Title: OSU Voltage Round Robin

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Date: May 1st, 2019

Abstract

In light of recent research presented by member of the Boeing Company on the effects of supply voltage variation on heat release results, an industry round robin was initiated to record and analyze supply voltage characteristics in flammability laboratories across the world. A group of 22 voluntary participants were given a voltage logging device to connect to their heat release chambers over the course of a 10 day period, during which the chamber was powered on to record each laboratory's unique voltage profile. Data from the logger was analyzed and shared with the participants.

Each participant was given a questionnaire with the voltage data logger to answer key questions regarding the conditions of their facilities, example: is the laboratory adjacent to a manufacturing center? These questions aim to answer the pervasiveness of any supply voltage fluctuations and whether the research at the Boeing laboratory was an isolated case.

A better understanding of this specific heat release apparatus variation may help in mitigating a portion of the overall spread in heat release rate data. Prototype upgrades are being developed to counteract the supply voltage variation and studies are ongoing into the effectiveness of these systems. Laboratories with high levels of supply voltage variation may find efficiency improvements during heat flux calibration with the addition of the prototype upgrades in addition to improved repeatability.