Stadium Bi-Sector™ Array
BSA-D65-15F005-22

Overview

The CCI multi-band Bi-Sector™ Stadium Antenna is a dual beam phased array with full LTE 800, Cellular 850, LTE 900, DCS 1800 and UMTS 2100 band coverage. With two pairs of high band ports covering 1710-2170 MHz and two pairs of low band ports covering 790-960 MHz, this compact (24.7 inches high and 28.5 inches wide) CCI Bi-Sector provides the capability to deploy two high band 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.

- Two foot, eight port, dual beam antenna with patented asymmetrical beam shapes optimized for LTE
- Two low band and two high band 33° beams to match existing 65° patterns, covering 790-960 MHz and 1710-2170 MHz
- One pair of +45° and −45° cross-polarized ports for each beam
- Compact 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
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

### SPECIFICATIONS

#### Electrical

<table>
<thead>
<tr>
<th>Port</th>
<th>Frequency Range</th>
<th>Gain</th>
<th>Azimuth Beamwidth (-3dB)</th>
<th>Elevation Beamwidth (-3dB)</th>
<th>Electrical Downtilt</th>
<th>Elevation Sidelobes (1st Upper)</th>
<th>Front-to-Back Ratio @180°</th>
<th>Voltage Standing Wave Ratio(VSWR)</th>
<th>Passive Intermodulation (2×20W)</th>
<th>Input Power Continuous Wave (CW)</th>
<th>Polarization</th>
<th>Input Impedance</th>
<th>Mechanical</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>4 x Low Band Ports for 790-960 MHz</td>
<td></td>
<td>4 x High Band Ports for 1710-2170 MHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Frequency Range</strong></td>
<td>790-862 MHz</td>
<td>880-960 MHz</td>
<td>1710-1880 MHz</td>
<td>1920-2170 MHz</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4 x Low Band Ports for 790-960 MHz</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Gain</strong></td>
<td>12.5 dBi</td>
<td>13.0 dBi</td>
<td>14.0 dBi</td>
<td>15.0 dBi</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Azimuth Beamwidth (-3dB)</strong></td>
<td>32° Asymmetric</td>
<td>30° Asymmetric</td>
<td>31° Asymmetric</td>
<td>29° Asymmetric</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Elevation Beamwidth (-3dB)</strong></td>
<td>34.0°</td>
<td>30.0°</td>
<td>16.0°</td>
<td>14.0°</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Electrical Downtilt</strong></td>
<td>5°</td>
<td>5°</td>
<td>5°</td>
<td>5°</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Elevation Sidelobes (1st Upper)</strong></td>
<td>&lt; -16 dB</td>
<td>&lt; -14 dB</td>
<td>&lt; -13 dB</td>
<td>&lt; -14 dB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Front-to-Back Ratio @180°</strong></td>
<td>&gt; 30 dB</td>
<td>&gt; 28 dB</td>
<td>&gt; 30 dB</td>
<td>&gt; 30 dB</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Voltage Standing Wave Ratio(VSWR)</strong></td>
<td>&lt; 1.5:1</td>
<td>&lt; 1.5:1</td>
<td>&lt; 1.5:1</td>
<td>&lt; 1.5:1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Passive Intermodulation (2×20W)</strong></td>
<td>≤ -150 dBc</td>
<td>≤ -150 dBc</td>
<td>≤ -150 dBc</td>
<td>≤ -150 dBc</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Input Power Continuous Wave (CW)</strong></td>
<td>500 watts</td>
<td>500 watts</td>
<td>300 watts</td>
<td>300 watts</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Polarization</strong></td>
<td>Dual Linear 45°</td>
<td>Dual Linear 45°</td>
<td>Dual Linear 45°</td>
<td>Dual Linear 45°</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Input Impedance</strong></td>
<td>50 ohms</td>
<td>50 ohms</td>
<td>50 ohms</td>
<td>50 ohms</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lightning Protection</strong></td>
<td>DC Ground</td>
<td>DC Ground</td>
<td>DC Ground</td>
<td>DC Ground</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### Mechanical

- **Dimensions (LxWxD)**: 24.7x28.5x9.4 in (627x723x240 mm)
- **Survival Wind Speed**: > 125 mph (> 201 kph)
- **Front Wind Load**: 141 lbs (626 N) @ 100 mph (161 kph)
- **Side Wind Load**: 50 lbs (222 N) @ 100 mph (161 kph)
- **Equivalent Flat Plate Area**: 5.5 ft² (0.5 m²)
- **Weight**: 33.0 lbs (15.0 kg)
- **Connector**: 8 x 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

---

www.cciproducts.com  EXTENDING WIRELESS PERFORMANCE

© 2015 CCI All rights reserved. Specifications are subject to change.  DS-BSAD6515F00522-V1.0-150727  3
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.
## Stadium Bi-Sector™ Array

### BSA-D65-15F005-22
- Two foot antenna, Bi-Sector Array, Multiband (800, 950, 1800, 1710/2110 MHz), Fixed Electrical Tilt

### BSA-D65-15F005-22-K
- Complete kit with two foot 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

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

**BSA-M05**

**Mechanical**

- **Weight**: 7.7 lbs (3.5 kg)
- **Hinge Pitch**: Horizontal(± 35°), Vertical(± 55°)
- **Fastener Size**: M10
- **Installation Torque**: 15 ft-lbs (20 Nm)
- **Mechanical Tilt Adjustment**: Horizontal(± 35°), Vertical(± 55°)
- **Mounting Pole (when used with MBC-01)**: 2 to 5 in (5 to 12 cm)

---

![Dimensions Diagram](chart)
Adjustable Mast Bracket

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>

---

![MBC-01](image1)

![MBC-01 with BSA-M05](image2)
STANDARDS & CERTIFICATIONS

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 60068-2-30, IEC 60068-2-52, IEC 60068-2-64,
GR-63-CORE 4.3.1, EN 60529, IP 24

Certifications