which invokes the impetus of economic imperatives to ensure efficient delivery of service to the public, is preferable to the administrative and enforcement burdens borne by the Commission and its licenses which would result from imposing specific loading or reporting requirements. By placing the emphasis on construction and interconnection of a fully operational facility, with all the attendant expense that that requirement entails, the Commission will assure the service goals it seeks to advance.

E. The Commission Should Authorize the Use of Frequency-Agile Transmitters (§22.307)

The needs of the public for paging service vary over a continuum from local service through wide area and regional coverage to complete nationwide paging. In its infancy, the paging industry served customers with local coverage. Today, the minimum requirement demanded by customers is wide area coverage of a metropolitan area. Further, a significant portion of PageNet users also subscribe to regional service as an option. As noted above, PageNet's customers have each year demanded greater coverage and greater functionality.

To achieve these service objectives in the most cost-effective manner, the importance of a common infrastructure is self-evident. In much the same way as our nation's telephone network seemlessly connects calls between two telephones, utilizing whatever facilities are appropriate, paging is most efficiently provided through the

networking of various wide-area systems. The use of frequency-agile transmitters is key to the efficient operation of such systems in a way that minimizes costs to the end users.

PageNet believes that the use of frequency-agile transmitters is clearly in the public interest and does not in any way adversely affect the Commission's stated policy concerns, specifically, in maximizing spectrum availability and preventing warehousing of frequencies.

In evaluating the Comments submitted with regard to this rule, it must be remembered that Part 22 as rewritten now will far outlive current technology. Paging technology has advanced, and will continue to advance, in leaps and bounds. Even today, the Commission's concern that when one frequency on a frequency-agile transmitter is being used, it blocks the use of another is invalid. With high speed signalling, a frequency-agile transmitter can provide high quality, high speed service on all frequencies, using "store and forward" types of technology.

Such technology involves, in particular, the use of batching techniques whereby pages are "stored" for a period of time (three minutes, for example) during which pages with certain commonalities in their code structure accumulate. Such a grouping would consist of pages on the same frequency, having the same "wake-up" code, designed to alert an individual pager that a page is coming. (Once "awake," a pager will only activate if its unique address code is

transmitted. The use of eight (8) wake-up codes preserves the battery life of the pager by reducing the period of time when it must be "awake," listening for a page at its own individual address.) Pages accumulate in batches and are sent in quick bursts, utilizing the "wake-up" and "go to sleep" codes common to all pages in that particular batch. This enormously increases the capacity of the paging system to accommodate additional subscribers without exceeding the limits of acceptable delay in the delivery of pages (typically 1-3 minutes), even during the so called "busy hour" -- that period during the day when paging activity is at its peak. Batching, along with other technical advances in data compression and high speed signalling, has enlarged system capacity in recent years from 1000 pagers per frequency to 100,000 pagers per frequency and more. Clearly, the real-time availability of a channel, through a frequency-agile transmitter, cannot conceivably be compromised until loading on each frequency has reached very significant levels.

Frequency-agile transmitters are an efficient means to accommodate growth. The requirement that additional transmitters be built for additional frequencies does nothing more than increase the cost of service to the end user, and hold back technology that would have a public benefit.

One concrete advantage that frequency-agile transmitters provide is that regional, local, and nationwide service to the public can be more easily implemented by a

carrier whose loading on a combined basis is less than one hundred percent. The following example is illustrative of this situation. In the Northeast, PageNet offers subscribers local service in New York, Boston, and Washington/Baltimore. Further, users can subscribe to any combination of these markets on a regional basis. Although capacity for Boston local service can be satisfied on one frequency, PageNet must use two frequencies in Boston to satisfy the large number of New York subscribers who desire regional coverage. The bottom line in this situation is that PageNet can provide wide area service without degrading the quality of its local service. By using a single, frequency-agile transmitter, PageNet reduces costs that would otherwise be passed on to end users.

PageNet believes that the use of frequency-agile transmitters results in thoroughly efficient use of the spectrum. In the Boston scenario, demand is met, but it is premature economically for PageNet to build a separate infrastructure to serve its local-only Boston traffic. The only effect of prohibiting the use of a frequency-agile transmitter in this instance would be to increase costs, both for PageNet and eventually the end user.

In evaluating the use of frequency-agile transmitters, it must also be noted that pagers are <u>not</u> frequency agile. To illustrate, in New York, PageNet has three frequencies with three different coverage areas: one for New York City, one for New Jersey, one for Westchester.

Paging customers may desire coverage in one, two, or all three of these areas, yet prefer to carry only one pager (which can operate on only one frequency). By using frequency-agile transmitters, PageNet has been able to satisfy consumer demand for tailored coverage while minimizing costs. In core areas, where all three frequencies are in use, PageNet can operate on all three frequencies using a frequency-agile transmitter and common control. It then divides its transmitters into zones, some operating with a combination of two of the three frequencies, some with one frequency. Again, in this manner, PageNet can tailor its paging systems to meet demand for local or wide area service, while keeping costs down.

PageNet believes that the Commission's rules as proposed, combined with the stricter construction requirements, adequately assuage any fear of spectrum warehousing. Given those requirements, the Commission has ensured that spectrum will be licensed to applicants with a bona fide intent to expeditiously build systems and provide service to the public. The interest served by the use of frequency-agile transmitters far outweighs any remaining concerns about spectrum warehousing.

F. The Commission Should Permit Facilities above 900 MHz to be Licensed with a Maximum Power of 3500 Watts at Any Height (§ 22.535)

The proposed rule Section 22.535, in conjunction with proposed Section 22.537, establishes height and power

limitations for 900 MHz paging systems. As such, these sections replace the provisions currently contained in Sections 22.505 and 22.506(e) and (f). The classification tables currently contained in Section 22.502 have been entirely eliminated.

Application of these proposed rules will have serious negative effects on existing paging facilities, particularly those which may require modification in the future. The rules also would severely restrict the ability of applicants to design new systems that effectively and efficiently serve the public, making maximum use of available spectrum. Notwithstanding these concerns, which will be discussed further below, PageNet believes that an entirely different view of height and power limitations is required with respect to the licensing of stations in the 900 MHz band. The approach which PageNet urges the Commission to adopt reflects the reality of the marketplace in paging services, the competitive structure of that market, and will result in cost saving efficiencies, both to the Commission and its licensees. PageNet proposes that all paging base stations facilities above 900 MHz be eligible for licensing with maximum power of 3500 watts at any height, provided the applicant can demonstrate that no co-channel interference will result from such operations.

There are many reasons why such an approach is both desirable and feasible. Paging service providers who operate on non-nationwide channels in the 900 MHz band are at a

distinct competitive disadvantage to those licensed on the nationwide channels, despite the fact that both types of carriers compete head-to-head in the provision of paging services on both a regional and nationwide basis. While they vie for the same subscribers, the playing field on which they compete is decidedly uneven, to the distinct advantage of those operating on the nationwide frequencies.

The Commission has acknowledged in licensing such channels that only co-channel interference is of concern, and its rules allow power on the nationwide channels up to the maximum of 3500 watts.[21] Such power levels enhance the carrier's ability to construct facilities that provide service over the widest possible area utilizing the fewest number of individual transmission facilities, thereby reducing the cost of system construction and ultimately the cost of service to subscribers. Conversely, non-nationwide carriers must construct multiple facilities having theoretical 20 mile service contours at far greater infrastructure costs.

In adopting its current 70 mile separation rule, the effect of which is preserved in the proposed rewrite of Part 22, the Commission committed itself to a future reassessment of the 70 mile concept.[22] The time has come for

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21 See Proposed Rule § 22.535.

22 Amendment of Parts 2 and 22 of the Commission's Rules to Allocate Spectrum in the 928-941 MHz Band, 89 F.C.C. 2d 1337, 1359 ¶ 57 (1982) ("After 900 MHz paging systems

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this promised re-evaluation and for change. The regulatory framework proposed in the rewrite is dramatically different from that which existed 10 years ago. Most importantly, the Commission has proposed to license facilities based on engineering which the applicant has certified is accurate and to hold the licensee accountable for any errors in its technical proposals. Maximum power licensing, given a self-certification scheme, no longer represents any added burden on the Commission in its processing of applications. The applicant, not the Commission, would shoulder the burden of prior coordination and channel separation studies as well as notification to and protection of co-channel users. The Commission has proposed this approach in the licensing of certain facilities under Part 22; licensing of 900 MHz base stations in the same manner is equally feasible and desirable.

The Commission is also proposing to adopt a first come, first served licensing scheme. Both the Commission and PageNet believe that this scheme will greatly reduce the number of situations in which the Commission must consider mutually exclusive applications. Choosing between and licensing of stations at maximum power is made more difficult where there are multiple MXd applications proposing varying power levels and service contours. With first come, first

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have been operating and we have gained experience in regulating them, we shall reexamine this 70 mile separation").

served, the complexity of the MX situation is avoided. Applicants are therefore free to perform their technical analysis of the maximum power possible at a given site and to propose facilities that will maximize the efficient use of the spectrum and most expeditiously provide service to the public.

PageNet recognizes that a maximum power licensing scheme will require revision to other rules being proposed in the Rewrite. Most significantly, Section 22.535(b), which establishes a 20 mile maximum service area contour for non-fill-in stations, must be eliminated and the requirement to conduct prior coordination with co-channel licensees under Section 22.150 must be made applicable to 900 MHz base station applications. Other rules may require modification as well to implement the advantages of licensing maximum power facilities.

While PageNet strongly urges the Commission to adopt the maximum power licensing scheme, it also offers its comments regarding the rules currently proposed in the Rewrite. As noted above, those rules will in some instances seriously harm existing carriers requiring modification of their facilities and will preclude the licensing of facilities, in the first instance, which can presently be authorized. PageNet believes both results are unintended and inadvertent and recommends appropriate revisions to the proposed rules. Specifically, provision must be made for licensing of stations at heights of more than 2000 feet above

average terrain. The graph attached hereto as Exhibit B dramatically illustrates the problem presented by the proposed rules in the licensing of stations at heights such as exist on Mt. Wilson in the Los Angeles area, where PageNet and numerous other carriers currently conduct authorized paging activities to no less than thousands of subscribers. Such facilities simply could not be licensed under the proposed rule.

Exhibit B also illustrates the incongruity which is introduced by the application of Table E-1 referenced in Section 22.537(e) to certain modification situations, as well as in the initial licensing of facilities. For example, a facility licensed at 2000 feet HAAT under existing Section 22.505 would be authorized 350 watts of power. The same facility licensed under proposed Table E-1 would be authorized a maximum of 125 watts -- more than a 3 dB reduction in power. Similarly, a facility currently licensed at 1400 feet with 600 watts of power, if required to increase height by 2 feet to 1402 feet HAAT, would have to reduce power to 125 watts -- more than a 6 dB power reduction.

These anomalous disadvantages can be avoided and numerous advantages achieved by employing a different mechanism in determining allowable power for 900 MHz base stations at perimeter sites. PageNet recommends the use of a formula similar to that proposed in Section 22.911 for cellular stations. Exhibit C hereto sets forth such a formula, which was produced by modifying the cellular formula

to achieve an end product equal to a 20 mile contour.[23] PageNet further urges the Commission to permit applicants to calculate and request power in excess of 1000 watts, up to a maximum of 3500 watts, where the height of the proposed antenna is between 581 and 1000 feet above average terrain. In addition, power increases to a maximum of 3500 watts are permissible at heights of up to 581 feet under the proposed Table E-1. PageNet can see no reason why power should be limited to 1000 watts in the initial licensing phase if the proposed antenna height will ultimately entitle the licensee to greater power.

At present, applicants are forced to engage in a two step process to license facilities that operate at powers in excess of 1000 watts. The same will be true under the proposed rules. In both instances, the initial FCC Form 401 application is limited to a maximum of 1000 watts, despite the fact that the proposed antenna height may be well under 580 feet AAT. The power is then adjusted upward at the time the Form 489 is submitted. This two step approach is unnecessary and should be replaced with a procedure that allows the applicant to accurately reflect, in the technical portion of the initial Form 401 application, the facilities it actually intends to construct, subject to unforeseeable minor adjustments that must be set forth in the covering Form 489 filing.

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[23] In some instances, at heights of 1300 to 2300 feet and

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minor adjustments that must be set forth in the covering Form 489 filing.

In sum, PageNet proposes that the Commission adopt rules which permit perimeter paging facilities to be licensed initially for up to 3500 watts, provided that protection to co-channel operations is maintained. In the alternative, the Commission should adopt a formula of the type it proposes in Section 22.911 to calculate allowable power, based on the height of the antenna and a maximum service area contour of 20 miles. In the latter case, the rule should provide for maximum power of 1000 watts at 1000 feet (or the equivalent thereof, i.e., lower power at greater heights and higher power at lesser heights) for antennas at more than 581 feet HAAT. At heights of 581 feet or less, the maximum power should be 3500 watts. The Commission should revise proposed rule Section 22.535(b) accordingly.

IV. COMPREHENSIVE ANALYSIS OF PROPOSED RULES

PageNet has undertaken a comprehensive analysis of Part 22 as proposed in the Commission's Notice. It has participated in industry meetings reviewing and analyzing the proposed rules. In general, it enthusiastically supports the consensus views of the industry as expressed in the Comments being filed by Telocator in this proceeding. However, PageNet believes that certain of the rules require revision or clarification, as further set forth below. Where the preferred method of market area licensing proposed by PageNet

would have an effect on a given rule provision, this will be noted. As will be evident, geographic area licensing would simplify and reduce the administrative burden imposed by many of the rules, thereby reducing the cost of system construction and, ultimately, of service to the end user.

§ 22.99 Definitions.

The definition of "base transmitter" should be revised to read "a stationary transmitter that provides service to mobile stations or pagers."

The Commission should define "station" and use the term consistently throughout its rules. In the proposed rules, "station" is used incorrectly to refer to a single transmitter in some instances (see, e.g., § 22.163(a), § 22,314, and § 22.353(b) & (e)) and in others, to refer to licenses (see, e.g., § 22.165(d)(1), §22.507, and §22.539). "Station" usually refers to a group of transmitters operating on one or more frequencies under one call sign. Where the language is intended to refer to a single site and a single frequency, "transmitter" or "facility" should be the term used and the definitions in Section 22.99 should so provide.

§ 22.115 Content of Applications.

PageNet believes that there is some confusion concerning the use of coordinate data bases as between NAD-27 and NAD-83. On October 15, 1992, FAA use of NAD-83 coordinate data will become effective. Upon approval by OMB,

the FAA tower study request form (Form 7460-1) will require the applicant to indicate, by checking a box, which coordinate data base was used in completing the form. PageNet suggests that FCC Form 401 be revised to include, in similar fashion, some method of indicating which database the applicant has used. This will not only assist the Commission in the contemporaneous processing of the application but will also greatly enhance the utility of the information if it is necessary to make reference to it in later years. PageNet notes that formulas and computer programs are readily available which convert coordinate data from NAD-27 to NAD-83.[24]

§ 22.121 Repetitious, inconsistent, or conflicting applications

In the paging industry, it is inevitable that circumstances outside of the licensee's control will occasionally cause the loss of a proposed site for which an alternative is not readily available. Similarly, events in the marketplace may alter the public's need for service, or demand in an area may fail to develop as anticipated by the carrier. Where, in response to such circumstances, the permittee chooses to return an authorization, it would be

[24] As a further aid to the public in preparing applications and to enhance the accuracy of data provided therein, PageNet urges the Commission to revise the Antenna Survey Branch data base to include coordinate data expressed according to NAD-83 along with the current NAD-27 listing, in order to avoid any confusion over which site is being licensed.

inconsistent with the Commission's goals in this proceeding to preclude that licensee from reapplying for a new site in the same area for one year. Proposed Section 22.121 should be clarified to state that this rule does not apply to situations where the license is not allowed to automatically expire, but is returned voluntarily prior to expiration.[25]

§ 22.123 Classification of filings as major or minor

PageNet believes that this rule is inconsistent with the Commission's overall regulatory scheme as proposed in this docket. Specifically, the rule as written is more restrictive than the Commission's current policy, and its net effect will be to encumber and delay service to the public.[26]

For 900 MHz paging base stations, the following changes are presently allowed but will no longer be permissible as "minor" filings under the Rewrite:

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25 The significance of and need for this rule would be dramatically reduced by implementation of a market area licensing scheme. Under such a plan, licensees would be free to construct throughout a regional service area unconstrained by the need to file, prosecute, monitor or surrender per-transmitter applications and/or authorizations.

26 By contrast, under a market area licensing scheme, the need for many of the provisions of the proposed rule would no longer exist, many of the filings classified as major would no longer be required at all and service to the public would be expedited.

(1) carriers may increase service area beyond the composite authorized contour where the composite interference contour would not change;[27]

(2) carriers may substitute a different control frequency in an application in order to resolve MX or other conflicts (§22.23(g)(7));

(3) carriers may correct typographical errors with respect to coordinates (§22.501(p)(2)(i));

(4) because 900 MHz frequencies are fungible, carriers may replace one 900 MHz frequency with another as a minor amendment.

The overall effect of the new rule is to place additional burdens on both licensees and the Commission, thereby delaying the processing of applications and the provision of service to the public. PageNet can think of no reason why these changes should not continue to be viewed as "minor" filings. It requests that the Commission revise the rule to characterize them as such.[28]

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27 See PacTel Paging, Inc., 6 FCC Rcd 5054 (1992) (Commission granted application to increase power of Class L base station where proposed increase expanded composite service contour but not composite interference contour). Section 22.123(e)(1)(i)(B) should be revised to include at the end the proviso, "except in the case of 900 MHz applications where the proposed interference contour is wholly encompassed within the composite interference contour of a station licensed to or commonly owned by the filer."

28 In addition, the rule should be clarified to state that common ownership of stations may be taken into account in calculating the composite interference contours of a multi-transmitter system when applying the provisions of Section 22.123(e)(1)(i)(C) and (ii)(C).

§ 22.125 Application for special temporary authority

The Commission has proposed that STAs be valid for sixty (60) days or less, pending the filing of an application for regular authorization. PageNet's experience suggests that a minimum of 120 days is needed for the FCC to process a Form 401 application subsequent to the issuance of an STA. The Commission's proposed rule, therefore, would have the practical effect of forcing the Commission to process at least one extension request per application. PageNet suggests that the rule be revised to provide for a term of temporary authority that expires upon grant or dismissal of the Form 401 application where such an application is filed concurrently with the STA request.[29]

§ 22.143 Construction prior to grant of authorization

PageNet believes that the Commission's preconstruction requirements under Part 22 should be liberalized and revised to conform with the requirements of Part 90. Part 90 allows conditional service from private carriers upon the date that an application is sent to the FCC by the frequency coordinator.[30]

Under the Commission's rules, carriers may not construct on existing towers before they have obtained

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29 With market area licensing, fewer STAs would be needed as licensees could freely implement construction schedules independent of Commission authorization on a per-transmitter basis.

30 See 47 C.F.R. § 90.159(b).

marking and lighting information from the Commission. This requirement is outmoded and unnecessary, as this information is readily available to the applicant. In a majority of cases, there is a Part 22 licensee already operating on the tower with lighting and marking instructions. Frequently, the applicant itself is operating at the same site on another frequency. Therefore, the Commission should do away with this requirement where the information is available to the applicant in authorizations issued to other Part 22 licensees. As presently proposed, the rule amounts to nothing more than a six week construction delay and an unnecessary drain on the Commission's resources.

The prohibition against construction of facilities above Line A contained in Section 22.143(g)(8) is no longer required in light of revisions which PageNet understands have been made to the U.S. - Canadian agreement for use of 931 MHz frequencies, and should be deleted.

§ 22.147 Authorization conditions

PageNet understands that, as a corollary to technical self-certification, the Commission needs a method for rectifying problems that arise due to erroneous technical data. However, the prospect of a license remaining conditional for its full ten year term is troublesome. Specifically, for some carriers, the rule as proposed could frustrate attempts to finance construction or operation because of the conditional nature of the license. Similarly,

valuations of licenses and their transferability could be jeopardized by their being conditional for such a long period of time. A shorter period of conditional operation is critical to the growth and development of paging services. PageNet suggests a six month conditional term commencing with completion of construction. During that period, the Commission could order the station to suspend operations until the interference is cured. Subsequent to the six month conditional period, the Commission could order the station to modify its facilities, pursuant to Section 22.352, in order to eliminate the interference.[31]

§ 22.165 Additional transmitters for existing systems

PageNet endorses the industry consensus as expressed by Telocator with respect to proposed Section 22.165. In addition, it urges the following change and clarification. First, it is PageNet's understanding that a new U.S. - Canadian treaty governing use of frequencies in the 931 MHz band obviates the need for any restriction on fill-ins above Line A. Therefore, subsection (a) of the proposed rule should be deleted.[32]

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31 As a general matter, market area licensing would, by reducing the number of applications filed, reduce the potential for introducing faulty engineering into a station's file.

32 Similarly, the language which excludes facilities above Line A from the provisions authorizing minor modifications to be made without prior Commission approval should be stricken from Section 22.163(b).

Further, regarding fill-ins, the Commission currently includes within its definition of an "existing system" a facility that is authorized but not yet built. The new rule should clarify that the Commission is not changing this policy.[33]

§ 22.303 Posting station authorizations

For large companies having large numbers of stations, and, in turn, large numbers of modified facilities, posting the required documents at multiple control points represents an unnecessary burden. The authorizations of such stations typically consist of multiple attachments to the FCC-issued license (i.e., Form 489 notifications with accompanying schedule Bs) and can become very bulky. In addition, keeping duplicate materials up-to-date at both the control point, as required by the rules, and at a remote corporate office, where system-wide compliance monitoring is done and record-keeping is maintained, is extremely cumbersome and subject to inadvertent error and omission. Further, as modern systems turn increasingly to satellite control using a centralized uplink, as PageNet has done in activating new systems in Ohio, Georgia, California and Virginia, control points more often are tending to be in

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[33] Geographic area licensing would virtually eliminate the need for this rule. Indeed, the entire premise of geographic area licensing is to encourage the carrier to fill in an entire service region unfettered by the constraints of per-transmitter applications, to the end that customers may be served early and at reduced cost.

states other than the one where service is being provided. PageNet believes that posting at any location is adequate, coupled with a requirement that the licensee be capable of producing a copy of the full license within a reasonable period of time, during normal business hours.

§ 22.317 Discontinuance of station operation

As noted above, the term "facility" should be used here where the intent is to require that discontinuance of operation at a particular transmitter be reflected by returning the authorization for such a transmitter to the FCC.[34] This rule must be clarified to indicate that it relates to an individual transmission facility and not to a multi-transmitter system.

§ 22.325 Control points

Proposed rule Section 22.325 inadvertently appears to require that a control operator be on duty 24 hours a day. Such a requirement is unnecessary, costly, and impractical. This rule should be restated to require that a technician be "on call" at all times.

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34 The cost and administrative burdens on the Commission and licensees of complying with transmitter-specific rules of this type would be avoided entirely if a geographic area licensing approach were to be adopted, as proposed by PageNet.

§ 22.352 Protection from interference

In modifying its rules respecting interference, the Commission has inadvertently reduced the protection from interference provided by the current rules in one very critical area. Specifically, proposed Section 22.352 fails to afford interference protection to fixed station and base station receivers from control and repeater stations operating on adjacent channels. Such stations are currently protected from interference under Section 22.110(b)(6) and it is vital that they continue to be protected under the revised rules.

Proposed Section 22.352 should be revised, therefore, to include a new subsection (c) entitled "Interference to Points of Communication" which would afford the required protection to receivers listed in the official station records. In addition, proposed subsection (c), which lists situations in which no protection is afforded, should be denominated subsection (d) and Item (4) thereunder should be clarified to read: "Interference to fixed stations not part of the official stations record." These proposed revisions are necessary to ensure that protection from interference continues to be afforded to the points of communication registered with the Commission.

§ 22.367 Antenna Polarization

Antenna polarization is a proven technique for reducing interference at points of communication, and the

Commission's present rule Section 22.110(e) specifically allows for the use of such techniques in the construction and operation of control facilities above 900 MHz. In the case of a 932 MHz control channel, for example, use of horizontal polarization provides a critical measure of added protection -- at the 932 MHz receive site -- against blanketing interference from co-located 931 MHz transmitters. Proposed rule Section 22.367 should be revised to allow for either vertical or horizontal polarization at stations utilizing control channels above 900 MHz. This provision will enhance efficient spectrum utilization by reducing the likelihood of interference at critical points in the paging system infrastructure.

§ 22.415 Developmental authorization of 928-960 MHz fixed transmitters

Proposed rule Section 22.415 contemplates the short-spacing of control stations in the 923-960 MHz band. Such short spacing will limit the area in which licensees are capable of adding points of communication over their fixed station coverage area. In light of the current abundance of control resources, PageNet believes that short spacing of these controls is unnecessary under any circumstances by comparison to the preeminent need to protect points of communication. There is no need to place the added burden of processing and monitoring these applications and facilities

on the FCC and the public. Therefore PageNet recommends that this rule be deleted entirely from Part 22.

§ 22.537 Technical channel assignment criteria

Proposed Section 22.537(g) provides that "licensees may install and operate in-building radiation systems without applying for authorization or notifying the Commission" at locations within the service contours of facilities licensed to the same operator on the same channel. Such systems are designed to provide service within a very limited area comprised of the building itself and the immediately surrounding area.

There are typically two types of in-building radiation systems: antennas installed at or below ground level; and "leaky cables" or radiax hung through an open vertical space in the building, such as a elevator shaft. PageNet recommends that the Commission adopt the following requirements with respect to the operation of in-building radiation systems.

Antenna systems typically used are ones designed for mobile use with a maximum of 3 dB gain. They normally operate in conjunction with transmitters of power from 1 to 25 watts. In order to qualify for installation under Section 22.537(g), such antenna systems should be required to operate with effective radiated power not in excess of 50 watts, having their antenna tip at or below ground level. This will ensure that radiation toward the horizon is absorbed by the

ground and that radiation designed to serve the building is not transmitted horizontally, where it might cause interference to other carriers.

With respect to radiax installations, the rule should limit the maximum ERP to 1 watt and the service area contour to no more than 1 mile. Path loss due to free space attenuation is approximately 96 dB at 1 mile. Manufacturer-supplied data indicates that coupling loss for radiax cables is approximately 70 dB, making a total of 166 dB attenuation of the signal at 1 mile. Operating at 1 watt ERP (-30 dBK), signal strength at 1 mile would be reduced to -136 dBm at the receiver antenna terminals, well below the minimum pager receiver sensitivity level, thus precluding the possibility of interference to pagers beyond 1 mile. Moreover, this analysis omits building penetration characteristics which would typically reduce the signal strength by an additional 20-30 dB.

§ 22.623 System Configuration

Section 22.623(b) prohibits the use of 470-512 MHz stations as "fixed relay" facilities. PageNet understands that point-to-point fixed relay use is prohibited by this rule. Conversely, the legitimate needs of the licensee to relay information to multiple base stations via the authorized facility is not prohibited. For example, a licensee could initiate correspondence via a 70 MHz facility to the 470 MHz repeater, which simultaneously repeats the