

## FCC questions 1/31/2024

Also, do we know which direction they are transmitting? Their Exhibit 3 mentions sector blanking from 221 degrees to 15 degrees, reference to true north. Does that indicate the sector they will transmit into, or the sector they are forbidden from transmitting into? I am unfamiliar with the 'sector blanking.' We might not always go into this much detail on the mitigation measures, but they have fairly large areas where the occupational and general population limits could be exceeded, and it doesn't appear to be an entirely access-controlled area or in a very remote location."

We should also clarify some details to confirm whether their proposed mitigation measures are sufficient. While their property appears to be large enough to encompass their calculated separation distances of 55 ft and 122 ft for compliance with FCC limits, there are still homes, roads, and railways not too far away.

Could someone from the public wander onto the property or up their driveway during operation? The proposed traffic cones with plastic chains can be useful indicators if maintained (we find they tend to fall over in practice), but on their own would not provide positive access control.

It might help if the applicant could further clarify their fence locations, planned locations of indicators (the cones with chains) and signs, whether trained staff will always be on site during operation and how they might further ensure no one enters the area, how remote their location is, and any other details that might help clarify how they'll ensure compliance with our exposure limits.

## Please see ARA response below with additional information requested.

Figure 1 shows an extended satellite map showing up to 0.5 mil North and South of the overall area. The ARA Test Range. Test Range is in a relatively remote area, access controlled to site dedicated dirt path with a gate accessible only the trained and authorized ARA personnel. The adjoining area is mostly heavily wooded with no trails for people to access the test range. In the Southeastern side there are some occupied buildings, but these are not in the area of transmission and outside the 122' range and note in the area of transmission.

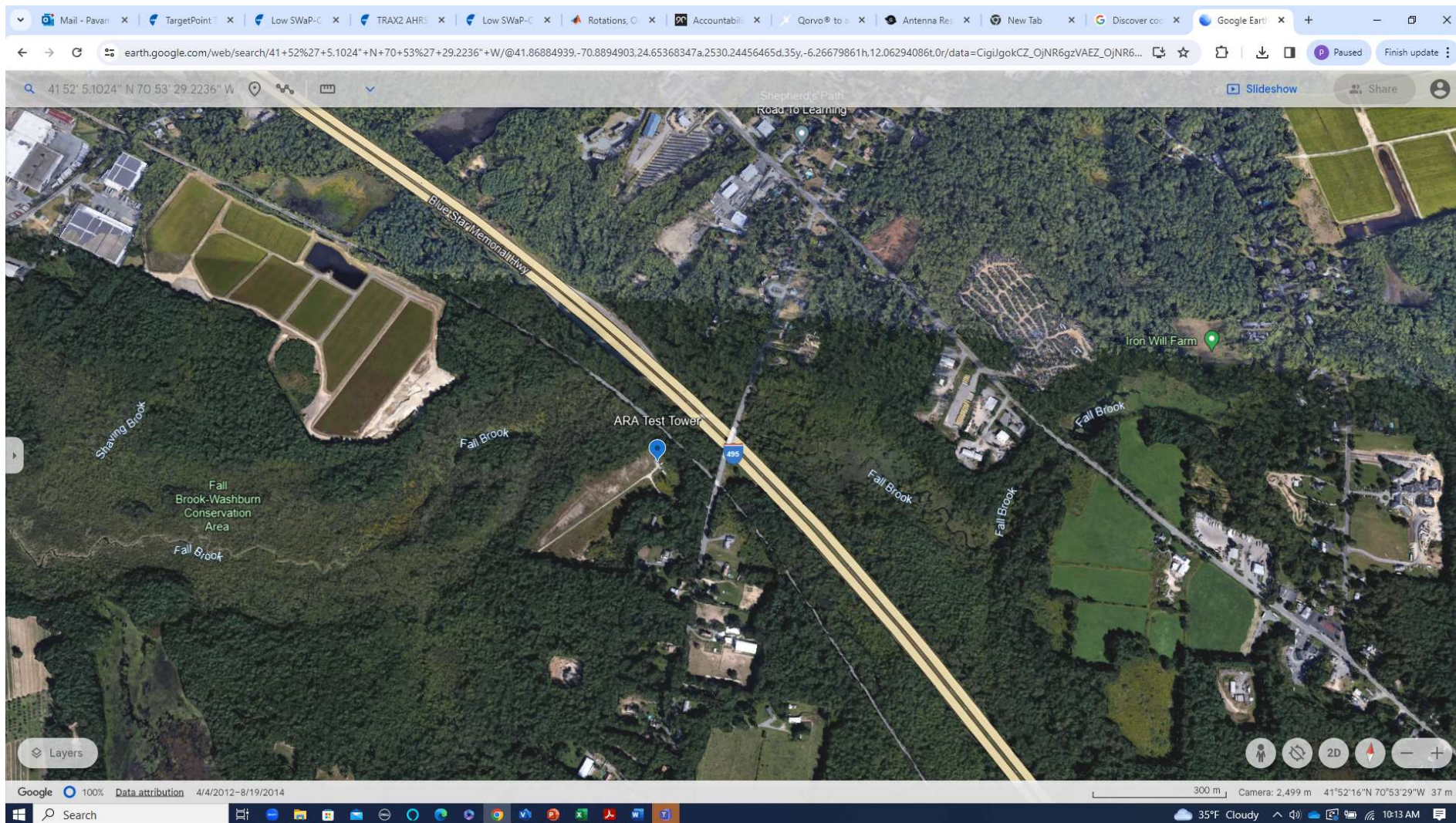


Figure 1 Broad Satellite of Overall Location of ARA Middleboro Test Range



Figure 2 shows a close in view of the site, the white lines denote the perimeter of the ARA Test Range. As per the FAA pre-approval conditions, RADAR will transmit only between  $221^{\circ}$  N to  $15^{\circ}$  N (True Azimuth) denoted by blue Arc, the resulting transmission area is a 163 deg Arc as shown. Between  $15^{\circ}$  N and  $221^{\circ}$  N the FAA is requiring the sector be blanked which indicates we are not authorized to transmit. The antenna itself is physically fixed and cannot transmit greater than the arc so it will be fixed to transmit only between  $221^{\circ}$  N to  $15^{\circ}$  N. The antenna is mounted on Tower 46 ft above ground.

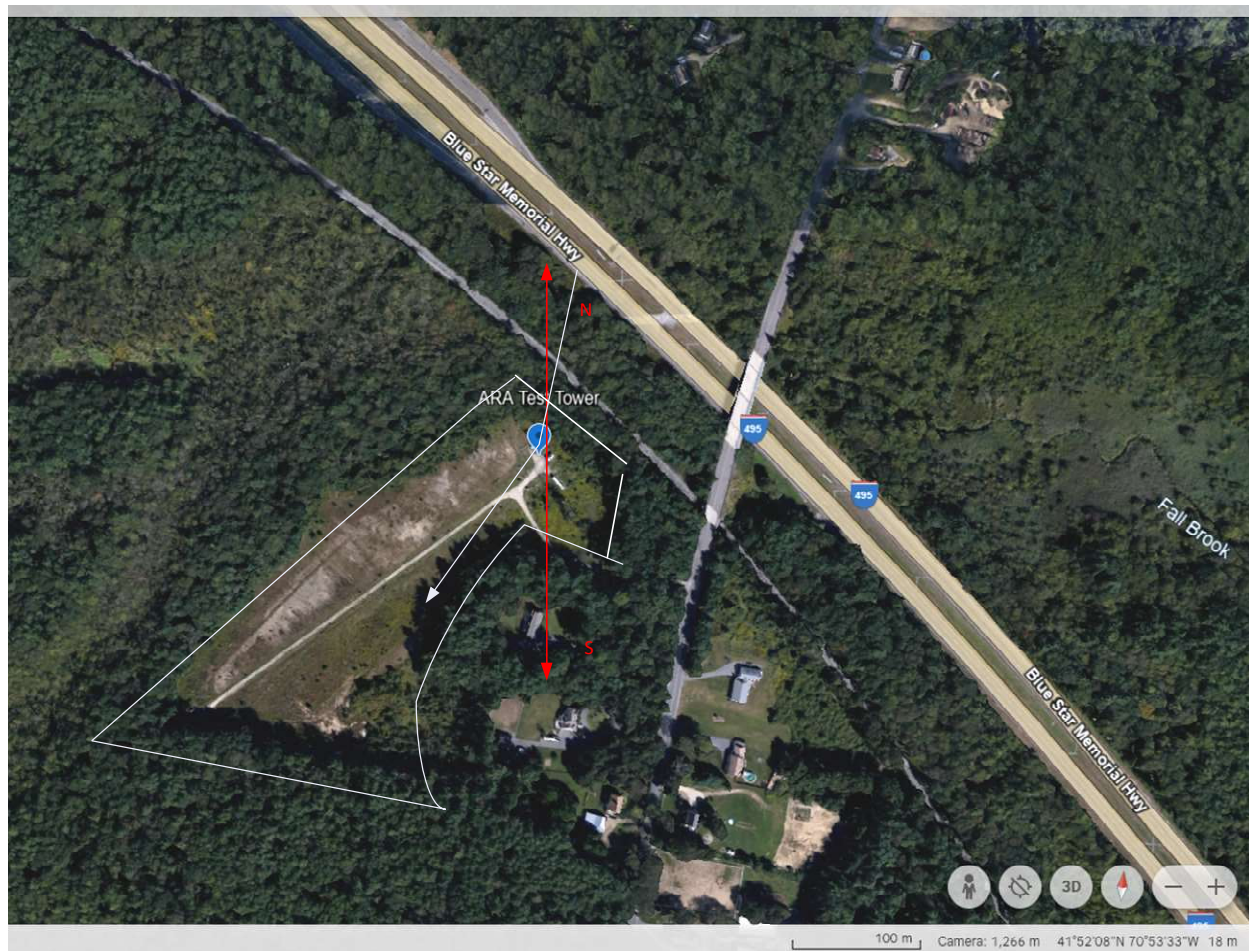


Figure 2 ARA Test Range, boundary, Azimuth Angle of Transmission scan in Azimuth clockwise from  $221^{\circ}$  deg true N to  $15^{\circ}$  degs true N)

The closest public accessible areas are as follows:

- The closest non-ARA occupied building shown on the south side of the range is 396 ft away from base of the tower and outside the transmission azimuth.
- On the North side is a seldom used rail track that has a closet approach of 230 ft to the area of transmission is well outside  $122^{\circ}$ .

- Further North of the site is interstate Highway I-495, the closest approach of the highway to the area of transmission is 475 ft. In addition, with the FAA restricted test period of nighttime 12am to 6 am limited traffic is anticipated.

During the period of operation only ARA trained personnel will be authorized on site. The gate to the site will be closed to the public. In addition, ARA test personnel have access to shutdown transmission at any time without restriction if the need arises.

ARA has an RF Mitigation plan that implements all recommended by the RF exposure study.

1. RF Warning signs installed at base of the tower.
2. Keep proximity keep out area will be marked every test day prior to start of testing with rope to fixed structures, in addition to Traffic cones. The keep out zone will be 55 ft from base of tower in the transmission angle 221 deg N to 15 deg N
3. Test personnel will be equipped with RF monitors during testing.
4. All authorized personnel testing on site will be trained in RF safety procedures such as,
  - a. Verify non personnel in keep area before transmission start,
  - b. No incursion into keeps out area when unit transmitting.

## FCC Questions Feb 2/13/2024

**We recommend asking the applicant the following questions:**

**Q1. Although you note operation between midnight and 6:00 am, we are concerned that campers/early morning hikers/workers on the adjacent properties to the west and north could be exposed to RF exposure levels above the public and/or occupational limit. Please provide information on the extent of areas exceeding the limits on the adjacent properties, including consideration of the actual mounting height of the antenna and reduced reflection coefficient, if warranted. If the area exceeding the limits extends onto adjacent properties and there is an agreement in place with the adjacent property owner(s) regarding mitigation plans, then please provide us with details of that agreement and plan. For example, if the separation distance for exposure of the general population extends into adjacent properties and you have an agreement with those adjacent properties to post signs or indicators marking that region during testing, then please provide that information.**

ARA Response to Q1



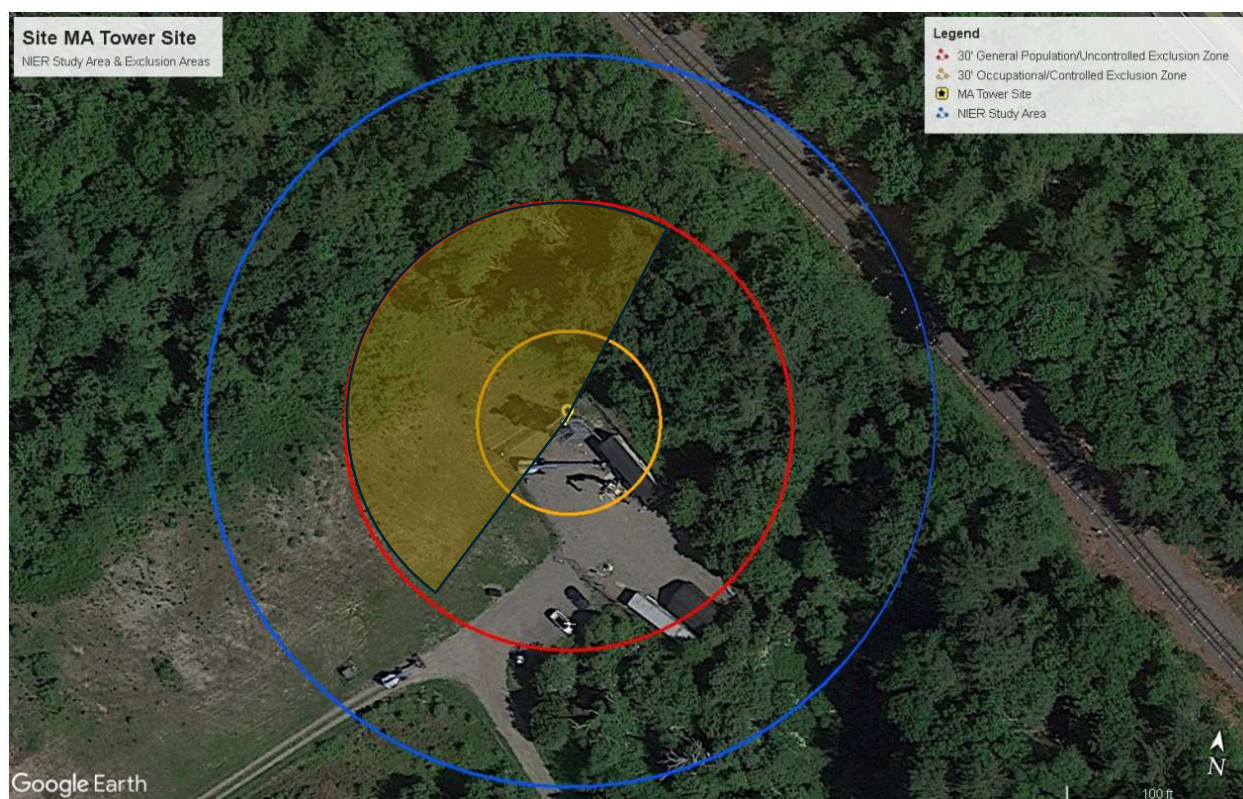


Figure 3 Radiation Exclusion zones from NIER Radiation Study Appendix 1a COR 30' (Red is General public, Yellow is Occupational)

Figure 3 shown above is taken from the non-ionizing radiation study conducted by third party consultant Tower Engineering and submitted. This image shows for an Antenna height of 30' the exclusions zones based on FCC limits for occupational (yellow) and public (red). As shown in this image all the exclusion area falls within ARA controlled property. In addition, based on FAA restriction, the transmission is restricted to 221 deg N to 15 deg N (yellow shaded sector in Figure 3 within red circle), based on this operational limit this further reduces the exclusion. As mentioned earlier the exclusion zone will be cordoned off.

**Q2. In addition to concerns regarding RF exposure on adjacent properties, we are concerned with exposure to individuals who might wander onto to your property during testing. Is there a plan to actively monitor and post signs for any trespassers who might enter areas exceeding the public limit?**

Site access is via a dedicated short road with a locked gate at the end controlled by ARA. During the testing period gate will be locked to prevent public entry with warning noticed posted.

As mentioned previously, trained ARA personnel will be always on site to operate the unit when transmitting, they will be trained to immediately shut down the transmission in the event anyone enters the site or exclusion zone inadvertently.

#### **Addition Clarification from ARA Feb 22, 2023**

ARA will implement mitigation measures in accordance with 47CFR Chapter-I subchapter A Part 1 subpart I section 1.1.1307. ARA will delineate the entire boundary of the General Public Zone (highlighted in yellow in Figure 3) with ropes and warning plates, encompassing all areas within ARA property lines, and extending into the tree line to the non-privately owned property near the railroad track. This land, subject to various easements, regulations, and federal oversight, is uninhabited but essential for the operation and maintenance of the railroad infrastructure. Given the early morning testing window, expansive safety considerations outlined by ARA in its successive radiation hazard abatement submissions to the FCC, and the focused and experienced care that ARA will take in the execution of its test activities, all risk shall be effectively mitigated. Transmission will occur only under the supervision of trained authorized personnel present on-site, who have the capability to halt transmission if necessary.