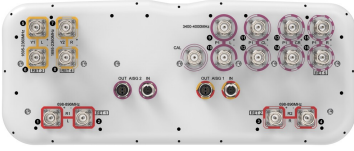


NNHHS4-65A-R5



16-port sector antenna, 4x 698-896 MHz and 4x 1695-2360 MHz, 65° HPBW, and 8 x 3400-4000 MHz, 90° HPBW, 5 x RETs

- Multi-band FDD antenna featuring C-Band 8T8R functionality
- The C-band RET is factory set to AISG2. All other RET are assigned to AISG1
- Feature the same dimensions as existing 8 and 12-port FDD capable antennas
- New endcap designs provide improved wind loading performance

General Specifications

| | |
|---|--|
| Antenna Type | Sector and beamforming |
| Band | Multiband |
| Calibration Connector Interface | 4.3-10 Female |
| Calibration Connector Quantity | 1 |
| Color | Light Gray (RAL 7035) |
| Grounding Type | RF connector inner conductor and body grounded to reflector and mounting bracket |
| Performance Note | Outdoor usage |
| Radome Material | Fiberglass, UV resistant |
| Reflector Material | Aluminum |
| RF Connector Interface | 4.3-10 Female |
| RF Connector Location | Bottom |
| RF Connector Quantity, high band | 8 |
| RF Connector Quantity, mid band | 4 |
| RF Connector Quantity, low band | 4 |
| RF Connector Quantity, total | 16 |

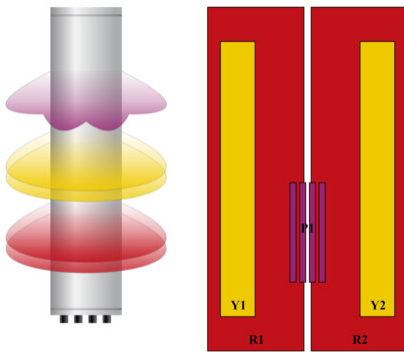
Remote Electrical Tilt (RET) Information

| | |
|---|---|
| RET Hardware | CommRET v2 |
| RET Interface | 8-pin DIN Female 8-pin DIN Male |
| RET Interface, quantity | 2 female 2 male |
| Input Voltage | 10-30 Vdc |
| Internal RET | High band (1) Low band (2) Mid band (2) |
| Power Consumption, active state, maximum | 8 W |

NNHHS4-65A-R5

| | |
|---|---------------------|
| Power Consumption, idle state, maximum | 1 W |
| Protocol | 3GPP/AISG 2.0 |
| Dimensions | |
| Width | 498 mm 19.606 in |
| Depth | 197 mm 7.756 in |
| Length | 1499 mm 59.016 in |
| Net Weight, antenna only | 33 kg 72.752 lb |
| TDD Column Spacing | 41 mm 1.614 in |

Array Layout



| Array ID | Frequency (MHz) | RF Connector | RET (MRET) | AISG No. | AISG RET UID |
|----------|-----------------|--------------|------------|----------|--------------------|
| R1 | 694-896 | 1 - 2 | 1 | AISG1 | CPxxxxxxxxxxxxMM,1 |
| R2 | 694-896 | 3 - 4 | 2 | AISG1 | CPxxxxxxxxxxxxMM,2 |
| Y1 | 1695-2360 | 5 - 6 | 3 | AISG1 | CPxxxxxxxxxxxxMM,3 |
| Y2 | 1695-2360 | 7 - 8 | 4 | AISG1 | CPxxxxxxxxxxxxMM,4 |
| P1 | 3400-4000 | 9 - 16 | 5 | AISG2 | CPxxxxxxxxxxxxMM,1 |

(Sizes of colored boxes are not true depictions of array sizes)

Port Configuration



Electrical Specifications

NNHHS4-65A-R5

| | |
|-----------------------------------|---|
| Impedance | 50 ohm |
| Operating Frequency Band | 1695 – 2360 MHz 3400 – 4000 MHz 698 – 896 MHz |
| Polarization | ±45° |
| Total Input Power, maximum | 1,400 W @ 50 °C |

Electrical Specifications

| | R1,R2 | R1,R2 | Y1,Y2 | Y1,Y2 | Y1,Y2 | Y1,Y2 | P1 | P1 |
|--|----------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Frequency Band, MHz | 698–806 | 806–896 | 1695–1880 | 1850–1990 | 1920–2180 | 2300–2360 | 3400–3800 | 3700–4000 |
| RF Port | 1-4 | 1-4 | 5-8 | 5-8 | 5-8 | 5-8 | 9-16 | 9-16 |
| Gain, dBi | 13.6 | 14 | 16.9 | 17.4 | 17.9 | 18.3 | 16.4 | 16.6 |
| Beamwidth, Horizontal, degrees | 59 | 53 | 60 | 60 | 62 | 62 | 83 | 70 |
| Beamwidth, Vertical, degrees | 17.1 | 15.1 | 6.3 | 5.8 | 5.5 | 5 | 6.1 | 5.8 |
| Beam Tilt, degrees | 2–16 | 2–16 | 2–12 | 2–12 | 2–12 | 2–12 | 0–10 | 0–10 |
| USLS (First Lobe), dB | 19 | 14 | 18 | 19 | 19 | 19 | 15 | 14 |
| Front-to-Back Ratio at 180°, dB | 29 | 29 | 31 | 34 | 34 | 31 | 29 | 30 |
| Coupling level, Amp, Antenna port to Cal port, dB | | | | | | | -26 | -26 |
| Coupling level, max Amp Δ, Antenna port to Cal port, dB | | | | | | | ±2 | ±2 |
| Coupler, max Amp Δ, Antenna port to Cal port, dB | | | | | | | 0.6 | 0.6 |
| Coupler, max Phase Δ, Antenna port to Cal port, degrees | | | | | | | 7 | 7 |
| Isolation, Cross Polarization, dB | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Isolation, Inter-band, dB | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| Isolation, Co-polarization, dB | | | | | | | 19 | 19 |
| VSWR Return loss, dB | 1.5 14.0 | 1.5 14.0 | 1.5 14.0 | 1.5 14.0 | 1.5 14.0 | 1.5 14.0 | 1.5 14.0 | 1.5 14.0 |
| PIM, 3rd Order, 2 x 20 W, dBc | -150 | -150 | -150 | -150 | -150 | -150 | -145 | -145 |
| Input Power per Port at 50°C, maximum, watts | 300 | 300 | 250 | 250 | 250 | 250 | 75 | 75 |

Electrical Specifications, BASTA

| | 698–806 | 806–896 | 1695–1880 | 1850–1990 | 1920–2180 | 2300–2360 | 3400–3800 | 3700–4000 |
|--------------------------------|----------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|
| Frequency Band, MHz | 698–806 | 806–896 | 1695–1880 | 1850–1990 | 1920–2180 | 2300–2360 | 3400–3800 | 3700–4000 |
| Gain by all Beam Tilts, | 13.3 | 13.6 | 16.3 | 17.1 | 17.5 | 18 | 15.7 | 16.1 |

NNHHS4-65A-R5

average, dBi

| | | | | | | | | |
|--|------|------|------|------|------|------|------|------|
| Gain by all Beam Tilts Tolerance, dB | ±0.5 | ±0.5 | ±0.9 | ±0.4 | ±0.5 | ±0.8 | ±0.8 | ±0.7 |
| Beamwidth, Horizontal Tolerance, degrees | ±8 | ±8 | ±5 | ±5 | ±5 | ±7 | ±24 | ±16 |
| Beamwidth, Vertical Tolerance, degrees | ±1.2 | ±1.2 | ±0.4 | ±0.3 | ±0.3 | ±0.2 | ±0.4 | ±0.3 |
| USLS, beampeak to 20° above beampeak, dB | | | 14 | 15 | 15 | 17 | 14 | 13 |
| Front-to-Back Total Power at 180° ± 30°, dB | 23 | 22 | 23 | 26 | 27 | 27 | 23 | 23 |
| CPR at Boresight, dB | 22 | 21 | 19 | 20 | 19 | 20 | 15 | 14 |
| CPR at Sector, dB | 14 | 9 | 9 | 7 | 7 | 10 | 6 | 6 |

Electrical Specifications, Broadcast 65°

| Frequency Band, MHz | 3400-3800 | 3700-4000 |
|--|-----------|-----------|
| Gain, dBi | 18.3 | 18.9 |
| Beamwidth, Horizontal, degrees | 65 | 65 |
| Beamwidth, Vertical, degrees | 6.2 | 5.9 |
| Front-to-Back Total Power at 180° ± 30°, dB | 26 | 26 |
| USLS (First Lobe), dB | 17 | 17 |

Electrical Specifications, Envelope Pattern

| Frequency Band, MHz | 3400-3800 | 3700-4000 |
|---------------------|-----------|-----------|
| Gain, dBi | 21.1 | 21.6 |

Electrical Specifications, Service Beam

| Frequency Band, MHz | 3400-3800 | 3700-4000 |
|---|-----------|-----------|
| Steered 0° Gain, dBi | 21.3 | 21.6 |
| Steered 0° Beamwidth, Horizontal, degrees | 24 | 24 |
| Steered 0° Front-to-Back Total Power at 180° ± 30°, dB | 29 | 29 |
| Steered 0° Horizontal Sidelobe, dB | 14 | 14 |
| Steered 30° Gain, dBi | 19.7 | 20.1 |
| Steered 30° Beamwidth, Horizontal, degrees | 29 | 26 |

NNHHS4-65A-R5

| | | |
|--|----|----|
| Steered 30° Front-to-Back Total Power at 180° ± 30°, dB | 28 | 27 |
|--|----|----|

Electrical Specifications, Soft Split

| | 3400–3800 | 3700–4000 |
|--|------------------|------------------|
| Frequency Band, MHz | | |
| Gain, dBi | 19.6 | 19.9 |
| Beamwidth, Horizontal, degrees | 33 | 30 |
| Front-to-Back Total Power at 180° ± 30°, dB | 28 | 27 |
| Horizontal Sidelobe, dB | 17 | 16 |

Mechanical Specifications

| | |
|---|---|
| Effective Projective Area (EPA), frontal | 0.47 m ² 5.059 ft ² |
| Effective Projective Area (EPA), lateral | 0.14 m ² 1.507 ft ² |
| Wind Loading @ Velocity, frontal | 498.0 N @ 150 km/h (112.0 lbf @ 150 km/h) |
| Wind Loading @ Velocity, lateral | 148.0 N @ 150 km/h (33.3 lbf @ 150 km/h) |
| Wind Loading @ Velocity, maximum | 597.0 N @ 150 km/h (134.2 lbf @ 150 km/h) |
| Wind Loading @ Velocity, rear | 342.0 N @ 150 km/h (76.9 lbf @ 150 km/h) |
| Wind Speed, maximum | 241.4 km/h (150 mph) |

Packaging and Weights

| | |
|-----------------------|---------------------|
| Width, packed | 565 mm 22.244 in |
| Depth, packed | 309 mm 12.165 in |
| Length, packed | 1686 mm 66.378 in |
| Weight, gross | 43.3 kg 95.46 lb |

Regulatory Compliance/Certifications

| Agency | Classification |
|---------------|--|
| CHINA-ROHS | Above maximum concentration value |
| ISO 9001:2015 | Designed, manufactured and/or distributed under this quality management system |
| ROHS | Compliant/Exempted |
| UK-ROHS | Compliant/Exempted |



NNHHS4-65A-R5

Included Products

- BSAMNT-2F – Mounting bracket for cylindrical pipe installations (60-115mm pipe diameter) for fix mechanical tilt applications.

* Footnotes

Performance Note Severe environmental conditions may degrade optimum performance