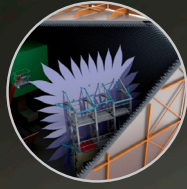


# + Customer Service



# + Our select service plans

## SERVICE PLAN LIGHT

For those who realized the importance of regular servicing yet prefer the liberty to choose more extensive verifications or assistance as they see fit.

- Basic support and maintenance coverage
- Spare parts not included

## SERVICE PLAN FULL

The most complete post warranty service plan. With this plan, ROI is maximized and down time minimized. You can concentrate on the core aspects of your business.

- Full coverage
- Extensive system performance verification
- Spare parts included
- Quickest response time and service
- Controlled costs



WORLDWIDE GROUP, LOCAL SUPPORT

# + MVG services at glance

**Y**ou have made a valuable investment in purchasing specialized test equipment. Maintenance is essential if you want to optimize its reliability and ensure continuous ROI. At MVG we have cost-effective solutions. Find peace of mind as you focus on your testing objectives by signing up for one of our post warranty service plans. Our experienced technicians and engineers will provide you with the quality service you deserve to the level that best suits your organization. Whichever plan you choose, they will all allow you to optimize your system's value, help you predict costs in your annual operating budgets and most importantly, keep your system up and running at all times.

	PAGE	LIGHT services	FULL services
<b>SUPPORT</b>			
Customer portal access	P04	●	●
Preventive maintenance	P04	●	●
Preferred remote response time	P04	●	●
<b>REPAIRS</b>			
Repair services	P05		●
<b>SYSTEM SPARE PARTS</b>			
Analysis and list of recommended parts	P06	●	●
Spare parts storage and equipment loan	P06		●
Spare parts as needed <sup>(1)</sup>	P06		●
<b>UPDATES</b>			
Software updates <sup>(2)</sup>	P06	●	●
User manual updates	P06	●	●
<b>PERFORMANCE CHECK</b>			
Mechanical system inspection and performance verification	P07	●	●
System orthomodal calibration <sup>(3)</sup>	P07	●	●
Performance reports <sup>(4)</sup>	P07		●
<b>OPTIONAL SERVICES</b>			
Geometrical error corrections	P08		
Global performance verification <sup>(5)</sup>	P09		
Equipment refurbishment	P09		
Anechoic chamber operation and maintenance	P10	<i>(Can be procured as options)</i>	
System relocation/reinstallation	P10		
Absorber and chamber refurbishment	P11		
Training	P11		
Consulting	P11		

(1) Subject to conditions established under contract agreement

(2) Customer system dependent. In the case a software requires a new computer workstation, it will be priced separately.

(3) This apply only to multi-probe systems

(4) If the base system already includes MV-Cor™.

(5) This option is possible only if your turnkey system has previously undergone performance verification at the moment of onsite acceptance.

# + The Specific Features of our Services



## + MVG Customer Portal LIGHT FULL

MVG's customer portal allows you to address your support requests directly online on a dedicated platform. Using this portal allows you to benefit from a better response time as it helps us sharing more efficiently the information internally. For each account there is a thread in which the communication history is kept. This allows us to build up a knowledge base on the operations already carried out and to better follow-up of your products.

## + Preventive Maintenance LIGHT FULL

**Rest assured that your sensitive, high precision measurement equipment is operating at peak performance at all times. Our experts will perform the necessary verifications and replacements to keep your system running smoothly and help you avoid costly repairs and downtime.**

- Routine preventive maintenance visits by a qualified field service engineer
- Complete system inspection to validate full operational capacity
- Adjustment of belts and gears on electromechanical products
- Repair analysis – identification of items needing repair or replacement in the near future
- Maintenance report

## + Preferred Remote Response Time LIGHT FULL

**Your needs will be promptly addressed by qualified support staff who will work with you remotely on an immediate solution or will help you clarify your need for on-site assistance.**

- Configuration issues
- System functionalities
- Technical support



- A personalized response to your specific needs
- A worldwide, local support staff of experts at your service
- Preferred response time



- Maintain your system at peak performance levels while reducing the likelihood of instrument failure
- Plan your operating budget accurately with predictable maintenance expenses- One purchase order years of service



# REPAIRS

## + Repair Services FULL

Though we do our best during maintenance visits to anticipate where wear and tear may cause breakdowns, no machine is fault proof. Our worldwide local support teams will follow up on your request for assistance, diagnose the problem and plan a schedule of onsite repairs if necessary. Qualified technicians and engineers will repair your system with the expertise it demands.

- Acknowledgement of request within 24 hours (working hours)
- Remote support subject to plan/contract conditions
- Preferred on-site response time
- Follow-up service set up as scheduled visit
- Covered parts and labor subject to plan/contract conditions



- Quick and reliable repairs for minimal downtime at all times!



# SYSTEM SPARE PARTS



With the Full option the expense of spare parts is covered<sup>(1)</sup> and MVG will have stock of the parts you need when you need them. Alternatively, you can purchase your most critical spare parts in advance to have them on hand on your premises. In any case, we will have analyzed your needs in advance and prepared a list of references.

- Fault analysis
- List of critical spare parts
- Spare parts delivery options:  
1/ Invest in full plan, 2/ Procure in advance, 3/ Request a quote, place an order, and receive the parts when available

## + Analysis and List of Recommended Spare Parts LIGHT FULL

After installation, our service staff will analyze your system and list the critical parts recommended to keep on hand.

## + Spare Parts Storage & Equipment Loan FULL

MVG will have stock of the parts you need when you need them. If a subsystem needs time for troubleshooting, we'll loan you a replacement subsystem when possible while the faulty part is identified and repaired.

## + Pre-paid Spare Parts FULL

The expense of the critical system spare parts is covered, conditional to your plan/contract agreement.



- Ensure against setbacks or interruptions
- Control costs

# UPDATES



## + Software Updates<sup>(3)</sup> LIGHT FULL

In the interest of our valuable customers, we regularly develop new features and capabilities better suited to your needs. Our software solutions are user-friendly and backed by a world-wide software support team.

- Support for installation
- Progressive discounts on additional copies of acquisition and analysis software for service plan customers

## + User Manual Updates<sup>(3)</sup> LIGHT FULL

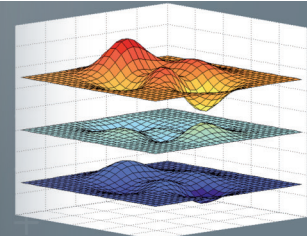
We will send you updates of the manuals which accompany new or updated systems.



- Guarantee continued measurement accuracy with consistently up-to-date systems
- Enjoy new features and capabilities
- Benefit from a worldwide support

(1) Subject to conditions established under contract agreement  
 (2) Does not includes traditional active measurement protocols  
 (3) Customer system dependent

# ANNUAL PERFORMANCE CHECK



Continuously precise measurements are essential for accurate analysis and results. Protect the high-tech precision of your instruments by investing in annual inspection visits. Your system is verified and realigned for accuracy and speed, allowing you consistently quick and precise results time and again.

## + Mechanical System Inspection and Performance Verification

LIGHT FULL

The electromechanical system is examined in its different relevant performance parameters:

- System interlock operation
- Motion control
- System backlash
- System repeatability

Following the comprehensive system examination MVG will issue a report describing the system status and will recommend the necessary electromechanical repairs if required.



- Maintain a regular assessment of your system to be able to anticipate further verification measures

## + System Orthomodal Calibration

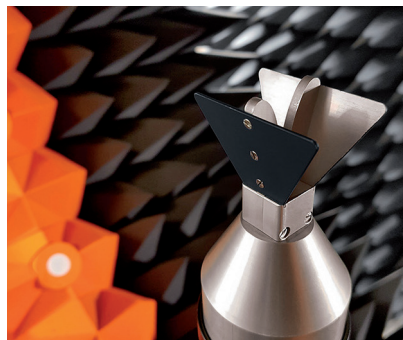
LIGHT FULL

For your multi-probe system probes needs to be equalized in amplitude phase and polarization.

- Assessment of your RF system
- Orthomodal calibration



- Ensure that the accuracy of this part of the system is in line with the rest
- Only apply to multi-probe system



## + Performance Reports FULL

According to the level of verification your chosen service plan provides, upon completion of service, you will receive the reports validating the performance of your range or equipment.

- Complete system's maintenance report
- Multi-probe systems calibration reports<sup>(1)</sup>
- Total positioning system accuracy report



- Enjoy the documented confirmation that your system is operating at high levels of performance and accuracy

(1) Customer system dependent

# OPTIONAL SERVICES

## More needs = More services

At MVG, we know our customers' requirements vary from industry to industry. With this in mind, we've developed a broad range of services à la carte to satisfy the specific post-sales needs of each of our valuable customers.

### + Measurement of Total Positioning System Accuracy FULL

The electromechanical system's geometrical errors are mapped using accurate optical or laser instrumentation for an ultimate geometrical error mapping and analysis.

The positioning system's accuracy is measured following a two-level process:

- Measurement of individual axis position accuracy
- Measurement of the global positioning errors and dependencies between the different axes (planarity, leveling, orthogonality)
- Any third-party positioning equipment can also be verified with this method



- Ensure that your electromechanical equipment is running at peak performance

### + Geometrical Error Correction<sup>(3)</sup>

To increase the reliability of a system MVG offers a unique service to increase range performance without replacing the entire positioning system. MV-Cor™ integrates geometrical error correction techniques for improving system's accuracy by a factor of 2 to 3.

- System evaluation:
  - Mechanical inspection of the positioning equipment - based on the diagnosis, recommended services will be offered to reach optimal operation
  - Measurement and optimization of positioner repeatability
  - An upgrade to AL-4164, AL-4166, or one of the AL-48060 series positioner controllers, as required
- Development of the geometrical error correction data:
  - Analysis of current position accuracy using a laser tracker or other electro-optical measurement devices
  - Data collection and analysis
  - Generating and programming geometrical error correction maps in the controller using a proprietary MVG calibration tool (Mect™ software)
- Integration and improved accuracy validation:
  - Activation of correction tables
  - Validation of the effects obtained by the activation of the correction tables on the overall system's accuracy through measurement



- Enhanced accuracy of new and/or existing positioning equipment
- Improved control loop stability

**Special note:** MV-Cor™ uses continuous feedback correction, the only method that compensates both for position commands/reports and for the variable gain of the feedback for the control filter. The feedback sensor records the original hardware values, making the correction transparent to the user.



## + Global Performance Verification

If your turnkey system was validated by a performance check at the moment of site acceptance, this option is open to you. You will benefit from the same initial verifications and receive our complete line of certification to validate the quality of your system results. The performance of your antenna measurement and test facility is verified using a combination of:

- Rigorous error analysis methodology featuring a combination of both analytical and experimental approaches to identify all possible error sources/uncertainties and estimate their contribution to the final calculated results
- Comparison of patterns of a reference antenna, calibrated in advance at a certified measurement facility, with those measured at the range under evaluation
- Verification of antenna parameters such as pattern shape, gain, beam pointing, etc.

## + Equipment Refurbishment

Budget restrictions prevent you from buying new? We provide cost-effective solutions to turn partially or entirely your old equipment, manufactured by MVG or any third-party supplier, into a state-of-the-art system, newly equipped to serve you for many years.

- Refurbishment or replacement of motors
- Gearing evaluation
- Installation of new analog (tachometer) and digital velocity feedback systems (for closed-loop systems)
- Replacement of synchro and encoder assemblies
- Replacement of slip ring and rotary-joints
- Total rewiring of system, including replacement of connectors
- Replacement of hardware such as screws, nuts, washers etc.



- Maintain optimal test range performance
- Open your test range with confidence to third party users



- Your system's original performance levels are restored and/or improved
- The life expectancy of your equipment gains extended years
- New features and state of the art equipment from a minimal investment



- Priming and repainting of surfaces
- Complete acceptance tests to meet original system specification

## + System and Software Upgrade

**Range upgrades could include but are not limited to:**

- Enhancing traditional Planar/Cylindrical/Spherical Near-Field systems with multi-probe technology
- Adding Cylindrical or Spherical Near-Field capability to Planar Near-Field systems
- Upgrading positioning equipment and/or RF components to current state-of-the-art models
- Replacing obsolete controllers with current state-of-the-art models
- Upgrading probes
- MV-Cor™ upgrades – allows geometric correction error capabilities for your system
- Upgrading to latest control or post processing software providing you with additional features and drivers and enhanced user-interface
- Extending the frequency range of your facility

## + Anechoic Chamber Operation and Maintenance

**We recommend an inspection of the chamber at least once a year by a site maintenance team.**

- Confirmation of the chamber's good condition
- Visible shielded mechanism check
- Damage or corrosions inspections

## + System Relocation/Reinstallation

**Considering moving your system, but concerned about your sensitive data or system integrity? By entrusting it to the experts at MVG, you are sure to preserve your system's value, its operation, accuracy, and performances after relocation.**

- Dismantling of the equipment
- Installation, integration, and performance verification at the new site
- Preserve the validity of your MVG warranty and service plan agreement

## + Absorber and Chamber Refurbishment

**Replace aging test chamber absorbers to regain the qualities of your chamber's initial testing days.**

- Replacement of absorbers
- Shielding evaluation
- Shielding restoration and requalification
- Frequency band expansion: extending frequency range to lower/higher bands



- Extend the life expectancy of your equipment and your system as a whole
- Enhance measurement speed and capability
- Maintain the capacity to support the latest RF hardware equipment models



- Ensuring proper preservation of the installed equipment and the chamber's lifespan



- Guarantee system performance after relocation
- Free your technicians from relocation hassles
- Rest assured that experts are handling your sensitive measurement system



- Increase the quiet zone area
- Enhance shielding effectiveness

## + Training

We offer both theoretical and hands-on training adapted to meet your specific needs.

e.g.: basic and advanced antenna measurement, Wavestudio, Insight, 959, MiDAS, in-depth, antenna range design principles, preventive maintenance and other advanced topics. Training sessions are organized at your convenience, at either MVG offices or on location at your test site.

- Training on new systems for new or experienced operators and managers
- Refresher courses – both theoretical and hands-on
- Proposed talks or workshops on select topics

## + Consulting

Benefit from our vast know-how in the field of antenna measurements. Our experienced engineering consultants are at your service to help you answer questions you can't.

- Mechanical
- RF
- Software
- Antenna measurement and diagnostics



- Improve work efficiency and system utilization
- Enrich operational know-how and productivity
- Keep your staff consistently up to date on new features and technologies



- Have access to expertise and knowledge from the field
- Be cost effective & efficient in finding solutions for specific projects and tasks.

# MVG - Testing Connectivity for a Wireless World

The Microwave Vision Group offers cutting-edge technologies for the visualization of electromagnetic waves. With advanced test solutions for antenna characterization, radar signature evaluation and electromagnetic measurements, we support company R&D teams in their drive to innovate and boost product development.



## WORLDWIDE GROUP, LOCAL SUPPORT

Our teams, in offices around the world, guide and support you from purchase, through design, to delivery and installation. Because we are local, we can assure speed and attention in project follow through. This includes customer support and maintenance once the system is in place.

For the exact addresses and up-to-date contact information:

[www.mvg-world.com/mvg-offices](http://www.mvg-world.com/mvg-offices)

**All of the services in each of our plans are also available as one shot services.  
Please contact your local sales representative for more information.**



For more information:  
<https://mvg.link/services>

Contact us:  
[www.mvg-world.com/en/contact](http://www.mvg-world.com/en/contact)

