DESCRIPTION
Tokyo’s DAK Series is a miniature dielectric antenna element for Global Positioning Systems (GPS). This patch antenna has excellent stability and sensitivity through the use of high performance proprietary ceramic material well suited for GPS frequencies.

FEATURES
- One quarter the size of traditional antenna elements without loss of sensitivity
- Excellent temperature stability via use of low temperature coefficient dielectric ceramics
- Silver plated electrode allows very good high frequency characteristics

ELEMENT CONSTRUCTION
- Flat patch antenna
- Rectangular micro-strip antenna design
- Use for GPS C/A right hand circular polarization wave reception
- Offset one point feeding through ground plane method
- 25mm square size

DIMENSIONS
DAK SERIES

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Outline Dimension</th>
<th>Ground Plane</th>
</tr>
</thead>
<tbody>
<tr>
<td>DAK1575MS50</td>
<td>25 mm</td>
<td>70 x 70mm</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Center Frequency</th>
<th>1580.5 MHz*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bandwidth</td>
<td>9 MHz min.</td>
</tr>
<tr>
<td>Impedance</td>
<td>50Ω</td>
</tr>
<tr>
<td>Gain @ Zenith</td>
<td>+5 dBi typical</td>
</tr>
<tr>
<td>Gain @ 10° Elevation</td>
<td>-1 dBi typical</td>
</tr>
<tr>
<td>Temperature Coefficient</td>
<td>20 ppm/°C max. (-40 to +105°C)</td>
</tr>
</tbody>
</table>

*Center frequency is shifted 5MHz down when covered with a radome.

Material: \( \varepsilon_r = 20.3 \pm 1.0 \)
Electrode: Silver
Terminal Pin: Solder coated, copper plated brass
TEST FIXTURE &
ANTENNA SETUP & MEASUREMENT

DIRECTIVITY CHART
PART NUMBER DAK1575MS50

VECTOR NETWORK ANALYZER
S11 log MAG
S11 SMITH
S11 SWR

Cor

CENTER 1.5750 GHz
SPAN .2000 GHz

1.5805 GHz
BW: .0254 GHz
cent: 1.5804 GHz
Q: 62.127
1. loss: -29.664 dB

CH1 S11 log MAG 5 dB/ REF 0 dB 1: -20.555 dB
ANTENNA GAIN VS GROUND PLANE SIZE
PART NUMBER DAK1575MS50

FREQUENCY SHIFT OF DIELECTRIC ANTENNA BY GROUND PLANE SIZE
PART NUMBER DAK1575MS50
AXIAL RATIO
PART NUMBER DAK1575MS50

GROUND PLANE SIZE VS RETURN LOSS 10dB FREQ.
PART NUMBER DAK1575MS50

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