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TECHNICAL FIELD

The present invention discloses a device and a method for letting a mobile station send information about a chosen PLMN.

BACKGROUND

5 If a communications system includes a Core Network, CN, and a Radio Access Network, RAN, and both the CN and the RAN support so called multiple-operators core network, FULL-MOCN, i.e. more than one PLMN in the CN, then, as part of the process of connecting a mobile station, MS, which also supports FULL-MOCN to its preferred Public Land Mobile Network, PLMN, in the core network, the radio access network, RAN, which connects the mobile station to the core network, CN, needs to be aware of the
10 ID of the preferred PLMN, which is at present a 4 octet long field.

At present, there is no mechanism for an MS to indicate its preferred PLMN ID to the RAN when accessing the PS domain, i.e. when connecting the MS to the CN, although this is needed in order to enable FULL-MOCN in a communications system.

One method for solving this which has been suggested in 3GPP is to introduce a new Radio Link
15 Control/Medium Access Control, RLC/MAC, message for sending a PLMN ID from the MS to the RAN.

This method might work, but would necessitate the introduction of a new message, and would also increase the load on the "air interface", i.e. the interface between the MS and the RAN.

Another proposed method is to include the PLMN ID in Non-Access Stratum, NAS, messages sent to the CN. Since NAS messages are tunneled via the RAN on their way to the CN and are thus transparent
20 to the RAN, this implies two significant drawbacks with this approach:

1. Extra signaling procedures, new and/or a re-definition of existing messages between the CN and the RAN are needed.

2. The RAN needs to more or less randomly select one of the PLMNs to decode this NAS message. This PLMN could then very well "hijack" the mobile station by ignoring the PLMN ID that was
25 included from the beginning, i.e. by the MS.

EP 1991014A1 discloses transmitting the PLMN ID in a mobile station's SIM card in a first string in a random TLLI.

SUMMARY

It is an object of the invention to obviate at least some of the disadvantages mentioned above, and
30 to provide a solution for how the ID of a mobile station's selected PLMN can be conveyed to a RAN to which the mobile station is connected.

This object is obtained by means of a mobile station for use in a Radio Access Network, a RAN, the RAN being connected to a core network in which there is one or more Public Land Mobile Networks, PLMNs.

35 The mobile station is arranged to choose one of said PLMNs when accessing a Packet Switched, PS, domain in the RAN, and the mobile station is also arranged to communicate with the RAN by means of Radio Link Control, RLC, data blocks.

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The mobile station is arranged to include the identity, ID, of its chosen PLMN in an RLC data block, and to inform the RAN of the presence of the ID of the chosen PLMN in the RLC data block by means of including a reserved or pre-defined value in the length indicator field of the RLC data block.

In embodiments, the mobile station is arranged to include the ID of its chosen PLMN after the last
5 Upper Layer PDU of the RLC data block.

In embodiments, the mobile station is arranged to use an LI value of 123 as the reserved or pre-defined value.

In embodiments, the mobile station is arranged to use different RAN modes and being arranged to use different reserved or pre-defined values to indicate the presence of the ID of a chosen PLMN depending
10 on the RAN mode used.

In embodiments, the mobile station is arranged to use different reserved or pre-defined values for RAN modes GPRS and EGPRS.

The object stated above is also obtained by means of a Control Node which is arranged to be part of a Radio Access Network, a RAN, which is connected to a Core Network, CN, which comprises one or
15 more Public Land Mobile Networks, PLMNs.

The Control Node is arranged to receive Radio Link Control, RLC, data blocks from a mobile station in a cell in the RAN, and the Control Node is arranged to inspect the Length Indicator field in said RLC data blocks, and to identify a reserved or pre-defined value which indicates that the RLC data block comprises the ID of one of said PLMNs which has been selected by the UE, and to find and extract said ID
20 in the RLC Data block, and to forward the ID to a node in the RAN or in the CN.

In embodiments, the node to which the PLMN ID is forwarded by the Control Node is an SGSN.

In embodiments, the Control Node is arranged to find said PLMN ID after the last Upper Layer PDU of the RLC data block in which the PLMN ID is included.

In embodiments, the Control Node is arranged to identify an LI value of 123 as the reserved or pre-defined value.
25

In embodiments, the Control Node is arranged to handle more than one RAN mode, and being arranged to handle different reserved or pre-defined values which indicate the presence of the ID of a chosen PLMN, depending on RAN mode.

In embodiments, the Control Node is arranged to handle different reserved or pre-defined values
30 which indicate the presence of the ID of a chosen PLMN for the RAN modes GPRS and EGPRS.

In embodiments, the Control Node is a GSM Base Station Controller, a BSC, arranged to be part of a Base Station System, BSS.

In embodiments, the Control Node is an LTE eNodeB.

In embodiments, the Control Node is a WCDMA RNC, Radio Network Controller.

35 As can be understood from the above, a principle of the invention is to let the mobile station include the selected, i.e. preferred, PLMN ID in an RLC data block, however without having to be included

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in the upper PDUs, i.e. LLC PDUs (Logical Link Control Physical Data Units), that contain the actual NAS message, as would be the case if e.g. the PLMN ID was included in a NAS message.

The inclusion of the PLMN ID in an RLC data block is, as shown above, achieved by re-using the length indication mechanism, which has hitherto been used mainly for letting the RLC receiving entity be able to correctly reassemble the various segments of received upper layer PDUs, i.e. LLC PDUs. More specifically, the invention shows the use of a reserved or pre-defined value of the length indicator in an RLC data block in order to indicate the presence of a PLMN ID which identifies the mobile station's preferred PLMN in the RLC data block. The actual PLMN ID is then suitably but not necessarily, included as the four last octets of that RLC data block, suitably immediately following the length indicator.

10 BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be described in more detail in the following, with reference to the appended drawings, in which

Fig 1 shows a schematic view of a communications system, and

Fig 2 shows a block diagram of a User Equipment, and

15 Fig 3 shows a block diagram of a Base Station Controller, and

Fig 4 shows a flow chart of a method for use in a User Equipment, and

Fig 5 shows a flow chart of a method for use in a Control Node.

DETAILED DESCRIPTION

Embodiments of the present invention will be described more fully hereinafter with reference to 20 the accompanying drawings, in which embodiments of the invention are shown. The invention may, however, be embodied in many different forms and should not be construed as being limited to the embodiments set forth herein. Like numbers in the drawings refer to like elements throughout.

The terminology used herein is for the purpose of describing particular embodiments only, and is not intended to limit the invention.

25 Fig 1 shows an overview of a communications system 100 which comprises a Core Network, CN, 101, and a Radio Access Network, RAN, 102. The RAN will in fig 1 and below be described with examples from GSM systems, so that the RAN comprises a Base Station Subsystem, BSS 107, which in turn comprises a Base Transceiver Station 108 and a Base Station Controller, BSC 109. The combination of a BTS and a BSC is used in GSM systems, and it should be pointed out that reference is made herein to this combination by way of example only; the invention can also be applied in other kinds of systems, e.g. LTE systems, in which case the function described herein of the BSC 109 is located in an eNodeB, and in a WCDMA system the function would be located in Radio Network Controller, an RNC. A generic term for these nodes as described herein is "a control node". However, the function of the control node will be described below and in the drawings with reference to a BSC as part of a BSS together with a BTS.

35 The CN 102 is a so called multi-operator core network, e.g. a so called FULL-MOCN network, i.e. the CN 102 comprises one or more Public Land Mobile Networks, PLMNs, and in the case of two or more

PLMNs, the PLMNs are usually from two or more operators. This can also be seen as multiple PLMNs sharing one and the same RAN 102.

Fig 1 shows a first 103 and a second 104 PLMN in fig 1, as well as an Nth PLMN 105, in order to indicate that there may be N PLMNs in the CN 102. In addition, two SGSNs 106 and 111 are shown in fig 1, where the SGSN 106 is shared by PLMNs 103 and 104, so called Gateway Core Network GWCN, while the SGSN 111 is exclusive for the PLMN 105. Both of these cases are possible.

As shown in fig 1, the CN 101 is connected to the RAN 102, and the RAN 102 may accommodate a number of mobile stations, MSs, one of which is shown as 110 in fig 1. The MS 110 is arranged to select one of the PLMNs in the CN 101 that share the RAN in 102, e.g. when the MS accesses the Packet Switched, PS, domain, e.g. when attaching to the CN 102 and/or the RAN 101. The fact that the MS 110 is arranged to select or "prefer" a PLMN in this way can, for example, be due to the fact that the MS 110 is arranged to support FULL-MOCN systems, sometimes also referred to as "shared networks".

The ID of the MS's preferred PLMN is conveyed from the MS 110 to the RAN 102, and from there to the CN 102. In more detail, the MS 110 is arranged to communicate with the RAN 102 by means of so called RLC data blocks, and to include the ID of the preferred PLMN in an RLC data block, as well as to use the RLC data block to inform the RAN of the presence of the ID of the preferred PLMN in the RLC data block.

The RAN is informed by the MS 102 of the presence of the ID of the preferred PLMN in the RLC data block by means of the so called Length Indicator, LI, field in the RLC data block in that a reserved or pre-defined value of the LI field in the RLC data block indicates to the RAN that the RLC data block comprises the preferred PLMN ID, and the RAN is then arranged to find the preferred PLMN ID in the RLC data block, and to forward it to the CN 102, where the MS is connected to the preferred PLMN.

The presence of the ID of the preferred PLMN is thus conveyed by means of a reserved or pre-defined value in the LI field; the actual PLMN ID as such can be included in the RLC data block in various places, for example as the four last octets of the RLC data block in which the reserved or pre-defined value is included in the LI field. Another example of how to include the PLMN ID in the RLC data block would be to let the LI field be immediately followed by an octet that contains the so called PLMN Index field, as specified in 3GPP TS 44.060 v11.2.0 Rel-11. The PLMN ID selected by the MS can also be included after the last Packet Data Unit, PDU, in the RLC data block.

As mentioned, suitably, the MS 110 will include the PLMN ID and the indication of its presence in an RLC Data Block when accessing a Packet Switched, PS, domain in the RAN 102.

Also suitably, the MS 110 is arranged to handle more than one kind of RAN mode, and to use different reserved or pre-defined values to indicate the presence of the ID of a chosen PLMN for different RAN modes. For example, the MS 110 can be arranged to use different reserved or pre-defined values for GPRS and EGPRS systems, e.g. 62 for GPRS and 123 for EGPRS.

As can be understood, suitably the MS does not include the PLMN ID in every RLC data block it sends to the RAN; suitably the PLMN ID is included by the MS when the MS has data to send with a foreign or a random TLLI, Temporary Logical Link Identifier, and the data that the MS then sends with a

foreign or random TLLI is suitably a registration message, e.g. ATTACH or ROUTING AREA UPDATE REQUEST.

Fig 2 shows a schematic block diagram of the MS 110: as can be seen, the MS 110 comprises an antenna unit 10, which is used as both a transmit and receive antenna. In addition, the MS 110 comprises a receive unit Rx 11, and a transmit unit, Tx 12. The function of the MS 110 in general, as well as the function of the receive and transmit units is controlled by a control unit 13. In addition, the MS 110 also comprises a memory unit 14, which can be used both to store information and to store executable code which is used when operating the MS 110. The information which is stored in the memory unit 14 can, for example, be the ID of the PLMN or PLMNs which the MS 110 should choose and indicate as its preferred PLMN in a FULL-MOCN system. The reserved or predefined value or values of the LI field which indicate the presence of a PLMN ID in an RLC data block is/are also preferably stored in the memory unit 14.

The ID of the MS's preferred PLMN is placed in an RLC data block by the control unit, which is also the case of the pre-defined or reserved value which indicates the presence of the PLMN ID in the RLC data block. The RLC data block is then transmitted by the transmit unit 12, through the antenna unit 10, as controlled by the control unit 13.

It is also the control unit 13 which enables the MS 110 to use different RAN Modes, such as GPRS and EGPRS.

Thus, the MS 110 transmits its choice of PLMN ID to the RAN 102, where it is extracted from the RLC Data block and forwarded to the CN 101. In more detail, the MS 110 transmits its RLC data blocks to the control node of its cell; in the example shown in fig 1 with the control node as such being part of a so called BSS, Base Station System, shown in fig 1 as 107. The BSS 107 comprises a Base Transceiver Station, BTS 108, and a Base Station Controller 109. Suitably, it is the BSC 109 which uses the predefined or reserved LI field indicator value to recognize that an RLC data block comprises a PLMN ID, and "extracts" the PLMN ID from the RLC data block.

Thus, the BSC 109 "inspects" the LI field in the RLC data blocks, and if it identifies a reserved or pre-defined value which indicates that the RLC data block comprises the ID of a PLMN, the BSC 109 then finds and extract the PLMN ID in the RLC Data block, and forwards the PLMN ID to another node in the RAN 102 or in the CN 101. Suitably, this other node is a so called SGSN 106, 111, as shown in fig 1, which is in the CN 101.

Since the BSC 109 is the node in the RAN that finds and extracts the PLMN ID, the BSC 109 is arranged to look for the PLMN ID in places in the RLC data blocks corresponding to those places in which the MS 110 is arranged to place the PLMN ID, as described earlier in this text. Thus, in embodiments, the BSC 109 is arranged to find the PLMN ID as the four last octets of the RLC Data block in which the reserved or pre-defined value is included in the LI field, as an alternative or complement to which the BSC 109 is arranged to find the PLMN ID immediately after the LI field, by means of an octet that contains the so called PLMN Index field, as specified in 3GPP TS 44.060 v11.2.0 Rel-11. Alternatively or as a complement, the BSC 109 is also arranged to find the PLMN ID selected by the MS after the last Packet Data Unit, PDU, in the RLC data block in which the reserved or predefined value is found.

Suitably, the BSC 109 is arranged to handle more than one kind of RAN mode, and is then arranged to handle different reserved or pre-defined values which indicate the presence of the ID of a chosen PLMN, depending on different RAN systems. For example, the BSC 109 can in embodiments be arranged to handle different reserved or pre-defined values which indicate the presence of the ID of a chosen PLMN for GPRS and EGPRS systems, e.g. the value of 62 for GPRS and 123 for EGPRS.

Fig 3 shows a schematic block diagram of the BSC 109: as can be seen, on this level of abstraction, there are similarities between the MS 110 and the BSC 109. As shown in fig 3, the BSC 109 comprises an I/O unit 20 for communication with other nodes in the system 100, e.g. the BTS 108 and nodes in the CN 101, suitably one or more SGSN, such as the SGSNs 106 and 111 shown in fig 1. The I/O unit can comprise antenna units, for wireless communication, but will also usually comprise possibilities for "landline" connections with the BTS 108 and the CN 101, e.g. the SGSN(s) 106, 111, in the CN.

In addition to the I/O-unit 20, the BSC 109 also comprises a receive unit Rx 21, and a transmit unit, Tx 22. The function of the BSC 109 in general, as well as the function of the receive and transmit units is controlled by a control unit 23. In addition, the BSC 109 also comprises a memory unit 24, which can be used both to store information and to store executable code which is used during operation of the BSC 109. The information which is stored in the memory unit 24 can, for example, be the reserved or predefined value or values of the LI field which indicate the presence of a PLMN ID in an RLC data block.

In addition, information regarding where in an RLC data block to find the PLMN ID if the LI field in the RLC data block is the reserved or predefined value which indicates the presence of a PLMN ID is also suitably stored in the memory unit 24.

Fig 4 shows a schematic flow chart of a method 400 for operating a mobile station in a Radio Access Network, a RAN, where the RAN is connected to a core network in which there is one or more Public Land Mobile Networks, PLMNs.

As shown in step 405, the method comprises having the Mobile Station choose one of said PLMNs when accessing a Packet Switched, PS, domain in the RAN (e.g. when attaching to the RAN 102 or a Core Network, CN, to which the RAN is connected), and as indicated in step 410, the method 400 comprises including the identity, the ID, of the chosen PLMN in an RLC data block.

Step 420 shows that the method 400 comprises including a reserved or pre-defined value in the length indicator field of the RLC data block as information to the RAN of the presence of the ID of the chosen PLMN in the RLC data block, and step 430 shows that the method comprises sending said RLC data block to the RAN

In embodiments, the method comprises, as shown in step 415, including the ID of the chosen PLMN after the last Upper Layer PDU of the RLC data block.

In embodiments, the method comprises, as shown in step 425, the use of an LI value of 123 as the reserved or pre-defined value.

In embodiments, the method comprises, arranging the mobile station to use different RAN modes and to use different reserved or pre-defined values to indicate the presence of the ID of a chosen PLMN depending on the RAN mode used.

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Fig 5 shows a schematic flow chart of a method 500 for operating a Control Node, e.g. Base Station Controller, a BSC, in a Base Station System, a BSS. Other examples of such control nodes include an LTE eNodeB and a WCDMA RNC, Radio Network Controller.

5 The control node is arranged to be part of a Radio Access Network, a RAN, which is connected to a Core Network, a CN, which comprises one or more Public Land Mobile Networks, PLMNs.

As shown in step 505, the method 500 comprises receiving Radio Link Control, RLC, data blocks from a mobile station in a cell in the RAN, and also comprises, as shown in step 510, inspecting the Length Indicator field in said RLC data blocks, and, step 515, identifying a reserved or pre-defined value which indicates that the RLC data block comprises the ID of one of said PLMNs which has been selected by the
10 UE.

As shown in step 520, the method 500 comprises finding and extracting said ID in the RLC Data block, and, step 525, forwarding the ID to a node in the RAN or in the CN.

According to embodiments of the method 500, the node to which the PLMN ID is forwarded to is an SGSN.

15 According to embodiments of the method 500, the PLMN ID is found after the last Upper Layer PDU of the RLC data block in which the PLMN ID is included.

In embodiments, the method 500 comprises handling more than one RAN mode, and handling different reserved or pre-defined values which indicate the presence of the ID of a chosen PLMN, depending on RAN mode.

20 Embodiments of the invention are described with reference to the drawings, such as block diagrams and/or flowcharts. It is understood that several blocks of the block diagrams and/or flowchart illustrations, and combinations of blocks in the block diagrams and/or flowchart illustrations, can be implemented by computer program instructions. Such computer program instructions may be provided to a processor of a general purpose computer, a special purpose computer and/or other programmable data
25 processing apparatus to produce a machine, such that the instructions, which execute via the processor of the computer and/or other programmable data processing apparatus, create means for implementing the functions/acts specified in the block diagrams and/or flowchart block or blocks.

These computer program instructions may also be stored in a computer-readable memory that can direct a computer or other programmable data processing apparatus to function in a particular manner, such
30 that the instructions stored in the computer-readable memory produce an article of manufacture including instructions which implement the function/act specified in the block diagrams and/or flowchart block or blocks.

The computer program instructions may also be loaded onto a computer or other programmable data processing apparatus to cause a series of operational steps to be performed on the computer or other
35 programmable apparatus to produce a computer-implemented process such that the instructions which execute on the computer or other programmable apparatus provide steps for implementing the functions/acts specified in the block diagrams and/or flowchart block or blocks..

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In some implementations, the functions or steps noted in the blocks may occur out of the order noted in the operational illustrations. For example, two blocks shown in succession may in fact be executed substantially concurrently or the blocks may sometimes be executed in the reverse order, depending upon the functionality/acts involved.

5 In the drawings and specification, there have been disclosed exemplary embodiments of the invention. However, many variations and modifications can be made to these embodiments without substantially departing from the principles of the present invention. Accordingly, although specific terms are employed, they are used in a generic and descriptive sense only and not for purposes of limitation.

10 The invention is not limited to the examples of embodiments described above and shown in the drawings, but may be freely varied within the scope of the appended claims.

ANORDNING OG FREMGANGSMÅDE TIL INFORMATION OM PLMN-ID

PATENTKRAV

1. Mobil station (110) til anvendelse i et radiotilgangsnetværk, Radio Access Network - RAN (102), hvilket RAN (102) er forbundet med et kernenetværk (101), hvori der er ét eller flere offentlige landmobilnetværk, Public Land Mobile Networks - PLMN (103, 104, 105), hvilken mobil station (110) er indrettet til at vælge ét af PLMN'erne (103, 104, 105) ved tilgang til et pakkekoblet, Packet Switched, PS, domæne i RAN (102), hvilken mobil station (110) er indrettet til at kommunikere med RAN (102) ved hjælp af radiolinkkontrol-, Radio Link Control - RLC, datablokke, hvilken mobil station er indrettet til at indbefatte identiteten, ID, af dens valgte PLMN i en RLC-datablok, hvilken mobil station er kendetegnet ved, at den er indrettet til at informere RAN (102) om tilstedeværelsen af ID'et for det valgte PLMN i RLC-datablokken ved at indbefatte en reserveret eller forhåndsbestemt værdi i RLC-datablokkens længdeindikatorfelt.
2. Mobil station (110) ifølge krav 1, hvilken mobil station er indrettet til at indbefatte ID'et for dens valgte PLMN efter det sidste øvre lag PDU af RLC-datablokken.
- 15 3. Mobil station (110) ifølge krav 1 eller 2, hvilken mobil station er indrettet til at anvende en LI-værdi på 123 som den reserverede eller forhåndsbestemte værdi.
4. Mobil station (110) ifølge et hvilket som helst af kravene 1-3, hvilken mobil station er indrettet til at anvende forskellige RAN-modi og indrettet til at anvende forskellige reserverede eller forhåndsbestemte værdier til at indikere tilstedeværelsen af ID'et for et valgt PLMN afhængigt af den anvendte RAN-modus.
- 20 5. Mobil station (110) ifølge krav 5, hvilken mobil station er indrettet til at anvende forskellige reserverede eller forhåndsbestemte værdier for RAN-modierne GPRS og EGPRS.
6. Kontrolnode (109), der er indrettet til at være en del af et radiotilgangsnetværk, RAN (102), der er forbundet med et kernenetværk, CN (101), som omfatter ét eller flere offentlige landmobilnetværk, PLMN (103, 104, 105), hvilken kontrolnode (109) er indrettet til at modtage radiolinkkontrol-, RLC, datablokke fra en mobil station (110) i en celle i RAN (102), hvilken kontrolnode (109) er kendetegnet ved, at den er indrettet til at inspicere længdeindikatorfeltet i RLC-datablokkene og til at identificere en reserveret eller forhåndsbestemt værdi, der indikerer, at RLC-datablokken omfatter ID'et for ét af PLMN'erne, der er udvalgt af UE, og til at finde og udlede ID'et i RLC-datablokken, og til at videresende ID'et til en node i RAN (102) eller i CN (101).
- 30 7. Kontrolnode (109) ifølge krav 6, hvori den mode, hvortil PLMN-ID'et er videresendt til, er et SGSN (106).
8. Kontrolnode (109) ifølge krav 6 eller 7, hvilken kontrolnode er indrettet til at finde PLMN-ID'et efter det sidste øvre lag PDU af RLC-datablokken, hvori PLMN-ID'et er indbefattet.
9. Kontrolnode (109) ifølge et hvilket som helst af kravene 6-8, hvilken kontrolnode er indrettet til at identificere en LI-værdi på 123 som den reserverede eller forhåndsbestemte værdi.
- 35 10. Kontrolnode (109) ifølge et hvilket som helst af kravene 6-9, hvilken kontrolnode er indrettet til at håndtere mere end én RAN-modus, og indrettet til at håndtere forskellige reserverede eller

forhåndsbestemte værdier, der indikerer tilstedeværelsen af ID'et for et valgt PLMN, afhængigt af RAN modus.

11. Kontrolnode (109) ifølge krav 10, hvilken kontrolnode er indrettet til at håndtere forskellige reservede eller forhåndsbestemte værdier, der indikerer tilstedeværelsen af ID'et for et valgt PLMN for RAN-modierne GPRS og EGPRS.
12. Kontrolnode (109) ifølge et hvilket som helst af kravene 6-11, hvilken kontrolnode er en GSM Base Station Controller, BSC (109), der er indrettet til at være en del af et basestationssystem, BSS (107).
13. Kontrolnode (109) ifølge et hvilket som helst af kravene 6-10, hvilken kontrolnode er en LTE-eNodeB.
14. Kontrolnode (109) ifølge et hvilket som helst af kravene 6-10, hvilken kontrolnode er en WCDMA RNC, Radio Network Controller.
15. Fremgangsmåde (400) til drift af en mobil station (110) i et radiotilgangsnetværk, RAN (102) der er forbundet med et kernenetværk (101), hvori der er ét eller flere offentlige landmobilnetværk, PLMN (103, 104, 105), hvilken fremgangsmåde (400) omfatter, at få den mobile station (110) til at vælge (405) ét af PLMN'erne (103, 104, 105) ved tilgang til et pakkekoblet, Packet Switched, PS, domæne i RAN (102), og indbefatte (410) identiteten, ID, af det valgte PLMN i en RLC-datablok, hvilken fremgangsmåde er kendetegnet ved, at den omfatter inkludering (420) af en reserveret eller forhåndsbestemt værdi i RLC-datablokkens længdeindikatorfelt som information til RAN (102) om tilstedeværelsen af ID'et for det valgte PLMN i RLC-datablokken, og afsendelse (430) af RLC-datablokken til RAN.
16. Fremgangsmåde (400) ifølge krav 15, hvilken fremgangsmåde omfatter inkludering (415) af ID'et for det valgte PLMN efter det sidste øvre lag PDU af RLC-datablokken.
17. Fremgangsmåde (400) ifølge krav 15 eller 16, hvilken fremgangsmåde omfatter (425) anvendelsen af en LI-værdi på 123 som den reserverede eller forhåndsbestemte værdi.
18. Fremgangsmåde (400) ifølge et hvilket som helst af kravene 15-17, hvilken fremgangsmåde omfatter indretning af den mobile station (110) til at anvende forskellige RAN-modi og til at anvende forskellige reservede eller forhåndsbestemte værdier til at indikere tilstedeværelsen af ID'et for et valgt PLMN afhængigt af den anvendte RAN-modus.
19. Fremgangsmåde (400) ifølge krav 18, hvilken fremgangsmåde omfatter anvendelsen af forskellige reservede eller forhåndsbestemte værdier for GPRS- og EGPRS-systemer.
20. Fremgangsmåde (500) til drift af en kontrolnode (109), der er indrettet til at være en del af et radiotilgangsnetværk, RAN (102), der er forbundet med et kernenetværk, CN (101), som omfatter ét eller flere offentlige landmobilnetværk, PLMN (103, 104, 105), hvilken fremgangsmåde (500) omfatter modtagelse (505) af radiolinkkontrol-, RLC, datablokke fra en mobil station (110) i en celle i RAN (102), hvilken fremgangsmåde er kendetegnet ved, at den omfatter inspektion (510) af længdeindikatorfeltet i RLC-datablokkene og identifikation (515) af en reserveret eller forhåndsbestemt værdi, der indikerer, at RLC-datablokken omfatter ID'et for ét af PLMN'erne, der er udvalgt af UE, og fund (520) og udledning af ID'et i RLC-datablokken, og videresendelse (525) af ID'et til en node i RAN (102) eller i CN (101).

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21. Fremgangsmåde (500) ifølge krav 20, ifølge hvilken fremgangsmåde den mode, hvortil PLMN-ID'et er videresendt til, er et SGSN (106).
22. Fremgangsmåde (500) ifølge krav 20 eller 21, ifølge hvilken fremgangsmåde PLMN-ID'et er fundet efter det sidste øvre lag PDU af RLC-datablokken, hvori PLMN-ID'et er indbefattet.
- 5 23. Fremgangsmåde (500) ifølge et hvilket som helst af kravene 20-22, hvilken fremgangsmåde omfatter håndtering af mere end én RAN-modus og håndtering af forskellige forbeholdte eller forhåndsbestemte værdier, der indikerer tilstedeværelsen af ID'et for et valgt PLMN, afhængigt af RAN-modus.

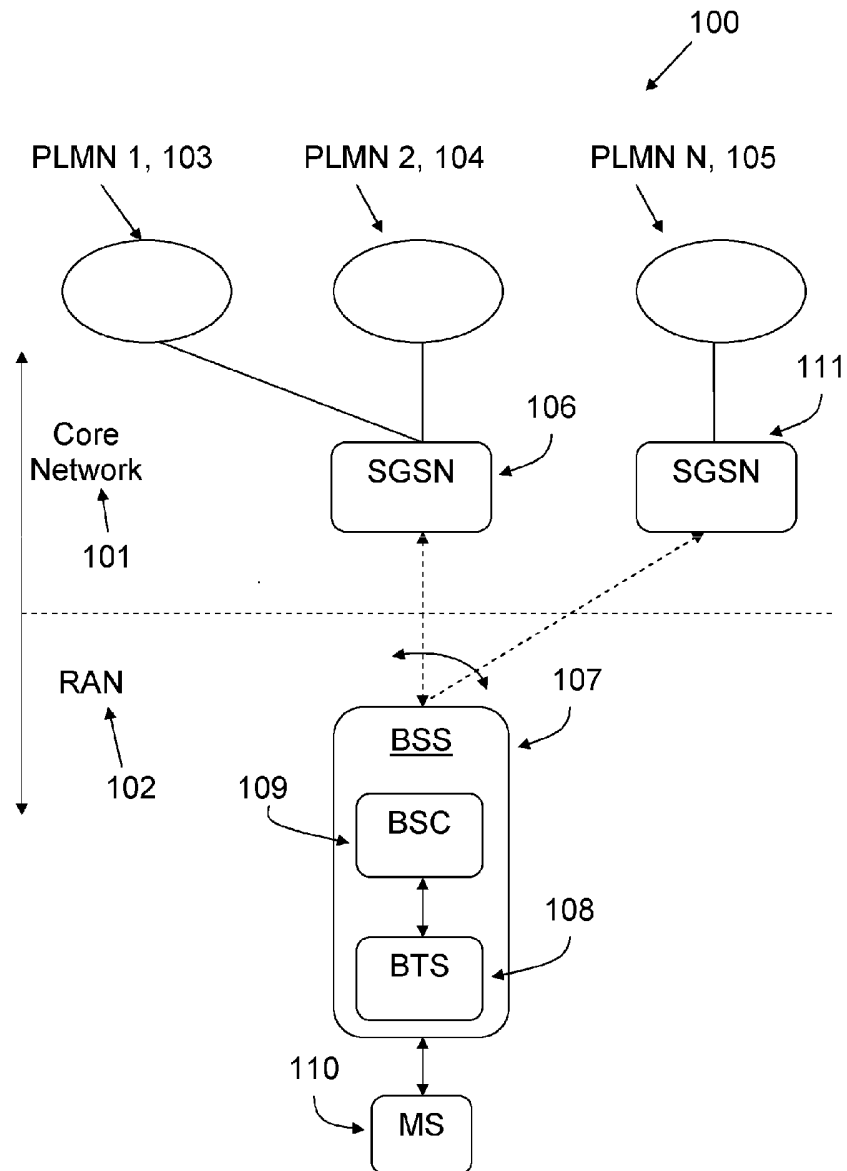


Fig. 1

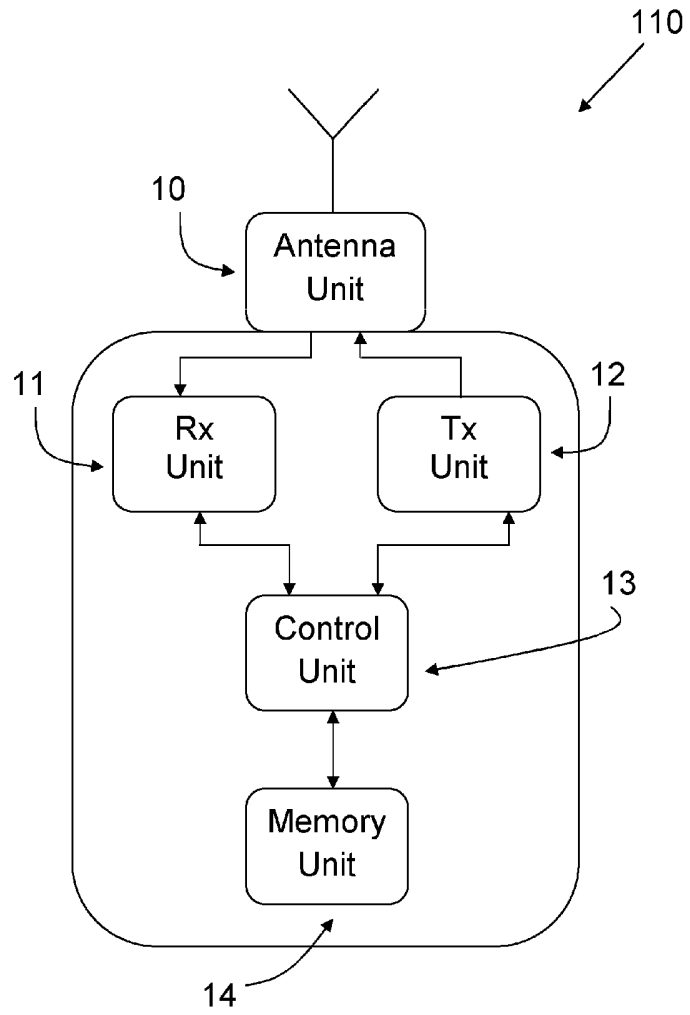


Fig. 2

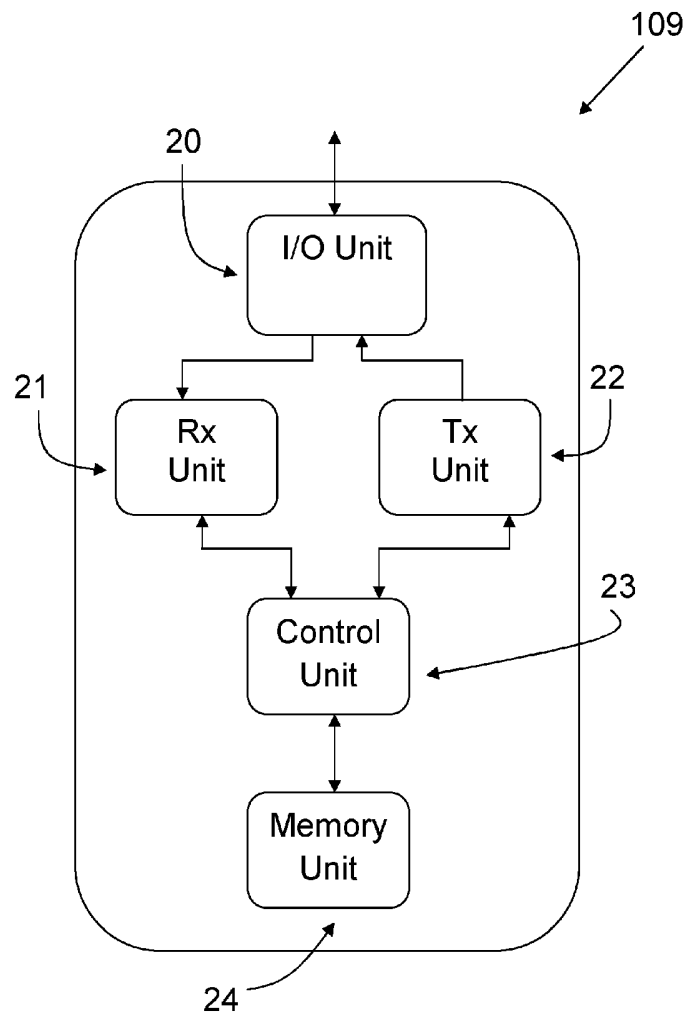


Fig. 3

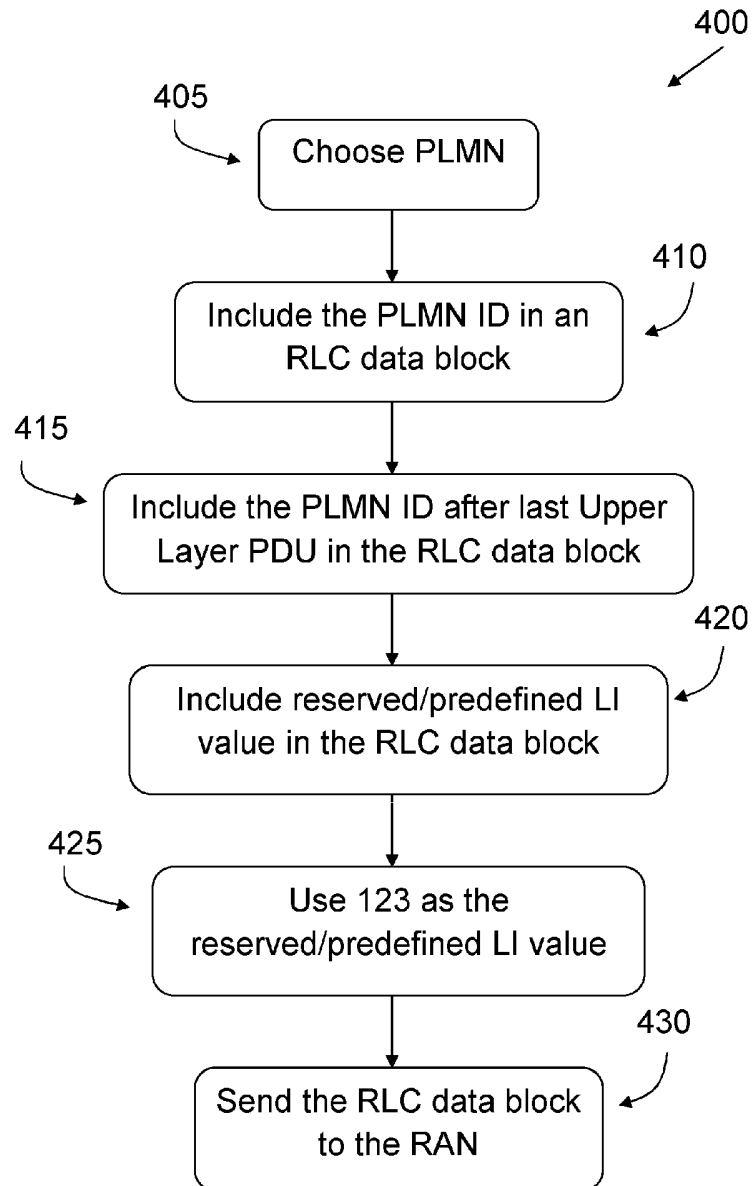


Fig. 4

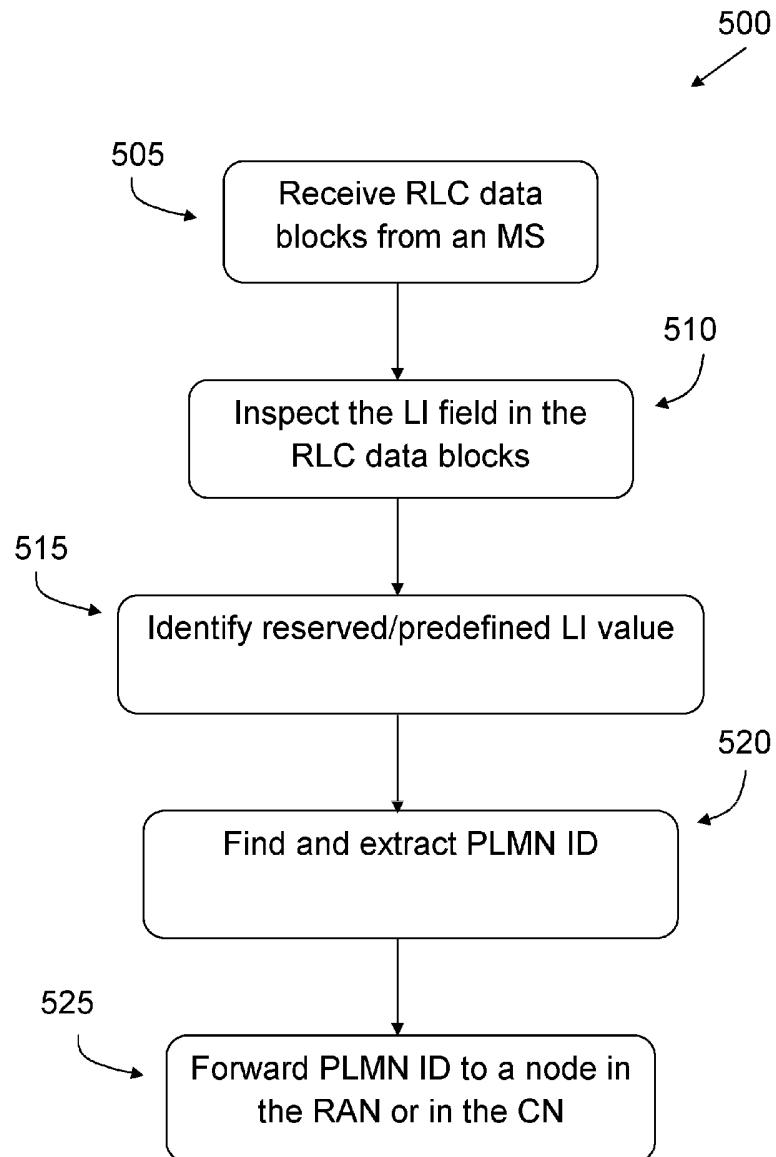


Fig. 5