

**Radio Relay Facility (includes LMR Repeater facilities and microwave relay sites). FAC: 1311**

CATCODE: 131118

OPR: AFFSA

OCR: AFNIC

1.1. **Description.** This facility supports equipment for sites used to relay communications between point-to-point wideband communications, or for relay of land mobile radio signals over local areas.

1.2. **Requirements Determination.** Radio relay/repeater facilities consist of radio facilities (buildings and outdoor equipment) necessary to support the relay of radio communications information. These facilities are unattended, where practical, and require only periodic inspection and maintenance by specialized crews. Local conditions, however, may require some of these sites to be attended.

1.3. **Scope Determination.** Building size is determined by the amount of equipment to be installed.

1.4. **Dimensions.** See paragraph 1.3.

1.5. **Design Considerations.** The radio relay installation normally includes the following construction items:

1.5.1. **Communications Equipment Building.** Humidity and temperature control may be required. Additional space for emergency sleeping quarters and the storing of emergency rations and additional spare parts may be required where climatic conditions warrant.

1.5.2. **Power.** Primary power, backup power (see AFI 32-1063) and associated fuel facilities as required. (See AFI 32-7044, *Storage Tank Compliance* for environmental requirements.)

1.5.3. **Antenna Support.** Separate concrete foundations may be required depending on equipment and building design.

1.5.4. **Access Road and Parking Area.**

1.5.5. **Fencing.** A four-strand barbed wire perimeter fence is normally required. Local security agencies may specify a more secure fence. See AFI 31-101.

1.5.6. **Manned Locations.** Manned locations require space for secure storage of test equipment, latrines, maintenance, training, and work center administration.

1.5.7. **Security and Safety.** Security and safety lighting is necessary.

1.5.8. **General Guidance.**

1.5.8.1. HF radio facilities comprise all communication networks employed by the Air Force for the exchange of information between and among surface installations and airborne vehicles, or any combination thereof (i.e., point-to-point or air/ground/air communications). Facilities include Air Force components of the Defense Communications System (DCS) as well as unilateral communications.

1.5.8.2. The HF radio complexes provide a variety of communication services (radio, teletype, voice, analog, radio, phone patch, data) for a variety of functions (administrative, logistic, weather, operations, intelligence, common user, command and control, etc.) for all command levels on a global basis.

1.5.8.3. The USAF Aeronautical Station complex normally consists of three separate buildings for the communications terminal, transmitter, and receiver. The relay control center may be collocated with the base telecommunications facility or with the transmitter or receiver building. Facilities may be located on or off base, with microwave or cable facilities connecting them.

1.5.8.4. Command and Control facilities normally consist of a single building with adjacent antenna farms. The building is normally isolated from the central area of the base or may be located at an off-base site.

1.5.8.5. See AFI 32-1063 for primary power, back-up power, and associated fuel facilities.

1.5.8.6. Humidity and temperature controls are necessary in the communications terminal and command and control facilities; they may be required at the transmitter/receiver buildings.

1.5.8.7. The type and quantity of security fencing and perimeter lighting is determined by local security forces during site surveys. Consideration for transmission line security by hardening transmission line ducts, where applicable, may be necessary.

1.5.8.8. Roads and parking lots are necessary.

1.5.8.9. AFI 32-1065 contains standards on electrical grounding requirements.