

13.4 Library elements

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13.4.1 System elements

To create or modify a library element containing parameters of a particular system, i.e. generic, cellular network like CDMA or OFDMA, select the system library elements command from the **Library pull-down menu** or directly **CTRL+SHIFT+S**.

A list of existing pre-defined systems will be selectable as shown in Figure 282 for a generic system and Figure 283 for cellular systems (e.g. CDMA UL network).

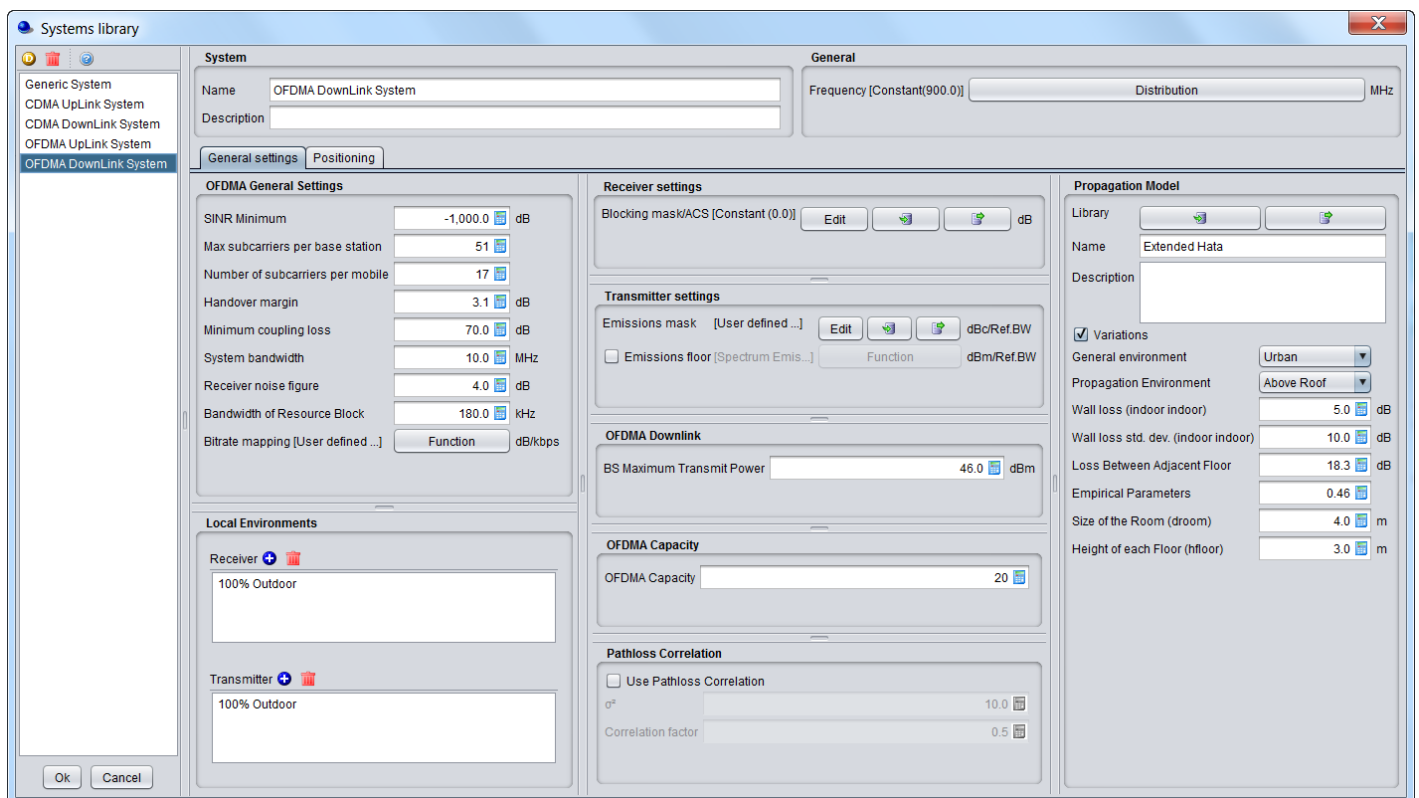


Figure 282: Example of generic System elements

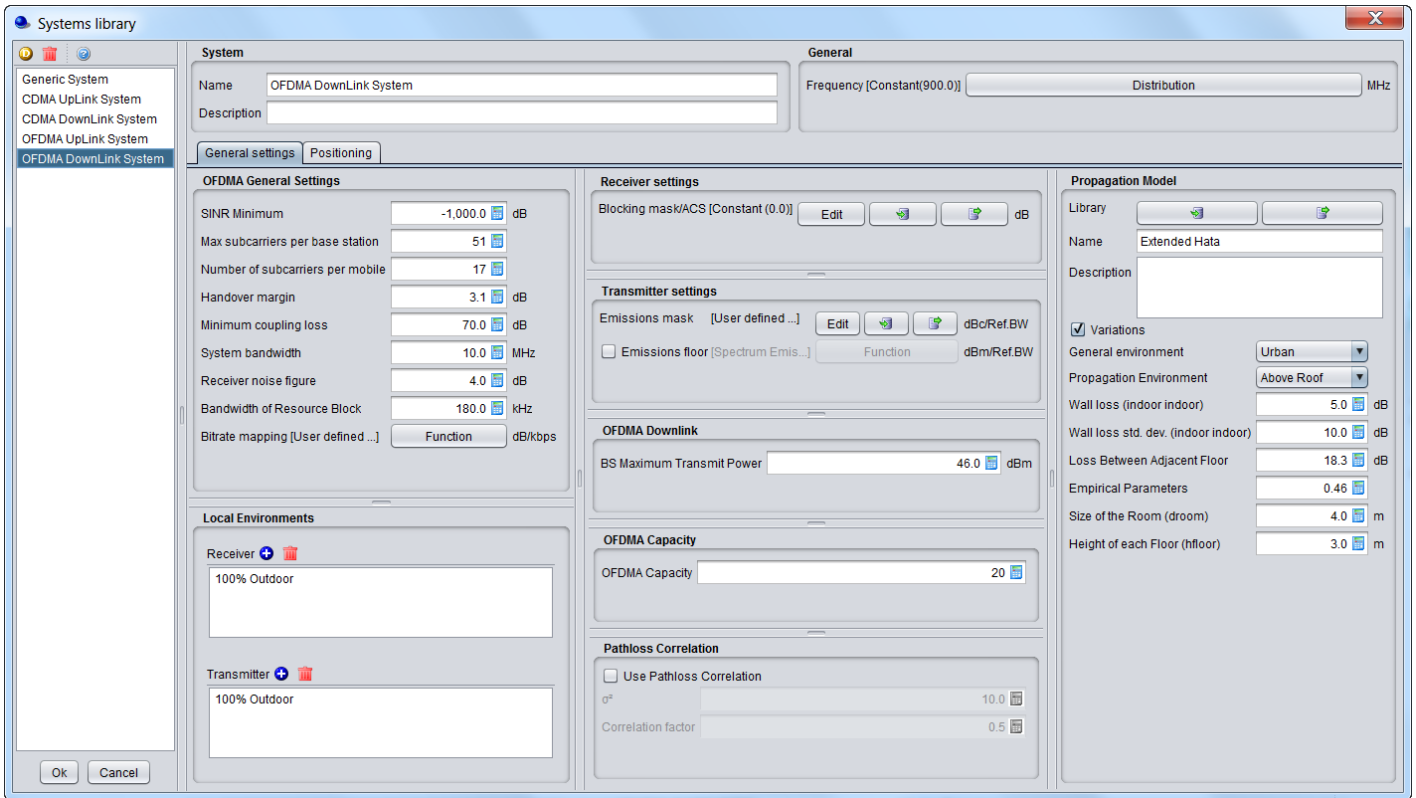


Figure 283: Example of CDMA UL System elements

When adding a new system, enter the name (unique identifier) and a description.

Note: It is also possible to create a system from the workspace and export it to a local library.

13.4.2 Spectrum emission mask elements

To create or modify a library element containing parameters of a particular spectrum mask, select the **Spectrum emission masks** command from the **Library pull-down menu** or directly with **CTRL+SHIFT+S**.

A list of existing pre-defined spectrum emission mask will be selectable as shown in the figure below. This is an example of a LTE UE (Table 6.6.3.1-2 of 3GPP TS 36.101) where the limit for the spurious emission domain (outside ± 12.5 MHz) applies to frequencies above 1000 MHz:

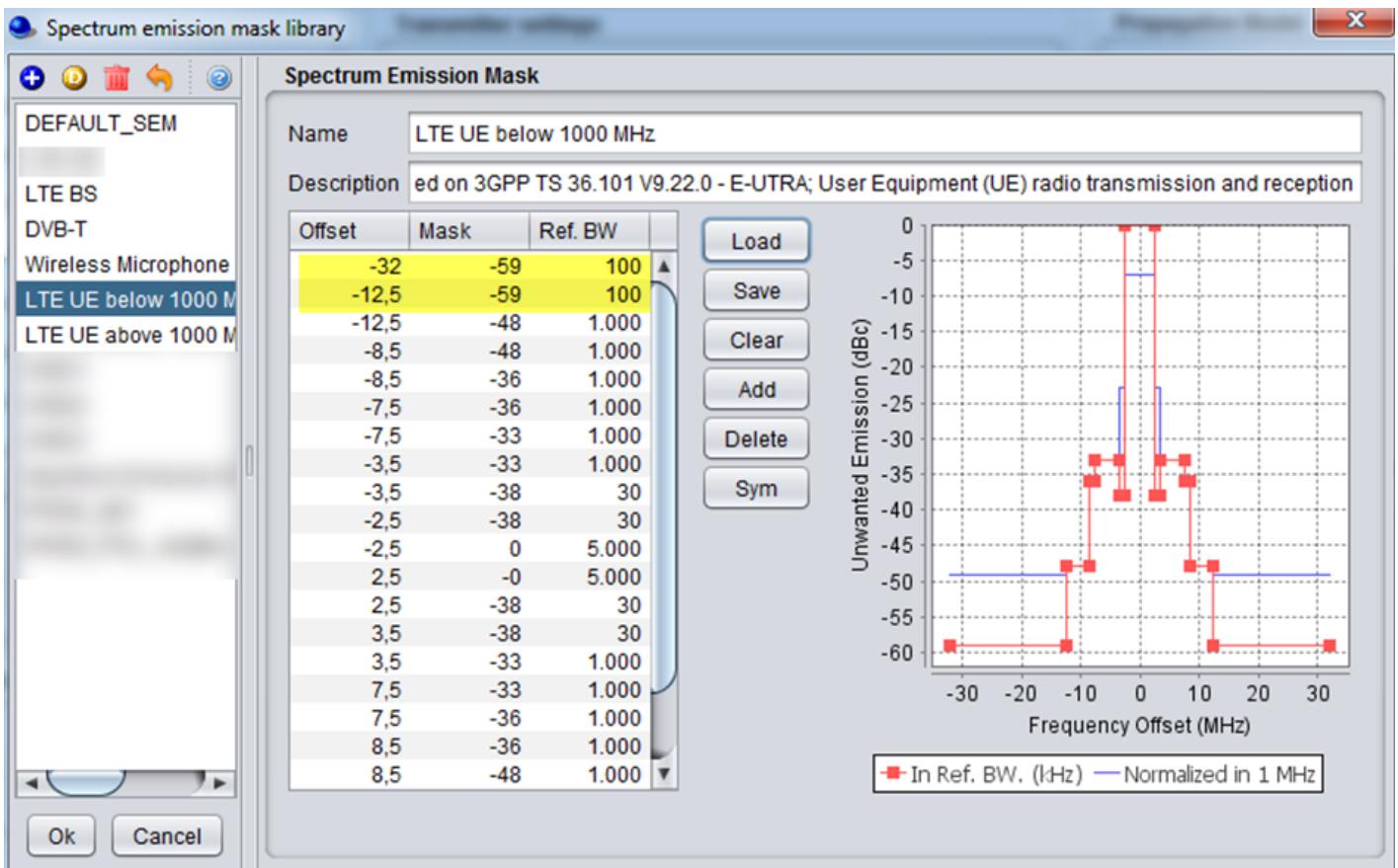


Figure 284: Spectrum emission mask library elements

When adding a new spectrum emission mask, enter the name (unique identifier) and description of its technical parameters.

Note 1: It is possible to quickly scroll up and down and see the differences in the masks.

Note 2: It is possible to create a mask from the workspace and export it to your library environment

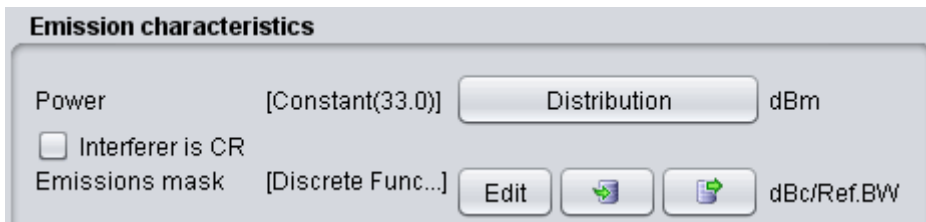


Figure 285: Example on how to import/export to/from the workspace/library for the spectrum emission mask

13.4.3 Receiver blocking mask elements

To create or modify a library element containing parameters of a particular blocking mask, select the **Receiver blocking masks** command from the **Library pull-down menu** or directly with **CTRL+SHIFT+B**.

A list of existing pre-defined receiver blocking mask will be selectable as shown in the figure below:

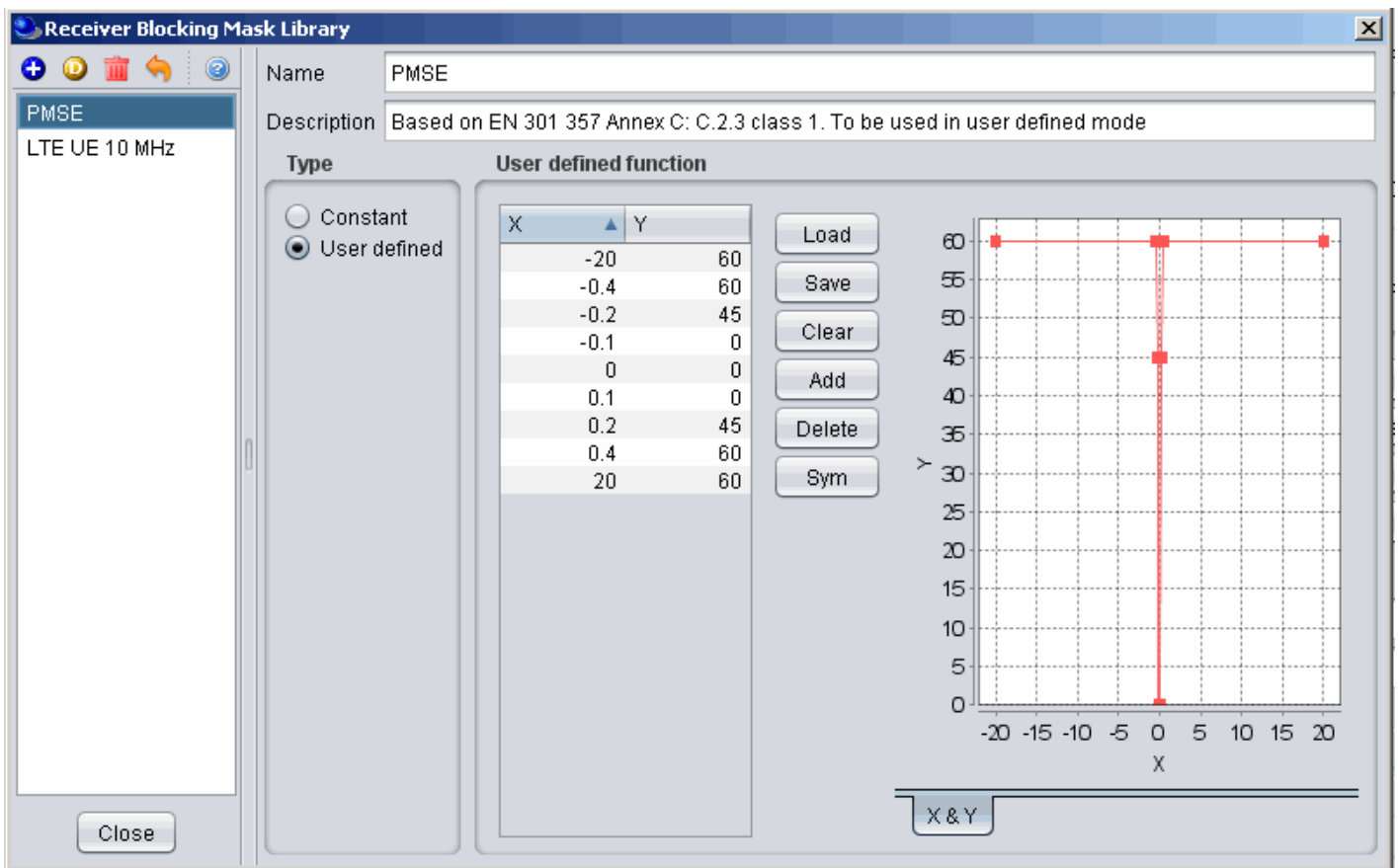


Figure 286: Receiver blocking mask library elements

When adding a new receiver blocking mask, you need to enter the name (unique identifier) and description of its technical parameters .

Note 1: It is possible to quickly scroll up and down and see the differences in the blocking masks.

Note 2: It is possible to create a blocking mask from the workspace and export it to your library environment.



Figure 287: Example on how to import/export to/from the workspace/library for the receiver blocking mask

13.4.4 Receiver elements

To create or modify a library receiver element, select the **Receivers** command from the **Library pull-down menu** or directly with **CTRL+SHIFT+R**.

This activates the Receiver Library window which displays a list of existing receiver elements in the library. Please note that it is the same interface as in the workspace, so that it is easy to fill. If no receiver has been previously created, the list will contain only the DEFAULT receiver elements:

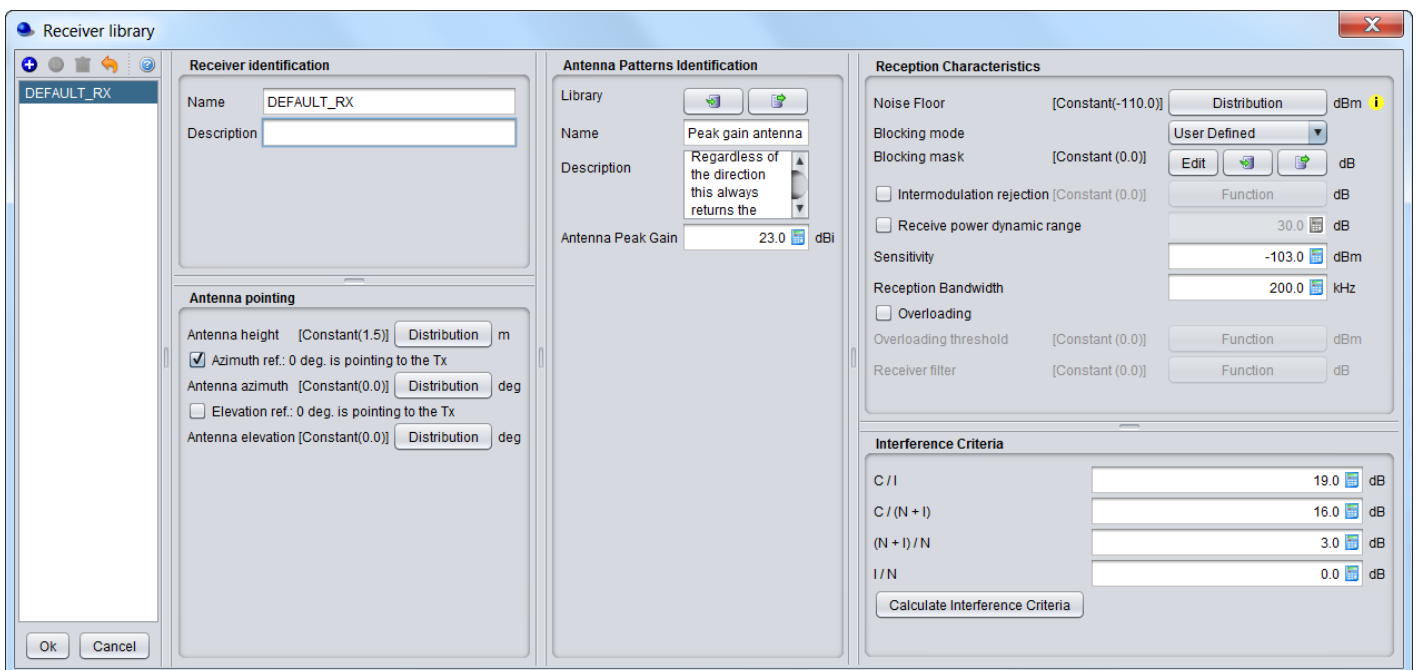


Figure 288: Receiver library elements

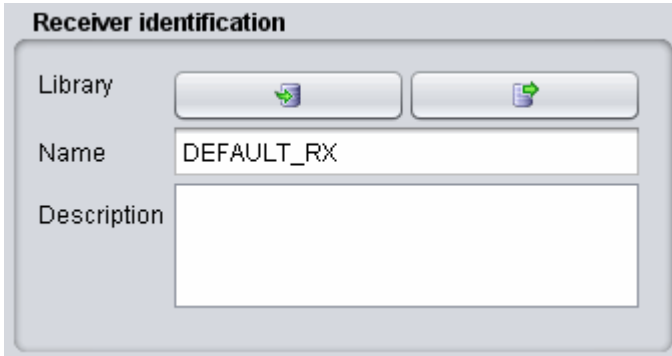
The parameters of receiver are grouped in 5 different panels:

- **Receiver identification:** to define receiver name (unique identifier), description;
- **Antenna pointing:** It contains all information relative to the antenna other than the radiation pattern (Please read here more about antenna azimuth/elevation settings);
- **Antenna patterns identification:** to define a specific antenna to be associated with that particular receiver. Note that is possible to select one of the existing antenna library elements or define completely new antenna parameters to be associated only with the given receiver;
- **Reception characteristics:** to define the basic receiver features, such as bandwidth, sensitivity, blocking (selectivity) function, etc.;

- **Interference criterion:** to define the required minimum C/I and/or other interference criterion, as appropriate.

Note 1: It is possible to scroll up and down and see the differences in the receivers.

Note 2: It is possible to create a receiver from the workspace and export it to your library environment



The image shows a dialog box titled "Receiver identification". It contains three main sections: "Library", "Name", and "Description". The "Library" section has two buttons with icons for import and export. The "Name" section has a text input field containing "DEFAULT_RX". The "Description" section has a large empty text area.



Library		
Name	DEFAULT_RX	
Description		

Figure 289: Example on how to import/export to/from the workspace/library for the receiver elements

13.4.5 Transmitter elements

To create or modify a library transmitter element, select the **Transmitters** command from the **Library pull-down menu** or directly with **CTRL+SHIFT+T**.

This activates the Transmitter Library window which displays a list of existing transmitter elements in the library. Please note that it is the same interface as in the workspace so that it is easy to fill. If you no transmitter has been previously created the list will contain only the DEFAULT transmitter elements:

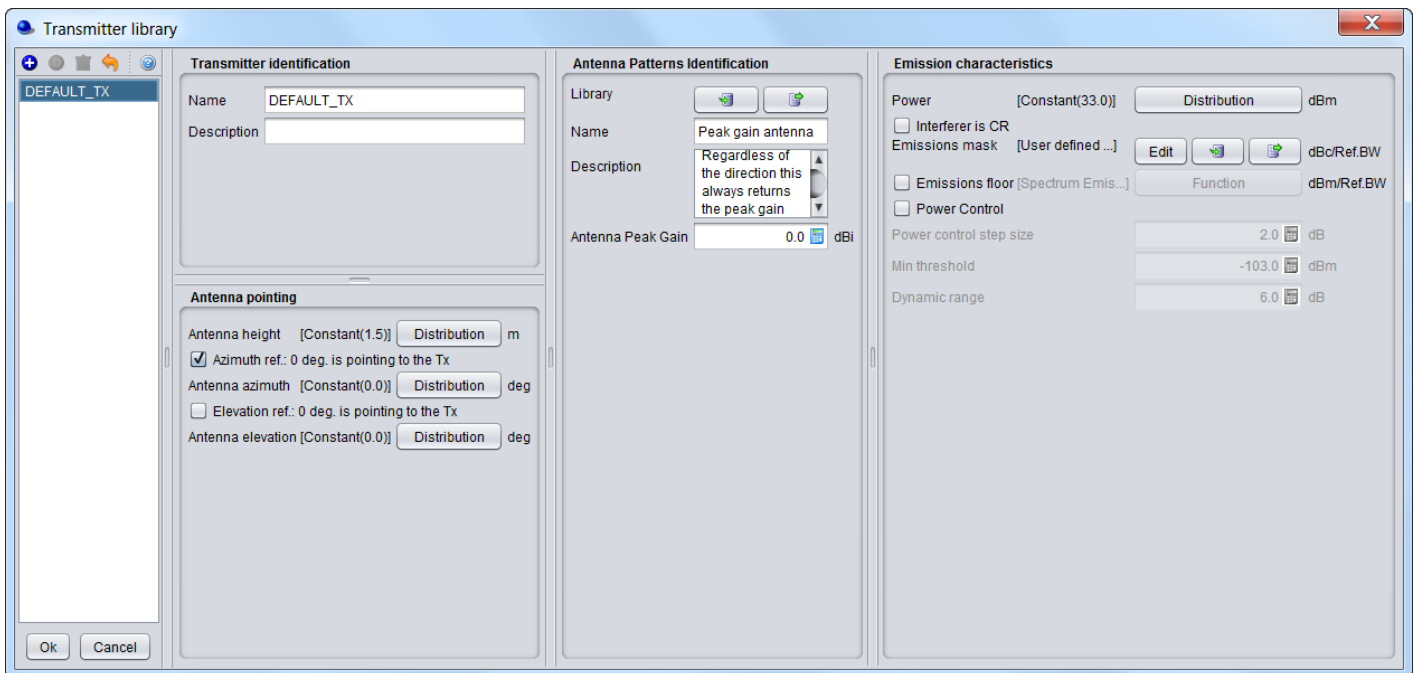


Figure 290: Transmitter library elements

The parameters of transmitter are grouped in 4 different panels:

- **Transmitter identification:** to define name (unique identifier), description;
- **Antenna pointing:** It contains all information relative to the antenna other than the radiation pattern;
- **Antenna patterns identification:** to define a specific antenna to be associated with that particular receiver. Note that you can select one of the existing antenna library elements or define completely new antenna parameters to be associated only with the given receiver;
- **Emission characteristics:** to define the basic transmission features, such as power, spectrum emission mask function, etc..

Note 1: It is possible to quickly scroll up and down and see the differences in the transmitters.

Note 2: It is possible to create a transmitter from the workspace and export it to your library environment

Transmitter identification

Library

Name

Description

Figure 291: Example on how to import/export

to/from the workspace/library for the transmitter elements

13.4.6 CDMA Link level data

To create or modify CDMA Link level data set, select the **CDMA Link level data** command from the **Library pull-down menu** or directly **CTRL+SHIFT+L**. This activates the CDMA Link level data window which displays a list of existing CDMA Link level data:

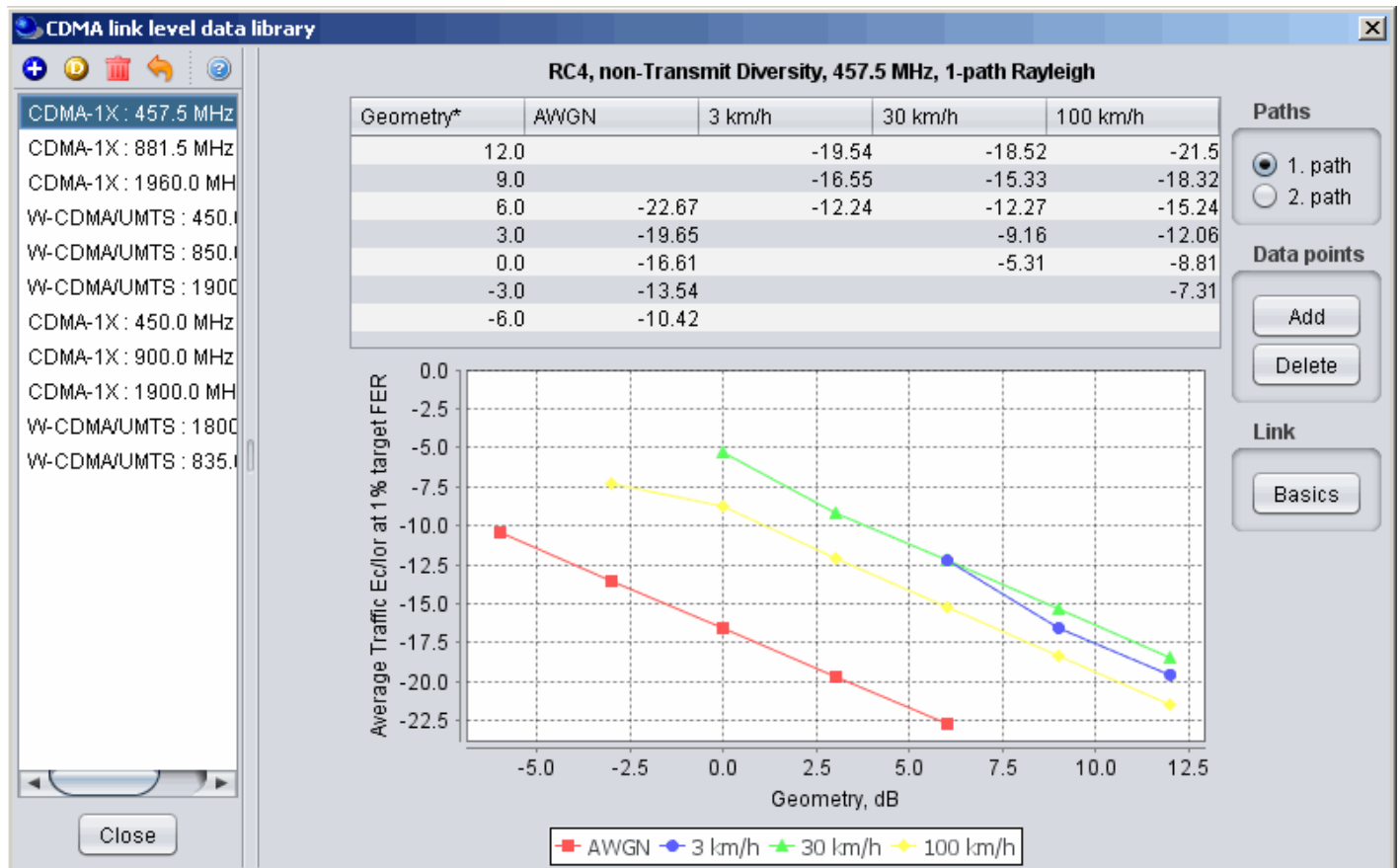


Figure 292: CDMA Link level data library elements

Regarding the library sets of CDMA Link level data, the default sets distributed within SEAMCAT library are understood to be sufficient to cover typical CDMA systems expected to be deployed in Europe and their respective frequency bands. Any additional link level data may be defined to cover other types of CDMA systems. However, it is recommended that only users with advanced knowledge of CDMA systems develop the new CDMA Link level data for SEAMCAT simulations as several considerations should be kept in mind before creating new Link level data:

- The SEAMCAT CDMA Link level data have different formats for uplink and downlink sections of CDMA link. In particular, the Link level data for **uplink** provides **E_b / N₀ requirements**, whereas **downlink** data define the **E_c / I_{or} requirements**;

- Check carefully that the newly created CDMA link level data is appropriate for the SEAMCAT's CDMA simulation methodology for the respective section of the link (uplink/downlink).

From the workspace, select the relevant library item as shown below:

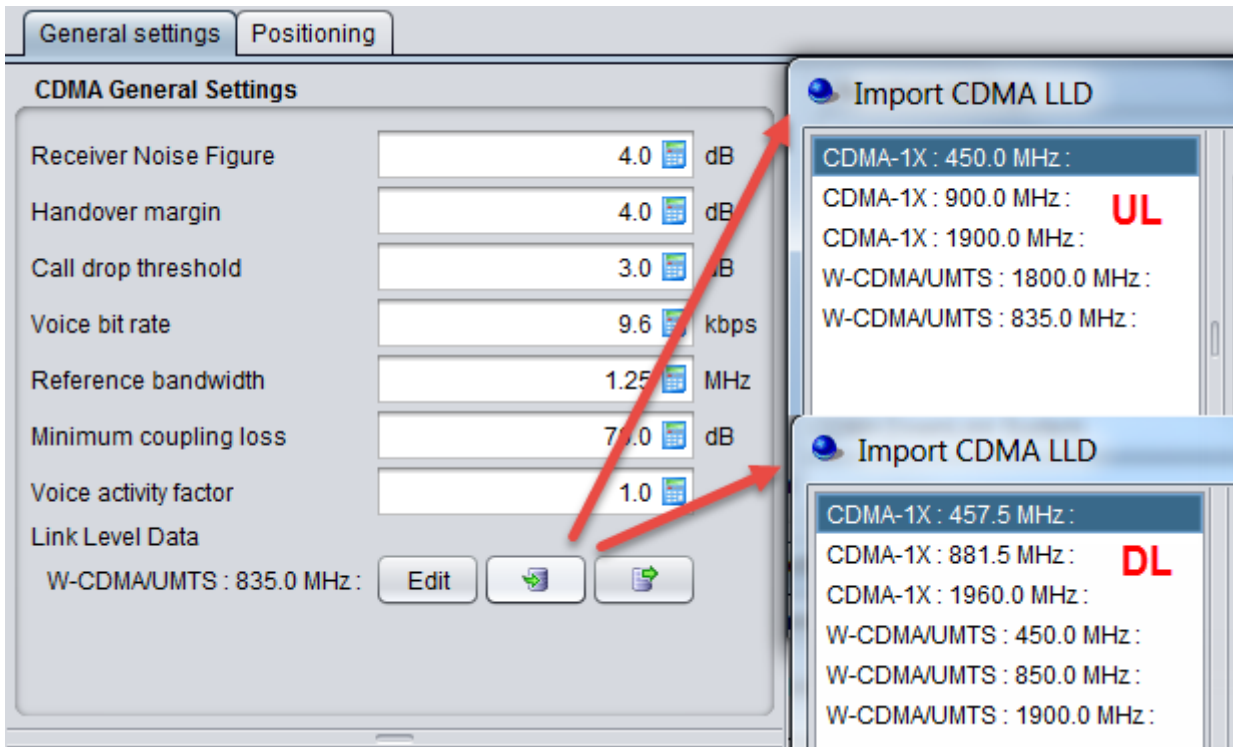


Figure 293: Example on how to import/export to/from the workspace/library for the CDMA Link Level data library elements

When adding or editing a data set, a table with data points is displayed and new data points entered will appear on the graph (for Downlink sets). For Downlink sets, every data point must as a minimum contain a geometry value, otherwise it is invalid and it will not be possible to leave the editing dialog.

Basic information about the link-level data set can be viewed and amended in by clicking **Basics** button in the sidebar of the edit window. This will display a new dialog.

Note: When **Ok** is clicked in the basics dialog any information changed in this dialog will be saved immediately even if **Cancel** is subsequently pressed in the overlying data point window.

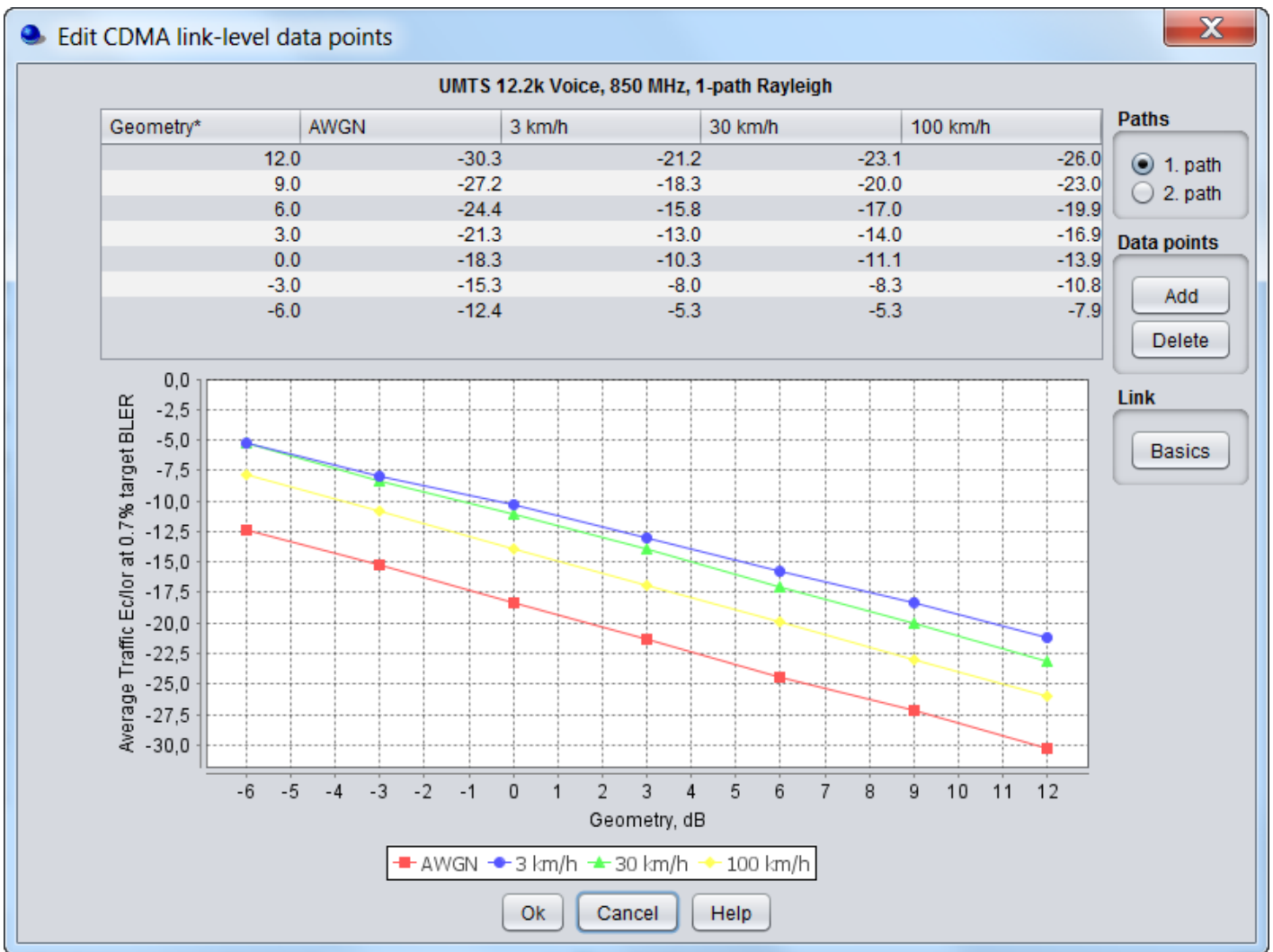


Figure 294: Example on how to edit a CDMA Link Level data element