Stadium Bi-Sector™ Array

- Two foot (0.6 m), eight port, dual beam, dual band antenna with patented asymmetrical beam shapes optimized for LTE
- Two low band and two high band 33° beams to match existing 65° patterns, covering 698-894 MHz and 1710-2170 MHz
- One pair of +45° and −45° cross-polarized ports for each beam
- Slim and low weight single panel design supporting two beams in a single antenna
- Fixed electrical downtilt of 5°
- Dramatic increase in site capacity through higher order sectorization which offsets the need to build new sites
- Boosts data throughput by minimizing interference and optimizing coverage
- Sharp elevation beamwidth aides in network planning
- Optimal elevation sidelobe performance
- Exceeds minimum PIM performance requirements

Overview

The CCI multi-band Bi-Sector™ Stadium Antenna is a dual beam phased array with full 700 MHz, SMR 800, Cellular, AWS and PCS band coverage. With two pairs of wideband ports covering 1710-2170 MHz and two pairs of low band ports covering 698-894 MHz, this compact CCI Bi-Sector provides the capability to deploy two wideband beams (sectors) and two low band beams (sectors) in a single antenna. This antenna features 5° of Fixed Electrical Tilt (FET).

CCI’s unique patented bi-sector technology provides optimized overlap between the pairs of asymmetric beams, lowers soft handover losses in LTE, UMTS/HSPA+ and CDMA/EVDO systems, while minimizing interference between sectors. Fast roll-off of each of the outer beams and high front-to-back ratios ensure reduced interference. This patented approach enhances data transfer rates within LTE, UMTS and EVDO network sectors and addresses “hotspots” in mobile wireless operator networks.

The single panel design of the Bi-Sector Array offers the opportunity to reduce antenna count and directly replaces an existing 65° antenna without mount changes and avoids costly leasing and zoning changes. The enhanced coverage matches the existing sector footprint and minimizes the need for optimization and adjacent site changes, providing operators with significant CAPEX and OPEX cost savings.

CCI antennas are designed and produced to ISO 9001:2008 certification standards for reliability and quality in our state-of-the-art manufacturing facilities.
Applications

- Delivers increased capacity and data-throughput for sites that are performance or capacity constrained
- Provides a higher level of spectrum reuse making it an ideal solution for spectrum limited markets
- Increase capacity without the need for new site builds or carrier adds and without using valuable spectrum resources
- Efficient use of spectrum make it ideally suited for spectrum clearing and refarming
- Large high capacity venues such as stadiums, special events with high traffic and Cell on Wheel (COW) deployments
**Stadium Bi-Sector™ Array**

### Electrical

<table>
<thead>
<tr>
<th>Parameter</th>
<th>4 x Low Band Ports for 698-806 MHz</th>
<th>4 x High Band Ports for 1710-2170 MHz</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Frequency Range</strong></td>
<td>698-806 MHz</td>
<td>1850-1990 MHz</td>
</tr>
<tr>
<td><strong>Gain</strong></td>
<td>12.0 dBi</td>
<td>14.5 dBi</td>
</tr>
<tr>
<td><strong>Azimuth Beamwidth (-3dB)</strong></td>
<td>34° Asymmetric</td>
<td>32° Asymmetric</td>
</tr>
<tr>
<td><strong>Elevation Beamwidth (-3dB)</strong></td>
<td>37.0°</td>
<td>15.5°</td>
</tr>
<tr>
<td><strong>Electrical Downtilt</strong></td>
<td>5°</td>
<td>5°</td>
</tr>
<tr>
<td><strong>Elevation Sidelobes (1st Upper)</strong>&lt; -15 dB</td>
<td>&lt; -13 dB</td>
<td></td>
</tr>
<tr>
<td><strong>Front-to-Back Ratio @180°</strong></td>
<td>&gt; 30 dB</td>
<td>&gt; 30 dB</td>
</tr>
<tr>
<td><strong>Cross-Polar Discrimination (at Peak)</strong></td>
<td>&gt; 19 dB</td>
<td>&gt; 25 dB</td>
</tr>
<tr>
<td><strong>Voltage Standing Wave Ratio(VSWR)</strong></td>
<td>&lt; 1.5:1</td>
<td>&lt; 1.5:1</td>
</tr>
<tr>
<td><strong>Passive Intermodulation (2x20W)</strong></td>
<td>≤ -150 dBc</td>
<td>≤ -150 dBc</td>
</tr>
<tr>
<td><strong>Input Power Continuous Wave (CW)</strong></td>
<td>500 watts</td>
<td>300 watts</td>
</tr>
<tr>
<td><strong>Polarization</strong></td>
<td>Dual Pol 45°</td>
<td>Dual Pol 45°</td>
</tr>
<tr>
<td><strong>Input Impedance</strong></td>
<td>50 ohms</td>
<td>50 ohms</td>
</tr>
<tr>
<td><strong>Lightning Protection</strong></td>
<td>DC Ground</td>
<td>DC Ground</td>
</tr>
</tbody>
</table>

### Mechanical

- **Dimensions (L×W×D)**: 24.7×28.5×9.4 in (627×723×240 mm)
- **Survival Wind Speed**: > 125 mph (> 201 kph)
- **Front Wind Load**: 150 lbs (667 N) @ 100 mph (161 kph)
- **Side Wind Load**: 50 lbs (222 N) @ 100 mph (161 kph)
- **Equivalent Flat Plate Area**: 5.9 ft² (0.5 m²)
- **Weight**: 33.1 lbs (15.0 kg)
- **Connector**: 8 × 7-16 DIN female long neck
- **Mounting Pole**: 2 to 5 in (5 to 12 cm)
- **Mounting Bracket**: 90° rotation allows both horizontal and vertical sectorization

*Weight excludes mounting*

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Mechanical

Connector Spacing

All connector spacing is 2.8 inches (70 mm) on center.
Typical Antenna Patterns

For detailed information on additional antenna patterns, contact customer support.

743 MHz Azimuth

743 MHz Elevation 5°

1878 MHz Azimuth

1878 MHz Elevation 5°
### Stadium Bi-Sector™ Array

#### BSA-M65-15F005-22
Two foot (0.6 M) antenna, Bi-Sector Array, Multiband (700, 800, 850, 1900, 1710/2110 MHz), Fixed Electrical Tilt

#### BSA-M65-15F005-22-K
Complete kit with antenna, and BSA-M05 adjustable mast bracket and MBC-01 mast bracket clamp

#### BSA-M05
Adjustable mast bracket kit with ±35° horizontal adjustment and ±55° vertical adjustment mechanical tilt for wall or mast mounting

#### MBC-01
Mast bracket clamp for mast mounting of BSA-M05
Adjustable Mast Bracket

**BSA-M05**

**Mechanical**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>7.7 lbs (3.5 kg)</td>
</tr>
<tr>
<td>Hinge Pitch</td>
<td>Horizontal(± 35°), Vertical(± 55°)</td>
</tr>
<tr>
<td>Fastener Size</td>
<td>M10</td>
</tr>
<tr>
<td>Installation Torque</td>
<td>15 ft-lbs (20 Nm)</td>
</tr>
<tr>
<td>Mechanical Tilt Adjustment</td>
<td>Horizontal(± 35°), Vertical(± 55°)</td>
</tr>
<tr>
<td>Mounting Pole(when used with MBC-01)</td>
<td>2 to 5 in (5 to 12 cm)</td>
</tr>
</tbody>
</table>

**Dimensions**
Adjustable Mast Bracket

BSA-M05

ACCESSORIES

BSA-M05 horizontal mount on "Stadium Antenna"

BSA-M05 vertical mount on "Stadium Antenna"

MBC-01 Mast Bracket Clamp

BSA-M05 and MBC-01 mounting application
# Mounting Bracket Clamp

**MBC-01**

## Mechanical

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weight</strong></td>
<td>5.4 lbs (2.4 kg)</td>
</tr>
<tr>
<td><strong>Mounting Pole Dimension</strong></td>
<td>2 to 5 in (5 to 12 cm)</td>
</tr>
<tr>
<td><strong>Fastener Size</strong></td>
<td>M10</td>
</tr>
<tr>
<td><strong>Installation Torque</strong></td>
<td>15 ft·lb (20 Nm)</td>
</tr>
</tbody>
</table>

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### Diagrams

- **MBC-01**
- **MBC-01 with BSA-M05**
STANDARDS & CERTIFICATIONS

Stadium Bi-Sector™ Array

BSA-M65-15F005-22

Standards & Compliance

Environmental

IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-5,
IEC 60068-2-6, IEC-60068-2-11, IEC 60068-2-14,
IEC 60068-2-18, IEC 60068-2-27, IEC 60068-2-29,
IEC 60068-02-30, IEC 60068-2-52, IEC 60068-2-64,
GR-63-CORE 4.3.1, EN 60529, IP 24

Certifications

RoHS Compliant

ISO 9001:2008
Quality Management System

Compliant

Communication Components Inc.
EXTENDING WIRELESS PERFORMANCE

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Revision 1.2

DS-BSAM6515F00522-V1.3-160211