

EXHIBIT 6**INDEX OF SUBMITTED MEASURED DATA**

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

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- 6B-2 – 158.55 MHz, 25 kHz Channel Spacing (Part 22, 80)

EXHIBIT 6C - Transmit Audio Low pass Filter Response

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- 6F-1 – 30 Watts, 138.0125 MHz, Analog 25 kHz Channel Spacing (Not for FCC Review)
- 6F-2 – 30 Watts, 158.55 MHz, Analog 25 kHz Channel Spacing (Part 22, 80)
- 6F-3 – 30 Watts, 161.7 MHz, Analog 25 kHz Channel Spacing (Part 74)
- 6F-4 – 30 Watts, 173.3875 MHz, Analog 25 kHz Channel Spacing (Not for FCC Review)
- 6F-5 – 1 Watts, 158.55 MHz, Analog 25 kHz Channel Spacing (Part 22, 80)
- 6F-6 – 1 Watts, 161.7 MHz, Analog 25 kHz Channel Spacing (Part 74)

- 6F-7 – 30 Watts, 138.0125 MHz Digital 12.5 kHz Channel Spacing (Not for FCC Review)
- 6F-8 – 30 Watts, 158.55 MHz, Digital 12.5 kHz Channel Spacing
- 6F-9 – 30 Watts, 161.7 MHz, Digital 12.5 kHz Channel Spacing
- 6F-10 – 30 Watts, 173.3875 MHz, Digital 12.5 kHz Channel Spacing
- 6F-11 – 1 Watts, 158.55 MHz, Digital 12.5 kHz Channel Spacing
- 6F-12 – 1 Watts, 161.7 MHz, Digital 12.5 kHz Channel Spacing

EXHIBIT 6G – Radiated Spurious Emissions

- 6G-1 – 30 Watts, 138.0125 MHz, Analog 25 kHz Channel Spacing (Not for FCC Review)
- 6G-2 – 30 Watts, 158.55 MHz, Analog 25 kHz Channel Spacing (Part 22, 80)
- 6G-3 – 30 Watts, 161.7 MHz, Analog 25 kHz Channel Spacing (Part 74)
- 6G-4 – 30 Watts, 173.3875 MHz, Analog 25 kHz Channel Spacing (Not for FCC Review)
- 6G-5 – 1 Watts, 158.55 MHz, Analog 25 kHz Channel Spacing (Part 74)
- 6G-6 – 1 Watts, 161.7 MHz, Analog 25 kHz Channel Spacing

- 6G-7 – 30 Watts, 138.0125 MHz Digital 12.5 kHz Channel Spacing (Not for FCC Review)
- 6G-8 – 30 Watts, 158.55 MHz, Digital 12.5 kHz Channel Spacing (Part 22, 80)
- 6G-9 – 30 Watts, 161.7 MHz, Digital 12.5 kHz Channel Spacing
- 6G-10 – 30 Watts, 173.3875 MHz, Digital 12.5 kHz Channel Spacing
- 6G-11 – 1 Watts, 158.55 MHz, Digital 12.5 kHz Channel Spacing
- 6G-12 – 1 Watts, 161.7 MHz, Digital 12.5 kHz Channel Spacing

EXHIBIT 6H – Frequency Stability

- 6H-1 – 158.55 MHz Frequency Stability vs. Temperature
- 6H-2 – 158.55 MHz Frequency Stability vs. Voltage

EXHIBIT 6I – Transient Frequency Behavior

- 6I-1 – 158.55 MHz, 12.5 kHz Channel Spacing Key-Up Attack Time
- 6I-2 – 158.55 MHz, 12.5 kHz Channel Spacing De-Key Decay Time
- 6I-3 – 158.55 MHz, 25 kHz Channel Spacing Key-Up Attack Time (Part 22, 80)
- 6I-4 – 158.55 MHz, 25 kHz Channel Spacing De-Key Decay Time (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 September 2015. See Table 2 in Ex07_test_procedures**

Radio model tested: AAM28JNN9RA1AN

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

EXHIBIT 6A – RF POWER OUTPUT

HIGH POWER SETTING, FREQUENCY 138.0125 MHz

Measured RF Output Power:	29.7	Watts
Measured DC Voltage:	13.2	Volts
Measured DC Input Current:	4.61	Amperes

LOW POWER SETTING, FREQUENCY 138.0125 MHz

Measured RF Output Power:	0.97	Watts
Measured DC Voltage:	13.2	Volts
Measured DC Input Current:	1.35	Amperes

HIGH POWER SETTING, FREQUENCY 158.55 MHz

Measured RF Output Power:	30.0	Watts
Measured DC Voltage:	13.2	Volts
Measured DC Input Current:	5.39	Amperes

LOW POWER SETTING, FREQUENCY 158.55 MHz

Measured RF Output Power:	0.96	Watts
Measured DC Voltage:	13.2	Volts
Measured DC Input Current:	1.49	Amperes

HIGH POWER SETTING, FREQUENCY 161.7 MHz

Measured RF Output Power:	29.9	Watts
Measured DC Voltage:	13.2	Volts
Measured DC Input Current:	5.36	Amperes

LOW POWER SETTING, FREQUENCY 161.7 MHz

Measured RF Output Power:	0.97	Watts
Measured DC Voltage:	13.2	Volts
Measured DC Input Current:	1.49	Amperes

HIGH POWER SETTING, FREQUENCY 173.3875 MHz

Measured RF Output Power:	30	Watts
Measured DC Voltage:	13.2	Volts
Measured DC Input Current:	5.39	Amperes

LOW POWER SETTING, FREQUENCY 173.3875 MHz

Measured RF Output Power:	0.97	Watts
Measured DC Voltage:	13.2	Volts
Measured DC Input Current:	1.49	Amperes

EXHIBIT 6B – Transmit Audio Response

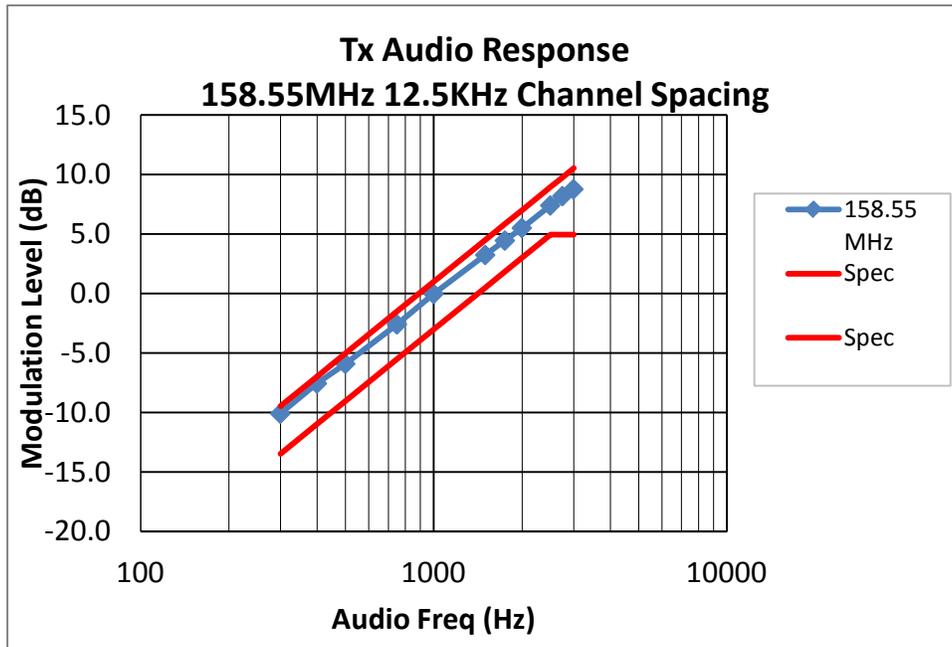


Figure 6B-1: 158.55 MHz, 12.5 kHz Channel Spacing, Transmit Audio Frequency Response

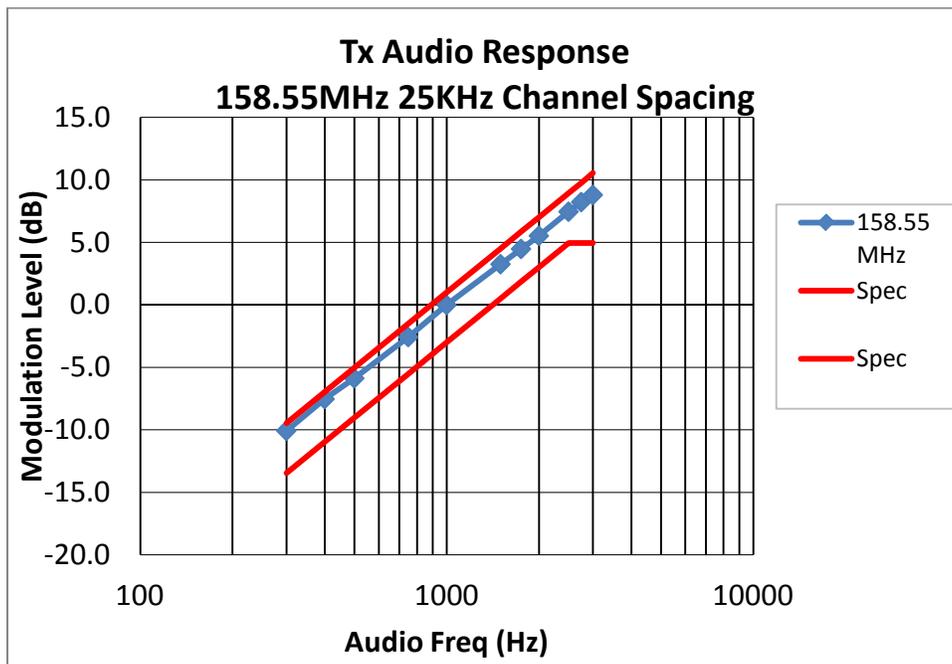


Figure 6B-2: 158.55 MHz, 25 kHz Channel Spacing, Transmit Audio Frequency Response (Part 22, 80)

EXHIBIT 6C – Transmit Audio Post Limiter Low Pass Filter Response

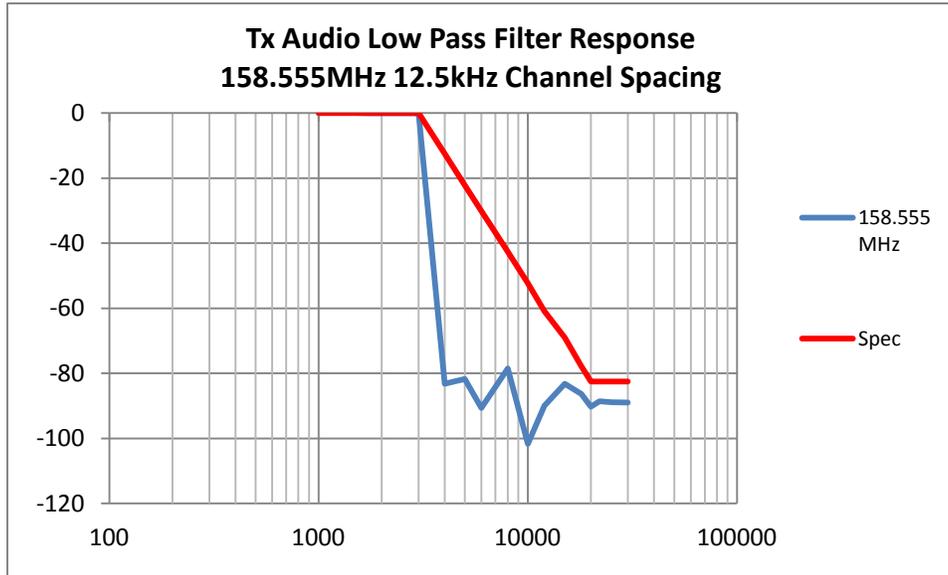


Figure 6C-1: 158.55 MHz, 12.5 kHz Channel Spacing, Transmit Audio Low Pass Filter Response

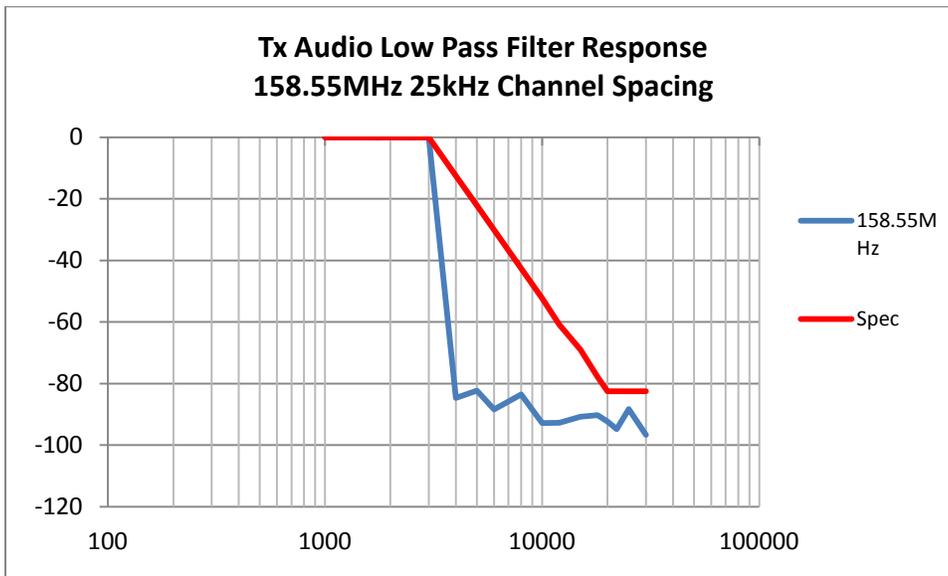


Figure 6C-2: 158.55 MHz, 25 kHz Channel Spacing, Transmit Audio Low Pass Filter Response (Part 22, 80)

EXHIBIT 6D – Modulation Limiting Characteristic

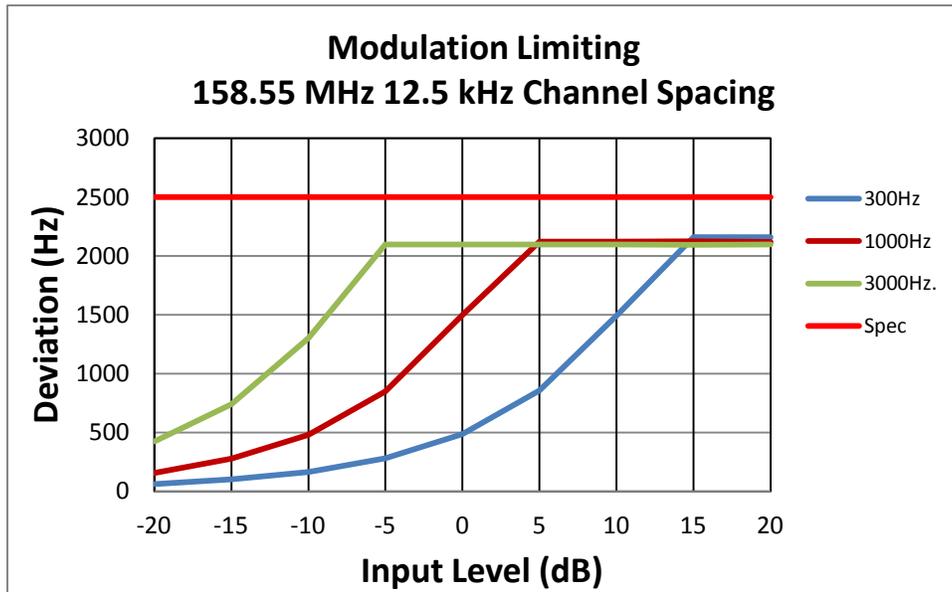


Figure 6D-1: 158.55 MHz, 12.5 KHz Channel Spacing, Modulation Limiting

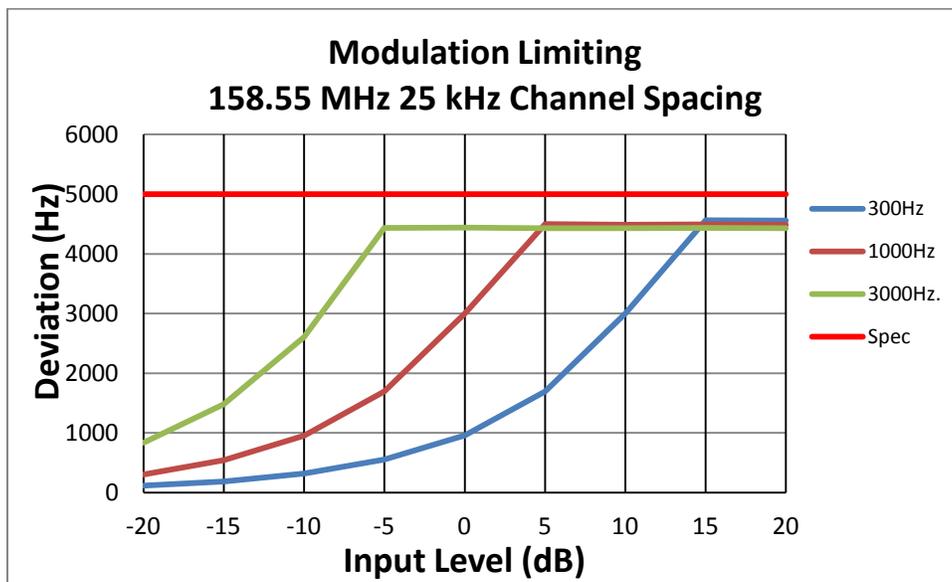


Figure 6D-2: 158.55 MHz, 25 KHz Channel Spacing, Modulation Limiting (Part 22, 80)

EXHIBIT 6E – Modulation Techniques

The transmitter is capable of the following types of modulation:

- i) Modulation of PL (Private Line) – Direct FM tone modulation of 67 Hz to 250.3 Hz at 15% of full system deviation. Also referred to as TPL (Tone Private Line).
- ii) Modulation of DPL (Digital Private Line) – Direct FM modulation at 134 bps at 15% of full system deviation.
- iii) Modulation of 2000/3000 Hz FSK Data – FM modulation at nominally 60% of full system deviation.
- iv) Modulation of DTMF (Dual Tone Multi Frequency) – FM modulation at nominally 60% of full system deviation
- v) Modulation of 9600 bps 4 level FSK Data

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
 $|F(f)| = |\cos(\pi f / 1920)|$ 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)

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**.

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
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**.

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**.

Digital Modulation (12.5 kHz Channelization, Digital Voice)

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**.

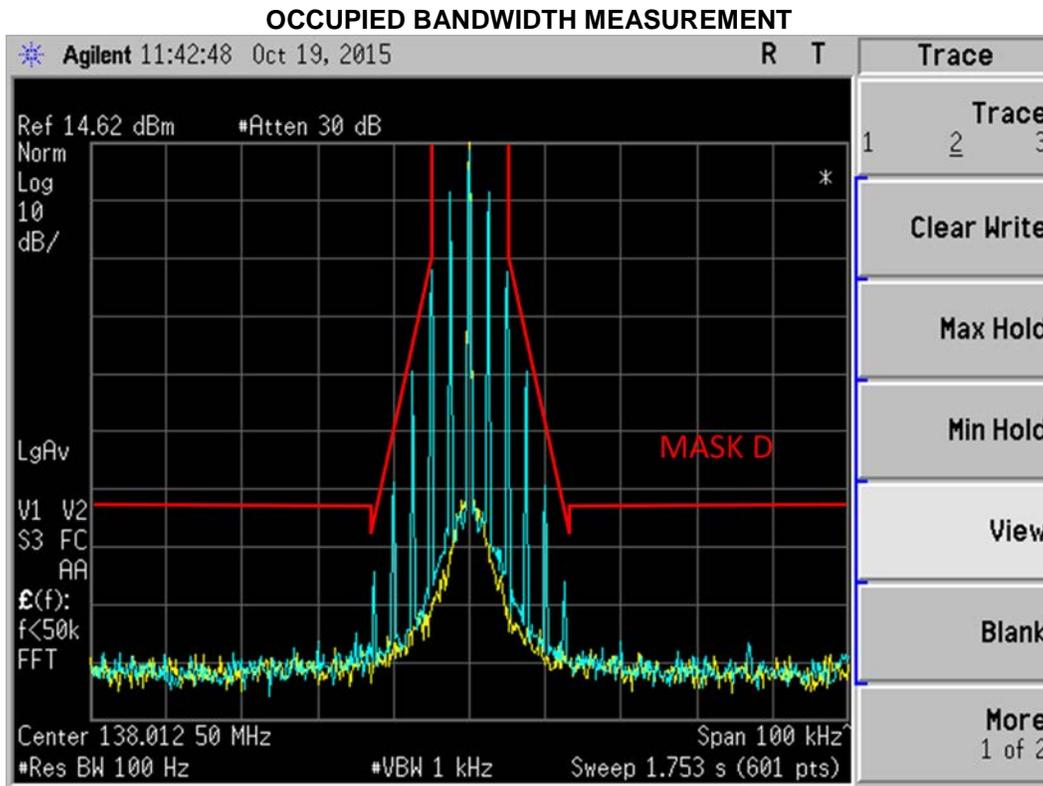


Figure 6E-1: 138.0125 MHz, 12.5 kHz Channel Spacing, 2500Hz Audio Modulation only, 11K0F3E Mask D (Not for FCC Review)

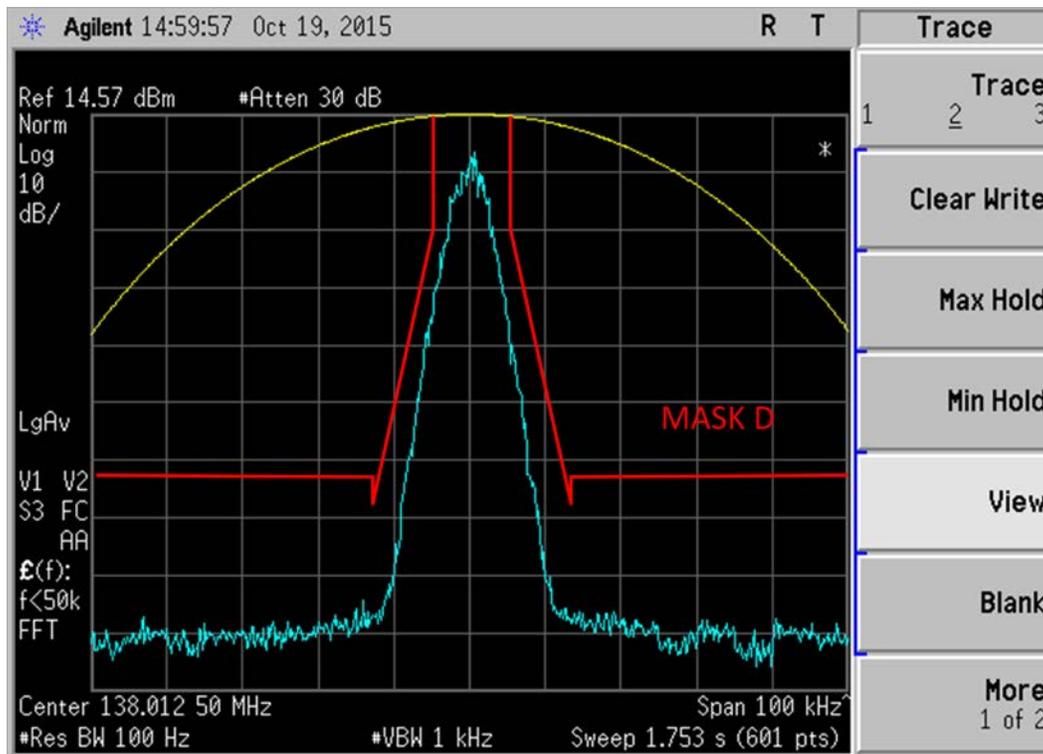


Figure 6E-2: 138.0125 MHz, O.153 Test Pattern 4FSK Voice and Data Modulation, 7K60F1W Mask D (Not for FCC Review)

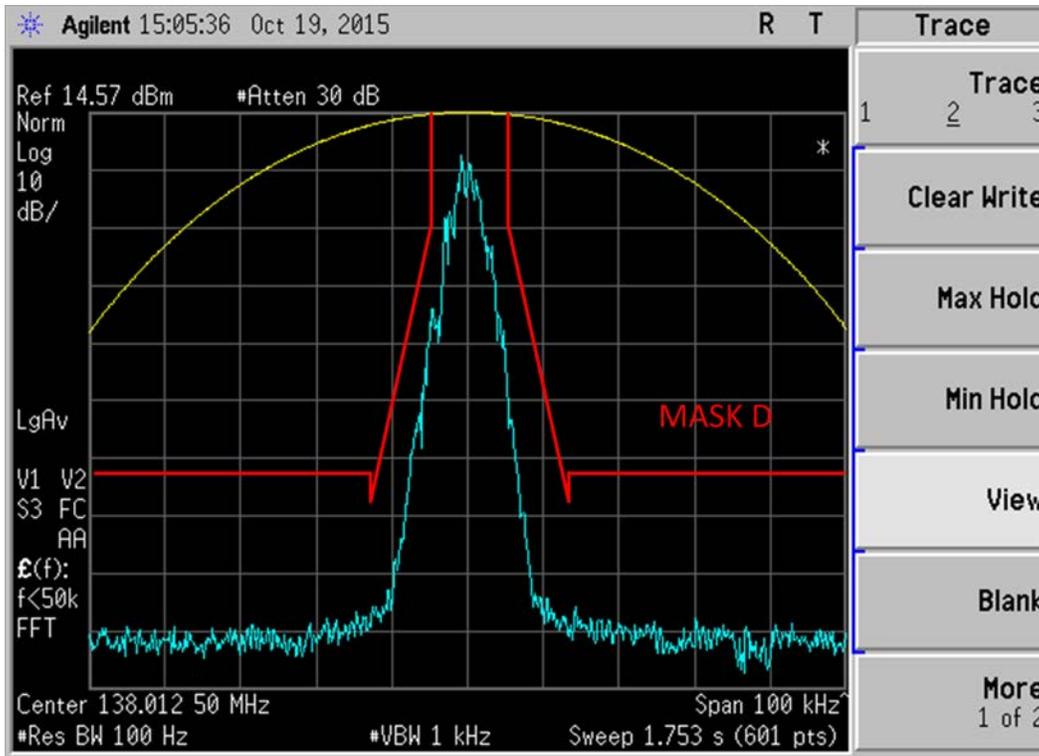


Figure 6E-3: 138.0125 MHz, O.153 Test Pattern 4FSK Data Modulation only, 7K60F1D Mask D (Not for FCC Review)

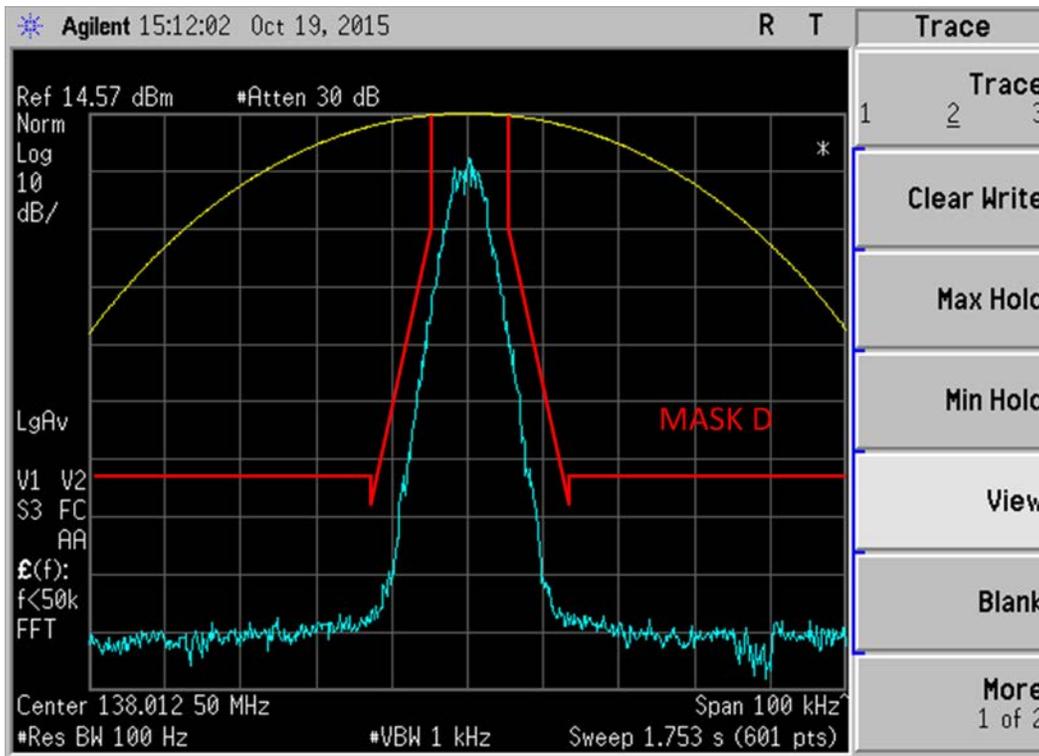


Figure 6E-4: 138.0125 MHz, O.153 Test Pattern 4FSK Voice Modulation only, 7K60F1E Mask D (Not for FCC Review)

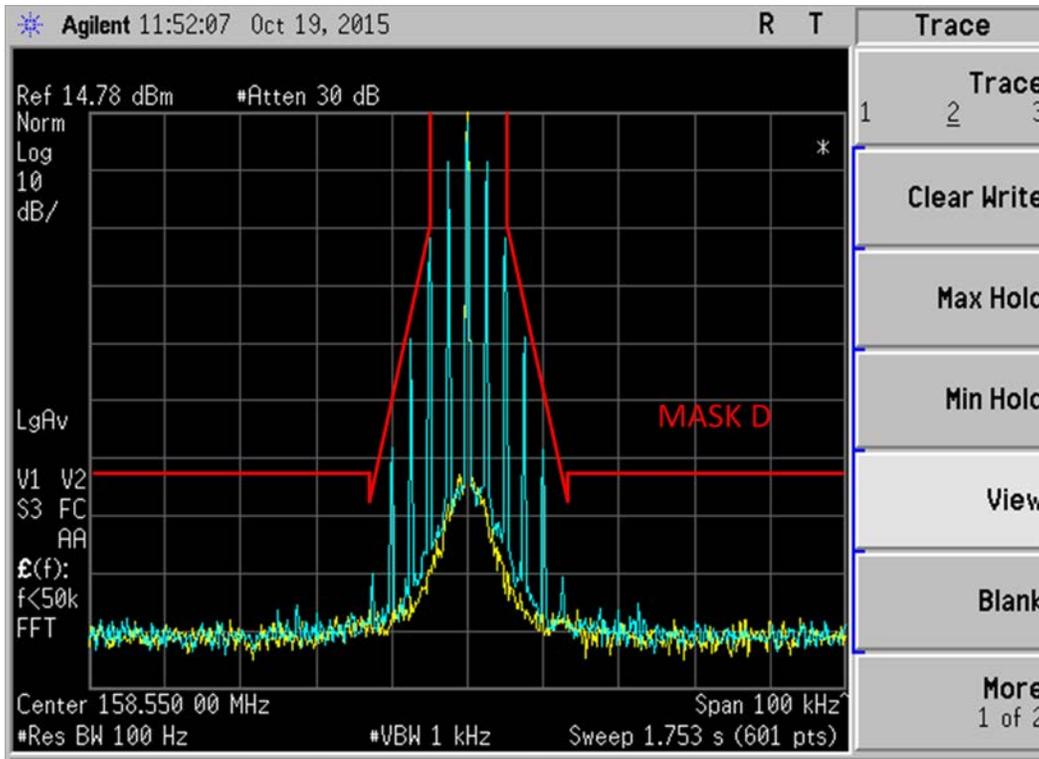


Figure 6E-5: 158.55 MHz, 12.5 kHz Channel Spacing, 2500Hz Audio Modulation only, 11K0F3E Mask D

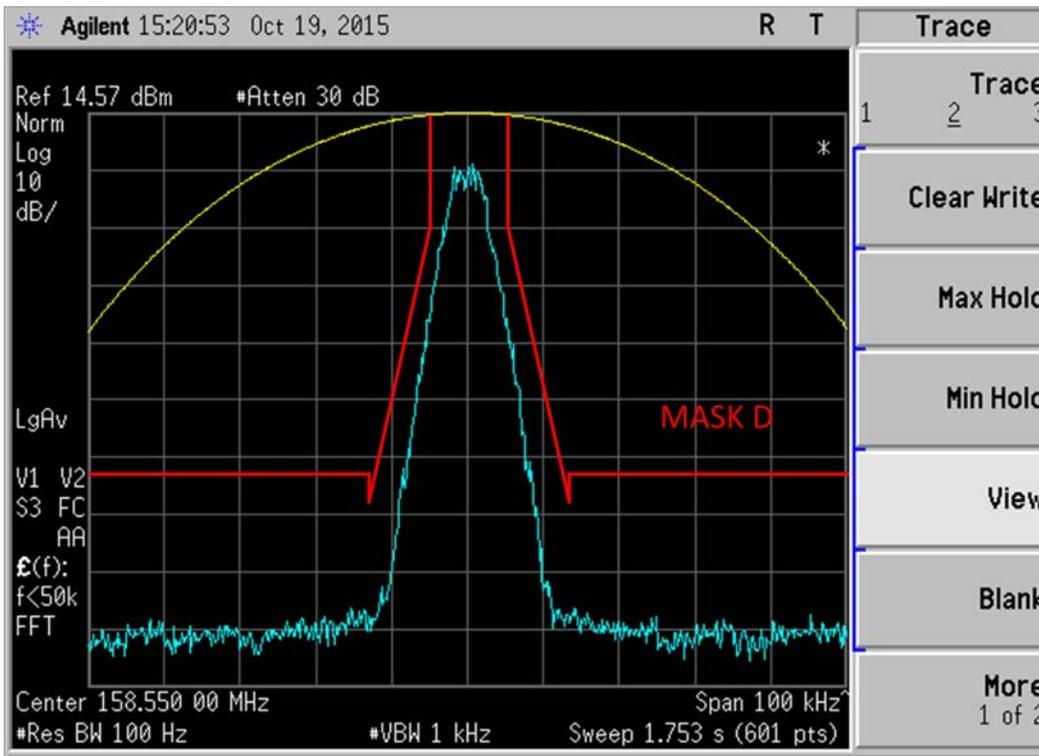


Figure 6E-6: 158.55 MHz, O.153 Test Pattern 4FSK Voice and Data Modulation, 7K60F1W Mask D

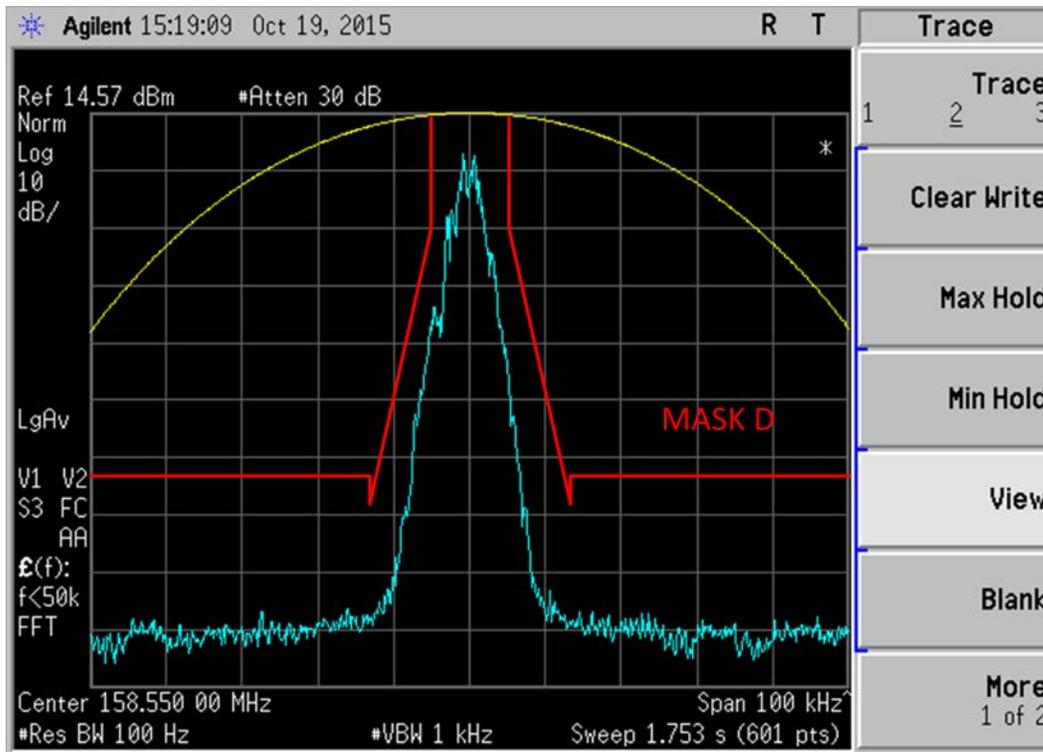


Figure 6E-7: 158.55 MHz, O.153 Test Pattern 4FSK Data Modulation only, 7K60F1D Mask D

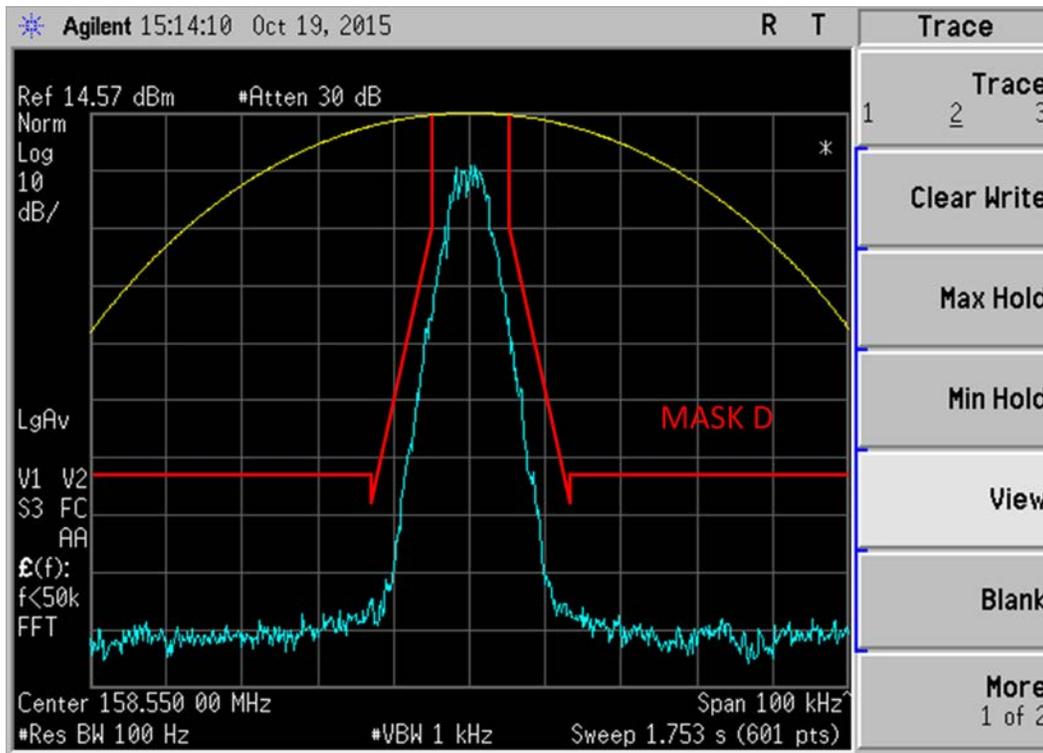


Figure 6E-8: 158.55 MHz, O.153 Test Pattern 4FSK Voice Modulation only, 7K60F1E Mask D

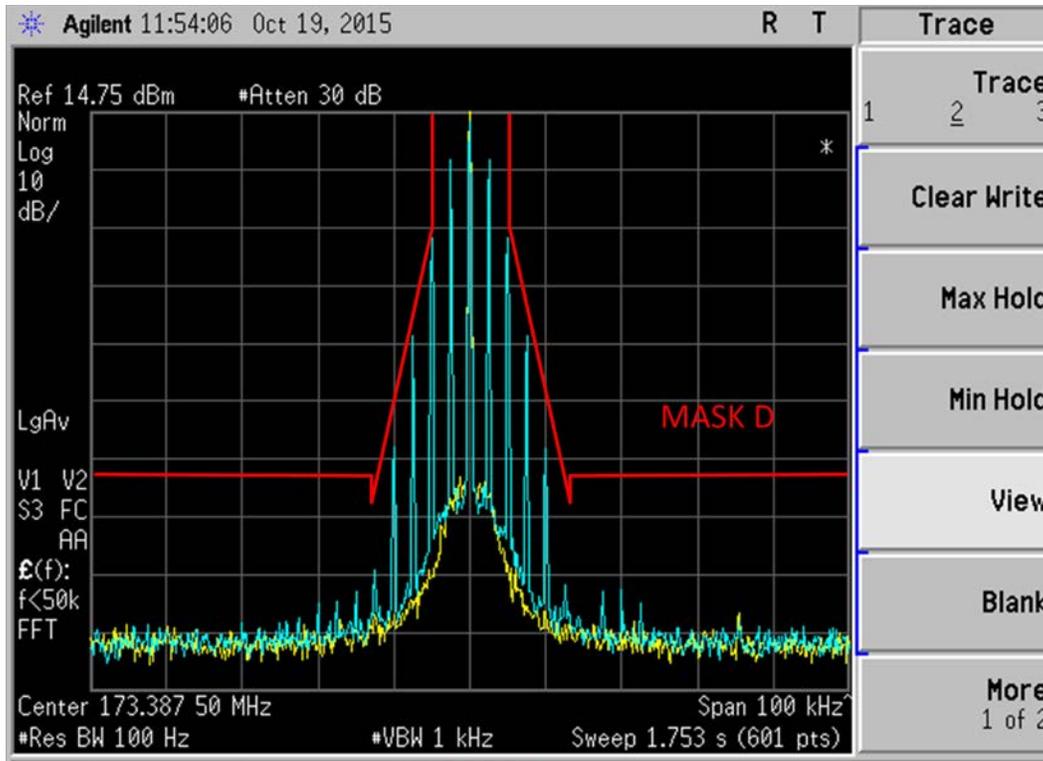


Figure 6E-9: 173.3875MHz, 12.5 kHz Channel Spacing, 2500Hz Audio Modulation only, 11K0F3E Mask D

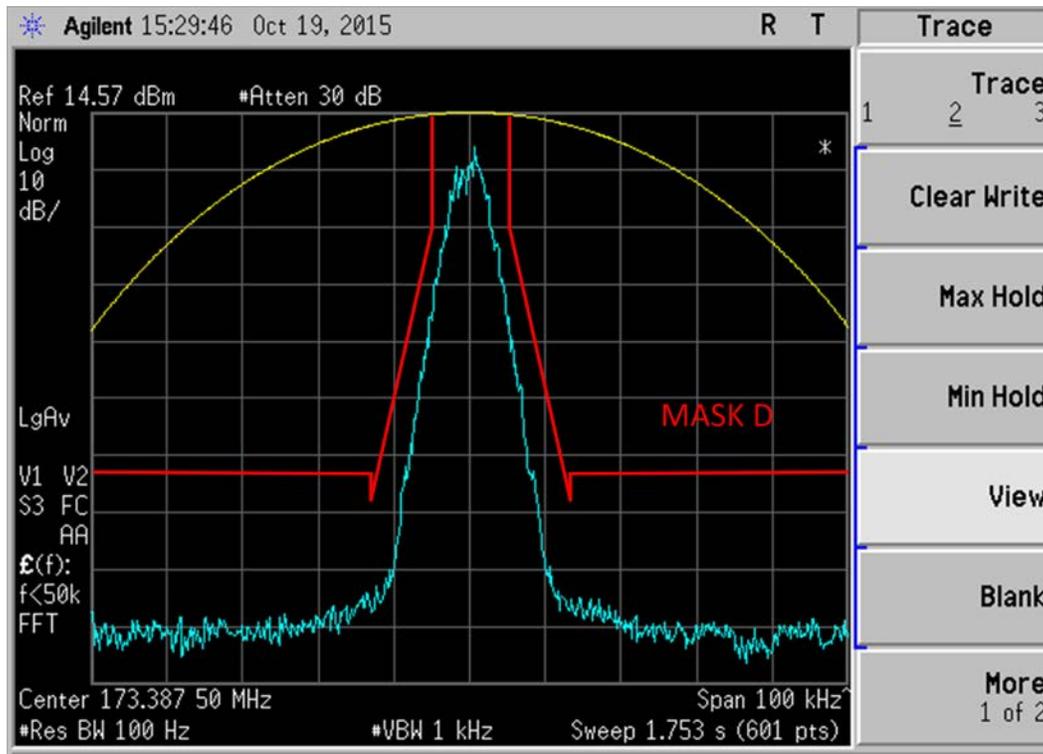


Figure 6E-10: 173.3875MHz, O.153 Test Pattern 4FSK Voice and Data Modulation, 7K60F1W Mask D

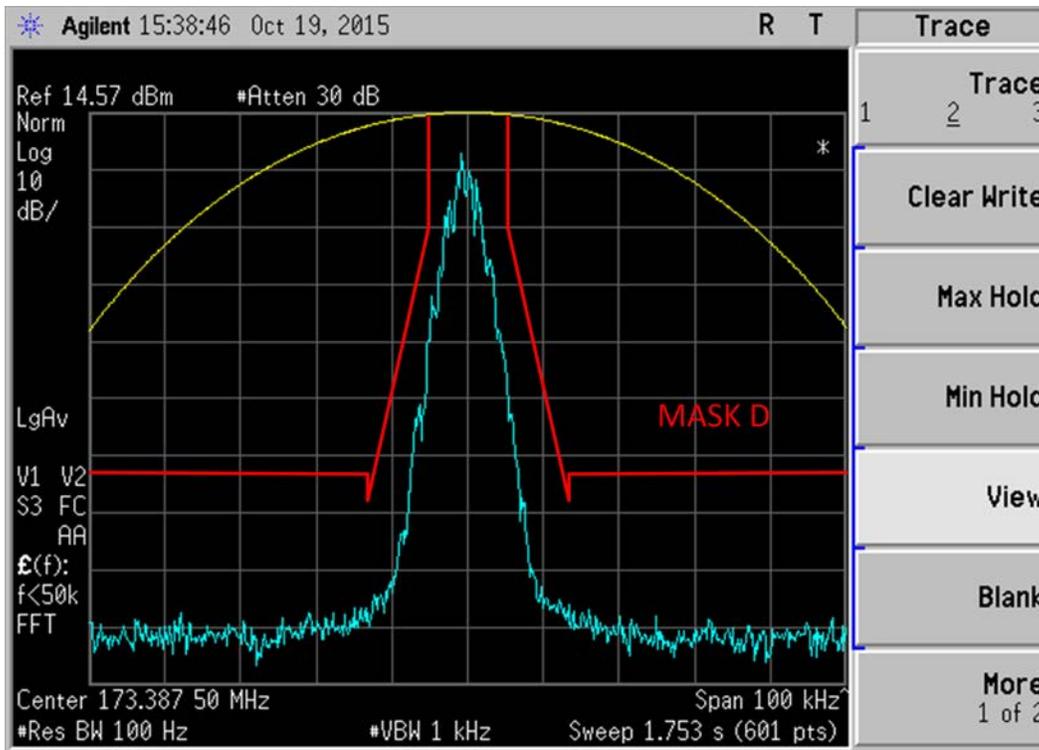


Figure 6E-11: 173.3875MHz, O.153 Test Pattern 4FSK Data Modulation only, 7K60F1D Mask D

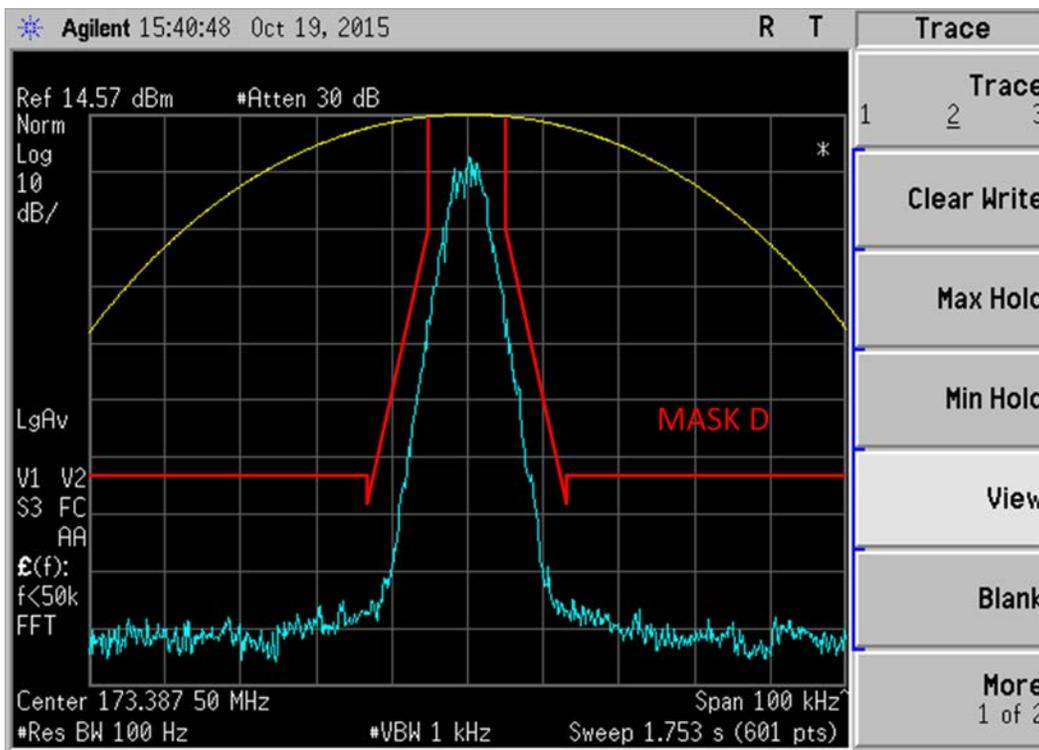


Figure 6E-12: 173.3875MHz, O.153 Test Pattern 4FSK Voice Modulation only, 7K60F1E Mask D

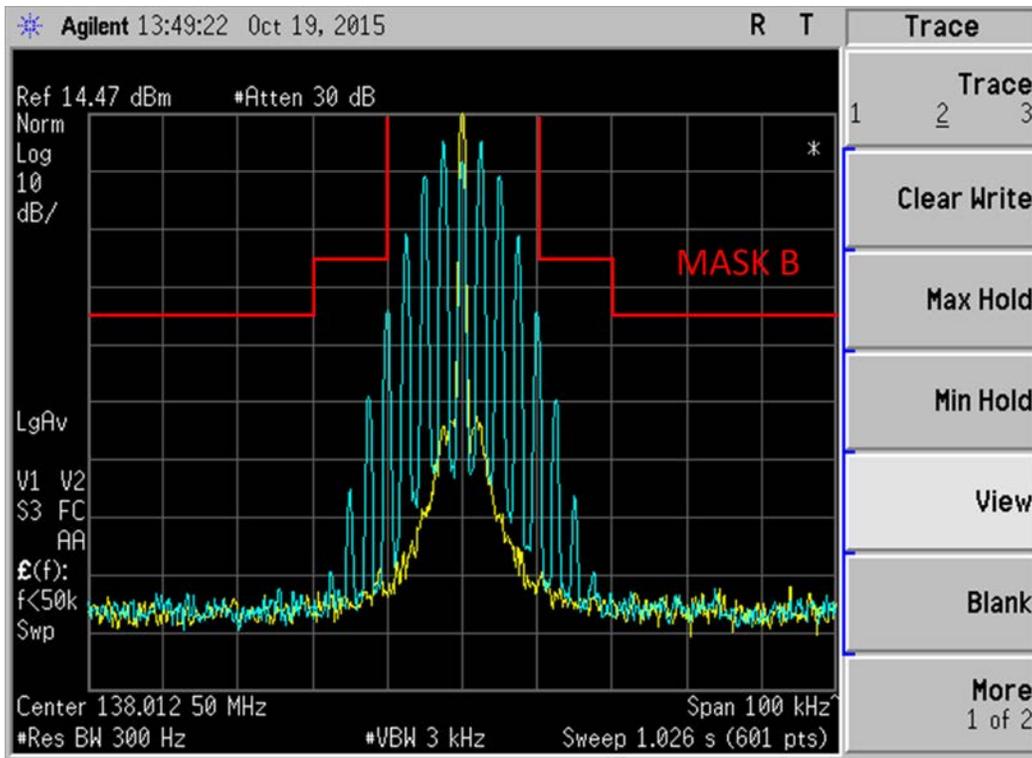


Figure 6E-13: 138.0125 MHz, 25 kHz Channel Spacing, 2500Hz Audio Modulation only, 16K0F3E Mask B (Not for FCC Review)

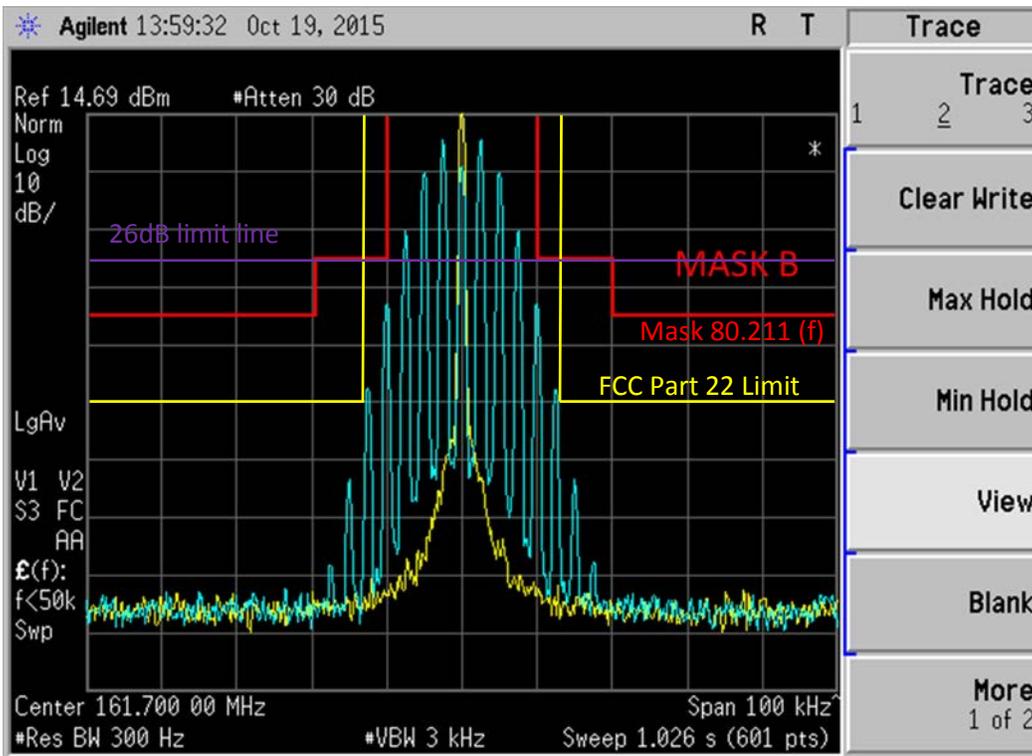


Figure 6E-14: 158.55 MHz, 25 kHz Channel Spacing, 2500Hz Audio Modulation only, 16K0F3E Mask B, Part 22 limit, Mask 80.211(f) (Part 22, 80)

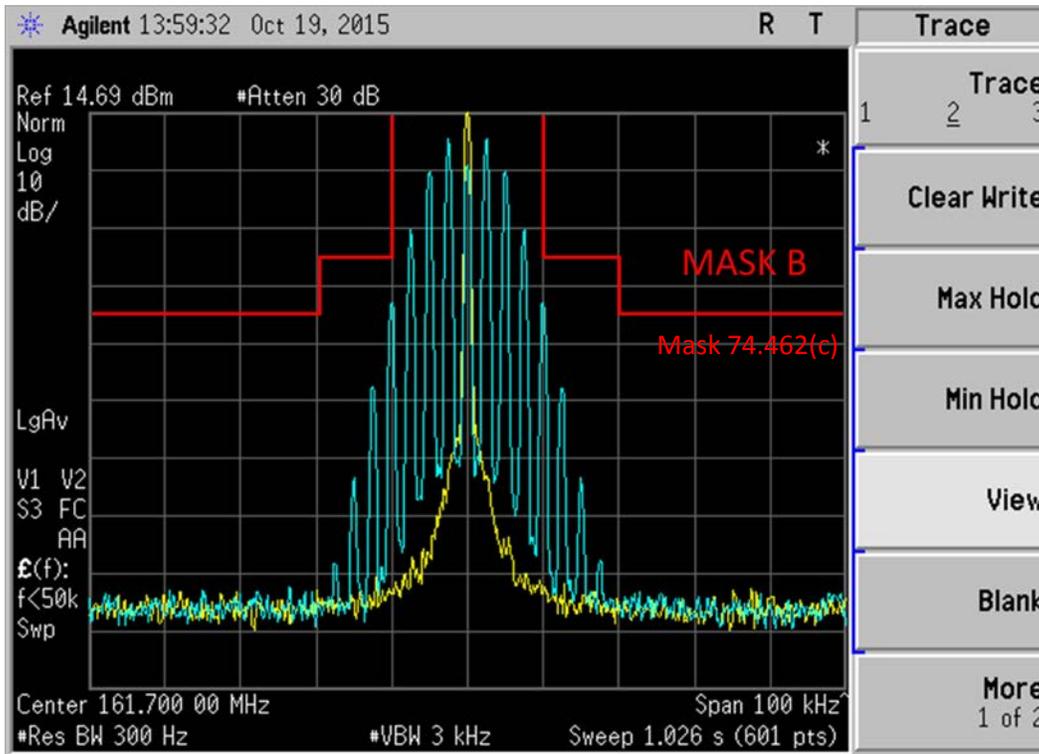


Figure 6E-15: 161.7 MHz, 25 kHz Channel Spacing, 2500Hz Audio Modulation only, 16K0F3E Mask B, Mask 74.462 (c) (Part 74)

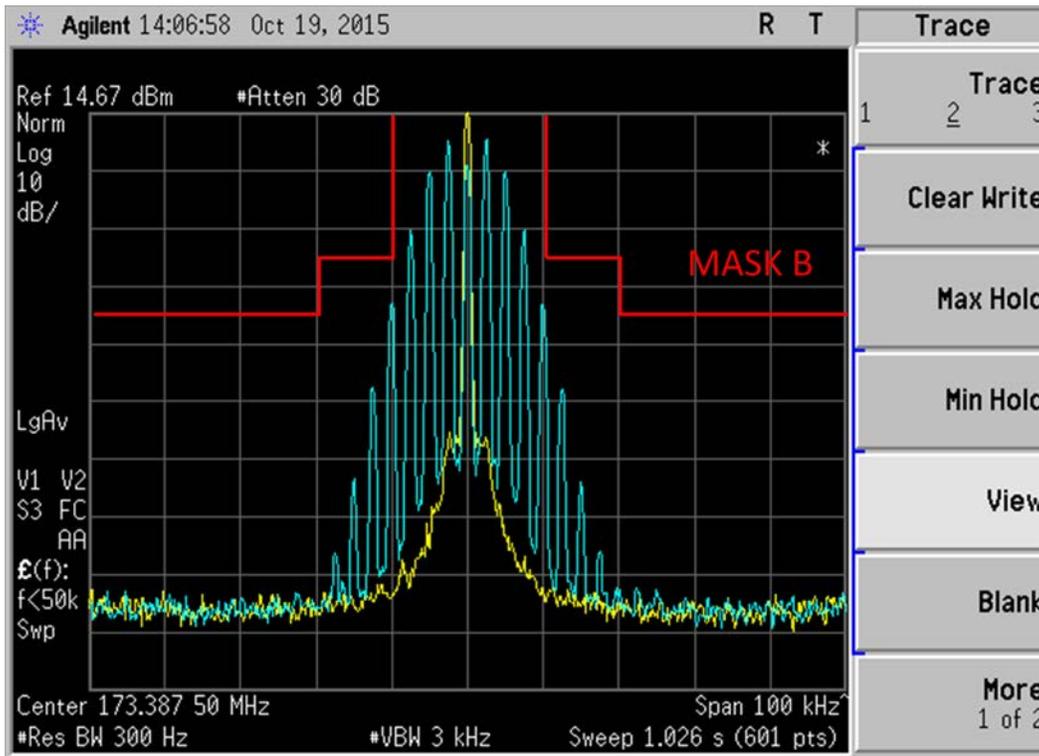


Figure 6E-16: 173.3875 MHz, 25 kHz Channel Spacing, 2500Hz Audio Modulation only, 16K0F3E Mask B (Not for FCC Review)

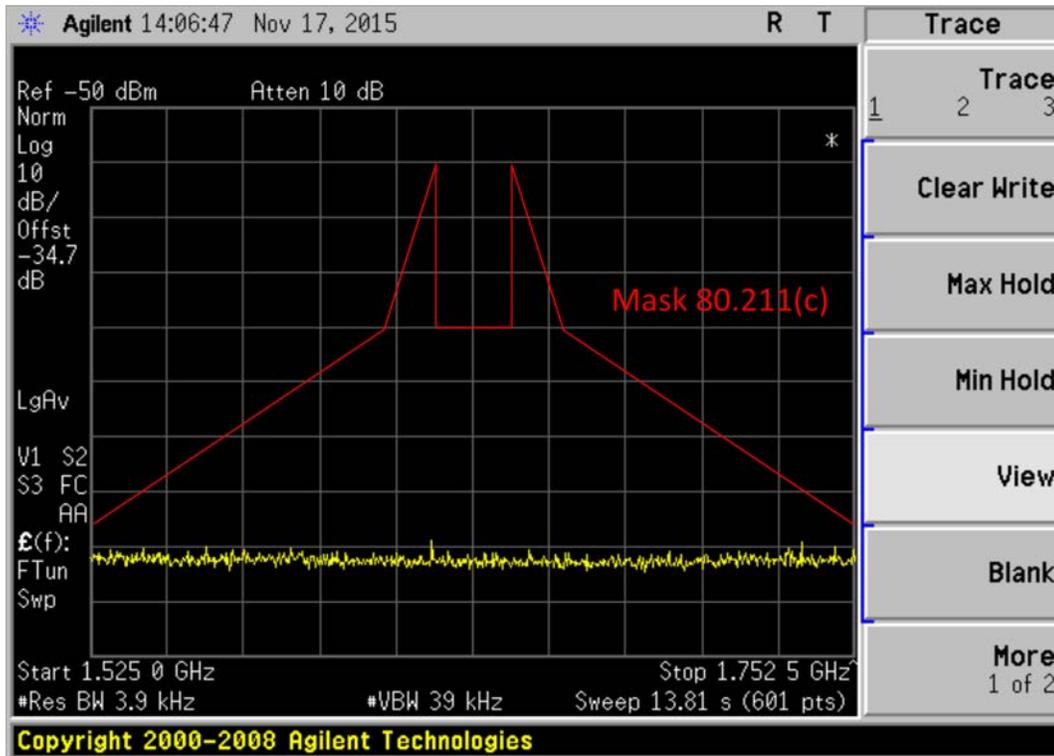


Figure 6E-17: 158.55 MHz, 25 kHz Channel Spacing, 2500Hz Audio Modulation only, 16K0F3E Mask 80.211 (c) (Part 80)

****NOTE:-**

- For 4FSK Digital Modulation, 12.5 kHz Data 7K60F1D & 7K60FXD would be the same. Therefore only measurements with 7K60F1D shown above.
- For 4FSK Digital Modulation, 12.5 kHz Voice 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 a 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

EXHIBIT 6F – Transmitter Conducted Spurious Emissions

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

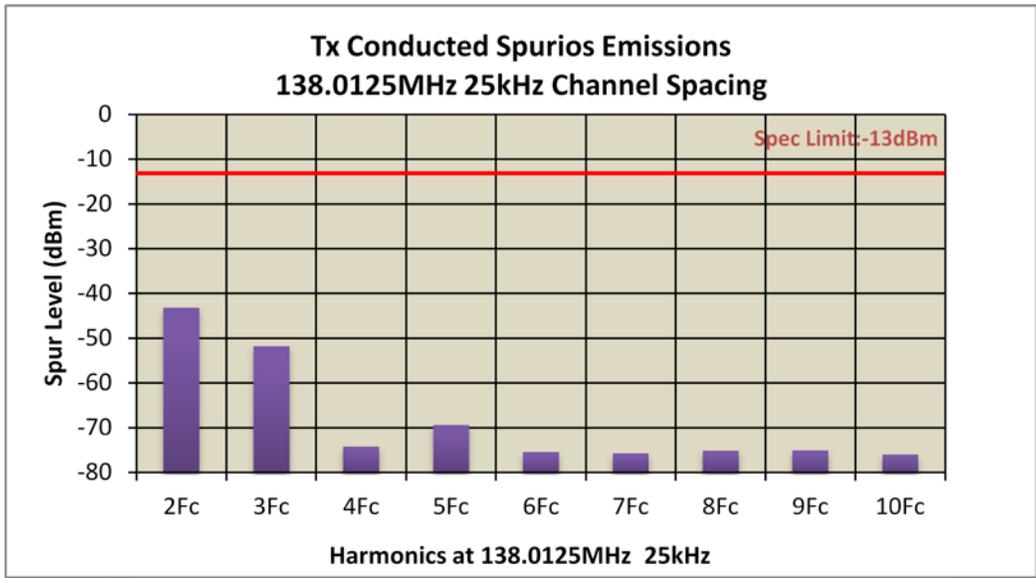


Figure 6F-1: 30 W Harmonic of Carrier 138.0125 MHz, 25 kHz Channel Spacing (Not for FCC Review)

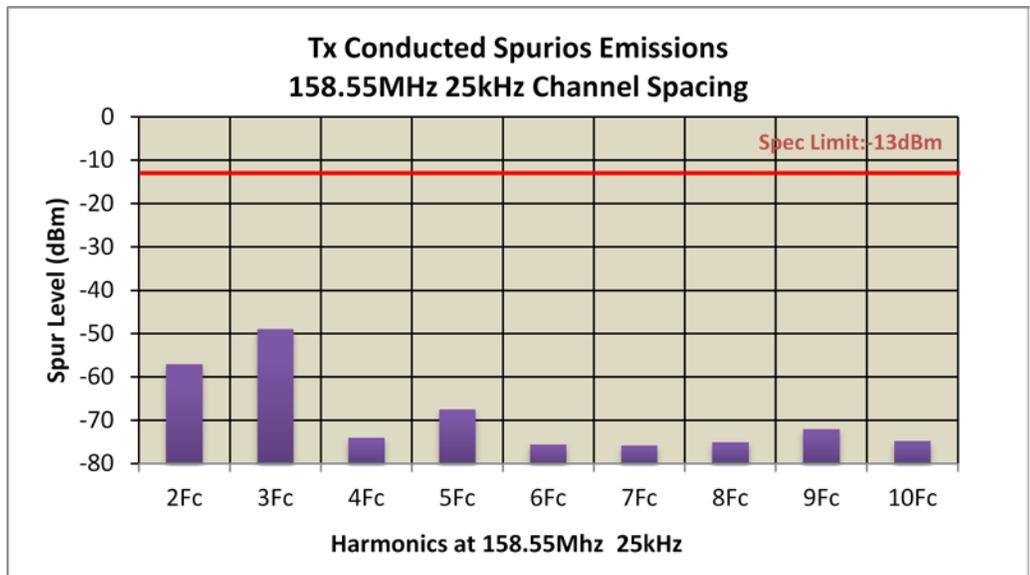


Figure 6F-2: 30 W Harmonic of Carrier 158.55 MHz, 25 kHz Channel Spacing (Part 22, 80)

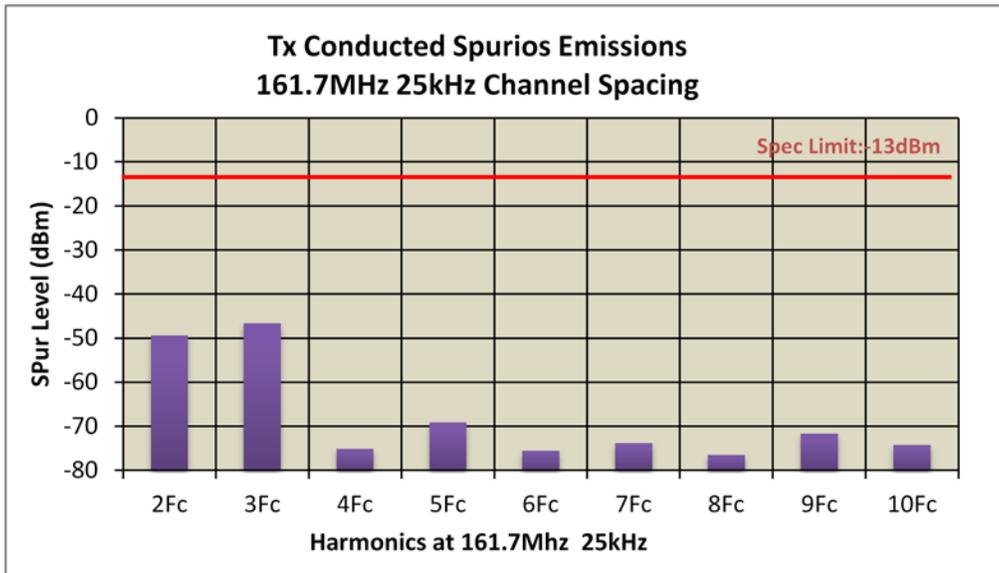


Figure 6F-3: 30 W Harmonic of Carrier 161.7 MHz, 25 kHz Channel Spacing (Part 74)

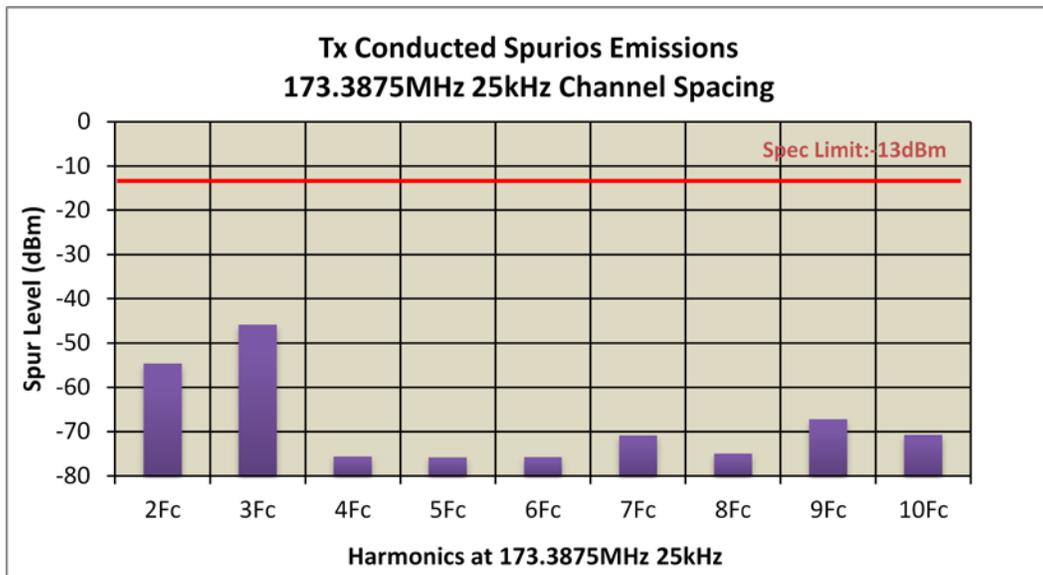


Figure 6F-4: 30 W Harmonic of Carrier 173.3875 MHz, 25 kHz Channel Spacing (Not for FCC Review)

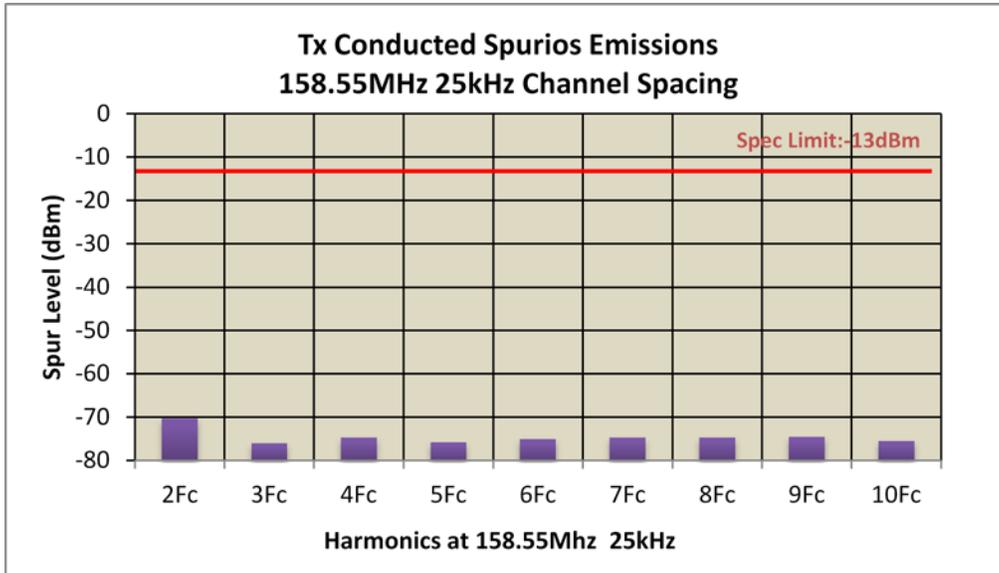


Figure 6F-5: 1W Harmonic of Carrier 158.55 MHz, 25 kHz Channel Spacing (Part 22, 80)

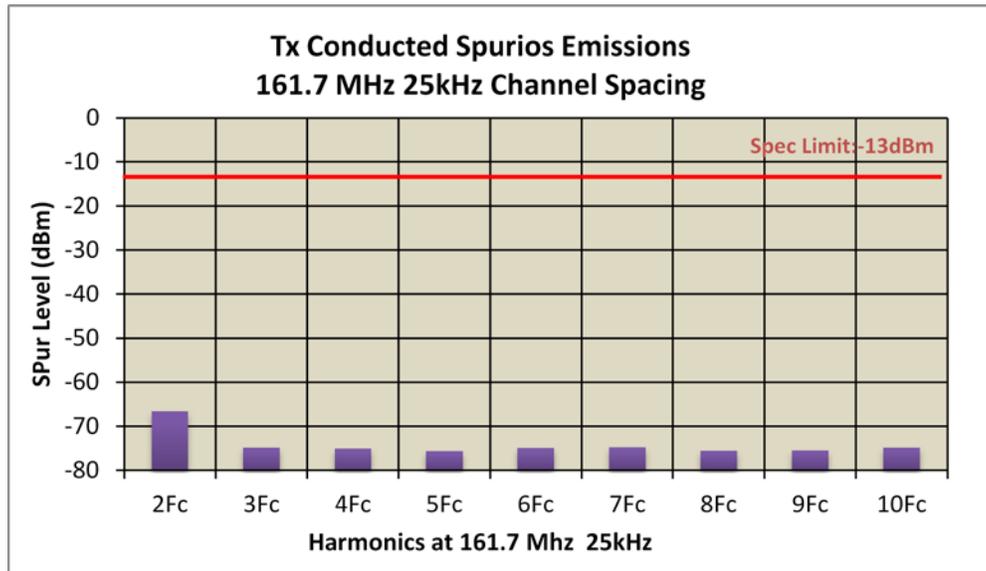


Figure 6F-6: 1W Harmonic of Carrier 161.7 MHz, 25 kHz Channel Spacing (Part 74)

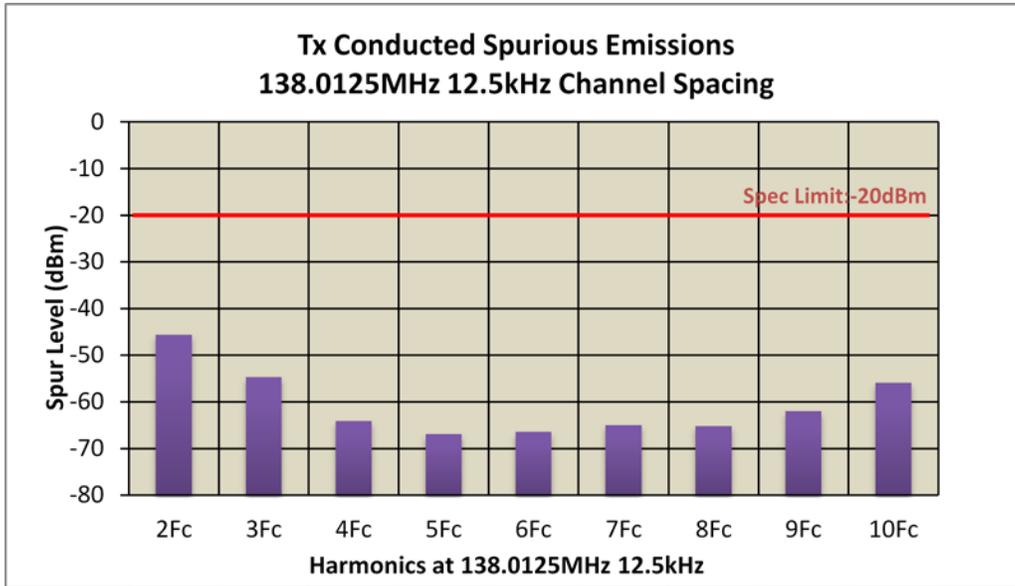


Figure 6F-7: 30 W Harmonic of Carrier 138.0125 MHz, Digital 12.5 kHz Channel Spacing (Not for FCC Review)

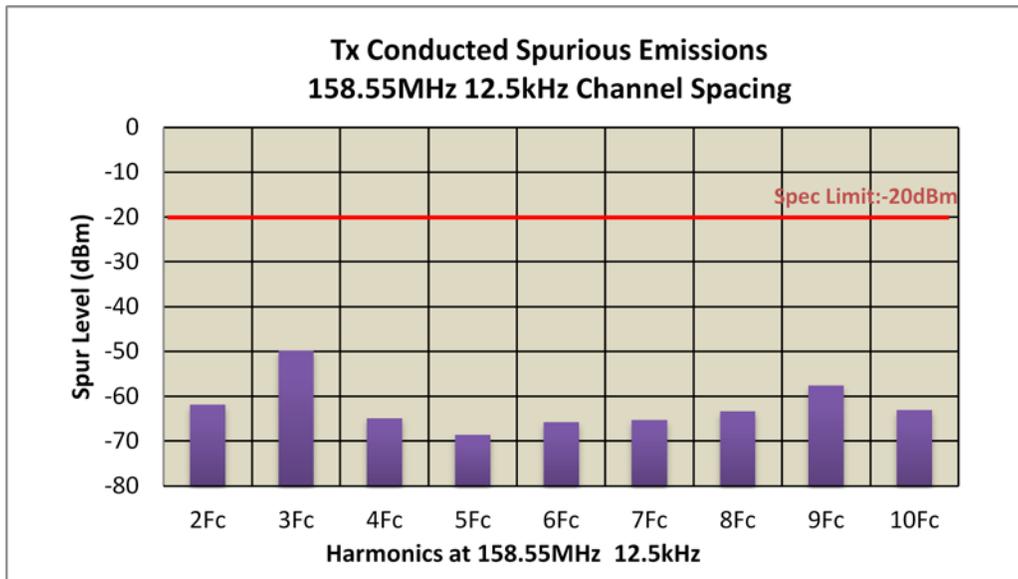


Figure 6F-8: 30 W Harmonic of Carrier 158.55 MHz, Digital 12.5 kHz Channel Spacing

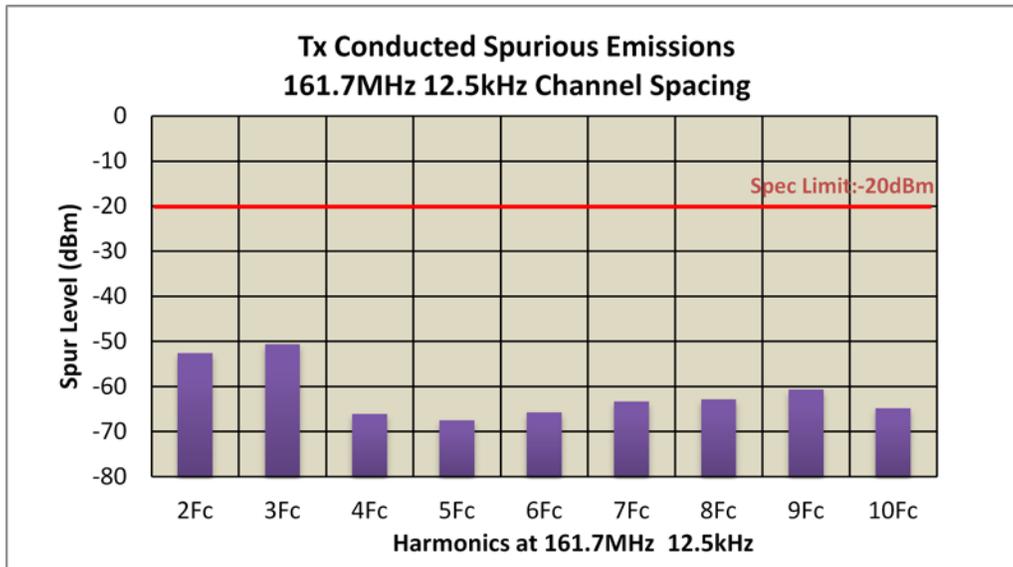


Figure 6F-9: 30 W Harmonic of Carrier 161.7 MHz, Digital 12.5 kHz Channel Spacing

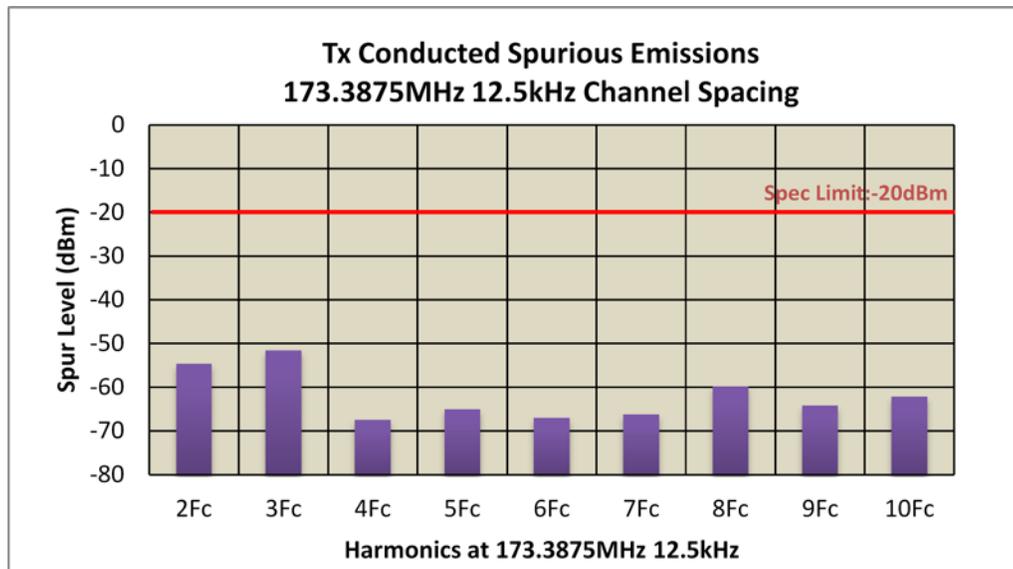


Figure 6F-10: 30 W Harmonic of Carrier 173.3875 MHz, Digital 12.5 kHz Channel Spacing

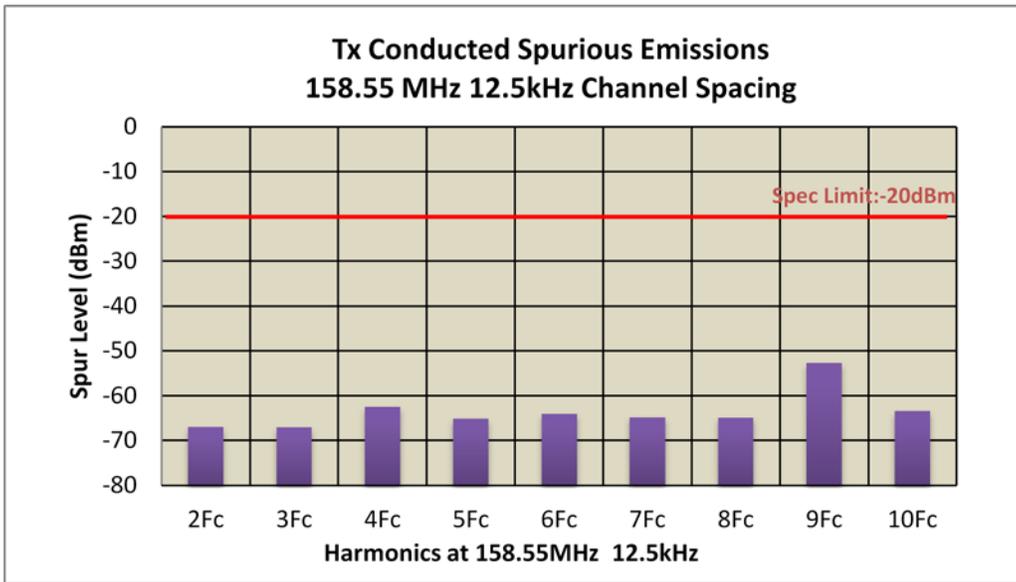


Figure 6F-11: 1W Harmonic of Carrier 158.55 MHz, Digital 12.5 kHz Channel Spacing

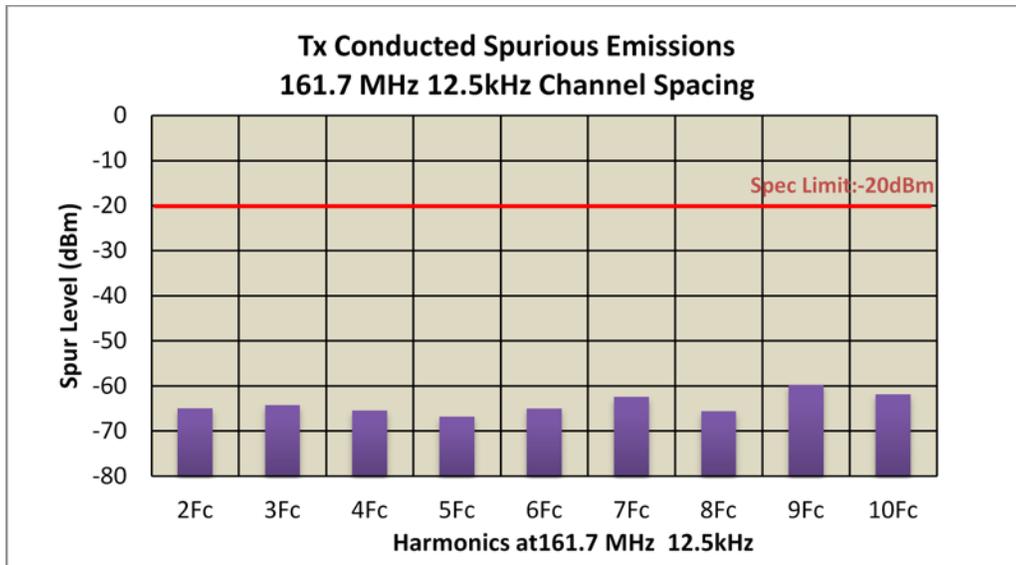
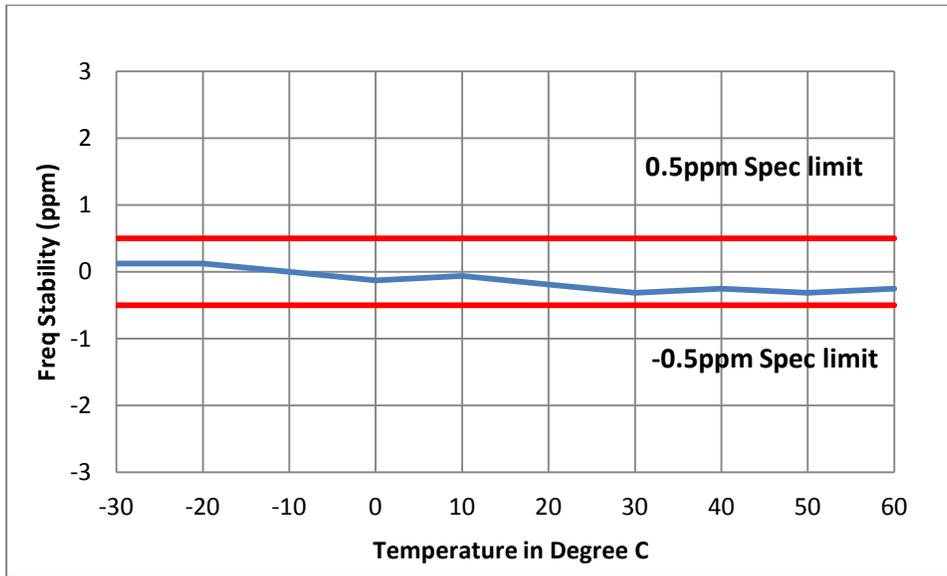
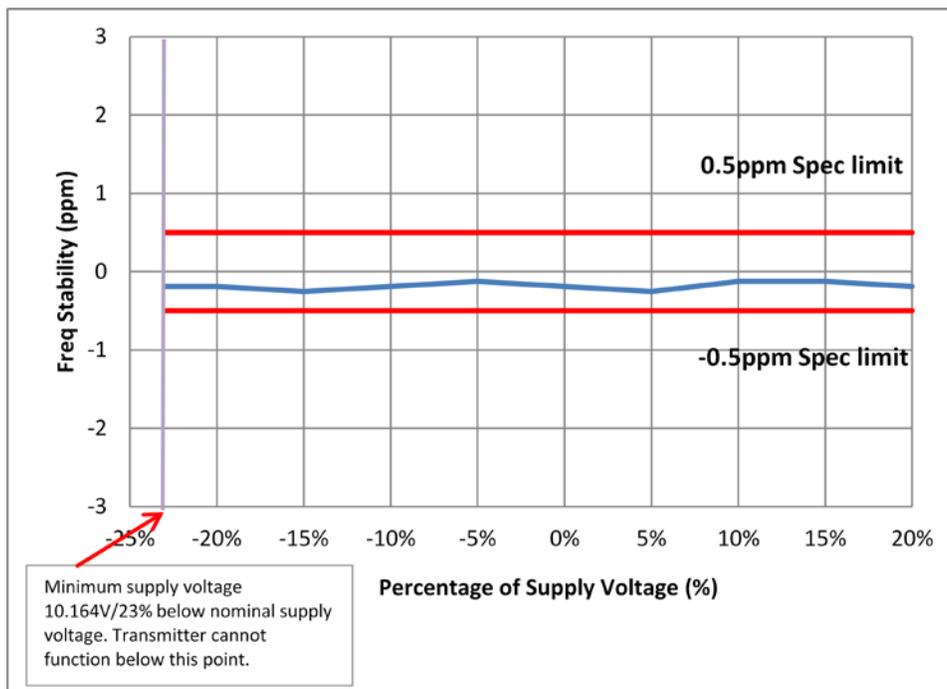


Figure 6F-12: 1W Harmonic of Carrier 161.7 MHz, Digital 12.5 kHz Channel Spacing

EXHIBIT 6H – Frequency Stability



6H-1 – 158.55 MHz Frequency Stability vs. Temperature

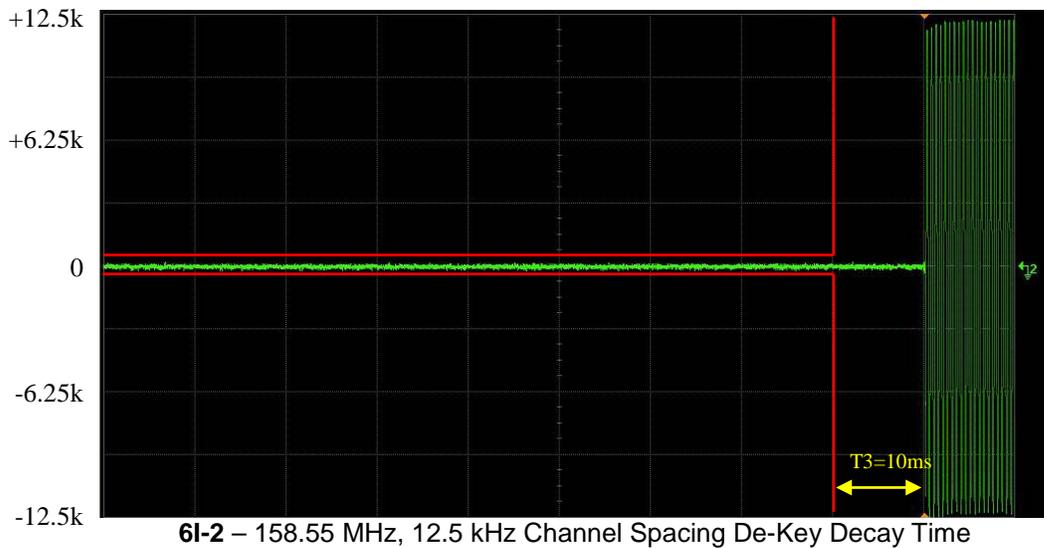


6H-2 – 158.55 MHz Frequency Stability vs. Supply Voltage

EXHIBIT 6I – Transient Frequency Behavior



6I-1 – 158.55 MHz, 12.5 kHz Channel Spacing Key-Up Attack Time



6I-2 – 158.55 MHz, 12.5 kHz Channel Spacing De-Key Decay Time

