

EXHIBIT 6**INDEX OF SUBMITTED MEASURED DATA**

This exhibit contains the measured data for this equipment as follows:

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6C-1: 12.5 kHz Channel Spacing, 158.55MHz, Transmit Audio Low Pass Filter Response

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6E-15: 158.55 MHz, O.153 Test Pattern 4FSK Voice and Data Modulation Only, 7K60F1W Mask D

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6E-17: 158.55 MHz, 25 kHz, 2500 Hz Audio Modulation Only, 16K0F3E Mask 80.211(c) (Part 80)

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6F-2: 1W Harmonic of Carrier 161.7 MHz, 12.5 kHz Channel Spacing, Digital Mode

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- 6F-9: 6W Harmonic of Carrier 138.0125 MHz, 25 kHz Channel Spacing, Analog Mode (Not applicable for FCC)
- 6F-10: 6W Harmonic of Carrier 158.55 MHz, 25 kHz Channel Spacing, Analog Mode (Part 22, 80)
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- 6F-12: 6W Harmonic of Carrier 173.3875 MHz, 25 kHz Channel Spacing (Not applicable for FCC)

EXHIBIT 6G – Transmit Radiated Spurious Emissions
Refer to 89FT7066 Ex06b TUV LMR report

EXHIBIT 6H - Frequency Stability

- 6H-1: 158.55 MHz, 0.5 ppm Frequency Stability vs. Temperature
- 6H-2: 158.55 MHz, 0.5 ppm Frequency Stability vs. Voltage (Part 22, 80)

EXHIBIT 6I– Transient Frequency Behavior

- 6I-1: 158.55 MHz, 12.5 kHz Channel Spacing – Transmitters On
- 6I-2: 158.55 MHz, 12.5 kHz Channel Spacing – Transmitters Off
- 6I-3: 158.55 MHz, 25 kHz Channel Spacing – Transmitter On (Part 22, 80)
- 6I-4: 158.55 MHz, 25 kHz Channel Spacing – Transmitter Off (Part 22, 80)

**** Please note that the above data were taken following the procedures and limits outlined in TIA 603-D and RSS 119 during the month of October 2015. See Table 2 in Ex07_test procedures**

Radio model tested: AAH56JDN9RA1AN

Important Note: The data in this test report meets or exceeds the technical requirements of FCC Rule Parts 22,74, 80, 90, RSS 119 and RSS-182.

EXHIBIT 6A

RF Output Power:

Frequency = 138.125 MHz (Not applicable for FCC):

Output RF power	5.97 Watts
DC Voltage	7.50 Volts
DC Current	1.68 Amps

Output RF power	0.91 Watts
DC Voltage	7.50 Volts
DC Current	0.58 Amps

Frequency = 158.55 MHz:

Output RF power	5.88 Watts
DC Voltage	7.50 Volts
DC Current	1.69 Amps

Output RF power	4.90 Watts	(Part 80)
DC Voltage	7.50 Volts	
DC Current	1.48 Amps	

Output RF power	0.89 Watts
DC Voltage	7.50 Volts
DC Current	0.61 Amps

Frequency = 161.7 MHz:

Output RF power	5.89 Watts
DC Voltage	7.50 Volts
DC Current	1.68 Amps

Output RF power	0.90 Watts
DC Voltage	7.50 Volts
DC Current	0.63 Amps

Frequency= 173.387 MHz:

Output RF power	5.98 Watts
DC Voltage	7.50 Volts
DC Current	1.64 Amps

Output RF power	0.93 Watts
DC Voltage	7.50 Volts
DC Current	0.63 Amps

EXHIBIT 6B

Audio Frequency Response

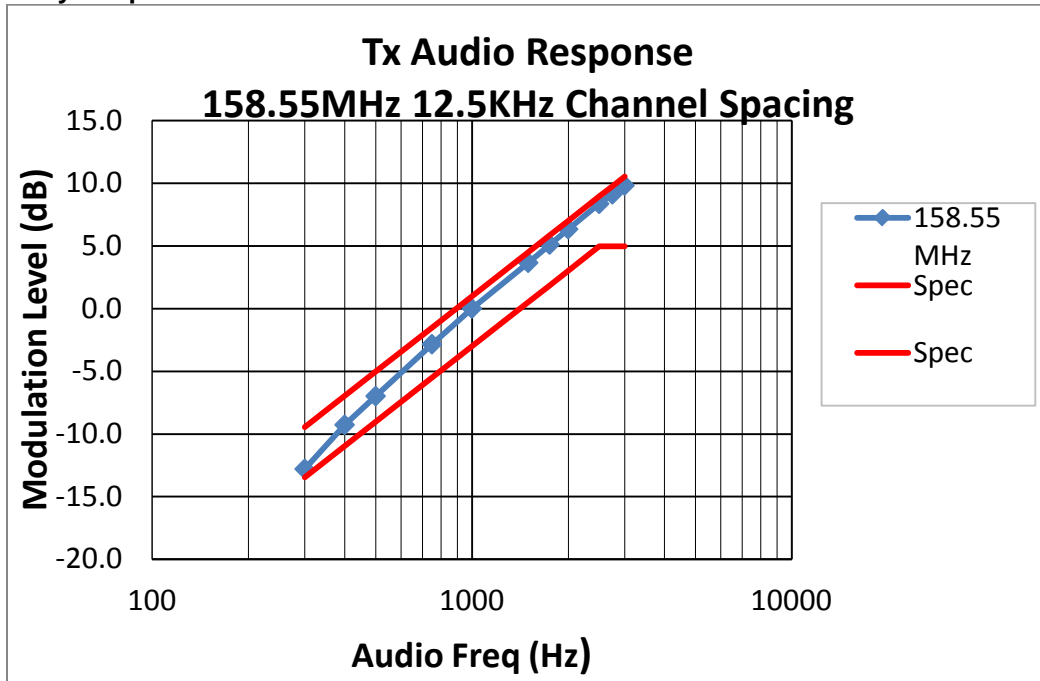


Figure 6B-1: 12.5 kHz Channel Spacing, 158.55MHz, Transmit Audio Frequency Response

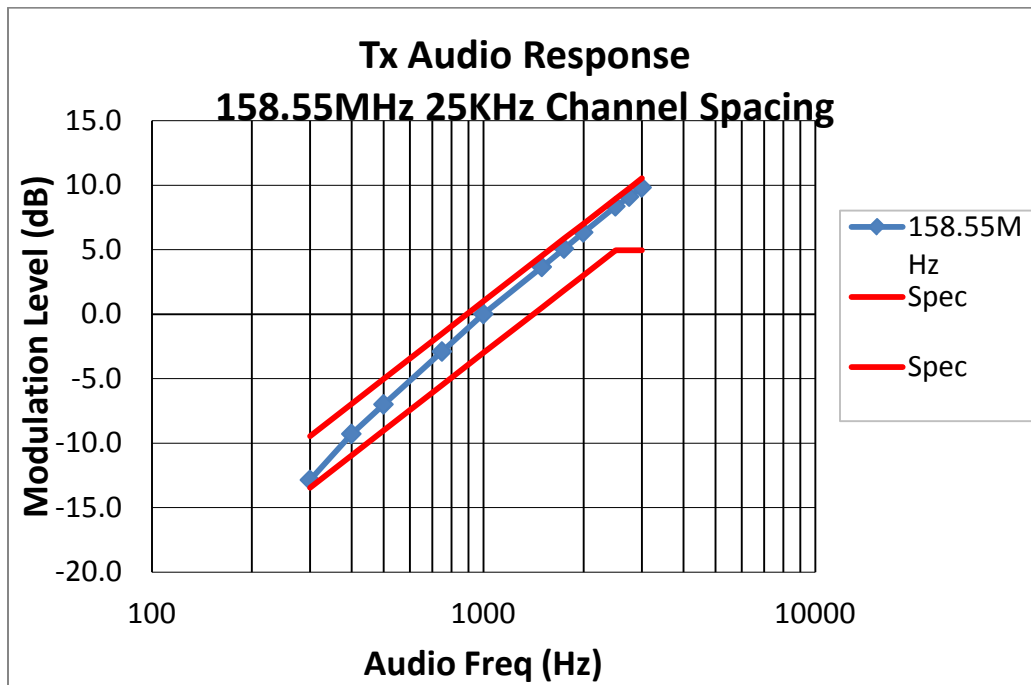


Figure 6B-2: 25 kHz Channel Spacing, 158.55MHz, Transmit Audio Frequency Response (Part 22, 80)

EXHIBIT 6C

Audio Low Pass Filter Response

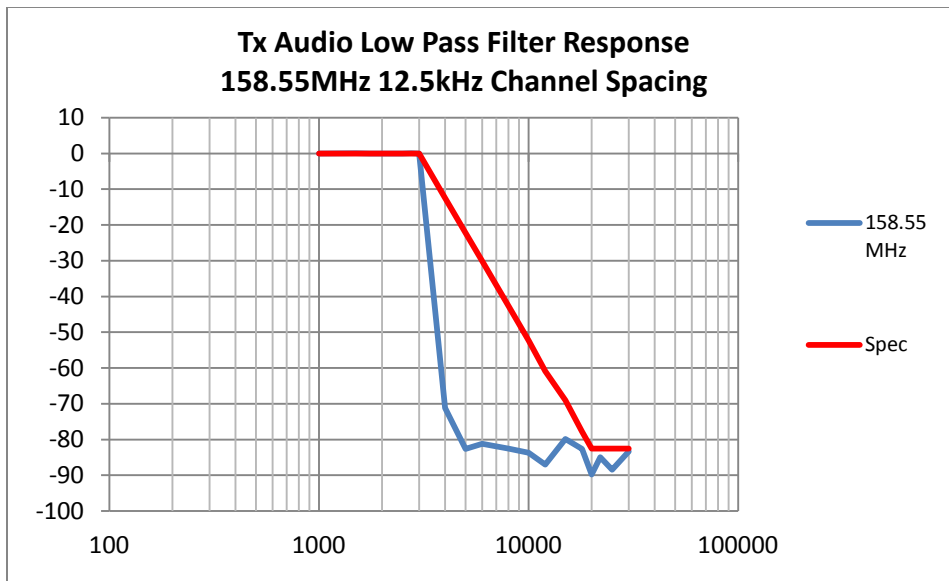


Figure 6C-1: 12.5 kHz Channel Spacing, 158.55MHz, Transmit Audio Low Pass Filter Response

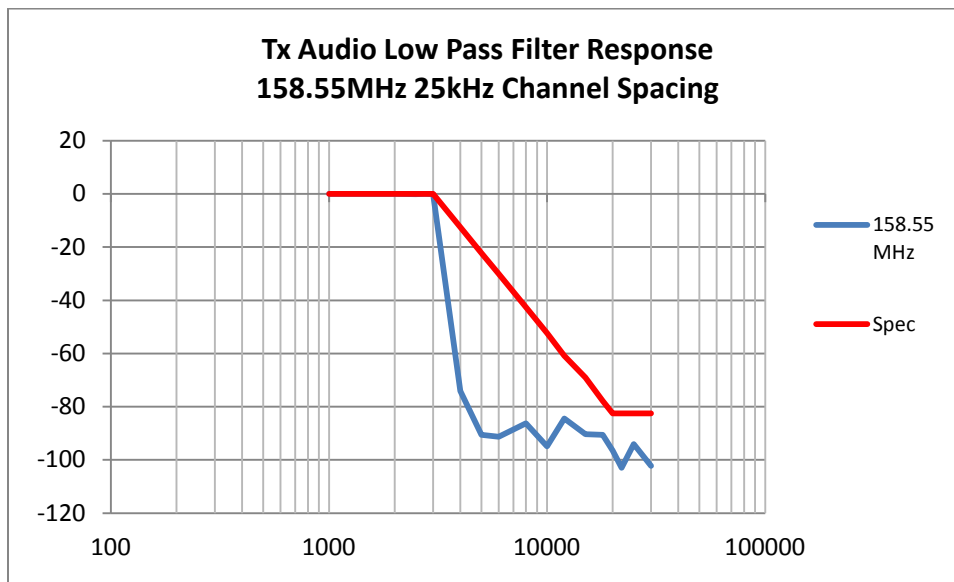


Figure 6C-2: 25 kHz Channel Spacing, 158.55MHz, Transmit Audio Low Pass Filter Response (Part 22, 80)

EXHIBIT 6D

Modulation Limiting

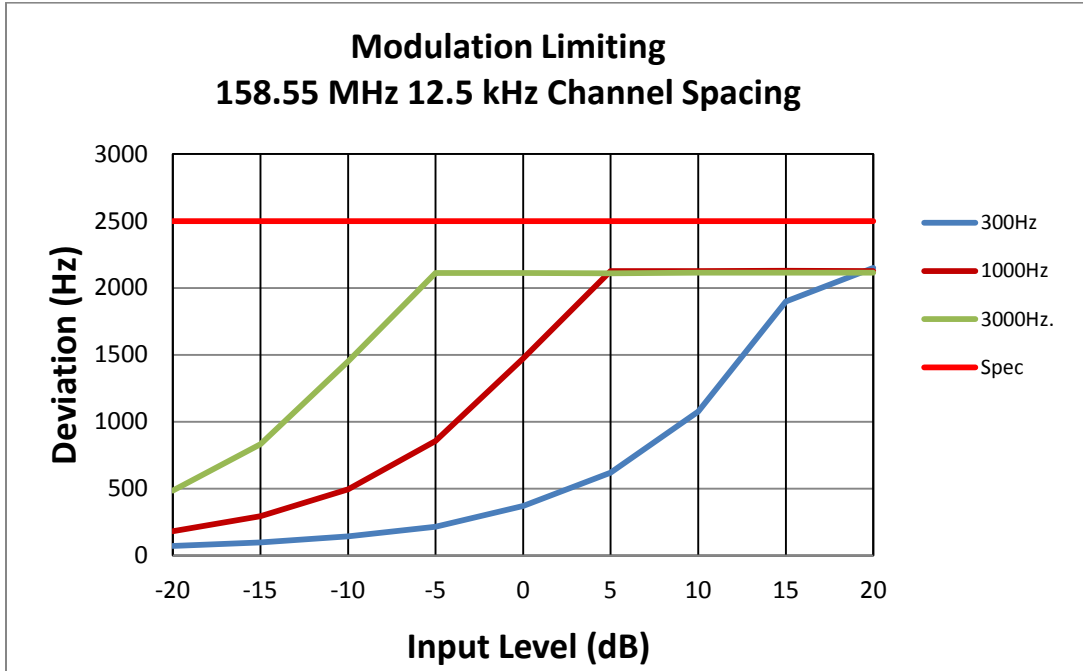


Figure 6D-1: 12.5 kHz Channel Spacing, 158.55MHz, Modulation Limiting

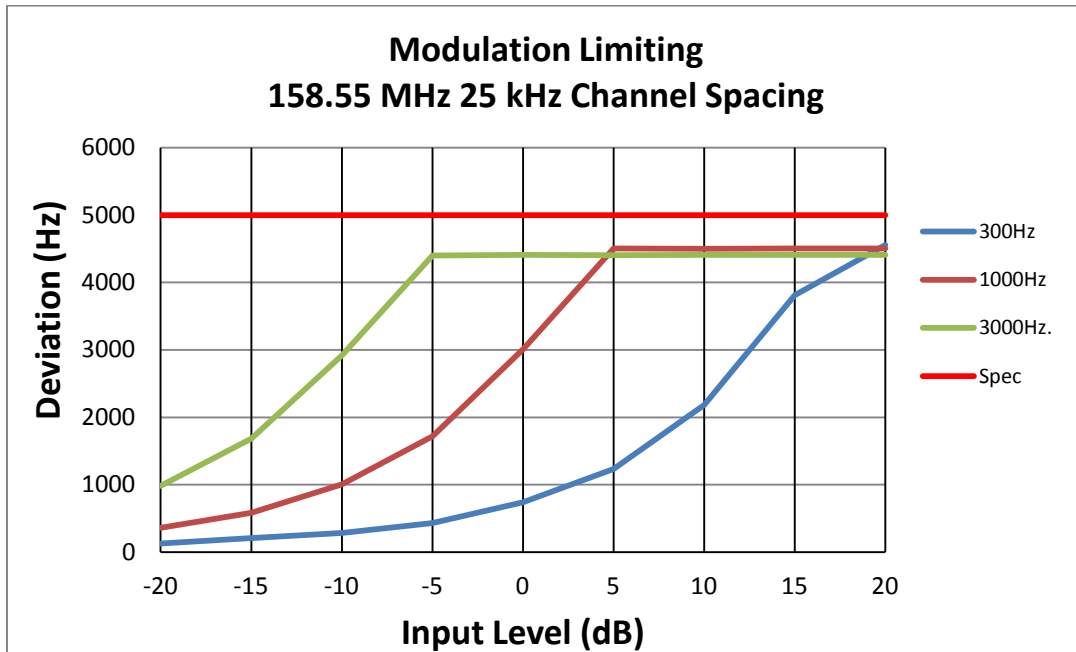


Figure 6D-2: 25 kHz Channel Spacing, 158.55MHz, Modulation Limiting (Part 22, 80)

EXHIBIT 6E

Standard Audio Modulation (25 kHz Channelization, Analog Voice) (Not for FCC Review)

Per CFR Title 47, Part 2, Section 2.201, the Carson’s Rule calculation for necessary bandwidth, $BW = 2M + 2DK$, where M = maximum modulating frequency in Hz, D = peak deviation in Hz, and $K=1$, is as follows:

In this case the maximum modulating frequency is 3.0 kHz with a 5.0 kHz deviation.

$BW = 2(M+D) = 2*(3.0 \text{ kHz} + 5.0 \text{ kHz}) = 16 \text{ kHz}$ (**16K0** designator)

Per CFR Title 47, Part 2, Section 2.201:

Frequency Modulation.....	F
A single channel containing analogue information	3
Telephony (including sound broadcasting).....	E

The complete emissions designator for this transmitter is **16K0F3E**.

Standard Audio Modulation (12.5 kHz Channelization, Analog Voice)

Per CFR Title 47, Part 2, Section 2.201, the Carson’s Rule calculation for necessary bandwidth, $BW = 2M + 2DK$, where M = maximum modulating frequency in Hz, D = peak deviation in Hz, and $K=1$, is as follows:

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

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

Per CFR Title 47, Part 2, Section 2.201:

Frequency Modulation.....	F
A single channel containing analogue information	3
Telephony (including sound broadcasting).....	E

The complete emissions designator for this transmitter is **11K0F3E**.

4 Level FSK Digital Modulation Techniques

The modulation sends 4800 symbols/sec with each symbol conveying 2 bits of information for a data rate of 9600 bps in a 12.5 kHz channel, which is equivalent to 4800 bps per 6.25kHz. The maximum deviation D , of the symbol is defined as:

$$D = 3h / 2T$$

where:

h is the deviation index defined for the modulation

T is the symbol time (1/4800) in seconds

The deviation index, h , is 0.27. This yields a symbol deviation of 1.944 kHz at the symbol center. The mapping between symbols and bits is shown below:

Information Bits		Symbol	4FSK Deviation
Bit 1	Bit 0		
0	1	+3	+1.944 kHz
0	0	+1	+0.648 kHz
1	0	-1	-0.648 kHz
1	1	-3	-1.944 kHz

A Square Root Raised Cosine Filter is implemented for the modulation low pass filter. The input to the modulation low pass filter consists of a series of impulses separated in time by 208.33 microseconds (1/4800 sec). The group delay of the filter is flat over the passband for $|f| < 2880$ Hz. The magnitude response of the filter is given by the following formula.

$|F(f)|$ = magnitude response of the Square Root Raised Cosine Filter

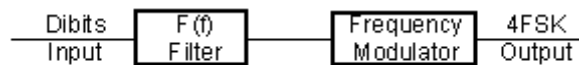
$|F(f)| = 1$ for $|f| \leq 1920$ Hz

$|F(f)| = |\cos(\pi \cdot f / 1920)|$ for $1920 \text{ Hz} < |f| < 2880 \text{ Hz}$

$|F(f)| = 0$ for $|f| > 2880$ Hz

where f = frequency in hertz.

The 4FSK modulator consists of a Square Root Raised Cosine Filter, cascaded with a frequency modulator.



4 Level FSK Digital Modulation (12.5 kHz Channelization, Digital Data)

Measurement's per Rule Part 2.202(c)(4) where employed because Part 2.202(g) Table III A formulation produces an excessive result using the value of K recommended in the Table. Therefore, the 99% energy rule (Title 47 CFR 2.989) was used for digital mode and is more accurate than Carson's rule. It states that 99% of the modulation energy falls within X kHz, which in this case is 7.6 kHz (**7K60** designator).

Per CFR Title 47, Part 2, Section 2.201:

Frequency Modulation..... **F**

A single channel containing quantized or digital information without the use of a modulating sub-carrier, excluding time-division multiplex..... **1**

Data Transmission, telemetry, telecommand
D

Note: This product utilizes a Time Division Multiple Access (TDMA) protocol.

The complete emissions designator for this transmitter is **7K60F1D**.

4 Level FSK Digital Modulation (12.5 kHz Channelization, Digital Voice and Data)

Measurement's per Rule Part 2.202(c)(4) where employed because Part 2.202(g) Table III A formulation produces an excessive result using the value of K recommended in the Table. Therefore the 99% energy rule (title 47CFR2.989) was used for digital mode and is more accurate than Carson's rule. It states that 99% of the modulation energy falls within X kHz, which in this case is 7.6 kHz (**7K60** designator).

Per CFR Title 47, Part 2, Section 2.201:

Frequency Modulation.....
F
A single channel containing quantized or digital information without the use of a modulating sub-carrier, excluding time-division multiplex.....
1
Telephony (including sound broadcasting).....
E

Note: This product utilizes a Time Division Multiple Access (TDMA) protocol.

The complete emissions designator for this transmitter is **7K60F1E**.

Digital (12.5 kHz Channelization, Digital TDMA)

Measurement's per Rule Part 2.202(c)(4) where employed because Part 2.202(g) Table III A formulation produces an excessive result using the value of K recommended in the Table. Therefore the 99% energy rule (title 47CFR2.989) was used for digital mode and is more accurate than Carson's rule. It states that 99% of the modulation energy falls within X kHz, which in this case is 7.6 kHz (**7K60** designator).

Per CFR Title 47, Part 2, Section 2.201:

Frequency Modulation.....
F
A single channel containing quantized or digital information without the use of a modulating sub-carrier, excluding time-division multiplex.....
1
Combination of Data Transmission, telemetry, telecommand (D), and Telephony (E)
...W

Note: This product utilizes a Time Division Multiple Access (TDMA) protocol.

The complete emissions designator for this transmitter is **7K60F1W**.

4 Level FSK Digital Modulation (12.5 kHz Channelization, Digital Data)

Measurement's per Rule Part 2.202(c)(4) where employed because Part 2.202(g) Table III A formulation produces an excessive result using the value of K recommended in the Table. Therefore, the 99% energy rule (Title 47 CFR 2.989) was used for digital mode and is more accurate than Carson's rule. It states that 99% of the modulation energy falls within X kHz, which in this case is 7.6 kHz (**7K60** designator).

Per CFR Title 47, Part 2, Section 2.201:

Frequency Modulation.....	F
Case not otherwise covered.....	X
Data Transmission, telemetry, telecommand.....	D

Note: This product utilizes a Time Division Multiple Access (TDMA) protocol.

The complete emissions designator for this transmitter is **7K60FXD**.

4 Level FSK Digital Modulation (12.5 kHz Channelization, Digital Voice and Data)

Measurement's per Rule Part 2.202(c)(4) where employed because Part 2.202(g) Table III A formulation produces an excessive result using the value of K recommended in the Table. Therefore the 99% energy rule (title 47CFR2.989) was used for digital mode and is more accurate than Carson's rule. It states that 99% of the modulation energy falls within X kHz, which in this case is 7.6 kHz (**7K60** designator).

Per CFR Title 47, Part 2, Section 2.201:

Frequency Modulation.....	F
Case not otherwise covered.....	X
Telephony (including sound broadcasting).....	E

Note: This product utilizes a Time Division Multiple Access (TDMA) protocol.

The complete emissions designator for this transmitter is **7K60FXE**.

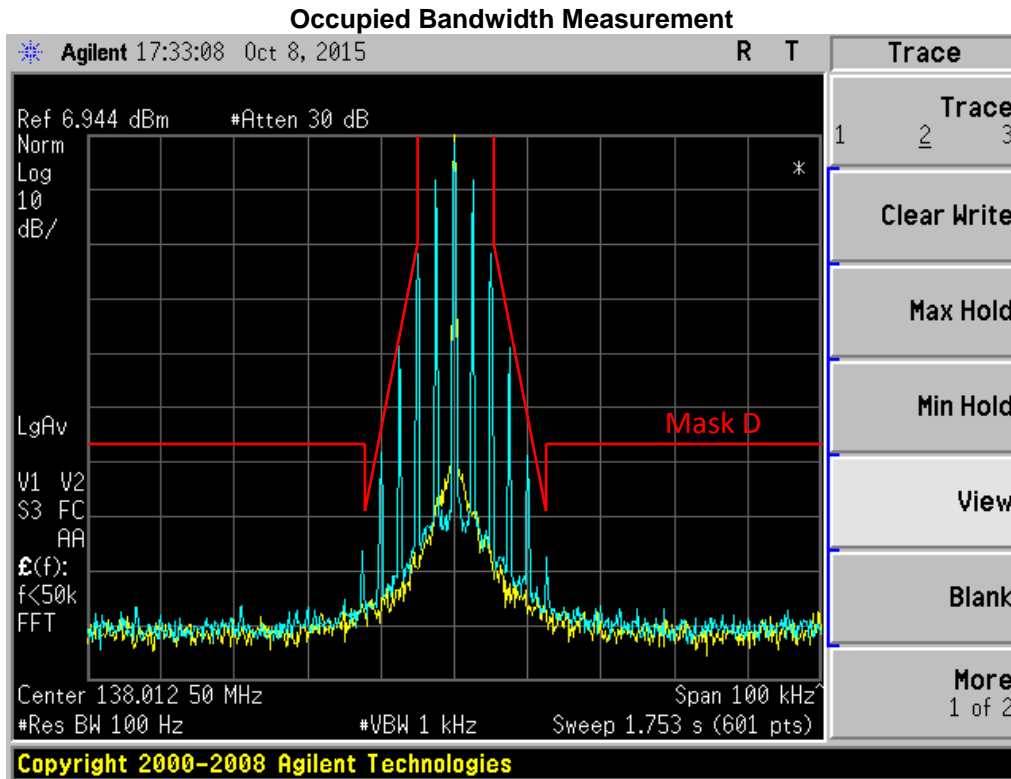


Figure 6E-1: 138.0125 MHz, 12.5 kHz Channel Spacing, 2500Hz Audio Modulation only, 11K0F3E Mask D (Not applicable for FCC)

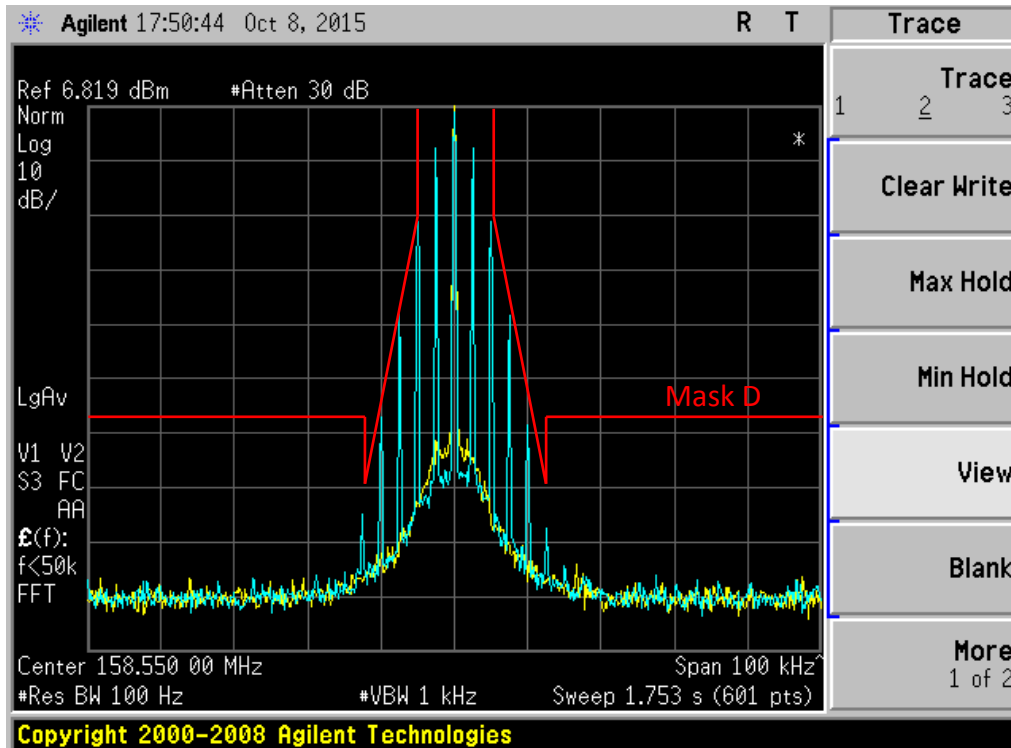


Figure 6E-2: 158.55 MHz, 12.5 kHz Channel Spacing, 2500Hz Audio Modulation only, 11K0F3E Mask D

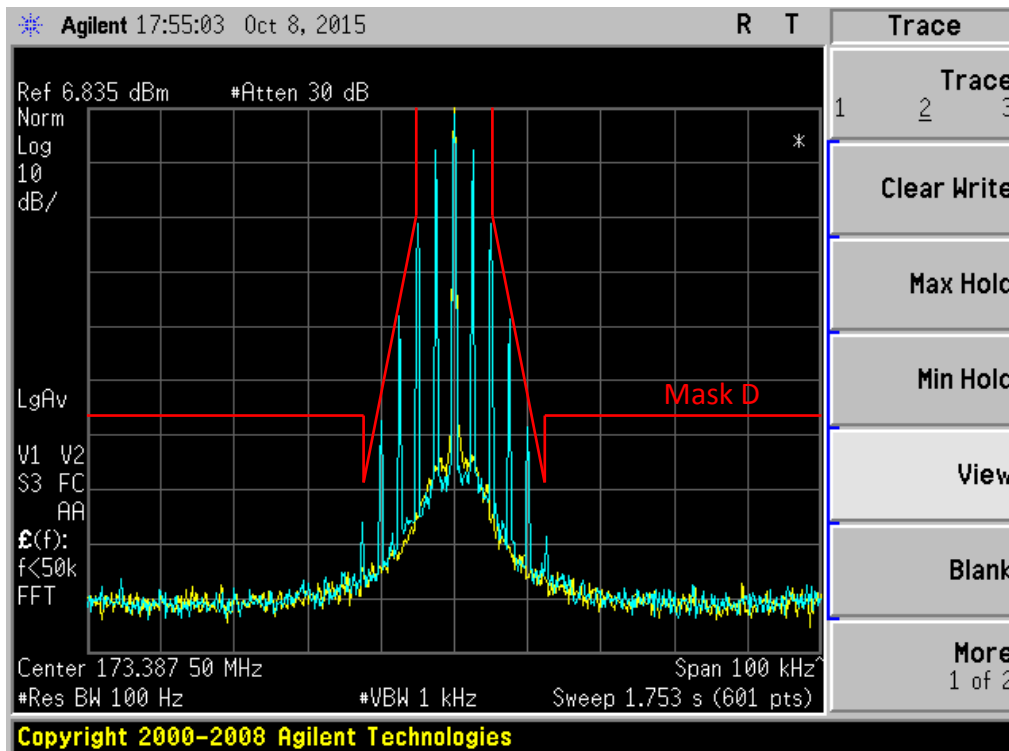


Figure 6E-3: 173.3875 MHz, 12.5 kHz Channel Spacing, 2500Hz Audio Modulation only, 11K0F3E Mask D

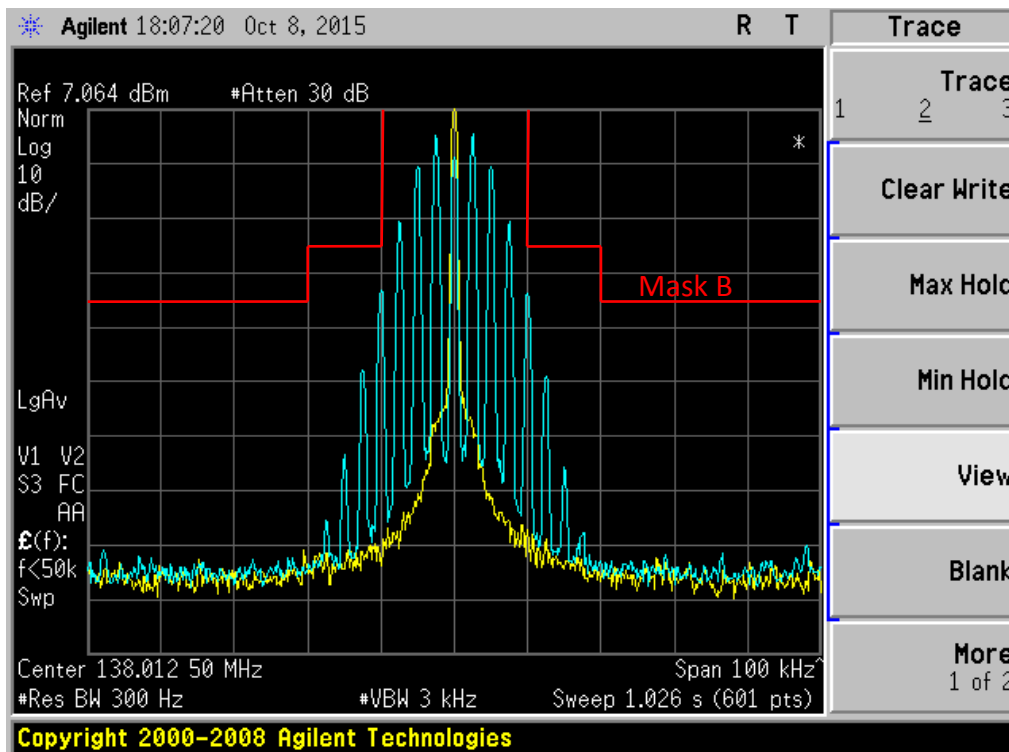


Figure 6E-4: 138.0125 MHz, 25 kHz Channel Spacing, 2500Hz Audio Modulation only, 16K0F3E Mask B (Not applicable for FCC)

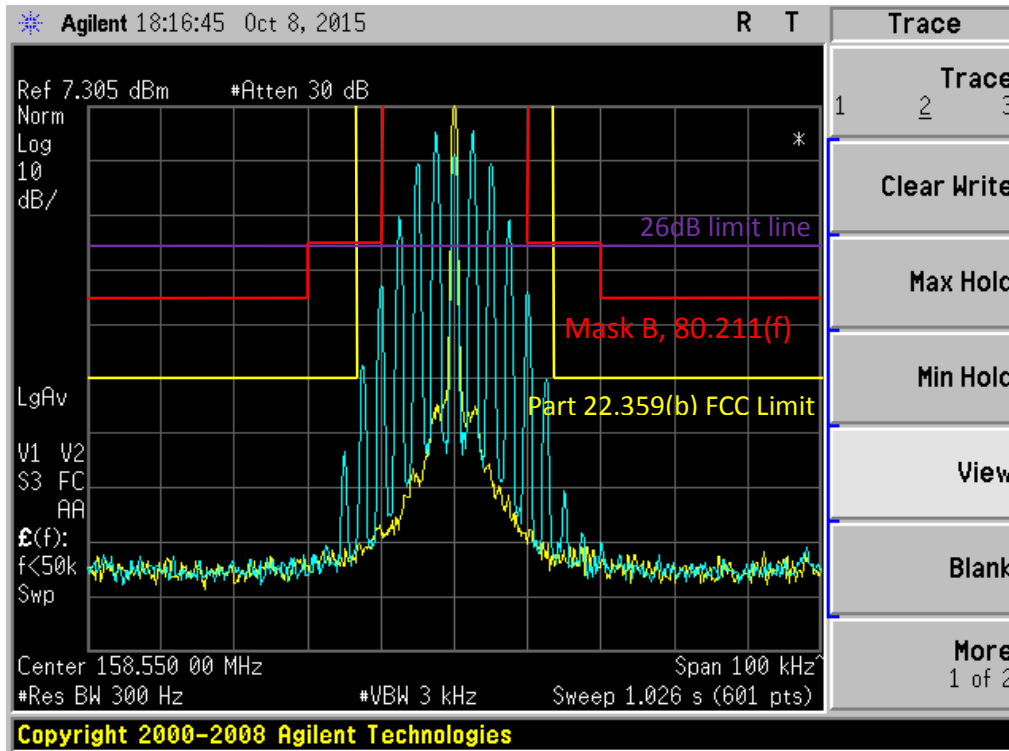


Figure 6E-5: 158.55 MHz, 25 kHz Channel Spacing, 2500Hz Audio Modulation only, 16K0F3E Mask B, 80.211(f), Part 22.359(b) FCC limit (Part 22, 80)

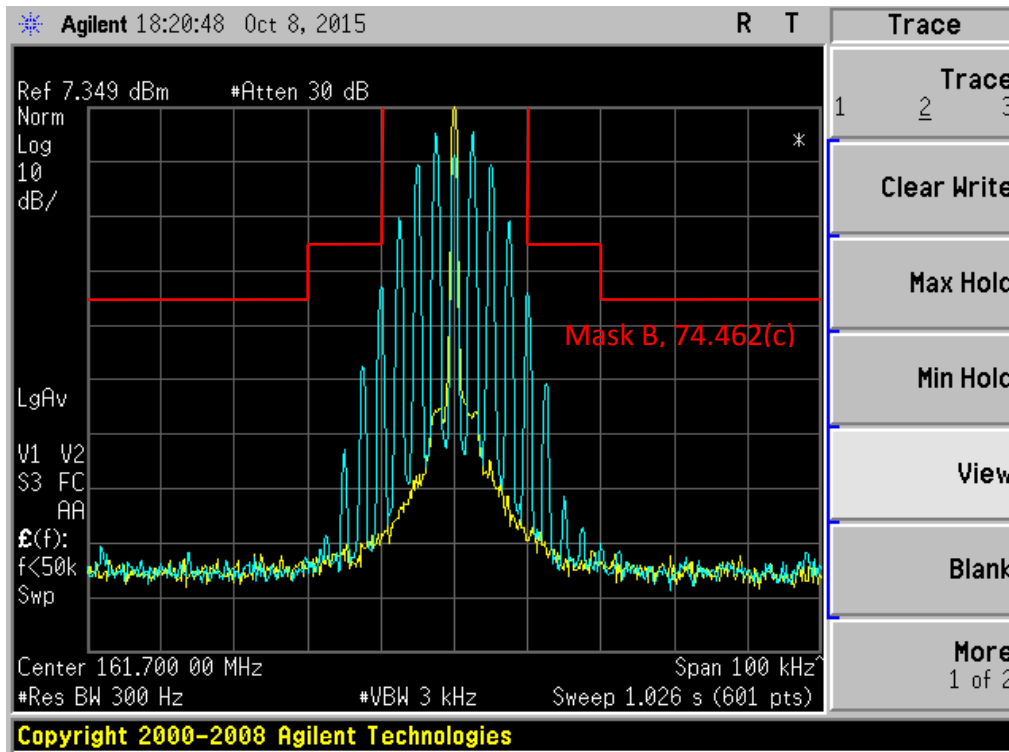


Figure 6E-6: 161.7 MHz, 25 kHz Channel Spacing, 2500Hz Audio Modulation only, 16K0F3E Mask B, 74.462(c) (Part 74)

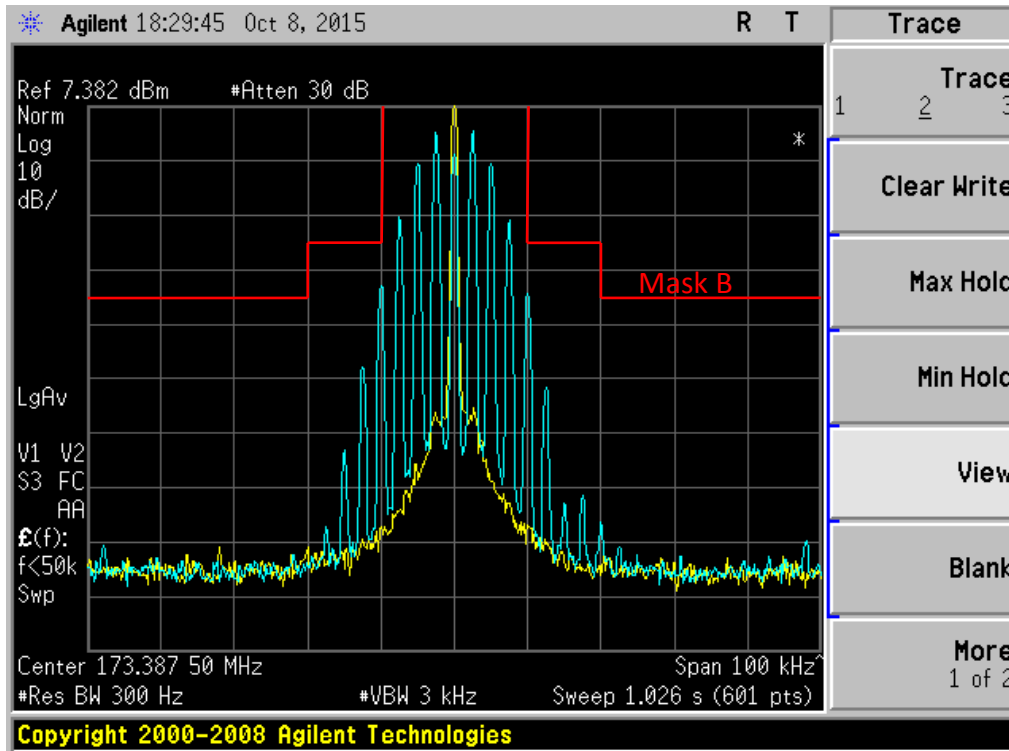


Figure 6E-7: 173.3875 MHz, 25 kHz Channel Spacing, 2500Hz Audio Modulation only, 16K0F3E Mask B (Not applicable for FCC Part 90)

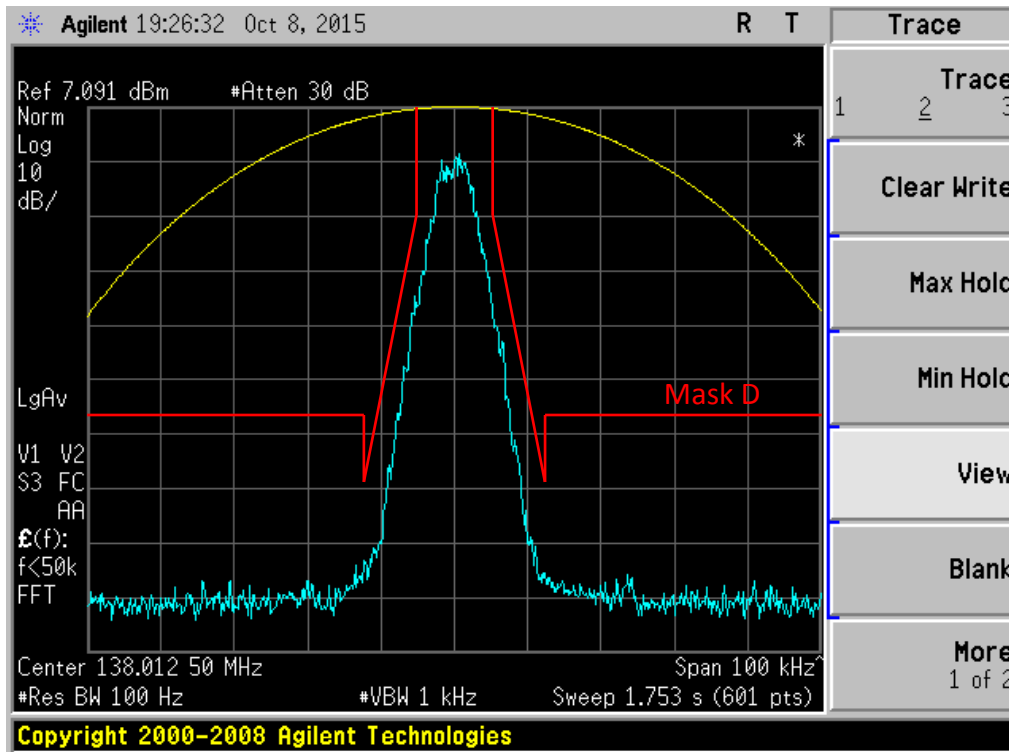


Figure 6E-8: 138.0125 MHz, O.153 Test Pattern 4FSK Voice Modulation Only, 7K60F1E Mask D (Not applicable for FCC)

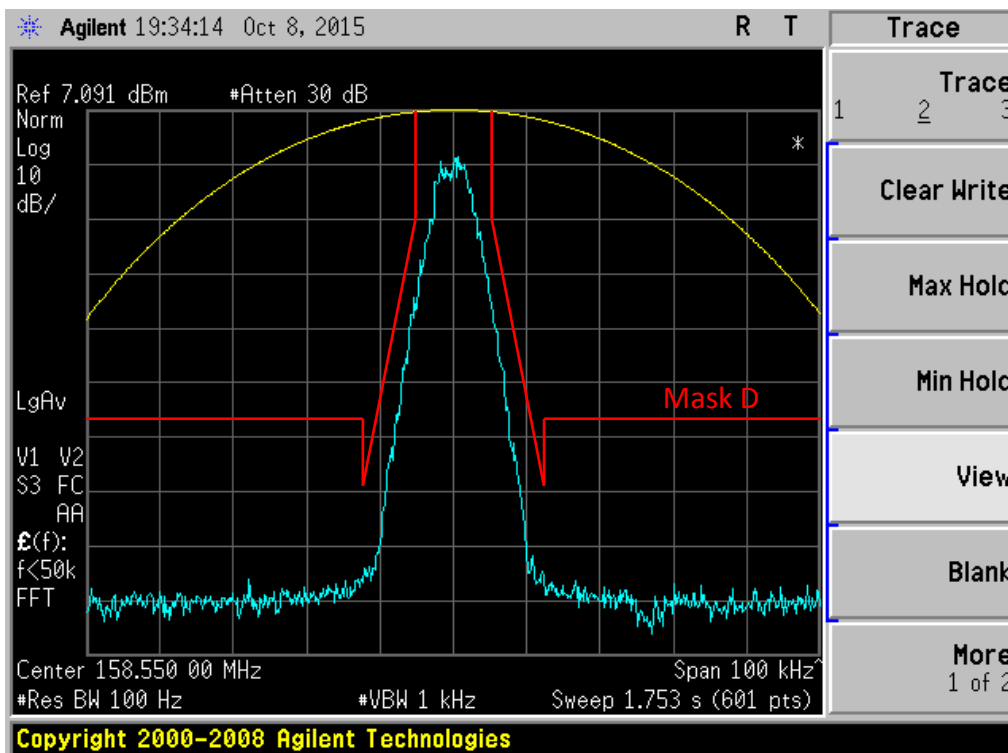


Figure 6E-9: 158.55 MHz, O.153 Test Pattern 4FSK Voice Modulation Only, 7K60F1E Mask D

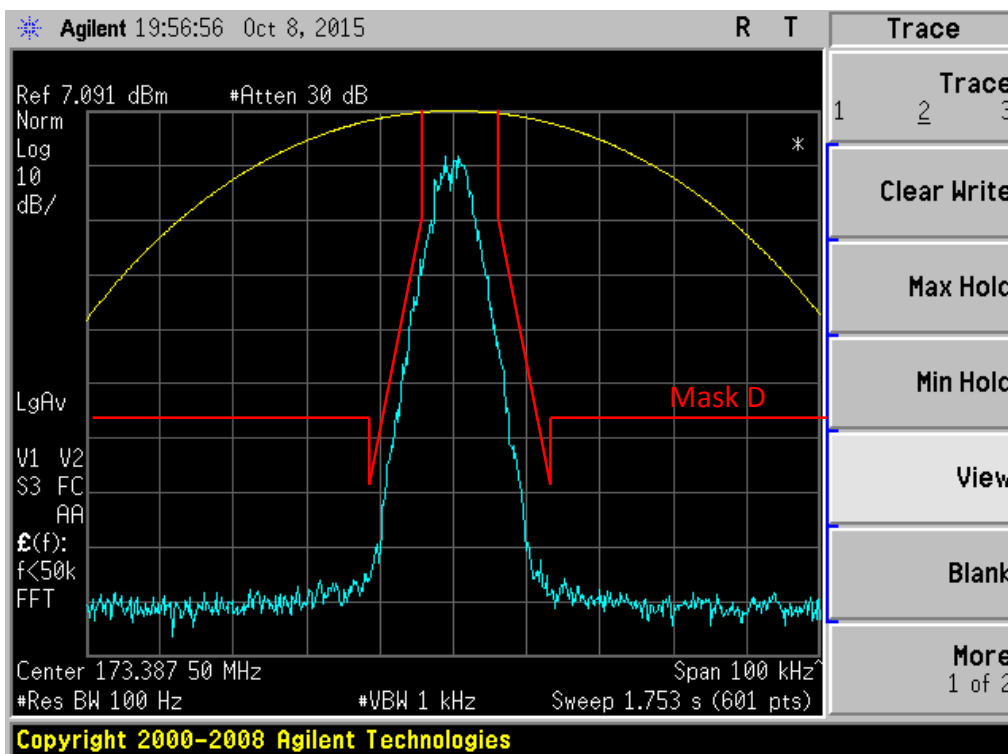


Figure 6E-10: 173.3875 MHz, O.153 Test Pattern 4FSK Voice Modulation Only, 7K60F1E Mask D

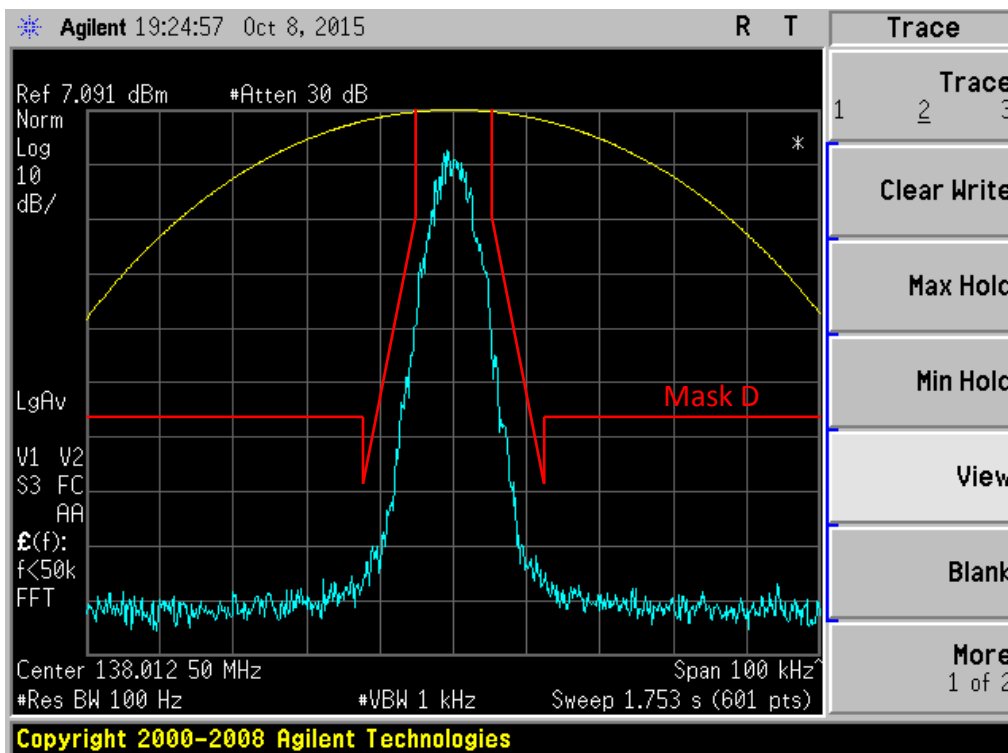


Figure 6E-11: 138.0125 MHz, O.153 Test Pattern 4FSK Data Modulation Only, 7K60F1D Mask D (Not applicable for FCC)

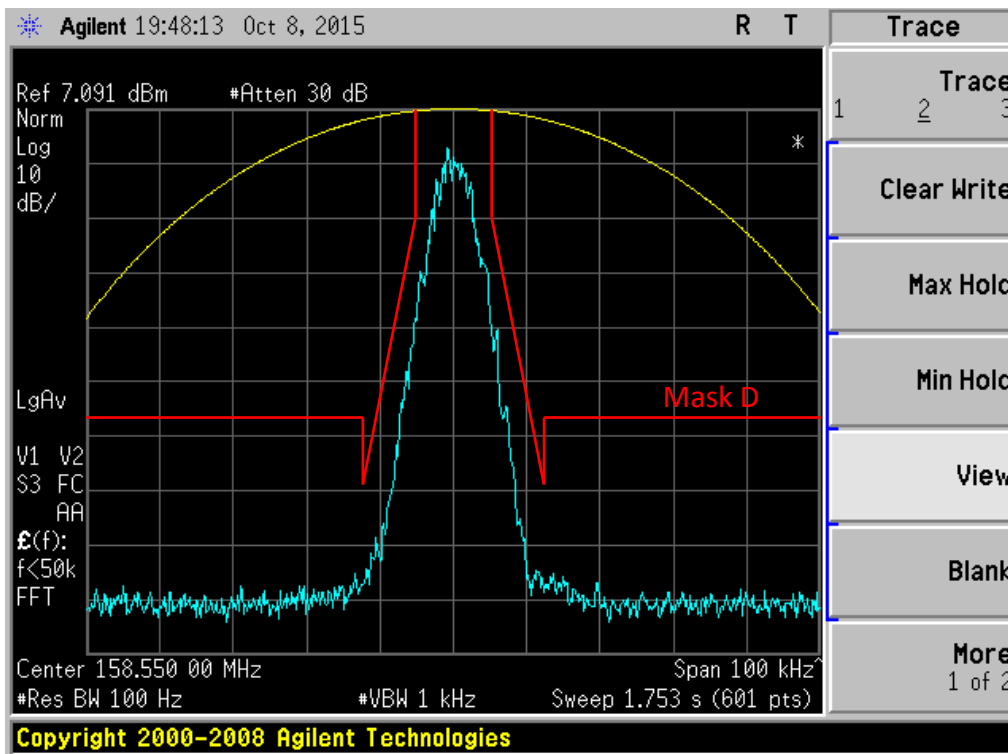


Figure 6E-12: 158.55 MHz, O.153 Test Pattern 4FSK Data Modulation Only, 7K60F1D Mask D

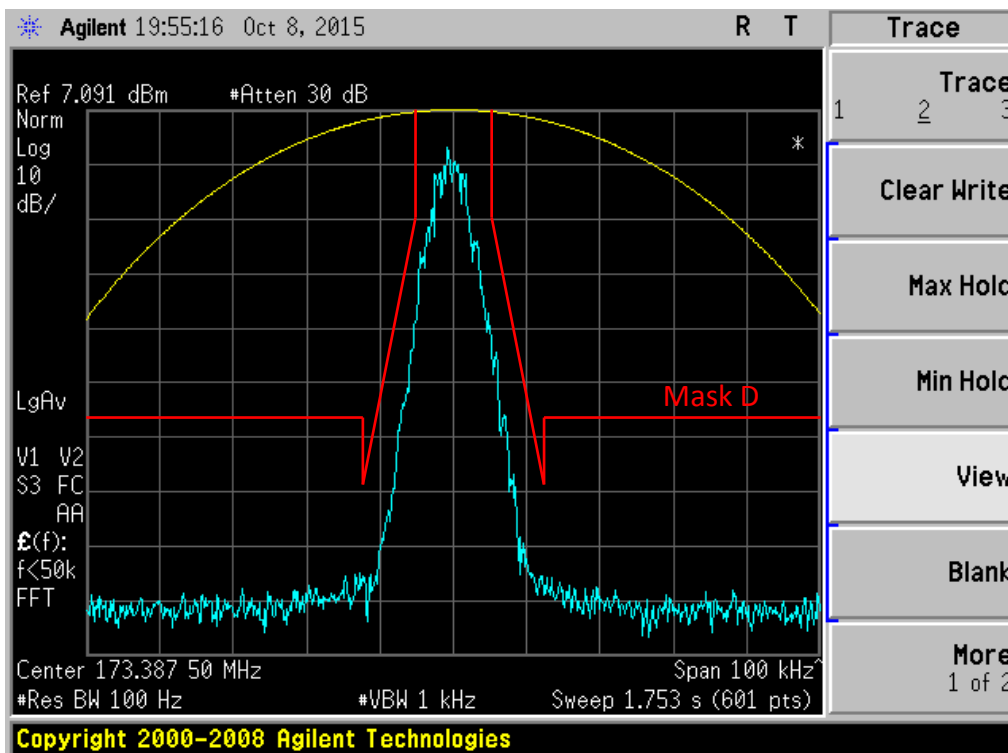


Figure 6E-13: 173.3875 MHz, O.153 Test Pattern 4FSK Data Modulation Only, 7K60F1D Mask D

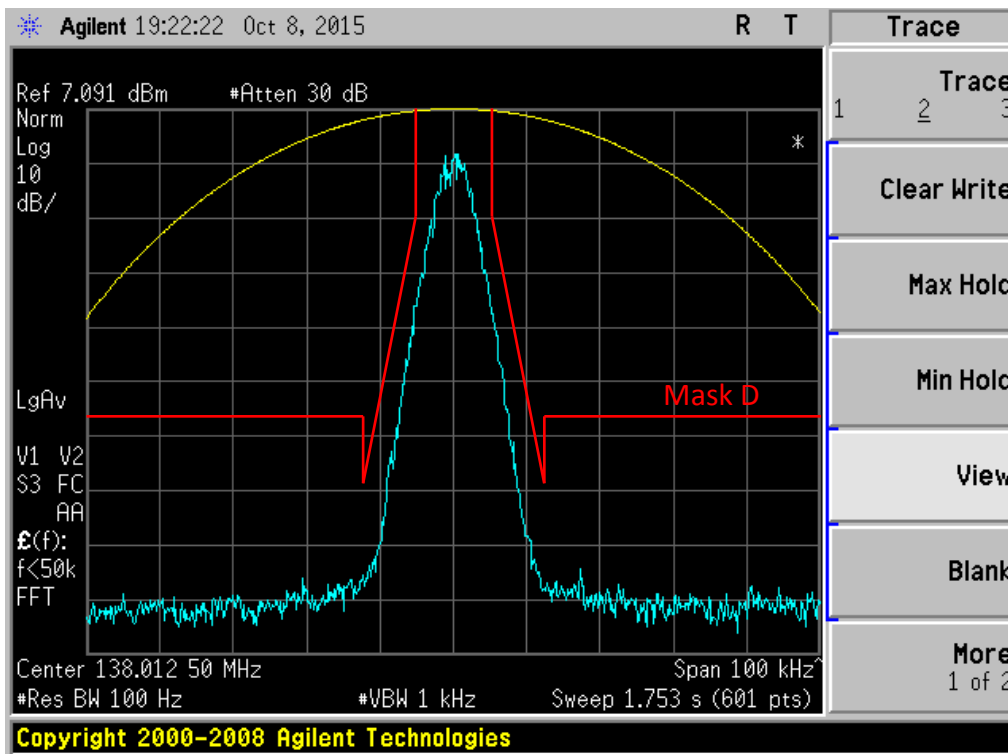


Figure 6E-14: 138.0125 MHz, O.153 Test Pattern 4FSK Voice and Data Modulation Only, 7K60F1W Mask D (Not applicable for FCC)

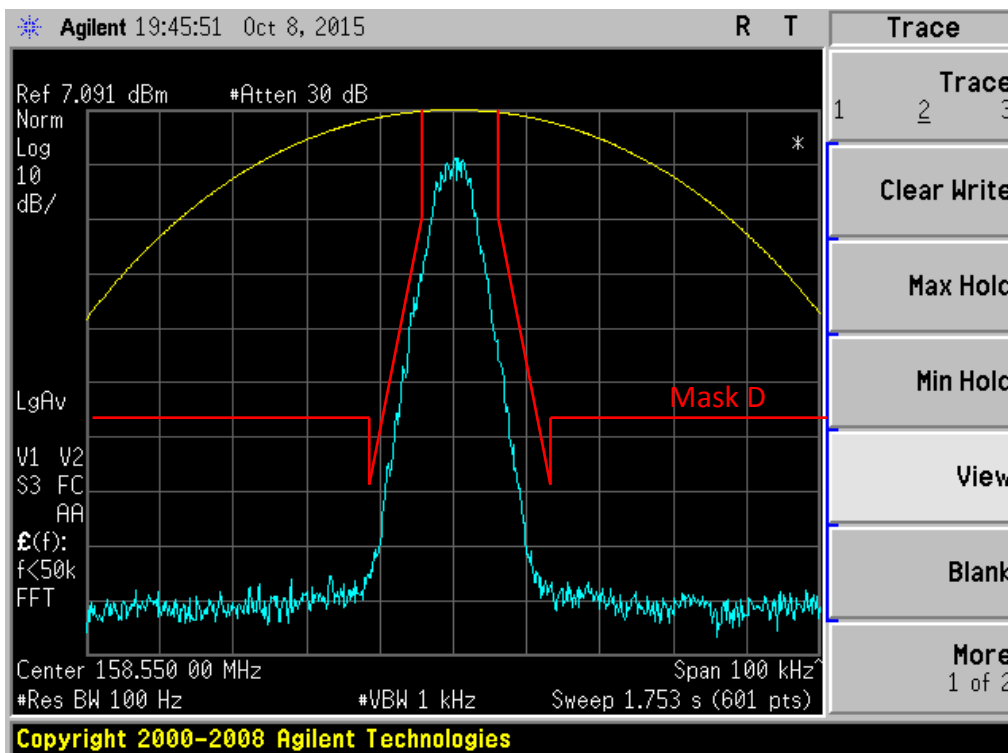


Figure 6E-15: 158.55 MHz, O.153 Test Pattern 4FSK Voice and Data Modulation Only, 7K60F1W Mask D

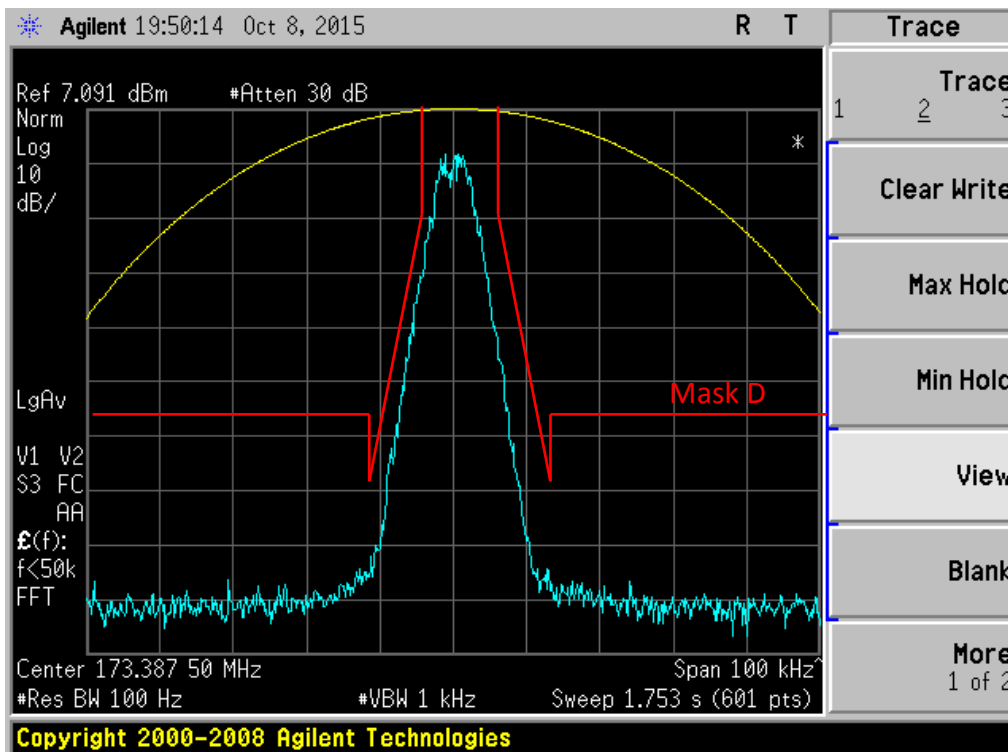


Figure 6E-16: 173.3875 MHz, O.153 Test Pattern 4FSK Voice and Data Modulation Only, 7K60F1W Mask D

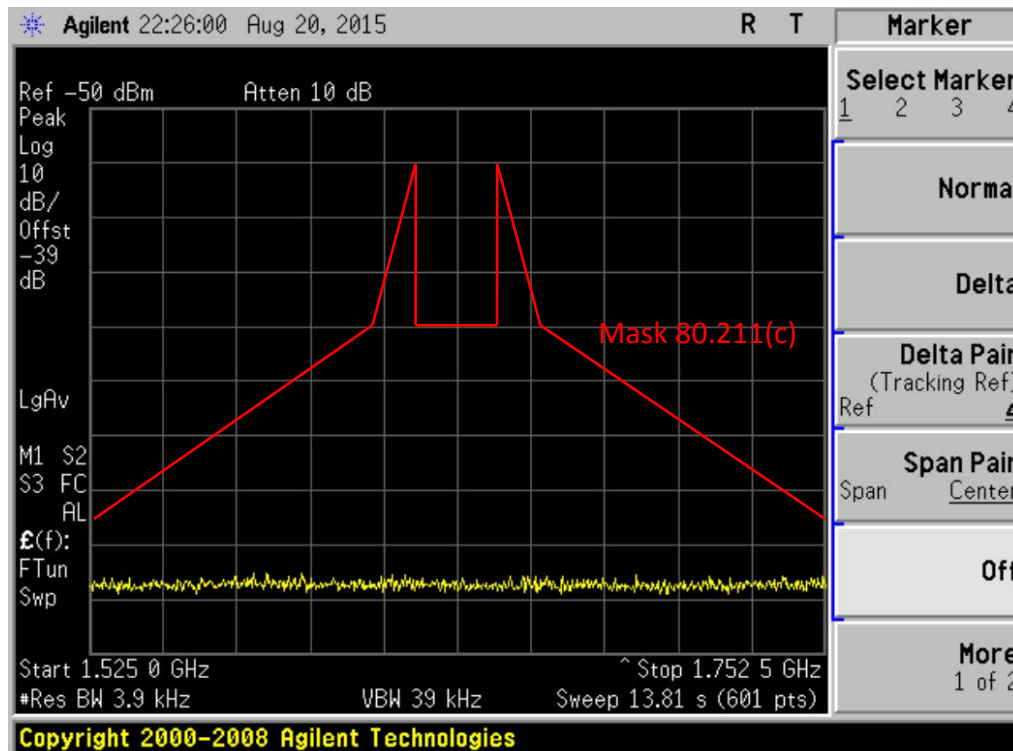


Figure 6E-17: 158.55 MHz, 25 kHz, 2500 Hz Audio Modulation Only, 16K0F3E Mask 80.211(c) (Part 80)

****NOTE:-**

- For 4FSK Digital Modulation, 12.5kHz Data 7K60F1D & 7K60FXD would be the same. Therefore only measurements with 7K60F1D shown above.
- For 4FSK Digital Modulation, 12.5kHz Data 7K60F1E & 7K60FXE would be the same. Therefore only measurements with 7K60F1E shown above
- All measurements of Occupied Bandwidth which are shown on the above plots are measured using a Spectrum Analyzer
- Measurement using a Spectrum Analyzer must use 30dB attenuation in order to avoid damage to it
- Therefore the reference power level (Ref) shown on each plot refers to its true power level
- All OBW plots were tested at max power

99% Bandwidth Power

Spectrum Analyzer setting as below:
 RBW = 150 Hz, VBW = 15 kHz, Span = 40 kHz

Description	Bandwidth Power (99%)
Carrier, 4FSK data, O.153 test pattern, 7K60F1D, 7K60F1E, 7K60F1W, 7K60FXD, 7K60FXE	7.29kHz
Carrier, 2500 Hz Audio only 12.5kHz channel, 11K0F3E	9.43kHz
Carrier, 2500 Hz Audio only 25kHz channel, 16K0F3E	14.75kHz

EXHIBIT 6F

Transmitter Conducted Spurious Emissions

Note: Display lines on graphs correspond to the FCC limit of -13dBm (25 kHz) & -20dBm (12.5 kHz).

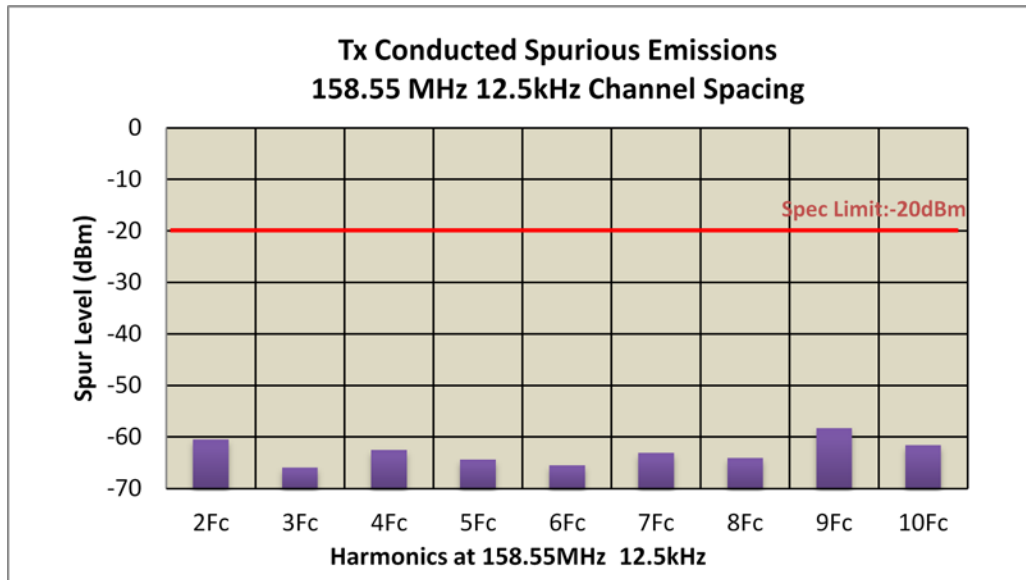


Figure 6F-1: 1W Harmonic of Carrier 158.55 MHz, 12.5 kHz Channel Spacing, Digital Mode

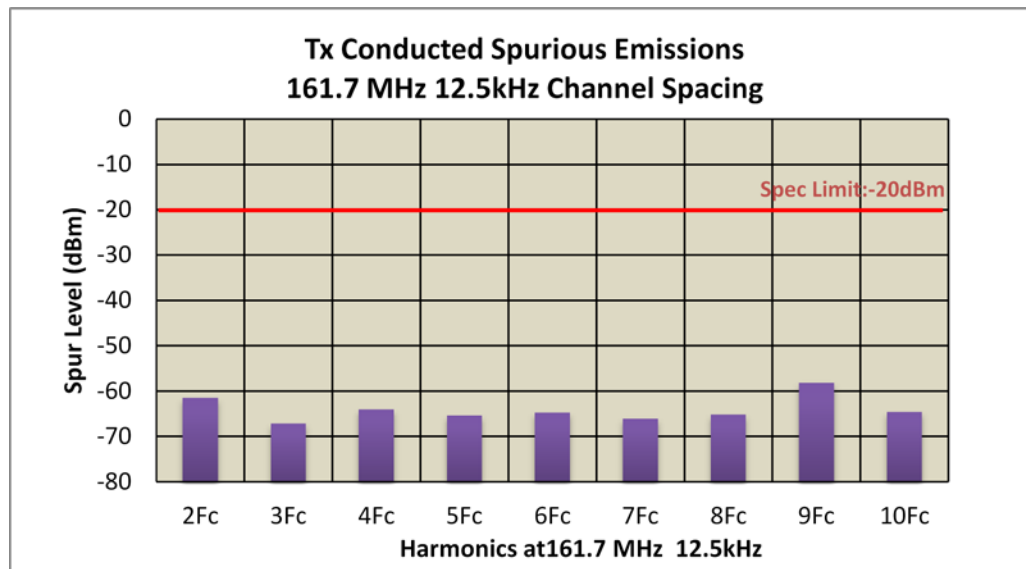


Figure 6F-2: 1W Harmonic of Carrier 161.7 MHz, 12.5 kHz Channel Spacing, Digital Mode

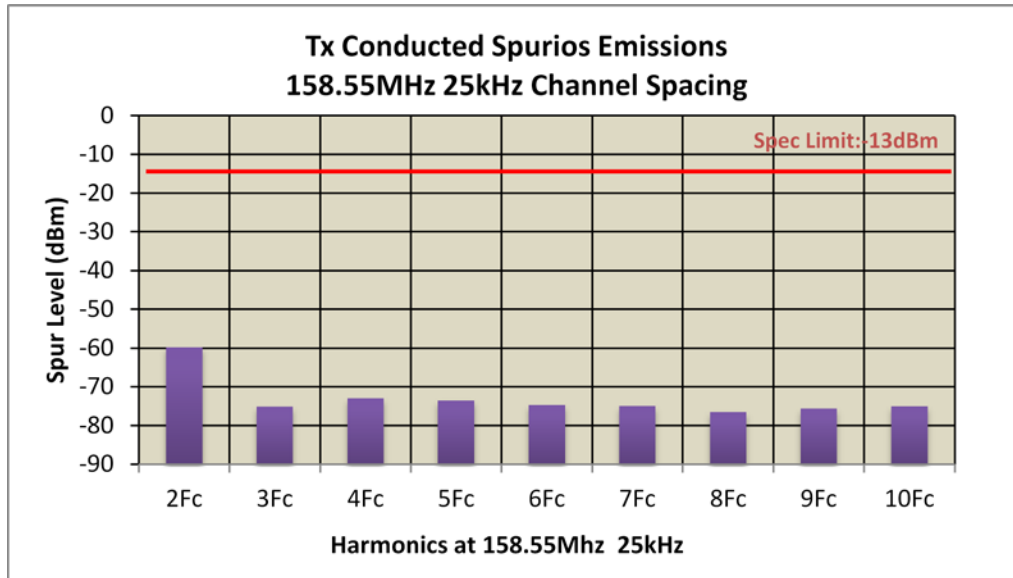


Figure 6F-3: 1W Harmonic of Carrier 158.55 MHz, 25 kHz Channel Spacing, Analog Mode (Part 22, 80)

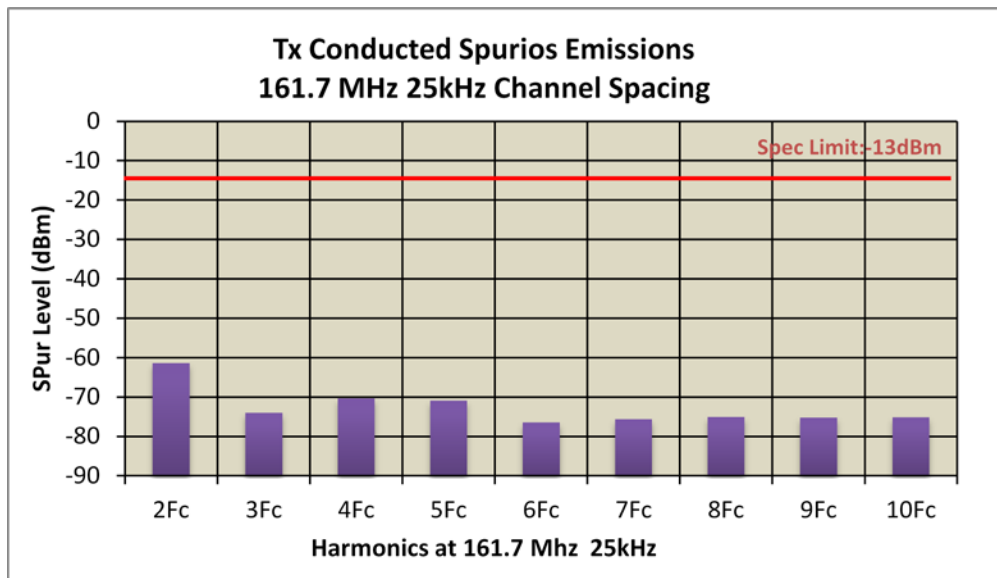


Figure 6F-4: 1W Harmonic of Carrier 161.7 MHz, 25 kHz Channel Spacing, Analog Mode (Part 74)

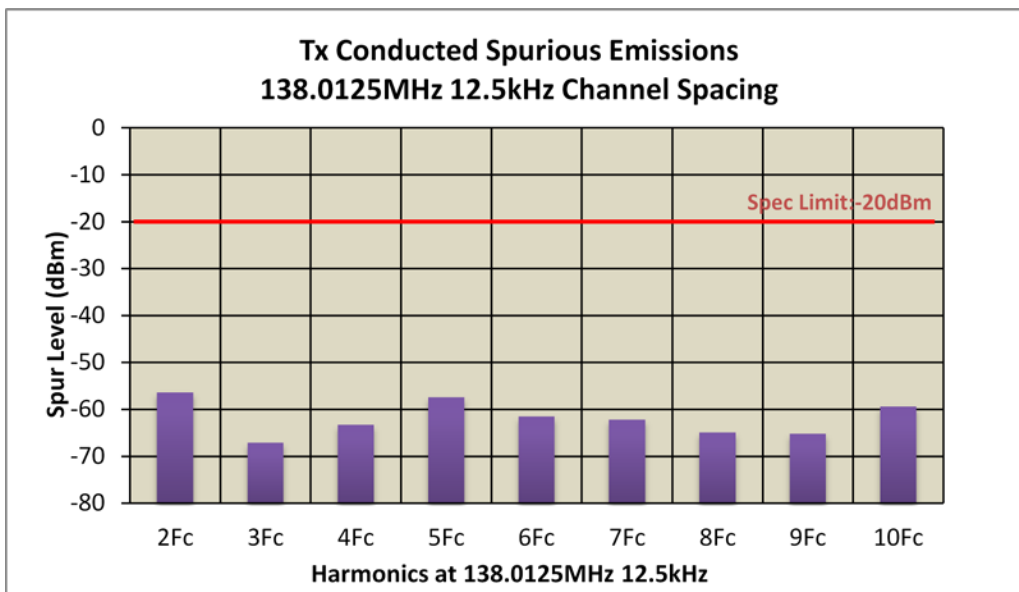


Figure 6F-5: 6W Harmonic of Carrier 138.0125 MHz, 12.5 kHz Channel Spacing, Digital Mode (Not applicable for FCC)

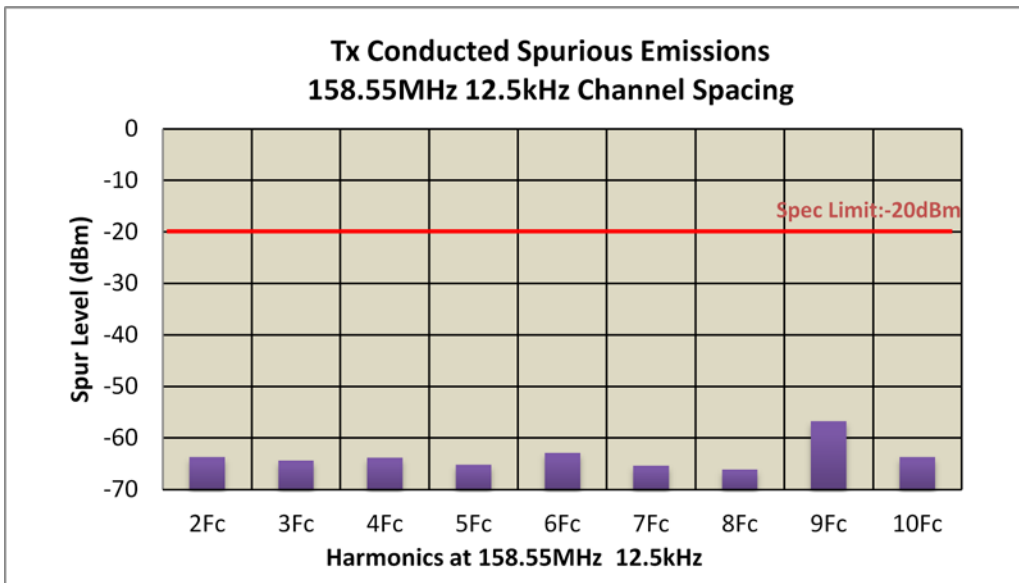


Figure 6F-6: 6W Harmonic of Carrier 158.55 MHz, 12.5 kHz Channel Spacing, Digital Mode

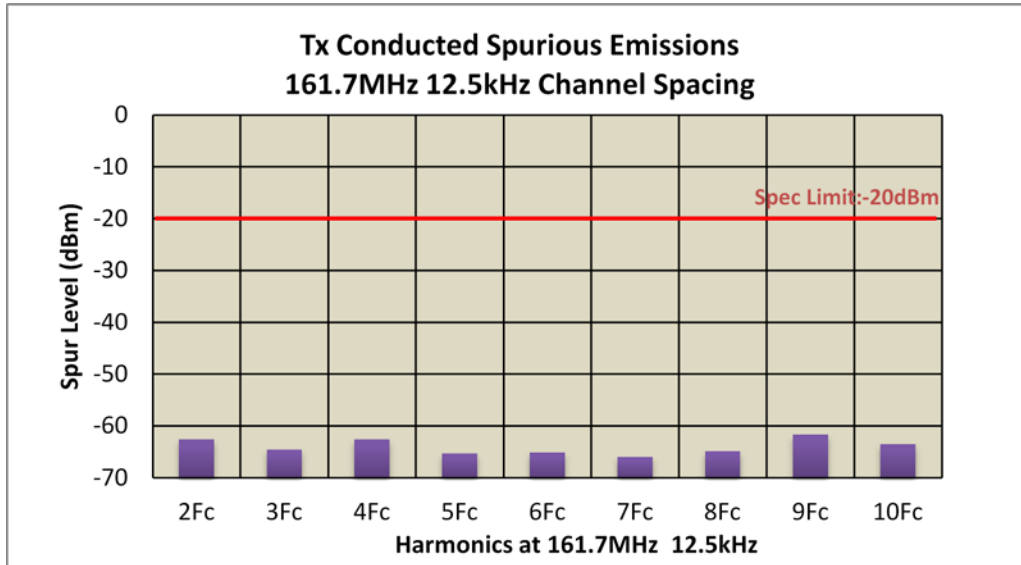


Figure 6F-7: 6W Harmonic of Carrier 161.7 MHz, 12.5 kHz Channel Spacing, Digital Mode

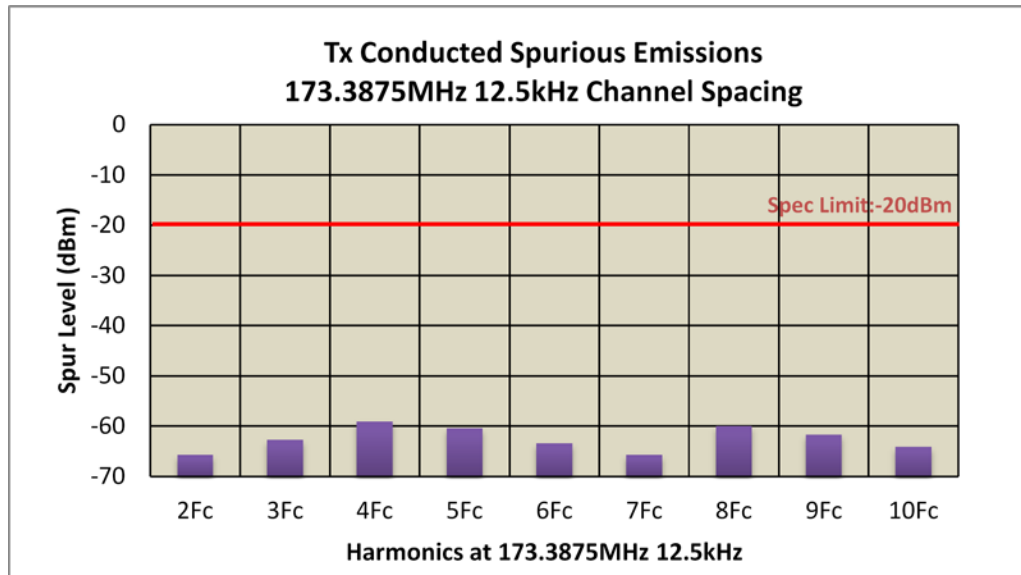


Figure 6F-8: 6W Harmonic of Carrier 173.3875 MHz, 12.5 kHz Channel Spacing, Digital Mode

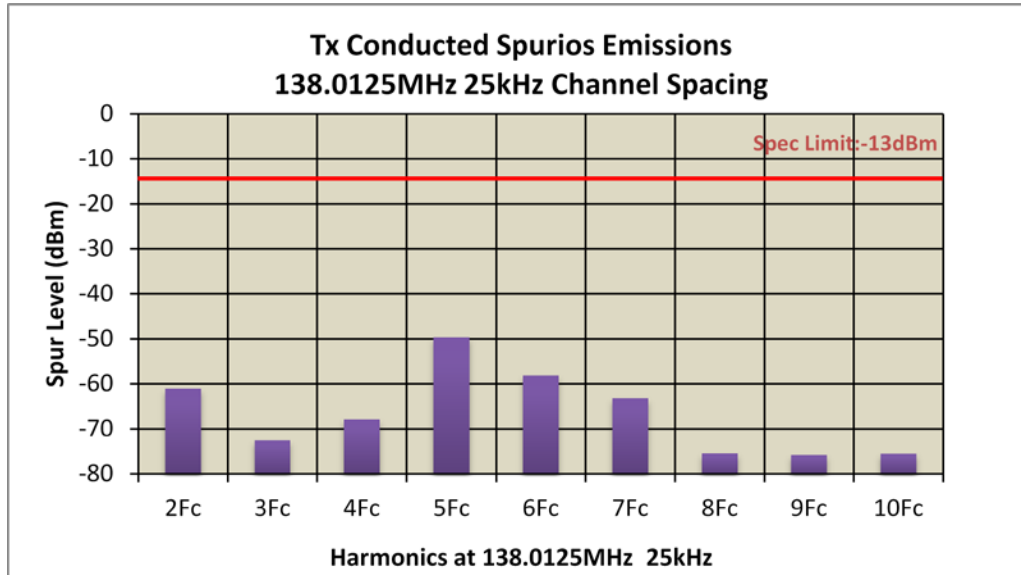


Figure 6F-9: 6W Harmonic of Carrier 138.0125 MHz, 25 kHz Channel Spacing, Analog Mode (Not applicable for FCC)

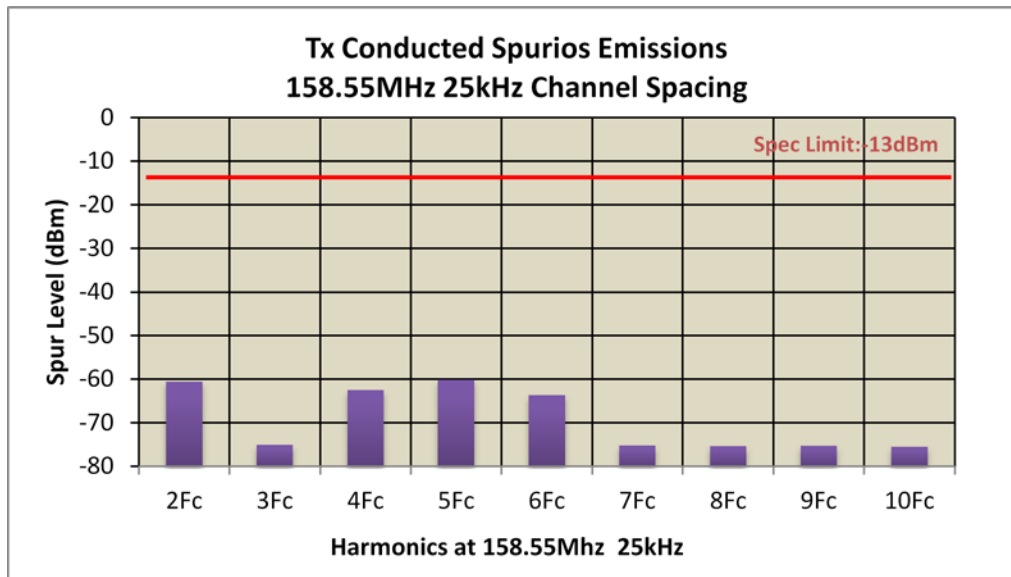


Figure 6F-10: 6W Harmonic of Carrier 158.55 MHz, 25 kHz Channel Spacing, Analog Mode (Part 22, 80)

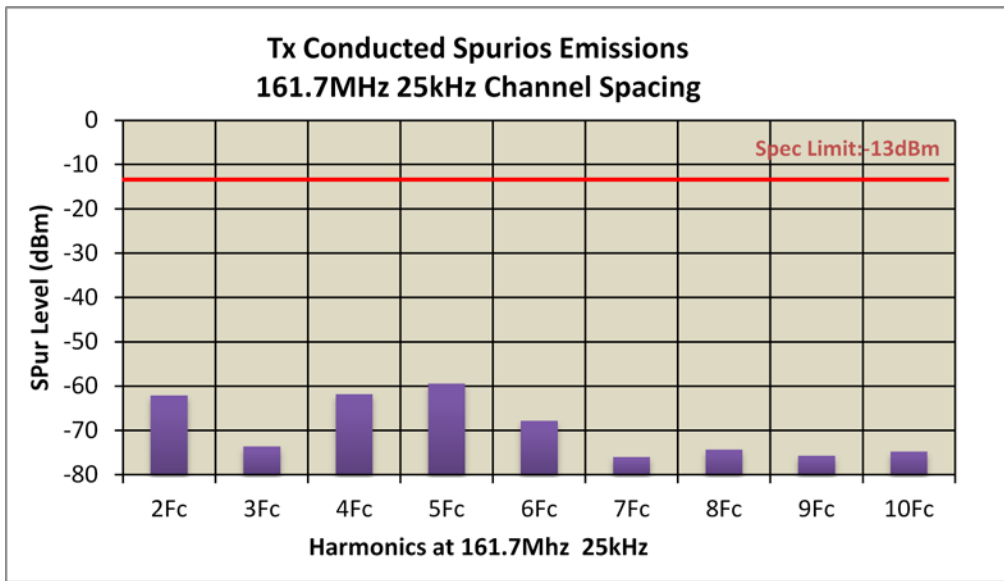


Figure 6F-11: 6W Harmonic of Carrier 161.7 MHz, 25 kHz Channel Spacing, Analog Mode (Part 74)

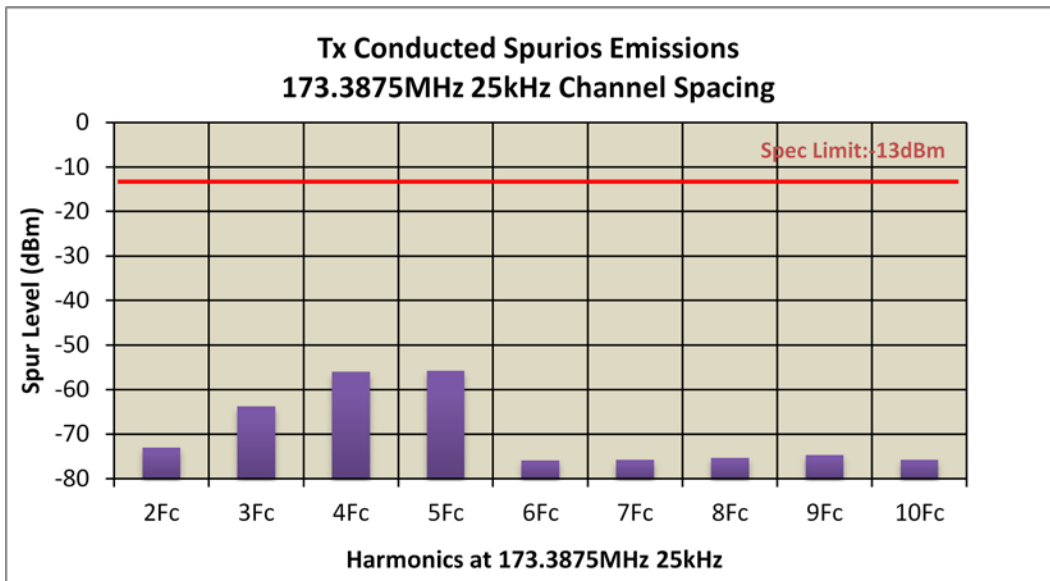


Figure 6F-12: 6W Harmonic of Carrier 173.3875 MHz, 25 kHz Channel Spacing, Analog Mode (Not applicable for FCC)

EXHIBIT 6G

Transmitter Radiated Spurious Emissions

For the transmitter radiated spurious emissions data, please refer to external test lab report FT7066_ex06b_TUV, section “Radiated Transmitter Unwanted Emission Test”, from Pg 10 onwards.

EXHIBIT 6H

Frequency Stability

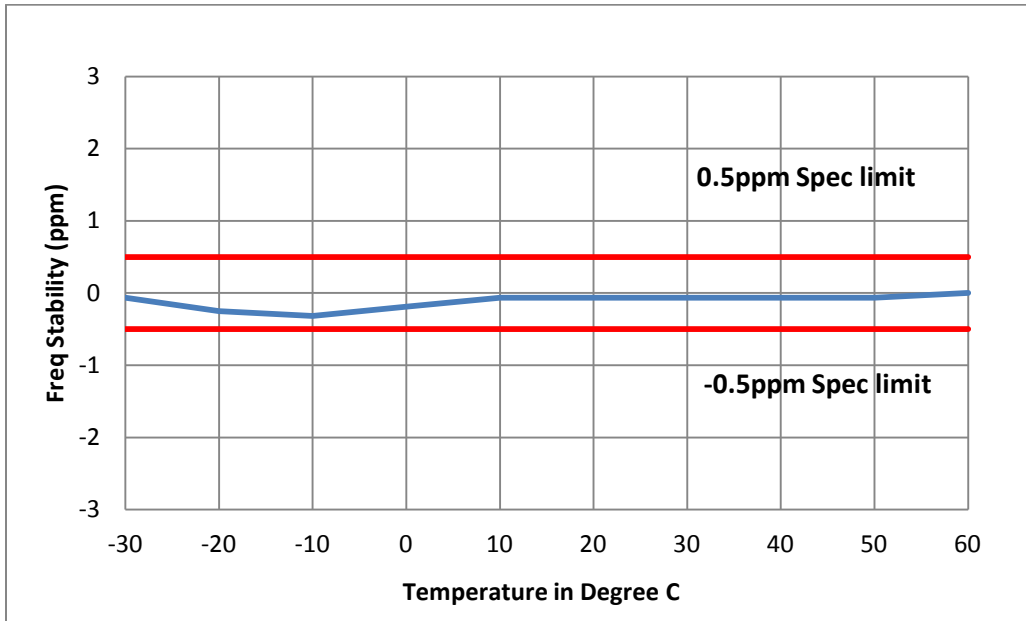


Figure 6H-1: 158.55 MHz, 0.5 ppm Frequency Stability vs. Temperature

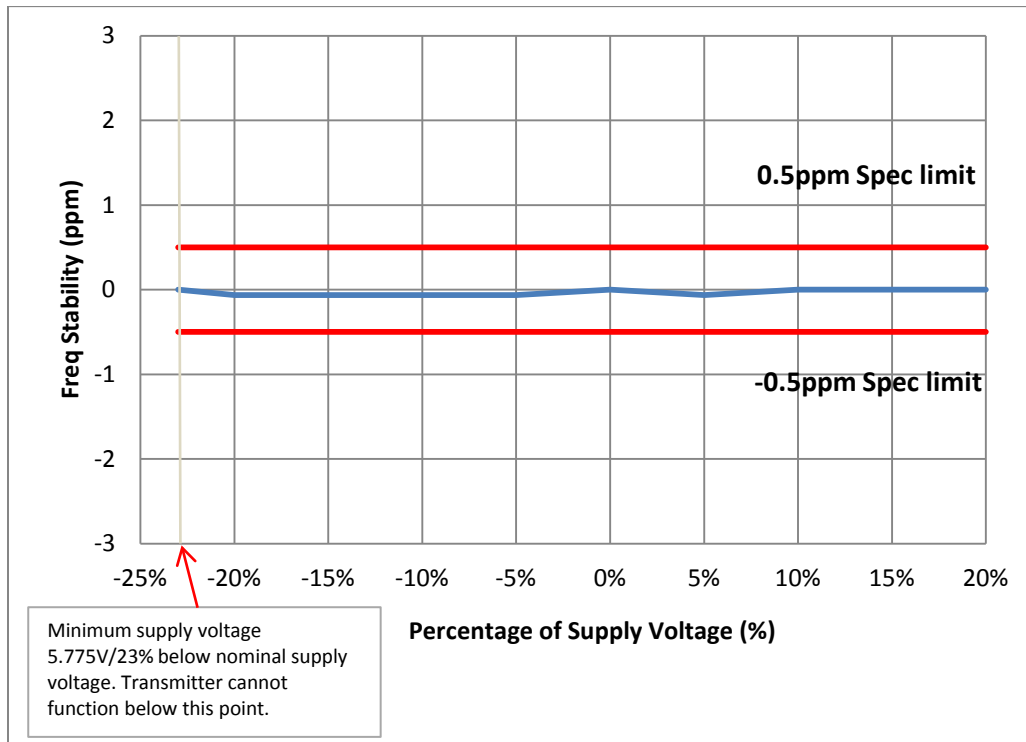


Figure 6H-2: 158.55 MHz, 0.5 ppm Frequency Stability vs. Supply Voltage

EXHIBIT 6I

TRANSIENT FREQUENCY BEHAVIOR

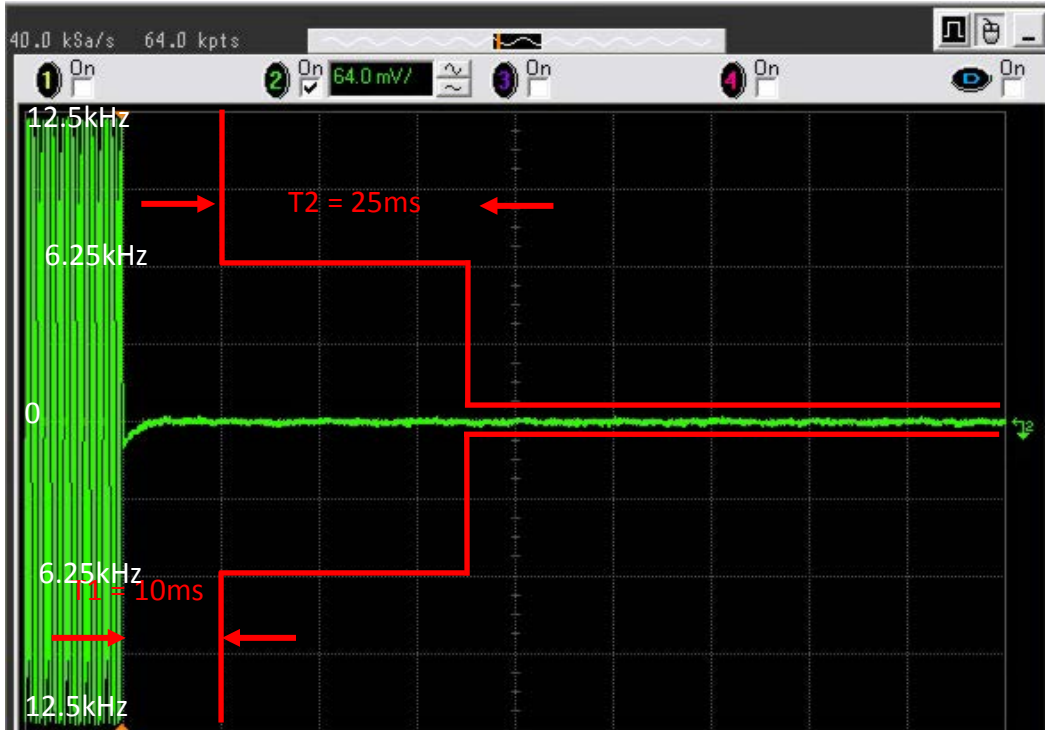


Figure 6I-1: TX 158.55 MHz – 12.5 kHz Channel Spacing – Transmitters On

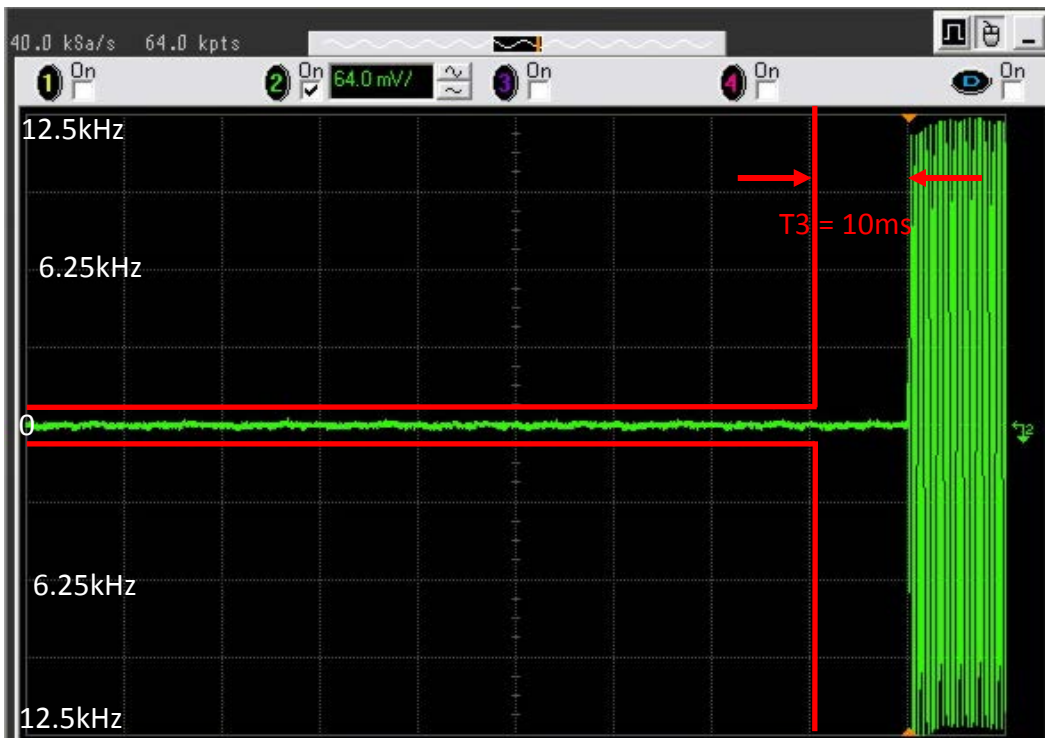


Figure 6I-2: TX 158.55 MHz – 12.5 kHz Channel Spacing – Transmitters Off

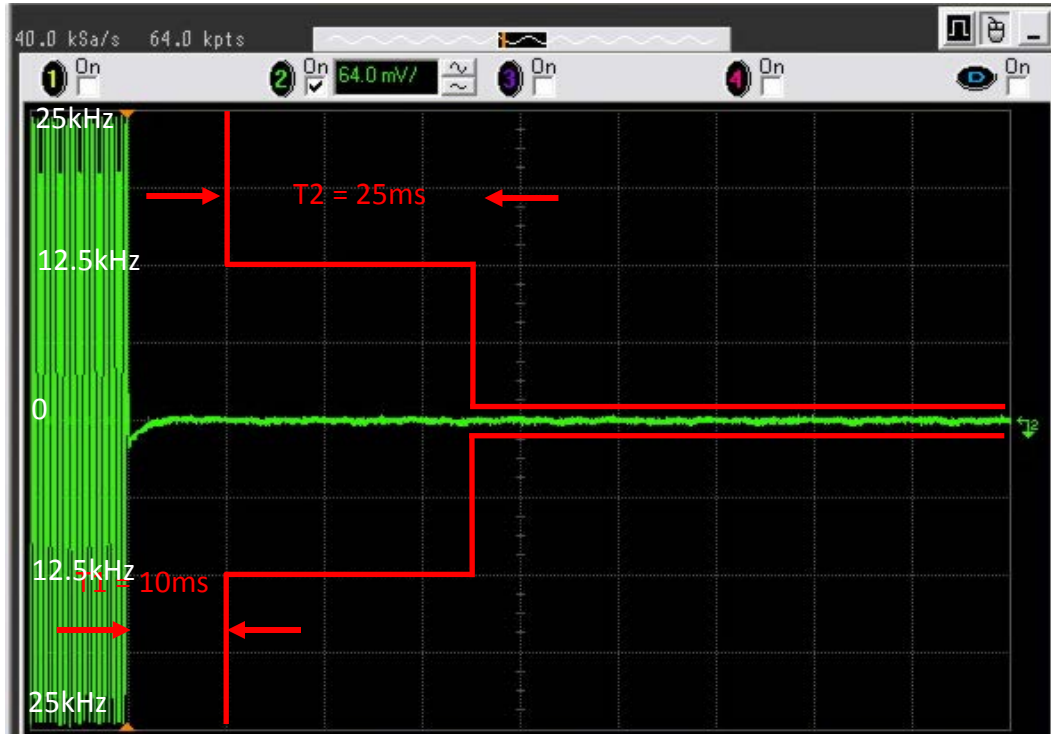


Figure 6I-3: TX 158.55 MHz – 25 kHz Channel Spacing – Transmitters On (Part 22, 80)



Figure 6I-4: TX 158.55 MHz – 25 kHz Channel Spacing – Transmitters Off (Part 22, 80)