

BEFORE THE
Federal Communications Commission

WASHINGTON, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
)
Redesignation of the 17.7-19.7 GHz Frequency) IB Docket No. 98-172
Band, Blanket Licensing of Satellite Earth) RM-9005
Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz) RM-9118
Frequency Bands, and the Allocation of)
Additional Spectrum in the 17.3-17.8 GHz and)
24.75-25.25 GHz Frequency Bands for)
Broadcast Satellite-Service Use)

To: The Commission

**REPLY COMMENTS OF
WINSTAR COMMUNICATIONS, INC.**

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SUMMARY

Similar to the conclusions adopted in the recent 36-51 GHz proceeding, the Commission should adopt a spectrum management policy at 18 GHz based on band segmentation which protects incumbent licensees and provides for the reasonable, efficient growth of the terrestrial and satellite services. Grandfathered FS systems should retain reasonable system modification rights, and must receive reasonable compensation for any relocation. Exclusive FS relocation spectrum should be designated in the millimeter bands (*i.e.*, above 17 GHz) and must account for reasonable FS growth.

WinStar supports other commenters to the effect that the Commission should: (1) adopt a band plan based on band segmentation; and (2) adopt proven principles for the relocation of FS facilities. In addition, WinStar agrees with other commenters recommending rechannelization of exclusive FS spectrum, limited sharing with MSS/FL, and interference standards to protect grandfathered systems.

The FCC should continue in the 18 GHz proceeding to adopt spectrum management and allocation policies based primarily on exclusive allocations for each service, which in turn provide the proper incentives for all parties to reach the highest and best use of the spectrum. Without a sound long-term strategy, competing interests will pursue ineffective and inefficient solutions that will lead to continuous disruption and conflict.

As WinStar continues to build out its Wireless FiberSM network, it will increasingly rely on links in the millimeter bands to provide competitive local exchange, interexchange, high-speed data transmission, video and other services. The Commission's goal of fostering competition in the telecommunications market depends on adequate allocations of spectrum for these and other purposes, thereby allowing cost-effective and timely solutions to end user's needs.

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To: The Commission

REPLY COMMENTS OF
WINSTAR COMMUNICATIONS, INC.

WinStar Communications, Inc. ("WinStar") respectfully submits the following
Reply Comments in response to the instant *Notice of Proposed Rule Making* ("Notice").^{1/}

^{1/} 63 Fed. Reg. 54100 (October 8, 1998). The date for filing Reply Comments was extended from December 7 to December 21, 1998 by Order, Chief, International Bureau, November 2, 1998 (DA 98-2231).

I. REPLY COMMENTS

A. **The Commission Should Adopt a Band Plan that Provides for Band Segmentation and Adequate Exclusive Spectrum for FS and FSS**

1. The comments filed by numerous parties in this proceeding include specific, clearly incompatible band plans. WinStar does not intend to address each and every band plan, but instead comments on aspects of certain plans that are of particular concern.

2. The Comsearch band plan,^{2/} which proposes to make sharing between Fixed Service ("FS") and Geostationary Orbit Fixed Satellite Service ("GSO/FSS") co-primary in the 17.7-18.55 GHz band, is clearly incompatible with the Commission's proposal to implement band segmentation, and if adopted, would impose economic and technical inefficiencies that would degrade the usefulness of the spectrum across-the-board. Coordination difficulties which would necessarily arise as a result of such sharing would be both time consuming and expensive to resolve. In addition, coordination would motivate users to disrupt sensible, market-based deployment plans, and instead deploy systems simply to protect spectrum rights through a "first-come, first-served" approach required by coordination schemes. No licensees commented in favor of the sharing approach favored by Comsearch. Users understand that it adds additional and unnecessary complexity to an already difficult situation.

^{2/} Comments of Comsearch at pp. 3-6.

3. KaStar’s proposal to shift CARS/PCO spectrum from 18.142-18.58 GHz to 18.112-18.55 GHz ^{3/} is inappropriate because, as the Commission has previously recognized and clearly articulated, “due to the difficulties of coordinating these point-to-multipoint operations with typical point-to-point terrestrial fixed service operations, these services have generally been licensed in separate portions of the 17.7-19.7 GHz band.”^{4/} KaStar’s proposed band plan, if adopted, would represent an unacceptable erosion of an additional 60 MHz of vital paired frequencies for FS.

4. The TIA’s Fixed Section band plan^{5/} goes a long way towards meeting the needs of all FS users, although *where* the Commission allocates spectrum for FS (*i.e.*, whether in the 18 GHz band or another band) is of less concern to WinStar than the *adequacy* of the spectrum. What is of paramount importance is that the Commission explicitly designate sufficient spectrum for current and future FS use, and that it make this allocation exclusive to FS.

5. One aspect of the FCC’s proposed band plan that is contrary to band segmentation is sharing of the 17.7-17.8 GHz band by FS and BSS.^{6/} The FCC clearly recognizes the

^{3/} Comments of KaStar Satellite Communications Corp, *et al.* (“KaStar”) at pp. 9-10.

^{4/} *Notice* at ¶ 27.

^{5/} Comments of the Fixed Point-to-Point Communications Section, Wireless Communications Division of the Telecommunications Industry Association (“TIA’s Fixed Section”) at pp. 3-4.

^{6/} Comments of AirTouch Communications, Inc. (“AirTouch”) at 8-9 and TIA’s Fixed Section
(continued...)

difficulty when it stated "it is not clear that sharing between BSS and terrestrial fixed services is feasible in the 17.7-17.8 GHz band" ^{2/} WinStar agrees with DirecTV, TIA's Fixed Section and numerous other commenters that complete band segmentation is necessary. ^{8/} DirecTV's suggestion to make FS and BSS co-primary status in 17.7-17.8 GHz until April 1, 2007, and then to make FS secondary thereafter, implicitly recognizes the impracticality of sharing this spectrum. ^{9/} The Commission must continue allocating this spectrum on a primary and exclusive basis to the FS. The FS already uses this band, and the need for this spectrum for BSS is unproven at this point. ^{10/}

6. WinStar is encouraged by the recent Commission action in the V-band at 36.0-51.4 GHz, by which the FCC reaffirmed the importance of band segmentation. ^{11/} WinStar is authorized to operate numerous links in the 38 GHz band. The Commission announced its adoption of a spectrum band plan that will provide exclusive primary designations for fixed

^{6/} (...continued)
at p. 6.

^{7/} Notice at ¶ 79.

^{8/} See Comments of DirecTV Enterprises, Inc. ("DirecTV") at p. 7 and TIA's Fixed Section at p. 12 and Appendix A, p. 4.

^{9/} Comments of DirecTV at p. 10.

^{10/} Comments of Teligent, Inc. ("Teligent") at p. 7; American Petroleum Institute ("API") at p. 11; and SkyBridge L.L.C. ("SkyBridge") at p. 3.

^{11/} Commission Adopts Spectrum Plan for "V" Band at 36.0-51.4 GHz, Facilitating Development of Broadband and Other Commercial Services (IB Docket No. 97-95)(Report No. IN 98-70)(Dec. 17, 1998).

satellite and wireless services, and also designated spectrum for the exclusive use of Government and non-Government systems, further reducing the potential for interference.^{12/} The Commission should apply that same regulatory philosophy in this proceeding by similarly providing for band segmentation in the 18 GHz band.

B. Rechannelization of FS Spectrum is Necessary to Support Narrowband and Wideband Users

7. FS commenters have set forth plans to rechannelize FS spectrum for both narrowband and wideband authorizations in spectrum allocated for FS point-to-point systems.^{13/} WinStar supports the concept of rechannelization to the extent that it will allow greater use of the band and encourage development of more efficient equipment. Rechannelization may result in increased utilization of the 18 GHz band, however, as narrowband FS users relocate to rechannelized FS spectrum. Increased usage for narrowband purposes will expedite spectrum exhaustion, particularly in urban areas. The Commission should incorporate this factor into its assessment of FS spectrum requirements.

^{12/} Id.

^{13/} Comments of Fixed Wireless Communications Coalition (“FWCC”) at p. 15 and TIA’s Fixed Section at p. 15.

C. Coexistence with MSS/FL Is Possible Only If Geographic Separation Limits Are in Place

8. In its Comments addressing the issue of MSS/FL coexistence with FS in the 19.3-19.7 GHz band, WinStar proposed that dual service operation could only be possible if the number of MSS/FL sites were limited and feeder links were located in remote areas.^{14/} WinStar notes with interest that another commenter proposed making MSS/FL secondary to FS at 19.3-19.7 GHz or co-primary with NGSO/FSS at 18.8-19.3 GHz,^{15/} WinStar concurs with TIA's Fixed Section Comments that suggest requirements of 360 degree integral shielding and coordination to further limit interference difficulties.^{16/} To the extent that MSS/FL sites are remote, shielded, coordinated, and limited in number, this type of controlled coexistence by geographical segmentation may be possible.

D. Grandfathering FS Is Necessary and Appropriate

9. In its Comments, WinStar emphasized the importance of grandfathering FS.^{17/} Many satellite commenters have suggested that grandfathering should apply to licensed systems

^{14/} Comments of WinStar at p. 10, n.6.

^{15/} See, e.g., Comments of SBC Communications, Inc. ("SBC") at p. 5

^{16/} Comments of TIA's Fixed Section at pp. 15-16.

^{17/} Comments of WinStar at pp. 11-12.

only, and that pending applications should be dismissed.^{18/} WinStar opposes this position because it is punitive and unfair. It does not substantively address the overall issue of grandfathered systems, and is contrary to the FCC's proposal in the *Notice* "to grandfather terrestrial fixed service operations that have been either licensed or for which applications are pending, as of the release date of this *Notice*, for any band that is proposed to be designated for fixed satellite service use on a primary basis."^{19/} Such applicants relied on existing Commission rules and procedures and have a legitimate expectancy of licensure. They already have devoted considerable time and resources to planning and filing applications. Although applicants ultimately may be subject to relocation in accordance with the outcome of this proceeding, their applications were filed with a reasonable expectation of grant. If granted, they may well be able to operate an 18 GHz system for several years or more as this proceeding moves towards final order. If the Commission decides now to reverse course and dismiss pending applications, at a bare minimum the pending applicant should be given priority access to 18 GHz spectrum or whatever relocation spectrum is eventually made available to FS.

10. Several commenters also suggested provisions to limit grandfathering in the 18 GHz band.^{20/} For example, Teledesic suggested grandfathering FS until January 1, 2001 with

^{18/} See, e.g., Comments of Lockheed Martin Corporation ("Lockheed Martin") at pp. 10-12.

^{19/} *Notice* at ¶ 40.

^{20/} See, e.g., Comments of Teledesic LLC ("Teledesic") at pp. 12-15; Loral Space & Communications Ltd. ("Loral") at pp. 4-7; Lockheed Martin at pp. 10-13.

voluntary relocation; mandatory relocation from January 1, 2001 to January 1, 2004; and secondary status for FS after January 1, 2004.^{21/} WinStar suggests a somewhat different approach. The Commission should instead identify the amount of spectrum lost by the FS in the 18 GHz band, and then identify an equal, or depending on propagation characteristics, greater amount of comparable, immediately available spectrum to which FS can relocate. A sunset provision cannot even begin to be considered, much less enacted, for grandfathered FS systems until alternative, comparable spectrum has been identified and made available to the FS for licensing. Because of the characteristics of the current 18 GHz systems supporting WinStar's competitive local exchange operations (*e.g.*, small dish size, high capacity links), the relocation spectrum must be in the millimeter wave bands (*i.e.*, above 17 GHz) and comparable. The Commission must accommodate both current usage and anticipated future expansion.

11. If the Commission is unable to find immediately available, comparable relocation spectrum for 18 GHz FS users, it should create "clear" spectrum for relocation by imposing relocation requirements on existing licensees in other suitable bands. Under this plan, as the effect of relocation cascades into other bands, satellite operators in the 18 GHz band would be required to pay relocation costs for both 18 GHz incumbents and any subsequent replacement band incumbents. Having satellite operators pay the cost of multiple relocations would result in the full economic cost being borne by the appropriate party — the new entrant. The beneficial effect of such a requirement would be threefold: first, it would lead parties to economically

^{21/} See Comments of Teledesic at pp. 14-15.

efficient solutions; second, it would limit the number of multiple relocations because such costs would be higher; and finally, it would result in minimal disruptions to current users who relied on existing Commission rules in constructing and operating their systems.

E. Interference Standards Governing and Protecting Grandfathered Systems Must Be Developed

12. In bands where FS is grandfathered and FSS is slated for deployment, the FCC is urged to develop meaningful interference standards. The FS operations will create "exclusion zones" where FSS cannot reasonably deploy. WinStar agrees with the comments of TIA's Fixed Section concerning the interference of satellite transmissions with the FS. Specifically, it was noted that a degradation of FS receiver threshold due to proposed satellite power flux density ("PFD") limits would reduce system availability to unacceptable levels.^{22/} Fixed wireless access ("FWA") operators such as WinStar design system availability to compete in the marketplace with wireline carriers. FWA customers demand system availability of 99.999%, or greater, based on path length limitations and antenna dish size constraints. At 18 GHz, periods of unavailability (*e.g.*, 0.001%) are generally attributable to propagation phenomena and, in particular, rain fade. Any other sources of unavailability, such as excessive satellite PFD limits, would quickly reduce system performance to unacceptable levels.

^{22/} Comments of TIA's Fixed Section at pp. 6-10.

13. Because of system parameters somewhat unique to WinStar's system (99.999% availability, 10^{-18} bit error rate), WinStar's 18 GHz links may be particularly vulnerable to interference from aggregate or singular systems. Many of WinStar's building-to-building 18 GHz links have concomitantly high elevation angles. These high elevation angles contribute to higher interference potential for three reasons: (1) the PFD limits for satellites at higher elevation angles above the horizon are generally higher than the PFD limits for lower elevation angles; (2) FS receiver dish antennas "aimed" toward the sky have lower discrimination to aggregate satellite signals from multiple satellites than antennas oriented parallel to the Earth's surface; and (3) unacceptable FS transmissions into FSS earth stations will increase.^{23/} While these elevation angles may be more typical of WinStar's short 18 GHz links than for "normal" microwave links, they are also typical of any microwave link where the difference between transmit and receive antenna height may be relatively large, compared to the path distance.

14. WinStar believes that in-band sharing between the satellite services and grandfathered FS should be based on acceptable performance standards. As discussed in TIA's Fixed Section Comments, the PFD limit of $-118 \text{ dB/m}^2/\text{MHz}$ proposed in the Notice exceeds the short term interference criteria proposed by the satellite industry.^{24/} Moreover, as further pointed out, this excessive level, based on satellite system simulations, may occur as frequently as every

^{23/} Contrary to the Comments of Teledesic (fn. 10, p. 5), it is not accurate that "FSS is always the victim of interference with FS and never the cause." As explained herein, satellite downlink transmissions have the potential to cause interference to FS systems.

^{24/} Comments of TIA's Fixed Section at pp. 6-10.

40 minutes.^{25/} Stringent system performance requirements mandated by the emerging FWA market, and supported by 18 GHz microwave links, should not be compromised by allowing unacceptably high PFD limits from satellite services.

15. Given the “permanence” of satellite systems once they are deployed, operators of grandfathered FS systems receiving unacceptable interference must have the ability to request relocation, under reasonable terms, at any time. Obviously, an FS licensee will be hard pressed to relocate a deployed FSS system should interference or growth problems develop. Prior to the deployment of any FSS system in FS “grandfather” bands, interference and system growth standards which define the elements that trigger the FS licensee’s right to relocation should be developed.

F. Incumbents Should Be Relocated to Exclusive FS Spectrum With Reasonable Compensation

16. Various bands were proposed by commenters for designation as relocation spectrum for FS licensees including 6 and 11 GHz bands,^{26/} 23 GHz band,^{27/} and the 24 GHz band.^{28/} Consequently, WinStar strongly urges the Commission to designate in this rulemaking

^{25/} Comments of TIA's Fixed Section at p. 7.

^{26/} Comments of AirTouch at p. 5.

^{27/} Comments of Comsearch at p. 6.

^{28/} Comments of WinStar at pp. 14-15.

proceeding adequate exclusive spectrum for FS relocation, and requests that the Commission, in making its designation, carefully evaluate the propagation characteristics and other differences between the 18 GHz band and other bands when assessing possible relocation spectrum. Such characteristics will also play a critical role in reasonably calculating relocation reimbursement costs.

17. Factors to be considered by the Commission include spectrum characteristics (*e.g.*, increased rain attenuation); equipment availability, performance and specifications; restrictive local laws (municipal and zoning laws which prohibit larger antennas); special use permit requirements; and added financial costs associated with different bands (*e.g.*, equipment cost may be higher in congested bands where there will be limited market for new equipment). To best resolve these issues, WinStar suggests the FCC designate as relocation spectrum a clean block of millimeter band spectrum as close as possible to 18 GHz which will provide a long-term solution and eliminate the repeated costly and disruptive relocation of FS users.

18. As spectrum becomes ever more scarce, the identification of adequate relocation spectrum will become increasingly difficult. The relocation rules set forth in the *Emerging Technologies*^{29/} and *Cost Sharing*^{30/} proceedings are a good starting point from which to

^{29/} *Redevelopment of Spectrum to Encourage Innovation in the Use of New Telecommunications Technologies*, ET Docket No. 92-9.

^{30/} *Amendment of the Commission's Rules Regarding a Plan for Sharing the Cost of Microwave*
(continued...)

formulate relocation rules for the 18 GHz band. WinStar also notes that any Commission decision regarding relocation in the 18 GHz band be consistent with the Commission's recent decision in the 2.1 GHz proceeding, wherein the Commission decided to require MSS licensees to bear the cost of relocating incumbent licensees.^{30/} Relocation rules for the 18 GHz band should similarly require new entrants to bear the cost of relocating incumbent FS licensees. These rules should also include good faith guidelines, reimbursement rules, and voluntary and mandatory negotiation periods. In response to Teledesic's proposal for a sunset period, WinStar believes that only after the Commission identifies unencumbered spectrum for relocation and establishes an equitable relocation cost reimbursement scheme, should a sunset period even begin to run. To do anything less would place unfair burdens on FS incumbents.

19. In its comments, Teledesic suggested basing relocation payments on the unamortized (depreciated) cost of existing equipment plus 2% of hard costs for engineering and

^{30/} (...continued)
Relocation, WT Docket No. 95-157.

^{31/} *Memorandum Opinion and Order and Third Notice of Proposed Rule Making and Order, 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 at ¶ 13 ("Third Notice"). In the *Third Notice*, concerning relocation of FS new reallocated MSS and auction spectrum, the Commission has proposed modification of the manner in which the *Emerging Technologies* and *Cost Sharing* proceedings were applied to PCS, in an effort to accommodate differences between the bands. *Third Notice* at ¶ 51. WinStar suggests the Commission consider appropriate relocation and cost sharing mechanisms in the 18 GHz band.

installation.^{32/} In past proceedings, compensation has been based on the cost of equivalent or better replacement equipment — not the depreciated value of existing equipment.^{33/} Commission precedents clearly establish that replacement cost — not depreciated value — is the appropriate means to accomplish the goal of accommodating new entrants while making incumbent users whole.

II. CONCLUSION

20. WinStar urges the Commission to continue to foster an environment where both terrestrial fixed services and satellite services can thrive. The proposals set forth in these Comments should enable WinStar to continue to provide reliable high-speed wireless systems where demand for compatible local exchange and broadband services is clearly demonstrated and growing.

^{32/} See Comments of Teledesic at p. 16.

^{33/} See *First Report and Order and Further Notice of Proposed Rule Making, Amendment to the Commission's Rules Regarding a Plan for Sharing the Costs of Microwave Relocation*, WT Docket No. 95-157, ¶ 34 (concluding that the depreciated value of old equipment should not be a factor when determining comparability).

WHEREFORE, THE PREMISES CONSIDERED, WinStar Communications, Inc. respectfully urges the Federal Communications Commission to act in a manner fully consistent with the views expressed herein.

Respectfully submitted,

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