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PRODUCT NewsFLASH

Narrowbeam (NHH) Capacity Antenna Family for High Performance LTE Networks: New Product

(North America Communication)

CommScope is happy to announce another key new addition to the popular NHH family of hex-port antennas which are perfect for high performance LTE networks using **AWS, PCS, 700MHz and 850MHz**. Two of these antennas side-by-side are the ideal solution for **4T4R MIMO applications** for all of these four bands.

This family now also includes a **4ft long 33° antenna** for even more capacity and even higher gain, which are key characteristics for enhanced capacity and throughput for LTE networks. The narrow horizontal beamwidth of 45° or 33° gives this family the **best-of-class sector power ratio (SPR)** resulting in the **least amount of sector overlap** and **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 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 that would allow higher modulation schemes (e.g. 256 QAM), but that can become a possibility with narrower beam antennas, which makes 33° and 45° antennas a **key component** to achieve data rates nearing **1 Gbps**.

With these narrow beams, it is even possible to reach **higher levels of sectorization** which significantly adds more capacity to high traffic sites. 45° antennas can be used in 3- or 4-sector scenarios, and 33° antennas with their laser focused beam have multiple usages from supplying high signal levels along a narrow corridor or highway up to **six-sector site applications**— which provide almost double the capacity to a site compared to a three-sector site using 65° antennas.

The internal RET configuration of the narrowbeam NHH antennas is designed with **4X MIMO applications** in mind, which require that all ports of the same 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 to ensure that all four high band ports are always tilted to the same setting—a crucial requirement for MIMO and beamforming performance.

To take advantage of the internal smart bias tee (SBT) found in most LTE radios, these NHH 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.

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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 beams, these antennas are perfectly suited not only for 3-sector applications, but can also be used for 4-sector applications.
- **Two internal SBTs:** Two internal SBTs 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.
- **–153 dBc PIM:** Superior, long term PIM performance, which is crucial for noise suppression in the RF path and for high data throughput rates.
- **Small frontal area:** Designed to comply with tight frontal area size requirements for dense urban cities.

Ordering Information:

Please see details below for the released antennas in the narrowbeam NHH 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
					• 2 internal RETs (SRET mode)
					  ○ 1x LB / 1x HB
					• 2 internal SBTs
					  ○ 1x on first LB port
					  ○ 1x on first HB port
					• 2 sets of AISG IN/OUT ports
					  ○ 1x LB
					  ○ 1x HB

NHH-45B-R2B	45°	6 ft	18.0 in		
NHH-45A-R2B	45°	4 ft	18.0 in		
NHH-33A-R2B	33°	4 ft	25.2 in		

Please contact your local CommScope Sales Representative for more information.

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