

SECTION 3**OCCUPIED BANDWIDTH**

(FOR 25 kHz CHANNELIZATION)

Method of Measurement Per 2.989 (c,1) Data on Occupied Bandwidth is presented in the form of a spectrum analyzer plot which illustrates the transmitter sidebands. A plot is taken of the carrier sideband modulated with a 2500 Hz tone at a level 16 dB greater than that required to produce 50 percent modulation. (The spectrum analyzer grid indicates the reference level of the carrier unmodulated in all exhibits.)

SECTION 3B,C
Telephony

$$B_n = 2M + 2DK \text{ where}$$

$$\begin{aligned} M &= 3000 \text{ Hz} \\ D &= 4000 \text{ Hz} \\ K &= 1(\text{assumed}) \end{aligned}$$

$$\begin{aligned} B_n &= 14000 \text{ Hz} \\ \text{Therefore, Emission Designator} &= 14K0F3E \end{aligned}$$

SECTION 3D
Data, Digital Voice

$$B_n = 2(B/2) + 2DK \text{ where}$$

$$\begin{aligned} B &= 9600 \text{ Hz} \\ D &= 3000 \text{ Hz} \\ K &= 1(\text{assumed}) \end{aligned}$$

$$\begin{aligned} B_n &= 15600 \\ \text{Therefore, Emission Designators are,} \\ &15K6F1D \\ &15K6F1E \end{aligned}$$

SECTION 3

OCCUPIED BANDWIDTH

(FOR 12.5 kHz CHANNELIZATION)

Method of Measurement Per Data on Occupied Bandwidth is presented in the form of a spectrum analyzer plot which illustrates the transmitter sidebands. A plot is taken of the carrier sideband modulated with a 2500 Hz tone at a level 16 dB greater than that required to produce 50 percent modulation. (The spectrum analyzer grid indicates the reference level of the carrier unmodulated in all exhibits.)

Section B,C
Voice

$$B_n = 2M + 2DK \text{ where}$$

$$M = 3000 \text{ Hz}$$

$$D = 1700 \text{ Hz}$$

$$K = 1 \text{ (assumed)}$$

$$B_n = 9400 \text{ Hz}$$

Therefore, Emission Designator = 9K4F3E

Section D
Data

$$B_n = 2(B/2) + 2DK \text{ where}$$

$$B = 9600 \text{ bps}$$

$$D = 1800 \text{ bps}$$

$$K = 1 \text{ (assumed)}$$

$$B_n = 13200 \text{ Hz}$$

Using Carson's rule the above calculation exceeds the 11.25 kHz limit per 90.209, this necessitated the need for an empirical measurement. The measurement for 99% power level was taken with a Advantest 3271A Spectrum Analyzer with the results of 6.57 kHz as the measure of necessary bandwidth at 99% of the power level. This measurement proves that due to the highly filtered nature of the signal in question that the necessary bandwidth required is much less than calculated with Carson's rule. Ericsson request that 6.57 kHz be used as the necessary bandwidth with the Emission Designator 6K6F1D (For Data) and 6K6F1E (For Digital Voice).

Therefore, Emission Designator = 6K6F1D (For Data) and 6K6F1E (For Voice).