ELTA North America Request for FCC Experimental License

Form 442 File Number: 0062-EX-CM-2016
Form 442 Confirmation Number: EL575705

19 October 2014

Necessary Bandwidth Calculation

The necessary bandwidth was determined using the equation in Annex J of the NTIA Manual[1] for FM-pulsed radars (see Equation 1).

$$B_n = B(-20\ dB) = \frac{1.79}{\sqrt{t_r \cdot t}} + 2B_c \qquad\qquad (1)$$

where

B_n	=	necessary bandwidth, MHz
t_r	=	pulse rise time, µs
t	=	pulse width, µs
B_c	=	frequency deviation (chirp) bandwidth, MHz

The ELTA NA MARS-K emission characteristics are given in Table 1. Applying these parameters to Equation 1, results in a maximum necessary bandwidth of 66.6 MHz.

Table 1 Emission Characteristics

Pulse width	0.1	µs
Pulse rise/fall time	10	ns
Maximum frequency deviation	5	MHz

---

[1] *Manual of Regulations and Procedures for Federal Radio Frequency Management*, Washington, DC: US Department of Commerce, National Telecommunications and Information Administration, 2008 (revision May 2011).