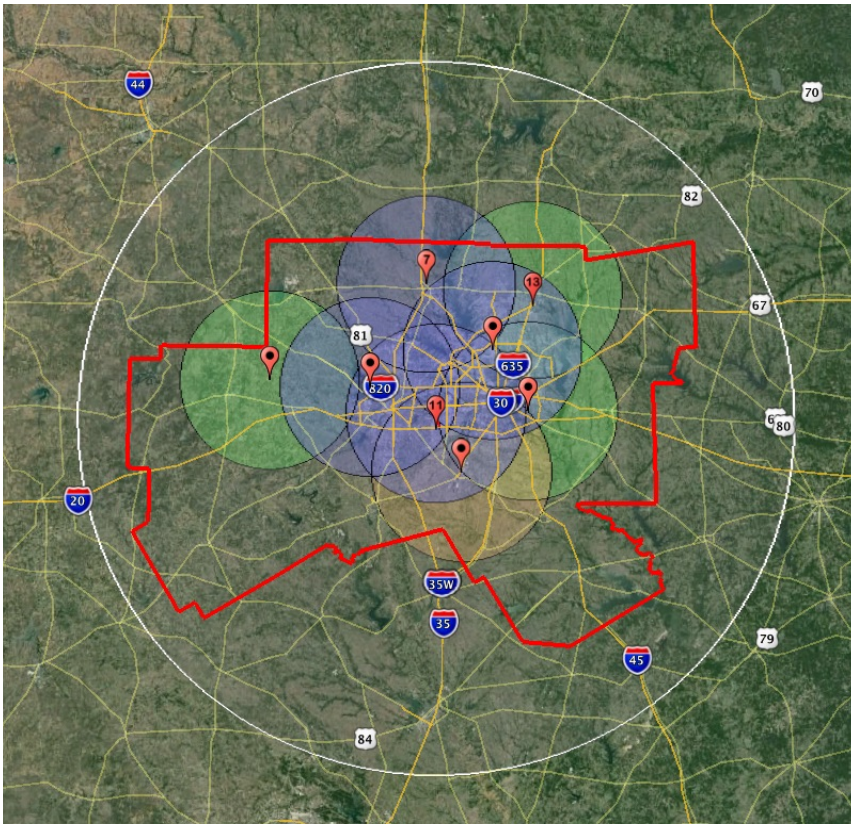
License Scope, Project Management, Radar Network Operations & Spectrum Use

License Scope

As introduced in the Government Project Description exhibit, CASA intends to operate a research network of short range, low power, X-band weather radars in the North Central Texas region. FCC experimental licenses were granted already (WD2XLI, WG2XPH) for the 5 first radar units in the network. However, after consultation with FCC OET (facilitated through NSF, August 5 2013), it was decided to explore the possibility of granting a blanket license for all units to be part of the network, inside a broader operating region (i.e. without the need to specify locations for future units), but with a projection on the maximum number of units.

At this time, we envision the network to grow up to a total of 10 fixed sites, and 2 mobile units. The area of operations is defined as a circle centered at Lat: 32.73 deg, Lon: -97.11 deg with a Radius of 160 km. This encompasses the North Central Texas Region as shown in the picture below.



Red contour is the sixteen-county North Central Texas Region.

White circle is the requested area of operation for all fixed and mobile units in the network to encompass the North Central Texas Region.

Blue circles depict intended coverage area of already licensed radar units under call sign WD2XLI.

Orange circle depicts intended coverage area of already licensed radar unit under call sign WG2XPH.
Green circles depict projected coverage areas of the next three radar units in the network.

Project Management

1. All communications/ correspondence on network operations and spectrum management with the FCC, other government entities and other concerned entities will be handled through the Project Manager.
2. The locations, call signs and frequencies of operations will be maintained by the Project Manager and made available on request.
3. The intent is to conduct radar operations with 40 km operating radius from up to ten fixed locations in the DFW Metroplex and to conduct additional experimental operations from two mobile locations within the sixteen-county North Central Texas region **(pictured above).**

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Operations

1. All radars will be controlled over the Internet remotely from the University of Massachusetts, Amherst.
2. The radar operator will conduct individual system checks before initiating operations and health and status of radars will be monitored continuously throughout periods of operation.
3. Radars will be operated ONLY in anticipation of, and during severe weather, and occasionally during off-operational periods to allow for testing, experiments, maintenance and repair.

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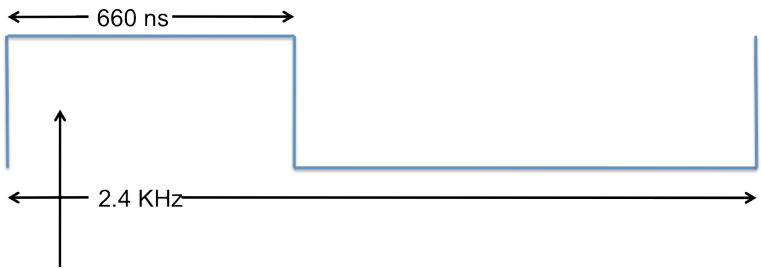
Spectrum Use

1. All radars will operate in X-band in the range 9.3 to 9.5 GHz.
2. Radar center frequencies will be offset as needed to avoid interference between the radars.
3. Emissions labeled as P0N consist of a single frequency carrier pulse train with a pulse maximum length of 660 ns and a maximum pulse repetition frequency of 2.4 KHz. The figure below shows an illustration of such an emission.

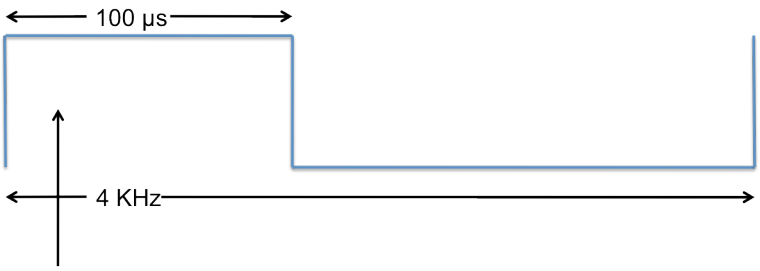
P0N



single frequency carrier
Bandwidth = 1.5 MHz

4. Emissions labeled as Q0N consist of a linear frequency modulated carrier pulse train with a pulse maximum length of 100 us and a maximum pulse repetition frequency of 4 KHz. The figure below shows an illustration of such an emission.

Q0N



Linear frequency modulated carrier
Bandwidth = 10 MHz

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