

# USER'S GUIDE

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## 1. BROWSING

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This section describes the instances that allow exploring the existing data.

Note: This is a copy clipboard icon . It can be found on most of the views. Clicking on it will result in copying the predefined data within the clipboard. Place the mouse cursor on it for more info.

### 1.1. THE NAVIGATION BAR



Figure 1 Navigation bar

The navigation bar has 8 links: *home*, *blocks*, *insights*, *definition of classes*, *attributes*, *add*, *foundries* and *the user's guide* leading to their respective views. The navigation bar has a toggler triggered by smaller screen sizes.

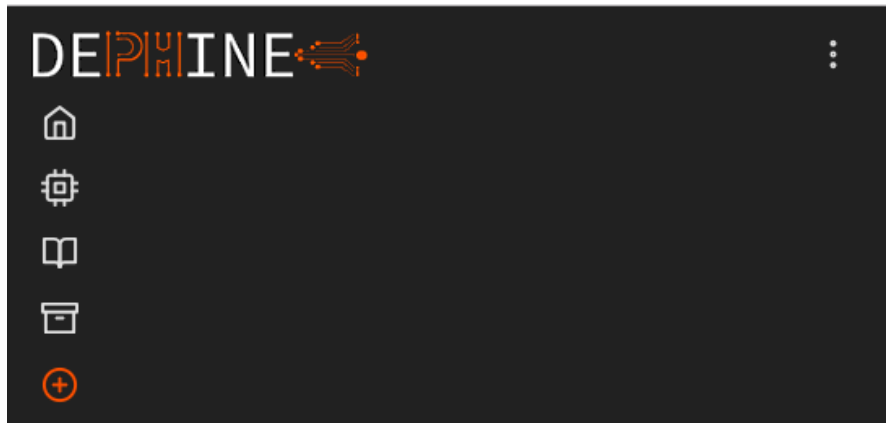


Figure 2 Navigation bar toggler (top right)

## 1.2. HOMEPAGE

The homepage provides clickable snippets describing the content of the different views.

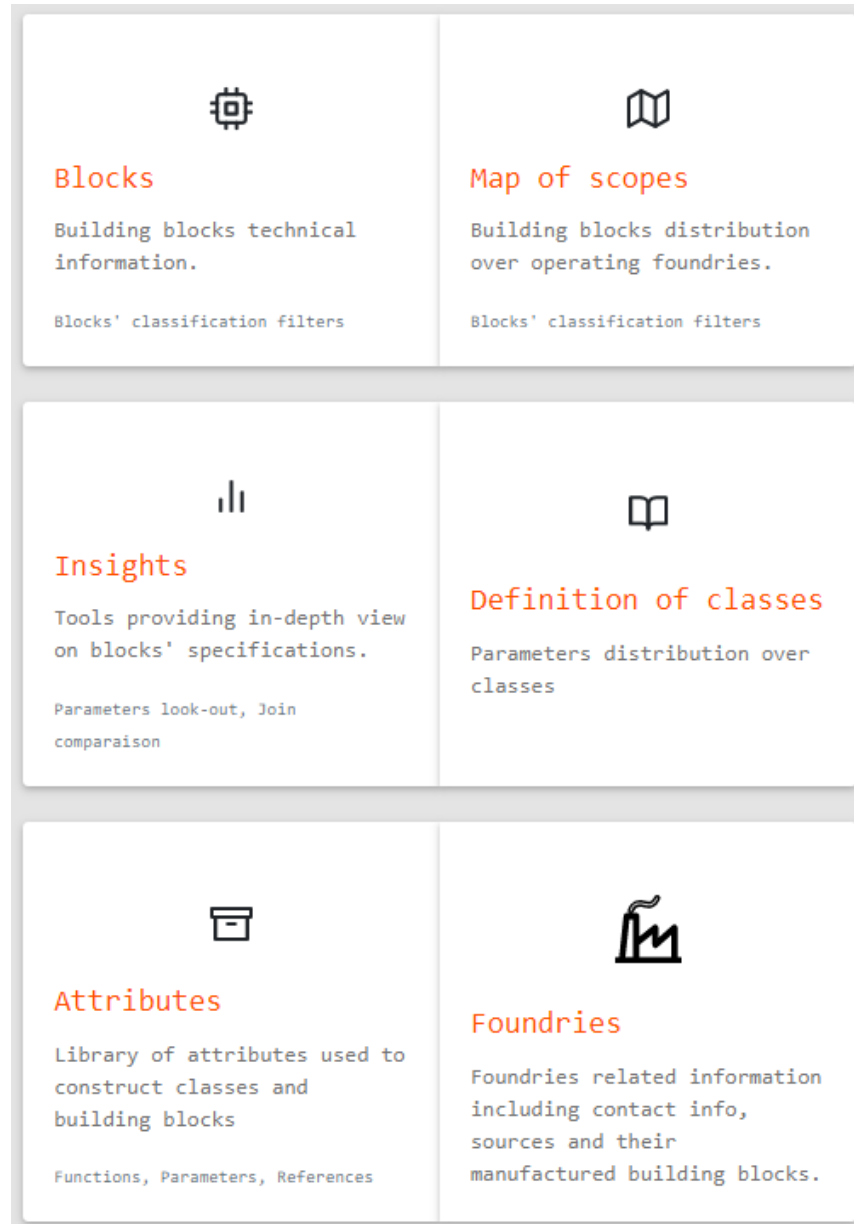


Figure 3 Homepage

## 1.3. THE VIEWS

There are six different views accessible from the homepage:

1. Blocks: A preview of building blocks classification.
2. Map of scopes: A preview of building blocks distribution over their classification.
3. Insights: Tools to explore specifications of building blocks.

4. Definition of classes: A preview of the elements defining building blocks classifications
5. Attributes: A preview of the elements used to define classifications and therefore to define building blocks.
6. Foundries: A preview of operating foundries' related information.

### 1.3.1. BLOCKS

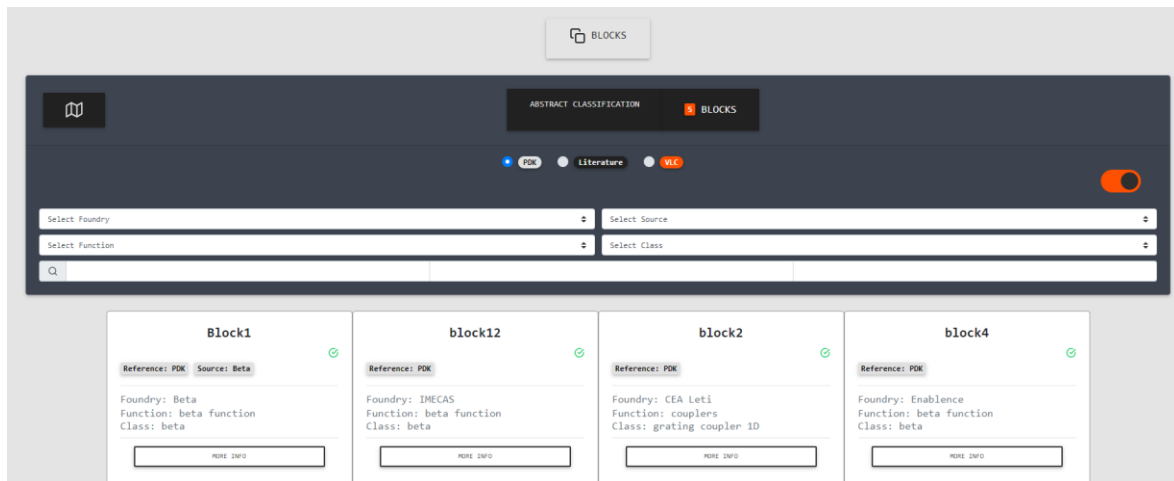


Figure 4 Blocks view

Blocks' collection documents are returned on panels, every panel has blocks' attributes and a "more info" button leading to the single **block view**.

### Block

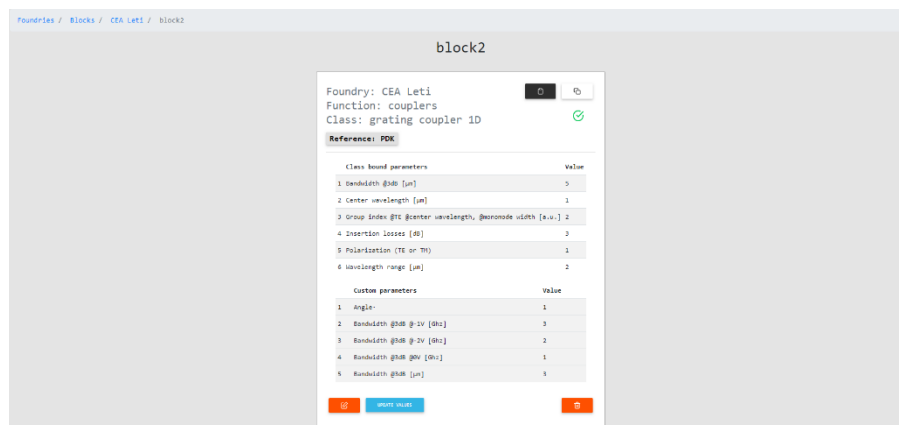


Figure 5 Block view

Loaded upon clicking on a "more info" button from the blocks view (Also by clicking a block name in the **foundry view**, **scopes view's exhaustive table** and **insights view**). It returns block attributes including specifications, an Edit button (bottom left), an "update values" button, a delete button (bottom right) and a button displaying notes (clipboard icon).



Figure 6 Blocks status icons: up-to-date(green), obsolete, to-be-updated(red)

### 1.3.2. MAP OF SCOPES

This view returns the same content as the Blocks view but in a different presentation format. It is accessible from the map button on the blocks filtering panel, and from the homepage.

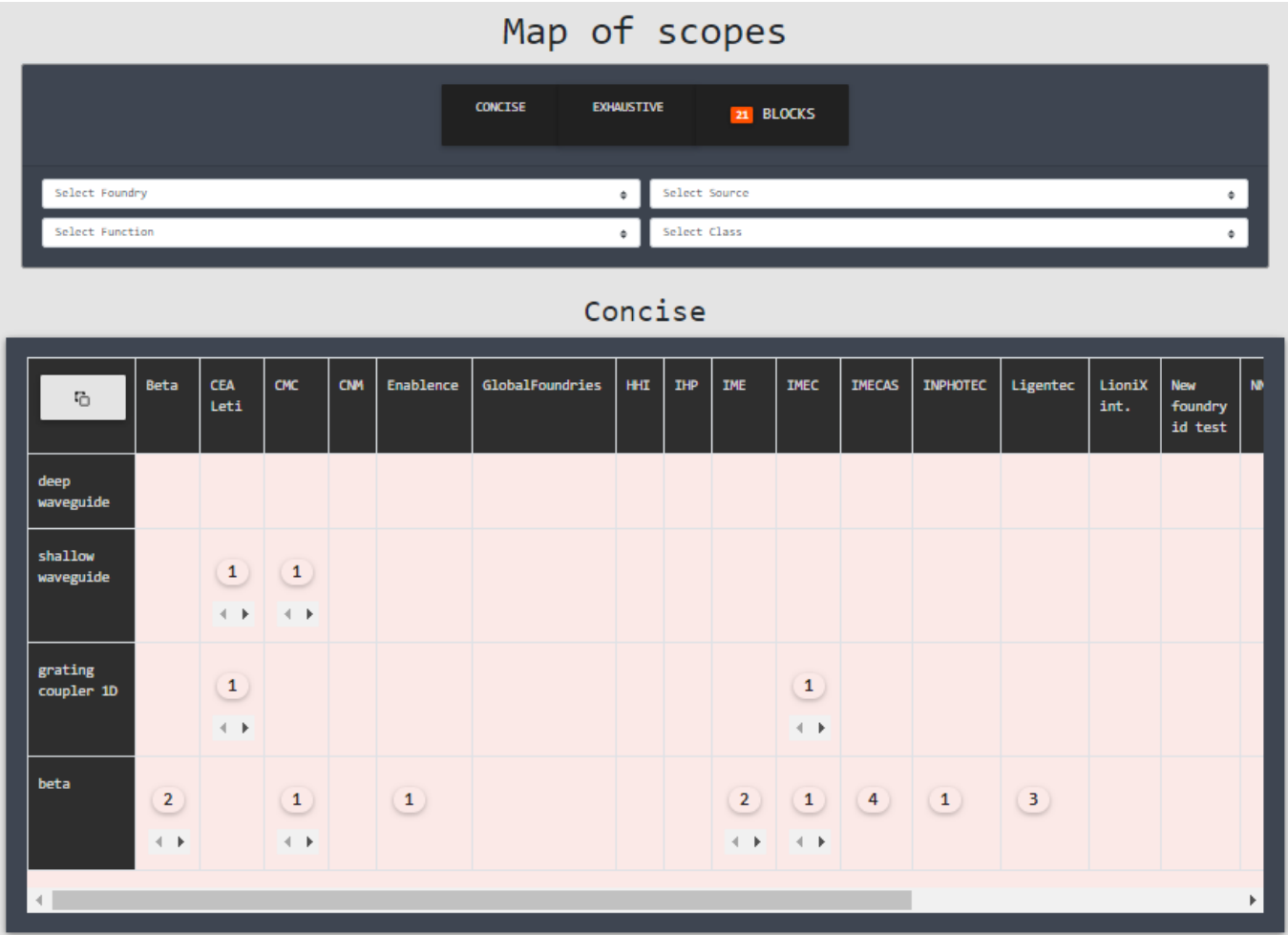


Figure 7 Map of scopes view: concise table shown as default

The Map of scopes returns a table where coordinates are blocks that match the row of foundries and the column of classes. Two layouts of tables are available, displayable through the buttons (concise) and (exhaustive) in the filtering panel:

#### 1.3.2.1. Concise

The coordinates are the quantity of blocks belonging to a specific class manufactured by a specific foundry.

#### 1.3.2.2. Exhaustive

An extension of the first table where coordinates provide the blocks that match the coordinates of the Concise table. This table has additional filters: references and status.

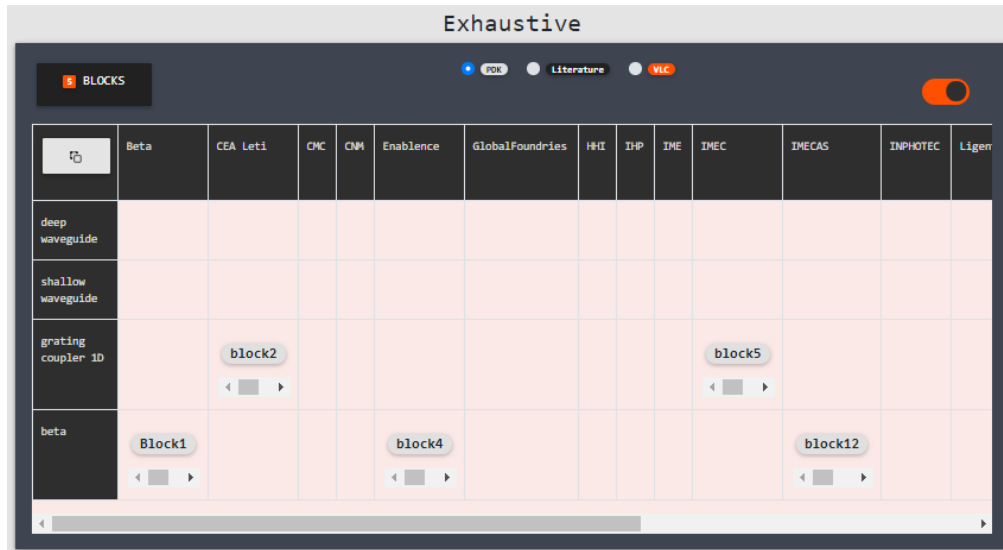


Figure 8 Exhaustive map

### 1.3.3. INSIGHTS

This view provides tools for an in-depth exploration of the blocks' specifications. It has two modes: Parameters look-out and Join Comparison.

#### 1.3.3.1. Parameters look-out



Figure 9 Insights view: parameters look-out

In this mode, you can use the search field to find a specific parameter in the select menu. By selecting a parameter, two tables are generated below, to be shown by clicking on (Class bound parameters' values) and (Custom parameters' values). You can preview the classes having the selected parameter as an attribute (only the first table), and then values of the selected parameter within different blocks belonging to the returned classes.

### 1.3.3.2. Join comparison

## Join

# Insights

PARAMETERS LOOK-OUT
JOIN COMPARAISON

Join comparaison

couplers

grating coupler 1D

Select Foundry

Select Source

JOIN

JOIN-COMPARAISON

JOIN

grating coupler 1D	BLOCK1	BLOCK2
(1) Bandwidth @3dB [ $\mu\text{m}$ ]	(1) 1	(1) 5
(2) Center wavelength [ $\mu\text{m}$ ]	(2) 5	(2) 1
(3) Group index @TE @center wavelength, @monomode width [a.u.]	(3) 3	(3) 2
(4) Insertion losses [dB]	(4) 8	(4) 3
(5) Polarization (TE or TM)	(5) 2	(5) 1
(6) Wavelength range [ $\mu\text{m}$ ]	(6) 1	(6) 2

Figure 10 Insights view: Join

The Join option will display a table combining multiple blocks with common class (horizontally), showing values of parameters belonging to the common class.



## Join-compare

# Insights

PARAMETERS

LOOK-OUT

JOIN COMPARAISON

Join comparaison

couplers

grating coupler 1D

Select Foundry

Select Source

JOIN

JOIN-COMPARAISON

JOIN-COMPARAISON

grating coupler 1D

Min | Max

(1)  Bandwidth @3dB [ $\mu\text{m}$ ]  
1 5

(2)  Center wavelength [ $\mu\text{m}$ ]  
2 6

(3)  Group index @TE @center wavelength, @monomode width [a.u.]  
3 7

(4)  Insertion losses [dB]  
0.5 11

(5)  Polarization (TE or TM)  
0 18

(6)  Wavelength range [ $\mu\text{m}$ ]  
0 1.2

BLOCK1

(1) 1 ✓  
(2) 5 ✓  
(3) 3 ✓  
(4) 8 ✓  
(5) 2 ✓  
(6) 1 ✓

BLOCK2

(1) 5 ✓  
(2) ✗  
(3) ✗  
(4) 3 ✓  
(5) 1 ✓  
(6) ✗

Figure 11 Insights view: Join-comparison

Join in which you can specify a range of values, values of parameters within the displayed blocks which are not in the ranged are replaced with a red cross, neighbored by a green tick otherwise. (Empty and verbal values are equivalent to 0 and [min, max] = [0,0] is the default value of the range)

### 1.3.4. DEFINITION OF CLASSES

Returns definitions (classes) attributes and a "more info" button leading to the single definition view. This view has a form with 3 search fields within all the attributes and a filtering classes by function form.

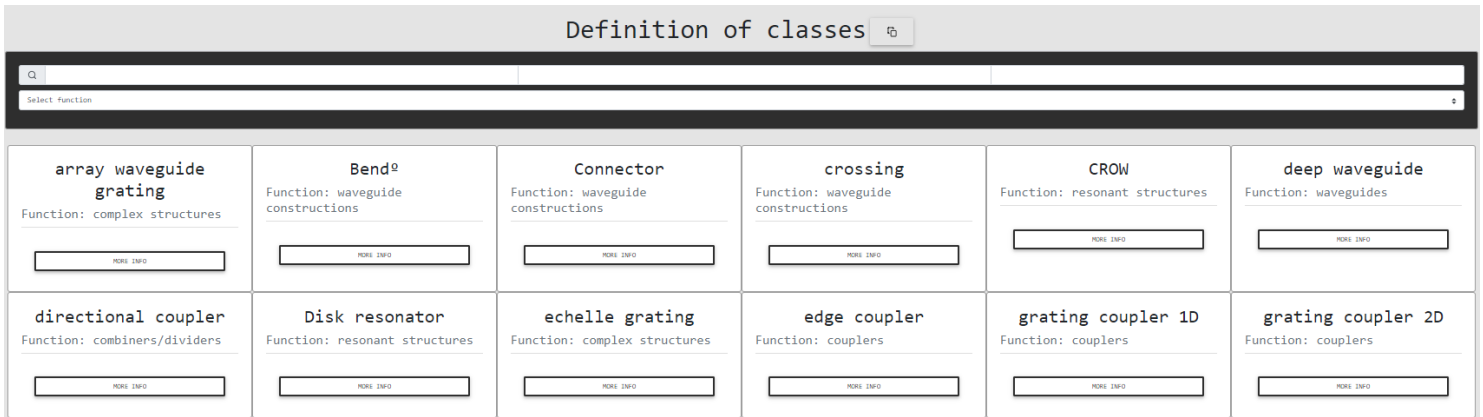


Figure 12 Definition of classes view

## Definition of a class

This view returns the accessed class document, displaying its attributes. This view has a clipboard copy button, an Edit button (left bottom) leading to **edit definition** view, and a delete button.

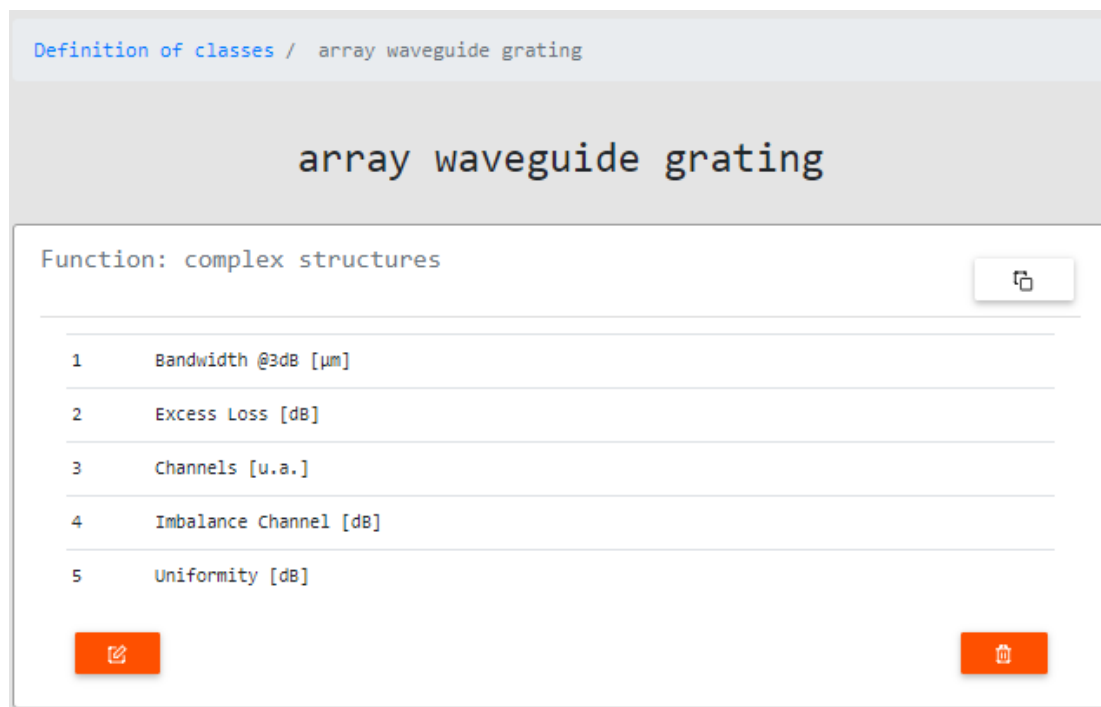


Figure 13 Definition of a class view

### 1.3.5. ATTRIBUTES

This view returns attributes documents. Attributes are divided into 3 types: functions, parameters and sources. These are displayed by clicking on the buttons under the search form (the numbers in the buttons are the counts of the returned attributes).

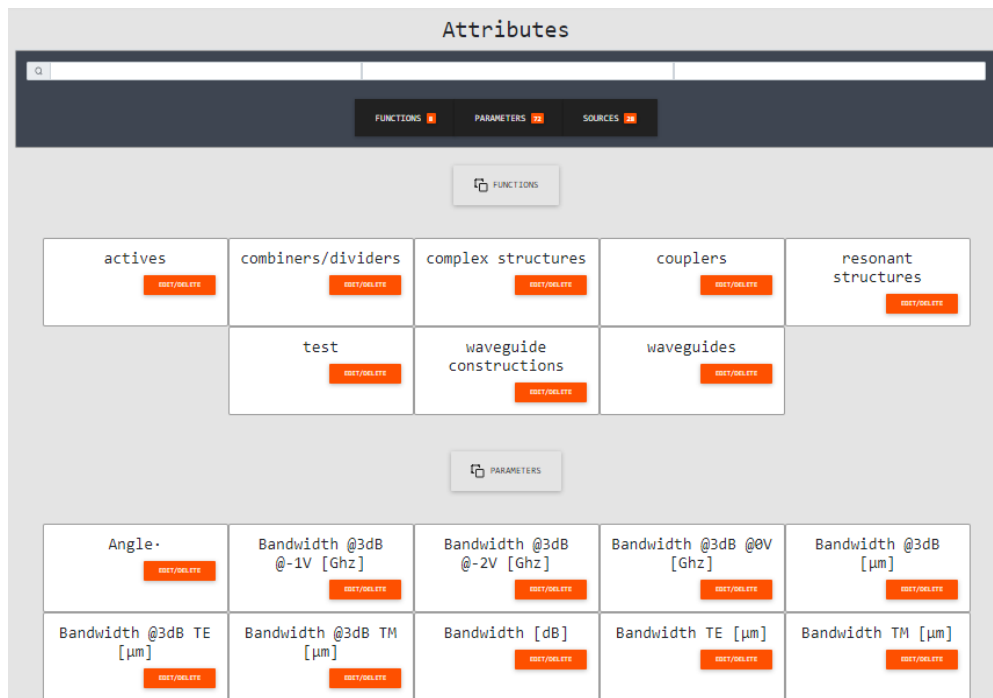


Figure 14 Attributes view: function and parameters shown

## Attribute

Returns attribute single document with its edit and delete buttons. Sources, particularly, have an (assign) button allowing to bind the source with a specific foundry.

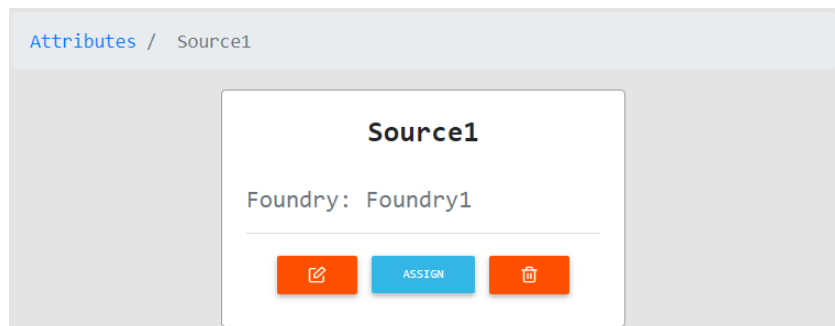


Figure 15 Attribute of source type view



Figure 16 Assign (a foundry) to a source form

### 1.3.6.      **FOUNDRIES**

This view returns foundries documents, displaying their attributes and a “more info” button leading to the single **foundry** view. The search form has 3 fields searching within all the attributes of the document.

#### **Foundry**

This view returns the accessed foundry's attributes along with blocks for which this foundry is an attribute filterable by class. This view has an Edit button (left bottom) leading to **edit foundry** view, a delete button and button displaying notes clipboard icon.



Figure 17 Foundry view

### 1.3.7.      **FILTERING PANEL**

Filtering panels contain forms (select menus, search fields ...) used to filter out the returned data out of their values. They vary according to views.

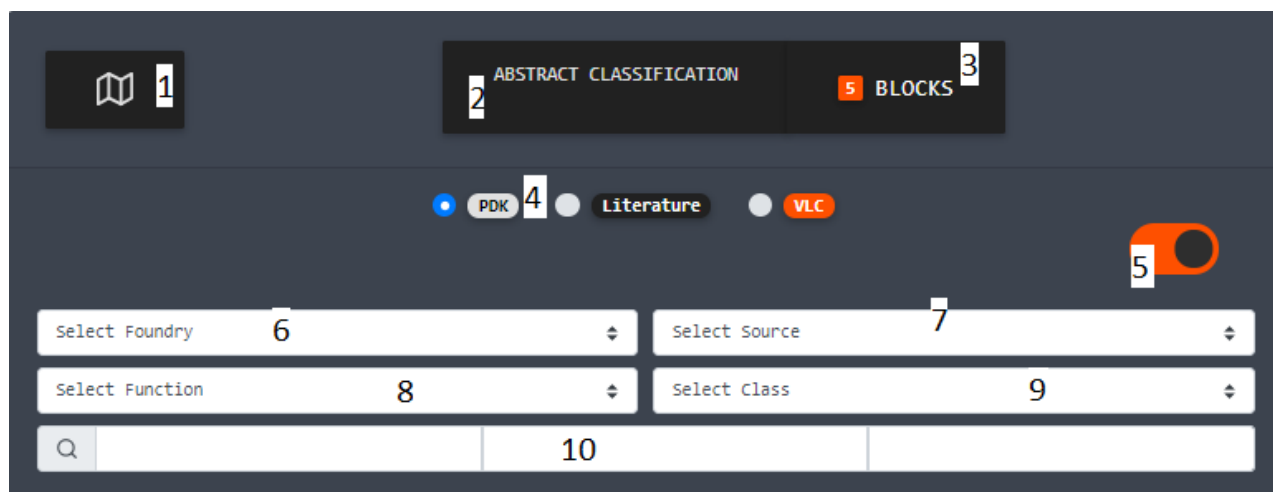


Figure 18 Blocks filtering panel

The filtering panel (may) consists of:

1. A link to the map view. (Only on blocks view)
  2. A button to abstract the classification attributes. (foundry/function/class/reference/source) of blocks. (Only on blocks view)
  3. A count of the returned blocks.
  4. A filter for block references.
  5. A switch button filtering by blocks' status. When it is on (default/dark orange) only up-to-date blocks are shown, otherwise all the blocks are shown.
  6. A filter by foundry (filtering the sources filter on the right when available).
  7. A filter by source.
  8. A filter by function (filtering the classes filter on the right when available).
  9. A filter by class.
15. A search form with 3 fields.
- Search forms have 3 fields that can be used together by combining sparse expressions (For example: An element named "abc" can be found by typing "a" in the first field and "c" in the second or third fields but not by typing "ac" in the same field).

Note: In the insights view 'Parameter's look-out' and 'Join comparison' filters' (function, class, foundry and source) are bound.

## 2. CREATING NEW ELEMENTS

The Add panel is accessible through the add button (+ icon) on the navigation bar. There are 3 options. The first one is to add a new attribute (including a foundry), the second is to define a new class out of existing functions and parameters, and the last one is to engender a block out of an existing class.

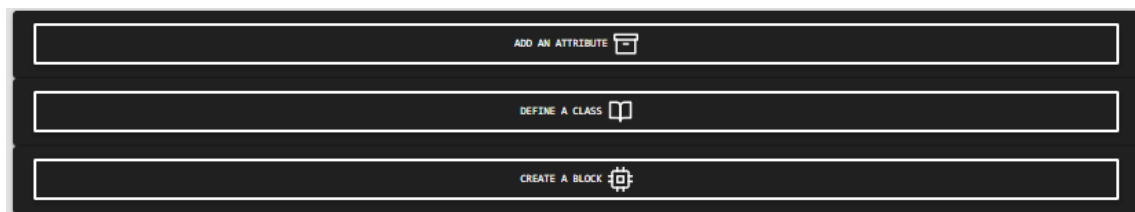


Figure 19 'Add' buttons panel

Upon clicking on one of the above-mentioned options, forms are returned to create a new element according to the clicked option in the data store. Names ought to be unique, for this purpose, the forms are hidden until uniqueness is confirmed, which should ideally only be done when "This name has not been used before" remains in the "check matching names" menu. Only after confirming the uniqueness, the rest of the form is shown along with the "submit" button.

Figure 20 Confirm uniqueness form

Note: Foundries are attributes of sources and blocks/ parameters and functions are attributes of classes and blocks/ sources are attributes of blocks/ classes are attributes of blocks, as a result, it is recommended for bulk additions/updates to add/update elements in this order: 1) Parameters, Functions, Foundries. 2) Sources. 3) Classes. 4) Blocks.

## **2.1. ADD AN ATTRIBUTE**

Returns forms to create attributes in addition to foundries (which are attributes for blocks). Parameter is the default type of attributes, and assigning a foundry is compulsory when Source is the chosen type. It is recommended to add the foundry firstly if it doesn't already exist. When creating a foundry, its name is the only compulsory field.

## **2.2. DEFINE A CLASS**

Returns a form to create a class, where the selected parameters are shown under the submit button. All the fields are compulsory.

A name and a function fields are compulsory.

## **2.3. CREATE A BLOCK**

Returns a form to create a block, where the selected custom parameters are shown under the submit button.

"To be updated" is the default value of 'Status' and "PDK" is the default value is that of the 'Reference'.

The name, foundry, function, class and source are compulsory.

Classes are filtered by function and sources by foundry.

### 3.1. EDIT BLOCK

[illegible]

Figure 21 Edit block form view

Returns a pre-filled form with the block attributes that can be updated through the submit button. Hold <ctrl> for multiple selection of custom parameters, <shift> for sequential selection, and click back to deselect. Selected parameters are shown under the submit button. The “functions select” menu filters the “classes select” menu, and the “foundry select” menu filters the “source select” menu.

### 3.2. UPDATE VALUES

Displays the block view where you can update parameters' values and mark whether blocks are up-to-date or to-be-updated.

block2

Foundry: CEA Leti  
Function: couplers  
Class: grating coupler 1D  
Reference: PDK

Status:

☒ Up-to-date

☐ To be updated

Fully functional up-to-date blocks

Class bound parameters		Value
1	Bandwidth @3dB [ $\mu\text{m}$ ]	5 <input type="text" value="5"/>
2	Center wavelength [ $\mu\text{m}$ ]	1 <input type="text" value="1"/>
3	Group index @TE @center wavelength, @monomode width [a.u.]	2 <input type="text" value="2"/>
4	Insertion losses [dB]	3 <input type="text" value="3"/>
5	Polarization (TE or TM)	1 <input type="text" value="1"/>
6	Wavelength range [ $\mu\text{m}$ ]	2 <input type="text" value="2"/>

Custom parameters		Value
1	Angle	1 <input type="text" value="1"/>
2	Bandwidth @3dB @-1V [Ghz]	3 <input type="text" value="3"/>
3	Bandwidth @3dB @-2V [Ghz]	2 <input type="text" value="2"/>
4	Bandwidth @3dB @0V [Ghz]	1 <input type="text" value="1"/>
5	Bandwidth @3dB [ $\mu\text{m}$ ]	3 <input type="text" value="3"/>

UPDATE

Figure 22 Update values form view



### 3.3. EDIT DEFINITION

Returns a pre-filled in form with the definition attributes that can be updated through the submit button. Hold <ctrl> for multiple selection of outstanding parameters, <shift> for sequential selection, and click back to deselect. Selected parameters are shown under the submit button.

Edit array waveguide grating

Name

array waveguide grating

Function

complex structures

Update parameters

Hold 

Ctrl

 for multiple selection

Angle-

Bandwidth @3dB @-1V [Ghz]

Bandwidth @3dB @-2V [Ghz]

Bandwidth @3dB @0V [Ghz]

Bandwidth @3dB [μm]

Bandwidth @3dB TE [μm]

Bandwidth @3dB TM [μm]

Bandwidth [dB]

Bandwidth TE [μm]

Bandwidth TM [μm]

Bend radius [μm]

Bit rate [GHz]

Center wavelength [μm]

Center wavelength TE [μm]

Center wavelength TM [μm]

SUBMIT

Selected parameters

1	Bandwidth @3dB [μm]
2	Excess Loss [dB]
3	Channels [u.a.]
4	Imbalance Channel [dB]
5	Uniformity [dB]

Figure 23 Edit definition of a class form view

### 3.4. EDIT FOUNDRY

Returns a form prefilled with the foundry attributes that can be updated through the submit button.

#### EDIT ATTRIBUTE

Attributes of type 'source' can be edited in terms of assigned foundry (see figure 16), otherwise the name is all there is to update.