

**Exhibit 6. Measured Data ----- 47 CFR. 2.1033(c) 14****6.1. Final RF Amplifier Stage RF and DC Power -- 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 (U503). The power and current given represent values during a TDM transmission slot.

**At maximum output power setting:**

RF output power            0.72    watts (pulse average)  
DC voltage                    3.6     volts

TDM MULTIPLEX FACTOR	RF PA INPUT POWER	RF PA INPUT CURRENT
	mw (pulse average)	ma DC (steady state)
1/6	0.14	173
2/6	0.28	346
81/120	0.57	701

**At the minimum power setting:**

RF output power            0.19    milliwatts (pulse average)  
DC voltage                    3.6     volts

TDM MULTIPLEX FACTOR	RF PA INPUT POWER	RF PA INPUT CURRENT
	mw (pulse average)	ma (steady state)
1/6	0.56	90
2/6	1.12	180
81/120	2.27	364

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 sub-channels constellations. Figure 6-3 illustrates symbol mapping to one of the four 16QAM sub-channels constellation. Figure 6-4 illustrates symbol mapping to one of the four 64QAM sub-channels 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 U601 (see Figure 4-3 in Exhibit 4), 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  $4.8 + (3 \times 4.5) = 18.3 \text{ kHz}$ .

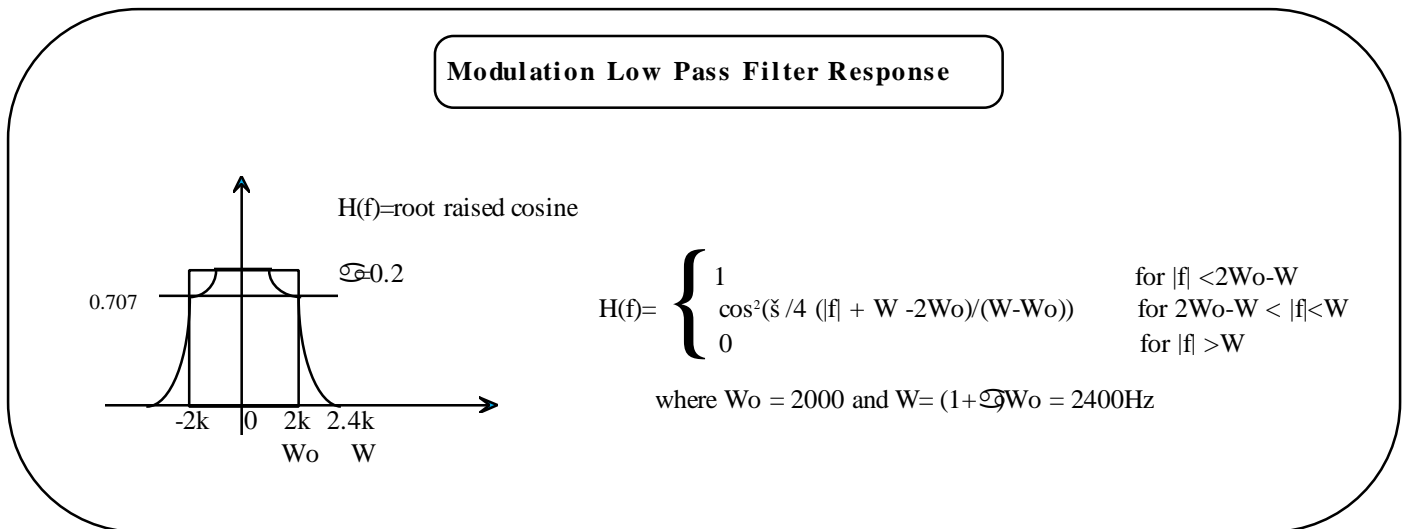


Figure 6-1: Modulation Low Pass Filter response

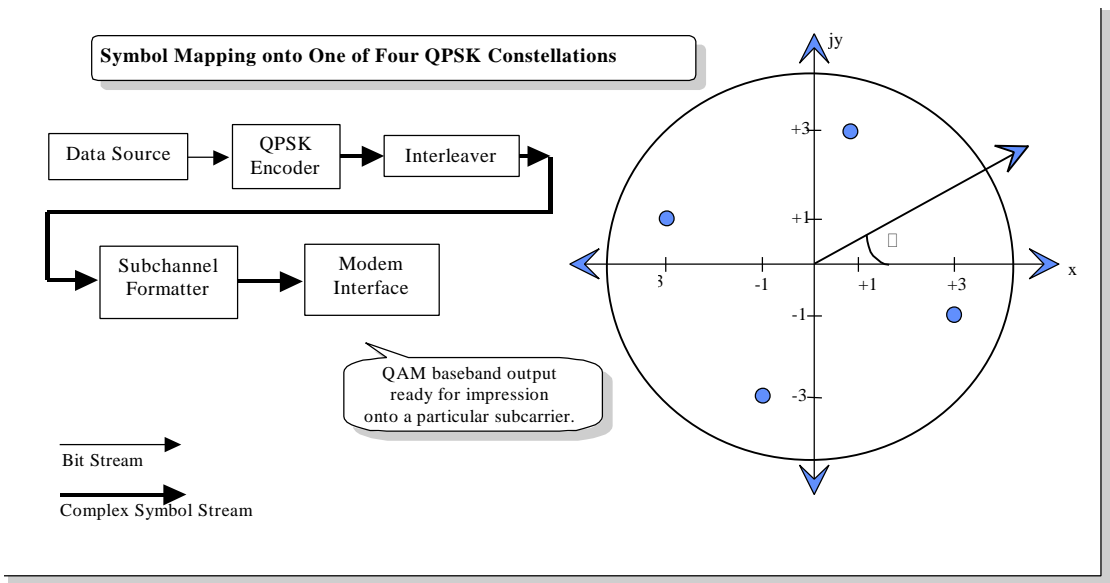


Figure 6-2: Symbol mapping onto one of four QPSK constellations

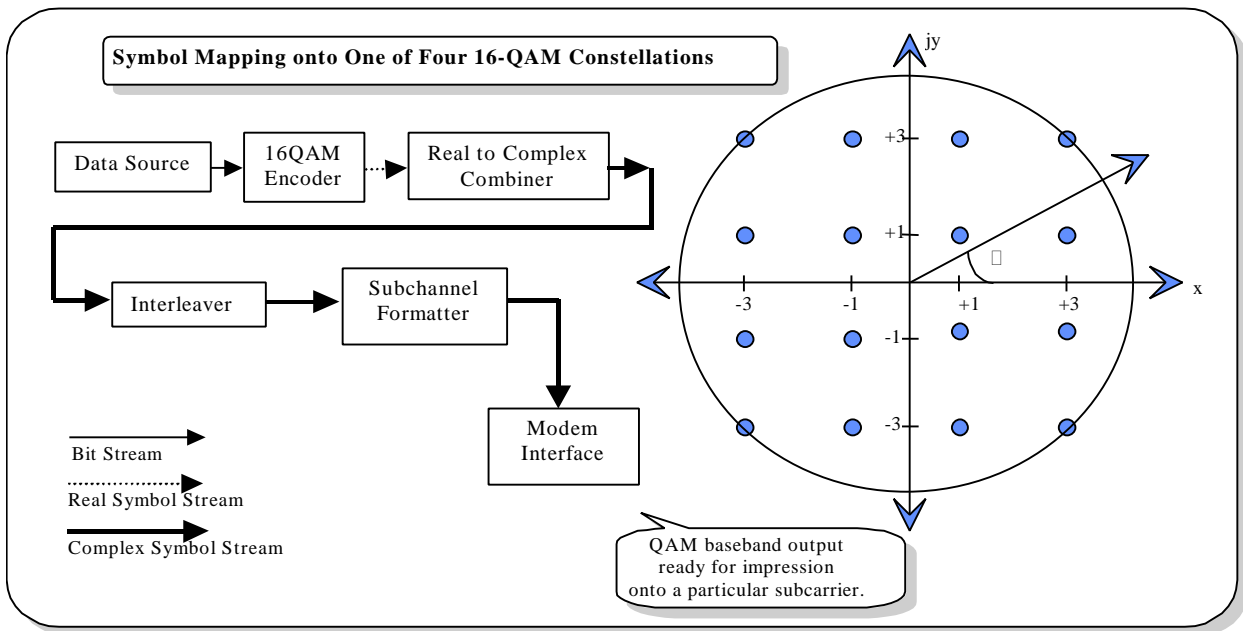


Figure 6-3: Symbol mapping onto one of four 16-QAM constellations

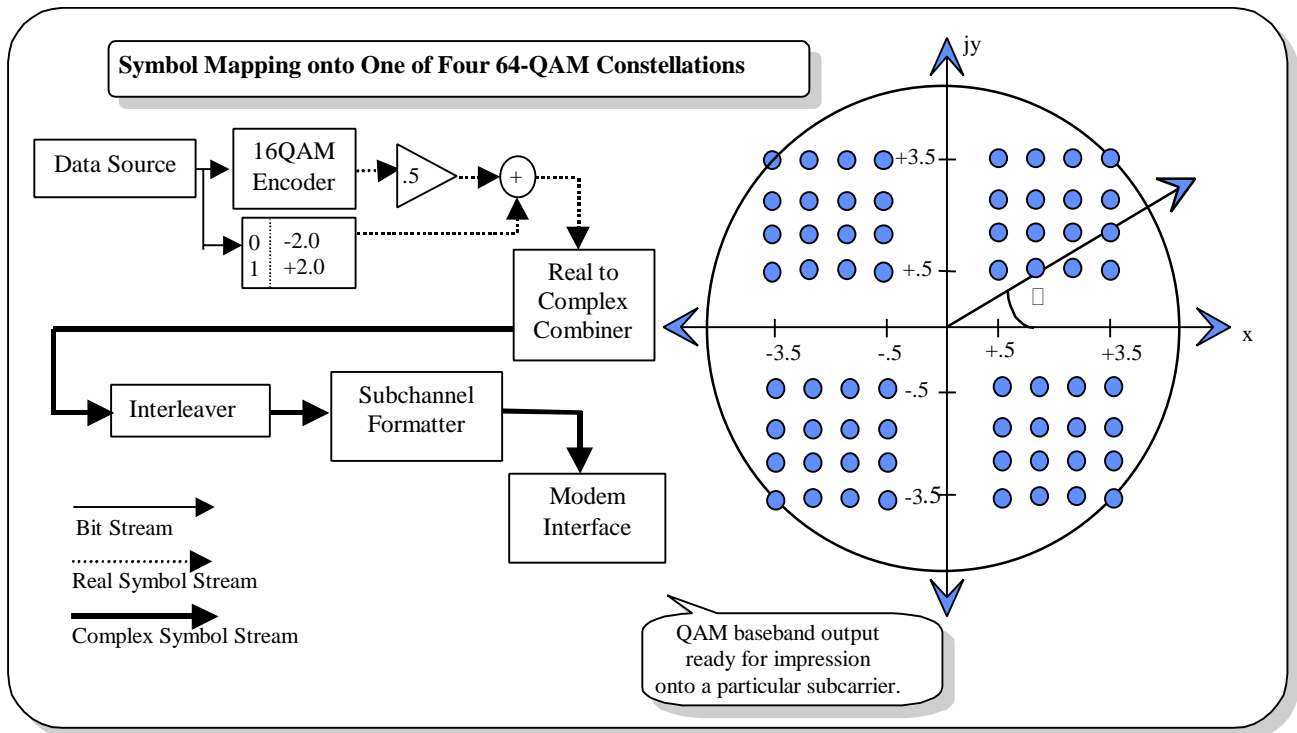


Figure 6-4: Symbol mapping onto one of four 64-QAM constellations

**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 division: 10 dB/div.

For Quad-16QAM Modulation:

64K Bits Per Second Pseudo-Random Digital Modulation

Vertical: 10 dB/div

For Quad-64QAM Modulation:

96K Bits Per Second Pseudo-Random Digital Modulation

Vertical: 10 dB/div

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 30 kHz. Trace 3 is the applicable emission mask.

**Mask 47 CFR 90.210(g) Measured Data**

Refer to Figures 6-5 and 6-6 for Quad-QPSK Modulation performance.

Refer to Figures 6-7 and 6-8 for Quad-16QAM Modulation performance.

Refer to Figures 6-9 and 6-10 for Quad-64QAM Modulation performance.

**Mask 47 CFR 90-691(a) Measured Data**

Refer to Figures 6-11 and 6-12 for Quad-QPSK Modulation performance.

Refer to Figures 6-13 and 6-14 for Quad-16QAM Modulation performance.

Refer to Figures 6-15 and 6-16 for Quad-64QAM Modulation performance.

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 plus  $10 \log_{10}$  (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.

**Mask 47 CFR 90.210(g) Measured Data**

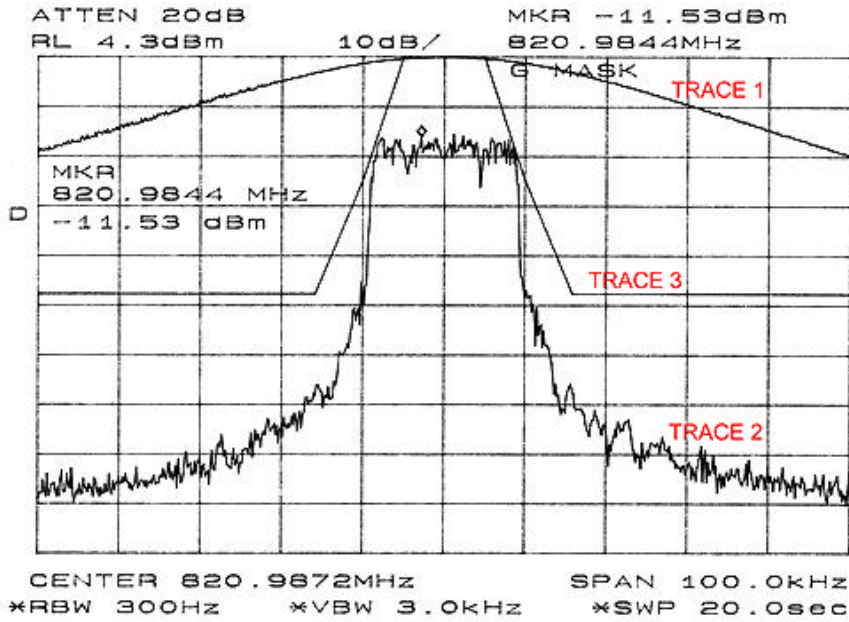


Figure 6-5: Quad-QPSK modulation performance at maximum output power setting

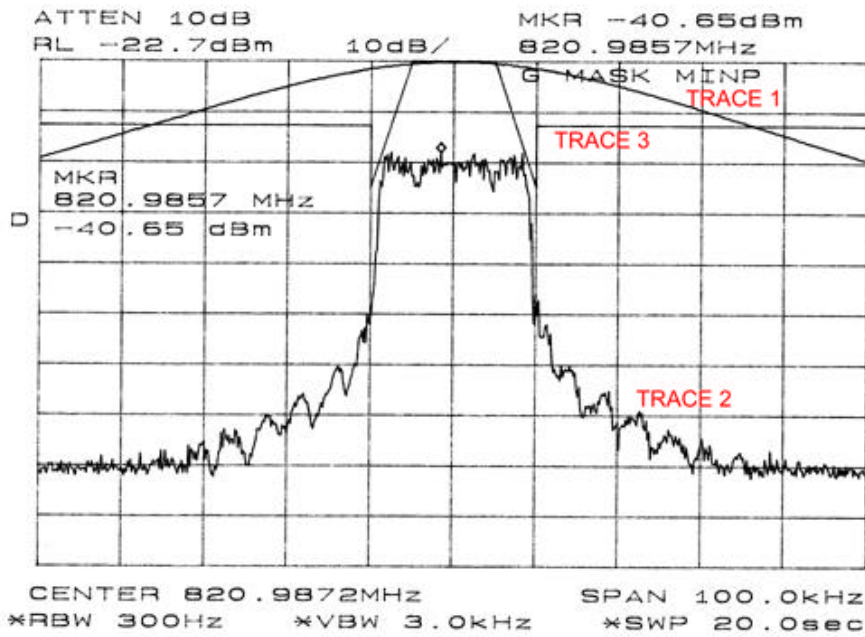


Figure 6-6: Quad-QPSK modulation performance at minimum output power setting

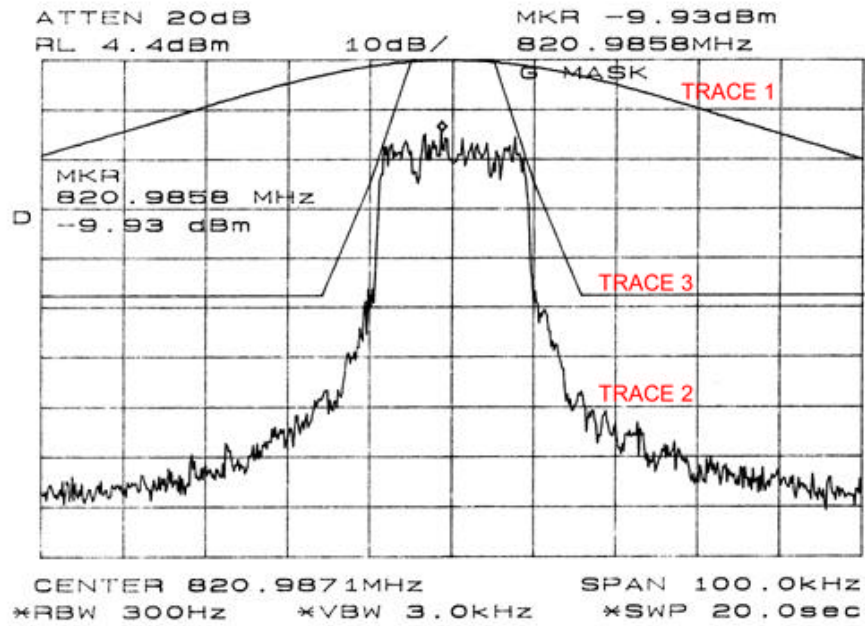


Figure 6-7: Quad-16QAM modulation performance at maximum output power setting

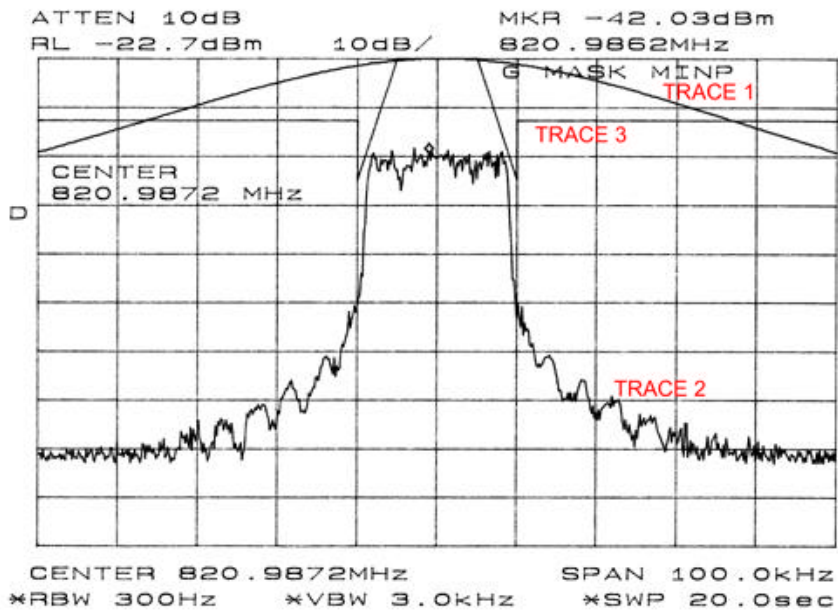


Figure 6-8: Quad-16QAM modulation performance at minimum output power setting



Figure 6-9: Quad-64QAM modulation performance at maximum output power setting

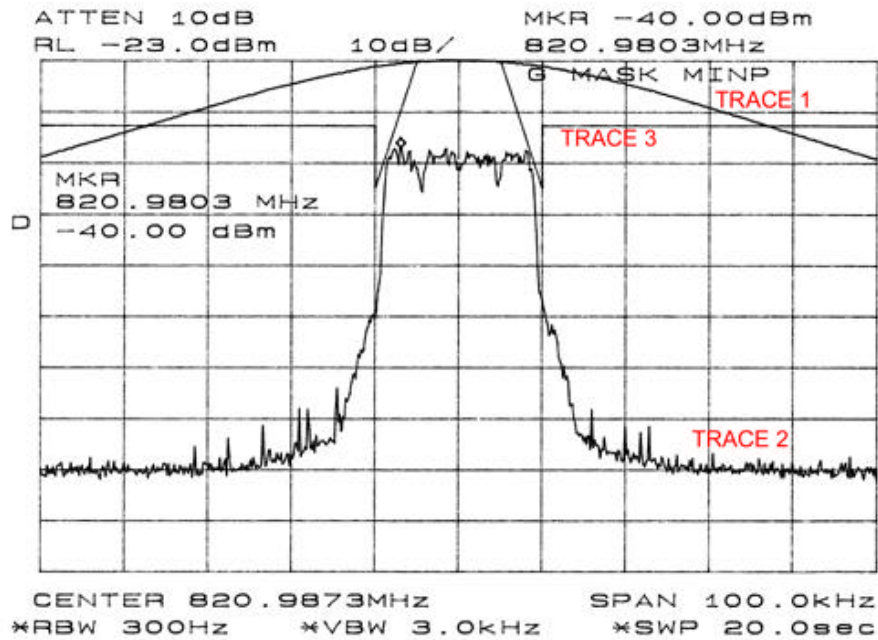


Figure 6-10: Quad-64QAM modulation performance at minimum output power setting

**Mask 47 CFR 90-691(a) Measured Data**

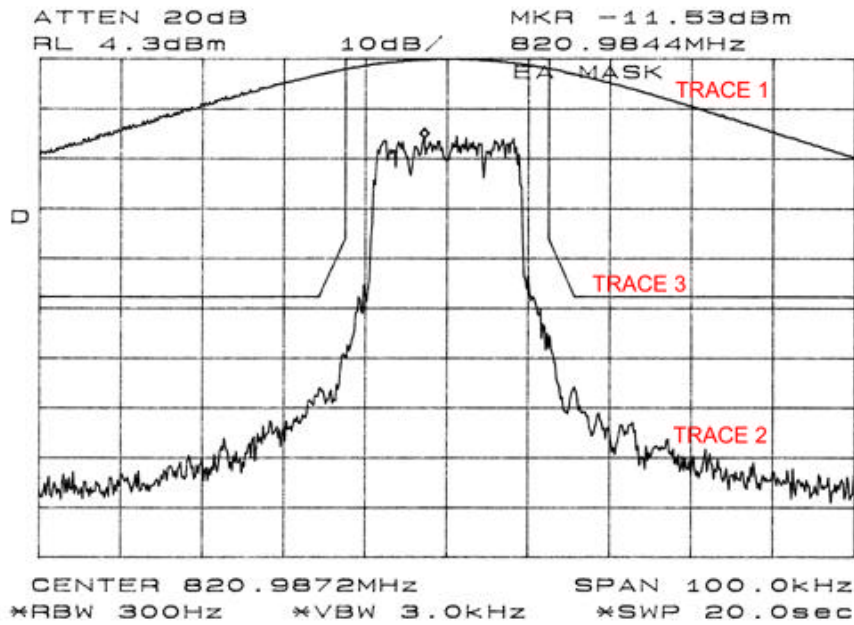


Figure 6-11: Quad-QPSK modulation performance at maximum output power setting

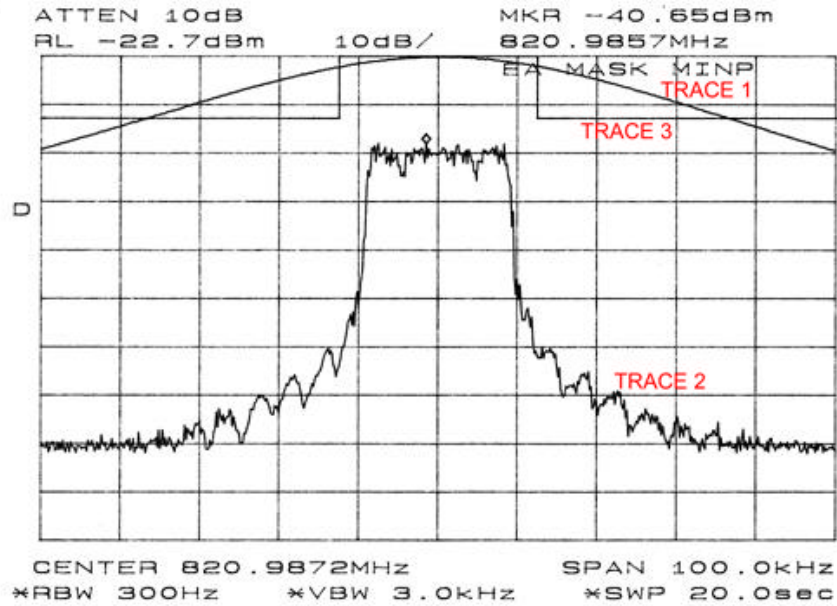


Figure 6-12: Quad-QPSK modulation performance at minimum output power setting

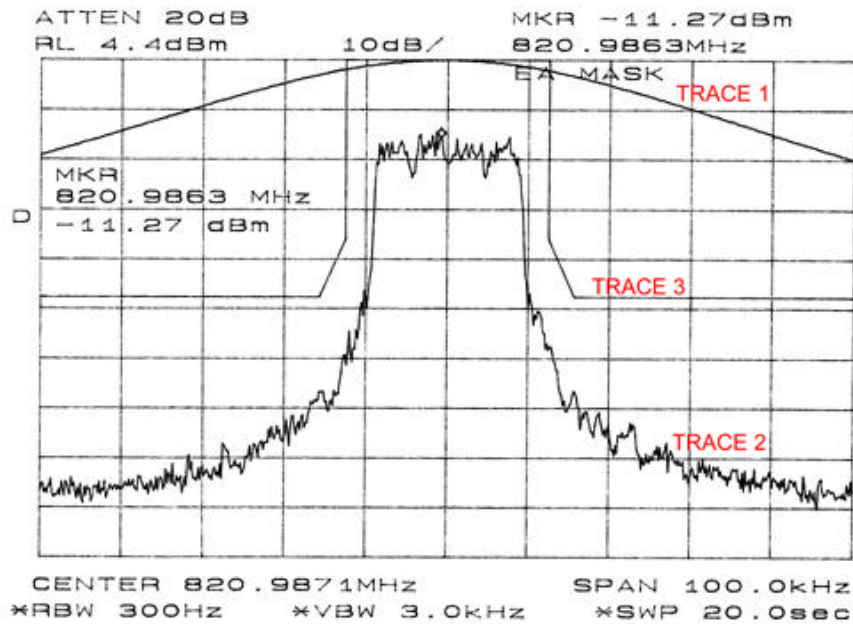


Figure 6-13: Quad-16QAM modulation performance at maximum output power setting

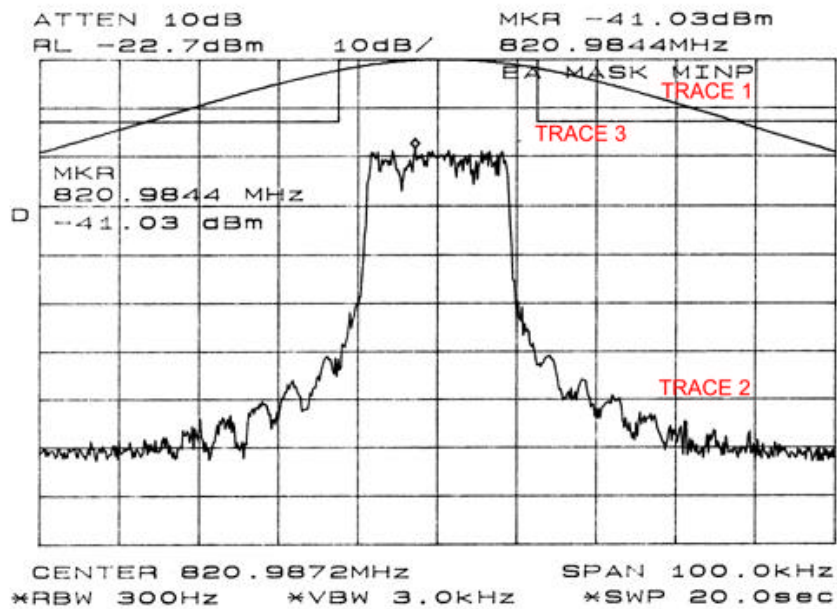


Figure 6-14: Quad-16QAM modulation performance at minimum output power setting

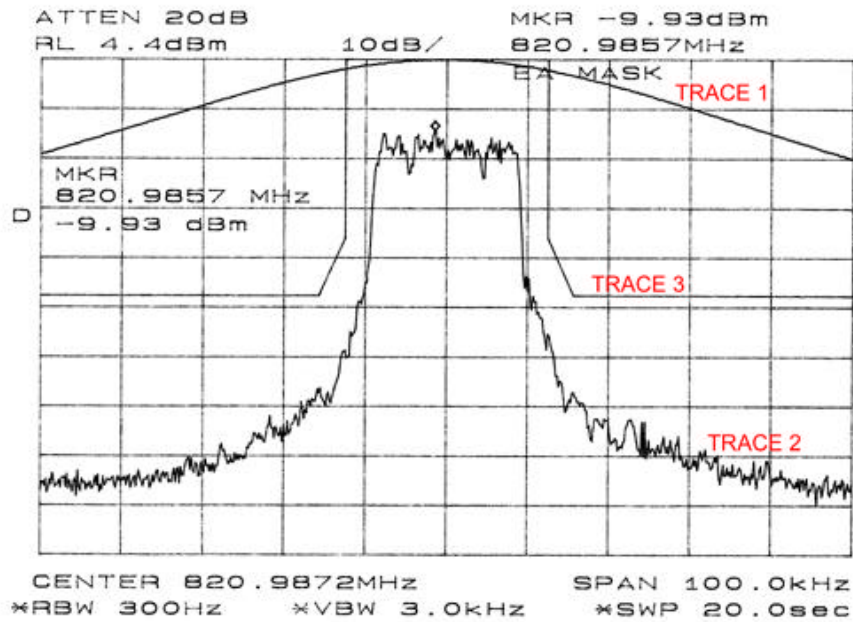


Figure 6-15: Quad-64QAM modulation performance at maximum output power setting

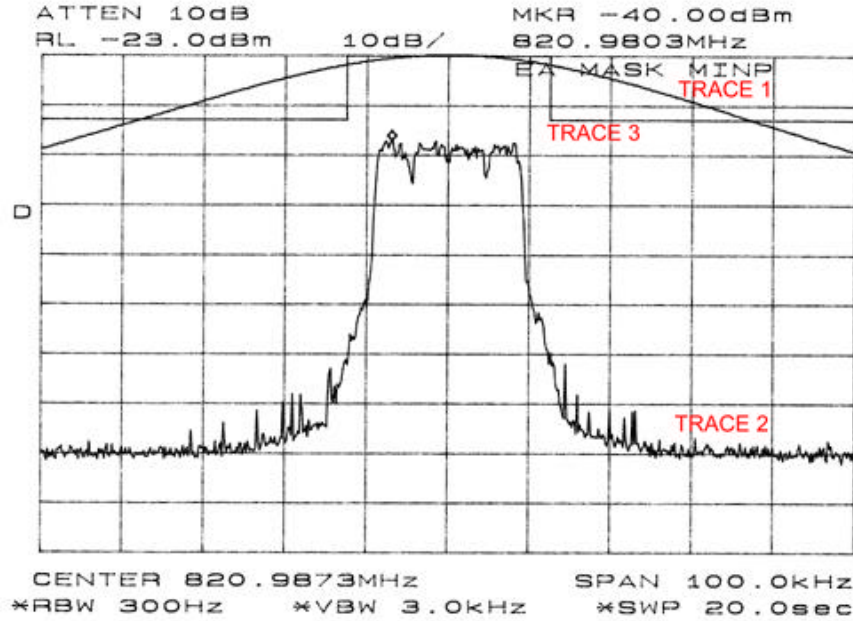


Figure 6-16: Quad-64QAM modulation performance at minimum output power setting