

9 April 2002

EXHIBIT 1: Description of 3.4 GHz Experiment and Experimental Objective

Applicant: CoWave Networks
File No.: 0069-EX-PL-2002

NOTE: This experimental license application is an update for an expired STA, file number 0310-EX-ST-2001

1. Complete program of research and experimentation proposal including description of equipment and theory of operation:

The main objective of the proposal is to demonstrate the feasibility of the CoWave system for delivering broadband fixed wireless to residential and small business customers. Typically residential neighborhoods are one of the toughest radio propagation environments for providing high quality wireless services, such as broadband access.

The experimentation proposed consists of a base station subsystem communicating to a number of customer premise units in the proposed frequency band of operation (i.e., 3.4-3.8 GHz). The CoWave system is based on OFDMA/TDD (Orthogonal Frequency Division Multiple Access, Time Division Duplexing) within a 5 MHz RF channel, and with an occupied bandwidth of 4.75 MHz. The system employs innovative radio and medium access technologies to deliver the broadband service to the customer premise unit with a high Quality of Service (QoS). The base station and CPE elements are connected via 10/100 BaseT Ethernet ports to the network router or customer's personal computer respectively. Services demonstrated would include high-speed Internet access (typical speeds 1-2 Mbps), VoIP telephony, and other QoS dependent services such as video-on-demand (VOD).

Base Station Specifications:

Frequency bands of operation: 3.4 - 3.8 GHz
Channelization: 5 MHz
Occupied bandwidth: 4.75 MHz
Multiple access schemes: OFDMA/TDD
Modulation: Adaptive modulation selected among QPSK, 16QAM, and 64QAM.
Transmit power at Input to Antenna: 33 dBm max.
Antenna gain: 18 dBi typical max.
Network interface: 10/100 Base T Ethernet to router.
Power source: 120 Vac or -48 V dc.
Physical configuration: 19" rack mounted.

Customer Premise Unit Specifications:

Frequency bands of operation: 3.4 to 3.8 GHz.
Channelization: 5 MHz
Occupied bandwidth: 4.75 MHz
Multiple access schemes: OFDMA/TDD
Modulation: Adaptive modulation selected among QPSK, 16QAM, and 64QAM.
Transmit power at Input to Antenna: 33 dBm max
Antenna gain: 10 dBi (typical)
Network interface: 10/100 Base T Ethernet to Personal Computer.
Power source: 120 Vac.
Physical configuration: Desktop (typical); Rack mount (option)

2. Specific objectives sought to be accomplished:

The main objective of this experimentation is to demonstrate non line-of-sight, bi-directional, wireless broadband (i.e., 1-2 Mbps) data transmission between a base station and customer premise units over distances of 2 to 5 miles.

3. How the program of experimentation has a reasonable promise of contribution to the development, extension, expansion, or utilization of the radio art, or is along the line not already investigated:

As mentioned earlier, delivering high bandwidth services using wireless means with sufficient quality of service has been very challenging and no commercial system available today can demonstrate this capability. The CoWave system uses innovative radio and medium access control technologies to achieve this capability. We believe that this is a technological breakthrough which when commercialized will provide broadband wireless access to a number of residential and small business customers who are now deprived of such service through conventional wireline (i.e., cable modem or DSL), or wireless means.