

Numerical computations regarding mobile phone usage in partially shielded environments

(first preliminary results)

R. Georg¹, G. Schmid², P.Preiner², S. Cecil²

¹ Ingenieurbüro für Telekom Consult, Datenschutz und Datensicherheit, Germany

²ARC Seibersdorf research GmbH, A-2444 Seibersdorf, Austria

Computational Methods:

- **SEMCAD X 64 Bit (SPEAG, Switzerland)**

FDTD

for „small scenarios“ (max. approx. 100 Mio FDTD cells)

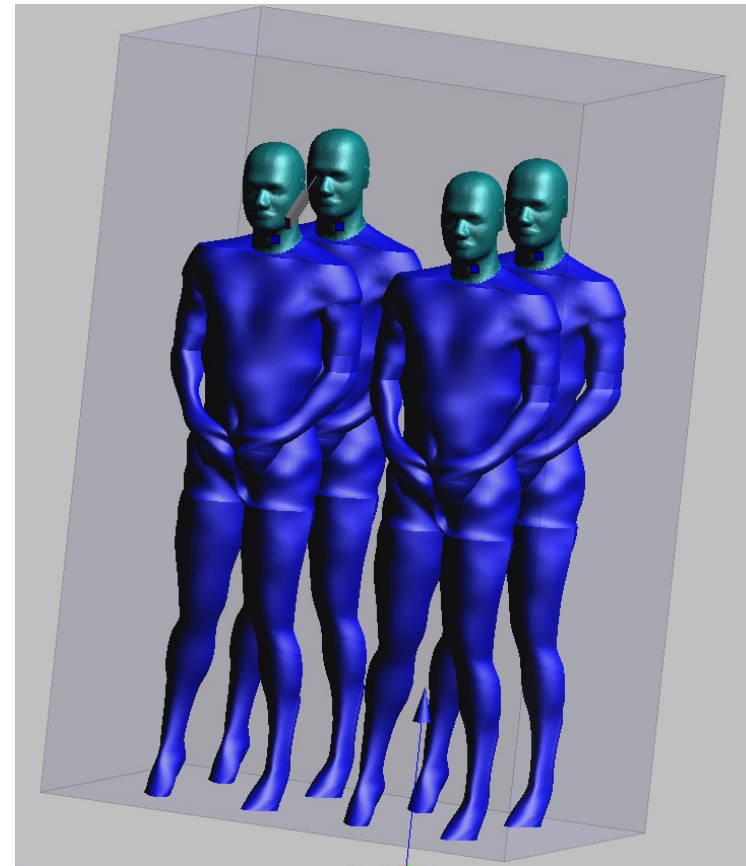
→ elevator, cars

for „large scenarios“ (bus, aircraft, train)

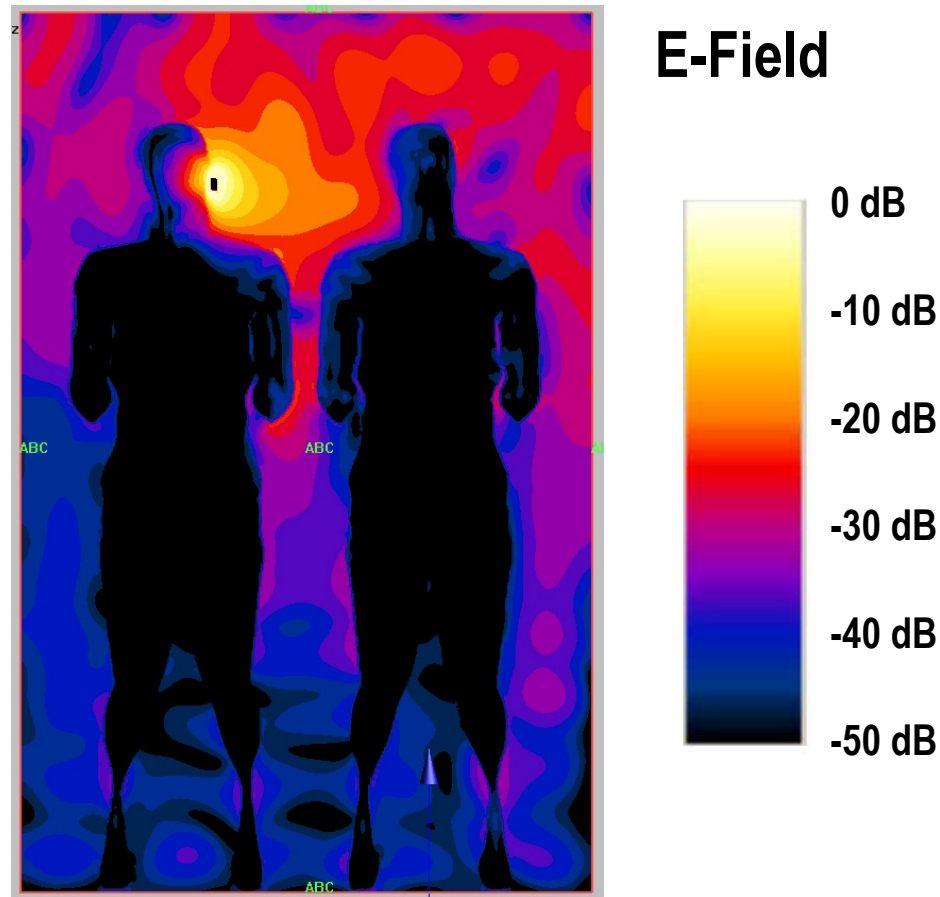
→ providing evidence that consideration of subspace (computable with FDTD) is sufficient

Example for a simple scenario: Elevator

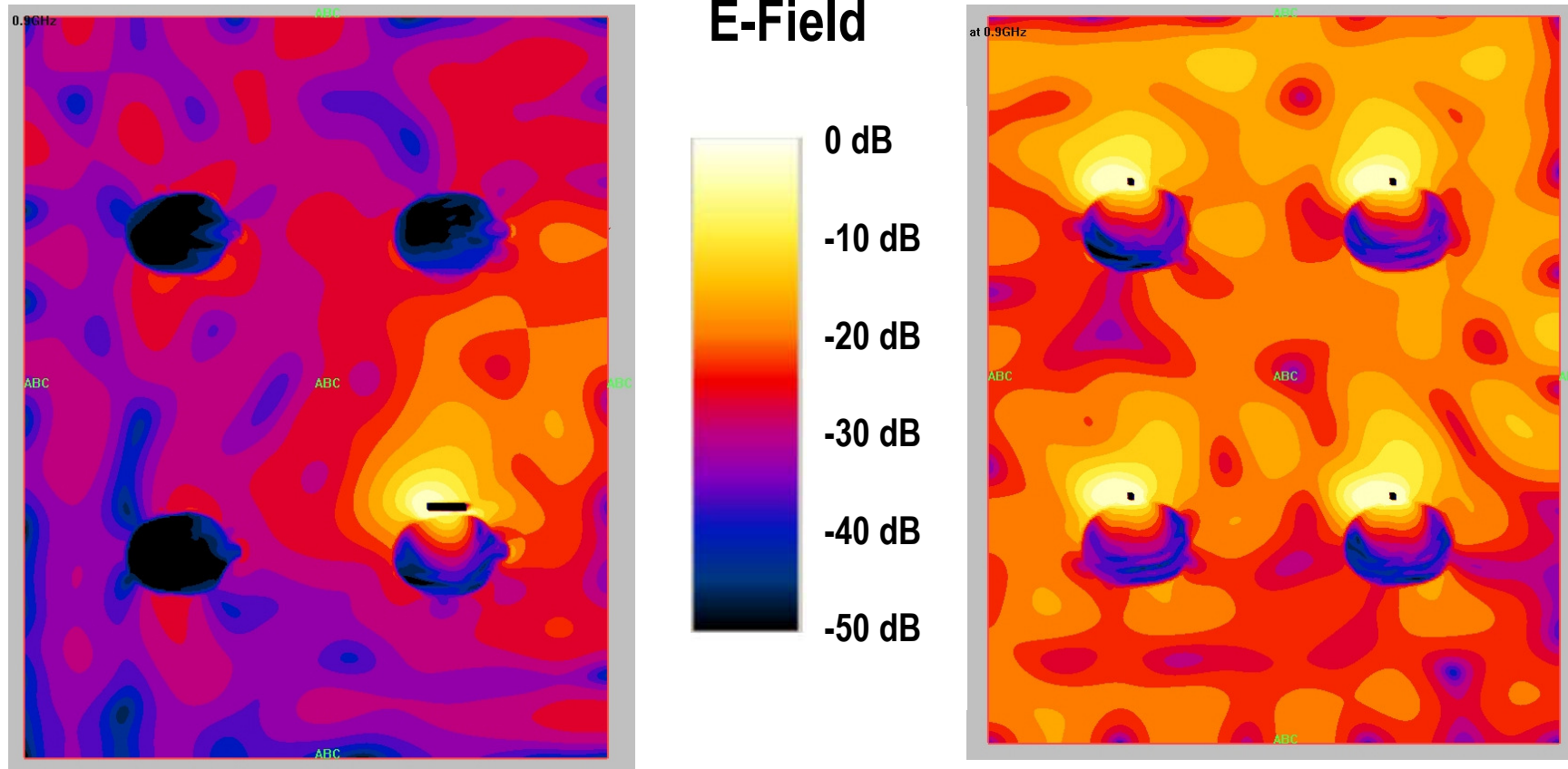
- Homogeneous body models with inside a metallic box of inner dimensions of an elevator cabin
- Computation of exposure for different number of active mobiles, different number of persons, and different boundary conditions (inside cabin compared to free space)



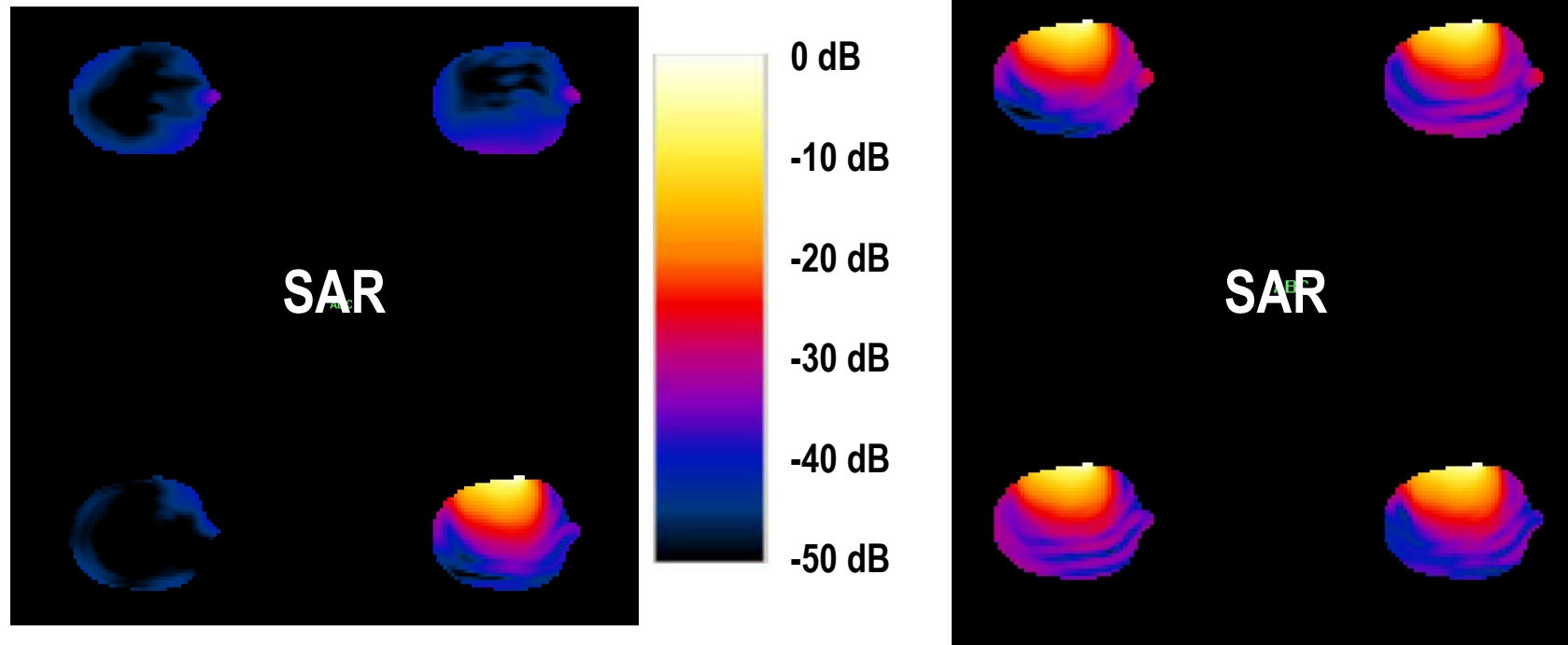
Example for a simple scenario: Elevator



Example for a simple scenario: Elevator



Example for a simple scenario: Elevator



900 MHz	HEAD max. 10g SAR	HEAD avg. SAR
1 mobile active (250 mW)	2.03 W/kg	0.032 W/kg
4 mobiles active (250 mW each)	2.09 W/kg (+3%)	0.034 W/kg (+6%)