10 Scenario

10.1 Setting the scenario

A typical scenario consists of one victim link which describes the communication system being interfered and at least one interfering link which describes the interfering system(s) that may cause interference to the victim link. CDMA or OFDMA systems are modeled differently, using special algorithm that creates a grid of multiple cells.

Set the scenario by selecting what system will be the victim and what system will be the interferer. Remember that setting the frequency at the “scenario level” overwrite any settings at the “System level”.

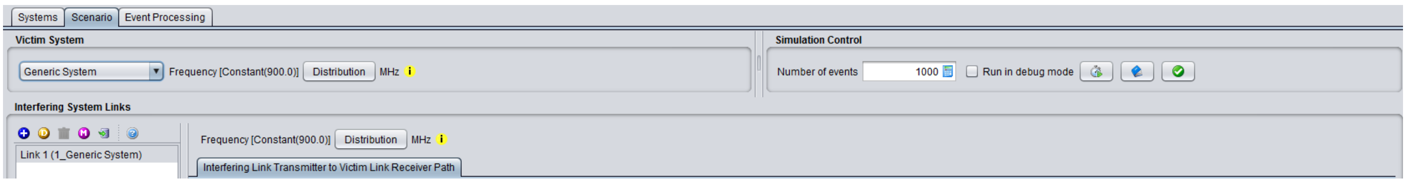


Figure 209: Setting the simulation scenario

Table 40: Simulation scenario – Victim System

Description	Symbol	Type	Unit	Comments

Frequency	f_{VLT} or f_{ILT}	Distribution or Scalar	MHz	Distribution of the centre frequency of the victim system or the interfering system links.

The simulation control is explained in Section 2.10.

10.2 Multiple Interferers generation

You have 3 options to generate multiple interferers in SEAMCAT.

10.2.1 Generation of multiple interferer links with different systems

This option allows SEAMCAT to generate multiple interferers which may have the same or different technical characteristics from each other. The following menu buttons are available in the interfering system links control panel.

	Add an interfering systems link to the scenario		Generate multiple interfering links
	Duplicate an interfering link		Change the selected system type
	Delete a link		On-line manual help

Figure 210: Interfering system links control

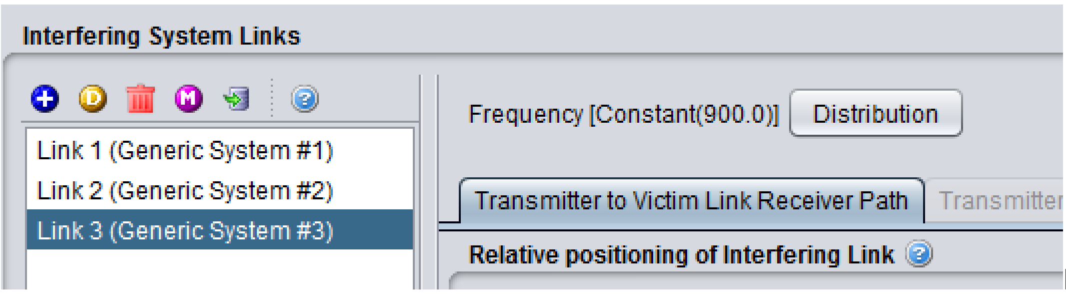


Figure 211: Generation of multiple interferer links with different technical characteristics from each other

The feature **"to position with"** allows the deployment of a second type of interferer (for instance interfering link 1) for which the transmitters will be located at the same location as the transmitters of another type of interferers (i.e. interfering link 2 or interfering link 3). This feature is of interest since it allows deploying these two interferers at the same location (i.e. with the same coordinates) and these two transmitters could be transmitting at the same time while having different transmitter characteristics (e.g. emission mask, antenna radiation pattern…) or with a relative X, Y position set by DeltaX and DeltaY.

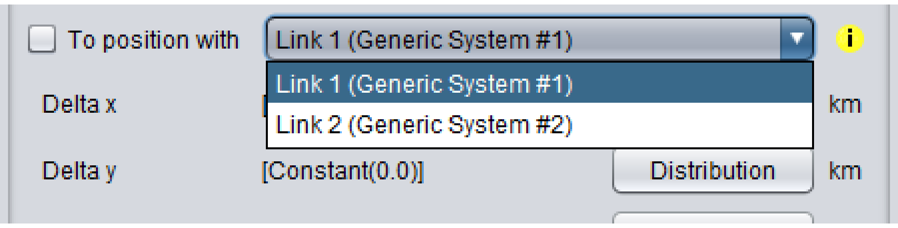


Figure 212: Possibility to position interferer links with one another

If for one interfering link (e.g. interfering link 1) the number of active transmitter is one, then for any extra interfering links, only one Tx is simulated. When the “to position with” feature is selected, any values are grey shaded and only one transmitter is simulated.

10.2.2 Auto-generation of multiple interfering links

This option corresponds to duplicate n times a specific interfering links on a circle or on a hexagonal grid as illustrated below in (a) and (b) respectively. It is available by clicking on ( ). These interferers have the same characteristics as the reference interfering link. It has the purpose of automatically generating a regular pattern of interfering links.

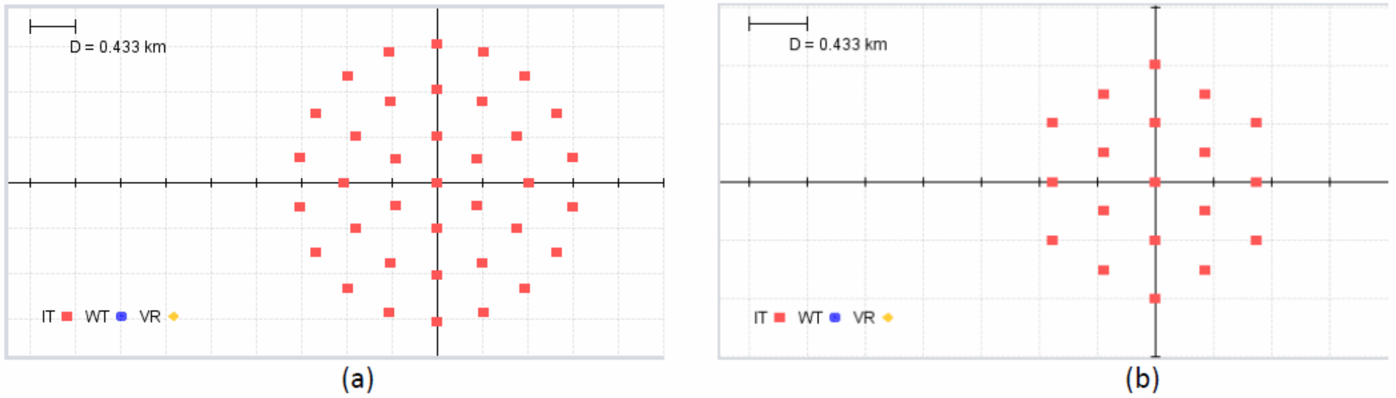


Figure 213: (a) Circular and (b) hexagonal layout

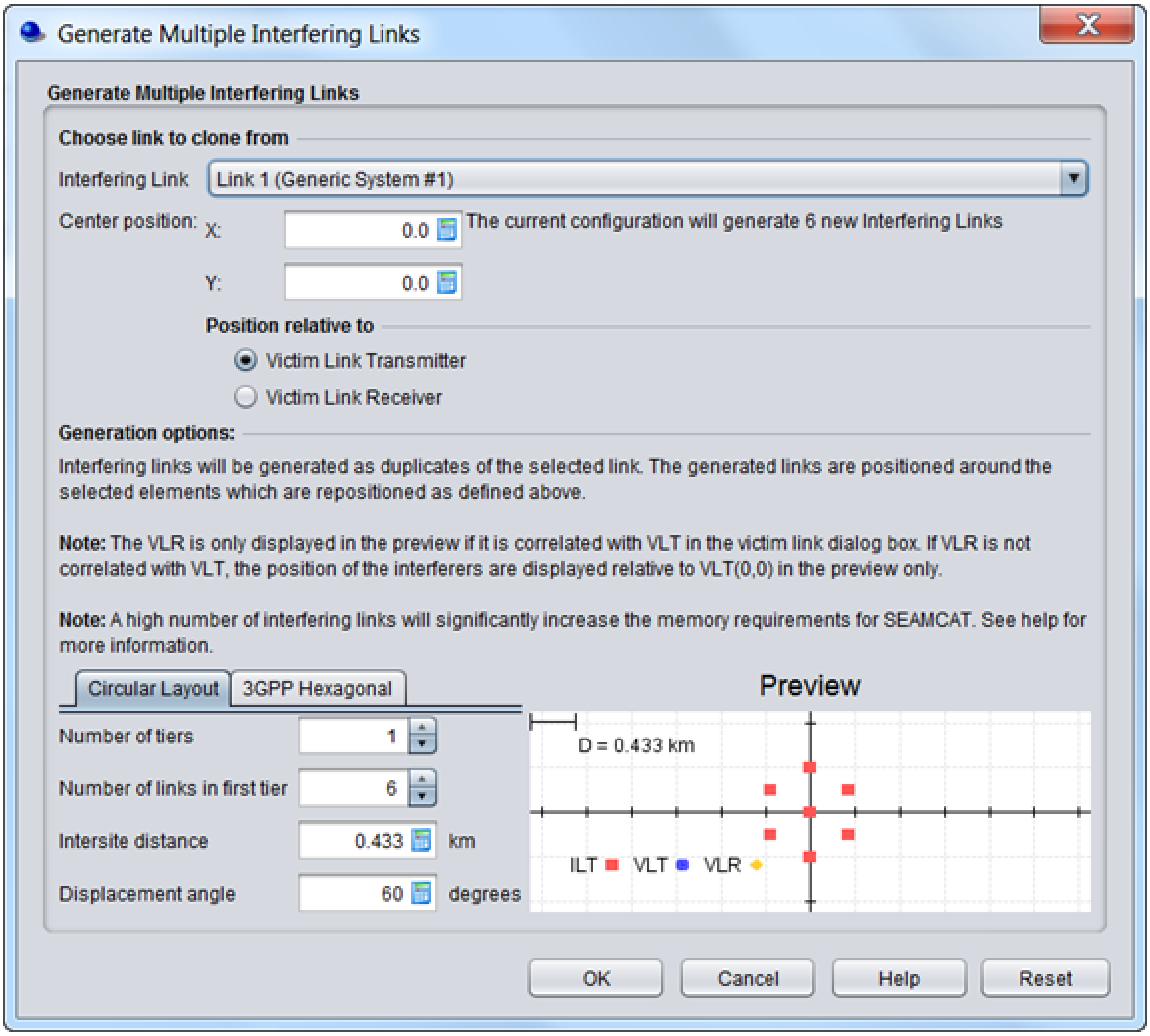


Figure 214: Auto-generation of multiple interfering links

The multiple generate feature graphical interface consists of 3 parts:

- Selection of the reference interferer
- Relative position of this reference interferer to the victim link
- Layout preview of the new interferers

(a) Selection of the reference interferer

You can choose an interfering link that will be used to clone the new interferers.

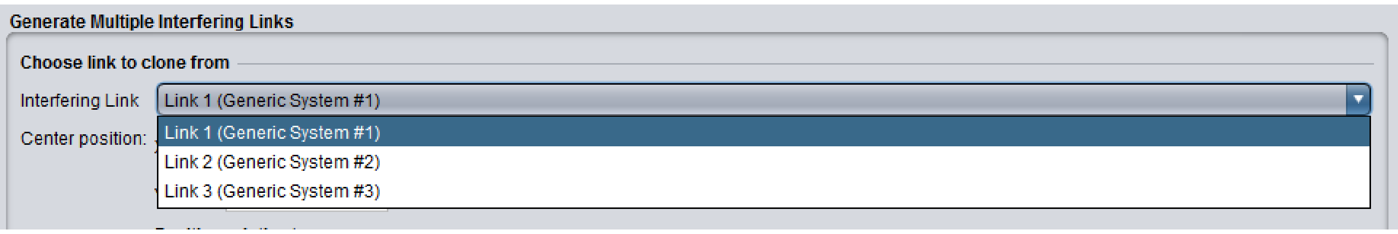


Figure 215: Selection of the reference interferers

In the Generate Multiple Interfering Link dialog box, when selecting ok, 6 new interferers will now be present in the workspace, centered to the selected interferer (i.e. interfering link 1).

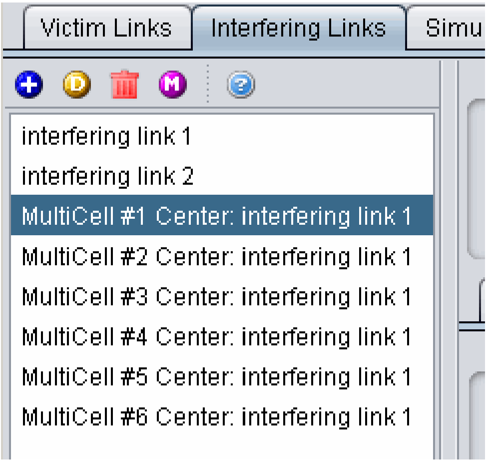


Figure 216: Generated new interferes, centered on interfering link 1

(b) Relative position of this reference interfere to the victim link

You can adjust the position of the interferers with respect to either the VLT (Victim link transmitter) or the VLR (Victim link receiver). When the generate multiple feature is run the relative positioning of interfering link mode (i.e. in the victim receiver to interfering transmitter path tab) is by default overwritten. In this case the center of the interferers is set to (1,1) to VLT.

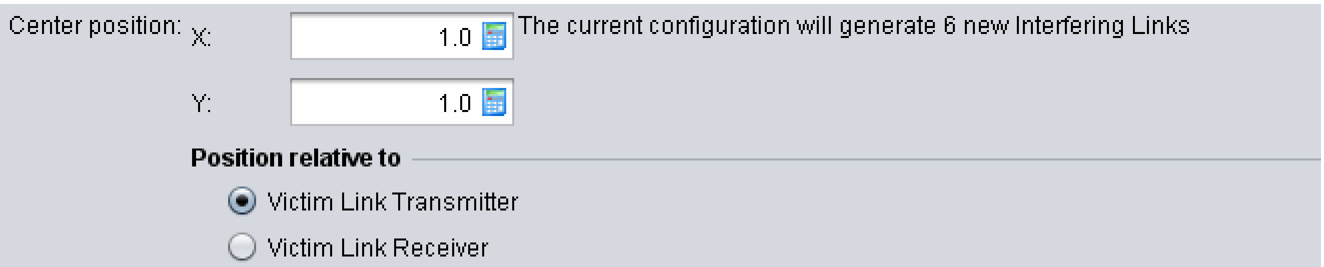


Figure 217: Relative position of the interferer to the VLR or VLT

(c) Layout preview of the new interferes

As a results the preview will display the following illustration

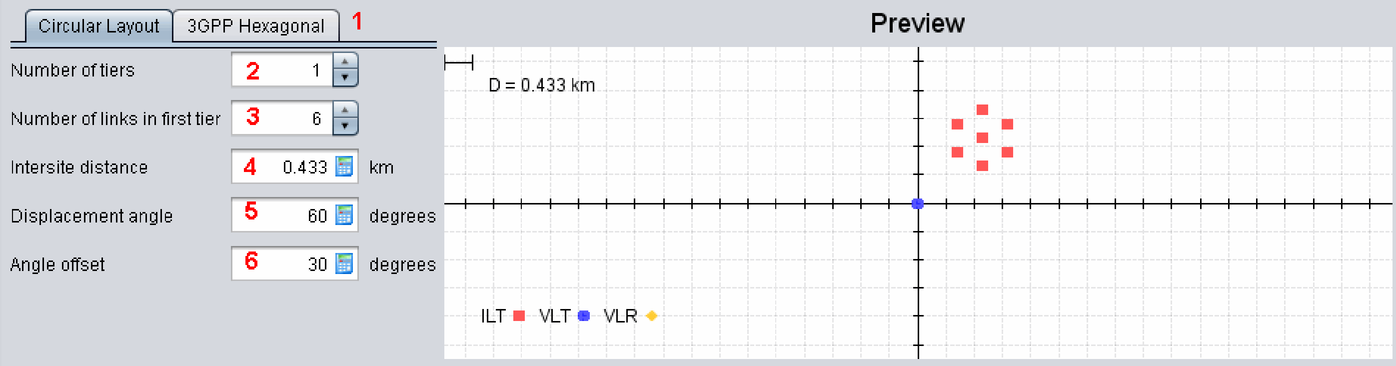


Figure 218: Layout preview of the relative position of the interferer to the VLR or VLT

In the appearing dialog window, you may select the parameters described in .

Table 41: Generate Multiple Interfering Link GUI input parameters

Description	Symbol	Type	Unit	Comments
Circular or hexagonal layout	-	-	-	General circular or hexagonal layout
Number of tiers of generated multiple cells	-	Scalar	-	You can generate as many tiers as you want
Number of links in the first tier	-	Scalar	-	You can set the total number of links in the first tier
Intersite distance	D	Scalar	Km	Distance between 2 BSs
Displacement angle	θ	Scalar	Degree	Angle between the horizontal and the first BS (counter clockwise)
Angle offset		Scalar	Degree	Angle offset of the displacement angle

(d) Illustrative example of the generation of multiple interfering link

The below figure shows an example of scenario that may be used for estimating intra-service interference to a victim base station of cellular system from mobile transmitters operating in the next tier of co-channel cells of the same system.

The displacement angle is calculated automatically by the dialogue window by evenly spacing the specified number of cells around the 360 deg arc, but you may amend this angle. e.g. in order to achieve placement of multiple cells in a sector of less than 360 deg. The parameter angle offset may be used to specify the offset of an azimuth towards the first interfering cell with regard to the x-axis, as seen from the centre cell.

During the multiple link generation, the intersite distance parameter (0.433 km in the example), in combination with the specified initial offset angle, will overwrite the original coordinates (Delta X/DeltaY) in the Vr-It path tab setting of the Interfering links.

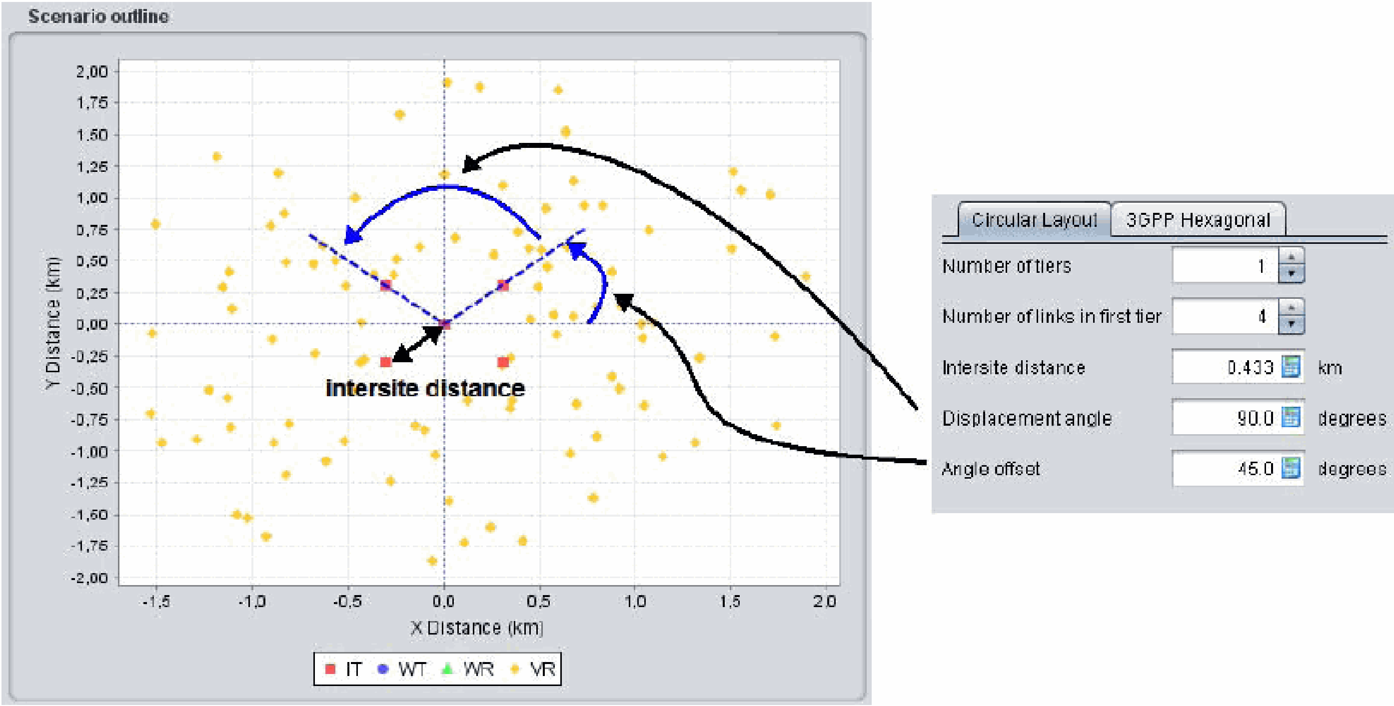


Figure 219: Example where 1 tier is used to position 4 interferers in a square shape (i.e. corners of a building) with the Vr positioned outside the square

10.2.3 Generation of interferers with the same characteristics

Within one interfering link, you can define a number of active interfering transmitters when the mode "None" or "Uniform density" is selected. These active transmitters have the same technical characteristics (i.e. a simple duplicate) and they are deployed spatially independently according to the mode selected. The iRSS result is stored as one vector (of size number of events) where for each event the iRSS value is the simple power summation of the number of active transmitters.

The number of active transmitters is directly used to compute the simulation radius (see Annex A13.2).

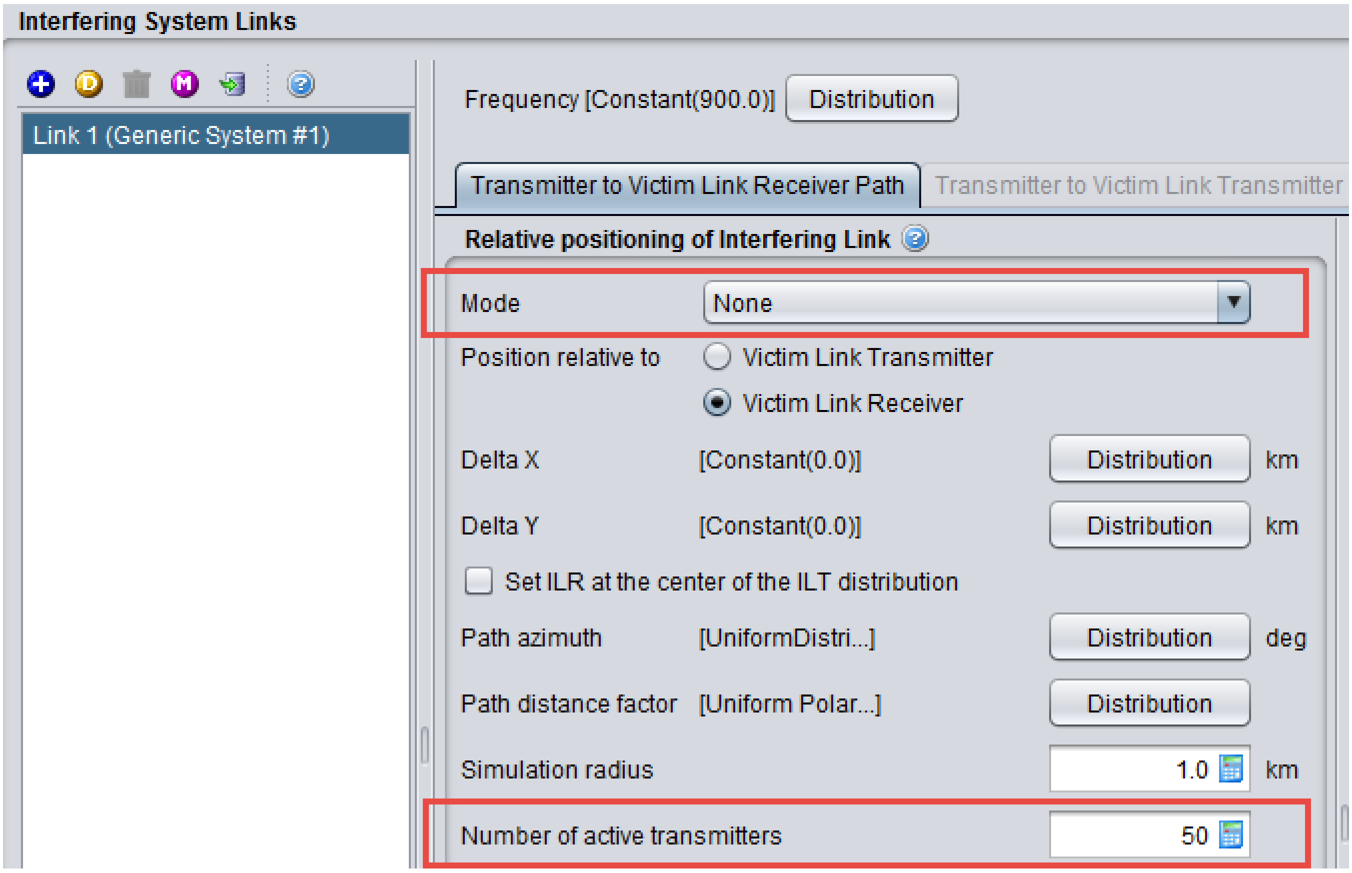


Figure 220: Generation of multiple interferers with the same characteristics and using a specific deployment mode

10.3 Interfering Link Transmitter to Victim Link Receiver Path (ILT -> VLR)

introduction

The ILT to VLR path can have several combinations as shown in Figure 224. Four panels characterised the path between the ILT and ILR.

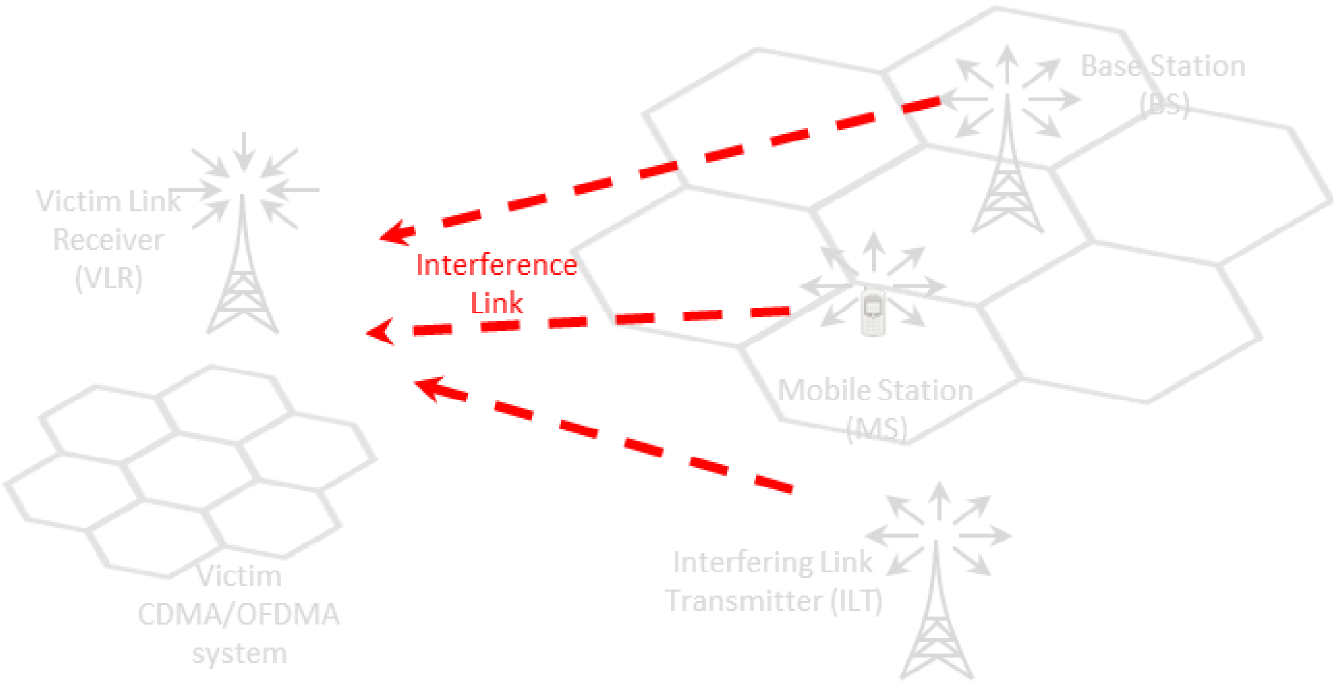


Figure 221: ILT to VLR path combination with generic and cellular system

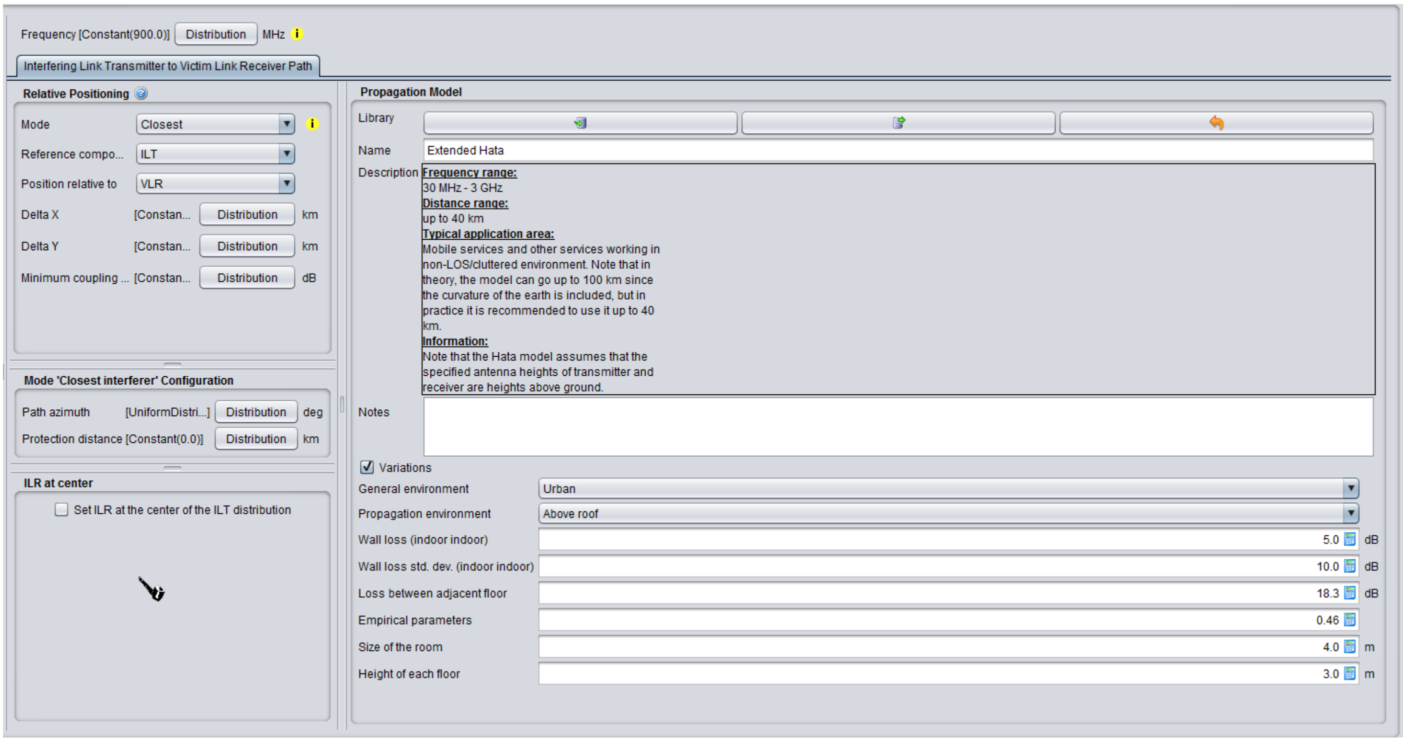


Figure 222: Transmitter to Victim Link Receiver Path (ILT -> VLR)

10.3.1 Relative positioning of interfering link (Generic system)

The relative position of the Victim Receiver (VLR) and the Interfering Transmitter (ILT) depends on the various options presented below. There is a unique simulation radius (R_{simu}) contrary to the 2 coverage radius (one for the victim and one for the interferer link). This is illustrated below in Figure 223 for a generic system interfering with a second generic system.

See ANNEX 12: for further details on the algorithm and conventions.

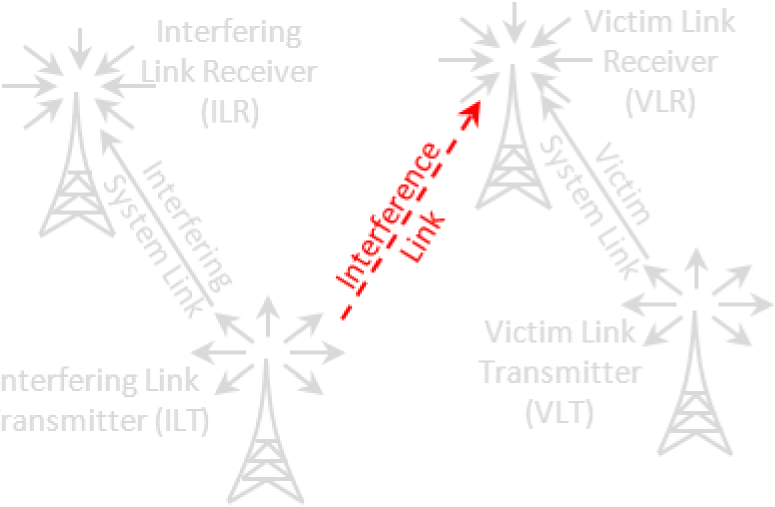


Figure 223: Example of the simulation radius (VLR with ILT)

Depending on the system simulated several positioning options are possible when the generic system is the interferer and the victim is a generic system and cellular system as shown in Figure 224 and Figure 227 respectively.

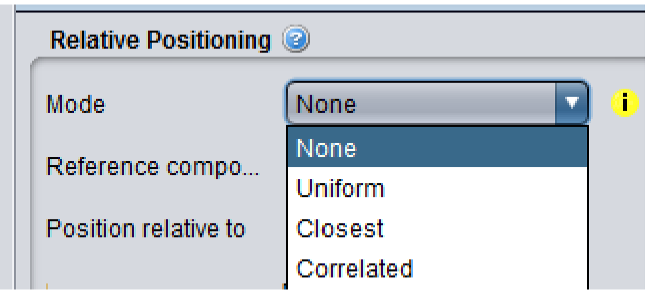


Figure 224: Relative positioning of a generic interfering link with a generic victim system

Each interfering signal calculation results from the contribution of

- **None**: $\mathbf{n_{active}}$ interefering link transmitters located in a circular area with the simulation radius. You define yourself the radius. The random placement of the interefering link transmitters in this area is defined by the path azimuth and the path distance factor parameters.

See Annex A13.2.1 for detailed algorithm.

Table 42: ILT-VLR path - none mode (generic vs generic)

Description	Symbol	Type	Unit	Comments
Reference component	-		-	Positioning of the distributed component which is either the ILT or the ILR
Position relative to	-		-	Positioning of the reference component relative to either the VLR or the VLT
Delta X	ΔX	Distribution or Scalar	km	Horizontal distance between the transmitter and receiver. It can be used to shift horizontally the distributed receivers

Delta Y	ΔY	Distribution or Scalar	km	Vertical distance between the transmitter and receiver. It can be used to shift vertically the distributed receivers
Set ILR at he center of the ILT distribution	-	Boolean	-	set the distance factor distribution of the ILT with regards to the VLR. It overwrites the settings in the transmitter to reveicer path of the interferer
Path azimuth		Distribution or Scalar	Deg	Horizontal angle for the location of the ILT respect to the victim link. If constant, the Rx's location will be on a straight line. If not, the location of the Rx will be on an angular area. (See Annex A12.3)
Path distance factor		Distribution or Scalar		Distance factor to describe path length between the ILT and VLR. This factor will be multiplied by R_{simu} to obtain the coverage area. Therefore, the trialled distance between ILT and VLR will be R_{simu} *Path factor. E.g. if user enters a distribution 0…1, then the distance will be between 0 and R_{simu}. If the path factor is constant, the ILT will be located on a circle around the VLR which means that the distance between the ILT and VLR will not change
Simulation radius	R_{simu}		km	User defined

Number of active transmitter	n_{active}	Scalar		If n_{active}>1, this will result in spatially-independent generation of the specified number of Its, whereas the resulting total iRSS strength will be obtained by simple power summation of the individual iRSS signal values.
Minimum coupling loss	MCL	Distribution or Scalar	dB	The minimum path loss. It is used in the calculation of the effective path loss (Section 7.6)
Protection distance	d0	Distribution or Scalar	(km)	minimum protection distance between the victim link receiver and interefering link transmitter (Section A13.2.3)
Use of polygon				You are also able to select a polygon shape as an alternative to the default circle. A various selection of polygon is available. You are able to rotate counter-clock wise (ccw) the polygon shape.
Co-locate				This feature allows deploying two interferers at the same location and their two transmitters could be transmitting at the same time while having different transmitter characteristics (e.g. emission mask, antenna radiation pattern…)

- **Uniform density**: Each interfering signal calculation results from the contribution of **n_{active} interefering link transmitters** uniformly located in a circular area. The parameters are taken from the system settings (see section A13.2.2.)

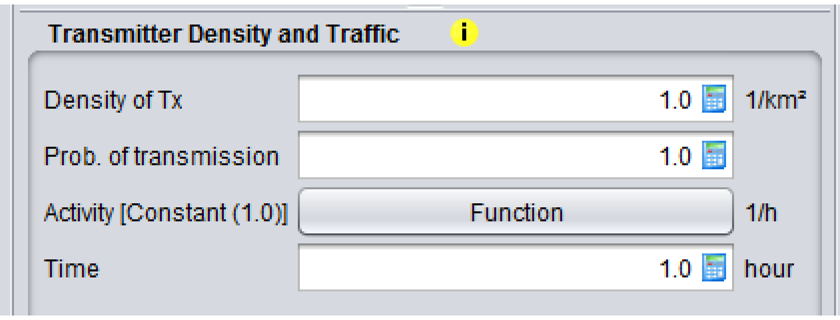


Figure 225: Transmitter density and traffic

Table 43: ILT-VLR path - Uniform density mode (generic vs generic)

Description	Symbol	Type	Unit	Comments
Reference component	-		-	Positioning of the distributed component which is either the ILT or the ILR
Position relative to	-	Boolean	-	Positioning of the Reference component relative to either the VLR or the VLT
Delta X	ΔX	Distribution or Scalar	km	Horizontal distance between the transmitter and receiver. It can be used to shift horizontally the distributed receivers.
Delta Y	ΔY	Distribution or Scalar	km	Vertical distance between the transmitter and receiver. It can be used to shift vertically the distributed receivers.

set ILR at he center of the ILT distribution	-	Boolean	-	Set the distance factor distribution of the ILT with regards to the VLR. It overwrites the settings in the transmitter to reveicer path of the interferer.
Path azimuth		Distribution or Scalar	Deg	Horizontal angle for the location of the ILT respect to the victim link. If constant, the Rx's location will be on a straight line. If not, the location of the Rx will be on an angular area. (See Annex A12.3)
Number of active transmitter	nactive	Scalar		Number of active interferers in the simulation (nactive should be sufficiently large so that the (n+1)th interferer would bring a negligible additional interfering power). If n_{active}>1, this will result in spatially-independent generation of the specified number of Its, whereas the resulting total iRSS strength will be obtained by simple power summation of the individual iRSS signal values.
Simulation radius	R_{simu}		km	***Note:*** *the simulation radius value is readable only after each simulation*

Interferes density				A simulation radius is calculated, R_{simu}. Interefering link transmitters will be randomly deployed within the area centred on the Victim link receiver and delimited by the simulation radius R_{simu}. If a protection is defined then Interefering link transmitters will be randomly deployed within the area centred in the Victim link receiver and delimited by the protection distance and the simulation radius R_{simu} . See Table 46 for information on the input parameter and Annex A13.2.2 for the calculation.
Minimum coupling loss	MCL	Distribution or Scalar	dB	The minimum path loss. It is used in the calculation of the effective path loss (Section 7.6)
Protection distance	d0	Scalar	(km)	Minimum protection distance between the victim link receiver and interefering link transmitter (Section A13.2.3)
Co-locate				This feature allows deploying two interferers at the same location and their two transmitters could be transmitting at the same time while having different transmitter characteristics (e.g. emission mask, antenna radiation pattern…)

- **Closest interferer**: Each interfering signal calculation results from the contribution of **just one interefering link transmitter**. This ILT is randomly placed in a circular area with a simulation radius derived from the density of interferers. See Annex A13.2.4 for detailed alogorithm. The parameters are taken from the system settings (see section A13.2.4).
-

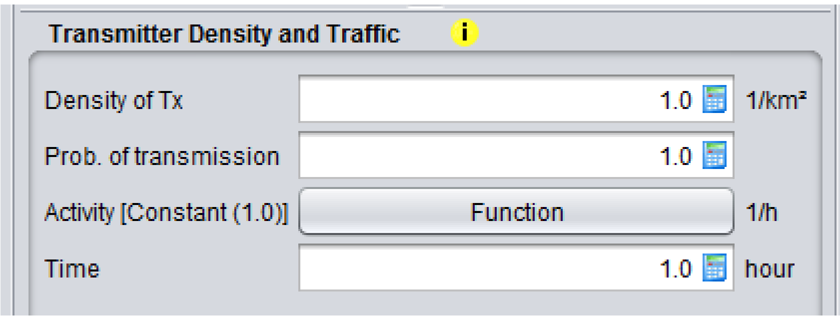


Figure 226: Transmitter density and traffic

Table 44: ILT-VLR path - Closest interferer mode (generic vs generic)

Description	**Symbol**	**Type**	**Unit**	**Comments**
Reference component	-		-	Positioning of the distributed component which is either the ILT or the ILR
Position relative to	-	-	-	Positioning of the Reference component relative to either the VLR or the VLT
Delta X	ΔX	Distribution or Scalar	km	Horizontal distance between the transmitter and receiver. It can be used to shift horizontally the distributed receivers
Delta Y	ΔY	Distribution or Scalar	km	Vertical distance between the transmitter and receiver. It can be used to shift vertically the distributed receivers

Set ILR at he center of the ILT distribution	-	Boolean	-	Set the distance factor distribution of the ILT with regards to the VLR. It overwrites the settings in the transmitter to reveicer path of the interferer
Path azimuth		Distribution or Scalar	Deg	Horizontal angle for the location of the ILT respect to the victim link. If constant, the Rx's location will be on a straight line. If not, the location of the Rx will be on an angular area. (See Annex A1.1)
Number of active transmitter	nactive	Scalar		Number of active interferers in the simulation (nactive should be sufficiently large so that the (n+1)th interferer would bring a negligible additional interfering power). If n_{active}>1, this will result in spatially-independent generation of the specified number of Its, whereas the resulting total iRSS strength will be obtained by simple power summation of the individual iRSS signal values
Simulation radius	R_{simu}		km	*Note: the simulation radius value is readable only after each simulation*

Interferes density				The distance between the Victim link receiver and the Interefering link transmitter follows a Rayleigh distribution, where the standard deviation is given by . See Table 47 for information on the input parameter and Annex A13.2.4 for the calculation
Minimum coupling loss	MCL	Distribution or Scalar	dB	The minimum path loss. It is used in the calculation of the effective path loss (Section 7.6)
Protection distance	d0	Scalar	(km)	minimum protection distance between the victim link receiver and interefering link transmitter (Section A13.2.3)
Co-locate				This feature allows deploying two interferers at the same location and their two transmitters could be transmitting at the same time while having different transmitter characteristics (e.g. emission mask, antenna radiation pattern…)

- **Correlated :** It is called the correlated mode. It means that the positions of the receiver and transmitter are geographically fixed with respect to each other (e.g. co-located or constantly spaced base stations). In the following four cases of fixed placement, the relative location of the two pair of transmitter and receiver is described by dX/dY displacement, with the origin being either on the Transmitter or Receiver of the victim link depending on the option selected;

Table 45: ILT-VLR path – Correlated mode (generic vs generic)

Description	Symbol	Type	Unit	Comments
Reference component	-		-	Positioning of the distributed component which is either the ILT or the ILR
Position relative to	-	B	-	Positioning of the fixed interefer transmitter (ILT) or receiver (ILR) with the origin being. Reference component relative to either onthe VLR or the victim link transmitter (VLT) or receiver (VLR) on the option selected.
Delta X	ΔX	Distribution or Scalar	km	Horizontal distance between the transmitter and receiver. It can be used to shift horizontally the distributed receivers.
Delta Y	ΔY	Distribution or Scalar	km	Vertical distance between the transmitter and receiver. It can be used to shift vertically the distributed receivers.
Minimum coupling loss	MCL	Distribution or Scalar	dB	The minimum path loss. It is used in the calculation of the effective path loss (Section 7.6)

In the case the victim system is a cellular system (CDMA or OFDMA, either UL or DL), the options are slightly changed as shown below, where Position relative to is always the BS of the reference cell.

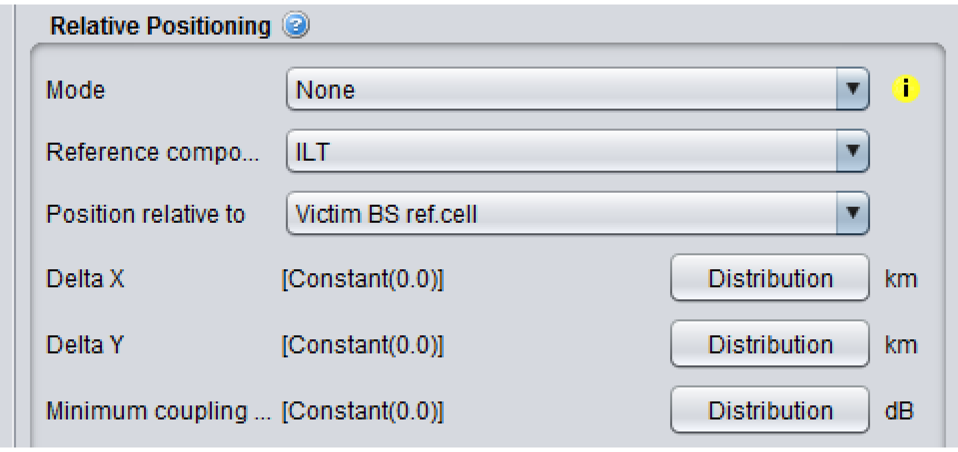


Figure 227: Relative positioning of a generic interfering link with a cellular victim system

10.3.2 Relative positioning of interfering link (Cellular system)

The relative position of the Victim Receiver (VLR) and the Interfering cellular system depends on the various options presented below.

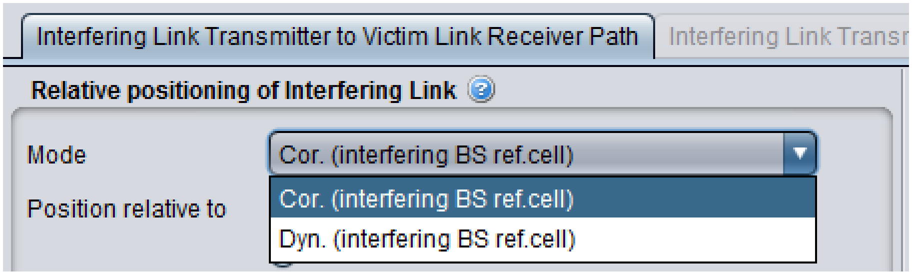


Figure 228: Relative positioning of a cellular interfering link with a generic victim system

- **Cor. (interfering BS ref. cell):** in which case the relative location is explicitely defined by the dX/dY values given in the scenario and the reference is the BS ref.cell. It is a similar mode as described in Table 43 where the BS ref.cell of the cellular interferer is position with respect to the VLT or VLR depending on the selection;
- **Dyn (interfering BS ref.cell):** this dynamic distance mode provides a a relative location that follows a uniform distribution in the distance and angle domain.

Table 46: ILT-VLR path – Correlated mode (cellular vs generic)

Description	Symbol	Type	Unit	Comments

Position relative to VLT or VLR	-	Boolean	-	Positioning of the fixed interefer transmitter (ILT) or receiver (ILR) with the origin being either on the victim link transmitter (VLT) or receiver (VLR) on the option selected.
Delta X	ΔX	Distribution or Scalar	km	Horizontal distance between the transmitter and receiver. It can be used to shift horizontally the distributed receivers.
Delta Y	ΔY	Distribution or Scalar	km	Vertical distance between the transmitter and receiver. It can be used to shift vertically the distributed receivers.
Path azimuth	-	Distribution or Scalar	Deg	Horizontal angle for the location of the interfering BS ref.cell respect to the VLR or VLT
Path distance	-	Distribution or Scalar	km	Path length between the interfering BS ref.cell respect to the VLR or VLT
Minimum coupling loss	MCL	Distribution or Scalar	dB	The minimum path loss. It is used in the calculation of the effective path loss (Section 7.6)

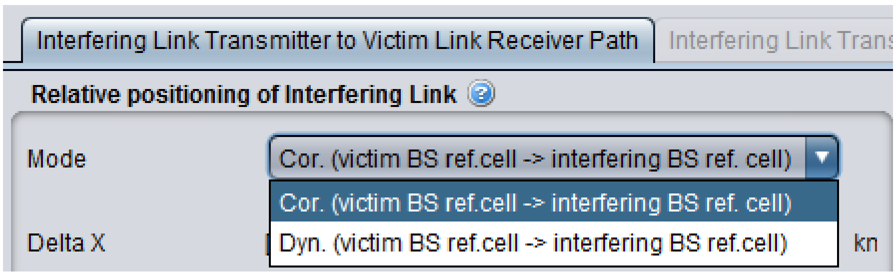


Figure 229: Relative positioning of a cellular interfering link with a cellular victim system

- **Cor. (victim BS ref.cell à interfering BS ref.cell):** It is the same mode as described in Table 45 but where the BS of the reference cell of the victim cellular network is the reference position of the BS of the reference cell of the interfering cellular network.
- **Dyn. (victim BS ref.cell à interfering BS ref.cell):** It is the same mode as described in Table 48, but where the BS of the reference cell of the victim cellular network is the reference position of the BS of the reference cell of the interfering cellular network.

10.3.3 Interferers density

The panel is activated if "Uniform density" or/and "closest interferer" mode is selected. See Annex A

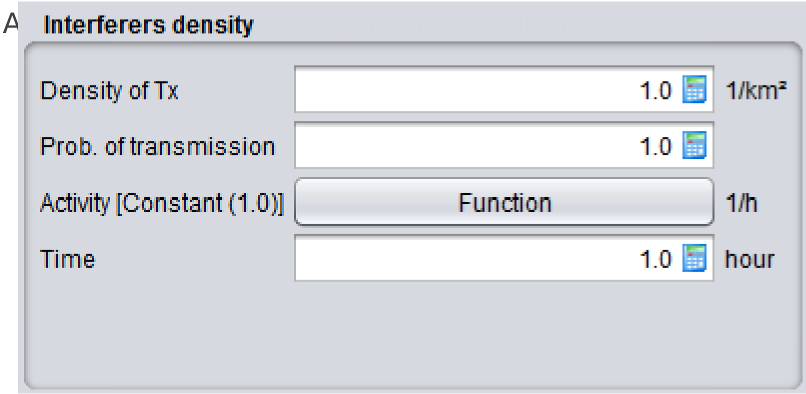


Figure 230: Interferers density panel

(only in "Uniform density" and "closest interferer” mode)

Table 47: Setting up the interferes density

Description	Symbol	Type	Unit	Comments
Density of transmitters	$dens_{it}$	Scalar	$1/km^2$	Maximum number of active transmitters per km^2
Probability of transmission	P_{it}	Scalar	%	
Activity	$activity_{it}$	Function (X,Y)	1/h	Temporal activity variation as a function of the time of the day (hh/mm/ss)
Time	time	Scalar	hour	Time of the day. If the activity function (above), here it should be specified which hour (from the defined range of function) should be considered in a simulation

10.3.4 Pathloss correlation

The panel is activated if the victim is either OFDMA UL or OFDMA DL. It is decribed in more details in Section 9.11.

10.3.5 Propagation Model

You can choose the suitable propagation model to be applied when calculating signal loss between the ILT and the VLR. A choice and settings of propagation models are presented in ANNEX 17:.

10.4 Interfering link transmitter to victim link transmitter path (spectrum sensing)

10.4.1 Spectrum sensing characteristics

When the spectrum sensing is activated, the tab “Interfering link transmitter to victim link transmitter path” will become editable (#1 of Figure 231) and you can set the input parameters of the CR algorithm (#2). Note that the frequency of the interferer is disabled (#3). The purpose of the CR algorithm in SEAMCAT automatically calculates the number of possible channels the WSD will operate in based on the operating frequency range of the victim system and its victim link receiver bandwidth (#4).

You can not simulate “OFDMA/CDMA” as a victim and have a CR interferer. The implementation only considers generic versus generic

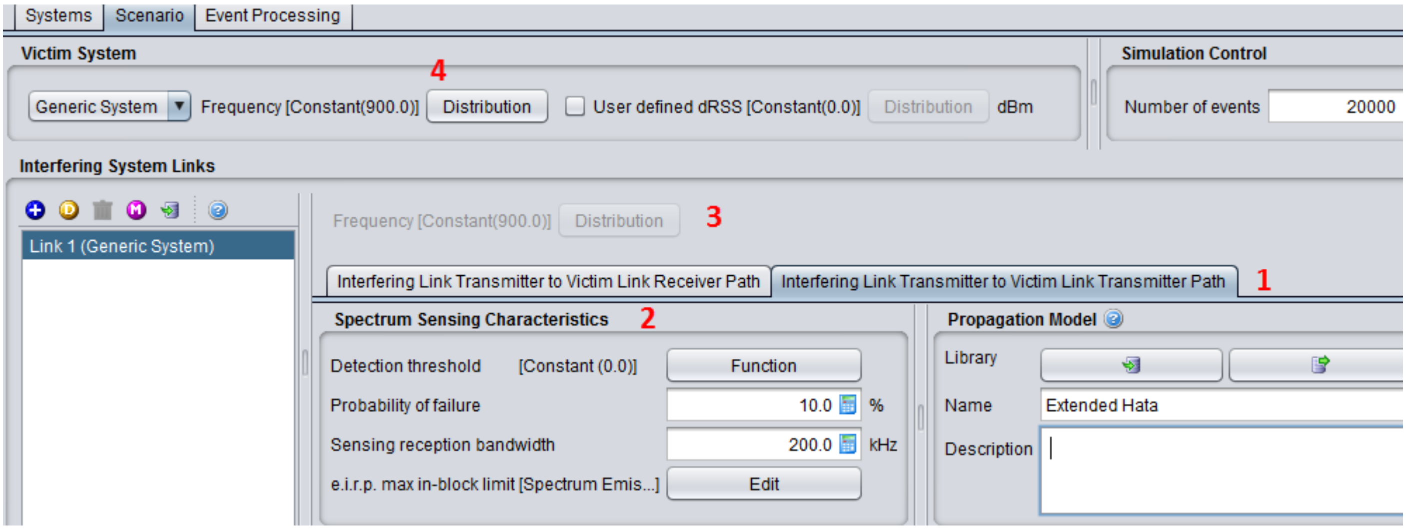


Figure 231: Example of the Cognitive Radio GUI selection - Input settings

When an interferer is set as a CR, the emission characteristics (i.e. transmitted power, emission mask and unwanted emission mask) have to be entered (see Section 6.3) and the spectrum sensing characteristics presented in Figure 232 have to be entered.

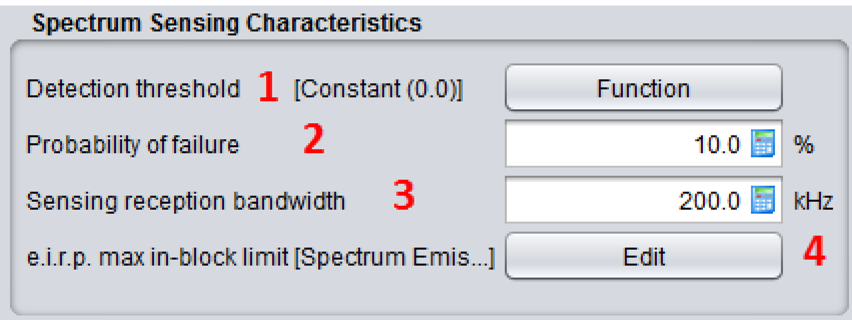


Figure 232: Setting the spectrum sensing characteristics in the Victim link transmitter to Interefering link transmitter Path

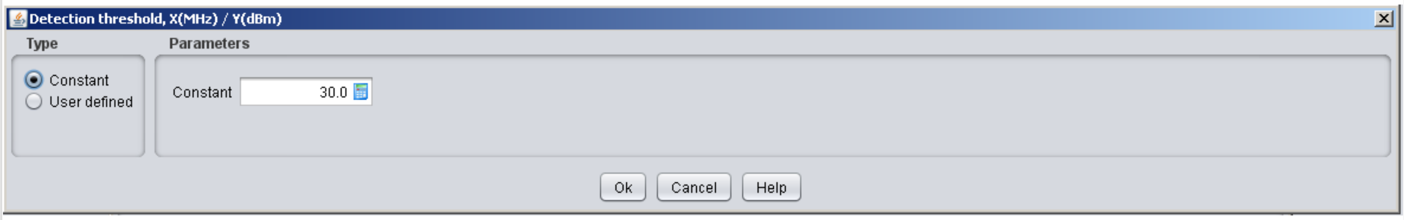
Table 48: Spectrum sensing characteristics

Description	Symbol	Type	Unit	Comments
Detection threshold:		Function (X,Y) or Scalar (offset)	dBm	Define the detection threshold for the spectrum sensing in a offset function. Either a constant value (i.e. flat over the spectrum) or as a user defined function as shown in #1 of Figure 232 illustrates the setting of the detection threshold (a) as a constant or (b) as a function. Figure 233 (c) illustrates where the offset refers to. Note the user-defined function is defined as offset with the victim frequency being the reference. The offset 0 is refered to the Victim frequency.
Probability of failure:		Scalar	%	You can select this function as shown in **#2** of Figure 232. The probability of failure is given in percentage. In the illustration below a probability of failure of 10% is entered. Positive value from 0 to 100.
Sensing reception bandwidth		Scalar	kHz	Define the bandwidth of the sensing device (i.e. ILT). It is used in the calculation of the sRSS: This is a constant value given in kHz as shown in **#3** of Figure 232.

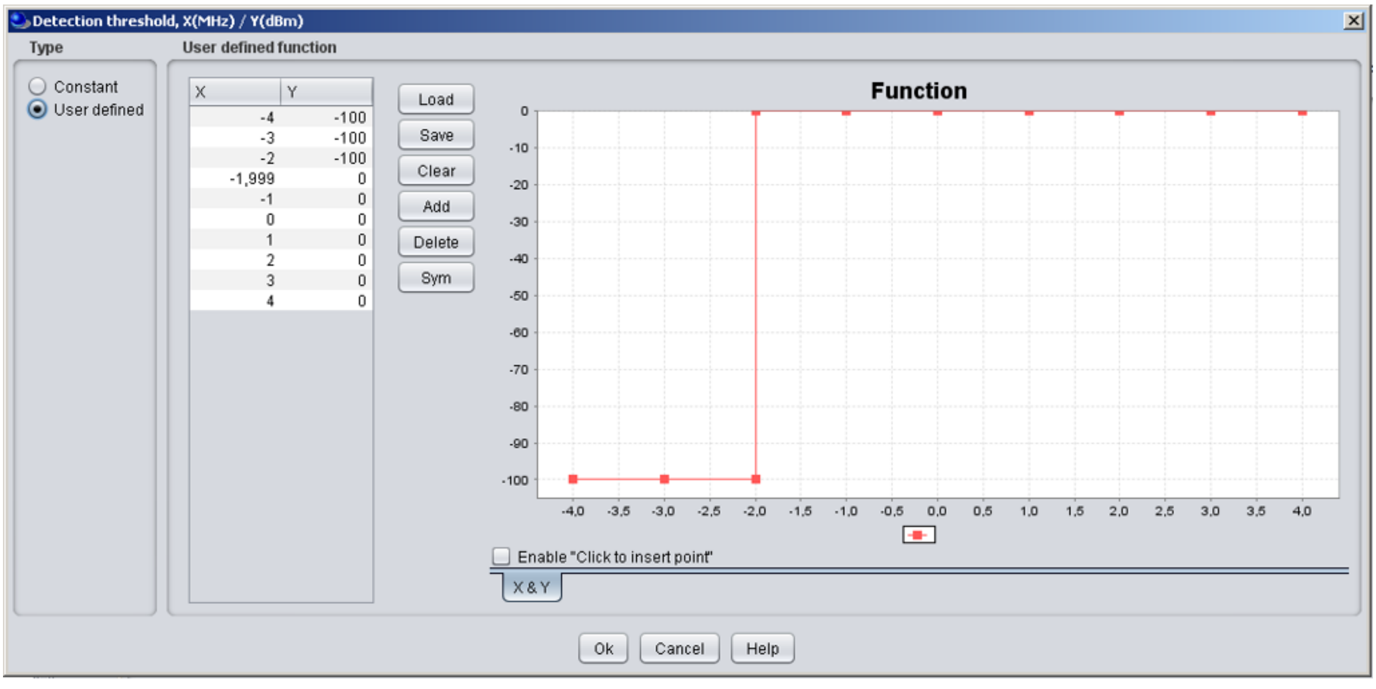
e.i.r.p. max In-block limit		Function (X,Y) (offset)	Offset (MHz)/ Mask (dBm)/ Ref.BW (kHz)	Define the E.I.R.Pmax In-block limit to protect the victim system as an offset function where the offset 0 is refered to the selected interfering frequency. The outcome of the algorithm set the allowed power at the ILT. It has the following components [offset, Mask, Ref.BW] where Offset in MHz is equivalent to the " DTT in use at" columns, Mask in dBm is the "In-block CR $EIRP_{max}$ limit" and Ref. BW is the bandwidth of the DTT as shown in **#4** of Figure 232. Note that SEAMCAT will normalise any value entered in the table to 1 MHz and convert back to the victim bandwidth.

10.4.2 Detection of threshold

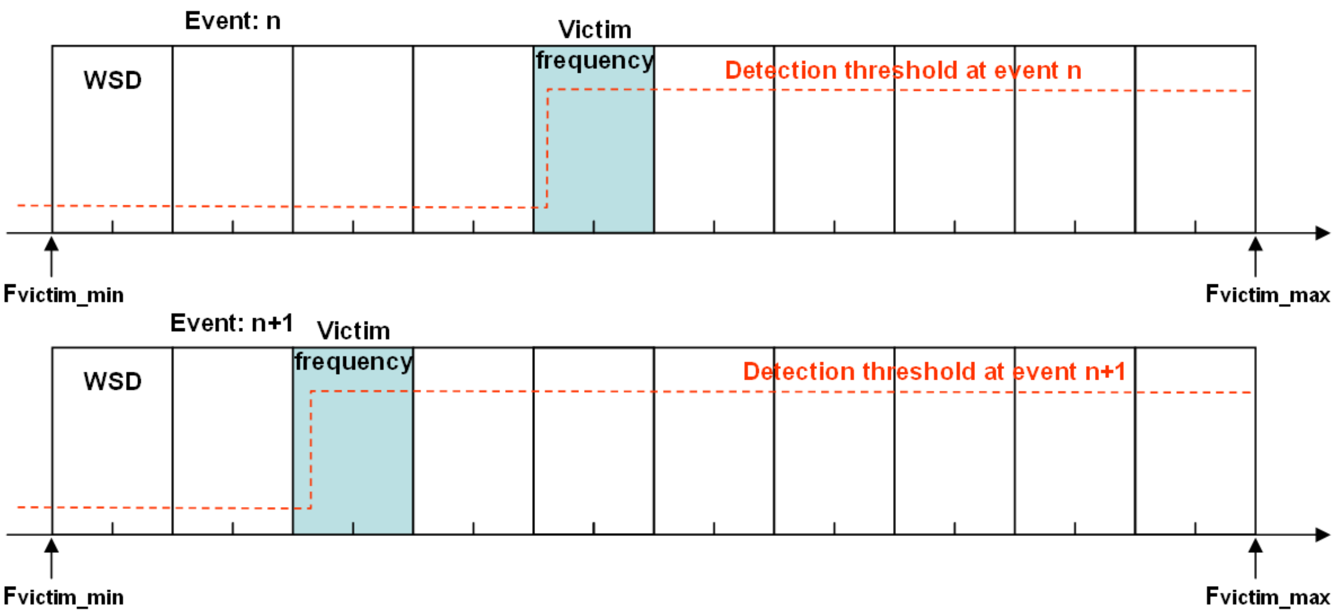
In relation to the spectrum sensing results, if this CR detect that a victim system is in the vicinity it will select an appropriate operating frequency and it will lower its emission based on an e.i.r.p. max in block limit defined in the spectrum sensing characteristics. Figure 233 presents an example of the detection threshold (a) as a constant or (b) as a function and illustrates in (c) where the offset refers to and its evolution from event to event.



(a)



(b)



(c)

Figure 233: Example of the detection threshold (a) as a constant or (b) as a function and illustrates in (c) where the offset refers to

10.4.3 Probability of failure

This feature is input selectable (by default, it is de-activated).The probability of failure may account for the failure in selecting wrongly a *non_available* channel for one event.

This means that when a failure appears, a channel which was initially selected as occupied by a victim DTT becomes “wrongly” available for the WSD to transmit. This results in a “conflict” situation.

For instance with a defined $p_{failure}$, that means that for x total of WSD (initial input to SEAMCAT) there is $x*p_{failure}$ WSDs which will transmit in the victim frequency without power constraint. $p_{failure}$ is an input parameter.

10.4.4 Adjacent channel scenario - e.i.r.p. max. in-block limit

In the case where the WSDs are not allowed to transmit in the same operating frequency as for the victim DTT device, the WSDs can decide to transmit in the adjacent bands or channels. This scenario is illustrated in Figure 234 In this example the WSDs have sensed that in the channel 6 there is a victim system (here a DTT), therefore the WSDs will choose other channels to transmit.

The maximum permitted in-block and out-of-block e.i.r.p. of autonomous CRs would be specified as a function of the guard band with respect to DTT channels used in the local proximity of the CR. The available guard band would be identified by comparison of the detected DTT signal powers against a fixed detection threshold.

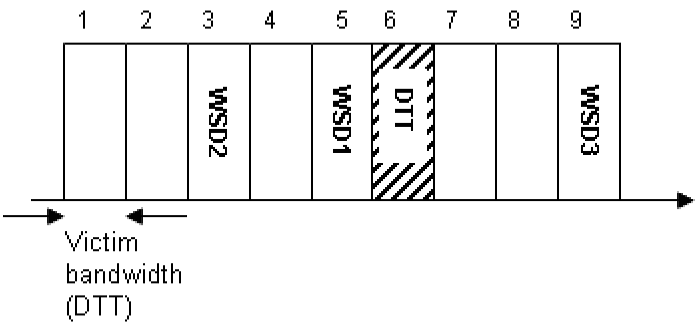


Figure 234: Illustration of WSD1 detecting a victim device in channel 6 and as a consequence decides to operate in channel 3 which is available

The purpose of the SEAMCAT simulation is to investigate the level of interference created by WSDs to the DTT victim device. Therefore the $iRSS_{unwanted}$ and $iRSS_{blocking}$ for a WSD will be computed.

As a reminder, the e.i.r.p. (Equivalent isotropically radiated power) is defined as:

$$e.i.r.p.max = PILT - Lc + GmaxIt \rightarrow VLR$$ (Eq. 66)

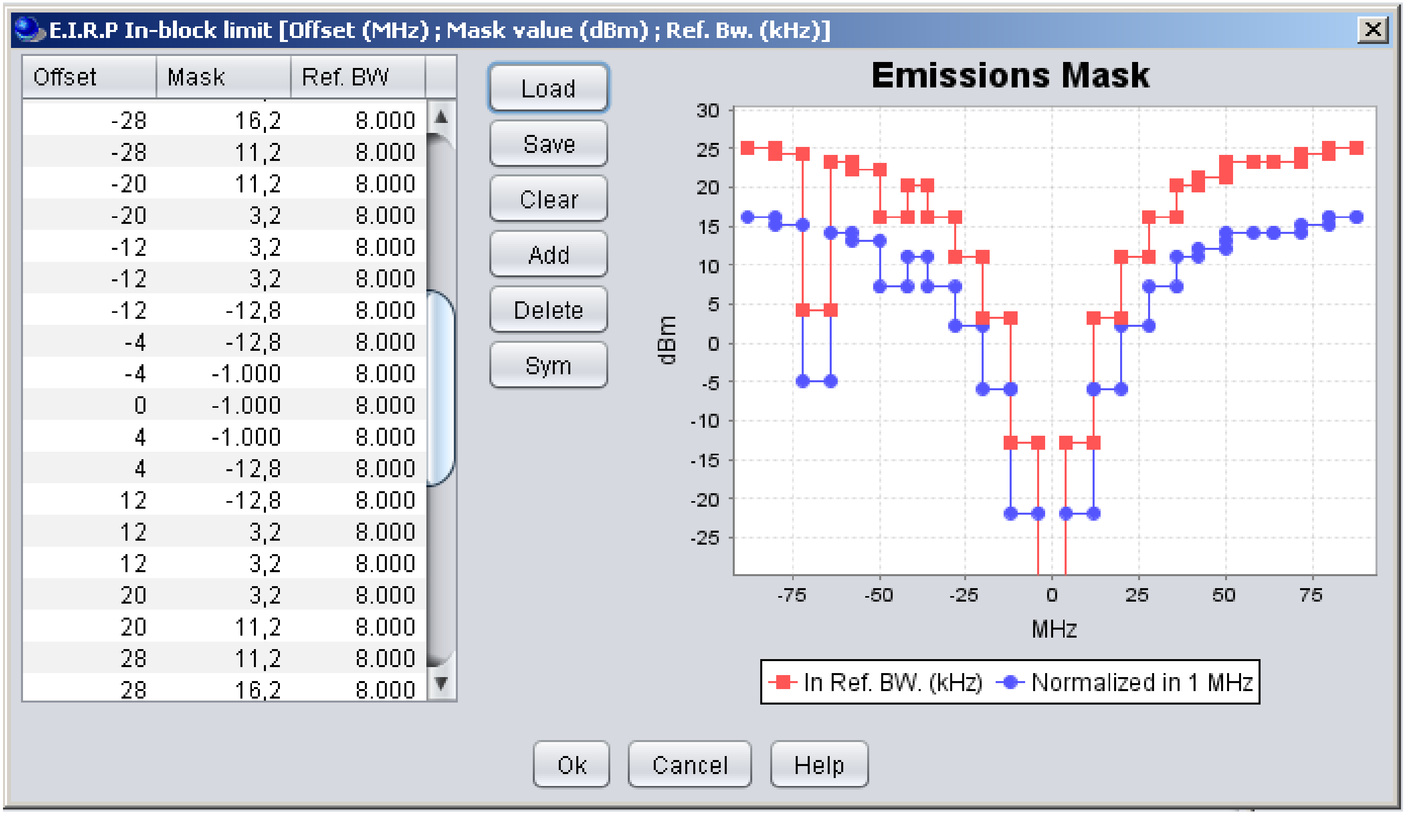
where L_c is the cable loss in dB. We will neglect L_c.

Extract the $Tx\ power = e.i.r.p._{max} - G_{maxIt \rightarrow VLR}$ and calculate the $iRSS_{unwanted}$ and the $iRSS_{blocking}$ from the WSD to the victim DTT device. As a result, the interference calculation can be performed on the summation of the $iRSS_{unwanted}$ per channel and $iRSS_{blocking}$ per channel in the case where there are multiple active WSDs per channel. The determination of the e.i.r.p. max in-block limit is illustrated in Annex A16.2.

An example of In-block input values (dBm), is presented in Table 49 and Figure 235 illustrates how to set this parameter in SEAMCAT.

Table 49: Example of In-block CR e.i.r.p. max. emission limits as a function of guard band with respect to a victim DTT with channel bandwidth of 8 MHz (source SE43(10)18)

DTT in use at	In-block CR e.i.r.p. $_{max}$ limit (dBm)
co-channel	-¥¥
n ± 1	-12.8
n ± 2	3.2
n ± 3	11.2
n ± 4	16.2
n ± 5	20.2
n - 6	16.2
n + 6	21.2
n ± 7	22.2
n ± 8	23.2
n - 9	4.2
n + 9	23.2
n ± 10	24.2
> *n* ± 11	25.2



Offset	Mask	Ref. BW
-28	16,2	8.000
-28	11,2	8.000
-20	11,2	8.000
-20	3,2	8.000
-12	3,2	8.000
-12	3,2	8.000
-12	-12,8	8.000
-4	-12,8	8.000
-4	-1.000	8.000
0	-1.000	8.000
4	-1.000	8.000
4	-12,8	8.000
12	-12,8	8.000
12	3,2	8.000
12	3,2	8.000
20	3,2	8.000
20	11,2	8.000
28	11,2	8.000
28	16,2	8.000

Figure 235: GUI of the In-block CR e.i.r.p. max limit (dBm)

10.4.5 Propagation Model

You can choose the suitable propagation model to be applied when calculating signal loss along the transmitter and the receiver path. A choice and settings of propagation models are presented in ANNEX 17:.