Conical & Diagonal Horn Antennas

FEATURES:

- Available from 6 to 220 GHz
- Nominal Gain of 15, 20, and 25 dbi
- Made with Precise Dimensional Tolerance Control
- Gain Calibration is Accurate to 0.5 dB
- Over Full Waveguide Bandwidth

DESCRIPTION:

Cernexwave’s CCA series conical horns are fabricated with very close tolerances to ensure the precision of every horn manufactured by Cernexwave. Each unit is supplied with a short section of circular waveguide and terminated in a standard round flange. Conical horns can be used to determine experimentally the gain of other antennas by using the substitution method. The conical horn and the antenna under test are alternately connected to a well-matched detector system in order to compare their relative power levels. The power level difference is then added to the appropriate level of the calibration curve to determine the absolute gain of the antenna under test. Conical horns are also useful as power monitors in radar transmitter test, known-gain radiators in field propagation studies, and transmitting or receiving antennas in test bench applications. Please Note: 10, 15, 20 dB models are available in all bands.

SPECIFICATIONS:

<table>
<thead>
<tr>
<th>Waveguide Band</th>
<th>X</th>
<th>Ku</th>
<th>K</th>
<th>Ka</th>
<th>Q</th>
<th>U</th>
<th>V</th>
<th>E</th>
<th>W</th>
<th>F</th>
<th>D</th>
<th>G</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency Range (GHz)</td>
<td>8.5 to 11.6</td>
<td>12.4 to 18</td>
<td>18 to 26.5</td>
<td>26.5 to 40</td>
<td>33 to 50</td>
<td>40 to 60</td>
<td>50 to 75</td>
<td>60 to 90</td>
<td>75 to 110</td>
<td>90 to 140</td>
<td>110 to 170</td>
<td>140 to 220</td>
</tr>
<tr>
<td>Square Flange</td>
<td>Full Band</td>
<td></td>
<td></td>
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<tr>
<td>Circular Flange</td>
<td>Consult Cernexwave for Dimensions Due to Wide Variety of Circular Waveguide Sizes and Gain Options</td>
<td></td>
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</tbody>
</table>

Notes: Please refer to chart for correct pipe size based on center frequency and bandwidth

HOW TO ORDER:

Specify Model Number

CCA – WG LF HF GN R -- XX

WG: Waveguide
LF: Low End Frequency
HF: High End Frequency
GN: Gain
R: For Rectangular Waveguide
XX: To be specified by the factory

Example: To order WR-15 with a frequency band of 5053GHz, and a gain of 15 dB, specify CCA-15505315C-XX.
## Conical & Diagonal Horn Antennas

<table>
<thead>
<tr>
<th>Waveguide Band</th>
<th>WR-6.5</th>
<th>WR-5.1</th>
<th>WR-4.3</th>
<th>WR-3.4</th>
<th>WR-2.8</th>
<th>WR-2.2</th>
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</thead>
<tbody>
<tr>
<td>Waveguide Size</td>
<td>Rectangular</td>
<td>Rectangular</td>
<td>Rectangular</td>
<td>Rectangular</td>
<td>Rectangular</td>
<td>Rectangular</td>
</tr>
<tr>
<td>Frequency Range (GHz)</td>
<td>110 to 170</td>
<td>140 to 220</td>
<td>170 to 260</td>
<td>220 to 325</td>
<td>260 to 400</td>
<td>325 to 500</td>
</tr>
<tr>
<td>Horn Type</td>
<td>Conical</td>
<td>Conical</td>
<td>Conical</td>
<td>Diagonal</td>
<td>Diagonal</td>
<td>Diagonal</td>
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<tr>
<td>Horn Length (mm)</td>
<td>26.0</td>
<td>20.5</td>
<td>16.5</td>
<td>26.4</td>
<td>21.4</td>
<td>16.8</td>
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<tr>
<td>Aperture Diameter (mm)</td>
<td>10.8</td>
<td>8.4</td>
<td>7.1</td>
<td>5.6</td>
<td>4.6</td>
<td>3.6</td>
</tr>
<tr>
<td>Taper Half-Angle (deg)</td>
<td>11.7</td>
<td>11.6</td>
<td>12.1</td>
<td>6.0</td>
<td>6.1</td>
<td>6.1</td>
</tr>
<tr>
<td>Full 3 dB Bandwidth (deg)</td>
<td>13</td>
<td>13</td>
<td>13</td>
<td>10</td>
<td>10</td>
<td>10</td>
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<tr>
<td>Gain (dB)</td>
<td>21</td>
<td>21</td>
<td>21</td>
<td>26</td>
<td>26</td>
<td>26</td>
</tr>
<tr>
<td>Beam Waist Radius (mm)</td>
<td>4.1</td>
<td>3.2</td>
<td>2.7</td>
<td>2.3</td>
<td>1.9</td>
<td>1.5</td>
</tr>
</tbody>
</table>

**HOW TO ORDER:**
Specify Model Number: CCA – **WG LF HF GN R -- XX**

- **WG:** Waveguide
- **LF:** Low End Frequency
- **HF:** High End Frequency
- **GN:** Gain
- **R:** For Rectangular Waveguide
- **XX:** To be specified by the factory

**Example:** To order WR-6.5 with a frequency band of 110-170Ghz, and a gain of 21 dB, specify CCA-0611017021-XX.

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