This will be indoors in our Innovation Center Location. We will be at low power and do not expect to provide harmful interference with outdoor commercial sites, given our low power and the concrete walls of the building.

Additionally, we model our sites using iBwave to be sure we are not broadcasting at a high level and to be sure we are not bleeding outside the building."

The following are the additional supporting explanation for our request and this application can be considered as an extension to our already existing STA due to expire soon (File No: 1202-EX-ST-2021, Call sign: WS9XLN)

a) Future Tech response: We will be using the radio in a 5GNR self-contained experimental network, managed independently within our own private in-building coverage environment with very low radiating power.
b) Our Operation & Management system will be used to attenuate the output to provide a maximum peak output power of 1W (ERP).
c) Explanation of how it would specifically avoid causing interference to incumbent and commercial operations in the band, including General Authorized Access (GAA).
   It will be a 5GNR self-contained experimental network, managed independently within our own private in-building coverage environment with very low radiating power.
   Our Operation & Management system will be used to attenuate the output to provide a maximum peak output power of 1W (ERP).
d) Future Tech response: Our site location and antenna height (5m AGL) contained in our building of a 25 ft ceiling, will minimize the propagation of RF signal beyond our in-building coverage as the antenna HAAT is calculated to be 2m using FCC 30 second terrain DB. In addition, maximum height of the antenna is 5m AGL with a 5 deg down tilt on a directional antenna, this will ensure a coverage contained within ~200ft (57.47m) from source. Given the HAAT and the terrain profile between our site location and the other incumbents, any TX signal will be heavily attenuated by the hills, trees and other building and concrete structures. The TX propagation distance from our location if left to radiate externally via a 1W RF output and 0 tilt using even the low end of the frequency range of 3400 MHz (lower freq extends further) will not extend further than 2km externally if clear open space. However, our antenna will be down tilted to limit the radius to within the building with minimal power. See figure 1. Antenna HAAT calculation.
   https://www.fcc.gov/media/radio/haat-calculator
   The attached table in figure 2 provides the list of incumbent operators operating within the same State and County as our requested authorization location. It provides the distances from our proposed operation site