

ORIGINAL

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

RECEIVED

JUN 29 1992

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the matter of)
)
Narrowband Data and Paging Services in the)
930-31 MHz Band)
)
Request by Mobile Communications Corpora-)
tion of America for a Pioneer's Preference)
for Verified Information Paging Service)

ET Docket No. 92-100

File No. PP-82

ORIGINAL
FILE

To: The Commission

CONSOLIDATED REPLY TO OPPOSITIONS
TO REQUEST FOR PIONEER'S PREFERENCE

MOBILE COMMUNICATIONS CORPORATION
OF AMERICA

L. Andrew Tollin
Michael Deuel Sullivan

Wilkinson, Barker, Knauer & Quinn
1735 New York Avenue, N.W.
Washington, D.C. 20006
(202) 783-4141

William B. Barfield
Charles P. Featherstun
David G. Richards

1155 Peachtree Street, N.E.
Suite 1800
Atlanta, Georgia 30367-6000
(404) 249-2641/(202) 463-4155

Fred McCallum, Jr.
Vice President-General Counsel
1800 E. County Line Road
Suite 300
Ridgeland, MS 39157
(601) 977-1636

Of counsel

Its Attorneys

June 29, 1992

No. of Copies rec'd
DATE

045

Table of Contents

SUMMARY	1
DISCUSSION	3
I. Response to Pagemart’s Opposition	5
A. System Architecture	5
B. Speed Improvement	7
C. Bandwidth Requirements	7
D. System Capacity	8
E. Modulation Technique	9
II. Response to Pagenet’s Opposition	9
A. MobileComm’s Innovation	10
B. Spectral Efficiency	11
C. Reverse Channels	11
D. Incompatible Bandwidth	12
E. Demand for VIP Service	12
III. Response to Mtel’s Opposition	13
A. Similarity to Mtel’s NWN	13
B. Credit for Innovation	15
C. Comparison with Mtel’s NWN	16
D. Technical Feasibility	17
CONCLUSION	18

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

RECEIVED

JUN 29 1992

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the matter of)
)
Narrowband Data and Paging Services in the) ET Docket No. 92-100
930-31 MHz Band)
)
Request by Mobile Communications Corpora-) File No. PP-82
tion of America for a Pioneer's Preference)
for Verified Information Paging Service)

To: The Commission

**CONSOLIDATED REPLY TO OPPOSITIONS
TO REQUEST FOR PIONEER'S PREFERENCE**

Mobile Communications Corporation of America ("MobileComm"), by its attorneys, hereby submits its consolidated reply to the oppositions to its June 1, 1992, request for a pioneer's preference for its Verified Information Paging ("VIP") proposal. Oppositions were filed by Pagemart, Inc., Paging Network, Inc. ("Pagenet"), and Mobile Telecommunication Technologies Corporation ("Mtel") on June 19, 1992. As MobileComm demonstrates herein, the oppositions are without merit.

SUMMARY

The parties opposing MobileComm's preference request to varying degrees present a comparative analysis, rather than addressing whether MobileComm's VIP proposal meets the FCC's preference criteria. The Commission's policy is not to engage in a comparative review of proposals that may differ in substantial ways, but rather to evaluate each proposal on its own. Consistent with this policy, MobileComm believes that the Commission should grant preferences to each applicant who has met the Commission's stated eligibility criteria and whose proposal is consistent with the rules adopted.

MobileComm shows that Pagemart's opposition is without merit in several ways: First, MobileComm has fully described the essential elements of its system architecture, but has not provided the details of implementing this architecture, because the practical implementation of VIP is a routine exercise in network design and engineering; the award of a pioneer's preference is not based on the sort of engineering that could be expected of any licensee. Second, MobileComm's proposal is not only "marginally faster" than conventional paging — it is over ten to twenty times faster than typical paging systems currently in operation, and more than twice as fast as the European ERMES system. Third, the single 50 kHz channel is twice the bandwidth of a 25 kHz channel such as Pagemart uses, but Pagemart's system requires *ten* channels — five times the spectrum requirement of VIP. Fourth, Pagemart's analysis of the VIP proposal in terms of facsimile carriage capacity is facile, because VIP is designed for the transmission of alphanumeric messages, not facsimiles. Finally, Pagemart's assertion that MobileComm has not yet selected its modulation technique is meritless — MobileComm's VIP proposal will utilize 8-level FSK, yielding a data rate of 15,000 bps.

MobileComm responds to Pagenet's opposition as follows: First, VIP provides a service that is not currently available; it adds a functionality that cannot be provided by current licensees. Pagenet's VoiceNow proposal is, by contrast, merely a digital extension of the venerable tone-plus-voice paging service that has been in use for decades. Second, VIP is more spectrally efficient than even the most advanced conventional paging systems. Third, the technical design of MobileComm's VIP reverse link is such that there is not likely to be any significant difficulty caused by high-powered base station transmissions on adjacent channels. Fourth, Pagenet's assertion of non-compatibility with adjacent channels using different bandwidths appears to be fully addressable through appropriate emissions masks. Finally, MobileComm has conducted substantial research into the demand for services such as VIP, and such research is ongoing; the results to date show that there is significant interest in acknowledgement paging and electronic mail delivery.

Likewise, Mtel's opposition is without merit. First, MobileComm's VIP proposal is not a near-clone of Mtel's NWN proposal — the two proposals are designed to provide different services in response to different user needs. While there are similarities, those are understandable in that MobileComm has sought to fit within the broad parameters of Mtel's proposed regulatory structure for three providers of generic nationwide messaging service. It is noteworthy, however, that Mtel's specific implementation of nationwide messaging is a two-way service functionally identical to services already available from multiple sources, while there is no currently available equivalent to VIP. Second, Mobilecomm is not precluded by the MFJ from playing the role of an innovator in designing and developing a new service such as VIP, as Mtel has suggested. Third, VIP cannot reasonably be said to be technically inferior to Mtel's NWN proposal, because the two services seek to meet different user needs; each has been optimized for a particular application, and the two cannot be fairly compared. Finally, MobileComm has shown that its VIP proposal is technically feasible. The 8-level FSK modulation technique that will make possible the high data rates, with Class C amplification, has been shown to be viable, and there is no significant obstacle to implementation.

DISCUSSION

The opposing parties have all, to one degree or another, opposed MobileComm's request for a pioneer's preference on what could be described as comparative grounds, each arguing that its own proposal is more meritorious than MobileComm's in one or more respects. In MobileComm's view, such comparisons are not only inconsistent with the FCC's stated framework for analysis of pioneer's preference requests,^{1/} they are inherently flawed. All of the preference requests are different in various respects, and each has its strengths and weaknesses. Yet the

^{1/} *Pioneer's Preference*, 6 FCC Rcd. 3488 (1991) (*Pioneer Preference Order*), modified on recon., 7 FCC Rcd. 1808 (1992) (*Pioneer Preference Reconsideration*), petitions for recon. pending.

requests are not mutually exclusive. The Commission's goal in awarding a pioneer's preference is not to reward the "best" applicant or applicants, but rather to encourage innovation in technologies and services by rewarding those who significantly advance the state of the communications art.

Each of the preference proposals should be considered on its own merits, with reference to its contribution to the FCC's rulemaking effort. The Commission has made this policy very clear:

We believe that in many services there will be a single, clear-cut innovator, while in other services, it will be difficult to distinguish among several innovative parties. In the latter situations, we find it appropriate to award preferences to each applicant that can meet the eligibility standard for being awarded a preference. For example, if the Commission adopts rules that combine aspects of two or more applicants' proposals or rules that permit the use of two or more applicants' proposed technologies, we believe that more than one preference would be warranted. . . . Also, in some cases where multiple preference requests are filed, it may better serve the public interest not to grant any of them.^{2/}

To paraphrase the view stated by Dial Page, L.P., in its comments on MobileComm's and others' preference requests, the Commission should grant pioneer's preferences to all of the applicants who meet the agency's stated eligibility criteria and whose proposals are consistent with the rules adopted for new forms of advanced paging service.^{3/}

MobileComm chose not to oppose any preference requests in this proceeding, although MobileComm's proposal undoubtedly is superior in some respects to others' proposals, because this is not a beauty contest. One could debate endlessly which is better — one-way or two-way, simulcasting or multiple-frequency reuse, acknowledgment paging or two-way data, voice paging or messaging — and reach no resolution. In this reply to the oppositions, MobileComm for the most part still avoids engaging in such debates, which are more appropriately addressed

^{2/} *Pioneer Preference Order*, 6 FCC Rcd. at 3495.

^{3/} Comments of Dial Page, L.P. at 9 & n.20 (filed June 19, 1992).

(if at all) in the context of the future rulemaking. However, some of the opposing parties significantly misconstrue aspects of MobileComm's VIP proposal in their zeal to show their own proposals to advantage; in these cases MobileComm must set the record straight.

In sum, it is MobileComm's understanding that the Commission will consider each applicant's preference proposal on its own merits, in light of the tentative policy decisions that will be embodied in the forthcoming notice of proposed rulemaking. Based on this premise, MobileComm responds in the following sections to the criticisms leveled at its VIP proposal by each of the opposing parties.

I. Response to Pagemart's Opposition

Pagemart opposes MobileComm's preference request for VIP because: (A) It contends that the system architecture has been described inadequately; (B) It contends that VIP is merely a "marginally faster" simulcast paging system; (C) It contends that VIP requires excessive bandwidth; (D) VIP will have inadequate capacity; and (E) It contends that MobileComm has not yet settled on the modulation technology to be used. In the following sections, MobileComm demonstrates that these criticisms are without merit.

A. System Architecture

Pagemart claims that MobileComm failed to describe its proposed system architecture sufficiently either to evaluate its claim of increased "data transmission capability in the real-world messaging environment" or to "determine with any specificity what service and capabilities MobileComm plans to provide."⁴

MobileComm described the architecture of its VIP proposal in some detail in both its pioneer's preference request and its comments on Mtel's rulemaking petition, a copy of which

⁴ Comments of Pagemart, Inc. at 5 (filed June 19, 1992).

was included as an appendix to the pioneer's preference request. The specific services and capabilities of VIP are set forth therein and need not be repeated here.^{5/} While MobileComm did not enumerate specific details of its architectural plans, such as protocols, coding schemes, error detection and correction, and network design, these are not only unnecessary to an evaluation of the proposal, they are merely routine exercises in network design and engineering that are unrelated to a pioneer's preference award for innovative spectrum use.^{6/}

MobileComm did disclose details which are sufficient to assess the benefits of its proposal.

For the sake of clarity, these will be restated:

- (1) VIP will generally utilize 8-level FSK modulation, which yields a bit rate of 15,000 bps when modulated at 5000 baud.
- (2) VIP transmitters will simulcast, in order to avoid the need for multiple frequencies, and to provide improved in-building coverage.
- (3) Acknowledgements will be transmitted from terminals on a 12.5 kHz subchannel centered in the 50 kHz channel during a time segment dynamically allocated for reverse transmissions, with terminal access being governed by a modified slotted Aloha protocol.

In short, MobileComm will allow a single 50 kHz channel to be used for transmission of multiple messages within a metropolitan area at a bit rate of 15,000 bps. Reverse-channel acknowledgement transmissions are accommodated within a time domain subsegment of the forward channel, independently in each transmitter site's coverage area, permitting simultaneous usage of the single reverse channel by different terminals in each site's coverage area.

^{5/} See Comments of MobileComm at 5-6 (filed June 1, 1992), MobileComm Pioneer's Preference Request at 5 (filed June 1, 1992).

^{6/} See *Low Earth Orbit Satellite (VITA Pioneer's Preference)*, 7 FCC Rcd. 1625, 1627 (1992) (preference will not be based on technology development that would be routinely expected of a licensee).

B. Speed Improvement

Pagemart claims that "VIP appears to be nothing more than a simulcast paging service which is only marginally faster than existing systems."⁷ Nothing could be further from the truth. In a conventional wide-area paging system, a data stream is transmitted on a 25 kHz channel from all transmitters throughout one or more metropolitan areas at a data rate of 512 bps, with some systems employing data rates of 1200 bps or 2400 bps.⁸ In a VIP system, each transmitter site will transmit a data stream on a 50 kHz channel, at a data rate of 15,000 bps,⁹ with a portion of the transmission time dynamically set aside for terminal transmissions in the reverse direction. Even if 10% of the transmission time were at any given point reserved for reverse-channel transmissions, the area-wide forward data transmission rate would be 13,500 bps — a 1,125% improvement over the conventional system. This clearly is a major advance over conventional paging systems.

C. Bandwidth Requirements

Pagemart claims that because VIP uses a 50 kHz channel, it "requires *twice* the bandwidth per channel of most of the other proposals, including Pagemart's."¹⁰ While it is true that the

⁷ Pagemart Comments at 5.

⁸ In a recent examination of paging spectra in the Atlanta market performed for MobileComm, for example, all paging transmissions save one were at a data rate of 512 bps; the sole exception was operating at 1200 bps.

⁹ Pagemart notes that MobileComm had said it might reduce the data rate to 12,000 bps in "difficult situations," and concludes that the "harsh, urban multipath environment" in which VIP would be offered "clearly constitutes a 'difficult' RF situation." Pagemart Comments at 5 & n.7. MobileComm in fact plans to use a data rate of 15,000 bps in the vast majority of the "harsh, urban multipath environment," and will lower the transmission speed only in specific circumstances where the faster data rate leads to impaired reception. MobileComm's engineering analysis indicates that a bit rate of 15,000 bps is achievable in typical dense urban environments with severe multipath, and that the combination of 5000 baud shift rate with 8-level FSK (3 bits per shift) is optimum for the channel proposed. Experiments are planned at lower shift rates (4000 baud) and other multi-level modulations (4-level, 6-level, etc.) specifically to determine what the optimum combination of baud rate and modulation are. Indeed, channel bit rates above 15,000 bps may be achievable.

¹⁰ Pagemart Comments at 5 n.8. Pagemart also questioned whether the 12.5 kHz return channel used in VIP was in addition to the 50 kHz forward channel. *Id.* As MobileComm has explained, the return channel will be a subset of the forward channel in the time and frequency domain. It will be centered within the 50 kHz forward channel. Thus the total spectrum requirement to accommodate VIP is 50 kHz, not 62.5 kHz.

bandwidth *per channel* required by VIP is twice that of Pagemart, Pagemart's argument is a red herring, given the different nature of the two proposals. Pagemart's system requires *ten* 25 kHz channels per system — a net spectrum requirement of 250 kHz, five times as great as the 50 kHz spectrum requirement for a VIP system. VIP will use a single 50 kHz channel for forward and reverse transmissions, including terminal location and data transmission, while Pagemart will use ten separate 25 kHz forward and reverse channels to accomplish the same actions.

D. System Capacity

Pagemart claims that VIP will "essentially provide[] no additional throughput over what is currently available in paging technology," based on a comparison with the European ERMES standard, concluding that VIP "would be capable of transmitting only about 65 facsimiles per hour in a large urban market, . . . a totally anemic capacity."¹⁷ As MobileComm has already discussed above, the total data carrying capacity per unit of time of a metropolitan area VIP system is two orders of magnitude greater than a conventional paging system. While the ERMES standard provides for a data rate of 6,250 bps, yielding a considerably higher capacity than conventional paging systems, the 15,000 bps data rate to be employed by VIP is more than double that of ERMES.

In assessing VIP's capacity on the basis of facsimile messages per hour, Pagemart misunderstood the MobileComm proposal: It ignored the fact that VIP is not specifically designed for facsimile transmission, but is designed primarily for alphanumeric data. Graphics transmissions, but not specifically facsimile, are a planned feature for introduction in the future.

¹⁷ Pagemart Comments at 6.

E. Modulation Technique

Pagemart asserts, "it appears that the modulation technology necessary for VIP service is not currently available and has not even been selected by MobileComm."^{12/} To the contrary, MobileComm identified multi-level FSK — and specifically 8-level FSK — as its intended modulation technique. This modulation technique exists, works in a simulcast environment, and can be developed readily for use in a paging system using class C amplifiers.^{13/} Under the experimental authorizations sought by MobileComm, a variety of multi-level FSK modulation techniques will be tested in a simulcast environment, including higher levels that may make possible data rates even greater than the 15,000 bps possible with 8-level FSK.

II. Response to Pagenet's Opposition

Pagenet opposes MobileComm's preference request for VIP because: (A) it contends that VIP is not sufficiently innovative; (B) it contends that MobileComm's proposal does not represent a major increase in spectral efficiency; (C) it contends that the presence of high-powered paging transmissions on channels adjacent to the reverse channels used for acknowledgement by VIP will cause interference and inefficient operation; (D) it contends that MobileComm's proposed 50 kHz bandwidth is incompatible with the 25 kHz bandwidth used in adjacent paging allocations; and (E) it contends that MobileComm has not submitted any information on the demand for its proposed VIP service. MobileComm submits, for the reasons to follow, that these criticisms are unwarranted.

^{12/} Pagemart Comments at 6.

^{13/} Glenayre Electronics, Inc., has, at MobileComm's request, demonstrated the use of 8-level FSK using class C amplifiers, under a confidentiality agreement.

A. MobileComm's Innovation

Pagenet claims that VIP does not warrant a pioneer's preference because acknowledgement paging, while currently unavailable, "is not a new or novel breakthrough" and the technical proposal for VIP "remains in the conceptual phase." Accordingly, Pagenet claims that acknowledgement paging is a "'baby step' in paging's natural evolution."^{14/}

MobileComm must respectfully disagree. As Pagenet recognizes, acknowledgement paging is currently unavailable. The frequency allocations for paging have not in the past made provision for acknowledgement paging, and as a result no equipment has been manufactured to permit the delivery of this service. Acknowledgment paging is *ipso facto* an advance in paging service — a new and improved form of paging service that will meet customer needs that cannot be met by today's service offerings.^{15/}

MobileComm's VIP service is not merely "conceptual" — it is close to reality. MobileComm has identified specifically how it plans to accomplish simulcast transmissions at far higher data rates than have previously been utilized in a simulcast paging system, how it plans to provide for terminal access on the reverse link during a dynamically controlled time interval, and how it plans to achieve the high degree of synchronization needed. While MobileComm has chosen not to disclose the details of its network architecture, that information is not relevant to innovative spectrum usage or FCC regulatory policy; if the FCC adopts rules permitting the offering of VIP, another company should be able to perform the relatively routine task of developing its own

^{14/} Opposition of Pagenet at 14-15 (filed June 19, 1992).

^{15/} By contrast, Pagenet's VoiceNow service is identical, from the customer's perspective, to tone-and-voice paging service, which has been a mainstay of the paging industry for decades.

architecture for a similar service by employing qualified radio and network engineering personnel.^{16/}

B. Spectral Efficiency

Pagenet's allegation that MobileComm's increases in spectrum efficiency are "illusory" is curious. MobileComm has specified a means for increasing the speed and capacity of simulcast paging manyfold — 15,000 bps versus the 512-2400 bps currently achieved by simulcast paging systems.

C. Reverse Channels

Pagenet claims that "flaws" in MobileComm's reverse channel proposal, which will use fixed receivers that will in most cases be collocated with the base stations, will result in interference and concomitant reductions in efficiency.^{17/} Unfortunately, Pagenet has failed to recognize features of the VIP system design that will make such interference and efficiency reductions unlikely.

Pagenet argues that reception of reverse link transmissions will be impaired by high-powered paging transmissions on adjacent channels that are not synchronized with VIP.^{18/} However, VIP's return channel utilizes a narrow 12.5 kHz bandwidth, centered within the 50 kHz forward channel; thus, the outer limit of any "adjacent" channel is 18.75 kHz away. Thus, for reverse channel reception, there is a significant "guard band" to protect against transmissions on

^{16/} The network design for supporting VIP is no more relevant to the award of a pioneer's preference than the development of the non-radio aspects of a satellite service is to the award of a pioneer's preference for a new satellite service. See *Low Earth Orbit Satellite (VITA Pioneer's Preference)*, 7 FCC Rcd. 1625, 1627 (1992).

^{17/} Pagenet Opposition at 15-16.

^{18/} Pagenet Opposition at 15.

adjacent channels.^{19/} Furthermore, the robust 2-level FSK modulation scheme and the 1200 baud transmission utilized on the reverse channel, together with sectorized receive antennas and crystal filtering at the receive sites, will provide further protection against the effects of adjacent channel operations and make reverse channel transmission and reception highly reliable.^{20/}

D. Incompatible Bandwidth

Pagenet objects to VIP because the "proposed 50 kHz bandwidth is not compatible with the adjacent 929 kHz or 931 kHz bands."^{21/} MobileComm does not understand what Pagenet means by "compatible." Not all adjacent channel operations need to utilize the same bandwidth. What is important is that an appropriate emissions mask be used to prevent significant emissions out of band. If this is the case — and it is for existing stations and should be for all new forms of advanced messaging service — the fact that different bandwidths are used in adjacent channels should not be significant. Furthermore, it is by no means clear that VIP will be adjacent to 25 kHz channels. The FCC has before it a number of proposals for differing channel sizes within the 930-31 MHz band. The channelization and bandwidth of the adjacent channels will depend on the placement of VIP within the 1 MHz band under consideration.

E. Demand for VIP Service

Pagenet has complained of MobileComm's "failure to demonstrate any demand" for VIP, rendering suspect MobileComm's expectations regarding the cost of terminals, premised on

^{19/} It is worthy of note that for many years paging systems have utilized 158.100 MHz for high-power transmissions, directly adjacent to the 158.070 MHz mobile frequency paired with the 152.810 MHz two-way base station frequency. See 47 C.F.R. § 22.501(b), (h).

^{20/} That sensitive receivers may be utilized on frequencies adjacent to channels with high-power transmissions is clear from the fact that hundreds of thousands of pagers, including those used by Pagenet's customers, reliably receive pages every day, even though they may be in the vicinity of an adjacent-channel transmitter.

^{21/} Pagenet Comments at 16.

volume orders.^{22/} MobileComm, in response, notes that it conducted a study in 1991 using multiple focus groups to test business customers' "interest" in acknowledgement paging and electronic mail delivery to a pager. These studies revealed a significant interest in these products. As a follow-up to this qualitative research work, an extensive market study is currently being conducted to quantify the demand for VIP and other similar services. This study will be completed this fall, and the results will become an integral part of determining the marketing positioning for VIP.

III. Response to Mtel's Opposition

Mtel opposes MobileComm's preference request for VIP because: (A) it contends that VIP is too similar to Mtel's NWN proposal to be considered innovative; (B) it contends that MobileComm, as an RBOC affiliate, is subject to legal restrictions on its involvement with equipment manufacture and therefore cannot be credited with any innovation involved in the development of VIP; (C) it contends that its own Nationwide Wireless Network ("NWN") proposal is superior to MobileComm's VIP; and (D) it contends that MobileComm has not shown VIP to be technically feasible. In the sections to follow, MobileComm responds to Mtel's contentions.

A. Similarity to Mtel's NWN

Mtel claims that MobileComm's VIP proposal is not innovative because it is "almost a clone" of Mtel's NWN proposal.^{23/} The VIP proposal was candidly submitted to the Commission as a form of advanced nationwide paging service that could fit within the broad parameters of Mtel's proposed regulatory structure. Mtel had proposed that there be three "nationwide wireless

^{22/} Pagenet Comments at 16-17.

^{23/} Opposition of Mobile Telecommunication Technologies Corp. ("Mtel Opposition") at 6 (filed June 19, 1992).

networks" of a generic nature, and Mtel also proposed its own specific implementation for one of the three networks. MobileComm's VIP proposal demonstrates that there are, indeed, alternatives to Mtel's specific implementation. Given that MobileComm chose to work within the regulatory structure proposed by Mtel instead of filing yet another petition for rulemaking, it is not surprising that there are parallels between the two proposals. That there are similarities between the two proposals does not mean that the VIP proposal is not innovative, however.

The VIP proposal is designed to meet very different needs from those served by Mtel's NWN implementation. VIP will meet the needs of persons needing an advanced form of one-way messaging — message transmission with verification of receipt — that cannot be met without the introduction of new technology and the allocation of spectrum. Thus, VIP is clearly an advanced paging or messaging service, consistent with the purposes for which the 930-31 MHz spectrum has been reserved. Mtel's NWN, on the other hand, represents an attempt to shoehorn a two-way data service into an allocation for advanced paging services by characterizing it as "messaging." What is more, NWN is identical, from the perspective of the customer, to services already being offered — two-way mobile data service is currently offered to the public over the RAM Mobile Data network operated by an affiliate of MobileComm and the ARDIS network operated jointly by Motorola and IBM, and additional two-way mobile data services have been announced that will utilize unused cellular channels. VIP clearly represents a service that is not currently available, while NWN represents only a new means of delivering an existing service. Thus, VIP is not functionally a clone of NWN — it serves an entirely different purpose.

MobileComm is not the only party to have recognized that there is an unmet need for acknowledgement paging service that should be accommodated in the 930-31 MHz band — others, such as Dial Page, L.P., have also proposed acknowledgement paging. MobileComm has taken the concept of acknowledgement paging and proposed a specific nationwide implementation of this service that is indeed innovative.

While Mtel proposed an allocation for three 50 kHz nationwide messaging systems, in order to foster competition and diversity, Mtel has opposed the award of a pioneer's preference to the only proposal designed to provide the diversity and competition that its regulatory framework was designed to accommodate. Mtel and MobileComm currently operate competing nationwide paging systems within the regulatory structure established by Part 22; Mtel's opposition to MobileComm's request for a pioneer's preference thus calls into question whether Mtel is willing to compete on a level playing field with another 50 kHz nationwide provider of advanced messaging service, or instead hopes to gain a regulatory advantage over its current competitor.

B. Credit for Innovation

Mtel has questioned whether MobileComm can be considered an innovator when it is, as an affiliate of a Regional Bell Operating Company, subject to restrictions under the Modification of Final Judgment ("MFJ") on its ability to design or develop the technology,²⁴ and argues that MobileComm's involvement in design and development is "limited to articulating generic performance requirements."

Mtel's argument is without merit. The MFJ precludes an RBOC or its affiliate from engaging in the manufacture of telecommunications and customer premises equipment, which the court has interpreted as extending to the design and development of such equipment as well.²⁵ The court has, however, specifically that they may engage in network design and development work, including the development of new services and the establishment of generic specifications for telecommunications and customer premises equipment:

The functional specifications for products the Regional Companies wish to procure are the outgrowth of network, or systems, engineering activities. Each Regional

²⁴ Mtel Opposition at 10 & n.29, citing *United States v. Western Electric Co.*, 675 F. Supp. 655 (D.D.C. 1987), *aff'd*, 894 F.2d 1387 (D.C. Cir. 1990).

²⁵ 675 F. Supp. at 667.

Company selects which new features, functions, and services will provide the best overall telecommunications service at the lowest cost; it determines whether microwave, radio or optical fiber, copper, or some other technology is to be deployed; and it decides where various feature [sic] and functions will be provided, whether it be in a switch, an adjunct processor, a remote module, the transmission equipment, or some other part of the network. Research into these generic requirements is designed to determine what might be useful in enhancing the performance of the network, that is, to "inform vendors of the features and functions that the BOCs want or need in the equipment they purchase."^{26/}

MobileComm has complied with the MFJ's manufacturing restriction in its design and development of VIP service, and will continue to do so. The fact that MobileComm has contracted with an equipment manufacturer for aspects of its development efforts does not mean that the development of VIP itself falls within the manufacturing prohibition or that MobileComm cannot lawfully be credited with development work done on its behalf under contract. It is a common practice for pioneers' preference applicants to contract with outside consultants, experts, and others for assistance in developing their proposed systems.

MobileComm's design and development work regarding VIP involves research into basic telecommunications technology, such as modulation techniques, and network design, development, and engineering. MobileComm may properly develop modulation techniques, coding standards, protocols, simulcasting techniques, and generic terminal functions as part of its development of a new service such as VIP, and it may be awarded a pioneer's preference based on its innovations in these areas.

C. Comparison with Mtel's NWN

Having claimed that VIP is a "virtual clone" of its NWN, Mtel proceeds to argue that NWN is in fact superior, in that NWN is two-way, while VIP is one-way with acknowledgement.^{27/}

^{26/} 675 F. Supp. at 668 n.58, (quoting *Western Electric Co.*, 569 F. Supp. 1069, 1114, 1116 (D.D.C.), *aff'd sub nom. California v. United States*, 464 U.S. 1013 (1983)); *see id.* at 667-68.

^{27/} Mtel Opposition at 10.

It is indeed true that VIP a one-way, acknowledgement paging service, while NWN will support both one-way and two-way data transmission. However, VIP was designed specifically for one-way service with acknowledgement, a service for which MobileComm's research and industry analysis have indicated a significant market demand. While Mtel's NWN can accommodate such traffic, it is not specifically designed and optimized for it and accordingly Mtel provides such service less efficiently.^{28/} Indeed, it would appear that VIP is closer to the reserved purpose of the 930-31 MHz band — advanced paging services — than NWN, which is itself functionally a "clone" of two-way mobile data services already available.

D. Technical Feasibility

Mtel criticizes MobileComm's technical feasibility showing. In response, MobileComm notes that it has provided sufficient information for the Commission to conclude that VIP is technically viable. As MobileComm noted in its preference request, MobileComm's modulation technique — 8-level FSK — has been tested by a major manufacturer, Glenayre Electronics, Inc., and been found to be a viable basis for a simulcast paging system.^{29/} An independent academic expert consulted by MobileComm has indicated that a simulcast 50 kHz paging system using 8-level FSK to achieve a data rate of 15,000 bps is feasible.^{30/} Furthermore, MobileComm has sought experimental licenses to test a variety of modulation techniques and coding schemes;

^{28/} MobileComm notes that its proposed 15,000 bps data rate, while lower than the 24,000 bps data rate proposed by Mtel, may provide for more robust communications, requiring fewer retransmissions and thereby improving overall spectral efficiency. Furthermore, the VIP system is designed to maintain more specific information regarding a terminal's location, thus permitting a transmission to a particular target terminal to be sent over only one base station and allowing other base stations to transmit to other terminals in the same time interval. The NWN terminals will not be autonomously registered as they move about a coverage area, resulting in the need for far more re-transmissions on a national level and a concomitant reduction in the system's ability to transmit different messages simultaneously to different terminals from different base stations.

^{29/} MobileComm's relationship with Glenayre Electronics, Inc. is governed by a confidentiality provision. In the event the Commission wishes to review information concerning the tests that have been conducted on behalf of MobileComm, under seal, *see* 47 C.F.R. § 0.459, MobileComm will seek authorization from the manufacturer to release the relevant information.

^{30/} MobileComm is not currently at liberty to disclose the identity of the academic expert it consulted.

MobileComm will report relevant experimental results after its applications have been acted on and the tests have been conducted.

CONCLUSION

In light of the foregoing and for the reasons stated in MobileComm's request for a pioneer's preference, MobileComm submits that its request for a nationwide pioneer's preference for its Verified Information Paging system is warranted and that a grant would serve the public interest.

Respectfully submitted,

MOBILE COMMUNICATIONS CORPORATION
OF AMERICA

By:



L. Andrew Tollin
Michael Deuel Sullivan

Wilkinson, Barker, Knauer & Quinn
1735 New York Avenue, N.W.
Washington, D.C. 20006
(202) 783-4141

By:



William B. Barfield
Charles P. Featherstun
David G. Richards

Fred McCallum, Jr.
Vice President-General Counsel
1800 E. County Line Road
Suite 300
Ridgeland, MS 39157
(601) 977-1636

Of counsel

June 29, 1992

1155 Peachtree Street, N.E.
Suite 1800
Atlanta, Georgia 30367-6000
(404) 249-2641/(202) 463-4155

Its Attorneys

CERTIFICATE OF SERVICE

I, Mary Jane Adcock, hereby certify that on this 29th day of June, 1992, copies of the foregoing "Consolidated Reply to Oppositions to Request for Pioneer's Preference" were mailed, first class United States mail, postage prepaid, to the following:

Honorable Alfred C. Sikes*
Chairman
Federal Communications Commission
1919 M Street, N.W., Room 814
Washington, DC 20554

Honorable James H. Quello*
Commissioner
Federal Communications Commission
1919 M Street, N.W., Room 802
Washington, DC 20554

Honorable Sherrie P. Marshall*
Commissioner
Federal Communications Commission
1919 M Street, N.W., Room 826
Washington, DC 20554

Honorable Andrew C. Barrett*
Commissioner
Federal Communications Commission
1919 M Street, N.W., Room 844
Washington, DC 20554

Honorable Ervin S. Duggan*
Commissioner
Federal Communications Commission
1919 M Street, N.W., Room 832
Washington, DC 20554

Cheryl Tritt, Chief*
Common Carrier Bureau
Federal Communications Commission
1919 M Street, N.W., Room 500
Washington, DC 20554

Thomas P. Stanley*
Chief Engineer
Federal Communications Commission
2025 M Street, N.W., Room 7002
Washington, DC 20554

Carl Guie*
Office of Engineering & Technology
2025 M Street, N.W., Room 7102-B
Washington, DC 20554

Rodney Small*
Office of Engineering & Technology
2025 M Street, N.W., Room 7102-B
Washington, DC 20554

Jeffrey Blumenfeld, Esq.
Glenn B. Maneshin, Esq.
Blumenfeld & Cohen
1615 M Street, N.W., Suite 200
Washington, DC 20036

Robert Linqvist
Chairman and CEO
Pagemart, Inc.
6688 No. Central Expressway
Suite 900
Dallas, TX 75206

Judith St. Ledger-Roty, Esq.
Lynn E. Shapiro, Esq.
Kathleen A. Kirby, Esq.
Reed, Smith, Shaw & McClay
1200 18th Street, N.W.
Washington, DC 20036

Lawrence M. Miller, Esq.
Schwartz, Woods & Miller
Suite 300, The Dupont Circle Bldg.
1350 Connecticut Avenue, N.W.
Washington, DC 20036

Carol W. Northrop, Esq.
Bryan, Cave, McPheeters & McRoberts
700 13th Street, N.W., Suite 700
Washington, DC 20005

Mark A. Stachiw, Esq.
PacTel Paging
Three Forest Plaza
12221 Merit Drive, Suite 800
Dallas, TX 75251

Gerald S. McGowan, Esq.
Marjorie Giller Spivak
Lukas, McGowan, Nace & Gutierrez
1819 H Street, N.W., 7th Floor
Washington, DC 20006

Lawrence J. Movshin, Esq.
Thelen, Marrin, Johnson & Bridges
805 15th Street, N.W., Suite 900
Washington, DC 20005-2207

Matt Edwards
President
Skycell Corporation
116 Gray Street, Clemens Center
P.O. Box 1259
Elmira, NY 14902

R. Michael Senkowski, Esq.
Eric W. DeSilva, Esq.
Richard E. Wiley, Esq.
David E. Hilliard, Esq.
Wiley, Rein & Fielding
1776 K Street, N.W.
Washington, DC 20006

Matt Edwards, President
Montauk Telecommunications Corp.
P.O. Box 2576
Montauk, NY 11954

Blooston, Mordkofsky, Jackson and Dickens
2120 L Street, N.W.
Washington, DC 20037


Mary Jane Adcock

*By Hand