

**Exhibit 6. Measured Data ----- 47 CFR. 2.1033 (c) 14**

6.1. RF Power Output Data -- Pursuant 47 CFR 2.1046(a), 2.1033(c)(6), 2.1033(c)(7) and 2.1033(c)(8)

The RF power output was measured with the indicated voltage applied to and current into the final RF amplifying device (U504). The power and current given represents a transmit slot and is not averaged.

At the minimum power setting:

Measured RF output	2.4	milliWatts	Pulse Mean Power
Normal DC Voltage	3.6	Volts	
Mean DC Current	1140	mA	Pulse Mean Current During Transmit Slot
Input Power for the final RF Amplifying Module	0.290	microWatts	

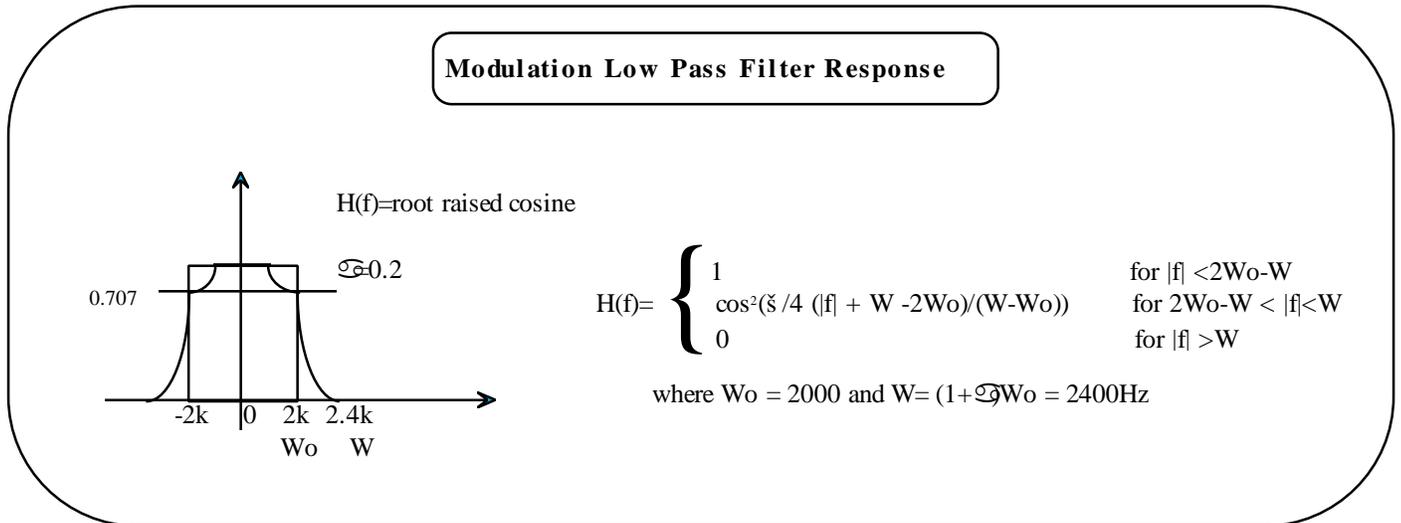
At the maximum power setting:

Measured RF output	0.7	Watts	Pulse Mean Power
Normal DC Voltage	3.6	Volts	
Mean DC Current	1480	mA	Pulse Mean Current During Transmit Slot
Input Power for the Final RF Amplifying Module	0.1905	milliWatts	

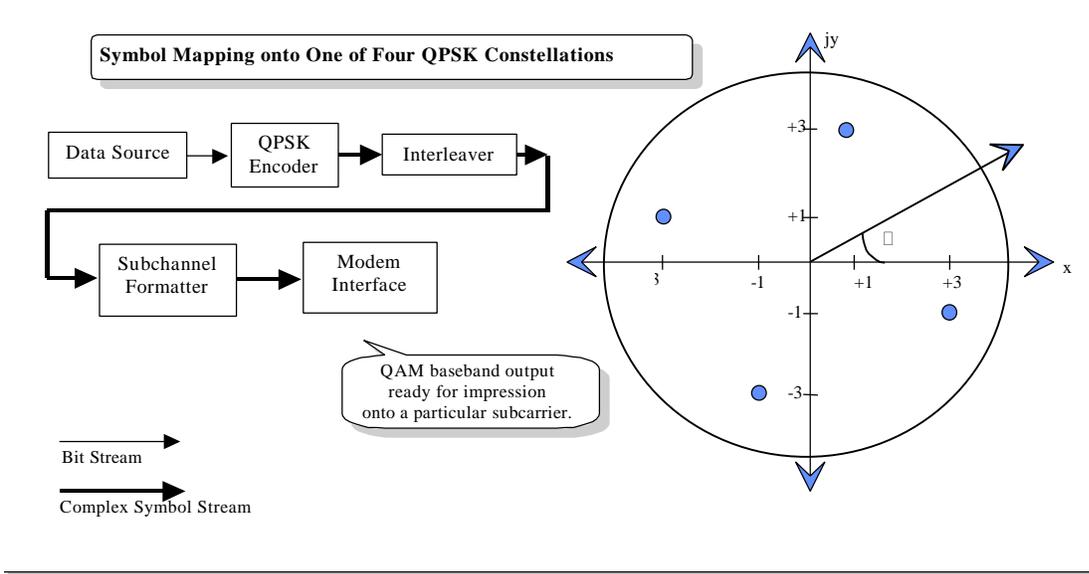
6.2. Modulation Characteristics Data -- Pursuant 47 CFR 2.1047 and 2.1033(c)(13)

Digitally encoded speech or digital data is transmitted in four sub-channels at a 4 kHz rate using M-ary symbols mapped to predetermined fixed magnitude and phase components within 1 of 3 constellations associated with a particular modulation scheme. Figure 6-2 illustrates symbol mapping to one of the four QPSK member constellation. Figure 6-3 illustrates symbol mapping to one of the four 16QAM member constellation. Figure 6-4 illustrates symbol mapping to one of the four 64QAM member constellation. For Quad-QPSK modulation, this mapping adjusts the amplitude and phase variations of the baseband signal to one of 4 points on the constellation. For Quad-16QAM modulation, this mapping adjusts the amplitude and phase variations of the baseband signal to one of 16 points on the constellation. For Quad-64 modulation, this mapping adjusts the amplitude and phase variations of the baseband signal to one of 64 points on the constellation. After conversion by the D/A converters in U401 (see Figure 4-3 in Exhibit 4.3), the necessary bandwidth of the sub-channels is limited to 4.8 kHz by the pair of modulation limiting low pass filters. The transfer response of these filters is depicted in Figure 6-1 where the filter excess bandwidth coefficient of 0.2 is shown. This

excess bandwidth leads to the necessary bandwidth calculation of  $(1 + 0.2) \times (4 \text{ kHz}) = 4.8 \text{ kHz}$ . Since the sub-channels are spaced 4.5 kHz apart, the necessary bandwidth of the composite 4 sub-channel symbol streams is  $4.8 + (3 \times 4.5) = 18.3 \text{ kHz}$ .



**Figure 6-1: Modulation Low Pass Filter Response**



**Figure 6-2: Symbol Mapping onto One of Four QPSK Constellations**

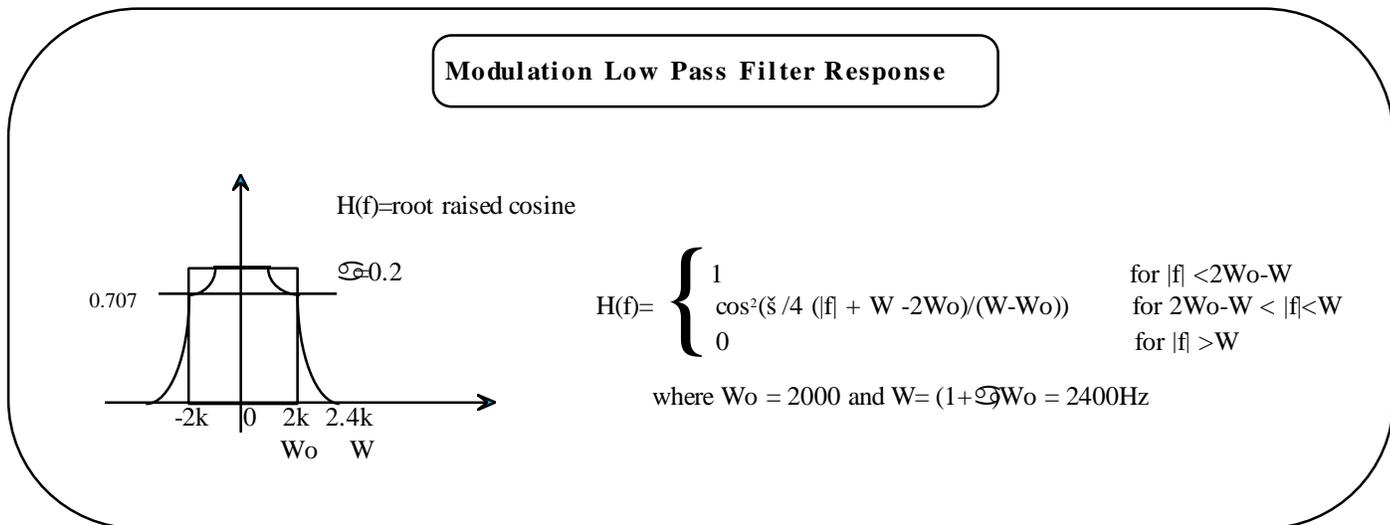


Figure 6-1: Modulation Low Pass Filter Response

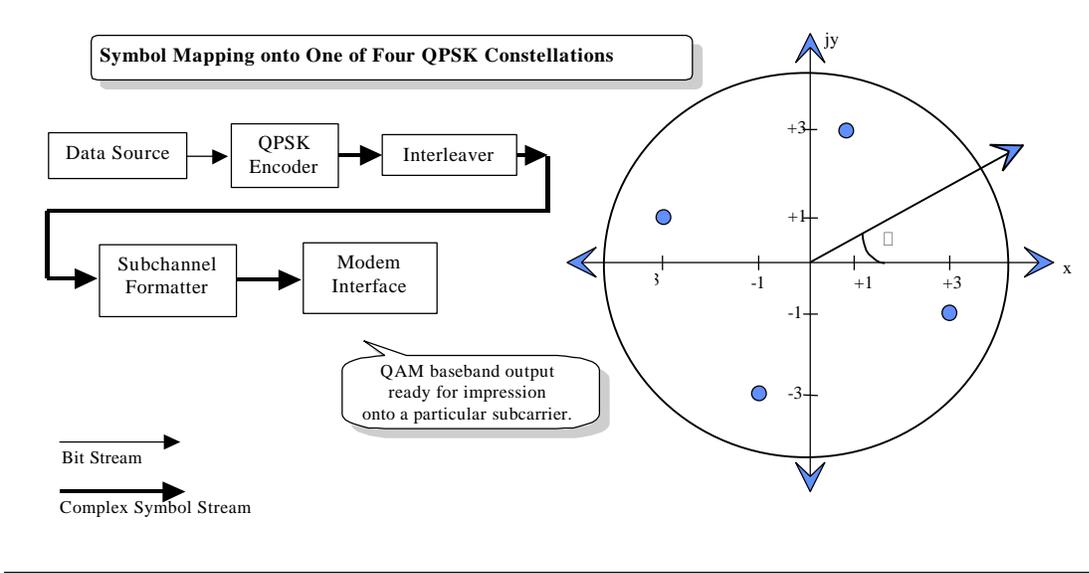


Figure 6-2: Symbol Mapping onto One of Four QPSK Constellations

6.3. Occupied Bandwidth Data -- Pursuant 47 CFR 2.1049, 90.210(g) and 90.691

The method described in paragraph 7.2 was employed with the following conditions:

For Quad-QPSK Modulation:

32K Bits Per Second Pseudo-Random Digital Modulation

Vertical: 10 dB/div

Carrier Reference: 0 dB corresponds to 0.6 watts (+27.8 dBm) mean power for maximum power setting and 2.4 milliwatts (+3.8 dBm) for minimum power setting.

For Quad-16QAM Modulation:

64K Bits Per Second Pseudo-Random Digital Modulation

Vertical: 10 dB/div

Carrier Reference: 0 dB corresponds to 0.6 watts (+27.8 dBm) mean power for maximum power setting and 2.4 milliwatts (+3.8 dBm) for minimum power setting.

For Quad-64QAM Modulation:

96K Bits Per Second Pseudo-Random Digital Modulation

Vertical: 10 dB/div

Carrier Reference: 0 dB corresponds to 0.6 watts (+27.8 dBm) mean power for maximum power setting and 2.4 milliwatts (+3.8 dBm) for minimum power setting.

In Figures 6-5 through Figure 6-16, trace 2 (transmitter performance) was measured using a resolution bandwidth of 300 Hz, while trace 1 (reference level) was obtained using a resolution bandwidth of 100 kHz. Trace 3 is the applicable emission mask.

### Measured Data

Refer to Figures 6-5 and 6-6 for Quad-QPSK Modulation performance relative to mask 47 CFR 90.210(g).

Refer to Figures 6-7 and 6-8 for Quad-16QAM Modulation performance relative to mask 47 CFR 90.210(g).

Refer to Figures 6-9 and 6-10 for Quad-64QAM Modulation performance relative to mask 47 CFR 90.210(g).

Refer to Figures 6-11 and 6-12 for Quad-QPSK performance relative to mask 47 CFR FCC 90-691(a).

Refer to Figures 6-13 and 6-14 for Quad-16QAM performance relative to mask 47 CFR FCC 90-691(a).

Refer to Figures 6-15 and 6-16 for Quad-64QAM performance relative to mask 47 CFR FCC 90-691(a).

FCC Limits

Per 47CFR 90.210(g)

- (1) On any frequency removed from the center of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of more than 5 kHz up to and including 10 kHz:

At least  $83 \log_{10}(f_d/5)$  decibels.

- (2) On any frequency removed from the center of the authorized bandwidth by a displacement frequency ( $f_d$  in kHz) of more than 10 kHz up to and including 250 percent of the authorized bandwidth:

At least  $116 \log_{10}(f_d/6.1)$  decibels or 50 plus  $10 \log_{10}$  (Unmodulated Carrier Power) decibels or 70 decibels, whichever is lesser attenuation.

- (3) On any frequency removed from the center of the authorized bandwidth by more than 250 percent of the authorized bandwidth:

At least  $43 + 10 \log_{10}$  (Output Power in Watts) decibels or 80 decibels, whichever is lesser attenuation.

Per EA SMR Emission Mask, 47 CFR 90.691(a):

Out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees.

- (1) For any frequency removed from the EA licensee's frequency block by up to and including 37.5 kHz, the power of any emission shall be attenuated below the transmitter power ( $P$ ) in watts by at least  $116 \log_{10}(f/6.1)$  decibels or  $50 + 10 \log_{10}(P)$  decibels or 80 decibels, whichever is the lesser attenuation, where  $f$  is the frequency removed from the center channel of the outer channel in the block in kilohertz and where  $f$  is greater than 12.5 kHz.
- (2) For any frequency removed from the EA licensee's frequency block greater than 37.5 kHz, the power of any emission shall be attenuated below the transmitter power ( $P$ ) in watts by at least  $43 + 10 \log_{10}(P)$  decibels (i.e. -13 dBm) or 80 decibels, whichever is the lesser attenuation, where  $f$  is the frequency removed from the center of the outer channel in the block in kilohertz and where  $f$  is greater than 37.5 kHz.

Figure 6-5: Quad-QPSK Modulation performance relative to mask 47 CFR 90.210(g),  
Maximum Power Setting:

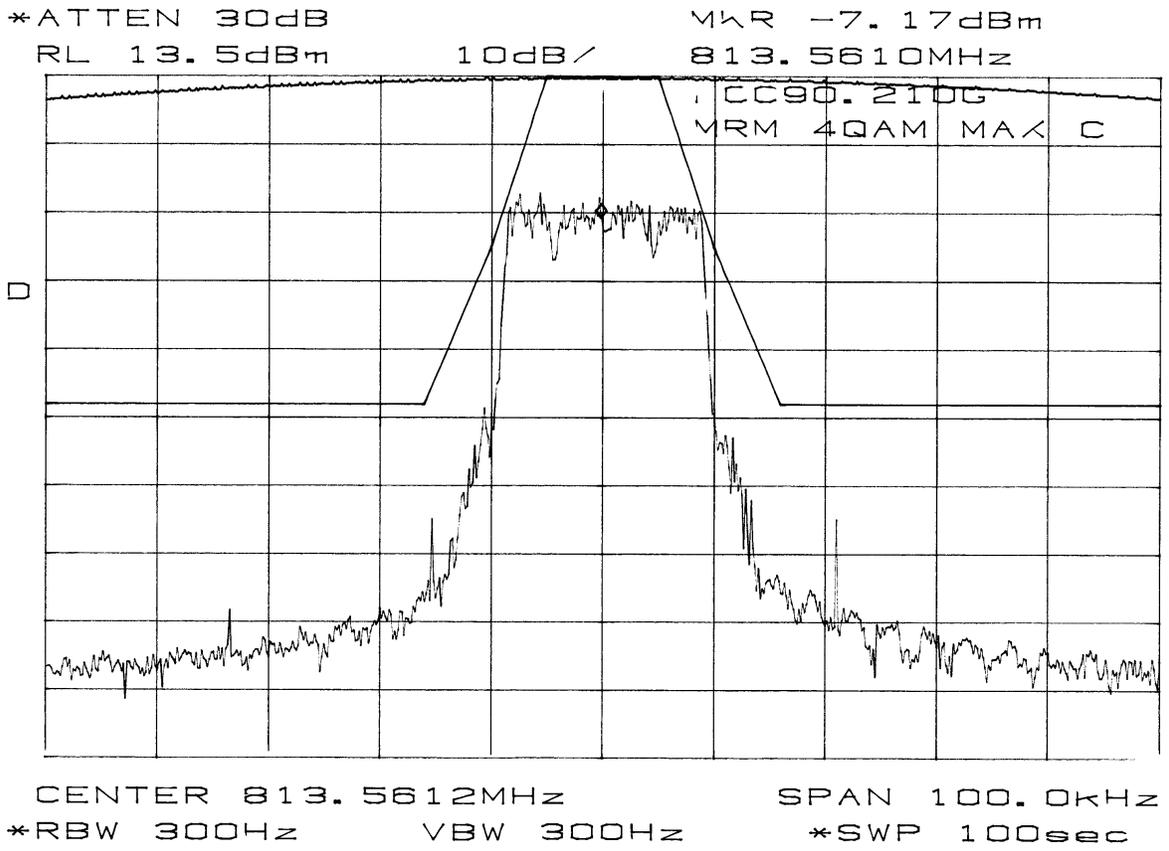


Figure 6-6: Quad-QPSK Modulation Performance Relative to Mask 47 CFR 90.210(g),  
Minimum Power Setting:

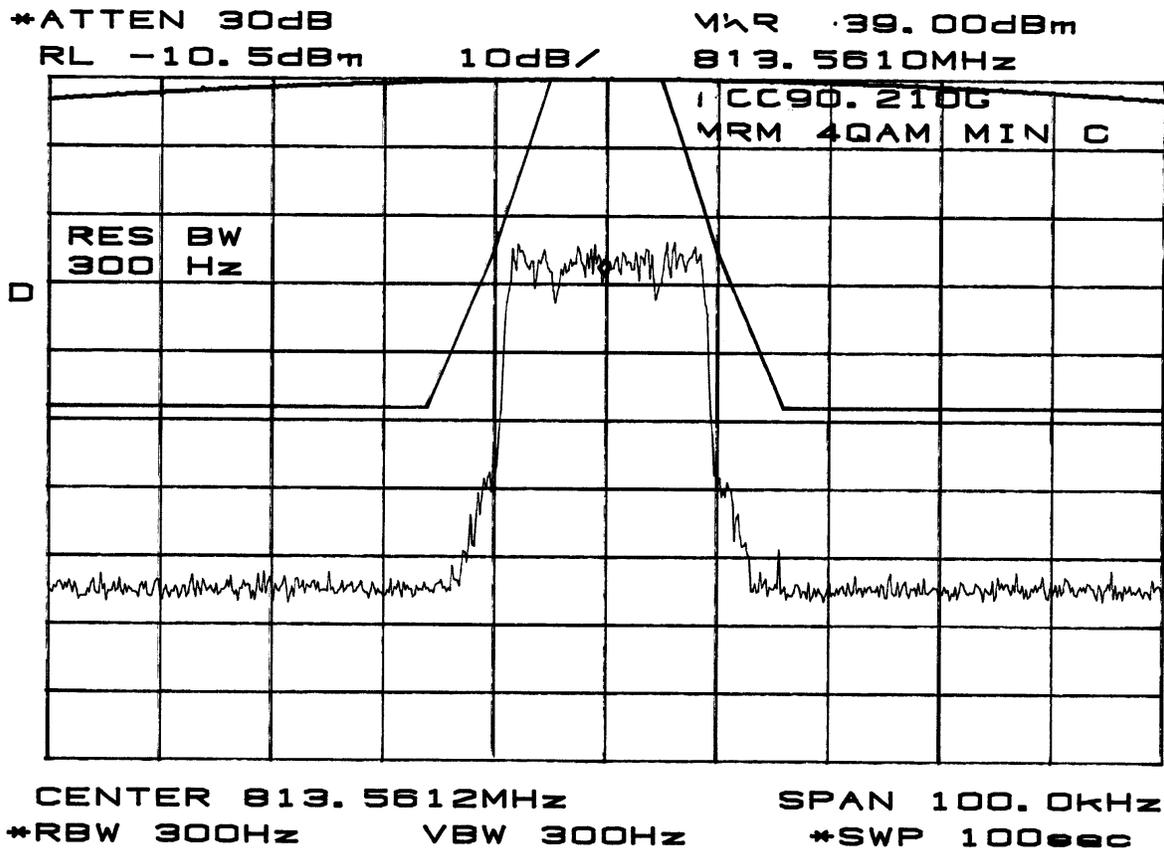


Figure 6-7: Quad-16QAM Modulation Performance Relative to Mask 47 CFR 90.210(g),  
Maximum Power Setting:

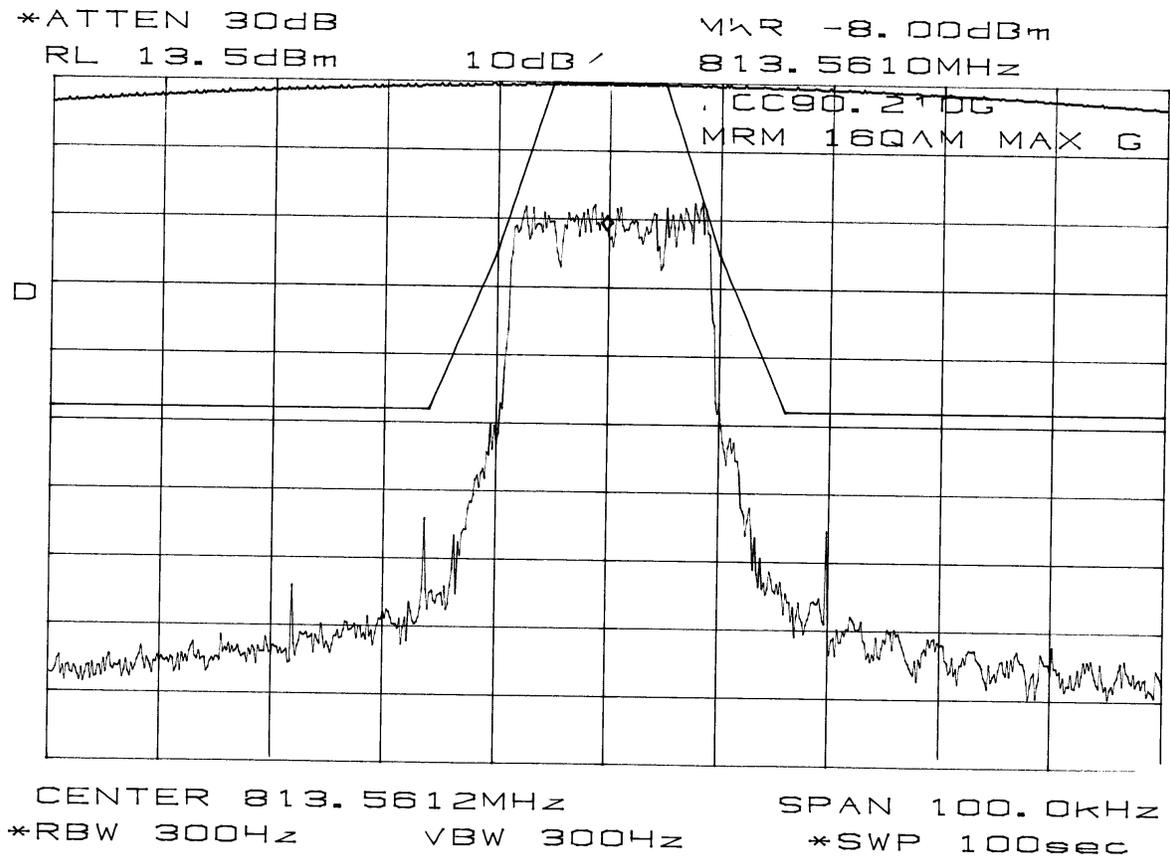


Figure 6-8: Quad-16QAM Modulation Performance Relative to Mask 47 CFR 90.210(g),  
Minimum Power Setting:

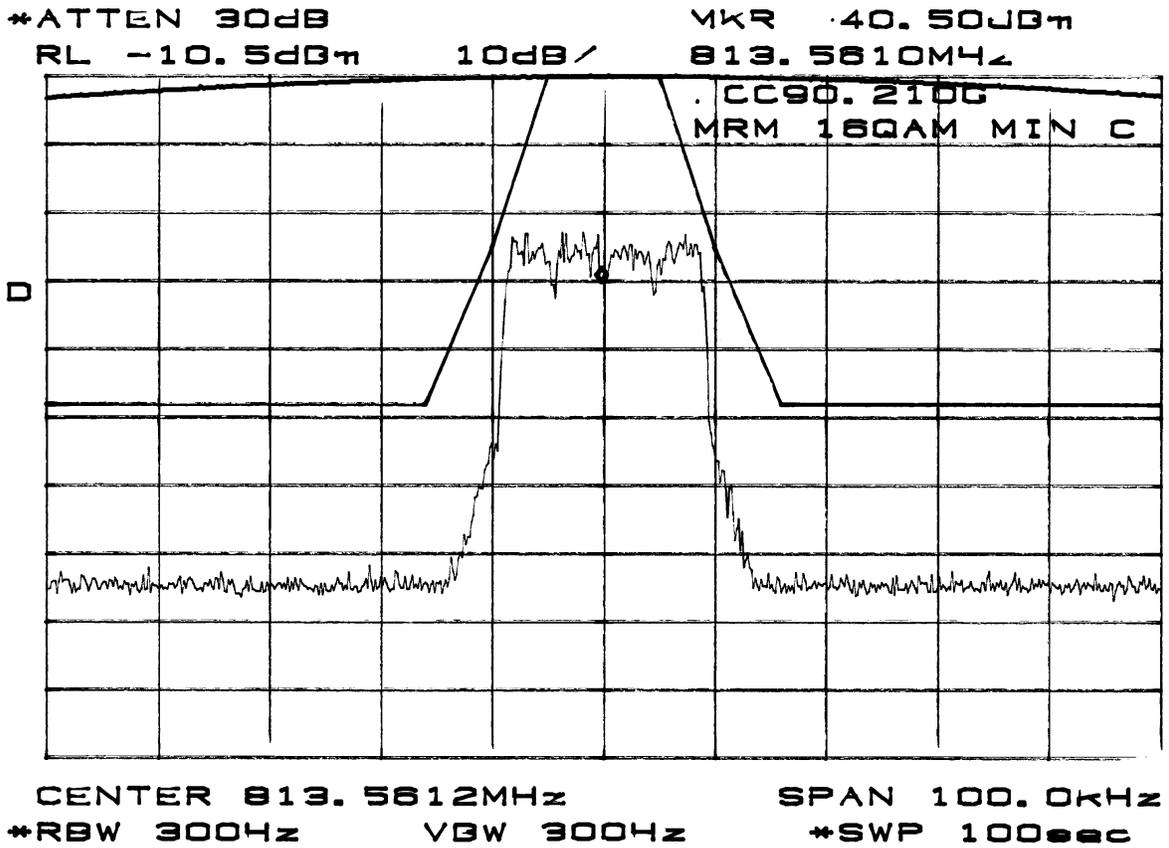


Figure 6-9: Quad-64QAM Modulation Performance Relative to Mask 47 CFR 90.210(g),  
Maximum Power Setting:

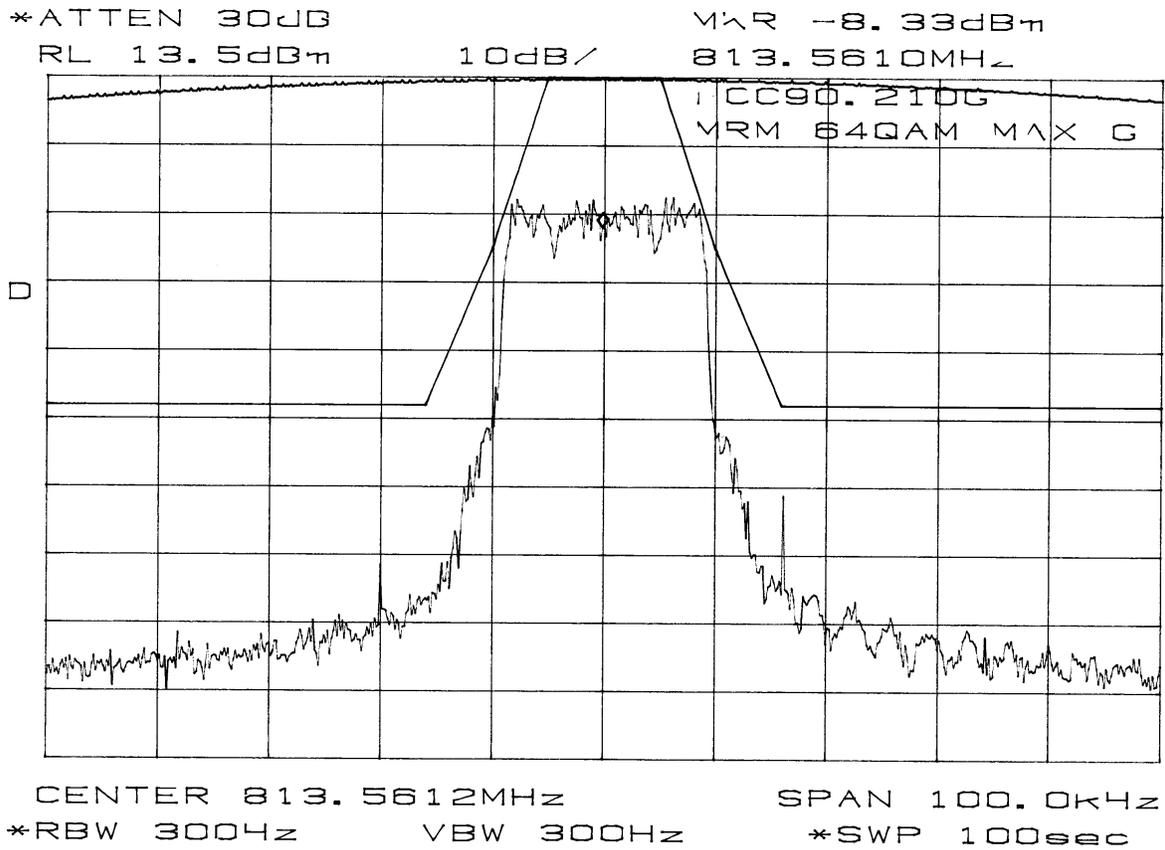


Figure 6-10: Quad-64QAM Modulation Performance Relative to Mask 47 CFR 90.210(g),  
Minimum Power Setting:

