

OCCUPIED BANDWIDTH

Modulation Type: Sub-carriers modulated with 6400 bps random 4 level FSK data (symbol deviations: ± 2400 Hz for outer, ± 800 Hz for inner).

Modulation Designator: 38K0F2D, 33K0F2D, 18K0F2D, 8K00F1D

Channelization: 50 KHz

SPECIFICATION REQUIREMENT:

The power of any emission shall be attenuated below the transmitter power (P), {as measured in terms of the maximum power, averaged over a 100ms interval, when measured with instrumentation calibrated in terms of an rms-equivalent voltage with a resolution bandwidth equal to or greater than the authorized bandwidth}, in accordance with the following schedule:

On any frequency outside the authorized bandwidth and removed from the edge of the authorized bandwidth by a displacement frequency (f_d in KHz) of:

a) up to and including 40 KHz: $116\text{LOG}_{10}((f_d + 10) / 6.1)$ dB or $[50 + 10\text{LOG}_{10}(P)]$ dB or 70 dB, whichever is the lesser attenuation.

Note the following calculations:

$$50 + 10\text{LOG}_{10}(125) = 70.97 \text{ dB}$$

$$@ f_d = 0 \text{ Hz } 116\text{LOG}_{10}((10) / 6.1) = 24.9 \text{ dB}$$

$$@ f_d = 14.5 \text{ KHz } 116\text{LOG}_{10}((24.5 / 6.1) = 70.0 \text{ dB}$$

$$@ f_d = 40 \text{ KHz } 116\text{LOG}_{10}((50 / 6.1) = 106.0 \text{ dB}$$

Therefore the OBW Mask will follow the following format:

$$f_d = 0 \text{ Hz to } f_d = 14.5 \text{ KHz} \quad 116\text{LOG}_{10}((f_d + 10) / 6.1) \text{ dBc}$$

$$f_d = 14.5 \text{ KHz to } f_d = 40 \text{ KHz} \quad 70 \text{ dBc}$$

b) more than 40 KHz: $43 + 10\text{LOG}_{10}(P)$ dB or 80 dB, whichever is the lesser attenuation.

Note the following calculation:

$$43 + 10\text{LOG}_{10}(125) = 64 \text{ dB}$$

Therefore the OBW Mask will follow the following format:

$$f_d = 40 \text{ KHz or greater} \quad 70 \text{ dBc}$$

CALIBRATION STEPS:

The zero dB reference point for the Mask was set by integrating the total power in the 50 KHz bandwidth using the following steps:

- a. The Resolution Bandwidth of the Spectrum Analyzer was set to 100 KHz.
- b. The Sweep rate was set to 10 Sec.
- c. Measure the peak of the waveform..
- d. Set the Reference value of the Spectrum Analyzer to the peak value measured in step c above.

** Reference Plot 10F-13 through 10F-16