

February 27, 2019

Nokia Bell Labs  
US LLC

Address:  
600 Mountain Ave  
Murray Hill, NJ 07974

RE: Addition of Station and Antenna Registration: Directional Antenna Information License Service Application, File No. 0034-EX-CM-2019 (modification to existing experimental license, call sign WI2XFC, File No. 0217-EX-CM-2018)

This is the exhibit for the directional antennas. The same exhibit has been provided in the already granted experimental license, call sign WI2XFC.

Fixed/Base Stations:

- Access Point (AP) will use multiple antennas:
  - No downtilt
  - No tilt in azimuth
  - Minimum azimuth beam width (-3dB to -3dB), 45 degrees
  - Maximum azimuth beam width (-3dB to -3dB), 90 degrees
  - Minimum elevation beam width (-3dB to -3dB), 8 degrees
  - Maximum elevation beam width (-3dB to -3dB), 22 degrees
  - Beam direction perpendicular to antenna array surface

User Devices:

- User Device (UD) will use multiple antennas
  - No downtilt
  - No tilt in azimuth
  - Minimum azimuth beam width (-3dB to -3dB), 45 degrees
  - Maximum azimuth beam width (-3dB to -3dB), 90 degrees
  - Minimum elevation beam width (-3dB to -3dB), 8 degrees
  - Maximum elevation beam width (-3dB to -3dB), 22 degrees
  - Beam direction perpendicular to antenna array surface

Nokia proposes to operate using BPSK, QPSK, 16QAM, 64QAM, and 256 QAM modulation.

Transmit bandwidths are: 400 and 800 MHz.

The primary emission designators are:  
400MW7W  
800MW7W

The equipment is configured to operate at a Maximum Transmit power of 47.8 Watts EIRP. Nokia will vary the actual powers within the

maximums noted above to test coverage results.

New Station added to Application with the same parameters as the existing stations.

City – Cypress Waters

State – Texas

Address – 3201 Olympus Boulevard

Latitude North 32 56 8

Longitude West 96 59 1

Yours sincerely,

Glenn Steitz

Senior Manager

Nokia Bell Labs

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