

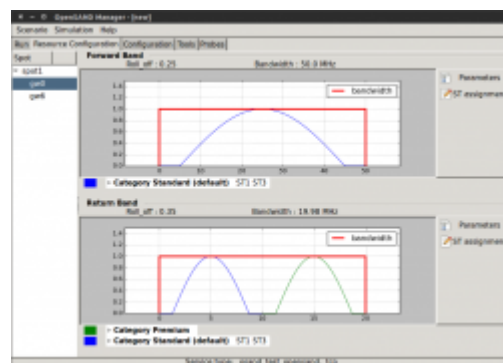
Carriers and Categories

Like in a real DVB-S2/RCS2 system, OpenSAND supports the use of multiple carriers to transmit data, both on the forward and return links.

The use of different carriers allows the user to aggregate bandwidth, and specify different configurations (carrier bandwidth, supported [coding and modulation schemes](#), etc.).

One of the possible carrier configurations is the category, which allows to emulate different types of subscriptions: STs are associated to a specific category, and only use carriers associated to that category (e.g. Standard and Premium). Categories can also be used to implement other functionalities, such as [SVNO](#).

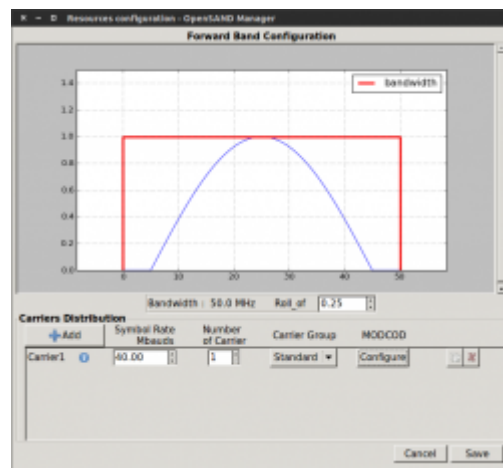
OpenSAND Exploitation



Carriers and categories can be configured from the OpenSAND Manager, in the Resource Configuration tab. This window displays graphically the existing carriers and categories, as well as the associated STs to each category.

By clicking in each category name (below each plot), a box will be expanded, containing a detail of each carrier belonging to that category, as well as its minimum and maximum throughput.

Carriers and categories are configured separately for each set of spot/gateway. Carriers are also configured separately for the Forward Band (top), and Return Band (bottom).



The carriers of each band can be configured by clicking in the Parameters button. This will pop-up a window, containing the configuration for each carrier of that band. Each carrier has the following parameters:

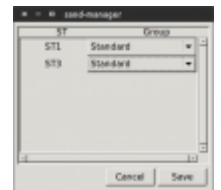
- **Symbol rate:** the symbol rate of the carrier, in Mbauds.
- **Number of carrier:** the number of identical carriers with this configuration.
- **Carrier group:** the category associated to this carrier.

Under the column MODCOD, the available [coding and modulation schemes](#) and return access type (only Return band) for that carrier can be selected by clicking in Configure button. Only traffic using the selected access type will be transmitted on this carrier. There are three access types available:

- [DAMA](#) (by default).
- [Slotted Aloha](#).
- [SCPC](#).

Roll-off factor can be configured globally for all the sub carriers, and will impact the calculation of the total occupied bandwidth. The default value is 0.25.

Carriers can be added with the Add button, and copied or deleted with the buttons at the left.



The ST assignment to each category can be configured by clicking the ST assignment button from the Resource Configuration tab. This will pop-up a window where the STs associated to that spot/gw are listed, next to their type of category.

OpenSAND Software Design

Carrier and category configuration is used by the Block DVB.

In particular, the parsing of the configuration is done by the class `DvbChannel`, when initializing the bands. This process outputs the configuration for each available category, with its symbol rate, and the carriers groups associated to this category (including their available MODCODs and symbol rates).

The configuration for each category is used by the Slotted Aloha or DAMA algorithms, which need to know the available symbol rate in order to schedule packets.

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