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

In the Matter of Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30.0 GHz 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	IB Docket No. 98-172 RM-9005 RM-9118

COMMENTS OF SBC COMMUNICATIONS, INC.

I. INTRODUCTION

SBC Communications, Inc. on behalf of its affiliates ("SBC")[1] hereby comments on the Notice of Proposed Rulemaking ("NPRM") in the above-captioned proceeding. In this NPRM, the Commission proposes to redesignate the 17.7-19.7 GHz band, often referred to as the 18 GHz band, to separate terrestrial fixed service ("FS") from Fixed Satellite Service ("FSS") because of the difficulty associated with sharing these

[1] SBC Communications Inc. ("SBC") is the parent/holding company of various subsidiaries conducting business under federal licenses. These subsidiaries include Southwestern Bell Telephone Company ("SWBT"), Pacific Bell Telephone Company ("Pacific Bell"), Nevada Bell Telephone ("Nevada Bell"), and various wireless carriers including Southwestern Bell Mobile Systems, Inc. ("SBMS"), and Southwestern Bell Wireless Inc. ("SWBW") and Pacific Bell Mobile Services ("PBMS"). The abbreviation "SBC" shall be used herein to include each of these subsidiaries as appropriate in the context.

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frequencies.[2] SBC agrees that sharing between these services is not possible and supports the separation of the services into discrete segments of band. However, as discussed below, the current proposal does not adequately address the needs of the FS users.

II. FIXED SERVICES IN THE 18 GHz BAND ARE AN IMPORTANT PART OF SBC's WIRELESS AND WIRELINE NETWORKS.

SBC has many point-to-point microwave links in the 18 GHz band. Pacific Bell has 17,376 DSO circuits. Nevada Bell has 2,976 DSO circuits. SWBT has 1,440 DSO circuits. They provide critical transmission paths where land links are not available or not economical. In California, 18 GHz systems provide essential primary and route diversity service for weather radar, power utilities, the FBI, the FAA, LA County Fire Dispatch, and 911 service in many rural communities. In Nevada, 18 GHz supports a Basic Exchange Telephone Radio system to North Battle Mountain and conventional telephone service to other remote rural areas, such as Duckwater. Without these radio links, there would be no way to provide service to remote areas. Two of the SWBT systems provide essential services to the El Paso 911 agencies. One provides local loop diversity for 911 calls. The other includes circuits which provide a link-up to the dispatch transmitter on the top of a mountain.

In SBC's wireless system in the Boston area, 19% of the microwave links (5,000-6,000 DSO circuits) are in the 18 GHz band. In California and Nevada 60% of Pacific Bell Wireless' links (5,000-6,000 DSO circuits) are in the 18 GHz band.

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[2] In the Matter of Redesignation of the 17.7-19.7 GHz Frequency Band, Blanket Licensing of Satellite Earth Stations in the 17.7-20.2 GHz and 27.5-30 GHz Frequency Bands and the allocation of Additional Spectrum in the 17.3-17.8 GHz and 24.75-25.25 GHz Frequency Bands for Satellite Service use, IB Docket No. 98-172, RM-9005, RM-9118, Notice of Proposed Rulemaking, released September 18, 1998. ("NPRM").

Like wireline, the wireless system links are used to provide backhaul where land links are not available or uneconomic. For example, microwave links are used extensively in rural areas such as along Interstate 15 from Barstow California to Las Vegas, Nevada and along Interstate 5 from Stockton to Bakersfield.

Microwave links at 18 GHz are particularly useful for PCS providers like Pacific Bell Wireless that use the GSM technology. The GSM technology uses a base station that consists of a single small cabinet. The radios at 18 GHz easily fit into the 1-2 rack space available for microwave functions. A larger radio unit would require an additional structure which adds to zoning considerations. In addition, at 18 GHz, the path can be engineered and licensed with a 1 or 2 foot dish and used on small towers. These factors also contribute to greater ease in addressing community concerns for the placement of the equipment. Microwave links at 6 GHz, and 11 GHz would require larger equipment adding expense and increasing the difficulty of meeting zoning requirements.

As a result of all this investment in the 18 GHz band, SBC is concerned that the redesignation ultimately adopted by the Commission address the needs of the FS users.

III. THE CURRENT PROPOSAL DOES NOT PROVIDE ENOUGH UNSHARED SPECTRUM FOR FS.

A. As Currently Proposed, The 19.3-19.7 GHz Segment Does Not Meet FS Needs.

The primary proposal in the NPRM designates FS as the primary licensee for 600 MHz from 17.7 to 18.3 GHz. From 18.55 to 18.8 GHz FS is co-primary with Geostationary Orbit Fixed Satellite Service ("GSO/FSS). From 19.3-19.7 GHz FS is co-

primary with Mobile Satellite Service Feeder Link ("MSS/FL").[3] SBC is very pleased that 600 MHz has been designated for FS without having another co-primary service in the same segment. However, co-primary sharing with MSS/FL from 19.3-19.7 GHz creates problems.

Many FS microwave links are two-way links that carry digitized voice telephony. To avoid destructive interference from transmitters into co-located receivers, it is necessary that the transmit and receive frequencies for such links be widely separated. For example, current "wideband" FS signals, having signal bandwidths up to 40 MHz, employ transmit and receive frequencies that are separated by 1560 MHz.

Due to this need for separation, under the current proposal wideband links would have to share spectrum with MSS feeder links. However, it is not at all certain that such sharing will work.

There is an issue with interference from the MSS feeder downlinks into FS receivers and also with interference from FS transmitters into MSS gateway earth station antennas. For example, with respect to the former using the constellation orbital parameters for the Iridium system – orbital altitude of 789 km, orbital inclination 86 degrees, 11 orbital rings and 6 satellites per ring – it is possible to calculate the percentage of time that an Iridium satellite is in the main beam of a given FS receiver. Assuming a typical 48-dBi gain FS receiver with half power beamwidth of 0.7 degrees, the calculations shows that any given FS receiver will have an Iridium satellite in its main beam for about 9 seconds each day. For receivers facing north or south, there will be on the average about one event per day, lasting 6-12 seconds. For receivers facing east and west, there will be on the average about two events per day, each lasting 3-6 seconds.

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[3] NPRM, para. 30.

Because the parameters for the Iridium downlink feeder antenna gain and EIRP are not available, it is impossible to say with certainty that satellite being in the main beam of the FS receiver will cause unacceptable interference into the receiver. However, since the FS links carry telephony traffic, including emergency calls, it is critical that their reliability not be adversely affected by interference from satellites.

With respect to interference from FS transmitters into MSS gateway earth station antennas, SBC assumes that gateways would be located where there would be no interference from existing FS transmitters. However, once such gateways were in place, the expansion of new FS links in the vicinity of the gateways would be constrained. Without knowing the number of gateways, it is impossible to estimate the seriousness of this problem. However, even a small number of gateways could effectively freeze out the expansion of microwave links in the areas where the gateways are located.

Unless these sharing considerations can be resolved in a manner that will not adversely effect FS, the Commission should not place MSS/FL as a co-primary licensee in the 19.3-19.7 segment. FS should be the only primary user in this part of the band.

One alternative would be to continue to have MSS/FL in that segment but as a secondary user along with GSO/FSS. This would allow FS to be primary in both 17.7-18.3 and 19.3-19.7 GHz and permit continued growth for two-way transmissions with the necessary split between the pair without potential satellite interference. Another alternative would be to move MSS/FL to the 18.8-19.3 GHz segment and make them co-primary with NGSO/FSS.

The ability to operate in this 19.3-19.7 GHz segment unencumbered with sharing issues is so important that SBC would be willing to have FS use of the 18.55-18.8

GHz classified as secondary in exchange for FS being the only primary licensee in the 19.3-19.7 GHz segment. As noted above, the need for separation makes the 19.3-19.7 GHz segment much more valuable than 18.55-18.8 GHz segment.

Ideally, SBC would prefer to maintain the present allocation and channel plan with the 1560 channel separation. This would mean FS would operate as the sole primary user at 17.70-18.14 GHz and 19.26-19.70 GHz. This is 120 MHz less than the 17.7-18.3 and 19.3-19.7 GHz allocation but does not disrupt the existing channel plan. It includes channels of the following bandwidths: 10 MHz, 20 MHz, 40 MHz and 80 MHz. The 10 MHz channels overlay the 20 MHz channels. The 20 MHz channels overlay the 40 MHz channels and the 40 MHz channels overlay the 80 MHz channels.

B. An Additional 100 MHz At 18.3-18.4 GHz Alone Does Not Alleviate The Problems for FS.

The Commission has proposed that FS have secondary status in the 18.8-19.3 GHz segment.[4] However, the Commission has noted that it might consider modifying its proposal to designate an additional 100 MHz at 18.3-18.4 GHz to be shared on a co-primary basis by FS and GSO/FSS.[5]

Secondary status in 19.10-19.16 GHz segment means the loss of the ability to use 5 MHz bandwidth channels in a duplex configuration because in the future one link would be primary and the other link would be secondary. The primary link would be in the 18.762-18.817 GHz segment but the other link would be in 19.102-19.157 GHz and would be secondary. Consequently, that segment is of very little value for the future.

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[4] NPRM, para. 29.

[5] Id. at para. 35.

Adding another 100 MHz of contiguous spectrum to the 600 MHz proposed at 17.7-18.3 GHz would provide some relief. However, SBC reiterates that its preference is for FS to be the sole primary user in the 17.7-18.3 and 19.26-19.70 GHz segments. If that allocation is granted, there is less need to designate the 100 additional MHz in the 18.3-18.4 GHz segment for FS on a co-primary basis.

IV. BROADCAST SATELLITE SERVICE ("BSS") SHOULD NOT BE DESIGNATED CO-PRIMARY IN SEGMENT 17.7-17.8 GHz.

The Commission proposes that in 2007 BSS be designated co-primary with FS in the 17.7-17.8 GHz Segment.[6] The Commission notes that it is not clear that sharing between BSS and FS is feasible. However, the Commission believes there is sufficient time for such sharing issues to be resolved.[7] The Commission should ensure that the problems of sharing can be resolved before making this allocation. Otherwise, FS may again find itself squeezed out of spectrum.

V. RELOCATION IS NOT AN ACCEPTABLE SOLUTION.

The Commission notes that if satellite operators are unable to design their systems to avoid interference with terrestrial FS operations, relocation of some or all of the terrestrial facilities may be desirable.[8] Relocation could be elsewhere in the 18 GHz band or to another frequency band.[9] The Commission requests comment on relocation issues such as

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[6] NPRM, para. 79.

[7] Id.

[8] NPRM, para. 41.

[9] Id.

the advantages and disadvantages to wholesale relocation of all incumbent users in any band to which grandfathering applies, as opposed to relocating only those links that are likely to cause interference.[10] The Commission also requests comment on whether satellite operators should be allowed to force the relocation of the individual terrestrial fixed stations as long as the satellite operators pays all relocation costs.[11]

SBC is opposed to the relocation of terrestrial FS from the l8 GHz band. Fixed microwave operators are faced with increasing difficulty in finding appropriate spectrum. There is a great deal of frequency congestion at 6 GHz and 11 GHz. In Boston it is almost impossible to obtain 6 GHz links. In urban areas in California 6 and 11 GHz links are difficult to obtain. In Los Angeles it is almost impossible to obtain a frequency. In addition, 11 GHz has been proposed for sharing with satellite operations.

As noted above, 18 GHz is highly compatible with the GSM PCS network in California and Nevada. Moving to 6 GHz would involve frequency coordination, FCC application fees, 2 new towers, two additional structures to house the 6 GHz radio, 2 new dehydrators, 2 runs of waveguide and 2 new 6 GHz radios. The estimated cost would be $150,000-$200,000 per link. However, it is not simply the cost that is an issue. It is not clear that the links would always be available and getting the permit to place the equipment would be much more difficult since it involves a higher tower, a bigger dish and another structure at the base station to house the larger radio.

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[10] Id.

[11] Id.

If satellite operators are unable to design their systems to avoid interference from existing terrestrial FS operations, they should not be permitted to operate. Even if all the costs of relocation are borne by the satellite services, relocation should not be forced on the FS operators. The Commission should not allow the availability of spectrum for fixed uses to be further reduced.

VI. CONCLUSION.

Point-to-point microwave links are a critical part of wireline and wireless systems. In certain situations, they are not just the desired alternative, they are the only alternative.

SBC is pleased that the Commission has recognized that sharing between terrestrial FS and satellite service is not possible throughout the 18 GHz band. Band segmentation is an appropriate solution. However, the current proposal does not adequately recognize the need for separation in the two-way FS links. The Commission must allow FS to have additional spectrum where two-way links can be adequately protected from interference. The best way to accomplish this would be to designate FS as the only primary user in the 17.70-18.14 and 19.26-19.70 GHz. The redesigation of the 18GHz band must adequately address FS needs without resorting to relocation.

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Respectfully submitted,

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