EXHIBIT 1

The area of operation for Endgate's program of research and experimentation will be a rectangle bounded on the west by longitude 122° 30' W, on the south by latitude 37° 10' N, on the east by longitude 121° 45' W and on the north by latitude 37° 50' N. Endgate's factory, located at 37° 23' 14" N, 122° 1' 45" W, lies approximately in the center of the southern half of this rectangle and will serve as the location of at least one terminal for links established throughout the area. Also most of the short haul and production testing will be within or in the vicinity of Endgate's factory. The other terminals for three links currently being considered are at 37° 13' 41" N, 122° W and at 37° 20' 20" N, 122° 4' 38" W and at a to-be-determined site in downtown San Francisco (37° 47' N, 122° 25' W).

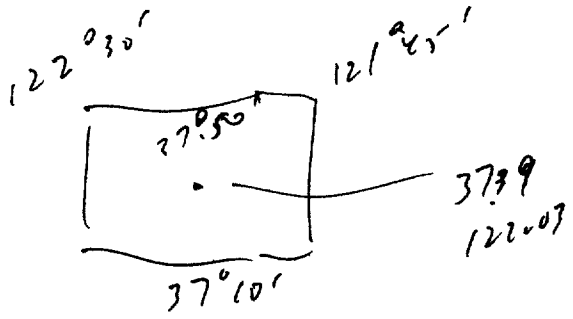

EXHIBIT 2

TEST PROGRAM: 2.02(i)

- Engineering Development:: In order to evaluate the performance of the various versions of the *Syrah 23* transceiver, a number of test links will be established between a fixed base terminal at Endgate Corporation's building in Sunnyvale and multiple sites within a 25 km radius with a special extension to downtown San Francisco. Links will be needed for characterizing the transceiver's performance in each of the 6 frequency bands being developed, for operation at low and high data rates and for a long term reliability demonstration. Additionally, a several antenna types will be mixed and matched with these links in order to ascertain their impact on the transceiver's performance. This effort will be on-going for approximately 24 months.
- Customer Demonstrations: As the opportunity arises, the engineering test links described above will also be employed to demonstrate system performance to prospective customers. Demonstrations will be both of existing products and of enhanced versions tailored to satisfy a specific customer's requirements. (f)
- Production Testing: The *Syrah23* transceiver will enter production in September of 1996 and will be continuously undergoing test in all of its frequency bands. A number of the final tests on the transceiver will necessitate radiation from a transmitter to a receiver within the Endgate manufacturing facility. (g)

EQUIPMENT DESCRIPTION: The specific equipment to be evaluated consists of pairs of Endgate *Syrah 23* transceivers using either of two antenna types. The transceiver pairs are band specific and will be transmitting in 6 frequency bands in the range of 21.2 to 23.6 Ghz. Each of these bands is 400 to 600 MHz wide with separation between the transmit and receive frequencies of 1008 MHz, 1200 MHz or 1232 MHz. Each transceiver is capable of full duplex operation and can supply a minimum of +16 dBm to the antenna input port. The modulation schemes employed are 4FSK at rates up to 105 Mbits/sec. and QPSK up to 155 Mb/sec. Maximum occupied bandwidth by any one transmitter will be 100 MHz.

One of the two antenna types to be concurrently evaluated is a reflector type, varying from 1 to 2 feet in diameter, having a directive gain of 34 to 40 dBi and a half-power beamwidth of 1.6 to 3.3 degrees. The other antenna type is a 13 inch square, flat plate, microstrip patch array providing a net directive gain of approximately 29 dBi and a half-power beamwidth of 2.2 degrees. Additionally, standard horns of 10 dB and 20 dB gain will occasionally be employed for measurement purposes.

THEORY OF OPERATION: The Endgate *Syrah 23* transceiver constitutes the microwave portion of a 23 GHz digital radio. It accepts a bipolar base band input to frequency modulate a 2230 MHz oscillator whose output is upconverted in a single sideband mixer to 23 GHz, amplified and fed through a diplexer to the antenna. The receiving section accepts the incoming signal from the antenna through the diplexer and amplifies it in a low noise amplifier. After amplification, the receive signal is downconverted in a image reject mixer to an intermediate frequency of 998 MHz, 1030 MHz or 1222 MHz where it is filtered, amplified and further downconverted to the output IF of 140 MHz. Further filtering and demodulation occur in a radio processing module supplied by the digital radio manufacturer.

The transceiver local oscillator, which is common to both the transmit and receive sections of the transceiver, consists of a varactor-tuned, fundamental GaAs FET synthesizer locked to a 12 MHz reference oscillator. All oscillators within the transceiver are also phase locked to this same reference.

The antenna used by the transceiver will depend on the purpose and nature of the link. For maximum distance and link margin a high gain reflector antenna will be needed while for shorter hauls the flat plate array antenna may suffice. The high gain antennas employ a splash plate feed for a 1 to 2 foot parabolic reflector. For these antennas the design objective was to realize low cost, high gain, low loss and low sidelobe antennas to complement the transceiver. The flat plate array antenna was designed for less demanding installations where convenience, small size and very low cost are desirable. The array antenna consists of an 32 by 32 array of microstrip patches printed on a soft microwave substrate. The 1024 patches are fed in phase via a coplanar corporate feed with varying amplitudes to yield a tapered illumination aperture. The directive gain of 29 dBi is net of feed losses.

OBJECTIVES:

- Test transceivers and antennas to determine performance margins and limits.
- Test transceivers and antennas to customers specifications in a manufacturing environment.
- Test reliability and availability during continuous operation subject to fades due to weather, intermittent obstructions and multipath.
- Evaluate performance at maximum bandwidth and determine bit error rate (BER) versus bit rate.
- Evaluate and characterize performance of a variety of the two antenna types to include gain, beamwidth and sidelobes.
- Develop a knowledge base from data gained from above to facilitate future, higher performance, more cost effective transceiver and antenna designs.
- Demonstrate transceivers and antennas to prospective customers. 202(f)
- Determine second and third harmonic radiation.

CONTRIBUTIONS TO RADIO ART: Endgate Corporation is committed to applying state-of-the-art GaAs devices and millimeter wave design techniques to commercial microwave and millimeter wave products. The overall goal is to transform this previously expensive technology into cost-effective solutions for commercial applications. Lower cost, smaller and higher performance 23 GHz radios will enable an expansion of the wireless communications market by providing affordable bypass networks, interfacility networks, etc. Endgate's contribution will be in bringing the benefits of advanced millimeter wave technology to the commercial communications market place.