

November 16, 2018

Nokia Bell Labs
US LLC

Address:
600 Mountain Ave
Murray Hill, NJ 07974

RE: Directional Antenna Information
License Service Application, File No. 0923-EX-CN-2018

This is the exhibit for the directional antennas.

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
800MW7N

The equipment is configured to operate at a Maximum Transmit power of 251 Watts ERP. Nokia will vary the actual powers within the maximums noted above to test coverage results.

New Station Parameters

City – Peoria

State – Illinois

Address – 5713 N. Humboldt Avenue

Latitude North 40 45 16

Longitude West 89 35 19

Yours sincerely,

Glenn Steitz

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