Rooftop Antennas —

Compliance and Risk Management ... 'What You Need to Know'

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Most buildings today have antennas on their rooftop. A potential source of revenue or tenant service, these antennas may prove a liability if not properly managed. An informed and proactive management approach can minimize potential liability from RF exposure, personnel injury and regulatory compliance.

Overview — Rooftop Antenna Rewards and Risks

Proper placement and management of rooftop antennas is a significant incremental revenue source, with little additional costs. The right building, with the right antenna mix, can generate in excess of $500,000 per year in revenue. As demand for wireless based technologies grows, the need for more antennas will continue.

A well-managed rooftop can generate this level of revenue with little extra effort, risk or concern. Improperly managed rooftops can create some issues and concerns for property owners and managers, such as engineering challenges, aesthetics, pricing, and ongoing antenna management and regulatory compliance.

Although all of these issues merit consideration, this article will focus primarily on compliance and risk management and effective approaches to minimize those risks.

Key Areas of Potential Liability

Three key areas of liability exist:

1. Regulatory Compliance — FCC OSHA and NEC
2. Personnel Injury
3. Performance Failures

Regulatory Compliance

Several U.S. regulatory bodies manage or monitor the placement and operation of antennas, since all antennas emit non-ionizing radio frequency emissions which pose a potential health risk to personnel. The FCC, which primarily works with license holders, and OSHA, which monitors the workplaces where the antennas are situated, are two key entities. In addition, new guidelines introduced by the National Electric Code (NEC) create further installation and maintenance considerations. Regulatory compliance failure carries risk with potential monetary and legal repercussions.

Federal Communications Commission (FCC) — FCC regulations apply to license holders and regulate the Maximum Permissible Exposure (MPE) allowed at different frequencies (*See Exhibit 1 — FCC MPE Limits*). The FCC has established guidelines for trained and untrained/general population personnel, which provide a time limit of allowed exposure. Effective September 2000, a key ruling has been in place which adopts and requires compliance for the MPE standards — "All existing transmitting facilities, operations and devices regulated by the Commission must be in compliance with the requirements … or, if not in compliance, file an Environmental Assessment … "

Occupational Safety and Health Administration (OSHA) — OSHA has adopted the FCC guidelines by reference and will enforce violations not against license holders, but against the controlling/host employer, which will often be the property owner or manager. Even if the property manager's direct employees are not involved, the manager will have responsibility for subcontractors, as the controlling/host employer. As the host employer, OSHA requires the employer to provide information about hazards, controls, safety and health rules, and emergency procedures. OSHA also requires training under the general "right to know" requirement. In addition to specific MPE level, signage and training violations, OSHA can also issue a citation under the General Duty Clause (Section 5(a)(1) of the OSHA Act — "Each employer shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or likely to cause death or serious physical harm to his employees."

National Electric Code (NEC) — The 2002 NEC Code addresses the issue of abandoned cabling in riser and tray space. Abandoned, but accessible, cable must be removed or tagged for future use/contained in metal raceways. In addition, all cable, even if not abandoned, must meet NEC requirements. Enforcement will most likely occur during new build-out through new

permit/inspection process ("permittable" event). The State of Georgia adopted the 2002 NEC Code effective January 1, 2003, and the City of Atlanta is actively enforcing provisions for permitted use and abandoned cabling. Lack of compliance can cause failure to pass electrical inspections, "stop work" orders, re-permitting fees and additional monetary penalties.

Personnel Injury

Radio frequency emissions (RF) from antennas pose health risks for personnel. Depending on the antenna frequency (*See Exhibit 2 — Radiofrequency and Health Risks*), hazards include shocks and burns, eye injury, internal body and organ damage due to heating, as well as implanted device disruption. In addition to direct injury, secondary injury is a key risk (e.g., the body overheating creating dizziness or other physical degradation which then leads to another injury, such as a fall).

In addition, injury can be caused by the improper or unsafe installation of the equipment. For example, improperly secured antennas can become loose and fall off the building, while poorly placed wires can be a tripping hazard on the rooftop. Another common injury occurs when personnel (e.g., engineers, window washers, electricians) simply grab an antenna for stability while walking on the roof area and receive a burn from the antenna.

Injury to personnel, whether employees, subcontractors, tenants or licensees can have serious repercussions for the property owner and/or manager. In addition to OSHA citations and fines, civil and criminal suits may be filed on behalf of personnel injured by RF emissions or antenna-related equipment.

Performance Failure

Proper antenna installation requires technical knowledge of not only the specific antenna being installed, but all other antennas currently installed, and other electronic equipment (such as elevators) within the affected area. When antennas and related equipment are installed improperly, or without consideration to the entire affected area, performance issues can occur. For example, interference from a new antenna which impairs the operation of an existing antenna licensee may cause the existing licensee to demand compensation for operational impairment.

Lack of comprehensive antenna site management and proper installation of new antennas could create potential performance failures which expose the owner or manager to potential fines or other losses.

Minimizing Risk and Maintaining Compliance

In order to minimize the risks of antennas, property owners and managers can take several steps:

- RF Safety Program — An RF Safety Program is a critical first step to ensuring RF safety and regulatory compliance, comprised of four key elements — a Safety Policy, Safety Training, Safety Plan, and Supervision and Enforcement.
- Site Survey and Analysis — An onsite physical survey of antennas and their emissions, leading to a document which inventories antennas, their characteristics and current RF emissions.
- Personnel Training and Safety
  - Training Requirements — Annual and ongoing training for new and existing personnel who may be exposed to RF emissions.
  - Record Keeping/OSHA Training Credit — Proper record keeping of training, per OSHA standards, should be maintained, and OSHA Authorized Trainers should be employed who can provide OSHA Continuing Education Training Credit.
  - Personal Protective Equipment (PPE) — RF monitoring and protective equipment can be used as an additional safety measure.
- Signage — Proper signage is required near and around RF emitting antennas; there are several levels of signage which need to be placed at the appropriate locations and distances.
- Management Company Oversight — A rooftop management company can be instrumental in helping to reduce RF antenna-associated risks. Such companies will usually provide an initial assessment and ongoing periodic inspections, annual and as required personnel training, as well as marketing of the rooftop to carriers to maximize the rooftop revenue stream.

To Learn More —

Following the suggestions in this editorial will help property managers avoid potential liability, prevent injuries and ensure regulatory compliance.

Adrian Sawczuk works as VP, business development, for Altius Solutions. He brings in-depth industry and business strategy experience, having worked as a strategy consultant for numerous Fortune 500 companies before joining Altius Solutions. Altius Solutions is an Atlanta-based rooftop antenna management company serving many of the large commercial property owners and managers. Contact Altius Solutions, directly or visit the Website at www.altiussolutions.com for more information.

Exhibit 1 — FCC MPE Limits

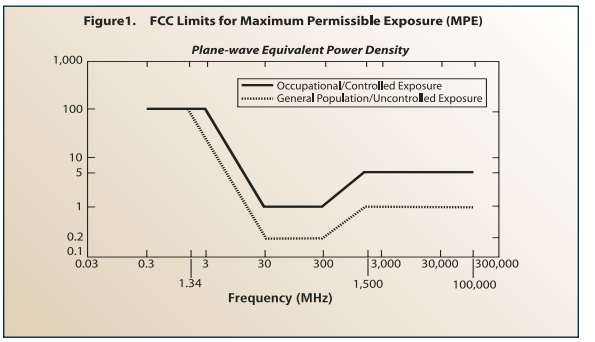

Exhibit 2 — Radiofrequency and Health Risks