



Local Division Munich

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UPC_CFI_688/2024

Decision

of the Court of First Instance of the Unified Patent Court

issued on 10 October 2025

PLAINTIFF AND COUNTER-DEFENDANT

Motorola Mobility LLC, 222 W. Merchandise Mart Plaza, Suite 1800 Chicago, Illinois
60654, USA

- hereinafter referred to as the "Claimant"

- represented by: Nina Bayerl, Freshfields PartG mbH

DEFENDANTS AND COUNTERCLAIMANTS

1. **ASUSTek Computer Inc.**, 1 F No. 15 Lide Rd. Beitou District, 11259 Taipei City, Taiwan
2. **ASUS Computer GmbH**, Harkortstr. 21-23, 40880 Ratingen, Germany
3. **ASUSTEK (UK) LIMITED**, 1st Floor, Sackville House, 143-149 Fenchurch Street, London, EC3M 6BN, United Kingdom

represented by: Alexander Wiese, Wildanger Kehrwald Graf v. Schwerin & Partners
Solicitors

- hereinafter referred to as the "Defendant" -

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LANGUAGE OF THE CASE

German

PATENT IN DISPUTE

EP 3 972 309

JUDICIAL PANEL AND PRESIDING JUDGE

This decision was issued by Panel 1 of the Munich Local Chamber:

Dr Matthias Zigann, Presiding Judge

Tobias Pichlmaier, legally qualified judge and rapporteur

Peter Agergaard, legally qualified judge

Klaus Loibner, technically qualified judge

ORAL HEARING:

9 JULY 2025

DECISION:

10 OCTOBER 2025

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Facts

The plaintiff is suing the defendants for infringement of European patent EP 3 972 309 (the patent in suit).

The plaintiff is the registered owner of the patent in suit.

The patent in suit, a European patent with unitary effect, was filed by the plaintiff under the title

“Method and apparatus for implementing carrier-specific changes as part of a connection reconfiguration that affects the security keys used”

filed on 23 June 2018, claiming priority from US provisional applications US 201762524379 P dated 23 June 2017 and US 201762543817 P dated 10 August 2017.

The notice of patent grant was published on 9 August 2023.

The patent in suit comprises 15 claims. Claim 1 of the patent in suit, which is asserted in the infringement action, reads as follows:

Method (1000) in a user device configured to communicate with two cell groups, including a first cell group and a second cell group, communicating with the two cell groups comprising establishing a first medium access control entity, MAC entity, and a second MAC entity, wherein the first MAC entity is associated with the first cell group and the second MAC entity is associated with the second cell group, the method (1000) comprising: receiving (1002) a first connection reconfiguration message to configure at least one shared carrier with a first identity of a logical channel completed in the second cell group; applying (1004) a first security key for communication with the first cell group and a second security key for communication with the second cell group; receiving a second connection reconfiguration message, wherein the second connection reconfiguration message includes a counter having a count value for deriving a third security key for communication with the second cell group;

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wherein the third security key derived for communication with the second cell group is based on the count value of the received counter; and applying the third security key for communication with the second cell group, while continuing to use the first security key and the first MAC entity for communication with the first cell group, wherein continuing to use the first MAC entity includes not resetting the first MAC entity.

Claim 11 asserted in the infringement action reads as follows:

User device (1200) configured to communicate with two cell groups, including a first cell group and a second cell group, communication with the two cell groups comprising establishing a first medium access control entity, MAC entity, and a second MAC entity, the first MAC entity being associated with the first cell group, and the second MAC entity being associated with the second cell group, the user device (1200) comprising: a transceiver (1250) arranged to receive a first connection reconfiguration message to configure at least one shared carrier with a first logical channel identity completed in the second cell group; and a control device (1220) arranged to apply a first security key for communication with the first cell group and a second security key for communication with the second cell group; wherein a second connection reconfiguration message is received by the transceiver, the second connection reconfiguration message includes a counter having a count value, for deriving a third security key for communication with the second cell group, wherein the third security key derived for communication with the second cell group is based on the count value of the received counter; and wherein the third security key is applied by the control device for communication with the second cell group, while the first security key and the first MAC entity are continued to be used for communication with the first cell group, wherein the continued use of the first MAC entity includes not resetting the first MAC entity.

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The defendants are companies belonging to the ASUSTeK Group. Defendant 1 is the parent company of ASUSTeK, based in Taiwan. Defendant 2 is the ASUSTeK Group's sales company responsible for the European market. Defendant 3 is a company belonging to the ASUSTeK Group, based in the United Kingdom.

The defendants offer a wide range of different 5G-enabled products and market them in Germany and France, among other countries. These include, in particular, smartphones, tablets and laptops, for example (but not limited to) the mobile phones "ROG Phone 8" and "Zenphone 11 Ultra" and the laptops "ExpertBook B2" and "ExpertBook B7 Flip Convertible Laptop".

With the present action, the plaintiff is challenging the defendants' electronic terminal devices that use the 5G standard and are offered and distributed in the member states of the UPCA (at the time the action was brought, not including Romania). It claims that the 5G standard implements the teaching of the patent in suit. Therefore, all 5G-compatible devices make use of the teaching of the patent in suit. The contested embodiments infringe the patent in suit both directly and indirectly.

Parties' motions regarding the infringement action:

In its infringement action, the plaintiff, after revising the motions in the statement of claim (changes to the original motions are marked in colour and with strikethroughs), most recently **requested that**

- I. that the defendants be ordered to refrain from
 1. To offer, place on the market, use or import or possess for the aforementioned purposes in Belgium, Bulgaria, Denmark, Estonia, Germany, Finland, France, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Austria, Portugal, Slovenia and/or Sweden,

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which are user equipment configured to communicate with two cell groups, including a first cell group and a second cell group, the communication with the two cell groups comprising the provision of a first medium access control entity, MAC entity, and a second MAC entity, wherein the first MAC entity is associated with the first cell group and the second MAC entity is associated with the second cell group, the user equipment (1200) comprising:

a transceiver (1250) arranged to receive a first connection reconfiguration message to configure at least one shared carrier with a first identity of the logical channel terminated in the second cell group; and a control device (1220) arranged to apply a first security key for communication with the first cell group and a second security key for communication with the second cell group; wherein a second connection reconfiguration message is received by the transceiver, the second connection reconfiguration message includes a counter having a count value for deriving a third security key for communication with the second cell group, wherein the third security key derived for communication with the second cell group is based on the count value of the received counter; and wherein the third security key is applied by the control device for communication with the second cell group, while the first security key and the first MAC entity are reused for communication with the first cell group, wherein the reuse of the first MAC entity includes not resetting the first MAC entity;

(EP 3 972 309 C0, claim 11, direct infringement)

2. Offering products in Belgium, Bulgaria, Denmark, Estonia, Germany, Finland, France, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Austria, Portugal, Slovenia and/or Sweden,

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or to possess for the aforementioned purposes, which are suitable for carrying out a process

which comprises the following steps:

in a user facility configured to communicate with two cell groups, including a first cell group and a second cell group, communication with the two cell groups comprising a first medium access control entity, MAC entity, and a second MAC entity, wherein the first MAC entity is associated with the first cell group and the second MAC entity is associated with the second cell group, comprising: receiving (1002) a first connection reconfiguration message to configure at least one shared carrier with a first identity of a logical channel terminated in the second cell group; applying (1004) a first security key for communication with the first cell group and a second security key for communication with the second cell group; receiving a second connection reconfiguration message, the second connection reconfiguration message including a counter having a count value for deriving a third security key for communication with the second cell group, wherein the third security key derived for communication with the second cellgroup, is based on the count value of the received counter; and applying the third security key for communication with the second cell group, while continuing to use the first security key and the first MAC entity for communication with the first cell group, wherein continuing to use the first MAC entity includes not resetting the first MAC entity;

(EP 3 972 309 C0, claim 1, indirect infringement)

- II. to declare that the defendants have infringed patent EP 3 972 309 C0 by the acts referred to in section I;

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- III. to order the defendants, at their own expense, within 60 days of service of the judgment within the meaning of Rule 118.8 of the Rules of Procedure of the EPG
 1. to recall the products referred to in section I from the distribution channels at their own expense;
 2. to permanently remove the products referred to in section I from the distribution channels; and
 3. to destroy the products referred to in section I or to hand them over at their own expense to an independent trustee to be appointed by them for safekeeping until the decision on the patent infringement pursuant to section II of the application between the parties becomes final or an amicable settlement has been reached;
- IV. order the defendants, within 60 days of service of the judgment within the meaning of Rule 118.8 of the Rules of Procedure of the EPO
 1. , to provide the plaintiff with information in electronic form, structured by calendar month and by patent-infringing products, which can be evaluated using a computer, on the extent to which they have committed the acts referred to in point I since 9 August 2023, specifying
 - a) the origin and distribution channels of the infringing products,
 - b) the quantities produced, manufactured, delivered, received or ordered and the prices paid for the products,
 - e) the identity of any third parties involved in the production or distribution of the products,
 - d) the number and date of the products manufactured,
 - e) the individual deliveries, broken down by quantities offered, periods of offer, prices of the goods offered and type

designations, as well as the names and addresses of the commercial recipients of the offers for sale for all products sold or otherwise disposed of,

- f) the advertising carried out, broken down by advertising media, their distribution, the distribution period and the distribution area, including evidence of these advertising measures

and broken down by individual cost factors and the profits achieved;

2. ~~the claimant to disclose its books as evidence of the information provided in accordance with Section IV.1, plus information on the profit generated, by making this available for each month of a calendar year and for each patent-infringing product in electronic form that can be evaluated using a computer. This information must include the following to prove to the plaintiff the information provided in accordance with Section IV.1 by submitting the relevant purchase receipts (namely invoices or, alternatively, delivery notes) for each month of a calendar year and for each patent-infringing product in electronic form that can be evaluated using a computer,~~
 - a) ~~evidence of the number and date of the products manufactured;~~
 - b) ~~invoices — or, if these are not available, delivery notes — for the individual deliveries, broken down by quantities offered, periods of offer, prices of the goods offered and type designations, as well as the names and addresses of the commercial recipients of the sales offers for all products sold or otherwise disposed of;~~
 - c) ~~Evidence of the advertising carried out, broken down by advertising media, their distribution, the distribution period and the~~

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~~distribution area, including evidence of these advertising measures;~~

whereby details requiring confidentiality may be redacted from the data subject to disclosure,

whereby the defendants reserve the right to disclose the names and addresses of non-commercial customers and recipients of offers to a certified public accountant based in the Federal Republic of Germany, to be designated by the plaintiff and bound to secrecy vis-à-vis the plaintiff, instead of to the plaintiff, provided that the defendants bear the costs thereof and authorise and oblige him to inform the plaintiff, upon request, whether certain customers, recipients of offers or deliveries are included in the list;

- V. to allow the claimant, at the defendants' expense, to announce and publish the operative part of the judgment in whole or in part in the following public media (newspapers, etc.) in half-page advertisements for a period of one week in each case: For Germany in the Handelsblatt, the Financial Times, the SZ, the Frankfurter Allgemeine Zeitung, for France in the newspapers Le Monde and Les Échos, for Italy in the newspaper Corriere della Sera and for the Netherlands in the newspaper De Volkskrant;
- VI. to declare that the defendants are liable to compensate the claimant and/or its group companies for any damage incurred or to be incurred as a result of the actions referred to in section I;
- VII. to order the defendants to pay the plaintiff an amount of EUR 432,000 as provisional damages;
- VIII. in the event of any breach of the order pursuant to the application under Section I, pursuant to the applications under Section III or pursuant to the application under Section IV.1, the defendants shall pay a penalty of up to EUR 250,000 to the court;

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IX. order the defendants to pay the costs of the legal proceedings.

The defendants contested the infringement action and argued that the contested embodiments did not make use of the technical teaching of the patent in suit. Furthermore, they argued that the patent in suit was not legally valid. The patent in suit should be declared invalid in respect of its independent claims 1 and 11, as its subject matter was not new and went beyond the content of the earlier application on which the patent in suit was based.

The defendants **requested that**

I. that the action be dismissed;

in the alternative, in the event that the Chamber grants the claim under III.3., to set the deadline for the defendants at 90 days after service of the judgment;

in the further alternative, in the event that the Chamber grants the claim under IV., to set the deadline for the defendants at 90 days after service of the judgment;

further in the alternative, in the event that the Chamber grants the claim under IV.2. orders the disclosure of the books: to order that the information

- on the plaintiff's side be disclosed only to its legal representatives,
and, in the further alternative, only to its legal representatives and no more than three reliable natural persons to be named in advance by the claimant
and
- subject to an appropriate duty of confidentiality;

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In the further alternative, in the event that the Chamber grants the claimant's claim VII for provisional damages: to make the payment obligation subject to the condition precedent that the claimant initiates proceedings for damages;

in the further alternative: that the payment obligation be made subject to the condition

- that any provisional damages paid pursuant to a corresponding order of the court shall be repaid to the defendants if the plaintiff does not initiate proceedings for damages or if the actual costs of the proceedings for damages are lower than the provisional damages awarded, and
- that the defendants are permitted to pay the provisional damages into an escrow account of the law firm Wildanger Kehrwald Graf v. Schwerin & Partner mbB, Düsseldorf,

or, in the further alternative, to an escrow account of the law firm Freshfields Bruckhaus Deringer, Feldmühleplatz 1, 40545 Düsseldorf, and to authorise and oblige them to pay the amount to the plaintiff upon proof that damages proceedings have been initiated;

further in the alternative: to make enforcement of the judgment contingent upon the provision of security or equivalent guarantees in the amount of at least EUR 4,800,000;

- II. order the claimant to pay the costs of the legal proceedings and the other costs incurred by the defendants.

Furthermore, the defendants have **requested**

that the amendment to the claim in item IV. be dismissed as inadmissible;

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In this regard, the claimant has **requested**

- X. that the defendants' alternative requests made in point I of the statement of defence dated 26 November 2024 be dismissed;
- XI. In the alternative: to declare the orders pursuant to items I. – IX. of the claims enforceable against appropriate security, whereby partial security is to be set for each defendant and each claim, the amount of which is left to the discretion of the court.

Claims of the parties concerning the counterclaim for annulment:

With their counterclaim for annulment, the defendants **requested**

- I. the patent in suit

for the Federal Republic of Germany, the Kingdom of Belgium, the Republic of Bulgaria, the Kingdom of Denmark (excluding the Faroe Islands and Greenland), the Republic of Estonia, the Republic of Finland, the French Republic (excluding New Caledonia and French Polynesia), the Italian Republic, the Republic of Latvia, the Republic of Lithuania, the Grand Duchy of Luxembourg, the Republic of Malta, the Kingdom of the Netherlands (excluding Aruba), the Republic of Austria, the Portuguese Republic, the Kingdom of Sweden and the Republic of Slovenia

to the extent of claims 1 and 11;

- II. order the claimant and counter-defendant to pay the costs of the proceedings.

With regard to the counterclaim for revocation, the plaintiff **requested**

- XII. that the counterclaim for annulment of the patent in suit be dismissed;
- XIII. alternatively, to uphold the patent in suit to a limited extent in accordance with auxiliary requests 1 to 10 and to dismiss the counterclaim for revocation insofar as it is directed against the amended version of the patent, whereby the auxiliary requests are submitted as

FBD-H 1 and in German

translation as

Exhibit FBD-H 1a

and the auxiliary requests are made conditionally and in ascending numerical order; and

XIV. to order the counterclaimants to bear the costs of the legal dispute in the nullity proceedings.

The defendants have **requested** that

- I. that auxiliary requests 1 to 10 be rejected and that the patent in suit be declared invalid also to the extent of auxiliary requests 1 to 10;
- II. alternatively, in the event that the patent in suit is upheld to a limited extent in accordance with auxiliary requests 1 to 10: to dismiss the action to that extent as well.

Finally, in the event that clarification is required, the plaintiff has additionally that

XIIa. alternatively, to dismiss the counterclaim for revocation of the patent in suit insofar as it goes beyond the revocation of claim 11;

furthermore, in the event that the court considers a corresponding request for amendment of the patent to be necessary,

XIIb. in the alternative, to uphold the patent in suit to a limited extent in accordance with auxiliary request 0 (submitted as Annex FBD-H 0 and in English translation as Annex FBD-H 0a).

For further details of the facts and legal arguments, reference is made to the written submissions exchanged between the parties, including the annexes, and to their submissions at the oral hearing on 9 July 2025.

Reasons for the decision

The counterclaim for annulment is successful. The infringement action was therefore dismissed.

A.

Claims 1 and 11 of the patent in suit are to be declared invalid in response to the defendant's counterclaim for invalidity.

I. The person skilled in the art

The person skilled in the art for assessing the teaching of the patent is an engineer in communications engineering/electrical engineering with a university degree at diploma or master's level and several years of professional experience in the field of mobile communications. Such a person skilled in the art is familiar with the relevant standards for mobile communications.

II. Subject matter of the patent in suit

Based on the wording of claims 1 and 11, the patent in suit relates to the configuration of so-called split radio carriers in communication systems in which a user terminal can communicate with two different cell groups.

Data transmission in wireless communication systems

In the field of wireless communication systems, particularly in the context of the LTE and 5G mobile communications standards, dual connectivity enables a terminal device (e.g. a smartphone) to connect to not just one but two radio cells simultaneously. This allows the end device to receive data packets from both radio cells and also send them to both radio cells. This has the advantage that the load is better distributed between the cells and the respective network can work more effectively. According to this, it should be possible in the 5G standard, for example, for an end device to be connected to both an LTE and a 5G cell group, or to two 5G cell groups simultaneously.

With simultaneous connection to LTE and 5G cell groups, the 5G network can be used to provide an additional connection with a higher data rate. On the other hand, the LTE network can serve as a backup for the 5G network to ensure a permanently stable and reliable connection for the end device.

When connecting two cell groups, the first cell group is referred to as the MCG (master cell group) and the second cell group as the SCG (secondary cell group). In wireless communication systems, communication between the terminal device and the radio cell takes place in accordance with the following Figure 8 from the patent in suit via various protocol layers, in particular the PDCP, RLC and MAC layers, which are traversed by the radio carriers:

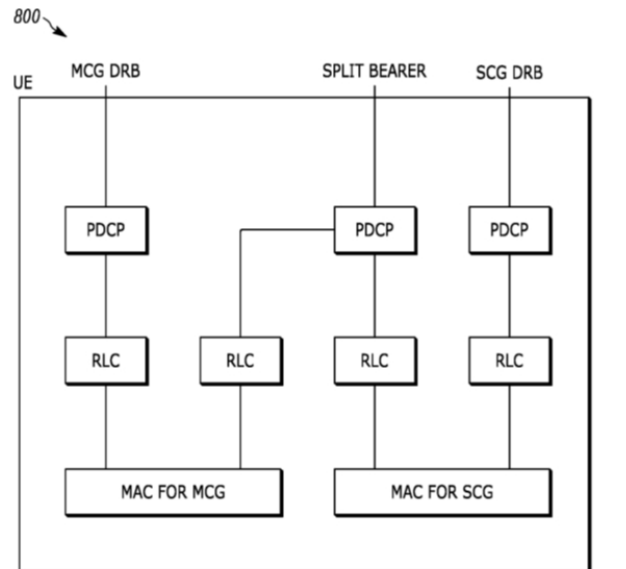


FIG. 8

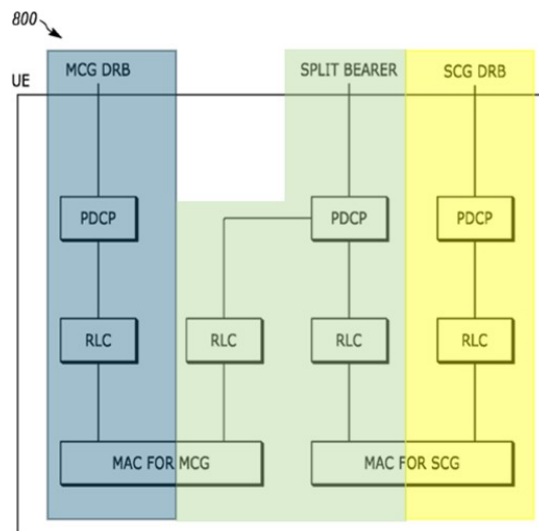
At the MAC level, there is only one MAC unit for each cell group; in the above illustration (patent in suit, Figure 8), one for the first cell group ("MAC for MCG") and one for the second cell group ("MAC for SCG"). These MAC units each serve all radio carriers of the respective cell group. The MAC unit controls how the available transmission medium is used. Because it cannot be ruled out that some data packets will not be received correctly when data is transmitted in a wireless communication system, faulty or missing data packets are monitored at the MAC layer

and retransmitted if necessary. The HARQ mechanism ("Hybrid Automatic Repeat Request") is used for monitoring and retransmission. Part of this mechanism is the HARQ buffer (temporary memory). Here, HARQ stores information on the network side that is required for possible repeat transmissions.

Radio carrier

The connection between the terminal device and the individual cell groups is established via so-called radio bearers. These can be understood as a logical connection between the terminal device and the cell group or the underlying core network. The radio bearers for the MCG and the SCG are fundamentally separate from each other, so that data from the master cell group runs via the MCG data radio bearer ("MCG DRB") and data from the secondary cell group runs via the SCG data radio bearer ("SCG DRB").

However, this is not the case with a so-called split bearer configuration: a common radio bearer (split bearer) is used for both cell groups. It is split at a specific point in the user terminal, in the LTE and 5G standards after the PDCP layer. The split bearer can basically be assigned to the SCG or MCG architecture – in Fig. 8 of the patent in suit, the split bearer is assigned to the SCG architecture and branches off from there to the RLC layer for the master cell group (colouring for illustration purposes; not included in the original figure).



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In the case of "dual connectivity", the terminal device has at least two radio carriers, one for the connection to the first cell group and one for the connection to the second cell group. A further distinction is made between radio carriers used to transmit user data (known as DRB – "data radio bearer") and signalling radio carriers (known as SRB – "signalling radio bearer"), which are used for control and signalling messages between the terminal device and the network.

Encryption

Since data transmission, and thus also the transmission of user data between the terminal device and the network in a wireless communication system, takes place via the air interface, the data traffic could be intercepted and read by third parties. Therefore, the transmission must be encrypted. The keys for decryption are normally only known to the sender and the intended recipient (base station and designated terminal device) (patent in suit, para. [0002]). A distinction is made between different types of security keys. The patent in suit explains this using the LTE standard (patent in suit, paragraphs [0021] to [0023]). According to the hierarchy of security keys used in the LTE standard, the so-called master key, which is stored on the user's SIM card on the one hand and in a database in the network on the other, forms the basis for encryption. Further security keys can be derived from the master key K , such as the security key K_{eNB} .

Changes to the radio carrier connection

If a terminal device uses several radio carriers simultaneously, as is particularly the case with "dual connectivity", and necessary changes are made to one of the connections, these changes may only affect individual radio carriers ("bearers") and not all radio carriers used by the terminal device. Possible reasons for changes are mentioned, for example, in paragraph [0019] of the description of the patent in suit. Even if only one radio carrier is affected by a change, this can result in a complete reset of the MAC unit(s) of *both* cell groups. Among other things, this also empties the

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HARQ buffers, even though these still contain information required for the other radio carriers not affected by the change (see patent in suit, paragraph [0018]). This information would then have to be transmitted in the form of new transmissions, which would increase latency. In addition, data loss is possible and a so-called "radio link failure" (RLF) could also occur if a maximum number of retransmissions on the RLC layer for a radio cell connection has been reached (see patent in suit, para. [0020]). This disadvantage is described in paragraph [0018] of the description of the patent in suit as follows:

"There are certain changes/reconfigurations that may be performed not for the whole User Equipment (UE) but only for a limited number (but not all) of its bearers. ... In dual connectivity, for example, a change affecting only the split bearer could affect both a master and a secondary node. As in the single connectivity case, a MAC reset (in master and/or secondary) may be excessive, since the other bearers can also be impacted."

Based on this problem, the description of the patent in suit (paragraph [0005]) recognises the modification of a security key for encryption as relevant in this context; namely, the modification of a security key can also only be carried out for some of the existing function carriers. The patent in suit therefore sets itself the task of providing a method and a device that enables changes to be made to individual radio carriers ("bearers") without subsequently having to change the MAC units of all active radio carriers.

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III. Claims 1 and 11 of the patent in suit

Based on the problem described in the patent in suit, patent claim 1 proposes a method whose claim features can be structured as follows:

1.1	A method (1000) in user equipment configured to communicate with two cell groups including a first cell group and a second cell group,	Method (1000) in a user equipment configured to communicate with two cell groups, including a first cell group and a second cell group,
1.2	communication with the two cell groups comprising establishment of a first medium access control, MAC, entity and a second MAC entity, the first MAC entity associated with the first cell group and the second MAC entity associated with the second cell group,	communication with the two cell groups comprising establishment of a first medium access control, MAC, entity and a second MAC entity, the first MAC entity associated with the first cell group and the second MAC entity associated with the second cell group,
1.3	the user equipment (1200) comprising:	the user equipment (1200) comprising:
1.3.1	a transceiver (1250) arranged to receive a first connection reconfiguration message to configure at least one split bearer with a first logical channel identity, terminated in the second cell group; and	a transceiver (1250) arranged to receive a first connection reconfiguration message to configure at least one split bearer with a first logical channel identity, terminated in the second cell group; and
1.3.2	a controller (1220) arranged to apply a first security key for communication with the first cell group and a second security key for communication with the second cell group	a controller (1220) arranged to apply a first security key for communication with the first cell group and a second security key for communication with the second cell group;
1.4	wherein a second connection reconfiguration message is received by the transceiver	wherein a second connection reconfiguration message is received by the transceiver,
1.4.1	the second connection reconfiguration message including a counter having a count value for deriving a third security key for communication with the second cell group,	the second connection reconfiguration message including a counter having a count value for deriving a third security key for communication with the second cell group,
1.5	wherein the third security key that was derived for communication with the second cell group is based on the count value of the received counter; and	wherein the third security key derived for communication with the second cell group is based on the count value of the received counter; and
1.6	wherein the third security key for communication with the second cell group is applied by the controller,	wherein the third security key for communication with the second cell group is applied by the controller,
1.6.1	while continuing to use the first security key and the first MAC entity for communication with the first cell group,	while continuing to use the first security key and the first MAC entity for communication with the first cell group,
1.6.2	where continuing to use the first MAC entity includes not resetting the first MAC entity.	where continuing to use the first MAC entity includes not resetting the first MAC entity.

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Claim 11 proposes a device whose claim features can be structured as follows:

11.1	A user equipment (1200) configured to communicate with two cell groups including a first cell group and a second cell group,	A user equipment (1200) configured to communicate with two cell groups, including a first cell group and a second cell group,
11.2	communication with the two cell groups comprising establishment of a first medium access control, MAC, entity and a second MAC entity, the first MAC entity associated with the first cell group and the second MAC entity associated with the second cell group,	communication with the two cell groups comprising the establishment of a first medium access control entity, MAC entity, and a second MAC entity, the first MAC entity being associated with the first cell group and the second MAC entity being associated with the second cell group,
11.3	the user equipment (1200) comprising:	the user equipment (1200) comprising:
11.3.1	a transceiver (1250) arranged to receive a first connection reconfiguration message to configure at least one split bearer with a first logical channel identity, terminated in the second cell group; and	a transceiver (1250) arranged to receive a first connection reconfiguration message to configure at least one split bearer with a first logical channel identity, terminated in the second cell group; and
11.3.2	a controller (1220) arranged to apply a first security key for communication with the first cell group and a second security key for communication with the second cell group	a controller (1220) arranged to apply a first security key for communication with the first cell group and a second security key for communication with the second cell group;
11.4	wherein a second connection reconfiguration message is received by the transceiver	wherein a second connection reconfiguration message is received by the transceiver,
11.4.1	the second connection reconfiguration message including a counter having a count value for deriving a third security key for communication with the second cell group,	the second connection reconfiguration message includes a counter having a count value for deriving a third security key for communication with the second cell group,
11.5	wherein the third security key that was derived for communication with the second cell group is based on the count value of the received counter; and	wherein the third security key that was derived for communication with the second cell group is based on the count value of the received counter; and
11.6	wherein the third security key for communication with the second cell group is applied by the controller,	wherein the third security key for communication with the second cell group is applied by the controller,
11.6.1	while continuing to use the first security key and the first MAC entity for communication with the first cell group,	while continuing to use the first security key and the first MAC entity for communication with the first cell group,
11.6.2	where continuing to use the first MAC entity includes not resetting the first MAC entity.	where continuing to use the first MAC entity includes not resetting the first MAC entity.

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IV. Interpretation

When interpreting claims, the basic principle is that the patent claim is not only the starting point but also the decisive basis for determining the scope of protection of a European patent in accordance with Article 69 EPC in conjunction with the Protocol on the Interpretation of Article 69 EPC. The interpretation of a patent claim does not depend solely on its exact wording in the linguistic sense. Rather, the description and drawings must always be consulted as aids to the interpretation of the patent claim and not only to resolve any ambiguities in the patent claim (UPC_CoA_335/2023).

Claim 1 relates to a method in a device (user device/terminal) that is configured to communicate with *two* cell groups within a (mobile) network ("dual connectivity"; features 1.1 and 11.1); the claim differs in this respect from "single connectivity" applications also mentioned in the patent in suit (paragraph [0018]). A corresponding device is the subject of claim 11.

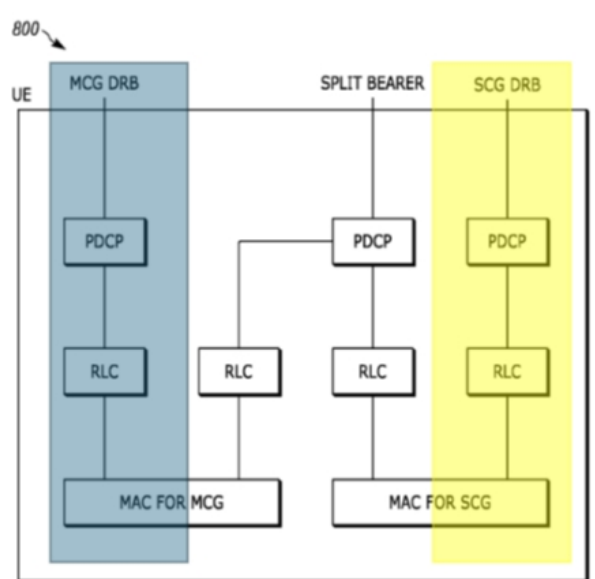
According to the claim, two medium access control units (MAC units) are required on the device side for communication with two cell groups, whereby the first MAC unit is assigned to the first cell group (master cell group – MCG) and the second MAC unit is assigned to the second cell group (secondary cell group – SCG). The terminal device therefore has its own MAC unit for communication with the respective cell group (features 1.2 and 11.2).

The connection between the terminal device and the respective cell group is established via so-called radio *bearers*, as shown above (section A. II.). At least two radio carriers are therefore required for proper communication with *two* cell groups. A corresponding security key is also required in each case to encrypt the radio connection. The so-called "first" security key is used for communication with the first cell group and the so-called "second" security key is used for communication with the second cell group.

The claim provides for a control device for applying the security keys.

If a radio carrier connection requires a change due to a necessary reconfiguration, according to patent claim 1, it should be possible to configure a *split* (radio) carrier ("split bearer") (configuration of a split carrier as a result of receiving a reconfiguration message; features 1.3.1 and 11.3.1). This split carrier enables the user device to establish communication with the first cell group by means of the first MAC entity and communication with the second cell group by means of the second MAC entity. According to the claim, the split radio carrier is *terminated* in the second cell group and has the identity of a logical channel.

Such a structure with a user device, a first MAC entity ("MAC FOR MCG") of the first cell group ("MCG"), a second MAC entity ("MAC FOR SCG") of the second cell group ("SCG") and a shared carrier terminated in the second cell group ("SCG") with a termination in the first MAC entity of the first cell group ("MCG") and a termination in the second MAC entity of the second cell group ("SCG") corresponds to the representation in Fig. 8 of the patent in suit.



The core of patent claims 1 and 11 is the establishment of a shared carrier assigned to the second cell group on the one hand and the generation of a "third" security key for communication of the shared radio carrier with the second cell group on the other hand; in this way, the first security key can continue to be used for communication with the first cell group without the need to reset the first MAC unit (MCG). Insofar as the plaintiff is of the opinion that the patent in suit is not limited to the configuration of a *shared* radio carrier, but relates more generally to the (re)configuration of radio carriers, this broad interpretation is contradicted by the wording of claims 1 and 11 ("... to configure ... a shared carrier ...").

The reconfiguration is carried out as follows:

In a first step, the shared carrier is configured (set up). To do this, the terminal receives a first connection reconfiguration message from the network. To receive this message, the device provides a transceiver with which messages concerning the reconfiguration of a connection can be received. Receipt of the first connection configuration message indicates that a shared carrier assigned to the second cell group can not only be configured but also actually set up.

The shared carrier can now be used to communicate with both the first and second cell groups. The first security key is used for communication with the first cell group and the second security key is used for communication with the second cell group. Since the shared radio carrier is connected to both the MAC entity of the first cell group and the second cell group, in the event of a change affecting the second cell group, there is a problem in that this may also lead to an (unnecessary) MAC reset of the MAC entity of the first cell group (see paragraphs [0018], [0049]). However, according to the claim, this is precisely what should be prevented in order to avoid resetting the first MAC entity.

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This is resolved by changing the security key used for communication with the second cell group. In a second step, initiated by a second reconfiguration message, a new (third) security key is generated. The derivation of a *third* security key triggered by the second reconfiguration message must be understood in relation to the (shared) radio carrier, the configuration of which is the subject of patent claims 1 and 11.

According to the claims, the process of deriving a new key is triggered by the receipt of a second connection reconfiguration message; even the plaintiff does not dispute that *two* reconfiguration messages are the subject of claims 1 and 11 (see reply, paragraphs 219, 220). The second reconfiguration message has a counter value that is used to derive a third security key. This is then used for further communication with the second cell group without causing a MAC reset in the first connected cell group.

The derivation of a third security key described in the wording of the claim is to be understood as meaning that a new security key is generated for communication via the shared radio carrier with the second cell group. The second security key and the third security key are merely different values of the same security key of the second cell group. Thus, the intended purpose of this process step is to change the security key for communication with the second cell group. The security key of the first cell group, on the other hand, is not renewed, with the result that communication with the first cell group and the corresponding MAC unit are not affected.

The reconfiguration of the connection with the second cell group achieved in this way does not affect communication with the first cell group: the first security key used for communication with the first cell group and the first MAC entity continue to be used; there is no need to reset the first MAC entity.

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IV. Inadmissible extension of claims 1 and 11 of the patent in suit

a. Principle

An inadmissible extension exists if the subject matter of the granted claim extends beyond the content of the application as originally filed. In order to determine this, the court must first ascertain what information a person skilled in the art would immediately and unambiguously derive from the application as filed, based on an objective assessment and taking into account the date of filing and their general technical knowledge. In doing so, implicitly disclosed subject matter must also be regarded as part of the content, i.e. subject matter that clearly and unambiguously results from what is expressly stated (UPC_CoA_382/2024, UPC_CoA_764/2024, UPC_CoA_774/2024).

If, as in this case, the patent originated from a divisional application, this requirement applies to each earlier application. The subject matter of granted claims 1 and 11 must therefore not go beyond (1) the disclosure of the originally filed application for the contested patent and (2) the disclosure of the original parent application (UPC_CoA_382/2024, UPC_CoA_764/2024, UPC_CoA_774/2024).

1. Lack of disclosure of origin

Based on this principle, the following applies to claims 1 and 11 of the patent in suit:

The defendants argue that the original application documents for the parent application did not contain any text passages in which claims 1 and 11 of the patent in suit were disclosed in full or even in large part verbatim. In particular, the application documents for the parent application did not contain any claim or text passage from which claims 1 and 11 of the patent in suit could be derived with only a few changes.

Specifically, the defendants complain that

- **two different messages** ("first connection reconfiguration message" and "second connection reconfiguration message") are described for the first time in the patent in suit, whereby the transmission of a counter according to the claim for deriving a third security key is also disclosed for the first time as the subject matter of the second reconfiguration message, and

- the feature

"...the connection reconfiguration message includes a bearer identification field that identifies the radio bearers included in the subset and a chaining counter"

had been deleted without replacement.

The applicant objected to this and referred to the parent application with regard to the requirement for a second reconfiguration message (in particular page 8, lines 14–18): The skilled person would understand from the parent application that a *bearer* or *split bearer* could be set up on the basis of a first reconfiguration message and that an SCG-related *bearer* could be changed on the basis of a second reconfiguration message – for example, with regard to the security key to be used. The skilled person further understands the parent application to mean that the determination of the security key depends on the *counter* of the second reconfiguration message ("...where the connection reconfiguration message includes a [...] chaining counter"; page 18, line 30 – page 19, line 3).

a. **Addition of a feature (first and second reconfiguration messages)**

The parent application does not disclose, either explicitly or implicitly, the features of a first *and* second reconfiguration message as they appear cumulatively in claims 1 and 11.

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aa. Claim 1 of the parent application

Firstly, claim 1 of the parent application only refers to a reconfiguration message ("...receiving a reconfiguration message..."). The subject matter and function of this reconfiguration message are formulated in claim 1 of the parent application as follows (bold type added by the court):

"...**a connection reconfiguration message**, which identifies bearer-specific changes to be made to a subset of radio bearers including less than all of the plurality of radio bearers, that impact the security keys being used by the subset of radio bearers, where the connection reconfiguration message includes a bearer identification field that identifies the radio bearers included in the subset and a chaining counter. ..."

A further (second) reconfiguration message within the meaning of claims 1 and 11 of the patent in suit, which, according to the claim, is intended to transmit a counter for deriving a third security key, is not disclosed either explicitly or implicitly in claim 1 of the parent application.

bb. Description and drawings of the parent application

A reconfiguration message is first mentioned in the description of the parent application on page 2 (lines 22–25); according to the description, such a reconfiguration message can be used to change the security keys. There are no explicit or implicit indications in this passage that more than one reconfiguration message might be required for the related reconfiguration process.

The summary of the description of the parent application (pages 2–4) then describes four embodiments, each of which contains the following text with regard to a reconfiguration message, which is identical to claim 1 of the parent application (bold print added by the court):

"...**a connection reconfiguration message**, which identifies bearer-specific changes to be made to a subset of radio bearers including less than all of the plurality of radio bearers, that impact the security keys being used by the

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subset of radio bearers, where **the connection reconfiguration message** includes a bearer identification field that identifies the radio bearers included in the subset and a chaining counter. ..."

The last example also states:

"... The user equipment further includes a transceiver that transmits **the connection reconfiguration message** to the user equipment associated with the affected radio bearers. ..."

There is no mention here of a requirement to accomplish the (re)configuration of a shared bearer and the derivation of a third security key by means of two different messages to the user equipment. Nor is there any implicit indication that more than one reconfiguration message might be required for the process described.

The first indication that there could be more than one message in connection with a reconfiguration is found in the section "Brief description of the drawings" of the parent application (page 4, line 29 – page 5): With regard to Figures 5 (see below), 6, 7 and 9 of the parent application, there is mention of a message sequence ("...message sequence...").

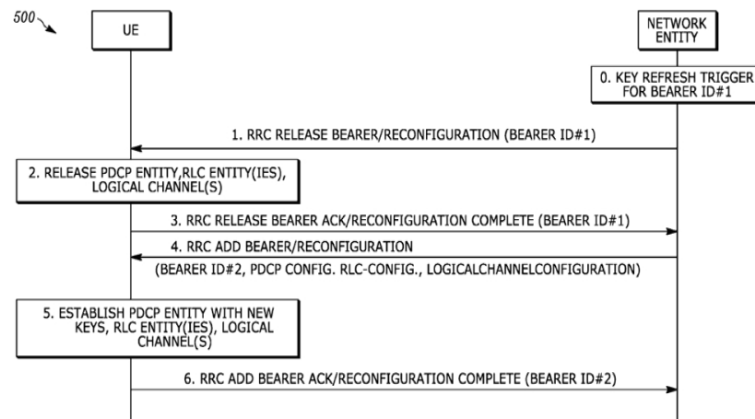


FIG. 5

In the detailed description of Figure 5, a distinction is then made on page 10 of the parent application (from line 5) between "*bearer release*

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message" and "*radio bearer addition message*". The former has the function of instructing the user equipment to release the radio bearer identified in the corresponding message:

"...ordering the UE to release the radio bearer identified by the radio bearer identity included in the release/reconfiguration message."

(Master registration page 10, lines 6–8)

The *addition* message, on the other hand, has the function of adding a radio bearer; it instructs the user equipment to set up a PDCP entity and configure it with new security keys in accordance with the PDCP configuration contained in the *addition* message:

"...the UE establishes a PDCP entity and configures it with new security keys and in accordance with the received PDCP configuration contained in the radio bearer addition message."

(Master application, page 10, lines 13–15)

A correspondingly designed procedure can also be seen in Figure 5 of the main report itself. However, the messages described in this text passage and the corresponding drawing are clearly not the two reconfiguration messages of claims 1 and 11; unlike the "bearer release message", the subject matter of the first reconfiguration message according to the claim is not the dismantling of an existing radio carrier, but, in accordance with the "addition message", the establishment of a new radio carrier. The function of the second reconfiguration message within the meaning of claims 1 and 11 of the patent in suit, namely the transmission of a counter for deriving a third security key for the communication of the shared radio carrier with the second cell group, is neither explicitly nor implicitly addressed here.

On page 11 of the parent application (lines 1-4), it is then disclosed that both instructions (dismantling radio carrier/setting up radio carrier) can also be contained in *one* message (bold print by the court):

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“According to one embodiment, the radio bearer release and radio bearer addition is signalled **in one message** to the UE, i.e. **one new RRC message**, indicating specifically the key refresh of a particular bearer, and may add some security relevant parameters that would help the UE to derive the new keys. ...”

Insofar as there are (brief) references to key renewal

– "indicating specifically the key refresh of a particular bearer, and may add some security relevant parameters that would help the UE to derive the new keys" –

can be contained in this one message, according to claims 1 and 11 of the patent in suit, these are precisely the subject of a *second* reconfiguration message. In contrast, the parent application teaches at this point that parameters for deriving a new key ("... add some security relevant parameters that would help the UE to derive the new keys...") can be contained in a single message, which is used to order both the dismantling and rebuilding of a radio carrier.

Furthermore, the description and drawings contain no indication of the requirement for a second reconfiguration message within the meaning of claims 1 and 11 of the patent in suit. At most, there are further references to the possible subject matter of a *single* reconfiguration message, for example on page 17 (lines 7–10), where it states:

"The RRCConnectionReconfiguration message could additionally contain the following fields: drb-Identity, logicalChannelIdentity (or logicalChannelIdentitySCG), and optionally drb-TypeChange/drb-Type is included for Bearer Type change."

Insofar as the plaintiff referred to the second reconfiguration message on page 8 (lines 14–18) of the parent application, this is irrelevant: the passage in question again refers only to a reconfiguration message (colouring added by the plaintiff):

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used to ensure freshness. To refresh the S-KeNB, such as when the COUNT will wrap around, E-UTRAN employs an SCG change, i.e. an RRCConnectionReconfiguration message including mobilityControlInfoSCG. When performing handover, while at

Insofar as the applicant argues that, in particular, features 1.4.1 and 11.4.1 are directly and unambiguously disclosed in the parent application, the following must be noted: The counter that, in the plaintiff's view (reply of 4 February 2025, text reference 222), could be considered for a corresponding disclosure of origin, the "SCG counter", is mentioned in the parent application (KWY-4, page 8, lines 3–8). However, the original application documents of the parent application do not directly and unambiguously disclose that the "SCG counter" is to be included in a second reconfiguration message, as required by feature 11.4.1. The passage from the parent application cited by the applicant in this regard refers to a reconfiguration message without further differentiation (emphasis added by the applicant):

*"[...] where the connection **reconfiguration message includes a [...] chaining** counter"), p. 8, lines 3-8 (*"The **nextHopChainingCount parameter is used upon handover, connection re-establishment and connection re-sume by the UE when deriving the new KeNB...**"*), and p. 8, lines 14-18 (*"In case of dual connectivity, a separate KeNB is used for SCG-DRBs (S-KeNB). **This key is derived from the key used for the MCG (KeNB) and an SCG counter that is used to ensure freshness. To refresh the S-KeNB, such as when the COUNT will wrap around, E-UTRAN employs an SCG change, i.e. an RRCConnectionReconfiguration message including mobilityControlInfoSCG**"*).*

This passage also does not refer explicitly or implicitly to the requirement of two reconfiguration messages in accordance with the claims. The reference to claims 16 and 17 of the parent application, which is not further explained, is also unhelpful, as the claims referred to do not relate to different messages.

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Nor has the plaintiff claimed that the requirement for a first and second reconfiguration message in accordance with claims 1 and 11 of the patent in suit involves the addition of features already known in the prior art, which would render the patent claims admissibly limited. The addition of a second reconfiguration message with the corresponding functionality (transmission of a counter for deriving a third security key), which goes beyond the disclosure of the parent application, therefore constitutes an inadmissible extension.

b. Omission of an essential feature

Both claim 1 of the parent application and all embodiments described in the description of the parent application under "summary" have the following feature, word for word:

"...the connection reconfiguration message includes a bearer identification field that identifies the radio bearers included in the subset and a chaining counter..."

(see p. 3, lines 4 to 6, 16 to 17 and 26 to 28, and p. 4, lines 9 to 11, Annex KKY-4)

This feature was thus consistently identified as an essential feature of the invention. However, this feature is not found in claims 1 and 11 of the patent in suit, either literally or in essence. By omitting this essential feature, claims 1 and 11 of the patent in suit claim a combination of features that was not disclosed in the original application. Nor can any objective justification be found in the plaintiff's submissions as to why the omission of this feature might be permissible. In any case, the reference to the general principle that the entirety of the original documents must be taken into account does not explain why this feature should have been dispensable. Nor does the reference to the fact that the EPO did not object to the omission of this feature in the grant procedure constitute an objective justification, but at most shows the negligence of the examiner in the present case.

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2. Result

The subject matter of the patent in suit goes beyond the content of the earlier parent application (Exhibit KWY-4).

The original application documents submitted for the parent application do not contain any text passages in which claims 1 and 11 of the patent in suit are expressly disclosed in the wording. In particular, the application documents of the parent application do not contain any claims or text passages or drawings from which the respective claimed combinations of features of claims 1 and 11 of the patent in suit can be derived. Nor do claims 1 and 11 of the patent in suit result from the parent application as a whole.

V. Requests for amendment of the patent in suit

The requests for amendment of the patent in suit do not relate to the ground for invalidity of lack of disclosure of origin. They therefore cannot influence the outcome of the counterclaim for revocation. The auxiliary requests were therefore to be rejected.

B.

Claims 1 and 11 of the patent in suit, which were asserted as infringed in the infringement action, are invalid. The infringement action was therefore dismissed.

C.

The decision on costs is based on Art. 69 UPCA. The plaintiff is the unsuccessful party in both the counterclaim for invalidity and the infringement action and must therefore bear the costs of the legal dispute.

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For the above reasons, the presiding judge Dr Zigann, the legally qualified judge Agergaard, the technically qualified judge Loibner and the rapporteur Pichlmaier issue the following

decision

- I. Claims 1 and 11 of European patent EP 3 972 309 B1 are invalid with effect for the Federal Republic of Germany, the Kingdom of Belgium, the Republic of Bulgaria, the Kingdom of Denmark (excluding the Faroe Islands and Greenland), the Republic of Estonia, the Republic of Finland, the French Republic (excluding New Caledonia and French Polynesia), the Italian Republic, the Republic of Latvia, the Republic of Lithuania, the Grand Duchy of Luxembourg, the Republic of Malta, the Kingdom of the Netherlands (excluding Aruba), the Republic of Austria, the Portuguese Republic, the Kingdom of Sweden and the Republic of Slovenia and dismisses the alternative claims.
- II. The action for infringement of the patent in suit is dismissed.
- III. The costs of the legal proceedings shall be borne by the plaintiff.

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Dr Zigann Presiding Judge	
Agergaard Legally qualified judge	
Pichlmaier Rapporteur	
Loibner Technically qualified judge	
For the Assistant Registrar	

INSTRUCTIONS TO THE REGISTRY

Once this decision has become final, a copy shall be sent to the European Patent Office.

INFORMATION ON ENFORCEMENT (Art. 82 UPCA, Art. 37(2) EPGS, R. 118.8, 158.2, 354, 355.4 VerfO)

A certified copy of the enforceable decision or enforceable order shall be issued by the Deputy Registrar at the request of the enforcing party, R. 69 RegR.

INFORMATION ON APPEALS

Any party whose claims have been rejected in whole or in part may appeal against this decision within two months of its notification to the Court of Appeal (Art. 73(1) EPC, R. 220.1(a), 224.1(a) RPO).