



법무법인(유) 세종
최재훈 선임외국변호사

PROFILE

현재 법무법인(유) 세종의 선임 외국변호사로 주된 업무분야는 지적 재산권 소송과 분쟁이다.

미국 지방법원, 국제무역위원회 및 미국 특허심판원에 제소된 지적재산 분쟁에서 크고 작은 다양한 미국 및 한국 기업들을 자문하고 대리했다. 미국 특허청에도 대리를 할 수 있도록 등록이 되어 있으며 10년 넘게 특허 심사관으로도 근무했다.

University of Virginia에서 전기공학사 학위를 취득하였고, 워싱턴 D.C.에 있는 Catholic University, Columbus School of Law에서 우등졸업으로 J.D.을 취득했다.

학 력

- 1992 미국 University of Virginia (B.S., 전자공학)
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경 력

- 1992-1997 미국 특허청(버지니아주 알링턴), 특허심사관
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자 격

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저서 및 논문

- Korea Chapter in the International Investigations Review, The Law Review, 2020 (co-authored)

언 어

- 영어

Standard Essential Patents(SEPs) in the Automotive Industry

Since the invention of the wheel, vehicles were developed as simply a transport mechanism to move people (and things) from one location to another.

From hand-drawn carts to horse-and-buggy to finally the automobile, innovation and improvements revolved around coming up with better engines, transmissions, cabin sizes, and aerodynamic profiles to make the automobile stronger, faster, more comfortable, and more fuel efficient.

All this changed with the advent of scalable computing technology. At first, they were small changes still related to the functionality of the automobile – on-board CPUs (central processing units) controlling the fuel injection into the engine to increase performance, keeping track of data from diagnostic sensors to allow mechanics to identify mechanical problems, etc.

Then, with more and more sophistication of infotainment and telematic systems, automobiles have now evolved from just a mode of transportation into a powerful computer on wheels. Couple this computing power with the introduction artificial intelligence (AI) on an electric vehicle platform, autonomous vehicles are born.

To address this new class of automobiles, Society of Automotive Engineers (SAE) has come up with a standard (J3016: “Taxonomy and Definitions for Terms Related to On-Road Motor Vehicle Automated Driving Systems”) to define what exactly “autonomous” means – from no automation (Level 0) to full automation (Level 5) and everything else in between (Levels 1-4).

However, with automation comes the need for more information – information not just about the vehicle but also about its surroundings, such as the driver, other vehicles, pedestrians, road conditions, traffic. Collecting all this information is now made possible by advancements in wireless communications for vehicles known in the industry as Vehicle-to-Everything (V2X) communications.

V2X communication system is made up of more specific types of vehicle communications – V2V (Vehicle-to-Vehicle), V2P (Vehicle-to-Pedestrian), V2I (Vehicle-to-Infrastructure), and V2N (Vehicle-to-Network). However,

what good is the technology if one cannot talk to or understand another? Enter the standards.

Standards are needed to normalize and make something uniform so that everyone does everything the same way. This becomes especially important if vehicles are to become fully autonomous. There are currently two standard technologies being developed for V2X communications: (1) WLAN-based (IEEE 802.11p), and (2) cellular-based (3GPP C-V2X). Regardless of which standard ultimately becomes the dominant one, however, the automobile industry will need to be prepared for a legal battle that it has never faced before: the battle over SEPs (standard-essential patents).

You see, standards developed by SDOs/SSOs (Standards Developing/Setting Organizations), such as the 3rd Generation Partnership Project (3GPP) that developed standards for 2G, 3G, and 4G (currently developing 5G) cellular communications, take technology contributions from stakeholders in the relevant industry to be used in the standard.

Once a contribution is adopted into the standard, that technology will be required (i.e., essential) in implementing the standard. However, as with any innovative technology, the technology adopted by the standard will very likely be protected by a patent.

Patents, in every country with patent law, provides the patent holder the right to exclude someone from using the patented technology without permission (usually through a license agreement) or risk being sued for infringement.

Normally, this is not a problem if a company does not want to get a license (usually by having to pay a royalty) by using alternative technology not covered by a patent or not use the patented technology at all. However, if the company wants to do business with technology covered by a standard, it is virtually impossible not to use the standard technology that is covered by an SEP.

The good news is that most SDOs/SSOs take this into account by requiring the stakeholders making contributions to the standard to license any technology adopted by the standard under F/RAND (Fair/Reasonable and Non-Discriminatory) terms. The bad news is there is no standard (pun intended) on what F/RAND is.

The cell phone industry went through these growing pains when SEP holders of 2G, 3G, and 4G technologies wanted royalties from phone manufacturers. The

problem was what the royalty base should be for the SEP – the cost of the phone (in the hundreds of USD) or the cost of the baseband chip that actually incorporated the standards (in the tenths of USD).

Many jurisdictions have allowed the royalty base to be on the cost of the phone because the baseband chips are integral to the operation of the phone. Even using the cost of the phone as the royalty base, however, the phone manufacturers have been able to absorb the royalty cost as it is usually several cents (USD) per phone.

But what about the automotive industry? The final product (the automobile), especially for an autonomous vehicle, will likely be in the tens of thousands, if not in the hundreds of thousands of USD, all for components with manufacturing costs in the tenths of USD. What is more, the component(s) that is covered by the SEPs will likely be made by 2nd/3rd tier suppliers, but the SEP holders will likely target automakers instead because of the cost of the potentially infringing product.

This situation is already materializing as Avanci, a license platform with members holding cellular technology SEPs targeting the auto industry, is approaching and have approached automakers to take a license to its members' 2G, 3G, and 4G patents at a cost as high as USD 15 per vehicle.

While this amount may not look high compared to the cost of the vehicle, this amount added to the other costs of manufacturing will have a significant impact on the profitability per vehicle.

In addition, the industry practice is for 2nd and 3rd tier suppliers to indemnify the automaker should their product infringement a patent. Most, if not all, 2nd and 3rd tier suppliers will not be able to support such a cost, potentially triggering a cascade effect through the automotive industry.

While the V2X standard is not yet fully developed and the automotive industry is still years away from Level 5 automation, the risk of potential SEP litigation is very real as various levels of automation is already being adopted in the automobiles currently being manufactured.

Early planning by studying the lessons learned by the cell phone industry and adapting them to the unique business model of the automotive industry will be just as important as developing technology to reach Level 5 automation. 