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

In the Matter of	)	
	)	
Amendment of Part 2 of the Commission's Rules to Allocation Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems	)	ET Docket No. 00-258
	)	
Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for Use by the Mobile Satellite Service	)	ET Docket No. 95-18
	)	
The Establishment of Policies and Service Rules for the Mobile Satellite Service in the 2 GHz Band	)	IB Docket No. 99-81

VOICESTREAM WIRELESS CORPORATION
REPLY COMMENTS

VoiceStream Wireless Corporation ("VoiceStream") submits this reply in response to the comments filed in this proceeding, in which the Commission is examining frequency bands below 3 GHz to support the introduction of new advanced mobile wireless services, including third-generation ("3G") wireless systems.

I. INTRODUCTION

Spectrum allocation decisions can be difficult when incumbent licensees are involved. The Commission faces competing claims over whom — the incumbent or the industry wanting use of the spectrum assigned to the incumbent — can best use the valuable and scarce resource, and the Commission must necessarily exercise its best predictive judgment. Commission allocation decisions can have enormous ramifications for our economy and for the types of services and capabilities that are made available to American consumers and businesses.

This docket is no ordinary allocation proceeding, however. The situation the Commission faces today is not unlike what it faced in 1993, when it allocated 120 MHz of spectrum to licensed PCS. It is difficult to imagine how different our communications world would be had the Commission not allocated this spectrum to PCS, and instead accepted the argument of incumbent microwave users that they were making better use of the 1.9 GHz band.

The Commission's decision in this docket will determine what kind of advanced wireless services 120-plus million customers will receive and when they will begin receiving them. At issue is whether the commercial mobile radio services ("CMRS") industry will receive the additional spectrum it needs to provide advanced services. The new spectrum must be acquired in a timely fashion. It must be sized to meet the country's short and long term needs. It must correlate to and be compatible with the frequencies used by other nations for similar advanced services. The National Telecommunications and Information Administration ("NTIA") has stated that advanced wireless services will have "a profound affect on electronic commerce."[1] The Council of Economic Advisors has estimated that advanced wireless services will result in a consumer benefit of $53-$111 billion annually.[2]

The allocation decisions that the Commission will make in this docket will have a profound effect on our nation's economy and the ability of the U.S. to maintain a global leadership position in the development of advanced wireless services, especially the wireless Internet. As the NTIA has stated, "[o]ne of the most significant high-tech issues facing the U.S. is to maintain our global leadership role with respect to the next generation of wireless services":

> Third generation wireless is more than one of the most pressing issues of our time. It has major significance for the future of America's global competitiveness

[1] NTIA, "Wireless" Internet: What the 3G Challenge Means for U.S. Competitiveness, "Why 3G?", *available at* www.ntia.doc.gov/ntiahome/threeg/3gintro.htm.

[2] The Council of Economic Advisors, The Economic Impact of Third-Generation Wireless Technology, at 1 (Oct. 2000).

> and ability to protect our traditions of free speech and market principles with respect to the Internet.[3]

The NTIA has emphasized that "the Internet is going wireless, and the United States must continue to be aggressive in the 3G race if we are going to be effective in shaping future policies and maintaining our global leadership position."[4] NTIA has cautioned, however, that the U.S. remains "two years behind many Asian and European countries on 3G services" and that Commission allocation decisions "may significantly affect the United States' ability to compete in the 3G race":

> The race is still in the early stages, but we are going to have to pick up the pace if we wish to remain competitive.[5]

No one can credibly dispute the proposition that the CMRS industry needs more spectrum. Approximately 190 MHz is allocated to CMRS, and this allocation supports service to over 123 million Americans. Customer growth remains strong, with one study predicting that the number of mobile customers will nearly double in the next five years.[6] Customer usage continues to mushroom, with average monthly usage jumping by 40 percent per year.[7] Americans use their handsets more than twice as often as Europeans, yet U.S. carriers have less than half the spectrum holdings of their European counterparts.[8] Additional spectrum is needed simply to accommodate increases in voice usage. Yet more spectrum will be needed to support the robust set of data services that will become available over 3G networks, especially if the Commission wants to make room for an adequate number of competitive 3G networks. Competitive second

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[3] NTIA, "Wireless" Internet: What the 3G Challenge Means for U.S. Competitiveness, "Why 3G?", *available at* www.ntia.doc.gov/ntiahome/threeg/3gintro.htm.

[4] *Id.*

[5] *Id.*

[6] *See* Ericsson Comments at 4, *citing* Strategy Analytics, US Cellular Market Forecast Update, at 16 (March 2001).

[7] *See Sixth Annual CMRS Competition Report,* FCC 01-92, at 22 (July 17, 2001).

[8] *See id.* at 44.

generation ("2G") wireless networks have proven to be immensely beneficial for consumers and the U.S. economy. The critical need for additional CMRS spectrum is graphically demonstrated by the $16 billion CMRS carriers bid in Auction No. 35 for what were relatively modest amounts of spectrum.

VoiceStream believes incumbent licensees — whether amateur, MMDS, MSS, or unlicensed PCS users — when they state that their services are important. But considering the National Interest, whether the average consumer's interests or our nation's future competitiveness in the world economy, the conclusion is inescapable that significant additional spectrum must be allocated to 3G and that, as a result, some incumbents must be relocated.

II. VOICESTREAM SUPPORTS THE 1.7/2.1 GHz PAIRING PLAN

In an ideal world, each country would allocate the same spectrum frequencies for the same uses. The benefits of "global harmonization" are enormous. Global harmonization would reduce both service and handset prices for consumers (because consumer devices and network equipment could be designed for a global market), would accelerate the provision of new services in all countries, and would facilitate international roaming.[9] While some progress is being made to harmonize spectrum allocation in the International Telecommunications Union and the World Radiocommunication Conferences ("WRCs"), the fact remains that countries like the U.S. have already allocated significant chunks of spectrum to different services, resulting in different countries facing different incumbent relocation issues. VoiceStream nevertheless submits that global harmonization should be one of the major factors that the Commission considers in allocating spectrum for advanced mobile services.

[9] *See, e.g.,* VoiceStream Comments, Docket 00-258, at 1-3 (Feb. 22, 2001); VoiceStream Reply Comments, Docket No. 00-258 at 8-9 (March 9, 2001).

Given current allocations in the U.S. and elsewhere, the ideal 3G plan would be to allocate the 1770-1850 MHz band, in addition to those discussed here, to 3G services, because this allocation would match the 2G mobile allocations in many other countries.[10] VoiceStream agrees with Nortel and Siemens that the alternate 1.7/2.1 GHz plan discussed below does "not maximize the potential 3G use of existing worldwide 2G and 3G bands."[11] But the approach that Nortel and Siemens advocate — the Commission should postpone 3G allocations while it works with NTIA and the Department of Defense to open the 1770-1850 MHz band — is not workable. It is apparent that the 1770-1850 MHz band will not be available for a decade or longer, but the need for a 3G allocation exists today.

VoiceStream agrees with Nokia that it is time for industry and the government to examine "realistic options," options that would make available a significant amount of spectrum in the near future.[12] Given the available options, there appears to be only one alternative that satisfies these objectives: the pairing of 60 MHz in the lower end of 1710 – 1850 MHz band with the 2110 – 2170 MHz band. This plan would allocate 120 MHz of new spectrum for 3G. In addition, the 1.7 and 2.1 GHz bands are consistent with 2G/3G allocations worldwide.[13] One of the important benefits of this plan, Ericsson notes, is that it would "save U.S. consumers up to one billion dollars annually compared to a non-harmonized spectrum allocation."[14]

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[10] It is expected that the 2G limitation will be removed in Europe and elsewhere in the future, so that 3G networks can also use these bands. *See* Nokia at 2. However, many efficiency benefits can be realized even if different countries use the band for 2G or 3G services.

[11] Nortel Comments at 2. *See also* Siemens Comments at 3.

[12] *See* Nokia Comments at 1.

[13] A 2110-70 MHz allocation would be consistent with the 3G systems already licensed in Europe and Asia, and a 1710-70 MHz allocation would be consistent with the European DCS-1800 mobile transmit spectrum allocation.

[14] Ericsson Comments at 9.

As importantly, the 1.7/2.1 GHz pairing plan could be implemented in the reasonably near future. Given the amount of spectrum that would be made available (2x 60 MHz), the number of incumbents that must be relocated is rather modest, and includes the following:

- Voluntary arrangements would need to be made with the government systems that are exempt from the mandatory relocation of the 1710-55 MHz band so that the band can be used nationwide for 3G service.[15]
- Arrangements would need to be made with the Department of Defense's ("DoD") telemetry, tracking and command and other DoD systems that currently use the 1755-70 MHz band, which Motorola suggests may be feasible.[16]
- MMDS licensees must be relocated from the 2150-62 MHz band, and MMDS licensees recognize that the "national interest" may require their relocation.[17]
- The Commission must reallocate five MHz (2165-70 MHz) from MSS spectrum that has not yet been licensed.

The NTIA recently indicated that it will focus its near term efforts in examining this 1710-70/2110-70 MHz plan, and it expects to publish a feasibility report in the spring.[18] The plan has already received widespread support from equipment vendors (including Ericsson, Motorola, Nokia, Qualcomm) and service operators (including AT&T Wireless, Cingular, and Verizon Wireless). CTIA and TIA have also endorsed this proposal.[19] Given that the 1770-1850 MHz band will likely not be available for a decade, VoiceStream agrees that the 1.7/2.1 GHz plan is the most attractive available plan, and the Commission and NTIA should examine the plan expeditiously. Indeed, it may be the only plan where sizable amounts of spectrum can be put to 3G use in the near future.

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[15] *See* Verizon Wireless Comments at 5-6; Motorola Comments at 7-8.

[16] *See* Motorola Comments at 8-12.

[17] Ad Hoc MDS Alliance Comments, at 4. The FCC should consider relocation cost recovery after it makes its allocation decisions. Given the complexity of the issues, it is better to take one step at a time.

[18] *See* NTIA, Statement Regarding New Plan to Identify Spectrum for Advanced Wireless Mobile Services (3G) (Oct. 5, 2001), *available at* www.ntia.doc.gov/ntiahome/threeg/3gplan_100501.htm.

[19] Although the 1710-1770 MHz band is receiving the most attention, some accommodation (*i.e.,* moving the 60 MHz block up in the spectrum) may be needed for government systems that cannot be relocated to frequencies above 1770 MHz.

It is important that the Commission move *post haste*. As the Economic Council of Advisors has stated, "[e]ach year of delay in introducing 3G will deprive consumers of the surplus that technology will generate":

> Perhaps the most important cost of delay is the forgone benefits from the creation of internationally competitive industry clusters dedicated to 3G products and services. . . . [T]hese clusters are already developing in Finland and elsewhere. The most important providers of wireline Internet services – firms like AOL, Amazon.com, Yahoo!, and eBay – are located in the United States. For U.S. firms to develop similar leadership in wireless technologies, it is essential that the supporting institutions be developed as quickly as possible.[20]

III. IT IS TIME FOR THE COMMISSION TO BEGIN DEVELOPING PHASE II OF A 3G SPECTRUM ALLOCATION PLAN

The Commission has acknowledged that it "must aggressively work to make more spectrum available," especially for emerging technologies such as 3G, because new wireless technologies "contribute substantially to economic growth in this country."[21] The 120 MHz that would be allocated with the 1.7/2.1 GHz plan discussed above is less spectrum that what the ITU has estimated will be needed for 3G services. Accordingly, while the Commission should initially focus its resources on implementing the 1.7/2.1 GHz plan, it should concurrently begin planning for a later 3G allocation, in the likely event that additional 3G spectrum will be needed in the future. VoiceStream submits that the Commission's focus for 3G Phase II should be on three bands: the DoD band, the MSS band, and the ITFS/MMDS band.

A. The DoD Band (1770-1850 MHz)

The Department of Defense has made apparent that its 1770-1850 MHz band will not become available for commercial use in the near future. Nevertheless, given 2G allocations in other countries, allocations that will likely be converted to 3G use, this DoD band remains a

[20] The Council of Economic Advisors, The Economic Impact of Third-Generation Wireless Technology, at 14 (Oct. 2000).

promising band for a future 3G allocation in the U.S. VoiceStream therefore encourages the Commission to work with NTIA and DoD to begin assessing the type and amount of replacement spectrum that DoD would require if it eventually agreed to relocate from the 1770-1850 MHz band. With such an assessment, the Commission could consider future DoD needs as it makes additional allocation decisions such as those discussed below.

B. The MSS band (1990-2025 and 2165-2200 MHz)

In its NPRM, the Commission proposes that "ten to 14 megahertz of MSS spectrum be reallocated for advanced wireless services within the next year" and asks whether spectrum that MSS licensees abandon should be reallocated as well.[22] VoiceStream agrees that the five MHz of spectrum needed for the 1.7/2.1 GHz plan discussed above (2165-70 MHz) should be reallocated immediately for advanced 3G services. VoiceStream further submits that the Commission needs to reexamine its entire allocation of spectrum to mobile satellite services ("MSS"), rather than examine only the MSS spectrum that is abandoned.

The Commission has asked in another pending proceeding whether "too much spectrum has been allocated for MSS."[23] There can be little debate over the answer once the facts are reviewed:

Efficiency of Spectrum Use

	Satellite Carriers	Terrestrial Carriers
Total Spectrum Allocated	171 MHz[24]	190 MHz[25]

[21] *Spectrum Policy Statement,* 14 FCC Rcd 19868 ¶ 1 and 19872-93 ¶ 14 (1999).

[22] *See Allocation of Spectrum for Advanced Wireless Services NPRM* at ¶¶ 22 and 24.

[23] *MSS Terrestrial Use NPRM,* Docket No. 01-185, FCC 01-225, at ¶ 28 (Aug. 17, 2001).

[24] The FCC has allocated 68 MHz for L-Band systems (1525-59 and 1626.5-1660.5 MHz); 35 MHz for Big LEO systems, (1610-1626.5 and 2483.5-2500 MHz); and 70 MHz for 2 GHz systems (1990-2025 and 2165-2200 MHz).

[25] This includes 50 MHz of cellular, 120 MHz for licensed broadband PCS, and an estimated 20 MHz for the SMR spectrum that Nextel uses in its services.

Total Customers	750,000 (globally)[26]	123,000,000 (U.S. only)[27]
Customers per MHz	4,386	648,000

VoiceStream certainly does *not* contest the important role that MSS systems can play in providing service to remote and insular areas not presently served by terrestrial-based networks. Nevertheless, the potential customer base for U.S. MSS systems is small (one or perhaps two million), and 171 MHz of spectrum clearly is not needed to provide advanced satellite services to a market of this size. The Commission should therefore reevaluate the total amount of spectrum that MSS systems need to serve their potential customer base, and then reallocate excess amounts to terrestrial use — whether 3G or the incumbent relocation needed for 3G (*e.g.,* use by DoD).

C. ITFS/MMDS Bands (2150-62 and 2500-2690 MHz)

Instructional Television Fixed Service ("ITFS") and Multichannel Multipoint Distribution Services ("MMDS") licensees have collectively been allocated a total of 202 MHz of spectrum. As noted above, 12 MHz of spectrum (2150-62 MHz) is needed to implement the 1.7/2.1 GHz 3G plan. VoiceStream appreciates that the Commission recently took the remaining 190 MHz of ITFS/ MMDS spectrum "off the 3G table."[28] Nevertheless, the Commission should reconsider this decision because this 190 MHz of spectrum could be used far more efficiently and intensely for 3G services, and this 3G use would have far larger positive ramifications for our nation's economy.

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[26] Mobile Satellite Users Association Comments, Docket No. 01-185, at 3 (Oct. 22, 2001)("By the end of 2,000, there were close to 750,000 mobile satellite terminals commissioned for operation around the globe.").

[27] *See* www.wow-com.com.

[28] *See First Wireless Advanced Services Order,* Docket No. 00-258, FCC 01-256 (Sept. 24, 2001).

VoiceStream does *not* contest the importance of the services provided by ITFS and MMDS licensees. Nevertheless, the services they provide are *fixed*, and the same services can be (and are being) provided using cable or optical fiber. Indeed, one would think that educational institutions would receive a more reliable and robust service and interactive service if they used optical fiber rather than ITFS spectrum.

MMDS licensees use the spectrum for fixed Internet services that compete with wired DSL and cable modem services. The viability of the MMDS industry is open to question, given Sprint's recent announcement that it is suspending further MMDS operations. Nevertheless, the other major MMDS provider, WorldCom, asserts that there will be 3.7 million MMDS customers in 2005.[29] However, even assuming this rosy forecast, MMDS licensees would still not be using their spectrum intensely:

Efficiency of Spectrum Use

	MMDS Providers	CMRS Carriers
Total Spectrum Allocated	202 MHz	190 MHz
Projected Customers in 2005	3,700,000[30]	181,000,000[31]
Customers per MHz	18,000	953,000

Given that ITFS and MMDS licensees do not require radio spectrum for their services (because the services are fixed and can be provided using wired technology) and given that these licensees are not intensely using the vast spectrum available to them, VoiceStream submits that the Commission has an obligation to consider this 190 MHz as part of its investigation into a future, Phase II 3G allocation.

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[29] WorldCom Comments at 3 n.4, citing a recent study by Jupiter Media Mextrix.

[30] *See id.*

[31] *See* The Strategis Group, U.S. Cellular Marketplace: Outlook and Forecasts, at 14, Figure 4.1 (Feb. 2001).

VoiceStream also appreciates that the Commission recently added a mobile allocation to the ITFS/ MMDS band, which would enable ITFS/MMDS licensees to sell their spectrum to firms interested in using the frequencies for 3G services. This development, though perhaps attractive in theory, is not workable in practice. Given the number of ITFS and MMDS licensees, it would be extremely difficult for even one firm, much less several firms, to assemble a nationwide 3G band, and the interference problems between incompatible CMRS and ITFS/MMDS services would doom such an effort in any event. Given the economics of the CMRS business (wireless handsets, data appliances and network equipment must be produced in large quantities to achieve prices that consumers will pay), the 2500-2690 MHz band will not be a realistic alternative unless and until the Commission makes a national 3G allocation in this band.

VoiceStream wholeheartedly agrees with AT&T Wireless that it is time for the Commission to adopt "a comprehensive 3G strategy."[32] A comprehensive plan would address the immediate needs of the CMRS industry, but would also develop a framework to meet the longer-term needs of industry. Difficult decisions will undoubtedly need to be made. But the Commission must remain focused on the future competitiveness of our nation's economy and on the impact on American consumers. As VoiceStream noted at the outset, imagine what our world today would be like if the Commission did not allocate PCS spectrum because it succumbed to political pressure brought by incumbent microwave users. The impact of the Commission's 3G decision will be even more pronounced for the American consumer and the national economy unless the Commission takes decisive action along the lines advocated by VoiceStream.

[32] AT&T Wireless Comments at 2. VoiceStream further applauds Ericsson for proposing a three-phase plan that would be implemented over time. See Ericsson Comments at 2-3.

IV. CONCLUSION

For all the foregoing reasons, VoiceStream respectfully requests that the Commission, in conjunction with the NTIA, promptly allocate the 1710-70 and 2110-70 MHz bands to advanced 3G services, so that relocation recovery proceedings can commence forthwith and so that newly allocated spectrum can be put to use as soon as it becomes available. The Commission should also begin planning for an additional allocation of 3G spectrum if, as is highly likely, continued consumer demand requires yet additional spectrum.

Respectfully submitted

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