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

In the Matter of	)	
	)	
FWCC Request for Declaratory Ruling on Partial-Band Licensing of Earth Stations in the Fixed-Satellite Service That Share Terrestrial Spectrum	)	IB Docket No. 00-203 RM-9649
	)	
FWCC Petition for Rulemaking to Set Loading Standards for Earth Stations In the Fixed-Satellite Service that Share Terrestrial Spectrum	)	
	)	
Onsat Petition for Declaratory Order that Blanket Licensing Pursuant to Rule 25.115(c) is Available for Very Small Aperture Terminal Satellite Network Operations at C-Band	)	SAT-PDR-19990910-00091
	)	
Onsat Petition for Waiver of Rule 25.212(d) to the Extent Necessary to Permit Routine Licensing of 3.7 Meter Transmit and Receive Stations at C-Band	)	
	)	
Ex parte Letter Concerning Deployment of Geostationary Orbit FSS Earth Stations in the Shared Portion of the Ka-band	)	

COMMENTS OF PANAMSAT CORPORATION

PanAmSat Corporation ("PanAmSat"), by its attorneys, hereby comments on the above-referenced Notice of Proposed Rulemaking (the "NPRM"). PanAmSat is a member of the Satellite Industry Association ("SIA"), which also is filing comments on the NPRM.[1] PanAmSat supports the SIA comments in their entirety, and is filing

[1] SIA is filing jointly with other organizations. In the interest of simplicity, in its filing PanAmSat identifies these joint comments as the "SIA comments."

separately to underscore its opposition to the portion of the NPRM concerning "demonstrated use."

DISCUSSION

The Commission has proposed an amendment to Section 25.203 to add a "demonstrated use" requirement for Fixed-Satellite Service ("FSS") earth stations licensed in C-band or Ku-band frequencies that are shared with the Fixed Service ("FS"). Under the proposed amendment, an FSS earth station operator would lose its priority to use frequencies requested by an FS operator if it could not demonstrate that it is using, has recently used, or has imminent plans to use, the frequencies requested.[2]

Spectrum flexibility is essential to satellite operations, particularly in emergency situations. The Commission's demonstrated use proposal would destroy that flexibility and would have a devastating impact on the efficiency and reliability of satellite operations in the FSS.

I. FSS Spectrum Flexibility Is Required Because Future Needs Cannot Be Anticipated.

It is a longstanding Commission policy that FSS earth stations be licensed on a full frequency band basis.[3] The Commission recognizes in the NPRM that its "full-band policy is intended to provide earth stations the flexibility to change the communications paths to other satellite locations and transponder use assignments to meet operational requirements."[4] Apparently, however, the Commission understands this flexibility to be significant only when an FSS earth station operator has "imminent plans to use the requested spectrum."

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[2] NPRM ¶¶ 8, 53.
[3] In the C-band, for example, earth station operators typically are licensed for the entire 1000 MHz of allocated spectrum.
[4] NPRM ¶ 19.

To the contrary, it is because future needs cannot be anticipated that spectrum flexibility is critically important to satellite services. The most dramatic – but by no means the only – example of the need for spectrum flexibility is satellite failure. As PanAmSat learned when its Galaxy IV spacecraft ("G-4") failed in May of 1998, the ability of space station operators and earth station licensees to adapt quickly in the event of an in-orbit failure or other emergency can make the difference between an inconvenience and a catastrophe.

The primary spacecraft control processors aboard G-4 failed at approximately 22:12 Greenwich Mean Time on May 19, 1998, and the secondary processor failed to respond as designed. By 22:15, reports from ground stations indicated that G-4 was spinning about its pitch axis and, although the communications payload was still functioning, service to customers from the spacecraft was lost. Shortly thereafter, in order to avoid possible risks to other space stations, a series of de-orbit burns was performed to lift the space station into super-synchronous orbit. The raising of G-4 out of geosynchronous orbit eliminated it as a physical danger to other space stations, but it also rendered G-4 incapable of providing service.

Within minutes of the G-4 failure, PanAmSat management began to develop plans to restore service for its G-4 customers. First, PanAmSat contacted the customers to provide initial information on the satellite failure and to analyze each customer's service requirements. Within hours of the failure, PanAmSat management authorized commencement of a contingency plan that consisted of moving Ku-band customers to the Galaxy III-R satellite, located at 95° W.L., and moving C-band customers temporarily to other PanAmSat satellites (or the customers' own backup capacity) while Galaxy VI, a C-band satellite then located at 74° W. L., was relocated to 99° W. L.[5]

By the early morning of May 20, 1998, PanAmSat had made available alternative satellite capacity to many of its customers, which then were able to restore service to

[5] Galaxy VI was relocated to 99° W.L. on May 27, 1998.

their customers and, by May 22, 1998, PanAmSat had restored service to all of its G-4 customers. In addition, PanAmSat was able to provide alternative capacity on its satellites for approximately 80 percent of the customers who had preemptible service on Galaxy VI at its prior orbital location.

Many of the services provided by G-4 at the time of its failure were of critical importance to the economy and to the health and well-being of Americans in general. Reports suggest that up to 95% of pagers nationwide (nearly 45 million) lost service as a result of the anomalies on-board G-4, and that other communications links used by retailers, airlines, gasoline stations, TV news operations, and corporate data networks also failed.[6] Had these services been lost for an extended period of time • *e.g.*, days, weeks, and months as opposed to a few hours • the failure of G-4 could have been catastrophic. Because PanAmSat was able to develop and execute a contingency plan in short order, however, the G-4 failure principally served to highlight the importance of satellite communications in the modern world.

Although satellite technologies continue to improve, no equipment is foolproof, and future space station anomalies are a virtual certainty.[7] If and when they occur, "you can't just take out a big ladder, send up a guy in overalls and a tool belt and have him fix it."[8] FSS earth stations must, therefore, be able to accommodate short-term and long-term frequency modifications in order to change transponders on a satellite or to change to a different satellite within a fleet.

Spectrum flexibility is required not only when a space station fails completely, but when minor anomalies interrupt service on a particular frequency. For that reason,

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[6] E.g., Keller, WSJ (June 15, 1998) at R20 ("doctors missed appointments, relationships broke up, much business ground to a halt"); see also RCR (Mar. 8, 1999) (the G-4 failure "was felt strongly throughout the economy, including health care, which could not page critical personnel"); WSJ (Feb. 26, 1999) at B4 (G-4 failure silenced over 40 million pagers nationwide); Communications Today (May 22, 1998) (one company alone had 20,000 antennas pointed at G-4 when it failed).

[7] There have been other recent satellite failures. For example, Solidaridad 1 failed in August 2000, after experiencing a second spacecraft control processor failure, causing a loss of television broadcast services, rural telephone service and ATM machine service throughout Mexico.

PanAmSat generally maintains two "reserve" transponders on each of its domestic C-band satellites. The reserve transponders are leased on a preemptible basis only, so that customers for non-preemptible services can be moved to a reserve transponder in the event that service cannot be maintained on their full-time frequency.

Thus, the "full-band policy" provides flexibility not only when earth stations modify their frequency use pursuant to a planned operational change, but also when they are responding to an unforeseen emergency. Limiting earth station access to the full band through the imposition of a "demonstrated use" requirement would hamstring earth station operators and increase the risk that a future satellite failure will lead to a catastrophic loss of service.

II. Spectrum Flexibility Is A Prerequisite To Efficient Operation Of Satellite Systems.

Aside from situations in which a satellite emergency necessitates a frequency change, numerous technical or business events may require an earth station to modify its use of a shared band. To manage its fleet properly, PanAmSat constantly is adjusting the interrelated parts that comprise its global system.

The ability to change orbital locations and reassign frequencies is central to PanAmSat's deployment plan.[9] PanAmSat must prepare for replacing its satellites on a routine basis as they age, and also must have contingency plans in place in case there is a launch failure or an in-orbit failure. As part of the deployment process, PanAmSat may need to relocate a satellite for any number of reasons, such as to serve as an in-orbit

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[8] Barrons (June 15, 1998) at 33.

[9] GSO satellite authorizations typically include a proviso that the FCC may require the licensee to relocate or relinquish its orbital location. Even when not required to do so, moreover, satellite licensees often voluntarily make orbital assignment changes for fleet management purposes.

spare; to provide service on an interim basis pending the launch of an additional satellite; or to satisfy customer requirements in a different part of the orbital arc.[10]

PanAmSat spends billions of dollars to ensure that its system has the redundancy and reliability that customers demand. For example, last year PanAmSat launched Galaxy XI to replace Galaxy VII at 91° W.L. At the time, Galaxy VII was a fully functioning spacecraft, but PanAmSat decided to replace it because only one of the satellite's spacecraft control processors was functioning, exposing customers to additional risk. Some of the Galaxy VII customers had to be assigned to different frequencies on Galaxy XI because of differences between the frequency plans for the two satellites. A demonstrated use standard could have deprived PanAmSat of the flexibility required to make this change or the certainty needed for it to have the incentive to fund the change. That flexibility paid off in major fashion; the second spacecraft control processor on Galaxy VII failed late last year, only months after Galaxy XI had replaced Galaxy VII.

There are numerous other circumstances necessitating flexibility in managing satellite operations. Among other things, coordination with adjacent satellite operators is required throughout a satellite's service life in order to accommodate changing end-user applications and new satellites as they are brought into service. Although existing assignments are maintained wherever possible, changes in satellite design and user application technology may require modifications to a particular satellite's frequency assignment plan. FSS earth stations must, therefore, in order to respond to frequency plan changes made in the coordination process, be able to modify their frequency use.

Similarly, many customers do not lease specific transponders, but rather lease capacity on a portion of a transponder. Customers with such "shared transponder service agreements" often modify their bandwidth needs as their business plans

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[10] Among other changes, when a satellite is relocated, the TT&C station controlling the satellite must be reoriented.

change. As a result, in order to maintain optimal transponder loading, space station operators frequently modify frequency assignments for shared-use transponders. Earth station operators must, in turn, have the flexibility to modify their frequency use if service is to be maintained. Naturally, these modifications are made dynamically as business and technical needs change; they generally cannot be anticipated beyond a very short term.

Another example of the need for flexibility is that satellite operators typically have earth stations that are dedicated to monitoring the performance of their space stations, and to conducting troubleshooting and testing in response to customer complaints. These earth stations may be called upon to communicate with any of the transponders on one or more satellites.

In sum, unless earth station operators have the flexibility to re-point antennas or switch frequencies, as necessary, when changes in location are made, it will be impossible for the FCC or space station operators to optimize the use of orbital resources, and satellite customers will be exposed to unacceptable risks.

CONCLUSION

For the foregoing reasons and those set forth in the comments of SIA, the Commission should abandon its proposal to add a "demonstrated use" requirement to Section 25.203 of its rules.

Respectfully submitted,

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