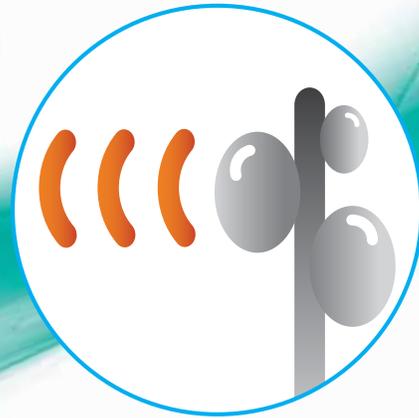


# Sentinel™

SUPER HIGH PERFORMANCE ANTENNAS



**Andrew Solutions™**

Think Next-Generation  
Backhaul Performance:  
Think Sentinel™

# Introducing Sentinel™ Class 4 antennas from our Andrew Solutions™ Portfolio

When you think about network availability, are you gambling with it... or planning for it?

The ever-increasing demand for microwave backhaul throughput, from both conventional macro and newer micro-cell and smaller base station links, has changed the way networks are being planned, deployed and upgraded.

With this rise of data demand across the world, efficient use of spectrum has become a paramount concern. As traffic increases, spectrum becomes more congested and interlink interference becomes a more important consideration. Facing these new realities, operators are struggling for solutions that won't break their budgets.

Using microwave antennas from lower-quality manufacturers may yield some initial savings, but higher operational costs and reduced durability against the elements soon erase those savings – and more downtime can cost customers, who are much harder to replace than antennas.

Fortunately, there is a solution that covers all the bases and leaves nothing to chance. That solution is Sentinel from CommScope.

Sentinel - the most significant advance in microwave antennas since ValuLine®.

Sentinel is the first solution to put next-generation performance within easy reach. Offering groundbreaking radiation pattern improvement in full compliance to ETSI Class 4 specifications, this solution delivers around 40% better spectrum utilization, yielding a 40% improvement in link density.

Sentinel offers 10 dB or more off-axis interference discrimination against other products of lesser performance. That means you can use a smaller antenna with higher modulation schemes, which can deliver significant cost savings.

With all these advantages, Sentinel is poised to improve the way networks are planned, built and upgraded just as our extensive catalog of ValuLine solutions has done.

**40%** HIGHER LINK DENSITY

THE CAPACITY BOOST YOUR NETWORK COULD EXPERIENCE WITH SENTINEL CLASS 4 ANTENNAS.





**The Sentinel 0.6 m (2 ft) product offers 17 dB improvement over the 0.6 m (2 ft) Class 3 antenna – without the disadvantages of the 1.2 m (4 ft) antenna.**

Sentinel's small footprint comes with the durability to withstand winds up to 250 km/h (155 mph) and is designed to integrate with radio outdoor units to provide a versatile solution for every backhaul challenge.

With a full range of products in 0.3 m, 0.6 m and 1.0 m diameters in all popular frequency bands between 15 GHz and 42 GHz being released, Sentinel offers you, the Customer, the opportunity to maximize the coverage and capacity of your network while minimizing the cost of that upgrade.

**250 km/h (155 mph)**

THE RATED WIND SURVIVABILITY OF SENTINEL ANTENNAS – THAT'S SOMETHING YOU WON'T FIND IN A LOW-COST ALTERNATIVE.

## Think performance by the numbers

When we developed Sentinel™ to deliver optimal performance in a cost-effective package, we did our homework to prove its superior characteristics. Compare the capacity and interference advantages below, and the choice is obvious – Sentinel beats the Class 3 option on every score. Interference analysis conducted using iQ.link<sup>XG</sup> from CommScope.

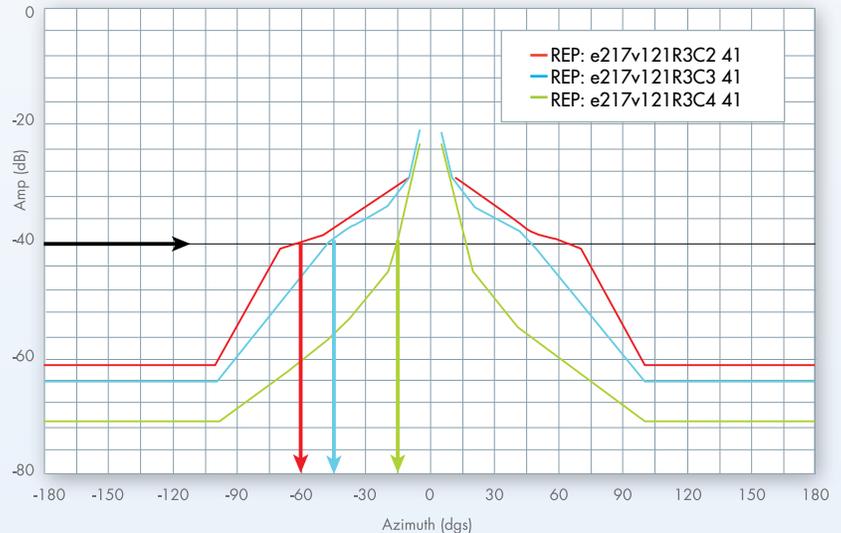


FIGURE A

Radiation pattern envelope comparison showing more efficient spectrum utilization using Sentinel over ETSI Class 2 and Class 3 products

ETSI RPE Class	Maximum Frequency Re-Use Factor
C2	$360/60 = 6$
C3	$360/46 = 7.8$
C4	$360/16 = 22.5$

Consider the measurements in Fig. A for 0.6 m antennas at 23 GHz, installed on a nodal site in a star configuration where the required attenuation in co-channel hops is 40 dB. When looking at the maximum frequency reuse factor in this particular case, it is clear that almost three times as many Sentinel antennas can be installed than ETSI Class 3 products.

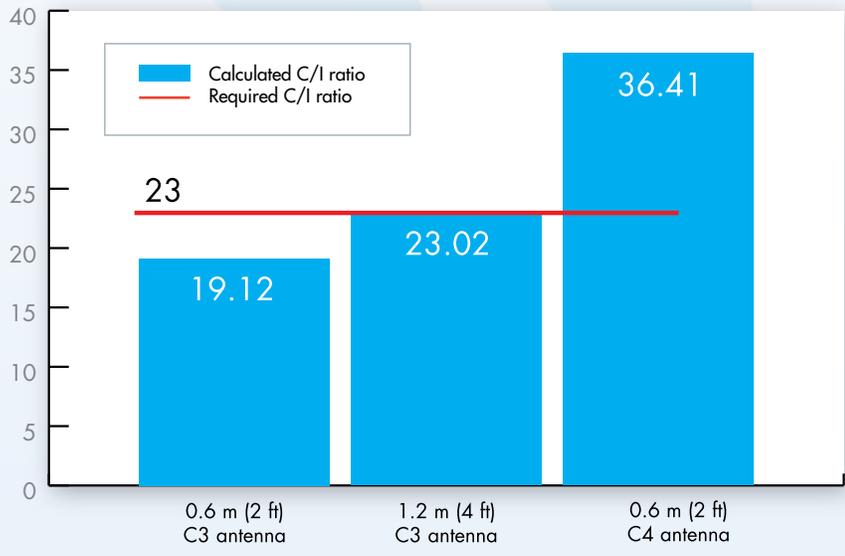


FIGURE B  
Interference analysis of antenna options for a 6 km 23 GHz link (conducted using iQ.linkXG)

The 1.2 m (4 ft) Class 3 antenna meets the objective but has:

- Higher antenna cost
- Higher shipping cost
- Higher tower lease cost (\$100 per foot per month)
- Higher wind load

# Think long-term savings.

A backhaul microwave antenna's price tag is just a small part of the overall cost picture. When you consider the total cost of ownership, you'll find that up to 70% of the money you spend on backhaul comes after the purchase. Larger, lower-cost antennas increase operating expenses in additional tower space leasing, zoning issues, more challenging installations, increased maintenance and more expensive downtime.

Up to 70%

THE PERCENTAGE OF TOTAL COST OF OWNERSHIP THAT COMES AFTER THE INITIAL PURCHASE.

At CommScope, we only deliver intelligent, efficient backhaul solutions. Every component is engineered to save you money where it matters – not only in the purchase, but in the costs that come after your initial investment. We help you realize long-term savings in reduced tower space, spectrum charges and maintenance costs. Best of all, you gain these savings while maximizing spectrum utilization and addressing ever-growing traffic demand.

## Your network's future needs a reliable backhaul strategy.

The new challenges presented by modern realities demand a fresh look at your network strategy, so you have the tools at your disposal to effectively deal with the conditions your network faces. That's where CommScope can help. With more than 75 years of innovation and leadership, we offer a full line of microwave backhaul solutions, manufactured to the highest engineering standards to work seamlessly together.

CommScope freely shares our expertise to deliver the ideal solution for your challenges, whether it's immediately boosting network capacity, planning a clear upgrade path for the future, or both – and with strategically-located manufacturing facilities across the globe, we can deliver those solutions when and where you need them, minimizing landed costs and lead times.

## Antennas for Future-Proof Networks.

Your network doesn't have much of a future if the antenna is obsolete before it's installed. If your backhaul solution is patched together from multiple manufacturers, network expansion or upgrades become expensive or impossible.

CommScope is a global leader in developing innovative solutions that meet your network's needs today while providing a reliable, cost-effective path for expansion and upgrades. Sentinel™ represents our latest advance toward these goals, and you owe it to yourself to see how Sentinel can transform the way you plan, build and upgrade your network.

**Let's have a conversation about where Sentinel can take your network. Contact your local CommScope sales representative or visit us online at [www.commscope.com/andrew](http://www.commscope.com/andrew).**

# We're proud to be a part of your network's story.

Here at CommScope, we embrace our role as a trusted resource, partner, and facilitator. We create the infrastructure that connects the world and evolves with every advance in technology. By investing all of our capabilities, resources, relationships, and products into your toughest challenges, we continue our long history of solving problems together—paving the way for new ideas and fresh ways of thinking.

We're a trusted resource and partner around the world because we're invested in you: your people, your networks, your success. It inspires us to build relationships and infrastructure... connect people and technologies across protocols, oceans, and time zones... and share what we learn along the way. We'll never stop connecting and evolving networks for the business of life at home, at work, and on the go.

**This is our promise to you.  
This is CommScope.**

## COMMSCOPE®

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### Looking for the Andrew flash?

As a valued Andrew Solutions customer, we'd like to thank you for your loyalty and business. As we celebrate 75 years of the Andrew brand, we realized that many customers have come to see the Andrew "flash" logo as synonymous with our long history of high-quality wireless solutions, dedicated service, and industry-leading innovation.



### The Andrew flash logo has changed. Our commitment to you is as strong as ever.

Over the years, our logo has evolved, just as our portfolio has evolved to better meet your network needs. As you may know, Andrew Solutions was acquired by CommScope in 2007. While CommScope serves many customers across multiple geographies and markets, some customers didn't realize the full breadth of our solutions. We soon realized that to tell a more unified story about who we are and what we do, we would need to better integrate the Andrew portfolio of wireless solutions into the CommScope brand.

So while you may no longer see the Andrew flash and colors on our letters, statements or products, you can still rely on the same strong tradition of Andrew quality, service and innovation you've come to expect—only now under the CommScope name and our new dynamic logo.



1943



1973



1984



2011