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ARM 8mm Cloud Radar Installation (Internal Container)

I. Purpose:

This procedure describes the steps necessary to install the internal components of the ARM 8mm Cloud Radar, which measures cloud geometric properties: cloud base height, top height, and depth.

II. Cautions and Hazards:

- The installer must make sure that all the power sources are disconnected during installation.

III. Requirements:

- A flat-tip screwdriver.
- A Phillips-tip screwdriver.

IV. Procedure:

A. UPS (Uninterruptible Power Supply)

1. Power Hookup

- Service entrance conductors
 - a) A 1 ½" coupling is fitted at the service entrance box to connect the conduit system and the power source.
Feeder specifications: 100 Amps, 120/240 V, one phase, three wire, 60 Hz.
- Shelter connection
 - a) The service entrance conductors are terminated in the service entrance box.
 - b) Remove the access panel cover with a Phillips screwdriver.
 - c) Strip conductors for ½" in length.
 - d) Connect L₁ and L₂ for 240-volt leads of the circuit breaker.
 - e) Connect the neutral wire to the neutral bus, and ground to the ground lug, using a flat-tip screwdriver.

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B. Lower (large) Rack and Equipment

NOTE: All measurements are from the top edge of the bottom rail of rack enclosure.

1. Position one set of rack support angles so that the angle support lies even with the top edge of the bottom rail of rack enclosure.
2. Mount angles with cage nuts at appropriate alignment and fasten to cage nut with provided 10-32" x $\frac{3}{4}$ " machine screws.
3. Install a perforated shelf so that the top of the shelf lies at 28 $\frac{3}{4}$ ".
4. Install a cradle shelf so that the bottom of the shelf lies at 34".
5. At 37.5", install a perforated support shelf for the computer monitor.
6. Place Data Management System (DMS) computer on the bottom of rack and fasten with provided 10-32" x $\frac{1}{2}$ " machine screws.
7. Place the Radar computer on top of the DMS computer and fasten to the rack with the provided screws.
8. Place the Radian Interface chassis on top of the Radar computer and fasten with the provided screws.
9. Place the Radian Receiver/Modulator chassis on top of the Interface chassis and fasten with the provided screws.
10. Before placing ADC 488/16A and Mux 488/64 on rack shelf above Receiver/Modulator, hook IEEE cables, power cables, and DB-25 ribbon and extension cables, all in between the ADC 488/16A and Mux 488/64. (This process is necessary at this point because the units are hard to reach once all equipment is in place and monitor backplane is in position.)
11. Once the ADC 488/16A and Mux 488/64 are hooked up, position them into the rack on top of the lower perforated shelf and fasten with the provided screws.
12. Fasten the monitor backplane onto the rack directly behind the ADC 488/16A and Mux 488/64.
13. Connect the interconnect cables from the ADC 488/16A and Mux 488/64 to the monitor backplane.
14. Place the computer monitor on the upper perforated shell.
15. Connect cables as shown in the cabling diagram.

C. Upper (small) Rack and Equipment

1. Position one set of rack support angles so that the angle support lies at 7" from the top edge of the bottom rail.

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2. Place the Applied Systems' Engineering Traveling Wave Tube Amplifier (TWTA) on the angle supports located at 7" from the bottom rail and fasten with the provided screws.
3. Place Speck Up/Down Converter on the bottom of rack and fasten with the provided screws.
4. Place Pulse Control chassis in between TWTA and Up/Down converter and fasten with the provided screws.
5. Connect cables as shown in the cabling diagram.

V. References:

1. United States Department of Commerce (NOAA/ERL, Environmental Technology Laboratory, System Demonstration and Integration Division). Operation and Maintenance Manual for ARM's 8mm Cloud Radar, pp. 4-8. January 1998. MAN(MMCR)-001.001.