

## **Request for Experimental License Exhibit**

### **Purpose:**

AT&T Laboratories wishes to conduct tests with experimental radios and antenna systems to evaluate the performance of a novel short distance microwave radio digital communications network. We hope to evaluate various performance characteristics of the system in a real world suburban/office park outdoor environment. Performance characteristics such as data throughput, latency, error rates, availability and susceptibility to and generation of self and external interference will be investigated.

### **Radio Systems:**

The radio systems will be custom built and tested by AT&T Laboratories personnel using microwave radio components from various suppliers. Each radio unit will be housed in a standard weatherproof outdoor enclosure. A radio unit may consist of a transmitter, a receiver, or typically both. The maximum transmitter power of any radio unit will not exceed 35 dBm (3 Watts).

### **Antenna Systems:**

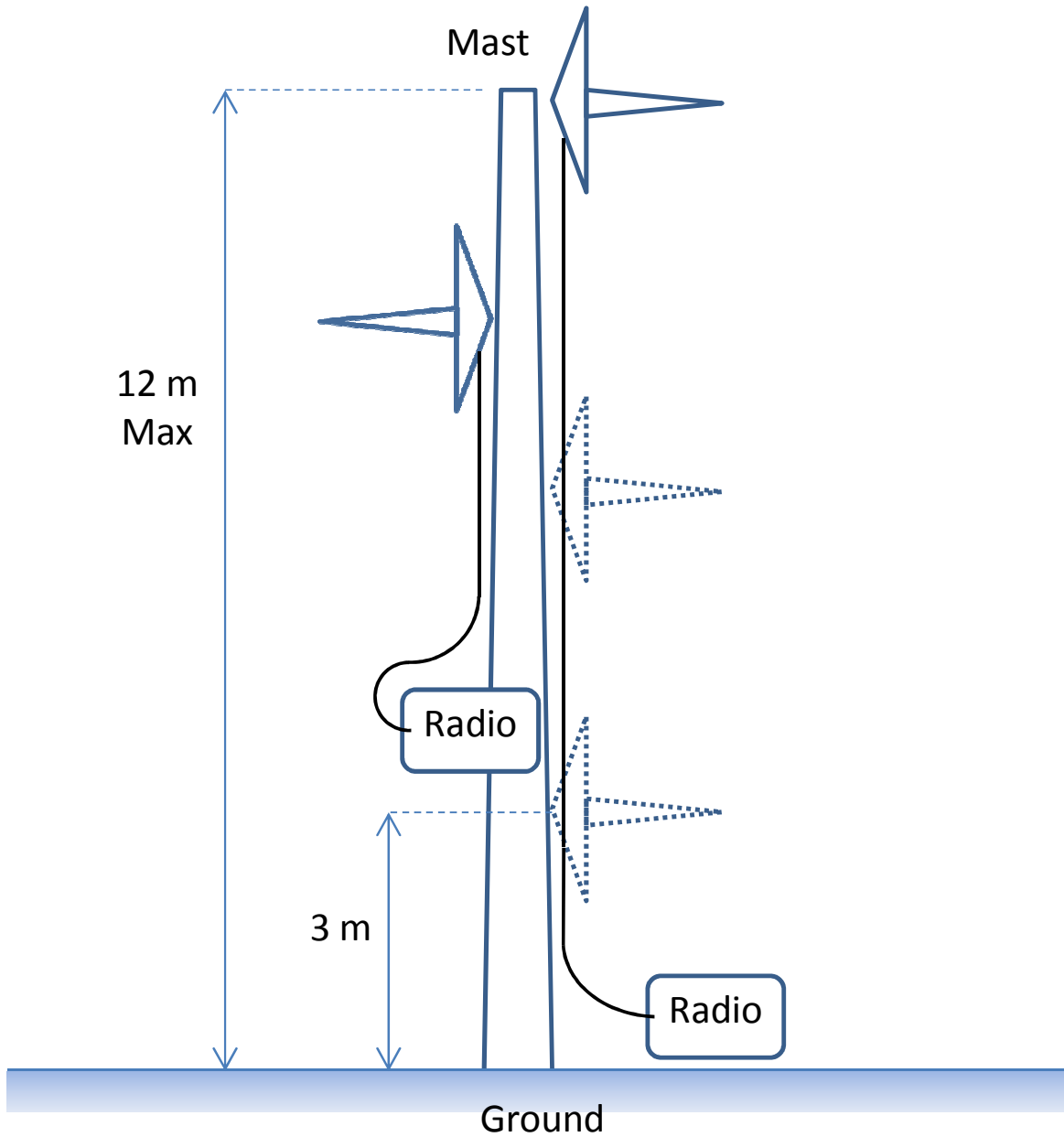
The antenna systems will also be custom built and tested by AT&T Laboratories personnel. The antennas may be completely fabricated in a machine shop, or modifications to existing available antennas and/or microwave waveguide components. Much of the experimentation will be centered around different antenna configurations so that the exact antenna gains and beamwidths that may be used are unknown at this time. However the maximum gain of any antenna deployed will not exceed 15 dBi. Furthermore the main lobe of any antenna deployed will be pointed approximately to the horizon. The azimuthal orientation of the main lobe of the antenna may be arbitrary. Antennas will be mounted on rigid masts not exceeding a height of 12 meters (40 feet) above the ground level. See the diagram in Figure 1.

### **Equipment Deployment:**

The radio units will be deployed at various outdoor locations around the AT&T Labs office facility located at 200 S. Laurel Ave., Middletown, NJ 07748 in Monmouth County. All transmitters will be within 0.7 Km (700 meters) of 40:23:48.9N 74:08:05.7W NAD83. The ground elevation at the Middletown office facility varies from about 60 feet to 145 feet above mean sea level. No more than 12 radio transmitters will be operated simultaneously.

### **Spectrum Use:**

The radio transmitters may occupy spectrum from 3100 MHz to 3650 MHz. Each radio will use some number of digitally modulated 6 MHz channels in this band. Different transmitters may use the same, different, or some of the same channels as each other. The total power of any transmitter will not exceed 35 dBm (3 Watts) over all the channels that it uses.



**Figure 1 - Possible Antenna Deployments on Mast**