Q2 2017 results

Alexander Everke, CEO
Michael Wachsler-Markowitsch, CFO
Moritz M. Gmeiner, Head of IR
ams at a glance

Our business
• Focus on high performance sensor solutions
• Sensor solutions, sensor ICs, interfaces, related software
• Small, low power, highest sensitivity, multi-sensor integration
• Best-in-class solutions for leading OEMs

Our end markets
• Consumer & Communications (C&C) – 51% of sales H1 2017
• Automotive, Industrial, Medical (AIM) – 49% of sales H1 2017

By the numbers
• 850+ engineers
• 21 design centers, 3 manufacturing locations
• 35 years of design and manufacturing know-how
• 5,800+ employees worldwide
• 8,000+ customers
ams strategy

Build the global leader in sensor solutions

True leadership in four sensor areas
• Optical
• Imaging
• Environmental
• Audio

Best-in-class performance per sensor area and in multi-sensor application solutions
• Smallest, lowest cost, high volume multi-sensor modules, driving monolithic integration
• Sensor algorithms and sensor fusion software
• Application software for differentiating end-user experiences

Diversified business with balanced application and customer portfolio
• Long-term target mix of at least 60/40 C&C / AIM split
• Broader customer base across applications

Clear financial target model
• Revenue growth target (CAGR) 2016-2019 of more than 40%
• EBIT margin target (adj.) of 30% from 2019
ams strategic value chain
Delivering best-in-class sensor solutions and applications

Sensor ICs
- Optical
- Imaging
- Environmental
- Audio

Sensor solutions
- Multi-sensor packages & modules
- Monolithic integrated sensors
- Sensor algorithms
- Sensor fusion algorithms

Application solutions
- Application software to deliver end-user experiences
## Multi-sensor solutions and sensor fusion

### ams focus

<table>
<thead>
<tr>
<th>Optical &amp; image sensing</th>
<th>Environmental &amp; audio sensing</th>
<th>Motion sensing</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Light analysis/proximity</td>
<td>- Gas/particle</td>
<td>- Accelerometer</td>
</tr>
<tr>
<td>- 3D sensing</td>
<td>- Temperature</td>
<td>- Gyroscope</td>
</tr>
<tr>
<td>- Structured light/ToF</td>
<td>- Humidity</td>
<td>- Magnetometer</td>
</tr>
<tr>
<td>- Spectral sensing</td>
<td>- Pressure</td>
<td>- IMU (Inertial Measurement Unit)</td>
</tr>
<tr>
<td>- Visible image</td>
<td>- Microphone audio</td>
<td></td>
</tr>
</tbody>
</table>

**Optical multi-sensing package/hub**

**Open cavity multi-sensing package/hub**

**Closed package multi-sensing hub**

### Strategic impact on value chain

- Hardware and software content needed for full solutions
- Major players can offer one-stop capabilities/higher integration
ams optical sensing solutions

<table>
<thead>
<tr>
<th>Illumination</th>
<th>Optical path and package</th>
<th>Optical sensor</th>
</tr>
</thead>
</table>
| • VCSEL lasers  
  • VCSEL laser arrays  
  • IR LEDs / LEDs | • Directing light to/from illumination/sensor and in/out of package  
  • Optical features, e.g. lenses, embossing  
  • Small scale high volume optical packages | • Multi-frequency spectral sensors  
  • Multi-diode structures  
  • SPAD diodes  
  • IR sensors  
  • Multi-sensor modules |

Princeton Optronics acquisition  
Heptagon acquisition  
ams existing business

Full value chain coverage: design and performance advantage for industry-leading solutions
Princeton Optronics – major strategic advantage

Leader in high power VCSEL technology

- High performance VCSELs (Vertical Cavity Surface-Emitting Lasers) for mobile, consumer, automotive, and industrial applications
- Early player in high power, accumulating know-how and IP ahead of telecom-focused players – from mWs to multiple Ws
- Strong technology portfolio for single lasers and arrays
- Benchmark power efficiency and narrow beam divergence: high beam quality for 3D optical, better long distance performance
- Smallest pitch arrays enable higher resolution in future 3D systems
- Outsourced supply chain: Asian epi/wafer foundry partners, packaging partners including Heptagon
- Joint Google Tango involvement with Heptagon, shipping illumination

Optical/3D sensing offers significant VCSEL growth opportunities

- Strong expected consumer growth from 3D sensing adoption, spectral sensing adds new opportunities
- Significant longer-term opportunity in automotive 3D LIDAR
Princeton Optronics – key to higher differentiation

Princeton enables full value chain coverage
• Adding illumination source creates differentiated end-to-end optical sensing platform
• Unique VCSEL-to-sensor capability under one roof offers performance and design advantages for multiple optical technologies

Internal VCSEL manufacturing drives further differentiation
• Clearly identified, differentiating technology and cost advantages
• Leveraging Princeton technology through ams manufacturing expertise
• Accelerating next generation technologies currently under development

ams VCSEL manufacturing capacity investment
• New highly differentiated 150mm manufacturing line at ams site in Singapore
• Two-stage project to prepare for expected volume opportunities, project start planned in near future
• Expected total expense of around EUR 100m over approx. 24 months
Unique position in 3D sensing

3D sensing: Significant new growth market for high value sensing

- Applications include AR/VR, gesture, face recognition, biometrics, improved 2D/video capture, body measurement, autonomous driving
- 3D availability in consumer devices will breed new applications and apps, similar to accelerometer and gyroscope addition
- Non-consumer to follow later: Industrial IoT (internet of things), Automotive
- 3 key technologies: Structured light, ToF (time-of-flight), stereo cameras
- Structured light: IR illumination of object, accuracy of illumination key to quality of sensing
- ToF: SPAD (avalanche diodes) or iTOF (phase difference) sensing, dedicated illumination
- Stereo cameras: specific illumination needed for high quality sensing

ams: Leading expertise across 3D sensing technologies

- Optical path as key differentiator, hand-in-hand with packaging for optimum performance
- Tailored VCSEL illumination and optical sensors enable unmatched end-to-end platform
- Unique know-how to create mass-producible devices for very high volume applications
- Structured light: high quality random dot illumination and sensing / ToF: covering ToF technologies with high performance solutions / stereo cameras: dedicated illumination
Optical and image sensing

**Worldwide leader in light sensing solutions**
- Clear #1 in optical sensing
- Leadership in sensors, optical path, illumination
- Optical path crucial for new sensor applications
- Power-efficient VCSEL technology (single and array) for optical sensing
- True Color spectral sensing for advanced display management
- Color ALS, ultra-small proximity modules
- 3D sensing expertise addresses emerging applications
- Structured light and time-of-flight (ToF) technologies
- Spectral sensing for biosensing, color identification, medical uses
- Color and spectral sensing for Industrial IoT, smart LED lighting

**High value image sensing**
- High-performance global shutter CMOS image sensors for Industrial
- NanEye miniature camera technology for Medical and Industrial
- Future combination of imaging and spectral sensing
Audio sensing

ANC (active noise cancellation)
- High performance analog noise reduction
- Low power budget + footprint advantages
- Significantly better receive-path audio quality
- In-phone and in-ear/headphone topologies
- Incus acquisition broadens offering for digital architectures
- ams innovation: ACI interface transmits power, data and audio over 3.5mm jack microphone line
- Low-power ACI enables new battery-less ANC ear/headphone designs and additional functions such as sensing
- Positive market feedback opens new content opportunities

MEMS microphone interface ICs
- Continuing market leadership in high volume market
- Leading position in low noise solutions and tight integration
- Strong customer partnership focused on high quality segments
Environmental (including gas) sensing

**Technology leader in environmental/gas sensing**
- End-to-end solution provider
- Unique CMOS-based portfolio for low power, high volume, small form factor
- Key environmental sensing areas
  - MOX gas
  - Infrared gas / presence detection
  - Relative humidity, pressure, temperature
- Broad range of emerging applications in mobile, home/building automation, Industrial IoT and other AIM markets

**Uniquely positioned for multi-sensor modules and monolithic multi-sensor integration**
- Combination of related environmental sensor modalities in modules (e.g. gas + relative humidity)
- Integration roadmap to realize low-cost, low-power, smallest size consumer solutions
- Sensor algorithms and application software as value drivers
Scalable manufacturing model
In-house capacity + manufacturing partnerships

Internal wafer manufacturing, Austria
- 200mm capacity, 180-190k wafers p.a.
- CMOS / specialty analog down to 180nm
- High volume optical filter deposition line
- Further optical filter capacity added

Internal optical packaging + future VCSEL manufacturing, Singapore
- Technology leader in high end optical packaging
- Major capacity expansion completed
- Revenue pipeline into 2018 drives further strong capacity expansion
- New investment for internal VCSEL manufacturing capacity
- Two-stage project to start in near future, around EUR 100m investment

Manufacturing partnerships for scalability and flexibility
- High volume technology partners TSMC, UMC, GF
- Flexible response to end market volatility

In-house test, Austria / Philippines
Global network – design, manufacturing, support

- **21 design centers**
  Austria, Switzerland (2), Italy (2), Spain, Germany (4), Belgium, UK (2), Netherlands, Portugal, Finland, USA (3), India, Japan

- **Manufacturing**
  Austria, Singapore

- **High volume test center**
  Philippines
## Key figures

**EURm**

<table>
<thead>
<tr>
<th></th>
<th>H1 2017</th>
<th>H1 2016</th>
<th>Q2 2017</th>
<th>Q2 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total revenues</strong></td>
<td>330.8</td>
<td>269.6</td>
<td>181.5</td>
<td>132.4</td>
</tr>
<tr>
<td></td>
<td>+22.7%</td>
<td></td>
<td>+37.1%</td>
<td></td>
</tr>
<tr>
<td><strong>Gross margin</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(adjusted)¹ (IFRS reported)</td>
<td>44%</td>
<td>56%</td>
<td>41%</td>
<td>57%</td>
</tr>
<tr>
<td></td>
<td>37%</td>
<td>54%</td>
<td>35%</td>
<td>53%</td>
</tr>
<tr>
<td><strong>Result from operations (EBIT)</strong></td>
<td>5.4</td>
<td>52.6</td>
<td>1.3</td>
<td>24.4</td>
</tr>
<tr>
<td>(adjusted)¹ (IFRS reported)</td>
<td>-35.3</td>
<td>36.4</td>
<td>-21.5</td>
<td>16.7</td>
</tr>
<tr>
<td><strong>Net result</strong></td>
<td>-34.0</td>
<td>33.2</td>
<td>-17.8</td>
<td>19.6</td>
</tr>
<tr>
<td></td>
<td>-202.4%</td>
<td></td>
<td>-190.7%</td>
<td></td>
</tr>
<tr>
<td><strong>EPS (basic/diluted)²</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CHF</td>
<td>-0.47 / -0.45</td>
<td>0.53 / 0.52</td>
<td>-0.23 / -0.22</td>
<td>0.32 / 0.31</td>
</tr>
<tr>
<td>EUR</td>
<td>-0.43 / -0.42</td>
<td>0.49 / 0.47</td>
<td>-0.21 / -0.21</td>
<td>0.29 / 0.28</td>
</tr>
</tbody>
</table>

1) excl. acquisition-related costs and share based compensation costs
2) Earnings per share in CHF were converted using the average currency exchange rate for the respective periods
Financial results

EURm

Total revenues

<table>
<thead>
<tr>
<th></th>
<th>H1 2016</th>
<th>H1 2017</th>
<th>Q2 2016</th>
<th>Q2 2017</th>
<th>Total change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total revenues</td>
<td>269.6</td>
<td>330.8</td>
<td>132.4</td>
<td>181.5</td>
<td>+22.7%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>+37.1%</td>
</tr>
</tbody>
</table>

Total revenues by market H1 2017

- Automotive, Industrial, Medical: 49%
- Consumer & Communications: 51%

Total revenues by region

<table>
<thead>
<tr>
<th></th>
<th>H1 2016</th>
<th>H1 2017</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asia/Pacific</td>
<td>58%</td>
<td>61%</td>
<td>3%</td>
</tr>
<tr>
<td>Americas</td>
<td>5%</td>
<td>4%</td>
<td>-1%</td>
</tr>
<tr>
<td>Europe (EMEA)</td>
<td>37%</td>
<td>35%</td>
<td>-2%</td>
</tr>
</tbody>
</table>

Total backlog

- Mar 31 2017: 195.6 EURm
- Jun 30 2017: 211.0 EURm

Consignment stock agreements approx. EUR 17-19m
Financial results
EURm, % of revenues

**Gross profit (IFRS), gross margin (adj.)**

- H1 2016: 144.6, 56.5%
- H1 2017: 122.2, 43.5%
- Q2 2016: 70.7, 55.9%
- Q2 2017: 62.9, 41.3%

**R&D**

- H1 2016: 65.2, 24.2%
- H1 2017: 100.3, 30.3%
- Q2 2016: 32.3, 24.4%
- Q2 2017: 53.8, 29.6%

**SG&A**

- H1 2016: 48.8, 18.1%
- H1 2017: 64.4, 19.5%
- Q2 2016: 25.3, 19.1%
- Q2 2017: 34.4, 19.0%

**EBIT (IFRS), EBIT margin (adj.)**

- H1 2016: 36.4, 19.5%
- H1 2017: -35.3, 1.6%
- Q2 2016: 16.7, 18.4%
- Q2 2017: -21.5, 0.7%

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1) excl. acquisition-related and share based compensation costs
Financial results
EURm, % of revenues

Net result, EPS (basic/diluted)

Operating cash flow

Capital expenditures
ams

Sensing is life.
# Profit and loss statement

**EURm**

<table>
<thead>
<tr>
<th>(IFRS)</th>
<th>H1 2017</th>
<th>H1 2016</th>
<th>Q2 2017</th>
<th>Q2 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total revenues</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Products</td>
<td>330.8</td>
<td>269.6</td>
<td>181.5</td>
<td>132.4</td>
</tr>
<tr>
<td>• Foundry</td>
<td>303.9</td>
<td>248.0</td>
<td>167.1</td>
<td>120.5</td>
</tr>
<tr>
<td>• 26.9</td>
<td>21.6</td>
<td>14.4</td>
<td>11.9</td>
<td></td>
</tr>
<tr>
<td><strong>Gross profit</strong></td>
<td>122.2</td>
<td>144.6</td>
<td>62.9</td>
<td>70.7</td>
</tr>
<tr>
<td>• Gross margin (adjusted *)</td>
<td>122.2</td>
<td>144.6</td>
<td>62.9</td>
<td>70.7</td>
</tr>
<tr>
<td>• Gross margin (IFRS reported)</td>
<td>366.9%</td>
<td>43.5%</td>
<td>36.9%</td>
<td>56.5%</td>
</tr>
<tr>
<td><strong>Research and development</strong></td>
<td>-100.3</td>
<td>-65.2</td>
<td>-53.8</td>
<td>-32.3</td>
</tr>
<tr>
<td>Selling, general and administrative</td>
<td>-64.4</td>
<td>-48.8</td>
<td>-34.4</td>
<td>-25.3</td>
</tr>
<tr>
<td>Other operating income/expenses</td>
<td>7.2</td>
<td>4.3</td>
<td>3.7</td>
<td>2.1</td>
</tr>
<tr>
<td><strong>Result from operations (EBIT)</strong></td>
<td>-35.3</td>
<td>36.4</td>
<td>-21.5</td>
<td>16.7</td>
</tr>
<tr>
<td>• EBIT margin (adjusted *)</td>
<td>1.6%</td>
<td>19.5%</td>
<td>0.7%</td>
<td>18.4%</td>
</tr>
<tr>
<td>• EBIT margin (IFRS reported)</td>
<td>-10.7%</td>
<td>13.5%</td>
<td>-11.9%</td>
<td>12.6%</td>
</tr>
<tr>
<td><strong>Net financing costs</strong></td>
<td>3.6</td>
<td>-1.2</td>
<td>6.2</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>Result before tax</strong></td>
<td>-31.7</td>
<td>35.2</td>
<td>-15.3</td>
<td>20.8</td>
</tr>
<tr>
<td>Income tax result</td>
<td>-2.3</td>
<td>-2.0</td>
<td>-2.5</td>
<td>-1.2</td>
</tr>
<tr>
<td><strong>Net result</strong></td>
<td>-34.0</td>
<td>33.2</td>
<td>-17.8</td>
<td>19.6</td>
</tr>
</tbody>
</table>

1) excl. acquisition-related and share-based compensation costs
## Balance sheet
### EURm

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Cash and short term invest.</td>
<td>292.4</td>
<td>215.8</td>
<td>Interest-bearing debt</td>
<td>121.3</td>
<td>108.0</td>
</tr>
<tr>
<td>Trade receivables</td>
<td>96.9</td>
<td>97.2</td>
<td>Trade liabilities</td>
<td>184.3</td>
<td>68.2</td>
</tr>
<tr>
<td>Inventories</td>
<td>142.3</td>
<td>92.9</td>
<td>Tax liabilities</td>
<td>32.9</td>
<td>36.8</td>
</tr>
<tr>
<td>Other current assets</td>
<td>77.7</td>
<td>33.4</td>
<td>Provisions</td>
<td>42.2</td>
<td>20.1</td>
</tr>
<tr>
<td><strong>Total current assets</strong></td>
<td><strong>609.4</strong></td>
<td><strong>439.3</strong></td>
<td>Other liabilities</td>
<td><strong>465.8</strong></td>
<td><strong>31.4</strong></td>
</tr>
<tr>
<td>Fixed assets</td>
<td>701.2</td>
<td>319.3</td>
<td><strong>Total current liabilities</strong></td>
<td><strong>846.4</strong></td>
<td><strong>264.5</strong></td>
</tr>
<tr>
<td>Intangible assets</td>
<td>1,136.8</td>
<td>603.4</td>
<td>Interest-bearing debt</td>
<td>668.2</td>
<td>364.1</td>
</tr>
<tr>
<td>Investments in associates</td>
<td>2.0</td>
<td>2.3</td>
<td>Employee benefits</td>
<td>43.1</td>
<td>37.0</td>
</tr>
<tr>
<td>Deferred tax asset</td>
<td>35.4</td>
<td>35.4</td>
<td>Provisions</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Other non-current assets</td>
<td>40.1</td>
<td>23.4</td>
<td>Deferred tax liabilities</td>
<td>67.1</td>
<td>54.0</td>
</tr>
<tr>
<td><strong>Total non-current assets</strong></td>
<td><strong>1,915.6</strong></td>
<td><strong>983.7</strong></td>
<td>Other liabilities</td>
<td><strong>44.7</strong></td>
<td><strong>36.0</strong></td>
</tr>
<tr>
<td><strong>Total assets</strong></td>
<td><strong>2,524.9</strong></td>
<td><strong>1,423.0</strong></td>
<td><strong>Total non-current liabilities</strong></td>
<td><strong>823.2</strong></td>
<td><strong>490.9</strong></td>
</tr>
</tbody>
</table>

| Shareholders’ equity          | 855.3        | 667.6        |

| **Total liabilities and equity** | **2,524.9**  | **1,423.0**  |
## Cash flow statement

### EURm

<table>
<thead>
<tr>
<th>(IFRS)</th>
<th>H1 2017</th>
<th>H1 2016</th>
<th>Q2 2017</th>
<th>Q2 2016</th>
</tr>
</thead>
<tbody>
<tr>
<td>Income before tax</td>
<td>-31.7</td>
<td>35.2</td>
<td>-15.3</td>
<td>20.8</td>
</tr>
<tr>
<td>Depreciation</td>
<td>64.4</td>
<td>30.5</td>
<td>34.9</td>
<td>15.4</td>
</tr>
<tr>
<td><strong>Cash flow from operations</strong></td>
<td>-7.0</td>
<td>14.8</td>
<td>-33.1</td>
<td>7.3</td>
</tr>
<tr>
<td>Capital expenditures</td>
<td>-231.7</td>
<td>-44.8</td>
<td>-137.7</td>
<td>-23.0</td>
</tr>
<tr>
<td><strong>Cash flow from investing activities</strong></td>
<td>-142.2</td>
<td>-76.9</td>
<td>-132.0</td>
<td>-60.5</td>
</tr>
<tr>
<td>Proceeds from borrowings</td>
<td>348.4</td>
<td>75.3</td>
<td>247.4</td>
<td>29.5</td>
</tr>
<tr>
<td>Repayment of borrowings</td>
<td>-28.6</td>
<td>-5.0</td>
<td>-26.1</td>
<td>-0.4</td>
</tr>
<tr>
<td>Dividends paid</td>
<td>-25.0</td>
<td>-34.6</td>
<td>-25.0</td>
<td>-34.6</td>
</tr>
<tr>
<td>Changes resulting from capital increase</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Cash flow from financing activities</strong></td>
<td>272.3</td>
<td>-9.1</td>
<td>167.6</td>
<td>-38.4</td>
</tr>
<tr>
<td>Change in cash and cash equivalents (incl. effects of changes in foreign exchange rates)</td>
<td>123.1</td>
<td>-73.9</td>
<td>2.5</td>
<td>-89.4</td>
</tr>
<tr>
<td><strong>Cash and cash equivalents at end of period</strong></td>
<td>253.1</td>
<td>29.7</td>
<td>253.1</td>
<td>29.7</td>
</tr>
</tbody>
</table>