

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of:

Proposed Changes in the Commission's Rules Regarding Human Exposure to Radiofrequency Electromagnetic Fields	ET Docket No. 03-137
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**Comments of Site Safe  
Submitted September 2, 2013**

Site Safe, Inc., (“Sitesafe”) hereby submits these Comments in response to the publication FCC 13-39, First Report and Order, Further Notice of Proposed Rule Making and Notice of Inquiry (ET Docket No. 13-84 and ET Docket No. 03-137) released March 29, 2013 by the FCC.

Sitesafe, an engineering firm, has been in the radio frequency (RF) safety compliance business since the 1990’s. We provide engineering services to wireless carriers, municipalities, and anyone interested in RF safety analysis. Sitesafe participates in the IEEE’s International Committee on Electromagnetic Safety (ICES) and the maintenance team (MT-3) responsible for maintaining the standard: IEC 62232, *Determination of RF field strength and SAR in the vicinity of radiocommunication base stations*.

Sitesafe thanks the FCC for their attention to RF safety and hopes this process moves quickly to help clarify safety recommendations, especially at fixed transmitter sites. One important update discussed in this filing is an update to the Office of Engineering and Technology Bulletin 65 (OET-65).

**Transient Individuals**

The new rules expand on the definition and usage of transient individuals who may transit areas that exceed the general population/uncontrolled exposure limits. One important clarification is that the verbal or written information provided to these individuals must provide *appropriate means available to mitigate their exposure*<sup>1</sup>. If this information is to be provided solely through signage that signage must provide clear and specific instructions for the transient individuals. Signage in common current usage does not provide this guidance.

In paragraph 76 transient is designated as visitors and people traversing the “site.” If “site” means the entire facility that has areas that may or do exceed exposure limit, then the transient individual regulation may have very limited use. We interpret this to be the meaning. But if “site” is only the areas exceeding limits then a worker who must walk in front of an antenna to get to their workspace could be considered transient. This interpretation would allow much more utility for the transient individual rules. We fully agree that anyone who must perform any task

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<sup>1</sup> New rules 1.1310(e)(1)

or stop in an area that exceeds general population/uncontrolled limits must not be considered a transient individual and must receive RF awareness training.

In the proposed rules the transient individual rules are expanded by the stipulation that the areas they access must not at any time exceed the occupational/controlled exposure limits<sup>2</sup>, that the transient individual must be supervised by trained personnel<sup>3</sup>, and the transient individual must not be exposed to levels that exceed the general population/uncontrolled limit averaged over any 30 minute period<sup>4</sup>.

We believe these additional requirements regarding limits and time averaging unnecessarily complicates the regulation for transient individual. The limit of exposure for transient individuals should be the occupational/controlled limit as currently defined, to include time averaging. It is possible that exposure exceeding the occupational/controlled limit for a short time could still meet the time averaged general population/uncontrolled limit. It is also unreasonable to believe someone with basic RF awareness training would be able to apply a 30 minute time averaging technique for an individual they were supervising. We do think it is good practice to limit exposure of transient individuals to areas that do not exceed the occupational/controlled limit but there could be cases where this is necessary.

The requirement for supervision reduces the amount of information required on signs that must be interpreted by the transient individuals. But, this may be challenging and costly to provide on some if not most sites, especially if it must be provided by the licensee. To make supervision effective details must be included in the RF awareness training of occupational workers so they are competent to provide that supervision.

The update to OET-65 should include exemplar language that provides the signage information needed for transient individuals.

#### Responsibility for Compliance

Multiple transmitter sites are very common for mobile wireless providers. The Commission's 5% of exposure limit rule regarding responsibility for compliance is reiterated in the new rules in paragraph 84. Additionally that paragraph encourages all parties at a collocation site to cooperate and *share information about power and other operating characteristics*. Site user agreements are described as *particularly useful and desirable*. Sitesafe fully supports this approach and hopes that site managers as well as licensees work to enable this sharing.

Paragraph 193 discusses liability and cooperation between licensees, site managers, and workers with respect to site safety plans. One important question relates to workers who work in areas that exceed limits but access those areas use lifting or climbing devices, possibly on an adjacent building. These situations are difficult to predict and provide guidance as new construction or uncommon or unexpected circumstances can lead to such exposure. As mentioned from the NCRP 2002 letter a site safety plan that is developed in collaboration or at very least shared with

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<sup>2</sup> Proposed Rules 1.1307(b)(2)(iii), p 107

<sup>3</sup> Proposed rules 1.1307(b)(2)(ii), p 106

<sup>4</sup> Proposed rules 1.1307(b)(2)(ii), p 107

the building owner and / or manager can be helpful to ensure such workers are aware of RF exposure and can take appropriate actions such as contact the operator of transmitting equipment.

Sitesafe recommends that a safety plan be an integral part of a “routine evaluation” on any site not exempt from such evaluation. Additionally the safety plan should be shared among the licensees as well as the site owner / manager and any personnel who work on the site.

The Commission could provide an outline of site user agreements as well as a template for sharing transmitting information as part of a revision to OET-65. An exemplar site safety plan for both collocated mobile wireless operator and broadcast sites would also help ensure the quality of those safety plans. How to read a safety plan could be incorporated in RF awareness training.

### MPE-Based Exemptions

The exemption of RF sources based on distance, radiated power, and frequency is an approach that allows for quick determination of the need for routine evaluation. Starting in paragraph 127 is the outline for both single and the derived summation for multiple transmitters. This will allow some installations to not require routine evaluation. We have questions brought up by this proposed exemption.

The first is the separation distance for fixed antennas. How is separation distance defined and what should be done for circumstances where the separation distance is not met? For antennas mounted on towers this is relatively straight forward, the slant or vertical distance between antennas and accessible areas on the ground or nearby structures. For some distributed antenna systems located indoors it is more complicated. A six inch antenna mounted on an 8 foot high ceiling would have an expected separation distance of 1.5 feet from a 6 foot tall person. But the complication comes if there is lighting or other “typical” maintenance areas nearby. A worker on a ladder replacing lights could easily come within a few inches of such an antenna if not touch the radome directly. At such distances the SAR-Based Exemption could be used.

The second is the allowed ERP levels from Table 1. Based on our assessment of these levels many sites that are now exempt would not continue to be. For a tower site with antennas mounted 10 meters above ground level, i.e. 8 meters above a person, and with three frequencies, 750, 850, and 1950 MHz, the ERP, if each was the same, would have to be approximately 250 Watts per band or less. In the ceiling mounted example above for a 1.5 foot (46 cm) separation an antenna with these same three bands would have an ERP limit of 850 mW per band.

### Areas that Exceed Limits

What guidance should be given for workers who have to access areas that may exceed exposure limits using lifting devices, ladders or scaffolding to reach those areas? Along the same lines, what barriers are required in areas where OSHA would require fall protection, such as the edge of a roof with no parapet? These areas could be considered a “controlled environment” as access is precluded without meeting OSHA fall protection guidelines or utilizing lifting devices, ladders, or scaffolding. In that case is it the responsibility of the licensee to provide signage as described in section 1.1310 (b) (2) that is legible at the boundary of the area that exceeds exposure limits? Sitesafe believes the following approach is recommended for these sites.

- Posting information signage at the site, near the antennas or in other appropriate access locations, indicating the presence of antennas and potentially outlining areas that exceed limits.
- Posting alerting signage at the limit of areas that require fall protection as well as exceed exposure limits.
- Completion of a safety plan, outlining these issues of RF exposure, and providing this plan to the site owner/manager as well as making it available to other site users. As mentioned above this could be part of a routine evaluation.

It is noted that “accessible area” is not well defined. Footnote 195 states: *Accessibility generally relates to such factors as the height above ground of an antenna or whether an antenna is mounted on a tower or accessible on a rooftop, as well as lateral distance from the closest point of possible human presence.* As this leaves much to interpretation and is key to determining compliance this should be more formally defined. Paragraph 197 does discuss alternate techniques for warning workers that would access antennas on the sides of building. This should be expanded on, possibly in a revision to OET-65.

In our discussion of the MPE-Based Exemption above we discussed workers who may be near small indoor fixed antennas.

We believe notifications and limits are required for these circumstances and they can be accomplished through administrative controls such as information signage at access points and the implementation of a safety plan.. It would generally not be practical not to mention aesthetically pleasing to install alerting signage at all antennas, especially indoor distributed antenna systems. It should be noted that some jurisdictions require antenna owners to erect “stealth” screening on antennas that can greatly complicate alerting signage installation not to mention barriers.

### Alerting Signage

Sitesafe endorses the requirement that signage comply with the IEEE/ANSI standards as well as NAB recommendations outlined in paragraph 200 and in the proposed rules 1.1307(b)(2)(v). We also agree with paragraph 194 in that “over-signage” and inappropriate sign selection can lead to *undue alarm, confusion, and subsequent disregard of meaningful postings.*

One particular aspect of current alerting signs that should be changed is the instruction to “obey all posted signs.” This guidance is very confusing as the alerting sign is, in almost all cases, the last sign before a potential or real hazard is encountered.

When these rules are adopted there will be a required transition period to implement appropriate signage. This could and should be done as a part of the routine evaluation of transmitter sites. As there are many thousands of sites we recommend that the implementation timeframe should be a minimum of one year and more realistically two years from when the final rules are adopted and a revised OET-65 including further guidance is published. This will allow a methodological approach that ensures that the new rules and guidelines are implemented as best as possible.

### Training

Sitesafe endorses the Commissions commitment to update OET-65 to include further information and references applicable for training. This is outlined in paragraph 76 and the proposed rules 1.1307 (e)(1). We agree with the specification of written and/or verbal instruction can be used to make sure the exposed person is “fully aware of the potential for exposure and can exercise control over their exposure.” The wide range of needs of personnel who must work at wireless sites can best be met through a combination or selection of class room, computer based, and on-the-job training from a competent instructor.

Respectfully submitted,

Matthew J Butcher, PE  
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