

Radio Solar Telescope Network (RSTN). FAC: 1341

CATCODE: 149XX4

OPR: AFWA/A5/A8, MAJCOM/A3W

OCR: MAJCOM/A6

1.1. Description. RSTN consists of manned sites that have the Radio Interference Measuring Set (RIMS), AN/FRR-95 and the Solar Radio Spectrograph (SRS), A/F24U-10. The RSTN monitors the solar disk from sunrise to sunset to detect solar radio frequency bursts and monitors the radio spectrum using sweep and discrete frequency radiometers 24/7. This data generates warnings and advisories that allow the warfighter to discriminate between solar-induced effects and electronic jamming on missile-warning radars, satellite operations, and space surveillance systems.

1.2. Requirements Determination. Obtain further requirements determination information through AFWA/A5/8 or MAJCOM/A3 weather staff.

1.3. Scope Determination.

1.3.1. RIMS Antenna Requirements. RSTN's three RIMS antennas are mounted on two separate support towers or risers. The RIMS 28 ft antenna is supported by an approximate 38 ft tall riser mounted on a 20 ft x 18 ft x 2.5 ft concrete slab fastened by 36 stainless steel mount bolts. The total weight of system is 37,175 lbs. The concrete mount slab needs to be reengineered if the equipment is moved, due to different soil conditions. RIMS 3 ft and 8 ft antennas are mounted on a single 14.1 ft support riser mounted on a 9 ft x 8 ft x 2 ft concrete slab fastened by 12 galvanized steel mount and leveling bolts. Total weight of system is 10,114 lbs. The concrete slab needs to be redesigned if equipment is moved to a new location, due to different soil condition.

1.3.2. SRS Antenna Requirements. The SRS has two antennas, one low band and one high band. The low band antenna requires 34 ft x 21 ft of space, is 20 ft high, and requires a 10 ft x 10 ft x 2 ft concrete pad plus four anchors for the hoops and two for tie downs. The maximum length of the cable is 152 m (500 ft) (distance from building to antenna). The SRS high band antenna is approximately 20 ft high and also requires a 10 ft x 10 ft x 2 ft concrete pad. The maximum length of its cable is 137 m (450 ft) (distance from building to antenna).

1.3.3. RSTN Support Building. The RSTN's support building requires a minimum of 2,500 ft² of space which contains ten each 24 in x 30 in x 72 in electronic equipment racks; two each 21 in x 31 in x 68 in equipment racks; five each 17 in x 24 in uninterrupted power supplies; room for three desk top PCs; and one each 17 in x 17 in dehydrator. The building requires an inside temperature of 50°F to 90°F and 20 – 75 percent non-condensing humidity. The 2,500 ft² provides space for operation, administration, and maintenance personnel.

1.4. Dimensions. The secured site area is 174 m (570 ft) x 174 m (570 ft). The site area requires a security fence around the perimeter. Buildings and antennas are required to have lightning protection.

1.5. Design Consideration.

1.5.4. Communications Requirements. RSTN requires a dedicated communication line connected to the GIG and DSN Class A worldwide phone line.

1.5.5. Power Requirements (includes backup power and UPS). Stable/reliable 300 A single phase and 50 A, 3-phase 208 V power and 115 VAC. RSTN requires backup power and an UPS. The requirement for emergency power is determined under AFI 32-1063