Crosstalk between Cables in Helicopter

Unwanted noise produced by wiring systems can effect nearby equipment or other parts of the same piece of equipment and cause equipment malfunction.

Problem Definition

Aim of this application note is to show that XTalk can be used for simulations crosstalk problems between cables that located in complex surrounding environments such as vehicle, helicopter, aircraft and many others.

Crosstalk between cables in the car is considered. Currents and voltages are calculated and compared with fullwave solution (see Fig.1 - Fig.2).
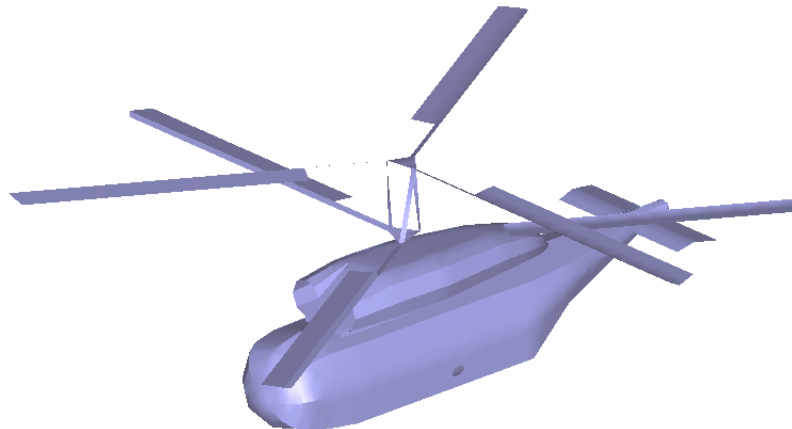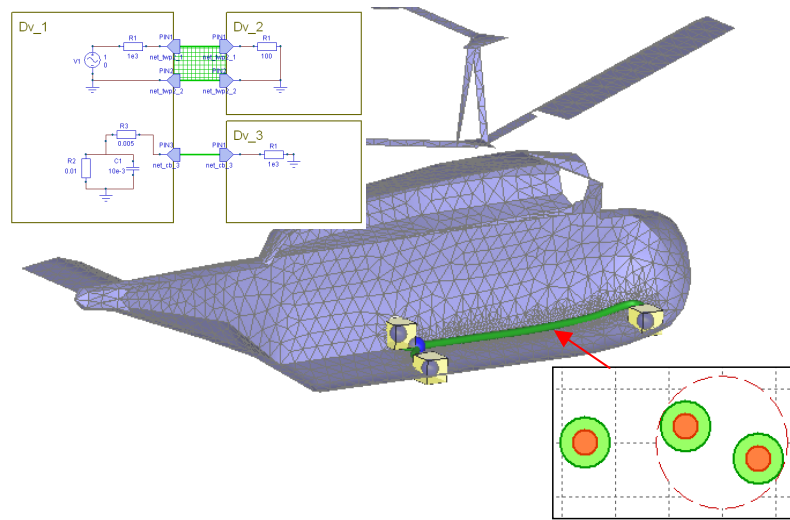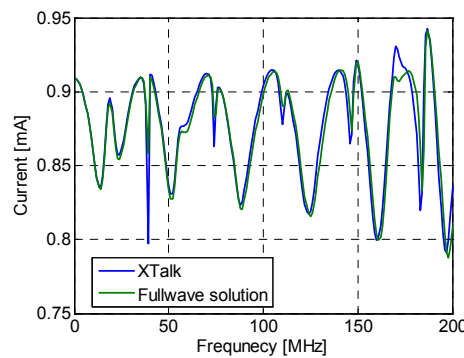

Fig. 1.   Helicopter

Fig. 2.   Cable system located inside helicopter

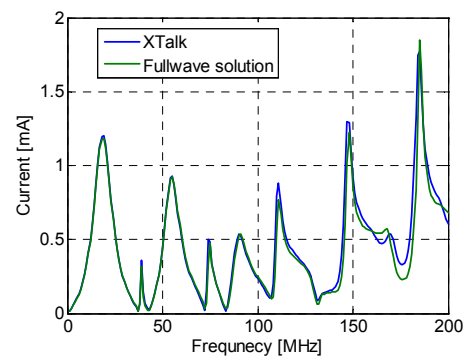Terminating devices and bundle cross section of cable system used in simulation are shown in the figures above.

Numerical Results

Simulation results compared with full wave solution are presented in the figures below.

Fig. 3.   Current in device 1 thought R1
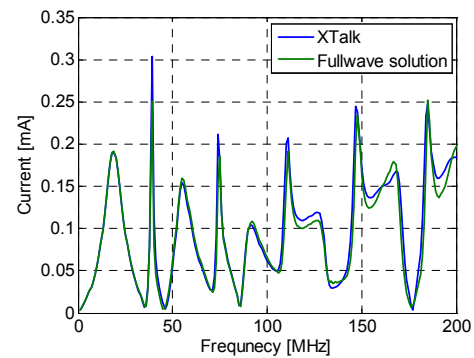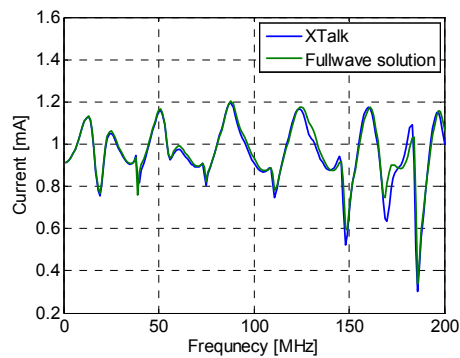
Fig. 4.   Current in device 1 thought R3

Fig. 5.   Current in device 2 thought R1

Fig. 6.   Current in device 3 thought R1

Conclusions

- EMC problems of harness in complex surrounding environments can be investigated within EMC Studio

- Numerical results calculated using Hybrid approach are in very good agreement with fullwave solution