

Exhibit 6. Measured Data -- Pursuant 47 CFR. 2.1041

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

The RF power output was measured at the nominal battery voltage of 4.0 V (unloaded battery terminal voltage). The voltage applied to and current into the final RF amplifying device U500 is indicated below (primary and alternate device data is presented, refer to Exhibit 10). The measurements were taken during a transmission slot.

Primary U500 Data:

At the minimum power setting:

Measured RF output	0.667	milliWatts	Pulse Mean Power
DC Voltage	3.84	Volts	Pulse RMS Voltage
DC Current	427	mA	Pulse RMS Current
			During Transmit Slot
RF Input Power for the final RF Amplifying Module	0.106	uW	Pulse Mean Power

At the maximum power setting:

Measured RF output	0.635	Watts	Pulse Mean Power
DC Voltage	3.70	Volts	Pulse RMS Voltage
DC Current	1.03	A	Pulse RMS Current
			During Transmit Slot
RF Input Power for the Final RF Amplifying Module	0.101	mW	Pulse Mean Power

Alternate U500 Data:

At the minimum power setting:

Measured RF output	0.568	milliWatts	Pulse Mean Power
DC Voltage	3.89	Volts	Pulse RMS Voltage
DC Current	221	mA	Pulse RMS Current
			During Transmit Slot
RF Input Power for the final RF Amplifying Module	.143	uW	Pulse Mean Power

At the maximum power setting:

Measured RF output	0.562	Watts	Pulse Mean Power
DC Voltage	3.78	Volts	Pulse RMS Voltage
DC Current	0.694	A	Pulse RMS Current
			During Transmit Slot
RF Input Power for the Final RF Amplifying Module	.141	mW	Pulse Mean Power

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

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. The bandwidth of the modulating signals is limited by the pair of modulation limiting low pass filters in U801 (see Figure 4-3 in Exhibit 4.3). These filters serve to limit out-of-band and spurious emissions due to modulation. 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 $4.8 + (3 \times 4.5) = 18.3 \text{ kHz}$.

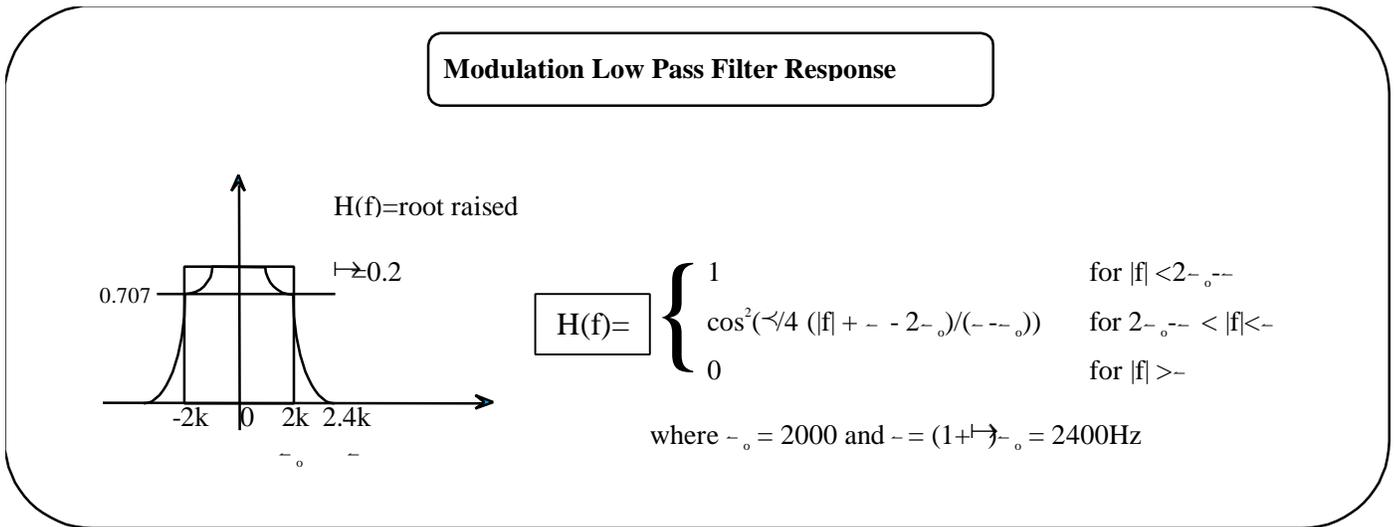


Figure 6-1: Modulation Low Pass Filter Response

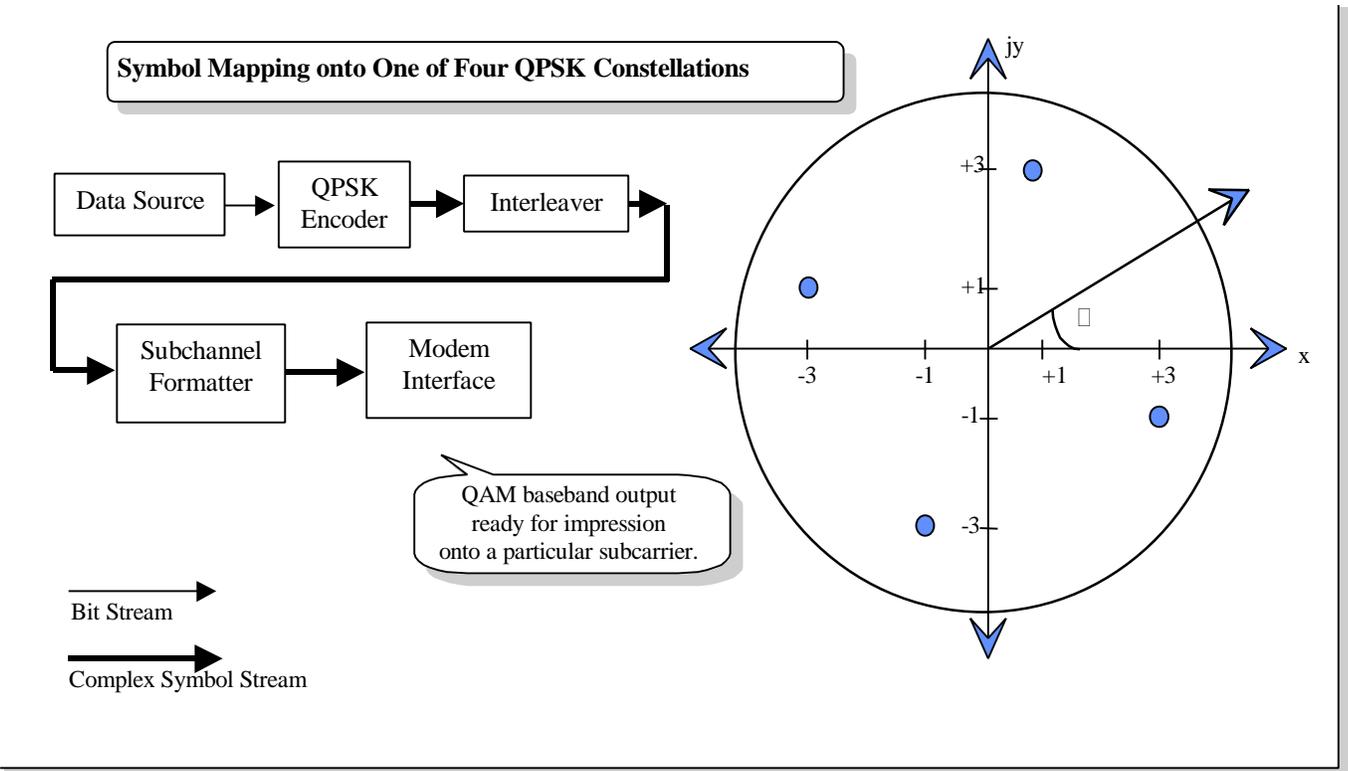


Figure 6-2: Symbol Mapping onto One of Four QPSK Constellations

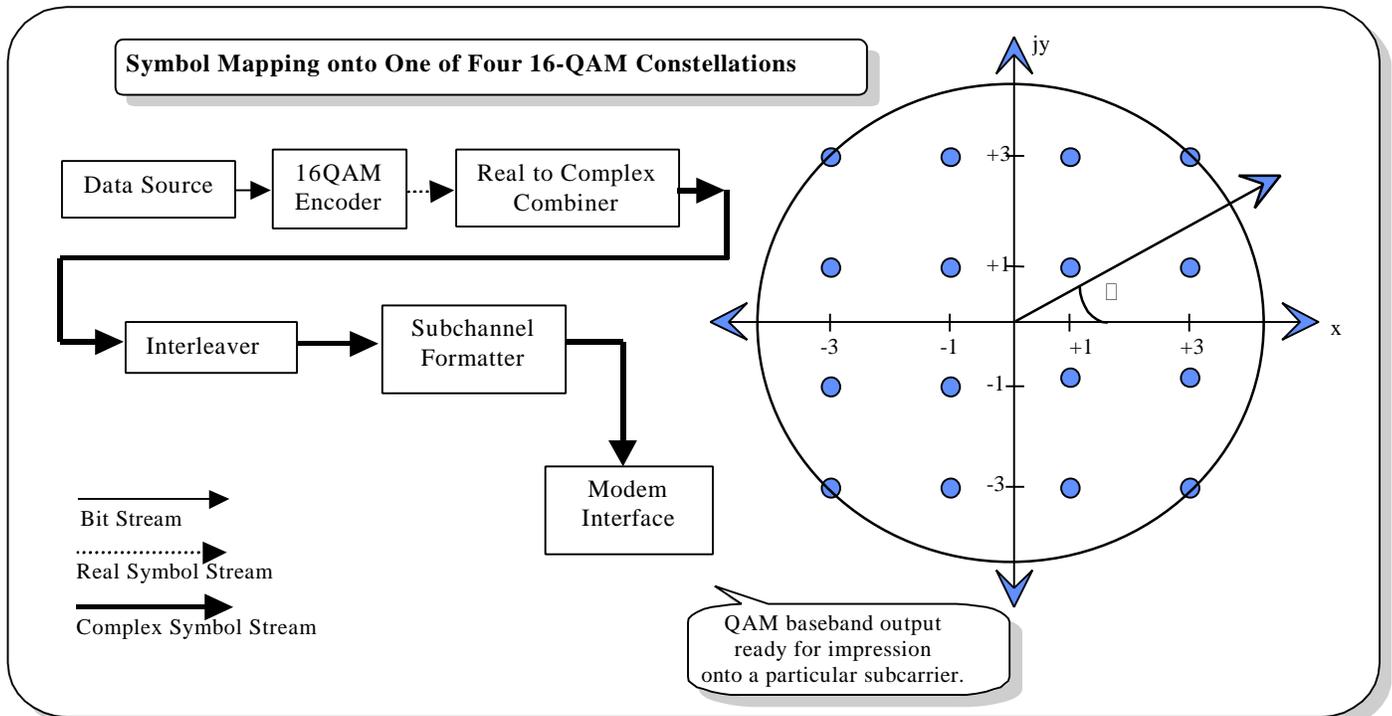


Figure 6-3: Symbol Mapping onto One of Four 16-QAM Constellations

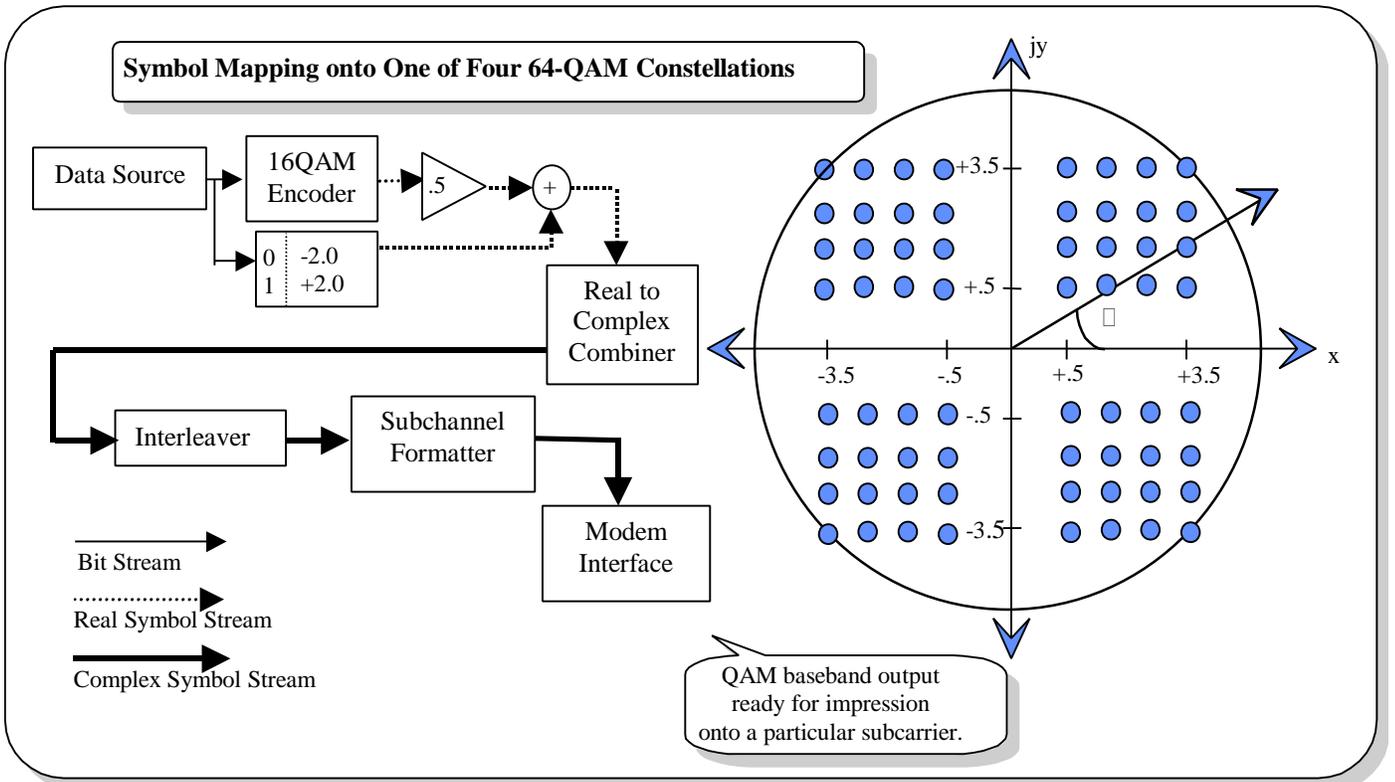


Figure 6-4: Symbol Mapping onto One of Four 64-QAM Constellations

6.3. Occupied Bandwidth Data -- Pursuant 47 CFR 2.1049(h), 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.

Carrier Reference: Carrier Reference 0 dB corresponds to maximum and minimum peak output power settings, respectively.

For Quad-16QAM Modulation:

64K Bits Per Second Pseudo-Random Digital Modulation

Vertical: 10 dB/div

Carrier Reference: Carrier Reference 0 dB corresponds to maximum and minimum peak output power settings, respectively.

For Quad-64QAM Modulation:

96K Bits Per Second Pseudo-Random Digital Modulation

Vertical: 10 dB/div

Carrier Reference: Carrier Reference 0 dB corresponds to maximum and minimum peak output power settings, respectively.

In Figures 6-5 through Figure 6-16, one trace was used to capture transmitter performance, measured using a resolution bandwidth of 300 Hz, while the reference level was obtained by another trace, using a resolution bandwidth of 30 kHz. A third trace shows the applicable emission mask.

Measured Data

Refer to Figures 6-5 and 6-6 (6-17 and 6-18 for alternate U500) for Quad-QPSK Modulation performance relative to mask 47 CFR 90.210(g).

Refer to Figures 6-9 and 6-10 (6-21 and 6-22 for alternate U500) for Quad-16QAM Modulation performance relative to mask 47 CFR 90.210(g).

Refer to Figures 6-13 and 6-14 (6-25 and 6-26 for alternate U500) for Quad-64QAM Modulation performance relative to mask 47 CFR 90.210(g).

Refer to Figures 6-7 and 6-8 (6-19 and 6-20 for alternate U500) for Quad-QPSK performance relative to mask 47 CFR 90.691.

Refer to Figures 6-11 and 6-12 (6-23 and 6-24 for alternate U500) for Quad-16QAM performance relative to mask 47 CFR 90.691.

Refer to Figures 6-15 and 6-16 (6-27 and 6-28 for alternate U500) for Quad-64QAM performance relative to mask 47 CFR 90.691.

FCC Limits

a.) 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:

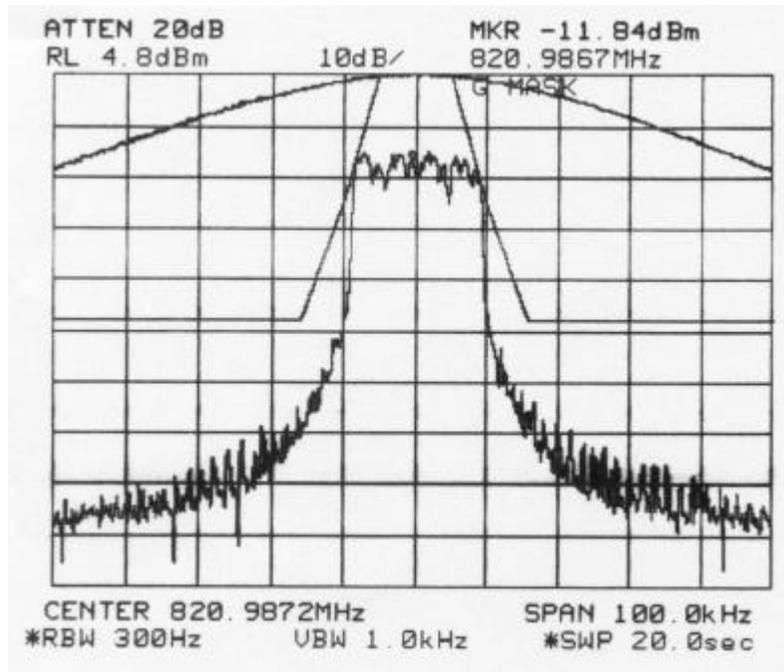
At least 43 plus $10 \log_{10}$ (Output Power in Watts) decibels or 80 decibels, whichever is lesser attenuation.

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

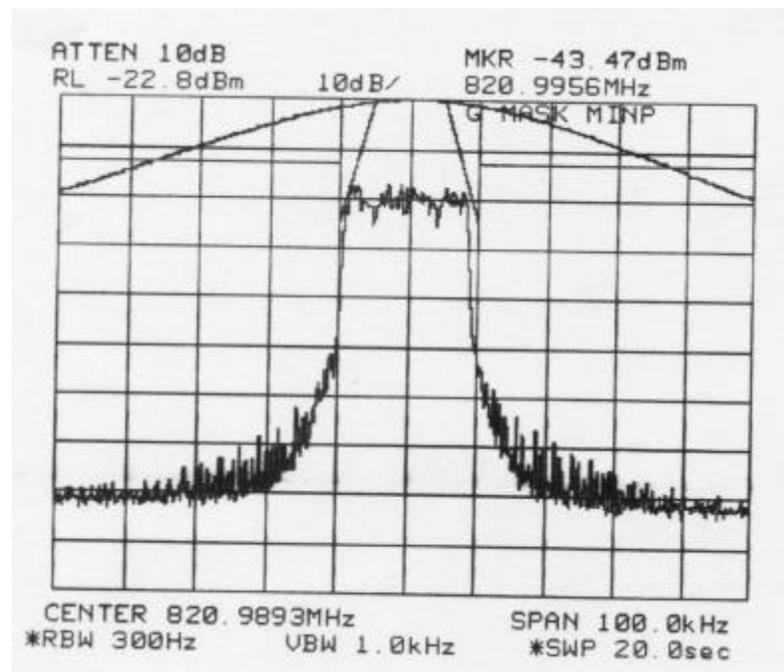
Out-of-band emission requirement shall apply only to the "outer" channels included in an EA license and to spectrum adjacent to interior channels used by incumbent licensees.

- (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.

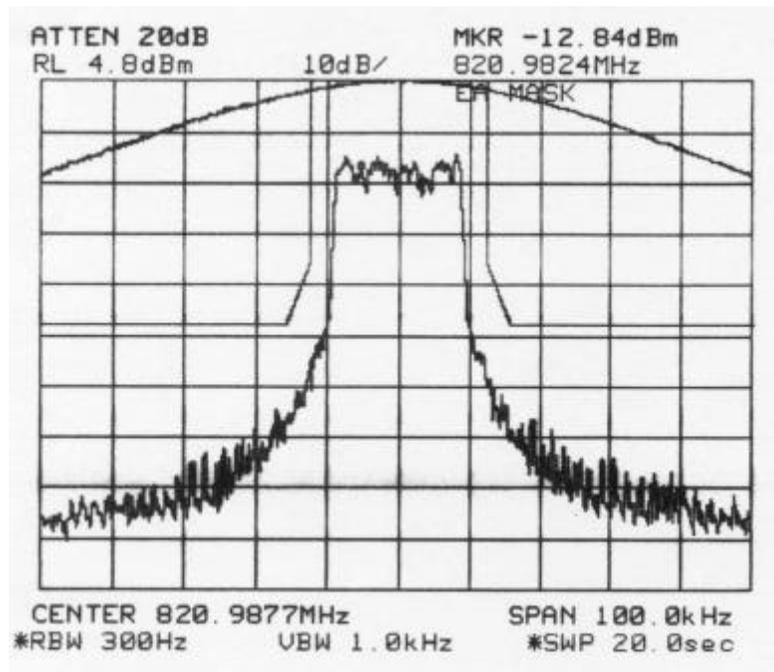
**Figure 6-5: Quad-QPSK Modulation performance relative to mask 47 CFR 90.210(g).
MAXIMUM POWER SETTING (Primary U500):**



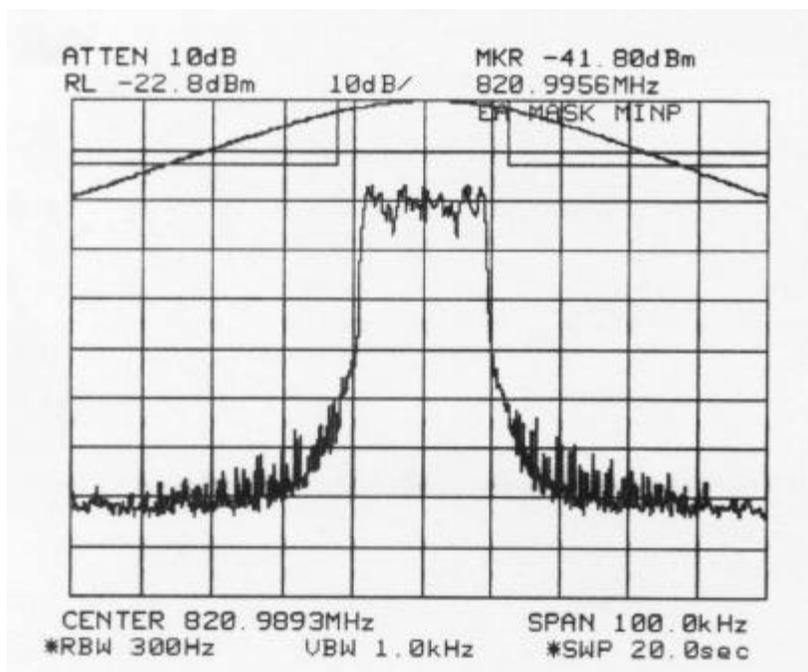
**Figure 6-6: Quad-QPSK Modulation performance relative to mask 47 CFR 90.210(g).
MINIMUM POWER SETTING (Primary U500):**



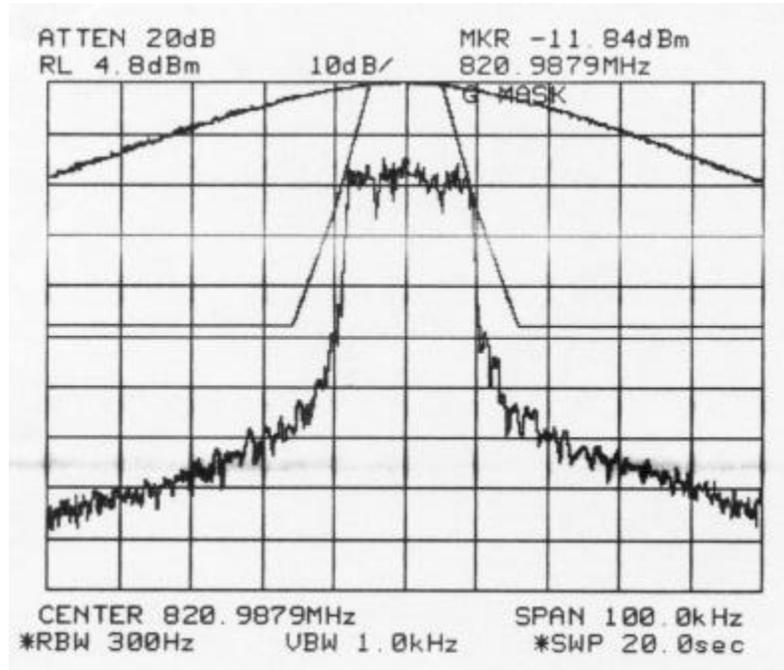
**Figure 6-7: Quad-QPSK Modulation performance relative to mask 47 CFR 90.691.
MAXIMUM POWER SETTING (Primary U500):**



**Figure 6-8: Quad-QPSK Modulation performance relative to mask 47 CFR 90.691.
MINIMUM POWER SETTING (Primary U500):**



**Figure 6-9: Quad-16QAM Modulation performance relative to mask 47 CFR 90.210(g).
MAXIMUM POWER SETTING (Primary U500):**



**Figure 6-10: Quad-16QAM Modulation performance relative to mask 47 CFR 90.210(g).
MINIMUM POWER SETTING (Primary U500):**

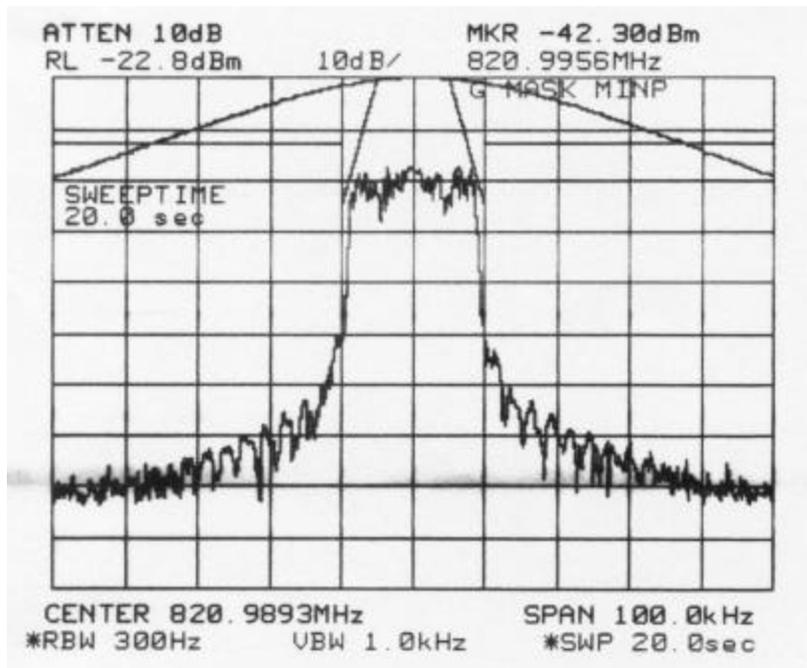


Figure 6-11: Quad-16QAM Modulation performance relative to mask 47 CFR 90.691. MAXIMUM POWER SETTING (Primary U500):

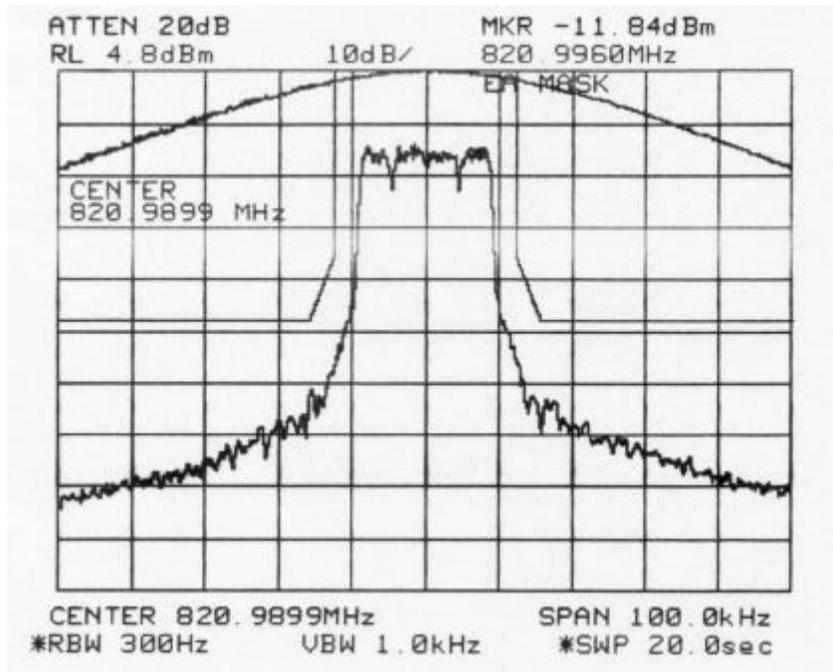
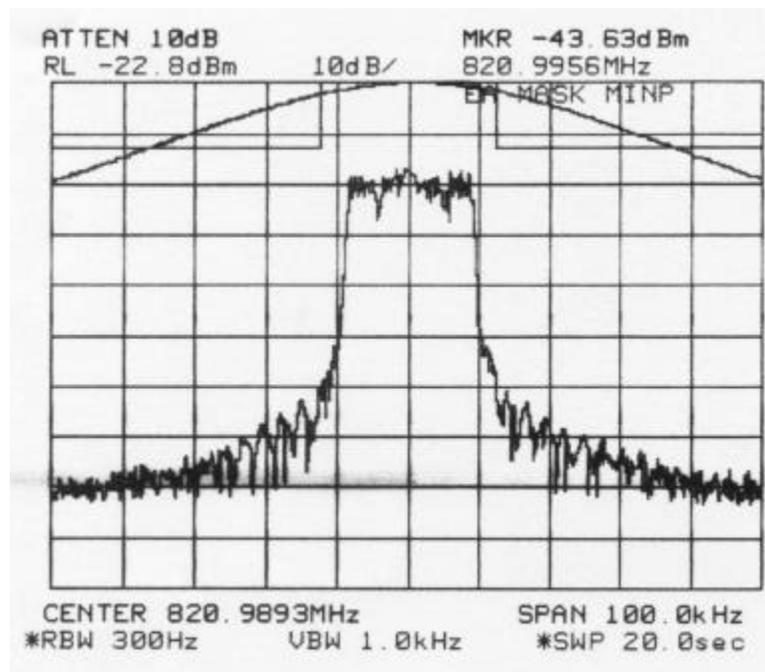
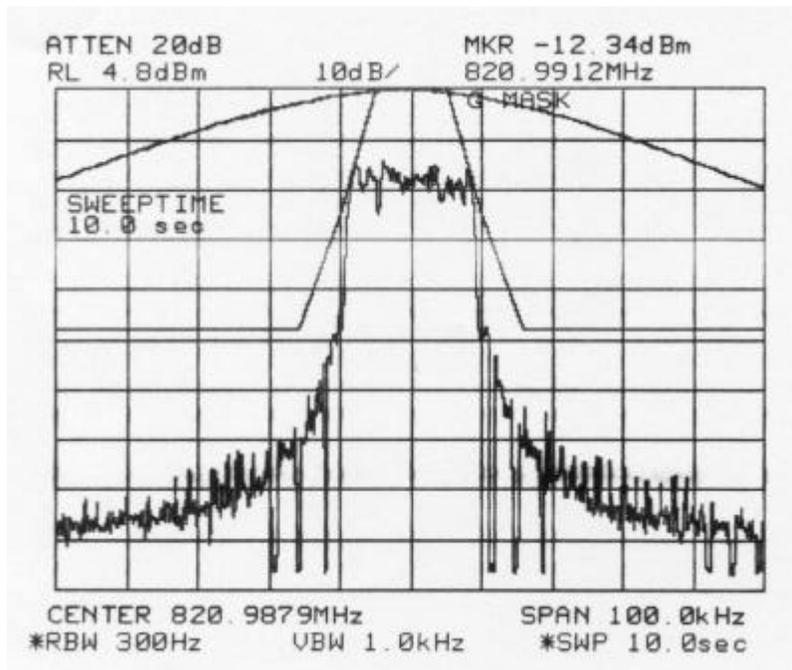


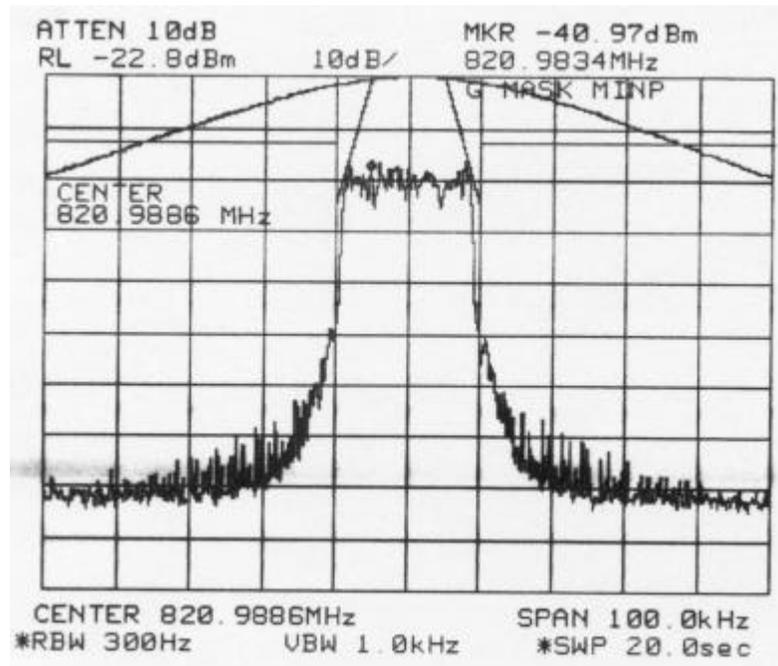
Figure 6-12: Quad-16QAM Modulation performance relative to mask 47 CFR 90.691. MINIMUM POWER SETTING (Primary U500):



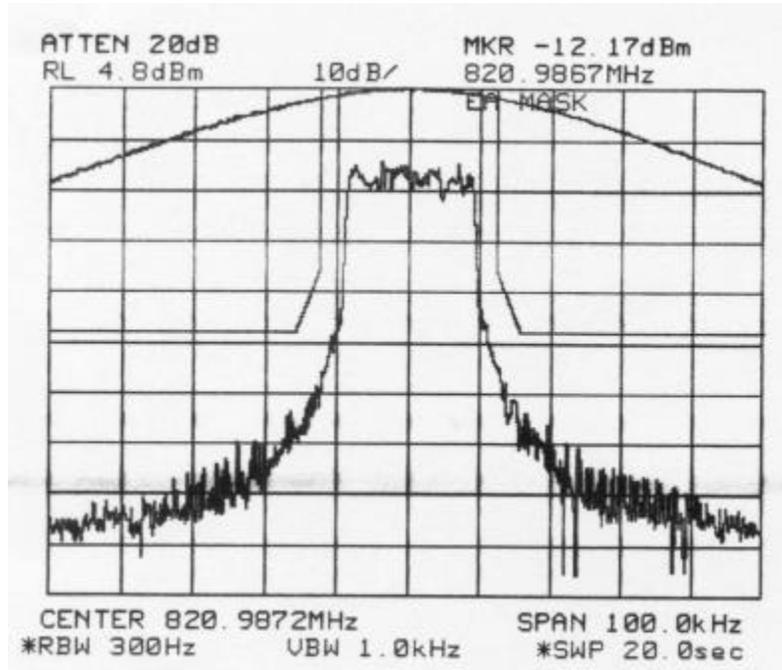
**Figure 6-13: Quad-64QAM Modulation performance relative to mask 47 CFR 90.210(g).
MAXIMUM POWER SETTING (Primary U500):**



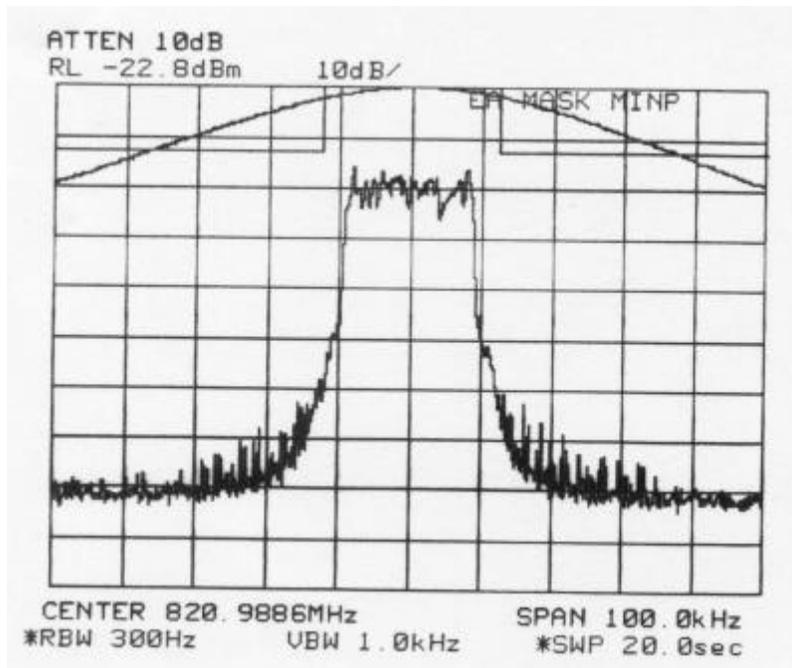
**Figure 6-14: Quad-64QAM Modulation performance relative to mask 47 CFR 90.210(g).
MINIMUM POWER SETTING (Primary U500):**



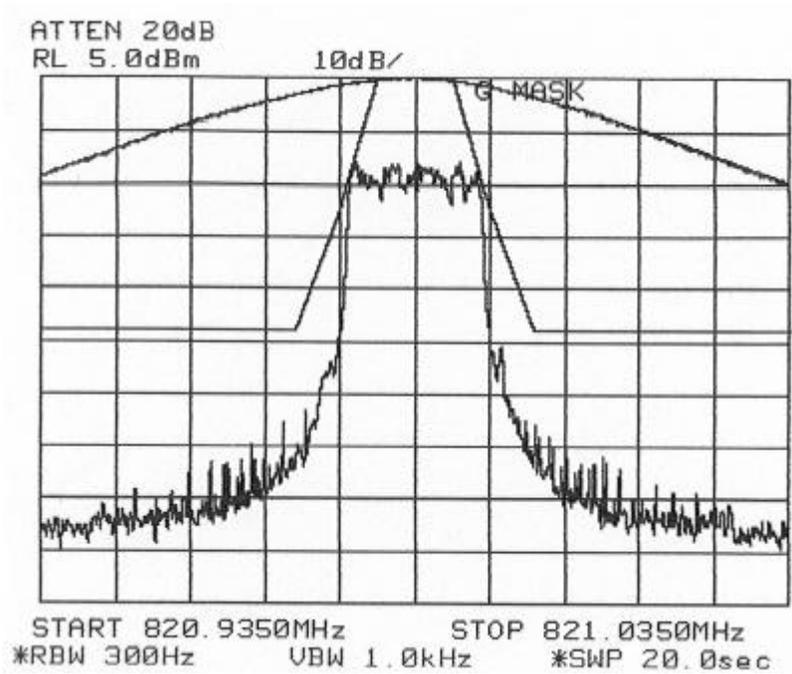
**Figure 6-15: Quad-64QAM Modulation performance relative to mask 47 CFR 90.691.
MAXIMUM POWER SETTING (Primary U500):**



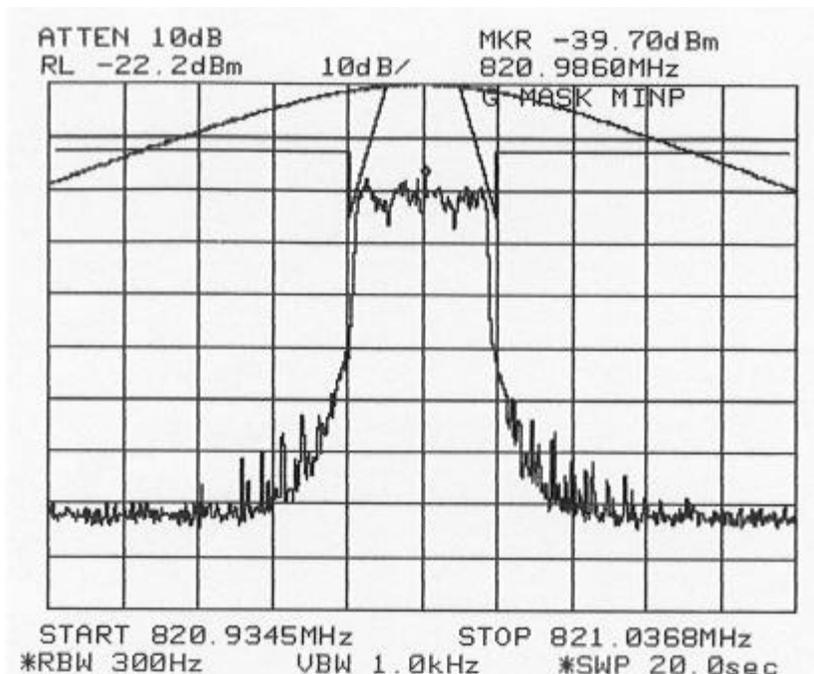
**Figure 6-16: Quad-64QAM Modulation performance relative to mask 47 CFR 90.691.
MINIMUM POWER SETTING (Primary U500):**



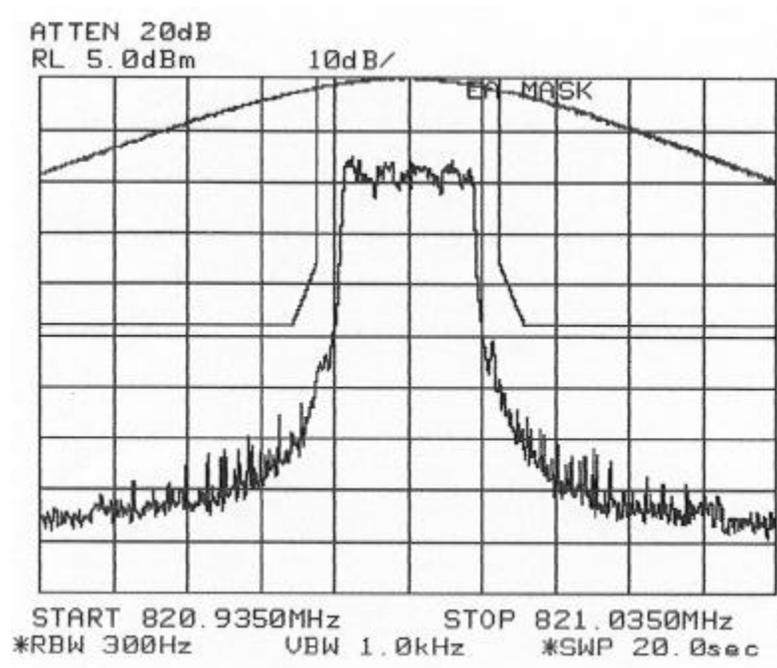
**Figure 6-17: Quad-QPSK Modulation performance relative to mask 47 CFR 90.210(g).
MAXIMUM POWER SETTING (Alternate U500):**



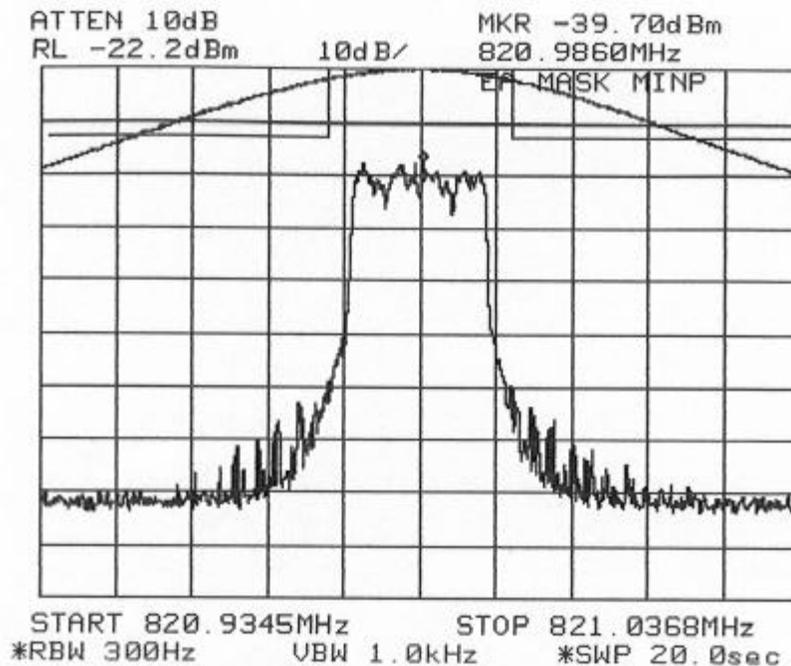
**Figure 6-18: Quad-QPSK Modulation performance relative to mask 47 CFR 90.210(g).
MINIMUM POWER SETTING (Alternate U500):**



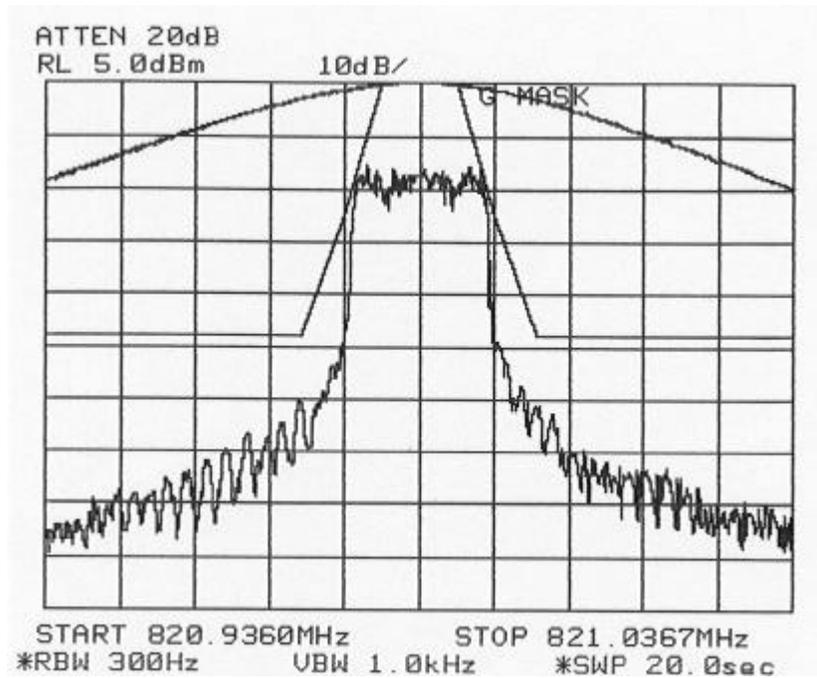
**Figure 6-19: Quad-QPSK Modulation performance relative to mask 47 CFR 90.691.
MAXIMUM POWER SETTING (Alternate U500):**



**Figure 6-20: Quad-QPSK Modulation performance relative to mask 47 CFR 90.691.
MINIMUM POWER SETTING (Alternate U500):**



**Figure 6-21: Quad-16QAM Modulation performance relative to mask 47 CFR 90.210(g).
MAXIMUM POWER SETTING (Alternate U500):**



**Figure 6-22: Quad-16QAM Modulation performance relative to mask 47 CFR 90.210(g).
MINIMUM POWER SETTING (Alternate U500):**

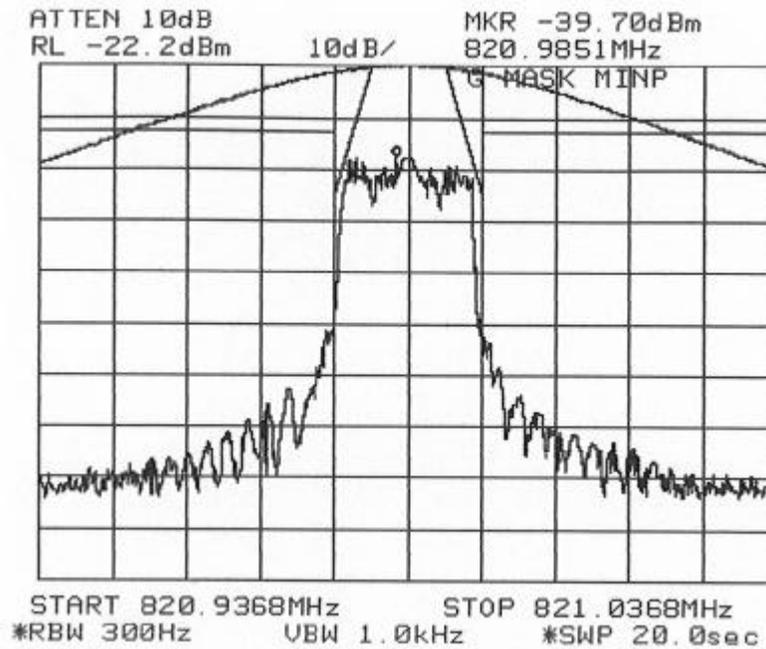


Figure 6-23: Quad-16QAM Modulation performance relative to mask 47 CFR 90.691. MAXIMUM POWER SETTING (Alternate U500):

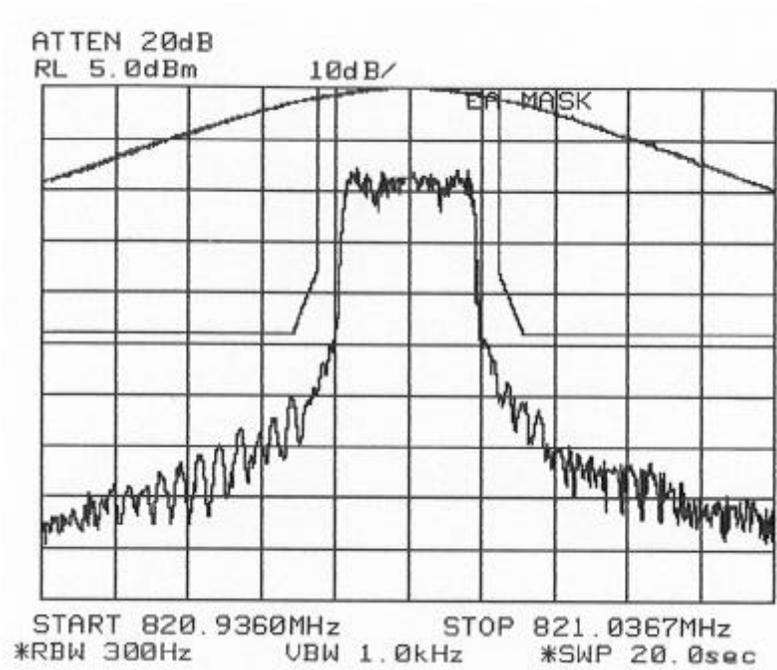


Figure 6-24: Quad-16QAM Modulation performance relative to mask 47 CFR 90.691. MINIMUM POWER SETTING (Alternate U500):

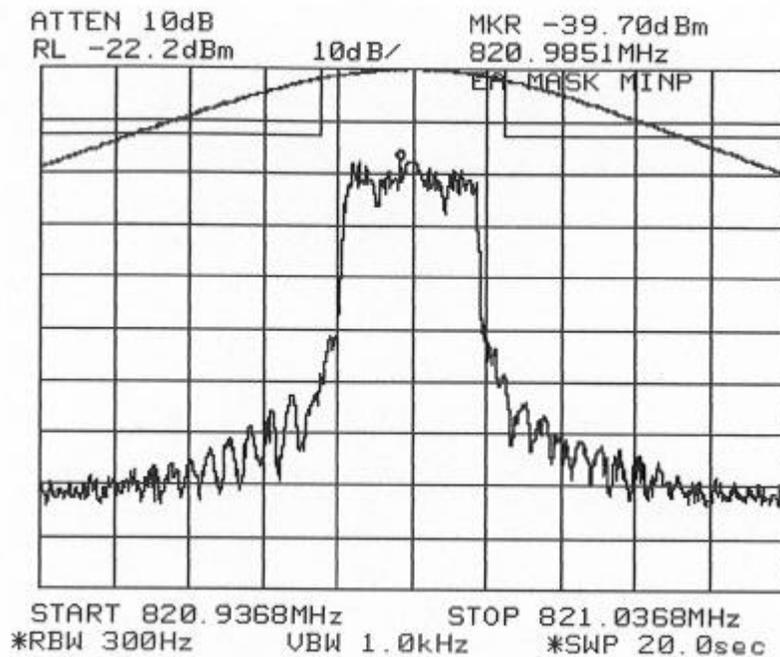


Figure 6-25: Quad-64QAM Modulation performance relative to mask 47 CFR 90.210(g). MAXIMUM POWER SETTING (Alternate U500):

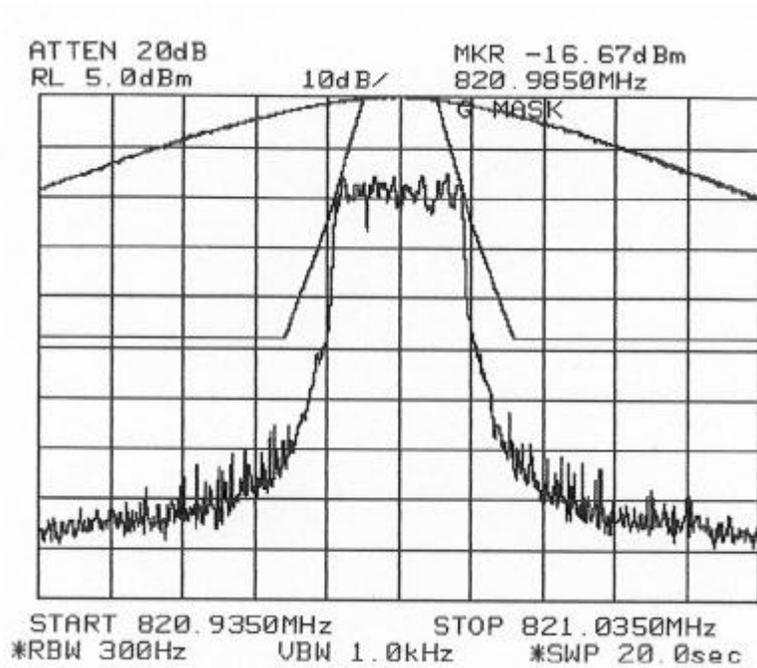


Figure 6-26: Quad-64QAM Modulation performance relative to mask 47 CFR 90.210(g). MINIMUM POWER SETTING (Alternate U500):

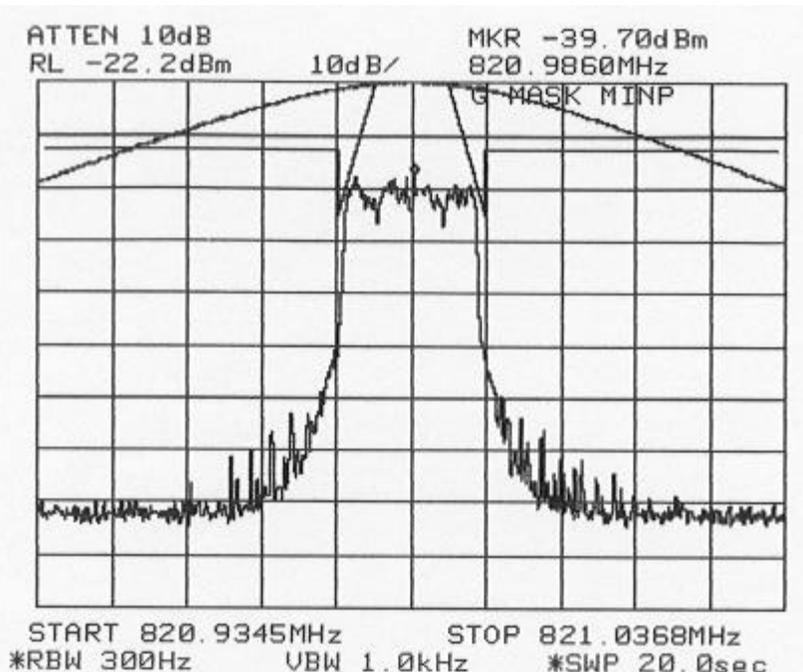


Figure 6-27: Quad-64QAM Modulation performance relative to mask 47 CFR 90.691. MAXIMUM POWER SETTING (Alternate U500):

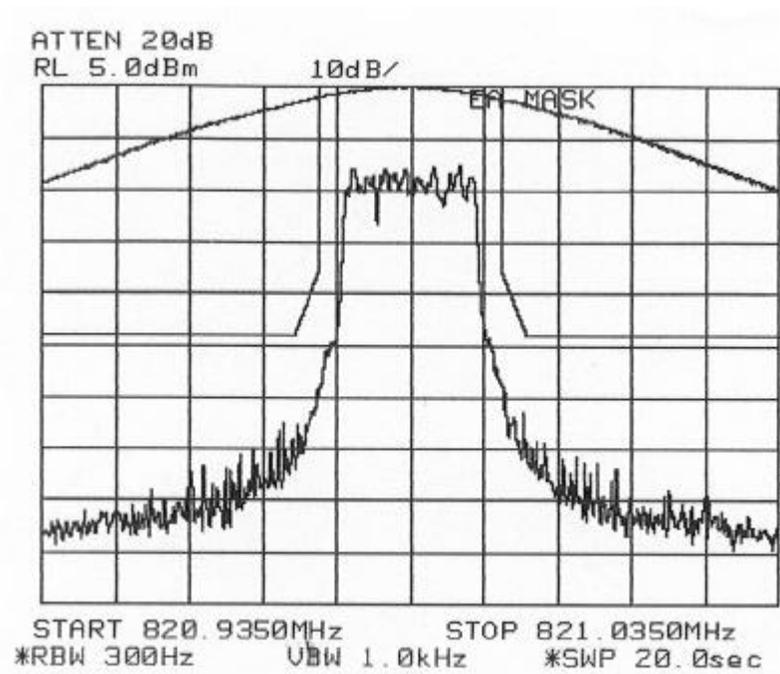


Figure 6-28: Quad-64QAM Modulation performance relative to mask 47 CFR 90.691. MINIMUM POWER SETTING (Alternate U500):

