



WB2XIK

25 April 2001

Marc Goldberg
ArrayComm, Inc.
2480 North 1st Street, Suite 200
San Jose, CA 95131

Federal Communications Commission
Experimental Licensing Branch, MS 1300E1
445 12 Street, S.W.
Washington, DC 20554

RECEIVED
APR 30 2001
FCC MAIL ROOM

Dear Sirs,

Per the terms of our experimental license, 0006-EX-PL-2000, please find enclosed a Progress Report describing the work conducted under that license from April 2000 through March 2001. Please feel free to contact me should you have any questions. I can be reached via telephone at 408.952.1810 or via email at marcg@arraycomm.com.

Sincerely,

A handwritten signature in black ink, appearing to read 'Marc Goldberg', written over a horizontal line.

Marc Goldberg
CTO, Internet Products Group

encl: Interim Progress Report

**Interim Progress Report For FCC Experimental License
0006-EX-PL-2000**

17 April 2001

**ArrayComm, Inc.
2480 North First Street, Suite 200
San Jose, CA 95131**

1 Background

In April 2000, the FCC granted experimental license 0006-EX-PL-2000 to ArrayComm, Inc., for the purposes of market validation and continued technical validation of ArrayComm's i-BURST portable broadband data system. One of the conditions of that license was that yearly progress reports be filed with the Commission. The present document is the progress report for the period from April 2000 through March 2001.

i-BURST is a wireless data system that enables untethered broadband access to the Internet and other IP networks. The integration of ArrayComm's IntelliCell™ adaptive antenna technology with i-BURST's air interface leads to unmatched spectral efficiency and system economics that make it possible to deliver untethered broadband access at mass-market price points. The details of the i-BURST architecture and its component elements are provided in other documents filed with the Commission, including the application for the instant license and recent filings in Docket 00-221, among others.

2 Trial Preparation

During the period from April 2000 to March 2001, substantial progress was made in all areas necessary to the success of the trial that will be conducted under the aegis of the experimental license. Major accomplishments are detailed below. Many of these accomplishments were made with the participation of ArrayComm's commercial partners. As this report is a public document, the identities of those partners will not be revealed herein. They can be made confidentially available to the Commission upon request.

2.1 Technology Development

All major elements of the i-BURST air interface were finalized during the period covered by this report. Prototype base stations and subscriber devices were fabricated at ArrayComm's facility in San Jose, and on-air testing at 1.9 GHz has been ongoing since mid-year 2000¹. The testing continues to provide performance data for the validation and refinement of the air interface.

Significant development progress was also made on the wired network aspects of the i-BURST system architecture. Most notably, ArrayComm and Redback Networks completed the design, integration and test of a mobility solution for i-BURST subscriber devices that makes radio-layer handovers in the network — e.g. as users move from cell-to-cell — transparent to the users' IP sessions. This solution is substantially different from those being employed in other wireless IP systems. It possesses very low protocol overhead, and can be supported by existing, wired, broadband aggregation devices.

¹ This testing is being conducted at 1.9 GHz under another ArrayComm experimental license, 0067-EX-ML-2000.

2.2 Trial Equipment Development

As described above, i-BURST radio access equipment has been built and tested at 1.9 GHz. Base stations for the 2.3 GHz trial system are already under development by one of ArrayComm's partners. They will be substantially similar to the present 1.9 GHz design, differing primarily in the analog RF circuitry affected by the change in operating frequency.

Since the 2.3 GHz trial is meant to gauge consumer acceptance for the i-BURST service, the subscriber terminals for the trial will not be derived from the 1.9 GHz design which was specifically created as an engineering development platform. Instead, ArrayComm has been working with two partners on this aspect of the program — both highly skilled and experienced in the development of consumer wireless devices — to develop 2.3 GHz terminals for the trial. These efforts will result in small, power efficient, terminals with standard interfaces (PC Card and USB) that will interface with a variety of consumer devices including laptop computers.

Components for the wired elements of the trial network will be "off-the-shelf;" no special development efforts are required.

2.3 RF Surveys and Coordination

Beginning last spring, ArrayComm has been assessing the 2300-2305 MHz RF environment in the San Diego area. These assessments include field surveys and coordination with users of the 2300-2305 MHz and adjacent bands.

A general spectrum survey was completed last summer, comprising measurements taken at 21 sites throughout the greater San Diego area, with the goal of identifying sub-bands, times-of-day and/or geographic areas in which the background noise levels might impact the testing of i-BURST. No interference or noise sources were identified that would render the band unsuitable for the planned tests.

The principal local users of the band are the NASA Goldstone facility, located approximately 180 miles distant from the planned test area with severe intervening terrain, and the amateur radio community. After several technical exchanges, the operators of the Goldstone Deep Space Network site subadjacent to 2300-2305 MHz appear to be satisfied that the i-BURST trial will not affect their operations. ArrayComm has also been in contact with the coordinating body for amateur operators in Southern California, the Southern California Repeater and Remote Base Station Association (SCRRBA). Based on the spectrum surveys conducted last year and the SCRRBA band plan for 2300-2305 MHz, use of that band by amateurs in the San Diego area appears to be relatively light and the potential for interference between i-BURST and amateur operations is low. ArrayComm will continue to coordinate with SCRRBA to ensure that the i-BURST trial does not interfere with amateur operations.

2.4 Trial Planning

The principal goal of the trial is to test i-BURST service delivery, as opposed to simply validating the i-BURST technology. Planning efforts currently underway therefore

include demographic studies to determine the correct mix of applications, trial participants and coverage areas along with technical/operational planning tasks such as site selection, backhaul network design, and spares depots.

The anticipated starting date for the trial is 1 November 2001.

3 Other Related Efforts

The successful execution of the trial will establish the readiness of i-BURST for commercial service in a variety of respects, but not all. ArrayComm has substantial efforts in these areas other areas that are not directly addressed by the trial to be conducted under the terms of the experimental license, including the following.

3.1 Acquisition of Commercial Spectrum

ArrayComm has been active in a number of Commission spectrum proceedings over the last year, most recently and most significantly in the 00-221 proceeding where the company is pressing to have the 1670-1675 MHz band allocated with rules suitable for i-BURST. i-BURST can only be made available to the public if appropriate commercial spectrum is secured.

3.2 Acquisition of Partners

ArrayComm's business model for i-BURST is one of partnerships. As is evident in the above discussions, the company has already succeeded in attracting many of the partners necessary to make i-BURST a commercial success. However, the ability to continue to attract "best-of-breed" partners is important for the success of the program. The trial and the opportunity for potential partners to participate in it, continue to be important incentives for companies to partner with ArrayComm.

3.3 System Economics

Continued technology definition and validation have contributed to, and been complemented by, increased understanding of the system economics and business models for the i-BURST access network operators, service providers and other entities involved in the i-BURST value chain. It has become clear that, due to the high spectral efficiency of the i-BURST radio access system, a substantial number of base stations in the system will be coverage limited, rather than capacity limited, in the early years of commercial deployment. For this reason, higher base station and user terminal EIRP's — similar to those of PCS systems — are being considered now than at the time of the application for the instant license. The ability to operate at PCS-like emissions levels has been incorporated into our filings in the 00-221 Docket and also into the equipment that will be used in the trial. ArrayComm may ask the Commission to modify the terms of its trial license to permit higher power operation than that currently authorized.

4 Conclusions

Significant progress has been made over the last year towards a trial of ArrayComm's i-BURST system under the terms of FCC experimental license 0006-EX-PL-2000. The underlying technology has significantly matured, over-the-air tests have been conducted,

trial equipment is under development, and the technical and market aspects of planning for the trial itself are well underway. The trial is scheduled to begin in the fall of this year.

The opportunity to conduct the trial has been instrumental in attracting partners to the i-BURST program. However, the ultimate commercial opportunity for i-BURST hinges on the availability of suitable commercial spectrum for the system. ArrayComm has been actively working with the Commission to identify such spectrum.