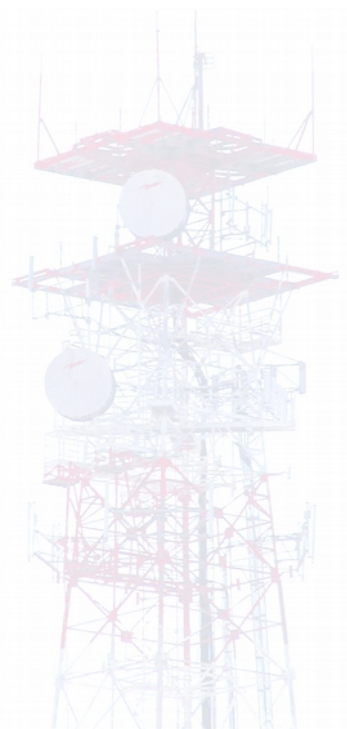




***Rooftop Measurements at
200 South Biscayne Boulevard
Miami, Florida***



Prepared for:
Star Over Orlando, Inc.
357 Ocean Shore Blvd.
Ormond Beach , Florida
July 27, 2018

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Introduction:

RFEngineers, Inc (RFE) was retained by Star over Orlando, Inc. to perform radio energy measurements as required by FCC Construction Permit for W284CT.

This study deals with the radio energy environment on the rooftop of the building at 200 South Biscayne Blvd, Miami, Florida (the Site). Access to the Site is strictly limited. The doorway leading to the roof is marked with RF radiation warning signs, see Illustration 1.



Illustration 1: Roof Access.

The Site includes a significant number of active transmit antennas mounted on the penthouse rooftop on level 57, see Illustration 2. Details of each rooftop emitter were not available but through observation it was concluded that there were multiple sources of RF energy from the VHF band up to approximately 60GHz. The W284CT antenna is located near the east face of the penthouse, 9-meters south of the north edge and less than one meter west of the east edge of the penthouse roof.

Initial broadband measurements on the main rooftop on level 56, 3-meters below the penthouse roof, revealed instantaneous RF levels in excess of public exposure levels but below maximum occupational levels. Based on this it was assumed that RF exposure levels on the penthouse roof would likely exceed occupational levels. Since the necessary safety equipment was not available it was decided to not take measurements on level 57.

According to City of Miami records the Site is more than 30-meters taller than any other downtown building. Since the measured RF on level 56 did not exceed occupational maximums, it can be concluded that RF levels at adjacent buildings are inconsequential.



Illustration 2: Antennas on level 57.

Measurement Procedure:

Measurements were taken by Joseph DiPietro, P.E. on the morning of July 21st 2018, using procedures recommended in FCC OET Bulletin 65.

Readings were taken using a broadband RF survey meter. The meter reports radio energy density in units of microWatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The specific frequency of energy being measured by a broadband meter is not known. Since the maximum permitted continuous exposure (MPE) level is frequency dependent, the percentage of maximum exposure can not be determined with certainty. The normal procedure is to assume that all of the energy is in the frequency band associated with the lowest permitted exposure level.

The meter used did not cover all of the radio bands likely in use on the rooftop. It did however, include the frequency band of the subject of the test, W284CT.

The worst-case MPE for any radio band is $1000 \mu\text{W}/\text{cm}^2$. Out of an abundance of caution, and to simplify the measurement procedure, the value of $1000 \mu\text{W}/\text{cm}^2$ is often used as the 100% exposure level regardless of the frequency of the energy being measured.

Time averaging was not used, reported values are instantaneous peak levels found while slowly moving around within the boundaries of each grid unit.

Measurement Results:

Measurements were taken East of the transmitter antenna location on the roof of level 56 in a grid pattern. Readings in were taken at 6-1/2 feet above the roof of level 56.

Spot measurements were taken at various locations on level 56 far removed from the penthouse. These levels were significantly below those taken in the grided area. Measurements were not taken on the roof of level 57.

Measurements were made with the W284CT transmitter operating and then repeated with the transmitter turned off.

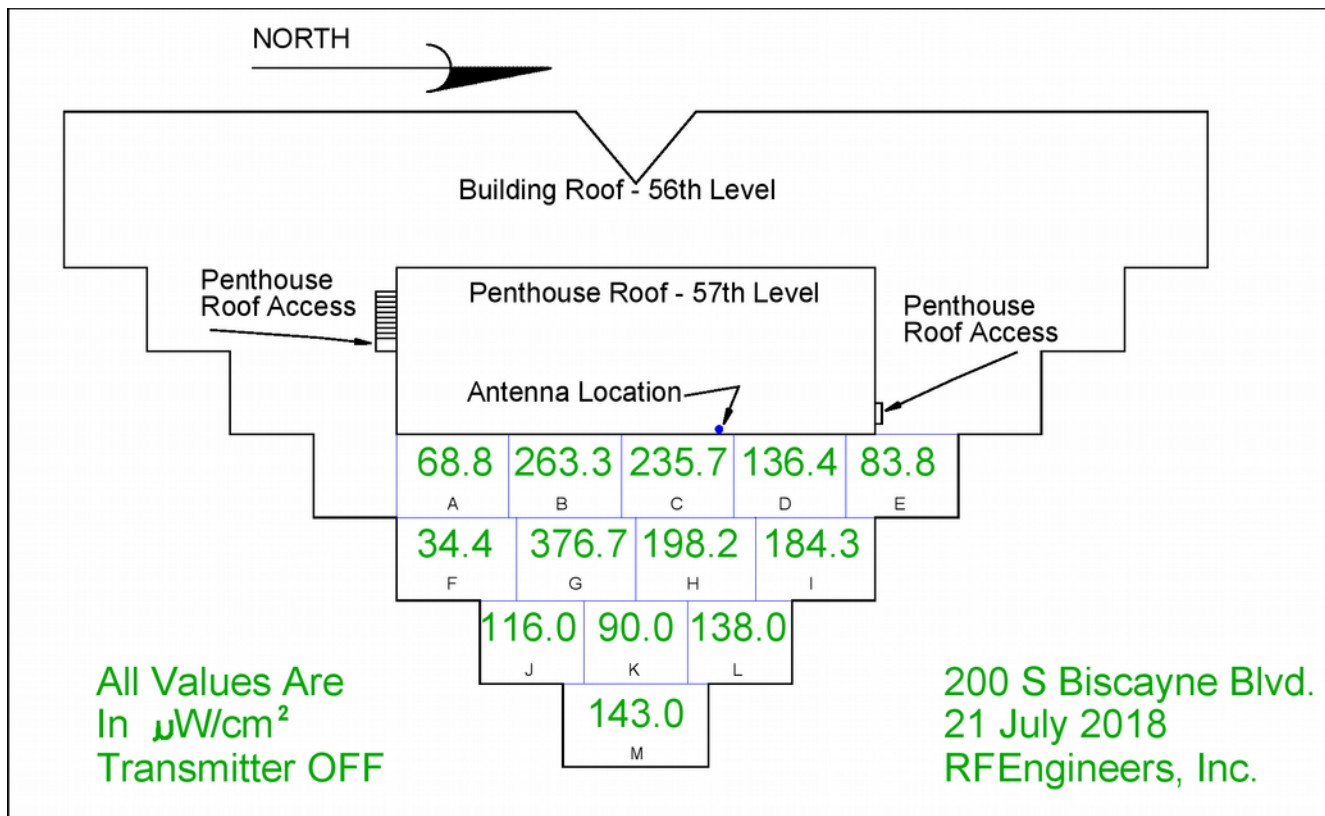


Illustration 3: Measurement values 2-meters above the rooftop of level 56 with W284CT transmitter off.

See Illustration 3, the highest reading found on the roof during this series of measurements was $376.7 \mu\text{W}/\text{cm}^2$ in grid location G. As would be expected with multiple RF sources, measured values changed quickly.

No peak value exceeded the Occupational limit, so it is expected that no time-averaged measurement would exceed this limit.

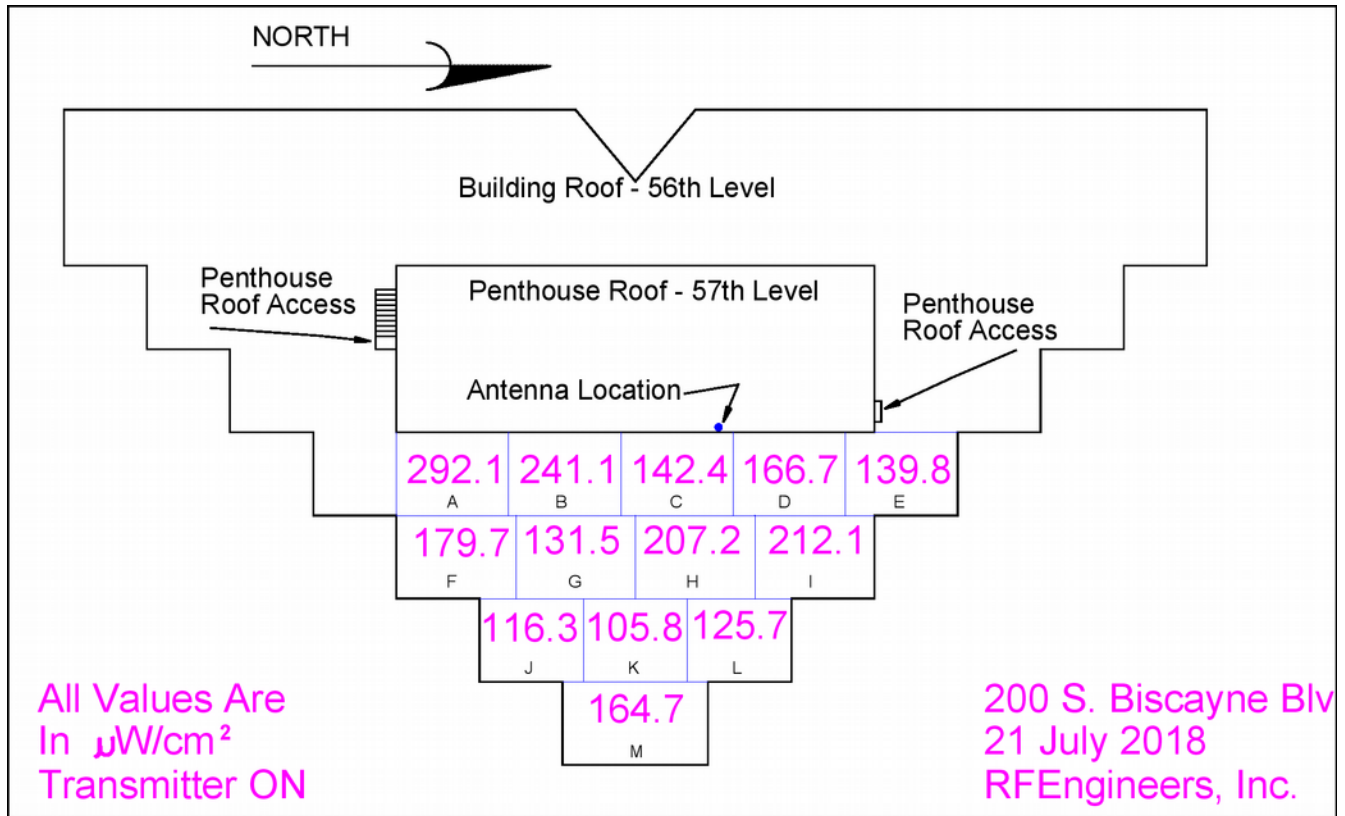


Illustration 4: Peak measurement values 6-1/2 feet above the rooftop of level 56 with W284CT transmitter on.

See Illustration 4, the highest reading found on the roof during this series of measurements was 292.1 $\mu\text{W}/\text{cm}^2$ in grid location A. As before measured values changed quickly.

Peak values were generally higher with the W284CT transmitter on. No peak value exceeded the Occupational limit, so it is expected that no time-averaged measurement would exceed this limit.

Conclusions:

The radio energy density levels present on the Site's rooftop at the time of this survey are well below the guidelines for Occupational exposure.

The addition of the W284CT has only a very small affect on RF levels.

Test Equipment:

The following test equipment was used to perform the measurements reported in this document.

- Electromagnetic Radiation Meter EMR-30 type 2244/30, serial number AT-0195.
- Electric Field Probe Type 8.3, model 2244/90.20, serial number AV-0004