

CALCULATION OF CIRCUIT ELEMENTS

The following factors must be considered in calculating the external components in the EFB7512 application :

- Signal attenuation introduced by the receive filter is 3 dB.

- The maximum permissible level at RAI 1200 input is 6 V_{pp} (+8 dBm)

Note : the reference frequency is 2100 Hz

- A 3 dB hysteresis is introduced within the two signal detection level N1 and N2, in accordance with CCITT Recommendation V.23.

To be centered, the two limit values of the CARRIER DETECT signal are therefore :

- Upper : - 44 dBm, or 13.5 mV_{pp}
- Lower : - 47 dBm, or 10 mV_{pp}

- For a correct operation of the EFB7512 signal detector, the peak-limiting filter must remain linear up to - 44 dBm on line.

- At input RDI, the upper threshold level N1 of the signal detector is 3 V_{pp} (2.7 dBm), and must correspond to the minimum signal level received from the line transformer. With a duplexer reception gain of + 6 dB, the peak-limiting filter gain is defined by :

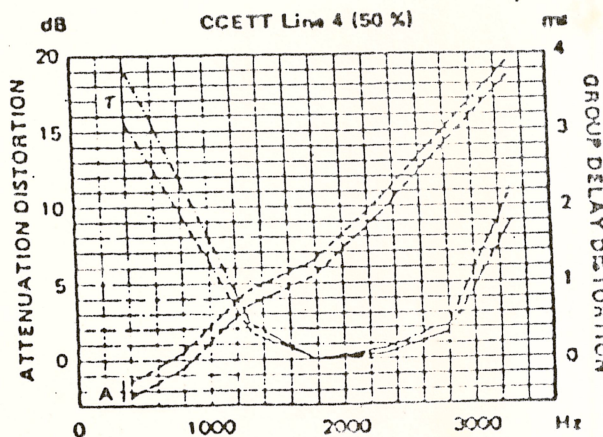
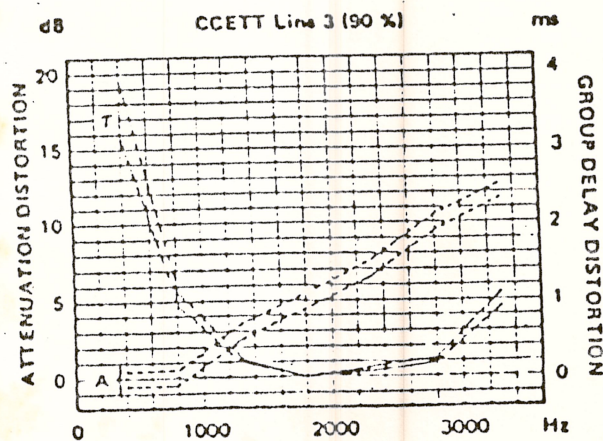
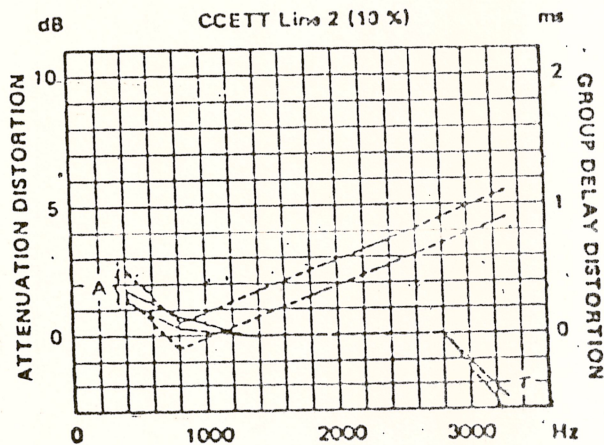
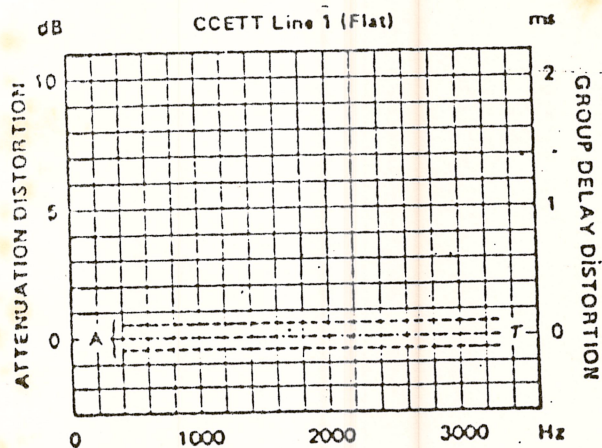
$$A = 44 - 6 + 3 + 2.7 = 43.7 \text{ dB (a ratio of 153)}$$

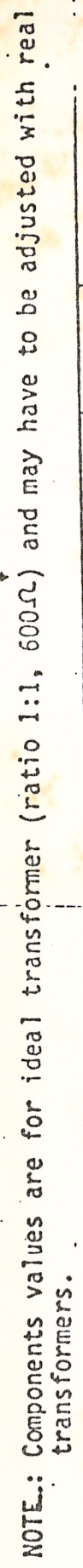
- The signal attenuation introduced by the 75 bds receive filter is -3.5 dB. The maximum level on RAI 75 is 6 V_{pp} (+8 dBm). An additional external filtering is necessary in order to suppress 1200 bds modulation spurious signal which are not eliminated by the duplexor. The attenuation of this additional filtering must be between -5 dB and +1.5 dB in order to achieve OOD characteristics at 450 Hz equivalent to main channel. The following typical application of the EFB7512 conforms to the above conditions.

Note : The peak-limiting filter gain must be adjusted according to the minimum level on line. With a minimum level of :

- - 38 dBm, A = 37.7 dB
- - 33 dBm, A = 32.7 dB.

ANNEX I





NOTE.: Components values are for ideal transformer (ratio 1:1, 600Ω) and may have to be adjusted with real transformers.