5G Technology

The advent of 5G technology expands the relevance of wireless communications beyond the domain of mobile telecommunications providers. More industries have access to faster, reliable and ubiquitous wireless data. Perkins Coie attorneys know the specifics of 5G technology as well as the legal, commercial, industrial and regulatory implications of this new wireless frontier.

Our team has been at the forefront of the 5G evolution, advising companies on broad legal issues in 5G that range from patent procurement, FCC regulations, intellectual property licensing and business transactions. Our representative experience includes:

- Competitor patent/breach of license case for a semiconductor leader involving more than three dozen foundational patents relating to the 5G base station market.
- Multiple patent license transactions relating to 5G wireless standards.
- Patent applications in technical areas such as network slicing, beam forming and management, data integrity and ciphering, non-orthogonal multiple access and millimeter wave communication in 5G.
- Patent mapping to 3GPP standards.
- Patent portfolio development to help create missing pieces of network infrastructure to facilitate wide-scale acceptance of 5G services.
- Patent portfolio development for a new physical layer (new antennas and modulation techniques) for the 5G market.
- Patent portfolio development for an international technology company in the fundamental areas in 5G communication.

GROWTH OF 5G TECHNOLOGY

From 1G in the 1980s to 4G in the 2010s, wireless technology had focused primarily on higher speeds to satisfy an ever-increasing appetite for mobile phone data. With 5G however, businesses and consumers will see a plethora of new use cases beyond mobile phones, such as ultra-reliable, low-latency communication useful for autonomous vehicles, unmanned aerial vehicles and real-time virtual reality (VR), such as in surgery. 5G will permit massive machine-type communication (mMTC), which will provide coverage to the myriad of connected devices expected with the Internet of Things (IoT) revolution, including smart cities, smart homes, transportation and manufacturing.

In addition, enhanced mobile broadband (eMBB) will provide gigabyte speeds, enabled by denser cellular networks (achieved via small cells and heterogeneous networks), massive MIMO, advanced beamforming and new radio access technologies via millimeter wave frequency bands. As a result, mobile phones will be able to interact with AI servers, conduct blockchain and cryptocurrency transactions, and provide real-time AR/VR content, such as interactive entertainment.

Areas of Focus

**BLOCKCHAIN**

Serving as the foundational technology behind popular cryptocurrency Bitcoin, the vast potential for blockchain technology to revolutionize chain-of-custody logistics is coming into clear focus. The gigabyte speeds provided by 5G technology will help enable blockchain transactions, even on smartphones. We represent the full gamut of entities and individuals who are developing and investing in blockchain technologies and digital currency-related businesses.

Our clients range from emerging and stealth startups to some of the biggest players in the industry. As a natural extension of our extensive history representing internet and mobile technology companies, including many of the first decentralized virtual currency companies, we are focusing on the interplay between 5G and blockchain technologies and are considered a leading law firm in both areas.

**COMMUNICATIONS**

5G requires new products and technologies to meet the growing demand on communication bandwidth and to meet the promise of high Quality of Service for the digital communication.
Our lawyers advise clients on their intellectual property strategies, including developing products, obtaining patent rights under the 5G umbrella, and analyzing the applicability of existing patents to 5G and the valuation of patents in the 5G space.

We are helping several clients obtain patents for the technological contribution they are making to the ongoing 3GPP and other standardization efforts. Our international team of attorneys and associates provides a global coverage to our clients who often are global corporations with R&D teams spread in many countries. Several of our attorneys have advanced degrees and industry experience in the digital communication area and understand the complex technical developments in all aspects of 5G technology—from physical layer to application layer.

HEALTHCARE AND MEDICAL DEVICES: EMBEDDABLES, HEARABLES, INGESTIBLES AND WEARABLES

5G technology will provide a great platform for healthcare organizations to improve the delivery of patient information and care by facilitating always-on, secure device connectivity for patients and medical providers. 5G networks will be able to support medical applications that will drive the industry’s transformation, including remote monitoring through medical-grade embeddables, hearables, ingestibles and wearables, virtual doctor-patient interactions and remotely operated robotic surgery.

Our lawyers regularly advise healthcare providers and vendors as they work together to connect the dots that will revolutionize patient care.

INTERACTIVE ENTERTAINMENT

The high bandwidth, low latency wireless communication offered by 5G is expected to shape the future of the video gaming and virtual reality/artificial reality (VR/AR) industry. Because of 5G, mobile phones will be able to provide real-time AR/VR interactive entertainment. With 5G, however, businesses and consumers will see a plethora of new use cases beyond mobile phones, such as ultra-reliable, low latency communication useful for real-time VR, such as in surgery.

From gaming, movies, sports and global tourism to education, patient care and AEC projects, advances in immersive virtual worlds and their integration with traditional entertainment distribution channels will dominate the way we learn, work and play. This would not be possible without 5G, which is expected to provide the main means to deliver these new audio-visual media, including their consumer interactivity. For now, we help interactive entertainment companies forge the right partnerships and comply with laws governing the physical world as distinctions between realities are creatively blurred.

Our attorneys have routinely helped several industry leaders in this area in patent prosecution, patent litigation, regulatory and other issues related to the video gaming industry. With its unique combination of video gaming and 5G experience and knowledge, we are in a unique position to counsel clients as they develop their business in 5G networks.

INTERNET OF THINGS (IOT)

Designed to be scalable and versatile, 5G is set to become the catalyst for innovation in IoT. For example, the disruptive nature and global scale of IoT technology has prompted home product manufacturers to make their goods “smart” via improved sensor technology, resulting in widespread consumer interest in purchasing connected versions of household appliances. Those appliances will soon be connected using 5G technologies because 5G offers faster and smarter connectivity than previous networks. Our broad and deep understanding of 5G’s effect on IoT allows us to advise the world’s leading companies creating technologies in this space.

Our lawyers help clients evaluate and launch new products in an evolving regulatory environment, solidify strategic partnerships and defend proprietary technologies for interconnected devices using 5G protocols.

MANUFACTURING AND INDUSTRIAL

As more affordable sensor technologies become available and maintenance costs decrease, manufacturers are developing infrastructural frameworks, including 5G networking protocols, required to provide a smarter, more holistic view of data and more efficient processes to assemble goods. 5G will offer a more reliable network as well as provide a very secure network for industrial IoT by integrating security into the core network architecture.

Our team regularly counsels companies that develop the software and protocols that make connectivity possible.

SMART CITIES AND HOMES

Smart cities are not built overnight. As more “things” become sensors, incremental steps toward creating interconnected urban landscapes are transforming the way we live and operate. The implementation of 5G networks across the country will be the force that facilitates the smart city revolution and the related revolution of the agriculture sector.

TRANSPORTATION
The transportation industry has embraced 5G technology to spur even greater innovation. Vehicle manufacturers—as well as parking structures, airports and railways—are planning 5G integrated connectivity into their infrastructure, thereby expanding coverage and permitting greater broadband speeds.

5G technology is also being developed for unmanned aircraft that will eventually occupy large swaths of global airspace. Driverless cars connected with 5G networks are being tested and will eventually share the roads with motorists as on-demand transportation services are systemically disrupted. Indeed, it is widely expected that one of the first applications of 5G technology will be in autonomous/unmanned vehicles (AVS/UVS), where guaranteed bandwidth and ubiquitous connectivity are critically important. As the law struggles to keep pace, we help our clients remain compliant with the latest regulatory developments, solidify strategic partnerships and defend proprietary technologies as they explore ways to unleash the potential of a highly connected world.

**NEWS**

**01.01.2020**

*Partner Marc Martin Quoted in Law360 - Telecom Developments to Watch in 2020*

General News

*Law360*

Marc Martin was quoted in the Law360 article, "Telecom Developments to Watch in 2020," regarding online consumer protections and net neutrality regulation and legislation.

**12.20.2019**

*Partner Marc Martin Quoted in Law360 - The Biggest Telecom Developments of 2019*

General News

*Law360*

Partner Marc Martin was quoted in the Law360 article, "The Biggest Telecom Developments of 2019," regarding the FCC's aggressive steps to free up spectrum for new 5G technologies.

**PUBLICATIONS**

**12.19.2019**

*The Race to 5G Faces Headwinds Entering 2020*

Updates

The U.S. government and industry face pressure to compete with China, the EU, and others in the race to implement the next great advance in wireless network technology known as 5G.

**08.14.2019**

*D.C. Circuit Delivers Setback to FCC’s 5G Network Deployment Efforts*

Updates

In a recent decision, the U.S. Court of Appeals for the D.C. Circuit struck down key portions of a 2018 order by the Federal Communications Commission that would have exempted certain small wireless facilities from environmental and historic preservation review.

**06.13.2018**

*FCC Expands Spectrum Available for 5G Wireless Deployment*

Updates

The Federal Communications Commission (FCC) recently adopted a number of orders and proposed rules affecting the availability and use of millimeter-wave spectrum for advanced fifth generation (5G) wireless networks.

**PRESENTATIONS**

**12.12.2019**

*The Promise and Peril of 5G-Enabled, Blockchain-Authenticated AI Solutions in IoT*

Speaking Engagements

IEEE Global Communications Conference / Waikoloa, HI

**07.10.2018**

*5G: Intellectual Property Rights*

Speaking Engagements

Keynote Presentation

IEEE 5G World Forum / Santa Clara, CA

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