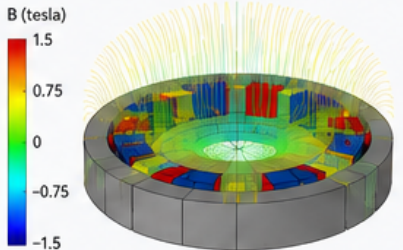


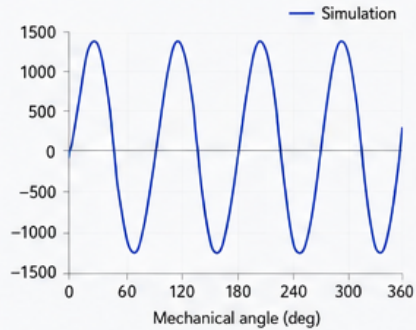
1 SIMULATION

Rotor design for EV

FEM simulation (ANSYS Maxwell)



Predicted radial flux density in the air-gap



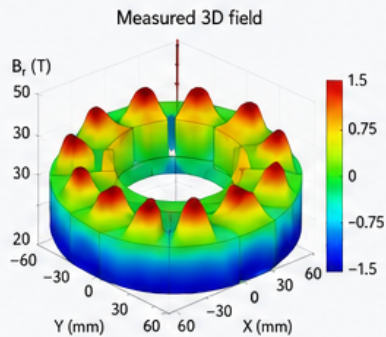
DESIGN TARGET

- ✓ Peak air-gap field: 1.2 T
- ✓ THD < 3%
- ✓ Torque ripple < 5%

2 MEASUREMENT

with SENIS mapper

Rotor prototype measured with SENIS 3D Magnetic Field Mapper



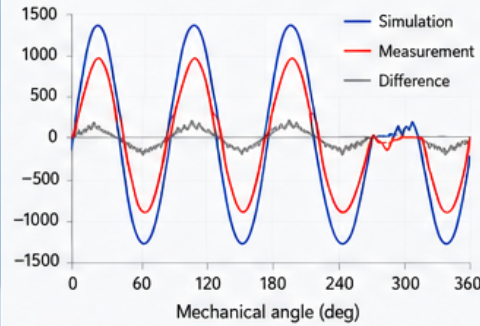
MEASUREMENT INFO

- Mapper: SENIS MMS-1x
- Probe: 3-axis Hall
- Grid: 720 x 1 x 64 points
- Air-gap scan radius: 55 mm

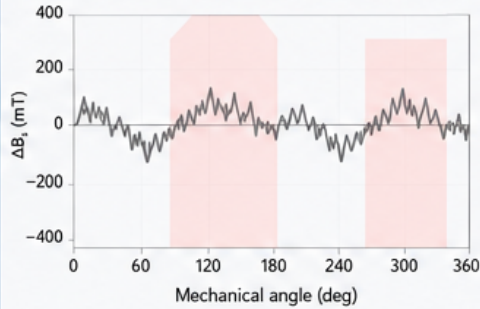
3 COMPARISON

Simulation vs Measurement

Radial flux density B_r (mT)



Difference (Measurement - Simulation)



KEY FINDINGS

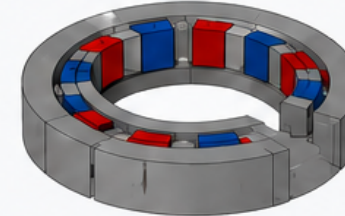
- ⚠ Peak field -8% (1.10 T vs 1.20 T)
- ⚠ Pole position error up to 2.3°
- ⚠ THD = 6.7% (target < 3%)
- ⚠ Torque ripple ≈ 9% (target < 5%)

4 CORRECTION

Design & Process Update

Design corrections

- Adjust magnet arc
- Optimize magnet thickness
- Improve slot opening shape
- Refine rotor balancing

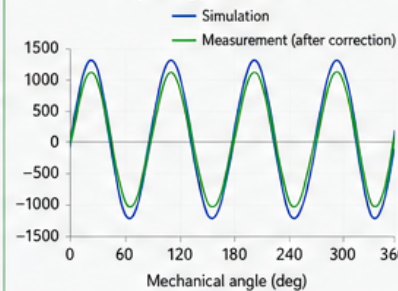


Process improvements

- Better magnet positioning fixture
- Tighter assembly tolerance
- Magnetization process tuning
- Quality control with mapper

VERIFICATION

(New prototype measured)



RESULT

- ✓ Peak field: 1.21 T
- ✓ THD: 2.4%
- ✓ Torque ripple: 3.8%

5 APPLICATION

in e-Mobility and beyond

AUTOMOTIVE (EV & HEV)



- ✓ High performance
- ✓ Efficiency
- ✓ Reliability
- ✓ Lower NVH

AVIATION (eVTOL & HELICOPTER)



- ✓ Lightweight design
- ✓ High power density
- ✓ Extended range

RAIL (TRAINS & LOCOMOTIVES)



- ✓ High torque density
- ✓ Reliability
- ✓ Long maintenance

MICROMOBILITY (E-BIKES)



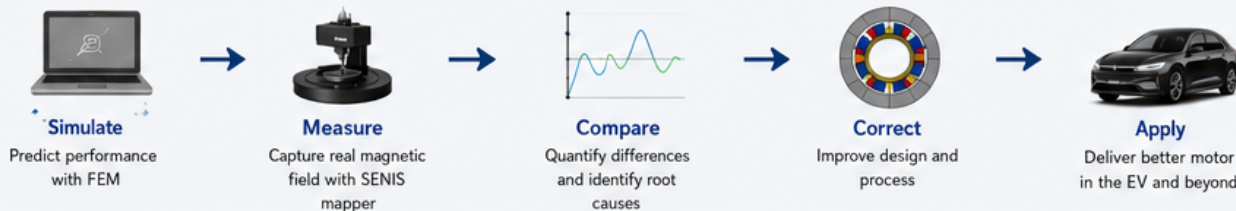
- ✓ Compact & efficient
- ✓ Quiet operation
- ✓ Longer battery life

AERIAL (DRONES & UAVs)



- ✓ High efficiency
- ✓ Power-to-weight
- ✓ Precise control

THE CLOSED-LOOP DESIGN PROCESS



VALUE DELIVERED

- 🕒 Faster development cycles
- 🔧 Fewer prototype iterations
- 💰 Lower costs
- ⚙️ Higher product quality
- 🏆 Competitive advantage in e-mobility & other markets

