The Luneberg lens is a passive radar augmentation device used to increase the radar reflectivity of a target without the use of additional energy. The lens reflector is a sphere in shape, usually composed of concentric dielectric shells. By the proper selection of dielectric constants for each shell, radar energy incident on one of the faces of the lens is focused at a point on the rear surface of the lens. The rear conductive surface reflects radar energy back to the source.

The physical characteristic of a Luneberg lens varies according to its application and the frequency at which it is required to operate. To meet a variety of weapon system requirements, Meggitt Target Systems integrates a variety of lens types into its targets. Generally, these are of 7.5 inches in diameter but alternative sizes from 4 inches to 8.7 inches in diameter may be fitted to the Banshee and Snipe targets.

The radar cross section of a Luneberg lens is several hundred times that of a metallic sphere of the same size. Requiring no power supply or maintenance, the Luneberg lens is the most efficient, passive radar reflector available.

Lenses are generally of 3 types designed to fulfill different technical requirements.

a) A Mono-static unit where the radar source and the radar receiver are collocated. This type of lens is a retro-reflector designed to operate with linear polarised radars. This is the most commonly used general purpose reflector which has a broad band RF capability from S band to Ku Band.

b) A Mono-static unit similar to that above but designed for use with radars that utilise circular polarisation. These units, which look the same as the linear polarised work different and have a much narrower operating band. Therefore they tend to be frequency specific.

c) A Bi-static unit designed for use where the radar source and receiver are located independently to each other. For example, where a radar is used to illuminate a target so that it can be acquired and identified by a missile’s active radar seeker head. This unit is generally used for linear polarised systems.

Other lens types are available to meet specific weapon and user requirements.
## Support products and services

### Luneberg lens

## Specifications

<table>
<thead>
<tr>
<th>Model</th>
<th>Lens Type</th>
<th>Diameter</th>
<th>Weight</th>
<th>Angle of View</th>
<th>Typical RCS</th>
</tr>
</thead>
<tbody>
<tr>
<td>BTT3-0903-000-000</td>
<td>Monostatic, linear polarised, retro reflector</td>
<td>7.5” (19 cm)</td>
<td>1.7 kg</td>
<td>+/- 50° on axis</td>
<td>&gt;7 m² at 10 GHz on axis. 5 m² at +/- 50°</td>
</tr>
<tr>
<td>BTT3-0901-000-000</td>
<td>Monostatic, circular polarised</td>
<td>7.5” (19 cm)</td>
<td>1.7 kg</td>
<td>+/- 50° on Axis</td>
<td>&gt;5 m² at 10 GHz on axis. 3.5 m² at +/- 50°</td>
</tr>
<tr>
<td>BTT3-0964-000-000</td>
<td>Bi-static, linear polarised</td>
<td>8.7” (22 cm)</td>
<td>2.1 kg</td>
<td>+/- 50° on axis</td>
<td>6 m² at 9.375 GHz on Axis. 1 m² at 9.375 GHz at bi-static angle of 10°</td>
</tr>
</tbody>
</table>

*Note: Due to continuous process improvement, specifications are subject to change without notice*