~~AMENDED~~ CLAIMS

1. A method for preventing overload and blocking of a mobile network when sending of alert messages to a plurality of mobile phone users located in a specific geographical area, and doing so independently of any user preferences on the mobile phones, where the method is performed in an optimizing message distribution component (A-SMSC) connected to the mobile network, and where the method comprises the following steps:

a) receiving an alert initiation message comprising information about the content of the message and where it is to be sent, represented as relevant cells, and where this is performed as a request from an LBAS Server ~~(50)~~ to A-SMSC ~~(30)~~, and information about the relevant cells is determined by the LBAS GT ~~(40)~~ by converting information of a specific geographical area to corresponding cell ids;

b) receiving updated information of mobile station ISDNs (MSISDN) number with current serving cells on base station system (BSS) level, and where information is acquired by looking up entries in the LBAS Db ~~(25)~~ with updated information of MSISDN numbers of the mobile phones connected to the relevant cells, represented by cell ids within the specific requested geographical area;

c) assessing received information and determine the relevant mobile phones with corresponding MSISDN numbers to send alert messages to;

c h a r a c t e r i z e d in that the method further comprises the steps of:

d) placing a prevention tag for the determined relevant mobile phones on MSC/VLR level, where the tag indicates that the mobile phones with corresponding MSISDN numbers that alert messages are going to be sent to are not authenticated when these are trying to initiate a call from the specific geographical area to MSC, and further that external calls to the determined relevant mobile phones are not to be connected;

e) sending alert messages from the A-SMSC through a serving MSC to relevant mobile phones with corresponding MSISDN numbers located in the specific geographical area, and

f) removing placed tags for said relevant mobile phones after finishing the alerting.

2. Method according to claim 1, c h a r a c t e r i s e d in that step d) further comprises to compare the tagged relevant mobile phones with MSISDN numbers that are stored in a priority database, and remove the tag from mobile phones that have its MSISDN stored in the priority database, such that these are not prevented from normal communication, in and out from the specific geographical area, while alert messages are being sent.

3. A method according to claim 1, c h a r a c t e r i s e d in that the A-SMSC ~~(30)~~ is connected to:
- a cell coverage component (LBAS GT) ~~(40)~~ with information about geographical area where the alert messages are to be sent,
- a location based alert system database (LBAS Db) ~~(25)~~ with updated information of MSISDN number with current serving cell, and
- a serving MSC for controlling cells represented by groups of base transceiver stations (BTS) located at fixed geographical locations providing mobility management for mobile stations, and where the assessing of received information in step c) includes to perform a paging procedure on relevant MSISDNs for receiving ids of present serving cells for each relevant MSISDN, and checking whether the returned cell ids are within the range of the cells covering the relevant geographical area.

4. A method according to claim 3, c h a r a c t e r i s e d in that LBAS GT ~~(40)~~ is connected to a LBAS Service ~~(50)~~ that is connected to an interface for managing and controlling the method, and where the interface is used for selecting type of alert message and the geographical area to where the messages are to be sent.

5. A method according to claim 3, c h a r a c t e r i s e d in that the LBAS GT ~~(40)~~ converts information of a specific geographical area to cell ids, by reading a database list with information on which area each cell is covering, and screening only cells that are located in the relevant geographical area before this information is sent to the A-SMSC ~~(30)~~.

6. A method according to claim 3, c h a r a c t e r i s e d in that LBAS db ~~(25)~~ is dynamically updated with information received from a probe ~~(20)~~ monitoring the traffic between a mobile switch centre (MSC) and a visitor location register (VLR) residing within the network holding current details about subscribers and equipment used.

7. A method according to claim 3, c h a r a c t e r i s e d in that the cell id results are stored in a temporary table used for randomizing the cell ids before the paging step 3) in order to reduce queued traffic load on the same cell.

8. A method according to claim 1, c h a r a c t e r i s e d in that the A-SMSC ~~(30)~~ measures the time elapsed from sending an alert message to an MSISDN number through its connected cell to receiving a confirmation from the cell, and if the time elapsed is above a certain limit, the MDC ~~(30)~~ will reduce the load of the current cell by sending the next alert message through another cell.

9. A system for preventing overload and blocking of a mobile network when sending of alert messages to a plurality of mobile phone users located in a specific geographical area, and doing so independently of any user preferences on the mobile phones, c h a r a c t e r i z e d in that the system comprises an optimizing message distribution component (A-SMSC) ~~(30)~~ connected to the mobile network, and with means for:

a) receiving an alert initiation message comprising information about the content of the message and where it is to be sent, represented as relevant cells, and where this is done via a cell coverage component (LBAS GT) ~~(40)~~ with information about geographical area and corresponding cell ids;

b) receiving updated information, from a location based alert system database (LBAS Db) ~~(25)~~, of mobile station ISDN (MSISDN) numbers with current serving cells on base station system (BSS) level,

c) assessing received information and determine the location the relevant mobile phones with corresponding MSISDN number to send alert messages to,

c h a r a c t e r i z e d in that the system further comprises means for:

d) placing a prevention tag for the determined relevant mobile phones on MSC/VLR level, where the tag indicates that the mobile phones with corresponding MSISDN numbers that alert messages are going to be sent to are not authenticated when these are trying to initiate a call from the specific geographical area to MSC, and further that external calls to the determined relevant mobile phones are not to be connected;

e) sending alert messages from the A-SMSC through a serving MSC to relevant mobile phones with corresponding MSISDN numbers located in the specific geographical area, and

f) removing placed tags for said relevant mobile phones after finishing the alerting.

10. System according to claim 9, c h a r a c t e r i s e d in that step d) further comprises means to compare the tagged relevant mobile phones with MSISDN numbers that are stored in a priority database, and remove the tag from mobile phones that have its MSISDN stored in the priority database, such that these are not prevented from normal communication, in and out from the specific geographical area, while alert messages are being sent.

11. A system according to claim 9, c h a r a c t e r i s e d in that the LBAS GT ~~(40)~~ is connected to a LBAS Service ~~(50)~~ that is connected to an interface for managing and controlling the system, and where the interface is used for selecting type of alert message and the geographical area to where the messages are to be sent.

12. A system according to claim 9, c h a r a c t e r i s e d in that the LBAS GT ~~(40)~~ comprises means for converting information of a specific geographical area to cell ids, including a database ~~(45)~~ with information on which area each cell is covering, and screening means for selecting only cells that are located in the relevant geographical area, and means for providing this information to the A-SMSC ~~(30)~~.

13. A system according to claim 9, c h a r a c t e r i s e d in that the LBAS db ~~(25)~~ is connected to a probe ~~(20)~~ for monitoring the traffic between a mobile switch centre (MSC) and a visitor location register (VLR) residing within the network holding current details about subscribers and equipment used.

14. A system according to claim 9, c h a r a c t e r i s e d in that the A-SMSC ~~(30)~~ comprises a database ~~(35)~~ for temporary storing of cell id, and means for randomizing the cell ids.

15. A system according to claim 9, c h a r a c t e r i s e d in that the A-SMSC ~~(30)~~ comprises means for measuring time elapsed from sending an alert message to a cell to receiving a confirmation from the cell, and means for determining if the time elapsed is above a certain limit, and means for reducing the load of the current cell by sending the alert message to another cell.