1. Introduction:

This document will guide you the process we are following to do our thesis.

It provides a rough idea of how we are going to achieve the results that are required in the 3 scenarios that we have decided upon.

1. Work Process:

As discussed in the meeting on 19/8 we are going to set up the scenario of dense urban, sub-urban and rural in Axcel as per the conditions given in the Excel as follows:

Numbers to be used as input to Axcel :-

Networkmodel:Scenario\_work

From the page Scenario\_work of Network model these numbers need to be scaled for Axcel.

•Fix Traffic,Area Throughput- bps/m^2--------------------------------------19.71 bps/m2

•Fix number of users/cell--------------------------------------------------------18 users/cell

•Reference energy consumption per bit (Joules/bit)---------------------- ?

Traffic and Coverage- LTE 2017

From the page Traffic and Coverage of Network model these numbers need to be scaled for Axcel.

•Number of Subscribers in LTE 2017

•Dense Urban…………………-------------- 1007060 dense urban 45% of total subscribers

•Sub-Urban-------------------------------------- 682694 sub urban 43% of total subscribers M

•Rural-------------------------------------------- 325295 rural with 12% of total subscribers L

The data in the excel sheet needs to be appropriately scaled to execute in Matlab.

Results 2017--LTE

From the page Results 2017—LTE of Network model these number needs to be scaled for Axcel

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| DL available coverage | kbps |  |  | 21959,6 |
| DL requested capacity | Mbps |  |  | 4,73 |
| DL available capacity | Mbps |  |  | 4,79 |
| DL utilization |  |  |  | 8% |
| DL noise rise | dB |  |  | 2,73 |
| DL average achievable | Mbps |  |  | 59,8 |
| DL average user-experienced | Mbps |  |  | 57,4 |
| DL achievable peak | Mbps |  |  | 127,2 |
| Required CCH SINR | dB |  |  | -6,0 |
| Available CCH SINR | dB |  |  | 5,8 |

•LTE column:

•Utilisation

•DL Throughput

•Downlink Capacity

•Connected Users

Power and Energy Calculations:

From the page Power and Energy Calculations of Network model these number needs to be scaled for Axcel

•Power Consumption by RRU & DU

•RUS11- 240W

•RUS12- 356W

•RUS12 output power 40W

•DU41- 142W

•DU31- 138W

With Utilisation of 100% as per model of Henrik’s:

•Macro 448W

•Micro 138W

1. Tasks:

We are finding out the inputs in the Axcel that could affect the Throughput, Traffic, user/cell.

Reading the documents provided by Cecilia.

4) Help needed on:

Setting up these numbers in Axcel and running the Dense Urban Scenario ----->Energy Efficiency in Graphs ----------> Apply Features------------> Check Energy Efficiency-------------->reduce number of nodes in both Macros and micros and check---------------> calculate the Energy Consumption through Network Model

