

CUMING MICROWAVE

MODEL C

**RoHS
Compliant**

TECHNICAL BULLETIN 510

SPHERICAL DIELECTRIC RADAR TARGET

The Model C Radar Target is a spherical lens made of a filled plastic with a controlled dielectric constant gradient. It has a large radar cross section (RCS) over a large viewing angle, and is broad banded in the microwave frequency range.

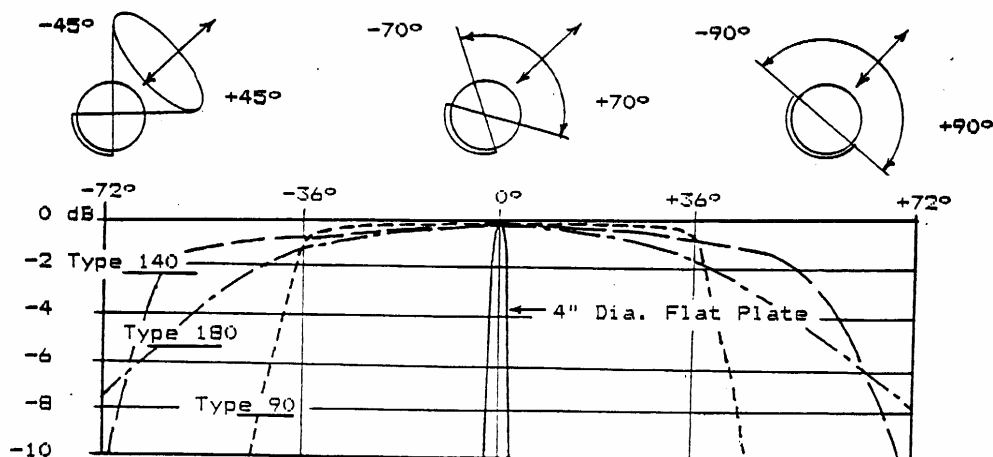
The Model C is inherently rugged and needs no radome. It is available in a range of diameters from 3 to 6 inches. Theoretical RCS is given in the table below; actual performance

will be very close to theoretical. In many cases, measured RCS data can be provided. Some diameters other than those listed are available.

The reflectivity pattern of the Model C depends on the size and shape of the reflective cap located at the focus of the lens. Type 90, Type 140, and Type 180 covering 90°, 140°, and 150° spherical viewing angles are available.

Model	Nominal Diameter Inches (mm)	Theoretical RCS (m ²) at 3 GHz	Theoretical RCS (m ²) at 10 GHz	Theoretical RCS (m ²) at 16 GHz	Weight * Lbs. (kg)
C-03	3.0 (76)	0.03	0.25	1.16	0.6 (0.26)
C-04	4.0 (102)	0.08	0.81	3.67	1.6 (0.72)
C-05	5.0 (122)	0.20	2.20	9.00	3.3 (1.50)
C-06	6.0 (152)	0.42	4.08	18.60	6.0 (2.72)

* note: weight does not include mounting system.



Typical Reflective Patterns of Model C-04 Targets at X—Band

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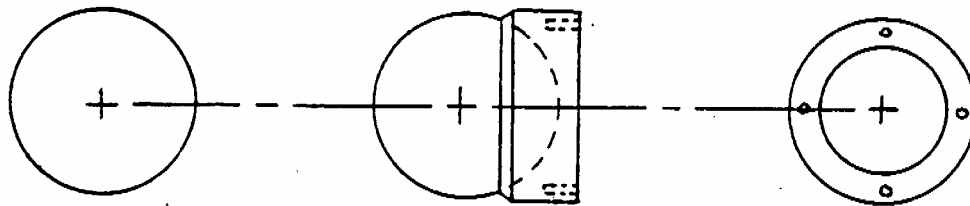
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The standard mounting of the Model C Radar Target is an aluminum ring mount, as shown in the sketch below. Model C can also be supplied as a sphere enclosed in a plastic radome, or in a variety of custom mounts. Units can be supplied with a threaded fiberglass mounting stud which projects from the sphere. Location of the stud will normally be directly out from the back end of the unit, i.e., centered in the reflector cap. Alternatively, the stud can project 90° around the sphere from the center of the reflector cap, permitting side, up, or down mounting.

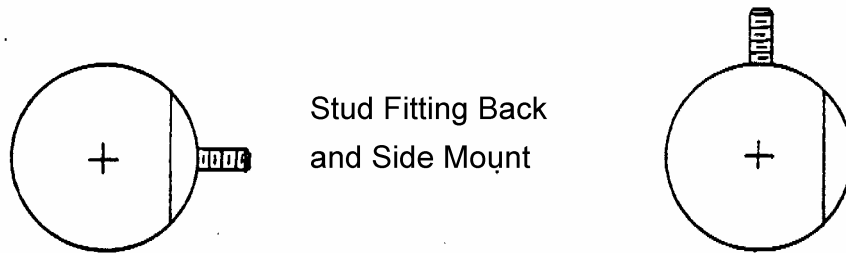
An advantage of the Model C Radar Target is that its outer surface is hard, dense, and

rugged. The device is strong enough to be exposed to the airstream of a supersonic vehicle without a protective covering. Special aerospace rain erosion coatings can be applied, if required.

Other kinds of radar targets are available from Cuming Microwave. Some are based on clusters of corner reflectors. When space is limited, folding "pop-up" reflectors can be supplied. Special lightweight units and both uniform and non-uniform dielectric lenses are also available. Interested parties are encouraged to consult our Engineering Department for advice.



Standard Ring Mount



Stud Fitting Back and Side Mount

The information in this Technical Bulletin, although believed to be accurate, is not to be taken as a warranty for which Cuming Microwave assumes legal responsibility nor as permission or recommendation to practice any patented invention without license: it is offered for verification by the customer, who must make the final judgment of suitability for any application. Values shown are typical, and are not a specification nor a product guarantee.