Abstracts

A Novel Technique to Realize SMSK Conversion and Matched Filters at Microwave Frequencies

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In modern, high-capacity satellite systems Serial Minimum-Shift Keying (SMSK) has been recently proposed as a valid alternative to PSK digital systems. The well known Iow-sidelobe, constant-envelope properties of MSK, very attractive in Time Division Multiple Access (TDMA) environment (as they limit the Adjacent Channel Interference (ACI) and phase distortion) do in fact join with quite simple on-board hardware if Serial Demodulation is foreseen on-board the satellite. SMSK modems are essentially constituted by Binary PSK (BPSK) modems and particular transmitting (Conversion) and receiving (Matched) Filters. These filters represent a crucial point in the design, as they perform the proper spectrum shaping which allows exploiting the MSK capabilities. The paper presents a novel, easy technique to realise Conversion and Matched filters directly at microwave frequencies. This technique is satisfactorily applicable to medium/high bit rate SMSK systems.

❑ Return to main document.