

Clearfield and ConcealFab Project Partnership Wins mmW 5G Pole-Attached Concealment Orders, Incorporating an Extremely Compact Fiber-Optic Cassette

Background

ConcealFab designs and manufactures innovative RF transparent cell-site equipment enclosures that optimize performance while paying special attention to over-all size and aesthetics.

The company supports all cellular network markets with its diverse offering of infrastructure solutions such as Concealment Poles, Antenna Mounts, and a full line of PIM Mitigation products.

Any ancillary equipment used in mmW 5G Pole-Attached Concealment Enclosures is required to be durable and have small form-factors, which allow for easy integration.

"This mmW 5G Pole-Attached Concealment project is a shining example of having a technical need met by a vendor that participated much more like a project partner. Clearfield did exactly what they said they would do, when they said they would do it. ConcealFab was the first company to fully meet the market's aesthetic design intent as well as the carrier's technical requirements enabling us to win the orders!"

— William "Doc" Pounds, Executive VP - Technical Fellow at ConcealFab

Challenge

ConcealFab's dilemma involved a major US carrier with market-specific requirements. The project had fixed maximum physical dimensions firmly set by the local jurisdiction. Cellular and electrical power equipment deployed by the carrier was required to fit entirely within the shroud and unsightly wires hidden from view.

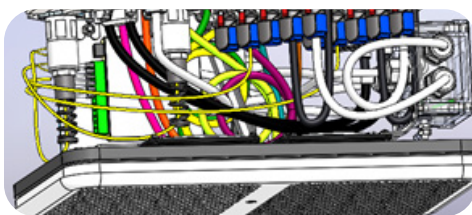
In addition to providing concealment, the enclosure itself was a central figure in the RF solution. The sites provided extremely high cellular data rates and operated at a frequency of 38 GHz. Located inside instead of on the pole top, the antennas needed to radiate in a full 360° of azimuth. The enclosure wall material and color coating employed was scientifically considered with stringent empirical testing completed prior to customer acceptance.

Having a very short timeline presented another complication as each carrier wanted their 5G system deployed and operational as quickly as possible.



Clearfield customized a mini breakout cassette for ConcealFab's mmW 5G Pole-Attached Concealment project.

Solution



This 3D model snapshot shows the tightness of the available space. Clearfield's fiber-optic cassette is the vertical green bar on the lower left of the back panel.

ConcealFab contacted Clearfield's sales team during the design phase to see if they had an off-the-shelf fiber-optic cassette meeting the extremely small form factor necessary to fit into the limited space left over after radios, fans and power equipment were installed within the enclosure.

However, none of their existing products fit the strict spatial restrictions. Further discussion revealed the basic functional elements that made up their current fiber-optic cassette line would, in fact, work.

"This was encouraging because the possibility of a custom Clearfield fiber-optic cassette mechanical solution was discussed and sketched out in a single afternoon meeting," said William "Doc" Pounds, Executive VP - Technical Fellow at ConcealFab. "Clearfield promised to have a prototype in my hands within six weeks."

Pounds provided a drawing showing where the input MPO connector needed to be located to accept the fiber from the street. The locations of the six UPC/LC dual fiber output connectors were also arranged for optimal ease of installation, field servicing and testing.

"I even asked to have specifically located mounting holes so we would not have to modify our existing back panel design," said Pounds. "Besides the fiber-optic cassettes, the end customer specified that we use Clearfield cable assemblies since they were an approved vendor for this national cell-service carrier."

Clearfield then worked to solve the design challenge.

"While we were familiar with the density requirement of the adapters and MPO, the package size was quite compact in terms of internal fiber management," said Johnny Hill, Chief Operating Officer at Clearfield. "We needed to ensure a proper route storage path to maintain fiber integrity through the thermal exchanges that the device would experience in an unconditioned environment."

As promised, six weeks later a customized, fully functional fiber-optic cassette arrived from Clearfield and was installed. Both single and dual fiber-optic cable assemblies were attached and the prototype was immediately sent to the carrier's research and development team for field evaluation.

Result

"This mmW 5G Pole-Attached Concealment project is a shining example of having a technical need met by a vendor that participated much more like a project partner," said Pounds. "Clearfield did exactly what they said they would do, when they said they would do it. ConcealFab was the first company to fully meet the market's aesthetic design intent as well as the carrier's technical requirements enabling us to win the orders!"

About ConcealFab

ConcealFab is a privately held Inc. 5000 company headquartered in Colorado Springs, CO. We engineer and manufacture infrastructure mounting and concealment solutions for Sub 6 and mmW 5G deployments as well as products that minimize passive intermodulation (PIM). ConcealFab's resounding success and rapid growth result from our partnerships with Component Suppliers, Operators, Utilities, and multi-billion-dollar OEM's. For more information, visit www.concealfab.com.

About Clearfield, Inc.

Clearfield, Inc. (NASDAQ: CLFD) designs, manufactures, and distributes fiber optic management, protection, and delivery products for communications networks. Our "fiber to anywhere" platform serves the unique requirements of leading incumbent local exchange carriers (traditional carriers), competitive local exchange carriers (alternative carriers), and MSO / cable TV companies, while also catering to the broadband needs of the utility / municipality, enterprise, data center and military markets. Headquartered in Minneapolis, MN, Clearfield deploys more than a million fiber ports each year. For more information, visit www.SeeClearfield.com or @ClearfieldFiber.

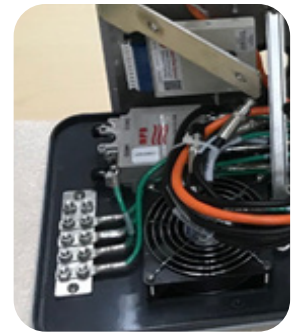


Photo taken during the assembly process. No radios are installed yet, but it shows where Clearfield's fiber-optic cassette is located (within the shroud on the lower-left rear wall near the pole).