

# **North America RF Power Amplifier Market Forecast to 2031 - Regional Analysis - by Frequency (Less than 10 GHz, 11-20 GHz, 21-30 GHz, and Above 30 GHz), Technology (Gallium Arsenide (GaaS), Gallium Nitride (GaN), Silicon Germanium (SiGe), and Others), and Application (Consumer Electronics, Aerospace and Defense, Automotive, Medical, and Others)**

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## **Abstracts**

The North America RF power amplifier market was valued at US\$ 1,577.69 million in 2023 and is anticipated to reach US\$ 4,091.90 million by 2030; it is estimated to register a CAGR of 12.7% from 2023 to 2031.

### **Increasing Demand for RF Power Amplifiers Fuel North America RF Power Amplifier Market**

Advancements in RF technologies have resulted in an increased demand for RF power amplifiers and their ability to offer products with dynamic power ranges, higher frequencies, and lower noise parameters. This has paved the way for the design of next-generation electronic components. Furthermore, advancements in RF power amplifier technologies have resulted in a high demand for amplifiers with broader frequency ranges and compact sizes, making them suitable for several applications, such as satellite communications, radar systems, and cellular networks. For instance, in December 2023, Rydberg Technologies Inc., a leading provider of Rydberg quantum technologies and a trailblazer in the field of radio frequency (RF) quantum sensing, unveiled its compact and efficient atomic receiver. The company successfully demonstrated long-range radio communications using an atomic quantum sensor at the U.S. Army Combat Capabilities Development Command (DEVCOM) C5ISR Center

Network Modernization Experiment 2023 (NetModX23) event. This event serves as a testing ground for cutting-edge technologies in communication and intelligence, making it a remarkable milestone for Rydberg Technologies Inc.

Moreover, in January 2023, Powercast Corporation, the frontrunner in RF-based wireless power technology, introduced its latest innovation-the Ubiquity transmitter. This RF power transmitter stands out for its exceptionally low cost. It has been recognized as a CES 2023 Innovation Award Honoree in three prestigious categories: Smart Home Embedded Technologies, Sustainability, and Eco-Design & Smart Energy. Powercast Corporation continues to lead the way in revolutionizing the field of over-the-air wireless power with its groundbreaking advancements. Thus, advancements in RF technologies fuel the growth of the RF power amplifier market.

### North America RF Power Amplifier Market Overview

The RF power amplifier market growth in North America is experiencing significant growth due to the increasing demand for amplified low-power RF signals across the military and defense industry. The US military researchers have recognized the importance of limiting waste heat generation in gallium nitride-based (GAN-based) power amplifiers. Excessive waste heat can limit the performance and lifetimes of military radar, EW, communications, and other RF and microwave systems. To address this issue, the US Defense Advanced Research Projects Agency (DARPA) awarded Raytheon and Northrop Grumman, two prime US defense contractors, THREADS contracts worth US\$ 14.9 million and US\$ 14.2 million, respectively. Under the THREADS (i.e., Technologies for Heat Removal in Electronics at the Device Scale) contract, the companies will collaborate to limit waste heat generated in gallium nitride (GAN)-based power amplifiers. With this collaboration, they aim to reduce transistor thermal resistance while maintaining good channel current transport properties. Overcoming the thermal limitations would allow transistors to operate reliably at RF output power density that is close to their fundamental electronic limits.

### North America RF Power Amplifier Market Revenue and Forecast to 2031 (US\$ Million)

### North America RF Power Amplifier Market Segmentation

The North America RF power amplifier market is categorized into frequency, technology, application, and country.

Based on frequency, the North America RF power amplifier market is segmented into

less than 10 GHz, 11-20 GHz, 21-30 GHz, and above 30 GHz. The less than 10 GHz segment held the largest market share in 2023.

In terms of technology, the North America RF power amplifier market is segmented into gallium arsenide, gallium nitride, silicon germanium, and others. The gallium arsenide segment held the largest market share in 2023.

By application, the North America RF power amplifier market is segmented into consumer electronics, aerospace and defense, automotive, medical, and others. The consumer electronics segment held the largest market share in 2023.

By country, the North America RF power amplifier market is segmented into the US, Canada, and Mexico. The US dominated the North America RF power amplifier market share in 2023.

Qorvo Inc, NXP Semiconductors NV, Qualcomm Inc, Infineon Technologies AG, Broadcom Inc, Mitsubishi Electric Corp, STMicroelectronics NV, Skyworks Solutions Inc, Texas Instruments Inc, and Analog Devices Inc. are some of the leading companies operating in the North America RF power amplifier market.

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