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June 1, 1992

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FEDERAL COMMUNICATIONS COMMISSION  
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Ms. Donna Searcy  
Secretary  
Federal Communications Commission  
1919 M Street, N.W., Room 222  
Washington, D.C. 20554

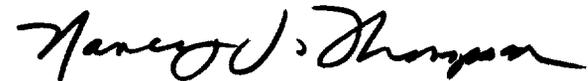
Re: ET Docket No. 92-100  
Requests for Pioneer's Preference  
Nos. PP-35, PP-36, PP-37, PP-38, PP-39, PP-40

Dear Ms. Searcy:

Transmitted herewith on behalf of Paging Network, Inc. are an original and five (5) copies of its Opposition to Pioneer Preference Requests filed in the above-captioned proceeding.

Should any questions arise in connection with this filing, kindly contact the undersigned counsel directly,

Sincerely,

  
Nancy J. Thompson

Enclosures

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ORIGINAL

BEFORE THE  
Federal Communications Commission  
WASHINGTON, D. C.

In the Matter of:	)	
	)	ET Docket No. 92-100
Dial Page, L.P.	)	PP-35
Echo Group, L.P.	)	PP-36
Mobile Telecommunication Technologies Corporation	)	PP-37
PacTel Paging (Advanced Architecture Paging)	)	PP-38
PacTel Paging (Ground-to-Air Paging)	)	PP-39
PageMart, Inc.	)	PP-40
Requests for Pioneer's Preference in the 930-931 MHz Band To Provide Two-Way Data and Advanced Paging Services	)	

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

To The Commission:

OPPOSITION TO PIONEER  
PREFERENCE REQUESTS

PAGING NETWORK, INC.

Judith St. Ledger-Roty  
Nancy J. Thompson  
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June 1, 1992

## SUMMARY

Paging Network, Inc. ("PageNet") opposes the Requests for Pioneer Preference filed by Dial Page, L.P., Echo Group, L.P. ("Echo"), Mobile Telecommunications Technologies Corporation ("Mtel"), PacTel Paging (Advanced Architecture Paging and Ground-to-Air Paging), and PageMart, Inc. None of these Requests demonstrates a truly innovative advanced paging service.

In delineating the characteristics worthy of a Preference Award, the Commission has implicitly recognized that a Pioneer's Preference is not a certificate that hangs on a wall of the recipient, but the withdrawal of a frequency from the general pool open to other potential users or services. Applicants for a Pioneer's Preference have a significant burden to demonstrate to the Commission, thus, not only that their services are innovative, but that the proposal serves the public. None of the instant Requests have met this test.

Echo, Mtel and PageMart seek Pioneer's Preference to offer two-way mobile data services on the 930-931 MHz band. The same type of services are currently provided, or will be provided in the near future, by numerous other companies utilizing existing frequency allocations. Dial Page and PacTel seek Pioneer's Preferences to provide limited enhancements to one-way paging services in the 930-931 MHz band. Their Requests are not technically innovative, nor do they further the public interest in increased efficiency or reduced costs. Accordingly, none of the six Requests satisfy criteria demonstrating a broad, unmet need for service, and no award of a Preference is merited.

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

To The Commission:

**OPPOSITION TO PIONEER  
PREFERENCE REQUESTS**

Paging Network, Inc. ("PageNet"), by its attorneys, pursuant to Section 1.402 of Commission's Rules and Public Notice Mimeo No. 22915, released April 30, 1992, hereby submits its Opposition to the Pioneer's Preference Requests of Dial Page, L.P. ("Dial Page"), Echo Group, L.P. ("Echo"), Mobile Telecommunication Technologies Corporation ("Mtel"), PacTel Paging both for Advanced Architecture Paging ("PacTel AAP") and for Ground-To-Air Paging ("PacTel GAP"), and PageMart, Inc. ("PageMart"), which seek

Pioneer's Preferences to provide certain two-way data and advanced paging services in the 930-931 MHz band. None of these Requests demonstrates a truly innovative advanced paging service, responsive to broad, unmet consumer demand that is also capable of deployment in a low cost and spectrally efficient manner. Thus, none of the Requests merit an award of a Pioneer's Preference.

#### I. INTRODUCTION

In 1982, when the Commission allocated 3 MHz of spectrum in the 928-931 MHz band for paging services,<sup>1</sup> PageNet was one of the first to recognize the full potential of this spectrum. PageNet immediately applied for and received authorizations to offer paging service in the 931 MHz band, and was the first in the country to operate a 900 MHz common carrier paging system. Since then, PageNet has expanded its 900 MHz paging operations to 24 states and the District of Columbia and has pioneered the development of regional paging systems. Throughout its history, PageNet has sought to respond to consumer demand for reasonably priced advanced paging services and to fulfill the promise of the 900 MHz band through its innovative, state of the art paging systems.

In the past ten years, as PageNet's operations have grown, its paging services have evolved from primitive tone and voice services to include alphanumeric paging and voice messaging

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<sup>1</sup> Amendment of Parts 2 and 22 of the Commission's Rules to Allocate Spectrum in the 928-931 MHz Band and to Establish Other Rules, Policies, and Procedures for One-Way Paging Stations in the Domestic Public Land Mobile Radio Service, 89 FCC 2d 1337 (1982) ("One-Way Paging Order").

services. In response to customer demand to communicate by voice, PageNet currently offers low priced, automated voice messaging and personalized automated answering service marketed under the names PageMail<sup>o</sup> or PageMailBox<sup>™</sup>. Based on its investigation of the mass consumer and small business markets, PageNet has concluded that there is strong consumer desire to communicate by voice through instantaneous, reasonably priced advanced paging services.<sup>2</sup> None of the Pioneer's Preference Requests presently before the Commission propose such a service. In fact, the majority of the Requests propose very little that is innovative in terms of service, price or technology, and none fully satisfy the Commission's Pioneer Preference criteria.

## II. PROPOSED PARADIGM OF ANALYSIS FOR GRANT OF PIONEER'S PREFERENCE

As expressed in the Communications Act, the Commission's public interest mandate is to make available, so far as possible, to all the people of the United States a "rapid, efficient, nationwide and worldwide .... radio communications service with adequate facilities at reasonable prices." 47 U.S.C. § 151. As with all its other actions, the agency's grant of any Pioneer's Preference must be in furtherance of that public interest mandate. Thus, in reviewing the captioned requests, the Commission should

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<sup>2</sup> PageNet is filing, concurrent with this Opposition, a Petition for Rulemaking to Allocate the 930-931 MHz Reserve Band for the Establishment of Advanced Paging Services, including advanced voice paging, known as "VoiceNow<sup>SM</sup> Services," and a Request for Pioneer's Preference to provide such services.

focus foremost on the real world consequences of any such award and evaluate how these consequences will serve or disserve the public interest.

In delineating the characteristics worthy of a Preference award in its Pioneer's Preference Order,<sup>3</sup> the Commission implicitly recognized that a Pioneer's Preference is not a certificate that hangs on the wall of the recipient, but a withdrawal of a frequency from the general pool open to other potential users or services. Further, it has emphasized that preferences will not be bestowed casually, and that "[a]n applicant for a pioneer's preference will have a significant burden to persuade the Commission that its proposal has sufficient merit." Preference Order, 6 FCC Rcd at 3494. As such, the Commission must carefully weigh not only the innovativeness, but also the consequences of a specific proposal.

Specifically, the Commission has recognized that a showing of certain characteristics potentially qualifies a proposal for a Pioneer's Preference, including: 1) added functionality; 2) a new use of the spectrum; 3) changes in the operating or technical characteristics of a service; 4) increased spectrum efficiency; 5) increased speed in the transmission of information; 6) increases in the quality of information transfer; and 7) a significant reduction in cost. Id. Moreover, before the Commission awards a

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<sup>3</sup> 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").

Pioneer's Preference, it must look at a continuum and determine exactly how the proposal serves the public. If there is no need or demand for a particular service, or no demand at the cost proposed, its innovativeness serves no purpose, and it offers the public no benefit. It would be inappropriate, then, for the Commission to grant a Pioneer's Preference for innovation alone. An applicant for a Pioneer's Preference should demonstrate not only that it has "thought out the capabilities or possibilities of the technology or service, or has brought them to a more effective state," but also that there is an unmet need for the services proposed, and that it is feasible to offer these services at prices which will permit subscription by those for whom the service is intended. See id. These considerations are particularly important when considering whether to grant a Pioneer's Preference for an Advanced Messaging Service ("AMS") at 930 MHz.

Any proposal to provide AMS at 930 MHz should also be consistent with the Commission's original intent to carve out a contiguous 3 MHz block of spectrum from the 929-931 MHz dedicated to one-way paging services. In reserving the 930-931 MHz band for advanced technology one-way paging systems, the Commission rejected proposals to interleave frequencies in this band and sought to maintain all 40 frequencies in a contiguous reserve pool. One-Way Paging Order, 89 FCC 2d at 1340. Here, there is but 1 MHz of spectrum proposed to be allocated, compared, for example, to the 50 MHz of spectrum allocated for cellular service, itself an innovative service when first introduced. The

introduction of incompatible services with different channeling plans than the adjacent spectrum would destroy the compatibility and consistency of this allocation scheme.

In contrast, PageNet's proposal for VoiceNow<sup>SM</sup> Services ensures consistent channelization across the 3 MHz paging band which will lead to flexibility in system expansion and development in response to marketplace demand. AMS, which are deployed on this band, will have access to potentially underutilized existing adjacent channels. For example, it is likely that the spectrum allocated for a service such as PageNet's VoiceNow<sup>SM</sup> will quickly be depleted. At such time, it is logical that an AMS licensee would desire to annex channels in the adjacent bands to increase messaging capacity. These channels might already be licensed to the VoiceNow<sup>SM</sup> carrier, or they might be acquired. In this fashion, the continued evolution and growth of such systems would lead to more re-farming of the adjacent paging channels and result in a continuous 3 MHz paging band responsive to marketplace demand.

It is also essential that consistent channelization be established within the 930 MHz band. The growth of AMS would be severely hampered if manufacturers were expected to produce pagers to multiple specifications. The economies of scale necessary to realize a beneficial, low cost pager would never be realized. In addition, some manufacturers would choose not to participate in certain segments, given the limited market size. Conversely, if the spectrum is managed so that one type of subscriber device is

produced for the entire band, the cost of terminal equipment would be minimized and the participation of multiple manufacturers would be assured.

**III. NONE OF THE CAPTIONED REQUESTS FOR PIONEER'S PREFERENCE SATISFY CRITERIA NECESSARY FOR A PREFERENCE AWARD**

Unlike the captioned Pioneer's Preference Requests, PageNet's proposal for VoiceNow<sup>SM</sup> Services satisfies important public interest objectives. VoiceNow<sup>SM</sup> is an innovative new voice paging service, for which there is substantial pent up demand. See Petition for Rulemaking of Paging Network, Inc., filed June 1, 1992 at Exhibit 1. As PageNet demonstrates, spectrum conservation methods permit it to increase by over 22 times the subscriber capacity per system, as compared to analog simulcast tone and voice systems. PageNet has simultaneously reduced the per subscriber costs of voice paging by up to one-half compared to the costs of providing an equivalent service over analog networks. These stellar accomplishments demonstrate without question that PageNet is entitled to a Pioneer's Preference for designing and establishing the technical feasibility of introducing VoiceNow<sup>SM</sup> Services on a spectrally efficient, cost-effective basis.

By contrast, none of the instant Pioneer's Preference Requests adequately satisfy criteria demonstrating a broad, unmet public need for service. Three Requests (Echo, Mtel and PageMart) essentially recycle various existing, two-way mobile data proposals. Two other Requests (PacTel AAP and Dial Page) propose to add very limited functionality to existing paging systems.

Only one Request (PacTel GAP), proposes to implement a new paging service, but its utility to a broad cross section of consumers is limited. Moreover, issues of cost and frequency compatibility are not adequately addressed in any of the Requests. Consequently, none of the captioned Requests appear to provide any public interest benefit worthy of a Pioneer's Preference.

**A. Echo, Mtel and PageMart Do Not Deserve A Pioneer's Preference Merely to Provide Two-Way Data Services in the 930-931 MHz Band When Many Alternative Wireless Data Services Already Exist**

Echo, Mtel and PageMart seek a Pioneer's Preference to provide interactive wireless data services in the 930-931 MHz band. The same types of mobile data services are currently provided, or are capable of being provided, under several different sections of the Commission's rules.<sup>4</sup> Several companies, for example, already offer, or plan to offer, two-way data services to support mobile laptop and notebook computers and to enable these work stations to communicate with public data networks.<sup>5</sup>

The largest such wireless data network is ARDIS, Inc. ("ARDIS"), a joint venture between IBM and Motorola which is available in over 400 metropolitan areas. ARDIS provides interactive services over a shared mobile radio system at speeds

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<sup>4</sup> See, e.g., 47 C.F.R. §§ 22.930, 90.603, 90.703.

<sup>5</sup> See "Emerging Wireless Services Promise to Set Workers Free," *Network World*, April 6, 1992; "Wireless Nets Aren't Just for Big Fish Anymore," *Business Week*, March 9, 1992 (copies attached hereto at Appendix 1).

up to 4.8 kilobits per second ("kbps"), with plans to increase to 19.2 kbps. ARDIS' largest competitor is Ram Mobile Data ("Ram"), owned 49.9% by BellSouth Corporation, which operates in the 900 MHz private specialized mobile radio ("SMR") band. Ram is able to transmit packet-switched data at rates of 8.0 kbps and plans to boost its bandwidth to 19.2 kbps by year end.

In addition, cellular operators and their subsidiaries, such as PacTel's Wireless Business Unit, already have, and are marketing, the capability to carry data across existing cellular facilities. In April 1992, PacTel and eight other cellular carriers announced plans to upgrade cellular networks to offer enhanced mobile data communications which will be more reliable and secure than existing systems. This joint venture will create a virtually nationwide interactive mobile data network capable of transmitting information at rates upwards of 19.2 kbps.

In the future, two-way mobile data services may also be provided via low-earth orbit ("LEO") satellites and by personal communications services ("PCS") networks. LEO systems will enable users to utilize a low-cost device to send and receive electronic mail throughout the world. PCS encompasses a broad range of radio communications services and it is contemplated that PCS will provide voice and data from day one. Given the variety of wireless data services in the marketplace today, the services proposed by Echo, Mtel and PageMart constitute neither a new, nor an innovative service deserving of a preference award.

1. Echo Group, L.P.

Echo seeks a preference to provide a terrestrial mobile data radio service ("MDRS") in the 930-931 MHz band. Essentially, MDRS encompasses the same types of two-way services as provided by existing wireless networks, but MDRS would operate at lower transmission rates. See Echo Petition for Rulemaking, RM-7782, at 8, 10. For example, in April 1992, PacTel and eight other cellular carriers announced plans to upgrade their cellular networks to offer enhanced mobile data communications at much higher information transfer speeds (19.2 kbps) than the MDRS network which proposes operation at rates of 2,400 to 9,600 bits per second.

Echo also proposes to offer through MDRS the same types of services as provided under Section 90.701 et seq. of the rules in the 220 MHz band.<sup>6</sup> These services include remote security monitoring, credit card verification, delivery service monitoring, and point-of-sale information. To differentiate its MDRS proposal, Echo claims, without support, that the MDRS system will offer greater in-building penetration than systems operating at 220-222 MHz. Id. at 10. This limitation can be easily overcome, however, through appropriate system design. Moreover, both Ram and ARDIS already operate on frequencies with in-building penetration comparable to that of 930 MHz.

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<sup>6</sup> 47 C.F.R. § 90.701 et seq. (1991).

Other MDRS services include automobile radio location or tracking services and emergency search and rescue services. Id. at 8-9. Non-voice automatic vehicle location ("AVL") and monitoring services are currently authorized under Section 90.239 of the rules in the 904-926 MHz band. Commercial operations in this band include the new AVL mobile data system offered by Pinpoint Communications, Inc. Pinpoint claims that its network can transmit data for fleet management at rates up to 330,000 bps with sustained throughput at 38,400 bps. Emergency automobile radio services, such as the trunked data-only system proposed by Echo, are presently authorized under Section 90.95 of the rules in the 896-901 and 935-940 MHz bands. These systems provide data communications to repair trucks and other road vehicles. A proceeding also is underway at the Commission to implement an enhanced personal emergency locator service to help rescue crews locate those in distress.<sup>7</sup>

Although Echo describes many different service options for MDRS, its Request only addresses the demand for mobile services generally. Echo fails to demonstrate a particular need for MDRS that is not already being met by existing and proposed services. It also offers no concrete evidence that a significant number of consumers will benefit from the introduction of its proposed service. Moreover, support is lacking for the "cost breakthroughs" Echo claims to have achieved with the MDRS system.

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<sup>7</sup> Personal Emergency Locator Transmitter Service (Notice of Proposed Rulemaking), PR Docket No. 89-599, 4 FCC Rcd 8657 (1989).

See id. at 17. Echo's Request simply describes expected equipment costs for its proprietary mobile units and installed base stations. No mention is made of the net costs to the consumer, including projected service costs, or how such costs would compare to charges for existing mobile data services.

In terms of its technical proposal, MDRS is modeled on narrowband technology developed for the 220 MHz band in which Echo also is an applicant. Echo's technical proposal, like that for 220 MHz, is based on a contiguous 5 kHz channel assignment plan. Such a plan does not correspond at all with the 25 kHz channelizing plan utilized in the adjacent 929 and 931 MHz paging bands. As noted above, consistent channelization will permit flexible system expansion throughout the 929-931 MHz paging spectrum and will stimulate the introduction of low cost paging equipment at 930 MHz.

By Echo's own admission, MDRS could be developed in any number of alternative frequency bands including: 901-902 MHz and 940-941 MHz. Id. at 9. Accordingly, because MDRS does not reflect a substantial enhancement over existing mobile data services and can be implemented easily in other frequency bands, the Commission should deny Echo's request for a Pioneer's Preference.

## **2. Mobile Telecommunication Technologies Corporation**

Mtel seeks a Pioneer's Preference to establish a new Nationwide Wireless Network ("NWN") service which, like Echo's MDRS network, is designed primarily to meet consumer demand for two-way portable data communications services. As indicated

above, the demand for wireless data services is already being served by existing SMR and cellular operations. In contrast to existing radio-based technologies, Mtel claims that the NWN service will offer superior data transfer, an acknowledgment capability, better building penetration, lower service costs and wider system coverage. Mtel Petition for Rulemaking, RM-7978, at 9. All of these enhancements for which Mtel seeks a preference can also be offered in the 220 MHz band for which Mtel is also an applicant.

Mtel proposes to configure its NWN service as a simplex system using a single 50 kHz channel for both forward and reverse operations. Mtel's 50 KHz channelization plan does not correspond with adjacent 25 KHz channelization in the 929 and 931 MHz paging bands. Thus, it may limit the expansion of future advanced paging systems into adjacent spectrum. Moreover, it will effectively preclude a consistent channelization scheme at 930 MHz, which may delay introduction of equipment and full utilization of the band.

Mtel claims innovation in its forward channel design which includes techniques such as nationwide simulcasting and adaptive zoning. Id. at 14. Simulcasting is not a new technology. Nor is it particularly spectrally efficient when deployed on a nationwide basis without a procedure for frequency reuse. Mtel's adaptive zoning concept also is not unique. PageNet currently employs similar zoning techniques throughout its nationwide paging system. In the Northeast, for example, PageNet operates a system which covers the greater New York City, New Jersey and Philadelphia metropolitan areas. This system has operated for years using a

method of so-called "Adaptive Zoning." A customer who subscribes to the regional service will have his messages transmitted in a time slot in which all transmitters simulcast together. In the alternate time slot, the Philadelphia system and New York/New Jersey systems transmit independently the traffic destined for customers who only require local coverage.

Although Mtel claims to meet the FCC's criteria for substantial reduction in costs, it makes no showing to bolster its supposition. At no point does Mtel attempt to project the resulting equipment and service costs to NWN consumers. Thus, Mtel has failed to demonstrate any significant cost benefit from its proposed service.

Mtel does predict that a "mature" NWN system will accommodate from 600,000 to 800,000 users per 50 kHz channel. Id. at 17. Significantly more users could be accommodated under a frequency reuse scheme similar to that proposed by PageNet. Specifically, in the top 20 Metropolitan Statistical Areas ("MSAs"), PageNet's VoiceNow<sup>SM</sup> system could potentially serve twice that number of subscribers per the same unit bandwidth. An untested service such as Mtel's that supports relatively few users is not deserving of a Pioneer's Preference.

### 3. PageMart, Inc.

PageMart requests a Preference for its Personal Information Messaging Services ("PIMS") proposal to provide "answer back" paging along with textual and graphic messages transmitted on a two-way basis to portable subscriber units in the 930-931 MHz band. PageMart claims PIMS will serve currently "unmet" or

"underserved" consumer needs for data messaging. PageMart Petition for Rulemaking, RM-7980, at 2. As previously noted, similar two-way data messaging services are currently available through several sources, including 900 MHz SMR and cellular radio systems. To the extent the need for mobile data services is not being met because of spectrum shortages in the larger markets as PageMart suggests, other frequency allocations, including 800 MHz SMR and 220 MHz, are in a better position to provide enhanced two-way data services than the 930-931 MHz band. New subscriber equipment developments and other technological enhancements on these frequencies will result in a more cost-effective and spectrally efficient provision of mobile data services than PageMart's proposal.

One technical flaw in PageMart's proposal derives from operation of high-power 3500 watts transmitters co-located with receivers which operate with low power pagers. This situation presents two separate and distinct problems: desensitization of the receiver and performance degradation due to noise from the paging transmitters. Tests conducted by PageNet show that, at power levels of 3500 watts, receive facilities in the 930-931 MHz band are adversely affected when transmitters are located nearby. PageNet proposes a three-step process to eliminate these problems described in Exhibit 5 to PageNet's Pioneer Preference Request filed June 1, 1992.

According to PageMart, the overlay of cellular technologies in its system design will result in higher volume, lower cost transmissions to more users. Id. at 9. The net cost benefits of

PIMS are difficult to assess, however, as PageMart only addresses costs in terms of costs per character. Id. at 17. Consequently, it is impossible to determine what criteria went into this cost analysis. Furthermore, PageMart's proposal, which seeks to allocate 800 kHz for PIMS, will support only 100,000 subscribers per MSA on a nationwide basis. In contrast, PageNet's VoiceNow<sup>SM</sup> service will potentially serve approximately 330,000 customers per MSA nationwide. PageMart has not proposed a new or innovative service to meet widespread consumer demand, and thus, its Pioneer's Preference Request should be denied.

**B. Dial Page and PacTel Do Not Qualify For A Preference for Proposing Limited Enhancements to Existing Paging Services Which Appear to Serve Only A Small Group of Consumers and Are Not Spectrally Efficient**

In contrast to the Preference Requests discussed above seeking preference for two-way services, Dial Page and PacTel seek Pioneer's Preferences for limited enhancements to one-way paging services which they propose to provide in the 930-931 MHz band. Dial Page's Request and the two PacTel Requests are not technically innovative, nor do they further the public interest in increased efficiency, reduced costs or any other criteria considered important by the Commission. Thus, all three fail to meet the Commission's criteria for granting a Pioneer's Preference.

1. Dial Page, L.P.

Dial Page requests a Preference for a regional Acknowledgment Paging ("AP") service utilizing three 25 kHz channels in the 930-931 MHz band. Acknowledgment Paging offers only a limited enhancement to existing paging services. As conceived by Dial Page, the AP service architecture will utilize existing paging frequencies to transmit an outgoing page, while the acknowledgment message will be sent separately along one of three 930 MHz channels. Dial Page Petition for Rulemaking, RM-7977, at 4. By separating the originating and acknowledgment pages, Dial Page is asking the Commission for a Preference to provide what is essentially one-half of an enhanced paging system. This approach is analogous to asking the Department of Transportation for a preference to build an interstate highway consisting of only one-way streets.

Dial Page's separation of the signalling and talk back systems is not a technically efficient proposal. The signalling and acknowledgment systems should work together to achieve optimum operation. The coverage area and in-building performance of the two systems must be closely matched. Moreover, because the paging receiver could operate in any band, the potential for the optimum integrated pager design is limited. Pagers would, as a result, be more expensive. PageNet has proposed a more comprehensive, cost-effective and spectrally efficient way to provide AMS.

Furthermore, in a recent Supplement to its Pioneer Preference Request, Dial Page claims to have developed a new technology, consisting of a proprietary Digital Signal Processing Receiver ("DSPR"), through which it would implement its AP system. Dial Page Supplement at 2. Although Dial Page seems to be implying that its product would be the only one capable of providing AP service, the methodology involved in configuring the DSPR is based on standard digital signal processing techniques, and Dial Page has not described any improvements, or enhancements it has made to the receiver that would warrant grant of a Preference.

Dial Page proposes to license AP service providers on a regional basis, authorizing three licensees per region. The regions which Dial Page proposes are expansive multistate areas consisting of the Pacific, Midwest and Atlantic Regions of the country. Dial Page Request for Pioneer's Preference at 5-6. Although Dial Page claims "economics of scales" from the regional, licensing scheme, it provides no cost data whatsoever on which to evaluate its proposal. Nor does Dial Page specify the particular region it requests as its Preference Area.

In sum, the service Dial Page is proposing is not innovative or unique to Dial Page, nor is it spectrally efficient. Thus, Dial Page is not eligible for a Pioneer's Preference.

## **2. PacTel Paging (Advanced Architecture Paging)**

In its first Preference Request, PacTel seeks a preference for an Advanced Architecture Paging ("AAP") service. AAP consists of a digital data stream which PacTel claims will be offered to subscribers free of internal formatting constraints. Without such

constraints, PacTel claims enhanced messaging features such as graphics, video, electronic mail, facsimile, digitized voice and lengthy alphanumeric messages can be offered on the same system. PacTel AAP Petition for Rulemaking, RM-7979, at 5-6.

One-way data services like those proposed by PacTel are already available through the Motorola EMBARC system. EMBARC is a nationwide paging network operating at 931 MHz which is designed to link palmtop computers with electronic mail systems utilizing relatively inexpensive one-way paging devices. The EMBARC wireless service provides unlimited data transmission for a monthly service cost of \$15 plus message surcharges.

One significant technical limitation of the PacTel AAP proposal is that there is no return capability for a return signal acknowledgment. As a result, confirmation of error free data transfer or requests for retransmission will not be possible. Another limitation is that AAP utilizes simulcast technology without employing frequency reuse techniques. Higher data throughput could be achieved with frequency reuse than with simulcasting due to the limited ability to synchronize simulcast transmitters. Because of the limited capacity, AAP will spread infrastructure costs over a smaller base of data users. Given these limitations, high-volume data transmission users are not likely to choose AAP over other data delivery systems.

More significantly, PacTel has not even determined what channelization is necessary to provide AAP service. Based on the results of PacTel's experiments, AAP may require different channel spacing (up to 50 kHz) and modulation than other proposals for the

930-931 MHz band. Id. at 12-13. The contemplated changes also will not match the operating characteristics of adjacent spectrum. Such technical changes would limit AAP's compatibility with existing and proposed commercial operations at 929-931 MHz and would destroy the contiguous channel plan for this spectrum.

PacTel's Request also does not address the costs to deploy the AAP system, or the net cost of this service to the consumer. Given all the issues left unaddressed by PacTel, and the limited functionality and high cost of the AAP service, there is no basis for awarding a Pioneer's Preference to the PacTel AAP proposal.

### 3. PacTel Paging, Inc. (Ground-to-Air Paging)

PacTel's second Request is for a Preference to provide a new ground-to-air paging ("GAP") service. GAP is a "new" service in the sense that no other provider currently offers a paging service specifically designed to alert airborne pagers. Existing air-ground operations in the 849-851/894-896 MHz bands, conducted by GTE Airphone and In-Flight Phone, provide telephone service only from the airplane to the ground; airline passengers cannot receive calls while in the air.<sup>8</sup>

Since PacTel submitted its petition, several companies have either commenced, or announced plans to introduce, an in-flight messaging service. GTE Airphone announced plans in May 1992 to introduce a service early next year enabling passengers to receive telephone calls while in the air at phones located in their seats.

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<sup>8</sup> SkyTel's nationwide terrestrial paging service is capable of communicating to airborne passengers now, although it does not guarantee reliability of message receipt on airplanes.

In-Flight Phone also plans to provide in-flight telephone and data services directly to passengers at their seats which will allow passengers to be paged directly by callers on the ground. Unlike PacTel GAP, these new services will make it possible to communicate on a cost effective basis with any air traveler, not just those equipped with a GAP pager.

In support of its proposal, PacTel maintains that there is a sizeable demand for GAP based on government projections of domestic air travel and a demand study performed for PacTel by Arthur D. Little. The study indicates that, based upon price, from 275,000 to 670,000 domestic air travelers may subscribe to GAP service in the 1995 to 1997 timeframe. A.D. Little Study at 21. PacTel claims such demand compares favorably to existing paging channels which serve "from 150,000 to 300,000 subscribers depending on the baud rate of the system." Letter to Donna Searcy, from Mark A. Stachiw, dated March 12, 1992. This statement does not account for the multiple markets in which terrestrial paging is currently deployed as compared to the single, nationwide market proposed for GAP.<sup>9</sup> Consequently, the demand for GAP is, in fact, considerably smaller than the demand for, and capacity of, conventional paging services.

The GAP service also targets a much narrower group of customers than terrestrial paging. Conventional pagers are used throughout the U.S. by a wide variety of subscribers. In

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<sup>9</sup> PacTel also appears to contrast annual subscriber data for terrestrial systems with data for a two-year subscriber period for GAP services. See A.D. Little Study at 21.