

# NNH4-65A-R6H4



12-port sector antenna, 4x 698–896 and 8x 1695–2360 MHz, 65° HPBW, 6x RET.

- Features broadband Low Band (698-896 MHz) and High Band (1695-2360 MHz) arrays for 4T4R (4X MIMO) capability for Band 14, AWS, PCS and WCS applications
- Non-stacked high band array design provides higher gain and narrower vertical beamwidth than traditional antenna designs
- Independent tilt for all arrays
- Array configuration provides capability for 4T4R (4x MIMO) on Low band and Dual 4T4R (4x MIMO) on High band
- Optimized SPR performance across all operating bands
- Excellent wind loading characteristics
- Supports re-configurable antenna sharing capability enabling control of the internal RET system using up to two separate RET compatible OEM radios

## General Specifications

<b>Antenna Type</b>	Sector
<b>Band</b>	Multiband
<b>Color</b>	Light Gray (RAL 7035)
<b>Grounding Type</b>	RF connector body grounded to reflector and mounting bracket
<b>Performance Note</b>	Outdoor usage   Wind loading figures are validated by wind tunnel measurements described in white paper WP-112534-EN
<b>Radome Material</b>	Fiberglass, UV resistant
<b>Radiator Material</b>	Aluminum   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, low band</b>	4
<b>RF Connector Quantity, total</b>	12

## Remote Electrical Tilt (RET) Information

<b>RET Hardware</b>	CommRET v2
<b>RET Interface</b>	8-pin DIN Female   8-pin DIN Male
<b>RET Interface, quantity</b>	2 female   2 male
<b>Input Voltage</b>	10–30 Vdc


# NNH4-65A-R6H4

<b>Internal RET</b>	High band (4)   Low band (2)
<b>Power Consumption, idle state, maximum</b>	1 W
<b>Power Consumption, normal conditions, maximum</b>	8 W
<b>Protocol</b>	3GPP/AISG 2.0 (Multi-RET)

## Dimensions

<b>Width</b>	498 mm   19.606 in
<b>Depth</b>	197 mm   7.756 in
<b>Length</b>	1499 mm   59.016 in
<b>Net Weight, without mounting kit</b>	33.5 kg   73.855 lb

## Array Layout



Array	Freq (MHz)	Conns	RET (MRET)	AISG RET UID
R1	698-896	1-2	1	CPxxxxxxxxxxxxxxxxmm.1
R2	698-896	3-4	2	CPxxxxxxxxxxxxxxxxmm.2
Y1	1695-2360	5-6	3	CPxxxxxxxxxxxxxxxxmm.3
Y2	1695-2360	7-8	4	CPxxxxxxxxxxxxxxxxmm.4
Y3	1695-2360	9-10	5	CPxxxxxxxxxxxxxxxxmm.5
Y4	1695-2360	11-12	6	CPxxxxxxxxxxxxxxxxmm.6

Left Bottom Right

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

## Port Configuration

# NNH4-65A-R6H4



## Electrical Specifications

<b>Impedance</b>	50 ohm
<b>Operating Frequency Band</b>	1695 – 2360 MHz   698 – 896 MHz
<b>Polarization</b>	±45°
<b>Total Input Power, maximum</b>	900 W @ 50 °C

## Electrical Specifications

Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2180	2300–2360
<b>Gain, dBi</b>	13.2	13.7	16.1	17	17.6	18.2
<b>Beamwidth, Horizontal, degrees</b>	69	66	71	67	61	57
<b>Beamwidth, Vertical, degrees</b>	17.1	15.4	7.5	6.9	6.4	5.7
<b>Beam Tilt, degrees</b>	2–16	2–16	2–12	2–12	2–12	2–12
<b>USLS (First Lobe), dB</b>	19	19	15	17	18	21
<b>Front-to-Back Ratio at 180°, dB</b>	32	31	33	33	34	33
<b>Isolation, Cross Polarization, dB</b>	25	25	25	25	25	25
<b>Isolation, Inter-band, dB</b>	25	25	25	25	25	25
<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

# NNH4-65A-R6H4

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

## Electrical Specifications, BASTA

<b>Frequency Band, MHz</b>	<b>698–806</b>	<b>806–896</b>	<b>1695–1880</b>	<b>1850–1990</b>	<b>1920–2180</b>	<b>2300–2360</b>
<b>Gain by all Beam Tilts, average, dBi</b>	12.9	13.3	15.6	16.5	17.1	17.8
<b>Gain by all Beam Tilts Tolerance, dB</b>	±0.5	±0.5	±0.7	±0.7	±0.6	±0.4
<b>Gain by Beam Tilt, average, dBi</b>	2°   13.0 9°   12.9 16°   12.6	2°   13.5 9°   13.4 16°   12.9	2°   15.4 7°   15.6 12°   15.5	2°   16.2 7°   16.6 12°   16.4	2°   16.9 7°   17.3 12°   17.0	2°   17.7 7°   18.0 12°   17.6
<b>Beamwidth, Horizontal Tolerance, degrees</b>	±5.7	±4.0	±4.9	±7.3	±5.7	±2.4
<b>Beamwidth, Vertical Tolerance, degrees</b>	±1.6	±1.4	±0.6	±0.4	±0.5	±0.2
<b>USLS, beampeak to 20° above beampeak, dB</b>			14	16	17	16
<b>Front-to-Back Total Power at 180° ± 30°, dB</b>	23	21	27	27	26	27
<b>CPR at Boresight, dB</b>	24	24	19	21	21	18
<b>CPR at Sector, dB</b>	12	9	9	7	7	8

## Mechanical Specifications

<b>Effective Projective Area (EPA), frontal</b>	0.52 m <sup>2</sup>   5.597 ft <sup>2</sup>
<b>Effective Projective Area (EPA), lateral</b>	0.17 m <sup>2</sup>   1.83 ft <sup>2</sup>
<b>Mechanical Tilt Range</b>	0°–15°
<b>Wind Loading @ Velocity, frontal</b>	549.0 N @ 150 km/h (123.4 lbf @ 150 km/h)
<b>Wind Loading @ Velocity, lateral</b>	183.0 N @ 150 km/h (41.1 lbf @ 150 km/h)
<b>Wind Loading @ Velocity, maximum</b>	712.0 N @ 150 km/h (160.1 lbf @ 150 km/h)
<b>Wind Loading @ Velocity, rear</b>	452.0 N @ 150 km/h (101.6 lbf @ 150 km/h)
<b>Wind Speed, maximum</b>	241 km/h (150 mph)

## Packaging and Weights

<b>Width, packed</b>	608 mm   23.937 in
<b>Depth, packed</b>	352 mm   13.858 in
<b>Length, packed</b>	1682 mm   66.221 in

# NNH4-65A-R6H4

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**Weight, gross**

43.8 kg | 96.562 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-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