

## DO-160 & MIL-STD-461G

## Indirect Lightning Effects Test System AVI-LV5







Smart navigation through technical specifications. Click the green links.



#### Accredited Calibration

Quality at EMC PARTNER is based on an ISO 9001 management system. This is the foundation for an ISO 17025 accreditation verified by the Swiss Calibration Service (SCS). SCS No. 146 is the accreditation number of EMC PARTNER AG. Locally accredited but recognized worldwide through affiliation with the ILAC organisation



## WHEN GETTING RESULTS MATTERS

## THERE IS ONLY ONE CHOICE

Avionics and military testing is all about quality and precision. AVI-LV5 is the answer for these requirements.

A flexible solution that includes:

- > RTCA DO-160G: SECTION 22, Level 5
- > EUROCAE ED-14G: SECTION 22, Level 5
- > MIL-STD-461: CS117 internal & external equipment

Ease of use, advanced functionality and options make AVIL-LV5 the most efficient and technically advanced instrument in this category.

MODERN AND EFFICIENT

## THE LATEST SOLUTION FOR INDIRECT LIGHTNING EFFECTS TESTING

AVI-LV5 is the first EMC PARTNER AG system to fully integrate all waveforms from MIL-STD-461G and RTCA DO-160 (level 1 to level 5) as standard. Combined with only two couplers, AVI-LV5 is a compact and resourceful solution to indirect lightning testing needs.

Ready for custom WF3 CB plugins for ad- ditional frequencies (contact sales)	Only two injection transformers for all levels, all waveforms: faster generator performance verification and testing
Power blocking devices for generator protection during PIN tests included in generator	Adjustable MS subsequent stroke level with EXT-AVI5-MS. Optional 30 strokes module available with OPT-MS-30
Optional transient blocking devices for power supply protection during pin injec- tion tests (direct injection method)	Increased energy available for higher im- pedance cable bundles
WF 5A voltage and WF 5B included as standard features of AVI-LV5-CB generator	Three-phase LISNs with optional DC voltage extensions available either with 5 $\mu$ H or 50 $\mu$ H per line

## POWERFUL AND RELIABLE

# AVI-LV5 is a compact system that includes all waveforms for RTCA DO-160: Section 22 and MIL-STD-461G: CS117 testing. All event types are available for PIN Injection and Cable Bundle tests.

- > Quad-core processor, 1.2 GHz
- > 1 Gbps Ethernet port for fast communication with computer
- > 7" capacitive touch-screen with refined GUI, proprietary operating system
- > Solid-state switching technology increases reproducibility and reliability
- > TEMA3000-AVI software suite provides sophisticated automation functions
- > Quick and simple firmware and software updates
- Seamless test bench integration possibilities: with its programmable bi-directional BNC connectors, AVI-LV5 generators are ready for an optimal PLC integration

# **Technical Specifications**

## OVERVIEW - SMART SYSTEM CONCEPT

The smart concept of AVI-LV5 allows to extend the system should this be required in the future.



## TEST GENERATORS AND EXTENSIONS

## AVI-LV5-PIN GENERATOR

## AVI-LV5-PIN circuit: WF3, 1 MHz, pin injection

Standards	DO-160G S22, ED-14G S22, other
Coupling mode	direct injection
Voltage, current WF3	frequency: 1 MHz ± 20 %
	damping: 25 – 75 % (1st to 5th peak)
Test level	specified at application point
Test level single stroke	20 V - 3200 V, - 0 % / + 10 %
Output impedance	25 Ω
Polarity	positive, negative, alternating
Synchronization	automatic on power peak or 0 – 359°, step 1°
Programmable ramp	Voltage
Power blocking device	built-in
EUT max. AC-voltage	230 V
EUT max. supply frequency	800 Hz
EUT max. DC-voltage	± 540 V

## AVI-LV5-PIN circuit: WF4, pin injection

Standards	DO-160G S22, ED-14G S22, other
Coupling mode	direct injection
Voltage, current WF4	6.4 μs ± 20 % / 69 μs ± 20 %
Test level	specified at application point
Test level single stroke	50 V - 1600 V, - 0 % / + 10 %
Output impedance	5 Ω
Polarity	positive, negative, alternating
Synchronization	automatic on power peak (90°, 270°)
Programmable ramp	voltage
Power blocking device	built-in
EUT max. AC-voltage	230 V
EUT max. supply frequency	800 Hz
EUT max. DC-voltage	± 540 V

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## AVI-LV5-PIN circuit: WF5A, pin injection

Standards	DO-160G S22, ED-14G S22, other
Coupling mode	direct injection
Voltage, current WF5A	40 µs ± 20 % / 120 µs ± 20 %
Test level	specified at application point
Test level single stroke	25 V - 2000 V, - 0 % / + 10 %
Output impedance	1Ω
Polarity	positive, negative, alternating
Synchronization	automatic on power peak (90°, 270°)
Programmable ramp	voltage
Power blocking device	built-in
EUT max. AC-voltage	230 V
EUT max. supply frequency	800 Hz
EUT max. DC-voltage	± 540 V

## AVI-LV5-PIN control features

Operating system	EPOS ORION proprietary firmware
Languages	8 menu languages, selectable
User interface	7" capacitive touch display
Connectivity	ethernet 1Gbps, USB, RS485
Synchronization on signals	40 – 800 Hz
Synchronization source	EUT power
Impulse polarity	positive, negative, electronic switching
Automatic ramp	programmable for test level
Trigger out	BNC, max. 6 V
Programmable connectors	6 BNC connectors (inputs/outputs) as follows
Programmable input functions	Trigger input, Start Test, Stop Test, EUT Fail, EUT Mark, Emergency Stop
Programmable input max. voltage	low range: 0 – 1.5 V, high range: 2.3 – 24 V
Programmable output functions	Running State, Safety Circuit State
Programmable output max. U, I	max. 24 V, max. 300 mA
Safety features (standard)	safety circuit, emergency stop button on front panel, red/yellow as per IEC 60947-5-5, IEC 60204-1, ISO 13850
Safety accesso- ries (optional)	WARNING LAMP
	Remote EMERGENCY STOP button

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## AVI-LV5-PIN supply, weight, dimensions, climatic conditions

100 V - 240 V (50/60 Hz) ± 10%
ON < 400 VA, standby < 15 VA
approx. 50 kg (tbd)
45 x 60 x 37 cm
19" unit, 8 UH
10 – 35 °C
25 – 80 % non-condensing
86 – 106 kPa
with country plug
with conformity declaration
factory calibration

## AVI-LV5-PIN optional accessories

BD-PIN-FAST	Power supply transient blocking device for WF3 direct PIN tests (2 pieces for separate return lead)
BD-PIN-U	Power supply transient blocking device for WF4 and 5A direct PIN tests. EUT supply with dedicated return
BD-PIN-G	Power supply transient blocking device for WF4 or 5A direct PIN tests. EUT supply with ground return
MEAS-AVI (only 1 kit for PIN and CB)	System verification and basic EUT monitoring kit. Comprises loads, accessories, voltage and current probes. No DSO included.ISO/IEC 17025 calibration of probes and loads included.
TEMA3000-AVI	Control of AVI generators. Includes Library of test routines, Report function, DSO screen dump import and sequence mode. 1 piece per generator required.
ETHERNET-OPT-LINK	10 m optical fibre kit with Ethernet converters. 1 piece per generator required.

## AVI-LV5-CB GENERATOR

Standards	DO-160G S22, MIL-STD-461G CS117, ED-14G S22
Coupling mode	Cable Induction (CI)
Current waveform WF1	6.4 μs ± 20 % / 69 μs ± 20 %
Measured	at coupler output
SC currrent single strok	100 A - 3200 A, - 0 % / + 20 %
SC current multiple stroke	50 A – 1600 A (first stroke), – 0 % / + 20 %
(requires EXT-AVI5-MS)	25 A – 800 A (subsequent stroke), –0% / +50%
Polarity	positive, negative, alternating
Programmable ramp	current
Requires	CN-BT8

## AVI-LV5-CB circuit: WF1 cable induction

## AVI-LV5-CB circuit: WF2 cable induction

Standards	DO-160G S22, MIL-STD-461G CS117, ED-14G S22
Coupling mode	Cable Induction (CI)
Voltage waveform WF2	rise time: < 100 ns
	pulse duration: 6.4 µs ± 20 %
Measured	at coupler output
OC voltage single stroke	50 V - 1600 V, - 0 % / + 20 %
OC voltage multiple stroke	50 V – 1600 V (first stroke), – 0 % / + 20 %
	25 V – 800 V (subsequent stroke), –0% / +50%
Polarity	positive, negative, alternating
Programmable ramp	voltage
Requires	CN-BT8

## AVI-LV5-CB circuit: WF3, 1 MHz, cable induction

Standards	DO-160G S22, MIL-STD-461G CS117, ED-14G S22
Coupling mode	Cable Induction (CI)
Voltage, current WF3	frequency: 1 MHz ± 20 %
	damping: 25 – 75 % (1st to 5th peak)
Measured	at coupler output
OC voltage single stroke	100 V - 3200 V, - 0 % / + 20 %
OC voltage multiple stroke	100 V – 3200 V (first stroke), – 0 % / + 20 %
	50 V – 1600 V (subsequent stroke),–0% / +50%
OC voltage multiple burst	60 V - 1920 V, - 0 % / + 20 %
Polarity	positive, negative, alternating
Programmable ramp	voltage
Requires	CN-BT8

## AVI-LV5-CB circuit: WF3, 10 MHz, cable induction

Standards	DO-160G S22, MIL-STD-461G CS117, ED-14G S22
Coupling mode	Cable Induction (CI)
Voltage, current WF3	frequency: 10 MHz ± 20 %
	damping: 25 – 75 % (1st to 5th peak)
Measured	at coupler output
OC voltage single stroke	100 V - 3200 V, - 0 % / + 20 %
OC voltage multiple stroke	100 V – 3200 V (first stroke), – 0 % / + 20 %
	50 V – 1600 V (subsequent stroke),–0% / +50%
OC voltage multiple burst	60 V - 1920 V, - 0 % / + 20 %
Polarity	positive, negative, alternating
Programmable ramp	voltage
Requires	CN-BT8

## AVI-LV5-CB circuit: WF4 ground injection

Standards	DO-160G S22
Coupling mode	Ground Injection (GI), EUT current max. 30 A
Voltage waveform WF4	6.4 μs ± 20 % / 69 μs ± 20 %
Measured	at application point
OC voltage single stroke	50 V - 1600 V, - 0 % / + 20 %
OC voltage multiple stroke	25 V – 800 V (first stroke), – 0 % / + 20 %
(requires EXT-AVI5-MS)	12.5 V – 400 V (subseq. stroke),–0% / +50%
Polarity	positive, negative, alternating
Programmable ramp	voltage
EUT max. current	30 A DC - 800Hz

## AVI-LV5-CB circuit: WF4 cable induction

Standards	MIL-STD-461G CS117, DO-160G S22, ED-14G S22
Coupling mode	Cable Induction (CI)
Voltage waveform WF4	6.4 μs ± 20 % / 69 μs ± 20 %
Measured	at coupler output
OC voltage single stroke	50 V - 1600 V, - 0 % / + 20 %
OC voltage multiple stroke	25 V – 800 V (first stroke), – 0 % / + 20 %
(requires EXT-AVI5-MS)	12.5 V – 400 V (subseq. stroke),–0% / +50%
Polarity	positive, negative, alternating
Programmable ramp	voltage
Requires	CN-BT9

## AVI-LV5-CB circuit: WF5A ground injection

Standards	DO-160G S22, ED-14G S22, other
Coupling mode	Ground Injection (GI), EUT current max. 30 A
Current waveform WF5A	40 µs ± 20 % / 120 µs ± 20 %
Measured	at application point
SC current single stroke	150 A - 5000 A, - 0 % / + 20 %
SC current multiple stroke	60 A – 2000 A (first stroke), – 0 % / + 20 %
(requires EXT-AVI5-MS)	30 A – 1000 A (subseq. stroke), –0% / +50%
Polarity	positive, negative, alternating
Programmable ramp	current
EUT max. current	30 A DC - 800Hz

## AVI-LV5-CB circuit: WF5A cable induction

Standards	DO-160G S22, MIL-STD-461G CS117, ED-14G S22
Coupling mode	Cable Induction (CI)
Current waveform WF5A	40 µs ± 20 % / 120 µs ± 20 %
Measured	at coupler output
SC current single stroke	150 A - 5000 A, - 0 % / + 20 %
SC current multiple stroke	60 A – 2000 A (first stroke), – 0 % / + 20 %
(requires EXT-AVI5-MS)	30 A – 1000 A (subseq. stroke), –0% / +50%
Polarity	positive, negative, alternating
Programmable ramp	current
Requires	CN-BT9

## AVI-LV5-CB circuit: WF5A voltage

Standards	DO-160G S22, Boeing D6, ED-14G S22
Application	core wire pulsing and similar
Coupling mode(s)	Cable Induction (CI), ground injection GI
Voltage waveform WF5A	40 μs ± 20 % / 120 μs ± 20 %
Measured	at coupler/generator output
OC voltage single stroke	150 V - 2000 V, - 0 % / + 20 %
OC voltage multiple stroke	150 V – 2000 V (first stroke), – 0 % / + 20 %
(requires EXT-AVI5-MS)	30 V – 400 V (subseq. stroke), –0% / +50%
Polarity	positive, negative, alternating
Programmable ramp	voltage
Requires	CN-BT9 for CI, direct coupling for GI

## AVI-LV5-CB circuit: WF5B cable induction

Standards	DO-160G S22, ED-14G S22, other
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Cable Induction (CI)
50 μs ± 20 % / 500 μs ± 20 %
at coupler output
150 A - 5000 A, - 0 % / + 20 %
60 A – 2000 A (first stroke), – 0 % / + 20 %
30 A – 1000 A (subseq. stroke), –0% / +50%
positive, negative, alternating
current
CN-BT9

## AVI-LV5-CB circuit: WF6 cable induction

Standards	DO-160G S22, MIL-STD-461G CS117, ED-14G S22
Coupling mode	Cable Induction (CI)
Current waveform WF6	0.25 μs ± 20 % / 4 μs ± 20 %
Measured	at coupler output
SC current multiple burst	5 A – 160 A
Polarity	positive, negative, alternating
Programmable ramp	current
Requires	CN-BT8

## AVI-LV5-CB control features

Operating system	EPOS ORION proprietary firmware
Languages	8 menu languages, selectable
User interface	7" capacitive touch display
Connectivity	ethernet 1Gbps, USB, RS485
Patterns	DO-160 S22, MIL CS117
Optional patterns	Airbus, Boeing patterns require OPT-MS-30
Impulse polarity	positive, negative, electronic switching
Automatic ramp	programmable for test level
Trigger out	BNC, max. 6 V
Programmable connectors	6 BNC connectors (inputs/outputs) as follows
Programmable in-	Trigger input, Start Test, Stop Test, EUT Fail, EUT
put functions	Mark, Emergency Stop
Programmable in- put max. voltage	low range: 0 – 1.5 V, high range: 2.3 – 24 V
Programmable out- put functions	Running State, Safety Circuit State
Programmable out- put max. U, I	max. 24 V, max. 300 mA
Safety features (standard)	safety circuit, emergency stop button on front panel, red/yellow as per IEC 60947-5-5, IEC 60204-1, ISO 13850
Safety accesso- ries (optional)	WARNING LAMP
	Remote EMERGENCY STOP button

## AVI-LV5-CB supply, weight, dimensions, climatic conditions

Operating voltage	100 V - 240 V (50/60 Hz) ± 10%
Power consumption	ON < 400 VA, standby < 15 VA
Weight	200 kg
W x d x h	60 x 72 x 127 cm
Version	19" rack, 18 UH with wheels
Temperature range	10 – 35 °C
Humidity	25 – 80 % non-condensing
Air pressure	86 – 106 kPa
Included articles	
Power cord	with country plug
User manual	with conformity declaration
Calibration certificate	factory calibration

## AVI-LV5-CB optional accessories

LISN-5U-32 + DC option	3P 5 μH LISN max. 420V AC/50 V DC 32 A per phase or DC. Optional DC 270 V capability. For both DO-160 S22 and MIL-STD-461G CS117
LISN-50U-32 + DC option	3P 50 μH LISN max. 420V AC/50 V DC 32 A per phase or DC. Optional DC 270 V capability. For MIL-STD-461G CS117
MEAS-AVI (only 1 kit for PIN and CI is sufficient)	System verification and basic EUT monitoring kit. Comprises loads, accessories, voltage and current probes. No DSO included. ISO/IEC 17025 calibration of probes and loads included
TEMA3000-AVI	Control of AVI generators. Includes Library of test routines, Report function, DSO screen dump import and sequence mode. 1 piece per generator required.
ETHERNET-OPT-LINK	10 m optical fibre kit with Ethernet converters. 1 piece per generator required.

#### EXT-AVI5-MS

Application	extends AVI-LV5-CB for multiple stroke
Subsequent strokes	max. 15 strokes
Weight	200 kg
Dimensions	19" rack on wheels, 18 units of height
Supply	100 – 240 V AC 50/60 Hz, max. 450 VA
Requires	AVI-LV5-CB

## OPT-MS-30

Application	option for 30 subsequent strokes
Туре	hardware upgrade (subsequent on site
	installation possible only via service dept.)
Requires	EXT-AVI5-MS

## ACCESSORIES

#### **BD-PIN-FAST**

Standard	DO-160G S22, ED-14G S22
Application	power supply transient blocking device
	for PIN tests, direct injection method.
	2 pieces required for separate return lead 1P
Test level WF3 1 MHz	100 V - 3200 V
EUT supply mode(s)	separate return lead, ground return
EUT supply AC	≤ 230 V L-PE / 32 A @ max. 800 Hz
EUT supply DC	≤ 540 V / 32 A DC
Requires	AVI-LV5-PIN

## **BD-PIN-U**

Standard	DO-160G S22, ED-14G S22
Application	power supply transient blocking device
	for PIN tests, direct injection method
Test level WF 4	50 V - 1600 V
Test level WF 5A	25 V - 2000 V
EUT supply mode(s)	separate return lead
Lines	L1, L2, L3, N or DC+ and DC-
EUT supply AC	≤ 230 V L-PE / 32 A @ max. 800 Hz
EUT supply DC	≤ 540 V / 32 A DC
Weight	tbd
Dimensions	tbd
Requires	AVI-LV5-PIN

## **BD-PIN-G**

Standard	DO-160G S22, ED-14G S22
Application	power supply transient blocking device
	for PIN tests
Test level WF 4	50 V – 1600 V
Test level WF 5A	25 V - 2000 V
EUT supply mode(s)	ground return
EUT supply AC	≤ 230 V L-PE, max.10 A @800 Hz, 32 A@60 Hz
Injection method AC	direct injection
EUT supply DC	≤ 540 V / 32 A DC
Injection method DC	ground injection
Weight	tbd
Dimensions	tbd
Requires	AVI-LV5-PIN

## LISN-5U-32

Standard(s)	DO-160G S22, MIL-STD-461G CS117, ED-14G S22
Application	Line Impedance Stabilization Network (5 µH)
Inductance	5 μH per line (for both AC and DC lines)
Capacitance	10 μF/line included, 2 x (≥28 mF) included
	LISN is calibrated with capacitors connected
Number of lines	4 AC lines (L1 L2, L3, N), 2 DC lines (+ / -)
AC voltage max.	L-L: 420 V @50/60 Hz, L-PE: 240 V @50/60 Hz
	L-L: 420 V @ 800 Hz, L-PE: 240 V @ 800 Hz
AC current max.	32 A
DC voltage max.	50 V
DC current max.	32 A
Weight	tbd
Dimensions	57 x 45 x 19 cm
For generator(s)	AVI-LV5-CB, other (AVI-LV3)

## LISN-50U-32

Standard(s)	MIL-STD-461G CS117, ED-14G S22
Application	Line Impedance Stabilization Network (50 µH)
Inductance	50 μH per line (for both AC and DC lines)
Capacitance	10 μF/line included, 2 x (≥28 mF) included
	LISN is calibrated with capacitors connected
Number of lines	4 AC lines (L1 L2, L3, N), 2 DC lines (+ / -)
AC voltage max.	L-L: 420 V @50/60 Hz, L-PE: 240 V @50/60 Hz
	L-L: 210 V @ 400 Hz, L-PE: 120 V @ 400 Hz
AC current max.	32 A
DC voltage max.	50 V
DC current max.	32 A
Weight	tbd
Dimensions	57 x 45 x 19 cm
For generator(s)	AVI-LV5-CB, other (AVI-LV3)

## EXT-LISN-DC-270

Standard(s)	DO-160G S22, MIL-STD-461G CS117, ED-14G S22
Application	extends LISN-50U-32 capability up to 270 V DC
Capacitance	2 lines, ≥ 20 mF each
Weight	tbd
Dimensions	52 x 13.3 x 18 cm
Special characteristics	built-in safety features

## MEAS-AVI

Standards	measurements acc. to DO160G S22, ED-14G S22,
	MIL CS117 and similar
Application	set of voltage, current probes, load(s) and
	accessories for indirect lightning generator
	performance verification and basic EUT
	monitoring
Voltage probe	bandwidth to cover all DO160 S22 waveforms
	at all standard test levels
Current probe/cal. load	bandwidth to cover all DO160 S22 waveforms
	at all standard test levels
Other accessories	according to configuration
For generators	either AVI-LV5-PIN or AVI-LV5-CB
Not included	oscilloscope, more current probes for
	simultaneous monitoring of several bundles

## WARNING-LAMP

Application	red/green signalization lamp	
Protection class	IP65, IEC 61140, VDE 0140-1	
Mounting support	magnetic support, crewable bracket included	
Lamp type	red and green (2 lamps), LED technology	
Weight	0.3 kg	
Dimensions	30x25x6cm	
Included	control cable to TC-ST/generator	
For generators	All EMC PARTNER AG generators	

## **EMERGENCY-STOP**

Application	remote emergency stop button
Colours	standard red/yellow as in IEC 60947-5-5
Mounting	on table, magnetic support als included
Weight	0.5 kg
Dimensions	78 x 72 x 64 mm
Included	5m cable
For generators	All EMC PARTNER AG generators



## INJECTION TRANSFORMERS

## CN-BT8

Application	CB tests with AVI-LV5-CB
SC current	≥ 3200 A
OC voltage	≥ 1600 V
OC voltage	≥ 3200 V, 1 and 10 MHz
SC current	≥ 160 A multiple burst
EUT supply CB	≤ 426 A @ 60 Hz, ≤ 32 A @ 800 Hz
Aperture	5.5 x 8 cm
Dimensions	approx. 39 x 18 x 21 cm
Weight	approx. 19 kg
For generators	AVI-LV5-CB, other

## **CN-BT9**

Application	CB tests with AVI-LV5-CB
OC voltage	≥ 1600 V
SC current	≥ 5000 A
OC voltage	≥ 2000 V
SC current	≥ 5000 A
EUT supply CB	WF4, WF5A current, WF5B: 32 A@ 800 Hz, 426 A@ 60 Hz
	WF5A voltage: 16 A@800 Hz, 213 A@60 Hz
Aperture	6 x 13.2 cm
Dimensions	approx. 34 x 18 x 21 cm
Weight	approx. 250 kg
For generators	AVI-LV5-CB

## REMOTE CONTROL

## TEMA3000-AVI

Application	software control for AVI-LV5 generators
Includes	
TEMA3000 BASIC	remote control, single tests
TEMA3000-SEQUENCE	linking multiple single tests
TEMA3000-REPORT	generates reports for single tests/sequences
TEMA3000-LIBRARY	pre-programmed DO-160 S22, CS117 routines
TEMA3000-DSO	DSO control for AVI-LV5 generators
License plan	one license required for each generator

## ETHERNET-OPT-LINK

Application	galvanic isolation between computer
	AVI-LV5 generators
Туре	optical fibre kit with Ethernet converters
Length	10 meters
For generators	AVI-LV5-PIN, AVI-LV5-CB (one piece per
	generator)

# **Tradition meets** Technology

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## EMC PARTNER PRODUCT APPLICATION RANGE

#### **CONSUMER & INDUSTRIAL ELECTRONICS**

Transient Test Systems for conducted EMC tests on electronic equipment. ESD, EFT, surge, ring wave, DOW, dips, magnetic field, common and differential mode. Compliant to IEC, EN and ANSI standards.

## **AEROSPACE ELECTRONICS**

Impulse generators and couplers for avionic applications. Single stroke, multiple stroke and multiple burst according to RTCA / DO-160, EUROCAE / ED-14 and aircraft manufacturer standards.

#### **COMPONENT TESTING**

Voltage and current Impulse generators for design and production testing of varistors, gas discharge tubes, surge protective devices, X / Y capacitors and specialist impulse generators for semiconductor tests.

#### **DEFENCE ELECTRONICS**

Complete test solutions for MIL-STD-461 requirements CS06, CS106, CS115, CS116, CS117 and CS118.

#### **TELECOM & DATA LINE TESTING**

Voltage and current impulse generators, CDNs, power contact, power induction equipment for exchange and customer equipment according to ITU, IEC, EN and ETSI requirements.

#### **ENERGY & UTILITY EQUIPMENT**

High current CDNs combined with transient test equipment fulfil requirements to test renewable and classical energy distribution network and monitoring equipment.

## **CUSTOMER SERVICES**

Customer support throughout an equipment's lifetime is central to the EMC PARTNER AG philosophy. Directly from our ISO accredited facility in Switzerland or through our network of services centres, we provide support wherever you are.















For further information please do not hesitate to contact your local EMC PARTNER AG representative. Visit our website for more information and contact details.

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