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# Autoliv 77GHz Multi Mode Radar

*A compact, cost-effective and high-performance driving assistance system combining medium- and long-range detection*



Autoliv, one of the leading automotive radar system suppliers, has developed a new radar configuration. Instead of installing two radar systems, one for long range and another for medium range, the 77GHz Multi Mode Radar combines both. By expanding the detection area of the radar, Autoliv significantly reduces the cost of safety equipment.

The system integrates two electronic boards including Texas Instruments' microcontroller and automotive vision processor. The radio-frequency (RF) board is manufactured with an asymmetric structure using a hybrid PTFE/FR4 substrate and is equipped with planar antennas.

The radar uses Infineon's 77GHz SiGe monolithic microwave integrated circuit (MMIC) as its high-frequency transmitter and receiver. The RF dies are packaged in the latest version of eWLB, the fan-out wafer level package developed and manufactured by Infineon. The transmitter and receiver are connected to a dual power amplifier and to a waveform generator from Infineon.

Based on a complete teardown analysis of the Autoliv Multi Mode Radar, the report provides bill-of-material (BOM) and manufacturing cost of the radar sensor and a comparison with the Bosch MRR and Delphi RACam.

A complete physical analysis and manufacturing cost estimation of Infineon's MMICs is available in a separate report.

**Title:** Autoliv 77GHz Multi Mode Radar

**Pages:** 80

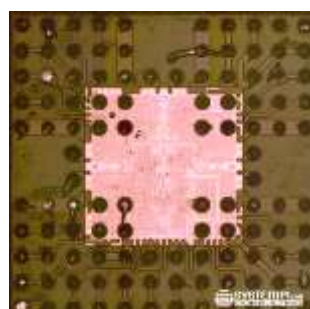
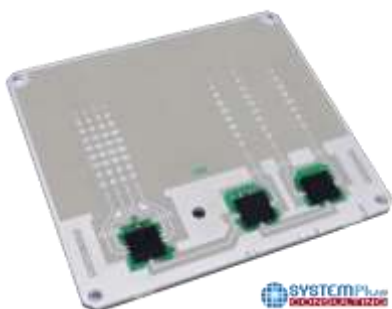
**Date:** January 2017

**Format:** PDF & Excel file

**Price:** Full report: EUR 2,990

## COMPLETE TEARDOWN WITH:

- Detailed photos
- Material analysis
- MMIC die views
- Comparison with Bosch MRR and Delphi RACam
- PCB cross-section
- Vision processor physical analysis and cost estimate
- Complete and priced bill-of-materials
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### AUTHORS:



#### David Le Gac

David joined System Plus Consulting as a cost engineer in 2013. He is in charge of reverse costing with a focus on boards and systems. He previously worked for Lacroix Electronics where he was in charge its components database. He holds a master's degree in micro-electronics from the University of Rennes.



#### Véronique Le Troadec (Lab)

Véronique is in charge of structure analysis of semiconductors. She has deep knowledge of chemical and physical technical analyses. She previously worked for 20 years at Atmel's Nantes Laboratory.

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### Bosch Mid Range Radar (MRR) Sensor

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Pages: 80  
Date: October 2015  
Full report: EUR 2,490\*

### Delphi RACam Integrated Radar and Camera

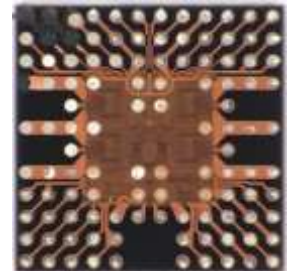
A compact, cost-effective and high-performance Advanced Driving Assistance System (ADAS).



Pages: 104  
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### Infineon RRN7745P & RTN7735P, eWLB Fan-Out Package - 77GHz Radar Dies

New receiver & transmitter components with a SiGe:C HBT technology from Infineon.



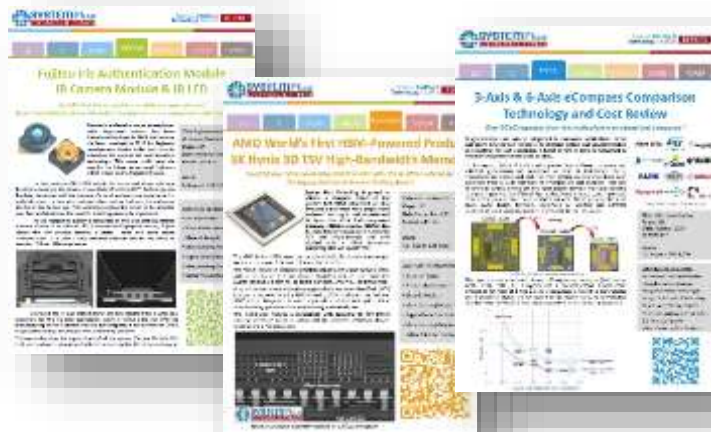
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