Patently100®
Cellular

The world's leading 5G patent owners

2026

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This annual ranking reviews the entities that own the most Standard Essential Patents (SEPs) relating to 5G cellular technology, using Patently License™, an analytics and licensing tool for SEPs.

Learn more about Patently License and the data here.

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Introduction

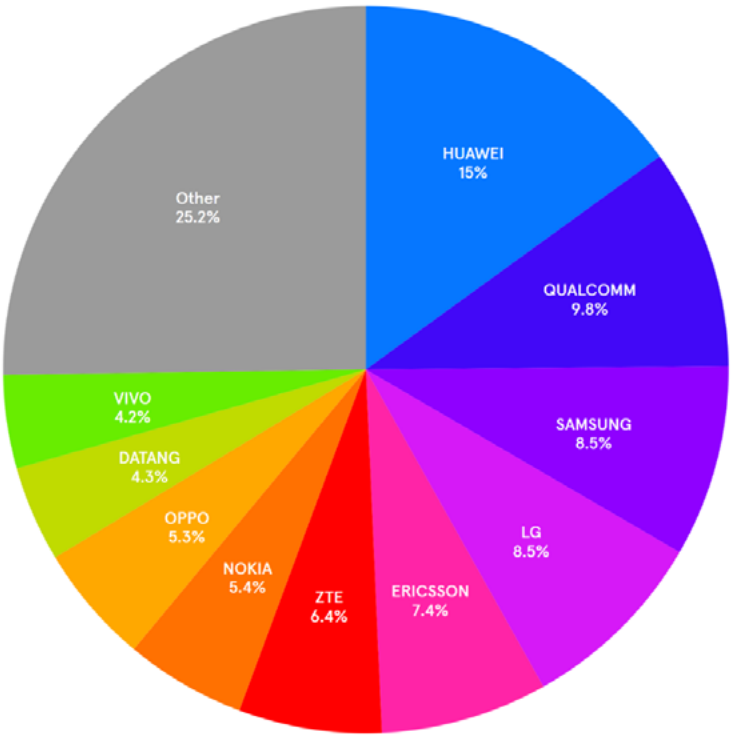
5G underpins the modern mobile communications ecosystem, but the landscape of 5G SEP ownership and licensing is extraordinarily complex, with at least 100 significant licensors.

The competitive ranking of the top 10 5G SEP holders in 2026 remains largely consistent with the previous year's Patently 100. There are some positional changes in that leading group: LG has leapt ahead of Samsung into third position and Vivo has edged in front of Datang at ninth. Due to heroic R&D, standards-contributing and patenting efforts, the same companies feature in the top 10 this year: Huawei, Qualcomm, LG, Samsung, Ericsson, ZTE, Nokia, OPPO, Vivo and Datang.

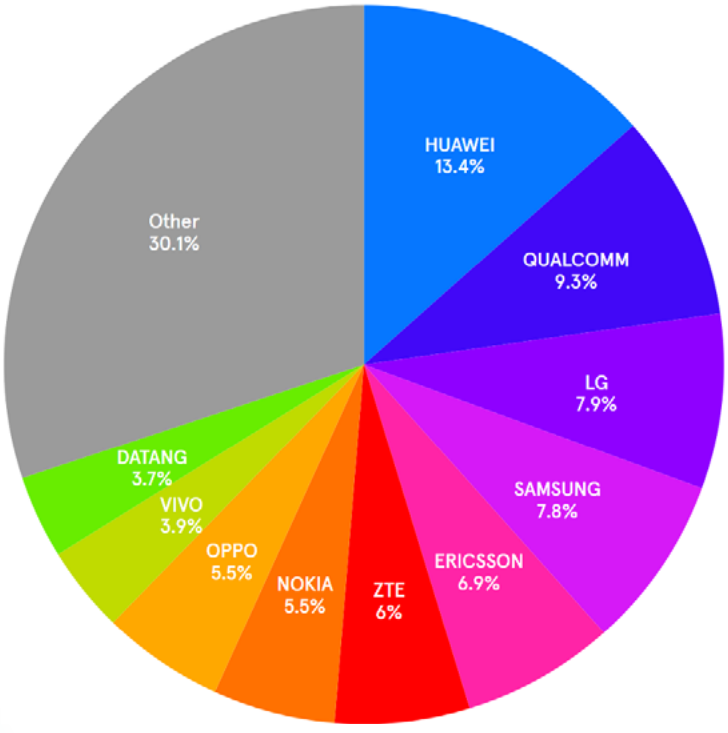
The total number of SEPs declared to 5G has increased dramatically. We have identified well over 100,000 (in fact nearly 109,000) published SEP families that were declared to 5G by the end of 2025, compared to 85,000 a year ago. In terms of Established SEP families (i.e., have at least one member that has been granted and is in force), the number has increased from some 56,000 to approximately 69,000, i.e. an incredible 23% increase year-on-year.

At the start of 2025, approximately 75% of all 5G Established SEP families were owned by the top 10. In 2026, the dominance of the top 10 has reduced to below 70%. There are various reasons for this decreasing concentration in the top right-holders, including the emergence of new declarants: An entirely new declarant, China Mobile, declared some 3,600 SEP families during the course of 2025. Another, Ofinno, declared over 800.

Owner breakdown of 5G families – 2025



Owner breakdown of 5G families – 2026



5G SEP licensing challenges

The surge in 5G patent declarations has been accompanied by growing concerns about patent essentiality and licensing transparency. Industry studies and regulators note that a large portion of declared SEPs may not actually be technically essential to the 5G standard – research (including ours) suggests that a large proportion of declared 5G SEPs are not truly essential, and of those, an even smaller proportion are valid. Companies can (and often do) declare patents without independent policing, meaning raw patent counts can misrepresent a portfolio's real value. This reality complicates licensing: implementers must negotiate licenses for large patent portfolios of which only a fraction might be "core" to the standard, while patent owners seek compensation for years of R&D investment. The result is a delicate FRAND (Fair, Reasonable and Non-Discriminatory) balance that is often difficult to achieve.

Frequent litigation and drawn-out negotiations have been features of the 5G era, as parties struggle to agree on what constitutes fair value for SEP portfolios. There have been notable multi-jurisdictional disputes; for example, Samsung and InterDigital resorted to arbitration by an ICC panel, which in July 2025 set terms for an 8 year 5G/4G license (2023–2030) and a $1.05 billion ruling in favour of InterDigital.

Many implementers go to the UK courts seeking both court-determined global FRAND licenses and interim licenses pending final determination. Meanwhile, SEP holders seek anti-suit injunctions like the anti-interim licence injunction (AILI) recently granted by the UPC's Mannheim Local Division in an SEP dispute (involving InterDigital and Amazon). Elsewhere, courts in Brazil, China, Germany, India and the US continue to play pivotal roles in adjudicating SEP disputes and influencing global licensing behavior.

The global licensing frameworks have also seen incremental improvements via patent platforms and pools. For instance, Avanci has continued to develop its 5G vehicle licensing platform, attracting new licensors (including emerging players like Ofinno) to offer one-stop licenses for automotive manufacturers.

Regulatory developments

In response to these challenges, policymakers have explored frameworks to improve SEP licensing efficiency and fairness. A notable effort was the European Commission's proposed SEP regulation, which aimed to mandate SEP registration, independent essentiality checks by the EU Intellectual Property Office, and clearer FRAND rate-setting procedures. However, reaching consensus proved difficult. In mid-2025, the European Commission withdrew the proposed SEP regulation, citing no foreseeable agreement among EU member states. Many industry stakeholders welcomed this withdrawal, having feared the regulation might upend established licensing practices or favour large implementers' interests. The proposal's shelving means the status quo of court-driven FRAND resolutions and industry-led initiatives will persist in Europe for now.

In 2025 the UK Intellectual Property Office (UKIPO) began a major consultation on SEP policy, aiming to address concerns about costly licensing disputes and opaque FRAND terms. The UKIPO floated several reform proposals to make SEP licensing more transparent and efficient. The results have yet to be published but are expected in the near future.

Balancing innovation and fair access

The dynamic between SEP holders and implementers is ultimately about maintaining an ecosystem where innovation is rewarded without stifling market entry. Governments and industry bodies are keenly aware that if royalties become excessive or unpredictable, it could hamper 5G adoption and downstream innovation. Conversely, if patent owners cannot recoup R&D investments, incentives to contribute to future standards (like 6G) wane. Striking this balance often comes down to private negotiations buttressed by the threat of litigation or court guidance.

One positive trend is the growing use of independent third-party essentiality evaluations and AI-driven patent analytics to bring more objectivity to the table. Advanced platforms (such as Patently's Mine® tool) apply high-quality AI claim charting techniques to identify which patents are truly essential, helping licensees focus on the patent families that really matter. These technologies, combined with techniques like patent landscaping and semantic analysis, are improving transparency. Some companies now routinely use AI to map SEP portfolios and even predict the relevance of patents to 5G standards, potentially streamlining negotiations. In November 2025, Huawei touted new AI-enabled patent search tools on its Chaspark Patent platform for greater openness. In 2026, the industry continues to refine these approaches, recognizing that better data and analytics can reduce friction and foster more equitable licensing outcomes.

Against this backdrop, we present the 2026 edition of the **Patently 100® Cellular** report on the world's leading 5G SEP owners. Below we profile the top companies – updating their patent holdings, major developments in 2025, licensing activities, R&D focus areas, and roles in shaping the 5G ecosystem. Each of these companies has played a significant part in making 5G a reality, whether through pioneering research, contributing to standards, or driving technology into global markets. The profiles also highlight how each company is navigating the evolving SEP licensing environment, from striking cross-licenses and joining patent pools to engaging in litigation or standard-setting leadership. Together, these profiles illustrate both the concentration of patent ownership and the collaborative competition that propels the mobile industry forward.

In addition, we profile the two significant new players who have in the last 12 months begun to declare significant portfolios to 5G: China Mobile and Ofinno. These companies have emerged as significant SEP holders during 2025, with China Mobile declaring roughly 3,600 5G families and Ofinno over 800, rocketing into the rankings in this 2026 edition.

Who are the 10 strongest players in the SEP landscape?

We evaluated owners of SEPs based on the number of families declared to 5G, and outlined the top 10 owners, followed by an extended full list, which covers the remaining 90 owners in the top 100.

1.

Huawei maintained its position as the world's leading 5G SEP holder through 2025, building on an extensive patent portfolio and aggressive R&D investment. By late 2025, the company was reporting annual patent licensing revenues in the hundreds of millions of dollars, reflecting broad adoption of its 5G technologies in global devices. Huawei has now signed over two hundred cross-licensing agreements worldwide, including renewed deals with several major handset and network vendors, demonstrating a collaborative licensing strategy that minimizes litigation.

At the same time, Huawei remains one of the most prolific innovators in the industry. In 2024 alone, it filed tens of thousands of new patent applications, bringing its active worldwide patents well into six figures. The company contributed thousands of technical inputs to international 5G standards and has begun steering early 6G standardization efforts. Heavy reinvestment of revenue into R&D (often over 20% of its annual sales) has kept Huawei at the forefront of advanced 5G features, AI-driven network solutions, and beyond. Despite geopolitical challenges, Huawei's balanced focus on patent monetization and technological innovation in 5G/6G ensures it enters 2026 as a pivotal player shaping the future of mobile connectivity.

Qualcomm

Qualcomm continued to be a cornerstone of the 5G patent landscape in 2025, leveraging its historically strong SEP portfolio and deep involvement in standards development. The U.S.-based innovator has consistently ranked among the top 5G patent owners, and industry analyses often highlight the high technical value of Qualcomm's SEP holdings. Throughout 2025, Qualcomm reinforced its reputation for prolific innovation, averaging well into double digits of new patent grants per day, with the majority centred on 5G, 5G-Advanced, and emerging 6G technologies. This relentless output underpins the company's licensing business, which remains a key revenue source and funding engine for R&D.

Qualcomm successfully secured extensions to critical licensing agreements in 2025, ensuring that virtually all major 5G handset manufacturers (including a renewal with its largest customer) are covered under its patents. In parallel, Qualcomm has been preparing for the next generation of wireless: it is an active contributor to early 6G research initiatives and standard-setting discussions, positioning itself to influence 6G just as strongly as it did with 5G.

By early 2026, the company's strategy still marries cutting-edge chip development with an ecosystem-wide patent licensing approach – a model that has allowed Qualcomm to drive industry-wide adoption of its innovations while continuing to invest over a billion dollars per month into research in communications, automotive connectivity, IoT and more. The result is a company that enters 2026 with an unshaken role as both a leading patent licensor and a fundamental enabler of global wireless standards.

3.

LG

LG Electronics remains one of the top holders of 5G SEPs, even after its exit from the smartphone manufacturing business. Through 2025, LG strategically refocused its telecom patent portfolio on new revenue opportunities and collaboration. It joined industry licensing platforms to monetize its cellular patents in the automotive and IoT sectors – exemplified by its participation as a key licensor in global 4G/5G patent pools for connected vehicles. LG's collection of tens of thousands of communications patents, many deemed essential to 4G and 5G standards, has become a significant asset fuelling licensing agreements with device makers and other implementers worldwide. The company balanced this monetization with continued investment in cutting-edge research.

Throughout 2025, LG increased its R&D efforts on 6G and AI-driven connectivity, often partnering with universities and institutes to stay at the forefront of innovation. At standards bodies, LG remained an active contributor, ensuring its patented technologies find their way into future specifications. By early 2026, LG Electronics' strategy has clearly shifted towards leveraging its strong SEP portfolio beyond smartphones: it is powering advancements in connected cars, smart appliances, and future networks, all while solidifying its role as both a technology innovator and a licensor in the 5G era and beyond.

SAMSUNG

Samsung retained its place among the top global 5G SEP owners in 2025, thanks to its broad involvement across the mobile ecosystem. The Korean giant's patent holdings span network infrastructure and consumer devices, reflecting its dual role as a leading equipment vendor and handset manufacturer. Over the past year, Samsung continued to expand its 5G patent family count and focused on enhancing the influence of its portfolio. It remained deeply committed to FRAND licensing principles: the company has cross-licensing deals in place with virtually all other major SEP holders, agreements which were reinforced or renewed as needed to maintain patent peace.

Notably, Samsung took an active stance in enforcing and defending its patents in 2025 – engaging in legal actions to resolve licensing disputes with certain competitors – signaling its determination to obtain fair value for its innovations. On the R&D front, Samsung is investing aggressively in 5G-Advanced features and laying the groundwork for 6G technology. The company published updated 6G vision white papers and conducted trial projects on future wireless technologies, reaffirming a goal to lead the industry into the next decade.

Within standards organizations, Samsung's engineers have been key contributors, often chairing technical working groups and advocating technologies ranging from advanced MIMO antenna systems to AI-optimized networks. Entering 2026, Samsung's strategic mix of extensive patent assets, robust licensing arrangements, and forward-looking research ensures that it remains a dominant force in both current 5G deployments and the conception of 6G standards.

5.

ERICSSON

Ericsson, the Swedish telecom pioneer, remained a pillar of the 5G patent landscape through 2025. The company's portfolio of granted includes thousands of families declared essential to 5G, consistently keeping Ericsson in the top tier of SEP owners. Rather than emphasizing sheer numbers, Ericsson's approach in 2025 underscored the technical strength and high essentiality of its patents. The company reported stable licensing revenues as it renewed and signed comprehensive license agreements with the world's major smartphone makers and network equipment competitors.

By late 2025, Ericsson had active licensing deals covering virtually all 5G phones on the market, including a resolution of its high-profile dispute with a leading handset OEM the previous year. Where necessary, it didn't shy away from litigation to protect its IP – even breaking new ground by enforcing SEPs in emerging markets and against newer manufacturers to ensure everyone complies with FRAND obligations. On the innovation side, Ericsson has been a driving force in 5G's evolution and is an early leader in 6G research collaborations.

The company regularly contributes thousands of technical proposals to 3GPP and other standard bodies, and it has taken on leadership roles in international 6G R&D consortia. In 2025, Ericsson's engineers worked on advanced network architectures, energy-efficient 5G upgrades, and foundational 6G technologies like sub-THz radio. As 2026 begins, Ericsson's vision is clear: to leverage its rich heritage in wireless innovation and its robust patent licensing program to continue enabling global connectivity, from the current 5G expansion to the future 6G era.

ZTE

ZTE strengthened its standing among global 5G SEP holders over the course of 2025. The Chinese telecom equipment maker significantly grew its portfolio of declared 5G patent families, climbing closer to the leading pack in sheer numbers. This expansion was fuelled by ZTE's heavy investment in R&D, nearly one-fifth of its revenue is consistently ploughed back into innovation, yielding a stream of new patents in areas like advanced wireless networking, semiconductor technologies, and AI-integrated communications. By the end of 2025, ZTE had tens of thousands of patents granted worldwide and had publicly disclosed that its 5G-essential patent count had crossed an important milestone, reflecting the company's focus on next-generation connectivity. ZTE has also been assertive in managing its intellectual property.

When a licensing impasse arose with a major competitor, ZTE engaged in a series of patent infringement suits across multiple jurisdictions in 2024-2025, underscoring the growing confidence of Chinese vendors in asserting their SEP rights internationally. At the same time, ZTE continued to collaborate through industry frameworks; it participates in patent pools and standards alliances to license its technology fairly and gain access to others' IP. In standards development, ZTE remained highly active, contributing technical solutions for 5G-Advanced enhancements and positioning itself for the 6G era with research into ultra-large antenna arrays and Terahertz communication.

The company's "All in AI, AI for All" strategy, introduced in 2025 to infuse AI across its product lines, also promises to shape its patent trajectory in areas where AI and 5G converge. Entering 2026, ZTE is balancing aggressive innovation with more assertive IP strategies, solidifying its role as both a key contributor to and beneficiary of the global 5G ecosystem.

7.

NOKIA

Nokia's legacy of innovation carried into 2025 as it remained one of the foremost European holders of 5G SEPs. The Finnish company announced that it had surpassed a milestone of seven thousand patent families declared essential to 5G, a testament to sustained R&D efforts through the 5G cycle. In industry rankings, Nokia's portfolio is often highlighted for its quality and relevance, a point Nokia itself emphasizes as it promotes the technical strength of its patents over sheer quantity. The company has leveraged this portfolio in a steady stream of licensing successes.

By 2025, Nokia had ongoing licensing agreements with virtually all major smartphone manufacturers, having concluded a new multi-year deal with a leading U.S. device maker and resolved disputes with other Asian OEMs via either court victories or settlements. These deals, alongside participation in pools for automotive and IoT licensing, ensured Nokia's patent royalties remained a strong revenue pillar supporting its broader operations.

On the research front, Nokia has been forward-looking and vocal about 6G. It led one of the flagship multinational 6G research projects and has declared a top position in early 6G patent filings, aligning with its claim of being "in a leading position for 6G standardization." Throughout 2025, Nokia experts were active in defining future network specifications, from AI-driven air interface designs to new spectrum utilization techniques, working through 3GPP, ITU, and industry alliances to shape the post-5G roadmap. Nokia Technology Standards (formerly Nokia Technologies) remains focused on monetizing and advancing the company's trove of wireless innovations.

Heading into 2026, Nokia stands as a prime example of a company successfully bridging its storied past in 2G/3G/4G into 5G leadership, while already seeding technology and intellectual property for the 6G future.

OPPO emerged as one of the top Chinese SEP owners in the 5G era and, in 2025, further solidified that position through a mix of innovation and strategic IP management. The smartphone manufacturer has accumulated a sizable portfolio of 5G patent families and continues to file new patents in cutting-edge domains like fast charging, AI-enhanced imaging, and next-generation connectivity. These R&D efforts have not only supported OPPO's device business but also given it leverage on the global stage of patent licensing.

Over the past year, OPPO demonstrated a growing maturity in handling patent issues. It proactively forged cross-licensing arrangements with key industry players to ensure freedom to operate. Notably, OPPO's patents were part of reciprocal licensing deals with several telecom giants, reflecting mutual respect for each other's innovations. At the same time, OPPO navigated challenges posed by patent litigations: it settled long-running disputes with at least one major technology company, and in other cases where litigation persisted, OPPO chose strategic market exits or negotiations, showing a pragmatic approach to resolving IP conflicts.

In standards development, OPPO ramped up its participation and contributions, particularly within China's telecommunications standards groups and through involvement in 3GPP working sessions. This participation is aimed at boosting the technical influence of its proposals and aligning its product roadmap with global standards. Strategically, OPPO in 2025 also began looking beyond smartphones, exploring areas like augmented reality devices and IoT ecosystems, fields that will lean on 5G and eventually 6G connectivity, and where the company can apply its growing patent base.

As the calendar turns to 2026, OPPO's trajectory is one of a rising technology brand that not only competes on consumer features but also invests in the intellectual property and standards contributions needed to be a long-term player in the telecoms arena.

9.

vivo

Vivo continued its ascent in the realm of 5G SEPs in 2025, leveraging both a robust patent development program and a collaborative stance toward licensing. The company has built a considerable portfolio of declared 5G patent families, sufficient to place it among the leading SEP holders globally. In the past year, Vivo took notable steps to manage and expand the impact of these assets. In early 2024, it entered a landmark global cross-licensing agreement with a top global telecom company, ensuring mutual access to each other's cellular SEP portfolios. This deal not only ended a potential dispute but also underscored Vivo's commitment to amicable licensing as it expands internationally.

Likewise, by 2025 Vivo managed to settle a multi-year patent litigation with a prominent European electronics firm, closing the chapter on a dispute that had spanned several jurisdictions. These developments freed Vivo to focus on innovation and product growth without overhanging legal uncertainties.

On the innovation front, Vivo remains highly active. The company operates numerous R&D centers in China and beyond, all contributing to advances in 5G smartphones and emerging technologies. Vivo's engineers have been exploring specialized areas such as advanced camera systems, ultra-fast wireless charging, and 5G use-cases like mixed reality, each of which yields new patents and helps differentiate its devices.

While not traditionally a network equipment provider, Vivo has increased its participation in industry forums and standards meetings to keep abreast of the latest developments and subtly influence features that matter for handsets. Its product launches in 2025, including a flagship series featuring cutting-edge imaging co-engineered with optical experts, demonstrated how R&D investment translates into market impact.

Entering 2026, Vivo is positioning itself not just as a successful device maker but as an innovator with a growing trove of intellectual property, ready to support the company's global ambitions and contribute to future standards like 6G when the time comes.

大唐电信科技产业集团
DATANG TELECOM TECHNOLOGY & INDUSTRY GROUP

Datang Telecom, long a key player in China's telecommunications R&D, retained a significant presence in the 5G SEP arena through 2025. As the progenitor of China's homegrown 3G standard two decades ago, Datang carried forward a rich patent portfolio into the 4G and 5G eras. It remains among the top owners of 5G-declared patent families, although it operates less publicly than commercial manufacturers. In 2025, Datang's influence was felt through its technical contributions and strategic patent assertions. The company continued to work within China's national technology initiatives and standardization committees, focusing on areas like advanced radio protocols, network optimization, and interoperability, domains where it has historic strengths. Its experts have been involved in crafting 5G-Advanced enhancements and seeding ideas for 6G architecture, aligning with state-backed programs to drive future telecom innovations.

Datang also demonstrated a readiness to enforce its patent rights on the global stage. In recent years it initiated high-profile patent infringement actions against a few overseas competitors to defend its SEP holdings, a departure from its quieter past. Notably, Datang engaged in litigation with a major international handset maker during 2024, seeking recognition and compensation for the use of its 4G/5G technologies. These actions resulted in negotiations and eventual settlements, signaling that Chinese research entities like Datang are increasingly asserting themselves in the international patent arena.

Meanwhile, the company has integrated further into China's telecom industry conglomerate, ensuring its research and patents support domestic technology goals such as network equipment self-reliance and 6G exploration. Going into 2026, Datang Telecom stands as an influential, if understated, SEP owner: it continues to accumulate patents through ongoing R&D, participates in the shaping of new standards, and guards its innovations as China's wireless communications sector grows in global prominence.

10.

Significant new entry

中国移动
China Mobile

China Mobile, the world's largest mobile network operator, emerged as a noteworthy new entrant among top 5G SEP owners by 2025. Historically a consumer of others' technology, the company has spent the last several years ramping up its own research output to shape the direction of 5G and beyond. By late 2025, China Mobile's research arm had amassed a large patent portfolio, with a substantial subset declared essential to 5G standards. This marked one of the first times a pure telecom carrier has been ranked alongside traditional manufacturers in SEP counts. The operator's patents focus on network-side innovations: from efficient radio access algorithms to core network protocols and advanced services. In fact, China Mobile took on significant roles in international standards bodies, one of its lead engineers chaired a key 3GPP working group on radio access technology, and the company has been among the most active contributors of technical proposals for 5G-Advanced features.

Throughout 2025, China Mobile also laid the groundwork for the future, backing several 6G innovation projects. It has been collaborating with domestic and global partners on next-gen network architectures, merging artificial intelligence with communications, and new spectrum technologies, all of which have yielded early patent filings. The company touts its growing reserve of high-value patents and has even been recognized with national innovation awards for breakthroughs in 5G network technology.

Strategically, China Mobile is leveraging its unparalleled operational scale, over a billion subscribers, to test and refine new ideas, which then lead to patents and contributions in standards. While China Mobile's primary business is providing services, by 2026 it has firmly established itself as a technical powerhouse among operators. Its unique position ensures that practical deployment knowledge informs its innovations, allowing the company to influence standards and secure intellectual property that will be crucial for the seamless evolution from 5G to 6G networks.

Ofinno is a very different participant in the 5G patent landscape: a smaller, research-focused firm that has become an influential SEP owner and a bridge between invention and industry. By 2025, this Virginia-based R&D lab had built a substantial portfolio of patents covering core 5G technologies, enough to be counted among the notable holders of 5G SEPs globally.

Ofinno's business model in the past centered on conducting advanced wireless research and then selling patent portfolios to manufacturers or licensing firms. Over the last couple of years, however, the company underwent a strategic broadening. In addition to continuing patent sales (where it transferred sizable collections of 4G/5G patents to various multinational companies), Ofinno introduced direct patent licensing programs and even began offering custom research and development services for industry clients. This three-pronged approach: inventing, licensing, and consulting, has diversified its revenue and increased its visibility in the market.

Throughout 2025, Ofinno's technical team remained focused on cutting-edge problems in 5G and beyond. Notably, some of its patent assets have ended up with major automotive and electronics players, demonstrating the secondary market value of Ofinno's innovations. By early 2026, Ofinno has established itself as an important, if non-traditional, contributor to the wireless IP ecosystem. It plays a quiet role in standards. Not by leading committees, but by ensuring its inventions align with emerging standard requirements so that they become essential. In an industry dominated by corporate giants, Ofinno's success highlights the growing role of boutique research firms in driving innovation and supplying valuable patents that help power the 5G (and future 6G) economy.

Significant new entry

Here is the full *Patently 100®* *Cellular* ranking in 2026

	#	Ultimate owner	SEP Families		SEP Families with issued US	
			Count	% of total	Count	% of total
	1	Huawei	9,226	13.40%	5,704	12.10%
	2	Qualcomm	6,375	9.30%	6,052	12.80%
+1 ▲	3	LG	5,394	7.90%	5,030	10.70%
-1 ▼	4	Samsung	5,346	7.80%	4,850	10.30%
	5	Ericsson	4,714	6.90%	3,946	8.40%
	6	ZTE	4,151	6.0%	1,984	4.20%
	7	Nokia	3,769	5.50%	2,976	6.30%
	8	Oppo	3,760	5.50%	1,847	3.90%
+1 ▲	9	Vivo	2,665	3.90%	808	1.70%
-1 ▼	10	Datang	2,563	3.70%	807	1.70%
	11	Xiaomi	2,214	3.20%	971	2.10%
★	12	China Mobile	2,096	3.10%	135	0.30%
-1 ▼	13	NTT	2,085	3.0%	1171	2.50%
-1 ▼	14	Apple	1,930	2.80%	1731	3.70%
-1 ▼	15	Sharp	1,673	2.40%	1353	2.90%
-1 ▼	16	MediaTek	922	1.30%	687	1.50%
-1 ▼	17	NEC	896	1.30%	625	1.30%
	18	Lenovo	828	1.20%	690	1.50%
-2 ▼	19	InterDigital	785	1.10%	703	1.50%
+4 ▲	20	ETRI	734	1.10%	420	0.90%

	#	Ultimate owner	SEP Families		SEP Families with issued US	
			Count	% of total	Count	% of total
-1 ▼	21	Intel	468	0.70%	328	0.70%
	22	HONOR	456	0.70%	294	0.60%
-2 ▼	23	Sony	406	0.60%	378	0.80%
+1 ▲	24	UNISOC	345	0.50%	93	0.20%
-2 ▼	25	ASUS	336	0.50%	303	0.60%
★	26	Ofinno	317	0.50%	294	0.60%
-1 ▼	27	Fujitsu	304	0.40%	212	0.50%
★	28	Fortress	267	0.40%	176	0.40%
+3 ▲	29	Kyocera	216	0.30%	144	0.30%
-1 ▼	30	KT Corp	212	0.30%	115	0.20%
-4 ▼	31	HTC	210	0.30%	192	0.40%
-13 ▼	32	Langbo	209	0.30%	N/A	N/A
-2 ▼	33	Panasonic	189	0.30%	164	0.30%
-6 ▼	34	Fraunhofer	181	0.30%	153	0.30%
-4 ▼	35	Alphabet	150	0.20%	115	0.20%
-2 ▼	36	Philips	130	0.20%	117	0.20%
-4 ▼	37	ITRI	105	0.20%	96	0.20%
	38	Dolby	94	0.10%	84	0.20%
+29 ▲	39	Denso Corp	90	0.10%	3	0.00%
-5 ▼	40	Mitsubishi	89	0.10%	72	0.20%
-3 ▼	41	KPI	87	0.10%	83	0.20%
-5 ▼	42	Dominion Harbor	82	0.10%	65	0.10%
	43	KDDI	79	0.10%	26	0.10%
-9 ▼	44	Foxconn	74	0.10%	62	0.10%

#	Ultimate owner	SEP Families		SEP Families with issued US	
		Count	% of total	Count	% of total
+5 ▲ 45	Quectel	73	0.10%	31	0.10%
-6 ▼ 46	Blackberry	63	0.10%	58	0.10%
-3 ▼ 47	TCL	63	0.10%	35	0.10%
-9 ▼ 48	ASC	55	0.10%	52	0.10%
-7 ▼ 49	Wilus	54	0.10%	52	0.10%
+16 ▲ 50	Toyota	52	0.10%	43	0.10%
-10 ▼ 51	IP Bridge	50	0.10%	50	0.10%
-1 ▼ 52	ITL	47	0.10%	21	0.00%
-5 ▼ 53	Sun Patent Trust	47	0.10%	47	0.10%
+7 ▲ 54	Acer	44	0.10%	39	0.10%
-9 ▼ 55	DT	44	0.10%	31	0.10%
+3 ▲ 56	Transsion	43	0.10%	N/A	N/A
-12 ▼ 57	Coolpad	42	0.10%	39	0.10%
-1 ▼ 58	Hyundai	39	0.10%	37	0.10%
-10 ▼ 59	KPN	39	0.10%	35	0.10%
-13 ▼ 60	Orange	36	0.10%	36	0.10%
-9 ▼ 61	Longhorn IP	33	0%	32	0%
-7 ▼ 62	Meizu	30	0%	N/A	N/A
-10 ▼ 63	Ueran Technology	29	0%	26	0%
-8 ▼ 64	Panoptis	26	0%	26	0%
+25 ▲ 65	Harfang IP	21	0%	18	0%
-5 ▼ 66	IPCom	21	0%	N/A	N/A
-8 ▼ 67	Semtech	20	0%	19	0%
-6 ▼ 68	Sisvel	17	0%	15	0%

#	Ultimate owner	SEP Families		SEP Families with issued US	
		Count	% of total	Count	% of total
-4 ▼ 69	III	16	0%	14	0%
+13 ▲ 70	Verizon	16	0%	16	0%
-4 ▼ 71	CloudMinds	14	0%	12	0%
-2 ▼ 72	Top Quality Telephony	14	0%	N/A	N/A
-2 ▼ 73	G+ Comm	13	0%	12	0%
★ 74	Jio Platforms	13	0%	N/A	N/A
-1 ▼ 75	Cisco	12	0%	11	0%
-3 ▼ 76	Vodafone	12	0%	9	0%
-5 ▼ 77	Beiijing Jingshi	11	0%	N/A	N/A
-3 ▼ 78	Comba	11	0%	N/A	N/A
-25 ▼ 79	Convida	11	0%	10	0%
-3 ▼ 80	Telit Centerion	11	0%	N/A	N/A
-2 ▼ 81	Wistron	11	0%	7	0%
-13 ▼ 82	New Radio	10	0%	10	0%
-7 ▼ 83	Siemens	10	0%	9	0%
-6 ▼ 84	SK Telecom	10	0%	8	0%
★ 85	Aerkodo	9	0%	9	0%
-6 ▼ 86	Crystal Clear Codec	9	0%	N/A	N/A
-6 ▼ 87	HMD	9	0%	9	0%
★ 88	VTect IP	9	0%	7	0%
-5 ▼ 89	Apex Beam	8	0%	8	0%
-5 ▼ 90	Gionee	8	0%	N/A	N/A
-5 ▼ 91	Nantong Langheng	8	0%	N/A	N/A

	#	Ultimate owner	SEP Families		SEP Families with issued US	
			Count	% of total	Count	% of total
-29▼	92	Southeast University	8	0%	N/A	N/A
★	93	H3C	6	0%	N/A	N/A
★	94	ECARX	6	0%	N/A	N/A
-7 ▼	95	IPVal	6	0%	5	0%
★	96	Purplevine	6	0%	6	0%
+1 ▲	97	Rakuten	6	0%	6	0%
-6 ▼	98	Ruijie Networks	6	0%	N/A	N/A
-10▼	99	Tahoe Research	6	0%	6	0%
★	100	Bloomsbury Design	4	0%	3	0%

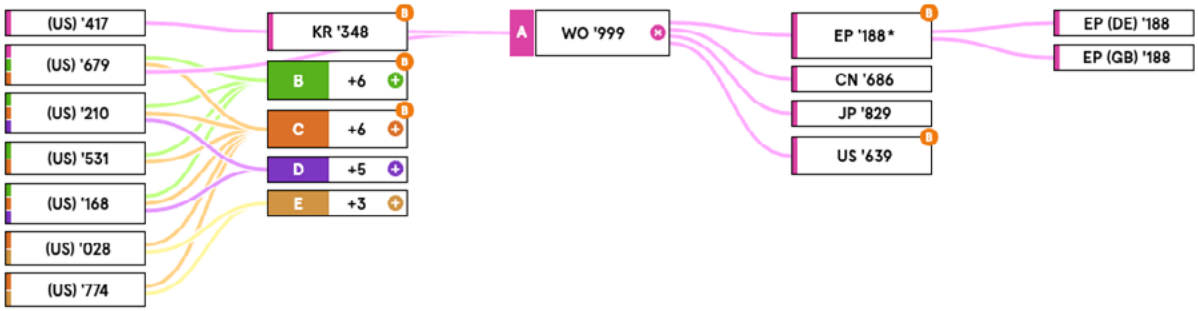
Our methodology

While there is no shortage of research and interest in which companies own the patents for technologies in the 5G patent landscape, the findings of these reports vary considerably. The **Patently 100® Cellular** report is a culmination of many years' laborious gathering, processing and curation of SEP family data. Though patent holders may disclose their potentially essential 5G patents to the European Telecommunications Standards Institute (ETSI), this declaration database represents only one of various inputs in our SEP family determination, including priority relationships which are extremely important in correctly defining patent families. Ownership name data requires careful cleaning, normalising and matching. Moreover, Ultimate Owner determination requires up-to-date information on corporate groupings.

How Patently SEP data is produced

Our unique and proprietary family data builds Genetic® patent families and corresponds to “ETSI families”, as defined by the European Telecommunications Standards Institute (ETSI). This data identifies those that contain basis patents declared to 5G standards, according to the declarations database maintained. These we refer to as SEP families.

Below is an example of an extended family (Patently family ref. F081001-WXU) containing interconnected Genetic families, labelled A to E, which is owned by LG. For clarity, only Genetic family A is open; the others are collapsed down. All of the Genetic families are interconnected by a set of US priority filings but they each have different priorities. Of the different Genetic families, only A, B and C have basis patents (labelled with a “B” marker disc.) In this case there are three SEP families within this extended family.



Within the SEP families, we focus on those that have a Family Status of Established (i.e., have at least one member that has been granted and is in force).

As for ownership, we determine the Ultimate Owner as an indicator of the party that is responsible for licensing its share of the SEPs, based on publicly available corporate structure data. Each SEP family is accorded a single Ultimate Owner according to the latest recorded owner data for each family. Where an SEP family has joint ownership, a single owner is determined according to the latest declarant, which is indicative of the most active licensor. Where a family has split ownership, the latest recorded owner wins. By counting each SEP family as a single element of ownership, the Patently listed SEP ownership corresponds with the totals of SEP families, which is not the case with reports made available by other companies (which therefore suffer from over-counting).

From a count of these SEP families, per Ultimate Owner, we generate the Patently 100 rankings.

[1] One exception we have made is in the case of Sharp Corp. Whilst it is technically a subsidiary of Foxconn (Hon Hai Precision Industry Co Ltd), it is understood that Sharp is the licensor of its SEPs.

Note on Ultimate Owner

The term “Ultimate Owner” is used for informational and illustrative purposes only. Publicly available information often does not conclusively establish that a particular company is owned, controlled, or otherwise affiliated with its Ultimate Owner. No representation or warranty is made as to the accuracy, completeness, or legal status of any ownership or control relationship between these entities. Any reference to a potential relationship should not be construed as a statement of fact or a legal determination of ownership, control, or affiliation.

Questel partnership

In 2024, we partnered with Questel, a global leader in intellectual property (IP) solutions. The partnership expanded our database and marked a significant milestone in the delivery of enhanced patent data and services to a broader range of IP professionals. The company’s extensive global coverage, expert essentiality evaluations performed by Concur IP, a Questel company, and meticulous methodology have brought a new dimension to the partnership, underscoring the essentiality evaluation data and its ongoing importance.

Patently License with Questel (PLQ) brings a powerful Verified Essentiality filter so you can focus on the declared patent families that are not just declared as essential to 5G but have been evaluated to be essential and have claims that have been evaluated to apply to UEs. Exact essentiality rate determinations, and extrapolations across entire portfolios of the relevant Ultimate Owner, along with other essentiality analytics, are available by subscription to PLQ.

Want to know more about Patent Families in Patently?

If you would like to learn more about how analytics driven by Genetic® patent families within an extended family can empower your licensing, please ask@patently.com.

Speak to us

Patently License is powered by advanced SEP analytics, allowing you to explore ownership, geographical coverage and technology coverage of SEPs based on Patently's highly accurate SEP family Ultimate Owner so you can better understand ownership of patents to support negotiations around rates.

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About the author

Jerome Spaargaren
Co-founder, Patently

Jerome Spaargaren is a patent attorney and co-founder at Patently. Jerome has worked for over 30 years in the field of telecommunications, SEPs and licensing.

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