UNITED STATES OF AMERICA
DRAFT PROPOSAL FOR THE WORK OF THE CONFERENCE

Agenda Item 1.6: to review No. 5.565 of the Radio Regulations in order to update the spectrum use by the passive services between 275 GHz and 3 000 GHz, in accordance with Resolution 950 (Rev. WRC 07), and to consider possible procedures for free-space optical-links, taking into account the results of ITU R studies, in accordance with Resolution 955 (WRC 07)

Background Information: Agenda item 1.6 addresses two distinct issues. The content of this proposal addresses only the updating of No. 5.565 in accordance with Resolution 950 (Rev. WRC-07). The Table of Frequency Allocations establishes allocations at frequencies between 9 kHz and 275 GHz. No allocations currently exist above 275 GHz, although an entry in the Table for the range 275-1 000 GHz contains a reference to No. 5.565.

Resolution 950 (Rev. WRC-07) calls for a re-examination of the frequency bands contained in No. 5.565 with a view to updating this footnote, including advice on the applications suitable for the range 275-3 000 GHz. Passive services such as the Earth exploration-satellite service (EESS), space research service (SRS), and radio astronomy service (RAS) already utilize portions of the 275-3 000 GHz range for scientific observation. Some of these operations measure spectral line and continuum emissions from space while others measure atmospheric and climate-related natural emissions from the Earth and its atmosphere. Resolution 950 (Rev. WRC-07) resolves to review No. 5.565 to update the information on spectrum use in the frequency range 275-3 000 GHz by the passive services, but specifically excludes allocations in this range.

ITU-R studies of current and projected scientific needs for passive use of the frequency range 275-3 000 GHz resulted in new recommendations and reports. These studies revealed a need to update No. 5.565 through the addition of some new bands of interest and the deletion of some existing bands. Technical factors strongly influence use of the range 275-3 000 GHz. First, the Earth’s atmosphere absorbs signals at these frequencies, especially in the range 1 000-3 000 GHz where the atmosphere is nearly opaque. Second, antenna beamwidths are extremely narrow at such high frequencies.

Interference from non-geostationary satellites into terrestrial stations is highly unlikely due to the above factors and the speed of the spacecraft relative to Earth. With regard to geostationary satellites, coordination would resolve the potential interference from the unlikely scenario of transmissions with maximum antenna coupling and minimum propagation loss. As a result, passive and active services can share frequencies above 1 000 GHz without constraints.
Proposal:

ARTICLE 5
Frequency allocations

Section IV – Table of Frequency Allocations
(See No. 2.1)

MOD USA/AI 1.6/1

5.565 A number of frequency bands in the frequency band range 275-1 000 GHz may be used by administrations for experimentation with, and development of, various active and passive services applications. In the frequency range 275-1 000 GHz a need has been identified for the following frequency bands for measurements by spectral line measurements for passive services:

- radio astronomy service: 275-323 GHz, 327-371 GHz, 388-424 GHz, 426-442 GHz, 453-510 GHz, 623-711 GHz, 795-909 GHz and 926-945 GHz;


In the frequency range 1 000-3 000 GHz, passive services may use any band segment for ground- and space-based experimentation without constraints on any other services operating in this range.

Future research in this largely unexplored spectral region may yield additional spectral lines and continuum bands of interest to the passive services. Administrations are urged to take all practicable steps to protect these passive services from harmful interference, until the date when the allocation table is established in the above-mentioned 275-3 000 GHz frequency range.

Reasons: Based on the studies performed, the list of EESS and SRS bands of interest in the range 275-1 000 GHz need to be updated in No. 5.565. ITU-R studies have shown that unconstrained sharing between passive and active services in the frequency range 1 000-3 000 GHz is feasible; therefore passive services should have use of any band segment in this frequency range for experimentation.

SUP USA/AI 1.6/2

RESOLUTION 950 (Rev. WRC-07)
Consideration of the use of the frequencies between 275 and 3 000 GHz

Reasons: Required studies have been completed. The resolution is no longer needed.