

## LVSD Task Force on Voltage Ranges

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IEEE Power Engineering Society  
Switchgear Committee  
Low Voltage Switchgear Devices Subcommittee

April 2010 – Myrtle Beach, SC

Reported by Doug Edwards  
April 26, 2010

Chair – Doug Edwards substituting for Keith Flowers. Keith Flowers unable to attend due to personal issue.

### 1. Introductions

Task Force meeting called to order 26 April 2010 at 1:40 PM DST.  
Group introductions and roster taken

### 2. Patent Slides

Done

### 3. Attendance

Four (4) Task Force members present out of Six (6) total members and 11 guests  
Quorum was present

Attendees:

*Alessandro Bottarelli (G)*  
*Dave Dunne (G)*  
*Doug Edwards (M)*  
*Mike Flack (G)*  
*Nancy Gunderson (M)*

*Dan Hrcir (M)*  
*Anurag Jivanani (G)*  
*Harry Josten (G)*  
*Chad Kennedy (G)*  
*Michael P. Lafond (G)*

*Frank W. Mayle (G)*  
*Alan Peterson (G)*  
*Carl Schneider (G)*  
*Dean Sigmon (M)*  
*Alan Storms (G)*

### 4. Review actions items / Previous Minutes Task

Task force was formed to investigate this claim, and determine if further action is recommended for LVSD.

Recommendation by LVSD at the Fall 2009 meeting was to initiate amendments to expand the scopes and preferred ratings of IEEE Stds including C37.13, C37.16, and C37.17.

Minutes from previous LVSD

<http://www.ewh.ieee.org/soc/pes/switchgear/S09Minutes/S09LVSDa5.pdf>

<http://www.ewh.ieee.org/soc/pes/switchgear/F09Minutes/F09LVSDa5.pdf>

Status: Task is to create amendment PAR's.

- The current status is that no new PAR's have yet been created.
- Discussion is to move forward with the PAR's for C37.13 and C37.16 based on recommendation by IEEE concerning submitting these PAR's prior to successfully balloting of C37.17.

## LVSD Task Force on Voltage Ranges

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- Subsequent to meeting and by conversation with IEEE (Matt Ceglia), Yes – PAR's for C37.13 and C37.16 can be submitted prior to C37.17 being completed.
- Schedule forecast for C37.13 and C37.16 PAR submittals – May 7, 2010.

### 5. Review of related standards

- IEC – Keith Flower has obtained and will make available for TF review.
- Wind Turbines (WT) – Keith discussed with WT Chair and has agreement that WT will support task by forwarding any LVSD questions.

Potential questions:

- Request input on the ratings of Motors and Generators being used and planned for future construction usage.
- What if any standards are WT using, specifically concerning ratings, testing and service conditions (e.g. temperature).
- What are the rating requirements being requested?
  - Ask UL
  - WT Standards Group
  - CB Manufacturers

### 6. Review of LVSD Standards/Documents

C37.13 – LV Power CB's

- Title – Must add voltage and scope
- Revise dielectric requirements – 3000V for Hi-Pot based on  $2 \cdot V_{\text{nominal}} + 1000\text{V}$   
Also – for 1 sec Production Test option for +20%, in theory considered okay.
- Scope – Maximum Voltages are based on:  
 $635/600 = 508/480 = 254/240 = 1.058333$   
Thus  $V_{\text{max}}$  to be:
  - $690 V_{\text{nom}} \cdot 1.058333 = 730 V_{\text{max}}$
  - $1000 V_{\text{nom}} \cdot 1.058333 = 1058 V_{\text{max}}$

C37.16 – Preferred Ratings

- Title – Must add voltage and scope
- Tables – To be updated throughout the document

C37.17 – Trip Devices

- Title – Must add voltage and scope
- Nothing else thus far – Only title and scope

### 7. LVSD Title and Scope Discussion

- Recommendation is that the titles reference 1000V and below (AC) and in the Scope to define 1000V nominal / 1058 rated maximum voltage and 690 V nominal / 730 rated maximum voltage.
- This should address Scope issues between LVSD and HVCB sub-committees.

### 8. Proposal for revised titles

Suggested title with respect to the Voltages for use in the PAR's:

- C37.13 – IEEE Standard for Low-Voltage AC (1000 V and below) Power Circuit Breakers Used in Enclosures

## LVSD Task Force on Voltage Ranges

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- C37.16 – IEEE Standard for Low-Voltage Power Circuit Breakers (1000 V and below) AC and 1200 V and Below) DC and AC Power Circuit Protectors (1000 V and below) – Preferred Ratings, Related Requirements, and Application Recommendations
- C37.17 – IEEE Standard for Trip Systems for Low-Voltage (up to 635V1000 V and below) AC and General Purpose Low-Voltage (up to 600 V1500 V and below) DC Power Circuit Breakers  
=> Subsequent to LV Task Force meeting, changed from 1200 V to 1500 V for DC based on review of C37.14.1 pending PAR.

### 9. Recommendations concerning PAR's

- C37.13 & C37.16 - Recommend not an "Amendment PARs," rather, based on the extent of the changes in the standards as summarized above, full revision PARs.
- C37.17 – Request discussion of whether to continue with an "Amendment PAR" as was previously noted in LVSD minutes of Fall 2009 or to request changing this to a full revision PAR.

### 10. C37.14.1 – Updated subsequent to Task Force Meeting

The Task Force was only to review and provide recommendations concerning AC circuit breaker voltage ratings, not DC. However, the discussions during the Task Force meeting included:

General Purpose DC is only currently up to 300 Vdc. This should be increase to 1200 Vdc.

C37.14.1 pending PAR has the following title – Draft Standard for DC (1500 V and below) General Purpose Power Circuit Breakers Used in Enclosures. Therefore, there is no action required.

### 11. C37.14.1, C37.14.2 and C37.20.8

Request status update from Switchgear Assemblies S/C concerning C37.20.8 and the task of developing C37.14.1 and C37.14.2

### 12. Recommendations to Switchgear Assemblies S/C

Consider revision of C37.20.1 including:

- Title to include 1000V and below
- Address 1000V ratings, testing and applications
- Addition discussion outside scope of Task Force – Consider 4 Pole CB's

### 13. Inform NEMA for Coordination with C37.50

- Inform NEMA of plans (share minutes) of these recommendations concerning expanding voltages to include 1000 Vac and below.

### 14. FORM A JOINT WORKING GROUP – JUST DO IT.