

# Specifications for Pod Radome

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**Description:** This specification describes a **radome** to protect the transmit antenna of an electronic warfare system located inside a pod having the form and mold line of the AIM-120 (AMRAAM) air to air missile. The nominal dimensions of the Pod Radome are shown in Figure 1. The system will be carried on the underwing ordnance station of a supersonic jet aircraft.

The radome will be designed to provide maximum transmission and minimal internal reflection of the radio frequency energy transmitted from the antenna, while meeting the physical requirements for protection against rain impact during flight. The radome materials and the thickness of the radome will be chosen to meet the following performance criteria:

## Electrical

**Operating Band:** 6-18 GHz

**Polarization:** Horizontal and vertical (identical performance)

**Transmission Loss:** < 1 dB, +/- 60 degree angle of incidence

**Reflection Return:** < 6 dB, +/- 60 degree angle of incidence

## Mechanical

**Fasteners:** Twelve bolts ringed around the aft portion of the radome shall hold it in place to the pod.

**Interface :** The base of the radome shall slide into place over a metal lip at the front of the pod which will be passed through by the fastening bolts. At the base the diameter shall be 7" to conform to AIM-120. Minor variations (<200 mil) allowable to achieve an outer flush fit and as needed.

**Durability / rain resistance:**

- a. The radome shall withstand 1" per hour rain of 2 mm size droplets without erosion for 10 minutes at 500 mph airspeed.
- b. The radome shall withstand the identical rain in a. without erosion for 30-60 sec dashes up to Mach 1.5 airspeed.
- c. It is allowable to design the radome with a metal or ceramic tip to prevent erosion in the in the forward-most area.

**Outer Surface:** The pod shall have an antistatic coating which will protect underwing pods and ordnance with the flight profile described above.

**Operating Temperature Range** -65°F to 350°F operational

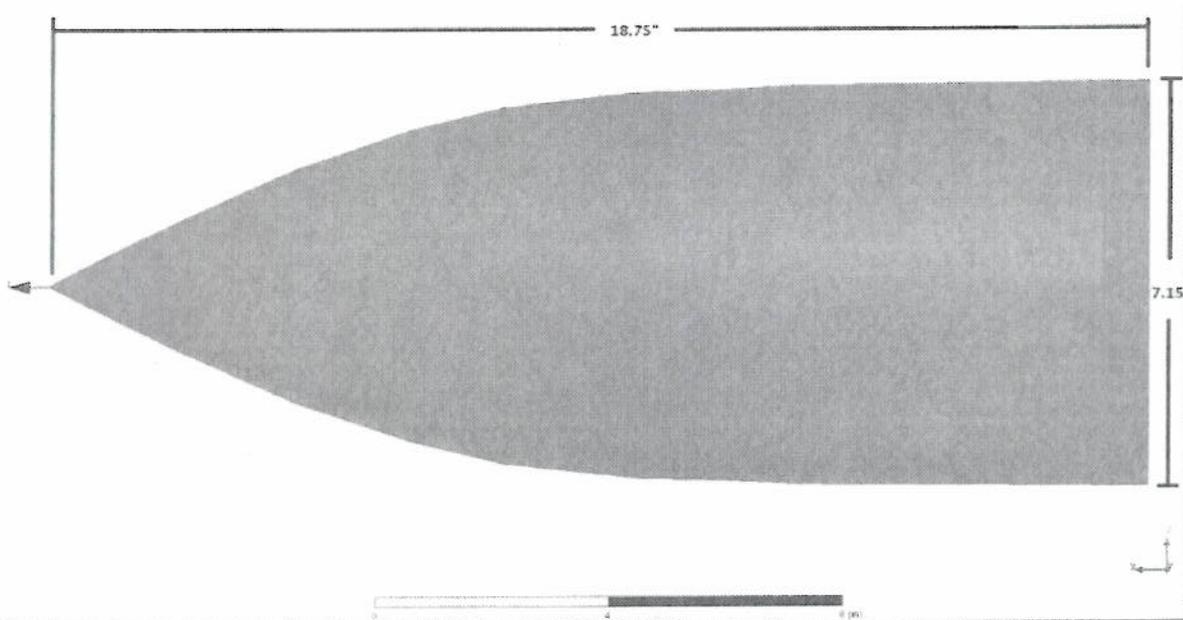


Figure 1. Nominal dimensions of Pod Radome.