

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

In the Matter of

Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems	) ) ) ) ) )	ET Docket No. 00-258
The Establishment of Policies and Services Rules for the Mobile-Satellite Service in the 2 GHz Band	) ) ) ) )	IB Docket No. 99-81
Amendment of the U.S. Table of Frequency Allocations to Designate the 2500-2520/2670- 2690 MHz Frequency Bands for the Mobile- Satellite Service	) ) ) ) ) )	RM-9911
Petition for Rule Making of the Wireless Information Networks Forum Concerning the Unlicensed Personal Communications Service	) ) ) ) )	RM-9498
Petition for Rule Making of UTStarcom, Inc., Concerning the Unlicensed Personal Communications Service	) ) ) ) )	RM-10024

**COMMENTS OF THE  
CELLULAR TELECOMMUNICATIONS & INTERNET ASSOCIATION**

The Cellular Telecommunications & Internet Association ("CTIA")<sup>1</sup> hereby submits its comments on the Commission's *Third NPRM* issued in the above-captioned proceeding.<sup>2</sup> CTIA

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<sup>1</sup> CTIA is the international organization of the wireless communications industry for both wireless carriers and manufacturers. Membership in the association covers all Commercial Mobile Radio Service ("CMRS") providers and manufacturers, including cellular, broadband PCS, ESMR, as well as providers and manufacturers of wireless data services and products.

agrees that additional spectrum is needed for terrestrial wireless services, and that some of the bands discussed in the *Third NPRM* should be reallocated or otherwise made available for this purpose. As discussed below, however, it is critical that the Commission's allocation and service rule decisions take into account potential interference to existing and planned services.

**1910-1930/1990-2000 MHz Bands.** CTIA agrees with the Commission's proposal that, in light of its decision to reallocate the 1990-2000 MHz band from mobile satellite service ("MSS") to fixed and mobile use, it would make sense to consider pairing some of that spectrum with unlicensed personal communications services ("UPCS") spectrum from the 1910-1930 MHz band for a PCS-like service.<sup>3</sup> In particular, CTIA supports creation of a "G Block" that pairs 1910-1915 MHz with 1990-1995 MHz for a PCS-like terrestrial wireless service. Since the "G" block would be immediately adjacent to existing Broadband PCS services, it should be subject to the Part 24 technical rules used for Broadband PCS, and should have designated mobile and base transmit bands consistent with the existing operations in adjacent PCS bands. As the Commission notes, pairing these two five megahertz blocks would facilitate the use of existing PCS equipment, enabling significant economies of scale.<sup>4</sup>

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(cont.)

<sup>2</sup> *In the Matter of Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems, The Establishment of Policies and Services Rules for the Mobile-Satellite Service in the 2 GHz Band, Amendment of the U.S. Table of Frequency Allocations to Designate the 2500-2520/2670-2690 MHz Frequency Bands for the Mobile-Satellite Service, Petition for Rule Making of the Wireless Information Networks Forum Concerning the Unlicensed Personal Communications Service, Petition for Rule Making of UTStarcom, Inc., Concerning the Unlicensed Personal Communications Service, ET Docket No. 00-258, IB Docket No. 99-81, RM-9911, RM-9498, RM-10024, Third Notice of Proposed Rulemaking, FCC 03-16 (rel. Feb. 10, 2003) ("Third NPRM").*

<sup>3</sup> *Third NPRM* ¶¶ 47-48.

<sup>4</sup> *Third NPRM* ¶ 48.

As commenters, including CTIA, have explained on numerous occasions, however, the Broadband PCS spectrum should not be extended by more than five megahertz because the PCS base and mobile transmit frequencies require at least a 15 megahertz separation to prevent harmful interference to PCS receivers.<sup>5</sup> As an additional consideration, the MSS uplink band, which was recently made available for terrestrial mobile service (the ancillary terrestrial component offering, or “ATC”), is at 2000-2020 MHz, providing a gap of just 10 MHz between that band and the edge of the present PCS base transmit band.

In deciding how much spectrum in the 1910-1930 and 1990-2000 MHz bands might be reallocated to a PCS-like service, there are two potential sources of degradation to current PCS operations to consider. The first possible source of degradation to current PCS operations is that the band gap between the edge of the PCS base transmit band and the MSS/ATC uplink band would be reduced from 10 MHz to 5 MHz if the Commission were to add the G block, and to 0 MHz if the Commission were to reallocate 1995-2000 MHz. The second is that the band gap between the PCS mobile transmit and base transmit bands would be reduced from the current 20 MHz to 15 MHz if the Commission were to add the G block, and to 10 MHz if the Commission were to reallocate 1915-1920 MHz.

Turning first to the issue of reallocating 1995-2000 MHz for a PCS-like service, reducing the gap between the edge of the PCS base transmit band and the MSS/ATC uplink band to 0 MHz is not viable under any realistic deployment scenario. Under such an allocation, the MSS/ATC mobiles would significantly degrade PCS mobiles, even at large distances. This consideration alone makes this reallocation not feasible. In addition, reducing the gap between the PCS mobile transmit and base transmit bands to 10 MHz is also not feasible. Mobile

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*Third NPRM* ¶ 50, n.136.

handsets operating between 1915-1920 MHz would not be able to meet the generally accepted TIA standards for out-of-band emissions into the PCS base transmit band, and PCS service would be substantially degraded as a result. There is no filter in existence or which is under development that would allow mobile handsets operating in this spectrum to meet the required specification, since these handsets would have to operate just 10 MHz away from A block mobile receivers.

Even with respect to the G block, the fact that the band gap between a G block PCS mobile transmitter and an A block mobile receiver would be just 15 MHz, as opposed to the current gap of at least 20 MHz between PCS mobile transmitters and mobile receivers, will likely result in PCS handsets users experiencing some degradation. However, the potential for degradation is far less dramatic than with a 10 MHz separation, and a greater potential exists that future generations of handsets can be designed in a way that can result in an acceptable user experience.<sup>6</sup>

Adding the G block would also reduce the band gap between the edge of the PCS base transmit band and the MSS/ATC transmit band to 5 MHz, which is a more serious problem. In this case, a MSS/ATC mobile could interfere with a G block PCS mobile significantly more than in the PCS to PCS case. It is not possible for a MSS/ATC mobile transmitter just above 2000 MHz to meet the generally accepted TIA standards for out-of-band emission limits at 1995 MHz. However, there are some system solutions to mitigate this problem. For example, the FCC could require that the MSS/ATC licensees use the lower portion of the MSS/ATC allocation for MSS satellite transmission, or even absent such a regulation from the FCC, the MSS/ATC licensees

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<sup>6</sup> See, e.g., January 23, 2003, CTIA *Ex Parte* Letter to Ms. Marlene Dortch, IB Docket No. 01-185, ET Docket No. 00-258.

could adopt such a design in constructing their ATC systems. Given that such measures are available, allocation of the G block for PCS would provide a net benefit to the public.

In summary, these considerations mean that the band gap between the PCS mobile transmit and base transmit bands could be reduced from 20 MHz to 15 MHz, but no further. Accordingly, CTIA opposes reallocation of the 1915-1930 MHz band for higher-powered uses.<sup>7</sup> Although, as the Commission suggests, more stringent out-of-band emission limits could be applied to this piece of spectrum,<sup>8</sup> if such rules were tight enough to protect adjacent PCS operations, they would unacceptably compromise the use of the band for CMRS or advanced wireless services (“AWS”).

In addition, the Commission should design service rules for the 1995-2000 MHz band that ensure it would serve as a guardband to protect PCS operations from interference from MSS, including any MSS licensees that might apply for ATC authorization. This five megahertz block could be retained for broadcast auxiliary services (“BAS”), or other non-interfering unlicensed uses could be added to the allocation.

**2020-2025 and 2155-2180 MHz Bands.** CTIA proposes that the Commission make both the 2020-2025 and 2155-2180 MHz bands available for new fixed and mobile operations, including AWS.<sup>9</sup> The five megahertz at 2020-2025 MHz would be appropriate for AWS, so long as the Commission remains mindful of potential interference to and from adjacent operations. The 2020-2025 MHz band could, for example, be used for unpaired operations such

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<sup>7</sup> Until the Commission and carriers have the opportunity to assess the effect of increased UPCS deployment on the potential for harmful interference into the PCS bands, no changes to the technical rules governing the 1915-1930 MHz band should be made. *See Third NPRM* ¶ 52.

<sup>8</sup> *See Third NPRM* ¶ 50.

<sup>9</sup> *Third NPRM* ¶ 68.

as time division duplex (“TDD”), provided the Commission ensured that these applications would not interfere with other services using frequency division duplex (“FDD”) or other non-compatible technologies. In the alternative, this five megahertz could be used for relocation of some Department of Defense capabilities from the 1710 MHz band.

In contrast to the 2020-2025 MHz band, where there is significant separation from existing or possible PCS operations, the Commission should not consider unpaired operations in the 2155-2180 MHz spectrum. Deploying unpaired services in the 2155-2180 MHz band would create significant potential for harmful interference from TDD technologies to planned AWS operations.

Instead, CTIA proposes that the Commission pair the 2110-2180 MHz band asymmetrically with spectrum at 1710-1755 MHz, which already has been allocated to AWS. While the Commission’s original designation of the 1710-1755 and the 2110-2155 MHz bands for AWS use contemplated symmetrical pairing, by adding the 2155-2180 MHz band to the allocation, the Commission would provide AWS licensees with 25 MHz more spectrum for base transmit purposes.<sup>10</sup> Asymmetric pairing, for example of larger blocks in the 2110-2180 MHz band with smaller blocks in the 1710-1755 MHz band, would help ensure more efficient and effective use of the spectrum because many advanced wireless applications will require more spectrum for base transmit paths than for mobile transmit. The efficiencies gained through such

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<sup>10</sup> Both the 1710-1755 and 2110-2155 MHz bands were previously allocated for fixed and mobile services, and the Commission has commenced a rulemaking proceeding to establish the service rules for those bands. *Amendment of Part 2 of the Commission’s Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems*, ET Docket No. 00-258, *Second Report and Order*, 17 FCC Rcd. 23193 (2002); *Service Rules for Advanced Wireless Services in the 1.7 GHz and 2.1 GHz Bands*, WT Docket No. 02-353, *Notice of Proposed Rulemaking*, 17 FCC Rcd. 24135 (2002).

asymmetrical pairing would be the most effective use of this spectrum, and would help promote rapid deployment of next generation wireless services to consumers.

### **CONCLUSION**

For the foregoing reasons, CTIA urges the Commission to create a G Block for PCS-like services that pairs 1910-1915 MHz with 1990-1995 MHz; reject reallocation of the 1915-1930 and 1995-2000 MHz bands; and make the 2020-2025 and 2155-2180 MHz bands available for AWS. These proposals are depicted in the bandplan provided in Attachment A

Respectfully submitted,

/s/ Michael F. Altschul

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April 14, 2003

## CERTIFICATE OF SERVICE

I, Christine Blomquist, hereby certify that on this 14th day of April 2003, the foregoing Petition for Reconsideration of the Cellular Telecommunications & Internet Association was filed electronically on the FCC's Electronic Comment Filing System and copies were served via electronic mail to the following:

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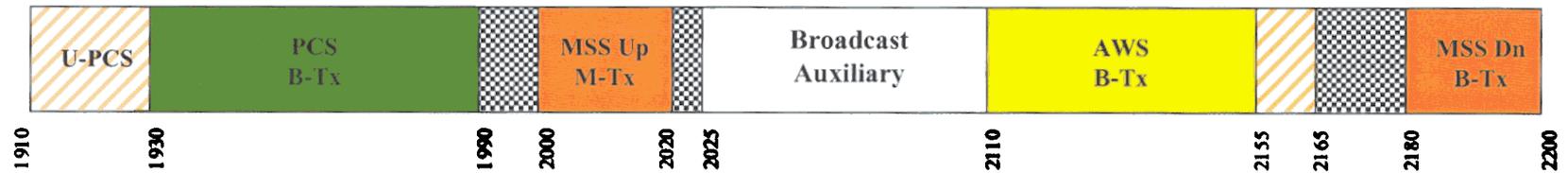
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*/s/ Christine Blomquist*

# Attachment A

## 1910 – 2200 MHz Band Plan

### Current Allocations



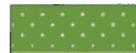
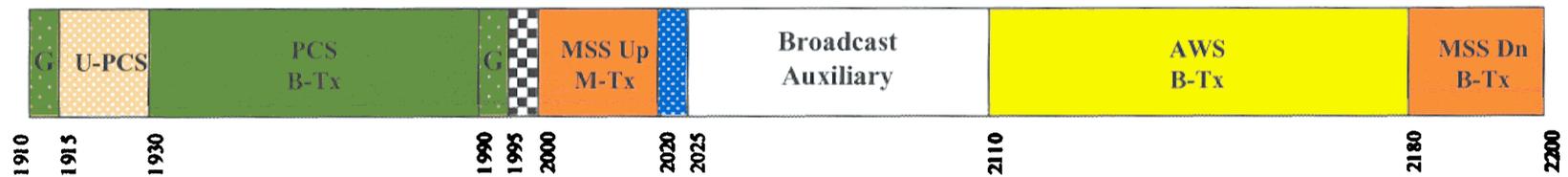
Reallocated from MSS.



Comment sought by FCC on potential reallocation.

# 1910 – 2200 MHz Band Plan

## CTIA Proposal



**PCS Expansion**



**Unlicensed**



**Guard Band**



**Advanced Wireless Services**

**Expanded to include 2155-2180 MHz and paired with 1710-1755 MHz in asymmetrical fashion.**



**Additional AWS**