STANDARD ESSENTIAL PATENTS (SEPs) IN INDIA: AN EXAMINATION OF LEGAL, ECONOMIC, AND REGULATORY CHALLENGES WITH GLOBAL COMPARISONS

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ABSTRACT

Standard Essential Patents (SEPs) present a fundamental tension in intellectual property law between incentivizing innovation through exclusive patent rights and ensuring fair access to essential technologies in standardized markets. This creates challenges in balancing the rights of patent holders with those of technology implementers, particularly in determining Fair, Reasonable, and Non-Discriminatory (FRAND) terms and the availability of injunctive relief. This study employs a comparative legal methodology, analyzing SEP frameworks across India, the United States, and the European Union through examination of case law, statutory provisions, and regulatory approaches. The research draws from landmark cases including Ericsson v. Micromax and Ericsson v. Lava in India, Microsoft v. Motorola and TCL v. Ericsson in the US, and Huawei v. ZTE in the EU. India's SEP jurisprudence, while nascent, demonstrates a pro-patentee approach with courts consistently upholding SEP holders' rights and awarding substantial damages. The US emphasizes contractual FRAND obligations with flexible judicial approaches, while the EU adopts a competition-centric framework through Article 102 TFEU. Key differences emerge in FRAND determination methodologies, with India favoring comparable licensing approaches, the US applying modified Georgia-Pacific factors, and the EU establishing procedural negotiation frameworks. India's evolving SEP landscape shows potential for drawing lessons from established global practices, particularly in developing clearer FRAND determination guidelines and balancing patent enforcement with competition concerns. The study reveals the need for harmonized approaches to promote innovation while preventing market abuse in the rapidly expanding digital economy.

Keywords: Standard Essential Patents, FRAND licensing, patent litigation, competition law, Standard Setting Organizations, innovation.

1. INTRODUCTION

India's emergence as a global technology hub has dramatically increased the significance of Standard Essential Patents (SEPs) in its legal and economic landscape. SEPs are patents deemed vital for implementing specific technological standards such as 4G, 5G, Wi-Fi, and Bluetooth where compliance is impossible without utilizing the protected innovations. These standards, set by Standard Setting Organizations (SSOs), underpin interoperability and compatibility across products and industries, making SEPs crucial for advancing communication, consumer electronics, automotive, and other sectors in India. The unique legal status of SEPs lies in the balance they strike between fostering innovation and ensuring widespread access to essential technologies. While patent holders are incentivized to innovate and contribute advanced solutions to industry standards, their exclusive rights are tempered by an obligation to license SEPs to others on Fair, Reasonable, and Non-Discriminatory (FRAND) terms. This FRAND framework is designed to ensure SEP owners receive equitable royalties for inventions while preventing monopolistic practices that could stifle competition and consumer welfare. India's legal framework for SEPs is still developing, largely shaped by judicial interpretations rather than specialized legislation. Landmark cases such as Ericsson v. Lava and Nokia v. Oppo demonstrate the judiciary's increasing sophistication in resolving SEP disputes, often awarding significant damages and enforcing injunctions to safeguard innovators' rights. The role of competition law, particularly interventions by the Competition Commission of India (CCI), highlights ongoing debates about jurisdiction and regulatory balance for promoting healthy competition within India's rapidly digitizing economy. In this context, understanding SEPs is essential for grasping the intersection of intellectual property, innovation, and competition law in India. The growing reliance on standardized technology not only drives industrial progress but also foregrounds the urgency of developing clearer SEP licensing rules and adjudicatory mechanisms that align with global best practices while supporting India's own economic ambitions.

1.1 STATEMENT OF PROBLEMS

Standard Essential Patents (SEPs) pose complex legal and economic challenges in India due to the absence of specific legislation governing SEPs, resulting in reliance on general patent and competition laws that are not tailored for the unique nature of SEPs. The tension between incentivizing SEP holders to innovate and guaranteeing fair, reasonable, and non-

discriminatory (FRAND) access to essential technologies for implementers creates uncertainty in licensing negotiations and enforcement. Additionally, jurisdictional ambiguities regarding the Competition Commission of India's role and varied judicial interpretations have led to inconsistent application of FRAND principles. The rapid technological evolution and the increasing importance of standardized technologies in sectors such as telecommunications and electronics further complicate the SEP regulatory landscape, requiring a balanced approach to foster innovation without enabling monopolistic abuses.

1.2 RESEARCH QUESTIONS

1. How does India's law on Standard Essential Patents differ from the US and EU in handling related challenges?

2. What legal, economic, and regulatory barriers do SEP holders and users face in India?

3. How effective are Indian courts and regulators in enforcing FRAND terms while balancing innovation and competition?

4. What lessons can India adopt from US and EU SEP models for a clearer and fairer framework?

5. How can India balance its domestic technology growth with global SEP disputes and licensing practices?

1.3 RESEARCH OBJECTIVES

1. To study India's legal and regulatory framework on SEPs, including case law and the role of the Competition Commission.

2. To compare SEP governance in India, the US, and EU with focus on FRAND, injunctions, and competition law.

3. To examine the key challenges faced by SEP holders and implementers in India.

4. To suggest policy improvements and best practices from international models for a fair and innovation-friendly SEP system in India.

5. To provide a comparative analysis combining legal, economic, and regulatory views on SEPs.

2. INDIAN LEGAL FRAMEWORK GOVERNING SEPS

2.1 PATENT LAW AND SEP OBLIGATIONS

In today's telecommunications and technology sector, Standard Essential Patents (SEPs) play an important role. A patent is considered standard essential when using the patent is mandatory to comply with a technical standard found acceptable to an industry body e.g., 2G/3G/4G standards adopted by ETSI[1]. As SEPs typically cover fundamental technologies, the patent owner will usually commit to license the patents under Fair, Reasonable and Non-Discriminatory (FRAND) terms[2]. Purpose of the FRAND licensing is to safeguard the patentee's rights while meeting the implementers' need to access standard technology[3]. In India, one of the world's largest telecom markets discussions and disputes regarding SEPs have increased in significance as it pertains to patent law, competition policy and regulatory authorities[4]. This report looks at India's legal framework, landmark court cases, contrasts with the US and EU regimes, FRAND valuation methodologies, significant enforcement issues and makes recommendations for policy considerations. It is intended to stimulate thinking and debates as to how SEPs might intersect with India's innovation and economic aims on a domestic front or how international regimes may suggest national policy.

The Patents Act, 1970 as amended, is India's principal patent legislation[5]. The Act does not expressly define SEPs or FRAND, but contains provisions relevant to patent licensing and remedies. Section 84, for instance, allows for compulsory licensing if the patented technology is not worked in India, or if the price is unreasonable[6]. Compulsory licensing applications must now point out that FRAND terms are being requested, thereby indirectly attaching the concept

[1] European Telecommunications Standards Institute (ETSI), Intellectual Property Rights (IPRs); Essential, or Potentially Essential, IPRs (ETSI IPR Policy, 2019).
[2] Jorge L. Contreras, The Cambridge Handbook of Technical Standardization Law: Competition, Antitrust, and Patents (Cambridge University Press 2017), pp. 212–215.
[3] Damien Geradin, "Fair, Reasonable and Non-Discriminatory (FRAND) Terms: A Challenge for Competition Authorities," 3(2) *Journal of Competition Law and Economics* 2007, pp. 235–266.
[4] Aparna Ghosh, "Standard Essential Patents in India: Emerging Jurisprudence," Journal of Intellectual Property Rights (Vol. 23, 2018), pp. 197–206.
[5] The Patents Act, 1970, No. 39 of 1970, Government of India (as amended up to 2005).
[6] Section 84, Patents Act, 1970 – "Compulsory Licences."

of FRAND to the statutory law[7]. These commitments are normally contractual under the respective SSO's IPR policy and are not formal legal obligations. Thus, in India, SEP licensing is handled through the general patent infringement regime where injunctions and damages are remedies[8] or, increasingly, via competition law when patent holders or implementers challenge licensing practices[9].

2.2 COMPETITION LAW AND SEPS

The Competition Act, 2002 deals with anti-competitive agreements and abuse of dominant position: sections 3 and 4 address cartels and abuse of dominance[10]. Because SEP owners often have market power in the relevant technology, their licensing demands can raise antitrust concerns, for instance, if high royalties or restrictive terms block competitors. Indian practice began to address SEPs through the antitrust lens around 2013. Several handset manufacturers Micromax, Intex, iBall, among others filed complaints with the Competition Commission of India (CCI) against the Standard-Essential Patent licensors, primarily Ericsson, of abusing dominance by requiring exorbitant royalty or tying conditions continuing, for instance, the imposition of restrictive non-disclosure agreements, contrary to standard essential patent licensing on fair, reasonable, and non-discriminatory FRAND terms.

The legal relationship between patent law and competition law has fashioned a high level of debate. Patent law provides exclusionary rights and competition law prohibits the use of such power. Indian courts initially accepted the view that both regimes can operate in parallel, for instance, in Ericsson v. Micromax, DHC, 2016, the Delhi High Court, found that the Patents Act and Competition Act co-exist without tortious conflict and the CCI can inquire into SEP licencing where an abuse of dominance is alleged[11]. The Court observed that remedies under patent laws such as a compulsory license under Section 84 of the Act only for some parties, whereas remedies under competition law could be in rem for the market in general[12]. In contrast, a more recent decision of Delhi High Court on July 2023 took the contrary view. The

[7] Shamnad Basheer, "Standard Essential Patents (SEPs) and Compulsory Licensing in India," *SpicyIP Blog* (2014).
[8] *Ericsson v. Intex Technologies (India) Ltd.*, CS(OS) 1045/2014, Delhi High Court (2015).
[9] *Micromax Informatics Ltd. v. Telefonaktiebolaget LM Ericsson*, Case No. 50/2013, Competition Commission of India (2013).
[10] Sections 3 and 4, Competition Act, 2002 (India).
[11] *Telefonaktiebolaget LM Ericsson v. Competition Commission of India & Micromax*, W.P.(C) 464/2014, Delhi High Court (2016).
[12] Section 84, *Patents Act, 1970* (India).

Court held that the Patents Act as a special and later statute, with its detailed provisions on licensing and compulsory licenses prevails over the general Competition Act[13]. Because the Patents Act amendments came after the Competition Act, the Court treated the Patents Act as the controlling framework for patent-related issues. This holds that antitrust authorities cannot probe SEP licensing if it involves terms of a patent grant or royalty claim. The apparent tension between these views reflects a jurisdictional fragmentation in India's handling of SEPs[14].

2.3 REGULATORY AND POLICY ENVIRONMENT

No Indian regulator issues binding FRAND guidelines specific to patents. However, telecom-related regulators have shown interest. For instance in the Telecom Regulatory Authority of India (TRAI) has sometimes considered telecom licensing fairness[15], and the Department of Telecommunications (DoT) has acknowledged the role of SEPs in spectrum auctions and technology standards[16]. Moreover, while the government's National Intellectual Property Rights (IPR) Policy (2016) encouraged effective enforcement of IP rights, it did not deal with SEPs specifically[17]. Some industry associations and policy think tanks pushed for clearly defined FRAND rules and asked DPIIT which is the Department for Promotion of Industry and Internal Trade and/or others to codify transparency or good faith negotiations[18]. Nevertheless, as of 2025, India relies largely on general IP and competition statutes, judicial precedents, and voluntary SSO commitments to govern SEPs[19].

2.4 EVOLUTION OF JUDICIAL PRECEDENTS ON SEPS IN INDIA

The development of judicial precedents in India for SEPs showed a progressive balancing of patent rights and issues of competition. The courts have enforced a FRAND regime, both through national reasons and an interjurisdictional comparative analysis of other international jurisprudence. Beginning with the case of Ericsson v. Micromax (2016), the Delhi High Court

[13] *Monsanto Holdings Pvt. Ltd. v. Competition Commission of India*, Delhi High Court, July 2023.
[14] Feroz Ali Khader, *The Law of Patents – With a Special Focus on Pharmaceuticals in India* (LexisNexis, 2017), pp. 452–460.
[15] Telecom Regulatory Authority of India (TRAI), Consultation Paper on Encouraging Data Usage in Telecom Sector (2016).
[16] Department of Telecommunications (DoT), *Guidelines for Spectrum Auctions* (2015), acknowledging the role of technology standards and patents.
[17] Department of Industrial Policy and Promotion (DIPP), *National IPR Policy* (2016), Ministry of Commerce and Industry, Government of India.
[18] CUTS International, *Standard Essential Patents and Competition Issues in India* (Policy Brief, 2019).
[19] Jorge L. Contreras, *Essentiality and Standards: Standards-Setting Organizations and FRAND Commitments* (Cambridge University Press, 2017), pp. 298–305.

accepted the existence of the FRAND obligations[20] and permitted the Competition Commission of India (CCI) to investigate claims of excessive royalty payments and the misuse of nondisclosure agreements (NDAs)[21]. This case suggested that an SEP owner should refrain from excessively coercive behaviour and or avoid claiming royalties on the basis of selling mobile handsets. Other cases happening in parallel, such as Intex v. Ericsson (2021), suggest that the Competition Commission had concern about the structure of royalties, but patent courts often supported a wider royalty base mandated by Ericsson, which resulted in a divergence between courts examining competition concerns and courts examining patent protection[22]. This tension culminated in the 2023 Delhi HC ruling in Ericsson v. CCI, outright analytically rejecting the CCI's jurisdiction by remarking that the Patents Act was a complete standalone code for licensing disputes[23]. The comment had the practical effect of asserting that regulation of SEPs would be largely situated in the domain of patent law and civil courts. Following up on the case of Nokia v. Oppo (2023-24) and Lava v. Ericsson (2022-24), courts have ramped up their adoption of requiring security deposits for granting interim relief, emphasizing the duty of implementers to the negotiate in the good faith where it is protecting the rights of the SEP holders[24]. In recent cases, Indian courts have increasingly relied on an analysis of similar licenses as the most dependable method of determining FRAND valuation, while viewing the top down approaches as a less reliable reference and engaging Georgia-Pacific style factors as contextual for fairness linking Indian practices with US and EU methods but localizing or adapting them[25]. In the summary, India's case law surrounding the SEPs has transitioned from the competition law cantered system to one based on the patent law that actively upholds the FRAND principle by requiring the security deposits and endorsing market based comparable to guard against either the party, SEP holders or implementers, exploiting the system, to obtain optimal balance between promoting innovation and ensuring equitable access to the standards[26].

[20] *Micromax Informatics Ltd. v. Telefonaktiebolaget LM Ericsson*, Case No. 50/2013, Competition Commission of India (2013).
[21] Ibid; Competition Commission of India (CCI), *Investigation Report on Ericsson Licensing Practices* (2014–15).
[22] *Intex Technologies v. Ericsson*, CCI & Delhi High Court, 2021.
[23] *Ericsson v. Competition Commission of India*, Delhi High Court, 2023.
[24] Nokia v. Oppo, Delhi High Court, 2023–24; Lava International Ltd. v. Ericsson, Delhi High Court, 2022
[25] Jorge L. Contreras, *Essentiality and Standards: Standards-Setting Organizations and FRAND Commitments* (Cambridge University Press, 2017), pp. 298–305.
[26] Feroz Ali Khader, *The Law of Patents in India*, LexisNexis, 2017, pp. 452–460.

2.5 US ENFORCEMENT TRENDS AND POLICY PHILOSOPHIES

The United States strongly emphasizes patent rights as property rights, tempered by antitrust enforcement when patent holders cross the line, the seminal US Supreme Court case eBay v. Mer Exchange (2006) made obtaining automatic injunctions for patent infringement harder[27]. After eBay, patent owners must show irreparable harm and that legal damages are inadequate for an injunction. This has had implications for the SEP holders: even if they establish infringement, they cannot assume an injunction will be granted; they must justify it in equity. Some district courts have ruled that a potential royalty if deposit able may avoid the need for an injunction.

FRAND issues have arisen in the US litigation as defences and antitrust claims. A key point is that standard FRAND disputes in private patent suits in the US are often treated as contract issues the FRAND commitment is a contract with the SSO or implied license obligation rather than per se antitrust violations[28]. For example, courts in Microsoft v. Motorola (9th Cir., 2014) and Akamai v. Limelight believed that seeking an injunction can breach FRAND but is primarily a breach of contract issue[29]. Meanwhile, regulatory enforcement has been active: the Federal Trade Commission sued Qualcomm in 2017 for allegedly violating antitrust law by imposing no-challenge clauses and other onerous SEP terms; a district court found Qualcomm's practices illegal (imposing market-wide remedies), though an appeals court later vacated that result on technical grounds[30]. The FTC has also warned other licensors like Google/Motorola about similar issues. US policy generally endorses that SEP owners must license on FRAND terms, but remedies are case-by-case. The National Telecommunications and Information Administration (NTIA) has sometimes urged FRAND compliance for government procurements[31].

Economically, the US practice often tolerates higher royalties if contractually justified. The approach tends to be adversarial, with high damages for wilful infringement (Jury awards have run into tens of millions per patent) and less willingness to impose price controls. US courts

[27] *eBay Inc. v. MercExchange, L.L.C.*, 547 U.S. 388 (2006).
[28] Jorge L. Contreras, *The FRAND Commitment: Legal & Economic Perspectives*, Cambridge University Press, 2016, pp. 102–110.
[29] *Microsoft Corp. v. Motorola, Inc.*, 795 F.3d 1024 (9th Cir., 2014); *Akamai Techs., Inc. v. Limelight Networks, Inc.*, 797 F.3d 1020 (Fed. Cir., 2015).
[30] FTC v. Qualcomm Inc., 411 F. Supp. 3d 658 (N.D. Cal. 2019); Qualcomm appeals and subsequent vacatur, 2020.
[31] NTIA, Guidelines on FRAND Licensing for Federal Procurements, 2017.

have shown some flexibility in FRAND calculations. For instance, in the Innovation (N.D. Ill 2013) case, the judge created a detailed hypothetical negotiation valuation for Wi-Fi SEPs using a form of willingness-to-pay analysis[32]. The US emphasises making royalties reasonable in view of all factors, but not imposing an artificial cap on SEP revenues. Injunctions are not barred by law except for the eBay limitations, so a holdout implementer can still face an injunction if the patent owner clears the eBay test. In sum, the US philosophy is pro-patent right but pro-business fairness: contract law and antitrust can enforce FRAND promises, and legal requirements balance injunctive leverage[33].

2.6 EUROPEAN UNION APPROACHES AND ENFORCEMENT

The EU including the UK historically and now CJEU/UK Supreme Court takes a somewhat different tack. European competition law is active in SEP cases: Article 102 of the Treaty on the Functioning of the EU prohibits abuse of a dominant position[34]. The landmark ruling Huawei v. ZTE (CJEU 2015) created a step-by-step framework for SEP licensing negotiations: the patent holder must alert the implementer to the alleged infringement and provide a written FRAND offer[35]. Suppose the implementer promptly responds with willingness to negotiate and pays any adjudicated amount into escrow. In that case, the licensor cannot seek an injunction or monetary relief other than the FRAND royalty without losing protection from antitrust liability. Essentially, Huawei v. ZTE incentivizes good-faith negotiation: a willing licensee cannot be enjoined, while an unwilling licensee risks injunction. This framework has influenced many EU-based cases.

Additionally, EU competition authorities have fined SEP holders in cases of holdup. For example, the European Commission held Motorola liable for seeking an injunction against Apple on standards-essential patents without prior negotiation[36]. The EU courts have generally been critical of using NDAs or country-by-country licensing as anti-competitive when they restrict comparability or drive up prices. The EU favours protecting the downstream market and consumers by preventing SEP owners from demanding royalties that reflect more than the

[32] *Innovation Sci. v. Wi-Fi Alliance*, N.D. Ill., 2013.
[33] Rochelle Dreyfuss & Jorge Contreras, *A Global Perspective on FRAND*, Oxford University Press, 2018, pp. 220–230.
[34] Treaty on the Functioning of the European Union (TFEU), Art. 102.
[35] Huawei Technologies Co. Ltd v. ZTE Corp., C-170/13, EU:C:2015:477.
[36] European Commission, Case COMP/AT.39939 – Motorola Mobility, Decision 2014.

patent's standalone value.

Regarding valuation, EU commentators and some national courts (notably Germany's courts and EU research reports) often prefer ex ante or top-down reasoning[37]. For example, a German patent court in Huawei v. ZTE (LG Mannheim) mentioned an ex-ante aggregate royalty cap methodology suggesting that the sum of all SEP royalties should not exceed a certain percentage of the device price, the EU has also welcomed the idea of transparency with respect to licensing there have been proposals that would require the disclosure of open licensing strategy's even though no formal law exists. In 2021, the EU had already addressed the enacted SEP review initiative intended to clarify limited number of aspects concerning SEPs, indicating their interest in this discussion.

The EU emphasizes the public interest of widespread access to standards, and competition policy is more readily invoked. Injunctions for SEPs are not forbidden outright, but courts are cautious. The UK Supreme Court in Unwired Planet v. Huawei (2020) notably held that courts can enforce a global FRAND license, but only under specific conditions particularly, Huawei had already agreed to global portfolio licensing as a member of the SSO[38]. That case allowed an injunction to enforce worldwide license compliance. This shows that SEP holders can get substantial relief even in Europe, but usually only after offering FRAND terms that cover the world or responding to implementers' formal FRAND counteroffers.

One contrast: EU authorities have pursued antitrust claims e.g. the Department of Justice also penalised Nortel's licensing practices as forming a cartel, and the EU Commission has scrutinised patent pooling arrangements[39]. However, the EU regulators also worry about implementer holdout e.g. HTC and Apple challenged in EU antitrust suits Samsung's licensing fees. So while the EU mainly deals with the SEP issues via competition law either by regulatory enforcement or by competition cases in private litigation, the US relies more on general patent and contract law with occasional antitrust interventions. Both the systems use comparable licenses and economic logic, but the EU is sometimes more interventionist to prevent perceived

[37] Jorge L. Contreras, *The FRAND Commitment: Legal & Economic Perspectives*, Cambridge University Press, 2016, pp. 145–152.
[38] *Unwired Planet International Ltd v. Huawei Technologies Co. Ltd*, [2020] UKSC 37.
[39] European Commission, *Antitrust case studies on patent pools and SEP licensing*, 2015–2020.

holdup[40].

2.7 ENFORCEMENT TRENDS AND PHILOSOPHIES IN PRACTICE

In general, the current enforcement landscape of the SEP in India occupies a position in between these models. The Indian courts leverage many the EU law principles for example, negotiating and good faith requirements; sometimes referencing Huawei v. ZTE[41] while allowing potential remedies, such as injunctions and treble damages, in the U.S. style[42]. Specifically, the Delhi HC has granted injunctions and full portfolio licenses, which evokes a pro patent owner sentiment[43]. However, at the same time, it has sought or co-opted the FRAND obligations of patent owners, which plays into EU-style competition concerns. The bifurcation of issues patents vs. competition is now tilted strongly towards patent-centric resolution (post-2023) to the US approach, but with a unique twist India's FRAND jurisprudence has strongly emphasized interim measures security deposits to keep implementers from free-riding during suits[44]. This is not the precisely like the US or the EU, it is an approach tailored to India's litigation context, where lengthy patent suits could leave implementers free to sell indefinitely without payment.

In sum, the EU tends to regulate SEP licenses proactively via competition law and sometimes creates negotiating frameworks; the US enforces FRAND mainly through courts and patchwork guidelines; and India is forging its own path by blending international influences[45]. Indian courts have looked abroad for guidance on fair licensing, but each decision is crafted to fit India's industrial landscape and legal structure. The difference in methodologies and philosophies suggests that any multinational SEP owner or implementer must navigate multiple legal regimes even if the economic logic of FRAND is universal and the legal tools and outcomes can vary significantly by jurisdiction[46].

[40] Jorge L. Contreras & Rochelle Dreyfuss, *A Global Perspective on FRAND*, Oxford University Press, 2018, pp. 210–225.
[41] *Huawei Technologies Co. Ltd v. ZTE Corp.*, C-170/13, EU:C:2015:477.
[42] eBay Inc. v. MercExchange, L.L.C., 547 U.S. 388 (2006); see also Microsoft v. Motorola, 696 F.3d 872 (9th Cir. 2012).
[43] *Ericsson v. Micromax*, Delhi High Court, 2016; *Nokia v. Oppo*, Delhi High Court, 2023–24.
[44] *Lava International Ltd v. Ericsson India Pvt. Ltd.*, Delhi High Court, 2022–24.
[45] Jorge L. Contreras & Rochelle Dreyfuss, *A Global Perspective on FRAND*, Oxford University Press, 2018, pp. 210–225.
[46] Vidhi Centre for Legal Policy, *FRAND Licensing in India: Challenges and Comparative Perspectives*, 2022, pp. 12–20.

2.8 FRAND DETERMINATION METHODOLOGIES: ECONOMIC LOGIC, ADVANTAGES, AND LIMITATIONS

Hypothetical Negotiation (Georgia-Pacific): This models a negotiation at the time just before infringement occurs. Given the bargaining positions the idea is to simulate what a willing licensor and a willing licensee would agree upon. The Georgia-Pacific factors cover many relevant aspects: comparable, profit impact, alternatives, etc. The logic is to capture the incremental value of the patent. Advantages: Flexible and comprehensive, rooted in US case law. Limitations: Can produce inconsistent results; relies on litigated battles over factors; does not inherently prevent double-counting when applied to multiple SEPs. Courts (like in Unwired Planet) have modified it for FRAND, but it remains a bottom-up analysis. It can be resource-intensive for judges and juries to apply thoroughly[47].

Top-Down (Aggregate Pool Allocation): In this method, economists estimate the total royalty burden that is fair for all SEPs of a standard. For example, studies might conclude that all 4G cellular SEPs combined should yield a 5% royalty on device price. Each patent's share is determined by its weight e.g., number of declared essential claims from that pool. The economic rationale is this guarantees the amount of royalties does not exceed total welfare. Benefits: protects against royalty stacking where many patent owners, all charging high rates, total to excessive amount. It promotes proportionality and provides an excess claim check. Disadvantages: Very dependent upon selecting a reasonable total pool size but is uncertain. Requires agreement on how to measure each patent's relative contribution which is often subjective. Often underutilized in litigation because each party tends to present its own view of the pool. In India, courts have noted it more as a check than a primary method; it often needs detailed evidence which can overwhelm judicial resources[48].

Comparable Licenses: The starting point is deals between the SEP owner or others and third parties, ideally with similar portfolios and markets. Suppose Nokia gave Samsung a license covering X patents for Y royalty, which can inform what Nokia might charge Oppo. The economic rationale is that the actual market outcome should reflect a fair price, assuming deals were negotiated in good faith. Merits: Based on authentic transactions; may have persuasive effect if genuinely comparable. Limitations: Confidentiality and comparability are the main

[47] *Unwired Planet International Ltd v. Huawei Technologies Co. Ltd*, [2020] UKSC 37.
[48] Jorge L. Contreras & Rochelle Dreyfuss, *A Global Perspective on FRAND*, Oxford University Press, 2018, pp. 210–225.

obstacles. In India, confidentiality has been addressed by courts on the basis of the option of submitting licenses under seal, or by redactions. Nonetheless, while licenses may be disclosed to the court, they will include bundled terms i.e., cross-licenses, globe issues that prevent apples-to-apples comparisons. Licensees often disagree with this, claiming that every must-be deal is different e.g., different product lines; geographic terms or bounds; cross-holdings. Often courts will disregard this rebuttal where there are no truly comparable terms. Still, India's judiciary has embraced comparable license evidence as highly probative when it can be vetted as in Lava v. Ericsson.

Ex Ante vs Ex Post Framing: Technically, it is a valuation dimension affecting methodology choice. Ex ante reasoning tries to value the SEP as if the standard were not yet in place, which usually yields lower rates preventing holdup. Ex post reasoning considers the standard's adoption and might justify higher rates. Economic literature often prefers ex ante for fairness, but courts worldwide have used both, sometimes without distinguishing. For example, in negotiations, a licensor often relies on ex post measures what others are paying now. At the same time, the concept of FRAND implies the royalty should not exceed what would have been agreed before the standard to avoid hijacking implementers locked into the standard. This debate affects which comparable licenses or what negotiation date is relevant[49].

Regarding judicial capacity and market reality: Indian courts have relatively limited institutional resources. They are open to engaging in economic analysis the Lava damages judgment was notable in this regard, but they also value the importance of clarity and firm decisions in interim rulings. Judges regularly face the challenge of making rapid decisions on security or injunction motions. They have responded by tightening procedures: requiring implementers to come prepared with counteroffers backed by bank guarantees or deposits. This shifts some burden onto businesses rather than courts doing full-blown valuations at early stages. However, the Delhi High Court will consider economic evidence like comparables or expert reports for final determinations. The limitations in market data fewer publicly available deals, smaller domestic patent markets mean courts sometimes rely on international license rates as a proxy. At the same time, they have recognized that global deals include market factors not present in India e.g. average selling prices, volumes, so adjustments may be needed. In sum, the methods are tools – Indian courts use them pragmatically, often mixing insights from

[49] Michael Carrier, *FRAND Royalties and Patent Hold-Up*, 2015, Journal of Law and Innovation, 17(2), pp. 45–67.

each and letting the parties' negotiations and evidence guide the ultimate royalty setting[50].

3. CHALLENGES FACING SEP ENFORCEMENT IN INDIA

3.1 INSTITUTIONAL AND JURISDICTIONAL FRAGMENTATION

India's architecture for SEP matters is highly fragmented. Patent disputes are heard by civil courts especially the Delhi High Court, which has a well-developed IP bench). Competition issues go to the CCI and its appellate body, but as noted, its role in SEP licensing is now in doubt. No specialist patent tribunal (the IP Appellate Board was abolished in 2021), so patent appeals are also routed through the High Court. Telecom regulators (DOT, TRAI) have technical standards expertise but no clear mandate to oversee SEP licensing. The result is that SEP litigants often juggle multiple forums or choose forum-shopping: a party might file a patent infringement suit, simultaneously complain to the CCI, and even seek FRAND rates abroad as Nokia did in China. This creates inconsistent rulings and duplicative processes. For instance, one Court might set a royalty based on the entire device as in the case of Lava v. Ericsson, while another agency the CCI had earlier criticized that base. There is uncertainty over enforcement remedies: How will foreign sales or imports be handled if a domestic court wins an SEP case? If a foreign court decides on a global FRAND, will India's courts respect that rate? The Nokia-Oppo case showed an Indian court demanding access to the Chinese FRAND determination, eventually using it as persuasive rather than binding[51].

Such fragmentation leads to unpredictability. Implementers may hesitate to fully comply with Indian judgments if simultaneous litigation is ongoing elsewhere. On the other hand, SEP owners may have conflicting obligations e.g., they may want to honour a global license, but India may only want to have country-specific arrangements. In contrast, regimes like the EU or the US are not perfect, but they do have a more unitary system of patent enforcement within their borders. Because India does not have a holistic policy toward SEPs, companies must navigate a thicket of laws and agencies[52].

[50] Vidhi Centre for Legal Policy, *FRAND Licensing in India: Challenges and Comparative Perspectives*, 2022, pp. 12–20.
[51] *Lava International Ltd v. Ericsson India Pvt. Ltd.*, Delhi High Court, 2022–24; *Nokia v. Oppo*, Delhi High Court, 2023–24.
[52] Jorge L. Contreras & Rochelle Dreyfuss, *A Global Perspective on FRAND*, Oxford University Press, 2018, pp. 210–225.

3.2 LACK OF SPECIFIC LEGISLATION ON FRAND

Unlike a few countries considering FRAND rules e.g., France has anti-abuse provisions and drafted guidelines; China has legislation that calls for FRAND for SEP licensing, India has no special SEP law. The Patents Act offers only a generic compulsory license mechanism rarely used) and some price control provisions. The Competition Act does not define SEPs or FRAND. This vacuum means that best practices like requiring good faith negotiation, disallowing NDAs that impede price transparency, and mandating offer deadlines are not codified. Parties rely on generic contract and patent law principles which can slowly adapt to SEP specific issues. Some Indian commentators have recommended amending the Patents Act or enacting a FRAND code. Until that happens, the legal landscape will remain uncertain[53].

3.3 REGULATORY OVERLAPS AND GAPS

Overlapping mandates further complicate matters. For instance, the DoT might be interested in low spectrum costs and thus affordable phone prices, but cannot dictate patent royalties. The Ministry of Electronics (MeitY) wants to promote Make in India which benefits from accessible technology, yet there is no clear forum where tech and IP concerns are jointly addressed. Meanwhile, the Patent Office primarily examines patents and grants licenses on narrow grounds; it does not oversee commercial licensing fairness. The CCI's recent exclusion leaves a regulatory gap: if a SEP owner refuses to license on FRAND terms, an implementer now has limited recourse only private patent litigation. This is a significant gap because infringement suits focus on liability/damages, not vetting the fairness of licensing terms. The Competition Act can still address other abuses like cartels or excessive bundling, but targeted SEP problems e.g. threatening injunctions too early are now harder to police at the policy level[54].

Jurisdictional fragmentation also appears internationally. India has not adopted any mandatory SEP declaration system like some countries experimented with, so it is often unclear which patents are essential. This lack of transparency can make SEP claims in India opaque. Internationally, the fact that same patent may be the litigated in courts worldwide with differing

[53] Shamnad Basheer, *Standard Essential Patents and FRAND Obligations in India*, 12 JIPR 45, 2017; Raghuram Rajan & A. P. Bansal, *FRAND Licensing in India: Current Challenges*, Economic and Political Weekly, 2019, pp. 34–40.
[54] G. K. Pillai, *Regulatory Challenges in SEP Licensing in India*, Indian Journal of Intellectual Property Law, 2020, pp. 112–120.

outcomes of the case US jury awards vs. EU injunctive frameworks vs. China royalties which means that an Indian SEP case cannot safely rely on precedents elsewhere[55].

3.4 ECONOMIC DISPARITIES AND MARKET FACTORS

India's market conditions amplify SEP challenges. Indian device manufacturers are typically part of global supply chains or joint ventures; few independent Indian innovators hold extensive SEP portfolios. This creates a power imbalance: large foreign SEP owners Ericsson, Nokia, Qualcomm, etc. negotiating with Indian assemblers or distributors. Often, the latter group has less financial clout to defend protracted litigation. Moreover, average selling prices of the devices in India are lower than in Western markets, squeezing margins. A royalty rate that might be small in the US could be significant in India. If licensors insist on global uniform rates, Indian firms can feel disproportionately burdened. Conversely, if rates are too low to favour Indian implementers, foreign SEP holders might claim India is a holdout jurisdiction[56].

These economic disparities also show up in complaints. Smaller local companies Micromax, Intex, iBall have filed cases against big licensors; large multinationals often settle or litigate on different grounds. This indicates a fragmented tech ecosystem: multinationals may pay license fees globally and have little incentive to change them locally, while newcomers challenge high rates to gain market access. Intra-industry tensions exist: for example, disputes between smartphone brands some Indian-incorporated but Chinese-controlled, like Oppo/Vivo and SEP owners reveal complex supply and licensing arrangements. The high volume but lower profit per unit in India means FRAND economics must account for scale[57].

Additionally, enforcement disparities exist: even if an Indian court orders a license, collecting royalties from exports or foreign sales might be difficult, given jurisdictional limits. Some Indian SEP disputes have involved asking foreign courts as Oppo did in China to determine a rate. However, India's courts have refused to adopt foreign-determined global rates wholesale. Thus, Indian implementers may not take full advantage of their domestic victories or vice versa,

[55] Shamnad Basheer, *International Dimensions of SEP Enforcement: Lessons for India*, 15 JIPR 67, 2018; Raghuram Rajan & A. P. Bansal, *Global SEP Disputes and Indian Implications*, Economic and Political Weekly, 2019, pp. 41–47.
[56] S. Basu, *Economic Challenges in SEP Licensing in Emerging Markets*, 12 Indian Journal of IP & Competition Law 45, 2019.
[57] R. K. Singh, *Market Power Imbalances in Indian Telecom SEP Cases*, Journal of Indian Technology Law, 2020, pp. 88–95.

making the enforcement environment uneven[58].

3.5 LOW AWARENESS AND COORDINATION CHALLENGES

Another practical challenge is the general lack of widespread knowledge about SEPs and FRAND among judges, lawyers, and businesses in India. While Delhi's IP bar and bench have quickly learned the ropes, courts outside major hubs may still treat SEP cases as ordinary patents. Many Indian companies do not have sophisticated IP licensing departments, so they may mishandle negotiations or fall into procedural traps such as filing antitrust complaints prematurely, which some courts have considered bad faith[59]. There is little inter-governmental coordination: ministries might not fully communicate on patent/technology policy issues. For example, trade negotiators discussing WIPO or TRIPS issues might not consult the tech regulators who know about SEP nuances[60]. This institutional disconnect slows the development of a cohesive policy[61].

In summary, enforcement of SEPs in India is hampered by a fragmented legal regime specialist vs generalist forums, overlapping jurisdictions, a lack of specific statutory guidance on licensing, scattered regulatory roles, economic imbalances between local and global players, and coordination deficiencies[62]. These factors are create uncertainty and slow resolution, making it challenging for patent holders and implementers to find clear, stable outcomes. Robust policy intervention is needed to unify the approach[63].

4. SUGGESTIONS

4.1 LEGISLATIVE AND LEGAL REFORMS

Amend the Patents Act or introduce new legislation explicitly defining SEPs and FRAND

[58] Ericsson v. Micromax, Delhi High Court, 2016; Nokia v. Oppo, Delhi High Court, 2023–24; Lava v. Ericsson, Delhi High Court, 2022–24.
[59] Ericsson v. Micromax, Delhi High Court, 2016; Intex v. Ericsson, Competition Commission of India, 2021; see also R. K. Singh, *Market Power Imbalances in Indian Telecom SEP Cases*, Journal of Indian Technology Law, 2020, pp. 88–95.
[60] Department of Telecommunications (DoT), *Spectrum Policy Framework in India*, 2020; Ministry of Electronics and Information Technology (MeitY), *Make in India – Technology Licensing Guidelines*, 2021.
[61] National Intellectual Property Rights (IPR) Policy, Government of India, 2016; S. Basu, *Institutional Coordination in Indian SEP Regulation*, Indian Journal of IP & Competition Law, 2019, pp. 50–60.
[62] L. Sharma, *Fragmented Regulatory Environment and Its Impact on SEP Enforcement in India*, Journal of Intellectual Property Law & Practice, 2021, pp. 120–130; Lava v. Ericsson, Delhi High Court, 2022–24.
[63] DPIIT, *Report on Patent Licensing and FRAND Practices in India*, 2022; see also A. R. Chaturvedi, *Policy Recommendations for Standard Essential Patents in India*, Indian Journal of Law & Technology, 2020, pp. 77–88.

commitments. This could include the statutory framework outlining what constitutes FRAND negotiations and licensing. For example, the law might mandate that SEP owners cannot seek injunctive relief until they have made a written FRAND offer and allow a designated time for implementers to respond or pay security. Precise definitions of acceptable royalty bases e.g., allowing entire product or component pricing but requiring consistency across licensees could reduce disputes. Codifying the obligations would give certainty to both parties and provide a legal basis for enforcement rather than relying purely on judicial interpretation[64]. Given the confusion over CCI's jurisdiction, Parliament could clarify whether antitrust law should apply to SEP licensing. If the goal is to allow CCI to police abusive licensing, the Competition Act could be amended to exempt patents from the "special act" conflict rule, or expressly preserve CCI power over SEP abuse. Alternatively, if patent law is deemed is adequate, the law could remove ambiguity by stating that patent licensing issues fall under patent law primarily. A balanced approach might explicitly allow CCI to consider SEP licensing terms that cause broader market harm e.g., a patentee charging super competitive royalties across entire industries while deferring more minor disputes to patent courts[65]. Consider establishing a specialised Intellectual Property Tribunal or designating commercial courts' IP benches to handle SEP cases. This could speed up proceedings and ensure consistency, since judges would accumulate SEP expertise. Such a forum could also coordinate closely with competition authorities or technology regulators to avoid conflicting rulings. The tribunal could have technical members as some patent boards do to help with complex valuation issues[66]. Implement a public registry of declared essential patents. While SSOs maintain lists, India could require SEP owners to file in a national database when asserting a patent, which is essential to a standard. This enhances transparency and prevents surprise litigation. The registry could also track licensing commitments and offers, aiding in comparable analysis[67].

4.2 Regulatory Coordination and Institutional Measures

Form a formal coordination mechanism like a FRAND Working Group between key ministries

[64] National Intellectual Property Rights (IPR) Policy, Government of India, 2016; S. Basu, FRAND and Patent Law Reform in India, Indian Journal of Intellectual Property Law, 2020, pp. 65–72.
[65] Competition Act, 2002; Ericsson v. Micromax, Delhi High Court, 2016; R. K. Singh, *Antitrust and SEP Licensing in India*, Journal of Indian Technology Law, 2019, pp. 88–95.
[66] L. Sharma, *Specialised IP Tribunals for SEP Disputes*, Journal of Intellectual Property Law & Practice, 2021, pp. 112–120; IP Appellate Board Abolition Notification, 2021, Ministry of Law and Justice, India.
[67] Department for Promotion of Industry and Internal Trade (DPIIT), *Report on SEP Transparency and Licensing Commitments in India*, 2022; S. Basu, *Patent Registries and FRAND Compliance*, Indian Journal of IP & Competition Law, 2020, pp. 50–60.

and agencies – for example, the Department for Promotion of Industry and Internal Trade (DPIIT, which houses the Patent Office), DoT, TRAI, the CCI, and the Department of Telecommunications. This group could issue joint guidelines on SEP/FRAND issues, ensuring regulators speak with one voice. For example, if the CCI re-enters the SEP domain, it could have MoUs with the Patent Office for technical assessments and TRAI for the telecom context. Even if CCI's jurisdiction is limited, collaboration on research (e.g. market studies on SEP royalties) would be valuable[68]. The Controller General of Patents could elaborate on working of patents and FRAND like conditions in the guidelines under Section 84[69]. For example, the Office could define "reasonable terms" in licensing in accordance with international practice. While the Office cannot in effect impose FRAND, it can still promote best practices (for example, discouraging blanket NDAs) through notices to the public, or guidance documents. The Patent Office could also streamline process for compulsory licenses (by expediting hearings in SEPs cases) to make that and other remedies easier to achieve. If antitrust enforcement is desired, the CCI could adopt SEP-specific guidelines as it did with telecom interconnection[70]. Even if it cannot directly set royalties, the CCI could publish a statement on what licensing behaviours (like tying, discriminatory terms) would be considered abusive.

4.3 Judicial Training and Resources

Specialized Training should be provide training modules on the SEPs and FRAND for judges in higher courts[71]. The government (or NGOs) could organize workshops bringing international experts to brief Indian judges on technical standards, economic theories of FRAND, and comparative law. This would build judicial capacity to handle complex SEP valuations and negotiations reasonably. Encourage courts to appoint neutral technical or economic experts in SEP cases. For instance, an independent economist could explain the global SEP ecosystem when top down analysis or portfolio valuation is at issue. Some countries use court-appointed experts to avoid battle of the experts. India's judges could leverage the willingness of local IP economists.

[68] Department for Promotion of Industry and Internal Trade (DPIIT), *National Intellectual Property Rights (IPR) Policy*, 2016; Ericsson v. Micromax, Delhi High Court, 2016; TRAI, *Consultation Paper on Licensing of Telecom Equipment and Technology*, 2018.
[69] Controller General of Patents, *Guidelines on Compulsory Licensing and FRAND Practices*, Ministry of Commerce and Industry, 2020.
[70] R. K. Singh, *Antitrust and SEP Licensing in India*, Journal of Indian Technology Law, 2019, pp. 88–95; CCI, *Discussion Paper on SEP Licensing and FRAND Commitments*, 2021.
[71] Ministry of Law and Justice, *Judicial Capacity Building on Intellectual Property*, 2020.

4.4 Market Mechanisms and Surveillance

The government or a public-private consortium could create an "SEP Licensing Observatory" to collect data on SEP portfolio ownership, declared essential patents, and license terms (to the greatest extent possible)[72]. This could operate like a research group. Promote Alternative Dispute Resolution (ADR), this Encourage mediation or arbitration for SEP disputes[73]. India could propose an SEP specific, ADR framework, possibly with panels of technical arbitrators as under the Indian Arbitration Act. Standard-setting bodies often encourage arbitration for FRAND disputes; India could sponsor an IP arbitration centre specializing in SEPs. This would relieve court backlog and provide a confidential forum that might be more efficient. To address market disparities, policies could help Indian companies acquire and leverage SEPs. For example, the government could incentivize cross-licensing agreements, joint ventures, or participation in global patent pools. This would give Indian implementers countervailing power. The government could also fund an "essential patents project" in academia to raise local awareness[74].

4.5 Stakeholder Engagement and Capacity Building

Educate businesses about FRAND negotiation norms[75]. Chambers of commerce and IP associations could run seminars for SMEs on handling SEP licensing requests when to seek legal advice, how to prepare counteroffers, and understanding security payments. This empowers implementers not to provoke legal traps inadvertently. Engage with international bodies (WTO, WIPO, OECD) and other countries on SEP policies. The India country, can gain insights from recent overseas cases; for instance, the European Commission's proposals regarding the availability of SEPs, or the way the US ITC addressed FRAND. One option would be to enter into technical cooperation agreements such as ones to share judgements on non-confidential FRAND sets. This may assist in aligning rates on a global basis. Further, India may want to consider advocating for transparent disclosures of licensing commitments ex-ante in standards-setting organisation activity.

[72] TRAI, *Telecom Licensing and SEP Data Reports*, 2021.
[73] SEPs and FRAND: International Approaches, OECD IP Policy Review, 2019.
[74] National IPR Policy, 2016, Section on Encouraging Domestic Innovation
[75] National IPR Policy, 2016, Section on Capacity Building and Awareness.

4.6 Enforcing Balanced Outcomes

All reforms should aim to maintain equilibrium: encouraging innovation while ensuring competitive markets. Policy could reaffirm that injunctive relief on FRAND committed patents is a remedy of last resort. For instance, legislation or judicial guidelines could require patent holders to offer reasonable escrow deposits or a bond before seeking an injunction. Similarly, implementers unwilling to negotiate or resorting to vexatious litigation like filing frivolous infringement challenges could be penalised under anti-abuse provisions. The goal is to ensure each side has "skin in the game" and neither can free-ride on the other's efforts.

Above all, recommendations must reflect India's context: affordable consumer technology, vibrant competition among local manufacturers, and respect for global R&D investment by patent holders. Policymakers can ensure that SEP rules and regulations align with national economic objectives by way of calibrating any proposed reform for example, permitting some flexibility for any conditions prevailing in developing countries and adopting prominent ceilings on royalties. Consequently, international best practices e.g., the FRAND principles governing the licensing of SSOs or the distinct tests applied in US courts when implementing EU competition policy can help embroil any discussion, but India's policy measures can be structured to suit India's unique legal system and market conditions[76]. Ultimately the transparent and focused policy framework for SEP licensing would also provide the needed certainty for domestic innovators and foreign investors to participate with confidence in India's emerging digital economy[77].

5. Conclusion

India's experience with Standard Essential Patents has picked up pace in the last couple of years, allowing us to see both the potential of global technological standards while simultaneously discovering several layers of challenges of patent enforcement in the competitive marketplace. The Indian legal system has evolved quite slowly but surely into a more robust body of law, borrowing some tenets from international SEP law while attending to Indian realities. Indian courts acknowledge FRAND commitments and have established specific interim and final remedies to balance the interests of patentees and implementers. Nonetheless, challenges remain: current fragmentation of legal venues, legislative gaps, and

[76] Unwired Planet v. Huawei, UK Supreme Court, 2020; Microsoft v. Motorola, 9th Cir., 2014.
[77] NITI Aayog, *Digital Economy Strategy and IP Policy*, 2021.

market pressures weaken predictability and fairness of SEP licenses in India. This comprehensive report shows that India is at a crossroads: settle on a richer framework that makes it one of the leading transparent and balanced venues for SEP disputes or risk creating uncertainty that hinders innovation and investment. The recommended legal and policy changes create a path for the country for moving forward. With fair licensing, appropriate institutional coordination, optimising private sector capabilities, and ensuring that stakeholder communities are aware the SEP regime can better support India's innovation and trade agenda in the global economy. The changes would allow SEPs to become conduits for technology diffusion instead of ultimately impeding growth, while still supporting India's interest in enabling broad economic benefits to the public and country as a whole.