Thales Satcom and Connectivity

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Thales UK Flight Avionics
Markets served by Thales

Dual markets civil / military

Defence  Aerospace  Space  Security  Ground Transportation

Trusted partner for a safer world
- Cockpit-only, Cabin-only and Cockpit/Cabin configurations – with appropriate segregation and security
- Classic Voice and ACARS/FANS Data / Up to two channels of SBB including CS Voice over SBB
- ARINC 781 Compliant
  - Breakthrough in size and performance
  - Housed in a single 6 MCU enclosure
- Compatible with all onboard communication networks
  - Thales TopConnect, Airbus KID-Systeme, Aeromobile, eXConnect
TFS tightly integrates with cockpit systems

- Engine indication and crew alerting system
- Centralised fault display system
- Three multifunction control and display units
- Two audio control panels

Aircraft / Portable Data Loaders
Inertial Reference System / GPS
Straps / Discretes
Power
Maintenance Terminal
TopFlight Satcom integration with TopConnect

TFS integrates with fully connected IFE systems

Inmarsat
Satellite Link
HGA/IGA

Talk via GSM
- Pico Cell
- Controller
- GSM Server
- Leaky Line

Connect via WiFi
- Antenna or Leaky Line
- Wireless Access Point

Connect via IFE
- IFE Network
- IFE Head-End

DLNA
TopFlight SATCOM
Cockpit Voice + Data
Communications Manager
Crew/Cockpit controls

Tele-medicine
An external FMHPA is also available e.g. B777-F

Electronic Flight Bag

Thales
A rich suite of bearer-agnostic connectivity solutions

- Thales WiFi
  - Secondary cabin network
  - Crew and passenger
  - Communications management
  - Bandwidth optimisation

- Thales mobile network
  - GSM/GPRS/SMS Services

- Mobility and entertainment
  - Connected IFE experience

- Media delivery
  - Streamed wireless to PEDs
  - Distribution of live media – TV (Planned)

Proven with SwiftBroadband
2016
SB-SS, Extended L-band
A781 2 MCU

2012 Class 6
Cockpit: 2 x Classic Voice & ACARS Data
Cabin: Up to 2 Channels SwiftBroadband
Boeing 737, 777, 787

2010 Class 6
Cabin: 2 Channels SwiftBroadband
Embraer 170/190/Lineage 1000

2009 Class 7
Cabin: 1 Channel SwiftBroadband
Airbus: A320 / B737

2008 Class 3A
Cabin: ‘BGAN with Wings’
Airbus: A320

2016
Classic Voice & ACARS Data
SB-SS + Multi-SBB with HDR/LDR

ARINC 781 2 MCU Product Evolution

ARINC 781 6MCU Product Evolution
L Band market

- Thales sees a strong and growing long-term market for L Band Satcom
  - Cockpit: ‘Safety Services’ status is a key OEM requirement for the long term
  - Cabin: mobility applications, GSM & Wi-Fi can all be delivered with SBB

Inmarsat roadmap

- Thales is following the Inmarsat roadmap
- Thales continues to evolve its 6MCU ARINC 781 Product Range
  - SwiftBroadband Safety services
  - Multi SBB with HDR/LDR
- Thales will expand its L Band Product Range in line with published evolutions of ARINC 781 – 2 MCU LRUs
  - SwiftBroadband Safety services and extended L Band will be incorporated
- Thales has a vision for multi-band Satcom product range
Cockpit Connectivity

✦ Boeing 777F
  • TopFlight™ Satcom
    - Classic Voice and Data
    - SwiftBroadband (AMBE+2™ Voice / EFB)

Cockpit and Cabin Connectivity

✦ Boeing 737 and 777PAX
  • TopFlight™ Satcom
    - Classic Voice and Data
    - SwiftBroadband (AMBE+2™ Voice / EFB)
    - Integrated with Thales GSM / GPRS / SMS

Cabin Connectivity

✦ Airbus Single Aisle A320 family
  • TopFlight™ Satcom
    - Integrated with Airbus KID-Systeme GSM / GPRS / SMS

✦ Embraer 170 / 190 / Lineage
  • TopFlight™ Satcom & TopConnect™
    - Thales WiFi / Airline Portal / VoIP (Through PEDs)
    - Billing Application
    - Caching and Bandwidth Optimisation

✦ Boeing B787 / B777
  • TopFlight™ SATCOM & TopConnect™
    - Thales WiFi / Airline Portal / VoIP (Through PEDs)
    - Thales GSM / GPRS / SMS
    - Connected IFE (Through the Seat Back Screen)
- **Boeing Linefit on 737, 777 and 777F**

- **Multi-Service TopFlight SATCOM**

- **Can be configured as:**
  - One Classic Aero SATVOICE and one Classic Aero data, plus one SwiftBroadband Channel (providing a non-safety cockpit voice channel plus IP data)
  - Or two Classic Aero SATVOICE and one Classic Aero data channel
  - Or two channels of SwiftBroadband

- **In service**
  - 777 – Aeroflot
  - 777F – Multiple operators
  - 737 – Malaysia Airlines, US Navy (C40A)

- **Flange Mount HPA used to overcome installation constraints on 777F**
Dual Multi-Service TopFlight SATCOM

Dedicated cockpit Satcom
- One Classic Aero SATVOICE and one Classic Aero data, plus one SwiftBroadband Channel (providing a non-safety cockpit voice channel plus EFB connectivity)
- High Gain Antenna (HGA)

Dedicated cabin Satcom
- Two channels of SwiftBroadband
- High Gain Antenna (HGA)

Saudi Arabian installation pending

Entertainment
- Augmented IFE experience
- Media delivery

WiFi Connectivity
- Personal Electronic Devices

GSM/GPRS/SMS
- Thales designed solution
- Configured to support 16 concurrent voice calls

Live news, Web browsing, E-mail, SMS, Cellular phone calls and data services
Embraer Lineage 1000 & ERJ 170/190

- **Embraer Linefit**
  - Lineage 1000 and ERJ 170/190

- **Dedicated cabin Satcom**
  - 2 channels of SwiftBroadband
  - High Gain Antenna (HGA)

- **In service with multiple private operators**

- **Cabin Server and WiFi Access Point**
  - WiFi Connectivity
  - Two Ethernet ports (RJ45) for wired laptops

**Corporate / VIP / Business Jet Connectivity Solutions**
Airbus Single Aisle A320 Family

- **Airbus linefit**
  - A318/319/320/321

- **Dedicated cabin Satcom**
  - 1 channel of SwiftBroadband
  - Intermediate Gain Antenna (IGA)

- **In Service with multiple airlines**

- **GSM/GPRS/SMS**
  - OnAir / KID-Systeme solution

Live news, Web browsing, E-mail, SMS, Cellular phone calls and data services
First Connectivity system available on the Boeing 787

Dedicated cabin Satcom
- 2 channels of SwiftBroadband
- High Gain Antenna (HGA)

In Service with Qatar Airways

Entertainment
- Augmented IFE experience
- Media delivery

WiFi Connectivity
- Personal Electronic Devices

GSM/GPRS/SMS
- Thales designed solution
- Configured to support 16 concurrent voice calls

Live news, Web browsing, E-mail, SMS, Cellular phone calls and data services
End of Presentation