Before the
Federal Communications Commission
Washington, D.C. 20554

In the matter of	)	
	)	
Amendment of Parts 25, 74, 78 and 101 of the	)	
Rules regarding Coordination between the Non-	)	
Geostationary and Geostationary Satellite Orbit	)	ET Docket No. 03-254
Fixed-Satellite Service and Fixed, Broadcast	)	
Auxiliary and Cable Television Relay Services in	)	
The 7 GHz, 10 GHz and 13 GHz Frequency Bands	)	
	)	

To: The Commission

JOINT COMMENTS OF THE FIXED WIRELESS COMMUNICATIONS COALITION AND SKYBRIDGE L.L.C.

The Fixed Wireless Communications Coalition ("FWCC") and SkyBridge L.L.C. ("SkyBridge") (together, "the Joint Parties") hereby respond to various matters raised in the *Notice of Proposed Rulemaking* ("*NPRM*") released by the Commission in the above-referenced proceeding on December 23, 2003.[1] Specifically, the Joint Parties address the questions raised by the *NPRM* regarding spectrum sharing among nongeostationary satellite orbit ("NGSO") fixed satellite service ("FSS") gateway earth stations and Fixed Service ("FS") operations in the 10.7-11.7 GHz band. These issues initially were raised and addressed in ET Docket No. 98-206, the main proceeding that developed a regulatory scheme to permit, *inter alia*, the operation of NGSO FSS systems at Ku-band.[2] However, the Commission ultimately decided to defer resolution of these particular matters to the instant proceeding.[3]

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1 FCC 03-318. The *NPRM* was published in the Federal Register at 69 Fed. Reg. 4908 (Feb. 2, 2004).

2 *See NPRM* at ¶ 3.

3 *Id.*

I. BACKGROUND

The central element of the *NPRM*'s discussion of NGSO FSS/FS sharing is a "Joint Proposal" that was submitted to the Commission by the Joint Parties in December 1999 in ET Docket No. 98-206.[4] Representing the culmination of over two years of discussions among the FWCC and SkyBridge, the Joint Proposal set forth a regulatory framework that would afford reasonable flexibility for NGSO FSS operators in establishing their critical Gateway infrastructure, while protecting growth opportunities for FS licensees, particularly in geographic areas in which demand for FS service is highest, both now and in the future.[5]

At the heart of the Joint Proposal is a delicate balance between the competing interests of NGSO FSS operators and FS licensees to be free to install and operate their respective facilities wherever customer demand leads them. In ET Docket No. 98-206, the Commission correctly sought to ensure that the entry of NGSO FSS systems into the 10.7-11.7 GHz band would not unduly hinder the continued use and expansion of FS systems in that band. However, the "exclusion zone" approach that the Commission initially proposed as a means of ensuring continued FS access to the band was demonstrated to be less well suited to achieving that goal than the flexible Growth Zone approach developed by the Joint Parties.[6] As was demonstrated in ET Docket No. 98-206, the Joint Proposal provides specifically tailored protections for FS expansion

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[4] *See NPRM* at ¶¶ 1, 3, 11. *See also* Appendices A and B to the instant comments, which are, respectively: (1) a Letter to Magalie Roman Salas, Secretary (filed in ET Docket No. 98-206), dated December 8, 1999, from Leonard R. Raish, Thomas J. Keller and Jeffrey H. Olson (which set out the Joint Proposal); and (2) a Letter to Magalie Roman Salas, Secretary (filed in ET Docket No. 98-206), dated December 22, 1999, from Leonard R. Raish, Thomas J. Keller and Jeffrey H. Olson (clarifying certain aspects of the December 8, 1999 Joint Proposal in response to an informal staff inquiry).

[5] *NPRM* at ¶¶ 8-10.

[6] *Id.* at ¶ 3.

precisely in those geographic areas in which that expansion is most likely to occur, while still permitting the siting of NGSO FSS Gateways in those areas.[7]

Under the Joint Proposal, should a NGSO FSS operator choose to locate a Gateway in a Growth Zone, a series of special obligations would be imposed on the Gateway. These obligations were carefully crafted to minimize the impact of that Gateway on future FS expansion in that geographic area, while not unduly hampering the ability of the Gateway to operate as needed.[8] However, the Joint Parties contemplated that, depending on the specific facts in a particular case, these additional obligations may prove to be a sufficient disincentive that the NGSO FSS operator would choose to not build a Gateway in a particular Growth Zone.

In short, the Joint Proposal balanced the competing interests of these two services, based upon practical technical considerations and the need for regulatory certainty. The Joint Parties are pleased that the *NPRM* proposes to adopt most of the critical elements of the Joint Proposal.[9] However, at paragraphs 12-14 of the *NPRM*, the Commission also seeks comment on various possible alternatives to certain critical elements of the Joint Proposal.[10] As demonstrated below, these variations on the Joint Proposal would, if adopted, undermine the delicate balance of competing rights, interests and obligations embodied by the Joint Proposal.

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[7] *See* Appendix A at 3-5.

[8] *See id.* at 5-7.

[9] *Id.* at ¶ 11.

[10] *Id.* at ¶¶ 12-14.

II. THE COMMISSION SHOULD NOT DISTURB THE DELICATE BALANCE BETWEEN COMPETING NGSO FSS AND FS INTERESTS CREATED BY THE JOINT PROPOSAL.

A. The Most Practical Means Of Defining Growth Zones On A Fair And Equitable Basis That Provides All Parties With Regulatory Certainty Is To Rely On County Boundaries.

At paragraph 12 of the *NPRM*, the Commission seeks comments on whether a different definition of what constitutes a Growth Zone would be superior to the Joint Proposal's reliance on county boundaries. The Joint Parties acknowledge that the use of county boundaries to define Growth Zones is subject to a variety of criticisms, including: (1) it is a somewhat arbitrary measuring stick (but no more arbitrary than any other solution); and (2) because of the differing size of various counties, inequities may occur, to the possible disadvantage of either FS or NGSO FSS operators, depending on the precise location of a FS or Gateway site within or outside the boundary of a particular county. In short, the Joint Proposal does not offer a perfect solution to the problems that it was intended to address. However, after two years of examining these problems, it appeared to the Joint Parties to be the most rational, efficacious, generally fair, and easily administered solution.

SkyBridge and the FWCC examined at length other possible measures of density of FS deployment to define a Growth Zone, including, for example, selecting a particular number of FS links within a particular number of square miles to define the relevant area. But these alternatives proved to be at least as arbitrary as relying on county boundaries, without any of the countervailing benefits. While more complex definitions of a Growth Zone surely can be devised, no matter how the boundary line for a Growth Zone is drawn, it always will be arbitrary to some extent and there always will be the possibility of an inequitable result, to the disadvantage, depending on the precise facts of a given case, of either the FS license or the NGSO FSS operator.

Given that any line will be arbitrary, the fact that counties are included in the FS licensing data base is of substantial value. It provides clarity and certainty as to

the boundaries of a given Growth Zone and facilitates a determination as to whether a sufficient number of FS channels are operating within those boundaries to warrant the extra measure of protection for FS growth envisioned by the Joint Proposal. Using county boundaries, it was easy to identify which areas met the 30-frequency benchmark for a Growth Zone, and thus identify for both satellite and terrestrial operators the precise scope of their respective rights and obligations. Any movement away from any of the essential elements of this compromise potentially undermines the balance of interests sought to be achieved, including ease of implementation and regulatory certainty for all concerned.

B. The Semi-Annual Growth Zone Lists Are Needed For NGSO FSS Long-Range Planning.

At paragraph 13 of the *NPRM*, the Commission proposes to reject the provision in the Joint Proposal that a list of those counties that qualify as Growth Zones be published every six months. The *NPRM* proposes instead that such a determination be made on a "case-by-case" basis as part of the coordination/licensing process.

The semi-annual issuance of an updated Growth Zone list represents a critical component in the Joint Proposal. It takes a considerable amount of time, money and effort to identify an appropriate parcel of land for a Gateway site, negotiate its purchase, address any zoning or other local regulatory issues, etc. In proposing a semi-annual Growth Zone list, the Joint Parties were attempting to minimize the likelihood that the following might occur: a Gateway site located in a non-Growth Zone county is purchased (at considerable expense), but before the coordination/licensing process has been initiated, enough new FS channels are licensed to that county that it is converted to a Growth Zone, thereby imposing significant new regulatory obligations on the Gateway operator. SkyBridge and the FWCC agreed – after considerable discussion – that

providing the NGSO FSS operator up to a six-month window of regulatory certainty was fair and reasonable.[11]

While this compromise does not eliminate entirely the possibility of the reclassification of a county to a Growth Zone prior to the satellite operator's initiation of the coordination process, the *NPRM*'s proposal of a "real time" determination substantially and unfairly alters the NGSO FSS licensee's calculus, with no material countervailing benefit. If providing six-month updates is considered to be too much of an administrative burden for the Commission, the Joint Parties would have no objection to the Commission's delegation of that responsibility to a private third party. So long as there is one, definitive source for the information, the needed regulatory certainty is provided.[12]

C. The Special Obligations Proposed For Gateways Located In A Growth Zone Should Not Be Extended Beyond The Boundaries Of That Growth Zone.

In Paragraph 14 of the *NPRM*, the Commission suggests, *inter alia*, that it might be appropriate to: (1) require Gateways located in a Growth Zone to extend to certain FS links located some (undetermined) distance outside of that Growth Zone the same special protections as if that link was located in the Growth Zone; and/or (2) impose those obligations on a Gateway that is located outside of a Growth Zone with regard to certain FS facilities located inside a nearby Growth Zone.

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[11] Alternatively, it might be possible for the NGSO FSS operator to begin a "protective" coordination immediately upon identifying a potential Gateway site located in a county in which, *e.g.*, 28 FS links already were in operation. However, the Joint Parties concluded that the better course was not to encourage premature coordination requests (to the potential detriment of planned FS expansion) that ultimately might be withdrawn, but instead to provide the satellite operator a measure of certainty once a site plan was finalized.

[12] In its January 12, 2000 Comments filed in ET Docket No. 98-206 in response to the Joint Proposal, Comsearch volunteered to undertake the task of identifying which counties qualify as Growth Zones. *Id.* at 3.

These sorts of variations on the Growth Zone theme were considered and rejected by SkyBridge and the FWCC for the same reasons discussed above regarding using county boundaries to define Growth Zones. Put simply, whatever distance beyond the county boundary is selected with respect to either protecting a FS site or burdening a Gateway, it is arbitrary, it diminishes regulatory certainty, increases complexity, and unfairly imposes additional, potentially substantial burdens on the NGSO FSS system.

D. The Scope of Special Protection Afforded FS Sites Located At Less Than Full Coordination Distances From A Gateway Should Not be Altered.

At paragraph 14 of the *NPRM*, the Commission proposes to expand the obligations that would be imposed by subsection (c) of the Joint Proposal on a satellite operator who chooses to place a Gateway in a Growth Zone at less than full coordination distance *vis-à-vis* a particular FS system. In such circumstances, the Joint Proposal committed the satellite operator to accepting, in the future, the same level of aggregate interference from the azimuth in question as was present at the time of coordination, regardless of the actual source of that interference.

A critical consideration for this aspect of the Joint Proposal is the fact that, over time, a NGSO FSS Gateway operates on an omnidirectional basis, with varying antenna angles of elevation, and varying degrees of flexibility with respect to frequency selection and satellite diversity. Moreover, this calculus changes as the system matures and traffic loads increase. The Joint Proposal attempts to balance the practical needs of both satellite and terrestrial operators.

Paragraph 14 of the *NPRM* seeks comment on whether the obligation of an FSS operator in a Growth Zone to accept the "same aggregate level of interference" from FS stations in the Growth Zone should include an obligation to accept, *inter alia*, interference from new FS paths -- *i.e.*, from new azimuths at the earth station.

The Joint Proposal provided that a Gateway licensee accepting a certain level of interference from a particular azimuth in order to locate in a Growth Zone "shall

in the future be obligated to continue to accept, *from that specified* azimuth, that same aggregate level of interference from any FS stations."[13] A NGSO FSS operator's capacity to meet additional interference-mitigation obligations is not unlimited. The inherent flexibility of NGSO FSS systems already is highly constrained by varying obligations *vis-à-vis*: (1) GSO systems; (2) other NGSO systems; (3) MVDDS systems; and (4) FS/BAS/CARS systems. NGSO FSS operators must meet these obligations through a complex mix of switching among various satellite and spectrum resources. The *NPRM*'s proposal to oblige the Gateway operator to accept an additional, unknown amount of future interference along unspecified azimuths could materially diminish the flexibility needed by a NGSO FSS operator at a particular site.

Moreover, the full extent of that additional burden might not be known until well after the expenditure of considerable resources constructing the Gateway (not counting the purchase of the land, approximately $20 million) and configuring related terrestrial assets (including fiber and wireless interconnections with terrestrial networks). Further, the precise location and traffic capacities of a given Gateway have a direct impact on the siting and capacities of subsequent adjacent Gateways. Thus, the imposition of a potentially significant, additional burden on one Gateway may have an enormous ripple effect within the terrestrial portion of a NGSO FSS system's overall network. There is no justification for imposing this added regulatory uncertainty on NGSO FSS operators.

However, one of the proposed "modifications" to subsection (c) that is mentioned in paragraph 14 of the *NPRM* is, in the Joint Parties' view, already part of the Joint Proposal. Specifically, the *NPRM* "seek[s] comment on whether the level of impact from future FS applicants, expressed in the [Joint Proposal] as an aggregate level of interference from any FS stations . . . should apply case-by-case to individual transmit frequencies [or] to the aggregate of transmit frequencies operating on a single transmit

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[13] *See* Appendix A at 6, ¶ (c).

path from a [FS] station. . . ". In other words, should the NGSO FSS operator's acceptance of a particular level of interference from a given azimuth assume interference on all potential frequencies.

In fact, it was always SkyBridge's and the FWCC's intent that it would be assumed that the relevant FS station in this scenario is operating across the full band. Subsection (a) of the draft regulation set out in the Joint Proposal states that:

> . . . coordination [of a Gateway in a Growth Zone] shall assume that all FS stations relevant to the coordination are operating on all FS transmit channels in the 10.7-11.7 GHz band.[14]

The Joint Parties always intended this assumption to apply with equal force to the circumstances described in subsection (c).

CONCLUSION

As the result of the foregoing, the Joint Parties request that the Commission adopt the Joint Proposal in full, without material modification.

Respectfully submitted,

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[14] *See NPRM* at ¶ 9.

APPENDIX A

ORIGINAL

EX PARTE OR LATE FILED

December 8, 1999

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DEC - 8 1999

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Via Hand Delivery

Magalie Roman Salas, Secretary
Federal Communications Commission
445 12th St., S.W., Room TW-B204
Washington, D.C. 20554

Re: Written *Ex Parte* Communication in ET Docket No. 98-206

Dear Ms. Salas:

SkyBridge L.L.C. ("SkyBridge"), by its undersigned counsel, and the Fixed Wireless Communications Coalition ("FWCC"), by its undersigned co-chairmen (collectively, the "Parties"), hereby jointly supplement their individual comments in the above-captioned proceeding. As was briefly described in the Parties' November 12, 1999, letter to Dale Hatfield, Chief of the Office of Engineering and Technology ("November 12 Letter"), and as is described in greater detail below, the Parties have, after lengthy negotiations, agreed upon a proposed regulatory structure to govern the shared use of the 10.7-11.7 GHz band by the fixed service ("FS") and nongeostationary orbit ("NGSO") fixed service satellite ("FSS") systems. The parties request that the Commission adopt their proposal as a substitute for relevant provisions set out in the Notice of Proposed Rulemaking ("NPRM")[1/] in this proceeding.

The Parties' proposal differs in several important respects from both the NGSO/FS regulatory scheme set out in the NPRM and from the relevant views previously expressed individually by the Parties in response to the NPRM. The Parties believe that the instant proposal is superior to the NGSO FSS/FS regulatory scheme set out in the NPRM -- in terms of both the level of protection accorded existing and new FS systems and the degree of flexibility afforded NGSO FSS systems -- and that the public interest would be best served by adoption of the proposal set out below.

I. BACKGROUND

The NPRM proposes to restrict use of the 10.7-11.7 GHz band by NGSO FSS systems to nonubiquitous "Gateway" terminals, in recognition of the

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1/ Amendment of Parts 2 and 25 of the Commission's Rules, 14 FCC Rcd 1131 (1998).

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difficulty (if not impossibility) of frequency sharing among ubiquitous earth stations and terrestrial facilities.[2] In furtherance of this goal, the NPRM proposes to define an NGSO FSS Gateway in a manner intended to ensure that Gateways are, indeed, nonubiquitous.[3] In an effort to further protect the FS, the NPRM proposed the establishment of "exclusion zones" -- basically, a circle with a 100 km radius drawn around the city center of the 50 largest metropolitan areas -- in which Gateways would not be permitted to be located.[4] The theory underlying this concept was that these areas were thought to represent the largest concentration of existing FS systems, and by excluding NGSO Gateways from these areas, the ability of those FS systems to expand would be protected.

In general, as reflected in the Parties' respective comments in this proceeding, they support limiting NGSO operations in the 10.7-11.7 GHz band to Gateways, including the adoption of a restrictive definition of what constitutes a Gateway. Where the Parties differed most was on their view of the wisdom and efficacy of the exclusion zone concept. The FWCC supported the approach, while SkyBridge opposed it.

As noted supra, the Parties have been informally discussing areas of mutual concern for over two years. Over the course of the past few months, these discussions intensified, with a specific goal of attempting to bridge the gap between each Party's favored regulatory approach. Meeting in person or by conference call at least once per week, the Parties were able to build on the general regulatory approach set out in the NPRM, adjusting it to better fit the actual circumstances that will confront each industry in the future.

Obviously, the FWCC does not presume to speak for all potentially affected terrestrial users of the band, nor does SkyBridge presume to speak for all proposed NGSO FSS systems. Thus, as the Parties' November 12 Letter emphasized -- and it is reemphasized here -- the instant proposals should be placed on public notice for comment by other interested parties.

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[2] Id. at 1142-44.

[3] Id.

[4] Id. at 1146-47.

II. PROPOSED REGULATIONS

A. Definition of a Gateway

Both Parties agreed that Gateways should be defined so as to exclude both the possibility that ubiquitous user terminals could be deployed in the band and the likelihood that, in the aggregate, a large number of Gateways would operate in the band. Their proposed definition is set out below.

47 C.F.R. § 25.__. DEFINITION OF NGSO FSS GATEWAY

A Gateway operating in the 10.7-11.7 GHz band shall consist of an earth station complex providing radio frequency resources to NGSO FSS space stations which allow customer-premises earth stations to interconnect with long distance or other intercity networks or other non-collocated customer-premises earth stations; a Gateway shall not connect directly to customer-owned or customer-operated private distribution networks. Gateways shall have no less than three operational earth station antennas, each of which shall be no less than 2.5 meters in diameter; for non-parabolic antenna designs, the mainbeam beamwidth of the antenna shall not exceed the mainbeam beamwidth of a standard 2.5 meter parabolic antenna.

This definition meets the needs of NGSO systems for flexibility, while ensuring that Gateways would not become ubiquitous. In agreeing to include a minimum antenna size in the definition, as well as the minimum number of antennas, SkyBridge reversed its earlier opposition to such restrictions. The Parties believe that the foregoing provides an effective balance between the competing needs of the two services.

B. FS Growth Zones

Obviously, the primary focus of the discussions among the Parties involved the proposed exclusion zones. Working together, the Parties undertook a more methodical review of the actual state of the FS' use of the 10.7-11.7 GHz band, reviewing both Commission and Comsearch data bases. An examination of the locations of existing FS sites and the growth patterns over the last few years in the affected band revealed that: (1) the proposed exclusion zones protected huge areas in which there was little or no existing FS activity or recent or anticipated growth; and

(2) many areas of intense FS use, and anticipated growth, fell outside of the exclusion zones.[5]

Rather than "protect" areas in no apparent need thereof, the Parties developed the concept of an "FS Growth Zone," and attempted to define it in such a way that it actually protected areas in which growth was reasonably anticipated, without unnecessarily constraining the siting of NGSO Gateways. The Parties' proposed definition of an FS Growth Zone -- which would replace the NPRM's exclusion zones -- is set out below.

47 C.F.R. § 25.__. DEFINITION OF FS GROWTH ZONE

An FS Growth Zone is defined as any county in which, based on a semi-annual determination, at least 30 FS channels are licensed to transmit in the 10.7-11.7 GHz band. Prior to the effective date of this section, the Commission shall issue a Public Notice listing the counties that meet this criterion at that time. At six-month intervals thereafter, the Commission shall issue a new list of counties that qualify as FS Growth Zones.

Based on the FWCC's members' own experience, as confirmed by a review of the existing 10.7-11.7 GHz data bases, FS growth in this band generally evolves from existing systems. The Parties first agreed that using the political borders of counties -- information already contained in the licensing data bases -- represented the most practical starting point for defining a Growth Zone. Then, the Parties identified those counties with the largest concentration of links, and agreed that those counties in which 30 or more transmit channels are licensed (in the aggregate, this is approximately 100 counties nationwide) represent the most critical concentration of FS usage and the areas with the most likely substantial potential for growth.[6]

Further, the parties agreed that the list of counties that qualify as an FS Growth Zone should not be static. If FS growth in a particular county not previously qualified as a Growth Zone reaches the 30 channel threshold, it should be added to

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[5] The data revealed, inter alia, that over the past two years, there has been, in the nationwide aggregate, a decrease in the number of FS links in this band. This may be the result of fiber gradually replacing some links more rapidly than new links are added.

[6] The Parties are preparing, and will submit as soon as practicable, a map showing both the counties that, according to the most recent data available to the Parties, would qualify as an FS Growth Zone, and the exclusion zones proposed in the NPRM.

the list. Conversely, if a number of links in a county that previously qualified as a Growth Zone are taken out of service (e.g., conversion to fiber), to the point that fewer than 30 transmit transmitters are licensed, that county should be deleted from the list. So as to provide a measure of certainty for an NGSO operator planning to site a Gateway in a particular county, the list of counties qualifying as an FS Growth Zone would be updated at six-month intervals.

As noted above, the Parties agreed that, as opposed to the NPRM's exclusion zone restrictions, Gateways should not be per se barred from FS Growth Zones. The practical effect on FS and NGSO operations in a particular county qualifying as an FS Growth Zone is discussed below.

C. Siting Gateways in FS Growth Zones

The parties agreed that NGSO FSS systems should be free to locate Gateways in an FS Growth Zone -- subject, of course, to the relevant coordination procedures. However, if a Gateway operator chooses to take advantage of this opportunity, certain obligations would be imposed that are intended to offset the potential impact on FS growth that might otherwise result from such a decision.

47.C.F.R. § 25.__. OPERATION OF NGSO FSS GATEWAYS IN FS GROWTH ZONES

Gateways operating in the 10.7-11.7 GHz band may be located in FS Growth Zones consistent with the following conditions:

(a) The Gateway shall be located in the FS Growth Zone in accordance with standard coordination procedures, except that the coordination shall assume that all FS stations relevant to the coordination are operating on all FS transmit channels in the 10.7-11.7 GHz band.

(b) If an applicant seeking to operate a new FS station in a FS Growth Zone would be precluded, under the standard coordination procedures, from doing so at a particular location due to the existence of a Gateway, the Gateway licensee shall, at the FS applicant's request, be responsible for reducing the effect on the Gateway of the power radiated by the proposed FS station to the greatest extent practicable, consistent with sound engineering practices and in a manner that does not materially degrade the operational capabilities of the Gateway, up to a maximum of 20 dB below the level derived from the free-space coordination calculation.

(c) **In order to locate a Gateway at a particular site within an FS Growth Zone that otherwise would not be acceptable under the standard coordination procedures, an applicant may voluntarily agree to accept, from a specified azimuth, a certain level of interference from a particular FS station in excess of the level that would be consistent with the standard coordination procedures. To the extent that a Gateway is sited pursuant to this subsection, the licensee shall in the future be obligated to continue to accept, from that specified azimuth, that same aggregate level of interference from any FS stations.**

(d) **In coordinating a new FS station with a Gateway located in an FS Growth Zone, the coordination shall not take into account elevation angles for the Gateway's earth stations below the lowest geometrical elevation angle that can be employed by the Gateway's earth stations for each direction of azimuth, taking into account the specific characteristics of the relevant satellite constellation.**

(e) **If, at the time of submission of a request for coordination of a particular Gateway site to a recognized frequency coordinator, that site is located outside of any FS Growth Zone, any Gateway facility subsequently licensed to operate at that site shall not be subject to the provisions of subsections (a), (b), (c), or (d) of this section, regardless of whether the county in which that site is located subsequently becomes a FS Growth Zone.**

Thus, if a Gateway operator chooses to locate the facility within a FS Growth Zone, in undertaking the initial coordination, it must be assumed that each FS system located in the Growth Zone is operating on all allocated transmit channels. This will prevent the siting of a Gateway in a Growth Zone from inhibiting the most likely evolution of existing FS links, i.e., the addition of new channels to those links.

Second, under certain circumstances, the operator of a NGSO Gateway located in a Growth Zone would be required, at the request of a FS applicant, to reduce the anticipated impact of the proposed FS transmissions on the Gateway's operations up to 20 dB below the standard free-space coordination calculation -- at the Gateway's expense. Thus, if a proposed new FS link cannot be installed under the standard coordination rules as the result of the presence of a NGSO Gateway in a FS Growth Zone, the Gateway licensee shall take appropriate steps (e.g., install

shielding) to reduce the anticipated "free-space" impact of the proposed FS link on the Gateway to the greatest extent practicable, up to a maximum of 20 dB.

This obligation is limited only by sound engineering practices and the recognition that the undertaking (e.g., installation of shielding) should not materially degrade the operational capabilities of the Gateway. For example, if a Gateway operator previously had installed shielding to accommodate a new FS link located to the north of the Gateway, and later, another FS operator sought to invoke the shielding obligation for a link to the south of the Gateway, it may be the case that, because of, e.g., internal reflection problems, the second link cannot be accommodated without materially degrading the Gateway's operations.[7] The Parties agreed that it would be unfair to impose such a burden on the Gateway.

A third means of protecting FS expansion in a FS Growth Zone involves the situation in which a proposed Gateway site located in a FS Growth Zone cannot be cleared under the standard coordination procedures. If the Gateway operator nonetheless chooses to employ that site, i.e., by agreeing to accept a certain level of interference above the norm from a particular FS station, the Gateway licensee shall remain obligated to accept that same aggregate level of interference from that azimuth from any other FS stations.

A fourth condition relates to the fact that, although a NGSO Gateway may effectively operate in an omnidirectional manner (over time), it does not necessarily use the same elevation angle in all directions. In coordinating a new FS station in a FS Growth Zone in which a Gateway is already located, only the actual lowest elevation angle for each direction of azimuth that actually can be employed by the Gateway should be considered, consistent with the relevant NGSO FSS constellation's specific characteristics. For example, SkyBridge's constellation operates at a 53° inclined orbit; none of the spacecraft is passing directly over the North Pole. Thus, while a SkyBridge Gateway antenna may track through the 0° azimuth while locked onto a given satellite, the minimum angle of elevation for that azimuth will be relatively high; it certainly will be much higher than the 6° minimum that might be employed for tracking a satellite at, e.g., the 270° azimuth. In this case, an FS operator seeking to site a new link to the north of the Gateway should be constrained only by the Gateway's actual worst-case operational capabilities in that direction.

Finally, the parties agree that if a Gateway is sited outside of a Growth Zone, the fact that the county in question may later become a Growth Zone should

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[7] This problem is discussed at some length in the Comsearch study attached as Appendix D to SkyBridge's March 2, 1999, comments in the instant proceeding.

not retroactively alter the Gateway operator's regulatory burdens. The determination as to a particular county's status as a Growth Zone is based on the timing of the Gateway applicant's request for coordination of the site. If, at the time of submission of the coordination request, the site is in a county that is not on the Commission's most recently released Growth Zone list (as updated semi-annually), then the above-described obligations will not attach to that Gateway. If, however, that county subsequently reaches the 30-transmitter threshold and is added to the Growth Zone list, any Gateway that is thereafter sought to be coordinated at a site in that county would be subject to the full obligations set out above.

CONCLUSION

The Parties believe that the foregoing regulatory scheme represents a substantial improvement over the relevant proposals set out in the NPRM; both NGSO FSS and FS interests are better protected, without imposing unnecessary burdens on either. As noted in the Parties' November 12 Letter, the Parties request

that the Commission issue a public notice seeking comment on the above-described regulatory scheme.

Respectfully submitted,

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APPENDIX B

ORIGINAL

EX PARTE OR LATE FILED

December 22, 1999

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

Via Hand Delivery

Magalie Roman Salas, Secretary
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Re: Written *Ex Parte* Communication in ET Docket No. 98-206

Dear Ms. Salas:

On December 8, 1999, SkyBridge L.L.C. ("SkyBridge") and the Fixed Wireless Communications Coalition ("FWCC") (collectively, the "Parties") filed a joint letter in the above-referenced proceeding (the "December 8 Letter") in which the Parties set out the details of a proposed regulatory scheme to govern the use of the 10.7-11.7 GHz band by nongeostationary orbit fixed satellite service ("NGSO FSS") systems and the fixed service ("FS"). The Parties hereby supplement and clarify certain points raised in the December 8 Letter.

First, at page 4, note 6 of the December 8 Letter, the Parties stated that a map would be submitted to the Commission which would illustrate the differences between the areas that would be covered by the FS Growth Zone concept discussed in that letter and the areas that would fall within the exclusion zones proposed in the

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Notice of Proposed Rulemaking ("NPRM") in the above-referenced proceeding. Attached hereto is such a map.[1/]

With regard to the proposed definition of an FS Growth Zone, the Commission staff has asked for additional clarification of the Parties' intent. Specifically, the definition appearing at page 4 of the December 8 Letter specifies licensed "channels" as the initial factor in determining whether a particular county qualifies as a Growth Zone, while in the explanatory discussion in the December 8 letter that followed the definition (see pp. 4-5, 8), the Parties used both "channels" and "transmitters" in discussing the threshold requirement for FS Growth Zone status.

To avoid any confusion, the Parties would substitute the word "frequency" for the word "channel" in the definition. Thus, the definition of FS Growth Zone would read as follows:

> An FS Growth Zone is defined as any county in which, based on a semi-annual determination, at least 30 FS frequencies are licensed to transmit in the 10.7-11.7 GHz band. Prior to the effective date of this section, the Commission shall issue a Public Notice listing the counties that meet this criterion at that time. At six month intervals thereafter, the Commission shall issue a new list of counties that qualify as FS Growth Zones.

This clarification is consistent with the term used on the relevant Commission licenses and database, review of which would be required to compile the proposed semi-annual FS Growth Zone list. The discussion of the Growth Zone concept in the December 8 Letter should be construed in a manner consistent with this clarification.

1/ The map was derived using a 1998 Comsearch database and the exclusion zone coordinates provided in the NPRM. Due to a software anomaly, some of these coordinates, when transposed to the instant map, create some minor discrepancies (immaterial for the instant purpose) in the exclusion zone locations.

If there are any questions regarding this matter, please contact any of the undersigned.

Respectfully submitted,

FIXED WIRELESS COMMUNICATIONS COALITION

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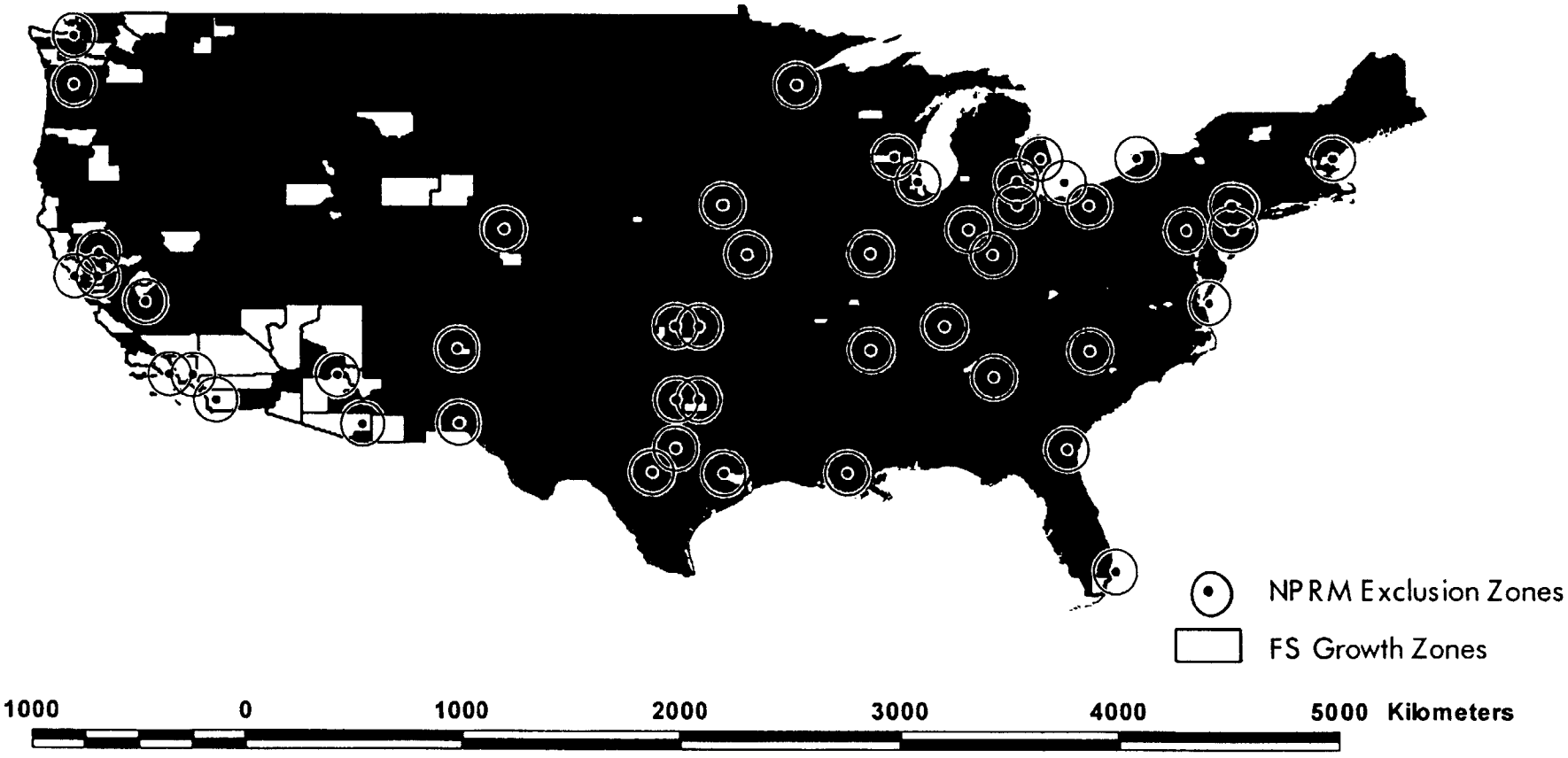
NPRM Exclusion Zones
FS Growth Zones
1000
0
1000
2000
3000
4000
5000 Kilometers

1
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