

CTL DECISION SHEET (DSH)

Standard(s) (incl. year)	Subclause(s)	Tracking No.	Year
IEC 60335-1:2010/AMD1:2013 /AMD2:2016 IEC 61558-2-16:2009 /AMD1:2013 IEC 61558-1:2005 /AMD1:2009	24.1.2(IEC 60335-1) BB.4.2(IEC 61558-2-16) 26(IEC 61558-16)	2116A	2019
Category			
HOUS			
Subject	Keywords	Developed by	Approved at
Creepage distances, clearances and distances through insulation	- switch mode transformer - internal frequency	ETF 1	2020 CTL Plenary Meeting
Question			
<p>According to Subclause 24.1.2 of IEC 60335-1, switch mode transformers should be tested to Annex BB of IEC 61558-2-16. Clause BB.4.2 of IEC 61558-2-16 calls up Subclauses 26.1-26.3 of IEC 61558-2-16, which in turn calls up clause 26 of IEC 61558-1. Subclause 24.1.2 of IEC 60335-1 states that clause 26 and Annex H of IEC 61558-1 are not applicable.</p>			
<p>24.1.2 The relevant standard for transformers in associated switch mode power supplies is Annex BB of IEC 61558-2-16. <u>Clause 26 of IEC 61558-1 and Annex H of IEC61558-1 is not applicable.</u></p> <p>The relevant standard for safety isolating transformers is IEC 61558-2-6. If they have to be tested, they are tested in accordance with Annex G.</p>			
<p>On the other hand, in the quoted Annex BB of IEC 61558-2-16,</p>			
<p>BB.4.2 Replacement:</p> <p>The transformers for switch mode power supplies shall comply with the relevant sections of IEC 61558-1 and of this standard, and the conditions under which they are used in the appliance or equipment shall be in accordance with their marking. However, for associated transformers for switch mode power supplies used in an appliance or equipment for which a relevant appliance or equipment standard exists, they may be tested under the conditions present in the appliance or equipment for which they are intended.</p> <p>Consequently, such transformers for switch mode power supplies shall comply with the following clauses, subclauses or parts thereof.</p> <p>1 - 2 - 3 - 4 - 5.1-5.2 - 5.3 - 5.4 - 5.5-5.6 - 5.7-5.15-7.2-7.5 - 8.2 - 8.11 - 14.2 -14.3 - 18.1 -18.2 - 18.3 - 19.1 - 19.12 - <u>26.1 - 26.2 - 26.3- 26.101 - 26.102 - 26.103 - 26.104 - 26.105 -26.106- 26.107</u> Annexes A, C, D, E, G, K, L, M, N, P, R, W</p>			
<p>For switch mode transformers:</p> <p>Q1: Does the exclusion of Clause 26 in the second sentence of the 1st paragraph of Clause 24.1.2 of IEC 60335-1 mean exemption of all the clauses including those in part 2s of IEC 61558 series or only those in Part 1?</p>			

If not, is it correct that Clause BB.4.2 of IEC 61558-2-16 takes precedence and all Subclauses of Clause 26 (underlined) are applicable?

Q2: For switch mode transformers, the internal operating frequency is generally above 500Hz. Since IEC 61558-2-6 is for transformers not greater than 500Hz and IEC 61558-2-16 is for transformers greater than 500Hz, then in Clause 24, should only the 1st paragraph of Subclause 24.1.2 of IEC 60335-1 apply for switch mode transformers? (Annex G is not applicable to switch mode transformers.)

Decision

Q1: Only those clauses of Part 1 are excluded which means 26.101 - 26.102 - 26.103 - 26.104 - 26.105 -26.106-26.107 are applicable.

Q2: If the switch mode power supply is an SELV type then the transformer must be a safety isolating transformer and it can either comply with Annex BB of IEC 61558-2-16 or Annex G of IEC 60335-1. If the switch mode power supply is not an SELV type then the transformer must comply with Annex BB of IEC 61558-2-16.

All other aspects relating to the switch mode power supply circuitry must comply with IEC 60335-1.

Explanatory notes

1. As explained in question 1
2. The requirements in the 2nd paragraph should have been covered by the 1st paragraph for switch mode transformers > 30kHz. (See also Decision to Q2)

The PDSH 2116 which was based on the comment from TC61 Busan meeting held on October 2018 was reviewed and modified according to the comment given from TC61 Bled meeting held in June 2019.