

THE APPLICATION OF FREQUENCY OFFSET ADVANTAGE (FOA) IN FREQUENCY COORDINATION



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ABSTRACT

A major telecommunications growth area at this time is narrowband digital transmissions via satellites. With the availability of low cost 5 and 10 meter earth stations, and readily available digital ground equipment, this trend can be expected to continue for some time.

With the degree of frequency congestion which exists currently in the 6 GHz band, the frequency coordination of these earth stations will become more and more difficult. Since the data rate is generally 56 KBPS or 1.544 MBPS, the satellite uplink carrier frequency is often selected to give a degree of isolation from standard frequency plans used by the terrestrial common carriers. The amount of offset advantage in db to be conceded from a given frequency separation between satellite and terrestrial carriers is a matter of controversy however.

This paper describes a computer program written to provide the necessary calculations, the underlying models, and results in the form of parametric curves which can be used directly to obtain the offset advantage for a given carrier separation.