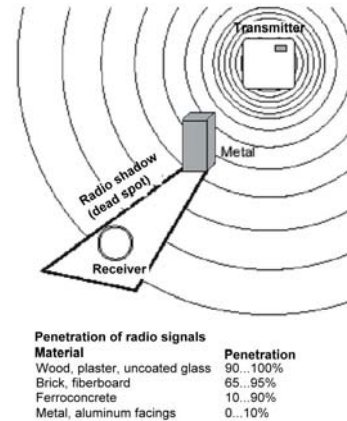


## Information about EnOcean Radio: RELIABLE RANGE PLANNING

Version 02/04

EnOcean radio transmitters send telegrams to the EnOcean radio receivers either event-controlled or cyclically. The receiver checks incoming telegrams and controls its output accordingly.

Since the radio signals are electromagnetic waves, the signal is attenuated on the way from the transmitter to the receiver. This means that the field intensity diminishes as the distance between the transmitter and the receiver increases, and the radio range is restricted. Materials in the broadcast direction can also reduce the range.



In practice, this means that the materials used in the building play an important role when an assessment of the radio range is made. Some standard values for helping in assessing the environment:

### **Line-of-sight connections:**

App. 30m range in corridors, up to 100m in halls

### **Plasterboard walls / dry wood:**

App. 30m range, through max. 5 walls

### **Brick walls / aerated concrete:**

App. 20m range, through max. 3 walls

### **Ferroconcrete walls / ceilings:**

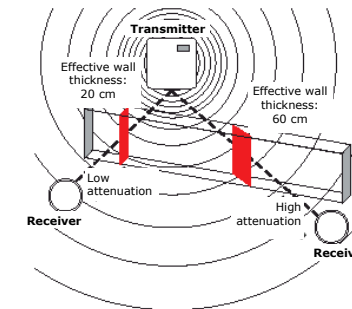
App. 10m range, through max. 1 ceiling

### **Fire-safety walls, elevator shafts, staircases and supply areas should be considered as screening.**

Other factors restricting transmission range:

- **Hollow lightweight walls filled with insulating wool on metal foil**
- **False ceilings with panels of metal or carbon fiber**
- **Lead glass or glass with metal coating, steel furniture**
- **Switch mounted on metal wall**

The angle at which the transmitted signal hits the wall is very important. The effective wall thickness – and with it the signal attenuation – varies according to this angle. Signals should be transmitted as directly as possible through the wall. Wall niches should be avoided.



The distance between EnOcean receivers and other transmitting devices such as computers, audio and video equipment that also emit high-frequency signals should be at least 0.5m.

### **Finding optimal positioning with field-intensity meter EPM100**

The EPM100 is a mobile field-intensity meter that helps the engineer to find the best installation positions for sensor and receiver. It can also be used to check disturbances in links to already installed equipment. The EPM100 displays the field intensity of received radio telegrams and interfering radio signals in the 868MHz range.

The simplest procedure for determining the best installation positions for the radio sensor/receiver:

- Person 1 operates the radio sensor and generates pushbutton radio telegrams.
- Person 2 checks the received field intensity on the meter display to find the optimal installation position.