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GSOA response to consultation on "Opinion on the ITU-R World Radiocommunication Conference 2023"

1. Introduction

GSOA welcomes the opportunity to provide comments to the draft RSPG opinion in the context of the forthcoming ITU-R World Radiocommunication Conference 2023.

The Global Satellite Operators Association[1] "GSOA" is the leading global platform for collaboration between satellite operators. As the world's only CEO-driven satellite association, GSOA leads the sector's response to global challenges and opportunities. It offers a unified voice for the world's largest operators, important regional operators and other companies that engage in satellite-related activities.

It is encouraging to see that space is recognized as a relevant policy area in its own right. Satellite Services are also vital to every one of the other policy areas identified in the draft Opinion: Electronic Communication and Connectivity, Media, Transport, and Common Security and Defence.

2. GSOA Opinion

2.1. Agenda Items addressed in the draft RSPG Opinion on WRC-23

Agenda Item 1.2

Resolution 245 (WRC-19): *Studies on frequency-related matters for the terrestrial component of International Mobile Telecommunications identification in the frequency bands 3 300-3 400 MHz, 3 600-3 800 MHz, 6 425-7 025 MHz, 7 025-7 125 MHz and 10.0-10.5 GHz*

Policy aspects

Regarding the use of the band 6 425-7 025 MHz (Earth-to-space) by the FSS, GSOA stresses that there are existing operational FSS networks with coverage of Europe and beyond, which require protection from interference from terrestrial services. This band is expected to continue to be used by FSS systems for uplinks and downlinks and we note that the draft Opinion acknowledges the "RR obligation for IMT to protect satellite receivers". The draft Opinion explicitly links the use of non-GSO MSS feeder downlinks and the use of the parts of this band for passive microwave sensors with EU Space Policy. A similar link to EU Space Policy can and should be made with regard to the use of satellite uplinks by GSO satellite systems in this band for the reasons explained below.

[1] The Global Satellite Operators Association now counts among its members: Airbus CIS, Amazon, Amos Spacecom, APT, Arabsat, Arsat, Asiasat, Avanti, Azercosmos, Echostar-Hughes, HellasSat, Hispasat, Inmarsat, Intelsat, Intersputnik, Lockheed Martin, Nigcomsat, Nilesat, Omnispace, OneWeb, Rascomstar, SES, SSI-Monacosat, Star One, Telenor, Telesat, Telespazio, Thuraya, Turksat, Viasat and Yahsat as well as representatives of the broader space industry including Airbus Defence and Space, Arianespace, Astroscale, Mansat, ST Engineering and Thales Alenia Space.

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The draft Opinion refers to the use of C-band for satellite connectivity outside of Europe, but does not clearly identify the potential impact to Europe on interference to satellite uplinks in the band 6 425-7 025 MHz, which is significant and important. Part of this band is used for the feeder uplinks by MSS systems serving Europe and other regions. This includes the Inmarsat network, which provides critical communications to European citizens, businesses and government users. The Inmarsat system is, for example, vital to maritime operations in Europe and the rest of the world. This includes provision of satellite communications for the GMDSS, which could be unable to operate if interference was to occur to the C-band satellite uplinks, placing lives at risk.

In addition to maritime users, Inmarsat's MSS services are extensively used by European and non-European aircraft, for aircraft operations and for passenger communications. The aviation industry also relies on MSS satellite connectivity for the safe operation of aircraft. Europe is investing in enhancing the use of MSS operations throughout the EU through the Iris programme, to improve the efficiency of the management of airspace, and to help Europe achieve its "Green Deal" goals. This huge investment and the even greater benefits to the aviation industry and to European citizens that result from Iris are also placed at risk if interference was to occur to the C-band satellite uplinks in the upper 6 GHz band.

Furthermore, the band is also used to support the uplink of signals associated to the satellite-based navigation augmentation services (SBAS) in Region 1, such as EGNOS and the Nigerian Satellite Augmentation System. These navigation services use the C-band uplink range, with hemispherical and global coverages.

The draft Opinion does not identify that the band is intensively used for and is essential to telecommand and control signalling for station keeping and safely manoeuvring spacecraft to ensure compliance with international treaty obligations. With the increasing concern that Europe has for the proliferation of space debris, interference from terrestrial systems that could compromise station keeping and safely manoeuvring spacecraft should be at the forefront of Europe's policies.

Also, the use of the frequency band 6 725-7 025 MHz by GSO FSS (Earth-to-space) networks is subject to the provisions of Appendix **30B** (RR **5.441**) whose objective is to guarantee in practice, for all countries, equitable access to the geostationary-satellite orbit in the frequency bands which is important for developing countries. While the Appendix 30B allotments are not extensively used in Europe, they are high importance for some other regions, in particular developing countries, and should not be threatened by the decisions of European regulators.

Taking into account the above factors, it can be seen use the band 6 425-7 025 MHz for satellite uplinks, and the band 6 700-7 075 MHz for satellite downlinks provides significant societal benefits to Europe and the wider world. The continued use of this band for satellite services should be considered as baseline to the European position for this agenda item.

The RSPG has adopted a policy to encourage spectrum sharing. For the reasons explained below, this policy will not be enabled by the use of the upper 6 GHz band for terrestrial IMT systems.

Sharing studies

The draft Opinion states that: "*It appears from sharing studies that there is possible opportunity for sharing between IMT (including macro base stations) and fixed satellite service allocated to this band*". GSOA respectfully disagrees.

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GSOA studies show that aggregate interference from IMT base stations exceeds the criteria of FSS receivers for all cases, i.e. for both the highest and lowest terrestrial IMT deployment densities and all types of satellite beams/positions considered.

The ITU studies are still in progress in Working Party 5D. Currently, there is a range of results, with some studies showing interference below the FSS protection criterion and others showing interference well above the FSS protection criterion. The studies have used common assumptions for many of the parameters, but different results occur due to divergence in the assumptions for some parameters. Furthermore, the modelling of interference for these studies is limited to complex computer simulations, which cannot practically be validated by other stakeholders.

Some studies – in particular those that suggest interference below the FSS protection criterion, have been implemented by cumulative cherry-picking of assumptions favourable to terrestrial IMT to ensure that cases with small positive interference margins are identified. Those studies have, for example, deliberately and artificially minimised terrestrial IMT deployment within satellite coverage, modified previously agreed FSS system characteristics, and chosen orbital positions with the least land area in visibility, amongst others. Such studies are not realistic or technically correct and the results are therefore not a sound basis to permit the use of IMT in this band. Given the criticality of the use of the upper 6 GHz for satellite services in Europe and the questionable nature of the favourable studies, Europe should not consider opening the band to terrestrial IMT.

The baseline assumptions used in almost all studies assume only very limited deployment of IMT in the 6 GHz band. Those assumptions assume IMT deployment in this band only in a limited part of urban and suburban areas. In aggregate, these assumptions are equivalent to coverage by IMT systems of only 0.15% of land, on average[2]. If the 6 GHz band was to be used by terrestrial IMT systems, the density of deployment in Europe would need to remain close to this figure, i.e. IMT deployment covering no more than approximately 0.15% of the land of Europe. This constraint would severely limit the benefits that would result to European citizens from the use of the upper 6 GHz band for IMT. There is also no clear benefit that would come from IMT use of the 6 GHz that cannot be achieved by use of the other bands – higher and lower in frequency – already identified for IMT.

GSOA is of the view that there is much better scope for shared use of the upper 6 GHz band with the use of WAS/RLAN systems – a decision already taken by several countries, including the United States, Brazil and Korea. As noted in the draft Opinion, Europe has already adopted regulations for WAS/RLAN in the adjacent band 5 945-6 425 MHz. Similar regulations would be required in the upper 6 GHz band to enable WAS/RLAN operation while providing adequate protection of satellite uplinks. By introducing WAS/RLAN on a shared basis with the FSS in the upper 6 GHz band, Europe could achieve an effective and efficient long term use of the band.

Recommended Option

The draft Opinion provides two options: Option 1 - IMT identification in the band 6 425-7 125 MHz; and Option 2 - No IMT identification.

Since the upper 6 GHz band is already allocated to the mobile service on a primary basis in all three Regions in the Radio Regulations, Europe would retain the flexibility to deploy mobile systems by following Option 2. Option 1, on the other hand, would only make sense if Europe has already decided to deploy IMT systems – a decision we understand will not in any case be

[2] Based on parameters: Rb = 1%, Ra_urban = 10%, Ra_suburban = 5%.

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considered until some time after WRC-23. Considering the current results of sharing studies and the apparent lack of an actual need to identify the band for IMT, there appears to be no justification for Europe to support Option 1.

In view of the above, GSOA recommends **Option 2** "No IMT identification".

Agenda Item 1.3

Resolution 246 (WRC-19): *Studies to consider possible allocation of the frequency band 3 600-3 800 MHz to the mobile, except aeronautical mobile, service on a primary basis within Region 1*

In relation to agenda item AI 1.3 of the WRC-23, and even though the Mobile Service (MS) has a secondary allocation in the Radio Regulations in Region 1, the CEPT has in place a framework for 5G deployment in the 3 400-3 800 MHz band. The spectrum is allocated to the mobile service on a primary basis in Europe[3] , and most CEPT Administrations have either already assigned, or are in the process of assigning, spectrum for Mobile Network Operators (MNOs) in accordance with the ECC Decision (11)06. An upgrade of the mobile service, under conditions that might be in contradiction to the European framework, may have a detrimental impact to the ongoing 5G deployment in this band[4] [5].

While the outcome of Agenda Item 1.3 could impact on the European satellite industry, for which C-band remains a cornerstone of many of the services offered by GSOA members, it is important to stress that the largest impact of the outcome of this agenda item will be felt by African administrations whose reliance on C-band satellite services is more pervasive and exhibiting a wider variety of FSS services than in Europe. With the existing CEPT framework in place there is no similar direct business impact to the mobile industry. CEPT administrations are therefore respectfully requested to only support an outcome on the Agenda Item 1.3 that continues to protect and provide equal access to all existing primary services in the band now and in the future, which would be No Change to the Radio Regulations.

Agenda item 1.11

Satellite systems have long held a major role in the GMDSS and that role will continue in the future with the modernization of the GMDSS and with the potential new MSS system, "Beidou".

Regarding issue A, GSOA agrees with and supports the proposal that Member States should support the possible regulatory actions needed to implement the modernization of the Global Maritime Distress and Safety System in the RR. One of the issues currently under discussion relates to the future use of the band 1645.5-1646.5 MHz, which is no longer required for satellite EPIRBs, following a recent decision by the IMO to remove them from the GMDSS. GSOA

[3] European Common Allocation Table (CEPT ERC-Report 25). Available at: https://efis.cept.org/sitecontent.jsp?sitecontent=ecatable
[4] https://apnews.com/article/technology-business-united-states-north-america-european-union-5ff38e3620b4f59d2e1cdffdb8b39f2a
[5] https://www.eca.europa.eu/Lists/ECADocuments/SR22_03/SR_Security-5G-networks_EN.pdf

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recommends that this band, which is allocated to the MSS (Earth-to-space) should continue to be available to support maritime satellite communication requirements. To ensure the band is used efficiently, GSOA supports that going forward, the band may be used for GMDSS communications requirements and, on a non-priority basis, for general communications from earth stations on ships operating in the GMDSS.

GSOA agrees that no action needs to be taken under Issue B.

Regarding issue C, it should be ensured that the potential new MSS operator complies with the standard ITU requirements for coordination with other satellite operators.

GSOA notes that the draft Opinion refers to the issue of protection of GMDSS operations in the band 1518-1559 MHz from IMT in the band 1427-1517 MHz, suggesting that a possible new WRC agenda item to address that issue would contradict the requirement to implement Commission Implementing Decision (EU) 2018/661. It is important to recall that the ITU-R studies that were supported by the CEPT in 2015, and which were a basis to support the identification of the band 1427-1518 MHz for IMT, have not been completed. This is largely due to obstructive proposals made by the mobile industry representatives in the ITU working parties. While the CEPT has agreed a framework for compatibility between IMT and MSS operations, no such framework exists for the rest of the world, which relies primarily on ITU-R Recommendations for guidance. The ongoing lack of ITU-R Recommendations on this issue means that no regulatory guidance exists to help those regions manage the compatibility issue. This situation places at risk GMDSS operations on ships in and near to those countries at risk, including European ships, crew and passengers. To ensure the ITU-R studies are completed could require a new WRC agenda item and hence GSOA recommends a more open position be adopted by RSPG on this aspect.

Agenda Item 1.15

Resolution 172 (WRC-19): *Operation of earth stations on aircraft and vessels communicating with geostationary space stations in the fixed-satellite service in the frequency band 12.75-13.25 GHz (Earth-to-space)*

GSOA commends the RSPG recommendation for Member States to support a regulatory framework and technical requirements for operation of earth stations on aircraft and on vessels in the frequency band 12.75-13.25 GHz (Earth-to-space), in order to respond to an increased need for broadband inflight and maritime connectivity where only satellite infrastructure exists, while protecting the services currently allocated in this frequency band and bands adjacent to it and avoiding any impact on Appendix 30B procedures and existing rights.

Agenda Item 1.16

Resolution 173 (WRC-19): *Use of the frequency bands 17.7-18.6 GHz, 18.8-19.3 GHz and 19.7-20.2 GHz (space-to-Earth) and 27.5-29.1 GHz and 29.5-30 GHz (Earth-to-space) by earth stations in motion communicating with non-geostationary space stations in the fixed-satellite service*

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GSOA agrees with the proposed RSPG recommendation that member states should support the development of an international regulatory framework to allow the deployment of non-GSO ESIM in Ka-band while protecting existing services allocated in the same and adjacent bands. GSOA supports for this framework to be consistent with the international regulatory framework agreed for GSO ESIM in Ka-band (Resolution **156 (WRC-15)** and Resolution **169 (WRC-19)**) as well as with the European framework for non-GSO ESIM in Ka-band (ECC Decision (15)04). In addition, the introduction of non-GSO ESIM should not change the interference environment for EESS (passive) operating in the 18.6-18.8 GHz.

RR No. 21.5

The applicability of the limit specified in No. 21.5 of the Radio Regulations to IMT stations, that use an antenna that consists of an array of active elements.

GSOA agrees with the statement in the draft Opinion that: "*The overall EU interest in this matter is to strike the balance in frequency bands used for satellite reception and shared with equal rights with 5G/IMT stations using active antenna systems*". Based on the ITU studies conducted prior to WRC-19, it seems there is general agreement that in the millimetre wave bands it is possible for 5G/IMT systems to operate without significant risk of interference to satellite uplinks. Unfortunately, GSOA has witnessed in the current ITU discussions on this issue that some administrations outside of Europe, and some industry members, seek to deliberately misapply the rules, so that IMT stations can be deployed with dramatically different characteristics to those assumed in the recent ITU studies. This may lead to interference 10s of dBs higher than the levels predicted by the previous studies. The RR21.5 power limits should be applied by all administrations and by the ITU consistent with the intention of the provision, which is to protect satellite reception.

A failure to introduce new clarifications on the application of the Art 21.5 limit to IMT stations with AAS antennas could, in the long term, present an existential threat to satellite services in some of the mmWave bands.

There are two approaches under consideration in WP5D:

- Approach 1: TRP in a reference bandwidth, with two alternatives, Alternative 1 that applies the bandwidth Adjustment Factor (BAF) to all necessary bandwidths (50 MHz, 100 MHz, 200 MHz, 400 MHz) and Alternative 2 which applies the BAF only for bandwidths greater than 200 MHz bandwidth.
- Approach 2: IMT industry and some administrations support that RR21.5 limits apply to a single radiating element, which could allow IMT base stations using AAS to operate at EIRP levels 30 dBs higher than currently allowed in RR21.5 for non-AAS antennas.

Approach 2, based on "single radiating element", would be a clear misuse of RR21.5 limits, creating a serious threat to satellite uplinks shared with the mobile service (including IMT). This Approach would transform an overarching Article of the Radio Regulations to ensure co-existence between co-primary services into "a right to interfere" for IMT networks.

GSOA supports Approach 1 with the application of the BAF for all necessary bandwidths (Alternative 1). Since the RR21.5 limit is several dBs higher than the TRP of the IMT base stations

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which follow the characteristics assumed in ITU studies, the approach would not constrain IMT deployment and would allow some scope for future mobile technology changes.

The limits should apply to all stations in the fixed or mobile service which may use AAS antennas, in frequency bands allocated for reception by space stations, where the band is shared with equal rights with the fixed or mobile services.

For the 26 GHz band (24.25-27.5 GHz), GSOA supports the application of Article 21 to AAS antennas for stations in the fixed or mobile service, including IMT stations, through confirmation of the RR21.5 limit of 10dBW using the Total Radiated Power (TRP) of the antenna, with a reference bandwidth of 200MHz (as per WRC-19 studies).

GSOA also supports an update of Table 21-2 to include frequency bands, where reception by space stations is to be protected when these frequency bands are shared with equal rights with the fixed or mobile services (including for IMT stations), and not yet included in Table 21-2.

The following frequency bands should be added to Table 21-2:

- FSS allocations in 24.65-25.25 GHz (Region 1), 24.75-25.25 GHz (Region 2), 42.5-43.5 GHz, 47.2-50.2 GHz, 50.4-51.4 GHz and 81-86 GHz.
- MSS allocations in 43.5-47 GHz, 66-71 GHz, and 81-84 GHz.

For these additional bands, further analysis will be necessary in case any adjustment to the 10 dBW limit and/or the bandwidth adjustment factor are necessary.

2.2. Other relevant Agenda Items

The draft RSPG Opinion does not explicitly refer to the Agenda Items included in this section, and under the heading "Other Agenda Items", the draft Opinion states that current information is not sufficient to assess the impact on EU policy. However GSOA considers the following are also relevant given the EU policies and EU legislation and respectfully submits the GSOA position for the consideration of the RSPG for inclusion in the final Opinion.

Agenda item 1.6

Resolution 772 (WRC-19): *Consideration of regulatory provisions to facilitate the introduction of suborbital vehicles*

This agenda item aims to respond to the communication requirements for suborbital vehicles, which include satellite launch vehicles, rockets for sub-orbital space tourism and space planes. These applications have a wide range of communication requirements that are not able to be accommodated by the current Radio Regulations, in particular because suborbital vehicles may be both space and terrestrial stations, and do not fit within the current regulatory framework for satellite or terrestrial systems. This agenda item therefore is well aligned with the EU Space Strategy for Europe[6], which includes a statement that: "*The Commission will also encourage the development of commercial markets for low-cost small launch systems or for commercial space activities such as spaceflight or suborbital space tourism, promoting the appropriate regulatory frameworks as needs arise.*" By following some of the proposed solutions for this agenda item, all

[6] *https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2016%3A705%3AFIN*

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the applications referenced in this statement will be supported by new regulations for suborbital vehicles.

GSOA therefore recommends that this agenda item be included in the final Opinion, and that the RSPG should support action to be taken at WRC-23 to adopt new regulations to facilitate a wide range of suborbital vehicle categories in a range of frequency bands. Options to achieve this outcome have been identified in the ITU-R studies and included in the ITU draft CPM text on this issue. Failure to act on this opportunity at WRC-23 would harm the development of these new space applications in Europe.

Agenda item 1.18

Resolution 248 (WRC-19): *Studies relating to spectrum needs and potential new allocations to the mobile-satellite service in the frequency bands 1 695-1 710 MHz, 2 010-2 025 MHz, 3 300-3 315 MHz and 3 385-3 400 MHz for future development of narrowband mobile satellite systems*

This agenda item invited the ITU-R to consider studies relating to spectrum needs and potential new allocations for MSS for applications of low-data rate systems for the collection of data from, and management of, terrestrial devices in the MSS with the aim to consider possible new primary or secondary allocations, with the necessary technical limitations, taking into account the characteristics described in recognizing (c), to the MSS for non-GSO satellites, based on the findings of the sharing and compatibility studies, while ensuring the protection of existing primary services in these frequency bands and adjacent bands, while not imposing undue restrictions on their further development.

The technical and operational characteristics in accordance with Resolution 248 (WRC-19), as well as spectrum needs, and associated sharing and compatibility studies have not been agreed or progressed sufficiently to ensure the protection of existing services (in-band and adjacent band) with potential new allocations to the MSS in the frequency bands 1695-1710 MHz in Region 2, 2010-2025 MHz in Region 1, 3300-3315 MHz, 3385-3400 MHz in Region 2.

Work at ITU-R Working Party 4C (WP4C) on AI 1.18 has been characterized by a lack of agreement on the interpretation of Resolution 248 and the technical parameters for performing the coexistence studies that has prevented the progression of those studies.

WP4C decided to make an additional effort to make progress on AI 1.18 through the installation of several Correspondence Group (CG) meetings. During the last CG meeting held on July 26th, 2022, and despite the lack agreed technical and operational characteristics by WP4C and contributing groups as indicated in ITU Radiocommunication Bureau Administrative Circular CA/251 (e.g., 3M, 4A, 4B, 5A, 5B, 5C, 5D AND 7B), some proponents submitted a limited number of sharing studies.

Some Administrations raised concerns regarding these sharing studies on the basis that were solely based on an uplink analysis as opposed to a network basis (uplink/downlink), considered only one system, and the fact that have not been liaised with any of the contributing groups under this agenda item refereed in the previous paragraph and may not reflect the proper application of incumbent system parameters and their protection criteria.

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Considering all of the above GSOA encourages RSPG to support a No Change position at WRC-23 for Agenda Item 1.18, and suppression of Resolution 248 given the limitations included in this resolution are not in alignment with EU policies on the efficient use of spectrum[7] and for the reason that the ITU-R studies did not demonstrate that sharing and compatibility is feasible between low-data rate, narrowband MSS applications and existing primary services; the ambiguity of Resolution 248 (WRC-19); the outcome of the last CG meeting; and that the final WP4C meeting in September will be focused on the drafting of CPM text to comply with the deadline (Oct 2022).

Agenda item 7 (Topic L)

ITU-R WP-4A has identified Topic L under WRC-2023 agenda item 7 which relates to developing regulatory provisions to enable TT&C frequencies for non-GSO On-Orbit-Service (IOS) space systems. Such non-GSO IOS space systems, which are being developed in Europe, North America and the Far East, would enable de-orbit of LEO satellites at the end of their operational life or to deorbit space debris objects in LEO orbits. In the context of promoting innovative space solutions which would facilitate sustainable use of important LEO orbital resources, CEPT CPG PTB has at its June 2022 meeting developed a preliminary brief on this topic and some initial options to progress this matter have been identified.

GSOA therefore recommends that this agenda item be included in the final Opinion, and that the RSPG should support action to be taken at WRC-2023 to adopt new regulations (which should not entail new frequency allocations to be made in the RR Article 5) to facilitate use of TT&C frequencies for non-GSO IOS space systems. Such ITU WRC-2023 action will substantially enable investments in European Non-GSO IOS space system development and implementation and de-risk critical frequency access issues for the TT&C and other functions of such IOS space systems. Furthermore, such ITU / WRC-2023 activities should be consistent with the recent (2022) EU Space Traffic Management (STM) proposals for the EU to develop and implement timely space debris mitigation and remediation solutions with the collaboration of the European space industry.

Agenda Item 10

Advances in satellite manufacturing and earth station technology have made earth stations in motion (ESIMs) more widespread and more practical. Consequently, the utilization of Ku and Ka-band frequency spectrum for providing ESIM connectivity is growing exponentially to meet user demands, this growth may lead to scarcity in spectral resources in these bands. Therefore, GSOA considers that additional spectrum resources will be required in the near future to accommodate the increased demand and supports studies on the use of existing FSS identification in Q/V-band spectrum for operation of ESIMs, in accordance with Resolution **176 (WRC-19).** On the other hand, the rapidly increasing use of non-geostationary satellite orbits (non-GSO), such as medium Earth orbits (MEO) and low Earth orbits (LEO), represents the innovation in satellite technology enabled

[7] *Spectrum should be used efficiently and managed effectively. To enhance efficiency and flexibility, it requires Member States, in cooperation with the Commission, to foster the collective use and shared use of spectrum where appropriate.* (Radio Spectrum Policy Programme 2012). *Effective and coherent use of radio spectrum is essential for the development of electronic communications services and contributes to stimulating growth, competitiveness and employment; access to spectrum must be eased to improve efficiency and promote innovation as well as greater flexibility for users and more choice for consumers, while taking account of general interest objectives* (Decision No 626/2008/EC)

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by enhanced software defined satellite design, manufacturing and launch service capabilities. GSOA believes that the scope of Resolution **176 (WRC-19)** should be extended to enable and facilitate deployment of these critical and valuable services using both GSO and non-GSO satellites.

Additionally, GSOA notes that the mobile industry has started to campaign for yet more spectrum for IMT in WRC-27, to accommodate future mobile communication systems, so called IMT-2030 or 6G. GSOA finds such proposals highly premature and would like to highlight that any proposal for additional spectrum to IMT should be well justified. 6G is still in early research phase and it is not possible at this point to verify that spectrum resources in bands available now – e.g. through switching off old mobile systems - or possibly even identification in WRC-23 would not sufficiently cover future needs of the industry. The range 7-20 GHz, suggested by the mobile industry at this time, includes several bands that are vital spectrum resources for ubiquitous satellite deployments supporting for example earth stations in motion at land, sea and air and user links, such as Direct-to-Home TV. This type of satellite use or other usage in this vast range cannot be protected through separation distances.

3. Conclusion

GSOA would like to thank the RSPG again for the opportunity to provide our views and we look forward to the final RSPG Opinion which we hope will take our comments into account.