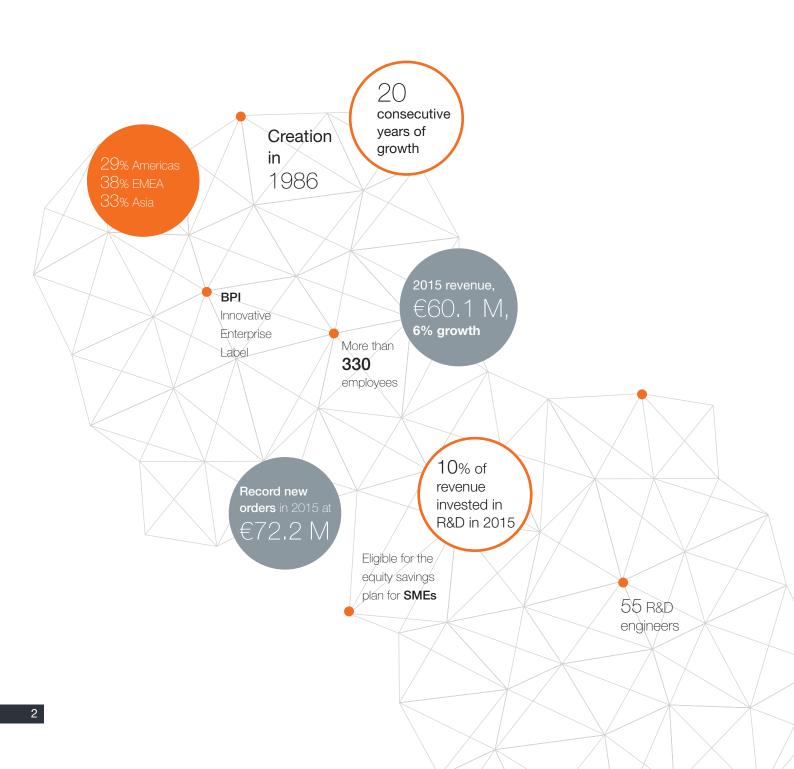




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2015 was a year of contrasts for the MVG group: disappointing financial results far below our expectations, but record sales activity with €72.2 M in new orders. This all happened in an environment of widely fluctuating exchange rates which clouded our usual points of reference!

It was thus a paradoxical year. The year-end snapshot therefore does not reflect the streamlining efforts that the Group undertook this year:

- Financial streamlining efforts with the arrival of a new Financial Department to continue and amplify the establishment of analysis tools necessary to better orchestrate the Group. These tools cover many aspects, particularly the improvement of cash management, projects, and the information system overall. They aim to construct solid indicators to allow us to anticipate and steer the Group with greater responsiveness.
- Organizational streamlining efforts to improve the Group's efficiency and profitability. A new department was also established in Israel, close to the Group's culture of system manufacturer, with clear goals to improve our margin through various levers: increased added value, overhaul of the purchasing department, standardization of production, and better cross-visibility of projects. These goals have been accompanied by restructuring of two divisions in Israel: Operations and Applications. This reorganization has led to a centralization of our mechanical production in Israel, an almost completely customer-oriented structure in the United States, and ultimately a more productive, more efficient Group focused on the future. It currently consists of two large major production centers: one in France, focusing on electronics and multi-sensor tech-

nology, and one in Israel, focusing on mechanics and single-sensor technologies, working in perfect synergy. These two production centers rely on three skill satellites: one that produces Faraday chambers (Rainford - England), one that produces absorbing materials (chamber lining) (AEMI - USA), and one that designs reference antennas necessary for system acceptance (MVG - Italy).

These projects, conducted in 2015, some of which are still ongoing in 2016, are already paying off. Unfortunately, the first positive results of the completed efforts have been masked by a lag in revenue and extraordinary items.

However, order intake for 2015 and the resulting order book (€55.2 M, or 92% of revenue in 2015) provide us with **excellent visibility for 2016**, particularly with regard to the Aerospace and Defense sector. Combined with a dynamic Civil Telecommunications sector, driven by **5G**, **connected objects**, **the autonomous car**, **and production line tests**, the Group has many advantages to continue its expansion on foundations that are stronger than ever. **My ambition remains the same: make MVG a global mid-cap leader in the electromagnetic testing sector.** 

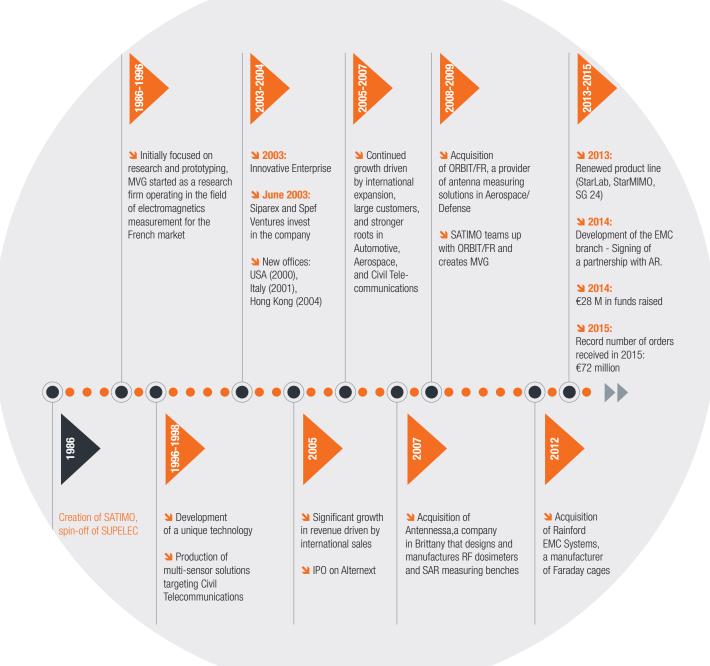
Philippe Garreau CEO of MVG





# 30 years this year!

Since its creation in 1986, MVG's success has expanded from France to international markets as early as 1996. It is a result of combining organic growth based on continuous innovation and the integration of carefully chosen companies to its portfolio which has continuously opened new markets for the company. This momentum has also been made possible thanks to the confidence of its customers, the involvement of its employees, and the support of investors who have accompanied it throughout its journey. This year marks the Group's 30<sup>th</sup> anniversary and, following the year 2015 consolidation, the Group expects to continue its expansion on foundations that are stronger than ever!





Innovation, technological excellence, team spirit, boldness, involvement, and diversity are the values shared by MVG's employees.

In the dynamic, complex, changing sectors in which MVG operates, what makes the difference is our human capital, our culture, how we work together, and understanding how our values will best serve our customers.

Philippe Garreau, CEO of MVG

#### Innovation

MVG's offering consists of highly innovative, distinctive products. This positioning guarantees the Group's margins. These margins allow us to maintain a high level of R&D investment and thus develop new innovative products. It is this virtuous circle of value creation that constitutes MVG's DNA.

## Excellence

Excellence is a cornerstone of MVG's worldwide reputation. It characterizes the Group's ability to transform innovations into robust, scalable, industrialized products and to make every effort to exceed the expectations of its customers.

## Team Spirit

As a team, MVG meets its customers' needs through a commitment to service fed by the diversity of each team member's areas of expertise and knowledge. This team spirit is based on listening, transparency, respect for others and rules, creativity, solidarity in implementing major decisions, and mutual support, particularly in difficult times.

#### Involvement

MVG strives to involve its employees in its corporate strategy, mobilize them around a common culture, and have them contribute to its overall performance. In return, the Group expects the high level of involvement from its employees with its customers and around its strategic projects.

## Boldness

The confidence in our know-how and our capacity to innovate gives us the boldness to undertake, propose, and always consider that a more efficient solution can be found. MVG pushes its managers to delegate, particularly large tasks, so that they can develop their own skills even further. The Group encourages those who try, even if it means failing, rather than those who attempt nothing.

# Diversity

MVG hires people of different back-grounds, religions, countries, genders, sexual orientations, physical conditions, and professional careers. The Group believes that mixing the skills, cultures, training, and talents of each individual is an asset and contributes to the innovation and success of its projects.

# OUR **KEY FIGURES** FOR 2015 (€M)



The MVG Group recorded  $\leqslant$ 60.1 million in annual revenue in 2015, compared to  $\leqslant$ 56.7 million in 2014. This growth is based on + $\leqslant$ 5.5 million in positive exchange effects. At constant exchange rates, total sales have fallen by  $\frac{3.6\%}{10.00}$ 

This change is due to some revenue being deferred from 2015 to 2016 after changes were made to the production calendars of some European projects (Pit Radwar) and after some contracts in the United States were signed later than expected.

This revenue deferral had a direct impact on the Group's operating margins. EBITDA stood at  $\in\!5.5$  million, compared to  $\in\!7.0$  million last year, and was equivalent to 9.1% of revenue, 3.3 points lower than 2014, including 0.9 points due to exchange effects.

Changing exchange rates had a -€5.7 million negative effect on operating costs, canceling out the positive effects of higher revenues. This shows the Group's natural hedge against exchange rate risks.

At a constant exchange rate, payroll costs fell slightly (-1.6%) thanks to production reorganization and rationalization efforts in the United States and Israel. The Group's mean employment fell to 335 employees in 2015 from 353 in 2014.

After depreciation, amortization and provisions, current operating income stood at  $\[ \le \]$ 3.2 million ( $\[ \le \]$ 3.4 million at constant exchange rates), compared to  $\[ \le \]$ 5.0 million in 2014, i.e. 5.3% of revenue (6.2% at constant exchange rates).



Fiscal Year 2015 also saw €2.8 million in onetime expenses written into the books. These expenses include €1.3 million in reorganization costs, €1.0 million in legal fees related to protecting intellectual property in the United States and China (with some cases still pending in 2016), and various other expenses, including some related to an abandoned external growth project.

In this context, and after financial expenses, taxes, and minority interests (Orbit/FR), Net Income, Group Share was almost flat, falling €0.1 million (+€0.3 million at constant exchange rates).

The Group's shareholders' equity stood at €70.1 million as of December 31, 2015. Cash flow rose by €0.8 million with better WCR control according to the report dated June 30, 2015.

Investments over the Fiscal Year stood at  $\leqslant$ 3.1 million. Available cash continues to show a surplus, standing at  $\leqslant$ 26.0 million. Net cash flow stood at  $\leqslant$ 17.4 million, higher than on June 30, 2015, when it was  $\leqslant$ 15.5 million.

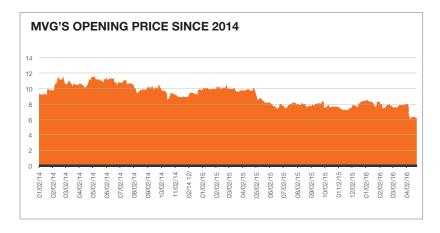
Due to a record number of orders received in 2015 (€72.2 million), the Group began Fiscal Year 2016 with a high number of new orders worth €55.2 million (compared to €43.1 million on January 1, 2015). Most of these orders will be filled in 2016.

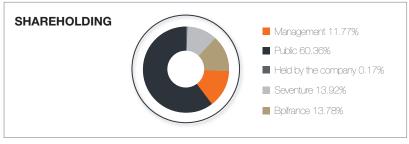
The Group currently has a large portfolio of consulting requests in both the Telecommunications and Aerospace/Defense sectors. This proves its clients' interest in its technological and innovative solutions. Fiscal Year 2016 will therefore be marked by a large and organic return to growth.

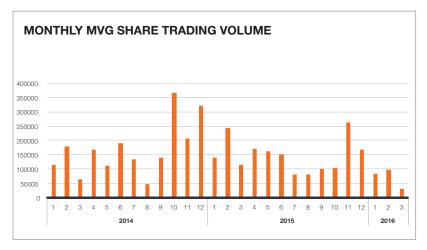


By investing in MVG's capital, you benefit from the momentum of a hi-tech company whose unique know-how brings the multitude of invisible electromagnetic waves to an unprecedented level of visualization for analysis.

These waves are at the heart of our day-to-day lives. Smartphones, computers, tablets, cars, trains, aircraft – all these devices would not work without them. By **making "the invisible visible"** thanks to its testing and measurement equipment, MVG enables its customers to develop ever more efficient products. Building on this expertise, the Group has risen to the top ranks among its market's global players and has acquired international recognition. MVG employs more than 350 people, had offices in ten countries, and exports more than 90% of its production.







#### **ANALYST MONITORING**

Gilbert Dupont, ArrowHead, Euroland Corporate, Aurel BGC

#### **LISTING**

- Listed on NYSE Alternext (ALMIC) since 6/29/2005
- Price at 25/04/2016: €6.50
- Market capitalization at 25/04/2016: ~€.40 M
- 2015 average daily volume:6,936 shares/day

#### CAPITAL

- 6,282,166 shares
- 7,784,432 exercisable voting rights
- More than 1,000 shareholders (October 2014)
- Share capital: €1,256,433.20

#### **FINANCIAL CALENDAR**

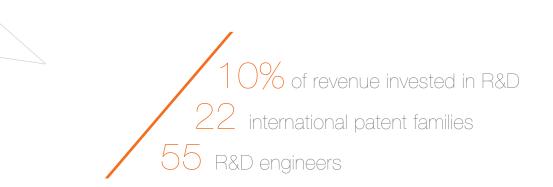
Publication of earnings 1st half 2016 | Sept. 28, 2016

#### **CERTIFICATION**

Bpifrance's "Innovative Enterprise" Certification

/ ELIGIBLE FOR THE EQUITY SAVINGS PLAN FOR SMES





#### MAKING THE INVISIBLE VISIBLE

Similar to MRI scanners used in hospitals to view the inside of the human body, MVG has developed unique technological know-how: scanners that allow electromagnetic waves emitted by an antenna to be viewed, thus making the invisible visible.

These scanners allow users to:

- Measure the amount of energy emitted by antennas. An antenna converts existing electrical quantities in a conductor or a transmission line (voltage and current) to electromagnetic quantities in space (electric and magnetic fields), either in transmission or in reception. This measurement quantifies the efficiency of this conversion.
- Determine in which directions this energy is radiated in space. This involves determining the radiation pattern of the antenna. In a smartphone, for example, the manufacturer seeks a radiating pattern that is well distributed throughout all directions in space, because it is not possible to predict from the phone's direction given by the user. However, in the case of a radar, the manufacturer aims to focus maximum energy in one direction in space to measure with the utmost precision where detected devices may be located.
- Describe the quality of information carried by the transmitted signal. This involves transmitting data from several directions in space and reducing the level of energy emitted until communication with the device is no longer possible.

Test the operation of the device in real environments. These are MIMO tests. They determine how a device will react in its real environment. Will its performance be deteriorated by or can it take advantage of the barriers and disruptive objects that separate it from emission sources?

These scanners rely on a unique, patented multi-sensor technology: MV-Scan<sup>TM</sup>. Unlike conventional single-sensor technologies, which require long and tedious mechanical movements, MV-Scan<sup>TM</sup> scanners perform their measurements through numerous sensors equally spaced on an array. These sensors, scanning electronically, drastically reduce the measurement time by limiting mechanical movements. This decrease leads to a much better return on investment for installations equipped with MV-Scan<sup>TM</sup> than for those equipped with single-sensor solutions.

The MV-Scan™ technology was initially developed for the Civil Telecommunications sector, where it perfectly met a key requirement for speed due to very short product development cycles. For several years, it has also been deployed in the field of Aerospace and Defense, where electronically scanning radars have become imperative and require significant testing.

This technology is covered by several worldwide patents. It allows MVG to offer distinctive products and services to its customers.

#### THE GROUP MISSION

MVG's unique expertise makes it possible to visualize electromagnetic waves. These waves are at the heart of our day-to-day lives: smartphones, laptops, tablets, cars, trains, aircraft – all these devices would not work without them. By making "the invisible visible" thanks to its testing and measurement equipment, MVG enables its customers to develop ever more efficient products. The Group's mission is to extend its expertise and unique electromagnetic imaging technology to all sectors where they can provide high added value, satisfying the "adaptation of technology" against "acceptable market cost" equation.

## UNLIMITED ADAPTATIONS ON STRUCTURALLY GROWTH-GEARED MARKETS

Satellites, planes, mobile phones, computers or touch tablets, GPS navigators, medical instruments or wireless home technology... All these increasingly ubiquitous appliances have something in common: they have antennas, designed to convert electrical signals into radio signals. MVG's role in this market is to design and manufacture systems allowing manufacturers to test and measure the radiation pattern of these antennas. MVG markets a range of constantly evolving antenna measurement systems to increasingly diversified markets, supported by strong growth in the Aerospace and Defense, Automobile and Telecommunications sectors:

- the wireless market, stimulated by increasingly sophisticated terminals, integrating multiple communication protocols (4G, WiGig very high-speed Wi-Fi, 5G under development in several countries, etc.),
- land, space, and air surveillance through radars, drones, etc.,
- Internet of things,
- connected or autonomous vehicles,
- data protection.

MVG's products have won over the biggest names in aerospace (NASA, ESA), aeronautics (Boeing), automobiles (Renault, BMW), as well as electronics (Ericsson, Nokia, Panasonic, Huawei).

This expertise in electromagnetic wave measurement tools has been a driving force in the company's international growth since its creation. It also encourages MVG to constantly renew its offering to follow the development of protocols and permits diversification to new markets.

# A HIGH LEVEL OF R&D INVESTMENT

The MVG group is the leader of portfolio of technologies, patents, and diversified products, given its desire to constantly strive to develop new value-generating ideas around its foundation patent on the MV-Scan™ multi-sensor technology. To anticipate the needs of customers, MVG devotes an average of 10% of its revenue to R&D, which allows it to grow not only on its historical markets, but also penetrate related markets, such as environmental and industrial control, or conduct research projects in medical imaging or security imaging. During financial year 2015, the Group increased its Research and Development effort to 10% of its revenue (9.3% in 2014). The Group produced demonstrators for all its new products, making it possible to present perfectly functional new innovations to its



customers. This is an important factor in the decision-making process of customers. In general, the aim of the Research and Development efforts is to prepare the Group for the increased frequency of future communication products. The Group is also continuing the development of hardware and software sub-systems for multi-sector technologies to meet the future requirements of its markets. MVG continues to receive the **Research Tax Credit**. It amounted to €1,945 K at December 31, 2015, compared with €1,492 K at December 31, 2014. MVG also has labels recognizing its innovative profile in France: **Innovative Enterprise and Réseau Bpifrance Excellence**.

TEAMS ORGANIZED IN PROJECT MODE

The Group's R&D, with hubs in three sites – two in France and one in Italy – is organized in project mode, meaning that it works on defined themes with dedicated teams, allocated budgets, and deadlines to be met. This organization and the resources allocated to it allow the Group to maintain its technological lead and come up with breakthrough products on its current markets or targeted new markets.

The R&D team manages mainly short- and medium-term projects. However, within this team, two long-term projects are currently in development:

- a security scanner, for the detection of weapons and explosives that could be hidden on the human body,
- a medical scanner, for the detection and monitoring of breast diseases.

Each of these two projects addresses specific R&D themes and also serves as a catalyst for the development of sub-assemblies that will be included in the antenna measurement systems of tomorrow. They draw future investments and employ highly qualified engineers in order to succeed in bringing about enhanced value.

#### LEARN MORE ABOUT... The autonomous car

(source wikinedia)

An autonomous car is a vehicle capable of driving without driver intervention. The eventual goal is to develop a vehicle able to operate in any situation in real traffic and on a non-specific infrastructure without human intervention. This is a typical application of the field of mobile robotics in which many players are involved. Nevertheless, there are still many problems to be resolved in terms of both technology and legislation.

The notion of the autonomous car can cover both a completely autonomous car and a "semi-autonomous" car with different automated driver assistance systems, for example in the city or on the highway, or even an automated parking system.

The autonomous vehicle, which is initially a standard vehicle, is equipped with digital sensors (cameras, radars, sonars, lidars, etc.) and systems for communicating with surrounding vehicles whose data is processed by special software:

- with the merger of this data, these software applications reconstruct the 3D road situation by recognizing shapes (pavement boundaries, lanes, vehicles, obstacles, signs) and use artificial intelligence algorithms to decide on the action to take on the vehicle controls;
- the actions decided by the software are carried out by servo-controls on the steering wheel, accelerator, brake, and various interfaces to engage or disengage the automatic driving mode.

All the signals generated by these sensors and communication systems constitute major potential for electromagnetic wave measurements and tests, a sector in which MVG has positioned itself as a leader.







Since 2012, MVG has structured its activities into three operational departments: AMS, EMC, EIC. This organization makes it possible to pursue a strategy of creating distinctive added value in each of the branches.

#### **BREAKDOWN OF REVENUE BY BRANCH**

AMS













#### THE AMS DEPARTMENT

(Antenna Measurement Systems) dedicated to antenna control tests, the Group's historical activity

€49.2 м

FMC











#### THE EMC DEPARTMENT

(Electro-Magnetic Compatibility) dedicated to electromagnetic compatibility testing of systems, a growth area for the Group

€9.0 м







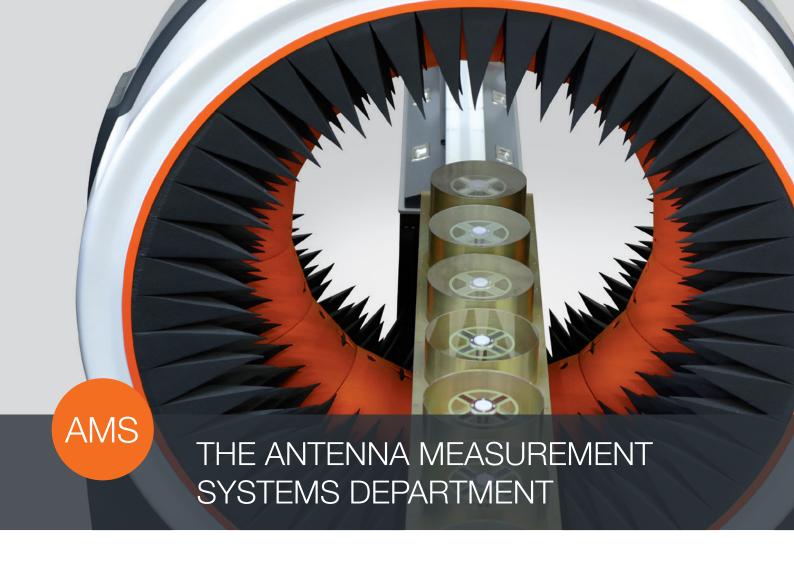




#### THE EIC DEPARTMENT

(Environmental and Industrial Control) focuses on environmental and industrial control tests, growth drivers for the Group

€1.9 м



# Key points

Activity

Strategy

Offering

Price range

Key
Achievements

This is the Group's core business. It brings together MVG's activities in the field of antenna measurement. MVG has acquired a position as technological player of reference in this field at the European and global levels. It addresses two sectors: Civil Telecommunications and Aerospace/ Defense.

Provide products and turnkey solutions customized on the basis of standard technological blocks to a diversified customer portfolio, maintain its technological lead, and offer support services (software upgrades, preventative maintenance contracts, relocations of facilities, etc.).

MVG offers the most extensive range of turnkey antenna measurement systems (near-field and far-field, single-sensor and multi-sensor, radome test, RCS - radar cross section - measurements).

As part of this offering, MVG also includes the associated software - equipment drivers, data acquisition, and post-processing. All customized solutions are designed, manufactured, marketed, installed, and maintained by MVG.

From €150 K to several million euros.

The AMS department accounted for 82% of revenue in 2015, or €49.2 M. The key achievements for 2015 were:

- The success of the SG line throughout the world
- A major contract won in Europe PitRadwar (€9 M) but delay in the final signing
- The late signing of a major contract in the United States

#### Promising markets

#### In the field of Civil Communications, two promising trends:

- Explosion of the wireless market: systems are increasingly incorporating interconnecting functions and requiring antenna testing and measurements at their design stage. Soon, all equipment will have wireless applications, and the development of the market for tablets, smartphones, connected objects, and drones is a fundamental trend. In 2012, 567 million smartphones were sold worldwide, and more than a billion sales are expected in 2016 (source: International Data Group). The increase in the manufacturing of these products also means an increase in the volume of tests performed.
- Automotive embedded systems: with the increase in the number of embedded systems (GPS, radio, sensors, etc.) and therefore antenna tests and measurements to be performed, the Group is well positioned to take advantage of the future growth on these markets. MVG is also supporting the technological revolution that will soon be upon us with the connected car.

#### In the field of Aerospace and Defense, there are three key trends:

- Increase in surveillance systems: Electronically scanning radars have become imperative and require significant testing: engineers need more systems for testing and quick measurements in order to design increasingly complex antennas.
- Increase in air traffic: air transport is growing strongly in Asia and the Middle East, and the increased requirements in terms of reduction of noise and CO<sup>2</sup> emissions are pushing for the renewal of fleets by airlines and favoring the commercial aircraft production market.
- Military expenditure of emerging countries: the general slowdown in the economic environment recently prompted the NATO countries to revise their Defense budget downwards. However, the investments of emerging countries (particularly China and India) make it possible to offset this decline.

#### **PRODUCTS**







# $\mbox{MVG}$ – $\mbox{Orbit/FR}$ obtains a patent for the $\mbox{$\mu$-Lab}$

Orbit/FR was recently awarded a US patent for its portable spherical near-field antenna measurement system, dubbed  $\mu$ -Lab or MicroLab, the first of its kind, was designed with the increasing need for ultra-fast data transmission and the future of 5G technology in mind. The shrinking extent of available space for testing was also taken into consideration as it took shape as a portable, all-in-one system able to fit through standard double doors.

μ-Lab is particularly suited for millimeter wave measurements of conventional far-field and spherical near-field EM data of chips and miniature antenna assemblies. It is the ideal measurement system for testing M2M devices using WiGig technology.

This new patent\* increases the Group's number of patents to 22. This is proof that MVG innovation continues at the forefront of antenna measurement technology and leads the way toward 5G antenna measurements.

(\*) Patent No.: US 9,244,105 B2. Inventors: J. Aubin, P. Iversen, E. Lee, B. Jackson, R. Soerens, E. Szpindor, V. Keenan.







# Key points

Activity

Strategy

Offering

Price range

Key
Achievements

The MVG-EMC division was created in 2012, thanks to the unique combination of AEMI's expertise in absorbing materials and Rainford's expertise in Faraday cages. The EMC division provides solutions to test the ability of devices to operate in electromagnetic environments and avoid generating disruptions themselves. This activity also extends to the EMC certification of electronic devices, protection against strong fields (data, people), and protection against eavesdropping.

Integration of the value chain through strategic acquisitions, positioning as a supplier of turnkey systems.

This branch offers a range of EMC test chambers, mode-stir chambers, shielding of rooms (control rooms, embassies), shielding of data centers, and shielding of MRI installations.

- EMC test chambers
- Antenna measurement chambers
- Doors

- Absorbing materials
- Faraday cages
- Accessories (masts, positioners, controllers, etc.)

The EMC division also provides project management, maintenance, certification, reinstallation, and installation upgrade services.

From €10 K to several million euros

With  $\in$  9.0 million of revenue, the EMC division represents 15% of the Group turnover. Highlights for 2015 include:

- Success of AMS cross selling significant internal production
- The start of the partnership with Amplifier Research, number 1 in EMC amplification

## Case Study: Allegro MicroSystems, LLC, USA



When a customer regularly requests a service which requires resources and costs being outsourced, there comes a point when you need to review the effectiveness of these processes.

Allegro MicroSystems are an industry leader in the world of integrated circuit (IC) design. Their design and testing centre in Manchester, New Hampshire, USA invests in testing to ensure that their developments deliver exactly what their customers need. However, this was becoming increasingly challenging using off-site services.

In 2014, Richard Garvey, Director of Systems Engineering at Allegro MicroSystems, decided it was time to review their testing processes. Richard explains: "We were increasingly reviewing the levels of EMC testing for our ICs in line with customer demands. The RF or EMC noise from end equipment can create issues in your home or your car and to test and debug these often we would book an off-site facility for say 4 hours. Being offsite we lost some of our resources for debug so testing would not be quite complete. Then, a further 4 hour slot would have to be booked when perhaps we only needed another 40 minutes, which was a poor use of budget. Also, being offsite, it wasn't always convenient to travel to a testing facility which was a 30 minute round trip."

To continue to deliver the high standards their customers expected, they needed to review their testing capabilities.

The project moved

swiftly and smoothly from

saving hours, money and

improving quality.

discussion through to installation

within five months and has made

a positive impact to our business;

Producing ICs for a competitive industry requires investment in the latest, market leading technology. "The development process is a constant cycle of develop, test, measure, modify and re-test to see any improvement. We needed to bring this testing capability in-house." says Richard.

Allegro MicroSystems chose a SmartShield Anechoic chamber from MVG which measured 3.5m, by 6m, by 3m tall. The chamber has the

capability to measure EMC from 30 MHz to 1 GHz in accordance with CISPR-25 EMC standard, which met Allegro's current testing needs.

"With IC tests being completed in house we can be extremely reactive to both our own development and our customer requirements. We maintain control, which means that we can keep our product developments on-site and confidentiality is more secure than when we complete testing at off-site facilities.

#### **PRODUCTS**











# Key points

- Activity
- Strategy
- Offering

- Price range
- Key
  Achievements

The EIC division brings together devices used for monitoring electromagnetic waves, quality control on production lines, and the Neptulink 4G modem  $_{\rm by\,MMG}$  dedicated to Internet connectivity in coastal environments.

Go from "follower" to "challenger" by relying on a modernized portfolio of distinctive products.

MVG has developed a wide range of products:

- Portable RF exposure meters (EME Guard, EME Guard XS, EME Spy)
- Fixed RF exposure meters (FlashRad)
- Software for 3D simulation of exposure to electromagnetic waves (EMF Visual)
- Control system for rock wool and glass wool on production lines (Dentro)
- 4G modem to optimize land/sea connections (Neptulink by MVG)

From €350 to €180 K

The EIC division's revenue totaled €1.9 M, or 3% of the Group's activity. The key achievements of 2015 were:

- The success of the sale of RF exposure meters
- The ongoing growth of the international distribution network
- The launch of a vertical product (NeptuLink)

# Case study: B-MAC Wireless Inc.



As health and safety policies for EMF/RF exposure levels become more stringent, companies are looking to monitor EMF/RF levels to protect employees. B-MAC is an industry leader, working with global names such as Verizon Wireless, T-Mobile and AT&T. B-MAC's employees are their greatest asset, and they want to look after them, ensuring that they return safely home to their families at the end of each day. Sean Sargent, Director of Health & Safety at B-MAC Wireless explains: "We looked at a number of suppliers in the market for RF Safety monitors and we even purchased and tested a few others. We wanted an isotropic solution that would register EMF/RF levels accurately. We needed the device to monitor the levels of the EMF source regardless of their positioning or human barrier, such as a technician. Another area where movement and flexibility is paramount is when crews are working many feet up on a tower. Technicians climb and monitors move so it is very important that the device operates well and is not affected by movement."

B-MAC needed their RF Safety monitors to be reliable, FCC (Federal Communications Commission) compliant, and able to pick up the required frequency ranges. It is a legal requirement to provide RF

Safety programs and equipment to technicians, Sean explains: "Our Civil and Tower Technicians work on wireless cell phone towers, but they are also often in close proximity to broadcast towers with FM or Microwave transmitters. It's important to us that our technicians are confident that when exposure levels exceed the normal guidelines, they are made aware. In the USA less than 20% MPE is considered general public exposure levels. Once levels exceed 20% up to 99.9% MPE, it's important that technicians have RF level awareness and a reliable Personal Protection Monitor."

Since we started using MVG's EME Guard XS, it has exceeded our health and safety expectations, in terms of monitoring and raising awareness of RF levels for our technicians. MVG is our preferred RF Safety monitor supplier based on performance, price, and durability.

"We need to supply our technicians with RF Safety equipment which provides accurate and constant monitoring to alert them when pre-set thresholds are exceeded. The EME Guard XS gives both a visual and audio alarm which activate to let the technician know that perhaps a secondary PPE is required such as an RF protection suit for example." Sean explains the reasons behind the supplier selection for their RF Safety equipment: "Purchasing EME Guard XS delivered what we had been searching for, an RF safety tool which was portable, yet monitored RF levels with accuracy. As we work with the three largest tower companies in the world, SBA, Crown & Castle, and American Tower, it's critical for us that our health and safety policies are as strict as theirs. "With EME Guard XS, we are satisfied that we have the best solution on the market. Our technicians know that we have tested EME Guard XS ourselves and are confident that it will alert them to excess RF levels. EME Guard XS is totally portable and easily fits into the armband provided. It operates well in tough working conditions and it's robust enough to recover if dropped, which is a key factor when working at high elevation.

#### **PRODUCTS**













# 90% of revenue abroad 10 countries with sales offices 2 major production centers

Since 1996, the year that marked an industrial turning point for the Group when it decided to no longer be a design office but a manufacturer of products, MVG has developed two main assets:

- a solid business model, including a high proportion of recurring revenue,
- a multi-country/multi-sector positioning.

#### A SOLID BUSINESS MODEL

MVG proposes systems with high added value, designed from standardized technological blocks, guaranteeing controlled margins. Its know-how extends from the analysis, sales, and design stages to production, integration, installation and support. These systems accounted for 56% of new orders in 2015, including the contract for the Pit-Radwar system ( $\sim \in 9 \text{ M}$ ).

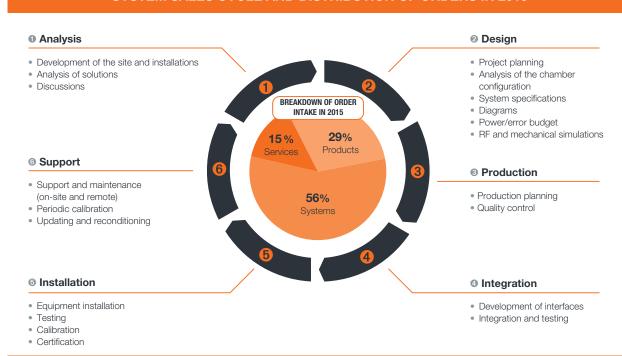
Alongside these systems, MVG develops, manufactures and markets off-the-shelf products, such as the SG 24 and StarLab. These projects require little adaptation from

one customer to another and can be put into service quickly. They represented 29% of orders in 2015.

Lastly, the Group offers engineering and maintenance services. They represented 15% of orders. Service, engineering, and maintenance contracts, associated with the products, represent 44% of sales and are not significantly affected by adverse market conditions.

This solid business model is reinforced by a diversified customer portfolio: the top customer accounted for 7% of the Group's 2015 revenue, and the top five customers account for no more than 18%.

#### **SYSTEM SALES CYCLE AND DISTRIBUTION OF ORDERS IN 2015**



#### AN INTERNATIONAL GROUP

MVG exports more than 90% of its production. The Group spans Europe, Asia and America through 20 locations in 10 countries. In 2015, a reorganization resulted in a centralization of its mechanical production in Israel, an almost fully sales and service oriented structure in the United States, and ultimately a more productive, more efficient Group focused on the future. It currently consists of two large major production centers: one in France, focusing on electronics and multi-sensor technology, and one in Israel, focusing on mechanics and single-sensor technologies, working in perfect synergy. These two production centers rely on three skill satellites: one that produces Faraday chambers (Rainford - England), one that produces, absorbing materials (chamber lining) (AEMI - USA), and one that designs reference antennas necessary for system acceptance (MVG - Italy). With its local offices, the Group is closer to customer cultures and is therefore better able to follow through with customer needs and with higher understanding, in turn limiting travel and transport expenses.

# MVG IS PRESENT IN 10 COUNTRIES, THROUGH 20 SITES, INCLUDING 2 MAJOR MANUFACTURING FACILITIES.



#### PARIS/BREST

MVG headquarters, MV-Scan™ production, R&D, project management, sales, marketing, customer support, and maintenance center.

#### ROME

R&D, antenna production, and sales center.

#### MUNICH

Sales and project management center.

#### **GOTHENBURG**

Sales center.

#### **MANCHESTER**

Faraday cage production center.

#### **PHILADELPHIA**

**ORBIT/FR headquarters,** integration, sales, project management, support, and maintenance center.

#### **ATLANTA**

Sales, project management, support, and maintenance center.

#### **SAN DIEGO**

Production (absorbents), sales, and project management center.

#### **TEL AVIV**

Production (positioners and masts), sales, project management, and support center for Israel, India, and Russia.

#### **TOKYO**

Sales, project management, and support for Japan.

#### HONG KONG

Sales, project management, support, and maintenance center for Asia.

#### **BANGALORE**

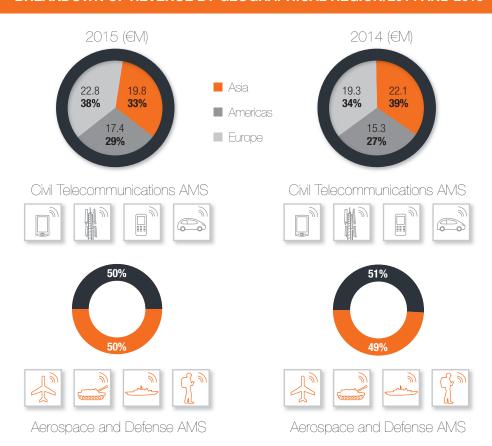
Project management center for India.

#### A MULTI-COUNTRY/MULTI-SECTOR POSITIONING

The distribution of Group activities is well balanced from both a sectoral (50% Aerospace and Defense, 50% Civil Telecommunications) and geographic (33% Asia, 38% Europe, and 29% North America) standpoint, even if the performance was more mixed by region.

Growth was particularly buoyant in Europe and the Mid-East (with +17% higher revenue) and in the Americas (+13%), driven by a number of commercial successes and favorable exchange rates. In Asia, revenue dropped by 10% (33% of revenue), following an exceptional increase of +26% in 2014, though business and our outlook remain healthy in this region. MVG's technological solutions are recognized by an increasing number of players in Aerospace/Defense and Telecommunications. The Telecommunications sector has seen sustained and dynamic demand for civil applications (4/5G, connected and autonomous automobile solutions), which drove the branch's growth this year. The Aerospace & Defense sector enjoyed controlled production with a high number of new orders at year-end, giving it a healthy and robust outlook for 2016/2017.

#### **BREAKDOWN OF REVENUE BY GEOGRAPHICAL REGION/2014 AND 2015**



# A diverse customer base that protects the group from any dependency on its main customers

MVG's business model relies on a diversified customer portfolio. From year to year, the share of the top customer and the top five customers remains contained. The top customer's share in the Group's 2014 revenue was thus only 7%, and the top five customers accounted for no more than 18%.

Share of revenue in €K	2013	2014	2015
No. 1 customer	3,790	5,665	4,480
Top 5 customers	10,942	15,149	10,534

# AN **EXPERIENCED TEAM** HOLDING SHARES

- An experienced team bringing together more than 28 nationalities
- The management is a shareholder of the Group

# mvg

#### **GROUP**



#### Dr. Philippe Garreau, CEO

SUPELEC, Engineering PhD
Started his career at the European Space Agency (ESA)
1992: Joined SATIMO - responsible for antenna measurements
1996: Promoted to CEO of SATIMO then the MVG Group in 2008

#### Olivier Gurs, CFO

2015: Named CFO of MVG

Holds an MBA from ESCP Began his career as an auditor at Arthur Andersen Became CFO of Hybrigenics then SpineVision 2003: Joined DI Finances



#### Lars Foged, Scientific Dir.

Graduate of the California Institute of Technology 1991: Joined Space Engineering (Italy) in the space antenna R&D dept. 2009: Named Scientific Dir. of SATIMO

#### Gianni Barone, Sales Dir.

Graduate of the University of Torvergata and SupAéro 1991: Joined Space Engineering (Italy) 1996: Participated in the launch of Altran in Italy 2000: Named Sales Dir. & Managing Dir. of SATIMO Italy





#### Eric Beaumont, Strategy Dir.

SUPELEC engineer/M.S. in E.E. Georgia Tech 1996: Joined SATIMO in charge of Signal Processing 2000: Joined the Mobile Network Design dept. of Alcatel 2007: Named Strategy Dir. of SATIMO

#### **SUBSIDIARIES**



#### Per Iversen, CEO of ORBIT/FR

Graduate of UCLA

1991: Joined the Antenna division of the ESA 1998: Tech. Dir. of SATIMO then Dir. of the Atlanta site

2008: Named head of ORBIT/FR

# **Arnaud Gandois,** *Managing Dir. at MVG Industries*

ENSIL engineer

1996: Started his career at SATIMO

7 years of experience as Managing Dir. of SATIMO Industries





#### Roni Braun, Dir. of ORBIT/FR, Ltd

Graduate of Technion – Israeli Institute of Technology 1996: Began his career as a mechanical engineer at Orbit/FR, Ltd

2009: Named Engineering Director of Orbit/FR, Ltd 2015: Named Dir. of Orbit/FR, Ltd

#### John Estrada, Managing Dir. of MVG USA

Graduate of Auburn University and Georgia Tech.

2001: Joined SATIMO

Currently Dir. MVG USA and Dir. US Sales





#### Ruben Padilla, Dir. AEMI

Graduate of the University of California (Riverside) 2007: Joined AEMI

2011: Named Dir. of AEMI



Graduate of ENSI and SupAéro 6 years of experience at DASA (Germany) 2000: Named head of R&D of SATIMO





ORBIT/FR

#### John Noonan, Dir. Rainford EMC

1991-2008: Dir. of Supaseries Ltd

2006: Dir. of Blackbeam Ltd

2009: Dir. of Rainford EMC Systems Ltd

#### Yann Toutain, Head of Brest Site

Engineer at Télécom Bretagne

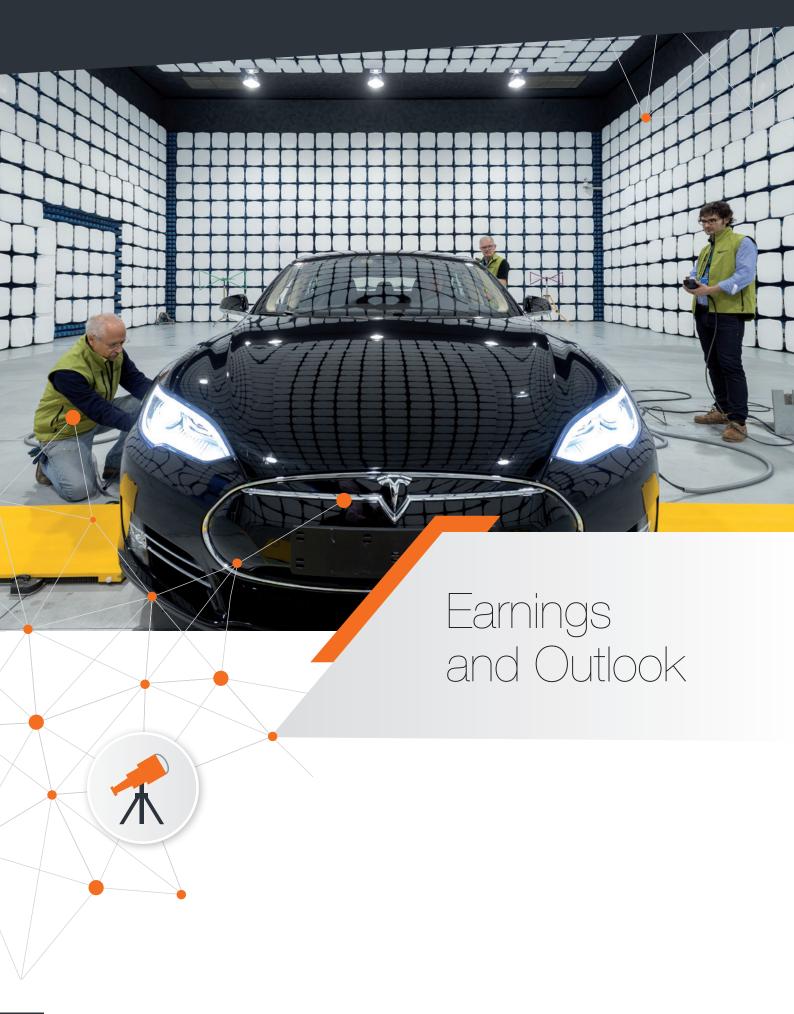
1991: PhD from Université de Bretagne Ouest

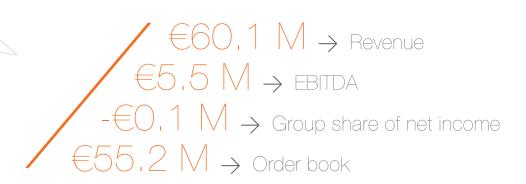
2001: Joined Antennessa (acquired by MVG in 2007)

2015: Named head of the Brest site





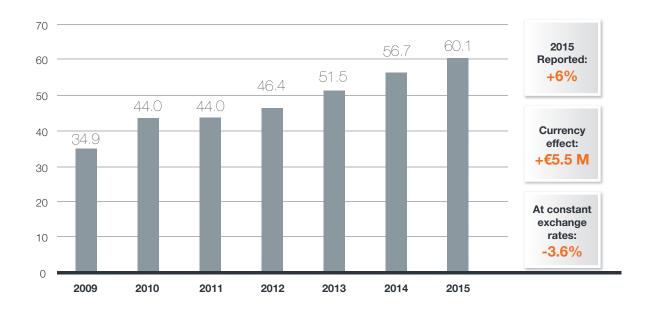




Fiscal Year 2015 had its highs and lows, with vigorous sales and a record level of orders placed on one hand, and financial results that were lower than 2014 on the other due mostly to some 2015 revenue being deferred to 2016 and to a volatile exchange market.

#### ACTIVITY

#### **CHANGE IN REVENUE (€M)**



The MVG Group had €60.1 million in annual revenue in 2015, compared to €56.7 million in 2014. This growth is based on +€5.5 million in positive exchange effects. At constant exchange rates, total sales have fallen by -3.6%.

This change is due to some revenue being deferred from 2015 to 2016 after changes were made to the production calendars of some European projects (Pit Radwar) and after some contracts in the United States were signed later than expected.

#### OPERATING MARGIN

#### Consolidated data - IFRS - €K

RECURRING NET

**OPERATING INCOME** 

	2014	2015	2015 at constant exchange rates
REVENUE	56,663	60,126	54,629
Purchases consumed	20,431	21,086	18,935
GROSS MARGIN	36,232	39,040	35,694
Margin	63.9%	64.9%	65.3%
Other external expenses	9,713	12,384	11,028
Payroll expenses	19,506	21,214	19,209
EBITDA	7,028	5,456	5,470
Margin	12.4%	9.1%	10.0%

This revenue deferral had a direct impact on the Group's operating margins.

3,171

5.3%

3,389

6.2%

4,961

8.8%

EBITDA stood at  $\in$ 5.5 million, compared to  $\in$ 7.0 million last year, and was equivalent to 9.1% of revenue, 3.3 points lower than 2014, including 0.9 points due to exchange effects.

Changing exchange rates had a -€5.7 million negative effect on operating costs, canceling out the positive effects of higher revenue. This shows the Group's natural hedge against exchange rate risks.

At a constant exchange rate, payroll costs fell slightly (-1.6%) thanks to production reorganization and rationalization efforts in the United States and Israel. The Group's mean employment fell to 335 employees in 2015 from 353 in 2014.

After depreciation, amortization and provisions, current operating income stood at  $\in$ 3.2 million ( $\in$ 3.4 million at constant exchange rates), compared to  $\in$ 5.0 million in 2014, i.e. 5.3% of revenue (6.2% at constant exchange rates).

### NET INCOME IMPACTED BY ONE-TIME EXPENSES

	2014	2015	2015 at constant exchange rates	
RECURRING NET OPERATING INCOME	4,961	3,176	3,394	
Margin	8.8%	5.3%	6.2%	
Non-current operating expenses	(884)	(2,813)	(2,600)	
Net operating income	4,077	363	794	
Net finance costs	-527	-734	-709	
NET INCOME	2,603	(836)	(381)	
NET INCOME, GROUP SHARE	2,342	(72)	257	

Fiscal Year 2015 also saw €2.8 million in one-time expenses written into the books. These expenses include €1.3 million in reorganization costs, €1.0 million in legal fees related to protecting intellectual property in the United States and China (with some cases still pending in 2016), and various other expenses, including some related to an abandoned external growth project.

In this context, and after financial expenses, taxes, and minority interests (Orbit/FR), Net Income, Group Share was almost flat, falling €0.1 million (+€0.3 million at constant exchange rates).

#### ■ HEALTHY FINANCIAL STRUCTURE

#### Consolidated data - IFRS - €K

		12/31/2014	12/31/2015
	NON-CURRENT ASSETS	25,574	28,626
	CURRENT ASSETS	75,745	73,892
ASSETS	<ul><li> of which, inventories</li><li> of which, trade receivables</li></ul>	7,752 30,573	9,530 31,482
_	CASH ASSETS	29,554	25,992
		101,319	102,518

	EQUITY CAPITAL	70,015	70,056
	NON-CURRENT LIABILITIES	8,893	7,668
LIABILITIES	- of which, non-current financial debts	8,096	6,867
BB	CURRENT LIABILITIES	22,411	24,793
	- of which, current financial debts	1,376	1,716
	- of which, trade payables	14,506	14,498
		101,319	102,518

The Group's shareholder equity stood at €70.1 million as of December 31, 2015.

#### Consolidated data - IFRS - €K

	2014	2015
Consolidated Net Income	2,604	(837)
Operating cash flow before finance costs and taxes	6,328	1,494
Change in WCR related to operations	(6,660)	(735)
NET CASH FLOWS FROM OPERATIONS	(333)	759
Net cash flows from investment	(3,083)	(3,057)
Net cash flows from financing	25,662	(1,781)
Impact of currency fluctuations	210	202

CHANGES IN CASH POSITION	22,456	-3,877
OPENING CASH POSITION	7,098	29,554
CLOSING CASH POSITION	29,554	25,677

Cash flow rose by €0.8 million with better WCR control according to the report dated June 30, 2015. Investments over the Fiscal Year stood at €3.1 million. Available cash continues to show a surplus, standing at €26.0 million. Net cash flow stood at €17.4 million, higher than on June 30, 2015, when it was €15.5 million.

The Group therefore still has the financial means to seize new external growth opportunities, while remaining highly selective.

#### **■** 2016 OUTLOOK

Due to a record number of orders received in 2015 (€72.2 million), the Group began Fiscal Year 2016 with a high number of new orders worth €55.2 million (compared to €43.1 million on January 1, 2015). Most of these orders will be filled in 2016.

In €M

+72.2

-60.1

Order book at Order intake Revenue for Order book at 01/01/2015 for 2015 2015 01/01/2016

The Group currently has a large portfolio of consulting requests in both the Telecommunications and Aerospace/Defense sectors. This proves its clients' interest in its technological and innovative solutions. Fiscal Year 2016 will therefore be marked by a large and organic return to growth.







NOTES	

# A global presence

Microwave Vision exports more than 90% of its production outside of France. The Group spans Europe, Asia and America through 20 locations in 10 countries.

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#### **MVG** India

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# Production site in Israel



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