



**European Commission
Radio Spectrum Policy Group – Secretariat
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Comments from CRAF on the RSPG Strategic Spectrum Roadmap Towards 5G for Europe; DRAFT RSPG Second Opinion on 5G networks (RSPG17-034 Final)

The Committee on Radio Astronomy Frequencies (CRAF) welcomes the invitation by the Radio Spectrum Policy Group to provide comments and views on the proposed draft RSPG second Opinion on 5G networks.

CRAF represents the interests and views of the European radio astronomy service (RAS) in radio frequency matters within the framework of CEPT and ITU-R by participating in the frequency management meetings and contributing to technical and regulatory studies on frequency allocation proposals relevant to radio astronomy.

CRAF acknowledges the importance of spectrum harmonization for the development of IMT-2020 5G for Europe and at the same time collaborates with CEPT and ITU-R study groups to develop compatibility studies between RAS and IMT 5G to ensure that the deployment of 5G networks will not have an adverse effect on radio astronomy observations.

Based on the ongoing discussions and current state of the technical studies, CRAF would like to provide its views on the RSPG Second Opinion on 5G networks.

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COMMENTS from CRAF on the “DRAFT SECOND RSPG OPINION ON 5G NETWORKS”

1. The RSPG is of the opinion that Member States will need flexibility in the way they authorize access to spectrum, for example: appropriate geographical areas (e.g. national, regional, city or hyper-local, e.g. for use in a factory), individual licensing or under a general authorization framework.

Comment: CRAF is of the view that Member States need to authorize spectrum for IMT 5G under individual licensing. Radio astronomy, being a passive service, suffers particularly from roaming devices and it will be very difficult to investigate and prosecute unauthorized or license-exempt devices that do not comply with the required separation distances to radio telescopes. Therefore to ensure the protection of the incumbent passive services, the future deployment of 5G devices must follow an individual authorization regime by the relevant national administration.

3. The RSPG recommends that the Commission, in its research work-programs, study solutions for improving 5G connectivity and wide area coverage, especially in rural areas, thereby facilitating and progressing technology developments targeting the fulfillment of 5G related policy objectives.

Comment: CRAF has been actively participating in the development of compatibility studies between IMT 5G and the RAS in the proposed IMT frequency bands 3.4-3.8 GHz, 24.25-27.5 GHz, 31.8-33.4 GHz, 40.5-42.5 GHz, and 42.5-43.5 GHz using the technical information provided by the IMT stakeholders. The defined scenarios are limited to indoor and outdoor urban and sub-urban environments. In order to protect the RAS from in-band and out-of-band harmful interference from 5G devices separation distances between 5G base stations (and their linked individual User Equipment) and radio telescopes are required, and the sizes of exclusion zones around radio telescopes are calculated using the provided deployment scenarios. No deployment scenario exists to date for the extension of the 5G deployment to rural areas. Given that radio telescopes are generally located in scarcely populated and rural areas and that a radio telescope requires a few ten kilometers of separation distance from each 5G base station, deployment of 5G in rural areas can cause a risk of harmful interference to RAS observations at the site of RAS stations.

9. **a)** The focus of 5G authorisations in the 26 GHz band should be on an individual licence regime. However, the possibility of a general authorisation regime under sharing conditions that protect the other users of spectrum in this band (e.g. EESS/SRS) is not excluded.

Comment: Here, CRAF has the same view as for point 1. For the protection of the RAS from in-band and out-of-band emissions of 5G devices, 5G authorizations in all frequency bands need to follow an individual license regime.