International Civil Aviation Organization

Fourteenth Meeting of the FANS Interoperability Team – Asia (FIT–Asia/14)

Bangkok, Thailand, 16 – 19 July 2024

Agenda Item 5: Data Link Developments and Guidance Material

INMARSAT AERONAUTICAL SATELLITE SAFETY COMMUNICATIONS UPDATE

(Presented by Inmarsat)

SUMMARY

This paper presents an update of Inmarsat safety services in support of PBCS and ICAO GANP initiatives.

1. INTRODUCTION

1.1 Inmarsat provides satellite communication services in support of air traffic management and aeronautical safety operations and is an ICAO PBCS Charter stakeholder.

1.2 This paper provides an update on the Inmarsat satellite network and services for aeronautical safety communications.

2. DISCUSSION

2.1 As an ICAO PBCS Charter stakeholder and provider of satellite aeronautical safety communication services, Inmarsat invests in its constellation and network to support safety and efficiency improvements. This paper provides an update on the configuration of the Inmarsat L-band satellite constellation, network and system updates, and evolving ATM capabilities.

Satellite fleet arrangement

2.2 Subsequent to FIT Asia 2023, the following updates to the L-band satellite constellation were made: I6F1 became operational over the Indian Ocean and, in September, L-band services from I4F2 were transitioned to I6F1; I4F2 was moved to the Asia Pacific ocean region and services were transition from I4F1 to I4F2 in November; I4F1 has been moved to a new location for contingency purposes. Figure 1, below, depicts the current Inmarsat L-band satellite constellation:

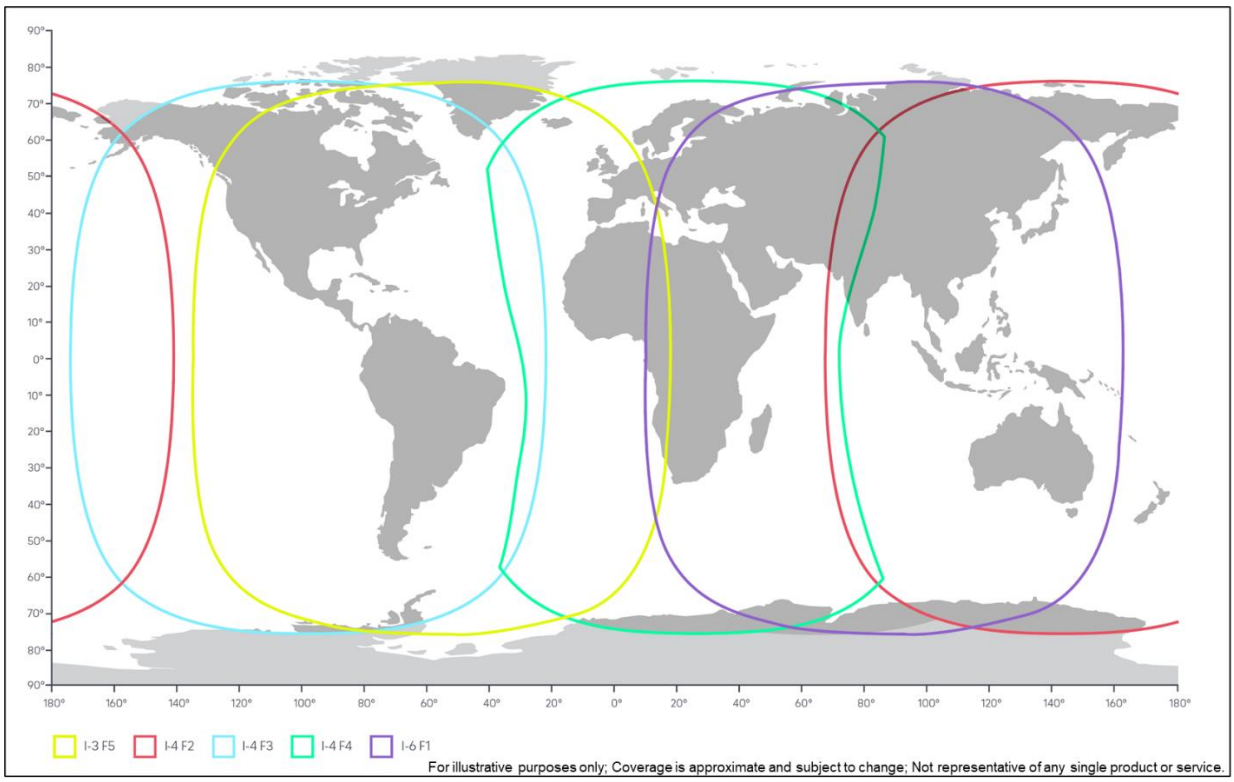

Figure 1: Current Inmarsat L-band satellite coverage

2.3 Additionally, three I8 L-band satellites are planned for launch in 2026, and the long-term L-band strategy, including replacement of I6F2 is on-going.

Network and System Updates

2.4 A number of enhancements to increase resiliency and improve performance monitoring have been completed or are underway, as follows:

a) Classic Aero and SB-S data logging capabilities are being expanded and the performance monitoring support tools available to our distribution partners are being further developed to improve performance monitoring and problem investigation.

b) Improved site switching for SB-S 1.0 has been completed, which enables each gateway to dynamically process all ocean region traffic.

c) Data logging is being developed to support voice call performance assessment against a current proposal for amendment to ICAO Annex 10 Satcom SARPs and a proposed RCP for direct controller-pilot voice communications being developed by the ICAO OPDLWG.

d) The capability to deliver caller line identification and priority in the air-to-ground direction has been enabled to support voice over IP connections.

Evolving ATM Services

2.5 The Inmarsat network and satcom avionics have evolved alongside global requirements for air traffic safety communications. **Table 1**, below, provides information on capabilities and applications supported by Inmarsat satcom installations.

Table 1: Inmarsat Aeronautical Satellite Safety Services

Oceanic and Remote Satcom			Global Continental Satcom
Classic Aero	SB-S 1.0	SB-S 2.0	SB-S Iris
FANS ACARS	FANS ACARS	FANS ACARS	FANS ACARS
Dual Voice	Dual Voice	Dual Voice	Dual Voice
ACARS	ACARS	ACARS	ACARS
	Cockpit IP	Cockpit IP	Cockpit IP
	Position Reports	Position Reports	Position Reports
		Enhanced Security	Enhanced Security
			ATN/OSI (ATN B2 applications and ATS B2 capabilities)
			ATN/IPS – Planned 2027 (ATN B2 applications / ATS B2 capabilities)
Supported Applications and Capabilities:			
• CPDLC (RCP240); ADS-C (RSP180)	• CPDLC (RCP240); ADS-C (RSP180) • Cockpit IP: SWIM-enabled applications and EFB		• CPDLC (RCP240); ADS-C (RSP180) • Cockpit IP: SWIM-enabled applications and EFB • ATN B2 applications: CPDLC (RCP130); ADS-C (RSP-180) • ATS B2 capabilities: Extended CPDLC message set for trajectory negotiation; ADS-C Extended Projected Profile (EPP)

a) SB-S Iris began operational services, provided by 19 European ANSPs with three easyJet aircraft, in January 2024. The SB-S Iris satcom is being used in multi-link with VDLm2 over ATN to manage spectrum, by offloading ATS communications from VDL to satcom. In addition, SB-S Iris (ATN/OSI and ATN/IPS) provides capabilities to support both initial and full 4D trajectory based operations.

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

a) note the information contained in this paper.

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