

Result of August 9, 2001 meeting of IWG-5
Preparation for ITU Radiocommunication Conferences

UNITED STATES
PRELIMINARY VIEWS ON WRC-03

WRC-2003 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 5150-5725 MHz with a view to upgrading it, taking into account the results of ITU-R studies

ISSUE: The technical feasibility of accommodating all of the requests for new and additional allocations for the mobile, fixed (Region 3), Earth exploration-satellite (EESS) and space research (SRS) services and also the upgrade of the radiolocation allocation in a limited amount of spectrum.

BACKGROUND: 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 and additional allocations to the mobile (for Radio Local Area Networks (RLAN)), fixed (for Fixed Wireless Access (FWA) in Region 3), Earth exploration-satellite and (active) and space research (active) services. Also, an upgrade of the radiolocation allocation in 5350-5650 MHz was proposed. These were combined into 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 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 already allows for the use of Radio LAN and FWA devices on an unlicensed, non-interference basis in the 5150-5350 and 5725-5825 MHz bands. These devices have power level and antenna gain restrictions on them to protect the existing services. Europe has also implemented these devices in similar spectrum, also with significant usage restrictions. Initial analysis by the CEPT shows that RLAN devices cannot share with radars in the subject bands without Dynamic Frequency Selection (DFS) or like mitigation techniques. However, testing is expected to be performed to ensure that DFS can detect and avoid all types of radars in the subject bands. It is also expected that similar restrictions on FWA systems will be necessary to protect the existing services. For, example, studies show that presence of outdoor wireless access system transmitters can cause significant interference to spaceborne active sensors that operate in the EESS and SRS. In addition, the ITU-R has concluded that restrictions are also necessary to protect the MSS feederlinks in the 5150-5250 MHz band. 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 5250–5460 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 (5250 - 5460 MHz) for enhanced vertical resolution for spaceborne altimeters and enhanced horizontal resolution for synthetic aperture radars (SARs). Previous studies and past operational experience has shown that operation in bands allocated to the radiolocation, radionavigation and aeronautical radionavigation services has proven to be feasible. Although further study is needed to confirm that this true in the 5 460 – 5 570 MHz band, ITU-R preliminary studies indicate that this is the case.

WRC-97 first considered the possibility of an allocation upgrade for the radiolocation service in the 2.9-3.4 GHz and 5.35-5.65 GHz bands by placing this matter on the draft WRC-2001 Agenda. A need of 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 has shown that the radiolocation service can successfully share the band 5350-5650 MHz with radionavigation and EESS/SRS active systems. In fact studies of sharing between radiolocation and active space borne sensors carried out for CPM-97 by JWP-7-8R generally support such sharing.

U.S. VIEW: Based upon the long history of successful co-band operations and the JWP 7-8R studies, it should be possible to achieve the upgrade for radiolocation with the incumbent services. By the same reasoning, the EESS extension in the 5460-5570 MHz band is also feasible. It is possible for radiolocation, EESS/SRS and MSS feederlinks to share with communications systems such as RLANs in the mobile service or FWA in the fixed service, but that restrictions consistent with US rules will need to be placed upon the RLAN and FWA systems to protect the other services. The US does not support a generic allocation for the mobile service. However, provision for RLANs could be supported if interference mitigation techniques have been demonstrated to be effective. The US also does not support an allocation for FWA in the 5250-5350 MHz band until testing shows that mitigation techniques will protect existing services.