In the next few years, autonomous driving will become reality. To achieve this innovation, the number of vision technologies have increased to provide functionality and safety to drivers and passengers. Among the vision technologies, radar systems are the best-established and most secure technology, introduced in 2000 with Short Range Radar (SRR) systems, dedicated to blind spot or line crossing detection. Today vehicles from several suppliers offer ‘level 3’ automation, where drivers are on standby but can be hands-off for periods of time, integrating around five radar systems. These include SRR and Long-Range Radar (LRR), providing emergency breaking or Adaptive Cruise Control. To track how the technology is evolving and see what’s coming in the future, now is the perfect time to investigate every player and compare radar original equipment manufacturers (OEMs), module suppliers and current technologies.

This comparative technology study provides insights on technology data for radio-frequency (RF) chipsets and antenna boards in radar systems. The report includes the study of fifteen radar systems from several OEMs, including Continental, Veoneer, ZF, Valeo, Bosch, Aptiv, Denso and Ainstein.

With teardowns of a large variety of radar, we have extracted and analyzed the main RF chipsets and also, we have sectioned the RF boards. All in order to show the various OEM technical and economic choices and give an overview of the market. Market shares differ depending on the frequency and the application. At 24 GHz, STMicroelectronics and Infineon share the leadership. At 77 GHz, Infineon leads the way and NXP follows.

The report includes a description of each component and statistical analyses for most radar systems focusing on the RF board. Moreover, we compare the costs of the main blocks to explain OEM choices and supplier preferences. The main board analyses along with the full Bills-of-Materials (BOMs) and system costings are not covered in this report.
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AUTHORS

Dr Stéphane Elisabeth has joined System Plus Consulting’s team in 2016. He has a deep knowledge of Materials characterizations and Electronics systems. He holds an Engineering Degree in Electronics and Numerical Technology, and a PhD in Materials for Microelectronics.

Nicolas Radufe is in charge of physical analysis at System Plus Consulting. He has a deep knowledge in chemical and physical analyses. He previously worked in microelectronics R&D for CEA/LETI in Grenoble and for STMicroelectronics in Crolles.

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