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DESCRIPTION

The transmitted pulse has an approximate raised-cosine envelope with duration at the half-amplitude points of 13.33 microseconds. The overall duration of the raised-cosine pulse (base-width) is 26.66 microseconds. The -20 dB bandwidth calculated for a raised-cosine pulse with these parameters is 126 kHz. This result is based on an analytical calculation of the Fourier Transform of a raised-cosine pulse.

A separate estimate of the bandwidth of the system was obtained based on the procedures outlined in Annex J - Guidance for determination of necessary bandwidth from NTIA Manual of Regulations & Procedures for Federal Radio Frequency Management. According to this document, the necessary bandwidth is the smaller of:

- (1) $1.79/(tr \cdot t)^{.5}$
- (2) $6.36/t$

where tr is the 10-90% rise time of the pulse and t is the width at the 50% amplitude points. For a raised cosine pulse the estimate provided by equation (1) is the smaller of (1) and (2). Equation (1) predicts a necessary bandwidth of 175 kHz.

The larger of the two estimates (175 kHz) has been entered on Form 442.

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