**2019/08/19**

Channel coefficient –> use antenna port

* Channel matrix : (Rx element x Tx element) -> (Rx Port x Tx Port)

Scheduling, ReceiveDL function - changed (not verified yet)

* MU MIMO Scheduling

**2019/07/22**

Coupling loss & Geometry CDF calibration

* Analog beamforming

**2019/05/14**

Antenna array, antenna port, RSRP part - changed

**2019/04/19**

Geometry CDF calibration

Calibration mode added

MU-MIMO scheduling (not verified yet)

Measure() part added (not verified yet)

**2018/10/11**

MIMO capacity equation is changed

**2018/09/04**

Indoor antenna, UE antenna added

- Indoor horizontal, UE antenna radiation model (not verified yet)

**2018/07/25**

Receive\_DL(), Getcapacity() added

- MIMO capacity output (not verified yet)

**2018/06/19**

bug fixed

- CHIR issue

**2018/06/05**

Memory issue debugging

- Declaration about SSP -> Allocate\_memory()

NUM\_RAY\_per\_ClusterNUM added ( channel coefficient part )

**2018/05/25**

Tranform\_TLSP\_to\_LSP() added

Generate\_SSP(), Compute\_Channel\_Coef() added

- generate SSP for each run time t

'Channel impulse response generation when using antenna arrays' added (M.2412 - Attachment 3 to Annex 1)

Revision

generate\_SSP.cpp added

**2018/04/25**

UMi\_A/UMi\_B channel model

Fourier Transform, Round Robin scheduling

Small Scale Parameter calibration

Revision

* Channel\_update.cpp, mu\_mimo.cpp (scheduling) part added

**2018/02/14**

Small scale parameter, antenna array parameter added

* Delay, AOA, ZOA, cluster power, antenna element, etc.

Revision

* Channel Update part added

**2018/01/17**

Generating Transformed LSP part added

* LSP generation

Revision

* setFastfadingParam.cpp,paramFastfading.cpp,generateLSP.cpp, generateShadowFading.cpp, allocateMemory.cpp, deleteMemory.cpp added

**2017/12/21**

Use Configuration file for running simulation

* Use ‘test.cfg’ file

Revision

* setSimulParam.cpp added
* clean up the source code

**2017/12/07**

Indoor Hotspot Scenario Coupling Loss Calibration

* Coupling Loss CDF Calibration with UL simulator
* Config A/B/C, Channel Model A/B calibration
* Assumptions about Antenna Gain
  + Horizontal Gain = 0
  + Use vertical gain only
* Did not consider the UE Antenna Pattern

Revision

* Horizontal gain is zero. (Indoor Only)

**2017/12/01**

Dense Urban, Rural scenario Coupling Loss Calibration

* Coupling Loss CDF Calibration with UL simulator
* Dense Urban – Config A/B, channel model A/B Calibration
  + Without Config C : no micro cell
* Rural – Config A/B/C, Channel model A/B Calibration
* Did not consider the UE Antenna Pattern

Revision

* Correct the vertical angle for Antenna Gain
* Add Pedestrian User for Rural Config C
* Correct some typos

**2017/11/22**

DL SLS large scale Code

* Reference : ITU-R M.[IMT-2020.EVAL]
* eMBB scenario – Indoor / Dense Urban / Rural