

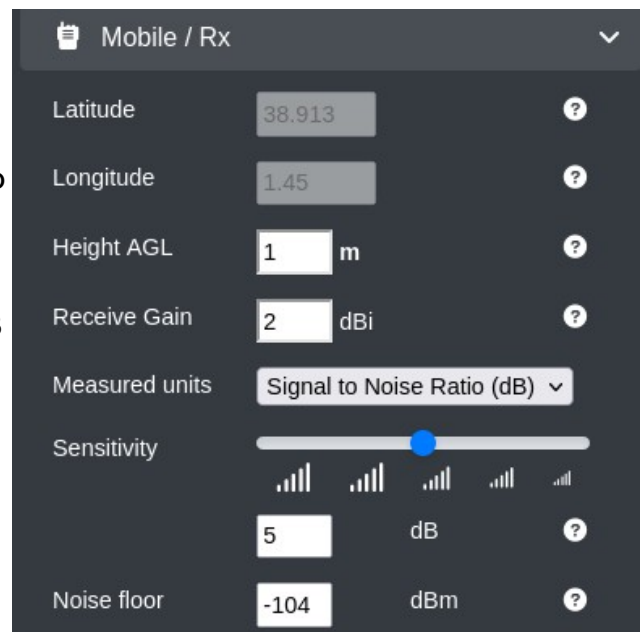
Signal to Noise Ratio

Quick reference

Step 1: Prepare a template

- Enter the waveform's bandwidth in the Tx menu. This is normally between 1 and 20MHz.
- For the Rx "Measured units" use Signal to Noise Ratio (dB)
- The sensitivity must match your waveform. Use the table below and 10dB if the value is not known.

Modulation	Sensitivity dB
BPSK	3
QPSK	5
16QAM	10
64QAM	15
256QAM	20



- The noise floor must match your local environment. Use -100dBm if unknown.
- Use the ITM model with 90% reliability and Knife edge diffraction
- Set the clutter to match your region. If you have no clutter, switch it off.
- Set the resolution to match your network size eg. Local / urban = 2m, rural = 30m
- *Optional: Using the colour tool in the output menu, create a "dB" colour schema with a dynamic range of at least 30dB (Good) down to 5dB (Bad).*

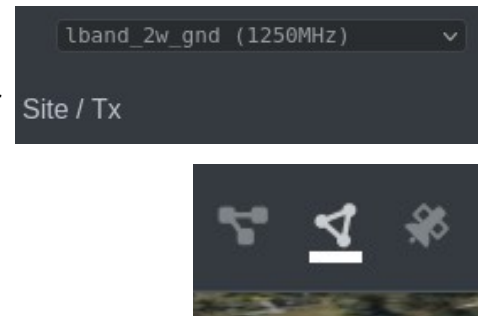
- **Save the template with a distinct name.**

Save template ->



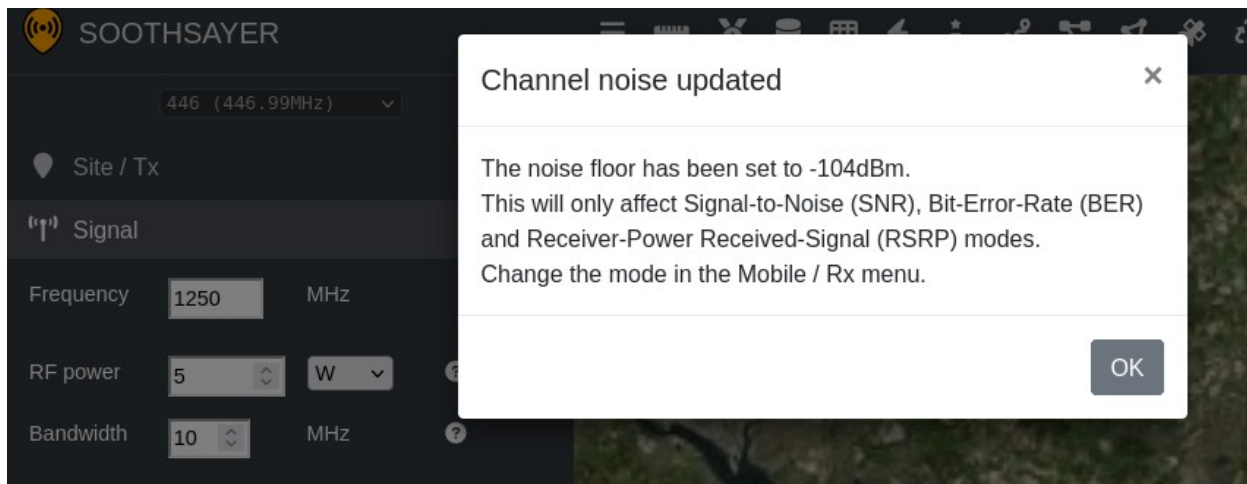

Step 2: Using a template

- Select the template from the box in the top left
- Activate the MANET or another tool from the top bar
- Click upon the map to place your first node, click to place another. SNR links will be drawn.



Step 3: Switch waveform

- Enter the new bandwidth value in MHz into the Signal bandwidth field.
- Expect a dialog declaring the new (thermal) noise floor
- *Optional: Override the noise floor with a measured value if you have one.*
- If using the GPU engine, modelling will be instant otherwise you must click the green play button to run the calculation with the new values



SNR and dBm comparison table

Noise floor dBm	Sensitivity (SNR)	Received power (dBm)	Comment
-100	5	-95	Very weak
-100	10	-90	CloudRF default
-100	15	-85	
-100	20	-80	Good signal
-100	25	-75	
-100	30	-70	Very good
-100	35	-65	
-100	40	-60	ED threshold (ECM)