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ABSTRACT:
Round robin measurements are an important activity for laboratories and provide a method for evidence driven improvement in measurement technique as well as a chance to compare measurement methodology. The ability to accurately and repeatedly measure a variety of technologies, including thin-film technologies and modules that can exhibit meta-stable properties can be a challenge for any laboratory, particularly when experience or certain equipment and procedures are not present. The round robin results presented are from the Stability and Performance of Photovoltaics (STAPP) project. Modules were tested at various institutes and laboratories in India and these results compared with those obtained by an experienced UK measurement laboratory, CREST at Loughborough University.

This round robin shows that the measurement of key parameters of polycrystalline silicon modules is comparable throughout the labs, with most measured parameters reported by laboratories being within 5% of the measurement mean. The level of disagreement between laboratories is higher than that observed in other RR intercomparisons and a clear pathway for improvements can be identified. Looking at more complex measurements this consistency is less apparent. With a specified improvement program it is hoped that more participants would be capable of taking measurements with a high degree of accuracy, aiming for uncertainties in all measurement parameters falling below 5%.

Figure 1: Comparison of measured key parameters from the partners for crystalline silicon modules included in the round robin, normalised to the mean of the measurements for comparison.