+357 96 030922
info@marketpublishers.com

Global Radar Wind Profiler Supply, Demand and Key Producers, 2026-2032

https://marketpublishers.com/r/GD57AE210A7BEN.html
Date: April 2026
Pages: 127
Price: US$ 4,480.00 (Single User License)
ID: GD57AE210A7BEN

Abstracts

The global Radar Wind Profiler market size is expected to reach $ 902 million by 2032, rising at a market growth of 5.0% CAGR during the forecast period (2026-2032).

In 2025, the global production of radar wind profilers reached 1,459 units, with an average selling price of US$424,900 per unit.

To address the problems of low accuracy, insufficient spatiotemporal resolution, and limited observation range in traditional meteorological observations of upper-air wind fields, as well as the low efficiency, high cost, and poor continuity caused by reliance on traditional methods such as sounding balloons, the radar wind profiler (RWP) was developed. This product is an upper-air wind field detection device based on microwave remote sensing technology. Its core principle is to transmit electromagnetic beams in different directions, receive and process the backscattered microwave signals from atmospheric turbulence vortices, extract the echo Doppler frequency shift information caused by the atmospheric wind field, and invert to obtain meteorological elements such as upper-air atmospheric stratified wind speed, wind direction, vertical airflow, and atmospheric refractive index structure constant. This enables all-weather, continuous, and high spatiotemporal resolution detection of clear-sky atmospheres and light precipitation weather. Early test data show that the radar wind profiler can achieve accurate detection within an altitude range of 240 meters to 16 kilometers, with observation accuracy improved by more than 30% compared to traditional sounding methods. Since its initial development and commercialization by the United States and Japan in the 1970s, radar wind profilers, with their advantages of high efficiency, continuous operation, and accuracy, have gradually expanded from defense and high-end meteorological observation to multiple fields such as civilian meteorology, aerospace, environmental monitoring, and wind power, becoming one of the core

+357 96 030922
info@marketpublishers.com

devices in the global atmospheric detection system. Currently, the radar wind profiler product line covers multiple detection altitude categories, including the boundary layer, lower troposphere, and troposphere, and is widely used in mainstream scenarios such as weather forecasting, disaster early warning, airport support, and wind power operation and maintenance.

In 2025, the global radar wind profiler market will exhibit significant price variations due to differences in detection altitude, accuracy specifications, and application scenarios: General-purpose boundary layer radar wind profilers, suitable for routine meteorological observation and low-altitude monitoring, will have an average price of approximately US$250,000-350,000 per unit; high-end tropospheric radar wind profilers, suitable for aerospace, defense, and other high-end fields, possess extreme environmental tolerance and high-precision detection capabilities, with an average price of US$400,000-700,000 per unit; and mobile radar wind profilers, due to their mobility and rapid deployment advantages, will have an average price of approximately US$600,000-1,000,000 per unit. In terms of production capacity, the industry exhibits characteristics of 'regional concentration and high-end monopoly,' with major global production capacity concentrated in North America, Europe, and East Asia. Each company's annual production line capacity is approximately 80-100 units, the industry average capacity utilization rate is approximately 88%, and the average product gross profit margin can reach 26.8%, with high-end products exceeding 30%.

Typical Transaction Case: In the third quarter of 2025, a provincial meteorological bureau purchased 8 sets of radar wind profilers from Anhui Sichuang Electronics, model CINRAD-WP1000 series, with a contract value of approximately US$3.6 million. The technical requirements included: 'The product is compatible with the provincial meteorological observation network, with a detection altitude coverage of 150 meters to 10 kilometers, a horizontal wind speed detection range of 0.5-60 m/s, a detection accuracy of ??0.5 m/s, and a wind direction detection accuracy of ??5?; it must have 24-hour unattended operation capability, data transmission delay ?30 seconds, and seamless integration with existing meteorological observation systems; it must support operation in extreme low temperatures (-40?), high temperatures (60?), and severe weather conditions such as heavy rainfall and blizzards, with a protection level ?IP65; the product must pass the meteorological detection equipment certification of the China Meteorological Administration and ISO9001 quality system certification, with a warranty period of no less than 3 years and an annual failure rate ?2%.' This batch of equipment is primarily used to supplement blind spots in regional upper-level wind field observations, enhance the monitoring and early warning capabilities for regional severe convective weather, heavy rain, blizzards, and other hazardous weather events, and

+357 96 030922
info@marketpublishers.com

support local agricultural and livestock production, ecological environmental protection, and disaster prevention and mitigation efforts.

Industry Pain Points: The fundamental pain point for the radar wind profiler industry lies in the multiple contradictions arising from the high-precision nature of its products and the stringent demands for global meteorological observation upgrades, the constraints of industry standards in various countries, and the monopolistic structure of high-end technologies. The core pain points are specifically manifested as follows: On the product side, core technological barriers are concentrated in the high-end product sector. Key technologies such as electromagnetic beam optimization design for high-precision tropospheric radar wind profilers, Doppler frequency shift signal inversion algorithms, extreme environment-resistant component manufacturing, and lightweight integration of mobile equipment are dominated by a few overseas companies. Domestic companies lag behind in the detection accuracy stability and long-term operational reliability of high-end products (e.g., within a wide temperature range of -30? to 50?, the average detection accuracy of domestic products is 15%-22% lower than that of similar products from Scintec AG, and the annual failure rate is 3-5 percentage points higher). Simultaneously, some small and medium-sized manufacturers suffer from product design homogenization, mainly focusing on low-to-mid-end boundary layer products. These products have low detection resolution, unstable data transmission, poor adaptability, and are prone to data interruptions and frequent failures under severe weather conditions, lowering the overall reputation of the industry and limiting the penetration of domestic companies in the high-end sector. Furthermore, the reliance on imports for core components (such as high-end microwave transmitters and high-precision signal processors) and insufficient supply chain stability further restrict the upgrading of domestic products.

On the market and regulatory front, global certification standards for meteorological detection equipment are stringent and inconsistent. The requirements for EU CE certification, US FCC certification, and China Meteorological Administration certification vary significantly. Domestic companies exporting products must invest heavily in multi-standard compatibility certifications, which are lengthy (typically 1-2 years), significantly increasing export costs. The market exhibits a typical 'high-end monopoly, mid-range fragmentation' pattern. The global high-end market is mainly dominated by leading companies in North America and Europe, while the domestic market is dominated by low-to-mid-range products. Small and medium-sized manufacturers are caught in price competition, continuously squeezing profit margins (gross profit margins for low-to-mid-range products are less than 15%). Meanwhile, overseas brands possess first-mover technological advantages and brand influence in the high-end market, while domestic

+357 96 030922
info@marketpublishers.com

companies are at a disadvantage in core algorithm development, brand building, and customer resource accumulation, further limiting their breakthrough in the high-end market. Furthermore, the industry suffers from inconsistent standards; different companies' product data formats and interface specifications are inconsistent, making it difficult for cross-brand equipment to operate collaboratively, increasing procurement and maintenance costs for downstream customers.

The upstream core materials of the radar wind profiler industry chain include high-end aluminum alloys (supplied by China, the US, and Japan, lightweight and corrosion-resistant), carbon fiber composite materials (Europe dominates the high-end field), and microwave absorbing materials (US and Germany lead). Key components such as microwave transmitting tubes, signal processors, and antennas (US, Germany, and Japan dominate the high-end) rely on imports for the mid-to-high end, while the mid-to-low end can be domestically produced. Technical support covers electromagnetic beam optimization design, Doppler frequency shift signal inversion algorithms (overseas monopoly on the high end), precision machining (German and Japanese equipment have a high market share, gradually being replaced by domestic equipment), and meteorological data calibration and equipment integration technology (breakthroughs achieved through cooperation between domestic universities, research institutions, and enterprises). Downstream applications include meteorological observation (55%), with provincial and municipal meteorological bureaus being the main purchasers (accounting for over 70% in this field); aerospace (20%), with an annual growth of 22%; new energy (wind power) (12%), with an annual growth of 28%; and other fields (defense, emergency management, environmental protection, and scientific research) (13%). Defense demand is stable, emergency management is driven by extreme disaster events, and scientific research demand is stable.

Industry Trends and Challenges: The development trend of radar wind profilers is characterized by accelerated high-end, intelligent, lightweight, and domestic production: the market share of high-end tropospheric products will increase from the current 15% to 32% in 2032, with core algorithm optimization driving improvements in detection accuracy and data stability; intelligent and integrated development combines AI and big data technologies to achieve fault self-diagnosis, automatic data calibration, and integrated detection of multiple devices (such as microwave radiometers and lidar), meeting the needs of multiple scenarios; lightweight and miniaturized products are suitable for mobile and small-site scenarios, improving deployment convenience; the process of domestic substitution is accelerating, with low- and mid-range products already replaced, high-end products gradually breaking the overseas monopoly, the self-controllability rate of the supply chain increasing, and the domestic market penetration

+357 96 030922
info@marketpublishers.com

rate increasing from 62% to 85% in 2032. In terms of market opportunities, the global meteorological observation equipment market is projected to reach $5.8 billion by 2025 (with radar wind profilers accounting for approximately 15%), while the domestic market is expected to reach $1.8 billion. Demand is surging in emerging markets (Southeast Asia and Africa) and the aerospace and wind power sectors, with policy support driving the replacement of outdated equipment. Challenges include continued reliance on imports for high-end core technologies (such as high-precision signal inversion algorithms and high-end microwave components) (import dependence is approximately 45%), inconsistent industry standards restricting exports, homogeneous competition in the low-to-mid-end market squeezing profits, and domestic companies' R&D investment accounting for approximately 8% (compared to over 15% overseas). Breaking into the high-end market will be extremely difficult.

Demand and Opportunity Analysis

The demand drivers for radar wind profilers include: the essential need for upgrading meteorological detection (frequent extreme weather events are driving meteorological bureaus at all levels to improve their detection networks, resulting in a significant increase in demand for high-precision, high-spatiotemporal resolution products); mandatory policy drivers (such as China's 'Outline for High-Quality Development of Meteorology' promoting high-precision equipment, EU airport low-altitude wind shear monitoring requirements, and an average annual replacement demand of 220 sets of old equipment globally from 2025 to 2030); and emerging fields (the expansion of wind power and new energy sources is driving demand for site selection and maintenance, the recovery of aerospace is driving demand for high-end products, and the demand for mobile equipment in the emergency management field is growing); and the advantage of technological adaptability. This is reflected in multi-scenario compatibility (full-scenario adaptation, customized to meet the differentiated needs of meteorology, aviation, new energy, national defense, etc., with an adaptation coverage of over 90% and seamless integration with existing platforms), efficiency and cost optimization (fixed 24-hour unattended operation reduces labor costs, with a lifespan of over 15 years; mobile rapid deployment reduces site costs; domestic products have high cost-effectiveness, 20%-30% lower than similar overseas products, low maintenance costs, and increased bidding success rate) and the benefits of domestic substitution (breakthroughs in core technologies and the localization of components have driven the domestic high-end market bidding success rate to 28%, the global market share to 5.2%, and enhanced competitiveness in emerging markets).

This report studies the global Radar Wind Profiler production, demand, key

+357 96 030922
info@marketpublishers.com

manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Radar Wind Profiler and provides market size (US$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Radar Wind Profiler that contribute to its increasing demand across many markets.

Highlights and key features of the study
Global Radar Wind Profiler total production and demand, 2021-2032, (Units)
Global Radar Wind Profiler total production value, 2021-2032, (USD Million)
Global Radar Wind Profiler production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (Units), (based on production site)
Global Radar Wind Profiler consumption by region & country, CAGR, 2021-2032 & (Units)
U.S. VS China: Radar Wind Profiler domestic production, consumption, key domestic manufacturers and share
Global Radar Wind Profiler production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (Units)
Global Radar Wind Profiler production by Type, production, value, CAGR, 2021-2032, (USD Million) & (Units)
Global Radar Wind Profiler production by Application, production, value, CAGR, 2021-2032, (USD Million) & (Units)

This report profiles key players in the global Radar Wind Profiler market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Scintec AG, Huayun Minshida Radar, Nanjing Enrite, Sumitomo Electric Industries, Radiometrics, Anhui Sichuang Electronics, Guorui Technology, ATRAD, DEGR?ANE HORIZON, Chengdu Jinjiang Electronic System Engineering, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Radar Wind Profiler market

Detailed Segmentation:

+357 96 030922
info@marketpublishers.com

Each section contains quantitative market data including market by value (US$ Millions), volume (production, consumption) & (Units) and average price (K US$/Unit) by manufacturer, by Type, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global Radar Wind Profiler Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

Global Radar Wind Profiler Market, Segmentation by Type:

Doppler Radar Wind Profiler

Phase-array Radar Wind Profiler

Global Radar Wind Profiler Market, Segmentation by Detection Altitude:

Boundary Layer Radar Wind Profiler

Low Tropospheric Radar Wind Profiler

+357 96 030922
info@marketpublishers.com

Tropospheric Radar Wind Profiler

Global Radar Wind Profiler Market, Segmentation by Deployment Method:

Fixed

Mobile

Global Radar Wind Profiler Market, Segmentation by Application:

Meteorological Observation

Aerospace

New Energy

Other

Companies Profiled:

Scintec AG

Huayun Minshida Radar

Nanjing Enrite

Sumitomo Electric Industries

Radiometrics

Anhui Sichuang Electronics

Guorui Technology

ATRAD

+357 96 030922
info@marketpublishers.com

DEGR?ANE HORIZON

Chengdu Jinjiang Electronic System Engineering

Beijing Aierda

Probecom

Data Patterns

Key Questions Answered:

1. How big is the global Radar Wind Profiler market?
2. What is the demand of the global Radar Wind Profiler market?
3. What is the year over year growth of the global Radar Wind Profiler market?
4. What is the production and production value of the global Radar Wind Profiler market?
5. Who are the key producers in the global Radar Wind Profiler market?
6. What are the growth factors driving the market demand?

+357 96 030922
info@marketpublishers.com

Contents

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

7 MARKET ANALYSIS BY DEPLOYMENT METHOD

8 MARKET ANALYSIS BY APPLICATION

9 COMPANY PROFILES

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

List Of Tables

LIST OF TABLES

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

List Of Figures

LIST OF FIGURES

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

+357 96 030922
info@marketpublishers.com

I would like to order

Product name: Global Radar Wind Profiler Supply, Demand and Key Producers, 2026-2032

Product link: https://marketpublishers.com/r/GD57AE210A7BEN.html

Price: US$ 4,480.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:
info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page https://marketpublishers.com/r/GD57AE210A7BEN.html