Does Over-Declaration Impede Access to Cutting-Edge Standardised Technologies?

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I. Introduction

2020 was a year full of challenges. The unexpected outbreak of pandemic has impacted the way of doing business independently of the sector and has drastically changed our lives all over the world. The need to reduce interpersonal contact to a minimum to contain the spread of the pandemic has highlighted the importance of the Internet and a reliable and fast connectivity. In particular, the Internet of Things (IoT) technologies, i.e., those coordinating diverse "machines, devices and appliances connected to the Internet through multiple networks"[2] have been incorporated in a series of products. Some examples are non-contact remote thermometers, patrol drones, epidemic prevention robots, and door sensors for quarantine areas widely introduced for the control and prevention of the pandemic in China.[3]

In the last few years, the three major domestic telecom operators in China have been enthusiastically deploying mobile IoT,[4] including narrowband (NB)-IoT.[5] This has been mainly driven by the active policy support from the Ministry of Industry and

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[2] GSMA, 'What is the Internet of Things (IoT)?', (2012) *Networked Society* < https://www.gsma.com/iot/wp-content/uploads/2016/09/Internet-of-Things.pdf>.

[3] China Academy of Information and Communications Technology, 'The IoT White Paper' (2020) *CAICT* <http://www.caict.ac.cn/kxyj/qwfb/bps/202012/P020201215379753410419.pdf> 4.

[4] Forward Business and Industry Research Center, 'Analysis of Chinese NB-IoT Industry Market Status, Competitive Landscape, and Development Prospects in 2021: The Large-Scale Outbreaks Still Await', available at: <https://bg.qianzhan.com/trends/detail/506/210309-0d48636f.html>.

[5] Narrowband Internet of Things (NB-IoT), as an emerging technology in the field of IoT, supports the cellular data connection of low-power devices in a wide range of network. It allows a wider coverage (comparing to the existing network, NB-IoT is 20dB enhancement under the same frequency band and 100 times larger coverage area), low energy consumption (the standby time of the NB-IoT terminal module can be up to 10 years), massive connections (one sector of NB-IoT can support 100,000 connections), and lower cost (the price of a single connected module expected by enterprises is less than USD 5). NB-IoT, being the new developing trend of the new generation of mobile communication technology, is also known as the mobile IoT. It is a new network technology that supports low-power networks in a wide area, which caters to more than 70% of the needs of IoT and has become a necessary choice for the evolvement from 4G to 5G, the commercial use of 5G technology, and the new generation of IoT. See more: Forward Business and Industry Research Center, 'Analysis of Chinese NB-IoT Industry Market Status, Competitive Landscape, and Development Prospects in 2021: The Large-Scale Outbreaks Still Await', available at: <https://bg.qianzhan.com/trends/detail/506/210309-0d48636f.html>.

Information Technology,[6] as well as the acceleration of 5G commercialization and broad prospects of demand on connectivity. As a result, we have experienced a massive increase in cellular IoT connections. By the end of 2019, China had built more than 700,000 NB-IoT base stations, achieving continuous coverage of areas from smaller villages to major cities across the country, laying a high-quality network foundation for the further development of various applications.[7] Also, the total number of cellular IoT connections from the three major operators in China amounted to 1,03 billion, marking an increase of 359 million from the 671 million in 2018,[8] and enabling a large-scale of new applications such as smart water meters, smart gas meters, and smoke detectors.[9] Even more impressive, as of the end of June 2020, the number of cellular IoT connections had reached 1.106 billion, demonstrating an increase of 78 million compared to December 2019.[10]

This major achievement has been possible thanks to standardization for mobile connectivity technologies. Standards [11] developed in Standard Developing

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[6] The Ministry of Industry and Information Technology of the People's Republic of China published the 'Notice on the Comprehensive Promotion, Construction and Development of the Mobile Narrowband Internet of Things (NB-IoT)' in 2017, which focused on the planning the key layouts of NB-IoT. Full text available at: <http://www.gov.cn/xinwen/2017-06/16/content_5203173.htm>. Later in May 2020, The Ministry of Industry and Information Technology of the People's Republic of China published the 'Notice on Further Advancing the Comprehensive Development of the Mobile Internet of Things', requesting the establishment of an integrated ecosystem of mobile IoT wherein NB-IoT (narrow-band IoT), 4G (including LTE-Cat1, i.e. 4G networks of Speed Category 1) and 5G develop in a coordinated manner. Full text available at: <http://www.gov.cn/zhengce/zhengceku/2020-05/08/content_5509672.htm>.

[7] China Academy of Information and Communications Technology, 'CAICT Interpretations on the Notice on Promoting the Comprehensive Development of Mobile Internet of Things Published by the Ministry of Industry and Information Technology of the People's Republic of China', available at: <http://www.caict.ac.cn/kxyj/caictgd/202005/t20200509_281052.htm>. See more on the applications of NB-IoT in China: GSMA, 'NB-IoT Commercialization Case Study: How China Mobile, China Telecom & China Unicom Enable Million More IoT Devices' (GSMA, 18 June 2019) < https://www.gsma.com/iot/wp-content/uploads/2019/08/201902_GSMA_NB-IoT_Commercialisation_CaseStudy.pdf>.

[8] Forward Business and Industry Research Center, 'Analysis of Chinese NB-IoT Industry Market Status, Competitive Landscape, and Development Prospects in 2021: The Large-Scale Outbreaks Still Await', available at: <https://bg.qianzhan.com/trends/detail/506/210309-0d48636f.html>.

[9] Ministry of Industry and Information Technology of the People's Republic of China, 'Interpretation of the 2019 Communications Industry Statistical Bulletin', available at: <https://www.miit.gov.cn/zwgk/zcjd/art/2020/art_90adc83f0de94228876922c9a07b2169.html>.

[10] Forward Business and Industry Research Center, 'Analysis of Chinese NB-IoT Industry Market Status, Competitive Landscape, and Development Prospects in 2021: The Large-Scale Outbreaks Still Await', available at: <https://bg.qianzhan.com/trends/detail/506/210309-0d48636f.html>; See also: Ministry of Industry and Information Technology of the People's Republic of China, 'Interpretation of the 2020 Communications Industry Statistical Bulletin', available at: <https://www.miit.gov.cn/zwgk/zcjd/art/2021/art_4920f2ae9aef45689cfc6da92d406f9b.html>.

[11] 'Depending on their nature, standards can be de jure, i.e. officially endorsed by standard development organizations (SDOs), or de facto, i.e. developed without an official SDO endorsement but accepted (and adopted) by the market.', See: Luis Herranz and Claudia Tapia, *Good and Bad Practices in FRAND*

Organizations (SDOs), are a set of rules or guidelines that allows devices and services from different manufacturers to be interoperable with each other. In particular cellular standardization (2G to 5G) is developed in 3GPP, a consortium of seven SDOs. In a standard development process at 3GPP, different innovators contribute their technical solutions to address technical challenges when creating the standard.[12] From those contributions, SDO members, in a transparent, open, impartial and consensus-based process,[13] select the best (based on their technical merits) to become part of the standard. As these technical specifications are often the result of massive investments,[14] their owners typically seek to protect these technologies with patents. Those patents which are incorporated in a standard and become essential to its practice are known as standard-essential patents (SEPs).

To achieve a balance between innovators and users of standards, SDOs encourage their members owning SEPs to license them on Fair, Reasonable, and Non-Discriminatory (FRAND) terms and conditions.[15] FRAND is to be determined on bilateral good faith licensing negotiations between the parties.[16] In these negotiations parties generally discuss e.g. the relevance and value of the SEPs by analyzing 'claim charts' presented by the SEP holder. Claim charts are documents mapping claim(s) with the standard to evidence that a standard-compliant product necessarily implements (and benefits) from the invention.[17]

Licence Negotiation. in Gerold Zeiler and Alexander Zojer (eds), Resolving IP Disputes: A Selection of Contemporary Issues (NWV Verlag 2018) 49-68. For the purpose of this paper standards will be considered de jure standards.

[12] Justus Baron and Kirti Gupta, Unpacking 3GPP standards, Journal of Economics & Management Strategy 27(3):433-461, September 2018.

[13] Fredrik Nilson, 'Appropriate base to determine a fair return on investment: A legal and economic perspective on FRAND' (2017) 12 *GRUR Int.* 1017. In contrast, for example the SDO IEEE-SA did not follow this process when changing its IPR Policy, which led to serious negative effects. For example, it is nowadays unclear under which terms, if at all, many patents needed to implement the IEEE-SA standard will be available, and the standard development is facing delay and chaos. Sheetal Chopra, 'The Internet of Things in India: Why a Balanced and Flexible Licensing System Matters? Lessons Learnt from the IEEE-SA Case (Firstpost, 22 June 2020) <https://www.firstpost.com/blogs/brands-blogs/the-internet-of-things-in-india-why-a-balanced-and-flexible-licensing-system-matters-lessons-learnt-from-the-ieee-sa-case-8511901.html> accessed 13 July 2021.

[14] Justus Baron and Kirti Gupta, 'Unpacking 3GPP standards' (2018) 27(3) *J. Economics & Management Strategy* 433-461.

[15] On the one hand, SEP holders are fairly and adequately rewarded. On the other hand, implementers get access to the standardized technology. See ETSI IPR Policy, available at <https://www.etsi.org/intellectual-property-rights>.

[16] Luis Herranz and Claudia Tapia, *Good and Bad Practices in FRAND Licence Negotiation*. in Gerold Zeiler and Alexander Zojer (eds), Resolving IP Disputes: A Selection of Contemporary Issues (NWV Verlag 2018) 49-68.

[17] Herranz and Tapia, Good and Bad Practices in FRAND Licence Negotiation (n. 16).

Members of the European Telecommunications Standards Institute (ETSI), one of the most notable SDOs, also disclose publicly, according to their present belief, those patents and patent applications they consider may be or may become essential to the standard (i.e., potentially essential).[18] These disclosures (also known as 'essentiality declarations'), and corresponding licensing declarations, are collected in the ETSI database.[19]

II. Concerns on Over-Declaration

Despite the fact that the use of claim charts is recognized by courts as a 'commercial practice' in FRAND licensing negotiations,[20] it is not mandatory to provide them.[21] Thus, some have raised concerns that certain companies may use patent licensing declarations in the ETSI database, instead of claim charts, to 'prove' the strength of their portfolios in licensing negotiations. These companies, it has been argued, driven by economic interests may declare a large number of patents which are de facto not essential.[22] By over-disclosing (an act typically known as 'over-declaration'),[23] it is alleged, those patent owners would increase the perceived number of SEPs they own, thereby augmenting the bargaining power for maximizing their

[18] Claudia Tapia and Gabriele Mohsler, 'The Current Cost of Transparency in IoT Patent Licensing', (iam, 8 April 2019) < https://www.iam-media.com/frandseps/transparency-iot-licensing> accessed 6 May 2021. For example, in the SDO ETSI, "The Technical Body Chairmen should note and should make their attendees aware that disclosure of Essential or potentially Essential IPRs should be made at the earliest possible stage". ETSI Guide on IPRs, 19 September 2013, section 2.3.3, < https://www.etsi.org/images/files/IPR/etsi-guide-on-ipr.pdf> accessed 11 May 2021. See also ETSI Intellectual Property Rights Policy, Annex 6 section 4 <https://www.etsi.org/images/files/IPR/etsi-ipr-policy.pdf> accessed 11. May 2021.

[19] ETSI IPR Online Database, available at: <https://ipr.etsi.org>. IPR owners can use 2 forms to make declarations to ETSI: 'General IPR licensing declaration' and 'IPR Information statements and licensing declarations'. The process is explained at https://www.etsi.org/images/files/IPR/FAQ-IPR-Question1.pdf.

[20] District Court Mannheim (*NTT DoCoMo v. HTC*) 29 January 2016 - Case No. 7 O 66/15.

[21] *NTT DoCoMo v. HTC* (n. 20); District Court Mannheim 4 March 2016 - Case No. 7 O 24/14. See, summaries of FRAND case-law in Europe at https://caselaw.4ipcouncil.com/. Selected case-law in Chinese available at https://caselaw.4ipcouncil.com/cn.

[22] Na Wei, 'How to fairly and reasonably evaluate the value of standard essential patents?' (IPR China, 12 December 2018) < http://ip.people.com.cn/n1/2018/1212/c179663-30461640.html> accessed 10 May 2021. Yangke Zhang, 'The Analysis of the Gambling of Information Disclosure on Standard Essential Patent' (2019) 1 *Chongqing University of Technology Master Thesis Series* 12-15 < https://cdmd.cnki.com.cn/Article/CDMD-11660-1019071242.htm>. According to the Japanese Patent Office "[s]ome right holders might deliberately over-declare their patents as SEPs to SSOs when they are not actually essential", Japanese Patent Office, Guide to Licensing Negotiations Involving Standard Essential Patents (EN), published on 5 June 2018, available at: <https://www.jpo.go.jp/e/support/general/sep_portal/document/index/guide-seps-en.pdf> 1, 2.

[23] Zhang, The Analysis of the Gambling of Information Disclosure on Standard Essential Patent (n. 22); Over-declaration results in a gap between declarations and the resulting essential patents. Tapia and Mohsler, The current Costs of Transparency un IoT Patent Licensing (n. 18).

benefits in future licensing negotiations.[24]

Another major concern of over-declaration is the impact it might have on the determination of royalty rates made by courts using the so-called 'top-down' methodology when asked to determine FRAND terms. Under the top-down approach, the royalty share is calculated based on the value of the SEPs the party owns in relation to the value of all SEPs of a certain standard.[25] If courts were to apply the top-down methodology the patent owners would be incentivized to increase their shares by having as many patents as possible to be considered as essential[26] so as to gain economic interests or get a head start in future litigations.[27]

III. Are Concerns on Over-Declaration Justified?

Notwithstanding, the above arguments appear not to be justified.

Parties do not rely on the ETSI IPR database of potentially essential patents and patent applications, as the unique or main indicator of essentiality.[28] There are several reasons for this. Firstly, the patent applications declared as potentially essential may not be granted or granted partially with amendments, while the granted patents may one day be revoked.[29] Secondly, to avoid the risk of being accused of patent ambush and subsequently lose their enforceability in court, companies are incentivized to declare as much as possible if they believe there is any likelihood of such patent (or patent applications) ever becoming essential to a standard.[30] Moreover, the goal of these licensing declarations is that if any of those declared patents or patent applications ever become essential, they will be accessible on FRAND terms and conditions.[31] Thus, no essentiality checks are conducted by ETSI during and/or after the declarations have

[24] Liangliang Wang and Junlei Wang, 'Research on the Information Disclosure and Over-Declaration Phenomenon on Standard Essential Patents' (Auto IP, 12 June 2020) < http://baijiahao.baidu.com/s?id=1669267219090557956> accessed 10 May 2021.
[25] On top-down methodology, see: Peter Georg Picht, 'FRAND Determination in TCL v. Ericsson and Unwired Planet v. Huawei: Same Same But Different?' (2018) 18-07 *Max Planck Institute for Innovation & Competition Research Paper* 1 <https://ssrn.com/abstract=3177975> accessed 10 May 2021. Summary at: <https://www.4ipcouncil.com/application/files/3516/1789/5843/Comparables_v_Top-down_Picht.pdf>.
[26] Matt Luby, Muzammil Hassan, and Aman Kumar, 'Exploration of 5G Standards and Preliminary Findings on Essentiality', *Preliminary Report Series of Amplified and GreyB* < http://info.greyb.com/hubfs/5G%20Report%20-%201st%20Release.pdf> accessed 22 May 2021.
[27] Na Wei, How to fairly and reasonably evaluate the value of standard essential patents? (n. 22).
[28] Na Wei, How to fairly and reasonably evaluate the value of standard essential patents? (n. 22).
[29] Tapia and Mohsler, The current Costs of Transparency un IoT Patent Licensing (n. 18).
[30] Tapia and Mohsler, The current Costs of Transparency un IoT Patent Licensing (n. 18).
[31] See clause 2 ETSI IPR GUIDE.

been made.[32] Rather, parties engage in technical discussions, typically using claim charts, to determine the relevance and value of the SEP portfolio/s. Consequently, the 'over-declaration' is not problematic, since parties typically evaluate and license the actually essential patents on FRAND terms.

Often ignored is also the fact that parties agree on FRAND terms through good-faith bilateral negotiations in the vast majority of cases. Rarely they make use of the court proceedings. However, even in these scarce occasions, courts typically apply the 'comparable agreements' methodology[33] to determine FRAND.[34] To the knowledge of the author, there have been only limited occasions where courts applied the top-down approach.[35] In one of the cases, the top-down approach was only applied as a

[32] See: https://ipr.etsi.org/. ETSI does not review to confirm the essentiality of such declarations or remove those that are clearly not or no longer essential. Neither does ETSI require companies making those declarations to review their declarations later on with the evolving of the standards, nor does it impose any kind of restrictions to prevent companies from declaring those patents that are highly unlikely to become essential. See also: David Edward Cooper, Johanna Dwyer and Alexander Haimovich, 'Survey of Mobile Cellular 5G Essentiality Rate' (2021) LVI No. 1 *les Nouvelles - Journal of the Licensing Executives Society* 11, 11-12 <https://ssrn.com/abstract=3771397> accessed 11. May 2021.

[33] Ya-Lan Wang, 'Value of 5G and How to Distribute It' (IP Economy China, April 2021) <http://www.ipeconomy.cn/index.php/mobile/article/content/id/2617.html >; Haris Tsilikas, Comparable Agreements and the 'Top-Down' Approach for FRAND Royalties Determination, Competition Policy International (CPI), 21 July 2020.

[34] For example, in China, in March 2017, the Beijing Intellectual Property Court followed a similar approach, ruling for the plaintiff in a case involving SEP licensing, *IWNCOMM v. Sony*, using comparable agreements to determine FRAND, more at Su Sun, 'IWNCOMM v. Sony: Recent Development in FRAND Litigation in China' (*Economists Incorporated*, Summer 2017) <https://ei.com/economists-ink/summer-2017/iwncomm-v-sony-recent-development-frand-litigation-china/> accessed 22 May 2021. For courts apply the comparable agreements approach in Europe and the U.S., see: *TQ Delta LLC v Zyxel Communications and Ors*., Case No. HP-2017-000045, [2018] EWHC 1515 (Ch), 13 June 2018 & *TQ Delta LLC v Zyxel Communications UK Ltd. and Ors*., UK High Court of Justice, 28 September 2018 – Case No. HP-2017-000045, [2018] EWHC 2577 (Pat); *Saint Lawrence v Vodafone*, District Court Düsseldorf, Case No. 4a O 126/14, 31 March 2016, para 225 et seq.; See also supporting comparable agreements approach District Court of Düsseldorf, Case-No. 4c O 81/17, 11 July 2018; *Tagivan (MPEG LA) v Huawei* – District Court of Düsseldorf, Case No. 4a O 17/17, 9 November 2018; *Sisvel v Haier*, OLG Düsseldorf, Case No. I-15 U 66/15, 30 March 2017; District Court, LG Düsseldorf, Case No. 4c O 81/17, 11 July 2018; *IP Bridge v HTC*, LG Mannheim, Case No. 7 O 165/16, 28 September 2018; *Fraunhofer-Gesellschaft (MPEG-LA) v ZTE*, LG Düsseldorf, Case No. Case-No. 4a O 15/15, 9 November 2018; OLG Düsseldorf, Case No. I-2 U 31/16, 14 December 2016; OLG Düsseldorf, Case No. I-2 W 8/18, 25 April 2018. In case that no or not enough comparable agreements exist, SEP holders may (additionally) present decisions referring to the validity and/or the infringement of the patents in question and agreements concluded between other parties in the same or a comparable technical field, which they are aware of. See District Court of Düsseldorf, Case-No. 4c O 81/17, 11 July 2018 para. 263 and 265; Core Wireless v LG, Court of Appeal (Cour d' Appel) of Paris, Case No. RG 15/17037, 9 October 2018; Laser Dynamics, Inc. v. Quanta Comp., Inc., 694 F.3d 51 (Fed. Cir. 2012) 79.

[35] Na Wei, How to fairly and reasonably evaluate the value of standard essential patents? (n. 22). See also, *TCL Communication Technology Holdings Ltd. v. Telefonaktiebolaget LM Ericsson*, Nos. SACV 14-341 JVS, CV 15-2370 JVS, 2018 WL 4488286 (C.D. Cal. Sept. 14, 2018); *TCL Communication Technology Holdings Ltd. v. Telefonaktiebolaget LM Ericsson*, No. 2018-1363, 2018-1732 (Fed. Cir. Dec. 5, 2019), vacated-in-part, reversed-in-part, and remanded. <http://www.cafc.uscourts.gov/sites/default/files/opinions-orders/18-1363.Opinion.12-5-2019.pdf>;

mechanism to double-check the result of using comparable agreement.[36] In another case, while the court applied the top-down approach in determining FRAND,[37] the ruling was later on revoked by the second instance court.[38]

IV. Conclusion

The phenomenon of over-declaration may appear troubling at first glance considering the significant gap created between the number of so-called disclosed (potentially essential) patents and the patents that are actually essential to the standard.[39] Ultimately, it is common for the right holders to over-declare, in particular 'when they are still in the application phase and when the standard is not itself settled'[40]. Nevertheless, this over-declaration should not be cause for concern. After all, the goal of linking disclosure with licensing declarations is to ensure access to the patents essential to the practice of a certain standard under FRAND terms and conditions. As recognized by the Japanese Patent Office 'having a certain amount of over-declaration is much better than under-declaration.'[41] Under-declaration would leave users of the standardized technology without assurance of access on FRAND terms, leading to less visibility on the landscape of potentially essential patents and, in some cases, uncertainty on the terms under which undeclared patents will be licensed. The more patents are disclosed, the more certainty there will be of being accessible at FRAND terms should they be essential and, thus, the higher the chances of a wide dissemination of the standard. It seems advisable, therefore, as a policy matter to continue to allow and even promote "over-declaration", but for courts and regulators not to accept disclosures or licensing declarations as proper proxies of what is actually essential. Rather, due to the fact that these declarations are not an indicator of essentiality, it is

Unwired Planet v. Huawei [2017] EWHC 711(Pat), affirmed *Unwired Planet International Ltd v. Huawei Technologies Co.* [2018] EWCA (Civ) 2344 (Eng.).

[36] *Unwired Planet v. Huawei* [2017] EWHC 711(Pat), affirmed *Unwired Planet International Ltd v. Huawei Technologies Co.* [2018] EWCA (Civ) 2344 (Eng.).

[37] *TCL Communication Technology Holdings Ltd. v. Telefonaktiebolaget LM Ericsson*, Nos. SACV 14-341 JVS, CV 15-2370 JVS, 2018 WL 4488286 (C.D. Cal. Sept. 14, 2018).

[38] *TCL Communication Technology Holdings Ltd. v. Telefonaktiebolaget LM Ericsson*, No. 2018-1363, 2018-1732 (Fed. Cir. Dec. 5, 2019), vacated-in-part, reversed-in-part, and remanded. <http://www.cafc.uscourts.gov/sites/default/files/opinions-orders/18-1363.Opinion.12-5-2019.pdf>.

[39] David Edward Cooper, Johanna Dwyer, and Alexander Haimovich, 'Survey of Mobile Cellular 5G Essentiality Rate' (2021) LVI (1) *les Nouvelles - Journal of the Licensing Executives Society* 11, 11.

[40] Japanese Patent Office, Guide to Licensing Negotiations Involving Standard Essential Patents (EN), published on 5 June 2018, available at: <https://www.jpo.go.jp/e/support/general/sep_portal/document/index/guide-seps-en.pdf> 1, 2.

[41] Japanese Patent Office, Guide to Licensing Negotiations Involving Standard Essential Patents (n. 40).

advisable for courts to continue applying ‘comparable agreements’ as proper evidence of reasonable licensing terms over actually essential patents, or to apply a rigorous and transparent methodology for any top-down crosscheck to filter those patents that are not actually essential.