



CORNING

# Four Things to Consider

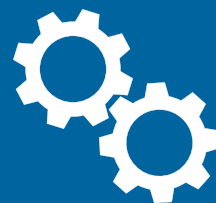
## Before Shopping for a **Distributed Antenna System (DAS)**

For enterprise buyers, addressing the cellular service needs of employees, guests, and contractors can be a complicated undertaking. Challenges may include understanding cellular vs. enterprise terminology and technology, navigating complex vendor and systems-integration relationships, and managing the involvement of mobile operators. This article can help enterprise IT professionals prepare for upcoming conversations with systems integrators, technology suppliers, and mobile operators by asking themselves the right questions.



## What mobile operator coverage do I need in my building?

Begin with what type of facility you are trying to improve. Hospitals, enterprise buildings, airports, higher-education campuses, and other facility types all have unique demands and requirements. For example, enterprise facilities—typically 100,000- to 500,000-square-foot buildings occupied by employees, contractors, and their guests—have more flexibility around the mobile operator decision. If the enterprise has a corporate contract with one mobile operator, it may be practical to support that operator exclusively. On the other hand, a public venue usually requires the three U.S. national mobile operators and possibly a regional operator. Every enterprise is different, so we suggest that IT decision makers identify which operators are mandatory or optional.



### Tech advice:

The number of mobile operators needed influences the decision point of selecting a single operator system, such as enterprise **indoor small cells** or a multi-operator DAS. This decision can impact the overall cost of the project.

## What are the building sizes and coverage areas?

This information is critical in ensuring the system meets your desired goals in locations targeted for service improvements. In advance of a project, enterprise IT should determine:

- If this is a campus project, how many buildings will be included?
- How large is the building (or buildings)?
- Are there subbasements and/or parking structures?

Projects involving multiple buildings and areas like subbasements or parking may have special requirements such as extra interfaces, underground fiber capacity, or outdoor housings that need to be considered with vendors. When designing and costing the project, it is more cost-effective to have these components outlined in the initial quote.



### Tech advice:

Fully scoping projects enables the best design to be created in advance. It also

promotes collaboration with solutions providers on executing the total project in stages if funding can't be allocated in the same fiscal year.

# 2

# 3



## Tech advice:

The required headend radio capacity needed to drive a DAS is related to the

number of subscribers attached to each radio. The assumptions above govern the amount of square footage each radio can comfortably accommodate. This determines the type and number of radios that will be required to provide sufficient capacity and coverage. Density changes over time also favor software-driven DAS because reconfiguration via network management system is faster and more cost effective than opening the ceilings and recabling sections of the DAS itself.

## What is the density of subscribers (mobile users per square foot)?

Employees of U.S.-based enterprises, on average, occupy about 200 square feet, composed of workspace plus a portion of communal areas. Everyone has at least one mobile device and some may have two (personal and work). The design of a system is greatly influenced by the density of subscribers and by operator and needs to be developed as part of the preparation process. Subscriber density assumptions can be based on one of the following:

1. Every person within the enterprise has a contract phone from one mobile operator. Adopt this assumption if an enterprise contract exists or there is only one mobile operator requiring indoor improvement.
2. All guests or tenants in large venues or commercial real estate must be supported. Considering the one-third market share distribution model, enterprise adoption assumes that the business supports all mobile operators, regardless of enterprise mobility contracts.

## What are the performance goals?

Determining performance goals and identifying underlying assumptions early in the process are key factors in success. Determine the issues you are currently having. Examples include calls dropping when employees are on the move or business apps slowing down and crashing. The design and implementation of a solution should contribute to measurable goals.

Potential performance metrics include:

- Speed and latency – both are vital to device owner experience
- Call drops – both within the building and entering/exiting
- Capacity usage – backhaul network link, radios, and DAS

Attaching metrics to performance goals and working with the selected systems integrator on a measurement process for system acceptance is vital. Additionally, long-term monitoring can ensure the enterprise IT owner achieves the performance they expect.



### Tech advice:

Designing to achieve performance goals while balancing costs takes a seasoned

engineer and the right technology choices. The enterprise IT team owns many of the decisions, but the solutions provider helps make those decisions real via technology and design. Ideally, enterprises develop a long-term relationship with a selected cellular technology and solutions provider, as cellular networks are continually evolving. The indoor cellular/DAS network must evolve in sync with the outdoor networks. Choosing a stable and reliable company with a strong history of service and support is critical.

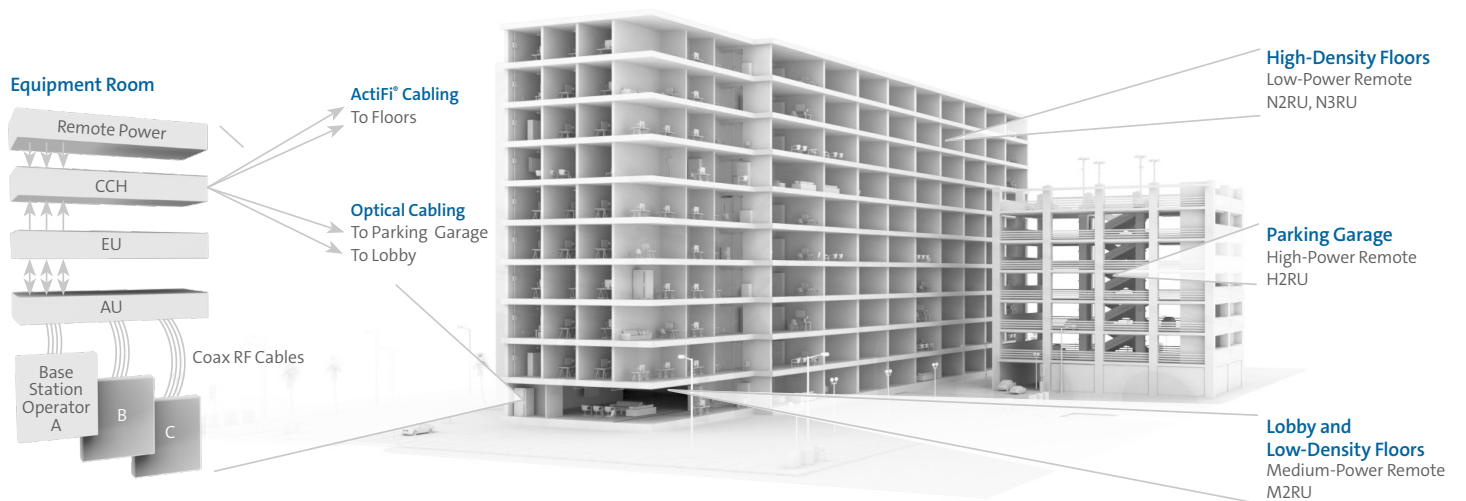
Projects that involve cellular technology are complex. These projects involve enterprise IT/telecom professionals making decisions that are difficult to get right without the proper information and a trusted solutions integrator and technology supplier. This list of four things to know before starting a large project provides a simple framework that we hope helps you open conversation with potential solutions integrators and technology suppliers.





## THE CORNING EVERON™ 6200 DAS for enterprise

- **Fiber-to-the-edge infrastructure** reduces complexity and enables future wideband mobility applications.
- **Technology-agnostic approach** to LTE and 5G modulation and future-ready to support new bands such as CBRS and C-band.
- **Reduced headend complexity** means faster installation.
- **Flexible family of remotes** lets engineers design a system that meets each site's unique needs.





**Low-Power Remote (N2RU, N3RU)**



**High-Power Remote (H2RU)**



**Medium-Power Remote (M2RU)**

<b>Best Usage</b>	Indoor high capacity	Outdoor coverage	Indoor/outdoor coverage
<b>Installation</b>	Pole, wall, ceiling	Wall or pole	Pole, wall, rack
<b>Antenna Requirement</b>	Internal/External (SISO or MIMO)	External (SISO or MIMO)	External (SISO or MIMO)
<b>RF Power Output</b>	17 dBm (< 1 GHz) and 20 dBm (> 1 GHz) total	43 dBm per carrier	37 dBm per carrier
<b>Outdoor Installation</b>	NO (IP30 rated)	YES (IP65-rated enclosure)	YES (IP67-rated enclosure)
<b>LTE/5G-NR Frequency Bands</b>	600 MHz (71), 700L (12), 700U (13), FirstNet (14), 800/850 (26), PCS (25), AWS (66), WCS (30), 2.5 GHz (41), 3600 (48), 3700 (77)	600 MHz (71), 800/850 (26), PCS (25), AWS (66), WCS (30), 2.5 GHz (41)	PCS (25), AWS (66), 2.5 GHz (41), 3600 (48), 3700 (77)
<b>CBRS/C-Band Ready</b>	YES	NO (outdoor product)	YES
<b>Corning Remote Power/ Composite Cable</b>	YES	NO (uses local AC or 48VDC)	YES (or uses local AC or 48 VDC)

## System Components

### Corning® Everon™ 6200 DAS Remote Powering

- ActiFi® Composite Cable
- Copper conductors carry remote power and optical fibers carry multioperator cellular signal traffic
- One composite cable pull needed per N2RU

### Closet Cassette Housing (CCH)

- Termination for all composite cabling for N2RUs
- Optical and power patching integrated in same housing

### N2RU Interconnection Technology Remote Power

- Inserts power into composite cables for all attached N2RUs
- Installed either adjacent to AU/EU or in the telecommunication room of each floor that has N2RUs

### Connecting Fiber-to-the-Edge Remotes

- N2RU uses ActiFi composite cable for both power and data
- M2RU and H2RU uses optical cable for data plus a local power source



CORNING

Learn more about the new Corning® Everon™ 6200 DAS at  
[www.corning.com/6200DAS](http://www.corning.com/6200DAS)

Corning Optical Communications LLC • 4200 Corning Place • Charlotte, NC 28216 USA  
800-743-2675 • FAX: 828-325-5060 • International: +1-828-901-5000 • [www.corning.com/opcomm](http://www.corning.com/opcomm)

Corning Optical Communications reserves the right to improve, enhance, and modify the features and specifications of Corning Optical Communications products without prior notification. A complete listing of the trademarks of Corning Optical Communications is available at [www.corning.com/opcomm/trademarks](http://www.corning.com/opcomm/trademarks). All other trademarks are the properties of their respective owners. Corning Optical Communications is ISO 9001 certified. © 2022 Corning Optical Communications. All rights reserved. LAN-3036-AEN / September 2022