

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))

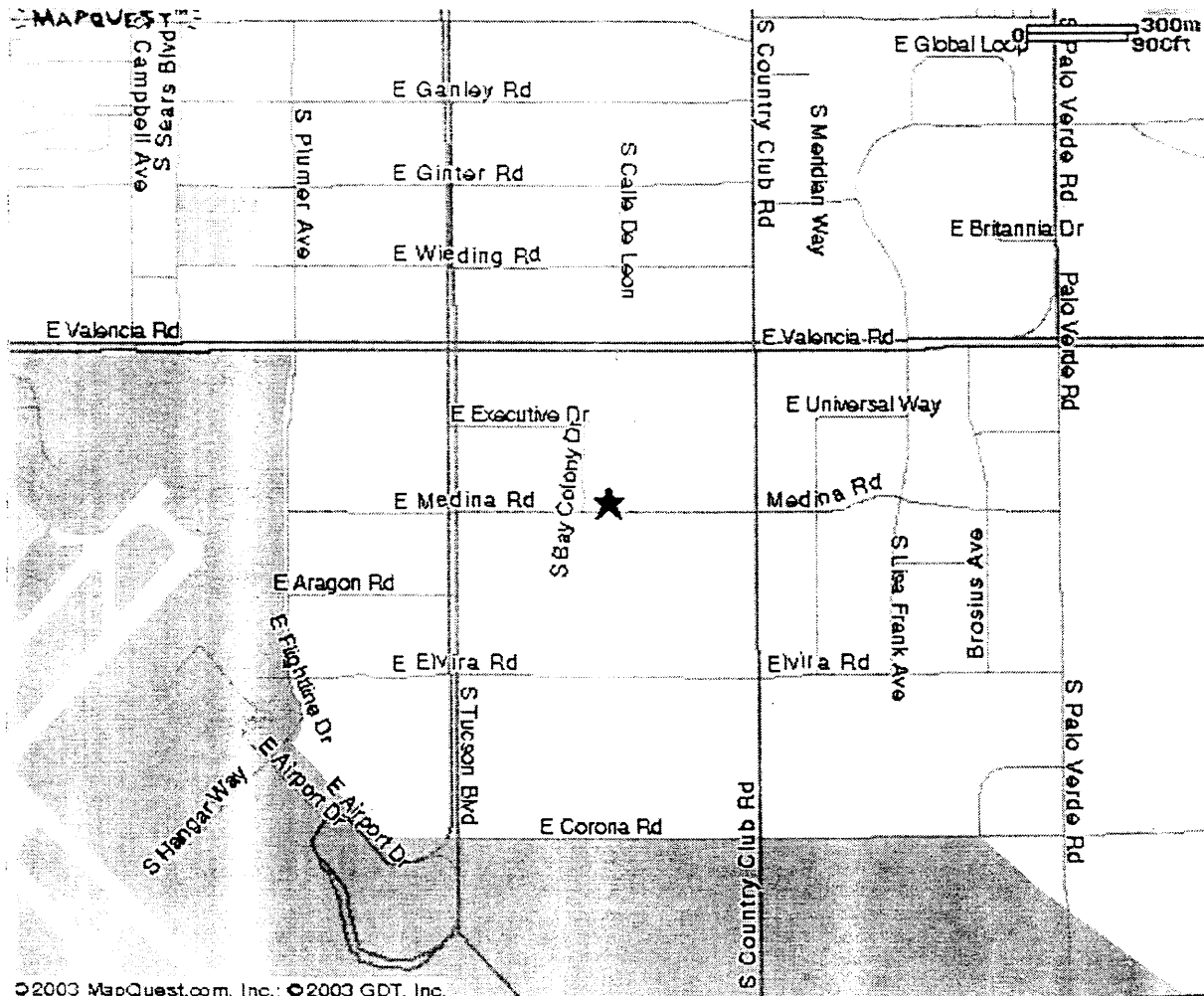
Simple calculation using the minimum 400 nanosecond pulse/code cell durations
yields:

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 NO. 3

(Reference: Item No. 5b)



© 2003 MapQuest.com, Inc.; © 2003 GDT, Inc.

All rights reserved. Use Subject to License/Copyright

NAVTECH
ON BOARD

EXHIBIT NO. 4

(Reference: Item No. 6)

The antenna system will consist of one steerable four-panel micropatch phased array planar antenna with sidelobe reduction fence. The antenna will be pointed vertically with electrically switched delays introduced to point it 15.5° off vertical in planes that are 90° from one another. 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 are fabricated by Vaisala Inc.

It is intended that the final system integration and testing will be performed at the Vaisala Inc. factory location specified in paragraph 5b. The production systems to be owned and operated by Vaisala Inc. under this request will collect wind and virtual temperature profiles of the atmosphere above the location in paragraph 5b. The primary purpose of this operation is for intermittent production burn-in testing of completed systems purchased by the weather and environmental research community, but data may also be used to supplement the national weather radar network or other experimental programs in and around the Tucson, AZ area.