PATENT INFRINGEMENT DAMAGES IN TECHNOLOGY INDUSTRY: LEARNING INDIA SHOULD TAKE FROM USA"

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This dissertation is submitted in partial fulfilment of the degree of B.B.A., LL.B. (Hons.)

College of Legal Studies

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2016

CERTIFICATE

This is to certify that the research work titled **"PATENT INFRINGEMENT DAMAGES IN TECHNOLOGY INDUSTRY: LEARNING INDIA SHOULD TAKE FROM USA"** is the work done by Sanchay Joshi under my guidance and supervision for the partial fulfilment of the requirement of B.B.A., LL.B. (Hons.) degree at College of Legal Studies, University of Petroleum and Energy Studies, Dehradun.

Signature & Name of Supervisor

DECLARATION

I declare that the dissertation titled **"PATENT INFRINGEMENT DAMAGES IN TECHNOLOGY INDUSTRY: LEARNING INDIA SHOULD TAKE FROM USA"** is the outcome of my own work conducted under the supervision of Prof. Krishna Deo Singh Chauhan, at College of Legal Studies, University of Petroleum and Energy Studies, Dehradun.

I declare that the dissertation comprises only of my original work and due acknowledgement has been made in the text to all other material used.

Signature & Name of Student

Date

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ABBREVIATIONS

SEP	: Standard Essential Patent
SSPPU	: Smallest saleable patent practicing unit
EMVR	: Entire market value rule
CCI	: Competition Commission of India

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ACKNOWLEDGEMENT

I would like to express sincere gratitude towards our mentor Prof. Krishna Deo Singh Chauhan, who helped us, from advising us with ideas to research in various areas, as well as by helping us with providing his inputs into the completion of this dissertation. I would also like to thanks the library staff, for helping us research, even at odd times.

INTRODUCTION

Multi-patent products are not restricted only to certain spheres but pervade the industry where many different components on which patent rights are held by various companies are involved to yield a complex product e.g. - Smartphones, camera etc. This is the prime reason why so much complexity is involved in damage ascertainment in a situation when a particular component in a compound product manufactured by some other company other than patentee infringes one of the patentee's patent. The quest for ascertainment of damages to which aggrieved party is entitled in such a case has puzzled the judges and scholars and has become a heated topic of debate.

In a suit filed by Ericsson, a Swedish equipment maker, against domestically grown Micromax, Hon'ble Delhi High court has directed Micromax via interim order to pay 0.8% of net selling price of phones for use of Ericsson's standard essential patents in them.But, the order has been criticised on the basis that royalty should be based on chipset on which patent reads rather than total value of mobile handset.

This issue has not been discussed by Indian courts properly however; US Federal Circuit has discussed this issue at length in many cases. The problem of determining the correct royalty base in a patent damage infringement case can be explained by delving with US case of *Laserdynamics v. Quanta Computer*.[1]

In *Laserdynamics v. Quanta Computer* '981 Patent owned by Laserdynamics was involved which was directed to a method of optical disc discrimination that essentially enables an optical disc drive ("ODD") to automatically identify the type of optical disc—e.g., a compact disc ("CD") versus a digital videodisc ("DVD")—that is inserted into the ODD. Quanta Computer Inc. does not manufacture ODD's, but will install ODD's into computers as instructed by its customers. Although Laserdynamics offered a license to QCI, but it didn't entered into any licensing agreement.

In August 2006, Laserdynamics brought suit against QCI for infringement of '981 Patent relying on theory of infringement that QCI's sales of laptop computers, actively induced

[1] Laserdynamics v. Quanta Computer, 694 F.3d 51, 66 (Fed. Cir. 2012).

infringement of the method by the end users of the laptop computers because asserted Claim 3 of ’981 Patent is directed to a method of disc discrimination performed by an ODD, as opposed to the ODD itself.[2]

Laserdynamics sought damages in the form of reasonable royalty under 35 U.S.C § 284. Laserdynamics expert opined that a running royalty of 2% of the total sales of laptop computers by QCI is what the parties would have agreed to as a reasonable royalty had they engaged in a hypothetical negotiation. In other words, the expert claimed damages on entire laptop computers with ODD’s because QCI sold laptop computers and not ODD’s.[3]

Hearing such a testimony, even a person of common prudence will put forward an argument that when ODD, a component of QCI laptop is infringing the Laserdynamics patent, then why Laserdynamics is claiming damages on whole laptop computer? The damages shall be limited to ODD’s. But how one is going to ascertain the value contributed by ODD’s in the whole laptop computer, because Laserdynamics sells the entire laptop computer in which ODD is component and sales revenue of laptop computer sold by Laserdynamics is only available.

It is logical that if the court awards damages on entire laptop computer, the damages which plaintiff will be awarded will be overly excessive. Similarly, if damages are awarded on anything smaller than ODD, the damages may be less than what Laserdynamics will be entitled.

Such a problem has been confronted by the courts in many cases which article aims to discuss. The courts have been striving to strike a balance between the two options and then award damages which may seem appropriate and just.

This study aims at addressing the same issue and discusses various approaches which have been adopted by the court to tackle the appropriate royalty base and the study also analyses various economic approaches adapted by counsels to befuddle the court and get

[2] Laserdynamics v. Quanta Computer, 694 F.3d 51, 66 (Fed. Cir. 2012).

[3] *Id.*

excessive damages awards. The reason why those approaches have been illustrated at length and discussed is so that Indian courts lean from Federal Circuit's experience and play safe while entering the arena which requires judges to have tremendous technical expertise.

SYNOPSIS

Statement of problem- The dissertation addresses the issue thatwhile computing reasonable royalty, how royalty base shall be ascertained in patent infringement cases involving multi-component devices? In a suit filed by Ericsson, a Swedish equipment maker, against domestically grown Micromax, Hon'ble Delhi High court has directed Micromax via interim order to pay 0.8% of net selling price of phones for use of Ericsson's standard essential patents in them.But, the order has been criticised on the basis that royalty should be based on chipset on which patent reads rather than total value of mobile handset.The dissertation addresses this issue by reviewing patent damages jurisprudence of US in order to provide recommendations for development of opulent patent damages regime in India in near future.

Research Questions-

1. Whether application of entire market value rule to reasonable royalty is justified or not?
2. Is smallest salable patent practicing unit (SSPPU) approach is correct method for ascertaining royalty base in cases where Entire market value rule does not apply?

Survey of the existing literature-

- **Mark A. Lemley, Distinguishing lost profits from reasonable royalties-** The paper distinguishes between lost profits and reasonable royalty and explains how application of entire market value rule to reasonable royalty is erroneous and overcompensates the patentee in reasonable royalty domain.
- **Caprice L. Roberts, The case for restitution and unjust enrichment remedies in patent law-** The paper proposes revival of restitutionary disgorgement, which Congress has eliminated and explains how this will prevent infringer's unjust enrichment, deter infringement and encourage bargaining for licenses.
- **Amanda Frye, "Inextricably commingled" A restitution perspective in patent remedies:**The paper explains how courts can and should apply restitution approach even to reasonable royalty cases apart from those of lost profits

- **Damien Geradin & Anne Layne- Farrar, Patent value apportionment rules for complex, multi-patent products-** The paper analyses the issue that what can be the best royalty base in patent infringement cases involving multi-component devices. It also analyses the arguments of two camps. One camp arguing that component is not practically feasible while the other arguing that for assessment of royalty base nothing broader than value of component shall be relied on.
- **Eric E. Bensen, Apportionment of lost profits in contemporary damages cases-** The article discusses how apportionment of lost profits can be done in modern cases and refutes the authorities which suggest that apportionment is no longer required.
- **Michael A. Greene, All your base belongs to us: Towards an appropriate usage and definition of entire market value rule in reasonable royalty calculations-**The paper proposes a new name for entire market value rule and requests the legal community to call it as 'entire market base rule' because the rule aim at awarding 100% royalty base to patentee in reasonable royalty calculation. It also justifies the applicability of entire market base rule in reasonable royalty domain.
- **Ravi Mohan, Analysis of entire market value rule in complex technology litigation: Arduous royalty base determinations, unjust damage awards and empirical approaches to measuring consumer demand-** The paper proposes revival of method of patent value apportionment and argues that implementing entire market value rule in reasonable royalty domain will overcompensates patentees and ultimately make consumers suffer.
- **Patricia Dyck, Beyond confusion- Survey evidence of consumer demand and the entire market value rule-** The paper analyses the narrow issue concerning admissibility of survey data to provide empirical evidence of consumer demand. It also discusses heightened standards for entire market value rule and how the empirical evidence can be used for apportionment purposes.
- **Brian J. Love, Patentee overcompensation and the entire market value rule-** The paper with the help of economic model argues that availability of entire market value in multi-component devices overcompensates the patentee by

awarding him value of entire compound product to which he is not actually entitled.

- **John Jarosz & Michael J. Chapman, The hypothetical negotiation and reasonable royalty damages: The tail wagging the dog:**The article discusses the issues relating to hypothetical negotiation relating its timing, use of information and its basis. It argues that hypothetical negotiation introduces unnecessary and unproductive questions.

Hypothesis-

Smallest saleable patent practicing unit (SSPPU) approach is correct method for ascertaining royalty base in cases where entire market value rule does not apply.

Research Methodology-

The research in this study has been done having relied upon "Doctrinal Method" of research. The methodology adopted for this project work is doctrinal, analytical and descriptive. The research depends on primary sources like statutes and judgements and secondary sources like research papers, articles by prestigious law firms.

Scope of the research-

For the purpose doing justice with the topic of this dissertation, the research has not been restricted only to intellectual property law rather it delves into various disciplines like competition law, economics and marketing. In economics, Nash bargaining solution and concept of marketshare have been discussed. In competition, concept of substitutability, concept of competitor, lost profits have been referred. Likewise, in marketing discipline various ways of ascertaining the demand for a product and issues like whether a particular component is responsible for the demand of product have been referred.

Probable outcome-

The Indian courts have not followed the legally and logically tenable method while awarding patent damages in cases of patent infringement involving multi-component devices.

Chapterization-

Introduction

Chapter I. Patent damages regime in India- The chapter discusses the recent cases like Ericsson v. Xiaomi, Ericsson v. Micromax and several others which form the basis of patent damages jurisprudence in India. It also discusses the issue whether injunction shall be granted by court as relief for standard essential patent infringement when damages in form of royalty can be granted as alternative remedy.

Chapter II. Patent damages basics- The chapterexplains the basics patent damages like lost profits, reasonable royalty, hypothetical negotiationand types of sales. It explains the prerequisites for grant of lost profits and reasonable royalty and also addresses the debate over 35 U.S.C. §284.

Chapter III. Theories of measuring damages: Restitution approach and torts approach- This chapter deals with theories for measuring damages and reviews arguments of both camps arguing for and against revival of restitution approach.

Chapter IV. Patent damages doctrines and their evolution- This chapter deals withvarious patent damages doctrine like entire market value rule, apportionment, convoyed sales rule and trace how they evolved from their origin to what they are in contemporary context.

Chapter V. Entire market value rule and its application to lost profits and reasonable royalty- This chapter addresses the most debatedissue that whether entire market value shall be applied to reasonable royalty domain. It reviews the arguments of both camps of scholars and tries to examine all of them to see whether they hold water.

Chapter VI. Ascertainment of reasonable royalty in patent infringement cases involving multi-component devices- This chapter discusses ways and suggestions made by various scholars in reaching at correct reasonable royalty. It addresses the convoluted issue of how royalty base shall be chosen while calculating reasonable royalty in cases involving multi-component devices. It also addresses the debate that whether courts should consider *ex post*information while determining reasonable royalty through hypothetical negotiation.

Conclusion

CHAPTER 1. PATENT DAMAGES REGIME IN INDIA

Patent damages regime in India is in its nascent stage and is yet to develop and keep pace with internationally established patent practice relating to patent infringement damage ascertainment. In US, the patent damages regime is highly developed in comparison to India. IN India, recent cases like *Ericsson v. Xiaomi*, *Ericsson v. Micromax* have awakened the need for scholars to ponder upon the telecom sector too apart from pharma sector.[4]These cases are building blocks to patent infringement damages regime in India involving multi-component devices.

They are primarily two main controversial issues. First, is regarding Indian courts adopting a pro-patentee approach by granting injunctions even in cases involving same patentee and same facts when appropriate remedy will be awarding damages. And, second, regarding inappropriate choice of royalty base as entire compound product rather than component on which the patent reads.

1.1 Controversy on grant of injunctions-

In *Ericsson v. Xiaomi*, [5]also Ericsson proceeded against Xiaomi alleging the infringement of same Standard essential patents (SEP's) and seeking permanent injunction against Xiaomi. The Hon'ble High Court of New Delhi accepted Ericsson's request and granted *ad interim* injunction restraining Xiaomi from "manufacturing, importing, selling, assembling, offering for sale and advertising including through their and third party websites, products including telephone instruments, mobile handsets, tablets, hand held devices and dongles. In addition to that court also directed Customs authority to intimate the import of any consignment by Xiaomi to Ericsson and any objections of Ericsson were to be decided under Intellectual Property Rights (Imported Goods) Enforcement Rules, 2010.

The judgment has been severely criticised by academicians and renowned scholars like Shamnad Basheer primarily on three grounds. First, there is no need for courts for

[4]Telefonaktiebolaget LM Ericsson v. Xiaomi Technology & Others, CS (OS) 3775/2014; Telefonaktiebolaget LM Ericsson v. Mercury Electronics & Another, CS (OS) 442/2013.

[5]*Id.*

resorting to grant injunctions when they have alternative remedy of awarding damages available because an injunction completely restrains an alleged infringer or defendant from manufacturing, selling, advertising its downstream product and in turn completely hampers it business.

Secondly, injunctions are granted when plaintiff could suffer irreparable losses if injunction is not granted and defendant is not restrained for doing a particular act. In *Ericsson v. Xiaomi* or other patent infringement cases generally, there is mostly monetary loss since patentee always intended to license and earn revenue. That is one of the reason why it is in general an international practice where courts award damages rather than injunctions for monetary losses.

Thirdly, SEP's are patents which facilitate compliance to a particular standard and therefore, their use shall be encouraged rather than hindered by granting injunctions. One widely accepted and possible way of encouraging SEP use is by awarding damages in the form of royalty. Therefore, granting injunctions in such cases is not logical.

1.2 Controversy over appropriate royalty base-

In *Ericsson v. Micromax*, Swedish equipment maker Ericsson has filed a suit against an Indian mobile maker company Micromax, claiming infringement of its patents relating to "Adaptive multi rate", 3G and EDGE technology, devices and apparatus".[6] The patents involved in the case were all standard essential patents (SEP's) which were corresponded to standards as laid down by "European Telecommunications Standard Institute (ETSI)" which are accepted standards by Department of Telecommunications (DoT) with respect to GSM, WCDMA/UTMS network and providers of telecom equipment. Therefore, equipments and devices which are imported in India are required to comply with these ETSI standards.

The patents were infringed by product portfolio of Micromax which includes tablets, mobile phones, telephonic devices etc. as these device although were compliant with

[6]Telefonaktiebolaget LM Ericsson v. Mercury Electronics & Another, CS (OS) 442/2013.

ETSI technology but no royalty with regard to use of patents which make these devices ETSI compliant was paid to Ericsson.

Ericsson sought permanent injunction against Micromax to restrain it from "manufacturing, importing, selling, offering for sale and advertising products. It also prayed for a decree of damages amounting to Rs. 100 crore and direction mandating Micromax to hand over "sales account for the years 2008-2012 for the mobile devices" which incorporated plaintiff's patented technology.

Ericson brought to the notice of the court that it had attempted to negotiate with Micromax offering it license on FRAND (Fair, Reasonable, non-discriminatory) license standards but Micromax avoided the payment of license fee.

The court passed an interim order directing custom authorities to intimate the import of any consignment by Micromax to Ericsson and any objectionsof Ericsson were to be decided under Intellectual Property Rights (Imported Goods) Enforcement Rules, 2010.

The Hon'ble High court of Delhi in November 2014, in their judgment directed Micromax to pay 0.8% of net selling price of phone and devices which were capable of GPRS and GSM.

In Ericsson v. Gionee,again Ericsson filed a suit for infringement of its same standard essential patents (SEP's) but this time against a new defendant, Gionee.[7] Since, both of the parties to the case agreed to negotiate licenses on FRAND royalties (Fair, Reasonable, non-discriminatory), the Hon'ble High court of New Delhi ordered Gionee to deposit royalty of 1.25% of the sale of price with Ericcson for the time till final royalties are negotiated.

*Ericsson v. Intex*too involved the same issue was involved and Hon'ble High court ordered payment of royalty on the same pattern as was awarded in *Ericsson v. Micromax*

[7]Telefonaktiebolaget LM Ericsson v. Gionee Communication Equipment Co. Ltd., CS (OS) No. 2010/2013.

case.[8] However, the court ordered the payment of 50% of royalty from the date of lawsuit and rest “50% was to be paid by bank guarantee within 4weeks”.

Ericsson v. Intex is little different and more significant than other cases primarily because of two reasons. First, that Intex had filed a complaint in CCI (Competition Commission of India) against abuse of dominant position by Ericson.[9] As submitted by Ericsson itself that it holds huge portfolio of patents relating to 2G and 3G technologies and it holds 1/3rd of the patents essential for 2G technology standards and 25% of the patents essential for 3G technology.”[10] The claim of Intex was also corroborated by the fact that there was no alternative to those Ericsson’s SEP’s. CCI satisfied with allegation found *primafacie* that Ericsson did abused its dominance in the market and started its investigation on the issue. Although reference to its own compliant backfired for Intex because court said that it could be construed from the compliant that patents were essential and there was no alternative and still Intex had deliberately avoided the license fee which it was obligated to pay and this also confirms that it has infringed on it Ericsson’s patents.

Secondly, the contention of incorrect royalty base was raised in this case which however did not received a warm welcome from the court. The contention however is now widely used among scholars and academicians to criticise recent Ericsson patent suits where court has ordered the payment of royalty on net selling price of entire downstream product or unit like- Ericsson v. Gionee, Ericsson v. Intex and this case itself. Scholars and academicians argue that when a patent reads on chipset then how can it be appropriate for court to award royalty in damages on entire downstream product as royalty base.

[8]Telefonaktiebolaget LM Ericsson v. Intex Technologies (India) Ltd., CS (OS) No. 1045/2014.

[9]Intex Technologies (India) Limited v. Telefonaktiebolaget LM Ericsson (Publ), Case No. 76/2013 (CCI).

[10]Telefonaktiebolaget LM Ericsson v. Mercury Electronics & Another, CS (OS) 442/2013.

CHAPTER 2. PATENT DAMAGES BASICS

In US, patentee is entitled to "damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer" in patent infringement action.[11] Damages aims at compensating the patentee rather than punishing the infringer. [12]Damages can be basically awarded in two forms – lost profits and reasonable royalty.[13] However, sometimes patentees can also be awarded mix of both lost profits and reasonable royalties. Whenever, a patentee is not able to maintain his claim for lost profits, he is entitled to reasonable royalty.[14]

2.1 Lost Profits-

Damages in form of lost profits seek to answer the query that "had the infringer not infringed, what would patent holder licensee have made?"[15] Determining lost profits is like going back in time and assessing what profits the patentee has lost because of infringement by infringer.[16]They have been designed to exploit the entire scope of government granted patent monopoly.[17]Generally under the concept of lost profits, a patentee can get damages from lost sales.[18] Apart from that, damages for lost ability to grow, forced lowering of prices.[19] Patentee can also recover profits accrued to infringer because of sale of convoyed goods.[20]

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[11] 35 U.S.C. 284 § (2006).

[12] Pall Corp. v. Micron Seperations, Inc., 66F.3d 1211, 1123 (Fed. Cir. 1995).

[13]Panduit Corp. v. Stahlin Bros. Fibre Works, Inc., 575 F.2d 1152, 1157 (6th Circuit 1978).

[14] 35 U.S.C. 284 § (2006); Panduit, 575 F.2d at 1156-57.

[15] Rite-Hite Corp. v. Kelley Corp. Co., 56 F.3d 1538, 1545 (Fed. Cir. 1995); Aro Mfg. Co. v. Convertible Top Replacement Co., 377 U.S. 476, 507 (1964); Seymour v. McCormick, 57 U.S. (16 How.) 490 (1853).

[16] Seymour v. McCormick, 57 U.S. (16 How.) 490 (1853).

[17] King Instrumental Corp. v. Otari Corp., 767 F.2d 853, 863 (Fed. Cir. 1985); Rite Hite, 56 F.3d at 1546; Panduit, 575 F.2d at 1156.

[18]*Id.*

[19] Lam, Inc. v. Johns-Manville Corp., 718 F.2d 1056, 1065 (Fed. Cir. 1983); Paper Converting Mach Co. v. magna-Graphics Corp., 745 F.2d 11, 22 (Fed. Cir. 1984).

[20] Juicy Whip, Inc. v. Orange Bang, Inc., 382 F.3d 1367, 1372-1373 (Fed. Cir. 2004); Leesona Corp. v. U.S., 599 F.2d 958, 974-975 (Ct. Cl. 1979).

For proving entitlement to lost profits, certain factors have been laid down which are commonly known as *Panduit* factors. These factors are prerequisites which have to be satisfied in order to make out a case for lost profits award. They are- demand for patented product in the market, absence of non-infringing substitutes, manufacturing ability of patentee to meet additional demand, the amount of profits patentee would have made.[21] Patentees have always had hard time to prove all these factors.[22] This is the reason why some of the writers draw an analogy that these patentees are forced in reasonable royalty domain when their actual remedy lies in lost profits.[23]

2.2 Reasonable royalty-

Reasonable royalties are for patentees who intend to license their patent to others rather than manufacturing and market the invention or product containing invention on their own.[24]In case of *Panduit Corp. v. Stahlin Bros. Fibre Works, Inc.*, reasonable royalty has been explained as "an amount 'which a person, desiring to manufacture and sell a patented article, as a business proposition, would be willing to pay as a royalty and yet be able to make and sell the patented article, in the market, at a reasonable profit."[25]

Generally, reasonable royalty is smaller than lost profits. The reason lies in the fact that intent behind lost profits and reasonable royalty is different. In any licensing negotiation licensee will retain some profit for itself which he will gain from marketing the invention. As, a result the profit that will accrue to licensor or inventor in form of reasonable royalty will be comparatively lesser than what he could have gained if he claimed damages for

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[21]Panduit Corp., 575 F.2d 1152 at 1157.

[22] State Indus., Inc. v. Mor-Flo Indus., Inc., 883 F.2d 1573, 1577-1578, 1580 (Fed. Cir. 1989); Gyromat Corp. v. Champion Spark Plug Co., 735 F.2d 549, 552-555, Panduit , 575 F.2d at 1156.

[23]*See* Mark A. Lemley, *Distinguishing lost profits from Reasonable Royalties*, 51 WM & MARY L. REV. 655, 658-62, 666-68 (2009).

[24]*See*Amy L. Landers, *Liquid Patents*, 84 DENV. U. L. REV. 199, 253 (2006) (highlighting the difference between the way in which patentees are harmed and drawing a distinction between manufacturing and non-manufacturing patentees.).

[25]*Supra* note 15.

lost sales.[26] Moreover, the more licensees, the lesser will be reasonable royalty from lost profits.

Professor Lemley has classified patentees for the purpose of compensation as patentees who compete with infringers in the market and patentees who do not compete.[27] Patentees who do not compete are entitled to reasonable royalty on the rationale that they would have licensed the patent in the real world.[28] Patentees who compete with infringers are awarded lost profits. Sometimes, they are awarded mixture of both lost profits and reasonable royalty. In such cases, reasonable royalty is awarded to the extent of infringing sales for which they cannot prove entitlement to lost profits.[29]

Sometimes, patentees who compete with infringers in the market are not able to maintain their claim for lost profits because of *Panduit* test evidentiary requirements.[30] They constitute third category of patentees. Since, they can be awarded anything less than lost profits, the courts award them reasonable royalty as it is the remedy for the residue and generally lesser than lost profits.[31] Professor Lemley has severely criticized this practice and has suggested that these patentees shall be awarded lost profits even if they do not satisfy all prerequisites for lost profit entitlement.[32]

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[26] Lemley, *supra* note 23 at 661-669.

[27] *Id* at 656 (urging courts to distinguish between patentees who compete with infringers and those who do not.).

[28] *See*Michael A. Greene, *A Prospect Theory Justification for the "Entire Market Value" Rule* 6 (2009) ("reasonable royalty is designed to capture what the patentee would have earned had it licensed the right to market the infringed invention".).

[29] TWM Mfg. Co. v. Dura Corp., 789 F.2d 895 (Fed. Cir. 1986).

[30] State Indus, 883 F.2d 1573 at 1577; Gyromat, 735 F.2d at 549; Panduit, 575 F.2d 1152 at 1155; Michael A. Greene, *supra* note 28 at 239, fn. 47.

[31] Panduit, 575 F.2d 1152 at 1156 ("damage shall not be less than reasonable royalty"); Rite-Hite, 56 F.3d 1538 (Fed. Cir. 1995) cert. denied, 516 U.S 867 (1995); Del Mar Avionics v. Quinton Instrument Co., 836 F.2d 1320 (Fed. Cir. 1987); *See* Lemley, *supra* note 17 at 673-673; *See* Michael A. Greene, *supra* note. 22.

[32] Lemley, *supra* note 23 at 675.

Professor Lemley has argued that these patentees are undercompensated in reasonable royalty domain as they would have been entitled to lost profits.[33] This argument lacks merit because for it to hold strong, patentees who compete have to be awarded lost profits even when all elements of proof are not available.[34] Also, it has to be assumed that reasonable royalty is meant only for patentee who do not compete or those who do not have capacity to market the compound product.[35] Such an assumption will be against the interpretation of statute governing damages.[36] Hence, the courts are correct in their approach of awarding reasonable royalty to such patentees.

However, awarding same reasonable royalty to patentees who do not have marketing capacity and the ones who have marketing capacity but are not able maintain claim for lost profits may constitute a reason for the latter ones being undercompensated.

In *Panduit Corp. v. Stahlin Bros. Fibre Works*, where patentee having the manufacturing and marketing capacity of ducts suffered infringement, and was not able to satisfy burden of proof for lost profits, U.S. Court of appeals instructed that for calculating reasonable royalty on remand, "Panduit's unvarying policy of not licensing the patent and the future business and attendant profit that Panduit would expect to lose by licensing a competitor" shall be taken into consideration.

Therefore, logically it deems necessary that patentee who has marketing capacity but has failed to maintain lost profit claim shall be awarded reasonable royalty higher than that awarded to patentee without marketing capacity as the earlier ones would have marketed the compound product and earned profits.[37] Compensating these patentees for sacrificing their marketing capability and unwillingly licensing their patent by giving such

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[33]*See* Lemley, *supra* note 23 at 663.

[34]*Id.* at 664.

[35]*Id.*

[36]Lemley, *supra* note 23, at 656.

[37]King Instruments Corp. v. Perego, 65 F.3d 941 (1995) (explaining that if such patentees are awarded normal reasonable royalty, they would be undercompensated as they would have exercised their marketing capacity and would have supplied the demand rather than giving licenses.); Rite Hite, 56 F.3d 1538 at 1540.

consideration adequately compensates them by reasonable royalty approach.[38] Discretionary increase in reasonable royalty is permissible.[39] Reasonable royalty can be increased either by increasing the royalty rate or by increasing the royalty base.

On the basis of *Georgia Pacific* factors, royalty rate can be inflated for adequately compensating these patentees.[40] In a patent infringement reasonable royalty assessment case, involving patentee who has marketing capacity but has failed to qualify prerequisites for lost profit, there will be no patentee who has no marketing capacity. Therefore, in the absence of any benchmark to solve issue of undercompensation, it would be frivolous to claim that patentee who has marketing capacity but has failed to qualify prerequisites for lost profit are undercompensated.

Royalty rate and royalty base are two components of reasonable royalty.[41] The product of both the components gives reasonable royalty.[42] Royalty base represents the total value of sales or uses of infringing product or component of product or whatever is determined to be royalty base by court in a case.[43] Royalty rate is a percentage which reflects the proportion of the base value that patented technology contributes. Royalty rate is applied on royalty base.

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[38]King Instruments, 65 F.3d 941; Mars, Inc. v. Coin Acceptors, Inc., 527 F.3d 1359, 1374 (Fed. Cir. 2008).

[39]King Instruments, 65 F.3d 941 ("Such discretionary increases may be appropriate where plaintiff cannot prove direct and foreseeable damages in the form of lost profits.).

[40] Panduit, 575 F.2d 1152 at 1156; Georgia-Pacific, 318 F. Supp. 116 (“The licensor’s established policy and marketing program to maintain his patent monopoly by not licensing others to use the invention or by granting licenses under special conditions designed to preserve that monopoly.”)

[41] Lucent Technologies, Inc. v. Gateway, Inc., 580 F.3d 1301 (Fed. Cir. 2009).

[42] Brian J. Love, Patentee, *Overcompensation and the Entire Market Value rule*, STAN. L. REV. 266 (2007).

[43] Brian J. Love, *supra* note 42 at 268.

2.3 Hypothetical Negotiation-

Determining reasonable royalty is an art and not exact science.[44]Reasonable royalty is determined by contemplating a hypothetical negotiation licensing scenario involving patentee and the infringer who would be assumed to participate in it as licensor and licensee at the time of first infringement.[45]In hypothetical negotiation asserted patent claims are assumed to be valid and infringed.[46]The royalty rate and royalty base determination in hypothetical negotiation is guided by *Georgia- Pacific* factors.[47]These factors are as follows:

1. "The royalties received by the patentee for the licensing of the patent in suit, proving or tending to prove an established royalty.
2. The rates that paid by that the licensee for the use of other patents comparable to the patent in suit.

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[44] Anne Layne- Farrar & Damien Geradin, *Patent Value Apportionment Rules for Complex, Multi-patent Products*, SANTA CLARA COMPUTER & HIGH TECH. L.J. 763, 764 (2011).

[45]Unisplay, S.A. v. Am. Elec. Sign. Co., 69 F.3d 512, 518 (Fed. Cir. 1995); Lucent Technologies, 580 F.3d 1301 (Fed. Cir. 2009) ("The hypothetical negotiation tries, as best as possible, to recreate the *ex-ante* licensing negotiation scenario and to describe the resulting agreement.In other worlds, if infringement had not occurred, willing parties would have executed a license agreement specifying certain royalty payment scheme."); Grain Processing Corp. v. American Maize-Prods. Co., 185 F.3d 1341, 1350 (Fed. Cir. 1999) ("to prevent the hypothetical from lapsing into pure speculation, this court requires sound economic proof of the nature of the market and likely outcomes with infringement factored out of the economic picture."); Nickson Indus., Inc. v. Rol Mfg. Co., 847 F.2d 795, 798 (Fed. Cir. 1988) ("A court should not select a diminished royalty rate a patentee may have been forced to accept by the disrepute for his patent and the open defiance of his rights.").

[46] Lucent Technologies, 580 F.3d 1301 (Fed. Cir. 2009).

[47]Georgia-Pacific Corp., 318 F. Supp. 1116; Panduit, 575 F.2d 1152, 1157 (6th Circuit 1978). ("Among the relevant facts are: what plaintiff's property was, to what extent defendant has taken it, its usefulness and commercial value as shown by its advantages over other things and by the extent of its use, and the commercial situation").

3. The nature and scope of the license, as exclusive or non-exclusive; or as restricted or non-restricted but that in terms of territory it or with respect to whom the manufactured product may be sold.
4. The licensor's established policy and marketing program to maintain his monopoly by but not licensing others to use the invention or by granting licenses under special conditions designed to preserve that monopoly.
5. The commercial relationship between the licensor and licensee, such as, whether they are competitors in the same territory in the same line of business; or whether they are inventor and promoter.
6. The effect of selling the patented specialty in promoting sales of other products of the licensee; the existing value of the invention to the licensor as a generator of sales of his non-patented items; and the extent of such derivative or convoyed sales.
7. The duration of the patent and the term of licensee.
8. The established profitability of the product made under the patent; its commercial success; and its current popularity.
9. The utility and advantages of the patent property over the old models or devices, if any, that had been that used for working out similar results.
10. The nature of the patented invention, character of the commercial embodiment of it as owned and produced by the licensor; and the benefits to those who have used the invention.
11. The extent to which the infringer has made use of the invention; and any evidence probative of the value of that use.
12. The portion of the profit or of selling price that may be customary in the particular business or in comparable businesses to allow for the use of the invention or analogous inventions.
13. The portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer.
14. The opinion testimony of qualified experts.

15. The amount that licensor (such as the patentee) and a licensee (such as the infringer) would have agreed upon if both had been reasonably and voluntarily trying to reach an agreement; that is, the amount which a prudent licensee- who desired, as a business proposition, to obtain a license to manufacture and sell a particular article embodying the patented invention-would have been willing to pay as a royalty and yet be able to a reasonable profit and which amount would have been acceptable by a prudent patentee who was willing to grant a licensee."

2.4 Licenses: Lump-sum royalty & Running royalty

The difference between lump-sum royalty and running-royalty is that running royalty is directly dependant on the number of unit sales or level of sales of product in which patent is incorporated and has to be paid in accordance with sales while lump sum royalty has no dependence on it and it thereby limits the liability of licensee. If a licensee enters into a lump sum royalty license agreement, then, after making the royalty payment there is no need for him to incur expenditure again with respect to using patented technology.[48] While opposite to it, again and again expenditure has to be incurred as per patented intellectual property use in case of running royalty payments.

The decision to opt for either of them has to be made carefully. It all depends upon how commercially successful a particular patented intellectual property is going to be down. If a technology will be successful, then lump-sum royalty may be win for licensee as he would make good profit by doing lump-sum payment of royalty as executed in agreement. However, licensor would be in loss as if he would have earned more if agreement was of running royalty. But, if patented technology failed or the products in which it was incorporated somehow didn't receive good welcome in market, then, licensor will benefitas if it would have received less payment if agreement was regarding running royalty because licensee would have got chance revaluate the usefulness of

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[48] Lucent Technologies, 580 F.3d 1301*quoting* Richard F. Cauley, *Winning the Patent Damages Case* 47 (2009) (A lump-sum license "benefits the patent holder in that it enables the company to raise a substantial amount of cash quickly and benefits the target by capping its liability ad giving it the ability, usually for the remainder of the patent term, to actually use the patented technology in its own products without any further expenditure.").

technology cancel the license agreement. Generally, if a lump-sum royalty agreement is entered and duly executed, then royalty payments have to be done irrespective of success or failure of technology.

2.5 Types of sales-

It is important to classify the sales as under the US patent damages jurisprudence different treatment has been given to different sales when question is regarding determining the royalty base. Generally, the types of sales with respect to purview of this topic can be of three types- single-multifaceted unit sales, convoyed sales and derivative sales.

Single multifaceted units refers to complex devices which although are used as a single device to perform multiple functions but they have lot of other technologies, components and features incorporated in them. For e.g. - Smartphones. Like in any smartphone, there are lot of other features embedded like a camera, audio, video system, calling feature etc.

Convoyed sales refers to such sales where certain goods which are not part of particular patented product but they are sold in connection with that product may be for customer convenience purpose or some other. It may be a case that it is customary in that line of business to sell the two of the products together.[49]Like in case of *TWM Mfg. Co. v. Dura Corp.*, a patented wheeled vehicle suspension system was involved.It was a case of convoyed sale as infringer sold 'patented wheeled vehicle suspension system' along with wheels and axles as patented system increased the value of collateral parts.[50]

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[49] TWM Mfg., 789 F.2d 895 at 901 (Fed. Cir. 1986).

[50]*Id.*

CHAPTER 3. THEORIES OF MEASURING DAMAGES: RESTITUTION APPROACH AND TORTS APPROACH

For measuring damages they are two main approaches: restitution approach and torts approach.[51] Torts approach aligns itself with the aim of curing the injury sustained by patentee. The enquiry involved is "had the infringer not infringed, what would the patent holder have made?" Assumption is what if the infringement had not occurred.[52] On the other hand, the restitution approach aims at disgorgement of infringer's wrongful profits to the patentee which he made because of the benefit he received by the use of patentee's patent resulting in infringement.[53] The difference between the two is that basis for torts approach is what injury plaintiff sustained and for restitution approach is what infringer made because of the infringement he caused.

The courts have shown wide acceptance of torts approach over restitution approach. The reason as stated by Federal Circuit is that the purpose of patent damages is to compensate patentees, not to punish infringers or to disgorge the profits.[54]Earlier in US system, there were courts of law and courts of equity and the relief granted depended upon the fact that in which court suit was brought. Court of law was empowered to grant damages in the form of lost profits or reasonable royalty by taking into consideration, the injury plaintiff has sustained and court at equity could order for disgorgement of infringer's profits and also grant an injunction.

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[51] Amanda Frye, *"Inextricably Commingled": A Restitution Perspective in Patent Remedies* 26 HARVARD JOURNAL OF LAW & TECHNOLOGY 669 (2013).

[52] Aro Mfg. Co. v. Convertible Top Replacement Co., 377 U.S. 476, 507 (1964) (*quoting* Livesay Window Co. v. Livesay Indus., Inc., 251 F.2d 469, 471 (5th Cir. 1958).

[53] Warren v. Century Bank corporation, Inc., 741 P.2d 846, 852 (Okla. 1987) ("The remedy in restitution rests on the ancient principles of disgorgement. Beneath the cloak of restitution lies the dragger that compels the conscious wrongdoer to 'disgorge' his gains.").

[54]Pall Corp. v. Micron Separations, Inc., 66 F.3d 1211, 1123 (Fed. Cir. 1995); Lemley, *supra* note 23at 655.

Patent Act of 1870 did not altered the embargo on judges at law preventing them from granting remedy in the form of infringer's profits, on the other hand, empowered judges at equity to grant the same.[55]

While granting infringer's profits, courts faced difficulties in cases where patented invention was a part of compound product and compound product was sold by the infringer. In such cases a logical defense was taken by infringer that when the patented component is a part of compound product, how can patentee be entitled to the whole infringer's profit on compound product? This gave rise to the requirement of 'apportionment' of infringer's profits among patented element and all other components.[56] In 1937, the Federal Rules of Civil Procedure merged law and equity.[57]

Meanwhile, Patent Act of 1946 was passed. Inspite of dealing with any solutions to apportionment problem, the Act ended the root cause of the problem by deletion of remedy in the form of infringer's profits, leaving behind only remedy of compensation for plaintiff's injury as damages. Such omission of infringer's profits in the form of remedy caused a dilemma whether the Act intended to prohibit disgorgement as remedy or not. The dilemma was put an end in *Aro Manufacturing Co. v. Convertible Top Replacement Co.*, where it was stated that patent damages depended on patentee's loss, not the infringer's gain.[58] This confirmed the demise of disgorgement of infringer's profits as a remedy and declaring torts approach as sole remedy available for ascertainment of damage.

[55]Patent Act of 1870 Act of July 8, 1870, Ch. 230, § 55, 16 Stat. 198.

[56] Garretson, 111 U.S. 120, 121 (1884).

[57]A.C. Aukerman Co. v. R.L. Chaides Constr. Co., 960 F.2d 1020, 1031 (Fed. Cir. 1992).

[58] Aro Manufacturing, 377 U.S. 476 at 479.

CHAPTER 4. PATENT DAMAGES DOCTRINES AND THEIR EVOLUTION

Suppose, X owns a company which manufactures smartphones. Another company B has filed a patent infringement suit against X's company alleging that hiscompany has infringed one of the patents Z belong to B's company. B claims damages for patent infringement and tries to persuade the court that damages whether lost profits or reasonable royalty shall be based on revenue from sales of entire smartphone. If such a claim is accepted then, if prerequisites for lost profits are satisfied then, lost profits will be awarded because of lost sales of entire smartphones. Otherwise, courts will award company B reasonable royalty where royalty base will be revenue from entire smartphone sales.

However, Company X puts forth a logical argument in court that even if X's company has done infringement, then also X's company shall be liable to pay damages based on only the patented feature or component on which patent reads on. And it is unjust to ask X company to pay damages as lost profits or reasonable royalty on entire market value of smartphones.

The first case is corroborated by a doctrine known as entire market value rule while second case is corroborated by a doctrine of apportionment. As can be perceived from their applicability in arguments, it seems that both of them are contradictory to each other. Entire market value rule is patent holder friendly while apportionment is infringer-friendly. But, to decipher the relationship between the two, it is necessary to trace that how they historically originated and then evolved.

4.1 Apportionment

The origins of concept of apportionment can be traced back to *Seymour v. McCormick.*[59] The case involved a patentee who had three patents for grain-reaping machine. One patent was regarding reaping machine, second was for 'improvement upon his patented machine' and third for 'new and useful improvements in reaping machine formerly patented' by him and improvements relating to seat. The patentee only claimed the third patent in court relating to seat. The Circuit Court of US awarded damages in form of lost

[59] Seymour v. McCormick, 57 U.S. (16 How.) 480, 491 (1853).

profits on all the patents stating that whether a patent claimed covered an entire machine or improvement on machine, the quantum of damages will be the same.

On appeal, Supreme Court of the United States, dissenting with the judgment court held that it was "very grave error to instruct a jury that as to the measure of damages the same rule is to govern, whether the patent covers an entire machine or an improvement on a machine".[60] The rationale behind the decision was that "where the claim on which suit was founded is for an improvement on old machines, patented or unpatented, the plaintiff is not entitled to recover, as a measure of damages, the mechanical profits that he could make upon the whole machine, including the old part. His damages are limited to the profits on making and vending the improvement patented and infringed."[61]

From this rationale, the concept of apportionment originated which means that whenever patent holder claims damages for infringement over a patent, then patent holder shall quantify the portion of their lost profits attributable to their patents.[62]

In *Garretson v. Clark*[63], Supreme Court of the United States gave a concrete form to the doctrine of apportionment by even laying down certain evidentiary standards for apportionment. The case involved a patent over improved mop-heads apparatus.[64]Since, the patent was infringed; patentee claimed entire infringer's profits in damages.[65] The U.S. Supreme Court affirmed the lower court judgment which denied patentees claim and stated that "the patentee………must in every case give evidence tending to separate or

[60] Seymour, 57 U.S. (16 How.) 480 at 491 (1853). ("Holding that "very grave error to instruct a jury that as to the measure of damages the same rule is to govern, whether the patent covers an entire machine or an improvement on a machine").

[61]*Id.* at 491 (1853). (stating that "where the claim on which suit was founded is for an improvement on old machines, patented or unpatented, the plaintiff is not entitled to recover, as a measure of damages, the mechanical profits that he could make upon the whole machine, including the old part. His damages are limited to the profits on making and vending the improvement patented and infringed.").

[62]Eric. E. Bensen, *Apportionment of Lost profits in Contemporary Patent Damages* 10 VIRG. JOURNAL of LAW & TECH. 1 (2009).

[63]Garretson,111 U.S. 120 (1884).

[64]*Id.* at 121 (1884).

[65]*Id.*

apportion the defendant's profits and patentee's damages between patented feature and the unpatented feature, and such evidence must be reliable and tangible, and not conjectural or speculative; or he must show, by equally reliable and satisfactory evidence, that the profits and damages are to be calculated on the whole machine, for the reason that the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature."[66]

Apart from apportionment,*Garretson v. Clark* also holds significance for laying down foundation for entire market value rule as an exception to apportionment.A corollary can be drawn from the judgment that if a patentee is able to show that entire value of the whole machine was due to the patented feature, then, he can claim profits and damages on whole machine.[67]

The case of *Westinghouse Electric & Mfg. Co. v. Wagner Electric Mfg. Co.*[68]is important as in it the court was struck at a point where it had to decide between apportionment and recovery of all of infringer's profits. The defendant had infringed a patent belonging to Westinghouse Electric which covered electrical transformer in which non-conducting cooling oil was incorporated. The patent holder claimed all of infringer's profits but was denied and had to settle with nominal damages as they were not able to carry out evidentiary burden of apportioning the profits attributable to infringed patent. The U.S. Supreme Court stated that "The patentee's invention may have been used in combination with valuable improvements made, or other patents appropriated by the infringer, and each may have jointly, but unequally, contributed to the profits. In such case, if plaintiff's

[66] Garretson , 111 U.S. 120 at 121 (1884) ("the patentee………must in every case give evidence tending to separate or apportion the defendant's profits and patentee's damages between patented feature and the unpatented feature, and such evidence must be reliable and tangible, and not conjectural or speculative; or he must show, by equally reliable and satisfactory evidence, that the profits and damages are to be calculated on the whole machine, for the reason that the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature.").

[67]*Id.*

[68] Westinghouse Electric & Mfg. Co. v. Wagner Electric Mfg. Co., 225 U.S. 604, 615 (1912).

patent only created a part of the profits, he is only entitled to recover that part of the net gains."[69]

4.2 Entire Market Value rule

4.2.1 <u>Evolution of entire market value rule</u>-

The foundation for entire market value rule was laid down in *Garretson v. Clark*where it was stated that if a patentee is able to show that entire value of the whole machine was due to the patented feature, then, he can claim profits and damages on whole machine.[70] Later on, this basic premise with other cases was modified to transform in the entire market value as it is today. To understand the evolution of entire market value rule, it is necessary that we analyse the case laws which transformed entire market value rule as it is today.

In *Marconi Wireless Telegraph Co. of America v. United States*,for the first time entire market value rule was applied by the U.S. Court of Appeals to for the Federal Circuit.[71]The case involved "Lodge patent" which dealt with "selective tuning of antenna circuits of a transmitting station to a receiving station" by insertion of "lumped inductance" in the antenna. The Court of Claims held that Lodge invention 'substantially created the value of component parts' and awarded complete cost of transmitting and receiving sets.[72]

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[69] Westinghouse, 225 U.S. 604 at 615 (1912) ("The patentee's invention may have been used in combination with valuable improvements made, or other patents appropriated by the infringer, and each may have jointly, but unequally, contributed to the profits. In such case, if plaintiff's patent only created a part of the profits, he is only entitled to recover that part of the net gains.").

[70] Garretson v. Clark, 111 U.S. 120, 121 (1884).

[71] Marconi Wireless Telegraph Co. of America v. United States, 99 Ct. Cl. 1(1942).

[72]*Id.* At 422 (holding that "while the Lodge invention dealt primarily with tuning, the invention was of paramount importance that it substantially created the value of the component parts utilised in the radio transmitters and receivers purchased or acquired by United States during the accounting period, and accordingly comes within the rule basing compensation for infringement upon the entire market value of the article of which the patented feature is the component part.").

In*Leesona Corp. v. United States*,a new criterion of ‘financial and marketing dependence’ was given by the Court of Claims for the application of entire market value rule.[73]In this case, United States was sued for patents relating mechanically rechargeable metal batteries. [74]The United States Court of Claims ordered the inclusion of unpatented items like- cathodes, anodes and battery covers in compensation base because of primarily two reasons: first, it was standard government practice to procure patented and unpatented items as package and second, patentee would have anticipated the profits from the sale of unpatented items also. [75]

In *Paper Converting Machine Co. v. Machine Graphics Corp.*, the Federal Circuitexplained the function of entire market value rule.[76]The case involved a patent relating to automatic rewinder machine which used to manufacture rolls of "densely wound industrial toilet tissue and paper towelling". The rewinder line comprised several components, but the invention was incorporated in only one of them. The Federal Circuit affirmed district court's award of lost profits on entire rewinder line rather than rewinder itself and stated that entire market value rule allows "the recovery of damages based on

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[73] Leesona Corp., 599 F.2d 958 (Ct. Cl. 1979).

[74]*Id.* at 960. (holding that “under the entire market value rule, it is not the physical joinder or separation of the contested items that determine their inclusion in or exclusion from the compensation base for computing a royalty due to government’s infringement of a patent, so much as their financial and marketing dependence on the patented item under standard marketing procedures for the goods in question.”)

[75] Leesona Corp. v. United States 599 F.2d 958 (Ct. Cl. 1979) (holding that “although anodes, cathodes and battery covers were not patented items, such items to be included in compensation base for computing royalty due to government’s infringement of patent for mechanically rechargeable metal-air batteries since it was standard government practice to order anodes, cathodes and battery covers with the batteries as part of one procurement ‘package’ and it was not unlikely that patent holder anticipated the income from such parts when it estimated the value of the patents and such parts were designed to operate in conjunction with the special battery and had to conform to contract specifications and severability of the anodes was the key to the battery’s value and fragile nature of the batter made it imperative that there be extra cathodes and covers to avoid a situation where damage occurred in the field.”).

[76]Paper Converting, 745 F.2d 11 at 22.

the value of an entire apparatus containing several features, even though only one feature is patented."[77]

In *Kori Corp. v. Wilco marsh Buggies and Draglines Inc.*,the U.S. Court of Appeals for the Federal Circuit stated that under entire market value rule it is the "financial and marketing dependence on the patented item under standard marketing procedures which determines whether the non-patented features of a machine should be included in calculating compensation for infringement".[78] The case dealt with a patent relating to "an improved pontoon-type endless track-amphibious vehicle which will operate in swamps". The appellants contended that the district court erred in calculating damages based on the entire cost of amphibious marsh craft rather than portion of machine that included patented pontoon structure. But Federal Circuit affirmed lost profits award of district court based on entire market value of infringing machines on the reasoning that no evidence was found by district court which indicated that "amphibious marsh craft have been or could be used independently of the patented pontoon structure".

In*TVM Manufacturing Co. v. Dura Corp.*, the Federal Circuit laid down another criterion for application of entire market value rule.[79] The case involved an infringement of patent for truck suspension system which allowed installation of additional wheels and axles when truck required tocarry heavy loads. The trial awarded damages on both the patented suspension system and axles and wheels too on the basis that although patented suspension manufacturer sold axles and wheels for customer convenience he would have gained those profits also which would be attributable to unpatented axles and wheels. The Federal Circuit affirmed the award stating that entire market value rule would apply in present case as patented feature is the basis of customer demand and there was

[77]*Id.* at 23 (holding that "the recovery of damages based on the value of an entire apparatus containing several features, even though only one feature is patented.”).

[78]Kori Corp. v. Wilco marsh Buggies and Draglines Inc., 767 F.2d 853 (Fed. Cir. 1985).

[79] TVM Mfg., 789 F.2d 895 at 901.

anticipation by hypothetical licensee that there would be increase in demand of axles and wheels because of patented suspension system.[80]

In *State Industries Inc. v. Mor-Flo Industries Inc.*, the U.S. Court of Appeals for the Federal Circuit ruled that the "entire market value rule allows for the recovery of damages based on the value of entire apparatus containing several features, when the patented feature constitutes the basis of customer demand".[81] The case involved a patent "covering method of insulating tank of water heater by using polyurethane foam". The district court based damages award on entire water heater as a unit in accordance with entire market value rule as foam insulation feature was the basis of customer demand of water heater. The Federal Circuit agreed with district court's finding and left it undisturbed.

In *Rite-Hite Corp. V. Kelley Co., Inc.*[82], the United States Court of Appeals propounded a limitation on applicability of entire market value rule. The court stated that for damages to be claimed on both patented and unpatented component, the patented component must operate with unpatented component and produce a desired result. The case involved infringement of a patent relating 'patented vehicle restrain' system. The United States District Court awarded damages on restrain system as well as dock levellers because defendant sold the dock levellers with patented restrain system. But Unites States Court of Appeals held that District court erred in awarding damages as they should have been limited to restrain system as defendant sold other devices together for marketing reasons and each device could be used independently and did not function together to achieve one result.[83]

[80]*Id.* (holding that entire market value rule applies "where a hypothetical licensee would have anticipated an increase in sales of collateral unpatented items because of the patented device and when patented feature constitutes the basis of customer demand".).

[81]State Industries, 883 F.2d 1573 at 792.

[82] Rite-Hite, 56 F.3d 1538, 1549 (en banc), *cert. denied*, 116 S.Ct. 184 (1995)..

[83]*Id.* at 194. (Court stated that "when recovery is sought on sales of unpatented components sold with patented components, to the effect that the unpatented components must function together with the patented component in some manner so as to produce a desired end product or result. All the components together

4.2.2 ***Contemporary Trends in Entire market value rule***

In *Bose Corp. v. JBL*, Bose sued its competitor JBL for infringing on its patent relating to elliptical speaker port that was used in loudspeakers.[84] Bose claimed damages on entire loudspeakers that incorporated elliptical speaker port in them. But JBL argued that royalty base should be manufacturing cost of the elliptical port or the cost of the speaker apart from any electronics involved in making speaker. The district court affirmed the applicability of entire market value rule and awarded entire loudspeakers as royalty base. The Federal Circuit affirmed the judgment district court considering the evidence given by Bose that elliptical port significantly improved the performance of the speaker which had close effect on customer demand for infringed products of JBL.[85]

In *Lucent Technologies, Inc. v. Gateway Inc.*[86], 'Day Patent' was infringed. The patent was related to a method of entering information into the fields on a computer screen without making use of keyboard. In 2002, Lucent initiated action against Gateway and then, Microsoft subsequently intervened. At trial, Lucent claimed that Microsoft infringed on two of the claims of patent. One of the claims was infringed by sales and use of Microsoft Outlook, Microsoft Money's and Windows Mobile. The other claim was infringed by use of Windows Mobile. The jury found Microsoft liable for indirect infringement on all three products and awarded $357, 693,056.18 in damages by applying entire market value rule on entire software products.

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must be analogous to components of a single assembly or be parts of a complete machine, or they must constitute a functional unit.").

[84] Bose Corp. v. JBL, Inc., 274 F.3d 1354, 1361 (Fed. Cir. 2001).

[85] Bose Corp., 274 F.3d 1354 at 1375. Court stated that the invention of the "patent inextricably worked with other components of loudspeakers as a single functioning unit to provide the desired audible performance". The court also found that patent "improved the performance of the loudspeakers and contributed substantially to the increased demand for the products in which it was incorporated. Bose presented unrebutted evidence that the invention of patent was integral to the overall performance of its loudspeakers by way of elliptical port tube, which eliminated port noise and reproduced improved bass tones."

[86] Lucent, 580 F.3d 1301 (Fed. Cir. 2009).

On appeal, the Federal Circuit noted that entire market value rule cannot be applied as Lucent was not able to establish with any substantial evidence that date-picking feature was the basis of customer demand of entire Microsoft software products.[87] Moreover, it also noted that software products had many other substantial non-infringing uses apart from infringing date-pickier tool.[88] In this respect Federal Circuit noted that:

"the evidence can support only a finding that the infringing feature contained in Microsoft Outlook is but a tiny feature of one part of a much larger software program….Outlook is an enormously complex software program comprising hundreds if not thousands or even more features. We find it inconceivable to conclude, based on the present record, that the use of one small feature, the date –picker, constitutes a substantial portion of the value of Outlook's date-picker feature is a minor aspect of a much larger software program and that the portion of the profits that can be credited to the infringing use of the date-picker too is exceedingly small."

Cornell University v. Hewlett Packard Co. is a significant case over understanding strict evidentiary standards approach that Federal Circuit has adopted towards allowing application of entire market value rule and also because conditions for applicability of entire market value rule very comprehensively stated.[89]The infringed patent related to technology that issued "multiple and out-of-order computer processor instructions in a single machine clock cycle".

The jury awarded reasonable royalty to Cornell in which royalty base was earnings from the sale of CPU bricks which were not covered by claimed invention. The CPU bricks included the component (IRB) that infringed the patent. Cornell claimed damages on

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[87]*Id.* at 139. (The court noted that "Lucent did not carry its evidentiary burden of proving that anyone purchased Outlook because of patented method.").

[88] Lucent, 580 F.3d 1301 (The court noted that "the only reasonable conclusion supported by the evidence is that the infringing use of the date-picker tool in Outlook is but a very small component of a much larger software program. The vast majority of the features, when used, do not infringe. The date-picker tool's minor role in the overall program is further confirmed when one considers the relative importance of certain other features e.g., e-mail.")

[89] Cornell Univ. v. Hewlett-Packard Co., 609 F.Supp. 2d 279, 286 -87 (N.D.N.Y. 2009).

entire HP server products which incorporated the CPU brick, CPU module and processor containing IRB on basis of entire market value rule. The Federal Circuit denied its claim because Cornell was not able to satisfy entire market value rule's evidentiary requirements.[90]

On an opportunity again being given, Cornell switched to next expensive component of sever autonomy, a CPU brick and claimed that it should be the appropriate royalty base. Federal Circuit denied Cornell's claim of awarding reasonable royalty with royalty base as entire market value of CPU bricks as it failed to show a connection between consumer demand for CPU brick and its patented feature.[91]Instead found processor revenue to be the royalty base and damages as awarded by jury of approximately $184 million were lowered to $53.5 million.[92]

In *Cornell Univ. v. Hewlett-Packard Co.*, Chief Judge Rader also laid down conditions for the applicability of entire market value rule to reasonable royalty domain.[93]"These conditions are as follows-

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[90] Cornell, 609 F.Supp. 2d 279 at 286 -87. (The court noted that "Cornell did not offer a single demand curve or attempt in any way to link consumer demand for servers and workstations to the claimed invention.").

[91]*Id.* at 289 (The court noted that "Simply put, Cornell's failure to connect consumer demand for Hewlett-Packard machine performance to the claimed invention, or to present a single demand curve (or any other economic evidence) showing that Cornell's invention drove demand for Hewlett-Packard's products undermined any argument for applicability of entire market value rule.").

[92]*Id.*(The court noted that " without any real world transactions, or even any discernable market for CPU bricks, less intrepid counsel would have wisely abandoned a royalty base claim encompassing a product with significant non-infringing components. The logical and readily available alternative was the smallest saleable unit with close relation to the claimed invention- namely the processor itself. Cornell nevertheless stuck to its guns, aiming for the highest royalty base still available after the court's exclusion order.").

[93]*Id.* at 290 (The court noted that "the entire market value rule in the context of royalties requires adequate proof of three conditions: (1) The infringing components must be the basis for customer demand for the entire machine including the parts beyond the claimed invention. (2) The individual infringing and non-infringing components must be sold together so that they constitute a functional unit or are parts of complete machine or single assembly of parts. (3) The individual infringing and non-infringing components must be analogous to a single functioning unit. It is not enough that the infringing and non-infringing parts

1. The infringing components must be the basis for customer demand for the entire machine including the parts beyond the claimed invention.
2. The individual infringing and non-infringing components must be sold together so that they constitute a functional unit or are parts of complete machine or single assembly of parts.
3. The individual infringing and non-infringing components must be analogous to a single functioning unit. It is not enough that the infringing and non-infringing parts are sold together for mere business advantage. Notably, these requirements are additive, not alternative ways to demonstrate eligibility for application of the entire market value rule."

In*IP innovation LLC v. Red Hat*, Judge Randall Rader denied acceptance of an expert's testimonybecause the expert "improperly inflated both the royalty base and the royalty rate by relying on irrelevant or unreliable evidence and by failing to take into account for the economic realities of this claimed component as part of a larger system."[94] The court also made an attempt to identify the contribution of patented component in compound product vis-à-vis thousands other components which was relatively very small.[95] The court also noted that "expert testimony on the topic of damages will not be allowed absent a firm basis in accepted economic principles with an eye to the facts of the record."

*Uniloc USA, Inc. v. Microsoft Corp.*isrelevant as it shows how dangerous it could be to admit entire market value of accused products in a patent infringement case even just as a reasonableness check where patented feature is not the basis of customer demand and removal of 25% rule.[96] It is also relevant for the proposition that how mathematically

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are sold together for mere business advantage. Notably, these requirements are additive, not alternative ways to demonstrate eligibility for application of the entire market value rule.").

[94] IP innovation L.L.C v. Red Hat, Inc., 705 F.Supp. 2d 687, 691 (E.D. Tex. 2010).

[95]*Id.* at 691 (The court noted that "the evidence shows that the claimed invention represents only one of over a thousand components included in the accused products and that relative importance of certain other features confirm the patented invention's small role in the overall product.").

[96]Uniloc USA, Inc. v. Microsoft Corp., 632 F.3d 1292 (Fed. Cir. 2011).

experts can make attempts to perplex the jury in order to get their party excessive and inappropriate awards.[97]

In the case a new trial on damages was granted because jury relied on total sales revenue of Microsoft's entire compound product that infringed the patent.The infringed patent related to software registration system which aimed at curbing software piracy and illegitimate copying of software. The jury found the patent to be infringed by Product Activation feature of Microsoft that was a part of Microsoft office and Windows product and awarded damages of 388 million.

The awarded was granted based on jury's reliance on testimony of Uniloc's expert. The reasonably royalty damage was calculated by following a customary hypothetical negotiation between Uniloc and Microsoft. Uniloc's expert relying on an appraisal process for fixing "isolated value of Product activation." The appraisal process provide that product key can be worth anywhere between $10 to $10000. Uniloc's expert chose $10, which was the lowest value and then "25% Rule of Thumb".

The 25% rule sets the reasonable royalty as 25% and the licensee has to pay 25% of the its expected profits it made from the sale of compound product that is incorporating the infringed patent.[98] As per the rule of thumb, he reached on a "baseline royalty rate of

[97]Uniloc, 632 F.3d 1292 ("The disclosure that a company has made $19 billion dollars in revenue from an infringing product cannot help but skew the damages horizon for the jury, regardless of the contribution of the patented component to this revenue."); FTC, THE EVOLVING IP MARKETPLACE REPORT: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION 210-11 (2011) , *available at* http://www.ftc.gov/os/2011/03/110307patentreport.pdf. ("Although the royalty calculation can decrease the rate in response to a large base, panellists expressed concern that a trier of factor, particularly a jury, may apply an insufficiently low royalty rate when the base is far larger than the inventive feature because an appropriate rate might be miniscule…….It isn't realistic to expect the jury to recommend a .00000001 rate.").

[98]Uniloc, 632 F.3d 1292 ("The 25 percent rule of thumb is a tool that has been used to approximate the reasonable royalty rate that the manufacturer of patented product would be willing to offer to pay to the patentee during a hypothetical negotiation.") *quoting*Robert Goldscheider & John Jaroz, *Use of The 25% Rule in valuing IP* 37 les Nouvelles 123 (Dec. 20002). ("The rule suggests that the licensee pay a royalty rate equivalent to 25 percent of its expected profits for the product that incorporates the IP at issue.").

$2.50 per license issued" on the basis that "25% of the profits will go to Uniloc and rest 75% will remain with Microsoft". He then considered Georgia-Pacific factors for "adjusting 25% up and down depending on how *Georgia-Pacific* factors favour either party". By submitting that Georgia factors didn't changed royalty rate as factors in favour of one party balanced other; he multiplied "the $2.50 royalty arte by number of new licenses to Office and Windows products, 225,978,721, to get final reasonable royalty of $564,946,803."

Then for the purposing convincing the court regarding the legitimacy and appropriateness of his damages he introduced entire market value of accused products as a "reasonableness check". He multiplied"225,978,721licenses by average sales price per license of $85" to reach gross revenue value of $19.28billion. He then showed through calculation that royalty rate was approximately 2.9% by comparing his damages calculation with $19 billion in percentage.

Moreover, for the purpose of befuddling the jury he also presented this data in form of pie chart to convince the court that his calculated damages were very small portion of $19 billion.Microsoft objected to the use of entire market value of all of its accused products on the rational that product activation was not the basis of customer demand. Uniloc responded by arguing that entire market value of accused can be used by asserting low enough royalty rate by relying on *Lucent v. Gateway*.

On this Federal Circuit held that entire market value of accused products cannot be used as reasonableness check until and also cautioned the courts against the danger of considering or admitting entire market value of accused products when patented feature is not the basis of customer demand.[99]

[99]Uniloc, 632 F.3d 1292 (The court noted that "this case provides a good example of the danger of admitting consideration of the entire market value rule of the accused where the patented component does not create the basis of customer demand.").

CHAPTER 5. ENTIRE MARKET VALUE RULE AND ITS APPLICATION TO LOST PROFITS AND REASONABLE ROYALTY

According to entire market value rule, a patentee is entitled to get damages on entire compound product containing patented feature when the patentee proves that patented feature is the basis of customer demand for the compound product.[100]Entire market value rule and lost profits share very close relationship with each other.[101] Both of them aim at compensating the patentee wholly for loss of profits because of infringement.[102] While lost profits compensate patentee for profits he would have made had the infringer not infringed the patent and taken away sales from patentee.The entire market value rule aims at giving damages based on sales value of entire compound product. But, importation of the concept of entire market value rule to reasonable royalty has been subject of severe scholarly criticism.[103] Federal trade commission has also condemned the application of entire market value rule to reasonable royalty domain.[104]

The critics argue that reasonable royalty has been designed for non-manufacturing patentee or licensor.[105] Therefore, a non-manufacturing patentee shall not be entitled to entire market value of compound product which can only be a case under lost profits if he

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[100] Kori, 761 F.2d 649; TVM Mfg.., 789 F.2d 895; Paper Converting, 745 F.2d 11; King Instrument, 767 F.2d 853 at 863 (Fed. Cir. 1985).

[101] *See*Lemley, *supra* note 23 at 663; *Also see* Michael A. Greene, *All Your Base Belong To Us: Towards An Appropriate Usage And Definition of The "Entire Market Value" Rule in Reasonable Royalties Calculations*, 53 BOSTON COLLEGE LAW REVIEW 257, 259 (2012)("emvr natural ambit is within reasonable royalty").

[102] Greene, *supra* note 101 at 95 (Arguing that since entire market value rule intends to "fully restore the patentee's expectation value the rules natural ambit lies within lost profits calculation.)

[103] Lemley *supra* note 23; Amy Landers, *Let the Games Begin: Incentives to Innovation to the Economy of Intellectual Property Law*, 46 SANTA CLARA L. REV. 307, 361-62 (2006).

[104] FTC, THE EVOLVING IP MARKETPLACE REPORT: ALIGNING PATENT NOTICE AND REMEDIES WITH COMPETITION (2011), *available at* http://www.ftc.gov/os/2011/03/110307patentreport.pdf.

[105] Lemley, *supra* note 23 at 661 (2009); Eric E. Bensen & Danielle M. White, *Using Apportionment To Rein in the Georgia-Pacific Factors*, 9 COLUM. SCI & TECH. L. REV. 1, 22-23 (2006).

was a manufacturing patentee.[106] Another argument which is actually corollary to this one is that patentee shall not be awarded entire market value of compound product in a reasonable royalty case as it will overcompensate him because in such a manner he would be compensated for components he has no role in inventing.Moreover, he would have never anticipated the sale of those unpatented components with patented ones as he always intended to license it and earn revenue.[107]

The scholars questioning the applicability of entire market value to reasonable royalty domain also argue by relying on definition of reasonable royalty. Reasonable royalty is a sort of monetary amount that licensees pay in order to get the permit for using patented invention. Now, even after paying royalty, it is necessary that licensees make some profit, and then only it would be tenable to continue manufacturing of products using other's patents.

For determining reasonable royalty, a hypothetical negotiation scenario is constructed.[108] And it seems logical, that there licensee will strike a deal at reasonable royalty which obviously never be entire market value of manufactured compound product rather will be anything less than entire market value. Therefore, it would be erroneous to award them entire market value of compound product.[109]

5.1 Michael A. Greene: Entire Market base rule versus entire market vale rule

Michael A. Greene has adequately dealt with these criticisms regarding application of entire market value rule to reasonable royalty domain and has proposed a new term 'entire

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[106]Greene, *supra* note 101 at 245 (2012) (arguing that "the rule should not apply to the patentee that never intended to market its own product and instead planned to derive revenue through licensing its patented component to other marketers."); Rite Hite, 56 F.3d at 1549-51; TWM, 789 F.2d at 901; King Instrument, 767 F.2d at 865; Kori, 761F.2d at 656.

[107]Michael A. Greene, *supra* note 101 at 245.

[108]Georgia-Pacific, 318 F. Supp. 1116 at 1120-22; Lemley, *supra* note 17 at 662.

[109] Brian J. Love, *supra* note 42 at 278 ("noting that in a compound product, a single patentee which has patent over a component of compound product is never responsible for all of the value of compound product containing that component"); Lemley, *supra* note 17.

market base rule' to replace the term 'entire market value rule' as used in reasonable royalty domain.[110]

Actually the scholars who criticise the applicability of entire market value rule to reasonable royalty domain start on a flawed premise. As per them, courts have applied entire market value rule to cases where reasonable royalty has to be awarded. But actually in name of entire market value rule, courts have applied some different methodology for damage ascertainment which is entirely different from entire market value rule.

For understanding the argument, it is necessary to distinguish between entire market value rule which has been applied in lost profit domain and which has been applied in reasonable royalty domain. For this it is necessary to analyse some case laws which involve applicability of entire market value rule to lost profit and reasonable royalty domain.

5.2 Case laws on interaction of Entire market value rule with lost profits-

The entire market value rule in lost profits domain addresses the question that lost profits have to be awarded on how much compensation base. The U.S. Court of Appeals for the Federal Circuit in *Paper Converting Machine Co. v. Magna Graphics Corporation* stated that the entire market value rule allows "the recovery of damages based on the value of an entire apparatus containing several features, even though only one feature is patented."[111]The case involved a patent relating to automatic rewinder machine which used to manufacture rolls of "densely wound industrial toilet tissue and paper towelling". The rewinder line comprised several components, but the invention was incorporated in only one of them. The Federal Circuit affirmed district court's award of lost profits on entire rewinder line rather than rewinder itself.

In *Kori Corp. v. Wilco marsh Buggies and Draglines Inc.,*the U.S. Court of Appeals for the Federal Circuit stated that under entire market value rule it is the "financial and

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[110] Based on Professor Lemley's opinion that "Federal Circuit has confused the entire market value rule with the question of royalty base." in reasonable royalty. Lemley, supra note 17 at 662.

[111]Paper Converting, 745 F.2d 11.

marketing dependence on the patented item under standard marketing procedures which determines whether the non-patented features of a machine should be included in calculating compensation for infringement".[112] The case dealt with a patent relating to "an improved pontoon-type endless track-amphibious vehicle which will operate in swamps". The appellants contended that the district court erred in calculating damages based on the entire cost of amphibious marsh craft rather than portion of machine that included patented pontoon structure. But Federal Circuit affirmed lost profits award of district court based on entire market value of infringing machines on the reasoning that no evidence was found by district court which indicated that "amphibious marsh craft have been or could be used independently of the patented pontoon structure".

In *State Industries Inc. v. Mor-Flo Industries Inc.*, the U.S. Court of Appeals for the Federal Circuit ruled that the "entire market value rule allows for the recovery of damages based on the value of entire apparatus containing several features, when the patented feature constitutes the basis of customer demand".[113] The case involved a patent "covering method of insulating tank of water heater by using polyurethane foam". The district court based damages award on entire water heater as a unit in accordance with entire market value rule as foam insulation feature was the basis of customer demand of water heater. The Federal Circuit agreed with district court's finding and left it undisturbed.

5.3 Case laws on interaction of Entire market value rule with reasonable royalty-

In *Marconi Wireless Tel. Co. of America v. U.S.*, the United States Court of Claims ruled that entire market rule was applicable because "the patented invention was of such paramount importance that it substantially created the value of the component parts".[114] The case involved "Lodge patent" which dealt with "selective tuning of antenna circuits of a transmitting station to a receiving station" by insertion of "lumped inductance" in the antenna. The Court of Claims awarded complete cost of transmitting and receiving sets to

[112]Kori, 767 F.2d 853at 871.

[113]State Industries, 883 F.2d 1573 at 241.

[114] Marconi, 99 Ct. Cl. 1 (1942), rev'd in part on other grounds, 320 U.S. 1 (1943).

be used as royalty base in calculation of reasonable royalty as Lodge invention substantially created the value of component parts.

The U.S. Court of Appeals for the Federal Circuitin *Tec Air, Inc. v. Denso Mfg. Michigan Inc.* laid down guidelines for the application of entire market value rule.[115] The case dealt with a patent describing a method of and device for making properly "balanced, injected-moulded fans". The defendant was sued for infringement because "radiator and condenser assemblies" manufactured by him included a fan which was balanced as per patented method. The Federal Circuit quoting *Rite–Hite Corp. v. Kelley Co.* reiterated that the "entire market value rule is appropriate where both the patented and unpatented components together are analogous to components of single assembly, parts of complete machine or constitute functional unit but not where patented component have essentially have no functional relationship to the patented invention and have been sold with an infringing device only as a matter of convenience or business advantage".

It was held that the jury correctly applied entire market value rule and awarded reasonable royalty on entire radiator and condenser assemblies which included fan because defendant's expert testified that "motors used with radiator and condenser assemblies required fans" and therefore, assemblies were a single functioning unit.[116] Moreover, there was customer demand for fans balanced to certain specification and without patented method the required specification cannot be met.

From, the analysis of case laws, it can be concluded that the entire market value rule in reasonable royalty domain addresses the question that reasonable royalty has to be awarded on how much royalty base. If the entire market value rule is satisfied in reasonable royalty case, then royalty base is increase to 100%.

The entire market value rule in lost profits domain awards 100% of profit from sale of entire compound product. On the other hand entire market value rule appliedto reasonable royalty awards only some percentage of 100% royalty base in reasonable

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[115] Tec Air, Inc. v. Denso Mfg. Michigan Inc., 192 F.3d 1353 (Fed Cir. 1999).

[116]Bose Corp., Inc., 274 F.3d 1354.

royalty domain.[117] This is why it is proposed that entire market value rule term in reasonable royalty domain shall be replaced with 'entire market base rule' terminology which will clear the confusion between different use of entire market value rule in lost profit and reasonable royalty domain.

Since, the royalty rate is not 100% and is less than 100%, the premise or base of arguments of critics becomes implausible that entire market value rule awards entire market value of compound product to the patentee of a single component. On the premise being flawed the arguments that hypothetical licensee would have retained some profit from himself, rule not to apply to patentee who wanted to license his patent because he cannot be awarded entire market value of compound product and that patenteeis being overcompensated because he is awarded share of damages not attributable to his patent are automatically neutralised.

[117] Michael A. Greene, *supra* note 101 at 255, 256.

CHAPTER 6. ASCERTAINMENT OF REASONABLE ROYALTY IN PATENT INFRINGEMENT CASES INVOLVING MULTI-COMPONENT DEVICES

Gone are those days when phones were meant for making calls, people used to buy cameras for clicking pictures, walkman and music players were used for listening music. Nowadays all these features can be found in a single device known as smart phone. Putting all features in a single device involves developing and connecting different parts which render different functions.

Multi-patent products are not restricted only to certain spheres but pervade the industry where many different components on which patent rights are held by various companies are involved to yield a complex product e.g. - Smartphones, camera etc. They can be referred as single-multifaceted devices since they involve various components. They may have hundreds of patented technologies for which some other company may own patent apart from their manufacturer.

This is the prime reason why so much complexity is involved in reasonable royalty ascertainment in a situation when a particular component in a compound product produced by some other company other than patentee infringes one of the patentee's patent. The quest for ascertainment of reasonable royalty to which aggrieved party is entitled in such a case has puzzled the judges and scholars and has become a heated topic of debate.[118]

As explained in Chapter II. Patent damages basics; there are two components of reasonable royalty: royalty base and royalty rate. The product of both the components gives reasonable royalty.[119] Royalty base represents the total value of sales or uses of infringing product or component of product or whatever is determined to be royalty base

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[118] Fromson v. Western Litho Plate & Supply Co., 853 F.2d 1568, 1574 (Fed. Cir. 1988). ("Determining a fair and reasonable royalty is often …….a judicial chore, seeming often to involve more the talents of a conjurer than those of a judge. Still, a reasonable royalty analysis requires a court to hypothesize, not to speculate.").

[119] Brian J. Love, *supra* note 42 at 268.

then by court in a case.[120] Royalty rate is a percentage which reflects the proportion of the base value that patented technology contributes. Royalty rate is applied on royalty base.

6.1 Approaches for calculating reasonable royalty-

There are primarily two approaches for calculating reasonable royalty: first analytical method and second is hypothetical negotiation or commonly known as 'willing licensor-licensee approach. In analytical approach, "the internal profit projections of infringer" from the sale are utilised. The "infringer's usual or acceptable net profit" is subtracted from "net anticipated profits from sales of" infringing compound product.[121] The "profits are apportioned between patent owner and infringer."[122]

The relevant factors include which influence hypothetical negotiation or are taken into consideration are: "among the relevant facts are: what plaintiff's property was, to what extent defendant has taken it, its usefulness and commercial value as shown by its advantages over other things and by the extent of its use, and the commercial situation".[123]

In Hypothetical negotiation or willing licensor-willing licensee, reasonable royalty is determined by contemplating a hypothetical negotiation licensing scenario involving patentee and the infringer who would be assumed to participate in it as licensor and licensee at the time of first infringement.[124]The approach is based on the assumption that

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[120] Brian J. Love, *supra* note 42 at 270.

[121] TWM Mfg., 789 F.2d 895, 899.

[122] Lucent, 580 F.3d 1301 *citing* John Skenyon, *Patent Damages and Law & Practice* § 3:4, 3-9 to 3-10 (2008). (Describing the analytical method as "calculating damages based on the infringer's own internal profit projections for the infringing item at the time the infringement began , and then apportioning the projected profits between the patent owner and the infringer.").

[123]Panduit, 575 F.2d 1152, at 1157.

[124]Unisplay, S.A. v. Am. Elec. Sign. Co., 69 F.3d 512, 518 (Fed. Cir. 1995); Lucent, 580 F.3d 1301 ("The hypothetical negotiation tries, as best as possible, to recreate the *ex-ante* licensing negotiation scenario and to describe the resulting agreement.In other worlds, if infringement had not occurred, willing parties would have executed a license agreement specifying certain royalty payment scheme."); Georgia-Pacific, 318 F. Supp. 1116 at 1120; Rite Hite, 56 F.3d 1538 at 1554.

in absence of infringement patentee and infringer must have entered into a license agreement and hypothethetcial negotiation tries to contemplate what would have been the royalty in that agreement on the date of first infringement.[125]

As per the approach, an upper limit and a lower limit of royalty are estimated. Upper limit signifies the maximum royalty that a licensee will be willing to pay and the lower limit signifies the minimum royalty payment that a patentee or licensee will accept for licensing the right to use the patented intellectual property owned by him.[126] After determining upper and lower limits, the courts will estimate exact reasonable royalty which would lie between the two limits in order to be just for both the parties.[127]

6.2 Addressing the question of appropriate royalty base

The major question which is involved in any case involving reasonable royalty ascertainment is: what should be the appropriate royalty base? As, reasonable royalty is described as product of royalty rate and royalty base, a reasonably royalty can be increased or decreased by altering either of the two.

The question of inclusion or exclusion of unpatented components in calculating compensation for infringement is also determined by 'anticipation test'. The test is

[125] Radio Steel, 788 F.2d 1554 at 1557 ("The determination of a reasonable royalty, however, is based not on the infringer's profit, but on the royalty to which a willing licensor and a willing licensee would have agreed at the time the infringement began."); Grain Processing, 185 F.3d 1341 at 1350 ("to prevent the hypothetical from lapsing into pure speculation, this court requires sound economic proof of the nature of the market and likely outcomes with infringement factored out of the economic picture.").

[126] J. Gregory Sidak, *The Proper Royalty Base for Patent Damages,* 10 JOURNAL OF COMPETITION LAW AND ECONOMICS,989, 993 (2014) ("The upper bound of the bargaining range is the maximum royalty that the license would be willing to pay while still being better off than if it had not purchased the license. The licensee would be willing to pay a royalty up to the increase in profits resulting from the cost savings, the increased sales, and the increased price associated with using the licensed patent as opposed to using the next-best noninfringing substitute"); J. Gregory Sidak, *The Meaning of FRAND I: Royalties,* 9 J. COMPETITION L. & ECON. 931, 938 (2013).

[127] J. Gregory Sidak, *supra* note 126 at 993.

"whether patentee or its licensee can normally anticipate sale of unpatented components together with patented components".[128]

Application of entire market value rule is not appropriate in convoyed sale cases.[129] 'Anticipation test' needs to be proved in order to make application of entire market value rule appropriate in convoyed sale cases, involving award of lost profits or reasonable royalty.[130]

In case involving single-multifaceted units in lost profits domain, on proving entire market value rule, computation of lost profit is done on entire compound product because it involves showing that patented feature is the basis of customer demand or patented feature forms the value of component parts. The courts have furthered similar practice to reasonable royalty domain, as per which reasonable royalty is awarded on entire compound product as royalty base on proving entire market value rule.[131]

But, the important fact to note is that in lost profit domain, apart from entire market value rule, 'but for' test also entitles patentee to get lost profits on unpatented components in compound product. This is so because while sustaining his claim for lost profits, the patentee would have to prove that patentee has the manufacturing and marketing capacity of entire compound product to meet the demand. If a patentee has proved that he would have made the sale of compound product along with unpatented components but for infringement, then this will obviously entitle him to lost profits on unpatented

[128] Tektronix, Inc., 552 F.2d 343.

[129] Tec Air, 192 F.3d 1353 *quoting* Rite–Hite Corp., 56 F.3d 1538 ("entire market value rule is appropriate where both the patented and unpatented components together are analogous to components of single assembly, parts of complete machine or constitute functional unit but not where patented component have essentially have no functional relationship to the patented invention and have been sold with an infringing device only as a matter of convenience or business advantage").

[130]Tektronix, 552 F.2d 343; Leesona, 599 F.2d 958; Paper Converting, 745 F.2d 11; TWM Mfg., 789 F.2d 895.

[131] Marconi, 99 Ct. Cl. 1, *rev'd* in part on other grounds, 320 U.S. 1 (1943); Tec Air, 192 F.3d 1353 (Fed Cir. 1999).

components also along with patented ones whether in single-multifaceted unit case or a convoyed sale case.[132]

In single multifaceted unit cases falling in reasonable royalty domain, patentees have to just prove entire market value rule to get reasonable royalty on both patented and unpatented components. Awarding 100% royalty base means the calculation of reasonable royalty will be done on cost of entire compound product as royalty base. This is in contradiction to lost profits where patentees have to satisfy both entire market value rule and 'but for' test to be entitled to 100% compensation base on which lost profits has to be calculated.

In convoyed sale case falling in reasonable royalty domain, patentee has to prove entire market value rule and 'anticipation test on behalf of patentee or hypothetical licensee' to get award of 100% royalty base which includes both patented and unpatented items.This finding of anticipation by hypothetical licensee regarding increase of sales of collateral items because of patented component leads to logical conclusion or means the same that patented feature is the basis of customer demand of compound product. Hence, both of these practices are actually similar where patented feature is basis of customer demand being proved, 100% royalty base is awarded.

Both of these practices overcompensate the patentee by giving him increased royalty on enhanced royalty base including unpatented components whose sale would have never been anticipated by the patentee.[133] The infringer would have developed or acquired unpatented components by incurring expenditure on his own.[134] Hence, both of these practices are erroneous.[135]

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[132]Lost profits awarded on what is saleable EMVR is mostly allowed in cases where claim for LP is established. Courts do this so as to avoid getting into the question of apportionment.

[133] Michael A. Greene *supra* note 101 at 245.

[134] Lemley *supra* note 23 at 663.

[135]However practice of awarding 100% market base in reasonable royalty domain on finding that hypothetical licensee would have anticipated the sale of unpatented items with patented one can be criticized as patent law aims at compensating patentees and not punishing infringers. And in such a case patentee is getting compensated for what he has not anticipated.

So, the logical question which arises is how two of these patentees in reasonable royalty domain shall be compensated — one who satisfies the entire market value rule only and second, who satisfies entire market value rule and in its case court finds that that hypothetical licensee would have anticipated sale of unpatented components along with patented one in both cases involving convoyed sale and single-multifaceted unit.

For reaching a conclusion on this, it is necessary to analyze different implications of entire market value rule in lost profits and reasonable royalty domain. Although the entire market value rule remains the same in both domains but it renders different implications when it interacts with lost profits and reasonable royalty.

In lost profits, once patentee satisfies the 'but for' test, satisfying entire market value rule affirms the conclusion that customers would have bought the compound product from the patentee as patented feature is basis of customer demand and sale of compound product would not have been possible without infringement.[136] Thus, it helps in clearly entitling patentee to lost profits on entire compound product having unpatented components.

On the other hand, in reasonable royalty, proving entire market value rule means that patented feature is pivotal to the compound product and without patented component compound product cannot exist or be sold because of its financial or marketing dependence on the patented feature. So, when patented feature is the basis of customer demand or the compound product has any marketing or financial dependence on patented feature, then, obviously patentee would have strong bargaining position in comparison to licensee.[137]

For this stronger bargaining position, these patentees should be compensated by increasing royalty rate rather than awarding him 100% royalty base.[138]

[136]Lemley, *supra* note 23 at 663; Rite Hite 56 F.3d at 759; Marconi 99 Ct.Cl.at 244.

[137] Greene, supra note 101 at 259; Georgia Pacific 318 F. Supp. 1116; Uniloc, 632 F.3d 1292; Lucent, 580 F.3d.

[138]Georgia Pacific Corp., 743 F.2d 674 ("The effect of selling the patented specialty in promoting sales of other products of the licensee; the existing value of the invention to the licensor as a generator of sales of his non-patented items; and the extent of such derivative or convoyed sales."); Fromson, 853 F. 2d 1568

There are mainly three basics theories for determining royalty base: apportionment, entire market value rule and third is, smallest saleable patent practicing unit approach, commonly known as SSPPU approach.

*6.2.1 **Apportionment approach**-*

The origins of concept of apportionment can be traced back to *Seymour v. McCormick.* The case involved a patentee who had three patents for grain-reaping machine. One patent was regarding reaping machine, second was for 'improvement upon his patented machine' and third for 'new and useful improvements in reaping machine formerly patented' by him and improvements relating to seat. The patentee only claimed the third patent in court relating to seat. The Circuit Court of US awarded damages in form of lost profits on all the patents stating that whether a patent claimed covered an entire machine or improvement on machine, the quantum of damages will be the same.

On appeal, Supreme Court of the United States, dissenting with the judgment court held that it was "very grave error to instruct a jury that as to the measure of damages the same rule is to govern, whether the patent covers an entire machine or an improvement on a machine".[139] The rationale behind the decision was that "where the claim on which suit was founded is for an improvement on old machines, patented or unpatented, the plaintiff is not entitled to recover, as a measure of damages, the mechanical profits that he could make upon the whole machine, including the old part. His damages are limited to the profits on making and vending the improvement patented and infringed."[140]

("The portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer.") ("When the entire market value rule is used, the royalty rate must be proportional to the value of the patented technology."); Lucent, 580 F.3d 1301 at 1339 (Fed. Cir. 2009).

[139] Seymour, 57 U.S. (16 How.) 480 at 491. ("Holding that "very grave error to instruct a jury that as to the measure of damages the same rule is to govern, whether the patent covers an entire machine or an improvement on a machine").

[140] *Id*. at 491 (1853). (stating that "where the claim on which suit was founded is for an improvement on old machines, patented or unpatented, the plaintiff is not entitled to recover, as a measure of damages, the

From this rationale, the concept of apportionment originated which means that whenever patent holder claims damages for infringement over a patent, then patent holder shall quantify the portion of their lost profits attributable to their patents.[141]

In *Garretson v. Clark*, Supreme Court of the United States gave a concrete form to the doctrine of apportionment by even laying down certain evidentiary standards for apportionment. [142]The case involved a patent over improved mop-heads apparatus.[143] Since, the patent was infringed; patentee claimed entire infringer's profits in damages.[144] The U.S. Supreme Court affirmed the lower court judgment which denied patentees claim and stated that "the patentee………must in every case give evidence tending to separate or apportion the defendant's profits and patentee's damages between patented feature and the unpatented feature, and such evidence must be reliable and tangible, and not conjectural or speculative; or he must show, by equally reliable and satisfactory evidence, that the profits and damages are to be calculated on the whole machine, for the reason that the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature."[145]

Apart from apportionment, *Garretson v. Clark* also holds significance for laying down foundation for entire market value rule as an exception to apportionment. A corollary can be drawn from the judgment that if a patentee is able to show that entire value of the

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mechanical profits that he could make upon the whole machine, including the old part. His damages are limited to the profits on making and vending the improvement patented and infringed.").

[141]Bensen, *supra* note 105.

[142] Garretson, 111 U.S. 120 at 72.

[143]*Id.* at 121.

[144]*Id.*

[145]*Id.* at 132. ("the patentee………must in every case give evidence tending to separate or apportion the defendant's profits and patentee's damages between patented feature and the unpatented feature, and such evidence must be reliable and tangible, and not conjectural or speculative; or he must show, by equally reliable and satisfactory evidence, that the profits and damages are to be calculated on the whole machine, for the reason that the entire value of the whole machine, as a marketable article, is properly and legally attributable to the patented feature.").

whole machine was due to the patented feature, then, he can claim profits and damages on whole machine.[146]

The case of *Westinghouse Electric & Mfg. Co. v. Wagner Electric Mfg. Co.*[147] is important as in it the court was struck at a point where it had to decide between apportionment and recovery of all of infringer's profits. The defendant had infringed a patent belonging to Westinghouse Electric which covered electrical transformer in which non-conducting cooling oil was incorporated. The patent holder claimed all of infringer's profits but was denied and had to settle with nominal damages as they were not able to carry out evidentiary burden of apportioning the profits attributable to infringed patent. The U.S. Supreme Court stated that "The patentee's invention may have been used in combination with valuable improvements made, or other patents appropriated by the infringer, and each may have jointly, but unequally, contributed to the profits. In such case, if plaintiff's patent only created a part of the profits, he is only entitled to recover that part of the net gains."[148]

According to apportionment approach, whenever patent holder claims damages for infringement over a patent incorporated in a compound product having unpatented features, then, patent holder shall quantify the portion of their lost profits attributable to their patents.[149]

Although for the problem of determination of royalty base in multi-component devices apportionment is the best solution but in absence of methodology to apply it, apportionment approach is not at all feasible to implement. The proposition can be corroborated by Judge Hand's comments on issue of apportionment in case of *Cincinnati Car. Co. v. New York Rapid Transmit Corp*.-

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[146] Garretson, 111 U.S. 120, 121.

[147] Westinghouse, 225 U.S. 604 at 619.

[148] *Id.* at 615 (1912) ("The patentee's invention may have been used in combination with valuable improvements made, or other patents appropriated by the infringer, and each may have jointly, but unequally, contributed to the profits. In such case, if plaintiff's patent only created a part of the profits, he is only entitled to recover that part of the net gains.").

[149] Eric. E. Bensen, *supra* note 56 at 10.

> "The situation was not that, however, but one so common in patent accountings, in which the invention is not of the article as a whole, but of a small detail. The difficulty of allocating profits in such cases has plagued the courts from the outset, and will continue to do so, unless some formal and conventional rule is laid down, which is not likely. Properly, the question is in its nature unanswerable……It is generally impossible to allocate quantitatively the shares of the old and the new, and the party on whom that duty falls, will usually lose. If the patentee is required to assess the contribution of his invention to the profits, he will find it impossible, vice-versa, if this is demanded of the infringer. The burden of proof in such cases is the key to the result."[150]

The apportionment approach received a lot of criticism in 19th century when it was applicable because of impossibility of implementing apportionment approach in apportioning the profits attributable to patented features and unpatented components. Finally, in *W.L. Gore & Associates, Inc. v. Carlisle Corp.* apportionment was packed in its coffin where it lays dormant till today. The court held that "once the fact that sales have been lost has been proven, there is no occasion for the application of apportionment.[151]

6.2.2 Entire Market Value rule approach-

As far role of entire market value rule as a doctrine in reasonable royalty is concerned, it allows royalty base to cover sales revenue from entire compound product incorporating patented product when patented feature is the basis of customer demand. But, it is argued that the appropriate royalty base in patent infringement case involving compound product incorporating infringed patented feature should be sales revenue from entire compound product even when patented feature is not the basis of customer demand.

[150] Cincinnati Car. Co. v. New York Rapid Transmit Corp., 66 F.2d 592 , 593 (2d Cir. 1933).

[151] W.L. Gore & Associates, Inc. v. Carlisle Corp., 198 U.S.P.Q (BNA) 353 (D.Del. 1978).

In Hypothetical negotiation or willing licensor-willing licensee, reasonable royalty is determined by contemplating a hypothetical negotiation licensing scenario involving patentee and the infringer who would be assumed to participate in it as licensor and licensee at the time of first infringement.[152]

Generally in real patent licensing negotiations, firms often calculate royalties taking into account "the retail price of downstream product."[153] In *LaserDynamics, Inc. v. Quanta Computer, Inc.*, an expert witness testified regarding IBM's practice of using "retail price of downstream product as royalty base for patented component."[154]

Since, hypothetical negotiation assumes that in absence of infringement patentee and infringer must have entered into a license agreement and hypothethetcial negotiation tries to contemplate what would have been the royalty in that agreement on the date of first infringement, it is argued that "retail price of downstream" shall be considered as appropriate royalty base also in hypothetical negotiation. [155]

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[152]Unisplay, S.A. v. Am. Elec. Sign. Co., 69 F.3d 512, 518 (Fed. Cir. 1995); Lucent, 580 F.3d 1301. ("The hypothetical negotiation tries, as best as possible, to recreate the *ex-ante* licensing negotiation scenario and to describe the resulting agreement.In other worlds, if infringement had not occurred, willing parties would have executed a license agreement specifying certain royalty payment scheme. "); Georgia, 318 F. Supp. 1116 at 1120 (S.D.N.Y. 1970); Rite Hite, 56 F.3d 1538 at 1554.

[153]J. Gregory Sidak, *supra* note 126 at 989 (2014) ("Nokia, a former smartphone manufacturer, stated in 2013 that royalty rates for SEP's are typically based on, and applied against the price of end product. ZTE revealed a similar understanding in 2008when it declared that it would license its LTE standard essential patent claims for LTE handsets at a royalty rate of about 1% on the [handset's] sale price.").

[154] LaserDynamics, Inc. v. Quanta Computer, Inc., 694 F.3d 51, 69-70 (Fed. Cir. 2012) ("LaserDynamics further points to Mr. [Emmett] Murtha's Testimony that, in his prior experience working in patent licensing at IBM , IBM would often base royalties on entire products to address such accounting difficulties. Thus, LaserDynamics concludes that the parties would have had to use the value of the entire laptop computer as the royalty base in structuring a hypothetical license agreement.").

[155] Radio Steel & Mfg. Co. v. MTD Prods. Inc., 788 F.2d 1554, 1557 (Fed. Cir. 1986). ("The determination of a reasonable royalty, however, is based not on the infringer's profit, but on the royalty to which a willing licensor and a willing licensee would have agreed at the time the infringement began."); [155] Grain Processing Corp. v. American Maize-Prods. Co., 185 F.3d 1341, 1350 (Fed. Cir. 1999) ("to prevent the

In case of *Mondis Technology v. LG Electronics, Inc.*,Eastern District of Texas observed that "if the EMVR were absolute, then it would put plaintiff in a tough position because on one hand, the patented feature does not provide the basis for the customer demand, but on the other hand, the most reliable licenses are based on the entire market value rule of the licensed products".[156]

Application of entire market value rule captures entire value of complementarity. As per the concept of complementarity effect, many components in a compound product may work together to produce a particular effect or desired result or may enhance the value of compound product.[157] So, in a case involving infringement of patent, the damages awarded shall not be restricted only to the patented feature or 'smallest saleable patent practicing unit' as it will not take into account complementarity effect and undercompensate the patentee.[158]

Suppose, in a case of Apple iPhone, the experience of its user can be attributed to thousands of features it has like retina display, icons, graphics, camera features, screen etc. So, in a case where there is infringement of patent relating to 'retina display', then can component enabling 'retina display' can be separated from other features and only taken as royalty base when all other essential components like screen helps in facilitating

hypothetical from lapsing into pure speculation, this court requires sound economic proof of the nature of the market and likely outcomes with infringement factored out of the economic picture."); J. Gregory Sidak, *supra* note 126 at 993 at 989 (2014) (noting that use of "downstream product's reatail price will be the most authentic assumption about the royalty base that a court could use for a hypothetical negotiation between a willing licensor and a willing licensee.").

[156]Mondis Technology v. LG Electronics, Inc., Nos. 2:07-CV-565 –TWJ-CE, 2:08-CV -478-TWJ, 2011 WL 2417367, at *3 (E.D. Tex. June 14, 2011).

[157]Michael L. Katz & Carl Shapiro, Systems Competition and Network Effects, 8 J. ECON. PRESP. 93, 94 (1994) (defined 'systems' as "collections of two or more components together with an interface that allows components to work together. Such components are strongly complementary, although they need not be consumed in fixed proportions").

[158] J. Gregory Sidak, *supra* note 126 at 993. ("The value of entire apparatus is not necessarily limited to the value of the direct downstream product; in principle, it could include any complementary product or service for which the patent holder can prove that the customer's decision to buy results primarily from the existence and use of the patent component.")

to user end experience of retina display technology? The argument against this can be that doing so will not take into account complementarity effect as produced by synergy of all components and features working together.[159]

The concept of complementarity effect was duly recognized by the Federal Circuit.in case of *University of Pittsburgh v. Varian Medical Systems, Inc*.[160]The patent assigned to University of Pittsburgh was infringed by Varian Medical systems. The patent was for technology that improved radiation therapy. The technology consisted of majorly two components: a “patient movement detector” and “artificial fiducials”.[161] A “patient movement detector” is a component which had inherent capability to track and respond to patient’s movements. Artificial fiducials are structures which can be temporarily fixed on patient’s skin and the “patient movement detector” would then work in coordination with “artificial fiducials” to track patient’s movements and “reduce damage to healthy tissues during treatment.”[162]

The patent was alleged to be infringed by “Real-Time Position Management (RPM System)”which is a “video-based system that monitors and tracks patient respiratory movement during treatment.[163]

The “Real-Time Position Management (RPM System)” used to work in coordination with “Varian’s Clinac” and “Trilogy radiotherapy treatment” machines.[164] “Varian’s Clinac”

[159]J. Gregory Sidak, *supra* note 126 at 989 (2014) (“When complementarity effects are strong, the full social value of a patent implemented in a complex product is captured in the end user’s demand for the downstream product. In the case of smartphone, the demand for handset approximates the value generated by the sum of all individual patented technologies when used in combination with one another. That combined value is greater than the sum of the parts and it is atleast as great as the amount that consumers willingly pay for the downstream product.”)

[160] University of Pittsburgh v. Varian Medical Systems, Inc., 561 Fed. Appx. 934 (Fed. Cir. 2014).

[161]*Id.*

[162]*Id.*

[163]*Id.*

[164]*Id.*

and “Trilogy radiotherapy treatment” machines can be purchased and also used without RPM system.[165]

The jury awarded 10.5% royalty on RPM system and a 1.5% royalty on the sale of the Clinac and Trilogy devices which incorporated the RPM system. The jury’s award was doubled by district court and amounted to $101,431,292.

Varian contended before the court that damages award “based on both claims of the patent must be vacated because they were improperly calculated –either because they failed to account for the entire market value rule or in light of a “second-line” of damages jurisprudence Varian says can be gleaned from *Garretson* v. *Clark* and its progeny.”[166]

Varian also argued that the “entire value of the linear accelerators” must be excluded from royalty base. However, it was observed that it was not the case that Pitt was trying to claim inclusion of linear accelerators in which beam generator was incorporated rather the patent claim itself covered the entire combined apparatus including beam generator and linear accelerators.

Federal Circuit affirmed the application of entire market value rule on the basis that “the combination devices claimed in claim 38 were more valuable to Varian than was the RPM system and linear accelerator when sold separately, i.e., that there was a value a would be purchaser would find in the combination system claimed in claim 38 that would not be found when the components were sold separately and not designed to be immediately interoperable.”[167] Varian itself acknowledged the fact that the functioning of combination apparatus added some value.

The base principle for the case was:

> “if the claimed invention only adds an incremental value to the conventional elements, the damages awarded must also be so limited. But,

[165] *Id.*

[166] *Id.*

[167] University of Pittsburgh v. Varian Medical Systems, Inc., 561 Fed. Appx. 934 (Fed. Cir. 2014).

if the claimed invention adds significant value to the conventional elements, the damages award may reflect the value."[168]

However, this proposed approach of using entire compound product as royalty base can be criticised on the basis that it's not the case courts have not devised doctrine for capturing the complementarity effect. Entire market value rule doctrine does takes into account complementarity effect as observed in *University of Pittsburgh v. Varian Medical Systems, Inc*.

However, royalty base can be sales revenue from entire compound product only when patent holder proves that components together prove complementarity effect. So, availability entire market value rule in reasonable royalty is a special case. But, it would be illogical to draw a general rule that in every case the appropriate royalty base should be sales revenue entire compound product.

6.2.3 <u>Smallest Saleable Patent Practicing Unit approach</u>-

The term "Smallest Saleable Patent Practicing Unit" was coined in *Cornell University v. Hewlett Packard Co*.[169] The infringed patent related to a technology that issued "multiple and out-of-order computer processor instructions in a single machine clock cycle". For better understanding the anatomy of compound product i.e. Server/workstations, refer to diagram below-

The jury awarded reasonable royalty to Cornell in which royalty base was earnings from the sale of CPU bricks which were not covered by claimed invention. The CPU bricks included the component (IRB) that infringed the patent. Cornell claimed damages on entire HP server products which incorporated the CPU brick, CPU module and processor

[168] *Id.*

[169] Cornell Univ. v. Hewlett-Packard Co., 609 F.Supp. 2d 279, 286 -87 (N.D.N.Y. 2009).

containing IRB on basis of entire market value rule. The Federal Circuit denied its claim because Cornell was not able to satisfy entire market value rule's evidentiary requirements.[170]

On an opportunity again being given, Cornell switched to next expensive component of sever autonomy, a CPU brick and claimed that it should be the appropriate royalty base. Federal Circuit denied Cornell's claim of awarding reasonable royalty with royalty base as entire market value of CPU bricks as it failed to show a connection between consumer demand for CPU brick and its patented feature.[171] Instead found processor revenue as "smallest saleable patent practising unit" to be the royalty base and damages as awarded by jury of approximately $184 million were lowered to $53.5 million.[172]

The court on 'smallest saleable patent practicing unit' noted that:

> "Without any real world transactions, or even any discernable market for CPU bricks, less intrepid counsel would have wisely abandoned a royalty base claim encompassing a product with significant non-infringing components. The logical and readily available alternative was the smallest saleable unit with close relation to the claimed invention- namely the processor itself."

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[170] Cornell, 609 F.Supp. 2d 279 at 286 -87 (N.D.N.Y. 2009). (The court noted that "Cornell did not offer a single demand curve or attempt in any way to link consumer demand for servers and workstations to the claimed invention.").

[171] *Id.* at 751.(The court noted that "Simply put, Cornell's failure to connect consumer demand for Hewlett-Packard machine performance to the claimed invention, or to present a single demand curve (or any other economic evidence) showing that Cornell's invention drove demand for Hewlett-Packard's products undermined any argument for applicability of entire market value rule.").

[172] *Id.* at 753 (The court noted that " Without any real world transactions, or even any discernable market for CPU bricks, less intrepid counsel would have wisely abandoned a royalty base claim encompassing a product with significant non-infringing components. The logical and readily available alternative was the smallest saleable unit with close relation to the claimed invention- namely the processor itself. Cornell nevertheless stuck to its guns, aiming for the highest royalty base still available after the court's exclusion order.").

The current approach of courts while determining royalty base that of identifying 'smallest saleable patent practicing unit'. And where the compound product in question is itself a 'smallest saleable patent practicing unit', there courts will subtract the other relevant patented features from identified unit which have substantial value. 'Smallest saleable patent practicing unit' can be understood as smallest unit of compound product incorporating patented intellectual property which is saleable in market on day today basis.

Use of 'smallest saleable patent practicing unit' approach is criticised by those who favour using retail price of entire compound product as royalty base.[173] It is criticised on the ground that it does not take into account complementarity and network effects and also that it is opposed to the industry practice and norm established by custom of "using entire market value of downstream product for calculating royalty for one of the patented component."[174]

In case of *Mondis Technology v. LG Electronics, Inc.*, Eastern District of Texas observed that "if the EMVR were absolute, then it would put plaintiff in a tough position because on one hand, the patented feature does not provide the basis for the customer demand, but on the other hand, the most reliable licenses are based on the entire market value rule of the licensed products".[175]

The argument of complementarity effect is corroborated by observations in *Commonwealth Scientific & Industrial Research Organisation v. Cisco Systems* where Chief Judge Davis observed that "the benefit of the patent lies in the idea, not in the small amount of silicon that happens to be where that idea is physically implemented."[176]

He further commented:

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[173]J. Gregory Sidak, *supra* note 126 at 989 (2014).

[174]*Id.* 998.

[175]Mondis Technology v. LG Electronics, Inc., Nos. 2:07-CV-565 –TWJ-CE, 2:08-CV -478-TWJ, 2011 WL 2417367, at *3 (E.D. Tex. June 14, 2011).

[176] Commonwealth Scientific & Industrial Research Organisation v. Cisco Systems, No. 6:11-cv-00343, 2014 WL 3805817, at *11 (E.D. Tex. July 23, 2014).

> "Basing a royalty solely on chip price is like valuing a copyrighted book based only on the costs of the binding, paper and ink needed to actually produce the physical product. While such a calculation captures the cost of the physical product, it provides no indication of its actual value."[177]

*VirnetX, Inc. v. Cisco Systems, Inc.*was the case which emphasized and applied smallest saleable unit approach. VirnetX has alleged the infringement of its patents relating to security over networks by "FaceTime feature" and 'VPN on demand' available on Apple's devices.[178]

FaceTime feature facilitates the service of video chatting between two iPhones and 'VPN on demand' feature which helped a "system in setting up a virtual private network (VPN) between a secure site and proxy site."[179]

The jury found all of VirnetX's claims to be valid and infringed by two of the Apple's features and it awarded damages of $368,160,000. On appeal to Federal Circuit by Apple, Federal Circuit vacated the damages and remanded the case to district court.

VirnetX's expert presented damages by means of three approaches in two of which he used entire Apple devices as the royalty base and in Nash Bargaining approach he estimated profits on "front camera" price which was available in some of the Apple's devices. All of three approaches were rejected by Federal Circuit because expert failed to show any link between royalty base which was Apple's finished products and patented invention.[180]

Federal also criticised jury's instructions that for applying entire market value rule the jury should consider the fact that the product was itself the smallest saleable patent practicing unit. The Federal Circuit rejecting this proposition stated that "a patentee's

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[177]*Id.*

[178] VirnetX, Inc. v. Cisco Systems, Inc., 767 F.3d 1308, 1326 (Fed. Cir. 2014).

[179]*Id.*

[180]*Id.* (The Federal Circuit noted that "VirnetX's expert had incorrectly used the value of iOS products as the royalty base because he had not properly apportioned the value of the patented feature from the value of unpatented features in the iOS products.").

obligation to apportion damages only to the patented features does not end with the identification of the smallest saleable unit if that unit still contains significant unpatented features."[181]

Federal Circuit observed that "instead of relying on the value of the iOS product, VirnetX should have identified a patent-practicing feature with a sufficiently close relation to the claimed functionality."[182]VirnetX decision also stands for proposition that increase royalty rate cannot be substituted with increase in royalty rate if reasonable royalty has to be increased and vice-versa.[183]

It can also be comprehended from this decision that Federal Circuit is moving towards the approach of apportionment in the guise of "smallest saleable patent practicing unit approach".[184]

6.3 Royalty Rate-

6.3.1 Removal of 25% thumb rule.-

The 25% thumb rule is a tool which helps in carrying out hypothetical negotiation smoothly by providing the base premise that a licensee (or infringer) should pay 25 percent of the profits it earned from compound product to licensor or the patentee.[185] The rationale behind this is that the "license should retain a majority (i.e. 75 per cent) of the

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[181]*Id.* at 1326.

[182]*Id.*

[183]J. Gregory Sidak, *supra* note 126 at 998 *discussing* VirnetX, Inc. v. Cisco Systems, Inc., 767 F.3d 1308, 1326 (Fed. Cir. 2014) ("The decision also confirms that the Federal Circuit is opposed to using the EMVR in the absence of sufficient proof, even when the finder of fact could adjust the royalty rate downward.").

[184]*Id.citing* Tomita Techs. USA, LLC v. Nintendo Co. , No. 11-cv-04256-JSR, 2013 WL 4101251 (S.D.N.Y 2013) (" The case law has identified the smallest saleable patent practicing component as a physical component on which the patent reads. However, as Judge Richard Posner has observed, "almost every product can be viewed as a package of component products. The *reductio ad absurdum* of the Federal Circuit's current case law is that the search for the smallest patent-practicing component ends with the patent itself".).

[185]Uniloc USA, Inc. v. Microsoft Corp., 632 F.3d 1292 (Fed. Cir. 2011). ("The 25 percent rule of thumb is a tool that has been used to approximate the reasonable royalty rate that the manufacturer of the patented product would be willing to offer to pay to the patentee during a hypothetical negotiation.").

profits, because it has undertaken substantial development, operational and commercialization risks, contributed other technology/ IP and/ or brought to bear its own development, operational and commercialisation contributions."

Robert Goldscheider has explained the methodology for applying the rule. First of all, the expected profits from the sale of compound product which has patent incorporated in it are estimated. Then, profit rate is reached by dividing these profits from estimated net sales over the period considered in calculation. Then, calculated profit rate is multiplied by 25 per cent to arrive at running royalty rate. After this, royaltyrate can be applied on royalty base to determine reasonable royalty payable.[186]

25 percent rule of thumb has been severely criticised because it does not takes into consideration "unique relationship between the patent and accused product."[187] Secondly, it does not take unique relationship between parties into account.[188] Thirdly, the rule is in

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[186]Robert Goldscheider & John Jaroz, *Use of The 25% Rule in valuing IP*, 37 les Nouvelles 123, 123 (Dec. 20002). ("An estimate is made of the licensee's expected profits for the product that embodies the IP at issue. Those profits are divided by the expected net sales over that same period to arrive at profit rate. That resulting profit rate, say 16 per cent, is then multiplied by 25 per cent to arrive at a running royalty rate. In this example, the resulting royalty rate would be 4 per cent. Going forward or calculating backwards, in the case of litigation, the 4 per cent royalty rate is applied to net sales to arrive at royalty payments due to the IP owner.")

[187] Gregory K. Leonard and Lauren J. Stiroh, *Economic Approaches to Intellectual Property Management*, 949 PLI/Pat 425, 454-55 (2008). ("The 25 percent rule takes no account of the importance of the patent to the profits of the product sold, the potential availability of close substitutes or equally non-infringing alternatives , or any other idiosyncrasies of the patent at issue that would have affected a real-world negotiation."); Richard S. Toikka, *Patent Licensing Under Competitive and Non-Competitive Conditions*, 82 J. Pat. & Trademark Off. Soc'y 279, 292-93 (Apr. 2000) (arguing that it fails to "distinguish between monopoly and normal profit …..Thus, for narrow patents, the rule may be overly generous and for broad patents it may be overly stingy.").

[188] Ted Hagelin, *Valuation of Patent Licenses*, TEX. INTELL. PROP. L.J. 423, 425-426 (Spring 2004). (noting that the rule should not be used in isolation because it fails to "account for the different levels of risk assumed by a licensor and licensee."); William C. Rooklidge and Martha K. Gooding, *When Hypothetical Turns to Fantasy: The Patent Reasonable Royalty Hypothetical Negotiation,* BNA INSIGHTS Vol. 80, 701 n.10 (1983) (citing PriceWater-houseCoopers, A Closer look: Patent Litigation Trends and the Increasing Impact of Nonpractcing entities (2009)). ("The rule is unlikely to have any basis

itself arbitrary and capricious and "does not fit within the model of hypothetical negotiation on which it is based."[189]

In the case of *Uniloc USA, Inc. v. Microsoft Corp.*25% rule of thumb was declared to be fundamentally flawed.[190]In the judgment, many cases were mentioned where courts have accepted findings based on 25% rule as the "admissibility of the bare 25 percent rule has never been squarely presented" before courts and 25 per cent rule was not the focus of the case.[191] But Federal Circuit took *Uniloc USA, Inc. v. Microsoft Corp.* as the opportunity to test the veracity of 25 percent rule.

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in the accused infringer's industry, in the technology involved in either the patent or the accused product or service, or in the claimed invention's contribution to the infringing product or service.).

[189] Roy J. Epstein & Alan J. Marcus, *Economic Analysis of the Reasonable royalty: Simplification and extension of the Georgia-Pacific Factors*, 85 J. Pat. & Trademark Off. Socy's 55, 574 (July 2003). ("The 25% and 5% rules of thumb are best understood as special cases that may be appropriate to a given situation only by chance"); Roy J. Epstein, *Modelling Patent Damages: Rigorous and Defensible Calculations* (2003). ("Arguing that the 25 percent rule "shortcut" is essentially arbitrary. Because it is based on ex post results, it does not necessarily relate to the results of a negotiation that took place prior to the infringement.").

[190]Uniloc, 632 F.3d 1292 (Fed. Cir. 2011).

[191]Fonar Corp., 107 F.3d 1543 at1553 (Fed. Cir. 1997); Finjan, Inc. v. Secure Computing Corp. (Fed. Cir. 2010). ("Where the parties disputed only the percentage to be applied, but agreed as to the rule's appropriateness")." Lower courts have invariably admitted evidence based on the 25% rule, largely in reliance on its widespread acceptance or because its admissibility was uncontested."; i4i Ltd. P'ship v. Microsoft Corp., 670 F.Supp. 2d 568, 592 (E.D. Tex. 2009), *aff'd on other grounds by* 598 F.3d 831 ("i4i's expert testified that it was customary within his field to apply a '25% rule of thumb'…… Thus, considering the foundation laid by expert testimony, his application of the 25% rule was relevant and appropriately considered."); Static Control Components, Inc. v. Lexmark Intl'l, Inc. (E.D. Ky. 2007) ("While Lexmark does not believe the 'rule of thumb' approach is the most appropriate way to calculate 'reasonable royalty,' as SCC correctly notes, case law suggests it is one way of doing so" (*citing* Standard Mfg. Co. v. United States, 42 Fed. Cl. 748, 766 (1999); Novozymes A/S v. Genencor Int'l, Inc., 474F. Supp. 2d 59, 606 (D. Del. 2007) ("While there is no particular analytical justification for the rule of thumb, it has been used to estimate royalties."); Bose, 112 F. Supp. 2d 138 at 167 (D. mass. 2000) ("Courts have found the 25%/ 75% approach to be a useful approach to arriving at a baseline royalty rate. The opposing expert conceded that this approach is a common and reasonable one, though he has never used that approach in negotiating licenses"); Secure Energy, Inc. v. Coal Synthetics, LLC, No. 4:08-CV-1719, 2010 WL 1692076 at *1 (E.D.

In the case a new trial on damages was granted because jury relied on total sales revenue of Microsoft's entire compound product that infringed the patent. The infringed patent related to software registration system which aimed at curbing software piracy and illegitimate copying of software. The jury found the patent to be infringed by Product Activation feature of Microsoft that was a part of Microsoft office and Windows product and awarded damages of 388 million.

The awarded was granted based on jury's reliance on testimony of Uniloc's expert. The reasonably royalty damage was calculated by following a customary hypothetical negotiation between Uniloc and Microsoft. Uniloc's expert relying on an appraisal process for fixing "isolated value of Product activation." The appraisal process provide that product key can be worth anywhere between $10 to $10000. Uniloc's expert chose $10, which was the lowest value and then applied "25% Rule of Thumb".

The 25% rule sets the reasonable royalty as 25% and the licensee has to pay 25% of the its expected profits it made from the sale of compound product that is incorporating the infringed patent.[192] As per the rule of thumb, he reached on a "baseline royalty rate of $2.50 per license issued" on the basis that "25% of the profits will go to Uniloc and rest 75% will remain with Microsoft". Finally, he multiplied "the $2.50 royalty arte by number of new licenses to Office and Windows products, 225,978,721, to get final reasonable royalty of $564,946,803."

Regarding use of 25% rule of thumb Federal Circuit observed:

> "It is of no moment that the 25 percent rule of thumb is offered merely as a starting point to which the Georgia-Pacific factors are then applied to

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Mo. Apr. 27, 2010) ("The parties agree that application of the 25% 'rule of thumb' is acceptable to determine a reasonable royalty case such as this".).

[192]Uniloc, 632 F.3d 1292. ("The 25 percent rule of thumb is a tool that has been used to approximate the reasonable royalty rate that the manufacturer of patented product would be willing to offer to pay to the patentee during a hypothetical negotiation.") *quoting*Robert Goldscheider & John Jaroz, Use of The 25% Rule in valuing IP, 37 les Nouvelles 123, 123 (Dec. 20002). ("The rule suggests that the licensee pay a royalty rate equivalent to 25 percent of its expected profits for the product that incorporates the IP at issue.").

bring the rate up or down. Beginning from a fundamentally flawed premise and adjusting it based on legitimate considerations specific to the facts of the case nevertheless results in a fundamentally flawed conclusion."

"This court now holds as a matter of Federal Circuit law that the 25 percent rule of thumb is a fundamentally flawed tool for determining a baseline royalty rate in hypothetical negotiation. Evidence relying on the 25 percent rule of thumb is thus inadmissible under *Daubert* and the Federal Rules of Evidence, because it fails to tie a reasonable royalty base to the facts of the case at issue."[193]

6.3.2 <u>Licenses to rely on</u>-

In 2010, the Federal Circuit addressed an important issueregarding admission oflicenses in *ResQNet.com, Inc. V. Lansa, Inc.*[194]. The case became significant as it gave guidance to lower courts regarding non-admission of licenses if they did not had link any link with patent in suit.

The case involved infringement of patent relating to technology for "screen recognition and terminal emulation processes that download a screen of information from a remote mainframe computer on to a local personal computer".[195] Personal computer then used to recognize information with the help of ResQNet patented technology. The patent was found to be infringed by NewLook products which were sold by Lansa. One of the patents was found to be infringed and district awarded damages of $506,305 for patent infringement.

[193]Uniloc, 632 F.3d 1292 (Fed. Cir. 2011). Daubert, 509 U.S 509; Kumho Tire, 526 U.S. 137. ("The Supreme Court assigned to the district courts the responsibility of ensuring that all expert testimony must pertain to scientific , technical, or other specialised knowledge" under Federal Rule of Evidence 702, which in turn required the judge to determine that the testimony was based on a firm scientific or technical grounding. Expert testimony which does not relate to any issue in the case is not relevant and ergo, non-helpful.").

[194] ResQnet.com, Inc. V. Lansa, Inc., 594 F.2d 860, 869-73 (Fed. Cir. 2010).

[195]*Id.*

Lansa challenged district court's damage award in cross-appeal. The damages award was guided by ResQNet's expert testimony. The expert relied on seven licenses: five of which were "rebranding or re-bundling licenses" and rest two were "straight licenses arising out of litigation over the patents involved in suit."

The five rebundling licences were regarding "software products and source code, as well as services such as training, maintenance, marketing, and upgrades, to other software companies in exchange for on-going revenue-based royalties".The subject matter of rebundling licenses had no link with claimed patented technology in issue and neither mentioned patents in suit.[196]

The expert considered high rates of all five licenses (two of them had 25%, another two had 30% and last had 40%) and by averaging reached the royalty rate of 12.5%which was "somewhere in the middle of rebundling licenses and straight licenses."The royalty rates of rebundling licenses were very high as compared to the rates of straight licenses which very lower than 12.5%.

With respect to methodology used by the expert, the Federal Circuit concluded that reliance on unrelated licenses was a trick to "push royalty up to double figures" and district court erred in adopting the proposed royalty rate of 12.5%.

The Federal Circuit also pointed out that district court did the same mistake as was done in *Lucent v. gateway* as it should have atleast made some attempt to link presented rebundling licenses to infringed patent. It further noted that though Lansa did not send any expert to give testimony in order to counter ResQNet's expert testimony, this cannot be accepted to be the reason for admission of unrelated licenses by district court as

[196] Riles v. Shell Exploration & Prod. Co., 298 F.3d 1302, 1312 9Fed. Cir. 2002) ("The market would pay the patentee only for his product. The patentee's damages model does not support the award because it does not associate the proposed royalty with the value of the patented method at all, but with the unrelated cost of the entire Spirit platform.");

burden was not on Lansa but was on ResQNet to "persuade the court with legally sufficient evidence regarding an appropriate reasonable royalty."[197]

Federal Circuit observed that straight licenses were "most reliable licenses on record" and on remand gave discretion to district court to "consider the panoply of events and facts that occurred thereafter and that could not have been known to or predicted by the hypothesized negotiators." [198]And instructed trial courts not to "rely on unrelated licenses to increase the reasonable royalty rate above rates more clearly linked to the economic demand for the claimed technology."

Finally, Federal Circuit held that "the district court erred by considering ResQNet's re-bundling licenses to significantly adjust upward the reasonable royalty without any factual findings that accounted for the technological and economic differences between those licenses and the patent in issue" and vacated the damages award and sent the case on remand to district court for recalculation of reasonable royalty damages.

*6.3.3 **Proposing low enough royalty rate and increasing royalty base**-*

In *Lucent Technologies, Inc. v. Gateway Inc.*, 'Day Patent' was infringed.[199] The patent was related to a method of entering information into the fields on a computer screen without making use of keyboard. In 2002, Lucent initiated action against Gateway and then, Microsoft subsequently intervened.

At trial, Lucent claimed that Microsoft infringed on two of the claims of patent. One of the claims was infringed by sales and use of Microsoft Outlook, Microsoft Money's and

[197] SmithKline Diagnostics, Inc. v. Helena Labs. Corp., 926 F.2d 1161, 1168 (Fed. Cir. 1991). ("A court is not restricted in finding a reasonable royalty to a specific figure put forth by one of the parties.").

[198] Fromson v. Western Litho Plate & Supply Co., 853 F.2d 1568, 1574 (Fed. Cir. 1988); Hanson v. Alpine Valley Ski Area, Inc., 718 F.2d 1075, 1078-79 (Fed. Cir. 1983) ("Since the offers were made after the infringement had begun and litigation was threatened or probable, their terms should not be considered evidence of an 'established royalty', since license fees negotiate din the face of a threat of high litigation costs may be strongly influenced by a desire to avoid litigation."); Nickson Indus., Inc. v. Rol Mfg. Co., 847 F.2d 795, 798 (Fed. Cir. 1988) ("A court should not select a diminished royalty rate a patentee may have been forced to accept by the disrepute for his patent and the open defiance of his rights.").

[199] Lucent, 580 F.3d 1301.

Windows Mobile. The other claim was infringed by use of Windows Mobile. The jury found Microsoft liable for indirect infringement on all three products and awarded $357, 693,056.18 in damages by applying entire market value rule on entire software products.

On appeal, the Federal Circuit noted that entire market value rule cannot be applied as Lucent was not able to establish with any substantial evidence that date-picking feature was the basis of customer demand of entire Microsoft software products.[200] Moreover, it also noted that software products had many other substantial non-infringing uses apart from infringing date-pickier tool.[201] In this respect Federal Circuit noted that:

"the evidence can support only a finding that the infringing feature contained in Microsoft Outlook is but a tiny feature of one part of a much larger software program….Outlook is an enormously complex software program comprising hundreds if not thousands or even more features. We find it inconceivable to conclude, based on the present record, that the use of one small feature, the date –picker, constitutes a substantial portion of the value of Outlook's date-picker feature is a minor aspect of a much larger software program and that the portion of the profits that can be credited to the infringing use of the date-picker too is exceedingly small."

Then court mentioned dicta which further resulted in confusion regarding application of entire market value rule which was resolved in *Uniloc USA, Inc. v. Microsoft Corp.*

> "There is nothing inherently wrong with using the market value of the entire product, especially when there is no established market value for the infringing component or feature, so long as the multiplier accounts for the proportion of the base represented by the infringing component or feature. Thus, even when patented invention is a small component of a much

[200]*Id.* at 1305 (The court noted that "Lucent did not carry its evidentiary burden of proving that anyone purchased Outlook because of patented method.").

[201] Lucent, 580 F.3d 1301 (Fed. Cir. 2009). (The court noted that "the only reasonable conclusion supported by the evidence is that the infringing use of the date-picker tool in Outlook is but a very small component of a much larger software program. The vast majority of the features, when used, do not infringe. The date-picker tool's minor role in the overall program is further confirmed when one considers the relative importance of certain other features e.g., e-mail.")

> larger commercial product, awarding a reasonable royalty based on either sale price or number of units sold can be economically justified. ”

Uniloc USA, Inc. v. Microsoft Corp., an argument was raised based on above mentioned dicta that “entire market value of the compound product can be used if the royalty rate is low enough”.[202]

In the case a new trial on damages was granted because jury relied on total sales revenue of Microsoft’s entire compound product that infringed the patent. The infringed patent related to software registration system which aimed at curbing software piracy and illegitimate copying of software. The jury found the patent to be infringed by Product Activation feature of Microsoft that was a part of Microsoft office and Windows product and awarded damages of 388 million.

The awarded was granted based on jury’s reliance on testimony of Uniloc’s expert. The reasonably royalty damage was calculated by following a customary hypothetical negotiation between Uniloc and Microsoft. Uniloc’s expert relying on an appraisal process for fixing “isolated value of Product activation.” The appraisal process provide that product key can be worth anywhere between $10 to $10000. Uniloc’s expert chose $10, which was the lowest value and then applied “25% Rule of Thumb”.

The 25% rule sets the reasonable royalty as 25% and the licensee has to pay 25% of the its expected profits it made from the sale of compound product that is incorporating the infringed patent.[203] As per the rule of thumb, he reached on a “baseline royalty rate of $2.50 per license issued” on the basis that “25% of the profits will go to Uniloc and rest 75% will remain with Microsoft”.

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[202]Uniloc, 632 F.3d 1292 (Fed. Cir. 2011).

[203]*Id.*(“The 25 percent rule of thumb is a tool that has been used to approximate the reasonable royalty rate that the manufacturer of patented product would be willing to offer to pay to the patentee during a hypothetical negotiation.”) *quoting*Robert Goldscheider & John Jaroz, Use of The 25% Rule in valuing IP, 37 les Nouvelles 123, 123 (Dec. 20002). (“The rule suggests that the licensee pay a royalty rate equivalent to 25 percent of its expected profits for the product that incorporates the IP at issue.”).

He then considered Georgia-Pacific factors for “adjusting 25% up and down depending on how *Georgia-Pacific* factors favour either party”. By submitting that Georgia factors didn’t changed royalty rate as factors in favour of one party balanced other; he multiplied “the $2.50 royalty arte by number of new licenses to Office and Windows products, 225,978,721, to get final reasonable royalty of $564,946,803.”

Then for the purposing convincing the court regarding the legitimacy and appropriateness of his damages he introduced entire market value of accused products as a “reasonableness check”. He multiplied “225,978,721licenses by average sales price per license of $85” to reach gross revenue value of $19.28billion. He then showed through calculation that royalty rate was approximately 2.9% by comparing his damages calculation with $19 billion in percentage. Next, he testified that as per his experience, the “royalty rates for softwares are “generally above- on average, above 10% or 10, 11%” to show that his royalty rate of 2.9% was quite “low enough”.

Microsoft objected to the use of entire market value of all of its accused products on the rationale that product activation feature was not the basis of customer demand or “created the value of component parts.” Uniloc argued that the “entire market value of the compound product can be used if the royalty rate is low enough” relying on dicta of *Lucent Technologies, Inc. v. Gateway Inc.*

> “Although our law states certain mandatory conditions for applying the entire market value rule, courts must nevertheless be cognizant of a fundamental relationship between the entire market value rule and the calculation of running royalty damages award. Simply put, the base used in a running royalty calculation can always be the value of the entire commercial embodiment, as long as the magnitude of the rate is within an acceptable range.”[204]

On this issue Federal Circuit held that:

[204] Lucent, 580 F.3d 1301 (Fed. Cir. 2009).

> “The Supreme court and this court’s precedents do not allow consideration of the entire market value rule of accused products for minor patent improvements simply by asserting a low enough royalty rate.”[205]

6.4 Use of entire market value rule as reasonable royalty checks

Uniloc USA, Inc. v. Microsoft Corp. isrelevant as it shows how dangerous it could be to admit entire market value of accused products in a patent infringement case even just as reasonablenesschecks where patented feature is not the basis of customer demand.[206]

In the case a new trial on damages was granted because jury relied on total sales revenue of Microsoft’s entire compound product that infringed the patent. The infringed patent related to software registration system which aimed at curbing software piracy and illegitimate copying of software. The jury found the patent to be infringed by Product Activation feature of Microsoft that was a part of Microsoft office and Windows product and awarded damages of 388 million.

The awarded was granted based on jury’s reliance on testimony of Uniloc’s expert. The reasonably royalty damage was calculated by following a customary hypothetical negotiation between Uniloc and Microsoft. Uniloc’s expert relying on an appraisal process for fixing “isolated value of Product activation.” The appraisal process provide that product key can be worth anywhere between $10 to $10000. Uniloc’s expert chose $10, which was the lowest value and then applied “25% Rule of Thumb”.

The 25% rule sets the reasonable royalty as 25% and the licensee has to pay 25% of the its expected profits it made from the sale of compound product that is incorporating the infringed patent.[207] As per the rule of thumb, he reached on a “baseline royalty rate of

[205]Uniloc, 632 F.3d 1292 (Fed. Cir. 2011).

[206]*Id*.

[207]*Id* at 752. (“The 25 percent rule of thumb is a tool that has been used to approximate the reasonable royalty rate that the manufacturer of patented product would be willing to offer to pay to the patentee during a hypothetical negotiation.”) *quoting*Robert Goldscheider & John Jaroz, Use of The 25% Rule in valuing IP, 37 les Nouvelles 123, 123 (Dec. 2002). (“The rule suggests that the licensee pay a royalty rate equivalent to 25 percent of its expected profits for the product that incorporates the IP at issue.”).

$2.50 per license issued" on the basis that "25% of the profits will go to Uniloc and rest 75% will remain with Microsoft".

He then considered Georgia-Pacific factors for "adjusting 25% up and down depending on how *Georgia-Pacific* factors favour either party". By submitting that Georgia factors didn't changed royalty rate as factors in favour of one party balanced other; he multiplied "the $2.50 royalty arte by number of new licenses to Office and Windows products, 225,978,721, to get final reasonable royalty of $564,946,803."

Then for the purposing convincing the court regarding the legitimacy and appropriateness of his damages he introduced entire market value of accused products as a "reasonableness check". He multiplied "225,978,721licenses by average sales price per license of $85" to reach gross revenue value of $19.28billion. He then showed through calculation that royalty rate was approximately 2.9% by comparing his damages calculation with $19 billion in percentage.

Microsoft objected to the use of entire market value of all of its accused products on the rationale that product activation was not the basis of customer demand. On this issue of reasonableness check Federal Circuit concluded that entire market value of accused products cannot be used as reasonableness check and also cautioned the courts against the danger of considering or admitting entire market value of accused products when patented feature is not the basis of customer demand.[208] Regarding use entire market value of products for the purpose of reasonableness check Federal Circuit observed:

> "Uniloc's final argument is that the use of the $19 billion figure was only a check, and the jury must be presumed to have followed the jury instruction and not based its damages calculation on the entire market value rule. This argument attempts to gloss over the purpose of the check as lending legitimacy to the reasonableness of $565 million damages calculation. Even if the jury's damages calculation was not based wholly

[208]Uniloc USA, 632 F.3d 1292 at 175. (The court noted that "this case provides a good example of the danger of admitting consideration of the entire market value rule of the accused where the patented component does not create the basis of customer demand.").

> on the entire market value rule check, the award was supported in part by the faulty foundation of the entire market value rule. Moreover, Uniloc's derision of Microsoft's damages expert by virtue of the .00003% of the entire market value rule that his damages calculation represented may have inappropriately contributed to the jury's rejection of his calculations. Thus, the fact that the entire market value was bought in as check is of no moment."

The study proposes that entire market base rule in reasonable royalty shall be treated as an exception to general rule of choosing "smallest saleable patent practicing unit" as the royalty base. Therefore, in all general patent infringement cases involving multi-component devices an effort shall be made to identify smallest saleable patent practicing unit on which royalty rate shall be applied to reach reasonable royalty.

CONCLUSION

'Digital India' and Start-up India' being one of the priorities inruling government's agenda, it is the need of the hour for Indian courts to correctly address these issues as they have potential to severely damage home grown and cheap mobile, tablet device maker like Micromax's business. Moreover, these incidents also may adversely affect innovative tech industry in India.

If foreign companies like Ericsson keep on abusing their dominant position in India by continuously suing Indian companies over SEP's and if courts will grant injunction against Indian companies and order them to pay royalty based on entire downstream products then,it may lessen the incentive for innovation or development and growth of telecommunication Industry in India specially taking into consideration how huge patent damages can be.

Indian courts should learn from US courts judgments on this complicated issue of determination of reasonable royalty and royalty base and in spite of basing damages in the form of reasonable royalty on net selling price of entire downstream product, they should adopt American practice of adopting "smallest saleable patent practicing unit" as the royalty base. The courts in cases where there is complementarity effect of very high level produced by working together of components or patented feature forms the basis of customer demand, then, courts should chose royalty base as net selling price of entire compound product. In language of American jurisprudence, the study proposes that entire market base rule in reasonable royalty shall be treated as an exception to general rule of choosing "smallest saleable patent practicing unit" as the royalty base.

Adoption of this proposal will certainly reduce burden deliberately loaded on Indian companies by Indian courts who have potential to become leading technology companies in the world by reducing significantly the royalty damage awards.

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