

ODLUX Link Calculator

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Overview

App to do loss calculations for links.

Can be opened via [ODLUX NetworkMap](#), in that case data is preset.

GUI

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	Site A	Site B
Site Name	HHI-MAKRO	Telefunkenhochhaus
Latitude	52° 30' 58.90" N	52° 30' 46.59" N
Longitude	13° 19' 29.80" N	13° 19' 12.46" N
Azimuth	0	0
Average Mean Sea Level	38.00 m	38.00 m
Antenna Height Above Ground	64.00 m	80.00 m
Distance	0.501 m	
Polarization	<input checked="" type="checkbox"/> Horizontal <input type="checkbox"/> Vertical	
Frequency	<div>Select Freq ▼</div>	
Free Space Loss	0.000 dB	
Rain Model	<div>Select Rain Method ▼</div>	
Rainfall Rate	<div>0 mm/hr</div>	
Rain Loss	0.000 dB	
Oxygen Specific Attenuation	0.000 dB	
Water Vapor Specific Attenuation	0.000 dB	
<div>Calculate</div>		

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)

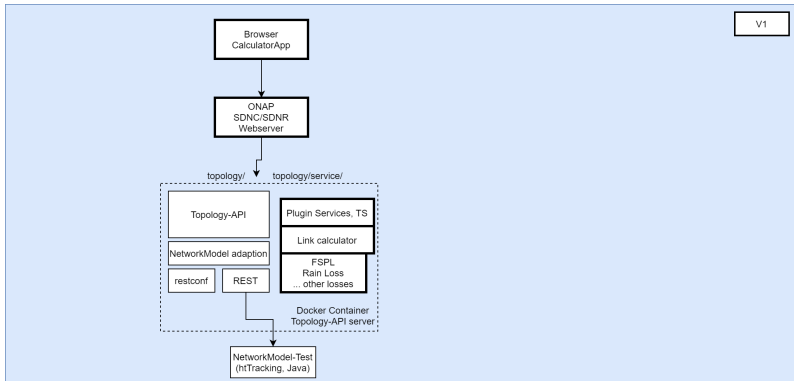
Loss Calculations

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	<ul style="list-style-type: none"> • Calculator provides input window for Geo parameter • If link data was passed via network map: <ul style="list-style-type: none"> ◦ 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}