

WIRELESS POWER TRANSFER

Selecting the right inductor for wireless power transfer



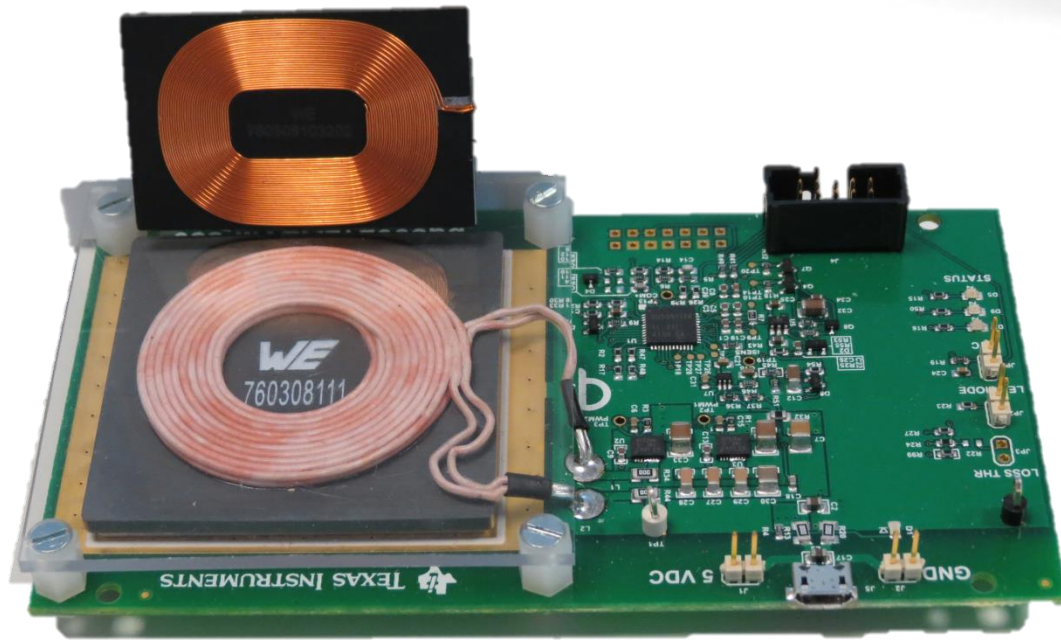
WIRELESS POWER Standards

- **Closely coupled**
 - Wireless Power Consortium (Qi)
 - Power transfer using resonant tank at very low frequency over short distances.
 - Resonant tank at **100 – 205 kHz**.
 - 2009 “Low Power” 5W
 - 2015 “Medium Power” 15W
 - 2016/17 resonant upgrade

- **Loosely coupled (and closely coupled)**
 - AirFuel Alliance
 - Power transfer based on resonant tank at very high frequency over longer distances (40mm).
 - Ability to charge multiple devices at same time.
 - Resonant tank at **300kHz** and **6.78MHz**. (ISM Band)
 - Capability up to *30W systems.

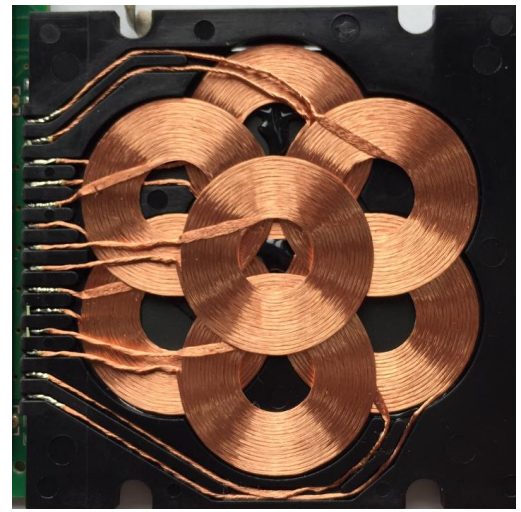
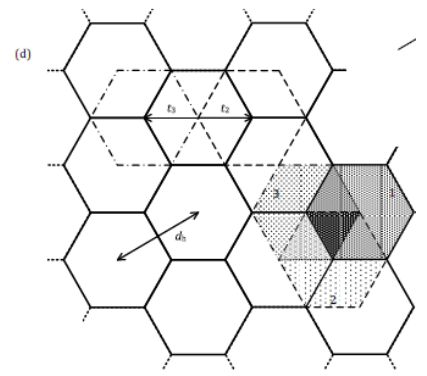
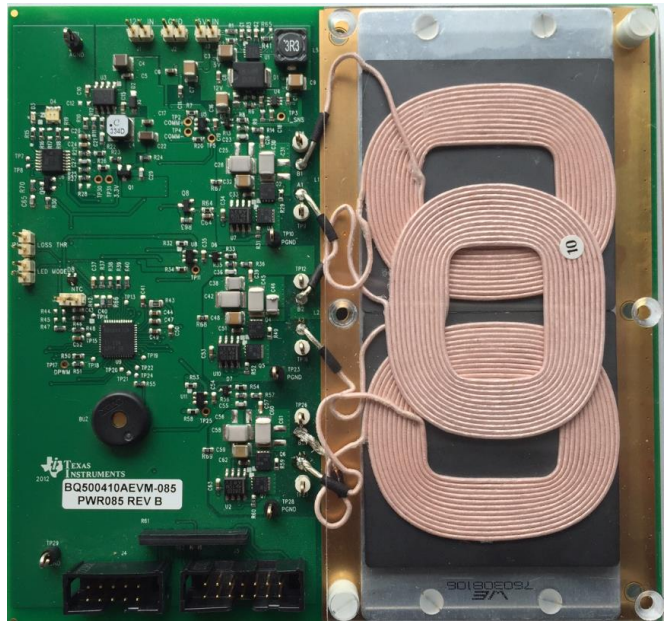
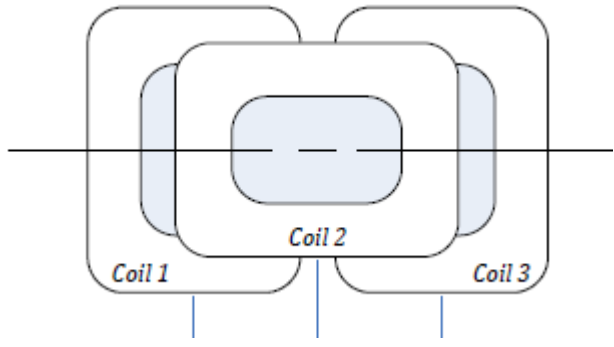
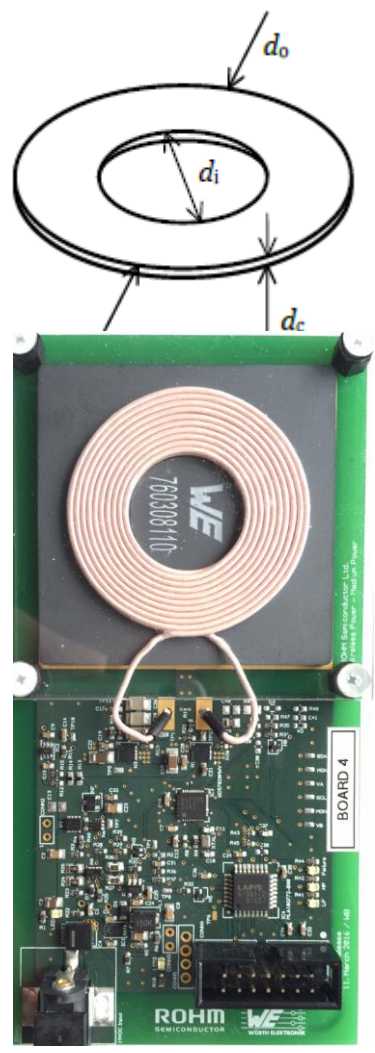


Wireless Power Transmitter and Receiver



Pictures: Samsung website, Würth Elektronik

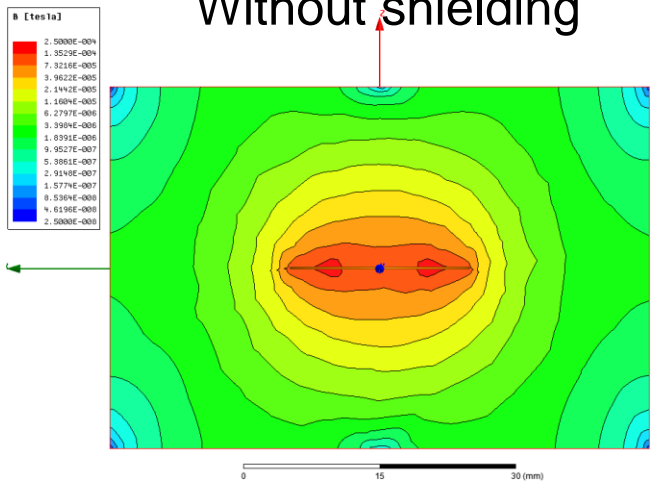
Coil Types - Freedom of Positioning



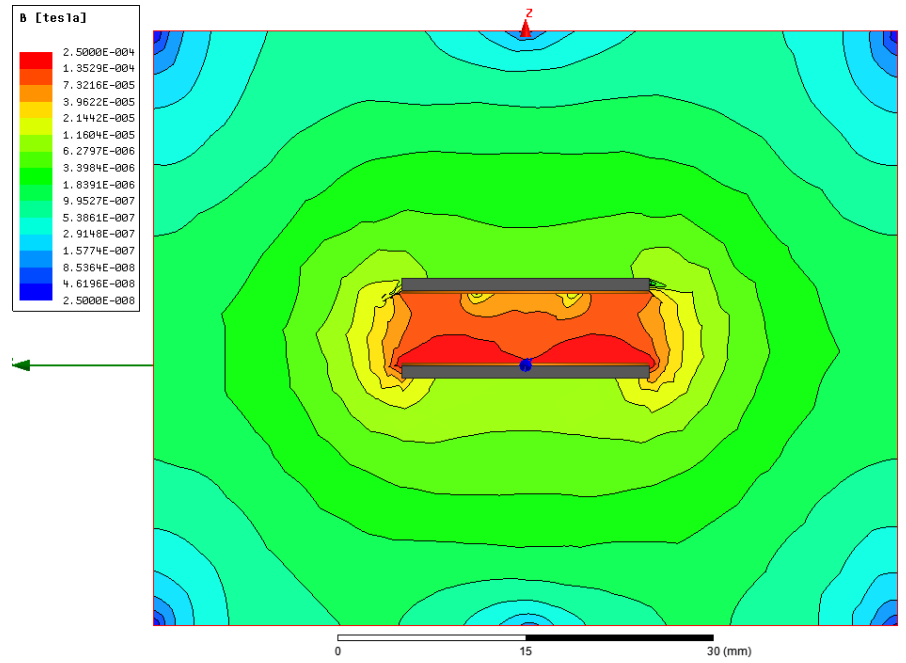
Improvement using ferromagnetic shielding



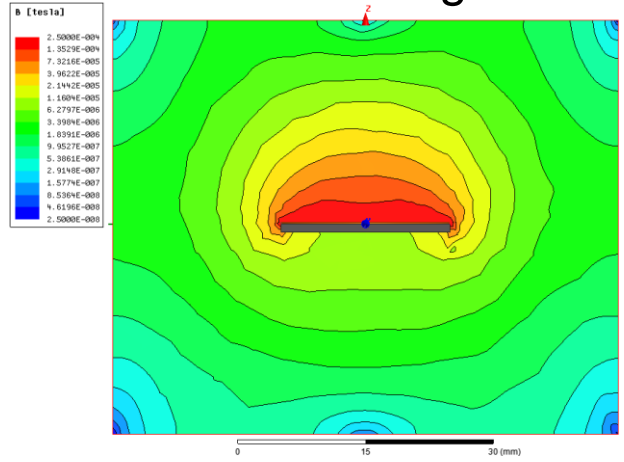
Without shielding



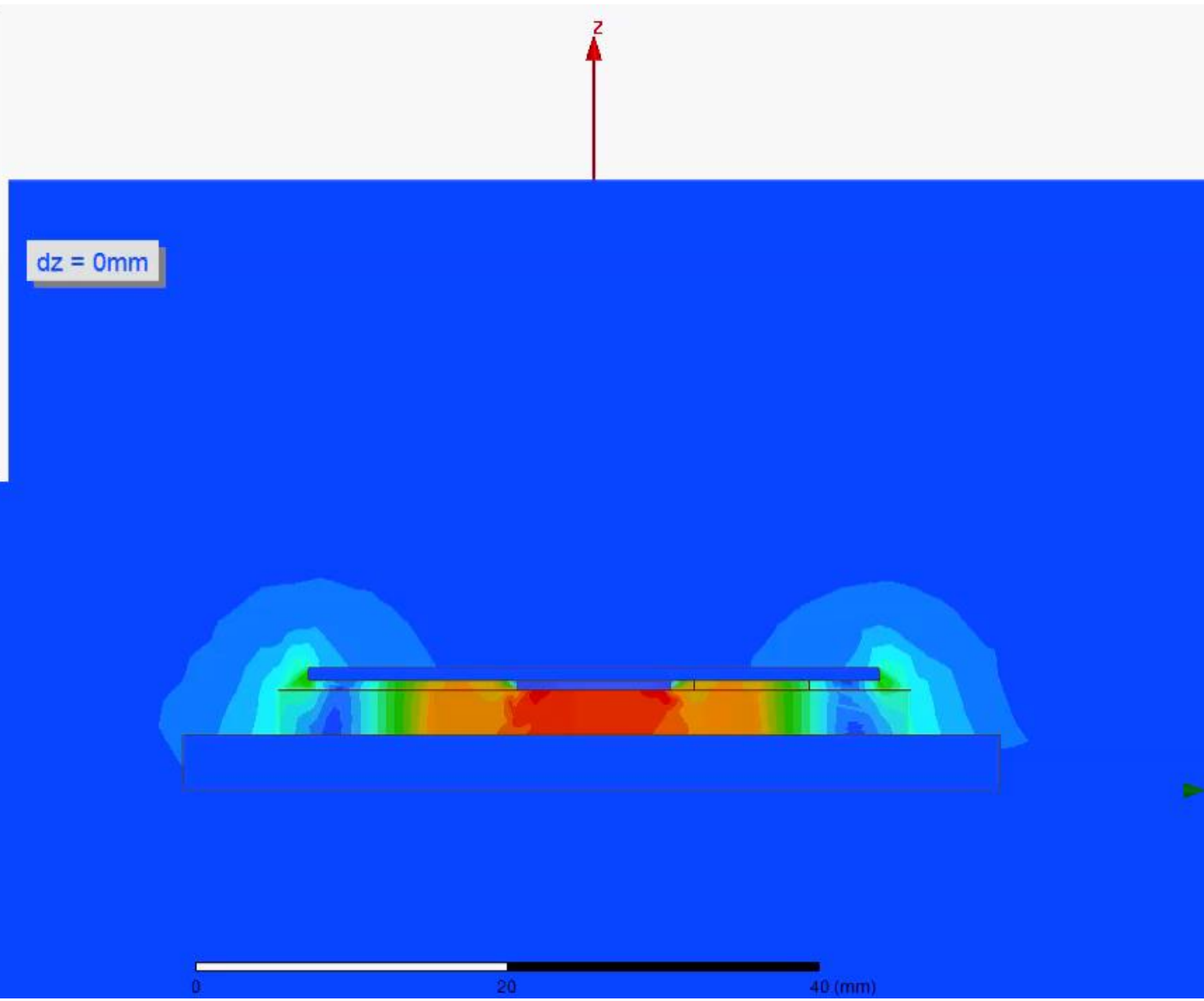
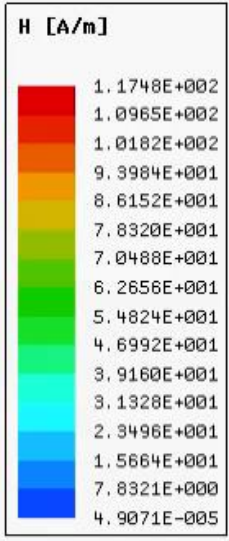
Tx_Rx with shielding



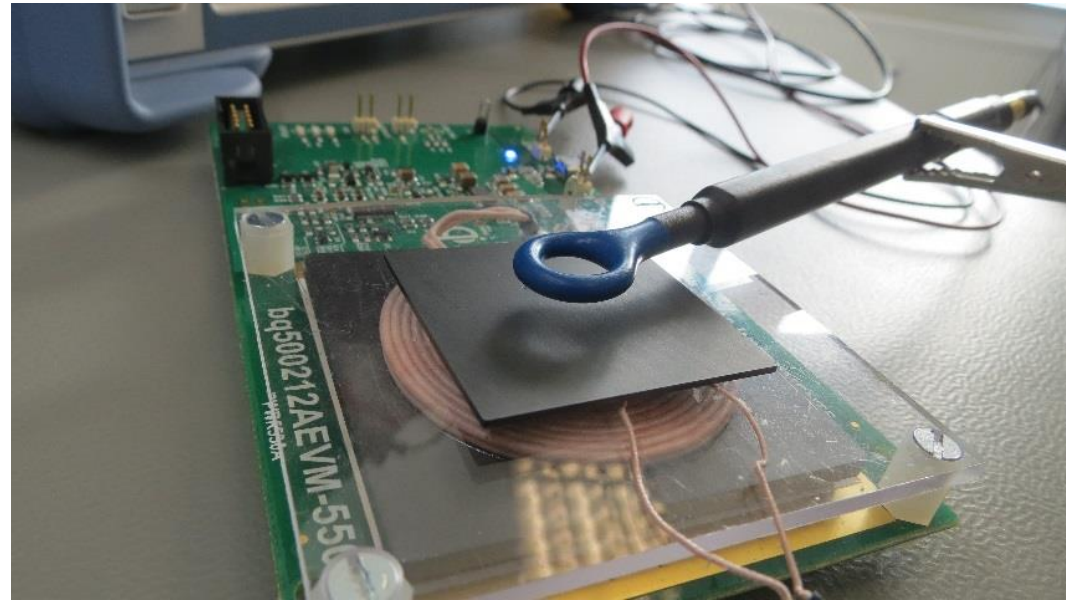
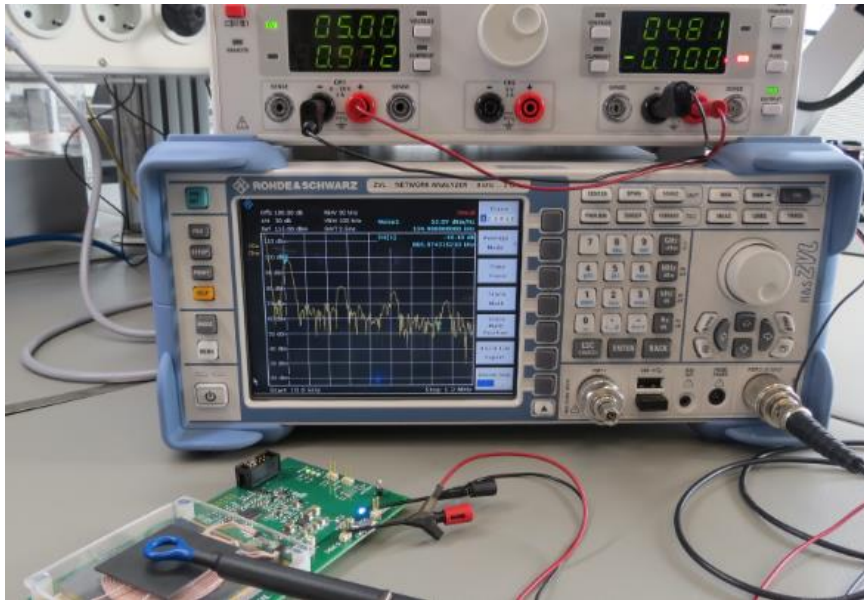
With shielding



Magnetic Field Simulation

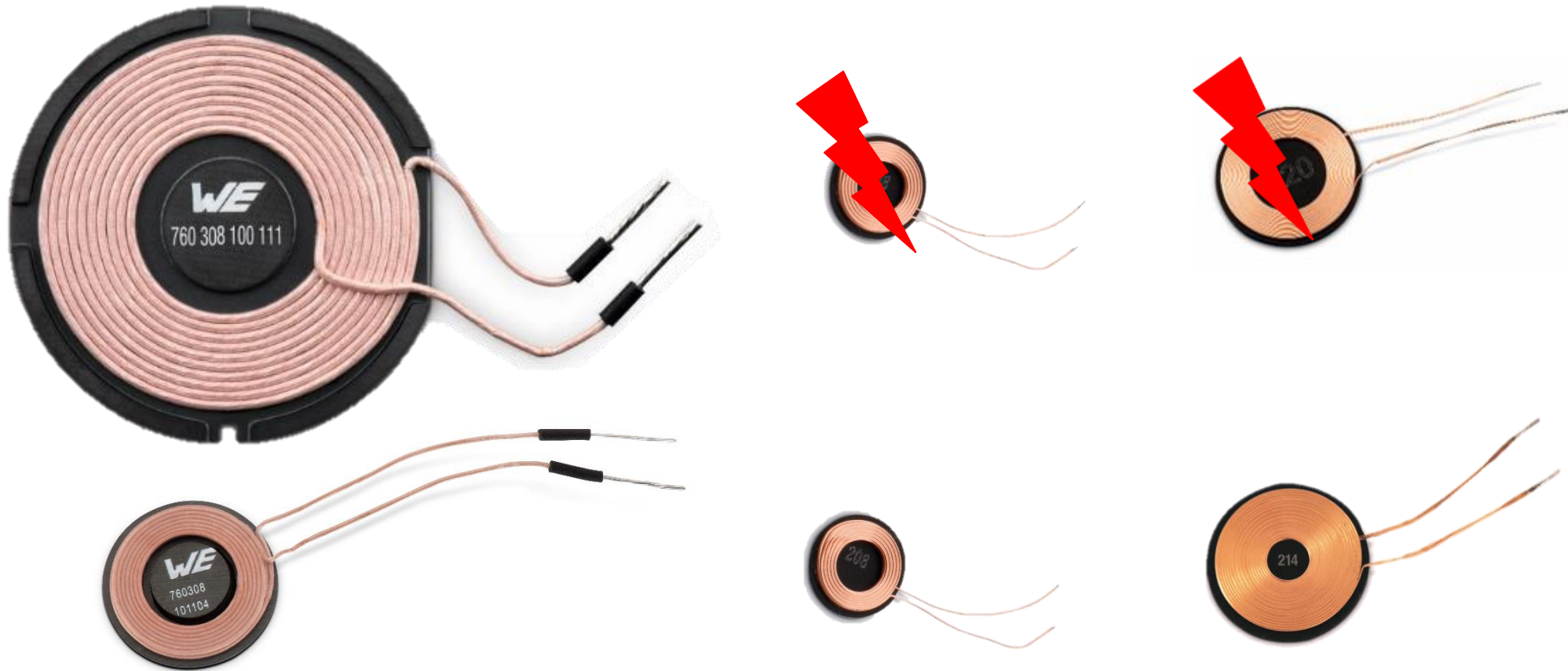


EMI Measurement at Receiver Side



Small Rx coils and standard Tx coils

- The new Rx coils for wearables need the small Tx coils!



760308101214 with 19mm diameter is the largest working with all Tx

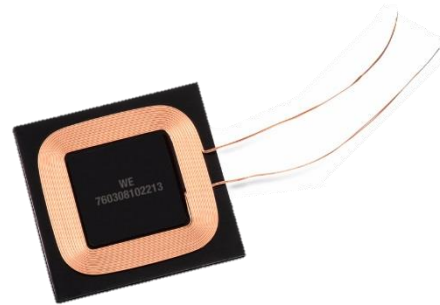
WE Wireless Power Coils -



Transmitter Coils



Receiver Coils



http://www.we-online.de/web/de/electronic_components/produkte_pb/demoboards/wireless_power/wireless_power_1.php

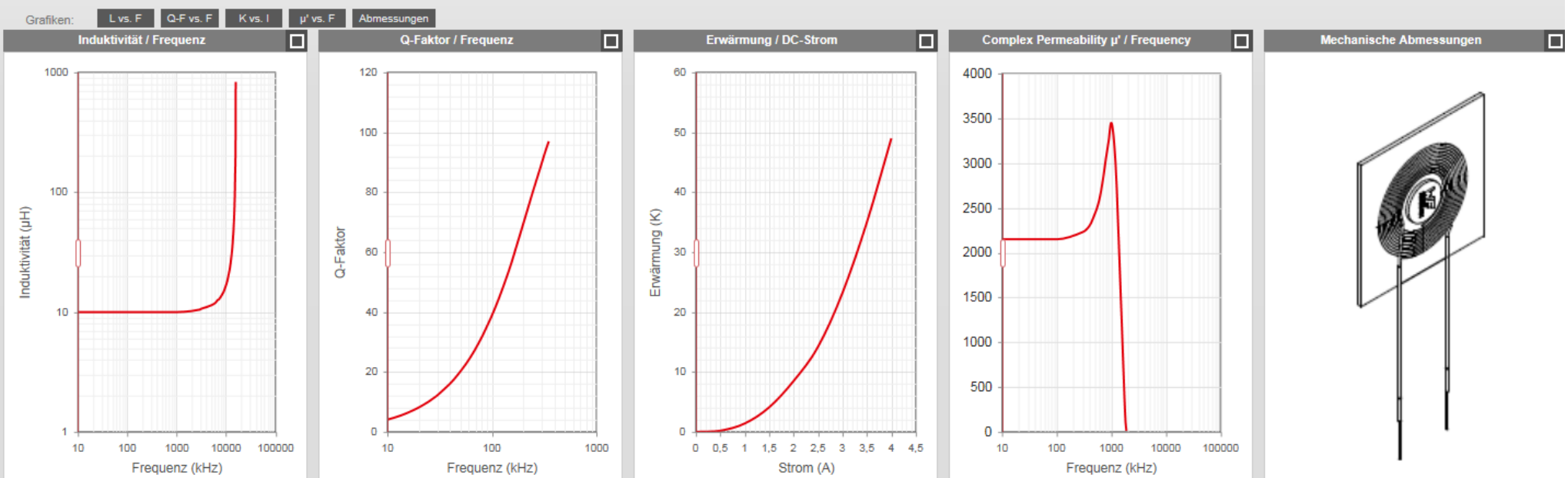
http://katalog.we-online.de/en/pbs/browse/Power_Magnetics/Wireless_Power_Transmission

Artikel-Nr.	Serie	Bauform	Spez	Typ	Complia...	L @125...	Q @125...	I _r	I _{eat}	R _{QC,max}	f _{res}	Länge...	Breite Max	Höhe Max
760308201	WE-WPCC	3737		Receiver		10,0 µH	50,0	4,50 A	8,00 A	200 mΩ	15,0 MHz	37,00 mm	37,00 mm	1,8 mm
760308101	WE-WPCC	5353		Transmitter	Qi-A1	24,0 µH	90,0	6,00 A	10,0 A	100 mΩ	6,00 MHz	54,40 mm	54,40 mm	6,0 mm
760308105	WE-WPCC	5353		Transmitter	Qi-A5	6,30 µH	55,0	13,0 A	16,0 A	25,0 mΩ	20,0 MHz	54,40 mm	54,40 mm	6,0 mm
760308106	WE-WPCC	13054		Transmitter	Qi-A6	12,5 µH	125	9,00 A	10,0 A	65,0 mΩ	14,0 MHz	130,2 mm	54,90 mm	8,0 mm
760308110	WE-WPCC	5353		Transmitter	Qi-A10	24,0 µH	180	6,00 A	10,0 A	100 mΩ	5,00 MHz	54,40 mm	54,40 mm	6,0 mm
760308111	WE-WPCC	5353		Transmitter	Qi-A11	6,30 µH	80,0	13,0 A	16,0 A	20,0 mΩ	20,0 MHz	54,40 mm	54,40 mm	6,0 mm
760308100110	WE-WPCC	∅ 50		Transmitter	Qi-A10	24,0 µH	180	6,00 A	10,0 A	100 mΩ	5,00 MHz	51,10 mm	51,10 mm	6,0 mm

Zum Hinzufügen die Artikel hier platzieren

Muster ordern

Aufräumen



Qi Medium Power 15W Demo Kit ROHM/Würth Elektronik



Buy only Qi devices in the future

