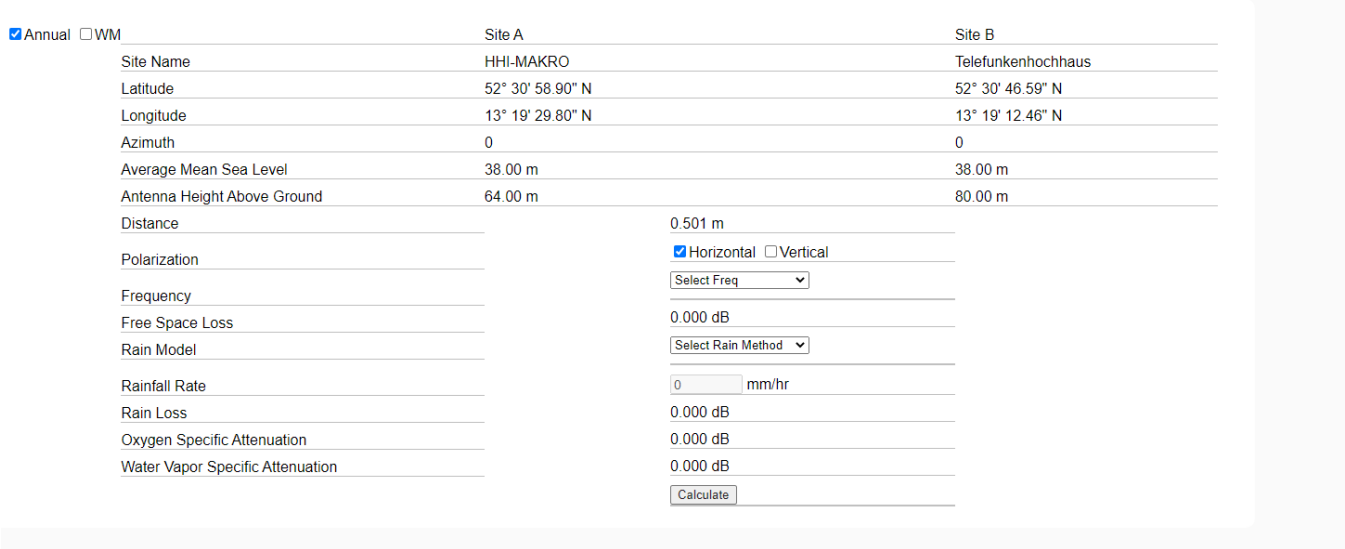
ODLUX Link Calculator

Overview

App to do loss calculations for links.

Can be opened via ODLUX NetworkMap, in that case data is preset.

GUI



DesignMode

- geo coordinates can be entered manually
- the distance between the selected coordinates will be calculated automatically
- frequency band can be entered manually
- rainfall rate can be entered manually or set by the ITU recommendation (ITU-R P.837-7)
  - The Digital Map of rain data from (ITU-R P.837-7) is used (the map covers entire surface of the Earth)
  - The rain attenuation model from ITU-R P.838-3 is used. (dB/km)

View Mode

- relevant parameters are passed in via the url (from the network map)
  - Geo locations of the two points
  - Distance (when available)
- the user cannot change the lat/lon values of the link
- rainfall rate is auto-filled (according to ITU-R P.837-7)

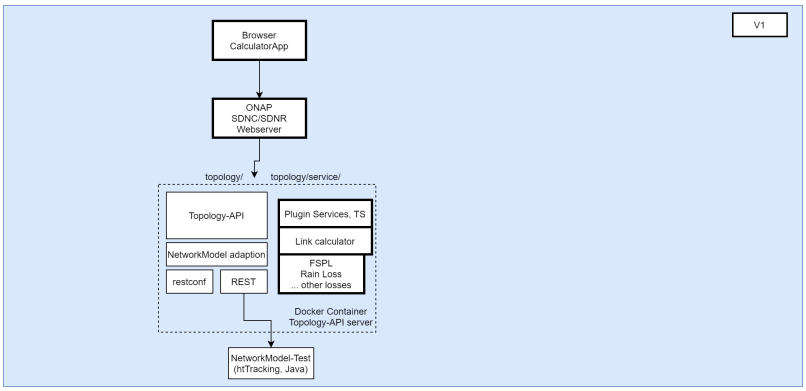
Loss Calculations

The following loss calculations should be performed by the link calculator:

- FSL (dB) (ITU-R P.525-4)
- Rain Loss (dB) (ITU-R P.838-3)
- Gaseous Loss (Oxygen and water vapor) (ITU-R P.676-12)

    - Water vapor density (ITU-R P.836-6)
    - Surface Temperature (ITU-R P.1510-1)
- Dual Polarization loss (H V)

Architecture



Note on Link Calculation

Originally, the link calculation should have been included in the ODLUX NetworkMap.

After further discussions, the decision was made to move the link calculation functionality into a new app.

The link calculator accesses the topology-api server to do its calculations.

Use Case

Use Case	description

Link calculation	• Calculator provides input window for Geo parameter
	• If link data was passed via network map:
	  ○ All parameters, specified by the “link” are pre-filled in the form (GeoA, GeoB)
	  ○ User can input frequency. If empty “normal” bands are calculated.
	• After clicking Calculate, the calculator starts.
	• Output is presented according to input.
	• A Back-end link-calculator is used

Interfaces

URL

odluxurl?lat1={siteA.lat}&lon1={siteA.lon}&lat2={siteB.lat}&lon2={siteB.lon}&siteA={nameA}&siteB={nameB}&azimuthA={azimuth}&azimuthB={azimuth}&distance={distance}