

Donald Abelson
Chief of the International Bureau
Federal Communications Commission
445 12th Street SW
Washington, D.C. 20554

Dear Mr. Abelson:

The National Telecommunications and Information Administration on behalf of the Executive Branch Agencies, has approved the release of one additional Draft Executive Branch (NTIA) proposal considering federal agency inputs toward the development of U.S. Proposals for WRC-03.

The proposal is concerned with agenda item 1.5, which will consider, in accordance with Resolution **736 (WRC-2000)**, regulatory provisions and spectrum requirements for new and additional allocations to the mobile, fixed, Earth exploration-satellite and space research services, and to review the status of the radiolocation service in the frequency range 5 150 – 5 725 MHz, with a view to upgrading it, taking into account the results of ITU-R studies. This proposal addresses issues related to the 5 150 - 5 650 MHz band and makes changes that will protect the United States' interests in this frequency band.

This proposal is forwarded for your consideration and review by your WRC-03 Advisory Committee. Jim Vorhies from my staff will contact Alexander Roytblat and reconcile any differences.

Sincerely,

(Signed April 17, 2002)
Fredrick R. Wentland
Acting Associate Administrator
Office of Spectrum Management

Enclosure

United States of America

PROPOSAL FOR THE WORK OF THE CONFERENCE

Agenda Item 1.5: to consider, in accordance with Resolution **736 (WRC-2000)**, regulatory provisions and spectrum requirements for new and additional allocations to the mobile, fixed, Earth exploration-satellite and space research services, and to review the status of the radiolocation service in the frequency range 5 150 – 5 725 MHz, with a view to upgrading it, taking into account the results of ITU-R studies;

Background Information: At WRC-2000 there were several proposals for items to be placed on the WRC-03 agenda dealing with spectrum in the 5 GHz range. These items included new allocations to the mobile service for Wireless Access Systems (WAS) including Radio Local Area Networks (RLAN) and the fixed service for Fixed Wireless Access (FWA) in Region 3, an additional allocation to the Earth exploration-satellite service (active) and space research service (active), and an upgrade of the radiolocation allocation in the 5 350 – 5 650 MHz band. These were combined under one agenda item since the possible allocation to any one of these services would affect the potential allocation of one or more of the other services within this frequency range.

Technology has evolved to the point where wireless local area networks can be readily and inexpensively deployed to support the businessman or student that is in a campus environment. These devices are becoming widely used in some parts of the world, particularly in North America and Europe. The U.S. domestic allocation table allows for the use of WAS devices on an unlicensed, non-interference basis in the 5 150 – 5 350 and 5 725 – 5 825 MHz bands. These devices have power level and antenna gain restrictions placed on them to protect the existing services, which have been successfully sharing these bands. It is also expected that similar restrictions on FWA systems would be necessary to protect the existing services. For example, studies show that the presence of outdoor wireless access system transmitters can cause significant interference to spaceborne active sensors that operate in the EESS and SRS. Furthermore, European and ITU-R studies have also shown that these WAS devices will interfere with certain radiolocation systems that operate in the 5 250 – 5 350 MHz band. Recognizing this incompatibility, the European Radiocommunications Office (ERC) decided in Decision ERC 99(23) that both Dynamic Frequency Selection (DFS) and Transmitter Power Control (TPC) were required elements in implementing WAS use in these bands in order to protect the existing allocated services. The ITU-R has concluded that restrictions are also necessary to protect the MSS feederlinks in the 5 150 – 5 250 MHz band. It should be noted that studies on the effectiveness of DFS to protect existing services are ongoing in the ITU-R and that no decision on an allocation to the mobile service for use by WAS in these bands should be made until studies are completed. Lastly, preliminary ITU-R studies of radiolocation sharing with FWA have shown that large separation distances or other mitigation techniques such as receiver standards or error-correction coding are required to prevent mutual interference.

Active microwave sensors on board spacecraft are an increasingly important tool for monitoring the Earth's environment and oceans through the determination of wave height and oceanic currents as well as for radar imaging of the Earth's surface. The need for an additional 110 MHz of spectrum adjacent to the current international allocation from 5 250 – 5 460 MHz is well documented within the ITU-R. The member space agencies of the Space Frequency Coordination Group (SFCG) have reviewed requirements for the various active sensor measurements, including TOPEX/POSEIDON and JASON.

They have recognized the requirement for an extension of the existing allocated primary band (5 250 – 5 460 MHz) for enhanced vertical resolution for spaceborne altimeters and enhanced horizontal resolution for synthetic aperture radars (SARs). Studies and past operational experience has shown that operation in bands allocated to the radiolocation, radionavigation, maritime radionavigation and aeronautical radionavigation services has proven to be feasible in the 5 460 – 5 570 MHz band.

WRC-97 first considered the possibility of an allocation upgrade for the radiolocation service in the 2 900 – 3 400 MHz and 5 350 – 5 650 MHz bands by placing this matter on the draft WRC-2001 Agenda. A need for 600 MHz of additional primary radiolocation spectrum for radiolocation systems has been determined. Changes in technology are driving the need for larger bandwidth in order to be able to pick smaller and less reflective radar targets out of background clutter. Experience and studies have shown that the radiolocation service can successfully share the band 5 350 – 5 650 MHz with radionavigation and EESS/SRS active systems. In fact, studies of sharing between the radiolocation service and EESS (active) carried out for CPM-97 by JWP-7-8R support such sharing.

Proposal:

**Article S5
Frequency Allocations**

5 150-5 350 MHz

Allocation to services	
Region 1	Region 2
Region 1	Region 2
Region 1	Region 2
USA/ / 1 NOC	5 150-5 250 AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE SERVICE (Earth-to-space) 5.447A 5.446 5.447 5.447B 5.447C
USA/ / 2 MOD	5 250-5 255 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D 5.448 5.448A
USA/ / 3 MOD	5 255- 5 350 EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) 5.448 5.448A

Reasons: The deletion of the footnote **5.448A** is justified based on the sharing situation between the earth exploration-satellite (active) and the space research (active) services and the radiolocation service in the band 5 250 – 5 350 MHz. These two services were found to be compatible in ITU-R studies for the band 5 250 – 5 350 MHz making footnote **5.448A** unnecessary.

The band 5 150 – 5 350 MHz should not be allocated to the mobile service for the implementation of wireless access systems including RLANs. Initial studies indicate that sharing between these systems and existing services in this band is not be feasible unless Dynamic Frequency Selection (DFS) proves to be an effective interference mitigation technique for the wireless systems in order to protect existing services. These studies are not complete and further study in the ITU-R is required before such an allocation can be considered. Similarly, the band 5 250 – 5 350 MHz should not be allocated to the fixed service for the implementation of fixed wireless access systems at this time.

5 350-5 725 MHz

		Allocation to services		
		Region 1	Region 2	Region 3
USA/ / 4 MOD	5 350-5 460	AERONAUTICAL RADIONAVIGATION 5.449		
		EARTH EXPLORATION-SATELLITE (active) 5.448B		
		<u>RADIOLOCATION</u>		
		<u>SPACE RESEARCH (active)</u>		
		Radiolocation ADD 5.U.SA1 ADD 5.U.SA2		
USA/ / 5 MOD	5 460-5 470	<u>EARTH EXPLORATION-SATELLITE (active)</u>		
		<u>RADIOLOCATION</u>		
		RADIONAVIGATION 5.449		
		<u>SPACE RESEARCH (active)</u>		
		Radiolocation ADD 5.U.SA1 ADD 5.U.SA2		
USA/ / 6 MOD	5 470- 5 570	<u>EARTH EXPLORATION-SATELLITE (active)</u>		
		MARITIME RADIONAVIGATION		
		<u>RADIOLOCATION</u>		
		<u>SPACE RESEARCH (active)</u>		
		Radiolocation 5.450 5.451 5.452 ADD 5.U.SA1		
USA/ / 7 MOD	5 570-5 650	MARITIME RADIONAVIGATION		
		<u>RADIOLOCATION</u>		
		Radiolocation		
		5.450 5.451 5.452		
USA/ / 8 <u>NOC</u>	5 650-5 725	RADIOLOCATION		
		Amateur		
		Space research (deep space)		
		5.282 5.451 5.453 5.454 5.455		

Reasons: The existing allocation of the band 5 350 – 5 650 MHz to the radiolocation service on a secondary basis should be upgraded to primary status as studies have shown that the radiolocation service is compatible with existing primary services in this frequency range.

The band 5 350 – 5 460 MHz should be allocated to the space research service (active) on a primary basis as the sharing situation is identical to that of the previously allocated earth exploration-satellite service (active) and this band is needed to make a contiguous allocation for the space research service (active). The band 5 460 – 5 570 MHz should be allocated to the earth exploration-satellite service (active) and the space research service (active) on a primary basis as studies have shown that spaceborne active sensors operating in these services can share the band with the radars operating in the radionavigation, maritime radionavigation and radiolocation services as long as the active sensors meet the design criteria and utilize the mitigation techniques given in Recommendation ITU-R SA.1280. Footnote **5.U.SA1** is added in order to ensure the protection of these services in their various allocated bands.

The band 5 470 – 5 725 MHz should not be allocated to the mobile service for the implementation of wireless access systems including RLANs. Initial studies indicate that sharing between these systems and existing services in this band is not be feasible unless Dynamic Frequency Selection (DFS) proves to be an effective interference mitigation technique for the wireless systems in order to protect existing

services. These studies are not complete and further study in the ITU-R is required before such an allocation can be considered.

USA/ / 9 SUP

5.448A

Reasons: There is no technical justification for this footnote that was enacted at WRC-97 and that make the EESS (active) and SRS (active) de facto secondary services in the band 5 250 – 5 350 MHz. This footnote should be suppressed.

USA/ / 10 SUP

5.448B

Reasons: This footnote should be replaced with the new footnote **5.USA1** that clarifies the sharing situation between EESS (active), SRS (active), and the other allocated services in these bands.

USA/ / 11 ADD

5.USA1 The Earth exploration-satellite (active) and space research (active) services operating in the frequency range 5350-5470 MHz shall not cause harmful interference to, or claim protection from harmful interference from operations in accordance with **5.449**. Additionally, the Earth exploration-satellite (active) and space research (active) services operating in the frequency range 5460-5570 MHz shall not cause harmful interference to the radiolocation service in the frequency range 5460-5570 MHz, and maritime-radionavigation service in the frequency range 5470-5570 MHz and should take into account Recommendation ITU-R SA.1280.

Reasons: If spaceborne active sensors operating in the EESS (active) and SRS (active) adhere to the design considerations and mitigation techniques found in Recommendation ITU-R SA.1280, the radiolocation, aeronautical radionavigation, maritime radionavigation and radionavigation services will be protected from harmful interference and will not be constrained in any manner.

USA/ / 12 ADD

5.USA2 in the frequency band 5350-5470 MHz, stations in the radiolocation service shall not cause harmful interference to, or claim protection from stations in the aeronautical-radionavigation service operating in accordance with **5.449**.

Reasons: This footnote defines the aeronautical-radionavigation service operations as having priority over the radiolocation service in the 5350-5470 MHz band. The radiolocation operations cannot cause interference to aeronautical-radionavigation systems, nor can the radiolocation service claim protection from the aeronautical-radionavigation service operating in accordance with **5.449**.

USA/ /13 NOC

5.452 Between 5 600 MHz and 5 650 MHz, ground-based radars used for meteorological purposes are authorized to operate on a basis of equality with stations of the maritime radionavigation service.

Reasons: Many administrations use the band 5 600 – 5 650 MHz for these meteorological radars and this usage should be preserved.