DAS Distributed Antenna Systems

A SAFE SOLUTION FOR MEETING THE WIRELESS COVERAGE NEEDS OF YOUR COMMUNITY
Everyone understands the frustration of a dropped call or missing an important text or email due to lack of signal. Our world has evolved, and we depend on wireless broadband and cellular services to enable many of our vital daily activities. Distributed Antenna System (DAS) networks deliver outstanding connectivity with minimal visual impact on the surrounding communities.

American Tower designs, builds, owns, operates and maintains complete DAS solutions that allow wireless service providers to deliver the coverage they need, while balancing community aesthetic demands.

What is DAS?

A DAS installation consists of nodes (small antennas and control boxes), fiber optic cabling and a hub. Nodes include small, unobtrusive antennas that blend with existing structures in the public right of way such as utility poles, light posts and traffic signals. Transmitted signals are divided among several nodes, separated to provide the same overall coverage as a typical wireless tower but with reduced total power and minimal visual impact to the surrounding area. The nodes connect to a hub via fiber optic cable. The hub may be located in a nearby building’s basement, a parking garage, a custom designed shelter or at a nearby American Tower site.

Is DAS safe?

American Tower is committed to safety. All of our facilities are compliant with Federal Aviation Administration (FAA) and Federal Communications Commission (FCC) health and safety regulations, and our nationwide team of 200+ field personnel and safety experts provide hands-on support to our customers and the communities we serve. Maintaining operational integrity and safety standards is paramount.

DAS & RF Emissions Safety

DAS networks are safe for residents and do not pose a health risk to the community. DAS uses many low-power nodes to complete its communications network rather than additional wireless towers to cover the same area.

Pole-mounted antennas transmit horizontally with low power, eliminating any safety concerns for pedestrians or nearby residents. Radio Frequency (RF) field measurements are calculated by independent professional engineers to ensure no risk to the public. The intensity of the low RF energy decreases very rapidly with distance from the antenna.

Typical Outdoor DAS Installation
Government Standards Regulate RF Emission Levels to Ensure Public Safety

The FCC has stated that RF emissions from antennas used for cellular and Personal Communications Service (PCS) transmissions result in exposure levels on the ground that are typically thousands of times below safety limits.

The National Environmental Policy Act (NEPA) requires the FCC to consider whether its actions will “significantly affect the quality of the human environment.” To fulfill this requirement, the FCC established the RF safety exposure standard from recommendations contained in existing international and national RF safety standard setting organizations. These standards were chosen because they are widely accepted, scientifically based and technically supportable. The FCC considered the recommendations of the federal health agencies because of their special responsibility for protecting the health and safety of the public. It is important to realize that the FCC maximum allowable public RF exposure is set at 50 times below the level that the majority of the scientific community believes may pose a threat or health risk to the human population.

Maximum public exposure from DAS sites is typically less than a few percent of the FCC public RF safety standard. This means that RF energy emitted from DAS is more than 2,500 times lower than the scientific threshold that could potentially cause adverse health effects.

FAQ

What is RF?
A DAS network uses radio waves to transmit signals to wireless customers. These radio waves are referred to by many different names, such as RF energy, electromagnetic energy (EME), electromagnetic fields (EMF) and non-ionizing radiation. RF energy is emitted by natural sources like the sun and the earth and by manufactured sources such as cellular telephones, two-way radios, Bluetooth headsets and household appliances such as microwave ovens and baby monitors.

Is the RF from DAS similar to x-ray radiation?
No. The key difference between x-rays (ionizing radiation) and RF energy (non-ionizing) is that x-rays can alter cellular structure. RF energy does not alter the structure of cells.

Can RF energy from DAS cause cancer?
In response to questions about the potential for adverse health effects from wireless base stations, like cellular telephone and DAS networks, the World Health Organization (WHO) released a fact sheet (# 304) in May 2006 that said:

“From all evidence accumulated so far, no adverse short- or long-term health effects have been shown to occur from the RF signals produced by base stations (fixed wireless antennas).”

Referring specifically to the potential cancer risk associated with RF emissions from wireless facilities, the WHO says:

“Over the past 15 years, studies examining a potential relationship between RF transmitters and cancer have been published. These studies have not provided evidence that RF exposure from the transmitters increases the risk of cancer. Likewise, the long-term minimal studies have not established an increased risk of cancer from exposure to RF fields, even at levels that are much higher than produced by base stations (fixed wireless antennas) and wireless networks.”
Additional Resources

U.S. Federal Communications Commission
transition.fcc.gov/oet/rfsafety/

Information on exposure guidelines and RF safety.

International Commission on Non-Ionizing Radiation Protection
www.icnirp.org

This commission is comprised of independent scientists from around the world with expertise in a wide variety of disciplines that study the possible adverse effects on human health of RF exposure and recommend safety standards.

World Health Organization International EMF Project
www.who.int/peh-emf

Research database and fact sheets.

About American Tower

American Tower is a leading wireless infrastructure provider who delivers access to more than 36,000 communications sites across the United States. Our sites include wireless and broadcast towers, managed rooftop sites and outdoor and in-building Distributed Antenna System (DAS) networks.

For additional information on the safety of American Tower solutions, contact:

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