

# Comparative Magnetic Field levels Tesla Model S & Honda CRV

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On February 20 the Tesla Model S was driven in a normal manner around downtown Seattle in a combination of acceleration, deceleration and waiting a traffic lights. Preliminary measurements showed the fields were highest at floor level and decreased off with distance from the floor.

Magnetic field level versus time was then collected during driving time by placing the meter on the floor pan and on the lap both at the front passenger side and the driver's side. Passenger side, front floor fields are about 20% less than the driver's side. The lap field is about twice as the driver's side.

For comparison purposes data was collected in a 2007 Honda CRV from the driver's side floor and driver's lap only in normal stop and go driving in Ventura, CA. on February 28, 2013.

The character of the fields is highly variable at every location in both cars with frequent pulsing to higher magnetic field levels. Higher frequency components were present in both cars. In the Tesla magnetic field components less than 2000 Hz dominated. This was not the case in the Honda. Surprisingly, the field components at frequencies above 2000 were virtually absent.

The driver's lap average field level is higher in the Honda compared to the Tesla by a factor of two times. And the field spikes in the Honda are higher than the Tesla by a factor of three times.

The Tesla driver's floor total average field is higher and compared to the Honda by a factor of three times. However, the field spikes in the Honda from frequencies <2000 Hz were 45% higher than the Tesla.

The actual frequencies found and their relative predominance are different between the two cars. People differ in their sensitivity to frequencies so could be different reaction to one car over the other based on this.

Steel belted radial tire are reported to produce varying magnetic fields the frequency of which depend on wheel rotation rate. No magnetic fields seem to be visible in the traces from either car that would correspond to this type of slower variation.

So you can see that there is no clear cut winner one car over the other so far as magnetic field exposure is concerned, but there may be differences in individual comfort based on frequency sensitivities. Additionally, one cannot forget that most newer cars have Bluetooth radio frequency (RF) radiation that connects wireless devices to the car audio system. This was not measured, but the RF radiation is quite powerful.