

Narrowbeam Capacity Antenna Family for high performance LTE networks: New Product

North America Communication

CommScope is happy to announce that the popular NHH hex-port antenna portfolio now includes the 45° narrowbeam antenna family, NHH-45, for enhanced capacity and throughput. These antennas are perfect for high performance LTE networks using **AWS, PCS, 700MHz and 850MHz bands**. Two of these antennas, installed side-by-side with a 700MHz/850MHz dual band radio, is the ideal solution for **4x4 MIMO applications** across all four bands.



The narrow horizontal beamwidth of 45° gives this family the **best-in-class sector power ratio (SPR)**, resulting in the **least amount of sector overlap** and the **best signal-to-noise ratio (SNR)**—both of which are key performance indicators for **high data throughput** in LTE networks. With the **optimized sector overlap**, networks can use the NHH-45 family to improve their SNR in a way that allows the site to broadcast in **much higher MIMO modes and modulation schemes**. With normal 65° antennas, it is hard to reach a SNR which would allow higher modulation schemes (e.g. 256 QAM), but that can become a possibility with narrower beam antennas, which makes this 45° antenna family a **key component** to achieve data rates nearing **1 Gbps**.

With its narrow beams, it is even possible to increase the number of sectors which significantly adds **capacity** to high traffic sites. These 45° antennas can be used in **3- or 4-sector scenarios**.

The internal RET configuration of the NHH-45 antennas is designed with **4X MIMO applications** in mind, which require that all four ports of one band have the same tilt setting. Therefore, these antennas have **two internal RETs**, one for the low band array and one for both high band arrays. This ensures that all four high band ports are always tilted to the same setting, which is a crucial requirement for MIMO and beamforming performance. The best way to use this antenna is by installing two of these antennas side-by-side for **4X MIMO applications in up to four bands** (700MHz, 850MHz, AWS and PCS).

To take advantage of the internal smart bias tee (SBT) found in most LTE radios, these NHH-45 narrowbeam antennas also have internal SBTs. As a result, AISG signals injected by the radio onto the RF path can be received and routed directly to the RET actuators from within the antenna. That means no external SBT or external RET cables are needed, **saving both time and money**. In cases where the radio does not have an internal SBT, these antennas also feature AISG (RS-485) ports for use with RET cables, thereby providing **maximum flexibility** from design through installation.

Benefits of using internal SBTs:

- **Eliminates** need for external SBTs and RET cables
- **Simplifies** cabling on the tower
- **Improves** visual appearance
- **Reduces** installation time on site
- **Minimizes** installation errors

These antennas are also designed with **Self-Optimizing Networks (SON)** in mind. For SON, it is beneficial to have the low band and the high band RET path separated. Thus, these antennas have two internal SBTs and two RET input/daisy-chain ports — one for the low band and one for the high band.

Product Highlights:

- **Industry Leading Performance:** Impressive sector power ratio (SPR) to reduce cell overlap, minimize the noise in the network and ensure high data throughput rates.
- **Multiband:** 698-896 MHz and 2x1695-2360 MHz. Supports 700 and 850 MHz bands, and on the high band all AWS, PCS and WCS frequencies (including AWS-3 and AWS-4).
- **Multisector Applications:** With their narrow 45° beams, these antennas are perfectly suited not only for 3-sector applications, but can also be used for 4-sector applications.
- **Two internal SBTs:** One low band (LB) SBT and one high band (HB) SBT. Eliminate the need for external SBTs and RET cables.
- **Two internal RETs:** One LB RET, one HB RET. Maximize MIMO or 4 branch receive diversity performance, by ensuring all four high band ports use the same tilt.
- **-153dBc PIM:** Superior, long term PIM performance, which is crucial for noise suppression in the RF path and for high data throughput rates.

Ordering Information:

Please see details below for the three released antennas in the NHH-45 family.

Model Number	Beamwidth	Length	Width	Ports & Frequency	RET Information
NHH-45C-R2B	45°	8 ft.	18.0 in	2x 698–896 MHz 4x 1695–2360 MHz	<ul style="list-style-type: none"> • 2 internal RETs (SRET mode) <ul style="list-style-type: none"> ○ 1x LB ○ 1x HB (for both HBs) • 2 internal SBTs <ul style="list-style-type: none"> ○ 1x on first LB port ○ 1x on first HB port • 2 sets of AISG IN/OUT ports <ul style="list-style-type: none"> ○ 1x LB ○ 1x HB
NHH-45B-R2B	45°	6 ft.	18.0 in		
NHH-45A-R2B	45°	4 ft.	18.0 in		

Please contact your local CommScope Sales Representative for more information.