

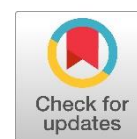


Standardization and Standard Essential Patents for Public Good: Application in Automotive Industry

Soumya Prakash Patra^{1*}, K D Raju²

^{1,2}Indian Institute of Technology Kharagpur, Kharagpur, Indian

*E-mail: patrapatent@gmail.com



Dikirim: 17/09/2020	Direvisi: 28/10/2020	Dipublikasi: 25/3/2021
Info Artikel	Abstract	
<p>Keywords: Patents; Standards; SEP; Safety; Standard Essential Patent; Framework.</p> <p>DOI: 10.47268/sasi.v27i1.402</p>	<p><i>The majority of patents related to automotive safety systems are owned by a limited number of companies. Absorption and implementation of such innovations in large markets require solutions that would go beyond what is protected through exclusive means viz. patents. Taking learnings from the field of communication, wherein by implementing what is known as standard-essential patents, a horizontal deployment of a similar concept is required in other areas, most notably, automotive safety systems is necessitated. This study aims to explore the need for a practical approach to a broader technological, commercial, and social cause.</i></p>	

A. INTRODUCTION

Vehicular safety tools for riders such as Anti-lock Brake Systems (ABS), passing the mandatory crash tests and vehicular emission norms are becoming increasingly compulsory (CMVR, 2015) for developing countries like India. European Union (EU) has already made safety systems such as ABS and Combined Brake Systems (CBS) mandatory since 2012.¹ However, majority of patents related to safety systems such as ABS, in areas such as positioning of ABS unit, speed sensors, configuration of logical units, emission norms (that directly links to engine performance), vehicle stability structures, CBS, etc. are owned by a limited number of organizations such as Honda, Bosch, Nissin, etc.

Similarly, controlling the emissions with new emission norms impacts direct interference in the working of engines and efficiency. Understanding and implementing solutions to such dynamic and complex inter-relationship in innovations requires high expertise. The adoption of such safety and emission reduction systems is quite simpler in developed markets such as the EU owing to customers willing to paying more for these systems. Further, in the former markets, two-wheelers are used more as a leisure vehicle than a daily commuter vehicle as in India.²

However, absorption and implementation of such innovations in large markets³ such as

¹Council of the European Union, (2012), *Motorcycles: New Safety and Enviromental Requirements*

² Ganguli, (2017) *Inspection & Maintenance for In-Use Vehicles in India*.

³ KPMG, (2017) 'The Indian Automotive Industry: Evolving Dynamics'.

India require solutions that would go beyond what is protected through exclusive means, viz. patents⁴. For instance, organizations such as Honda, ZF, Bosch, etc. lead in patents related to ABS, emissions, and other vehicle safety systems. However, patents and exclusivities in such areas slow down the technology absorption in the grassroots levels of large markets, which are incredibly cost-sensitive. So we face a conjugate problem of safety systems being implemented compulsorily in all new vehicle launches on the one side and technologies in such areas monopolized by few players on the other side. This study seeks to propose a framework for creating a balance between broader technology assimilation along with its availability of affordable components and commercial benefits owing to exclusive patent rights by various players. For instance, taking an example from a parallel field of communication technologies, wherein the latest innovations made available to a broad public base at a fast pace was possible by implementing what is known as SEPs. A SEP is a patent that must be used to comply with a technical standard⁵. However, determining which patents are essential to a particular standard can be a subject of debate, consultations, and negotiation between various parties. Further, organizations related to standardization require licenses on such essential patents, which are based on FRAND terms.

Therefore, broader applicability of solutions to factors such as safety norms requires two essential components, viz. establishment of standardization organizations, which could be part of existing government policy-making and determining the essential patents. This study aims to explore the options for a practical approach to a broader technological, commercial, and social cause.

B. LITERATURE REVIEW

1. Importance of Standards

Technical specifications have existed since time immemorial. For example, A4 papers, switches, plugs, etc. are all made to particular standards. Standards may be classified into three broad functional categories⁶, quality standards, performance standards, and compatibility standards. Standards provide information and maintain quality and interoperability among various working systems. Standardization drives economic interpenetration in the common market, simplifies product development, and gives a leveling field to multiple players. As a result of the standardization, consumers have the freedom to change a supplier without any impact on the existing system, thus improving customer choice.⁷

2. Importance of Standard Essential Patents

A direct consequence of setting standards is to achieve a common ground on the specification of technology for ensuring interoperability and ease of innovation on sophisticated technologies.⁸ Numerous innovative applications are built upon standardized technologies. These technologies increasingly incorporate SEPs. It is crucial to own SEPs to maintain market leadership. Developing a standard and technology are two different aspects where both are inter-dependent. For instance, new technology in the absence of standards does not get

⁴ The Office Of The Controller General and others, (2019), Annual Report 2017-2018.

⁵ European Commission, (2017), Standard Essential Patents.

⁶ Lemley, Mark A., Shapiro, Carl. (2007). Patent Holdup and Royalty Stacking, *Texas Law Review*, 85, <https://escholarship.org/uc/item/8638s257>.

⁷ Piesiewicz, Grazyna., Schellingerhout, Ruben. (2007). Intellectual Property Rights in Standard Setting from a Competition Law Perspective, *Competition Policy Newsletter*, 3, 36–38.

⁸ Pohlmann, Tim Christoph., Neuhäusler, Peter., Blind, Knut. (2016). Standard Essential Patents to Boost Financial Returns. *R&D Management*, 46 (S2), 612-630. <http://dx.doi.org/10.1111/radm.12137>.

widespread adaptation by consumers, and standards without technology to have a short lifespan. Therefore, incorporating patented technologies is essential for the development of standards where the technology firms get compensated for their investments against the patent, and new standards get established on upcoming technologies. The core technologies that are protected by patents, and without infringing them, the technologies in a standard cannot be adopted, are termed as essential patents⁹. For instance, a single standard on a particular technology, namely Wi-Fi or Universal Mobile Telecommunications Service (UMTS), may incorporate multiple patents by multiple technology firms. The standards play an essential role in ensuring interoperability and designating the patents associated with such patents as essential (Standard Essential Patents), the technology firms agree to either cross-license such technologies to each other or license against a certain fee under FRAND (Fair, Reasonable and Non-Discriminative) terms. Thus establishing Standard Essential Patents serves a perfect symbiotic effect in the technology domain wherein the technology providers get compensated for their inventions and patents against a certain license fee, and the end-user gets to experience the latest technology in a particular field by paying a certain reasonable amount.

3. Standard Setting Organizations and Standard Essential Patents

For establishing standards, there exist three criteria¹⁰: firstly, availability of technical specifications; secondly, a common design connecting the technical requirements; and thirdly, the common design is for a product or process. Such standards, therefore, are a collaborative effort of companies or technology providers. These technology providers determine the standards through Standard Setting Organizations (SSOs)¹¹. The SSOs voluntarily disclose those patents that they make essential to standards and thus defining the SEPs.¹²

SSOs are the group that sets common standards in various technical areas responding to the need for broader adoption of technology and interoperability between components¹³. Primarily, SSOs come into the picture when an existing market needs to make its product attuned with other products. Such standards related to the new technology domain involve patent(s). These patents which are involved or adapted to become a standard are termed SEPs. Open participation on the SEPs provides a base work for the broader adoption of the technology in the relevant technical field. For an effective Intellectual Property Rights (IPR) policy for an SSO, access to the patents involved in the standardization process should include sharing of the technology on FRAND licensing commitments.¹⁴

4. Importance of Two-Wheelers in India

There were 20.1 million two-wheelers sold in India in 2018-2019¹⁵. The demand for two-

⁹ Microsoft Corp. v. Motorola Inc, 963 F.Supp.2d 1176, 2013, F.Supp.2d1, 1176.

¹⁰ Geradin, Damien. (2013). The European Commission Policy Towards the Licensing of Standard-Essential Patents: Where Do We Stand?, *Journal of Competition Law and Economics*, 9 (4), 1125–45. <https://doi.org/10.1093/joclec/nht036>.

¹¹ Carrier, Michael a. (2012). A Roadmap to the Smartphone Patent Wars and FRAND Licensing Licensing, *CPI Antitrust Chronicle*, 2 (April), 1-7. <https://ssrn.com/abstract=2050743>.

¹² Bharadwaj, Ravikant. (2013). Standard Setting in India: Competition Law and IP Issues, *IMJ*, 5 (1), 2

¹³ Bosworth, D. Scott Russell., Mangum, W., Matolo, Eric C. (2018). FRAND Commitments and Royalties for Standard Essential Patents', in Complications and Quandaries in the ICT Sector: Standard Essential Patents and Competition Issues, https://doi.org/10.1007/978-981-10-6011-3_2.

¹⁴ Lorenzo, Relatore. (2014). Stanghellini Candidato, and Niccolò Galli, 'Standard Essential Patents Litigation and Abuse of a Dominant Position: The " FRAND " Defense in the EU Competition Law Context, Università Degli Studi Firezi, <https://www.studiotorta.com/wp-content/uploads/2016/02/2016-niccolo-galli-the-frand-defense-in-the-eu.pdf>.

¹⁵ SIAM, (2019). Technical Regulation. <https://www.siam.in/technical-regulation.aspx?mpgid=31&pgidtrail=34>.

wheelers in India with an upward growth trajectory has its socio-economic reasons¹⁶, namely (1) inadequate public transportation systems; (2) wider availability of small consumer loans; (3) increasing readiness of economical and fuel-efficient two-wheeler models; (4) increasing economic growth (5) huge difference between two-wheelers and car prices; (6) increase in changes in demographic profile on economic terms; (7) increase in per capita income over last few years; etc.

As a result, two-wheelers play an essential role in the demography of the country. Therefore, a study on safety systems, primarily focused on two-wheelers, is mandated owing to their extensive use in the daily life of Indians.

5. Existing Legal and Institutional Set Up On Road Safety and Standards in India

Road safety is an issue dealt by both Central and State Governments of India. Ministry of Road Transportation and Highways (MoRTH) is the central nodal agency is responsible for road safety efforts in India. The principal legislation related to safety and standards related to road safety is the Motor Vehicles Act, 1988.

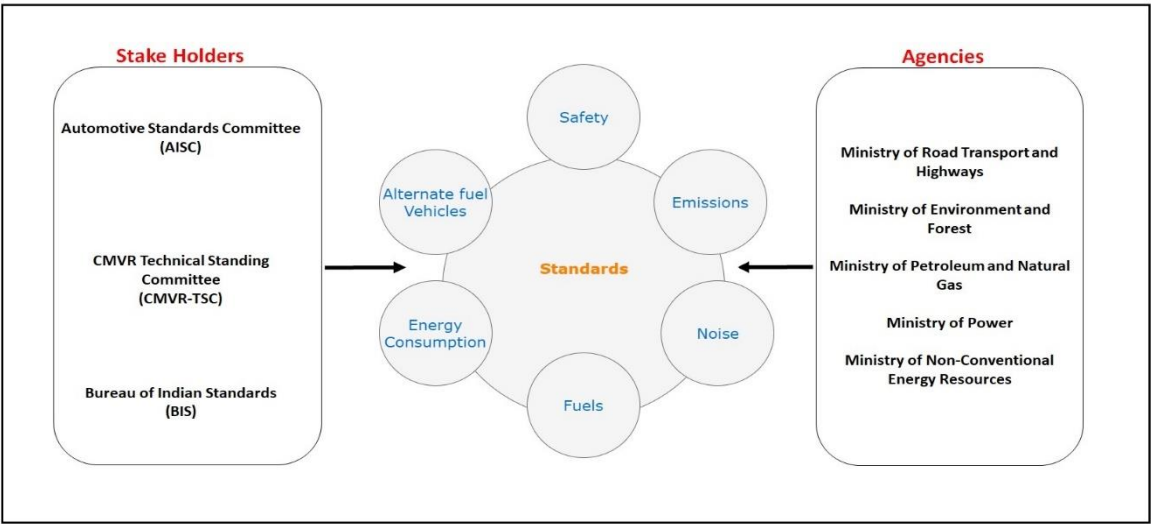


Figure 1. illustrates the standards and stakeholders for automotive safety. Source: Author's compilation

Figure 1 illustrates all the stakeholders for various facets of automotive safety standards. The main agencies involved are AISC, CMVR-TSC, and BIS for the formation of standards in fields such as safety, emissions, noise, fuels, energy consumption, and alternative fuels vehicles. Based on the endorsements on the stakeholders involved, the MoRT&H makes notifications for needed amendments in the CMVR Rules. Additionally, Ministry Of Environment And Forest, Ministry Of Petroleum And Natural Gas, and Ministry Of Non-Conventional Energy Resources are the required agencies for making regulations related to standards on emissions, noise, fuels, and alternative fuel vehicles, respectively¹⁷

The relevant Indian Standard that was developed after the deliberations on harmonization of the above said GTR and deliberations with AISC is IS 14664 (2010). The above mentioned IS standard relates to requirements on ABS and CBS for two-wheelers and three-wheelers. The IS 14664 (2010) is aligned to the Directive 2002/24/EC of the European Parliament and of the

¹⁶ Bhattacharya, Mousumi., Bhattacharya, Sharad Nath. (2008). Investigating Stationarity of the Indian GDP Using Unit Root Test', *The Journal Of Army Institute Of Management Kolkata (Formerly National Institute Of Management Calcutta)*, VIII (2), 35-48.
¹⁷ SIAM, 'Technical Regulation'.

Council that relates to the type approval for two and three-wheel motor vehicle. The GTR3 was subsequently aligned with the same directive.¹⁸

6. The Legal Structure in India On Vehicular Safety Systems and Patents

The primary vehicular rules and regulations in India are governed by the Ministry of Road Transport, Highways and Shipping. It acts as the nodal agency and is governed by the Motor Vehicles Act (MVA), 1988, and the Central Motor Vehicles Rules (CMVR), 1989. For issues related to safety and emission regulations, there are three committees, namely the CMVR Technical Standing Committee, Automotive Industry Standards Committee, and the Standing Committee on Implementation of Emission Legislation. These committees provide all the technical clarification and interpretation of the various rules, regulations, and recommendations of the MVA and CMVR primarily. Based on the recommendations from the committees, multiple modifications to the CMVR are presented. Further, other ministries such as the Ministry of Environment and Forests and the Ministry of Non-Conventional Energy Sources (now, the *Ministry of New and Renewable Energy*) also influence on regulations such as emissions, fuels, etc.¹⁹

The CMVR notification²⁰, prescribes about new brake systems (ABS and CBS) as per IS 14664: 2010 from April 1, 2019, onwards in case of all models of two-wheelers. The Standards on the Indian Automotive Industry are prepared by the Bureau of Indian Standards (BIS). For instance, the BIS has prescribed the standards used in the braking system for two- and three-wheelers²¹ for India. The current standard was taken up to align the standards of braking systems to the Global Technical Regulation GTR3²², formulated by the United Nations Economic Commission for Europe (UNECE). However, the standards, as mentioned in BIS, disclose the technical requirements and do not mention the technologies required to fulfill those requirements. There is a lack of patent mapping of those technologies necessary to follow the standards in the current art.

The Patents Act, 1970, governs the patents related to any new technical area. The Patents Act prescribes compulsory licensing on conditions that either the reasonable requirements of the public concerning the patent invention have not been satisfied, or the patented invention is not available to the public at a reasonable price, or the patented invention is not worked in the territory of India. However, SSOs take their relevance concerning the compulsory licensing provision in terms of royalty negotiation. In the case of compulsory licenses, the rates of royalty are determined by the Government by negotiating with the patent owner²³, whereas in the case of SEPs, the royalties are determined by SSOs. However, owing to a large number of relevant patent applications and also to promote innovation related to a particular field of technology, the setting of SSOs is mandated rather than going through compulsory licensing, i.e., SSOs increase innovation, research, and development. However, the Patents Act, 1970, does not address the provision of SEPs and SSOs in any form. Therefore, there exists a legal gap between the implementation of new technologies that are protected by patents and enforcement of safety systems such as ABS and CBS on the one hand and linking patents associated with such safety

¹⁸ Pavlovic, Ana., Fragassa, Cristiano. (2015). General Considerations on Regulations and Safety Requirements for Quadricycles, *International Journal for Quality Research*, 9 (4), 657–674. <http://www.ijqr.net/paper.php?id=373>

¹⁹ SIAM, (2017), Regulatory Framework.

²⁰ CMVR, (2015), *Central Motor Vehicles (Fourteenth Amendment) Rules 1989*, Rule 4A (Draft).

²¹ Bureau of Indian Standards, (2010). *IS 14664:2010 Automotive Vehicles -Performance Requirements and Testing Procedure for Braking System of Two and Three Wheeled Motor Vehicles*.

²² Global Technical Regulation, (2006). *Motorcycle Brake Systems*.

²³ I Decker, S., & King, (2015). Wi-Fi Inventors' Cut of iPhone 6 Sales to Shrink in Vote.

standards to SEP norms on the other

C. DISCUSSION AND ANALYSIS

With increasing trade and interdependencies of the Indian economy with the global economy, standards are increasingly being recognized as increasingly important for expanding conventional markets and socio-economic development of the society. This can be observed from the increasing focus of the policymakers on the front of standardization and regulation in almost all the related areas, as illustrated above. One of the most important reasons for increased focus on standardization is its ability to allow interoperability and compatibility between different markets and technologies. Another reason for the increased focus of India in the standardizing various areas of technology, including automotive safety, is providing a common area of operation for innovators to innovate in a particular direction without thinking much about essential areas of compatibility and functionality. This observation is more supported by the number of patent filings in the various areas of automotive technologies. It could be seen that there is an increasing trend of patent filings in all the new areas for technologies such as Artificial intelligence, battery technologies, electric vehicles, safety systems, etc. Further, like other progressive nations such as the US and EU, India also has provided definitive bureaucratic and organizational support on the development of standards related to automotive safety, which could be observed from the regulatory functionality of AISC, CMVR-TSC, and BIS.

All the above holds good when the various branches of the Government work in tandem to give out meaningful solutions to existing problems faced by the industry in particular and the society in nature. For instance, the transport sector is mainly managed by the MoRTH, in which the field of patents and associated intellectual property regulations are governed by the Ministry of Commerce and Industry (MCI). There is no charter between the two agencies, i.e., the Indian Patent Office (IPO), which is governed under the Indian Patent Act 1970 and the AISC under Motor Vehicles Act 1988 and CMVR 1989. While the AISC works out the technical standards which are formalized as Indian Standards by the BIS, there is no such collaboration between either the AISC or BIS with the Indian Patent establishment that includes the Indian Patent Office for development of automotive safety standards. The reasons for the same could be reasoned as: Both the verticals, i.e., IPO and AISC, work under different ministries of the Government of India.

The motives and goals of both organizations are different in terms of their objective and working nature. For instance, IPO works on the promotion of innovation culture and the consequent protection of intellectual property in the country. The IPO acts as the nodal agency for patent-related laws and regulations, while the AISC assists CMVR-TSC for framing of automotive standards.

There is no-correlation on the framing of standards by taking into consideration the associated IPR assets of participating organizations and their dominant positions in terms of patent holdings by various automotive companies. For example, on one side, automotive safety standards on ABS and CBS, such as IS 14664 (2010), are done in consultation with various two-wheeler manufacturers; the technical parameters and capability of the organizations are seldom studied to avert any misuse of any dominant position by such organizations.

Therefore, a lack of coherent system wherein both the domains of IP as well as automotive safety system as in brakes is detrimental in providing a cost-effective solution to existing safety issues. This needs of imminent addresses of overhauling the regulatory framework of establishing standards in India that would have a cross-functional action to fulfill today's demands of going in tandem with cross-functional inventions and consequent regulatory

changes.

D. CONCLUSION

As India moves ahead in adopting better technologies and systems with the implementation of safety norms on braking systems such as ABS and CBS, new emission norms and new fuel norms, it is imperative that the technologies associated with such solutions/proposals need to be available in a more comprehensive, more accessible, and cost-effective manner. Further, it is also essential to maintain a balance and motivation in terms of commercial profit for innovators to provide such solutions. However, no organization deals with such areas, unlike the presence of various organizations, which deal with such scenarios in the communication field.

Hence, there is an urgent need for formulating a legal framework in India, which would further engage technology providers, suppliers, and end-users to effectively utilize each other leading to adaptation of such norms in ABS and CBS in a more comprehensive and much cost-effective manner. Therefore, there arises a need for a framework for creating a balance between broader technology assimilation along with its availability of affordable components and commercial benefits owing to exclusive patent rights by various players. Therefore, more general applicability of solutions to factors such as safety norms requires two essential components, viz. establishment of standardization organizations, which could be part of existing government policy-making and determining the essential patents.

REFERENCES

Journal

- [1] Bhattacharya, Mousumi., Bhattacharya, Sharad Nath. (2008). Investigating Stationarity of the Indian GDP Using Unit Root Test', *The Journal Of Army Institute Of Management Kolkata (Formerly National Institute Of Management Calcutta)*, VIII (2), 35-48.
- [2] Bosworth, D. Scott Russell., Mangum, W., Matolo, Eric C. (2018). FRAND Commitments and Royalties for Standard Essential Patents', in *Complications and Quandaries in the ICT Sector: Standard Essential Patents and Competition Issues*, https://doi.org/10.1007/978-981-10-6011-3_2.
- [3] Carrier, Michael a. (2012). A Roadmap to the Smartphone Patent Wars and FRAND Licensing Licensing, *CPI Antitrust Chronicle*, 2 (April), 1-7. <https://ssrn.com/abstract=2050743>.
- [4] Bharadwaj, Ravikant. (2013). Standard Setting in India: Competition Law and IP Issues, *IMJ*, 5 (1), 2.
- [5] Geradin, Damien. (2013). The European Commission Policy Towards the Licensing of Standard-Essential Patents: Where Do We Stand?, *Journal of Competition Law and Economics*, 9 (4), 1125–45. <https://doi.org/10.1093/joclec/nht036>.
- [6] Lemley, Mark A., Shapiro, Carl. (2007). Patent Holdup and Royalty Stacking, *Texas Law Review*, 85, <https://escholarship.org/uc/item/8638s257>.
- [7] Piesiewicz, Grazyna., Schellingerhout, Ruben. (2007). Intellectual Property Rights in Standard Setting from a Competition Law Perspective, *Competition Policy Newsletter*, 3, 36–38.
- [8] Pavlovic, Ana., Fragassa, Cristiano. (2015). General Considerations on Regulations and Safety Requirements for Quadricycles, *International Journal for Quality Research*, 9 (4), 657–674. <http://www.ijqr.net/paper.php?id=373>.

- [9] Pohlmann, Tim Christoph., Neuhäusler, Peter., Blind, Knut. (2016). Standard Essential Patents to Boost Financial Returns. *R&D Management*, 46 (S2), 612-630. <http://dx.doi.org/10.1111/radm.12137>.

Online/World Wide Web and Etc

- [10] Bureau of Indian Standards, (2010). *IS 14664:2010 Automotive Vehicles -Performance Requirements and Testing Procedure for Braking System of Two and Three Wheeled Motor Vehicles*.
- [11] Council of the European Union, (2012), *Motorcycles: New Safety and Enviromental Requirements*.
- [12] CMVR, (2015), *Central Motor Vehicles (Fourteenth Amendment) Rules 1989*, Rule 4A (Draft).
- [13] European Commission, (2017), Standard Essential Patents.
- [14] Global Technical Regulation, (2006). *Motorcycle Brake Systems*.
- [15] Ganguli, (2017) *Inspection & Maintenance for In-Use Vehicles in India*.
- [16] I Decker, S., & King, (2015). Wi-Fi Inventors' Cut of iPhone 6 Sales to Shrink in Vote.
- [17] KPMG, (2017) 'The Indian Automotive Industry: Evolving Dynamics'.
- [18] Lorenzo, Relatore. (2014). Stanghellini Candidato, and Niccolò Galli, 'Standard Essential Patents Litigation and Abuse of a Dominant Position: The " FRAND " Defense in the EU Competition Law Context, Universita Degli Studi Firezi, <https://www.studiotorta.com/wp-content/uploads/2016/02/2016-niccolo-galli-the-frand-defense-in-the-eu.pdf>.
- [19] Microsoft Corp. v. Motorola Inc, 963 F.Supp.2d 1176, 2013, F.Supp.2d1, 1176.
- [20] SIAM, (2019). Technical Regulation. <https://www.siam.in/technical-regulation.aspx?mpgid=31&pgidtrail=34>.
- [21] The Office Of The Controller General and others, (2019), Annual Report 2017-2018.