

2016 PES Committee Meeting: Atlanta, GA

D1-IEEE Std. 1427 Meeting Notes

May 25, 2016

Meeting Time: 13:00hrs-17:00hrs

MEMBERS ATTENDING: 8 of 17 members present (Quorum not recognized)

Next working group meeting will occur in New Orleans, LA (January, 2017 at JTCM).

- Minutes review from Nashville, 2015 meeting.
- **ACTION ITEM – 2016-1:** Marked-up draft for ballot to be added to the protected website, for members to review and comment. Draft for Ballot still needs to be finalized.
- **ACTION ITEM – 2014-1:** Hamid Sharifinia submitted an addendum to the PAR (June, 2014).

1. EDITORIAL UPDATES (FROM PREVIOUS MEETING DISCUSSED): review from last meeting put on minutes and add issue for the close of parenthesis in EHV table.

- **TABLE 3 CORRECTION:** Editorial correction to phase-to-ground column, clearances for 169kV system voltages. 56 inches = 1425 mm, not 1325 mm.
- **EQUATION CORRECTION:** Table B.3, breaker/switch/bus voltage calculations. Change equation to:
$$E_B = \frac{2E}{n} - \frac{2-n}{n} [2S(T_A + T_B)] - \frac{2S\tau}{n} \left[1 - e^{-\frac{t_f + 2(T_B + T_A)}{\tau}} \right]$$
, as an example of proposed correction (noted by highlighted +, for change from -). KEEP ON MEETING NOTES FOR VISIBILITY

ACTION ITEM – 2016 -2: Guide mentions but does not include (clearly) how to apply relative air density in BIL equations. In section 6.3.1, the present standard states the following:

The resulting minimum phase-to-ground air clearances are shown in Table 3. For elevations higher than sea level, the insulation strength decreases as a linear function of the relative air density (see 6.4.2). The sea level BILs and clearances must be divided by the relative air density. The clearances required by applicable safety codes may vary from the values calculated here (see Clause 7).

Section 6.4.2 does not have an equation to solve for the relative air density (δ). Recommend adding the following equation from IEEE Std 1313.2 to calculate relative air density (δ) for reference to values published in Table 3:

The relative air density is calculated by using Equation (15):

$$\delta = e^{-\frac{A}{8.6m}} \quad (15)$$

where

A is the elevation in km
m is a constant, which is defined by

$$m = 1.25 G_0(G_0 - 0.2)$$

where

$$G_0 = \frac{CFO_5}{500S}$$

S is the strike distance in meters

Also, need to confirm that present draft has Section 6.4.2 documented correctly (no change from published version). Relative air density is mislabeled in the proposed draft as δ^m (which is the air density correction factor) and should be changed to just δ .