# Erratic behavior in a car or on the ground

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While using the XRX in my car I noticed erratic behavior.
XRX was design to be used in an aircraft and typically at above 300’ AGL. There are many different factors on the ground and in your car that are not present in flight. For this reason we highly recommend not attempting to use your XRX on the ground for traffic functions. Here's an explaination of these factors:

Use in a car:
Your car has soft iron (as opposed to an aluminum or composite aircraft) which GREATLY affects the compass, rendering it potentially unusable unless you re-calibrate it in your car. Even when calibrated to your car, there may be too many field variations to accurately measure the earth’s magnetic field. The compass in XRX uses algorithms which expect little to no soft iron (such as found in aircraft). The XRX compass is therefore much less complex and has a much faster response time than an electronic compass designed for your car.
Your car frame is not consistent with an aircraft airframe, which XRX tries to model in either COMPOSITE, HIGH WING or LOW WING settings. Without the wing, algorithms will be correcting signal anomalies which are not there, or which are inconsistent with a typical GA aircraft.

Use on the ground:
The transponder RF signals which XRX detects are easily reflected from large surfaces such as hangars, or buildings. (SEE FIGURE BELOW). While XRX is efficient in correcting multi-path from smaller reflections such as the inside of your aircraft, large surfaces reflect and refract to much of the RF energy to be useable information.
http://www.zaon.aero/aero/images/fbfiles/images/ground_echo.jpg

Aircraft flying low will appear to be much further than actual due to the power from their transponder being absorbed by the ground, and from the garbling of the transponder codes due to reflections from vertical buildings and structures within 1000 feet.
The ground will distort the RF waves and reduce the antenna’s ability to detect side to side ambiguity.

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