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Date: 2020/06/24
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PartySite: 52855
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PD No: 20Q04930
Type: R
PO Number: P90005711

Subject: **Procedure And/Or Report Material**

The following material resulting from the investigation under the above numbers is enclosed.

Issue

Date	Vol	Sec	Pages	Revised Date
2016/08/26	2	5	Revised Description Page(s) 5,7	2020/06/22
2016/08/26	2	5	New Illustration(s) 13A	2020/06/22
2016/08/26	2		New Test Record T4	2020/06/22

Inspections at your plant will be conducted under the supervision of BENNY KYHN CHRISTIANSEN, UL INSPECTION CENTER, UL GmbH UK Branch Unit 1 & 2 Horizon Kingsland Business Park Wade Road Basingstoke RG24 8AH United Kingdom - Fax +45 4485 6500 - Speed dial +45 2044 2835 - benny.kyhn-christiansen@ul.com.

Please file revised pages and illustrations in place of material of like identity. New material should be filed in its proper numerical order.

NOTE: Follow-Up Service Procedure revisions DO NOT include Cover Pages, Test Records and Conclusion Pages. Report revisions DO NOT include Authorization Pages, Indices, Section General Pages and Appendixes.

Please review this material and report any inaccuracies to UL's Customer Service Professionals. Contact information for all of UL's global offices can be found at http://ul.com/aboutul/locations.

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WRS File

UL INSPECTION CENTER 850

CONSTRUCTION:

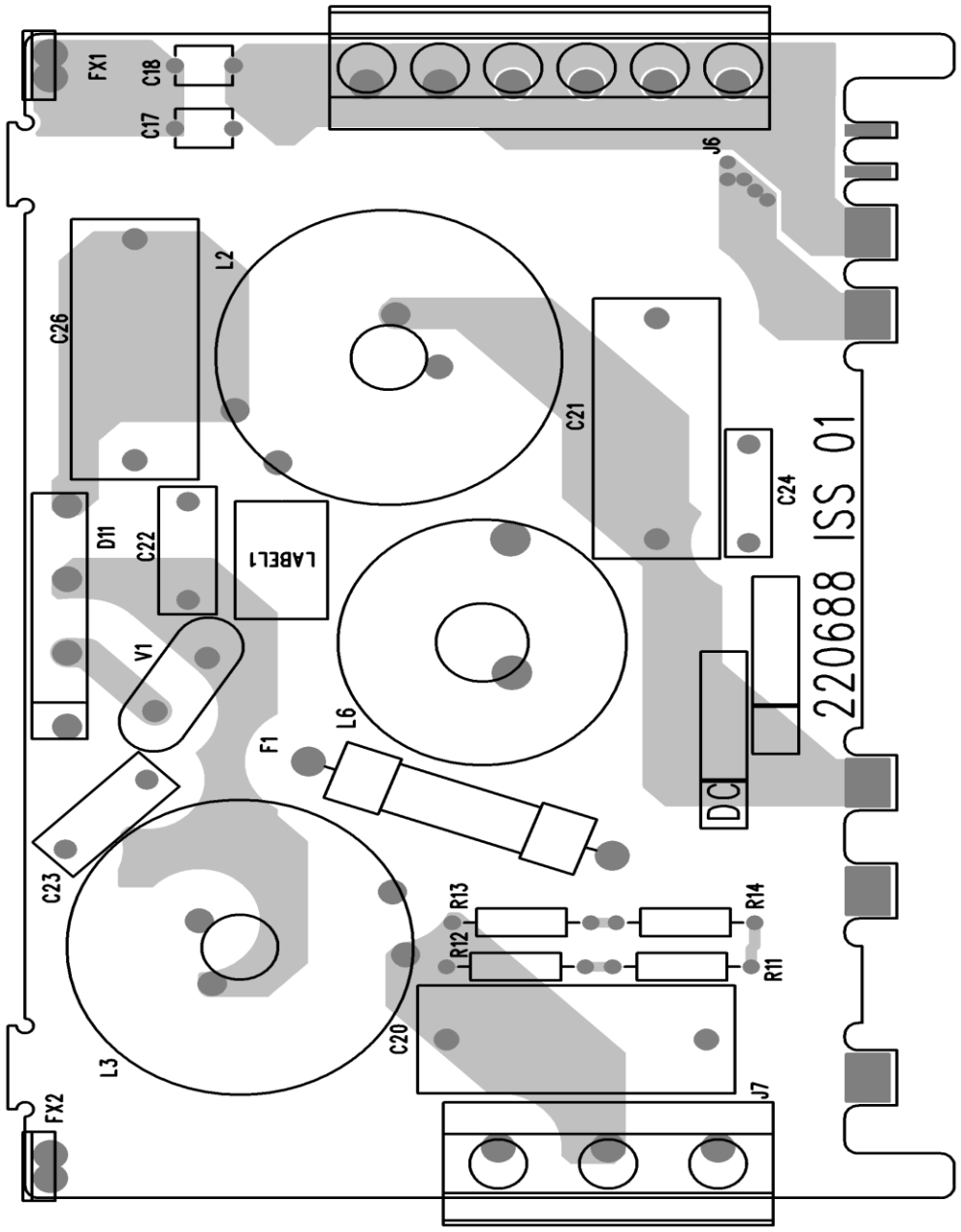
MODEL DRB480-24-1
FIG. 1: Front-Bottom-Left view
FIG. 2: Back-Top-Right view
FIG. 3: Marking on front
FIG. 4: Cover removed (Filter PWB top)
FIG. 5: Cover removed, top view, heat sinks securement detail
FIG. 6: Main board top
FIG. 7: Main board bottom

MODEL DRB480-48-1
FIG. 8: Front Marking
FIG. 9: Filter Board - Top
FIG. 10: Inside View – Transformer side
FIG. 11: Mainboard - Top
FIG. 12: Mainboard, bottom, placement of SilPads

MODEL DRB480-24-1
Ill. 1: Component placement on PWB's
Ill. 2: Main transformer (TX1) (p/n 230523) construction
Ill. 3: Resonant choke (L4) construction
Ill. 4: Output choke (L5) construction
Ill. 5: Booster (PFC, L1) choke construction
Ill. 6: Input filter common-mode choke (L2, L3) construction
Ill. 7: Drawing of metal housing
Ill. 8: Detail for spacing between heat sink and primary FETs
Ill. 9: Detail for spacing between heat sink and secondary rectifier FETs

MODEL DRB480-48-1
Ill. 10: Additional heatsink for XR133
Ill. 11: Main transformer (TX1)(p/n 230364) construction
Ill. 12: PCB Layout – Main Board
Ill. 13: PCB Layout – Input Filter Board
Ill. 13A: Alternate PCB Layout – Input Filter Board

Object/Part or Description	Manufacturer/ Trademark	Type/Model	Technical Data	Product Category CCN
Bleeding resistors R11, **R12,** **Optional R13 & R14**	Interchangeable	Interchangeable	270Kohm min. **0.25W min.**	--
Y capacitors C4, C22, C23 (BI)	Faratronic (Xiamen)	MKP67 series	4.7nF max., 440V, Y1, 110°C	FOWX2 (E186600)
Alternate	Kemet Electronics OY	PME295 series	4.7nF max., 480Vac, Y1, 115°C	FOWX2 (E73869)
Alternate	Kemet Electronics Corp	ERP 610 Series	4.7nF max, 250Vac, Y1, 125°C	FOWX2 (E356389)
Alternate	Kemet Electronics OY	PHE850 series	4.7nF max., 250Vac, Y2, 110°C	FOWX2 (E73869)
Alternate	Kemet Electronics OY	PME271Y series	4.7nF max., 250Vac, Y2, 110°C	FOWX2 (E73869)
Alternate	Wima Spezialvertrieb Elektronishcher Bauelemente GMBH & Co. KG	MP3-Y2 Series	4.7nF max., 250 Vac, Y2, 110°C	FOWX2 (E100438)
Alternate	Murata Manufacturing Co. Ltd.	KY Series	4.7nF max, 250V, Y2, 125°C	FOWX2 (E37921)
Alternate	Vishay	AY2 series	4.7nF max, 300V, Y2, 125°C	FOWX2 (E183844)
Alternate	Murata	KX Series	4.7nF max, 250V, Y1, 125°C	FOWX2 (E37921)
Alternate	Vishay	VY1 series	4.7nF max, 500Vac, Y1, 125°C	FOWX2 (E183844)
Alternate	Faratronic (Xiamen)	MKP-63 Series	4.7nF Max, 300V, Y2, 105°C	FOWX2 (E186600)
Alternate	Vishay Capacitors Belgium N V	MKP338-6 series	4.7nF max., 300 Vac, Y2, 105°C	FOWX2 (E354331)
Alternate	Interchangeable	Interchangeable	Max 4.7nF; min 250V, Y1 or Y2, min 105°C	FOWX2



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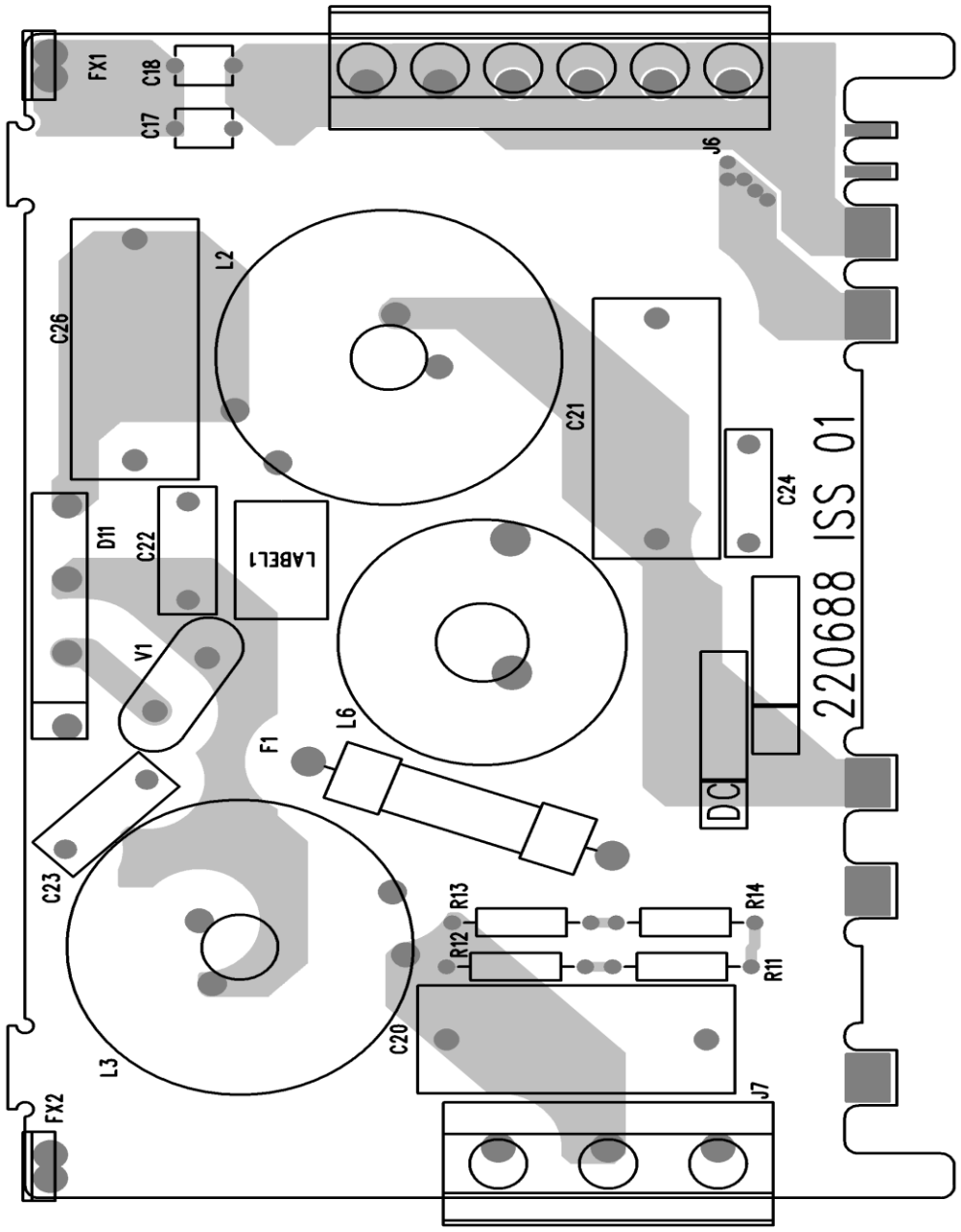

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TEST RECORD NO. 4

SAMPLES:

No sample of the DRB480 as indicated below and constructed as described herein, was submitted by the manufacturer for examination and test.

Open Type Switch Mode Power Supply Model DRB480-24-1-xyz and DRB480-48-1-xyz, where x, y, z may be any letter or blank, and denotes special order, like no LED or fixed output voltage.

Filter Board additional optional Bleeding resistors R13, R14 were added.

PWB Layout, addition of optional Ill. 13A: PCB Layout – Input Filter Board

GENERAL:

Test results relate only to the items tested.

Due to similarity of these devices to the previously Listed DRB480 for this manufacturer and the very small power dissipation of the resistors, no tests were considered necessary.

The Tests affected by the above change are considered covered by the following tests:

Test UL60950-1	File Reference	Test Record No.	Tests UL 508, 17th Edition/ CSA C22.2 No. 107.1-01
Heating Test (4.5.1, 1.4.12, 1.4.13)	E135494-A109-UL	4	Sec. 174 - Temperature Test/ Sec. 6.3 - Temperature (Normal)
Electric Strength (5.2.2)	E135494-A109-UL	4	Sec. 49 – Dielectric Voltage-Withstand Test/ Sec. 6.5 Dielectric Strength

The test methods and results of the above tests have been reviewed and found in accordance with the requirements in the Standard for Industrial Control Equipment, UL 508 18th Edition including revisions through and including 2018-03-30 and are considered representative of the tests indicated above required by Canadian National Standard, CAN/CSA C22.2 No. 107.1-16, 4th edition, revision 2016-06.

Test Record Summary:

The results of this investigation indicate that the products evaluated comply with the applicable requirements

Description of Tests	Per Standard No.	**[X]** UL 508 **[X]** CSA C22.2 No. 107.1-16	Edition/ Revision Date	18th Ed. / 2018-03-30 4th Ed. / 2016-06

and, therefore, such products are judged eligible to bear UL's Mark as described on the Conclusion Page of this Report.

Test Record by:

Alan Perry

Senior Engineer

UL International (UK) Ltd

Reviewed by:

Stefan Giebeler

Sr. Staff Engineer

UL International Germany GmbH