

ISPACG/35

INMARSAT SAFETY SERVICES UPDATE

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INMARSAT
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BUILT TO FLY


inmarsat
AVIATION

Update on Classic Aero

Current status

Network improvements

Update on SB Safety and Iris

Current status

China

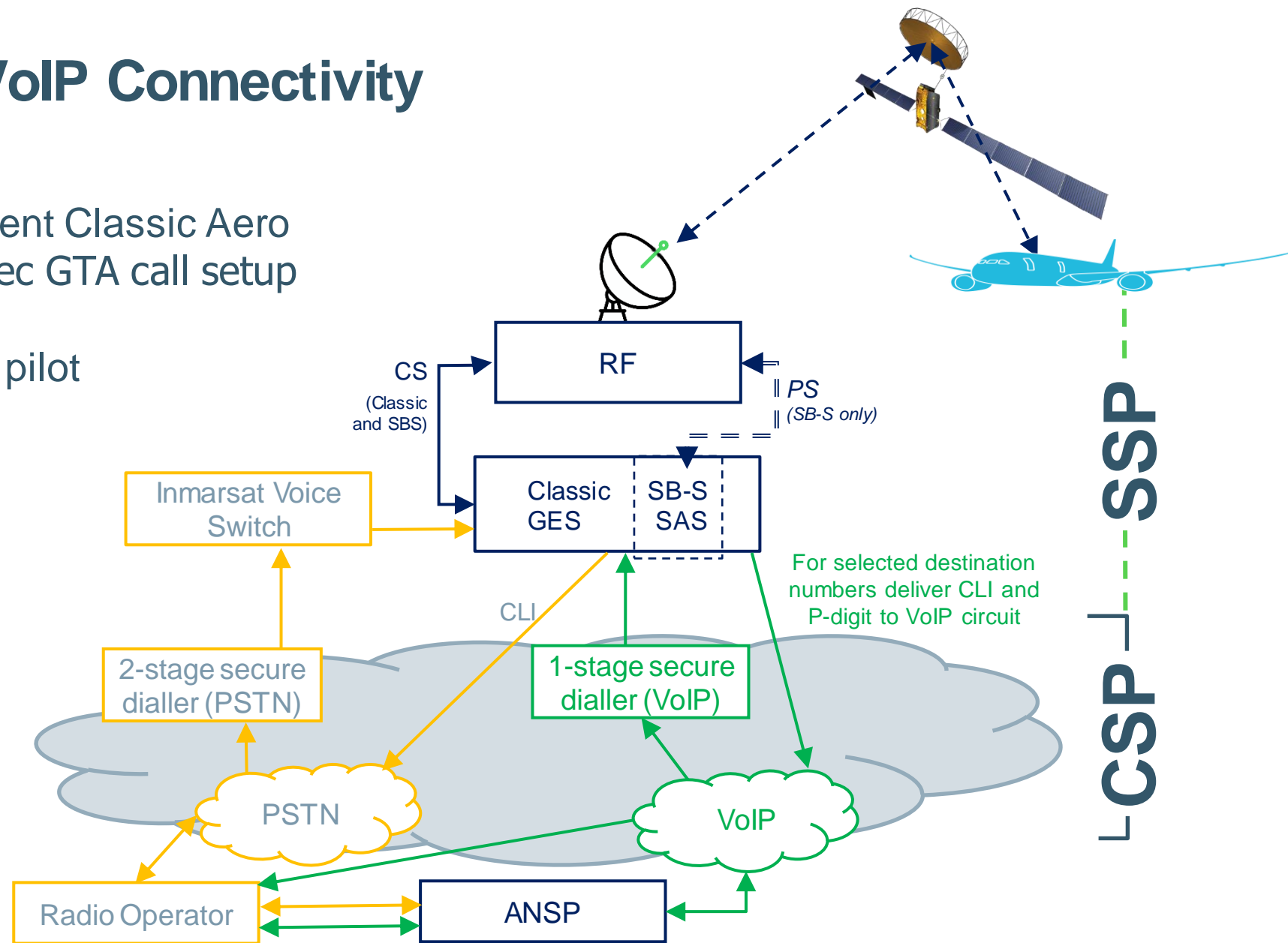
AGENDA

Classic Aero GES Software and Hardware Upgrades

- Log-on Storm recovery
 - Inmarsat requested the Classic GES manufacturer (SED, now Calian) to analyse and model different configurations of GES settings to improve log-on storm recovery in the event of service outage
 - Extensive modelling was conducted leading to recommendation of a preferred configuration
 - Recommendations implemented March 2021
- 3F5 (AORE, 54W) extension project
 - New ground station infrastructure at Laurentides, Quebec, completed Q3 2021 to extend the life of its satellite I3 F5 (AORE).
 - Services were switched from the GES at Burum to Laurentides on 13th July 2021, which is now a dual OR station supporting AORW via AMER and AORE via 3F5.

SATVOICE 1-Stage VoIP Connectivity

- Fast satellite VoIP with current Classic Aero network & equipage \approx 15 sec GTA call setup
- Enabler for direct controller pilot communications
- Operational:
 - NavCanada
 - JCAB
- CAAS Operational trial
- OPDLWG RCP tasking



I-6 Constellation

- Two Inmarsat-6 satellites developed by Airbus Defence and Space:
- Support a new generation of capabilities for global safety services
- I-6 F1 scheduled for launch in Q4 2021
- I-6 F2 scheduled for launch in 2022
- Both satellites scheduled for commercial service introduction in 2023
 - Minimum service life of 15 years
 - Also feature Ka-band payloads hosted on the L-band satellites



SB-Safety Service Status

SB-S 1.0 – Entered commercial service in 2018; Around 200 aircraft activated/using the service

- Additional security controls are being applied to SB-S 1.0

SB-S 2.0 – Due to enter commercial service in Q4 2021

- Meets enhanced security requirements of aircraft manufacturers and regulatory requirements
 - SB-S 2.0 terminals provide a PKI authenticated VPN tunnel between the aircraft terminal and the Ground Data link Gateway (GDGW)
- Additional security controls are being applied and a COTS VPN is also established between the SB-S 2.0 GDGWs and the CSP networks

Iris – An ESA/Inmarsat partnership bringing SATCOM-based ATM to dense continental airspace

- The ground infrastructure is deployed at Burum and Paumalu. Avionics vendors are implementing the multilink management. Plans are to equip up to 20 narrow-bodied aircraft for initial operational service.
- Operational service targeted for early 2023 (EASA certified)
- While focused on Europe (ATN/OSI), the global infrastructure enables service to be supported elsewhere
- Supports ATN B1/B2 services in multilink with VDL: an ATN/IPS prototype is currently being developed, to be tested in 2022

Retrofit & Linefit SB-S

SB-S: Retrofit

Available now



A320/neo



737



767

SB-S: Linefit

2021 – 2022



A320/neo



A330



A350



737NG/MAX



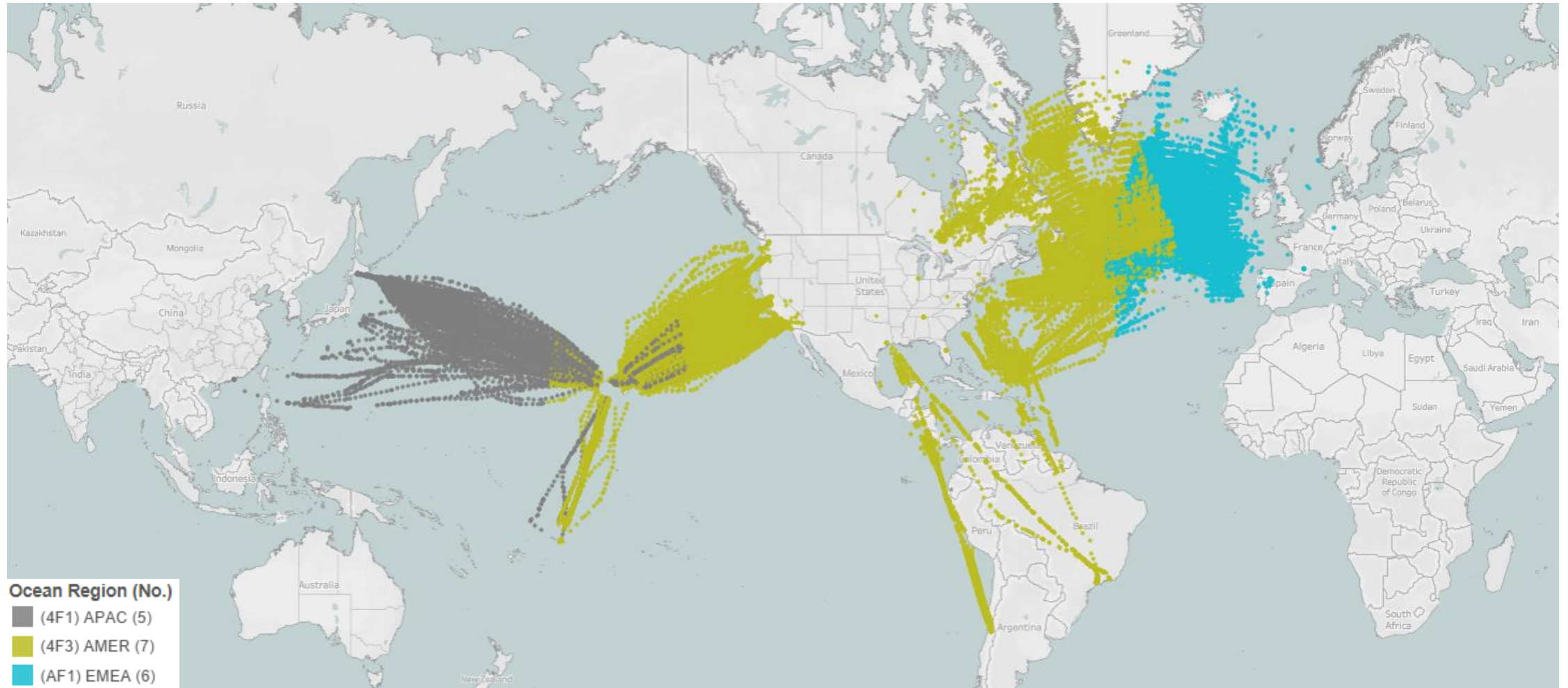
777X

AIRBUS



SB-S 1.0 ADS-C Data from 1 Sept 2017 to 20 January 2021

(4F1) APAC (5)	(4F3) AMER (7)	(AF1) EMEA (6)	Grand Total
20,274	645,517	47,448	713,239



China Update

SB-Safety Infrastructure for China

- Two non-FANS 'alpha' evaluation Shenzhen aircraft transitioned to CTTIC network Sept 20, good performance. Preparations for commercial service on-going, scheduled for September 2021.

Introduction of CTTIC as Classic Aero DP

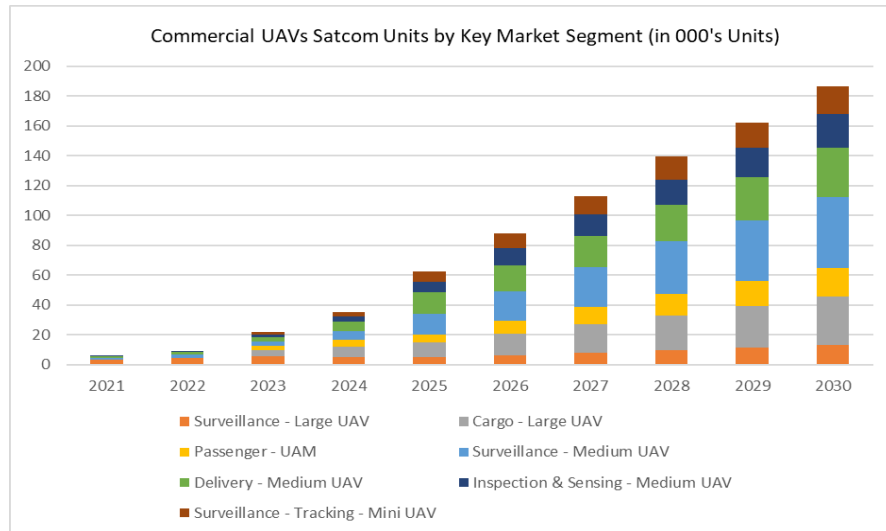
- Inmarsat has implemented infrastructure to support CTTIC as a Classic Aero DP
- ADCC are the ACARS processing entity in China operating a GMP
- Voice and Data over-the-air testing completed
- FANS performance evaluation to be conducted Aug '21
- Commercial service planned for September 2021



Inmarsat Commercial UAV Solutions

Current estimates show BVLOS growth from a few thousand units in 2021 to more than one million in 2030. As UAV operations expand into more complex airspace – toward integration into controlled airspace with manned aircraft – so does the **need for robust, secure communications and multiple communication links on the vehicles**

Forecast



Sector



Cargo



Urban transport



Delivery



Surveil/Inspect.

Current Program

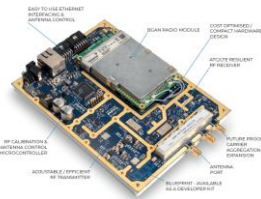
- Utilising Inmarsat L band assets for CNS/C2 in a small form factor solution (Satcom terminals: UT1, UT2, UT3)
- UT1 Terminal providers: Cobham, Honeywell and TTP – Available now!
- Developing reduced CSWaP UT2 & UT3 – Multi-channel Data Link – Available 2022
- Supporting Global Regulations for BVLOS Commercial UAV Operations with Commercial UAV Safety Solutions
- Working strategically with partners to develop the emerging Commercial UAV Eco System



Cobham UAV200



Honeywell
Small Form Factor
Terminal



TTP – BRM-Works
Solution

www.inmarsat.com



Thank You