Abstracts

A Near-Optimum Discriminator Demodulator for Binary FSK with Wide Tone Spacing

M.L. Stevens, D.M. Boroson and J.E. Kaufmann. "A Near-Optimum Discriminator Demodulator for Binary FSK with Wide Tone Spacing." 1993 Microwave and Guided Wave Letters 3.7 (Jul. 1993 [MGWL]): 227-229.

Optical FSK communication systems often require large tone spacings to reduce bit-error rate (BER) degradation from laser linewidth induced crosstalk. Until now, discriminator detection of FSK for such wide tone spacings has fallen short of matched filter performance because of the suboptimal choice of a prefilter. A near-optimum demodulator for 240 Mbps, 3-times minimum orthogonal CPFSK, has been constructed, with a measured performance that is 0.5 dB from matched filter theory at 10/sup -9/ BER. The design can be scaled to other data rates and tone spacings. The demodulator incorporates a novel frequency tracking loop that has good performance at low signal levels and no data-pattern dependence.

❑ Return to main document.