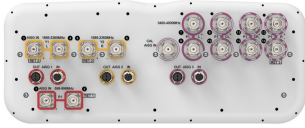


# NHHS4-45A-R3B



14 Port Sector Antenna, 2x 698-896 MHz, 4x 1695-2360 MHz 45° HPBW, and 8x 3400-3550/3700-4000 MHz Beamformer, 3x RETs and 3x SBTs

- Narrow beamwidth capacity antenna for higher level of densification and enhanced data throughput
- Internal SBT on low and high band allow remote RET control from the radio over the RF jumper cable
- Separate RS-485 RET input/output for low and high band
- One LB RET, one MB RET and one HB RET. Both mid bands are controlled by one RET to ensure same tilt level for 4x Rx or 4x MIMO

## General Specifications

|                                         |                                                                                  |
|-----------------------------------------|----------------------------------------------------------------------------------|
| <b>Antenna Type</b>                     | Sector and beamforming                                                           |
| <b>Band</b>                             | Multiband                                                                        |
| <b>Calibration Connector Interface</b>  | 4.3-10 Female                                                                    |
| <b>Calibration Connector Quantity</b>   | 1                                                                                |
| <b>Color</b>                            | Light Gray (RAL 7035)                                                            |
| <b>Grounding Type</b>                   | RF connector inner conductor and body grounded to reflector and mounting bracket |
| <b>Performance Note</b>                 | Outdoor usage                                                                    |
| <b>Radome Material</b>                  | Fiberglass, UV resistant                                                         |
| <b>Radiator Material</b>                | Low loss circuit board                                                           |
| <b>Reflector Material</b>               | Aluminum                                                                         |
| <b>RF Connector Interface</b>           | 4.3-10 Female                                                                    |
| <b>RF Connector Location</b>            | Bottom                                                                           |
| <b>RF Connector Quantity, high band</b> | 8                                                                                |
| <b>RF Connector Quantity, mid band</b>  | 4                                                                                |
| <b>RF Connector Quantity, low band</b>  | 2                                                                                |
| <b>RF Connector Quantity, total</b>     | 14                                                                               |

## Remote Electrical Tilt (RET) Information

|                      |                                   |
|----------------------|-----------------------------------|
| <b>RET Hardware</b>  | CommRET v2                        |
| <b>RET Interface</b> | 8-pin DIN Female   8-pin DIN Male |

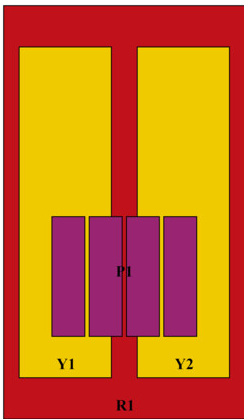
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|                                                 |                                             |
|-------------------------------------------------|---------------------------------------------|
| <b>RET Interface, quantity</b>                  | 3 female   3 male                           |
| <b>Input Voltage</b>                            | 10–30 Vdc                                   |
| <b>Internal Bias Tee</b>                        | Cal Port   Port 1   Port 3                  |
| <b>Internal RET</b>                             | High band (1)   Low band (1)   Mid band (1) |
| <b>Power Consumption, active state, maximum</b> | 10 W                                        |
| <b>Power Consumption, idle state, maximum</b>   | 2 W                                         |
| <b>Protocol</b>                                 | 3GPP/AISG 2.0                               |

## Dimensions

|                                 |                     |
|---------------------------------|---------------------|
| <b>Width</b>                    | 498 mm   19.606 in  |
| <b>Depth</b>                    | 197 mm   7.756 in   |
| <b>Length</b>                   | 1399 mm   55.079 in |
| <b>Net Weight, antenna only</b> | 29 kg   63.934 lb   |

## Array Layout

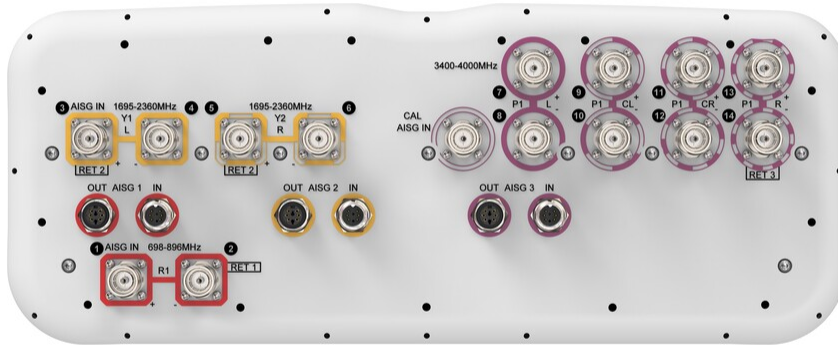


| Array ID | Frequency (MHz) | RF Connector | HPBW | RET (SRET) | AISG No. | RET UID          |
|----------|-----------------|--------------|------|------------|----------|------------------|
| R1       | 698-896         | 1 - 2        | 45°  | 1          | AISG1    | CPxxxxxxxxxxxxR1 |
| Y1       | 1695-2360       | 3 - 4        | 45°  | 2          | AISG2    | CPxxxxxxxxxxxxY1 |
| Y2       | 1695-2360       | 5 - 6        | 45°  |            |          |                  |
| P1       | 3400-4000       | 7 - 14       | BF°  | 3          | AISG3    | CPxxxxxxxxxxxxP1 |

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

## Port Configuration

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## Electrical Specifications

|                                   |                                                   |
|-----------------------------------|---------------------------------------------------|
| <b>Impedance</b>                  | 50 ohm                                            |
| <b>Operating Frequency Band</b>   | 1695 – 2360 MHz   3400 – 4000 MHz   698 – 896 MHz |
| <b>Polarization</b>               | ±45°                                              |
| <b>Total Input Power, maximum</b> | 1,040 W @ 50 °C                                   |

## Electrical Specifications

|                                        | R1             | R1             | Y1,Y2            | Y1,Y2            | Y1,Y2            | Y1,Y2            | P1               | P1               |
|----------------------------------------|----------------|----------------|------------------|------------------|------------------|------------------|------------------|------------------|
| <b>Frequency Band, MHz</b>             | <b>698–806</b> | <b>806–896</b> | <b>1695–1880</b> | <b>1850–1990</b> | <b>1920–2200</b> | <b>2300–2360</b> | <b>3400–3550</b> | <b>3700–4000</b> |
| <b>RF Port</b>                         | 1,2            | 1,2            | 3-6              | 3-6              | 3-6              | 3-6              | 7-14             | 7-14             |
| <b>Gain, dBi</b>                       | 15.3           | 15.7           | 18.1             | 18.3             | 19               | 19.6             | 16.1             | 17.5             |
| <b>Beamwidth, Horizontal, degrees</b>  | 46             | 41             | 48               | 46               | 44               | 40               | 84               | 71               |
| <b>Beamwidth, Vertical, degrees</b>    | 19             | 17             | 7.6              | 7.1              | 6.7              | 5.9              | 6.2              | 5.7              |
| <b>Beam Tilt, degrees</b>              | 2–18           | 2–18           | 1–9              | 1–9              | 1–9              | 1–9              | 0–10             | 0–10             |
| <b>USLS (First Lobe), dB</b>           | 16             | 17             | 17               | 17               | 17               | 20               | 14               | 15               |
| <b>Front-to-Back Ratio at 180°, dB</b> | 34             | 36             | 36               | 35               | 34               | 34               | 29               | 30               |

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|                                                                                  |          |          |          |          |          |          |          |          |
|----------------------------------------------------------------------------------|----------|----------|----------|----------|----------|----------|----------|----------|
| <b>Coupling level, Amp, Antenna port to Cal port, dB</b>                         |          |          |          |          |          |          | 26       | 26       |
| <b>Coupling level, max Amp <math>\Delta</math>, Antenna port to Cal port, dB</b> |          |          |          |          |          |          | $\pm 2$  | $\pm 2$  |
| <b>Coupler, max Amp <math>\Delta</math>, Antenna port to Cal port, dB</b>        |          |          |          |          |          |          | 0.9      | 0.9      |
| <b>Coupler, max Phase <math>\Delta</math>, Antenna port to Cal port, degrees</b> |          |          |          |          |          |          | 7        | 7        |
| <b>Isolation, Cross Polarization, dB</b>                                         | 25       | 25       | 25       | 25       | 25       | 25       | 25       | 25       |
| <b>Isolation, Inter-band, dB</b>                                                 | 25       | 25       | 25       | 25       | 25       | 25       | 25       | 25       |
| <b>Isolation, Co-polarization, dB</b>                                            |          |          |          |          |          |          | 19       | 19       |
| <b>VSWR   Return loss, dB</b>                                                    | 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 |
| <b>PIM, 3rd Order, 2 x 20 W, dBc</b>                                             | -153     | -153     | -153     | -153     | -153     | -153     | -145     | -145     |
| <b>Input Power per Port at 50°C, maximum, watts</b>                              | 300      | 300      | 250      | 250      | 250      | 250      | 75       | 75       |

## Electrical Specifications, Broadcast 65°

|                                                                   |                  |                  |
|-------------------------------------------------------------------|------------------|------------------|
| <b>Frequency Band, MHz</b>                                        | <b>3400-3550</b> | <b>3700-4000</b> |
| <b>Gain, dBi</b>                                                  | 17.1             | 18.2             |
| <b>Beamwidth, Horizontal, degrees</b>                             | 65               | 65               |
| <b>Beamwidth, Vertical, degrees</b>                               | 6.2              | 5.8              |
| <b>Front-to-Back Total Power at 180° <math>\pm</math> 30°, dB</b> | 26               | 24               |
| <b>USLS (First Lobe), dB</b>                                      | 17               | 19               |

## Electrical Specifications, Broadcast 45°

|                                                                   |                  |                  |
|-------------------------------------------------------------------|------------------|------------------|
| <b>Frequency Band, MHz</b>                                        | <b>3400-3550</b> | <b>3700-4000</b> |
| <b>Beamwidth, Vertical, degrees</b>                               | 6.2              | 5.8              |
| <b>Front-to-Back Total Power at 180° <math>\pm</math> 30°, dB</b> | 27               | 25               |
| <b>USLS (First Lobe), dB</b>                                      | 17               | 20               |

## Electrical Specifications, Service Beam

|                              |                  |                  |
|------------------------------|------------------|------------------|
| <b>Frequency Band, MHz</b>   | <b>3400-3550</b> | <b>3700-4000</b> |
| <b>Steered 0° Gain, dBi</b>  | 20.4             | 21.6             |
| <b>Steered 0° Beamwidth,</b> | 27               | 23               |

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## Horizontal, degrees

|                                                                    |      |      |
|--------------------------------------------------------------------|------|------|
| <b>Steered 0° Front-to-Back<br/>Total Power at 180° ± 30°, dB</b>  | 29   | 29   |
| <b>Steered 0° Horizontal<br/>Sidelobe, dB</b>                      | 13   | 13   |
| <b>Steered 0° USLS (First Lobe),<br/>dB</b>                        | 18   | 21   |
| <b>Steered 30° Gain, dBi</b>                                       | 19.4 | 19.9 |
| <b>Steered 30° Beamwidth,<br/>Horizontal, degrees</b>              | 31   | 31   |
| <b>Steered 30° Front-to-Back<br/>Total Power at 180° ± 30°, dB</b> | 27   | 27   |

## Electrical Specifications, Soft Split

|                                                        |                  |                  |
|--------------------------------------------------------|------------------|------------------|
| <b>Frequency Band, MHz</b>                             | <b>3400–3550</b> | <b>3700–4000</b> |
| <b>Gain, dBi</b>                                       | 19.3             | 20.2             |
| <b>Beamwidth, Horizontal,<br/>degrees</b>              | 36               | 32               |
| <b>Front-to-Back Total Power at<br/>180° ± 30°, dB</b> | 27               | 27               |
| <b>Horizontal Sidelobe, dB</b>                         | 15               | 16               |
| <b>USLS (First Lobe), dB</b>                           | 18               | 21               |

## Mechanical Specifications

|                                         |                                           |
|-----------------------------------------|-------------------------------------------|
| <b>Wind Loading @ Velocity, frontal</b> | 461.0 N @ 150 km/h (103.6 lbf @ 150 km/h) |
| <b>Wind Loading @ Velocity, lateral</b> | 137.0 N @ 150 km/h (30.8 lbf @ 150 km/h)  |
| <b>Wind Loading @ Velocity, maximum</b> | 554.0 N @ 150 km/h (124.5 lbf @ 150 km/h) |
| <b>Wind Loading @ Velocity, rear</b>    | 318.0 N @ 150 km/h (71.5 lbf @ 150 km/h)  |
| <b>Wind Speed, maximum</b>              | 241 km/h (150 mph)                        |

## Packaging and Weights

|                       |                     |
|-----------------------|---------------------|
| <b>Width, packed</b>  | 565 mm   22.244 in  |
| <b>Depth, packed</b>  | 309 mm   12.165 in  |
| <b>Length, packed</b> | 1587 mm   62.48 in  |
| <b>Weight, gross</b>  | 41.4 kg   91.271 lb |

## Regulatory Compliance/Certifications

| Agency | Classification |
|--------|----------------|
|--------|----------------|

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|            |                                   |
|------------|-----------------------------------|
| CHINA-ROHS | Above maximum concentration value |
| ROHS       | Compliant/Exempted                |
| UK-ROHS    | Compliant/Exempted                |



## Included Products

|          |   |                                                                                                                                                                  |
|----------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| BSAMNT-3 | – | Wide Profile Antenna Downtilt Mounting Kit for 2.4 - 4.5 in (60 - 115 mm) OD round members. Kit contains one scissor top bracket set and one bottom bracket set. |
|----------|---|------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## \* Footnotes

|                         |                                                                 |
|-------------------------|-----------------------------------------------------------------|
| <b>Performance Note</b> | Severe environmental conditions may degrade optimum performance |
|-------------------------|-----------------------------------------------------------------|