

GE Energy

Functional Testing Specification

Parts & Repair Services
Louisville, KY

LOU-GED-DS3800NHVG

Test Procedure for a High Voltage Card

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Functional test procedure for High Voltage Card

1. SCOPE

1.1 This is a functional testing procedure for a High Voltage Card

2. STANDARDS OF QUALITY

2.1 Refer to the current revision of the IPC-A-610 standard for workmanship standards.

3. APPLICABLE DOCUMENTS

3.1 The following document(s) shall form part of this specification to the extent specified herein. Unless otherwise indicated, the latest issue shall apply.

3.1.1 UUT documentation folder

4. ENGINEERING REQUIREMENTS

4.1 Equipment Cleaning

4.1.1 Equipment should be clean and free of debris prior to applying power unless performing an initial check. Refer to the local documented procedures for cleaning guidelines.

4.2 Equipment Inspection

4.2.1 Equipment should be visually inspected for any defects prior to applying power. This inspection should include the following as a minimum:

4.2.1.1 Wires broken or cracked

4.2.1.2 Terminal strips / connectors broken or cracked

4.2.1.3 Loose wires

4.2.1.4 Components visually damaged

4.2.1.5 Capacitors leaking

4.2.1.6 Solder joints damaged or cold

4.2.1.7 Circuit board burned or de-laminated

4.2.1.8 Printed wire runs burned or damaged

5. EQUIPMENT REQUIRED

5.1 The following equipment is required to perform the process requirements.
Equipment may be substituted provided that all accuracy's and test ratios are equivalent or better.

Qty	Reference #	Description
1		Fluke 85 DMM (or Equivalent)
1		O-Scope
1		115 VAC line cord
1		28 VDC Power Supply
1		SCR Firing Box
1		Digital Thermometer (only cards with temperature sensor circuit)

6. TESTING PROCESS

6.1 Attenuator Resistor Test (Resistive)

6.1.1 Using the DMM verify the resistor values in table 1.

DS3800NHVG	Point A	Point B	Value
Circuit # 1	JE-8	JA-32	996K +/- .4%
Circuit # 2	JG-8	JA-21	996K +/- .4%
Circuit # 3	JH-1	JA-27	996K +/- .4%
Circuit # 4	JJ-3	JA-19	996K +/- .4%
Circuit # 5	JK-3	JA-28	996K +/- .4%
Circuit # 6	JH-8	JA-29	996K +/- .4%
Circuit # 7	JK-8	JA-23	996k +/- .4%
Circuit # 8	JA-30	JA-23	10k +/- .1%
Circuit # 9	JA-30	JA-29	10k +/- .1%
Circuit # 10	JA-30	JA-28	10k +/- .1%
Circuit # 11	JA-30	JA-19	10K +/- .1%
Circuit # 12	JA-30	JA-27	10K +/- .1%
Circuit # 13	JA-30	JA-21	10K +/- .1%
Circuit # 14	JA-30	JA-32	10K +/- .1%
Circuit # 15	JA-30	JE-8	1.006 meg +/- .5%
JT-1 to above pins			Open

Table 1

6.2 CT INPUT TEST: (NHVG)

(Caution: Do not leave power applied for extended period for this test: 1-2 seconds)

6.2.1 Connect a voltmeter from JA34 (+) to JA33 (ACOM). Apply +22VDC thru a 10 ohm 10 watt resistor to JC1 with the low side connected to JC2. The voltage at JA34 should go to +16.4 +/- .5VDC. Reverse input polarity and the output at JA34 should be the same. Remove power.

6.2.2 Move (+) input to JC4 and low side to JC3 and apply +22VDC. JA34 should go to +16.4 +/- .5VDC. Reverse input polarity and JA34 should still read +16.4 +/- .5VDC. Remove input power.

6.3 Temperature Sensor test (NHVG)

6.3.1 Apply N15 (-15 +/- .1VDC) to JA18 with ACOM to JA31. Wait 2 or 3 minutes for the sensors to stabilize, and then measure the test room ambient temperature near the card under test with a test thermometer (+/- ½ degree C. Determine the calibration setpoint from Table 1 and adjust R2 until the voltage at JA16 is within +/- .010VDC of the setpoint value. **SPECIAL NOTE: M1 AND M2 MUST BE SHIELDED FROM ALL AIR DRAFTS TO INSURE PROPER CALIBRATION. ALSO VERIFY M1 AND M2 ARE MOUNTED CORRECTLY PER DS3800NHVG SH. 6BB.**

Temp. Range From	Temp. Range TO	Cal. Setpoint
18°C (64.4°F)	19°C (66.1°F)	-3.980 VDC
19°C (66.2°F)	20°C (67.9°F)	-3.995 VDC
20°C (68.0°F)	21°C (69.7°F)	-4.008 VDC
21°C (69.8°F)	22°C (71.5°F)	-4.022 VDC
22°C (71.6°F)	23°C (73.3°F)	-4.035 VDC
23°C (73.4°F)	24°C (75.1°F)	-4.049 VDC
24°C (75.2°F)	25°C (76.9°F)	-4.063 VDC
25°C (77.0°F)	26°C (78.7°F)	-4.078 VDC
26°C (78.8°F)	27°C (80.5°F)	-4.090 VDC
27°C (80.6°F)	28°C (82.3°F)	-4.104 VDC
28°C (82.4°F)	28.9°C (84.2°F)	-4.118 VDC

Table 2A

6.3.2 Adjust R3 for 0 +/- .005VDC between JA15 and JA16. Connect a 1K +/- 1% resistor from JA17 to JA 18. Wait 2 minutes for sensors to settle.

6.3.3 Read the voltage between JA15 and JA16 for .27 +/- .05VDC. Remove power and connections.

6.4 Firing Circuit & LED Test

6.4.1 Use the information in table 3 to apply a non-isolated negative pulse from the SCR Firing box to each circuit and verify with the scope a controllable pulse train output on each circuit. (Reference Figure 1). See notes 1&2 for amplitude.

DS3800NHVG	SCR Box COM	SCR Box NEG	Scope +	Scope -	28 VDC +	Notes
Circuit # 1	JA-3	JA-4	JE-1	JE-2	JA-1	1,2
Circuit # 2	JA-5	JA-6	JF-1	JF-3	JA-1	1,2
Circuit # 3	JA-7	JA-8	JG-3	JG-2	JA-1	1,2
Circuit # 4	JA-9	JA-10	JH-2	JH-1	JA-1	1,2
Circuit # 5	JA-11	JA-12	JJ-1	JJ-3	JA-1	1,2
Circuit # 6	JA-13	JA-14	JK-2	JK-3	JA-1	1,2

Table 3

Note 1: NHVG amplitude is 17 volts.

Note 2: 28 VDC COM to SCR Box COM

6.5 *TEST COMPLETE *** SEAL POTS ON TEMP SENSOR CARDS**

7. NOTES

Output voltages (Waveforms) of gate circuits are measured with output unloaded.

8. Oscilloscope Verification Examples:

Fig. 1

