**DESCO Full Coverage Grounder (17270 series) Test**
**January, 2010**

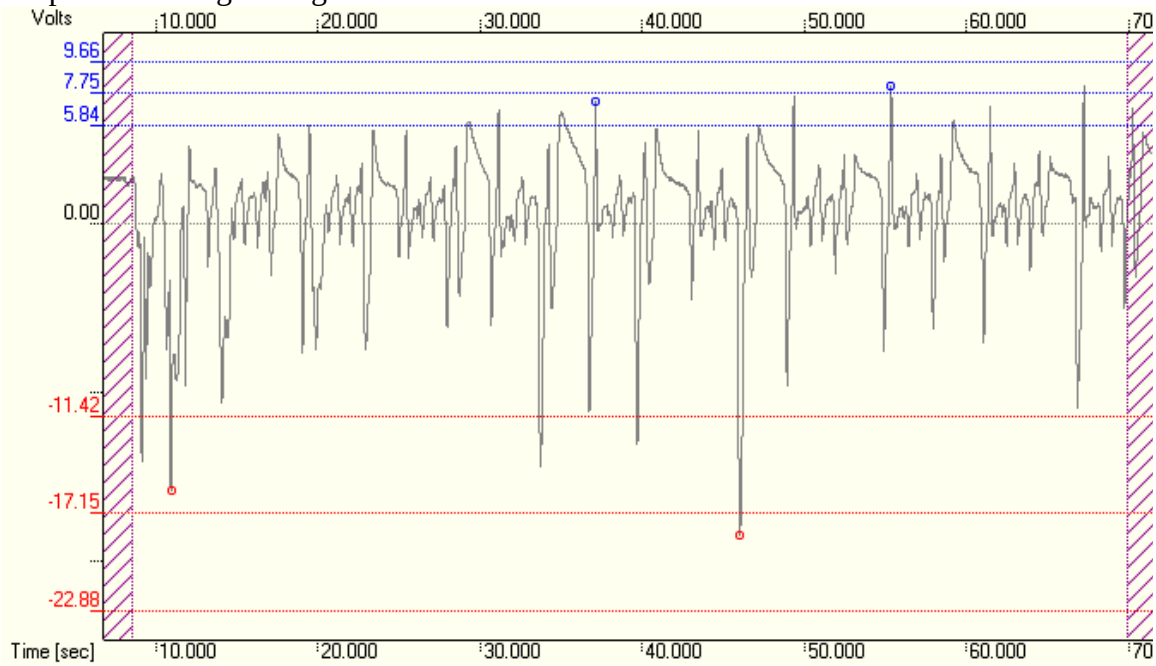
## Introduction:

DESCO full coverage shoe grounders (17270 series) were evaluated by the method established in ANSI/ESD STM97.2 on a treated concrete floor in a facility in Minnesota. The walking pattern established in STM97.2 allows a statistical analysis of the standing and walking voltage as shown in the following graphs and charts.

## Methodology:

The grounders were installed on both feet of a person wearing standard shoes with composite soles. The floor resistance to ground in the area evaluated was on the order of 1 x $10^6$ ohms to ground. Temperature and Relative Humidity in the facility were 72°F and 35% respectively.

Graph 1: Walking Voltage:




As can be observed in Graph 1 above, the walking voltage is very low using the Desco grounders (17270 series). The statistical analysis is shown in Charts 1-4.

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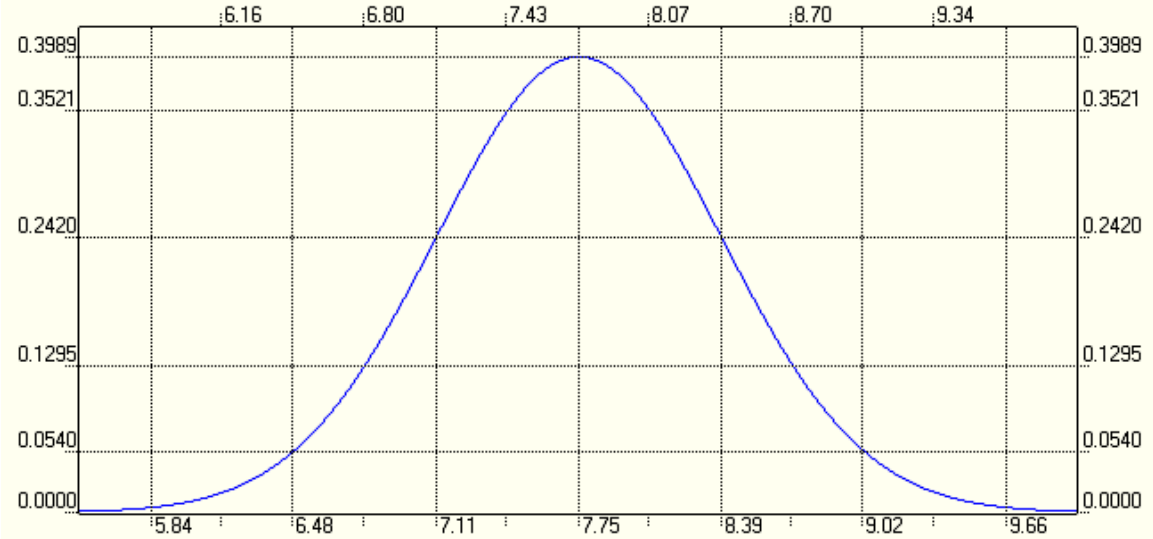

Chart 1- Standing Voltage Histogram

Chart 1 shows the 3 sigma analysis of the standing voltage for the grounders. The values are very low, especially considering that the floor is treated concrete.

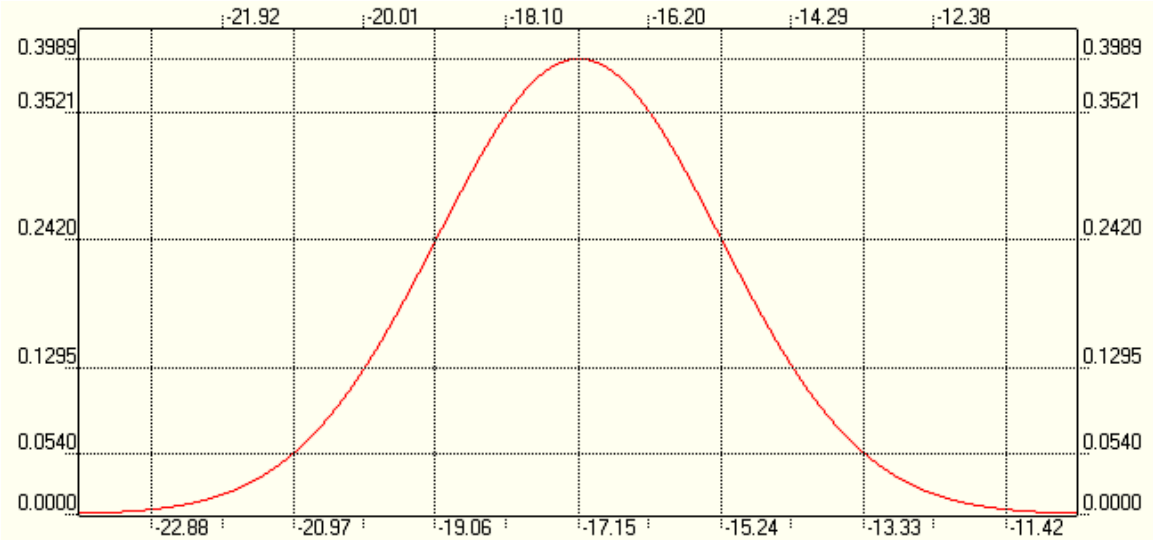

Chart 2 – Walking Voltage Histogram

Chart 2 shows the 3 sigma analysis of the walking voltage for the grounders. The maximum voltage observed in this test is just over 23 volts. This is an excellent result for the floor under evaluation.

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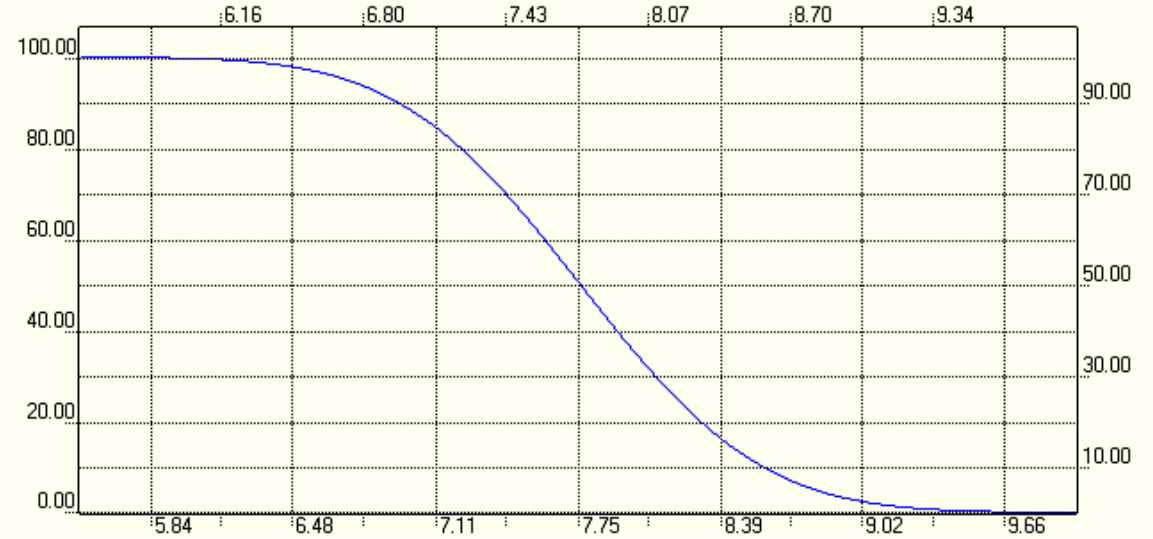


Chart 3 – Standing Voltage Probability

Chart 3 shows the probability analysis using the same data from Chart 1.

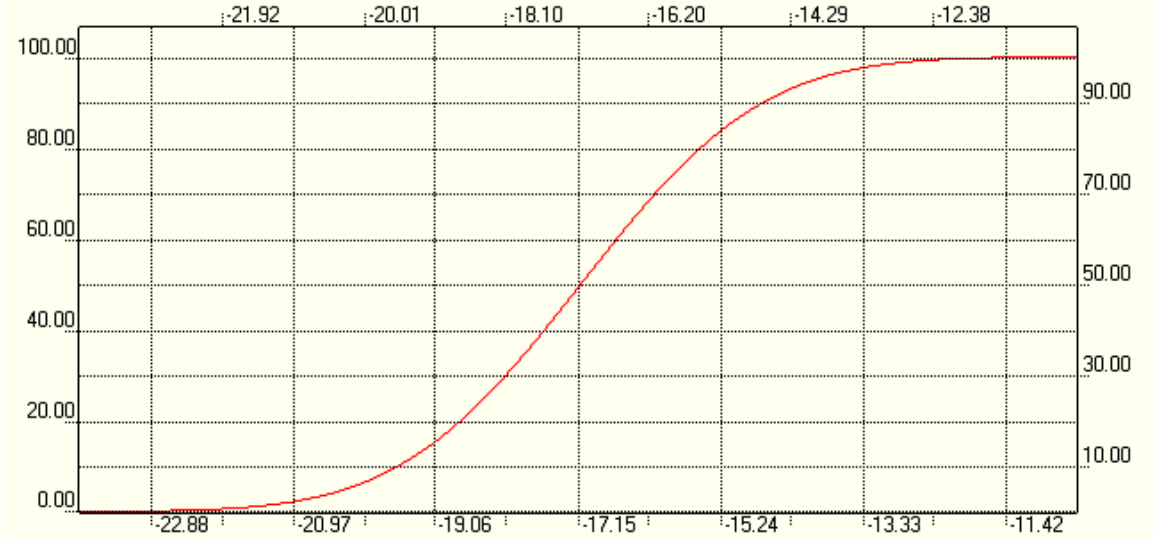


Chart 4 – Walking Voltage Probability

The walking voltage Probability in Chart 4 shows it is unlikely to ever exceed 23 volts with the floor and footwear combination evaluated.

Several areas of the facility floor were evaluated using the DESCO (17270 series) grounders. In all the areas observed, the results were similar even though there was quite a bit of variation in floor resistance. The floor resistance measured from 1 x $10^6$ to 1 x $10^8$ ohms to ground within the facility. Graphs 2 – 4 show some additional results for the walking test.

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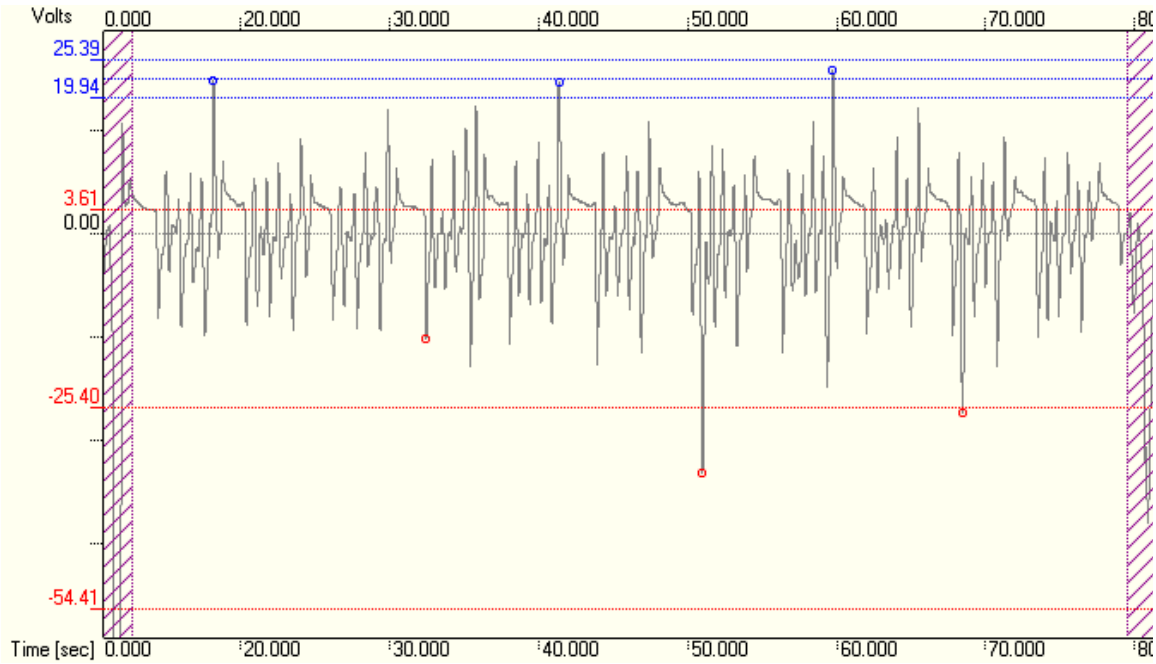
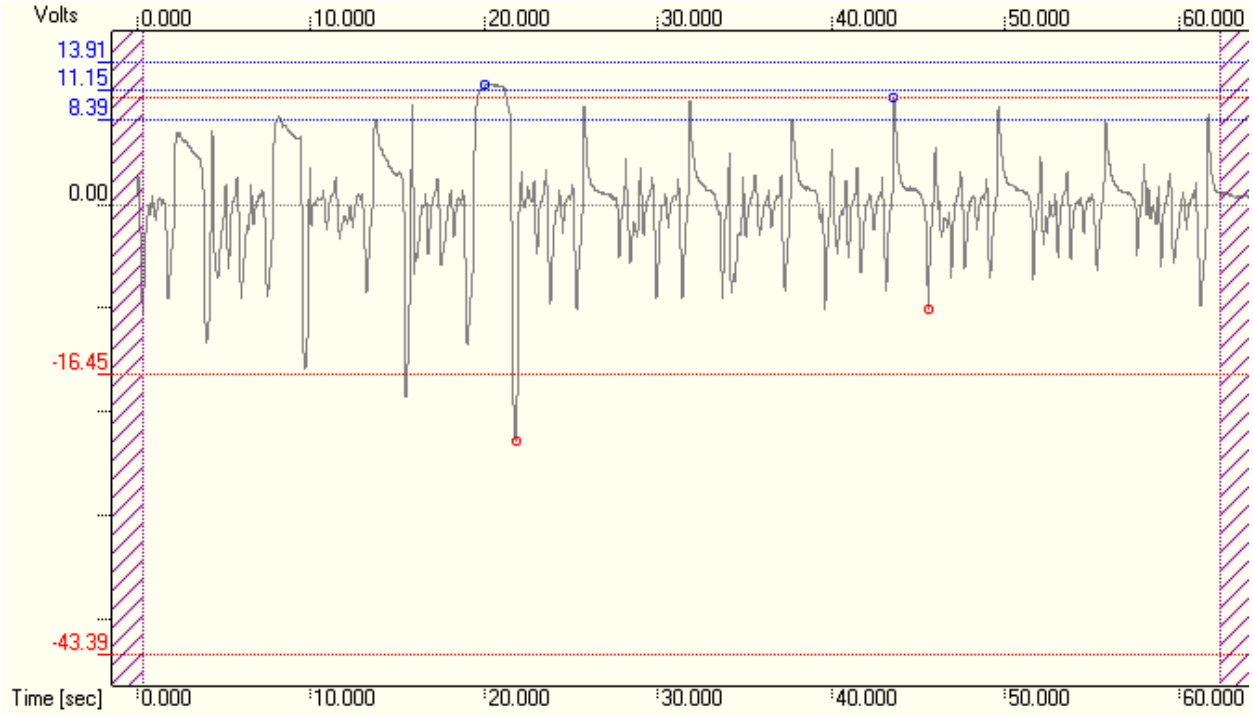



Graph 2 – Grounder walking test




Graph 3 – Grounder walking test

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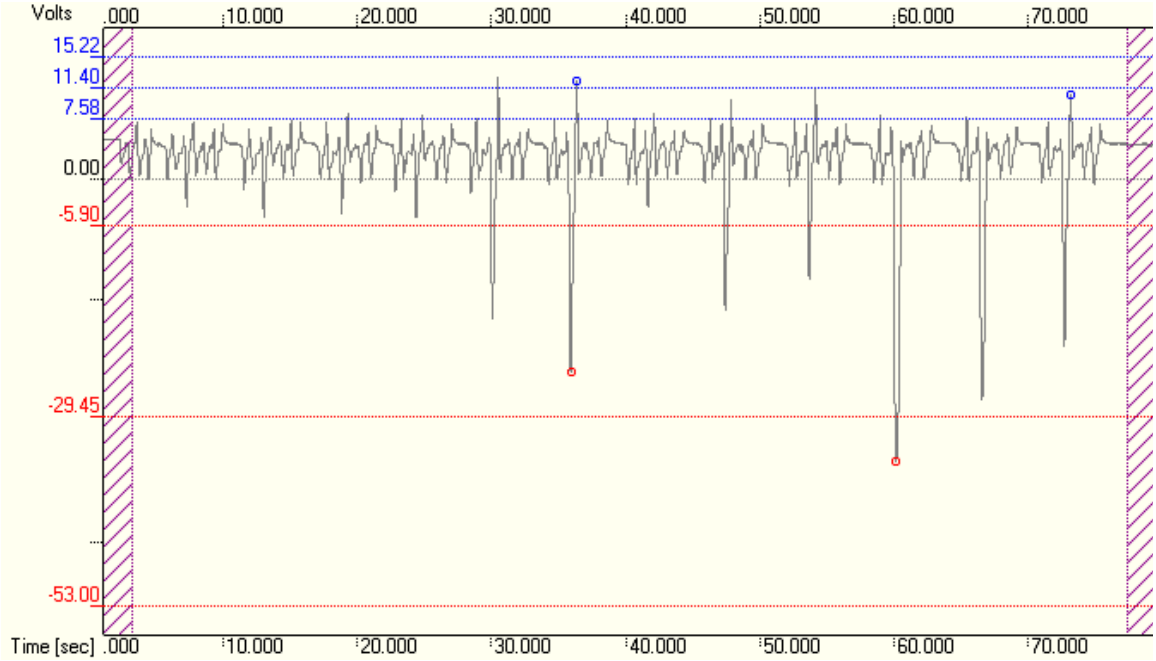


Graph 4 – Grounder walking test

**Summary:**

The DESCO full coverage grounders (17270 series) provide excellent contact with the floor when installed correctly. The voltage generation for personnel wearing the grounders is low overall and generally is lower than conventional heel straps since there is more consistent contact with the floor than with heel straps.

Respectfully Submitted:

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