

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

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Federal Communications Commission
Office of the Secretary

In the Matter of)
) Gen Docket No. 90-314
Amendment of the Commission's) ET Docket No. 92-100
Rules to Establish New Personal) PP-37, PP-40
Communications Services)

COMMENTS OF PAGEMART, INC.
ON TENTATIVE PIONEER'S PREFERENCE DECISIONS

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Dated: November 9, 1992

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SUMMARY

PageMart's proposed Personal Information Messaging Service ("PIMS") represents a classic instance of entrepreneurial ingenuity which more than meets the Commission's standards for grant of a pioneer's preference. PIMS is a service which allows portable, wireless delivery of lengthy text, graphic and facsimile messages, on a nationwide basis, using device-independent subscriber transceivers. By combining existing communications technologies in an entirely new network design, centered on radiolocation and massive frequency re-use, PIMS offers major service advantages and substantial cost reductions with essentially "off-the-shelf" components: PIMS does not require the development of new high-speed coding or modulation schemes or the invention of new communications technologies.

The Commission tentatively denied PageMart's request for a pioneer's preference in the 900 MHz band for its PIMS proposal and awarded a tentative pioneer's preference to Mobile Telecommunication Technologies Corporation ("Mtel"). The Notice explains that the Commission tentatively denied PageMart's preference application on the sole ground that experimental results were necessary to demonstrate the technological feasibility of PIMS. The Commission tentatively dismissed all the other pioneer's preference applications in ET Docket No. 92-100.

The Commission's apparent decision to award only a single pioneer's preference for narrowband PCS services undermines the function of this important new regulatory procedure. Even if MTel's proposal merits a preference, neither the pioneer's preference rules nor sound regulatory policy require that the Commission place any arbitrary restrictions on the number of preferences awarded. Indeed, the

Commission's policies of speedy deployment and competitive delivery of PCS services will be enhanced by awarding multiple pioneer's preferences, thus encouraging an actual market test of competing PCS technologies.

As to its substance, the Commission's decision on MTel's preference request illustrates the skewed standard applied in this proceeding. The test for a pioneer's preference should be whether the applicant has developed an innovative communications service, not merely whether it has invented a new communications technology. The Commission should strive to reward innovation in communications services instead of awarding "technical merit badges." Properly focused on innovation in services, the pioneer's preference standard is fully satisfied by PageMart's PIMS service, which offers substantial throughput, capacity and cost advantages for wireless data communications options. Even if the Commission grants Mtel a pioneer's preference in this docket, it should consider and grant PageMart's preference request.

The Commission's conclusion that PIMS is not "technically feasible," solely because PageMart has not yet submitted experimental test results, is simply wrong. No party to this consolidated docket made any such argument. Indeed, the Commission's linkage of technical feasibility to experimental testing misconstrues the record and the relevant provisions of the Commission's Rules governing pioneer's preferences. Simply put, experimental test support is not required as a prerequisite of obtaining a preference. The Commission's tentative decision ignored or failed to consider the several substantive filings by PageMart which provide a detailed demonstration of both the technical and commercial feasibility of PIMS.

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ON TENTATIVE PIONEER'S PREFERENCE DECISIONS

PageMart, Inc. ("PageMart"), by its attorneys, hereby submits its comments on the Commission's tentative decisions on pioneer's preference applications for "narrowband" personal communications services, announced in the August 14, 1992 Notice of Proposed Rulemaking and Tentative Decision ("Notice")¹ in this proceeding.

INTRODUCTION

The Commission tentatively denied PageMart's request for a pioneer's preference in the 900 MHz band for its proposed Personal Information Messaging Service ("PIMS") and awarded a tentative pioneer's preference to Mobile Telecommunication Technologies Corporation ("Mtel"). The Notice explains that the Commission tentatively denied PageMart's preference application on the sole ground that experimental results were necessary to demonstrate the technological feasibility of PIMS.² At the same time, the Commission concluded that Mtel had

¹ FCC 92-333, released Aug. 14, 1992.

² Id. at ¶ 152.

submitted an “innovative proposal . . . that will result in new service functionalities . . . and [had] developed the technology necessary to implement its proposal.”³ The Commission tentatively dismissed all the other pioneer’s preference applications in ET Docket No. 92-100.

The Commission’s apparent decision to award only a single pioneer’s preference for narrowband PCS services undermines the function of this important new regulatory procedure. Even if MTel’s proposal merits a preference, neither the pioneer’s preference rules nor sound regulatory policy require that the Commission place any arbitrary restrictions on the number of preferences awarded. Indeed, the Commission’s policies of speedy deployment and competitive delivery of PCS services will be enhanced by awarding multiple pioneer’s preferences, thus encouraging an actual market test of competing PCS technologies.

As to its substance, the Commission’s decision on MTel’s preference request illustrates the skewed standard applied in this proceeding. As PageMart has discussed in its earlier comments,⁴ the test for a pioneer’s preference should be whether the applicant has developed an innovative communications service, not merely whether it has invented a new communications technology. The Commission should strive to reward innovation in communications services instead of awarding “technical merit badges.” Properly focused on innovation in

³ Id. at ¶ 149.

⁴ See, e.g., Reply Comments of PageMart, Inc., ET Docket No. 92-100, PP-40 (filed June 16, 1992)(“PageMart Reply Comments”); see also PageMart’s Petition for Partial Reconsideration, ET Docket. No. 92-100, PP-40 (filed October 5, 1992)(“PageMart Reconsideration Petition”).

services, the pioneer's preference standard is fully satisfied by PageMart's PIMS service, which offers substantial throughput, capacity and cost advantages for wireless data communications options. Even if the Commission grants Mtel a pioneer's preference in this docket, it should consider and grant PageMart's preference request.

I. THE COMMISSION SHOULD LOOK TO SERVICE INNOVATION, INSTEAD OF MERE TECHNICAL ACHIEVEMENT, AND AWARD MULTIPLE NARROWBAND PCS PREFERENCES TO FACILITATE A MARKET TEST OF SERVICE OPTIONS

According to the Commission's rules, a pioneer's preference will be granted when an applicant has demonstrated 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 Indeed, the Commission has stressed in the past that a preference will not be awarded simply for innovative technology, but rather for new services or enhancements to existing service "by use of innovative technology."⁶

The test for a pioneer's preference should accordingly be whether the applicant has developed an innovative communications service, not merely whether it has invented a new communications technology. The Commission's pioneer's preference policies were not intended merely to bestow technical merit badges on technological developments alone. Since it is the marketplace, not the

⁵ 47 C.F.R. § 1.402(a) (emphasis added).

⁶ Id. See Establishment of Procedures to Provide a Preference to Applicants Proposing an Allocation for New Services, 7 FCC Rcd. 1808, 1809 ¶ 11 (1992) ("Preference Reconsideration Order").

Commission, which stands as the most efficient test of technical expertise, the Notice's focus on technological development is therefore misplaced. Instead, the Commission should apply its pioneer's preference rules so that only applicants who develop innovative services benefit from the preference. In this way, the pioneer's preference process would give service providers the incentive not only to seek out technological innovations, but also to find ways to implement them in actual communication services providing real-world benefits to end users.

If the Commission is truly interested in bringing new services to consumers—and not in simply rewarding good technical ideas—it should deny Mtel's application for a pioneer's preference. Mtel offers advanced technical functionalities with its time-division duplex based messaging system similar to CT-2. Although no existing paging system today has the capability of transmitting data at the 22,000 bps rate MTel projects can be achieved with its technology, others have demonstrated data rates of up to 16,000 bps in a 25 kHz channel. MTel's contribution is essentially its proposal to apply this technology to data messaging. If MTel succeeds in developing this technology beyond the laboratory, it will certainly have made a valuable contribution to communications infrastructure.

Therein, however, lies the problem. While Mtel has apparently dazzled the Commission with its projections for high-speed, simulated data transmission, its proposal obscures the fact that the equipment to transmit data at such rates does not yet exist. Furthermore, MTel's proposed Nationwide Wireless Network ("NWN"), which adopts a 37-zone nationwide simulcast transmission model, faces severe

capacity constraints, essentially precluding cost-effective provisioning of longer messaging services (text, graphics, facsimile, etc.) which will likely represent the next generation of communications services.⁷ Thus, while Mtel's NWN applies an elaborate technological scheme for data modulation, it has not offered any new services that consumers could actually use. MTel's NWN acronym, which focuses on a network and not a service, epitomizes the narrow, technical focus of its proposal.

By adopting MTel's exclusive focus on technical development, the Commission's Notice obscures that fact that there are several innovative and meritorious proposals for narrowband PCS services in ET Docket No. 92-100, including PageMart's. Nothing in the pioneer's preference rules prohibits the Commission from granting more than one pioneer's preference for narrowband PCS. In fact, the Notice's expressed policies of speedy deployment and competitive delivery of PCS⁸ will be enhanced by awarding several pioneer's preference for 900 MHz services, allowing a market test of competing messaging options. For example, while MTel and PacTel Paging have proposed new simulcast technologies for improving data transmission rates, PageMart and PageNet have developed frequency reuse systems which achieve higher throughput with network architecture rather than transmission speed. Each of these approaches offers different trade-offs in message length, system capacity and cost and battery life of subscriber units.

⁷ Comments of PageMart, Inc., ET Docket No. 92-100, at 2-9, 46-68 (filed June 1, 1992)("PageMart Comments").

⁸ Notice ¶ 6.

PageMart's central innovation in PIMS is to adapt the spectrum efficiency of re-use, as is evident in cellular telephony, with dramatically reduced system architecture and usage costs to produce a high-volume, low-cost service ideally suited to high-throughput data transmission. PageMart is convinced that its PIMS proposal—in which usage and subscriber equipment costs are kept low by achieving throughput advances with frequency reuse instead of data transmission rates—is superior. Nonetheless, it is the marketplace, and not premature regulatory determinations, which should make this decision. In order to enhance a diversity of narrowband PCS services available in the marketplace, the Commission should select multiple pioneer's preferences representing a broad range of service options. This will enable consumers, in the quickest time possible, to have a broad panoply of choices, and properly allow the ultimate measure of service innovation to be made by the market. In contrast, awarding only a single preference application could give the selected technology such a substantial "head start" that competitive systems might never be able to enter the market, in essence representing a de facto standardization of narrowband PCS services. Consequently, because the Notice apparently assumes, incorrectly, that only one pioneer's preference should be awarded for narrowband PCS, the tentative decisions on narrowband PCS should not be finalized unless an array of preferences is awarded.

Finally, whether or not the Commission determines to grant additional preferences, it is essential that it limit a successful preference applicant to actually implementing the system proposed for its preference. The basis of the Com-

mission's preference determinations is that some proposals are so innovative as to justify extraordinary regulatory treatment. For a preference recipient to use its allocated spectrum to build a different system or offer a different service would directly contradict the entire purpose of the pioneer's preference process. Thus, for instance, MTel must be required to use its preference to offer the same NWN modulated paging services, in a 50 kHz channel, proposed in its preference request, or else forfeit its preferential status. Even if the Commission ultimately decides to allow some non-preference lottery licensees to use narrowband PCS channels larger or smaller than 50kHz, or to implement technologies different from MTel's, MTel should make good on its promise of NWN by building the system for which it has been granted a preference, not a modified service or someone else's network architecture.

II. CONTRARY TO THE COMMISSION'S REASONING, THE RECORD DEMONSTRATES UNEQUIVOCALLY THAT PAGEMART'S PIMS PROPOSAL IS TECHNICALLY AND COMMERCIALY FEASIBLE

The Notice's stated rationale for denying PageMart's request for a pioneer's preference is that PageMart "has not submitted even preliminary results of its [experimental] tests."⁹ This reasoning is inconsistent with the Commission's rules and incorrect as a matter of fact. Since the tentative preference decision is based on a misconception of the record and misapplies the relevant legal standard, the Commission should reverse its tentative decision to deny PageMart a pioneer's preference.

⁹ Notice ¶ 152.

As set forth in detail in PageMart's October 5, 1992 reconsideration petition,¹⁰ the standards governing the Commission's consideration of pioneer's preferences are set forth in Sections 1.402, 1.403 and 5.207 of the rules.¹¹ Under these provisions, an applicant for a preference may demonstrate technical feasibility either through a written technical submission or by commencing an experiment.¹² While the Commission has stated that the performance of an experiment will frequently be beneficial, experimental support is not "required as a prerequisite to obtaining a preference."¹³ The findings of an experiment will be a major component of the Commission's decision to grant a preference only if the applicant has relied upon an experiment rather than on a written technical submission.¹⁴ Indeed, in the Notice itself the Commission reiterated that its rules require an applicant to submit either a technical feasibility showing or undertake an experiment:

a requester must have obtained an experimental license, commenced its experiment, and reported at least preliminary findings to the Commission that tend to confirm the technical feasibility of its proposal; or alternatively, a requester must have submitted a written showing that demonstrates the technical feasibility of its proposal. ¹⁵

¹⁰ Petition for Partial Reconsideration, ET Docket No. 92-100, PP-40 (filed Oct. 5, 1992).

¹¹ 47 C.F.R. §§ 1.402, 1.403 and 5.207.

¹² See Establishment of Procedures to Provide a Preference to Applicants Proposing an Allocation for New Services, 7 FCC Rcd. 1808, 1809 ¶ 11 (1992) ("Preference Reconsideration Order").

¹³ Id. at ¶ 10.

¹⁴ Id. at ¶ 11.

¹⁵ Notice ¶ 147.

It is therefore beyond question that the pioneer's preference rules do not preclude applicants from demonstrating technical feasibility by submitting a written showing with their applications.

PageMart's PIMS proposal fully meets this test. PIMS adopts a fundamentally different technical approach from virtually all other proposals for pioneer's preferences in this docket. Since its initial rulemaking petition in February 1992, PageMart has made clear that the central technical advancement in PIMS lies in its "innovative combination" of existing technologies.¹⁶ Because the key elements of PIMS—radiolocation, frequency reuse and miniaturized subscriber RF capabilities—are already in use in different sectors of the communications industry, there is by definition a reality-proven technical feasibility to PIMS that cannot be controverted.

The essence of PIMS is massive frequency reuse, obtainable by bringing to the paging industry the frequency management techniques used by cellular mobile radio systems and taking those techniques one step further by utilizing an "adaptive architecture" of hierarchically sized cells.¹⁷ Radiolocation techniques have been developed and refined in numerous satellite and other Commission-authorized services. Miniaturized RF devices are already commercially available—such as

¹⁶ E.g., 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-7980, at 6-9 (filed Feb. 28, 1992)("Rulemaking Petition"); Request for Pioneer's Preference, PP-40 at 13-14 (filed March 19, 1992)("Pioneer's Preference Request"); PageMart Comments, at 1-9 and Exh. 1; PageMart Reply Comments, at 6, 8-10 & n.9.

¹⁷ Indeed, Motorola's October 6, 1992 ex parte submission in ET Docket No. 92-100 advocates outbound messaging using a reuse system architecture and operational approach virtually identical to PIMS. Motorola Ex Parte Presentation, ET Docket No. 92-100 (filed Oct. 6, 1992).

MTel's own credit-card sized paging equipment—and what PageMart and its cooperating equipment manufacturers have added is the revolutionary concept of incorporating the radio into a PCMCIA-standard computer card, thus permitting the novel and unparalleled convenience of “device-independent” messaging.

The brilliance of the PIMS system stems precisely from this liberal extension of existing technology in a manner no one has previously conceived.¹⁸ PageMart's June 16 Reply Comments in this docket, in fact, made clear that PIMS is not only technically feasible, but largely commercially feasible as well.¹⁹ Although all of the Docket 92-100 pioneer's preference requests demonstrated “theoretical” feasibility, several appear to fall short of technical feasibility, since they rely on untested high-speed coding techniques to achieve the “advance” they claim as significant.²⁰

PageMart's approach is significantly different. Its innovation lies in its system conception and design. “PIMS delivers the most data to the most subscribers in each market not by pushing the envelope of data modulation technique or speed to a point which can be accomplished today only in computer models, but rather by an

¹⁸ PageMart has applied for patent protection for its innovative integration of these technical ingredients into a new communications system.

¹⁹ PageMart Reply Comments, at 8-10, 19-23 & Appendix A thereto.

²⁰ For example, while MTel claims to have demonstrated feasibility through a combination of textbook citations and consultants' computer simulations, that is clearly only theoretical feasibility. Indeed, the application explicitly states that MTel's demonstration of technical feasibility must await the outcome of its 6-month-long, 7-step “Ongoing Validation Program.” (MTel Technical Feasibility Demonstration, ET Docket No. 92-100, PP-37, at 18-21 (June 1, 1992)). Of course, even if that test is successful, the Commission will have to decide whether a three-transmitter network in Oxford, Mississippi adequately tests the network's robustness and ability to overcome the critical multipath and intersymbol interference challenges posed by RF-intensive and RF-hostile markets like New York City and Los Angeles, where demand is likely to be greatest.

innovative approach to system architecture.”²¹ PageMart’s proposed initial data speed of 2,400 bps—as well as its “second step” speed of 4,800 bps—are lower than today’s European ERMES standard. As a result, the PIMS subscriber transceiver unit is a low-power, low-cost, highly portable unit already in prototype on a PCMCIA Type II card. Virtually all the other parts of the network could be assembled today from “off the shelf” components and technologies, as was presented in detail in PageMart’s Docket 92-100 submissions.²²

This singular approach to system design permitted PageMart to supply in its initial filing not only a thorough technical description of PIMS network architecture and system parameters, but realistic estimates of cost and market prices for PIMS service.²³ And in its June 16 reply comments, PageMart included a 26-page technical specification and a “parts list” for each of the equipment components that will comprise the base stations, geographic cells, building cells, office cells and subscriber units associated with PIMS service.²⁴ All of the individual PIMS network components have been selected from available equipment, and the PCMCIA-standard

²¹ Reply Comments, at 9.

²² See PageMart Reconsideration Petition, Appendix A hereto.

²³ Because PageMart’s PIMS system is based on commercially available equipment and conventional paging site operations, it is relatively easy to extrapolate costs to arrive at the 10¢ per 1 K bytes that was given in PageMart’s Rulemaking Petition as a very conservative estimate. For instance, assuming a 30X improvement over a simulcast system and an 8X improvement in data rate (1,200 to 9,600 bps) means that current paging system charges of 1¢ per character local alpha message could be reduced to 0.42¢ per 1,000 characters in a PIMS message, all other costs being held equal. Although PageMart recognizes that there will be greater infrastructure cost per data channel associated with the cell-based design of PIMS, even if operating and infrastructure cost were tripled, total cost would less than double (since technical cost is typically less than 20% of total costs) and a potential mature system’s operating target price of 10¢ per 1 K characters would be achievable.

²⁴ This portion of PageMart’s June 16 filing is annexed as Appendix A.

RF card is in prototype form with several manufacturers committed to its manufacture. Thus, while other parties to Docket 92-100 labor to prove theoretical feasibility for simulcast transmission speeds almost four times faster than the current 6,250 ERMES European paging standard, PageMart has devised a reuse-based system operating at 4,800 bps, using commercially available equipment, which offers at minimum of a 10-time, and depending on market configuration as much as a 100-fold, increase in subscriber throughput.

The detailed 28-page Technical Appendix annexed to PageMart's request for pioneer's preference addressed system architecture, re-use patterns, cell configurations, messaging sequences, polling channel and return link parameters, subscriber unit specifications, and system capacity estimates. This Technical Appendix fully satisfied the above requirements and more than adequately demonstrated the technical feasibility of PIMS. While PageMart also had been granted an experimental license, it chose to rely instead on its written technical submissions, stating plainly that it would conduct experiments "to confirm" the feasibility of specific system design parameters.²⁵ As PageMart explained, the experiments are intended simply to "verify and refine key system elements and analyze areas of potential trade-offs."²⁶

The Commission's assertion that PageMart relied "only" on experimental results to support the technical feasibility of PIMS service (Notice ¶ 152) is just

²⁵ Pioneer's Preference Request, at 13.

²⁶ Id.

wrong. PageMart included its thorough Technical Appendix with the initial preference request precisely because it was relying on the Commission standard allowing technical feasibility to be “demonstrated” by a “written showing.” PageMart planned experimental tests for system-level implementation to “confirm” the commercial feasibility of its actual system design in urban RF applications. Accordingly, the Commission’s tentative decision to deny PageMart’s request for a pioneer’s preference is based on an incorrect premise. Since PageMart did not choose to rely on an experiment to “demonstrate” technical feasibility, but rather only to “refine” system design, “verify” service parameters and “confirm” commercial feasibility, the Commission’s denial of PageMart’s request on the ground that it has not yet submitted experimental test results is both plainly erroneous and procedurally unfair.²⁷

²⁷ Testing was discussed in PageMart’s petition for rulemaking in this same context:

PageMart received experimental authorization from the Commission in September 1991 for the development of cellular paging services. 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 incorporation of RF transceivers in PCMCIA-like standard cards and AT-compatible computer boards. PageMart has worked closely with several 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.

Petition for Rulemaking, at 5; accord, Pioneer’s Preference Request, at 3. With respect to feasibility, PageMart stated: “The foundation of PIMS is its innovative use of currently available and newly developed technologies in a unique mix to support substantial increases in both spectrum and cost efficiency.” Petition for Rulemaking, at 8. This is just one example of how PageMart’s repeated discussions of technical feasibility are flatly inconsistent with the misconstruction forming the basis of the Commission’s preference decision.

The Commission's Notice improperly takes a single sentence of PageMart's preference request entirely out of context, without any reference to the Technical Appendix or to the full briefing of technical feasibility issues in response to MTel's formal opposition. Even a cursory review of PageMart's application in its entirety, or any of PageMart's later submissions specifically addressing technical feasibility, shows that the Notice's conclusion that PageMart "relies only on its experimental results" (Notice ¶ 152) is simply incorrect. PageMart's substantive analysis of feasibility issues in Docket 92-100 repeatedly emphasized the "off-the-shelf" feasibility of the technology underlying PIMS service and never argued that experimental test results were its only basis for assessing technical feasibility. Yet contrary to all notions of reasoned decision-making, the Notice neither references nor analyzes these substantive PageMart presentations on technical feasibility.

Indeed, despite strenuous objection by MTel to PageMart's proposal, not even MTel argued that PageMart's proposal should be rejected on the ground that experiments are necessary to demonstrate PIMS' technical feasibility. Since, as discussed below, the technical elements of PIMS service represent new applications of existing communications technologies, it is perfectly reasonable for PageMart to postpone experimental testing until the actual implementation phase of system development, where a variety of RF and related issues—as in every communications engineering application using wireless technologies—will need to be evaluated and resolved in

the harsh, multipath environment of major urban areas.²⁸ To say that such commercial system “refinement” requires testing or that feasibility will be “confirmed” by these sorts of tests, however, does not justify the Commission’s apparent conclusion that technical feasibility can only be determined based on experimental results.²⁹

The Commission’s stated rationale for rejecting PageMart’s preference fails on another count. The precise status of an applicant’s testing experimentation cannot be a determinative factor in light of the unpredictability of the timing of a Commission preference decision. The accelerated schedule for submission of comments and related materials in ET Docket No. 92-100,³⁰ as well as its unexpected inclusion in the broader PCS rulemaking and a Commission preference decision just six weeks after the close of the public comment period, all contrast sharply with earlier proceedings where the Commission deferred pioneer’s preference decisions

²⁸ For instance, proposed PIMS technical specifications call for 100 mW subscriber transceivers, 10 mW “office cell” transmitters and 10W RF repeaters. Depending on the actual frequency allocated for PIMS and the deployment and power levels of RF systems in different real-world urban environments, however, these power specifications may prove to be more or less than optimal. Experimental testing is necessary precisely to “refine” and “verify” system parameters such as these.

²⁹ Virtually the only piece of the PIMS system which has not yet been completely developed is the miniaturized, interchangeable PCMCIA-standard transceiver card. As PageMart has earlier emphasized, “PageMart’s innovation is at the system conception and design level, while implementation utilizes existing technology in almost all facets of the design save for the PCMCIA card which is already in prototype.” Reply Comments of PageMart, Inc., ET Docket No. 92-100, at 6 (filed June 16, 1992). Prototypes of these transceiver cards have been developed by American Cryptronics, Inc. See PageMart’s Reconsideration Petition, Appendix E. Motorola agrees that “a ‘pager card’ can be developed to meet requirements with reasonable cost and size.” See PageMart Reconsideration Petition, Appendix C.

³⁰ The Commission established a filing deadline for preference requests and two separate comment and reply comment cycles in short period between June 1 to June 29, 1992. See Public Notice, FCC 22922 (April 30, 1992); Public Notice, FCC 22914 (April 30, 1992); Public Notice, FCC 22915 (April 30, 1992); Public Notice, DA 92-712 (June 4, 1992)

until well after release of an NPRM.³¹ Thus, when PageMart in March 1992 stated in its preference request that it planned to file test results to “confirm” system design feasibility before the Commission’s decision on its preference,³² it fully expected to have sufficient time to conclude necessary product refinement and complete its work with equipment manufacturers prior to concluding its implementation testing program. Since the actual timing of a Commission preference decision is not in the control of the applicant, however, it is erroneous and fundamentally unfair to place decisional significance on the fact that experimental testing has not been concluded before the Commission’s decision is announced, particularly when the applicant is not relying on tests to show technical feasibility.

Finally, the Commission’s failure to review and assess the technical materials submitted with PageMart’s preference request is illustrated by a glaring error in its Notice. The Notice states that in the absence of experimental test results for PIMS, the Commission cannot “clarify the technological differences, if any, between PageMart’s scheme and existing cellular systems.”³³ However, in PageMart’s rulemaking petition, preference requests and comments, PIMS was expressly compared with and distinguished from cellular telephone systems in several important respects:³⁴ (a) PIMS uses far less scarce spectrum than cellular systems;

³¹ See Tentative Decision, ET Docket No. 91-280, 7 FCC Rcd. 1625 (1992)(LEO satellites).

³² Pioneer’s Preference Request, at 13. PageMart annexed the “detailed technical evaluation” from its petition for rulemaking to the preference request. *Id.* at 1 n.1.

³³ Notice ¶ 152.

³⁴ *E.g.*, Petition for Rulemaking, at 3, 8, 9-10, 11-12, 14-15 & A4; Pioneer’s Preference Request, at 9, 12-13.

(b) unlike cellular radio, which is a full duplex, interactive system, PIMS is a non-interactive, two-way system using 4-cell re-use and a micro/pico-cell architecture; (c) PIMS system design minimizes receiver size and battery drain, key problems with portable cellular handsets; (d) PIMS overcomes cellular radio's in-building performance limitations by use of wireless repeater "booster" radios; (e) PIMS is designed without cell-to-cell handoff in order to achieve enormous cost savings and message transfer prices competitive with landline networks; and (f) PIMS is designed with return link capacities for data messaging instead of full duplex voice transmission.

An experiment cannot "clarify" system design differences that are not only obvious technologically from the service description but were also expressly explained in detail by the applicant as key advantages of its proposal. Since this imperceptive error in the Notice indicates that the compressed decisional schedule and confused procedures in this docket have undermined the Commission's ability to make reasoned, non-arbitrary judgments based upon a fair review of the record, PageMart asks that the Commission reconsider its tentative denial of PageMart's pioneer's preference request for PIMS.

As set forth in PageMart's reconsideration petition, PageMart's demonstration of technical feasibility is supported, in addition, by two highly relevant objective analyses. First, Motorola, Inc., a principal manufacturer of network and subscriber paging equipment, has reviewed the PIMS proposal and has concluded that all of the network equipment and subscriber module functionalities for the service are

available today or technically feasible. Motorola reports that it "could develop and manufacture both the network equipment and the subscriber receiver/transmitter unit using a combination of existing and emerging technologies," and that "[a]ll of the network equipment technology is essentially available today."³⁵ Second, SFA, Inc., a leading telecommunications engineering consultant, has examined the PIMS system specifications and has likewise concluded that each of the elements of PIMS is technically feasible. SFA states that "PIMS is a technically and commercially feasible system offering advanced data communications capabilities" and that "there are no technical design issues in the proposal for which empirical and implementation solutions do not already exist in engineering literature or in real-world communications experience."³⁶ These independent corroborations are conclusive on the issue of PIMS' technical feasibility.

III. UNDER THE CRITERIA APPLIED TO MTEL'S REQUEST FOR A PIONEER'S PREFERENCE, PAGEMART HAS CONCLUSIVELY DEMONSTRATED ALL OF THE ELEMENTS MERITING THE GRANT OF A PIONEER'S PREFERENCE FOR PIMS

Under the same criteria applied in the Notice to MTel's application, PageMart's PIMS service merits a pioneer's preference for its PIMS innovation.

As to feasibility, MTel's NWN service is premised on simulcast transmission speeds of 24,000 bps, which no existing technology is capable of supporting. NWN likewise relies on a coding and modulation scheme which has never been tested in

³⁵ Letter from Motorola, Inc. to PageMart, Inc., July 13, 1992, at 1 (Appendix C to PageMart's reconsideration petition) (emphasis supplied).

³⁶ PageMart Reconsideration Petition, Appendix D, at 1.

connection with any service. The Notice suggests that MTel's "field tests" demonstrate technical feasibility, but MTel's June 1, 1992 feasibility "demonstration" offered only computer models, not test results, and its computer simulations were limited to 3,000 baud transmission.³⁷ Essentially, what MTel offers is a prediction, supported by limited mathematical equations, that it may be able to develop equipment to support baud rates six times that of the most-advanced paging standards known to the industry.

If the Commission's preference standard of technical feasibility is satisfied by the submission of computer models of lower-level technology predicting the viability of equipment not yet available, accompanied by an admitted inability to model the key technical feature of the proposed innovation, PageMart's proposal to apply existing communications technologies for frequency re-use and radiolocation to wireless data messaging is by definition technically feasible.

PageMart's PIMS proposal meets all of the remaining criteria applied to MTel as well:

³⁷ MTel's June 1, 1992 "Technical Feasibility Demonstration" concedes that 3,000 baud is "a practical limitation on simulcast operations" (p. 7). MTel is in the process of a "validation program" for verifying use of orthogonal spacing to subdivide a 50 kHz channel using multi-carrier modulation, but its technical report stated that MTel "was unable . . . to model such a scheme, and cannot comment on its performance" (*id.* at 8-9 & n.22). Indeed, MTel indicates that "radio experimentation in the field will be required to confirm that orthogonality can be maintained in a simulcast environment" (*id.* at 9 n.22). In a subsequent June 24, 1992 submission, MTel enclosed results of field tests that never established the technical feasibility of the critical system component, namely the 24 kpbs receiver. The only test made was of combining eight channels in a rural test area to be "received" by an expensive laboratory test instrument, a spectrum analyzer.

First, PIMS supplies “added functionality” to existing paging and two-way personal data services by providing substantial message throughput capabilities and reducing both system and subscriber unit costs.³⁸

Second, PageMart has developed “new use of spectrum” by proposing a wireless service for lengthy messaging using an open protocol, achieving both platform and device independence using a PCMCIA-standard transceiver module.³⁹

Third, PageMart has generated “changed operating or technical characteristics” by its extension of cellular re-use design into the realm of micro (e.g., building) and pico (e.g. office) cell system architecture.⁴⁰

Fourth, PIMS provides “increased spectrum efficiency” by offering at least a 10-times, and depending on market configuration as much as a 100-fold, increase in message delivery capacity.⁴¹

Fifth, PIMS supports “increased speed or quality of information transfer” by increasing throughput with frequency re-use instead of very high-speed simulcast transmission, thus reducing subscriber equipment costs and dramatically reducing power requirements.⁴²

³⁸ Notice ¶ 147; see Rulemaking Petition, at 16-17; Pioneer’s Preference Request, at 14.

³⁹ Notice ¶ 147; see Rulemaking Petition, at 13-15; Pioneer’s Preference Request, at 9.

⁴⁰ Notice ¶ 147; see Rulemaking Petition, at 14; Pioneer’s Preference Request, at 5.

⁴¹ Notice ¶ ¶ 147, 149; see Rulemaking Petition, at 14; Pioneer’s Preference Request, at 5.

⁴² Notice ¶ ¶ 147, 149; see Rulemaking Petition, at 13-14; Pioneer’s Preference Request, at 9-10.

Finally, PIMS provides “reduced cost to the public,” because both equipment costs and service costs are far below projected costs for alternative message delivery systems, including MTel’s.⁴³

Under the same standards the Commission applied to MTel’s proposal, PageMart therefore merits a pioneer’s preference for having developed and demonstrated significantly improved message throughput capacities, submitted an innovative proposal based upon this improvement that will result in new service functionalities and reduced costs being made available to consumers, and developed the technical system design necessary to implement its proposal. Notice ¶ 149.

CONCLUSION

For all these reasons, the Commission should reverse its tentative decision to deny PageMart a pioneer’s preference for its PIMS innovation.

Respectfully submitted,



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Dated: November 9, 1992.

⁴³ Notice ¶ ¶ 147, 149; see Rulemaking Petition, at 16-17; Pioneer’s Preference Request, at 13.