# NNHH-65C-R4

8-port sector antenna, 4x 698–896 and 4x 1695–2360 MHz, 65° HPBW, 4x RETs

- Array configuration provides capability for 4T4R (4x MIMO) on Low band and High band
- Optimized SPR performance across all operating bands
- Excellent wind loading characteristics
- The antenna is supplied with mounting kits that provide 0 degree of mechanical downtilt; optional downtilt mounting kits are available

## General Specifications

| | |
|---|---|
| **Antenna Type** | Sector |
| **Band** | Multiband |
| **Color** | Light Gray (RAL 7035) |
| **Grounding Type** | RF connector inner conductor and body grounded to reflector and mounting bracket |
| **Performance Note** | Outdoor usage \| Wind loading figures are validated by wind tunnel measurements described in white paper WP-112534-EN |
| **Radome Material** | Fiberglass, UV resistant |
| **Radiator Material** | Aluminum \| Low loss circuit board |
| **Reflector Material** | Aluminum |
| **RF Connector Interface** | 4.3-10 Female |
| **RF Connector Location** | Bottom |
| **RF Connector Quantity, high band** | 4 |
| **RF Connector Quantity, low band** | 4 |
| **RF Connector Quantity, total** | 8 |

## Remote Electrical Tilt (RET) Information

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

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| | |
|---|---|
| **Protocol** | 3GPP/AISG 2.0 (Multi-RET) |

## Dimensions

| | |
|---|---|
| **Width** | 498 mm \| 19.606 in |
| **Depth** | 197 mm \| 7.756 in |
| **Length** | 2438 mm \| 95.984 in |
| **Net Weight, without mounting kit** | 39.3 kg \| 86.642 lb |

## Array Layout


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

| Array | Freq (MHz) | Conns | RET (MRET) | AISG RET UID |
|---|---|---|---|---|
| R1 | 698-896 | 1-2 | 1 | CPxxxxxxxxxxxxxxxmm.1 |
| R2 | 698-896 | 3-4 | 2 | CPxxxxxxxxxxxxxxxmm.2 |
| Y1 | 1695-2360 | 5-6 | 3 | CPxxxxxxxxxxxxxxxmm.3 |
| Y2 | 1695-2360 | 7-8 | 4 | CPxxxxxxxxxxxxxxxmm.4 |

## Port Configuration

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## Electrical Specifications

| | |
|---|---|
| **Impedance** | 50 ohm |
| **Operating Frequency Band** | 1695 – 2360 MHz \| 698 – 896 MHz |
| **Polarization** | ±45° |
| **Total Input Power, maximum** | 900 W @ 50 °C |

## Electrical Specifications

| **Frequency Band, MHz** | **698–806** | **806–896** | **1695–1880** | **1850–1990** | **1920–2180** | **2300–2360** |
|---|---|---|---|---|---|---|
| **Gain, dBi** | 15.6 | 16.1 | 18.3 | 19 | 19.2 | 19.1 |
| **Beamwidth, Horizontal, degrees** | 75 | 69 | 63 | 56 | 58 | 62 |
| **Beamwidth, Vertical, degrees** | 9.9 | 8.7 | 5.4 | 5 | 4.8 | 4.3 |
| **Beam Tilt, degrees** | 2–12 | 2–12 | 2–12 | 2–12 | 2–12 | 2–12 |
| **USLS (First Lobe), dB** | 21 | 18 | 17 | 18 | 20 | 20 |
| **Front-to-Back Ratio at 180°, dB** | 29 | 28 | 36 | 40 | 38 | 35 |
| **Isolation, Cross Polarization, dB** | 25 | 25 | 25 | 25 | 25 | 25 |
| **Isolation, Inter-band, dB** | 25 | 25 | 25 | 25 | 25 | 25 |
| **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 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **PIM, 3rd Order, 2 x 20 W, dBc** | -150 | -150 | -150 | -150 | -150 | -150 |
| **Input Power per Port at 50°C, maximum, watts** | 300 | 300 | 250 | 250 | 250 | 200 |

## Electrical Specifications, BASTA

| **Frequency Band, MHz** | **698–806** | **806–896** | **1695–1880** | **1850–1990** | **1920–2180** | **2300–2360** |
|---|---|---|---|---|---|---|
| **Gain by all Beam Tilts, average, dBi** | 15.3 | 15.8 | 17.8 | 18.7 | 18.9 | 18.9 |
| **Gain by all Beam Tilts Tolerance, dB** | ±0.5 | ±0.3 | ±0.5 | ±0.4 | ±0.3 | ±0.3 |
| **Gain by Beam Tilt, average, dBi** | 2 ° \| 15.2<br>7 ° \| 15.4<br>12 ° \| 15.2 | 2 ° \| 15.9<br>7 ° \| 15.9<br>12 ° \| 15.6 | 2 ° \| 17.8<br>7 ° \| 18.0<br>12 ° \| 17.7 | 2 ° \| 18.6<br>7 ° \| 18.9<br>12 ° \| 18.6 | 2 ° \| 18.8<br>7 ° \| 19.1<br>12 ° \| 18.7 | 2 ° \| 18.7<br>7 ° \| 19.0<br>12 ° \| 18.8 |
| **Beamwidth, Horizontal Tolerance, degrees** | ±3 | ±2.8 | ±4.6 | ±4.1 | ±6.3 | ±2.3 |
| **Beamwidth, Vertical Tolerance, degrees** | ±0.6 | ±0.6 | ±0.3 | ±0.2 | ±0.3 | ±0.1 |
| **USLS, beampeak to 20° above beampeak, dB** | 18 | 14 | 16 | 17 | 18 | 17 |
| **Front-to-Back Total Power at 180° ± 30°, dB** | 20 | 21 | 29 | 32 | 31 | 28 |
| **CPR at Boresight, dB** | 21 | 21 | 19 | 23 | 23 | 22 |
| **CPR at Sector, dB** | 10 | 6 | 6 | 8 | 7 | 8 |

## Mechanical Specifications

| | |
|---|---|
| **Effective Projective Area (EPA), frontal** | 0.9 m² \| 9.688 ft² |
| **Effective Projective Area (EPA), lateral** | 0.31 m² \| 3.337 ft² |
| **Mechanical Tilt Range** | 0°–10° |
| **Wind Loading @ Velocity, frontal** | 954.0 N @ 150 km/h (214.5 lbf @ 150 km/h) |
| **Wind Loading @ Velocity, lateral** | 331.0 N @ 150 km/h (74.4 lbf @ 150 km/h) |
| **Wind Loading @ Velocity, maximum** | 1,235.0 N @ 150 km/h (277.6 lbf @ 150 km/h) |
| **Wind Loading @ Velocity, rear** | 785.0 N @ 150 km/h (176.5 lbf @ 150 km/h) |
| **Wind Speed, maximum** | 241 km/h (150 mph) |

## Packaging and Weights

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|---|---|
| **Width, packed** | 565 mm \| 22.244 in |
| **Depth, packed** | 309 mm \| 12.165 in |
| **Length, packed** | 2625 mm \| 103.347 in |

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|---|---|
| **Weight, gross** | 53.8 kg \| 118.609 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 |

## Included Products

| | | |
|---|---|---|
| BSAMNT-3F | – | 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 |