

Document IWG-5/028r3 (05-29-02)
Author: Carl R. Stevenson

WRC-2003 Advisory Committee
IWG-5
Draft Proposal on WRC-03 Agenda Item 1.5

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

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 allocations to the mobile service (for Wireless Access Systems (WAS), including Radio Local Area Networks (RLAN)) and to the fixed service (for Fixed Wireless Access (FWA) in Region 3). In addition, revisions to allocations for the Earth exploration-satellite and (active) and space research (active) services and the radiolocation service will be considered at WRC-03. These matters were combined into one agenda item, since possible additional allocations or revisions to existing allocations for any one of these services would affect the potential allocation of one or more of the other services within the 5 GHz frequency range.

One of few recent telecommunications success stories has been the rapid growth of broadband access through the use of wireless access systems, including RLANs. The technology supporting the majority of these applications is for low-power, short-range devices that permit users to communicate inexpensively. Technology has evolved to the point where wireless networks can be readily and inexpensively deployed to support a wide variety of applications including service to businesses and their customers, educational and health care institutions, and even broadband access provided to private citizens in their homes. These devices are becoming widely used in some parts of the world, particularly in North America and Europe.

Most administrations are aware of the growth of RLAN devices in the 2.4 GHz range and the attendant benefits to users and economies. In the United States and in other administrations frequencies in the 5 GHz range have been set aside for similar wireless broadband access service. The 5 GHz RLAN arena will be the next growth area for inexpensive wireless broadband access; devices are already coming to market.

The United States Federal Communications Commission's rules¹ allow for the use of RLAN and FWA devices without a requirement for individual licenses, on a non-protected, 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 allocated services and can neither claim protection from nor cause interference to the existing services in these bands. Thus, in the United States, an RLAN system meeting the power level and antenna gain restrictions must still remedy any interference that it causes. Europe has also provided for the use of these devices in similar spectrum, but on a co-primary allocation basis with technical restrictions designed to assure the protection of pre-existing primary services.

A globally harmonized allocation for such devices, as is clearly contemplated in Resolution **736** (WRC-2000), would greatly enhance the utility and benefit to society of these devices by facilitating roaming, reducing manufacturing and end-user costs, and providing a greater degree of regulatory certainty as to the future value of investments in this technology as well as the long-term utility for users. .

Because 5 GHz wireless access systems, including RLANs, will share spectrum with services allocated on a primary basis, it is essential that such devices be able to coexist with those other services. In the ITU, studies are underway to ensure that mitigation techniques, such as dynamic frequency selection ("DFS"), that are being developed by RLAN industry standards bodies will allow wireless access systems, including RLANs, to detect and avoid other primary users of 5 GHz spectrum.² Consequently, in addition to proposing an allocation for 5 GHz wireless access systems, including RLANs, the United States also proposes regulatory measures to ensure the continued protection of other co-primary 5 GHz services.

The United States believes that 5 GHz wireless access systems, including RLANs, have the potential to greatly enhance the roll-out of broadband services globally. Key factors for successful broadband access on a global basis are the continued ability to deploy these devices ubiquitously without a requirement for individual licenses and also the harmonization globally of spectrum available for such uses. In addition, these devices must protect other critical users of 5 GHz spectrum. In the United States today these devices operate in 5 GHz spectrum while protecting other users at 5 GHz. The United States believes this operating situation can be extended worldwide.

¹ See 47 C.F.R. Part 15, Subpart E.

² IEEE 802.11 TGh has done significant work in developing extensions to the 802.11 standard for DFS and TPC, with a Draft Standard nearing completion. Furthermore, both ETSI BRAN and WECA are currently working on sharing studies, based on detailed knowledge and realistic assumptions about how RLANs actually work.

Proposal:

USA/1.5/1

ADD

5.xxxY Use of this band by the mobile service is intended for use by wireless access systems, including RLANs (see ITU-R Recommendation M.1450). Other forms of mobile service usage shall not be permitted in this band.

Reason: To clarify that the mobile allocations proposed for addition to the table of allocations are restricted to WAS/RLAN device usage only and are not “generic” mobile allocations open to other forms of usage.

USA/1.5/2

ADD

5.xxxZ In the bands 5150-5350 MHz and 5470-5725 MHz, stations in the mobile service shall not cause harmful interference to other stations operating under existing primary allocations. When permitting the use of wireless access systems, including RLANs, in these frequency bands, administrations should take note of the availability of mitigation techniques such as those in the most recent version of ITU-R Recommendation M.xxxx “Dynamic Frequency Selection and Transmit Power Control in 5 GHz RLANs,” which describes means to significantly reduce or eliminate potential interference. Administrations should strongly encourage the use of such techniques.

Reason: To provide regulatory measures for the protection of the existing co-primary services from harmful interference from wireless access systems, including RLANs, authorized under the proposed (restricted) mobile allocation.

USA/1.5/3

MOD

5 150-5 725 MHz

Allocation to services		
Region 1	Region 2	Region 3

5 150-5 250	AERONAUTICAL RADIONAVIGATION FIXED-SATELLITE SERVICE (Earth-to-space) 5.447A ADD MOBILE 5.xxxY 5.446 5.447 5.447B 5.447C ADD 5.xxxZ	

5 250-5 255	EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION SPACE RESEARCH 5.447D ADD MOBILE 5.xxxY 5.448 5.448A ADD 5.xxxZ
5 255-5 350	EARTH EXPLORATION- SATELLITE (active) RADIOLOCATION SPACE RESEARCH (active) ADD MOBILE 5.xxxY 5.448 5.448A ADD 5.xxxZ
5 350-5 460	EARTH EXPLORATION- SATELLITE (active) 5.448B AERONAUTICAL RADIONAVIGATION 5.449 Radiolocation
5 460-5 470	RADIONAVIGATION 5.449 Radiolocation
5 470-5 650	MARITIME RADIONAVIGATION Radiolocation ADD MOBILE 5.xxxY 5.450 5.451 5.452 ADD 5.xxxZ
5 650-5 725	RADIOLOCATION ADD MOBILE 5.xxxY Amateur Space research (deep space) 5.282 5.451 5.453 5.454 5.455 ADD 5.xxxZ

Reason: Provide globally harmonized spectrum for wireless access systems, including RLANS, fulfilling the need recognized in Agenda Item 1.5 and Resolution 736, WRC-2000.

USA/1.5/4

SUP *resolves* 1 of RESOLUTION 736 (WRC-2000)

...

resolves

that, on proposals from administrators and taking into account the results of studies in ITU-R and the Conference Preparatory Meeting, WRC-03 should consider:

~~1 allocation of frequencies to the mobile service in the bands 5 150-5 350 MHz and 5 470-5 725 MHz for the implementation of wireless access systems, including RLANS;~~

... [the disposition of the remainder of the resolves (2, 3, 4) of RESOLUTION 736 (WRC-2000) are beyond the scope of this proposal]

Reason: If the provisions of this proposal are adopted, *resolves* 1 of RESOLUTION 736 (WRC-2000) and the relevant part of Agenda Item 1.5 (WRC-03) will have been satisfied and this section will no longer be required.

----- Original Message -----

From: Sumner, Dave, K1ZZ <dsumner@arrl.org

To: <don@jansky-barmat.com

Sent: Friday, May 31, 2002 9:23 AM

Subject: ARRL IWG-5 statement

Don, here is the ARRL statement for inclusion as a minority view along with the majority recommendation on Agenda item 1.5.

I appreciate the sensitivity with which you chaired the discussion of the issue on Wednesday.

David Sumner
Chief Executive Officer, ARRL

The American Radio Relay League (ARRL) - The National Association for Amateur Radio - maintains its objection to the proposed primary mobile allocation in the band 5650-5725 MHz because of an existing secondary allocation to the amateur service and an allocation by footnote 5.282 to the amateur-satellite service of 5650-5670 MHz limited to the Earth-to-space direction.

The ARRL is concerned about the future utility of the amateur secondary allocation in the band 5650-5725 MHz. Amateurs enjoy a compatible and stable sharing relationship with the primary radiolocation service and secondary space research (deep space). The addition of WAS and RLAN to this band would add another application that its proponents expect to be widely deployed, and we expect such systems to be co-located or adjacent to amateur stations. The amateur service has secondary allocations in bands immediately above 5725 MHz. However, they too have seen recent additions of other ubiquitous systems of Unlicensed National Information Infrastructure (U-NII) in the band 5725-5825 MHz and Dedicated Short-Range Communications (DSRC) at 5850-5925 MHz.

Our objection could be removed by proposing NOC (no change) for the band 5650-5725 MHz or deleting it entirely from the document. The ARRL prefers a proposal of NOC (no change) in this band.

ARRL is interested in following the development of dynamic frequency selection (DFS) protocols and participating in studies related to this mitigation technique.

CC: "Dr. Robert J. Fontana" <rfontana@multispectral.com>, <HolidayCC@STATE.GOV>, <jvorhies@ntia.doc.gov>, "internet" <knebbia@ntia.doc.gov>, <jennifer.warren@lmco.com>, "Scott Kotler" <SKOTLER@fcc.gov>, "Richard Swanson" <RSWANSON@fcc.gov>, "Robert Nelson" <RNELSON@fcc.gov>, "Paul Marrangoni" <PMARRANG@fcc.gov>, "Paul Locke"

<PLOCKE@fcc.gov>, "Pamela Gerr" <PGERR@fcc.gov>, "Marcus Wolf"
<MWOLF@fcc.gov>, "Larry Reed" <LREED@fcc.gov>, "Linda Dubroof"
<LDUBROOF@fcc.gov>, "Linda Armstrong" <LARMSTRO@fcc.gov>, "John Martin"
<JMARTIN@fcc.gov>, "John Giusti" <JGIUSTI@fcc.gov>, "Julie Buchanan"
<JBUCHANA@fcc.gov>, "Ira Keltz" <IKELTZ@fcc.gov>, "Edward Jacobs"
<EJACOBS@fcc.gov>, "Donald Weiland" <DWEILAND@fcc.gov>, "Diane Garfield"
<DGARFIEL@fcc.gov>, "Chris Murphy" <CMURPHY@fcc.gov>, "Charles Breig"
<CBREIG@fcc.gov>, <dena.turovlin@cingular.com>, "internet"
<mindel@tmgtelecom.com>, "internet" <tom@teledesic.com>, "internet"
<williamsfk@state.gov>, <Kimberly.Baum@ses-americom.com>, "internet"
<audrey.allison@pss.boeing.com>, "internet" <dbethea@panamsat.com>,
"internet" <wireland@mindspring.com>, "internet" <sbaruch@lsl-law.com>,
"internet" <don@jansky-barmat.com>, <jwengryn@hns.com>, "internet"
<pmahoney@finalanalysis.com>, "internet" <ggomezcc@email.msn.com>, "internet"
<david.wye@attws.com>, "internet" <wrummler@att.net>, "internet"
<larrym@ashto.org

Globalstar

Washington Technical Office
10004 Lewisdale Road
Ijamsville, MD
21754

3 June 2002

Mr. Brian Fontes, Chairman
FCC WRC-2003 Advisory Committee
c/o Cellular Telecommunications and Internet Association
1250 Connecticut Avenue, N.W.
Washington, D.C. 20036

Dear Mr. Fontes,

This letter is in reference to the draft proposal in Document IWG-5/028r3 (05-29-02), which calls for primary allocations on a worldwide basis for use by Wireless Access Systems (WAS) including Radio Local Area Networks (RLANs) in bands around 5 GHz. The purpose of this letter is to advise you that Globalstar, an ITU Sector Member and active participant in WRC-03 Advisory Committee activities, strongly objects to the inclusion in this proposal of the band 5150-5250 MHz.

The rationale offered for proposing a primary allocation in the document is the harmonization of bands on a global basis for RLANs and

"... providing a greater degree of regulatory certainty as to future value of investments in this technology as well as long-term utility for users."

As this technology is permitted in the USA under Part 15 of the FCC Rules and, to the best of our knowledge, is foreseen in the rest of the world to be implemented on a license exempt and non-interference basis, there would seem to be no rational basis consistent with past regulatory policy to accord such an application primary status in the international Table of Allocations.

An underlying principle of services sharing a frequency allocation on a primary basis is that the services be able to coordinate their operation in order to prevent or mitigate mutual interference. The main reason for allowing license exempt usage of the spectrum is to permit deployment of transmission devices without the requirement of record keeping or registration as would be done for a licensed usage. The two approaches to regulation are mutually

exclusive. In other words, the ability to coordinate operation is inconsistent with deployment of a service without registration.

Recalling the Report and Order (FCC 97-5, 9 January 1997) that amended the Part 15 Rules to include Unlicensed-National Information Infrastructure (U-NII) devices, the FCC noted that

"... the current record does not provide a compelling reason to believe that such devices require higher or more protected status than we have provided for low power unlicensed devices in the past."

Providing a primary allocation for RLANs would contradict the decision of the FCC in Report and Order FCC 97-5 and would, therefore, be counter to established U.S. policy.

The RLANs proposal could be accommodated through a footnote. For example, at WRC 2000, harmonization of bands for use by IMT-2000 systems was sought. This harmonization was accomplished through a footnote to the Table of Allocations that indicated that administrations wishing to implement IMT-2000 systems could do so in bands identified in the footnote. A similar designation could be made for Wireless Access Systems, including RLANs, through a footnote, thus avoiding an allocation where none is warranted.

In summary, Globalstar opposes the inclusion of the band 5150-5250 MHz in the proposal given in Document IWG-5/028r3 for primary allocations to the mobile service in bands around 5 GHz. Globalstar further believes that, based on Report and Order FCC 95-7, a primary allocation for RLAN applications would be improper and unlawful under current FCC Rules. Finally, Globalstar believes that frequencies for Wireless Access Systems, including RLANs, can be harmonized through the use of a suitable footnote to the Table of Allocations.

Globalstar stands ready to work with the members of IWG-5 to create a proposal for WRC-03 Agenda Item 1.5 that will serve all of the users of the 5150-5250 MHz band and be successful at WRC 2003.

Very truly yours,

David E. Weinreich
Spectrum Manager

CC: Don Jansky
Chairman IWG-5

Carl Stevenson
Agere Systems

William F. Adler
Vice President-Legal & Regulatory Affairs
Globalstar, L.P.

William D. Wallace
Crowell & Moring