

X-band for Mission Critical Communications

Guaranteed communications wherever you are, whenever you need them. Discover why X-band is the military frequency of choice and what this means to you

AIRBUS

X-band from Airbus for Mission Critical Communication

Why X-band for Mission Critical Communications?

X-band satellite capacity is reserved exclusively for military and government organisations for mission critical, sensitive command and control communications systems, where loss of communications is not an option.

Whether the need is for government, military, humanitarian, emergency response or other diplomatic communications, Airbus can provide uncontended capacity and availability wherever and whenever required on its' own constellation of military secure X-band satellites.

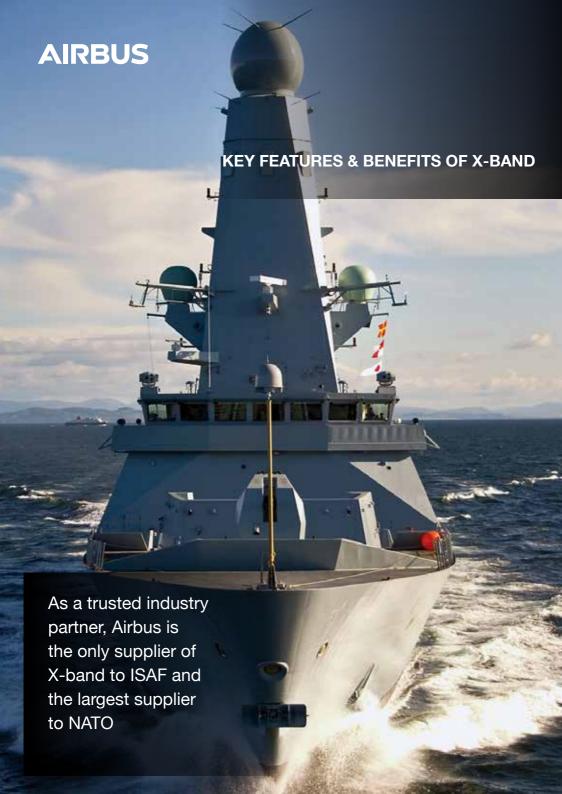
Why X-band from Airbus?

- World's first and largest commercial operator of hardened and protected X-band satellites compliant to NATO STANAG interoperability standards
- Access to 7 Skynet satellites the world's most powerful X-band satellites built to date and commercially owned. Additional access to X-band transponders on Anik G1
- Skynet 5's flexible global and steerable spot beams can be quickly repositioned to provide high power coverage where the user requires it
- Their multi-beam switching capabilities and anti-jamming phased array delivers shaped and high gain footprints, optimizing a highly concentrated link for maximising the data to small terminals and blocking out sources of interference
- Uniquely designed to specifically support COTM (comms-on-the-move) operations making it the best choice for naval and airborne platforms
- X-band on Skynet 5 is capable of providing secure data links to submarine vessels and currently performs these operations for users

X-band services from Airbus, as a commercial operator, provide military satcom capability to military and government customers with faster and more efficient procurement practices

Customers: UK MOD, US DoD, French Armed Forces, The Netherlands, Slovenia and more. Operations particularly extend to US COCOMS and Special Forces personnel.





Key Features of X-band

X-band is reserved exclusively for military and government users as it provides all the benefits of commercial bands such as Ku, i.e. high speed data rates to smaller antennas, but with many additional benefits including resilience to rain fade and interference.

These benefits, combined with Airbus' Skynet 5 advanced milsatcom capabilities, makes X-band from Airbus the ideal choice when loss of communications is not an option.

	X-band from Airbus
A. INTERFERENCE RESILIENCE	Airbus' X-band is resilient to interference due to coordinated operations between all satellites and minimum slot separation enforcement. Shapeable beams on Skynet minimise interference further in addition to the smaller population use (reserved for mil/govs only) on X-band compared to commercial bands.
B. RAIN RESILIENCE	X-band has the best resilience to rain fade. The only frequency comparable is C-band and this is a highly contended bandwidth used for broadcast to commercial users. Combined with Skynet 5's unique capabilities, X-band from Airbus is the best option for military satcom operations in any environment.
C. TERMINAL SIZE VS. DATA RATES	X-band is the best compromise for terminal size and data rates whilst maintaining resilience to rainfade. Combined with Skynet 5's powerful steerable antennas and beaming forming networks, data rates of 10Mbps to a 45cm antenna is achievable without interfering with adjacent satellites.
D. DATA RATES FOR COTM/COTP	X-band is well suited for high data rates to "on the move" and "on the pause" platforms. Combined with the unique capabilities of Skynet 5 as previously stated and the assurance and uncontended bandwidth as standard, X-band from Airbus has proven rates in excess of 14Mbps using DVB-S2 ACM SCPC links, with bespoke coverage providing high gain spot beams tailored for Airborne ISR (UAV) missions.
E. REMOTE & MARITIME COVERAGE	Airbus' X-band footprints are specifically located in areas with little or no infrastructure making it ideal for remote and maritime platforms. With the addition of Anik G1 to Airbus' constellation, we are the only commercial provider of X-band over North and Latin America, with substantial coverage of the Pacific Ocean, reaching out to Hawaii and Easter Island.

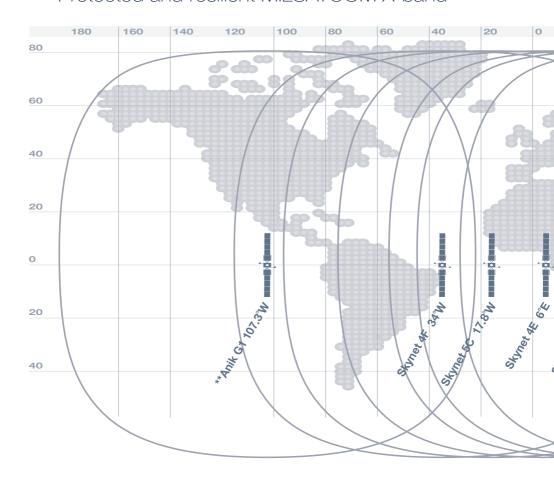


World Class Infrastructure

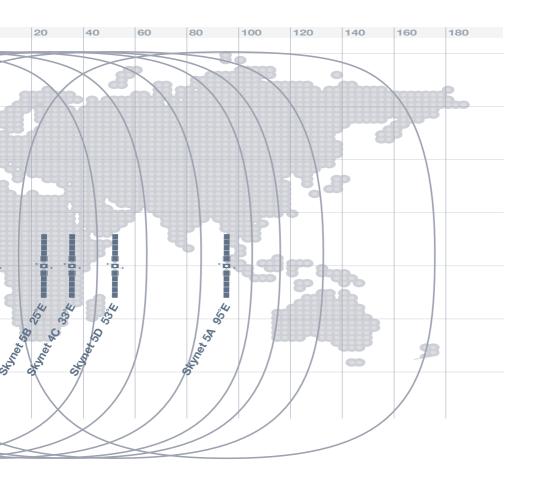
We deliver secure and resilient end-to-end services around the globe

Current Skynet Constellation

Protected and resilient MILSATCOM X-band



^{**}X-band payload on Telesat's Anik G1 satellite



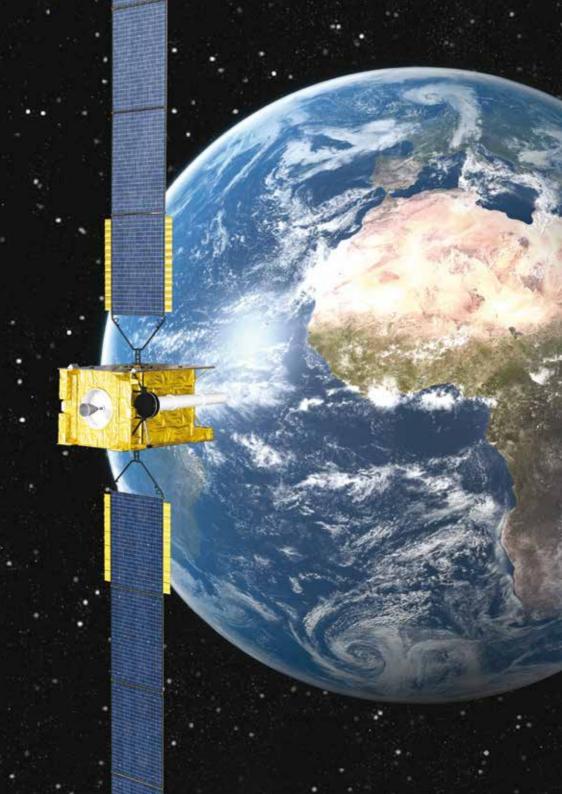
Skynet 5 - Providing Advanced Milsatcom Capabilites

Skynet 5 System Features

The Skynet 5 spacecraft were built with features perfectly suited to guarantee communications in the demanding military environment. The benefits of these features for our customers include:

End User Benefit

End Oser Benefit
Operator can manage the power and bandwidth available to the end user
 Protection of the link against direct attacks & hostile interference Higher data throughput need from any terminal size Bespoke customer solutions tailored to customer requirements
 Allows higher data rates to smaller terminals Bespoke customer solutions tailored to customer requirements
 Global uplink beam offers the customer the greatest satellite coverage but balanced by a lower data rate Typically supports antennas 1.2m or greater at >1Mbps
 The theatre uplink beam can track a deployed user requirement to ensure maximum data rates Allows use of small terminals (0.45m) Users can form their own networks as per their requirements Guaranteeing >99.9% connectivity
Interoperability with other NATO friendly militaries/governments Military grade security assurance Protects integrity of the customers' service (bespoke to customer) Assured communications
Service Level Agreements available for the customer 24/7 access to a dedicated support & networks team for reassurance Any issues are resolved very quickly & efficiently



Anik G1 and Skynet 4

Responding to the growing demand for commercial satellite services by government and military organisations, Airbus has partnered with Telesat to deliver Anik G1. With the first commercial X-band coverage across North and Latin America, Anik G1 provides substantial coverage of the Pacific reaching out to Hawaii and Easter Island.

Anik G1, launched in April 2013, holds a 3-transponder, global-beam X-band payload, operating from 107.3°W, giving coverage from 178°W to 35°W until at least 2028.

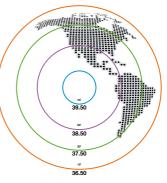
The payload is fully compliant to NATO interoperability standards giving seamless interoperability and portability with the Skynet fleet of X-band satellites, giving uncontended, near-global coverage to allow seamless maritime operations, integrated transit and deployment conops for our customers worldwide.

Anik G1 satellite capacity is ideal for:

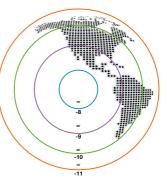
- Naval operations
- Disaster recovery
- Emergency management
- Protection of natural resources, such as mining, forests, oil and gas
- Remote army operations
- Remote government offices
- Civil-military inter-agency Collaboration

Skynet 4

Airbus still owns and operates 3 Skynet 4 satellites. The original design life for these satellites was 7 years but Skynet 4C have over 25 years in service. We never retire a satellite if it still has operational use. Each of the Skynet 4's still provide either X-band or UHF connectivity for operations. Skynet 4C is currently inclined at 10.3 degrees and is visible to the South Pole. Due to this distinctive capability, Skynet 4C is currently providing up to 5 hours of communications to the National Science Foundation a day.



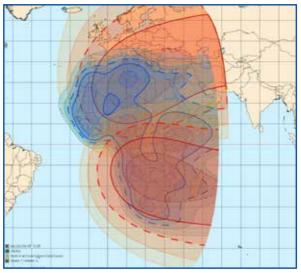
Anik G1 EIRP 36.5dBW at EOC



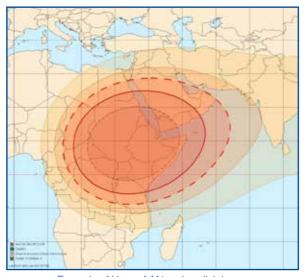
Anik G1 G/T -10.5dB/K at EOC



Africa

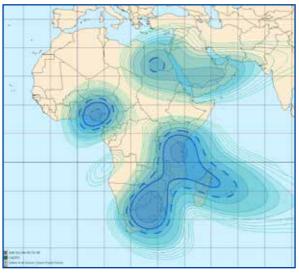


Example of whole of Africa uplink & high power downlink beams

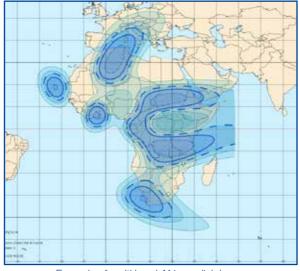


Example of Horn of Africa downlink beam

Africa

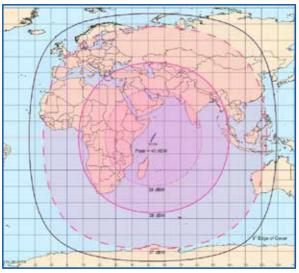


Example of uplink spot beams over Africa

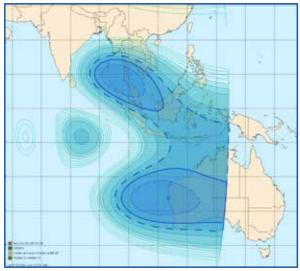


Example of multi head Africa uplink beam

Asia

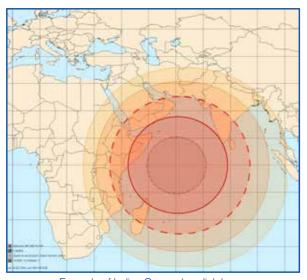


Global downlink beam coverage map

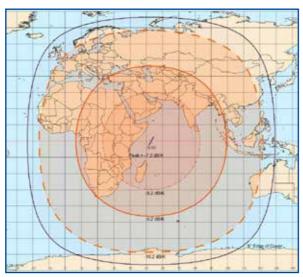


Example of Australia & South East Asia uplink beam

Asia

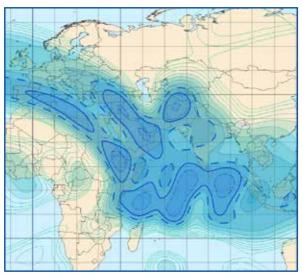


Example of Indian Ocean downlink beam

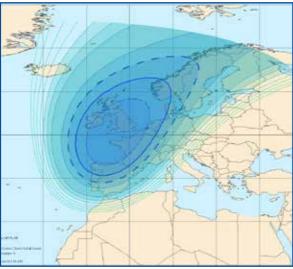


Global uplink beam coverage map

Europe

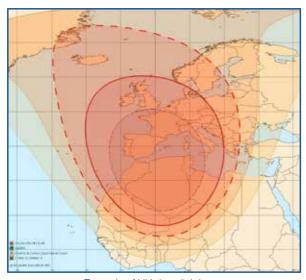


Example of Europe, Middle East, Indian Ocean & Far East uplink beam

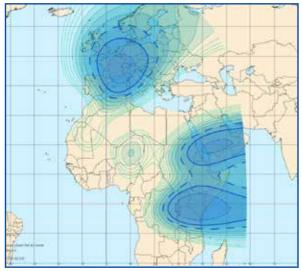


Example of UK uplink beam

Europe

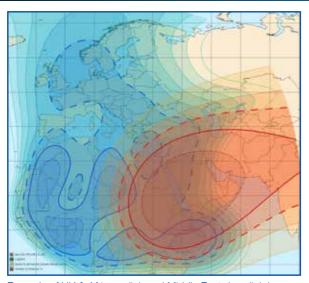


Example of UK downlink beam

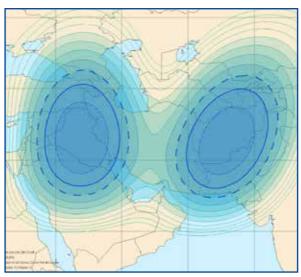


Example of Europe to West Africa uplink beam

Middle East

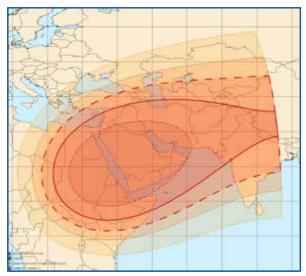


Example of UK & Africa uplink and Middle East downlink beams

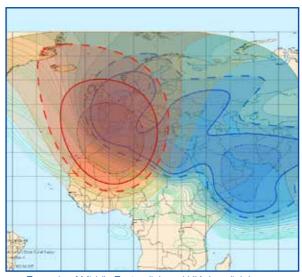


Example of Iraq & Afghanistan uplink beam

Middle East

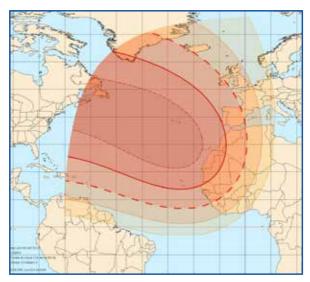


Example of Middle East downlink beam

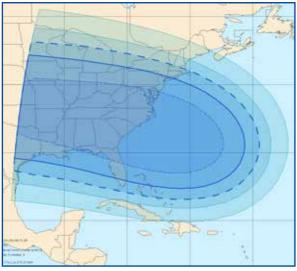


Example of Middle East uplink and UK downlink beams

North America

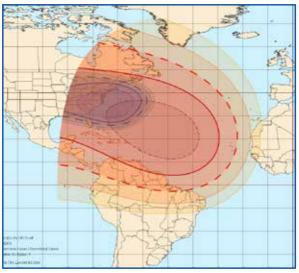


Example of Northern Atlantic downlink beam

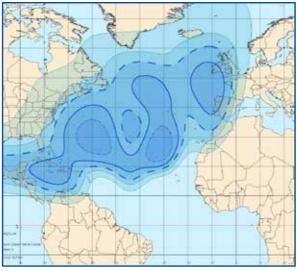


Example of US uplink beam

North America

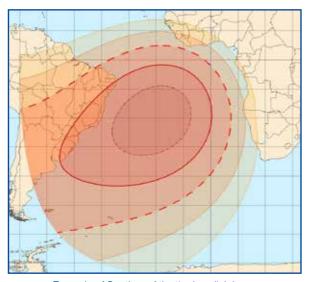


Example of US uplink & downlink beams

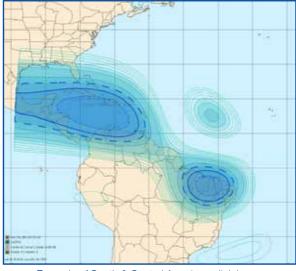


Example of North Atlantic uplink beam

South America

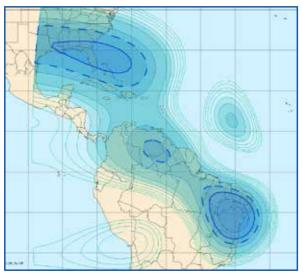


Example of Southern Atlantic downlink beam

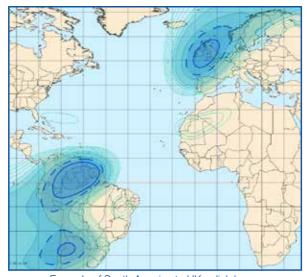


Example of South & Central America uplink beam

South America



Example of Central & South America uplink beam



Example of South America to UK uplink beam

