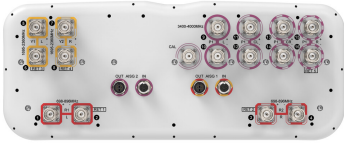


# NNHHS4-65B-R5



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 assigned to AISG1
- Feature the same dimensions as existing 8 and 12-port FDD capable antennas
- New endcap designs provide improved wind loading performance
- The antenna is supplied with mounting kits that provide 0 degree of mechanical downtilt; optional downtilt mounting kits are available

## 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>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>	4
<b>RF Connector Quantity, total</b>	16

## 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
<b>Internal RET</b>	High band (1)   Low band (2)   Mid band (2)

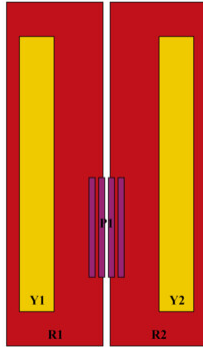
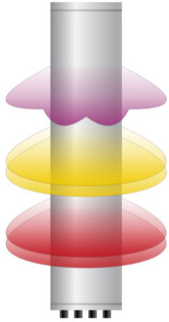
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<b>Power Consumption, active state, maximum</b>	8 W
<b>Power Consumption, idle state, maximum</b>	1 W
<b>Protocol</b>	3GPP/AISG 2.0

## Dimensions

<b>Width</b>	498 mm   19.606 in
<b>Depth</b>	197 mm   7.756 in
<b>Length</b>	1848 mm   72.756 in
<b>Net Weight, antenna only</b>	37.9 kg   83.555 lb
<b>TDD Column Spacing</b>	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



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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>	1,500 W @ 50 °C

## Electrical Specifications

	<b>R1,R2</b>	<b>R1,R2</b>	<b>Y1,Y2</b>	<b>Y1,Y2</b>	<b>Y1,Y2</b>	<b>Y1,Y2</b>	<b>P1</b>	<b>P1</b>
<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>3400–3800</b>	<b>3700–4000</b>
<b>RF Port</b>	1-4	1-4	5-8	5-8	5-8	5-8	9-16	9-16
<b>Gain, dBi</b>	14.6	15.1	17.6	17.8	18.3	18.5	16.2	16.4
<b>Beamwidth, Horizontal, degrees</b>	72	64	58	58	59	59	83	73
<b>Beamwidth, Vertical, degrees</b>	12.2	10.6	6.3	5.8	5.5	5.1	6.1	5.7
<b>Beam Tilt, degrees</b>	2–14	2–14	2–12	2–12	2–12	2–12	0–10	0–10
<b>USLS (First Lobe), dB</b>	19	16	17	17	18	17	15	14
<b>Front-to-Back Ratio at 180°, dB</b>	28	28	34	35	35	33	23	29
<b>Coupling level, Amp, Antenna port to Cal port, dB</b>							-26	-26
<b>Coupling level, max Amp Δ, Antenna port to Cal port, dB</b>							±2	±2
<b>Coupler, max Amp Δ, Antenna port to Cal port, dB</b>							0.6	0.6
<b>Coupler, max Phase Δ, Antenna port to Cal port, degrees</b>							5	5
<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>	-150	-150	-150	-150	-150	-150	-145	-145
<b>Input Power per Port at 50°C, maximum, watts</b>	300	300	250	250	250	200	75	75

## Electrical Specifications, BASTA

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Frequency Band, MHz	698–806	806–896	1695–1880	1850–1990	1920–2180	2300–2360	3400–3800	3700–4000
Gain by all Beam Tilts, average, dBi	14.3	14.8	17.1	17.6	18	18.2	15.5	15.8
Gain by all Beam Tilts Tolerance, dB	±0.5	±0.4	±0.7	±0.4	±0.5	±0.7	±0.9	±0.7
Beamwidth, Horizontal Tolerance, degrees	±5.7	±3.8	±4.7	±4.4	±3.4	±4.4	±24.5	±16.2
Beamwidth, Vertical Tolerance, degrees	±1	±0.8	±0.4	±0.2	±0.3	±0.3	±0.4	±0.3
USLS, beampeak to 20° above beampeak, dB	18	15	13	14	14	14	13	12
CPR at Boresight, dB	26	26	19	21	21	21	15	14
CPR at Sector, dB	15	10	10	7	7	7	6	5

## Electrical Specifications, Broadcast 65°

Frequency Band, MHz	3400–3800	3700–4000
Gain, dBi	18	18.3
Beamwidth, Horizontal, degrees	65	65
Beamwidth, Vertical, degrees	6.1	5.8
Front-to-Back Total Power at 180° ± 30°, dB	27	28
USLS (First Lobe), dB	17	18

## Electrical Specifications, Envelope Pattern

Frequency Band, MHz	3400–3800	3700–4000
Gain, dBi	21.1	21.5
Beamwidth, Horizontal at 10 dB, degrees	118	117
Front-to-Back Total Power at 180° ± 30°, dB	29	29
USLS (First Lobe), dB	20	22

## Electrical Specifications, Service Beam

Frequency Band, MHz	3400–3800	3700–4000
Steered 0° Gain, dBi	21.1	21.4
Steered 0° Beamwidth, Horizontal, degrees	24	24
Steered 0° Front-to-Back Total Power at 180° ± 30°, dB	30	29

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<b>Steered 0° Horizontal Sidelobe, dB</b>	14	13
<b>Steered 30° Gain, dBi</b>	19.9	20.5
<b>Steered 30° Beamwidth, Horizontal, degrees</b>	29	25
<b>Steered 30° Front-to-Back Total Power at 180° ± 30°, dB</b>	28	28

## Electrical Specifications, Soft Split

<b>Frequency Band, MHz</b>	<b>3400–3800</b>	<b>3700–4000</b>
<b>Gain, dBi</b>	19.8	20.2
<b>Beamwidth, Horizontal, degrees</b>	32	28
<b>Front-to-Back Total Power at 180° ± 30°, dB</b>	28	28
<b>Horizontal Sidelobe, dB</b>	18	17

## Mechanical Specifications

<b>Effective Projective Area (EPA), frontal</b>	0.59 m <sup>2</sup>   6.351 ft <sup>2</sup>
<b>Effective Projective Area (EPA), lateral</b>	0.18 m <sup>2</sup>   1.938 ft <sup>2</sup>
<b>Wind Loading @ Velocity, frontal</b>	629.0 N @ 150 km/h (141.4 lbf @ 150 km/h)
<b>Wind Loading @ Velocity, lateral</b>	191.0 N @ 150 km/h (42.9 lbf @ 150 km/h)
<b>Wind Loading @ Velocity, maximum</b>	597.0 N @ 150 km/h (134.2 lbf @ 150 km/h)
<b>Wind Loading @ Velocity, rear</b>	433.0 N @ 150 km/h (97.3 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>	2035 mm   80.118 in
<b>Weight, gross</b>	49.1 kg   108.247 lb

## Regulatory Compliance/Certifications

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

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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