8.3.7 CDMA capacity

The capacity of the simulated system (i.e. how many mobiles per cell should be generated in the system) is dependent on all other settings and cannot always be easily deducted from these. Therefore SEAMCAT has a feature that allows for automatic determination of capacity. This is also known as simulation of non interfered capacity and is enabled by default.

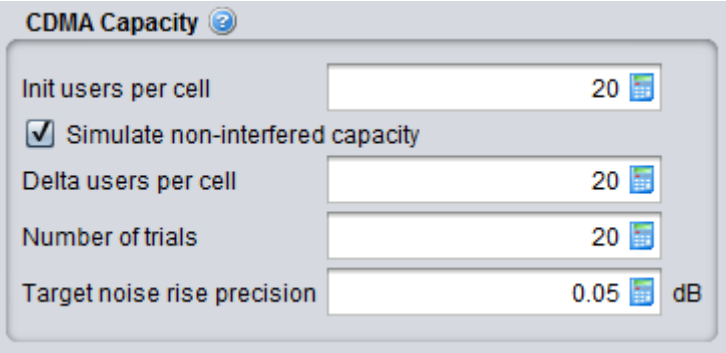

Figure 191: CDMA UL system - Determination of the optimum number of UEs (CDMA capacity)

In CDMA UL, the number of optimised users is being re-calculated for each event. It is recommended to run the "simulate non-interfered capacity" so that SEAMCAT can provide a "best" optimised value, this will optimise the computation time afterwards. If you are using another number you risk to create an overhead in your computation time without any change in the output results.

Figure 192: CDMA DL system - Determination of the optimum number of UEs (CDMA capacity)

Table 31: CDMA Capacity settings parameters (UL and DL)

Description	Symbol	Type	Unit	Comments

Simulate non interfered capacity	-	Boolean	-	Toggles automatic capacity finding. If the option **Simulate non-interfered capacity** is checked, then the system will automatically simulate the 'optimal' number of the mobiles for given system configuration (type of system, bandwidth, cell sizes, etc). The optimum finding algorithm is developed to establish the loading that would correspond to approx. 80% of maximum system capacity. If this option is unchecked, you are free to set a constant user-defined average number of mobile users per cell especially if the optimal capacity for the current scenario is known (this is often the case when running consecutive simulations with the same system) there is no need to simulate – as the simulation process can be quite lengthy. When this checkbox is disabled SEAMCAT uses the value entered in 2 – “Users per cell” as the capacity per cell.

Init users per cell	-	Scalar	-	If capacity simulation is enabled this indicates the starting point of the simulation. Selecting the right starting point can speed up the capacity finding. If capacity simulation is disabled the value in this field is the actual value used by SEAMCAT. SEAMCAT does NOT change this input value into the result of the simulation! Users per cell is equal to UE per Base Station. SEAMCAT consider each Base station as its own cell.
Delta users per cell		Scalar	-	When SEAMCAT tries to find the optimal capacity it adjust the number of UEs per cell starting with this value. A proper value here can speed up capacity finding.
Number of trials		Scalar	-	When finding the optimal capacity SEAMCAT runs this (i.e. Number of trials) many snapshots of every value of UEs per cell before deciding whether or not the current value is the optimal capacity. Generally larger numbers mean greater precision but also longer time needed by the algorithm.
Target noise rise precision		Scalar	dB	**Uplink only** – the precision used when comparing the noise rise of the filled system with target noise rise set under the “CDMA Uplink” panel

Tolerance of initial outage		Scalar	%	**Downlink only** – The tolerance of initial outage is the percentage of UEs that can be dropped before SEAMCAT determines that the tested number of UEs cannot fit into the system (i.e. 20 user_per_cell * 19 BS = 380 UEs, if 5% or less of 380 UEs are dropped, the system is considered able to handle/service 20 UEs per cell). SEAMCAT will adjust the value of UEs per cell untill a value is found which in 80% of the specified number of trials is able to handle the tested number of UEs per cell.This parameter allows for UEs in “extreme” pathloss situations to be “ignored” from the optimal capacity finding.

Revision #1
Created 2026-04-17 10:44:50 UTC by ECO TECH
Updated 2026-04-17 10:46:12 UTC by ECO TECH