

## FCC response for modification of licenses – June 2021

Applicant: North Carolina State University  
File Number: 0074-EX-CM-2021  
Correspondence Reference Number: 62602  
Date of Original Email: 06/10/2021

With respect to authorization of operation in the 3700-4200 MHz band included in the application, please provide additional information on how you will avoid causing harmful interference to incumbent operators in this band, including FSS earth stations. A list of registered incumbent FSS earth stations in the band can be found at the following link: <https://docs.fcc.gov/public/attachments/DA-20-823A2.xls>

### AERPAW Response:

We looked into the data provided by FCC about the Fixed Satellite Service providers in this area. Based on our analysis, these are fixed earth stations at fixed geo-locations which receive only (no transmit) radios. However, we plan to operate only in a rural area (Lake Wheeler area, marked as LW1 in the map) on this specific frequency band which is far away from these fixed earth stations (see Fig. 1). The closest fixed earth station is about 5 miles away north from the LW1 location. The two closest FSS stations located to the north of our LW1 fixed transmitter (located at coordinates 35°43'38.2" N, 78°41'45.8" W) are as follows:

- Fox Broadcast (35° 46' 46.5" N, 78° 40' 28.8" W)
- Global Eagle (35° 46' 14.2" N, 78° 40' 52.0" W)

Therefore, we believe we can operate in this band without interfering with the existing fixed earth stations of FSS services. A worst case analysis of interference to the FSS earth stations (taking into account the directionality and orientation of the FSS antennas) indicates that as long as the AERPAW transmitters are greater than 1400 m from the earth station antenna, the received signals from the AERPAW transmitter will be at or below the thermal noise floor. We do not plan to operate in this 3700-4200 MHz frequency band on the Centennial campus area to avoid interference to the FSS earth stations nearby.

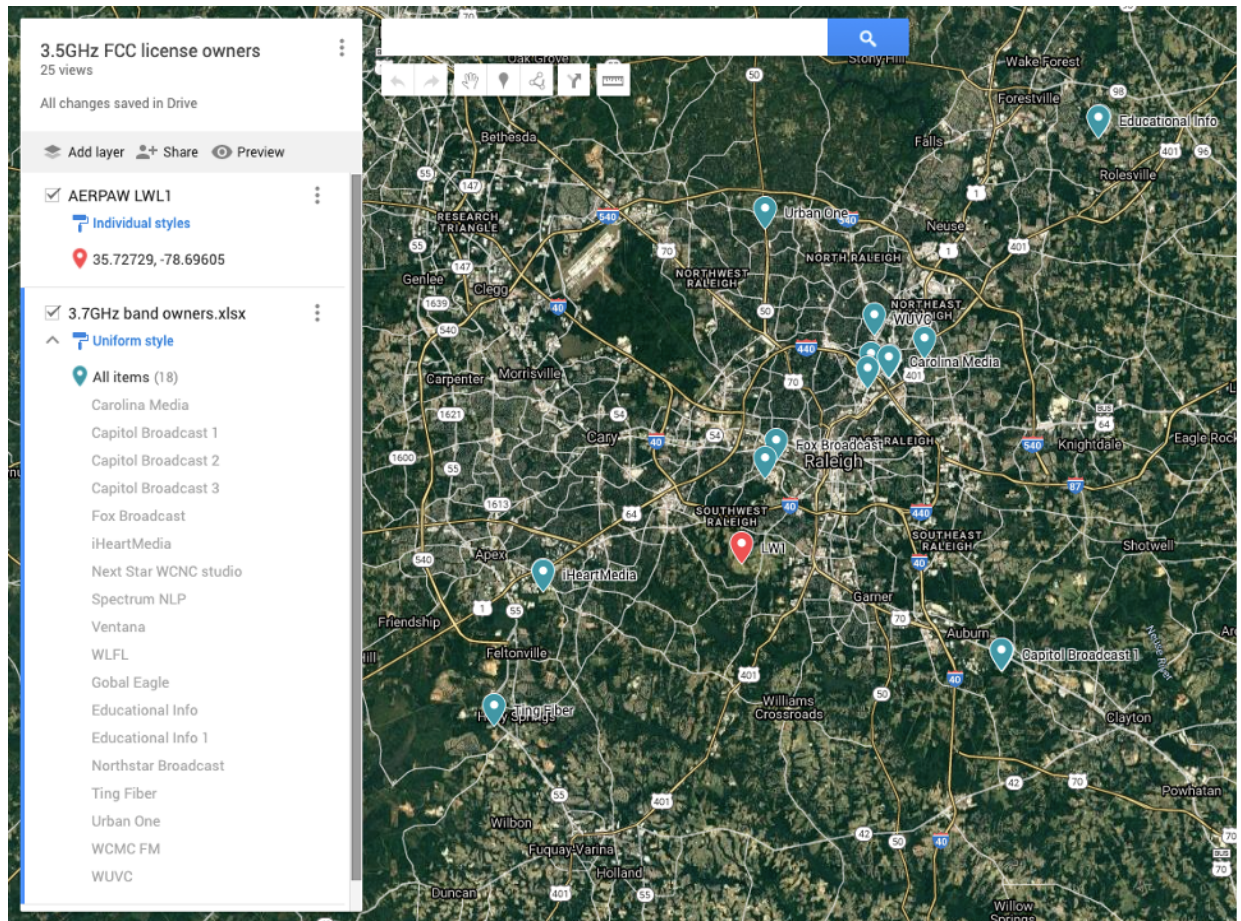


Figure 1: Location of the first AERPAW fixed node that may operate at 3.7-3.8 GHz band is indicated in red, and the nearby FSS receivers are indicated in blue.