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# Wireless Power Transfer

Technologies & Products

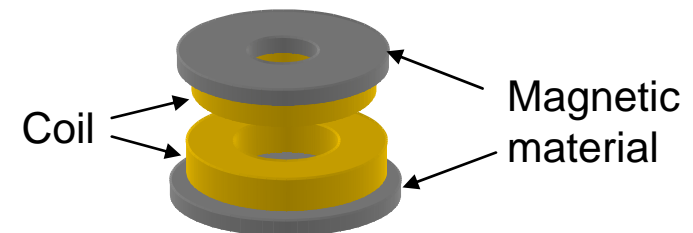
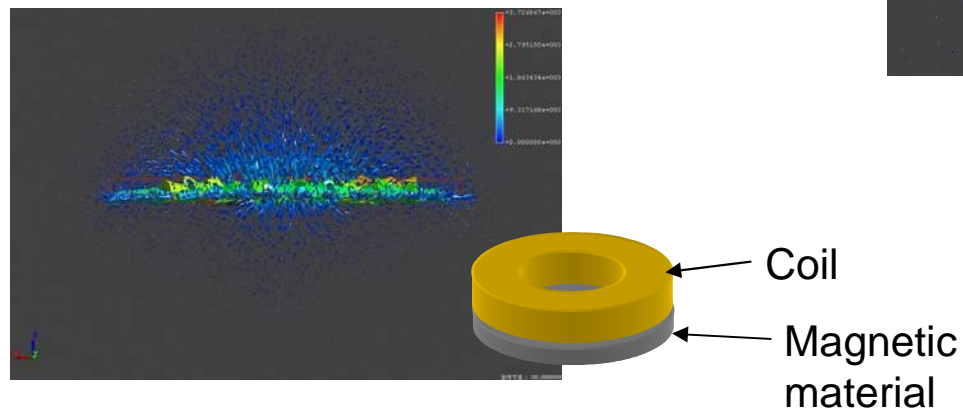
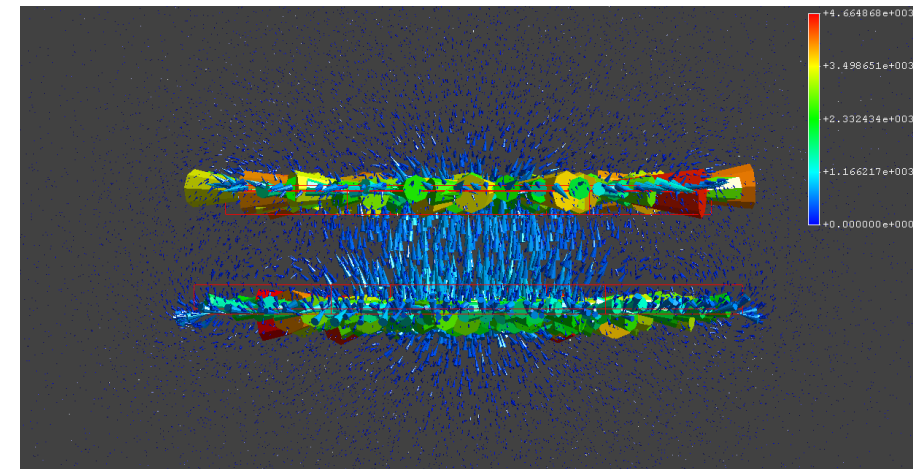
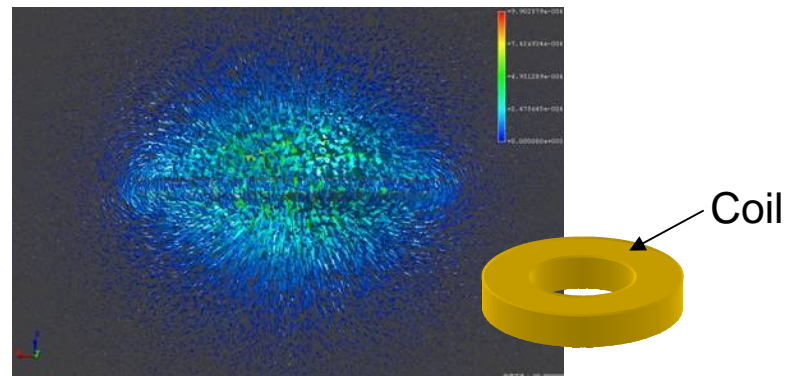
## TDK-EPC Wireless Power solutions - Overview

- TDK has a long history in this area, including several patents & long-running business in the past for cordless phone charging
  
- Development is ongoing for new components & systems for wireless power transfer using on inductive type power transfer
  
- Focus products:
  - Magnetic shielding materials for RX & TX coils
  - RX & TX coil assemblies
  - Magnets for TX coils



# Magnetic materials for coil shielding

- TDK-EPC offers magnetic shielding materials for TX & RX coils.
- Magnetic material allows magnetic flux to pass through the coils.
- Simulation result of magnetic field:

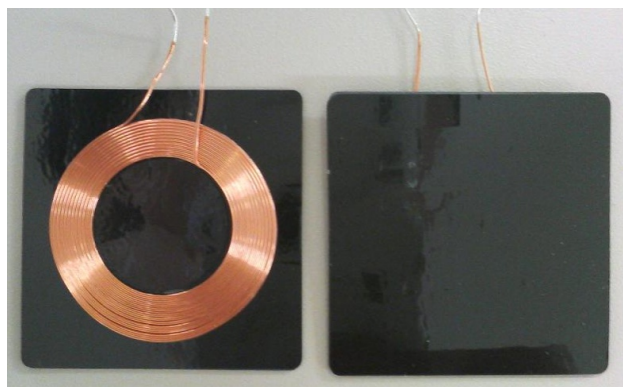


# RX coil assemblies for mobile applications

- Rectangular coil assembly

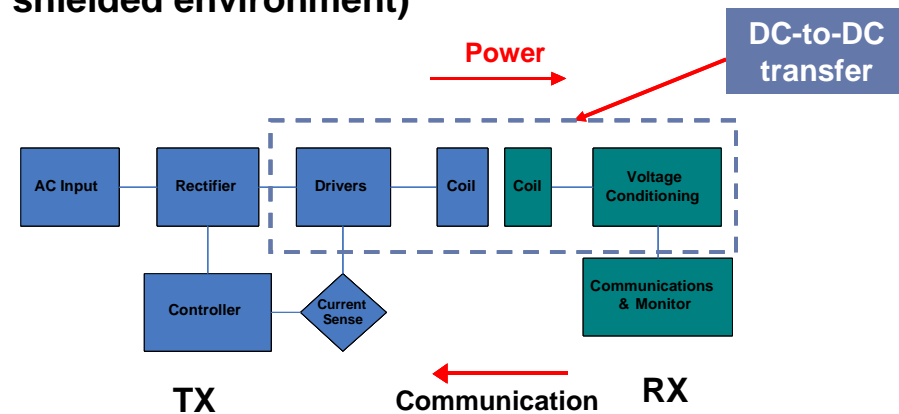


- Square coil assembly:



- RX coil assembly design targets:

- Thickness:  $\leq 1.0\text{mm}$
- Efficiency:  $\geq 70\%$  (DC-to-DC transfer)
- Self Heating:  $\leq 10\text{ C}$
- Rdc:  $\leq 0.2\text{ ohm}$
- Inductance: suitable for application (e.g. metal shielded environment)



- Optimised design, based on:

- Material
- Construction concept
- Coil forming technique
- Assembly process

# TX coil assemblies & materials

- TDK-EPC materials for WPC-compliant TX chargers:

Charge Type	Material	ui	Bm(mT)
A1	FK2	800	390
	L7H	850	390
	PE22	1800	500
A2	IRJ-17	180	N/A
B1.B2	N87	2200	490
	PC44	2400	510



- TDK offers TX coil assemblies for WPC low-power (5W) spec:
  - A1 coil assembly standard size: 52 x 52 x 2.5 mm (Typical); others: custom design
  - PET film may be added as appropriate for drop-shock robustness
- TDK offers full TX coil assembly for A1 case, including magnet:
  - CM11SH (100mT +50/-25mT)
- TDK will also be able to support higher-power applications (> 5W), as required

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## Conclusion: TDK-EPC Wireless Power solutions

- Thin, high performance magnetic shielding materials
- RX coil assemblies, for embedded low power WPC-compliant applications in mobile devices; also mid-power applications
- TX coil assemblies for low- & mid-power WPC-compliant applications
- Magnets for WPC-compliant TX assemblies



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