

Exhibit 199-A16
Invalidity Chart for U.S. Patent No. 10,219,199 In View of Waters

WIPO Patent Application Publication No. 2006/087503 (“Waters”) was filed on February 15, 2005, published on August 24, 2006, and therefore qualifies as prior art under at least 35 U.S.C. § 102 as to the asserted claims of U.S. Pat. No. 10,219,199 (“the ’199 Patent”). Waters, including any material incorporated by reference into Waters, anticipates claims 1-19 (“the Asserted Claims”) of the ’199 Patent under 35 U.S.C. § 102. Waters also renders obvious the Asserted Claims under 35 U.S.C. § 103, alone based on the state of the art and/or in combination with one or more references identified in Samsung’s accompanying disclosure for the ’199 Patent.¹

To the extent Plaintiff alleges that the Waters does not disclose any particular limitation of the Asserted Claims of the ’199 Patent, either expressly or inherently, it would have been obvious to a person of ordinary skill in the art as of the priority date of the ’199 Patent to modify the Waters reference and/or to combine the teachings of the Waters reference with other prior art references, including but not limited to the present prior art references found in Exhibit 199-B and the corresponding section(s) of charts for other prior art references for the ’199 Patent in a manner that would have rendered the Asserted Claims invalid as obvious.

With respect to the obviousness of the Asserted Claims under 35 U.S.C. § 103, one or more of the principles enumerated by the United States Supreme Court in *KSR v. Teleflex*, 550 U.S. 398 (2007) apply, including: (a) combining various claimed elements known in the prior art according to known methods to yield a predictable result; and/or (b) making a simple substitution of one or more known elements for another to obtain a predictable result; and/or (c) using a known technique to improve a similar device or method in the same way; and/or (d) applying a known technique to a known device or method ready for improvement to yield a predictable result; and/or (e) choosing from a finite number of identified, predictable solutions with a reasonable expectation of success or, in other words, the solution was one which was “obvious to try”; and/or (f) a known work in one field of endeavor prompting variations of it for use either in the same field or a different field based on given design incentives or other market forces in which the variations were predictable to one of ordinary skill in the art; and/or (g) a teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill in the art to modify the prior art reference or to combine the teachings of various prior art references to arrive at the claimed invention. It therefore would have been obvious to one of ordinary skill in the art to combine the disclosures of these references in accordance with the principles and rationales set forth above.

The citations to portions of any reference in this chart are exemplary only. For example, a citation that refers to or discusses a figure or figure item should be understood to also incorporate by reference that figure and any additional descriptions of that figure as if set

¹ Samsung notes that Plaintiff appears in many instances to be pursuing overly broad constructions of various limitations of the asserted claims of the ’199 Patent in an effort to piece together an infringement claim where none exists and to accuse a product that does not practice the claims. This claim chart may take into account Plaintiff’s overly broad constructions of the claim limitations. Any assertion that a particular limitation is disclosed by a prior art reference may be based on Plaintiff’s apparent constructions and is not intended to be, and is not, an admission that such constructions are supportable or proper.

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forth fully therein. Samsung reserves the right to rely on the entirety of the references cited in this chart to show that the Asserted Claims are invalid. Citations presented for one claim limitation are expressly incorporated by reference into all other limitations for that claim as well as all limitations of all claims on which that claim depends. Samsung also reserves the right to rely on additional citations or sources of evidence that also may be applicable, or that may become applicable in light of claim construction, changes in Plaintiff's infringement contentions, and/or information obtained during discovery as the case progresses.

Claim	U.S. Patent No. 10,219,199	Exemplary Disclosure in Waters
[1.1]	A method of operating a smartphone to wirelessly provide information to an entity using a first air interface, to wirelessly receive information from the entity using the first air interface; and to wirelessly receive a communications service from a wireless network using a second air interface that differs from the first air interface, wherein the communications service is received by the smartphone from the wireless network absent involving the entity and wherein the entity functions independently of the communications service, the method comprising:	To the extent the preamble is limiting, Waters discloses “a method of operating a smartphone to wirelessly provide information to an entity using a first air interface, to wirelessly receive information from the entity using the first air interface; and to wirelessly receive a communications service from a wireless network using a second air interface that differs from the first air interface, wherein the communications service is received by the smartphone from the wireless network absent involving the entity and wherein the entity functions independently of the communications service, the method comprising:” See e.g.: [1.2]-[1.8], <i>infra</i>. A mobile terminal is disclosed which includes a near field or RF ID tag (41). The mobile terminal (1) communicates with the mobile telecommunications network and is authenticated with that network using the SIM (15). The mobile terminal (1) &>» is operable to obtain security data from the user thereof, such as a PIN or biometric data, or the mobile terminal (1) incorporates a © sensor such as a light sensor, pressure sensor, heat sensor, skin resistant sensor or inertial sensor. The input device or sensor is used to confirm the identity of the user or to evaluate whether the user wishes to use the near field tag (41) to make a payment or obtain entry to a building (for example). Data from the sensor is passed to the SIM (15), which issues a command enabling the near field tag (41), via link (43). The near field tag (41) may then be read by a reader. The near field tag (41) may be automatically disabled 5 after being read by the reader, after a predetermined time, or when the stimulus to the sensor is no longer present. Waters at [Abstract]

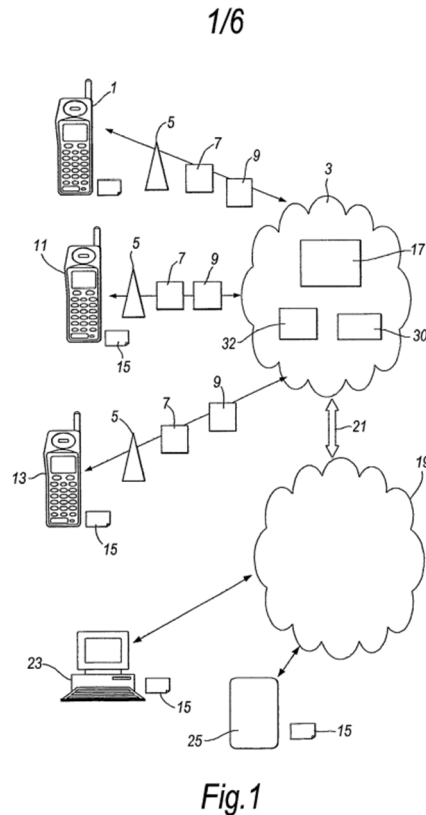
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		The present invention relates to apparatus for controlling use of a near field communication device, including smart card means associable with a mobile telecommunications network for authenticating the smart card means with the network, to a method of controlling use of a near field communication device and to a communication device including near field communication means. Waters at [Page 01] According to a first aspect of the present invention, there is provided apparatus for controlling use of a near field communication device, including smart card means associable with a mobile telecommunications network for authenticating the smart card means with the network, wherein the smart card means is operable to receive from the mobile telecommunications network data for controlling use of the near field communication device and is operable to selectively enable the near field communication device in dependence upon the data. The invention also relates to a mobile telecommunications network including such apparatus. According to another aspect of the present invention, there is provided a method of controlling use of a near field communication device, including associating smart card means with a mobile telecommunications network for authenticating the smart card means with the network, transmitting to the smart card means from the mobile telecommunications network data for controlling use of the near field communication device and selectively enabling the near field communication device in dependence upon the data. Waters at [Page 02] According to a further aspect of the present invention, there is provided a communication device including near field communication means; smart card means for authenticating the device with a mobile telecommunications network; means for
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	enabling the smart card to receive data from the mobile telecommunications network to authenticate the device; and means for selectively enabling the near field communication means in dependence upon the data received by the smart card. According to a further aspect of the present invention, there is provided a mobile telecommunication device for use with a mobile telecommunications network and including a near field device, wherein the mobile telecommunication device is operable to selectively enable the near field communication device. Waters at [Page 03] Figure 1 shows schematically a network with which the invention may be used. Mobile terminal 1 is registered with GSM/GPRS or UMTS (3G) mobile or cellular telecommunications network 3. The mobile terminal 1 may be a handheld mobile telephone, a personal digital assistant (PDA) or a laptop computer equipped with a datacard. The mobile terminal 1 communicates wirelessly with mobile telecommunications network 3 via the radio access network (RAN) of the mobile telecommunications network 3, comprising, in the case of a UMTS network, base station (Node B) 5, and radio network controller (RNC) 7. Communications between the mobile terminal 1 and the mobile telecommunications network 3 are routed from the radio access network via GPRS support nodes (SGSN) 9, which may be connected by a fixed (cable) link to the mobile telecommunications network 3. In the conventional manner, a multiplicity of other mobile terminals are registered with the mobile telecommunications network 3. These mobile terminals include mobile terminals 11 and 13. The terminals 11 and 13 communicate with the mobile telecommunications network 3 in a similar manner to the terminal 1, that is via an appropriate Node B 5, RNC 7 and SGSN 9. Waters at [Page 04]
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Waters at [Figure 1]

The mobile telecommunications network 3 includes a gateway GPRS support node (GGSN) 17 which enables IP-based communications with other networks, such as the Internet 19 via an appropriate link 21. A multiplicity of terminals are connected to the Internet (by fixed or wireless links), and a PC terminal 23 and a PDA terminal 25 are shown by way of example.

Each of the mobile terminals 1, 11 and 13 is provided with a respective smart card or subscriber identity module (SIM) 15. During the manufacturing process of each

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	SIM, authentication information is stored thereon under the control of the mobile telecommunications network 3. The mobile telecommunications network 3 itself stores details of each of the SIMs issued under its control. In operation of the mobile telecommunications network 3, a terminal 1, 11, 13 is authenticated (for example, when the user activates the terminal in the network with a view to making or receiving calls) by the network sending a challenge to the terminal 1,11,13 incorporating a SIM 15, in response to which the SIM 15 calculates a reply (dependent on the predetermined information held on the SIM - typically an authentication algorithm and a unique key Ki) and transmits it back to the mobile telecommunications network 3. The mobile telecommunications network 3 includes an authentication processor 17 which generates the challenge and which receives the reply from the terminal 1,11,13. Using information prestored concerning the content of the relevant SIM 15, the authentication processor calculates the expected value of the reply from the mobile terminal 1,11,13. If the reply received matches the expected calculated reply, the SIM 15 and the associated mobile terminal are considered to be authenticated. Waters at [Page 05] It should be understood that such an authentication process can be performed for any terminal provided with a SIM 15 under control of the mobile telecommunications network 3. In the embodiment the terminal communicates wirelessly with the mobile telecommunications network 3 via the network's radio access network, although this is not essential. For example, the terminal may communicate with the network via the fixed telephone network (PSTN), via a UMA "access point" and/or via the Internet. The PC 23 and the PDA 25 may also be provided with a SIM 15 under the control of the network. The SIM 15 used by the terminal 1,11,13,23,25 may be a SIM of the type defined in the GSM or UMTS standards 'specifications, or may be a simulation of a SIM - that is, software or hardware that performs a function corresponding to that of the SIM. The SIM may be in accordance with the arrangement described in WO-A-2004 036513.
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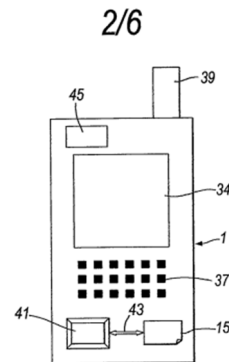
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	Waters at [Page 06] The mobile telecommunications network 3 operator may wish to alter the information on a SIM 15, for example to introduce new services. In order to allow such updating of the SIM 15 in a rapid and cost-effective way, over-the-air (OTA) updating technology has been developed. The mobile telecommunications network 3 includes an OTA gateway 30 that transforms updating messages from the network 3 into short messages (SMS messages) to be sent to the SIM 15. The OTA gateway 30 sends the SMS message to a short message service centre (SMSC) 32, which then transmits the short message to the relevant SIM 15 via the radio access network. As indicated above, OTA updating is currently performed using the SMS bearer. However, it is also possible for the transport bearer to be CSD or GPRS. To perform OTA with CTS or GPRS bearer, CAT-TP/BIP or J2ME/JSR#177 mechanisms could be used. References in this specification to over-the-air updating includes references to updating by these bearers or any other similar bearers. Waters at [Page 07] In addition to receiving OTA updating messages by SMS, mobile terminal 1 is also capable of receiving conventional SMS messages - such as text messages to be read by the user of the mobile terminal 1. In order to distinguish an OTA updating SMS from a conventional SMS message, the OTA updating SMS message has its protocol identifier set to "SIM data download". The message will include ENVELOPE or UPDATE RECORD commands. The GSM or 3G application running on the mobile terminal 1 receives these commands and calls the OTA layer. The OTA layer checks the messages according to standards specification GSM 03.48 or TS 23.04. Each secured packet in the messages may contain one or more APDUs commands dedicated to Remote File Management or Remote Applet Management or SIM Tool Kit.
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As shown in Figure 2, mobile terminal 1 in accordance with the embodiment includes, in addition to SIM 15, a display 34, keypad 37 and an antenna 39 for communicating wirelessly with the mobile communications network 3. Further, the mobile terminal 1 includes a near field or RFID tag 41. The near field tag 41 operates in the unregulated RF band of 13.56 MHz in this embodiment although other frequencies could be used. No licences are required for the use of the near field devices in this RF band. However, each country imposes certain limitations on the electromagnetic emissions in this RF band. Limitations mean that in practice the distance at which the near field tag 41 can communicate with another device is typically less than 20 centimetres. Often the range of communication is such that the RF tag 41 must touch or almost touch the device with which it is to communicate. Communication may be using the Near Field Communication Interface and Protocol (NFCIP-I).

Waters at [Page 08]



Waters at [Figure 2]

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	The near field tag 41 may operate in accordance with ISO-IEC 14443 and ISO- IEC 15693 standards. The tag 41 includes an inbuilt inductive antenna that allows the card to exchange information with a tag reader when the two are brought into close proximity, as described above. The reader may emit an RF signal to supply power to the tag to communicate with it if the tag is "passive". If the tag is "active" it will have a power supply and its operation is independently of the reader. The near field tag 41 may transmit selected information, such as an ID number (GU ID). In order to improve the security of the near field tag, in the present embodiment it is proposed to use the SIM 15 of mobile terminal 1 to control to some extent the operation of the near field tag 41. The authentication process of a SIM 15 with a mobile telecommunications network, using the network's authentication processor 17 is considered to be highly secure. In this embodiment, this authentication of the SIM 15 is used to protect data held by the memory of the near field tag 41 from unauthorised access. According to an important feature of this embodiment, the near field tag 41 is selectively enabled or disabled for communication with the reader under control of the SIM 15, by means of communication link 43. By means of the link 43, the SIM can enable or disable the near field tag 41 by, for example, rendering its antenna inoperative. In the disabled state, a reader is not able to obtain any information from the near field tag 41, even when brought into close proximity thereto (within a range that, in normal circumstances, near field communication would be possible). Conveniently, the SIM 15 is provided with data which controls operation of the near field tag 41 by receiving an OTA message, which is sent to the mobile terminal 1 from the mobile telecommunications network 3 (via the OTA gateway 30 and SMSC 32). As described above, the OTA update message is received by the mobile terminal 1 and it is determined that this is an updating OTA update message rather than a conventional SMS message. The message is then passed to the SIM 15 for processing. Upon processing of the message, commands contained within that message are executed, causing the desired control of the RF tag 41 via the link 43. Waters at [Page 09]
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	In a first example, it is desired to only enable the near field tag 41 to communicate with the reader when it is in the vicinity of the user's office (where entry is obtained using the near field tag 41). The SMSC 32 may send an OTA update message to the node B 5 associated with the cell or group of cells in which the user's office is located. When the mobile terminal 1 enters a cell in the group, the node B transmits the OTA message to the mobile terminal 1. The procedure described above is applied, and the OTA message is passed to the SIM 15 and the instructions therein are processed. A command is sent to the near field tag 41 via link 43 to activate the near field tag (for example, by allowing its antenna to communicate with the reader). When the mobile terminal 1 moves to a different cell, a command is sent from the SIM 15, via the link 43, to disable the near field tag 41. This command may be issued in response to a further OTA message being received from the network 3 when the mobile terminal 1 moves to a different cell, or movement to a different cell may be detected automatically by the SIM (or the mobile terminal 1) and used to generate an appropriate command for sending to the near field tag 41. The near field tag 41 may be rendered completely inoperable when not in the location of the cell of the user's office. Alternatively, the near field tag 41 may be partially disabled (for example, by rendering the antenna inoperable). In this partially disabled mode the tag 41 may perform certain functions, such as allowing its codes or other data to be reprogrammed. Waters at [Page 10] In the second example, a user wishes to use the near field tag 41 of the mobile terminal 1 to pay for travel by public transport (for example on the London Underground), where entry barriers are equipped with a suitable near field tag reader. Because the commuter travels at particular, consistent times of day, it is desirable to enable the near field tag 41 only at those times, in order to provide improved security. When so configured, if the mobile terminal 1 incorporating the near field tag 41 were stolen, the thief would not be able to pay for use of public transport using the near field tag 41 outside the times specified.
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	The mobile telecommunications network 3 is configured to transmit an OTA message to the mobile terminal 1 at the beginning of the time period during which the commuter begins their normal journey. As before, this message is received and interpreted by the SIM, which sends an instruction to enable the near field tag 41 via the link 43. The near field tag 41 is then able to communicate with readers to allow use of public transport. At the end of the time period during which the commuter completes their usual journey, a second OTA message is sent by the network 3 to the mobile terminal 1. This OTA message is received and interpreted by the SIM 15, and sends an appropriate deactivation instruction to the RF tag 41 via the link 43. The near field tag 41 is thereafter not able to allow the user to obtain access to public transport. A similar arrangement could be used, for example, to enable a school child to pay for their lunch using the near field tag 41. OTA messages would be sent at the beginning and the end of the school lunch time so that the near field tag 41 could only be used to make a payment during the appropriate time. Waters at [Page 11] The times at which, and the circumstances in which, the OTA messages are sent by the mobile telecommunications network 3 to the user's SIM card 15 may be set by the user of the mobile terminal 1. For example, the user of the mobile terminal 1 may initiate a communication session (such as a SIP communication session) with the mobile telecommunications network 1 to configure the times or places in which the RF tag 41 should be enabled. This updating process may require entry of a password, or employ some other security mechanism, to prevent unauthorised persons from reconfiguring the times and/or locations at which the near field tag is rendered operable or inoperable. Alternatively, the user may configure the times and/or locations at which the OTA messages are sent by some other mechanism - for example, by providing verbal instructions to the operator of mobile telecommunications network 3 by a mobile or PSTN telephone call, or by visiting the website of the mobile telecommunications network operator (whether using the mobile terminal 1 or independently thereof using a PC connected to the Internet).
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	Rather than the user of the mobile terminal 1 determining when/where the RF tag 41 is activated, this may be determined by the mobile telecommunications network 3 or some other entity. For example, a school child's parent may set the times during which the school child is able to use their RF tag to make payments, in the example given above relating to paying for a school lunch. In the example given above relating to payment for public transport, the public transportation authority may alternatively or additionally be able to control when OTA messages are sent so that, if it is notified that the mobile terminal 1 incorporating the near field tag 41 has been stolen, that authority can permanently or temporarily deactivate the near field tag 41. In an alternative embodiment, the SIM 15 activates and deactivates the tag in dependence upon whether the SIM is authenticated with the mobile telecommunications network (using the authentication algorithm and the unique Ki in the manner described above). Waters at [Page 12] Typically, when the mobile terminal 1 is powered up within the coverage area of the mobile telecommunications network 3, the authentication process between the SIM 15 and the authentication processor 17 of the network 3 occurs automatically. When this authentication has been completed, a message is sent to the near field tag 41, via the link 43, to enable operation of the tag. When the SIM 15 is no longer authenticated (for example, when the mobile terminal 1 is powered down), a further message is sent from the SIM 15 to the near field tag 41, via the link 43, to deactivate the near field tag 41. In the modification to this arrangement, the mobile terminal 1 does not have to be always authenticated with the network 3 for the tag 41 to be enabled. However, the tag 41 is configured so that it is only enabled when it receives messages from the SIM 15 indicating that the SIM 15 has been authenticated at predetermined times or events - for example, once a day or on powering on/off of the mobile terminal 1. Such an embodiment is advantageous because, if the mobile terminal 1 is stolen,
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	both the SIM 15 and the near field tag 41 can be disabled together by sending a single OTA message. In another embodiment of the invention, the mobile terminal and/or near field tag 41 is provided with means for disabling the tag 41 without requiring communication between the mobile terminal 1 and the mobile telecommunications network 3 (and therefore without requiring receipt of an OTA message). The near field tag 41 may be selectively enabled and disabled in order to reduce the opportunity to obtain information from the near field tag 41 by an unauthorised reader. The following arrangements are useful if the near field tag 41 is to be enabled and disabled for fairly long periods of time: (1) Personal identification number (PESf) entry - the keypad 37 of the mobile terminal 1 is used to enter a PIN (or other secret password) to enable the near field tag 41. The user's PIN may be stored in a secure location in the mobile terminal 1 or in the SIM 15. When the user enters their PIN using the keypad 37, the entered PIN is compared with the stored PIN. If the PINs match, the SIM transmits a message, via link 43, to the near field tag 41 to activate the near field tag. (2) Biometric data entry - the mobile terminal 1 may incorporate a fingerprint reader 45. The fingerprint reader 45 scans the fingerprint of the user when the user's finger is placed on the reader 45 and compares it to the user's fingerprint stored in the memory of the mobile terminal 1 or the SIM 15. If the fingerprints are determined to match, the message is sent from the SIM 15, via link 43, to the RF tag 41. As an alternative to a fingerprint, other biometric data could be used - for example, voice recognition (using the mobile terminal's built-in microphone and a voice recognition algorithm within the mobile terminal 1 or SIM card 15) or retinal scanning (using the mobile terminal's built-in camera). Arrangements (1) and (2) above may advantageously be combined with an RF tag 41 that automatically deactivates after it has been read by a reader. That is, the user will activate the RF tag by entering their PIN or biometric data prior to bringing the mobile terminal 1 into proximity to the reader. After successful reading of the RF tag 41, the RF tag automatically disables itself so that no further reading can occur
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		without the PIN or biometric data being re-entered. If the mobile terminal 1 is lost or stolen, an unauthorised person cannot use the RF tag 41. Waters at [Page 13-14] Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[1.2]	detecting by the smartphone that a proximity condition is satisfied between the smartphone and the entity;	Waters discloses “detecting by the smartphone that a proximity condition is satisfied between the smartphone and the entity;” See e.g.: A mobile terminal is disclosed which includes a near field or RF ID tag (41). The mobile terminal (1) communicates with the mobile telecommunications network and is authenticated with that network using the SIM (15). The mobile terminal (1) &>» is operable to obtain security data from the user thereof, such as a PIN or biometric data, or the mobile terminal (1) incorporates a © sensor such as a light sensor, pressure sensor, heat sensor, skin resistant sensor or inertial sensor. The input device or sensor is used to confirm the identity of the user or to evaluate whether the user wishes to use the near field tag (41) to make a payment or obtain entry to a building (for example). Data from the sensor is passed to the SIM (15), which issues a command enabling the near field tag (41), via link (43). The near field tag (41) may then be read by a reader. The near field tag (41) may be automatically disabled 5 after being read by the reader, after a predetermined time, or when the stimulus to the sensor is no longer present. Waters at [Abstract]

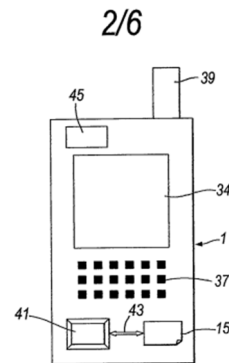
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As shown in Figure 2, mobile terminal 1 in accordance with the embodiment includes, in addition to SIM 15, a display 34, keypad 37 and an antenna 39 for communicating wirelessly with the mobile communications network 3. Further, the mobile terminal 1 includes a near field or RFID tag 41. The near field tag 41 operates in the unregulated RF band of 13.56 MHz in this embodiment although other frequencies could be used. No licences are required for the use of the near field devices in this RF band. However, each country imposes certain limitations on the electromagnetic emissions in this RF band. Limitations mean that in practice the distance at which the near field tag 41 can communicate with another device is typically less than 20 centimetres. Often the range of communication is such that the RF tag 41 must touch or almost touch the device with which it is to communicate. Communication may be using the Near Field Communication Interface and Protocol (NFCIP-I).

Waters at [Page 08]



Waters at [Figure 2]

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	In a first example, it is desired to only enable the near field tag 41 to communicate with the reader when it is in the vicinity of the user's office (where entry is obtained using the near field tag 41). The SMSC 32 may send an OTA update message to the node B 5 associated with the cell or group of cells in which the user's office is located. When the mobile terminal 1 enters a cell in the group, the node B transmits the OTA message to the mobile terminal 1. The procedure described above is applied, and the OTA message is passed to the SIM 15 and the instructions therein are processed. A command is sent to the near field tag 41 via link 43 to activate the near field tag (for example, by allowing its antenna to communicate with the reader). When the mobile terminal 1 moves to a different cell, a command is sent from the SIM 15, via the link 43, to disable the near field tag 41. This command may be issued in response to a further OTA message being received from the network 3 when the mobile terminal 1 moves to a different cell, or movement to a different cell may be detected automatically by the SIM (or the mobile terminal 1) and used to generate an appropriate command for sending to the near field tag 41. The near field tag 41 may be rendered completely inoperable when not in the location of the cell of the user's office. Alternatively, the near field tag 41 may be partially disabled (for example, by rendering the antenna inoperable). In this partially disabled mode the tag 41 may perform certain functions, such as allowing its codes or other data to be reprogrammed. Waters at [Page 10] In the second example, a user wishes to use the near field tag 41 of the mobile terminal 1 to pay for travel by public transport (for example on the London Underground), where entry barriers are equipped with a suitable near field tag reader. Because the commuter travels at particular, consistent times of day, it is desirable to enable the near field tag 41 only at those times, in order to provide improved security. When so configured, if the mobile terminal 1 incorporating the near field tag 41 were stolen, the thief would not be able to pay for use of public transport using the near field tag 41 outside the times specified.
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		Waters at [Page 11] Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[1.3]	in response to at least the proximity condition having been satisfied between the smartphone and the entity, establishing a wireless short-range communications link between the smartphone and the entity to provide by the smartphone, using the first air interface, information to the entity and to receive by the smartphone information from the entity;	Waters discloses “in response to at least the proximity condition having been satisfied between the smartphone and the entity, establishing a wireless short-range communications link between the smartphone and the entity to provide by the smartphone, using the first air interface, information to the entity and to receive by the smartphone information from the entity;” See e.g.: A mobile terminal is disclosed which includes a near field or RF ID tag (41). The mobile terminal (1) communicates with the mobile telecommunications network and is authenticated with that network using the SIM (15). The mobile terminal (1) &>» is operable to obtain security data from the user thereof, such as a PIN or biometric data, or the mobile terminal (1) incorporates a © sensor such as a light sensor, pressure sensor, heat sensor, skin resistant sensor or inertial sensor. The input device or sensor is used to confirm the identity of the user or to evaluate whether the user wishes to use the near field tag (41) to make a payment or obtain entry to a building (for example). Data from the sensor is passed to the SIM (15), which issues a command enabling the near field tag (41), via link (43). The near field tag (41) may then be read by a reader. The near field tag (41) may be automatically disabled 5 after being read by the reader, after a predetermined time, or when the stimulus to the sensor is no longer present. Waters at [Abstract]

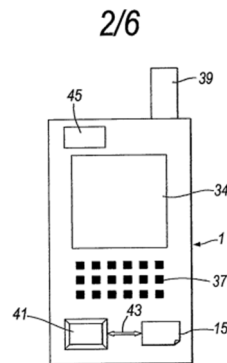
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		The present invention relates to apparatus for controlling use of a near field communication device, including smart card means associable with a mobile telecommunications network for authenticating the smart card means with the network, to a method of controlling use of a near field communication device and to a communication device including near field communication means. Waters at [Page 01] According to a first aspect of the present invention, there is provided apparatus for controlling use of a near field communication device, including smart card means associable with a mobile telecommunications network for authenticating the smart card means with the network, wherein the smart card means is operable to receive from the mobile telecommunications network data for controlling use of the near field communication device and is operable to selectively enable the near field communication device in dependence upon the data. The invention also relates to a mobile telecommunications network including such apparatus. According to another aspect of the present invention, there is provided a method of controlling use of a near field communication device, including associating smart card means with a mobile telecommunications network for authenticating the smart card means with the network, transmitting to the smart card means from the mobile telecommunications network data for controlling use of the near field communication device and selectively enabling the near field communication device in dependence upon the data. Waters at [Page 02] According to a further aspect of the present invention, there is provided a communication device including near field communication means; smart card means for authenticating the device with a mobile telecommunications network; means for
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	enabling the smart card to receive data from the mobile telecommunications network to authenticate the device; and means for selectively enabling the near field communication means in dependence upon the data received by the smart card. According to a further aspect of the present invention, there is provided a mobile telecommunication device for use with a mobile telecommunications network and including a near field device, wherein the mobile telecommunication device is operable to selectively enable the near field communication device. Waters at [Page 03] As shown in Figure 2, mobile terminal 1 in accordance with the embodiment includes, in addition to SIM 15, a display 34, keypad 37 and an antenna 39 for communicating wirelessly with the mobile communications network 3. Further, the mobile terminal 1 includes a near field or RFID tag 41. The near field tag 41 operates in the unregulated RF band of 13.56 MHz in this embodiment although other frequencies could be used. No licences are required for the use of the near field devices in this RF band. However, each country imposes certain limitations on the electromagnetic emissions in this RF band. Limitations mean that in practice the distance at which the near field tag 41 can communicate with another device is typically less than 20 centimetres. Often the range of communication is such that the RF tag 41 must touch or almost touch the device with which it is to communicate. Communication may be using the Near Field Communication Interface and Protocol (NFCIP-I). Waters at [Page 08]
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Waters at [Figure 2]

The near field tag 41 may operate in accordance with ISO-IEC 14443 and ISO-IEC 15693 standards. The tag 41 includes an inbuilt inductive antenna that allows the card to exchange information with a tag reader when the two are brought into close proximity, as described above. The reader may emit an RF signal to supply power to the tag to communicate with it if the tag is "passive". If the tag is "active" it will have a power supply and its operation is independently of the reader. The near field tag 41 may transmit selected information, such as an ID number (GU ID).

In order to improve the security of the near field tag, in the present embodiment it is proposed to use the SIM 15 of mobile terminal 1 to control to some extent the operation of the near field tag 41. The authentication process of a SIM 15 with a mobile telecommunications network, using the network's authentication processor 17 is considered to be highly secure. In this embodiment, this authentication of the SIM 15 is used to protect data held by the memory of the near field tag 41 from unauthorised access.

According to an important feature of this embodiment, the near field tag 41 is selectively enabled or disabled for communication with the reader under control of

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	the SIM 15, by means of communication link 43. By means of the link 43, the SIM can enable or disable the near field tag 41 by, for example, rendering its antenna inoperative. In the disabled state, a reader is not able to obtain any information from the near field tag 41, even when brought into close proximity thereto (within a range that, in normal circumstances, near field communication would be possible). Conveniently, the SIM 15 is provided with data which controls operation of the near field tag 41 by receiving an OTA message, which is sent to the mobile terminal 1 from the mobile telecommunications network 3 (via the OTA gateway 30 and SMSC 32). As described above, the OTA update message is received by the mobile terminal 1 and it is determined that this is an updating OTA update message rather than a conventional SMS message. The message is then passed to the SIM 15 for processing. Upon processing of the message, commands contained within that message are executed, causing the desired control of the RF tag 41 via the link 43. Waters at [Page 09] In a first example, it is desired to only enable the near field tag 41 to communicate with the reader when it is in the vicinity of the user's office (where entry is obtained using the near field tag 41). The SMSC 32 may send an OTA update message to the node B 5 associated with the cell or group of cells in which the user's office is located. When the mobile terminal 1 enters a cell in the group, the node B transmits the OTA message to the mobile terminal 1. The procedure described above is applied, and the OTA message is passed to the SIM 15 and the instructions therein are processed. A command is sent to the near field tag 41 via link 43 to activate the near field tag (for example, by allowing its antenna to communicate with the reader). When the mobile terminal 1 moves to a different cell, a command is sent from the SIM 15, via the link 43, to disable the near field tag 41. This command may be issued in response to a further OTA message being received from the network 3 when the mobile terminal 1 moves to a different cell, or movement to a different cell may be detected automatically by the SIM (or the mobile terminal 1) and used to generate an appropriate command for sending to the near field tag 41.
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	The near field tag 41 may be rendered completely inoperable when not in the location of the cell of the user's office. Alternatively, the near field tag 41 may be partially disabled (for example, by rendering the antenna inoperable). In this partially disabled mode the tag 41 may perform certain functions, such as allowing its codes or other data to be reprogrammed. Waters at [Page 10] In the second example, a user wishes to use the near field tag 41 of the mobile terminal 1 to pay for travel by public transport (for example on the London Underground), where entry barriers are equipped with a suitable near field tag reader. Because the commuter travels at particular, consistent times of day, it is desirable to enable the near field tag 41 only at those times, in order to provide improved security. When so configured, if the mobile terminal 1 incorporating the near field tag 41 were stolen, the thief would not be able to pay for use of public transport using the near field tag 41 outside the times specified. The mobile telecommunications network 3 is configured to transmit an OTA message to the mobile terminal 1 at the beginning of the time period during which the commuter begins their normal journey. As before, this message is received and interpreted by the SIM, which sends an instruction to enable the near field tag 41 via the link 43. The near field tag 41 is then able to communicate with readers to allow use of public transport. At the end of the time period during which the commuter completes their usual journey, a second OTA message is sent by the network 3 to the mobile terminal 1. This OTA message is received and interpreted by the SIM 15, and sends an appropriate deactivation instruction to the RF tag 41 via the link 43. The near field tag 41 is thereafter not able to allow the user to obtain access to public transport. A similar arrangement could be used, for example, to enable a school child to pay for their lunch using the near field tag 41. OTA messages would be sent at the beginning and the end of the school lunch time so that the near field tag 41 could only be used to make a payment during the appropriate time.
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		Waters at [Page 11] The times at which, and the circumstances in which, the OTA messages are sent by the mobile telecommunications network 3 to the user's SIM card 15 may be set by the user of the mobile terminal 1. For example, the user of the mobile terminal 1 may initiate a communication session (such as a SIP communication session) with the mobile telecommunications network 1 to configure the times or places in which the RF tag 41 should be enabled. This updating process may require entry of a password, or employ some other security mechanism, to prevent unauthorised persons from reconfiguring the times and/or locations at which the near field tag is rendered operable or inoperable. Alternatively, the user may configure the times and/or locations at which the OTA messages are sent by some other mechanism - for example, by providing verbal instructions to the operator of mobile telecommunications network 3 by a mobile or PSTN telephone call, or by visiting the website of the mobile telecommunications network operator (whether using the mobile terminal 1 or independently thereof using a PC connected to the Internet). Rather than the user of the mobile terminal 1 determining when/where the RF tag 41 is activated, this may be determined by the mobile telecommunications network 3 or some other entity. For example, a school child's parent may set the times during which the school child is able to use their RF tag to make payments, in the example given above relating to paying for a school lunch. In the example given above relating to payment for public transport, the public transportation authority may alternatively or additionally be able to control when OTA messages are sent so that, if it is notified that the mobile terminal 1 incorporating the near field tag 41 has been stolen, that authority can permanently or temporarily deactivate the near field tag 41. In an alternative embodiment, the SIM 15 activates and deactivates the tag in dependence upon whether the SIM is authenticated with the mobile telecommunications network (using the authentication algorithm and the unique Ki in the manner described above). Waters at [Page 12]
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		Typically, when the mobile terminal 1 is powered up within the coverage area of the mobile telecommunications network 3, the authentication process between the SIM 15 and the authentication processor 17 of the network 3 occurs automatically. When this authentication has been completed, a message is sent to the near field tag 41, via the link 43, to enable operation of the tag. When the SIM 15 is no longer authenticated (for example, when the mobile terminal 1 is powered down), a further message is sent from the SIM 15 to the near field tag 41, via the link 43, to deactivate the near field tag 41. In the modification to this arrangement, the mobile terminal 1 does not have to be always authenticated with the network 3 for the tag 41 to be enabled. However, the tag 41 is configured so that it is only enabled when it receives messages from the SIM 15 indicating that the SIM 15 has been authenticated at predetermined times or events - for example, once a day or on powering on/off of the mobile terminal 1. Such an embodiment is advantageous because, if the mobile terminal 1 is stolen, both the SIM 15 and the near field tag 41 can be disabled together by sending a single OTA message. In another embodiment of the invention, the mobile terminal and/or near field tag 41 is provided with means for disabling the tag 41 without requiring communication between the mobile terminal 1 and the mobile telecommunications network 3 (and therefore without requiring receipt of an OTA message). The near field tag 41 may be selectively enabled and disabled in order to reduce the opportunity to obtain information from the near field tag 41 by an unauthorised reader. The following arrangements are useful if the near field tag 41 is to be enabled and disabled for fairly long periods of time: (1) Personal identification number (PESf) entry - the keypad 37 of the mobile terminal 1 is used to enter a PIN (or other secret password) to enable the near field tag 41. The user's PIN may be stored in a secure location in the mobile terminal 1 or in the SIM 15. When the user enters their PIN using the keypad 37, the entered
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		PIN is compared with the stored PIN. If the PINs match, the SIM transmits a message, via link 43, to the near field tag 41 to activate the near field tag. (2) Biometric data entry - the mobile terminal 1 may incorporate a fingerprint reader 45. The fingerprint reader 45 scans the fingerprint of the user when the user's finger is placed on the reader 45 and compares it to the user's fingerprint stored in the memory of the mobile terminal 1 or the SIM 15. If the fingerprints are determined to match, the message is sent from the SIM 15, via link 43, to the RF tag 41. As an alternative to a fingerprint, other biometric data could be used - for example, voice recognition (using the mobile terminal's built-in microphone and a voice recognition algorithm within the mobile terminal 1 or SIM card 15) or retinal scanning (using the mobile terminal's built-in camera). Arrangements (1) and (2) above may advantageously be combined with an RF tag 41 that automatically deactivates after it has been read by a reader. That is, the user will activate the RF tag by entering their PIN or biometric data prior to bringing the mobile terminal 1 into proximity to the reader. After successful reading of the RF tag 41, the RF tag automatically disables itself so that no further reading can occur without the PIN or biometric data being re-entered. If the mobile terminal 1 is lost or stolen, an unauthorised person cannot use the RF tag 41. Waters at [Page 13-14] Arrangements (1) to (5) immediately above activate the radio frequency tag 41 in dependence upon ambient conditions (light, pressure, heat, movement etc.) which change from when the card is being stored to when the card is required to be active. Other types of ambient sensors could be used and are within the scope of the invention. The arrangements (1) to (5) described above could be combined with an arrangement for automatically deactivating the near field tag 41 after it has been read once, or alternatively the tag 41 may deactivate when the ambient conditions change (for example the light/pressure/heat/movement is no longer applied). Waters at [Page 16]
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	A mobile terminal 1 may have any of the above arrangements implemented in any combination. For example, a manual entry system and an automatic entry system may be provided, respectively, to enable the card for short and long periods of use. Alternatively, the arrangements may work in parallel, and the near field tag 41 would be enabled only if the light sensor was activated and the correct PIN was entered (for example). Further, the arrangements may work in series - for example, the near field tag 41 would be enabled if the light sensor was activated and the correct PIN was subsequently entered. Waters at [Page 17] In the arrangements described above the tag 41 and the mechanism for activating/deactivating the near field tag 41 is incorporated into the mobile terminal. Alternatively, the mechanism for activating/deactivating the tag may be incorporated directly into the smart card or SIM 15 itself. Also, the tag 41 or part of the tag 41 may be incorporated into the SIM 15. The principle of controlling operation of a near field tag by means of a smart card or SIM is not restricted to an arrangement where the SIM is, or is always, associated with a mobile terminal 1. For example, the SIM may be associated with a "dongle" of the type disclosed in WO-A-2004 036513. Waters at [Page 18] Figure 5 shows a smart card 100 with an in-built near field tag including an inductive antenna 200, and a biometric system 120 for reading a finger print. The print is ideally compared to a previously taken print stored in the memory 130 of the smart card 100 or may just be judged as having the characteristics of a non-specific fingerprint. Waters at [Page 20]
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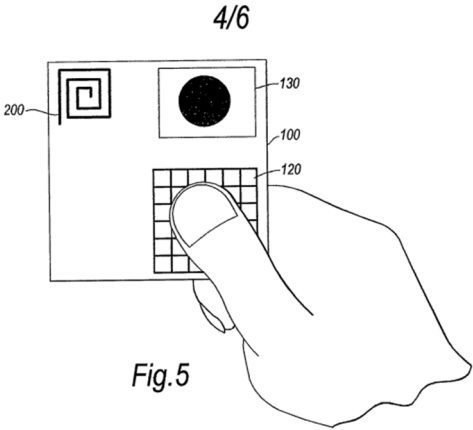
		4/6  Fig. 5 Waters at [Figure 5] Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[1.4]	in response to at least the proximity condition having been satisfied between the smartphone and the entity and in response to a physiological parameter, wirelessly providing by the smartphone, using the first air interface, information to the entity and wirelessly receiving by the smartphone, using the first air	Waters discloses “in response to at least the proximity condition having been satisfied between the smartphone and the entity and in response to a physiological parameter, wirelessly providing by the smartphone, using the first air interface, information to the entity and wirelessly receiving by the smartphone, using the first air interface, information from the entity independently of, and absent involving the entity in, receiving by the smartphone the communications service from the wireless network using the second air interface; and” See e.g.:

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	interface, information from the entity independently of, and absent involving the entity in, receiving by the smartphone the communications service from the wireless network using the second air interface; and	A mobile terminal is disclosed which includes a near field or RF ID tag (41). The mobile terminal (1) communicates with the mobile telecommunications network and is authenticated with that network using the SIM (15). The mobile terminal (1) &>» is operable to obtain security data from the user thereof, such as a PIN or biometric data, or the mobile terminal (1) incorporates a © sensor such as a light sensor, pressure sensor, heat sensor, skin resistant sensor or inertial sensor. The input device or sensor is used to confirm the identity of the user or to evaluate whether the user wishes to use the near field tag (41) to make a payment or obtain entry to a building (for example). Data from the sensor is passed to the SIM (15), which issues a command enabling the near field tag (41), via link (43). The near field tag (41) may then be read by a reader. The near field tag (41) may be automatically disabled 5 after being read by the reader, after a predetermined time, or when the stimulus to the sensor is no longer present. Waters at [Abstract] The present invention relates to apparatus for controlling use of a near field communication device, including smart card means associable with a mobile telecommunications network for authenticating the smart card means with the network, to a method of controlling use of a near field communication device and to a communication device including near field communication means. Waters at [Page 01] According to a first aspect of the present invention, there is provided apparatus for controlling use of a near field communication device, including smart card means associable with a mobile telecommunications network for authenticating the smart card means with the network, wherein the smart card means is operable to receive from the mobile telecommunications network data for controlling use of the near field communication device and is operable to selectively enable the near field communication device in dependence upon the data.
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	The invention also relates to a mobile telecommunications network including such apparatus. According to another aspect of the present invention, there is provided a method of controlling use of a near field communication device, including associating smart card means with a mobile telecommunications network for authenticating the smart card means with the network, transmitting to the smart card means from the mobile telecommunications network data for controlling use of the near field communication device and selectively enabling the near field communication device in dependence upon the data. Waters at [Page 02] According to a further aspect of the present invention, there is provided a communication device including near field communication means; smart card means for authenticating the device with a mobile telecommunications network; means for enabling the smart card to receive data from the mobile telecommunications network to authenticate the device; and means for selectively enabling the near field communication means in dependence upon the data received by the smart card. According to a further aspect of the present invention, there is provided a mobile telecommunication device for use with a mobile telecommunications network and including a near field device, wherein the mobile telecommunication device is operable to selectively enable the near field communication device. Waters at [Page 03] Figure 1 shows schematically a network with which the invention may be used. Mobile terminal 1 is registered with GSM/GPRS or UMTS (3G) mobile or cellular telecommunications network 3. The mobile terminal 1 may be a handheld mobile telephone, a personal digital assistant (PDA) or a laptop computer equipped with a datacard. The mobile terminal 1 communicates wirelessly with mobile telecommunications network 3 via the radio access network (RAN) of the mobile
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		telecommunications network 3, comprising, in the case of a UMTS network, base station (Node B) 5, and radio network controller (RNC) 7. Communications between the mobile terminal 1 and the mobile telecommunications network 3 are routed from the radio access network via GPRS support nodes (SGSN) 9, which may be connected by a fixed (cable) link to the mobile telecommunications network 3. In the conventional manner, a multiplicity of other mobile terminals are registered with the mobile telecommunications network 3. These mobile terminals include mobile terminals 11 and 13. The terminals 11 and 13 communicate with the mobile telecommunications network 3 in a similar manner to the terminal 1, that is via an appropriate Node B 5, RNC 7 and SGSN 9. Waters at [Page 04]
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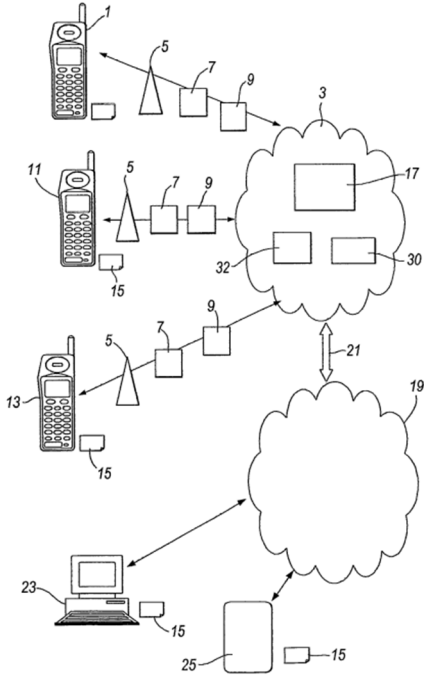
		1/6  <i>Fig.1</i> Waters at [Figure 1] The mobile telecommunications network 3 includes a gateway GPRS support node (GGSN) 17 which enables IP-based communications with other networks, such as the Internet 19 via an appropriate link 21. A multiplicity of terminals are connected to the Internet (by fixed or wireless links), and a PC terminal 23 and a PDA terminal 25 are shown by way of example.
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	Each of the mobile terminals 1,11 and 13 is provided with a respective smart card or subscriber identity module (SIM) 15. During the manufacturing process of each SIM, authentication information is stored thereon under the control of the mobile telecommunications network 3. The mobile telecommunications network 3 itself stores details of each of the SIMs issued under its control. In operation of the mobile telecommunications network 3, a terminal 1, 11, 13 is authenticated (for example, when the user activates the terminal in the network with a view to making or receiving calls) by the network sending a challenge to the terminal 1,11,13 incorporating a SIM 15, in response to which the SIM 15 calculates a reply (dependent on the predetermined information held on the SIM - typically an authentication algorithm and a unique key Ki) and transmits it back to the mobile telecommunications network 3. The mobile telecommunications network 3 includes an authentication processor 17 which generates the challenge and which receives the reply from the terminal 1,11,13. Using information prestored concerning the content of the relevant SIM 15, the authentication processor calculates the expected value of the reply from the mobile terminal 1,11,13. If the reply received matches the expected calculated reply, the SIM 15 and the associated mobile terminal are considered to be authenticated. Waters at [Page 05] It should be understood that such an authentication process can be performed for any terminal provided with a SIM 15 under control of the mobile telecommunications network 3. In the embodiment the terminal communicates wirelessly with the mobile telecommunications network 3 via the network's radio access network, although this is not essential. For example, the terminal may communicate with the network via the fixed telephone network (PSTN), via a UMA "access point" and/or via the Internet. The PC 23 and the PDA 25 may also be provided with a SIM 15 under the control of the network. The SIM 15 used by the terminal 1,11,13,23,25 may be a SIM of the type defined in the GSM or UMTS standards 'specifications, or may be a simulation of a SIM - that is, software or hardware that performs a function corresponding to that of the SIM.
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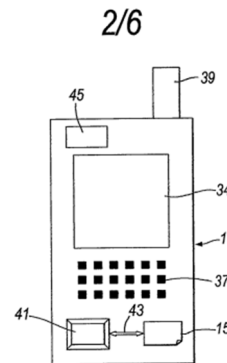
	The SIM may be in accordance with the arrangement described in WO-A-2004 036513. Waters at [Page 06] The mobile telecommunications network 3 operator may wish to alter the information on a SIM 15, for example to introduce new services. In order to allow such updating of the SIM 15 in a rapid and cost-effective way, over-the-air (OTA) updating technology has been developed. The mobile telecommunications network 3 includes an OTA gateway 30 that transforms updating messages from the network 3 into short messages (SMS messages) to be sent to the SIM 15. The OTA gateway 30 sends the SMS message to a short message service centre (SMSC) 32, which then transmits the short message to the relevant SIM 15 via the radio access network. As indicated above, OTA updating is currently performed using the SMS bearer. However, it is also possible for the transport bearer to be CSD or GPRS. To perform OTA with CTS or GPRS bearer, CAT-TP/BIP or J2ME/JSR#177 mechanisms could be used. References in this specification to over-the-air updating includes references to updating by these bearers or any other similar bearers. Waters at [Page 07] In addition to receiving OTA updating messages by SMS, mobile terminal 1 is also capable of receiving conventional SMS messages - such as text messages to be read by the user of the mobile terminal 1. In order to distinguish an OTA updating SMS from a conventional SMS message, the OTA updating SMS message has its protocol identifier set to "SIM data download". The message will include ENVELOPE or UPDATE RECORD commands. The GSM or 3G application running on the mobile terminal 1 receives these commands and calls the OTA layer. The OTA layer checks the messages according to standards specification GSM 03.48 or TS 23.04. Each secured packet in the messages may contain one or more APDUs commands
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dedicated to Remote File Management or Remote Applet Management or SIM Tool Kit.

As shown in Figure 2, mobile terminal 1 in accordance with the embodiment includes, in addition to SIM 15, a display 34, keypad 37 and an antenna 39 for communicating wirelessly with the mobile communications network 3. Further, the mobile terminal 1 includes a near field or RFID tag 41. The near field tag 41 operates in the unregulated RF band of 13.56 MHz in this embodiment although other frequencies could be used. No licences are required for the use of the near field devices in this RF band. However, each country imposes certain limitations on the electromagnetic emissions in this RF band. Limitations mean that in practice the distance at which the near field tag 41 can communicate with another device is typically less than 20 centimetres. Often the range of communication is such that the RF tag 41 must touch or almost touch the device with which it is to communicate. Communication may be using the Near Field Communication Interface and Protocol (NFCIP-I).

Waters at [Page 08]



Waters at [Figure 2]

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		The near field tag 41 may operate in accordance with ISO-IEC 14443 and ISO- IEC 15693 standards. The tag 41 includes an inbuilt inductive antenna that allows the card to exchange information with a tag reader when the two are brought into close proximity, as described above. The reader may emit an RF signal to supply power to the tag to communicate with it if the tag is "passive". If the tag is "active" it will have a power supply and its operation is independently of the reader. The near field tag 41 may transmit selected information, such as an ID number (GU ID). In order to improve the security of the near field tag, in the present embodiment it is proposed to use the SIM 15 of mobile terminal 1 to control to some extent the operation of the near field tag 41. The authentication process of a SIM 15 with a mobile telecommunications network, using the network's authentication processor 17 is considered to be highly secure. In this embodiment, this authentication of the SIM 15 is used to protect data held by the memory of the near field tag 41 from unauthorised access. According to an important feature of this embodiment, the near field tag 41 is selectively enabled or disabled for communication with the reader under control of the SIM 15, by means of communication link 43. By means of the link 43, the SIM can enable or disable the near field tag 41 by, for example, rendering its antenna inoperative. In the disabled state, a reader is not able to obtain any information from the near field tag 41, even when brought into close proximity thereto (within a range that, in normal circumstances, near field communication would be possible). Conveniently, the SIM 15 is provided with data which controls operation of the near field tag 41 by receiving an OTA message, which is sent to the mobile terminal 1 from the mobile telecommunications network 3 (via the OTA gateway 30 and SMSC 32). As described above, the OTA update message is received by the mobile terminal 1 and it is determined that this is an updating OTA update message rather than a conventional SMS message. The message is then passed to the SIM 15 for processing. Upon processing of the message, commands contained within that message are executed, causing the desired control of the RF tag 41 via the link 43. Waters at [Page 09]
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		In a first example, it is desired to only enable the near field tag 41 to communicate with the reader when it is in the vicinity of the user's office (where entry is obtained using the near field tag 41). The SMSC 32 may send an OTA update message to the node B 5 associated with the cell or group of cells in which the user's office is located. When the mobile terminal 1 enters a cell in the group, the node B transmits the OTA message to the mobile terminal 1. The procedure described above is applied, and the OTA message is passed to the SIM 15 and the instructions therein are processed. A command is sent to the near field tag 41 via link 43 to activate the near field tag (for example, by allowing its antenna to communicate with the reader). When the mobile terminal 1 moves to a different cell, a command is sent from the SIM 15, via the link 43, to disable the near field tag 41. This command may be issued in response to a further OTA message being received from the network 3 when the mobile terminal 1 moves to a different cell, or movement to a different cell may be detected automatically by the SIM (or the mobile terminal 1) and used to generate an appropriate command for sending to the near field tag 41. The near field tag 41 may be rendered completely inoperable when not in the location of the cell of the user's office. Alternatively, the near field tag 41 may be partially disabled (for example, by rendering the antenna inoperable). In this partially disabled mode the tag 41 may perform certain functions, such as allowing its codes or other data to be reprogrammed. Waters at [Page 10] In the second example, a user wishes to use the near field tag 41 of the mobile terminal 1 to pay for travel by public transport (for example on the London Underground), where entry barriers are equipped with a suitable near field tag reader. Because the commuter travels at particular, consistent times of day, it is desirable to enable the near field tag 41 only at those times, in order to provide improved security. When so configured, if the mobile terminal 1 incorporating the
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	near field tag 41 were stolen, the thief would not be able to pay for use of public transport using the near field tag 41 outside the times specified. The mobile telecommunications network 3 is configured to transmit an OTA message to the mobile terminal 1 at the beginning of the time period during which the commuter begins their normal journey. As before, this message is received and interpreted by the SIM, which sends an instruction to enable the near field tag 41 via the link 43. The near field tag 41 is then able to communicate with readers to allow use of public transport. At the end of the time period during which the commuter completes their usual journey, a second OTA message is sent by the network 3 to the mobile terminal 1. This OTA message is received and interpreted by the SIM 15, and sends an appropriate deactivation instruction to the RF tag 41 via the link 43. The near field tag 41 is thereafter not able to allow the user to obtain access to public transport. A similar arrangement could be used, for example, to enable a school child to pay for their lunch using the near field tag 41. OTA messages would be sent at the beginning and the end of the school lunch time so that the near field tag 41 could only be used to make a payment during the appropriate time. Waters at [Page 11] The times at which, and the circumstances in which, the OTA messages are sent by the mobile telecommunications network 3 to the user's SIM card 15 may be set by the user of the mobile terminal 1. For example, the user of the mobile terminal 1 may initiate a communication session (such as a SIP communication session) with the mobile telecommunications network 1 to configure the times or places in which the RF tag 41 should be enabled. This updating process may require entry of a password, or employ some other security mechanism, to prevent unauthorised persons from reconfiguring the times and/or locations at which the near field tag is rendered operable or inoperable. Alternatively, the user may configure the times and/or locations at which the OTA messages are sent by some other mechanism - for example, by providing verbal instructions to the operator of mobile telecommunications network 3 by a mobile or PSTN telephone call, or by visiting the
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	website of the mobile telecommunications network operator (whether using the mobile terminal 1 or independently thereof using a PC connected to the Internet). Rather than the user of the mobile terminal 1 determining when/where the RF tag 41 is activated, this may be determined by the mobile telecommunications network 3 or some other entity. For example, a school child's parent may set the times during which the school child is able to use their RF tag to make payments, in the example given above relating to paying for a school lunch. In the example given above relating to payment for public transport, the public transportation authority may alternatively or additionally be able to control when OTA messages are sent so that, if it is notified that the mobile terminal 1 incorporating the near field tag 41 has been stolen, that authority can permanently or temporarily deactivate the near field tag 41. In an alternative embodiment, the SIM 15 activates and deactivates the tag in dependence upon whether the SIM is authenticated with the mobile telecommunications network (using the authentication algorithm and the unique Ki in the manner described above). Waters at [Page 12] Typically, when the mobile terminal 1 is powered up within the coverage area of the mobile telecommunications network 3, the authentication process between the SIM 15 and the authentication processor 17 of the network 3 occurs automatically. When this authentication has been completed, a message is sent to the near field tag 41, via the link 43, to enable operation of the tag. When the SIM 15 is no longer authenticated (for example, when the mobile terminal 1 is powered down), a further message is sent from the SIM 15 to the near field tag 41, via the link 43, to deactivate the near field tag 41. In the modification to this arrangement, the mobile terminal 1 does not have to be always authenticated with the network 3 for the tag 41 to be enabled. However, the tag 41 is configured so that it is only enabled when it receives messages from the SIM 15 indicating that the SIM 15 has been authenticated at predetermined times or events - for example, once a day or on powering on/off of the mobile terminal 1.
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	Such an embodiment is advantageous because, if the mobile terminal 1 is stolen, both the SIM 15 and the near field tag 41 can be disabled together by sending a single OTA message. In another embodiment of the invention, the mobile terminal and/or near field tag 41 is provided with means for disabling the tag 41 without requiring communication between the mobile terminal 1 and the mobile telecommunications network 3 (and therefore without requiring receipt of an OTA message). The near field tag 41 may be selectively enabled and disabled in order to reduce the opportunity to obtain information from the near field tag 41 by an unauthorised reader. The following arrangements are useful if the near field tag 41 is to be enabled and disabled for fairly long periods of time: (1) Personal identification number (PESf) entry - the keypad 37 of the mobile terminal 1 is used to enter a PIN (or other secret password) to enable the near field tag 41. The user's PIN may be stored in a secure location in the mobile terminal 1 or in the SIM 15. When the user enters their PIN using the keypad 37, the entered PIN is compared with the stored PIN. If the PINs match, the SIM transmits a message, via link 43, to the near field tag 41 to activate the near field tag. (2) Biometric data entry - the mobile terminal 1 may incorporate a fingerprint reader 45. The fingerprint reader 45 scans the fingerprint of the user when the user's finger is placed on the reader 45 and compares it to the user's fingerprint stored in the memory of the mobile terminal 1 or the SIM 15. If the fingerprints are determined to match, the message is sent from the SIM 15, via link 43, to the RF tag 41. As an alternative to a fingerprint, other biometric data could be used - for example, voice recognition (using the mobile terminal's built-in microphone and a voice recognition algorithm within the mobile terminal 1 or SIM card 15) or retinal scanning (using the mobile terminal's built-in camera). Arrangements (1) and (2) above may advantageously be combined with an RF tag 41 that automatically deactivates after it has been read by a reader. That is, the user will activate the RF tag by entering their PIN or biometric data prior to bringing the mobile terminal 1 into proximity to the reader. After successful reading of the RF tag 41, the RF tag automatically disables itself so that no further reading can occur
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	without the PIN or biometric data being re-entered. If the mobile terminal 1 is lost or stolen, an unauthorised person cannot use the RF tag 41. Waters at [Page 13-14] Arrangements (1) to (5) immediately above activate the radio frequency tag 41 in dependence upon ambient conditions (light, pressure, heat, movement etc.) which change from when the card is being stored to when the card is required to be active. Other types of ambient sensors could be used and are within the scope of the invention. The arrangements (1) to (5) described above could be combined with an arrangement for automatically deactivating the near field tag 41 after it has been read once, or alternatively the tag 41 may deactivate when the ambient conditions change (for example the light/pressure/heat/movement is no longer applied). Waters at [Page 16] A mobile terminal 1 may have any of the above arrangements implemented in any combination. For example, a manual entry system and an automatic entry system may be provided, respectively, to enable the card for short and long periods of use. Alternatively, the arrangements may work in parallel, and the near field tag 41 would be enabled only if the light sensor was activated and the correct PIN was entered (for example). Further, the arrangements may work in series - for example, the near field tag 41 would be enabled if the light sensor was activated and the correct PIN was subsequently entered. Waters at [Page 17] In the arrangements described above the tag 41 and the mechanism for activating/deactivating the near field tag 41 is incorporated into the mobile terminal. Alternatively, the mechanism for activating/deactivating the tag may be incorporated directly into the smart card or SIM 15 itself. Also, the tag 41 or part of the tag 41 may be incorporated into the SIM 15.
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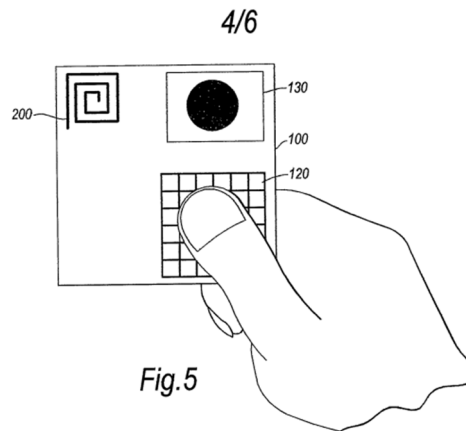
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The principle of controlling operation of a near field tag by means of a smart card or SIM is not restricted to an arrangement where the SIM is, or is always, associated with a mobile terminal 1. For example, the SIM may be associated with a "dongle" of the type disclosed in WO-A-2004 036513.

Waters at [Page 18]

Figure 5 shows a smart card 100 with an in-built near field tag including an inductive antenna 200, and a biometric system 120 for reading a finger print. The print is ideally compared to a previously taken print stored in the memory 130 of the smart card 100 or may just be judged as having the characteristics of a non-specific fingerprint.

Waters at [Page 20]



Waters at [Figure 5]

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		Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[1.5]	wirelessly receiving by the smartphone, using the second air interface, the communications service from the wireless network absent involving the entity, absent providing by the smartphone information to the entity, and absent receiving by the smartphone information from the entity,	Waters discloses “wirelessly receiving by the smartphone, using the second air interface, the communications service from the wireless network absent involving the entity, absent providing by the smartphone information to the entity, and absent receiving by the smartphone information from the entity,” See e.g.: A mobile terminal is disclosed which includes a near field or RF ID tag (41). The mobile terminal (1) communicates with the mobile telecommunications network and is authenticated with that network using the SIM (15). The mobile terminal (1) &>» is operable to obtain security data from the user thereof, such as a PIN or biometric data, or the mobile terminal (1) incorporates a © sensor such as a light sensor, pressure sensor, heat sensor, skin resistant sensor or inertial sensor. The input device or sensor is used to confirm the identity of the user or to evaluate whether the user wishes to use the near field tag (41) to make a payment or obtain entry to a building (for example). Data from the sensor is passed to the SIM (15), which issues a command enabling the near field tag (41), via link (43). The near field tag (41) may then be read by a reader. The near field tag (41) may be automatically disabled 5 after being read by the reader, after a predetermined time, or when the stimulus to the sensor is no longer present. Waters at [Abstract] The present invention relates to apparatus for controlling use of a near field communication device, including smart card means associable with a mobile telecommunications network for authenticating the smart card means with the

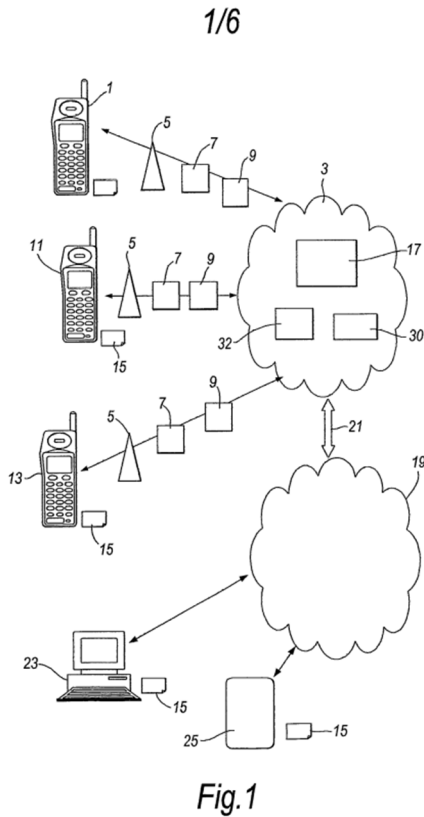
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	network, to a method of controlling use of a near field communication device and to a communication device including near field communication means. Waters at [Page 01] According to a first aspect of the present invention, there is provided apparatus for controlling use of a near field communication device, including smart card means associable with a mobile telecommunications network for authenticating the smart card means with the network, wherein the smart card means is operable to receive from the mobile telecommunications network data for controlling use of the near field communication device and is operable to selectively enable the near field communication device in dependence upon the data. The invention also relates to a mobile telecommunications network including such apparatus. According to another aspect of the present invention, there is provided a method of controlling use of a near field communication device, including associating smart card means with a mobile telecommunications network for authenticating the smart card means with the network, transmitting to the smart card means from the mobile telecommunications network data for controlling use of the near field communication device and selectively enabling the near field communication device in dependence upon the data. Waters at [Page 02] According to a further aspect of the present invention, there is provided a communication device including near field communication means; smart card means for authenticating the device with a mobile telecommunications network; means for enabling the smart card to receive data from the mobile telecommunications network to authenticate the device; and means for selectively enabling the near field communication means in dependence upon the data received by the smart card.
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	According to a further aspect of the present invention, there is provided a mobile telecommunication device for use with a mobile telecommunications network and including a near field device, wherein the mobile telecommunication device is operable to selectively enable the near field communication device. Waters at [Page 03] Figure 1 shows schematically a network with which the invention may be used. Mobile terminal 1 is registered with GSM/GPRS or UMTS (3G) mobile or cellular telecommunications network 3. The mobile terminal 1 may be a handheld mobile telephone, a personal digital assistant (PDA) or a laptop computer equipped with a datacard. The mobile terminal 1 communicates wirelessly with mobile telecommunications network 3 via the radio access network (RAN) of the mobile telecommunications network 3, comprising, in the case of a UMTS network, base station (Node B) 5, and radio network controller (RNC) 7. Communications between the mobile terminal 1 and the mobile telecommunications network 3 are routed from the radio access network via GPRS support nodes (SGSN) 9, which may be connected by a fixed (cable) link to the mobile telecommunications network 3. In the conventional manner, a multiplicity of other mobile terminals are registered with the mobile telecommunications network 3. These mobile terminals include mobile terminals 11 and 13. The terminals 11 and 13 communicate with the mobile telecommunications network 3 in a similar manner to the terminal 1, that is via an appropriate Node B 5, RNC 7 and SGSN 9. Waters at [Page 04]
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Waters at [Figure 1]

The mobile telecommunications network 3 includes a gateway GPRS support node (GGSN) 17 which enables IP-based communications with other networks, such as the Internet 19 via an appropriate link 21. A multiplicity of terminals are connected to the Internet (by fixed or wireless links), and a PC terminal 23 and a PDA terminal 25 are shown by way of example.

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	Each of the mobile terminals 1,11 and 13 is provided with a respective smart card or subscriber identity module (SIM) 15. During the manufacturing process of each SIM, authentication information is stored thereon under the control of the mobile telecommunications network 3. The mobile telecommunications network 3 itself stores details of each of the SIMs issued under its control. In operation of the mobile telecommunications network 3, a terminal 1, 11, 13 is authenticated (for example, when the user activates the terminal in the network with a view to making or receiving calls) by the network sending a challenge to the terminal 1,11,13 incorporating a SIM 15, in response to which the SIM 15 calculates a reply (dependent on the predetermined information held on the SIM - typically an authentication algorithm and a unique key Ki) and transmits it back to the mobile telecommunications network 3. The mobile telecommunications network 3 includes an authentication processor 17 which generates the challenge and which receives the reply from the terminal 1,11,13. Using information prestored concerning the content of the relevant SIM 15, the authentication processor calculates the expected value of the reply from the mobile terminal 1,11,13. If the reply received matches the expected calculated reply, the SIM 15 and the associated mobile terminal are considered to be authenticated. Waters at [Page 05] It should be understood that such an authentication process can be performed for any terminal provided with a SIM 15 under control of the mobile telecommunications network 3. In the embodiment the terminal communicates wirelessly with the mobile telecommunications network 3 via the network's radio access network, although this is not essential. For example, the terminal may communicate with the network via the fixed telephone network (PSTN), via a UMA "access point" and/or via the Internet. The PC 23 and the PDA 25 may also be provided with a SIM 15 under the control of the network. The SIM 15 used by the terminal 1,11,13,23,25 may be a SIM of the type defined in the GSM or UMTS standards 'specifications, or may be a simulation of a SIM - that is, software or hardware that performs a function corresponding to that of the
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	SIM. The SIM may be in accordance with the arrangement described in WO-A-2004 036513. Waters at [Page 06] The mobile telecommunications network 3 operator may wish to alter the information on a SIM 15, for example to introduce new services. In order to allow such updating of the SIM 15 in a rapid and cost-effective way, over-the-air (OTA) updating technology has been developed. The mobile telecommunications network 3 includes an OTA gateway 30 that transforms updating messages from the network 3 into short messages (SMS messages) to be sent to the SIM 15. The OTA gateway 30 sends the SMS message to a short message service centre (SMSC) 32, which then transmits the short message to the relevant SIM 15 via the radio access network. As indicated above, OTA updating is currently performed using the SMS bearer. However, it is also possible for the transport bearer to be CSD or GPRS. To perform OTA with CTS or GPRS bearer, CAT-TP/BIP or J2ME/JSR#177 mechanisms could be used. References in this specification to over-the-air updating includes references to updating by these bearers or any other similar bearers. Waters at [Page 07] In addition to receiving OTA updating messages by SMS, mobile terminal 1 is also capable of receiving conventional SMS messages - such as text messages to be read by the user of the mobile terminal 1. In order to distinguish an OTA updating SMS from a conventional SMS message, the OTA updating SMS message has its protocol identifier set to "SIM data download". The message will include ENVELOPE or UPDATE RECORD commands. The GSM or 3G application running on the mobile terminal 1 receives these commands and calls the OTA layer. The OTA layer checks the messages according to standards specification GSM 03.48 or TS 23.04. Each secured packet in the messages may contain one or more APDUs commands
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		dedicated to Remote File Management or Remote Applet Management or SIM Tool Kit. Waters at [Page 08] Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[1.6]	wherein the wireless short-range communications link used by the first air interface is based upon unlicensed frequencies,	Waters discloses “wherein the wireless short-range communications link used by the first air interface is based upon unlicensed frequencies,” See e.g.: As shown in Figure 2, mobile terminal 1 in accordance with the embodiment includes, in addition to SIM 15, a display 34, keypad 37 and an antenna 39 for communicating wirelessly with the mobile communications network 3. Further, the mobile terminal 1 includes a near field or RFID tag 41. The near field tag 41 operates in the unregulated RF band of 13.56 MHz in this embodiment although other frequencies could be used. No licences are required for the use of the near field devices in this RF band. However, each country imposes certain limitations on the electromagnetic emissions in this RF band. Limitations mean that in practice the distance at which the near field tag 41 can communicate with another device is typically less than 20 centimetres. Often the range of communication is such that the RF tag 41 must touch or almost touch the device with which it is to communicate. Communication may be using the Near Field Communication Interface and Protocol (NFCIP-I). Waters at [Page 08]

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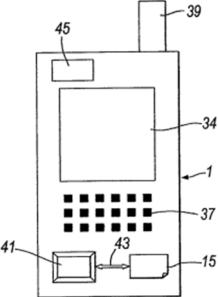
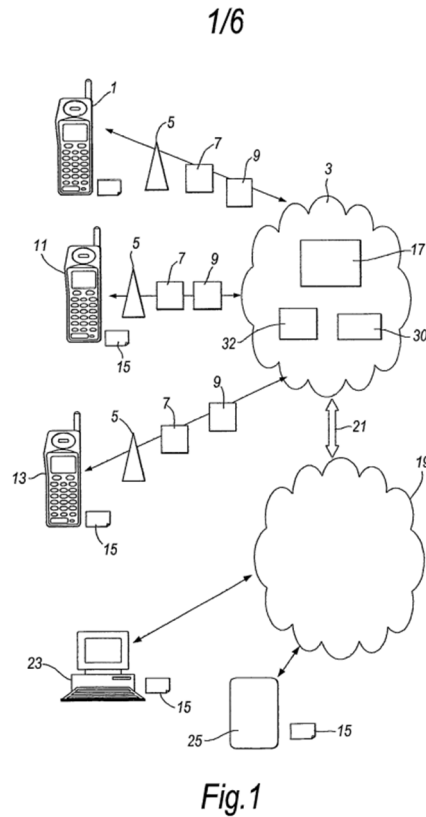
		2/6  <i>Fig. 2</i> Waters at [Figure 2] Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[1.7]	wherein the second air interface uses a wireless communications link that is based upon licensed frequencies, and	Waters discloses “wherein the second air interface uses a wireless communications link that is based upon licensed frequencies, and” See e.g.: Figure 1 shows schematically a network with which the invention may be used. Mobile terminal 1 is registered with GSM/GPRS or UMTS (3G) mobile or cellular telecommunications network 3. The mobile terminal 1 may be a handheld mobile telephone, a personal digital assistant (PDA) or a laptop computer equipped with a datacard. The mobile terminal 1 communicates wirelessly with mobile telecommunications network 3 via the radio access network (RAN) of the mobile telecommunications network 3, comprising, in the case of a UMTS network, base

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		station (Node B) 5, and radio network controller (RNC) 7. Communications between the mobile terminal 1 and the mobile telecommunications network 3 are routed from the radio access network via GPRS support nodes (SGSN) 9, which may be connected by a fixed (cable) link to the mobile telecommunications network 3. In the conventional manner, a multiplicity of other mobile terminals are registered with the mobile telecommunications network 3. These mobile terminals include mobile terminals 11 and 13. The terminals 11 and 13 communicate with the mobile telecommunications network 3 in a similar manner to the terminal 1, that is via an appropriate Node B 5, RNC 7 and SGSN 9. Waters at [Page 04]
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Waters at [Figure 1]

The mobile telecommunications network 3 includes a gateway GPRS support node (GGSN) 17 which enables IP-based communications with other networks, such as the Internet 19 via an appropriate link 21. A multiplicity of terminals are connected to the Internet (by fixed or wireless links), and a PC terminal 23 and a PDA terminal 25 are shown by way of example.

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	Each of the mobile terminals 1,11 and 13 is provided with a respective smart card or subscriber identity module (SIM) 15. During the manufacturing process of each SIM, authentication information is stored thereon under the control of the mobile telecommunications network 3. The mobile telecommunications network 3 itself stores details of each of the SIMs issued under its control. In operation of the mobile telecommunications network 3, a terminal 1, 11, 13 is authenticated (for example, when the user activates the terminal in the network with a view to making or receiving calls) by the network sending a challenge to the terminal 1,11,13 incorporating a SIM 15, in response to which the SIM 15 calculates a reply (dependent on the predetermined information held on the SIM - typically an authentication algorithm and a unique key Ki) and transmits it back to the mobile telecommunications network 3. The mobile telecommunications network 3 includes an authentication processor 17 which generates the challenge and which receives the reply from the terminal 1,11,13. Using information prestored concerning the content of the relevant SIM 15, the authentication processor calculates the expected value of the reply from the mobile terminal 1,11,13. If the reply received matches the expected calculated reply, the SIM 15 and the associated mobile terminal are considered to be authenticated. Waters at [Page 05] It should be understood that such an authentication process can be performed for any terminal provided with a SIM 15 under control of the mobile telecommunications network 3. In the embodiment the terminal communicates wirelessly with the mobile telecommunications network 3 via the network's radio access network, although this is not essential. For example, the terminal may communicate with the network via the fixed telephone network (PSTN), via a UMA "access point" and/or via the Internet. The PC 23 and the PDA 25 may also be provided with a SIM 15 under the control of the network. The SIM 15 used by the terminal 1,11,13,23,25 may be a SIM of the type defined in the GSM or UMTS standards 'specifications, or may be a simulation of a SIM - that is, software or hardware that performs a function corresponding to that of the
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	SIM. The SIM may be in accordance with the arrangement described in WO-A-2004 036513. Waters at [Page 06] The mobile telecommunications network 3 operator may wish to alter the information on a SIM 15, for example to introduce new services. In order to allow such updating of the SIM 15 in a rapid and cost-effective way, over-the-air (OTA) updating technology has been developed. The mobile telecommunications network 3 includes an OTA gateway 30 that transforms updating messages from the network 3 into short messages (SMS messages) to be sent to the SIM 15. The OTA gateway 30 sends the SMS message to a short message service centre (SMSC) 32, which then transmits the short message to the relevant SIM 15 via the radio access network. As indicated above, OTA updating is currently performed using the SMS bearer. However, it is also possible for the transport bearer to be CSD or GPRS. To perform OTA with CTS or GPRS bearer, CAT-TP/BIP or J2ME/JSR#177 mechanisms could be used. References in this specification to over-the-air updating includes references to updating by these bearers or any other similar bearers. Waters at [Page 07] In addition to receiving OTA updating messages by SMS, mobile terminal 1 is also capable of receiving conventional SMS messages - such as text messages to be read by the user of the mobile terminal 1. In order to distinguish an OTA updating SMS from a conventional SMS message, the OTA updating SMS message has its protocol identifier set to "SIM data download". The message will include ENVELOPE or UPDATE RECORD commands. The GSM or 3G application running on the mobile terminal 1 receives these commands and calls the OTA layer. The OTA layer checks the messages according to standards specification GSM 03.48 or TS 23.04. Each secured packet in the messages may contain one or more APDUs commands
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		dedicated to Remote File Management or Remote Applet Management or SIM Tool Kit. Waters at [Page 08] Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[1.8]	wherein the first air interface is not involved in providing the communications service to the smartphone.	Waters discloses “wherein the first air interface is not involved in providing the communications service to the smartphone.” See e.g.: A mobile terminal is disclosed which includes a near field or RF ID tag (41). The mobile terminal (1) communicates with the mobile telecommunications network and is authenticated with that network using the SIM (15). The mobile terminal (1) &>» is operable to obtain security data from the user thereof, such as a PIN or biometric data, or the mobile terminal (1) incorporates a © sensor such as a light sensor, pressure sensor, heat sensor, skin resistant sensor or inertial sensor. The input device or sensor is used to confirm the identity of the user or to evaluate whether the user wishes to use the near field tag (41) to make a payment or obtain entry to a building (for example). Data from the sensor is passed to the SIM (15), which issues a command enabling the near field tag (41), via link (43). The near field tag (41) may then be read by a reader. The near field tag (41) may be automatically disabled 5 after being read by the reader, after a predetermined time, or when the stimulus to the sensor is no longer present. Waters at [Abstract]

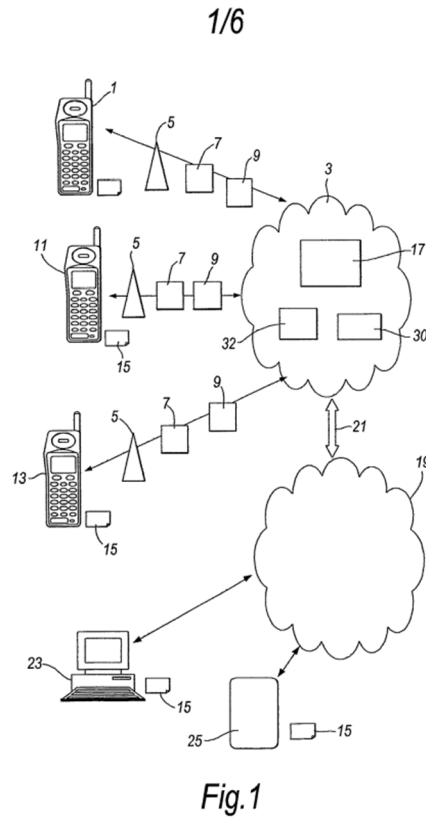
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	The present invention relates to apparatus for controlling use of a near field communication device, including smart card means associable with a mobile telecommunications network for authenticating the smart card means with the network, to a method of controlling use of a near field communication device and to a communication device including near field communication means. Waters at [Page 01] According to a first aspect of the present invention, there is provided apparatus for controlling use of a near field communication device, including smart card means associable with a mobile telecommunications network for authenticating the smart card means with the network, wherein the smart card means is operable to receive from the mobile telecommunications network data for controlling use of the near field communication device and is operable to selectively enable the near field communication device in dependence upon the data. The invention also relates to a mobile telecommunications network including such apparatus. According to another aspect of the present invention, there is provided a method of controlling use of a near field communication device, including associating smart card means with a mobile telecommunications network for authenticating the smart card means with the network, transmitting to the smart card means from the mobile telecommunications network data for controlling use of the near field communication device and selectively enabling the near field communication device in dependence upon the data. Waters at [Page 02] According to a further aspect of the present invention, there is provided a communication device including near field communication means; smart card means for authenticating the device with a mobile telecommunications network; means for enabling the smart card to receive data from the mobile telecommunications network
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	to authenticate the device; and means for selectively enabling the near field communication means in dependence upon the data received by the smart card. According to a further aspect of the present invention, there is provided a mobile telecommunication device for use with a mobile telecommunications network and including a near field device, wherein the mobile telecommunication device is operable to selectively enable the near field communication device. Waters at [Page 03] Figure 1 shows schematically a network with which the invention may be used. Mobile terminal 1 is registered with GSM/GPRS or UMTS (3G) mobile or cellular telecommunications network 3. The mobile terminal 1 may be a handheld mobile telephone, a personal digital assistant (PDA) or a laptop computer equipped with a datacard. The mobile terminal 1 communicates wirelessly with mobile telecommunications network 3 via the radio access network (RAN) of the mobile telecommunications network 3, comprising, in the case of a UMTS network, base station (Node B) 5, and radio network controller (RNC) 7. Communications between the mobile terminal 1 and the mobile telecommunications network 3 are routed from the radio access network via GPRS support nodes (SGSN) 9, which may be connected by a fixed (cable) link to the mobile telecommunications network 3. In the conventional manner, a multiplicity of other mobile terminals are registered with the mobile telecommunications network 3. These mobile terminals include mobile terminals 11 and 13. The terminals 11 and 13 communicate with the mobile telecommunications network 3 in a similar manner to the terminal 1, that is via an appropriate Node B 5, RNC 7 and SGSN 9. Waters at [Page 04]
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Waters at [Figure 1]

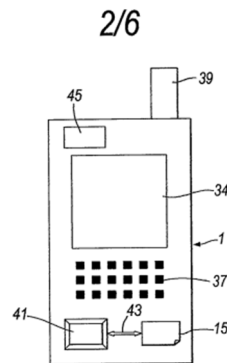
The mobile telecommunications network 3 operator may wish to alter the information on a SIM 15, for example to introduce new services. In order to allow such updating of the SIM 15 in a rapid and cost-effective way, over-the-air (OTA) updating technology has been developed.

The mobile telecommunications network 3 includes an OTA gateway 30 that transforms updating messages from the network 3 into short messages (SMS

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	messages) to be sent to the SIM 15. The OTA gateway 30 sends the SMS message to a short message service centre (SMSC) 32, which then transmits the short message to the relevant SIM 15 via the radio access network. As indicated above, OTA updating is currently performed using the SMS bearer. However, it is also possible for the transport bearer to be CSD or GPRS. To perform OTA with CTS or GPRS bearer, CAT-TP/BIP or J2ME/JSR#177 mechanisms could be used. References in this specification to over-the-air updating includes references to updating by these bearers or any other similar bearers. Waters at [Page 07] As shown in Figure 2, mobile terminal 1 in accordance with the embodiment includes, in addition to SIM 15, a display 34, keypad 37 and an antenna 39 for communicating wirelessly with the mobile communications network 3. Further, the mobile terminal 1 includes a near field or RFID tag 41. The near field tag 41 operates in the unregulated RF band of 13.56 MHz in this embodiment although other frequencies could be used. No licences are required for the use of the near field devices in this RF band. However, each country imposes certain limitations on the electromagnetic emissions in this RF band. Limitations mean that in practice the distance at which the near field tag 41 can communicate with another device is typically less than 20 centimetres. Often the range of communication is such that the RF tag 41 must touch or almost touch the device with which it is to communicate. Communication may be using the Near Field Communication Interface and Protocol (NFCIP-I). Waters at [Page 08]
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Waters at [Figure 2]

The near field tag 41 may operate in accordance with ISO-IEC 14443 and ISO-IEC 15693 standards. The tag 41 includes an inbuilt inductive antenna that allows the card to exchange information with a tag reader when the two are brought into close proximity, as described above. The reader may emit an RF signal to supply power to the tag to communicate with it if the tag is "passive". If the tag is "active" it will have a power supply and its operation is independently of the reader. The near field tag 41 may transmit selected information, such as an ID number (GU ID).

In order to improve the security of the near field tag, in the present embodiment it is proposed to use the SIM 15 of mobile terminal 1 to control to some extent the operation of the near field tag 41. The authentication process of a SIM 15 with a mobile telecommunications network, using the network's authentication processor 17 is considered to be highly secure. In this embodiment, this authentication of the SIM 15 is used to protect data held by the memory of the near field tag 41 from unauthorised access.

According to an important feature of this embodiment, the near field tag 41 is selectively enabled or disabled for communication with the reader under control of

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	the SIM 15, by means of communication link 43. By means of the link 43, the SIM can enable or disable the near field tag 41 by, for example, rendering its antenna inoperative. In the disabled state, a reader is not able to obtain any information from the near field tag 41, even when brought into close proximity thereto (within a range that, in normal circumstances, near field communication would be possible). Conveniently, the SIM 15 is provided with data which controls operation of the near field tag 41 by receiving an OTA message, which is sent to the mobile terminal 1 from the mobile telecommunications network 3 (via the OTA gateway 30 and SMSC 32). As described above, the OTA update message is received by the mobile terminal 1 and it is determined that this is an updating OTA update message rather than a conventional SMS message. The message is then passed to the SIM 15 for processing. Upon processing of the message, commands contained within that message are executed, causing the desired control of the RF tag 41 via the link 43. Waters at [Page 09] In a first example, it is desired to only enable the near field tag 41 to communicate with the reader when it is in the vicinity of the user's office (where entry is obtained using the near field tag 41). The SMSC 32 may send an OTA update message to the node B 5 associated with the cell or group of cells in which the user's office is located. When the mobile terminal 1 enters a cell in the group, the node B transmits the OTA message to the mobile terminal 1. The procedure described above is applied, and the OTA message is passed to the SIM 15 and the instructions therein are processed. A command is sent to the near field tag 41 via link 43 to activate the near field tag (for example, by allowing its antenna to communicate with the reader). When the mobile terminal 1 moves to a different cell, a command is sent from the SIM 15, via the link 43, to disable the near field tag 41. This command may be issued in response to a further OTA message being received from the network 3 when the mobile terminal 1 moves to a different cell, or movement to a different cell may be detected automatically by the SIM (or the mobile terminal 1) and used to generate an appropriate command for sending to the near field tag 41.
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	The near field tag 41 may be rendered completely inoperable when not in the location of the cell of the user's office. Alternatively, the near field tag 41 may be partially disabled (for example, by rendering the antenna inoperable). In this partially disabled mode the tag 41 may perform certain functions, such as allowing its codes or other data to be reprogrammed. Waters at [Page 10] In the second example, a user wishes to use the near field tag 41 of the mobile terminal 1 to pay for travel by public transport (for example on the London Underground), where entry barriers are equipped with a suitable near field tag reader. Because the commuter travels at particular, consistent times of day, it is desirable to enable the near field tag 41 only at those times, in order to provide improved security. When so configured, if the mobile terminal 1 incorporating the near field tag 41 were stolen, the thief would not be able to pay for use of public transport using the near field tag 41 outside the times specified. The mobile telecommunications network 3 is configured to transmit an OTA message to the mobile terminal 1 at the beginning of the time period during which the commuter begins their normal journey. As before, this message is received and interpreted by the SIM, which sends an instruction to enable the near field tag 41 via the link 43. The near field tag 41 is then able to communicate with readers to allow use of public transport. At the end of the time period during which the commuter completes their usual journey, a second OTA message is sent by the network 3 to the mobile terminal 1. This OTA message is received and interpreted by the SIM 15, and sends an appropriate deactivation instruction to the RF tag 41 via the link 43. The near field tag 41 is thereafter not able to allow the user to obtain access to public transport. A similar arrangement could be used, for example, to enable a school child to pay for their lunch using the near field tag 41. OTA messages would be sent at the beginning and the end of the school lunch time so that the near field tag 41 could only be used to make a payment during the appropriate time.
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		Waters at [Page 11] The times at which, and the circumstances in which, the OTA messages are sent by the mobile telecommunications network 3 to the user's SIM card 15 may be set by the user of the mobile terminal 1. For example, the user of the mobile terminal 1 may initiate a communication session (such as a SIP communication session) with the mobile telecommunications network 1 to configure the times or places in which the RF tag 41 should be enabled. This updating process may require entry of a password, or employ some other security mechanism, to prevent unauthorised persons from reconfiguring the times and/or locations at which the near field tag is rendered operable or inoperable. Alternatively, the user may configure the times and/or locations at which the OTA messages are sent by some other mechanism - for example, by providing verbal instructions to the operator of mobile telecommunications network 3 by a mobile or PSTN telephone call, or by visiting the website of the mobile telecommunications network operator (whether using the mobile terminal 1 or independently thereof using a PC connected to the Internet). Rather than the user of the mobile terminal 1 determining when/where the RF tag 41 is activated, this may be determined by the mobile telecommunications network 3 or some other entity. For example, a school child's parent may set the times during which the school child is able to use their RF tag to make payments, in the example given above relating to paying for a school lunch. In the example given above relating to payment for public transport, the public transportation authority may alternatively or additionally be able to control when OTA messages are sent so that, if it is notified that the mobile terminal 1 incorporating the near field tag 41 has been stolen, that authority can permanently or temporarily deactivate the near field tag 41. In an alternative embodiment, the SIM 15 activates and deactivates the tag in dependence upon whether the SIM is authenticated with the mobile telecommunications network (using the authentication algorithm and the unique Ki in the manner described above). Waters at [Page 12]
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		Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[2.1]	The method of claim 1,	To the extent the preamble is limiting, Waters discloses “the method of claim 1,” See e.g.: Claim 1, supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[2.2]	wherein said wirelessly providing by the smartphone, using the first air interface, information to the entity and wirelessly receiving by the smartphone, using the first air interface, information from the entity independently of, and absent involving the entity in, receiving by the smartphone the communications service from the wireless network using the second air interface is performed over a first time interval;	Waters discloses “wherein said wirelessly providing by the smartphone, using the first air interface, information to the entity and wirelessly receiving by the smartphone, using the first air interface, information from the entity independently of, and absent involving the entity in, receiving by the smartphone the communications service from the wireless network using the second air interface is performed over a first time interval;” See e.g.: Claim 1, supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of

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		ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[2.3]	wherein said wirelessly receiving by the smartphone, using the second air interface, the communications service from the wireless network absent involving the entity, absent providing by the smartphone information to the entity, and absent receiving by the smartphone information from the entity is performed over a second time interval; and	Waters discloses “wherein said wirelessly receiving by the smartphone, using the second air interface, the communications service from the wireless network absent involving the entity, absent providing by the smartphone information to the entity, and absent receiving by the smartphone information from the entity is performed over a second time interval; and” See e.g.: Claim 1, supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[2.4]	wherein the first and second time intervals are non-overlapping with one another.	Waters discloses “wherein the first and second time intervals are non-overlapping with one another.” See e.g.: Claim 1, supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[3.1]	The method of claim 1,	To the extent the preamble is limiting, Waters discloses “the method of claim 1,” See e.g.:

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		Claim 1, <i>supra</i>. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[3.2]	wherein the wireless short-range communications link that is based upon unlicensed frequencies is further based upon a Time Division Duplex (TDD) protocol, and	Waters discloses “wherein the wireless short-range communications link that is based upon unlicensed frequencies is further based upon a Time Division Duplex (TDD) protocol, and” See e.g.: [1.6], <i>supra</i>. As shown in Figure 2, mobile terminal 1 in accordance with the embodiment includes, in addition to SIM 15, a display 34, keypad 37 and an antenna 39 for communicating wirelessly with the mobile communications network 3. Further, the mobile terminal 1 includes a near field or RFID tag 41. The near field tag 41 operates in the unregulated RF band of 13.56 MHz in this embodiment although other frequencies could be used. No licences are required for the use of the near field devices in this RF band. However, each country imposes certain limitations on the electromagnetic emissions in this RF band. Limitations mean that in practice the distance at which the near field tag 41 can communicate with another device is typically less than 20 centimetres. Often the range of communication is such that the RF tag 41 must touch or almost touch the device with which it is to communicate. Communication may be using the Near Field Communication Interface and Protocol (NFCIP-I). Waters at [Page 08]

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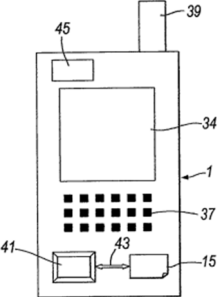
		2/6  Fig.2 Waters at [Figure 2] Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[3.3]	wherein the second air interface that uses a wireless communications link that is based upon licensed frequencies is further based upon an Orthogonal Frequency Division Multiplexed (OFDM) and/or Orthogonal Frequency Division Multiple Access (OFDMA) protocol.	Waters discloses “wherein the second air interface that uses a wireless communications link that is based upon licensed frequencies is further based upon an Orthogonal Frequency Division Multiplexed (OFDM) and/or Orthogonal Frequency Division Multiple Access (OFDMA) protocol.” See e.g.: [1.7], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of

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		ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[4.1]	The method of claim 1, wherein said detecting by the smartphone that a proximity condition is satisfied between the smartphone and the entity is based, at least in part, on receiving a short-range signal from the entity over the first air interface.	Waters discloses “the method of claim 1, wherein said detecting by the smartphone that a proximity condition is satisfied between the smartphone and the entity is based, at least in part, on receiving a short-range signal from the entity over the first air interface.” See e.g.: Claim 1, supra. A mobile terminal is disclosed which includes a near field or RF ID tag (41). The mobile terminal (1) communicates with the mobile telecommunications network and is authenticated with that network using the SIM (15). The mobile terminal (1) &>» is operable to obtain security data from the user thereof, such as a PIN or biometric data, or the mobile terminal (1) incorporates a © sensor such as a light sensor, pressure sensor, heat sensor, skin resistant sensor or inertial sensor. The input device or sensor is used to confirm the identity of the user or to evaluate whether the user wishes to use the near field tag (41) to make a payment or obtain entry to a building (for example). Data from the sensor is passed to the SIM (15), which issues a command enabling the near field tag (41), via link (43). The near field tag (41) may then be read by a reader. The near field tag (41) may be automatically disabled 5 after being read by the reader, after a predetermined time, or when the stimulus to the sensor is no longer present. Waters at [Abstract] According to a first aspect of the present invention, there is provided apparatus for controlling use of a near field communication device, including smart card means associable with a mobile telecommunications network for authenticating the smart card means with the network, wherein the smart card means is operable to receive from the mobile telecommunications network data for controlling use of the near field

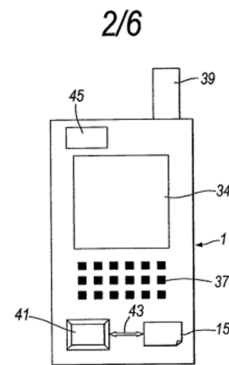
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	communication device and is operable to selectively enable the near field communication device in dependence upon the data. The invention also relates to a mobile telecommunications network including such apparatus. According to another aspect of the present invention, there is provided a method of controlling use of a near field communication device, including associating smart card means with a mobile telecommunications network for authenticating the smart card means with the network, transmitting to the smart card means from the mobile telecommunications network data for controlling use of the near field communication device and selectively enabling the near field communication device in dependence upon the data. Waters at [Page 02] According to a further aspect of the present invention, there is provided a communication device including near field communication means; smart card means for authenticating the device with a mobile telecommunications network; means for enabling the smart card to receive data from the mobile telecommunications network to authenticate the device; and means for selectively enabling the near field communication means in dependence upon the data received by the smart card. According to a further aspect of the present invention, there is provided a mobile telecommunication device for use with a mobile telecommunications network and including a near field device, wherein the mobile telecommunication device is operable to selectively enable the near field communication device. Waters at [Page 03] As shown in Figure 2, mobile terminal 1 in accordance with the embodiment includes, in addition to SIM 15, a display 34, keypad 37 and an antenna 39 for communicating wirelessly with the mobile communications network 3. Further, the mobile terminal 1 includes a near field or RFID tag 41. The near field tag 41 operates
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in the unregulated RF band of 13.56 MHz in this embodiment although other frequencies could be used. No licences are required for the use of the near field devices in this RF band. However, each country imposes certain limitations on the electromagnetic emissions in this RF band. Limitations mean that in practice the distance at which the near field tag 41 can communicate with another device is typically less than 20 centimetres. Often the range of communication is such that the RF tag 41 must touch or almost touch the device with which it is to communicate. Communication may be using the Near Field Communication Interface and Protocol (NFCIP-I).

Waters at [Page 08]



Waters at [Figure 2]

The near field tag 41 may operate in accordance with ISO-IEC 14443 and ISO-IEC 15693 standards. The tag 41 includes an inbuilt inductive antenna that allows the card to exchange information with a tag reader when the two are brought into close proximity, as described above. The reader may emit an RF signal to supply power to the tag to communicate with it if the tag is "passive". If the tag is "active" it will

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	have a power supply and its operation is independently of the reader. The near field tag 41 may transmit selected information, such as an ID number (GU ID). In order to improve the security of the near field tag, in the present embodiment it is proposed to use the SIM 15 of mobile terminal 1 to control to some extent the operation of the near field tag 41. The authentication process of a SIM 15 with a mobile telecommunications network, using the network's authentication processor 17 is considered to be highly secure. In this embodiment, this authentication of the SIM 15 is used to protect data held by the memory of the near field tag 41 from unauthorised access. According to an important feature of this embodiment, the near field tag 41 is selectively enabled or disabled for communication with the reader under control of the SIM 15, by means of communication link 43. By means of the link 43, the SIM can enable or disable the near field tag 41 by, for example, rendering its antenna inoperative. In the disabled state, a reader is not able to obtain any information from the near field tag 41, even when brought into close proximity thereto (within a range that, in normal circumstances, near field communication would be possible). Conveniently, the SIM 15 is provided with data which controls operation of the near field tag 41 by receiving an OTA message, which is sent to the mobile terminal 1 from the mobile telecommunications network 3 (via the OTA gateway 30 and SMSC 32). As described above, the OTA update message is received by the mobile terminal 1 and it is determined that this is an updating OTA update message rather than a conventional SMS message. The message is then passed to the SIM 15 for processing. Upon processing of the message, commands contained within that message are executed, causing the desired control of the RF tag 41 via the link 43. Waters at [Page 09] In a first example, it is desired to only enable the near field tag 41 to communicate with the reader when it is in the vicinity of the user's office (where entry is obtained using the near field tag 41). The SMSC 32 may send an OTA update message to the node B 5 associated with the cell or group of cells in which the user's office is located. When the mobile terminal 1 enters a cell in the group, the node B transmits the OTA
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	message to the mobile terminal 1. The procedure described above is applied, and the OTA message is passed to the SIM 15 and the instructions therein are processed. A command is sent to the near field tag 41 via link 43 to activate the near field tag (for example, by allowing its antenna to communicate with the reader). When the mobile terminal 1 moves to a different cell, a command is sent from the SIM 15, via the link 43, to disable the near field tag 41. This command may be issued in response to a further OTA message being received from the network 3 when the mobile terminal 1 moves to a different cell, or movement to a different cell may be detected automatically by the SIM (or the mobile terminal 1) and used to generate an appropriate command for sending to the near field tag 41. The near field tag 41 may be rendered completely inoperable when not in the location of the cell of the user's office. Alternatively, the near field tag 41 may be partially disabled (for example, by rendering the antenna inoperable). In this partially disabled mode the tag 41 may perform certain functions, such as allowing its codes or other data to be reprogrammed. Waters at [Page 10] In the second example, a user wishes to use the near field tag 41 of the mobile terminal 1 to pay for travel by public transport (for example on the London Underground), where entry barriers are equipped with a suitable near field tag reader. Because the commuter travels at particular, consistent times of day, it is desirable to enable the near field tag 41 only at those times, in order to provide improved security. When so configured, if the mobile terminal 1 incorporating the near field tag 41 were stolen, the thief would not be able to pay for use of public transport using the near field tag 41 outside the times specified. Waters at [Page 11]
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		Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[5.1]	The method of claim 4, wherein said detecting by the smartphone that a proximity condition is satisfied between the smartphone and the entity is based, at least in part, on a measurement of signal strength of the short-range signal.	Waters discloses “the method of claim 4, wherein said detecting by the smartphone that a proximity condition is satisfied between the smartphone and the entity is based, at least in part, on a measurement of signal strength of the short-range signal.” See e.g.: The near field tag 41 may operate in accordance with ISO-IEC 14443 and ISO- IEC 15693 standards. The tag 41 includes an inbuilt inductive antenna that allows the card to exchange information with a tag reader when the two are brought into close proximity, as described above. The reader may emit an RF signal to supply power to the tag to communicate with it if the tag is "passive". If the tag is "active" it will have a power supply and its operation is independently of the reader. The near field tag 41 may transmit selected information, such as an ID number (GU ID). In order to improve the security of the near field tag, in the present embodiment it is proposed to use the SIM 15 of mobile terminal 1 to control to some extent the operation of the near field tag 41. The authentication process of a SIM 15 with a mobile telecommunications network, using the network's authentication processor 17 is considered to be highly secure. In this embodiment, this authentication of the SIM 15 is used to protect data held by the memory of the near field tag 41 from unauthorised access. According to an important feature of this embodiment, the near field tag 41 is selectively enabled or disabled for communication with the reader under control of the SIM 15, by means of communication link 43. By means of the link 43, the SIM can enable or disable the near field tag 41 by, for example, rendering its antenna

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	inoperative. In the disabled state, a reader is not able to obtain any information from the near field tag 41, even when brought into close proximity thereto (within a range that, in normal circumstances, near field communication would be possible). Conveniently, the SIM 15 is provided with data which controls operation of the near field tag 41 by receiving an OTA message, which is sent to the mobile terminal 1 from the mobile telecommunications network 3 (via the OTA gateway 30 and SMSC 32). As described above, the OTA update message is received by the mobile terminal 1 and it is determined that this is an updating OTA update message rather than a conventional SMS message. The message is then passed to the SIM 15 for processing. Upon processing of the message, commands contained within that message are executed, causing the desired control of the RF tag 41 via the link 43. Waters at [Page 09] Alternative arrangements for protecting the data associated with the near field tag 41 are identified below and are useful for single or multiple RF tags or where the RF tag is not in a user's possession (such as in tagging systems): (1) Jamming device - the near field tag 41 and/or the mobile terminal 1 is designed to jam/disrupt the low level communications of all other RF tags within range of the jamming device. Instead of following the anti-collision protocol commonly used in near field tag technology, the device attempts to create collisions and other forms of interference. The jamming device is disabled, or the near field tag 41 is removed from proximity of the jamming device, when authorised use of the card is required. (2) Round trip detector - to guard against access from RF fields that have been greatly extended, the mobile terminal or near field tag 41 has a round trip delay tester (that measures the time taken for a signal to travel from the near field tag 41 to the reader and back to the tag 41). It sends a test signal when the near field tag 41 is being read/probed and expects a response within a certain round trip delay. If the response is not received after a predetermined delay, the near field tag is disabled either permanently or temporarily. Waters at [Page 16-17]
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		The apparatus of claim 19, wherein the detecting means is operable to measure the time taken to transmit a signal between the near field device and the reader therefor. Waters at [Claim 20] The mobile telecommunication device of claim 41, wherein the detecting means is operable to measure the time taken to transmit a signal between the near field device and the reader therefor. Waters at [Claim 42] Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[6.1]	The method of claim 1,	To the extent the preamble is limiting, Waters discloses “ the method of claim 1,” See e.g.: Claim 1, supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.

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[6.2]	wherein a value of the physiological parameter is provided by using a sensor of the smartphone.	Waters discloses “wherein a value of the physiological parameter is provided by using a sensor of the smartphone.” See e.g.: A mobile terminal is disclosed which includes a near field or RF ID tag (41). The mobile terminal (1) communicates with the mobile telecommunications network and is authenticated with that network using the SIM (15). The mobile terminal (1) &>» is operable to obtain security data from the user thereof, such as a PIN or biometric data, or the mobile terminal (1) incorporates a © sensor such as a light sensor, pressure sensor, heat sensor, skin resistant sensor or inertial sensor. The input device or sensor is used to confirm the identity of the user or to evaluate whether the user wishes to use the near field tag (41) to make a payment or obtain entry to a building (for example). Data from the sensor is passed to the SIM (15), which issues a command enabling the near field tag (41), via link (43). The near field tag (41) may then be read by a reader. The near field tag (41) may be automatically disabled 5 after being read by the reader, after a predetermined time, or when the stimulus to the sensor is no longer present. Waters at [Abstract] (2) Biometric data entry - the mobile terminal 1 may incorporate a fingerprint reader 45. The fingerprint reader 45 scans the fingerprint of the user when the user's finger is placed on the reader 45 and compares it to the user's fingerprint stored in the memory of the mobile terminal 1 or the SIM 15. If the fingerprints are determined to match, the message is sent from the SIM 15, via link 43, to the RF tag 41. As an alternative to a fingerprint, other biometric data could be used - for example, voice recognition (using the mobile terminal's built-in microphone and a voice recognition algorithm within the mobile terminal 1 or SIM card 15) or retinal scanning (using the mobile terminal's built-in camera). Arrangements (1) and (2) above may advantageously be combined with an RF tag 41 that automatically deactivates after it has been read by a reader. That is, the user will activate the RF tag by entering their PIN or biometric data prior to bringing the
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	mobile terminal 1 into proximity to the reader. After successful reading of the RF tag 41, the RF tag automatically disables itself so that no further reading can occur without the PIN or biometric data being re-entered. If the mobile terminal 1 is lost or stolen, an unauthorised person cannot use the RF tag 41. Waters at [Page 14] Arrangements (1) and (2) above are fairly inconvenient if a user wishes to activate their RF tag 41 fairly frequently. The following arrangements may be more convenient when relatively frequent activation of the RF tag 41 is required: (1) Light sensor - for example a photodiode (a sensor that modifies an electric current when exposed to a light source) could be built into the casing of the mobile terminal 1 and act as a switch to activate or deactivate the RF tag 41. The RF tag 41 is controlled by the photo diode so that the RF tag 41 is only enabled when the mobile terminal 1 is exposed to light. Therefore, when the mobile terminal 1 was in an opaque case or the user's pocket, the RF tag 41 will be disabled. The photodiode may be sensitive to a particular frequency range — for example visible light, infra red or ultra violet. The tag reader may be provided with a light emitter that emits light at this frequency, in order to activate the tag. (2) Pressure sensor - a pressure sensor on the casing of mobile terminal 1 acts as a switch. The RF tag 41 is only enabled when the user physically presses the pressure sensor. Therefore, when the mobile terminal is in a case or the user's pocket, the pressure sensor is disabled. The pressure sensor may itself be deactivated by the user, for example, when a function of the mobile terminal 1 is selected such that the keypad 37 is inoperative. The pressure sensor may be combined with the fingerprint scanner 45. The combined sensor detects, not only that pressure is applied, but also that an authorised person is pressing the sensor. Alternatively, the pressure sensor could be combined with an electrical resistance meter and used to detect that it is a human hand pressing the pressure sensor, rather than some other object. (3) Heat sensors - such sensors incorporated in an appropriate position on the casing of the mobile terminal 1 could be configured to detect that the mobile terminal is in
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	a user's hand by detecting the heat from the hand, and only enabling the near field tag 41 when heat from the hand is so detected. (4) Skin resistance sensor - a skin resistance sensor may be provided on the casing of the mobile terminal 1 in dependence of the presence of the pressure sensor described above. The near field tag 41 will only be operated when an appropriate resistance, capacitance or inductance is detected, indicating that the user's hand is touching the sensor. (5) Inertial sensors. An inertial sensor incorporated in the mobile terminal can be used to detect that the user is moving the terminal (and tag 41) around at a sufficient speed to indicate that it is to be used. Inertial sensors may be based on micro-accelerators, which are commonly used in motion detectors - for example in gaming and virtual reality/remote control systems. Arrangements (1) to (5) immediately above activate the radio frequency tag 41 in dependence upon ambient conditions (light, pressure, heat, movement etc.) which change from when the card is being stored to when the card is required to be active. Other types of ambient sensors could be used and are within the scope of the invention. The arrangements (1) to (5) described above could be combined with an arrangement for automatically deactivating the near field tag 41 after it has been read once, or alternatively the tag 41 may deactivate when the ambient conditions change (for example the light/pressure/heat/movement is no longer applied). Waters at [Page 15-16] Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as
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		embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[7.1]	The method of claim 1, wherein said wirelessly providing by the smartphone, using the first air interface, information to the entity comprises:	To the extent the preamble is limiting, Waters discloses “the method of claim 1, wherein said wirelessly providing by the smartphone, using the first air interface, information to the entity comprises:” See e.g.: Claim 1, <i>supra</i>. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[7.2]	being proximate to a specific location within a store, then detecting a short-range signal being transmitted from said specific location within the store, and then performing a transaction to pay for one or more items.	Waters discloses “being proximate to a specific location within a store, then detecting a short-range signal being transmitted from said specific location within the store, and then performing a transaction to pay for one or more items.” See e.g.: A mobile terminal is disclosed which includes a near field or RF ID tag (41). The mobile terminal (1) communicates with the mobile telecommunications network and is authenticated with that network using the SIM (15). The mobile terminal (1) &>» is operable to obtain security data from the user thereof, such as a PIN or biometric data, or the mobile terminal (1) incorporates a © sensor such as a light sensor, pressure sensor, heat sensor, skin resistant sensor or inertial sensor. The input device or sensor is used to confirm the identity of the user or to evaluate whether the user wishes to use the near field tag (41) to make a payment or obtain entry to a building (for example). Data from the sensor is passed to the SIM (15), which issues a command enabling the near field tag (41), via link (43). The near field tag (41) may then be read by a reader. The near field tag (41) may be automatically disabled 5 after being read

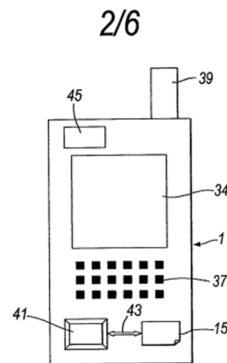
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	by the reader, after a predetermined time, or when the stimulus to the sensor is no longer present. Waters at [Abstract] According to a first aspect of the present invention, there is provided apparatus for controlling use of a near field communication device, including smart card means associable with a mobile telecommunications network for authenticating the smart card means with the network, wherein the smart card means is operable to receive from the mobile telecommunications network data for controlling use of the near field communication device and is operable to selectively enable the near field communication device in dependence upon the data. The invention also relates to a mobile telecommunications network including such apparatus. According to another aspect of the present invention, there is provided a method of controlling use of a near field communication device, including associating smart card means with a mobile telecommunications network for authenticating the smart card means with the network, transmitting to the smart card means from the mobile telecommunications network data for controlling use of the near field communication device and selectively enabling the near field communication device in dependence upon the data. Waters at [Page 02] According to a further aspect of the present invention, there is provided a communication device including near field communication means; smart card means for authenticating the device with a mobile telecommunications network; means for enabling the smart card to receive data from the mobile telecommunications network to authenticate the device; and means for selectively enabling the near field communication means in dependence upon the data received by the smart card.
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	According to a further aspect of the present invention, there is provided a mobile telecommunication device for use with a mobile telecommunications network and including a near field device, wherein the mobile telecommunication device is operable to selectively enable the near field communication device. Waters at [Page 03] As shown in Figure 2, mobile terminal 1 in accordance with the embodiment includes, in addition to SIM 15, a display 34, keypad 37 and an antenna 39 for communicating wirelessly with the mobile communications network 3. Further, the mobile terminal 1 includes a near field or RFID tag 41. The near field tag 41 operates in the unregulated RF band of 13.56 MHz in this embodiment although other frequencies could be used. No licences are required for the use of the near field devices in this RF band. However, each country imposes certain limitations on the electromagnetic emissions in this RF band. Limitations mean that in practice the distance at which the near field tag 41 can communicate with another device is typically less than 20 centimetres. Often the range of communication is such that the RF tag 41 must touch or almost touch the device with which it is to communicate. Communication may be using the Near Field Communication Interface and Protocol (NFCIP-I). Waters at [Page 08]
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Waters at [Figure 2]

The near field tag 41 may operate in accordance with ISO-IEC 14443 and ISO-IEC 15693 standards. The tag 41 includes an inbuilt inductive antenna that allows the card to exchange information with a tag reader when the two are brought into close proximity, as described above. The reader may emit an RF signal to supply power to the tag to communicate with it if the tag is "passive". If the tag is "active" it will have a power supply and its operation is independently of the reader. The near field tag 41 may transmit selected information, such as an ID number (GU ID).

In order to improve the security of the near field tag, in the present embodiment it is proposed to use the SIM 15 of mobile terminal 1 to control to some extent the operation of the near field tag 41. The authentication process of a SIM 15 with a mobile telecommunications network, using the network's authentication processor 17 is considered to be highly secure. In this embodiment, this authentication of the SIM 15 is used to protect data held by the memory of the near field tag 41 from unauthorised access.

According to an important feature of this embodiment, the near field tag 41 is selectively enabled or disabled for communication with the reader under control of

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	the SIM 15, by means of communication link 43. By means of the link 43, the SIM can enable or disable the near field tag 41 by, for example, rendering its antenna inoperative. In the disabled state, a reader is not able to obtain any information from the near field tag 41, even when brought into close proximity thereto (within a range that, in normal circumstances, near field communication would be possible). Conveniently, the SIM 15 is provided with data which controls operation of the near field tag 41 by receiving an OTA message, which is sent to the mobile terminal 1 from the mobile telecommunications network 3 (via the OTA gateway 30 and SMSC 32). As described above, the OTA update message is received by the mobile terminal 1 and it is determined that this is an updating OTA update message rather than a conventional SMS message. The message is then passed to the SIM 15 for processing. Upon processing of the message, commands contained within that message are executed, causing the desired control of the RF tag 41 via the link 43. Waters at [Page 09] In a first example, it is desired to only enable the near field tag 41 to communicate with the reader when it is in the vicinity of the user's office (where entry is obtained using the near field tag 41). The SMSC 32 may send an OTA update message to the node B 5 associated with the cell or group of cells in which the user's office is located. When the mobile terminal 1 enters a cell in the group, the node B transmits the OTA message to the mobile terminal 1. The procedure described above is applied, and the OTA message is passed to the SIM 15 and the instructions therein are processed. A command is sent to the near field tag 41 via link 43 to activate the near field tag (for example, by allowing its antenna to communicate with the reader). When the mobile terminal 1 moves to a different cell, a command is sent from the SIM 15, via the link 43, to disable the near field tag 41. This command may be issued in response to a further OTA message being received from the network 3 when the mobile terminal 1 moves to a different cell, or movement to a different cell may be detected automatically by the SIM (or the mobile terminal 1) and used to generate an appropriate command for sending to the near field tag 41.
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	The near field tag 41 may be rendered completely inoperable when not in the location of the cell of the user's office. Alternatively, the near field tag 41 may be partially disabled (for example, by rendering the antenna inoperable). In this partially disabled mode the tag 41 may perform certain functions, such as allowing its codes or other data to be reprogrammed. Waters at [Page 10] In the second example, a user wishes to use the near field tag 41 of the mobile terminal 1 to pay for travel by public transport (for example on the London Underground), where entry barriers are equipped with a suitable near field tag reader. Because the commuter travels at particular, consistent times of day, it is desirable to enable the near field tag 41 only at those times, in order to provide improved security. When so configured, if the mobile terminal 1 incorporating the near field tag 41 were stolen, the thief would not be able to pay for use of public transport using the near field tag 41 outside the times specified. The mobile telecommunications network 3 is configured to transmit an OTA message to the mobile terminal 1 at the beginning of the time period during which the commuter begins their normal journey. As before, this message is received and interpreted by the SIM, which sends an instruction to enable the near field tag 41 via the link 43. The near field tag 41 is then able to communicate with readers to allow use of public transport. At the end of the time period during which the commuter completes their usual journey, a second OTA message is sent by the network 3 to the mobile terminal 1. This OTA message is received and interpreted by the SIM 15, and sends an appropriate deactivation instruction to the RF tag 41 via the link 43. The near field tag 41 is thereafter not able to allow the user to obtain access to public transport. A similar arrangement could be used, for example, to enable a school child to pay for their lunch using the near field tag 41. OTA messages would be sent at the beginning and the end of the school lunch time so that the near field tag 41 could only be used to make a payment during the appropriate time.
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		Waters at [Page 11] The times at which, and the circumstances in which, the OTA messages are sent by the mobile telecommunications network 3 to the user's SIM card 15 may be set by the user of the mobile terminal 1. For example, the user of the mobile terminal 1 may initiate a communication session (such as a SIP communication session) with the mobile telecommunications network 1 to configure the times or places in which the RF tag 41 should be enabled. This updating process may require entry of a password, or employ some other security mechanism, to prevent unauthorised persons from reconfiguring the times and/or locations at which the near field tag is rendered operable or inoperable. Alternatively, the user may configure the times and/or locations at which the OTA messages are sent by some other mechanism - for example, by providing verbal instructions to the operator of mobile telecommunications network 3 by a mobile or PSTN telephone call, or by visiting the website of the mobile telecommunications network operator (whether using the mobile terminal 1 or independently thereof using a PC connected to the Internet). Rather than the user of the mobile terminal 1 determining when/where the RF tag 41 is activated, this may be determined by the mobile telecommunications network 3 or some other entity. For example, a school child's parent may set the times during which the school child is able to use their RF tag to make payments, in the example given above relating to paying for a school lunch. In the example given above relating to payment for public transport, the public transportation authority may alternatively or additionally be able to control when OTA messages are sent so that, if it is notified that the mobile terminal 1 incorporating the near field tag 41 has been stolen, that authority can permanently or temporarily deactivate the near field tag 41. In an alternative embodiment, the SIM 15 activates and deactivates the tag in dependence upon whether the SIM is authenticated with the mobile telecommunications network (using the authentication algorithm and the unique Ki in the manner described above). Waters at [Page 12]
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		Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[8.1]	The method of claim 1,	To the extent the preamble is limiting, Waters discloses “the method of claim 1,” See e.g.: Claim 1, supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[8.2]	wherein the entity comprises a check-out counter in a store, and	Waters discloses “wherein the entity comprises a check-out counter in a store, and” See e.g.: A mobile terminal is disclosed which includes a near field or RF ID tag (41). The mobile terminal (1) communicates with the mobile telecommunications network and is authenticated with that network using the SIM (15). The mobile terminal (1) &>» is operable to obtain security data from the user thereof, such as a PIN or biometric data, or the mobile terminal (1) incorporates a © sensor such as a light sensor, pressure sensor, heat sensor, skin resistant sensor or inertial sensor. The input device or sensor is used to confirm the identity of the user or to evaluate whether the user wishes to use the near field tag (41) to make a payment or obtain entry to a building (for

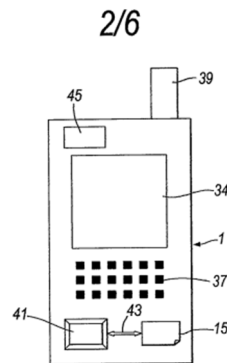
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	example). Data from the sensor is passed to the SIM (15), which issues a command enabling the near field tag (41), via link (43). The near field tag (41) may then be read by a reader. The near field tag (41) may be automatically disabled 5 after being read by the reader, after a predetermined time, or when the stimulus to the sensor is no longer present. Waters at [Abstract] According to a first aspect of the present invention, there is provided apparatus for controlling use of a near field communication device, including smart card means associable with a mobile telecommunications network for authenticating the smart card means with the network, wherein the smart card means is operable to receive from the mobile telecommunications network data for controlling use of the near field communication device and is operable to selectively enable the near field communication device in dependence upon the data. The invention also relates to a mobile telecommunications network including such apparatus. According to another aspect of the present invention, there is provided a method of controlling use of a near field communication device, including associating smart card means with a mobile telecommunications network for authenticating the smart card means with the network, transmitting to the smart card means from the mobile telecommunications network data for controlling use of the near field communication device and selectively enabling the near field communication device in dependence upon the data. Waters at [Page 02] According to a further aspect of the present invention, there is provided a communication device including near field communication means; smart card means for authenticating the device with a mobile telecommunications network; means for enabling the smart card to receive data from the mobile telecommunications network
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		to authenticate the device; and means for selectively enabling the near field communication means in dependence upon the data received by the smart card. According to a further aspect of the present invention, there is provided a mobile telecommunication device for use with a mobile telecommunications network and including a near field device, wherein the mobile telecommunication device is operable to selectively enable the near field communication device. Waters at [Page 03] As shown in Figure 2, mobile terminal 1 in accordance with the embodiment includes, in addition to SIM 15, a display 34, keypad 37 and an antenna 39 for communicating wirelessly with the mobile communications network 3. Further, the mobile terminal 1 includes a near field or RFID tag 41. The near field tag 41 operates in the unregulated RF band of 13.56 MHz in this embodiment although other frequencies could be used. No licences are required for the use of the near field devices in this RF band. However, each country imposes certain limitations on the electromagnetic emissions in this RF band. Limitations mean that in practice the distance at which the near field tag 41 can communicate with another device is typically less than 20 centimetres. Often the range of communication is such that the RF tag 41 must touch or almost touch the device with which it is to communicate. Communication may be using the Near Field Communication Interface and Protocol (NFCIP-I). Waters at [Page 08]
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Waters at [Figure 2]

The near field tag 41 may operate in accordance with ISO-IEC 14443 and ISO-IEC 15693 standards. The tag 41 includes an inbuilt inductive antenna that allows the card to exchange information with a tag reader when the two are brought into close proximity, as described above. The reader may emit an RF signal to supply power to the tag to communicate with it if the tag is "passive". If the tag is "active" it will have a power supply and its operation is independently of the reader. The near field tag 41 may transmit selected information, such as an ID number (GU ID).

In order to improve the security of the near field tag, in the present embodiment it is proposed to use the SIM 15 of mobile terminal 1 to control to some extent the operation of the near field tag 41. The authentication process of a SIM 15 with a mobile telecommunications network, using the network's authentication processor 17 is considered to be highly secure. In this embodiment, this authentication of the SIM 15 is used to protect data held by the memory of the near field tag 41 from unauthorised access.

According to an important feature of this embodiment, the near field tag 41 is selectively enabled or disabled for communication with the reader under control of

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	the SIM 15, by means of communication link 43. By means of the link 43, the SIM can enable or disable the near field tag 41 by, for example, rendering its antenna inoperative. In the disabled state, a reader is not able to obtain any information from the near field tag 41, even when brought into close proximity thereto (within a range that, in normal circumstances, near field communication would be possible). Conveniently, the SIM 15 is provided with data which controls operation of the near field tag 41 by receiving an OTA message, which is sent to the mobile terminal 1 from the mobile telecommunications network 3 (via the OTA gateway 30 and SMSC 32). As described above, the OTA update message is received by the mobile terminal 1 and it is determined that this is an updating OTA update message rather than a conventional SMS message. The message is then passed to the SIM 15 for processing. Upon processing of the message, commands contained within that message are executed, causing the desired control of the RF tag 41 via the link 43. Waters at [Page 09] In a first example, it is desired to only enable the near field tag 41 to communicate with the reader when it is in the vicinity of the user's office (where entry is obtained using the near field tag 41). The SMSC 32 may send an OTA update message to the node B 5 associated with the cell or group of cells in which the user's office is located. When the mobile terminal 1 enters a cell in the group, the node B transmits the OTA message to the mobile terminal 1. The procedure described above is applied, and the OTA message is passed to the SIM 15 and the instructions therein are processed. A command is sent to the near field tag 41 via link 43 to activate the near field tag (for example, by allowing its antenna to communicate with the reader). When the mobile terminal 1 moves to a different cell, a command is sent from the SIM 15, via the link 43, to disable the near field tag 41. This command may be issued in response to a further OTA message being received from the network 3 when the mobile terminal 1 moves to a different cell, or movement to a different cell may be detected automatically by the SIM (or the mobile terminal 1) and used to generate an appropriate command for sending to the near field tag 41.
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	The near field tag 41 may be rendered completely inoperable when not in the location of the cell of the user's office. Alternatively, the near field tag 41 may be partially disabled (for example, by rendering the antenna inoperable). In this partially disabled mode the tag 41 may perform certain functions, such as allowing its codes or other data to be reprogrammed. Waters at [Page 10] In the second example, a user wishes to use the near field tag 41 of the mobile terminal 1 to pay for travel by public transport (for example on the London Underground), where entry barriers are equipped with a suitable near field tag reader. Because the commuter travels at particular, consistent times of day, it is desirable to enable the near field tag 41 only at those times, in order to provide improved security. When so configured, if the mobile terminal 1 incorporating the near field tag 41 were stolen, the thief would not be able to pay for use of public transport using the near field tag 41 outside the times specified. The mobile telecommunications network 3 is configured to transmit an OTA message to the mobile terminal 1 at the beginning of the time period during which the commuter begins their normal journey. As before, this message is received and interpreted by the SIM, which sends an instruction to enable the near field tag 41 via the link 43. The near field tag 41 is then able to communicate with readers to allow use of public transport. At the end of the time period during which the commuter completes their usual journey, a second OTA message is sent by the network 3 to the mobile terminal 1. This OTA message is received and interpreted by the SIM 15, and sends an appropriate deactivation instruction to the RF tag 41 via the link 43. The near field tag 41 is thereafter not able to allow the user to obtain access to public transport. A similar arrangement could be used, for example, to enable a school child to pay for their lunch using the near field tag 41. OTA messages would be sent at the beginning and the end of the school lunch time so that the near field tag 41 could only be used to make a payment during the appropriate time.
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		Waters at [Page 11] The times at which, and the circumstances in which, the OTA messages are sent by the mobile telecommunications network 3 to the user's SIM card 15 may be set by the user of the mobile terminal 1. For example, the user of the mobile terminal 1 may initiate a communication session (such as a SIP communication session) with the mobile telecommunications network 1 to configure the times or places in which the RF tag 41 should be enabled. This updating process may require entry of a password, or employ some other security mechanism, to prevent unauthorised persons from reconfiguring the times and/or locations at which the near field tag is rendered operable or inoperable. Alternatively, the user may configure the times and/or locations at which the OTA messages are sent by some other mechanism - for example, by providing verbal instructions to the operator of mobile telecommunications network 3 by a mobile or PSTN telephone call, or by visiting the website of the mobile telecommunications network operator (whether using the mobile terminal 1 or independently thereof using a PC connected to the Internet). Rather than the user of the mobile terminal 1 determining when/where the RF tag 41 is activated, this may be determined by the mobile telecommunications network 3 or some other entity. For example, a school child's parent may set the times during which the school child is able to use their RF tag to make payments, in the example given above relating to paying for a school lunch. In the example given above relating to payment for public transport, the public transportation authority may alternatively or additionally be able to control when OTA messages are sent so that, if it is notified that the mobile terminal 1 incorporating the near field tag 41 has been stolen, that authority can permanently or temporarily deactivate the near field tag 41. In an alternative embodiment, the SIM 15 activates and deactivates the tag in dependence upon whether the SIM is authenticated with the mobile telecommunications network (using the authentication algorithm and the unique Ki in the manner described above). Waters at [Page 12]
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		Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[8.3]	wherein said wirelessly providing by the smartphone, using the first air interface, information to the entity comprises:	Waters discloses “wherein said wirelessly providing by the smartphone, using the first air interface, information to the entity comprises:” See e.g.: [1.4] and [8.2], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[8.4]	performing a financial transaction to pay for one or more items.	Waters discloses “performing a financial transaction to pay for one or more items.” See e.g.: A mobile terminal is disclosed which includes a near field or RF ID tag (41). The mobile terminal (1) communicates with the mobile telecommunications network and is authenticated with that network using the SIM (15). The mobile terminal (1) &>» is operable to obtain security data from the user thereof, such as a PIN or biometric data, or the mobile terminal (1) incorporates a © sensor such as a light sensor, pressure sensor, heat sensor, skin resistant sensor or inertial sensor. The input device or sensor is used to confirm the identity of the user or to evaluate whether the user wishes to use the near field tag (41) to make a payment or obtain entry to a building (for

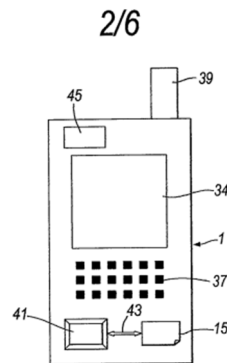
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	example). Data from the sensor is passed to the SIM (15), which issues a command enabling the near field tag (41), via link (43). The near field tag (41) may then be read by a reader. The near field tag (41) may be automatically disabled 5 after being read by the reader, after a predetermined time, or when the stimulus to the sensor is no longer present. Waters at [Abstract] According to a first aspect of the present invention, there is provided apparatus for controlling use of a near field communication device, including smart card means associable with a mobile telecommunications network for authenticating the smart card means with the network, wherein the smart card means is operable to receive from the mobile telecommunications network data for controlling use of the near field communication device and is operable to selectively enable the near field communication device in dependence upon the data. The invention also relates to a mobile telecommunications network including such apparatus. According to another aspect of the present invention, there is provided a method of controlling use of a near field communication device, including associating smart card means with a mobile telecommunications network for authenticating the smart card means with the network, transmitting to the smart card means from the mobile telecommunications network data for controlling use of the near field communication device and selectively enabling the near field communication device in dependence upon the data. Waters at [Page 02] According to a further aspect of the present invention, there is provided a communication device including near field communication means; smart card means for authenticating the device with a mobile telecommunications network; means for enabling the smart card to receive data from the mobile telecommunications network
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		to authenticate the device; and means for selectively enabling the near field communication means in dependence upon the data received by the smart card. According to a further aspect of the present invention, there is provided a mobile telecommunication device for use with a mobile telecommunications network and including a near field device, wherein the mobile telecommunication device is operable to selectively enable the near field communication device. Waters at [Page 03] As shown in Figure 2, mobile terminal 1 in accordance with the embodiment includes, in addition to SIM 15, a display 34, keypad 37 and an antenna 39 for communicating wirelessly with the mobile communications network 3. Further, the mobile terminal 1 includes a near field or RFID tag 41. The near field tag 41 operates in the unregulated RF band of 13.56 MHz in this embodiment although other frequencies could be used. No licences are required for the use of the near field devices in this RF band. However, each country imposes certain limitations on the electromagnetic emissions in this RF band. Limitations mean that in practice the distance at which the near field tag 41 can communicate with another device is typically less than 20 centimetres. Often the range of communication is such that the RF tag 41 must touch or almost touch the device with which it is to communicate. Communication may be using the Near Field Communication Interface and Protocol (NFCIP-I). Waters at [Page 08]
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Waters at [Figure 2]

The near field tag 41 may operate in accordance with ISO-IEC 14443 and ISO-IEC 15693 standards. The tag 41 includes an inbuilt inductive antenna that allows the card to exchange information with a tag reader when the two are brought into close proximity, as described above. The reader may emit an RF signal to supply power to the tag to communicate with it if the tag is "passive". If the tag is "active" it will have a power supply and its operation is independently of the reader. The near field tag 41 may transmit selected information, such as an ID number (GU ID).

In order to improve the security of the near field tag, in the present embodiment it is proposed to use the SIM 15 of mobile terminal 1 to control to some extent the operation of the near field tag 41. The authentication process of a SIM 15 with a mobile telecommunications network, using the network's authentication processor 17 is considered to be highly secure. In this embodiment, this authentication of the SIM 15 is used to protect data held by the memory of the near field tag 41 from unauthorised access.

According to an important feature of this embodiment, the near field tag 41 is selectively enabled or disabled for communication with the reader under control of

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	the SIM 15, by means of communication link 43. By means of the link 43, the SIM can enable or disable the near field tag 41 by, for example, rendering its antenna inoperative. In the disabled state, a reader is not able to obtain any information from the near field tag 41, even when brought into close proximity thereto (within a range that, in normal circumstances, near field communication would be possible). Conveniently, the SIM 15 is provided with data which controls operation of the near field tag 41 by receiving an OTA message, which is sent to the mobile terminal 1 from the mobile telecommunications network 3 (via the OTA gateway 30 and SMSC 32). As described above, the OTA update message is received by the mobile terminal 1 and it is determined that this is an updating OTA update message rather than a conventional SMS message. The message is then passed to the SIM 15 for processing. Upon processing of the message, commands contained within that message are executed, causing the desired control of the RF tag 41 via the link 43. Waters at [Page 09] In a first example, it is desired to only enable the near field tag 41 to communicate with the reader when it is in the vicinity of the user's office (where entry is obtained using the near field tag 41). The SMSC 32 may send an OTA update message to the node B 5 associated with the cell or group of cells in which the user's office is located. When the mobile terminal 1 enters a cell in the group, the node B transmits the OTA message to the mobile terminal 1. The procedure described above is applied, and the OTA message is passed to the SIM 15 and the instructions therein are processed. A command is sent to the near field tag 41 via link 43 to activate the near field tag (for example, by allowing its antenna to communicate with the reader). When the mobile terminal 1 moves to a different cell, a command is sent from the SIM 15, via the link 43, to disable the near field tag 41. This command may be issued in response to a further OTA message being received from the network 3 when the mobile terminal 1 moves to a different cell, or movement to a different cell may be detected automatically by the SIM (or the mobile terminal 1) and used to generate an appropriate command for sending to the near field tag 41.
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	The near field tag 41 may be rendered completely inoperable when not in the location of the cell of the user's office. Alternatively, the near field tag 41 may be partially disabled (for example, by rendering the antenna inoperable). In this partially disabled mode the tag 41 may perform certain functions, such as allowing its codes or other data to be reprogrammed. Waters at [Page 10] In the second example, a user wishes to use the near field tag 41 of the mobile terminal 1 to pay for travel by public transport (for example on the London Underground), where entry barriers are equipped with a suitable near field tag reader. Because the commuter travels at particular, consistent times of day, it is desirable to enable the near field tag 41 only at those times, in order to provide improved security. When so configured, if the mobile terminal 1 incorporating the near field tag 41 were stolen, the thief would not be able to pay for use of public transport using the near field tag 41 outside the times specified. The mobile telecommunications network 3 is configured to transmit an OTA message to the mobile terminal 1 at the beginning of the time period during which the commuter begins their normal journey. As before, this message is received and interpreted by the SIM, which sends an instruction to enable the near field tag 41 via the link 43. The near field tag 41 is then able to communicate with readers to allow use of public transport. At the end of the time period during which the commuter completes their usual journey, a second OTA message is sent by the network 3 to the mobile terminal 1. This OTA message is received and interpreted by the SIM 15, and sends an appropriate deactivation instruction to the RF tag 41 via the link 43. The near field tag 41 is thereafter not able to allow the user to obtain access to public transport. A similar arrangement could be used, for example, to enable a school child to pay for their lunch using the near field tag 41. OTA messages would be sent at the beginning and the end of the school lunch time so that the near field tag 41 could only be used to make a payment during the appropriate time.
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		Waters at [Page 11] The times at which, and the circumstances in which, the OTA messages are sent by the mobile telecommunications network 3 to the user's SIM card 15 may be set by the user of the mobile terminal 1. For example, the user of the mobile terminal 1 may initiate a communication session (such as a SIP communication session) with the mobile telecommunications network 1 to configure the times or places in which the RF tag 41 should be enabled. This updating process may require entry of a password, or employ some other security mechanism, to prevent unauthorised persons from reconfiguring the times and/or locations at which the near field tag is rendered operable or inoperable. Alternatively, the user may configure the times and/or locations at which the OTA messages are sent by some other mechanism - for example, by providing verbal instructions to the operator of mobile telecommunications network 3 by a mobile or PSTN telephone call, or by visiting the website of the mobile telecommunications network operator (whether using the mobile terminal 1 or independently thereof using a PC connected to the Internet). Rather than the user of the mobile terminal 1 determining when/where the RF tag 41 is activated, this may be determined by the mobile telecommunications network 3 or some other entity. For example, a school child's parent may set the times during which the school child is able to use their RF tag to make payments, in the example given above relating to paying for a school lunch. In the example given above relating to payment for public transport, the public transportation authority may alternatively or additionally be able to control when OTA messages are sent so that, if it is notified that the mobile terminal 1 incorporating the near field tag 41 has been stolen, that authority can permanently or temporarily deactivate the near field tag 41. In an alternative embodiment, the SIM 15 activates and deactivates the tag in dependence upon whether the SIM is authenticated with the mobile telecommunications network (using the authentication algorithm and the unique Ki in the manner described above). Waters at [Page 12]
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		Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[9.1]	The method of claim 1, wherein establishing the wireless short-range communications link between the smartphone and the entity is performed in response to the physiological parameter.	Waters discloses “the method of claim 1, wherein establishing the wireless short-range communications link between the smartphone and the entity is performed in response to the physiological parameter.” See e.g.: A mobile terminal is disclosed which includes a near field or RF ID tag (41). The mobile terminal (1) communicates with the mobile telecommunications network and is authenticated with that network using the SIM (15). The mobile terminal (1) &>» is operable to obtain security data from the user thereof, such as a PIN or biometric data, or the mobile terminal (1) incorporates a © sensor such as a light sensor, pressure sensor, heat sensor, skin resistant sensor or inertial sensor. The input device or sensor is used to confirm the identity of the user or to evaluate whether the user wishes to use the near field tag (41) to make a payment or obtain entry to a building (for example). Data from the sensor is passed to the SIM (15), which issues a command enabling the near field tag (41), via link (43). The near field tag (41) may then be read by a reader. The near field tag (41) may be automatically disabled 5 after being read by the reader, after a predetermined time, or when the stimulus to the sensor is no longer present. Waters at [Abstract] The present invention relates to apparatus for controlling use of a near field communication device, including smart card means associable with a mobile telecommunications network for authenticating the smart card means with the

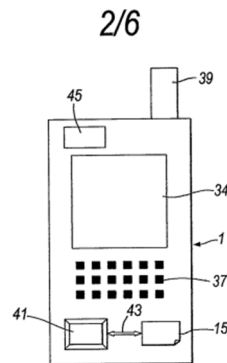
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	network, to a method of controlling use of a near field communication device and to a communication device including near field communication means. Waters at [Page 01] According to a first aspect of the present invention, there is provided apparatus for controlling use of a near field communication device, including smart card means associable with a mobile telecommunications network for authenticating the smart card means with the network, wherein the smart card means is operable to receive from the mobile telecommunications network data for controlling use of the near field communication device and is operable to selectively enable the near field communication device in dependence upon the data. The invention also relates to a mobile telecommunications network including such apparatus. According to another aspect of the present invention, there is provided a method of controlling use of a near field communication device, including associating smart card means with a mobile telecommunications network for authenticating the smart card means with the network, transmitting to the smart card means from the mobile telecommunications network data for controlling use of the near field communication device and selectively enabling the near field communication device in dependence upon the data. Waters at [Page 02] According to a further aspect of the present invention, there is provided a communication device including near field communication means; smart card means for authenticating the device with a mobile telecommunications network; means for enabling the smart card to receive data from the mobile telecommunications network to authenticate the device; and means for selectively enabling the near field communication means in dependence upon the data received by the smart card.
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		According to a further aspect of the present invention, there is provided a mobile telecommunication device for use with a mobile telecommunications network and including a near field device, wherein the mobile telecommunication device is operable to selectively enable the near field communication device. Waters at [Page 03] As shown in Figure 2, mobile terminal 1 in accordance with the embodiment includes, in addition to SIM 15, a display 34, keypad 37 and an antenna 39 for communicating wirelessly with the mobile communications network 3. Further, the mobile terminal 1 includes a near field or RFID tag 41. The near field tag 41 operates in the unregulated RF band of 13.56 MHz in this embodiment although other frequencies could be used. No licences are required for the use of the near field devices in this RF band. However, each country imposes certain limitations on the electromagnetic emissions in this RF band. Limitations mean that in practice the distance at which the near field tag 41 can communicate with another device is typically less than 20 centimetres. Often the range of communication is such that the RF tag 41 must touch or almost touch the device with which it is to communicate. Communication may be using the Near Field Communication Interface and Protocol (NFCIP-I). Waters at [Page 08]
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Waters at [Figure 2]

The near field tag 41 may operate in accordance with ISO-IEC 14443 and ISO-IEC 15693 standards. The tag 41 includes an inbuilt inductive antenna that allows the card to exchange information with a tag reader when the two are brought into close proximity, as described above. The reader may emit an RF signal to supply power to the tag to communicate with it if the tag is "passive". If the tag is "active" it will have a power supply and its operation is independently of the reader. The near field tag 41 may transmit selected information, such as an ID number (GU ID).

In order to improve the security of the near field tag, in the present embodiment it is proposed to use the SIM 15 of mobile terminal 1 to control to some extent the operation of the near field tag 41. The authentication process of a SIM 15 with a mobile telecommunications network, using the network's authentication processor 17 is considered to be highly secure. In this embodiment, this authentication of the SIM 15 is used to protect data held by the memory of the near field tag 41 from unauthorised access.

According to an important feature of this embodiment, the near field tag 41 is selectively enabled or disabled for communication with the reader under control of

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	the SIM 15, by means of communication link 43. By means of the link 43, the SIM can enable or disable the near field tag 41 by, for example, rendering its antenna inoperative. In the disabled state, a reader is not able to obtain any information from the near field tag 41, even when brought into close proximity thereto (within a range that, in normal circumstances, near field communication would be possible). Conveniently, the SIM 15 is provided with data which controls operation of the near field tag 41 by receiving an OTA message, which is sent to the mobile terminal 1 from the mobile telecommunications network 3 (via the OTA gateway 30 and SMSC 32). As described above, the OTA update message is received by the mobile terminal 1 and it is determined that this is an updating OTA update message rather than a conventional SMS message. The message is then passed to the SIM 15 for processing. Upon processing of the message, commands contained within that message are executed, causing the desired control of the RF tag 41 via the link 43. Waters at [Page 09] In a first example, it is desired to only enable the near field tag 41 to communicate with the reader when it is in the vicinity of the user's office (where entry is obtained using the near field tag 41). The SMSC 32 may send an OTA update message to the node B 5 associated with the cell or group of cells in which the user's office is located. When the mobile terminal 1 enters a cell in the group, the node B transmits the OTA message to the mobile terminal 1. The procedure described above is applied, and the OTA message is passed to the SIM 15 and the instructions therein are processed. A command is sent to the near field tag 41 via link 43 to activate the near field tag (for example, by allowing its antenna to communicate with the reader). When the mobile terminal 1 moves to a different cell, a command is sent from the SIM 15, via the link 43, to disable the near field tag 41. This command may be issued in response to a further OTA message being received from the network 3 when the mobile terminal 1 moves to a different cell, or movement to a different cell may be detected automatically by the SIM (or the mobile terminal 1) and used to generate an appropriate command for sending to the near field tag 41.
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		Typically, when the mobile terminal 1 is powered up within the coverage area of the mobile telecommunications network 3, the authentication process between the SIM 15 and the authentication processor 17 of the network 3 occurs automatically. When this authentication has been completed, a message is sent to the near field tag 41, via the link 43, to enable operation of the tag. When the SIM 15 is no longer authenticated (for example, when the mobile terminal 1 is powered down), a further message is sent from the SIM 15 to the near field tag 41, via the link 43, to deactivate the near field tag 41. In the modification to this arrangement, the mobile terminal 1 does not have to be always authenticated with the network 3 for the tag 41 to be enabled. However, the tag 41 is configured so that it is only enabled when it receives messages from the SIM 15 indicating that the SIM 15 has been authenticated at predetermined times or events - for example, once a day or on powering on/off of the mobile terminal 1. Such an embodiment is advantageous because, if the mobile terminal 1 is stolen, both the SIM 15 and the near field tag 41 can be disabled together by sending a single OTA message. In another embodiment of the invention, the mobile terminal and/or near field tag 41 is provided with means for disabling the tag 41 without requiring communication between the mobile terminal 1 and the mobile telecommunications network 3 (and therefore without requiring receipt of an OTA message). The near field tag 41 may be selectively enabled and disabled in order to reduce the opportunity to obtain information from the near field tag 41 by an unauthorised reader. The following arrangements are useful if the near field tag 41 is to be enabled and disabled for fairly long periods of time: (1) Personal identification number (PESf) entry - the keypad 37 of the mobile terminal 1 is used to enter a PIN (or other secret password) to enable the near field tag 41. The user's PIN may be stored in a secure location in the mobile terminal 1 or in the SIM 15. When the user enters their PIN using the keypad 37, the entered
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		PIN is compared with the stored PIN. If the PINs match, the SIM transmits a message, via link 43, to the near field tag 41 to activate the near field tag. (2) Biometric data entry - the mobile terminal 1 may incorporate a fingerprint reader 45. The fingerprint reader 45 scans the fingerprint of the user when the user's finger is placed on the reader 45 and compares it to the user's fingerprint stored in the memory of the mobile terminal 1 or the SIM 15. If the fingerprints are determined to match, the message is sent from the SIM 15, via link 43, to the RF tag 41. As an alternative to a fingerprint, other biometric data could be used - for example, voice recognition (using the mobile terminal's built-in microphone and a voice recognition algorithm within the mobile terminal 1 or SIM card 15) or retinal scanning (using the mobile terminal's built-in camera). Arrangements (1) and (2) above may advantageously be combined with an RF tag 41 that automatically deactivates after it has been read by a reader. That is, the user will activate the RF tag by entering their PIN or biometric data prior to bringing the mobile terminal 1 into proximity to the reader. After successful reading of the RF tag 41, the RF tag automatically disables itself so that no further reading can occur without the PIN or biometric data being re-entered. If the mobile terminal 1 is lost or stolen, an unauthorised person cannot use the RF tag 41. Waters at [Page 13-14] Arrangements (1) to (5) immediately above activate the radio frequency tag 41 in dependence upon ambient conditions (light, pressure, heat, movement etc.) which change from when the card is being stored to when the card is required to be active. Other types of ambient sensors could be used and are within the scope of the invention. The arrangements (1) to (5) described above could be combined with an arrangement for automatically deactivating the near field tag 41 after it has been read once, or alternatively the tag 41 may deactivate when the ambient conditions change (for example the light/pressure/heat/movement is no longer applied). Waters at [Page 16]
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	A mobile terminal 1 may have any of the above arrangements implemented in any combination. For example, a manual entry system and an automatic entry system may be provided, respectively, to enable the card for short and long periods of use. Alternatively, the arrangements may work in parallel, and the near field tag 41 would be enabled only if the light sensor was activated and the correct PIN was entered (for example). Further, the arrangements may work in series - for example, the near field tag 41 would be enabled if the light sensor was activated and the correct PIN was subsequently entered. Waters at [Page 17] In the arrangements described above the tag 41 and the mechanism for activating/deactivating the near field tag 41 is incorporated into the mobile terminal. Alternatively, the mechanism for activating/deactivating the tag may be incorporated directly into the smart card or SIM 15 itself. Also, the tag 41 or part of the tag 41 may be incorporated into the SIM 15. The principle of controlling operation of a near field tag by means of a smart card or SIM is not restricted to an arrangement where the SIM is, or is always, associated with a mobile terminal 1. For example, the SIM may be associated with a "dongle" of the type disclosed in WO-A-2004 036513. Waters at [Page 18] Figure 5 shows a smart card 100 with an in-built near field tag including an inductive antenna 200, and a biometric system 120 for reading a finger print. The print is ideally compared to a previously taken print stored in the memory 130 of the smart card 100 or may just be judged as having the characteristics of a non-specific fingerprint. Waters at [Page 20]
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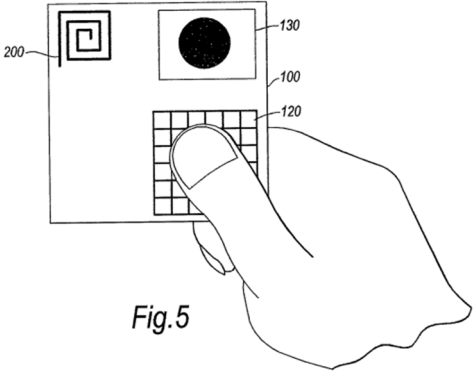
		4/6  Fig. 5 Waters at [Figure 5] Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[10.1]	A system comprising:	To the extent the preamble is limiting, Waters discloses “a system comprising:” See e.g.: Claim 1, <i>supra</i>. [10.1]-[10.9], <i>infra</i>.

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		Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[10.2]	a smartphone that is configured to perform operations comprising:	Waters discloses “a smartphone that is configured to perform operations comprising:” See e.g.: [1.1], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[10.3]	detecting by the smartphone that a proximity condition is satisfied between the smartphone and an entity;	Waters discloses “detecting by the smartphone that a proximity condition is satisfied between the smartphone and an entity;” See e.g.: [1.2], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[10.4]	in response to at least the proximity condition having been satisfied	Waters discloses “in response to at least the proximity condition having been satisfied between the smartphone and the entity, establishing a wireless short-range

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	between the smartphone and the entity, establishing a wireless short-range communications link between the smartphone and the entity to provide by the smartphone, using a first air interface, information to the entity and to receive by the smartphone information from the entity;	communications link between the smartphone and the entity to provide by the smartphone, using a first air interface, information to the entity and to receive by the smartphone information from the entity;” See e.g.: [1.3], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[10.5]	in response to at least the proximity condition having been satisfied between the smartphone and the entity and in response to a physiological parameter, wirelessly providing, using the first air interface, information to the entity and wirelessly receiving, using the first air interface, information from the entity independently of, and absent involving the entity in, receiving a communications service from a wireless network using a second air interface that differs from the first air interface; and	Waters discloses “in response to at least the proximity condition having been satisfied between the smartphone and the entity and in response to a physiological parameter, wirelessly providing, using the first air interface, information to the entity and wirelessly receiving, using the first air interface, information from the entity independently of, and absent involving the entity in, receiving a communications service from a wireless network using a second air interface that differs from the first air interface; and” See e.g.: [1.4], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[10.6]	wirelessly receiving, using the second air interface, the communications service from the	Waters discloses “wirelessly receiving, using the second air interface, the communications service from the wireless network absent involving the entity,

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	wireless network absent involving the entity, absent providing information to the entity, and absent receiving information from the entity,	absent providing information to the entity, and absent receiving information from the entity,” See e.g.: [1.5], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[10.7]	wherein the wireless short-range communications link used by the first air interface is based upon unlicensed frequencies,	Waters discloses “wherein the wireless short-range communications link used by the first air interface is based upon unlicensed frequencies,” See e.g.: [1.6], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[10.8]	wherein the second air interface uses a wireless communications link that is based upon licensed frequencies, and	Waters discloses “wherein the second air interface uses a wireless communications link that is based upon licensed frequencies, and” See e.g.: [1.7], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of

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		ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[10.9]	wherein the first air interface is not involved in providing the communications service to the smartphone.	Waters discloses “wherein the first air interface is not involved in providing the communications service to the smartphone.” See e.g.: [1.8], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[11.1]	The system according to claim 10, further comprising the entity.	Waters discloses “the system according to claim 10, further comprising the entity.” See e.g.: Claim 10, supra. [10.3], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[12.1]	The system of claim 10,	To the extent the preamble is limiting, Waters discloses “the system of claim 10,” See e.g.: Claim 10, supra.

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		Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[12.2]	wherein said wirelessly providing, using a first air interface, information to an entity and wirelessly receiving, using the first air interface, information from the entity independently of, and absent involving the entity in, receiving a communications service from a wireless network using a second air interface that differs from the first air interface is performed over a first time interval;	Waters discloses “wherein said wirelessly providing, using a first air interface, information to an entity and wirelessly receiving, using the first air interface, information from the entity independently of, and absent involving the entity in, receiving a communications service from a wireless network using a second air interface that differs from the first air interface is performed over a first time interval;” See e.g.: [2.2], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[12.3]	wherein said wirelessly receiving, using the second air interface, the communications service from the wireless network absent involving the entity, absent providing information to the entity, and absent receiving information from the entity is performed over a second time interval; and	Waters discloses “wherein said wirelessly receiving, using the second air interface, the communications service from the wireless network absent involving the entity, absent providing information to the entity, and absent receiving information from the entity is performed over a second time interval; and” See e.g.: [2.3], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill

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		in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[12.4]	wherein the first and second time intervals are non-overlapping with one another.	Waters discloses “wherein the first and second time intervals are non-overlapping with one another.” See e.g.: [2.4], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[13.1]	The system of claim 10, wherein the second air interface is based upon an Orthogonal Frequency Division Multiplexed (OFDM) and/or Orthogonal Frequency Division Multiple Access (OFDMA) protocol.	Waters discloses “the system of claim 10, wherein the second air interface is based upon an Orthogonal Frequency Division Multiplexed (OFDM) and/or Orthogonal Frequency Division Multiple Access (OFDMA) protocol.” See e.g.: Claim 10, supra. [3.3], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[14.1]	The system of claim 10, wherein said detecting by the smartphone that a proximity condition is	Waters discloses “the system of claim 10, wherein said detecting by the smartphone that a proximity condition is satisfied between the smartphone and an entity is

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	satisfied between the smartphone and an entity is based, at least in part, on receiving a short-range signal from the entity over the first air interface.	based, at least in part, on receiving a short-range signal from the entity over the first air interface.” See e.g.: Claim 10, supra. [4.1], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[15.1]	The system of claim 14, wherein said detecting by the smartphone that a proximity condition is satisfied between the smartphone and an entity is based, at least in part, on a measurement of signal strength of the short-range signal.	Waters discloses “the system of claim 14, wherein said detecting by the smartphone that a proximity condition is satisfied between the smartphone and an entity is based, at least in part, on a measurement of signal strength of the short-range signal.” See e.g.: Claim 14, supra. [5.1], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[16.1]	The system of claim 10,	To the extent the preamble is limiting, Waters discloses “the system of claim 10,” See e.g.: Claim 10, supra.

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		Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[16.2]	wherein a value of the physiological parameter is provided by using a sensor of the smartphone.	Waters discloses “wherein a value of the physiological parameter is provided by using a sensor of the smartphone.” See e.g.: [6.2], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[17.1]	The system of claim 10, wherein said wirelessly providing, using the first air interface, information to the entity comprises:	To the extent the preamble is limiting, Waters discloses “the system of claim 10, wherein said wirelessly providing, using the first air interface, information to the entity comprises:” See e.g.: Claim 10, supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.

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[17.2]	being proximate to a specific location within a store, then detecting a short-range signal being transmitted from said specific location within the store, and then performing a transaction to pay for one or more items.	Waters discloses “being proximate to a specific location within a store, then detecting a short-range signal being transmitted from said specific location within the store, and then performing a transaction to pay for one or more items.” See e.g.: [7.2], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[18.1]	The system of claim 10,	To the extent the preamble is limiting, Waters discloses “the system of claim 10,” See e.g.: Claim 10, supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[18.2]	wherein the entity comprises a check-out counter in a store, and	Waters discloses “wherein the entity comprises a check-out counter in a store, and” See e.g.: [8.2], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill

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		in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[18.3]	wherein said wirelessly providing, using the first air interface, information to the entity comprises:	Waters discloses “wherein said wirelessly providing, using the first air interface, information to the entity comprises:” See e.g.: [8.3], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[18.4]	performing a financial transaction to pay for one or more items.	Waters discloses “performing a financial transaction to pay for one or more items.” See e.g.: [8.4], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
[19.1]	The system of claim 10, wherein establishing the wireless short-range communications link between the smartphone and the entity is	Waters discloses “the system of claim 10, wherein establishing the wireless short-range communications link between the smartphone and the entity is performed in response to the physiological parameter.” See e.g.: Claim 10, supra.

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	performed in response to the physiological parameter.	[9.1], supra. Furthermore, this claim element is obvious in light of Waters itself, when combined with any of the other references as charted for this claim element in Exs. 199-A01-A23, Ex. 199-B, and/or when combined with the knowledge of one of ordinary skill in the art. Motivations to combine may come from the knowledge of the person of ordinary skill themselves, or from the known problems and predictable solutions as embodied in these references. Further motivations to combine references and additional details may be found in the Cover Pleading and Ex. 199-B.
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