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Envelope Tracking Chips Market Report by Technology (Cellular Communications, Wireless Communications, Satellite Communications), Application (Smart Phones, Wearable Devices, and Others), End User (Consumer Electronics, Space and Aviation, Automotive, Telecommunications, and Others), and Region 2024-2032

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Abstracts

The global envelope tracking chips market size reached US$ 2,213.3 Million in 2023. Looking forward, IMARC Group expects the market to reach US$ 4,662.5 Million by 2032, exhibiting a growth rate (CAGR) of 8.3% during 2024-2032. The rising energy efficiency demands, proliferation of 4G LTE and 5G networks, rapid growth in wearable technology, and expansion of IoT and smart home devices are proliferating the market growth.

Envelope Tracking Chips Market Analysis:

Major Market Drivers: Significant growth in the electronics industry across the globe is creating a positive outlook for the market. Moreover, the increasing demand for wireless communication platforms coupled with the integration of connected devices with the Internet of Things (IoT) and the growing adoption of 4G services are favoring the market growth.

Key Market Trends: The increasing product adoption in the automotive and aerospace industries is positively impacting the market growth. In addition to this, the rising penetration of high-speed internet, along with the widespread utilization of advanced technologies, such as Zigbee, in light and compact

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application devices, are anticipated to drive the market toward growth.

Competitive Landscape: Some of the prominent envelope tracking chips market companies include Analog Devices Inc., Broadcom Inc., Efficient Power Conversion Corporation, Keysight Technologies Inc., MediaTek Inc., Qorvo Inc., Qualcomm Incorporated, R2 Semiconductor Inc., Rohde & Schwarz GmbH & Co KG, Samsung Electronics Co. Ltd., Skyworks Solutions Inc., and Texas Instruments Incorporated, among many others.

Geographical Trends: According to the envelope tracking chips market dynamics, North America holds a significant share in the global Envelope Tracking Chips market, driven by the presence of leading semiconductor companies, research institutions, and technological innovation hubs. Moreover, Europe contributes to the Envelope Tracking Chips market through collaborations between semiconductor companies, universities, and research centers.

Challenges and Opportunities: The rising cost associated with manufacturing ETC at scale, and high competition among key players are hampering the market growth. However, the rapid deployment of 5G networks worldwide drives demand for ETC in mobile devices, base stations, and telecommunications infrastructure.

Envelope Tracking Chips Market Trends:

Growing Automotive Industry

The growing automotive sector is significantly driving the envelope tracking chips market. There has been an increasing shift towards electric vehicles owing to rising government initiatives. For instance, according to IEA, in 2023, about 14 million new electric cars were registered globally, bringing the total number on the road to 40 million. Electric vehicle sales in 2023 were 3.5 million greater than in 2022, representing a 35% year-on-year growth. In automotive applications, envelope tracking (ET) technology helps optimize power consumption by dynamically adjusting the voltage supply to RF power amplifiers based on signal characteristics. This efficiency is crucial for extending battery life in electric vehicles (EVs) and improving overall energy efficiency in conventional vehicles. These factors are further contributing to the envelope tracking chips market share.

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Adoption of Wearable Devices

The adoption of wearable technology is one of the prominent factors propelling the Envelope Tracking Chips (ETC) market growth. For instance, according to IMARC, the global wearable technology market size reached US$ 64.2 Billion in 2023. Looking forward, IMARC Group expects the market to reach US$ 192.2 Billion by 2032, exhibiting a growth rate (CAGR) of 12.6% during 2024-2032. Also, according to an article published by Vicert, as of 2020, 30% of American adults are using wearable technology for healthcare. These devices, including smartwatches and healthcare monitors, require extended battery life to enhance user convenience and usability. ETC enables wearable devices to optimize power consumption by dynamically adjusting voltage levels based on real-time usage patterns, thereby extending battery life. These factors are further positively influencing the envelope tracking chips market forecast.

Proliferation of 5G Technology

The proliferation of 5G technology is driving the Envelope Tracking Chips (ETC) market demand. There has been a significant increase in the number of 5G users. For instance, in 2022, around one-tenth of all global connections used 5G technology, with this figure expected to exceed one-half by the end of the decade. As of 2023, about one-third of service providers in the Middle East and Africa offered 5G FWA. ETC can optimize power usage in 5G base stations, smartphones, and other connected devices, supporting the expansion of 5G technology globally, and thereby boosting the envelope tracking chips systems market revenue.

Global Envelope Tracking Chips Industry Segmentation:

IMARC Group provides an analysis of the key trends in each segment of the global envelope tracking chips market report, along with forecasts at the global, regional, and country levels from 2024-2032. Our report has categorized the market based on technology, application, and end user.

Breakup by Technology:

Cellular Communications

Wireless Communications

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Satellite Communications

The report has provided a detailed breakup and analysis of the envelope tracking chips market based on the technology. This includes cellular communications, wireless communications, and satellite communications.

Envelope tracking chips are used in RF power amplifiers (PAs) within base stations and mobile devices to optimize power efficiency in cellular communications. This optimization is critical for supporting higher data rates and increasing network capacity without compromising battery life in mobile devices. Moreover, envelope tracking chips enable efficient power management in RF front-end modules of devices supporting wireless communication standards like Wi-Fi (e.g., 802.11ac, 802.11ax) and Bluetooth. This improves battery life and enhances the range and reliability of wireless connectivity. Furthermore, envelope tracking chips are used in satellite communication terminals to optimize the efficiency of power amplifiers, especially in mobile satellite terminals and ground stations. This improves the reliability and cost-effectiveness of satellite communications systems.

Breakup by Application:

Smart Phones

Wearable Devices

Others

The report has provided a detailed breakup and analysis of the envelope tracking chips market based on the application. This includes smart phones, wearable devices, and others.

Smartphones and wearable devices require efficient power management to extend battery life. ET technology dynamically adjusts the voltage supply to RF power amplifiers based on the signal's amplitude, ensuring that the device operates at the minimum required power level. This optimization significantly reduces power consumption during voice calls, data transmissions, and other wireless activities, thereby prolonging battery life between charges.

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Breakup by End User:

- Consumer Electronics
- Space and Aviation
- Automotive
- Telecommunications
- Others

A detailed breakup and analysis of the envelope tracking chips market based on the end-user has also been provided in the report. This includes consumer electronics, space and aviation, automotive, telecommunications, and others.

ET chips are widely used in consumer electronics including smartphones to enhance battery life by dynamically adjusting the voltage supplied to RF power amplifiers (PAs). While ET technology is essential in satellite communications for optimizing the efficiency of RF power amplifiers. Moreover, the automotive sector utilizes ET chips to optimize power efficiency in RF systems used for vehicle-to-vehicle (V2V) and vehicle-to-everything (V2X) communications. Furthermore, ET chips are critical in telecommunications infrastructure for optimizing RF power amplifiers in base stations and mobile devices. They ensure efficient power usage, enhance signal quality, and support higher data throughput in LTE and 5G networks.

Breakup by Region:

- North America
- United States
- Canada
- Asia-Pacific
- China

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Japan

India

South Korea

Australia

Indonesia

Others

Europe

Germany

France

United Kingdom

Italy

Spain

Russia

Others

Latin America

Brazil

Mexico

Others

Middle East and Africa

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The report has also provided a comprehensive analysis of all the major regional markets, which include North America (the United States and Canada); Europe (Germany, France, the United Kingdom, Italy, Spain, Russia and others); Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, and others); Latin America (Brazil, Mexico, and others); and the Middle East and Africa.

North American countries are significant contributors to the global ET chips market, driven by the presence of leading semiconductor manufacturers, high adoption of advanced technologies in consumer electronics, automotive, and telecommunications sectors. Moreover, European countries are prominent in automotive manufacturing and telecommunications infrastructure development, influencing the demand for ET chips. Apart from this, Asia-Pacific dominates the global semiconductor market and is a major manufacturing hub for consumer electronics, smartphones, and automotive components.

Competitive Landscape:

The market research report has provided a comprehensive analysis of the competitive landscape. Detailed profiles of all major market companies have also been provided. Some of the key players in the market include:

Analog Devices Inc.

Broadcom Inc.

Efficient Power Conversion Corporation

Keysight Technologies Inc.

MediaTek Inc.

Qorvo Inc.

Qualcomm Incorporated

R2 Semiconductor Inc.

Rohde & Schwarz GmbH & Co KG

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Samsung Electronics Co. Ltd.

Skyworks Solutions Inc.

Texas Instruments Incorporated

(Please note that this is only a partial list of the key players, and the complete list is provided in the report.)

Envelope Tracking Chips Market Recent Developments:

May 2024: The State Transport Department of Nagaland launched the Nirbhaya Vehicle Location Tracking System (VLTS) Command and Control Centre at Transport Commissionerate in Kohima.

February 2024: Apple planned to develop certain Fitness+ workouts utilizing advanced Face and Motion Tracking Data Technology.

October 2023: Qualcomm unveiled its latest flagship mobile chipset, the Snapdragon 8 Gen 3, at the Snapdragon Summit 2023. This new chipset offers better connectivity options.

Key Questions Answer ed in This Report:

How has the global envelope tracking chips market performed so far and how will it perform in the coming years?

What has been the impact of COVID-19 on the global envelope tracking chips market?

What are the key regional markets?

What is the breakup of the market based on the technology?

What is the breakup of the market based on the application?

What is the breakup of the market based on the end user?

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What are the various stages in the value chain of the industry?

What are the key driving factors and challenges in the industry?

What is the structure of the global envelope tracking chips market and who are the key players?

What is the degree of competition in the industry?

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