



# Z-Wave radio connection

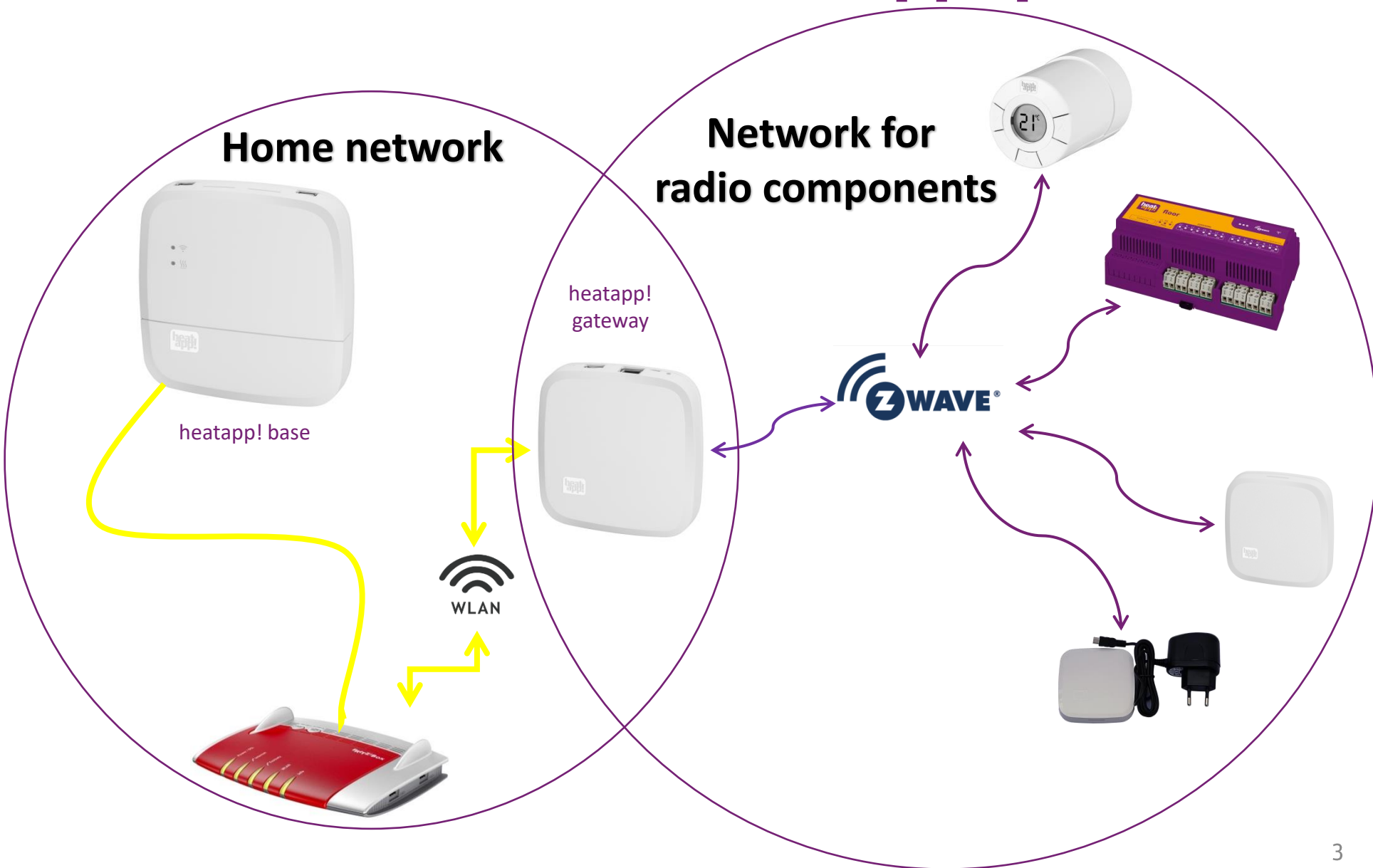


# Connection between heatapp! gateway and the radio components





# communication heatapp! products





# Home network and Z-Wave network

- The **heatapp!** system works with two different types of communication.
- For better distinction we always talk on one hand about **heatapp! base** and **heatapp! gateway** and on the other about the radio components **heatapp! drive**, **heatapp! floor**, **heatapp! sense** and **heatapp! repeater**.
- The exchange of information between **heatapp! base** and **heatapp! gateway** takes place via the home network.
- The exchange of information between **heatapp! gateway** and the **radio components** takes place via Z-Wave wireless.
- The **heatapp! base** can not communicate directly with the **radio components**, the **heatapp! gateway** works as an intermediary.



# Z-Wave



- The Z-Wave radio system is a wireless communication standard, specifically designed for use in the smart home field.
- The radio communication is optimized for low power consumption and high communication security.
- Z-Wave uses a two-way communication with reconfirmation. Only confirmed telegrams are sent as successful. If communication errors, the transmission operation is repeated up to three times.
- Z-Wave has implemented the property of a mesh networking technology in which each line-powered device works as router / repeater in its network. The thus resulting meshed network is controlled by the heatapp! gateway and by changes the routes in the network will updated.

# Characteristics of Z-Wave

## Powered devices



Z-Wave  
router /  
repeater

## Battery devices



*Zzz Zzz*



sleep

No router /  
repeater

*Zzz Zzz*



*Zzz Zzz*

sleep

sleep



# How to plan a Z-Wave network

A good planning is essential to obtain an good radio coverage for all wireless devices.

On the following pages we will show you some examples for a good planning.



# heatapp! base and heatapp! gateway

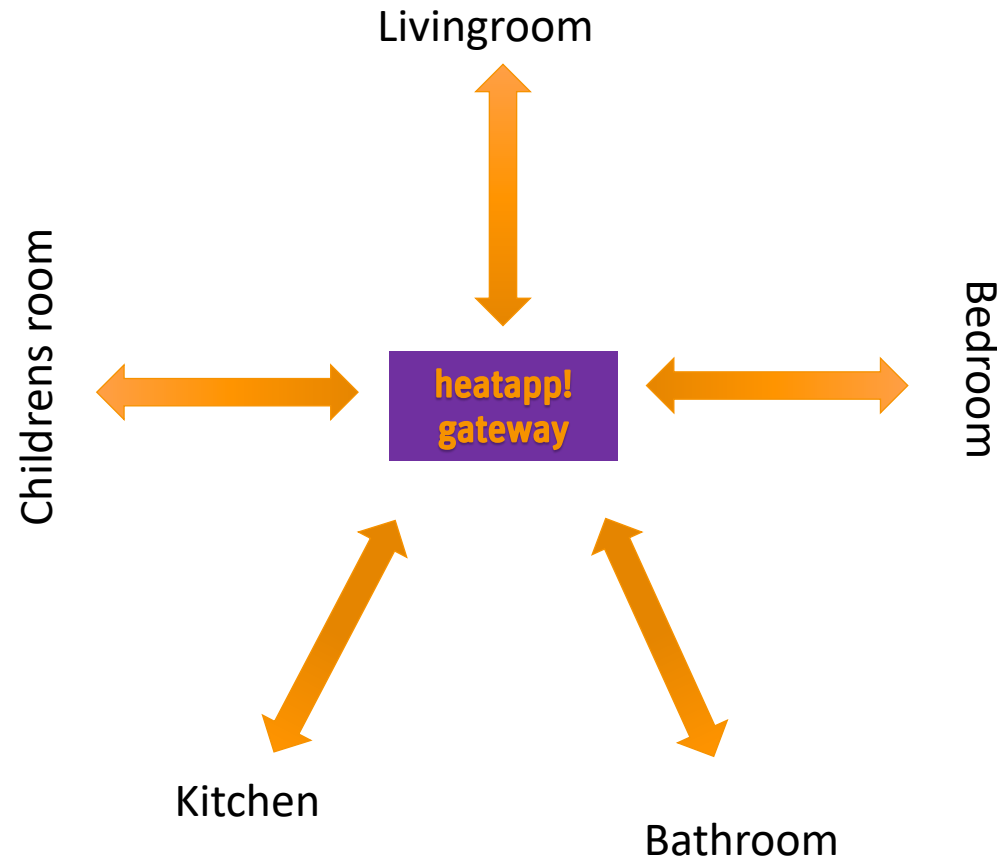
- heatapp! was developed as an individual-room control for flats, single and multi-family houses. Experiences show us, that heatapp! is also often needed for public buildings.
- For larger objects a precise planning is absolutely essential.
- The heatapp! base is usually connected via a LAN cable to the customer's network and therefore locally attached to the router.
- The heatapp! gateway can be connected via wireless with the customer network and is centrally positioned between the wireless devices as possible.





# Example for best arrangement

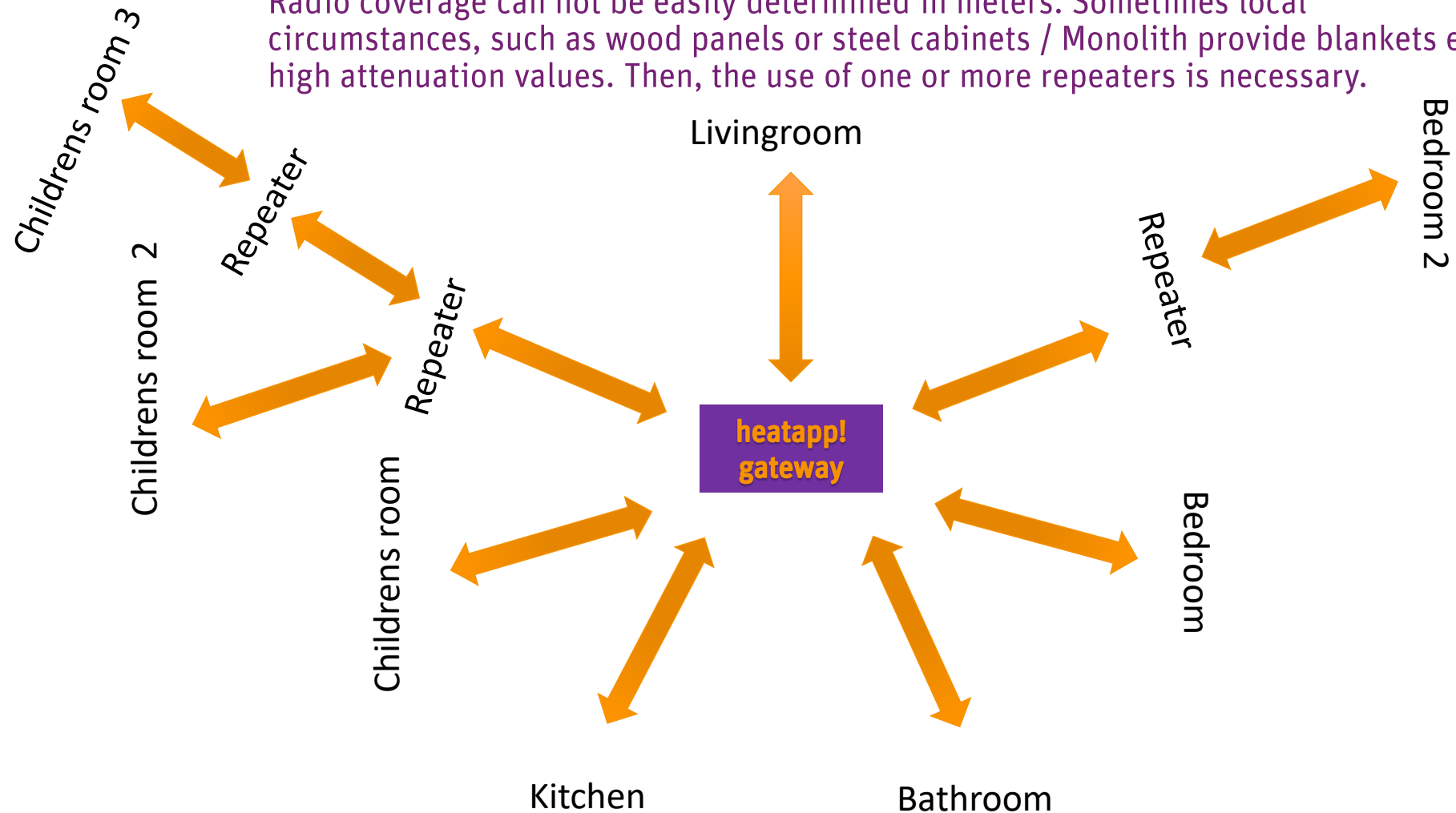
The optimal arrangement of heatapp! radio components looks like a star. Of course, a "3D" array of radio components over several floors is possible.



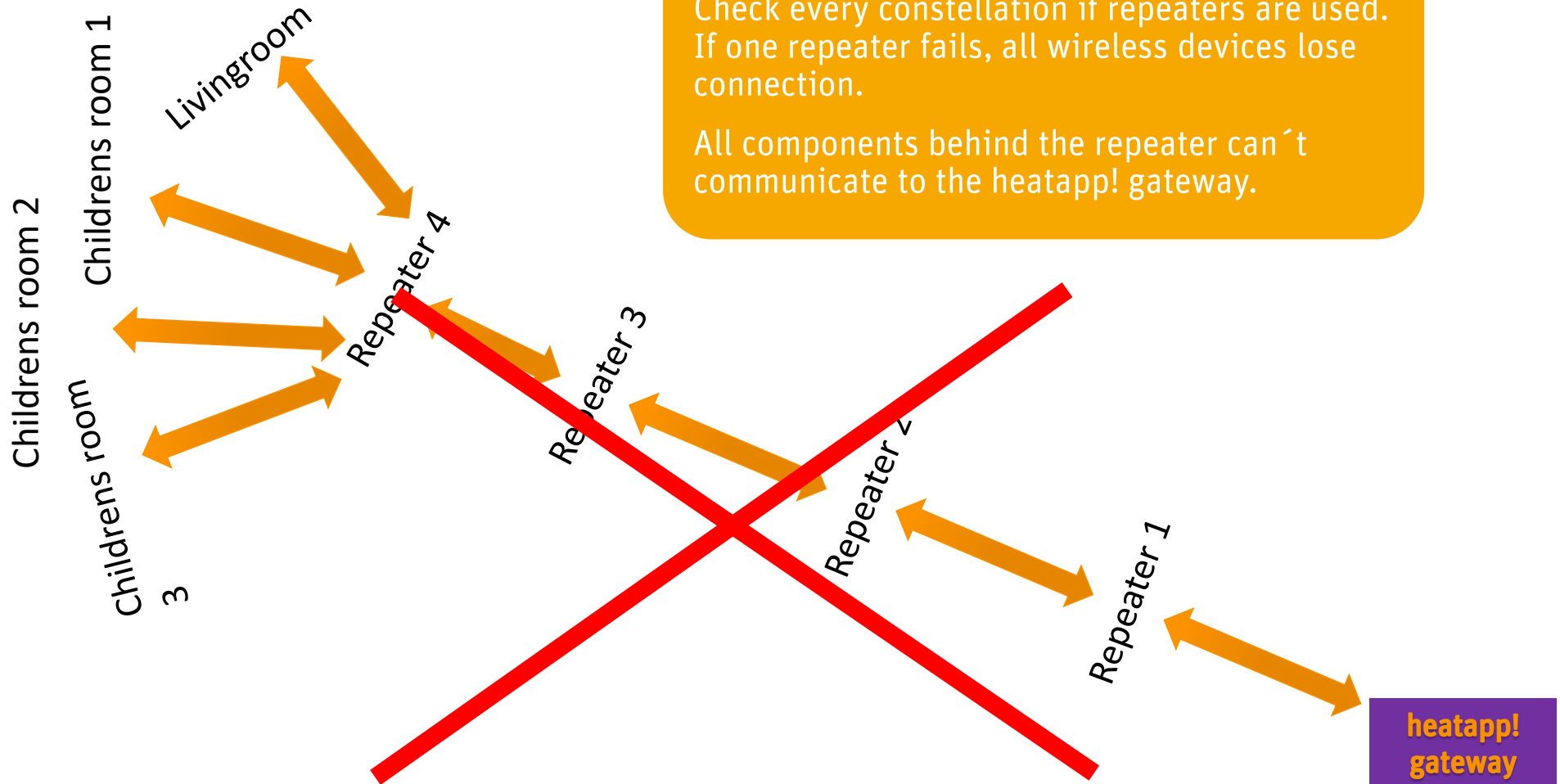


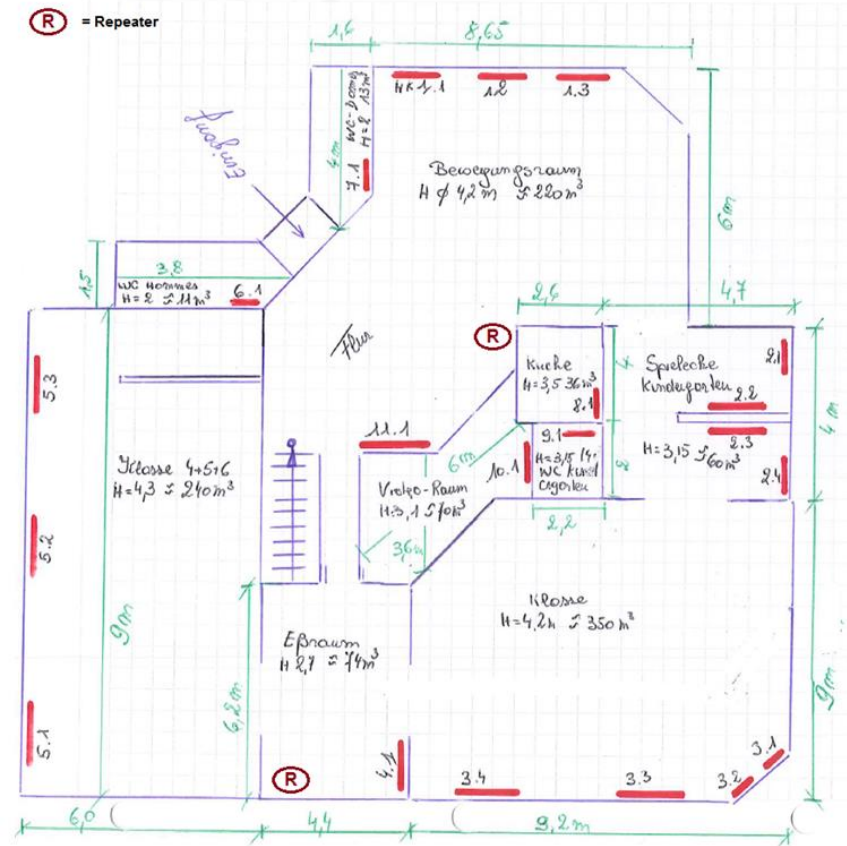
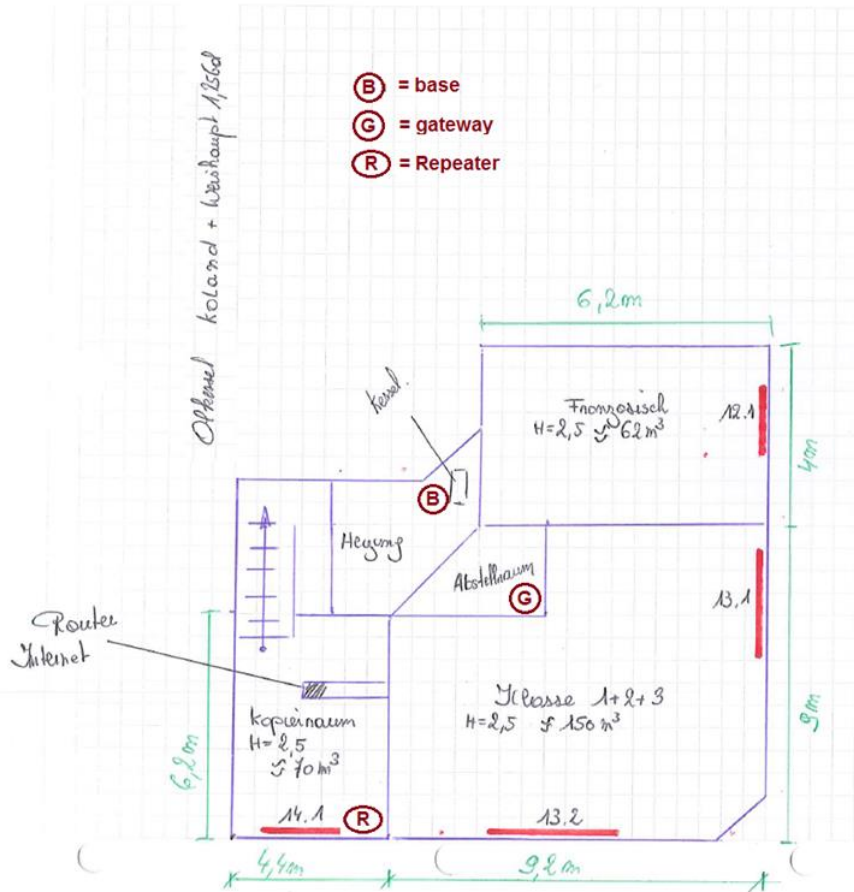
# Example for a good arrangement

Radio coverage can not be easily determined in meters. Sometimes local circumstances, such as wood panels or steel cabinets / Monolith provide blankets etc. high attenuation values. Then, the use of one or more repeaters is necessary.



# Repeater - chains

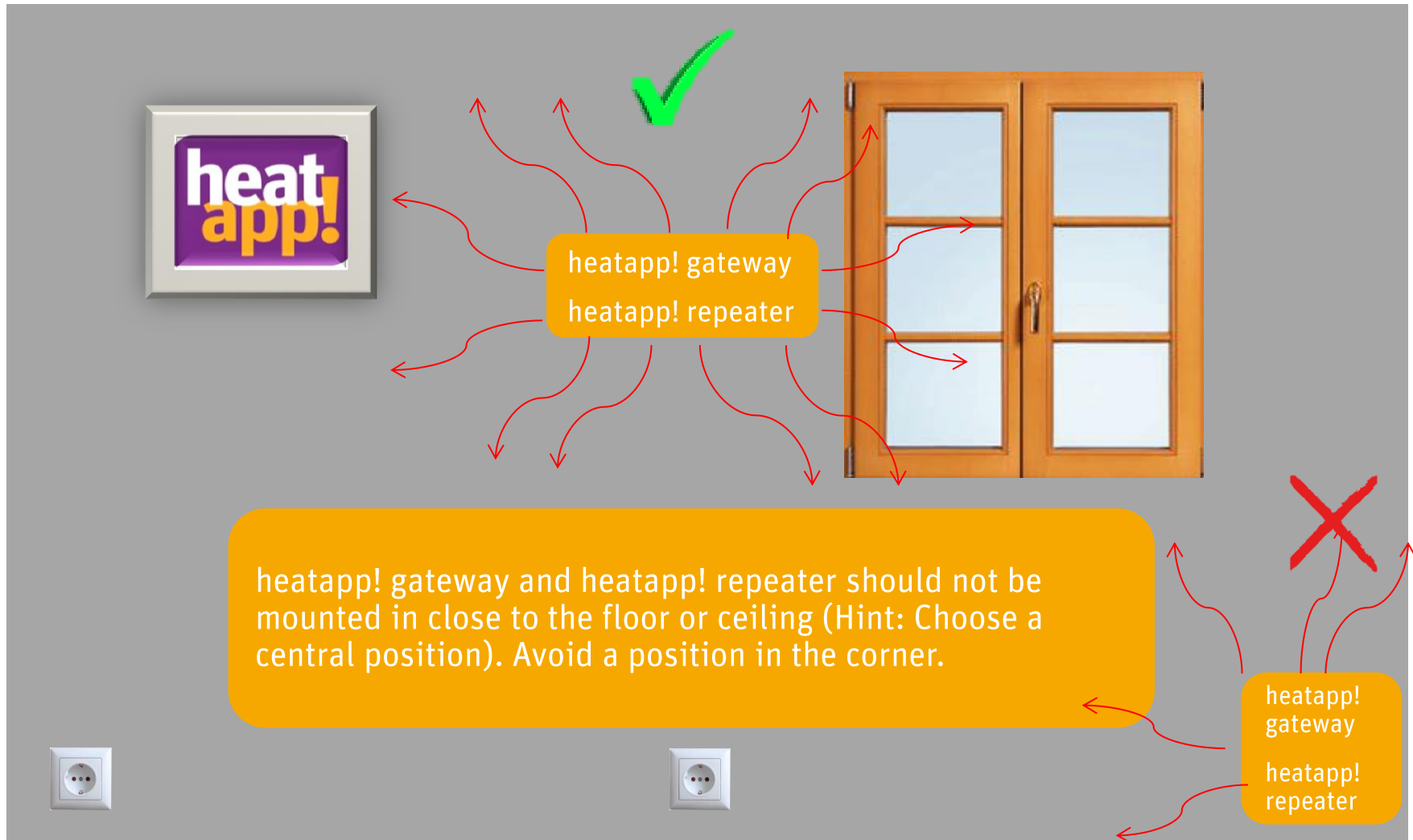




Take a sketch or a plan of the property.  
Plan with the help of local conditions, the locations of heatapp! gateway and repeaters.



# Position of heatapp! gateway and heatapp! repeater





# Experiences

- heatapp! works in apartments with 3 – 4 (60 – 80 square meters) on one floor without using repeaters
- Regulate with heatapp! daily used spaces. Spaces which are usually in frost protection (like cellar oder attic) don't generate savings and they are often difficult to integrate into the network for the radio components.
- Make sure that the antenna of heatapp! floor is mounted outside the control cabinet! Otherwise the repeater function of heatapp! floor is not guaranteed.
- The radio coverage of each building is highly dependent on the structural conditions. The attenuation values are increased by the items inside the premises.

These information are reference values. Depending the structural conditions can also be present in a small apartment poor radio coverage. Get an image spot on the spatial conditions, so you can perform a good installation.

