

## ESOA response to the Ministerie van Economische Zaken en Klimaat consultation regarding “Ontwerpbesluit NFP-wijziging 3,5 GHz-band”

28 January 2021

ESOA hereby provides comments related to the proposed amendments to the national frequency allocation table regarding the frequency range 3400-3800 MHz. The Ministry has asked some specific questions about planned use of parts of this range for mobile applications, but they seem to be aimed at potential new mobile operators and so ESOA does not respond to those. ESOA's comments relate to the proposed revisions to the Dutch frequency allocation table and the implications of those changes on satellite operations in the Netherlands. This response is not confidential and may be made available to the public through the Ministry website if so desired.

ESOA is a non-profit organization established with the objective to serve and promote the common interests of satellite operators in Europe, The Middle East and Africa (EMEA). The Association is the reference point for satellite industry in these regions and today represents the interests of 30 members, including satellite operators who deliver information communication services across the globe as well as EMEA space industry stakeholders and insurance brokers.

Through this response to the consultation, ESOA seeks a change in the Ministry's approach to the band 3400-3800 MHz, proposing that the Netherlands follows an approach based on shared use of the band between 5G and satellite services, in line with the EU legislation and best practice by other countries.

ESOA has contributed previously to various consultations in the Netherlands related to the potential use of these C-band frequencies, always to underline the importance of allowing for the ongoing use of frequencies in the 3400-3800 MHz range for earth station operations. Satellite operations in Europe in this band are typically for high criticality international links from large gateway stations. The band is used because of its high reliability compared to some higher frequency bands and because of the availability of satellite capacity – which is constrained by the limited capacity of the geostationary orbit. As has been identified in the TNO Report, the Burum SAS use of this band is for feeder links to support L-band services, including safety services which are vital for the Netherlands and the maritime and aeronautical sectors globally.

ESOA understands that the current proposed amendments to the national frequency allocation table are aligned with the Ministry's intentions to:

- Open 3400-3450 and 3750-3800 for local 5G licenses
- Auction the spectrum between 3450 and 3750 MHz for 5G MNOs throughout the Netherlands
- Terminate the use of FSS earth stations from 3400-3800 MHz from September 2022

ESOA is disappointed to see the Ministry propose to take these severe and drastic steps regarding current FSS earth station operations and we urge the Ministry to re-consider its proposals.

It is no secret that sharing between proposed new 5G mobile systems and Fixed Satellite Service (FSS) earth stations is difficult. The potential use of all or parts of the band 3400-3800 MHz for 5G systems

has been discussed and debated over many years and ESOA and its members have provided numerous technical studies and participated in discussions in the CEPT, ITU and EC. ESOA has consistently argued that the band 3400-3800 MHz is a poor choice for new mobile 5G systems, given the need to protect ongoing satellite usage in Europe and the consequential constraints required on 5G mobile systems to ensure compatibility – with separations distances needed of 10s or 100s of kilometres.

While the band 3400-3800 MHz has been prioritised for 5G, the need for ongoing FSS operations has not gone away. The European Commission recognised the importance of ongoing FSS operations when it developed Decisions 2008/411/EC, 2014/276/EU and Commission Implementing Decision (EU) 2019/235. In 2008, 2014 and 2019, the Commission stated in those Decisions that use of this band by mobile systems is “Without prejudice to the protection and continued operation of other existing use in this band...”. The proposed actions by the Ministry do not seem to fulfil that requirement.

The mobile industry has clearly known of the difficulties in using this band but has continued to promote its use for mobile systems, at least initially on the basis of shared use with FSS earth stations. Since the mobile operators are effectively the newcomers in the 3400-3800 MHz band, the onus should be on them to co-exist with existing satellite earth station operations. The Ministry has previously established the “Amsterdam – Zwolle Line” as an effective mechanism to protect operations at Burum, so the mobile industry has had ample opportunity (at least since 2012) to plan to provide 5G services while respecting this requirement.

Many European administrations, including France, Germany, Luxembourg, Switzerland have established a regulatory framework for 5G that protects their existing earth station operations in the band 3400-3800 MHz, requiring 5G mobile operators to co-exist. While this approach has typically prevented the installation of new earth stations in the band 3400-3800 MHz, it has at least allowed existing operations to continue with protection from interference. The 5G network operators in those countries need to be flexible to deploy their networks consistently with earth station protection requirements, exactly as they should have expected before developing their 5G strategy and 5G equipment, and exactly as they should now do in the Netherlands. It is not clear to ESOA why this balanced approach is not being considered by the Ministry.

For the Netherlands, as identified in the TNO Report, use of the bands 3450-3550 MHz and 3676-3750 MHz seems feasible with modest mitigation measures, meaning 174 MHz is usable while allowing for ongoing satellite operations at the Burum SAS. While the constraints required on the use of the remaining band 3550-3676 MHz are more restrictive, it should be possible to find solutions to allow for their use of that spectrum. 5G mobile operators might have to manage with access to less spectrum in the North of the Netherlands, which could for example require deployment of additional base stations to maintain the same capacity overall or the use of other frequency bands to provide 5G services. This is a fairer solution than requiring satellite operations at the Burum SAS to be simply terminated, without any consideration for the satellite industry’s sunk investments and essential satellite services that are being provided.

ESOA understand that the Ministry’s proposal would mean that from September 2022, satellite earth station rights to protection from interference would cease, and hence operations at the Burum SAS would no longer be feasible. This short timeframe seems particularly draconian, giving less than 20 months of remaining life. Such a short period is not commensurate with the practicalities of transferring major satellite operations to a new location, even provided that a suitable location can be found. While many administrations have undertaken to protect existing FSS earth station

operations in this band, it is very difficult to establish *new* earth station operations in this part of C-band in Europe, given the planned 5G roll-out. Hence locating potential sites for new earth stations using the band 3400-3800 MHz is a significant task in itself. That is before consideration of the time and cost required to build new antennas and the associated infrastructure, procure and install new equipment, and arrange new staffing.

In the United States, where a different part of the C-band spectrum has recently been actioned (3.7-3.98 GHz), the strategy is to retain the important C-band operations currently enjoyed by American citizens and businesses, but with a change of frequency. Satellite operators have agreed to vacate that part of the band in return for substantial compensation to cover the costs of new satellites and changes to earth station equipment. The FCC does not seek to terminate existing satellite operations in the United States but seeks to ensure that the satellite service provided can continue.

If ultimately the Ministry, contrary to ESOA's views, proceeds to terminate FSS operations in the Netherlands in the band 3400-3800 MHz, we suggest that the Ministry should at the very least compensate in full the costs of transition to a new location which are likely to be well within expected auction proceeds, and so would lead to zero net costs for the government.

Last but not least, ESOA understands that co-existence requirements for local 5G deployments and regular satellite systems operating above 3800 MHz have not been taken into account in today's coexistence analysis of the Dutch authorities (as per TNO document, section 3.1, page 12). However, where such local deployment is permitted, the allowed aggregate power levels for private local 5G networks being deployed in the 3750-3800 MHz band may definitely have an impact on adjacent satellite operations above 3800 MHz. In the United States, some combination of a 5G OOB mask and a frequency separation were also required to ensure that 5G transmissions below 3.98 GHz do not cause interference into satellite earth station receivers operating above 3.98 GHz. In ESOA's view, in the Netherlands a frequency separation may be required between the band identified for 5G terrestrial mobile services and the FSS band, even if the location of the satellite earth stations were known and taken into consideration when 5G is deployed. When the exact location of earth stations is unknown, the size of the frequency separation may need to increase, as was the case in Hong Kong. In addition, all satellite earth stations need to be fitted with band-pass filters in order to prevent LNAs from being overloaded by 5G high power transmissions. It will therefore be very important to consider this question at some stage - and the sooner, the better.

In comparison with many other countries, the Dutch Ministry's proposals for the 3400-3800 MHz band seem to stand out as being unbalanced and draconian. ESOA requests that the Ministry re-examines the planned actions related to use of this spectrum for 5G to find a fairer and pragmatic solution that enables current satellite earth station use to continue, and 5G to co-exist.