Manhattan Environment Simulation Menu

By typing "Manhattan_Grid_Simulation" in the Command Window (after having set the directory where the program is found as Current Directory) a "menu window" appears, named "Manhattan Environment Simulation". This menu is presented in Figure 1.
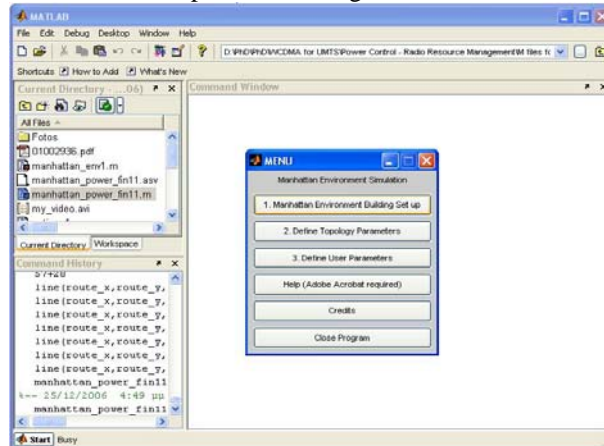

Figure 1: Manhattan Environment Simulation Menu

Manhattan Environment Building Set up

As it appears from the above figure the "Manhattan Environment Simulation menu" gives the user the possibility to select between six (6) different buttons. By clicking the first (called "Manhattan Environment Building Set up") a new window appears, titled "Building Number Specification"[*].
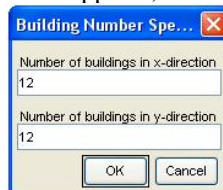

Figure 2: Building Number Specification window

With this window the user can set the number of buildings in x and y-direction. The predefined number of buildings in x and y-direction is 12. The only restraint is that the number of buildings must be multiplicate of 4. Having set the number of buildings (ie. the environment) a figure appears, where the buildings and the roads are depicted (Figure 3). The rest of the program takes into account the topology that the user has created. Figure 3 shows an example of the Manhattan grid environment, where the number of buildings in both directions is 12. The buildings width is 75m and the road width 15m.
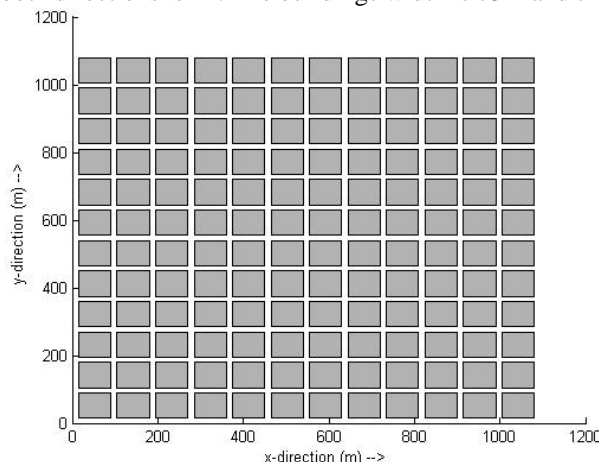

Figure 3: Manhattan Grid Environment (Only Buildings)

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[*] Note: Pressing this button in not obligatory. It can be omitted and the number of buildings in x and y-direction take the predefined value

Define Topology Parameters

The second button of "Manhattan Environment Simulation menu" (Figure 1) gives the user the possibility to set the topology parameters. Such parameters are:

- Other BSs transmitted power
- Background noise
- Common Control Channel power
- Orthogonallity factor

By clicking this button (titled "Define Topology Parameters") a new window appears, also titled "Define Topology Parameters". As the window opens, the predefined values for each parameter appear. As it can be seen from Figure 4 the user can set these parameters to the desirable value. Special attention is needed to the units of each parameter. For example, the background noise must be inserted in Watts. The units of each parameter have been placed by the corresponding parameter in parenthesis. If one of the parameter is empty, the parameter takes by default the predefined value. The predefined values for the topology parameters are:

- Other BSs transmitted power = 2 Watt
- Background noise = 1e-013 Watt
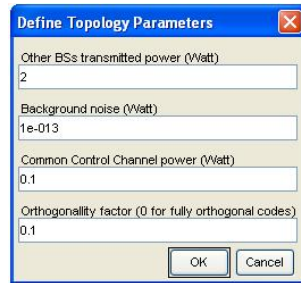- Common Control Channel power = 0.1 Watt
- Orthogonallity factor = 0.1

Figure 4: Topology parameters Specification window

Having set the topology parameters and pressing OK, a new figure appears where the buildings, the roads and all the Node Bs are depicted (Figure 5).
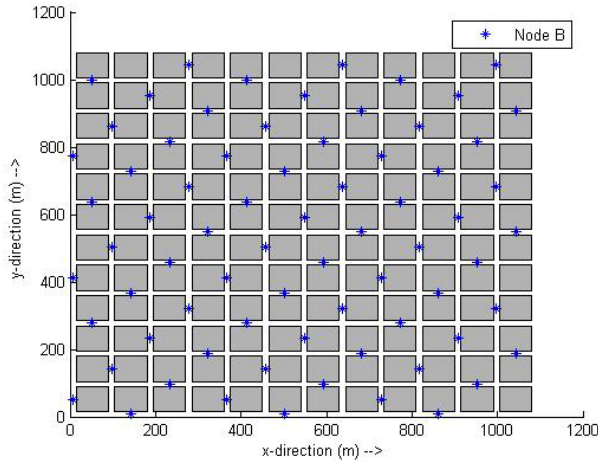

Figure 5: Manhattan Grid Environment (Buildings and Node Bs)

Define User Parameters

The next step is to set the user parameters. The third button of "Manhattan Environment Simulation menu" (Figure 1) gives the user this possibility. When referring to user parameters, we mean the total number of UEs in the topology (static and moving), the signal energy per bit divided by noise spectral density (Eb/No) and bit rate Rb. The predefined values for these parameters are:

- Total number of UEs = 5
- Eb/No = 5 dB
- Rb = 64 kbps

The user is in position to change each value. All the UEs (specified by the number of UEs) are assumed to have the same Eb/No and Rb.
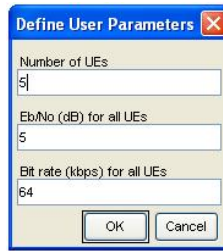
Figure 6: UEs parameters Specification window

By clicking OK to the above window the UEs parameters are set and the "UE Topology submenu" appears.

Help (Adobe Acrobat required)

Clicking this button opens this manual.

Credits

Close Program

Clicking this button exits the program.