1. Justification for using a very wide frequency range of Educational Broadband Service, Broadband Radio Service. and Advanced Wireless Service. Any specific reasons not to choose other bands.
    a. Many DoD and USG needs related to our activities to develop and demonstrate new capabilities for DoD- and USG-relevant radio systems are dependent upon supporting wide operating bandwidths. Doing so requires spanning multiple bands for brief periods of time. Experimentation utilizing wider bandwidths, higher power, etc. will be carried out at RF test ranges. This license will support timely experimentation that supports DoD and USG needs without passing on high costs associated with test range operations to DoD and USG parties.
2. An engineering analysis and explanation of how you would specifically avoid causing harmful interference to incumbent EBS, BRS and AWS operations.
    a. The primary means to avoiding harmful interference to incumbent users is through limiting transmission duration. As an experimental station, data analysis and assessment of experimental results is required along with engineering time for the systems. Even during a testing day, operation will be broken up throughout the day into short segments.
    b. To help reduce the chance of causing harmful interference to incumbent operators, we have reduced the system transmitted power levels. This was done by reducing the amplifier output power and by reducing directional antenna gain. An engineering analysis summary table showing link budget and power levels is below.
3. More detailed technical information such as antenna patterns, antenna direction etc. Please explain the need for high level of power, 15,000 watts ERP, associated with non-modulated signal scheme, N0N.
    a. Mobile antennas are vertical, magnet-mounted monopoles (mag mounts). No one specific manufacturer/model is used. A nominal 3dBi, omni-directional azimuth pattern is representative of antennas.
    b. Fixed stations with higher gain utilized standard gain horn antennas with up to 15dBi of gain. A representative antenna is the Pasternack PE9864/NF-15 with an approximate 33deg beamwidth. This fixed antenna will be pointed in the direction of the mobile antennas.
    c. Refer to the included diagrams for an example of operating positions and pointing directions of antennas. Note that the overall power of the systems have been reduced as well as the gain of fixed station antennas.
    d. Power levels / link budget in table below
4. A stop buzzer POC information
   Will Fligor (856) 650-3969

Location	Band	Station	Freqnecy	Bandwidth	PA Power	Attenuated	Ant. Gain	EIRP	ERP	Distance	Path Loss	Power at Dist	SNR
			GHz	MHz	W	dBm	dB	dBm	dBm	ft	dB	dBm	dB
Cherry Hill	L	FX	1	50	5	30.0	15	45.0	42.8	300	71.67	-26.7	70.3
		MO	1	50	5	30.0	3	33.0	30.8	300	71.67	-38.7	58.3
	S	FX	3	125	5	30.0	15	45.0	42.8	300	81.21	-36.2	56.8
		MO	3	125	5	30.0	3	33.0	30.8	300	81.21	-48.2	44.8
	C	FX	5	200	5	30.0	15	45.0	42.8	300	85.65	-40.7	50.3
		MO	5	200	5	30.0	3	33.0	30.8	300	85.65	-52.7	38.3
Moorestown	L	FX	1	50	5	37.0	15	52.0	49.8	3000	91.67	-39.7	57.3
		MO	1	50	5	37.0	3	40.0	37.8	3000	91.67	-51.7	45.3
	S	FX	3	125	5	37.0	15	52.0	49.8	3000	101.21	-49.2	43.8
		MO	3	125	5	37.0	3	40.0	37.8	3000	101.21	-61.2	31.8
	C	FX	5	200	5	37.0	15	52.0	49.8	3000	105.65	-53.7	37.3
		MO	5	200	5	37.0	3	40.0	37.8	3000	105.65	-65.7	25.3

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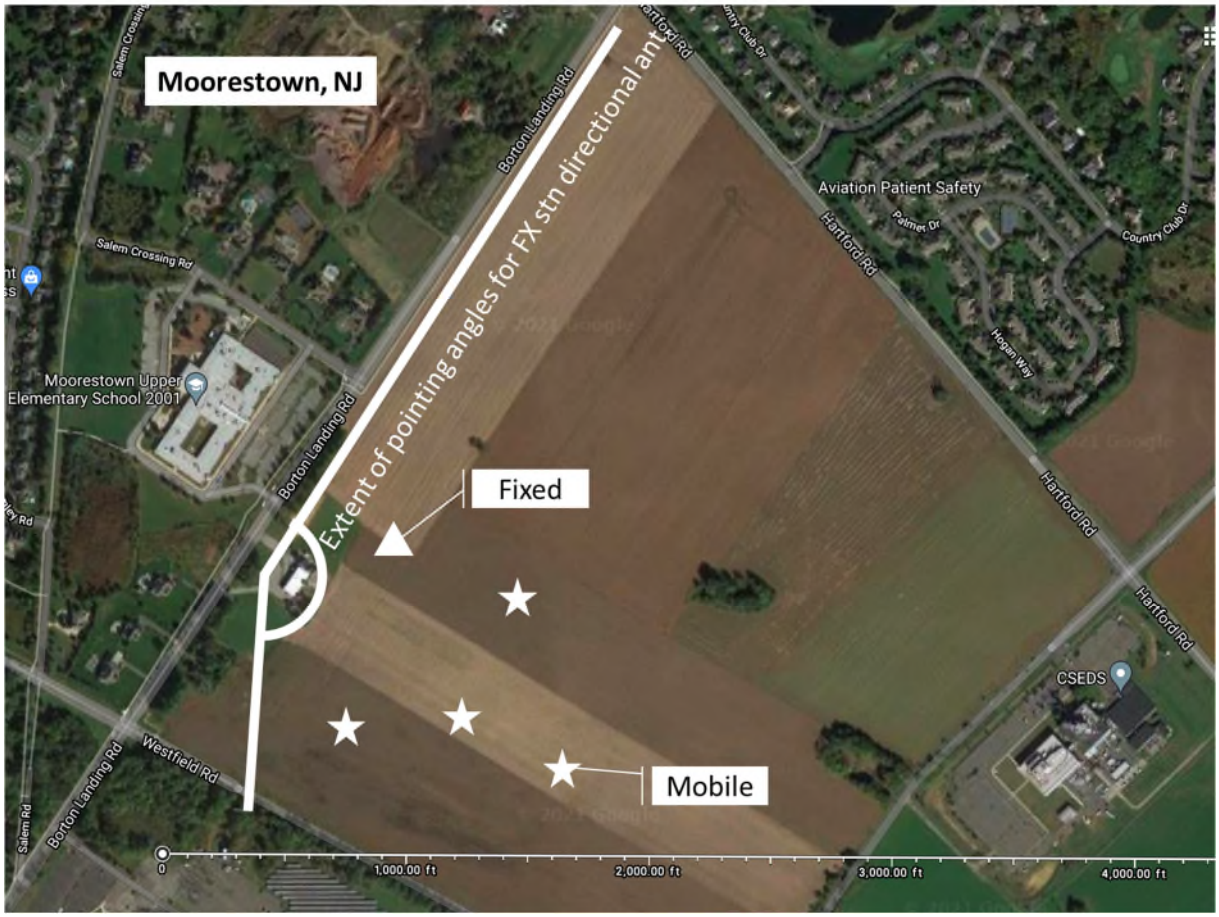
Moorestown, NJ
Extent of pointing angles for FX stn directional ant
Fixed
Mobile
Aviation Patient Safety
Moorestown Upper Elementary School 2001
CSEDS
Salem Crossing Rd
Borton Landing Rd
Hartford Rd
Palmer Dr
Country Club Dr
Hogan Way
Westfield Rd
Salem Rd
0
1,000.00 ft
2,000.00 ft
3,000.00 ft
4,000.00 ft


Cherry Hill, NJ
Extent of pointing angles for FX stn directional ant.
Fixed
Mobile
0
500.00 ft
1,000.00 ft