The AS-48915 Series S-Band antenna is a compact, low-weight aerospace qualified antenna in the conical og-spiral family. Designed to operate over the full frequency range of 1.7 to 2.3 GHz, the AS-48915 Series is ideal as an S-Band telemetry antenna and is available in either RHC or LHC polarization.

This design was first utilized on the Solar Maximum Mission and the International Ultraviolet Explorer (IUE) for NASA Goddard. Customers have included Rockwell (classified platforms), Motorola, TRW (KOMPSAT and GeoLITE), and NASA Houston (International Space Station). By operating from 1.2 to 2.5 GHz with modified performance, the AS-48915 Series can also be used as a GPS antenna.

Its RF design configuration is a two-arm conical log-spiral radiating element fed at the tip by a compensated balun. The spiral cone angle and the tip and base diameters were selected to provide satisfactory operation over the operational frequency band. The complementary two-arm spiral is wound to provide an inherent circular polarization. This results in broad-lobed unidirectional circularly polarized radiation off the small end or apex of the cone.

The AS-48915 Series is ideal for applications where hemispherical coverage is required. The antenna is optionally provided with a six-inch diameter ground plane (as shown in the photograph).

### SPECIFICATIONS FOR: AS-48915 SERIES OMNIDIRECTIONAL CONICAL SPIRAL ANTENNA

<table>
<thead>
<tr>
<th>ELECTRICAL</th>
<th>Standard Operating Band</th>
<th>Broadband Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range</td>
<td>1.75 to 2.3 GHz</td>
<td>1.2 GHz to 2.5 GHz</td>
</tr>
<tr>
<td>VSWR</td>
<td>1.7:1, max</td>
<td>2.0:1, max</td>
</tr>
<tr>
<td>Gain</td>
<td>Peak, 4 dBiC typ, 1 dBiC, min (at ( q = \pm 10^\circ ))</td>
<td>-3 dBiC, min</td>
</tr>
<tr>
<td></td>
<td>&gt;-5 dBiC (at ( q = \pm 76^\circ ))</td>
<td></td>
</tr>
<tr>
<td>Polarization</td>
<td>Right or Left Hand Circular</td>
<td></td>
</tr>
<tr>
<td>3 dB Beamwidth</td>
<td>45°, typ</td>
<td>3 dB Beamwidth 90°, typ</td>
</tr>
<tr>
<td>Axial Ratio</td>
<td>3 dB, Max.; 0° to 45°</td>
<td>&lt;3 dB between ±35°</td>
</tr>
<tr>
<td></td>
<td>5 dB, Max. ±45° to ±90°</td>
<td>&lt;6 dB between ±90°</td>
</tr>
<tr>
<td>Front-to-Back Ratio</td>
<td>&gt;20 dB</td>
<td>15 dB, Typical</td>
</tr>
<tr>
<td>Power Handling</td>
<td>10 watts CW</td>
<td></td>
</tr>
</tbody>
</table>

| MECHANICAL                          |                        |                       |
| Connector                            | SMA Female             |                       |
| Weight                              | 9 Ounces (256 grams), Max. (11 Ounces (312 grams) Including ground plane) |                       |

| ENVIRONMENTAL                       |                        |                       |
| Thermal Vacuum                      | 1.33 x 10^{-3} Newton/M2 (10^{-5} torr) at ±100° C/10W CW |                       |
| Vibration: \( 23.0 \text{ G}_\text{RMS} \) 3 min/axis vibration profile | Frequency (Hz) | \( g^2/\text{Hz} \) | dB/oct |
|                                    | 20-100                 | 1.0                   | +1.0  |
|                                    | 100-200                | 1.0                   | -6.0  |
|                                    | 200-400                | 0.25                  | -6.0  |
|                                    | 400-1000               |                       |       |
|                                    | 1000-2000              |                       |       |

It will operate over the frequency range of 1.2 GHz to 2.5 GHz with modified performance.

For more in depth discussion, refer to Report No. W0101.
AS-48915 Series
Omnidirectional Conical Spiral Antenna

INCHES [CENTIMETERS]

Consult with factory for mounting specifications.