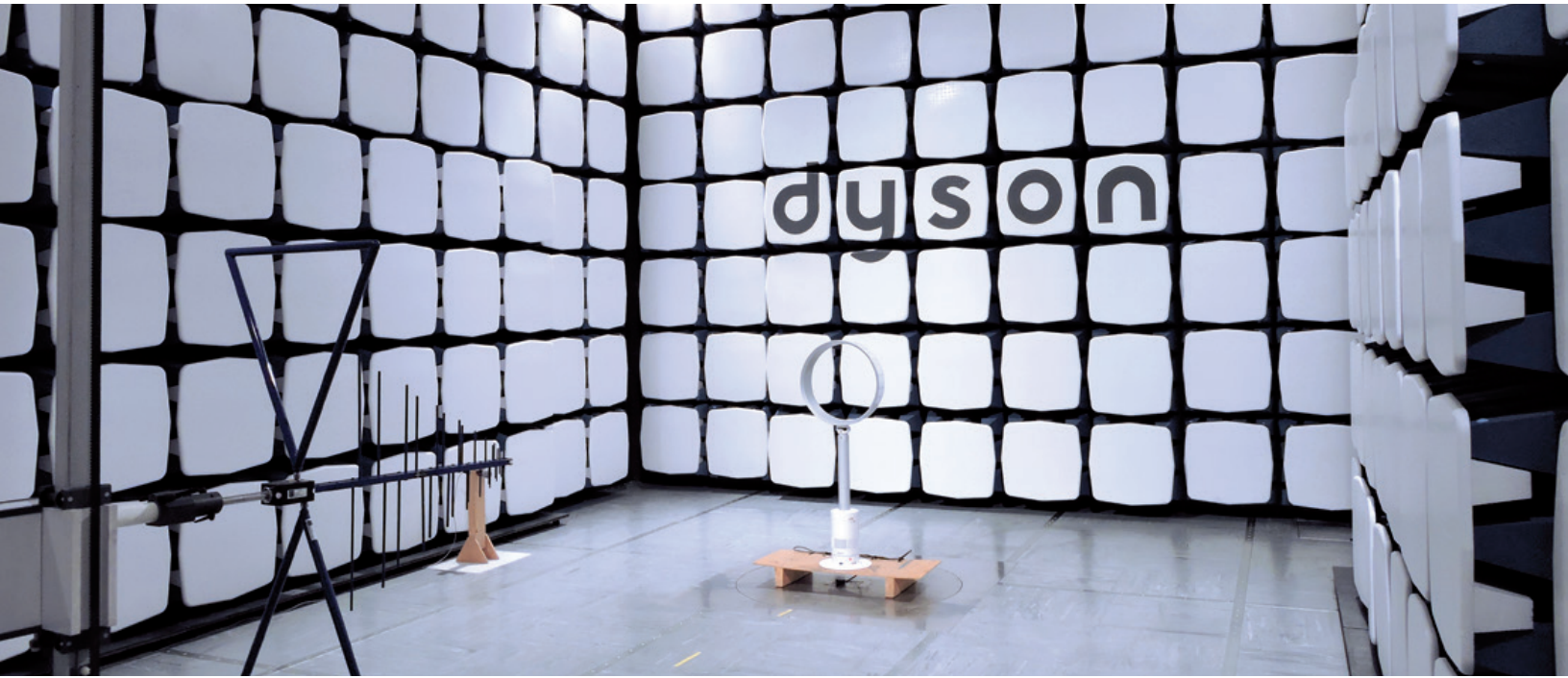


“ First choice
for EMC Testing



EMC Testing Product Brochure

Quick Guide of MVG's EMC Testing Solutions



System name	RF Shielded rooms, shielding rooms and shielded door systems	EMC-3C Compact Chamber	EMC-3 Anechoic Chamber	EMC-5 Anechoic Chamber	EMC-10 Anechoic Chamber	Mode Stir Chamber	MIL-STD Chamber
Dimensions (shield)	SmartShield Modular flexible design Door systems 0.9 m wide - 20 m wide or more	7m x 3m x 3m	8.9m x 5.6m x 5.8m	11.5m x 7.5m x 5.8m	21m x 12m x 8.5m	Application dependent. Large working volume in chamber	Dimensions may vary e.g. a test bench up to Aircraft
Performance range	10 KHz - 100 GHz	30 MHz - 40 GHz Radiated Immunity: 30 MHz - 18 GHz Shielded door 30 MHz - 18 GHz 1m QZ	30 MHz - 40 GHz Radiated Immunity: 30 MHz - 18 GHz Shielded door 2m QZ	30 MHz - 40 GHz Radiated Immunity: 30 MHz - 18 GHz Shielded door 3m QZ	30 MHz - 40 GHz Radiated Immunity: 30 MHz - 18 GHz Shielded door 3m > QZ	High-field strength applications (200 V/m - 7000 V/m)	10 KHz - 40 GHz
specifications/certifications	Pre compliant: • CISPR-16 Compliant: • EN61000.4.3	Pre compliant: • CISPR-16 Compliant: • EN61000.4.3	Compliant: • ANSI C63.4 • MIL STD 461F • CISPR 16-1-4 • EN61000.4.3	Compliant: • ANSI C63.4 • MIL STD 461F • CISPR 16-1-4 • EN61000.4.3	Compliant; • ANSI C63.4 • MIL STD 461F • CISPR 16-1-4 • EN61000.4.3	• IEC61000-4-21 • RTCA DO 160	• MIL STD 461 and RTCA DO160 requirements
Materials	Three different designs: copper shield, woodcore modular system, pantype modular system	SmartShield shielding with HyPyr-Loss™ Ferrite and Hybrid absorbers for 26 MHz - 40 GHz	SmartShield shielding with HyPyr-Loss™ Ferrite and Hybrid absorbers for 26 MHz - 40 GHz	SmartShield shielding with HyPyr-Loss™ Ferrite and Hybrid absorbers for 26 MHz - 40 GHz	SmartShield shielding with HyPyr-Loss™ Ferrite and Hybrid absorbers for 26 MHz - 40 GHz	SmartShield screened environment - no ambient signals	SmartShield shielding with HyPyr-Loss™ Ferrite and Hybrid Lining available
Page	-	P 6	P 8	P 10	P 12	-	P 14

Company overview

Since 2008, Microwave Vision Group has combined the technological expertise, product portfolios and infrastructures of four industry leaders: SATIMO, ORBIT/FR, AEMI and Rainford EMC Systems have joined forces to meet our clients' every need.

Now present in 12 countries with 23 sites, our 350 employees worldwide are driving forward our innovation programme, which is the technical force behind Microwave Vision Group's success. With revenue of €uros 56.7 million and 18 years continual growth.

“*For EMC Testing you need our expertise*”

OUR EMC TESTING SOLUTIONS

Our solutions support the Aerospace & Defense, Satellite, Telecommunications and Automotive industries, as well as Universities and Institutional Research and Material manufacturers.

Whether testing for emissions, immunity, compliance or pre-compliance, MVG's portfolio of EMC Testing products, in particular, help you to optimize your testing processes. MVG brings together technical excellence and first class R&D to deliver innovative EMC Testing products for both the European and worldwide markets.

OUR RF RESEARCH & DEVELOPMENT

Our 55 R&D engineers work tirelessly to develop our superior range of EMC Testing products with the impressive 9.3% of revenue which we plough back into product research and development.

Many private companies and public offices choose our EMC testing products to ensure that their tests are compliant to the latest industry standards. Testament to the high quality of our EMC products is that Dyson Ltd, as well as other industry leaders, have chosen MVG's EMC Test chambers to help them deliver efficient, on-site, EMC testing to fully compliant levels.

Efficient, on-site EMC testing to fully compliant levels

THE PROBLEM

As the demands for accurate assessment of products increase, so has product complexity. But, manufacturers also have the challenge of meeting increased industry standards for testing compliance. Today's industry is highly competitive and keeping knowledge and developments in house is crucial to success. With manufacturers now at the forefront of industry development, how can they protect their developments and their patents?

OUR SOLUTION

MVG's range of Shielded Rooms & Anechoic EMC Test Chambers enables companies to produce, test and certify their electrical and electronic products. On-site testing is an efficient way to complete EMC product testing to fully compliant EMC industry standards (CISPR, IEC and FCC). This enables manufacturers to launch to market of approved products in an optimized, timely, and cost effective way. The ability to complete EMC testing of products on-site also ensures full confidentiality of a company's products and protects their developments & patents. With over 30 years of experience, we pride ourselves in being experts in EMC test and measurement solutions, providing solutions to meet our clients' every need.

THE EMC TEAM



John Noonan
Managing Director

After achieving a B.Sc. Hons (Civil) from University of Warwick in 1983, John went on to achieve the AMICE professional qualification. John's career started on a great foundation in the Civil & Structural Engineer sectors, including Government and Military facilities, Nuclear Power & Reprocessing and Structural Steelwork Fabrication before joining us in 1996. Today, as Managing Director of Rainford EMC Systems (a division of MVG), John oversees the development and delivery of a wide variety of EMC projects.



Bill McFadden
Operations Director

Bill originally joined Rainford EMC Systems in 1991 and during the subsequent years has gained extensive experience and knowledge in all disciplines of the company and the Shielded Anechoic Chamber industry. A mechanical engineer who enjoys getting involved at all levels in his role as Operations Director for Rainford EMC Systems, Bill is currently responsible for the manufacturing, Design, Project Management and site install divisions, with a healthy overlap to Technical Sales support.



John White
Sales & Marketing Director

John has been working in the area of EMC for nearly 30 years and is responsible for the Global EMC sales organisation at MVG. He is a mechanical engineer who is specialized in the anechoic chamber market and is extremely well known in the industry. Combining product knowledge with expert sales and marketing knowledge ensures that what we deliver is one step ahead of the competition. John has particular expertise with international sales and ensures competent partners are selected and supported to grow the EMC business stream of MVG.



Donald J. Gray
*Director Business Development
& Technical Sales*

After graduating with a B.S. in Mathematics and Economics, Donnie went onto achieve a MSEE from the University of Colorado. Now, as Director of Business Development and Technical Sales at MVG, Donnie's wealth of experience from his 25 years in the industry includes satellite communications, antennas, and electro-magnetic projects both for military and commercial applications helps us to deliver innovative solutions to meet the market needs. As a member of AMTA, IEEE and IEEE EMC, Donnie has contributed towards many industry papers on the topics of antenna measurements, EMC testing, and RF absorber applications.



Mathieu Mercier
Technical Director

After receiving his MSc Science in Electronics and Microwave, Mathieu's career started with Ericsson and continued in antenna measurement systems until he joined MVG in 2003. Now, Mathieu is Technical Director of AMS and MD of EMC for the Asia Pacific region.



EMC FAQs

Why do you need to use a professional EMC test laboratory environment?

To ensure accuracy of answers and to meet compliance regulations, such as the Euro Norms series of European regulations for compliance of products.

Are the regulations a legal requirement?

Yes and non-compliance of these regulations could result in heavy fines and prevention of product launch to market, or even worse, forced retraction from the market.

Are the European regulations used in other global regions?

Yes, the European regulations are often adopted or duplicated by local standards in many countries outside of mainland Europe.

Dyson Ltd

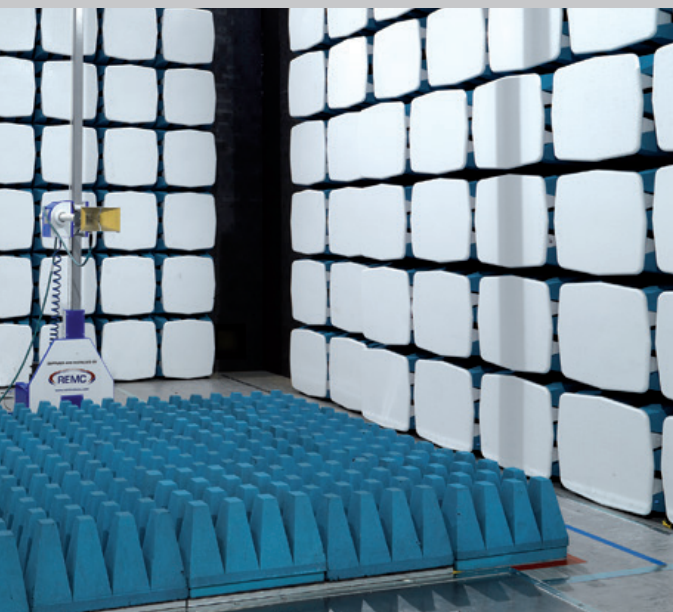
Today's industry is highly competitive. The secrecy in their knowledge and developments has been a crucial element in Dyson's success to date. But how do they achieve this?

Originally commissioned in 2006, the 3 meter semi-anechoic EMC Chamber (SAC) at Dyson required upgrading to meet the changing industry standards and frequency ranges. "We carry out EMC assessment of our home and commercial products during development, such as Dyson vacuum cleaners or hand dryers for example," says Fabio Scalon, Principal Engineer at Dyson Ltd. "Our tests are all completed in house in our SAC which helps us to maintain confidentiality and keep product developments on-site rather than shipping to outside test facilities. This also gives us the capability to test to the standards specified by the industry, namely CISPR, IEC and FCC." The existing chamber was evaluated by MVG-EMC and upgraded to refit new "Hyperloss" hybrid absorber matched to the existing ferrite tiles. Fabio explains, "With changes in the complexity of our products, we now have a need to also test for Electro Magnetic Fields (EMF) up to 2.7 GHz. The upgraded chamber will allow us to do this, therefore expanding both the capability and the performance of the chamber."

THE BENEFITS

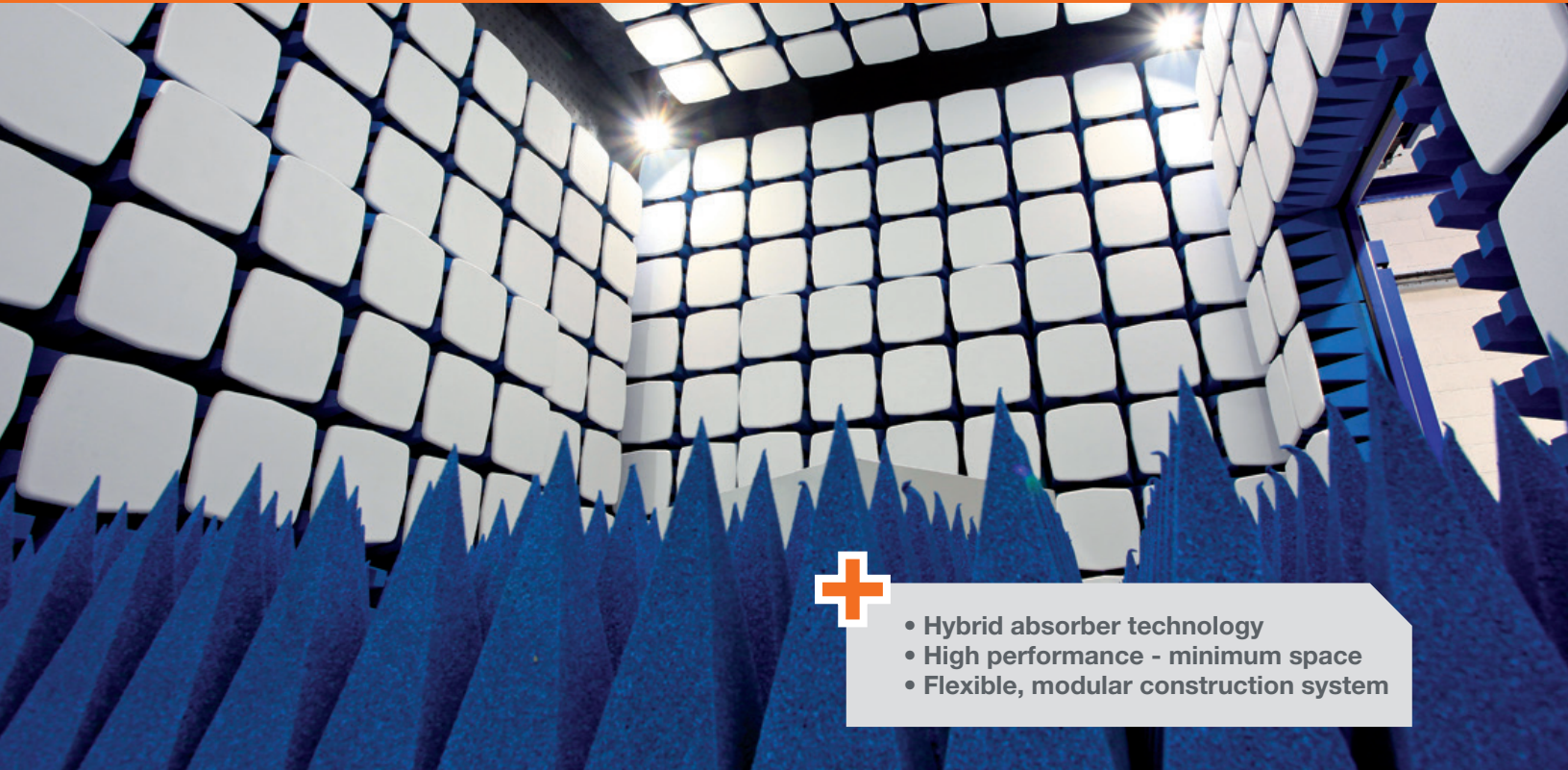
The benefits of having an on-site test facility at Dyson are:

- The capability to test to full compliance on-site.
- It maintains confidentiality during development.
- With prototype testing we can test, check, modify and re-test within minutes.
- Quick validation as we can check and verify compliance when needed.
- Time saving, as we have no delays from using an outside test center.
- Cost saving, as our test chamber runs 8 hours per day, imagine the costs for outsourcing.



3 Meter Compact Anechoic EMC Test Chamber

EMC – 3C



- Hybrid absorber technology
- High performance - minimum space
- Flexible, modular construction system

SOLUTION FOR

EMC test sites requiring pre compliance emission and compliant immunity testing

Main features

- Dimensions (shield) 7m x 3m x 3m
- Performance range 26 MHz – 40 GHz
- Pre compliant Emission performance of +/- 4 dB at 3 m test distance for 80% of frequency range ANSI C63.4, EN50147/2
- Fully compliant for Immunity in accordance with EN61000.4.3
- Independently certified 100 dB @ 18 GHz shielding performance (ISO17025)
- HyPyr-Loss™ Ferrite and Hybrid absorbers For 26 MHz – 40 GHz measurements
- Optimised computer modeling to enable cost effective absorber layouts
- Bespoke and modular design enabling unlimited performance options and facilitating upgrades or relocations
- Available as a turnkey package – chamber, antenna & mast, turntables, Instrumentation and software

This compact 3 meter test range will fit into test areas of limited space and offers pre-compliant emission and full compliant immunity testing. Emission quiet zones of up to 1.5m are accommodated with very repeatable results. The high performance and compact dimensions are achieved by the use of our SmartShield high performance shielding system combined with our specifically matched HyPyr-Loss™ ferrite and hybrid absorber solution.

When designing products which are required to conform to EMC standards, it is highly recommended that potential problems are resolved early in the process. Pre-compliance testing is a cost effective way of diagnosing and removing possible problems with the design before the necessary full compliance testing and product certification. The early diagnosis of such issues can not only dramatically reduce research and development costs, but also the initial manufacturing costs.

The advanced technology in our HyPyr-Loss™ hybrid materials, a unique combination of ferrite tiles & hybrid pyramid absorbers, optimises EMC measurement performance between 26 MHz - 40 GHz. These hybrid absorbers require less volumetric space than traditional absorbers (standard carbon loaded or thin film coated pyramids).

The advantages of our unique SmartShield High Performance shielding system are significant with performance in excess of 100 dB for most frequencies. The construction features of modular panels with RF connecting joints enable an easily demountable chamber. This is a major benefit for our customers where future relocations are necessary.

The EMC-3C is just one of a range of pre-defined EMC test chamber designs. Others include:

- EMC-MC (Mini compact)
- EMC-3 (Compliant 3 m test range)
- EMC-5 (Compliant 5 m test range)
- EMC-10 (Compliant 10 m test range)

Our vast management experience of more than 26 years combined with specialised design tools such as Solidworks 3D, allow us to offer our customers customised, turnkey capabilities. We are able to modify and develop our existing designs to meet any requirement you may have. With customer satisfaction as priority, our advanced development and production facilities, accredited to ISO 9001 & ISO 14001, ensure all products achieve low maintenance and long life.

Product configurations

Dimensions (shielding)	7 m x 3 m x 3 m
Performance range	26 MHz - 40 GHz
Emission performance	CISPR-16 pre compliant 3 m site
Immunity performance	EN 61000-4-3 fully compliant 3 m site
Standard equipment	SmartShield RF shielded room, raised floor Absorber lining: HyPyr-Loss™ Ferrite & Hybrid lining

QTY	TYPE
1	0.9 m x 2.1 m personnel door
1	Mains filter 240 V 50/60 Hz, 32 A
4	Attenuvents (300 mm x 300 mm)
1	Consumer unit
4	Sockets
4	Lights
2	Penetration panels

Feedthrough interfaces include:

4	n-type connectors
4	BNC type connectors
2	Fiber optic penetrations (8 way)
1	Penetration tube w/ cap - 5 cm

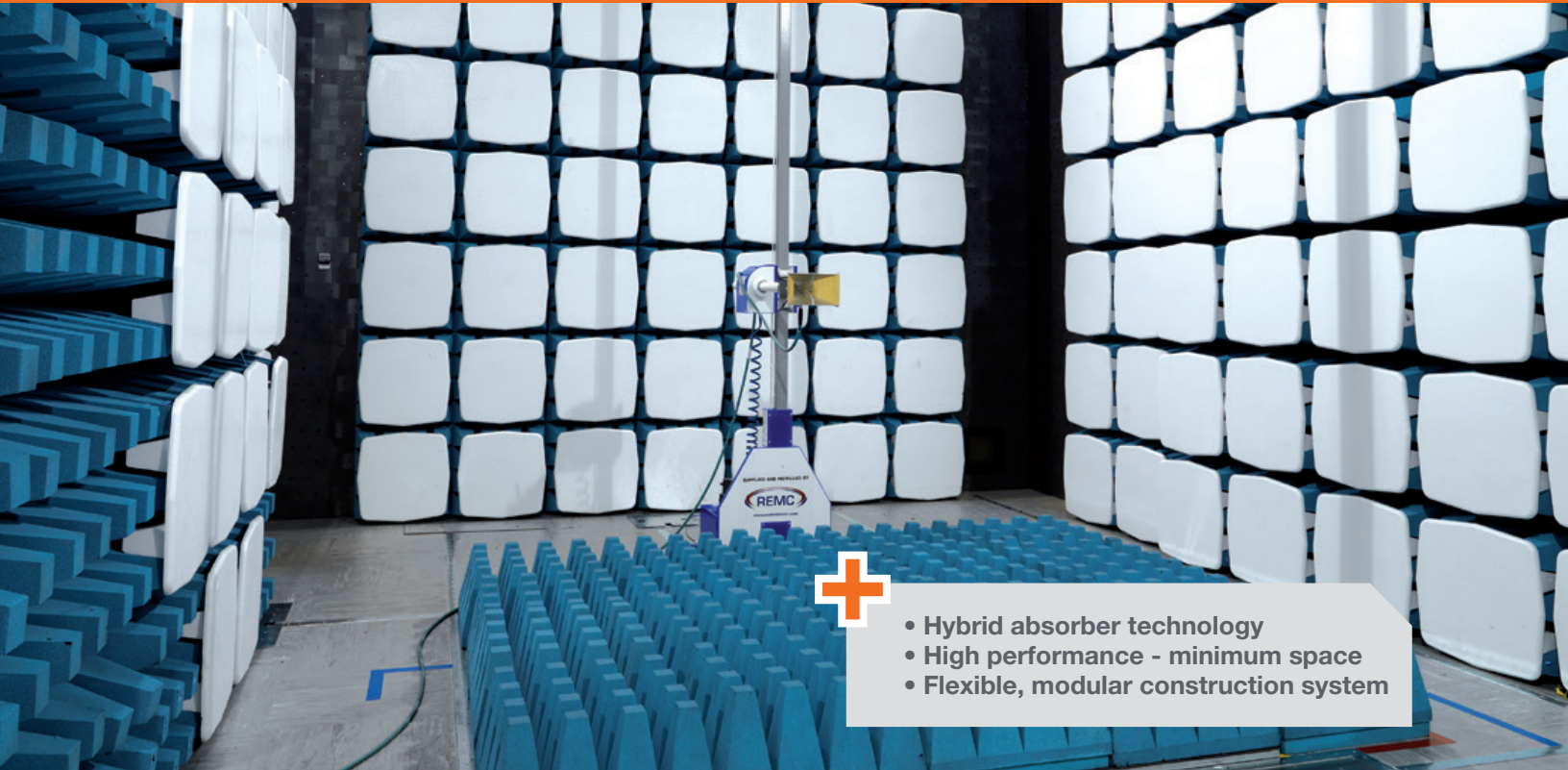
Accessories	<ul style="list-style-type: none"> • Access doors - manual, semi & fully automatic • Turntable, Masts & Controllers • 3 phase mains filters • Control data/ line filters • Test and Measurement EMC systems • Air conditioning • CCTV & Audio system • Fire detection/suppression • Chamber validation/calibration • Control room • Amplifier room
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Technical data

Pre compliance testing for Radiated Emissions	<ul style="list-style-type: none"> • ANSI C63.4 • FCC Parts 15 & 18 • EN 50147-2 • EN50011/CISPR 11 • EN550016/CISPR 16 • EN550022/CISPR 22 • VCCI V-3/2004.04 • 2004/104/EC-SAE J551 /CISPR25
Full compliance testing for Radiated Immunity	<ul style="list-style-type: none"> • IEC 61000-4-3/EN61000-4-3 • 2004/104/ISO11452/EC-SAE J551, SAE J-1113
Quality standards	<ul style="list-style-type: none"> • ISO17025; ISO9001 • Environmental standard ISO 14001

EMC - 3

3 Meter EMC Test Range Semi - Anechoic Chamber



- Hybrid absorber technology
- High performance - minimum space
- Flexible, modular construction system

SOLUTION FOR

EMC test sites requiring to meet Emission & Immunity standards

Main features

- Dimensions (shield) 8.9 m x 5.6 m x 5.8 m
- Performance range 26 MHz - 40 GHz
- ANSI C63.4 Emission Performance, NSA 30 MHz -1 GHz +/-4 dB or better
- Extended performance options – meeting MIL STD 461F and other specifications
- CISPR 16-1-4, sVSWR 1 GHz - 18 GHz fully compliant
- Independently certified 100 dB @ 18 GHz shielding performance (EN50147-1)
- HyPyr-Loss™ Ferrite and Hybrid absorbers for 26 MHz - 40 GHz measurements
- Optimized computer modeling to enable partial hybrid low cost version
- Bespoke and modular design enabling unlimited performance options and facilitating upgrades or relocations
- Available as part of a complete turnkey package for EMC measurements

This is the ultimate 3 meter anechoic chamber ensuring fully compliant emission and immunity testing. The high performance and compact dimensions are achieved by the use of our SmartShield high performance shielding system combined with specifically developed HyPyr-Loss™ hybrid absorber materials for EMC test chamber applications.

The advanced technology in our HyPyr-Loss™ hybrid materials, a unique combination of ferrite tiles & hybrid pyramid absorbers, optimizes EMC measurement performance between 26 MHz - 40 GHz. These hybrid absorbers require less volumetric space than traditional absorbers (standard carbon loaded or thin film coated pyramids).

The advantages of our unique SmartShield High Performance shielding system are significant with performance in excess of 100 dB for most frequencies. The construction features of modular panels with RF connecting joints enable an easily demountable chamber. This is a major benefit for our customers where future relocations are necessary.

The EMC-3 is just one of a range of pre-defined EMC test chamber designs. Others include:

- EMC-MC (Mini compact)
- EMC-3C (Compact 3 m test range)
- EMC-5 (Compliant 5 m test range)
- EMC-10 (Compliant 10 m test range)

Our vast management experience of more than 26 years combined with specialized design tools such as Solidworks 3D, allow us to offer our customers customized, turnkey capabilities. We are able to modify and develop our existing designs to meet any requirement you may have. With customer satisfaction as priority, our advanced development and production facilities, accredited to ISO 9001 & ISO 14001, ensure all products achieve low maintenance and long life.

Product configurations

Dimensions (shielding)	8.9 m x 5.6 m x 5.8 m
Performance range	26 MHz - 40 GHz
Emission performance	CISPR-16 fully compliant 3 m site
Immunity performance	EN 61000-4-3 fully compliant 3 m site
Standard equipment	SmartShield RF shielded room, raised floor Absorber lining: HyPyr-Loss™ Ferrite & Hybrid lining

QTY	TYPE
1	0.9 m x 2.1 m personnel door
1	Mains filter 240 V 50/60 Hz, 32 A
4	Attenuvents (300 mm x 300 mm)
1	Consumer unit
6	Single phase sockets
4	Lights
4	n-type connectors
4	BNC type connectors
2	Fiber optic penetration waveguides
1	Penetration tube w/ cap - 5 cm

Accessories	<ul style="list-style-type: none"> • Access doors- manual, semi & fully automatic • Turntable, Masts & Controllers • 3 phase mains filters • Control data/ line filters • Test and Measurement EMC systems • Air conditioning • CCTV & Audio system • Fire detection/suppression • Chamber validation/calibration • Control room • Amplifier room
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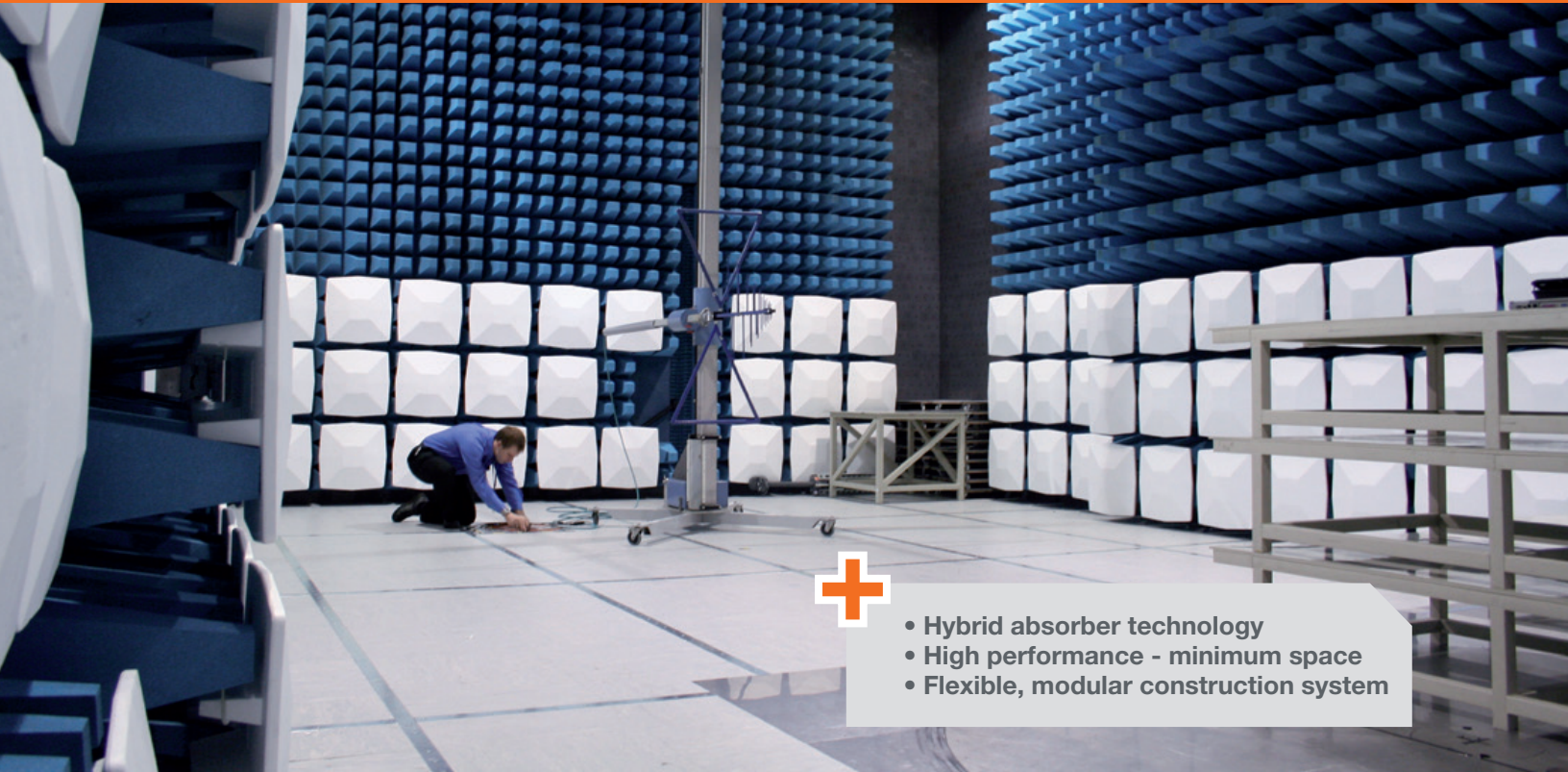
Technical data

Full compliance testing for Radiated Immunity	<ul style="list-style-type: none"> • IEC 61000-4-3/EN 61000-4-3 • ISO 11452 • SAE J551 • CISPR 25
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Full compliance testing for Radiated Emissions	<ul style="list-style-type: none"> • ANSI-C63.4 • FCC parts 15 & 18 • EN 50147-2 • EN 55011/CISPR 11 • EN 55016/CISPR 16 • EN 55022/CISPR 22 • EN 55025 • VCCI V - 3/ 2004.04
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Quality standards	<ul style="list-style-type: none"> • ETSI - UKAS accredited • ISO17025; ISO9001 • Environmental standard ISO 14001
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5 Meter Anechoic EMC Test Chamber



- Hybrid absorber technology
- High performance - minimum space
- Flexible, modular construction system

SOLUTION FOR

EMC test sites requiring to meet Emission & Immunity standards

Main features

- Fully compliant design to meet CISPR, EN and FCC requirements
- Dimension of 11.5 m x 7.5 m x 5.8 m high
- ANSI C63.4 Emission performance of +/-4 dB or better 30 MHz- 18 GHz frequency range
- Extended performance options 26 MHz - 40 GHz – MIL STD 461F and other specifications
- Fully compliant for Immunity in accordance with EN61000.4.3
- HyPyr-Loss™ Ferrite and Hybrid absorbers for 26 MHz - 40 GHz measurements
- Optimized computer modeling to enable cost effective absorber layouts
- Bespoke and modular design enabling unlimited performance options and facilitating upgrades or relocations
- Available as a turnkey package – chamber, antenna & mast, turntables, Instrumentation and software

This 5 meter test range ensures fully compliant Emission and Immunity testing. It combines the SmartShield high performance chamber with our specifically matched HyPyr-Loss™ ferrite and hybrid absorber solution. The unique modular design of the EMC-5 chamber requires less volumetric space than chambers with traditional absorbers.

The EMC-5 enables 4 meter antenna scans above the ground plane and will accommodate large dimension EUTs with turntables of 3 m diameter or more. Measurement results are outstanding and proven in many of our customer's accredited facilities.

The ferrite based design is able to safely withstand continuous field intensity of up to 200 V/m and intermittent field intensity of up to 500 V/m, exceeding most safety requirements in commercial facilities. Specialized absorbers meeting extended power handling about 1000V/m are also available.

Our vast management experience of more than 26 years combined with specialized design tools such as Solidworks 3D, allow us to offer customized, turnkey capabilities. We are able to modify and develop existing designs to meet any specific requirements.

With customer satisfaction as priority, our advanced development and production facilities, accredited with ISO 9001 & ISO 14001, ensure all products achieve low maintenance and long life.

The EMC-5 is just one of a range of pre-defined EMC test chamber designs. Others include:

- EMC-MC (Mini compact)
- EMC-3C (Compact 3 m test range)
- EMC-3 (Compliant 3 m test range)
- EMC-10 (Compliant 10 m test range)

Product configurations

Dimensions (shielding)	11.5 m x 7.5 m x 5.8 m
Performance range	26 MHz - 40 GHz
Emission performance	CISPR-16 fully compliant 5 m site
Immunity performance	EN 61000.4.3 fully compliant 5 m site
Standard equipment	<ul style="list-style-type: none"> • SmartShield RF shielded room • Absorber lining: HyPyr-Loss™ Ferrite & Hybrid lining • Raised floor

QTY	TYPE
1	3.0m X 3.0m personnel door
1	Mains filter 240 V 50/60 Hz, 32 A
8	Attenuvents (300 mm x 300 mm)
1	Consumer unit
10	Single phase sockets
4	Lights
4	n-type connectors
4	BNC type connectors
2	Fiber optic penetration waveguides
1	Penetration tube w/ cap - 5 cm

Accessories	<ul style="list-style-type: none"> • Access doors- manual, semi & fully automatic • Turntable, masts & controllers • Dynamometers • 3 phase mains filters • Control data/ line filters • Test and measurement EMC systems • Exhaust extraction • Air conditioning • CCTV & audio system • Fire detection/suppression • Chamber validation/calibration • Control room • Amplifier room
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Technical data

Full compliance testing for Radiated Immunity	<ul style="list-style-type: none"> • IEC 61000-4-3/EN 61000-4-3 • ISO 11452 • SAE J551 • CISPR 25
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Full compliance testing for Radiated Emissions	<ul style="list-style-type: none"> • ANSI-C63.4 • FCC parts 15 & 18 • EN 50147-2 • EN 5011/CISPR 11 • EN 55016/ CISPR 16 • EN 55022/CISPR 22 • VCCI V - 3/ 2004.04 • SAE J-551 • CISPR 25
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Quality standards	<ul style="list-style-type: none"> • ETSI - UKAS accredited • ISO17025; ISO9001 • Environmental standard ISO 14001
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10 Meter Anechoic EMC Test Chamber



- Hybrid absorber technology
- High performance - minimum space
- Flexible, modular construction system

SOLUTION FOR

EMC test sites requiring to meet Emission & Immunity standards

Main features

- Dimensions (shield): 21 m x 12 m x 8.5 m
- 30 MHz - 18 GHz frequency range
- Fully compliant design to meet CISPR, EN and FCC requirements
- Fully compliant for Immunity in accordance with EN61000.4.3
- ANSI C63.4 Emission Performance, NSA 30 MHz -1 GHz +/-4 dB or better
- Extended performance options 26 MHz - 40 GHz
- HyPyr-Loss™ Ferrite and Hybrid absorbers for 26 MHz - 40 GHz measurements
- Optimized computer modeling to enable cost effective absorber layouts
- Bespoke and modular design enabling unlimited performance options and facilitating upgrades or relocations
- Available as a turnkey package – chamber, antenna & mast, turntables, Instrumentation and software

The 10 meter test range is the Gold Standard EMC chamber design, ensuring fully compliant Emission and Immunity testing. This chamber combines the SmartShield high performance chamber with our specifically matched HyPyr-Loss™ Ferrite and hybrid absorber solution. Measurement results are outstanding and proven in many of our customer's accredited facilities.

The EMC-10 chamber's small overall size results from the use of our modular SmartShield chamber lined with our AEPH HyPyr-Loss™ absorber technology. This unique design requires less volumetric space than traditional absorbers. It enables 4 meter antenna scans above the ground plane and will accommodate large dimension EUTs with turntables of 4m diameter or more.

Our vast management experience of more than 26 years combined with specialized design tools such as Solidworks 3D, allow us to offer customized, turnkey capabilities. We are able to modify and develop existing designs to meet any requirement you may have.

With customer satisfaction as priority, our advanced development and production facilities, accredited with ISO 9001 & ISO 14001, ensure all products achieve low maintenance and long life.

The EMC-10 is just one of a range of pre-defined EMC test chamber designs. Others include:

- EMC-MC (Mini compact)
- EMC-3C (Compact 3 m test range)
- EMC-3 (Compliant 3 m test range)
- EMC-5 (Compliant 5 m test range)

Product configurations

Dimensions (shielding)	21 m x 12 m x 8.5 m
Performance range	26 MHz - 40 GHz
Emission performance	CISPR-16 fully compliant 10 m site
Immunity performance	EN 61000-4-3 fully compliant 10 m site
Standard equipment	<ul style="list-style-type: none"> • SmartShield RF shielded room • Absorber lining: HyPyr-Loss™ Ferrite & Hybrid lining • Raised floor

QTY	TYPE
1	3.0 m x 3.0 m personnel door
1	Mains filter 240 V 50/60 Hz, 32 A
8	Attenuvents (300 mm x 300 mm)
1	Consumer unit
10	Single phase sockets
4	Lights
4	n-type connectors
4	BNC type connectors
2	Fiber optic penetration waveguides
1	Penetration tube w/ cap - 5 cm

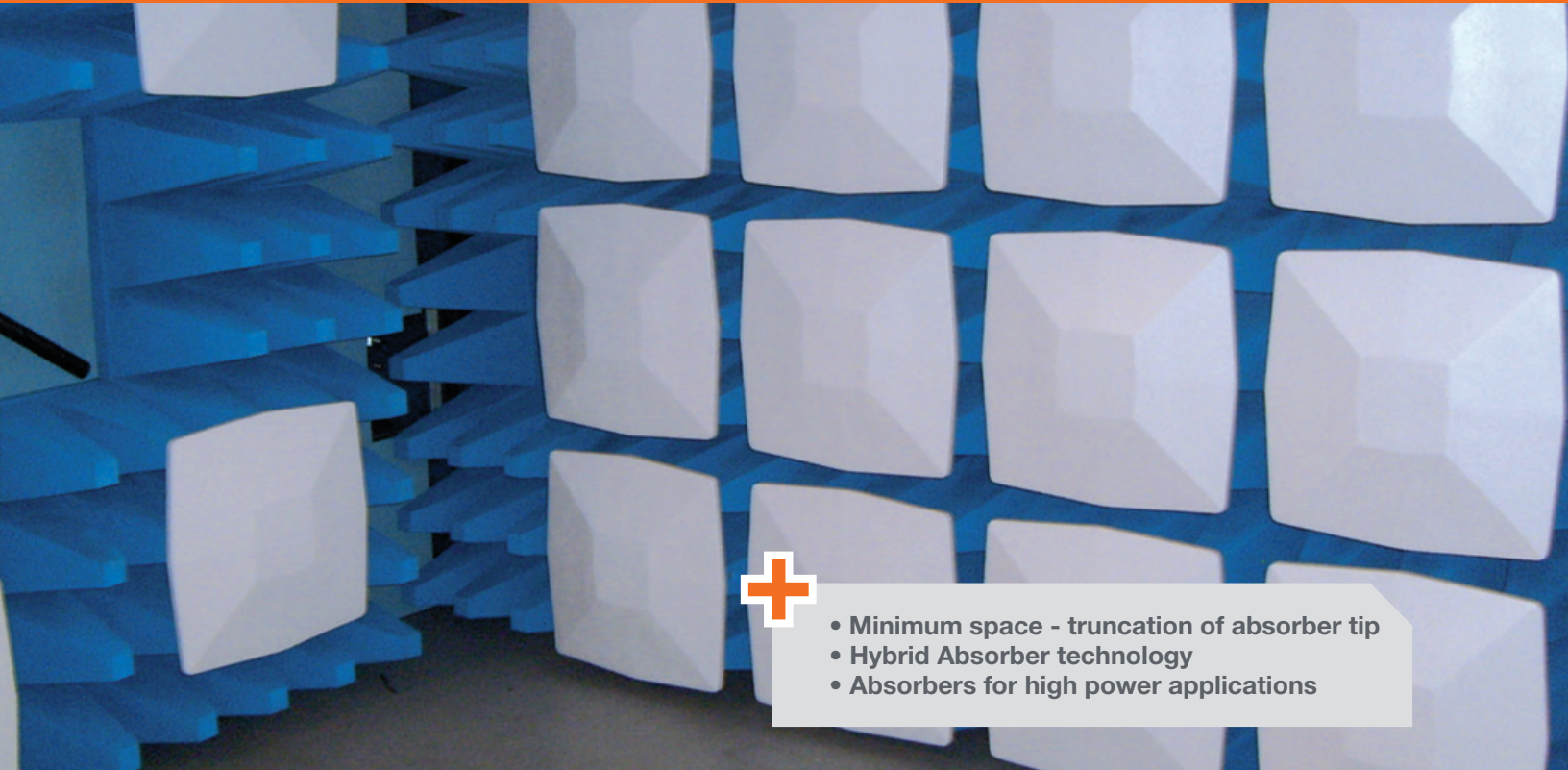
Accessories	<ul style="list-style-type: none"> • Access doors- manual, semi & fully automatic • Turntable, Masts & Controllers • Vehicle Dynamometers • 3 phase mains filters • Control data/ line filters • Test and Measurement EMC systems • Exhaust extraction • Air conditioning • CCTV & Audio system • Fire detection/suppression • Chamber validation/calibration • Control room • Amplifier room
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Technical data

Full compliance testing for Radiated Immunity	<ul style="list-style-type: none"> • IEC 61000-4-3/EN 61000-4-3 • ISO 11452 • SAE J551 • CISPR 25
Full compliance testing	<ul style="list-style-type: none"> • ANSI-C63.4 • FCC parts 15 & 18 • EN 50147-2 • EN 5011/CISPR 11 • EN 55016/ CISPR 16 • EN 55022/CISPR 22 • VCCI V - 3/ 2004.04 • SAE J-551 • CISPR 25
Quality standards	<ul style="list-style-type: none"> • ETSI - UKAS accredited • ISO 17025; ISO 9001 • Environmental standard ISO 14001

// MIL STD Chamber

EMC-MIL STD Anechoic EMC Test chamber



- **Minimum space - truncation of absorber tip**
- **Hybrid Absorber technology**
- **Absorbers for high power applications**

SOLUTION FOR

EMC test sites designed for testing in accordance with the MIL STD 461 military standard

// Main features

- Fully compliant design to meet MIL STD 461 and RTCA DO160 requirements
- Dimensions may vary, dependent on the dimensions of the equipment under test for e.g. a test bench or aircraft
- High power absorbers available for radar and other applications
- Commercial testing option with HyPyr-Loss™ Ferrite and Hybrid Lining available
- Optimised computer modelling to enable partial Hybrid low cost version
- Bespoke and modular design enable unlimited performance options
- Available as a Turnkey Package – chamber, Antenna & mast, turntables, instrumentation and software

The EMC-MIL STD may be designed for bench top measurements through to large vehicle and aircraft applications. This unique design requires less volumetric space than traditional absorbers by the truncation of the absorber tip without causing performance loss. Very high power absorber options are also available where radar or other high power applications may be required within the anechoic chamber.

Product configurations

Dimensions (shielding)	5.8 m x 5.8 m x 3.8 m																
Performance range	26 MHz - 40 GHz																
Standard equipment	<ul style="list-style-type: none"> • SmartShield RF shielded room • Absorber lining: HyPyr-Loss™ Ferrite & Hybrid lining Complete with: 																
	<table border="1"> <thead> <tr> <th>QTY</th> <th>TYPE</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>1.0 m Wide x 2.1 m High personnel door</td> </tr> <tr> <td>2</td> <td>Mains filter 240 V 50/60 Hz, 32 A</td> </tr> <tr> <td>2</td> <td>Attenuvents (300 mm x 300 mm)</td> </tr> <tr> <td>1</td> <td>Electrical distribution</td> </tr> <tr> <td>2</td> <td>Single phase sockets</td> </tr> <tr> <td>2</td> <td>Lights</td> </tr> <tr> <td>1</td> <td>Connector panels 300 mm x 300 mm</td> </tr> </tbody> </table>	QTY	TYPE	1	1.0 m Wide x 2.1 m High personnel door	2	Mains filter 240 V 50/60 Hz, 32 A	2	Attenuvents (300 mm x 300 mm)	1	Electrical distribution	2	Single phase sockets	2	Lights	1	Connector panels 300 mm x 300 mm
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2	Lights																
1	Connector panels 300 mm x 300 mm																
Accessories	<ul style="list-style-type: none"> • Access doors - manual, semi & fully automatic • Test bench • Turntable, masts & controllers • 3 phase mains filters • Control data/ line filters • Test and measurement EMC systems • Air conditioning • CCTV & audio system • Fire detection/suppression • Chamber validation/calibration • Control room • Amplifier room 																

Technical data

Full compliance with the reflectivity requirements	<ul style="list-style-type: none"> • MIL-STD-416 • RTCA DO/160
Full compliance testing for Radiated Immunity	<ul style="list-style-type: none"> • IEC 61000-4-3/EN 61000-4-3 • ISO 11452 • SAE J551 • CISPR 25
Full compliance testing for Radiated Emissions	<ul style="list-style-type: none"> • ANSI-C63.4 • FCC parts 15 & 18 • EN 50147-2 • EN 55011/CISPR 11 • EN 55016/CISPR 16 • EN 55022/CISPR 22 • EN 55025 • VCCI V - 3/ 2004.04
Quality standards	<ul style="list-style-type: none"> • ETSI - UKAS accredited • ISO17025; ISO9001 • Environmental standard ISO 14001

Performance

Fully compliant with the reflectivity requirements of the MIL STD 461 specifications:

RF absorber reflectivity MIL STD 461 requirement

FREQUENCY (MHz)	REFLECTIVITY (dB)
80	-6
250	-10

AEP-20-TRN performance results

FREQUENCY (MHz)	REFLECTIVITY (dB)
80	-7
250	-24
500	-36
1.0	-40
10-18	-50

SmartShield Door Systems

RF shielded doors for shielded rooms and chambers



• Large selection of configurations and dimensions

SOLUTION FOR

All high performance RF shielded rooms requiring a flexible door access system

Main features

- Performance range 10 KHz - 40 GHz
- Low maintenance replaceable gasket design
- Fits modular or welded shielded rooms
- Fire resistant & acoustic applications available
- Integrated lift & access platforms
- Customized, modular design enabling unlimited options for shielded room upgrades or relocations
- Available in a wide range of dimensions & configurations

Product Configurations

Dimensions

- 0.9 m wide - 20 m wide or more

Performance range

- 10 KHz - 40 GHz

Standard Equipment

- Single, double or sliding door opening leaf arrangement with manual, semi-automatic or fully automatic opening system
- Replaceable gasket system
- Painted finish to customers requirement
- Packed ready for transportation

Accessories

- Door ramp system, manual or automatic
- Lift platforms for access
- Security locking systems

MVG-EMC shielded doors, manufactured to the same high quality as our shielded rooms, are an excellent match for any high performance shielding system.

The doors are available in manual, semi- and full automatic operation, for both swing door designs and sliding.

The high performance shielding results are achieved using a knife edge closure system, utilizing beryllium copper finger contact strips. Highly engineered hinge systems ensure accuracy of closure, long life and easy maintenance. A pivoting hinge is used for the swing doors in order to ensure the durability of the fingerstock gaskets mounted in the door frames. The sliding doors are designed to provide the same extended shielding effectiveness and performance as the swing door products.

For servicing purposes the door mechanics are contained outside the shielding panels of the door. Since this is not an essential part of the shielding, it facilitates all maintenance work without affecting the shielding performance of the facility.

All automatic doors have a fail-safe system such that if a power failure occurs the chamber remains accessible.

Security systems for authorized access are available from simple locking systems to fully integrated keypad or card type arrangements.

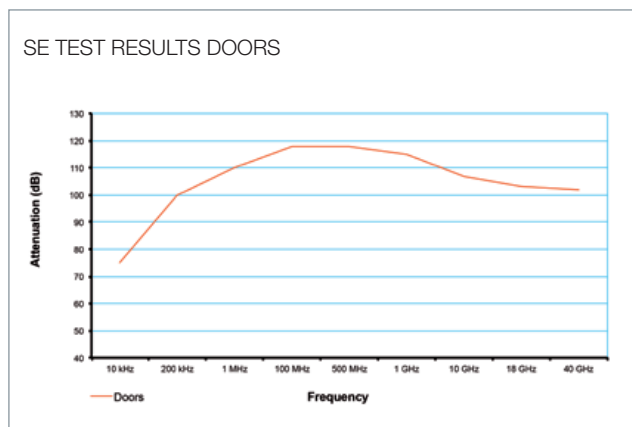
Accessories include:

- Ramp access systems - manual and automatic
- Lift platform access systems
- Access security systems
- Acoustic linings



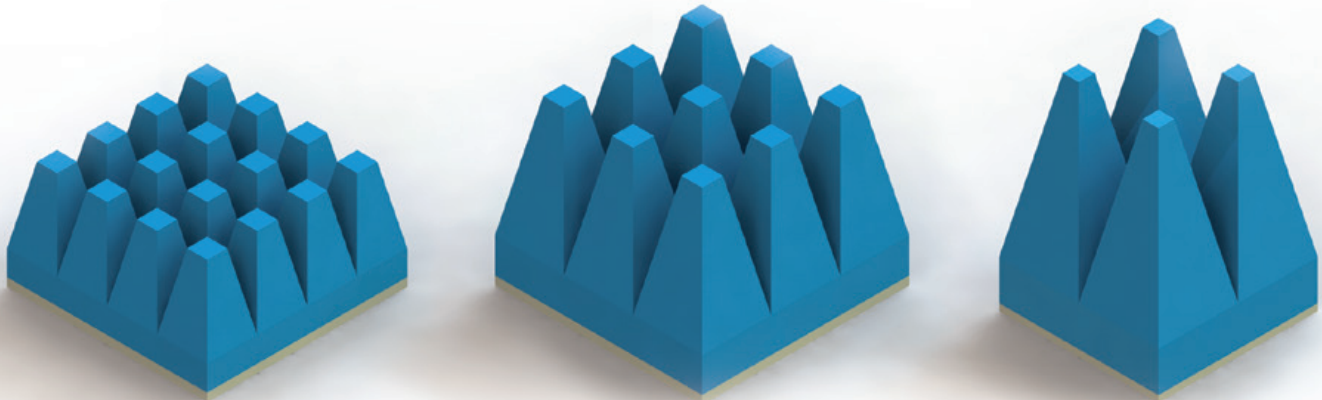
Performance

Measured results by approved independent authority.



EMC Absorbers

AEPH TRN Series



- Super broadband reflectivity performance
- Flame resistant & fire retardant

SOLUTION FOR

- EMC/EMI chambers
- Mixed-use test facilities
- Pre-compliance & full compliance testing

Main features

Shape

- Truncated pyramid

Frequency bands

- From 20 MHz to 40 GHz

Standard base size

- 1.97' x 1.97' (60 x 60 cm)

Height

- 12" to 30" (30.5 cm to 152.4 cm)

Operating conditions

- Temperature: 70° F +/- 10° (21° C +/- 3°)
- Relative humidity: 55 % RH +/- 15 %

Indoor/outdoor

- Indoor

Treatment

- Custom carbon-loaded top with no-load spacer specifically designed for use with ferrite tiles

Related certifications

- ANSI C63.4 (2000)
- CISPR 16, 22
- IEC/EN 61000-4-3
- MIL-STD 461/462
- NRL 8093 – 1, 2, 3

MVG-EMC offers a full array of high-performance/low-cost absorber materials specifically designed to meet the increased performance demands of today's EMC testing requirements. The HyPyr-Loss™ product line includes absorbers that satisfy all of today's EMC applications. Whether your testing regiment requires radiated immunity, emissions or a combination, ask our design engineers to help you select the right absorber for your application.

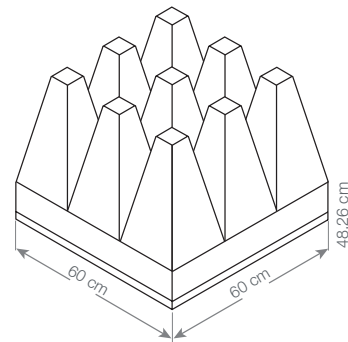


Ferrite Hybrid Technology

Ferrite absorbers offer good performance from 30 MHz to 600 MHz, while traditional dielectric foam absorbers deliver performance satisfaction above 500 MHz. The combination of these individual materials can yield precarious results if the selected materials have mismatched impedance characteristics. With proper impedance matching, these two materials can be joined to create a hybrid absorber structure that benefits from the inherent performance characteristics of each of the individual materials. The AEPH series of EMC absorbers incorporates a urethane pyramidal absorber structure which can be precision matched to any brand of tuned ferrite tile absorber. The resulting product delivers Super-Broadband reflectivity performance from 20 MHz to 40 GHz!

Ordering code

AEPH-xx TRN, where XX designates absorber height in inches



AEPH-18 TRN mechanical drawing

Specifications

		AEPH-12 TRN	AEPH-18 TRN	AEPH-30 TRN
Height	cm	33.02	48.26	78.74
Absorption @ Normal Incidence	@ 30 MHz	14	15	16
	@ 125 MHz	25	25	25
	@ 250 MHz	20	22	25
	@ 500 MHz	24	24	24
	@ 1 GHz	16	17	21
	@ 3 GHz	15	20	25
	@ 10 GHz	25	30	40
	@ 18 GHz	> 35	> 40	> 45
Power	kW/m ²	1.5	1.5	1.5
Weight	kg	3.1	3.7	4.6
Fire retardancy	NRL 8093 Test, 1,2 and 3, ISO 11925-2, DIN 4102 Class B2			

About Microwave Vision Group (MVG)

Since its creation in 1986, The Microwave Vision Group (MVG) has developed a unique expertise in the visualization of electromagnetic waves. These waves are at the heart of our daily lives: Smartphones, computers, tablets, cars, trains, planes - all these devices and vehicles would not work without them. Year after year, the Group develops and markets systems that allow for the visualization of these waves, while evaluating the characteristics of antennas, and helping speed up the development of products using microwave frequencies.

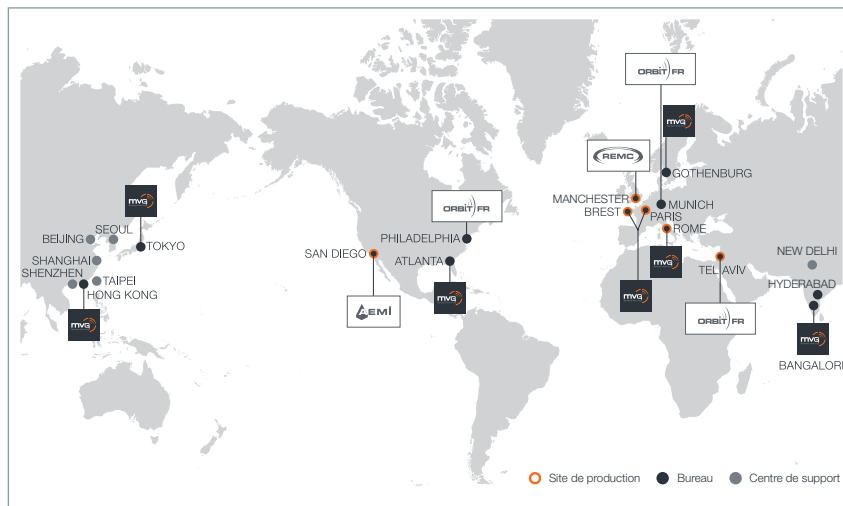
The Group's mission is to extend this unique technology to all sectors where it will bring strong added value. Since 2012, MVG is structured around 4 departments: AMS (Antenna Measurement Systems), EMC (Electro-Magnetic Compatibility), EIC (Environmental & Industrial Control), and NSH (National Security & Healthcare).

MVG is present in 10 countries and generates 90% of sales from exports. The Group has over 350 employees and a loyal customer base of international companies.

MVG's customer satisfaction program

The EMC Testing products are designed and produced by MVG's dedicated centre based in Haydock UK. The local team is supported by a network of regional offices in North America, Asia and Europe. Our presence close to our customers is essential to ensure high quality sales services.

MVG is ISO 9001& ISO14001certified.



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