

# Sector Sculpting Solutions

Unlock cell site potential with multibeam technology





## What's next?

(The never-ending search for better capacity and coverage)

As demands on cellular networks increase, mobile operators look to OEMs for innovative solutions that can deliver more precise coverage and greater capacity. Led by CommScope, antenna providers have responded.

In recent years, twin-beam “sector-splitting” antennas have transformed the traditional three-sector site into six, enabling operators to increase frequency reuse, multiply capacity and refine coverage patterns. Yet, in many locations, even that is not enough. (No secret there.)

Looking ahead, the challenges for network operators only get tougher as Gigabit LTE deployments increase and 5G plans come into focus. Sector splitting is effective, but what's next?

Glad you asked. At CommScope, it's our job to know what's next and ensure you're prepared to handle it. In this chapter, we show you how we've elevated sector splitting to an art form. Read on.

# So many technical challenges—so little time

It's a race against the clock. First-generation 5G chips for mobile devices are in production. End users expect that 5G-enabled networks will soon follow. But first, mobile operators need to:

- Add capacity—especially where data traffic is heavy; but, with towers already loaded and space limited, adding more antennas isn't the answer.
- Achieve faster data speeds to meet the growing expectations of end users; yet, the higher the transmission speed, the more susceptible the network is to interference.
- Gain more control over sector coverage patterns in an effort to minimize sector overlap, maximize gain and optimize spectral efficiency.
- Accelerate deployment of new sites and services in order to protect and grow their share in aggressive and fast-moving markets.

In developing the infrastructure solutions that can achieve all this, CommScope has elevated antenna design and engineering to an art.

## ***Sector sculpting:*** [sek-ter skuhlpt-ing] verb

The art of using advanced multibeam antennas to deliver precise radiation patterns based on the coverage and capacity requirements within a specific wireless cell site.

Ready to optimize  
for capacity?

With capacity quickly becoming  
the operative variable, you need  
a strategy.

Download your free  
planning guide



# Master the art of sector sculpting with advanced multibeam antennas

CommScope multibeam antennas enable precise pattern control, allowing mobile operators to sculpt the exact coverage and capacity needed for a specific location. Solutions include twin-beam, tri-beam, five-beam and 18-beam antennas that can be deployed in a variety of configurations.

At a conventional three-sector macro site, twin-beam and tri-beam solutions can be used to create six and nine sectors, respectively. The result: better frequency reuse, minimal sector overlap, higher gain, and lower interference for high-speed applications like Gigabit LTE and 5G.

When deployed in cell clusters, the tri-beam lens antenna uses tessellation to achieve even greater spectral efficiency. Plus, the lens technology improves isolation and pattern roll-off compared to a Butler-matrix.

CommScope also offers a unique 18-beam solution featuring two layers of nine beams, stacked and staggered for expanded vertical coverage. Fast to deploy—with no need for individual sector alignment—it's perfect for temporary applications with very high traffic demands, such as festivals and concerts.

## Dive deeper into tri-beam technology

Learn the “how” and “why” behind this innovative solution.

[Watch the video](#)



Multibeam antennas are commonly deployed using cell-on-wheels to add capacity at outdoor venues.

# CommScope sector-sculpting multibeam antennas hit all the right notes

## Improved quality of service

- Sector pattern precision raises signal-to-noise ratio, improving LTE performance
- More sectors enable higher frequency reuse, increasing capacity and data speeds
- Higher gain provides stronger signal to the end users (read a [case study](#))

## Greater network agility

- One multibeam antenna replaces several traditional narrow-beam solutions
- Better coverage/capacity in a smaller footprint reduces weight and wind load on towers
- Fewer antennas mean reduced installation errors, faster deployment and accelerated ROI

## Stronger return on infrastructure

- Improved spectral efficiency opens the door for additional value-added services
- Increased quality of service is one of the most effective ways to minimize churn
- Faster, less costly roll-outs improve net revenues and help capture market share

Moving customers ahead one innovation at a time—anticipating where technology is going and why—ensures you have the infrastructure to take you where you need to go.

Now go beyond  
the antenna

To increase performance  
throughout your entire RF  
transmission path...

Start here

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