

EMC ...

Vötsch

Industrietechnik



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... EMC Shielding with Temperature

VT 4021 / 7021 EMC

Electromagnetic Compatibility

Electromagnetic compatibility (EMC) is defined as the ability of an electric device to function satisfactorily within its electromagnetic environment (interference resistance). This must function without unduly affecting this environment which itself contains other devices (emitted interference).

Electromagnetic influences can result in malfunctions of electrical devices and systems (e.g. aircraft, car, railway, ship, etc.). The technical measurement of the electromagnetic compatibility of a system and appropriate protection measures for reduction or suppression of the electromagnetic interference are the subject of numerous research projects.

The correct layout and the design are crucial for the EMC behaviour. Proof and confirmation of interference immunity and sufficiently low interference emission are regulated by EMC Directives and EMC standards (IEC 61000-5-7-2001).

Protection requirements specify that interference emissions of the test specimen must be so low that, e.g. radio receivers etc. in the environment are not unduly affected.

Test Equipment

Limited laboratory area and the need to test directly at the work place requires compact and quiet devices.

Vötsch has developed standard devices which are equipped with optimal shielding attenuation. The shielding attenuation was measured and certified by the Institute for Electric Energy Systems and High-Voltage Engineering (EH) of the University of Karlsruhe (TH).

The test space is designed so that the interior container takes over a shield function. The shield attenuation (SA) specifies the ability of an electromagnetic shield to reduce or attenuate electromagnetic fields and surface currents. The electromagnetic protection (EM protection) is provided by the complete topology (structure). This consists not only of the metallic shell but includes electric leadthroughs (current, communication, antenna, signal cables) and mechanical leadthroughs (door, tubes, connector panel etc.).

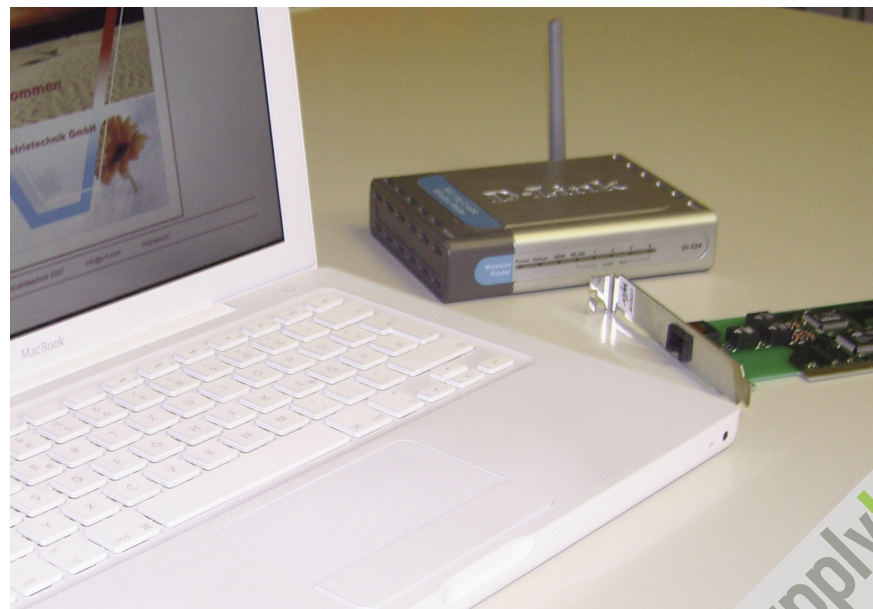
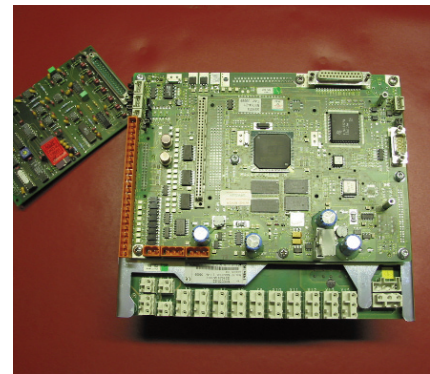
Aim of a temperature test in a shielded system is the proof of the resistance of a test specimen to an electromagnetically shielded envi-

ronment at various reproducible temperatures.

The investigation is aimed at checking the suitability for operation and storage at low and high temperatures.

The functional capability and serviceability of a product are already ensured at a very early stage in the research and development laboratory.

With this series, we are providing the developer and quality assurance an excellent effective electromagnetic shield in combination with the established controlled temperature test chambers.

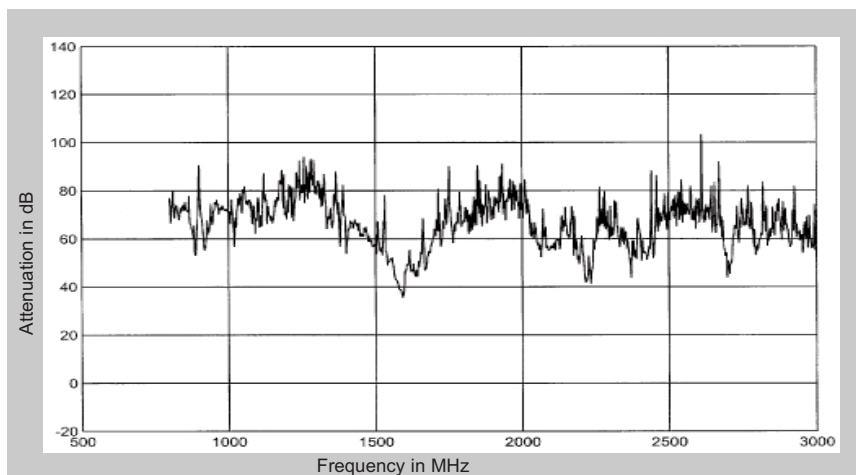
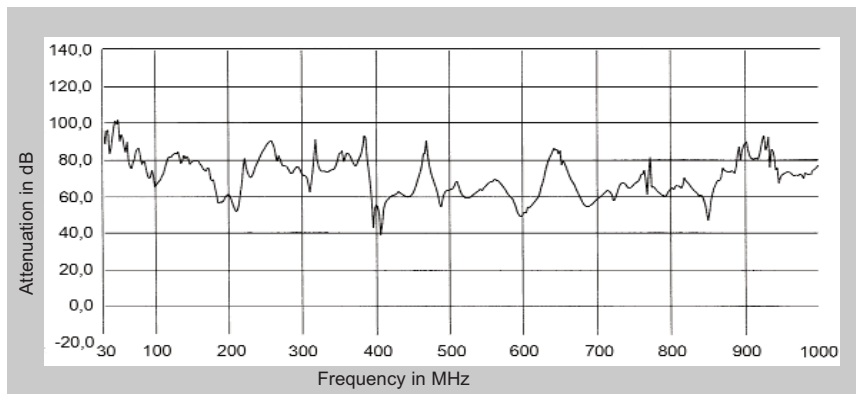


Technical Data

Type		VT 4021 EMC	VT 7021 EMC
Test space volume approx.	l	200	200
Temperature range	°C	-35 to +100 °C	-65 to +100 °C
Temperature deviation in time	K	±0.1 to 0.5	
Temperature homogeneity	K	0.5 to 1.5	
Temperature rate of change ¹⁾			
Heating	K/min	2.5	2.5
Cooling	K/min	3.1	2.5
Heat compensation	W	1000	800
Shielding attenuation "SE" ²⁾		(30 MHz to 1 GHz) >dB 40-70	
Medium frequency		(1 to 3 GHz) >dB 40	
High frequency average			
Work space dimensions (WxDxH)	mm	560 x 550 x 630	
External dimensions (WxDxH)	mm	850 x 1350 x 1640	
Sound pressure level ³⁾	dB(A)	<53	<56
Electrical connection		1/N/PE AC 230 V ±10%, 50Hz	
Rated power	kW	1.5	1.8

Performance values (without options) refer to +25 °C ambient temperature. ¹⁾ in accordance with IEC 60068-3-5. ²⁾ preliminary measurement of shielding attenuation from the front. ³⁾ measured in 1 m distance from the front and in 1.6 m height at free field measurement according to EN ISO 11201. We reserve the right of changes in construction resulting for technical progress. Some of the illustrated systems contain optional extras.

Preliminary measurement of shielding attenuation from the front



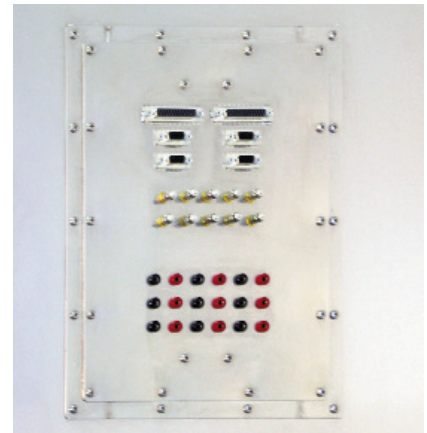
Standard equipment and options

Features

- EM-Code xxx55*x
*) up to 3 GHz
- For monitoring and controlling the test chamber is equipped with a powerful 32-bit control system **SIMPAC***
- The touchpanel offers input and display of values and states
- Extremely quiet



*Touchpanel
and independent adjustable
temperature limiter*



*Connector field SMA, Sub-D,
Socket 4 mm (Option)*

Standard equipment

- 32-bit control system **SIMPAC*** with 3.5" touchpanel
- Potential-free contact for switching off of test specimens
- Independent, adjustable temperature limiter
- Adjustable software temperature limiter min./max.
- Ethernet interface
- Air-cooled refrigeration unit
- Calibration of 2 temperature values

Options

- Software **SIMPATI***
- Digital I/O
- Interface RS 232
- Interface IEEE 488
- Networking (RS 485 interface)
- Special voltage
- Customized connector field

Special designs

We plan and manufacture tailor-made solutions to meet all requirements.

EMC Minis

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... EMC Shielding with Temperature

VT 4002 EMC

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Electromagnetic Compatibility

Electromagnetic compatibility (EMC) is defined as the ability of an electric device to function satisfactorily within its electromagnetic environment (interference resistance). This must function without unduly affecting this environment which itself contains other devices (emitted interference).

Electromagnetic influences can result in malfunctions of electrical devices and systems (e.g. aircraft, car, railway, ship, etc.). The technical measurement of the electromagnetic compatibility of a system and appropriate protection measures for reduction or suppression of the electromagnetic interference are the subject of numerous research projects.

The correct layout and the design are crucial for the EMC behaviour. Proof and confirmation of interference immunity and sufficiently low interference emission are regulated by EMC Directives and EMC standards (IEC 61000-5-7-2001).

Protection requirements specify that interference emissions of the test specimen must be so low that, e.g. radio receivers etc. in the environment are not unduly affected.

Test Equipment

Limited laboratory area and the need to test directly at the work place requires compact and quiet devices. Temperature devices in the Mini series satisfy these requirements.

Vötsch has developed standard devices which are equipped with optimal shielding attenuation. The shielding attenuation was measured and certified by the Institute for Electric Energy Systems and High-Voltage Engineering (EH) of the University of Karlsruhe (TH).

The test space is designed so that the interior container takes over a shield function. The shield attenuation (SA) specifies the ability of an electromagnetic shield to reduce or attenuate electromagnetic fields and surface currents. The electromagnetic protection (EM protection) is provided by the complete topology (structure). This consists not only of the metallic shell but includes electric leadthroughs (current, communication, antenna, signal cables) and mechanical leadthroughs (door, tubes, connector panel etc.).

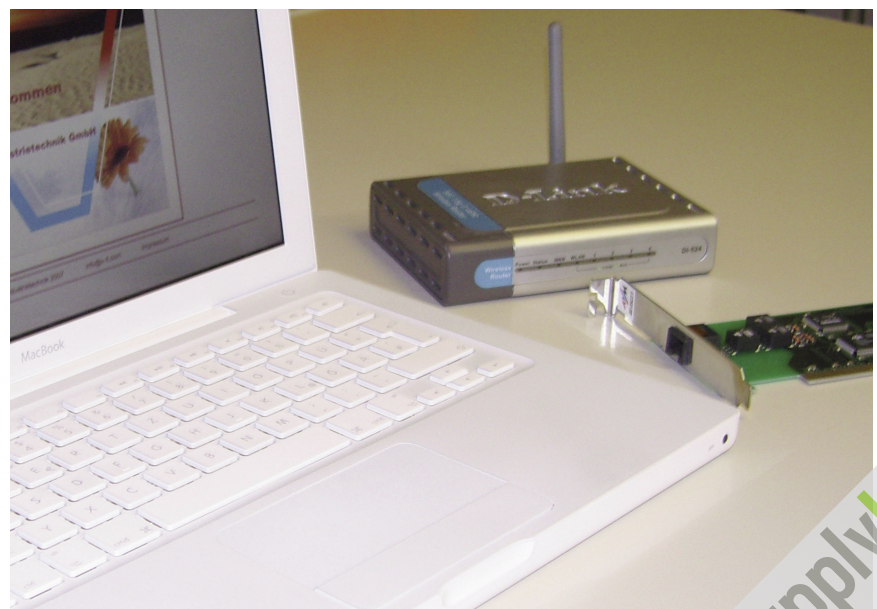
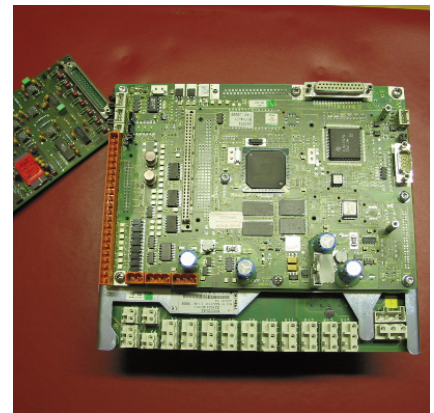
Aim of a temperature test in a shield-

ded system is the proof of the resistance of a test specimen to an electromagnetically shielded environment at various reproducible temperatures.

The investigation is aimed at checking the suitability for operation and storage at low and high temperatures.

The functional capability and serviceability of a product are already ensured at a very early stage in the research and development laboratory.

With this series, we are providing the developer and quality assurance an excellent effective electromagnetic shield in combination with the established controlled temperature test chambers.

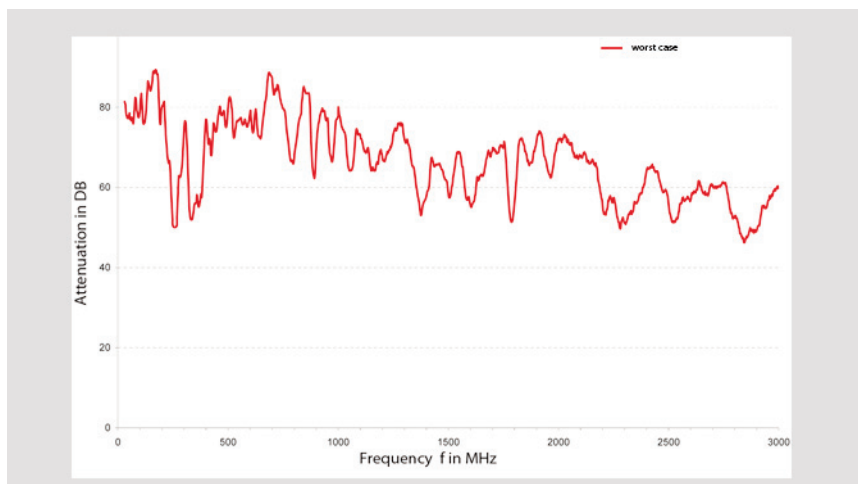


Technical Data

Type		VT 4002 EMC
Test space volume	l	16
Temperature range	°C	-30 to +100 °C
Temperature deviation in time	K	±1
Temperature homogeneity	K	±2
Temperature rate of change ¹⁾		
Heating	K/min	5.0
Cooling	K/min	2.5
Heat compensation max.	W	350
Shielding attenuation "SE"		
Medium frequency		(30 MHz to 1 GHz) >dB 50-70
High frequency		(1 to 3 GHz) >dB 50 average
Work space dimensions (WxDxH)	mm	310 x 230 x 205
External dimensions (WxDxH)	mm	465 x 505 x 625
Sound pressure level ²⁾	dB(A)	<52
Electrical connection		1/N/PE AC 230 V ±10%, 50Hz
Rated power	kW	0.7

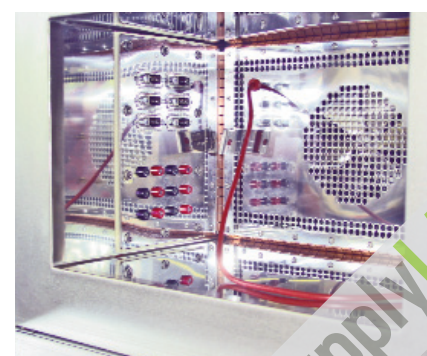
Performance values (without options) refer to +25 °C ambient temperature. ¹⁾ in accordance with IEC 60068-3-5. ²⁾ free field, 1 m distance from the front, as per DIN 45635, part 1, accuracy class 2. We reserve the right of changes in construction resulting for technical progress.

Measurement of shielding attenuation



Features

- EM-Code xxx55*x
*) up to 3 GHz
- For monitoring and controlling the test chamber is equipped with a powerful 32-bit control system **SIMPAC***
- The touchpanel offers input and display of values and states
- Extremely quiet



Standard equipment and options



Touchpanel
and independent adjustable
temperature limiter



Laboratory table, mobile
with drawers (option)



Connector field, easily exchangeable
(option)

Standard equipment

- 32-bit control system **SIMPAC*** with 3.5" touchpanel
- Potential-free contact for switching off of test specimens
- Independent, adjustable temperature limiter
- Adjustable software temperature limiter min./max.
- Ethernet interface
- Air-cooled refrigeration unit
- Calibration of 2 temperature values

Options

- Software **SIMPATI***
- Digital I/O
- Interface RS 232
- Interface IEEE 488
- Networking (RS 485 interface)
- Laboratory table, mobile WxDxH 1000x750x720 mm
- Special voltage
- Customized connector field, easily exchangeable

Special designs

We plan and manufacture tailor-made solutions to meet all requirements.

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Subject to technical alterations.
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