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

In the Matter of	)	
	)	
Use of Returned 2 GHz Mobile Satellite Services Spectrum	)	IB Docket No. 05-221
	)	
	)	

To: The Commission

Comments of the Society of Broadcast Engineers, Inc.

The Society of Broadcast Engineers, Incorporated (SBE), the national association of broadcast engineers and technical communications professionals, with more than 5,000 members world wide, hereby respectfully submits its comments in the above-captioned Request for Comments relating to returned 2 GHz Mobile Satellite Service (MSS) spectrum.

I. Returned MSS Spectrum Should Be Re-Allocated Back to Part 74 BAS Use

1. The Commission's June 29, 2005, Public Notice, number FCC 05-134, explained that The Boeing Company (Boeing), Celsat America, Inc. (Celsat), and Iridium LLC (Iridium) have all surrendered their MSS authorizations, thus freeing up one-third of the 40 MHz of MSS spectrum now allocated for 2,000–2,020 MHz and 2,180–2,200 MHz. The Notice explained that one option would be to re-allocate this spectrum to other services. SBE proposes that the majority of this spectrum be returned to broadcasters for Part 74 Broadcast Auxiliary Services (BAS) use. Specifically, SBE recommends that 12 MHz of new Part 74, Subpart H, Low Power Auxiliary spectrum be created, at 2,000–2,006 MHz and 2,180–2,186 MHz, for use by wireless microphones, and other low power services permitted by the Subpart H Low Power Auxiliary (LPA) rules.

2. SBE finds it interesting that, ten years after transferring 35 MHz of 2 GHz TV BAS spectrum from broadcasters, that the re-allocation has not yet resulted in productive use for this spectrum. Prior to this reallocation, broadcasters were making good and efficient use of the then 1,990–2,110 MHz TV BAS band for electronic news gathering (ENG) services, a use consistent with the public interest. Now, no fewer than three MSS entities have officially given up and surrendered their 2 GHz MSS spectrum. During that ten-year period flaws appeared in the MSS

approach, first when the ET Docket 00-258 rulemaking re-allocated 15 MHz of spectrum from MSS to the Advanced Wireless Services (AWS), also known as Third-Generation Wireless Services, or simply "3G." Further slippage occurred as evidenced by the IB Docket 01-185 and IB Docket 02-364 rulemakings, which allocated 2,487.5–2,493 MHz*, for MSS Ancillary Terrestrial Component (ATC) use, because of filings by MSS entities stating that MSS handsets wouldn't work in "urban canyons" and high-rise office buildings. Instead, MSS proponents said a system of terrestrial cell sites, in the largest U.S. metros, was needed to ensure service. The IB 01-185 rulemaking concluded that this MSS ATC use didn't constitute a Commercial Mobile Radio Service (CMRS) use, which the Communications Act requires to be awarded by spectrum auction. Cellular and Personal Communication Services (PCS) providers, who had literally paid billions of dollars to the federal government for their CMRS spectrum rights, complained that MSS ATC was no different from CMRS, but to no avail. Finally, WT Docket 02-55 introduced another mid-course correction that re-allocated 5 of the 15 MHz of AWS spectrum, from 1,990–1,995 MHz, for use by Nextel Communications, Inc. (Nextel). This solution was arrived at in exchange for Nextel de-interleaving the 800 MHz Specialized Mobile Radio (SMR) band, to solve an ever more serious "near-far" interference problem between 800 MHz SMR public safety radio systems and Nextel Enhanced SMR (ESMR) radio systems.

3. This disruption of the 2 GHz TV BAS band has been cost and labor intensive for broadcasters and Broadcast Network Entities (BNEs) that made significant investments in 2 GHz ENG hardware over time in order to cover breaking news stories, political conventions, and sporting events. Only last year did finality come to the "musical chairs" 2 GHz TV BAS channel plan, in the form of the August 6, 2004, WT 02-55 Report & Order. The result is that broadcasters will have seven 12-MHz wide digital TV BAS channels at 2 GHz instead of the prior six 17-MHz wide channels and one 18-MHz wide channel. Although converting ENG operations from FM video analog to coded orthogonal frequency division multiplexing (COFDM) digital signals gives equivalent performance in 12 MHz to that provided in the prior 17-MHz wide TV BAS channels, high-definition TV (HDTV) ENG/sports transmissions in these narrowed, 12 MHz wide channels, will not be possible. Simply stated, a 12-MHz wide COFDM pedestal doesn't have the bandwidth necessary for contribution-quality HDTV feeds.

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* Ironically, this allocation is co-channel with grandfathered TV BAS Channel A10, 2,483.5–2,500 MHz. So, even in the 2.5 GHz TV BAS band MSS manages to cause loss of TV BAS spectrum. However, see the September 8, 2004, SBE Petition for Reconsideration to the IB Docket 02-364 Report & Order, for a proposed solution.

4. An additional 12 MHz of spectrum for Part 74, Subpart H, LPA BAS stations (*e.g.*, wireless microphones) would certainly help to solve other broadcaster challenges. BAS wireless microphones are critical to news and sports coverage. They are literally the *sina qua non* of modern sports broadcasts for both radio and television. Wireless microphones typically have operated on "un-used" VHF high band and UHF TV channels. But, with the allocation of second DTV channels to some 1,600 or so full-service TV stations in the U.S., the assignment of TV Channels to Class A TV Stations, and the loss of TV Channels 52–69 (*i.e.*, 108 MHz of spectrum) to other services, new frequencies for wireless microphones in the major metros have become almost impossible to find. Previously available channels are being compromised every day as the remaining latecomer DTV stations commence operation, and as more 700-MHz band entities start operations. Thus, re-allocating the equivalent of two TV channels worth of wireless microphone spectrum, or 12 MHz[†], of 2 GHz spectrum for Part 74, Subpart H, Low Power Auxiliary use would be a helpful partial mitigation to the channel scarcity for wireless microphones. Of course, a return of two TV channels worth of wireless microphone spectrum would not offset the loss of wireless microphone channels at UHF and VHF high band; but, at this point, SBE would welcome even two TV channel's worth of new Part 74, Subpart H, LPA spectrum.

5. Accordingly, SBE sees it as only appropriate and equitable that 12 MHz of the 13.3 MHz of surrendered MSS spectrum be re-allocated back to Part 74 BAS. Since it is now too late in the 2 GHz TV BAS transition process to again change the 2 GHz TV BAS band plan, this spectrum could now be best used by Subpart H LPA stations. This is because the difference between seven 12-MHz wide 2 GHz TV BAS channels and seven 13-MHz wide 2 GHz TV BAS channels (which would require a 7 MHz spectrum transfer from the 2,000–2,020 MHz portion of the MSS allocation) wouldn't be all that significant, and certainly would not be sufficient to allow HDTV ENG. Further, any change now to the 2 GHz TV BAS channel widths from 12 MHz to 12.952381 MHz (*i.e.*, each channel widened by 1/7 x 1/3 of 20 MHz) would actually be counter-productive. The channel center frequencies would no longer be integer multiples of the 250-kHz frequency synthesizer step size found in most modern-day 2 GHz TV BAS radios. Re-engineering 2 GHz TV BAS radios to give finer-resolution synthesizer steps would steeply escalate equipment costs, and would likely delay the Nextel transition schedule.

[†] Equivalent to 11% of the 108 MHz of spectrum that will be lost to other services eventually occupying TV Channels 52–69.

II. Summary

6. The Commission should re-allocate 12 MHz of the 13.3 MHz of returned MSS spectrum to Part 74, Subpart H, Low Power Auxiliary use. Doing so will take a small step towards mitigating an ever more urgent shortage of replacement spectrum for wireless microphones, used by radio and television broadcasters and BNEs in providing coverage of breaking news stories, political conventions, and sporting events.

List of Figures

7. The following figure has been prepared as a part of these SBE IB Docket 05-221 comments:

1. Proposed revised 2 GHz band plan.

Respectfully submitted,

Society of Broadcast Engineers, Inc.

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July 29, 2005

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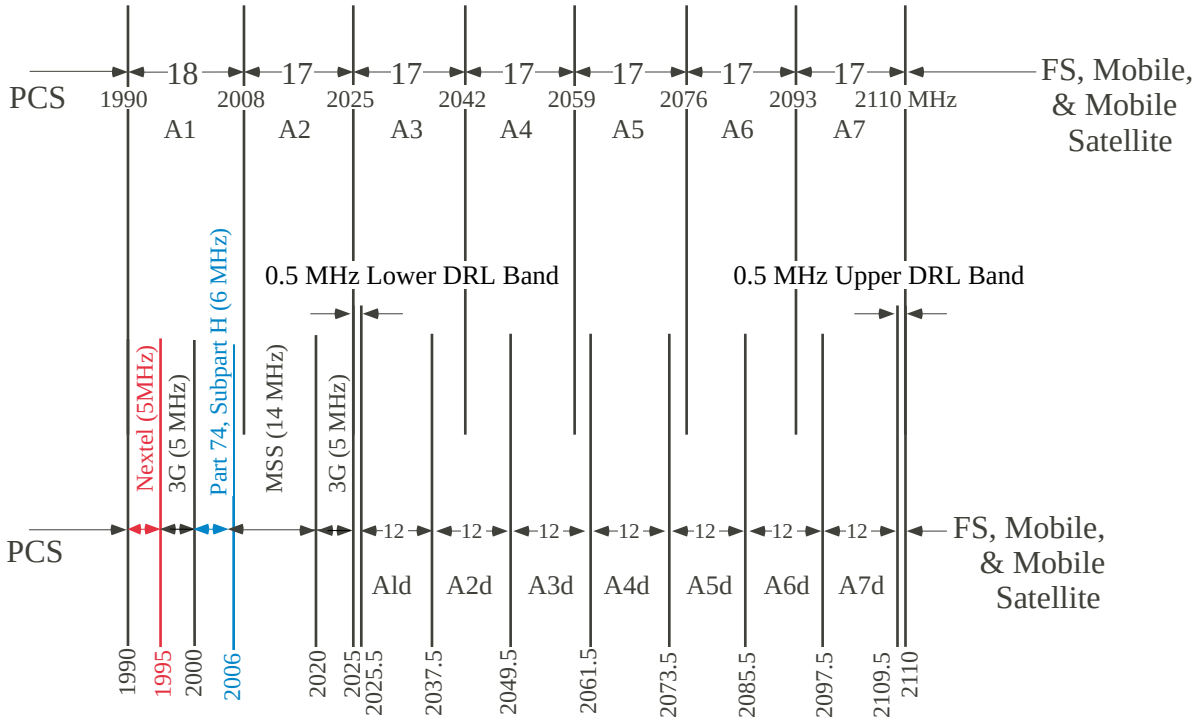
IB Docket 05-221, Returned 2 GHz MSS Spectrum

Prior v. Proposed 2 GHz BAS Band Plan



Proposed New Band Plan

DRL = Data Return Link

All frequencies and bandwidths are in MHz.

Part 74, Subpart H = Low Power Auxiliary BAS Stations

Note: An additional 6 MHz of Low Power Auxiliary BAS spectrum is also requested for the 2,180 - 2,186 MHz portion of the 2,180 - 2,200 MHz MSS band.

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