

Patent infringement claims with equivalence in China

China has a doctrine of “equivalence” – it may be the patentee’s last hope. While the statistics for decisions in Europe, the US, and Japan show that it is not easy to sue successfully for patent infringement with equivalence, the numbers in China show that there is a much higher chance of success. **Toby Mak** compares the statistics on patent infringement in China with equivalence in other major jurisdictions and discusses differences on how Chinese businesses approach and understand patents, which may lead to these differences: ranging from the use of vague terminology, including unnecessary detail in claims. Understanding these differences may help foreign businesses better understand the patent and infringement landscape in China.

The starting point for our discussion are some interesting statistics¹ on the success rate of patent infringement claims with equivalence in various jurisdictions in the last five years (2012 to 2017): You can see from Table 1 (opposite) that:

- The success rate is around 20% in the US and Europe, and even lower in Japan (11%). In the UK, very few people even bothered to try³. Relying on equivalence for patent infringement allegation in the US, Europe, and Japan is statistically not advisable.
- By contrast, the success rate in China is much higher, double that in the US and Europe, and four times of Japan’s. The success rate was even higher in 2007 to 2012.
- The number of attempts to rely on equivalence in China increased significantly from 2012 to 2017 compared to 2007 to 2012, but the success rate drops.
- It is surprising that France has a similar success rate as in China.

There could be many reasons for the figures in China:

- a. Many Chinese infringers are not sophisticated – so often infringing products are almost a copy of the original product covered by a patent, with minimal alteration.

Table 1: Success rate of patent infringement claims with equivalence (2012 to 2017):

Country / Region	Success rate
Europe†	21% (out of 325 decisions)
UK 	0% (out of 2 decisions) ²
Germany 	8% (out of 116 decisions)
France 	36% (out of 47 decision)
The Netherlands 	0% (out of 25 decisions)
Japan 	11% (out of 97 decisions)
US 	18% (out of 335 decisions)
China 	39% (out of 721 decisions)
China (2007 to 2012)	47% (out of 400 decisions)

†European numbers include those from the UK, Germany, France, Italy, Spain, Belgium, Denmark, Finland, Norway, Portugal, Sweden, Switzerland, Poland, Turkey, Hungary, and Slovenia.

- b. Chinese infringers are not advised properly (or at all), that a minor alteration could get around a patent (probably due to lack of a budget or willingness to take advice).
- c. When drafting patent claims, many Chinese companies do not provide sufficient time and money, resulting in claims with narrow scope and including insignificant features. Modifying around these insignificant features may avoid literal infringement; but, ironically, as these features are insignificant, the infringing act may still be caught by equivalence.

Equivalence under Chinese law

To invoke infringement by equivalence, there must be a difference between the infringing product and the claim(s) of the patent, the difference uses basically the same means to realize basically the same function and achieve basically the same effect, and a person skilled in the art could reach the difference without inventive efforts. Readers will note that this Chinese approach is closer to that of the US “Doctrine of Equivalence”: neither needs to consider what the person skilled in the art would have understood what the patentee is claiming, i.e. whether the patentee intended to limit the scope of the claim. The same approach is used in respect of both invention patents and utility models.

Successful patent infringement claims with equivalence

To understand the situation in China better, this is an example of a successful patent infringement claim based on equivalence. This was an appeal to the Beijing High Court, which upheld the decision from the Beijing IP Court. The patentee was ConST⁴, while the infringer was Spake⁵. In this case the right was a utility model (‘141)⁶:

1. The utility model ‘141 concerns a hand-held positive and negative fluid pressure calibrator with the main claim as below:

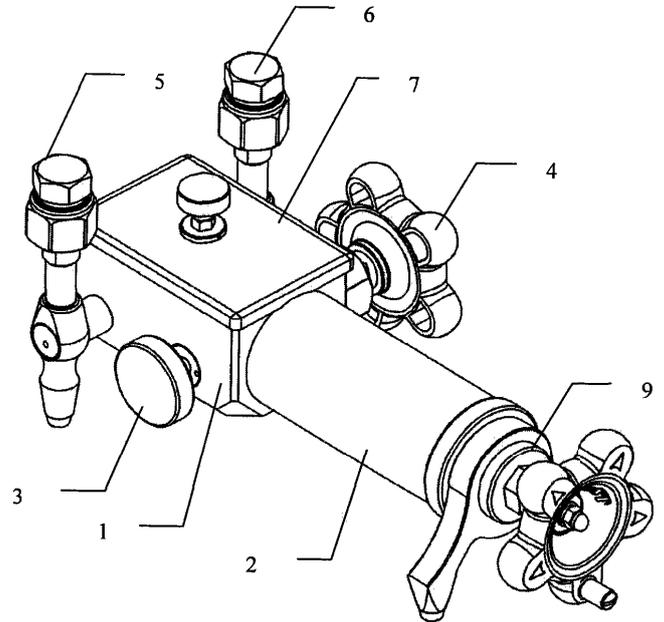
A handheld positive and negative fluid pressure calibrator, comprising a spiral fluid pre-pressured pump (9), a connecting base for a standardised meter (5) and a connecting base for a meter to be tested (6), characterized in further comprising:

a fluid reservoir (2) in the form of a sleeve outside the pre-pressured pump (9);

a pump base (1), wherein a fluid reservoir cavity is provided to communicate with the fluid reservoir (2), and a passage is further provided to communicate with the pre-pressured pump (9), the passage communicating with the connecting base for the standardised meter (5) and the connecting base for the meter to be tested (6), and a pressure shutoff valve (3) and a fine adjustment device (4) are provided on the passage;

a pump base upper cover (7) fixedly seal mounted on an opening of the fluid reservoir cavity of the pump base (1).

A figure from ‘141, showing the fluid pressure calibrator is reproduced below:



2. According to the specification of ‘141

- This calibrator was an improvement over the same patentee’s previous pressure calibrator described in an earlier Chinese utility model for improved portability while preventing liquid waste from blocking the controlling unidirectional valve, while at the same time providing for negative pressure calibration.
- The following components are all installed on the pump base for device miniaturization: the fine adjustment device 4, the connecting bases 5 and 6, the pressure shutoff valve 3, and the fluid reservoir 2.
- The spiral fluid pre-pressured pump is used for better durability and sealing ability.
- The removable pump base upper cover is provided on the fluid reservoir to ease cleaning liquid waste or replacing oil liquid.

The infringing product is shown below:



In the first instance decision at the Beijing IP Court, the Spake argued that:

- Its product did *not* provide passages communicating with the connecting bases for the meters.
- The connecting bases of '141 were located at the two sides of the pump base body, and their connecting passages pass through the inside of the pump body base.
- Spake's product did not have these technical features. It had an isolated rectangular manifold block outside, and connecting to, a front end of the pump body, connecting bases for a standardised meter and a meter to be tested respectively located at the left and right sides of this manifold block, and the connecting passages for each connecting base on the manifold block. The connecting bases and their connecting passages in the manifold block formed an independent structure portion connecting to a pump base.
- The connection design of Spake's product is convenient for maintenance, reduces the possibility of leakage with multiple seals of passages in the pump base, and ensures improved stability of test results.
- Spake asserted that its product implemented its own utility model. [Comment: As mentioned in my previous articles "Recorded high compensation rewarded by Beijing IP court in patent infringement case, with compensation of attorney fees", this is yet another demonstration of a typical misunderstanding by many Chinese companies that having their own patent gives them rights to work the invention.]

Other than "a pump base (1), wherein... a passage is further provided to communicate with the pre-pressured pump (9), the passage communicating with the connecting base for the standardised meter (5) and the connecting base for the meter to be tested (6)", Spake admitted that its product has all the other features of claim 1 of '141.

Even though SIPO⁷ issued a positive patentability evaluation report before the first instance, Spake still tried to invalidate '141, but failed. Specifically, Spake relied on an advertisement as a secondary reference to combine with the main reference, ConST's own Chinese utility model for a previous product. However, the Chinese Patent Re-examination Board⁸ opined that this advertisement failed to clearly disclose the relevant features that Spake relied on to attack the inventiveness of '141.

At first instance, the Beijing IP Court decided that Spake infringed, awarding RMB500,000 (£56,200) statutory damages and RMB57,000 (£6,400) legal fees in the first instance. The reasoning, affirmed by the Beijing High Court (second instance), was:

- Spake's product had connecting bases for a standardised meter and meter to be tested connected to the manifold block, and the manifold block and the pump body were

two physically separable objects. On comparing the positions of the connecting bases and their connecting passages, it was found that Spake's product and claim 1 of '141 are different.

- However, Spake's product only arranged the pump body and connecting bases and their connecting passages separately on the manifold block. There was no difference in working principles of Spake's infringing product compared to '141: both used basically the same means to realize basically the same functions, achieved basically the same effects, and features with which a person skilled in the art can reach at without inventive efforts.

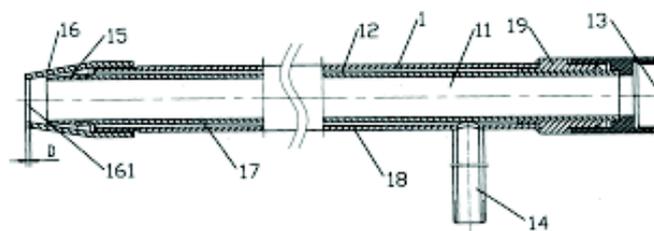
As can be seen from the above, it should not be a surprise that an infringing product with such a slight modification is found infringing in China by equivalence, resulting in the relatively high success rate.

Unsuccessful patent infringement claims with equivalence

As can be seen from the statistics, even though there were significantly more attempts to argue for patent infringement with equivalence from 2012 to 2017 compared to from 2007 to 2012, the success rate in fact dropped from 47% (2007 to 2012) to 39% (2012 to 2017). Are Chinese courts now stricter in relation to equivalence? Are Chinese companies better at getting around patent claims? I have searched for recent decisions of unsuccessful patent infringement claims with equivalence to try to shed some light. Some examples are set out below.

Yu Shanghai & Zhongshan KSUN Hardware Production Co Ltd v Yingde Hongtai Glass Co Ltd

This was a first instance decision from the Guangzhou IP Court in 2016 (one of the three IP courts in China). Yu Shanghai (Yu), a Chinese individual, was the patentee of Chinese invention patent no. 200910258787.0, and KSUN⁹ was the exclusive licensee. The product involved a burner for petroleum coke powder, shown in the figure below. The claim specified that "a cylindrical platform (161) [sic¹⁰] is provided at a front end of the barrel cap (16)."



The description in the patent recited that a cylindrical platform at depth of about 3mm is provided at the front end of the barrel cap, such that the fluidized gas sprayed from the burner has the best burning effect.

In this case, the plaintiffs and the defendant, Hongtai¹¹ agreed that the accused product had all of the technical features of claim 1 except the cylindrical platform. Hongtai argued that the corresponding part in the alleged infringing product was a blunt body, but not a cylindrical platform, with which the court agreed. The court further noted that the cylindrical platform at the depth of 3mm is arranged at the front end of the barrel cap of the granted patent, such that the fluidized gas sprayed from the burner has the optimal burning effect. Therefore, providing a cylindrical platform at the depth of 3mm is an essential and an important feature of the burner of Yu's patent. As Hongtai's product did not have a cylindrical platform at the depth of 3mm, therefore Hongtai did not infringe.

It should be noted that the feature "at the depth of 3mm" was not in claim 1 of Yu's patent, but in dependent claim 2. So, the court further narrowed the protection scope of Yu's patent to claim 2 due to the recitation of the best burning effect. While this may be the reason why the court did not accept that a blunt body was equivalent to a cylindrical platform, it is intriguing that the Guangzhou IP Court also considered "at the depth of 3mm" in claim 2 to be essential.

[**Comment:** This emphasises the need in China to be extremely careful when drafting a patent specification in using words such as best, optimal, absolute, extreme, significant. In China, this may even cause a court to automatically incorporate a dependent claim into your independent claim when determining infringement. The main lesson to be learnt from this case is that the use of the above extreme words should be avoided as much as possible.]



Suzhou Hailu Biotech Co Ltd v Zhuhai Keyu Biological Engineering Co Ltd, Guangzhou Work Trading Co Ltd and Qingyuan Maternity and Child Health Care Hospital

A 2017 first instance decision from the Guangzhou IP Court. The plaintiff Hailu¹² was the patentee of a Chinese invention patent ('365')¹³. Claim 1 read:

1. An automatic detection instrument for stool specimen, characterized in comprising the following parts:
 - an automatic controller;
 - a specimen box used for holding stool specimen;
 - a dilution device used for adding a quantity of diluent to the stool specimen;
 - a stirring and blending device for stirring and blending the diluted stool specimen¹⁴;
 - a detecting unit used for detecting the stool specimen, including a unit for detecting physical properties and a unit for detecting chemical properties, the physical detecting unit comprises a counting chamber, the chemical detecting unit comprises a chemical detecting chamber;
 - a sample suction and cleaning device connected with the detecting unit through pipelines, the sample suction and cleaning device comprising an elevatable sample suction needle, a diluent intake, and a sample suction peristaltic pump¹⁵ connected between the sample suction needle and the diluent intake, the counting chamber and the chemical detecting unit being connected in series between the sample suction needle and the sample suction peristaltic pump,
 - when the sample suction needle is put into the specimen box and the sample suction peristaltic pump rotates positively, the stool specimen is sucked out from the specimen box by the sample suction needle and sent to the detecting unit for detection;
 - after the detection is finished, the sample suction peristaltic pump operates in reverse and sucks the diluent from the diluent intake to clean the detecting unit and the connecting pipelines, and discharges waste liquid into the specimen box.

[**Comment:** Long claims with unnecessary detail are common in China. See point (c) above.]

According to the specification [paragraph, 0063], each of the two ends of the counting chamber has an electromagnetic valve, so that the sample fluid in the counting chamber will be quickly stabilized for observation and counting when the electromagnetic valve shuts. Further, when the counting chamber is cleaned, the electromagnetic valves open and shut repeatedly to increase the pressure within the pipelines such that the cleaning effect is enhanced. A one-way valve, prevents flow of waste liquid into the diluent pipeline, avoiding contamination. [**Comment:** Naturally, many of the above features are not recited in claim 1.]

The alleged infringing product was sold by Keyu¹⁶, the defendants. They argued that the alleged infringing product had the five differences from claim 1 (see Table 2 on the following page).

Table 2: Differences in claim 1 claimed by Keyu

Difference	The alleged infringing product	Claim 1 of '365
A	Did not have a pipeline connecting to a chemical detecting unit	A sample suction device and a cleaning device both connect to a chemical detecting unit through pipelines
B	Only had a chemical detecting unit but no detecting chamber	Recites a detecting chamber.
C	Only had a one-piece pump having high accuracy, and did not have sample suction peristaltic pump	A sample suction peristaltic pump having low accuracy
D	The counting chamber and the chemical detecting chamber were separated from each other, but not in series connection	The counting chamber and the chemical detecting chamber were connected in series
E	Waste liquid was discharged into a waste liquid barrel after cleaning	Waste liquid was directly discharged into the specimen box

Interestingly, yet again, the defendant presented its own utility model and invention patent to defend against the infringement claim. [Comment: Readers should now be used to such “peculiar” Chinese defences. No wonder Chinese companies file and obtain so many patents.]

The plaintiff admitted that differences A and D existed between the alleged infringing product and claim 1, but they served the same function and provided the same effect. Regarding difference C, the sample suction peristaltic pump and the one-piece pump only differed by names, but served the same function and provided the same effect.

The defendant further explained that waste liquid should not be discharged into the specimen box, otherwise the sample suction needle had to be inserted into the specimen box. In such a case, the outer wall of the sample suction needle could not be cleaned, and the specimen liquid would be polluted¹⁷.

The plaintiff Hailu confirmed in court that:

- Waste liquid should not be discharged into the specimen box, as mentioned by the defendant Keyu.
- Discharging waste liquid into the waste liquid barrel now recited in claim 1 was inappropriate.
- The product practically produced by the Hailu and supposedly covered by '365 also discharged waste liquid into a waste liquid barrel as in the alleged infringing product. That is, the plaintiff also admitted difference E existed.

The Guangzhou IP court noted that the defendants outlined five differences, and the plaintiff confirmed differences A, D, and E existed. With regard to difference E, the plaintiff confirmed that discharging waste liquid into the specimen box could not clean the outer wall of the sample suction needle, and also polluted the specimen liquid. Moreover, that the Hailu's actual product also

discharged waste liquid, not into the specimen box, but into the waste liquid barrel. Therefore, this difference obviously did not use basically the same methods, and therefore did not fall into the scope of claim 1.

[Comment: With the above admissions from Hailu, it should not be a surprise that they lost this case. The court did not comment on differences A and D, which is typical in China. Once a court or an authority found a point that they can decide on, the remaining points are left unanswered. Several lessons should be learned from this case:

- When a claim is too long, consider removing or simplifying features that do not confer inventiveness to the invention¹⁸.
- Make sure the intended product has the same features as those in at least one claim¹⁹. If there were change(s) introduced to the product after the application was filed and not covered by any claim, consider filing a subsequent application covering the changed feature, if possible.
- Consider the case thoroughly before suing. In this case, it might have been better for Hailu not to sue with such a significant difference between their own product and the claim.]

Unsuccessful patent infringement claims with equivalence, and then reversed *Ma Li v Zouping Chuangxing Environmental Protection Equipment Co Ltd*

This is a Chinese Supreme Court decision (2017), on appeal against a decision from Shandong High Court (second instance) The patentee Ma Li (Ma) owned a Chinese patent ('701)²⁰ for “An automated assisted blowing device for pneumatic conveying pipe”. Ma and the defendant Zouping²¹ argued over four technical features in '701 and the alleged infringing product, and one of those was:

“one end of [an] inlet pipe of the piston communicates with a valve cavity in front of the valve spool... [and] the other end goes through a valve cover of the valve body to communicate with a cavity...”

The Shandong High Court ruled that the “piston inlet pipe” in these features was outside the valve body, and was not identical or equivalent to the “through hole (that is, inlet hole)” arranged inside the valve body of Zouping’s alleged infringing product; and more specifically, that the “through hole (inlet hole)” was mechanically more compact, simple, and convenient than the “piston inlet pipe” in ‘701 because of its arrangement inside the valve, and thus ruled the two were not equivalent, and Zouping not infringing. Further, the Court stated that it would not provide comments on whether the other three contested technical features were the same, or equivalent to those in ‘701. [Comment: See my comments above, once a deciding point is found, a Chinese court or authority will not comment on the remaining points.]

The Supreme Court reversed the second instance decision saying:

- The invention of ‘701 avoided using any electrical component in the pneumatic stop valve, or electric valve, while electrical component was used in prior art devices, such that cost was reduced, and reliability was improved.
- The “piston inlet pipe” in ‘701 and the “through hole (inlet hole)” in the alleged infringing product served the same basic function, as they were both used to convey air pressure, which was caused by blockage of the conveying pipe, to the piston through pipelines, so as to realize automatic open and closure. Although “pipe” and “hole” were different, the “piston inlet pipe” and the “through hole (inlet hole)” both achieve substantially the same effect by substantially the same means when conveying air pressure through the pipelines.

- In relation to the second instance court’s ruling that the “through hole (inlet hole)” in Zouping’s alleged infringing product was mechanically more compact, simple, and convenient than the “piston inlet pipe”, because of its arrangement inside the valve, this took excessive account on the technical effects beyond the inventive points of ‘701, which was inappropriate. [Comment: It appears that the Shandong High Court decided as the replacement of “piston inlet pipe” in ‘701 by the “through hole (inlet hole)” in Zouping’s alleged infringing product resulted in the above-mentioned advantages (more compact, simple, and convenient), and therefore such replacement would not be obvious to a person skilled in the art (one of the conditions to avoid infringement by equivalence), while the Supreme Court disagreed. However, it is unclear what is the meaning of “excessive account on the technical effects beyond the inventive points of the subject patent”. This will be one my questions to the Supreme Court when visiting the judges with the AIPLA 2017 delegation.]

The Supreme Court ordered the case to the Shandong High Court (there is no decision yet).

Observations

The determination of patent infringement by equivalence in China follows similar practice as in the US and Germany, that is, the difference between a claim and an alleged infringing product uses basically the same means to realize basically the same function and achieve basically the same effect, and a person skilled in the art can reach at the difference without inventive efforts.

As already stressed, Chinese companies believe that holding patents gives them the right to practise their inventions, leading them to put this as a defense in allegations of infringement.

The good news is, a slight modification would not avoid

Notes and references

1. These have been compiled from information obtained from Darts-IP
2. The statistics were collected too early to capture the decision in *Actavis v Eli Lilly*
3. At CIPA Congress 2017, I was told at the that prior to *Actavis v Eli Lilly*, based on the *Catnic/Improver* tests, arguing patent infringement with equivalence in the UK is unlikely to go anywhere, and many such cases were settled before full trial.
4. Beijing ConST Instruments Technology Inc
5. Beijing Spake Technology Co Ltd
6. No. ZL200820123141.2
7. The State Intellectual Property Office of China (SIPO)
8. The Board within SIPO handling all invalidation petitions as the first instance
9. Zhongshan KSUN Hardware Production Co Ltd
10. This is how the Chinese translates
11. Yingde Hongtai Glass Co Ltd
12. Suzhou Hailu Biotech Co Ltd
13. no. ZL200910046365.7
14. Editor: It is not clear where this occurs – in the specimen box or elsewhere
15. a mechanical pump in which pressure is provided by the movement of a constriction along a tube, similar to biological peristalsis (Wikipedia)
16. Zhuhai Keyu Biological Engineering Co Ltd
17. This is a little unclear, but the gist is there
18. Editor: Something that UK practitioners are of course trained to do – but not necessarily when they are drafting for the US.
19. Editor: This is an interesting issue – logically the claimant’s product would be irrelevant, unless they assert it embodies the patented invention, but probably a good lesson. Protect even an obvious equivalent if you are using it yourself.
20. no. ZL200720017701.1
21. Zouping Chuangxing Environmental Protection Equipment Co Ltd

infringement in China. On the other hand, this may have the unintended consequence of undermining motivation of Chinese companies to have their patent specification better drafted due to the notion of infringement may still be caught by equivalence.

It appears that the reduction in success rate from 47% (2007 to 2012) to 39% (2012 to 2017) is not because the Chinese courts are stricter on equivalents, nor Chinese companies are better at getting around patent claims. It seems that the reason is a drop in the quality of patent specification drafting.

The main lessons that could be learnt from the above cases are as summarized as follows:

- In a patent specification, avoid using words such as best, optimal, absolute, extreme, significant. These words can narrow the scope of a claim. In extreme cases, Chinese courts may automatically incorporate a dependent claim into an independent claim when determining infringement.
- Be cautious of differences between the eventual product of the patentee and the filed claims. ▣

Toby Mak, Tee & Howe Intellectual Property Attorneys. Special thanks to Darts-IP for providing the data and decisions for this article, and CIPA Congress 2017, for the inspiration for this article.



UNION-IP Round Table – Indirect Infringement

Date: 23 February 2018

Location: German Patent Office and Trade Mark Office, Zweibrückenstraße 12, 80331 München, Germany

It is a challenge to provide patent protection for parts, components, and consumables, such as those used in coffee machines, printers, cars, and as ingredients for pharmaceuticals. Indirect infringement might be the only solution for the patentee in such cases. However, this is subject to conditions, which prove to be complex, and interpreted differently across Europe. When drafting or litigating a patent, the following questions might arise:

- What is an essential element of the invention? Any element of the patent claim, an element important for the realization of the invention (Nespresso 2013, Audiosignalcodierung 2015), or a distinguishing feature (*Sara Lee v Integro*)?
- Must the element be delivered in the same country as where the patent is infringed directly? German case law shows that this is not necessary (*Funkuhr 2007*, *Abdichtsystem 2017*), while judges in other countries rule differently.
- Does the supplier of the element need to know that delivery will result in direct infringement, is it sufficient that such infringement is obvious (*Grimme v Scott*) or is it required that the infringing use is promoted (Swiss case law)?
- When is a Swiss-type claim infringed? Court cases involving this issue for the product Permetrexed are ongoing in different countries.
- Will there be more cases of indirect infringement if the UP and UPC come into force?

UNION-IP's 2018 Munich roundtable will be an outstanding opportunity to hear from judges and experienced professionals about indirect infringement in Europe and to exchange views on the subject with colleagues from all over Europe.

The speakers lined up for the event, which is to be held at the German Patent Office in Munich on **Friday 23 February 2018**, include **Dr Klaus Bacher**, Judge at the Bundesgerichtshof (German Federal Court), **Silvia Vitro**, President of the IP Specialized Court of Turin, **Mr Justice Sir Henry Carr** of the English High Court, **Florence Jacquand** of Véron & Associés, and **Gabriele Mohsler**, VP Patent Development at Ericsson. For more details and how to book, visit the UNION-IP website at www.union-ip.org.

Cost: €90 for Union IP members, €140 for non-members

For more details visit <https://www.union-ip.org/union/WebObjects/union.woa>