

---

## COLLECTION OF CTL DECISIONS

### Provisional Decision

<b>Standard:</b> IEC60950, 2 <sup>nd</sup>	<b>Clause:</b> 4.3.21	<b>Sheet n. P384</b> <b>Page 1(1)</b>
<b>Subject:</b> Lithium Cell Protection	<b>Key words:</b> -Lithium Cell -Clearances - failure mode	<b>Provisional Decision taken by ETF2 and to be approved by CTL at its 38<sup>th</sup> meeting, in Toronto</b>

#### **Question:**

Clause 4.3.21 requires that two levels of protection are required to prevent forced or reversed charge or forced discharge if this would result in a hazard. Conventionally a combination of resistor, diode or ic has been considered suitable and is for the series current path. However, a new consideration has been raised in respect of adjacent tracks, separated by no more than operational insulation, which, under s/c conditions will bypass the protective series components and provide charging current for either chargeable or non-rechargeable batteries. Does this mean that there is therefore a requirement for Reinforced separation?

If that is the case, then the controlling factor is the clearance of 0.8mm in Table 5 (circuits not subject to transient over voltage). This is based on the fact that creepage cannot be less than clearance and creepage can be calculated to be, for example at +5V, 0.4mm (based on rounding up 0.12mm to 0.2mm for Basic and doubling for reinforced).

#### **Decision:**

Operational insulation is suitable taking into account 5.4.4 because there is no risk of electric shock. (see 1.2.9.1)

Care should be taken by determining clearance and creepage distances which column of the table has to be used.(Transients have to be taken into account)

**Explanatory notes: ---**

---