The present invention relates to methods and arrangements to perform monitoring-continuity in case of number portability in a telecommunication system. The method comprises a step wherein a monitored user (B) requires number portability from an operator of a donor network (DNW) to an operator of a recipient network (RNW). The method further comprises the receiving of a number portability event - temporary address (NPE1) to an agency controlled receiving entity (LEMF, ADRS), which event (NPE1) comprises information related to the user's ported identity and the user's new identity.
The present invention relates to methods and arrangements to perform monitoring-continuity in case of number portability in a telecommunication system.

Mobile Number Portability is the ability for a UMTS or GSM mobile subscriber to change the subscription network within a portability domain whilst retaining the original MSISDN or MSISDNs. As part of the porting process administrative actions have to be performed by the network operators of the number range holder network (i.e. the network to which the number range containing the ported number has been allocated), donor network (i.e. the subscription network from which a number is ported in the porting process), recipient network (i.e. the network that receives the number in the porting process). The recipient network becomes the subscription network when the porting process is complete) and, as an option, by operators of other national UMTS or GSM networks. Number portability is described in the standards, see for example 3GPP TS 23.066 "Support of Mobile Number Portability (MNP) Technical realization; stage 2 (Release 7)".

In a possible scenario of Number Portability implementation, an IN-based Mobile Number Portability MNP function is implemented in an MSC and handles incoming calls addressed within the portability domain. For mobile calls in GSM 900/GSM 1800 and WCDMA this is done at call setup (i.e. reception of IAM message) by interrogating a Mobile Number Portability database. As result, a new network routing number is received from the database if the number is ported. The new network routing number is then used to modify and set-forward requests from/to the RA. A Mediation and Delivery Function MF/DF is used to mediate and deliver requested information. A storage is used to collect and retain all possible data from external the data bases. The generic Handover Interface adopts a two port structure such that administrative request/response information and Retained Data Information are logically separated. The Handover Interface port 1 HIA transports various kinds of administrative, request and response information from/to the Requesting Authority and the organization at the CSP, which is responsible for Retained Data matters. The HIA interface may be crossing borders between countries. This possibility is subject to corresponding national law and/or international agreements.

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ternatively on the IMSI1), as soon as the user requires the number portability to another operator and the temporary number 345-2222222 is assigned to him with the new SIM2, the monitoring of the target will be stopped.

SUMMARY

[0006] The present invention relates to problems that occur when Mobile Number Portability is required by a monitored subscriber. After a fulfilled number portability request, monitoring will be stopped, and important data might be lost.

[0007] These problems and others are solved by the invention by reporting to an agency when number portability has been requested by a monitored user, and thereby make possible for the agency to take appropriate measures to avoid data loss.

[0008] More in detail, the problem is solved by a method to perform monitoring-continuity in case of number portability. A monitored user requires number portability from an operator of a donor network to an operator of a recipient network. The method comprises the sending of a number portability event - temporary address, from the recipient network to an agency controlled receiving entity. The number portability event comprises information related to the user’s ported identity and to the user’s new identity represented by a temporary MSISDN.

[0009] In one aspect of the invention, the agency controlled receiving entity is a Law Enforcement Monitoring Facility used for Lawful Interception purposes and after reception of the temporary number the agency gets an opportunity to order interception of the user by using the user’s temporary MSISDN as target identity.

[0010] In another aspect of the invention, the agency controlled receiving entity is a Data Retention System into which time stamps specifying number portability events are received. The agency gets an opportunity to order reception of data that has been retained during specified time intervals.

[0011] An object of the invention is to enhance the LI/DR solution in order to ensure the continuity of interception and data retention in case of number ported from a network operator to another. This object and others are achieved by methods, arrangements, nodes, systems and articles of manufacture.

[0012] An advantage with the invention is that continuity of interception and data retention in case of number ported from a network operator to another will be ensured.

[0013] The invention will now be described more in detail with the aid of preferred embodiments in connection with the enclosed drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] Figure 1A is part of the prior art and discloses a block schematic illustration of an Intercept Mediation and Delivery Unit attached to an Intercepting Control Element.

Figure 1B is part of the prior art and discloses a block schematic illustration of Data Retention System connected to a Requesting Authority.

Figure 2 is a block schematic illustration disclosing a B-subscriber requesting number portability from a donor network to a recipient network. An Intercept Mediation and Delivery Unit is attached to the recipient network.

Figure 3 discloses a signal sequence diagram representing a method for Lawful Interception continuity in case of number portability.

Figure 4 is a block schematic illustration disclosing a B-subscriber requesting number portability from a donor network to a recipient network. A Data Retention System is attached to the recipient network.

Figure 5 discloses a signal sequence diagram representing a method for reception continuity of retained data in case of number portability.

Figure 6 discloses a flow chart illustrating some essential method steps of the invention.

Figure 7 schematically discloses an example of a system that can be used to put the invention into practice.

DETAILED DESCRIPTION

[0015] Figure 2 discloses a telecommunication system that in this example comprises four Public Land Mobile Networks, an originating network NW, an interrogating network NW, a Donor Network DNW and a Recipient Network RNW. A calling party is located in the originating network and the called party B is at first located in the Donor network DNW. The interrogating network handles incoming calls addressed within a portability domain. The portability domain is in this example a set of GSM Public Land Mobile Networks in a country between which MSIDNs may be ported or alternatively it may be a set of North American GSM Mobile Networks and other subscription networks within a regulated geographical area within North America. As already explained, mobile Number Portability is the ability for an UMTS or GSM mobile subscriber to change the subscription network within a portability domain whilst retaining the original MSISDN or MSIDNs. In a first embodiment that will be explained below the called subscriber will change subscription from the Donor Network to a Recipient Network. In the figure the called party B can be seen as located within the recipient network after having changed location.
from the Donor Network. The location change is shown in figure 2 with a filled bowed arrow. The recipient network RNW comprises a Gateway Mobile Service Switching Centre GMSC-R attached to a Mobile Service Switching Centre MSC-R/ICER which in turn is attached to a base station that covers a radio cell in which the called party is located after the location change. In the same way a Gateway Mobile Service Switching Centre GMSC-O and a Mobile Service Switching Centre MSC-O can be seen within the Originating Network. A Mobile Service Switching Centre MSC-D/ICED attached to a base station that covers a radio cell in which the called party is located before the location change can be seen within the Donor Network. A Gateway Mobile Service Switching Centre GMSC-I is located within the Interrogating Network. GMSC-I is used to interrogate a Mobile Number Portability Data Base NPDB. The NPDB is an operational database (used in real time at call set-up) which provides portability information. To be noted is that the network configuration shown in figure 2 just is to be seen as an example and that the invention is applicable also for example to fixed networks or IMS networks. A Customer Reference Management system CRM can be seen within the recipient network in figure 2. Each telecom operator has got a CRM to manage the subscriber information, e.g. name, address, subscribed services, user identities etc. In this example both the Donor Network and the Recipient Network each comprises a CRM even though only one CRM can be seen (in RNW) in figure 2. An Intercept Mediation and Deliver unit IMDU is schematically disclosed in figure 2. The IMDU is attached to MSC-R and to CRM in the Recipient Network. The IMDU is also logically attached to MSC-D and CRM in the Donor Network and used for example before number portability is requested by B. The Intercept Unit IMDU has already been explained in the background part of this application. The signalling IAM1, IDP, CONNECT and IAM2 that can be seen in figure 2 will be further explained below together with the explanation of a method according to the invention. In the first embodiment interception has been set on the called party B by using the MSISDN number 335-1111111 that was assign to the party when using the Donor network as subscription network. The Donor network is the same as the party’s subscription network before the party requests number portability to the Recipient Network RNW.

A method according to the first embodiment of the invention will now be described in more detail together with figure 3. Figure 3 discloses a signal sequence diagram representing a method to perform interception-continuity when the called party requests number portability from the Donor Network DNW to the Recipient Network RNW. Signaling in figure 3 that can be seen below a box named “Donor Network DNW” represents signaling from/to entities in the Donor Network and signaling involving the IMDU when the IMDU is logically attached to MSC-D in the Donor Network. Signaling in figure 3 below a box named “Recipient Network DNW” represents signaling from/to entities in the Recipient Network and signaling involving the IMDU when the IMDU is logically attached to MSC-R and CRM in the Donor Network. An Intercepting Control Element ICED shown in figure 3 is the same entity as the Mobile Service Switching Centre MSC-D that was shown in figure 2. An Intercepting Control Element ICER shown in figure 3 is the same entity as the Mobile Service Switching Centre MSC-R that was shown in figure 2. CRM-D and CRM-R in figure 3 corresponds to the Customer Reference Management system CRM in the Donor and Recipient Network respectively. LEA, ADMF, DF2/MF2, DF3/MF3 corresponds to the already explained entities shown in figure 1 and 2. The method according to the first embodiment of the invention comprises the following steps:

- The Law Enforcement Agency LEA orders the interception of the party B using its MSISDN (335-1111111) in the donor network. An interception request 1 is sent from the LEA via ADMF to ICED.

- Traffic activity is detected in the ICED and Intercept Related Information IRI 2 and optionally Content of Communication CC 3 are sent to the LEA for each communication involving the specified MSISDN.

- The party B requires being ported “X1” to another operator (recipient NW). B hereby gets a new International Mobile Subscriber identity IMSI2 and is temporarily assigned to a Mobile Station International ISDN Number 345-2222222. From this moment the user is able to make and receive calls with this temporary number using the recipient network and possibly also using the ported number with the donor network.

- According to the invention, the CRMs have been configured with the DF2/MF2 address and will automatically send Number Portability events to the Law Enforcement Agencies LEAs or alternatively just to the interested LEA. The CRM will send an IRI report for all subscribers or, as an option, only for target subscribers, set by the LEA. The CRM-R of the recipient network informs the LEA (by means of an IRI REPORT “Number portability event, temporary address” 4 through DF2/MF2 about the temporarily identities assigned to the ported number. An advantage is that the automatic signalling won’t imply to human intervention to inform the agency about number portability and to re-set the target of interception in the receiving network.

- The Law Enforcement Agency LEA orders the interception of the party B using its temporary MSISDN (335-2222222) in the recipient network. An interception request 5 is hereby sent from the LEA via ADMF to ICER.

[0017] The calling part A sets up a call towards the
called party B in accordance with the following already known Mobile Number Portability procedure (see figure 2): I) An incoming Initial Address Message IAM1 is received from the Originating Network to the Interrogating Network. II) An Initial Detection Point IDP is sent from GMSC-1 to the Number Portability Data Base NPDB. III) The NPDP sends a CONNECT operation containing a Network Prefix NP concatenated to the MSISDN and sends it as Initial Address Message IAM2 to the Recipient Network. IV) The Recipient Network responds to the IAM2 with CONNECT and IAM2 that can be seen in figure 4 has been completed.

- Traffic activity is detected in the ICER and 1RI and optionally the CC 7 are sent to the LEA for communication involving the specified MSISDN (345-2222222).

- The proper network configuration is set "X2" for the ported number to address the calls towards the recipient network. This is provided by means of a query request towards the NP DB that adds a prefix to the number or converts the dialed number (335-1111111) into a routing number and any call to the ported user number 335-1111111 is routed to the Recipient Network.

- The CRM-R of the recipient network informs the LEA (by means of an IRI REPORT "Number portability event, completion" 8 through DF2/MF2 about the completion of the number portability process. In some NP implementations, the routing number used to address the call set in the NPDB could be equal to the temporary assigned identities. In this, NPDB could also be used to report the event of NP completion. The CRM provides the old identities and the temporary number. The NPDB translates the old ids into a routing number used to route the call towards the recipient network. Note that if the temporary assigned number is used as routing number, the IRI report can also be provided by the NPDB, as alternative to the CRM.

- In this example the LEA decides to remove 9 the interception of target MSISDN=335-1111111 in the donor network. It’s up to the agency to order removal of the interception on the target identities in the donor network.

- In this example the LEA decides to remove 10 the interception of target MSISDN=345-2222222 in the recipient network. It’s up to the agency to order removal of the interception on the target identities in the recipient network.

- In this example the LEA decides to set 11 interception of target MSISDN=335-1111111 in the recipient network.

- A calling party sets up a call to the called party B and traffic activity is detected in the ICER and 1RI and optionally the CC 13 are sent to the LEA for communication involving the specified MSISDN (335-1111111).

[0018] Figure 4 discloses the same telecommunication system as the one that have been explained earlier together with figure 2. In this second embodiment instead of receiving intercepted data, the LEA will receive retained data. Like before, also in the second embodiment that will be explained below, the called subscriber will change subscription from the Donor Network to the Recipient Network.

[0019] A Data Retention System ADRS is schematically disclosed in figure 4. The ADRS is attached to MSC-R/ICE-R and to CRM-R in the Recipient Network (shown with a thick filled arrow). The DRS is also logically attached to MSC/DICE-D and CRM-D (not shown in the figure) in the Donor Network and used for example before number portability is requested by B. The Data Retention System DRS has already been explained in the background part of this application. The signalling IAM1, IDP, CONNECT and IAM2 that can be seen in figure 4 has already been explained. In the second embodiment reception of retained data has been set on the called party B by using the MSIDNS number 335-1111111 that was assign to the party when using the Donor network as subscription network. The Donor network is the same as the party’s subscription network before the party requests number portability to the Recipient Network RNW.

[0020] A method according to the second embodiment of the invention will now be described more in detail together with figure 5. Figure 5 discloses a signal sequence diagram representing a method to perform monitoring/continuity of retained data when the called party requests number portability from the Donor Network DNW to the Recipient Network RNW. Signaling in figure 5 that can be seen below a box named “Donor Network DNW” represents signaling from/to entities in the Donor Network and signaling involving the DRS when the DRS is logically attached to MSC-D in the Donor Network. Signaling in figure 5 below a box named “Recipient Network DNW” represents signaling from/to entities in the Recipient Network and signaling involving the DRS when the DRS is logically attached to MSC-R and CRM in the Donor Network. LEA, ADMF, MF/DF ADRS, CRM-D and CRM-R corresponds to the already explained entities shown in previous figures. The method according to the second embodiment of the invention comprises the following steps (not all steps are shown in figure 5):

- Traffic activity is detected in the MSC-D (see figure 4) and IRI is sent to and stored in the storage DS in ADRS for each communication involving the MSISDN=335-1111111.

- The party B requires being ported "Y1" to another
A calling party sets up a call to the called party B and -

The CRM-R of the recipient network informs the ADRS (by means of an IRI REPORT "Number portability event, temporary address" 21 about the temporarily identities assigned to the ported number. The newly introduced IRI report could be sent from the recipient network but also from the Donor network operator if this is automatically notified from the recipient network operator. The IRI REPORT further comprises a time stamp T1 that indicates start time to validate temporary MSISDN=335-2222222.

- The calling part A sets up a call towards the called party B in accordance with the following already known Mobile Number Portability procedure (see figure 2): I) An incoming Initial Address Message IAM1 is received from the Originating Network to the Interrogating Network. II) An Initial Detection Point IDP is sent from GMSC-I to the Number Portability Data Base NPDB. III) The NPDP sends a CONNECT operation containing a Network Prefix NP concatenated to the MSISDN. IV) The GMSC-I in the Interrogating Network modifies the CalledPartyNumber parameter value to NP+MSISDN and sends it as Initial Address Message IAM2 to the Recipient Network the call is set up.

- Traffic activity is detected in the MSC-R (see figure 4) and IRI is sent to and stored in the storage DS in ADRS for each communication involving the MSISDN=335-1111111.

- The proper network configuration is set "Y2" for the ported number to address the calls towards the recipient network. This is provided by means a query request towards the NP DB that adds a prefix to the number or converts the dialed number (335-1111111) into a routing number and any call to the ported user number 335-1111111 is routed to the Recipient Network.

- The CRM-R of the recipient network informs the ADRS (by means of an IRI REPORT "Number portability event, completion" 22 about the completion of the number portability process. The IRI REPORT further comprises a time stamp T2 that indicates start time to validate temporary MSISDN=335-1111111.

- A calling party sets up a call to the called party B and traffic activity is detected in the MSC-R (see figure 4) and IRI is sent to and stored in the storage DS in

The Law Enforcement Agency LEA orders 23 reception of retained data of the party B to ADRS by specifying a time range T0-T3 where T0 is a time stamp earlier than T1, and T3 is a time stamp later than T2.

- The ADRS finds in DS retained data of the party B during the specified time range T0-T3.

- Requested subscriber data is sent 24 from the ADRS to LEA.

A monitored user B requires number portability from an operator of a donor network DNW to an operator of a recipient network RNW. This step is shown in the figure with a block 101.

- A number portability event - temporary address (NPE1) is sent, in this example, from the recipient network to an agency controlled receiving entity LEMF, ADRS. The event NPE1 comprises information related to the user’s ported identity and the user’s new identity. This step is shown in the figure with a block 102.

A system that can be used to put the invention into practice is schematically shown in figure 7. The block schematic constellation corresponds in many parts to the ones disclosed in figures 1, 2 and 4. Upon a number portability request by a mobile unit from a first network NW1 to a second network NW2 and upon setting of a proper network configuration after lapse of a time period, a Customer Reference Management System CRM is informed of the current status. A sender S1 is capable to transmit information of the current status to a receiver R1 located in an agency controlled receiving entity that can be for example a Law Enforcement Monitoring Facility or a Data Retention System or similar.

Enumerated items are shown in the figure as individual elements. In actual implementations of the invention, however, they may be inseparable components of other electronic devices such as a digital computer. Thus, actions described above may be implemented in software that may be embodied in an article of manufacture that includes a program storage medium. The program storage medium includes data signal embodied in one or more of a carrier wave, a computer disk (magnetic, or optical (e.g., CD or DVD, or both), non-volatile memory, tape, a system memory, and a computer hard drive.

The invention is not limited to the above described and in the drawings shown embodiments but can
2. Method to perform monitoring-continuity in case of number portability in a telecommunication system according to claim 1, which information related to the user’s ported identity comprises the user’s temporary MSISDN (335-2222222) and which information related to the user’s new identity comprises the user’s new MSISDN (335-1111111).

3. Method to perform monitoring-continuity in case of number portability in a telecommunication system according to claim 2, whereby the agency controlled entity is equivalent to a monitoring function (LEMF), wherein the user (B) is set for interception in the donor network with the user’s ported MSISDN (335-1111111) as target identity, which method comprises the following further step:

   - receiving to an Interception Control Element (MSC-R) in the recipient network, an order to intercept the user (B) with the user's temporary MSISDN (335-2222222) set as target identity.

4. Method to perform monitoring-continuity in case of number portability in a telecommunication system according to claim 3, which method comprises the following further step:

   - lapse of a time period;
   - setting a proper network configuration for the user’s ported MSISDN (335-1111111) so that any call to the ported MSISDN is routed to the recipient network (RNW);
   - receiving to the monitoring function (LEMF), a number portability event - completion (NPE2);
   - receiving to the Interception Control Element (MSC-R) in the recipient network, an order to remove interception of the target temporary MSISDN (335-2222222);
   - receiving to an Interception Control Element (MSC-R) in the recipient network, an order to intercept the user (B) wherein the user’s previously ported MSISDN (335-1111111) is set as target.

5. Method to perform monitoring-continuity in case of number portability in a telecommunication system according to claim 2, wherein the agency controlled receiving entity is equivalent to a Data Retention System (ADRS) and whereby the number portability event - temporary address (NPE1) further comprises a time stamp (T1) indicating start time to validate temporary MSISDN (335-2222222).
completion (NPE2) comprises a time stamp (T2) indicating start time to validate previously ported MSISDN (335-1111111).

7. Method to perform monitoring-continuity in case of number portability in a telecommunication system according to any of claims 5 or 6, which method comprises the following further steps:

- receiving to the Data Retention System (ADRS) from an agency (LEA), a request for subscriber data within a specified time range;
- detecting requested subscriber data in the Data Retention System (ADRS);
- sending requested subscriber data from the Data Retention System (ADRS) to the agency (LEA).

8. Method to perform monitoring-continuity in case of number portability in a telecommunication system according to any of the previous claims, wherein a number portability event is received from either the recipient network or the donor network.

9. An arrangement suitable for performing monitoring-continuity in case of number portability in a telecommunication system, wherein a monitored user (B) requires number portability from an operator of a donor network (DNW) to an operator of a recipient network (RNW), the arrangement being characterized by:

- means for receiving to an agency controlled receiving entity (LEMF, ADRS), a number portability event - temporary address (NPE1), which event (NPE1) comprises information related to the user’s ported identity and the user’s new identity.

10. An arrangement suitable for performing monitoring-continuity in case of number portability in a telecommunication system according to claim 9, which information related to the user’s ported identity comprises the user’s ported MSISDN (335-1111111) and which information related to the user’s new identity comprises the user’s temporary MSISDN (335-2222222).

11. An arrangement suitable for performing monitoring-continuity in case of number portability in a telecommunication system according to claim 10, whereby the agency controlled entity is equivalent to a monitoring function (LEMF), wherein the user (B) is set for interception in the donor network with the user’s ported MSISDN (335-1111111) as target identity, which arrangement further comprises:

- means for receiving to an Interception Control Element (MSC-R) in the recipient network, an order to intercept the user (B) with the user’s temporary MSISDN (335-2222222) set as target identity.

12. An arrangement suitable for performing monitoring-continuity in case of number portability in a telecommunication system according to claim 11, which arrangement further comprises:

- means for detecting lapse of a time period;
- means for setting a proper network configuration for the user’s ported MSISDN (335-1111111) so that any call to the ported MSISDN is routed to the recipient network (RNW);
- means for receiving to the monitoring function (LEMF), a number portability event - completion (NPE2);
- means for receiving to the Interception Control Element (MSC-R) in the recipient network, an order to remove interception of the target temporary MSISDN (335-2222222);
- means for receiving to an Interception Control Element (MSC-R) in the recipient network, an order to intercept the user (B) wherein the user’s previously ported MSISDN (335-1111111) is set as target.

13. An arrangement suitable for performing monitoring-continuity in case of number portability in a telecommunication system according to claim 10, wherein the agency controlled receiving entity is equivalent to a Data Retention System (ADRS) and whereby the number portability event - temporary address (NPE1) further comprises a time stamp (T1) indicating start time to validate temporary MSISDN (335-2222222).

14. An arrangement suitable for performing monitoring-continuity in case of number portability in a telecommunication system according to claim 13, which method comprises the following further step:

- means for detecting lapse of a time period;
- means for setting a proper network configuration for the user’s ported MSISDN (335-1111111) so that any call to the ported MSISDN is routed to the recipient network (RNW);
- means for receiving to the Data Retention System (ADRS), a number portability event - completion (NPE2), whereby the number portability event - completion (NPE2) comprises a time stamp (T2) indicating start time to validate previously ported MSISDN (335-1111111).

15. An arrangement suitable for performing monitoring-
continuity in case of number portability in a telecommunication system according to any of claims 13 or 14, which arrangement further comprises:

- means for receiving to the Data Retention System (ADRS) from an agency (LEA), a request for subscriber data within a specified time range;
- means for detecting requested subscriber data in the Data Retention System (ADRS);
- means for sending requested subscriber data from the Data Retention System (ADRS) to the agency (LEA).

16. An arrangement suitable for performing monitoring-continuity in case of number portability in a telecommunication system according to any of the previous claims, which arrangement further comprises means for sending a number portability event from either the recipient network or the donor network.

17. A computer program loadable into a processor of a telecommunications node, wherein the computer program comprises code adapted to perform the method of one or more of claims 1-8.
Fig. 2
Fig. 3
A monitored user B requires number portability from a first network to a second network.

A number portability event is sent from the second network to an agency controlled receiving entity.

Fig. 6
**DOCUMENTS CONSIDERED TO BE RELEVANT**

<table>
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<tr>
<th>Category</th>
<th>Citation of document with indication, where appropriate, of relevant passages</th>
<th>Relevant to claim</th>
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<td>X</td>
<td>&quot;Number Portability Task Force (NPTF); Administrative support of service provider portability for geographic and non-geographic numbers; ETSI TR 101 698* ETSI STANDARDS, LIS, SOPHIA ANTIPOLIS CEDEX, FRANCE, vol. NA-2, no. V1.1.1, 1 July 1999 (1999-07-01), XP014004960 ISSN: 0000-0001 * figure 4 * * page 14 * * page 24 - page 25 * ------</td>
<td>1-17</td>
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<td>A</td>
<td>WO 03/085936 A (TEKELEC US [US]; ALLISON RICK L [US]; MARSICO PETER JOSEPH [US]) 16 October 2003 (2003-10-16) * abstract * * page 1, line 9 - line 14 * * page 4, line 1 - line 13 * * page 5, line 4 - line 16 * * page 6, line 18 - line 25 * * page 10, line 10 - line 25 * * page 12, line 1 - page 19, line 29 * * page 22, line 13 - page 24, line 15 * * page 26, line 11 - page 28, line 12 * * figures 4-8 * ------</td>
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The present search report has been drawn up for all claims

**Place of search** Munich

**Date of completion of the search** 13 January 2009

**Examiner** Kopp, Klaus

**CATEGORY OF CITED DOCUMENTS**

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Place of search: Munich
Date of completion of the search: 13 January 2009
Examiner: Kopp, Klaus

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L: document cited for other reasons
a: member of the same patent family, corresponding document
ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO. EP 08 15 6831

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