



## Radiocommunication Bureau (BR)

Administrative Circular  
**CACE/1146**

24 June 2025

**To Administrations of Member States of the ITU, Radiocommunication Sector Members,  
ITU-R Associates and ITU Academia participating in the work of the Radiocommunication  
Study Group 3**

Subject:       **Radiocommunication Study Group 3 (Radio-wave Propagation)**  
                  –       **Proposed approval of 1 draft new ITU-R Question**

At the meeting of Radiocommunication Study Group 3 held on 6 June 2025, 1 draft new ITU-R Question was adopted according to Resolution ITU-R 1-9 (§ A2.5.2.2) and it was agreed to apply the procedure of Resolution [ITU-R 1-9](#) (see § A2.5.2.3) for approval of Questions in the interval between Radiocommunication Assemblies. The text of the draft ITU-R Question is attached for your reference in the Annex to this letter. Any Member State raising an objection to the approval of a draft Question is requested to inform the Director and the Chair of the Study Group of the reasons for the objection.

Having regard to the provisions of § A2.5.2.3 of Resolution ITU-R 1-9, Member States are requested to inform the Secretariat ([brsgd@itu.int](mailto:brsgd@itu.int)) by 24 August 2025, whether they approve or do not approve the proposal above.

After the above-mentioned deadline, the results of this consultation will be announced in an Administrative Circular and the approved Question will be published as soon as practicable (see: <http://www.itu.int/ITU-R/go/que-rsg3/en>).

Mario Maniewicz  
Director

### **Annex: 1**

–       1 draft new ITU-R Question

## **Annex**

(Document 3/22(Rev.1))

### **DRAFT NEW QUESTION ITU-R [LUNAR\_PROPAGATION]/3**

#### **Propagation characteristics and prediction methods required for lunar radiocommunication**

(2025)

The ITU Radiocommunication Assembly,

*considering*

- a)* that the lunar radio-wave propagation environment has unique exosphere, soil, and topographic conditions;
- b)* that the lunar radio-wave propagation environment has unique propagation mechanisms, including diffraction, reflection, scattering, multipath fading, etc. that need to be characterised;
- c)* that knowledge of the propagation characteristics for space services in the lunar and deep space areas are critical to the efficient design of future lunar and planetary communication;
- d)* that the lunar propagation environment includes the exosphere, regolith, and bedrock;
- e)* that the study of the complex relative permittivity of the lunar propagation environment is needed in characterising several lunar radio-wave propagation mechanisms,

*recognising*

- a)* that there are studies on sharing and compatibility for lunar radio communications between potential systems on the Moon's surface and systems orbiting the Moon;
- b)* that there is a shielded zone of the Moon (SZM) referred to in No. **22.22** of the Radio Regulations (RR) which has absence of appreciable water vapour and oxygen in the lunar atmosphere;
- c)* that there is future development of communications on the lunar surface, and between lunar orbit and the lunar surface including active and passive sensors on the Moon;
- d)* that there is also strong interest in studying the future development of applications for communication between the Earth's and Moon's surfaces,

*decides* that the following Questions should be studied

- 1 What are the radio-wave propagation mechanisms of the lunar surface with regards to reflection, scattering, diffraction, fading, and so on?
- 2 What are the multipath propagation characteristics of the lunar radio-wave propagation environment between the lunar surface and lunar orbit?
- 3 What are the propagation characteristics of the lunar surface and the lunar orbital environment?
- 4 What propagation models need to be developed for paths between the Earth's and the Moon's surfaces, between terminals on the lunar surface, and between lunar orbit and lunar surface to support radio-wave communication, sharing, and compatibility studies in these regions?

- 5 What factors can be used for frequency scaling, lunar spatial and temporal statistics of radio-wave propagation, and over what ranges are they appropriate for lunar radio communications?
- 6 What are the best ways of presenting the required data for the lunar radio-wave environment?
- 7 What are the physical and electrical properties of the lunar surface and how can they be characterised, especially with regards to reflection and scattering?
- 8 What are the radio-wave propagation characteristics of lunar particulates and/or dust near the surface?
- 9 What are the propagation characteristics of the lunar terrain and how can they be modelled to support radio-wave propagation prediction methods?
- 10 What are the characteristics of the lunar radio noise environment on the Earth-facing side and the Earth-shielded side?

*further decides*

- 1 that the results of the above studies (in particular for method and data) should be included in one or more Reports or Recommendations and Handbooks, as appropriate;
- 2 that radio-wave propagation characterisation and data for future lunar communication systems should be provided by 2027.

Category: S2

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