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UE positioning in UTRAN

Content

• Purpose of TS 25.305

• Functions of UTRAN elements

• Protocols and Interfaces

• General procedures

• Information to be transferred between RNCs

• Information to be transferred between RNC and
        Node B/LMU

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TS 25.305 "Stage 2 Functional Specification of UE positioning"

- Description of UE positioning methods

- UTRAN functions

- Impacts on protocols and interfaces

- should build the basis for work in RAN WGs

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Functionality of UTRAN elements (part 1)

UE

- makes measurements

- reports measurement results

- calculates position

Node B

- makes measurements

- transmits specific signals (e.g. applied IPDLs)

LMU

- makes measurements (e.g. RTD / ATD)

Functionality of UTRAN elements (part 2)

RNC

• decides which UE positioning method to use

• requests measurements

• calculates position

• provides assistance data

• controls the impact on the system

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Protocols and Interfaces (part 1)

Iu-Interface

- used to request and report from/to CN

- necessary signalling is specified in more detail in TS 23.171

Iur-Interface

- used to request and transfer information between RNCs

- RNSAP signalling is currently specified by RAN WG3

Protocols and Interfaces (part 2)

Iub-Interface

• used to request and report measurements

• NBAP signalling is currently specified RAN WG3

Uu-Interface

• used to deliver assistance data

• used to request and report measurements

• RRC signalling is already specified by RAN WG2

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General procedures

- Procedures between RNCs

    - request/report of information/measurements

    - transfer of UE positioning functionality during SRNS relocation

- Procedures between RNCs and Node Bs/LMUs

    - request/report of information/measurements

- Exception procedures within RNC, Node B, LMU and UE

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Information to be transferred between RNCs (part 1)

Cell ID based method

Between SRNC and DRNC:

- geographical location of the serving cell

- RTT and Rx timing deviation (TDD)

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Information to be transferred between RNCs (part 2)

OTDOA location method

Between SRNC and DRNC:

- geographical location of the serving and neighbour cells

- RTT (FDD) and Rx timing deviation (TDD)

- request to apply IPDLs

Between SRNC and CRNC (not necessarily DRNC):

- cell timing information (e.g. RTD measurements)

- geographical location of neighbour cells

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Information to be transferred between RNCs (part 3)

Assisted GPS method

Between SRNC and DRNC:

- GPS timing difference

Between SRNC and CRNC (not necessarily DRNC):

- assistance data from a reference receiver associated to another RNC

Information to be transferred between RNCs (part 4)

In case of SRNS relocation:

- last known position, accuracy and time stamp of position calculation

- UE LCS capabilities

- UE positioning requests (?)

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Information to be transferred between RNC and Node B/LMU (part 1)

Cell ID based method

- request and report of RTT (FDD) and Rx timing deviation (TDD) measurements

OTDOA location method

- request and report of cell timing measurements (e.g. RTD)

- configuration of IPDLs (parameters are specified in TS 25.215)

- request and report of RTT (FDD) and Rx timing deviation (TDD) measurements

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Information to be transferred between RNC and Node B/LMU (part 2)

Assisted GPS method

• request and report of UTRAN GPS timing measurements

• request and report of assistance data (if a reference GPS receiver is associated to a Node B/LMU)