

Environmental Effects

Educational Media Foundation (“EMF”) certifies that W268AY complies with the maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments.

The RF worksheet in the Instructions to form 303-S was unusable to determine compliance for this facility because W268AY is located atop a building. The rooftop and rooftop spires are populated with many and various antennas. RF measurements have been done in the past which revealed levels over the limit for the general public and occupational environment.

A written comprehensive program is in place. Security to the rooftop is very stringent. A copy of the FCC Radio Frequency Protection Guidelines and Compliance Statement are included in this exhibit.

Based on this assessment and the measures taken to limit the exposure to the general public and occupational workers, W268AY fully complies with the FCC’s maximum permissible radiofrequency electromagnetic exposure limits for controlled and uncontrolled environments.

Compliance Statement

FCC Radio Frequency Protection Guides

Rooftop Communications Areas at the **John Hancock Center**

June 2020

The John Hancock Center is a 100 story high-rise building located in the near north side of Chicago. Atop the building are two towers to which are attached the antennas for several television stations and numerous FM radio stations. Also atop the building is an antenna grid that supports a host of two-way and microwave antennas.

The rooftop of the building is composed of two distinct areas. One is the “lower roof” and the other is the “upper roof” or “penthouse roof”. Access to the rooftop areas is restricted. No members of the general public are allowed in the rooftop areas. Personnel accessing these areas must provide proof of training in the field of RF awareness prior to being allowed on-site.

The building does operate an observatory for the public on the 94th floor. This observatory is fully enclosed and seven stories below the rooftop. No portions of the observatory project out from the perimeter of the building and none are exposed to the RF transmissions of the antennas located on the rooftop or antenna towers.

Access to the lower rooftop is limited to building engineering and maintenance personnel and to the engineering personnel for the entities having antennas located in the rooftop areas. Access is controlled with a computerized card key access control system. Persons with the authority to access the lower roof are permitted in the area on an unsupervised basis.

Access to the upper or penthouse roof is via an enclosed stairway with a padlocked gate. To gain access to the upper roof, one must check out a mechanical key for the padlock from the Office of Engineering. Access to the upper roof is granted on a supervised basis only. Similarly, access to both tower structures is granted on a supervised basis and mechanical keys must be checked out from the engineering office.

Measurements of the intensity of the radio frequency fields have been made in both the lower and upper roof areas, as well as on the tower structures. These measurements show that on the lower roof there are no areas where the RF fields exceed the FCC Maximum Permissible Exposure (MPE) regulations for the Controlled/Occupational environments. Accordingly, authorized personnel are allowed unsupervised access to the lower roof area.

Compared to the lower roof, the upper roof is a much more complex electrical environment. While the lower roof is essentially completely open with only a window washer track around the outer perimeter, the upper roof is “enclosed” by the open grid work of the two-way radio antenna support structure. The measurements of the RF fields in this area show that they are influenced by the metallic grid work, and that there are standing waves. All areas of the penthouse roof, except the platform, are below the FCC mandated Controlled/Occupational levels. The platform, however, has several areas which exceed these limits when spatially averaged. For this reason, access to the upper roof is limited on a supervised basis.

When work is performed on the upper roof in those areas where the measured fields exceed the FCC requirements, protective suits are worn. In all areas of the upper roof these suits attenuate the RF fields sufficiently so that the exposure of the persons wearing them is significantly below the FCC standard. These measures are supervised by the Rooftop Manager. * (see attachment 1)

Measurements of the RF fields on the tower structures have also been made in certain accessible areas. These measurements show a need in some cases for stations with antennas on the opposite tower structure to reduce power when climbers are on a tower. Generally, most stations must cease transmitting from the tower on which the climbers are working. The specific acceptable operational conditions vary depending on the work being performed and where the climbers are on the tower, and their many combinations and permutations. However, all tower work is specially arranged in advance and supervised. In all cases when it is necessary, power reductions and shutdowns are made so that the work environment complies with the FCC rules. Additionally, when entering a previously inaccessible area where measurements have not been made, when working on the towers, or when in areas that exceed the FCC Controlled/Occupational limits, workers must be competent, wear protective RF suits, and use the Narda #A8864 Personal Monitor (1000% of standard).

Summary

The rooftop areas of the John Hancock Center are not accessible to members of the general public. Access to all areas of RF emissions is limited to trained, authorized personnel. The main roof RF levels are below the FCC MPE limits for the Controlled/ Occupational environments. Access to the penthouse level is restricted to trained, authorized, and supervised personnel. Where areas of the penthouse are above the FCC Controlled/ Occupational standards, personnel are required to wear protective suits and personal monitors. In areas with RF fields exceeding FCC limits, the upper roof and the tower structures, special measures are taken and supervised to assure that the FCC standards are complied with when workers are present.

Attachments:

1. RF Safety Work Plan Outline

RF Safety Work Plan Outline

The Rooftop Manager has a program in place for ensuring worker safety. The basics of the program include the following:

1. Only personnel who have completed, documented, site-specific RF awareness training are authorized to access any of the rooftop areas and tower structures.
2. Authorized personnel accessing any areas with RF emissions must get access cards and keys only after properly identifying themselves with the Building Engineering office .
3. Only personnel who have been authorized and that make prior arrangements can gain access to specific areas as referenced above.
4. Only personnel who have completed, documented, site-specific RF awareness training are allowed on the main roof level unsupervised.
5. The penthouse may not be accessed when the auxiliary antennas are operational without the use of RF suits and 1000% personal monitors (PPDs).
6. Lockout/Tagout, power reduction and transmitter isolation procedures as well as the use of Personal Protective Devices (PPDs) are implemented when accessing the vertical apertures of the tower structures.