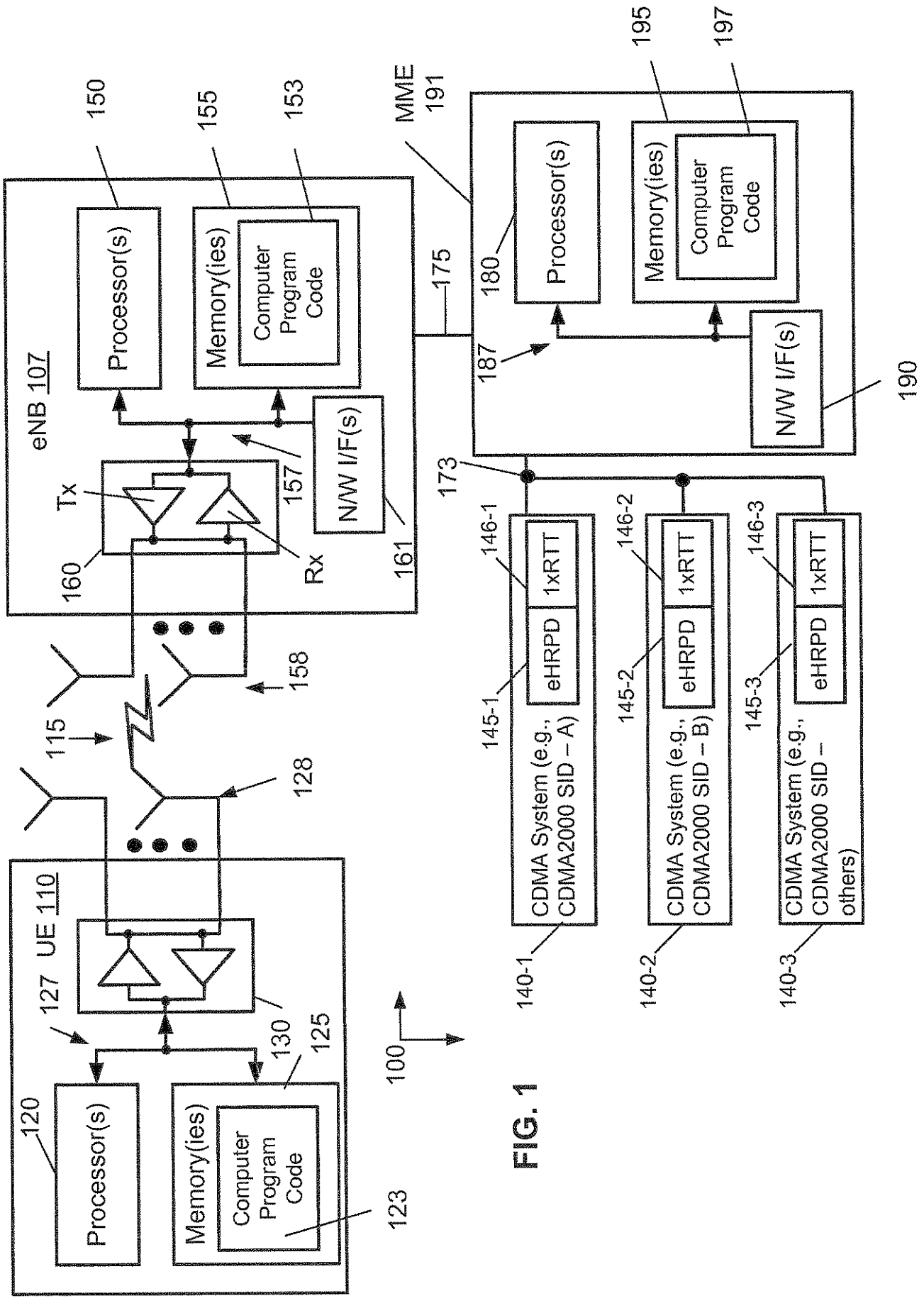
UE 110
Processor(s)
120
Memory(ies)
Computer Program Code
123
125
127
130
128
115
eNB 107
Processor(s)
150
Memory(ies)
Computer Program Code
155
153
Tx
Rx
160
157
158
N/W I/F(s)
161
MME
191
175
Processor(s)
180
Memory(ies)
Computer Program Code
195
197
187
N/W I/F(s)
190
173
CDMA System (e.g., CDMA2000 SID – A)
eHRPD
1xRTT
145-1
146-1
140-1
CDMA System (e.g., CDMA2000 SID – B)
eHRPD
1xRTT
145-2
146-2
140-2
CDMA System (e.g., CDMA2000 SID – others)
eHRPD
1xRTT
145-3
146-3
140-3
100

FIG. 1

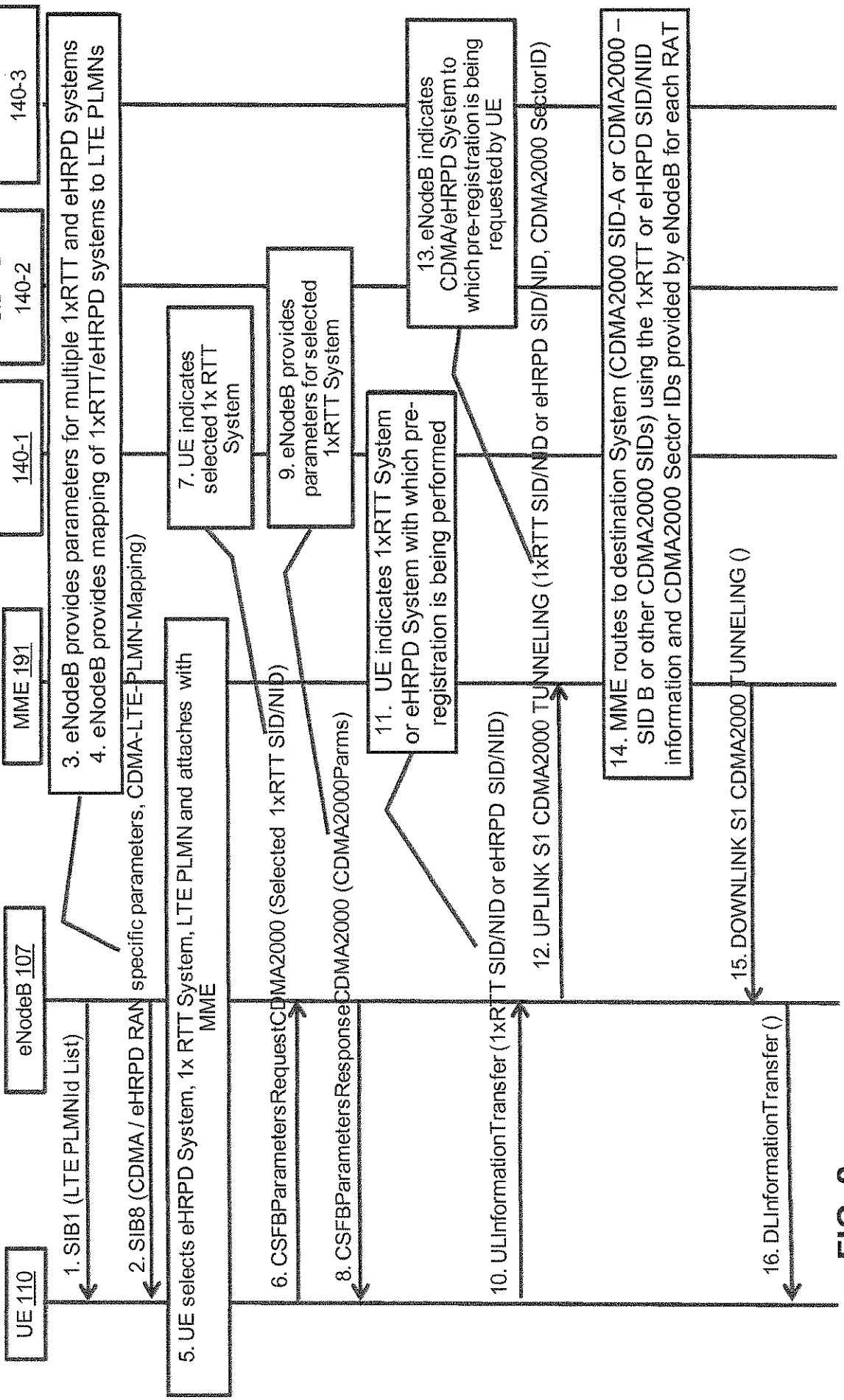
UE 110
eNodeB 107
MME 191
CDMA2000 SID – A 140-1
CDMA2000 SID – B 140-2
CDMA2000 SID – Others 140-3
1. SIB1 (LTE PLMNId List)
2. SIB8 (CDMA / eHRPD RAN specific parameters, CDMA-LTE-PLMN-Mapping)
3. eNodeB provides parameters for multiple 1xRTT and eHRPD systems
4. eNodeB provides mapping of 1xRTT/eHRPD systems to LTE PLMNs
5. UE selects eHRPD System, 1x RTT System, LTE PLMN and attaches with MME
6. CSFBParametersRequestCDMA2000 (Selected 1xRTT SID/NID)
7. UE indicates selected 1x RTT System
8. CSFBParametersResponseCDMA2000 (CDMA2000Parms)
9. eNodeB provides parameters for selected 1xRTT System
10. ULInformationTransfer (1xRTT SID/NID or eHRPD SID/NID)
11. UE indicates 1xRTT System or eHRPD System with which pre-registration is being performed
12. UPLINK S1 CDMA2000 TUNNELING (1xRTT SID/NID or eHRPD SID/NID, CDMA2000 SectorID)
13. eNodeB indicates CDMA/eHRPD System to which pre-registration is being requested by UE
14. MME routes to destination System (CDMA2000 SID-A or CDMA2000 – SID B or other CDMA2000 SIDs) using the 1xRTT or eHRPD SID/NID information and CDMA2000 Sector IDs provided by eNodeB for each RAT
15. DOWNLINK S1 CDMA2000 TUNNELING ()
16. DLInformationTransfer ()

FIG. 2

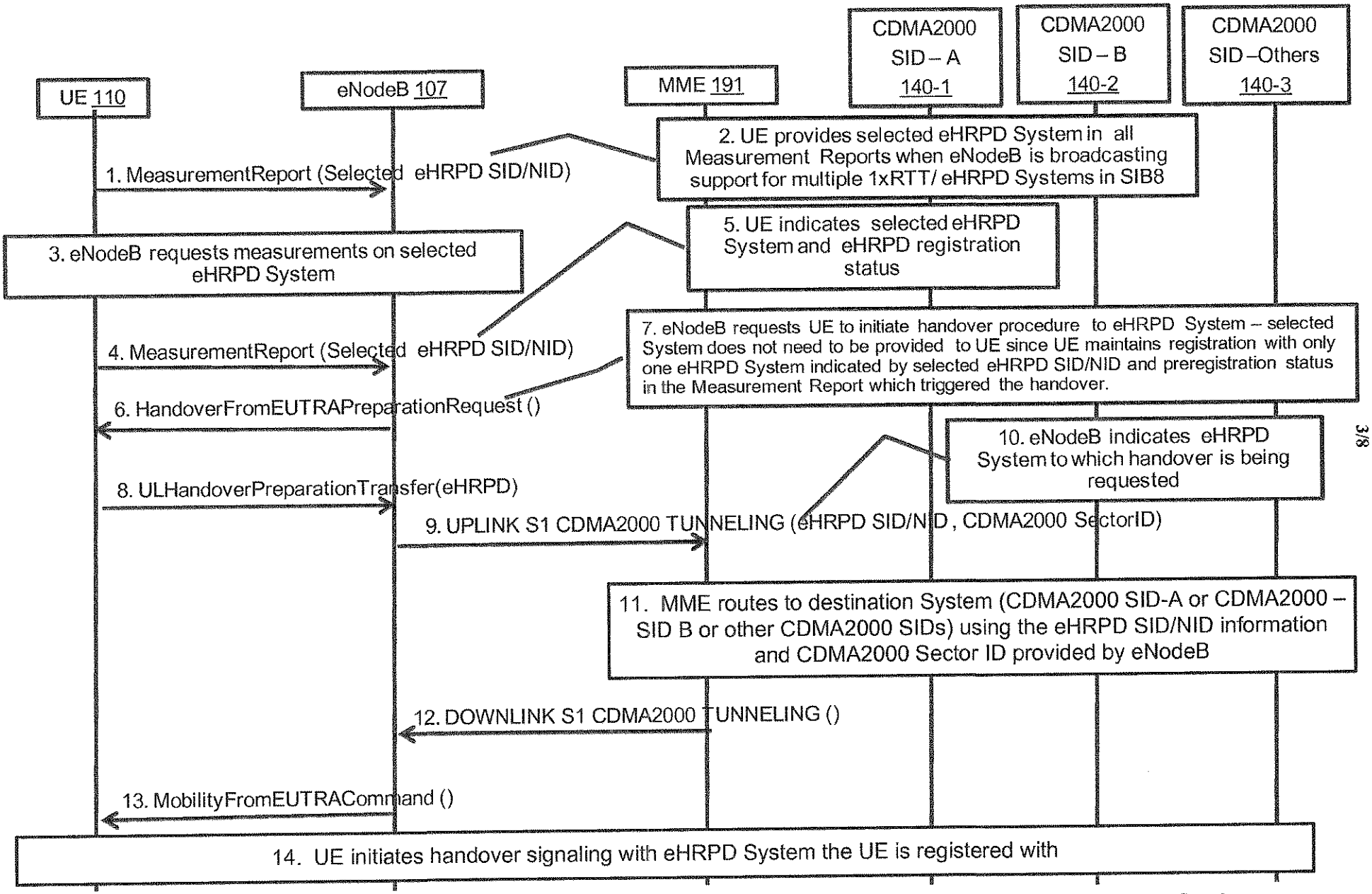
UE 110
eNodeB 107
MME 191
CDMA2000 SID – A 140-1
CDMA2000 SID – B 140-2
CDMA2000 SID –Others 140-3
1. MeasurementReport (Selected eHRPD SID/NID)
2. UE provides selected eHRPD System in all Measurement Reports when eNodeB is broadcasting support for multiple 1xRTT/ eHRPD Systems in SIB8
3. eNodeB requests measurements on selected eHRPD System
4. MeasurementReport (Selected eHRPD SID/NID)
5. UE indicates selected eHRPD System and eHRPD registration status
6. HandoverFromEUTRAPreparationRequest ()
7. eNodeB requests UE to initiate handover procedure to eHRPD System – selected System does not need to be provided to UE since UE maintains registration with only one eHRPD System indicated by selected eHRPD SID/NID and preregistration status in the Measurement Report which triggered the handover.
8. ULHandoverPreparationTransfer(eHRPD)
9. UPLINK S1 CDMA2000 TUNNELING (eHRPD SID/NID, CDMA2000 SectorID)
10. eNodeB indicates eHRPD System to which handover is being requested
11. MME routes to destination System (CDMA2000 SID-A or CDMA2000 – SID B or other CDMA2000 SIDs) using the eHRPD SID/NID information and CDMA2000 Sector ID provided by eNodeB
12. DOWNLINK S1 CDMA2000 TUNNELING ()
13. MobilityFromEUTRACommand ()
14. UE initiates handover signaling with eHRPD System the UE is registered with

FIG. 3

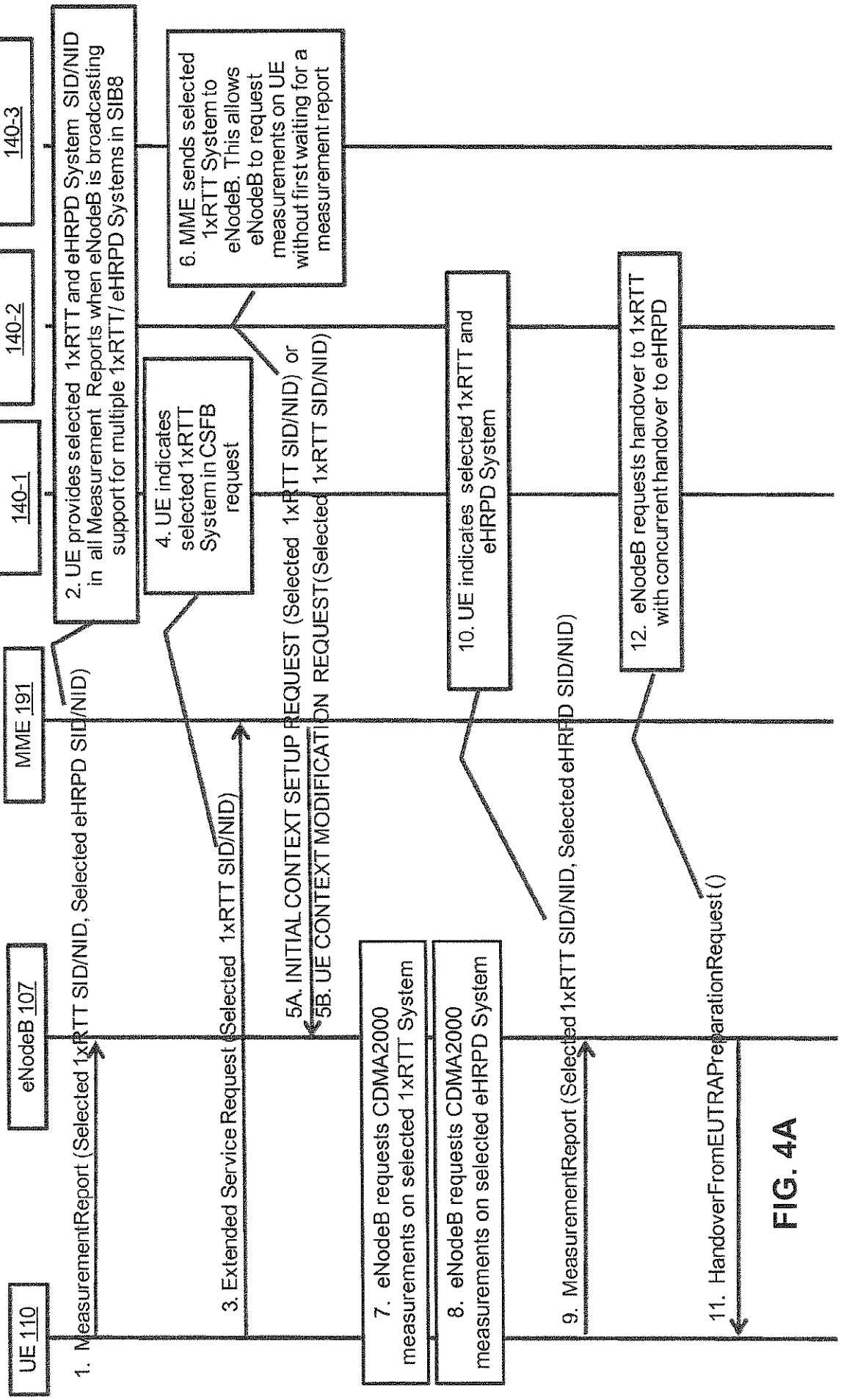
UE 110
eNodeB 107
MME 191
CDMA2000 SID – A 140-1
CDMA2000 SID – B 140-2
CDMA2000 SID – Others 140-3
1. MeasurementReport (Selected 1xRTT SID/NID, Selected eHRPD SID/NID)
2. UE provides selected 1xRTT and eHRPD System SID/NID in all Measurement Reports when eNodeB is broadcasting support for multiple 1xRTT/ eHRPD Systems in SIB8
3. Extended Service Request (Selected 1xRTT SID/NID)
4. UE indicates selected 1xRTT System in CSFB request
5A. INITIAL CONTEXT SETUP REQUEST (Selected 1xRTT SID/NID) or
5B. UE CONTEXT MODIFICATION REQUEST(Selected 1xRTT SID/NID)
6. MME sends selected 1xRTT System to eNodeB. This allows eNodeB to request measurements on UE without first waiting for a measurement report
7. eNodeB requests CDMA2000 measurements on selected 1xRTT System
8. eNodeB requests CDMA2000 measurements on selected eHRPD System
9. MeasurementReport (Selected 1xRTT SID/NID, Selected eHRPD SID/NID)
10. UE indicates selected 1xRTT and eHRPD System
11. HandoverFromEUTRAPreparationRequest ()
12. eNodeB requests handover to 1xRTT with concurrent handover to eHRPD

FIG. 4A

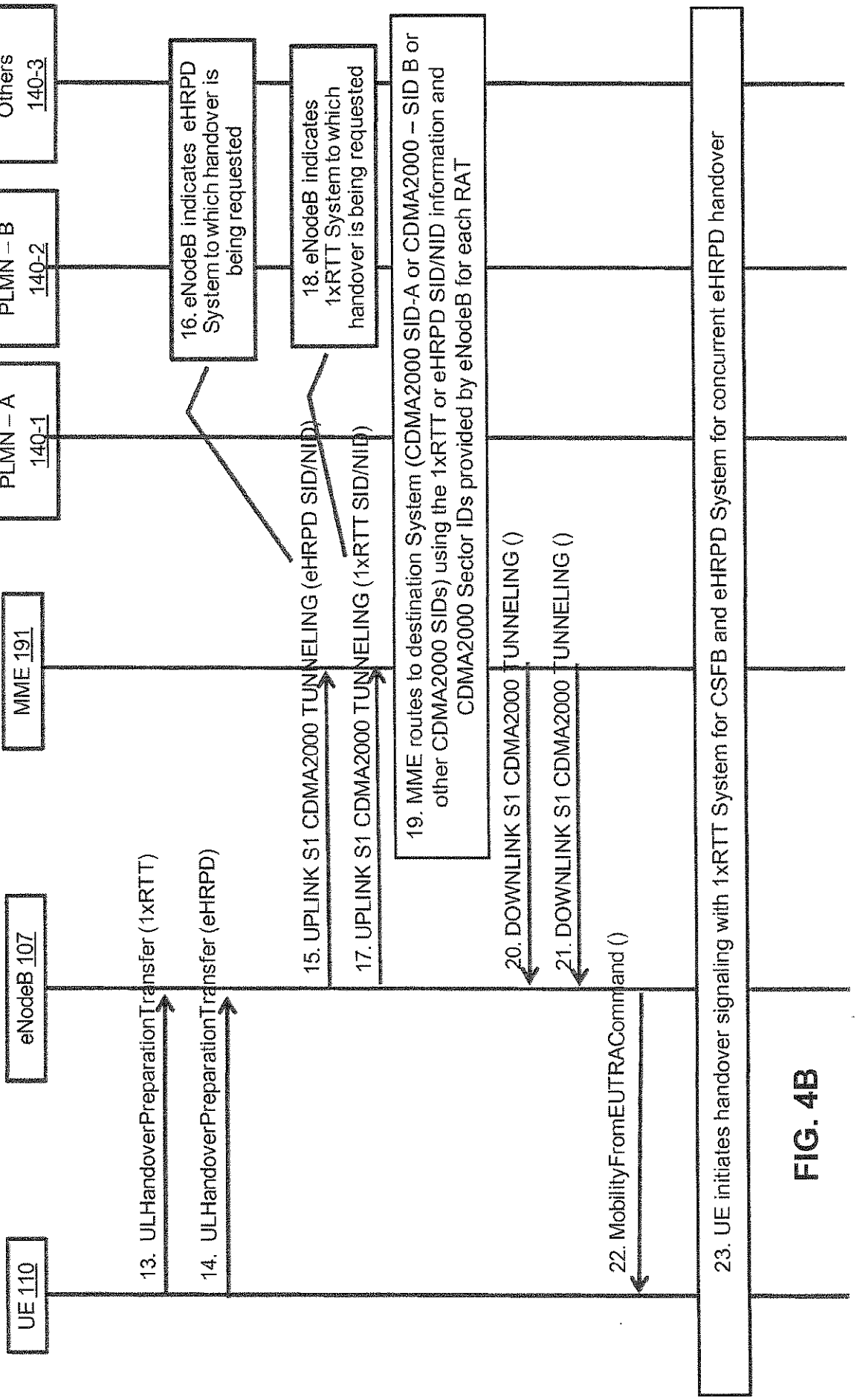
UE 110
eNodeB 107
MME 191
CDMA2000 PLMN – A 140-1
CDMA2000 PLMN – B 140-2
CDMA2000 Others 140-3
13. ULHandoverPreparationTransfer (1xRTT)
14. ULHandoverPreparationTransfer (eHRPD)
15. UPLINK S1 CDMA2000 TUNNELING (eHRPD SID/NID)
16. eNodeB indicates eHRPD System to which handover is being requested
17. UPLINK S1 CDMA2000 TUNNELING (1xRTT SID/NID)
18. eNodeB indicates 1xRTT System to which handover is being requested
19. MME routes to destination System (CDMA2000 SID-A or CDMA2000 – SID B or other CDMA2000 SIDs) using the 1xRTT or eHRPD SID/NID information and CDMA2000 Sector IDs provided by eNodeB for each RAT
20. DOWNLINK S1 CDMA2000 TUNNELING ()
21. DOWNLINK S1 CDMA2000 TUNNELING ()
22. MobilityFromEUTRACommand ()
23. UE initiates handover signaling with 1xRTT System for CSFB and eHRPD System for concurrent eHRPD handover

FIG. 4B

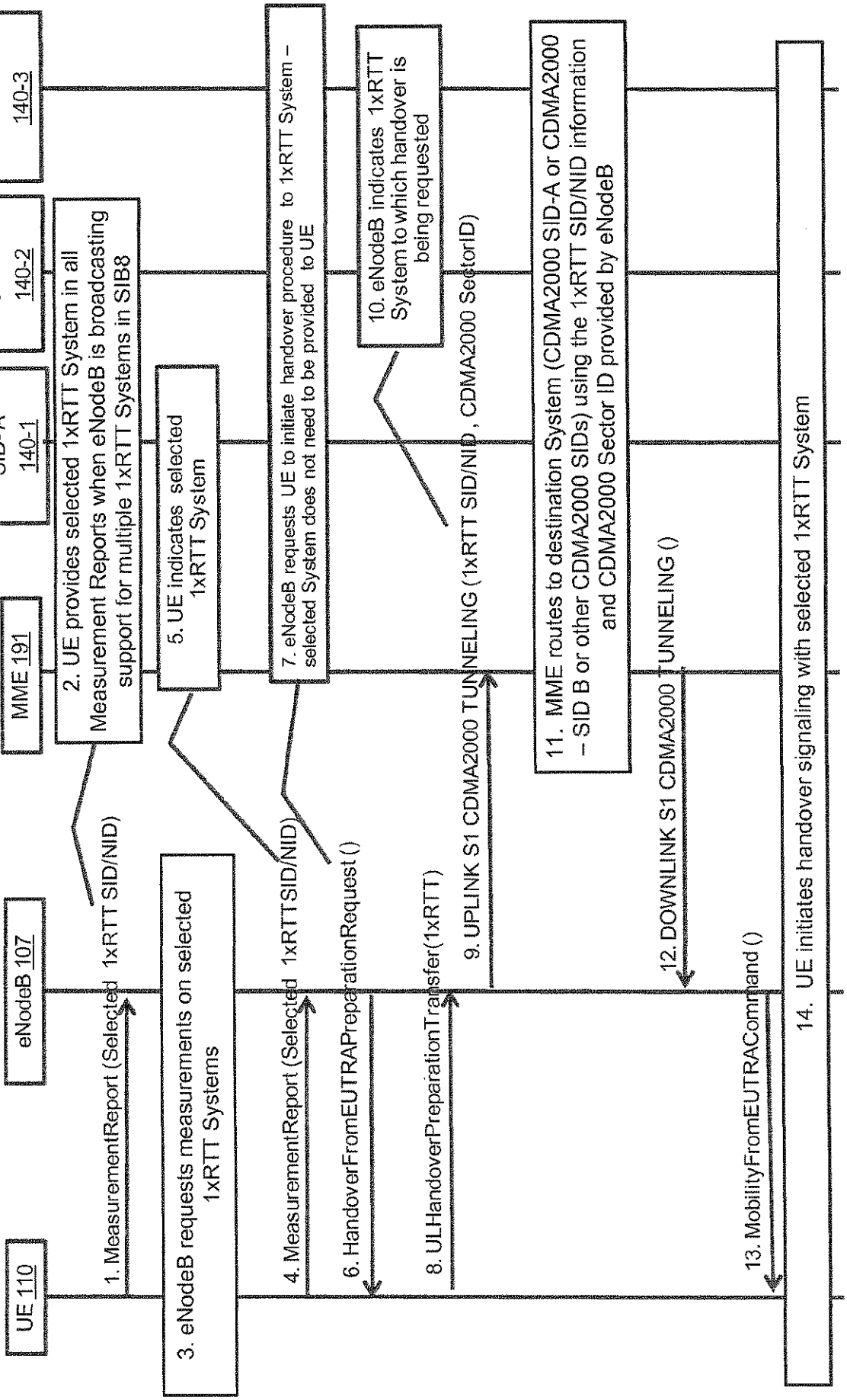
UE 110
eNodeB 107
MME 191
CDMA2000 SID-A 140-1
CDMA2000 SID-B 140-2
CDMA2000 SID-Others 140-3
1. MeasurementReport (Selected 1xRTT SID/NID)
2. UE provides selected 1xRTT System in all Measurement Reports when eNodeB is broadcasting support for multiple 1xRTT Systems in SIB8
3. eNodeB requests measurements on selected 1xRTT Systems
4. MeasurementReport (Selected 1xRTT SID/NID)
5. UE indicates selected 1xRTT System
6. HandoverFromEUTRAPreparationRequest ()
7. eNodeB requests UE to initiate handover procedure to 1xRTT System – selected System does not need to be provided to UE
8. ULHandoverPreparationTransfer(1xRTT)
9. UPLINK S1 CDMA2000 TUNNELING (1xRTT SID/NID, CDMA2000 SectorID)
10. eNodeB indicates 1xRTT System to which handover is being requested
11. MME routes to destination System (CDMA2000 SID-A or CDMA2000 – SID B or other CDMA2000 SIDs) using the 1xRTT SID/NID information and CDMA2000 Sector ID provided by eNodeB
12. DOWNLINK S1 CDMA2000 TUNNELING ()
13. MobilityFromEUTRACommand ()
14. UE initiates handover signaling with selected 1xRTT System

FIG. 5

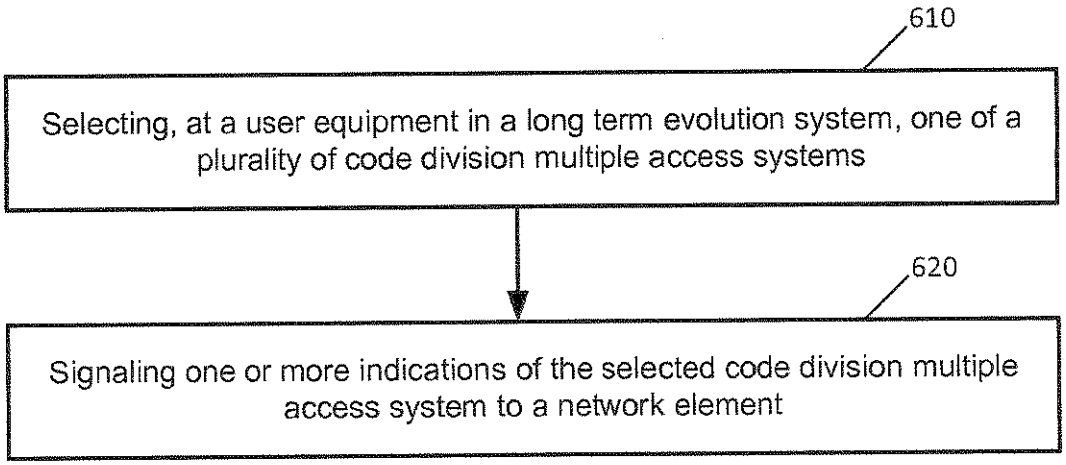
610
Selecting, at a user equipment in a long term evolution system, one of a plurality of code division multiple access systems
620
Signaling one or more indications of the selected code division multiple access system to a network element

FIG. 6

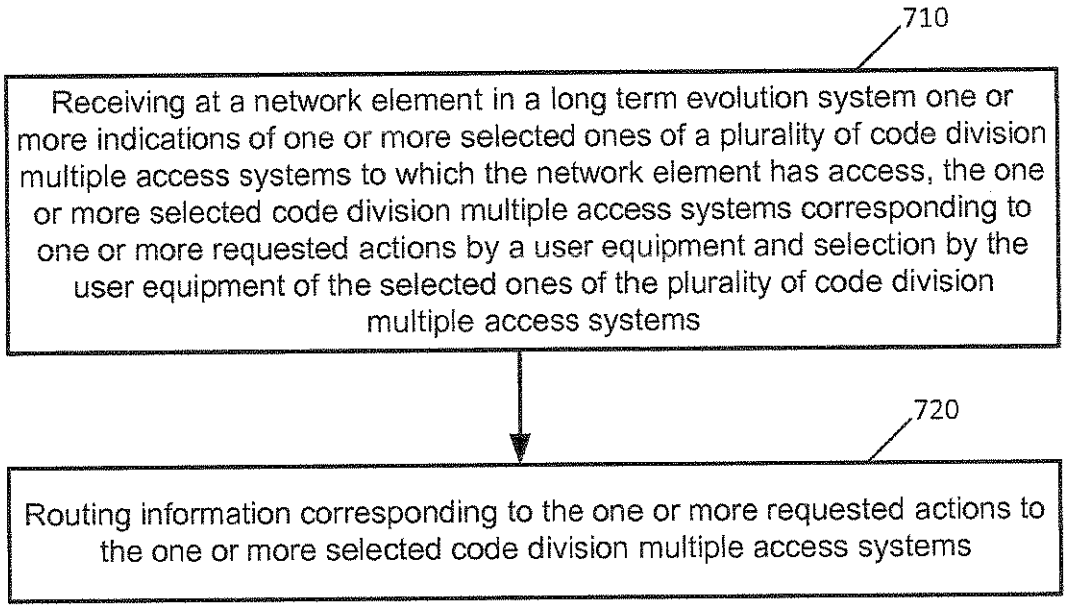
710
Receiving at a network element in a long term evolution system one or more indications of one or more selected ones of a plurality of code division multiple access systems to which the network element has access, the one or more selected code division multiple access systems corresponding to one or more requested actions by a user equipment and selection by the user equipment of the selected ones of the plurality of code division multiple access systems
720
Routing information corresponding to the one or more requested actions to the one or more selected code division multiple access systems

FIG. 7

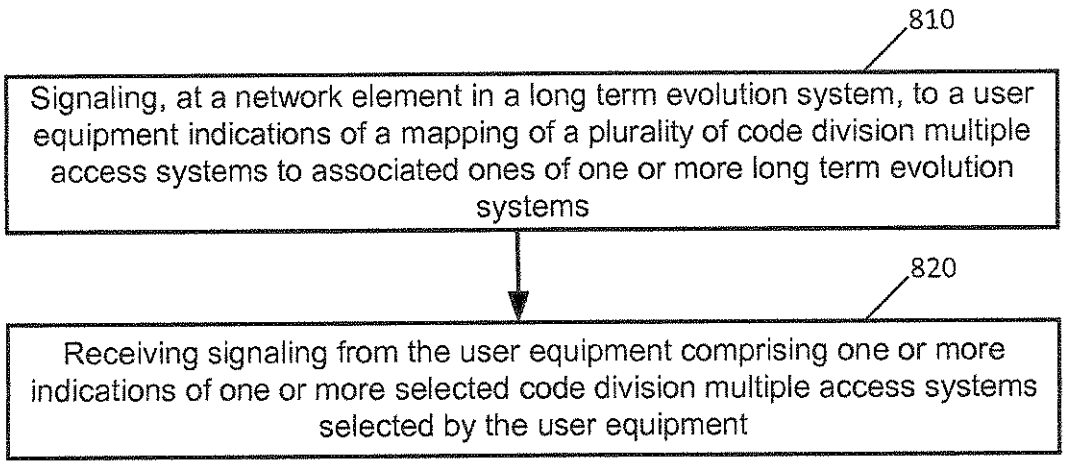
810
Signaling, at a network element in a long term evolution system, to a user equipment indications of a mapping of a plurality of code division multiple access systems to associated ones of one or more long term evolution systems
820
Receiving signaling from the user equipment comprising one or more indications of one or more selected code division multiple access systems selected by the user equipment

FIG. 8