

ORIGINAL

ORIGINAL

LAW OFFICES  
GOLDBERG, GODLES, WIENER & WRIGHT  
1229 NINETEENTH STREET, N.W.  
WASHINGTON, D.C. 20036

EX PARTE OR LATE FILED

(202) 429-4900  
TELECOPIER:  
(202) 429-4912

HENRY GOLDBERG  
JOSEPH A. GODLES  
JONATHAN WIENER  
SHERYL J. LINCOLN  
HENRIETTA WRIGHT  
THOMAS G. GHERARDI, P.C.  
COUNSEL

e-mail:  
general@g2w2.com

June 14, 2001

RECEIVED

JUN 14 2001

BY HAND DELIVERY

Ms. Magalie R. Salas, Secretary  
Federal Communications Commission  
The Portals, 445 12<sup>th</sup> Street, S.W.  
Washington, D.C. 20554

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

00-221

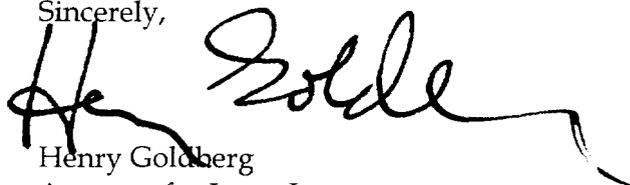
Re: Docket Number: 00221  
*Ex Parte filing*

Dear Ms. Salas:

The enclosed cover sheet and attachment were faxed on Thursday, June 14, 2001 to Julius Knapp of the Office of Engineering & Technology, Kathleen Ham of the Wireless Telecommunications Bureau, Peter Tenhula, Senior Legal Advisor to Chairman Powell, Adam Krinsky, Senior Legal Advisor to Commissioner Tristani, Bryan Tramont, Senior Legal Advisor to Commissioner Abernathy and Lauren VanWazer, Legal Advisor to Commissioner Copps.

If there are any questions in this regard, please contact the undersigned.

Sincerely,



Henry Goldberg  
Attorney for Itron, Inc.

Attachment

cc: Julius Knapp  
Kathleen Ham  
Peter Tenhula  
Adam Krinsky  
Bryan Tramont  
Lauren VanWazer

No. of Copies rec'd 0+4  
List A B C D E

LAW OFFICES  
**GOLDBERG, GODLES, WIENER & WRIGHT**  
1229 NINETEENTH STREET, N.W.  
WASHINGTON, D.C. 20036

Telephone:  
(202) 429-4900  
Telecopier:  
(202) 429-4912  
e-mail:

## FAX TRANSMISSION COVER

TO: J. Knapp/K. Ham

Cc: P. Tenhula, A. Krinsky, B. Tramont, L. Van Wazer

FROM: H. Goldberg

DATE: June 14, 2001

TELECOPIER NO.

NUMBER OF PAGES INCLUDING COVER: 4

If you have any questions or do not receive all pages, please call (202) 429-4900.

### NOTES:

Following up on our meeting, attached is the statement (May 18, 2001) from WP 7D (Radio Astromomy) to WP 8D. The paragraph numbering is for the CPM Report. (The outline was generated just after WRC-00.) Note at the end of 2.6.2.1 they acknowledge that theoretical studies show that the attenuation levels could be met but such large attenuations are not customary and WP 4A (fixed satellite) has repeatedly stated that they cannot be achieved in practice. They go on to quote Res. 127 and note that the required tests and measurements should be completed prior to WRC-03 and to date, there have been no contributions providing such measurements introduced into the ITU-R.

The condition in 2.6.2.4 will be very hard to meet. There are no Little LEO systems so it will be difficult to "conclusively demonstrate by tests and measurements of feeder link transmissions of systems, having characteristics, performance and reliability of equipment that would be used in operational systems, that they can meet the detrimental levels of Recommendation ITU-R RA.769."



INTERNATIONAL TELECOMMUNICATION UNION

**RADIOCOMMUNICATION  
STUDY GROUPS**

Document 7E/20-E  
Document 8D/124-E  
18 May 2001  
English only

Source: Document 7D/TEMP/14(Rev.1)

**RECEIVED**

JUN 14 2001

FEDERAL COMMUNICATIONS COMMISSION  
OFFICE OF THE SECRETARY

## **Working Party 7D**

LIAISON STATEMENT TO WORKING PARTIES 7E AND 8D

CONCERNING

### **AGENDA ITEM 1.16 OF WRC-03**

Working Party 7D would like to thank WP 8D for its liaison statement regarding Agenda item 1.16 of WRC-03, and is looking forward to carrying out further work with WP 8D on this subject. WP 7D received several contributions concerning this agenda item, and considered these at its May 2001 meeting. Based on those contributions, it provides the attached Annex, as its draft contribution to the CPM text that is relevant to the RAS, concerning this Agenda item.

WP 7D hopes that this information is helpful to the work of WP 8D, and would like to be kept informed of further work on this topic. WP 7D notes that WP 7E is responsible within SG 7 for the development of draft CPM text, and that any relevant response should therefore be conveyed to WP 7E, so that it can be considered at its meeting of October 2001.

## ANNEX

### 2.6 Non-GSO feeder links around 1.4 GHz (Resolution 127)

#### 2.6.1 Potential feeder uplink allocation in the band 1 390-1 393 MHz

##### 2.6.1.1 Summary of technical and operational studies, including a list of relevant ITU-R Recommendations

The 1 330-1 400 MHz band is used by the Radio Astronomy Service (RAS) for observations of the redshifted hydrogen (HI) line and **RR S5.149** urges administrations to take all practicable steps to protect the RAS from harmful interference. Loss of access to this band would prevent scientists from access to critical information observations that are carried out at a number of radio astronomy observatories worldwide. Detrimental interference to radio astronomy observatories observing in the 1 330-1 400 MHz or 1 400-1 427 MHz bands from MSS uplink transmissions operating in the band 1 390-1 393 MHz can be prevented by a combination of geographic location, protection (i.e. exclusion) zones around observatories, and appropriate attenuation of unwanted emissions. If an allocation is made, protection of RAS stations should be an important consideration for the deployment of MSS feeder uplinks in the 1 390-1 393 MHz band. To date no technical studies have been carried out concerning potential locations of MSS uplink stations in relation to existing RAS stations.

#### 2.6.2 Potential MSS feeder downlink allocations in the band 1 429-1 432 MHz

##### 2.6.2.1 Summary of technical and operational studies, including a list of relevant ITU-R Recommendations

**Resolution 127 (WRC-2000)** focuses on the 1 429-1 432 MHz band as the candidate band to be allocated for space-to-Earth feeder links to the non-GSO MSS, with service links operating below 1 GHz. This band is very close to the 1 400-1 427 MHz exclusive passive band, used by the RAS for observations of the 1 420 MHz spectral line of neutral hydrogen. Much of what we know about the structure of the Universe has been derived from observations in this band, one of the most frequently used by radio observatories, worldwide. Unhindered access to it is of paramount importance to the scientific community.

**Recommendation ITU-R RA.769**, Tables 1 and 2, list the detrimental interference levels for the RAS in the 1 400-1 427 MHz band. They are given as  $-180 \text{ dBW/m}^2$  in the entire 27 MHz band (1 400-1 427 MHz) for continuum observations, and as  $-196 \text{ dBW/m}^2$  in a 20 kHz band for spectral line observations.

**Recommendation ITU-R RA.1513** specifies 2% of time as the maximum data loss allowable to the RAS in any one band from any one system, and 5% of time as the maximum total loss of data in any one band from all sources.

Studies have shown that to meet the RAS continuum observation protection criteria in the 1 400-1 427 MHz band an attenuation of 67 dB would be required for the unwanted emission of a single downlink transmitter providing  $-152 \text{ dB (W/m}^2/4 \text{ kHz)}$  in-band spectral power flux-density, under the assumption of a flat spectrum over the 27 MHz. In addition, in order to meet the RAS spectral line observation protection criteria in the 1 400-1 427 MHz band, spurious artefacts of this transmitter should be attenuated by 51 dB in any 20 kHz portion of the band.

In order to define limits on the aggregate interference from a non-GSO constellation into radio astronomy frequency bands, the epfd concept has been adopted by WP 7D. Based on the epfd concept, the requirements on the aggregate unwanted emissions of a non-GSO constellation into the band 1 400-1 427 MHz could be stated as:

- 1) An epfd limit of  $-180 \text{ dBW/m}^2$  in 27 MHz for 98% of the time at each radio astronomy station.
- 2) An epfd limit of  $-196 \text{ dBW/m}^2$  in 20 kHz for 98% of the time at each radio astronomy station.

It should be noted that certain parameters used in the practical application of the epfd concept are still a matter of consideration between WP 4A and WP 7D.

Theoretical studies show that these levels might be met using emerging technologies, but such large attenuations are not customary, and WP 4A has repeatedly stated that they cannot be achieved in practice. Given the importance of this band for the passive services, Resolution 127 states that it is necessary to conduct additional tests and measurements on transmissions from systems having the characteristics, performance and reliability of equipment that would be used in operational systems, to validate theoretical analyses. Such additional tests and measurements should be completed prior to WRC-03. To date, there have been no contributions providing such measurements introduced within the ITU-R.

#### [2.6.2.2 NOC]

#### 2.6.2.3 Methods to satisfy the agenda item for consideration by WRC-03, and the advantages and disadvantages of each method

##### **Option 1a: Make no allocation to the MSS in the band 1 390-1 393 MHz**

*Advantages:* Continued use of the 1 400-1 427 MHz band without detrimental interference to the passive services. Continued access to the 1 330-1 400 MHz band by the RAS.

*Disadvantages:* The requirement for additional MSS spectrum cannot be satisfied.

##### **Option 1b: Make an allocation to the MSS in the band 1 390-1 393 MHz**

*Advantages:* The requirement for additional MSS spectrum can be satisfied.

*Disadvantages:* Detrimental interference to the passive services will occur, unless MSS earth stations enforce extremely high attenuation levels of up to 128 dB. Detrimental interference to radio astronomy stations will occur, unless appropriately large geographical separation is enforced between MSS earth stations and RAS stations.

##### **Option 2a: Make no allocation to the MSS (space-to-Earth) in the band 1 429-1 432 MHz**

*Advantages:* No interference to the RAS in the band 1 400-1 427 MHz.

*Disadvantages:* The requirement for additional MSS spectrum cannot be satisfied.

##### **Option 2b: Make an allocation to the MSS (space-to-Earth) in the band 1 429-1 432 MHz**

*Advantages:* The requirement for additional MSS spectrum can be satisfied.

*Disadvantages:* A potential for interference to the RAS exists, including the extreme possibility of rendering the band unusable for astronomical observations. Such an outcome would have a very major negative impact on astronomers' ability to conduct studies of the Universe. Attenuation 80-90 dB is required.

#### **2.6.2.4 Regulatory and procedural considerations**

The band 1 429-1 432 MHz should not be considered suitable for an allocation for MSS downlinks, unless it is conclusively demonstrated by tests and measurements of feeder links transmissions of systems, having the characteristics, performance and reliability of equipment that would be used in operational systems, that they can meet the detrimental levels of Recommendation ITU-R RA.769. If an allocation is made, a footnote should be introduced in the Radio Regulations, requiring other systems that may operate in the band to meet the Recommendation ITU-R RA.769 detrimental levels.

---