WE CLAIM:

1. A method by a user equipment node, UE, (110) for controlling uplink transmission power during soft handover of the UE (110) from a first base station (120a) to a second base station (120b), the method comprising:

receiving (400) a transmission power control, TPC, command from each of the first and second base stations (120a, 120b) during the soft handover; and

controlling (402) the uplink transmission power by the UE (110) of a high-speed dedicated physical control channel (202) responsive to the received TPC commands,

wherein controlling (402) uplink transmission power by the UE (110) of the high speed dedicated physical control channel (202) responsive to the received TPC commands comprises:

determining (800) a parameter (β_{HS}) responsive to a combination of the received TPC commands; and

controlling (802) the uplink transmission power by the UE (110) of the high speed dedicated physical control channel (202) responsive to a result of multiplying the parameter (β_{HS}) and a transmission power level by the UE (110) of a dedicated physical control channel,

wherein determining (800) the parameter (β_{HS}) comprises:

determining (500) a predefined nominal value (β_{HS}^{nom}) of the parameter (β_{HS});

determining (502) a maximum value ($\beta_{HS}^{\max}$) of the parameter (β_{HS});

determining (504) occurrence of a first condition when at least one of the TPC commands received from the first and second base stations (120a, 120b) contains a request for the UE (110) to decrease transmission power of the high speed dedicated physical control channel (202) and the parameter (β_{HS}) is less than the maximum value ($\beta_{HS}^{\max}$), or when the TPC command received from the first base station (120a) contains a request for the UE (110) to decrease the transmission power of the dedicated physical control channel (202);

reducing (506) the uplink transmission power by the UE (110) of the high speed dedicated physical control channel (202), responsive to the determination (504) that the first condition occurred;

determining (602) occurrence of a second condition when the UE reduced the uplink transmission power of the high speed dedicated physical control channel (202) and the TPC

command received from the first base station (120a) contains a request for the UE (110) to increase the transmission power of the high speed dedicated physical control channel (202);

increasing (604) the parameter (β_{HS}) to increase (402) the uplink transmission power by the UE (110) of the high-speed dedicated physical control channel (202), responsive to the determination (602) that the second condition occurred;

determining (700) occurrence of a third condition when the TPC command received from the first base station (120a) contains a request for the UE (110) to decrease the transmission power of the high speed dedicated physical control channel (202); and

resetting (702) the parameter (β_{HS}) to the predefined nominal value (β_{HS}^{nom}) responsive to the determination (700) that the third condition occurred.

2. The method as claimed in claim 1, wherein:

receiving (400) comprises receiving the TPC commands on a fractional dedicated physical channel (200) from the first and second base stations (120a, 120b).

3. The method as claimed in claim 1, comprising

receiving signals by the UE (110) on a high-speed downlink shared channel from the first base station (120a), and

wherein controlling (402) the uplink transmission power by the UE (110) of the high-speed dedicated physical control channel (202) comprises controlling the uplink transmission power during transmission of channel quality reports through the high-speed dedicated physical control channel (202) to the first base station (120a) responsive to the received TPC commands.

4. The method as claimed in claim 1, wherein controlling (802) the uplink transmission power by the UE (110) of the high speed dedicated physical control channel (202) comprises:

determining (502) the maximum value ($\beta_{HS}^{\max}$) of the parameter (β_{HS});

determining (504) when a condition occurs that at least one of the TPC commands received from the first and second base stations (120a, 120b) contains the request for the UE (110) to decrease the transmission power of the high speed dedicated physical control channel (202) and the parameter (β_{HS}) is less than the maximum value ($\beta_{HS}^{\max}$); and

reducing (506) the uplink transmission power by the UE (110) of the high speed dedicated physical control channel (202) responsive to the determination (504) that the condition occurred.

5. The method as claimed in claim 1,
wherein controlling (802) the uplink transmission power by the UE (110) of the high speed dedicated physical control channel (202) comprises:

determining (504) when a condition occurs that the TPC command received from the first base station (120a) contains the request for the UE (110) to decrease the transmission power of the high speed dedicated physical control channel (202); and

reducing (506) the uplink transmission power by the UE (110) of the high speed dedicated physical control channel (202), responsive to the determination (504) that the condition occurred.

6. The method as claimed in claim 1, wherein determining (800) the parameter (β_{HS}) comprises increasing the parameter (β_{HS}) by a fixed step size responsive to the TPC commands containing a request for the UE (110) to increase transmission power of the high-speed dedicated physical control channel (202).

7. The method as claimed in claim 1, wherein determining (800) the parameter (β_{HS}) comprises:

accessing a table that defines values of the parameter (β_{HS}) and corresponding step-sizes, by using a present value of the parameter (β_{HS}) as an index to look-up one of the step-sizes; and

adding the looked-up one of the step-sizes to the present value of the parameter (β_{HS}) to generate a new value for the parameter (β_{HS}) used to control (402) the uplink transmission power by the UE (110) of the high-speed dedicated physical control channel (202).

8. A user equipment node, UE, (110) comprising:

a transceiver (902) that receives (400) a transmission power control, TPC, command from each of a first base station (120a) and a second base station (120b) during soft handover of the UE (110) from the first base station (120a) to the second base station (120b); and

a controller circuit (904) that controls (402) uplink transmission power by the transceiver (902) of a high-speed dedicated physical control channel (202) responsive to the received TPC commands,

wherein the controller circuit (904) is adapted to determine (800) a parameter (β_{HS}) responsive to a combination of the received TPC commands, and adapted to control the uplink transmission power by the transceiver (902) of the high-speed dedicated physical control channel (202) responsive to a result of multiplying the parameter (β_{HS}) and a transmission power level by the transceiver (902) of a dedicated physical control channel, wherein the controller circuit (904) is adapted to determine (800) the parameter (β_{HS}) by:

determining (500) a predefined nominal value (β_{HS}^{nom}) of the parameter (β_{HS});

determining (502) a maximum value ($\beta_{HS}^{\max}$) of the parameter (β_{HS});

determining (504) occurrence of a first condition when at least one of the TPC commands received from the first and second base stations (120a, 120b) contains a request for the UE (110) to decrease transmission power of the high speed dedicated physical control channel (202) and the parameter (β_{HS}) is less than the maximum value ($\beta_{HS}^{\max}$), or when the TPC command received from the first base station (120a) contains a request for the UE (110) to decrease the transmission power of the high speed dedicated physical control channel (202);

reducing (506) the uplink transmission power by the UE (110) of the high speed dedicated physical control channel (202), responsive to the determination (504) that the first condition occurred;

determining (602) occurrence of a second condition when the UE reduced the uplink transmission power of the high speed dedicated physical control channel (202) and the TPC command received from the first base station (120a) contains a request for the UE (110) to increase the transmission power of the high speed dedicated physical control channel (202);

increasing (604) the parameter (β_{HS}) to increase (402) the uplink transmission power by the UE (110) of the high-speed dedicated physical control channel (202), responsive to the determination (602) that the second condition occurred;

determining (700) occurrence of a third condition when the TPC command received from the first base station (120a) contains a request for the UE (110) to decrease the transmission power of the high speed dedicated physical control channel (202); and

resetting (702) the parameter (β_{HS}) to the predefined nominal value(β_{HS}^{nom}) responsive to the determination (700) that the third condition occurred.

9. The UE (110) as claimed in claim 8, wherein:

the transceiver (902) is adapted to receive signals on a high-speed downlink shared channel from the first base station (120a); and

the controller circuit (904) is adapted to control (402) the uplink transmission power by the transceiver (902) of the high-speed dedicated physical control channel (202) during transmission of channel quality reports through the high-speed dedicated physical control channel (202) to the first base station (120a) responsive to the received TPC commands.

10. The UE (110) as claimed in claim 8, wherein:

the controller circuit (904) is adapted to determine (502) the maximum value ($\beta_{HS}^{\max}$) of the parameter (β_{HS}), to determine (504) when a condition occurs that at least one of the TPC commands received from the first and second base stations (120a, 120b) contains the request for the UE (110) to decrease the transmission power of the high speed dedicated physical control channel (202) and the parameter (β_{HS}) is less than the maximum value ($\beta_{HS}^{\max}$), and adapted to reduce (506) the uplink transmission power of the transceiver (902) of the high speed dedicated physical control channel (202) responsive to the determination (504) that the condition occurred.

11. The UE (110) as claimed in claim 8,

the controller circuit (904) is adapted to determine (504) when a condition occurs that the TPC command received from the first base station (120a) contains the request for the UE (110) to decrease the transmission power of the high speed dedicated physical control channel (202), and adapted to reduce (506) the uplink transmission power of the transceiver (902) of the high speed dedicated physical control channel (202), responsive to the determination (504) that the condition occurred.

12. The UE (110) as claimed in claim 8, wherein:

the controller circuit (904) is adapted to increase the parameter (β_{HS}) by a fixed step size responsive to the TPC commands containing the request for the UE (110) to increase the transmission power of the high-speed dedicated physical control channel (202) by the transceiver (902).

13. The UE (110) as claimed in claim 8, wherein the controller circuit (904) is adapted to determine (800) the parameter (β_{HS}) by:

accessing a table that defines values of the parameter (β_{HS}) and corresponding step-sizes, by using a present value of the parameter (β_{HS}) as an index to look-up one of the step-sizes; and

adding the looked-up one of the step-sizes to the present value of the parameter (β_{HS}) to generate a new value for the parameter (β_{HS}) used to control (402) the uplink transmission power of the transceiver (902) of the high-speed dedicated physical control channel (202).

Dated this 2nd day of May 2014.

ABHISHEK SEN
of S. MAJUMDAR & CO.
Applicant's Agent
IN/PA number: 980

WE CLAIMS:

1. A method by a user equipment node, UE, (110) for controlling uplink transmission power during soft handover of the UE (110) from a first base station (120a) to a second base station (120b), the method comprising:

receiving (400) a transmission power control, TPC, command from each of the first and second base stations (120a, 120b) during the soft handover; and

controlling (402) the uplink transmission power by the UE (110) of a high-speed dedicated physical control channel (202) responsive to the received TPC commands, wherein controlling (402) uplink transmission power by the UE (110) of the high speed dedicated physical control channel (202) responsive to the received TPC commands comprises:

determining (800) a parameter (β_{HS}) responsive to a combination of the received TPC commands; and

controlling (802) the uplink transmission power by the UE (110) of the high speed dedicated physical control channel (202) responsive to a result of multiplying the parameter (β_{HS}) and a transmission power level by the UE (110) of a dedicated physical control channel,

wherein determining (800) the parameter (β_{HS}) comprises:

determining (500) a predefined nominal value (β_{HS}^{nom}) of the parameter (β_{HS});

determining (502) a maximum value ($\beta_{HS}^{\max}$) of the parameter (β_{HS});

determining (504) occurrence of a first condition when at least one of the TPC commands received from the first and second base stations (120a, 120b) contains a request for the UE (110) to decrease transmission power of the high speed dedicated physical control channel (202) and the parameter (β_{HS}) is less than the maximum value ($\beta_{HS}^{\max}$), or when the TPC command received from the first base station (120a) contains a request for the UE (110) to decrease the transmission power of the dedicated physical control channel (202);

reducing (506) the uplink transmission power by the UE (110) of the high speed dedicated physical control channel (202), responsive to the determination (504) that the first condition occurred;

determining (602) occurrence of a second condition when the UE reduced the uplink transmission power of the high speed dedicated physical control channel (202) and the TPC command received from the first base station (120a) contains a request for the UE (110) to increase the transmission power of the high speed dedicated physical control channel (202);

increasing (604) the parameter (β_{HS}) to increase (402) the uplink transmission power by the UE (110) of the high-speed dedicated physical control channel (202), responsive to the determination (602) that the second condition occurred;

determining (700) occurrence of a third condition when the TPC command received from the first base station (120a) contains a request for the UE (110) to decrease the transmission power of the high speed dedicated physical control channel (202); and

resetting (702) the parameter (β_{HS}) to the predefined nominal value (β_{HS}^{nom}) responsive to the determination (700) that the third condition occurred.

2. The method ~~of~~ as claimed in c~~C~~laim 1, wherein:

receiving (400) comprises receiving the TPC commands on a fractional dedicated physical channel (200) from the first and second base stations (120a, 120b).

3. The method as claimed in ~~of any of~~ c~~C~~laim~~s~~ 1 ~~-2~~,

~~further~~ comprising

receiving signals by the UE (110) on a high-speed downlink shared channel from the first base station (120a), and

wherein controlling (402) the uplink transmission power by the UE (110) of the high-speed dedicated physical control channel (202) comprises controlling the uplink transmission power during transmission of channel quality reports through the high-speed dedicated physical control channel (202) to the first base station (120a) responsive to the received TPC commands.

~~4. The method of any of Claims 1-3, wherein controlling (402) uplink transmission power by the UE (110) of the high speed dedicated physical control channel responsive to the received TPC commands comprises:~~

~~determining (800) a parameter (β_{HS}) responsive to a combination of the received TPC commands; and~~

~~controlling (802) the uplink transmission power by the UE (110) of the high speed dedicated physical control channel responsive to a result of multiplying the parameter (β_{HS}) and a transmission power level by the UE (110) of a dedicated physical control channel.~~

~~5~~4. The method as claimed in ~~of c~~Claim 1~~4~~, wherein controlling (802) the uplink transmission power by the UE (110) of the high speed dedicated physical control channel (202) ~~dedicated physical control channel~~ comprises:

determining (502) the~~a~~ maximum value ($\beta_{HS}^{\max}$) of the parameter (β_{HS});

determining (504) when a condition occurs that at least one of the TPC commands received from the first and second base stations (120a, 120b) contains the~~a~~ request for the UE (110) to decrease the transmission power of the high speed dedicated physical control channel (202) and the parameter (β_{HS}) is less than the maximum value ($\beta_{HS}^{\max}$); and

reducing (506) the uplink transmission power by the UE (110) of the high speed dedicated physical control channel (202) responsive to the determination (504) that the condition occurred.

~~6~~5. The method as claimed in ~~of any of c~~Claim~~s~~ 1~~4 5~~,
wherein controlling (802) the uplink transmission power by the UE (110) of the high speed dedicated physical control channel (202) comprises:

determining (504) when a condition occurs that the TPC command received from the first base station (120a) contains the~~a~~ request for the UE (110) to decrease the transmission power of the high speed dedicated physical control channel (202); and

reducing (506) the uplink transmission power by the UE (110) of the high speed dedicated physical control channel (202), responsive to the determination (504) that the condition occurred.

~~7. The method of any of Claims 4-6,~~
~~wherein determining (800) the parameter (β_{HS}) comprises:~~
~~determining (602) when a condition occurs that the UE reduced the uplink transmission power of the dedicated physical control channel (202) and the TPC command received from the first base station (120a) contains a request for the UE (110) to increase transmission power of the dedicated physical control channel (202); and~~

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~~increasing (604) the parameter (β_{HS}) to increase (402) the uplink transmission power by the UE (110) of the high-speed dedicated physical control channel (202), responsive to the determination (602) that the condition occurred.~~

~~8~~6. The method as claimed in ~~of c~~Claim~~s~~ 1~~7~~, wherein determining (800) the parameter (β_{HS}) comprises increasing the parameter (β_{HS}) by a fixed step size responsive to the TPC commands containing a request for the UE (110) to increase transmission power of the high-speed dedicated physical control channel (202).

~~9~~7. The method as claimed in ~~of c~~Claim 1~~7~~, wherein determining (800) the parameter (β_{HS}) comprises:

accessing a table that defines values of the parameter (β_{HS}) and corresponding step-sizes, by using a present value of the parameter (β_{HS}) as an index to look-up one of the step-sizes; and

adding the looked-up one of the step-sizes to the present value of the parameter (β_{HS}) to generate a new value for the parameter (β_{HS}) used to control (402) the uplink transmission power by the UE (110) of the high-speed dedicated physical control channel (202).

~~10. The method of Claim 4,~~
~~wherein determining (800) the parameter (β_{HS}) comprises:~~
~~determining (700) when a condition occurs that the TPC command received from the first base station (120a) contains a request for the UE (110) to decrease transmission power of the dedicated physical control channel (202); and~~
~~resetting (702) the parameter (β_{HS}) to a predefined nominal value responsive to the determination (700) that the condition occurred.~~

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~~11. The method of Claim 4,~~
~~wherein determining (800) the parameter (β_{HS}) comprises:~~

~~determining (500) a predefined nominal value β_{HS}^{nom} of the parameter (β_{HS});~~

~~determining (502) a maximum value ($\beta_{HS}^{\max}$) of the parameter (β_{HS});~~

~~determining (504) occurrence of a first condition when at least one of the TPC commands received from the first and second base stations (120a, 120b) contains a request for the UE (110) to decrease transmission power of the dedicated physical control channel (202) and the parameter (β_{HS}) is less than the maximum value ($\beta_{HS}^{\max}$), or when the TPC command received from the first base station (120a) contains a request for the UE (110) to decrease transmission power of the dedicated physical control channel (202);~~

~~reducing (506) the uplink transmission power by the UE (110) of the dedicated physical control channel (202), responsive to the determination (504) that the first condition occurred;~~

~~determining (602) occurrence of a second condition when the UE reduced the uplink transmission power of the dedicated physical control channel (202) and the TPC command received from the first base station (120a) contains a request for the UE (110) to increase transmission power of the dedicated physical control channel (202);~~

~~increasing (604) the parameter (β_{HS}) to increase (402) the uplink transmission power by the UE (110) of the high-speed dedicated physical control channel (202), responsive to the determination (602) that the second condition occurred;~~

~~determining (700) occurrence of a third condition when the TPC command received from the first base station (120a) contains a request for the UE (110) to decrease transmission power of the dedicated physical control channel (202); and~~

~~resetting (702) the parameter (β_{HS}) to the predefined nominal value β_{HS}^{nom} responsive to the determination (700) that the third condition occurred.~~

~~12~~8. A user equipment node, UE, (110) comprising:

a transceiver (902) that receives (400) a transmission power control, TPC, command from each of a first base station (120a) and a second base station (120b) during soft handover of the UE (110) from the first base station (120a) to the second base station (120b); and

a controller circuit (904) that controls (402) uplink transmission power by the transceiver (902) of a high-speed dedicated physical control channel (202) responsive to the received TPC commands,

wherein the controller circuit (904) is adapted to determine (800) a parameter (β_{HS}) responsive to a combination of the received TPC commands, and adapted to control the uplink transmission power by the transceiver (902) of the high-speed dedicated physical

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control channel (202) responsive to a result of multiplying the parameter (β_{HS}) and a transmission power level by the transceiver (902) of a dedicated physical control channel, wherein the controller circuit (904) is adapted to determine (800) the parameter (β_{HS}) by:

determining (500) a predefined nominal value (β_{HS}^{nom}) of the parameter (β_{HS});

determining (502) a maximum value ($\beta_{HS}^{\max}$) of the parameter (β_{HS});

determining (504) occurrence of a first condition when at least one of the TPC commands received from the first and second base stations (120a, 120b) contains a request for the UE (110) to decrease transmission power of the high speed dedicated physical control channel (202) and the parameter (β_{HS}) is less than the maximum value ($\beta_{HS}^{\max}$), or when the TPC command received from the first base station (120a) contains a request for the UE (110) to decrease the transmission power of the high speed dedicated physical control channel (202);

reducing (506) the uplink transmission power by the UE (110) of the high speed dedicated physical control channel (202), responsive to the determination (504) that the first condition occurred;

determining (602) occurrence of a second condition when the UE reduced the uplink transmission power of the high speed dedicated physical control channel (202) and the TPC command received from the first base station (120a) contains a request for the UE (110) to increase the transmission power of the high speed dedicated physical control channel (202);

increasing (604) the parameter (β_{HS}) to increase (402) the uplink transmission power by the UE (110) of the high-speed dedicated physical control channel (202), responsive to the determination (602) that the second condition occurred;

determining (700) occurrence of a third condition when the TPC command received from the first base station (120a) contains a request for the UE (110) to decrease the transmission power of the high speed dedicated physical control channel (202); and

resetting (702) the parameter (β_{HS}) to the predefined nominal value(β_{HS}^{nom}) responsive to the determination (700) that the third condition occurred.

~~13~~9. The UE (110) ~~of~~as claimed in c~~C~~laim ~~12~~8, wherein:

the transceiver (902) is adapted to receive signals on a high-speed downlink shared channel from the first base station (120a); and

the controller circuit (904) is adapted to control (402) the uplink transmission power by the transceiver (902) of the high-speed dedicated physical control channel (202) during transmission of channel quality reports through the high-speed dedicated physical control channel (202) to the first base station (120a) responsive to the received TPC commands.

~~14. The UE (110) of any of Claims 12-13, wherein:~~

~~the controller circuit (904) is adapted to determine (800) a parameter (β_{HS}) responsive to a combination of the received TPC commands, and adapted to control the uplink transmission power by the transceiver (902) of the high-speed dedicated physical control channel (202) responsive to a result of multiplying the parameter (β_{HS}) and a transmission power level by the transceiver (902) of a dedicated physical control channel.~~

~~15~~10. The UE (110) as claimed in ~~of C~~claim ~~14~~8, wherein:

the controller circuit (904) is adapted to determine (502) the~~a~~ maximum value ($\beta_{HS}^{\max}$) of the parameter (β_{HS}), to determine (504) when a condition occurs that at least one of the TPC commands received from the first and second base stations (120a, 120b) contains the ~~a~~ request for the UE (110) to decrease the transmission power of the high speed dedicated physical control channel (202) and the parameter (β_{HS}) is less than the maximum value ($\beta_{HS}^{\max}$), and adapted to reduce (506) the uplink transmission power of the transceiver (902) of the high speed dedicated physical control channel (202) responsive to the determination (504) that the condition occurred.

~~16~~11. The UE (110) as claimed in~~of any of Claims~~ claim ~~14-15~~8,

the controller circuit (904) is adapted to determine (504) when a condition occurs that the TPC command received from the first base station (120a) contains the~~a~~ request for the UE (110) to decrease the transmission power of the high speed dedicated physical control channel (202), and adapted to reduce (506) the uplink transmission power of the transceiver (902) of the high speed dedicated physical control channel (202), responsive to the determination (504) that the condition occurred.

~~17. The UE (110) of any of Claims 14-16,~~

~~wherein the controller circuit (904) is adapted to determine (800) the parameter (β_{HS}) by:~~

~~determining (602) when a condition occurs that the UE reduced the uplink transmission power of the dedicated physical control channel (202) and the TPC command received from the first base station (120a) contains a request for the UE (110) to increase transmission power of the dedicated physical control channel (202); and~~

~~increasing (604) the parameter (β_{HS}) to increase (402) the uplink transmission power of the transceiver (902) of the high-speed dedicated physical control channel (202), responsive to the determination (602) that the condition occurred.~~

~~18~~12. The UE (110) as claimed in ~~of C~~claim ~~17~~8, wherein:

the controller circuit (904) is adapted to increase the parameter (β_{HS}) by a fixed step size responsive to the TPC commands containing the~~a~~ request for the UE (110) to increase the transmission power of the high-speed dedicated physical control channel (202) by the transceiver (902).

~~19~~13. The UE (110) as claimed in ~~of C~~claim ~~17~~8, wherein the controller circuit (904) is adapted to determine (800) the parameter (β_{HS}) by:

accessing a table that defines values of the parameter (β_{HS}) and corresponding step-sizes, by using a present value of the parameter (β_{HS}) as an index to look-up one of the step-sizes; and

adding the looked-up one of the step-sizes to the present value of the parameter (β_{HS}) to generate a new value for the parameter (β_{HS}) used to control (402) the uplink transmission power of the transceiver (902) of the high-speed dedicated physical control channel (202).

~~20. The UE (110) of Claim 14,~~

~~wherein the controller circuit (904) is adapted to determine (800) the parameter (β_{HS}) by:~~

~~determining (700) when a condition occurs that the TPC command received from the first base station (120a) contains a request for the UE (110) to decrease transmission power of the dedicated physical control channel (202); and~~

~~resetting (702) the parameter (β_{HS}) to a predefined nominal value responsive to the determination (700) that the condition occurred.~~

~~21. The UE (110) of Claim 14,~~

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~~wherein the controller circuit (904) is adapted to determine (800) the parameter (β_{HS}) by:~~

~~determining (500) a predefined nominal value β_{HS}^{nom} of the parameter (β_{HS});~~

~~determining (502) a maximum value ($\beta_{HS}^{\max}$) of the parameter (β_{HS});~~

~~determining (504) occurrence of a first condition when at least one of the TPC commands received from the first and second base stations (120a, 120b) contains a request for the UE (110) to decrease transmission power of the dedicated physical control channel (202) and the parameter (β_{HS}) is less than the maximum value ($\beta_{HS}^{\max}$), or when the TPC command received from the first base station (120a) contains a request for the UE (110) to decrease transmission power of the dedicated physical control channel (202);~~

~~reducing (506) the uplink transmission power by the UE (110) of the dedicated physical control channel (202), responsive to the determination (504) that the first condition occurred;~~

~~determining (602) occurrence of a second condition when the UE reduced the uplink transmission power of the dedicated physical control channel (202) and the TPC command received from the first base station (120a) contains a request for the UE (110) to increase transmission power of the dedicated physical control channel (202);~~

~~increasing (604) the parameter (β_{HS}) to increase (402) the uplink transmission power by the UE (110) of the high-speed dedicated physical control channel (202), responsive to the determination (602) that the second condition occurred;~~

~~determining (700) occurrence of a third condition when the TPC command received from the first base station (120a) contains a request for the UE (110) to decrease transmission power of the dedicated physical control channel (202); and~~

~~resetting (702) the parameter (β_{HS}) to the predefined nominal value β_{HS}^{nom} responsive to the determination (700) that the third condition occurred.~~

ABSTRACT

CONTROLLING UPLINK TRANSMIT POWER RESPONSIVE TO COMBINATION OF RECEIVED POWER CONTROL COMMANDS DURING SOFT HANDOVER IN A COMMUNICATION SYSTEM

A method by a user equipment node (110) controls uplink transmission power during soft handover of the user equipment node (110) from a first base station (120a) to a second base station (120b). A transmission power control command is received (400) by the user equipment node (110) from each of the first and second base stations (120a, 120b) during the soft handover. Uplink transmission power by the user equipment node (110) of a high-speed dedicated physical control channel (202) is controlled (402) responsive to the received transmission power control commands.

[To be published with FIG. 1]

ABSTRACT

CONTROLLING UPLINK TRANSMIT POWER RESPONSIVE TO COMBINATION OF RECEIVED POWER CONTROL COMMANDS DURING SOFT HANDOVER IN A COMMUNICATION SYSTEM

A method by a user equipment node (110) controls uplink transmission power during soft handover of the user equipment node (110) from a first base station (120a) to a second base station (120b). A transmission power control command is received (400) by the user equipment node (110) from each of the first and second base stations (120a, 120b) during the soft handover. Uplink transmission power by the user equipment node (110) of a high-speed dedicated physical control channel (202) is controlled (402) responsive to the received transmission power control commands.

[To be published with FIG. 1]

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F O R M 2

THE PATENTS ACT, 1970
(39 of 1970)
&
The Patents Rules, 2003
COMPLETE SPECIFICATION
(See section 10; rule 13)

1. Title of the invention. –

CONTROLLING UPLINK TRANSMIT POWER RESPONSIVE TO COMBINATION OF RECEIVED POWER CONTROL COMMANDS DURING SOFT HANDOVER IN A COMMUNICATION SYSTEM

2. Applicant(s)

(a) NAME : **TELEFONAKTIEBOLAGET LM ERICSSON (publ)**

(b) NATIONALITY : A Swedish Company

(c) ADDRESS : S-164 83 Stockholm, Sweden

3. PREAMBLE TO THE DESCRIPTION

The following specification particularly describes the invention and the manner in which it is to be performed :

(202) and the parameter (β_{HS}) is less than the maximum value ($\beta_{HS}^{\max}$), or when the TPC command received from the first base station (120a) contains a request for the UE (110) to decrease transmission power of the dedicated physical control channel (202);

reducing (506) the uplink transmission power by the UE (110) of the dedicated physical control channel (202), responsive to the determination (504) that the first condition occurred;

determining (602) occurrence of a second condition when the UE reduced the uplink transmission power of the dedicated physical control channel (202) and the TPC command received from the first base station (120a) contains a request for the UE (110) to increase transmission power of the dedicated physical control channel (202);

increasing (604) the parameter (β_{HS}) to increase (402) the uplink transmission power by the UE (110) of the high-speed dedicated physical control channel (202), responsive to the determination (602) that the second condition occurred;

determining (700) occurrence of a third condition when the TPC command received from the first base station (120a) contains a request for the UE (110) to decrease transmission power of the dedicated physical control channel (202); and

resetting (702) the parameter (β_{HS}) to the predefined nominal value β_{HS}^{nom} responsive to the determination (700) that the third condition occurred.

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Applicants' Agent