

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

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FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

In the Matter of )  
 )  
Implementation of Section 309(j) )  
of the Communications Act )  
Competitive Bidding )

PP Docket 93-253

JOINT COMMENTS

Advanced MobileComm Technologies, Inc. ("AMT") and Digital Spread Spectrum Technologies, Inc. ("DSST"), by their counsel and pursuant to Section 1.419 of the Commission's Rules, 47 C.F.R. §1.419, hereby submit their its Comments on the Notice of Proposed Rule Making ("NPRM") in the above-captioned proceeding. By the NPRM, the Commission proposes to adopt Rules implementing the statutory authority conferred upon it by Title VI of the Omnibus Budget Reconciliation Act of 1993 (the "Budget Act") to award Title III radio licenses through the use of competitive bidding.<sup>1</sup>

Among the initial proponents of deployment of a multi-layered U.S. PCS infrastructure, AMT<sup>2</sup> and DSST<sup>3</sup> share the

<sup>1</sup>Pub. L. No. 103-66, Title VI, Section 6002(b), 107 Stat. 312, 392 (1993); Implementation of Section 309(j) of the Communications Act, FCC 93-455 (October 12, 1993).

<sup>2</sup>AMT is an affiliate of Advanced MobileComm, Inc. ("AMI"), one of the largest providers of Specialized Mobile Radio services in the nation. AMT's ultimate parent company, FMR Corp., is the nation's largest privately-owned investment management organization.

<sup>3</sup>DSST is a subsidiary of CYLINK Corporation ("CYLINK"), a recognized leader in the design, development and manufacture of Part 15 spread spectrum equipment. DSST was formed by CYLINK for

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Commission's vision of PCS as a family of many emerging wireless services and technologies.<sup>4</sup> AMT and DSST have advocated in General Docket 90-314 the adoption of PCS service rules that would accommodate the provision of a host of specialized PCS services and encourage the participation of small businesses, minority-owned enterprises and entrepreneurs in the provision of those services.<sup>5</sup>

On August 25, 1993, AMT and DSST submitted to the Commission a "Joint Petition For Further Rulemaking" (the "Joint Petition") requesting that the Commission undertake further rulemaking proceedings looking toward the adoption of Rules in General Docket 90-314 to designate a Specialized PCS service provider in each market to serve as a host carrier for the provision of specialized PCS services by unlicensed PCS service providers. A copy of the Joint Petition is appended to these Joint Comments. AMT and DSST submitted in support of the Joint Petition the August 19, 1993 Report of Hatfield Associates, Inc. ("HAI") entitled "An Analysis of the Need for Specialized PCS Systems/Services." The HAI Report, a copy of which is appended

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the purpose of focusing CYLINK's considerable spread spectrum technology, marketing and regulatory expertise on the research, development and experimental deployment of PCS products and services.

<sup>4</sup>Amendment of the Commission's Rules to Establish New Personal Communications Services, FCC 93-451 (October 22, 1993) ("Broadband PCS Order").

<sup>5</sup>See AMT/DSST Joint Comments, Gen. Docket 90-314 (November 9, 1992); AMT/DSST Joint Reply Comments, Gen. Docket 90-314 (January 8, 1993).

to the Joint Petition as Exhibit 1, identified a demand for a host of emerging specialized PCS services characterized by (1) the need for interference protection, (2) the need for customization and specialization in the service offering and (3) a requirement for only limited system coverage. Included among the emerging specialized services identified by the HAI Report are health care, public and personal safety, educational and business applications.

In its Broadband PCS Order, the FCC recognized the need within its PCS service rules to accommodate the provision of specialized PCS services.<sup>6</sup> In AMT's and DSST's view, the spectrum allocation plan adopted by the Commission in the Broadband PCS Order will provide a substantial and sufficient basis for the accommodation of specialized PCS demand.

Moreover, in the NPRM (at para. 121) in this proceeding, the Commission has proposed measures to ensure the participation of small businesses, businesses owned by members of minority groups and women and rural telephone companies in the PCS industry. To this end, the FCC has proposed to set aside two blocks of spectrum nationwide reserved for bidding between the designated entities, and to allow the use of installment payments with interest for bids within the set-aside blocks.

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<sup>6</sup>Amendment of the Commission's Rules to Establish New Personal Communications Services, FCC 93-451 (October 22, 1993) ("Broadband PCS Order"), Statement of Commissioner Ervin S. Duggan at 1.

At the outset, AMT and DSST commend the Commission and its Small Business Advisory Committee's ("SBAC's") efforts to provide meaningful opportunities for the designated entities in the provision of PCS services and to ensure that the PCS service rules adequately accommodate specialized PCS demand. As AMT and DSST set forth in their Joint Petition, the accommodation of specialized PCS demand and the provision of meaningful opportunities in the PCS industry for the designated entities constitutes both sound public policy and sound economic policy. Because the FCC has addressed the twin purposes of the Joint Petition, AMT and DSST now believe the specific rulemaking proposal of their Joint Petition to be moot.

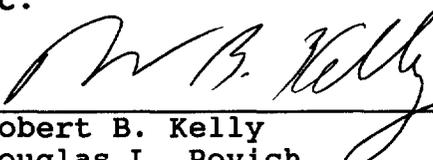
In its NPRM (at para. 50) the Commission requested comment, on the SBAC's proposal to award "innovator's bidding preferences" in the amount of 10 percent of an applicant's bid to further encourage participation by the designated entities in the PCS auctions. AMT and DSST support the award of such innovator's preferences based upon technological innovation and superior service proposals. Such an applicant might propose, for example, an infrastructure and/or spectrum sharing arrangement (at 14-15) that would facilitate the entry of unlicensed firms into PCS markets. See Broadband PCS Order at para. 50. Proposals of this nature would function much like the Specialized PCS host described in AMT's and DSST's Joint Petition and would further enhance the ability of small firms to participate in the emerging PCS service and equipment markets. Accordingly, in the event the

FCC implements an innovator's preference program in connection with its competitive bidding rules, AMT and DSST urge the Commission to indicate that sincere infrastructure and/or spectrum sharing proposals will receive favorable consideration for such preferences, conditioned upon full implementation of the proposal following a successful bid.

Respectfully submitted,

**ADVANCED MOBILECOMM TECHNOLOGIES, INC.  
DIGITAL SPREAD SPECTRUM TECHNOLOGIES,  
INC.**

By:

  
\_\_\_\_\_  
Robert B. Kelly  
Douglas L. Povich

KELLY, HUNTER, MOW & POVICH, P.C.  
1133 Connecticut Avenue, N.W.  
Washington, D.C. 20036  
(202)466-2425

THEIR COUNSEL

November 10, 1993

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Amendment of the Commission's ) Gen. Docket No. 90-314  
Rules to Establish New )  
Personal Communications )  
Services )  
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To : The Commission

JOINT PETITION FOR FURTHER RULEMAKING

ADVANCED MOBILECOMM TECHNOLOGIES, INC.  
DIGITAL SPREAD SPECTRUM TECHNOLOGIES,  
INC.

By: Robert B. Kelly  
Charles C. Hunter  
Douglas L. Povich  
KELLY, HUNTER, MOW & POVICH, P.C.  
1133 Connecticut Ave., N.W.  
Washington, D.C. 20036  
(202) 466-2425

Their Counsel

August 25, 1993

JOINT PETITION FOR FURTHER RULEMAKING

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SUMMARY

Advanced MobileComm Technologies, Inc. ("AMT") and Digital Spread Spectrum Technologies, Inc. ("DSST") petition the Commission to initiate Phase II of its PCS docket to adopt rules implementing the Specialized PCS Service.

In enacting Title VI of the Omnibus Budget Reconciliation Act of 1993, Congress directed that the FCC implement such measures as required to ensure the continued meaningful participation in an auction environment of small businesses and businesses owned by members of minority groups and women in the provision of spectrum-based services. The Commission has expressed its sensitivity to the need to promote this participation.

Based upon their joint PCS research and development, AMT and DSST have identified a host of emerging specialized PCS applications. These specialized applications generally are defined by the confluence of three elements: (1) a customization of the service offering, (2) a localization of the service offering, and (3) a need for protection from possible interfering uses greater than that available from unlicensed or uncoordinated operation. Examples of emerging specialized PCS applications are discussed in more detail in the recently concluded Study of Hatfield Associates, Inc. that is attached as Exhibit 1 to this Joint Petition.

AMT and DSST believe that the emergence of this host of specialized and niche PCS applications provides the basis for a market-driven solution to ensuring that small businesses continue to have meaningful opportunities to participate in the provision of spectrum-based services. Indeed, in view of the historically disproportionate role of small businesses in innovating new services and products described more fully in Exhibit 3 to this Joint Petition, the adoption of policies that ensure the inclusion of small businesses on an on-going basis in the provision of spectrum-based services and the associated equipment markets is critical to the economy.

AMT and DSST thus propose that the FCC designate one PCS license per market (or allocate to Specialized PCS from the Emerging Technologies band an additional amount of spectrum equal to the bandwidth of the PCS licenses) to serve as a host for the provision of specialized PCS services by unlicensed PCS service providers ("PSPs"). The host licensee would provide the platform services necessary to enable the PSPs to build and commercially provide their own specialized PCS services. The relationship between the host licensee and its PSPs would function much like the relationship between Enhanced Service Providers ("ESPs") and the underlying carriers from whom they obtain transmission capacity.

The two most basic building blocks of Specialized PCS services are frequency access and frequency coordination. Each host Specialized PCS licensee would be required to provide its

PSPs access to its licensed spectrum. Each Specialized PCS licensee, moreover, would be required to construct such facilities and provide such services as necessary to ensure effective frequency coordination and re-use between its PSPs. For this purpose, the Specialized PCS licensee would operate within its market area much like the "open industry entity" proposed to manage the band-clearing process and coordinate the deployment of unlicensed PCS devices and services. In the event that the Specialized PCS licensee itself provided service as a PSP, it would, in turn, be required to unbundle and make available to other PSPs the basic functions or modules that the host employed within its service.

The AMT and DSST proposal in this Joint Petition applies in the PCS context the two fundamental policies of openness and specialization that have been followed by the FCC for many years in stimulating the availability of market opportunities for small businesses. These policies are described in detail in Exhibit 2 to this Joint Petition.

With the establishment of the Specialized PCS Service, the Commission may promote thousands of specialized and niche PCS businesses and associated equipment markets that will provide logical and available points of entry for small businesses into the PCS industry. With this action, the Commission, moreover, may assure that specialized demand for PCS may adequately be accommodated, and that small businesses do not suffer a competitive disadvantage in the array of available PCS services

and options.

Finally, AMT and DSST have crafted their proposal to respond to an identified demand for emerging specialized services, and to flexibly accommodate new services as they continue to emerge. By creating a point of entry in PCS for unlicensed service providers, the designation of a Specialized PCS licensee in each market will provide multiple sources of delivery and spur the competitive availability of new services. Indeed, establishment of Specialized PCS would provide end users the additional service option of satisfying their internal business needs by operating as a PSP. Establishment of the Specialized PCS Service, therefore, will serve all four fundamental goals of this proceeding.

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**JOINT PETITION FOR FURTHER RULEMAKING**

Advanced MobileComm Technologies, Inc. ("AMT") and Digital Spread Spectrum Technologies, Inc. ("DSST"), by their counsel and pursuant to Sections 309(j)(3) and (4) of the Communications Act of 1934,<sup>1</sup> as amended (the "Communications Act"), and Section 1.401 of the Commission's Rules,<sup>2</sup> hereby jointly petition the Commission to conduct further rulemaking proceedings in its on-going docket proposing to establish personal communications services ("PCS") in the U.S. and to adopt Rules as described herein to accommodate the provision of Specialized PCS services.<sup>3</sup>

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<sup>1</sup>47 U.S.C. § 309(j) (1993).

<sup>2</sup>47 C.F.R. §1.401.

<sup>3</sup>Amendment of the Commission's Rules to Establish New Personal Communications Services (Notice of Proposed Rulemaking), 7 FCC Rcd. 5676 (1992) ("PCS NPRM"). See Amendment of the Commission's Rules to Establish New Personal Communications Services (Narrowband Report and Order), FCC 93-329 (July 23, 1993) at para. 3 ("PCS First Report and Order").

As shown below, the establishment of the Specialized PCS service will enable the Commission to further the participation of small businesses and businesses owned by members of minority groups and women as licensees and service providers engaged in the provision of spectrum-based services and to thereby fulfill the mandate of Congress expressed in Title VI of the Budget Reconciliation Act of 1993 (the "Budget Act"). Implementation of the Specialized PCS Service, moreover, will substantially enhance the family of PCS services available to U.S. consumers by flexibly accommodating a demand that otherwise will be unmet. It will also facilitate the attainment of the four overarching goals of this proceeding articulated by the Commission in the Notice of Proposed Rulemaking herein, (1) universality of service availability, (2) speed of deployment, (3) diversity of services and (4) competitive delivery. For these reasons, and as detailed below and in Exhibits 1 through 3 hereto, AMI respectfully requests that the FCC issue a Further Notice of Proposed Rulemaking initiating Phase II of this Docket proposing to establish the Specialized PCS Service.

## I. INTRODUCTION

On August 10, 1993, President Clinton signed into law the Omnibus Budget Reconciliation Act of 1993 (the "Budget Act"). Title VI of the Budget Act, inter alia, implements amendments to Section 309 of the Communications Act to provide the FCC the authority to issue radio licenses through a competitive bidding process.

Coupled with the adoption of auction authority, Congress has directed the Commission to promote the dissemination of licenses in an auction environment among a wide variety of applicants, including small businesses and businesses owned by members of minority groups and women. 47 U.S.C. §309(j)(3)(B). Congress further has directed the Commission in promulgating regulations implementing a competitive bidding methodology to "prescribe area designations and bandwidth assignments that promote (i) an equitable distribution of licenses and services among geographic areas, (ii) economic opportunity for a wide variety of applicants, including small businesses, rural telephone companies, and businesses owned by members of minority groups and women, and (iii) investment in and rapid deployment of new technologies and services" and to otherwise "ensure that small businesses, rural telephone companies, and businesses owned by members of minority groups and women are given the opportunity to participate in the provision of spectrum-based services, and, for such purposes, consider the use of tax certificates, bidding preferences, and other procedures." 47 U.S.C. §§309(j)(4)(C) and

(D). Title VI of the Budget Act further requires the FCC not later than September 30, 1997 to conduct a public inquiry and report to Congress an evaluation of whether small businesses and businesses owned by members of minority groups and women were able to participate successfully in the competitive bidding process.

In its PCS First Report and Order, the FCC made clear its intent to carefully scrutinize all aspects of the PCS service rules to ensure that small businesses and businesses owned by members of minority groups and women would have opportunities to participate in the PCS service and equipment markets. To this end, the Commission stated that "we expect to address small business concerns in future proceedings when we consider details of the licensee selection process."<sup>4</sup> The Commission, indeed, has expressed its desire to ensure the participation of small businesses in the provision of spectrum-based services, and in the manufacturing of equipment to serve those markets, in other proceedings as well, including, for example, in its on-going docket (PR Docket 93-144) proposing to implement Expanded Mobile Service Provider ("EMSP") licensing on the 800 MHz SMR frequencies.<sup>5</sup>

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<sup>4</sup>PCS First Report and Order at para. 6. In a Separate Statement to the PCS First Report and Order, Commissioner Barrett added that "I anticipate that the impact of competitive bidding on small business participants will need to be addressed fully in a future Commission action on 900 MHz PCS licensing."

<sup>5</sup>See Amendment of Part 90 of the Commission's Rules to Facilitate Future Development of SMR Systems in the 800 MHz Frequency Band, 8 FCC Rcd. 3950 (1993).

In their Joint Comments and Joint Reply Comments on the PCS NPRM, AMT and DSST proposed that the Commission designate one PCS license per market to serve as a host to provide an open and competitive interface for the provision of specialized PCS services by unlicensed PCS service providers ("PSPs").<sup>6</sup> AMT/DSST Joint Reply at 8. AMT and DSST noted that the establishment of a class of PSPs "would provide opportunities for small or medium-sized entrepreneurs to enter the PCS market on a dynamic basis." AMT/DSST Joint Reply at 7. With its PSP proposal, AMT and DSST stated that the Commission would create "additional business opportunities for smaller entrepreneurs who might otherwise be precluded from participating in the promising PCS market" and that "perhaps even an individual home-owner" could provide commercial PCS services.<sup>7</sup> AMT/DSST Joint Reply at 9. AMT and DSST thus suggested "that the PSP concept would provide an innovative mechanism for providing on-going business opportunities in the PCS industry to small and minority-owned

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<sup>6</sup>Joint Comments of Advanced MobileComm Technologies, Inc. and Digital Spread Spectrum Technologies, Inc., General Docket 90-314 (November 9, 1992) at 9-14 ("AMT/DSST Joint Comments"); Joint Reply Comments of Advanced MobileComm Technologies, Inc. and Digital Spread Spectrum Technologies, Inc., General Docket 90-314 (January 8, 1993) at 3-9 ("AMT/DSST Joint Reply"); Joint Comments of Advanced MobileComm Technologies, Inc. and Digital Spread Spectrum Technologies, Inc., General Docket 90-314 (June 21, 1993) at 1-9 ("AMT/DSST Unlicensed PCS Comments").

<sup>7</sup>In their Joint Comments and Joint Reply in this proceeding, AMT and DSST suggested that the Commission designate at least one PCS license per market as the PCS-Open Network Architecture ("P-ONA") system. The P-ONA licensee suggested by AMT and DSST would construct such facilities and provide such services necessary to serve as a host for the provision of PCS services by unlicensed PCS service providers.

businesses." AMT/DSST Unlicensed PCS Comments at 9.

In their Joint Comments and Joint Reply, AMT and DSST further noted that the record in this proceeding fully documents that U.S. PCS services will be provided in all shapes and sizes, those now anticipated and those yet to emerge. These services will include, among a host of others, wireless local access service, wireless private branch exchange service, wireless local area network service and many other specialized applications, including health services, public safety, transportation management and other uses in in-building, campus, multi-premise, local, regional and nationwide configurations. Through research conducted by Hatfield Associates, Inc. ("HAI"), AMT and DSST have identified a demand for many of these and other specialized PCS services. A copy of this August 1993 HAI Study is appended to this Joint Petition as Exhibit 1. The conclusions of the HAI Study are, indeed, consistent with the Commission's vision of PCS as "a family of mobile or portable radio communications services which could provide services to individuals and business, and be integrated with a variety of competing networks."<sup>8</sup>

AMT and DSST recognize that the Commission's deliberations on the issues raised in the PCS NPRM are nearing completion, and that a substantial record has been compiled on those issues. AMT and DSST do not believe that any delay in the adoption of a decision on those issues is required to address the issues raised in this Joint Petition. Indeed, AMT and DSST

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<sup>8</sup>PCS NPRM at para. 30.

believe that the record compiled in response to the PCS NPRM supports the accommodation of specialized PCS services through designation of one licensee per market to serve as a host to the unlicensed PSPs. However, because the recent amendments to the Communications Act (enacted one year after release of the PCS NPRM) have raised the issue of the ability of small businesses and businesses owned by members of minority groups and women to participate in spectrum-based services in an auction environment, and to compete for licenses against larger entities with deeper pockets at the auction table, AMT and DSST believe that further rulemaking in a Phase II of this proceeding to compile a complete record on this issue will assist the Commission in fulfilling the Congressional directives of new Section 309(j) of the Communications Act.<sup>9</sup>

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<sup>9</sup>The AMT and DSST proposal herein to implement the Specialized PCS Service is not exclusive of other measures that may be taken to further the ability of small businesses and businesses owned by members of minority groups and women to participate in the provision of spectrum-based services, including, for example, licensing by more localized areas. The Commission may wish to consider such other measures in this proceeding as well as the specific AMT/DSST proposal. Conversely, if the FCC implements measures to accommodate the provision of specialized PCS services by unlicensed PSPs within the current rulemaking, the specific proposal of this Joint Petition may become moot.

## II. STATEMENT OF INTEREST

Among the initial proponents of deployment of a U.S. PCS infrastructure, AMT and DSST each have been active participants in the research, development and deployment of PCS technologies throughout the U.S. since 1988. The qualifications of both AMT and DSST are well known to the Commission.

DSST is a subsidiary of CYLINK Corporation ("CYLINK"). Based in Sunnyvale, California, CYLINK commenced operations in August 1984. CYLINK today is a leading supplier of commercial information security products and Part 15 spread spectrum radios. CYLINK employs 140 people in the U.S. and 10 people overseas. Approximately one-half of CYLINK's spread spectrum radios are sold for export overseas, an area that represents the fastest growing segment of its business. Although its plans for growth are substantial, particularly in the areas of emerging communications technologies like PCS, CYLINK regards itself as a relatively small, but ambitious, company, particularly when measured against the industry giants with whom it competes.

Accordingly, CYLINK is particularly attuned to the potential impact of competitive bidding upon the ability of small, but ambitious, businesses like itself to compete with the industry's largest players, and, most importantly, to the needs of small businesses for continuing incentives to innovate new products and services. CYLINK's Chairman, Dr. Jim K. Omura, submitted a Statement on this topic in conjunction with the April 22, 1993 oversight hearing of the House Subcommittee on

Telecommunications and Finance.

Despite its modest size, over the past six years, CYLINK has undertaken exhaustive research, design and development of spread spectrum radios in the Part 15 bands. The success of this R&D effort, combined with the opening of commercial markets for Part 15 spread spectrum radio products, led CYLINK in May of 1988 to devote full time resources to the development of spread spectrum radio hardware. This commitment resulted in the completion, successful testing and FCC certification of several spread spectrum radio products, all of which have specialized applications in the PCS environment. As a result, CYLINK has designed and developed spread spectrum radios that are commercially available today in three Part 15 bands (902-928 MHz, 2.4-2.4835 GHz and 5.725-5.850 GHz). CYLINK believes that its unsurpassed experience in the design, development and commercial deployment of its spread spectrum radio products have provided it unique insight into the role that small companies may play in potential PCS equipment markets.

DSST was formed by CYLINK for the purpose of focusing CYLINK's considerable spread spectrum technology, marketing and regulatory expertise on the research, development and experimental deployment of PCS products and services. CYLINK's and DSST's research, development and experimentation is led by Dr. Omura, who has co-authored three volumes on spread spectrum technologies, has published numerous papers and treatises on the application of spread spectrum and Code Division Multiple Access

("CDMA") technology to PCS and is a recognized expert in the field.<sup>10</sup> Dr. Omura addressed the FCC's September 11, 1990 tutorial on "Spread Spectrum for Mainstream Communications."

AMT is an affiliate of Advanced MobileComm, Inc. ("AMI"), one of the largest providers of Specialized Mobile Radio ("SMR") service in the nation. AMI operates regional SMR systems, and supporting sales and service operations in San Diego, California; Raleigh/Durham, North Carolina; Minneapolis/St. Paul, Minnesota; Dallas/Ft. Worth, Texas; Denver, Colorado; and Las Vegas, Nevada, among other locations. AMI has participated extensively in the research, development and deployment of emerging mobile telecommunications technologies, including digital SMR services at 800 MHz, narrowband land mobile services at 220-222 MHz and trunked mobile services below 800 MHz. See Use of the 220-222 MHz Band By Private Land Mobile Radio Services, 6 FCC Rcd 2356, 68 RR 2d 1654 (1991). Through AMI, AMT is well acquainted with the demands of the specialized communications marketplace.

AMT's and AMI's ultimate parent company, FMR Corp., is the nation's largest privately-owned investment management organization. FMR Corp., together with its subsidiaries (collectively "Fidelity Investments"), provides investment, management and shareholder services for retail and institutional

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<sup>10</sup>See J.K. Omura, Spread Spectrum Radios For Personal Communication Services, IEEE Second International Symposium on Spread Spectrum Techniques and Applications (ISSSTA 1992); M.K. Simon, J.K. Omura, R.A. Schultz, and B.K. Levitt, Spread Spectrum Communications, 3 Vols., Computer Science Press, 1985.

investors; provides discount brokerage services; manages and develops real estate; and invests in emerging businesses. Over the years, Fidelity Investments has invested in many small and emerging companies, particularly those engaged in high technology industries. Fidelity Investments was an early investor in MCI, Rolm Corp., Micom Systems, Atari, Banyan Systems, and Datacom Systems, among many other companies.

In the course of their experimental PCS efforts, AMT and DSST independently expressed to the Commission their vision of the United States PCS infrastructure as one that would accommodate the provision of many different services and products, ranging from fully interconnected portable telephone service to more specialized applications.<sup>11</sup> AMT and DSST thus shared the view that given the breadth of new wireless services becoming available in Europe and elsewhere and the certainty that other, as yet undefined, services would continue to emerge, there could be no single technology or service that alone would define "PCS."

AMT and DSST recognized the commonality of their approach to developing an optimal PCS marketplace. Perceiving the opportunity to develop a PCS system architecture optimized to serve emerging and specialized marketplaces, AMT and DSST entered

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<sup>11</sup>See Amendment of the Commission's Rules to Establish New Personal Communications Services (Notice of Inquiry), 5 FCC Rcd. 3995 (1990) ("NOI"). Comments of FMR Corp., GEN. Docket No. 90-314 (October 1, 1990); Reply Comments of FMR Corp., GEN. Docket No. 90-314 (January 15, 1991); Reply Comments of Digital Spread Spectrum Technologies, Inc., GEN. Docket No. 90-314 (January 15, 1991).

into cooperative PCS research and development activities designed to blend their technical, regulatory, financial and operational expertise to attain research and developmental synergies otherwise unreachable. The joint efforts of AMT and DSST have culminated in the submission of this Joint Petition For Further Rulemaking seeking implementation of the Specialized PCS Service.

### III. SPECIALIZED PCS SERVICES

In their Joint Comments and Joint Reply, AMT and DSST identified three fundamental elements that characterize Specialized PCS Services. These elements are: (1) customization of service offering, (2) localization of service offering, and (3) need for interference protection. AMT and DSST believe that the confluence of these three elements define a category of specialized services that are either unlikely or unable to be accommodated by the "big" PCS licensees with systems constructed to provide wide area coverage and broad, ubiquitous service offerings or by vendors of unlicensed equipment.

#### 1. Customization of Service Offering

As reflected in the HAI Study attached as Exhibit 1 to this Joint Petition, AMT's and DSST's research has identified a host of prospective PCS applications that require service configured to meet unique niches. These market niches can arise as a result of unique geographic demands, as a result of the criticality of the application, as a result of other specialized customer requirements, or simply as a result of the failure of

other services to adequately accommodate an emerging demand. The HAI Study identifies, among other prospective specialized or niche PCS services, remote telemetry for health care and home care applications, public and personal safety applications, and educational applications.

Moreover, as set forth in Exhibit 2 to this Joint Petition, the Commission has long recognized that ubiquitous communications systems that provide wide area coverage may not adequately address niche or specialized communications needs. To this end, the Commission in addressing expected U.S. wireless communications needs in its Docket 18262 inquiry examining the future use of the 806-960 MHz band found:

the variety of system designs corresponds to the myriad of ... functions into which they are integrated. For example, radio systems serving the communications needs of railroads are not the same as those needed by a metropolitan police department. Also, there are many low power radio systems designed to provide services within manufacturing plants, within building complexes, or at construction sites.

These illustrations show some of the ways in which radio is used and bring out the need for 'flexibility' in designing facilities that will meet the specialized and particular requirements of the user.

These requirements, in our view, can best be met in a climate of competition where there are multiple sources of supply and where eligibles can negotiate individually and independently for the specialized facilities they believe will best serve their purposes.<sup>12</sup>

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<sup>12</sup>Inquiry Relative to the Future Use of the Frequency Band 806-960 MHz, 46 F.C.C. 2d 752 (1974), recon., 51 F.C.C. 2d 945, 33 RR 2d 457, 482-83, further recon., 55 F.C.C. 2d 771, 34 RR 2d 758 (1975).

AMT and DSST believe that the need to accommodate specialized communications needs for emerging PCS services is analogous today to that which served as the foundation for the establishment of the Specialized Mobile Radio service by the Commission in 1975 in the 800 MHz band. The competition among multiple service providers envisioned by the Commission at that time became a vivid market reality as the SMR service provided an entry point into the provision of spectrum-based services for many small businesses and served to fulfill the specialized mobile communications needs for many other small (and large) businesses.

## 2. Localization of Service Offering

The second element that typifies Specialized PCS services is the localized scope of the service. Specialized PCS service areas could include factories, plants, industrial parks, campuses or other areas. Examples of these services are (1) factory and warehouse automation systems, including automatic equipment identification ("AEI") applications, (2) in-prison surveillance and other important needs of the public safety community, and (3) localized intelligent vehicle-highway system ("IVHS") applications. As the Commission recognized in Docket 18262, operators of wide area ubiquitous service networks are unlikely to adequately address niche markets, particularly those whose customer base may be populated largely by small businesses without wide area or multi-regional communications needs. In AMT's and DSST's view, many of these specialized PCS niches are