Specifications of the **D**ual-frequency, **D**ual-polarized, **D**oppler **R**adar (D3R)

System	
Frequency	Ku- 13.91GHz ± 25MHz; Ka- 35.56GHz ± 25MHz
Minimum detectable signal (Ku, Ka)	-10dBZ at 15 km for a single pulse at 150m range resolution
Minimum operational range	450 m
Operational range resolution	150 m (nominal)
Maximum range	30 km
Angular coverage	0-360° Az, -0.5-90° El (full hemisphere)
Antenna	
Parabolic reflector –Diameter	6 ft (72 in.) (Ku), 28 in. (Ka)
Gain	44.5 dB
HPBW (Ku, Ka)	~1°
Polarization (Ku, Ka)	Dual linear simult. and alternate (H and V)
Maximum side-lobe level (Ku, Ka)	~ -25 dB
Cross-polarization isolation (on axis)	< -32 dB
Ka-Ku beam alignment	Within 0.2 degrees
Scan capability	0-24°/s Az, 0-12°/s El
Scan types	PPI sector, RHI, Surveillance, Vertical pointing
Transmitter / Receiver	
Transmitter Architecture	Solid State Power Amplifier Modules
Peak Power / Duty cycle	160 W (Ku), 40 W (Ka) per H and V channel, Max duty cycle 30%
Receiver Noise figure	4.6 (Ku), 5.5 (Ka)
Receiver dynamic range (Ku, Ka)	≥90 dB
Clutter Suppression	GMAP
Data Products	
Standard products	- Equivalent reflectivity factor (Z_h) (Ku, Ka) - Doppler velocity (unambiguous: 25 m/s)
Dual-polarization products	- Differential reflectivity (Z_{dr}) (Ku, Ka) - Differential propagation phase (φ_{dp}) (Ku, Ka) - Copolar correlation coefficient (ρ_{hv}) (Ku, Ka) - Linear depolarization ratio (LDR_h, LDR_v) (Ku, Ka) *(in alternate mode of operation)*
Data format	NETCDF