The radio-frequency (RF) MEMS market has two segments. The major part is related to filters, with big company players like Broadcom, Skyworks or Qorvo relying on acoustic wave devices. The second part is expected to take off in 2019 and is related to switches. In this area, small companies like Cavendish Kinetics are already supplying the consumer market in small volumes and only for low end smartphones. But this year, some players are entering in this field with devices targeting mainly industrial applications. These components from Menlo Micro, Air MEMS, Analog Devices Inc. (ADI) are expected to enter mass production and be integrated in devices. These switches are expected to replace electromechanical relays (EMR) in instrumentation or test systems that are currently looking for high speed, low loss switching.

ADI is the first to propose two versions of its RF MEMS switch technology in the mass market, the ADGM1304 and the 1004. The first is a RF MEMS switch with an integrated circuit (IC) companion to drive the signal to the MEMS die. The second is a similar version of the device with a driver IC and MEMS die, but also integrates an ElectroStatic Discharge (ESD) system.

For several years, ADI has anticipated the need for MEMS switches. The devices rely on an ohmic structure and can process up to four RF signals through one output, in Single Pole Quad-Throw (SP4T) configuration. Based on a silicon substrate, this technology allows the company to make a device smaller and faster than EMR devices with a remarkable lifetime, making it more reliable. Doing so, all the MEMS innovation makes the devices more suitable for test equipment, wireless networks and satellites. Its small form factor makes it faster in switching operation and consumes less power.

The report will include a detailed physical description of the Analog Devices ADGM1304 along with a cost analysis. Also, the report includes a physical and cost comparison with the ADGM1001 providing the resemblances and the differences between both devices.

COMPLETE TEARDOWN WITH
• Detailed photos and cross-sections
• Precise measurements
• Material analysis
• Manufacturing process flow
• Supply chain evaluation
• Manufacturing cost analysis
• Estimated sales price
• Physical and cost comparison of Analog Devices’ RF switch portfolio
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AUTHORS

Guillaume Chevalier has joined System Plus Consulting in early 2018 to perform physical analyses. He holds a two-year university degree in technology of physical measurements and instrumentation technics, and previously worked for four years for chemistry, mechanical and mass-metrology laboratories.

Belinda Dube is working for System Plus Consulting as Analyst in Semiconductor Memories and Integrated Circuits. She holds a Masters degree in Nano Science and Nanotechnologies from Ecole Central Lyon and INSA Lyon.

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CONTACTS

Headquarters
22, bd Benoni Goullin
Nantes Biotech
44200 Nantes
France
+33 2 40 18 09 16
sales@systemplus.fr

Europe Sales Office
Lizzie LEVENEZ
Frankfurt am Main
Germany
+49 151 23 54 41 82
llevenez@systemplus.fr

America Sales Office
Steven LAFFERIERE
Western USA & Canada
+1 310-600-8267
lafriere@yole.fr

Chris YOUUMAN
Eastern USA & Canada
+1 919-607-9839
chris.youman@yole.fr

Asia Sales Office
Takashi ONOZAWA
Japan & Rest of Asia
+81 3 4405 9204
onozawa@yole.fr

Mavis WANG
Greater China
+886 979 336 809
wang@yole.fr

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