

Solar Observing Optical Network (SOON), (AN/FMQ-7). FAC: 1341

CATCODE: 149XX5

OPR: AFWA/A5/A8, MAJCOM/A3W

OCR: MAJCOM/A6

1.1. Description. The SOON is a manned optical telescope, solar observing system that collects and sends solar data to space weather forecast centers. The SOON monitors solar activity 24/7. The solar observations provide essential information about the size, brightness, energy, and location of eruptive events on the solar disk, providing warnings and advisories for solar proton events and geomagnetic activity. These proton events affect high altitude and manned space flight, as well as auroral and polar region radar, communications systems, and national and regional electric power grids.

1.2. Requirements Determination. The SOON provides the world's only 24/7 ground-based optical solar observing system. The system is critical for forecasting solar events that affect communications, manned space flight, and power grids. Obtain further requirements determination information through AFWA/A5/8 or MAJCOM/A3 weather staff.

1.3. Scope Determination. The front of the SOON building faces away from the equator, with no East or West obstructions. The operations building consists of a 15 m (50 ft) x 7.6 m (25 ft) structure with an additive front sloped section 4.6 m (15 ft) x 2.4 m (8 ft). The facility area has two seismic pads outside and one inside the building. Ensure the building is environmentally controlled to maintain 60°F to 89°F and 30 to 60 percent relative humidity (non-condensing). The inside of the building contains a seismic pad, optical telescope, computers, monitors, UPS, and multiple electronics racks. The SOON administration building is 23 m (75 ft) x 12 m (40 ft). The SOON maintenance and storage building is 23 m (75 ft) x 12 m (40 ft).

1.4. Dimensions. Secured site area is 67 m (220 ft) x 67 m (220 ft). These dimensions do not include the parking area.

1.5. Design Consideration.

1.5.1. Communications Requirements. Requires a dedicated communication line connected to the GIG and DSN Class A worldwide landlines.

1.5.2. Power Requirements. Each SOON requires 7,000 watts total electrical power consisting of 4,500 watts on a 208 V, 60 Hz single phase circuit and 2,500 watts on a 110 V, 60 Hz circuit and a backup power system to include an UPS. The requirement for emergency power is determined under AFI 32-1063.

1.5.3. Special Features. The front of the SOON building faces away from the equator, with no East or West obstructions.