

**SINGAPORE TELECOMMUNICATIONS LIMITED
RESPONSE TO IMDA PUBLIC CONSULTATION ON THE
PROPOSED ALLOCATION OF 6 GHZ BAND IN SINGAPORE**

1. INTRODUCTION

1.1 Singapore Telecommunications Limited (**Singtel**) is the leading info-communications providers in Singapore. Singtel has a comprehensive portfolio of services that includes voice and data services over fixed, wireless and Internet platforms. Singtel services both corporate and residential customers and is committed to bringing the best of global info-communications to its customers in Singapore, Asia Pacific and beyond.

1.2 Singtel welcomes the opportunity to make this submission on the public consultation on the proposed allocation of 6 GHz band in Singapore (**Consultation Paper**).

2. COMMENTS

Support for the allocation of the lower 500 MHz of the 6 GHz band for RLAN

2.1 In view of the proliferation of Wi-Fi adoption across various sectors and users, including enterprises and consumers in Singapore, Singtel supports the IMDA's proposal to allocate the lower 500 MHz of the 6 GHz band, i.e. 5,925 MHz – 6,425 MHz, for Radio Local Access Network (**RLAN**)/Wi-Fi use.

2.2 However, the IMDA has to be mindful that the proposed allocation of 5,925 MHz – 6,425 MHz for RLAN does not impact existing services operating in the 6 GHz band; specifically fixed and fixed satellite service e.g. microwave service and VSAT services.

Protection of Incumbent Service

- 2.3 While we note that IMDA's Consultation Paper referenced studies by overseas jurisdictions such as the European Conference of Postal and Telecommunications Administrations and the UK Office of Communications supporting the feasibility of RLAN co-existing with existing fixed and fixed satellite services, we would highlight that the same studies also showed that for high user scenarios, the aggregate interference was sometimes close to or exceeded the interference threshold for the most sensitive satellites studied. Hence, Singtel would recommend that the IMDA limit the use of 6 GHz RLAN to indoor-use only to ensure the long-term protection of fixed satellite services from aggregate interference from the numerous RLAN devices. The rationale for adopting this approach, rather than simply having lower power outdoor RLAN as suggested by IMDA, is because the basis for the assumptions by the overseas jurisdictions may need some reconsideration since the report was done back in 2018 (pre-Covid) and had also made some assumptions (e.g. 95% outdoor, 5% outdoor RLAN users) which may not be fully applicable or relevant to Singapore. If the IMDA does not agree to limit 6 GHz RLAN to indoor-use only, the IMDA should restrict the use of 6 GHz RLAN in the vicinity of Bukit Timah and Seletar Satellite Earth Stations.
- 2.4 As the IMDA is aware, Singtel has deployed fixed services i.e. microwave service in the 6 GHz band to provide connectivity offshore islands which are not accessible using terrestrial fibre. The reliance on microwave service to provide connectivity services to offshore islands is critical. Microwave service is also used to support mobile backhaul for the provision of mobile services to these offshore islands. These services mainly operate in the lower band of the 6 GHz band which overlaps with the proposed use of RLAN in the 6 GHz band.
- 2.5 To ensure that these services will not be impacted by RLAN in the 6 GHz band, we would request that the IMDA consider allowing our existing fixed services currently operating in the 6 GHz band to be migrated to the 8 GHz band. This will incur additional equipment cost but we have assessed it to be feasible.

Allocation of the upper 700 MHz of the 6 GHz band for Mobile Service

- 2.6 IMDA has highlighted the complementary nature of Wi-Fi vs mobile services where the Wi-Fi is expected to be the preferred mode of connection in fixed indoor settings such as offices and homes complementing mobile services when users are on the move.
- 2.7 With Singtel achieving nationwide 5G coverage since July 2022, Singtel has since an increase in the adoption of 5G both in the consumer and enterprise space. We envisage that data usage for 5G will surpass 4G by 2025. With the increasing adoption of 5G services, we anticipate that more mid-band spectrum will be needed by mobile operators like Singtel to support the increasing demand for 5G services in terms of capacity and throughput.
- 2.8 In view of the above, Singtel proposes that the upper 700 MHz of the 6 GHz band be allocated for 5G mobile service. We note that this band i.e. 6,425 MHz – 7,125 MHz has been standardised as 5G band by 3GPP.

3. CONCLUSION

- 3.1 Singtel generally supports the IMDA's proposal to allocate the lower 500 MHz of the 6 GHz band, i.e. 5,925 MHz – 6,425 MHz, for Radio Local Access Network (**RLAN**)/Wi-Fi use.
- 3.2 However, the IMDA has to be mindful that the proposed allocation of 5,925 MHz – 6,425 MHz for RLAN does not impact existing services operating in the 6 GHz band; specifically fixed and fixed satellite service e.g. microwave service and VSAT services.
- 3.3 Singtel recommends that IMDA limit the use of 6 GHz RLAN to indoor-use only. Alternatively, the IMDA should restrict the use of 6 GHz RLAN in the vicinity of Bukit Timah and Seletar Satellite Earth Stations.

- 3.4 As microwave services is critical to the provision of connectivity services to the offshore islands, to ensure that these services will not be impacted by RLAN in the 6 GHz band, we request that the IMDA considers allowing our existing fixed services currently operating in the 6 GHz band to be migrated to the 8 GHz band.
- 3.5 With data usage for 5G surpassing 4G by 2025, more mid-band spectrum will be needed to support the increasing demand for 5G services in terms of capacity and throughput. Singtel proposes that the upper 700 MHz of the 6 GHz band i.e. 6,425 MHz – 7,125 MHz be allocated for 5G mobile service.