Exhibit 2
Narrative Description of Experimental Radio Station

Introduction

Fidelity Comtech seeks test radio systems that make use of phased array antennas. These tests will be conducted both fixed and mobile, near its offices in Longmont, Colorado. Several academic[1] and military researchers[2] have previously reported on the expected benefits of using directional antennas, including phased arrays, in data networking. The vast majority of these studies have been based on computer simulation and we propose to demonstrate the validity of this technology by building an operational network.

This work is being pursued in conjunction with a contract from the United States Air Force, as well as two research grants from the National Science Foundation. Furthermore, this work is being done in collaboration with researchers at the University of Colorado; professors Dirk Grunwald and Timothy Brown serve as the University's Principal Investigators.

Based on the computer simulations of previous researchers, we expect to demonstrate the following benefits:

- Improved Distances (relative to comparable omnidirectional antennas)
- Reduced interference and greater spectrum reuse
- Enhanced privacy of communication
- Enhanced overall network performance
- Geolocation through angle-of-arrival

The research experiments will be conducted both fixed and mobile near the Fidelity Comtech offices in Longmont, Colorado.

Fidelity Comtech seeks an experimental license to build up to 100 of these prototype radio-routers with phased array antennas for network level research. Each system is designed to operate in the 2.4 GHz ISM band and comply with 47CFR15.247 and 47CFR15.249. After the validity of the approach has been demonstrated, Fidelity Comtech intends to complete commercial certification under these rules.

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[1] "Directional Virtual Carrier Sensing for Directional Antennas in Mobile Ad Hoc Networks", Mineo Takai, et. al, Proceedings of ACM MobiHOC 2002.

[2] "On the Performance of Ad Hoc Networks with Beamforming Antennas," Ram Ramanathan, Proceedings of MobiHOC 2001.

Detail

The phased array router is based on commercial IEEE 802.11b/g chipsets and protocols. A block diagram is shown in Figure 1. A commercial 802.11 WLAN radio is attached to the phased array. Both the WLAN radio and the phased array are under the control of an embedded computer.

The experimental application requests stations broadcast their call sign. We propose to do this by putting the call sign in the so-called ESSID, which is broadcast using the very popular 802.11 protocol.

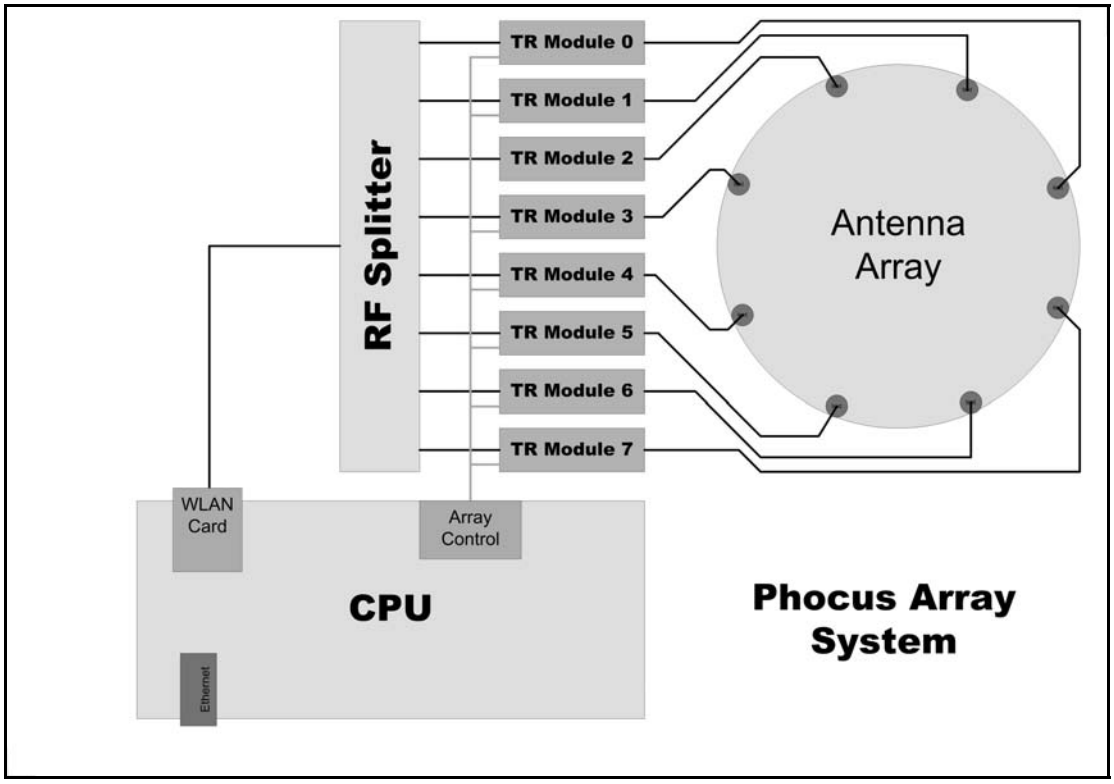

Figure 1. Block Diagram of Phased Array Router

The antenna array itself is comprised of an eight element uniform circular array. Each element in the antenna array is a dipole. Such an arrangement can produce up to 9 dB of gain above the gain of each individual element. In this implementation, each element has approximately 6 dBi of gain, so the net result is an antenna system with up to 15 dBi of maximum directional gain. Under normal operation, the array will be configured to produce directional gains of 12 dBi with relatively low sidelobe patterns (-15 dB, typical).

The antenna gain will vary as the phase of each radiating element is adjusted. The minimum gain will typically be 9 dBi, which results when producing an omnidirectional pattern.

The half-power beamwidth in the vertical direction is approximately 35 degrees. The radiating elements produce a vertically polarized wave.

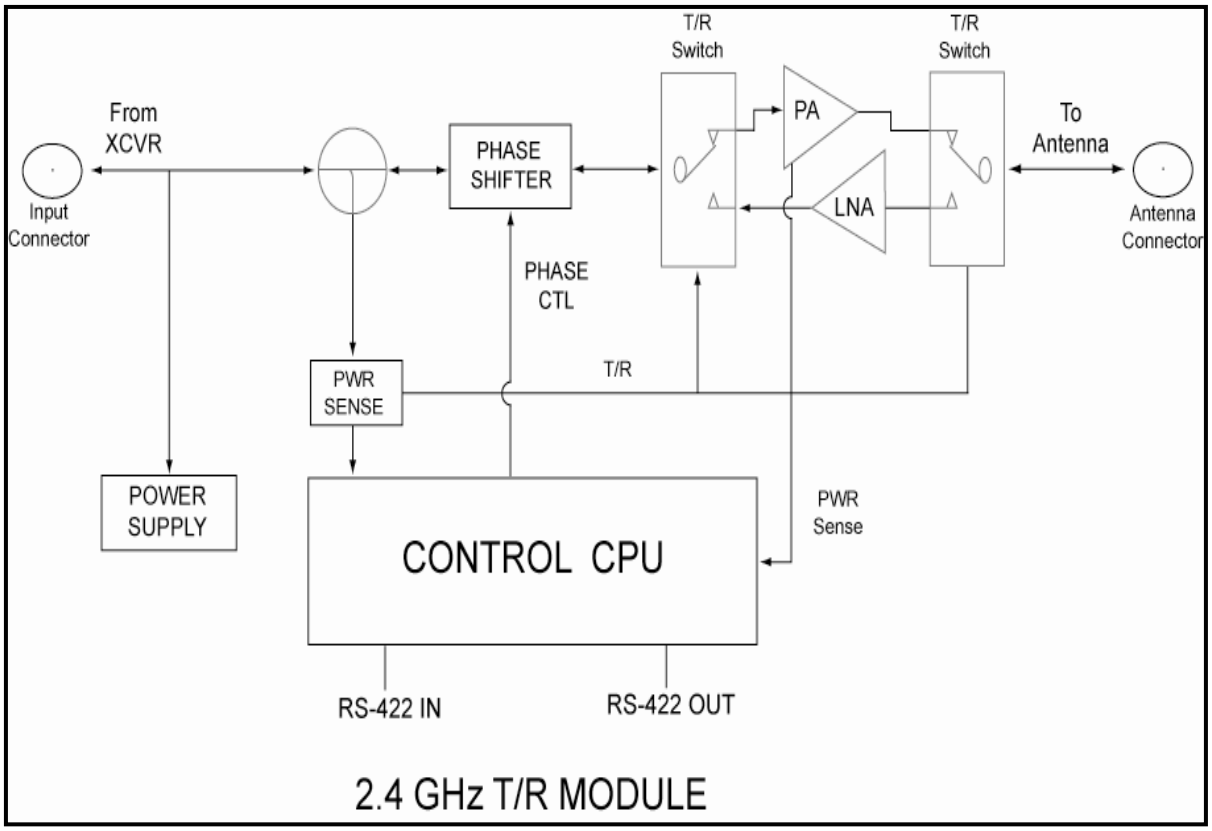

Figure 2. Block Diagram of TR module