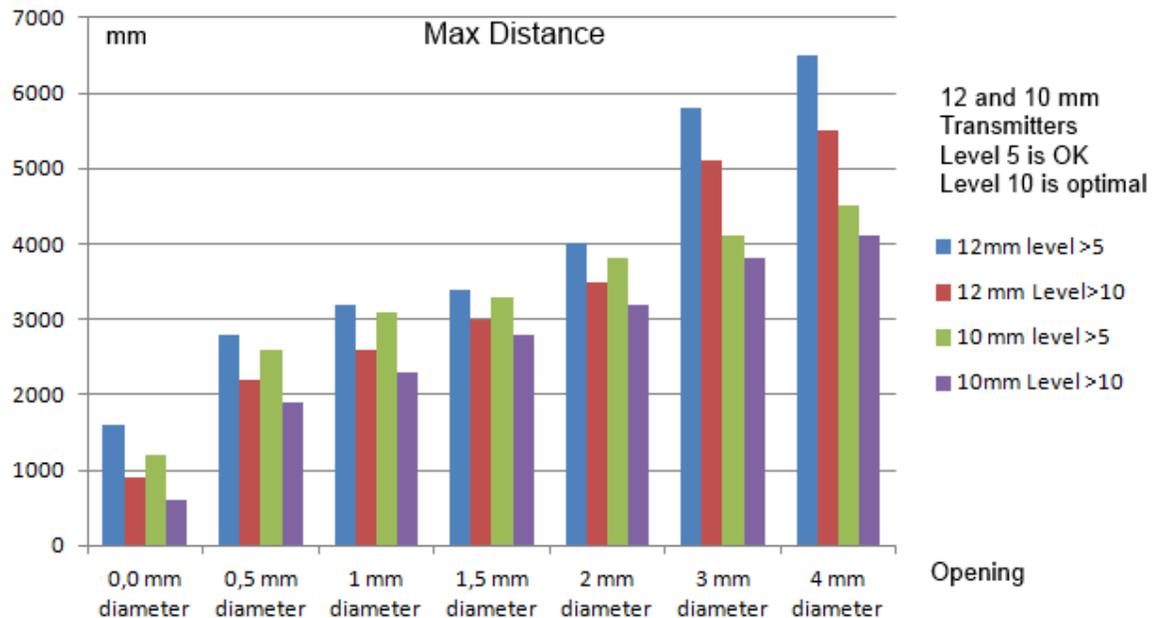


Range

We compared the reach of the positioning system under different hidden signal conditions. The total range between running unit and receiver are previously reported as up to 6 m of 10 mm and 8 m of 12 mm. But what about partially hidden transmitters.



The figure shows the relationship between the 4 conditions. Overall using our standard receivers.

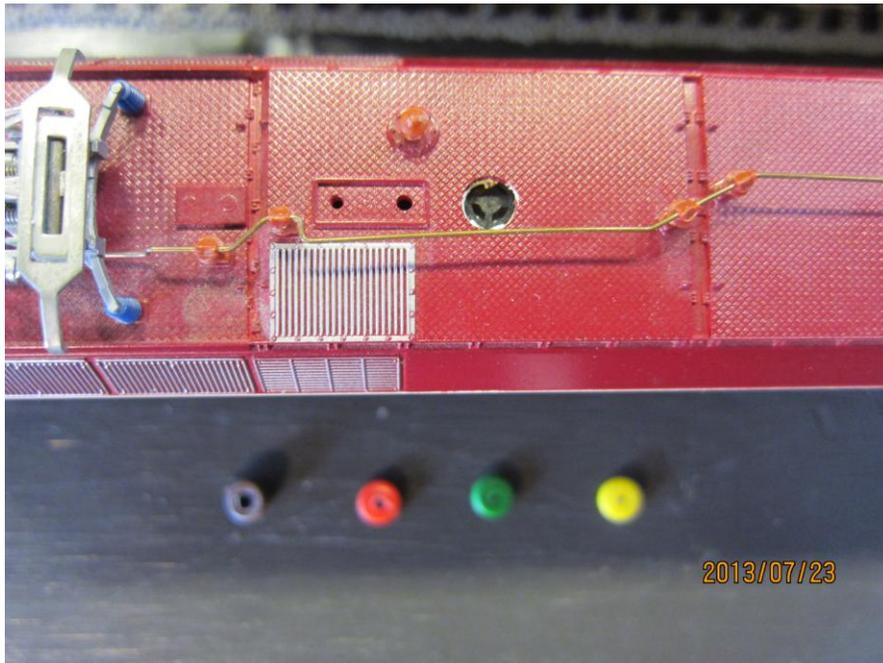
We have used both 10 mm and 12 mm transmitters, either battery powered in containers or built-in transmitters in vehicles

All transmitters are operating through a reduced opening. We have measured by completely hidden transmitters up to openings with a diameter of 4 mm, ie. approx. 1/3 of the transmitter's size.

The main conclusion is that for normal indoor layouts which often has approx. 2-4 m between running devices and receivers, then you should not use more than 2-3 mm opening in the vehicle to be measured correctly. This means that it is unnecessary to make room for the transmitter in the roof, one can often do with the natural openings and place the transmitter below them. Ventilation grids are good examples, but chimneys exhaust holes, cracks in joints, windows, etc. can also be used.

The measurements were made on two former models of plastic.

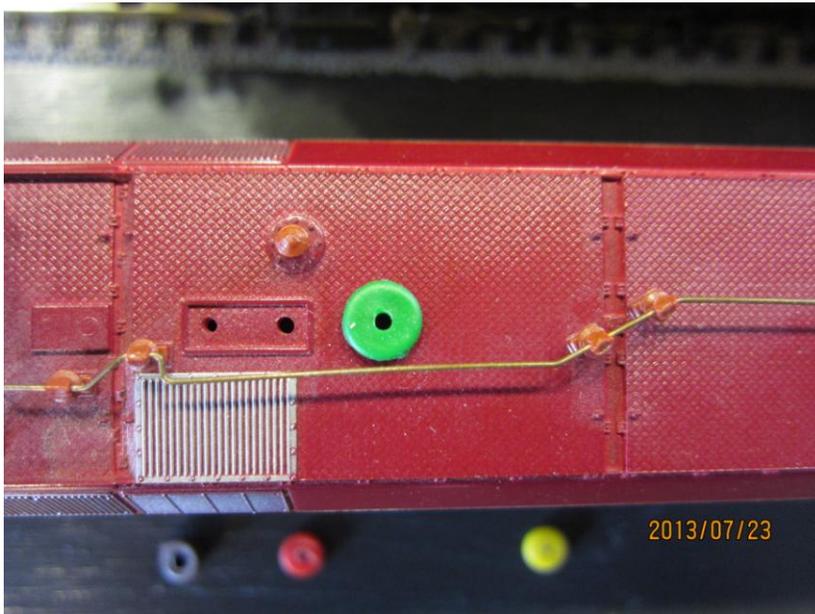
Details from the measurements



One older electric locomotive has a realigns sitting in the roof, it can be removed, leaving a 4 mm hole.

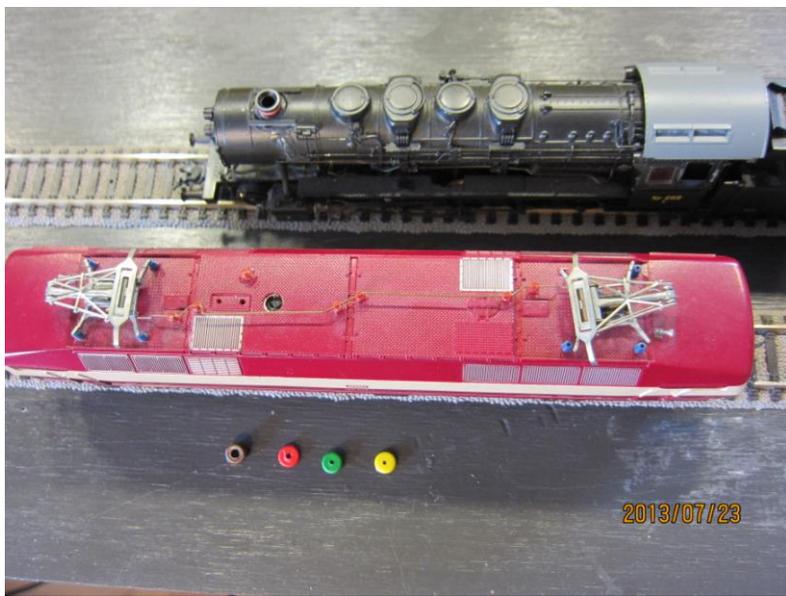
Below is the transmitter.

4 small plastic knobs with each drilled holes from 0.5 mm to 3 mm are inserted in the slot one at a time.



a

The train is then run on a 8 m long straight line on the floor below a receiving set that is 2.2 m up (in the attic). Another control trains are run with the transducer in the chimney.



The measurements were made using the "Show Measurements" in the GT-Position. Anyone can perform similar measurements and go after a signal level not-much-below the 5%.

If, for example you found a train with a 1 ½ mm aperture that can be used, then you can make measurements with "Show Measurements" and subsequent possibly adjust the receivers, or if necessary obtain to obtain a 4th receiver so there will be a shorter distance to farthest.

The measurements were performed on plastic frames. We also made control measurements on the older Marklin Zinc machines and the corresponding HAG models. Opening sizes are the same. Below is a selection of trains, which we have measured. They are all shown with the transmitter placed in the roof.

