

U.S. Patent No. 9,372,098 B2 Claim Listing

No.	Limitation
[1p]	A method of transferring data from a communication module to machine-to-machine server over a telecommunications network, the method comprising:
[1a]	receiving a wireless signalling message from said communication module at a signalling termination node of the telecommunications network,
[1b]	said received wireless signalling message inserted in it non-signalling application data generated for a machine-to-machine function by the communication module,
[1c]	wherein wireless signalling messages of the telecommunications network are of a message type specified for carrying signalling data for managing connections in the telecommunications network;
[1d]	retrieving said non-signalling application data from the received wireless signalling message; and
[1e]	terminating further transmission of the received wireless signalling message and transferring said retrieved non-signalling application data to said machine-to-machine server.

2	The method according to claim 1, wherein the wireless signalling message is a network attach request message.
3	The method according to claim 2, wherein said network attach request message is a location updating request message with a location updating type information element indicating an IMSI attach.
4	The method according to claim 2, wherein said network attach request message is an attach request with an attach type information element indicating a GPRS request or a combined GPRS/IMSI attach.
[5a]	The method according to claim 2, further comprising: transmitting a network attach accept message to the communication module;
[5b]	transmitting further data to and/or receiving further data from the communication module; and
[5c]	receiving a network detach message from the communication module.
6	The method according to claim 2, further comprising transmitting an attach reject message to said communication module, said attach reject message comprising data for said communication module.
9	The method according to claim 1, wherein said received wireless signalling message contains address

	information indicative of said machine-to-machine server.
10	The method according to claim 1, wherein the non-signalling application data comprises alarming data.
11	The method according to claim 1, wherein the non-signalling application data comprises measurement data.
12	The method according to claim 11, wherein the communication module comprises one or more sensors, and wherein the measurement data comprises measurement data obtained using the one or more sensors.
[13a]	The method of claim 1, wherein said method is a method of transferring non-signalling data from the communication module to the machine-to-machine server over the telecommunications network in a machine-to-machine communications setting; and
[13b]	wherein transferring said non-signalling application generated for a machine-to-machine function by the communication module to said machine-to-machine server comprises transferring said non-signalling application data to said machine-to-machine server while avoiding to establish a complete circuit-switched or packet-switched connection between said communication module and said telecommunications network.
14	The method of claim 1, wherein said received wireless signalling message

	comprises data derived from a sensor of the communication module.
[15p]	A telecommunications network for transferring data from a communication apparatus to a machine-to-machine server, said telecommunications network comprising:
[15a]	a signalling termination node; and
[15b]	one or more processors for carrying out operations including:
[15c]	receiving a wireless signalling message from said communication apparatus at the signalling termination node,
[15d]	said received wireless signalling message having inserted in it non-signalling application data generated for a machine-to-machine function by the communication apparatus,
[15e]	wherein wireless signalling messages of the telecommunications network are of a message type specified for carrying signalling data for managing connections in the telecommunications network;
[15f]	retrieving said non-signalling application data from the received wireless signalling message; and
[15g]	terminating further transmission of the received wireless signalling message and transferring said retrieved non-signalling application data to said machine-to-machine server.

[16a]	The telecommunications network of claim 15, wherein said telecommunications network is configured for transferring non-signalling data from the communication apparatus to the machine-to-machine server in a machine-to-machine communications setting; and
[16b]	wherein transferring said non-signalling application data to said machine-to-machine server comprises transferring said non-signalling application data to said machine-to-machine server while avoiding to establish a complete circuit-switched or packet-switched connection between said communication apparatus and said telecommunications network.
[17p]	A node in a telecommunications network, said telecommunications network being configured for transferring data from a communication apparatus to a machine-to-machine server, said node being comprising:
[17a]	one or more processors for carrying out operations including:
[17b]	receiving a wireless signalling message from said communication apparatus,
[17c]	said received wireless signalling message having inserted in it non-signalling application data generated for a machine-to-machine function by the communication apparatus,
[17d]	wherein wireless signalling messages of the telecommunications network are of a message type specified for carrying

	signalling data for managing connections in the telecommunications network;
[17e]	retrieving said non-signalling application data from the received wireless signalling message; and
[17f]	terminating further transmission of the received wireless signalling message and transferring said retrieved non-signalling application data to said machine-to-machine server.
18	A node according to claim 17, wherein the node is a serving GPRS support node.
19	A node according to claim 17, wherein the node is a signalling monitor.
[20a]	The node of claim 17, wherein the telecommunications network is configured for transferring non-signalling application data from the communication apparatus to the machine-to-machine server in a machine-to-machine communications setting; and
[20b]	wherein transferring said non-signalling application data to said machine-to-machine server comprises transferring said non-signalling application data to said machine-to-machine server, while avoiding to establish a complete circuit-switched or packet-switched connection between said communication apparatus and said telecommunications network.
[21p]	A communication device comprising:

[21a]	a transmitter; and
[21b]	a processor for causing the communication device to carry out operations including:
[21c]	(i) generating non-signalling application data for a machine-to-machine function,
[21d]	(ii) encapsulating said non-signalling application data in one or more signalling messages from said communication device over a telecommunications network to a machine-to-machine server, wherein wireless signalling messages of the telecommunications network are of a message type specified for carrying signalling data for managing connections in the telecommunications network, and
[21e]	(iii) transmitting, via the transmitter, said signalling messages containing said non-signalling application data to a signalling termination node of said telecommunications network for termination of said signalling messages and transfer of said non-signalling application data to the machine-to-machine server.
22	A communication device according to claim 21, wherein the non-signalling application data comprises alarming data.
23	The communication device according to claim 21, wherein the non-signalling

	application data comprises measurement data.
24	The communication device according to claim 23, further comprising one or more sensors, wherein the measurement data comprises measurement data obtained using the one or more sensors.
[25a]	The communication device of claim 21, wherein the processor is configured for generating non-signalling application data in a machine-to-machine communications setting run by the communication device; and
[25b]	wherein the transmitter is configured for transmitting said signalling messages containing said non-signalling application data to said telecommunications network, while avoiding to establish a complete circuit-switched or packet-switched connection between said communication device and said telecommunications network.