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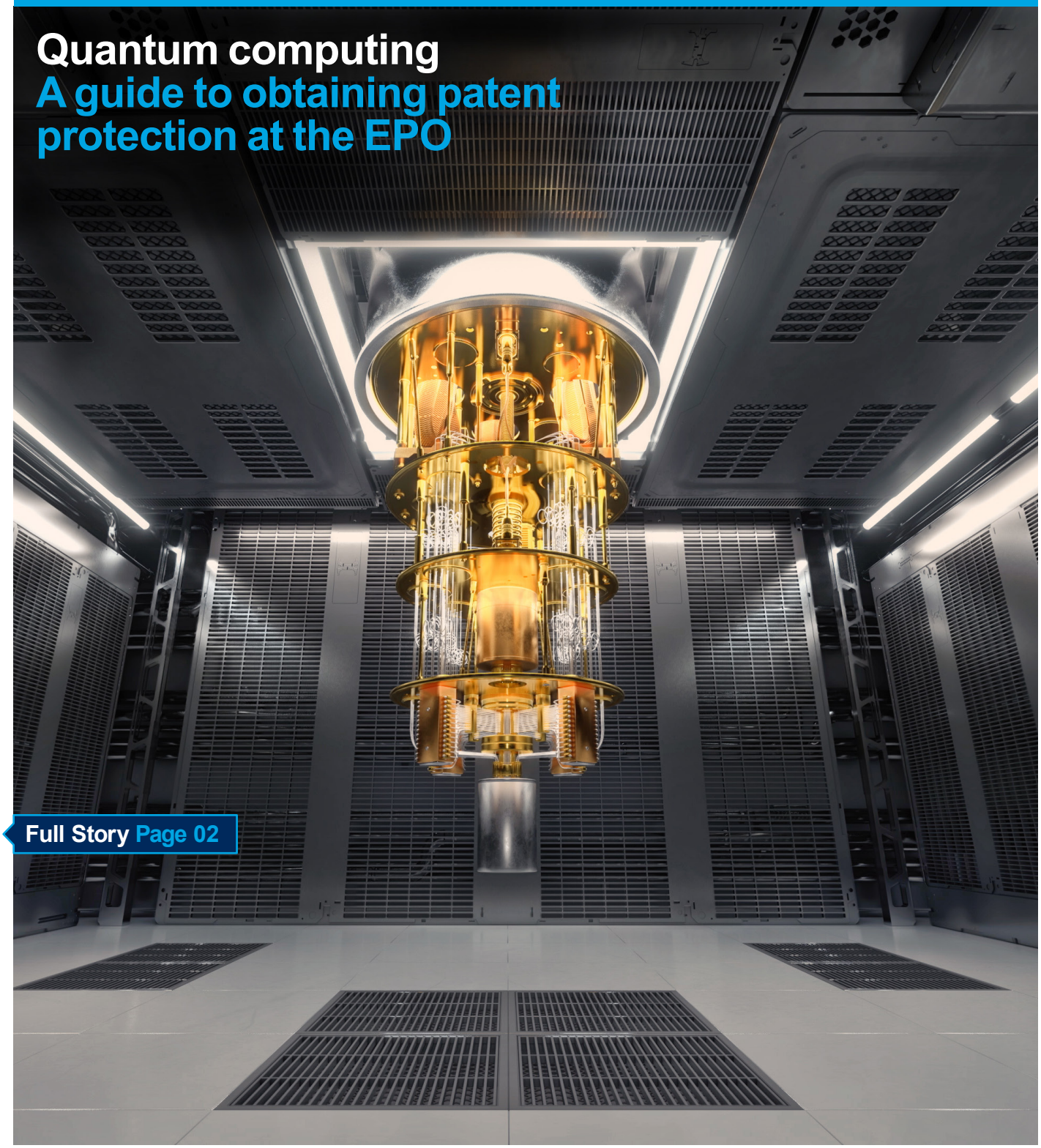
Quantum computing
A guide to obtaining patent protection at the EPO



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Editorial

2023 will go down in patent history as a momentous year given the opening of the Unitary Patent Court (UPC) and creation of the unitary patent (UP). Despite the lack of universal adoption of the system within the EU, the UP and UPC system are both functional. How this develops over the coming years will be of interest. It has also been a year for two decisions of the Enlarged Board of Appeal clarifying areas of law frequently the subject of heavily contested oppositions and appeals. Our December newsletter touches on several of these topics.

As we enter the festive time of year we also reflect on the ongoing conflicts in the world. The patent community has not been immune to these events and we are relieved to have seen the recent release from Gaza of Amit Soussana, a paralegal in the foreign filing department of the Luzzatto Group in Israel. We look forward to a more peaceful year ahead.

On behalf of all at D Young & Co, I wish you a relaxing and enjoyable festive period.

Neil Nachshen, Editor

Events

Patent Easter Internship
D Young & Co UK,
Week beginning 01 April 2024
Our Easter Internship (electronics, engineering, physics and computer science) will take place in the week including 01 April 2024. The internship is open to undergraduate and postgraduate students.

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Quantum computing
A guide to obtaining patent protection at the EPO

Quantum computing is one of the fastest growing sectors in the patent world, with the rise in international patent filings far out-pacing the average across all technological areas.

This sector presents technical challenges in a range of fields, including engineering, physics, mathematics, and computer science. However, quantum computing also presents some unique challenges when attempting to obtain patent protection for an invention at the European Patent Office (EPO). This article looks at what these challenges are, and how they can be overcome.

The presence of a technical effect

Quantum computing-based inventions can vary dramatically in form. Inventions in this field can include approaches for improving the physical hardware of quantum computers, such as implementations of qubits themselves or interactions which alter the state of a physical qubit. Other examples include particular algorithms to be executed on quantum computers, or programs for classical computers which improve the functioning of quantum computers.

Inventions in each of these example areas are potentially patentable, provided certain requirements are met.

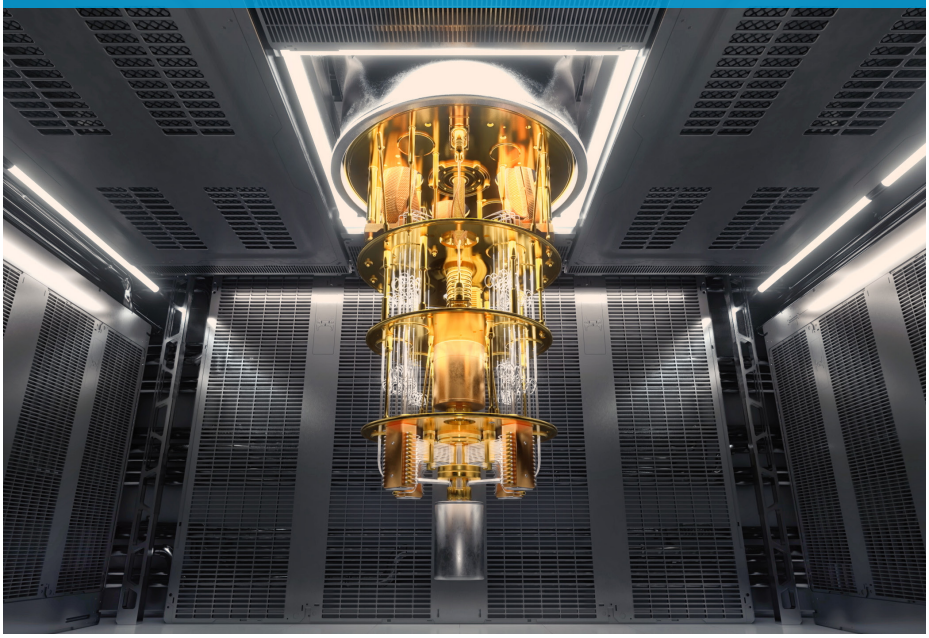
> In addition to the standard requirements that the invention should be novel and involve an inventive step over the state of art, the European Patent Convention (EPC) sets out several exclusions to patentability, including: "discoveries, scientific theories and mathematical methods", and "programs for computers", among others.

In other words, if the invention falls solely within the above exclusions the invention is not patentable. However, an invention which partly incorporates any of the above exclusions can be patentable provided a technical effect is achieved. At the EPO a general guideline is that the invention should achieve a technical effect outside of the exclusions listed above. However, the difficulty in demonstrating the presence of such a technical effect often depends upon the particular type of invention.
For quantum computing hardware the technical effect is often immediately apparent, for example, longer coherence times or more precise qubit transformations, and these inventions would evidently fall outside the above exclusions. However, this is not the case for quantum computing algorithms or programs for classical computers related to the functioning of the quantum computer. These types of inventions are instead subject to the EPO's established approach for assessing computer-implemented inventions (CIIs). Under this approach, only those features of the invention which contribute to providing a technical effect can be considered for the purposes of assessing whether an inventive step is achieved.

In these cases, it is important to consider what the ultimate result of the invention is and whether that ultimate result provides a technical effect. For example, if the ultimate result of an algorithm or program is a generally improved quantum computer or an improved technical system controlled by a quantum computer, then a technical effect may be provided. If, however, the ultimate result of the invention is simply a better computer program, such as a specific program that requires less steps to compute, there is no technical effect beyond the computer program exclusion, and patent protection cannot be obtained.

This requirement of the presence of a technical effect is complicated by the fact that much of the research into quantum computing is driven by mathematics, meaning inventions are often based on ideal logical qubits, rather than physical qubits implemented in hardware. While using logical qubits is important for developing these algorithms, in order to obtain patent protection it is important to consider and describe how the invention can be applied to physical qubits, in order to ensure that a technical effect can

Quantum computing-based inventions can vary dramatically in form



be achieved by the invention. For example, if an algorithm involves performing a particular transformation on a qubit the application should describe how this same transformation could be applied to a physical qubit, at least in principle. Failure to include such a description might lead to doubts regarding the extent to which a technical effect is achieved, making obtaining patent protection more challenging.

Sufficient disclosure

One of the more unique challenges associated with quantum computing inventions is ensuring the invention meets the EPO's requirements of sufficient disclosure. The EPO requires that a patent application describes the invention in such a way that allows a person skilled in that field to put the invention into effect. A key point is that this requirement is assessed at the priority date of the patent application. Therefore, if the invention is an algorithm that is to be executed on a quantum computer then that algorithm must be executable on an existing quantum computer at the priority date of the invention.

This can pose potential challenges due to the infancy of current quantum computing technologies. Current quantum computers generally have small numbers of qubits, for example less than 1000 qubits. Consequently, if the quantum computing algorithm requires more qubits than can be implemented in current quantum computers then the algorithm cannot be put into practice at the priority date. As such, the invention is not sufficiently disclosed and patent protection cannot be obtained.

Applicants should therefore be mindful of the current state of the art for quantum computing hardware, and consider how this relates to their invention. Similarly, quantum computing inventions often relate to complex concepts such as quantum entanglement and manipulating the state of qubits. In order to ensure that the invention is described in a manner which allows it to be put into effect, it should be described how these complex operations can be performed on physical qubits. For example, if the invention involves entanglement of two qubits, the application should describe possible ways in which this could be carried out, at least in principle.

Clarity of the application

Quantum computing it not yet a standardised field, meaning that a particular term used in the context of the invention may take a different meaning in a different context. Moreover, while the EPO permits common general knowledge to be used to interpret the application, the infancy of quantum computing means that it is difficult to identify exactly what is included within said common general knowledge. Applicants should wherever possible provide precise definitions of the terms and expressions used in the application. A further difficulty is that as quantum computing is still an emerging field, lack of expertise might lead to doubts being raised during examination regarding the extent to which the invention can be put into practice, and whether a technical effect is achieved. As a result, the application should include a simple and clear explanation of all aspects of the invention, and describe in simple terms how the technical effect is achieved.

> In many cases, it may be appropriate to describe the invention at two levels of detail: a high-level, generalised description which allows non-experts to understand the invention; and a detailed description for experts in the field which would allow the invention to be put into practice.

Outlook

It is likely that the requirements for applicants in the field of quantum computing will become less arduous over time. As quantum computing develops as a field, overall understanding will improve, meaning it will become more straightforward to demonstrate that an invention can be put into practice on existing quantum computing hardware, and it will likely become easier to demonstrate the presence of a technical effect. For the time being however, applicants must still consider these challenges when preparing and filing their patent applications.

Author:
Ben Hunter

AI-derived data & techbio innovation

Can AI-derived data provide evidence of plausibility of a therapeutic effect?

At the European Patent Office (EPO) a requirement for patentability is that the subject matter of the claims provides a technical effect. In the field of life sciences this technical effect is often a therapeutic effect, with supporting evidence being required to establish that the claimed subject matter has a therapeutic effect.

This can cause tension between pressures to file early, caused by the "first to file" approach to assessing novelty and the need to include supporting data, which may take some time to obtain. The EPO may accept post-published data as evidence of a technical effect, as discussed in our article "G 2/21: has anything changed?".

Related article
G 2/21: has anything changed?
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However, the Enlarged Board of Appeal decided in G2/21 that "a patent applicant or proprietor may rely upon a technical effect for inventive step if the skilled person, having the common general knowledge in mind, and **based on the application as originally filed**, would consider said effect as being encompassed by the technical teaching and embodied by the same originally disclosed invention". Therefore, it is important to include in the application as filed some evidence supporting an alleged therapeutic effect.

Traditionally, evidence of a therapeutic effect has required wet lab experimental data, but as we note in our article, "The rise of techbio and its IP needs: IP strategies for data-driven innovation", in recent years data-driven solutions based on machine learning are increasingly being used to reduce the amount of wet lab research needed to identify novel compounds, targets or treatment regimes in the life science and biotech fields.

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Consequently, if AI-derived evidence is

Evidence supporting an alleged therapeutic effect is important in applications as filed

considered enough to establish a therapeutic effect of a claimed invention, this might reduce the delay before a patent application can be filed, reducing risk of an invalidating prior art disclosure being made before filing.

It is likely that for the foreseeable future wet lab data will be considered more convincing than AI-derived data for establishing a therapeutic effect. Therefore, if wet lab data is available before filing, or it is feasible to obtain such wet lab data within acceptable time frames and costs, we would recommend including such wet lab data in a priority application. Further, in the absence of any official guidance on this point, it may be risky to rely solely on AI-derived data to support a technical effect, but it is possible that the EPO might (if not now, then in the future) accept some AI-derived data as supporting evidence for establishing a technical effect (possibly in combination with wet lab data).

As AI-derived data may be available earlier than corresponding wet lab data, one strategy could be to file an initial priority application early based on the AI data, with a view to obtaining further wet lab data within the twelve-month priority period, so that the wet lab data can be included in a subsequent filing claiming priority to the initial application. Post-published wet lab data could then also be used to further support the technical effect.

What AI-derived evidence could be used?

Let's now consider what types of AI-derived information could be included in a patent application to support an argument that a therapeutic effect has been demonstrated in the initial application.

The EPO Technical Board of Appeal held in T1642/06 that for supporting a therapeutic effect, "it is not necessary for a therapeutic effect to have been demonstrated clinically [through clinical trials]". Rather, it is sufficient that "the skilled person understands on the basis of **generally accepted models** that the results in the application directly and unambiguously reflect the claimed

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T 1642/06, EPO Technical Board of Appeal, 23 August 2007: dycip.com/t-1642-06

Computer implemented inventions at the EPO: patent application tips: www.dyoung.com/cii-patent-tips

therapeutic applications". This decision was in the context of the "generally accepted model" being an *in vitro* or animal model, but it seems reasonable to assume that the same could apply to data derived from AI models.

If AI-derived data is to be used to demonstrate a therapeutic effect in a priority application, we would therefore suggest including both:

1. evidence derived from the AI model indicating that the claimed subject-matter is predicted by the model to have the stated therapeutic effect; and

2. evidence for why the AI model should be regarded as a "generally accepted model" capable of making good predictions.

For point 1, if the model is a scoring model which assigns a quantitative score to each candidate compound or treatment, data could be provided showing the score assigned to the claimed invention in comparison to other inferior candidates. For a classification model, the application could simply identify that the model assigned the "good candidate" class to the claimed invention (differentiating from other candidates assigned the "bad candidate" class). This should be fairly straightforward to establish.

However, providing good evidence of a "generally accepted model" for point 2 may take more effort. First, we recommend describing in detail how the model was trained (see, for example, our guide Computer implemented inventions at the EPO: patent application tips). We suggest describing the type of model used, how the training data set was obtained, and the steps taken to train the model using the data set and verify model prediction performance.

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During the training some model performance metrics may be measured for assessing the model's predictive capability. For example, for regression models a metric such as root mean squared error can be used to express the distance between the model's predictions and the ground truth of the corresponding training examples. For classification models, which classify each input into one of a set of discrete classes, a confusion matrix could be generated to express, for each combination of a ground truth class expressing the true nature of a training example and a predicted class assigned by the model to that training example, the fraction of instances of a training example with that ground truth class for which the model predicted that predicted class. Alternatively, a quantitative measure may express the ratio of total predictions which are considered "good" (for example, taking into account true positive, true negative, false positive and/or false negative predictions). It may be advisable to include in the patent application some performance metrics as evidence of the model's predictive performance.

However, such metrics may not be enough on their own to establish that the AI data is prepared using an accepted model. A model trained based on a biased training data set might have good performance metrics, but nevertheless make predictions that fare poorly in the real world. For instance, a model may have learned to predict the occurrence of noise unrelated to the therapeutic effect, or could become over-fitted to particular quirks of the training data set used, so may be less useful at making predictions for new examples not in the training data set.

> In addition to discussing model performance metrics, we also recommend including in the initial patent application a description of steps taken to reduce risk of data set bias or over-fitting.

For example, the patent application could discuss how the training data set was obtained from multiple sources or based on a wide variety of test subjects. It may be useful to describe cross-validation of the model with different training runs being performed using different subsets of training examples taken from a larger data set, with some quantitative analysis of whether the model's predictive performance remains consistent across different training runs (a sign of a model more likely to provide useful predictions when applied to new examples not in the original training set). The patent application could also include analysis of model complexity: if a model can give acceptable performance with fewer variables being trained, it may be less prone to over-fitting than a model with a large number of variables being trained.

> To have the best possible chance of AI-derived data being considered to demonstrate a therapeutic effect, any information available from the inventors about how they established whether the model can make reliable predictions should be included in the initial application.

However, this will need to be balanced with whether the applicant/inventors are happy for such information about their machine learning model to be published in a patent application.

Summary

While wet lab experimental evidence is likely to be more convincing than AI-derived data for demonstrating a therapeutic effect, if only AI-derived evidence is available at the point you wish to file the application we would recommend considering whether such data may be adequate. If this approach is followed consideration should to be given on how it can be established that the AI model is an accepted model. Currently, we consider that the AI-derived data would need to be followed with wet lab data either within the priority year or beyond.

Authors:
Robbie Berryman & Jennifer O'Farrell

A drive for change? Licensing of standard essential patents in the automotive industry

Standards are widely used in the telecoms industry to ensure interoperability of different devices and systems. By establishing a uniform set of requirements or criteria, standards effectively implement a common language that allows devices from different vendors to communicate with one another, as well as providing security, reliability and quality of service. Examples of standards include 3G, 4G and 5G, the standards associated with mobile telecommunication networks.

Standards are set by Standard-Setting Organisations (SSOs) and can include patented technologies. The patents for such technologies are referred to as standard essential patents (SEPs). Owning an SEP provides significant benefits to the patent owner, as any person implementing the standard without a licence will necessarily infringe the patent.

As the automotive industry evolves in a direction of increased autonomy and connectivity, technology from the telecoms industry is finding its way into automotive vehicles. The need for vehicle-to-vehicle (V2V) connectivity and connectivity between vehicles and their environment (V2X) is increasing, and thus the importance of SEPs in the automotive industry is growing. This is significant for both vehicle manufactures and SEP owners alike. A particular point of significance is the licensing of SEPs. The licensing of SEPs is already an issue in the telecoms industry that has led to many disputes. In particular, standard-setting organisations require that SEP owners licence their SEPs on fair, reasonable and non-discriminatory terms (FRAND). What constitutes fair and reasonable, however, depends on the circumstances of the situation, which raises an important question - is fair and reasonable in the world of the telecoms necessarily fair and reasonable in the automotive industry?

As it FRANDS: the current landscape in SEP licensing

It is common practice in the automotive industry for the responsibility of obtaining any necessary licences to be in the hands of the upstream supplier, as opposed to the manufacturer of the end product. For this reason, licensing fees in the automotive industry are typically based on the price of the individual parts, rather than the price of the vehicle as a whole.

The owners of SEPs, however, tend to target the manufacturers of the end product, as this has significantly greater value than the constituent parts. This has led to disputes between SEP holders and vehicle manufactures concerning the extent to which SEP holders' FRAND obligations apply to upstream suppliers in a supply chain.

In a series of disputes between Nokia and Daimler, Daimler argued that Nokia's licensing was not FRAND as Nokia refused to licence to Daimler's suppliers. In this case, a number of questions regarding FRAND and SEP licensing were referred to the Court of Justice of the European Union (CJEU). One of the questions posed to the court was whether European SEP owners are obligated to offer a licence to upstream suppliers. The case resulted in a confidential settlement between Nokia and Daimler, and the questions remain unanswered. However, it has been reported that Daimler did in fact end up taking a licence from Nokia, leading some to speculate that this case forecasts a shift towards manufacturers accepting SEP licences in the automotive industry.

Similarly, in the US case Continental v Avanci, Continental accused Avanci of antitrust violations for refusing to license its 4G SEPs to upstream suppliers. The courts found that the case lacked antitrust standing and the suit was dismissed in 2022, perhaps indicating that the US courts are more likely to side with the opinions of SEP owners when it comes to their interpretation of what is fair and reasonable.

Patent pool Avanci provides another possible indication of the direction of travel in the industry. A significant number of the major automotive manufacturers worldwide now hold a licence for the essential patents for 4G, which Avanci provides under a singular licence. Thus, it would appear that the automotive industry is willing to follow the lead of the telecoms industry in relation to SEP licensing, with end manufacturers taking licences for the patented technologies themselves.

That said, many believe that there are likely to be more disputes surrounding the licensing of SEPs in the automotive industry, especially as new technologies and standards begin to emerge. Of particular interest is 5G, for which Avanci has recently launched a licensing programme. Currently, it appears that only a handful of automotive manufacturers hold licences for the essential patents for 5G technologies. It will be interesting to see if other vehicle manufacturers follow suit.

Steering into the future: the EU's proposal to regulate FRAND licensing

As technology progresses, standards are expanding across a broader range of industries, which could change the landscape of SEPs. 5G is finding its way into more industries than ever before, such as agriculture, education, and healthcare. The demand for SEPs for telecoms

The licensing of SEPs in the automotive industry has led to a series of disputes

technology is no longer confined to a specific industry, thus the calls for certainty and clarity regarding FRAND licensing of SEPs are only getting louder.

On 27 April 2023, the European Commission issued a proposal for a regulation that attempts to settle some of the uncertainty surrounding FRAND licensing and SEPs. The proposal has three main aims:

1. making available detailed information on SEPs and existing FRAND terms and conditions in order to facilitate licensing negotiations;
2. raising awareness of SEP licensing in the value chain; and
3. providing for an alternative dispute resolution mechanism for setting FRAND terms and conditions.

Useful link
Proposal for a Regulation of the European Parliament and of the Council on standard essential patents and amending Regulation (EU)2017/1001, European Commission, 27 April 2023
dycip.com/eu-commission-2023-0133

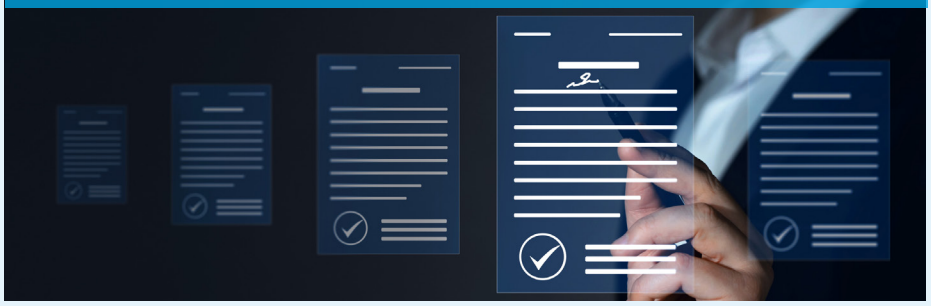
The proposal involves the creation of a competence centre within the European Union Intellectual Property Office (EUIPO) for essentiality checks of SEPs and FRAND determinations. If accepted, the proposal could dramatically change the landscape of SEPs. However, with a proposal as controversial as this one there are doubts as to whether, and in what form, it will ever be implemented, unless this is accompanied by a corresponding change in law.

Amidst this changing landscape, the intricacies of SEPs and FRAND licensing can be difficult for vehicle manufactures to navigate. It is therefore becoming increasingly important to have an appropriate IP strategy in place.

Author:
Molly Guy-Hickson

J 0005/23
EPO stops use of electronic signatures on assignment documents

Assignments should be signed using wet ink signatures for recordal at the EPO



We will all be aware that electronic signatures are now widely used for signing legal documents such as contracts and assignments. It was therefore no surprise that the European Patent Office (EPO) published a notice in OJ 2021, A86, accepting, for the purposes of recording a transfer of ownership, assignment documents that have been electronically signed, albeit only if using a very specific form of electronic signature that complied with EU Regulation No. 910/2014.

Sadly, many commercially available products do not comply with this EU regulation and so the ability of patentees to take advantage of this notice were limited. However, it was seen as a small step in the right direction.

Unfortunately, a very recent decision from the Legal Board of Appeal (J 0005/23) has stopped even this limited use of electronic signatures. The decision of the Board of Appeal found that "signature" in the sense of the laws governing the requirements of an assignment must, in context, only mean a handwritten signature or mark. The decision essentially said that the EPO was incorrect to issue the notice accepting electronic signatures on assignment documents, as it was based on an incorrect interpretation of the law, and that the laws governing the requirements of an assignment as currently written do not allow assignment documents signed with an electronic signature to be recorded at the EPO.

In a glimmer of hope for proprietors, though, the Board of Appeal did say in 2.11 of the decision that in its view "[w]hilst under the present legal framework, the term "signature" must be understood as referring to handwritten signatures only, [the framework] does not, as such, prohibit the legislator of the Implementing Regulations to the EPC… from specifying the meaning of the term "signature" in the Implementing Regulations… [and] such definition could include reference to some form of electronic signature".

In other words, the EPO could ask the Administrative Council to change the Implementing Regulations of the EPC to define that "signature" may also mean electronic signature, so that the EPO can once again record a transfer of ownership where the assignment documents have been signed using an electronic signature.

Given that the EPO's strategic framework includes a desire to transform and improve the way it interacts with users, and that a fully digitalised process is paramount to this, it is hoped the EPO will convene the Administrative Council to approve these changes soon. While making these changes, it may also be prudent for the EPO to remove the requirement for the electronic signature to comply with EU Regulation no. 910/2014, to allow use of more mainstream commercial products such as Docusign.

Until these changes to the Implementing Regulations are made, however, it is important that assignments are signed using wet ink signatures so that transfers can be correctly recorded at the EPO.

Author:
Jonathan Jackson

G 1/22 & G 2/22
EPO significantly softens stance on formal entitlement to priority

This consolidated decision of the European Patent Office (EPO) Enlarged Board of Appeal represents a significant softening of the EPO's historical stance on assessing formal entitlement to priority. Moreover, while the question of the validity of the Patent Cooperation Treaty (PCT) joint applicants approach was left open, such situations were held to benefit from an implied agreement absent substantial indications to the contrary that should lead to the same outcome in most cases.

Background

The EPO has historically taken a strict approach when assessing formal entitlement to claim priority, particularly regarding the identity between the applicant(s) of an application and the applicant(s) or their successor(s) in title of an earlier filing from which priority is claimed.

While acknowledging the term "any person" recited by Article 4A(1) of the Paris Convention for the Protection of Industrial Property (mirrored in Article 87(1) of the European Patent Convention) to be ambiguous, EPO Boards of Appeal have consistently held that **all** applicants named on a priority application, or their successors in title, must be named on the subsequent application claiming priority. Moreover, Boards of Appeal have consistently held that any transfer of the priority right must be effected before the filing date of the priority-claiming application.

Given this strict stance, it has been suggested that third parties in EPO opposition procedures have increasingly sought to attack formal priority entitlement, with the aim to knock out a patent in view of novelty-destroying intervening disclosures. Where entitlement has been challenged, it has generally been up to the proprietor to demonstrate that there was a valid transfer of the priority right before the filing date of the later application.

A high-profile example is T 0844/18, an appeal against the revocation of one of the Broad Institute's key CRISPR-Cas9 patents (EP 2771468 B). EP 2771468 B claimed priority from multiple earlier applications, the first two of which named an applicant-inventor not named on the subsequent priority-claiming PCT application. The Board of Appeal held that there was no evidence of a transfer of the rights of said applicant-inventor before the filing date of the subsequent application. Consequently, the patent was not entitled to priority and was revoked in view of novelty-destroying intervening disclosures.

EPO Boards of Appeal have generally held that national law should be used to assess any alleged transfer of the priority right. This has led to complex proceedings wherein Boards of Appeal have had to establish which national law should be determinative (see, for example, T 1201/14), hear extensive expert evidence regarding the applicable provisions under said national law, and then apply said provisions. In cases such as T 0844/18 it has been questioned whether the EPO is competent at all to assess a party's entitlement to claim priority.

Against this backdrop, the PCT joint applicants approach has been applied by some Boards of Appeal to situations where a US priority application is filed in the name of the inventors, and a subsequent PCT application claiming priority to the earlier US application names the inventors as applicants for the US designation only. Some Boards of Appeal have held that this is sufficient to allow a co-applicant different from the inventors named by the priority application to rely on the priority right in Europe. However, the legal basis for this approach has been questioned.

The referral

The referral was a joint decision from the appeals T 1513/17 and T 2719/19. In each case, the validity of the PCT joint applicants approach had been contested. Moreover, the parties and referring Board of Appeal agreed that the broader question of the EPO's competence to assess entitlement to priority should also be addressed.

The first question addressed by the Enlarged Board of Appeal was: "Is the EPO competent to assess whether a party is entitled to claim priority under Article 87(1) EPC?". The second question did not refer to the PCT joint applicants approach by name, but essentially asked whether the specific corresponding circumstances could give rise to a valid claim to priority in Europe.

The first question

The Enlarged Board of Appeal answered in the affirmative to the first question. The justification given was similar to previous Technical Board of Appeal decisions, for example, legal certainty and the need for the EPO as a patent-granting institution to be able to determine the state of the art.

However, the Enlarged Board of Appeal went further and added that "There is a rebuttable presumption under the autonomous law of the European Patent Convention (EPC) that the applicant claiming priority in accordance with Article 88(1) EPC and the corresponding Implementing Regulations is entitled to claim priority." Said rebuttable presumption was held to apply broadly, for example, where the European patent application derives from a PCT application, and/or where the priority applicant(s) are not identical with the subsequent applicant(s).

The consequences of this "rebuttable presumption" are significant and appear to be a marked departure from historical practice. Formal requirements for the transfer of the right to priority are essentially swept away, as the "autonomous law" of the EPC contains no such provisions. Moreover, the burden of proof has shifted to the party challenging the priority entitlement.

In its reasoning, the Enlarged Board of Appeal took the position that "the EPC should not establish higher formal requirements than those established under national laws that may be relevant in the context of a European application." Indeed, the Enlarged Board of Appeal went further and stated: "To the contrary, the EPO should adapt itself to the lowest standards established under national laws and accept informal or tacit transfers of priority rights under almost any circumstances."

Case details at a glance

Jurisdiction: European Union
Decision level: EPO Board of Appeal
Parties: Alexion Pharmaceuticals, Inc v Novartis AG, F. Hoffmann-La Roche AG & Chugai Pharmaceutical Co Ltd
Citation: G 0001/22
Date: 10 October 2023
Decision: dycip.com/g-0001-22

Jurisdiction: England & Wales
Decision level: High Court
Parties: Accord Healthcare Limited v Research Corporation Technologies Inc
Citation: [2017] EWHC 2711 (Pat)
Date: 07 November 2017
Decision: dycip.com/2017-EWHC-2711

Even more strikingly, the Enlarged Board of Appeal commented that "Even the requirement that the transfer of the right to priority needs to be concluded before the filing of the subsequent European patent application is questionable in the Enlarged Board's view." Consequently, it appears that it might even be possible to "fix" a missing transfer by retroactive ("*nunc pro tunc*") assignment.

The second question

The Enlarged Board of Appeal avoided addressing the validity of the "PCT joint applicants approach" as such, finding its applicability "questionable". However, the Enlarged Board of Appeal held that in the applicable circumstances there was an "implicit agreement" (absent indications to the contrary) between the named parties conferring the right to benefit from priority in Europe. A decision on the PCT joint applicants approach was therefore said not to be needed because the concept of an implied agreement "should allow an assessment leading to the same result as the PCT joint applicants approach in most cases."

Notably, this "implicit agreement" does not apply where not all co-applicants are named in the subsequent application (as was the case in T 0844/18). However, the "rebuttable assumption" would still apply.

What of third parties?

The Enlarged Board of Appeal decision will undoubtedly be welcomed by applicants and proprietors who will now benefit from the "rebuttable presumption". The Enlarged Board of Appeal held that the rebuttable presumption will generally be a "strong presumption" and that a party challenging entitlement must demonstrate "specific facts" that "support serious doubts". It is hard to imagine many scenarios in which a third party could now successfully challenge formal priority entitlement, given that evidence relating to an alleged transfer will generally be within the control of the proprietor and not in the public domain.

Consequently, formal priority attacks in EPO oppositions may become confined to the "rare exceptional cases" cited by the Enlarged Board of Appeal in its reasoning, namely "bad faith behaviour on the side of the subsequent applicant or to the outcome of other proceedings such as litigation before national courts about the title to the subsequent application."

This curtailment of third parties was acknowledged by the Enlarged Board of Appeal. In justification, it noted that the originating purpose of the priority right was as a convenience to patent applicants, and referenced comments made in Accord v RCT [2017] EWHC 2711 (Ch) that there was "no obvious public interest in striking down patents on this ground, unlike all the other grounds of invalidity". The Enlarged Board of Appeal also noted that national courts were not bound by the EPO's assessments.

Author:
Leon Harrington

What do G 1/22 & G 2/22 mean for the assessment of formal entitlement to priority?

In short

This decision appears to be a significant softening of historical EPO practice that will be welcomed by applicants and proprietors, but is likely to see successful formal challenges to priority entitlement become a rarity in opposition.

It will also be interesting to see how Boards of Appeal apply the decision to cases where arguments and evidence have already been provided and indeed decided upon at first instance under the former regime.

Six months of the UPC
A deep dive into the statistics

It has now been a little over six months since the Unified Patent Court (UPC) opened its doors on 01 June 2023 as the long-promised new system finally became a reality. From the same date, unitary patents (UPs) have been available to European patent owners, enabling them to obtain patent protection in multiple European countries with a single right.

We explored some of the statistics behind the UPC and UP so far in a recent article, including their uptake in general terms as well as the uptake of the UP when broken down by the country of residence of applicants. In this article, we seek to shed some light on a few more surprising statistics relating to the UP that may be observed so far.

Related article
UP and UPC statistics: unitary patent requests, Unified Patent Court opt out and revocation actions:
dycip.com/up-upc-statistics-oct2023

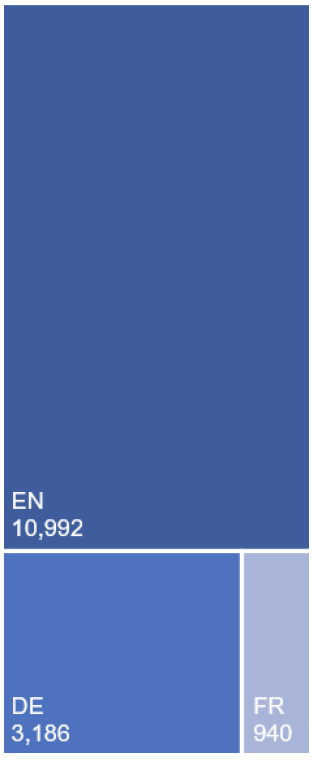
Translation language choice

One such statistic relates to the choice of language in which the translation of the European patent is filed in. This is one of the requirements for obtaining a unitary patent. For all European patent applications where the language of proceedings (that is, the language in which the application was filed or subsequently translated into) is German or French a full translation of the specification into English must be filed. Of the 15118 requests for unitary effect (that is, requests for UPs) filed as of 01 December 2023, the language of procedure was German in 21.1% and French in 6.2%. As such, English translations of the patent specification were filed for 27.2% of the 15118 requests.

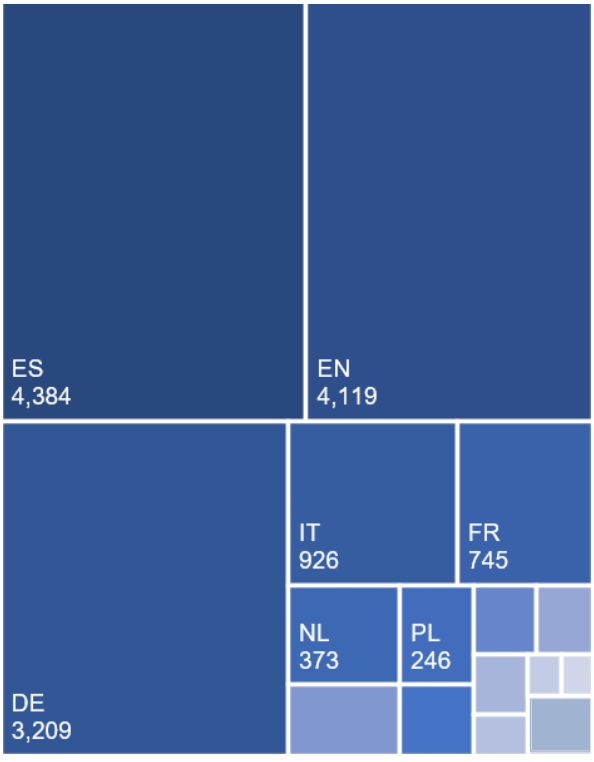
However, for the 10992 requests for unitary effect filed as of 01 December 2023 for which the language of procedure is English the translation of the patent specification could be filed in any other language of the European Union. It might therefore have been expected that a large proportion of these would be filed in German, or perhaps French. However, as can be seen from the graphic above, the largest share of translated specifications have been filed in Spanish, at 27.2% of the total number of UP requests, and a huge 39.9% of those where the language of proceedings is English.

Given that Spain is not a member state of the UPC this is, at first glance, somewhat surprising. Why are so many English-language patent translations being filed in Spanish, when requesting UPs rather than in German, French, Italian or Dutch? There may be some tactical reasons at play here, but the answer – as is so often the case – seems more likely to be down to cost. European patent validation in Spain requires the full translation of the patent specification into Spanish, and so re-use of the same translation for applicants wishing to gain patent protection in Spain as well as via a unitary patent is more efficient than obtaining separate translations for Spanish validation and unitary patent validation. There is a slight irony here in that the reason Spain is not a UPC member state is because of official language concerns. Despite this, the Spanish language does seem to playing a rather large unofficial role.

Procedural language



Translation language



Unitary patent rate by technology area

Another interesting statistic observed so far is the breakdown of the number of unitary patents obtained by technical field. The above graphic shows the breakdown across 35 fields, which are those defined by the World Intellectual Property Organization (WIPO), and used in the Patent Index.

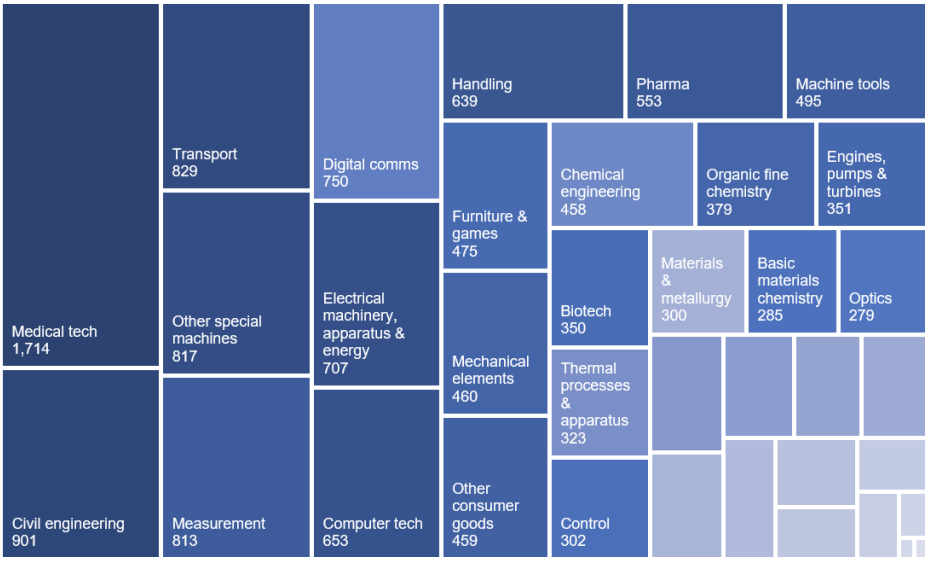
What is clear is that no single technology area is dominant in respect of the sectors in which unitary patents are being obtained. It may have been expected that some of the more contentious technology areas, or those in which patents have a higher individual value, would see a greater number of unitary patents than other technology areas. Similarly, it may have been expected to see a higher unitary patent rate for technical fields, in which applicants typically validate their European patents in a wider range of countries, meaning that UPs would be more cost-effective on an individual basis.

Useful links

UP and UPC statistics: unitary patent requests, Unified Patent Court opt out and revocation actions: dycip.com/up-upc-statistics-oct2023

European Patent Office's (EPO) Statistics & Trends Centre, EPO: dycip.com/epo-up-statistics

WIPO's technology fields (IPC)



However, this has not really been the case so far, with unitary patents being spread fairly evenly across a whole range of sectors. This indicates that the value of the unitary patent is seen and appreciated by a broad range of applicants, in a diverse set of businesses and fields. It will be interesting to see the percentage of obtained UPs which end up being subject to actions lodged at the UPC on a per-technology field basis, and whether this then has a knock-on effect of the rate at which UPs are obtained in those fields, but it is currently much too early for such analysis.

Status of registration

As of 01 December 2023, 15118 requests for unitary effect have been received, as noted above. Of these, 14714 UPs have been registered, with another 375 pending, and of which we can probably expect all, or almost all, to be granted. So far, 21 unitary patents have been withdrawn, which could be down to common reasons such as non-payment of renewal fees or patent owners pruning their portfolios.

Only 8 requests for unitary effect have been rejected. This perhaps illustrates the relative ease of obtaining a unitary patent where one is wanted by an applicant upon their European patent application being granted. However, care should still be taken to make sure the requirements for unitary effect are met. For example, the European patent must be granted with the same set of claims in all UPC member states. Applicants must therefore be careful when withdrawing designations pre-grant, or when making amendments to claims which may differ between jurisdictions, which may sometimes be done if there are prior national rights, so as to avoid falling foul of double patenting rules. Consent of all proprietors is required when requesting unitary effect, so care should also be taken to make sure that this requirement is met when a unitary patent is sought.

Changes to EPO Statistics and Trends Centre

Much of the statistical information used in this article have been taken from the European Patent Office's (EPO) Statistics & Trends Centre. Changes and updates have been made to the UP statistics dashboard, with one of those being a bigger breakdown in the technology areas in which UPs are obtained. There is plenty of other useful information and customisable charts available through this site on top of the statistics relating to unitary patents.

There is a now a tracker on the Unitary Patent tab which shows the unitary patent uptake rate, on a cumulative basis for the current year. In our recent article exploring some of the statistics behind the UPC and UP so far, it was estimated that assuming European patents were granted at the a similar rate in 2023 as in 2022 (where around 80,000 patents were granted), and given the current numbers of unitary patents being requested, the number of UPs requested represents somewhere around 40% of all granted European patents. The tracker on the EPO Statistics & Trends Centre page, however, as of 01 December 2023, pegs the number of unitary patents requested at 16.3% of all European patents granted in the last year.

The discrepancy between these percentage figures can perhaps be explained by the fact that unitary patents have only been obtainable since 01 June 2023, so for a little over six months, while the uptake rate of 15.6% is with respect to the cumulative current year (that is, the rate at which unitary patents have been obtained from all European patents granted in the last 12 months). It may, therefore, be expected that there will be some convergence between these different percentage rates over time as things stabilise and more data becomes available, perhaps settling somewhere in the mid 30s.

One factor which may bring the uptake rate of unitary patents down a little is that it was possible to delay grant of European patent applications during the transition period from 01 January 2023 to 01 June 2023, and so the number of granted European patents in the second half of 2023 is likely to be artificially higher than first half of 2023. On the other hand, currently only 17 states have ratified the UPC agreement with another seven still to go. Newly obtained unitary patents will therefore become a little more powerful over time which may prompt a small rise in the unitary patent uptake rate.

What can certainly be said is that the unitary patent is already proving popular. As ever, we will continue to monitor developments and provide updates on both the UP and UPC going forward.

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Preliminary injunctions before the Unified Patent Court
What do we know so far?

Preliminary injunctions (PIs) have long been an attractive remedy in patent infringement actions as a means to stop alleged infringing activities on a provisional basis, pending full trial. It was therefore no surprise to stakeholders when the Agreement on a Unified Patent Court (UPCA) and associated Rules of Procedure (RoP) of the new Unified Patent Court (UPC) were drafted to contain provisions relating to provisional measures, including preliminary injunctions (Article 62(1), UPCA and Rule 205, RoP).

Prior to the UPC opening its doors in June 2023, patent proprietors wishing to obtain preliminary injunctions in Europe were restricted to making individual applications before national courts. Different national courts have tended to apply different criteria to the issuance of preliminary injunctions. Therefore, obtaining multiple preliminary injunctions in different countries has historically been a costly and complicated exercise, requiring careful strategic planning.

The UPC has exclusive jurisdiction over European patents with unitary effect in addition to classical European patents which have not been specifically "opted-out" of the UPC jurisdiction.

> The UPC may grant provisional remedies, including PIs, on a pan-European basis in those seventeen countries that are party to the UPCA. The ability to obtain a PI in multiple European countries via a single application to the UPC has the potential to be both a cost-effective and powerful legal remedy.

Unsurprisingly then, a number of preliminary injunction applications have already been brought before the UPC, and it is interesting to see the early approaches taken by the court in assessing the relative merits of each application.

myStromer AG v Revolt Zycling AG: EP24546134B relates to components of an e-bike

myStromer AG v Revolt Zycling AG

In myStromer AG v Revolt Zycling AG a preliminary injunction application was made on an *ex parte* basis to the Düsseldorf Local Division of the UPC. The patent in suit, EP24546134B, relates to a combination structure of a bicycle frame and a motor hub, that is, the main components of an e-bike. In this case, the alleged infringing product was not commercially available at the time of the preliminary injunction application, but evidence was adduced that it could be test ridden at a trade fair that had taken place between 21 and 25 June 2003.

The patent proprietor unsuccessfully requested a cease and desist declaration from the defendant on 22 June 2023, and subsequently applied for an *ex parte* preliminary injunction, which was granted on the same day.

Interestingly, the defendant filed a protective letter which was considered by the court when deciding on the application. In the letter, the defendant claimed that the patent was invalid, that it was not infringed, and that the associated patent rights had been exhausted.However, in doing so, the defendant did not identify any prior art as being of particular relevance to the validity of the patent, nor did the letter contain any detailed reasoning as to why the e-bike in question did not

Case details at a glance

Jurisdiction: UPC
Decision level: Court of First Instance, Düsseldorf (DE) Local Division
Parties: myStromer AG v Revolt Zycling AG
Order: ORD_526778/2023
Date: 18 October 2023
Decision: dycip.com/upc-177-2023

Jurisdiction: UPC
Decision level: Court of First Instance, Munich (DE) Local Division
Parties: NanoString Technologies Inc, NanoStrings Technologies Germany GmbH, NanoString Technologies Netherlands BV v 10x Genomics Inc, President and Fellows of Harvard College
Order: ACT_459746/2023
Date: 19 September 2023
Decision: dycip.com/upc-2-2023

infringe the patent, that is, the letter content was largely unsubstantiated. The court granted a preliminary injunction on the following grounds:

1. The validity of the patent had been confirmed to the required extent because no opposition had been filed at the EPO, no revocation action had previously been brought before a national court, and the defendant had not identified any prior art of particular relevance to validity in their protective letter.

2. The defendant's e-bike product was found to infringe the claims of the patent in the literal sense and no substantive arguments regarding non-infringement had been put forward by the defendant.

3. The application was urgent in light of the trade fair and exhibition of the alleged infringing product at the trade fair could lead to a loss of sales and market share for the patent proprietor that would be difficult to regain.

10x Genomics v NanoString

In the ongoing dispute between 10x Genomics v NanoString, before the Munich Local Division of the UPC, there have been two recent preliminary injunction applications for different European patents in the same family relating to compositions and methods for analyte detection.

In proceedings relating to a divisional patent, EP4108782B, the court granted a preliminary injunction following an *inter partes* hearing on 05-06 September 2023. The court considered the following substantive issues in considerable detail before deciding to grant the preliminary injunction:

1. Competence of the Munich local division.

2. Admissibility of the application for provisional measures, including formal requirements.

3. Eligibility to sue: the legal standing of the parties.

4. Patent claim interpretation.

5. Patent validity: including, novelty, inventive step, sufficiency of disclosure and added subject matter.

6. Presumption of patent validity and burden of proof to establish patent invalidity.

7. Extent of infringement, including an assessment of both direct and contributory infringing acts.

8. Licence claims of the defendants under US and EU antitrust provisions.

9. Urgency of bringing the preliminary injunction application: unreasonable delay.

10. Potential damages arising from infringing acts.

11. Proportionality of granting an injunction.

The reasoned decision, which totals in excess of 100 pages, was issued by the court on 19 September 2023, just two weeks following the hearing. A strong signal of intent from the court that it is willing and able to consider complex technical and legal issues swiftly in the context of applications for provisional measures. The second preliminary injunction application, relating to the parent patent, EP2794928B, was refused by the court following a similarly detailed assessment.

In refusing the application the court expressed concerns regarding the infringement and validity of the patent in question and also the apparent lack of urgency in bringing the preliminary injunction application. The court did, however, point out that these concerns would not prejudice the decision on the merits.

What can we learn about provisional measures before the UPC from these early cases?

In the correct circumstances, it is possible to obtain provisional measures, including preliminary injunctions, very quickly (even the same day) and without the defendant having a right to be heard.

The decision to file a protective letter should be taken carefully. While a well-substantiated letter containing detailed arguments, relating to non-infringement and/or patent validity, is likely to mitigate the risk of a provisional measure being issued on an *ex parte* basis, an unsubstantiated letter will make it easier for the UPC to issue an *ex parte* remedy, on the basis that it has no conviction in the defendant's lines of argument.

> The UPC appears willing to take a "deep dive" into substantive legal and technical issues, including patent validity, within a short time frame during proceedings relating to provisional measures.

Most observers were surprised by the comprehensiveness of the 10x Genomics decisions, which one might say the UPC has used to promote itself as a future forum of choice for litigants.

Although the UPC has shown itself to be capable of hearing preliminary injunction applications in a very prompt and comprehensive manner, it remains to be seen whether prospective litigants will view this favourably, or not.

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UP & UPC resources
Our library of UP & UPC case law, updates, guides and webinars can be accessed at www.dyoung.com/upandupc.

AI inventions are patentable
UK High Court overrules UKIPO

Case details & related guide
Jurisdiction: England & Wales
Decision level: High Court (Chancery Division)
Parties: Emotional Perception AI Ltd v Comptroller-General of Patents, Designs and Trade Marks
Citation: [2023] EWHC 2948 (Ch)
Date: 21 November 2023
Decision: dycip.com/ewhc-2948

Computer implemented inventions at the EPO: patent application tips: www.dyoung.com/cii-patent-tips

In what may turn out to be a watershed judgment, the High Court in Emotional Perception AI Ltd v Comptroller-General of Patents, Designs and Trade Marks [2023] EWHC 2948 (Ch) found that the UK Intellectual Property Office (UKIPO) had erred in finding a neural network implementing a recommendation system as being excluded from patentability.

UKIPO decision

The patent application in question claimed a system for providing enhanced media recommendations to users. The system relied on a novel artificial neural network (ANN) characterised by its distinctive training method. Essentially, the ANN was trained using pairs of media files, each accompanied by semantic descriptions of their content.

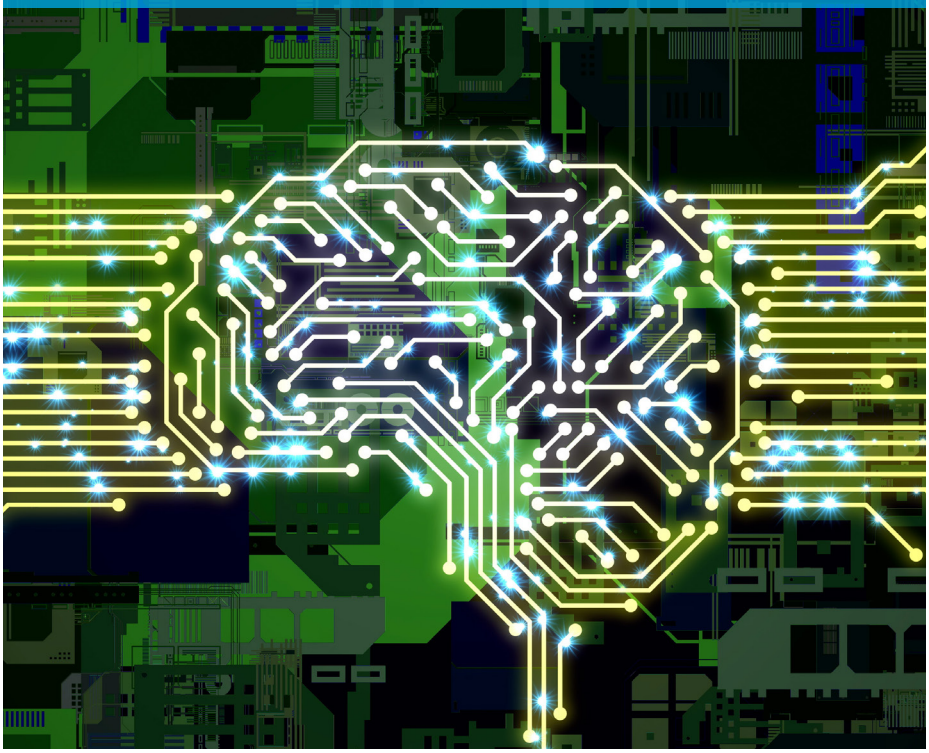
Two different "separation distances" were derived for each pair of media files, one based on natural language processing of semantic descriptions of the media files, and a second based on measurable properties extracted from the media files themselves. During training the ANN was trained to converge the distances between these two different measures of separation distance to create a mapping between the two.

Based on this training the artificial neural network was able to recommend a media file that was semantically similar to an input media file based on its measurable properties.

> During examination at the UKIPO the patent examiner maintained throughout that the claimed invention constituted subject-matter excluded from patentability.

Finally, in a UKIPO hearing officer decision (BL/O/542/22), dated 22 June 2022, the hearing officer, while acknowledging that the invention was a significant improvement over the prior art, ultimately refused the application as constituting a "program for a computer" as such, and hence being excluded from patentability.

Should a novel artificial neural network be excluded subject-matter from patentability?



This High Court decision represents an appeal to this hearing officer decision.

UK High Court appeal decision

In his judgment, Sir Anthony Mann disagreed with the UKIPO in multiple key aspects.

First, the judge accepted the patentee's submissions that ANN is not a program for a computer and should, in effect, be treated as a piece of hardware, irrespective of whether it was directly implemented as hardware or as an "emulated ANN". Accordingly, the judge considered that the subject-matter exclusion was not invoked at all.

Second, the judge found that, in any case, the claimed system demonstrated a technical effect substantial enough to avoid the subject-matter exclusion. The judge considered that the system's identification of the media file for recommendation was based on "technical criteria which the system has worked out for itself" and that the output of these media files thereby constituted a technical effect outside the computer for the purposes of escaping the subject-matter exclusion. Interestingly, the claims defined that a media file could be a "text file", the manipulation of which the UKIPO has historically been very resistant to granting patents on.

Comment

On the face of it, this decision is extremely positive news for those seeking to patent AI inventions in the UK and should hopefully make achieving grant substantially easier.

We eagerly await to see how the UKIPO responds to this judgment, and in particular what, if any, updates the UKIPO makes to its examiner guidance. In the meantime, if you have any questions on this subject, or would like any assistance with protecting a computer-implemented invention, please contact your usual D Young & Co representative.

Author:
Anton Baker

And finally...

UP & UPC

First order issued UPC Court of Appeal

The Unified Patent Court (UPC) Court of Appeal has issued its first order, relating to the extension of time limits for responding to a statement of claim. The order relates to a case in which Amgen had filed a claim against Sanofi.

When filing its statement of claim, Amgen did not upload on the UPC case management system (CMS) some of the annexes referred to in the statement of claim. The question was what effect (if any) the missing annexes would have on: 1) the date of service; and 2) the deadlines for Sanofi to respond to the statement of claim. Sanofi requested an extension of time based on the general principles of equity and Rule 9.3. However, this request was rejected by the Munich Local Chamber by a decision dated 29 August 2023. Sanofi subsequently appealed the decision to the UPC Court of Appeal. The UPC Court of Appeal's order was pronounced orally without reasons after a hearing held on 13 October 2023. The written decision was subsequently issued in German on 16 October 2023.

The UPC Court of Appeal's decision

The UPC Court of Appeal agreed with the Munich Local Chamber that the content of the statement of claim is exhaustively listed in Rule 13.1, which does not require the annexes. Therefore, the fact that the annexes were not served on Sanofi together with the statement of claim was found to be irrelevant for determining the date of service. The Munich Local Chamber held that no extension to time limits was necessary, because most of the annexes were already available to Sanofi, or if not, were publicly available or reproduced in the statement of claim.

The UPC Court of Appeal disagreed and held that Rule 13.2 requires that at the same time as filing the statement of claim, the claimant must supply a copy of each of the documents referred to in it, regardless of their nature and/or content. Further, that it is inequitable to place the burden of proving the relevance of the annexes on the defendant. Therefore, the UPC Court of Appeal held that, whilst the date of service is unaffected when a statement of claim is filed with missing annexes, except for special circumstances, the time limits to respond to the statement of claim should be extended by the period during which the annexes were not available.

The outcome of this order is that, when filing a statement of claim, claimants cannot tactically delay filing the accompanying annexes to put additional time pressure on defendants. This outcome appears consistent with the general principles of equity.

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Link to full decision: dycip.com/upc-320-2023

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