

Recent Advances in Automotive Optical Networks

P. De Pauw (1), A. Devos (1), O. Chasles (1), B. Shutko (1), V. Borduzhe (1), L. Shchyrin (1), J. Chen (1), R. Bockstaele (2), D. Verhulst (3), X. Yin (3), Xing-Zhi (3)

(1) Melexis NV, Rozendaalstraat 12, 8900 Ieper, Belgium

(2) Phocon BVBA, Belgium

(3) Department of Information Technology, University of Gent, Belgium

High volume automotive applications are driving down the cost of optical networks whilst demanding increases in robustness and performance. First generation automotive optical networks use 1 mm PMMA POF with red LEDs. Due to the many drawbacks (large minimum fiber bending radius, limited optical budget, damage when exceeding the temperature limits, impossibility to function over the entire automotive temperature range -40C to +125C) a new generation of automotive optical networks is being developed. This optical network is based on 200 μm core PCS fiber, and uses dedicated 850 nm automotive VCSELs, optimized for performance up to 125C ambient temperature. The state of the art is described, together with first realizations. The possible evolution of these automotive PCS networks towards camera links, and safety critical networks is discussed.

[Manuscript not available at the time of printing the proceedings]