

My Project

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Chapter 1

Hierarchical Index

1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

LtePhyBase	
LtePhyUe	7

Chapter 2

Class Index

2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

LtePhyUe	7
------------------------------------	---

Chapter 3

File Index

3.1 File List

Here is a list of all files with brief descriptions:

src/stack/phy/layer/ LtePhyUe.cc	17
src/stack/phy/layer/ LtePhyUe.h	18

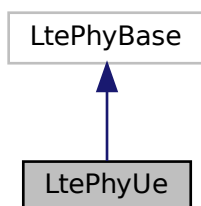
Chapter 4

Class Documentation

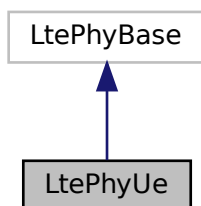
4.1 LtePhyUe Class Reference

```
#include <LtePhyUe.h>
```

Inheritance diagram for LtePhyUe:



Collaboration diagram for LtePhyUe:



Public Member Functions

- [LtePhyUe](#) ()
- virtual [~LtePhyUe](#) ()
- [DasFilter](#) * [getDasFilter](#) ()
- virtual void [sendFeedback](#) ([LteFeedbackDoubleVector](#) fbDI, [LteFeedbackDoubleVector](#) fbUI, [FeedbackRequest](#) req)
- [MacNodeId](#) [getMasterId](#) () const
- [omnetpp::simtime_t](#) [coherenceTime](#) (double speed)
- void [recordCqi](#) (unsigned int sample, [Direction](#) dir)
- double [getAverageCqi](#) ([Direction](#) dir)
- double [getVarianceCqi](#) ([Direction](#) dir)

Protected Member Functions

- virtual void [initialize](#) (int stage) override
- virtual void [handleSelfMessage](#) ([omnetpp::cMessage](#) *msg) override
- virtual void [handleAirFrame](#) ([omnetpp::cMessage](#) *msg) override
- virtual void [finish](#) () override
- virtual void [finish](#) ([cComponent](#) *component, [omnetpp::simsignal_t](#) signalID) override
- virtual void [handleUpperMessage](#) ([omnetpp::cMessage](#) *msg) override
- double [updateHysteresisTh](#) (double v)
- void [handoverHandler](#) ([LteAirFrame](#) *frame, [UserControllerInfo](#) *lteInfo)
- void [deleteOldBuffers](#) ([MacNodeId](#) masterId)
- virtual void [triggerHandover](#) ()
- virtual void [doHandover](#) ()

Protected Attributes

- [MacNodeId](#) [masterId_](#)
- [omnetpp::simsignal_t](#) [servingCell_](#)
- [omnetpp::cMessage](#) * [handoverStarter_](#)
- [omnetpp::cMessage](#) * [handoverTrigger_](#)
- double [currentMasterRssi_](#)
- [MacNodeId](#) [candidateMasterId_](#)
- double [candidateMasterRssi_](#)
- double [hysteresisTh_](#)
- double [hysteresisFactor_](#)
- double [handoverDelta_](#)
- double [handoverLatency_](#)
- double [handoverDetachment_](#)
- double [handoverAttachment_](#)
- double [minRssi_](#)
- bool [enableHandover_](#)
- [DasFilter](#) * [das_](#)
- double [dasRssiThreshold_](#)
Threshold for antenna association.
- bool [useBattery_](#)
- double [txAmount_](#)
- double [rxAmount_](#)
- [LteMacUe](#) * [mac_](#)
- [LteRlcUm](#) * [rlcUm_](#)
- [LtePdcPpRrcBase](#) * [pdcPp_](#)

- omnetpp::simtime_t [lastFeedback_](#)
- std::vector< short int > [cqiDISamples_](#)
- std::vector< short int > [cqiUISamples_](#)
- unsigned int [cqiDISum_](#)
- unsigned int [cqiUISum_](#)
- unsigned int [cqiDICount_](#)
- unsigned int [cqiUICount_](#)

4.1.1 Constructor & Destructor Documentation

4.1.1.1 LtePhyUe()

```
LtePhyUe::LtePhyUe ( )
```

4.1.1.2 ~LtePhyUe()

```
LtePhyUe::~~LtePhyUe ( ) [virtual]
```

4.1.2 Member Function Documentation

4.1.2.1 coherenceTime()

```
omnetpp::simtime_t LtePhyUe::coherenceTime (
    double speed ) [inline]
```

4.1.2.2 deleteOldBuffers()

```
void LtePhyUe::deleteOldBuffers (
    MacNodeId masterId ) [protected]
```

4.1.2.3 doHandover()

```
void LtePhyUe::doHandover ( ) [protected], [virtual]
```

4.1.2.4 finish() [1/2]

```
void LtePhyUe::finish ( ) [override], [protected], [virtual]
```

4.1.2.5 finish() [2/2]

```
virtual void LtePhyUe::finish (
    cComponent * component,
    omnetpp::simsignal_t signalID ) [inline], [override], [protected], [virtual]
```

4.1.2.6 getAverageCqi()

```
double LtePhyUe::getAverageCqi (
    Direction dir )
```

4.1.2.7 getDasFilter()

```
DasFilter * LtePhyUe::getDasFilter ( )
```

4.1.2.8 getMasterId()

```
MacNodeId LtePhyUe::getMasterId ( ) const [inline]
```

4.1.2.9 getVarianceCqi()

```
double LtePhyUe::getVarianceCqi (
    Direction dir )
```

4.1.2.10 handleAirFrame()

```
void LtePhyUe::handleAirFrame (
    omnetpp::cMessage * msg ) [override], [protected], [virtual]
```

4.1.2.11 handleSelfMessage()

```
void LtePhyUe::handleSelfMessage (
    omnetpp::cMessage * msg ) [override], [protected], [virtual]
```

4.1.2.12 handleUpperMessage()

```
void LtePhyUe::handleUpperMessage (
    omnetpp::cMessage * msg ) [override], [protected], [virtual]
```

4.1.2.13 handoverHandler()

```
void LtePhyUe::handoverHandler (
    LteAirFrame * frame,
    UserControlInfo * lteInfo ) [protected]
```

4.1.2.14 initialize()

```
void LtePhyUe::initialize (
    int stage ) [override], [protected], [virtual]
```

4.1.2.15 recordCqi()

```
void LtePhyUe::recordCqi (
    unsigned int sample,
    Direction dir )
```

4.1.2.16 sendFeedback()

```
void LtePhyUe::sendFeedback (
    LteFeedbackDoubleVector fbDl,
    LteFeedbackDoubleVector fbUl,
    FeedbackRequest req ) [virtual]
```

Send Feedback, called by feedback generator in DL

4.1.2.17 triggerHandover()

```
void LtePhyUe::triggerHandover ( ) [protected], [virtual]
```

4.1.2.18 updateHysteresisTh()

```
double LtePhyUe::updateHysteresisTh (
    double v ) [protected]
```

Utility function to update the hysteresis threshold using hysteresisFactor_.

4.1.3 Member Data Documentation

4.1.3.1 candidateMasterId_

```
MacNodeId LtePhyUe::candidateMasterId_ [protected]
```

ID of not-master node from wich highest RSSI was received

4.1.3.2 candidateMasterRssi_

```
double LtePhyUe::candidateMasterRssi_ [protected]
```

Highest RSSI received from not-master node

4.1.3.3 cqiDlCount_

```
unsigned int LtePhyUe::cqiDlCount_ [protected]
```

4.1.3.4 cqiDlSamples_

```
std::vector<short int> LtePhyUe::cqiDlSamples_ [protected]
```

4.1.3.5 cqiDlSum_

```
unsigned int LtePhyUe::cqiDlSum_ [protected]
```


4.1.3.6 cqiUICount_

```
unsigned int LtePhyUe::cqiUICount_ [protected]
```

4.1.3.7 cqiUISamples_

```
std::vector<short int> LtePhyUe::cqiUISamples_ [protected]
```

4.1.3.8 cqiUISum_

```
unsigned int LtePhyUe::cqiUISum_ [protected]
```

4.1.3.9 currentMasterRssi_

```
double LtePhyUe::currentMasterRssi_ [protected]
```

RSSI received from the current serving node

4.1.3.10 das_

```
DasFilter* LtePhyUe::das_ [protected]
```

Pointer to the DAS Filter: used to call das function when receiving broadcasts and to retrieve physical antenna properties on packet reception

4.1.3.11 dasRssiThreshold_

```
double LtePhyUe::dasRssiThreshold_ [protected]
```

Threshold for antenna association.

4.1.3.12 enableHandover_

```
bool LtePhyUe::enableHandover_ [protected]
```

Handover switch

4.1.3.13 handoverAttachment_

```
double LtePhyUe::handoverAttachment_ [protected]
```

4.1.3.14 handoverDelta_

```
double LtePhyUe::handoverDelta_ [protected]
```

Time interval elapsing from the reception of first handover broadcast message to the beginning of handover procedure. It must be a small number greater than 0 to ensure that all broadcast messages are received before evaluating handover. Note that broadcast messages for handover are always received at the very same time (at `bdcUpdateInterval_` seconds intervals).

4.1.3.15 handoverDetachment_

```
double LtePhyUe::handoverDetachment_ [protected]
```

4.1.3.16 handoverLatency_

```
double LtePhyUe::handoverLatency_ [protected]
```

4.1.3.17 handoverStarter_

```
omnetpp::cMessage* LtePhyUe::handoverStarter_ [protected]
```

Self message to trigger handover procedure evaluation

4.1.3.18 handoverTrigger_

```
omnetpp::cMessage* LtePhyUe::handoverTrigger_ [protected]
```

Self message to start the handover procedure

4.1.3.19 hysteresisFactor_

```
double LtePhyUe::hysteresisFactor_ [protected]
```

Value used to divide `currentMasterRssi_` and create an `hysteresisTh_` Use zero to have `hysteresisTh_ == 0`.

4.1.3.20 hysteresisTh_

```
double LtePhyUe::hysteresisTh_ [protected]
```

Hysteresis threshold to evaluate handover: it introduces a small polarization to avoid multiple subsequent handovers

4.1.3.21 lastFeedback_

```
omnetpp::simtime_t LtePhyUe::lastFeedback_ [protected]
```

4.1.3.22 mac_

```
LteMacUe* LtePhyUe::mac_ [protected]
```

4.1.3.23 masterId_

```
MacNodeId LtePhyUe::masterId_ [protected]
```

Master MacNodeId

4.1.3.24 minRssi_

```
double LtePhyUe::minRssi_ [protected]
```

4.1.3.25 pdcp_

```
LtePdcPrcBase* LtePhyUe::pdcp_ [protected]
```

4.1.3.26 rlcUm_

```
LteRlcUm* LtePhyUe::rlcUm_ [protected]
```

4.1.3.27 rxAmount_

```
double LtePhyUe::rxAmount_ [protected]
```

4.1.3.28 servingCell_

```
omnetpp::simsignal_t LtePhyUe::servingCell_ [protected]
```

Statistic for serving cell

4.1.3.29 txAmount_

```
double LtePhyUe::txAmount_ [protected]
```

4.1.3.30 useBattery_

```
bool LtePhyUe::useBattery_ [protected]
```

set to false if a battery is not present in module or must have infinite capacity

The documentation for this class was generated from the following files:

- [src/stack/phy/layer/LtePhyUe.h](#)
- [src/stack/phy/layer/LtePhyUe.cc](#)

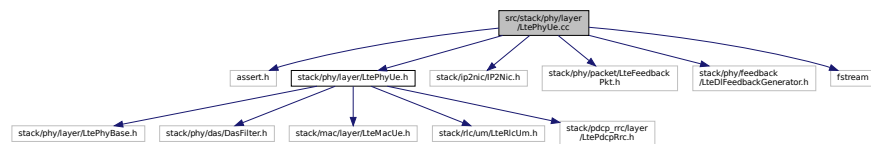
Chapter 5

File Documentation

5.1 src/stack/phy/layer/LtePhyUe.cc File Reference

```
#include <assert.h>
#include "stack/phy/layer/LtePhyUe.h"
#include "stack/ip2nic/IP2Nic.h"
#include "stack/phy/packet/LteFeedbackPkt.h"
#include "stack/phy/feedback/LteDlFeedbackGenerator.h"
#include <fstream>
```

Include dependency graph for LtePhyUe.cc:



Functions

- [Define_Module \(LtePhyUe\)](#)

5.1.1 Function Documentation

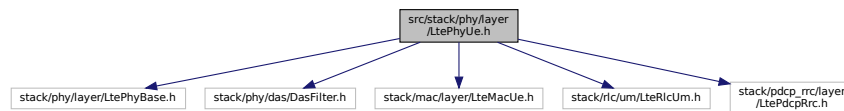
5.1.1.1 Define_Module()

```
Define_Module (
    LtePhyUe )
```

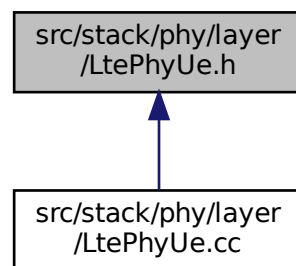
5.2 src/stack/phy/layer/LtePhyUe.h File Reference

```
#include "stack/phy/layer/LtePhyBase.h"
#include "stack/phy/das/DasFilter.h"
#include "stack/mac/layer/LteMacUe.h"
#include "stack/rlc/um/LteRlcUm.h"
#include "stack/pdcp_rrc/layer/LtePdcprRrc.h"
```

Include dependency graph for LtePhyUe.h:



This graph shows which files directly or indirectly include this file:



Classes

- class [LtePhyUe](#)

Macros

- #define [OUTPUT_RAW_RSSI_DATA_PATH](#) "/home/yspkm/simulation/data/raw.data.csv"

5.2.1 Macro Definition Documentation

5.2.1.1 OUTPUT_RAW_RSSI_DATA_PATH

```
#define OUTPUT_RAW_RSSI_DATA_PATH "/home/yspkm/simulation/data/raw.data.csv"
```

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