



Smoke Alarm Performance in Kitchen Fires and Nuisance Alarm Scenarios

By NIST

CreateSpace Independent Publishing Platform. Paperback. Book Condition: New. This item is printed on demand. Paperback. 94 pages. Dimensions: 11.0in. x 8.5in. x 0.2in. Tests were conducted to assess the performance of various residential smoke alarms to kitchen fires and nuisance alarm cooking scenarios. A test structure representing a kitchen, living room and hallway was constructed to conduct the tests. Eight different residential smoke alarms types, two photoelectric models, two ionization models, two dual sensor models, and two multi-sensor, intelligent models were used in this study. The data gathered provided insight into the susceptibility of alarm activation from exposures to typical cooking events and alarm times for actual kitchen fires. The effects on the type of alarm, and its distance from the cooking activity or fire were examined. Combustible materials typically found on a counter top can spread flames to overhead cabinets, and a single empty 0.6 m wide 1.0 m tall cabinet can produce a peak heat release rate nearly sufficient to flashover a small room. A protective metal barrier on the bottom and side facing the range tended to limit the spread of flames to the cabinet and reduce the heat release rate. All smoke alarms responded before...

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