

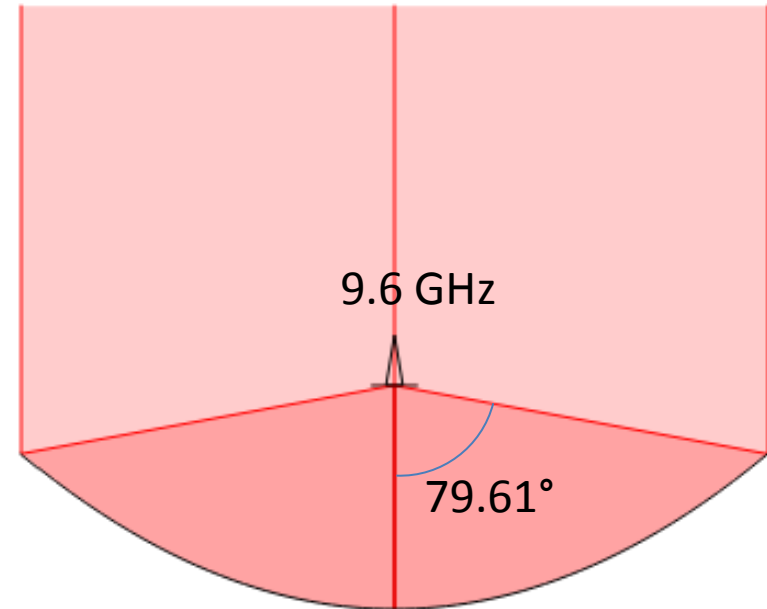
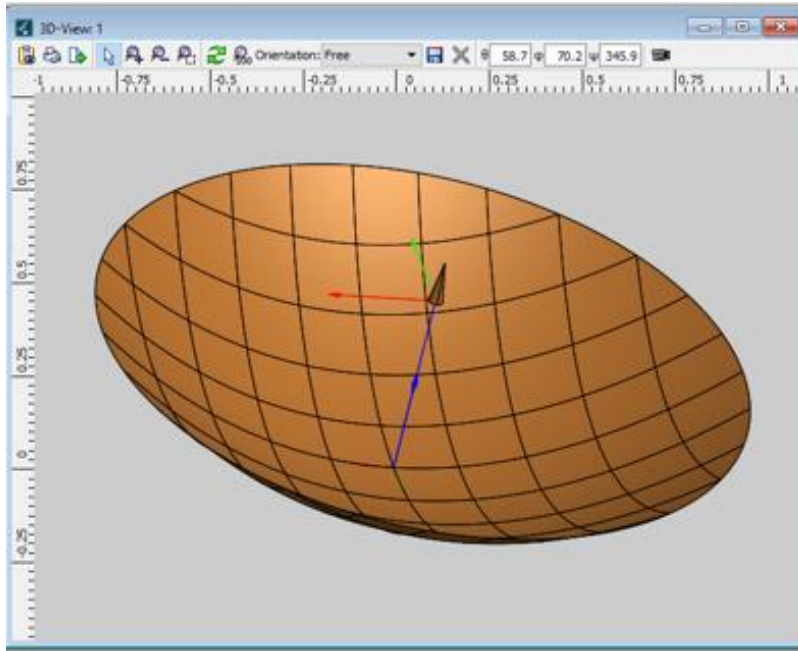
Trident Space SAR Ground Station FCC Licensing

6 July 2017

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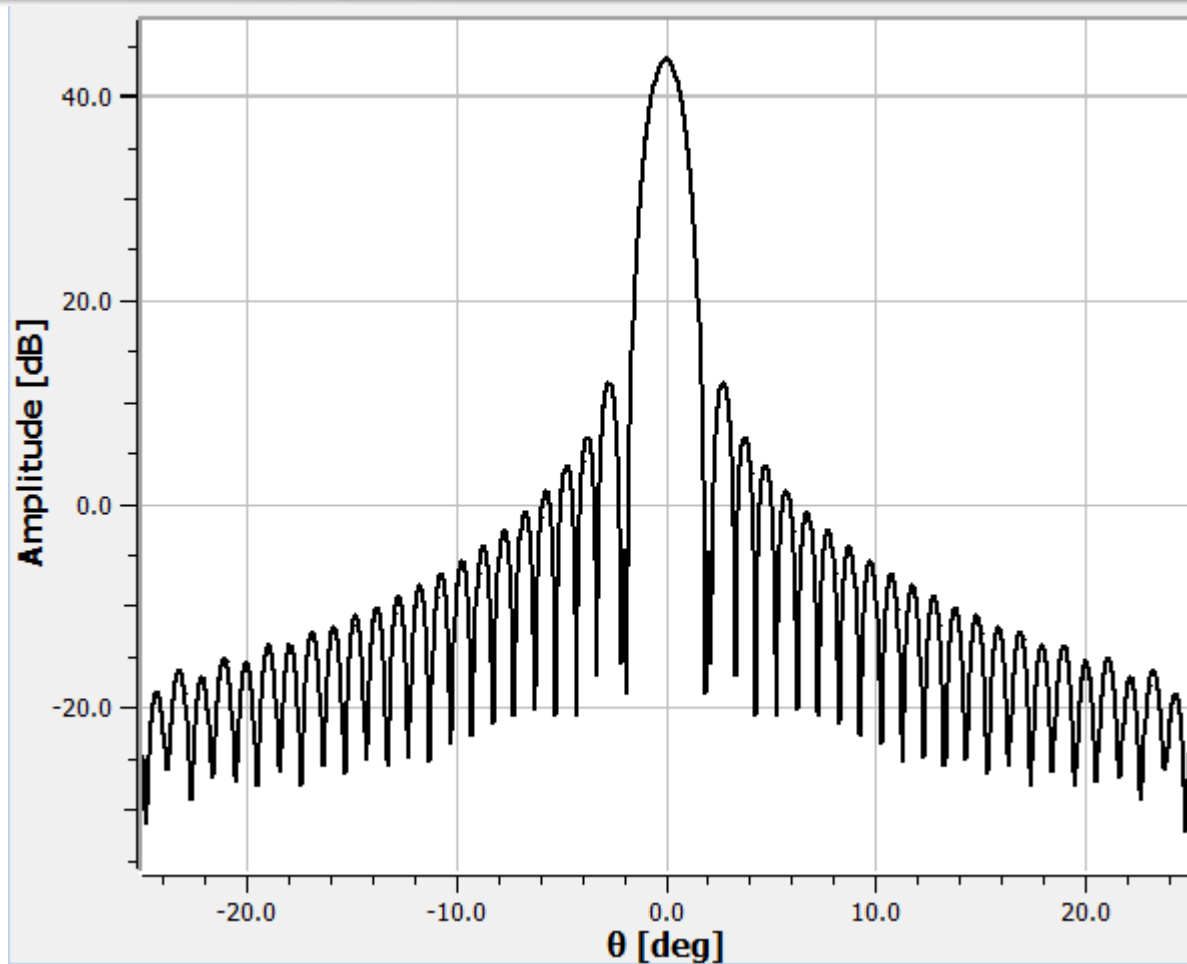
For questions contact Sam Strosnider sam@trident.space

Antenna Specifications



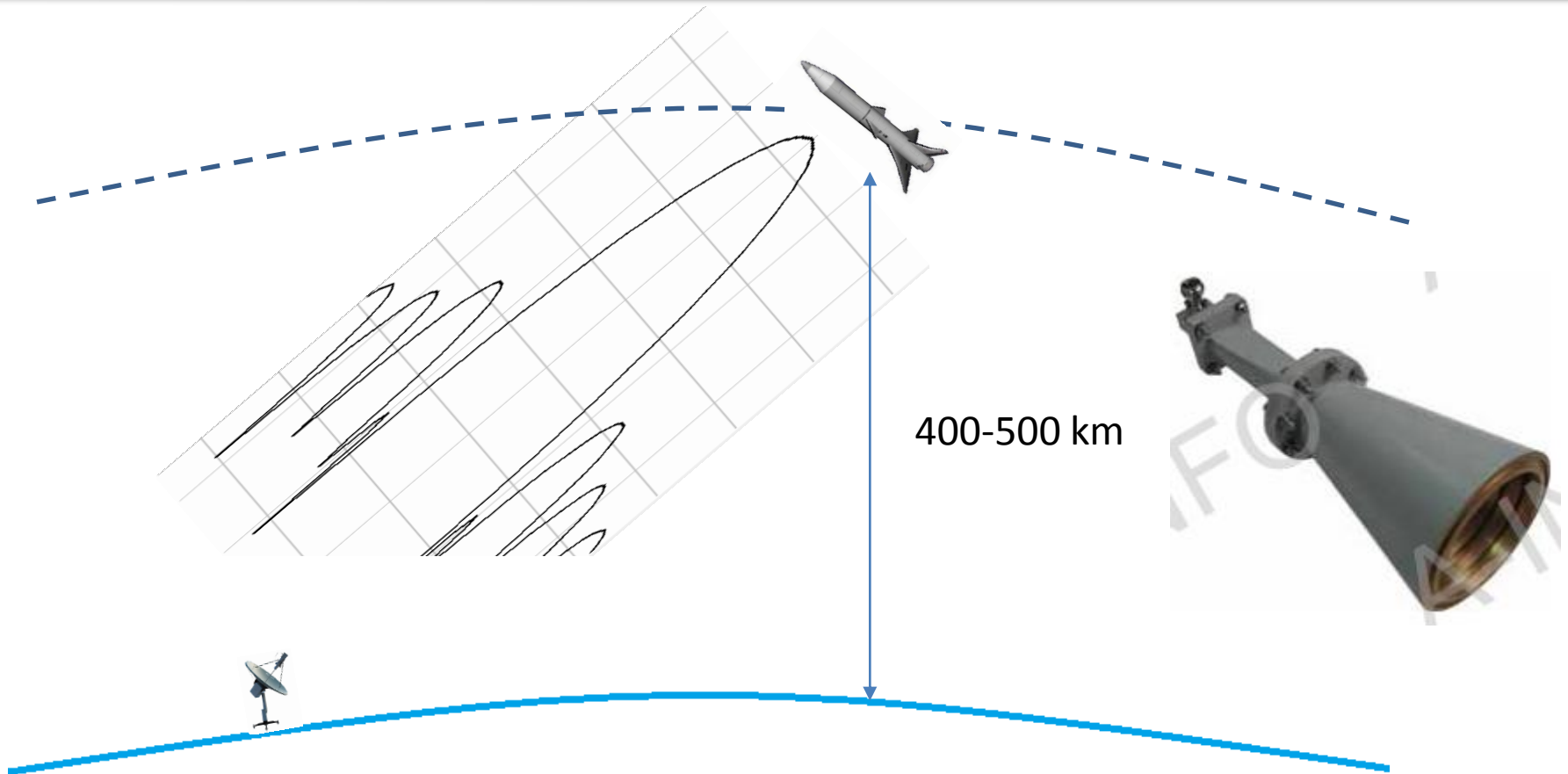
Reflector aperture diameter: 1.8 m
 57.6399 wavelengths at 9.6 GHz
 Reflector f/D: .3
 Focal length: .54 m
 Taper angle: 79.61 deg
 Taper: -12 dB

Beam Characteristics



- Peak gain: 43.7 dB
- Beam width at 3dB points: 1.12 deg
- First side lobe level: -31.6 dB
- Far field: > 207.5 m

Overview



- Gain = 43.7 dB
- Elevation and Azimuth HPBW = 1.12 degrees
- YLB-90-15-C-NF gain horn
- $ERP = \frac{1000 W * 43.7 dB}{1.67} = 26,176.6 W$
- Peak Power = 1000 W
- Duty cycle = 20%
- Average Power = 200 W
- Average imaging time = 3-12 s

MFREU Specifications

Specifications:

– Number of Channels	1 Transmit, 2 Simultaneous Receive
– Digital Converters	12 bits transmit, 12 bits receive; synchronization across multiple transceivers
– Sample Clock Range	programmable up to 3.2 Gsamples/sec
– Instantaneous BW	programmable up to 200MHz
– FPGA	Xilinx Virtex-5QV
– Power	< 85W (FPGA mode & duty cycle dependent; flexible low-power/standby modes)
– Weight	< 13kg
– Shock/Vibration	packaging, materials, construction per NASA and DoD test methods
– Temperature	-20° C to +40 °C Operation (at thermal interface)
– Memory	1Gbyte SDRAM, 16MB QDR II+ SRAM (with EDAC) 500GByte high speed nonvolatile flash storage
– Form Factor	10.7" x 10.7" (baseplate dimensions), 5.5" height
– Radiation tolerance	All components selected for high latchup immunity and total dose
– Fault Tolerance	TMR program flow SEU/SEFI fault detection/recovery Configurable scrubbing
– Parts/Materials/Processes	Exceeds requirements for targeted missions; contact Trident for details
– Base Transceiver Card	Trident Space Qualifiable Digital RF Transceiver (SQDRT)
– Expansion Slot	OpenVPX Specification, SRIO and SpaceWire connectivity, accepts SQDRT card
– Telemetry	Dedicated card collects and manages both in-chassis and external telemetry data
– System Controller	PowerQUICC III based system controller with 512MB onboard DDR1 memory