

Inmarsat response to
ACMA FIVE YEAR SPECTRUM OUTLOOK 2022-27
29 April 2022

Inmarsat welcomes the opportunity to comment on the Australian Communications and Media Authority (ACMA)'s Five Year Spectrum Outlook (FYSO) 2022-27 and is pleased to provide comments particularly for the L-band, 6 GHz and Q/V-band.

Inmarsat looks forward to engaging with the ACMA in more detail on these bands and other issues in the coming months as consultations are issued by the ACMA.

Introduction

Inmarsat is the leader in global mobile satellite communications, operating a system of 14 satellites that provide communications solutions to customers on land, in the air, and at sea. The company has a long track record of operating reliable global mobile satellite communications networks, sustaining business applications and mission-critical safety and operational applications globally, including Australia, for more than 40 years. Inmarsat recently announced the rollout of Orchestra — a unique, global, multi-dimensional, dynamic mesh network that will support the growing demand for mobility worldwide and at hot spots and high average speeds and low average latency. In the largest-ever transformation of Inmarsat's market-leading services, Orchestra will provide a seamless integration of Inmarsat's ELERA (L-band) and Global Xpress (GX, Ka-band) networks with terrestrial 5G, targeted low earth orbit (LEO) capacity, and dynamic mesh technologies, to create a single advanced solution for global mobility.

General Comments

Inmarsat's ELERA evolution of the L-band network will provide connectivity wherever it's needed and cater for a range of applications including the rapid growth of Internet of Things (IoT) and unmanned aircraft systems (UAS) in remote areas. Inmarsat's ELERA network provides UAS operators with the ability to send and receive data beyond visual line of sight (BVLOS), which is essential for safe and efficient air traffic management.

Inmarsat is supplying a large number of services to the Australian Government. The L-band Satellite Data service caters for 'highly-portable' needs for very remote areas of Australia and is also used for disaster recovery and support operations where Defence and Federal Government assist remote and regional communities. Inmarsat L-band satellite terminals are used on-board Australian vessels as well as foreign registered vessels, bringing constant all-weather data connectivity across oceans and seas. Similarly, Inmarsat L-band satellite terminals are also on-board aircraft, including Australia aircraft for real-time information relating to flight progress, up-to-date weather information and information on engine and aircraft performance for safety purpose. Both Air Traffic Control (ATC) and Airline Operational

Communications (**AOC**) benefit from the Inmarsat's ELERA network for more efficient routing, improving the communications between aircraft and their airline operations centre.

Inmarsat's Government Global Express (**G2X**) provides customers with a global, on demand, network for multi-megabit communication capability for Government needs. G2X uses the Inmarsat Global Xpress network. Inmarsat's G2X also supports the NSW fire and emergency services and State emergency services in Australia using the ELERA network, and these services have rolled out more than 1000 Broadband Global Area Network (**BGAN**) terminals and will be rolling out another 1000 BGAN terminals over the next 4 – 6 years. Similar programs take place in other part of Australia such as Queensland, South Australia, Western Australian and the Northern Territory, for communication during natural disasters. Inmarsat's GX networks are used today by various aviation and maritime industries such as airlines, private jets, and private leisure vessels, yachts, fishing vessels, sea transport ships and cruise operating in and around Australia territory. The GX networks are also used for land-based services in Australia by commercial companies for reliable connectivity, in particular in remote areas.

Satellite communication continue play a part in multiple industries as mentioned-above for safety and emergency events, IoT applications, government, maritime and many more. Without adequate spectrum, the satellite communication industry will not be able to maintain its business continuity and grow its services to serve the underserved.

Part 2: Q/V band (40 GHz, 46 GHz and 47 GHz)

The ACMA indicates that it will continue to monitor the developments in the Q/V bands:

- 40 GHz (37 – 43.5 GHz)
- 46 GHz (45.5 – 47 GHz)
- 47 GHz (47.2 – 48.2 GHz)

The above three bands, and the band 48.2 – 52.4 GHz, are of significant importance to satellite community generally and to Inmarsat. It is necessary that the ACMA is able to provide authorisation of earth stations in these bands while use of these bands remains at the “monitoring” stage.

Part 2: 1.5 GHz (1427–1518 MHz) and Extended MSS L-band (1518-1525 MHz and 1668-1675 MHz)

Inmarsat notes that the ACMA proposes to release an options paper in Q1 2023 for the services to be used in the band 1427 – 1518 MHz. Inmarsat reemphasises the need to consider the technical measures to ensure protection of Mobile Satellite Service (**MSS**) operations, and urges the ACMA not to include the band 1492 – 1518 MHz for consideration of International Mobile Telecommunication (**IMT**) deployment in the initial phase.

Regarding the plans for extended MSS L-band, it is disappointing to see that the work to review the use of this band progresses so slowly. Inmarsat urged the ACMA to start planning the use of the extended L-band frequencies in several responses to ACMA's consultations, including the previous FYSO 2021-26. In its FYSO 2019–23, the ACMA indicated that an options paper

was planned for Q3/4 2019-20 – a timeframe supported by Inmarsat at that time. The current FYSO suggests an options paper in Q1 2023, dependent on submissions to a consultation paper on IMT in the 1.5 GHz band.

Inmarsat successfully launched its “Inmarsat-6” F1 satellite in December 2021. This satellite provides L-band MSS capability in the 1518 – 1559 MHz (space-to-Earth) and 1626.5 – 1660.5 and 1668 – 1675 MHz (Earth-to-space) frequency bands. The I6-F1 satellite will provide coverage of Australia and access to the extended L-band in Australia is important for Inmarsat to be able to address the growing demands on capacity and applications from emergency responders, military users and diverse industries, including the transportation, energy, and agriculture sectors.

Irrespective of the demand for IMT in the 1.5 GHz band, Inmarsat requests that the ACMA proceeds with the necessary steps to address the use of MSS in extended L-band as soon as possible. If necessary, this work could proceed independently of work on the 1.5 GHz band for IMT.

Part 2: 6 GHz (5925 – 7125 MHz)

Inmarsat would like to highlight that the Fixed Satellite Service (**FSS**) systems operate across the upper 6 GHz band (6425 – 7125 MHz), and it is important that these systems are protected from Radio Local Area Networks (**RLANs**) should these networks be allowed to operate under the Low Interference Potential Device (**LIPD**) class licence in the future.

Inmarsat does not oppose the consideration of the upper 6 GHz for RLANs in the LIPD class licence, provided the same technical conditions are applied as in the lower 6 GHz band – low power indoor and very low power outdoor. However, Inmarsat strongly discourages the ACMA from considering the upper 6 GHz band for IMT systems, and also notes that IMT systems cannot practically share with the RLANs and FSS.