RF Path solutions for FirstNet networks

The first choice when network performance is critical

COMMSCOPE®

CommScope RF path solutions: First choice for FirstNet, the first responder network

When it comes to public safety, "good enough" doesn't cut it. As the FirstNet national first responder network builds out, ensuring optimal, failsafe, 24/7 performance is critical.

For public safety wireless service providers, FirstNet represents a unique technical challenge: to create a dedicated, hardened network that blankets the country and delivers peak performance during an emergency while also functioning as a robust commercial wireless network. To be ready for future technology advancements and population shifts, the network must also have the ability to scale up easily and cost-effectively as additional bands are needed.

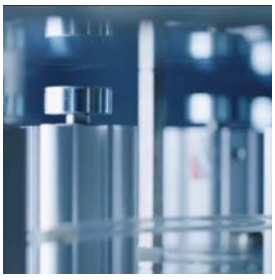
Essential to FirstNet's wireless network performance is the RF path: if the RF path equipment can't handle the increased coverage and capacity demands during an emergency, nothing else matters. With field-proven technologies and 70 years of combined RF path experience with legacy Andrew and Decibel Products brands, CommScope is committed to helping you get the best possible performance from FirstNet.

Whether upgrading to 4T4R or implementing 2T2R, CommScope offers multiband equipment designed and dynamically tested to help simplify complex architectures and achieve optimal PIM performance. By selecting CommScope RF path solutions, you can be confident in getting superior quality and high performance to meet first responder and wireless subscriber demands, today and in the future.

Simplify. Improve. Prepare for the future.

Equipment selection

- Use pre-tested, PIM-certified cable assemblies. Connector-related PIM is the most common form of interference.
- Many older devices (antennas, diplexers, and so forth) were not designed to meet today's higher PIM standards. Specify new, PIM-certified devices with weather-resistant connections.
- Verify that your suppliers' testing protocols include environmental stress screening and PIM testing in both static and dynamic conditions. Nothing is static at the top of a tower.



Base station antennas

Powerful, reliable base station antennas (BSAs) are central to the long-term success of the FirstNet system. CommScope BSA solutions for Band 14 include single- and dual-antenna approaches—suited for 4T4R as well as 2T4R and 2T2R configurations. The 12-port 20-inch wide design provides two low band arrays in a single radome. There are several options to select from for the dual-antenna approach, ranging from 6 to 12 ports with the 8-port, 14-inch wide multiband BSAs giving you the highest 4T4R flexibility—future ready for 4T4R MIMO on Band 5. The internal smart bias tees and diplexed arrays in the 14-inch design also give you independent beamtilt and a slimmer antenna profile for improved visual appeal. Choose from several families of CommScope base station antennas for your FirstNet network.

CommScope Antennas for FirstNet

4T4R antenna configuration	# of ports	Family
Dual-Antenna	6	SBNHH
Dual-Antenna	8	JAHH
Dual-Antenna	10	RV4PX
Dual-Antenna	12	JAH4
Dual-Antenna	12	SBJAH4
Single-Antenna	8	NNHH
Single-Antenna	12	NNH4

Tower-mounted amplifiers

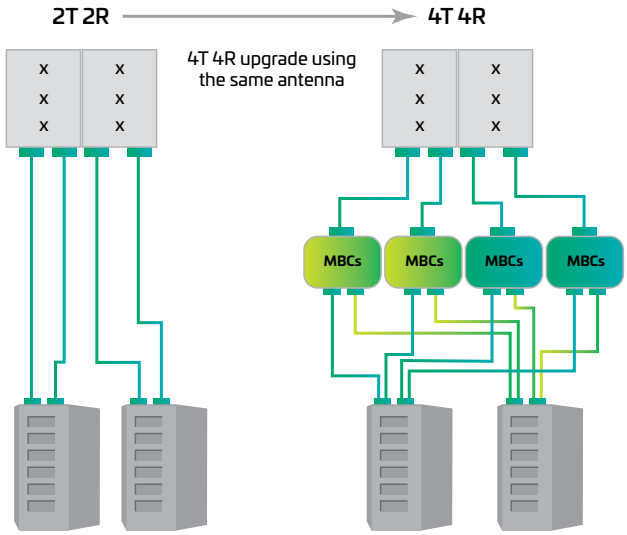
For an extra boost in uplink capacity at FirstNet sites with ground-based radios, go with CommScope high-performance tower-mounted amplifiers (TMAs). They deliver the best possible signal-to-noise ratio and enable the highest possible modulation scheme utilization. Select from a range of CommScope TMAs, all rigorously tested to ensure the highest quality and superior PIM performance.

CommScope tower mounted amplifiers (TMAs) for FirstNet

Band Type	Configuration	Diplexed	Bypass bands	TMA bands	Family
Triple Band	Twin	BTS/ANT	600/700/850	PCS/AWS/WCS	TMAT192123B68
Dual Band	Twin	BTS/ANT	600/700/850	PCS/AWS	TMAT1921
	Twin	BTS	600/700/850	PCS/WCS	TMAT1923
	Twin	BTS	600/700/850	AWS/WCS	TMAT21X23
Single Band	Twin	BTS	700/850	WCS	TMAT23 / TMAT23B
	Quad	BTS	700/850	WCS	TMAQ23 / TMAQ23B
	Single	BTS	850	PCS	E15S09P56
	Twin	BTS	700/850	PCS	E15S09P78

Multiband combiners

Whether you are adding new carriers or migrating to higher-order site architectures, CommScope's multiband combiners simplify the job and help you get the most from your spectrum investment with the highest level of assured PIM performance. Our smart designs offer auto-sensing and intelligent routing of AISG signals to the antenna to make installation easy. The universal mounting brackets also enable stacking combiners to make two-, four- and six-pack configurations to save space. A wide variety of CommScope multiband combiners are available.



CommScope multiband combiners for FirstNet

Frequency range (MHz)	Configuration	DC pass	Termination	Family
Diplexers				
698–894/1710–2360	Single and twin	DC sensing, SBT options available	7-16 DIN	CDX723A
380-960/1695-2690	Single and twin	DC sensing	4.3-10	CBC426
555–960/1695–2690	Compact twin	DC pass on low band	4.3-10	CBC626
698–803/824–894	Single and twin	DC sensing	4.3-10	CBC78
Triplexers				
698–798/824–894/1695–2360	Single and twin	DC sensing	7-16 DIN and 4.3-10	CBC7823
698–894/1850–1990/1710–1755 & 2110–2155	Single and twin	DC pass	7-16 DIN	CBC71921
555–894/1850–1990/1695–1780 & 2110–2200	Single and twin	DC sensing	7-16 DIN	CBC61921Y
555-894/1850-1990/1695-1780 & 2110-2200/2305-2360	Single and twin	DC sensing	4.3-10	CBC61923
Quadplexers				
700/800/PCS/AWS	Single and twin	DC sensing	7-16 DIN	CBC781921W
700/850/AWS-PCS/WCS	Single and twin	DC sensing	7-16 DIN	CBC782123
555–894/PCS/AWS/WCS	Single and twin	DC sensing	7-16 DIN	CBC6192123
Pentaplexers				
698–798/824–894/ PCS/AWS/WCS	Single and twin	DC sensing	7-16 DIN	CBC78192123

HELIAX® SureFlex® D-CLASS™ jumpers

Minimizing PIM is critical to FirstNet performance. While most manufacturers test their jumpers for PIM caused by static factors, CommScope HELIAX D-CLASS jumpers are also tested for PIM caused by dynamic factors. Each jumper is individually tested to meet -162 dBc (-119 dBm) PIM with 4.3-10 connectors, and -159 dBc (-116 dBm) with DIN. D-CLASS jumpers are available with the latest 4.3-10 series connectors or traditional DIN connectors, and feature the proven, patented SureFlex designs, already installed on the world's highest-performing wireless networks. And every jumper is backed by the HELIAX 10-year warranty.

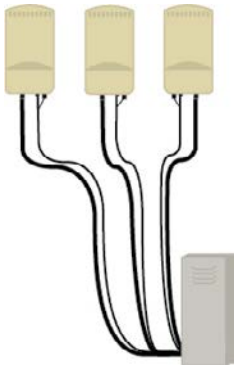
CommScope D-CLASS cable assemblies for FirstNet

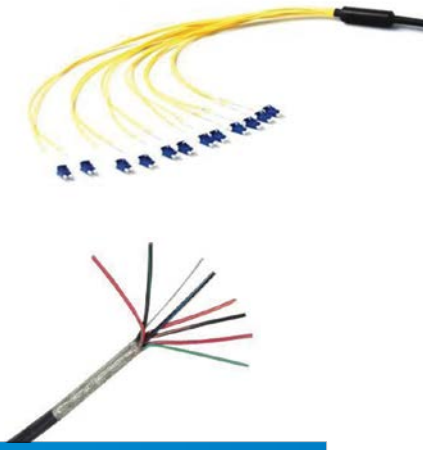
Dynamic PIM cable assemblies with superflexible 1/2-Inch FSJ4-50B cable		
Terminations	**Available lengths (ft)**	**Family**
4.3-10 male to 7-16 DIN male	2, 4, 6, 8, 10, 12, 15, 20, 25, 30	F4-HMDM
4.3-10 male right angle to 7-16 DIN male	10, 15, 20, 25, 30	F4-HRDM
4.3-10 male to 7-16 DIN male right angle	10, 15, 20, 25, 30	F4-HMDR
4.3-10 male to 4.3-10 male	2, 3, 4, 6, 8, 10, 12, 15, 20, 25, 30	F4-HMHM
4.3-10 male right angle to 4.3-10 male right angle	10, 15, 20, 25, 30	F4-HRHR
Dynamic PIM cable assemblies with standard 1/2-Inch LDF4-50A cable		
4.3-10 male to 7-16 DIN male	3, 4, 6, 8, 10, 12, 15, 20, 25, 30	L4-HMDM*
4.3-10 male right angle to 7-16 DIN male	6, 8, 10, 15, 20	L4-HRDM
4.3-10 male to 7-16 DIN male right angle	6, 8, 10, 15, 20	L4-HMDR
4.3-10 male to 4.3-10 male	3, 4, 6, 8, 10, 12, 15, 20, 25, 30	L4-HMHM*
4.3-10 male right angle to 4.3-10 male right angle	6, 8, 10, 15, 20	L4-HRHR

*Available with SureGuard weatherproofing

HELIAX® FiberFeed® power cables and standard jumpers

HELIAX FiberFeed solutions include a selection of fiber trunks, power cables and fiber jumpers that are ideal for new FirstNet site builds or replacing poorly performing or damaged cables. Assembled from high-grade components and 100 percent factory tested, CommScope's power and fiber cables meet or exceed the requirements of the original RRU manufacturer and provide long, reliable service.





CommScope fiber cable products for FirstNet

Fiber count	Available lengths (m)	Family
Trunked fiber cables		
36-Fiber, 18-pair	15, 30, 50, 60, 75, 100, 125, 150, 175, 200	RFFT-36SM-001
12-Fiber, 6-pair	15, 30, 50, 60, 75, 100, 125, 150, 175, 200	RFFT-12SM-001
Fiber jumpers – singlemode ruggedized		
2-Fiber	0.75, 1, 5, 7.5, 10, 20, 35, 50, 75, 100, 125, 150, 175, 200	FJ-2SM-015
4-Fiber	1, 5, 7.5, 10, 20, 35, 50, 75, 100, 125, 150, 175, 200	FJ-4SM-008
Fiber jumpers – singlemode armored		
2-Fiber	0.75, 1, 2, 5, 7.5, 10, 20	FJ-2SM-015A
Fiber jumpers – dual LC low profile		
2-Fiber	0.75, 1, 5, 7.5, 10, 20, 35, 50, 75, 100, 125, 150, 175, 200	FJ-2SM-015F
Fiber jumpers – singlemode Ericsson RRUW		
2-Fiber	5, 10, 20, 35, 50, 75, 100, 125, 150, 175, 200	FJ-2SM-003

CommScope DC Power Cables for FirstNet

Conductor count and color	**Available cable gauge (AWG)**	**Family**
6-Conductor, multicolor	6, 8	PWRT-6
2-Conductor, red and white	8, 10, 12	PWRT-2

Tools and accessories

Clean, secure and weatherproofed cable installations are essential for protecting the first responder network from the environment and signal interference that can severely impact network performance. CommScope has the right tools and accessories to secure and protect both coaxial and fiber cable connections while also enabling precise, fast and efficient installation. For helpful information in choosing the right tools, view this matrix.

- Cable hangers
- Grounding
- Cable entry
- Weatherproofing
- Installation tools

CommScope pushes the boundaries of communications technology with game-changing ideas and ground-breaking discoveries that spark profound human achievement.
We collaborate with our customers and partners to design, create and build the world's most advanced networks. It is our passion and commitment to identify the next opportunity and realize a better tomorrow. Discover more at commscope.com

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Visit our website or contact your local CommScope representative for more information.

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