



**CHANGES ON THE TOWER DEMAND  
NEW FTTA STRATEGIES (PART 2)**

**JMA WIRELESS BRINGS INNOVATIVE 5G DAS  
TO SYRACUSE UNIVERSITY'S JMA WIRELESS DOM**



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## *A Quarterly Publication*

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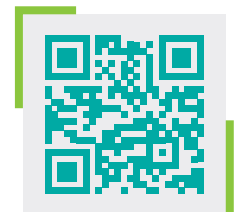
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## CHANGES ON THE TOWER DEMAND NEW FTTA STRATEGIES (PART 2)

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Like the roots of a well-established tree, optical fiber has, over time, penetrated every part of the wireless operator's network—from the backbone and core to the access network. Its high-speed high-bandwidth capabilities make fiber the ideal medium to handle the tsunami of data the world produces and consumes daily.

With the introduction of the remote radio head (RRH), which decoupled the transmit and receive functions from the radio and moved them closer to the antennas on the tower, fiber began being deployed up the tower. That was about 12 years ago, and fiber-to-the-antenna (FTTA) has been a core enabling technology ever since. Today, as 5G deployments continue to ramp up (expected to increase 17 percent CAGR through 2028<sup>i</sup>), FTTA architectures play a critical role in helping mobile network operators (MNOs) expand and evolve their network services.

However, the pace of change in end-user data demands and the network's need for improved capacity, bandwidth, and latency performance have led to more complex and crowded RF environments atop the tower. Network operators need their FTTA solutions to deliver more than high-speed, high-bandwidth performance. These solutions are being judged on their ability to help contain site deployment costs, accelerate return on investment, and make it easier to onboard additional capacity and new technologies as they become available.

**Installation time.** As 5G macro networks are deployed, speed to site turn-up is critical for wireless operators to start realizing revenues. FTTA installations can be complex and time-consuming—

slowing down deployments and increasing the likelihood of installation errors. Wireless operators need solutions that offer reliable, repeatable processes that simplify cable management, streamline installations and shorten time to revenue.

**Tower loading.** FTTA relies on both fiber communication cable and copper power cable. Taken separately, that can add up to significant added load on the tower. It takes a specific kind of cabling to bring fiber to the antennas—and power them—without adding load (and lease costs) to the picture.

**Upgradeability.** A third problem is how to ensure an open and seamless path for continued network growth. This problem has two sides. First, to ensure room on the tower for additional future antennas and remote radio units (RRUs), operators must do everything possible to economize their current space utilization. Second, they must prioritize, to a certain extent, the ability of their network infrastructure to easily and quickly grow and adapt.

**Environmental responsibility.** Whether governed by regulatory authorities or simply a matter of corporate goals, environmental impact will almost certainly be a factor. This specifically relates to the materials going on the tower—their content and sourcing.

### Going beyond the discrete FTTA model

Recent improvements in traditional discrete FTTA solutions have helped move the needle on some of MNOs' key concerns (see Part 1 of this blog series). But, given the escalation of 5G deployments in both the macro and small cell networks, the industry must do more to keep ahead of the demand.

CommScope's Outdoor Wireless Network (OWN) segment has been heavily involved in the development of new architectures designed to speed up deployment while reducing tower loads and advancing customers' environmental, social, and governance (ESG) commitments. Among our efforts are two solutions, now

*(Article continues on the next page.)*

available, that are helping to make a significant impact on our customers' bottom-line performance.

### **HELIAX® Trunk-to-Breakout Box FTTA solution**

The HELIAX Trunk-to-Breakout Box design gives MNOs the agility, speed and accelerated deployment needed to keep pace with their network's evolution. Instead of many discrete homerun fibers and cables, the solution uses a single trunk cable containing up to 32 fibers and 16 power conductors that terminate at a breakout box located just below the RRUs. Jumpers connect the RRUs and antennas to the breakout box. A single trunk can support up to nine RRUs and/or antennas.

With just one cable to prep, hoist and connect, the trunk-to-breakout box solution requires only one installer. By reducing the cable count, it also uses fewer cable brackets, creates less tower loading and requires less installation time.

Network upgrades and expansions are also faster and easier. To add or upgrade RRUs or antennas, just add or replace the jumpers. Not only is it faster and easier, but replacing the jumpers instead of the entire FTTA trunk also creates far less environmental impact. Because the single trunk is lighter than multiple individual cable runs, this approach enables more equipment to be added within tower loading specifications

Many of these same design characteristics also deliver environmental benefits, helping operators shrink their network carbon footprint. For example, eliminating the majority of cable brackets typically needed for a site deployment significantly reduces the mined materials required. Fewer cables also means less packaging waste.

Plus, all cables and connectors are rigorously tested in the toughest environmental conditions before they are shipped. The resulting increase in reliability reduces the number of truck rolls, further lowering CO<sub>2</sub> emissions and fossil fuel usage.

Finally, as upgrades and expansions only require swapping out jumpers, operators can eliminate the environmental impacts of producing, transporting and installing an entirely new FTTA link.

### **HELIAX Modular FTTA solution**

CommScope's HELIAX Modular FTTA solution takes the hybrid trunk design used in the trunk-to-breakout box a step further. It consists of configurable and preconnectorized fiber, power or hybrid trunks, plus a variety of plug-and-play breakout solutions, including CommScope's stackable and recyclable SkyBlox™ breakout system.

When deployed with the SkyBlox stackable breakout, the HELIAX Modular FTTA solution provides a simpler, more streamlined FTTA solution that makes the best use of available tower space and loading budget. This is due, in part, to its highly customizable configurations that enable the operator to specify the number of power conductors and/or fibers needed.

The use of small-bend-radius fiber and the elimination of metal shielding improves performance and minimizes passive intermodulation, which could otherwise cripple FTTA performance.

Meanwhile, the lightweight and flexible design of both the cabling and breakout solution reduce the amount of weight on a macro tower or small cell site by as much as 50 percent, thereby reducing installation and lease costs—helping operators shorten time to revenue.

Once deployed, upgrading the modular FTTA solution is as easy as replacing or adding jumpers. With the plug-and-play SkyBlox stackable breakout system, you can support continued network growth while minimizing your tower footprint.

The solution is also helping operators meet their aggressive goals as they move toward net-zero networks. Specifically, it uses recyclable cabling materials that are CPR class CCA rated for safety, compliance and environmental sustainability. Each SkyBlox breakout module is made of 100 percent recyclable material. And the use of preconnectorized trunks and jumpers helps customers reduce their field waste.

### **What's your FTTA strategy?**

As MNOs try to get their arms around the near-future demand for FTTA deployments, one statistic stands out. According to a recent market report from Industry ARC, the global market for 5G RRHs, a primary driver of FTTA, is forecast to continue growing at 61.4 percent (CAGR) through 2026.<sup>ii</sup>

This suggests there is some urgency in mapping out an FTTA strategy that operators can use to navigate the new complexities at the top of the tower. Deployment speed, tower load considerations, upgradeability and global climate change are all factors that need to be given serious weight when making the decision.

For over 40 years, CommScope has leveraged our global R&D resources, deep RF path experience, and close customer relationships to develop the innovative solutions that help network operators continuously adapt and evolve their networks. We bring all our resources and experience to bear on engineering FTTA solutions and strategies that keep our customers fast, agile and ready for what's next.

For more information on CommScope's HELIAX portfolio of future-ready FTTA solutions, scan the qr code or visit Talley's website to explore CommScope's solutions. You can also contact your local Talley representative today to discuss your network needs.

*Scan to view CommScope HeliAx Solutions*





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Interior of the JMA Dome during a football game this fall. Credit: Syracuse Athletics

## JMA WIRELESS BRINGS INNOVATIVE 5G DAS TO SYRACUSE UNIVERSITY'S JMA WIRELESS DOME

One of the most unique collegiate sports and entertainment venues in the United States now has leading-edge cellular wireless network coverage, thanks to a partnership between Syracuse University and JMA Wireless that brought an innovative 5G-ready distributed antenna system (DAS) to the JMA Wireless Dome.

Formerly known as the Carrier Dome, the on-campus 45,000-seat domed stadium is unique to the collegiate sports venue landscape as it hosts both football, basketball and lacrosse games for the Syracuse Orange, as well as many big-name entertainment acts touring through the northern New York state area. JMA Wireless, also based in Syracuse, took over the naming rights for the dome in 2022, during a \$118 million extensive renovation that brought many upgrades to the facility, including new seats along with roof and scoreboard improvements.

The latest upgrade to the venue is one that will give attending fans an NFL-stadium type wireless experience with expanded coverage including support for 5G signals, using JMA's Wireless DAS Platform along with some new patented narrow-beam antennas from JMA.

According to JMA, the JMA Wireless DAS platform, a multi-band, multi-operator architecture, was deployed at the stadium to address connectivity challenges that were facing the previous system, which had been in place for 10 years. According to JMA the upgrade included installation of 102 new 4G/5G-capable software-defined radio units and 372 custom-designed antennas,

significantly increasing cellular capacity from 21 to 54 cell sectors. The new network provides extensive coverage inside the stadium as well as outside the venue, where fans need more connectivity to ensure smooth ticketing and entry operations. The use of the new narrow-beam antennas is essential to mitigating interference between antennas, JMA said.

"This is a truly transformative milestone in the life of the JMA Wireless Dome, both for the facility and for every individual who attends an athletic event, concert or other activity at the Dome," said Jeff Rubin, special advisor to Syracuse Chancellor Kent Syverud on esports and digital transformation, in a prepared statement. "Now, the 45,000 JMA Dome fans can share in a technological experience that is truly state-of-the art, providing them with connectivity on par with having a cell tower all to themselves. It's an experience few will have at any other venue in the country."

Verizon customers will be the first to have access to the new system's connectivity, with plans to bring aboard AT&T and T-Mobile already in action. The new software-driven DAS infrastructure, which can support future upgrades without requiring hardware changes, includes support for the new C-Band spectrum being used for 5G services by carriers like Verizon and AT&T.

"JMA is proud to be part of the team bringing 5G to the Dome and Orange fans," said Andrew Adams, chief operations officer at JMA Wireless, in a prepared statement. "As members of this community ourselves, it's special to know that the design and manufacture of key system components were done right here in Syracuse. JMA's advanced technology and design allows for easy capacity expansion in the future, ensuring this high-performance system keeps the Dome at the leading edge for many years to come."

Article Credit: <https://stadiumtechreport.com/feature/jma-wireless-brings-innovative-5g-das-to-syracuse-universitys-jma-wireless-dome/>



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## T-MOBILE TOUTS SPEEDS OVER 4 GBPS USING MMWAVE, 5G SA

T-Mobile is claiming another 5G U.S. first in a test that leveraged 5G standalone (SA) millimeter wave (mmWave) spectrum and technology from Ericsson and Qualcomm Technologies.

The “un-carrier” aggregated eight channels of mmWave spectrum to reach download speeds over 4.3 Gbps without using low-band or mid-band spectrum to anchor the connection. T-Mobile also said it aggregated four channels of mmWave spectrum on the uplink, reaching speeds above 420 Mbps.

T-Mobile doesn’t usually rave about its mmWave holdings because the signals don’t travel far or very well through obstacles and, as the “un-carrier” noted in a press release, that makes it less ideal for mobile phone users who aren’t sitting still. Plus, rival Verizon is the one that holds the most mmWave spectrum and routinely uses it to goose speeds and capacity at NFL stadiums and other crowded places.

T-Mobile uses low-band spectrum for coverage and mid-band spectrum for capacity and faster speeds, but it’s also looking at using 5G mmWave for crowded areas like stadiums and potentially, fixed wireless service.

“We’ve been industry leaders – rolling out the first, largest and fastest 5G standalone network across the country – and now we’re

continuing to push the boundaries of wireless technology,” said T-Mobile President of Technology Ulf Ewaldsson in a statement. “We’ve always said we’ll use millimeter wave where it makes sense, and this test allows us to see how the spectrum can be put to use in different situations like crowded venues or to power things like fixed-wireless access when combined with 5G standalone.”

### Verizon’s mmWave

Verizon doesn’t yet have a commercial, nationwide 5G standalone network – and its President of Technology Joe Russo has said they’re not in a big hurry to get there.

However, it’s relied heavily on mmWave in NFL stadiums and it’s also starting to use it in more areas, like beaches and open air venues. Verizon can also use mmWave for fixed wireless access (FWA), something its partners like Pivotal Commware have identified as perfect for their line of products.

During a recent Wells Fargo investor conference, Russo talked about using mmWave to serve all those “Swifties” at Taylor Swift concerts. The kind of capacity required for those kinds of events wasn’t available in the 4G world. “There’s no way we can deliver that kind of experience for our customers without millimeter wave,” he said.

*Article Credit: <https://www.fiercewireless.com/tech/t-mobile-touts-speeds-over-4-gbps-using-mmwave-5g-sa>*





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