

**WRC-2003 Advisory Committee**

**IWG-2**

**Draft U.S. Proposal on WRC-03 Agenda Item 1.15 (Resolution 606)**

**Agenda Item 1.15 (Resolution 606):** *“to review the results of studies concerning the radionavigation-satellite service in accordance with Resolutions 604 (WRC-2000), 605 (WRC-2000) and 606 (WRC-2000)”*

**Background information**

WRC-2000 agreed to additional allocations to the Radionavigation Satellite Service (RNSS) (space-to-Earth) in the 1 260-1 300 MHz band making the entire 1 215-1 300 MHz band available for the use of this service in the band 1 215-1 300 MHz. This band was also allocated to the RNSS (space-to-space). The band 1 240-1 300 MHz is also allocated on a co-primary basis to radiolocation and radionavigation services for use of long-range primary radar systems. Studies were conducted pursuant to the provisions of this Resolution. Among other things, Resolution 606 called for studies on “the need for a power flux-density limit concerning the operation RNSS (space-to-Earth) systems in the frequency band 1 215–1 300 MHz in order to ensure that the radionavigation-satellite service (space-to-Earth) will not cause harmful interference to the radionavigation and radiolocation services.” Also in Resolution 606, WRC-2000 resolved that no additional constraints are to be placed on RNSS systems operating in the 1 215-1 260 MHz band.

The GPS, an RNSS system which operates on 1 227.6 MHz (24 MHz bandwidth), has been in operation in the band 1 215–1 260 MHz since 1978. It provides positioning and navigation services from space. Currently, this signal is used for high precision GPS in high productivity applications, such as machine guidance in survey, construction, agriculture, and mining. With an expanding capability to receive an additional civilian GPS signal, other civilian and commercial sectors have yet to be developed. The existing signal will continue to be a low power signal in the 1 215-1 300 MHz band. This signal has been transmitted at its current power level for over 12 years and has not caused any harmful interference to other users of the band. This has been accomplished without the need for power flux-density limits in the Radio Regulations (see also Recommendation ITU-R M.1088). There are large numbers of Global Positioning System (GPS) receivers operating in the band 1 215-1 260 MHz.

It is noted that the GLONASS RNSS system has also operated successfully in the 1 215-1 260 MHz band for many years without causing harmful interference to other co-frequency systems. This is accomplished on the basis given in Recommendation ITU-R M.1317 and includes a signal of up to  $-133$  dB W/m<sup>2</sup>/MHz. Operational experience with current GPS and GLONASS system characteristics in the 1 215-1 260 MHz band, has not led to any reports of harmful interference being caused to existing radar systems.

As RNSS system characteristics are expected to evolve and new systems are planned, analyses are being conducted to determine the impact of a more powerful RNSS space-to-Earth signal on radar systems in the 1 215-1 300 MHz band.

Some administrations have planned RNSS systems that have a future requirement to produce a pfd level higher than  $-133$  dB ( $W/m^2/MHz$ ) in the 1 215-1 260 MHz band.

Users of radars in the band will be protected in accordance with the provision of **No. S5.329**.

**Proposals:**

USA/xx/1

NOC

**890-1 350 MHz**

Allocation to services		
Region 1	Region 2	Region 3
***		
<b>1 215-1 240</b>	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) S5.329 S5.329A SPACE RESEARCH (active) S5.330 S5.331 S5.332	
<b>1 240-1 260</b>	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) S5.329 S5.329A SPACE RESEARCH (active) Amateur S5.330 S5.331 S5.332 S5.334 S5.335	
<b>1 260-1 300</b>	EARTH EXPLORATION-SATELLITE (active) RADIOLOCATION RADIONAVIGATION-SATELLITE (space-to-Earth) (space-to-space) S5.329 S5.329A SPACE RESEARCH (active) Amateur S5.282 S5.330 S5.331 S5.334 S5.335 S5.335A	
***		

**Reasons:** There is no need for a power flux-density limit to be imposed in 1 215-1 300 MHz band. Some administrations have successfully operated RNSS and radar systems in the 1 215-1 260 MHz band for more than 12 years with no reported harmful interference. Although there will be future requirements to improve upon the existing signal with modest increases in the spectral power density at the Earth's surface, it is expected that such improvements to the RNSS signal will not cause harmful interference to the radiolocation and radionavigation services in the same band which will be protected in accordance with the provisions of **No. S5.329**.

USA/xx/2  
MOD

**S5.329** Use of the radionavigation-satellite service in the band 1 215-1 300 MHz shall be subject to the condition that no harmful interference is caused to, and no protection is claimed from, the radionavigation service authorized under No. **S5.331**. See also ~~Resolution 606 (WRC-2000)~~.

**Reasons:** Consequential to the determination that there is no need for a power flux-density limit to be imposed in the 1 215-1 300 MHz band.

USA/xx/3  
SUP

~~RESOLUTION 606 (WRC-2000)~~

~~Use of the frequency band 1 215-1 300 MHz by systems  
of the radionavigation-satellite service (space-to-Earth)~~

**Reasons:** Consequential to the determination that there is no need for a power flux-density limit to be imposed in the 1 215-1 300 MHz band.