

2024

# 5G Essentiality Report

| Updated Findings

# Table of Contents

<b>Introduction</b>	<b>03</b>
• Top owners of 5G SEPs in 2024	04
<b>Updated findings on essentiality</b>	<b>05</b>
• Ratio of total core SEPs vs. non-core SEPs	05
• Ownership breakdown of reviewed core SEPs	06
• Essentiality ratio of top companies' core SEPs	07
• Shift in Essentiality Ratios of Top Companies	08
<b>Methodology</b>	<b>09</b>
• What data was covered?	09
• From data to insights: How did we analyze the data?	09
<b>Who should leverage this report?</b>	<b>11</b>

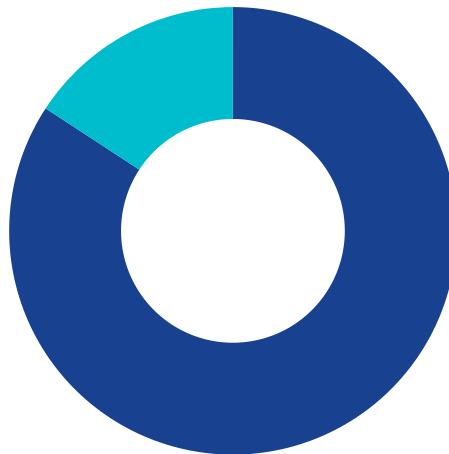
# Introduction

Our previous report on 5G standard essential patents (SEPs) covered 18,887 patent families and 87,771 patent documents declared as of November 2019. Out of those, 10,763 families had at least one active granted patent as of June 2020.

This 5G Essentiality Report 2024 now includes 25,199 patent families with 117,924 individual patent documents declared as 5G SEPs as of December 31, 2019. Among these, 21,221 patent families have at least one active granted patent as of December 31, 2022.

**3,978**

Number of families without at least one, alive granted patent as of Dec 31, 2022

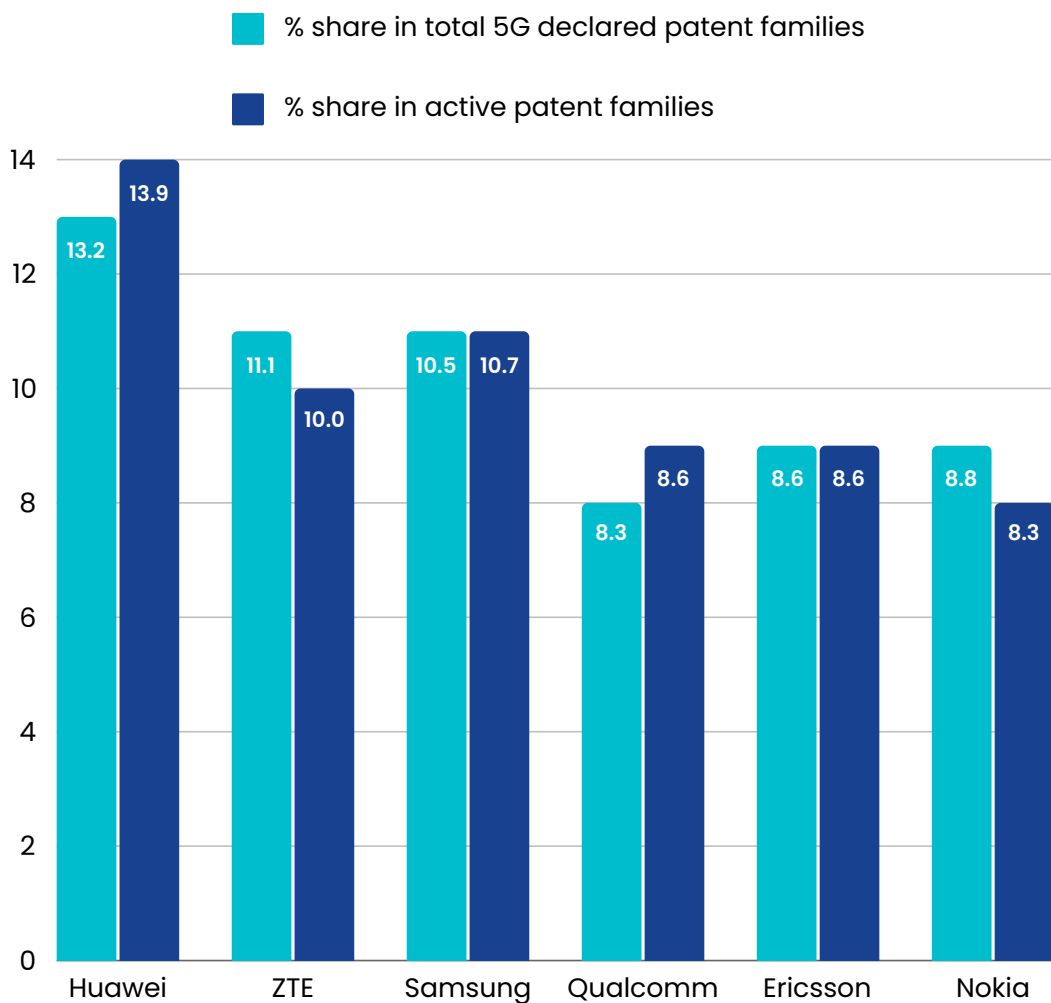


**21,221**

Number of families with at least one, alive granted patent as of Dec 31, 2022

## Top Owners of 5G SEPs in 2024

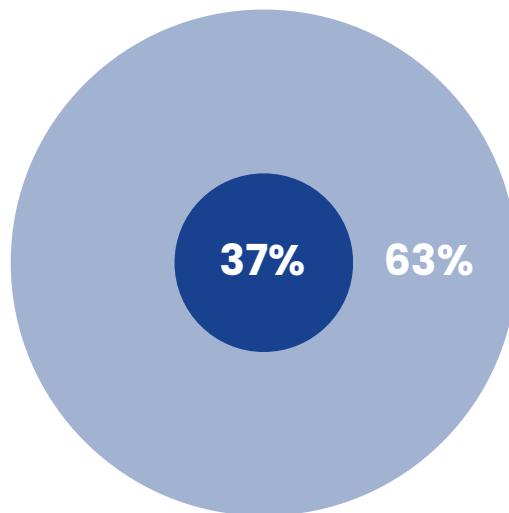
The total number of patent families declared essential to ETSI standards reached 25,199 as of December 31, 2019. Out of these, the top 6 companies hold about 60% of the declared SEP families. The remaining 40% of the declared SEP families are held by over 120 other entities.



# Updated findings on essentiality

## Ratio of total core SEPs vs. non-core SEPs

- 25,199 patent families had been declared essential to 5G standards at ETSI as of December 31, 2019.
- 21,221 patent families had at least one granted active patent as of December 31, 2022.
- Among the 21,221 families with active patents, 37% or 7,950 are identified as core SEPs.



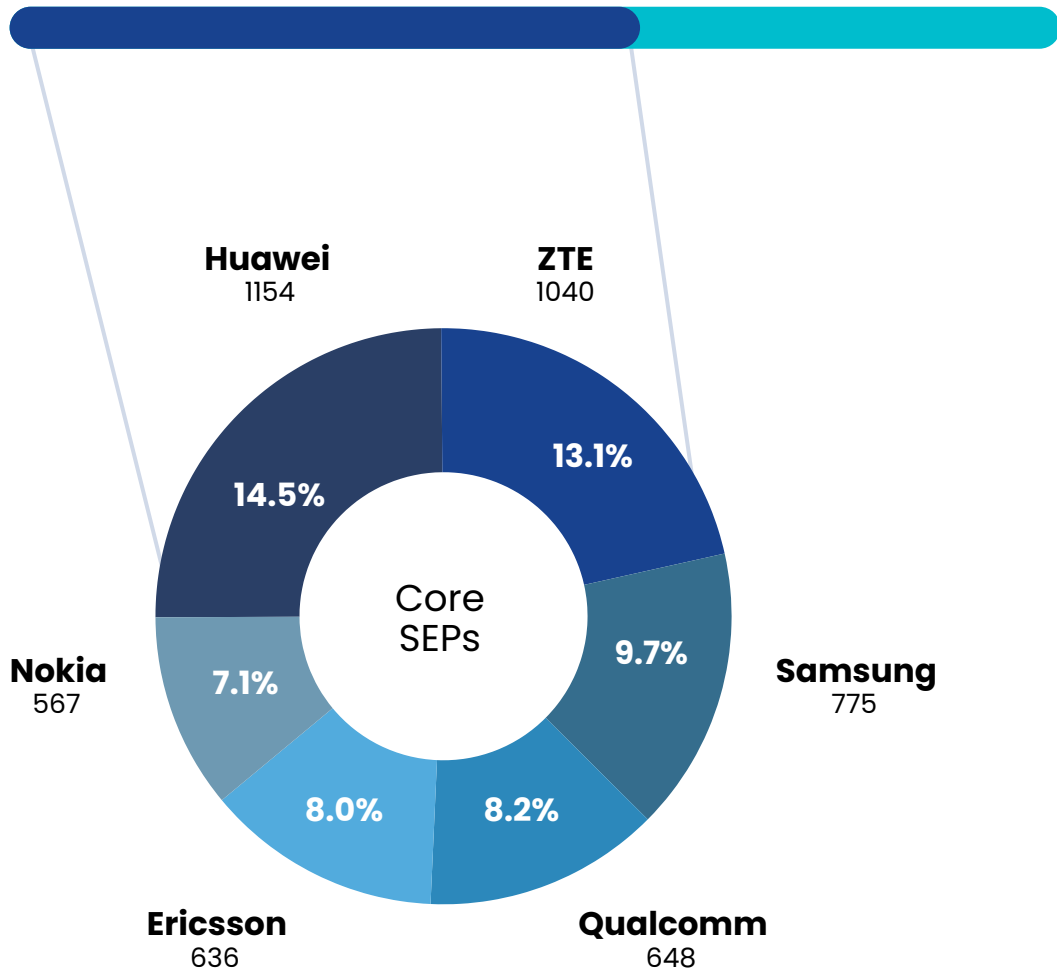
**7,950** Core SEPs | **13,271** Non-core SEPs

## Ownership breakdown of core SEPs

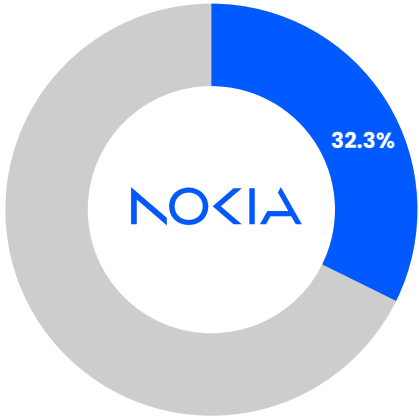
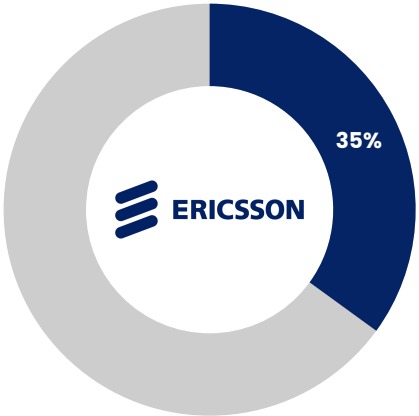
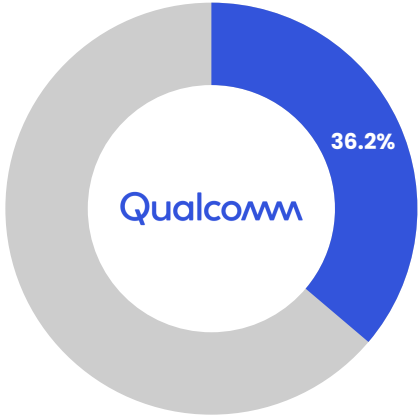
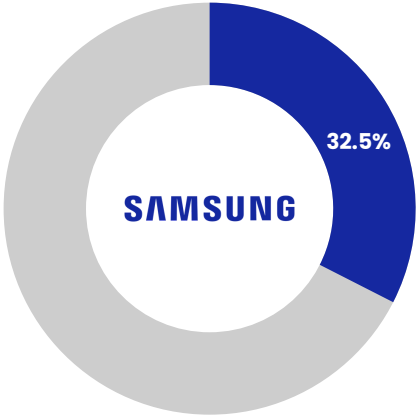
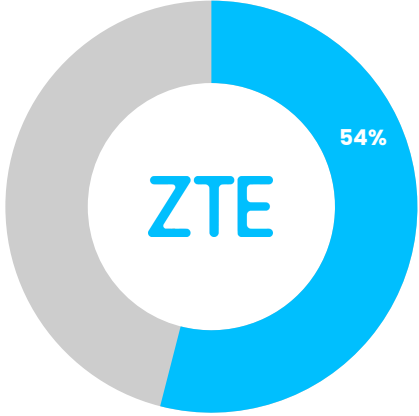
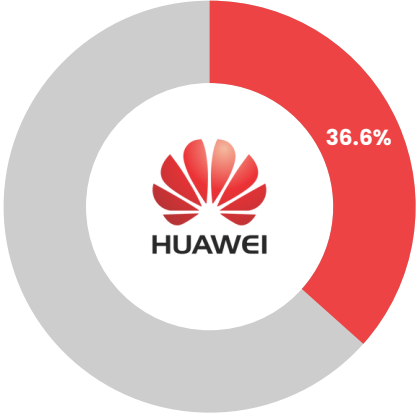
Out of the 7,950 core SEP families identified, 60.6% are held by the top 6 companies.

**4,820** Core SEPs of top 6 companies

**3,130** Others



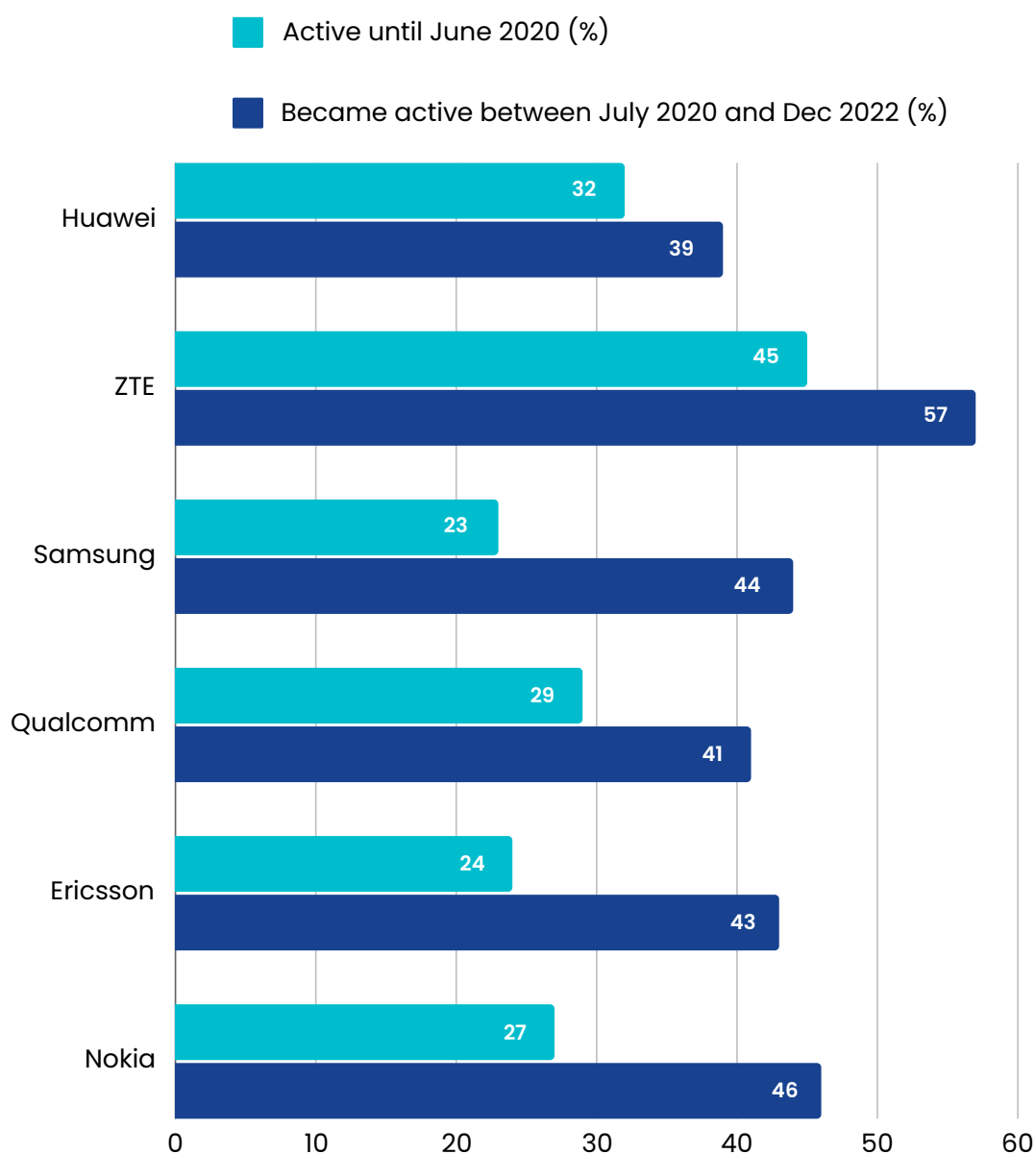
# Essentiality ratio of top companies' core SEPs



## Shift in Essentiality Ratios of top companies

As new concepts have been introduced over time and companies have been judiciously filing continuations with claims aligned with 5G specifications, the recent analysis observed an increase in core standard-essential patent (SEP) percentage.

Essentiality ratio of Families:





# Methodology

## What data was covered?

The analysis is based on patents and patent applications declared essential to ETSI 5G standards up to December 31, 2019. This includes any patent or application that patent holders declared relevant to the 5G standards published by ETSI as of the end of 2019.

## From data to insights: How did we analyze the data?

- Patents declared relevant to 5G specifications and projects were selected, resulting in 117,924 individual patent documents (granted patents, published patent applications, and non-public patent applications).
- Approximately 450 non-public patent documents unavailable for inspection were removed, leaving 117,500 patent documents grouped into 25,199 patent families.
- Of the 25,199 patent families, 21,221 had at least granted patent with active legal status as of December 31, 2022. Each of these 21,221 patent families were manually evaluated against the 5G specifications.

- Individual claims and related embodiments of each 21,221 patent families were analyzed to pin down the technology being covered. The analysis also included patent office's correspondence history and documentation to understand the inventor's original intent behind the patent, contributing to a more comprehensive assessment.
- Essentiality for each patent family was determined as a Core SEP or not by checking any specifications declared relevant by the patent holder. Specific sections of these specifications were analyzed to identify overlaps with the patent claims. If partial or no overlap was found, comparison was broadened to the wider group of all other specifications to repeat this process.

# Who should leverage this report?

This report is intended for various stakeholders interested in 5G technology, including:

- Companies and inventors who own or have contributed to 5G inventions: The report will help develop better patent portfolios and licensing strategies for maximum ROI.
- 5G Product makers: The report will help optimize licensing negotiations and ensure they have the necessary rights to commercialize their 5G products.
- Policymakers: The report offers crucial data and analysis to balance the protection of current 5G innovations with future advancements.
- Legal professionals, judges, and courts: Gain a clear picture of declared 5G patents and a methodology for resolving disputes surrounding SEP ownership and licensing.

## About the authors:



### Muzammil Hassan

Head of IP Monetization Group at GreyB

Email: [muzammil.hassan@greyb.com](mailto:muzammil.hassan@greyb.com)

LinkedIn: [linkedin.com/in/iplicensingexpert/](https://www.linkedin.com/in/iplicensingexpert/)

Muzammil has more than 12 years of experience in IP Research, Licensing and Monetization strategies. Standard Essential Patent is one of his domains of interest. He authored industry wide accepted essentiality check study on 5G standards. His insights are often cited and/or published by top media houses, like Bloomberg, CNBC, The Ken, etc. He has been an expert speaker at IEAC 2020 in Turkey and is a thought leader at GreyB blog.



### Aman Kumar

Manager at GreyB

Email: [aman.kumar@greyb.com](mailto:aman.kumar@greyb.com)

LinkedIn: [linkedin.com/in/aman-kumar-98b048100/](https://www.linkedin.com/in/aman-kumar-98b048100/)

Aman is the Manager of the Hi-Tech Team at GreyB and has over 9 years of experience in IP research. He is also a co-author of previous versions of the 5G report published in 2020 & 2021. He leads a team of 25 IP experts who majorly contributed to the analysis of declared 5G patent families for essentiality checks. Featured on Bloomberg, Telecoms, and IAM, his insights about 5G and SEPs can also be read on GreyB's blog.