



CONTINUOUS RF EMISSIONS SAFETY & COMPLIANCE MONITORING:

A Best-Practice Framework for Building Owners and Property Managers

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Introduction

As wireless infrastructure becomes more densely deployed on rooftops, façades, and in-building spaces, building owners and property managers face increasing responsibility for ensuring safe radiofrequency (RF) exposure levels for employees, tenants, contractors, and visitors. Historically, many property stakeholders have relied on wireless carriers (e.g., Verizon, AT&T, T-Mobile) to conduct periodic audits – often every 2 to 3 years. Unfortunately, wireless operators are now auditing sites less often (5 to 10-year intervals) or not at all.

But in today’s environment of 5G densification, remote power changes, and multi-tenant sites, infrequent carrier audits no longer provide adequate protection against human safety risks, legal exposure, or FCC violations.

Continuous RF emissions monitoring offers real-time visibility, automated alerts, and a defensible compliance record - transforming RF management from *reactive* to *proactive*.

The Human Safety Imperative

Protecting Employees, Tenants & Contractors in a Dynamic RF Environment

RF emissions can fluctuate daily as carriers modify power, technologies, or antenna configurations – often remotely and with no notice to property owners.

Without continuous monitoring:

- Maintenance technicians may unknowingly enter zones above FCC exposure limits.
- Roofing, HVAC, window-washing, and electrical contractors face elevated safety risk.
- Tenants and the public may be affected when antennas are mis-installed or relocated.



FIG. 1A – PUBLIC ACCESS TO A ROOFTOP WIRELESS SITE

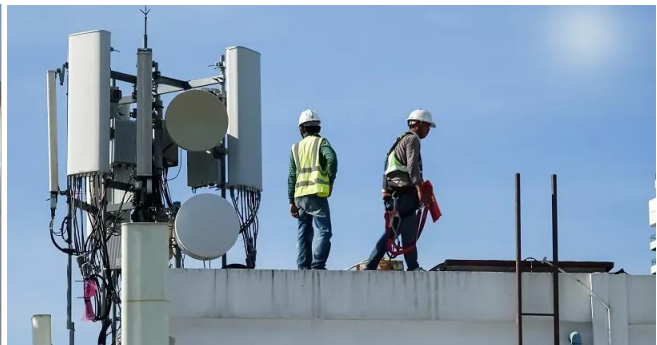


FIG. 1B – OCCUPATIONAL ACCESS TO A ROOFTOP WIRELESS SITE

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Continuous monitoring creates a real-time safety shield, delivering immediate alerts and supporting compliance controls, automated notifications, and rapid mitigation – ensuring that the landlord’s health and safety policy(ies) are based on *real conditions*, *not assumptions*.

Legal and Liability Exposure

Why Owners Cannot Rely Solely on Wireless Carriers

Regulators and courts increasingly treat RF emissions as a **shared responsibility**. Relying exclusively on Verizon, AT&T, or other carriers for periodic inspections creates liability gaps:

- **Negligence** for failing to ensure ongoing safe working conditions
- **OSHA General Duty Clause** violations
- **Contractor injury or workers’ comp claims**
- **Lease disputes** when safety obligations go unmet

Continuous monitoring documents due diligence, proving that the property owner actively managed and mitigated RF hazards.

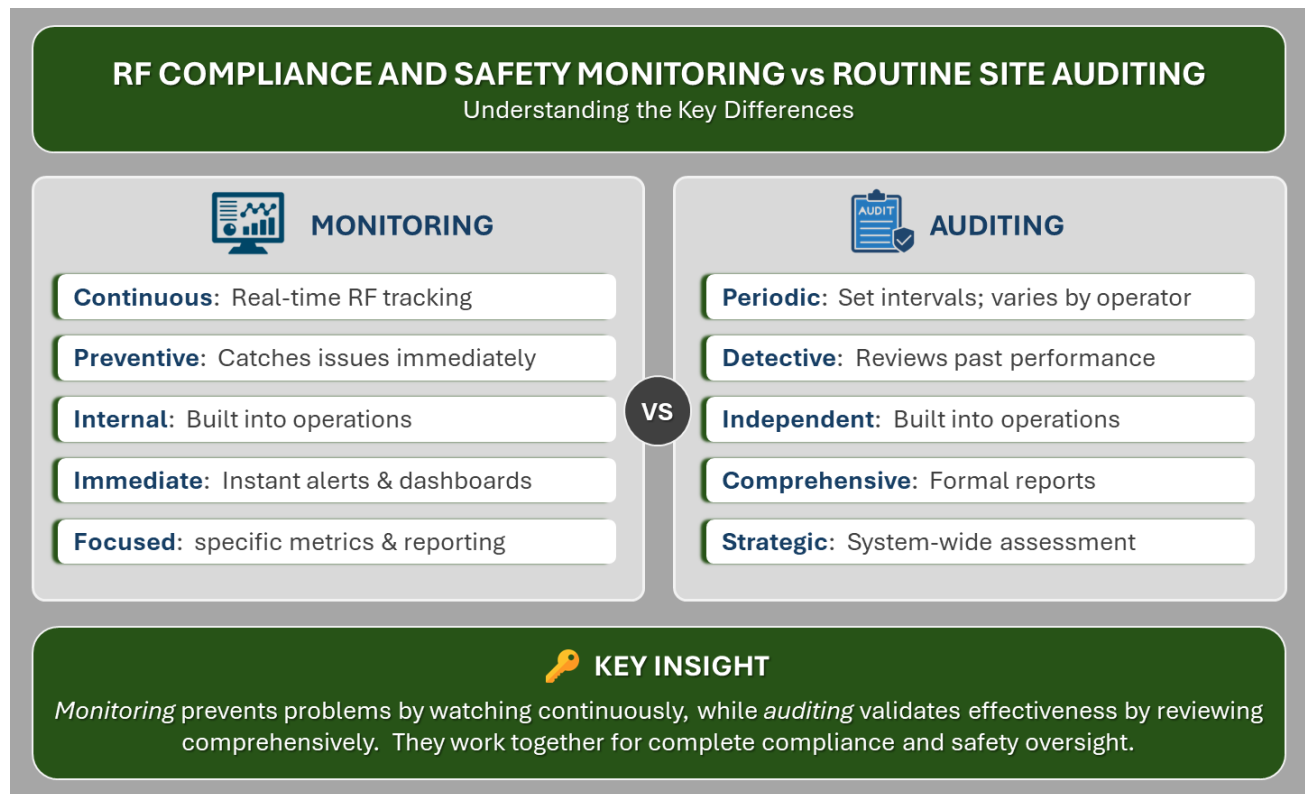


FIG. 2 – MONITORING VS. AUDITING

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Regulatory Compliance, Operational Advantages

Building and property owners who enjoy the economic benefits of rooftop wireless antenna infrastructure face a potentially catastrophic gap in their insurance coverage. Since 2015, the commercial insurance industry no longer offers general liability coverage as protection against RF emissions related claims.

Continuous monitoring demonstrates **proactive due diligence** and establishes a defensible record that the property owner actively maintained a safe RF environment.

EXCLUSIONS

We will not

- a) make any payment on your behalf for any claim, or
- b) incur any costs and expenses, or
- c) reimburse you for any loss, damage, legal expenses, fees or costs sustained by you, or
- d) pay any medical expenses:

GENERAL INSURANCE EXCLUSIONS:

32. Electromagnetic fields directly or indirectly arising out of, resulting from or contributed to by electromagnetic fields, electromagnetic radiation, electromagnetism, radio waves or noise.

FIG. 3 - EXCERPT FROM A TYPICAL GENERAL LIABILITY POLICY

Regulatory Consequences: FCC Fines and Enforcement

The FCC's rules (47 CFR §1.1307 and §1.1310) clearly assign RF exposure compliance to **all site stakeholders - not just wireless carriers**. Violations may stem from:

- Power increases or configuration changes made by operators
- New technologies added to existing antennas
- New / multiple tenants added to a rooftop site
- Damaged or misaligned antennas
- Uncontrolled worker access to restricted zones

FCC fines for RF exposure violations are typically **tens of thousands of dollars per incident**, and enforcement actions often name *both* the carrier and the property owner. Continuous monitoring provides continuous documentation, making it far easier to demonstrate proactive, ongoing compliance and rapid response.

Continuous monitoring provides:

- A real-time, time-stamped compliance record
- Proof of mitigation and response; faster coordination with carrier NOCs
- Automated alerts when emissions exceed thresholds

Operational & Business Advantages for Property Managers

Implementing continuous RF monitoring yields operational benefits beyond compliance:

- **Real-time dashboards** to support safety briefings and contractor access
- **Automated alerts** when emissions exceed pre-set thresholds
- **Historical analytics** for insurance claims, incident investigation, and lease disputes
- **Stronger negotiating leverage** with carriers due to transparent site data

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FIG. 3 – CONTINUOUS RF COMPLIANCE AND SAFETY MONITORING SYSTEM

Implementing continuous RF monitoring yields operational benefits beyond compliance:

- **Real-time dashboards** to support safety briefings and contractor access
- **Automated alerts** when emissions exceed pre-set thresholds
- **Historical analytics** for insurance claims, incident investigation, and lease disputes
- **Streamlined carrier coordination** when unsafe conditions are detected
- **Stronger negotiating leverage** with carriers due to transparent site data

Financial & Risk Reduction

- Lower liability exposure and stronger legal defensibility
- Potential insurance benefits due to documented risk controls
- Supports lease compliance and negotiation leverage with carriers

In short: continuous monitoring shifts RF safety management from *reactive* to *proactive* - reducing surprises, downtime, and risk. Large(r) property groups can apply uniform Health & Safety policies across diverse buildings, rooftops, indoor DAS system, and co-location environments.

Why Reliance on Operator-led Audits Is No Longer Enough

Carrier audits are valuable but limited:

- **Performed infrequently** – 24 – 36 months (AT&T), 10-years (Verizon), no audit (T-Mobile)
- Focused on the operator's equipment only, not the **full multi-operator RF environment**
- Do not account for **daily or seasonal variations**
- Provide **no real-time worker protection**
- Do not satisfy OSHA or FCC expectations for hazard controls under *dynamic* conditions

By contrast, continuous monitoring offers **24/7 site intelligence**, tailored to the property owner's responsibilities – not the carrier's.

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FIG. 4 – PHOTO OF FIELD RF MEASUREMENTS AND SITE AUDIT AT A ROOFTOP WIRELESS SITE IN STERLING, VA

Conclusion

For building owners and property managers, RF emissions safety is no longer optional or “out of sight, out of mind.” With more antennas, more power variability, and more workers accessing rooftops and building systems, relying solely on wireless carriers for periodic compliance checks leaves gaps in safety, exposes organizations to legal and regulatory risk, and can result in costly FCC fines.

Continuous RF emissions monitoring provides the real-time visibility and documentation needed to protect people, reduce liability, support regulatory compliance, and meet modern Health & Safety Policy standards. For modern building owners and property managers, continuous monitoring is no longer optional – it’s a core component of a comprehensive Health & Safety

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ABOUT WATERFORD

Since 2004, Waterford has served as the preeminent compliance, engineering, site development and professional services firm known for delivering superior quality and pioneering cutting-edge solutions within the telecommunications, utility, and real estate industries.

Specializing in the area of RF emissions analysis and human safety, Waterford has been instrumental in hundreds of wireless operators', site developers, and infrastructure owners' efforts worldwide to develop, implement, and maintain a comprehensive, *best-practices* approach toward public and occupational RF safety, as well as compliance with the regulatory guidelines that govern RF emissions and human exposure.

Waterford's unique approach has consistently enabled clients to (i) significantly enhance their management of public and occupational safety, (ii) reduce liability risk by enhancing regulatory compliance knowledge and legal / social obligations, and (iii) improve market positioning and reputation by implementing innovative and responsible environmental, social & governance (ES&G) policies.

Having successfully completed in excess of **three-hundred-fifty-thousand (+350,000)** comprehensive electromagnetic emissions (EME) safety surveys, analyses, and formal compliance reports for numerous wireless carriers, tower companies, wireless asset management firms, and state, local and federal government agencies throughout North America and abroad, Waterford recognizes that the wireless industry is constantly evolving and is relentlessly identifying new ways to position themselves at the forefront – driving change through cutting-edge innovation when and wherever possible. This is Waterford's mantra, and it is critical to their success and reputation as pioneers.

ABOUT THE AUTHOR

Steve Baier-Anderson has worked in the wireless industry since 1990 as an engineering consultant and cellular network engineer. Prior to his current leadership role as Chief Technical Officer for Waterford, Mr. Baier-Anderson held key roles in the design, deployment and optimization of 2G, 3G, and 4G technologies in the Mid-Atlantic region for Verizon Wireless. He holds a BS in Electrical Engineering from the University of Maine and an MS in Systems Engineering from Johns Hopkins University.