

# Secondary Surveillance Radar (SSR) Market- Fuelled by Increasing Air Traffic and Advanced Air Traffic Management Needs

*Secondary Surveillance Radar (SSR) Market expands with rising air traffic, defense upgrades, and demand for accurate aviation tracking & safety systems.*

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[Secondary Surveillance Radar \(SSR\)](#) is a vital component of modern air traffic control systems, enhancing the detection, identification, and tracking of aircraft through the use of active interrogations and transponder responses. SSR systems complement

primary radar by providing more precise aircraft identification data such as altitude, identity, and other flight information, which are critical for efficient and safe airspace management.



Secondary Surveillance Radar (SSR) Market

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The SSR market is growing steadily, driven largely by the continuous rise in global air traffic and the need for advanced surveillance solutions to manage increasingly congested skies. With air travel expanding rapidly, particularly in emerging regions such as Asia-Pacific, there is an urgent demand for effective air traffic management systems that improve situational awareness and ensure operational safety. Governments and civil aviation authorities are investing heavily in modernizing radar infrastructure, integrating SSR with other surveillance technologies to enhance coverage and accuracy.

## Market Dynamics For Secondary Surveillance Radar (SSR)

### Growth Drivers:



The Secondary Surveillance Radar (SSR) market is primarily driven by the continuous increase in global air traffic, necessitating advanced airspace surveillance and management. The modernization of legacy radar systems to digital SSR solutions, coupled with rising investments in civil and military aviation infrastructure, further propels market growth. Additionally, the increasing demand for accurate aircraft identification and altitude data to enhance flight safety and efficiency supports widespread SSR adoption.

#### Market Restraints:

High installation and maintenance costs of SSR systems act as significant restraints, especially for developing regions with budget constraints. The complexity involved in integrating SSR with existing air traffic management systems and ensuring compatibility across different countries and radar technologies also limits faster market adoption. Moreover, stringent regulatory requirements can delay upgrades and deployment.

#### Opportunities:

Emerging technologies such as Mode S SSR and multilateration provide opportunities to improve detection accuracy, reduce false alarms, and enhance data exchange capabilities. Rapid growth in regions like Asia-Pacific, driven by expanding commercial aviation and airport infrastructure, opens new markets. Further, increasing military surveillance demands and initiatives to harmonize global air traffic management standards present growth prospects.

#### Challenges:

The SSR market faces challenges including technical difficulties in ensuring interoperability between diverse radar and navigation systems worldwide. Managing cybersecurity risks and protecting these critical surveillance systems is also a growing concern. Additionally, balancing the cost and complexity of upgrading existing SSR infrastructure while maintaining uninterrupted air traffic control operations requires careful planning and resources.

#### Market Segments

The Secondary Surveillance Radar (SSR) market is segmented by type and application to address diverse airspace monitoring needs.

By type, the market includes Traffic Alert and Collision Avoidance Systems (TCAS), which enhance in-flight safety by preventing aircraft collisions, and Automatic Dependent Surveillance-Broadcast (ADS-B), a satellite-based system that provides real-time aircraft position data for improved air traffic management.

By application, SSR serves key sectors such as defense and space, civil airports, and national security, supporting military operations, commercial flight safety, and homeland security surveillance. This segmentation enables tailored solutions that meet the varied requirements of



both civilian and defense aviation stakeholders.

## Regional Analysis

Regionally, North America and Europe remain the dominant markets for SSR due to their established air traffic infrastructure and proactive modernization programs. Meanwhile, Asia-Pacific is witnessing the fastest growth, prompted by rapid airport expansions, rising air traffic volumes, and government initiatives to upgrade airspace surveillance capabilities. The Middle East and Africa, and South America are also emerging as important regions with increasing investments in SSR technology to support growing commercial air traffic and military operations.

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## Market Players:

Hensoldt, Indra Sistemas, ISRAEL AEROSPACE INDUSTRIES. LTD, Lockheed Martin Corporation, Leonardo S.P.A, NEC Corporation, Northrop Grumman, Raytheon Technologies Corporation, Thales Group, Rockwell Collins, Harris Corporation, Intel can.

## Product Launches & Contracts

June 2025: Thales introduced the RSM NG/IFF, a novel "3-in-1" secondary surveillance radar that simultaneously supports civil and military standards combining Mode S, ADS-B, and NATO IFF (Mode 5)—while maintaining data segregation and cybersecurity.

June–October 2024: Hensoldt secured a contract to deliver two high-performance Air Surveillance Radar – Next Generation (ASR-NG) systems to Space Centre Australia, including a 20-year sustainment plan, for ~20 million euros. While not explicitly SSR, these air surveillance radars likely include SSR functionalities.

March 2024 (India): The Indian Ministry of Defence contracted Larsen & Toubro for procurement of advanced High Power Radars (HPRs) as part of terrestrial air defense modernization. These may encompass SSR capabilities integrated within radar systems.

June 2025: Thales also signed a contract under Sweden's "Sensorsystem Ny" program to deliver Ground Master 200 MM/C tactical air surveillance radars (likely including SSR functionality). Delivery is planned for 2026, with a contract value of ~SEK 1 billion.

Czech Republic / Airspace World 2025: ELDIS (part of Czechoslovak Group) displayed its RPL-2000 radar suite, which includes a monopulse SSR (alongside PSR and PAR) at the exhibition—highlighting ongoing technological innovation in modular radar solutions.



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