

Circuit Breaker Instantaneous Trip Testing

Executive Summary

PARKS
ASSOCIATES

DEVELOPED FOR ACBMA

Attribution

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Disclaimer

The following document contains an analysis of the results of circuit breaker testing. All material within this document is confidential.

Executive Summary

Breaker Testing Objective

ACBMA seeks to understand the distribution of instantaneous breaker trip values of the full range of 15 and 20 amp circuit breakers in the market including the impact of both hot and cold temperatures on breaker performance.

Instantaneous Trip Levels Test Results

Parks Associates acquired 40 different catalog numbers from 4 major manufacturers, from which 20 catalog numbers were selected that represented the diversity of products that are in the market. Catalog numbers included both 15 and 20A ratings, single and two pole, standard and high magnetic, and full-space and half-space/tandem designs. Testing was conducted between July 10 and August 23, 2017. The results are summarized in **Figure 1** below:

	15A Breaker Average Instantaneous Trip Value	15A Breaker Instantaneous Trip High Value at 99% Confidence	20A Breaker Average Instantaneous Trip Value	20A Breaker Instantaneous Trip High Value at 99% Confidence
25C Test Results	266A	575A	377A	864A
All Test Results	265A	615A	364A	934A

Figure 1 – Average Instantaneous Trip Values and 99% Confidence Values

Conclusion

There is wide variability in the instantaneous breaker trip values over the full range of 15 and 20 amp circuit breakers that are available in the market.