

Electric Vehicle Smart Charging and Standard Essential Patents (SEPs)

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Technical standard-setting is everywhere in the modern economy. As more and more industries come to rely on communications, effective deployment of standards for charging and for wireless and wired communications and interfaces has become critical to industry, government and consumer interests. When industry collaborators create technical standards, competition concerns need to be considered in case standards participants misuse their advantageous position in establishing industry standards to blacklist competitors (such as by refusing to offer access to standardized technologies) or to force customers to use only their own proprietary technologies, or to force companies to pay excessive prices.

To overcome potential misuse of the advantages for participants in the standardisation effort, standard-setting organisations (SSOs) commonly require that participants promise to license any patents that are essential to use of the standard (Standards Essential Patents (aka SEPs)) on fair and reasonable and non-discriminatory (FRAND) terms. This commitment is designed to ensure that licenses to these patents are available, on FRAND terms, to all companies that wish to use the standard. After a standard is developed and adopted, companies that hold associated SEPs, either the original patent applicants, or subsequent non-practicing entities, can obtain significant market power as a result.

In this article we shall discuss some of the industry issues for EV charging and we shall explore some of the potential SEP claims that may be made, as well as some of the issues to be considered when negotiating SEP licenses.

Standards in EV charge stations

There are multiple standards that have been developed, and that are under development, in Europe, the USA and elsewhere in relation to EV charging and EV charge stations. These include but are not limited to connectivity standards as well as many others including the EMC Directive 2014/30/EU, BS EN 61851-1, 61851-21, 61851-22, 60529, 50581, 50419, IEC 61024-3. In the UK, the Electric Vehicles (Smart Charge Points) Regulations 2021¹ came into force on 30th June 2022 and they require home EV chargers to be smart.

In order to achieve “smart” EV charge points, they require some form of connectivity in order to send and receive information. Such connectivity is typically provided wirelessly, which can be provided by a number of wireless standards including but not limited to NB-IoT, LTE-M, Zigbee, Wi-Fi, 2G, 3G, 4G or 5G standards.

NB-IoT and LTE-M are defined as particular device categories of the 4G/LTE standard, and therefore products implementing these standards will use a subset of the functionality of the whole 4G/LTE standard; we explore some of these issues below. Likewise, WiFi is a generic term for a series of standards that support a range of capabilities, where (relatively) simple machine-type IoT devices are unlikely to utilise the complete range of capabilities provided in the full WiFi standard.



The global SEP licensing ecosystem in its current form does not work in a balanced way and no longer supports competition and innovation and a level playing field. In the authors views, the current SEP ecosystem, and the way it is abused by a few SEP holders, is opaque, unbalanced and inhibits competition, innovation and market entry.

The discrimination against SMEs and smaller companies, and the way the current SEP licensing system is being abused will likely delay the adoption of green energy and climate change solutions, will lead to excessive pricing for EVs and EV charge stations which will drive up costs for consumers, and will inhibit innovation as companies will look to alternative solutions that are less expensive and have less financial and legal risk. These issues are not limited to the EV charger market, and indeed there are other IoT verticals that have become targets for licensing demands.

For EV charge station manufacturers and sellers, as well as charge point operators, there are a number of important issues to address given the complexity and uncertainty of SEP licensing, some of which are addressed in this article.

These include uncertain total exposure to licensing and royalty demands; potential indemnification claims from customers; uncertain identification of potential licensors (licensors may include NPEs as well as original patent owners); complexity and costs involved in negotiating with many potential licensors, including costs to assess their claims; and the threat of injunctions. We deal with some of these in more detail below.

PROBLEMS WITH SEP

LICENSING

In the authors view the SEP ecosystem for ETSI standards such as 3G, 4G and 5G is being abused by a few SEP holders contrary to how the broader industry envisaged the system would operate when the ETSI IPR Policy was adopted in November 1994.

The abuse of the SEP licensing system for ETSI and IEEE standards manifests itself in a number of ways, including but not limited to:

a) Refusals to license all component suppliers in the value chain

Whereas many SEP owners used to license chipset suppliers and module suppliers, there is currently a concerted practice where some SEP holders refuse to license those companies that actively want a license to SEPs which creates many issues in the supply chain. In a normal supply chain a buyer of products or components will expect their suppliers to supply a product which has the intellectual property rights licensed and paid for. In this new world, component suppliers cannot get the patent licenses (because SEP holders refuse to license them). Whereas EV charge station manufacturers buying connectivity components should expect their suppliers to have the patent rights, they will almost certainly not have them, and that therefore leaves the EV charge station manufacturer exposed to patent infringement claims. It also leaves them exposed to indemnity claims from their customers if the SEP holders decide to sue the manufacturer's customers.

The current issues mean that companies buying or selling products using standards will have to consider whether to exclude warranties and indemnities for SEP claims in their contracts. This is unsatisfactory as it is not the way business is normally conducted, and it creates risk uncertainty for multiple companies in the supply chain.

b) Discriminatory licensing

Discriminatory licensing manifests itself in a practice where some SEP holders refuse to grant licenses to certain companies in the supply chain.

It also happens when, if they do grant licenses, they secretly grant licenses at significantly different rates to different sized companies, notwithstanding that licenses should be available on non-discriminatory terms. A UK Court has recently found the licensing practices of one SEP holder to be discriminating against smaller licensees².

Some SEP holders have been known to misrepresent the true position to prospective licensees to induce them to enter into agreements on non FRAND terms.

c) Seeking excessive and non-FRAND licensing fees and royalties

The reasonableness of FRAND term must be considered in the context of the "enhanced market opportunities which standardisation [of the SEP owner's] technologies might bring" and in view of the "greatly increased market" for licensing attributable to standardisation³. The test to be applied to royalty rates is that they should represent a balance between the need for the owner of an SEP to obtain a fair return on his investment and the enhanced market opportunities created by standardisation.

In other words, royalty rates, although they may have some connection to normal commercial rates, should be reduced because of the enhanced economic power conferred by the Standard. Put simply, the possession of a SEP should not be a passport to windfall profits.

d) Excessive cumulative fees

Despite marketing claims of many SEP holders, there is no 'one-stop shop' where a company can get a single license to all patents necessary for one or all of the standards, and therefore each SEP holder seeks to charge the maximum they can get away with, using 'FRAND' as a front to try and claim some legitimacy, without taking into account their share of the standard. This means that the rates that are cumulatively charged by SEP holders become excessive. For example, if there were 50 SEP holders and each SEP holder charged 1% of the selling price of a component, then the cumulative royalties would be many multiples of the selling price of the component.

There can also be multiple claims for a product using different standards, so for example, an EV charge station might have Wi-Fi functionality as well as 3G and 4G functionality to provide alternative options for connectivity. Such options are provided to ease deployment of the charge stations, by giving installers flexibility depending on the local connectivity solutions. It is never the intention that multiple connections will be active simultaneously. Some SEP holders will claim the same fees for dual connectivity products as for as for single connectivity products and, in addition, seek further fees for the second connectivity solution. Not only that, but they may also seek to claim some patents are essential to multiple standards that are in the product, and so they will try and only license limited fields of use, thereby "double-dipping" – charging license fees multiple times for the same patent in the same product.

e) Lack of transparency on SEPs

There are hundreds of companies claiming to have SEPs to Wi-Fi, 3G, 4G and 5G standards, and there are tens of thousands of patents claimed to be essential to those standards. However, there is no definitive source of information on those companies and the SEPs. Some standards setting bodies such as ETSI maintain publicly available data on SEPs that have been volunteered by SEP holders, but they have not been independently checked or reviewed. Other standards bodies, such as the IEEE SA (responsible for Wi-Fi) do little to capture such information. The lack of such information means the true number of SEPs is unknown, and even where a SEP holder or patent pool publishes lists of patents it is difficult to determine what percentage this might be of the overall landscape. While there are independent experts in this field, the analysis is difficult, uncertain, time consuming and hence expensive.

Since SEP analysis is often related to licence negotiation or litigation it is also typically confidential and hence not made public. Therefore, SEP analysis is often duplicated time and time again for the same patent portfolio asserted against different licensees.



f) Gaming the standard setting system

Many claimed SEPs, if they are not invalid, are often tiny incremental details that do not add substantively to the technology, but they do potentially read on the standard; others are optional features; others are simple alternatives, for example choosing option A over option B because a company in the standards setting process has a patent over option A.

Some SEPs are limited to specific feature sets found only in certain device types: enhanced mobility, massive MIMO antennas, advanced media streaming are headline capabilities for consumer devices, but may not be necessary for IoT or M2M installations.

Some SEP holders game the system by bundling their portfolio into a single offering, which includes options, and features that may not be deployed in all devices.

Some SEP holders claim multiple individual fees for using the same patents in the same products for the same functionality (eg audio and voice codecs), but where the functionality complies with different standards.

Some SEP holders game the system by dividing up portfolios of patents to extricate higher excessive fees, also known as 'portfolio fragmentation'; for example a patent owner A might have 100 patents and charge 1% of the sales price of a component; it then might sell 15 patents to company B (likely to be a so-called non-practicing entity – NPE – that seeks only to monetise the patent assets). Company A still charges 1% (for 85 patents), but company B now wants 1% as well. So a patent portfolio of 100 patents that is 'worth' a royalty of 1% suddenly becomes 'worth' 2% when nothing has changed apart from the ownership of the patents.

g) Seeking injunctions to demand excessive and non-FRAND licensing fees

Many SEP holders, and particularly NPEs, seek injunctions and Customs seizures, often without warning, ostensibly to restrain patent infringement for the purposes of maintaining a monopoly, but with the aim to force companies to pay

higher fees than would be payable as a damages or FRAND award.

With hundreds of SEP owners and NPEs and with a landscape of tens of thousands of patents, the risk of a product injunction from any one single SEP is unreasonable. For SEPs, damages should always be an adequate remedy.

In summary, the current SEP licensing ecosystem, and particularly for ETSI/3GPP standards such as 3G, 4G and 5G, is not working in the way that it was originally intended when the ETSI IPR Policy was adopted and implemented in 1994. These issues have been played out in the telecoms sector for more than two decades. In the early 2000s the so-called "Smart-phone patent wars" made headline news as major consumer device companies battled over SEPs. As communications and connectivity have increasingly commoditised and converged with many other sectors these issues are no longer limited to the telecoms sector, or simply to mobile phones. Over the last decade the automotive sector has had to deal with SEP licensing, and even large automotive OEMs have struggled to find their way. Now many of these SEP issues and problems have been raised by companies in the energy industry in Europe, identifying them as a growing challenge for European smart energy delivery ⁴.

In that context, we try in this article to bring together some of the current claims for SEPs that may be relevant to EV charge stations, for EV charge station manufacturers and charge point operations, and to look at some of the areas to explore further when considering the costs of market entry and product pricing.



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POTENTIAL SEP CLAIMS



In this section we look at some of the current claims relating to:

- (a) 3G/4G (WCDMA/LTE) standards;
- (b) WI-FI; and
- (c) EV charging standards.

(A) 3G/4G(WCDMA/LTE) STANDARDS

As previously said, there are hundreds of companies claiming to have patents that are essential to the 3G and 4G standards; most do not seek to monetise and seek royalties for their patents, preferring to use them for cross-licensing purposes, but there are a few that do seek to do so.

This summary note addresses some of the companies making claims in the EV charging station market for 3G and 4G standards, but it is by no means an exhaustive list.

In relation to the potential costs licensing of standards essential patents, there is a lack of transparency on the costs of patent licensing as most SEP holders try to keep their 'true' rates secret, and do not publish their true or real licensing rates. Many will only disclose their 'headline' licensing rates under a non-disclosure agreement or when compelled to disclose them by a Court or competition authority, although in a recent UK Court case the Judge said he had serious concerns that where a group of SEP owners collectively arrange – using court processes as necessary – to keep market rates (which is what FRAND rates are or ought to be) secret, in order to leverage their own negotiating position, an infringement of the Chapter I prohibition under the Competitions Act 1988 may arise⁵.

The 'announced' rates of SEP owners are not necessarily the 'true' or 'real' licensing rates as many SEP holders will grant preferential (and discriminatory) rates to certain companies. This allows SEP holders to create an unfair and opaque licensing system which enables SEP holders to abuse their FRAND obligations, and to not grant licenses on the same (or even similar) terms to all companies that want the same license⁶.

There are only a few companies that have published their claimed rates for alleged SEPs that may be relevant in the EV smart charging space, but it is useful to look at two programmes/pools in particular, namely Avanci and Sisvel.

(i) AVANCI

A group of companies have collectively agreed through a company called Avanci to license their claimed 3G and 4G SEPs for EV charge stations; Avanci is seeking to charge EV charge station sellers and charge point operators (CPOs) between US\$5.00 and US\$13.00 for EV charge stations that implement both the 3G and 4G standard; the royalty depends on the type of EV charger, its functionality (i.e., based on charger category) and, for example, whether it has infotainment functionality⁷; this is called their EV Charger programme.

The rates claimed by Avanci under the EV charger programme are:

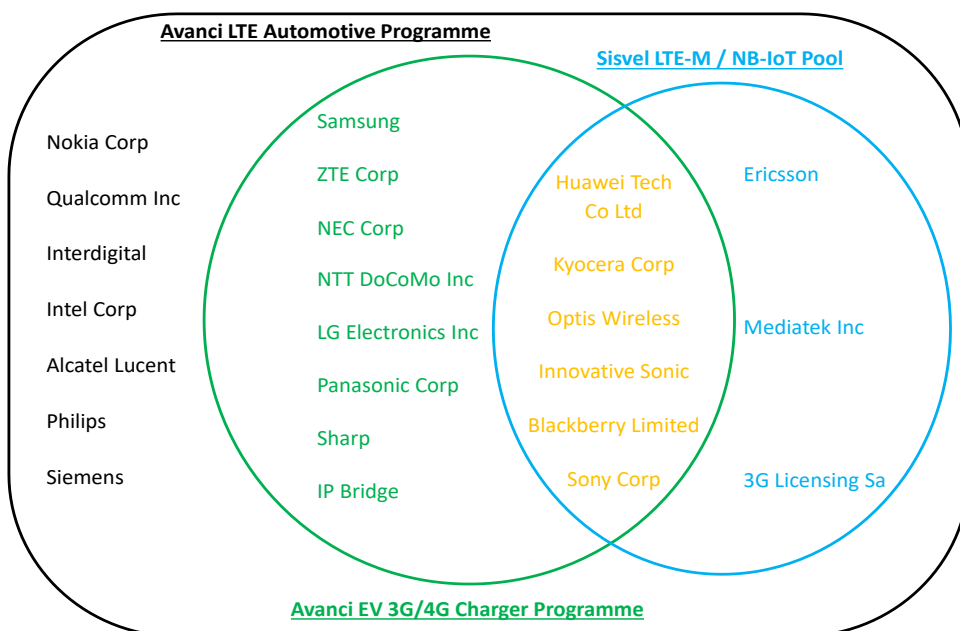
Category 1 (< 25kW output power, without infotainment functions and without a user interface to receive and present information received over a cellular network to the EV Charger user)	US\$5/ charger
Category 2 (< 150kW output power, without infotainment functions and not a Category 1 charger)	US\$9/ charger
Category 3 (150kW or more output power, without infotainment functions)	US\$11/ charger
Category 4 (Any EV charger capable of performing infotainment functions, such as playing downloaded video, audio and/or other entertainment content, and/or access internet-enabled content such as commercials or advertisements, and/or provide network connectivity for a wireless LAN)	US\$13/ charger

- There are about 5,700 families of patents that are claimed to be essential to the 4G standard (the 4G landscape), and about 3,000 families that are claimed to be essential to the 3G standard (the 3G landscape);
- Avanci list 46 licensors on their website as being licensors under the EV charger programme and those 46 companies have about 40% of the 4G landscape (see table 2) and 21% of the 3G landscape. (See annexe 3).
- The EV Charger programme does not include many of the larger companies that have SEPs such as Cisco and Apple that don't seek to monetise their SEPs;
- The EV Charger programme does not include several companies that license their SEPs for cars through the Avanci Automotive programme such as Nokia, Ericsson, Qualcomm and InterDigital; so EV station manufacturers and CPOs need to be aware that there may be many other claims being made by those companies.

TABLE 1 – Members in the Avanci pool for Cars, the Avanci EV charging pool and the Sisvel LTE-M/NB-IoT pools

In relation to these claims, companies should consider some of the following points:-

- The license under the Avanci EV Charger programme is for all of the 3G and 4G SEPs represented to be essential and currently owned by the 46 participating licensors, but may not include all of the SEPs that had been owned by the SEP holder if they have disposed of any SEPs before the date of the license;
- The license is for 3G and 4G SEPs but, as discussed above, some EV charge stations may not need or use all of the 3G or 4G standard, and their products may be limited to the subsets necessary for NB-IoT or LTE-M; many networks are shutting off their 3G networks and so it is unlikely that companies will need to take a license to the 3G patents, save perhaps for past use;
- EV charge station sellers and CPOs will need to review carefully what components they are buying and what standards they are using, and whether they need the full suite of 3G and 4G functionality in their products;



Source : Cubicibuc

All companies in this diagram are members of the Avanci 3G/4G Car licensing programme (the black circle). Companies in the green circle are in the Avanci 3G/4G EV Charger programme. Companies in the blue circle are in the Sisvel NB-IoT and LTE-M pool. Companies in yellow are in the Avanci EV charger programme and the Sisvel pool. TABLE 2 shows the same licensors' comparative numbers of patents of the LTE landscape.

At Table 2 is a summary of our analysis of the shares of the 4G landscape that are held by the licensors in the EV Charger programme and in the Automotive programme.

TABLE 2- LTE LANDSCAPE AND THE AVANCI EV CHARGER POOL

The Avanci car programme	Share of of LTE landscape	Avanci companies part of the EV 3G/4G Charger pool	Percentage of landscape	EV Charge programme LTE share of the Sisvel LTE -M and NB-IoT Sisvel	LTE/ Sisvel programme share of landscape
Samsung	19.23%	Y	19.23%		
Nokia Corp	13.95%				
Ericsson	9.50%			Y	9.50%
Qualcomm Inc	6.65%				
Interdigital	6.06%				
Huawei Tech Co	3.45%	Y	3.45%	Y	3.45%
ZTE Corp	3.12%	Y	3.12%		
Kyocera Corp	2.66%	Y	2.66%	Y	2.66%
NEC Corp	2.36%	Y	2.36%		
NTT DoCoMo Inc	2.31%	Y	2.31%		
Intel Corp	2.19%	N			
Optis Wireless	1.68%	Y	1.68%	Y	1.68%
LG Electronics Inc	1.23%	Y	1.23%		
Panasonic Corp	0.93%	Y	0.93%		
Alcatel Lucent	0.91%				
Innovative Sonic	0.77%	Y	0.77%	Y	0.77%
Mediatek Inc	0.75%			Y	0.75%
Blackberry Limited	0.63%	Y	0.63%	Y	0.63%
Philips	0.63%				
Siemens	0.58%				
Sharp	0.46%	Y	0.46%		
IP Bridge	0.40%	Y	0.40%		
3G Licensing Sa	0.35%			Y	0.35%
Sony Corp	0.26%	Y	0.26%	Y	0.26%
Others (< 10	0.54%	Y	0.54%		
Avanci TOTAL	81.59%		40.02%		20.06%
Others (Non-Avanci)	18.41%		60.10%		79.65%
Total	100.00%		100.12%		99.70%

Source :Cubicibuc

Under the Automotive programme, where it licenses approximately 81.5% of the LTE SEP landscape, Avanci seek to charge a license fee of US\$20.00 to car companies (OEMs) for using the 3G and 4G standard in each vehicle, even though an electric car will not function without an EV charger; car prices will range from approximately \$15,000 to say \$200,000 and there is a fixed price for the 3G/4G SEPs per vehicle, whereas EV charge stations will range in price from a few hundred dollars to a few thousand dollars;

Avanci have not publicly clarified how they calculate the EV charge station royalty. Assuming 3G patents will not be used as 3G networks sunset and are turned off, it is not clear how the rates have been calculated given that the LTE/4G vehicle charge is \$20 per vehicle for approximately 81.5% of the LTE SEP landscape and yet Avanci claim \$13 per charge point for approximately 40% of the same landscape;

Whilst there are currently 3 licensees under the EV Charger programme, there has not yet been broad market adoption given the hundreds, if not thousands, of companies that are buying, making, selling and using EV charge stations; while many car manufacturers sell EV charge stations when selling vehicles, and while many OEMs have licenses under the Avanci Automotive programme, there are no car OEMs that have taken a license under the EV charger programme;

The Avanci pool license programme does not provide a license for IEEE SA Wi-Fi standards, and so users of charge stations may be subject to further claims from the same companies that are members of Avanci for having Wi-Fi functionality as well as cellular functionality in EV smart charge stations; Licensors include companies like Huawei, who are involved in a major dispute with Netgear in the US in relation to Wi-Fi claimed SEPs and standardisation in IEEE⁸.

There is no announced rate for 5G functionality for smart charge stations;

Several of the licensors in the Avanci Charger programme are also seeking royalties for their LTE-M and NB-IoT patents, which are part of the LTE standard. Their LTE-M and NB-IoT patents are sought to be licensed by Sisvel⁹ which is discussed further below.

(ii) SISVEL POOL – (NB-IOT AND LTE-M STANDARDS)

Sisvel's Cellular IoT pool offers patents covering the LTE-M and NB-IoT standards, which are subsets of the LTE standard.

According to Sisvel's terms¹⁰, the licence covers "... complete and ready to use products. Intermediary products and components are not licensed under this programme." Licensors under the Sisvel programme are set out in Annexe 2.

Great care must therefore be taken by companies seeking to take a license to SEPs to ensure that they are getting the license rights they expect to be getting, from all licensors, to sell their products.

The SEP holders in the Sisvel pool have approximately 20% of the 4G SEP landscape (see Table 2), but we have not carried out an analysis of the patents that are claimed to be essential to LTE-M or NB-IoT.

Sisvel say they will publish a list of patents available for license under the Cellular IoT pool in 2024. Our analysis of the share of the LTE landscape that the Sisvel pool holders have is at Table 2 and Annexe 3 for the 3G landscape.

Sisvel do not specifically publish a rate for EV chargers using the LTE subsets of NB-IoT or LTE-M but their current published rates under the Cellular IoT pool are as follows:

NB-IoT	US\$ 0.66
LTE-M*	
Smart Sensor Devices	
- Selling price of US\$6 or less	US\$ 0.08
- Selling price of US\$6-US\$20	US\$ 0.35
- Selling price of US\$20-US\$130	US\$ 1.33
Smart Utility Metering Devices	US\$ 2.00

*The LTE-M royalty rate also applies to multimode devices featuring both LTE-M and NB-IoT standard data connectivity.

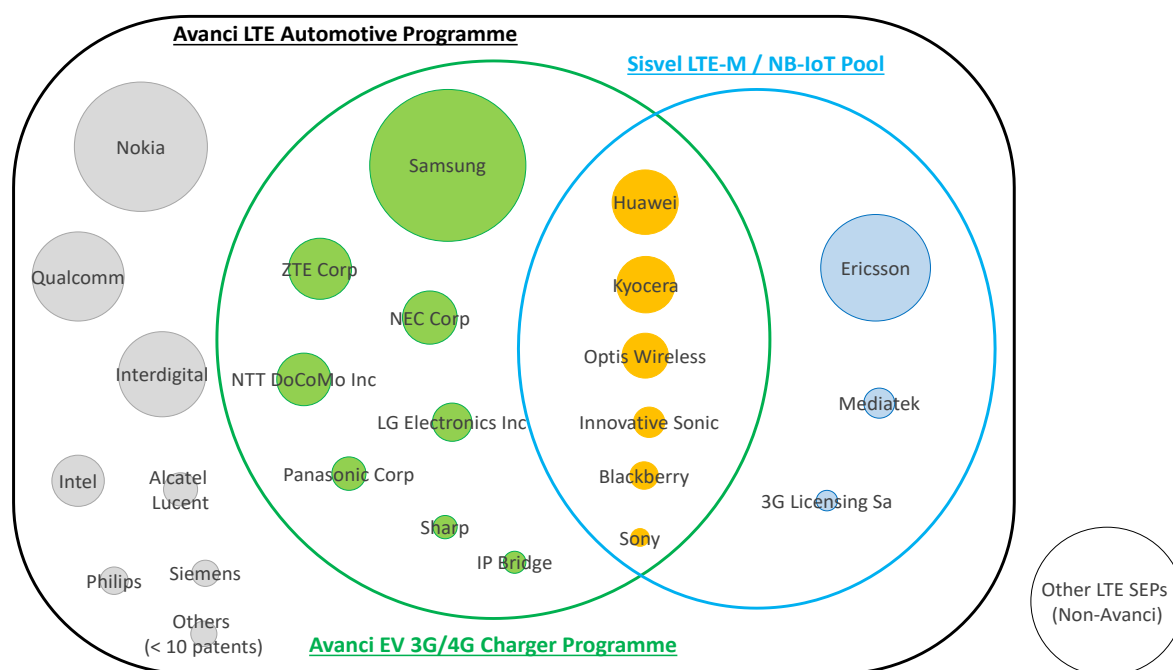
Sisvel have not announced whether they have any licensees under this pool.

In May 2024 Nordic Semiconductor and Sisvel announced that licenses to the SEPs in the Cellular IoT pool can be obtained through Nordic Semiconductor when companies buy Nordic Semiconductor products using LTE-M or NB-IoT standards¹¹. There has been no pricing announced for the Nordic Semi-Sisvel license, but this appears to be a similar arrangement to the one that was announced in January 2022 whereby licenses for Nokia's 4G LTE patents can be obtained from Nordic Semiconductor when buying their products¹².

At Table 3 is an analysis of the comparable shares of the LTE landscape for SEP holders that participate in:-

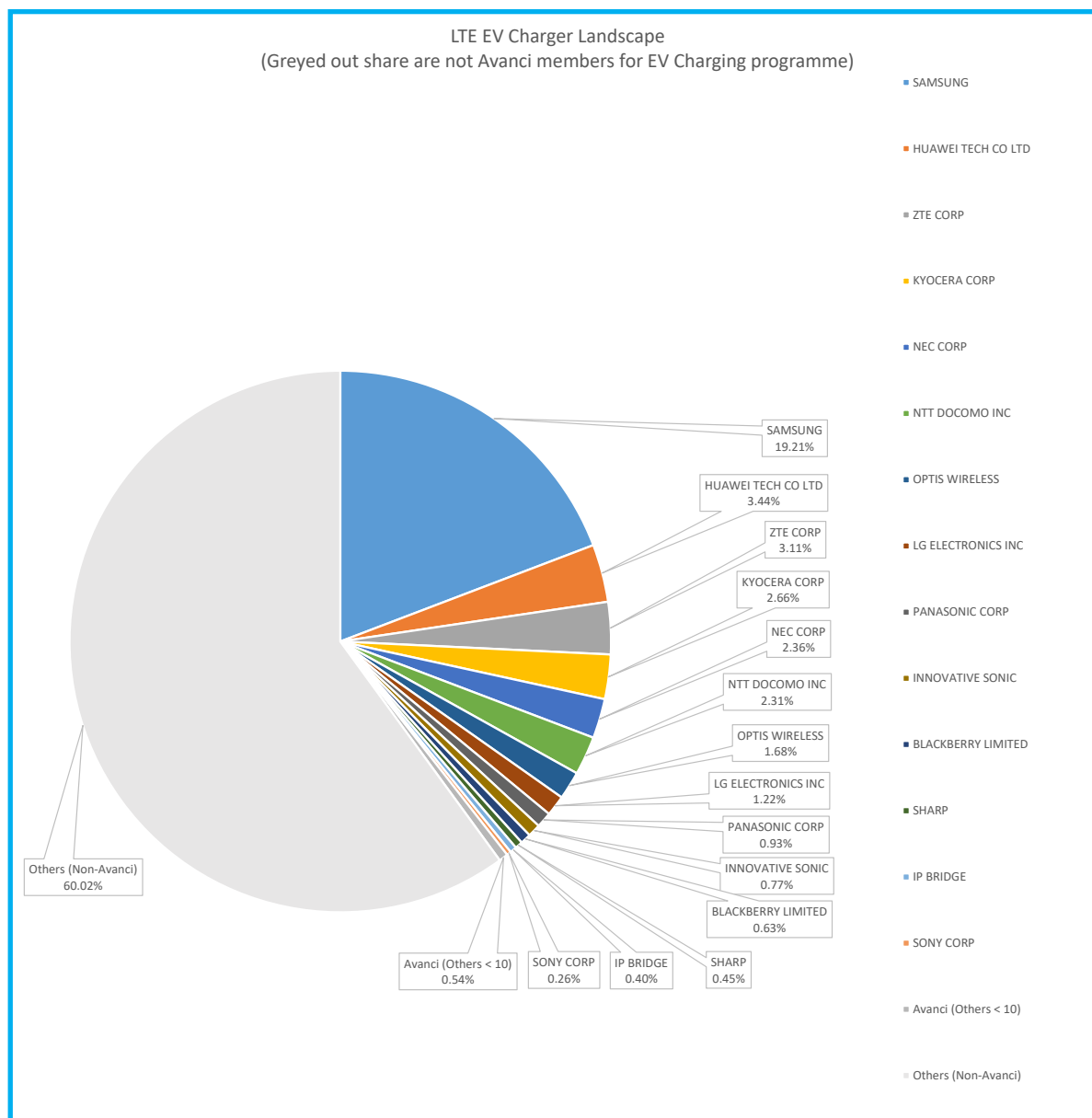
- 1) the Avanci Automotive pool;
- 2) the Sisvel LTE-M/NB-IOT pool; and,
- 3) the Avanci EV Charging pool.

TABLE 3 – Members in the Avanci pool for Cars, the Avanci EV charging pool and the Sisvel LTE-M/NB-IoT pools (with comparative shares of the LTE landscape)



Source :Cubicbuc

At Table 4 is an analysis of the share of the LTE landscape for those companies participating in the Avanci EV charger programme; the greyed out part shows the 60% of the LTE landscape that is not licensed under the Avanci EV Charger programme.



Source :Cubicbuc

ERICSSON, NOKIA, INTERDIGITAL

The greyed out part would include the shares of Ericsson, Nokia, InterDigital and Qualcomm. We asked Ericsson, Nokia and InterDigital for their licensing rates for EV charge stations but we have not heard back from Nokia or InterDigital. Ericsson referred us to their website at:

<https://www.ericsson.com/en/patents/our-licensing-programs/cellular-internet-of-things-iot/electric-vehicle-chargers>

(B) WI-FI STANDARD



Companies seeking royalties for use of allegedly essential Wi-Fi patents include the following companies:

(a) Wi-Fi (Interdigital)¹³

Interdigital claim a rate of US\$0.05 per unit for Wi-Fi enabled products; this would be on top of the amounts claimed through Avanci if there were multi mode products (eg WiFi plus 4G/LTE).

- ii. Philips TV & STB program (incl. Wi-Fi-n)
 - 1. EU: EUR 0.13 per unit
 - 2. US: USD 0.05 per unit

(b) WiFi 6 (Sisvel pool)¹⁴

Sisvel has a patent pool for some patents alleged to be essential to the WiFi standard (IEEE 802.11ax) and patent others include Philips, Mediatek, Huawei (although Huawei announced in 2022 that it has granted licenses for its SEPs to Nordic Semiconductors and the rates are not publicly announced¹⁵) and others.

The Sisvel Wi-Fi 6 license rate is \$0.60 per unit;

Philips and Mediatek are also members of Avanci;

Other claims may also be made for earlier versions of Wi-Fi, which would make the per unit claimed rate an amount of \$0.90.

- iii. Via Licensing (Dolby) 802.11 (a-j) (Electronics and Telecommunications Research Institute (ETRI) LG Electronics, Inc. Nippon Telegraph and Telephone Corporation)
 - 1. 1 to 500,000: USD 0.55 per unit
 - 2. 500,001 to 1,000,000: USD 0.50 per unit
 - 3. 1,000,001 to 5,000,000: USD0.45 per unit
 - 4. 5,000,001 to 10,000,000: USD 0.30 per unit
- iv. Vectis Wi-Fi Licensing Program Wi-Fi One, LLC (patents filed by Ericsson and Panasonic Corporation) for all essential patents: USD 0.17 per unit

(c) Wi-Fi (Sisvel pool)¹⁶

The Sisvel Wi-Fi pool claims a royalty rate for EUR 0.30 per unit.

Sisvel benchmark against other claimed Wi-Fi rates such as:

- i. AT&T 802.11n and ac Patent Licensing Program
 - 1. Consumer Electronics: USD 0.12 per unit

(C) EV CHARGING STANDARDS

Below are some of the rates published for EV charging standards.



(a) MPEG LA (EV Charging)¹⁷

MPEG LA have a patent pool programme that seeks to license AC and DC chargers.

Patent holders include GE Hybrid Technologies, LG., Mitsubishi, Robert Bosch, Siemens and Sun Patent Trust.

The pool administrator is MPEG LA which is part of Via Licensing Alliance, which in turn is owned by Dolby Laboratories Inc.

The programme seeks the following license fees:-

- ◆ EV-A – unit that includes EV Charging Equipment capable of receiving AC electric charging via wired connection(s) in a Road Electric Vehicle.
 - US \$20 per unit
- ◆ EV-D – unit that includes EV Charging Equipment capable of receiving (1) DC or (2) DC and AC electric charging via wired connection(s) in a Road Electric Vehicle
 - US \$50 per unit
- ◆ AC EVSE – equipment capable of providing AC electric charging via wired connection(s) to an EV-A
 - Type 1 – US \$5 per connection
 - Type 2 – US \$20 per connection
- ◆ DC-A EVSE – equipment capable of providing (1) DC or (2) DC and AC electric charging via wired connection(s) to an EV-A and/or EV-D
 - o US \$50 per connection capable of providing only DC charging o US \$20 per connection capable of providing only AC charging o US \$50 per connection capable of providing both DC and AC charging where DC and AC charging cannot be provided simultaneously

(b) MPEG LA (Qi Wireless Charging)

There is also a patent pool for the Qi wireless standard, which is also administered by MPEG LA (part of the Dolby group).

Patent holders include Canon, Convenient Power, GE Hybrid, Hyundai, Intel, LG, Navigate, Panasonic, Philips, Robert Bosch, Siemens, and WiTricity.

The key announced terms are as follows:

- a. Qi Receivers
 - i. Capable of wireless transfer >5 watts that is not a Power Accessory, Medical Device or Power Tool (as defined in Annex E of 23 Oct 2008 Wireless Power Consortium Charter)
 - ◆ royalty waived during current term
 - ii. Capable of wireless transfer > 5 watts or a Power Accessory, Medical Device or Power Tool (as defined in Annex E of 23 Oct 2008 Wireless Power Consortium Charter)
 - ◆ US \$0.20
- b. Qi Transmitters
 - i. Integrated assembly including up to three transmitters
 - ◆ US \$0.25
 - ii. Integrated assembly including four to six transmitters
 - ◆ US \$0.50
 - iii. Integrated assembly including seven to nine transmitters
 - ◆ US \$0.75
- c. Royalty waived on first 25,000 units of all products Sold annually; Discounts from 10% to 40% for licensees electing annual committed volumes.

POLICY ISSUES

The UK Competition and Market Authority (UK CMA) published guidance in 2021 on sustainability agreements and competition law¹⁹ and stated that:

When setting up a new standard, businesses, trade associations and/or standardisation organisations should follow these steps to comply with competition law:

- * allow stakeholders to inform themselves effectively of upcoming, on-going and finalised standardisation work in good time at each stage of the development standard – for example, through the publication of regular updates in dedicated journals
- * guarantee that all competitors in the markets affected by the standard can participate in the standard-setting process and join the agreement.
- * ensure access to the standard is on fair, reasonable and non-discriminatory terms for all businesses which comply with it
- * if the standard-setting involves intellectual property rights (IPR), participants must disclose in good faith their IPR that might be essential to the implementation of the standard. They must also offer to licence their essential IPR to all third parties on fair, reasonable and non-discriminatory terms. This should be provided for in an IPR policy from the standard-setting organisation.

Despite the clear statement that there must be an offer to license essential IPR to all third parties on FRAND terms, this is still not happening in practice with existing standards such as 3G and 4G.

From a policy perspective, action must be taken to enable a fair and balanced system for SEP licensing for innovators in the EV and EV charging space, and those looking to develop products. A fairer and more balanced system is needed for EV charging, and also for other 'smart' infrastructure that is being explored in countries targeting Net Zero (for example: smart grids, smart cities, smart meters etc).



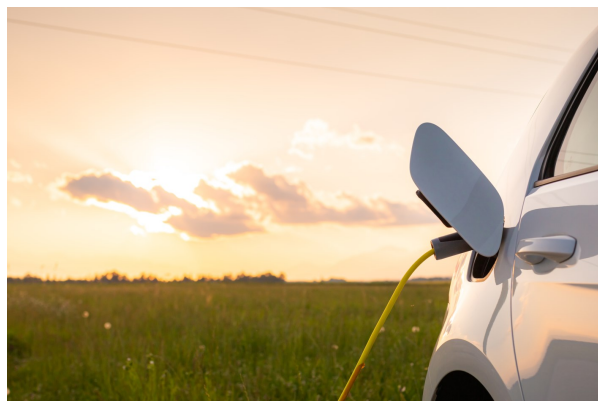
SUMMARY

The above claimed rates are just some examples of the costs that may be claimed for using technical standards. None of these costs take into account the legal fees that will be spent in conducting due diligence and investigating claims that patents are valid, or essential or infringed, or whether the license terms are FRAND terms.

Clearly there are some significant challenges especially for SMEs and small-mid-size companies who may not be aware of the plethora of issues, and legal/commercial risks, that they are getting into simply by innovating in the IoT.

Companies that are buying or selling connected products need to ensure that they are fully aware of all of the risks that come from dealing in connected products.

Buyers need to undertake more due diligence to make sure that their suppliers can tell them which patents they have licenses to, and whether there are any potential claims that may be made directly against the buyer. Sellers need to carefully consider the scope and extent of any warranties or indemnities they give, the time for claims to be made, and the limitations of liability, as claims may come many years after the products have been sold.



This article was written in September 2024. It does not contain legal advice and the landscapes and license fees claimed may have changed, and may in the future change. Readers should rely on their own investigations and analysis. We would welcome further information or contributions from readers, and would be happy to review comments.

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ABOUT N&M AND CUBICIBUC

N&M

Consultancy Limited (N&M) is a company registered in England. It was incorporated in 1991, and has advised companies on the licensing of Standards Essential Patents (SEPs) for more than 33 years; during that period, N&M:

- was a member of the European Standards Telecommunications Institute (ETSI) promoting the use of fair, reasonable and non-discriminatory (FRAND) licensing terms and conditions;
- was closely involved in discussions regarding the ETSI Intellectual Property Rights (IPR) policy which culminated in the ETSI IPR Policy adopted in November 1994;
- published the Handbook on the Operation of the ETSI IPR Policy in 1995 following the adoption of the ETSI IPR Policy in November 1994;
- acted as the secretariat for the International Telecommunications Standards Users Group (ITSUG) whose then members included amongst others Marconi PLC, Interdigital, Sony, Sendo, Mitsubishi, Panasonic and Blackberry. ITSUG was established to represent the interests of standards users in the telecommunications sector, and was a member of ETSI;
- has advised many companies, small and large, on SEP licensing issues; and was a founding member in 2015 of the Fair Standards Alliance, an organisation of approximately 50 companies involved in the licensing of standards essential patents, who seek fairer SEP licensing practices; and
- was a contributing participant in the development and approval of the 2019 CEN CENELEC Workshop Agreement that published "Core Principles and Approaches for the Licensing of SEPs".²⁰

C

ubicibuc was established in 2015 as an independent technical consulting firm specializing in technical and commercial matters relating to Intellectual Property.

Cubicibuc is built on experience from over 20 years' providing technical and commercial IP services to clients in a range of sectors and geographies.

Cubicibuc specialises in issues relating to standards based IPRs, and has published widely on issues of Standards Essential Patents (SEPs), Fair Reasonable and Non-Discriminatory (FRAND) licensing and has been directly involved in a number of international litigations and arbitrations, and complaints to the EU and US competition authorities. We have developed patent landscapes for a number of standards based technologies, including cellular: 3G, LTE and 5G; WLAN such as IEEE 802.11n and .ac; and ITU-T G.8032 and G.709.

We believe good IP management allows business to protect its competitive advantage; to generate returns on R&D investment and to secure investment and finance. To manage IP well business must adopt a combination of commercial, legal and technical expertise – but always with a pragmatic focus to actively manage and exploit the IP in a manner that brings benefits to the business.

We work with businesses ranging from smaller start-ups to mature multinationals; from early stage invention capture through to exploitation and monetisation of IP assets.

Cubicibuc provides expert IP strategy support, patent evaluation, landscaping and expert witness in a range of technologies including telecommunications and consumer electronics, automotive, and semicon.

ANNEXE 1

References:

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³ EC 1992 Standards Communication <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:1992:0445:FIN:EN:PDF>, ¶ 4.3.3 and 4.3.7.

⁴ See for example this article at <https://www.smart-energy.com/industry-sectors/business/standard-essential-patents-a-growing-challenge-for-eu-smart-energy-delivery/> and 'IP Issues in the Energy Sector' available at <https://www.globelawandbusiness.com/storage/files/minis/36-6278fdoc2b3d6.pdf>

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ANNEXE 2

SISVEL LTE-M AND NB-IOT LICENSORS

ASUSTek Computer Inc.	Optis Cellular Technology, LLC
BlackBerry Limited	Optis Wireless Technology, LLC
China Mobile Communications Group Co., Ltd.	Orange S.A.
Datang Mobile Communications Equipment Co., Ltd.	Pantech Corporation
Deutsche Telekom AG	Shanghai Langbo Communication Technology Co., Ltd
Electronic and Telecommunication Research Institute	Sisvel International S.A.
Ericsson	SK Telecom Co. Ltd.
Harfang IP Investment Corporation	Sony Group Corporation
HFI Innovation Inc. (an affiliate of MediaTek, Inc.	TCL Communication Technology Holdings Limited
Huawei	Telefónica S.A.
Innovative Sonic Limited	Unwired Planet, LLC
JVCKENWOOD Corporation	Unwired Planet International Limited
KDDI Corporation	Verizon Patent & Licensing Inc.
KPN	ZTE Corporation
Mitsubishi Electric Corporation	
NTT DOCOMO, Inc.	

ANNEXE 3

TABLE 5 – 3G LANDSCAPE AND THE AVANCI EV CHARGER POOL

Companies in the Avanci Car/Automotive programme	Share of 3G landscape	Companies part of the EV 3G/4G Charger pool	Percentage of 3G landscape in the Avanci EV Charger pool
Nokia Corp	19.94%		
Qualcomm Inc	11.87%		
Interdigital	8.70%		
Ericsson	7.68%		
Huawei Tech Co Ltd	7.06%	Y	7.06%
Samsung	4.09%	Y	4.09%
NEC Corp	2.97%	Y	2.97%
Siemens	2.52%		
Philips	2.22%		
Intel Corp	1.54%		
Alcatel Lucent	1.18%		
Innovative Sonic	1.14%	Y	1.14%
NTT DoCoMo Inc	1.08%	Y	1.08%
Panasonic Corp	0.88%	Y	0.88%
3G Licensing Sa (Sisvel)	0.82%		
Optis Wireless	0.78%	Y	0.78%
Sisvel	0.65%		
LG Electronics Inc	0.62%	Y	0.62%
Blackberry Limited	0.59%	Y	0.59%
Sony Corp	0.46%	Y	0.46%
Fujitsu Ltd	0.46%	Y	0.46%
Others (< 10 patents)	0.88%	Y	0.88%
Avanci TOTAL	78.13%		21.01%
Others (Non-Avanci)	21.87%		78.99%
Total	100.00%		100.00%

Source :Cubicibuc