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

In the Matter of:	)	
	)	
Amendment of Parts 2 and 22 of the Commission's Rules to Provide for a Land-Based Common Carrier Ground-to-Air Paging Service in the 930 to 931 MHz Band	)	RM- 7860
	)	ET 92-100

PETITION FOR
RULEMAKING

October 15, 1991

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SUMMARY

PacTel Paging is petitioning for a rulemaking to allocate spectrum to a new ground-to-air paging ("GAP") service.

GAP is a high speed advanced digital paging service utilizing satellites to simulcast ground-based transmitters capable of alerting paging receivers aboard aircraft throughout the nation. The new service will enable ground-based calling parties to contact individuals in aircraft, who will then complete the communication link by placing an air-to-ground radio telephone call from the airborne units that will be found with increasing regularity on commercial and private aircraft by virtue of the 4 MHz allocation of spectrum in General Docket No. 88-96.

GAP overcomes the fact that existing air-to-ground radio telephone services are generally mobile-originated services only. Since there are now "pay phones in the sky", a reliable system is needed that will enable individuals on the ground to alert airborne passengers of the need for them to call.

PacTel Paging is proposing an allocation of three 25 kHz channels from the 930-931 MHz reserve to accommodate the projected demand and to enable this service to develop on a competitive basis. Analysis reveals that this proposed allocation can successfully co-exist with the off-shore Government radar operations which share frequencies in this range.

The petition sets forth an appropriate licensing scheme for this innovative service.

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PETITION FOR RULEMAKING OF PACTEL PAGING

PacTel Paging ("PacTel"), by its attorneys and pursuant to Section 1.1401 of the Commission's Rules, hereby submits its Petition for Rulemaking asking the Commission to amend Part 2 (Table of Frequency Allocations) and Part 22 (Public Mobile Services) of its Rules to permit the use of 75 kHz of reserve spectrum in the 930-931 MHz band for a land-based common carrier ground-to-air paging service. In support of this petition, the following is respectfully shown:

I. Background

1. On numerous occasions, the Commission has recognized the important communications needs of persons in aircraft. As early as 1957, the Commission authorized AT&T to introduce, on an experimental basis, a public air-ground radio telephone service. Later, recognizing a vast increase in

air-passenger traffic and private aircraft service that created a pressing need for greater access by aircraft to public telephone exchanges, the Commission allocated spectrum to permit the establishment of a regular air-ground radio telephone network utilizing 12 channels according to a nationwide allocation scheme. See Amendment of Rules to Establish a Public Air-Ground Radio Telephone Service, 22 FCC 2d 716 (1969); see also FCC Rules, Section 22.521.

2. More recently, the Commission amended its Table of Frequency Allocations and Part 22 of its Rules to permit the use of 4 MHz of reserve spectrum at 849-851/894-896 MHz for an improved and expanded air-ground telephone service. See Amendment of the Commission's Rules Relative to Allocation of 849-851/894-896 MHz Bands, 5 FCC Rcd 3861 (1990), recon. granted in part, FCC 91-194, released July 11, 1991. The expanded allocation was made based upon the record in General Docket No. 88-96 which established that there is a "substantial untapped demand for an air-ground telephone service". 5 FCC Rcd 3861 at para. 18. Pursuant to this recent allocation, the Commission has granted licenses to American Skycell Corporation, ClairTel, In-Flight Phone Corporation, JET-TEL Group, L.P., Mobile Telecommunications Technologies Corporation and GTE AirFone Incorporated. Thus, the provision of enhanced air-ground radio telephone service is well under way.

II. The Public Need For Ground-to-Air Paging

3. Air travel has become a way of personal and professional life for an ever-increasing portion of the public. Based upon data collected by the Office of Planning and Policy, Forecast Branch, and the Management Standards and Statistical Division of the Federal Aviation Administration ("FAA"), 424,000,000 passengers embarked on domestic air flights in 1990. FAA projections indicate that the number of passengers on commercial air flights in the United States will increase to 455,600,000 by 1993. Estimates by the airline industry itself are even higher.[1/] Indeed, in its recent decision allocating 4 MHz of spectrum to the two-way air-to-ground service, the Commission assumed based upon the record evidence that there were between "450 to 600 million passengers who travel on U.S. domestic airlines each year".[2/] In the context of a society in which constant, instantaneous personal communication is becoming increasingly

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1/ For example, data provided by the airline industry reflected 6,000,000 more passengers embarking on domestic flights in 1989 than did the FAA.

2/ See 5 FCC Rcd 3861 at para. 6 and note 6. Of these passengers, the Commission assumed that between 15% and 30% will use an air-to-ground service in its mature state. Id. at para. 24 and para. 26.

important, [3/] a system is needed to provide the crucial communications link to this large number of air-bound travellers nationwide.

4. In one major respect, existing air-ground radio telephone services suffer from a serious limitation that prevents the communications needs of airborne passengers from being fully satisfied. As a practical matter, present services, whether offered with respect to private or commercial aircraft, are mobile-originated services only. There are inherent difficulties which prevent a telephone call originating in the public switch telephone network ("PSTN") from being terminated routinely at a specific airborne unit.[4/] Thus, an airborne station generally must initiate

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3/ The high demand of the public for communication services while in transit is demonstrated by a variety of events. Conventional paging services have enjoyed ever-increasing penetration rates, with one recent study showing a 22% annual increase in paging demand. Frost & Sullivan, Radio Paging Market, Summer 1990. There also has been a phenomenal growth in cellular subscribers (21% per annum) notwithstanding the economic downturn. CTIA, Cellular Industry Report, October 1991, Vol. 7, No. 10 at pp.1-2. The demand is further demonstrated by the strong interest in the development of further Personal Communication Services ("PCS").

4/ It is technically feasible to terminate a telephone call on an airborne unit in the existing 450 MHz private air ground service. There are, however, practical and operational restraints. The ground based calling party would have to know the location of the airborne unit and the location (and access number) of the terrestrial base

Footnote continued on next page.

the call and be patched into the PSTN through a land-based ground station.

5. Ground-to-air paging ("GAP") has been conceived to overcome this limitation. A high speed, digital nationwide GAP system would enable persons on aircraft to be contacted promptly and efficiently. Subscribers who received pages while in flight could then utilize the regular air-ground radio telephone airborne units (which are being found with increasing regularity on commercial aircraft) to respond to the page and thereby complete the important communication.

6. In essence, the proposed GAP service would fill the same complementary need with respect to the air-ground radio telephone service as traditional paging fulfills for land-based travellers who must rely upon pay phones to keep in touch. For decades, persons whose business requires road trips have relied upon pagers and pay telephones to keep in touch while they are in transit. With the allocation of new spectrum to air-ground service for use on commercial airlines, there

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4/ stations capable of reaching the unit. This presents a serious constraint when seeking to contact units on high speed aircraft whose routes and schedules are subject to constant change. The situation is further complicated with respect to commercial aircraft where the universe of people who could receive calls is so large as to make the logistics of handling incoming calls too difficult to manage. Thus, as is the case with many pay phone stations, operational constraints require that they be configured to place outbound calls only.

will now be "pay phones" in the sky. A correllary paging service is needed to encourage the most efficient use of this airborne communications capability. By allocating frequencies for GAP service, the Commission will be accomplishing two important public interest objectives. First, previously unmet needs for a system able to alert passengers in aircraft can be satisfied. Second, the utility and beneficial use of the previously allocated air-to-ground two-way spectrum will be enchanced since passengers will be able to receive pages aboard aircraft alerting them of important air-to-ground mobile calls they need to place which ultimately will result in increased air-to-ground traffic.[5/]

7. The need for a ground-to-air messaging link cannot be fulfilled by any existing allocation. Local paging channels have been assigned on a patchwork basis which renders impossible efficient nationwide signalling. And, the existing nationwide paging systems have been configured and networked in a manner designed to provide terrestrial service, and incidental local service, not satellite-controlled simulcast

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5/ The airline passenger who receives a page can make his or her own decision whether to return the call immediately from the air or to await landing. In this manner, GAP enables users to screen and prioritize calls.

nationwide service to aircraft.[6/] As is discussed in greater detail below, the delivery of reliable paging signals to the interior of aircraft is technically feasible, but requires distinct system design criteria which are unsuited to efficient service to ground-based units. A GAP system will be specially engineered to provide efficient coverage above the horizon with transmitter spacing designed to cover air routes efficiently and effectively. In order to satisfy the unique requirements of a GAP system, an exclusive allocation specifically devoted to this important communication need is required.

III. Allocation Requirements

8. Several principles dictate the amount of spectrum necessary to accommodate GAP. First, the geographic scope to be covered by a GAP license must be considered. Second, a determination must be made regarding channel spacing. Third, the number of competing licenses that will be granted must be decided. With these factors in mind, PacTel proposes that a minimum of three 25 kHz channels in the 930-931 MHz band be allocated for this necessary and innovative service.

6/ Existing nationwide systems are configured to provide maximum coverage on the ground through the use of high gain downtilt antennas. Coverage is concentrated in major metropolitan areas, and transmitters in different regions are independently simulcast rather than simulcast throughout the entire nation. System configurations of this nature are ill-suited to provide GAP. See discussion, infra at Section VI.

A. Geographic Scope of the License

9. GAP is an inherently nationwide service. The essence of the service is to enable a ground-based individual to locate and communicate with people who are airborne wherever they may be in the continental United States. This requires a network covering the entire United States which is operated on a centralized, integrated, simulcast basis.[7/]

10. A GAP system consists of numerous paging transmitters located throughout the United States, principally in locations parallel to established commercial air routes. The paging transmitters will be controlled via a satellite control system which enables all pages to be simultaneously transmitted. One central paging terminal will provide the batching of paging calls for the entire country. Technologically and economically, this service can only be

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7/ Any allocation scheme that would prevent a GAP provider from utilizing a common frequency nationwide would prove to be completely unworkable. A patchwork allocation, which would make different frequenciès available in different geographic areas, would force a subscriber in transit on a high speed aircraft to guess the frequency to which to set a frequency-agile pager. This would be completely impractical, since there are no signposts in the sky. Similarly, a scheme which would require the coordination of a common nationwide frequency among and between multiple carriers licensed in different regions would be unsuitable. Either the prospects of interference would increase or the technical and operational burdens of coordinating the frequency would get out of hand.

provided if each authorized provider of service receives a nationwide license.[8/]

11. Notably, PacTel's reasoning regarding the geographic scope of the license recently was recognized by the Commission in the course of its allocation of the 849-851/894-896 MHz bands to air-ground radio telephone service. The Commission noted:

> [N]ationwide systems are preferable to regional systems for the air-ground service....[T]he air-ground service is inherently nationwide in scope as many airlines today serve large portions of the United States rather than a single region. Indeed, any attempt to regionalize the air-ground service would be arbitrary. Second, regional systems could unnecessarily create problems for air-ground licensees and expenses for the users. For instance, frequency and billing coordination would be required between different service vendors. Such coordination is much easier, and much cheaper, within a single system. Further, regionalization would necessitate our developing uniform equipment standards. This would only delay the implementation of additional service to the public as the installation of additional equipment would certainly cease pending the development of technical equipment standards.

8/ In order to provide reliable coverage and to enable a passenger to be reached regardless of the location of the aircraft, GAP transmitters must be capable of being situated without regard to local, state or regional boundaries, and must be capable of simulcast operation pursuant to a single integrated control system.

5 FCC Rcd 3861 at para. 63. All of the foregoing arguments apply with equal or greater force to GAP. Thus, PacTel proposes that spectrum allocated to GAP provide for the issuance of nationwide licenses.[9/] As is discussed in greater detail below, a license of this nature can and should be coupled with affirmative requirements that the licensee construct a sufficient number of ground station facilities to establish a nationwide service in a prompt time frame.

B. Spectrum Needs

12. Generally, the paging industry has developed utilizing a 25 kHz channel spacing standard. Significant benefits would accrue by maintaining this channel spacing with respect to GAP. An allocation to GAP which correlates to existing paging channel spacing standards would enable this innovative new service to benefit from ongoing technological advances in the state of the art for one-way messaging. This has substantial benefits in terms of the lead time required to establish the service, and the cost and reliability of the equipment.

13. PacTel Paging is itself a proponent of Advanced Architecture Paging ("AAP"), a high speed, digital data stream to be

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9/ As is discussed below, the need for a nationwide license argues in favor of allocating reserve spectrum which is unencumbered by existing users who would have to be relocated to accommodate this new service.

offered to subscribers free from traditional internal formatting and composition constraints.[10/] AAP -- which is under development by PacTel in the 930-931 MHz band -- will provide a technological platform upon which many advanced messaging services may be provided including enhanced messaging capabilities, low and high resolution graphics, video, E-Mail, facsimile and digitized voice. Technological improvements in state of the art paging developed in connection with AAP can be successfully applied to GAP if similar allocation standards are maintained. For example, AAP will offer much more robust error correction techniques, increased transmission rates and message interleaving. All of these can be applied to improve the reliability of GAP.[11/]

C. Number of Licenses

14. As a starting point, the Commission should look favorably upon allocating enough GAP channels to foster competition. Experience in the communications industry in general -- and the radio common carrier industry in particular -- clearly establishes the benefits of competition. This

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10/ See PacTel Paging Petition for Rulemaking dated August 2, 1991, accepted for filing as late filed comments in RM-7760 on September 13, 1991.

11/ As is discussed in greater detail within, technological improvements of this nature will minimize the prospects that GAP services will be disrupted by off-shore Government radar operations in this band. See Section V, infra.

principle has been resoundingly reaffirmed in the Commission's recent Report and Order allocating additional spectrum to the air-ground radio telephone service. The Commission noted:

> Historically, the Commission has favored competition whenever feasible. Competition helps to ensure that rates are reasonable and that the motivation exists for licensees to use new technologies in order to prove their systems....[W]e are convinced that only the existence of competitive terrestrial air-ground systems can produce the lowest prices and highest quality service to domestic airline passengers.

5 FCC Rcd. 3861 at para. 61.

15. While the decision to opt in favor of competitive systems is relatively easy, determining the number of licensees is always more difficult. Available data indicates, however, that several GAP channels will be required to meet the anticipated need. A conventional paging channel devoted to a single format of high-speed digital numeric paging service is generally considered to be capable of providing an acceptable grade of service to approximately 100,000 units. There are aspects of GAP service that tend to indicate that the number of units per GAP channel that can be accommodated will increase. For example, lower average incidences of use per customer during peak usage hours, and increased transmission speeds through the use of advanced technology such as AAP, will permit the subscribers per channel to go up. On the other hand, there are possible developments that could put downward pressure on

the capacity, such as the need to repeat pages, enhanced error correction and the developing trend toward messages of longer duration (i.e., alpha messages, digital voice, digital facsimile, etc.). On balance, while a precise calculation is not possible, PacTel submits for planning purposes that the capacity of a single GAP service channel should be deemed to be higher than that of a conventional paging channel. For the purpose of the following discussion, PacTel has assumed that a single GAP channel will serve 2.5 times the number of units on a conventional paging channel, or 250,000 units (2.5 times 100,000 equals 250,000).

16. Comparing this estimated units per channel capacity to the universe of potential users has led PacTel to the conclusion that a minimum of three GAP channels must be allocated. For example, there are an estimated 11,000,000 paging units in service in the country today. If the users of as few as 5% of these units opt to include GAP as an additional service they can receive, the number of GAP units will be 550,000, which exceeds the estimated capacity of two GAP channels. Notably, the advent of frequency-agile pagers will enable terrestrial 900 MHz paging subscribers to buy units which can synthesize multiple channels and thereby permit them to add the GAP channel and select it with a simple procedure. As a complementary service of this nature, a penetration rate of 5% must be deemed to be quite conservative.

17. Moreover, the universe of GAP subscribers undoubtedly extends beyond traditional paging customers. Business people who have no need or desire for local terrestrial paging service could find it to be important to keep in touch when they are in transit on airplanes and otherwise incapable of being reached while airborne. Thus, the target GAP market extends beyond existing users of paging service and certainly is large enough to load a minimum of three channels.

18. Taking a different approach toward the quantification of the demand for GAP yields a similar conclusion. As earlier noted, the FAA projects that 455,600,000 passengers will be embarking on commercial domestic air flights in 1993. This figure will count a single passenger multiple times since one round trip will result in two embarkments, and because frequent flyers will be counted every time they travel. However, available data respecting flying patterns enables an estimate of the "flying public" to be made.

19. First, halve the 455,600,000 passenger estimate for 1993 to 227,800,000 in order to eliminate the return trip double counting. Then assume that the average passenger takes 3.4 domestic airline roundtrips per year, which is based upon Air Transport Association statistics from a 1990 study by the Gallup organization. These assumptions result in the conclusion that the 455,600,000 embarkments reflect

approximately 67,000,000 distinct individual flyers.[12/] If as few as 1% of these individuals opt to receive GAP service, the number of units will vastly exceed the capacity of two GAP channels.[13/]

20. Based upon the foregoing analysis, PacTel recommends that a minimum of three nationwide channels be allocated for GAP.[14/] This recommendation is made taking into consideration the capacity of each channel in comparison to the projected user population. The result of granting three licenses would be, in PacTel Paging's view, an allocation sufficient to meet reasonably anticipated demand and adequate to foster robust competition to the benefit of subscribers.

IV. Spectrum in the 930-931 MHz Band Is Suitable and Appropriate for GAP

21. At the present time, the frequency band 930-931 MHz is being held in reserve. For a variety of reasons, this frequency provides a suitable source of spectrum for GAP.

12/ 227,800,000 (roundtrip embarkments) divided by 3.4 (trips per year) equals 67,000,000.

13/ 67,000,000 individuals times 1% penetration equals 670,000 units which far exceeds the estimated 500,000 unit capacity of two GAP channels.

14/ There may, of course, be demand for GAP services in excess of the initial capacity of three channels. However, given the Commission's goal of requiring spectrum efficiency, if the Commission allocates only three channels, then the licensees will be incented to deploy the most efficient technology.

22. First and foremost, the 930-931 MHz band is sufficiently proximate to existing 900 MHz paging allocations[15/] to permit GAP to benefit from technological advances in the state of the paging art. Currently, much of the developmental work being done to improve and enhance paging services is focused upon products which operate in the 929-930 MHz and 931-932 MHz frequency ranges. These bands house the most recent allocations of paging spectrum and, as such, present the logical focus of developmental efforts of carriers and equipment manufacturers. Because of the proximity in frequency range, advanced technology developed for use at 929-930 MHz or 931-932 MHz can easily be adapted to 930-931 MHz. This means that GAP can take advantage of advances made in terrestrial paging and GAP can be provided more quickly and less expensively than would be the case if the frequencies allocated to the service were remote in range from other paging allocations.

23. Second, paging services in this 900 MHz frequency range have proved to be very reliable. PacTel itself has built extensive paging systems in both the 929-930 MHz and 931-932

15/ The frequency band 929-930 MHz is currently authorized for Private Carrier Paging ("PCP") operations. See FCC Rules, Section 90.494. The frequency band 931-932 MHz is currently authorized for common carrier paging. See FCC Rules, Section 22.501(p)(1).

MHz bands throughout the country. These systems have proved to be in high demand due to the quality of service capable of being offered to the public. Other paging operators also have enjoyed success in the 900 MHz band such that the industry as a whole continues to demonstrate steady growth. The successful paging industry track record at 929-930 MHz and 931-932 MHz provides support for utilizing the proximate 930-931 MHz band for the proposed GAP service.

24. Third, there are technical reasons for looking to 930-931 MHz for GAP. Studies reveal that paging signals penetrate aircraft through the windows, rather than through the body of the craft. See discussion infra at Section VI. The wavelength and other characteristics of a 900 MHz paging signal are well suited to entering the relatively small portals of aircraft, thereby improving the prospects of reliable coverage.

25. Fourth, 930-931 MHz has been earmarked for advanced messaging services. See One Way Paging Systems, 89 FCC 2d 1337, 1342 (1982). Since GAP constitutes an innovative, one-way transmission service capable of meeting substantial unsatisfied demands for messaging services, it falls within the previously contemplated use of this reserve band.

26. Fifth, the allocation of channels in the 930-931 MHz band will allow the use of frequency-agile pagers in which multiple synthesized frequencies are available in a single unit. Such units are now available in the 929-930 MHz and

931-932 MHz paging bands, and could be easily adapted to include a GAP channel at 930-931 MHz. As is discussed within, this will greatly enhance the market acceptance of GAP service since terrestrial 900 MHz paging subscribers could acquire a single unit which also was capable of receiving GAP service.

27. Lastly, and as was earlier noted, the bona fide need for a nationwide allocation for GAP argues in favor of selecting reserve spectrum which is available throughout the country for the proposed use.

28. For all of the foregoing reasons, PacTel submits that it is important for GAP to be accommodated in this frequency band. Recognizing, however, that the number of pending requests for the use of reserve spectrum exceeds the available supply, PacTel requests that the Commission consider allocating spectrum from another band to GAP if for any reason 930-931 MHz is deemed inappropriate. Consequently, based upon the foregoing, PacTel respectfully requests that three 25 khz channels be allocated to GAP from the 930-931 MHz (e.g., 930.0125, 930.0375 and 930.0625), or in the alternative, that other suitable spectrum be identified and allocated for this service.

V. The GAP Service Can Co-exist With Existing Government Uses

29. The Commission's Table of Frequency Allocations, Part 2, Section 2.106, designates the frequency band 929-932 MHz for Non-Government Land Mobile Use. The present allocation is subject to the following notation:

> U.S. 268: The bands 890-902 MHz and 928-942 MHz are also allocated to the radiolocation service for Government ship stations (off-shore ocean areas) on the condition that harmful interference is not caused to non-government land mobile stations...

30. Based upon several meetings with the National Telecommunications and Information Administration ("NTIA") and the Department of the Navy, PacTel has determined that the proposed GAP service can coexist in the 930-931 MHz band without causing any interference to the off-shore radiolocation services (radar) of the government users. Equally important, PacTel has conducted an engineering analysis which indicates that the Government's permitted operations in this band will not adversely affect the proposed GAP service, including any of the paging receivers located in aircraft, in any substantial fashion.

31. Attachment 1 hereto is a report prepared at the request of PacTel by Charles Jackson and Jeffrey Krauss. The report describes the shipboard aircraft reconnaissance radar that is being operated by the Navy in the 849-942 MHz band. The report has caused PacTel to reach the following salient conclusions:

- The proposed GAP service presents no interference potential to the government off-shore radiolocation operations. The subject radar being operated by the Navy is a high-powered

system designed to overcome jamming signals. The Navy has confirmed to PacTel its view that the comparatively low-powered GAP signals, even if transmitted from coastal areas, present no prospect of interference to the Government operations.

- There will be intermittent instances in which transmissions from the Navy radar operations will illuminate paging receivers aboard aircraft operating near coastal areas and momentarily prevent them from receiving GAP transmissions. Conservative calculations reveal that, even in the geographic areas of potential concern, the likelihood of the coincidence of factors necessary to cause a loss of pages is extremely small (i.e., approximately 1%).

- To the extent that lost pages are a theoretical possibility as a result of the Government operations, there are technical and operational solutions that can be implemented by the GAP operator that can virtually eliminate any problem.

32. The assumptions and calculations upon which these conclusions are based are set forth in the referenced report. The key to the analysis is the determination that the operating characteristics of the Navy radar are such that the prospects for interference are only intermittent and can be reliably predicted to occur only rarely.[16/] Moreover, system and

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16/ This conclusion is borne out by the fact that PacTel's extensive existing paging operations in the 931-932 MHz band in coastal areas (San Diego, Los Angeles, San Francisco and Oakland, California; Jacksonville, Florida) have not experienced previously identifiable service disruptions attributable to the Navy radar operations.

network design techniques can address any lingering concerns. Because of the predictability of both the geographical areas where potentially interferring signals may arise and the flight paths of commerical aircraft in these areas,[17/] the GAP operator can carefully select base station antenna sites and utilize directional antennas in order to deliver a paging signal to the airborne passenger which will overcome the interferring radar signal to the extent possible. In addition, advanced signal coding techniques which include bit interleaving and enhanced error correction in the paging protocols will be implemented to overcome the episodic potential interference caused by rotating radar antennas. Also, operational responses such as serially numbering messages (which would enable a subscriber to determine when a page was lost and to call to retrieve the page from storage) or repeating pages on a per subscriber basis (at intervals calculated to avoid the interference cycle) will be implemented to the extent necessary to reduce if not eliminate any adverse

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17/ In contrast, the travel patterns of terrestrial paging users are much less confined making it more difficult to engineer a system capable of delivering an adequate signal in all areas of need. As such, the general reliability of GAP service may actually exceed that of a traditional paging system, which makes the remote possibility of interference from Government radar operations even less consequential.

effects of the Government operations.[18/]

33. Based upon its analysis of the situation, PacTel is confident of the ability of GAP to coexist with Government uses of this band. Consequently, PacTel proposes that the Table of Frequency Allocations be amended to include the following footnote to the existing 928-942 MHz Land Mobile allocation:[19/]

> U.S. __: Frequencies in the band 930.___ to 930.___ may be assigned to domestic public mobile service stations to provide land-based one-way communications services to airborne paging receivers on the condition that such operations are secondary to the radiolocation service for Government ship stations.

18/ Notably, existing terrestrial paging services are not predicted to be completely error free. Indeed, Part 22 explicitly recognizes that service within protected contours "is generally expected to have an average reliability of not less than 90%". FCC Rules Section 22.504(a). GAP can be expected to meet <u>or exceed</u> this standard nothwithstanding the Government operations. In part this is because GAP transmissions will be line of site, and free from many of the shielding and path loss problems that affect terrestrial paging.

19/ Accommodating the proposed service by footnoting an existing Land Mobile allocation is consistent with precedent. <u>See</u> FCC Rules, Section 2.106, footnote NG 12 (allowing certain Land Mobile frequencies in the 450 MHz range to be utilized to provide a two-way air-ground public radiotelephone service).