Calculation of the Necessary Bandwidth for SATELLINE-3AS(d) Epic Pro 35W Radio Modem

SATELLINE-3AS Epic Pro 35W radio modem uses frequency modulation and the signal is modulated with digital information. Based on these facts, the necessary bandwidth is calculated according to the formula in the section §2.202 (g) part III-A/1.

Calculation for 12.5 kHz channel spacing

$B_n = 2M+2DK$, $M = B/2$, $K = 1.2$

$B = 4800$ bauds => $M = 2400\ s^{-1}$
$D = 3.3$ kHz

B_n = 2 x 2400 Hz + 2 x 3300 Hz x 1.2 = 12.7 kHz -> 12K7

Calculation for 25 kHz channel spacing

$B_n = 2M+2DK$, $M = B/2$, $K = 1.2$

$B = 9600$ bauds => $M = 4800\ s^{-1}$
$D = 6$ kHz

B_n = 2 x 4800 Hz + 2 x 6000 Hz x 1.2 = 24 kHz -> 24K0

Note! Due to the fact that the maximum deviation never occurs simultaneously with the maximum modulation frequency, the real bandwidth of the emitted signal is lower than the ones calculated according to the formula above.

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