

The Market for Land-Based Radar Systems 2019-2028



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Analysis 3

The Market for Land-Based Radar Systems 2019-2028

Table of Contents

Executive Summary	2
Introduction	4
Trends	6
Competitive Environment	17
Market Statistics	21
Table 1 - The Market for Land-Based Radar Systems Unit Production by Headquarters/Company/Program 2019 - 2028	27
Table 2 - The Market for Land-Based Radar Systems Value Statistics by Headquarters/Company/Program 2019 - 2028	32
Figure 1 - The Market for Land-Based Radar Systems Unit Production 2019 - 2028 (Bar Graph)	41
Figure 2 - The Market for Land-Based Radar Systems Value of Production 2019 - 2028 (Bar Graph)	41
Table 3 - The Market for Land-Based Radar Systems Unit Production % Market Share by Headquarters/Company 2019 - 2028	42
Table 4 - The Market for Land-Based Radar Systems Value Statistics % Market Share by Headquarters/Company 2019 - 2028	44
Figure 3 - The Market for Land-Based Radar Systems Unit Production % Market Share 2019 - 2028 (Pie Chart)	46
Figure 4 - The Market for Land-Based Radar Systems Value Statistics % Market Share 2019 - 2028 (Pie Chart)	46
Conclusion	47

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The Market for Land-Based Radar Systems

Executive Summary

Note: *This analysis defines the land-based radar market as the 32 programs of the 16 companies reviewed in the preparation of this report. As such, this analysis should not be viewed as a complete breakdown of every land-based radar program in production or development. Rather, it functions as a representative sampling of some of the more prominent systems, providing indications as to the market's status as a whole from which general trends can be projected.*

Land-based radars are foundational components and integral parts of air traffic control systems, battlefield command networks, border security systems, and missile defense shields. Defense departments and ministries are the primary buyers of military radars, and air traffic control agencies make up the primary buyers of commercial systems.

\$22.387 Billion Market in the Next Decade

Based on an evaluation of the 32 land-based radar programs that are the basis of this study, Forecast International estimates this market grouping to be worth a minimum of \$22.387 billion from 2018 through 2027. Over this timeframe, Forecast International expects 4,556 or more radars to be produced. However, as time goes by, the true market value of the sampling could rise as classified programs, company-developed projects, programs yet to be announced, and future technologies are included.

Funding values break down to the following categories and proportions: 70.3 percent will be allotted to unit production, 14.1 percent will be used for O&M, 13.7 percent will go to RDT&E, and the remaining 2.0 percent will go to a grouping of procurement and commingled funding.

Note: *Because figures throughout this analysis have been rounded, the percentages stated do not always equal 100 percent.*

Changing Nature of Military Engagement Affects Land-Based Radar Market

The largest part of the land-based radar market's customer base is made up of military organizations. The single greatest driver of military procurement is the current threat environment. Over the past decade, militaries have been primarily concerned with how to fight and neutralize an enemy that uses low-tech equipment and asymmetric tactics. As a result, radar designs now have better capabilities in urban areas and

against insurgents firing mortars from well-hidden and short-range locations.

An uptick has been seen in the perimeter defense/border security segment. Based on the knowledge learned and processes developed through the last decade of in-field experience, manufacturers are now releasing the next generation of radars. Moving forward, an increasing number of these units will be sold as operators re-equip key coastal, border, and infrastructural locations.

Investment in the perimeter defense segment has also benefited from the rise of UAV technology and platforms. These pilotless aircraft have required the design of a new wave of specialized radar algorithms and sensing techniques that has resulted in increased funding in both procurement and RDT&E.

Air defense radars are in a period of increased RDT&E and procurement funding. These big, expensive radars are being overhauled with AESAs and their circuits are being redesigned to incorporate gallium nitride (GaN) components. The two technologies combine to allow a radar that is more powerful but with lower power consumption, while at the same time providing far greater dependability than older designs.

While forward-deployed fire-locating radars and dedicated military air traffic control units are in decline, air defense radars have moved beyond their traditional capability limits and expanded to include some fire location and air traffic control features. This has led to a bevy of new orders.

Early warning, too, has seen an uptick in funding in recent years and this will continue over the period of analysis. Much of the growth in the early warning segment can be attributed to rising worldwide tensions, driven by the brinksmanship of a small cadre of nuclear powers, including the Democratic People's Republic of Korea (North Korea), Russia, and the United States. As barbs are exchanged between these countries and the limits of patience are tested in the form of threats, cyber warfare, assassinations, and aggression against neighbors, the world has begun investing in a new generation of missile defense systems.

In both positive and negative ways, the newest crop of land-based radar designs tends to replace multiple legacy radar systems with a single unit. This allows for easier and less expensive maintenance and logistics support but also increases the unit price. At the same time, another noteworthy effect of this trend is the detrimental influence on manufacturing numbers. With

Analysis 3

the increased mission sets of these radars, operators simply do not need to procure as many types of radars.

Of the total value of programs covered in this analysis, military contracts will make up 81.9 percent, while civilian contracts will make up 18.1 percent.

Land-Based Radar Market Segments

For Forecast International's analytical purposes, the land-based radar market has been broken into seven segments: air defense, air traffic control, fire locating, early warning, mine hunting, search & track, and surveillance. Of these, the three most valuable segments in order are air defense, fire locating, and air traffic control.

The leader in terms of unit production volume is the minehunting segment, which makes up 42.9 percent of the market total. These handheld radars are produced in large quantities but are very inexpensive relative to other segments of the land-based radar market.

In terms of overall market value, the air defense segment leads, accounting for \$9.5 billion in spending (42.4 percent of the total market). Meanwhile, the segment will provide only 7.1 percent of the total units produced, with 323 units. Because of the air defense segment's low volume and high cost, trends in the segment have an outsized impact on the overall market.

Early warning is the second-most valuable segment in the analysis. This segment contains extremely expensive radars that are produced in extremely low quantities. As such, early warning radar programs will be the most valuable segment on a per-program basis, with an average value of \$1.058 billion per program, equating to an overall segment value of \$4.233 billion, or 18.9 percent of the total market value.

The third-place segment in terms of market value, air traffic control, accounts for 18.5 percent of the total, with a value of \$4.1 billion. Air traffic control radars make up 5.7 percent of all units produced, putting the

segment in last place among all the market segments in terms of unit production (of segments with over 100 units forecast).

With all forecast factors – O&M, production, and RDT&E – considered, the average complete life-cycle value of a land-based radar unit is approximately \$4.9 million. By comparison, over its life-cycle a typical air defense radar – the most expensive type with production of over 100 units – is worth approximately \$29.4 million, 497.8 percent more than the average land-based radar. Meanwhile, the next most valuable segment per unit produced (with production of over 100 units) is air traffic control, which, at \$15.8 million, is 222.4 percent more valuable than the average land-based radar.

By contrast, the least valuable radar type, a mine detecting unit, is worth 98.4 percent less than the average radar unit. The average mine detecting unit is worth approximately \$77,780 over its lifetime.

Land-Based Radar Market Leaders

"The Market for Land-Based Radar Systems" covers the programs of 16 individual companies. Of the 16 representatives, the top five in terms of total market value over the 2018 through 2027 period will be Raytheon, Thales, Lockheed Martin, Northrop Grumman, and MEADS International.

These companies show significant market dominance, splitting a combined 68.1 percent of the total value among them. The remaining 11 companies split a 19.9 percent share, with unassigned, "Manufacturer Varies" funding accounting for the remaining 11.9 percent.

The highest ranked company, Raytheon, accounts for 18.8 percent of forecast market share, with a 0.4 percent higher forecast market value than the second-place company, Thales.

* * *

PROGRAMS

The following reports are included in this section: (**Note:** a single report may cover several programs.)

ARTHUR (ARTillery HUnTing Radar)
ATC Radar Series (Raytheon)
ATCALs
BMD Sensors
CEAFAR
COBRA
Combat Identification Technology
Cooperative Engagement Capability (CEC)
EL/M-2129 (ARSS-1)
Giraffe
Ground Master
Jindalee/JORN
MEADS Program
Missile Defense Integration and Operations Center
MPQ-64(V) (FAADS GBS)
PPS-5C/D/E
PSS-14 Mine Detecting Set
RAT-31
Shared Early Warning System (SEWS)
SMART-L
Space Fence
SPEXER
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Supplemental Programs – Radar Systems: Land & Sea Radars
Surveillance and Countermeasures Technology
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TPQ-53 (EQ-36)
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TPS-78
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