

LONG RANGE EN ROUTE S-BAND RADARS





LONG RANGE EN ROUTE ATC-R REV. 1

COVERAGE: 315 Km/170 Nm

Antenna Gain: 34.9 dB

Feed system: Dual feed (Main + Aux) offset position

Rotation rate: 5 rpm

RF Power: Double channel 16 Kw Solid State HPA

Beamwidth: 1.39° (A) , 5.33° (E)

Frequency diversity : F1 = 2.7 ÷ 2.8 MHz ; F2 = 2.8 ÷ 2.9 MHz

PRF: 320 Hz

Pulse duration: 20μsec , 200μsec (DPC to 1μsec)

EN ROUTE REV.1 - COVERAGE

Pulse Duration = 200usec

Peak Power = 16kW

Azimuth Angle = 1,39°

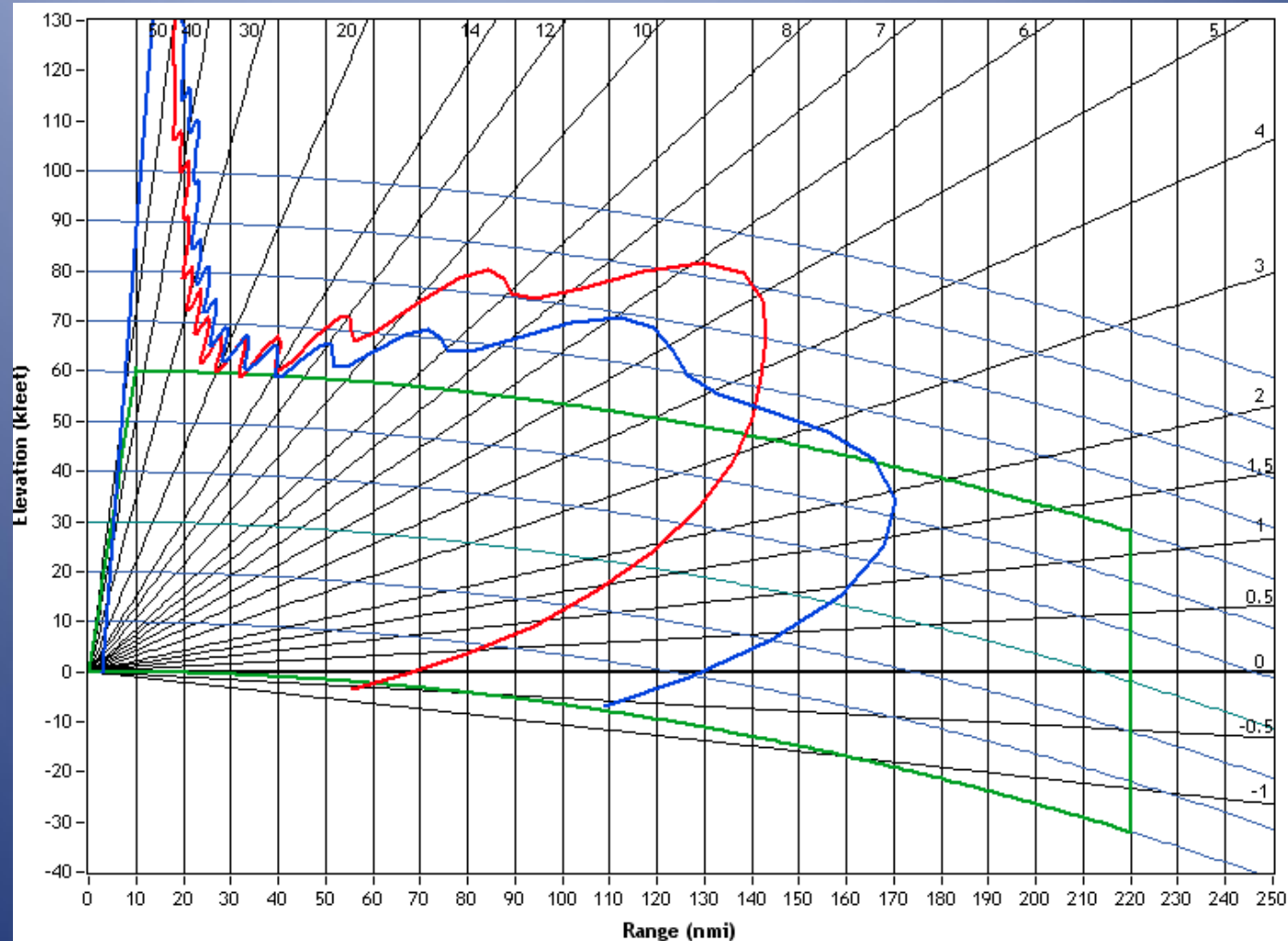
Elevation Angle = 5,33°

Target Area = 5sqm
Fluctuating (SW1)

	+(db)	-(db)
P_t	12	
τ_t	23	
σ	7	
G_T	34,9	
G_R	34,9	
f^2		69
T_N		25,6
S_{min}		6,2
L_{Totali}		6,2
	111,8	107

$$111,8 - 107 = 4,8 \text{ db} / 4 = 1,2 \text{ db}$$

170 mni





LONG RANGE EN ROUTE ATC-R REV. 2

TARGET COVERAGE : 407 Km/220 Nm

Criteria:

- **TX: Improvement of RF Peak Power (20 Kw -24Kw)**
- **Antenna: Azimut beamwidth : $1.4^{\circ} \Rightarrow 1.2^{\circ}$**
- **Antenna: Elevation Coverage: Bump/Fan Beam**
- **Antenna Gain: 34.9 $\Rightarrow$ 36.8 dB**
- **Pulse duration**

Alternative based on full TX power solution:

- **TX: Improvement of RF Peak Power : 4 x 8 Kw HPA with Frequency Diversity F1,F2,F3,F4**

En Route Coverage – 20 Kw TX Peak Power

Pulse Duration = 200usec

Peak Power = 20kW

Azimuth Angle = 1,39°

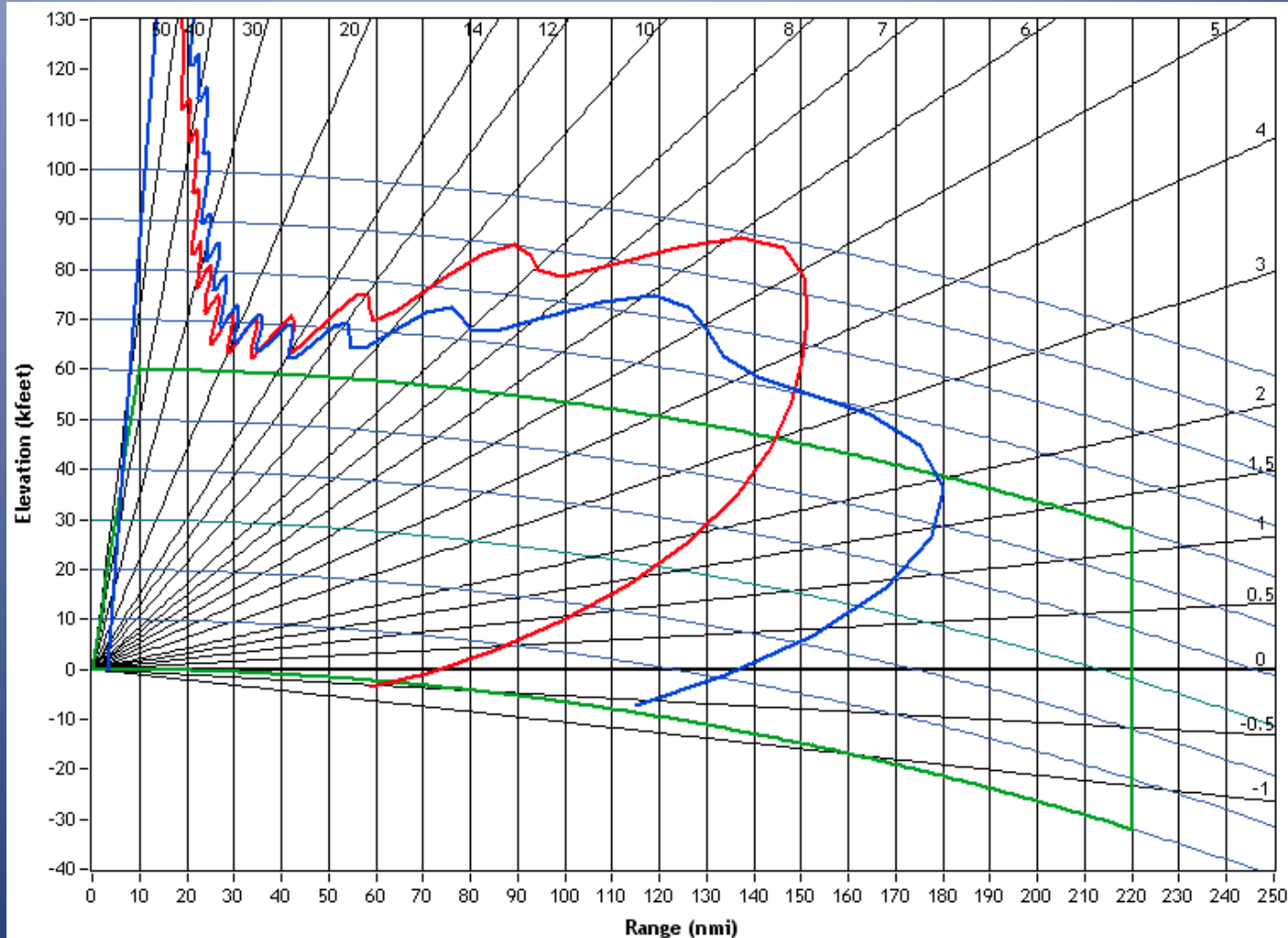
Elevation Angle = 5,33°

**Target Area = 5sqm
Fluctuating (SW1)**

	+ (db)	- (db)
P_t	13	
τ_t	23	
σ	7	
G_T	34,9	
G_R	34,9	
f^2		69
T_N		25,6
S_{min}		6,2
L_{Totali}		6,2
	112,8	107

$$112,8 - 107 = 5,8 \text{ db} / 4 = 1,45 \text{ db}$$

180 mni



En Route Coverage – 24 Kw TX Peak Power

Pulse Duration = 200usec

Peak Power = 24kW

Azimuth Angle = 1,39°

Elevation Angle = 5,33°

**Target Area = 5sqm
Fluctuating (SW1)**

