

## Regulation History

The Federal Communications Commission (FCC) was directed by Congress in the [Telecommunications Act of 1996](#) (section 704) to be the regulator of RF Exposure levels in the United States. The [FCC Regulations](#) detail exposure levels, where and how to apply them, and the Office of Engineering and Technology (OET) has provided [bulletins](#) with guidance on the regulations.

A current rulemaking and notice of inquiry is in process stemming from FCC Proceeding [03-137](#) and the preparation of a Government Accounting Office report ([12-771](#)). This work is in [circulation](#) for consideration by the Commission since 06/15/2012.

## Limits

FCC regulations provide exposure limits which detail the rate which RF energy can be absorbed by a person, known as the Specific Absorption Rate (SAR). Derived from SAR levels are limits for RF power density at places where people work or visit.

Limits are differentiated for the general public and workers who are trained to understand RF exposure issues and are known as "Occupational" limits. Occupational limits are set 10 times below RF levels known to cause biological effects due to tissue heating. General public limits are an additional 5 times lower to ensure a safety factor of 50.

Frequency also plays a role in exposure limits as the human body absorbs RF energy at some frequencies more than others. For this reason exposure is usually expressed as percent of Maximum Permissible Exposure (MPE) limit instead of power density such as milliwatts per square centimeter (mW/cm<sup>2</sup>).

These limits are similar to international standards used widely around the world and endorsed by the World Health Organization (WHO).

## How to Comply

All FCC licensees are required to ensure that exposure limits are not exceeded in accessible areas. In § 1.1307 is a list of facilities subject to *routine evaluation* for compliance. This list can cause confusion and is an area of proposed revision in the current rulemaking. The current common interpretation is that building mounted antennas and antennas mounted lower than 10 meters (33 feet) on towers require routine evaluation. Sites that don't require routine evaluation are considered *categorically excluded* from evaluation. Some municipalities require an assessment for sites that are categorically excluded.

Compliance is determined by computational modeling, measurements, or both. Modeling tends to over-predict exposure levels because worst case power is used and the conservative nature of the algorithms. Measurements show levels at the time they are taken and don't take into account system operations. Both techniques have a level of uncertainty.

Multiple transmitter / licensee sites must be evaluated in total. There are two reasons for this. In areas that exceed exposure limits all licensees that contribute more than 5% of the exposure limits have shared responsibility. Additionally a compliance assessment is typically used to provide information to workers on the site, and the workers need knowledge of all areas that could exceed exposure limits.

An assessment details the RF exposure environment at a site and will provide instructions for any necessary remediation. Remediation can range from alerting signage and locked access to barriers or a redesign of antenna placement on a site. A site safety plan is generally required to provide information to workers that may need to access areas that could exceed limits.

## FCC Regulations regarding RF Safety

[§ 1.1306](#) Actions which are categorically excluded from environmental processing.

[§ 1.1307](#) Actions that may have a significant environmental effect, for which Environmental Assessments (EAs) must be prepared.

[§ 1.1310](#) Radiofrequency radiation exposure limits.

[§ 2.1091](#) Radiofrequency radiation exposure evaluation: mobile devices.

[§ 2.1093](#) Radiofrequency radiation exposure evaluation: portable devices.

## FCC OET Bulletins

[OET Bulletin No. 56](#): Questions and Answers About Biological Effects Potential Hazards of Radiofrequency Electromagnetic Fields

[OET Bulletin No. 65](#): Evaluating Compliance With FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields

**If you have any questions on the specific FCC requirements not covered in this document, please reach out to Sitesafe:**

Matt Butcher PE  
VP Engineering & Development  
703.598.5490  
[matt@sitesafe.com](mailto:matt@sitesafe.com)

Sara Dick  
Senior Account Manager – West Region  
949-212-5075  
[Sdick@sitesafe.com](mailto:Sdick@sitesafe.com)