Transition to a New Hazard Based Safety Standard, IEC 62368-1

Overview and Updates on IEC 62368-1 - the new Standard for Audio/Video, Information Technology and Communications Technology Equipment

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Overview

- Background of the current HT Standards
- Who is Involved
- IEC Process
- NA Process
- Status
- Overview of the new Safety Standard
- HBSE Basic Principles
- Getting Ready
Background

• 60065 7th Edition is the latest in a series of A/V standards that have converged into one single standard with which the UL standard is now harmonized. Currently there is a document out for vote on this standard for routine maintenance of the standard.

• 60950-1 – 2nd Edition likewise is the latest in a series of ITE (including Telecom) standards that have converged into one standard with which the UL standard is now harmonized. Currently there is a document out for vote on this document for routine maintenance of the standard.
Background (cont)

- 62368-1 – is the latest in the series of convergence that brings together 60065 and 60950-1 products under a single standard as the products continue to converge. IEC 62368-1 is a hazard based standard – it was recently (Jan 2010) published as an IEC Standard and it will ultimately replace 60065 and 60950-1 – the hazard based approach allows for more timely introduction of new technology without the need to revise the standard first.
IEC 62368-1

• **What it is**
  • **New Safety Standard for**
    • Consumer Electronic (Audio/Video) Apparatus,
    • Information Technology Equipment, and
    • Communication Technology Equipment
  • **Hazard-Based**
  • **Technology Independent**
  • **Created Upon**
    • Sound Engineering Principles,
    • Existing IEC Horizontal Standards
    • Research, and
    • Field Data

• **What it is NOT**
  • **NOT** a simple merger of IEC 60065 and IEC 60950-1
IEC 62368-1 - Scope

- IEC 62368-1, Audio/Video, Information Technology and Communication Technology Equipment – Safety – Requirements, which covers:
  - Information Technology Equipment
    - IEC 60950-1, Information Technology Equipment – Safety
  - Communication Technology Equipment
    - IEC 60950-1, Information Technology Equipment – Safety
  - Consumer Electronic (Audio/Video) Equipment
    - IEC 60065, Audio, Video and Similar Electronic Apparatus – Safety Requirements
Who is Behind the Development?

• IEC TC108 blends the expertise from the previous IEC TC74 and IEC TC92 committees with a purpose to:
  • Develop a **single** standard to cover equipment and/or apparatus currently covered by the scopes of IEC 60065 and IEC 60950-x.
  • Maintain current standards available for concurrent use for a reasonable period (dependent on regional/national adoption).
  • Coordinate future standards development in the fields of electronics products.
Who (cont.) - Lineage

IEC 380
Office Equipment

IEC 435
Data Processing Equipment

A MERGER

IEC 60950-1
Information Technology Equipment

ACOS
Advisory Committee on Safety

IEC GUIDE 112
Guide on the Safety of Multimedia Equipment

IEC 60065
Audio, Video and Similar Apparatus

TC74
TC108

TC108
HBSDT

NOT A MERGER!

IEC 62368-1
Audio/Video, Information Technology and Communication Technology Equipment

TC92
TC108
Who (cont.)

TC 108 Management Structure

TC 108
Safety of Electronic Equipment within the Field of Audio/Video, Information and Communication Technology
Chairman: J. Remy
Secretary: A. Brazauskas
Asst. Secretary: M. Burk
Technical Officer: T. Rotti

Participating countries: 31
Observer countries: 8

Chairman’s Advisory Group on Strategy (CAGS)

MT 1 Maintenance Team
(A/V; e.g. 60065)
Convenor: J. Remy

MT 2 Maintenance Team
(IT; e.g. 60950-x)
Convenor: S. Statt

WG HBSDT
Hazard Based Standard Development Team
for IEC 62368
Convenor: R. Pescatore
Secretary: J. Remy

WG ENV
Environmental Aspects in the Field of Audio, Video and ICT Equipment
Convenor: F. Hermann

WG5
Touch Current
(e.g. 60990)
Convenor: P. Perkins
Who (cont.)

TC 108 HBSDT

HBSDT
Hazard Based Standard Development Team
for IEC 62368
Chairman: R. Pescatore
Secretary: J. Remy

TRF Generation
W. Haab

HB Engineering
Specialist
R. Nute

Editing Committee (EdCom)
A. Brazauski

Integration Team
(Cl. 0, Scope, General Parts, Coordination)
A. Brazauski

Electric Shock
Hazard Team
V. Gasse

Fire
Hazard Team
J. Remy

Mechanical
Hazard Team
B. Bryans

Radiation
Hazard Team
P. Robinson

Burn
Hazard Team
L. Heiland

Chemical
Hazard Team
W. Schulz
IEC Process

- Passed the vote for IS on Oct 2\textsuperscript{nd}, 2009:
  - 5/7 in favor (≥ 2/3)
  - 1/4 against (≤ 1/4)
- IEC 62368-1, First Edition was published in January 2010.
- IEC 62368-1, Second Edition is planned to be published in 2013.
- Five-year transition recommended by TC 108
NA Standards Process

• Tracking IEC
• Current Standards –
  • 60950-1 for ITE
  • 60065 for CE
• Working on 62368-1 First Edition
  • Following recommendation of IEC – use and gain experience
  • Preparing for Second Edition
• UL 62368-1 First Edition will include
  • IEC 62368-1 First Edition
  • NA National Differences
  • Provision for using accepted CDVs for IEC 62368-1 Second Edition
• When UL 62368-1 Published, we will offer UL certifications accordingly as an option to UL 60950-1 and UL 60065
• We can offer certifications (Classification) today or mention that the product complies in the UL or CB Report.
• We will be ready to offer CB Certification to IEC 62368-1 when accepted into the CB Scheme.
NA Bi-National Standards Process

- THC Develops Proposal
- TC Considers and Votes in Canada
- STP Considers and Votes in USA
- THC Responds to Comments and issues new Proposal if necessary
- When TC and STP Approve, Bi-National Standard Published
- Maintenance Process Initiated
Status of IEC 62368

The implementation of IEC 62368-1 will be a major undertaking as such we need to stay aware of the status:

Status as of 05 October, 2010:

IEC TC 108:

Responsible for IEC 62368-1, IEC 60065, and IEC 60950-1.

- IEC 60065, Edition 8 – Next Amendment Planned for 2013
- IEC 60950-1, Edition 2 – Next Amendment planned for 2013

Adoption of IEC 62368:

- IEC 62368-1 First Edition rejected by CENELEC, it is expected they will adopt the Second Edition
- Japan National Committee beginning to study IEC 62368-1 First Edition, but will probably wait until IEC 62368-1 Second Edition to publish a Japan National Standard of IEC 62368-1
- The Netherlands is in the process of developing a National Standard harmonized to IEC 62368-1 First Edition.
- US and Canada via the THC is in the process of developing a IEC 62368-1 First Edition National Standard(s) for North America – expected publication date 2012 – 2013 (this will position NA for quicker adoption of IEC 62368-1 Second Edition. UL is leading this effort currently as Chair of the THC for the NA standard and lead SDO.
- IECEE, CB Scheme – has indicated that once one country adopts IEC 62368-1 as a National Standard, they will officially add it to the CB Scheme. TRF has been published for the First Edition by UL as the Originator.
- Final implementation of IEC 62368-1 Second Edition (when it supersedes previous standards is likely sometime between 2015 and 2018. With the parallel publication of amendments to the current standards as well as the Second Edition of 62368, there will certainly be much confusion and the need to comply with multiple standards for a number of years.

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Transition: IEC 62368-1 (60065 and 60950-1)

Europe (EU)
- IEC 60065, Edition 8.0 (2013?)
- IEC 60950-1, Edition 2.0, Am 2 (2013?)
- IEC 62368-1, Edition 2.0 (2013?)
- EN 60065, 7th Ed, Am2
- EN 60950-1, 2nd Ed, Am 1
- EN 60950-1, 2nd Ed, Am 2 (2013?)
- EN 62368-1, 2nd Ed (2013?)
- Netherlands 62368-1 First Edition

Canada/US
- UL 60065, 7th Ed, Am2
- CSA 60065, 7th Ed, Am2
- CSA/UL 60950-1, 2nd Ed
- CSA/UL 60950-1, 2nd Ed, Am 1 (2011?)
- CSA/UL 60950-1, 2nd Ed, Am 2 (2014?)
- CSA/UL 62368-1, First Ed (2012?)
- CSA/UL 62368-1, 2nd Ed (2014?)

AP
- China – studying – at least 2 – 3 years away
Why Do We Need It?

• Less distinction today and in the future between product categories:
  • Similar technology,
  • Similar marketing/distribution channels,
  • Similar use environments,
  • Similar users.

• Desire for a single safety standard to:
  • Lead to design and manufacture of safe products,
  • Be technology independent,
  • Be stable,
  • Introduce new technology to the marketplace easier.
Structure of IEC 62368-1

• This International Standard is based upon Hazard Based Safety Engineering principals and classifies energy sources, prescribes safeguards against those energy sources, and provides guidance on the application of, and requirements for those safeguards.... The prescribed safeguards are intended to reduce the likelihood of pain, injury and, in the case of fire, property damage.

• In practice, safeguard selection will take account of the nature of the energy source, the intended user, the functional requirements of the equipment, and similar considerations.

• Has some new requirements (ie, compared to IEC 60950-1, Edition 2) to enhance product safety, including but not limited to:
  • Methods for classifying energy sources
  • Definitions for ordinary persons, instructed persons, and skilled persons
  • Child accessibility test probe
General Format/Approach

- **Objectives of Hazard-Based Standard:**
  - Clearly identify the hazard being addressed,
  - Clearly state principles upon which hazard is addressed,
  - Preserve basis of requirements (rationale document),
  - Be performance based (rather than prescribe construction, but allow prescribed construction options),
  - Type test standard
    - Useful to designers, and suitable to assess conformance by suppliers, purchasers and certifiers.
  - Meet above in an ‘user friendly’ manner.

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Opportunities

• Benefits of Hazard-Based Standard:
  • Easier introduction of new technology to the marketplace,
  • Provides single standard for a broad range of products,
  • Will allow minimization of national/regional differences,
  • Design freedom,
  • Stable,
  • Preserves information on basis for requirements,
  • Understandable,
  • User friendly.
Hazard Based Safety Engineering (HBSE) Standard Principles and TC 108

- HBSE
  - Is a process
  - Utilizes a three block model to address the transfer of hazardous energy to a body part
  - Identify limits defining hazardous and non-hazardous energy
  - Describe methods to mitigate hazards and measurement of safeguard effectiveness.

- TC 108, to put HBSE into practice, some general approaches were followed:
  Participants on TC108 were encouraged to create technology independent requirements leveraging the HBSE approach – it is not a full HBSE approach!
  Generally speaking, 62368-1 provides a prescriptive performance/testing or prescriptive construction paths as alternative means for determining compliance.
Hazard Based Safety Engineering (HBSE) Standard Principles

1. **Identify Energy Source**
2. **Is Source Hazardous?**
   - **Yes**: Identify means by which energy can be transferred to a body part
   - **No**: Design safeguard which will prevent energy transfer to a body part
3. **Measure Safeguard Effectiveness**
   - **No**: Is safeguard effective?
     - **No**: Identify means by which energy can be transferred to a body part
     - **Yes**: Safeguard
   - **Yes**: Design safeguard which will prevent energy transfer to a body part
4. **Safeguard**
   - **Hazardous Energy Source**
   - **Transfer Mechanism**
   - **Body Part**
Why Such a Long Transition?

• Unlike previous revisions of IEC safety standards, suppliers of IT and Audio/Video products will require more time to transition to IEC 62368.

• Manufacturers will need sufficient time to ensure that all suppliers, especially component suppliers, understand and are able to apply IEC 62368 with relevant national differences.

• Need time for test houses and certifiers to develop and deploy test protocols, test report forms (TRF) and acceptance documents (certification reports and test data).

• National Differences will need to be developed and published.

• Safety Engineers will need adequate time to learn the new requirements and how to apply them properly.
Getting Ready - UL Preparation/Involvement to Date

- Secretary of IEC TC 108
- Chair of TC 108 Editing Committee
- Chair of TC 108 TRF Working Group
- Administrator of US TAG
- US Delegate to TC 108
- Convener or active participant on multiple National Committees for TC 108
- Chair of Technical Harmonization Committee for North America Bi-National Standard (including 60065, 60950-1 and 62368-1)
- Developed introductory material for recent ACOS meeting to initiate education process beyond TC 108
- Sole licensee of HBSE training content originally developed/owned by HP
How You Can Get Ready

• Education/Updates – Watch out for courses related to the new IEC 62368-1. Enroll so you can stay up to date on status/changes to the new as well as existing standards. See: http://www.uluniversity.us/Catalog/Browse.Catalog.aspx?Tab=1000000&Index=High%20Tech

• International Standards Development - Work with various IEC and National Committees to help maintain current as well as further develop new standard – get involved!

• North America Standard Development – UL is Leading development of North America version – get involved! (CAN/US)

• Evolving HBSE – UL is developing a new generation of HBSE material called ASSET – Applied Safety Science and Engineering Technology – more comprehensive – good preparation

• Experience – Work with the First Edition, apply it to products, use the TRF.
What is Available Now

• **Short Term:**
  • Information Resource –  
    • Status of and development process for new standard and current/remaining steps  
    • White Papers/Technical Briefs  
    • Presentation to PSES!
  • Knowledge Resource –  
    • General HBSE training courses  
    • Specialized HBSE Training Courses
  • Learning Resource/Partner - Comparison projects with key customers to help with gap analysis for their products, TRF development and testing

• **Longer Term**
  • Courses specific to various standards (60065, 60950-1, 62368-1) – both public and private – instructor led and e-learning
  • A complete HBSE program called ASSET
  • Other Related Services
What Next?

• Information
• Knowledge Resource
• Education
• Infrastructure/Tools/Processes
• Services
• Influence

What are you planning and do you see opportunities with the new standard?

What do you need to help prepare you for implementation of IEC 62368-1?
The Transition to a New Hazard Based Standard - you can be ready - **UL can help!**

For information or updates, contact your normal contact at UL or check:


Thank you very much!