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The Principles for Delineating Relevant Market of Standard Essential Patents

Aiping Ma[1]

[1] *Law school of Nankai University, Tianjin, China*

ABSTRACT

Standard-essential patent licensing is one of the forms of state aid. This paper studies the anti-monopoly principle of SEP implementation. SEP licensing has market failure problems such as license fee stacking, hijacking and anti-hijacking. In SEP antitrust cases, the interpretation of defining relevant markets is insufficient. Referring to the SEP case law in Europe and the United States in recent years, it is necessary to explain and expand the definition of relevant markets and substitutability analysis.

Keywords: *Delineating the relevant market, Antitrust, Standard-essential patents.*

1. INTRODUCTION

Standards are public goods in the technology market, which are public and open (except for enterprise standards, they are also private). Patents are legal exclusive rights based on patent inventions. They are private compound rights with both property and personal rights. Patents are mandatory, exclusive, locked, and blocked. The two are contradictory and harmonious. Private market players may (collectively) abuse the market dominance brought by SEP with the help of standard bundled patents. Standard essential patent (SEP) is a patent that protects the technology contained in the standard. [1] Standard essential patentee's application for injunctive relief can be understood as a refusal to license. [2] Standard essential patents are "necessary", because the implementation of the standard requires the use of inventions covered by standard essential patents. Standard essential patents are two seemingly contradictory combinations. The standard ensures the compatibility and functionality of complex technologies and enables interoperability between devices. The success of the standard depends on its wide implementation, and each producer should have the right to use the standard authorized. On the other hand, the patent objective is to protect the technology of the patent owner, who has the right to restrict or prevent the use of the technology and whether to profit from it according to law, by choosing how and to whom the patent is licensed/sold, whether for remuneration or not. To address these contradictions, the Standards Development Organization (SDO) requires patent owners involved in standard-setting to undertake to license their patented technology (i.e., SEP) to any implementer who chooses to use the standard in accordance with the "Fair, Reasonable and Non-discriminatory" (FRAND) clause [3]. If the patent owner makes this commitment (FRAND commitment), it does not have the right to refuse to license its standard essential patent to a party willing to agree to the FRAND terms.

Market failure leads to ethical issues such as "patent hijacking", "reverse patent hijacking", and license fee stacking in licensing negotiations. "Hijacking" covers patents applicable to standard technologies that enable their owners to claim higher royalties and other more favorable licensing

1. Judgment of the Court of Justice Huawei Technologies Co. Ltd v ZTE Corp. and ZTE Deutschland GmbH, C-170/13,2015.07.16, ECLI:EU:C:2015: 477(ECJ,2015).

2. Ding Yaqi, On the Legal Regulation of Antitrust Remedies Involving Standard-Essential Patent Injunctions in China [J]. Political Science and Law, 2017(2): 119.

3. The Communication from the Commission – Guidelines on the applicability of Article 101 of the Treaty on the Functioning of the European Union to horizontal co-operation agreements, OJ C 11, 14.1.2011, p. 60, Para. 285，CELEX: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52011XC0114 (04) .

terms than before the standard is adopted. The hijacking problem is the space between the expectation and the value of standard essential patent technology. SEP holders claim patent license fees and high compensation fees that exceed the value of standard essential patent technology. The anti-hijacking problem is that SEP implementers indefinitely delay the SEP license fee negotiation agenda, deliberately increase the time cost, information search cost, negotiation cost, contracting cost, transaction cost, opportunity cost, litigation cost, and force SEP holders to accept unreasonable low license fees and exclude restrictions to reduce reasonable license conditions. The essence of ethical issues such as hijacking, anti-hijacking, and license fee stacking is that one party of SEP licensing negotiations abuses its own dominant position or uses improper business strategies, tactics, and means to force the other party to accept unreasonable and unfair licensing conditions in exchange for maximizing its own interests. In order to effectively solve the market failure in the SEP licensing process, improve efficiency, encourage innovation, and improve consumer welfare, it is necessary to conduct a proportional equity analysis under the premise of defining the SEP licensing related market.

Studying SEP antitrust principles is conducive to regulating SEP holders' abuse of market dominance, implementation of monopoly agreements and improper increase of market concentration, reducing the social net loss caused by SEP monopoly, insufficient innovation motivation, low efficiency and other negative externalities. SEP private market cannot solve the problem of negative externalities. High bargaining costs and dispute resolution will reduce the inefficient and ineffective SEP negotiation results of non-cooperation. To maintain the security of SEP supply chain, the information asymmetry of SEP transaction price may increase the adverse selection of free outdated technology, distort the information of technical quality potential brought by SEP license price, and unnecessary standard information to expel high-quality standard essential patent information, which negatively affects technology transfer and diffusion. For cost downstream end users, including small and medium-sized enterprises and consumers, they can benefit from the reasonable price of the latest standardized technology, improve the producer welfare and consumer welfare of small and medium-sized enterprises, improve the business environment level of innovation and standard development, and maintain SEP holding and implementing innovative market competition. Negotiation delays and increased licensing costs may negatively stimulate participation in standardization and negatively affect the ability to participate in critical infrastructure-related global markets by providing effective technologies. Standard interoperability, complexity, differences in interests and business models, many products need the implementers of standard essential patents, cross-sectoral standard utilization, SEP licensing environmental friction factors intertwined, and further put forward the need for certainty and transparency.

Standard essential patent licensing is one of the forms of state aid. This paper explains and develops the market case law that defines standard essential patents.

2. BASIS OF LAW

The core of the antitrust market is the field of effective competition.

2.1 Case Law of the United States

On January 12,2017, the U.S. Department of Justice and the Federal Trade Commission jointly issued a new version of the U.S. "Antitrust Guidelines for Intellectual Property Licensing", which defines the commodity market, technology market and R&D market.[4] What is needed is a compliance survey to find out the logic of specific situations, details and restrictions.[5] As a prerequisite for claims under articles 1 and 2 of the “Sherman Act”, the plaintiff must define the relevant market, which is an "area of effective competition”.[6] If the relevant market is not defined, the defendant's ability to reduce or disrupt competition cannot be measured.[7] The relevant market is an effective competitive field for the seller 's operation, and the buyer can effectively

4. FTC v. Actavi,Inc.2223，2237-38,133 S. (Ct. 2013).

5. Cal. Dental，526(U.S. 781).

6. Federal Trade Commission v. Qualcomm Inc., 969 F.3d 974, 992 (9th Cir. 2020)，Ohio v. Am. Express Co., 138 S. Ct. 2274, 2285, 201 L. Ed. 2d 678 (2018) (alterations omitted) (quoting Walker Process Equip., Inc. v. Food Mach. & Chem. Corp., 382 U.S. 172, 177, 86 S. Ct. 347, 15 L. Ed. 2d 247 (5th Cir.,1965)).

7. Ohio v. Am. Express Co., 138 S. Ct. 2274, 2285, 201 L. Ed. 2d 678 (2018) (alterations omitted) (quoting Walker Process Equip., Inc. v. Food Mach. & Chem. Corp., 382 U.S. 172, 177, 86 S. Ct. 347, 15 L. Ed. 2d 247 (5th Cir.,1965)).

turn to this field to seek supply.[8] And there are two basic components in relevant market: product market and geographic market. [9] Whether the relevant market is determined is usually a matter of fact. However, in some cases, the issue may be determined as a legal matter.[10] If the plaintiff fails to refer to the rules of reasonable interchangeability and cross-elasticity of demand to define its proposed relevant market, or claims that the proposed relevant market obviously does not include all interchangeable alternative products, even if all factual inferences are in his favor, the relevant market is legally insufficient. That is to say, in order for the plaintiff's definition to be legally sufficient, it must include all goods that consumers can reasonably exchange for the same purpose. If the plaintiff fails to According to rules of reasonable interchangeability and cross-elasticity of demand to define its "proposed relevant market", or claims that the proposed relevant market obviously does not include all interchangeable alternative products, even if all factual inferences are in his favor, the relevant market is legally insufficient.[11] That is to say, in order to make the definition of the relevant market legally sufficient, it must include goods that all consumers can reasonably exchange for the same purpose.[12] In defining the relevant product market, the focus is on the industry or the public to regard the sub-market as an independent economic entity, the special characteristics and uses of the product, the unique production facilities, the different customers, the unique price, the sensitivity to price changes and the actual mark of the professional supplier.[13] The district court allows to consider the highly factual issues of demand cross-elasticity and the specific characteristics of the relevant industries that may affect the definition of the relevant market.[14]

The appropriate starting point to identify the relevant market is the patent invention. The relevant market also includes other devices or substitutes that are similar to the patented invention in terms of physical and functional characteristics. However, it excludes alternatives with very different prices or very different characteristics. Once the market is identified, it usually becomes easier to determine how many suppliers operate in defined relevant markets. The survey focuses on the number of companies involved, rather than the number of substitutes in the relevant market. If the patentee shows two suppliers in the relevant market, the ability to transfer sales and its profit margin, it indicates the presumption of factual causality. Although the burden of persuasion is still borne by the patentee, the burden of moving forward is transferred to the infringer. The infringer can refute this presumption, indicating that the patentee reasonably does not engage in partial or total transfer sales in the event of factual infringement. For example, the infringer can refute the presumption by indicating that it has sold another available non-infringement substitute in the relevant market. Only if there are two suppliers in the market, but the infringing supplier has two choices: one is infringing, the other is non-infringing, this situation will occur. In this case, even if there is no infringement, the customer may choose the infringer's available, non-infringing alternatives, rather than the patented invention. In order to recover the lost profits, the patentee must prove that the fact of infringement, it can reasonably provide additional profits for the infringer. The court did not restrict the patentee from using any particular method of proving factual causation. The patentee can resort to any method to show that the factual infringement is entitled to the loss of profits with a reasonable probability. The Panduit test and the dual-vendor market test are recognized methods for showing factual causality. According to the dual-supplier test, the patentee must prove that the relevant market contains only two suppliers; its own manufacturing and marketing capabilities to carry out sales to the infringer; the amount of profit it earns from these transfer sales. In essence, the dual-supplier market test decomposes the first two Pantet test factors into two supplier factors in a related market. In the context of patent law, the first step of dual-vendor testing is to define the relevant market. In order to determine the market share of the patentee, the record must accurately identify the market. This requires analysis to exclude alternatives to patented products with very different prices or

8. Tampa Elec. Co. v. Nashville Coal Co., 365 U.S. 320, 327, 81 S. Ct. 623, 5 L. Ed. 2d 580 (5th Cir.1961).

9. Wampler v. Sw. Bell Tel. Co., 597 F.3d 741, 744 (5th Cir. 2010).

10. Apani, 300 F.3d at 628 (citing Seidenstein v. National Medical Enterprises, Inc., 769 F.2d 1100, 1106 (5th Cir. 1985)).

11. Apani, 300 F.3d at 628 (citing Seidenstein v. National Medical Enterprises, Inc., 769 F.2d 1100, 1106 (5th Cir. 1985)).

12. PSKS, Inc. v. Leegin Creative Leather Prods., Inc., 615 F.3d 412, 417 (5th Cir. 2010) (quoting United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377, 395, 76 S. Ct. 994, 100 L. Ed. 1264 (5th Cir.,1956)).

13. Brown Shoe Co., Inc. v. United States, 370 U.S. 294, 325, 82 S. Ct. 1502, 8 L. Ed. 2d 510 (5th Cir.,1962).

14. Tunis Bros. Co., Inc. v. Ford Motor Co., 952 F.2d 715, 723 (3d Cir. 1991).

characteristics.[15] The first step in the dual-supplier testing is to define the relevant market. In the Crystal Semiconductor case, in order to determine the patentee's market share, the record must accurately identify the market. This requires analysis to exclude alternatives to patented products with very different prices or characteristics.[16] If the so-called substitute is different from the patentee's product in one or more respects, i.e., the intended use, the physical and functional properties of the product, the price, the patentee must usually provide economic data supporting its relevant market theory to show factual causation. The appropriate starting point to identify the relevant market is the patent invention. The relevant market also includes other devices or substitutes that are similar to the patented invention in terms of physical and functional characteristics. However, it excludes alternatives with very different prices or very different characteristics.[17] Once the market is identified, it usually becomes easier to determine how many suppliers operate in defined relevant markets. The survey focuses on the number of companies involved, rather than the number of substitutes in the relevant market. If the patentee shows the two suppliers in the relevant market, the ability to transfer sales and its profit margin, then this display establishes a presumption of factual causality. Although the burden of persuasion is still borne by the patent holder, the burden of progress is then transferred to the infringer. The infringer can refute this presumption, indicating that the patentee reasonably does not engage in some or all of the transfer sales in fact infringement, such as the infringer can refute this presumption by indicating that it has sold another available non-infringement alternative in the relevant market. There are only two suppliers on the market, but there are two alternatives available for infringing suppliers: one is infringing and the other is non-infringing. In this case, even if there is no infringement, the customer may choose the infringer 's available, non-infringing alternatives, rather than the patented invention.[18] Substitutes must not have distinct prices or significantly different characteristics.

In the case of the “Clayton Act” claim, the definition of the relevant market includes an elaboration of the legal test, which is then applied to the factual circumstances of each case. Therefore, although the district court's conclusion on what is the relevant market is subject to the obviously wrong review criteria, the district court's formulation of the market test can be freely reviewed as a legal issue on appeal. The court's conclusion on the composition of the relevant market is that the finding of fact is manifestly wrong only when it is wholly unsupported by minimal evidence, shows some credibility or has no reasonable relationship with supporting evidentiary data. Therefore, the Court of Appeal will examine the obvious error. However, if the district court applies incomplete economic analysis or wrong economic theory to the facts that constitute the relevant geographical market, it commits a legal error and needs to be reviewed by the whole. In the case of the “Clayton Act” claim, if such a division does not help the court to analyse the impact of the merger, the district court does not need to adopt a finer distinction or further divide the market, and the absence of a finer distinction does not mean that they are prohibited. This standard helps the district court to analyze the facts. The court should not allow the existence of the submarket to persuade it to ignore the broader commercial areas of economic significance. When delineating the relevant market, the court may make a distinction as needed to understand the impact of the merger on consumers. The determination of delineating the relevant market includes the elaboration of the legal test, which is then applied to the factual circumstances of each case.[19] Therefore, although the district court's conclusion on what constitutes the relevant market is subject to obviously erroneous review standards, the district court's formulation of market tests can be freely reviewed as a legal issue upon appeal.[20] The court's conclusion about what constitutes the relevant market is an obviously wrong fact finding. It is only obviously wrong when it has no minimum evidence support, shows some credibility, or has no reasonable relationship with the supporting evidence data.[21] We will

15. State Industries, Inc. v. Mor-Flo Industries, Inc., 883 F.2d 1573, 1578, 12 USPQ2d 1026, 1029 (Fed. Cir. 1989).

16. Crystal Semiconductor Corp. v. Tritech Microelecs. Int'l, Inc., 246 F.3d 1336, 1356, 57 USPQ2d 1953, 1964 (Fed. Cir. 2001); cf. Grain Processing, 185 F.3d at 1355.

17. Crystal Semiconductor Corp. v. Tritech Microelecs. Int'l, Inc., 246 F.3d 1336, 1356, 57 USPQ2d 1953, 1964 (Fed. Cir. 2001).cf.at 1356.

18. Kaufman Co. v. Lantech, Inc., 926 F.2d 1136, 1142, 17 USPQ2d 1828, 1832 (Fed. Cir. 1991).

19. White & White, Inc. v. Am. Hosp. Supply Corp., 723 F.2d 495, 499 (6th Cir. 1983).

20. Worldwide Basketball & Sport Tours, Inc. v. Nat'l Collegiate Athletic Ass'n., 388 F.3d 955, 960 (6th Cir. 2004).

21. Berg Chilling Sys., Inc. v. Hull Corp., 369 F.3d 745, 754 (3d Cir. 2004).

examine whether there are obvious errors. [22] However, if the district court applies incomplete economic analysis or wrong economic theory to the facts that constitute the relevant geographical market, it commits a legal error and needs to be reviewed by the whole.[23]

Delineating the relevant market enquiries largely depends on the testimony of expert witnesses who are prohibited from providing legal advice. Experts cannot testify to the legal conclusion. Therefore, the history of Section 7 of the "Clayton Act", Section 18 of 15 "United States Code", litigation and reliance on expert witnesses requires that the definition of a product market be understood as fact-finding. The claims based on Article 7 of the "Clayton Act" and Article 18 of Volume 15 of the "United States Code" are evaluated under the framework of liability transfer consisting of three parts. First, the government must prove that the merger is prima facie evidence of anti-competition. To this end, it must propose appropriate relevant markets and indicate that the impact of the merger in that market may be anti-competitive. Secondly, the responsibility of providing evidence to refute the government's apparent evidence is transferred to the defendant. Finally, if the defendant successfully refutes the presumption, the burden of providing additional evidence of anti-competitive effects will be transferred to the government and merged with the ultimate burden of persuasion, which is always borne by the government.[24]

Generally speaking, the threshold step in any antitrust case is to accurately define the relevant market, that is, the field of effective competition.[25] The relevant market must include both geographical market and product market. [26] The latter must include controversial products and all economic alternatives to the product.[27] Consumers do not delineate the boundaries of the relevant market, and products or manufacturers define the relevant market, the relevant market must include controversial products and all economic alternatives to the product. Economic alternatives have reasonable interchangeability of use or sufficient cross-elasticity of demand with related products[28] Including economic alternatives can ensure that the relevant product market includes one or more sellers or producer groups with actual or potential ability to deprive each other of important business levels.[29] Confirming the rejection of antitrust claims is because the proposed delineating the relevant market is "unnatural", "artificial" and "distorted" to meet its litigation needs, and does not include reasonably interchangeable products or economic alternatives[30] (reject the plaintiff's definition of the narrow market, that is, the alternative allows users to complete the same basic tasks). [31] U.S. courts generally recognize that the same products will not appear in different markets simply because consumers pay for them in different ways. [32] Innovative market is a popular idea in the 1990s. The early 2000s [33] included the development of specific new or improved products and their close substitutes. [34] In principle, the innovation market continues to rely on traditional antitrust concepts, that is, substitutability. The key idea is that companies are innovating specific products or services, and once created and sold, products or services can be replaced by similar products or service competitors. [35] Innovation market analysis has never received much attention, partly because it is difficult to predict what specific R&D activities will be and what products will result. [36] Budding

22. FTC v. Hackensack Meridian Health, Inc., 30 F.4th 160, 167 (3d Cir. 2022).

23. Hershey,838 F.3d at 336. (3d Cir. 2022).

24. United States v. United States Sugar Corp., 73 F.4th 197, 2023 U.S. App. Lexis 17762(F.4th,2023).

25. Federal Trade Commission v. Qualcomm Inc., 969 F.3d 974, 992 (9th Cir. 2020) (quoting Ohio v. American Express Co., 138 S. Ct. 2274, 2285, 201 L. Ed. 2d 678 (2018))。

26. Hicks v. PGA Tour, Inc., 897 F.3d 1109, 1120 (9th Cir. 2018)。

27. Newcal Indus., Inc. v. Ikon Office Sol., 513 F.3d 1038, 1045 (9th Cir. 2008)

28. Hicks, 897 F.3d at 1120 (3d Cir. 2022).

29. United States v. E.I. du Pont de Nemours & Co., 351 U.S. 377, 393, 76 S. Ct. 994, 100 L. Ed. 1264 (5th Cir. ,1956).

30. Streamcast Networks, Inc. v. Skype Techs., S.A., 547 F. Supp. 2d 1086, 1095 (C.D. Cal. 2007).

31. Federal Trade Commission v. Lab. Corp. of Am., No. SACV 10-1873 AG (MLGx), 2011 U.S. Dist. LEXIS 20354, 2011 WL 3100372, at *18 (C.D. Cal. Feb. 22, 2011).

32. hiQ Labs, Inc. v. LinkedIn Corp., No. 17-cv-03301-EMC, 485 F. Supp. 3d 1137, 2020 U.S. Dist. LEXIS 164717, 2020 WL 5408210, at *7 (N.D. Cal. Sept. 9, 2020).

33. See Richard J. Gilbert & Steven C. Sunshine, Incorporating Dynamic Efficiency Concerns in Merger Analysis: The Use of Innovation Markets, 63 ANTITRUST L.J. 569 (1995) (demonstrating the interest in Innovation Markets in the 1990s and 2000s).

34. U.S. Dep'T of Just. & Fed. Trade Comm'N, Antitrust Guidelines For the Licensing of Intellectual Property § 3.2.3 (1995).

35. Crane, Daniel A. "Defining Relevant Markets in Digital Ecosystems." Journal of Law & Innovation 7, no. 1 (2024): 10-26. DOI: https://doi.org/10.58112/jli.7-1.2.

36. See, e.g., Richard T. Rapp, The Misapplication of the Innovation Market Approach to Merger Analysis, 64

competition is an important concept in the implementation of anti-monopoly law, and it cannot capture the phenomenon of capacity competition. As stated in the 2023 Merger Guide, an emerging competitor is a company that may grow into an important competitor, facilitating the development of other competitors, or otherwise lead to a reduction in the power of the incumbent. In the case of delineating a hierarchical market, HMT is usually used in antitrust litigation to define the test of the relevant market, 37 requiring the court to comply with the hierarchical market model, in which the refiner sells to the distributor, then to the wholesaler, and then to the retailer. And then sold to consumers. In this abstract hierarchical model, distributors have no source of refined sugar in their (correctly defined) geographical market except refiners. Therefore, the government considers that the courts cannot regard distributors or other sources of sugar as a potential constraint on the market power of refineries.

2.2 Case Law in the European Union

The abuse of dominance prohibited by Article 102 of the Treaty on the Functioning of the European Union includes, in particular, acts that hinder the maintenance of the existing level of competition in the market or hinder the growth of competition (even if only the potential effect). Abuse of dominance in the internal market or most of its markets is prohibited because it is incompatible with the internal market. The unique market feature is the high degree of innovation through major R&D investment; technical complexity (including intangible products, such as patents, interoperability design standards, descriptions, and protocols), very short life cycles, complex and significant network effects, first-mover advantages and winner-take-all effects, high conversion costs, and lock-in effects. It is clear from the case law that the abuse of dominance prohibited by this clause is an objective concept, especially in a market where the degree of competition has been weakened by the existence of the enterprise concerned. By adopting a method different from the normal competition of products or services based on the transaction of business operators, it has the effect of hindering the maintenance of the degree of competition that still exists or the growth of competition. Abuse of dominant position may be particularly related to the use of methods that are different from the normal competition of products or services based on the transaction of business operators, and have the effect of hindering the maintenance of the existing competition in the market or the growth of competition. In order to determine whether the dominant firm abuses its dominant position through its pricing practices, it is necessary to consider all the circumstances and examine whether these practices tend to cancel or limit the buyer's freedom to choose the source of supply, prohibit competitors from entering the market and whether they tend to limit the buyer's free application of the same trading conditions as other traders, so that it is at a competitive disadvantage, or strengthen the dominant position by distorting competition. In order to prevent an act from being regarded as an abuse, SEP owners must comply with conditions that seek to ensure a fair balance between the relevant interests. This determines the content that these conditions need to seek to ensure, but that's all. The following paragraph 56 is of great significance. It is required to seek conditions to ensure fairness and balance in this regard, and the specific legal and factual circumstances of the case must be properly considered. If the steps proposed by the EU Court of First Instance at that time apply in all cases, regardless of their legal and factual circumstances. The court mentioned that SEP owners will not abuse their dominance as long as they follow the prescribed steps. This doesn 't tell us that if SEP owners don 't follow these steps, it will abuse its dominance.[38]

Article 101 (1) of the “Treaty on the Functioning of the European Union” does not prohibit standardization agreements. [39] When the licensor is a vertically integrated enterprise, the hijacking incentive is particularly strong, and the downstream market may be the licensee as a competitor. The relevant market is the upstream market of technology input licensing. As the relevant technical standards indicate, the output market includes the downstream products where the standard-compliant products are sold. This approach has been used in the “Treaty on the

ANTITRUST L.J. 19, 34–36 (2005) (discussing lack of connection between R&D activities and identifiable innovations).

37. FTC v. Sanford Health，926 F.3d 959，963（8th Cir. 2019）.

38. Optis Cellular Technology LLC & Ors v Apple Retail UK Ltd & Ors [2021] EWHC 2564 (Pat) (EWHC ,2021),http://www.bailii.org/ew/cases/EWHC/ Patents/ 2021/2564.html.

39. Grasso, Roberto. The ECJ Ruling in Huawei and the Right to Seek Injunctions Based on FRAND-Encumbered SEPs under EU Competition Law: One Step Forward. World Competition 39, no. 2(2016): 218.

Functioning of the European Union" Articles 101 and 102 cases, [40] where the "Horizontal Guide" intellectual property rights and products are separated from each other and sold separately, and are linked to the relevant technology market that should be defined. This is consistent with the "2014 Technology Transfer Guide".[41] In the context of the application of Article 102 of the "Treaty on the Functioning of the European Union", delineating the relevant market is to determine the boundaries of the issue of the need to assess whether an enterprise can be considerably independent of the behaviour of its competitors, its customers and consumers. Thus, the concept of the relevant market implies that there can be effective competition between the products or services that form part of it, and this assumes that there is a sufficient degree of interchangeability between all products or services that form part of the same market for the particular purpose for which such products or services are intended. Therefore, the possibility of competition must be judged in the context of the market. The market includes products that are particularly suitable for meeting constant demand in terms of their characteristics, and can only be interchanged with other products to a limited extent. In such cases, it is not sufficient to confine the examination to the objective characteristics of the relevant product: competitive conditions and the structure of market supply and demand must also be considered.

The European Commission's "Notice on the Definition of Relevant Markets in the Community Competition Law" [42] and the "Notice on the Definition of Relevant Markets in the EU Competition Law" revised in 2024[43] delineate the relevant market as a tool to identify and define the boundaries of competition between enterprises. Its main purpose is to systematically identify the effective and direct competitive constraints[44] that firms face when selling specific products, and to determine whether there are actual competitors who can constrain the behavior of these firms or prevent them from acting independently of effective competitive pressures. The court held that it is necessary to examine whether there are competing products that impose significant competition restrictions on relevant business entities. Although delineating the relevant product market aims to determine the most direct competitive pressure felt by the relevant operators, competition assessment may also consider less direct forms of competitive pressure, such as off-market competition restrictions. According to the competitive conditions and the supply and demand structure of a market, the investigation of the competitive constraints faced by an enterprise is naturally dynamic. The emergence of new product supply has changed the structure of the relevant market, thereby excluding other products that previously formed part of the market. The EU "relevant market" means that there can be effective competition between products or services that form part of the market, and this assumes that there is a sufficient degree of interchangeability between all products or services that form part of the same market. Interchangeability or substitutability is not only based on the objective characteristics of the disputed products and services, but also needs to consider competition conditions and market supply and demand structure.[45] In the presence of multi-party platforms, define relevant product markets for the products provided by the entire platform in a way that covers all (or more) user groups, or indeed provide separate (though interrelated) related product markets for the products provided by each party of the platform. According to the facts of the case, it may be more appropriate to define a separate market when there are significant differences in the possibility of substitution between different parties on the platform. In order to assess whether there are such differences, the following factors can be considered: whether the business entities that provide alternative products for each user group are different, the degree of product differences between the parties (or the cognition of each user group on the product),

40. Commission decision COMP/M.6381, Google/ Motorola Mobility, 13 Feb. 2012.

41. Commission Communication, Guidelines on the application of Article 101 of the Treaty on the Functioning of the European Union to technology transfer agreements (2014 Technology Transfer Guidelines) [2014] OJ C 89, at paras 20 et seq. See also the previous Commission Notice,Guidelines on the application of Article 81 of the EC Treaty to technology transfer agreements [2004] OJ C101, at paras 20 et seq.

42. OJ 1997 C 372,p.5.

43. OJ 2024 C 1645,p.1.

44. See the Commission's Explanatory note on the new VABER and Vertical Guidelines, available on its website: https://competition-policy.ec.europa.eu/system/files/2022-05/explanatory_note_VBER_and_Guidelines_2022.pdf. See also point (e) of paragraph 67 of the new Vertical Guidelines.

45. Judgments of 23 January 2018, F. Hoffmann-La Roche and Others (C-179/16, EU:C:2018:25, paragraphs 50 and 51), and of 30 January 2020, Generics (UK) and Others (C-307/18, EU:C:2020:52, paragraph 129).(ECJ,2018)

behavioral factors (such as the accommodation decision of each user group) and the nature of the platform. To determine the relevant market, the referral court must verify whether there is actual substitutability between the online intermediary service and other sales channels, regardless of the different characteristics of these channels, and do not provide the same function to search and compare hotel services. According to case law, the relevant market means that there can be effective competition between products or services that form part of it. This assumes that there is a sufficient degree of interchangeability between all products or services that form part of the same market for the specific use of such products or services, which is not assessed solely on the basis of the objective characteristics of the products or services involved. It is also necessary to consider the competitive conditions and supply and demand structure of the market.[46] The interchangeability or substitutability of a product is dynamic, and the definition of the relevant market may evolve over time.[47] The SSNIP test is a recognized tool to determine whether a 5% to 10% increase in the basic supply price will lead customers to choose a special contract48. Its results can be considered in conjunction with other factors for the overall market definition assessment. However, the test is not a mandatory means necessary for market definition,[49] but merely "one way".[50] When other factors remain unchanged, the customer's response to the increase in the price of specific products covered by standard essential patents,[51] including the price of candidate products in the same relevant market.[52] In some cases, the SSNIP test may also not be applicable, for example, in the presence of a "cellophane fallacy" where the enterprise in question already has a de facto monopoly position, the market price is already at a hypercompetitive level, or involves free goods or goods whose cost is not borne by the demand decider. It is also clear from point 25 of the European Commission's Circular on the Definition of Relevant Markets in Community Competition Law (OJ 1997 C 372, p. 5) that the definition of the relevant market does not require a strict hierarchy of different sources of information or types of evidence.[53] When conducting market analysis, the national regulatory agency should conduct a forward-looking, structural assessment of the relevant market based on the existing market conditions. It should consider the expected or foreseeable market development within a reasonable period of time to determine whether the market is forward-looking and competitive, so as to determine whether there is a persistent lack of effective competition. The actual period used should reflect the specific characteristics of the market and the expected time for the next review of the relevant market by the national regulatory agency. When historical data are relevant to foreseeable future market developments, national regulatory agencies should consider them in their analysis. Under the regulatory framework, market definition and SMP evaluation will use the same analysis method as competition law. Market definition is not a mechanical or abstract process, but needs to analyze any available evidence of past market behavior and fully understand the operating mechanism of a particular industry. Especially when conducting forward-looking market analysis, it is necessary to adopt a dynamic rather than a static method. National regulators should still maintain methodological consistency as much as possible. When evaluating the market behavior of enterprises, two main competitive constraints need to be considered: demand-side substitution, supply-side substitution and potential competition. The difference between potential competition and supply substitution is that supply substitution can respond quickly to price increases, and it may take longer for potential entrants to start providing products to the market. Supply substitution does not involve additional significant costs, while potential entry is accompanied by significant sunk costs. Therefore, in the electronic communication market, competition constraints may come from the

46. Judgments of 23 January 2018, F. Hoffmann-La Roche and Others (C-179/16, EU:C:2018:25, paragraphs 50 and 51), and of 30 January 2020, Generics (UK) and Others (C-307/18, EU:C:2020:52, paragraph 129) .(ECJ, 2018)

47. Judgment of 30 January 2020, Generics (UK) and Others (C-307/18, EU:C:2020:52, paragraph 130). (ECJ, 2020)

48. Judgment of 20 Dec. 2023 , EVH v Commission（T-53/21 - ECLI:EU:T:2023:834).

49. Judgment of 18 Sep. 2024, Google and Alphabet v Commission (T-334/19ECLI:EU:T:2024:634).

50. Judgment of 04 Oct. 2024 of thyssenkrupp v Commission（C-581/22 P -, ECLI:EU:C:2024:821).

51. Judgment of 23 May 2019 , KPN v Commission（T-370/17 , ECLI:EU:T:2019:354).

52. Commission Guidelines on Market Analysis and the Assessment of Significant Market Power under the EU Regulatory Framework for Electronic Communications Networks and Services, (OJ 2002 C 165, p. 6, paragraph 46).

53. Judgment of 01 Nov..2017, Topps Europe v Commission,(T-699/14 - ECLI:EU:T:2017:2).

innovation threat posed by potential competitors who have not yet entered the market. When evaluating whether a market is in line with the effective competition referred to in the framework directive, it should examine whether there is potential competition, that is, whether there are enterprises with significant market dominance (SMP). Since the relative rise in the price of a group of products may lead to the loss of some sales, the key issue is to determine whether this loss of sales is sufficient to offset the additional profits that can be obtained after the price rise. By evaluating the substitutability of the demand side and the supply side, the amount of sales that may be lost can be measured to determine the scope of the relevant market. In addition to considering products or services whose objective characteristics, prices and expected uses make them fully substitutable, if necessary, we should also examine the current general situation of demand and supply substitution through hypothetical monopolist tests. The possibility of operators who have not yet participated in the relevant product market entering the market within a reasonable time after the relative price rises should be considered. Any existing laws, regulations or other regulatory requirements, these requirements may hinder timely access to relevant markets, thereby inhibiting the supply side of the alternative behavior. For example, delays and obstacles in entering into interconnection or co-location agreements, negotiating other forms of network access, or obtaining access rights for network expansion may make it difficult for potential competitors to provide new services or deploy new networks in the short term. It mainly evaluates consumers' preferences and their current geographical purchase patterns. In particular, language factors may explain why some services are not available or not marketed in different language regions. Telecommunications-related geographic markets are generally defined by the presence of network coverage areas and legal and other regulatory tools. The definition of related products or geographical markets should consider “chain substitutability”, that is, when it can be proved that product A and product C are not directly substitutable, but product B is also a substitute for product A and product C, there is chain substitutability, which expands the boundaries of defining related markets to include those that are not directly substitutable.

In the case of multiple platforms, it may be appropriate to define a relevant product market covering all user groups for the products provided by the platform as a whole. It may be appropriate to define separate but interrelated related product markets for the products provided by each side of the platform. Many factors can affect this determination, including whether it is a trading platform or a non-trading platform.[54] Although in the Tetra Pak case,[55] the overall market that was identified as dominant was a horizontal market, according to the court's case law, “close association” is usually more present in the vertically integrated market. This situation is particularly common in the telecommunications industry. Operators often have a dominant position in the infrastructure market and also an important share in the downstream service market.

3. JUDICIAL PRACTICE IN CHINA

Article 68 of China's "Anti-monopoly Law" (amended in 2022) provides a legal basis for the application of "Anti-monopoly Law" to the abuse of SEP by operators to exclude or restrict competition. Article 15 provides relevant market definitions, but does not define the SEP market and provide analytical logic. The intersection and conflict between anti-monopoly law and patent law should be the priority to apply the relevant regulations of anti-monopoly law. [56] The "Guidelines on the Definition of Relevant Markets" promulgated by the Anti-Monopoly Committee of the State Council in 2009 adopts a non-mandatory "may also be needed" expression. Limited to the responsibilities of the competent authorities, it only provides guidance on anti-monopoly law enforcement work involving intellectual property rights such as technology trade and licensing agreements, and does not delineate SEP related markets. It does not list detailed influencing factors and does not delineate the relevant SEP market as a prerequisite step. The analysis ideas of "Antitrust Guidelines in the Field of Intellectual Property Rights" promulgated by the Antitrust Committee of the State Council in 2019 include analyzing the characteristics and manifestations of behaviors, delineating the relevant markets, analyzing the exclusion and restrictive effects of behaviors on market competition, and analyzing the positive

54. Filistrucchi, L., Geradin, D., van Damme, E., Affeldt, P., ‘Market Definition in Two-sided Markets: Theory and Practice’, Journal of Competition Law & Economics, 2014, Vol. 10(2), pp. 293 to 339.

55. Case C-333/94 P, Tetra Pak v Commission [1996] ECR I-5951.

56. Wang Xiaoye, On the Antitrust Lawsuits concerning Standard Essential Patents [J].China Legal Science, 2015(6): 236.

effects of behaviors on innovation and efficiency. The relevant market will be delineated according to the "Guidelines on the Delineating the Relevant Markets" as a requirement under normal circumstances. Delineating the degree of substitution of the relevant technology market requires a "more" close substitution relationship, which is qualitatively different from the "reasonable" close substitution relationship, and the latter is more operable. Article 11 standards are formulated without considering the particularity of standard essential patents, and the basic technical facilities such as patent pools and platforms are ignored.

China's standard essential patent cases clearly delineate the relevant market as the starting point and necessary steps for analysis. Delineating the relevant market is to clarify the market scope of the operator's competition. Only in the relevant market can we examine whether the operator has a dominant market position, so as to further quantitatively or qualitatively analyze the competitive behavior and judge the monopoly behavior of the operator in the process of reaching and fulfilling the standard essential patent agreement. Delineating relevant commodity markets and related regional markets involving standard essential patents should follow the general principles of the "Guidelines for the Definition of Relevant Markets in the Anti-Monopoly Law" and the "'Provisions on Prohibiting Abuse of Intellectual Property Rights to Exclude and Restrict Competition' issued by the General Administration of Market Supervision and Anti-monopoly Enforcement on the issuance of notices (Yifa[2024]102)". Using the method of alternative analysis, supply substitution analysis can be carried out from the aspects of standards and the supply of standard essential patents. The definition of the relevant commodity market is one of the focus of controversy in the case of abuse of dominant market position between a magnetic company in Ningbo and a metal company in Japan57. In the case that the existing evidence is not enough to prove that the sintered Nd-Fe-B patent is technically irreplaceable, according to the demand substitution of sintered Nd-Fe-B material production technology, the Court of Final Appeal defines the relevant commodity market as the sintered Nd-Fe-B material production technology market, including patented technology and non-patented technology with close substitution. The court of first instance defined the scope of goods (commodity market) in the relevant market as the lack of factual and legal basis for the relevant market of patent licensing of the necessary patent of sintered NdFeB owned by Japan.

4. CONCLUSION

The first step in the analysis of standard essential patent cases is to accurately delineate the relevant market. Delineating the relevant market is crucial, because only the defined market can assess effective competition. The full application of the rules that emphasize reasonable interchangeability and cross-elasticity of demand must include all goods that all consumers can reasonably exchange for the same purpose. If the proposed relevant market is not defined according to the rules of reasonable interchangeability and cross-elasticity of demand, or it is claimed that the proposed relevant market obviously does not include all interchangeable alternative products, even if all factual inferences are beneficial to one party, the relevant market is legally insufficient. The focus is on the industry or the public regarding the sub-market as an independent economic entity, the special characteristics and uses of the product, the unique production facilities, the different customers, the unique price, the sensitivity to price changes and the actual mark of the professional supplier. The appropriate starting point for identifying the relevant market is the patented invention, including other devices or substitutes that are similar to the patented invention in terms of physical and functional characteristics. Delineating the relevant market for standard essential patents should be based on a forward-looking, future-oriented approach to competitive assessment. As a WTO member, China has made commitments regarding "major suppliers" of basic telecommunications services and must comply with all obligations undertaken under the WTO framework for basic telecommunications services. The relevant provisions in the new regulatory framework—particularly those concerning access and interconnection—ensure that national regulatory authorities continue to apply the relevant obligations to "major suppliers" in accordance with China's commitments. Market definition or market analysis procedures that "affect trade among Members" should be continuously interpreted and

57. Peking University Law Database, Dispute between a Ningbo-based magnet company and a Japanese metal corporation regarding the abuse of market dominance, [Case No.] (2021) Supreme People's Court Intellectual Property Civil Appeal No. 1482.

refined with reference to the latest domestic and international legislative practices.

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