Cover sheet for response to an Ofcom consultation

BASIC DETAILS

Consultation title: **Low power licence-exemption limits above 10GHz**

To (Ofcom contact): **Professor William Webb**

Name of respondent: **Edoardo Marelli**

Representing (self or organisation/s): - **European Space Agency (ESA)**

Address (if not received by email):

CONFIDENTIALITY

Please tick below what part of your response you consider is confidential, giving your reasons why

Nothing	X	Name/contact details/job title	
Whole response		Organisation	
Part of the response		If there is no separate annex, which parts?	

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Name : **Edoardo MARELLI** Signed (if hard copy)

1 Introduction

The European Space Agency (ESA) would like to thank the UK OFCOM for the opportunity to comment on the Public Consultation related to "Low-Power licence exemption limits above 10 GHz".

ESA is an intergovernmental organization financed by 17 European countries. Among them, the UK represents one of the major contributors to the ESA budget and the UK industry is heavily involved in the development and exploitation of the ESA satellites.

ESA mission is to shape the development of Europe's space capability and ensure that investment in space continues to deliver benefits to the citizens of Europe and the world. ESA activities in the field of exploration of the Earth and its atmosphere are particularly relevant to the subject of the OFCOM consultation.

In particular we would like to stress the fact that a proper protection of the radio spectrum used by services like EESS is required to ensure the capability of providing information on issues like weather forecast, climate change, environmental changes and natural disasters prediction and management. This information is essential for governments, policy makers, disaster management organizations, commercial interests and the general public, as recognized by the RSPG: ***"Most of this societal value is incommensurable in financial terms, as they relate to preventing large losses of lives or threats to socio-political stability and security"***.

In this document we would like to express our full support of all what stated in the comments sent jointly to OFCOM by WMO, GEO and Eumetnet.

Without repeating all the technical and regulatory considerations made there, we would like to stress the following points:

- Any regulatory initiative that implies allowing emissions in the bands covered by RR N° **5.340,** would be in **violation of the ITU Radio Regulations** and therefore cannot be accepted. **Exclusion of these bands from any consideration for usage by unlicensed devices** is a pre-condition to further discussions on regulations for unlicensed devices above 10 GHz.
- Statements like: "Many of the EESS services will not experience any significant interference. However, there is a risk that passive Earth observation may be slightly affected." are **not justified and substantiated** at all in the OFCOM document. They cannot be the basis for drawing the conclusion that the EESS services do not need further study, since **there has been no study**.
- A blanket limitation based only on **emission levels is insufficient** for ensuring protection of other services. Studies need to take into consideration aspects like transmitters density, emission characteristics, activity factor, operational characteristics.
- Although the protection of EESS(passive) is likely to represent the most critical element to be studied among the so-called scientific services, other services can be affected by unlicensed devices above 10 GHz and need therefore to be studied. In particular this is true for the **EESS(active)** receivers, that read very low power signals rebounding from the Earth surface. The presence of large numbers of low power devices in the sensor footprint could disrupt the service.
- Since the EESS services are international services, effects of national regulations on their quality of service will affect other administrations interested in the EESS data. From this the importance, recognized also in 8.8 of the OFCOM document, of international harmonisation. ESA assumes that this implies **no decision by OFCOM before European consultation on the subject**.

2 Response to the consultation questions

Q1: Do you agree with this assessment of the services that do not need further analysis?

ESA disagrees with this assessment for EESS services, since no evidence is shown of how the conclusions were drawn. In addition the unqualified statement that "there is a risk that passive Earth observation may be slightly affected" contradicts the approach that no further studies are needed and can hardly be considered as the basis for deciding regulatory measures.

ESA, on the contrary, believes that studies are needed and that they should take into account not simply emission levels but other parameters related to transmitters density, emission characteristics, activity factor, operational characteristics.

Furthermore the EESS(active) service has not been considered in the OFCOM document. The EESS(active) bands are not even listed among the EESS bands.

Q2: Is this analysis of the risk of interference to broadcasting satellite correct?

N/A

Q3: Is this analysis of the risk of interference to radionavigation and location correct?

N/A

Q4: Is this approach to meteorological aids appropriate?

N/A

Q5: Do you agree with the proposed licence-exemption limits set out above?

ESA disagrees with the proposed licence-exemption limits set out for the bands between 10 and 100 GHz for the following main reasons:

- Purely passive bands covered under RR No 5.340 have not been excluded from usage by unlicensed devices.
- No actual study has been performed and the conclusions appear to be based on qualitative considerations and on incorrect assumptions on the physics of the EESS sensing.
- The studies will require consideration of aspects like the number of equipments in the footprint of an EESS satellite, their emission characteristics, their activity factor, indoor/outdoor usage, etc… Consequently the limits to ensure protection of a service that can potentially see a very number of unlicensed devices will probably have to be based on more complex concepts than a simple individual emission limit.
- No analysis has been made of the potential impact of the proposed regulations on EESS(active).
- EESS covers international services. No regulatory decision should be taken at national level before consultation at European level. Any regulations potentially affecting international services will have to be agreed internationally.
