



Report from the event supported by RadioNet

TITLE *INTERNATIONAL SPECTRUM MANAGEMENT MEETING: ITU-R TG 5/1*

DATE: *17-26 JANUARY, 2018*

LOCATION: *GENEVA, SWITZERLAND*

**MEETING
WEBPAGE:** *<https://www.itu.int/en/ITU-R/study-groups/rsg5/tg5-1/Pages/default.aspx>*

HOST INSTITUTE: *ITU (INTERNATIONAL TELECOMMUNICATION UNION)*

**RADIONET
BENEFICIARY / NO:** *OBSPARIS / 10*

Report:

1. SCIENTIFIC SUMMARY

This was not a scientific meeting. The goal of WP4.2 (spectrum management) is the protection of radio frequency bands allocated to the Radio Astronomy Service. The organizing body, the ITU (International Telecommunication Union) deals with worldwide radio spectrum management. At this meeting of its Task Group 5/1 (TG 5/1) I represented CRAF, the Expert Committee on Radio Astronomy Frequencies of the European Science Foundation, which represents the European radio astronomical community in matters of radio frequency protection at the ITU.

I attended the meeting to participate in deliberations on the following issue: at the 2015 World Radio communication Conference (WRC-15) of the International Telecommunication Union (ITU), which reviews and updates the Radio Regulations on the worldwide use of the radio spectrum, an Agenda Item AI 1.13 was defined for the next WRC in 2019, whose objectives include the identification of additional frequency bands in the range 24-86 GHz to be allocated to International Mobile Telecommunications (IMT) for the development of terrestrial mobile broadband application.

Some of the frequency bands considered for the new IMT allocations are either shared with, or adjacent to 11 bands used for radio astronomical observations. This indicates there are potential threats of harmful interference to some of the commonly used radio astronomy bands from these potential new allocations, which could render those bands unusable for radio astronomy.

TG 5/1 of the ITU is charged with coordinating proposals from around the world for new IMT frequency allocations, compatibility studies between the IMT applications and other spectrum users such as the Radio Astronomy Service, and preparing position documents for WRC-19, where final decision on new frequency allocations will be made.

In broad terms, CRAF attends the meetings to present technical studies on the compatibility of the new proposed IMT applications with high-sensitivity radio astronomical observations, based on the protection criteria described in the ITU Radio Regulations, Recommendations and Reports. Furthermore, we actively liaise for support with European national spectrum management Agencies and with kindred scientific organisations like ESA, whose Earth exploration satellites share a number of frequency bands with radio astronomy.

2. AGENDA OF THE EVENT

The ultimate purpose of the series of ITU-R TG 5/1 meetings over a three-year period (2016-2019) is to reach consensus on a list of frequency bands supported for the new mobile broadband IMT communication applications, such as 5G mobile phone networks, together with a list of protection criteria for potential victim services like the Radio Astronomy Service - whose protection criteria are much more strict than for other services due to the extremely weak radio signals we need to detect for our research.

Representatives from almost all radio services participate in these discussions, as the broad range of proposed new frequency allocations can potentially cause unwanted interference with many other spectrum users who already have a frequency allocation and the right to be protected from new allocations.

This was the fourth meeting of TG 5/1. CRAF presented revised versions of its compatibility studies on the protection of the Radio Astronomy Service in the frequency bands 23.6-24 GHz, 31.3-31.8 GHz and 42.5-43.5 GHz - the first of which is a so-called "passive band", in which no active (i.e., emitting) radio services are allowed, which is also heavily used by e.g. the Earth Exploration Satellite Service for remote sensing of the Earth.

The revised studies from CRAF took into account adjustments in the methodology as (re-)defined by the ITU-R expert groups for these studies. All indicate that exclusion zones of tens of km are required around radio telescopes, in which no IMT systems can be allowed to operate - neither the fixed base station antennas nor the hand-held user equipment (future mobile phones). Such information is of great importance to national



administrations for the ultimate decisions on the licensing of IMT systems and the implementation of exclusion zones around radio telescopes. At this meeting, CRAF also started assisting China, which had submitted their first studies on the protection of the radio astronomy service, whose future necessary revision could certainly benefit from CRAF's expertise.

Neither the input nor the output documents of these meetings are publicly available, access is limited to accredited participants in TG 5/1 deliberations.

3. PARTICIPANTS

The participants at these meetings are all experts in spectrum management, on technical and/or regulatory aspects. Some represent the national spectrum Agencies of the 180+ ITU member countries, others industry involved in either the proposed new mobile broadband applications or the numerous potential victim services (broadcasting, satellite communications, etc.), and others represent accredited scientific organisations such as CRAF (radio astronomy) or ESA.

The attendance list published for this meeting by the ITU is not publicly available. I estimate there were about 150 participants.

No conference picture was posted online by the ITU.

4. RADIONET FINANCIAL CONTRIBUTION

The RadioNet support was used to pay for the attendance of the CRAF chairman, Wim van Driel (nationality: Netherlands).

5. PUBLICATIONS

This meeting will not result in scientific publications. CRAF's input consists of technical compatibility studies on the protection of the radio astronomy service from proposed IMT systems. None of the input and output documents are publicly available. The ultimate goal is the revision in 2019 of the global Radio Regulations of the ITU regarding frequency allocations for IMT broadband mobile systems such as 5G.