



1137 Smith Lane
 Roseville, CA 95661
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Certificate of Calibration

Certificate Number: 123456
 Customer/Job/Order Name:

ESD Guns, LLC
 ATTN: Stewart Guthrie
 1137 Smith Lane
 Roseville, CA 95661

Calibration Date:	05/05/2016
Recommended CAL cycle	Annually (at customer discretion)
Instrument Details	
Manufacturer:	Schaffner / Teseq
Model Number:	NSG 438
Description:	Electrostatic Discharge Simulator – 30,000 Volts
Serial Number:	608
ESDGuns.com Asset #/Order Reference:	PO # 36359
Calibration Details	
Calibration Status	C – Calibration performed prior to dispatch.

The above instrument was tested and found to be within the Manufacturer’s specification. The results of the tests performed are held on file at ESDGuns.com; please also see the comments below. The Calibration was carried out in accordance with the general requirements of ISO 17025 using laboratory standards which are traceable to the National Institute of Standards and Technology (NIST) except where none exist. Tests are carried out in environmental conditions controlled to the extent appropriate to the instrument’s specification.

*Out-of-service constitutes an End-of-Rental (EOR) verification. Storage of the unit is in a temperature and humidity controlled environment suitable for the instrument per manufacturer’s specification. Re-verification is performed on the date unit is returned into service.

Comments:

Calibration Began and Completed May 5th, 2016

Ambient Conditions of Laboratory:

Temperature: 23°C ± 5°C
Relative Humidity: < 65 %rh

Technician

CALIBRATION DATA SHEET

IEC 61000-4-2 Edition 2

Air discharge / HV output

The actual value is the most frequent value observed during the test duration

IEC level	Voltage (KV)				Status
	nominal	min	actual	max	
Pos. 1	2.0	1.90	1.94	2.10	In Tolerance
Pos. 2	4.0	3.80	3.95	4.20	In Tolerance
Pos. 3	8.0	7.60	7.94	8.40	In Tolerance
Pos. 4	15.0	14.25	15.01	15.75	In Tolerance
Pos. x	25.0	23.75	24.78	26.25	In Tolerance
Pos. xx	30.0	28.50	29.75	31.50	In Tolerance
Neg. 1	-2.0	-1.90	-1.99	-2.10	In Tolerance
Neg. 2	-4.0	-3.80	-3.98	-4.20	In Tolerance
Neg. 3	-8.0	-7.60	-7.92	-8.40	In Tolerance
Neg. 4	-15.0	-14.25	-14.71	-15.75	In Tolerance
Neg. x	-25.0	-23.75	-24.61	-26.25	In Tolerance
Neg. xx	-30.0	-28.50	-29.66	-31.50	In Tolerance

Contact discharge / First peak current

The actual value is the mean value after 5 discharges

All 5 discharges must be within the limits

IEC level	Test Voltage (KV)	Current (A)				Status
		nominal	min	actual	max	
Pos. 1	2.0	7.5	6.38	7.48	8.63	In Tolerance
Pos. 2	4.0	15.0	12.75	15.52	17.25	In Tolerance
Pos. 3	6.0	22.5	19.13	23.90	25.88	In Tolerance
Pos. 4	8.0	30.0	25.50	30.77	34.50	In Tolerance
Pos. x	30.0	112.5	95.63	116.90	129.38	In Tolerance
Neg. 1	-2.0	-7.5	-6.38	-8.24	-8.63	In Tolerance
Neg. 2	-4.0	-15.0	-12.75	-15.87	-17.25	In Tolerance
Neg. 3	-6.0	-22.5	-19.13	-23.63	-25.88	In Tolerance
Neg. 4	-8.0	-30.0	-25.50	-29.91	-34.50	In Tolerance
Neg. x	-30.0	-112.5	-95.63	-117.31	-129.38	In Tolerance

Contact discharge / Rise-Fall time

The actual value is the mean value after 5 discharges

All 5 discharges must be within the limits

IEC level	Test Voltage (KV)	Rise-Fall time (ps)			Status
		min	actual	max	
Pos. 1	2.0	600	801	1000	In Tolerance
Pos. 2	4.0	600	804	1000	
Pos. 3	6.0	600	828	1000	
Pos. 4	8.0	600	823	1000	
Pos. x	30.0	600	849	1000	
Neg. 1	-2.0	600	798	1000	In Tolerance
Neg. 2	-4.0	600	811	1000	
Neg. 3	-6.0	600	818	1000	
Neg. 4	-8.0	600	820	1000	
Neg. x	-30.0	600	855	1000	

Contact discharge / current at 30 ns

The actual value is the mean value after 5 discharges

All 5 discharges must be within the limits

IEC level	Test voltage	Current (A) at 30 nS				Status
		nominal	min	actual	max	
Pos. 1	2.0	4.0	2.80	3.71	5.20	In Tolerance
Pos. 2	4.0	8.0	5.60	7.72	10.40	
Pos. 3	6.0	12.0	8.40	11.89	15.60	
Pos. 4	8.0	16.0	11.20	15.61	20.80	
Pos. x	30.0	60.0	42.00	62.51	78.00	
Neg. 1	-2.0	-4.0	-2.80	-4.14	-5.20	In Tolerance
Neg. 2	-4.0	-8.0	-5.60	-8.06	-10.40	
Neg. 3	-6.0	-12.0	-8.40	-11.68	-15.60	
Neg. 4	-8.0	-16.0	-11.20	-15.68	-20.80	
Neg. x	-30.0	-60.0	-42.00	-64.83	-78.00	

Contact discharge / current at 60 ns

The actual value is the mean value after 5 discharges

All 5 discharges must be within the limits

IEC level	Test voltage	Current (A) at 60 ns				Status
		nominal	min	actual	max	
Pos. 1	2.0	2.0	1.40	2.19	2.60	In Tolerance
Pos. 2	4.0	4.0	2.80	4.55	5.20	In Tolerance
Pos. 3	6.0	6.0	4.20	7.02	7.80	In Tolerance
Pos. 4	8.0	8.0	5.60	9.31	10.40	In Tolerance
Pos. x	30.0	30.0	21.00	32.66	39.00	In Tolerance
Neg. 1	-2.0	-2.0	-1.40	-2.35	-2.60	In Tolerance
Neg. 2	-4.0	-4.0	-2.80	-4.71	-5.20	In Tolerance
Neg. 3	-6.0	-6.0	-4.20	-7.10	-7.80	In Tolerance
Neg. 4	-8.0	-8.0	-5.60	-9.40	-10.40	In Tolerance
Neg. x	-30.0	-30.0	-21.00	-34.26	-39.00	In Tolerance