

## Free and Fair Trade in IP would be Crushed by Compulsory Chip-based SEP Licensing

The [Fair Standards Alliance](#) makes various demands in its [“position paper.”](#) Among these it states that a standard-essential patent license “should be available at any point in the value chain where the standard is implemented and that a fair, reasonable and non-discriminatory royalty should in most cases “be based on the smallest device that implements those patents, and additionally it should take into account the overall royalty that could be reasonably charged for all patents that are essential to that standard.” Some of the FSA’s demands echo changes adopted last year by the [IEEE in its revised patent policy](#).

Such dramatic disruption to the basis of SEP licensing would most troublingly affect trade between commercial parties with highly unpredictable outcomes on the amounts actually paid. Whereas technology developers and others can still choose whether or not to participate in IEEE standards setting and can declare with a [“negative Letter of Assurance”](#) if they are unwilling to license on the basis of IEEE’s new patent policy, it is not clear how the FSA seeks prosecution of its demands. Compulsory licensing would undermine legal rights enshrined in patent law, eschew the consensus-based and voluntarily agreed patent policies of other standards development organizations while also overriding well-established and prevailing licensing practices.

FSA members including major technology companies Google, HP and Intel hold many patents and collectively spend billions of dollars on R&D, but would like lower charges for licensing SEPs because these tend to be owned by other companies. In a [press release this summer](#), the FSA claims to be “the ‘voice of reason’ whereby we seek the right for all businesses to use standard essential patents under fair and transparent licensing terms.” The FSA’s Chairman Robert Pocknell added that “[w]e cannot and will not accept that Europe’s future economic growth is held hostage by a number of companies bent on endless litigation as a means to reap profit at everyone else’s expense.”

These are strong words but the FSA presents no evidence of harm to economic growth or of excessive payments and profits to patent owners. To the contrary, profits have significantly declined for the major SEP owners in the last year while royalty income has remained flat as a percentage of devices sales revenues.

### Total Revenues and Operating Income Declined Substantially for Major SEP Licensors\* in 2015

millions	2014		2015	
	Revenue	Operating Income	Revenue	Operating Income
<b>Alcatel-Lucent</b>	\$18,039	\$208	\$15,962	\$798
<b>Ericsson</b>	\$34,083	\$2,513	\$29,923	\$2,642
<b>InterDigital</b>	\$416	\$169	\$441	\$209
<b>Nokia</b>	\$16,101	\$1,933	\$13,976	\$1,888
<b>Qualcomm</b>	\$26,487	\$7,375	\$25,281	\$5,593
<b>Total</b>	\$95,126	\$12,197	\$85,584	\$11,130
<b>Annual growth in total</b>			-10.0%	-8.8%

\*These companies’ licensing revenues account for [the majority of SEP licensing fees paid](#).

### Licensing Revenue Rose In-Line with Increasing Mobile Phone Sales Revenues in 2015

\$ figures in millions	2014		2015	
	Licensing	Yield	Licensing	Yield
<b>Alcatel-Lucent</b>	\$75	0.02%	\$63	0.01%
<b>Ericsson</b>	\$1,480	0.36%	\$1,745	0.40%
<b>InterDigital</b>	\$416	0.10%	\$441	0.10%
<b>Nokia</b>	\$791	0.19%	\$1,145	0.26%
<b>Qualcomm</b>	\$7,862	1.91%	\$8,202	1.87%
<b>Total</b>	\$10,625	2.58%	\$11,596	2.64%
<b>Annual growth in total</b>			9.1%	0.06%

Yield = licensing revenues divided by total mobile phone industry revenues.

Total licensing fees paid are dwarfed by device revenues and profits. Industry analysts' estimates for total mobile phone revenues include IDC's of \$438 billion for 2015. Total industry operating profits for smartphones have continued to grow by 17.6 percent from \$53.4 billion in 2014 to \$62.8 billion in 2015, according to Strategy Analytics.

With clarification of the European Commission's position on SEP licensing in its [settlements with Motorola and Samsung](#) and with the [CJEU Judgment on seeking SEP injunctions in Huawei versus ZTE](#), the Commission's competition agency is now focusing on other smartphone industry matters with its assessment that Apple failed to pay €13bn (\$14.6 billion) in taxes on its European profits. Apple's iPhone operating profits were \$55.3 billion and the company's total operating income was \$71.2 billion globally in 2015.

Extended litigation, in various cases, is resulting from "efficient infringement" and the "patent holdout" tactics of [free-riding implementers](#), not from profiteering patent owners.

The rest of this article is based on some of my [previously published analysis](#) and focused on explaining why existing free-market licensing practices are fair, reasonable, non-discriminatory and well established. The royalty base and royalty rates are agreed bilaterally, not by regulatory fiat or based on silicon foundry costs. Existing licensing agreements reflect the fact that patent claims and corresponding value created relate to entire devices and beyond in communications systems. Forcing change to licensing terms would cause unpredictable disruption to arrangements that have worked very well and enabled new entrants such as Apple, numerous Asian OEMs and others to enter the SEP-intensive markets for smartphones and other devices and then grow to command significant market shares while owning little or nothing in SEPs themselves.

#### **Bilateral agreements on royalty base as well as rates**

In general, parties are free to engage in bilateral negotiations to determine royalties for portfolios of patents covered by license agreements. That is how free markets work. In the case of the cellular industry, licensors and licensees often choose to value intellectual property in license agreements — corresponding to the royalty fees the licensee must pay for access to the IP—using a formula that multiplies a "royalty rate" expressed as a percentage with a "royalty base" agreed upon by the parties. The parties can negotiate the royalty rate and base they believe is appropriate for their business circumstances. In most industries it is commonplace for licensors and licensees to choose the sales of the licensee as the royalty base, and indeed this is the most common practice in the cellular industry, where royalties are almost invariably calculated as a percentage of handset sales prices. The parties use the handset sales price as the royalty base for a number of reasons (as noted

below) and negotiate the appropriate royalty rate based on the IP to be licensed and in light of the selected royalty base.

What is most disturbing is that some commentators and interested parties, including those represented by the FSA, who would like to reduce their licensing costs advocate taking away much of the freedom that parties have to bilaterally negotiate the value of IP and applicable royalties that the technology brings to the entire device. In particular, they are advocating a mandatory “royalty base” of the so-called smallest saleable patent practicing unit (SSPPU), which they arbitrarily define as the baseband chip wholesale price rather than handset sales price. Restricting the valuation of IP in this manner is designed to result in enormous reductions in IP valuation. However, creating such mandatory rules and interfering in how sophisticated parties negotiate complex commercial contracts would distort and harm the market. Indeed, such a practice would be absolutely inconsistent with how parties have been negotiating IP licenses and doing business for decades, including standard-essential and other patents.

The SSPPU concept is particularly inapplicable because it comes from courts, where it has been used on occasion for jury instructions in computation of damages for infringement of a very small number of patents, and not from the real world of licensing negotiations, where the concept is seldom used, if ever, for portfolios of standard-essential technologies in 2G, 3G, or 4G cellular communications. SSPPU is a term of art developed through judicial opinions in patent infringement cases in the United States as one of the many prospective ways in which juries may be asked to value a patent or a few patents that have been found to be infringed. And, even its applicability in litigation is case specific. As the name states, the concept can only be applied where the “patent practicing unit” can be defined. In a typical patent litigation, where no more than a few patents are at issue and the scope of the claims of each patent is defined by the court, it may be possible to establish a smallest saleable patent practicing unit. But this is not a substitute for how a patent owner and a potential licensee might value a whole portfolio of patents as part of a license agreement. Cherry-picking the SSPPU concept and applying it out of context in portfolio licensing ignores the realities of licensing and how parties have valued patents and portfolios for many years.

Virtually every IP rightholder in the cellular communications industry that publicly reveals information about its licensing requirements, including EU companies (Alcatel-Lucent, Ericsson, Nokia, Siemens), North American companies (InterDigital, Motorola, Nortel, Qualcomm), and Chinese companies (Huawei, ZTE), has publicly stated in recent years that its mobile standard-essential patent (SEP) licensing rates are based on a percentage of the entire handset price, [as illustrated with LTE](#). Samsung, the largest company in South Korea, justified a licensing offer for its 3G standard-essential patents in recent litigation with Apple in the U.S. International Trade Commission on the basis that royalties calculated on the price of the end product are consistent with industry practice. Licensing on this basis is a long-standing practice and was widely recognized since the introduction of 2G GSM, as noted by the International Telecommunications Standards User Group in 1998 and in 2G and 3G standards by several other observers including PA Consulting Group (2005), Credit Suisse First Boston (2005), and ABI Research (2007). [European antitrust authorities](#) and the U.S. courts also endorse this approach. The Chinese courts used this royalty base for determining a royalty rate in the Huawei-InterDigital case. Korean companies are widely bilaterally licensed on this basis.

#### **Patent claims read on functionality in devices and systems not in chips**

Even assuming that it is appropriate to apply the SSPPU concept to portfolio licensing, the SSPPU for many patent portfolios is likely to be the entire device. Narrowing the royalty base to the baseband

processor does not reflect numerous mobile SEP claims that extend beyond the chip, including many other components throughout the phone and elsewhere. These patents typically include device or system claims: they rarely even mention baseband chips. Mobile communications is a system in which mobile devices operate in conjunction with cellular networks. For example, some patented techniques in interference mitigation are implemented in the ether in conjunction with antenna arrays (e.g., with MIMO technologies) of both phones and radio base stations.

There are other reasons why it would be unfair to try and confine the value of a portfolio to the cost of hardware components that do not represent the value. Cellular technologies are vital to much of the utility and value that consumers derive from non-cellular technologies. Cellular technology advances facilitate development of the downstream smartphone ecosystem. For example, built-in cameras would be worth much less to the user without the ability to immediately transmit photographs or live video (whether by email, text, or social media). GPS capability would be worth much less without the ability to rapidly download maps and other location-dependent data. High-resolution colour screens would be worth much less without the capability to receive downloads or data streams adequate to fill those screens with photographs or video. Smartphone software applications now used globally by large numbers of consumers include Google, YouTube, Facebook, Twitter, Instagram, and Snapchat, and popular Chinese examples including Baidu, Youku Tudou, Sina Weibo, and TenCent's WeChat. These applications would be far less useful, if useful at all, without high data-rate cellular connections that provide a wide-range of immediate, on-the-go communication and content options, particularly as compared to devices that have only Wi-Fi connections or no wireless connectivity at all. A reliable, fast cellular data connection is necessary to enable the full functionality that consumers demand and now take for granted. Nowhere near as much follow-on innovation for smartphones would continue to occur if the cellular data rates remained stagnant.

### **Foundry costs irrelevant**

Moreover, a chip-based royalty scheme incorrectly and unfairly associates royalties to costs, process economics, and competitive outcomes in the silicon chip foundry manufacturing business that have nothing to do with mobile technology development costs and the market value generated from these investments in the broader ecosystem. Similarly, the applicable royalties for software licensors are not and should never be limited to the relatively small cost of burning programs onto CD ROM media, or making them available for download over the internet. As U.S. [District Judge Leonard Davis put it in Commonwealth Scientific & Indus. Research Organisation v. Cisco](#) “[b]asing 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.” Accordingly, and for similar reasons, [I was most critical of U.S. District Judge James Holderman's chip-based damages assessments in the Innovatio case.](#)

Cellular voice and data functionality is demonstrably very valuable to consumers as evidenced by the much higher selling prices and total sales for cellular devices in comparison to similar devices with Wi-Fi but without cellular capabilities. A particularly clear example is found in a comparison of Apple's 3G HSPA or 4G LTE iPhones against its non-cellular iPod Touch. These two different products have similar components and capabilities (processor, screen, memory, video, music, and camera), but the iPod Touch provides only a Wi-Fi connection, while the HSPA or LTE iPhone also provides a high-speed cellular data connection. The iPhone 5c 8GB models sold for \$450 (unsubsidized, as sold without service contract), while the iPod Touch 5th Generation model similar in terms of non-cellular capabilities but with 16GB of memory sold for \$199.7 In other words, adding the high-speed

cellular connection increases the value to consumers of this device by over 125%, even though the additional manufacturing costs with necessary cellular chips and antenna are relatively small. Additional utility, appeal, and value to consumers are also most strongly illustrated by the fact that Apple's sales revenues for all iPhone models exceeded sales for all iPod models manifold (e.g. by a factor of 46 in 2014).

### **Undermining value-based licensing**

When royalty rates, applied to entire device values, are adjusted in negotiations and settlements with licensees and antitrust authorities, the effects on royalty payments will be predictable and measured. In contrast, switching the basis of charging royalties from device values to chip costs will have highly unpredictable and potentially large effects on royalty payments. Some hypothesise that the (much) smaller royalty base with chips does not matter if royalty rates are adjusted upwards correspondingly. There are various impediments to that. Those self-servingly wanting to drive down royalty rates, including national authorities seeking to lower costs for their manufacturers, would work hard to ensure such proportionality is not achieved. Furthermore, for example, it is typically not possible to know in advance where chips might be used. Some applications are high value and some are low value. Royalties would therefore be under downward pressure towards rates commensurate with the lowest value applications. This would undermine incentives and rewards for further investment in high value applications such as smartphones. Or, if rates commensurate with high-value applications did prevail, some lower value applications might become uneconomic. This would all be detrimental for consumers as well as for technology and product developers.

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