

# TEST SYSTEM

DO-160 G SECTION 22 LEVEL 3 &  
MIL-STD-461G CS117 LEVEL 1 (INTERNAL EQUIPMENT)

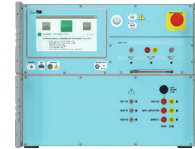
Test equipment	DO-160G Section 22 level 3	MIL-STD-461G CS117 level 1 (internal equip.)
AVI3000	✓	✓
Accessories & coupling devices		
DN-LISN160-32	✓	✓
SHUNT0E1	✓	✓
V-PROBE-SI	✓	✓
I-PROBE-MB-P1	✓	✓
CN-BT7	✓	✓
CN-GI-CI-V	optional	✓
Software		
TEMA3000 & Modules	✓	✓

# TEST SYSTEM

## 1. AVI3000 TEST SYSTEM

### AVI3000 circuit: WF1 cable induction

<b>Standards</b>	DO-160G S22, MIL-STD-461G CS117, other
<b>Coupling mode</b>	Cable Induction (CI)
<b>Current waveform WF1</b>	6.4 $\mu$ s $\pm$ 20 % / 69 $\mu$ s $\pm$ 20 %
<b>Test level</b>	specified at coupler output
<b>Test level single stroke</b>	25 A – 900 A +20%, -0%
<b>Test level multiple stroke</b>	25 A – 900 A +20%, -0% (first stroke) 20 A – 300 A +50%, -0% (subsequent stroke)
<b>Pulse repet. single stroke</b>	up to 2 / 1 s @ 25 A, 1 / 7 s @ 900 A
<b>Polarity</b>	positive, negative, alternating
<b>Programmable ramp</b>	current
<b>Requires</b>	CN-BT7



### AVI3000 circuit: WF2 cable induction

<b>Standards</b>	DO-160G S22, MIL-STD-461G CS117, other
<b>Coupling mode</b>	Cable Induction (CI)
<b>Voltage waveform WF2</b>	rise time: < 100 ns or < 340 ns selectable pulse duration: 6.4 $\mu$ s $\pm$ 20 %
<b>Test level</b>	specified at coupler output
<b>Test level single stroke</b>	25 V – 1600 V +20%, -0%
<b>Test level multiple stroke</b>	25 V – 700 V +20%, -0% (first stroke) 25 V – 350 V +50%, -0% (subsequent stroke)
<b>Pulse repet. single stroke</b>	up to 2 / 1 s @ 25 V, 1 / 1.5 s @ 1600 V
<b>Polarity</b>	positive, negative, alternating
<b>Programmable ramp</b>	voltage
<b>Requires</b>	CN-BT7

### AVI3000 circuit: WF3, 1 MHz, pin injection

<b>Standards</b>	DO-160G S22, other
<b>Coupling mode</b>	pin injection / direct application
<b>Output impedance</b>	25 $\Omega$
<b>Voltage, current WF3</b>	frequency: 1 MHz $\pm$ 20 % damping: 25 – 75 % (1st to 5th peak)
<b>Test level</b>	specified at application point
<b>Test level single stroke</b>	100 V – 750 V +10%, -0% 4 A – 30 A +10%, -0% in short circuit
<b>Pulse repet. single stroke</b>	up to 2 / 1 s @ 100 V – 750 V
<b>Polarity</b>	positive, negative, alternating
<b>Synchronization</b>	automatic on power peak or 0 – 359°, step 1°
<b>Programmable ramp</b>	voltage
<b>EUT max. AC-voltage</b>	230 V

<b>EUT max. supply frequency</b>	800 Hz
<b>EUT max. DC-voltage</b>	± 50 V

### AVI3000 circuit: WF3, 1 MHz, cable induction

<b>Standards</b>	DO-160G S22, MIL-STD-461G CS117, other
<b>Coupling mode</b>	Cable Induction (CI)
<b>Voltage, current WF3</b>	frequency: 1 MHz ± 20 % damping: 25 – 75 % (1st to 5th peak)
<b>Test level</b>	specified at coupler output
<b>Test level single stroke</b>	50 V – 1900 V +20%, -0%
<b>Test level multiple stroke</b>	50 V – 1900 V +20%, -0% (first stroke) 50 V – 1000 V +50%, -0% (subseq. stroke)
<b>Test level multiple burst</b>	50 V – 700 V +20%, -0%
<b>Pulse repet. single stroke</b>	up to 2 / 1 s @ 100 V – 750 V
<b>Polarity</b>	positive, negative, alternating
<b>Programmable ramp</b>	voltage
<b>Requires</b>	CN-BT7

### AVI3000 circuit: WF3, 10 MHz, cable induction

<b>Standards</b>	DO-160G S22, MIL-STD-461G CS117, other
<b>Coupling mode</b>	Cable Induction (CI)
<b>Voltage, current WF3</b>	frequency: 10 MHz ± 20 % damping: 25 – 75 % (1st to 5th peak)
<b>Test level</b>	specified at coupler output
<b>Test level single stroke</b>	50 V – 1100 V +20%, -0%
<b>Test level multiple stroke</b>	50 V – 1100 V +20%, -0% (first stroke) 50 V – 800 V +50%, -0% (subsequent stroke)
<b>Test level multiple burst</b>	50 V – 800 V +20%, -0%
<b>Pulse repet. single stroke</b>	up to 2 / 1 s @ 100 V – 1100 V
<b>Polarity</b>	positive, negative, alternating
<b>Programmable ramp</b>	voltage
<b>Requires</b>	CN-BT7

### AVI3000 circuit: WF4, pin injection

<b>Standards</b>	DO-160G S22, other
<b>Coupling mode</b>	pin injection / direct application
<b>Output impedance</b>	5 Ω
<b>Voltage, current WF4</b>	6.4 μs ± 20 % / 69 μs ± 20 %
<b>Test level</b>	specified at application point
<b>Test level single stroke</b>	50 V – 500 V +10%, -0% 10 A – 100 A +10%, -0% in short circuit
<b>Pulse repet. single stroke</b>	up to 2 / 1 s @ 50 V, 1 / 3 s @ 500 V
<b>Polarity</b>	positive, negative, alternating
<b>Synchronization</b>	automatic on power peak
<b>Programmable ramp</b>	voltage
<b>EUT max. AC-voltage</b>	230 V
<b>EUT max. supply frequency</b>	800 Hz
<b>EUT max. DC-voltage</b>	± 50 V

### AVI3000 circuit: WF4 ground injection

<b>Standards</b>	DO-160G S22
<b>Coupling mode</b>	Ground Injection (GI)
<b>Voltage waveform WF4</b>	6.4 $\mu$ s $\pm$ 20 % / 69 $\mu$ s $\pm$ 20 %
<b>Test level</b>	specified at application point
<b>Test level single stroke</b>	10 V – 1600 V +20%, -0%
<b>Test level multiple stroke</b>	10 V – 800 V +20%, -0% (first stroke) 10 V – 400 V +50%, -0% (subsequent stroke)
<b>Pulse repet. single stroke</b>	up to 2 / 1 s @ 50 V, 1 / 9 s @ 1600 V
<b>Polarity</b>	positive, negative, alternating
<b>Programmable ramp</b>	voltage
<b>EUT max. power</b>	230 V / 16 A AC 50 – 800 Hz and DC

### AVI3000 circuit: WF4 cable induction

<b>Standards</b>	MIL-STD-461G CS117, other
<b>Coupling mode</b>	Cable Induction (CI)
<b>Voltage waveform WF4</b>	6.4 $\mu$ s $\pm$ 20 % / 69 $\mu$ s $\pm$ 20 %
<b>Test level</b>	specified at coupler output
<b>Test level single stroke</b>	max. 10 V – 600 V +20%, -0%
<b>Test level multiple stroke</b>	max. 10 V – 300 V +20%, -0% (first stroke) max. 10 V – 150 V +50%, -0% (subsequent stroke)
<b>Pulse repet. single stroke</b>	up to 1 / 8 s @ 600 V
<b>Polarity</b>	positive, negative, alternating
<b>Programmable ramp</b>	voltage
<b>Requires</b>	CN-GI-CI-V

### AVI3000 circuit: WF5A, pin injection

<b>Standards</b>	DO-160G S22, other
<b>Coupling mode</b>	pin injection / direct application
<b>Output impedance</b>	1 $\Omega$
<b>Voltage, current WF5A</b>	40 $\mu$ s $\pm$ 20 % / 120 $\mu$ s $\pm$ 20 %
<b>Test level</b>	specified at application point
<b>Test level single stroke</b>	50 V – 500 V +10%, -0% 50 A – 500 A +10%, -0% in short circuit
<b>Pulse repet. single stroke</b>	up to 2 / 1 s @ 50 V, 1 / 5 s @ 500 V
<b>Polarity</b>	positive, negative, alternating
<b>Synchronization</b>	automatic on power peak
<b>Programmable ramp</b>	voltage
<b>EUT max. AC-voltage</b>	230 V
<b>EUT max. supply frequency</b>	800 Hz
<b>EUT max. DC-voltage</b>	$\pm$ 50 V

### AVI3000 circuit: WF5A cable induction

<b>Standards</b>	DO-160G S22, MIL-STD-461G CS117, other
<b>Coupling mode</b>	Cable Induction (CI)
<b>Current waveform WF5A</b>	40 $\mu$ s $\pm$ 20 % / 120 $\mu$ s $\pm$ 20 %
<b>Test level</b>	specified at coupler output
<b>Test level single stroke</b>	30 A – 1800 A +20%, -0%
<b>Test level multiple stroke</b>	30 A – 1800 A +20%, -0% (first stroke) 20 A – 390 A +50%, -0% (subsequent stroke)
<b>Pulse repet. single stroke</b>	up to 2 / 1 s @ 50 A, 1 / 14 s @ 1800 A
<b>Polarity</b>	positive, negative, alternating
<b>Programmable ramp</b>	current
<b>Requires</b>	CN-BT7

### AVI3000 circuit: WF6 cable induction

<b>Standards</b>	DO-160G S22, MIL-STD-461G CS117, other
<b>Coupling mode</b>	Cable Induction (CI)
<b>Current waveform WF6</b>	0.25 $\mu$ s $\pm$ 20 % / 4 $\mu$ s $\pm$ 20 %
<b>Test level</b>	specified at coupler output
<b>Test level single stroke</b>	2.5 A – 75 A +20%, -0%
<b>Test level multiple burst</b>	2.5 A – 75 A +20%, -0%
<b>Pulse repet. single stroke</b>	up to 2 / 1 s @ 5 A – 75 A
<b>Polarity</b>	positive, negative, alternating
<b>Programmable ramp</b>	current
<b>Requires</b>	CN-BT7

### AVI3000 control features

<b>Operating system</b>	EPOS proprietary firmware
<b>Languages</b>	8 menu languages, selectable
<b>User interface</b>	7" colour touch display
<b>Connectivity</b>	ethernet, USB, RS485
<b>Programmable patterns</b>	DO-160, multiple stroke, multiple burst, custom
<b>Trigger out</b>	BNC, max. 15 V
<b>Trigger in</b>	auto, manual, external (BNC input)
<b>Synchro. source</b>	EUT Power
<b>Power synchro.</b>	automatic peak synchronisation as per norm
<b>Emergency stop</b>	Emergency button on front panel, safety circ.

### AVI3000 supply, weight, dimensions, climatic conditions

<b>Operating voltage</b>	100 V - 240 V ± 10% (50/60 Hz)
<b>Power consumption</b>	ON < 400 VA, standby < 15 VA
<b>Weight</b>	50 kg
<b>W x d x h</b>	45 x 60 x 37 cm
<b>Version</b>	19" unit, 8 UH
<b>Temperature range</b>	10 – 35 °C
<b>Humidity</b>	< 80 % non-condensing
<b>Air pressure</b>	86 – 106 kPa
<b>Included articles</b>	
<b>Power cord</b>	with country plug
<b>User manual</b>	with conformity declaration
<b>Calibration certificate</b>	factory calibration

### AVI3000 accessories

<b>LISN</b>	DN-LISN160-32
<b>Calibration load</b>	SHUNTOE1, for WF2 and WF3 short circuit
<b>Voltage probe</b>	V-PROBE-SI, common and differential mode
<b>Current probe</b>	I-PROBE-MB-P1
<b>Coupling devices (CI)</b>	CN-BT7, for WF 1, 2, 3, 5A, 6 CN-GI-CI-V, for WF4 in MIL-STD-461G, CS117
<b>Software</b>	TEMA3000 and modules