ARRAYCOMM

Exhibit 1

Overview

ArrayComm believes that we have just glimpsed the future created by the information revolution. Data communications will be central to the productivity of American workers and to the enrichment of our everyday lives. To help enable mass-market, high-speed, wide-area wireless Internet access, ArrayComm has invented and is developing its i-BURST system. This technology will provide nomadic and fixed service to subscribers at rates of up to 1 megabit per second at prices that are comparable to existing low-speed dial-up access. Using Time Division Duplexing (TDD) architecture and ArrayComm's patented spatial processing techniques, i-BURST offers the most spectrally efficient technology for enabling our future of portable, high-speed, data communications.

This Experimental License is a critical step in the development and testing of the i-BURST technology. This license will allow ArrayComm to complete its technical development in a real world environment and to determine traffic patterns and throughput capabilities in a loaded system. This experiment requires the authority to charge participants for their usage so that the traffic generated accurately represents usage to be expected from paying customers in a commercial i-BURST system. Furthermore, completing the i-BURST development requires substantial third party investments. Demonstration of a willingness to pay for the service in a limited market study is crucial to attracting that investment. ArrayComm recognizes its obligations for a limited market study under an Experimental License. ArrayComm will own all transmitting and receiving equipment used in the study and will inform all participants in the experiment that the service is provided under an experimental authorization and is strictly temporary.

Company Background

ArrayComm, Inc. is the world leader in adaptive signal processing technology—smart antennas—for personal communications. Led by Martin Cooper, Chairman and CEO, the inventor of the first portable cellular telephone, cellular pioneer and a former corporate executive at Motorola, and Craig Barratt, Chief Operating Officer and ArrayComm's technology leader, ArrayComm's team is composed of 80 highly skilled research scientists and software and hardware development engineers (18 employees hold Ph.D. degrees from top institutions). ArrayComm's IntelliCell® product is deployed in the Personal HandyPhone System (PHS) in Japan, and is being deployed in wireless local loop (WLL) systems in Philippines, China, the United Arab Emirates, and Malaysia. ArrayComm has approximately 20 pending or issued US patents, in addition to numerous foreign counterparts.

Program of Experimentation

The experiment will be conducted within a 35-mile radius of the San Diego, CA city reference coordinates. The experiment will utilize up to 50 i-BURST base stations with a maximum peak EIRP of 50 watts. The 2300-2305 MHz band can accommodate up to eight 600 kHz i-BURST channels. Each TDD channel supports up to 6 simultaneously transmitting users with a maximum downlink data rate of 1 Mbps and a maximum uplink data rate 300 kbps. The actual data throughput is dependent upon the Forward Error Correction (FEC) coding employed, which will be tested in various environments in this experiment. Base stations will deliver traffic to and from a central switching location via T3 landline connections. One or more ISPs will utilize the i-BURST platform to offer Internet access and other services to participants in the experiment.

Participants in the trial will utilize laptop computers with i-BURST modems and other subscriber unit devices. All subscriber unit devices will operate at a maximum peak EIRP of 1.3 watts. Uplink and downlink power control algorithms will be employed.

Technical Experimentation

The i-BURST technology utilizes Media Access Control (MAC) layer and other protocols that are designed for wireless IP traffic. These protocols need to be tested and optimized in a real world implementation. ArrayComm engineers will use performance data collected on the radio link and backbone to maximize protocol efficiency and reliability.

Theoretically, an i-BURST base station can handle up to 40 Mbps and 1000 simultaneous 1 Gb/year subscribers in a 5 MHz spectrum block. This experiment will allow ArrayComm to assess actual radio link, base station and system capacities that can be achieved in real world implementations. Data collected on the radio link and backbone under actual loading conditions will provide the information necessary to make the capacity calculations.

Intensive frequency re-use is a vital component of a high capacity wireless network in a relatively narrow spectrum block. This experiment will provide valuable data on required interference ratios and the robustness of the i-BURST protocols in a loaded network.

Although there is extensive data on propagation characteristics of the PCS band, the data for wireless systems in the 2300 MHz band is scarce. This experiment will provide valuable data on propagation characteristics of this band in various environments. In addition to verification of propagation losses and fade margins, valuable data on building penetration losses will be obtained. Penetration losses into single-family homes and multiple dwelling units are of particular importance to the design of a consumer service.

Service Experimentation

The i-BURST technology provides an open platform for an ISP to offer services to participants in the experiment. This will allow a participating ISP to test the utilization of and willingness to pay for various services. It is anticipated that participants will be offered Internet access, customized news, entertainment packages including MP3 music and MPEG video, traffic

information, customer service and various billing options. This experiment will test the viability of i-BURST as a wireless alternative to DSL or cable modems for ISPs to reach their customers.

FAA, Environmental and Station Identification Requirements

Antenna installations for this experiment will not increase the height of any existing structure by 6 meters or more. All installations will be analyzed with respect to the requirements of Part 17 of the Commission's Rules. Applicant will comply with any applicable FAA notification requirements, through FAA Form 7460-1, and FCC registration requirements, through FCC Form 854. No such notifications or registrations are anticipated.

Proposed experimental operations will not have a significant environmental effect. All base station installations will be analyzed with respect to the requirements of Section 1.1307 of the Commission's Rules. With respect to human exposure to RF radiation, since the proposed base station EIRP is less than the 164 watt specification for Part 5 Experimental Radio Services, base station installations are categorically excluded from routine environmental processing. Subscriber unit devices are similarly categorically excluded from routine environmental processing under Section 1.1307(b)(2) of the Commission's Rules. Furthermore, subscriber devices in this experiment generally will not held in immediate proximity to the body as would cellular or PCS handsets.

Unless specifically exempted by the terms of the station authorization, Section 1.115 of the Commission's Rules requires the frequent transmission of the assigned call sign in clear voice or Morse code with all digital modulation disabled. Since this experiment involves high-speed data transmissions, a specific exemption from this requirement is requested.

Objectives

The primary objective of this experiment is to complete the development and optimization of the i-BURST technology. This can only be accomplished in a significant real world implementation with paying participants. Protocol optimization in various fading environments and under various loading conditions will enhance the robustness of the i-BURST technology.

This experiment will also allow ArrayComm to verify theoretical capacity calculations and coverage reliabilities. The engineering data obtained and the feedback of the participants in the experiment will demonstrate the i-BURST capabilities to potential investors, carriers and OEM manufacturers. The substantial investment required to bring the i-BURST technology to commercial readiness requires this experiment to demonstrate its capabilities.

An important objective of this experiment is to demonstrate the i-BURST capabilities in the 2300-2305 MHz band. Because of the proximity of this band to WCS frequencies as well as potential 3G frequencies such as the 2110-2150 MHz band, this experiment can establish i-BURST as a viable next generation technology, particularly in unpaired spectrum bands.

Contribution to the Radio Art

This experiment will contribute to the state of the radio art. The combination of TDD architecture, spatial processing and MAC layer protocols in i-BURST offer the most cost effective, high data rate technology for next generation wireless systems. Although the benefits of spatial processing have been demonstrated in systems such as PHS and WLL, i-BURST is the first technology to incorporate spatial processing and optimized wireless IP protocols from the ground up.

Virtually all 3G technologies propose Frequency Division Duplexing (FDD) architectures so as to "overlay" on existing voice-centric cellular and PCS networks. Because of the capability for dynamic timeslot assignments, TDD is the most spectrally efficient architecture for IP traffic. FDD systems are constrained to fixed downlink and uplink bandwidth allocations. Although TDD architectures have been demonstrated in various advanced systems, i-BURST is the first to combine TDD with the advantages of spatial processing and wireless IP protocols from the ground up. The demonstration of the spectral efficiency of the i-BURST technology will benefit regulators as they tackle the difficult spectrum allocation issues.

The net result of the i-BURST technology is a higher data rate, lower cost alternative to other 3G technologies. This experiment's contribution to the radio art will be the demonstration of i-BURST as an enabling technology for the wireless data communications explosion. In demonstrating its value to potential investors and carriers, ultimately it will be the consumers who benefit the most from this experiment.

2300-2305 MHz Band

As detailed in NTIA Special Publication 95-32, *Spectrum Reallocation Final Report* (Final Report), the 2300-2310 MHz band was part of the 235 MHz reallocated from Government to non-Government use in response to the Omnibus Reconciliation Act of 1993. Effective August 10, 1995, any Government operations in this band is on non-interference basis to authorized non-Government operations and shall not hinder the implementation of any non-Government operations. The 2305-2310 MHz band is a portion of the spectrum allocated for WCS by the FCC in GN Docket 96-228, which has been auctioned and licensed. The FCC has not allocated the 2300-2305 MHz band on a primary basis to any non-Government use.

The 2300-2305 MHz band has been selected for this experiment for several reasons. The band has not been allocated for a primary use and thus is not heavily encumbered with existing users. The propagation characteristics of this band, including building penetration losses, appear to be acceptable for this type of service. Electronic components for devices operating in this band are available or can be manufactured. The band is near frequency bands under consideration for 3G services. The demonstration of i-BURST capability and spectral efficiency may establish its viability as an alternate 3G technology, particularly in relatively narrow unpaired spectrum

blocks. The 2300-2305 MHz band is also immediately adjacent to the licensed WCS bands. Since few if any WCS licensees have deployed services, this experiment may demonstrate the viability of the i-BURST technology for that band.

Protection to NASA Deep Space Network Receiver

NASA operates its Deep Space Network receiver in the 2290-2300 MHz band at Fort Irwin in Goldstone, CA. This experiment will not cause adjacent channel interference to the Deep Space receiver. San Diego is over 180 miles from Fort Irwin with severe intervening terrain. Thus, this experiment is well outside the 50-km coordination zone established for WCS operations in the vicinity of Fort Irwin. Consequently, it would appear unnecessary for this experiment to be coordinated through the Frequency Assignment Subcommittee (FAS) of NTIA's Interdepartment Radio Advisory Committee (IRAC). WCS operations are also required to attenuate emissions below 2300 MHz by 70 + 10log(p) in order to protect the Deep Space facility. This experiment will meet this out-of-band emission requirement.

The Final Report identified NASA's concern for potential interference as coming from 4 potential paths. Satellites and aircraft are the two most critical paths (Paths A & B). This experiment does not involve transmissions from either satellites or aircraft. Portable units used in this experiment can only operate within approximately 1 mile or less from an i-BURST base station. Therefore, even if a participant in this experiment were to board an airplane in San Diego and ignore airline regulations to turn off all electronic devices, the device would not operate within moments of take-off. Path C is the potential for transmissions from a terrestrial source reflecting off an aircraft and impacting the Deep Space Network receiver. This potential is effectively eliminated by the use of base station transmitting antennas with vertical plane radiation patterns that drastically reduce radiation above the horizontal plane. It is also believed that the configuration necessary for a transmission in San Diego to bounce off an aircraft and hit the Deep Space Network receiver with pinpoint accuracy is extremely unlikely. Furthermore, that signal will attenuate with the distance from the base station to the aircraft, will attenuate due to imperfect reflection and will attenuate with the distance from the aircraft to the Deep Space Network receiver. The potential for interference along this path is judged to be so unlikely as to be non-existent. Path D is the direct terrestrial path from the low powered, low height base stations and mobiles over the intervening terrain to Goldstone. This path is completely blocked by a series of mountain ridges, many in excess of 10,000 feet AMSL.

Secondary Amateur Use – 13 cm Band

The 2300-2305 MHz band is allocated to the amateur radio service on a secondary basis. The amateur usage of this band is limited to weak signal operations at 2304.1 MHz and 2303.75-2304.75 MHz and point-to-point microwave operations in the 2300-2310 MHz band paired with frequencies in the 2390-2400 MHz band. Weak signal operations generally operate with highly directional antennas pointed well above the horizon for EME (moonbounce), tropospheric ducting and the like. For this reason, it is believed that interference between this experiment and weak signal operations is unlikely. The 2448-2450 MHz band may represent an alternate band

for weak signal operations. The potential for interference between this experiment and point-to-point microwave usage in the 2300-2305 MHz band is believed to be low. The 2305-2310 MHz portion of the band may represent alternate channels for these operations.

In ET Docket 94-32, the FCC made primary allocations for amateur radio services in the 2390-2400 MHz and 2402-2417 MHz bands. It is believed that amateur operations requiring interference protection will operate in those bands. Due to the frequency separation, this experiment will not affect those operations in any way.

International Use - Mexico

San Diego is in the border region with Mexico. Since the proposed experiment is terrestrial and will operate at low power and low height, it is believed that the proposed experiment will not cause interference to any Mexican facility.

FCC Monitoring Stations and Quiet Zones

This experiment will be conducted hundreds of miles from any protected FCC monitoring station listed in Section 0.121 of the Commission's Rules. Furthermore, this experiment will be conducted hundreds of miles from any Quiet Zone listed in Section 1.924 of the Commission's Rules. This experiment will not cause interference to any of these facilities.

Limited Market Study - Need for Economic Justification

In accordance with Section 5.3(j) of the Commission's Rules authority is requested to conduct a limited market trial as part of this experiment. In accordance with Section 5.93 of the Commission's Rules, ArrayComm will own all transmitting and receiving equipment used in the experiment and will inform all participants that the service is provided under an experimental authorization and is strictly temporary. In no event will ArrayComm exceed the market trial limitations established by the Commission.

ArrayComm has recently filed to re-instate its expired experimental authorization to conduct tests in the vicinity of its San Jose facilities to demonstrate the basic technical aspects of the i-BURST system. These tests, while miniature in scope, are necessary to show prospective investors and operators that the essential technology is sound. They will involve a handful of units, and one or two base stations, along with laboratory simulations and tests. In essence, they will be a continuation, on a more sophisticated level, of tests that have been carried out for the past several years under Special Temporary Authority, call sign KS2XAE, and under Experimental License, call sign KA2XBG.

It is a fact of life, however, that no matter how outstanding these tests show the technology to be, they alone will not provide the incentive necessary to cause potential investors to risk the capital needed to launch a nationwide system. As we have made clear to the Commission's staff, the

financial resources required are far beyond ArrayComm's capabilities. We are dependant on other investors if i-BURST is to become a reality.

Investors have shown interest. However, the projected costs are immense. Spectrum is scarce. It must be sought at auction and, either at that time or shortly thereafter, enough spectrum for a nationwide system must be acquired.

Outlay to install the system will be extremely expensive as well. Even though the entire system will be phased in over a period of time, potential competitive service offerings by existing carriers will compel the operator of the i-BURST system to have its system in operation as quickly as possible.

Given these circumstances, it is eminently reasonable for investors and operators to seek as much assurance as possible that the system will be economically viable, that it will attract PAYING CUSTOMERS.

ArrayComm is aware of the concerns that the Commission has about broad-scale market tests under an experimental license. Under normal circumstances, the Commission's reservations in this regard are undoubtedly well founded.

ArrayComm contends, however, that for two key reasons this is not a normal circumstance. First, the widespread deployment of auctions has escalated the financial risk enormously. The fact that a nationwide system is to be the end objective only increases the element of risk still further. Second is the status of companies like ArrayComm. As we stated in our Comments and, in particular, our Reply Comments in Docket 99-168, under the current facts of telecommunications life, it is extraordinarily difficult for a small company not only to compete but to introduce new technology. Existing operators and manufacturers have the advantage of imbedded investment, the wherewithal to add to that investment, and the incentive to continue the status quo. Our point there about the widening disparity between the "haves" and the "have-nots" is applicable here as well.

Simply put, ArrayComm cannot obtain the investment needed on mere promises, however attractive they may appear. Investors require proof or, at least, substantial evidence. Under "perfect" conditions ArrayComm would need a market trial of 10,000 units, i.e. paying customers, to satisfy one particular would-be investor.

ArrayComm believes that a market trial of 3000 units is necessary and sufficient to demonstrate the economic viability of the i-BURST system. Without enough subscriber units accessing the network and generating traffic as paying participants, potential investors will not have the substantial evidence they require to make their capital commitments. Discussions with investors have established 3000 paying participants as the threshold to provide the necessary data. Furthermore, 3000 units provide enough critical mass of data transmission sources to create loading and congestion conditions. In addition to a demonstration of an initial willingness to pay, demonstration of customer satisfaction under loaded conditions is a requirement of potential investors. Simulated loading conditions simply cannot provide a satisfactory demonstration of real-world performance. Finally, 3000 units provide enough data to assess how and where customers will use the i-BURST service in future commercial applications. Potential investors and operators have usage assumptions for the home and the workplace for various market

segments. Actual usage data from a limited market trial of 3000 units is required to provide the validation of the market potential and thus, justify the capital investment.

In all cases, ArrayComm understands that grant of any experimental license does not give the licensee any permanent right to continue regular operations on that assigned frequency or frequency band. We would point out to the Commission that the band requested, 2300-2305 MHz, is insufficient in size to meet all the technical needs for our system. In our preliminary discussion with the Commission's staff, we sought 10 MHz of contiguous spectrum for this test. Necessity is the mother of invention; we are settling for 5 MHz because we simply cannot find a 10 MHz segment. However, the fact that we only have 5 MHz to utilize should give the Commission assurance that we have no long-term designs on that spectrum; it simply is not enough.