





<b>Amendment to Test Report</b>	
<b>This Amendment is valid only together with the main Test Report</b>	
<b>Report No</b> .....	<b>247609</b>
<b>Main Report No</b> .....	246847
<b>Date of issue</b> .....	November 5, 2013
<b>Total number of pages</b> .....	6
<b>Applicant's Name</b> .....	Power Integrations, Inc.
<b>Address</b> .....	5245 Hellyer Avenue, San Jose, CA 95138, U.S.A.
<b>Test specification</b>	
<b>Standard</b> .....	IEC 60065:2001 (Seventh Edition) + A1:2005 + A2:2010 with CTL Decision, DSH 1080
<b>Test procedure</b> .....	CB scheme
<b>Non-standard test method</b> .....	N/A
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<b>Test item description</b> .....	IC including capacitor discharge function (ICX)
<b>Trade Mark</b> .....	CAPZero
<b>Manufacturer</b> .....	Power Integrations, Inc.
<b>Model/Type reference</b> .....	CAP002DG; CAP003DG; CAP004DG; CAP005DG; CAP006DG; CAP007DG; CAP008DG; CAP009DG; CAP012DG; CAP013DG; CAP014DG; CAP015DG; CAP016DG; CAP017DG; CAP018DG; CAP019DG; SC1143
<b>Ratings</b> .....	230V AC nominal (tested for 85-265V AC, 47-63Hz)

<b>Testing procedure and testing location:</b>		
<input checked="" type="checkbox"/>	<b>CB Testing Laboratory:</b>	Nemko A/S
<b>Testing location/ address .....</b> :		Gaustadalléen 30, NO - 0373 Oslo, Norway
<input type="checkbox"/>	<b>Associated CB Laboratory:</b>	
<b>Testing location/ address .....</b> :		
<b>Tested by (name + signature) .....</b> :		Ole Morten Aaslund 
<b>Approved by (name + signature) ..</b> :		Hans-Eirik Lie 
<input type="checkbox"/>	<b>Testing procedure: TMP</b>	
<b>Testing location/ address .....</b> :		
<b>Tested by (name + signature) .....</b> :		
<b>Approved by (name + signature) ..</b> :		
<input type="checkbox"/>	<b>Testing procedure: WMT</b>	
<b>Testing location/ address .....</b> :		
<b>Tested by (name + signature) .....</b> :		
<b>Witnessed by (name + signature) ..</b> :		
<b>Approved by (name + signature) ..</b> :		
<input type="checkbox"/>	<b>Testing procedure: SMT</b>	
<b>Testing location/ address .....</b> :		
<b>Tested by (name + signature) .....</b> :		
<b>Approved by (name + signature) ..</b> :		
<b>Supervised by (name + signature):</b>		
<input type="checkbox"/>	<b>Testing procedure: RMT</b>	
<b>Testing location/ address .....</b> :		
<b>Tested by (name + signature) .....</b> :		
<b>Approved by (name + signature) ..</b> :		
<b>Supervised by (name + signature):</b>		

**List of Attachments (including a total number of pages in each attachment):**

N/A

**Summary of testing:**

The following additional tests were performed as per *DSH 1080* due to adding of voltage and frequency range (85-265V AC, 47-63Hz):

- *Application of an a.c. voltage that is 110% of the rated voltage for 2.5 minutes.*

Test voltage used: 265V AC as declared by the manufacturer.

A voltage of 265V AC was applied for 2.5 minutes on models CAP002DG, CAP009DG, CAP012DG and CAP019DG.

- *10 000 cycles of power on and off using a capacitor with the smallest capacitance and a resistor with the largest resistance as specified by the manufacturer of ICX. The power on and off cycles time shall not be less than 1 s.*

10 000 cycles of power on and off (cycle time is 1 s) performed on models CAP002DG and CAP012DG. Tests performed twice; with 85V AC and 265V AC input voltage. CAP002DG and CAP012DG were tested with both input voltages.

*If any of the associated circuitry components other than those critical for the discharge function fails, it may be replaced with a new component.*

No components failed during above tests.

*Compliance criteria:*

*Compliance is checked by evaluation of the available data or by conducting the above tests. The capacitor discharge test is conducted after above tests, ensuring the ICX or the EUT provided with the ICX continues to provide the safeguard function.*

*NOTE: Evaluation of available data should include information of failure of any associated circuitry components keeps the discharge modes in the on/stay mode.*

After above tests the capacitor discharge tests were performed according to clause 9.1.6 on models CAP002DG, CAP009DG, CAP012DG and CAP019DG. The circuit tested continue to comply with 9.1.6, refer 9.1.6 for details. Note that compliance with 9.1.6 also must also be checked when the ICX forms part of an end product.

In addition to above tests, evaluation of available data from the manufacturer have been made to prove that the discharge function of the ICX remains the same also during single fault conditions. Refer general product information and clause 11.1 in main report for details.

**Tests performed (name of test and test clause):**

9.1.1.1/9.1.6 Discharge of capacitors in equipment

**Testing location:**

Nemko A/S  
Gaustadalléen 30, NO-0373 Oslo, Norway

**Summary of compliance with National Differences**

Samples tested comply with the applicable requirements covered by CTL Decision, DSH 1080.

**Copy of marking plate**

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

Refer main report.

<b>Calibration</b>	All instruments used in the tests given in this test report are calibrated and traceable to national or international standards. Further information about traceability will be given on request.
<b>Measurement uncertainty</b>	Measurement uncertainties are calculated for all instruments and instrument set-ups given in this report. Calculations are based on the principles given in the standard EA-4/02 (Dec. 1999), IEC Guide 115:2007 and other relevant internal Nemko-procedures. Further information about measurement uncertainties will be given on request.
<b>Evaluation of results</b>	If not explicitly stated otherwise in the standard, the test is passed if the measured value is equal to or below (above) the limit line, regardless of the measurement uncertainty. If the measured value is above (below) the limit line, the test is not passed - ref IEC Guide 115:2007. The instrumentation accuracy is within limits agreed by IECCEE-CTL.

**Possible test case verdicts:**

- test case does not apply to the test object ..... : Not Applicable (N/A)
- test object does meet the requirement..... : Pass (P)
- test object does not meet the requirement ..... : Fail (F)

**Testing** ..... :

**Date of receipt of test item** ..... : October 1, 2013

**Date(s) of performance of tests** ..... : November 4 – November 5, 2013

**General remarks:**

The test results presented in this report relate only to the object tested.  
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.  
"(see Enclosure #)" refers to additional information appended to the report.  
"(see appended table)" refers to a table appended to the report.

Throughout this report a  comma /  point is used as the decimal separator.

**Manufacturer's Declaration per sub-clause 6.2.5 of IEC 60384-102:**

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided..... :  Yes  Not applicable

**When differences exist; they shall be identified in the General product information section.**

**Name and address of factory (ies) .....** : Millenium Microtech Shanghai  
No. 351 Guo Shou Jing Rd., Z.J. Hi Tech Park  
Pudong New Area, Shanghai,  
201203 CHINA

**General product information:**

The updates concerned in this test report are as follows; refer Project history.

Note that DSH 1080 only covers Installation Category II (2.5kV transients), and end products using the ICX covered by this report must follow the same Installation Category.

Project history:		
Nemko Report/ Order No.:	Modification to the appliances:	Changes/ Modifications in clause(s):
246847	Main Test Report	N/A
247609	Adding of voltage and frequency range; 85-265V AC, 47-63Hz.  Note that DSH 1080 only covers Installation Category II (2.5kV transients), and end products using the ICX covered by this report must follow the same Installation Category.	Summary of testing, General product information, 9.1.1.1 and 9.1.6

9.1.1.1	a) Open circuit voltages	Not exceeding 35V <sub>peak</sub> or 60V <sub>dc</sub> .	P
	b) Touch current measured from terminal devices using the network in annex D .....	-	N/A
	c) Discharge not exceeding 45 μC	-	N/A
	d) Energy of discharge not exceeding 350 mJ	-	N/A

9.1.6	No shock hazard due to stored charge on withdrawal of the mains plug; voltage (V) after 2 s .....	Capacitor discharge tests performed on models CAP002DG, CAP009DG, CAP012DG and CAP019DG after tests described in Summary of testing were performed. Refer test results below. Discharge tests must also be performed when the ICX forms part of an end product.  CAP002DG: V <sub>peak</sub> : 356V V <sub>peak</sub> , after 2 sec: 28V CAP009DG: V <sub>peak</sub> : 352V V <sub>peak</sub> , after 2 sec: 28V CAP012DG: V <sub>peak</sub> : 356V V <sub>peak</sub> , after 2 sec: 26V CAP019DG: V <sub>peak</sub> : 358V V <sub>peak</sub> , after 2 sec: 29V	P
	If C is not greater than 0,1 μF no test needed	-	N/A