

TowerStream Corp., (TowerStream) a leading provider of fixed wireless services for major markets in the U.S., plans to develop and deploy systems for the delivery of efficient, affordable high-speed Internet access to homes and businesses utilizing radio spectrum in the 4.9 – 5.1 GHz band, 5.47 – 5.725 GHz band, and 5.725 – 5.850 GHz band (5 GHz band). To support this advanced system development, TowerStream hereby requests an authorization to conduct system performance trials in the Chicago, IL area to determine the relationship between theoretical performance predictions and actual system performance of new technology for high speed Non-Line Of Sight (NLOS) wireless broadband service under signal propagation conditions typical in the Chicago, IL area.

The objective of the system trials proposed herein is to determine the feasibility and optimum equipment configuration requirements for utilization of the 5 GHz band to deploy high-speed NLOS wireless data services to indoor and outdoor installations within the Chicago, IL area using Time Division Duplex (TDD) technology.

TowerStream proposes to utilize 20 MHz-wide channels. Primary base station and remote equipment for these trials will be the Alvarion, Breeze Access VL and Redline Communications, AN50E. This equipment has been configured for transmissions in the 5 GHz band. All base stations and remote devices utilized by TowerStream for these tests will be professionally installed and will operate in compliance with Part 15. Information provided by the manufacturer for the antennas and transmission equipment is attached for reference as Exhibit 3 and 5E.

While this equipment already meets Part 15 requirements, a specific goal of these tests is to monitor for interference in the adjacent frequency bands. From these tests, TowerStream can determine if additional filtering at the band edges is necessary to avoid adjacent channel interference problems. Should interference to existing adjacent channel users of this band occur, TowerStream will take immediate action, including discontinuance of operation, to eliminate the interference.

In addition to the instant request for testing in the Chicago, IL area, TowerStream also is simultaneously requesting similar permission to test transmissions in several other markets.

An important aspect of these trials is to determine the coverage capabilities of this band for fixed Part 15-type wireless communications systems to both indoor and outdoor user installations. As this band has previously not been used for this type of service, the results will be used to establish the minimum system design specifications required to achieve reliable coverage in the typical metropolitan area. Parameters to be determined by the system tests will include the following:

- Maximum coverage area from a single hub site;
- Signal reliability over time;
- Signal penetration losses through foliage and building walls;
- Changes in signal propagation due to weather conditions; and
- System durability based on the number of users simultaneously accessing the network.

TowerStream already holds significant experience providing wireless high-speed two-way data services to customers in other frequency bands in a variety of markets. TowerStream has learned how the local geography, land clutter, atmospheric conditions and frequency of operation affect propagation characteristics of these systems. Along with the technical characteristics of its existing operations, TowerStream also has learned the business and communications demands of its customers within its service areas. From this technical and market experience, TowerStream is uniquely qualified to model operation in the 5 GHz band to determine its ability to match the reliability and quality of service expected by residential, business and educational customers.

The data obtained from these tests will contribute to the further development and utilization of unlicensed operations. Upon successful completion of these trials, TowerStream will report its data and other findings from these tests to the Commission to support future Rules for this service.

For further information regarding the information submitted herein, please TowerStream's counsel, Donald L. Herman.