March 15, 2000

Mr. Donald Abelson
Chief of the International Bureau
Federal Communications Commission
Washington, D.C. 20554

Dear Mr. Abelson:

The National Telecommunications and Information Administration on behalf of the Executive Branch Agencies, has approved the release of an additional proposal for WRC-2000. The enclosed proposal considers WRC-2000 Agenda Item 1.13.1. This agenda item is concerned with the revision of the power limits appearing in Articles **S21** and **S22** in relation to the sharing conditions among non-GSO FSS, GSO FSS, GSO broadcasting-satellite service (BSS), and space science and terrestrial services, to ensure the feasibility of these power limits and that these limits do not impose undue constraints on the development of these systems and services.

The purpose of this proposal is to update the constraints related to the operational applications and technology in the band 13.75-14 GHz. We are modifying footnotes **S5.502** and **S5.503**, plus a new footnote **S5.502A** is being added to address the constraints issue. These footnote changes would retain the delicate balance between the space research, fixed-satellite, radiolocation, and radionavigation services agreed to at **WARC-92** and confirmed at **WRC-95**. Since the earlier technical studies did not account for non-GSO systems, their allocations requirements are redefined. Technical studies have shown that non-GSO receiving space stations will be susceptible to interference from radiolocation and radionavigation stations operating in accordance with the ITU radio regulations.

Karl Nebbia from my staff will contact Damon Ladson and reconcile any differences.

Sincerely,

*Original Signed*

William T. Hatch
Associate Administrator
Office of Spectrum Management

Enclosure

**United States of America**

PROPOSALS FOR THE WORK OF THE CONFERENCE

## Proposal for Agenda Item 1.13.1

on the basis of the results of the studies in accordance with Resolutions **130 (WRC-97), 131 (WRC-97)** and **538 (WRC-97)**: to review and, if appropriate, revise the power limits appearing in Articles **S21** and **S22** in relation to the sharing conditions among non-GSO FSS, GSO FSS, GSO broadcasting-satellite service (BSS), space science and terrestrial services, to ensure the feasibility of these power limits and that these limits do not impose undue constraints on the development of these systems and services;

Proposal to update the constraints related to the operational applications and technology in the band 13.75-14 GHz **(MOD S5.502, ADD S5.502A and MOD S5.503)**

**Background Information:** At WARC-92 and as modified at WRC-95, Nos. **S5.502**, **S5.503** and **S5.503A** were added to the Table of Frequency Allocations to facilitate compatibility between the existing applications of the radio services in the 13.75-14 GHz band. It was agreed that any modifications to any of these footnotes in order to accommodate new technology, new requirements and applications of the FSS should consider the overall interference environment in the 13.75-14 GHz band and be undertaken with great care in order to avoid upsetting the delicate balance previously achieved between the services. The present operational constraints, that satisfy the protection criteria of current operational applications and technology in the band 13.75-14 GHz, are to be found in Nos. **S5.502** and **S5.503**.

Studies that led to the development of these footnotes did not account for non-geostationary-satellite orbit fixed-satellite service systems (non-GSO FSS). With the introduction of non-GSO FSS into this band at WRC-97, Resolution **130 (WRC-97)** was, among other things, drafted to focus attention on the need to reexamine the sufficiency of these footnotes in maintaining the delicate balance between the services sharing the 13.75-14 GHz band.

Analysis of sharing between geostationary FSS and the radiolocation and radionavigation services is contained in Recommendation ITU-R S. 1068. Some studies have shown that sharing with radiolocation systems is significantly more difficult for non-GSO FSS systems than for GSO FSS systems. Other studies have shown that more restrictive e.i.r.p. density limits are needed on non-GSO FSS systems than GSO FSS systems for protection of space research systems. The protection criteria of the space research links used are those included in Recommendation ITU-R SA.1155. The CPM Report to WRC-2000 provides guidance on possible methods for maintaining the present balance in the sharing conditions between radiolocation, radionavigation, space science and FSS, and accommodates non-GSO FSS systems within the 13.75-14 GHz band. The CPM report and also studies presented at the WP4A meeting, 21-29 February 2000, do not provide any substantial evidence to relax the minimum 4.5-meter antenna diameter requirement. This requirement serves to limit the number of FSS earth stations thus maintaining a sharing balance. It would be premature to relax this requirement without further study. The following proposed modifications/additions to the governing footnotes are based on the work of the ITU-R.

**Proposal:**

**USA/1.13/ 1**
**MOD**

**S5.502** In the band 13.75-14 GHz, the e.i.r.p. of any emission from an earth station in the fixed-satellite service operating with a space station in geostationary-satellite orbit shall be at least 68 dBW, and should not exceed 85 dBW, with a minimum antenna diameter of 4.5 metres. In addition the e.i.r.p., averaged over one second, radiated by a station in the radiolocation or radionavigation services towards the geostationary-satellite orbit shall not exceed 59 dBW.

**Reasons:** Footnotes **MOD S5.502, ADD S5.502A** and **MOD S5.503** retain the delicate balance between the space research, fixed-satellite, radiolocation, and radionavigation services agreed to at WARC-92 and confirmed at WRC-95. Since the earlier studies did not account for non-GSO systems, their allocations requirements are redefined and addressed by new footnote S5.502A. Footnote S5.502 is clarified to apply to geostationary-satellite orbit fixed-satellite service systems.

**USA/1.13/ 2**
**ADD**

**S5.502A** In the band 13.75-14 GHz, the e.i.r.p. of any emission from an earth station in the fixed-satellite service operating with a space station in non-geostationary-satellite orbit should not exceed 85 dBW and shall have a minimum antenna diameter of 4.5 metres. Receiving space stations in non-geostationary satellite orbit shall not claim protection from radiolocation and radionavigation transmitting stations operating in accordance with the Radio Regulations.

**Reasons:** Footnotes **MOD S5.502, ADD S5.502A** and **MOD S5.503** retain the delicate balance between the space research, fixed-satellite, radiolocation, and radionavigation services agreed to at WARC-92 and confirmed at WRC-95. Since the earlier studies did not account for non-GSO systems, their allocations requirements are redefined. Studies have shown that non-GSO receiving space stations will be susceptible to interference from radiolocation and radionavigation stations operating in accordance with the RR.

**USA/1.13/ 3**

**MOD**

**S5.503** In the band 13.75-14 GHz, geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 shall operate on an equal basis with stations in the fixed-satellite service; after that date, new geostationary space stations in the space research service will operate on a secondary basis. ~~The e.i.r.p. density of emissions from any earth station in the fixed-satellite service shall not exceed 71 dBW in any 6 MHz band in the frequency range 13.772-13.778 GHz until~~ Until those geostationary space stations in the space research service for which information for advance publication has been received by the Bureau prior to 31 January 1992 cease to operate in this band~~.~~:

a) The e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in geostationary-satellite orbit shall not exceed 71 dBW in any 6 MHz band in the frequency range 13.772-13.778 GHz;

b) The e.i.r.p. density of emissions from any earth station in the fixed-satellite service operating with a space station in non-geostationary-satellite orbit shall not exceed 51 dBW in any 6 MHz band in the frequency range 13.772-13.778 GHz.

Automatic power control may be used to increase the e.i.r.p. density ~~above 71 dBW~~ in any 6 MHz band in this frequency range to compensate for rain attenuation, to the extent that the power flux-density at the fixed-satellite service space station does not exceed the value resulting from use of an e.i.r.p. of 71 dBW or 51 dBW, as appropriate, in any 6 MHz band in clear sky conditions.

**Reasons:** Footnotes **MOD S5.502, ADD S5.502A** and **MOD S5.503** retain the delicate balance between the space research, fixed-satellite, radiolocation, and radionavigation services agreed to at WARC-92 and confirmed at WRC-95. Since the earlier studies did not account for non-GSO systems, their allocations requirements are redefined. Studies have shown that an e.i.r.p. density limit of 51 dB(W/6 MHz) on non-GSO fixed-satellite service earth station emissions will facilitate co-equal sharing with the space research service.

_____