

# IEC/EN/UL/CSA 60950-1 [2<sup>nd</sup> ED] / A2



## Standard upgrade

Upgrade of standard for Information Technology Equipment (ITE) certified according to EN 60950-1:2006



## ***The Low Voltage Directive and EN 60950-1***

“....All products in the scope of Low Voltage Directive for CE-marking in Europe must be in line with the standards as listed in the OJ of the EU...”:



After 02/07/2016:

**EN60950-1:2006+A11:2009+A1:2010+A12:2010+A2:2013**

### **Side Notes:**

- Amendment 2 has not been adopted in the US yet, certification can't be done as of today even that US-National Differences for 'A2' were posted on the IECEE-website [CB Bulletin]
- Amendment 2 most likely being the last amendment to '60950-1. IEC TC108 has made a commitment to limit revisions to IEC 60950-1 and concentrate its work and effort on IEC 62368-1, Audio/video, information and communication technology equipment – Part 1: Safety requirements, the Standard that will eventually replace IEC 60065 (AV Equipment) and IEC 60950-1 (ICT Equipment).



Changes to IEC standard		
Clause	What changed	Impact on TRNA projects
0.1	Noted the need to let the IECEE committee know if new situations arise in regards to hazards and designs	None
1.1.1	Cleaned up wording and clarified that this can cover external plug-in power supplies and accessories intended for use with ITE	None
1.1.3	Clarified exclusion is for distribution transformers	None
1.2.1.1	Clarified definition of rated voltage. Already was obvious so no issue	None
1.5.1	Clarification on components and calls out the acceptability of IEC 62368-1 for components	None
1.5.2	Clarification on use of unapproved components and what need to be done	None



Changes to IEC standard		
Clause	What changed	Impact on TRNA projects
1.5.6	Added parenthesis around humidity range for Capacitors. No change to actual values. Clarified some of the tables	None as we require approved capacitors in Primary <i>[Generally reflects present practice, although there could be some impact as different practices by different manufacturers and NCBs are driven to closer alignment.]</i>
1.5.7.2	Added parenthesis around humidity numbers for resistors. No value change	None
1.5.9.2	Adds requirement for VDR protection. Must verify they are in a LIMITED CURRENT circuit if no protection is provided	This all depends on the use of the MOV and protection. Reflects present practice.
1.5.9.4	Clarifies use of VDR in series with GDT bridging Basic Insulation. Clarifies that GDT must <ul style="list-style-type: none"> <li>a. comply with Annex Q</li> <li>b. Pass Dielectric for Basic insulation</li> <li>c. Meet external spacings for Basic. No need to check actual air gap inside</li> </ul>	None really as this is consistent with TRNA interpretation of MOVs to ground in series with a GDT. Generally reflects present practice



Changes to IEC standard		
Clause	What changed	Impact on TRNA projects
1.7	Deletes reference to Energy hazards	None
1.7.1.1	Splits one paragraph into two	None
1.7.1.3	Requires all graphics used, whether need or not to conform to ISO standards and be explained in the manual	<b><i>New requirement. Need to review manuals. Encourage customers to only use what is required.</i></b>
2.2.3	Clarifies definitions of voltage under a fault for SELV	None. Generally reflects present practice,
2.5	In Table 2B, Limits for power source without an OCPD, the 'note d' for measurement of I <sub>sc</sub> and S are modified for PTC devices to allow a 60s measurement instead of 5s.	None. Provides manufacturers with a little more flexibility selecting and designing PTC protection into LPS.



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Clause	What changed	Impact on TRNA projects
2.6.2	Clarifies marking requirements when functional insulation is present	None
2.6.3.3	Table 2D, Minimum size of protective bonding conductors, has been modified to correlate with some work done on IEC62368-1 to more closely align standard values in the table to better accommodate both European and North American electrical supply systems and infrastructure.	None. Provides manufacturers with more flexibility designing protective bonding systems into global products.
2.7.1	Adds China to the note	None
2.9.2	Adds humidity tests for equipment designated for tropical regions	This is direct from the Chinese standard for ITE Either the testing is done or applicant will need the "not for tropical locations" symbol. Not an issue for CB or EN but consult with IA
2.9.3	In Table H, corrects some of the references to conditions that are appropriate to some of the entries.	Minor. Generally reflects present practice.



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Clause	What changed	Impact on TRNA projects
2.10.3	Adds note that China requires elevations above 2,000M Typically we have seen them require up to 5,000M. Also, amends Table 2L which is now easier to read	If client is seeking China they need to consider this. China does allow a relaxation of this if they add a symbol which means product can only be used up to an elevation of 2,000M Not an issue for EN or CB
2.10.10	Clarifies how to determine compliance for Pollution degree 1 for inner layers of PCBS	None expected as 99% of the time we rely on approved power supplies. Even then, only an issue if multi layer PCB used in primary
2.10.11	Adds details on cemented joins and applicability to PCBs	None expected as 99% of the time we rely on approved power supplies. Even then, only an issue if multi layer PCB used in primary
3.2.5.1	Clarifies what flexing test needs to be done on screened cords	Only matters if a screen cord is used and it has not been tested per clause 3.1 of IEC 60227-2



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Changes to IEC standard		
Clause	What changed	Impact on TRNA projects
3.3.5	Table 3E is reformatted, with additional modification to accommodate use of cords with equipment having rated current up to 80 A. Also, addition of new column that includes information on conductor size.	Provides manufacturers with more flexibility designing terminals for mains supply and protective earthing conductors
3.4.11	If a device has multiple power sources, and the disconnect device is not in the equipment, then the required label shall be on the device, close to the mains input terminal	Clarifies label requirement, however generally reflects current practice
4.1	Instead if determining worst case position for 10 degree tilt, can rotate device 360 degrees while at 10 degree tilt	None on existing approvals, New test method for new projects. Provides manufacturers with more flexibility designing and testing equipment for compliance with the 10 degree tilt test
4.3.8	Requires non lead acid batteries to comply with IEC 62133. Exception given for button style batteries. Also, clarifies battery overcharge test during single faults	<b>MAJOR.</b> <b>Approval for portable secondary sealed cells and batteries will be mandatory.</b>



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Clause	What changed	Impact on TRNA projects
4.3.13.5.2	Clarifies reference to IEC 62471	None on existing files. May help with new designs
4.4.5.2	Cleans up a grammar error	None
4.7.3.4	Adds VDRs and reference to Annex Q	None
5.2.2 / Table 5C	Relaxes test voltage level below 800V	None Since Table 5C now allows for smaller test voltages for some Reinforced Insulation, manufacturers will be able to design accordingly.
6.2.2	Amends the note about Australia and New Zealand to call out use of 3KV for test	Only on TNV and if we are doing AS/NZS deviations
7.4.1	Clarifies what is exempt	None. Provides additional design options for equipment connected to the cable distribution network
7.4.3	Waives 4KV test for separation that complies 3000VA dielectric test	None. Provides for reduced testing of circuits
B.7.2	Allows test to be stopped if motor winding opens or becomes permanently de-energized	None Current practice
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Clause	What changed	Impact on TRNA projects
Fig D.1	Changes lower frequency range in key from 15 to 20 KHZ	None
Fig F.8	Adds clearer figure	None
Fig F.9	Adds clearer figure and makes it harder to comply	Pay attention in power supply evals.
Annex P	Updates reference documents	None
Annex Q	Just organized better and adds flammability requirements for VDRs	<i>Only on products with VDRs. Need the VDR to be class V-1</i>
Annex U	All reworded	None as we require approved triple insulated wires
Y.1	Adds parenthesis around values	None
BB.1	Clarifies figure references	None



Changes to IEC standard		
Clause	What changed	Impact on TRNA projects
CC.1	Requires 5A limit and adds program CC.4	Only for devices with IC current limiters
CC.2	Calls out new load to be used in second dashed line and 5 <sup>th</sup> dashed line	Only for devices with IC current limiters
CC.3	Adds that 5A fuse used in test setup must comply with IEC 60127-1	Only for devices with IC current limiters
CC.4	New test program that can be used	Only for devices with IC current limiters
CC.5	Adds compliance criteria	Only for devices with IC current limiters
Index	Replacements of modified references with new ones	None. Book keeping in the document only



Changes to IEC standard		
Clause	What changed	Impact on TRNA projects
EU Group Differences		
Annex ZD	Adds IEC and CENELEC code designations for flexible cords	None
Whole document	Calls out where you delete all the "country" notes in the base standard	None
3.2.5.1	Adds a note about harmonized codes for cords	None
Annex ZA	Updates normative references	None
Annex ZB 1.7.2.1	Updated text on markings for class I in Nordic countries which never apply to us	None
Annex ZB 1.7.5	Updated wording for Denmark on socket-outlets	None
Annex ZB 3.2.1.1	Updated wording for Denmark for supply cords	None
Annex ZD	New, informative only. Adds IEC and CENELEC code designations for flexible cords	None



# Thank You!



## .....Questions?

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