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**Qualcomm Incorporated's Response to the USPTO's Request for Comments on
Unlocking the Full Potential of Intellectual Property by Translating More Innovation to
the Marketplace**

May 14, 2024

I. Qualcomm Interest in this Request for Comments

Qualcomm has maintained leadership for decades in two of the Government's critical and emerging technologies: communications & networking technologies and semiconductors. Advanced communications technologies, like 6G cellular, are developed by innovative companies like Qualcomm who share their inventions as contributions to standards. Such sharing is the basis for technological standards created by standards-development organizations (SDOs) that facilitate the continuous improvement and dissemination of cutting-edge innovation into the marketplace, and they create and update implementable specifications for the standards they produce. Intellectual property rights play a vital role in that process by encouraging companies to provide their best technologies on the understanding that if they become part of the final standard, the underlying patents can be monetized through licensing on Fair, Reasonable and Non-Discriminatory (FRAND) terms, a licensing constraint that has balanced the needs for sharing new technologies in standards with the cost and risk of investing in the R&D to create the foundation for such new technologies.

Standards organizations are one of the most successful mechanisms for translating innovation into the marketplace, and the USPTO has a vital role to play in keeping that system going through quality patent examinations in the high-tech space. Strong IPR protections are also a national security imperative as they ensure the survival of the global innovation system - including for critical and emerging technology- and our nation's place in the development community that supports that system.



Qualcomm's own success story is evidence of the effectiveness of this innovation system and how a reliable IPR regime enables technology dissemination through standardization. For over 35 years Qualcomm has undertaken risky research and development (R&D) to develop fundamental wireless technologies it has protected through standard essential patents (SEPs) and other IPRs. These innovations are at the heart of the massive economic value created by mobile technology—forecasts¹ estimate the global 5G value chain will generate \$3.8 trillion in economic output and support 22.8 million jobs by 2035.

Since our founding, Qualcomm has invested over \$90 billion in R&D. Through pioneering research, our inventors have for decades solved complex, systems-level problems years ahead of the industry, and often a decade in advance of commercialization. This inventive work has been recognized with awards from the White House, IEEE, the European Patent Office, and many more. Qualcomm's patent portfolio spans over 160,000 issued patents and pending patent applications worldwide. Qualcomm also has the world's most developed SEP licensing program, which started over thirty years ago. Over that time more than 18 billion licensed devices have been sold under license to Qualcomm patents. The licensing program spans a number of product types including cellular handsets, connected laptops and tablets, connected vehicles, wearables, access points, and cellular-connected IoT applications. Qualcomm has signed over 2000 5G licensing agreements, including over 50 covering 5G connected vehicle units. Qualcomm also contributes to many standards beyond cellular and implements or enables implementation of an array of standards in its products.

In short, Qualcomm operates its businesses at the intersection of standards and intellectual property rights that is the subject of this request for comments.

II. The Importance of a Reliable IPRs System for Western Technological Leadership and Its Economic and National Security

Qualcomm appreciates the opportunity to share its perspective in a form we believe will be clearer than answering the specific questions as presented. A major consideration when thinking about the market translation of critical and emerging technologies is that they are by definition tied to the national security interests of the country. Therefore, in the advanced communications technology space, maintaining strong IPRs is a way of safeguarding the technology's development and ensuring strong Western presence. We further elaborate on these points in five sections, set out below.

¹ IHS Markit, commissioned by Qualcomm Technologies, Nov '20, GSMA – The Mobile Economy'22

1. There is a synergistic interdependence between strong IPRs and a global, open, industry-led standardization system that allows for success on technical merit.
 - Multiple [governments](#) have recognized the importance of relying on a voluntary, open, and industry-led standardization process to ensure that the development of critical standards such as 6G is not only aligned with shared principles and values but is also supported by secure and resilient technology, available to all.
 - In an open, industry-led standardization process, contributions are subject to broad scrutiny, which mitigates against the risk that security vulnerability could be introduced through the standards-development process.
 - Furthermore, in contrast to regional or proprietary standards that rely on components from the same manufacturer, global standards enable equipment and services from multiple suppliers to interoperate, thus enhancing the resiliency of the communication ecosystem, and enabling both national supply chain goals and the opportunity for multiple vendors to compete worldwide. National security would be clearly at risk if one vendor - or one country's vendors - have exclusive control of critical infrastructure like 6G.
 - However, an open, industry-led standardization process can only incorporate risky and advanced R&D if it provides a [balanced IPR policy](#) that creates the necessary incentives for private companies to contribute their most advanced technologies to standards. Without the ability to be fairly compensated for their contributions, companies will opt to monetize their most advanced inventions in a different way than by contributing them to open standards. This would have detrimental effects for the security and resilience of critical technologies, such as 6G, where the only companies left participating in the development would be those that receive public sector funding from their national governments.
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2. A reliable system of IPRs married with clear and useful enforcement mechanisms has been a linchpin between R&D and Western technological leadership in cellular standards.
 - The development of advanced technologies that underpin standards such as 5G and 6G requires massive investments in risky R&D.
 - According to a 2015 [analysis](#), companies developing cellular technologies invest a higher percentage of their revenue in R&D than any other industry, except biotechnology. This risk/reward paradigm has meaningful consequences in western industrial and technological leadership.
 - Western innovators in the cellular space rely almost exclusively on private funding to finance their advanced R&D. For many generations of cellular standards, Western leaders have relied on licensing to obtain a fair return on innovation and continue the R&D cycle. In other words, licensing has provided an essential source of income to fund advanced R&D and compete in the cellular industry.

- Where companies in other regions are less dependent on licensing as they rely more extensively on public funding to finance their R&D investments (see, e.g., [CFR Innovation and National Security/Keeping our Edge](#)), a system of reliable IPR enforcement is essential to maintain a level playing field between the various regions and allow Western companies to keep investing private funds into R&D and compete for technological leadership based on technical merit.

3. Western companies have been able to gain and maintain their technological leadership in cellular standards thanks to their extensive investments in risky R&D.

- For over 30 years, Western companies have been the driving force behind the development and standardization of cellular standards, from 2G to 5G.
- Western leadership has been achieved thanks to massive investments in R&D that enabled them to be at the forefront of innovation and lead in standard development.
 - Technological leadership in standards is determined by the best technological contributions, not the total number of participants, chairman positions, or contributions to a standard development organization (SDOs)(see, e.g. [NSTAC](#) letter to the White Houses).
 - More R&D equals more innovations, and that innovation allows a company to lead in the development of a standard.
- Although over the years companies from other regions have become more prominent players in standard development, it is well recognized in the industry that Western companies continue to lead with key technologies and the most valuable portfolios (see [ITIF, Hudson](#)) although the challengers are formidable.
- Yet, policies that undermine the reliability and value of IPRs risk disincentivizing and reducing private investments in R&D available to fund investment in contributions to standardized technologies.

4. Weakening and undervaluing IPRs would have detrimental effects on Western technological leadership and its long-term competitiveness, with significant implications for economic and national security, as well as defense capabilities.

- An immediate threat is the European Union's draft regulation on standard-essential patents that would significantly reduce the strength, enforceability and value of IPRs by introducing a new system of rate-setting (including [FRAND and Aggregate royalty determinations](#)). It also introduces a patent register with random "essentiality checks" which must be completed before enforcing patented technologies included in standards. A serious consequence of the draft regulation for companies that contribute their technologies to standards is that it erects barriers to accessing courts for infringement proceedings.
 - Since its introduction, the proposed regulation has been criticized by judges at the new European Patent Court, the European Patent Office, by the European

Telecommunications Standards Institute, by standards experts, academics, formal heads of agencies, and by industry players.

- If adopted, the regulation seems likely to have a deleterious effect on Western economic and national security. It will undermine the independent financial ability of Western companies to maintain their leadership in the development of key standards such as 6G by threatening their ability to generate fair and timely revenue returns on their patented inventions. An unstable IPRs system could also put at risk key Western providers of critical telecommunication equipment (given the importance of licensing for their business models), thus undermining more directly Western infrastructure security.
- In defense of the regulation, some commentators have suggested that the EU (and the West more broadly) would be better served by policies that lower royalties for standardized technologies, reasoning that many Western companies are users of standards, rather than innovators. This not only ignores the leading role of Western innovators in the development of critical standards, but also fails to recognize that undermining the reliability of traditional enforcement mechanisms in the IPR system would mean giving up long term benefits brought by Western technological leadership for potential short-term benefits (if any) derived from redistributing return-on-investment from some companies who now make technological contributions to standards to others implementing the standard.
 - A reliable system of IPRs, combined with the rule of law and scientific and engineering prowess, is what enabled Western companies to become the most technologically advanced nations in the world. This technological leadership plays a critical role in ensuring broader economic and national security.
 - Only a handful of companies have the technical expertise and resources to develop the technology to be able to substantially contribute to technology based standards (see, e.g. [CPI - Understanding the Difference Between Participants and Contributors in a Standard-Development Process](#)). The US government has recognized that those companies are critical for national security (see [CFIUS](#), [DOD](#)).
 - Once lost, technological leadership is difficult and expensive to restore.
 - The US has acknowledged this problem by funding the CHIPS and Science Act and developing a [National Standards Strategy for Critical and Emerging Technologies](#), which seeks to strengthen the necessary workforce, the supply chain, and R&D that is needed for technological leadership. The US also recognizes that private sector funding has always been its strength, so accepting arguments to weaken independent sources of private sector funding to create a virtuous cycle of innovation is worrying.
 - By contrast, those commentators advocating for wealth redistribution from standard contributors to implementers / downstream innovators ignore the inevitable,

negative consequences of this argument. Consider the mobile ecosystem, for example. The explosion of innovation at the application level was enabled only because of foundational innovations in 4G and 5G cellular standards, which allow for data rates that make those applications possible in the first place. Thus, the entire mobile ecosystem, from device to operating system to apps, and the vibrant competition within it, are made possible by patented inventions that were disseminated through the standardization process.

- To say that innovation at the foundational level should now be reduced so players enabled by that foundational technology can focus only on downstream innovation is like saying the roots of a tree should be cut off so the tree can focus on growing its branches. Rather than growth, the inevitable result is the death of the tree, or, in technology standards, the end of innovation and competition.
- Just as it was impossible for someone thirty years ago to even imagine the expansive app ecosystem today enabled by advances in telecommunication technologies, the full extent of the benefits from new technologies to be unlocked and disseminated through the standardization process, but which are not yet invented or conceived of today, is likely beyond our current imaginations. If R&D spending is now redistributed from foundational, cutting-edge technologies to downstream innovations to prioritize near-term profits, the long-term harm to technological developments of the future may exceed anything we can estimate.

5. Most major nations have recognized the strategic importance of leadership in key technological standards, including standards for cellular communications such as 6G.

- Governments across the world have recognized that leadership in key standards matters not only for a country's economic prosperity, but also for its national security and defense capabilities.
- President Xi Jinping famously stated that "who obtains the standards gains the world" and numerous statements by Chinese public officials make clear that China is aspiring to become a leading player in global standards development. But leaders in other countries, including the United States and the European Union (see [Letta report](#) 2024), have similarly recognized the strategic importance of key standards.
 - Most recently, in April 2024, a [statement](#) issued after the Trade and Technology Council (TTC) meeting listed 6G among critical and emerging technologies and showed a clear commitment by the United States and the European Union to build a strong Transatlantic leadership in 6G.
 - A [joint statement](#) on 6G issued only a few months earlier by the United States, Japan, South Korea, Australia, as well as several European countries, emphasized the importance of secure 6G technologies that are protective of national security and are built on global standards that respect intellectual property rights (IPRs).



- The US Department of Defense also [noted](#) the critical role of leadership in cellular standards, acknowledging that technological leadership has become an essential component of an effective defense strategy, as it allows a country to have an edge over its rivals.
- It is not just China and Europe and the USA that are concerned about leadership in standards. India, Japan, [Korea and others](#) also recognize the importance of participation in standards.

III. CONCLUSION

Qualcomm appreciates the opportunity to provide comment on translating innovation to the marketplace. We look forward to continuing to support the USPTO on their work in this area and to ensuring the USA and Qualcomm remain worldwide leaders in innovation.