Automatic Meteorological Station (AN/FMQ-19). FAC: 1341

CATCODE: 149XX1
OPR: AFWA/A5/A8, MAJCOM/A3W
OCR: MAJCOM/A6

1.1. **Description.** Consists of a primary suite of weather sensors and processor(s) capable of collecting, measuring, and reporting the following parameters for air traffic control operations: Wind speed and direction, temperature and dew point, visibility, cloud height, present weather, precipitation amount, lightning, and freezing precipitation. For airfields requiring additional weather sensors, one or more additional discontinuity sensor suites may be installed. A discontinuity sensor suite consists of weather sensors and processor(s) capable of collecting, measuring, and reporting the following parameters: Wind speed and direction, visibility, and cloud height.

1.2. **Requirements Determination.** One Field Data Collection Unit (FDCU) is authorized at each facility; however, some airfields require two or more FDCUs if the aerodrome has two or more instrumented approaches or has terrain anomalies. One Operator Interface Devices (OID) is required for each location. Typical locations are the weather station and Meteorological Equipment and Navigational Aids (METNAV). One Terminal Data Acquisition Unit (TDAU) is required for each airfield. Obtain further information through AFWA/A5/8 or MAJCOM A3 weather staff.

1.3. **Scope Determination.** The weather sensors are sited where they best measure vital weather data representative of the touchdown area of a runway or helipad. Locate the primary sensor suite and the discontinuity suite approximately 152 m (500 ft) from centerline of the runway and approximately 229 m to 305 m (750 ft to 1,000 ft) from the designated runway threshold. The sensor suite should be parallel to the runway with the closest sensor 152 m (500 ft) from the centerline. Locating sensors more than 152 m (500 ft) from the centerline of the runway provides data less representative of the runway and could have a negative effect on aviation operations. A concrete pad and underground cabling and conduit are needed to support the mounting masts for the equipment, communication, and power requirements and FDCU. The TDAU is located in the Weather Observation Site (**CATCODE 141629**, **141453**, or **149962)**. The TDAU provides a permanent record of all weather data reported from the FDCUs. The OID is mounted in the weather observation site, airfield maintenance facilities and in aircraft control facilities such as RAPCON and the air traffic control tower.

1.4. **Dimensions.** Quantitative requirements are determined through the results of site surveys and coordinated with the use of Project Support Agreements (PSA). The standard facility requirement should also be outlined and coordinated through the PSA vehicle. A typical site primary sensor location needs an area 20 ft x 40 ft long to accommodate the space needed for the concrete pads and grounding system. If additional sensors are needed for discontinuity requirements, the space requirements may be smaller.

1.5. **Design Considerations.**

1.5.1. **Communications Requirements.** Underground cabling, either copper twisted or fiber optics, which will connect the FDCU to the TDAU; underground cabling, either copper twisted or fiber optics, which connect the Runway Lighting Intensity Monitor (RLIM) to the TDAU; additional cabling, either copper twisted or fiber optics, may be required to connect the OID located at air traffic control facilities, weather stations, RAPCONs and METNAV facilities.

1.5.2. **Power Requirements.** Reliable/stable, dedicated 120 VAC, 60 Hz, 30 A service for the outdoor primary and discontinuity sensor suite FDCUs; reliable/stable, dedicated 120 VAC; 60 Hz, 20 A service for the TDAU located at the weather station; the OIDs 120 VAC load circuit. The requirement for emergency power is determined under AFI 32-1063.

1.5.3. Locate equipment to comply with airfield/aviation safety and explosive safety standards.