# Alcatel-Lucent TD-RRH8x20

## REMOTE RADIO HEAD

The Alcatel-Lucent TD-RRH8x20-25 is a high-power, small form-factor Remote Radio Head (RRH) operating in the 2.5GHz band (2496MHz-2690MHz). The Alcatel-Lucent TD-RRH8x20 is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.

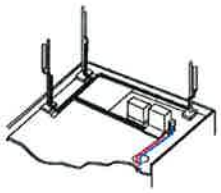
A distributed eNodeB expands deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent TD-RRH8x20 is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information. The Alcatel-Lucent TD-RRH8x20 has eight transmit RF paths, 20W RF output power per transmit path, and is designed to manage up to eight-way receive diversity.

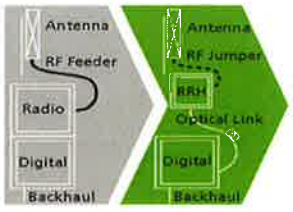
The Alcatel-Lucent TD-RRH8x20 is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH8x20-25 installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

### Fast, low-cost installation and deployment

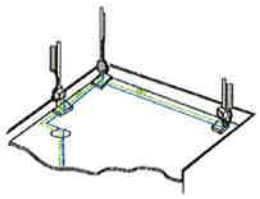
The Alcatel-Lucent TD-RRH8x20 is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent TD-RRH8x20 is compact (volume around 42L), and weighs less than 30kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day—a fraction of the time required for a traditional BTS.



Macro




RRH for space-constrained cell sites



Distributed

## Excellent RF performance

Because of its small size and weight, the Alcatel-Lucent TD-RRH8x20 can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent TD-RRH8x20 where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced. The Alcatel-Lucent TD-RRH8x20 provides more RF power while at the same time consuming less electricity.

## Features

- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless)
- Noise-free
- Best-in-class power efficiency, with significantly reduced energy consumption

## Benefits

- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning

## Technical specifications

**Physical dimensions**

25.4 lb
17.5 lb
5.7 lb
66.1 lb

- Height: 645 mm
- Width: 445 mm
- Depth: 145mm
- Weight: 30Kg (without solar shield & mounting brackets)

**Power**

- Power supply: -48 VDC

**Digital ports and Alarms**

- Three optical ports
- Two external alarms

**Operating environment**

- Outdoor temperature range from -40℃ up to +55℃
- Passive convection cooling (no fans)
- IP65 Enclosure protection (International Protection rating)

**RF characteristics**

- Frequency bands supported:
  - 2496MHz to 2690MHz (3GPP Band 41)
- Instantaneous Bandwidth of 60 MHz
- RF output power at antenna port up to 20W nominal
- Rx diversity: 8-way
- Noise figure: 3.2 dB typical
- Antenna Line Device features
  - Remote electrical tilt (RET) support via AISG v2.0

**Optical characteristics**

- Single-mode Dual Fiber (SMDF) variant up to 10 km or Multi-mode Dual Fiber (MMDF)

**Physical dimensions - INCLUDING solar shield & mounting brackets**

- Height: 663 mm / 26.1"
- Width: 473 mm / 18.6"
- Depth: 171mm / 6.7"
- Weight: 31.75Kg / 70 lbs



Alcatel·Lucent

# Alcatel-Lucent TD-RRH8x20

## REMOTE RADIO HEAD

The Alcatel-Lucent TD-RRH8x20-25 is a high-power, small form-factor Remote Radio Head (RRH) operating in the 2.5GHz band (2496MHz-2690MHz). The Alcatel-Lucent TD-RRH8x20 is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.

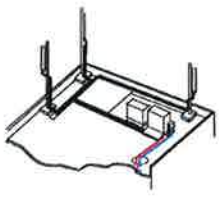
A distributed eNodeB expands deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent TD-RRH8x20 is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information. The Alcatel-Lucent TD-RRH8x20 has eight transmit RF paths, 20W RF output power per transmit path, and is designed to manage up to eight-way receive diversity.

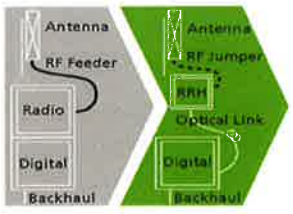
The Alcatel-Lucent TD-RRH8x20 is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH8x20-25 installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

### Fast, low-cost installation and deployment

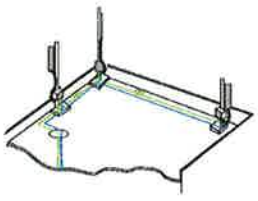
The Alcatel-Lucent TD-RRH8x20 is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent TD-RRH8x20 is compact (volume around 42L), and weighs less than 30kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day—a fraction of the time required for a traditional BTS.



Macro




RRH for space-constrained cell sites



Distributed

COPY #2

## Excellent RF performance

Because of its small size and weight, the Alcatel-Lucent TD-RRH8x20 can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent TD-RRH8x20 where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced. The Alcatel-Lucent TD-RRH8x20 provides more RF power while at the same time consuming less electricity.

## Features

- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless)
- Noise-free
- Best-in-class power efficiency, with significantly reduced energy consumption

## Benefits

- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning

## Technical specifications

**Physical dimensions**

25.4 lb • Height: 645 mm
17.5 lb • Width: 445 mm
5.7 lb • Depth: 145mm
66.1 lb • Weight: 30Kg (without solar shield & mounting brackets)

**Power**

- Power supply: -48 VDC

**Digital ports and Alarms**

- Three optical ports
- Two external alarms

**Operating environment**

- Outdoor temperature range from -40℃ up to +55℃
- Passive convection cooling (no fans)
- IP65 Enclosure protection (International Protection rating)

**RF characteristics**

- Frequency bands supported:
  - 2496MHz to 2690MHz (3GPP Band 41)
- Instantaneous Bandwidth of 60 MHz
- RF output power at antenna port up to 20W nominal
- Rx diversity: 8-way
- Noise figure: 3.2 dB typical
- Antenna Line Device features
  - Remote electrical tilt (RET) support via AISG v2.0

**Optical characteristics**

- Single-mode Dual Fiber (SMDF) variant up to 10 km or Multi-mode Dual Fiber (MMDF)

**Physical dimensions - INCLUDING solar shield & mounting brackets**

- Height: 663 mm / 26.1"
- Width: 473 mm / 18.6"
- Depth: 171mm / 6.7"
- Weight: 31.75Kg / 70 lbs



Alcatel·Lucent

# Alcatel-Lucent TD-RRH8x20

## REMOTE RADIO HEAD

The Alcatel-Lucent TD-RRH8x20-25 is a high-power, small form-factor Remote Radio Head (RRH) operating in the 2.5GHz band (2496MHz-2690MHz). The Alcatel-Lucent TD-RRH8x20 is designed with an eco-efficient approach, providing operators with the means to achieve high quality and capacity coverage with minimum site requirements.

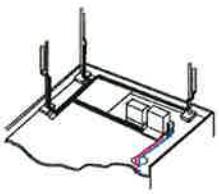
A distributed eNodeB expands deployment options by using two components, a Base Band Unit (BBU) containing the digital assets and a separate RRH containing the radio-frequency (RF) elements. This modular design optimizes available space and allows the main components of an eNodeB to be installed separately, within the same site or several kilometres apart.

The Alcatel-Lucent TD-RRH8x20 is linked to the BBU by an optical-fiber connection carrying downlink and uplink digital radio signals along with operations, administration and maintenance (OA&M) information. The Alcatel-Lucent TD-RRH8x20 has eight transmit RF paths, 20W RF output power per transmit path, and is designed to manage up to eight-way receive diversity.

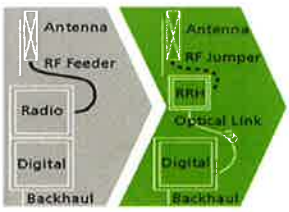
The Alcatel-Lucent TD-RRH8x20 is designed to make available all the benefits of a distributed eNodeB, with excellent RF characteristics, with low capital expenditures (CAPEX) and low operating expenditures (OPEX). The limited space available in some sites may prevent the installation of traditional single-cabinet BTS equipment or require costly cranes to be employed, leaving coverage holes. However, many of these sites can host an Alcatel-Lucent RRH8x20-25 installation, providing more flexible site selection and improved network quality along with greatly reduced installation time and costs.

### Fast, low-cost installation and deployment

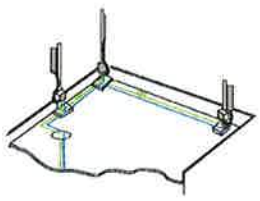
The Alcatel-Lucent TD-RRH8x20 is a zero-footprint solution and operates noise-free, simplifying negotiations with site property owners and minimizing environmental impacts. Installation can easily be done by a single person because the Alcatel-Lucent TD-RRH8x20 is compact (volume around 42L), and weighs less than 30kg, eliminating the need for a crane to hoist the BTS cabinet to the rooftop. A site can be in operation in less than one day—a fraction of the time required for a traditional BTS.



Macro




RRH for space-constrained cell sites



Distributed

COPY #3

## Excellent RF performance

Because of its small size and weight, the Alcatel-Lucent TD-RRH8x20 can be installed close to the antenna. Operators can therefore locate the Alcatel-Lucent TD-RRH8x20 where RF engineering is deemed ideal, minimizing trade-offs between available sites and RF optimum sites. The RF feeder cost and installation costs are reduced or eliminated, and there is no need for a Tower Mounted Amplifier (TMA) because losses introduced by the RF feeder are greatly reduced. The Alcatel-Lucent TD-RRH8x20 provides more RF power while at the same time consuming less electricity.

## Features

- Zero-footprint deployment
- Easy installation, with a lightweight unit can be carried and set up by one person
- Optimized RF power, with flexible site selection and elimination of a TMA
- Convection-cooled (fanless)
- Noise-free
- Best-in-class power efficiency, with significantly reduced energy consumption

## Benefits

- Leverages existing real estate with lower site costs
- Reduces installation costs, with fewer installation materials and simplified logistics
- Decreases power costs and minimizes environmental impacts, with the potential for eco-sustainable power options
- Improves RF performance and adds flexibility to network planning

## Technical specifications

**Physical dimensions**

25.4 lb • Height: 645 mm
17.5 lb • Width: 445 mm
5.7 lb • Depth: 145mm
66.1 lb • Weight: 30Kg (without solar shield & mounting brackets)

**Power**

- Power supply: -48 VDC

**Digital ports and Alarms**

- Three optical ports
- Two external alarms

**Operating environment**

- Outdoor temperature range from -40℃ up to +55℃
- Passive convection cooling (no fans)
- IP65 Enclosure protection (International Protection rating)

**RF characteristics**

- Frequency bands supported:
  - 2496MHz to 2690MHz (3GPP Band 41)
- Instantaneous Bandwidth of 60 MHz
- RF output power at antenna port up to 20W nominal
- Rx diversity: 8-way
- Noise figure: 3.2 dB typical
- Antenna Line Device features
  - Remote electrical tilt (RET) support via AISG v2.0

**Optical characteristics**

- Single-mode Dual Fiber (SMDF) variant up to 10 km or Multi-mode Dual Fiber (MMDF)

**Physical dimensions - INCLUDING solar shield & mounting brackets**

- Height: 663 mm / 26.1"
- Width: 473 mm / 18.6"
- Depth: 171mm / 6.7"
- Weight: 31.75Kg / 70 lbs



Alcatel·Lucent

# Product Data Sheet APXVTM14-C-I20

TD-LTE Cross Polarized Antenna, 2490-2690, 1.4m, 0-6 deg EDT

## Product Description

This antenna is an ideal choice for complex sites with the TD-LTE band.

## Features/Benefits

- **Effective polarization diversity ensured by high cross polar discrimination**
- **Wind load thrust highly reduced**
- **Variable electrical downtilt 0-6 degrees**
- **AISG 2.0**
- **Integrated RET motor, AISG 2.0**

## Technical Specifications

### Electrical Specifications

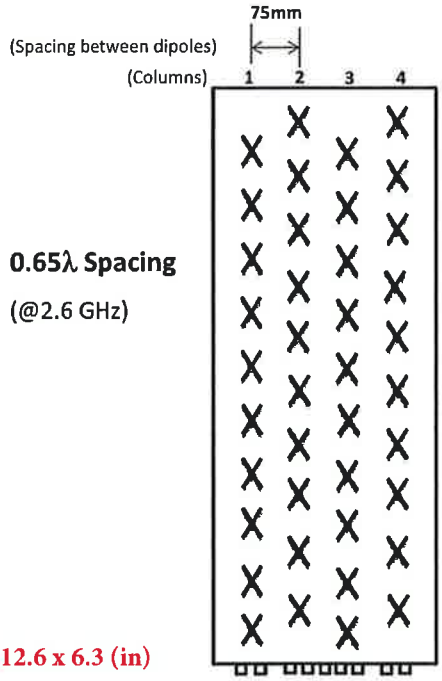
| | |
|---|---|
| Frequency Range, MHz | 2490-2600, 2600-2690 |
| Polarization | Dual Pol +/-45° |
| Electrical downtilt range, degrees | 0-6 |
| ***Calibration and Electrical Parameter*** | |
| Transmission from antenna ports to cal. port, dB | -26 ±2 |
| Amplitude diff. between antenna port and cal. port, dB | < 0.7 |
| Phase diff. between antenna port and cal. port, degrees | < 5 |
| Same polarization ISO, dB (typical) | > 25 |
| Different polarization ISO, dB | > 28 |
| ***Unit Beam*** | |
| Horizontal Beamwidth, degrees | 68 ±5, 62 ±5 |
| Gain, dBi | 18.0 |
| Cross-polar ratio on main axis, dB | ≥ 15 |
| Cross-polar ratio @ ±60°, dB | ≥ 10 |
| Front-to-back ratio, dBi | ≥ 25 |
| ***Broadcast Beam*** | |
| Horizontal Beamwidth, degrees | 65 ±5 |
| Gain, dBi | 18 |
| Vertical Beamwidth, degrees | 5.0 |
| Cross-polar ratio on main axis, dB | ≥ 15 |
| Cross-polar ratio @ ±60°, dB | ≥ 10 |
| Front-to-back ratio, dB | ≥ 28 |
| Upper sidelobe suppression, dB | ≤ -16 |
| ***Service Beam*** | |
| Gain @ 0°, dB | 23.5 |
| Horizontal Beamwidth@ 0°, degrees | 20 |
| Side lobe suppression@ 0° on H-pattern, dB | ≤ -12 |
| Gain@±30°, dBi | ≥ 21.5 |
| Horizontal Beamwidth@ ±30°, degrees | ≤ 23 |
| Side lobe suppression @ 30° on H-pattern, dB | ≤ -6 |
| Cross-polar ratio on main axis, dB | ≥ 22 |
| Front-to-back ratio @ 0°, dB | ≥ 30 |

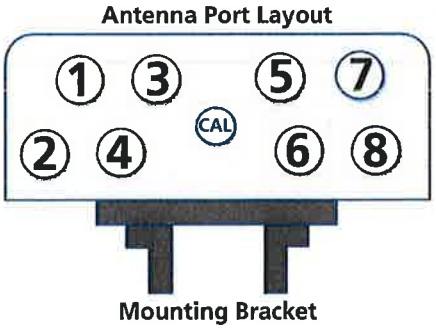
### Mechanical Specifications

| | |
|---|---|
| Dimensions-HxWxD, mm | 1430 x 320 x 160 56.3 x 12.6 x 6.3 (in) |
| Connector Type | (8) 4.1/9.5 DIN Female<br>(1) NF – Calibration Port |
| Impedance,Ohms | 50 |
| Maximum Power Input, W | 50 |
| Lightning Protection | Direct Ground |
| Weight w/o Mtg Hardware, kg | 25.5 56.2 lb |
| Survival Wind Speed, km/h | 240 |
| Rated Wind Speed, km/h | 160 |
| Max Wind Loading Area, m² | 0.55 |
| Radome Material | ASA |
| Radome Color | Light Grey RAL7035 |
| Mounting Hardware Material | Aluminum |
| Shipping Weight, kg | 32 |
| Packing Dimensions, HxWxD, mm | 1550 x 440 x 200 |

### Ordering Information

| | |
|---|---|
| Mounting Hardware | Included |
| Mounting Pipe Diameter, mm | 50-114 |
| Mounting Hardware Weight, kg | 5.2 11.5 lb |




* This data is provisional and subject to change.

# Product Data Sheet APXVTM14-C-I20

TD-LTE Cross Polarized Antenna, 2490-2690, 1.4m, 0-6 deg EDT

## Product Description

This antenna is an ideal choice for complex sites with the TD-LTE band.

## Features/Benefits

- **Effective polarization diversity ensured by high cross polar discrimination**
- **Wind load thrust highly reduced**
- **Variable electrical downtilt 0-6 degrees**
- **AISG 2.0**
- **Integrated RET motor, AISG 2.0**

## Technical Specifications

### Electrical Specifications

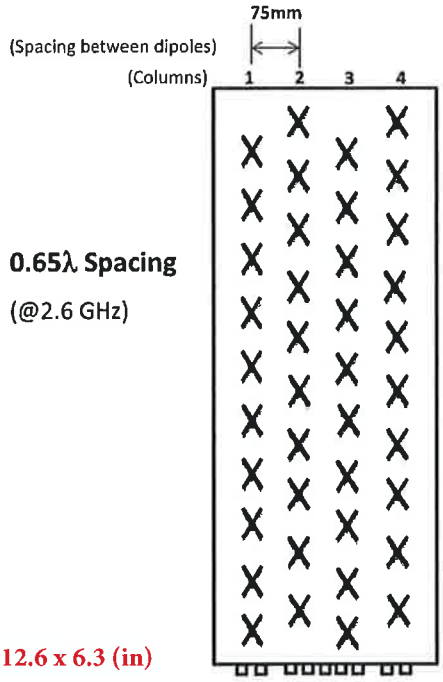
| | |
|---|---|
| Frequency Range, MHz | 2490-2600, 2600-2690 |
| Polarization | Dual Pol +/-45° |
| Electrical downtilt range, degrees | 0-6 |
| ***Calibration and Electrical Parameter*** | |
| Transmission from antenna ports to cal. port, dB | -26 ±2 |
| Amplitude diff. between antenna port and cal. port, dB | < 0.7 |
| Phase diff. between antenna port and cal. port, degrees | < 5 |
| Same polarization ISO, dB (typical) | > 25 |
| Different polarization ISO, dB | > 28 |
| ***Unit Beam*** | |
| Horizontal Beamwidth, degrees | 68 ±5, 62 ±5 |
| Gain, dBi | 18.0 |
| Cross-polar ratio on main axis, dB | ≥ 15 |
| Cross-polar ratio @ ±60°, dB | ≥ 10 |
| Front-to-back ratio, dBi | ≥ 25 |
| ***Broadcast Beam*** | |
| Horizontal Beamwidth, degrees | 65 ±5 |
| Gain, dBi | 18 |
| Vertical Beamwidth, degrees | 5.0 |
| Cross-polar ratio on main axis, dB | ≥ 15 |
| Cross-polar ratio @ ±60°, dB | ≥ 10 |
| Front-to-back ratio, dB | ≥ 28 |
| Upper sidelobe suppression, dB | ≤ -16 |
| ***Service Beam*** | |
| Gain @ 0°, dB | 23.5 |
| Horizontal Beamwidth@ 0°, degrees | 20 |
| Side lobe suppression@ 0° on H-pattern, dB | ≤ -12 |
| Gain@±30°, dBi | ≥ 21.5 |
| Horizontal Beamwidth@ ±30°, degrees | ≤ 23 |
| Side lobe suppression @ 30° on H-pattern, dB | ≤ -6 |
| Cross-polar ratio on main axis, dB | ≥ 22 |
| Front-to-back ratio @ 0°, dB | ≥ 30 |

### Mechanical Specifications

| | |
|---|---|
| Dimensions-HxWxD, mm | 1430 x 320 x 160 56.3 x 12.6 x 6.3 (in) |
| Connector Type | (8) 4.1/9.5 DIN Female<br>(1) NF – Calibration Port |
| Impedance,Ohms | 50 |
| Maximum Power Input, W | 50 |
| Lightning Protection | Direct Ground |
| Weight w/o Mtg Hardware, kg | 25.5 56.2 lb |
| Survival Wind Speed, km/h | 240 |
| Rated Wind Speed, km/h | 160 |
| Max Wind Loading Area, m² | 0.55 |
| Radome Material | ASA |
| Radome Color | Light Grey RAL7035 |
| Mounting Hardware Material | Aluminum |
| Shipping Weight, kg | 32 |
| Packing Dimensions, HxWxD, mm | 1550 x 440 x 200 |

### Ordering Information

| | |
|---|---|
| Mounting Hardware | Included |
| Mounting Pipe Diameter, mm | 50-114 |
| Mounting Hardware Weight, kg | 5.2 11.5 lb |




**0.65λ Spacing**

(@2.6 GHz)

Antenna Port Layout


Mounting Bracket

* This data is provisional and subject to change.





COPY #2

# Product Data Sheet APXVTM14-C-I20

TD-LTE Cross Polarized Antenna, 2490-2690, 1.4m, 0-6 deg EDT

## Product Description

This antenna is an ideal choice for complex sites with the TD-LTE band.

## Features/Benefits

- **Effective polarization diversity ensured by high cross polar discrimination**
- **Wind load thrust highly reduced**
- **Variable electrical downtilt 0-6 degrees**
- **AISG 2.0**
- **Integrated RET motor, AISG 2.0**

## Technical Specifications

### Electrical Specifications

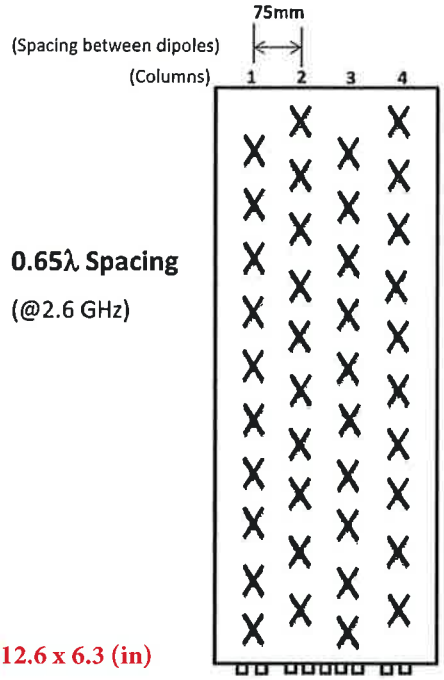
| | |
|---|---|
| Frequency Range, MHz | 2490-2600, 2600-2690 |
| Polarization | Dual Pol +/-45° |
| Electrical downtilt range, degrees | 0-6 |
| ***Calibration and Electrical Parameter*** | |
| Transmission from antenna ports to cal. port, dB | -26 ±2 |
| Amplitude diff. between antenna port and cal. port, dB | < 0.7 |
| Phase diff. between antenna port and cal. port, degrees | < 5 |
| Same polarization ISO, dB (typical) | > 25 |
| Different polarization ISO, dB | > 28 |
| ***Unit Beam*** | |
| Horizontal Beamwidth, degrees | 68 ±5, 62 ±5 |
| Gain, dBi | 18.0 |
| Cross-polar ratio on main axis, dB | ≥ 15 |
| Cross-polar ratio @ ±60°, dB | ≥ 10 |
| Front-to-back ratio, dBi | ≥ 25 |
| ***Broadcast Beam*** | |
| Horizontal Beamwidth, degrees | 65 ±5 |
| Gain, dBi | 18 |
| Vertical Beamwidth, degrees | 5.0 |
| Cross-polar ratio on main axis, dB | ≥ 15 |
| Cross-polar ratio @ ±60°, dB | ≥ 10 |
| Front-to-back ratio, dB | ≥ 28 |
| Upper sidelobe suppression, dB | ≤ -16 |
| ***Service Beam*** | |
| Gain @ 0°, dB | 23.5 |
| Horizontal Beamwidth@ 0°, degrees | 20 |
| Side lobe suppression@ 0° on H-pattern, dB | ≤ -12 |
| Gain@±30°, dBi | ≥ 21.5 |
| Horizontal Beamwidth@ ±30°, degrees | ≤ 23 |
| Side lobe suppression @ 30° on H-pattern, dB | ≤ -6 |
| Cross-polar ratio on main axis, dB | ≥ 22 |
| Front-to-back ratio @ 0°, dB | ≥ 30 |

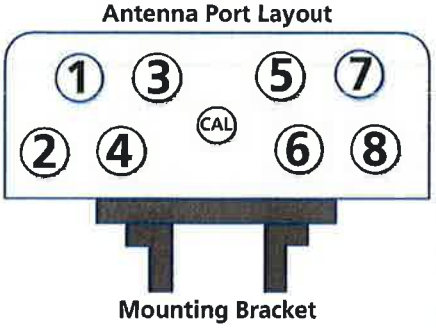
### Mechanical Specifications

| | |
|---|---|
| Dimensions-HxWxD, mm | 1430 x 320 x 160 56.3 x 12.6 x 6.3 (in) |
| Connector Type | (8) 4.1/9.5 DIN Female<br>(1) NF – Calibration Port |
| Impedance,Ohms | 50 |
| Maximum Power Input, W | 50 |
| Lightning Protection | Direct Ground |
| Weight w/o Mtg Hardware, kg | 25.5 56.2 lb |
| Survival Wind Speed, km/h | 240 |
| Rated Wind Speed, km/h | 160 |
| Max Wind Loading Area, m² | 0.55 |
| Radome Material | ASA |
| Radome Color | Light Grey RAL7035 |
| Mounting Hardware Material | Aluminum |
| Shipping Weight, kg | 32 |
| Packing Dimensions, HxWxD, mm | 1550 x 440 x 200 |

### Ordering Information

| | |
|---|---|
| Mounting Hardware | Included |
| Mounting Pipe Diameter, mm | 50-114 |
| Mounting Hardware Weight, kg | 5.2 11.5 lb |




* This data is provisional and subject to change.





COPY #3