

Radio Conference Subcommittee (RCS)

Preparation for ITU World Radiocommunication Conferences

UNITED STATES OF AMERICA

DRAFT PRELIMINARY VIEWS ON WRC-11

AGENDA ITEM 1.6 (Res. 955): 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);¹

ISSUES: The primary issue is whether procedures are necessary for free-space optical links above 3 000 GHz.

BACKGROUND: Resolution 955 (WRC-07) considers possible procedures for free-space optical links. Because the atmosphere is essentially opaque at frequencies between 3 000 GHz and the near-infrared range, terrestrial free-space optical links operate at frequencies in or above the near-infrared range. Although inter-satellite links do not suffer from absorption, such links also generally use frequencies in the near-infrared range, due to the ready availability of transceiver (laser) technology in that range.

No. 1005 of the Annex to the ITU Convention indicates that the term “radiocommunication” is limited to “electromagnetic waves of frequencies arbitrarily lower than 3 000 GHz,”² except in the context of radiocommunication study groups addressing study questions and WRC resolutions and recommendations. However, the 2002 Plenipotentiary Conference adopted Resolution 118 (Marrakesh), which resolves that “world radiocommunication conferences can include in agendas for future conferences, items relevant to spectrum regulation of frequencies above 3 000 GHz and take any appropriate measures, including revision of the relevant parts of the Radio Regulations.” The outcome of this agenda item might be impacted by the outcome of the 2010 Plenipotentiary Conference should the upper limit of 3 000 GHz remain in the definitions in No. 1005.

Because emitters used in near-infrared, free-space links have extremely narrow beamwidth, and terrestrial emitters can only cause interference over very short distances, cases of terrestrial interference will be very rare and easily resolved on a local basis. Moreover, interference between inter-satellite links would also be rare due to directed and narrow beamwidths, and the vast geometry of space.

U.S. VIEW: The United States believes that international regulations are not needed for frequencies above 3 000 GHz. Therefore, the development of procedures for free-space optical links is not necessary.

¹ This preliminary view only addresses the second part of the agenda item (free-space optical links), hereafter referred to as Agenda Item 1.6 (Res. 955). The first part of the agenda item (275 – 3 000 GHz), referred to as Agenda Item 1.6 (Res. 950), is addressed in a separate document.

² In the French text, the frequency limit is “by convention”. In the Spanish text it is termed “conventionally”, and in the English text it is termed “arbitrarily”.