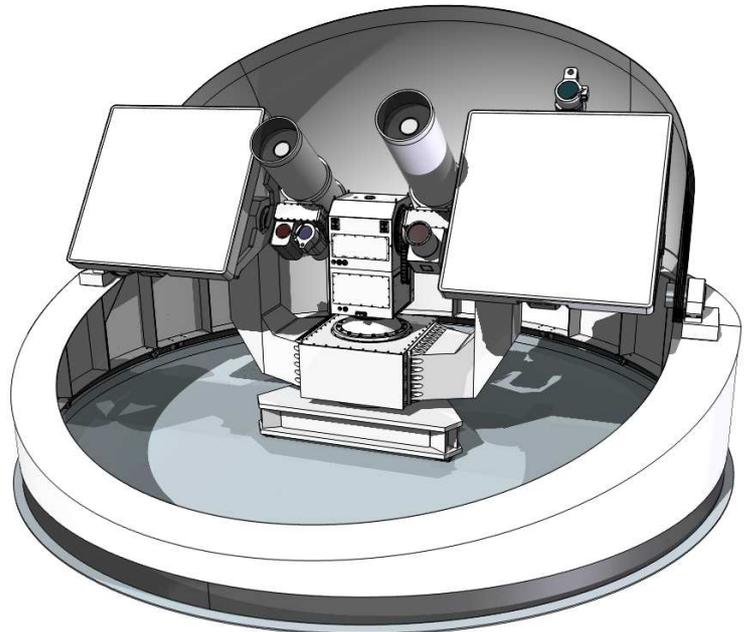
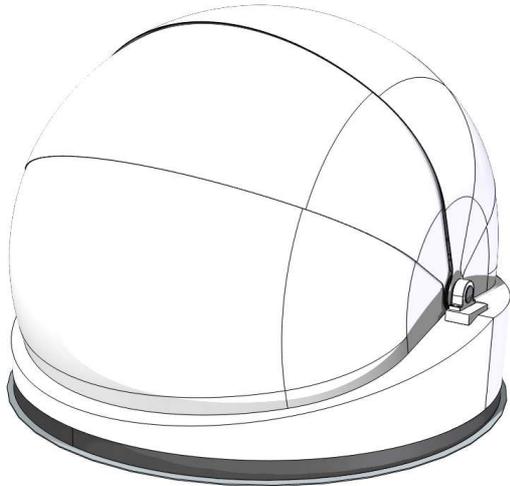


## Radar-Electro- Optical Tracking System REOTS with collinear two axis sensor platform



### Description

Multiple sensors are needed for tracking targets of nominal  $1\text{m}^2$  cross section over the nominal range of 250km. It involves radar, video cameras with long focal length and large aperture optics, thermal imaging cameras and sometimes high speed cameras. Tracking a far target calls for very low but smooth angular rates in the azimuth and elevation axis. This can only be achieved by reducing friction. Since friction is proportional with load, the optical sensors demanding very smooth rates are carried by a separate tracking mount. The Doppler radar being more tolerant to instantaneous rate errors is carried by a second tracking mount. Both mounts are arranged collinear and housed in the same dome.

Both tracking mounts have direct drive brushless servo motors. Position is measured by direct mounted high resolution absolute encoder.

Each mount has auto target tracking. The angular position difference between the two mounts can be up to 5 deg. Within this angular range two different targets can be tracked.

### Sensors, basic payload



Tracking mounts can be equipped for best coverage of the planned mission. The suggested basic equipment includes the following sensors:

- Doppler Radar 43db or 40 dB
- Video Camera with zoom lens
- Video Camera with Schmidt-Cassegrain f/10 telescope
- Thermal Imager with reflecting telescope
- Thermal Imager with continuous zoom lens
- High speed B/W Video Camera with zoom lens

### Inertial Stabilization

Both tracking mounts have inertial stabilized line of sight. It allows installation on a moving observation platform. Measurements by the inertial sensor correct the EL/AZ readout to the normalized geographic reference.

# Large multiple sensor tracking system REOTS

## Specification Summary

**General Configuration** Two nested EL/AZ tracking mounts.  
Outer mount carries the Doppler radar antennas and bore sighted video camera.  
Inner EL/AZ tracking mount carries optical sensors with long focal, narrow field, high resolution optics.  
Dome with remote operated opening shutter. The vertical rotation axis is slaved to the azimuth axis of the tracking mounts.

<b>Mount Performance, inner/outer</b>		<u>Azimuth</u>	<u>Elevation</u>
	Angular freedom (deg)	±185deg	-15deg to +190deg
	Rate @ cont. torque	±60 deg/s	±60 deg/s
	Acceleration, loaded	60 deg/s <sup>2</sup>	60 deg/s <sup>2</sup>
<b>Ranging Radar Model Option</b>		<u>MFDR-2100/40</u>	<u>MFDR-2100/43</u>
	Output power	320 Watts	640 Watts
	Range, nominal	150 km	250 km
	Antenna gain	40 dB	43 dB

**Two Long Range Video Tracking cameras with telescope**  
 Telescope optics: Clear aperture >300mm and focal length >2700mm  
 Color video camera: High resolution CCD sensor 1280x720

**Thermal Imager** High resolution cooled thermal camera with larger aperture, long focal length telescope

**Thermal Imager** High resolution cooled thermal camera with continuous zoom lens f/5.5 from 48.5 to 700mm focal length

**High speed camera** High speed camera with continuous zoom lens from 40 to 1000mm focal length f/4 to f/8.3

## Outline Dimensions with 43 dB radar antenna

