Description of testing, locations and emissions designators for File Number 0089-EX-CN-2023

The testing uses a radar simulator and a 5G network. The radar simulator operates with a CW or 1 MHz to 20 MHz bandwidth signal transmitted in the range of 3100 MHz to 3450 MHz at a fixed center frequency. The license application requests a wide frequency range so that it accurately represents an unknown radar frequency operating in the band. It also provides flexibility if needed to address technical or interference challenges that may occur during testing.   The radar will be fixed or mobile with a FCC emission designator of 1M0Q7N, 20M0Q7N, or CW (100HN0N). The radar simulator will used am Agilent signal generator or a Spectrum Hound, Vector Signal Generator VSG60a.

The 5G test network utilizes a single TDD 100 MHz channel bandwidth transmitted in the range of 3100 MHz to 3450 MHz at a fixed center frequency. The license application requests a frequency range wider than a 100 MHz frequency span to provide center frequency flexibility if needed to address technical or interference challenges that may occur during testing. Both fixed and mobile transmitters use OFDM modulation with a FCC emission designator of 100M00W7W.

There are no existing man-made structures (hills, trees, water tanks, towers, etc.) which would tend to shield the antenna from aircraft.

 Table 1 describes the technical parameters of the sites required for the network for different phases of the testing. In the beamforming mode, the 3dB beamwidth is anticipated to be approximately 8° in elevation and approximately 2° in azimuth while tracking a target receiver. Without beamforming, the 3dB beamwidth is approximately 8° in elevation and approximately 60° in azimuth. In both cases, the front to back ratio is expected to exceed 20 dB. Mobile devices use omni-directional antennas.

Table 1. 5G Transmitter Description

Site Name	Longitude Latitude	Ant. Height (m) AGL	Ant. height (m) MSL	Azimuth (º)	Total Tilt (º)	EIRP / 100 MHz (dBm)	EIRP / 100 MHz (W)	Emission Designator
SSC Office	38°55'33"N 77°14'39"W	5		Variable	0	65	3162	100M00W7W
SSC Office mobile devices	1 km radius	2	Varies	Omni	Omni	26	0.4	100M00W7W
SSC Office Radar	1 km radius	2	Varies	Varies	0	26	0.4	1M0Q7N, 20M0Q7N, 100HN0N
Integration Location	40°04'29"N 75°17'21"W	5		Variable	0	65	3162	100M00W7W
Integration Location mobile devices	1 km radius	2	Varies	Omni	Omni	26	0.4	100M00W7W
Integration Location Radar	1 km radius	2	Varies	Varies	0	26	0.4	1M0Q7N, 20M0Q7N, 100HN0N

Site Name	Longitude Latitude	Ant. Height (m) AGL	Ant. height (m) MSL	Azimuth (º)	Total Tilt (º)	EIRP / 100 MHz (dBm)	EIRP / 100 MHz (W)	Emission Designator
Field test location	38°35'18"N 77°15'16"W	5		Variable	0	65	3162	100M00W7W
Field test location mobile devices	1 km radius	2	Varies	Omni	Omni	26	0.4	100M00W7W
Field test location Radar	1 km radius	2	Varies	Varies	0	26	0.4	1M0Q7N, 20M0Q7N, 100HN0N
Gov't field test location	40°08'17"N 105°15'18"W	5		Variable	0	65	3162	100M00W7W
Gov't field test location mobile devices	5 km radius	2	Varies	Omni	Omni	26	0.4	100M00W7W
Gov't field test location Radar	5 km radius	2	Varies	Varies	0	26	0.4	1M0Q7N, 20M0Q7N, 100HN0N
Military field test location	41°07'58"N 111°59'55"W	30		Variable	0	65	3162	100M00W7W
Military field test location mobile devices	5 km radius	2	Varies	Omni	Omni	26	0.4	100M00W7W
Military field test location Radar	5 km radius	2	Varies	Varies	0	26	0.4	1M0Q7N, 20M0Q7N, 100HN0N