

## CTL DECISION SHEET (DSH)

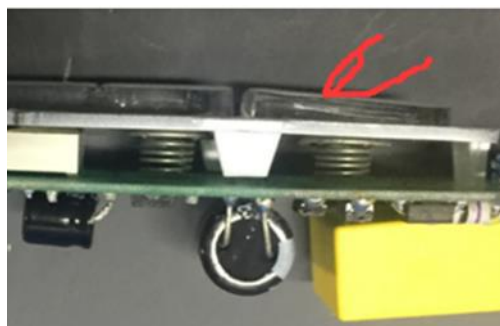
| Standard(s) (incl. year)   | Subclause(s)                           | Tracking No.        | Year                     |
|--|--|---------------------|--------------------------|
| IEC 60335-1:2010<br>IEC 60335-1:2010/AMD1:2013<br>IEC 60335-1:2010/AMD2:2016 | 30.1                                   | 2164                | 2020                     |
| <b>Category</b>  |  |                     |                          |
| HOUS   |  |                     |                          |
| <b>Subject</b>   | <b>Keywords</b>                        | <b>Developed by</b> | <b>Approved at</b>       |
| Touch control supporting live part   | - Touch control<br>- Support live part | ETF 1               | 2022 CTL Plenary Meeting |

### Question

A touch control on a blender, as shown in figure 1b, is operated by the finger touching the surface of the touch panel/enclosure to switch on the control like a no-button-cell phone screen, rather than a push button.

The spring and electrode of the touch control are not insulated from the 220V mains, and are regarded as live parts.

The original length of the spring before installation is 15 mm (Figure 2), reduced to 10 mm after the touch panel/enclosure is assembled (Figure 1).



Note: The length of the live spring is 10 mm after the end-product is assembled

Figure 1: Touch control

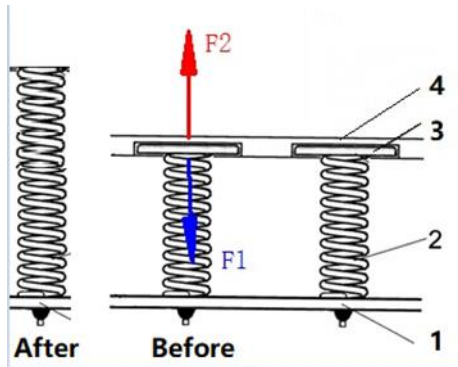


Figure 1b



Note: The length of the live spring is 15 mm before it is assembled.

Figure 2: Touch control



Key 1:PCB board connected with the spring by soldering

2: Live spring

3: Live electrode connected with the spring by mechanical connection

4: Touch panel/enclosure (accessed by user's finger)

F1: Force applied by the touch panel/enclosure

F2: Force applied by the spring and electrode

If the touch panel/enclosure is removed, the electrode will not remain in the original place and move 5 mm.

Figure 3: Before and after the touch panel/enclosure is removed

Question:

In the construction described above, is the touch panel / enclosure to be classified as only touching the electrode without the need for a ball pressure test or is it to be regarded as a supporting part that requires a ball pressure test according to Section 30.1 of IEC 60335-1 "125 ° C ± 2 ° C, for parts that carry live parts"?

#### Decision

The touch panel/enclosure is considered to support the live part.

It shall be noted that "support" in this context is not limited to the effects of gravity, but is also applicable to the consistent and reliable placement and location of the live part within the appliance. Of the three options for determining whether a ball pressure test is required (external parts, support live parts, supplementary/reinforced insulation), support live parts is the option that addresses this context.

#### Explanatory notes

The key point is whether the touch panel/enclosure, if it presses the electrode from top to bottom, must be regarded as "supporting" the electrode.

Opinion 1: No, it is "contact", not "support", it is the PCB which "supports" the spring and electrode live parts, rather than the enclosure. The ball pressure test at 125 ° C ± 2 ° C, for parts supporting live parts is not applicable.

Opinion 2: Yes. It is hard to understand how a part can "support" another part from top to bottom. However, if the appliance is up-side-down as depicted figure 4, it becomes obvious that the live parts (spring–electrode) are supported by the PCB and the touch panel/enclosure at the same time. If the enclosure is removed, the spring and electrode will not remain in its original place and will move 5 mm. So the ball pressure test at 125 ° C ± 2 ° C, for parts supporting live parts is applicable.

