

# The Facility Manager's Guide To

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## DAS INSTALLATION: Getting It Right The First Time



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# Table of Contents

3	Introduction
4	Cell Phone Reception Problems Your DAS Should Solve
4	<i>Business Concerns</i>
5	<i>Safety Problems</i>
6	Costly DAS Installation Mistakes You Can't Afford to Make
6	<i>Skipping Due Diligence Regarding Carrier- and FCC-Approved Equipment</i>
6	<i>Neglecting Carrier Coordination</i>
7	<i>Not Planning for the Future</i>
8	What to Look For When Selecting a DAS Provider
8	<i>Multiple Vendor Equipment Certifications</i>
8	<i>Carrier Neutrality</i>
9	<i>Turn-key Services</i>
9	<i>Superior Customer Service</i>
10	<i>References and Company History</i>
11	Working with Harris Communications
11	<i>Step One: Site Survey</i>
11	<i>Step Two: Budgetary Design</i>
12	<i>Step Three: Order Equipment</i>
12	<i>Step Four: Schedule Installation</i>
12	<i>Step Five: Close-Out Package</i>
13	<i>Step Six: Optional Service Agreement</i>
13	<i>Step Seven: Enjoy Trouble-Free Service</i>
14	Get Started Today
14	About Harris Communications

# Introduction

Installing a DAS (Distributed Antenna System) is a significant investment, and you expect it to effectively solve the problems associated with poor cell phone reception inside your building or campus. The most common cell signal concerns are either safety-related or business-related, and a good DAS installation addresses both.

Unfortunately, a poor DAS installation can cause more problems than it solves, and create costly headaches for the building operator. In the course of installing commercial DAS systems since 2002, we at Harris Communications have seen a lot of expensive mistakes made by unethical or inexperienced installers, and we've fixed a lot of them for our clients.

We can't recover the lost capital our clients threw away on a previous poor installation, but we can help you ensure you don't make those mistakes to begin with. We've pulled our expertise together in this guide to help building operators and owners get the results they expect from their DAS installation.

In these pages, we explore the most common cell phone reception problems solved by DAS, the biggest mistakes you must avoid, what to look for when selecting a DAS installation provider, and finally exactly what you can expect when working with a quality provider like Harris Communications.



# Cell Phone Reception Problems Your DAS Should Solve

Cell phone disruption can be a major problem for businesses, hospitals, schools and anyone operating a public or commercial space. Here are the most common cell phone reception problems that can be resolved by a good DAS installation:

## Business Concerns

Whether the business is B2B or B2C, poor cell phone reception impacts productivity, sales, and relationships.

- 92% of B2B executives use a smart phone to conduct business.<sup>1</sup>
- Cell phones have taken over landlines as a primary form of communication, even when sitting at a desk.<sup>2</sup> They are vital to employee success in ways that were unimaginable even 15 years ago.
- Dropped calls can bring important business meetings and sales conversations to a screeching halt.
- Unreachable team members may not receive notifications when clients or prospects arrive for meetings.
- Mobile devices, many of which depend on a cell signal, exceeded laptop usage in 2014.<sup>3</sup>

In addition to these tangible business concerns, poor cell phone reception can wreak havoc in less obvious ways. For instance, a poor cell phone signal causes phones to “turn themselves up” in order to find that distant signal—thus depleting batteries quickly and leading to additional costs and complaints.

For hotels and convention centers, the stakes are equally high. Conference attendees must be able to communicate with colleagues throughout the day. In many cases, they may want to Tweet or otherwise use social media to discuss their experience while they’re in meetings and events. Without a strong cell signal, these venues risk losing popularity as business event sites—and therefore damage their ability to book events and maintain strong pricing.

## Safety Problems

Beyond day-to-day practical concerns, buildings and campuses that lack good cell reception also create major safety hazards for their tenants. In the event of an emergency, people who are inside buildings without cell phone reception may not receive the news in time to take appropriate action. Students in classes, residents in care facilities, and employees in warehouses are among the most vulnerable in this case.

Furthermore, while emergency responders don't require public cell phone access, they do need access to the frequencies emitted by public safety towers. Thick walls and modern "green" construction materials can block these signals right along with the public cell signals, creating conditions wherein first responders may not be able to communicate during an emergency.

Other safety concerns include problems caused inside clinical facilities when family members can't access cell phone signals from a loved one's room. This has several consequences. On the one hand, it can be emotionally difficult for a family member to leave the loved one's side in order to communicate with additional family. It may force them to have delicate personal conversations in public spaces. On the other, it causes a very practical hazard in the form of families gathering in the lobby or other area where cell signals are stronger, and creating a bottleneck that can interfere with the staff's ability to respond to patient needs.

Another issue we've seen arise in recent years occurs inside newly built college residential facilities. Because students rarely use them, most colleges are opting not to install landlines in these facilities. As a result, cell phones are a student's only link to family and friends. In the event of an emergency, such as an intruder, these students can be completely unable to call for help if they can't get a clear signal.

Even in facilities where the cell signal is available, if it is not strong, it may go down altogether in the event of an emergency, when too many people try to access it simultaneously.

Obviously, if your building is subject to any of these problems, you are right to expect your DAS system to solve them. Next, let's explore some costly mistakes that building operators often make.

# Costly DAS Installation Mistakes You Can't Afford to Make

## Skipping Due Diligence Regarding Carrier - And FCC - Approved Equipment

Many building owners and operators understandably don't realize that there is a big difference between the equipment used in homes to boost cell signals and the equipment required to achieve the same end at an enterprise level. Less understandably, some DAS installers also don't seem to realize this difference, and it can cause massive problems for the building owners and operators.

Inexperienced or unethical DAS installation companies looking for a big profit will sometimes purchase equipment that is not appropriate for commercial use, and convince unwary building operators to pay them to install it at vastly inflated prices. As if this were not insult enough, the worst problem is that often this equipment is not approved by the carriers or the FCC.

Un-approved equipment can lead to fines from both the FCC and the carriers, plus a cease-and-desist that renders your expensive installation completely useless.

Don't assume that just because you're paying a high price and purchasing from a company with a nice website that you are getting approved equipment. Ask to see confirmation from the carriers and the FCC that the specific equipment installed on your site is approved, and check that it is legitimate before signing a contract or paying an invoice.

## Neglecting Carrier Coordination

Even if the equipment itself is carrier-approved, that doesn't guarantee that your installation is. Why does that matter? Because when your system goes live, it's going to have an impact on the carrier macro network —that is, it's going to get noticed by the cell towers in your neighborhood. And if the carriers haven't approved your installation, there's a good chance they're going to shut you down.

This may seem Draconian, but the fact is that the carriers invest millions of dollars in ensuring that their signals are clear and strong in any given area. When a major DAS installation goes live, it can create "noise" in the larger environment that interferes with

the carrier's ability to deliver a clear and strong signal to the areas they've worked so hard to reach. This does not make them happy, and the FCC supports the carrier. If the carriers have a problem with your installation, the FCC will too.

Sadly, this means that no matter how much you've invested in your system, it could become at best a money pit and at worst a complete loss. Fortunately, in most cases the carriers are great to work with if you involve them in the process from the start and demonstrate an understanding and respect for their needs. An experienced DAS installer will know what the carriers want to see in order to approve a system, and will coordinate with them from the beginning to ensure the installation meets their criteria and gets that all-important carrier stamp of approval.

## Not Planning For The Future

Unless you've been hiding under a rock, it won't be news to you that technology continues to move forward at a pace faster than it ever has in history. For computers and cell phones and other portable devices, this pace of progress means having to replace equipment regularly. For an installation like a DAS, however, the progress means that your massive investment could become obsolete very quickly—possibly before you've finished paying for it.

Fortunately, there are steps you can take to ensure your installation is as robust and upgradeable as possible. For a start, don't let your installer purchase equipment that is already a year or two old. It may not seem like a big deal to not be able to access 4G inside the building, but what happens when the technology becomes 5G and beyond? Your equipment is already outdated, and will only continue to be come more so.

Further, don't hire a company that is planning to cut corners. You want to invest in the most robust, up-to-date equipment possible, with the best quality installation designed with the ability to upgrade in mind. No technology is 100% "future proof" so make sure your installation is built in such a manner that upgrades can be added without significant trauma.

Finally, ask your installer to provide a detailed map of the installation, and then file it safely where it can be found readily. In the event of repairs and updates, you want the team to be able to find everything quickly and understand what each part of the system is there for.

# What To Look For When Selecing A DAS Provider

A good DAS installation partner will help you avoid common mistakes and provide a solution that will serve your needs for many years to come. While it may be tempting to choose a provider based primarily on cost or speed of implementation, this can be an expensive mistake. To ensure a quality installation, here are the key factors you'll want to consider:

## Multiple Vendor Equipment Certifications

All major manufacturers of high quality DAS equipment offer certifications for their products. Because each piece of equipment is complex and operates differently from other brands of product, it's important that the installer hold certifications for all equipment that they install and support.

It's also important to note that every building represents a unique situation, and a good installation will be tailored to fit. No single manufacturer makes exactly the right equipment for every building. For this reason, it's important to look for an installer with certifications in a wide range of manufacturers, to ensure that they can choose the right equipment for your specific situation.

## Carrier Neutrality

Most carriers—such as Verizon, AT&T, and T-Mobile—offer DAS installation services. Though they are often offered with seemingly attractive terms, these solutions are rarely, if ever, a good choice. The first problem with a carrier-specific solution is that it will provide access only for devices that use that specific carrier. Any employee, visitor, or resident who chooses another carrier will be unable to use their cell phone in your building. Worse, if at some point you decide to sign a contract with another carrier, your DAS installation will become completely useless.

Look for a DAS installation company that is carrier-neutral, and that maintains positive relationships with all the carriers. You want them to be able to negotiate approvals with all the carriers so that you and your visitors will always be able to use cell phones in the building.



## Turn-Key Services

Unfortunately, not all DAS installers provide everything you need to get up and running. Some unethical providers will simply purchase cheap equipment off the Internet, install it in your building in an amateur fashion, and then leave you to clean up the resulting mess of carrier fines, lack of functionality, and wasted time.

Look for a provider that offers turnkey services from site survey to design, carrier approvals, implementation, programming, and close-out packages. The site survey should include a review of both internal conditions and external conditions (for instance, how far and in what direction the nearest cell phone towers are, which parts of the building may provide the biggest challenges in delivering cell signal, etc.). The plan should be based on the site survey and your stated needs. (For instance, do you need the cell signal in the elevator? What about in the basement?) And the implementation and programming should be carried out by employees of the installer, and not sub-contracted out to another organization that may not respect your needs or may perform sub-standard work.

At the end of the installation, the provider should offer a close-out package containing detailed maps of the entire installation, annotated in such a manner that service personnel and future installers can readily understand every aspect of the installation and effectively service, inspect, or update it.

Many good providers also offer service packages that can help you plan and control maintenance costs.

## Superior Customer Service

While the actual installation takes only weeks or months to complete, the quality of service you receive will affect your organization's prosperity far into the future. Look for an installer with a pristine service record and a commitment to a partnership approach. They should be willing to return calls promptly, discuss your questions and concerns patiently, and back their work with service level agreements and warranties.

## References And Company History

Don't take the provider's word for it. Ask each provider for references and/or reference letters. Inquire as to whether they've completed work in similar environments. For instance, health facilities require specific safety precautions that are different from those required in a commercial office building. Your DAS provider should understand these intricacies and be able to provide references in your industry.

In addition to references, check how long the company has been in business and providing DAS services. Experience, industry knowledge, and financial stability are often reflected in longevity. A company that has only been around for a few years is unlikely to have the right tools, training, and expertise in place to provide a quality installation in a large commercial setting. Look for a minimum of 10 years experience with any integrator.

# Working With Harris Communications

At Harris Communications, we've been installing commercial DAS systems since 2002. We are totally committed to serving our customers with the best quality and service available. Our step-by-step delivery approach is designed to ensure our customers get the absolute best value for their investment. When you engage with Harris Communications, here is what you can expect:

## Step One: Site Survey

When you call Harris Communications, we'll discuss your situation and your needs and, if desired, provide you with a ballpark range of estimated cost. Then we'll swing into action to schedule a site survey. The survey is non-intrusive and provided at a minimum cost to your company. It will provide our team the information we need to design a system that meets your needs.

One of our installation design experts will visit your facility. We'll inspect interior features including structural design, materials, and floor plan. We'll note areas that will provide particular challenges and/or require extra attention. We'll also review external features including the proximity of cell phone towers, direction, and line of sight, all of which will play a significant role in the type of equipment your location will require in order to capture a strong signal and propagate it through your building. We'll capture signal readings too, and bring all this information back to our design team.

## Step Two: Budgetary Design

Many factors come into play in determining the cost of a DAS installation, including strength of available signal, proximity to other buildings with DAS systems, population density, and building structure and materials. Some factors that affect cost are variable according to the customer's needs and budget. For instance, delivering signal into elevators and stairwells can be costly, and choosing to forgo these can lead to a lower budget. During step two, our design team will be in touch with your team to create a design that meets your needs and set budget expectations.

This stage is also when we begin leveraging our relationships with each of the carriers to coordinate a design that meets their approval. Because we understand their needs and work with them regularly, we know how to create a design that will nearly always meet approval. In situations where the carrier requests a change, we incorporate those

changes into the design from this early stage so that we know from the start that the design fits everyone's needs.

### Step Three: Order Equipment

Once your design has been approved by the carriers as well as by your facility management team, we'll sign the service contract and order your equipment as soon as a purchase order is received. In addition to holding certifications from a wide range of manufacturers, we maintain strong relationships with the manufacturers to ensure we get the best prices, and access to in-stock equipment when possible. Even so, equipment is frequently custom-made and can take four to six weeks to arrive.

### Step Four: Schedule Installation

Once we have a delivery date available on all equipment, we'll schedule your installation. The installation itself generally goes very quickly. As an example, a 200,000-square-foot office building may require from one to two weeks for completion.

Our team is experienced in ensuring installations are as low-impact as possible. We design our installation process to ensure our work does not interfere with business operations. While this is true for all types of buildings, we are especially proud of our record and experience in meeting the needs of healthcare facilities, where we meet and exceed infectious control requirements and conduct our work in accordance with OSHA and HIPAA regulations.

### Step Five: Close-Out Package

Once your installation is complete, we test all major components to ensure the system is operating according to plans. Every installation comes with a satisfaction guarantee, and all equipment comes with warranties.

After the installation has been quality assured, we provide your team with detailed maps and notes on the installation, to ensure maintenance and updates can be performed with very low impact to your daily operations.

### Step Six: Optional Service Agreement

Once your DAS system is in place, there is no ongoing cost to owning it. A well-designed system is likely to function for many years. However, some companies enjoy the peace of mind that accompanies knowing they've got an on-call service team for regular

maintenance and repair. Our service agreements provide that plus the knowledge that your service team knows your system intimately. We'll go over your service agreement options during the close-out process.

### Step Seven: Enjoy Reliable Service

Our DAS customers love the quality and the hassle-free aspect of our installations. We have customers who are still happily using systems we installed more than 10 years ago. A great installation gives you peace of mind and consistent cell phone reception. And because of our long-term commitment to this industry, you will always know that we are simply a phone call away should you need updates or service.

## Get Started Today

To find out what it will take to get a quality DAS installation in your building or on your campus, contact us today at [1-803-980-3067](tel:1-803-980-3067) or [info@harriscommunications.com](mailto:info@harriscommunications.com). We'll gladly discuss your needs and help you toward your goals.

## About Harris Communications

Since 1992, Harris Communications' team of highly skilled designers, engineers and installers has served clients throughout the United States. Harris Communications provides a turnkey solution for in-building DAS, backed by professional installations and reliable products like a cell repeater and wireless extender. We are able to boost your cell phone's signal with our custom designed in-building distributed antenna systems (DAS). Ensuring that your employees, clients, and customers experience better cell phone reception as a result of relying on our skilled technicians.

We serve the entire continental United States, including North Carolina, South Carolina, Florida, Indiana, Ohio, Pennsylvania, Tennessee, Virginia, New York, Kentucky, Alabama, and Mississippi, and can help businesses improve their cell phone receptions with in-building DAS systems.

By using small antennas, cellular repeaters, central controllers and various state-of-the-art equipment, we ensure that you have a strong signal throughout your facility. Commonly found in healthcare institutions, manufacturing facilities, universities, large retail stores, and office complexes, our in-building DAS systems allow uninterrupted wireless reception.

Harris Communications increases your company's productivity while adhering to established industry standards.

Call us at [1-803-980-3067](tel:1-803-980-3067) and we will get some information out to you.



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