STEPTOE & JOHNSON LLP

ATTORNEYS AT LAW

1330 Connecticut Avenue, NW
Washington, DC 20036-1795

Telephone 202.429.3000
Facsimile 202.429.3902
www.steptoe.com

Leonard Kolsky*
202.429.6492
lkolsky@steptoe.com
*Admitted in MA only

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Mr. Julius Knapp
Deputy Chief, Office of Engineering & Technology
Federal Communications Commission
445 12th Street, S.W., Room 7-B133
Washington, DC 20554

Dear Julie:

At a recent meeting with you and other FCC personnel, ArrayComm representatives were asked about the size of its requested market trial.

In its application, pursuant to Section 5.3(j) of the Commission's Rules, ArrayComm submitted information to justify the need for 3,000 subscribers. The emphasis was on the economic justification for the trial. Later, in response to an oral request by the Commission, ArrayComm, on February 4, 2000, furnished a copy of its "Guidelines for Enrolling Participants in the Limited Market Trial," designed to ensure that these participants would be fully aware that service would be provided under an Experimental Authorization and would be temporary. It is stated that ArrayComm will own all transmitters and receivers used in the trial. All this information is already on file and we ask that it be incorporated by reference.

We are, however, furnishing the following new material:

Overview

The Internet will have a profound effect on our society and on its telecommunications infrastructure in particular. It is less obvious that personal use of the Internet will evolve to wireless networks at a much faster rate than the similar evolution of voice communications. This will only be possible when

ubiquitous broadband, mass market internet access is available. However, this will only be practical if access is created with far greater spectral efficiency and openness than today's approaches.

ArrayComm has invented and is implementing its i-BURST system to fulfill these needs. ArrayComm's spatial processing techniques and Time Division Duplex (TDD) architecture enables the i-BURST air interface to achieve a spectral efficiency of four bits per Hertz and higher. As a result, access providers employing the i-BURST technology will profitably offer millions of internet users, portable and fixed service at individual speeds of one megabit per second, at prices comparable to those of low speed dial-up access.

The system's high spectral efficiency will substantially reduce the amount of spectrum required – creating many new opportunities for competitive access providers to enter the wireless market. Like the Internet, and unlike legacy circuit switched networks, i-BURST provides an open platform that facilitates large numbers of diverse competitive applications and services.

Unique Aspects of the Limited Market Study

The i-BURST system possesses several unique attributes for which no direct user experience, relevant market research or network traffic statistics exist. These attributes are namely its broadband throughput, high subscriber capacity, portability and an IP-centric open services platform. Several important new service parameters will be introduced and studied for the first time in a real-world environment. this will have the inevitable effect of fragmenting the base of 3,000 participants into several smaller statistical groups (each representing hundreds of users or less) based on participants' service preferences, mobility and usage habits. For this reason, ArrayComm and its investors view 3,000 as the minimum size that can produce statistically significant results for each class of service studied.

Market/Acceptance – The i-BURST technology provides an open services platform that enables ISPs to independently develop and provision data applications and services to participants in the experiment. This will allow a participating ISP to test the willingness to pay for and use various services. As part of the experiment, it is anticipated that participants will be offered several

portable or fixed broadband services and applications, including basic Internet or virtual private network (VPN) access, customized content, video conferencing and entertainment services, such as music download. Customer service and various billing options will also be part of the market test.

The open service platform will enable disparate applications/services to be simultaneously tested, each of which may realize dramatically different levels of acceptance and use among participants. The testing of multiple service offerings in the experiment is critical to validating the market for the i-BURST open services platform, the system's ultimate capacity and the expected penetration for each envisioned service. The differing acceptance and usage of the envisioned services by the participants are expected to fragment the market trial results into smaller statistical samples (i.e., each service is expected to be used by some fraction of the participants). Without at least 3,000 paying participants ArrayComm cannot assure investors that the test will quantitatively validate the market for any or all of the envisioned services.

Usage/Capacity – Theoretically, an i-BURST base station can handle up to 40 Mbps and 1,000 simultaneous 1 Gbytes/year subscribers in a 5 MHz spectrum block. This represents an unprecedented spectral efficiency among all existing and proposed mobile wireless technologies. Because of the system's high capacity, portability (users must be allowed to roam over a wide area) and the potentially wide range of user activity (ratio of simultaneously active users to total participants) the traffic may be spread across a wide geographic area (over many cells) and over many hours of the day. There are no relevant historical data that address the unique elements of this broadband system and their effect on user behavior and system loading. For these reasons, 3,000 participants are required in order to produce sufficient traffic across a cluster of cells and determine the system's capacity, based on its unique interference suppression capabilities. Intensive frequency re-use is a vital requirement for wireless network capacity 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.

Broadband Portability/Coverage – There is in general, a dearth of data on portable coverage (the cellular/vehicle model does not apply) at high data rates and

with high system loading. This experiment will provide valuable data on propagation characteristics of this band in various environments. In addition to coverage verification, valuable data on building penetration losses will be obtained. Penetration losses throughout various types of office buildings, single-family homes and multiple dwelling units are of particular importance to the design of a portable high-speed data service.

Given the uniqueness of the envisioned portable broadband services, it is imperative to ArrayComm's investors that the experiment be able to validate the coverage model based on realistic mobility patterns of actual users. Of equal importance, the participants' willingness to pay for various levels of portable coverage and mobility need to be tested in order to validate the overall economic viability of the envisioned service. Given the multitude of potential indoor environments and their wide range of effects on radio propagation, at least 3,000 participants are deemed in order to produce statically significant data on each of several target coverage environments.

If you have additional questions or need more information, please let me know.

Very truly yours,

Leonard S. Kolsky

cc: Jim Birtle
Tony Serafini