Aircraft Antenna - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

Market Report | 2025-07-01 | 110 pages | Mordor Intelligence

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Report description:

Aircraft Antenna Market Analysis

The aircraft antenna market size is valued at USD 550.53 million in 2025 and is forecasted to reach a USD 787.42 million aircraft antenna market size by 2030, advancing at a 7.42% CAGR. Current growth stems from airline commitments to multi-orbit connectivity, regulator-driven surveillance upgrades, and rising unmanned aerial system demand that requires always-on links for beyond-visual-line-of-sight operations. Segment leaders now design antennas into digital flight decks at the blueprint stage, shifting procurement earlier in the aircraft life cycle. Operators prioritize equipment supporting geostationary, medium, low Earth orbit, and emerging 5G air-to-ground links in a single terminal, creating a replacement pull across legacy fleets. Supply-chain disruption in gallium and specialty RF substrates continues to influence pricing. It encourages vertical integration among tier-one suppliers and additive-manufacturing adoption for low-weight conformal arrays.

Global Aircraft Antenna Market Trends and Insights

Increasing Global Aircraft Deliveries

Boeing's 2024 outlook sets demand for 43,975 new airplanes over two decades, dominated by single-aisle jets that rely on weight-optimized antennas for cockpit and passenger connectivity. During initial design reviews, airlines are locking in multi-band, software-defined arrays because antenna choices are now seen as a thirty-year strategic decision rather than an afterthought. This design-finish migration pulls revenue recognition forward for suppliers and compresses retrofit cycles in the aftermarket. High

passenger growth forecasts in Asia-Pacific, led by 4.8% annual traffic gains, translate directly into first-fit antenna volume and recurring spares demand. The scale of impending deliveries lifts the aircraft antenna market by securing baseline orders for each airframe produced and by accelerating replacement needs for fleets approaching midlife.

Next-gen SATCOM and 5G Airborne-Connectivity Roll-outs

Multi-orbit satellite constellations and terrestrial 5G air-to-ground networks converge, forcing antenna vendors to develop electronically steerable systems that roam seamlessly across disparate spectra. China Telecom and partner OEMs demonstrated network hand-off between tower and LEO links, proving higher throughput and lower latency than legacy GEO-only configurations; this benchmark is pushing North American carriers to field dual-mode arrays within the next fleet retrofit window. The ViaSat-3 launch and the first commercial service activation in 2024 underscore the bandwidth leap GEO craft can still deliver when paired with agile flat-panel apertures. Airlines view multi-orbit agility as an insurance policy against coverage gaps and a foundation for real-time analytics, making antenna upgrades core to digital transformation strategies. Aggressive roll-outs add 2.1 percentage points to forecast CAGR by unlocking premium service revenues across passenger cabins and operational data pipes.

Antenna-radome Integration Complexity in Composite Airframes

The shift from aluminum to carbon-fiber fuselages complicates RF propagation because conductive mesh layers introduce new attenuation paths. The ACASIAS consortium embedded Ku-band arrays directly into a 1.2 m □ 3 m panel, proving feasibility yet highlighting lengthy qualification and bonding verification steps. Structural integrity must pair with radiation efficiency, which can demand costly electromagnetic simulations, prototype coupons, and destructive testing. Recent FAA directives on broadband antenna adapter plate corrosion illustrate continuing reliability hurdles even for metal airframes, let alone novel composites. These engineering burdens extend time-to-market and deter smaller suppliers without in-house materials labs, subtracting 1.4 percentage points from potential CAGR until certified design toolchains mature.

Other drivers and restraints analyzed in the detailed report include:

Fleet-wide ADS-B/Mode-S Transponder Mandates / Surging UAV Demand for BVLOS Mission Profiles / Spectrum Congestion in L- and C-bands /

For complete list of drivers and restraints, kindly check the Table Of Contents.

Segment Analysis

Commercial aviation held 39.45% of the aircraft antenna market in 2024, thanks to standardized certification pathways and the sheer quantity of narrow-body jets entering fleets. Airlines procure multi-orbit and 5G-ready antennas parallel with cabin refits that add Wi-Fi portals and real-time telemetry, assuring predictable replacement cycles. Business and general aviation buyers have begun migrating toward airline-grade broadband links as charter clients demand consistent connectivity, but smaller cabin footprints still limit multi-antenna architectures. Military aviation delivers fewer units yet commands higher margins because of encryption, anti-jam, and electronic warfare specifications; programs like the F-16 Viper Shield upgrade illustrate the value of integrated broadband apertures.

Unmanned aerial vehicles represent the fastest-growing slice, advancing at a 9.09% CAGR. Regulations that once confined drones to visual line-of-sight now allow longer routes, enabling package logistics, pipeline inspection, and precision agriculture. Lightweight aerogel antennas field-tested by NASA cut system mass while sustaining Ka-band links, meeting the strict size, weight, and power targets for electric multicopters. Defense buyers also scale swarming platforms that rely on phase-aligned networks for cooperative flight. This crossover lets producers amortize R&D across civil and military channels, anchoring UAV

momentum as a durable growth lever for the aircraft antenna market.

Surveillance and reconnaissance made up 41.25% of revenues in 2024 because ADS-B, traffic collision avoidance systems, and space-based radar rely on dedicated apertures to collect positional data. Mandatory carriage across commercial and business fleets ensures stable annual replacements, while border-security agencies add orders for high-gain synthetic aperture radar pods. Communication applications sit close behind as passenger broadband usage spikes and airlines shift operational messaging to IP links. Navigation antennas enjoy consistent demand through multi-constellation upgrades that improve resilience to spoofing and jamming.

Electronic warfare shows the highest upside at an 8.43% CAGR. Block upgrades to existing fighters require modular antenna units that house transmitter and receiver elements for active protection suites. The aircraft antenna market size for electronic warfare rises as programs migrate toward digital arrays capable of real-time beamforming, enabling simultaneous search, track, and jam functions. Civil platforms also integrate threat-monitoring hardware to comply with evolving security directives, blending commercial and defense spending streams. These trends induce suppliers to build common core chipsets that can be scaled from regional jet radomes to drone pylons, gaining cost efficiency.

The Aircraft Antenna Market Report is Segmented by End User (Commercial Aviation, Military Aviation, Business and General Aviation, and More), Application (Communication, Navigation, and More), Antenna Type (SATCOM, VHF/UHF Communication, Transponder and ADS-B, and More), Frequency Band (HF, VHF, X-Band, Ku/Ka-band, and More) and Geography (North America, Europe, and More). The Market Forecasts are Provided in Terms of Value (USD).

Geography Analysis

North America contributed 35.65% of global revenue in 2024 as Boeing line-fit programs and sustained Pentagon outlays kept production lines busy. Airlines in the region have led the early adoption of low Earth orbit constellations and have begun equipping regional jets with phased-array panels certified for passenger Wi-Fi and flight-critical communications. United Airlines' plan to retrofit more than 300 aircraft with Starlink terminals underscores a willingness to fast-track innovation. Government contracts, including a USD 568 million Viasat framework for C5ISR hardware, add volume and validate next-generation aperture concepts. Canadian mandates for space-based ADS-B further boost diversity antenna installations across business and helicopter fleets, anchoring replacement sales.

Asia-Pacific is projected to grow the fastest at an 8.12% CAGR, reflecting structural fleet growth and escalating technology ambitions. China is forecasted to more than double its active aircraft to 9,740 by 2043, translating to a multibillion-dollar pipeline for cockpit, cabin, and drone antennas. Regional suppliers leverage domestic 5G advances to leapfrog directly to hybrid tower-satellite architectures, compressing the product cycle. Japan's target of launching ad-hoc airborne telecommunications base stations by 2026 shows policy support for aerial network layers beyond traditional satellite. India and Southeast Asia also order new narrow-body fleets to serve fast-rising middle-class travel, extending the demand base for standardized connectivity kits.

Europe retains a large installed base through Airbus production, but growth pivots toward sustainability and urban mobility. Regulatory pushes on carbon impact drive the adoption of lighter, flush-mounted antennas that reduce drag. The European Satellite Services Provider consortium's move toward space-based traffic surveillance requires new dual-frequency arrays to satisfy orbital and terrestrial link diversity needs. Lilium's selection of a single-supplier strategy for its eVTOL program magnifies European focus on integrated antenna skins. Middle East and Africa remain smaller today, yet host major hub expansions that rely on broadband-enabled passenger experience, positioned to increase antenna uptake as infrastructure matures.

List of Companies Covered in this Report:

L3Harris Technologies, Inc. / Honeywell International Inc. / Collins Aerospace (RTX Corporation) / CMC Electronics Inc. / Thales Group / RAMI (R.A. Miller Industries, Inc.) / PIDSO GmbH (Riedel Communications GmbH) / Hexagon AB / Tallysman Wireless (Calian Ltd.) / General Dynamics Mission Systems (General Dynamics Corporation) / Viasat, Inc. / HR Smith Group of Companies / AeroVironment, Inc. /

Additional Benefits:

 The market estimate (ME) sheet in Excel format /
3 months of analyst support /

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