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FEDERAL COMMUNICATIONS COMMISSION
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EX PARTE

William F. Caton
Acting Secretary
Federal Communications Commission
Mail Stop 1170
1919 M Street, N.W., Room 222
Washington, D.C. 20554

Dear Mr. Caton:

Re: ET Docket No. 94-124, Use of Radio Frequencies Above 40 GHz; CC Docket No. 92-297, Redesignation of 27.5-29.5 GHz

Today, Betsy Granger, Senior Attorney, Pacific Bell Mobile Services, Steve Aspell, Manager, PCS Microwave Relocation, Pacific Bell Mobile Services, Malcolm Ziegler, a consultant to Telesis Technologies Laboratory, and I met with Donald H. Gips, Deputy Chief, and Amy C. Lesch, Telecommunications Policy and Planning Specialist, Office of Plans and Policy, to discuss issues summarized in the attached outlines. Please associate these materials with the above-referenced proceedings.

We are submitting two copies of this notice in accordance with Section 1.1206(a)(1) of the Commission's Rules.

Please stamp and return the provided copy to confirm your receipt. Please contact me should you have any questions or require additional information concerning this matter.

Sincerely,



Attachments (2)

cc: Donald H. Gips
Amy C. Lesch

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Above 40 GHz:

The Case for a Fixed Point to Point
Allocation

November 6, 1995

Commercial Interest

- The interconnection, operation and success of our PCS network will depend on reliable and cost effective intermediate links.
- Each base station in our network will require one or two DS1 (24 - 48 channels) connections. Our initial buildout will involve approximately 2,000 base stations, hundreds of which will be within 2-3 miles of each other, ideal candidates for millimeter wave point to point radio solutions.
- We have a clear and present need for additional spectrum that can be met by appropriate allocations in the above 40 GHz proceeding.



Current Needs

- The long term success of PCS will depend on the availability of reliable and cost effective interconnection facilities.
- The cost of radio interconnection equipment is a function of the quantity required. The quantity required is inversely proportional to the cost.
- An allocation above 40 GHz for point to point services will allow development of more cost effective equipment by increasing demand.

Area Wide Licensing Inhibits Efficient Use of Spectrum

- The recent experience in 38 GHz of area wide licensing has inhibited the efficient use of spectrum. By establishing frequency monopolies based on non-uniform rectangular service areas, the FCC has created mutual exclusivity.
- Traditional link by link licensing , including § 21.100 prior coordination notice and frequency coordination would greatly enhance the reuse of these frequencies. Licensing of individual links will eliminate warehousing and hoarding of spectrum.
- Licensed, but not coordinated, would be another approach. The frequency agility of these radios, coupled with the millimeter wave path losses, could be used to implement efficient spectrum utilization.

Adequate Spectrum for Fixed Microwave Support for PCS Services.

- The Above 40 GHz allocation will help meet the needs of PCS for fixed microwave support services. Many of the traditional bands for back haul services are going to be filled because of the ongoing microwave relocation required for the emerging technologies in the 1850-1990 MHz and 2.1 GHz bands. Frequency congestion is only going to increase as the 16,000 + microwave links in the ET bands move to other frequencies.
- The recent decision by the government to make the 18 GHz band a shared band with the US Government creates a further increases the pressure for new spectrum allocations suitable for short distance backhaul.

Cost Tradeoffs Between Leased Circuits and Fixed Microwave

- All licensed PCS providers are aggressively building their networks at this time. The interconnection networks are designed to tradeoff the cost and benefits of a leased circuit and an owned facility.
- Digital leased circuits can cost from \$200 - \$300 (and up depending on distances) per month, can be installed for \$1000 - \$2000 and can offer up to 99.5 % availability (43.8 hours of outage per year.)
- Digital radios can cost from \$5,000 to \$20,000 (depending on options and frequency band), can be installed for \$1000 and can offer up to 99.999 % availability (5.26 minutes of outage per year.)
- Microwave facilities are also essential in areas where there are no suitable telephone company facilities.

Auctions are not Appropriate for Intermediate Links

- The reasons that the Commission declined to auction intermediate links remain valid. Implementation of Section 309 (j) of the Communications Act - Competitive Bidding, Second Report and Order, Docket No. 93-253, 9 FCC Rcd 2348, paras 41-43 (1994)
 - auctioning “might lead to significant delays in the provisioning of services hindering the development and rapid deployment of new technologies, products and services for the benefit of the public.”
 - “would impose significant administrative costs on the licensees and or the Commission, particularly relative to the likely value of the licenses.”
 - due to frequency coordination, mutual exclusivity is rare.

Technical Standards

- The technical standards for these services should remain as flexible as possible. This will allow the equipment designers the flexibility to use current components or implement new technology as required.
- Increase the limit on EIRP to 40 dBW or 50 dBW to allow full commercial potential to develop rather than adopt current commercial limitations as maximums. A case by case review of EIRP limits would be an unnecessary administrative burden on FCC resources.
- All installations should be subject to RF exposure standards based on controlled environment.

Specific Allocations

- 800 MHz of the proposed 40.5-42.5 GHz allocation should be made available wireless communications for point to point services. This would provide up to 8 pairs of 50 MHz that can be used for interconnection at up to the DS3 (672 channels) level. Users should be able to aggregate 5 MHz blocks as required.
- The 800 MHz of the 47.4-48.2 GHz band should also be channelized into up to 8 pairs of 50 MHz that can be used for interconnection at up to the DS3 level, using 5 MHz blocks as required.
- PBMS now has a clear and present need for short range radio systems. The channelization proposed would available for all wireless service providers.

The Need for Action

- The FCC is in the position of being able to address these issues proactively. As PCS licensees move forward with their deployments, the needs for reliable and cost effective interconnection will become financial imperatives. Allocations for fixed microwave now will allow the timely development of products that meet these needs.
- These bands are currently fallow fields. Prompt action will create economic opportunities and stimulate the commercial adoption of new technologies. Action will enhance the efficient use of the spectrum and serve the public interest.

Conclusion

- The FCC is to be commended for opening this proceeding. The above 40 GHz spectrum has unique characteristics that can be used to serve the public interest in a variety of innovative and commercially attractive ways.
- Prompt action in this docket will allow the US to maintain a competitive advantage in high technology.
- Fixed service allocations will be used to provide reliable and cost effective alternatives to leased facilities and lower the cost of providing advanced wireless services to the public.
- Auctions and wide area licensing will not provide the financial returns or promote efficient spectrum utilization.

Objectives

- Discuss the Commercial Interest in above 40 GHz Allocations for fixed point to point services.
- Demonstrate a need for high capacity, short haul, fixed services.
- Discuss Allocations and Auctions
- Comment on Technical Standards

Global Competition Issues

- The current lack of current PCS interconnection allocations in the millimeter wave bands has placed US manufacturers at a disadvantage in the global marketplace. US based manufacturers are the leading providers of these types of systems throughout Europe, but the lack of a domestic market has reduced the economies of scale and increased the cost of sales. A domestic allocation and wide spread deployment will enhance the vendors global competitiveness and create new jobs in the design, production and installation area. Additional allocations in the 48.5-51.4 GHz and 55.2-58.2 GHz bands would also increase US industry's position in the global market.

Many of the new services which would utilize the 40+ GHz band are still under development

- ❑ We believe that a number of services might utilize this band to the benefit of the public:
 - High-speed wireless data access (i.e. Internet)
 - Wireless videoconferencing
 - Return path for existing video-delivery systems, both wired and wireless
 - New applications not yet developed

- ❑ Equipment to support such services is under development
 - Solid-state devices with sufficient power output are currently being developed for commercial applications
 - Phased-array and other developing antenna technologies are being transitioned from military to commercial applications
 - This equipment will be maturing to the point of commercial viability in 3-5 years

Spectrum valuation is difficult at this time due to the nascent state of service development

- ❑ Propagation characteristics of these frequencies while understood theoretically, need more investigation on a commercial, practical level.
 - It is believed that the potential for frequency re-use will offset the negative impact of rain and free-space attenuation
 - Line of sight issues will drive potential service provider's ability to use this spectrum in different regions of the country
- ❑ The commission should allow technical parameters of services to develop so as not to reduce the value of the spectrum
 - The widest and least restrictive sets of technical rules should be adapted
 - Limiting power levels at this time, will impede development of innovative services which maximize spectrum value
- ❑ The types of services developed should drive licensing procedures and will dictate the appropriateness of auctions

Broadband Uses

- ❑ Inadequate spectrum currently exists for broadband applications as has been demonstrated by the demand for 28 and 38 GHz spectrum
 - The 31 GHz band is unprotected
- ❑ In general, we encourage the Commission not to license this spectrum prematurely, thereby precluding the development of innovative services (1 GHz in 40.5 -42.5 GHz band)
 - Licensing for multiple uses is acceptable
- ❑ Newly allocated spectrum above 40 GHz should be used to provide additional capacity for advanced services
 - We continue to believe that moving LMDS to 40+ GHz from 28GHz will not encourage rapid introduction of wireless multimedia services and will result in additional costs and delays for service providers