

EXHIBIT NO. 1

(Reference: Item No. 4(F))

The pulse duration is adjustable from 400 nanoseconds to 12 microseconds. Bi-phase (180°) modulation may be employed in minimum intervals of 400 nanoseconds.

The pulse repetition frequency is also adjusted to the mode of operation, but cannot exceed 50 KHz.

EXHIBIT NO. 2

(Reference: Item No. 4(G))

Simple calculation using the minimum 400 nanosecond pulse/code cell durations yields:

Signal Level Below Peak;	Bandwidth;
-3 dB	2.2 MHz
-10 dB	3.7 MHz
-20 dB	12.7 MHz

These values have been confirmed by measurement.

Exhibit 3
(Reference Item No. 5b)

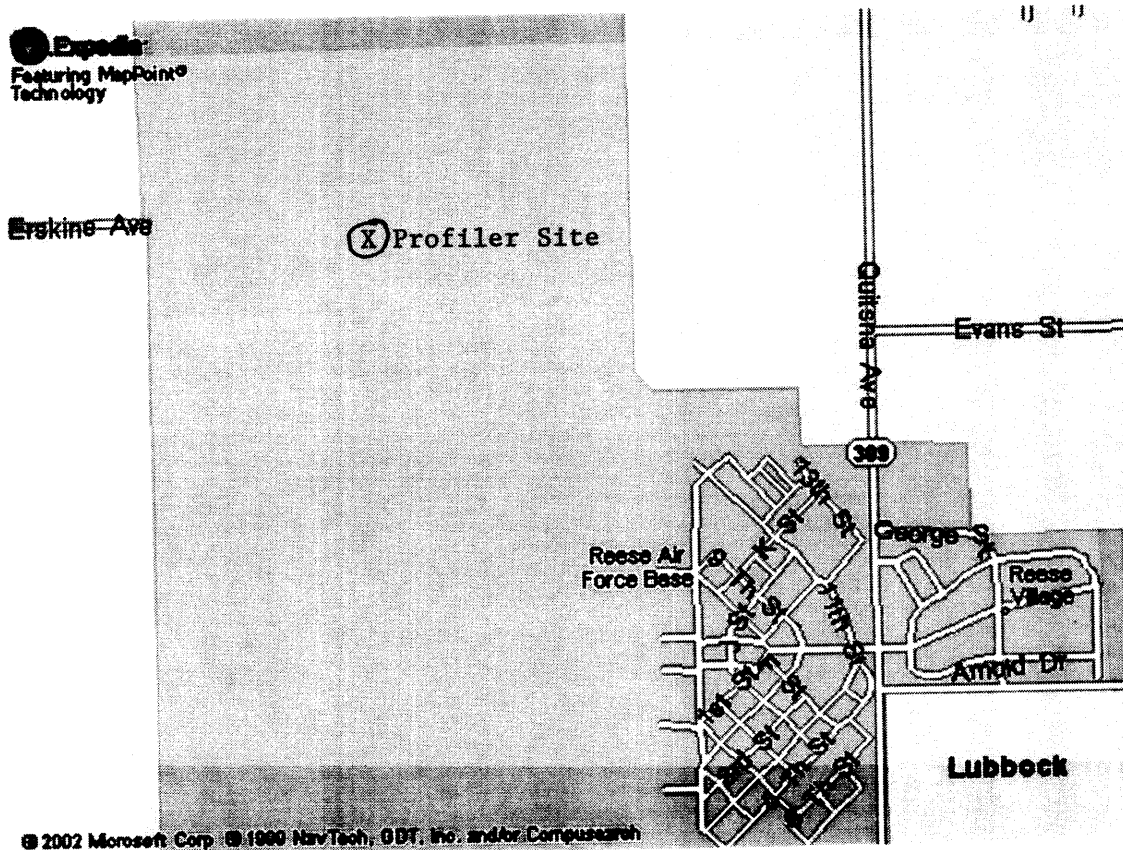
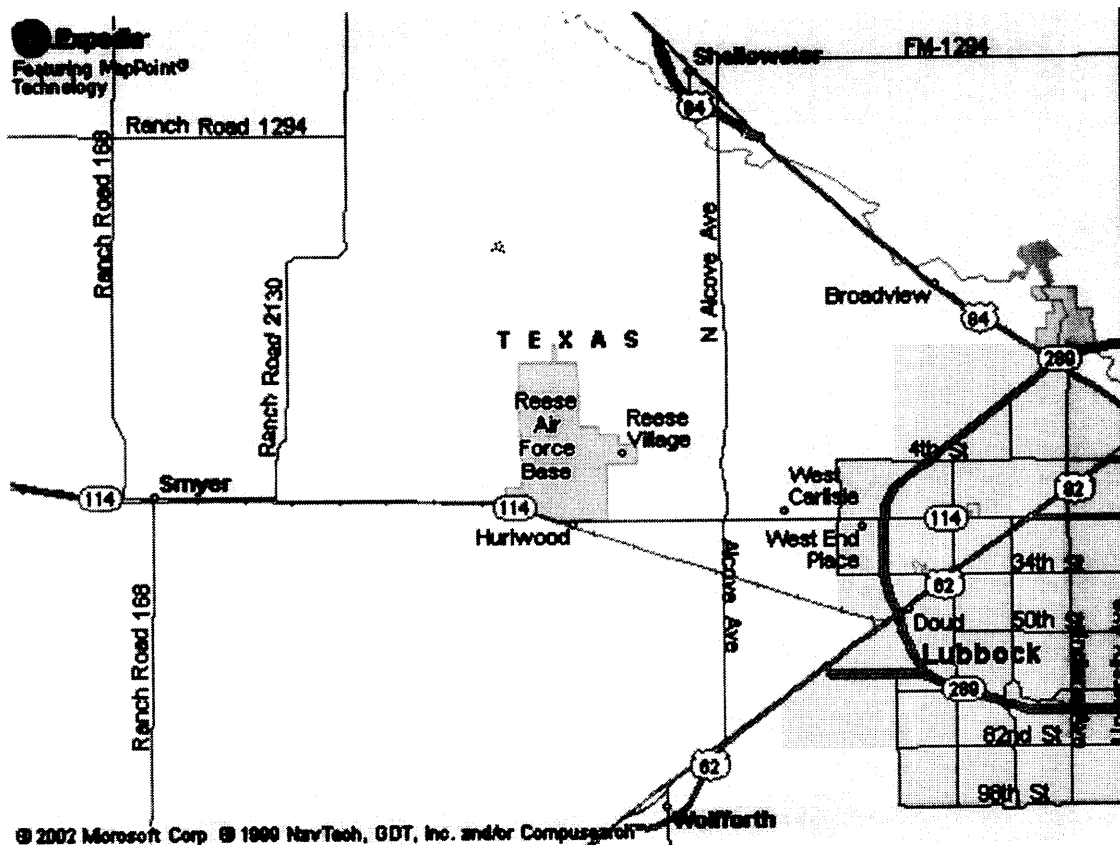


EXHIBIT NO. 4

(Reference Item No. 6)

The antenna system will consist of one steerable four-panel micro-patch phased array planar antenna with sidelobe reduction fence. The antenna will be pointed vertically with electrically switched delays introduced to point it 23.5° off vertical in planes that are 90° from other. The antenna will have a beamwidth of $\sim 9^\circ$ by 9° and ~ 26 dB of gain.

Normal operation will consist of sequential transmissions in each of three (two oblique and one vertical) or five (four oblique and one vertical) directions.

Exhibit No. 5

(Reference Item No. 10)

This application is for a wind profiling radar system. This system was developed in a cooperative research and development agreement between the National Oceanic and Atmospheric Administration (NOAA) and the wind profiler business unit, (formerly a part of Radian International), of Vaisala Inc. Wind profiling radar depends on the scattering of a transmitted signal by irregularities in the index of refraction of the air. The irregularities are caused by turbulent eddies created by the wind. By receiving the scattered signal and determining the Doppler frequency, the speed of the wind can be determined. Temperature data can also be obtained by measuring the velocity of propagation of an acoustic signal in the axis of the vertical radar beam. The hardware involved will be a receiver/modulator, a final amp/preamp, a digital control and data processor, and an antenna system. These items were developed at NOAA and fabricated by Vaisala Inc. Data from the profiler under this license will provide hourly and sub-hourly profiles of low level wind between 100m and 5,000m and virtual temperatures between 100m and 2,500m.

The system to be owned and operated by Texas Tech University under this request will collect wind and virtual temperature profiles of the atmosphere above the location in para. 5b. The data will be collected to support the West Texas Mesonet Program. This program is the result of a contract between the state of Texas and Texas Tech University to collect and utilize meteorological data in the west Texas area. A secondary goal of the program is to create new jobs in the area of Lubbock, TX as an alternative to those lost due to the closure of Reese Air Force Base.

The radar wind profiler data will be used to measure wind speed, wind direction and virtual temperature throughout the lower atmosphere. This data will be provided free to everyone (including all government: federal, state, local and university agencies). The measurement of wind speed and direction from the profiler will be used in conjunction with other in-situ weather instruments to study the impact of wind on buildings, towers and other structures. The measurement of virtual temperature will be used to generate stability indices for the boundary layer (lower atmosphere).