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December 15, 1999

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Magalie Roman Salas, Esq.
Secretary
Federal Communications Commission
445 Twelfth Street, S.W. Room TWA-325
Washington D.C. 20554

RE: *Ex parte notification:*
WT Docket No. 99-168 - Service Rules for 746-806 MHz Band

Personal
Communications
Industry
Association

Dear Ms. Salas:

On December 14, 1999 Mary McDermott and Donald Vasek of the Personal Communications Industry Association (PCIA) met with Bryan Tramont, Legal Advisor to Commissioner Furchtgott-Roth, to discuss PCIA's views in the above-referenced docket. The attached two documents, distributed at the meeting, reflect those views.

Pursuant to section 1.1206(b) of the Commission's rules, two copies of this letter are hereby filed with the Secretary's office. Please refer questions in connection with this matter to me at (703) 535-7489.

Respectfully submitted,

Donald J. Vasek

Donald J. Vasek
Director, Government Relations

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A Private Spectrum Allocation in the 746-806 MHz Band
Positions of the Personal Communications Industry Association

WT Docket No. 99-168

Eligibility - A very broad range of companies should be able to participate in the auction, with eligibility open to for-profit entities such as manufacturers, dealers, private internal system users that use spectrum in the daily conduct of their business, and PMRS carriers. Other entities such as trade associations, existing FCC-certified frequency advisory committees or consortiums of any of the above should also be permitted. Such open eligibility helps to ensure that an adequate number of bidders will participate in the auction. However, because this spectrum is intended to benefit many in the private spectrum community, PCIA recommends the adoption of a 50% spectrum cap on internal systems use. Under this cap, private internal systems users would be eligible to bid for spectrum as a band manager, but would be allowed to use no more than 50% of the spectrum they won for their own internal system use. This restriction makes it much more likely that such a licensees would make the remainder of the spectrum available for use by other private service eligibles.

License Blocks/Band Plan - PCIA supports the band plan developed by Motorola which consists of four 1.5 MHz blocks, intended for use as two paired blocks of 3 MHz. No specific channelization requirements should be adopted. This is best left to the manufacturers in order to give them the flexibility to develop equipment that meets the specific needs of private wireless users.

License Size/Market Areas - Issuing licenses in smaller service areas increases the opportunities for small businesses to participate in the auction and become band managers. Accordingly, we recommend the Commission make available one 3 MHz license using the 52 Major Economic Area (MEA) service areas, and one 3 MHz license using the 176 Economic Area (EA) service areas. We do not believe that a nationwide license is appropriate for this spectrum. Few, if any entities have the ability to bid on such a large license. Assembling the necessary financial backing in the short time frame before the start of the auction will be difficult if not impossible for private interests. Additionally, PCIA believes this is another area in which the market place should be allowed to work. If licensees determine over time that larger license areas are appropriate, they can "aggregate up" as occurred with PCS.

Safeguards- While PCIA is interested in keeping the licensing process as simple as possible, we nonetheless believe that a few safeguards are appropriate in order to meet the twin goals of: 1.) making the spectrum available to the largest number of users on reasonable terms and conditions and 2.) satisfying the intent of Congress in mandating the auction of this spectrum. PCIA endorses the following:

- The same entity should not initially be allowed to hold both licenses in a given market. This will promote competition by bringing more bidders to the auction and providing more band manager choices for end users.

- As noted above, PCIA recommends adoption of a 50% internal use cap, applicable to private internal use systems auction winners. This would help to ensure that spectrum is made available to a wider number of users and prevents spectrum monopolization by a single entity.

- Adopt reserve prices/minimum bids to ensure that Congress' intent in mandating this auction is met.

- Prohibit interconnection for resale. Private system operators should be permitted to interconnect those systems so that the users can reach those outside the private system.

Miscellaneous -

- Post auction license transfers should be allowed. Traditional construction (i.e. build out) and service requirements are inconsistent with the band manager license. Additionally, given the unavailability of the majority of the spectrum until at least 2006, it is reasonable to expect that some auction winners' business plans could change during the intervening years. If a post auction transfer would result in the same entitiy holding overlapping licenses, that entity must divest one of the licenses within a specified time frame.

- The ten year license term should officially commence in 2006, with expiration in 2016. However licensees should be able to distribute spectrum for actual use sooner than 2006 in those areas of the country where there is no incumbent broadcast use (with appropriate engineering safeguards similar to the 470-512 MHz band). In effect this would mean that some licensees may have an 11, 12, 13 etc. year license in limited parts of the country.

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Federal Communications Commission
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HAI Consulting, Inc.

December 9, 1999

Mary McDermott, Esq.
Senior Vice President and Chief of Staff
For Government Regulations
Personal Communications Industry Association
500 Montgomery Street, Suite 700
Alexandria, VA 22314-1561

Dear Mary:

HAI Consulting, Inc. (HAI) has been asked by PCIA to comment on two issues relating to the re-allocation of spectrum in the 700 MHz band from television broadcast to other uses.[1] These comments will address concepts proposed for 6 MHz of spectrum that a number of parties have requested be allocated for use by eligible entities in private mobile radio systems. The re-allocation has an overarching mandate by Congress that this spectrum be licensed by auction, thus our thoughts relate to aspects of auction licenses and auction structure.

The specific issues are:

- PCIA has proposed large private users be eligible to bid and become a licensee. However, to ensure spectrum is available to other smaller entities, the proposal further specifies that the private entity may only use 50 percent of the spectrum for internal purposes, and the remaining spectrum be made available to other entities for use in private systems[2] (presumably with appropriate cost recovery for the licensee). The issues in this case are how best to determine 50 percent usage

[1] HAI, and its predecessor, Hatfield Associates, Inc., has provided analysis of spectrum, spectrum auction and wireless industry issues for a variety of clients. We have provided affidavits, testimony and assisted in the drafting of comments for a number of spectrum related proceedings. These include, among others, the 1999 CMRS Spectrum Cap review; the PCS proceedings for spectrum allocation and auctions, UHF Refarming; the 900 MHz SMR auction rulemaking proceedings; and the 220 MHz SMR spectrum allocation and auction rules proceedings. HAI has also provided client-specific spectrum auction planning and management, wherein we have actively participated in both the planning and bidding phases of several spectrum auctions. More information concerning HAI and its qualifications can be found at www.hainc.com.

[2] For that portion of the spectrum, the licensee could act as a "Band Manager" or contract with another entity that would do so. The concept of a Band Manager was introduced in the matter of Implementation of Sections 309(j) and 337 of the Communications Act of 1934 as Amended, WT Docket No. 99-87, Promotion of Spectrum Efficient Technologies on Certain Part 90 Frequencies, RM-9332, Establishment of Public Service Radio Pool in the Private Mobile Frequencies Below 800 MHz, Notice of Proposed Rule Making, FCC 99-52, paras. 88-95, released Mar. 25, 1999 (*Balanced Budget Notice*), 1999 WL 163011. Essentially a Band Manager is the direct licensee of the FCC with authority to sub-license spectrum to defined eligible entities. The Band Manager concept is an approach to privatizing spectrum allocation for private usage and instituting competitive bidding for private spectrum.

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of the spectrum, and what effect might limiting a private user to 50 percent have on auction participation?

- What geographical areas provide the best means of auctioning the spectrum? Options include national, regional, MEA, and EA license areas. Which scheme will attract the most competitive bidding and meet the needs of the intended users? What ancillary issues are relevant to this determination?

Defining The 50 Percent Restriction

It is clear that, if the licenses are to be 3 MHz in an unencumbered condition, there is adequate capacity in half a license for most imaginable private mobile users. Table 1 demonstrates theoretical capacity using current private mobile dispatch technologies. It is difficult to conceive of many single users requiring more than 3,000 mobile units in a given area, let alone 6,000 or 15,000.

Table 1

Spectrum per License	3 MHz
Private User Spectrum @ 50% of License	1.5 MHz
Private User Channels Available @ 25 KHz Pairs[3]	30
Private User Dispatch Mobiles @ 100 per Channel	3,000
Private User Channels Available @ 12.5 KHz Pairs	60
Private User Dispatch Mobiles @ 100 per Channel	6,000
Private User Channels Available @ 5 KHz Pairs	150
Private User Dispatch Mobiles @ 100 per Channel	15,000

The question is obviously *how* to allocate the 50 percent, not whether it is adequate capacity to which a user should be restricted. The Commission's rules have a number of methods for parsing spectrum and measuring usage. Initially, quantifying a 50 percent restriction would seem to be similar to the rules for placing licenses into service, so-called "construction requirements". Usually the standard is a function of population coverage and/or geographic coverage, which in some cases is coupled with a requirement to place in service a minimum number of channels.[4]

[3] For the sake of this discussion we are assuming the private user requires the spectrum for some sort of fleet dispatch application. It is not likely that they would choose to employ a high capacity, and high cost, technology like CDMA or iDEN for internal purposes, nor is there enough spectrum to offer a mobile telephone service competitive to Cellular, ESMR or PCS. However, the mobile unit numbers in this table may be understated if the user employs data technology that limits the amount of voice traffic, and/or can re-use some channels in larger urban areas.

[4] 47 CFR § 90.665(c) requires 900 MHz MTA licenses to cover one-third of MTA population after three years and two thirds after five or make an alternate showing. 47 CFR § 90.685(c) adds a requirement to similar 800 MHz EA license population coverage requirements that specifies 50 percent of channels be in

However, private users cannot be judged by standards designed for assessing commercial service providers, for instance their coverage and capacity needs may be outside the bounds of urban areas. They may require coverage only along transportation corridors within and between urban areas, therefore limiting the population served. Conversely, a private user may require the spectrum to cover a single large campus, providing high capacity in-building coverage for voice and data, but not physically covering a large portion of the geographic license. Furthermore, Band Managers will not have a direct and specific means for generating demand for the spectrum they acquire and will require a flexible framework within which to operate.[5]

Given the uniqueness and originality of this case, Occam's razor would seem to apply – the simplest method of dividing the spectrum is likely the best, most useful and least problematic.[6] If the winning bidder for a license is a private user, or a joint bidding entity including one or more private users, a simple division of spectrum should be demonstrated to the FCC.[7] In order to preserve technical options, there should be no specification of how the division is to be made (e.g. pre-defined channel widths), only that a single private user can occupy no more than 50 percent of the allocated spectrum covering any portion of the defined geography of the licensing area.

There are, of course, some special cases to consider. For areas where there is still an incumbent broadcaster occupying some portion of the geography or spectrum accommodations must be made. In order to keep some portion of the spectrum available to both the private user and the Band Manager it would seem to be most equitable that the concept of splitting the available unencumbered frequencies be consistently carried forward. If one or the other is allowed to use all the available spectrum assuming that at some point the incumbent broadcaster will go away, and the broadcaster does not, one or the other party will have been damaged. Splitting the spectrum based on frequency

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service at after three years. 47 CFR § 90.769 (a)(1) and (2) specifies 220 MHz Phase II license construction requirements for mobile services can be met either in terms of square kilometers covered or percentages of population covered. 47 CFR § 27.14(a) defines a subjective showing of "substantial service" for Wireless Communication Service licensees.

[5] Indeed, determining construction requirement for these licensees will be very difficult. Even using a subjective showing of "substantial service" is conceptually difficult, as a Band Manager has no control over its eligible sub-licensees' demand for spectrum. Unlike commercial service providers, it is not clear that a Band Manager can use traditional marketing and advertising to stimulate usage

[6] In logic, Occam is remembered for his use of the principle of parsimony, formulated as Occam's razor, which enjoined economy in explanation with the axiom "It is vain to do with more what can be done with less". (The Concise Columbia Electronic Encyclopedia, Third Edition Copyright © 1994, Columbia University Press: http://www.encyclopedia.com/articles/13877.html, William of Occam (Encyclopedia.com)). Although it might be simpler to just let private users bid and hold all the spectrum, there is an ongoing principal of putting spectrum to use that needs to be addressed, which this proposed restriction furthers.

[7] For almost all auctioned spectrum the FCC has permitted partitioning and disaggregation of licenses. In this case there would be one additional specification in the licensing process – a demonstration that the private user would not have more than 50 percent of the spectrum.

availability, not time or geography would seem to avoid a number of potentially contentious issues.

The 50 Percent Restriction and Auction Participation

The idea of restricting private users who win a license at auction to employing only 50 percent of the license for internal usage may, at first blush, seem to be a disincentive for large users to participate in the auction. However, we feel this is not necessarily the case. The amount of spectrum per license, even with a 50 percent limitation, provides much more capacity than even the largest private user would need in a single market (see Table 1). The excess capacity would force them to either under-value the spectrum and limit bidding, or seek an alternative way to use the unneeded spectrum.[8]

While a private user could certainly elect to go it alone or plan to become a Band Manager if successful in the auction, the addition of a bidding partner is also a logical course of action for a private user that wishes to participate in the auction. It would allow the combined bidding entity to place a higher value on the desired spectrum and bid more aggressively. Indeed, as Table 1 shows, the amount of spectrum required by even the largest user will likely not come close to 50 percent of available capacity in most markets, so a Band Manager – and by extension the general community of eligible private users – will have access to significant capacity.

Thus, the presence of a 50 percent usage limitation is beneficial from a public policy perspective, as it has the distinct possibility of stimulating auction bidding. The interested and serious private user will have to address the issue of what to do with excess spectrum well in advance of the auction.[9] Therefore the rule may well bring to the table bidders that are better prepared, better capitalized, and more competitive. And, similar to construction rules, it may also prevent the warehousing of spectrum.

[8] A rational bidder, one who intends to use the spectrum for business purposes rather than pure speculation, will base their bidding on the expected earnings from activities employing the spectrum (either from internal use or as a provider of spectrum-related services). The maximum price they are willing to pay is that which allows them to still meet rate of return thresholds, given the cost of spectrum as an input into the business plan. To the extent the amount of spectrum exceeds their needs the excess is of very limited value unless, of course, they can find additional uses such as electing to become a Band Manager.

[9] In our experience, potential bidders address the advantages of joining forces with other potential bidders too late in the pre-auction planning process. They generally leave too little time to consummate a pre-auction agreement and thereby enter the auction with more limited resources, or elect not to participate at all.

Geographic Areas and Auction Participation

To the extent the Commission wishes to promote opportunities for the widest variety of applicants, including small business entities, whether public or private system operators, it is clear that licenses covering smaller geographic areas are more attractive. This is especially true when the spectrum is encumbered as it is in this case.

Data from recent auctions of spectrum intended for similar usage, specifically Auctions 18 and 24 for 220 MHz mobile radio licenses, is illustrative of the relative attractions of licenses with varying size and encumbrance. Auction 18 was the initial auction of licenses in the 220 MHz band, intended for PMRS or CMRS services. This auction was known as Phase II, as there had initially been a number (over a thousand) of Phase I site-specific licenses issued by lottery several years earlier. Auction 24 was a subsequent auction of licenses not sold in Auction 18.

In Auction 18 there were 908 licenses available. They were divided geographically into three 100 KHz nationwide licenses, five licenses of 150 KHz each in six regions comprised of multiple Economic Areas ("EAs"), and five licenses of 100 KHz in each of 175 EAs.[10] None of the nationwide licenses had Phase I incumbents. In contrast, only one of the five licenses in each of the regional and EA categories were largely unencumbered. Additionally, the unencumbered licenses were all single blocks of paired spectrum (50 or 75 KHz channels), while the encumbered regional and EA licenses all were divided into groups of non-contiguous smaller channel 5 KHz pairs. Between the two auctions there were 63 unique bidders (adjusting for those that participated in both) and 55 of the bidders were eligible for a small business discount of up to 35 percent.

The smaller EA licenses were predominantly won by small businesses and were sold for relatively more on a per-MHz basis. The EA licenses were auctioned for $13.4 million per MHz, whereas the regional licenses sold for $10.5 million per MHz.[11]

EA licenses were the only category where the total of all bids placed by small business entities exceeded those placed by larger businesses.[12] Despite their more limited activity in the regional and nationwide blocks, small business bidders did have some success in those bands. However, close examination of the results indicates that small business bidders were relegated to buying the less valuable and more risky blocks. All of the unencumbered regional blocks (6 out of 30 available) were purchased by large entities,

[10] The regional licenses were identified by their geographic location: Northeast, Mid-Atlantic, Southeast, Great Lakes, Central/Mountain and Pacific. EA licenses are generally associated with specific urbanized markets and their surrounding areas, such as New York, Los Angeles, Denver, etc.

[11] In each case there was less than a MHz of spectrum available, and differing amounts for EA licenses and regional licenses. In order to normalize and compare the results, the total proceeds from EA licenses was $6.7 million divided by the .5 MHz available, and for regional licenses $7.9 million was divided by the .75 MHz available.

[12] Bids are the combined totals from Auction 18 and 24.

while 19 of the 24 encumbered regional blocks went to small business bidders (and two remained unsold after the second auction).[13] The sole nationwide license to go to a small business was the only one with channels secondary to Mexico along the border regions, rendering it less functional in some markets.

Table 2 summarizes the success of small bidders in the various types of blocks, and their relative success in acquiring the more valuable and functional blocks. It is evident that the smaller blocks allow them to compete with larger bidders for the most useful spectrum.

Table 2

BLOCK CATEGORY	SMALL BUSINESS, % OF ALL BLOCKS WON	SMALL BUSINESS, % OF UN-ENCUMBERED OR UN-RESTRICTED BLOCKS WON
EA	57%	56%
Regional	68%	0%
Nationwide	33%	0%

The EA licenses had a lower cost for initial eligibility in the auction (the up-front cost), and smaller bidders could aggregate these blocks more efficiently and less expensively than bidding on regional blocks. Otherwise, small business bidders were relegated to pursuing the discounted higher risk larger blocks. However, it is important to note, for the right price, the small business bidders were willing to take risks on encumbered spectrum blocks that the larger bidders were not.

In summary the pattern of small business participation can be characterized by two factors, cost and risk. Given the possibility of acquiring spectrum in a smaller market size that dictates a price within their means, small bidders step up to the plate and very actively participate. They are also willing to take risks and go after blocks shadowed by incumbents that larger bidders may choose to ignore. In either case, the participation of small business generates more spirited bidding.

For all potential bidders, the encumbered nature of this spectrum, the time it may take to remove encumbrances, and the lack of current technology to apply to this spectrum make this auction a risky business proposition. Smaller license areas foster the creation of spectrum blocks that can be more readily analyzed as clear or encumbered, thereby better

[13] The prices paid for the encumbered licenses were much lower. The 6 largely unencumbered regional licenses sold for an average of $678,833 versus $160,920 for the encumbered regional licenses. An HAI analysis of population coverage done prior to the auction did not find that the encumbered licenses had only 25% of population unencumbered as the auction price differential suggests. On average the servable population was 52 percent, within a range of 32 percent to 67 percent across the 24 licenses. Clearly the uncertainty presented by the incumbents exacted a steep discount from the bidders, or, conversely, unencumbered spectrum can be considered to command a premium.

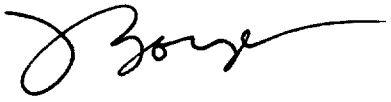
identifying risk and allow bidders to aggressively and efficiently bid with a more specific understanding of the uncertainties. To the extent certain bidders require regional coverage, they are free to aggregate smaller areas like EAs into de-facto regional licenses that can be specifically tailored to meet their needs.

The nature of the potential bidders must also be considered in this case. There may well be private users of significant size and resources that have needs in a specific market that would be reluctant to bid on a license that included markets where they had no operations.

For instance, using the Major Economic Area definition, the Los Angeles MEA includes the Los Angeles, San Diego and Las Vegas EAs. A large private user in Los Angeles serving the film industry and needing mobile radio service may have no interest in coverage for San Diego – where there could be a large private user serving military installations also desperate for service. While in theory they could combine forces to bid, being in different industries it is unlikely they would ever find each other. It would be difficult for them to internally justify bidding on spectrum that includes markets they have no interest in, and where they would have to take on a Band Management task they are not experienced with to fully realize the value of the asset. They would be much more likely to pursue spectrum that was efficiently sized, on an EA basis, to meet their specific market needs.

In conclusion, every indication is that for the particular needs of the small business and private radio user community smaller geographic areas, on the order of EAs, would provide the most efficient means of defining auction licenses. It is not clear that larger areas would serve any impetus to providing greater spectrum usage or opportunity for economic growth.

Sincerely,



Alan J. (Joe) Boyer
Senior Consultant