PATENT REMEDIES AND COMPLEX PRODUCTS

Through a collaboration among twenty legal scholars from eleven countries in North America, Europe, and Asia, *Patent Remedies and Complex Products* presents an international consensus on the use of patent remedies for complex products such as smartphones, computer networks, and the Internet of Things. It covers the application of both monetary remedies like reasonable royalties, lost profits, and enhanced damages, as well as injunctive relief. Readers will also learn about the effect of competition laws and agreements to license standards-essential patents on terms that are "fair, reasonable, and nondiscriminatory" (FRAND) on patent remedies. Where national values and policy make consensus difficult, contributors discuss the nature and direction of further research required to resolve disagreements. This title is also available as Open Access on Cambridge Core at doi.org/10.1017/9781108594981.

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Patent Remedies and Complex Products

TOWARD A GLOBAL CONSENSUS

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Foreword

Patent systems are designed to provide incentives to innovate by temporarily protecting the intellectual property to which those innovations give rise. While not always perfectly calibrated, most patent systems historically have accomplished that goal. But as the nature of innovation has changed over the years, patent systems have struggled to adapt to those changes. Legal principles that were once quite good at striking a balance between too much patent protection and too little when applied to simple patented technology are less pertinent in our modern world of increasingly complex technology. We no longer live in a world of simple inventions where the patented technology provides most, if not all, of the value of an end product. We no longer live in a world where reasonable royalties for past infringement are readily calculable or where an injunction against ongoing infringement almost always makes sense.

We now live in a world of complex technology – computers operating with sophisticated software, smartphones and similar multifunction devices, interactive televisions, autonomous vehicles, virtual reality, and the "Internet of Things." Such complex technology creates complexities of a different sort for patent systems. A single end product (or even a single component of an end product) may contain multiple patented technologies, sometimes exponentially more than traditional machines or products. The law of patent remedies was crafted for simpler inventions; it does not neatly address the realities of current innovation.

Determining how our concepts of injunctions, reasonable royalties, lost profits, and enhanced damages should be applied in this new era is challenging. This is particularly true when it comes to properly valuing individual contributing pieces of patented technology. Assessing the value added by a patented invention to complex technology is necessary, but far from easy. And these challenges are magnified by the interaction of those remedies derived from patent law with those stemming from competition and contract law, particularly those contracts that patent holders enter into in return for designation of their patent as a standard-essential patent.

Compounding these challenges is the fact that, while patent laws and their attendant remedial principles are national, technology sales and, thus, a desire to encourage innovation, are global. Individual systems for patent remedies tailored to complex technologies on a national basis thus seem inadequate and short-sighted. Imposing one country's attempted solution on jurisdictions with different legal and economic traditions cannot be done, however. That is not the solution. Cross-fertilization of ideas presents an opportunity to search out best practices, which can then both be adopted and adapted as appropriate. Finding consensus on what those best practices are is no small task. Such an undertaking would require an international coalition of patent law and economic experts focused on harmonizing disparate patent systems while maintaining respect for each nation's values and policy goals.

The International Patent Remedies for Complex Products (INPRECOMP) project – involving an impressive group of twenty scholars from distinguished academic institutions in eleven countries – is taking aim at rethinking patent enforcement systems on a global scale. This book is an ambitious attempt to wrestle with the intricacies of intellectual property protection around the world and to seek international consensus on issues affecting patent remedies in the context of complex products.

The INPRECOMP participants have approached their challenging task in a thoughtful manner that is both academically rigorous and practical. I have had the pleasure of watching the INPRECOMP project in action. In March 2017, the INPRECOMP group presented its ideas and proposals for possible international harmonization to a panel of judges and patent law practitioners. I had the privilege to be among those before whom the group tested its concepts and from whom the group sought feedback. The work of the INPRECOMP participants, now reflecting that very feedback, is set forth in this work. This book represents substantial thought and effort directed to an important but very challenging goal. Careful consideration of the group's ideas will be edifying for judges, legislators, and practitioners alike, as patent disputes relating to complex technology become increasingly more international in scope.

Hon. Kathleen M. O'Malley
U.S. Court of Appeals for the Federal Circuit

Preface and Acknowledgments

This project on International Patent Remedies for Complex Products (INPRECOMP) has an ambitious objective – to engage intellectual property scholars worldwide on the topic of patent remedies for complex products, in order to identify areas of consensus along with topics needing further research and discussion. This project was made possible by a gift from Intel Corporation to the Center for Law, Science & Innovation (CLSI) at the Sandra Day O'Connor College of Law at Arizona State University. Intel provided the funding for a project (with the details to be determined by the CLSI) to advance and broaden scholarly research and dialogue on patent remedies for complex products. Intel encouraged us to involve scholars from as many different perspectives and countries as feasible. Other than that general direction, Intel played no role in the design, participant selection, topic choice, or work product of this project. We appreciate Intel's support of independent research, and we thank it for making this project possible.

A number of individuals played a central and indispensable role in this project, and each deserves accolades for the commitment, patience, and expertise he or she brought to the project. First and foremost, Brad Biddle, a Faculty Fellow of the ASU Center for Law, Science & Innovation, was key to both launching and administering the project. Brad first broached the subject of this project and made the initial contact with Intel. He operated as our de facto project coordinator, convening meetings and conference calls of our steering committee, which he chaired, pushing gently but firmly to ensure we stayed on schedule, and stepping in to help resolve any disagreements or problems along the way. Brad's enthusiasm and leadership for this project were, respectively, infectious and effective.

One of the most important things that Brad did at the outset was to recruit two subject matter experts to be the thought leaders of this project. These are law professors Jorge Contreras of the S.J. Quinney College of Law at the University of Utah and Norman Siebrasse of the University of New Brunswick, Faculty of Law. Jorge and Norman are not only tremendously knowledgeable experts on patents and patent remedies, but they are also committed to balance, objectivity, and scholarly

excellence. Jorge's and Norman's impressive expertise, extensive contacts in the field, enthusiasm for the subject matter, and good-natured commitment to the project were critical for the project's success.

In addition to serving on the INPRECOMP steering committee over the two-plus years of the project's duration, Jorge and Norman were central in selecting the other faculty members of this project, whose biographies can be found above. They assembled an outstanding team of twenty leading intellectual property scholars from eleven countries in North America, Europe, and Asia. These scholars attended two 2-day meetings, one in London and one in Phoenix. After the London meeting, the group split into six working groups with overlapping membership, each dedicated to an individual chapter. The teams participated in numerous conference calls and email exchanges to develop and reach consensus on the material in this book, which was then circulated for comment to the entire group. Their time, expertise, and perspective gave this project its intellectual richness, breadth, and depth, for which we are enormously grateful.

Some of these academic participants did even more. We particularly appreciate the additional work of the following working group chairs: Tom Cotter (Chapter 1), Chris Seaman (Chapter 2), Colleen Chien (Chapter 3), Norman Siebrasse (Chapter 4), Jorge Contreras (Chapter 5), and Alison Jones and Renato Nazzini (Chapter 6). We also thank Alison Jones and Renato Nazzini for hosting and helping to organize the London meeting.

As the working groups began drafting the chapters that ended up being this book, we quickly realized that we needed a lead editor, someone who was knowledgeable about the subject matter and able to work with the author teams to coordinate consensus where it was possible and to identify and manage differences. We found the perfect person for this important role in Brian Love, Associate Professor of Law and Co-director of the High Tech Law Institute at the Santa Clara University School of Law, who was already a member of the INPRECOMP team. Brian did yeoman's work in collaborating with the teams of authors for each chapter, bringing the discussions to completion, and putting into writing for each chapter the text and recommendations upon which each chapter's authors could agree. This process involved a tremendous commitment of time and skill, which Brian provided with enthusiasm and excellence.

The other key player in bringing this book to fruition was Jay Jenkins, the Intellectual Property Director of the CLSI at ASU. Jay served as line editor, working closely with Brian to go through each chapter line-by-line to edit the text for clarity, consistency, and impact. Jay also worked in completing all the references, a daunting task given the different nations and languages of the primary materials used in the production of this work. Without Jay's tireless efforts, this book never would have seen the light of day, and we are very grateful for his dedication and effort.

Another important component of this project was the opportunity to "stress test" our initial ideas with a panel of eminent judges and a panel of leading practitioners. We provided the initial drafts of our chapters and then invited these legal experts to critique, question, and challenge our initial work at the Phoenix meeting. Our judicial panel consisted of the Hon. Marsha Berzon of the U.S. Court of Appeals for the Ninth Circuit, the Hon. Klaus Grabinski of the German Federal Court of Justice (Bundesgerichtshof), the Hon. Kathleen O'Malley of the U.S. Court of Appeals for the Federal Circuit, and the Hon. James Robart of the U.S. District Court for the Western District of Washington. The practitioner panel consisted of Tina Chappell from Intel, Luke McLeroy from Avanci, Mark Selwyn from WilmerHale, and Richard Stark from Cravath, Swaine & Moore. The feedback received from these experts in private practice and the judiciary were extremely insightful and helpful, and greatly assisted the project team in understanding the practical and legal issues presented by patent damages for complex products. We additionally thank Judge O'Malley for writing the preface to this book.

Finally, I would like to thank the staff of the Center for Law, Science & Innovation for their administrative support of this project. Center Director Lauren Burkhart negotiated the agreement with Intel, was in charge of the budgeting for the project, participated on the project steering committee, and organized the meetings, conference calls, and other activities involved with the project. She was ably assisted by Center Coordinator Debb Relph, who among other things coordinated travel arrangements, reimbursement, and logistics. Their excellent assistance was essential for the smooth and successful implementation of this project.

Typically, at the end of a long list of acknowledgments like this, there would be a statement that all errors and misunderstandings are the sole responsibility of the author. That is not possible here because there is no single "author" of this book. Rather, it represents a group process involving a disparate set of knowledgeable experts that produced its chapters as consensus documents, not an easy or simple achievement. In fact, it is probably safe to say that no single member of the team is perfectly satisfied, or even fully agrees with, everything said and how it is said in this book. Rather, this book is part of what we hope will be an ongoing and worldwide consensus-building process. This work does not aspire to represent the final word on these important issues. Rather, by advancing areas of consensus and identifying areas needing further research, we hope we have produced something that can be studied, referenced, quoted, critiqued, agreed or disagreed with, and ultimately further advanced, all with the goal of improving patent remedies for complex products around the world.

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Executive Summary

In each of the first five chapters of this volume, we summarize the current state of the law of patent remedies among leading jurisdictions, articulate the principal arguments for and against different remedies-related practices adopted in various countries, and provide consensus-based recommendations for improving (and generally harmonizing) the award of remedies for patent infringement. In addition, we identify areas where further research is needed. Below, we briefly summarize the principal recommendations made in each chapter.

CHAPTER 1: REASONABLE ROYALTIES

Chapter 1 addresses "reasonable royalty" damages.

BASIC PRINCIPLES FOR CALCULATING A REASONABLE ROYALTY:

Chapter 1 principally recommends that courts replace the so-called *Georgia-Pacific* factors used in the United States (and analogous factors used outside the United States) with the following three steps for calculating reasonable royalty damages:

(1) ***Calculate the incremental value of the invention and divide it appropriately between the parties.*** A license for the use of a patented technology typically requires the licensee to share with the licensor some portion of the incremental value the licensee derives or expects to derive from the use of that technology. To ensure that a reasonable royalty for the unauthorized use of a patented technology accurately reflects this incremental value, ideally a court would (1) estimate the difference between the value the infringer derived from the use of the patented invention (as distinct from the value contributed by other features of the infringing end product), and the value the infringer would have derived by using the next-best available noninfringing alternative instead; (2) divide that differential value between the patent owner and the infringer; and (3) as an aid in carrying out this division, consider any relevant evidence, including possibly

the use of a rebuttable presumption that the parties would have agreed, *ex ante*, to an even (50/50) split.

(2) ***Assess market evidence.*** In negotiating licenses for the use of patented technologies, parties often consider the rates and other terms disclosed in relevant comparable licenses (or, where applicable, the rates charged by relevant patent pools or disclosed in publications of industry standard rates). Courts also should consider such evidence for purposes of calculating reasonable royalties for the unauthorized use of patented technologies, albeit subject to appropriate adjustments and with due appreciation for the potential limitations of such evidence.

(3) ***Comparison.*** When it is feasible and cost justified, courts should carry out both steps described above – each one acting as a "check" on the accuracy of the other – and then attempt to reconcile or adjust the results, as the evidence warrants. That said, one can expect only that courts do the best they can with the evidence available to them. Thus, when the evidence necessary to carry out step 2 is available but the evidence necessary to carry out step 1 is not – as will likely often be the case in litigation involving complex products – courts may need to rely exclusively on market evidence. (The converse will be true when the available evidence relates only to step 1, not 2.)

PATENTED ALTERNATIVES:

A conceptual difficulty with step 1 of the above framework arises if the next-best noninfringing alternative is, itself, also patented. It is not at all uncommon that the best substitutes for a patented technology are also patented, as several inventors devise different solutions to the same problem. One possibility is that in such a case the value of the patented invention is zero, on the view that the infringing user in the hypothetical negotiation should be imagined to play one patentee off against another until the patentee is haggled down to its minimum willingness to accept. By the same token, if the infringed technology was not quite as good as the patented alternative, the value of the infringed technology would be zero. Chapter 1 recommends that courts reject this approach, on the ground that although it makes sense from a static welfare perspective, it provides a facially inadequate incentive to invent (zero compensation) and therefore appears inconsistent with the conventionally understood purpose of the patent system.

DIVIDING INCREMENTAL VALUE:

Chapter 1 additionally recommends that, to the extent possible, a split of the incremental profit should reflect the value of any ancillary services (such as marketing) or risks that either the patent owner or the infringer, in fact, undertook. While courts should permit the parties to introduce any competent evidence on this issue,