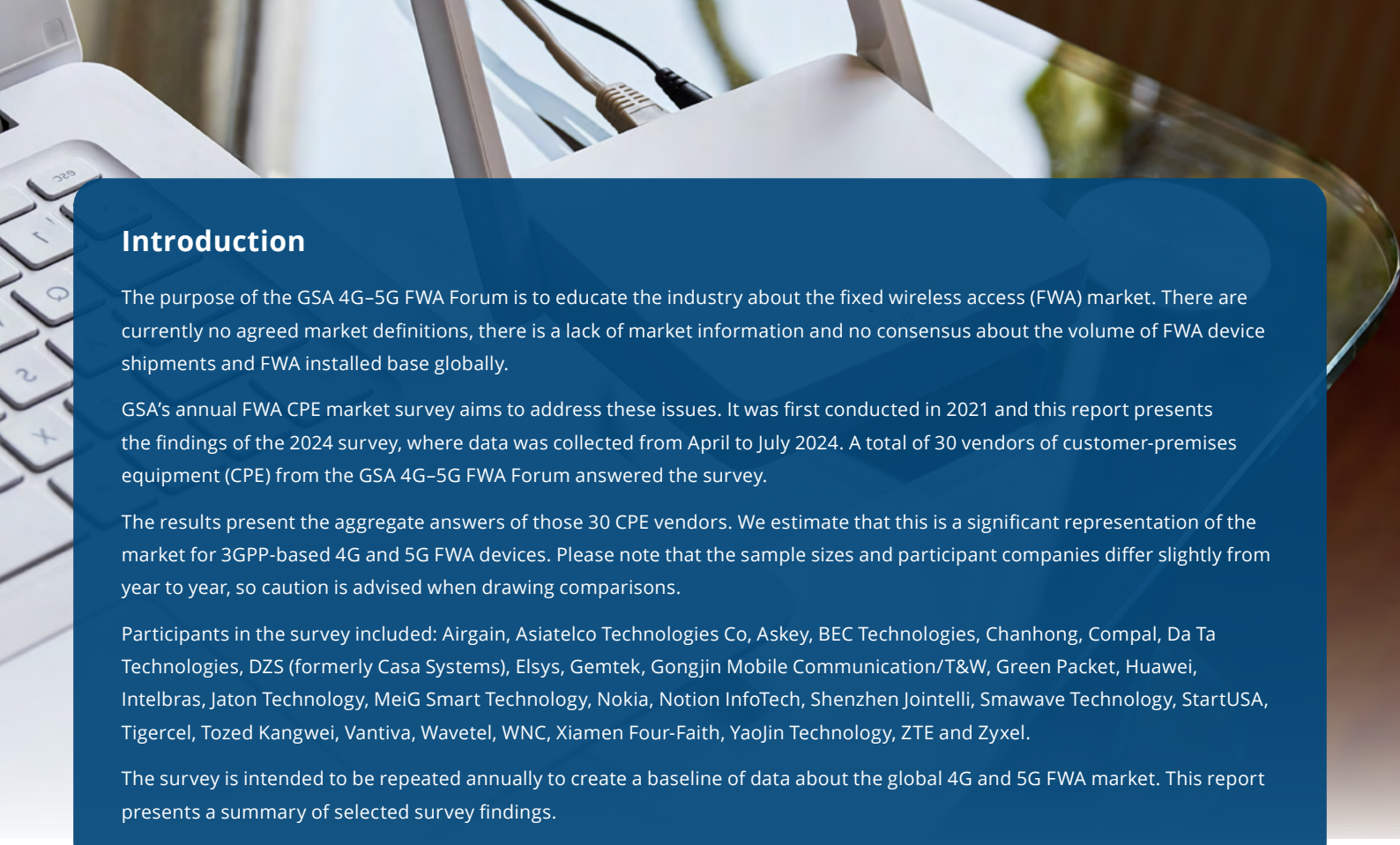
Fixed Wireless Access CPE Vendor Survey 2024

August 2024

GSA 4G 5G Fixed Wireless Access Forum



Introduction

The purpose of the GSA 4G–5G FWA Forum is to educate the industry about the fixed wireless access (FWA) market. There are currently no agreed market definitions, there is a lack of market information and no consensus about the volume of FWA device shipments and FWA installed base globally.

GSA's annual FWA CPE market survey aims to address these issues. It was first conducted in 2021 and this report presents the findings of the 2024 survey, where data was collected from April to July 2024. A total of 30 vendors of customer-premises equipment (CPE) from the GSA 4G–5G FWA Forum answered the survey.

The results present the aggregate answers of those 30 CPE vendors. We estimate that this is a significant representation of the market for 3GPP-based 4G and 5G FWA devices. Please note that the sample sizes and participant companies differ slightly from year to year, so caution is advised when drawing comparisons.

Participants in the survey included: Airgain, Asiatelco Technologies Co, Askey, BEC Technologies, Chanhong, Compal, Da Ta Technologies, DZS (formerly Casa Systems), Elsys, Gemtek, Gongjin Mobile Communication/T&W, Green Packet, Huawei, Intelbras, Jaton Technology, MeiG Smart Technology, Nokia, Notion InfoTech, Shenzhen Jointelli, Smawave Technology, StartUSA, Tigercel, Tozed Kangwei, Vantiva, Wavetel, WNC, Xiamen Four-Faith, YaoJin Technology, ZTE and Zyxel.

The survey is intended to be repeated annually to create a baseline of data about the global 4G and 5G FWA market. This report presents a summary of selected survey findings.

Top 10 Highlights

- In 2024, shipments of FWA CPE are expected to grow 23% to reach 37.5 million units. Reported total CPE shipments in 2023 amounted to 30.4 million from 30 respondents, a 2% increase from 2022.
- 5G-enabled FWA shipments became mainstream, reaching 10.2 million in 2023. The growth of 5G FWA CPE shipments is expected to accelerate further, accounting for 42% of shipments in 2024 compared with 34% in 2023. By comparison, 4G FWA CPE shipments fell 5% between 2022 and 2023. Less than half of respondents will introduce a new 4G CPE product this year.
- Various regions drove growth of 5G FWA shipments in 2023, in contrast with 2022, when most shipments were concentrated in North America. India is now contributing to this upward trend in shipments, with 86% of those reported being 5G-enabled, followed by North America (65%) and the rest of Asia–Pacific (39%).
- Shipments are still dominated by indoor CPE (60%), followed by battery-operated hot spots (25%) and outdoor CPE (15%). Within outdoor CPE, flexible self-install devices are expected to grow from 1.6 million to 1.9 million despite their share declining slightly from 36% to 34% of shipments between 2023 and 2024.
- Shipments of 5G devices with millimetre-wave (mmWave) capability rose 63% between 2022 and 2023 and are forecast to grow 22% by 2024 but remaining at under 10% of all 5G shipments.
- When it comes 5G standalone, 60% of shipments in 2023 were supported the technology. These are expected to grow in 2024, reaching 8.9 million units, up from 6 million in 2023.
- There is strong interest in RedCap, with 63% of respondents stating they will be introducing a 5G RedCap CPE in 2024.
- According to 40% of respondents, 5G CPE will reach price parity with its 4G counterpart by 2026, a year later than in last year's survey.
- Most respondents claim that window-mounted CPE and self-installation apps are growing; flexible indoor and outdoor CPE are set to remain flat; and hybrid fibre/DSL CPE will decline.
- More than half of respondents do not expect component shortages but do anticipate inflationary pressures in 2024.

Global Shipments

In 2023, 4G and 5G FWA CPE shipments hit 30.4 million from a total of 30 companies, an increase of 2% from the 2022 figure of 29.8 million shipments. Total FWA CPE shipments are expected to rise by a further 23% to 37.4 million in 2024.

Some respondents saw a drop in the growth of their shipments in 2023, but overall, the majority experienced some growth.

Indoor CPE makes up the lion's share of FWA CPE shipments, but it fell by 2% in 2022 to 60% of total FWA CPE shipments in 2023 (see Figure 1). This is forecast to drop marginally to 59% in 2024. Battery-operated pocket routers formed 25% of total FWA CPE shipments in 2023 and this is not expected to fluctuate in the coming year.

Outdoor FWA CPE constitutes the remaining 15% of CPE shipments, having grown from 11% in 2022. In this segment there is an expected growth of flexible indoor and outdoor self-installation devices from 1.6 million in 2023 to 1.9 million. These flexible installation devices represented 36% of the segment in 2023 and are expected to fall slightly to 34% in 2024.

Table 1 summarizes growth in shipments of devices by type.

When looking at the regional breakdown, illustrated in Figure 2, 23% of FWA CPE shipments are from the Middle East and Africa, followed by North America (17%). It is worth noting that India now contributes 6% of FWA CPE shipments, with previous samples having not reported any shipments in both 2021 and 2022.

Whilst other regions saw a moderate decline in their share of shipments, the Rest of Asia–Pacific experienced a greater decline from 23% in 2022 to 15% in 2023.

Figure 1. Shipments of FWA CPE by type. Sample: 2024 survey, 29 respondents

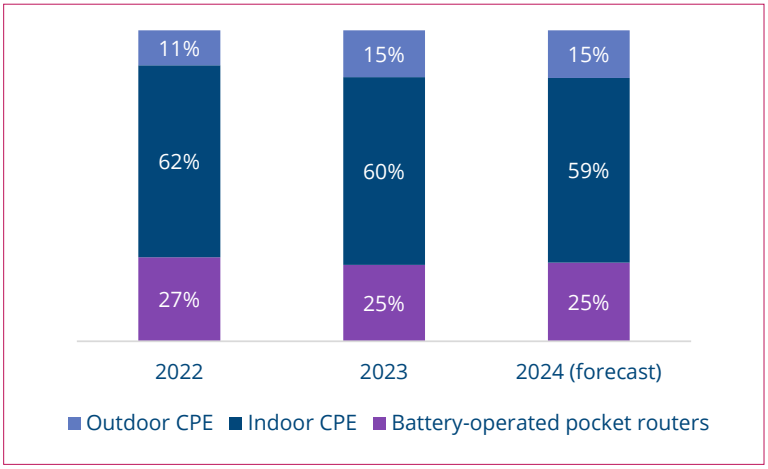
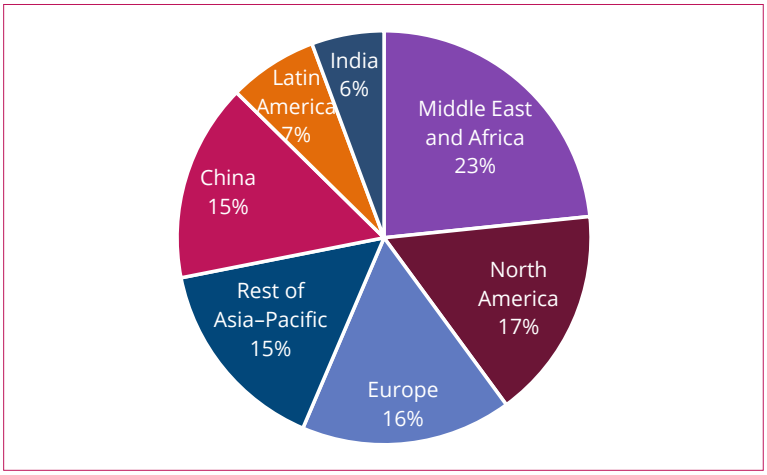


Table 1. Year-on-year growth in shipments of FWA CPE by type. Sample: 2024 survey, 29 respondents

	2023 growth	2024 growth (forecast)
Battery-operated pocket routers	-9%	30%
Indoor CPE	-2%	24%
Outdoor CPE	34%	28%
Indoor and outdoor CPE	4%	25%

Figure 2. Shipments of FWA CPE in 2023 by region. Sample: 2024 survey, 29 respondents



5G Device Shipments

Shipments of 5G devices grew by 18% from 8.7 million in 2022 to 10.2 million in 2023, representing 34% of total FWA CPE shipments. In 2024, 5G device shipments are forecast to be 15.6 million, comprising 42% of shipments (see Figure 3). This year the survey asked respondents to indicate what proportion of their 5G shipments were activated or enabled with support for 5G standalone. In 2023, this figure stood at 7.2 million shipments but this is expected to increase by 44% to 10.4 million in 2024. A total of 3.0 million shipments do not support 5G non-standalone and this is set to grow to 5.2 million in 2024, an increase of 73%.

Device support for 5G mmWave has increased, as Figure 4 shows, with shipments of capable devices growing significantly from 452,000 units in 2022 to 736,000 in 2023. By 2024, 5G mmWave-capable shipments are expected to grow by 22% to just under 900,000 units. From the 30 respondents in this year's survey, 20% of vendors already have mmWave-capable products and 23% have plans to introduce a mmWave-ready device in the coming years. Of those that have mmWave-capable products or plan to introduce such, 67% are planning to offer devices with power class 1 (minimum peak EIRP of 40 dBm) or 5 (minimum peak EIRP of 30 dBm).

Figure 3. Shipments of 5G-enabled devices, millions of units, and year-on-year growth. Sample: 2022 survey, 26 respondents; 2023 survey, 25 respondents; 2024 survey, 30 respondents

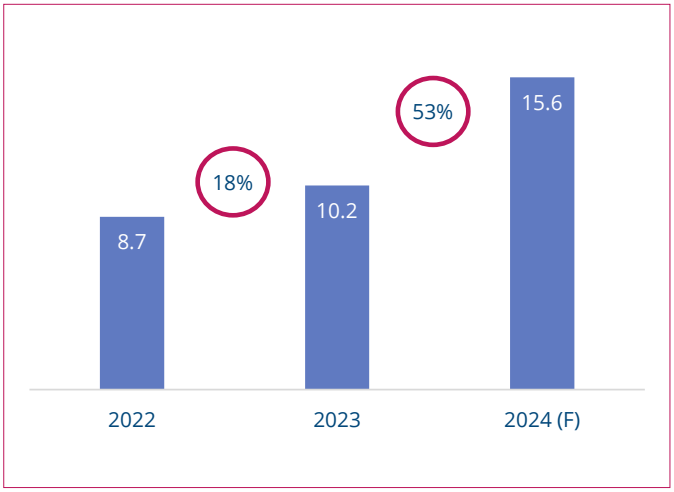


Figure 4. Shipments of 5G mmWave-capable devices, thousands of units, and year-on-year growth. Sample: 2022 survey, 26 respondents; 2023 survey, 25 respondents; 2024 survey, 30 respondents

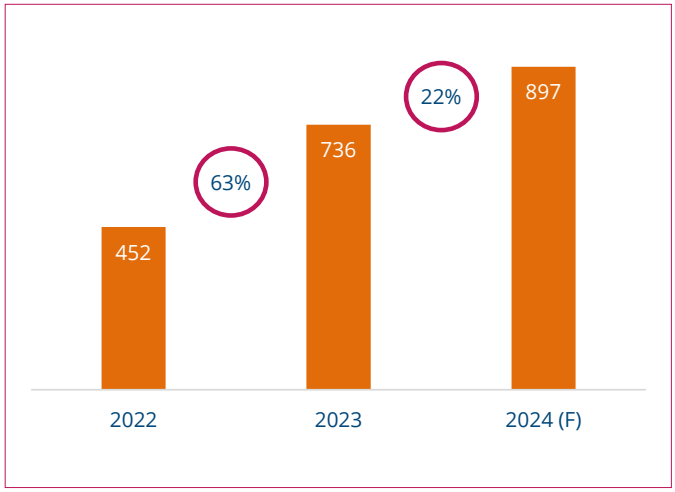


Table 2 offers a summary of FWA CPE shipments and growth, organized by 4G and 5G devices.

Table 2. Shipments of FWA devices by technology, millions of units, and year-on-year growth. Sample: 2022 survey, 26 respondents; 2023 survey, 27 respondents; 2024 survey, 30 respondents

	2022	2023	2024 (forecast)	2023 growth	2024 growth (forecast)
Total shipments	29.8	30.4	37.5	-25%	12%
4G-only	21.2	20.2	21.8	-34%	-6%
5G*	8.7**	10.2	15.6	162%	111%
5G share	29%	34%	42%	N/A	N/A

* 4G and 5G devices, including FWA CPE and battery-powered pocket routers.

** Estimated based on percentage of 5G shipments from the 2023 survey.

Economic Developments and Trends

Across the surveyed companies, the majority of respondents have experienced or expect to experience no component shortages, with only a very minimal proportion expecting significant component shortages (see Figure 5). Conversely, most of the respondents perceive or expect a minor impact of inflation but with no need to adjust prices. A moderate proportion expect major inflationary pressure that would affect their pricing strategy (see Figure 6).

Figure 5. Impact of component shortages on shipment volumes. Sample: 2024 survey; 30 respondents answered "in 2023", 30 answered "in 2024" and 29 answered "in 2025"

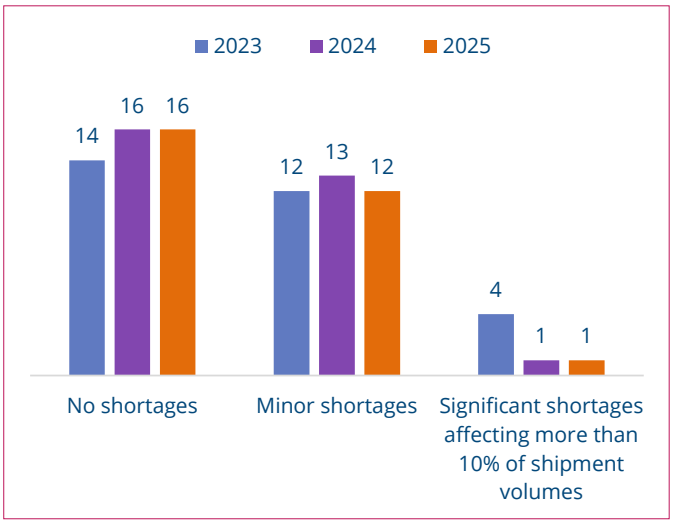
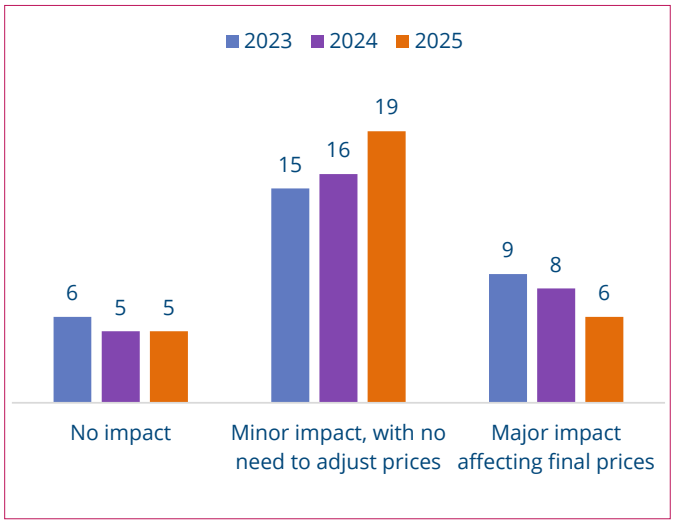
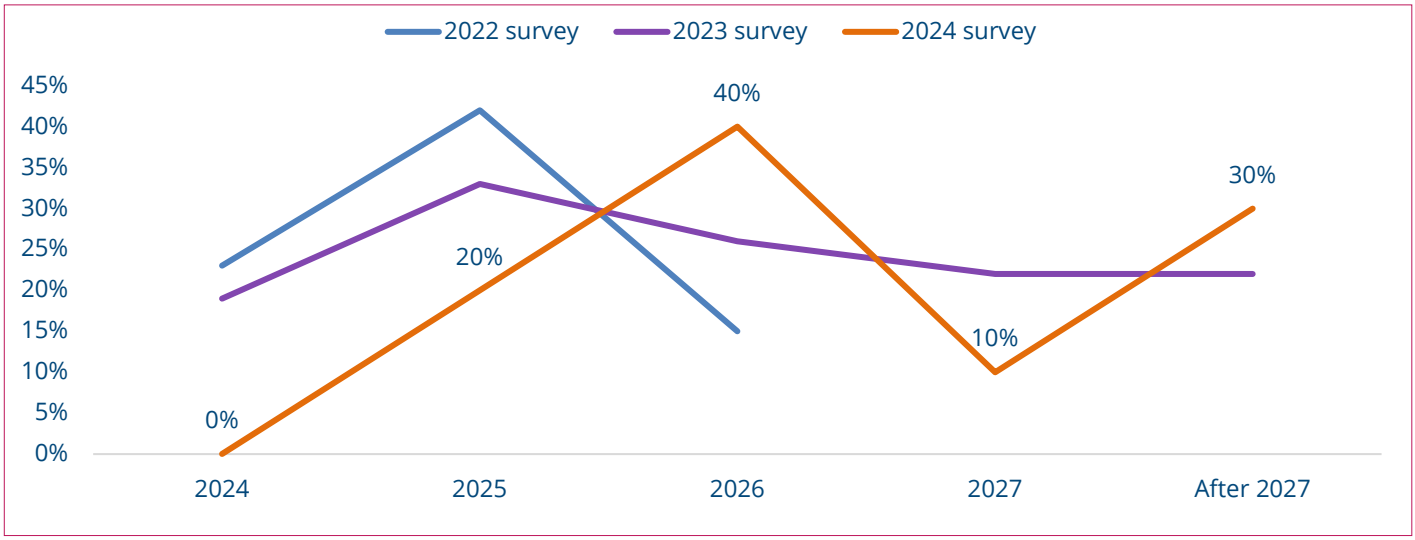


Figure 6. Impact of inflation on prices. Sample: 2024 survey; 30 respondents answered "in 2023", 29 answered "in 2024" and 30 answered "in 2025"



In previous surveys, respondents told us they expected 5G CPE to reach price parity with 4G CPE in 2025. However, the most common expectation in this year's survey is that price parity will shift further back to 2026 (see Figure 7).

Figure 7. Expectations for when prices of 5G CPE will reach the current levels of 4G CPE. Sample: 2022 survey, 26 respondents; 2023 survey, 27 respondents; 2024 survey, 30 respondents



Device Form Factors and Capability Trends

Looking at future device trends, there is clear consensus that window-mounted CPE, flexible indoor and outdoor CPE and self-installation apps are growing. In contrast, respondents are increasingly pessimistic towards hybrid fibre/DSL CPE, with 47% expecting it to be flat and 13% stating that it is declining. In 2023, 41% of respondents thought that hybrid fibre/DSL CPE was growing, with the remaining 59% believing it was either flat (37%) or declining (22%).

When asked about their module and chipset strategies, 47% said that their current modules are from more than one third party, up from 41% in 2023. Similarly, 33% claimed that their current modules are sourced from one supplier and 50% of respondents stated that their module is developed in-house, dropping from 37% and 59% respectively. Looking forward to the full 2024, modules that are sourced from more than one third party and those that are developed in-house are both expected to remain flat. The proportion of respondents taking modules from a single supplier is forecast to drop from 33% in 2023 to 30% in 2024.

Moving on to chipset strategies, last year 78% of respondents stated that they sourced chipsets from more than one vendor and the remaining 22% claimed they sourced from a single chipset vendor. This time, 80% are sourcing their chipsets from more than one vendor and this is set to increase to 83% in 2024. Conversely, 20% of respondents are sourcing their chipset from one vendor in 2023 and this is expected to drop to 17% in 2024.

Survey respondents were also asked about their plans for 5G RedCap-capable devices, and 63% declared that they had plans to introduce such products in the coming year. 5G RedCap is expected to grow in interest as it offers a more affordable option than full 5G FWA, with speeds that still improve on 4G FWA.

Finally, when asked about their plans to expand their portfolio with devices supporting 3GPP sub-6 GHz spectrum, 41% of respondents stated that they have no plans to do so. The remaining proportion of respondents plan to introduce these devices: 28% in 2026, 17% in 2027 or later, and 14% plan to introduce such a device in 2025.

About This Survey

The full report providing additional analysis of questions is only available to members of the GSA 4G–5G FWA Forum. Companies wishing to join should contact Joe Barrett at admin@gsacom.com. This is the fifth-edition survey of the 4G and 5G FWA device ecosystem and the next iteration will be undertaken in 2025.

ABOUT GSA

GSA is the voice of the global mobile ecosystem and has been representing mobile suppliers since 1998.

GSA 4G–5G FWA Forum

Established in late 2020, the GSA 4G–5G FWA Forum brings together leading infrastructure, chipset, module and device suppliers to promote 4G and 5G FWA technology, products and services. It aims to report on progress of FWA deployments, identify use cases and encourage global adoption.

FWA Device Ecosystem Directory

The FWA Device Ecosystem Directory contains an overview of the growing number of companies involved in the 3GPP FWA device ecosystem.

Companies are grouped according to where they sit in the ecosystem, for example, chipset suppliers, module suppliers or device suppliers. For each company, a single page overview of who they are and where further information can be obtained is provided.

A simple overview of all FWA-related products being marketed at the time of issue by each company is also included.

For more information, please visit: https://gsacom.com/fwa-tool/

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