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The Dilemma and Path Optimisation of SEP Licensing Antitrust Regulationunder the Perspective of New Quality Productivity

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ABSTRACT
Under the background of new quality productivity to promote high-quality development, standard essential patents (SEPs), as a product of the fusion of technical standards and patents, have become a key challenge in restricting innovation and market competition through the misuse of SEP licences. This paper analyses the causes of SEP licensing abuse from three aspects: the endogenous logic of technical standards, the imbalance of market structure and the dilemma of international regulatory coordination, pointing out that the network effect of technical standards and the concentration of patents have led to SEP right holders obtaining the right to over-market bargaining power, and that the differences in the international rules have further exacerbated the loopholes in regulation. In view of the deviation of China's current anti-monopoly regulation, the study reveals that the ambiguous criteria for determining the dominant market position, the unclear definition of "unfairly high price" and the unclear boundaries of the rules for injunctive relief have led to the judicial practice facing the risk of inconsistency in the judgement scale and insufficient protection of the public interest. In this regard, the study proposes optimisation strategies: defining dominant market position through dynamic evaluation mechanism, constructing compound FRAND licensing fee calculation standard, and improving judicial review rules for injunctive relief, so as to balance the patentee and the public interest. The study emphasises the need to continue to improve the SEP legal regulatory system and strengthen the adaptability and coordination of antitrust regulation, so as to create a fair and efficient innovation ecosystem for the development of new productivity.

KEYWORDS
New qualitative productivity; Standard-essential patents; Licensing abuse

1 Introduction

Against the backdrop of accelerated iteration of global scientific and technological innovation, new quality productivity, as the core engine leading high-quality development of the economy, is becoming a key force in reshaping the pattern of international competition. China is currently working on quality improvement actions to raise quality standards, strengthen total quality management, promote quality change, efficiency change and power change, and promote high-quality development." New quality productivity is precisely the concentrated manifestation of this strategic orientation. Its essence lies in the systematic enhancement of total factor productivity through disruptive technological breakthroughs, reconfiguration of production factors and industrial paradigm innovation, thus breaking through the path dependence of the traditional growth model. In this process, the effectiveness of the intellectual property system, as the core mechanism for stimulating innovation, has a direct impact on the cultivation and development of new quality productivity.

Standard Essential Patents (SEPs), as a product of the in-depth integration of technical standards and the patent system, have become a strategic focus of global scientific and technological competition. In cutting-edge fields such as 5G and artificial intelligence, standard essential patents have become a strategic element and focus of attention for international organisations and major countries and regions around the world. The good functioning of the SEP patent market will be profoundly related to the development of the new quality productivity, which can be argued from two aspects: one is that from the innovation practicepoint of view of the , the standard essential patent, as a core medium for the transformation and application of innovation results, is able to strengthen the Firstly, from the perspective of innovation practice, standard-essential patents, as the core medium for the transformation and application of innovation results, can strengthen the continuity of innovation, enhance the competitiveness of innovation, and shape the ability to lead the innovation trend. Enterprises and other innovative entities can ensure stable access to innovation revenue through the use of standard-essential patents, which will in turn empower the development of new quality productivity; on the other hand, from the perspective of market operation, standard-essential patents, as a key strategic innovation asset, can enhance the bargaining power in technology collaboration or patent licensing negotiation. By planning and developing standard-essential patents in advance in a specific field or industry, enterprises can dominate the future direction of the industry's technology, and then seize the market opportunities and establish a leading position in the field or industry, thus driving the development of new quality productivity in the field as the industry leader. In this

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context, how to regulate the abuse of SEP licensing through the antitrust law and build a fair and reasonable patent licensing mechanism has become a key issue to be solved for the development of new quality productivity.

2 Getting to the bottom of it: exploring the causes of SEP licence abuse

Before discussing under the perspective of new quality productivitythe construction of the antitrust regulatory system for SEP licensing , it is necessary to analyse the root causes of the abuse problem, which is the basis for understanding the necessity and importance of the entire regulatory system.SEP licensing This can be analysed from the following points:

2.1 Endogenous logic of technical standards development

With the rapid development of science and technology, technical standards have become a key element in industrial development. In the process of standardisation, patentees incorporate their patents into technical standards through active participation in standardisation organisations, thus giving SEP the special attribute of "standard essential". According to the economic theory of standardisation, the network effect brought about by the implementation of standards will promote the market to spontaneously choose a unified technology path, which makes SEP de facto mandatory. Even if alternative technologies exist, market players often have no choice but to accept the established standards in order to avoid compatibility risks, resulting in SEP holders gaining a bargaining advantage that exceeds the value of the invention.

2.2 Imbalances in market structure

The high-tech field is generally characterised by a high degree of patent concentration, with the head firms constructing competitive barriers through patent layout and holding a large number of SEPs. this market structure allows these firms to dominate the patent licensing market, and to exert a significant influence on market prices and trading conditions. From the monopolistic competition model in the industrial organisation theory, when there are a few enterprises with monopoly power in the market, they obtain excess profits by limiting production and raising priceshave greater incentives to. Therefore, in the SEP licensing market, patent holders may take advantage of their market position to reduce the number of patents licensed and raise the price of licences, resulting in the dissemination and application of technology being impeded, thus harming market competition and innovation efficiency.

2.3 The dilemma harmonising of international regulation

In addition to the factors mentioned above, differences in rules at the international level cannot be ignored. Cross-border patent licensing involves regulatory conflicts in different jurisdictions. There are significant differences between countries in terms of the intensity of intellectual property protection, antitrust review standards, etc., and this institutional gap provides possibilities for strategic circumvention. Patent owners may place their licensing behaviour in a weak regulatory area by choosing jurisdiction and splitting licensing agreements. A number of transnational litigation cases in recent years have shown that insufficient coordination of international rules has become a key obstacle to effective regulation.

3 Reality bias: an analysis of the state of antitrust regulation of SEP licences in the context of orientationthe new qualitative productivity

In the context of the deep integration of the global digital economy and scientific and technological innovation, the antitrust regulation of the licensing mechanism of standard essential patents (SEPs), as a core element of technical standards, has become a key issue in maintaining the order of market competition and promoting the development of new productive forces. Although China's current regulatory system has been initially constructed, it still faces many practical deviations in practice, centred on the determination of market dominance, the determination of unfairly high prices and the application of rules for injunctive relief, etc. These problems not only restrict technological innovation and the development of new technologies, but also limit the development of new technologies and the development of new industries. These problems not only restrict technological innovation and industrial upgrading, but also form institutional obstacles to the cultivation of new productivity.

3.1 The criteria for recognising market dominance are not yet clear

The accurate definition of market dominance is the logical starting point for antitrust regulation. However, in the field of SEP, due to the complexity of technical standards and the overlapping effect of patents, the traditional market definition method faces difficulties in applicability. On the one hand, it is difficult to clearly delineate the boundaries of the relevant market; SEP licensing involves the dual dimensions of the technology market and the product market, e.g., the 5G standard essential patents may constitute the technology market independently, and may also be intersected with the terminal equipment market. In the current judicial practice, there is a lack of uniform standards for the determination of "technical irreplaceability", which leads to significant differences in the definition of the relevant market in different cases. For example, some cases consider SEP licensing as a separate technology market, while others consider it as part of the downstream product market, and this ambiguity has a direct impact on the outcome of the determination of dominant market position. On the other hand, the assessment elements of market dominance are one-sided. The current antitrust law mainly relies on market share as the core indicator, but the market control of SEP right holders often stems from the necessity and irreplaceability of patents rather than mere market share. For example, although an enterprise only holds 10% of the SEPs in a certain technical standard, its patents may cover the core functions of the standard, making it impossible for downstream enterprises to bypass its patents for production. In this case, it is difficult for the traditional market share indicator to accurately reflect the actual market dominance of the enterprise. In addition, the network effect and path dependence of technical standards make it possible for SEP right holders to form substantial control over downstream industries through patent licensing even if they do not directly participate in market competition, and there is still a gap in the regulation of such situations under the current law.

3.2 Lack of clarity on the criteria for determining "unfairly high prices"

"Unfairly high price" is a typical manifestation of SEP licence abuse, but the ambiguity of the criteria for determining it has led to different standards of adjudication in judicial practice, and the abstract nature of the FRAND Principle has increased the difficulty of operation. Although countries generally require SEP right holders to follow the FRAND Principles, there is a lack of quantitative standards for the specific meaning of "fair and reasonable". For example, when calculating the licence fee, there are significant differences in the methodologies adopted by different jurisdictions: the Chinese courts tend to refer to the global fee benchmarks, while the European Union focuses on the principle of territorial division. Such differences can lead to very different conclusions in the same case in different countries, undermining of the lawthe clarity and predictability . At the same time, the subjectivity of the method of calculating royalties is prominent. Currently, the main methods include the "Comparable Agreements Method" and the "Technical Contribution Method", but each method has its limitations. For example, the "Comparable Agreement Method" relies on similar licensing agreements in the market, but the uniqueness of SEPs makes it difficult to obtain fully comparable agreements; the "Technical Contribution Method" is theoretically reasonable but lacks an objective basis for the quantification of technical value. This subjectivity provides room for rights holders to manipulate licence fees, resulting in unreasonable cost pressures on licensees (especially SMEs).

3.3 The boundaries of the rules applicable to injunctive relief are blurred

Injunctive relief as an important means of intellectual property protection, improper use in the field of SEP may lead to serious market distortion, and the current regulatory rules for SEP injunctions in China are ambiguous, leading to the risk of abuse of rights in judicial practice. The current law requires the right holder to apply for an injunction to prove that the infringement has been established and that there is irreparable damage, but the term "irreparable damage" is often interpreted broadly in SEP cases, for example, the right holder may apply for an injunction on the basis of "loss of market share", the court's review standard lacks refinement, which leads to the risk of abuse of rights in judicial practice. andThe lack of refinement of the court's standard of review has led to injunctions being abused as bargaining chips, resulting in the risk of "patent hijacking" on the part of the licensee. Moreover, as SEPs are widely used in key areas such as communications, healthcare, energy, etc., injunctions may have a significant impact on the public interest, e. g., an injunction on SEPs in the field of chip manufacturing may lead to a break in the industrial chain, thus threatening national industrial security. In short, the current law does not provide a sound mechanism for the protection of the public interest, and the courts lack clear criteria and procedures for weighing the interests of rights holders against the public interest.

4 Specific Countermeasures: Optimisation Strategies for SystemChina's SEP Licence Abuse Antitrust Regulatory

This part of the will study focus on the following core issues to optimise the system: firstly, to build a scientific and reasonable system for assessing market dominance; secondly, to establish standardised criteria for judging the reasonableness of licensing fees; and thirdly, to improve the judicial review mechanism for the application of injunctive relief.

4.1 Precise definition of market dominance

Relevant market definition needs to break through the traditional analytical framework and establish a dynamic assessment mechanism adapted to the characteristics of SEP technology. In view of the rapid iteration of technology in the SEP field, a dynamic analysis method that includes a time dimension should be adopted. Taking the field of communication technology as an example, when defining the substitution relationship between 4G and 5G technologies, it is necessary to differentiate the judgement according to the stage of technological development: in the early stage of 5G network construction, 4G technology still has market independence because the infrastructure is not yet perfect; when the coverage rate of the 5G network is more than 60%, it should be determined that the two form a competitive substitution relationship. Geographic market definition should be based on the scope of patent licensing, and for SEP portfolios licensed globally, the relevant geographic market should be defined as the global market. Commodity market definition should implement a two-tier analysis structure: at the standard level, the scope of alternative standards should be judged through conversion cost assessment, and when the conversion cost of the industry is less than 15% of the total cost of standard implementation, the alternative standards should be included in the same relevant market; at the patent level, the market boundary should be divided according to the degree of technical necessity, and the core patents (technical necessity patents) which are indispensable to realising the technical function of the standard should be deemed to constitute an independent relevant commodity market. constitutes an independent relevant goods market, while patents with commercial value but with alternatives (commercial necessity patents) shall constitute a relevant market together with other patents of the same kind. In defining market dominance, reference should be made not only to the traditional consideration - market share - but also to further consider other factors. For SEP patent holders, the degree of control over the technical standard is a key factor. If an enterprise's SEP patent occupies a central position in a technical standard, and it is difficult for other enterprises to implement the technical standard bypassing the patent, then the enterprise's dominant position in the relevant market should be taken into account. The exclusivity of the patent, the irreplaceability of the technology and the degree of reliance of downstream enterprises on the patent should also be included in the determination.

4.2 Clarity of the criteria for determining an unfairly high price

In view of the ambiguity of the application of the FRAND principle, a composite method of calculating the licence fee should be constructed: firstly, the top-down method should be used to determine the industry benchmark rate (usually 2-5% of the selling price of the end-product), secondly, the comparable transaction method should be used to make horizontal corrections, and lastly, case-by-case adjustments should be made in conjunction with the specific licensing terms and conditions. Special attention should be paid to the fact that when the comparable transaction method is adopted, it should be ensured that the reference agreement is technically homogeneous with the patent in dispute and the difference in the licensing environment does not exceed 30%. There are two to ways : determine whether a standard essential patent licence fee is unfairly overpricedone is by comparing the licence fee rate: comparing the actual licence fee rate with the rate determined in accordance with the FRAND principle; if the actual rate is significantly higher than the actual value, considering the difference between the acquisition patent fee and the economic value, and the difference is significant, then the price is unfairly overpriced. The other is by focusing on the change of licensing price: comparing the licensing price before and after the entry of the patent into the standard, if the price increase after the entry of the standard exceeds the reasonable range of market competition, then it is an unfairly high price.

4.3 Reasonable restrictions on application for injunctive relief by SEP rights holders

In order to balance the interests of patentees and licensees, it is first necessary to establish clear and strict rules for the application of injunctive relief. For example, the criteria for good faith negotiations should be defined in detail. It can be stipulated that the SEP patent holder should follow certain procedures during the negotiation process with the licensee, such as providing a detailed list of patents and a framework of licensing terms in advance and responding to the licensee's questions within a reasonable period of time, in order to be considered as negotiating in good faith. When the

licensee is willing to pay the licence fee in accordance with the FRAND principle and can provide appropriate proof, the patentee shall not easily apply for injunctive relief. In terms of procedural regulation, it is proposed to introduce a security injunction system: when a patentee applies for an injunction, it shall provide sufficient security (including cash security and real estate collateral) to cover potential losses. When an erroneous injunction causes losses to the licensee, a fast payout mechanism should be established - the licensee may initiate the claim procedure within 7 days after the injunction is lifted, and the court is required to complete the approval of the losses within 30 days and prioritise the implementation of the payout from the security. This mechanism can not only safeguard the patentee's legitimate right to remedy, but also effectively curb strategic injunctive abuses

5 Looking ahead: legal regulation of SEP licences should be continuously improved

In the era of vigorous development of new productivity, the anti-monopoly regulation of is of great significance in promoting industrial innovation and maintaining market order. China has built up a multi-level SEP licensing anti-monopoly legal system for abuse, from the Antimonopoly Law and the Patent Law to various judicial interpretations and local regulations, which constantly provide the basis for regulatory practice. However, SEP licensing there are many problems that need to be solved, which restrict the full play of antitrust regulation and affect the healthy development of the patent market and the cultivation of new productivity. In the future, still the antitrust regulation of SEP licensing needs to be continuously researched and dynamically adjusted in order to better meet the needs of the development of new productive forces.

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