

DOCKET FILE COPY ORIGINAL

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of:

PageMart, Inc.)
)
Request for a Pioneers's Preference)
Regarding its Petition for)
Rulemaking to Allocate 800 KHz in)
the 930-931 MHz Band and to)
Establish Rules and Policies for)
a New Nationwide & Local Personal)
Information Messaging Service)

PP-40

Docket No. 7-92-100

REQUEST FOR PIONEER'S PREFERENCE

PAGEMART, INC.

Jeffrey Blumenfeld
Glenn B. Manishin
F. Thomas Tuttle
BLUMENFELD & COHEN
1615 M Street, N.W.
Suite 700
Washington, D.C. 20036
(202) 955-6300

Attorneys for PageMart, Inc.

Dated: March 19, 1992

SUMMARY

PageMart, Inc. is requesting a pioneer's preference in the licensing of its new Personal Information Messaging Service ("PIMS"), the first truly personal, portable and ubiquitous information messaging service. PageMart has previously filed a Petition for Rulemaking proposing the allocation of spectrum in the 930-931 MHz band, and the adoption of policies and rules, for the development and implementation of this innovative service. As proposed by PageMart, PIMS would support two nationwide carriers and numerous local providers -- two in each MSA.

PIMS is an advanced messaging service that permits users instantaneously and automatically to receive or send text or graphic information of any length, in any format, to or from a wide variety of portable or stationary equipment platforms -- including personal organizers, pagers, and palmtop computers -- on a local and nationwide basis. PIMS employs an innovative combination of radiolocationing, frequency reuse and state-of-the-art paging technologies to achieve greatly enhanced functionality as well as spectrum efficiencies, cost savings, and network capacities which are orders of magnitude superior to existing or proposed service or technologies. PIMS would support a competitive, multi-provider market structure for a broad range of new useful applications meeting important needs of business and personal consumers.

PageMart has developed this entirely new service concept based on its experience as a telecommunications company with extensive paging operations throughout the United States, and its record as a proven innovator. PageMart has already made a considerable investment in the development of PIMS, including its current experimental program being carried out under a Commission license for the purpose of refining the system design and demonstrating its technical feasibility. PageMart merits a nationwide pioneer's preference under the Commission's policies and rules, which are intended to allow true innovators the opportunity to benefit directly from the results of their innovation.

TABLE OF CONTENTS

SUMMARY	i
I. INTRODUCTION	2
II. DESCRIPTION OF PIMS SERVICE	3
III. ELIGIBILITY REQUIREMENTS FOR A PIONEER'S PREFERENCE	6
IV. PIMS IS AN INNOVATIVE APPLICATION OF ADVANCED TECHNOLOGIES THAT OFFERS SIGNIFICANT ENHANCEMENTS OVER EXISTING AND PROPOSED SERVICES	8
V. GRANTING A NATIONWIDE PREFERENCE TO PAGEMART IS CONSISTENT WITH THE COMMISSION'S POLICIES, SINCE THE SERVICE IS INHERENTLY NATIONWIDE AND SINCE NO MONOPOLY WOULD THEREBY BE GRANTED	15
CONCLUSION	16



Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter Of:

PageMart, Inc.)
)
Request for a Pioneers's Preference)
Regarding its Petition for)
Rulemaking to Allocate 800 kHz in)
the 930-931 MHz Band and to)
Establish Rules and Policies for)
a New Nationwide & Local Personal)
Information Messaging Service)

92-100

Docket No. _____

REQUEST FOR PIONEER'S PREFERENCE

PageMart, Inc., ("PageMart"), by its attorneys, pursuant to Sections 1401 and 1402 of the Commission's Rules, hereby requests a pioneer's preference in the licensing process for a new Personal Information Messaging Service ("PIMS"). By a previously filed Petition for Rulemaking ("Petition"),¹ PageMart has proposed the allocation of spectrum in the 930-931 MHz band, and the adoption of policies and rules, for the development and implementation of this new service. PageMart submits that its innovation in the formulation of the PIMS concept, and its efforts and investment in the development and testing of the new technology and service concepts, justify a nationwide licensing preference under the Commission's rules and policies for the grant of such preferences.²

¹ In the Matter of PageMart, Inc. Petition for Rulemaking to Allocate 800 kHz in the 930-931 MHz band and to Establish Rules and Policies for a New Nationwide and Local Personal Information Messaging Service, RM-___ (filed February 28, 1992). PageMart's Petition, which incorporates a detailed technical evaluation, is annexed hereto for the Commission's convenience.

² Establishment of Procedures to Provide a Preference to Applicants Proposing an Allocation for New Services, 6 FCC Rcd 3488 (1991)("Preference Order"), amended on reconsideration, Memorandum Opinion and Order, FCC 92-57 (released February 26, 1992)("Reconsideration Order").

I. INTRODUCTION

In its 1991 Preference Order, the Commission established policies and rules designed to foster innovation in the development of new radio communications technologies and services, by ensuring that innovators who otherwise meet the Commission's licensing qualifications will be able to participate as licensees in the implementation of the technology or service that result from their innovations.³ PageMart has developed and proposed an entirely new service concept, called Personal Information Messaging Service, for implementation in the 930-931 MHz band. PIMS is an advanced messaging service that permits users instantaneously and automatically to receive or send text or graphic information of any length, in any format, to or from a wide variety of portable or stationary equipment platforms -- including personal organizers, pagers and palmtop computers -- on a local and nationwide basis. PIMS achieves spectrum efficiencies, cost savings and network capacities which are orders of magnitude superior to existing or proposed services or technologies. As proposed, PIMS would support a competitive, multiple-provider market structure for an extraordinarily broad range of innovative applications for business and individual users.

The PIMS proposal stems from PageMart's experience as a telecommunications company with extensive paging operations throughout the United States, and its record as a proven innovator. The company currently operates Part 90 paging stations in each of the top 30 U.S. markets. In seven major U.S. cities (Los Angeles, San Diego, Atlanta, Dallas/Ft. Worth, San Antonio, Austin and Houston), the company operates extensive wide-area paging networks with up to 40 transmitters operating in a simulcast configuration at 1200 bps. In these activities, PageMart has pioneered the use of direct broadcast satellite ("DBS") control link architecture, under which the paging transmitter control is conducted through a satellite link to a receiver at each paging transmitter, permitting both increased transmission efficiency and conservation of spec-

³ Preference Order, 6 FCC Rcd at 3490.

trum otherwise necessary for terrestrial control channels. This advanced architecture has the potential to alleviate the demand for control link frequencies in the scarce resource spectrum below 1 GHz, and has led to an improved time alignment system that allows for higher data rate transmissions in the future.

PageMart has invested substantial resources in the development of PIMS. As part of this developmental effort, PageMart received an experimental authorization from the Commission in September 1991 for the development of cellular paging services.⁴ Using this experimental authorization, PageMart has continued to develop and refine the technological and engineering ingredients of Personal Information Messaging Service, including such advanced elements as two-way messaging capabilities, building and office-based cell configuration, and the incorporation of RF transceivers in PCMCIA-like standard cards and AT-compatible computer boards. PageMart has worked closely with several major equipment manufacturers, including Motorola, in its DBS-control paging systems and will continue to work with leading equipment manufacturers in the development of PIMS equipment prototypes.

II. DESCRIPTION OF PIMS SERVICE

PageMart's PIMS is the first truly personal, portable and ubiquitous information messaging service. Such information messaging is either unavailable or uneconomic using existing paging, cellular or other packet network technologies. By combining technical advances in system design and architecture with the continuing refinement of consumer electronics, PIMS can serve as a network "platform" for the development of both mass-market and sophisticated personal messaging services, meeting consumer needs for data messaging that are today either unmet or vastly under served. With its dramatic advances in spectrum efficiency and architectural

⁴ Application for Experimental Radio Service, File No. 1953-EX-PL-91, submitted to the Commission on April 23, 1991. In Exhibit 3 to the Application, PageMart described its extensive work in pioneering the technical underpinning of PIMS and requested grant of a pioneer's preference.

flexibility, PIMS will deliver messaging services with extraordinary increases in network capacity and with costs per character up to 100 times lower than the most advanced nationwide paging services currently available.

PIMS is a technologically advanced combination of radiolocation, frequency reuse and other state-of-the-art communications technologies. PIMS enables hand-held data communications transceivers to signal their location to a wide-area transmission network, and to be contacted on a selective, spectrally-efficient basis. Similar to cellular mobile radio service, PIMS architecture is based on the concept of "reusing" frequencies among cells in a given service area on a reuse pattern which assures that co-channel interference is kept to acceptable levels. This approach is essential to transmit text and other messages (i.e., alpha-numeric pages, graphics and facsimile) that consume large segments of transmission time. Existing "simulcast" paging technologies cannot economically deliver these types of messages to large numbers of users without using considerable bandwidth and high-speed, and unacceptably high-cost receiving equipment.

Essentially, the idea is to first locate a subscriber unit with regard to its "best" serving transmitter site (cell), and then to transmit that subscriber's data only on that "best" transmitter cell site. This radiolocation process is repeated for all subscriber transmission requests, so that all cells that are capable of simultaneous operation without causing destructive interference are able to transmit different data simultaneously. Because reuse of frequency allows for the transmission of different messages to many different users simultaneously, the efficient delivery of text messages (i.e., alphapages) and other communications (i.e., graphics or facsimile) that require large segments of transmission time is made feasible. In current paging system design, all transmitters in a simulcast system broadcast the same data at the same time, and thus a 7-second text message (typical transmission time for one page of text at 4,800 bps) will occupy all network transmitters for that 7 seconds. In contrast, by combining frequency reuse and radiolocation, PIMS can deliver an identical message by utilizing only one of many transmitters for this 7-second transmission interval, with the remaining capacity available for other messages.

PageMart employs several different and alternative reuse pattern configurations for the design of PIMS in order to achieve maximum frequency reuse. First, for wide area coverage, a cell configuration similar to current cellular mobile telephone service is utilized. For example, a major metropolitan system might be composed of 40 paging cells (or transmitters) with a four cell reuse plan. This configuration could produce a potential ten fold (40 divided by 4) improvement in data throughput within this 40-cell system.

Second, for more narrow or focused coverage, smaller cells limited to a building or office that can simultaneously broadcast within a highly discrete service area are utilized. Consider the major U.S. cities where frequency congestion is greatest. High rise buildings, properly fitted with a low-power transmitter and slotted coaxial cable hung in the mechanical access space of the building core, or another site-specific antenna configuration, can function as independent cells capable of transmitting messages without adversely affecting the external RF environment. It is not difficult to envision 100 to 200 such building cells that could be transmitting simultaneously, providing a 100-fold or more increase in throughput.

PageMart employs two currently available radiolocation technical capabilities to support these dramatic increases in throughput. First, the PIMS base station (cell site) transmitter regularly identifies itself by transmitting a unique station identification code or "call sign." Second, each individual transceiver "captures" the strongest signal from the group of overlapping serving transmitters. When the control channel broadcast indicates that a message is available for delivery to a particular user, that user's transceiver notifies the transmitter of its location and optimal serving cell. Thus, upon receipt of a one-way communication to the system controller terminal for delivery to a subscriber unit, a coded message would be sent out asking the intended recipient subscriber unit to signal its location. A "smart" low-power hand-held transceiver will read this message and the accompanying identifying base station transmissions, determine which particular transmitter offers the strongest RF signal, and then "signal back" to the system identifying the unique base station transmitter that should be utilized to communicate to that unit. Unlike

cellular mobile radio service, this interactive identification process would only take place when a message is to be sent (i.e., the system needs to manage only active subscribers) so that battery life of the receiver units can be extended and administrative and logistical expenses associated with system control can be minimized.

PIMS would be provided to and from a low-powered (0.1 watt) transceiver unit that is integrated into hand-held personal computer products or personal organizers, for instance using a "smart card" type PCMCIA-like standard format. PageMart envisions that the capability to accept such miniaturized RF modules on a plug-in basis could be incorporated as well into personal computers and other stationary devices, allowing users a unique degree of "number portability" not currently available, by moving the RF card from device to device. While outside buildings, these low-power transceivers will be able to transmit directly to cell sites. When inside a building, these low-power transceivers will be able to transmit directly to office or building cells or to receive sites that are located external to the building through the use of portable power modules, in the range of 10 watts, which would plug into electrical outlets in the building and rebroadcast the signal at the higher power level. In this configuration, a pocket organizer or notebook computer with an RF transceiver will be able to receive and send messages reliably both "in-building" and "on the street." This personal, mobile information messaging capability meets significant unmet consumer demand and promises to dramatically improve personal communications options for American businesses and consumers.

III. ELIGIBILITY REQUIREMENTS FOR A PIONEER'S PREFERENCE

To obtain an award of a pioneer's preference, an applicant must show that it "has developed an innovative proposal that leads to the establishment of a service not currently provided or a substantial enhancement of an existing service."⁵ An applicant's proposal is deemed innova-

⁵ Preference Order, 6 FCC Rcd at 3494.

tive if it "has brought out the capabilities or possibilities of the technology or service or has brought them to a more advanced or more effective state."⁶ Among the factors which are to be considered are added functionalities, changes in operating or technical characteristics, new spectrum use, increased spectrum efficiency, increased speed or quality of information transfer, or significantly reduced costs to the public.⁷ Further, an applicant is required to show that its proposal is technically feasible, or that it has filed for or received an experimental license to conduct experiments leading toward the implementation of its proposal.⁸

In its first application of these new rules, the Commission granted a pioneer's preference to Volunteers In Technical Assistance (VITA) for a license to operate a low-earth orbit (LEO) satellite system to provide data communications, while denying similar requests from two other parties.⁹ In applying its eligibility standards, the Commission emphasized that VITA had, indeed, been the first to develop LEO data communications technology, and that it had also been the first to experiment with the operation of such a system, even before its request for pioneer's preference was filed.¹⁰ By contrast, the Commission found that the other two applicants for LEO preferences, ORBCOMM and STARSYS, had not demonstrated an "innovation beyond existing communications technology" and were "clearly preceded by the earlier VITA effort."¹¹

Most recently, in reconsidering elements of its Preference Order, the Commission reaffirmed its basic standards for determining what constitutes a worthy innovation.¹² At the same time, the Commission eased the requirement that an applicant must also file a petition for rulemaking,¹³ and established a mechanism for setting a cut-off date for the acceptance of prefer-

⁶ Id.

⁷ Reconsideration Order, at paragraph 13.

⁸ Preference Order, 6 FCC Rcd at 3493.

⁹ Request for Pioneer's Preference in Proceeding to Allocate Spectrum for Fixed and Mobile Satellite Services for Low-Earth Orbit Satellites, released February 11, 1992 (FCC 92-91) ("VITA Order").

¹⁰ Id. at paragraph 15.

¹¹ Id. at paragraphs 17-18.

¹² Reconsideration Order, at paragraph 7.

¹³ Id. at paragraphs 12-19.

ence requests in advance of the release of a corresponding notice of proposed rulemaking (NPRM).¹⁴ The Commission also maintained its initial requirement regarding a showing of technical feasibility, ruling that a tentative preference will only be awarded to an applicant if it has "submitted a demonstration of technical feasibility" or "commenced an experiment and reported to us at least preliminary results."¹⁵

PageMart respectfully submits that its proposed Personal Information Messaging Service meets all these criteria and fully warrants the grant of a pioneer's preference.

IV. PIMS IS AN INNOVATIVE APPLICATION OF ADVANCED TECHNOLOGIES THAT OFFERS SIGNIFICANT ENHANCEMENTS OVER EXISTING AND PROPOSED SERVICES.

PIMS relies on an innovative combination of radiolocation, frequency reuse, and state-of-the-art paging technologies to enable personal hand-held transceiver units instantaneously and automatically to receive and send text and graphic information, of any length and using any protocol, on a nationwide or local basis at low cost. This capability includes highly effective in-building coverage for a fully untethered office environment. No other service, existing or proposed, offers such a range of potential applications, on a two-way basis, without the burdens of restrictive protocol requirements. No other service provides such high capacity, in terms of the number of users that can be served and the number of characters transmitted, at such a low cost for both the subscriber transceiver unit and the transmission of a character of information and with comparably efficient utilization of spectrum.

The relative advantages of PIMS flow directly from the proposed service's seamless integration of both new and existing technology and engineering developments from a number of different communications areas. PIMS incorporates into a single, open-protocol platform the

¹⁴ *Id.* at paragraphs 20-26.

¹⁵ *Id.* at paragraph 11. The Commission did not require that the experiment be completed or results thereof be reported before the filing of request for preference, but only that at least preliminary results have been reported before a grant is made.

technological advantages of frequency reuse, radiolocation capabilities and adaptive architecture, as well as the device-independence available with modern consumer electronics. (The elements of the PIMS system design are described in detail in the Technical Appendix to PageMart's Petition for Rulemaking).

A. Radiolocation

Radiolocation is provided by means of a single "polling channel" which broadcasts the unique identifiers of all subscriber units for which messages are ready for transmission. On receipt of such a polling message, the RF module in the subscriber unit answers back with a low-power signal that identifies the appropriate serving transmitter and gives instructions (set by the user) for delivery or storage of the message. PIMS messages are therefore delivered only to the particular areas in which intended recipients are located and only when the paged party's transceiver indicates it is ready to accept delivery.¹⁶

Radiolocation technology, combined with low-power RF capabilities, is the cornerstone of Personal Information Messaging Service, since it is an essential element for effective frequency reuse and the cellular nature of PIMS system architecture. Moreover, because the PIMS network need only control subscriber units when messages are ready for delivery, the system achieves significant control and administrative advantages over cellular mobile radio systems of comparable size. Compared to conventional and other simulcast paging systems, radiolocating permits PIMS to achieve dramatic increases in throughput and relative spectrum utilization.

B. Frequency Reuse and Capacity

Application of an adaptation of the cell-based pattern of frequency reuse initially developed for cellular mobile radio is the foundation for PIMS' spectrum efficiency. Frequency reuse, coupled with adaptive architecture supporting cell sizes as small as a single floor or office,

¹⁶ See, Petition, Technical Appendix at A8-12.

supports considerable increases in both the number of users and volume of messages which may be carried on PIMS networks.¹⁷ For instance, based on conservative assumptions of a 6,000 character average message size and an average of 2.5 messages per subscriber during a 10-hour busy period, the PIMS model indicates that over 100,000 subscribers per MSA (at 4,800 bps) could be supported, at a relatively small system size of 40 geographic cells, 40 building cells and 400 office cells. This equates approximately to one page of facsimile transmission per person per day. Thus, relative to simulcast messaging systems, PIMS offers capacity increases of between 13 and 30 times on a projected case basis and multiples of up to 100 on a theoretical case basis. These capacity improvements are detailed in the Petition's Technical Appendix, pp. 21-25.

C. Adaptive Architecture and Flexibility

A significant technical input into PIMS system design is the flexibility of adaptive system architecture which permits real time dynamic allocation of spectrum and power to meet continued variations in demand. PIMS networks can utilize cells in any reuse pattern that is efficient from both an engineering and business perspective, and at a size ideally configured relative to the projected message demand in the locality. Cell size can range from large geographic cells similar to conventional paging transmitters, to building cells based on slotted and modified coaxial cable distributed throughout the building core, to office cells utilizing low-power transmitters. Through advanced system control, subscriber units can be paged, and messages delivered, in any real-time combination of cells necessary for optimal system efficiency. As a result, not only are the capital and network equipment costs associated with PIMS minimized, since cells can be built where required and no larger than required, but PIMS' adaptive architecture allows flexible system deployment keyed to the growth of subscriber demand.

This basic architecture as proposed and developed by PageMart offers enormous flexibility of design while still achieving the fundamental objectives of the service concept. In

¹⁷ See, Petition, Technical Appendix at A4-8, for a detailed description of the three-tiered cell architecture.

particular, alternative approaches could be taken in both bandwidth size and modulation used without sacrificing either the basic service concept or the benefits of high spectrum efficiency, high throughput, and low cost operation and user equipment.¹⁸

D. Open Protocol

PIMS is designed as a non-confining platform for use by the widest possible number of different equipment manufacturers and service providers. No specific or proprietary modulation scheme or message formatting will be required. Messages may be input into a PIMS network from any available device and all standard formats (e.g., E-Mail, personal computer, Group 3 and 4 facsimile, touchtone, etc.). Messages will be transmitted and delivered in full-text or binary form, permitting individualized solutions through software and hardware based systems. PIMS can function as a completely transparent transmission path for exchange of information using mass-market software formats (e.g., spreadsheets) or custom-designed, proprietary formats on any subscriber device.

E. Device Independence

PIMS incorporates a superior interface to messaging hardware, allowing the service to be offered on a device-independent basis. As a result of the low-power requirements for return link transmission, RF modules can be designed as removable cards for portable notebook and palmtop computers, PCMCIA-like standard cards or communications boards for other information-processing devices. This capability makes it possible for PIMS messaging to be offered in a manner compatible with all devices a potential user may need to utilize, regardless of location. For instance, a consumer could use the same PIMS RF module in his personal organizer while travelling, in a notebook computer while working off-site, and in his office or home personal computer.¹⁹

¹⁸ See, Petition, Technical Appendix at A25-26, for a detailed discussion of the flexibility of the system design with respect to coding and modulation. Depending upon the modulation and coding used, the service could be implemented with channels ranging from 5 kHz to 50 kHz. However, PageMart believes the optimum channel bandwidth to achieve the best combination of throughput and low cost is in the range of 15-30 kHz.

F. Consumer Benefits

PIMS will meet consumer needs for low cost, flexible information messaging not available from existing and proposed services. The engineering innovations underlying PIMS translate into a number of immediate benefits for end users:

- By increasing spectrum efficiency without necessitating complex modulation schemes and/or vastly increased data transfer speeds, PIMS avoids the increased equipment costs inherent in other proposals for advanced messaging services.
- PIMS' architecture permits RF transceivers to operate on very low power on the order of 100 milliwatts, in turn supporting continued decreases in the size necessary for subscriber equipment.
- Multiple cell architecture and power module technology allows for superior in-building penetration, eliminating "dead" zones and allowing for truly portable devices.
- Radiolocation allows PIMS messages to be delivered without the need to maintain the subscriber unit in a continuous or periodic "on" position, reducing battery consumption, significantly extending useful life between charges, and further reducing size constraints.
- Reduced power requirements support integration of RF modules into standard computing interfaces, such as the PCMCIA-like standard cards used with personal organizers and pocket computers, permitting easy transfer of PIMS capabilities across numerous types of equipment platforms.
- Use of an "open protocol" for both message coding, RF modulation and subscriber equipment specification permits the entry of numerous competitive suppliers, creating both economies of scale and competitive pressures for maintenance of low end-user prices.

Clearly, these are just the kinds of public benefits that the Commission intended to promote with its adoption of its pioneer's preference policies.

G. Cost Advantages

All of the above benefits have a substantial and favorable effect on expected PIMS

(footnote cont'd from previous page)

¹⁹ See, Petition, Technical Appendix at A12-14, for a description of the configuration and operation of the subscriber transceiver unit.

system costs. PageMart estimates that message transmission costs for a fully developed PIMS system will be approximately 10 cents per kilobyte, achieving costs savings of up to 100 times or more compared to existing nationwide alphanumeric paging technologies with the added advantage of two-way messaging capability.

H. Technical Feasibility

The PIMS system design is a combination of new technical innovations with the adaptive use of proven technologies to achieve new functionalities and engineering characteristics with enhanced spectrum efficiency and lower cost. The creative use of established techniques is important to optimizing the technical feasibility of the design. Moreover, the system architecture is flexible and permits considerable latitude in certain areas, such as radiolocation techniques, bandwidth, and modulation, so as to minimize dependence on any restrictive design element that requires further developmental effort.

This architecture and its key elements have been the subject of extensive developmental effort by PageMart.²⁰ Further, PageMart already has an ongoing experimental program, under an FCC license granted in September 1991, for the purpose of verifying and refining key system elements and analyzing areas of potential trade-offs. The Commission has stressed that performance of an experiment "will be extremely beneficial."²¹ PageMart's experimental testing effort will enable it to confirm to the Commission the feasibility of the PIMS design prior to the time the Commission would be required to act on PageMart's preference request.

In sum, PageMart's work in developing and bringing forward PIMS fully merits the grant of a pioneer's preference under the standards established by the Commission. The Commission has stated:

²⁰ Although the Commission has not required that an innovation be patentable to warrant a preference award, PageMart has applied for patent protection for key system concepts.

²¹ Reconsideration Order, at paragraph 10. The Commission has found that even if an applicant has not completed its experimental application, "[T]he preference applicant should have ample time to initiate its experiment and obtain

Examples of a new or enhanced service might include an added functionality provided to a broader group of customers than was previously available or a new technology that permits 1) increased ability to perform an existing work requirement; 2) increased capacity in a service; 3) a substantial cost reduction in an existing service; 4) improved quality of an existing service.

Preference Order, 6 FCC Rcd at 3494.

PIMS offers major advances in each of these areas coupled with enhanced spectrum efficiency.

Added functionality - By freeing users from the limitations of paging and cellular services for data transfer, and allowing them to transmit both text and graphic messages of any length, on a two-way basis, using highly versatile and fully portable subscriber transceiver units, PIMS clearly offers "added functionality to a broader group of customers than was previously available," and an "increased ability to perform an existing work requirement." Id.

Increased capacity - Through innovative frequency reuse technologies which offer the capability of serving the personal information messaging requirements of over 100,000 subscribers in each major MSA (at approximately 15,000 characters per subscriber per daily ten-hour busy period), PIMS will make available enormous increases, (up to 30:1 per MSA), in the capacity available for the cost effective transmission of data communications to and from portable transceiver units.²²

Cost reduction - At the heart of the PIMS design is the innovative use of technology to bring about major reductions, on the order of 100:1, in the cost of delivering text and graphic messages to and from portable, hand-held transceivers. These low transmission costs are combined with low-power, low-cost subscriber units, which will be widely affordable and spread the benefits of PIMS to a broad range of users.

Spectrum efficiency - PageMart has used a novel combination of radiolocation and cellular techniques in a dynamically adaptive architecture to achieve its capacity increases and cost reduction in a highly spectrum efficient design, which will permit multiple providers in a competitive market structure.

Finally, PageMart is not only the original developer of the PIMS technology and service concepts, but also it has pursued this developmental work in both the continuing refinement of its existing paging services and in its experimentation work on PIMS itself. Accordingly, PageMart should be awarded "an opportunity to benefit directly from its efforts."²³

(footnote cont'd from previous page)

and obtain at least preliminary results" prior to the Commission's need to act on the preference request." Id., at paragraph 11.

²² This 30:1 increase in each MSA is relative to a theoretically 100% efficient simulcast system, a very conservative assumption.

²³ VITA Order at paragraph 2. There can be no doubt that PageMart's PIMS proposal is the first of its kind and that

V. GRANTING A NATIONWIDE PREFERENCE TO PAGEMART IS CONSISTENT WITH THE COMMISSION'S POLICIES, SINCE THE SERVICE IS INHERENTLY NATIONWIDE AND SINCE NO MONOPOLY WOULD THEREBY BE GRANTED

PageMart has proposed frequency allocations and a market structure for PIMS that would provide for two nationwide licensees and two additional local licensees in each service area. The combination of nationwide and local licensees will allow for services to be tailored by each provider to meet the needs of differently situated consumers. Nationwide providers will offer a full nationwide capability for users who require broad coverage in many different locations. Such nationwide coverage is a fundamental benefit offered by PIMS to consumers. Moreover, unified operation is essential for the effective management and control of the nationwide radiolocation function. Local providers will ensure that particular local user needs are met, including enhanced in-building and intra-office coverage. This multi-provider structure will provide the basis for effective competition, stimulating price competition as well as innovative new offerings and equipment.

The grant of a nationwide preference to PageMart is completely consistent with Commission policy. The Commission has recognized that a nationwide preference is appropriate where the service is inherently nationwide, as is PIMS.²⁴ Further, granting a nationwide preference to PageMart will not lead to PageMart achieving dominant or monopoly power.²⁵ Rather, the multi-provider structure, coupled with the opportunities for design flexibility and equipment competition, will ensure effective competition in this new wireless messaging industry.

Moreover, PageMart is the innovator with respect to the very PIMS' design features that enable it to provide effective and spectrum efficient nationwide coverage. PageMart

(footnote cont'd from previous page)

PageMart is the "original developer or proponent of the innovation at issue." *Id.*, at paragraph 13. This fact distinguishes PageMart's request from those ORBCOMM and STARSYS which the Commission rejected.

²⁴ Preference Order at 3495.

²⁵ See, VITA Order at paragraph 13.

has made a substantial investment in the development of PIMS and is committed to continuing with the considerable effort and investment that will be necessary to bring this service concept to fruition. Under these circumstances, the award of a nationwide preference to PageMart would serve the public interest and best ensure the early implementation of this innovative new service.

CONCLUSION

PIMS will bring to the marketplace an innovative new capability for the cost effective, instantaneous and automatic delivery of text and graphic information of any length, to and from low-cost hand-held subscriber transceivers nationwide. For its innovative efforts, investment, and commitment to developing this important new service, and its record as an experienced service provider and proven innovator, PageMart merits the grant of a nationwide pioneer's preference for PIMS. Such a grant will serve the Commission's policy objectives in establishing the pioneer's preference rules and will serve the public interest in ensuring the early implementation of this enhanced service for the benefit of business and personal users.

WHEREFORE, PageMart respectfully requests a grant of a nationwide pioneer's preference in the licensing process for its proposal Personal Information Messaging Services.

Respectfully submitted,

PAGEMART, INC.



By:
~~Jeffrey Blumenfeld~~
Glenn B. Manishin
F. Thomas Tuttle
BLUMENFELD & COHEN
1615 M Street, N.W., Suite 700
Washington, D.C. 20036
(202) 955-6300

Attorneys for PageMart, Inc.

Dated: March 19, 1992