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

In the Matter of	)	
	)	
Flexibility for Delivery of Communications by	)	IB Docket No. 01-185
Mobile Satellite Service Providers in the 2 GHz	)	
Band, the L-Band, and the 1.6/2.4 GHz Bands;	)	IB Docket No. 02-364

Review of the Spectrum Sharing Plan Among
Non-Geostationary Satellite Orbit Mobile Satellite
Service Systems in the 1.6/2.4 GHz Bands

To: The Commission

Via the ECFS

COMMENTS OF IEEE 802

IEEE 802[1] hereby respectfully offers its Comments in the above-captioned Proceeding.[2]

The members of the IEEE 802 that participate in the IEEE 802 standards process are interested parties in this proceeding. IEEE 802, as a leading consensus-based industry standards body, produces standards for wireless networking devices, including wireless local area networks ("WLANs"), wireless personal area networks ("WPANs"), and wireless metropolitan area networks ("Wireless MANs").

As an interested party in this Proceeding we appreciate the opportunity to provide these comments to the Commission.

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[1] The IEEE Local and Metropolitan Area Networks Standards Committee ("IEEE 802" or the "LMSC")

[2] This document represents the views of IEEE 802. It does not necessarily represent the views of the IEEE as a whole or the IEEE Standards Association as a whole.

INTRODUCTION

1. IEEE 802 offers the following comments in support of extending the authorized frequency spectrum in the 2.4 GHz band in Part 15.247 in accordance with the request for comment in the Commission's Report and Order and Notice of Proposed Rulemaking in the instant proceeding namely:

> **"***Finally, we seek comment on the possibility of re-allocating any returned Big LEO spectrum. Under the plan adopted in this Order, spectrum in the 2483.5-2492.5 MHz and 2498-2500 MHz bands could be available for other uses. For instance, we seek comment on allowing unlicensed devices to operate in any returned spectrum. Currently, we restrict the operation of unlicensed devices in the 2483.5-2500 MHz band to avoid interference to MSS***."**

IEEE 802 RECOMMENDS EXTENDING THE 2.4 GHZ "PART 15" BAND TO ADD THE SEGMENTS 2483.5 TO 2492.5 MHZ AND 2498 TO 2500 MHZ

2. Commercially available IEEE 802 Wireless Local Area Network (WLAN) and Wireless Personal Area Network (WPAN) devices operating in the 2.4 GHz band include 802.11b WLAN (11 Mbps), and 802.15.1WPAN (1 MHz) devices. Soon, commercially available devices will include 802.11g WLAN (54 Mbps), 802.15.3 WPAN (55 Mbps), and 802.15.4 WPAN (250 kbps) devices.

3. Presently, 802.11b devices are being deployed for WLAN applications including home and office networking, network bridging, wireless hotspots and many other uses at an unprecedented rate, resulting in significant economic growth in the related sectors of the US economy.

4. In addition, 802.15.1 (Bluetooth) devices are beginning to see wider applications in the US, and are proposed as the standard for wireless networking applications like the newly created Automotive Multimedia Interface Collaboration (AMI-C) initiative in automotive telematics, and a standard cord replacement interface for a variety of digital devices, including PDA's and mobile phones.

5. The imminent release of the 802.11g, 802.15.3 and 802.15.4 standards are expected to enable similar growth in both high rate (up to 55 Mbps) and low rate (250 kbps), low power applications in the 2.4 GHz band.

6. The additional contiguous bandwidth offered by extending the present band to 2492.5 MHz would permit IEEE 802 to accomplish the following extensions to the present suite of standards in the 2.4 GHz band:

- 802.11b/g: 3 additional channel center frequencies: 2467 MHz, 2472 MHz, 2477 MHz, including a non-overlapping channel at 2472 MHz, allowing the operation of four simultaneous non-overlapping channels in one physical location.
- 802.15.1: (Bluetooth) 11 additional 1 MHz channels, 2481-2490 MHz to facilitate more robust adaptive hoping in congested network environments.
- 802.15.3: 2 additional channels in frequency plan: 2469, and 2477 assuming channels are extended on 8 MHz centers.
- 802.15.4: (Zigbee) 1 additional channel at 2485 MHz

7. The additional flexibility offered by the extension to 2492.5 MHz enhances support for mixed mode applications, and permits frequency planning within the network application space to minimize the impact of interference on link throughput. Some hypothetical network configurations/applications that could benefit from this flexibility include:

- Sensor networks employing 802.15.4 devices using one or more 802.15.1 devices as data aggregation nodes linked to an 802.11b backhaul to a wired network. Such a network could support smart-building applications, industrial control and monitoring networks, and facility security implementations.
- Robust combinations of 802.11b and 802.11g hotspots with a full four channels to mix and match based on required capacity.
- Voice over IP networks using 802.15.1 handsets linked to a network of distributed 802.15.3 devices that are tied via 802.11b/g nodes or via 802.16 wireless MAN nodes to the larger wired network.
- Other combinations are obviously possible.

8. We believe that extending the 2.4 GHz band to 2492.5 MHz enhances the synergy offered by our suite of wireless standards, enabling a wide variety of yet to be discovered applications for multi-mode wireless networks.

IEEE 802 RECOMMENDS COMPLETELY REMOVING THE BAND 2483.5 TO 2500 MHZ FROM THE LIST OF RESTRICTED FREQUENCIES UNDER PART 15.205

9. We understand the Commission's desire to protect MSS ATC operations in the this band, and that the Commission might choose to modify the restricted band to cover the range 2492.5 to 2498 MHz in order to provide protection to ATC operations in that segment of the MSS band consistent with previous protections.

10. We believe that the actual deployment of ATC operations in the context of MSS may be questionable based on the economic status of the parties involved. We further argue that the full utilization of the 2483.5-2492.5 MHz band by IEEE 802 based networks offers more immediately achievable economic value to the US wireless economy if the less restrictive 20 dB rule would replace the more onerous 500 uV/m at 3 m requirement in a new regime for devices operating near the 2492.5 MHz band edge.

11. Specifically, our analysis indicates that the following extensions of 802 wireless standards operations could result if the restricted band rule were replaced with the 20 dB rule:

- 802.15.1 channel assignments could be extended to an additional 2 channels: 2490 MHz, and 2492 MHz, an additional 2 channels useful for interference avoidance through selective frequency hopping.
- 802.15.3 channel assignments could be extended to 2485 MHz, allowing an additional frequency assignment .
- 802.15.4 channel assignments could be extended to an additional channel at 2490 MHz.
- 802.11b channel assignments could be extended to an additional channel at 2482 MHz, allowing an additional channel which could be used in the overlapping frequency plan, increasing the available channels to a total of 8 channels from the current 6 channel limit.

12. These additional channels would be highly valuable in support of mixed mode wireless network applications.

IEEE 802 RECOMMENDS EXTENDING THE PART 15 FREQUENCY ALLOCATION TO THE FULL 2400 TO 2500 MHZ BAND IN THE EVENT MSS LICENSEES FAIL TO MEET ATC BUILD OUT SCHEDULES IMPOSED BY THE COMMISSION

13. The added contiguous spectrum would significantly improve IEEE 802 wireless network usefulness in mixed mode applications, extending the channel assignments to provide the possibility of increasingly complex and flexible network applications, with better coexistence between subnets. The additional flexibility will increase the incentives to deploy useful networks, leading to further economic growth based on our suite of standards.

Respectfully submitted,

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