

**TOP-EMC**

# 深圳市韬略科技有限公司

**SHENZHEN TOP-FLIGHT TECHNOLOGY CO.,LTD.**



## 技术服务

## 实验检测

## 企业培训

## 器件销售

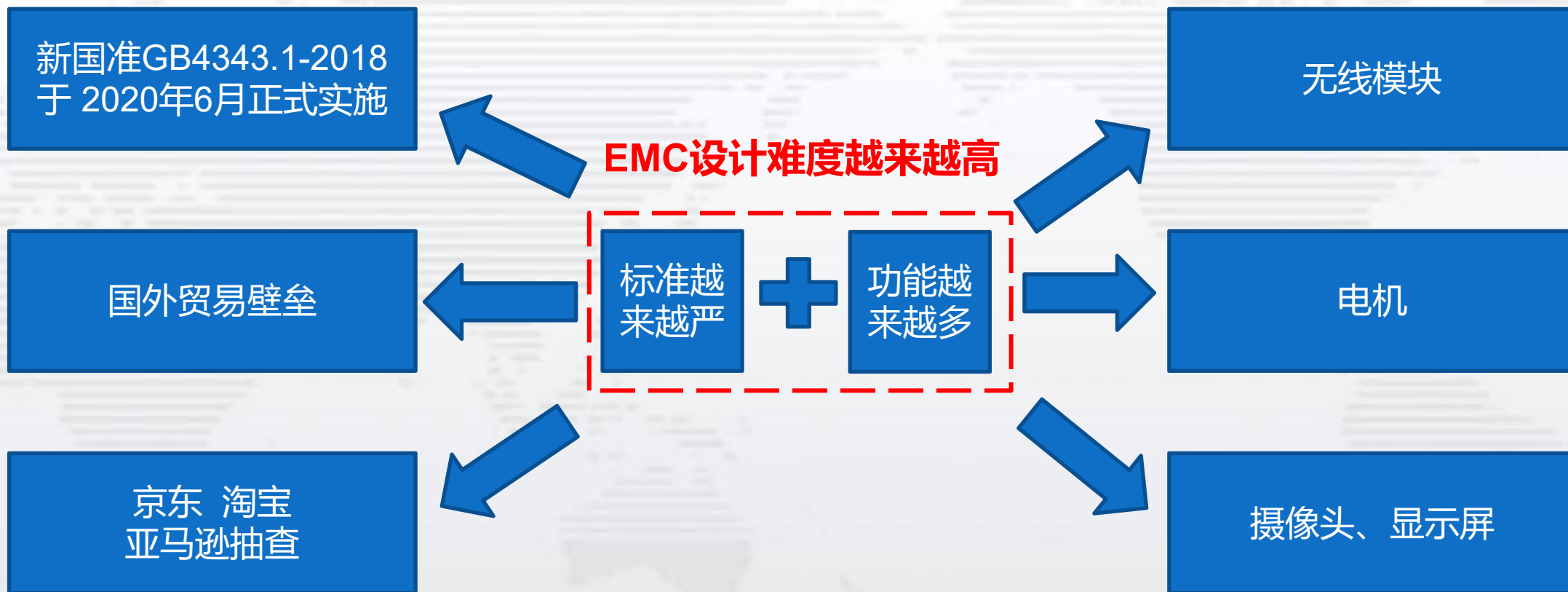
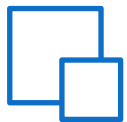


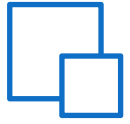
正向开发  
仿真优化

标准解读  
整改优化

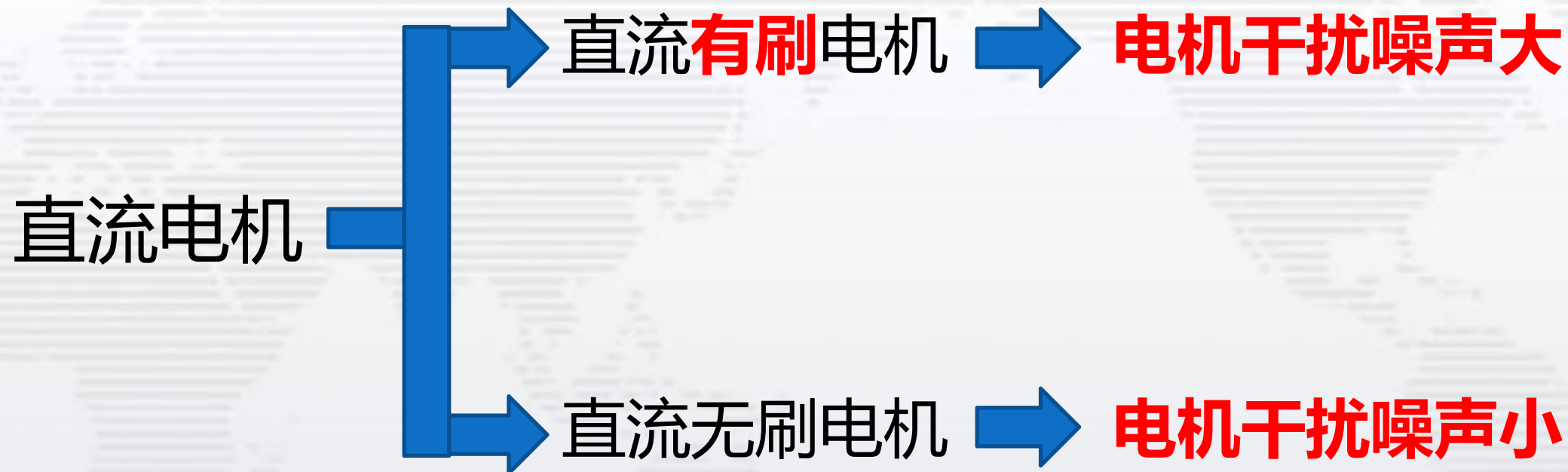
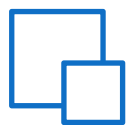
技术培训  
落地实操

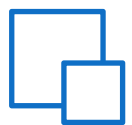
定制研发  
精准定位





# 直流有刷电机辐射发射解决方案探讨





# 有刷电极的架构



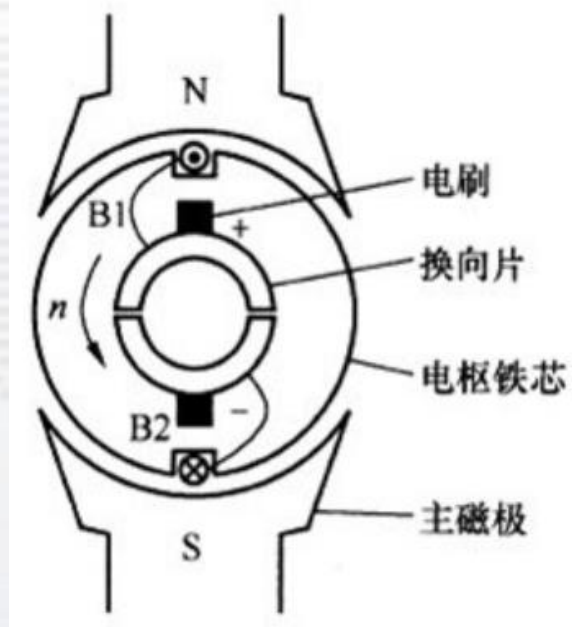
转子



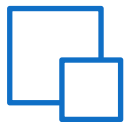
定子和外壳



电刷



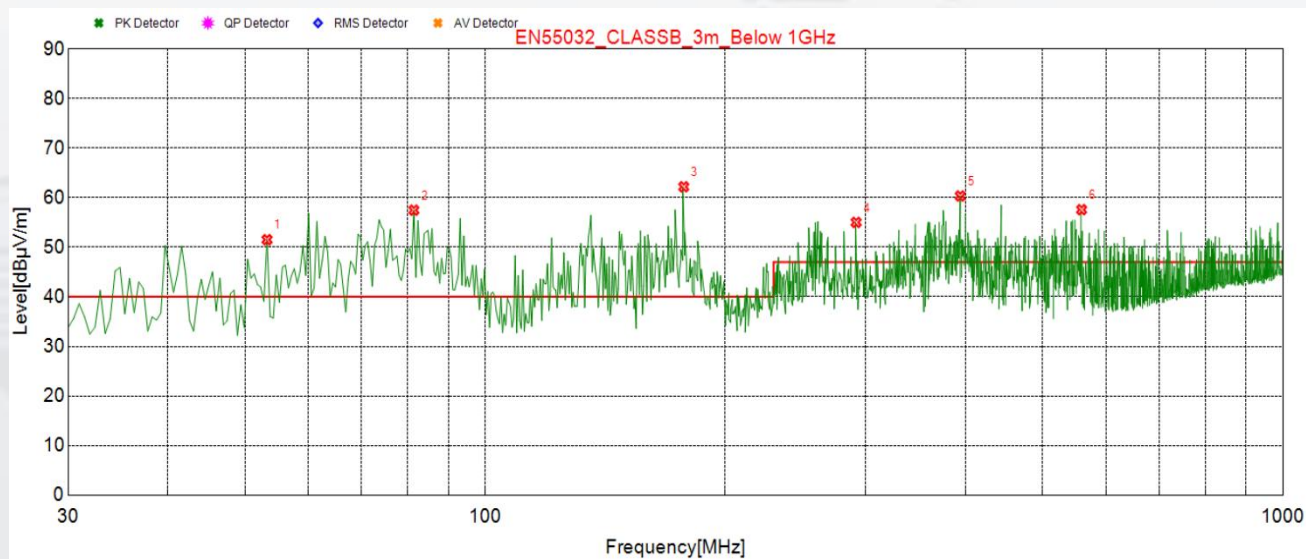




# 有刷电机的EMI来自哪里？

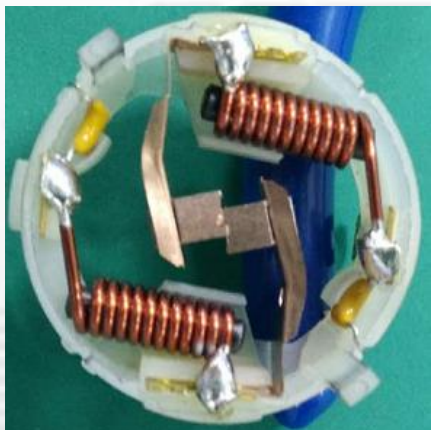


电机在转动换向过程中，碳刷在不断的拉电弧，  
产生干扰频谱较宽且连续分布；  
高频噪声通过电机引线及外壳缝隙往外辐射。

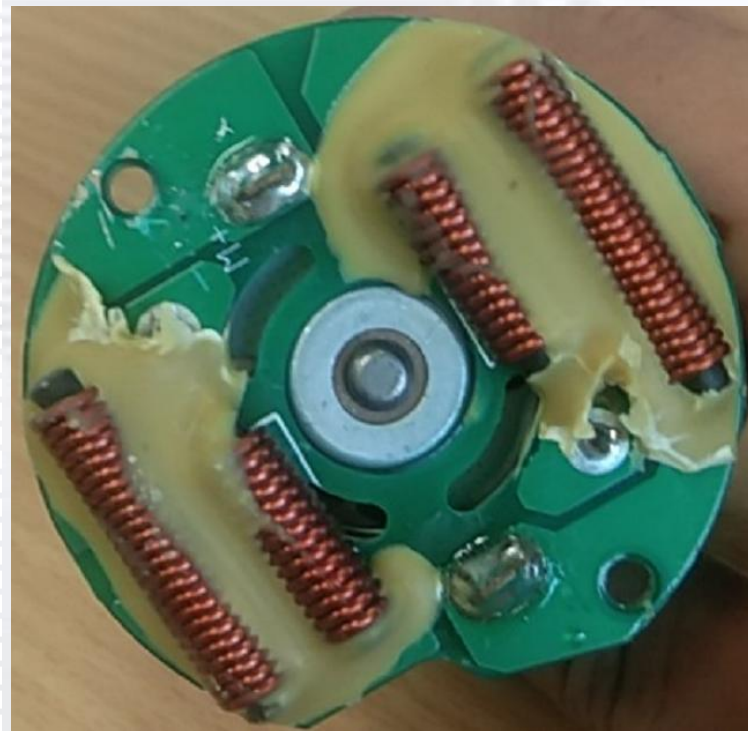




## 电机内部



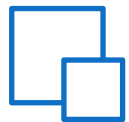
## 电机外部



## 传统处理方案问题

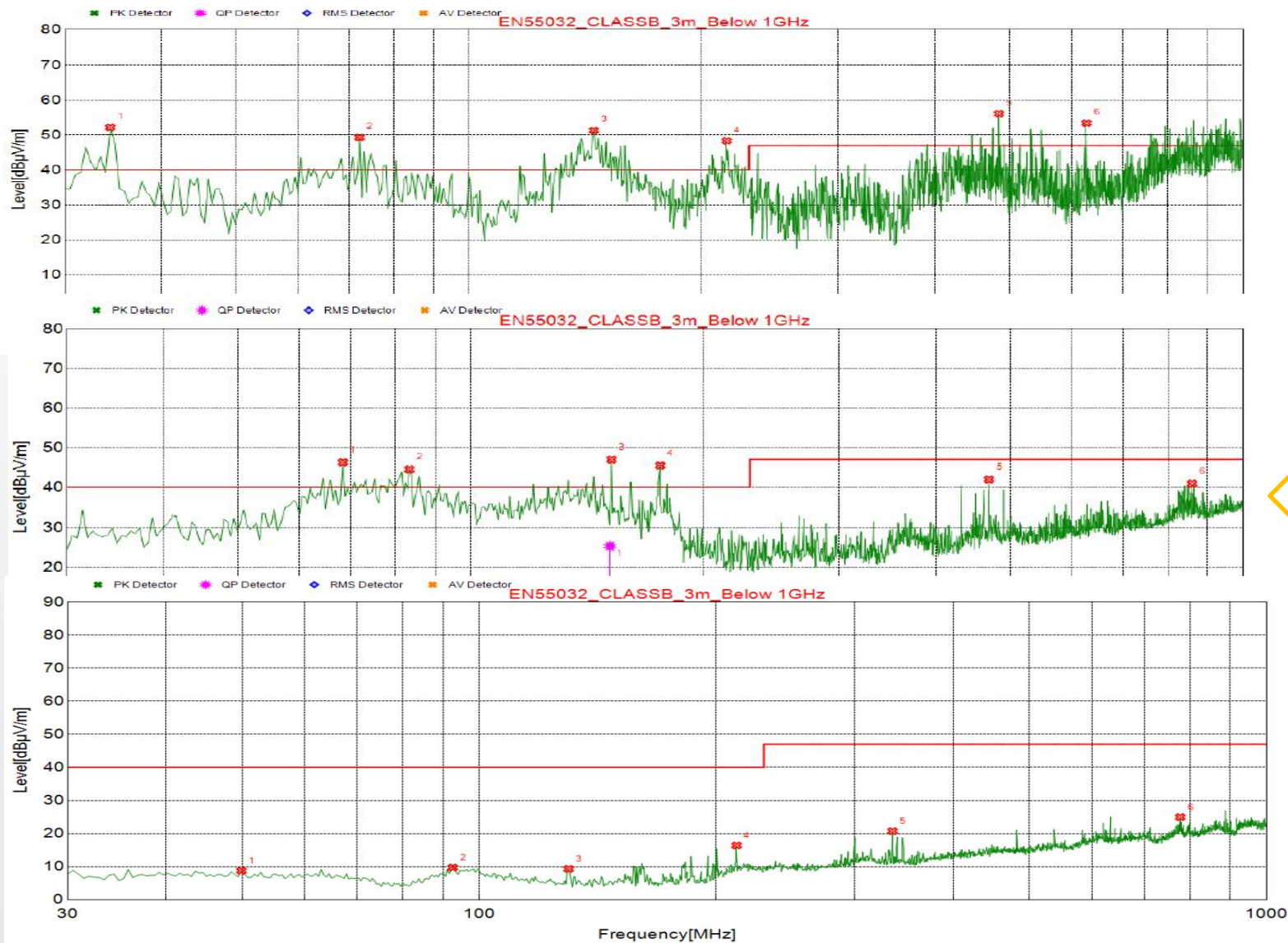
- 不断调整参数，费时费力；
- 插件体积大，人工成本高；
- 电流越大成本越高；
- 整机滤波效果不理想。



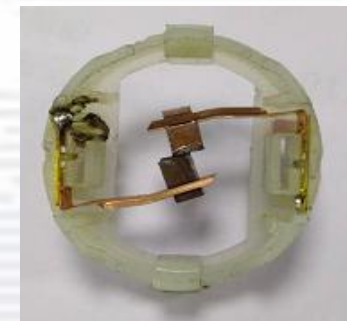


# 3系电机 (8000 RPM) EMI解决方案对比

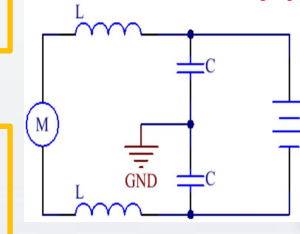
TOP-EMC



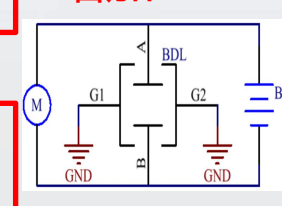
无措施



2电感+2电容

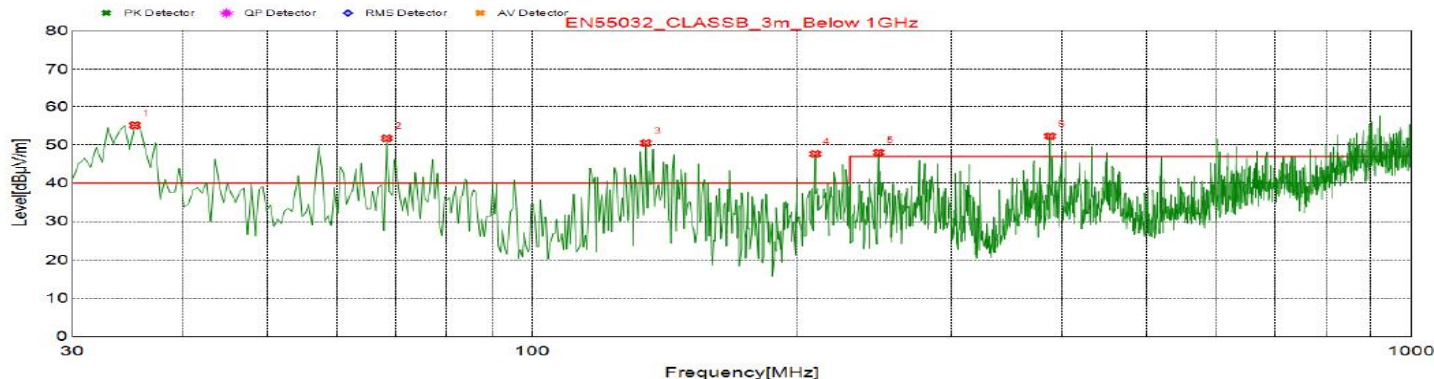


增加BDL

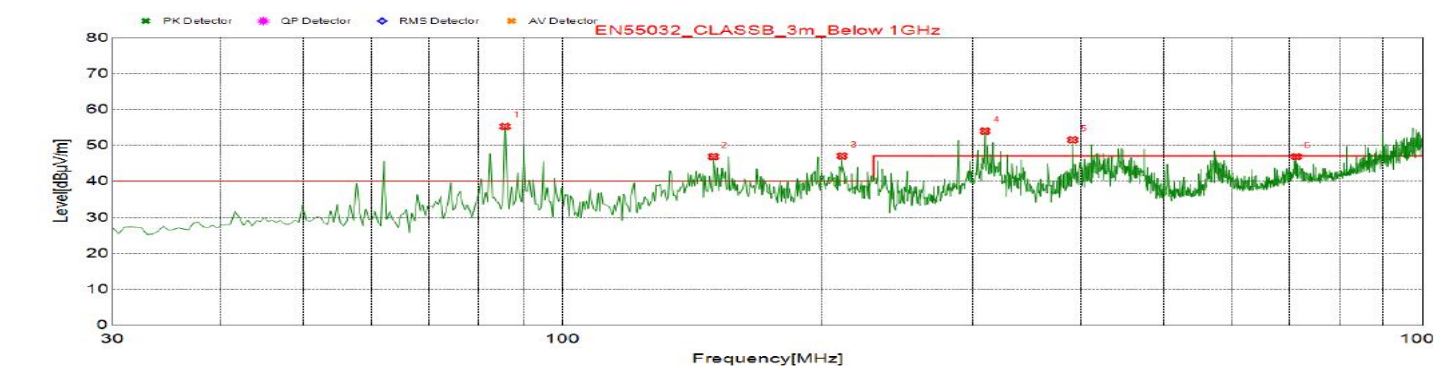




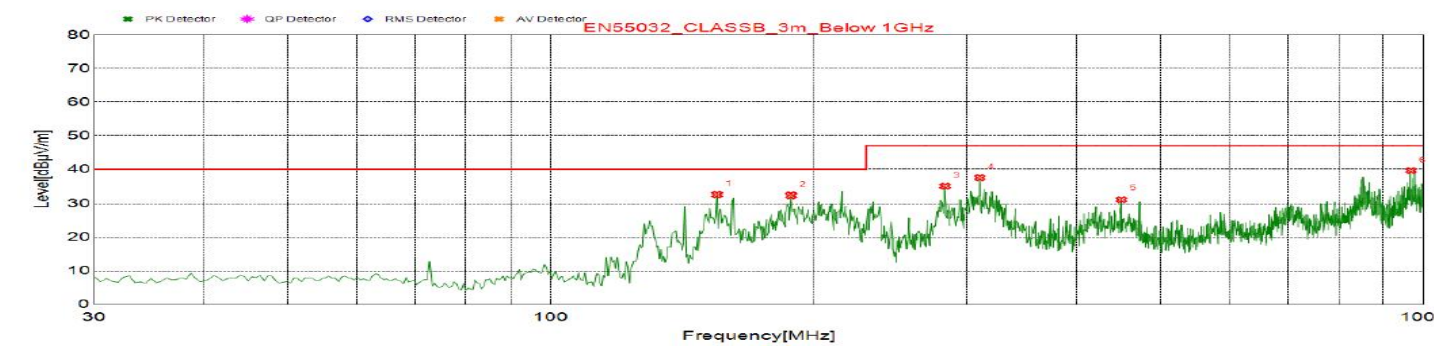
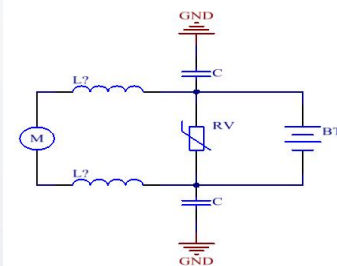
# BDL在7系电机18000转的应用



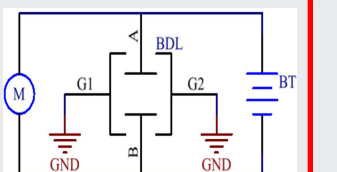
无措施



2电感+2电容+压敏



增加BDL



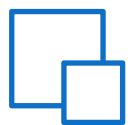




## BDL对比传统方法的优点

- 1、滤波效果好，滤波频段宽，**方案成本低**；（最多可节省5.0RMB）
- 2、单颗器件代替多种不同参数器件组合，**减少研发时间**；
- 3、贴片工艺，减少人工焊接成本，简化生产工艺，**提高生产效率**；
- 4、定制化PCB，操作简单有效，**可取代复杂的屏蔽和磁环工艺！**





# BDL滤波器应用产品-家电

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科学  
提高  
借助健身器材锻炼



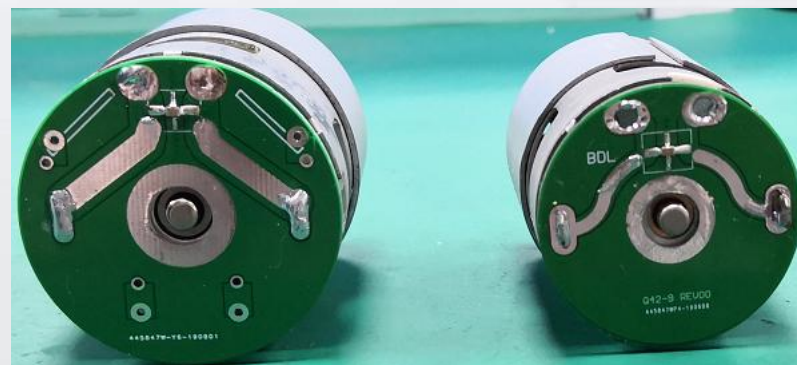
韬略科技致力于提供一站式EMC解决方案





# BDL滤波器应用产品-电动工具

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# BDL滤波器应用产品-智能家居

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智能马桶



升降床



CURTAIN MOTOR  
开合帘电机



DC TUBULAR MOTOR  
直流管状电机

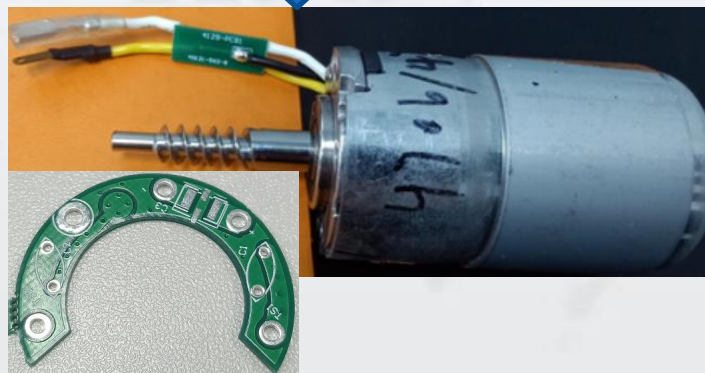
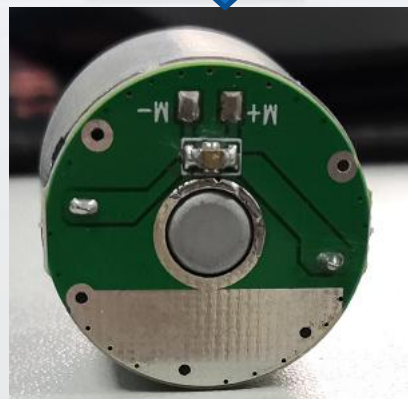
电动窗



VERTICAL BLINDS MOTO  
垂直帘电机



OUTDOOR VENETIAN BLINDS MOTOR  
室外百叶帘电机





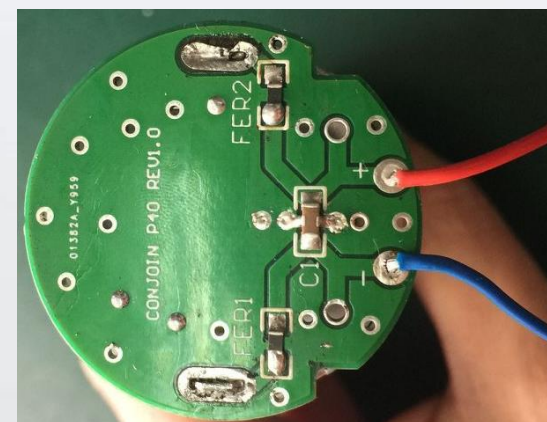
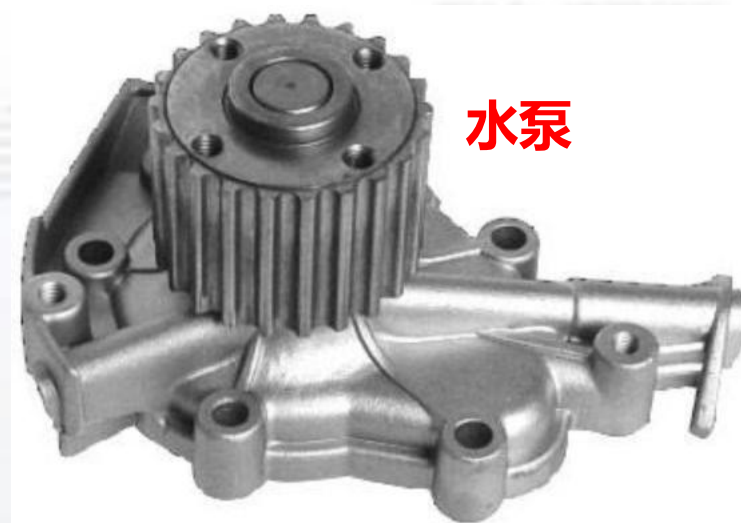
# BDL滤波器应用产品-汽车电子

TOP-EMC

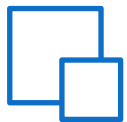
雨刮电机



水泵



韬略科技致力于提供一站式EMC解决方案



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韬略科技致力于为客户提供最高效，最合理的EMC一站式解决方案。

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