

# EXHIBIT 2

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**UNITED STATES DISTRICT COURT  
CENTRAL DISTRICT OF CALIFORNIA  
WESTERN DIVISION – LOS ANGELES**

NETGEAR, INC.,  
Plaintiff,  
vs.  
HUAWEI TECHNOLOGIES CO.,  
LTD.,  
Defendant.

Case No. 2:24-cv-00824 AB(AJRx)

**DECLARATION OF  
DR. TOBIAS J. HESSEL**

I, Dr. Tobias J. Hessel of Düsseldorf, Germany, hereby declare as follows:

1. I am a Partner at the law firm of Clifford Chance Partnerschaft mbB in Düsseldorf, Germany. I received my Doctor of Laws from the University of Osnabrück in 2009 and was admitted to practice law in Germany that same year. My practice focuses on intellectual property. I am fluent in both German and English.

2. I have been retained by Huawei Technologies Co., Ltd. (“Huawei”) in connection with various disputes against Netgear, Inc. and its affiliates Netgear Deutschland GmbH and Netgear International Ltd. (collectively “Netgear”). I have been involved since 2022 with Huawei’s efforts to license its Wi-Fi standard essential patents (SEPs) to Netgear.

3. I submit this declaration in support of Huawei’s opposition to Netgear’s Motion to Bifurcate and Request for RAND Determination before the above-captioned Court (Dkt. 113) (“Motion”).

4. I have been asked by Huawei to review and respond to the Declaration of Dr. Stephan Dorn (“Dorn Decl.”) (Dkt. 115-2) that Netgear submitted in support of its Motion, as well as to provide additional legal and factual background to

1 contextualize the proceedings in Germany and before the Unified Patent Court  
2 (“UPC”) that Dr. Dorn discusses in his Declaration. Below I respond to three of Dr.  
3 Dorn’s statements in his Declaration.

4       5.     *First*, Dr. Dorn describes the availability of injunctions in Germany and  
5 before the UPC, noting that in both forums, “an injunction is typically entered  
6 immediately after a finding of patent infringement.” Dorn Decl. ¶ 6. Dr. Dorn states  
7 that because patent infringement and nullity (invalidity) proceedings are separated in  
8 Germany, an injunction may be issued while a patent’s validity is still being  
9 challenged. Dorn Decl. ¶ 7.

10       6.     Dr. Dorn’s characterizations fail to capture important context about  
11 injunctions in the German patent system. Unlike in the United States, where I  
12 understand that injunctive relief is not ordinarily requested or granted in patent cases,  
13 injunctive relief is the standard remedy in Germany for patent infringement. *See, e.g.*,  
14 WORLD INTELL. PROP. ORG., AN INTERNATIONAL GUIDE TO PATENT CASE  
15 MANAGEMENT FOR JUDGES 233 (2023) (“By far the most important remedy available  
16 under German patent law is the permanent injunction . . .”).

17       7.     In Germany, patent holders seek an injunction in the vast majority of  
18 cases, and particularly in cases alleging infringement of standard-essential patents  
19 (“SEPs”). Since German Court files are not publicly available, it is impossible to rely  
20 on official statistics. However, based on my personal experience over the past 15  
21 years in cases handled for clients in the field of SEP litigation as well as public reports  
22 on SEP portfolio litigations, patent assertions that do not request injunctive relief are  
23 very exceptional.

24       8.     In 2021, Paragraph 139 of the German Patent Act was amended to  
25 provide that injunctive relief may not be issued if “based on the particular  
26 circumstances of the individual case and the principle of good faith, [it would] lead  
27 to disproportionate, unjustified hardship for the injurer or third parties which are not  
28 justified by the exclusive right.” However, German courts have not applied these

1 proportionality considerations in cases involving SEPs. Instead, these considerations  
2 are typically fully reflected in the defendant’s FRAND defense. As I explain below,  
3 if the putative infringer shows that the patent holder breached its FRAND obligations,  
4 that is a complete bar to injunctive relief.

5 9. German law also provides for procedural protections to avoid the risk of  
6 inconsistent rulings—that is, on one hand, an injunction issues, while on the other,  
7 the patent is invalidated. Pursuant to Section 148 of the German Patent Act, German  
8 courts may grant a stay of infringement proceedings if they conclude upon summary  
9 review of the parties’ pleadings in the nullity proceedings that a revocation of the  
10 patent is likely. A stay is especially likely to be granted if the nullity court has already  
11 issued a so-called preliminary, non-binding opinion (providing guidance to the  
12 parties in preparation of the oral hearing). *Cf.* Art. 83 German Patent Act. Unless  
13 that preliminary opinion contains obvious errors, the infringement court will base its  
14 stay decision on this initial assessment.

15 10. Accused infringers thus have a mechanism to delay infringement rulings  
16 (and thus a ruling on any injunction request) until after adjudication of validity.  
17 Indeed, Netgear sought and received such a stay of Huawei’s case brought in  
18 Düsseldorf for infringement of EP 3,337,077 pending review by the German Federal  
19 Patent Court of the validity of that patent. In that nullity proceeding, the Federal  
20 Patent Court ultimately ruled against Netgear on December 12, 2024, rejecting  
21 Netgear’s arguments that EP 3,337,077 is invalid. Infringement proceedings will now  
22 resume based on this judgment.

23 11. *Second*, Dr. Dorn says that “[n]either Huawei nor Netgear asked the  
24 court” in the German or UPC proceedings “to determine the terms of a reasonable  
25 and non-discriminatory license, including any royalty amount.” Dorn Decl. ¶ 10.

26 12. Dr. Dorn’s statement is misleading in two respects. In the first respect,  
27 Dr. Dorn ignores that Netgear raised a FRAND defense to infringement of Huawei’s  
28 Wi-Fi SEPs before both German and UPC courts. Under German law and in the UPC,

1 it is a complete defense to an infringement action concerning SEPs if the SEP-holder  
2 is found by the court to have violated its FRAND obligations. Thus, when an accused  
3 infringer interposes a FRAND defense, an injunction will not issue against the  
4 infringer in either the German courts or the UPC *unless* the court rejects such FRAND  
5 defense. Second, in determining whether the accused infringer (here, Netgear) can  
6 prevail its FRAND defense, German and UPC courts will evaluate the negotiation  
7 behaviour as well as the terms and conditions (known as “FRAND offers”)  
8 exchanged by the patent holder and the accused infringer. Such FRAND offer is  
9 typically presented in the form of a ready-to-be signed patent license agreement.

10 13. On December 18, 2024, the UPC found that Netgear Germany GmbH,  
11 Netgear Inc, and Netgear International Limited (collectively, “Netgear”) infringed  
12 Huawei’s asserted Wi-Fi 6 patent and issued an injunction ordering Netgear to “cease  
13 and desist” its infringement. A machine-translated copy of a redacted copy of that  
14 decision which has been published by the UPC on its website in German is attached  
15 hereto as Exhibit A. The redactions in Exhibit A have been made by the UPC.

16 14. In issuing an injunction, the UPC rejected Netgear’s FRAND defense:  
17 “Neither the FRAND objection based on European antitrust law (see G.) nor the  
18 IEEE-LOA objection based on contract law (see H.) of the defendant are valid.” Ex.  
19 A, at 131. Specifically, “the defendants did not signal a sufficient willingness to  
20 license after an unobjectionable notice of infringement, delayed the negotiations and  
21 did not provide any security or sufficient information after their counter-offer was  
22 rejected.” Ex. A, at 145. At the same time, the UPC noted, Huawei—in addition to  
23 its own bilateral offers to Netgear—had presented Netgear “the alternative option”  
24 of “taking a pool license via SISVEL.” Ex. A, at 153. Netgear failed to show how  
25 they were “discriminated against with regard to the pool license rate” that was  
26 “already paid by other pool licensees,” or why Huawei was “obliged under antitrust  
27 law to make them a bilateral offer on FRAND terms over and above the offer of the  
28 pool license.” Ex. A., at 154. In short, the UPC concluded, “the FRAND objection

1 cannot succeed.” Ex. A., at 154.

2 15. In Case No. 7 O 4995/24 before the Munich Regional Court in which  
3 Huawei asserts another Wi-Fi 6 SEP, Netgear also raised a FRAND defense, and the  
4 parties provided extensive writs in preparation of the oral hearing explaining their  
5 positions.

6 16. On December 19, 2024, the Munich Regional Court conducted the oral  
7 hearing in these proceedings. At the hearing, the panel presented its preliminary  
8 opinion that the asserted patent is infringed and likely to be confirmed (upheld as  
9 valid) in the parallel nullity proceedings. The court will issue its final decision on  
10 January 9, 2025.

11 17. Paragraph 10 of Dr. Dorn’s Declaration is separately misleading  
12 because it omits that Netgear could have requested a rate setting in the German and  
13 in the UPC proceedings but chose not to. Under Section 315 of the German Civil  
14 Code, the *implementer*—*i.e.*, Netgear—may make a counteroffer, while leaving the  
15 determination of royalties to the patent holder at its “reasonably exercised  
16 discretion.” If the implementer believes that the patent-holder did not exercise said  
17 discretion in a reasonable way, it may ask the court to review and determine a rate in  
18 case it concludes that the initial setting was indeed unreasonable. In other words,  
19 German law expressly allows an implementer like Netgear to request a rate setting,  
20 but Netgear has never done so.

21 18. Rate-setting proceedings on this basis are not merely an academic  
22 possibility. This year, the UPC Mannheim Local Division held such proceedings in  
23 *Panasonic v. Guangdong OPPO Telecommunications*, Case  
24 No. UPC\_CFI\_210/2023; ACT\_545551/2023. And in *Apple v. Motorola*, Case No.  
25 7 O 241/2012, the Mannheim Regional Court (Germany) reviewed whether the  
26 license rate set by Motorola in its proposed license agreement was a “reasonable  
27 exercise” of its discretion based on Section 315 of the German Civil Code.

28 19. *Third*, Dr. Dorn describes the “licensing negotiations between Netgear

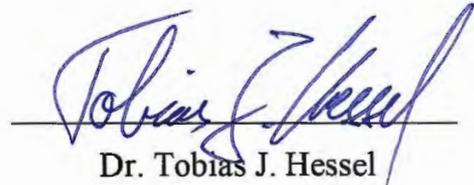
1 and Huawei” and states that Huawei brought patent infringement actions against  
2 Netgear in Germany (and China) before making Netgear a license offer. Dorn Decl.  
3 ¶ 11.

4 20. Dr. Dorn’s statement again is misleading. Huawei attempted to initiate  
5 licensing discussions with Netgear seven times over nearly two years by sending  
6 several letters and emails, but Netgear never responded. Netgear responded only after  
7 Huawei filed suit in Düsseldorf, Germany on March 2, 2022.

8 21. Once Netgear engaged with Huawei, Huawei provided Netgear with a  
9 detailed licensing offer on June 25, 2022. Netgear did not provide Huawei a  
10 counteroffer until May 1, 2023.

11 I declare under penalty of perjury under the laws of the United States that the  
12 foregoing is true and correct to the best of my knowledge. Executed this 20<sup>th</sup> day of  
13 December, 2024 in ESSEN (GERMANY).

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Dr. Tobias J. Hessel

# EXHIBIT A



**Local Chamber Munich  
UPC\_CFI\_9/2023**

**Decision**  
**of the Court of First Instance of the Unified Patent Court Local Chamber**  
**Munich**  
**issued on December 18, 2024**

**GUIDES**

1. The only official form available online for submitting a withdrawal from the exception rule pursuant to Rule 5.7 of the Procedural Regulation is the corresponding workflow in the case management system (CMS). The template provided is not a form within the meaning of Rule 4.1 VerfO, but a template to support the users of the system. Users are free to use a different template.
2. Insofar as the exhaustion objection applies to all challenged embodiments, it must be dealt with immediately in the discovery proceedings. If successful, the action must be dismissed. If the objection of exhaustion does not apply to all challenged embodiments, it depends on the circumstances of the individual case whether and to what extent the objection is to be investigated immediately or only in the context of compulsory enforcement.
3. If the patent proprietor has submitted several different offers which are still acceptable, for example an offer concerning a bilateral license to the patent proprietor's portfolio and an offer concerning a license to the portfolio of a patent pool which also contains the patent or portfolio of the patent proprietor to be licensed, the infringement action for injunctive relief, recall and destruction cannot be dismissed if it can be assumed that at least one of the two offers meets the requirements of antitrust law. This is because the patent proprietor is only required under antitrust law to grant the patent user a license.

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The patent proprietor can meet its antitrust obligations in particular by offering a pool license. The patent holder can meet its obligations under antitrust law in particular by offering a pool license. The same also applies in relation to an assessment under contract law, for example in relation to a Letter of Assurance (LOA) issued under the IEEE Bylaws 2007.

4. The statements of the Court of Justice of the European Union in paragraphs 66-67 of the judgment in Huawei v. ZTE mean that bringing an action may be contrary to antitrust law because the patent proprietor's offer contradicts FRAND conditions, but the infringer may only object to this in the context of a defense against that part of the action which is directed at injunctive relief, recall or destruction if he himself has submitted a concrete counter-offer which complies with FRAND conditions without delaying tactics and, moreover, has provided adequate security in the event of its rejection and has provided information on the scope of the acts of use.

#### KEYWORDS

Formal requirements for withdrawing from the exemption; prohibition of action based on the IEEE Bylaws; exhaustion of device and procedural claims; FRAND objection; IEEE LOA objection

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PLAINTIFF

**Huawei Technologies Co. Ltd**

represented by: Dr. Tobias J. Hessel, Thomas Misgaiski, Dr. Marie Gessat, Lea Prehn(Clifford Chance).

Supported by: Christian Harmsen, Dr. Matthias Meyer, Dr. Jörg Witting (Bird & Bird);Dr. Friedrich Emmerling, Dr. Karl-Ulrich Braun-Dullaeus, Lan Bi (BDPE).

DEFENDANT

- 1) **Netgear Germany GmbH**
- 2) **Netgear Inc.**
- 3) **Netgear International Limited**

represented by: Dr.Stephan Dorn, Henning Gutheil, Frank-Erich Hufnagel, Caroline Horstmann, Diana Baum (Freshfields).

supported by: Dr.-Ing. Cletus von Pichler (Samson & Partner)

PATENT IN DISPUTE

European patent no. 3 611 989.

PANEL/CHAMBER

Panel 1 of the Munich Local Court.

PARTICIPATING JUDGES

This decision was issued by the presiding judge Dr. Matthias Zigann as reporting judge and the legally qualified judges Tobias Pichlmaier and Edger Brinkman as well as the technically qualified judge Patrice Vidon.

LANGUAGE OF THE PROCEEDINGS

German

ORAL HEARING

The hearing took place on October 30, 2024 in English (see ORD\_2866/2024).

OBJECT

Infringement action (ACT\_459771/2023) with nullity counterclaims (CC\_588071/2023, CC\_588080/2023, CC\_586627/2023) and requests for amendment of the patent (APP\_9258/2024, APP\_9258/2024, APP\_9258/2024). Opposition pursuant to R 19 VerfO (App\_570172/2023).

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SECRECY

The text passages highlighted in gray in the unredacted version and marked with [redacted] in the redacted version are subject to decisions pursuant to Rule 262A of the Rules of Procedure and are the subject of motions pursuant to Rule 262.2 of the Rules of Procedure. In this respect, both parties have unanimously submitted a need for protection. The court has therefore assumed a need for protection. In the event of an application pursuant to Rule 262.3 of the Rules of Procedure, this will have to be reviewed again.

MOTIONS BY THE PARTIES

In the action, the plaintiff requested

order the defendants to cease and desist, subject to a penalty payment to be imposed by the court for each case of non-compliance,

B.I. to offer or supply equipment for transmitting a high-efficiency signal field B or HE-SIG-B in a wireless local area network to customers in the area of application of the UPCA existing at the time of the oral hearing with the exception of the Contracting Member States Austria, Bulgaria, Denmark, Estonia, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal and Slovenia [i.e. Belgium, Germany, Italy, Finland, France, Sweden] for use in the said area,

which are suitable for use in a method for transmitting a high-efficiency signal field B or HE-SIG-B in a wireless local area network,

wherein the method comprises the following:

Transmitting the HE-SIG-B in a transmission bandwidth of multiples of 20 MHz, the HE-SIG-B comprising two HE-SIG-B contents including a first HE-SIG-B content routed in each odd-numbered 20 MHz subchannel and a second HE-SIG-B content routed in each even-numbered 20 MHz subchannel, the first HE-SIG-B content comprising a first common field and a first user-specific field, the first common field comprising one or more first resource allocations, RA, wherein the second HE-SIG-B content comprises a second common field and a second user-specific field, the second common field comprising one or more second resource allocations, RA, wherein each of the one or more first RA corresponds to an odd-numbered 20 MHz subchannel and each of the one or more second RA corresponds to an even-numbered 20 MHz subchannel, wherein the first user-specific field comprises one or more first user scheduling information subfields, wherein each of the one or more first user scheduling information subfields comprises information about a station, STA, wherein the STA is scheduled on one of the one or more resource units indicated by the one or more first RA, and wherein the second user-specific field comprises one or more second user scheduling information subfields, wherein each of the one or more second user scheduling information subfields comprises information about a station, STA, wherein the STA is scheduled on one of the one or more resource units specified by the one or more second RAs when a first RA of the one or more first RAs specifies a first allocated resource unit, RU, that is within or overlaps the corresponding one odd 20 MHz subchannel,

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wherein the one first RA further indicates that in the first HE-SIG-B content, a number of a user scheduling information subfield corresponding to the first RU is 0; or a second RA indicates to the one or more second RA a second assigned RU located within or overlapping with the corresponding one even-numbered 20 MHz subchannel, wherein the one second RA further indicates that in the second HE-SIG-B content, a number of a user scheduling information subfield corresponding to the second RU is 0;

- Indirect infringement of claim 1 -

II. to offer or supply equipment for receiving a high-efficiency signal field B or HE-SIG-B in a wireless local area network to customers in the territory of the UPCA in force at the time of the oral hearing, with the exception of the Contracting Member States Austria, Bulgaria, Denmark, Estonia, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal and Slovenia, for use in the said territory,

which are suitable for use in a method for receiving a high-efficiency signal field B or HE-SIG-B in a wireless local area network,

wherein the method comprises the following:

Receiving the HE-SIG-B in a transmission bandwidth of multiples of 20 MHz, the HE-SIG-B comprising two HE-SIG-B contents including a first HE-SIG-B content carried in each odd-numbered 20 MHz subchannel and a second HE-SIG-B content carried in each even-numbered 20 MHz subchannel, the first HE-SIG-B content comprising a first common field and a first user-specific field, the first common field comprising one or more first resource allocations, RA, wherein the second HE-SIG-B content comprises a second common field and a second user-specific field, wherein the second common field comprises one or more second resource allocations, RA, each of the one or more first RA corresponding to an odd-numbered 20 MHz subchannel and each of the one or more second RA corresponding to an even-numbered 20 MHz subchannel, wherein the first user-specific field comprises one or more first user scheduling information subfields, wherein each of the one or more first user scheduling information subfields comprises information about a station, STA, wherein the STA is scheduled on one of the one or more resource units specified by the one or more first RA, and wherein the second user-specific field comprises one or more second user scheduling information subfields, wherein each of the one or more second user scheduling information subfields comprises information about a station, STA, wherein the STA is scheduled on one of the one or more resource units specified by the one or more second RA, and wherein the second user-specific field comprises one or more second user scheduling information subfields, wherein each of the one or more second user scheduling information subfields comprises information about a station, STA, wherein the STA is scheduled on one of the one or more resource units indicated by the one or more second RAs, when a first RA of the one or more first RAs indicates a first allocated resource unit, RU, located within or overlapping with the corresponding one odd 20 MHz subchannel, the one first RA further indicating that a number of a user scheduling information subfield corresponding to the first RU is 0 in the first HE-SIG-B content; or a second RA indicates to the one or more second RA a second assigned RU that is within or overlaps with the corresponding one even-numbered 20 MHz subchannel, the one second RA further indicating that in the second HE-SIG-B content, a number of a user scheduling information subfield corresponding to the second RU is 0;

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- indirect infringement of claim 2 -

III. in particular

1. when the first RA or the second RA is an index of a plurality of indices, the index being based on per 20 MHz bandwidth, the index indicating a combination of allocated RUs having 26, 52 or 106 subcarriers or an allocated RU having 242, 484 or 996 subcarriers, the index indicating whether multi-user MIMO or MU-MIMO is performed, respectively; and the index further indicating information for calculating a number of users on an allocated RU allowed for MU-MIMO. MU-MIMO is performed, and the index further indicates information for calculating a number of users on an allocated RU allowed for MU-MIMO;

- Indirect infringement of claim 3 -

2. and/or if the first assigned RU has 484 subcarriers or the second assigned RU has 484 subcarriers

- Indirect infringement of claim 4 -

3. and/or when the transmission bandwidth is 40 MHz, comprising first 20 MHz and second 20 MHz, wherein the first HE-SIG-B content is carried in the first 20 MHz and the second HE-SIG-B content is carried in the second 20 MHz, wherein the first HE-SIG-B content comprises a first RA indicating one or more RUs in or overlapping the first 20 MHz, and wherein the second HE-SIG-B content comprises a second RA indicating one or more RUs in or overlapping the second 20 MHz

- Indirect infringement of claim 5 -

4. and/or when the transmission bandwidth is 80 MHz, comprising first 20 MHz, second 20 MHz, third 20 MHz and fourth 20 MHz in a frequency order, wherein the first HE-SIG-B content is routed in the first and third 20 MHz and the second HE-SIG-B content is routed in the second and fourth 20 MHz, wherein the first HE-SIG-B content comprises a first RA and a third RA, wherein the first RA specifies one or more RUs in or overlapping the first 20 MHz and the third RA specifies one or more RUs in or overlapping the third 20 MHz, and wherein the second HE-SIG-B content comprises a second RA and a fourth RA, wherein the second RA specifies one or more RUs in or overlapping the second 20 MHz and the fourth RA specifies one or more RUs in or overlapping the fourth 20 MHz;

- Indirect infringement of claim 6 -

IV. device for transmitting a high-efficiency signal field B or HE-SIG-B in a wireless local area network to customers in the area of application of the UPCA existing at the time of the oral hearing with the exception of the Contracting Member States Austria, Bulgaria, Denmark, Estonia, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal and Slovenia, comprising the following:

a module adapted to transmit the HE-SIG-B in a transmission bandwidth of multiples of 20 MHz, the HE-SIG-B comprising two HE-SIG-B contents including a first HE-SIG-B content carried in each odd-numbered 20 MHz subchannel and a second HE-SIG-B content carried in each even-numbered 20 MHz subchannel, the first HE-SIG-B content comprising a first common field and a first user-specific field,

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wherein the first common field comprises one or more first resource allocations, RA, wherein the second HE-SIG-B content comprises a second common field and a second user-specific field, wherein the second common field comprises one or more second resource allocations, RA, wherein each of the one or more first RA corresponds to an odd-numbered 20 MHz subchannel and each of the one or more second RA corresponds to an even-numbered 20 MHz subchannel, wherein the first user-specific field comprises one or more first user scheduling information sub-fields, each of the one or more first user scheduling information sub-fields comprising information about a station, STA, wherein the STA is scheduled on one of the one or more resource units, indicated by the one or more first RA, and wherein the second user-specific field comprises one or more second user scheduling information subfields, each of the one or more second user scheduling information subfields comprising information about a station, STA, wherein the STA is scheduled on one of the one or more resource units, indicated by the one or more second RA when a first RA of the one or more first RA indicates a first allocated resource unit, RU, located within or overlapping with the corresponding one odd 20 MHz subchannel, the one first RA further indicating that a number of a user scheduling information subfield corresponding to the first RU is 0 in the first HE- SIG-B content; or a second RA indicates to the one or more second RA a second assigned RU located within or overlapping with the corresponding one even-numbered 20 MHz subchannel, the one second RA further indicating that in the second HE-SIG-B content, a number of a user scheduling information subfield corresponding to the second RU is 0;

- direct infringement of claim 7 -

V. device for receiving a high-efficiency signal field B or HE-SIG-B in a wireless local area network to customers in the area of application of the UPCA existing at the time of the oral hearing with the exception of the Contracting Member States Austria, Bulgaria, Denmark, Estonia, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal and Slovenia, comprising the following:

a module adapted to receive the HE-SIG-B in a transmission bandwidth of multiples of 20 MHz, the HE-SIG-B comprising two HE-SIG-B contents including a first HE-SIG-B content carried in each odd-numbered 20 MHz subchannel and a second HE-SIG-B content carried in each even-numbered 20 MHz subchannel, wherein the first HE-SIG-B content comprises a first common field and a first user-specific field, wherein the first common field comprises one or more first resource allocations, RA, wherein the second HE-SIG-B content comprises a second common field and a second user-specific field, wherein the second common field comprises one or more second resource allocations, RA, wherein each of the one or more first RA corresponds to an odd-numbered 20 MHz subchannel and each of the one or more second RA corresponds to an even-numbered 20 MHz subchannel, wherein the first user-specific field comprises one or more first user scheduling information sub-fields, each of the one or more first user scheduling information sub-fields comprising information about a station, STA, wherein the STA is scheduled on one of the one or more resource units represented by the one or more first RAs.

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and wherein the second user-specific field comprises one or more second user scheduling information subfields, each of the one or more second user scheduling information subfields comprising information about a station, STA, wherein the STA is scheduled on one of the one or more resource units indicated by the one or more second RA, when a first RA of the one or more first RA indicates a first allocated resource unit, RU, located within or overlapping with the corresponding one odd 20 MHz subchannel, the one first RA further indicating that in the first HE-SIG-B content, a number of a user scheduling information subfield corresponding to the first RU is 0; or a second RA indicates to the one or more second RA a second assigned RU located within or overlapping with the corresponding one even-numbered 20 MHz subchannel, the one second RA further indicating that in the second HE-SIG-B content, a number of a user scheduling information subfield corresponding to the second RU is 0;

- Direct infringement of claim 8 -

VI. in particular

1. when the first RA or the second RA is an index of a plurality of indices, the index being based on per 20 MHz bandwidth, the index indicating a combination of allocated RUs having 26, 52 or 106 subcarriers or an allocated RU having 242, 484 or 996 subcarriers, the index indicating whether multi-user MIMO or MU-MIMO is performed, respectively; and the index further indicating information for calculating a number of users on an allocated RU allowed for MU-MIMO. MU-MIMO is performed, and the index further indicates information for calculating a number of users on an allocated RU allowed for MU-MIMO;

- direct infringement of claim 9 -

2. and/or if the first assigned RU has 484 subcarriers or the second assigned RU has 484 subcarriers;

- Direct infringement of claim 10 -

3. and/or when the transmission bandwidth is 40 MHz, comprising first 20 MHz and second 20 MHz, wherein the first HE-SIG-B content is carried in the first 20 MHz and the second HE-SIG-B content is carried in the second 20 MHz, wherein the first HE-SIG-B content comprises a first RA indicating one or more RUs in or overlapping the first 20 MHz, and wherein the second HE-SIG-B content comprises a second RA indicating one or more RUs in or overlapping the second 20 MHz;

- Direct infringement of claim 11 -

4. and/or when the transmission bandwidth is 80 MHz, comprising first 20 MHz, second 20 MHz, third 20 MHz and fourth 20 MHz in a frequency order, wherein the first HE-SIG-B content is routed in the first and third 20 MHz and the second HE-SIG-B content is routed in the second and fourth 20 MHz, wherein the first HE-SIG-B content comprises a first RA and a third RA, wherein the first RA specifies one or more RUs in or overlapping the first 20 MHz and the third RA specifies one or more RUs in or overlapping the third 20 MHz, and wherein the second HE-SIG-B content comprises a second RA and a fourth RA, wherein the second RA specifies one or more RUs in or overlapping the second 20 MHz and the fourth RA specifies one or more RUs in or overlapping the fourth 20 MHz;

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– direct infringement of claim 12 -

C. order the defendants to inform the plaintiff in writing and in electronic form of the extent to which they (the respective defendant) have committed the acts described above under B.I. to B.VI. since 26.05.2021, stating

- a) the names and addresses of manufacturers, suppliers and other previous owners;
- b) the names and addresses of the commercial customers and the points of sale for which the products were intended;
- c) the quantities of products manufactured, delivered, received or ordered, as well as the prices paid for the products concerned; copies of the relevant purchase documents (namely invoices, alternatively delivery bills) must be submitted as proof of the information provided, whereby details requiring confidentiality outside the data subject to disclosure may be blacked out;

D. order the defendants to provide the plaintiff with an orderly statement in writing and additionally in electronic form of the extent to which they (the respective defendant) have committed the acts described above under B.I. to B. VI above since 26.05.2021, stating the following

- a) of the individual deliveries, broken down by delivery quantities, times and prices as well as type designations and the names and addresses of the customers;
- b) of the individual offers, broken down by offer quantities, times, prices, type designation and the names and addresses of the commercial offerees;
- c) of the advertising operated, broken down by advertising media, their circulation, distribution period and distribution area;
- d) the prime costs broken down by the individual cost factors and the profit generated;

whereby the defendants reserve the right to disclose the names and addresses of the non-commercial purchasers and the offerees instead of the plaintiff to a sworn auditor located in one of the contracting member states, who shall be designated by the plaintiff and who is bound to secrecy towards the plaintiff, provided that the respective defendant bears his costs and authorizes and obliges him to inform the plaintiff upon specific request whether a certain purchaser or offeree is included in the list;

E. order the defendants to permanently remove the products described above under B.IV. to B.VI. from the distribution channels by the respective defendant taking back these objects, if necessary enforcing their surrender with claims for surrender to which it is entitled or, at the plaintiff's discretion, arranging for the destruction of these objects at the respective owner's premises at the defendant's expense;

F. order the defendants to recall the marketed products referred to above under B.IV. to B.VI. from the commercial customers with reference to the patent infringing condition of the products established by the court (judgment of ... dated ...) and with the binding undertaking to refund any fees and to bear any necessary packaging and transport costs as well as customs and storage costs associated with the return and to take back the products, whereby the plaintiff is to be provided with a sample of the products.

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of the recall letters as well as a list of the addressees with their names and postal addresses or - at the defendant's discretion - a copy of all recall letters;

G. further order the defendants to surrender to a bailiff to be appointed by the plaintiff for the purpose of destruction at their - the respective defendants' - expense the products referred to in B.IV. to B.VI. which are in their direct or indirect possession or ownership in the area of application of the UPCA existing at the time of the oral hearing, with the exception of the Contracting Member States Austria, Bulgaria, Denmark, Estonia, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Portugal and Slovenia;

H. declare that the defendants are jointly and severally liable to compensate the plaintiff for all damages that she has suffered and will suffer as a result of the acts described in B.I. to B.VI. since May 26, 2021;

I. order the defendants to pay the costs;

J. to set partial securities for the enforcement of the above requested judgments, whereby the following individual amounts are proposed:

1. Application B., E., F., G EUR 950,000.00
2. Application C., D. EUR 50,000.00

With the objection of September 7, 2023 (App 570172/2023), the defendants requested that the objection regarding the lack of jurisdiction of the court due to the opt-out of the action patent (Rule 19.1 lit. a CPC) be upheld.

In its response to the objection dated September 18, 2023, the plaintiff requested the

reject the objection concerning the lack of jurisdiction of the court due to the opt-out of the plaintiff.

With the statement of defense and counterclaim of November 17, the defendants filed a motion:

1. assign to the panel a technically qualified judge with knowledge of wireless communication networks (in particular Int. Cl. H04W 72/12, H04L 5/20 and related areas) and communication protocols (in particular IEEE 802.11 and related standards) (Rule 33.1 CPC),
2. dismiss the action (Rules 23, 24 lit. (g) UPC),
3. provisionally award the defendants the reimbursement of costs for the infringement action (Rule 150.2 EPO),

and alternatively,

4. make the enforcement of the decision subject to the prior provision of security by the applicant in the amount of at least EUR [redacted] (Rules 352.1, 354.2 of the EPO), to be provided by means of a written, irrevocable, unconditional and unlimited guarantee from a person established in the

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territory of a member state of the UPC authorized to conduct business,

5. allow the defendants to avert the enforcement of the decision by providing a written, irrevocable, unconditional and unlimited guarantee from a credit institution authorized to do business in the territory of a member state of the UPC, without regard to the provision of security by the plaintiff (Rule 9.1 of the UPC Rules of Procedure).

With the counterclaim for annulment, we request,

6. declare the European patent EP 3 611 989 invalid in its entirety with effect in the territory of all member states of the UPC (Rule 25 EPC Implementing Regulation); and

7. provisionally award the defendants the reimbursement of costs for the counterclaim (Rule 150.2 EPO).

In its reply dated January 29, 2024, the plaintiff filed the following motions:

I. Applications for annulment We

apply,

1. dismiss the defendant's counterclaim for a declaration of invalidity of the European patent EP 3 611 989;

alternatively

to maintain the European patent EP 3 611 989 in the version of one of the auxiliary requests AR 1 to AR 6 [annex K25]; and

2. order the defendants to pay the costs of the counterclaim.

II. Applications for the infringement action

The motions announced in the statement of claim remain unchanged. In addition, we

supplement the applications from the statement of claim ***in the alternative*** as follows:

The applicant claims that the Court should:

A. order the defendants to refrain from doing so, subject to a penalty payment to be imposed by the court for each case of non-compliance,

(...)

III. in particular

1. if the multiple is 40 MHz or 80 MHz or 160 MHz (indirect infringement

of claim 1/2-AR1 and/or claim 1/2-AR2)

2. and/or when a first RA of the one or more first RA indicates a first allocated resource unit, RU, which is an RU having 242 subcarriers in the corresponding one odd-numbered 20 MHz subchannel, or is an RU having 484 subcarriers corresponding to the corresponding one odd-numbered 20 MHz subchannel.

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The one or more second RAs of the one or more second RAs indicate a second assigned resource unit, RU, which is an RU with 242 subcarriers in the corresponding one even 20 MHz subchannel, or an RU with 484 subcarriers overlapping the corresponding one even 20 MHz subchannel;

(indirect infringement of claim 7-AR3)

3. and/or if the first RA or the second RA is an index of several indices, the index being created on the basis of per 20 MHz bandwidth, the index being a combination of assigned RUs with 26, 52 or 106 subcarriers

– Indirect infringement of claim 3 -

4. and/or if the first assigned RU has 484 subcarriers or the second assigned RU has 484 subcarriers

– Indirect infringement of claim 4 -

5. and/or when the transmission bandwidth is 40 MHz, comprising first 20 MHz and second 20 MHz, wherein the first HE-SIG-B content is carried in the first 20 MHz and the second HE-SIG-B content is carried in the second 20 MHz, wherein the first HE-SIG-B content comprises a first RA indicating one or more RUs in or overlapping the first 20 MHz, and wherein the second HE-SIG-B content comprises a second RA indicating one or more RUs in or overlapping the second 20 MHz

– Indirect infringement of claim 5 -

6. and/or when the transmission bandwidth is 80 MHz, comprising first 20 MHz, second 20 MHz, third 20 MHz and fourth 20 MHz in a frequency order, wherein the first HE-SIG-B content is routed in the first and third 20 MHz and the second HE-SIG-B content is routed in the second and fourth 20 MHz, wherein the first HE-SIG-B content comprises a first RA and a third RA, wherein the first RA specifies one or more RUs in or overlapping the first 20 MHz and the third RA specifies one or more RUs in or overlapping the third 20 MHz, and wherein the second HE-SIG-B content comprises a second RA and a fourth RA, wherein the second RA specifies one or more RUs in or overlapping the second 20 MHz and the fourth RA specifies one or more RUs in or overlapping the fourth 20 MHz;

– Indirect infringement of claim 6 -

VI. in particular

1. if the multiple is 40 MHz or 80 MHz or 160 MHz (indirect infringement of claim 7/8-AR1 and/or claim 7/8- AR2)

2. and/or when a first RA indicates to the one or more first RA a first allocated resource unit, RU, which is an RU with 242 subcarriers in the corresponding one odd-numbered 20 MHz subchannel, or is an RU with 484 subcarriers overlapping the corresponding one odd-numbered 20 MHz subchannel, or when a second RA indicates to the one or more second RA a second allocated resource unit, RU, which is an RU with 242 subcarriers in the corresponding one odd-numbered 20 MHz subchannel, or is an RU with 484 subcarriers overlapping the corresponding one odd-numbered 20 MHz subchannel, or when a second RA indicates to the one or more second RA a second allocated resource unit, RU, which is an RU with 242 subcarriers in the corresponding one odd-numbered 20 MHz subchannel.

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an RU is with 242 subcarriers in the corresponding one even-numbered 20 MHz subchannel, or an RU is with 484 subcarriers overlapping the corresponding one even-numbered 20 MHz subchannel;

(indirect infringement of claim 7/8-AR3)

3. and/or when the first RA or the second RA is an index of a plurality of indices, the index being created based on per 20 MHz bandwidth, the index indicating a combination of allocated RUs having 26, 52 or 106 subcarriers or an allocated RU having 242, 484 or 996 subcarriers, the index indicating whether multi-user MIMO or MU-MIMO is performed, respectively, and the index further indicating information for calculating a number of users on an allocated RU allowed for MU-MIMO; the index further indicating information for calculating a number of users on an allocated RU allowed for MU-MIMO. MU- MIMO is performed, and the index further indicates information for calculating a number of users on an allocated RU allowed for MU-MIMO;

– direct infringement of claim 9 -

4. and/or if the first assigned RU has 484 subcarriers or the second assigned RU has 484 subcarriers;

– direct infringement of claim 10 -

5. and/or when the transmission bandwidth is 40 MHz, comprising first 20 MHz and second 20 MHz, wherein the first HE-SIG-B content is carried in the first 20 MHz and the second HE-SIG-B content is carried in the second 20 MHz, wherein the first HE-SIG-B content comprises a first RA indicating one or more RUs in or overlapping the first 20 MHz, and wherein the second HE-SIG-B content comprises a second RA indicating one or more RUs in or overlapping the second 20 MHz;

– Direct infringement of claim 11 -

6. and/or when the transmission bandwidth is 80 MHz, comprising first 20 MHz, second 20 MHz, third 20 MHz and fourth 20 MHz in a frequency order, wherein the first HE-SIG-B content is routed in the first and third 20 MHz and the second HE-SIG-B content is routed in the second and fourth 20 MHz, wherein the first HE-SIG-B content comprises a first RA and a third RA, wherein the first RA specifies one or more RUs in or overlapping the first 20 MHz and the third RA specifies one or more RUs in or overlapping the third 20 MHz, and wherein the second HE-SIG-B content comprises a second RA and a fourth RA, wherein the second RA specifies one or more RUs in or overlapping the second 20 MHz and the fourth RA specifies one or more RUs in or overlapping the fourth 20 MHz;

– direct infringement of claim 12 -

In the duplicate of April 2, 2024, the defendants filed the following motions:

At the suggestion of the Reporter from the hearing on February 19, 2024, we reformulate the main motion on the counterclaim for a declaration of nullity as follows and request the following:

1. declare the European patent EP 3 611 989 invalid in its entirety (i.e. claims 1-4) with effect in the territory of the EPC member states Belgium, Denmark, Germany, France, Finland, Italy and Sweden (Rule 25 EPC Regulation)

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In all other respects, we maintain the motions from our statement of defense and counterclaim for Declaration of nullity dated November 17, 2023 (hereinafter: "KE").

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In the triplicate dated May 1, 2024, the plaintiff submitted the following applications:

order the defendants to cease and desist, subject to a penalty payment to be imposed by the court for each case of non-compliance,

I. to offer or supply equipment for transmitting a high-efficiency signal field B or HE-SIG-B in a wireless local area network to customers in the EPC Member States Belgium, Denmark, Germany, France, Finland, Italy and Sweden for use in the said countries,

(...);

II. to offer or supply equipment for receiving a high-efficiency signal field B or HE-SIG-B in a wireless local area network to customers in the EPC Member States Belgium, Denmark, Germany, France, Finland, Italy and Sweden for use in the said countries,

(...);

III. (...);

IV. To offer, place on the market, use and/or import and/or possess for said purposes a device for transmitting a high-efficiency signal field B or HE-SIG-B in a wireless local area network in the EPG Member States Belgium, Denmark, Germany, France, Finland, Italy and Sweden, comprising the following:

(...);

V. To offer, place on the market, use and/or import and/or possess for said purposes a device for receiving a high-efficiency signal field B or HE-SIG-B in a wireless local area network in the EPC Member States Belgium, Denmark, France, Germany, Finland, Italy and Sweden, comprising the following

(...);

G. further order the defendants to hand over the products referred to in points B.IV. to B.VI. in their direct or indirect possession or ownership in the UPC Member States Belgium, Denmark, Germany, France, Finland, Italy and Sweden to a bailiff to be appointed by the plaintiff for the purpose of destruction at the defendant's - the respective defendant's - expense

(...).

With regard to the applications that remained unresolved during the interim hearing, reference is made to the order pursuant to Rule 105.5 VerfO of August 30, 2023 (App 31099/2024) and the reasons for the decision.

## Facts of the case

The plaintiff claims against the defendants for direct and indirect infringement of European patent 3 611 989.

The applicant, based in Shenzhen, China, is a leading global provider of information and communication technology, infrastructure and smart devices.

The plaintiff is the sole registered proprietor of European patent 3 611 989 relating to a method and device for transmitting information of a wireless local area network. The patent in suit claims the priority of CN 201510555654 of September 1, 2015 and is based on a European patent application of August 31, 2016. The mention of the grant of the patent in suit was published by the European Patent Office on May 26, 2021.

Claim 1 has the following wording in the language of grant:

*A method for transmitting a High-Efficiency Signal Field B, HE-SIG-B, in a wireless local area network, the method comprising:*

*transmitting the HE-SIG-B in a transmission bandwidth of multiple 20MHz, wherein the HE-SIG-B comprises two HE-SIG-B contents, including a first HE-SIG-B content carried at each odd-numbered 20MHz sub-channel and a second HE-SIG-B content carried at each even-numbered 20MHz sub-channel,*

*wherein the first HE-SIG-B content comprises a first common field and a first user-specific field, wherein the first common field comprises one or more first resource allocations, RA,*

*wherein the second HE-SIG-B content comprises a second common field and a second user-specific field, wherein the second common field comprises one or more second resource allocations, RA,*

*wherein each of the one or more first RA corresponds to one odd-numbered 20MHz sub-channel, and each of the one or more second RA corresponds to one even-numbered 20MHz sub-channel,*

*wherein the first user-specific field comprises one or more first user scheduling information subfields,*

*each of the one or more first user scheduling information subfields comprising information of one station, STA, the STA being scheduled on one of the one or more resource units indicated by the one or more first RA, and*

*wherein the second user-specific field comprises one or more second user scheduling information subfields, each of the one or more second user scheduling information subfields comprising information of one STA, the STA being scheduled on one of the one or more resource units indicated by the one or more second RA,*

**characterized in that**

*one first RA of the one or more first RA indicates a first allocated resource unit, RU, which is in or overlaps the corresponding one odd-numbered 20MHz sub-channel, wherein the one first RA further indicates that, in the first*

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*HE-SIG-B content, a number of a user scheduling information subfield corresponding to the first allocated RU is 0; or one second RA of the one or more second RA indicates a second allocated RU, which is in or overlaps the corresponding one even-numbered 20MHz sub-channel, wherein the one second RA further indicates that, in the second HE-SIG-B content, a number of a user scheduling information subfield corresponding to the second allocated RU is 0.*

Reference is made to the patent specification for the wording of the other claims.

The plaintiff has declared the patent in suit to the standard-setting organization IEEE as standard-essential for the WiFi 6 standard (see Annex FBD10 "WiFi6 & 6E for dummies") and has submitted an IEEE LOA in this respect.

Defendant 1) is a company based in the USA that manufactures and sells network products for private and business use.

Defendant 2) is a subsidiary of defendant 1) based in Munich, through which the German business, including distribution, is handled.

Defendant 3) is also a subsidiary of defendant 1) based in Ireland, which operates the online store for the German business.

The plaintiff is of the opinion that the access points offered by the defendants, such as "NETGEAR Orbi Pro WiFi 6 - AX6000 Tri-Band Mesh System", "NETGEAR Tri-Band Orbi Pro WiFi 6 Router" and "NETGEAR Nighthawk 12- Stream Dual-Band WiFi 6 Router", make direct use of the device claims and indirect use of the process claims in accordance with the wording. In addition to the documents on the WiFi 6 standard, it also refers to an analysis of test data relating to the attacked embodiments, which the defendants themselves submitted in infringement proceedings before the Düsseldorf Regional Court.

The defendants lodged an objection in due time in accordance with Rule 19 of the Rules of Procedure (App\_570172/2023). In this respect, they argue that the plaintiff's withdrawal from the exception was formally invalid. A formally effective repetition

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was denied on the basis of the nullity action brought by Netgear Switzerland GmbH against the German part of the patent-in-suit before the Federal Patent Court on September 26, 2023 (Ref. 4 Ni 33/23). The judge-rapporteur informed the parties in accordance with Rule 20.2 of the Rules of Procedure that the opposition was to be dealt with in the main proceedings. This notification was confirmed by the panel on April 8, 2024 (App\_595611/2023).

Irrespective of this, the defendants refer to a contractual obligation to grant a license entered into by the plaintiff vis-à-vis IEEE by means of a Letter of Assurance (LOA). This has a third-party effect in their favor. The now applicable bylaws contain a prohibition of action. The plaintiff is therefore barred from bringing the present action for, inter alia, injunctive relief, recall and destruction.

The defendants also deny patent infringement and bring counterclaims for a declaration of nullity of the patent in suit. They argue that the patent in suit is not legally valid and that the attacked embodiments do not make use of the patented teaching. Proof of infringement cannot be provided solely on the basis of the standard because this leaves scope for implementation.

Moreover, the plaintiff's patent claims in relation to products with Qualcomm modems are exhausted. The plaintiff had entered into a corresponding contractual arrangement with Qualcomm. Qualcomm modems were partially installed in the challenged designs.

Irrespective of this, the defendants defend themselves with the antitrust compulsory license objection under ECJ - Huawei v. ZTE. Furthermore, they argue that the plaintiff has in any case not complied with the contractual obligations under the applicable IEEE Bylaws on the LOA.

The plaintiff rejects the antitrust compulsory license objection and the IEEE LOA objection. With regard to IEEE, it has only committed itself with the LOA to the extent that only the 2007 Bylaws, and no later versions, are applicable.

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are. These did not contain a prohibition of action. The bilateral license offer and the alternative offer of licensing via the SISVEL patent pool were both FRAND. Moreover, the defendants had delayed the negotiations and shown themselves to be unwilling to license and, in particular, had not provided any security or information after rejecting their unFRANDly counter-offer, which was submitted far too late. The possibility of taking a pool license via SISVEL was not even considered by the defendants.

The objection of exhaustion does not apply due to the interpretation of the contractual provisions made with Qualcomm as advocated by the plaintiff. Irrespective of this, at most modems are affected and not complex products such as the WiFi routers at issue here. The defendants had also not submitted any device-related information on the first placing on the market in the relevant period within the European Union. In any event, the objection was limited to the period [redacted].

The extension of the action to include claims from patent EP 3 678 321 dated November 23, 2023 was admitted by the Board on December 11, 2023 (App\_587438/2023; App\_595631/2023). The subject matter of the admitted appeal was severed on January 24, 2024 (ORD\_593105/2023). The new file number is ACT\_18917/2024 UPC\_CFI\_168/2024. The defendants' appeals against this were unsuccessful (APL\_4881/2024 UPC\_CoA\_36/2024; APL\_5395/2024 UPC\_CoA\_44/2024). The date for the interim hearing was set for January 16, 2025 and for the main hearing for March 25, 2025.

The action for a negative declaratory judgment brought by the defendants against the plaintiff on April 2, 2024 in relation to the two patents-in-suit EP 3 611 989 and EP 3 678 321 (ACT\_16294 UPC\_CFI\_152/2024) is also scheduled for January 16, 2025 and March 25, 2025 respectively. The defendants base this action solely on the objection of exhaustion in relation to products with Qualcomm modems.

For further details of the facts of the case, reference is made to the written submissions submitted by the parties, including annexes, and the reasons for the decision.

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Reference is made to the overview of the pleadings submitted, annexes and the hearing history (ORD\_49424/2024 as well as Annex K87 and Annex to the defendant's pleading dated 27/09/2024 in APP\_31099/2024). Reference is also made to the skeleton arguments submitted by the plaintiff (Annexes K87-92) and the defendant (pleading dated 27.09.2024 in APP\_31099/2024 including annexes).

## **Reasons for the decision**

### **A. Objection unfounded**

On 07/09/2023 (App\_570172/2023), the defendants filed an objection pursuant to Rule 19 of the Rules of Procedure. By notice dated 30/10/2023 (ORD\_575956/2023), the judge-rapporteur informed the parties in accordance with Rule 20.2 of the Rules of Procedure that the defendants' objection was to be dealt with in the main proceedings.

I. The objection is based on the following facts:

By letter dated May 14, 2023, the applicant declared to the Registry of the Unified Patent Court (Ref. UPC\_APP\_144997/2023) to make use of the exception with regard to the patent in suit on the basis of Art. 83 (3) UPCA and Rule 5.1(b), 5.3(a) and (c) EPC Regulation (opt-out). Both parties consider this declaration to be effective.

With a further declaration dated May 24, 2023 (Ref. UPC\_APP\_302036/2023), the plaintiff again turned to the registry of the Unified Patent Court in order to withdraw from its original claim to the exception. In this respect, the template provided was uploaded to the CMS, which was filled in at the relevant point as follows:

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**Proprietor(s) of each EPC state for which the patent has been granted**

*(Note: This "Proprietor(s)" section must be repeated for each proprietor of the patent and each EPC state)*

Country abbreviation: [AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC • MK MT NL NO PL PT RO RS SE SI SK SM TR]

Proprietor: [Huawei Technologies Co., Ltd.]

Postal address: [Intellectual Property Department, Huawei Administration Building, Shenzhen, Guangdong, 518129, CHINA]

Electronic address: [ep\_invention@huawei.com]

On June 1, 2023, the patent proprietor brought an infringement action against the defendant before the Munich Local Chamber of the Unified Patent Court (ACT\_459771/2023 UPC\_CFI\_9/2023).

The defendant is of the opinion that the Unified Patent Court does not have jurisdiction for this infringement action because the withdrawal from the exception was not effectively declared by the declaration reproduced above. The Unified Patent Court had provided a form for the use of the exception as well as for the withdrawal, which must be used in accordance with Rule 4.1 sentence 2 of the Rules of Procedure. It was clear from this that for a valid withdrawal it was necessary for the proprietor of the patent concerned to be indicated individually for each EPC state, as the patent proprietors had still done in the declaration of 14 May 2023:

**DETAILS OF THE PROPRIETOR(S) FOR THE PATENT :**

COUNTRY CODE	PROPRIETORS	POSTAL ADDRESS	ELECTRONIC ADDRESS
AL	HUAWEI TECHNOLOGIES CO., LTD.	Huawei Administration Building, Bantian, Longgang District, Shenzhen, Guangdong, 518715, China	
AT	HUAWEI TECHNOLOGIES CO., LTD.	Huawei Administration Building, Bantian, Longgang District, Shenzhen, Guangdong, 518715, China	
BE	HUAWEI TECHNOLOGIES CO., LTD.	Huawei Administration Building, Bantian, Longgang District, Shenzhen, Guangdong, 518715, China	
BG	HUAWEI TECHNOLOGIES CO., LTD.	Huawei Administration Building, Bantian, Longgang District, Shenzhen, Guangdong, 518715, China	
CH	HUAWEI TECHNOLOGIES CO., LTD.	Huawei Administration Building, Bantian, Longgang District, Shenzhen, Guangdong, 518715, China	
CY	HUAWEI TECHNOLOGIES CO., LTD.	Huawei Administration Building, Bantian, Longgang District, Shenzhen, Guangdong, 518715, China	

Since Netgear Switzerland GmbH filed a nullity action against the patent in suit before the German Federal Patent Court on September 6, 2023, the patent proprietor can no longer make up for an effective withdrawal.

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The plaintiff is of the opinion that the requirements of Rule 5.7 RP have been met. Neither a representation in which the identical patent proprietor is repeated next to each country code, nor a representation in which the patent proprietor is mentioned once after the listing of all country codes, allows a different understanding than that the named company, as is the case for the plaintiff, is the sole proprietor of the national parts of the patents in the named countries. The withdrawal was therefore effective and the Unified Patent Court had jurisdiction.

The parties therefore assess the requirements for a declaration under Rule 5.7 RP in conjunction with Rule 4.1 sentence 2 RP differently. It must be decided whether it is mandatory to choose a representation in which the identical patent proprietor is repeated next to each country code.

II. The admissible objection is unfounded. The withdrawal from the use of the exemption has been formally effective.

1. Pursuant to Rule 5.7 RFees, the proprietor of a patent or application which is the subject of a request for an exception under this Rule may file a request for revocation in respect of the patent or application, but not in respect of different States for which the European patent has been granted or which are designated in the application. The request for withdrawal shall contain the information referred to in paragraph 3. The Registrar shall enter the request for withdrawal in the Register as soon as possible. The withdrawal shall be deemed to take effect from the date of entry in the Register. Paragraphs 1(a) and 5 shall apply mutatis mutandis.

According to the paragraph 3 referred to, the application for use of the exemption must include

(a) the name of each proprietor or applicant of the European patent or application and of the proprietor of each supplementary protection certificate based on the European patent concerned, as well as all relevant postal and, where applicable, electronic addresses,

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(b) the name and the postal and electronic address

(i) the representative appointed by the applicant or holder pursuant to Article 48 of the Convention

or

(ii) any other person submitting the application for exemption on behalf of the holder or declarant, as well as the authorization to submit the application for exemption,

(c) Details of the patent and/or application concerned, including the publication number of the patent application,

(d) details of any supplementary protection certificate granted on the basis of the patent in question, including the number, and

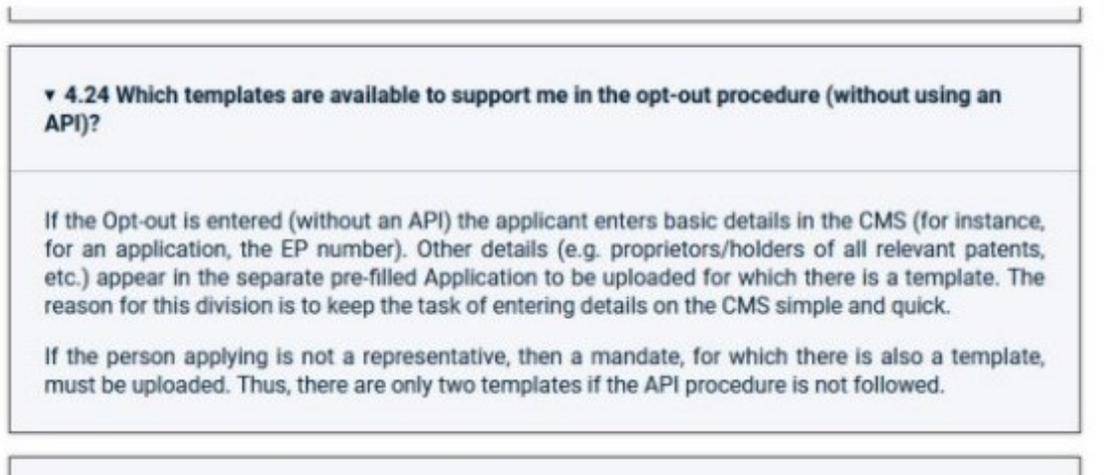
(e) for the purposes of paragraph 1(a), a declaration made by or on behalf of each proprietor or applicant in accordance with Rule 8.5 that he is entitled to be entered in the national patent register.

Subject to paragraph 5 below, the Registrar shall enter the request to avail himself of the exception in the register as soon as practicable. Subject to paragraph 6, a claim for exemption in accordance with the requirements of this Rule shall be deemed to take effect from the date of entry in the Register. Where requirements are missing or incorrectly recorded in the Register, a correction may be submitted to the Registry. The date of entry of the correction must be recorded in the register. The use of the exception is effective from the date of the correction.

2. In the provisional order of 22/09/2023(App\_570172/2023), the Judge-Rapporteur already informed the parties that the Registry, at the request of the

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Rapporteur has informed the parties that the procedure for claiming and withdrawing from the opt-outs is fully automated via the CMS. Furthermore, the parties were informed that the following entry on opt-outs and withdrawal of opt-outs can be found in the FAQs on the homepage of the Unified Patent Court:



In this respect, the rapporteur noted that point 4.24 speaks of "template", whereas the English version of Rule 4.1 sentence 2 of the Rules of Procedure speaks of "official forms".

3. Withdrawal from the exemption is effective from the date of entry in the register. This results from the regulatory context in accordance with Rule 5.7 VerfO in conjunction with Rule 5.5 VerfO. Rule 5.5 of the Implementing Regulation. The entry in the register was made on May 24, 2023 (UPC\_APP\_302036/2023). A correction of the information was not requested by the registry, so that this date is the end of the matter.

4. Irrespective of this, all formal requirements were complied with. The defendants rightly do not deny compliance with the formal requirements of Rule 5 VerfO. However, the formal requirements pursuant to Rule 4.1 of the VerfO were also complied with.

a. According to Rule 4.1 VerfO, pleadings and other documents must be signed and submitted to the registry or the relevant branch office in electronic form. The parties are required to use the official forms available online.

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use. Receipt of the documents is confirmed by the automatic issue of an electronic receipt stating the date and time of receipt.

b. In the present case, the only official form available online for submitting a withdrawal from the exception rule is the corresponding workflow in the case management system (CMS). The CMS entries were properly made by the plaintiff in the workflow provided for this purpose, which the defendants also do not dispute. Insofar as the defendants refer to the template reproduced above, this is not a form within the meaning of Rule 4.1 of the Rules of Procedure, but a template to support the users of the system. Users are free to use a different template.

5. Irrespective of this, a correctly completed withdrawal form in the sense of the defendant would not contain any different or more extensive information than the form submitted by the plaintiff. This is because there are no different patent proprietors in different territories. The information would therefore merely be repeated identically several times. Under these circumstances, it would be contrary to the requirements of a proportionate, fair and equitable procedure (Rule 1.1 RP in conjunction with point 2 of the preamble) to insist on the same data being cited several times and to assume that the withdrawal is formally ineffective solely because of the absence of these mindless repetitions.

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**B. No prohibition of legal action due to IEEE-LOA bylaws**

The defendants argue that the plaintiff is prevented from bringing the present action seeking, inter alia, injunctive relief on the basis of a letter of assurance issued to the standardization organization IEEE.

I. This is based on the following facts:

On July 25, 2019, the plaintiff submitted the following excerpted "Letter of licensing assurance for essential patent claims" (LOA) to the Institute of Electrical and Electronics Engineers (IEEE) (Annex FBD 13):

*No license is implied by submission of this Letter of Assurance*

**D. SUBMITTER'S POSITION REGARDING LICENSING OF ESSENTIAL PATENT CLAIMS:**

In accordance with Clause 6 of the *IEEE-SA Standards Board Bylaws*, the Submitter hereby declares the following:

*Note: Nothing in this Letter of Assurance shall be interpreted as giving rise to a duty to conduct a patent search. The IEEE takes no position with respect to the validity or essentiality of Patent Claims or the reasonableness of rates, terms, and conditions provided in connection with submission of a Letter of Assurance, if any, or in any license agreements offered by the Submitter. To the extent there are inconsistencies between the Letter of Assurance Form and any sample licenses, material licensing terms, or not to exceed rates provided in connection with 1.a. or 1.b. below, the terms of the Letter of Assurance Form shall control.*

- 1. The Submitter may own, control, or have the ability to license Patent Claims that might be or become Essential Patent Claims. With respect to such Essential Patent Claims, the Submitter's licensing position is as follows (*must check a, b, or c and any applicable subordinate boxes*):
  - a. The Submitter will grant a license without compensation to an unrestricted number of applicants on a worldwide basis with reasonable terms and conditions that are demonstrably free of unfair discrimination.
    - (Optional) A sample of such a license (or material licensing terms) that is substantially similar to what the Submitter would offer is attached.

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- b. The Submitter will grant a license under reasonable rates to an unrestricted number of applicants on a worldwide basis with reasonable terms and conditions that are demonstrably free of unfair discrimination.
- (Optional) These reasonable rates will not exceed \_\_\_\_\_ (e.g., percent of product price, flat fee, per unit).
- (Optional) A sample of such a license (or material licensing terms) that is substantially similar to what the Submitter would offer is attached.
- c. The Submitter without conditions will not enforce any present or future Essential Patent Claims against any person or entity making, using, selling, offering to sell, importing, distributing, or implementing such a compliant implementation.

*The IEEE Patent Policy and the procedures used to execute that policy are documented in the IEEE-SA Standards Board Bylaws and the IEEE-SA Standards Board Operations Manual. The terms and definitions set forth in the IEEE Patent Policy, IEEE-SA Standards Board Bylaws, and IEEE-SA Standards Board Operations Manual in effect as of 14 March 2015 are incorporated herein.*

It is undisputed that the Bylaws in the version valid until March 14, 2015 (IEEE Bylaws 2007) did not contain a prohibition of legal action.

The later Bylaws contain a prohibition of suit, for example, the IEEE Bylaws 2022 referenced by Defendants (Exhibit FBD 15, p. 18):

The Submitter of an Accepted LOA who has committed to make available a license for one or more Essential Patent Claims agrees that it shall neither seek nor seek to enforce a Prohibitive Order based on such Essential Patent Claim(s) in a jurisdiction unless the implementer fails to participate in, or to comply with the outcome of, an adjudication, including an affirming first-level appellate review, if sought by any party within applicable deadlines, in that jurisdiction by one or more courts that have the authority to: determine Reasonable Rates and other reasonable terms and conditions; adjudicate patent validity, enforceability, essentiality, and infringement; award monetary damages; and resolve any defenses and counterclaims. In jurisdictions where the failure to request a Prohibitive Order in a pleading waives the right to seek a Prohibitive Order at a later time, a Submitter may conditionally plead the right to seek a Prohibitive Order to preserve its right to do so later, if and when this policy's conditions for seeking, or seeking to enforce, a Prohibitive Order are met.

At the time, the plaintiff and other patent holders refused to submit an LOA with reference to the IEEE Bylaws 2015. According to Sisvel's website, available at <https://www.sisvel.com/licensing-programmes/Wi-Fi/wifi-6/>, last accessed January 29, 2024:

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*"All participating patent owners have submitted a negative LoA with respect to the IEEE 2015 updated IPR Policy and/or are committed to license on FRAND terms, in adherence with the IEEE IPR Policy in effect prior to March 15, 2015."*

The defendants are of the opinion that the IEEE Bylaws 2015 and the later Bylaws replace the IEEE Bylaws 2007 and that the plaintiff is therefore subject to the above-mentioned prohibition of action. In this regard, it refers to the following excerpted adaptation clause in clause 8 of the IEEE-SA STANDARDS BOARD BYLAWS (Annex FBD 14 Sheet 21):

#### **8. Modifications to the *IEEE-SA Standards Board Bylaws***

Proposed modifications to these bylaws may be submitted to the IEEE-SA Standards Board Procedures Committee (ProCom) for its consideration. Proposed modifications that have been agreed to by ProCom shall be submitted to the IEEE-SA Standards Board for recommendation to forward to the IEEE-SA BOG for approval (see clause 5.1 of the *IEEE Standards Association Operations Manual*).

Modifications to these bylaws and the reasons therefor shall be mailed to all members of the IEEE-SA Standards Board at least 30 days before the IEEE-SA Standards Board meeting where the vote on these modifications shall be taken. Two-thirds of the voting Board members present at the meeting shall be required to approve any modifications.

These bylaws shall be reviewed by legal counsel.

II. The objection does not apply. The plaintiff is not subject to a prohibition of action due to the LOA it has submitted.

1. Under the applicable contract law of the State of New York, the LOA is to be understood as a contract for the benefit of third parties. Third parties therefore have a contractual claim to fulfillment of or compliance with the obligations contained therein.

2. However, the plaintiff only submitted an LOA to IEEE with reference to the IEEE Bylaws 2007, which indisputably did not contain a prohibition of action. The adjustment clause reproduced above does not contain a provision to the effect that any adjustment of the Bylaws also affects LOAs already issued under the validity of older Bylaws and in this respect the contractual provisions contained therein are

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subject to dynamic adjustment. The defendants, as

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In response to this objection by the plaintiff, the court also failed to identify any other provision in the IEEE's rules and regulations that contains such a contractual mechanism. Nor have the defendants argued that such an adjustment mechanism exists under New York State contract law. Therefore, it is not necessary to obtain a legal opinion in this regard.

## C. Interpretation of the patent in suit

### I. Formalities

The patent in suit EP 3 611 989 B1 (Annex **K2**) is a patent based on the plaintiff's earlier European application 16 840 831.8 (EP 3 337 077) of August 31, 2016, in short

"parent application" (Annex **StammAnm**) of April 22, 2019. The original description and drawings of the patent in suit, written in Chinese, are available as Annex **UrAnm**. A translation into English was subsequently filed on October 9, 2019 (**UrAnmÜ**). The original claims of the patent in suit in the original English language according to Annex **UrAnspr** were subsequently filed on August 14, 2019.

The description was published on February 19, 2020. The mention of the grant was published on May 26, 2021. The priority of the Chinese patent application CN 2015/10555654 (Annex **PrioAnm**) dated September 1, 2015 is claimed.

The patent in suit is in force with identical claims in the following Contracting Member States: Belgium, Denmark, Germany, Italy, Finland, France, Sweden.

The patent in suit was declared to be standard-essential by the standardization organization IEEE.

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The patent in suit deals with the improvement of data transmission (sending and receiving) within a WLAN in accordance with the Wi-Fi 6 standard (IEEE 802.11ax). In this respect, it concerns a method as well as transmission devices on the transmitter and receiver side for transmitting information of a wireless local area network for reducing the ratio of peak power to average power in order to reduce the signaling effort (see patent specification ("KPS") paragraphs [0004], [0008]).

## **II. State of the art according to the patent in suit**

The prior art recognized in the patent application also includes the precursors to the WiFi6 standard (802.11ax). The WiFi6 standard is the successor to WiFi 5 (802.11ac) and is intended to provide, among other things, a higher and more stable transmission speed, higher data rates, increased capacities, a possibility of use in environments with many connected devices and improved energy efficiency.

It can be seen from the patent in suit (see, for example, Figs. 2a, 3 and 4 and the associated description in para. [0011] et seq.) that data transmission in the Wi-Fi 6 standard basically takes place in transmission bandwidths consisting of multiples of 20 MHz. Specifically, the patent in suit designates the bandwidths 20 MHz, 40 MHz, 80 MHz and 160 MHz, which are correspondingly divided into sub-channels of 20 MHz each. Figs. 2a, 3 and 4 are superimposed below, showing the respective sizes of resource units within the respective bandwidths. According to the patent in suit, the largest possible resource unit in a 20 MHz sub-channel is 242 subcarriers or "tones" in the terminology of the Wi-Fi 6 standard, 484 tones at 40 MHz, 996 tones at 80 MHz:

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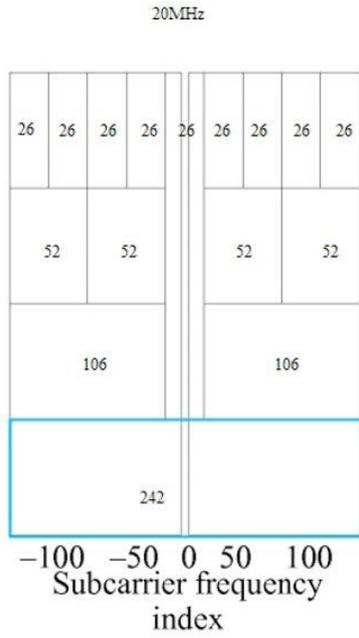


FIG. 2a

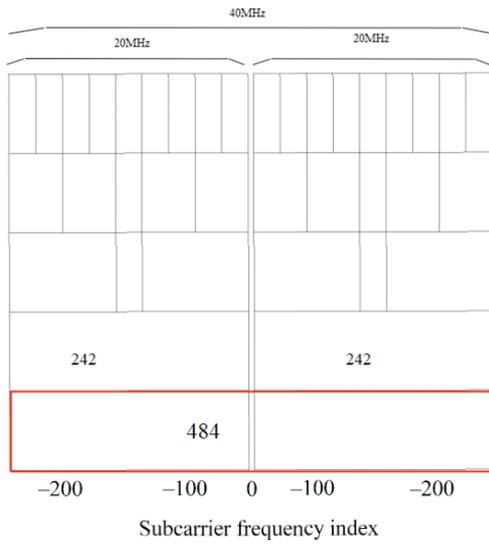


FIG. 3

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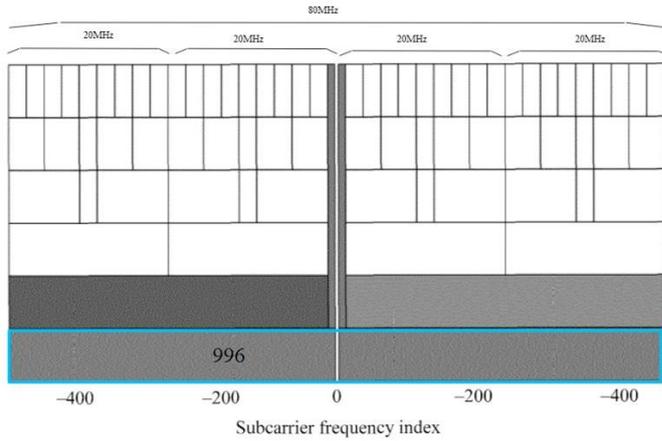


FIG. 4

Allocation to a specific frame is signaled via the so-called RU (Resource Unit) allocation index. The overview table 27-26 from the IEEE 802.11ax specification is shown below:

Table 27-26—RU Allocation subfield

RU Allocation subfield (B7 B6 B5 B4 B3 B2 B1 B0)	#1	#2	#3	#4	#5	#6	#7	#8	#9	Number of entries
0 (00000000)	26	26	26	26	26	26	26	26	26	1
1 (00000001)	26	26	26	26	26	26	26	52		1
2 (00000010)	26	26	26	26	26	52		26	26	1
3 (00000011)	26	26	26	26	26	52		52		1
4 (00000100)	26	26	52		26	26	26	26	26	1
5 (00000101)	26	26	52		26	26	26	52		1
6 (00000110)	26	26	52		26	52		26	26	1
7 (00000111)	26	26	52		26	52		52		1
8 (00001000)	52		26	26	26	26	26	26	26	1
9 (00001001)	52		26	26	26	26	26	52		1
10 (00001010)	52		26	26	26	52		26	26	1
11 (00001011)	52		26	26	26	52		52		1
12 (00001100)	52		52		26	26	26	26	26	1
13 (00001101)	52		52		26	26	26	52		1
14 (00001110)	52		52		26	52		26	26	1
15 (00001111)	52		52		26	52		52		1
16-23 (00010y <sub>22</sub> y <sub>21</sub> y <sub>0</sub> )	52		52		—	106				8

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24-31 (00011y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	106				—	52	52	8
32-39 (00100y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	26	26	26	26	26	106		8
40-47 (00101y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	26	26	52		26	106		8
48-55 (00110y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	52		26	26	26	106		8
56-63 (00111y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	52		52		26	106		8
64-71 (01000y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	106				26	26	26	26
72-79 (01001y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	106				26	26	52	8
80-87 (01010y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	106				26	52	26	26
88-95 (01011y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	106				26	52	52	8
96-111 (0110y <sub>1</sub> y <sub>0</sub> z <sub>1</sub> z <sub>0</sub> )	106				—	106		16
112 (01110000)	52	52		—	52	52	1	
113 (01110001)	242-tone RU empty (with zero users)							1
114 (01110010)	484-tone RU; contributes zero User fields to the User Specific field in the same HE-SIG-B content channel as this RU Allocation subfield							1
115 (01110011)	996-tone RU; contributes zero User fields to the User Specific field in the same HE-SIG-B content channel as this RU Allocation subfield							1
116-119 (011101x <sub>1</sub> x <sub>0</sub> )	Reserved							4
120-127 (01111y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	Reserved							8
128-191 (10y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> z <sub>1</sub> z <sub>0</sub> )	106			26	106			64
192-199 (11000y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )					242			8
200-207 (11001y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )					484			8
208-215 (11010y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )					996			8
216-223 (11011y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	Reserved							8
224-255 (111x <sub>4</sub> x <sub>3</sub> x <sub>2</sub> x <sub>1</sub> x <sub>0</sub> )	Reserved							32

(Anlage K 14, S. 564 f., Tabelle 27-26)

Among other things, IEEE 802.11ax provides for multiple user multiple input multiple output (MU-MIMO) technology for both the uplink and the downlink (see Appendix K 14, section 26.5.1 and section 26.5.2). Accordingly, the access point (AP) can both simultaneously transmit data to several non-AP (users) and request data from them. MIMO transmissions use spatial multiplexing, which is made possible by different signal propagation times between multiple antenna transmitters and multiple antenna receivers. The same frequency resource can therefore be used several times, i.e. by several parallel data streams (so-called space time streams) at the same time. MIMO was already partially supported by the predecessor standards (in the downlink). MU-MIMO extends the principle to multiple access by multiple users, with the different users accessing different space time streams of the same channel. In theory, MU-MIMO offers greater transmission flexibility. However, real added value can only be generated if the AP (access point) and STA (station = user) are coordinated. In general, MU-MIMO is only

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possible if the AP has more antennas than the STAs (see Annex FBD 9, p. 60). However, it also depends on whether the respective STA has sufficient antennas (see Appendix FBD 8, p. 65).

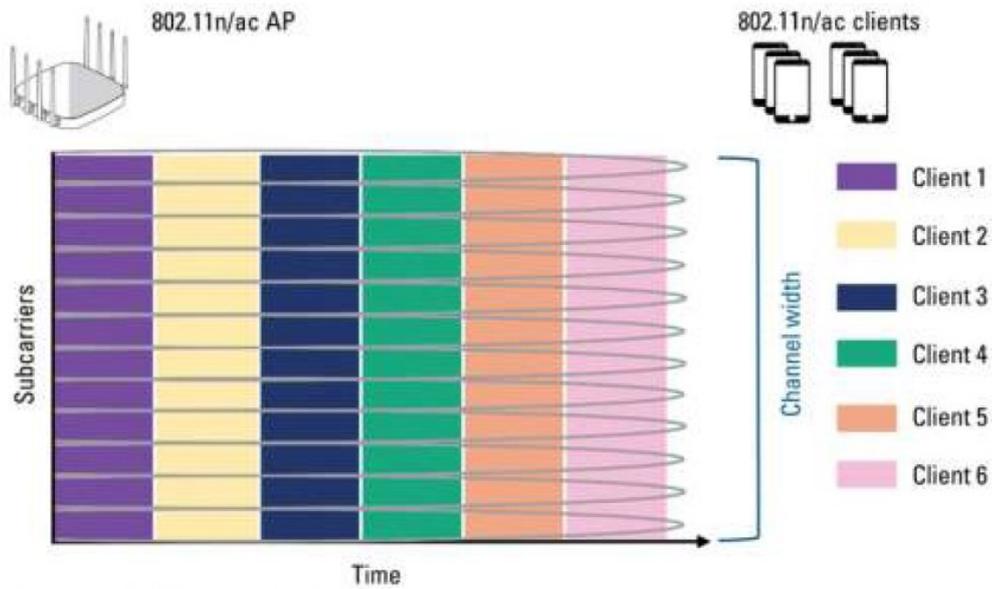
IEEE 802.11ax also provides Orthogonal Frequency Division Multiplexing Access (OFDMA) functionality for subscribers connected to an AP. Within the Wi-Fi6 standard, OFDMA allows users to make better use of spectrum by sharing channel resources by dividing the channel resources into multiple RUs (Resource Units).

Such RUs are assigned to different users and contain their respective data. In this way, the data of several users can be sent simultaneously via one channel.

IEEE 802.11ax is the first Wi-Fi standard to use OFDMA.

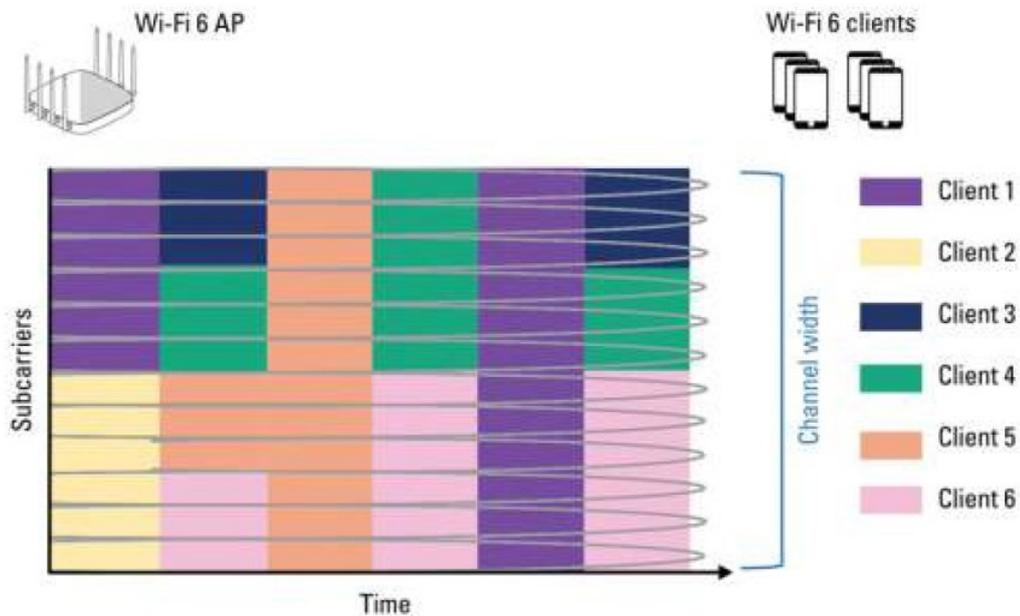
More precisely, OFDMA is derived from OFDM (Orthogonal Frequency-Division Multi-plexing), a technology known at the time of priority that enables dynamic distribution of the available carrier frequencies to multiple subscribers. OFDM was already used as part of the WiMax and LTE wireless standards. An innovation of the IEEE 802.11ax standard compared to its predecessor IEEE 802.11ac concerns the allocation of time-frequency resources to the subscribers of an access point (AP). In the predecessor standard IEEE 802.11ac, OFDM is used in such a way that all carrier frequencies within a time interval are only allocated to a single subscriber. This is illustrated in the following figure:

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(Anlage FBD 10, Seite 21)

In contrast, thanks to Orthogonal Frequency Division Multiple Access (OFDMA), the IEEE 802.11ax standard allows the available carrier frequencies to be divided among several subscribers within a time interval. This is illustrated in Figure 2 below:



(Anlage FBD 10, Seite 23)

As shown in the figure above, during the first time interval one half of the available carrier frequencies is allocated to the first subscriber, the other half to the second subscriber.

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The other half is assigned to the second subscriber. In the second time interval, the available carrier frequencies are divided equally between the third, fourth, fifth and sixth subscribers. Finally, in the third time interval, all carrier frequencies are assigned exclusively to the fifth subscriber. In practice, the performance of DL OFDMA strongly depends on the ability of the AP to schedule DL OFDMA transmissions correctly. The number of clients, the packet size and the buffer size play a significant role in the planning. Accordingly, the benefit of DL OFDMA is limited.

In terms of time, the radio resource is divided at the physical level by so-called (Physical Protocol Data Units) PPDUs, which occupy the medium for a certain transmission period. PPDUs are coded and decoded according to a scheme specified in the standard. In IEEE 802.11ax, there are four additional HE (High Efficiency) PPDU formats compared to the previous version of the IEEE 802.11 standard: HE SU PPDU, HE MU PPDU, HE ER SU PPDU and HE TB PPDU, which are used in

Section 27.3.4 of the standard (Annex K 14).

As the prior art cited in the specification of the patent in suit shows, certain fields were specifically designed as part of the preamble of the HE-PPDU, namely the HE-SIG-A field (HE Signal A field) and the HE-SIG-B field (HE Signal B field), which were defined quite early in the development of the Wi-Fi 6 standardization process. While the HE-SIG A field occurs in all HE-PPDU formats, the HE-SIG B field only occurs in the HE-MU-PPDU format (Appendix K 14, p. 511, Section 27.3.4):

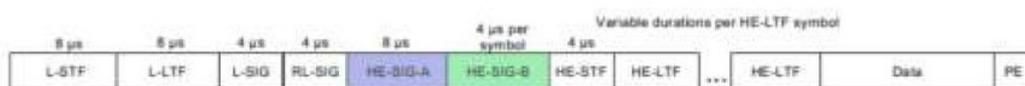


Figure 27-9—HE MU PPDU format

(Anlage K 14, S. 510, Figur 27.9 – Kolorierung hinzugefügt)

The focus of the invention is the HE-SIG-B field just mentioned, which signals information about the allocation of available resources to the respective receivers ("STA").

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Therefore, the patent in suit focuses on embodiments of Wi-Fi 6 that implement the HE-MU-PPDA format (see Exhibit K 14, Figs. 27-8, 27-10, 27-11):



Figure 27-8—HE SU PPDU format

(Anlage K 14, S. 510, Figur 27.8,– Kolorierung hinzugefügt)

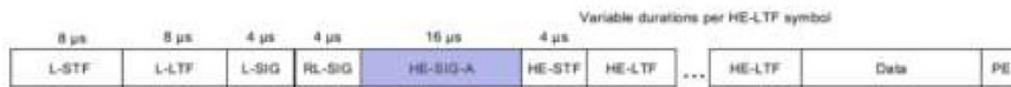


Figure 27-10—HE ER SU PPDU format

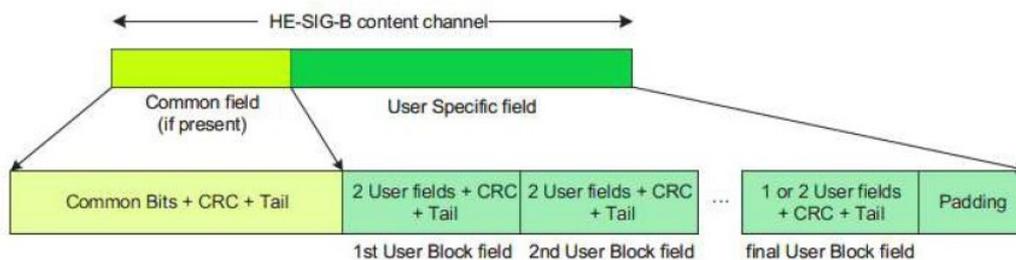
(Anlage K 14, S. 511, Figur 27.10,– Kolorierung hinzugefügt)



Figure 27-11—HE TB PPDU format

(Anlage K 14, Seite 512, Figur 27-11)

The HE-SIG-B field in an HE MU PPDU basically consists of a so-called Common field and a User Specific field:



(Anlage K 14, S. 560, Figur 27-26, – Kolorierung hinzugefügt)

The common field contains the allocation of resources, such as the allocation of Rs (see Appendix K14, p. 560).

In the prior art, it is transmitted divided into a first and a second HE-SIG-B content (referred to in the Wi-Fi 6 standard as "HE-SIG-B content channel", whereby the first HE-SIG-B content refers to the respective odd-numbered 20 MHz sub-channels and the second HE-SIG-B content refers to the respective even-numbered 20 MHz sub-channels. This is visualized using the following edited version of Figure 15, which shows an exemplary transmission situation in a bandwidth of 80 MHz, whereby four HE-SIG-B contents are shown one above the other and two first HE-SIG-B contents are each enclosed by a black interrupted line ("first HE-SIG-B content") and two second HE-SIG-B contents are each enclosed by a red interrupted line:

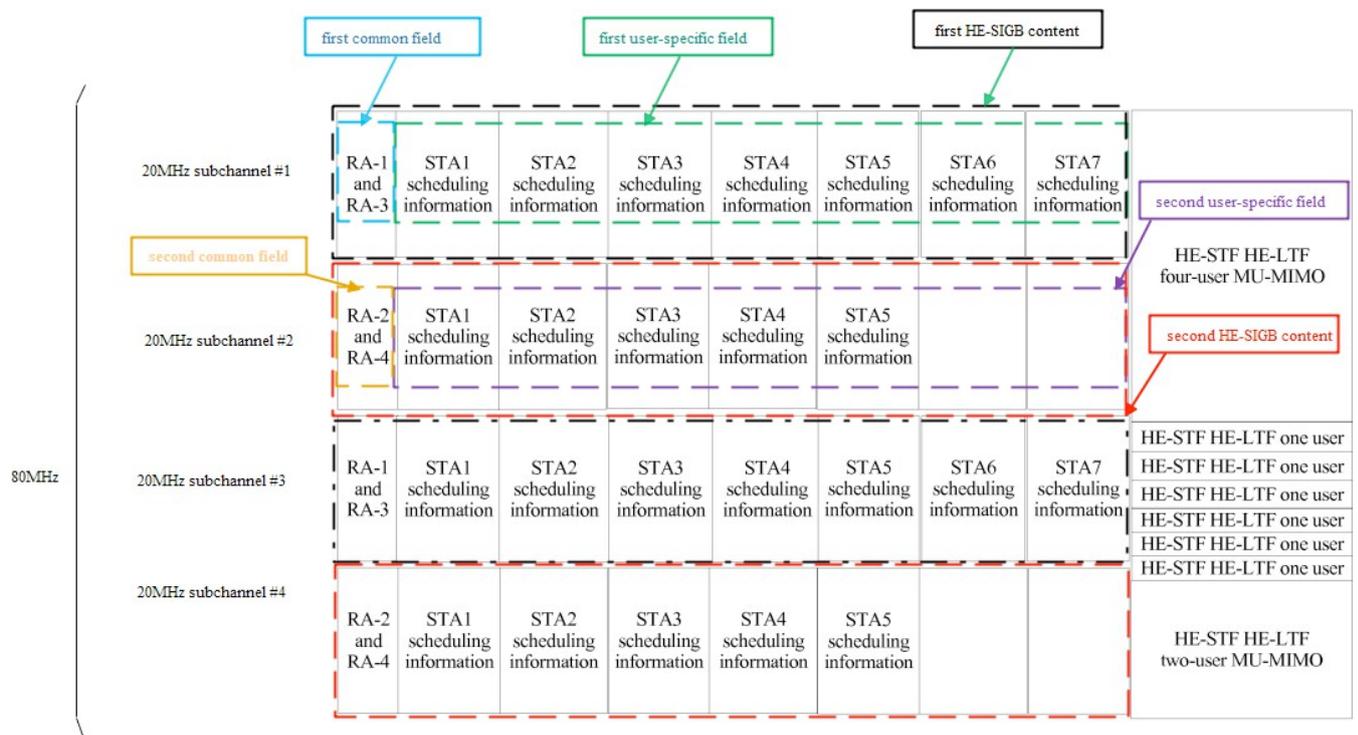


FIG. 15

The figure above illustrates that the first HE-SIG-B content (black) is transmitted in the odd-numbered 20 MHz subchannels #1 and #3, while the second HE-SIG-B content (red) is transmitted in the even-numbered 20 MHz subchannels #2 and #4. Since this is an 80 MHz transmission (i.e. there are a total of four 20 MHz subchannels), the second HE-SIG-B content (red) is transmitted in the even-numbered 20 MHz subchannels #2 and #4.

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channels), the first HE-SIG-B content is repeated (or duplicated) in sub-channel#3, the second HE-SIG-B content in sub-channel #4. It is already important at this point that, due to the specifications of the standard on which the patent in suit is based, the length of the longer HE-SIG-B content determines the length of both HE-SIG-B contents, because the signaling of the HE-SIG-B contents must end uniformly at the same OFDM symbol. The first and second HE-SIG-B content must therefore always be "the same length".

In general, as explained above, an HE-SIG-B content has a "Common Field" and a "User Specific Field" (see for example Fig. 7). The respective common field has one or more first or one or more second resource allocations, RA, depending on whether the RAs are in the first or second HE-SIG-B content. The respective RAs refer to so-called user scheduling information subfields, which in turn are each assigned to a STA. The STAs are allocated to the resource unit (RU) assigned to the respective RA:

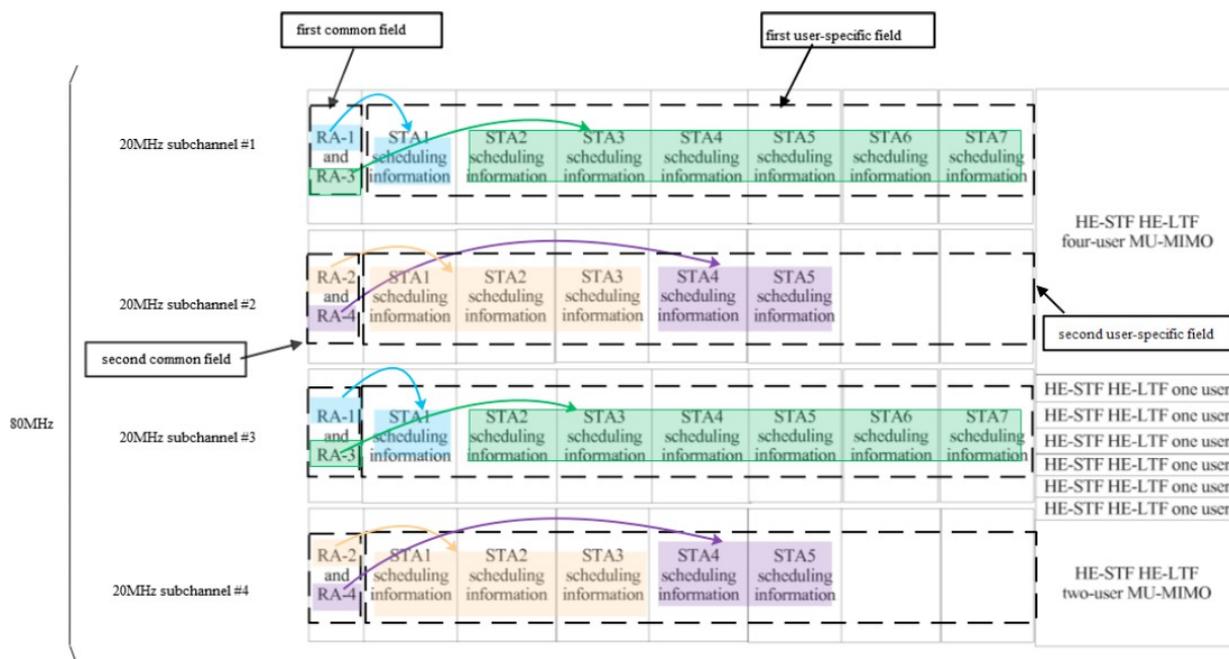


FIG. 15

In the prior art, however, this type of signaling could lead to inefficiencies in certain situations, so that an RA had to reference at least one user time planning subfield. This is illustrated by the example

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of an 80 MHz transmission according to Fig. 15 of the patent in suit, which is shown below in an edited and supplemented version:

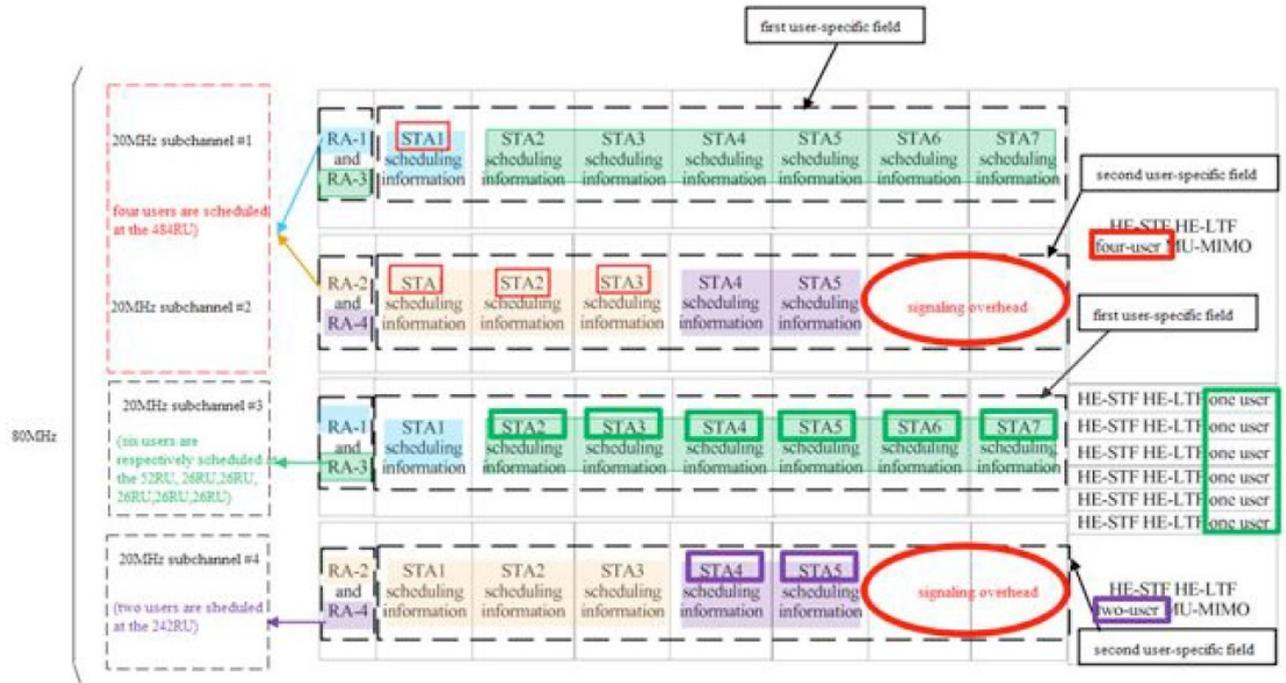


FIG. 15

According to the corresponding description in para. [0040] ff. of the patent in suit, Fig. 15 is based on an 80 MHz transmission. Transmission here is initially via a 484-tone RU, which accordingly (cf. the explanations above) occupies 40 MHz of the total available bandwidth of 80 MHz. In relation to the 20 MHz subchannel just explained, this RU therefore "overlaps" the first two subchannels (subchannel #1 and subchannel #2). A total of four receivers (STAs) are assigned to this single 484-tone RU (e.g. by using MU-MIMO transmission technology) (in the figure, the corresponding "STA" designations are highlighted in red boxes to clarify the information contained in the right-hand column of Fig. 15). The assignment is made accordingly via four user scheduling information sub-fields (1\*light blue + 3\*orange). The remaining 40 MHz of the available bandwidth of 80 MHz are assigned as follows in the example: The 20 MHz (242 tones) of subchannel #3 are (not completely) occupied by one 52-tone RU and five 26-tone RUs, each of which is assigned one STA. The RUs (1 x 52-tone RU and 5 x 26-tone RU) in subchannel

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Six STAs (green) are therefore assigned to subchannel #3. Finally, subchannel #4 is fully occupied by a 242-tone RU to which 2 STAs (purple) are assigned in a MU-MIMO transmission ("two user").

The above processing of Fig. 15 shows the two RAs in the common field of each HE-SIG-B content, as well as - indicated by corresponding colors - the user scheduling information subfields referenced by the respective RA (including the STA scheduling information marked in color). According to the method known in the prior art, on which the example according to Figure 15 is based, it was necessary for each RA to reference at least one user scheduling information subfield. Therefore, since the 484 tone RU fills the two upper 20 MHz subchannels, in subchannel #1 the RA-1 (blue) necessarily references a user scheduling information subfield (blue) for one of the four STAs, the remaining three user scheduling information subfields for the remaining three (orange) (of the total of four) STAs are signaled in subchannel#2. The RA-2 (orange) in the second HE-SIG-B content refers to these three user scheduling information subfields.

The first HE-SIG-B content also contains a further RA (RA-3, green) as explained, which relates to subchannel#3. The six RUs transmitted in this subchannel are assigned to six receivers as shown (the corresponding STAs are highlighted in green in the figure above). Accordingly, the first HE-SIG-B content contains six user scheduling information subfields (green) for these six receivers.

The first HE-SIG-B content thus comprises a total of seven user scheduling information sub-fields. In contrast, the second HE-SIG-B content contains only five user scheduling information sub-fields, namely the three sub-fields already mentioned for the total of four receivers allocated on the 484 tone RU (orange), plus the two user scheduling information sub-fields (purple), which relate to the two receivers of the 242 tone RU transmitted in sub-channel #4. However, since a complete HE-SIG-B must contain all user-specific fields of the respective HE-SIG-B content - which means that the HE-SIG-B content with the largest number of user scheduling sub-fields must exceed the length of the HE-

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SIG-B as a whole, this type of signaling results in an unnecessary "overhead" (circled in red in the figure above) of 2\*2 fields, which must be filled with placeholder bits during transmission and decoded on the receiver side. The overhead of the four fields results from the fact that the user-specific field in the first HE-SIG-B content comprises seven user scheduling information sub-fields, but only five in the second HE-SIG-B content. Since HE-SIG-B occurs before each transmission, the overhead adds up to a significant contribution.

### **III. Specialist addressed**

The average person skilled in the art (hereinafter referred to as "skilled person") has the skills of an engineer in communications engineering and several years of professional experience in the development and standardization of wireless digital communication systems. This person skilled in the art is familiar with the current version of the IEEE 802.11 standard under development on the priority date of the patent in suit and the related proposed improvements.

### **IV. Task**

Against the technical background described above, the purpose of the patent in suit is to provide, within the framework of the IEEE 802.11 standard currently under development, a method and a device for transmitting information via a wireless local area network in which the signaling overhead described is avoided or reduced (cf. KPS, para. [0024]).

### **V. Solution**

The patent in suit solves this problem by using a "special RA" as a "flag" within the standard and thus allowing signaling that makes it possible to dispense with a user scheduling information sub-field assigned to this RA. What can be achieved by this is shown in Figure 14 of the claim patent, which is also shown below in an edited version:

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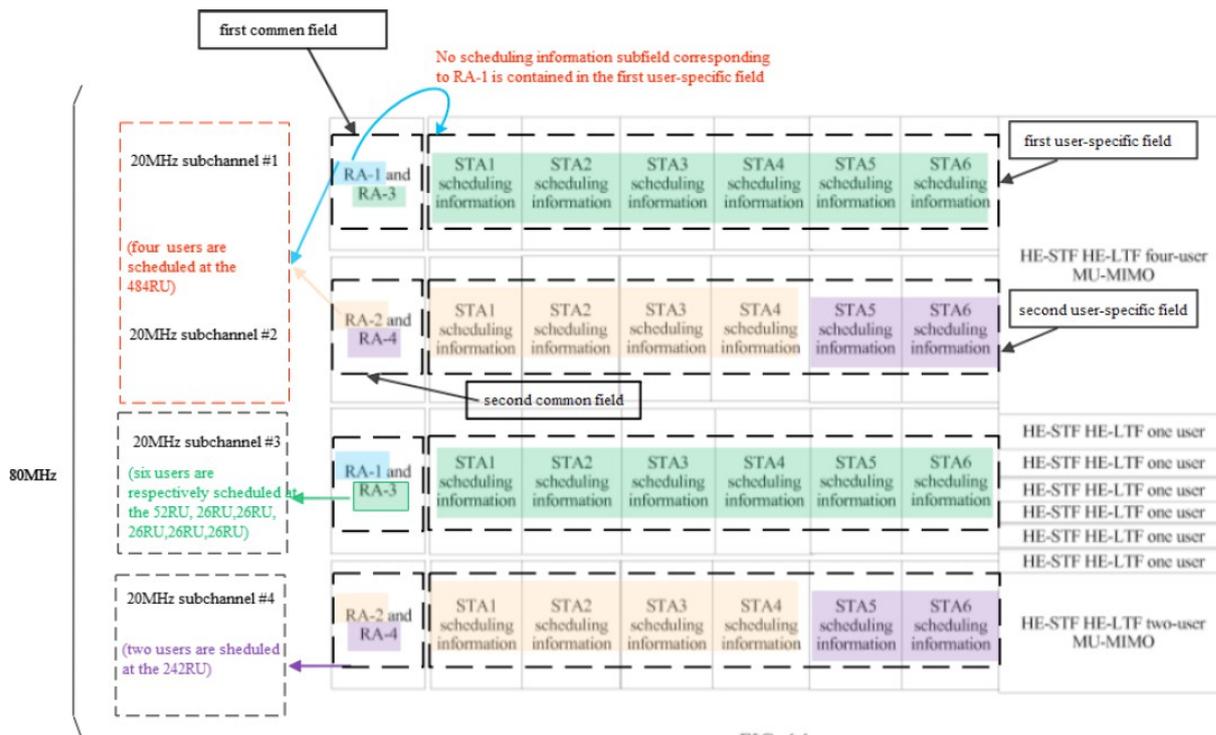


FIG. 14

In contrast to the example according to Fig. 15, the special RA-1 (light blue) here signals that no user scheduling information sub-field is contributed to the user-specific field of the first HE-SIG-B content. Accordingly, the user-specific field of the first HE-SIG-B content "only" contains six user scheduling information sub-fields, namely for the six recipients of the six RUs transmitted in sub-channel#3 (green). Compared to the example in Figure 15, the user-specific field of the second HE-SIG-B content contains an additional user scheduling information subfield and thus also six subfields in total. This is due to the fact that - signaled by RA-2 - user scheduling information subfields are available for all four receivers (orange) of the 484 tone RUs transmitted in the first two subchannels (#1 and #2).

The number of user scheduling information subfields in the two HE-SIG-B contents can be "equalized", so to speak, by using the special RA-1. The overhead shown in the example in Fig. 15 can thus be clearly reduced (by one column). The highlight of the invention (expressed in features 1.6 and 1.7) is therefore the possibility of signaling using the hitherto unknown

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"special RA" with which no user scheduling information subfield is necessary in the associated user-specific field of the HE-SIG-B content. Expressed in the words of the patent-in-suit (with respect to Preferred Embodiment 2):

[0037] (...) The special RA is used to indicate that there is no corresponding user scheduling information field in a subsequent user specific field.

[0038] After obtaining the indication of the special resource allocation mode, a receive end accordingly obtains that for this 20 MHz subchannel, no user scheduling information fields exist in a user specific field corresponding to this 20 MHz subchannel. In this case, the receive end may ignore this resource allocation mode indication information.

This solution is provided by methods (independent claims 1 and 2, dependent claims 3-6) and devices (independent claims 7 and 8, dependent claims 9-12). The parties discuss the invention exclusively on the basis of independent method claim 1. From the court's point of view, this is correct.

## VI. Characteristic structure claim 1

Claim 1 can be structured as follows (see Annexes K12 and FBD 11):

- |   |  |
|---|--|
| <p>1. <i>A method for transmitting a High-Efficiency Signal Field B, HE-SIGB, in a wireless local area network, the method comprising:</i></p> <p>1.1 <i>transmitting the HE-SIGB in a transmission bandwidth of multiple 20 MHz,</i></p> <p>1.2 <i>wherein the HE-SIGB comprises two HE-SIGB contents, including a first HE-SIGB content carried at each odd-numbered 20 MHz sub-channel and a second HE-SIGB content carried at each even-numbered 20 MHz sub-channel,</i></p> <p>1.2.1 <i>wherein the first HE-SIGB content comprises a first common field and a first user-specific field, wherein the first common field comprises one or more first resource allocations, RA,</i></p> <p>1.2.2 <i>wherein the second HE-SIGB content comprises a second common field and a second user-specific field, wherein the second common field comprises one or more second resource allocations, RA,</i></p> <p>1.3 <i>wherein each of the one or more first RA corresponds to one odd-numbered 20 MHz sub-channel, and each of the one or more second RA corresponds to one</i></p> | <p>1. <i>Verfahren zum Übertragen eines Hocheffizienz-Signalfeld B bzw. HE-SIGB in einem drahtlosen lokalen Netzwerk, wobei das Verfahren Folgendes umfasst:</i></p> <p>1.1 <i>Übertragen des HE-SIGB in einer Übertragungsbandbreite von Vielfachen von 20 MHz,</i></p> <p>1.2 <i>wobei das HE-SIGB zwei HE-SIGB-Inhalte umfasst, beinhaltend einen ersten HE-SIGB-Inhalt, geführt in jedem ungeradzahligen 20 MHz-Unterkanal, und einen zweiten HE-SIGB-Inhalt, geführt in jedem geradzahligen 20 MHz-Unterkanal,</i></p> <p>1.2.1 <i>wobei der erste HE-SIGB-Inhalt in erstes gemeinsames Feld und ein erstes benutzerspezifisches Feld umfasst, wobei das erste gemeinsame Feld eine oder mehrere erste Ressourcenzuweisungen, RA, umfasst,</i></p> <p>1.2.2 <i>wobei der zweite HE-SIGB-Inhalt ein zweites gemeinsames Feld und ein zweites benutzerspezifisches Feld umfasst, wobei das zweite gemeinsame Feld eine oder mehrere zweite Ressourcenzuweisungen, RA, umfasst,</i></p> <p>1.3 <i>wobei jede der einen oder der mehreren ersten RA einem ungeradzahligen 20 MHz-Unterkanal entspricht und jede der einen oder der mehreren</i></p> |
|---|--|

even-numbered 20 MHz sub-channel,

zweiten RA einem geradzahligem 20 MHz-Unterkanal entspricht,

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*subfield corresponding to the first allocated RU is 0; or*

- 1.7 *one second RA of the one or more second RA indicates a second allocated RU, which is in or overlaps the corresponding one even-numbered 20 MHz sub-channel, wherein the one second RA further indicates that, in the second HE-SIGB content, a number of a user scheduling information subfield corresponding to the second allocated RU is 0.*

*Anzahl eines Benutzerzeitplanungsinformation-Unterfelds, das der ersten RU entspricht, 0 ist; oder*

- 1.7 *eine zweite RA der einen oder der mehreren zweiten RA eine zweite zugewiesene RU angibt, die sich innerhalb des entsprechenden einen geradzahligen 20 MHz-Unterkanal befindet oder mit diesem überlappt, wobei die eine zweite RA ferner angibt, dass in dem zweiten HE-SIGB-Inhalt eine Anzahl eines Benutzerzeitplanungsinformation-Unterfelds, das der zweiten RU entspricht, 0 ist.*

## VII. Explanation of the individual features of claim 1

### 1. Principles of interpretation

The patent claim is not only the starting point, but the decisive basis for determining the scope of protection of a European patent under Art. 69 EPC in conjunction with the Protocol on the Interpretation of Art. 69 EPC. The interpretation of a patent claim does not depend solely on its exact wording in the linguistic sense. Rather, the description and the drawings must always be used as explanatory aids for the interpretation of the patent claim and not only to resolve any ambiguities in the patent claim. However, this does not mean that the patent claim merely serves as a guideline and that its subject matter also extends to that which, after examination of the description and the drawings, appears to be the patent proprietor's request for protection. The patent claim is to be interpreted from the perspective of the person skilled in the art. When applying these principles, appropriate protection for the patent proprietor should be combined with sufficient legal certainty for third parties. These principles for the interpretation of a patent claim apply equally to the assessment of infringement and the legal validity of a European patent (CoA UPC\_CoA\_335/2023).

### 2. Feature 1.0

- |   |   |
|---|---|
| <p>1. <i>A method for transmitting a High-Efficiency Signal Field B, HE-SIG-B, in a wireless local area network, the method comprising:</i></p> | <p>1. <i>Verfahren zum Übertragen eines Hocheffizienz-Signalfeld B bzw. HE-SIG-B in einem drahtlosen lokalen Netzwerk, wobei das Verfahren Folgendes umfasst:</i></p> |
|---|---|

By stating in the wording of the claim that the method relates to the transmission of a High-Efficiency Signal Field B (HE-SIG-B) in a wireless local area network, it is made clear to the person skilled in the art that the invention deals with an improvement in the context of the IEEE 802.11ax standard (802.11ax) currently under development. This is confirmed by the description [0014-0015]. This is because it explains how possible packet structures in 802.11ax look and

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that one of the possible structures is the HE-SIG-B. Based on his knowledge of the details of the standard, the person skilled in the art thus knows that a known HE-SIG-B is structured as follows - according to Figures 5 to 7 of the patent in suit:

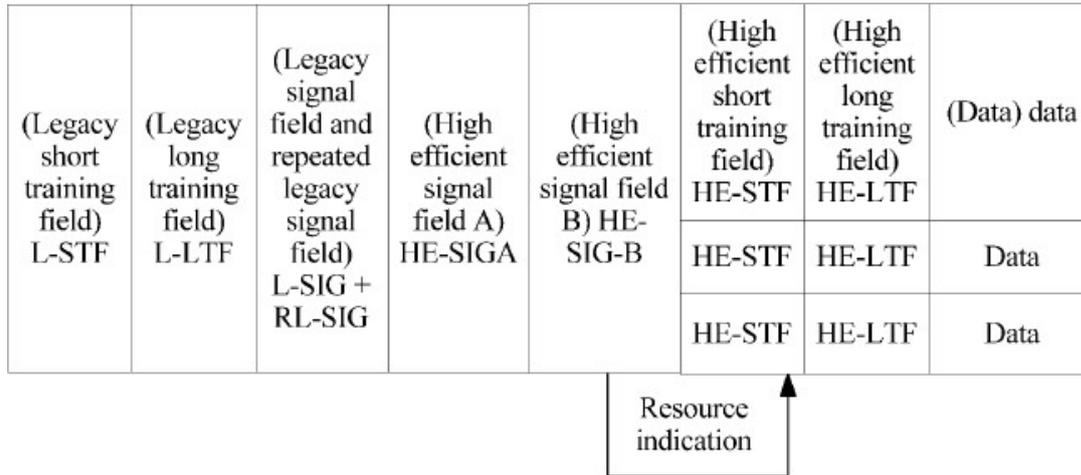


FIG. 5

BW (bandwidth)	BSS color (basic service set color identifier)	#sym HE-SIGB (number of symbols in HE-SIGB)	MCS of HE-SIGB (modulation and coding scheme)	HE-SIGA CRC (cyclic redundancy code in HE-SIGA)	(To-be-determined) TBD
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FIG. 6

Resource allocation indication information	STA1 scheduling information	STA2 scheduling information	STA3 scheduling information	...
Common field	User Specific field			

FIG. 7

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The field therefore consists of a "Common Field" containing "resource allocation indication information" and a "User Specific Field" with the subfields "STA 1-..." and "scheduling information".

Due to the reference to the version of the standard known at the time of priority, it is furthermore made clear to the person skilled in the art that the transmission therein is basically only intended in very specific bandwidths, namely 20, 40, 80 and 160 MHz [0011, 0012, 0013, 0016]. In the event that bandwidths with 40, 60, 80 or 160 MHz are available, signaling is required for each 20 MHz sub-bandwidth [0016]. Also only in this case, namely if the bandwidth is greater than 20 MHz, is it also necessary for a preamble to be transmitted for each 20 MHz sub-bandwidth via the HE-SIG-B structure [0022]. Since the claim speaks of HE-SIG-B, it is clear to the skilled person that the invention can only relate to transmissions of the HE-SIG-B in bandwidths of 40, 80 and 160 MHz. These considerations are supported by feature 1.1.

### 3. Feature 1.1

*1.1 transmitting the HE-SIG-B in a transmission bandwidth of multiple 20 MHz,*

*1.1 Übertragen des HE-SIG-B in einer Übertragungsbandbreite von Vielfachen von 20 MHz,*

The wording "Transmitted in a transmission bandwidth of multiples of 20 MHz" makes it clear that, according to the requirement, it is only a question of how HE-SIG-B is to be transmitted in cases where the bandwidth is a multiple of 20 MHz. According to feature 1.2, a first HE-SIG-B content is to be transmitted in every odd-numbered 20 MHz channel and a second HE-SIG-B content in every even-numbered 20 MHz channel. How many multiples the available bandwidth then has is, however, not claimed and is determined in individual cases by the external conditions. However, the person skilled in the art knows from the reference to "HE-SIG-B" that this formulation does not mean bandwidths with non-integer multiples of 20 (e.g.  $1.5 \times 20 = 30$ ) and also not bandwidths of integer multiples of 20.

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odd-numbered multiples of 20 MHz, i.e.  $1 \times 20 = 20$ ,  $3 \times 20 = 60$  and  $5 \times 20 = 100$  etc., but only those with integer even-numbered multiples of 20, i.e.  $2 \times 20 = 40$ ,  $4 \times 20 = 80$  and  $8 \times 20 = 160$  are meant. This is because the "HE-SIG-B" field implicitly and explicitly refers to the principles and basic features of the IEEE 802.11ax standard, which were defined before the priority date of the patent in suit and which are only available in the IEEE 802.11ax standard. And only with these can the further features of the invention according to claim 1, which relate to pairs of even-numbered and odd-numbered subchannels, be realized, as will be shown shortly.

#### 4. Feature 1.2

1.2 *wherein the HE-SIG-B comprises two HE-SIG-B contents, including a first HE-SIG-B content carried at each odd-numbered 20 MHz sub-channel and a second HE-SIG-B content carried at each even-numbered 20 MHz sub-channel,*

1.2.1 *wherein the first HE-SIG-B content comprises a first common field and a first user-specific field, wherein the first common field comprises one or more first resource allocations, RA,*

1.2.2 *wherein the second HE-SIG-B content comprises a second common field and a second user-specific field, wherein the second common field comprises one or more second resource allocations, RA,*

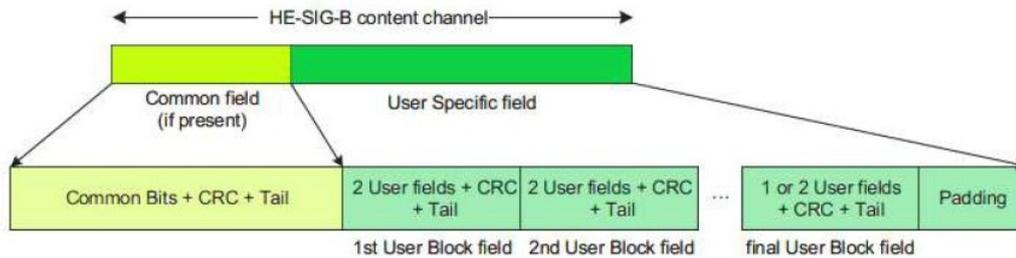
1.2 *wobei das HE-SIG-B zwei HE-SIG-B-Inhalte umfasst, beinhaltend einen ersten HE-SIG-B-Inhalt, geführt in jedem ungeradzahligen 20 MHz-Unterkanal, und einen zweiten HE-SIG-B-Inhalt, geführt in jedem geradzahligen 20 MHz-Unterkanal,*

1.2.1 *wobei der erste HE-SIG-B-Inhalt in erstes gemeinsames Feld und ein erstes benutzerspezifisches Feld umfasst, wobei das erste gemeinsame Feld eine oder mehrere erste Ressourcenzuweisungen, RA, umfasst,*

1.2.2 *wobei der zweite HE-SIG-B-Inhalt ein zweites gemeinsames Feld und ein zweites benutzerspezifisches Feld umfasst, wobei das zweite gemeinsame Feld eine oder mehrere zweite Ressourcenzuweisungen, RA, umfasst,*

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Features 1.2.1 and 1.2.2 are based on the structure of HE-SIG-B content known from the earlier version of the IEEE 802.11ax standard:



(Anlage K 14, S. 560, Figur 27-26, – Kolorierung hinzugefügt)

Characteristically, the HE-SIG-B comprises two HE-SIG-B contents; this means that other components may also be included, but are left open by the claim.

The two HE-SIG-B contents are referred to as "first HE-SIG-B content" and "second HE-SIG-B content". The chosen designations do not describe an ordering scheme in the sense of a sequence, but only serve the purpose of differentiation. The applicant could just as well have clarified the differentiation using colors, e.g. "blue HE-SIG-B content" and "red HE-SIG-B content".

The "first HE-SIG-B content" (e.g. blue) and the "second HE-SIG-B content" (e.g. red) each comprise a "common field" and a "user-specific field", which indicates that other components may also be included, but which are left open by the claim.

These fields are in turn addressed as "first common field" (blue) and "first user-specific field" (blue) or as "second common field" (red) and "second user-specific field" (red) for allocation reasons alone.

The respective first or second "common field" comprises one or more resource allocations, which means that other components may also be included. Depending on whether the resource allocations are located in the first or second common field, they are referred to as "multiple first/second resource allocations".

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sions". Again, this does not convey an ordering scheme in the sense of a sequence. Rather, the characteristics only contain the information that there is one or more blue or red resource allocations in the blue or red common field.

"First" (blue) user-specific fields are assigned to odd and "second" (red) user-specific fields are assigned to even subchannels with 20 MHz each. From this it follows, as already explained above, that the invention relates only to those transmission situations in which integer even multiples of 20, i.e.  $2 \times 20 = 40$ ,  $4 \times 20 = 80$  and  $8 \times 20 = 160$  MHz with subdivisions into the corresponding number of subchannels at 20 MHz are available.

This breakdown can be summarized in the following table:

blue	red
first	second
odd	straight

### 5. Feature 1.3

*1.3 wherein each of the one or more first RA corresponds to one odd-numbered 20 MHz sub-channel, and each of the one or more*

*second RA corresponds to one even-numbered 20 MHz sub-channel,*

*1.3 wobei jede der einen oder der mehreren ersten RA einem ungeradzahligen 20 MHz-Unterkanal entspricht und jede der einen oder der mehreren zweiten RA einem*

*geradzahligen 20 MHz-Unterkanal entspricht,*

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The multiple "first/second" (blue/red) resource allocations (RA) correspond to an odd or even 20 MHz subchannel, with the "first" (blue) corresponding to an odd subchannel and the "second" (red) corresponding to an even subchannel.

## 6. Features 1.4 and 1.5

*1.4 wherein the first user-specific field comprises one or more first user scheduling information subfields, each of the one or more first user scheduling information subfields comprising information of one station, STA, the STA being scheduled on one of the one or more resource units indicated by the one or more first RA, and*

*1.5 wherein the second user-specific field comprises one or more second user scheduling information subfields, each of the one or more second user scheduling information subfields comprising information of one STA, the STA being scheduled on one of the one or more resource units indicated by the one or more second RA,*

*1.4 wobei das erste benutzerspezifische Feld ein oder mehrere erste Benutzerzeitplanungsinformationen-Unterfelder umfasst, wobei jedes des einen oder der mehreren ersten Benutzerzeitplanungsinformationen-Unterfelder Informationen über eine Station, STA, umfasst, wobei die STA auf einer der einen oder der mehreren Ressourceneinheiten eingeplant ist, die durch die eine oder die mehreren ersten RA angegeben werden, und*

*1.5 wobei das zweite benutzerspezifische Feld ein oder mehrere zweite Benutzerzeitplanungsinformationen-Unterfelder umfasst, wobei jedes des einen oder der mehreren zweiten Benutzerzeitplanungsinformationen-Unterfelder Informationen über eine Station, STA, umfasst, wobei die STA auf einer der einen oder der mehreren Ressourceneinheiten eingeplant ist, die durch die eine oder die mehreren zweiten RA angegeben werden,*

The respective first (red) or second (blue) "user-specific field" comprises one or more "user scheduling information subfields", which means that

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other components may also be included. Depending on whether the "user scheduling information subfields" in the first (blue) or second (red) "user-specific field", they are referred to as "multiple first/second "user scheduling information subfields". Again, this does not convey an ordering scheme in the sense of a sequence. Rather, the features only contain the information that there is one or more red or blue "user scheduling information subfields" in the blue or red "user-specific field".

Each of the one or more "User scheduling information subfields" includes information about a station (STA), which means that other components may also be included. Station refers to a user of the WLAN. The STA is scheduled on one of the one or more resource units indicated by the first (blue) or second (red) RA.

## 7. Features 1.6 and 1.7

- |  |   |
|--|---|
| <p><i>1.6 characterized in that one first RA of the one or more first RA indicates a first allocated resource unit, RU, which is in or overlaps the corresponding one odd-numbered 20 MHz sub-channel, wherein the one first RA further indicates that, in the first HE-SIG-B content, a number of a user scheduling information subfield corresponding to the first allocated RU is 0; or</i></p> <p><i>1.7 one second RA of the one or more second RA indicates a second allocated RU, which is in or overlaps the corresponding one even-numbered 20 MHz sub-channel, wherein the one second RA further indicates that, in the second HE-SIG-B content, a number of a user scheduling information subfield corresponding to the second allocated RU is 0.</i></p> | <p><i>1.6 dadurch gekennzeichnet, dass eine erste RA der einen oder der mehreren ersten RA eine erste zugewiesene Ressourceneinheit, RU, angibt, die sich innerhalb des entsprechenden einen ungeradzahligen 20 MHz-Unterkanal befindet oder mit diesem überlappt, wobei die eine erste RA ferner angibt, dass in dem ersten HE-SIG-B-inhalt eine Anzahl eines Benutzerzeitplanungsinformationen-Unterfelds, das der ersten RU entspricht, 0 ist; oder</i></p> <p><i>1.7 eine zweite RA der einen oder der mehreren zweiten RA eine zweite zugewiesene RU angibt, die sich innerhalb des entsprechenden einen geradzahligen 20 MHz-Unterkanal befindet oder mit diesem überlappt, wobei die eine zweite RA ferner angibt, dass in dem zweiten HE-SIG-B-Inhalt eine Anzahl eines Benutzerzeitplanungsinformationen-Unterfelds, das der zweiten RU entspricht, 0 ist.</i></p> |
|--|---|

Features 1.6 and 1.7 first require that either a first (blue) or second (red) RA indicates a first (blue) or second (red) resource unit (RU). The specified first (blue) or second (red) RU is located within the corresponding odd-numbered (blue) or even-numbered (red) 20 MHz subchannel or overlaps with it.

The further subfeatures of features 1.6 and 1.7 now modify the structure of a conventional HE-SIG-B described in the generic term in such a way that either a first (blue) or second (red) RA further specifies that in the first (blue) or second (red) HE-SIG-B content a number of a user scheduling information subfield corresponding to the first (blue) or second (red) HE-SIG-B content is to be entered.

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RU is zero. The wording "a number of a user scheduling information subfield is 0" does not express that the RA must also indicate the numerical value "0" or that the numerical value "0" is to be used in a particular user scheduling information subfield. Rather, it expresses that there is no user scheduling information subfield at all in this respect.

That "a count of a user scheduling information subfield is 0" can be expressed by the RA in any way, including with any measure, for example a convenient numerical value, as long as and to the extent that it is an otherwise unused value or measure, as explained in the description in [0042-0044]:

**[0042]** Further, the indication of the foregoing special resource allocation mode may use various possible specific indication methods.

**[0043]** For example, an RA indication uses the above-mentioned manner of performing an index indication according to a stored table. Such a table of resource allocation mode comprises one type of such a special resource allocation mode. An index corresponding to the above mode is transmitted to indicate that the current transmission is a special resource allocation mode. The index of the special mode may be an unused index.

**[0044]** For another example, for an RA indication that does not use a storage table manner, specifically, a special combination of resource indication bits, or one of the bits, may be used to indicate the foregoing special resource allocation mode.

The non-existent user scheduling information sub-field corresponds to the first RU, which in turn is only possible if this first RU also covers the complete 20MHz sub-channel. ("one first RA of the one or more first RA indicates a first allocated resource unit, RU, which is in or overlaps the corresponding one odd-numbered 20MHz sub-channel, wherein the one first RA further indicates that, in the first HE-SIG-B content, a number of a user scheduling information subfield corresponding to the first allocated RU is 0"). For the person skilled in the art, there is therefore no doubt that there is no resource unit (RU) allocated by the "special RA" that would only fill part of a 20 MHz sub-channel. Corresponding

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Accordingly, the RU allocated by the "special RA" according to the invention comprises the full 20 MHz. Accordingly, the description also only discloses examples of embodiments in which the "special RU" referred to extends over the complete 20 MHz resource.

Since within the previous known version of the IEEE 802.11ax standard, there is no provision for a number of a user scheduling information subfield to be zero [0041], this measure of the invention can therefore be understood, according to the description of the patent-in-suit [0037], to mean either that the number of users scheduled for a particular time interval is zero, or that the current transmission is in an invalid resource allocation mode:

**[0041]** In FIG. 15, because the RA indication does not include a case with zero users, the number  $n_1$  of users indicated by RA-1 and the number  $n_2$  of users indicated by RA-2 are at least greater than or equal to 1.

**[0037]** In Preferred Embodiment 2, a method is proposed and comprises a type of special information for resource unit(s) allocation (that is, special Resource Allocation, RA). The special RA is used to indicate that there is no corresponding user scheduling information field in a subsequent user specific field. An indication of the special RA may be plausibly understood as that the number of users scheduled on a current resource unit is zero, or, the current transmission is in an invalid resource allocation mode.

The recipient of this information is therefore, according to the description of the patent in suit in [0038], able to recognize that no user scheduling information subfield exists in this respect and that the recipient can ignore this resource allocation information:

**[0038]** After obtaining the indication of the special resource allocation mode, a receive end accordingly obtains that for this 20 MHz subchannel, no user scheduling information fields exist in a user specific field corresponding to this 20 MHz subchannel. In this case, the receive end may ignore this resource allocation mode indication information.

Due to this trick of the invention, it is possible to communicate the knowledge described in paragraph [0037] to the receiver without additional signaling effort. This is because signaling instruments that are already known in the previous version of

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the standard are used as a "flag", so to speak. The skilled person is

Thus, for example, it is possible to avoid the overhead of the prior art described in Figure 15 in favor of a more compact transmission of information as described in Fig. 14. However, these further measures for realizing the advantages made possible by the "flag" are outside the scope of the claim. These advantages therefore do not require further discussion.

#### **D. Counterclaims for annulment**

The admissible nullity counterclaims are unfounded. The patent in suit proves to be legally valid against the background of the understanding of the claim explained above, which is why the nullity counterclaims had to be dismissed.

#### **I. Admissibility**

The nullity counterclaims are admissible, even insofar as they concern the German part of the patent-in-suit. The nullity action brought by Netgear Switzerland GmbH before the Federal Patent Court (Ref. 4 Ni 33/23) against the German part of the patent-in-suit does not give rise to any other *lis pendens*. Netgear Switzerland is not a party to the present proceedings. In this respect, a narrow standard must be applied to verify the identity of the parties (CD Paris UPC\_CFI\_255/2023). As there is no information about the further progress of the proceedings at the Federal Patent Court, a stay of the present legal dispute is obviously out of the question.

#### **II. Unauthorized extension and use of priority**

The patent in suit, which is a European divisional application, does not go beyond the content of the earlier application, i.e. the parent application. The patent in suit is also not inadmissibly extended under Article 138(1)(a) and Article 52(1) EPC in conjunction with Article 65(2) EPC and Article 100(c) EPC. The patent in suit rightly claims the priority of September 1, 2015. The teaching of the patent in suit is, insofar as the objection is not in any case to be rejected as belated, disclosed in detail.

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1. The parties have referred to the following documents in this respect:

K2	Patent in suit as granted
PrioNm	Pri- ority application CN 2015/10555654
PrioNotification	English-language translation of the pri- oAnm as provided by the then registration submitted to the EPO
PrioAnmÜ-SP	Newly produced English-language Translation of the Prio-Anm
StammAnmCN	Master application drafted in Chinese (published as disclosure document WO 2017/036402 A1). light)
MasterNote	English translation of the StammAnmCN as provided by the then Applicant filed with the EPO
UrAnm	Written in Chinese language Partial registration
Initial notification	English translation of the UrAnm as filed with the EPO by the then applicant

2. Translations

In its submission of September 3, 2024 (App\_47068/2024), the plaintiff did not dispute that the translations submitted by the defendants are correct, but is of the opinion that this does not change the disclosure content:

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*"As already communicated in our email of September 2, 2024, the translation submitted by the defendants, i.e. the document submitted as "Prio- AnmÜ-SP", can be used as a basis in the present proceedings. For the reasons set out in particular in our pleading of May 1, 2024 (see there, for example, para. 81 and 100 et seq.), the disclosure content of this document is apparent to the skilled person regardless of which of the translations in the proceedings is used. Therefore, for reasons of procedural economy, the plaintiff herewith establishes the correctness of the translation submitted by the defendants (PrioAnmÜ-SP) as undisputed in the present proceedings. It is therefore no longer necessary for the translation to be examined by a court-appointed expert."*

The PrioAnmÜ-SP is a newly prepared English translation of the priority application CN 2015/10555654 drafted in Chinese. p. 17, line 10 - p. 19, line 5 of the newly prepared translation PrioAnmÜ-SP is also the translation of p. 11, line 1 - p. 12, line 13 of the parent application CN.

It is rightly undisputed between the parties that claim 1, as granted, relates to embodiment 2 and that all questions (inadmissible extension; claiming priority, etc.) can therefore be answered on the basis of the disclosure of the Preferred Embodiment SP, in particular for embodiment 2. The translation of the section on "Preferred Embodiment 2" can be found in the UrAnmÜ in paragraphs [0063] - [0070] on p. 14, line 8 - p. 16, line 7 and in the newly prepared translation PrioAnmÜ-SP in the passages on p. 17, line 10 - p. 19, line 5:

Example 2: Aden, all or partial bits of the "#syin HE-SIGB" field may be used to indicate a total number of scheduled users included in the HE-SIGB. Certainly, the bit occupied by the "#sym HE-SIGB" field is not limited to 4 bits, and for example, may be 3 bits. The foregoing method may be applicable to various cases of different bandwidths.

Example 3: Also, all or partial bits of the "Fsym HE-SIGB" field may be used to indicate the greater one of the number of scheduled users on the SIGB-1, and the number of scheduled users on the HICB-2. The foregoing method may be applicable to various cases of different bandwidths.

### Preferred Embodiment 2

In Preferred Embodiment 2, a method is proposed and comprises a type of special resource block allocation information (that is, special RA). The special RA is used to indicate that there is no corresponding user scheduling information in a subsequent station-by-station field. An indication of the special RA may be logically understood as that the number of users on a current resource block is zero, or, currently it is in an invalid resource allocation mode.

After reading the indication of this type of special resource allocation mode, a receiving end accordingly knows that for this 2 corresponding station-by-station fields, there is no user scheduling information to it exists in a station-by-station field. In this case, the receiving end ignores this resource allocation mode indication information.

FIG. 14 is used as an example for description, and RA-1 indicates that no user scheduling information corresponding to RA-1 exists in a subsequent station-by-station field, but the RA-1 may indicate authentic or a false resource allocation mode; for example, currently it is a resource block of 40 M or 20 M, which comprises 0 user, or, the RA-1 may be understood as an invalid resource allocation mode, and there is no subsequent user scheduling information that corresponds to it, the receiving end may directly ignore this invalid resource allocation mode indication information. RA-2 then comprises an authentic resource allocation mode, that is, M(1-M IMT) transmission in which 4 users are included on a resource block with a size of 484. In this way, only 6 pieces of user scheduling information on the third 20 M are included on the SIGB-1, and 6 pieces of user scheduling information on the second (and the first) and the fourth 20 M are included on the SIGB-1. Compared with FIG. 15, the HF-SICIR in FIG. 14 reduces overheads of a piece of user scheduling information in length.

The following describes an effect of the foregoing preferred embodiment by comparison with an example in FIG. 15. In the example, similarly, the AP schedules 4 users to use M-FDM of 40 M (resource blocks with  $52 + 26 + 26 + 26 + 26 + 26$ ), and MU-MIMO using 20 M (resource block of 242) by 2 users. Referring to the RA indication method shown in the FIG. 9, if this preferred embodiment is not used, it may be known that RA-1 will indicate that a resource block with a size of 484 (40 M) is in use over the first 20 M, comprising 4 users; RA-2 will indicate that a Resource block with 484 (40 M) is in use over the second 20 M, comprising 2 users; RA-1/2 indicates the same resource block with 484 (40 M), and the number of users indicated in the RAs is  $n1+n2=4$ . These 4 users use one resource block with 484, that is, two 20 M; therefore, scheduling information of these 4 users may be considered as belonging to either one 20 M. RA-3 will indicate that the third 20 M is divided into 6 resource blocks, that is, resource blocks respectively with sizes of  $52 + 26 + 26 + 26 + 26 + 26$ , each resource block is used by 1 user, and there are 6 users total. RA-4 will indicate that the resource block with a size of 242 (20 M) is in use over the fourth 20 M, comprising 2 users.

In FIG. 15, because a case with zero user is not included in the RA indication, the number  $n1$  of Users indicated by RA-1 and the number indicated by RA-2 are at least greater than or equal to 1. This is because information, corresponding to RA-1 and RA-2, needs to be compared in a station-by-station field. However, we can see that there is one RA (RA-1) which has been used for the third 20 M, that is, SIGB-1 already necessarily comprises 6 pieces of user scheduling information on the

third 20 M. But an accumulative number of users over the first, the second, and the fourth 20 M is also 6, so, by using our preferred embodiment, as shown in FIG. 14, it is possible that the SIGB-1 only comprises 6 users over the third 20 M, and the SIGB-2 comprises scheduling information for the remaining 6 users. In this way, the overall HE-SIGB symbols can be smallest.

Further, the indication of the foregoing special resource allocation mode may use various possible specific indication methods.

For example, an RA indication uses the above-mentioned manner of performing a resource index indication according to a stored table, one type of such a special resource allocation mode is comprised in the resource allocation mode table, and transmitting an

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index corresponding to the above mode indicates that currently it is a special resource allocation mode. The special index number may be an unused index number.

For another example, for an RA indication that does not use the manner of storing table, specifically, a special combination of resource indication bits, or one of the bits may be used to indicate the foregoing special resource allocation mode.

### Preferred Embodiment 1

In this preferred embodiment, the HE-SIGA comprises: information for indicating a number of pieces of RA included in the common field of the HE-SIGB, Referring to FIG. 16, it is a simple schematic diagram of a preferred structure of the HE-SIGA.

After receiving the RA number indication information in the HE-SIGA, a receiving end may obtain lengths of the common fields of the SIGB-1 and SIGB-2 according to the RA number indication information, and further, correctly decode the common fields of the SIGB-1 and SIGB-2.

With the information about the number of pieces of RA, indication of a current transmission mode may not be included. In other words, information about the number of pieces of RA may be used to indicate the current transmission mode. In other words, when a number of pieces of RA included in the HE-SIGA is zero, indicating that the current transmission mode is a normal mode, that is, full bandwidth MU-MIMO or single-user transmission mode, that is, the number of pieces of RA is greater than zero, for example, one or two, that is, indicating that the current transmission mode is an OFDMA transmission mode.

Referring to FIG. 17, it is a simple schematic diagram of a structure of the HE-SIGA/B indicated in Preferred Embodiment 3.

Referring to FIG. 18, it is a simple schematic diagram of another structure of the HE-SIGA/B indicated in Preferred Embodiment 4. Compared with a case in FIG. 19, it is obviously seen that signaling is reduced. In addition, because a function M is divided into 2 resource blocks with a size of 484 (40 M), mode indication information in the HE-SIGA is OFDMA, that is, the common fields of the SIGB-1 and the SIGB-2 need to include RA-1/3 and W-2. 4 according to a normal structure. The solution in FIG. 18 indicates that the number of pieces of RA included on the SIGB is 1, and only RA-1 is comprised

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An accurate translation of the remaining sections can be found in the patent specification.

The Judge-Rapporteur has ordered that no translations into the language of the proceedings (German) need to be submitted.

### 3. Disclosure content of the PrioAnmÜ-SP

a. Features 1.1 ("transmission bandwidth of multiple 20 MHz") and 1.2 are described in of the UrAnmÜ is revealed.

As shown, the wording of the claim does not require "transmission over bandwidths that are integer multiples of 20 MHz", as the defendants state. The claim does not specify the bandwidths for transmission. Instead, the wording of the claim literally states: "transmitting the HE-SIG-B in a transmission bandwidth of multiples of 20 MHz" ("transmitting the HE-SIG-B in a transmission bandwidth of multiple 20 MHz"). The wording "transmitting the HE-SIG-B in a transmission bandwidth of multiple 20 MHz" makes it clear that, according to the claim, it is only a question of how HE-SIG-B is to be transmitted in cases where the bandwidth is a multiple of 20 MHz. In this case, a first HE-SIG-B content is to be transmitted in every odd-numbered 20 MHz channel and a second HE-SIG-B content in every even-numbered 20 MHz channel. However, the number of multiples of the available bandwidth is not claimed and is determined in each individual case by the external conditions. In this respect, it is not correct to assume that the wording of the claim requires transmission over certain bandwidths. Accordingly, there can be no inadmissible generalization. Secondly, the wording of feature [1.1] in paragraph [0048] of the UrAnmÜ is originally disclosed, where it says "When a transmission bandwidth is greater than 20 MHz, a preamble part needs to be transmitted over each 20 MHz. .... The high efficiency signal field B part uses a partial duplication mode". So here too, the general point is that HE-SIG-B must be transmitted in every 20 MHz multiple ("over each") if the bandwidth is greater than 20 MHz. This means that the wording of the claim is covered by the original disclosure.

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Neither claim 1 as granted nor the original disclosure includes a bandwidth of 60 MHz. As shown, the skilled person understands claim 1 as granted to mean that only the bandwidths 40, 80 and 160 MHz are covered. This follows both from the patent in suit and from the PrioAnmÜ-SP due to the reference to the 802.11ax standard, which excluded such bandwidths of 40, 80 and 160 MHz from its earlier versions, which precede the patent in suit as prior art.

Insofar as the defendants also refer in this context to the claims originally submitted in accordance with Annex "UrAnspr", this does not lead to a different result. On the one hand, the claims to be taken as a basis here, filed on April 22, 2019, were only filed subsequently on August 14, 2019. They therefore have no significance, neither with regard to the inadmissible broadening of the content of the parent application nor with regard to Art. 123(2) EPC. On the other hand, this (irrelevant) disclosure generally expresses exactly what is then substantiated in the granted claim. Thus, the original claim 1:

1. A method for transmitting a High Efficiency Signal Field B, HE-SIGB, in a wireless local area network, comprising:

transmitting a HE-SIGB in a transmission bandwidth of one or more 20MHz, wherein the HE-SIGB comprises two HE-SIGB contents, each HE-SIGB content is carried in a 20MHz;

Accordingly, it concerns the transmission of the HE-SIG-B, whereby one HE-SIG-B ("transmitting a HE-SIG-B") is transmitted in each 20 MHz, each of which has two HE-SIG-B contents ("first HE-SIG-B content" and "second HE-SIG-B content"). It is then specified that each of the two HE-SIG-B contents with its "first HE-SIG-B content" and its "second HE-SIG-B content" is transmitted in a 20 MHz ("each content is carried in a 20 MHz"). That is, a first HE-SIG-B content is carried in a 20 MHz and a second HE-SIG-B content is carried in another 20 MHz. Apart from the fact that this disclosure in the subsequently filed claim plays no role in the assessment of the inadmissible extension, it would thus support the granted claim.

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Feature 1.1 in claim 1 and its equivalents in claims 2, 7 and 8 are thus undoubtedly disclosed by origin.

b. Features 1.4 and 1.5 are disclosed in UrAnm and UrAnmÜ respectively. The terms "user scheduling information" and "user scheduling information field". General "u- ser scheduling information subfields" are disclosed in UrAnmÜ.

In connection with Fig. 7, the UrAnmÜ discloses "a concrete structure for the HE-SIG-B, which consists of the HE-SIG-B comprising a so-called "common field" as well as a "user specific field"." Figure 7 is shown below:

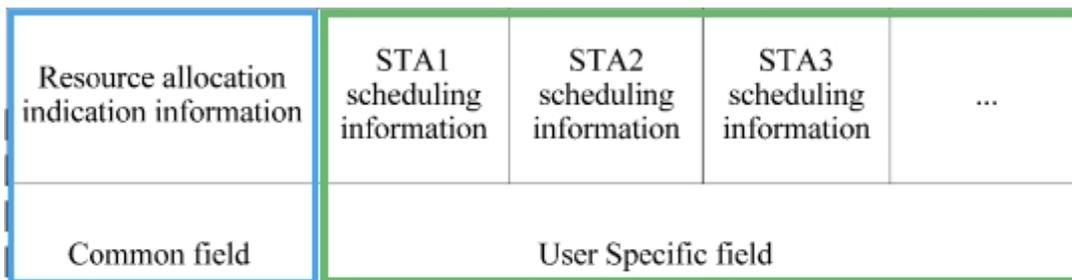


FIG. 7

It is clear from Figure 7 and the corresponding information cited by the defendants that the Disclosure (UrAnmÜ, para. [0042]) containing a "common field" (blue) "Resource allocation indication information" and a "User specific field" (green) containing several information blocks with "scheduling information" for each individual terminal device (STA) are disclosed. It is therefore immediately and clearly apparent from Figure 7 alone that the "User specific field" (marked in green) is divided into several "pieces", each of which contains "scheduling information" for the terminal device (STA) in question. Apart from this, the cited paragraph [0045] also speaks the same language:

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[0045] In the user specific field, each piece of user scheduling information has two possible structures, as shown in FIG. 10a and FIG. 10b. A structure in FIG. 10a represents a scheduling information structure in a single-user mode. The single-user mode means that a current STA exclusively occupies one resource unit. FIG. 10b represents a scheduling information structure in a multi-user mode. The multi-user mode means that a current STA does not exclusively occupy one resource unit, and some other STAs share one resource unit with the current STA in a MU-MIMO manner.

Accordingly, each piece of user scheduling information in the user-specific field has a specific structure. It is immediately and unambiguously apparent to the specialist that this structure of the user scheduling information manifests itself in the form of a subfield of the user specific field, i.e. in the form of a user scheduling information subfield.

c. Features 1.6 and 1.7 are disclosed in UrAnmÜ. Features 1.6 and 1.7 ("a first allocated resource unit, RU, which is in [...] the corresponding one odd-numbered 20 MHz sub-channel" and "a second allocated resource unit, RU, which is in [...] the corresponding one even-numbered 20 MHz sub-channel", respectively) are disclosed in UrAnmÜ. Features 1.6 and 1.7 ("one first RA of the one or more first RA" and "one second RA of the one or more second RA" respectively) are disclosed in UrAnmÜ.

The defendants first state that the feature "a first allocated resource unit, RU, which is in [...] the corresponding one odd-numbered 20MHz sub-channel", like its counterpart concerning the "second allocated resource unit", is not disclosed in the UrAnmÜ, whereby they want to hang this at this point primarily on the "in". They believe that, because of the "in", the wording of the claim not only covers RUs that fill the entire bandwidth of the 20 MHz channel, but also RUs that only fill part of the 20 MHz resource. Accordingly, the defendants believe that "a disclosure for an RU that only covers part of the bandwidths is not found in the original disclosure."

This reading contradicts the interpretation found above. The specific RA indicates that the number of user scheduling information fields corresponding to the current RU is zero (SP, paragraph [0037], "the number of users scheduled on a current

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resource unit is zero"). According to the claim wording, each RA in each HE- SIG-B content covers one 20 MHz sub-channel ("a first HE-SIG-B content carried at each odd-numbered 20 MHz sub-channel" and "each of the one or more first RA corresponds to one odd-numbered 20MHz sub-channel"). This means that the first RU in the special RA comprises a complete 20 MHz sub-channel. If it is then stated that in the first HE-SIG-B content, the number of the user scheduling information sub-field corresponding to the special RA is 0 (para [0037]: "The special RA is used to indicate that there is no corresponding user scheduling information field in a subsequent user specific field"), then this means that the special RA in the first HE-SIG-B content comprising the entire bandwidth of the 20 MHz sub-channel has no existing user scheduling information sub-field. However, the non-existent user scheduling information sub-field corresponds to the first RU, which in turn is only possible if this first RU also covers the entire 20 MHz sub-channel. ("one first RA of the one or more first RA indicates a first allocated resource unit, RU, which is in or overlaps the corresponding one odd-numbered 20 MHz sub-channel, wherein the one first RA further indicates that, in the first HE-SIG-B content, a number of a user scheduling information subfield corresponding to the first allocated RU is 0"). Thus, the claimed difference in the disclosure does not exist.

The defendants further argue that the claimed "first/second RA" is designated as "special RA" in the original disclosure; therefore, relying on the characteristic "special" is accompanied by a generalization.

This is incorrect. The fact that the claim wording ascribes this characteristic, namely that there is no user scheduling information subfield in the corresponding HE-SIG-B content, to the RA makes the claimed RA a "special RA". Whether this is also designated as such in the claim wording makes no difference. This also does not constitute an inadmissible generalization.

Insofar as the defendants have based their argument on the now outdated translations of the Chinese-language documents, this approach should be rejected. The original documents are decisive,

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whereby the parties have agreed that the PrioAnmÜ-SP submitted by the defendants can be used as the correct translation.

d. Features 1.6 and 1.7 ("a number of a user scheduling information subfield corresponding to the first allocated RU is 0" and "a number of a user scheduling information subfield corresponding to the second allocated RU is 0" respectively) are disclosed in UrAnmÜ.

Ultimately, the defendants believe that the claim wording can be understood to mean that there must be a zero in the respective user scheduling information subfield. This was not disclosed in the original application documents.

However, the claim wording now clearly states that the number of a user scheduling information subfield is 0. This clearly expresses, as explained above, that there are no user scheduling information subfields at all.

This is also apparent from the original UrAnmÜ application documents, where it is stated, for example, in paragraphs [0063] and [0065]:

[0063] In Preferred Embodiment 2, a method is proposed and comprises a type of special information for resource unit(s) allocation (that is, special Resource Allocation, RA). The special RA is used to indicate that there is no corresponding user scheduling information field in a subsequent user specific field.

[0065] [...] For example, a current resource unit is a resource unit of 40 MHz or a resource unit of 20 MHz, and the resource unit is assigned to "0" user. This RA-1 may be understood as an invalid resource allocation mode, and there is no subsequent user scheduling information field that corresponds to the RA-1.

Paragraphs [0063] and [0065] disclose that a specific RA (i.e. the first/second RA) indicates that there is no corresponding user time

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scheduling information subfield, i.e. a number of a user scheduling information subfield is 0. There is no impermissible extension in this respect either.

Moreover, it is clear to the person skilled in the art that the invention uses a certain piece of information in the common field as a "flag" and that it is therefore irrelevant whether the "incorrect" information in the previous context relates to a "user scheduling information", i.e. a date, or a field for a date. This is because in both cases a value is set that would be perceived as "incorrect" or "irregular" in the previous context, but is used as a "flag" in the new co-text. The revelatory content therefore does not differ.

e. Insofar as the defendants object that features 1.1 ("transmission bandwidth of multiple 20 MHz") and 1.2 are not disclosed in the parent application, reference is made to the above explanations in order to avoid repetition.

f. Insofar as the defendants object that features 1.6 and 1.7 are not disclosed in StammAnm, reference is made to the above explanations in order to avoid repetition.

4. Due to the identity of the disclosure content, the above findings also apply to the question of effective claiming of priority. To avoid repetition, reference is made to the above statements.

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### III. Patentability

1. In this respect, the defendants referred to the following publications:

D1	Submission " <i>RU Allocation in SIG-B</i> " by Daewon Lee (Newracom) IEEE 802.11-16/0039r1 published on 19.01.2016
D1b	Submission " <i>Supported Resource Allocations in SIG-B</i> " by Sungho Moon (Newracom) IEEE 802.11-15/1304r1 published on 10.11.2015
D2	Submission " <i>SIG-B Field for HEW PPDU</i> " by Young Hoon Kwon (Newracom) IEEE 802.11-15/0805r2 published on 13.07.2015
D3	Submission " <i>SIG Field Design Principle for 11ax</i> " by Young Hoon Kwon (Newracom) IEEE 802.11-15/0344r2 published on 12.03.2015
D4	US 2014/0 307 612 A1 by Vermani et al. (Qualcomm) published on October 16, 2014
D5	EP 3 318 030 B1 (Taori et al.) Priority days 1.7.2015 and 7.7.2025 etc. State of the art according to Art. 54(3) EPC
EPD1	Submission " <i>Specification Framework for TGax</i> " by Robert Stacey (Intel) IEEE 802.11-15/0132r7

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	published on 20.07.2015
EPD2	Submission " <i>SIG-B Encoding Structure</i> " by Ron Porat (Broadcom) IEEE 802.11-15/0873r0 published on 13.07.2015
EPD3	Submission " <i>HE-SIG-B Structure</i> " by Joonsuk Kim (Apple) IEEE 802.11-15/0821r2 published on 15.07.2015

## 2. Novelty

a. The citations D1a and D1b (Newracom) published on January 19, 2016 and November 10, 2015, respectively, do not oppose novelty because the patent in suit rightly claims priority from September 1, 2015. Reference can be made to the above explanations in the context of the examination of the allegation of inadmissible extension.

b. The defendants only introduced citation D5 into the proceedings with the duplicate. They did not provide any (valid) reasons as to why they had not already submitted it with the action for annulment. It is therefore in accordance with Rule 9.2 VerfO as being late.

Irrespective of this, D5 claims a total of seven priorities. Only the first (July 1, 2015) and the second priority (July 7, 2015) predate the priority of the patent-in-suit. The remaining five priorities of D5 date after the priority of the patent in suit. Accordingly, only the content of D5 that is also found in the two oldest priority documents can be relevant for the assessment of novelty. None of the passages and figures cited by the defendant in its novelty attack can be found in these two oldest priority documents. Accordingly, D5 is not novelty-destroying even if taken into account.

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c. EPD3

Insofar as the defendants argued for the first time at the oral hearing that the EPD3 citation was prejudicial to novelty, this argument must be rejected as belated pursuant to Rule 9.2 of the Rules of Procedure. The defendants have not provided an explanation as to why this argument had not already been submitted with the action for annulment. Insofar as they refer in this respect to paragraphs 655-667 of the nullity counterclaim, it should be noted that although the EPD3 is mentioned there in paragraph 655, it is not mentioned as a caveat in itself that is prejudicial to novelty. Rather, it is mentioned as background information because it has a certain connection with the EPD2 citation:

"(655) On slide 8, the **EPD2** summarizes the state of the art from the IEEE development documents 802.11-15/821r2 and 802.11-15/822r0 in a section referred to as "*Background*". These documents each deal with the structure of the *preamble* ("*11ax Preamble*") of the IEEE 802.11ax standard, which was under development at the time. The focus of the first document (821r2; corresponds to **EPD3**) is on the internal structure of the SIG-B field, while the second document (822r0) deals with the internal structure of the SIG-A field. Since the **EPD2** is primarily concerned with the coding of the SIG-B field when using different transmission bandwidths, it only lists the structural properties of the SIG-A and SIG-B fields that are relevant for its own considerations - although the two documents cited contain much more detailed information regarding the content and necessity of the SIG-A and SIG-B fields. For example, the **EPD2** summarizes the content of slides 10 and 11 of the IEEE 802.11-15/821r2 document as follows: "The "*SIG-B*" should only contain bits for the intended receivers of the current PPDU (and not, for example, also bits for receivers that are dialed in to a base station but are not served by the current PPDU) and can be subdivided into a so-called "*common field*" and a "*user-specific field*"."

No noteworthy novelty attack can be derived from the mention as background information. The attack on novelty based on the EPD3 must therefore be rejected as belated.

Irrespective of this, neither the EPD2 nor the EPD3 reveal how exactly to sign, which the plaintiff correctly pointed out at the hearing.

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3. inventive step

a. EPD2 with D2

The method according to claim 1 is also inventive over the combination of EPD2 and D2. This applies taking into account both the case law of the Unified Patent Court and the case law of the Boards of Appeal of the EPO.

aa) According to the case law of the Unified Patent Court, what is known from the prior art must have given the person skilled in the art a reason or a suggestion to arrive at the proposed teaching (CoA UPC\_CoA\_335/2023; CD UPC\_CFI\_1/2023, UPC\_CFI\_14/2023, UPC\_CFI\_252/2023; LD Munich CFI\_201/2024).

However, the disclosure of EPD2 already gives the skilled person no reason to change the disclosed teaching. Thus, it was already far-fetched for the skilled person to combine EPD2 with anything, in particular with D2. Even if the skilled person had considered a combination of EPD2 and D2, she would not have come up with the claimed subject-matter. Finally, there are no references to features 1.6 and 1.7 in D2.

According to the case law of the Boards of Appeal of the EPO, when assessing The "problem-solution approach" (G 1/19) is used for the assessment of inventive step.

Even with this, however, the skilled person would not have arrived at the solution according to claim 1, since neither the EPD2 nor the D2 disclose features 1.6 and 1.7. The characterizing features 1.6 and 1.7 are simply absent in the combination of EPD21 and D2; they cannot be brought about by any approach.

bb) With regard to the synopsis of documents EPD2 and D2, the defendants argue that EPD2 discloses all features of claim 1 with the exception of features [1.5a] and [1.5b]. However, it was obvious to the skilled person,

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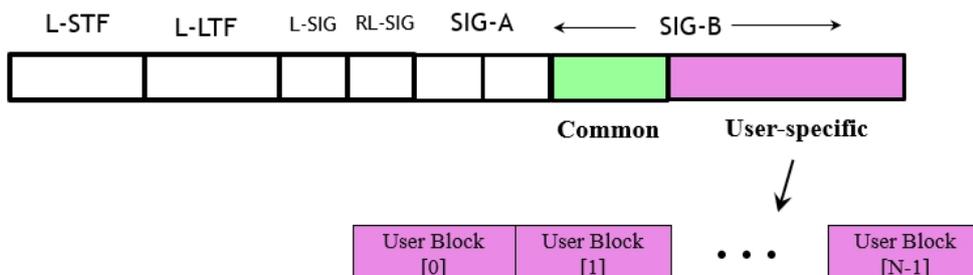
to use the "Resource Allocation Information" disclosed in the D2, which is available there. is only required for certain transfers. This is incorrect.

cc) The EPD2 only discloses the "common" field and the "user-specific" field, but not the structure of the "common" field. Accordingly, EPD2 also does not disclose the one or more resource allocations ("RA") contained in the claimed common field according to features 1.2.1, 1.2.2, 1.3 to 1.7. The defendants also do not state at any point where EPD2 could disclose the one or more RA in the common field. In fact, EPD2 does not even mention the word "resource" or "resource allocation (RA)". Accordingly, the features 1.2.1, 1.2.2, 1.3 to 1.7 are not known from EPD2. In detail:

On slide 9, the EPD2 discloses a SIG-B coding scheme in which a SIG-B field is coded for a bandwidth of 20 MHz. The SIG-B field comprises the fields "common" (marked green) and "user specific" (marked pink), whereby the field "user specific" is divided into the sub-fields "user block [0]", "user block [1]" to "user block [N-1]".

### SIG-B encoding scheme

- SIG-B encoded on a per-20 MHz basis using BCC as shown below.
  - The common and per-user blocks are separated in the bit domain → flexibility to have any number of bits in the common and per-user blocks



The EPD2 then discloses on slide 10 that at bandwidths of 40 MHz two 20 MHz sub-bands carry different information, while at 80 MHz and 160 MHz these two 20 MHz sub-bands are duplicated in the manner shown below:

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**40 MHz**



**80 MHz**



**160 MHz**



- **Each square:** 20 MHz subband
- **1/2:** Different signaling info

However, EPD2 only discloses the field "common" without any further structuring. Accordingly, EPD2 does not disclose the one or more (first or second) resource allocations (RA) contained in a common field according to features [1.2.1], [1.2.2], [1.3], [1.4] and [1.5].

It is therefore not clear from EPD2:

- 1.2.1 wherein the first common field comprises one or more first resource allocations, RA,*
- 1.2.2 wherein the second common field comprises one or more second resource allocations, RA,*
- 1.3 wherein each of the one or more first RA corresponds to one odd-numbered 20MHz subchannel, and each of the one or more second RA corresponds to one even-numbered 20MHz subchannel,*
- 1.4 each of the one or more first user scheduling information subfields comprising information of one station, STA, the STA being scheduled on one of the one or more resource units indicated by the one or more first RA, and*
- 1.5 each of the one or more second user scheduling information subfields comprising information of one STA, the STA being scheduled on one of the one or more resource units indicated by the one or more second RA,*

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The defendants claim that these features are disclosed in EPD2. However, they have not explained how and by which part of EPD2 these features are disclosed. This assertion can therefore not be accepted.

The EPD2 also does not disclose features [1.6] and [1.7].

*1.6 one first RA of the one or more first RA indicates a first allocated resource unit, RU, which is in or overlaps the corresponding one odd-numbered 20MHz sub-channel, wherein the one first RA further indicates that, in the first HE-SIG-B content, a number of a user scheduling information subfield corresponding to the first allocated RU is 0; or*

*1.7 one second RA of the one or more second RA indicates a second allocated RU, which is in or overlaps the corresponding one even-numbered 20MHz sub-channel, wherein the one second RA further indicates that, in the second HE-SIG-B content, a number of a user scheduling information subfield corresponding to the second allocated RU is 0.*

Placing the claimed one or more resource allocations (RA) including a specific RA in a common field, such that no user scheduling information subfield specified in the specific RA and corresponding to the RU needs to be present in a corresponding user-specific field, is not obvious from either EPD2 or D2. Thus, the subject-matters of main claims 1, 2, 7 and 8 are inventive over an - already uninitiated - synopsis of EPD2 and D2.

As stated above, any kind of structuring of the "common" field in SIG-B is not an issue in the disclosure of EPD2. Accordingly, the skilled person would not have found any indication in EPD2 to even think about the structure. A fortiori, she would not have found any reference to the claimed structure of the common field, which makes it possible to dispense with a user planning information subfield corresponding to the special RA in the use-specific field of the HE-SIG-B. The disclosure of EPD2 thus gives the skilled person no reason to modify the disclosed teaching. Thus, it was far-fetched for the skilled person to combine EPD2 with anything, in particular with D2.

Even if the skilled person had considered a combination of EPD2 and D2, she would not have come up with the claimed items. After all, in

D2 makes no reference to the above-mentioned distinguishing features. In this respect, the defendant relies on slides 3 and 4 of D2. Slide 3 discloses RA information ("resource allocation information") and user-specific information ("user-specific information") that can be included in the HE-SIG-B field:

## SIG Field Information

- **Common control information**
  - Information needed not only for target receiver but also 3<sup>rd</sup> party STAs and common information to all scheduled STAs, such as
    - Allocated bandwidth
    - Packet duration/GI/N\_LTF
    - COLOR/PAID/GID/TXOP\_PS
    - SIG-B field structure
  - May be included in L-SIG and HE-SIG-A fields.
- **Resource allocation information**
  - Required only for MU transmission or partial band transmission such as
    - Resource allocation structure (map)
    - Which STA is scheduled in which subband/spatial\_stream
  - May be included in either HE-SIG-A or HE-SIG-B field.
- **User-specific information**
  - Information for each STA to decode the payload, such as
    - MCS/NSTS
    - STBC/Beamformed
  - May be included in HE-SIG-B field.

Slides 3 and 4 further reveal that the RA information ("Resource allocation information") is only required for certain transmissions. For other transmissions, such as a single-user (SU) full-band transmission, each resource is used entirely by a single station (STA) and the RA information ("resource allocation information") is not required:

- **Resource allocation information**
  - Required only for MU transmission or partial band transmission such as
    - Resource allocation structure (map)
    - Which STA is scheduled in which subband/spatial\_stream
  - May be included in either HE-SIG-A or HE-SIG-B field.

## Requirements for each Frame Type

- **SU transmission**
  - Full band transmission
    - As every resource is occupied by a single STA, there's no need to indicate additional resource allocation information.
  - Partial band transmission
    - As not all resource is occupied by the transmitter, resource allocation information is needed for the receiver to properly decode the payload.

According to the defendants, the RA information ("resource allocation information") according to D2 is to be compared with the information in the common field of the claimed HE-SIG-B because it comprises information on the structuring of the resource allocation structure (map) for all stations (STAs). Thus, slides 3 and 4 of D2 indicated that for SU full band transmission, where each resource is fully occupied by a single STA, the common field of HE-SIG-B did not contain RA ("resource allocation information") information. This can also be seen on slide 5 of D2, according to which no "RA" is contained in the HE-SIG-B field for SU full-band transmission:

## SIG Field Structure

- **Depending on frame type, several information may not need to be included in the SIG field.**

	SU		MU
	Full Band	Partial Band	
DL	CC/US	CC/RA/US	CC/RA/US
UL	CC/US	CC/RA/US	CC/US*(?)

CC: Common Control information  
 RA: Resource Allocation information  
 US: User Specific information

\* As mentioned in [1], If US is separately encoded, it can exist.

Contrary to the opinion of the defendant, however, the skilled person would have structured the common field of the HE-SIG-B in accordance with the teaching of D2 in such a way that it does not contain any RA information ("resource allocation information") at all. According to the teaching of D2, there would therefore have been no RA information at all in the common field of the HE-SIG-B if each resource is occupied by a single STA (SU full-band transmission). This is in contrast to the claimed solution, where one or more RAs including a specific RA are required in the common field of the HE-SIG-B. Accordingly, even in the case of an - unmotivated - combination of EPD2 and D2, the skilled person would not have arrived at the subject-matter of the main claims, according to which a specific RA (features [1.6] and [1.7]) is provided in the common field, so that a subfield corresponding to the specific RA in the user-specific field can be dispensed with.

Apart from the slides cited by the defendants, D2 also shows a situation where user-specific information of the HE-SIG-B is not needed for the UL MU transmission (see e.g. slide 4). In this case, the RA information is also not needed (see e.g. slide 7):

- **MU transmission**

- DL MU

- As every participating STA needs to know its allocated resource, resource allocation information shall be included.

- UL MU

- As target receiver (AP) already knows allocated resource, resource allocation information is not needed.
- User specific information is not needed if AP decides user specific information and indicates in the Trigger frame.

In this case, D2 further suggests dispensing with the complete HE-SIG-B field (e.g. slide 7, marked in green). This would have led the skilled person away from the claimed invention:

# Proposal

	SU (OFDM) format	MU (OFDMA) format	
	SU Full Band	SU Partial Band	MU
DL	SIG-A: CC/US <b>SIG-B: NONE</b>	SIG-A: CC SIG-B: RA/US	SIG-A: CC SIG-B: RA/US
UL	SIG-A: CC/US <b>SIG-B: NONE</b>	SIG-A: CC SIG-B: RA/US	SIG-A: CC <b>SIG-B: NONE</b>

CC: Common Control information  
 RA: Resource Allocation information  
 US: User Specific information

Thus, the claimed subject-matter is inventive over an - unapproved - synopsis of documents EPD2 and D2.

b. EPD2 and D3

The same applies to the EPD2 and D3 documents. The skilled person already had no reason for a synopsis. Even if she had done so, she would not have arrived at the subject-matter according to the invention. Document D3 does not contain any references to the above-mentioned distinguishing features.

D3 describes two mechanisms for reducing the effort in the HE-SIG-A field. The defendants refer to the so-called "variable length HE-SIG field", which contains RA information ("resource allocation information") in HE-SIG-B instead of HE-SIG-A (see slides 9 and 11). First, with respect to this mechanism, D3 generally discloses that the HE-SIG-B field contains resource allocation information.

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assignment and user-specific information (see slide 11, text highlighted in yellow). D3 does not reveal any details about the subfields of HE-SIG-B. The structure of the sub-fields of HE-SIG-B is still explicitly unclear according to D3 (see slide 11, text marked in red). Without the disclosure of the structure of the sub-fields in the RA field and the user-specific field, document D3 cannot in principle have suggested the claimed invention.

## Variable Length HE-SIG field

- **To cope with these factors, HE-SIG-B is separately encoded from HE-SIG-A and includes resource allocation information.**
  - HE-SIG-A
    - Fixed length and fixed MCS, similar to current VHT-SIG-A.
    - Includes common control information, such as channel BW, GI, COLOR, Tail, CRC, etc.
    - HE-SIG-A further includes the size of following HE-SIG-B.
    - If MCS of HE-SIG-B is variable, the MCS of HE-SIG-B can also be included in HE-SIG-A
  - HE-SIG-B
    - Resource allocation and user specific information, such as PAID/AID, allocation BW, NSTS, MCS, STBC, Coding, BF, etc.
    - Size of HE-SIG-B is variable depending on the amount of information needed.
  - To support MU-MIMO efficiently, additional HE-SIG-C may also be needed, similar to VHT-SIG-B field.
    - If HE-SIG-C exists, some of user specific information may reside in HE-SIG-C instead of HE-SIG-B.
  - Detail subfield information on HE-SIG-A/B/C is TBD.

Contrary to the defendant's opinion, D3 does not disclose the situation in which the resource unit is not occupied by any user. Instead, D3 merely discloses that the number of allocated STAs affects the amount of resource allocation (RA) information. If only one or two STAs are allocated, the amount of resource allocation (RA) information is reduced.

## Variable Length HE-SIG field

- **There are many factors that affects the amount of information in HE-SIG field, for example**
  - Channel BW: More channel BW can accommodate more channel resources to be simultaneously assigned. Therefore, depending on channel BW, amount of information for resource allocation may vary.
  - Number of allocated STAs: Even though wider BW is used, in case only one or two STAs are allocated, amount of information for resource allocation can be reduced down.

Therefore, D3 teaches how to reduce the information for the RA field itself instead of reducing the subfield in the user-specific field of HE-SIG-B. D3 does not provide information on how to structure the RAs of the common field so that no user planning subfield corresponding to a specific RA is needed in the user-specific field. Thus, D3 could not suggest the claimed subject-matter. Moreover, D3 even leads away from the claimed invention when it describes the reduction of the signaling overhead in the HE-SIG field by limiting the maximum number of assigned STAs (see slide 5):

## Issues of HE-SIG Design

- **Support of more number of STAs within a HE-PPDU**
  - 11ac support up to 4 STAs for DL MU-MIMO, however far more number of STAs are expected to be supported in OFDMA, especially for large bandwidth case.
  - More number of STAs implies more information to indicate, which increases signaling overhead.
  - E.g.: If 5MHz is used as a minimum OFDMA channel allocation and 4 simultaneous transmission is assumed for MU-MIMO transmission, there are up to 64 STAs to be allocated within a HE-PPDU in 80 MHz channel bandwidth, if there's no restrictions there.
  - Limiting maximum number of STAs allocated within a HE-PPDU needs to be defined.

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Thus, the claimed subject-matter is also inventive over an - uninitiated - synopsis of documents EPD2 and D3.

c. EPD2 and D4

The above applies accordingly to documents EPD2 and D4. The skilled person already had no reason for a synopsis. Even if she had done so, she would not have arrived at the subject-matter according to the invention. D4 also contains no references to the above-mentioned distinguishing features. In D4, only "HE-SIG1", "HE-SIG2" and "HE-SIG3" are indicated in a downlink package (e.g. Figure 5). This structure disclosed in D4 differs significantly from the structure according to EPD2, where "SIG A" and "SIG B" are provided instead of three "SIG" fields. None of the HE-SIG1", "HE-SIG2" and "HE-SIG3" according to D4 corresponds structurally to the "SIG B" according to EPD2, which includes a "common" field and a "user-specific" field. From this point of view alone, the specialist would not have combined EPD2 with D4.

HE tone allocation downlink packet implementation 1:

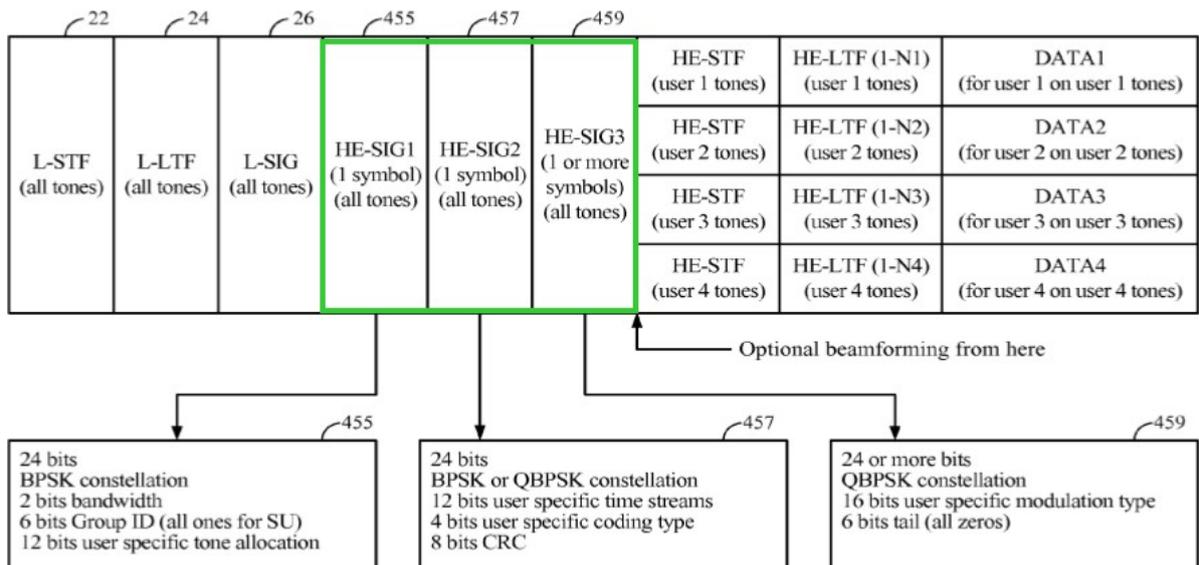


FIG. 5

Even a synopsis of EPD2 and D4 would not have led the skilled person to the subject-matter according to the invention. Without disclosure of the structure of the HE- SIG-B field, D4 cannot in principle have suggested the claimed subject-matter. The defendants argue that the "tone allocation information for

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OFDMA" in the HE-SIG1 field of D4 corresponds to the RA information in the comment field of the SIG B field in EPD2, while HE-SIG2 and HE-SIG3 after D4 correspond to the user-specific information field of the SIG B field in EPD2. The "tone allocation information for OFDMA" in the HE-SIG1 field (e.g. "12 bits user specific tone allocation" in Figure 5, marked in red) comprises 2 bits per user, which indicate how many sub-channels are allocated to each user. It is possible that no sub-channel is assigned to one of the users (here user-3). The defendants have concluded from this that the corresponding user-specific information in the fields HE-SIG2 and HE-SIG3 could be omitted ("Action for annulment", page 61 to 62). This is incorrect.

HE tone allocation downlink packet implementation 1:

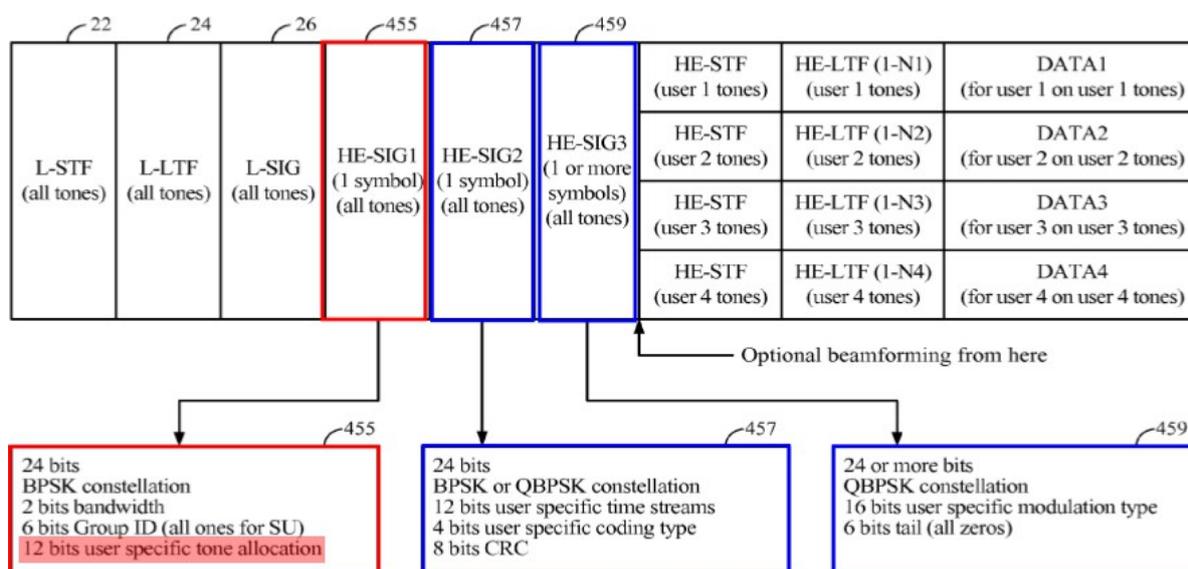


FIG. 5

Firstly, D4 gives no indication that the "Tone Allocation Information for OFDMA" in the HE-SIG1 field is the same or has the same function as the comment field of the SIG-B field in EPD2. The same applies to HE-SIG2 and HE-SIG3 with respect to the user-specific information field of the SIG-B field in EPD2. Secondly, in the example mentioned by the applicant (paragraphs [0070]-[0074]), D4 discloses that the HE-SIG1 comprises 6 bits group ID and the tone allocation information for OFDMA, where 10 bits of the tone allocation information for OFDMA are used for user-1, user-2, user-3 and user-4. The 10 bits include 2 bits for the allocation granularity B and 2 bits per user to indicate the number of sub-bands/sub-channels allocated to each user.

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are assigned. This is also shown in Figure 6 of D4, where 6 bits of group ID are marked in yellow and 10 bits of "tone allocation information for OFDMA" are marked in orange. In this example, no sub-channel is assigned to user-3. However, the "tone allocation information for OFDMA" in the HE-SIG1 field (marked in orange) still includes two bits for user-3 (see e.g. below in Figure 6, emphasis added):

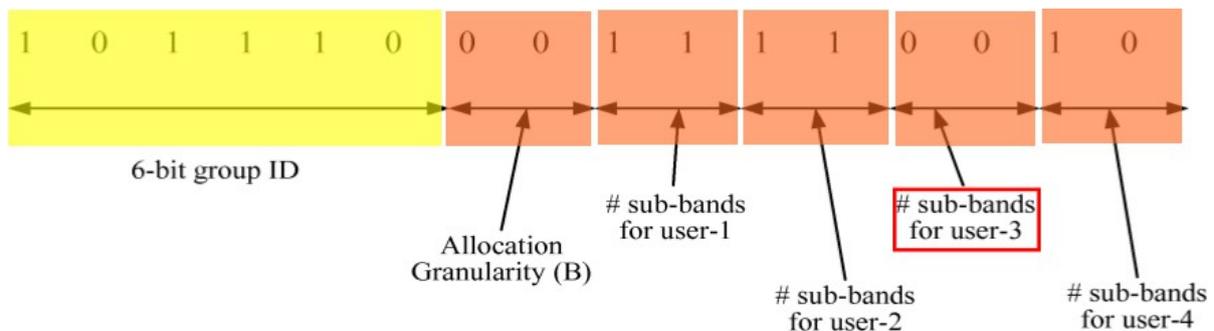


FIG. 6

Contrary to the defendant's view (page 62, Invalidity Action), D4 does not disclose that in the example in which User-3 is not assigned a sub-channel, no "tone allocation information for OFDMA" should be transmitted in the HE-SIG1 field in relation to a user (User-3). D4 also does not indicate that no user-specific subfield of HE-SIG2 or HESIG3 should be transmitted for user-3 in this example. Thus, the - not initiated - synopsis of the documents EPD2 and D4 did not lead the expert to the claimed objects.

#### 4. EPD3 with EPD2

Insofar as the defendants argued for the first time at the oral proceedings that the EPD3 citation together with the EPD2 opposed the inventive step, this argument must be rejected as belated pursuant to Rule 9.2 RP. The defendants have failed to explain why the argumentation was not already submitted with the nullity counterclaim. Insofar as they refer in this respect to paragraphs 655-667 of the nullity counterclaim, it should be noted that although the EPD3 is mentioned there in paragraph 655, it is not mentioned as a joint application.

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with EPD2 of the inventive step. Rather, it is mentioned as background information because it has a certain connection with the EPD2 citation. No noteworthy attack on the inventive step can be derived from the mention as background information. The attack now made on the basis of EPD3 with EPD2 must therefore be rejected as belated.

Irrespective of this, neither the EPD2 nor the EPD3 reveal how exactly to sign, which the plaintiff correctly pointed out at the hearing.

#### 5. Executability

The argument that the patent in suit, as granted, cannot be implemented over the entire range (Art. 83 EPC) must be rejected as belated in accordance with Rule 9.2 RP. The defendants only raised this argument in the rejoinder. They have not provided any justification as to why they did not already present it in the nullity counterclaim. Irrespective of this, the patent in suit is executable over its entire width according to the interpretation found above. The defendants' argumentation to the contrary is based on their incorrectly deviating interpretation.

#### 6. Further claims

The other claims are patentable for the same reasons or by virtue of their dependence on the main claim.

### **IV. Auxiliary applications**

The auxiliary requests are therefore no longer relevant. Consequently, it can also be left open whether the further auxiliary requests 4` and 4``, which were only submitted during the oral hearing, should be admitted in accordance with Rule 30.2 of the Rules of Procedure or whether they should be considered late in accordance with

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Rule 30.2 of the Rules of Procedure.

Rule 9.2 RP and whether and to what extent Rule 30.1.a RP grants the Board discretion.

## **E. Injury**

On the basis of the interpretation set out above, the attacked embodiments make use of the asserted claims of the patent in suit by analogy.

## **I. Challenged embodiments**

The defendants offer a variety of products in Germany that are labeled as Wi-Fi 6 compatible. These include Wi-Fi devices (including WLAN routers, WLAN repeaters, Orbi/mesh systems, switches, DSL routers, etc.) for private users, business users and service providers. The product range on offer includes, in particular, access points that enable access to the WLAN, such as in particular

- the "NETGEAR Orbi Pro WiFi 6 - AX6000 Tri-Band Mesh System",
- the "NETGEAR Tri-Band Orbi Pro WiFi 6 Router",
- the "NETGEAR Nighthawk 12-Stream Dual-Band WiFi 6 Router",
- the "Netgear 4 StreamDual-Band WiFi 6 Router, 1.8Gbps", or
- the "4 Stream dual-band WiFi 6 router (up to 1.8 Gbps) with Netgear Armor".

These are exemplary products. The defendants offer a variety of devices that use the Wi-Fi 6 standard in the manner described below. The action is directed against all products offered and sold now and in the future that use the Wi-Fi 6 standard in the manner described below.

**II. Patent use**

The plaintiff has proven the patent use by the attacked embodiments by referring to the documents of the current version of the IEEE 802.11ax- 2021 standard (K14) as well as the submitted test data (K41), whereby the proof is based on claim 1. Claim 7 is the device claim parallel to method claim 1. The realization of the features of claim 7 therefore results from the explanations on the infringement of claim 1. Claim 7 is therefore also directly infringed. The same applies to the infringement of claims 2 and 8 assigned to the receiving party.

1. Standard documents

a. In the claimed standard WiFi 6, a resource allocation method is provided in the HE-SIG-B field according to the technical teaching of claim 1.

aa) Feature 1

The HE-SIG-B field is part of the HE (high-efficiency) MU (multi-user) PPDU format provided for in the standard, see Figure 27-9 of the standard [*marker added*]:



**Figure 27-9—HE MU PPDU format**

This format of the PPDU is used for the transmission situation according to section 27.3.4, in which an AP transmits to one or more STAs. The HE- SIG-B field is included in this format:

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The format of the HE MU PPDU is defined as in Figure 27-9. This format is used for transmission to one or more users if the PPDU is not a response of a Trigger frame. In the HE MU PPDU, the HE-SIG-A field is not repeated. The HE-SIG-B field is present in this format.

Feature [1] is thus realized.

bb) Features 1.1 and 1.2

A HE MU PPDU is transmitted with 20 MHz, 40 MHz, 80 MHz or 160 MHz bandwidth, see e.g. Table 27-25 of the standard:

**Table 27-25—RUs associated with each RU Allocation subfield for each HE-SIG-B content channel and PPDU bandwidth**

PPDU bandwidth	RU Allocation subfield and Center 26-tone RU subfield (if present)	RUs in the subcarrier range, or overlapping with the subcarrier range if the RU is larger than a 242-tone RU
20 MHz	The RU Allocation subfield in a single HE-SIG-B content channel	[-122:122]
40 MHz	The RU Allocation subfield in HE-SIG-B content channel 1	[-244:-3]
	The RU Allocation subfield in HE-SIG-B content channel 2	[3:244]

PPDU bandwidth	RU Allocation subfield and Center 26-tone RU subfield (if present)	RUs in the subcarrier range, or overlapping with the subcarrier range if the RU is larger than a 242-tone RU
80 MHz	The first RU Allocation subfield in HE-SIG-B content channel 1	[-500:-259]
	The first RU Allocation subfield in HE-SIG-B content channel 2	[-258:-17]
	Center 26-tone RU subfield in HE-SIG-B content channel 1 and 2	[-16:-4, 4:16]
	The second RU Allocation subfield in HE-SIG-B content channel 1	[17:258]
	The second RU Allocation subfield in HE-SIG-B content channel 2	[259:500]
160 MHz or 80+80 MHz	The first RU Allocation subfield in HE-SIG-B content channel 1	[-1012:-771]

The transmission bandwidths of 40 MHz, 80 MHz and 160 MHz specified in the standard are all multiples of 20 MHz. When transmitting in a bandwidth of 40 MHz or more, two HE-SIG-B contents are transmitted in one HE-MU-PPDU in accordance with Para. 27.3.11.8.2 and Para. 27.3.2.5 of the standard:

#### 27.3.11.8.2 HE-SIG-B content channels

The HE-SIG-B field of a 20 MHz HE MU PPDU contains one HE-SIG-B content channel. The HE-SIG-B field of an HE MU PPDU that is 40 MHz or wider contains two HE-SIG-B content channels.

#### 27.3.2.5 Resource indication and User identification in an HE MU PPDU

An AP that transmits an HE MU PPDU shall set the UL/DL field in the HE-SIG-A field to 0.

The HE-SIG-B field consists of one or two HE-SIG-B content channels, with each HE-SIG-B content channel conveying user allocation for one or more 20 MHz subchannels. A 20 MHz HE MU PPDU has one HE-SIG-B content channel, while an HE MU PPDU with greater than 20 MHz PPDU bandwidth has two HE-SIG-B content channels.

Accordingly, when transmitting in bandwidths of 40, 80 or 160 MHz, the PPDU is transmitted by default in such a way that it contains two HE-SIG-B contents (so-called HE-SIG-B content channels). The "first" HE-SIG-B content is transmitted on the odd-numbered 20 MHz sub-channels and the "second" HE-SIG-B content on the even-numbered 20 MHz sub-channels. This transmission of the HE-SIG-B content on the respective sub-channels is described in the standard divided according to the different bandwidths in section 27.3.11.8.5:

#### - 40 MHz bandwidth

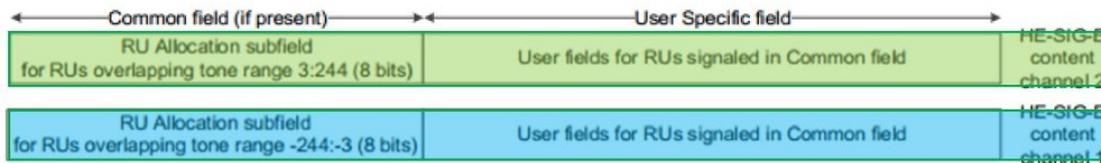
When transmitting in a bandwidth of 40 MHz, two HE-SIG-B contents are transmitted as standard, with the first HE-SIG-B content ("HE-SIG-B content channel 1") being transmitted on the first 20 MHz sub-channel (i.e. the 20 MHz sub-channel with lower frequency) and the second HE-SIG-B content ("HE-SIG-B content channel 2") being transmitted on the second 20 MHz sub-channel (i.e. the 20 MHz sub-channel with higher frequency):

From Equation (27-21) and 27.3.11.8.2, a 40 MHz PPDU contains two HE-SIG-B content channels, each occupying a 20 MHz frequency segment as shown in Figure 27-29. HE-SIG-B content channel 1 occupies the 20 MHz frequency subchannel that is lower in frequency. HE-SIG-B content channel 2 occupies the 20 MHz frequency subchannel that is upper in frequency.

This transmission situation and the respective HE-SIG-B contents are shown graphically in Figs. 27-29 of the standard [*emphasis added*]. Shown is a first HE-SIG-B content [*highlighted in blue*], which is transmitted on each odd-numbered 20-

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MHz subchannel, and a second HE-SIG-B content [*highlighted in green*] that is transmitted on each even-numbered 20 MHz subchannel:



**Figure 27-29—HE-SIG-B content channel for a 40 MHz PPDU**

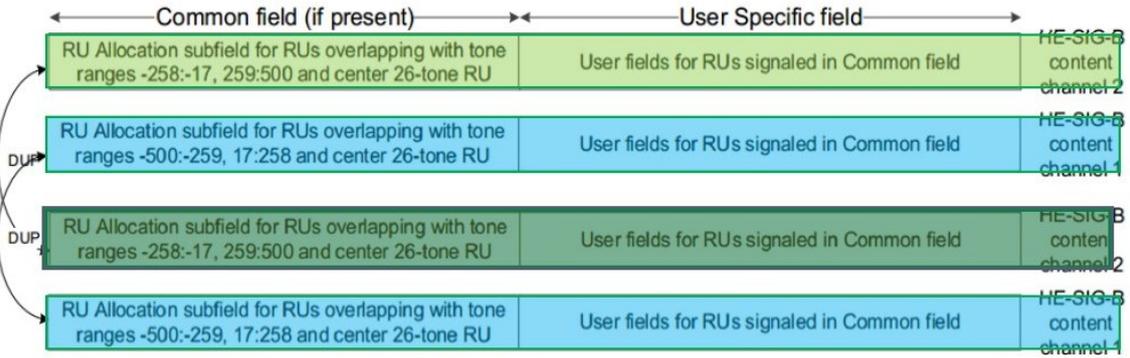
- 80 MHz bandwidth

When transmitting in a bandwidth of 80 MHz, two HE-SIG-B contents are transmitted as standard, with the first HE-SIG-B content ("HE-SIG-B content channel 1") being transmitted on each of the first and third 20 MHz subchannels at the lowest and third-lowest frequency and the second HE-SIG-B content ("HE-SIG-B content channel 1") being transmitted on each of the second and fourth 20 MHz subchannels at the second-lowest and highest frequency:

From Equation (27-21) and 27.3.11.8.2, an 80 MHz PPDU contains two HE-SIG-B content channels, each of which are duplicated once as shown in Figure 27-30. HE-SIG-B content channel 1 occupies the 20 MHz frequency subchannel that is lowest in frequency and is duplicated on the 20 MHz frequency segment that is third lowest in frequency. HE-SIG-B content channel 2 occupies the 20 MHz frequency segment that is second lowest in frequency and is duplicated on the 20 MHz frequency subchannel that is highest in frequency.

This transmission situation and the respective HE-SIG-B contents are shown graphically in Figs. 27-30 of the standard [*emphasis added*]. Shown are a first HE-SIG-B content [*highlighted in blue*] transmitted on each odd-numbered 20 MHz subchannel and a second HE-SIG-B content [*highlighted in green*] transmitted on each even-numbered 20 MHz subchannel:

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**Figure 27-30—HE-SIG-B content channels and their duplication in an 80 MHz PPDU**

- 160 MHz bandwidth

When transmitting in a bandwidth of 160 MHz, two HE-SIG-B contents are transmitted as standard, with the first HE-SIG-B content ("HE-SIG-B content channel 1") on each of the first, third, fifth and seventh 20 MHz subchannels at the lowest, third-lowest and seventh-lowest frequency and the second HE-SIG-B content ("HE-SIG-B content channel 1") on each of the second, fourth, sixth and eighth 20 MHz subchannels at the lowest, fifth-lowest and seventh-lowest frequency, The second HE-SIG-B content ("HE-SIG-B content channel 1") is transmitted on each of the second, fourth, sixth and eighth 20 MHz subchannels at the second-lowest, fourth-lowest, sixth-lowest and highest frequencies:

From Equation (27-21) and 27.3.11.8.2, a 160 MHz PPDU contains two HE-SIG-B content channels, each of which are duplicated four times as shown in Figure 27-31. HE-SIG-B content channel 1 occupies the 20 MHz frequency subchannel that is lowest in frequency and is duplicated on the 20 MHz frequency subchannels that are third, fifth, and seventh lowest in frequency. HE-SIG-B content channel 2 occupies the 20 MHz frequency subchannel that is second lowest in frequency and is duplicated on the 20 MHz frequency subchannels that are fourth, sixth, and eighth lowest in frequency.

This transmission situation and the respective HE-SIG-B contents are shown graphically in Fig. 27-31 of the standard [*emphasis added*]. Shown are a first HE-SIG-B content [*highlighted in blue*], which is transmitted on each odd-numbered 20 MHz subchannel, and a second HE-SIG-B content [*highlighted in green*], which is transmitted on each even-numbered 20 MHz subchannel:



Figure 27-31—HE-SIG-B content channels and their duplication in a 160 MHz PDU

Consequently, features 1.1 and 1.2 are realized.

cc) Characteristics 1.2.1 and 1.2.2

According to section 27.3.8.11.2 of the standard, each HE-SIG-B field contains a "Common field", if this is available in the respective transmission, and a "User specific field":

The HE-SIG-B content channel format is shown in Figure 27-26. The HE-SIG-B content channel consists of a Common field, if present, followed by a User Specific field.

The subdivision of the HE-SIG-B fields into a "Common field" and a "User Specific field" is also shown in Fig. 27-26 of the standard [emphasis added]:

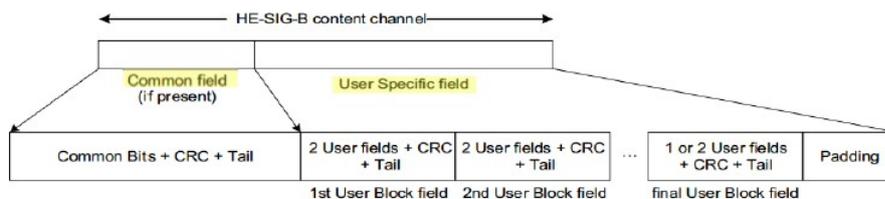


Figure 27-26—HE-SIG-B content channel format

The content of the "Common field" is described in section 27.3.11.8.3 of the standard. Accordingly, the format of this field is defined in the following Table 27-24 of the standard:

**Table 27-24—Common field**

Subfield	Number of subfields	Number of bits per subfield	Description
RU Allocation	N	8	<p><i>N</i> RU Allocation subfields are present in an HE-SIG-B content channel, where</p> <ul style="list-style-type: none"> <li><i>N</i> = 1 if the Bandwidth field in the HE-SIG-A field is 0 or 1 (indicating a 20 MHz or 40 MHz HE MU PPDU)</li> <li><i>N</i> = 2 if the Bandwidth field in the HE-SIG-A field is 2, 4, or 5 (indicating an 80 MHz HE MU PPDU)</li> <li><i>N</i> = 4 if the Bandwidth field in the HE-SIG-A field is 3, 6, or 7 (indicates a 160 MHz or 80+80 MHz HE MU PPDU)</li> </ul> <p>Each RU Allocation subfield in an HE-SIG-B content channel corresponding to a 20 MHz frequency subchannel indicates the RU assignment, including the size of the RU(s) and their placement in the frequency domain, to be used in the HE modulated fields of the HE MU PPDU in the frequency domain and indicates information needed to compute the number of users allocated to each RU, where the subcarrier indices of the RU(s) meet the conditions in Table 27-25.</p>

Accordingly, the common field contains, among other things, one or more (*N*) RU allocation subfields ("RU Allocation subfield", RU="Resource Unit"), i.e. one or more resource indications (RA). Each RU allocation subfield comprises 8 bits that indicate the allocated resource unit ("RU"). The number (*N*) of RU assignment subfields depends on the transmission bandwidth. These remarks on the content of the HE-SIG-B field apply to all HE-SIG-B content regardless of whether this is "first" content according to feature [1.2.1] or "second" content according to feature [1.2.2]. The first HE-SIG-B content ("HE-SIG-B content channel 1"), which is transmitted on every odd-numbered 20 MHz subchannel, comprises a "common field", which is referred to as the first "common field". The first common field comprises one or more RU allocation sub-fields (i.e. one or more RAs), which may be referred to as one or more first RAs. Similarly, the second HE-SIG-B content transmitted on each even-numbered 20 MHz subchannel comprises a common field, which is referred to as a second common field. The second common field also comprises RU assignment sub-fields (i.e. one or more RAs), which may be referred to as one or more second RAs.

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Features [1.2.1] and [1.2.2] are thus realized.

dd) Feature 1.3

The assignment of the RUs by the one or more "first" RAs corresponding to the odd-numbered 20 MHz subchannels and the RUs by the one or more "second" RAs corresponding to the even-numbered 20 MHz subchannels is shown in the standard for each transmission bandwidth individually in sections 27.3.11.8.3 and 27.3.11.8.5:

- 40 MHz bandwidth

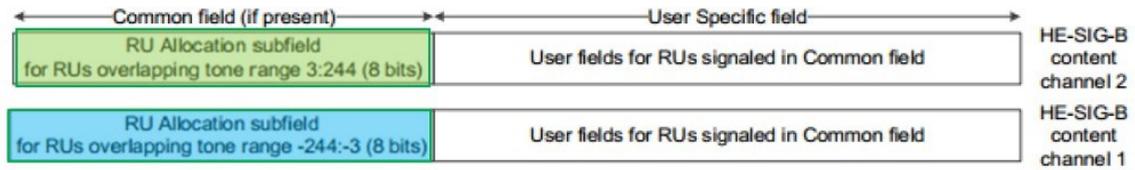
Table 27-25 of the standard shows that at a bandwidth of 40 MHz, there is an RU allocation subfield in the first HE-SIG-B content ("HE-SIG-B content channel 1") and one in the second HE-SIG-B content ("HE-SIG-B content channel 2"). As already explained in features 1.2, 1.2.1 and 1.2.2, the RU allocation subfield in the first HE-SIG-B content refers to RUs in relation to each odd 20 MHz subchannel and the RU allocation subfield in the second HE-SIG-B content refers to RUs in relation to each even 20 MHz subchannel.

**Table 27-25—RUs associated with each RU Allocation subfield for each HE-SIG-B content channel and PPDU bandwidth**

PPDU bandwidth	RU Allocation subfield and Center 26-tone RU subfield (if present)	RUs in the subcarrier range, or overlapping with the subcarrier range if the RU is larger than a 242-tone RU
20 MHz	The RU Allocation subfield in a single HE-SIG-B content channel	[-122:122]
40 MHz	The RU Allocation subfield in HE-SIG-B content channel 1	[-244:-3]
	The RU Allocation subfield in HE-SIG-B content channel 2	[3:244]

This information is also contained in the first column of Figs. 27- 29 shown above:

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**Figure 27-29—HE-SIG-B content channel for a 40 MHz PPDU**

- 80 MHz bandwidth

Table 27-25 of the standard shows that at a bandwidth of 80 MHz, there are two RU allocation subfields in the first HE-SIG-B content ("HE-SIG-B content channel 1") and two in the second HE-SIG-B content ("HE-SIG-B content channel 2"). As already explained in features 1.2, 1.2.1 and 1.2.2, the RU allocation subfields in the first HE-SIG-B content refer to RUs in relation to each odd 20 MHz subchannel and the RU allocation subfields in the second HE-SIG-B content refer to RUs in relation to each odd 20 MHz subchannel.

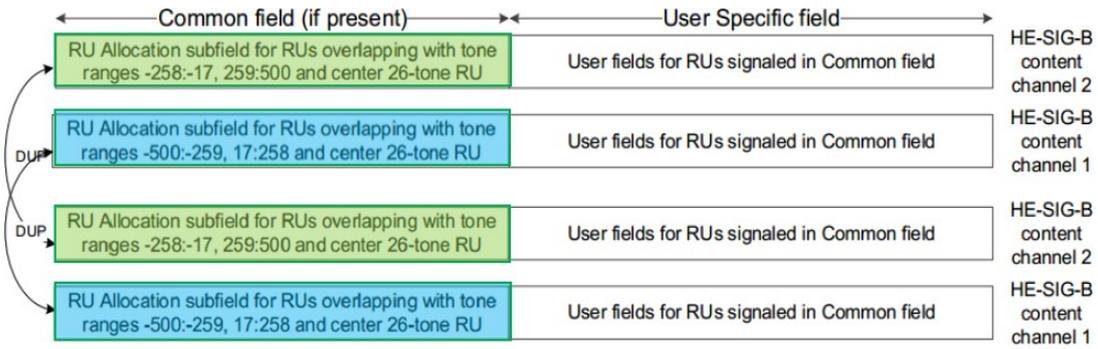
in the second HE-SIG-B content to RUs in relation to each even-numbered 20 MHz sub-channel.

**Table 27-25—RUs associated with each RU Allocation subfield for each HE-SIG-B content channel and PPDU bandwidth (continued)**

PPDU bandwidth	RU Allocation subfield and Center 26-tone RU subfield (if present)	RUs in the subcarrier range, or overlapping with the subcarrier range if the RU is larger than a 242-tone RU
80 MHz	The first RU Allocation subfield in HE-SIG-B content channel 1	[-500:-259]
	The first RU Allocation subfield in HE-SIG-B content channel 2	[-258:-17]
	Center 26-tone RU subfield in HE-SIG-B content channel 1 and 2	[-16:-4, 4:16]
	The second RU Allocation subfield in HE-SIG-B content channel 1	[17:258]
	The second RU Allocation subfield in HE-SIG-B content channel 2	[259:500]

This information is also contained in the first column of Figs. 27-30 shown above:

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**Figure 27-30—HE-SIG-B content channels and their duplication in an 80 MHz PPDU**

- 160 MHz bandwidth

Table 27-25 of the standard shows that, at a bandwidth of 160 MHz, there are four RU allocation subfields in the first HE-SIG-B content ("HE-SIG-B content channel 1") and four RU allocation subfields in the second HE-SIG-B content ("HE-SIG-B content channel 2"). As above, the RU allocation subfields in the first HE-SIG-B content refer to RUs in relation to each odd 20 MHz subchannel and the RU allocation subfields in the second HE-SIG-B content refer to RUs in relation to each even 20 MHz subchannel.

160 MHz or 80+80 MHz	The first RU Allocation subfield in HE-SIG-B content channel 1	[-1012:-771]
	The first RU Allocation subfield in HE-SIG-B content channel 2	[-770:-529]
	Center 26-tone RU subfield for lower frequency 80 MHz in HE-SIG-B content channel 1	[-528:-516, -508:-496]
	The second RU Allocation subfield in HE-SIG-B content channel 1	[-495:-254]
	The second RU Allocation subfield in HE-SIG-B content channel 2	[-253:-12]
	The third RU Allocation subfield in HE-SIG-B content channel 1	[12:253]
	The third RU Allocation subfield in HE-SIG-B content channel 2	[254:495]
	Center 26-tone RU subfield for higher frequency 80 MHz in HE-SIG-B content channel 2	[496:508, 516:528]
	The fourth RU Allocation subfield in HE-SIG-B content channel 1	[529:770]
	The fourth RU Allocation subfield in HE-SIG-B content channel 2	[771:1012]

This information is also contained in the first column of Fig. 27- 31 shown above:

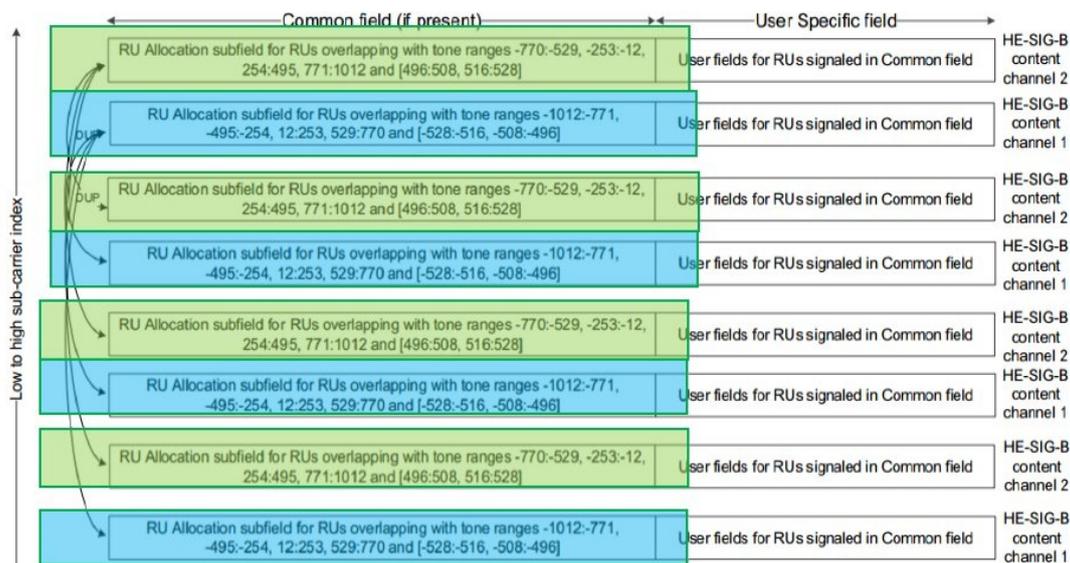


Figure 27-31—HE-SIG-B content channels and their duplication in a 160 MHz PPDU

Feature [1.3] is thus realized.

ee) Features 1.4 and 1.5

According to sections 27.3.11.8.1, 27.3.11.8.2 and 27.3.11.8.4 of the standard, the "User Specific field" contains the information of the respective STA to which the RUs previously specified in the RA are specifically assigned.

**27.3.11.8.2 HE-SIG-B content channels**

The union of the User Specific fields in the HE-SIG-B content channels contains information for all users in the PPDU on how to decode their payload. As shown in Figure 27-26, the User Specific field is organized into User Block fields that in turn contain User fields. See 27.3.11.8.4 for a description of the contents of the User Specific field.

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**27.3.11.8 HE-SIG-B field**

**27.3.11.8.1 General**

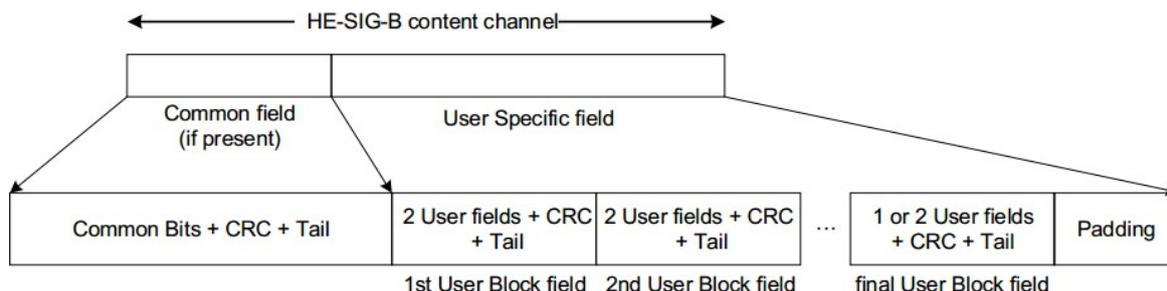
The HE-SIG-B field provides the necessary signaling, including the OFDMA and DL MU-MIMO resource allocation information, to allow the STAs to look up the corresponding resources to be used in the HE modulated fields of the PPDU. The integer fields of the HE-SIG-B field are transmitted in unsigned binary format, LSB first, where the LSB is in the lowest numbered bit position.

**27.3.11.8.4 User Specific field**

(...)

In this way, RU Allocation subfields, Center 26-tone RU fields (if present), and the position of a user's User field in the User Specific field of an HE-SIG-B content channel indicate the user's RU assignment.

The content of the "User Specific field" is shown again graphically in Fig. 27-26, whereby a "User Specific field" comprises, among other things, one or more user block fields, which in turn usually comprises two user fields:



**Figure 27-26—HE-SIG-B content channel format**

Each "user field", which corresponds to the user scheduling information sub-field in the terminology of the claim, contains information about a station, STA, as shown in Table 27-27 and 27-28/29 of the standard. Table 27-27 first shows the general structure of the "user specific fields", which includes N "user fields":

respective concerned STAs included:

**Table 27-27—User Block field**

Field	Number of fields	Number of bits per field	Description
User field	N	21	<p><i>N</i> User fields are present, where  <math>N = 1</math> if it is the final User Block field, and if there is only one user in the final User Block field.  <math>N = 2</math> otherwise.</p> <p>The User field format for a non-MU-MIMO allocation is defined in Table 27-28. The User field format for a MU-MIMO allocation is defined in Table 27-29.</p>
CRC	1	4	The CRC is calculated over bits 0 to 20 for a User Block field that contains one User field and bits 0 to 41 for a User Block field that contains two User fields. See 27.3.11.7.3.
Tail	1	6	Used to terminate the trellis of the convolutional decoder. Set to 0.

Tables 27-28 and 27-29 then show that the respective "User fields" contain information for the STAs in question:

**Table 27-28—User field format for non-MU-MIMO allocation**

Bit	Subfield	Number of bits	Description
B0–B10	STA-ID	11	Set to a value of the TXVECTOR parameter STA_ID (see 26.11.1).
B11–B13	NSTS	3	<p>If the STA-ID subfield is not 2046, indicates the number of space-time streams and is set to the number of space-time streams minus 1.</p> <p>Set to an arbitrary value if the STA-ID subfield is 2046.</p>

**Table 27-29—User field format for MU-MIMO allocation**

Bit	Subfield	Number of bits	Description
B0–B10	STA-ID	11	Set to a value indicated from TXVECTOR parameter STA_ID (see 26.11.1).
B11–B14	Spatial Configuration	4	<p>If the STA-ID subfield is not 2046, indicates the number of spatial streams for a user in an MU-MIMO allocation (see Table 27-30).</p> <p>Set to an arbitrary value if the STA-ID subfield is 2046.</p>

The "first" user specific field, which is carried on each odd-numbered sub-channel, comprises one or more user scheduling information sub-fields. Each of these user scheduling information sub-fields contains information for a STA to which one of the one or more RUs referenced by one or more of the "first" RAs is assigned. The same applies to the "second" user specific field, which is transmitted on each even-numbered sub-channel.

Features [1.4] and [1.5] are thus realized.

ff) Features 1.6 and 1.7

The special signaling of features [1.6] and [1.7] is described in section 27.3.11.8.3 of the standard:

A 996-tone RU is referred to by two consecutive RU Allocation subfields per HE-SIG-B content channel, for both HE-SIG-B content channels. The two consecutive RU Allocation subfields per HE-SIG-B content channel are labeled the first RU Allocation subfield and the second RU Allocation subfield. A 484-tone RU is referred to by a single RU Allocation subfield per HE-SIG-B content channel, for both HE-SIG-B content channels. Smaller RUs are referred to by a single RU Allocation subfield in a single HE-SIG-B content channel. If a Common field is present in a 160 MHz or 80+80 MHz PPDU, a 2×996 tone RU is not permitted and cannot be indicated by the RU allocation subfield.

RA information ("RU Allocation subfield") in the Common field, as contained in Table 27-24 (as already shown), is signaled by predefined indices according to Table 27-26 of the standard:

**Table 27-26—RU Allocation subfield (continued)**

RU Allocation subfield (B7 B6 B5 B4 B3 B2 B1 B0)	#1	#2	#3	#4	#5	#6	#7	#8	#9	Number of entries
96-111 (0110y <sub>1</sub> y <sub>0</sub> z <sub>1</sub> z <sub>0</sub> )	106				-	106				16
112 (01110000)	52		52		-	52		52		1
113 (01110001)	242-tone RU empty (with zero users)									1
114 (01110010)	484-tone RU; contributes zero User fields to the User Specific field in the same HE-SIG-B content channel as this RU Allocation subfield									1
115 (01110011)	996-tone RU; contributes zero User fields to the User Specific field in the same HE-SIG-B content channel as this RU Allocation subfield									1

Index 113 refers, for example, to a transmission situation in which no user scheduling information subfields are contained in the relevant HE-SIG-B content for an RU comprising 242 subcarriers (since the number of assigned STAs is "0"). Indexes 114 and 115 refer to transmission situations where, for an RU spanning at least two 20 MHz sub-channels, no user scheduling information sub-fields are included in the relevant HE-SIG-B content for the relevant 20 MHz sub-channel. According to the claimed method, these user scheduling information sub-fields are contained in the other HE-SIG-B content. The corresponding index for this (200 - 207 for a 484-tone RU or 208 - 215 for a 996-tone RU) can also be found in Table 27-26 of the standard:

200-207 (11001y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	484	8
208-215 (11010y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	996	8

Annex Z of the standard contains examples of HE- SIG-B content for various transmission situations. The transmission situation of an 80 MHz HE-MU- PPDU is the subject of example 1, where the exact RA information is given in Table

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Z-1 is shown. It can be seen here that this is the special transmission situation of feature [1.6], according to which an RU comprising 484 subcarriers is represented by two "user fields" in the first HE-SIGB content channel and no "User field" in the second HE-SIGB content channel:

**Table Z-1—Resource allocation signaling example 1**

RU	484-tone RU 1	26-tone RU 19 (center 26-tone RU)	242-tone RU 3	242-tone RU 4
SS0	STA-ID 1441, HE-MCS 10, LDPC	STA-ID 1443, HE-MCS 3, BCC, 1SS, no beamforming, no DCM	STA-ID 1444, HE-MCS 4, BCC, 2SS, Tx beamforming	STA-ID 1445, HE-MCS 8, BCC
SS1				STA-ID 1446, HE-MCS 7, BCC
SS2	STA-ID 1442, HE-MCS 9, LDPC		N/A	STA-ID 1447, HE-MCS 6, BCC
SS3				STA-ID 1448, HE-MCS 5, BCC

The AP performs a dynamic split of the User fields for the two MU-MIMO STAs on 484-tone RU 1, with two User fields assigned to HE-SIG-B content channel 1 and none to HE-SIG-B content channel 2, to avoid a disparity in the number of User fields between content channels (see NOTE 1 in 27.3.11.8.3). The User field for STAs 1441, 1442, 1443, and 1444 are in HE-SIG-B content channel 1 while User field for STAs 1445, 1446, 1447, and 1448 are in HE-SIG-B content channel 2. The content of the entire HE-SIG-B field for this example is shown in Table Z-2.

This can be seen in detail in Table Z-2. In the following processing, the binary values shown in the respective common field were converted into the corresponding indices as contained in Table 27-26 above:

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The AP performs a dynamic split of the User fields for the two MU-MIMO STAs on 484-tone RU 1, with two User fields assigned to HE-SIG-B content channel 1 and none to HE-SIG-B content channel 2, to avoid a disparity in the number of User fields between content channels (see NOTE 1 in 27.3.11.8.3). The User field for STAs 1441, 1442, 1443, and 1444 are in HE-SIG-B content channel 1 while User field for STAs 1445, 1446, 1447, and 1448 are in HE-SIG-B content channel 2. The content of the entire HE-SIG-B field for this example is shown in Table Z-2.

Table Z-2—HE-SIG-B field content for example 1

	HE-SIG-B content channel 1	HE-SIG-B content channel 2
Common field	10010011 00000011 1111 000000	01001110 11000011 1 1100 000000
User fields	STA 1441: 100001011101 0010 0101 0 1 STA 1442: 010001011101 0010 1001 0 1 CRC & tail: 0011 000000	STA 1445: 10100101101 0000 0001 0 0 STA 1446: 01100101101 0000 1110 0 0 CRC & tail: 1101 000000

Annotations from the image:

- 201, 2 users in a 484-RU (points to index 10010011 in channel 1)
- 192, 1 user on a 242-RU center 26 (points to index 00000011 in channel 1)
- 195, 4 users on a 242-RU (points to index 01001110 in channel 2)
- 114 (points to index 11000011 in channel 2)

As shown above, the index 114 (01001110) in the second HE-SIG-B content channel indicates that there are no user scheduling information sub-fields in this content channel for the 484 tone RU referred to. Instead, the signaling for this RU (2 users in a 484 RU) is carried out in HE-SIG-B content channel 1 by the corresponding index "201" (10010011).

Characteristics [1.6] and [1.7] are realized.

gg) Subclaims

The realization of the other characteristics of the sub-claims also asserted also follows automatically from the above explanations.

With regard to the infringement of claim 3 or 9, it should be noted that the RA information in the standard is expressed by a corresponding index in Table 27-24 and 27-26. The associated 8-bit sequence (which corresponds to the index in binary notation) also indicates in the standard whether MU-MIMO is used. It can also be used to determine how many STAs the respective RUs are assigned to, whereby the latter results in each case from the variable sequences of the 8-bit sequence shown below:

**27.3.11.8.2 HE-SIG-B content channels**

The Common field of an HE-SIG-B content channel contains information regarding the resource unit allocation such as the RU assignment to be used in the HE modulated fields of the PPDU, the RUs allocated for MU-MIMO, and the number of users in MU-MIMO allocations. The Common field is defined in 27.3.11.8.3.

**Table 27-24—Common field**

Subfield	Number of subfields	Number of bits per subfield	Description
RU Allocation	N	8	<p><i>N</i> RU Allocation subfields are present in an HE-SIG-B content channel, where</p> <p><i>N</i> = 1 if the Bandwidth field in the HE-SIG-A field is 0 or 1 (indicating a 20 MHz or 40 MHz HE MU PPDU)</p> <p><i>N</i> = 2 if the Bandwidth field in the HE-SIG-A field is 2, 4, or 5 (indicating an 80 MHz HE MU PPDU)</p> <p><i>N</i> = 4 if the Bandwidth field in the HE-SIG-A field is 3, 6, or 7 (indicates a 160 MHz or 80+80 MHz HE MU PPDU)</p> <p>Each RU Allocation subfield in an HE-SIG-B content channel corresponding to a 20 MHz frequency subchannel indicates the RU assignment, including the size of the RU(s) and their placement in the frequency domain, to be used in the HE modulated fields of the HE MU PPDU in the frequency domain and indicates information needed to compute the number of users allocated to each RU, where the subcarrier indices of the RU(s) meet the conditions in Table 27-25.</p>

**Table 27-26—RU Allocation subfield**

RU Allocation subfield (B7 B6 B5 B4 B3 B2 B1 B0)	#1	#2	#3	#4	#5	#6	#7	#8	#9	Number of entries

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16-23 (00010y2y1y0)	52		52		—	106			8	
24-31 (00011y2y1y0)	106				—	52	52		8	
32-39 (00100y2y1y0)	26	26	26	26	26	106			8	
40-47 (00101y2y1y0)	26	26	52		26	106			8	
48-55 (00110y2y1y0)	52		26	26	26	106			8	
56-63 (00111y2y1y0)	52		52		26	106			8	
64-71 (01000y2y1y0)	106				26	26	26	26	26	8
72-79 (01001y2y1y0)	106				26	26	26	52	8	
80-87 (01010y2y1y0)	106				26	52	26	26	8	
88-95 (01011y2y1y0)	106				26	52	52		8	

**Table 27-26—RU Allocation subfield (continued)**

RU Allocation subfield (B7 B6 B5 B4 B3 B2 B1 B0)	#1	#2	#3	#4	#5	#6	#7	#8	#9	Number of entries
96-111 (0110y <sub>1</sub> y <sub>0</sub> z <sub>1</sub> z <sub>0</sub> )	106				—	106				16
112 (01110000)	52	52		—	52	52				1
113 (01110001)	242-tone RU empty (with zero users)									1
114 (01110010)	484-tone RU; contributes zero User fields to the User Specific field in the same HE-SIG-B content channel as this RU Allocation subfield									1
115 (01110011)	996-tone RU; contributes zero User fields to the User Specific field in the same HE-SIG-B content channel as this RU Allocation subfield									1
116-119 (011101x <sub>1</sub> x <sub>0</sub> )	Reserved									4
120-127 (01111y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	Reserved									8
128-191 (10y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> z <sub>2</sub> z <sub>1</sub> z <sub>0</sub> )	106				26	106				64
192-199 (11000y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	242									8
200-207 (11001y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	484									8
208-215 (11010y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	996									8
216-223 (11011y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	Reserved									8
224-255 (111x <sub>4</sub> x <sub>3</sub> x <sub>2</sub> x <sub>1</sub> x <sub>0</sub> )	Reserved									32

If signaling RUs of size greater than 242 subcarriers, y<sub>2</sub>y<sub>1</sub>y<sub>0</sub> = 000–111 indicates the number of User fields in the HE-SIG-B content channel that contains the corresponding 8-bit RU Allocation subfield. Otherwise, y<sub>2</sub>y<sub>1</sub>y<sub>0</sub> = 000–111 indicates the number of users multiplexed in the 106-tone RU, 242-tone RU or the lower frequency 106-tone RU if there are two 106-tone RUs and one 26-tone RU is assigned between two 106-tone RUs. The binary vector y<sub>2</sub>y<sub>1</sub>y<sub>0</sub> indicates  $N_{user}(r, c) = 2^2 \times y_2 + 2^1 \times y_1 + y_0 + 1$  users multiplexed in the RU.

z<sub>2</sub>z<sub>1</sub>z<sub>0</sub> = 000–111 indicates the number of users multiplexed in the higher frequency 106-tone RU if there are two 106-tone RUs and one 26-tone RU is assigned between two 106-tone RUs. The binary vector z<sub>2</sub>z<sub>1</sub>z<sub>0</sub> indicates  $N_{user}(r, c) = 2^2 \times z_2 + 2^1 \times z_1 + z_0 + 1$  users multiplexed in the RU.

Similarly, y<sub>1</sub>y<sub>0</sub> = 00–11 indicates the number of users multiplexed in the lower frequency 106-tone RU. The binary vector y<sub>1</sub>y<sub>0</sub> indicates  $N_{user}(r, c) = 2^1 \times y_1 + y_0 + 1$  users multiplexed in the RU.

Similarly, z<sub>1</sub>z<sub>0</sub> = 00–11 indicates the number of users multiplexed in the higher frequency 106-tone RU. The binary vector z<sub>1</sub>z<sub>0</sub> indicates  $N_{user}(r, c) = 2^1 \times z_1 + z_0 + 1$  users multiplexed in the RU.

#1 to #9 (from left to the right) is ordered in increasing order of the absolute frequency.

x<sub>1</sub>x<sub>0</sub> = 00–11, x<sub>4</sub>x<sub>3</sub>x<sub>2</sub>x<sub>1</sub>x<sub>0</sub> = 00000–11111.

b. In so far as the defendants object that the allocation in the standard is different from that in the patent in suit, namely according to the position in the respective HE-SIG-B content channel and not according to the allocation to the "first" or "second"

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SIGB content, this is incorrect on the basis of the Board's interpretation. At the oral hearing, the defendants conceded that patent use by the standard cannot be disputed on the basis of the plaintiff's interpretation, which the Board now follows.

A comparison shows that the standard uses a nomenclature that differs from the patent in suit because it designates the first RA (= RU allocation subfield) in terms of position within the respective HE-SIG-B content (=HE-SIG-B content channel) as "first RU allocation subfield" and the second RA in terms of position as "second RU allocation subfield", whereas the patent in suit designates all RAs in the first HE-SIG-B content as "first RA" (in the context of the interpretation: blue) and all RAs in the second HE-SIG-B content as "second RA" (in the context of the interpretation: red): blue) and all RAs in the second HE-SIG-B content with "second RA" (in the context of the interpretation: red). However, as the color highlighting (which deviates from the interpretation) in the counterpart (Annex K40) shows, this is merely a deviating terminology. In substance, however, "RA" according to the patent in suit and "resource allocation" according to the standard correspond exactly: For each HE-SIG-B content/HE-SIG-B content channel, there are two RAs/resource allocations, which refer to the first and third, or the second and fourth 20 MHz subchannel:

**Table 27-25—RUs associated with each RU Allocation subfield for each HE-SIG-B content channel and PPDU bandwidth (continued)**

PPDU bandwidth	RU Allocation subfield and Center 26-tone RU subfield (if present)	RUs in the subcarrier range, or overlapping with the subcarrier range if the RU is larger than a 242-tone RU
80 MHz	The first RU Allocation subfield in HE-SIG-B content channel 1	[-500;-259]
	The first RU Allocation subfield in HE-SIG-B content channel 2	[-258;-17]
	Center 26-tone RU subfield in HE-SIG-B content channel 1 and 2	[-16;-4, 4;16]
	The second RU Allocation subfield in HE-SIG-B content channel 1	[17;258]
	The second RU Allocation subfield in HE-SIG-B content channel 2	[259;500]

Furthermore, the defendants have explicitly admitted (see para. 39 of the DU) that according to Table Z-2 of the standard (K14), which shows an exemplary implementation of the standard specifications, the first RU allocation index of the second HE- SIG-B content channel assumes the value "114" (binary: "01110010") according to their diction:

Table Z-2—HE-SIG-B field content for example 1

	HE-SIG-B content channel 1		HE-SIG-B content channel 2	
Common field	10010011 00000011 1 1111 000000		01001110 11000011 1 1100 000000	
User fields	STA 1441	10000101101 0010 0101 0 1	STA 1445	10100101101 0000 0001 0 0
	STA 1442	01000101101 0010 1001 0 1	STA 1446	01100101101 0000 1110 0 0
	CRC & tail	0011 000000	CRC & tail	1101 000000
	STA 1444	00100101101 100 1 0010 0 0	STA 1447	11100101101 0000 0110 0 0
	STA 1443	11000101101 000 0 1100 0 0	STA 1448	00010101101 0000 1010 0 0
	CRC & tail	1000 000000	CRC & tail	1001 000000
	Padding	0	Padding	0
HE-SIG-B field content in binary, organized as octets (LSB first)	10010011 00000011 11111000 00010000 10110100 10010101 01000101 10100101 00101001 10000000 01001011 01100100 10001100 01011010 00011000 01000000 0000		01001110 11000011 11100000 00010100 10110100 00000100 01100101 10100001 11000110 10000001 11001011 01000001 10000001 01011010 00010100 01001000 0000	
HE-SIG-B field content in binary, organized as octets (MSB first within each octet)	11001001 11000000 00011111 00001000 00101101 10101001 10100010 10100101 10010100 00000001 11010010 00100110 00110001 01011010 00011000 00000010 0000		01110010 11000011 00000111 00101000 00101101 00100000 10100110 10000101 01100011 10000001 11010011 10000010 10000001 01011010 00101000 00010010 0000	
HE-SIG-B field content in hexadecimal, organized as octets	c9 c0 1f 08 2d a9 a2 a5 94 01 d2 26 31 5a 18 02 00		72 c3 07 28 2d 20 a6 85 63 81 d3 82 81 5a 28 12 00	

Since this value implements the "special RA" within the meaning of features 1.6 and 1.7 of the patent in suit, this is a "second RA" according to the terminology of feature 1.7. The fact that this specific second RA of the several second RAs is de facto transmitted at the first position within the second HE-SIG-B content channel is irrelevant for the realization of the patent-compliant teaching. This is because the feature is only concerned with the fact that "a [in the sense of "any"] second RA of the one or more second RAs" signals the patent-compliant "special case" (number of user scheduling information sub-fields = 0) for the RU referenced by it. Which of the several RAs within the second HE-SIG-B content (or in the terminology of the standard: "HE-SIG-B Content Channels") this is, is left open by the claim.

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Nothing else results from Table Z-7 of Example 4 of K14 (p. 762) mentioned by the plaintiff for the first time at the hearing:

**Table Z-7—RU Allocation subfields for different dynamic splits of User fields for the example of two MU-MIMO users in the lowest 484-tone RU of an 80 MHz or wider PPDU**

Dynamic split option	First RU Allocation subfield of HE-SIG-B content channel 1	Number of User fields contributed to HE SIG-B content channel 1	First RU Allocation subfield of HE SIG-B content channel 2	Number of User fields contributed to HE SIG-B content channel 2
Both User fields signaled in HE-SIG-B content channel 1	MSB first: 11001001 LSB first: 10010011	2	MSB first: 01110010 LSB first: 01001110	0
Both User fields signaled in HE-SIG-B content channel 2	MSB first: 01110010 LSB first: 01001110	0	MSB first: 11001001 LSB first: 10010011	2
One User field per HE-SIG-B content channel	MSB first: 11001000 LSB first: 00010011	1	MSB first: 11001000 LSB first: 00010011	1

The first entry in the fourth column of the first line and the first entry in the second column of the second line is a binary code "01110010" and corresponds to the information "0" user, as can be seen from the entry in the first line of column 4 or the second line of column 2.

Since the patent infringement has already been proven independently of this, it can be left open whether this - despite the fact that it was not factually disputed and the standard document has been available since the action was filed - is to be seen as a late submission, as the defendants have claimed.

c. Insofar as the defendants argue that the IEEE 802.11ax standard does not realize the features 1.4, 1.5 and 1.6 or 1.7 if transmission takes place below 80 MHz channel bandwidth, because according to the interpretation of the patent at least two RA must be contained in each HE-SIG-B field, this does not lead out of the infringement, because the attacked embodiments undisputedly also work with a bandwidth of 80 MHz.

d. The defendant's subsequent submission is also irrelevant:

The individual protocols provided for in the IEEE 802.11ax standard specify a common code word space for Wi-Fi, which does not have to be fully used by access point implementations because there is considerable scope for implementing the standard in terms of which code words can be generated by an access point implementation. A binding effect with regard to the use of the (entire) IEEE 802.11ax specifications should be rejected. The access point of a Wi-Fi network decides which code words are used and communication with the connected stations is ensured even if only part of the code word space is used. Compatibility with the IEEE 802.11ax standard is also not to be equated with full implementation of the same. The full implementation of the IEEE. 802.11ax standard does not result in particular from the designation as Wi-Fi 6 supporting or Wi-Fi 6 compatible (see KE, Section F.1.3).

With this submission, the defendants do not admissibly dispute the plaintiff's substantiated submission that the challenged embodiments use the standard. This is because the plaintiff does not rely solely on the standard documents to prove infringement, but also on the test data. With this test data, the plaintiff has shown, as will be shown in section 2, that and how the standard specifications and the claims of the patent in suit have been used.

2. The plaintiff has substantiated the above result with the submitted and analyzed test data (K 41). This test data originates from the defendant's devices and relates to the product "Nighthawk RAX200" with Broadcom modem and the product "Orbi WiFi router AX6000" (RBR850) with Qualcomm modem, in each case with transmissions at 80 MHz. Defendant 1) submitted this test data itself in proceedings before the Düsseldorf Regional Court (Ref. 4c O 8/22). The corresponding files contain data packets that are characterized by exemplary forms of infringement according to the

WiFi 6 standard were transmitted. In the interpretation advocated by the Board, these test data show the actual realization of the patent-compliant teaching by the challenged embodiments.

The plaintiff examined the files submitted by the defendant in the above-mentioned proceedings for the functionality relevant in the present case. The plaintiff found a large number of PPDUs transmitted in the 80 MHz band in which the resource allocation was carried out exactly as described in the explained standard sections. As an example, an evaluation of the test file "RAX200\_5G\_CH153\_80MHz\_MIMO-ON.pcap" concerning the infringement form RAX200 is shown, which was searched for the RU allocation index "114" according to Table 27-26 of the standard:

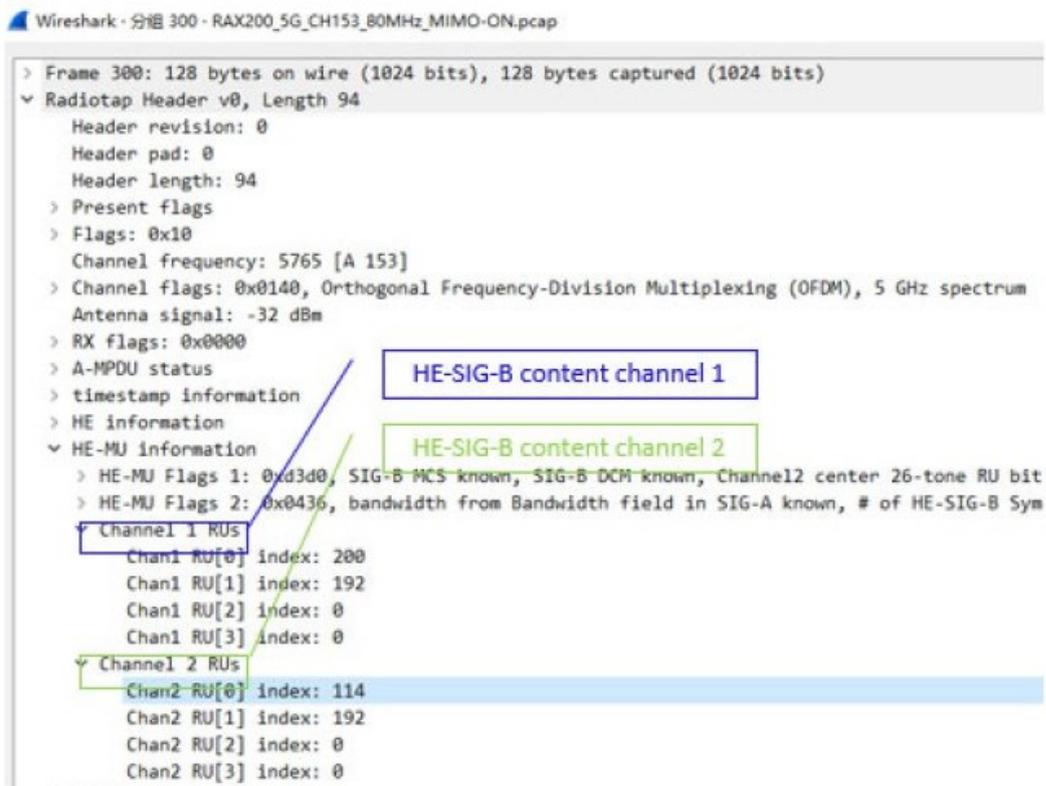
No.	Time	Protocol	Length	Chan1 RU[0] index	Chan1 RU[1] index	Chan2 RU[0] index	Chan2 RU[1] index	In
300	0.027513	802.11	128	200	192	114	192 Tr	
301	0.027780	TCP	1722	200	192	114	192 6	
342	0.033075	802.11	128	200	200	114	114 Tr	
343	0.033078	TCP	3322	200	200	114	114 6	
344	0.033080	TCP	3322	200	200	114	114 6	
345	0.033082	TCP	3322	200	200	114	114 6	
346	0.033085	TCP	3322	200	200	114	114 6	
347	0.033087	TCP	3322	200	200	114	114 6	
348	0.033088	TCP	3322	200	200	114	114 6	
349	0.033091	TCP	3322	200	200	114	114 6	
350	0.033093	TCP	3322	200	200	114	114 6	
351	0.033095	TCP	3322	200	200	114	114 6	
378	0.039993	802.11	128	200	192	114	192 Tr	
379	0.039997	TCP	1484	200	192	114	192 6	
560	0.059207	802.11	128	200	200	114	114 Tr	

Highlighted in red above are the respective indices "114" which, according to Table 27-26, indicate that the associated RU is a 484 subcarrier RU and no user scheduling information subfields are included in the relevant HE-SIG-B content for the 20 MHz subchannel concerned, as taught in feature [1.6]/[1.7]:

**Table 27-26—RU Allocation subfield (continued)**

RU Allocation subfield (B7 B6 B5 B4 B3 B2 B1 B0)	#1	#2	#3	#4	#5	#6	#7	#8	#9	Number of entries
96-111 (0110y <sub>1</sub> y <sub>0</sub> z <sub>1</sub> z <sub>0</sub> )	106				-	106				16
112 (01110000)	52		52		-	52		52		1
113 (01110001)	242-tone RU empty (with zero users)									1
114 (01110010)	484-tone RU; contributes zero User fields to the User Specific field in the same HE-SIG-B content channel as this RU Allocation subfield									1
115 (01110011)	996-tone RU; contributes zero User fields to the User Specific field in the same HE-SIG-B content channel as this RU Allocation subfield									1

The specific information for PPDU frame no. 300 is also shown below as an example (highlighted in gray in the screenshot above):



**Detail in frame 300**

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The RA information of this PPDU (frame 300) corresponds to the indices "200" and "192" in the first HE-SIG-B content channel and "114" and "192" in the second HE-SIG-B content channel 2. Table 27-26 of the standard thus results in the following distribution of RUs within the 80 MHz band: The RU comprises 484 subcarriers - indicated by indices "114" and "200" - followed by two RUs, each comprising 242 subcarriers - indicated by index "192". The RA information corresponding to index "114" also indicates that there are no user fields (i.e. no sub-fields for user scheduling information) corresponding to this 484-tone RU in the user-specific field of the second HE-SIG-B content channel 2.

**Table 27-26—RU Allocation subfield (continued)**

RU Allocation subfield (B7 B6 B5 B4 B3 B2 B1 B0)	#1	#2	#3	#4	#5	#6	#7	#8	#9	Number of entries
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114 (01110010)	484-tone RU; contributes zero User fields to the User Specific field in the same HE-SIG-B content channel as this RU Allocation subfield									1
192-199 (11000y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	242									8
200-207 (11001y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	484									8
192-199 (11000y <sub>2</sub> y <sub>1</sub> y <sub>0</sub> )	242									8

The following comparison of the exemplary test data and the visualization of the patent-compliant teaching according to the color highlighting shows once again in a different way that the read-out signaling data corresponds exactly to the patent-compliant specifications:



### III. Patent infringement and passive legitimation

1. Defendant 1) operates a website under the link "<https://www.netgear.com/>" which can also be accessed in Germany. Defendant 1) offers Wi-Fi products in the category "HOME SOLUTIONS" for private users on its website. New technologies are also advertised on the website, including expressly Wi-Fi 6 and Wi-Fi 6E. Furthermore, the defendant 1) offers "BUSINESS SOLUTIONS" for business users. In this respect, it also advertises Wi-Fi 6 access points among its new technologies. From there, a click on one of the product images at the bottom of the page, here shown as an example the "Netgear 4 Stream Dual-Band WiFi 6 Router, 1.8Gbps" to the respective product page (<https://www.netgear.com/home/wifi/routers/rax10/>). The region and language can be selected in the top right-hand corner of the subpage - including Germany (German). Clicking on this takes the user directly to the website of the defendant 2).

2. Defendant 2) operates the website under the link "<https://www.netgear.com/de/>", as can be seen from the legal notice <https://www.netgear.com/de/about/impressum/>). The legal notice expressly states that the online store is operated by defendant 3). Similar to the website of defendant 1), a distinction is also made here between "HOME SOLUTIONS" (private users) and "BUSINESS SOLUTIONS" (business users). On the subpage accessible via "HOME SOLUTIONS", a large number of Wi-Fi devices are listed under "NETWORKED HOME" (<https://www.netgear.com/de/home/>). The same applies to the subpage for "BUSINESS SOLUTIONS" (<https://www.netgear.com/de/business/>). For example, if the user clicks on the product image of the "4 Stream Dualband Wi-Fi 6 Router (up to 1.8 Gbps) with Netgear Armor" shown a little further down on the subpage, they are taken to the following product page (<https://www.netgear.com/de/home/wifi/routers/rax10/>). There they have the option of adding this device to the shopping cart by clicking on the "ADD TO CART" button. The user is then shown the shopping cart and can then continue the process by clicking on the "ADD TO CART" button. The

user is redirected to the subdomain "<https://store.netgear.de/>". There, the product is already added to the shopping cart and in the next step, the user can via the button to the checkout and to the delivery details ([https://store.net-gear.com/de/cart?lang=de\\_DE](https://store.net-gear.com/de/cart?lang=de_DE)). On the shopping cart sub-page, there is the option of continuing as a guest or registered customer, and then the option of specifying delivery within Germany and confirming with the button "PAYMENT METHOD SELECT" BUTTON. the process continue the process (<https://store.net-gear.de/warenkorb>). Finally, after entering and checking his address and payment details (which have been removed in the following screenshot) and confirming the General Terms and Conditions, the user can order the selected product for a fee (<https://store.netgear.de/kasse>). The online store can also be accessed directly via a corresponding link on the home page of defendant 2) (<https://www.netgear.com/de>). This link takes you to the subdomain <https://store.netgear.com/de/home/>. As already shown, the defendant 3) is also responsible for the operation of the online store according to the imprint. Thus, defendant 3) is also responsible for the distribution of the infringing forms in Germany. However, this does not change the responsibility of the defendant 2), since the defendant 2) links directly to the online store for purchase via its website <https://www.netgear.com/de>, on which it advertises the products - namely both on the product pages via the "BUY NOW" button and separately via the "Store" link in the header area of the website. In this way, the defendant (2) makes any content of the online store its own, especially since from the point of view of the average user the transition to a ("different") website is not even recognizable due to the unchanged overall impression of the websites ("NETGEAR" banner, same design, same products, etc.).

3. Accordingly, the defendants offer access points in Germany (hereinafter: "infringing forms") and supply these to customers in Germany, among others, for use in Germany. The same applies to Belgium, Italy, Finland, France and Sweden. These infringement forms are characterized by the fact that they support the Wi-Fi 6 standard. The infringement forms implement the technical specifications of the Wi-Fi 6 standard and are therefore compatible with it. They indirectly infringe claim 1 of the patent in suit because they are suitable and intended to

to carry out the method described in this claim. They also directly infringe claim 7 because they realize all the device features specified therein. The respective dependent claims are also infringed.

## **F. Exhaustion**

The defendants' exhaustion objection is valid on the merits with regard to those attacked embodiments in which a Qualcomm modem was installed in the period [redacted]. With regard to those challenged embodiments in which Qualcomm modems were installed at other times or modems from other manufacturers (MediaTek and Broadcom), the defendants have not raised any objection to exhaustion.

## **I. Art. 29 UPCA**

According to Art. 29 UPCA, the rights conferred by the European patent do not extend to acts relating to a product protected by the patent after the product has been put on the market in the European Union by the patent proprietor or with his consent, unless the patent proprietor has legitimate reasons for opposing the further marketing of the product.

### **1. Area of application**

The effects of exhaustion initially extend to device claims.

However, according to the wording ("acts relating to a product protected by the patent"), the effects of exhaustion also extend to process claims relating to the handling of a product protected by the patent.

This applies both to a product which has been obtained directly by applying the patented process with consent and to a product which uses a process claim if it is also protected by a device claim and has been placed on the market with the consent of the patent proprietor. Exceptions exist in the event that the patent proprietor has expressly reserved the right to consent to the use of this process. However, the same result also arises from the consideration that the patent proprietor may only commercialize his exclusive right once. Subsequent uses of the patent should therefore in principle be covered, unless otherwise agreed. In any case, this is the result if the patentee has explicitly consented to such acts of use.

The effects of exhaustion also extend to products in which the product covered by the consent has been incorporated, at least if the incorporation is covered by the consent. This is because this incorporation is in turn an "act relating to a product protected by the patent".

The question of the existence of consent, insofar as it has been declared within the framework of a contract, is governed by the contractual statute. However, the legal consequences of the patent proprietor's consent are determined by the law of the respective country of protection, in this case Art. 29 UPCA. In order to preserve the marketability of the products concerned, the legal consequences are generally not subject to party maxims.

## 2. Territorial reach

Placing on the market in the European Union is covered. This means that placing on the market in other parts of the world, even if it has taken place with the consent of the patent proprietor, does not have any exhaustion effect in the European Union. Placing on the market is a concrete actual process in relation to individualized products.

### 3. Exception pursuant to Art. 29 2nd HS UPCA

Exhaustion only applies as long as and to the extent that the patent proprietor cannot cite legitimate reasons for opposing further distribution.

The case law of the European Court of Justice shows, for example, that the assumption of exhaustion in favor of the unrestricted marketability of the products in the case of express or implied consent of the right holder is the rule. For an exception to be assumed, the exclusion of implied consent already requires recognizability for the public, which can be ensured, for example, in the case of perfume bottle testers (see ECJ, judgment of June 3, 2010 - C-127/09 Coty Prestige Lancaster Group GmbH/Simex Trading AG), Coty Prestige/Simex Trading, GRUR 2010, 723) by affixing the words "unmarketable sample" to them. The trademark owner's interest in organizing the distribution of testers differently than the distribution of the product intended for the end customer would then constitute a noteworthy reason to oppose further distribution.

In the context of patent law, on the other hand, it is recognized that restrictions agreed by a patent proprietor in a license agreement regarding the right to use products that are placed on the market on the basis of the license have no fundamental influence on the occurrence of exhaustion effects. Against this background, it also appears doubtful whether a legitimate interest of the patent proprietor in preventing further distribution can ever be assumed. In any case, however, it would be necessary for a legitimate interest excluding exhaustion to be recognizable for the downstream market. This is the only way to limit the impairment of the marketability of such products to what is absolutely necessary.

### 4. Burden of presentation and proof

The patent user bears the burden of presentation and proof for the placing on the market in the European Union with the consent of the patent proprietor. The

Accordingly, with regard to individualized products, the patent user must present specific events of placing on the market in the European Union and, in the event of a dispute, provide evidence. Insofar as the patent proprietor's consent only relates to products that have been placed on the market within a certain period of time, the submission must also relate to this.

The patent holder, on the other hand, has the burden of presentation and proof for the existence of legitimate reasons to oppose further distribution of the product.

## 5. Handling in the process

Insofar as the objection relates to all challenged embodiments, it must be dealt with immediately in the discovery proceedings. If successful, the action must be dismissed.

Insofar as the objection does not relate to all challenged embodiments, it depends on the circumstances of the individual case whether and to what extent the objection is to be pursued immediately or only in the context of enforcement.

Since the objection relates to individualized products, a final examination of exhaustion by concrete acts of placing these individualized products on the market can regularly only take place in the context of the compulsory enforcement proceedings, namely if the patent proprietor names such individualized products and the patent user submits concrete evidence of placing them on the market in the European Union.

Nevertheless, such a subsequent decision in the enforcement proceedings can be prepared in the discovery proceedings. This is because questions that can be raised before the bracket can be clarified immediately. This is usually also in line with procedural economy in order to avoid *subsequent proceedings*. Insofar as the questions to be bracketed are answered in favor of the patent user, the objection to creation would be successful on the merits. A conviction would then be

are subject to proof based on specific acts of placing individualized products on the market during the relevant period. In this respect, both parties obtain legal certainty with regard to the questions drawn before the bracket. Since patent users should have knowledge of the provenance of the products they have placed on the market, they can base their further conduct in the context of enforcement, for example with regard to injunctive relief, the provision of information, recall or destruction, on this.

## **II. Enforcement of the exhaustion defense in the present proceedings**

In the present proceedings, the objection of exhaustion with regard to attacked embodiments with Qualcomm modem is generally valid insofar as they were placed on the market in the European Union in the period [redacted]. Contrary to the plaintiff's opinion, this follows from the plaintiff's contract with Qualcomm, the "QC 2020 PLA" (K68). This concerns products according to the product list (FBD56). In the present case, considerations of procedural economy require that this question be addressed in the discovery proceedings. This is because this question is also the subject of the action for a declaration of non-infringement. By clarifying the fundamentals in the present proceedings, the declaratory proceedings could become superfluous or at least be prepared and thus streamlined.

### 1. "QC 2020 PLA" (K68)

[redacted]

The Huawei-Qualcomm agreement relates in particular to [redacted]. However, the parties have also agreed on a comprehensive sui generis agreement.

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[redacted]

## 2. Effects of the "QC 2020 PLA" (K68)

[redacted]

Consequently, the applicant has consented to any acts of Qualcomm relating to the patent in suit and relating to products of the Access Point class within the meaning of Article 29 UPCA. The rights to protection against negotiation of access points with Qualcomm modems placed on the market in the European Union in the period from [redacted] are therefore exhausted.

This legal consequence can also be asserted by Qualcomm's customers, irrespective of the last sentence of the clause quoted above. This sentence reads.

[redacted]

This is because, as already explained above, the legal consequences of the patent proprietor's consent arise from the law of the respective country of protection, in this case Art. 29 UPCA. Since the property rights against access points with Qualcomm modems that were placed on the market in the European Union in the period from January 1, 2020 to December 31, 2024 have been exhausted, these access points may of course be further negotiated. This further negotiation is fundamentally exempt from the party maxim.

## 3. Exception under Art. 29 2nd HS UPCA does not apply

The exception that the patent proprietor can provide legitimate reasons to oppose the further distribution of the product does not apply in the present case.

The applicant has not given any reasons for which it believes it can still stop the marketing of the exhausted products with reference to this exception. Such reasons are also not apparent. The Court takes into account that this is an exception to the main rule, which for this reason should be interpreted narrowly. [redacted]

#### 4. Further presentation in enforcement proceedings

After the plaintiff has named individual products in the enforcement proceedings, the defendants will have to submit and, if necessary, prove with regard to these individual products that they were placed on the market in the European Union during the period defined above on the basis of the contract with Qualcomm discussed above.

### G. FRAND objection

Neither the defendant's FRAND objection based on European antitrust law (see G.) nor the IEEE LOA objection based on contract law (see H.) are valid.

### I. Admissibility of the objection

The Unified Patent Court applies Union law in its entirety and respects its primacy, Art. 20 UPCA. Union law is the primary source of law to be applied by the Unified Patent Court, Art. 24(1)(a) UPCA. In the case of questions concerning the correct interpretation of European law, the Court of First Instance may refer questions relevant to the decision to the ECJ, Art. 267 TFEU. The decisions of the CJEU are binding on the Unified Patent Court, Art. 21 UPCA (see Local Chamber Mannheim, decision of 22/11/2024, UPC\_CFI\_210/2023, para. 189)

## **II. No referral to the ECJ**

However, the present case - especially for the Court of First Instance - does not give any (urgent) cause for a referral to the Court of Justice of the European Union, even against the background of the amicus curiae letter of the European Commission, which the Commission submitted to the Higher Regional Court of Munich on April 15, 2024 under the number 020078-24 MLO / DLF and with which the European Commission "encourages" the court there to refer the case to the Court of Justice of the European Union. Rather, the panel agrees with the Local Chamber of Mannheim that the only questions that arise in the present individual case are those that can be resolved by applying the balanced principles developed by the Court of Justice, which allow the courts called upon to apply the law in individual cases to make an appropriate assessment of the case in question. At the same time, the opinion of the European Commission - which is admittedly not binding on the constitutionally independent courts - can be taken into account insofar as it is to be followed (see Local Chamber Mannheim, decision of 22.11.2024, UPC\_CFI\_210/2023, para. 190). The document was also introduced in the present proceedings and discussed with the parties during the oral hearing.

## **III. ECJ - Huawei v. ZTE**

In the Huawei v. ZTE decision, the Court of Justice of the European Union established a hearing program that has since been binding on the courts of the Member States - unlike the courts of the United Kingdom. Since then, the courts of the Member States have applied this negotiation program and have continued to fill in its details on the basis of the cases submitted for decision (see Dutch Court of Justice The Hague, case number: 200.219.487/01, of July 2, 2019 - Philips v. Wiko; the same case number: 200.233.166/01, judgment of December 24, 2019 - Philips v. ASUS; German Federal Court of Justice GRUR 2020, 961 - FRAND-Einwand, GRUR 2021, 565 - FRAND-Einwand II). In this regard, the ruling body agrees with the Local Division Mannheim that the hearing program of the European Union Court of Justice is not solely based on a determination of the respective

The focus of the decision is on a negotiation program with reciprocal obligations, which at the same time serves to assess whether the enforcement of prohibition and recall rights arising from the negotiations is in line with EU primary law. Rather, the central concern of the decision is to establish a negotiation program with reciprocal obligations that also serves to assess the question under EU primary law as to whether the enforcement of prohibition and recall rights under the patent is subject to antitrust restrictions. The determination of a FRAND royalty rate, if applicable, is only one component of this program (see Local Chamber Mannheim, decision of 22.11.2024, UPC\_CFI\_210/2023, para. 191).

In its leading decision *Huawei v. ZTE*, the European Court of Justice set out a negotiation program that shows the parties their respective obligations in the context of negotiations for a license to a standard essential patent that gives the patent holder a dominant position and enables the courts to assess the conduct of the parties on the way to a license. According to settled case-law of the Court of Justice of the European Union (*loc. cit.* para. 46), the exercise of an exclusive right attached to an intellectual property right, in this case the right to bring an infringement action seeking an injunction, recall or destruction, is one of the prerogatives of the holder of an intellectual property right, so that it cannot in itself constitute an abuse of a dominant position, even if it emanates from an undertaking in a dominant position. However, the exercise by the holder of an exclusive right associated with an intellectual property right may, in exceptional circumstances, constitute abusive conduct within the meaning of Art. 102 TFEU (*ibid.* para. 47). It should be recalled - in particular against the background of the UK Court of Appeal's decision - that the Court of Justice of the European Union has stated that account must be taken of the need to safeguard intellectual property rights, which is one of the purposes of Directive 2004/48. In accordance with Article 17(2) of the Charter, the Directive provides for a number of remedies intended to ensure a high level of protection of intellectual property in the internal market and the right to effective judicial protection guaranteed by Article 47 of the Charter, which comprises several elements, including the right of access to justice (*ECJ loc. cit.* para. 57). This requirement of a high level of protection of intellectual property rights implies that its holder cannot, in principle, be deprived of the possibility of

to take legal steps to ensure that his exclusive rights are actually respected and that the user of these rights, if he is not their owner, must in principle obtain a license before each use (ECJ loc. cit. para. 58).

The negotiation program developed by the European Court of Justice serves these principles. An assessment of the terms of a FRAND license ignoring the steps established by the European Court of Justice in the sense of a purely economic determination of the license amount without taking into account the relevant conduct of the parties involved in the negotiations can therefore not stand up under European law and would violate mandatory law in the Member States (see Mannheim Local Chamber, decision of 22.11.2024, UPC\_CFI\_210/2023, para. 192-193).

### **1. Injury note**

According to the decision of the European Court of Justice, the SEP holder, to whom the SEP confers a dominant market position, must first inform the patent user of the patent infringement of which he is accused as a first step before bringing an action for injunctive relief. In doing so, he must identify the SEP in question and state how it is alleged to have been infringed (ECJ loc. cit. para. 61). It had already become established in the cited case law of national courts that the sending of claim charts is sufficient for these purposes in any case (see, for example, from national case law, Court of The Hague, case number 200.233.166/01 of 24.12.2019, para 4.157 et seqq. - Philips vs ASUS; Higher Regional Court Karlsruhe, judgment of 09.12.2020, 6 U 103/19 - Mobilstation; Regional Court Mannheim, judgment of 19.08.2016, 7 O 19/16 - Secondary station; judgment of 29.01.2016, 7 O 66/15 - control channel; LG Düsseldorf, judg. v. 11.07.2018, 4c O 81/17 para. 108). Insofar as the European Commission takes the view in its opinion in this context that this reference must be made in the letter itself (amicus curiae letter para. 65), such a formalistic understanding cannot be accepted. A reference to a general website of the SEP holder, which does not contain any easily accessible information on the specific patent in suit, may be too little to be regarded as sufficient notice. The judgment of the European Court of Justice

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does not, however, set any strict formal requirements at this point for good reason, but leaves it up to the courts of the Member States to assess each individual case. Particularly in the case of an allegation of infringement of a large number of standard-relevant patents, a reference in the formalized form deemed necessary by the Commission can lead to confusion rather than the desired transparency (see Local Chamber Mannheim, decision of 22.11.2024, UPC\_CFI\_210/2023, para. 194).

Since it is a question of the admissibility under antitrust law of bringing an infringement action for injunctive relief, recall and destruction of a specific patent, the time "before the action for injunctive relief was brought" must be determined on the basis of the time at which the action relating to this patent was brought. If the patent proprietor has filed an action relating to another patent at an earlier date, the date on which this earlier action was filed as well as acts or omissions prior to this date are irrelevant for the assessment of the admissibility under antitrust law of the action filed later. Otherwise, the patent proprietor would never be able to remedy any deficiencies in the implementation of the negotiation program and would be prevented for all time from enforcing claims against the defendant in the first proceedings for infringement of (other) standard-essential patents. That this cannot be correct follows from the fundamental admissibility of infringement actions concerning standard-essential patents as established by the European Court of Justice and cited above. Such actions are in line with the obligations under antitrust law if the conditions set out in the operative part of the decision are met. These conditions relate exclusively to the patent in suit from which the asserted claims for injunctive relief, recall and destruction are derived.

## 2. Declaration of willingness to license

The patent user must then express its intention to conclude a license agreement on FRAND terms in a further step - also before filing an action (ECJ loc. cit. para. 63). The significance of this step in the ECJ's negotiation program is assessed differently, at least with regard to the weighting of this step in the negotiation program. The Federal Court of Justice explained this in para. 83 of its FRAND decision (BGH GRUR 2020, 961 para. 83):

*"Therefore, after the first indication, it is not sufficient to establish further obligations on the part of the dominant patent proprietor if the infringer then casually indicates its willingness to consider concluding a license agreement or to enter into negotiations as to whether and under what conditions it might consider concluding an agreement (see Opinion of Advocate General Wathelet of 20 November 2014 - C-170/13 para. 50). Rather, the infringer must clearly and unambiguously declare its willingness to conclude a license agreement with the patent proprietor on reasonable and non-discriminatory terms and must also subsequently participate in the license agreement negotiations in a targeted manner. The High Court of England and Wales (J. Birss) aptly expressed this as follows: "a willing licensee must be one willing to take a FRAND license on whatever terms are in fact FRAND" (EWHC, judgment of 5 April 2017, [2017] EWHC 711 (Pat) para. 708 - Unwired Planet v Huawei)."*

According to the European Commission, this criterion, known as "willingness to license", should be assessed solely "on the basis of the content and circumstances of the declaration, but not on the basis of subsequent conduct during any negotiations" (amicus curiae letter para. 7, 75, 80 et seq.). The first two steps of the framework program preceded the start of the negotiations, in particular the SEP holder's offer. Therefore, the assessment of their existence could not be linked to certain license conditions or license fees (ibid. para. 82). The patent user's willingness to license could not be determined on the basis of its subsequent conduct during the negotiations; the second step was merely a formal step as a prelude to negotiations. In particular

this step must not be mixed up with the subsequent steps, the offer of the SEP holder and the counter-offer of the patent user (loc. cit. para. 84 et seq.).

The Mannheim Local Chamber and the European Commission agree that the initial declaration of willingness to license is the prelude to further negotiations. It must not be limited to mere lip service, but must be serious in the sense of the statements of the Federal Court of Justice. However, consideration of the respective declaration alone does not generally lead to a determination of whether the patent user is seriously interested in taking a license. A corresponding declaration, even if it is based on the wording of the cited UK or BGH decision or adopts it as if it were identical in wording, is not in itself a suitable point of reference for assessing whether the respective user is actually serious about his declaration. For this purpose, the respective behavior must always be considered in an overall view (see Mannheim Local Chamber, decision of 22.11.2024, UPC\_CFI\_210/2023, para. 195-198).

### **3. Further conduct of the parties**

The Mannheim Local Court agrees to the extent that it states (see Mannheim Local Court, decision of 22.11.2024, UPC\_CFI\_210/2023, para. 201-202) that the further conduct of both parties during the subsequent negotiations should not be excluded from the further examination of the objection. Rather, both the SEP holder and the infringer must behave "in accordance with commercial practice" during the negotiations and work in good faith towards the conclusion of a license agreement. Their conduct must therefore be assessed according to whether it sufficiently takes into account the fundamental objective of the Union Court of Justice's negotiation program to reach the timely conclusion of a FRAND license agreement concluded on a primarily private-autonomous basis in targeted negotiations. This requirement results in obligations to be specified for the individual case at each stage of the negotiations. Whether a (counter)offer meets FRAND criteria cannot be determined independently, but only by

be assessed solely on the basis of the specific negotiations and the behavior of the parties. Just as the patent infringer cannot make a beneficial FRAND offer without sufficient knowledge of any licensing conditions granted to third parties, the SEP holder cannot make a beneficial offer if the patent infringer deliberately leaves him in the dark about the extent of his acts of use and his economic framework conditions, such as the sales prices demanded by him on the market, and if he does not provide any information on the economic framework conditions of his actions, which conversely must be sufficiently plausible for the SEP holder - depending on the progress of the negotiations. The depth of the court's examination of the plaintiff's conduct is largely based on which points the patent infringer has objected to in the negotiation process and, conversely, which information he has made available to the patent proprietor in order to be able to make him, the patent infringer, an offer tailored to his circumstances. Complaints raised in court only against the background of the impending injunction are not sufficient. This is because the patent infringer always has the obligation, except in exceptional cases, to respond to an offer from the SEP holder and at least to raise its objections against it and request improvements (cf. from German case law BGH GRUR 2021, 585 para. 71 - FRAND-Einwand II; OLG Karlsruhe GRUR 2022, 1145 para.

152 et seq. - Control channel signaling II.). Finally, patent infringers cannot expect patent proprietors to make an offer that fully reflects the circumstances affecting them if they are not willing to make these circumstances accessible, if not immediately and clearly upon request. In this respect, the patent infringer cannot demand more disclosure from the patent proprietor than he himself is prepared to disclose.

#### **4. Offer by the patent holder**

Following the licensing request, it is incumbent on the patent proprietor to submit a specific written license offer on FRAND terms to the alleged user in accordance with the obligation it has assumed vis-à-vis the standardization organization and, in particular, to indicate the license fee and the way in which it is calculated (ECJ para. 63).

The patent proprietor must therefore submit an offer to the patent user in response to the latter's request for a license. This offer should satisfy FRAND requirements and the patent proprietor is required to explain to the patent user why he, the patent proprietor, is of the opinion that his offer satisfies FRAND requirements.

a. If the patent user has submitted several offers, the last offer still open for acceptance must be checked for FRAND conformity, provided that the above-mentioned requirements are met. In this respect, the Mannheim Local Court (cf. loc. cit. para. 221) and the Munich Higher Regional Court (cf. loc. cit. para. 20, 25) as well as the Federal Court of Justice (loc. cit. para. 54, 70) disagree with the opinion of the European Commission (loc. cit.) that in this case only the first offer is to be examined for its FRAND conformity. Otherwise, relying solely on the first offer for the court proceedings would mean that the first offer would always have to be examined for its FRAND conformity and would ultimately be the only decisive factor in determining whether the FRAND objection would prevail or not. Everything else that happened afterwards would never matter, because if the first offer was FRAND, the user would necessarily have had to accept it, but if it was not FRAND, according to this view, the patent proprietor would always "lose out" (cf. OLG Munich loc. cit. para. 19). The fact that this cannot be correct results in particular from the ECJ's focus on promoting targeted, genuine negotiations between the parties. A market abuse does not yet lie in the submission of a non-FRAND-compliant initial offer. Rather, this is only the starting point of the negotiations, in the course of which a FRAND-compliant offer from the patent proprietor is to be developed. Only if the patent proprietor "is not prepared to back down [from unreasonable license terms] even at the end of negotiations" is there abusive conduct (see BGH loc. cit. para. 54).

b. Insofar as the patent proprietor has submitted several different offers that are still acceptable in accordance with these requirements, for example an offer relating to a bilateral license to the patent proprietor's portfolio and an offer relating to a

license to the portfolio of a patent pool that includes the patent or portfolio of the patent proprietor to be licensed, the infringement action for injunctive relief, recall and destruction cannot be dismissed if it can be assumed that at least one of the two offers satisfies the antitrust requirements. For antitrust reasons, the patent proprietor is only obliged to show the patent user a licensing route that satisfies the FRAND requirements. The patent proprietor can meet its antitrust obligations in particular by offering a pool license (see Regional Court Munich I, final judgment of 17.02.2023 - 21 O 4140/21, GRUR-RS 2023, 11247, para. 219).

Insofar as it can be assumed that this complies with the FRAND requirements, it is irrelevant in the context of the FRAND objection to an infringement action for injunctive relief, recall and destruction how a bilateral license offer submitted in parallel is to be assessed under antitrust law.

c. The offer does not necessarily have to be ready to sign. What can be demanded of the SEP holder cannot be determined in a generalized, formalistic manner. The requirements for the conduct of the patent proprietor and the conduct of the user of the invention are mutually dependent. The yardstick of the examination is what a reasonable party interested in the successful conclusion of the negotiations in the interests of both parties would do to promote this goal at a certain stage of the negotiations (in this sense also BGH FRAND II, loc. cit., para. 59 and LD Mannheim, para. 213). At the beginning of the negotiations, it is not in line with customary business practice to directly confront each other with draft contracts ready to be signed as long as not even the central economic points have been clarified. Therefore, it is also not in line with the conduct of a patent infringer negotiating in good faith in the direction of a FRAND license to nevertheless insist on this in a formalistic manner in its argumentation before the court. Rather, the SEP holder's offer should represent the constructive starting point for further negotiations towards the conclusion of a FRAND license agreement, because the individually appropriate contractual terms in complex patent license agreements must be adapted to the respective economic conditions (Court of Appeal The Hague GRUR Int 2020, 174, 179 para. 4.34; in this sense also BGH loc. cit. FRAND II para. 70). Rather, it is sufficient if the offer of the SEP-

The patent owner's written offer allows the patent user to recognize the essential economic framework conditions of a proposed license agreement and, if necessary, to respond with a different counteroffer. As a rule, this does not require a written contractual offer that is differentiated in all secondary points and ready to be signed. Rather, it is up to the patent user to request the submission of such a formal contractual offer if he wishes to receive it at this stage of the negotiations in deviation from customary practice. The decisive factor is not the concept of an offer under contract law, but a concept of an offer that is to be understood economically in the context of European antitrust law (see Local Chamber Mannheim, loc. cit. para. 213).

#### **5. Counteroffer by the patent user, information and security deposit**

The European Court of Justice explained this in paragraphs 65-67 of the judgment in *Huawei v. ZTE*:

*"65 On the other hand, it is incumbent on the alleged infringer to respond to that offer with diligence, in accordance with accepted commercial practices in the field and in good faith, which is to be determined on the basis of objective considerations and implies, inter alia, that no delaying tactics are pursued.*

*66. If the alleged infringer does not accept the offer made to him, he can only invoke the abusive nature of an injunction or recall action if he makes the owner of the SEP in question a concrete counter-offer in writing within a short period of time that complies with the FRAND conditions.*

*67. In addition, if the alleged infringer uses the SEP before a license agreement has been concluded, the alleged infringer shall, from the time his counter-offer has been rejected, provide adequate security in accordance with accepted commercial practice in the relevant field, e.g. by providing a bank guarantee or by depositing the required amounts. The calculation of this security must take into account, among other things, the number of past acts of use in*

*SEP for which the alleged infringer has submitted an account. must be able to lay."*

a. This means that the user may invoke the infringement of antitrust law in the context of a defense against that part of the action which is aimed at injunction, recall or destruction, but only if he himself has submitted a concrete counteroffer without delaying tactics, which corresponds to FRAND conditions and, in the event of its rejection, has provided appropriate security and information about the scope of the acts of use.

The background to this is that, according to the European Court of Justice, the FRAND objection under antitrust law is not primarily concerned with how a FRAND license fee is to be calculated, but with the question of whether the patent proprietor has abused its dominant position by bringing a patent infringement action for an injunction against the infringement of its patent or for the recall/destruction of the products for the manufacture of which that patent was used, without the following two conditions being met (para. 71):

*"- on the one hand, before bringing the action, it has informed the alleged infringer of the patent infringement of which it is accused, describing the SEP in question and indicating how it is alleged to have been infringed, and on the other hand, after the alleged infringer has expressed its intention to conclude a license agreement on FRAND terms, it has submitted a specific written license offer to the infringer on those terms, indicating in particular the license fee and the way in which it is calculated, and*

*- that infringer, while continuing to use the patent in question, does not respond to that offer with diligence, in accordance with accepted commercial practice in the relevant field and in good faith, which is to be determined on the basis of objective considerations and implies, inter alia, that no delaying tactics are being pursued."*

The court deduces from paras. 65-67 and 71 above that even if the patentee's offer is not FRAND and the user nevertheless makes a counter-offer, he must provide security and submit assignments. After all, the assignment - if not already requested by the patentee as part of his offer, see above - is needed to (financially) evaluate the counter-offer, while the security serves to recourse the patentee at some point for the lost license fees or damages.

Consequently, before examining the FRAND compliance of the patent proprietor's offer, it must regularly be examined whether the patent user has set the conditions for the infringement court to enter into this examination. The Commission and the Local Chamber of Mannheim must be conceded that, with such an understanding, there is a possibility that the examination of the offer of the SEP holder bound by antitrust law by the infringement court is completely omitted or is at best cursory (see Mannheim Local Chamber, decision of 22 November 2024, UPC\_CFI\_210/2023, para. 195-198). That is correct. However, this result corresponds to the judgment of the Court of Justice of the European Union in paragraphs 66 and 67. The infringer, on the other hand, remains free to enforce his claim for the grant of a license on FRAND terms, whether it is based on antitrust law or contract law, in the context of a separate action before the competent (antitrust) courts. The infringer also has the option of filing a counterclaim for the grant of a license with the Unified Patent Court (see Local Chamber Mannheim, decision of 22.11.2024, UPC\_CFI\_210/2023, para. 236-241).

b. In terms of amount, the security must be provided at least in the amount of the counteroffer. Whether the security must also be based on the plaintiff's (higher) offer under review, as proposed by the Munich Higher Regional Court in its reference order of October 30, 2024 (GRUR-RS 2024, 30064, para. 32), can be left open in the present case. This is because the defendants have not provided any security at all.

c. Furthermore (see OLG Munich, para. 36), the patent user must ensure by means of a binding declaration as part of the security deposit that the

patent proprietor receives the security as a license payment if its offer ultimately proves to be FRAND-compliant and the patent infringement asserted in the action for an injunction is also legally upheld. Although this requirement cannot be directly inferred from the ECJ ruling, it follows from the requirement of "adequate security". This must therefore be suitable to secure precisely the claim to a FRAND license fee. However, this purpose would be defeated or the patentee would not be "secured" in this respect if the user, who - in contrast to the patentee - is not obliged to conclude a license agreement in principle, were to refuse to do so after the FRAND examination by the court (possibly with the help of an expert). (for example, if it becomes apparent that the plaintiff's offer was indeed FRAND) and he could reject the offer, waive the FRAND objection and instead be ordered to cease and desist - and receive the security back (at least to the extent that it exceeds the claim for damages, which may be significantly lower due to the territorially limited international jurisdiction). This would mean that the patent user might have achieved exactly what the security is intended to prevent, namely that the patent user would have engaged in pure delaying tactics, continued to use the patent without a license and the patent proprietor would ultimately only be referred to the (weak) claim for damages.

d. If the patent proprietor has submitted two parallel offers, one for a bilateral license and one for a pool license, the security resulting from the offer for which a counter-offer has been submitted shall be provided. The purpose of the security must be formulated in favor of the patent proprietor and the pool.

e. If the patent infringer does not provide security in the aforementioned sense, there is no requirement according to the ECJ Huawei. The FRAND objection is then not successful.

f. Whether the provision of security that satisfies these requirements and the provision of information by the patent infringer can "cure" other deficits in the course of the negotiations that lie in the past, as the Munich Higher Regional Court suggests (see para. 33), can also be left open, as will be shown shortly, due to the factual circumstances of the present case.

#### **IV. Application of these principles in the present case**

In the present case, the defendants did not signal a sufficient willingness to license after an unobjectionable infringement notice, delayed the negotiations and did not provide any security or sufficient information after their counter-offer was rejected. Furthermore, they have not provided any substantive information as to why the pool license offered in addition to a bilateral license via SISVEL does not satisfy FRAND principles. Irrespective of this, the defendants have not made a conclusive submission that the patent in suit gives the plaintiff a dominant market position.

##### **1. Dominant market position**

The defendants, who have the burden of presentation and proof in this respect, have not made a conclusive submission as to whether and why the patent in suit gives the plaintiff a dominant market position.

a. Rather, the defendants have denied use of the patent in the context of the infringement discussion (see KE, section F.I.3). Furthermore, they have argued that the individual protocols provided for in the IEEE 802.11ax standard specify a common code word space for Wi-Fi, which does not have to be fully used by access point implementations because there is considerable scope for the implementation of the standard in terms of which code words can be generated by an access point implementation. A binding effect with regard to the use of the (entire) IEEE 802.11ax specifications should therefore be rejected. The access point of a Wi-Fi network decides which code words are used and communication with the connected stations is ensured even if only part of the code word space is used. Compatibility with the IEEE 802.11ax standard is also not to be equated with full implementation of the same. The full implementation of the IEEE. 802.11ax standard does not result in particular from the designation as Wi-Fi 6 supporting or Wi-Fi 6 compatible.

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b. Hereby, the defendants deny a mandatory use of the standard specifications and thus of the patent in suit by submitting facts and not only by a deviating legal assessment of the questions of patent interpretation and infringement examination. Thus, there is already no conclusive factual submission that the plaintiff is given a dominant market position by the patent because all market participants and thus also the defendants as manufacturers and distributors of access points would be forced to use the teaching of the patent in suit. It must be assumed that the UPC representatives of the defendants have observed Art. 48(6) UPCA or Rule 284 VerfO in this respect and have not misrepresented the facts knowingly or due to negligent ignorance. It can therefore be assumed that the standard does not impose any mandatory requirements in this respect. The plaintiff therefore does not have a dominant market position, even though, as shown, it is infringed in accordance with the wording. Since the defendants bear the burden of presentation and proof for the question of market dominance, their objection must be rejected at this point.

c. The possibility, in the alternative, of making an alternative factual submission and thus the "alternative facts" model in the event that the factual submission in the context of the non-infringement argumentation should not prevail, must be rejected on the basis of the provisions cited above.

d. Ultimately, however, the question of antitrust liability can also be left open in the present case, because even if the plaintiff were subject to antitrust obligations on the basis of the patent in suit, it would have complied with them in the present case.

## 2. Injury note

The plaintiff duly notified the defendants of the infringement of the patent in suit before the action was brought here. As explained above, the date of the filing of the present action, i.e. July 2, 2023, is decisive.

[redacted]

Furthermore, the plaintiff also sent the defendants claim charts relating to the patent in suit:

The transmission of claim charts is in any case sufficient evidence of infringement. The Chamber does not share the defendant's view that the transmission of a very large number of claim charts (here [redacted]) is inadmissible under antitrust law. If the parties negotiate the licensing of a very large portfolio, it is unavoidable to make a higher number of technical details the subject of the negotiations.

[redacted]

### 3. Declaration of willingness to license

Whether the defendants' request for licensing was sufficiently formulated and, if not, whether further disadvantageous legal consequences can be derived from it for the defendants, can be left open in the present case. On the one hand, the defendants submitted an unconditional counter-offer and thus possibly gave up earlier reservations. Secondly, due to the fact that the defendants did not provide any security, among other things, their FRAND objection is not successful anyway.

In detail:

[redacted]

#### 4. Offers by the plaintiff

It can be assumed that the offers nevertheless submitted by the plaintiff meet the FRAND requirements.

[redacted]

Whether these offers meet FRAND requirements can be left open, as will be shown below.

#### 5. Counteroffer by the defendant

[redacted]

#### 6. Security deposit and information

Although the plaintiff rejected their counteroffer, the defendants did not provide security or sufficient information by the time the action was filed. As discussed at the interim hearing, the defendants only provided generally available figures. This means that the requirement laid down by the European Court of Justice (para. 66) for the defendants to be able to rely on the abusive nature of an action for an injunction or recall is not met. Since the defendants did not make up for this by the end of the oral hearing, it remains to be seen whether the opinion of the Munich Higher Regional Court that such a catch-up is worthy of consideration should be endorsed.

#### 7. No presentation on the SISVEL patent pool

Furthermore, the defendants have not submitted anything substantive as to why the alternative option presented by the plaintiff of taking a pool license via SISVEL constitutes an abuse of a dominant market position by the plaintiff. The defendants have not submitted anything in writing on the pool offer. In the

At the interim hearing, they replied "this is still under consideration" to the rapporteur's question in this regard. At the hearing, the defendants responded to the plaintiff's reproach that the plaintiff's bilateral offer discriminated against the defendants and therefore the pool offer could not be better. This does not go far enough. For an assumed price discrimination in the context of bilateral license negotiations is not transferable to a pool license for fundamental reasons alone. This is because a pool license involves the licensing of significantly more patents, including those of other patent holders. Furthermore, licensing takes place with a pool license rate that differs from bilateral offers.

The defendants have also not argued that and why they are also discriminated against with regard to the pool license rate, which is already paid by other pool licensees. They have also not argued that and why the plaintiff should be obliged under antitrust law to make them a bilateral offer on FRAND terms over and above the offer of the pool license.

It can therefore be assumed, also due to the lack of submission, that the offer to take a pool license to the patent in suit via the SISVEL pool meets the requirements of antitrust law.

#### 8. Legal consequences

However, if it can be assumed that the SISVEL pool license offer satisfies antitrust obligations, the FRAND objection cannot succeed, irrespective of the above explanations. Since FRAND can contain a large number of conditions and license rates (FRAND is a range), the defendant's FRAND objection cannot prevail, regardless of the quality of its counter-offer, because the plaintiff has sufficiently complied with its antitrust obligations established by the ECJ in the context of an infringement action.

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## H. IEEE LOA objection

The objection raised by the defendants in addition to the FRAND objection under antitrust law in accordance with the IEEE-LOA does not apply either.

I. As stated above, the plaintiff submitted an LOA to IEEE on July 25, 2019 with reference to the IEEE Bylaws 2007. These Bylaws contain the following clauses:

### D. SUBMITTER'S POSITION REGARDING LICENSING OF ESSENTIAL PATENT CLAIMS:

In accordance with Clause 6 of the *IEEE-SA Standards Board Bylaws*, the Submitter hereby declares the following:

*Note: Nothing in this Letter of Assurance shall be interpreted as giving rise to a duty to conduct a patent search. The IEEE takes no position with respect to the validity or essentiality of Patent Claims or the reasonableness of rates, terms, and conditions provided in connection with submission of a Letter of Assurance, if any, or in any license agreements offered by the Submitter. To the extent there are inconsistencies between the Letter of Assurance Form and any sample licenses, material licensing terms, or not to exceed rates provided in connection with 1.a. or 1.b. below, the terms of the Letter of Assurance Form shall control.*

1. The Submitter may own, control, or have the ability to license Patent Claims that might be or become Essential Patent Claims. With respect to such Essential Patent Claims, the Submitter's licensing position is as follows (*must check a, b, or c and any applicable subordinate boxes*):
- a. The Submitter will grant a license without compensation to an unrestricted number of applicants on a worldwide basis with reasonable terms and conditions that are demonstrably free of unfair discrimination.
    - (Optional) A sample of such a license (or material licensing terms) that is substantially similar to what the Submitter would offer is attached.
  
  - b. The Submitter will grant a license under reasonable rates to an unrestricted number of applicants on a worldwide basis with reasonable terms and conditions that are demonstrably free of unfair discrimination.
    - (Optional) These reasonable rates will not exceed \_\_\_\_\_ (e.g., percent of product price, flat fee, per unit).
    - (Optional) A sample of such a license (or material licensing terms) that is substantially similar to what the Submitter would offer is attached.
  
  - c. The Submitter without conditions will not enforce any present or future Essential Patent Claims against any person or entity making, using, selling, offering to sell, importing, distributing, or implementing such a compliant implementation.

According to the applicable New York law, a contract was thus - indisputably - concluded in favor of third parties, i.e. also in favor of the defendants. The defendants therefore have a contractual claim against the plaintiff in accordance with the clause reproduced above.

According to the wording, this contractual entitlement includes the right to acquire a license for consideration in relation to standard-essential patent claims, whereby the license rate must be reasonable and the license conditions must be reasonable and demonstrably free of unfair discrimination.

The word "reasonable" is used twice, once in the license rate and once in the license terms. The expression "demonstrable free of any unfair discrimination", on the other hand, is only used once at the end of the sentence. It therefore refers grammatically only to the license terms. If this had been intended differently, the expression would also have been used twice in the sentence, like the word "reasonable". This result is also supported by the further sentence construction using the word "that", which refers to the "terms and conditions".

The elements of the offense are therefore as follows:

- The defendants must apply to the plaintiff for a worldwide license.
- The plaintiff must offer one.
- The subject matter of the license must be standard-essential patent claims.
- The license is subject to a fee.
- The license rate must be reasonable
- The other terms of the license agreement must be reasonable and demonstrably free of unfair discrimination.

For the further proceedings, however, it can be assumed in favor of the defendant that this sentence construct is also intended to mean that the "reasonable license rate" must also be demonstrably free of unfair discrimination. This does not change the result.

With regard to the question of how to prove procedurally that the license rate and the license terms are free of unfair discrimination, it should be noted that there are

this is a negative factual characteristic. The plaintiff can therefore only meet its burden of presentation and proof if the defendants have previously presented circumstances that suggest unfair discrimination, i.e. the unequal treatment of comparable licensees or the equal treatment of dissimilar licensees without a justifiable reason. As soon as the defendants have fulfilled their secondary burden of proof, it is up to the plaintiff to either refute the unequal treatment or to present reasons to justify the unequal treatment from which it can be inferred that the unequal treatment is "fair" and not "unfair".

II. As explained above, the defendants did request a license from the plaintiff. However, this license request was [redacted].

Since the defendants simultaneously argue that implementation of the standard specifications leading to infringement is not mandatory, the defendants are in this respect in an irresolvable argumentative contradiction. This is because the LOA only obliges the plaintiff to worldwide licensing if it concerns standard essential patent claims.

III. The plaintiff submitted a bilateral license offer to the defendants, which was improved twice, and also pointed out the possibility of taking out a pool license with SISVEL.

The defendants have only stated that there was allegedly unfair price discrimination in relation to the bilateral offer. With regard to the pool license that was also offered, they merely stated that this was "still under consideration". Reference is made to the above statements to avoid repetition. Accordingly, the defendants have neither argued that a patent proprietor cannot also meet the obligations assumed by the IEEE-LOA by offering a pool license, nor have they argued that and why the pool license rate or the other conditions of the pool constitute unfair discrimination. They have therefore failed to meet their secondary burden of proof. Their defense is therefore not valid. The defendants did not even know about the pool license

offer said that it was not demonstrably free of unfair discrimination.

## I. Legal consequences

The established patent infringement by the defendants of the national part of the bundle patent validated in the respective asserted contract states justifies the legal consequences sought by the plaintiff. This excludes products with Qualcomm modems (see Annex FBD 56) which were demonstrably placed on the market for the first time in the territory of the European Union in the period [redacted].

The injunctive relief sought by the plaintiff in respect of the infringing acts is based on Art. 25(a), Art. 63(1) UPCA and must be granted because there is a risk of repetition due to the infringing acts committed by the defendants in the past in the contracting states asserted here. The defendants may not continue the acts of offering, placing on the market, using, importing or possessing for these purposes in the contracting states covered by the action. In particular, sufficient submissions have been made with regard to the national parts of the bundle patent asserted in the present case and their infringement in the respective territories.

In the present case, there are no circumstances for the court to refrain from exercising its discretion ("may ... issue") to issue a final injunction. Rather, proportionality aspects (Art. 42 UPCA and Art. 3(2) Directive 2004/48/EC of the European Parliament and of the Council of 29 April 2004 on the enforcement of intellectual property rights) have already been comprehensively taken into account in the context of the consideration of the examined antitrust and contractual compulsory license objection by applying the balanced negotiation program of the European Court of Justice. Further circumstances that would make it appear necessary from the point of view of proportionality not to issue an injunction in the present case have not been sufficiently demonstrated. The defendants themselves argue that the requirements of the standard are not

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are mandatory and there is scope for implementation. Moreover, the defendants are free to take out a pool license with SISVEL at any time.

The requested threat of a penalty payment for the omission (Art. 63(2) UPCA) does not raise any objections.

The threat of measures of disclosure, information, recall and removal are based on Art. 82 para. 1 and 4 UPCA, R. 354.3 RP.

The request for destruction of the directly infringing products is based on Art. 64 (2) (e) UPCA, the requests for recall of these products from the channels of commerce and final removal of these products from the channels of commerce are based on Art. 64 (2) (b) and (d), (4) UPCA. According to the wording of the UPCA, the definitive removal from the distribution channels is a separate measure from the recall. It accompanies the recall, whereby removal can only be considered if the infringer has the factual and legal means to do so. No sufficient reasons have been presented or are otherwise apparent that would oppose the ordering of these measures, for example from the point of view of proportionality, and that go beyond the consequences resulting from a patent infringement that the infringer has to bear. The defendants can take the offered bilateral license or the pool license at any time. It is equivalent to destruction if the patent-infringing functionality is permanently switched off.

The decision to provide the requested information is based on Art. 25 (a), Art. 67 (1) UPCA. The information is necessary for the calculation of damages and for the assessment of the method of calculating damages within the meaning of Art. 68 UPCA. The information on the origin and distribution channels serves to clarify the facts of the infringement and the possibility of asserting claims against other co-responsible parties and effectively stopping further acts of infringement. In response to the application, it was also necessary to order the defendants to provide the plaintiff with the information in a list structured for each month of a calendar year and by patent infringing products in electronic form, which can be evaluated with the aid of a computer. This serves the efficient

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enforcement of the right to information and takes account of the fact that an electronic statement, which can be analyzed with the help of a computer, is the standard in business accounting anyway.

The subject of the information is also the requested accounting. This is also based on Art. 68(3) UPCA, R. 191 RP. In this respect, the Local Division agrees with the Düsseldorf Local Division (UPC\_CFI\_7/2023 of July 3, 2024 at F.I.2.b) that the rules contain a substantive right to request information that the infringed party needs in order to be able to check the validity of the information and to obtain indications for its calculation of damages. Efficiency aspects in particular speak in favor of this, as further stages of the proceedings can be avoided. In addition, the patent proprietor can also request the submission of supporting documents for the information under Art. 67(1) UPCA, namely invoices or - if these are not available - delivery bills as an alternative. This is because, apart from the interest in the pure information that the patent proprietor receives under Art. 67(1) UPCA, his interest in being able to check the accuracy of this information, at least on a random basis, is also worth recognizing. The possibility of redaction provided for in the pronouncement takes account of any confidential information (Rule 191 sentence 2, 190.1 sentence 2 RP).

The requested auditor's reservation allows an appropriate balance to be struck between the infringed party's interest in accurate information and the infringer's justified interests in confidentiality.

The determination of the obligation to pay damages is based on Art. 68(1) UPCA and is justified by the established infringement. The defendants also acted negligently in any event.

With regard to the indirect infringement of the patent in suit by the challenged embodiments, the plaintiff's right to prohibit the continuation of the infringement follows from Art. 26(1) UPCA in conjunction with Art. 63(1) UPCA. Art. 63(1) UPCA. The plaintiff also has a right to information and transmission of information pursuant to Art. 26(1) UPCA

in conjunction with Art. 67 UPCA, Art. 8 (3)(a), (b) UPCA in conjunction with Rule 191 p. 1 Alt. 2 VerFO as well as for payment of provisional damages and

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determination of the award

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of damages on the merits (Art. 26(1) UPCA in conjunction with Art. 68(1) UPCA). Art. 68(1) UPCA, R. 119 RP). The threat of coercive measures is governed by Art. 63(2), 82(1) and

(4) UPCA, R. 354.3 RP and applies accordingly to decisions on contributory infringement. Reference is also made to the above statements.

The award of costs is based on Art. 69(2) UPCA, Rule 118.5 RP. In view of the partial defeat of the plaintiff with regard to the exhaustion defense relating to products with Qualcomm modems, a ratio of 80 to 20 in the infringement action appears to be appropriate. On the one hand, according to the defendant, a victory with this defense should enable a considerable reduction of the enforcement security; on the other hand, the carve-out is subject to post-procedural device-related proof of the first placing on the market in the territory of the European Union in the relevant period. It should also be noted that exhaustion only applies until [redacted], while the injunction lasts until the expiry of patent protection, i.e. until 2036 at the longest.

Pursuant to Art. 82(2) UPCA, Rule 118.8 sentence 2 RP, the court may make any order or measure subject to the provision of a security, which it shall fix. The local division has a discretionary power when ordering the provision of security, whereby the interest of the plaintiff in the effective enforcement of its property right must be weighed against the interest in the effective enforcement of possible claims for damages in the event that the judgment is subsequently set aside. In the present case, the requirement to provide security is rightly not in dispute between the parties. The plaintiff is domiciled in China. In this respect, difficulties in the enforcement of an order for costs are to be expected. The adjudicating body exercises its discretion to order partial security as requested. With regard to the orders to provide information and render accounts, the sum of € 50,000.00 proposed by the plaintiff appears to be appropriate, moreover the sum of € [redacted] proposed by the defendants in the event that the objection of exhaustion is successful. Insofar as the defendants can enforce a pro rata reimbursement of costs, 110 percent of the amount to be enforced appears to be appropriate. Due to the partial agreement of the parties with regard to the text of a possible deed of guarantee (see Annex K93), the Chamber leaves the parties the choice between cash deposit and submission of a bank guarantee deed.

The orders are only enforceable after the parties have notified the court which part of the orders they intend to enforce and have submitted a certified translation of the orders into the official language of the Contracting Member State in which enforcement is to take place and after the notification and the (respective) certified translation have been served on the other party and the security has been provided, R. 118.8 RP.

Since the defendants are sufficiently protected by the security, which was ordered in the amount requested by the defendants, it was no longer necessary to order the defendants to avert the proceedings.

#### **J. Permission to amend/clarification and rejection of the remaining applications**

The clarifications made by both parties with regard to the territorial scope of the respective applications are appropriate and are approved. In this respect, it should be noted that the previous wording of the application inadmissibly assigned to the court the task of determining which member states had ratified the Agreement on a Unified Patent Court at the relevant time and should therefore be the subject of the application. The wording of the application now chosen takes these concerns into account.

The motions of the parties that remained unanswered at the interim hearing (see App\_31099/202) must be rejected. Reference is made to the above explanations for the reasons. In particular, there is no need to take evidence or order the submission of further documents, as requested by the defendant in APP\_47068/2024 of August 14, 2024. The adjudicating body, which includes a technically qualified judge, is, as shown, itself in a position to subject the submission on the test data submitted to an assessment. With regard to the defense with the IEEE-LOA, there is also no need to take evidence for the reasons set out above.

## ARRANGEMENTS

**A.** The defendant's objection pursuant to Rule 19 of the Rules of Procedure is rejected.

**B.** The defendants' actions for annulment are dismissed.

**C.** The defendants are ordered to cease and desist, subject to a penalty payment to be imposed by the court for each case of non-compliance,

I. to offer or supply equipment for transmitting a high-efficiency signal field B or HE-SIG-B in a wireless local area network to customers in Belgium, Germany, Italy, Finland, France and Sweden for use in the said territory,

which are suitable for use in a method for transmitting a high-efficiency signal field B or HE-SIG-B in a wireless local area network,

wherein the method comprises the following:

Transmitting the HE-SIG-B in a transmission bandwidth of multiples of 20 MHz, wherein the HE-SIG-B comprises two HE-SIG-B contents including a first HE-SIG-B content carried in each odd-numbered 20 MHz subchannel and a second HE-SIG-B content carried in each even-numbered 20 MHz subchannel, wherein the first HE-SIG-B content comprises a first common field and a first user-specific field, the first common field comprising one or more first resource allocations, RA, wherein the second HE-SIG-B content comprises a second common field and a second user-specific field, the second common field comprising one or more second resource allocations, RA, wherein each of the one or more first RA corresponds to an odd-numbered 20 MHz sub-channel and each of the one or more second RA corresponds to an even-numbered 20 MHz sub-channel, wherein the first user-specific field comprises one or more first user scheduling information sub-fields, wherein each of the one or more first user scheduling information subfields comprises information about a station, STA, wherein the STA is scheduled on one of the one or more resource units indicated by the one or more first RA, and wherein the second user-specific field comprises one or more second user scheduling information subfields,

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wherein each of the one or more second user scheduling information sub-fields comprises information about a station, STA, wherein the STA is scheduled on one of the one or more resource units indicated by the one or more second RA, when a first RA of the one or more first RA indicates a first assigned resource unit, RU, located within or overlapping with the corresponding one odd-numbered 20 MHz sub-channel, wherein the one first RA further indicates that in the first HE-SIG content channel, the STA is scheduled on one of the one or more resource units, RU, located within or overlapping with the corresponding one odd 20 MHz subchannel, the one first RA further indicating that in the first HE-SIG-B content a number of a user scheduling information subfield corresponding to the first RU is 0; or a second RA indicates to the one or more second RA a second assigned RU that is within or overlaps with the corresponding one even-numbered 20 MHz subchannel, the one second RA further indicating that in the second HE-SIG-B content, a number of a user scheduling information subfield corresponding to the second RU is 0;

- Indirect infringement of claim 1 -

II. to offer or supply equipment for receiving a high-efficiency signal field B or HE-SIG-B in a wireless local area network to customers in Belgium, Germany, Italy, Finland, France and Sweden for use in the said territory,

which are suitable for use in a method for receiving a high-efficiency signal field B or HE-SIG-B in a wireless local area network,

wherein the method comprises the following:

Receiving the HE-SIG-B in a transmission bandwidth of multiples of 20 MHz, the HE-SIG-B comprising two HE-SIG-B contents including a first HE-SIG-B content carried in each odd-numbered 20 MHz subchannel and a second HE-SIG-B content carried in each even-numbered 20 MHz subchannel, the first HE-SIG-B content comprising a first common field and a first user-specific field, the first common field comprising one or more first resource allocations, RA, umfasst, wobei der zweite HE-SIG-B-Inhalt ein zweites gemeinsames Feld und ein zweites benutzerspezifisches Feld umfasst, wobei das zweite gemeinsame Feld eine oder mehrere zweite Ressourcenzuweisungen, RA, umfasst, wobei jede der einen oder der mehreren ersten RA einem ungeradzahligen 20 MHz-Unterkanal entspricht und jede der einen oder der mehreren zweiten RA einem geradzahligen 20 MHz-Unterkanal entspricht, wobei das erste benutzerspezifische Feld ein oder mehrere erste Benutzerzeitplanungsinformationen-

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subfields, wherein each of the one or more first user scheduling information subfields comprises information about a station, STA, wherein the STA is scheduled on one of the one or more resource units specified by the one or more first RA, and wherein the second user-specific field comprises one or more second user scheduling information subfields, wherein each of the one or more second user scheduling information subfields comprises information about a station, STA, wherein the STA is scheduled on one of the one or more resource units specified by the one or more second RA when a first RA of the one or more first RA is a first assigned resource, STA, the STA being scheduled on one of the one or more resource units indicated by the one or more second RAs, when a first RA of the one or more first RAs indicates a first allocated resource unit, RU, located within or overlapping with the corresponding one odd 20 MHz subchannel, the one first RA further indicating that in the first HE-SIG-B content a number of a user scheduling information subfield corresponding to the first RU is 0; or a second RA indicates to the one or more second RA a second assigned RU that is within or overlaps with the corresponding one even-numbered 20 MHz subchannel, the one second RA further indicating that in the second HE-SIG-B content, a number of a user scheduling information subfield corresponding to the second RU is 0;

- indirect infringement of claim 2 -

III. in particular

1. when the first RA or the second RA is an index of a plurality of indices, the index being based on per 20 MHz bandwidth, the index indicating a combination of allocated RUs having 26, 52 or 106 subcarriers or an allocated RU having 242, 484 or 996 subcarriers, the index indicating whether multi-user MIMO or MU-MIMO is performed, respectively, and the index further indicating information for calculating a number of users on an allocated RU allowed for MU-MIMO;

– Indirect infringement of claim 3 -

2. and/or if the first assigned RU has 484 subcarriers or the second assigned RU has 484 subcarriers

– Indirect infringement of claim 4 -

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3. and/or when the transmission bandwidth is 40 MHz, comprising first 20 MHz and second 20 MHz, wherein the first HE-SIG-B content is carried in the first 20 MHz and the second HE-SIG-B content is carried in the second 20 MHz, wherein the first HE-SIG-B content comprises a first RA indicating one or more RUs in or overlapping the first 20 MHz, and wherein the second HE-SIG-B content comprises a second RA indicating one or more RUs in or overlapping the second 20 MHz

– Indirect infringement of claim 5 -

4. and/or when the transmission bandwidth is 80 MHz, comprising first 20 MHz, second 20 MHz, third 20 MHz and fourth 20 MHz in a frequency order, wherein the first HE-SIG-B content is routed in the first and third 20 MHz and the second HE-SIG-B content is routed in the second and fourth 20 MHz, wherein the first HE-SIG-B content comprises a first RA and a third RA, wherein the first RA specifies one or more RUs in or overlapping the first 20 MHz and the third RA specifies one or more RUs in or overlapping the third 20 MHz, and wherein the second HE-SIG-B content comprises a second RA and a fourth RA, wherein the second RA specifies one or more RUs in or overlapping the second 20 MHz and the fourth RA specifies one or more RUs in or overlapping the fourth 20 MHz;

– Indirect infringement of claim 6 -

IV. To offer, place on the market, use and/or import and/or possess for the said purposes a device for transmitting a high-efficiency signal field B or HE-SIG-B in a wireless local area network to customers in Belgium, Germany, Italy, Finland, France and Sweden, comprising the following:

a module adapted to transmit the HE-SIG-B in a transmission bandwidth of multiples of 20 MHz, the HE-SIG-B comprising two HE-SIG-B contents including a first HE-SIG-B content carried in each odd-numbered 20 MHz subchannel and a second HE-SIG-B content carried in each even-numbered 20 MHz subchannel, the first HE-SIG-B content comprising a first common field and a first user-specific field wherein the first common field comprises one or more first resource allocations, RA, wherein the second HE-SIG-B content comprises a second common field and a second user-specific field, wherein the second common field comprises one or more second resource allocations, RA, wherein each of the one or more first RA corresponds to an odd-numbered 20 MHz subchannel, and each second RA corresponds to an even-numbered 20 MHz subchannel.

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the one or more second RA corresponds to an even-numbered 20 MHz subchannel, wherein the first user-specific field comprises one or more first user scheduling information subfields, wherein each of the one or more first user scheduling information subfields comprises information about a station, STA, wherein the STA is scheduled on one of the one or more resource units specified by the one or more first RA, and wherein the second user-specific field comprises one or more second user scheduling information subfields, wherein each of the one or more second user scheduling information subfields comprises information about a station, STA, wherein the STA is scheduled on one of the one or more resource units specified by the one or more second RA, when a first RA of the one or more first RA specifies a first assigned resource unit, RU, located within or overlapping with the corresponding one odd 20 MHz subchannel, the one first RA further indicating that in the first HE-SIG-B content, a number of a user scheduling information subfield corresponding to the first RU is 0; or a second RA indicates to the one or more second RA a second assigned RU that is within or overlaps with the corresponding one even-numbered 20 MHz subchannel, the one second RA further indicating that in the second HE-SIG-B content, a number of a user scheduling information subfield corresponding to the second RU is 0;

– direct infringement of claim 7 -

V. To offer, to place on the market, to use and/or to import and/or to possess for said purposes a device for receiving a high-efficiency signal field B or HE-SIG-B in a wireless local area network to customers in Belgium, Germany, Italy, Finland, France and Sweden, comprising the following:

a module adapted to receive the HE-SIG-B in a transmission bandwidth of multiples of 20 MHz, the HE-SIG-B comprising two HE-SIG-B contents, including a first HE-SIG-B content carried in each odd-numbered 20 MHz subchannel and a second HE-SIG-B content carried in each even-numbered 20 MHz subchannel, wherein the first HE-SIG-B content comprises a first common field and a first user-specific field, wherein the first common field comprises one or more first resource allocations, RA, wherein the second HE-SIG-B content comprises a second common field and a second user-specific field, wherein the second common field comprises one or more second resource allocations, RA, wherein each of the one

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oder der mehreren ersten RA einem ungeradzahligen 20 MHz-Unterkanal entspricht und jede der einen oder der mehreren zweiten RA einem geradzahligen 20 MHz-Unterkanal entspricht, wobei das erste benutzerspezifische Feld ein oder mehrere erste Benutzerzeitplanungsinformationen-Unterfelder umfasst, wobei jedes des einen oder der mehreren ersten Benutzerzeitplanungsinformationen-Unterfelder Informationen über eine Station, STA, wherein the STA is scheduled on one of the one or more resource units indicated by the one or more first RA, and wherein the second user-specific field comprises one or more second user scheduling information subfields, wherein each of the one or more second user scheduling information subfields comprises information about a station, STA, wherein the STA is scheduled on one of the one or more resource units specified by the one or more second RA, when a first RA of the one or more first RA specifies a first assigned resource unit, RU, located within or overlapping with the corresponding one odd 20 MHz subchannel, the one first RA further indicating that in the first HE-SIG-B content, a number of a user scheduling information subfield corresponding to the first RU is 0; or a second RA indicates to the one or more second RA a second assigned RU that is within or overlaps with the corresponding one even-numbered 20 MHz subchannel, the one second RA further indicating that in the second HE-SIG-B content, a number of a user scheduling information subfield corresponding to the second RU is 0;

– Direct infringement of claim 8 -

VI. in particular

1. when the first RA or the second RA is an index of a plurality of indices, the index being based on per 20 MHz bandwidth, the index indicating a combination of allocated RUs having 26, 52 or 106 subcarriers or an allocated RU having 242, 484 or 996 subcarriers, the index indicating whether multi-user MIMO or MU-MIMO is performed, respectively, and the index further indicating information for calculating a number of users on an allocated RU allowed for MU-MIMO;

– direct infringement of claim 9 -

2. and/or if the first assigned RU has 484 subcarriers or the second assigned RU has 484 subcarriers;

– Direct infringement of claim 10 -

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3. and/or when the transmission bandwidth is 40 MHz, comprising first 20 MHz and second 20 MHz, wherein the first HE-SIG-B content is carried in the first 20 MHz and the second HE-SIG-B content is carried in the second 20 MHz, wherein the first HE-SIG-B content comprises a first RA indicating one or more RUs in or overlapping the first 20 MHz, and wherein the second HE-SIG-B content comprises a second RA indicating one or more RUs in or overlapping the second 20 MHz;

– Direct infringement of claim 11 -

4. and/or when the transmission bandwidth is 80 MHz, comprising first 20 MHz, second 20 MHz, third 20 MHz and fourth 20 MHz in a frequency order, wherein the first HE-SIG-B content is routed in the first and third 20 MHz and the second HE-SIG-B content is routed in the second and fourth 20 MHz, wherein the first HE-SIG-B content comprises a first RA and a third RA, wherein the first RA specifies one or more RUs in or overlapping the first 20 MHz and the third RA specifies one or more RUs in or overlapping the third 20 MHz, and wherein the second HE-SIG-B content comprises a second RA and a fourth RA, wherein the second RA specifies one or more RUs in or overlapping the second 20 MHz and the fourth RA specifies one or more RUs in or overlapping the fourth 20 MHz.

– direct infringement of claim 12 -

**D.** The defendants are ordered to provide the plaintiff with information in writing and in electronic form on the extent to which they (the respective defendant) have committed the acts described above under clauses C.I. to C.VI. since 26.05.2021, stating

a) the names and addresses of manufacturers, suppliers and other previous owners;

b) the names and addresses of the commercial customers and the points of sale for which the products were intended;

c) the quantities of products manufactured, delivered, received or ordered, as well as the prices paid for the products concerned; copies of the relevant purchase documents (namely invoices, or alternatively delivery bills) must be submitted as proof of the information provided, whereby details requiring confidentiality outside the data subject to disclosure may be blacked out.

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**E.** The defendants are ordered to provide the plaintiff with an orderly list in writing and additionally in electronic form of the extent to which they (the respective defendant) have committed the acts described above under clauses C.I. to C.VI. since 26.05.2021, stating

a) of the individual deliveries, broken down by delivery quantities, times and prices as well as type designations and the names and addresses of the customers;

b) of the individual offers, broken down by offer quantities, times, prices, type designation and the names and addresses of the commercial offerees;

c) of the advertising operated, broken down by advertising media, their circulation figures, distribution period and distribution area;

d) the prime costs broken down by the individual cost factors and the profit generated;

whereby the defendants reserve the right to disclose the names and addresses of the non-commercial purchasers and the offerees instead of the plaintiff to a sworn auditor to be designated by the plaintiff, who is bound to secrecy vis-à-vis the plaintiff and who is resident in one of the contracting member states, provided that the respective defendant bears his costs and authorizes and obliges him to inform the plaintiff upon specific request whether a particular purchaser or offeree is included in the list.

**F.** The defendants are ordered to permanently remove the products described above under C.IV. to C.VI. from the distribution channels by the respective defendant taking back these items, if necessary enforcing their surrender with claims for surrender to which it is entitled or, at the plaintiff's discretion, arranging for the destruction of these items at the respective owner's premises at the defendant's expense.

**G.** The defendants are ordered to recall the marketed products described above under clauses C.IV. to C.VI. from the commercial customers with reference to the patent-infringing condition of the products established by the court (judgment of the Local Chamber of Munich of December 18, 2024) and with the binding undertaking to reimburse any fees and to bear any necessary packaging and transport costs as well as customs and storage costs associated with the return

and to take back the products, whereby the plaintiff is to be provided with a sample of the recall letters as well as a list of the addressees with their names and postal addresses or - at the defendant's discretion - a copy of all recall letters.

**H.** The defendants are further ordered to surrender to a bailiff to be appointed by the plaintiff the products referred to in paragraphs C.IV. to V.VI. in their direct or indirect possession or ownership in Belgium, Germany, Italy, Finland, France and Sweden for the purpose of destruction at their - the respective defendants' - expense.

**I.** It is established that the defendants are jointly and severally liable to compensate the plaintiff for all damages that she has suffered and will suffer as a result of the acts described under C.I. to C.VI. committed since 26.05.2021.

**J.** Those individualized products according to C.I. to C.VI. which are equipped with a Qualcomm modem (see Annex FBD 56) are exempt from the orders according to C. to I., provided that this Qualcomm modem was demonstrably placed on the market for the first time in the territory of the Member States of the European Union in the period [blackened].

**K.** The plaintiff shall bear 20 percent of the costs of the infringement action (costs of legal and patent attorney representation and court costs) and the defendants shall bear 80 percent as joint and several debtors. The defendants shall bear the costs (court costs and costs of legal and patent attorney representation of all parties) of the nullity counterclaims as joint and several debtors. The respective claim for reimbursement of costs is limited by the upper limit depending on the value in dispute.

**L.** In all other respects, the action is dismissed and the parties' outstanding claims are rejected. The workflows concerned are deemed closed

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**M.** The above orders under items C, D, E, F, G, H, I, J, K are provisionally enforceable for the plaintiff against partial security as follows:

- Numbers D, E against a total of € 50,000.00
- Digits C, F, G, H, I, J, K against total [redacted] €

The order in paragraph K is provisionally enforceable for the defendants against security amounting to 110 percent of the amount to be enforced.

The securities may be provided by cash deposit with the Unified Patent Court or by written, irrevocable, unconditional and unlimited bank guarantee(s) of a credit institution authorized to do business in the territory of a member state of the UPC. Insofar as the collateral is provided by bank guarantee(s), the partial agreement of the parties with regard to the details of the deed of guarantee (Annex K93) must be observed.

#### INFORMATION ON THE APPOINTMENT

An appeal against the present decision may be lodged with the Court of Appeal by any party whose requests were unsuccessful in whole or in part within two months of notification of the decision (Art. 73(1) UPCA, R. 220.1(a), 224.1(a) RP).

#### INFORMATION ON ENFORCEMENT (ART. 82 EPGÜ, ART. ART. 37(2) EPGs, R. 118.8, 158.2, 354, 355.4 VERFO)

A certified copy of the enforceable judgment or order is issued by the Deputy Registrar at the request of the enforcing party, R. 69 RegR.

#### DETAILS OF THE ARRANGEMENT

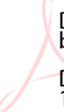
Order no. ORD\_598538/2023 in PROCEDURE NUMBER: ACT\_459771/2023

UPC number: UPC\_CFI\_9/2023

Nature of the action: Action for infringement

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Signed in Munich on December 18, 2024

<p>Dr. Zigann Presiding judge and rapporteur</p>	<p><b>Matthias ZIGANN</b>  Digitally signed by Matthias ZIGANN Date: 2024.12.17 14:40:58 +01'00'</p>
<p>Brinkman Legally qualified judge</p>	<p><b>Edger Frank BRINKMAN</b>  Digitally signed by Edger Frank BRINKMAN Date: 2024.12.17 16:03:39 +01'00'</p>
<p>Pichlmaier Legally qualified judge</p>	<p><b>Tobias Günther Pichlmaier</b>  Digitally signed from Tobias Günther Pichlmaier Date: 2024.12.17 14:44:36 +01'00'</p>
<p>Vidon Technically qualified judge</p>	<p><b>Patrice, Emmanuel, Pierre, Marie Vidon</b>  Signature numérique de Patrice, Emmanuel, Pierre, Marie Vidon Date : 2024.12.17 16:19:39 +01'00'</p>
<p>For the Deputy Chancellor</p>	<p><b>Veronica Ruisinger</b>  Digitally signed by Veronika Ruisinger Date: 2024.12.18 11:32:19 +01'00'</p>