

## Inmarsat response to the AKOS consultation document

### JAVNI RAZPIS Z JAVNO DRAŽBO ZA DODELITEV RADIJSKIH FREKVENC ZA ZAGOTAVLJANJE JAVNIH KOMUNIKACIJSKIH STORITEV KONČNIM UPORABNIKOM V RADIOFREKVENČNIH PASOVIH 700 MHz, 1500 MHz, 2100 MHz, 2300 MHz, 3600 MHz IN 26 GHz

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#### 1. Introduction

This document provides Inmarsat's comments on the AKOS information memorandum (IM): "Javni Razpis Z Javno Dražbo Za Dodelitev Radijskih Frekvenc Za Zagotavljanje Javnih Komunikacijskih Storitvev Končnim Uporabnikom V Radiofrekvenčnih Pasovih 700 MHz, 1500 MHz, 2100 MHz, 2300 MHz, 3600 MHz In 26 GHz". The comments relate specifically to the proposals for the 1500 MHz and the 2100 MHz band.

Inmarsat has contributed to the previous AKOS consultations related to these proposals, and is pleased to see that AKOS has largely accepted the proposals related to protection of MSS operations adjacent to the 1500 MHz band, and the measures related to the protection of the Inmarsat EAN adjacent to the 2100 MHz band. The measures are vital to ensure compatibility with important MSS services used in and around Slovenia.

Inmarsat thanks AKOS for defining the measures for compatibility with the MSS in the Information Memorandum. The comments below relate to some detailed aspects of the measures, where we consider that some extra precision is needed.

#### 2. MSS protection measures for the 1500 MHz band

Section H.2 contains the Technical Requirements of Service Provision in the 1500 MHz Radio Frequency Band. Inmarsat has comments on three of the sub-sections, H.2.1, H.2.3 and H.2.4:

Section H.2.1 includes a list of CEPT Reports, Recommendations and Decisions related to the use of this band by 5G mobile systems. AKOS requires that in case of harmful interference, the parameters must be adjusted to the requirements of the specified documents. *Inmarsat proposes that two CEPT Reports are added to this list:*

*ECC Report 263 "Adjacent band compatibility studies between IMT operating in the frequency band 1492-1518 MHz and the MSS operating in the frequency band 1518-1525 MHz"*

*ECC Report 299 "Measures to address potential blocking of MES operating in bands adjacent to 1518 MHz (including 1525-1559 MHz) at sea ports and airports".*

Both Reports relate to adjacent band compatibility between 5G systems and MSS operations above 1518 MHz, and 5G deployment should follow the parameters and assumptions in those Reports.

Section H.2.3 contains measures for providing compatibility with MSS operations in the band 1518-1559 MHz. Inmarsat agrees with the identified ports and airports and with the PFD values proposed in Tables H-4 and H-5. The PFD values are defined for two time periods, "Phase 1" and "Phase 2". The "Phase 1" limits are required to protect those mobile earth stations (MESs) currently operating. The "Phase 2" limits are based on protection of next generation MESs, which will gradually be introduced over time, as users adopt new terminals with more resilient receivers. Inmarsat understands that the intention is that the Phase 1 PFD values apply for the initial 1500 MHz band license period of 15 years, which is acceptable to Inmarsat, noting that aircraft and ship equipment can in some cases be used for 20-25 years without modification. *Inmarsat suggests that the text be modified so that it is clear that the Phase 1 PFD limits apply for the duration of the licence.*

Section H.2.4 includes reference to the use of UAS (Unmanned Aerial Systems), stating that the DARF holder must comply with the guidance in the executive summary of ECC Report 309. In fact ECC Report 309 did not address the 1500 MHz band in its executive summary. The Report contains only a short reference to that band in section 5.5, in which it concludes that given the limitation of use of the 1500 MHz band for SDL, that band will not be used for aerial user equipment communication and hence no technical studies are necessary. *Inmarsat therefore proposes, in the case of the 1500 MHz band specifically, to clearly state that the band shall not be used for UAS applications.*

### **3. MSS protection measures for the 2100 MHz band**

Section H.3 contains the technical requirements of service provision in the 2100 MHz Radio Frequency Band. Inmarsat appreciates and agrees with the measures in section H.3.3 on coexistence with the Inmarsat EAN, operating above 1980 MHz.

Section H.3.5 contains conditions for the use of UAS, requiring the DARF holder, if providing UAS service, to comply with the guidance in the executive summary of ECC Report 309. That raises an issue in this particular case, since ECC Report 309 contains two conflicting proposals for measures to deal with UAS/MSS compatibility at 1980 MHz. CEPT was not able to find consensus on a single conclusion for that particular issue, and so there are two alternative approaches described in the executive summary. "Approach 1" requires that aerial user equipment complies with a no-fly zone around EAN base stations in Slovenia (without the need for a new out-of-band emission limit), or comply with a lower out-of-band emission limit of -30 dBm/MHz without any no-fly zone. "Approach 2" requires no specific measure to be implemented to protect EAN base stations from interference, which will lead to significantly higher interference to EAN base stations.

Inmarsat considers that the analysis that led to the "Approach 2" conclusions is flawed, as it is based on assumptions and parameters of aerial user equipment not consistent with those agreed and used elsewhere in Report 309. *Inmarsat therefore proposes that the IM requires that the "Approach 1" conclusions in the Executive Summary specifically are identified as to be complied with, in the event that the DARF holder wishes to offer UAS services.*

### **4. Concluding comments**

Inmarsat thanks again AKOS for including the MSS protection measures in the IM and asks that AKOS applies the important clarifications described above.