



Report from the event supported by RadioNet

TITLE *INTERNATIONAL SPECTRUM MANAGEMENT MEETING:
CEPT/ECC PT1 #64*

DATE: *14-16 JANUARY 2020*

LOCATION: *MANCHESTER, UK*

MEETING WEBPAGE: <https://www.cept.org/ecc/groups/ecc/ecc-pt1/client/introduction/>

HOST INSTITUTE: *CEPT/ECC (ELECTRONIC COMMUNICATIONS COMMITTEE OF
EUROPEAN CONFERENCE OF POSTAL AND TELECOMMUNICATIONS
ADMINISTRATIONS)*

**RADIONET
BENEFICIARY / NO:** *MPG / 01*

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 Electronic Communications Committee of European Conference of Postal and Telecommunications Administrations (CEPT/ECC) is responsible for radio communication regulation in European countries. At this meeting of its Working Group PT1, we, Federico Di Vruno and Benjamin Winkel, represented CRAF, the Expert Committee on Radio Astronomy Frequencies (CRAF) of the European Science Foundation, which represents the European radio astronomical community in matters of radio frequency protection at the CEPT. ECC/PT1 is responsible for the development of the mobile communication sector in CEPT countries.

Among the topics, which were discussed, two are of utmost importance to European radio astronomy

1. possible use of 5G mobile/fixed communications network (MFCN) equipment in the 26 GHz band (24.25 – 27.5 GHz) under a general authorisation regime, i.e. uncoordinated deployment
2. ECC work item (WI) PT1_18, which tasks PT1 to study if MFCN user equipment (UE) could be operated on board drones in one or more of the existing MFCN bands

This was the third meeting of ECC/PT1 that covered these topics and CRAF representatives participated in every one of them. In preparation to these meetings, a large amount of work went into the design of suitable compatibility studies that analyze the necessary conditions of co-existence between the radio astronomy service (RAS) and the interfering services (in this case the International Mobile Telecommunication Service, IMT), as well as into drafting contributions (so-called input documents) to be included in ECC Reports on these matters.

2. AGENDA OF THE EVENT

The #64 meeting of ECC PT1 took place in Manchester, UK between January 14 to January 16, 2020 and CRAF members Federico Di Vruno (FDV) and Benjamin Winkel (BW) participated. In the following, the two major topics, which were relevant to RAS at this meeting, are discussed in more detail.

MFCN/5G at 26 GHz under general authorization regime

In a letter to the Chairman of the ECC, the European Commission asked the ECC to study the possible use of 26-GHz 5G equipment under a general authorization regime (see document PT1(19)117). Some countries, such as France, submitted input documents to the PT1 #62 with their thoughts about the matter, e.g., which difficulties and potential solutions were identified. At PT1 #63 and #64 work on a draft ECC report began (WI PT1_25). From a RAS perspective an uncoordinated use has great dangers, as it would essentially mean that local spectrum agencies or other authorities would have effectively no control over devices that would be operated in immediate vicinity of our telescopes. One potential solution could be a geolocation-based switch in the 5G access points, that wouldn't allow operation in certain areas. However, it seems unlikely that vendors would be willing to implement such functionality, as it would increase the costs. This is also one of the reasons, why vendors and mobile network operators did not support the uncoordinated use of 5G technology at previous meetings.

There were only few input documents for this topic received, and administrations could not yet agree to finalize the draft report. Therefore, a correspondence group was initiated, with an XO webmeeting scheduled for Feb. 14 2020 the aim of which is to finalize the document. Once the document is finalized it will be distributed for public consultation.

Under this item there was also a discussion to answer a letter from the EC about "*the impact of the WRC-19 outcome on the harmonized technical conditions for the 26 GHz band*" regarding limits to protect passive services in 23.6-24 GHz, and the consequential possible need to review EU regulations. PT1 was tasked to consider the questions from the Commission and report its findings to the March ECC meeting. There are differing views on whether CEPT could confirm that 5G equipment will comply with certain limits (this is a question for manufacturers) and on the appropriate timing and limits for the second step in a two-step approach. PT1 agreed to report on the discussions to the ECC. (see TEMP doc No 4).



Use of MFCN UE on-board aerial vehicles

Work item PT1_18 is about the possible use of existing MFCN bands (mainly) below 5 GHz by aerial vehicles (AV). The topic was brought up by Airbus and Deutsche Telekom, originally asking for allowing "command & control" (C&C) and wireless payload communication of unmanned aerial vehicles (UAV), aka drones, in existing IMT networks. The PT1 sub-working group A decided at previous meetings, which bands are most favorable and restricted the studies in a draft ECC report (document PT1(19)153) to the bands 700, 800, 900, 1800, 2100, 2600, 3400–3800 MHz. The L-band (1427–1517 MHz) is downlink-only in CEPT countries and thus of limited use. The 26-GHz band was allocated in CEPT under the constraint that communication from a base station to UE on a drone is not allowed.

CRAF had prepared a compatibility study (docs. PT1(19)145, PT1(19)230) in which the potential impact of MFCN UE on-board AVs is analyzed, for both the single-interferer case and for aggregation scenarios. In particular the 2nd harmonics of LTE700 and LTE800, which fall into the 1400–1427 MHz and 1660–1666 MHz RAS bands are a great threat to radio observatories operating in the L-band, as the potential harmonic emission can have up to –30 dBm/MHz spectral power output, thus large separation distances would be required. This topic was heavily debated at the previous meetings in Billund (PT1 #62) and Riga (PT1 #63) and Airbus in particular was fighting hard to avoid the inclusion of the CRAF studies into the ECC Draft Report (see previous meeting reports). However, at PT1 #63 a compromise was achieved. In the report it is now recommended that administrations who want to protect their RAS stations could do this via some kind of "no-fly" zones around the radio telescopes, but only for primary RAS allocations.

Nevertheless, some issues were identified with the wording in some parts of the Draft Report, which could lead to situations in the national regulation process, where it would be unclear how (and if at all) RAS protection would be necessary. CRAF managed to find some compromise with the Airbus representatives regarding the wording, such that the Draft Report – which is now going into public consultation (PC; Document PT1(20)048 Annex 8 & 9) – is less disputable. There are a few minor points left, which CRAF may want to address in the PC phase.

Another relevant development regarding this topic is that France requested a new work item to produce a new ECC decision on the regulatory aspects of the aerial MFCN usage. If ECC adopts this work item, CRAF should actively participate in the drafting process.

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 CEPT member countries, others industry involved in either the proposed new mobile broadband applications, or the numerous potential victim services (broadcasting, fixed services, satellite communications, etc.), and others represent accredited scientific organizations such as CRAF (radio astronomy) or ESA (Earth Exploration Science Service).

The attendance list published for this meeting by the ECC/PT1 is available on the meeting website (Document PT1(20)048 Annex 2).

No conference picture was posted online by the ECC.

4. RADIONET FINANCIAL CONTRIBUTION

The RadioNet support was used to pay for the attendance of the CRAF member Benjamin Winkel (nationality: Germany).

5. PUBLICATIONS

This meeting will not result in scientific publications. CRAF's input to CEPT/ECC meetings consists of technical compatibility studies on the protection of the radio astronomy service from other services, technical advice, and contribution to CEPT or ECC texts (recommendations, reports, etc.). The input and output documents are publicly available on the ECC web site.