

Response from two members of the French Science Academy to the public consultation on RSPG Opinion : « a coordinated EU Spectrum approach for scientific use of radio spectrum »

We welcome the opportunity to respond to the public consultation on the report of the RSPG opinion on “A coordinate EU Spectrum approach for scientific use of radio spectrum”.

The current European regulatory framework for frequency management results from a long and complex working process involving most National administrations. The existing framework can be considered as satisfactory. It is remarkable that such a framework has permitted the development of a wide range of high quality wireless applications, as well as outstanding astrophysical observations with very high sensitivity radio telescopes, thanks to the allocation of harmonised frequency bands including those required by Radio Astronomy.

Main text :

2.4 Radioastronomie

We do support this chapter

3.3 – In “actives techniques”, add : “Radar techniques are used in astronomy to map planets and some asteroids”

A line “Ground based radars” is to be added in table 1

4.5 – In chap : “Benefits from radio astronomy”, SKA is not operating at 1400 MHz, but “in a range between 150 MHz and 25 GHz”

5.3 iv sharing in radio astronomy bands

We strongly disagree with this chapter as the conclusion is completely erroneous. We suggest the following draft with modifications onto “...”:

Sharing scenarios have been investigated for radio astronomy operations but have only been implemented on an ad-hoc basis. “In some observatories” the most sensitive observations are done during early morning hours when many of the terrestrial transmitters are off the air. However this type of time sharing “is not a common practice because radio-observations are effectively done days and nights. The operating cost of the radiotelescopes is high so that they absolutely need to perform observations as soon as weather conditions are acceptable.”

6 : Analysis of responses from administrations

The text “ RAS uses 46 frequency bands shared with others operators, under control of national administration in accordance with the R-R footnote 5.149” must be added.

9.3 We agree with this point of view,

9.7- We strongly support this chapter but we are reluctant about paragraph 9.7 which introduces processes involving that an individual struggling against authorities cannot hope to win. This will be the case when a passive scientific long term use will be confronted to commercial active short term interests.

We guess the paragraph 9.7 couldn't be suppressed, in this case here are our suggestions :

- Words in bold could be written normally.
- In “The RSPG ... This assessment should, in a proportionate manner:” The last sentence could be replaced by :” This assessment should, if compliant with the R-R :”

- The sentence “identify the **impact of the various options** on the interests of the particular groups of stakeholders;” could be replaced with : “identify the social and economical impact of the various options on the interests of stakeholders”
- The sentence “take into account **commitments/obligations** in international initiatives/agreements; could be replaced by : “take into account commitments/obligations in international agreements in accordance with the R-R;”
- “Assess the **risks** associated with each option” is nonsense and is to be suppressed

Annex 2 : Radio astronomy :

A - We agree with the text adapted from Dave Finley

B – Technological contributions from radio astronomy : Technological Contributions from Radio Astronomy

10 K can even be changed into “4 K” since such cooled down receivers are now commonly used

C - Chapter : « trends in radio astronomy »

1. « Trends in radio astronomy are towards higher sensitivity, and higher frequencies » to be replaced by « at all frequencies ». Please consider SKA and LOFAR, at least till 2040.
2. « Examples are the SKA project which seeks to build a single telescope with a square kilometre surface at 1400 MHz » is false. On the contrary, SKA has a very high frequency dynamic. This is to be replaced by « which seeks to build a giant interferometer of radio telescope stations, with baseline 3000 km, in a frequency range between 150 MHz and 25 GHz
3. « LOFAR further opening ... ». LOFAR uses reduced frequency bandwidth and surface. This sentence may be replaced with « LOFAR which will be a precursor of SKA at low frequency, between 30 MHz and 250 MHz »
4. We consider the fundamental importance of frequency lines like 21 cm and 2,6 mm, to observe remote galaxies at very high redshift. To the text « The existing bands . . . signals of interest » it could be added « The increased sensitivity allows exploring more remote galaxies and looking back in time towards the early universe. The signal coming from the spectral lines is then redshifted by large factors, towards more than ten times lower frequencies »

F. Combes and P. Encrenaz