

Narrative Statement

Description of Proposed Experimental Operation

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Exhibit 1TowerStream Corp.
Boston, MA

TowerStream Corp., (“TowerStream”) a leading provider of fixed wireless services for major markets in the United States desires to develop and deploy systems for the delivery of efficient, affordable high-speed Internet access to homes and businesses utilizing radio spectrum in the 3650 - 3700 MHz band. To support this advanced system development, TowerStream is requesting an authorization to conduct system performance trials in the Boston, MA 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 Boston, MA area.

The objective of the system trials proposed herein is to determine the feasibility and optimum equipment configuration requirements for utilization of the 3650 - 3700 MHz band to deploy high speed NLOS wireless data services to indoor and outdoor installations within the Boston, MA area using Time Division Duplex (“TDD”) technology. Additionally, these system trails will help ascertain the interference impact of system transmissions on existing co-channel and adjacent channel Fixed Satellite Service (“FSS”) facilities. The results of these tests will be used to establish the minimum system parameters and hardware required to provide reliable, affordable high speed wireless data services without an adverse impact on existing FSS operations.

TowerStream proposes to utilize 6 MHz-wide channels utilizing Quadrature Amplitude Modulation with an EIRP not to exceed 37.5 dBm (5.6 watts). All transmission devices will be fixed and located within a 16 km radius area. Primary base station and remote equipment for these trials will be the *PacketWave*® system developed by Aperto Networks and configured by the manufacturer for transmissions in the 3650 MHz 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 and within the parameters and power levels considered in the Notice of Proposed Rule Making, ET Docket No. 04-151. Information provided by the manufacturer for the antennas and transmission equipment is attached for reference as **Exhibit 2** and **Exhibit 3**.

To assure protection of existing FSS earth stations and Federal Government operations in this band, a search of the IBFS database was conducted to identify facilities in the 3650 - 3700 MHz band located within 180 km of the proposed service area. This separation distance is the maximum radius of the FSS Protection Zone as considered in the NPRM (NPRM at 45 - 47). A print-out of the database study is attached as **Exhibit 4**. As demonstrated by the database search, the nearest facilities were found to be more than 247 km distant, well outside the protection zones proposed in the NPRM. Due to the distance separation of the proposed operations to the existing facilities in the database, no interference to FSS earth stations and Federal Government operations is expected to occur. Should interference from these experimental operations occur to existing authorized facilities, the tests will be suspended pending resolution of the interference.

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While this equipment already meets Part 15 requirements and has a good compliance record from its utilization in the 2.4 GHz and 5.8 GHz bands, 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 Boston, MA area, TowerStream also is simultaneously requesting similar permission to test transmissions in several other markets. These additional tests are requested since the distribution of co-channel and adjacent channel FSS facilities along with factors affecting signal propagation, such as local terrain and ground clutter, vary in each market.

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
- System durability based on the number of users simultaneously accessing the network

Up to 150 test sites will be utilized at various distances from the hub site. Locations currently utilizing regular TowerStream service on other spectrum will be utilized for the test transmissions. By using TowerStream's extensive customer base for these tests, the impact of an actual full system deployment can be experienced for this spectrum. Since a TDD system is proposed, a maximum of only six of simultaneous transmissions will exist at any one point in time. Once service is verified at a test site, the trial of service availability at that site continues on a 24-hour basis for at least 1000 hours. Reports from volunteer users at each site are utilized to determine system performance and reliability.

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 3650 - 3700 MHz spectrum to determine its ability to match the reliability and quality of service expected by residential, business and educational customers.

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The data obtained from these tests will contribute to the further development and utilization of unlicensed operation as a secondary service to FSS earth stations and government operations in the 3650 - 3700 MHz band. 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.

Should the Commission require further information or materials regarding the information submitted herein, such will be promptly furnished upon request.