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From: [redacted]qualcomm.com>
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Introduction

We note that, at the outset, the UKIPO Call for Views aims to "*encourage innovators to do more collaboration and commercialisation, to stimulate knowledge exchange and promote follow-on innovation*". Effective collaboration occurs when the position of the parties (i.e. their rights and obligations under the law) are clear. Yet the proposals suggested by third parties to the UK IPO in the Annex seem very much aimed at means to ensure that implementers of IPRs to get easier and cheaper access to innovative solutions. This is not a semantic point; policies that encourage access to protected technologies risks imposing restrictive business models on inventors or being leveraged to propose compulsory licensing regimes more broadly. It should be added that even non-regulatory interventions influence investment decisions. Given that there is global competition for investment dollars, the UK should elaborate policies to be as attractive a jurisdiction for risky investment as possible. In addition, given the uncertainty of a post-Brexit environment, it seems wise for the UKIPO to ensure that Government polices create as little additional commercial or legal uncertainty as possible.

The UK IPO's statement that any intervention should be (i) targeted and (ii) backed by evidence (of the market failure or commercial potential) is entirely sound. Given the role that IP protection has in fostering investment, risk enterprise, growth and dynamic innovation (especially as relates to smaller companies and research institutes or universities) it is especially critical that and UKIPO bases its views on accurate, robust and contextualized research. In particular, there needs to be a common understanding of any particular market failure or 'commercial potential', that is defined and quantified, the true extent of that issue be based on real-world examples, on empirical data, and then a proportionate solution applied. We note that some of the issues suggested to the UKIPO, set out in the Annex, do not fulfil either or both of the UKIPO's own criteria.

Background on Qualcomm

Qualcomm Incorporated is a world leader in 3G, 4G and next-generation wireless technologies. Qualcomm Incorporated includes Qualcomm's licensing business, QTL, and the vast majority of its patent portfolio. Qualcomm Technologies, Inc., a wholly-owned subsidiary of Qualcomm Incorporated, operates, along with its subsidiaries, substantially all of Qualcomm's engineering, research and development functions, and substantially all of its products and services businesses, including its semiconductor business, QCT. For

more than 25 years, Qualcomm ideas and inventions have driven the evolution of digital communications, linking people everywhere more closely to information, entertainment and each other. Qualcomm is a global business operating in all major markets around the world. In the UK, we have R&D facilities in Cambridge and Farnborough, as well as our European corporate centre in London. In August 2015, Qualcomm completed the acquisition of Cambridge Silicon Radio (CSR), an investment of $2.4 billion. For more information, visit Qualcomm's website.

Qualcomm's annual revenues of $23.6 billion in 2016 roughly two-thirds of which comes through QCT, the semiconductor division; however, two-thirds of our profits come from our licensing program. We re-invest in the region of 20% of our revenue per year, that is in the region of $40 billion since the inception of the company in 1985. Our large portfolio requires continued attention and review; we devote very significant human resources and funds to ensuring that our patent portfolio and other IPR (namely software and trade secrets) are effectively protected. As we engage in patent licensing on a global scale, we use the European Patent Convention as a means to protect our technologies across the member jurisdictions and individually in national jurisdictions if needed. And although we litigate very rarely, the UK Courts are, currently, a key jurisdiction for us, given the knowledge of the IP Bench and the pragmatic approach that courts take to problem solving.

IP Trading Platforms

Although traditionally Qualcomm has engaged in bilateral patent licensing, Qualcomm also participates in a number of patent trading platforms. We have therefore some experience in what makes licensing successful.

There are apposite lessons that can be learned from patent pools; empirical evidence on historic pools that demonstrates that they may have disincentivised innovation.[1] In establishing a new patent pool, it can be difficult to align the variety of interests of firms with different business models, different patent strengths, different sizes, etc. And, of course, patent pools, just like patents, do not guaranteed success. Companies that are members of pools will succeed or fail based on their business cases and the desirability of their product. This is equally relevant for possible IP trading platforms.

Significantly, there is little if any empirical evidence on the effects of contemporary pools on innovation, because modern pools are too recent for their effects on innovation to be properly observed. Analysis of patent pools shows that patent pools are most successful where participants are at the same level of the market and have the same incentive to join.[2]

More recently, Qualcomm joined Avanci, a 3G and 4G licensing market place, in order to help create, with major essential patent owners, a central point for the licensing of essential technology for automotive and IoT communications. Avanci notes that "*Our one-stop solution keeps the success of our partners squarely in sight, bringing convenience, commitment, predictability and speed to the technology sharing process*". This example shows that patentees are able, where there is a market need, to develop innovative 'market place' solutions. However, participation is voluntary. We would suggest that the UKIPO engage with the Avanci team to understand its structure, aims and challenges.

B2B model IP agreements

Model IP Agreements can be of significant assistance to players who are new in the IP field and/or who may not have the resources to engage sophisticated legal counsel to draft their agreements. This is clearly the case for universities or research institutes. For the same reason, SMEs and start-ups could benefit from guidance when starting out in the IP 'market place' and some form of model terms could be beneficial.

However, we would urge caution. Model agreements should not become a straight-jacket and prevent the flexibility needed to address the interests of parties that are usually very particular agreements that best suit

the parties' different interests. This is because model agreements can quickly become seen as the norm and reduce the attractiveness of tailor-made agreements that could well be more appropriate. This would directly undermine commercial freedom and flexibility.

IP Licensing resolution

We would disagree with the view that *"IP trading can present some companies with barriers to innovation, notably in the area of Standard Essential patents (SEPs)"*. There is no empirical evidence that this is the case. In fact, data points to the opposite; a 2015 study by the Boston Consulting Group[3] found *"dramatic performance improvements in mobile communications standards have propelled mobile to become the fastest adopted technology of all time"* with a dramatic decline of cost per megabyte of data (reflecting both innovation making data transmission cheaper, as well as the healthy state of competition), significant decrease in the global average selling prices for phones (whether low-end phones or smartphones) yet while mobile data-transmission speeds have skyrocketed: 4G networks offer 12,000 times faster data-transmission speeds than 2G networks. This is not indicative of market failure. In fact, the Boston Consulting Group assess the revenue of the global mobile value chain to be worth over $3 trillion in 2015. SEP costs are a fragment of this (roughly 0.35% according to GSMA data) yet SEPs are the very foundation of this vibrant and dynamic edifice. We would therefore suggest that empirical data be reviewed before the UKIPO take a view on the matter and a holistic view taken of sector dynamics.

It is for the reasons stated above that the Assistant Attorney General for the Antitrust Division of the U.S. Department of Justice recently feet the need to highlight that disputes involving licensing of SEPs should be resolved through "freely negotiated licensing agreements" and that 'holdout' by implementers is a "more serious risk" than holdup by innovators.[4] Any regulatory system to determine licensing disputes should be very cautiously considered indeed and not affect parties' fundamental right of access to justice.

Royalty-free Patents

We find claims that *"over-use of patents can stifle innovation in burgeoning markets"* to be devoid of empirical support. The core right established by the patent system is the ability to exclude on the understanding that this protection fosters long-term investment and dynamic innovation. If, once a 'market' is identified, hard or soft compulsory licensing is required, the patent system will lose its function.

It may be trite to repeat, but there is no such thing as 'free'. If a patentee is willing to give their ideas away for free it is (presumably) because they have identified a model to get return on investment elsewhere. For example, proponents of royalty-free software have developed very successful businesses providing support, maintenance, upgrade and training costs. Empirical research by Professors Josh Lerner and Mark Shankerman[5] has shown that procurement based on acquisition costs tends to underestimate these costs.

However, the Tesla Motors example of its 'open source' philosophy should be understood in its proper context. At its outset Tesla relied heavily on patent protection, while it developed its proprietary technology. As Tesla grew to a size where could compete with major automotive manufacturers Tesla had to engage in that ecosystem on the same basis as other manufacturers, including cross-licensing. Tesla patents were not made available for 'free' as such, but conditional on cross-licensing which is a significant value exchange. And Tesla made it clear that it would still enforce its patents against infringers if need be.[6] Therefore the 'free' nature of the Tesla commitment was of great benefit to Tesla at that point of its evolution, but even so was conditional on receiving value and protection. Where companies, like Tesla, choose to release their patents, that is their choice - but it may not be right for all (or indeed many).

It appears to us superfluous to have a system whereby one can declare on the face of the patent that the technology may be used free of charge; a patentee may not initially know if and how the technology will be implemented. If they wish to give their technology away for free, because they have found alternative ways of achieving return on investment or use the patent system for e.g. marketing, then they may always do so. But to assume that 'free' means that this 'could' serve to stimulate investment in new markets is odd; if there is value in the technology, it will presumably to used appropriately. If protected, it will stimulate the market to develop better technologies.

IP Valuation standards

The valuation of intangible property and methodologies are hugely complicated given that the notion of 'value' is so subjective. What is of value to one may be worth nothing to another; and consideration itself can come in any forms (financial, cross-licensing, non-assertion, joint R&D, patent assignment, etc.). In addition, valuation is rarely pinned exclusively to a patent or a technology, but a number of features such as R&D pipeline, scalability, implementation methods etc. In fact, we would note that the European Commission has, on a number of occasions, sought to develop patent valuation principles (e.g. for SME valuation, for SEP licensing, for excessive patent fees) and has ceased its efforts. However, those countries that seek to impose pricing metrics on what are bilateral commercial agreements, end up 'picking winners' or distorting the market. We would caution the UKIPO in this area, but Qualcomm would be happy to enter meet with the IPO on the topic to provide our own perspective of how we value our portfolio, the portfolio or companies we seek to acquire or invest in though our venture capital arm.

Footnotes:

1. See *'Do Patent Pools Encourage Innovation? Evidence from 20 Industries in the 1930s'* by Ryan Lampe and Petra Moser (December 5, 2011). See also, *'Do Patent Pools Encourage Innovation? Evidence from the 19th Century Sewing Machine Industry'* by Ryan Lampe and Petra Moser (June 8, 2010).
2. *'To join or not to join: Examining patent pool participation and rent sharing rules'* by Layne-Farrar, Anne and Josh Lerner, International Journal of Industrial Organization 29, no. 2: 294-303, 2011.
3. *The Mobile Revolution: How Mobile Technologies Drive a Trillion-Dollar Impact;* https://www.bcgperspectives.com/content/articles/telecommunications_technology_business_transformation_mobile_revolution/. See also http://www.wiseharbor.com/wp-content/uploads/2016/12/Mallinson-FINAL.pdf.
4. See https://www.justice.gov/opa/speech/assistant-attorney-general-makan-delrahim-delivers-remarks-usc-gould-school-laws-center.
5. The Comingled Code , Open Source and Economic Development – 2010 MIT Press.
6. See e.g. http://cpip.gmu.edu/2014/06/17/teslas-new-patent-policy-long-live-the-patent-system/.

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Vice President, Government Affairs

Qualcomm Inc
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