

Summary of Commission Decision**of 18 January 2018****declaring a concentration to be compatible with the internal market and the EEA agreement
(Case M.8306 — Qualcomm/NXP Semiconductors)**

(2018/C 113/10)

I. THE PROCEDURE

1. On 28 April 2017 the Commission received a notification of a proposed concentration pursuant to Article 4 of Council Regulation (EC) No 139/2004 (the 'Merger Regulation') by which the undertaking Qualcomm Incorporated (United States of America), through its indirect wholly owned subsidiary Qualcomm River Holdings B.V. (the Netherlands) (together referred to as 'Qualcomm' or the 'Notifying Party') would acquire within the meaning of Article 3(1)(b) of the Merger Regulation control of NXP Semiconductors N.V. ('NXP', the Netherlands) by way of a purchase of shares (the 'Transaction'). Qualcomm and NXP are jointly referred to as the 'Parties'.
2. Based on the results of the phase I market investigation, the Commission raised serious doubts as to the compatibility of the Transaction with the internal market and adopted a decision to initiate proceedings pursuant to Article 6(1)(c) of the Merger Regulation on 9 June 2017. The Notifying Party submitted its written comments to the Article 6(1)(c) decision on 28 June 2017.
3. On 28 June 2017, the Commission adopted a decision pursuant to Article 11(3) of the Merger Regulation, compelling the Notifying Party to supply the information which it had requested on 14 June 2017 with request for information 18 (RFI 18) pursuant to Article 11(2) of the Merger Regulation, which the Notifying Party had failed to submit within the time limit fixed by the Commission. The decision also suspended the time limit laid down in Article 10(3) of the Merger Regulation until the end of the day the Commission would receive the required information. On 16 August 2017, the Notifying Party submitted a response to RFI 18 and the suspension of the time limit expired at the end of that day.
4. On 5 September 2017, the Commission adopted a decision pursuant to Article 11(3) of the Merger Regulation, compelling the Notifying Party to supply the information which it had requested on 14 June 2017 with request for information 20 (RFI 20) pursuant to Article 11(2) of the Merger Regulation, which the Notifying Party had failed to submit within the time limit fixed by the Commission. The decision also suspended the time limit referred to in Article 10(3) of the Merger Regulation as of 17 August 2017 until the end of the day the Commission would receive the required information. On 4 October 2017, the Commission adopted a decision pursuant to Article 11(3) and Article 15 of the Merger Regulation, compelling the Notifying Party to supply certain information and documents responsive to RFI 20, which had not yet been provided to the Commission and imposing a periodic penalty payment should the Notifying Party fail to supply the information requested within the period prescribed. On 17 November 2017, the Notifying Party completed its response to RFI 20 and the suspension of the time limit expired at the end of that day.
5. On 5 October 2017, the Notifying Party proposed formal commitments to eliminate the Commission's findings that the Transaction would give rise to a significant impediment to effective competition. The Commission launched the market test for the commitments on 6 October 2017. Taking into account the Commission's comments and the feedback from the market test, the Notifying Party subsequently submitted a final set of commitments on 10 November 2017 ⁽¹⁾.
6. The Advisory Committee discussed the draft of this Decision on 8 January 2018 and issued a favourable opinion ⁽²⁾.

⁽¹⁾ On 15 November 2017, the Notifying Party submitted a slightly revised version of Schedule 3 to the final set of commitments, which replaced Schedule 3 as attached to the commitments on 10 November 2017. On 18 December 2017, the Notifying Party submitted a slightly revised version of the commitments, amending one definition to ensure consistency with other defined terms.

⁽²⁾ At the Advisory Committee all present Member States agreed that the Transaction must be declared compatible with the internal market in accordance with Articles 2(2) and 8(2) of the Merger Regulation.

II. THE PARTIES AND THE CONCENTRATION

7. Qualcomm is active in the development and sale of integrated circuits (ICs) and system software. Qualcomm develops and supplies ICs for mobile devices, in particular baseband chipsets. Qualcomm also operates an intellectual property (IP) licensing programme. Qualcomm's IP portfolio includes standard essential patents (SEPs) related to cellular technology.
8. NXP is active in the manufacturing and sale of semiconductors, in particular ICs and single unit (discrete) semiconductors. NXP sells High Performance Mixed Signal devices, which comprise application-specific semiconductors and system solutions.
9. On 27 October 2016, Qualcomm entered into a purchase agreement with NXP, pursuant to which Qualcomm will commence a tender offer to acquire all of the issued and outstanding common shares of NXP, thus acquiring sole control of NXP. The Transaction therefore constitutes a concentration pursuant to Article 3(1)(b) of the Merger Regulation.

III. UNION DIMENSION

10. The undertakings concerned have a combined aggregate world-wide turnover of more than EUR 5 000 million. Each of them has a Union-wide turnover of more than EUR 250 million, but they do not achieve more than two-thirds of their aggregate Union-wide turnover within one and the same Member State. The notified operation therefore has a Union dimension.

IV. RELEVANT MARKETS

11. The Transaction concerns semiconductors for mobile devices, semiconductors for automotive applications, and semiconductors for Internet of Things (IoT) applications.
12. The Transaction raises competition concerns in relation to semiconductors for mobile devices, and in particular baseband chipsets, Near Field Communication (NFC) and Secure Element (SE) technology, transit service technology, and IP related to NFC technology.

a. Baseband chipsets

13. For the purpose of providing mobile cellular connectivity, mobile devices rely on a baseband processor, which enables the connection of mobile devices to mobile telecommunication networks. A baseband processor/modem is paired with a Radio Frequency IC and a Power Management IC and combined, the three components are referred to as a 'baseband chipset'. Baseband chipsets are sold either on a standalone basis or combined with an application processor ('integrated baseband chipsets'), which runs the operating system and applications of mobile devices. Baseband chipsets implement one or multiple cellular standards, with later generation baseband chipsets often being backward compatible with earlier cellular standards ('multi-mode').
14. The Commission considers that the relevant product market consists of standalone and integrated baseband chipsets, segmented by cellular standard (LTE, UMTS, CDMA, GSM). In particular, chipsets compliant with LTE are not constrained by chipsets compliant with other cellular and non-cellular connectivity technologies. In addition, single-mode LTE baseband chipsets do not exert a constraint on multi-mode LTE chipsets that are also compliant with UMTS and GSM. The relevant product market excludes captive production which is not likely to effectively constrain the merchant market.
15. The geographic market for baseband chipsets is likely worldwide.

b. NFC/SE technology

NFC chips

16. NFC chips are radio chips that support the NFC short-range wireless connectivity standard, which is considered by device Original Equipment Manufacturers (OEMs) for a number of uses including mobile payments and mobile ticketing/fare collection.
17. The Commission considers that the relevant product market consists of NFC chips (and the underlying technology), which are not constrained by other technologies such as Bluetooth Low Energy (BTLE), Quick Response (QR) codes, and Magnetic Secure Transaction (MST). The relevant product market excludes captive production.
18. The geographic market for NFC chips is likely worldwide.

SE chips

19. To secure NFC-based communications, NFC chips can be combined with various technologies, and in particular SEs, which are tamper-resistant chips that guarantee that data stored and transmitted are protected by an additional hardware-based layer of security. The SE microcontroller includes a secure operating system ('SE OS'). In an SE-secured NFC solution, there are three distinctive elements: (i) the NFC controller/chip; (ii) the SE; and (iii) the SE OS.
20. The Commission considers that while SEs (including the SE OS) can be distinguished from other technologies, in particular Host Card Emulation ('HCE') and Trusted Execution Environment ('TEE'), the question whether the relevant product market should be wider than SEs to also include other technologies is left open. The competitive assessment is done on the possible product market of embedded SEs (including SE OS), which is the market where NXP holds the most market power.
21. The geographic market for SE chips is likely worldwide.

Combined NFC/SE solutions

22. Mobile device OEMs have different procurement strategies with respect to NFC solutions. To the extent that they opt for an NFC solution secured with a SE, they can either purchase standalone components or a NFC/SE combined solution. Device OEMs tend to opt for the combined solution, for which there is a distinct demand.
23. The Commission considers that the NFC/SE combined solution constitutes a distinct product market, separate from the market for standalone NFC chips and SE chips (including SE OS).
24. The geographic market for combined NFC/SE solutions is likely worldwide.

c. Transit service technology

25. The Commission considers that transit service technologies constitute a separate product market, comprising not only NXP's proprietary contactless security technology platform MIFARE, but also other technologies such as Calypso, FeliCa and CIPURSE. All these technologies can be installed on mobile devices for the purposes of allowing mobile ticketing using NFC.
26. The Commission considers that the market for transit service technologies is likely worldwide.

d. Intellectual Property

27. SEPs are patents covering technology to which a standard makes reference to and that implementers of the standard typically cannot avoid using in standard-compliant products. By contrast, patents that are not essential to a standard ('non-SEPs') can often be designed around when manufacturing a standard-compliant product.
28. The Commission considers that, in line with its previous decisional practice, each SEP related to cellular and NFC technology should be considered as a separate market. The Commission also considers that non-SEP IP related to NFC technology may be viewed as a distinct product market from non-SEP IP related to other technologies. The exact product market definition for non-SEP IP relevant for the purpose of NFC technology is, however, left open.
29. The Commission considers the market for the licensing of SEPs as at least EEA-wide. Also the market for the licensing of non-SEP IP relevant for the purpose of NFC technology is likely to be at least EEA-wide, but the exact definition is left open.

e. Other relevant markets

30. The Commission has identified also other relevant markets, but finds that the Transaction does not raise concerns with respect to any of those markets.

31. In the automotive and IoT semiconductor spaces, the Commission assessed the possible segmentation of markets by (i) semiconductor type and (ii) by field of application/end-use. In the automotive space, the Commission identified markets for infotainment semiconductors and for automotive safety system semiconductors, but left the exact product market definitions open. In the IoT space, the Commission looked further into a possible segmentation by semiconductor type (including a market for Bluetooth connectivity chips used in IoT applications) and by end-use, but left the exact product market definition open.
32. The Commission considers that the geographic market for such semiconductor products is likely worldwide.
33. In the mobile space, the Commission also identified markets for mobile audio solutions, namely smart amplifier chips and speech enhancement software.
34. The Commission considers the geographic market for smart amplifier chips is likely worldwide. As for speech enhancement software the exact geographic market definition is left open.

V. COMPETITIVE ASSESSMENT – HORIZONTAL NON-COORDINATED EFFECTS

a. Semiconductors for automotive applications

35. Both Qualcomm and NXP are active in the manufacture and supply of semiconductors for automotive applications. The Transaction only gives rise to affected markets with regard to the segmentation by field of application and in particular: (i) Infotainment microprocessors (MPUs); (ii) Infotainment radio / audio chips; (iii) Infotainment connectivity chips; and (iv) automotive chips based on non-cellular Vehicle-to-Everything ('V2X') technology.
36. The Commission concludes that the Transaction does not raise competition concerns on those markets (and potential narrower segmentations) for the reasons described below:
 - i. *Infotainment MPUs*
 37. (i) Qualcomm's market share is declining and the increment brought by the Transaction is minor (around [0-5] %); (ii) a number of established competitors will remain active in the market; (iii) new players are expected to enter the market; (iv) the Parties are not close competitors; (v) the majority of respondents to the market investigation does not consider that the Transaction will have an impact on the market.
 - ii. *Infotainment radio / audio chips*
 38. (i) While the Parties' combined market share is equal to [60-70] %, the increment brought by the Transaction is minimal (around [0-5] %); (ii) other established players will remain active on the market; (iii) the Parties are not close competitors; (iv) almost all respondents to the market investigation consider that the Transaction will have no impact on the market.
 - iii. *Infotainment connectivity chips*
 39. (i) The Parties' combined market share would be equal to [20-30] %, but NXP's market share is minor (around [0-5] %); (ii) other competitors will stay active in the market; (iii) the Parties are not close competitors; (iv) the majority of respondents to the market investigation consider that the Transaction will have no impact on the market.
 - iv. *Automotive chips based on non-cellular V2X technology*
 40. (i) The Parties are not the closest competitors. While both Qualcomm and NXP are active in the segment, they are focused on different types of V2X (Qualcomm is mainly focused on cellular V2X, NXP provides only non-cellular V2X); (ii) alternatives would remain available; and (iii) barriers to entry on the market for the development of non-cellular V2X are not significant and other suppliers, in particular other automotive suppliers of Wi-Fi chips, may enter the market over the next years.
41. The Commission concludes that, post-Transaction, Qualcomm will not have an incentive to favour the development of cellular V2X chips and delay the deployment of non-cellular V2X chips because (i) this would favour competitors active in the non-cellular segment; (ii) both Parties foresee that the two technologies will co-exist; and (iii) there is no evidence in the file that Qualcomm will decide to stop supplying non-cellular V2X chips.

b. Semiconductors for IoT applications

42. With regard to the segmentation by semiconductor type for IoT applications, the Transaction gives rise to one horizontally affected market: Bluetooth connectivity chips.
43. The Commission concludes that the Transaction does not raise competition concerns because: (i) Qualcomm's market share is declining and the increment brought by the Transaction is minimal (less than [0-5] %); and (ii) other competitors will remain active in the market. Similarly, competitors will also remain active on the potential narrower market for BTLE chips.

c. Mobile audio**i. Speech enhancement software**

44. The Transaction gives rise to a horizontally affected market for speech enhancement software.
45. The Commission concludes that the Transaction does not raise competition concerns because (i) other competitors will remain active in the market; (ii) NXP's products are not considered superior to those of its competitors; (iii) barriers to entry are not high; and (iv) most respondents to the market investigation consider that the Transaction will not have an impact on the market.

ii. Smart amplifiers

46. The Transaction gives rise to a horizontally affected market for smart amplifier chips.
47. The Commission concludes that the Transaction does not raise competition concerns because (i) the increment brought by the Transaction is minimal; (ii) other competitors will remain active in the market; (iii) NXP's products are not considered superior to those of its competitors; and (iv) most respondents to the market investigation consider that the Transaction will not have an impact on the market.

VI. COMPETITIVE ASSESSMENT – CONGLOMERATE NON-COORDINATED EFFECTS**a. Market power****i. LTE baseband chipsets**

48. The Commission concludes that Qualcomm holds a dominant position in the market for LTE baseband chipsets for the following reasons.
49. Qualcomm's market share is equal to [60-70] % (by revenues) and the second largest player (MediaTek) holds a share of less than half of Qualcomm's and is the only competitor with a market share of more than 5 %. Furthermore, there are no alternative providers of baseband chipsets that would be capable of constraining Qualcomm's market power. In addition, there are barriers to entry and expansion, including in relation to (i) research and development ('R&D') activities; (ii) certification and relationships with OEMs and mobile network operators ('MNO'); and (iii) the importance for suppliers to supply chipsets supporting a variety of standards.

ii. NFC chips, SE chips and combined NFC/SE solutions

50. The Commission considers that NXP holds a certain degree of market power in the markets for NFC chips, SE chips and combined NFC/SE solutions.
51. NXP's market share is particularly high with regard to each of NFC and SE chips ([70-80] % and [60-70] % by revenue, respectively). However, NXP's high market shares likely overestimate its market power since the in-depth investigation revealed that NXP's sales are dependent on a few large customers accounting for a large proportion of NXP's NFC and SE sales by volume. Therefore, a decision by these customers to switch away from NXP and source components from different suppliers (with a 'mix-and-match' approach) would dramatically reduce NXP's market share.
52. The market investigation provided indications that the 'mix-and-match' solutions exercise a competitive pressure on NXP, as the majority of respondents consider that these solutions constitute viable alternatives to NXP's combined solution.

iii. *Transit services technologies*

53. The Commission considers that the merged entity would hold a dominant position within the market for transit services technologies, through NXP's MIFARE. MIFARE is the most relevant and widely distributed technology for transit services, in terms of installed base and shipments. Moreover, MIFARE is of great importance for device OEMs and NFC/SE providers for the purpose of mobile transit services, which are in the process of being deployed and developed, among others, by the Parties themselves. Alternative transit service technologies, such as FeliCa and Calypso, do not have the same presence and importance as MIFARE.

iv. *IP*

54. The Commission considers that in relation to NFC technology each of NXP and Qualcomm hold market power with regard to their NFC SEPs since standard implementers cannot in principle design around them and thus potential licensees cannot switch to other suppliers.

b. **Conglomerate effects in relation to Qualcomm's baseband chipsets and NXP's NFC and SE chips**

i. *Mixed bundling*

55. The Commission considers that post-Transaction Qualcomm would have the ability and incentive to engage in a mixed bundling strategy involving Qualcomm's LTE baseband chipsets, NXP's NFC and SE products (including mixed bundling with the integration of the SE on the baseband chipset). Against the backdrop of mixed bundling, it would also have the ability and the incentive to raise royalties for MIFARE or cease to license MIFARE altogether.
56. This mixed bundling conduct would have two steps. First, the merged entity would offer the Parties' products commercially bundled together at a discount compared to the sum of the prices of those stand-alone components. The bundle would consist of the Qualcomm LTE baseband chipset, together with the (MIFARE enabled) NXP NFC/SE products, and the price of such bundle would be lower than the sum of the prices of the respective standalone components. As a second step, the merged entity would technically integrate NXP's MIFARE-enabled SE on the LTE baseband chipset (the Snapdragon platform). Following such integration, Qualcomm would offer to device OEMs both a bundled product comprising the LTE baseband chipset (integrated with the MIFARE enabled SE) and the NFC controller, and a set of standalone components, where the bundled product would sell at a discount compared to the sum of the prices of the stand-alone components.
57. In parallel and in addition to the above, the merged entity would degrade the conditions of access to MIFARE for other NFC/SE suppliers, either by raising the licensing royalties or by ceasing the licensing of MIFARE altogether.

Ability

58. Elements to support the merged entity's ability to engage in such conduct include the fact that the relevant products are complementary and purchased by a common pool of customers. The merged entity would also have the ability to raise royalties or cease licensing MIFARE altogether once existing licensing agreements with third parties expire. MIFARE is a proprietary NXP technology in relation to which NXP has no obligations to license the technology on F(RAND) terms or to license it at all. The ability of the merged entity is supported by the results of the market investigation and reflected in the Parties' internal documents.

Incentive

59. Elements to support the merged entity's incentive to engage in such conduct include the fact that mixed bundling would very likely be a profitable strategy for the merged entity even in the short run.
60. Respondents to the market investigation confirm the incentive of the merged entity to engage in such mixed bundling, degrading MIFARE licensing terms and, in a second step, offering a bundle composed of an integrated baseband/SE chipset solution. The incentive of the merged entity to engage in such a strategy is also reflected in the Parties' internal documents.

Likely effects

61. A mixed bundling strategy concerning Qualcomm's LTE baseband chipsets and NXP's NFC and SE products (including mixed bundling with the integration of the SE on the baseband chipset) alone is unlikely to lead to foreclosure effects to the requisite standard with regard to providers of baseband chipsets, NFC and SE chips. Alternative options for these products would remain available to device OEMs, and competitors would be able to react to the merged entity's bundling strategy.
62. However, raising royalties for MIFARE to competing NFC and SE suppliers or ceasing licensing of MIFARE altogether would change the competitive conditions in the market. Through such conduct the merged entity would be likely to (i) directly raise rivals' costs in the NFC/SE segment because a crucial input for these rivals, namely the MIFARE license, would become more expensive; and (ii) indirectly raise costs for rival baseband chipset suppliers, because the complementary components to these basebands, i.e. the standalone NFC/SE chips, would become more expensive.
63. Competitors of the merged entity would not be able to react to the merged entity by offering a bundle comprising MIFARE-enabled SE or would only be able to offer it at unattractive prices compared to that of the merged entity.
64. As a result, the profitability of competitors would decrease, and consequently, competitors might find it more difficult to invest in the further development of these products. Considering the intensity of R&D on these markets, the lower incentives to invest in R&D might weaken the competitive constraint imposed by the merging party's rivals.
65. The merged entity's strategy of increasing royalties for MIFARE or ceasing the licensing of MIFARE altogether to competitors, compounded by the effects of degradation of interoperability, would have the effect of foreclosing competitors of baseband chipsets and NFC and SE chips that would not be able to engage in timely counterstrategies and overcome obstacles related to the more restrictive conditions regarding the licensing of MIFARE.

ii. *Pure bundling and tying*

66. The Commission considers that post-Transaction the merged entity would have the ability to engage in a conduct of pure bundling and commercial or technical tying of LTE baseband chipsets and NFC/SE chips and no longer making those components available standalone.
67. Despite this ability (in view of e.g. its market power, the importance of the complementary products, the common pool of customers) to engage in such conduct, the merged entity would not have the incentive to do so. This is confirmed by the internal documents of the Parties.
68. But even if the merged entity were to engage in such conduct, this would be unlikely to lead to foreclosure effects to the requisite standard. Device OEMs engage in multi-sourcing and would act strategically to ensure maintaining available options. Device OEMs would still have an interest to ensure availability of standalone components, rather than purchasing the merged entity's pure bundle or tied products. Device OEMs could rely on internal production capacity and standalone competitors could have recourse to 'mix and match' solutions.

iii. *Degradation of interoperability*

69. The Commission considers that the merged entity would have the ability and incentive to engage in degrading the interoperability of Qualcomm's LTE baseband chipsets and NXP's NFC and SE chips with rival suppliers' standalone components. The effect of such strategy would be that customers would prefer the merged entity's products over those of rival suppliers. This strategy would compound the effects of the merged entity's strategy of raising the licensing royalties or ceasing the licensing of MIFARE, carried out with mixed bundling.

Ability

70. The merged entity has the ability to intentionally reengineer interfaces in such a manner as to degrade the performance of third party products, but also to fail to provide necessary information and support which is needed to ensure interoperability in the first place.

Incentive

71. If the merged entity were to engage in interoperability degradation, customers buying Qualcomm's baseband chipset would be less inclined to purchase the NFC/SE solution of another supplier. The importance of the baseband chipset, relative to the NFC/SE chips, makes it unlikely that a customer would entirely switch away from the merged entity's product just to be able to combine it with its preferred third party NFC/SE chips.
72. To the extent that providing interoperability information and support to third party suppliers is costly to the merged entity, it is likely that the merged entity will find it less profitable to invest in supporting third parties' products to successfully interact with its LTE baseband chipsets and its NFC/SE chips respectively, compared to the pre-merger situation. Before the Transaction, the Notifying Party did not have any in-house production of NFC/SE chips, and therefore had much stronger incentives to ensure interoperability with third party NFC/SE chips.
73. Respondents to the market investigation also confirm that the merged entity would have such incentive.

Likely effects

74. The merged entity's strategy of degrading interoperability would likely compound the foreclosure effects of an increase of MIFARE royalties (or a denial to license MIFARE) against the backdrop of mixed bundling.
75. Neither third party suppliers, nor mobile OEMs would be able to thwart a strategy of interoperability degradation by the merged entity. It would decrease the value mobile device OEMs derive from mixing-and-matching and consequently reduce the demand for the relevant products. Respondents to the market investigation also suggest that competing component manufacturers would be negatively impacted as to their ability to compete, eventually foreclosing them from the market.

c. Conglomerate effects related to IP licensing of NFC technology

76. The Parties hold significant IP rights in particular in NFC technology. Given the complementary nature of the technology involved, conglomerate effects may arise from the manner in which IP licenses are negotiated with potential licensees. In this respect, the Commission concludes that the Transaction will enable the merged entity to increase the level of royalties charged for patent licenses compared to lower royalty levels which the Parties could have obtained separately absent the merger.

i. Pre-merger licensing practices

77. The Parties' respective practices differ with respect to licensing, including in particular with respect to the levels of the value chain at which they grant patent licenses and the scope of IP rights that are attached to the sale of the components that they supply to their customers.
78. NXP sells chips to its mobile device OEM customers exhaustively, which means that the sale of its chips 'exhausts' its IP claims relating to patents reading on chips vis-à-vis its customers. NXP also licenses its NFC patents to some rival component manufacturers and customers (including mobile device OEMs).
79. Qualcomm does not sell baseband chipsets to device OEMs exhaustively. Instead, Qualcomm requires OEMs that wish to purchase its baseband chipsets to take a license to Qualcomm's cellular SEPs. That practice has been called the 'no license-no chip' ('NLNC') policy in pending litigation against Qualcomm in the United States.
80. Qualcomm only licenses customers, namely device OEMs, that manufacture mobile devices and purchase baseband chipsets either from Qualcomm or from Qualcomm's competitors (a practice called 'device-level licensing').
81. Qualcomm licenses its IP on a portfolio basis rather than patent-by-patent. Since the early 1990s, the standard royalty rate asked by Qualcomm has remained stable. The royalty is due by licensees regardless of whether their devices are manufactured using a baseband chipset of Qualcomm or of another supplier.

ii. *Conglomerate effects related to IP licensing of NFC technology*

82. The integration of NXP's NFC IP into Qualcomm's portfolio will enable the merged entity to combine both Parties' NFC patents into a single, stronger NFC portfolio. The merged entity will thus hold the largest NFC patent portfolio on a worldwide basis and thereby obtain a 'critical mass' of patents for licensing purposes. This will disproportionately improve the merged entity's bargaining power and allow the merged entity to charge significantly higher royalties for the NFC patents than the Parties together currently could charge for the same patents. Qualcomm's significant litigation capabilities will compound the Transaction's royalty increasing effect.
83. The disproportionate improvement in the merged entity's bargaining position will trigger harm to licensees irrespective of whether the merged entity's NFC patent portfolio is licensed separately or the acquired NFC patents are included in Qualcomm's broader patent portfolio licenses.

iii. *NLNC policy*

84. According to certain mobile device OEMs, the merged entity could extend Qualcomm's NLNC strategy by conditioning the sale of any of NXP's NFC or SE products on the customer having taken a license to any Qualcomm IP and/or, conditioning the sale of any of NXP's NFC or SE products on the customer having taken a license to any NXP NFC IP. Moreover, in principle the sale of any of Qualcomm's products could be conditional upon the customer having taken a license to any NFC IP of NXP.
85. The Commission considers that it is not necessary to conclude on whether the merged entity would have any ability or incentive to include NXP's NFC IP (including the NFC SEPs) into any NLNC strategy. In light of the commitments that Qualcomm has proposed to the Commission, the merged entity would not have the ability to coerce third parties into licenses to NXP's NFC IP on onerous terms.
86. Moreover, as noted, Qualcomm has repeatedly submitted to the Commission that, post merger, it would continue to: (1) sell NFC's chips exhaustively; and (2) abide by the commitments attached to the NFC SEPs to license them on (F)RAND terms to any implementer, including NFC chip producers.
87. As to the merged entity's ability and the incentive to condition the sale of any of NXP's products on mobile device OEMs having taken a license to any Qualcomm IP, the Commission considers that, while Qualcomm would have such ability, it will likely not have the incentive to engage in such conduct. Moreover, even if it did, the likely effects on competition of such conduct are likely to be limited.

d. **Conclusion**

88. The Commission, therefore, concludes that the notified concentration gives rise to a significant impediment to effective competition in relation to the markets for LTE baseband chipsets, NFC and SE chips, and IP related to NFC technology.

VII. UNDERTAKINGS SUBMITTED BY THE NOTIFYING PARTY

89. In order to address the competition concerns identified by the Commission in its in-depth investigation, the Notifying Party submitted a set of commitments on 5 October 2017, which the Commission market tested. After the market test, based on the Commission's feedback, the Notifying Party submitted a revised set of commitments on 10 November 2017, which are described below.
90. The commitments consist of four elements. The first two elements aim to address the competition concerns raised by the Transaction in relation to the licensing of NXP's NFC patents. The third element aims to address the interoperability concerns in relation to LTE baseband chipsets, NFC chips and SE chips. The fourth element aims to address the concerns in relation to the refusal to license MIFARE or licensing of MIFARE at higher royalties, carried out in addition to a mixed bundling conduct applied to LTE baseband chipsets, NFC and SE chips, and MIFARE.

91. In particular, Qualcomm committed:

- (i) not to purchase NXP's SEPs and certain non-SEPs relating to NFC technology (in particular, patents that do not read on NXP's NFC chips and therefore are not necessarily included in these components, so-called 'system-level' patents). Qualcomm committed to procure from NXP that a three year, standalone, worldwide royalty-free license would be granted to any third party and customers of any third party customer. Qualcomm committed to procure from NXP that it would not sell the carved-out patents unless the purchaser was independent and unrelated to Qualcomm and agreed to be contractually bound to comply with terms of a license, reviewed and approved by the Commission (carve-out remedy);
- (ii) not to assert (e.g., litigate or bring enforcement proceedings or threaten to litigate or to bring enforcement proceedings) NXP's remaining NFC patents, which Qualcomm will acquire (i.e., so-called 'chip-level' patents, which cover inventions fully embodied on an NFC chip, and 'NFC security' patents, which cover security inventions), except for defensive purposes. Qualcomm also committed to license these patents royalty-free (non-assert remedy);
- (iii) to ensure the same level of interoperability between the merged entity's baseband, NFC and SE products and the products of competitors for a period of eight years (interoperability remedy); and
- (iv) license NXP's MIFARE technology to device OEMs and baseband and NFC/SE competitors, on the basis of commercial terms that are at least as advantageous as those offered by NXP in its existing MIFARE licenses for a period of eight years. Qualcomm committed to make available the key commercial terms of each equivalent NXP MIFARE license existing on the date of the Commission's decision (MIFARE remedy).

Assessment of the undertakings submitted

92. The Commission considers that:

- (i) The 'carve-out' remedy aims at neutralising the Notifying Party's ability to leverage NXP's NFC patents in licensing negotiations in order to obtain disproportionate licensing terms. Carving out a number of NFC patents from Qualcomm's acquisition constitutes an appropriate remedy and it also prevents any sale or transfer of the carved-out patents to an entity related to Qualcomm as well as an increase of royalties for the relevant patents following such a sale;
- (ii) By committing to not assert the NFC patents that it will acquire from NXP, Qualcomm effectively forgoes the possibility to use them in order to extract any royalties from licensees, a remedy proportionate to the Commission's concerns. The merged entity's competitors, device OEMs and device OEMs' customers will be able to incorporate in their products NXP's NFC chip and security level patents without needing to obtain any license from Qualcomm or to pay any compensation to that effect. Nevertheless, should third parties request a license to the relevant patents, the Notifying Party commits to grant such a license on a royalty-free basis and without the provision of any other consideration;
- (iii) The interoperability remedy effectively addresses the concern that the merged entity would degrade the interoperability of third parties' products with the LTE baseband chipsets, NFC and SE chips of the merged entity. It enables third party suppliers to offer standalone products that would interoperate with the products of the merged entity, and that device OEMs would thus be able to consider as viable and functioning alternative options to the products of the merged entity;
- (iv) The MIFARE remedy addresses the concern that the merged entity would raise the MIFARE licensing royalties or cease the licensing of MIFARE altogether. It enables interested third party competitors to request and obtain from the merged entity a MIFARE licence, which would enable them to offer MIFARE-compatible SE chips and thus compete with a product offering matching that of the merged entity.

93. The Commission considers that the undertakings submitted by the Notifying Party are capable of entirely removing the competition concerns raised by the Transaction with respect to MIFARE, the degradation of interoperability, and the licensing of IP rights related to NFC technology.

94. The Commission, therefore, concludes that, on the basis of the undertakings submitted by the Notifying Party, the notified concentration will not significantly impede effective competition.

VIII. CONCLUSION

95. Subject to compliance with the commitments given by the Notifying Party, the proposed concentration would not significantly impede effective competition in the internal market or in a substantial part of it. Consequently, the Commission declares the concentration compatible with the internal market and the EEA Agreement.
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