-20	-47.37	-44.40
1216.7750	-13	-20	*	*
1390.6000	-13	-20	*	*
1564.4250	-13	-20	*	*
1738.2500	-13	-20	*	*

**136.025 0.275 Watts**

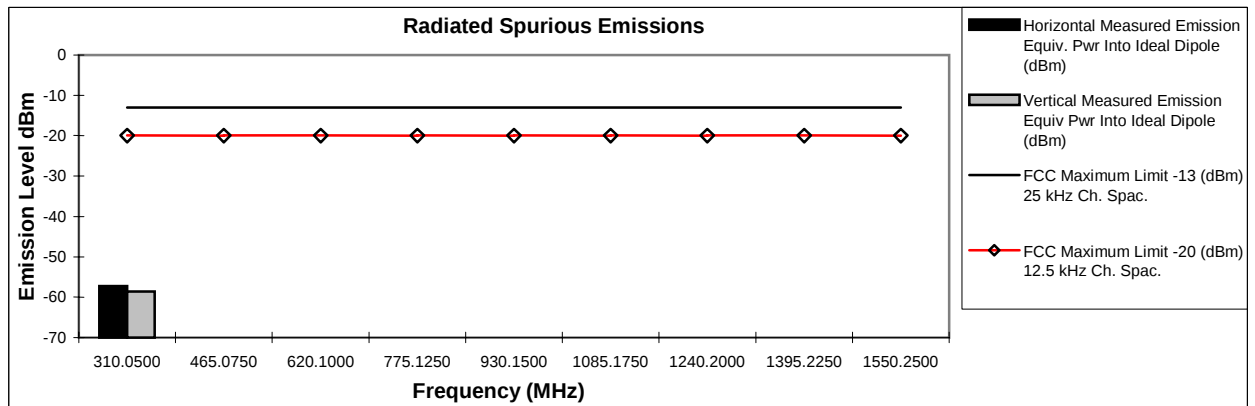
Frequency (MHz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)
272.0500	-13	-20	-74.36	-72.56
408.0750	-13	-20	-74.66	-74.30
544.1000	-13	-20	*	*
680.1250	-13	-20	*	*
816.1500	-13	-20	-73.51	-74.52
952.1750	-13	-20	*	*
1088.2000	-13	-20	*	*
1224.2250	-13	-20	*	*
1360.2500	-13	-20	*	*



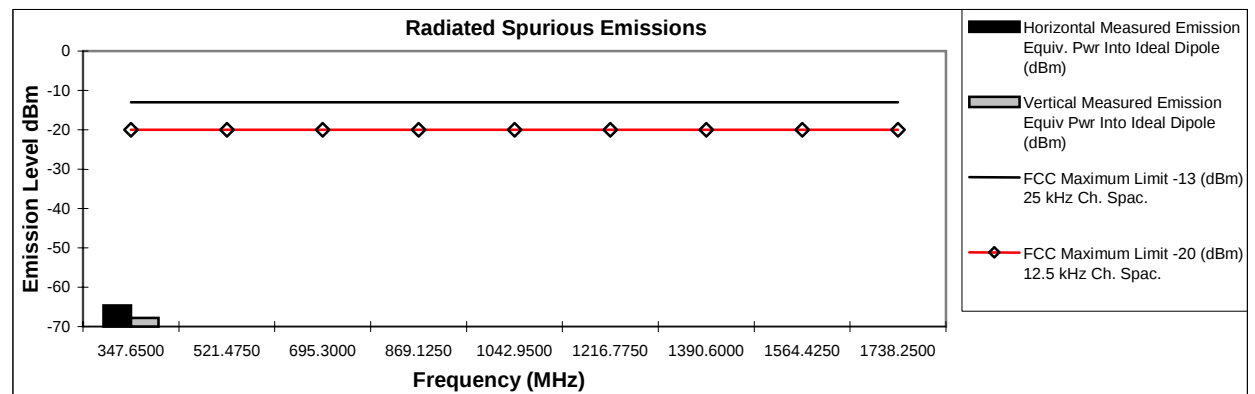
* Indicates the spurious emission was less than -70dBm or could not be detected due to noise limitations or ambients.

6E. Radiated Spurious Emissions (cont.)**155.025 MHz 0.275 Watts**

Frequency (MHz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)
310.0500	-13	-20	-57.21	-58.56
465.0750	-13	-20	-78.42	-75.69
620.1000	-13	-20	*	*
775.1250	-13	-20	-73.56	-73.81
930.1500	-13	-20	*	*
1085.1750	-13	-20	*	*
1240.2000	-13	-20	*	*
1395.2250	-13	-20	*	*
1550.2500	-13	-20	*	*

**173.825 MHz 0.275 Watts**

Frequency (MHz)	FCC Maximum Limit -13 (dBm) 25 kHz Ch. Spac.	FCC Maximum Limit -20 (dBm) 12.5 kHz Ch. Spac.	Horizontal Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)	Vertical Measured Emission Equiv. Pwr Into Ideal Dipole (dBm)
347.6500	-13	-20	-64.64	-67.83
521.4750	-13	-20	-76.84	-75.30
695.3000	-13	-20	*	*
869.1250	-13	-20	*	*
1042.9500	-13	-20	*	*
1216.7750	-13	-20	*	*
1390.6000	-13	-20	*	*
1564.4250	-13	-20	*	*
1738.2500	-13	-20	*	*



* Indicates the spurious emission was less than -70dBm or could not be detected due to noise limitations or ambients.

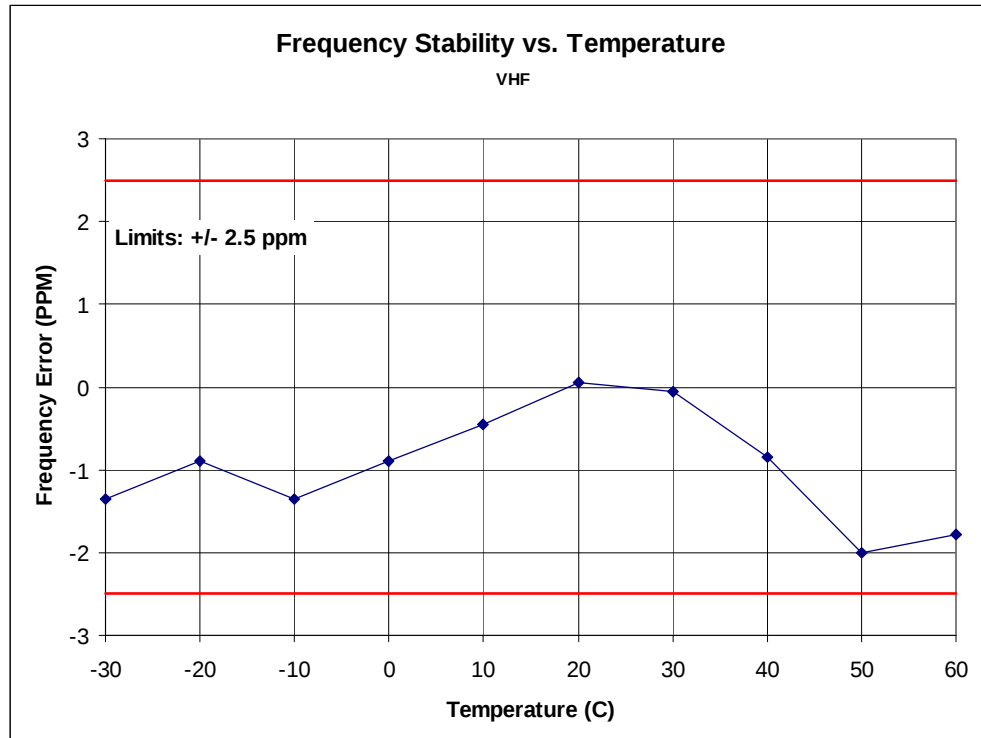
Motorola Plantation EMC Lab – Test Performed by: Curt McLennan
FCC Registration: 91932 / Industry Canada: IC3679

EXHIBIT 6E(3/3)

April 23, 2001

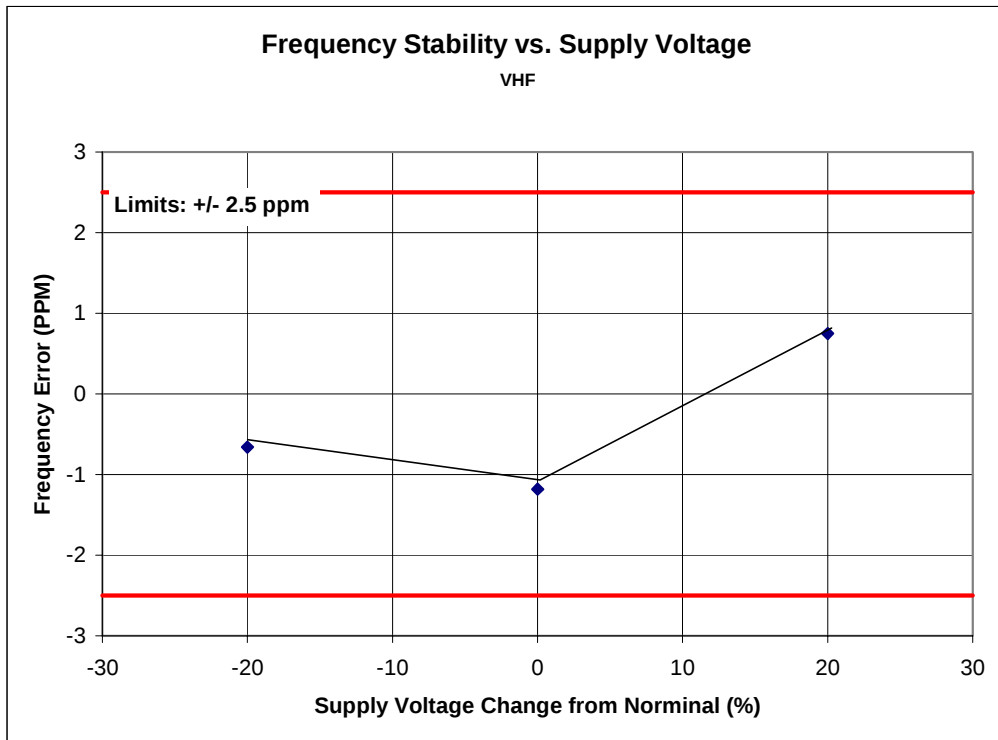
6F-1. Frequency Stability vs. Temperature – Pursuant 2.1055(a)(1), 2.1055(b), 90.213

Measured at 155.025 MHz.



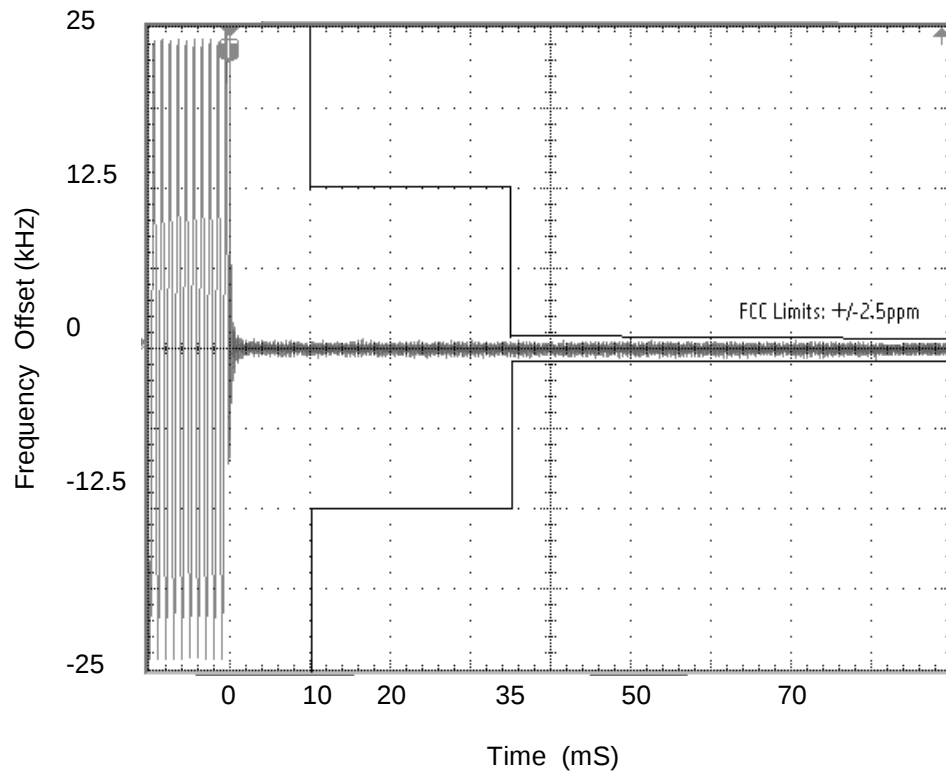
6F-2. Frequency Stability vs. Supply Voltage – Pursuant 2.1055(d)(1), 90.213

Measured at 155.025MHz.

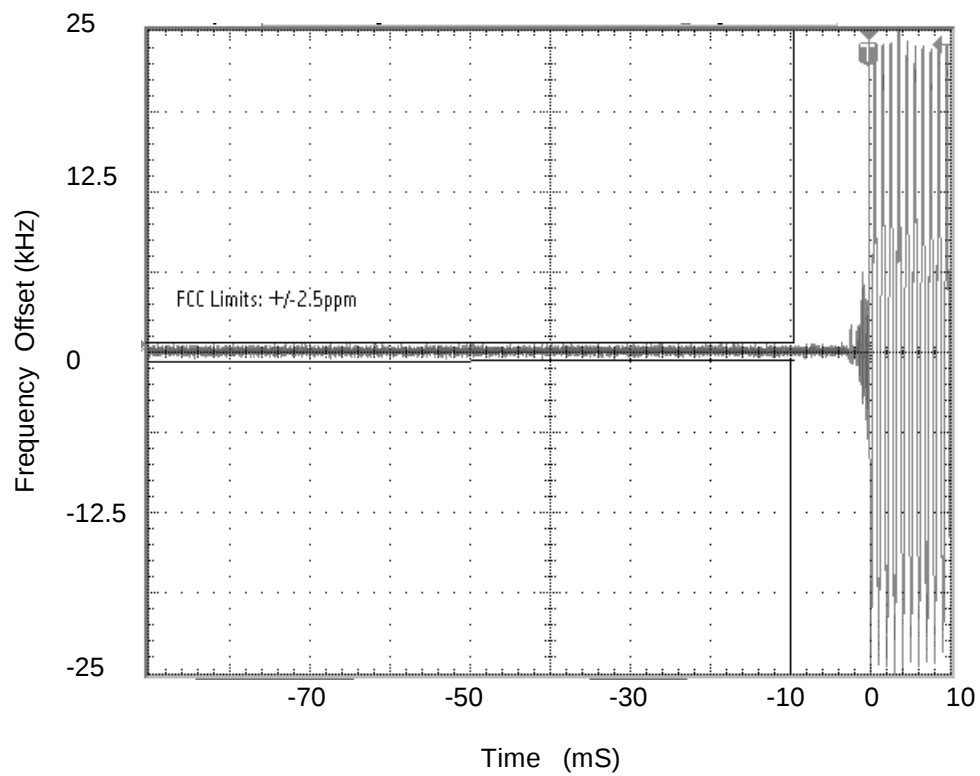


6G. Transient Frequency Behavior – Pursuant 90.214

Key 25 KHz channel spacing. Measured at 155.025MHz and 5W

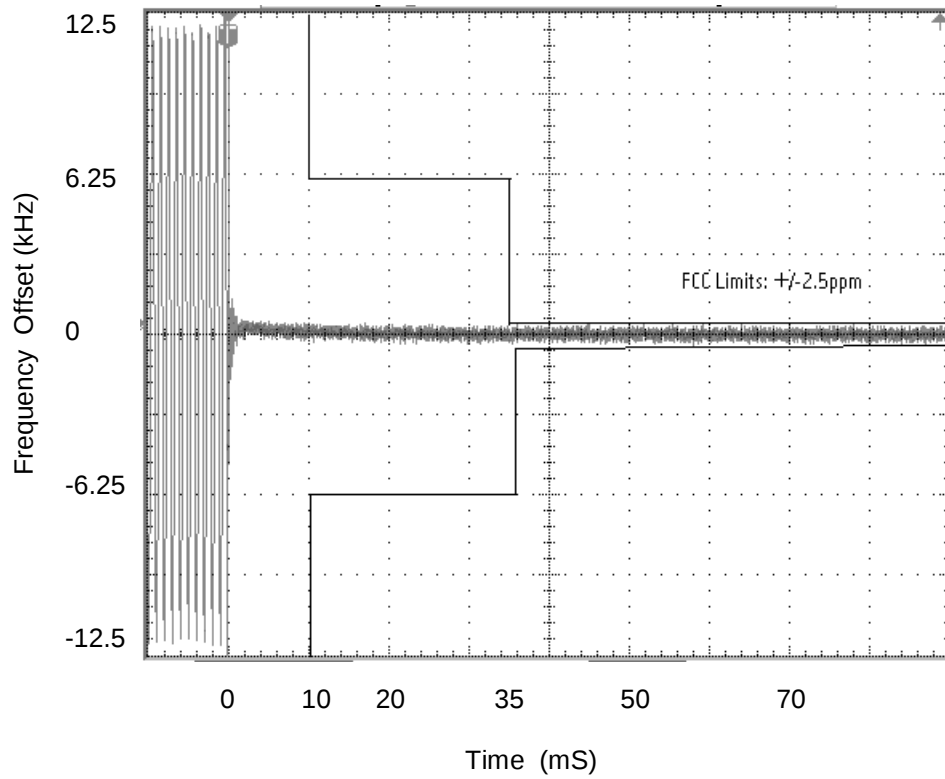


Dekey25kHz channel spacing. Measured at 155.025 and 5W

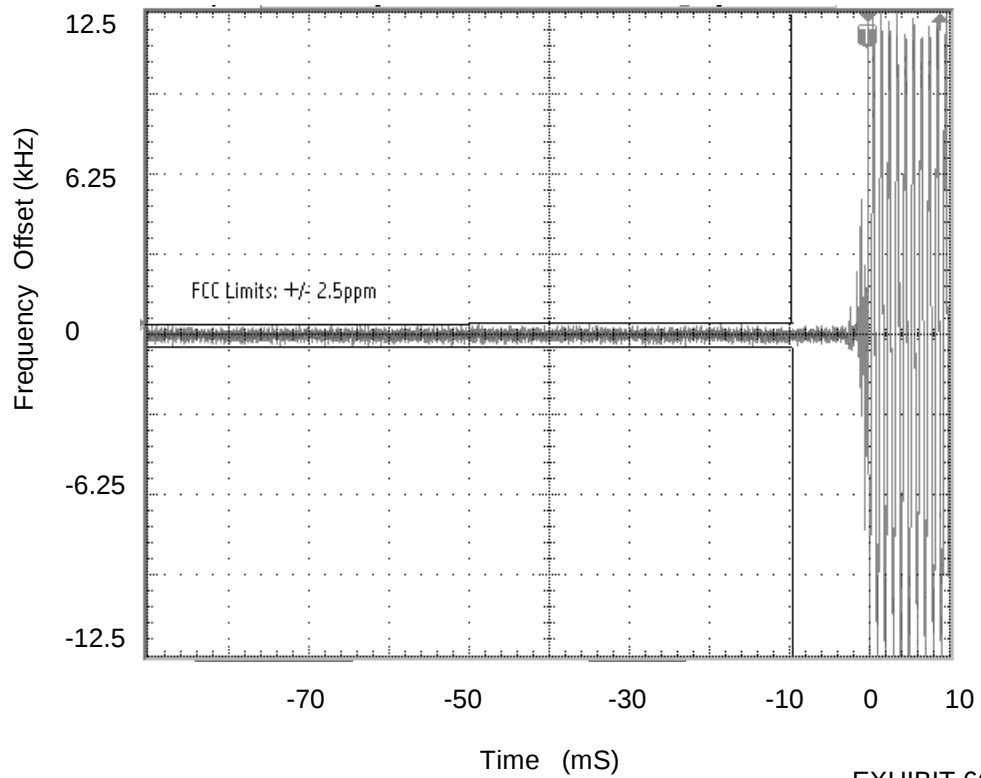


6G. Transient Frequency Behavior (cont.)

Keyup 12.5 kHz channel spacing. Measured at 155.025 MHz and 5 W.

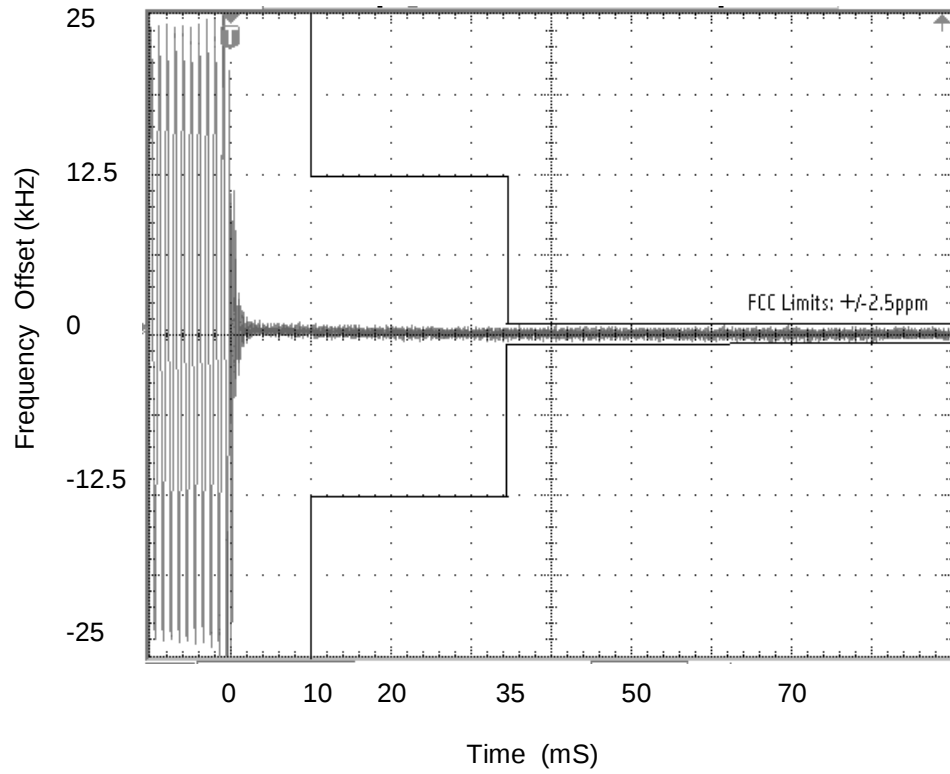


Dekey.12.5 kHz channel spacing measured at 155.025 MHz and 5 W.

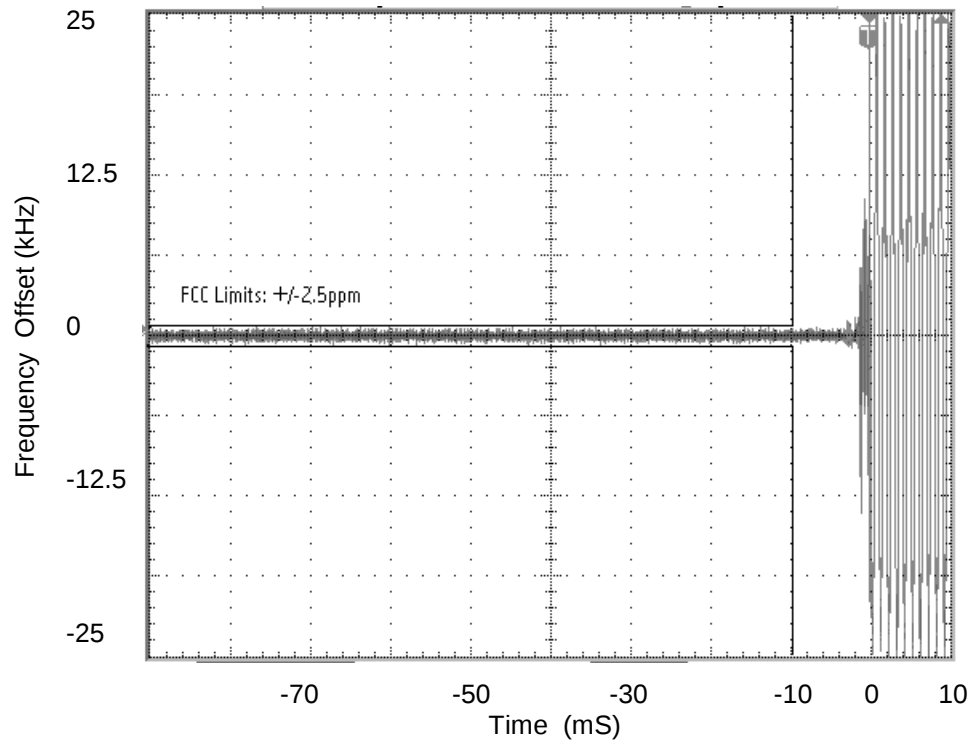


6G. Transient Frequency Behavior (cont.)

Keyup 25 kHz channel spacing. Measured at 155.025 MHz and 0.275 W.

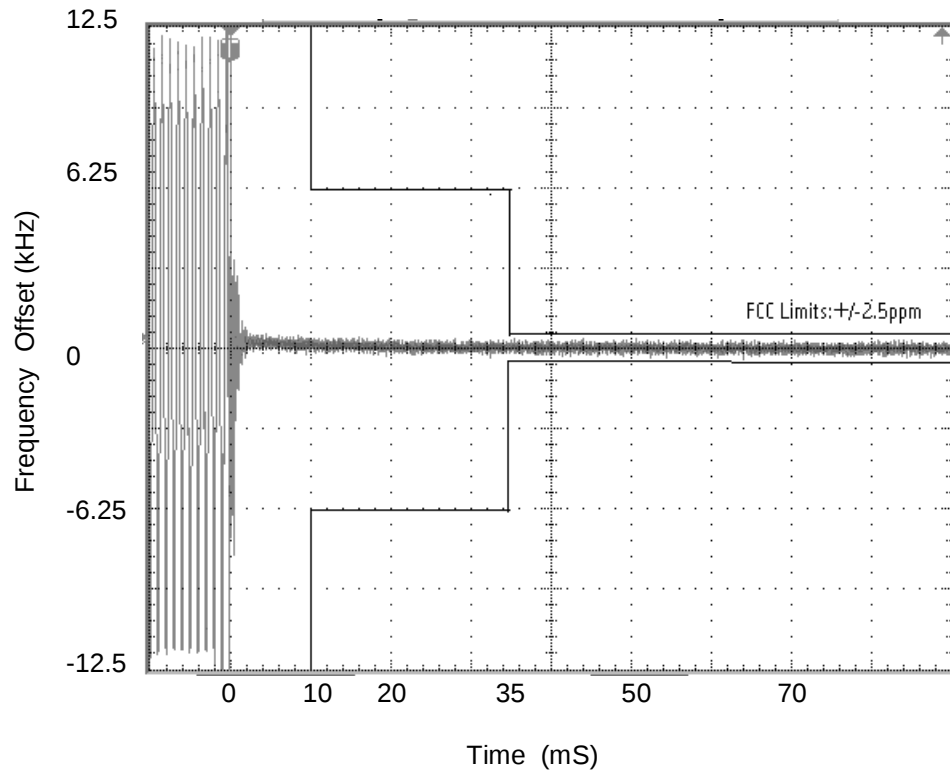


Dekey 25 kHz channel spacing. Measured at 155.025 MHz and 0.275 W.



6G. Transient Frequency Behavior (cont.)

Keyup 12.5 kHz channel spacing. Measured at 155.025 MHz and 0.275 W.



Dekey 12.5 kHz channel spacing. Measured at 155.025 MHz and 0.275 W.

