ISSN: 2320-5407
International Journal of Advanced Research
Publisher's Name: Jana Publication and Research LLP
www.journalijar.com

REVIEWER'S REPORT

Manuscript No.: IJAR- 57781

Title: Development and Characterization of a Surface Probe Calibration System at NIS

Recommendation:
Accept

Rating	Excel.	Good	Fair	Poor
Originality	Yes			
Techn. Quality		Yes		
Clarity	Yes			
Significance		Yes		

Reviewer Name: Dr. Ashish Yadav

Detailed Reviewer's Report

Reviewer's Comment for Publication.
Acceptance Comment are mentioned below suitable for the paper titled "Development and Characterization of a Surface Probe Calibration System at NIS"

Reviewer Comments: Accept

Reviewer Comments –

Introduction
The introduction clearly explains the importance of accurate surface temperature measurement in industrial and laboratory applications. The authors successfully establish the need for a dedicated calibration system and highlight the limitations of conventional calibration approaches. The objectives of developing a traceable and reliable surface probe calibration setup at National Institute for Standards are well defined. The background information is relevant and provides sufficient motivation for the research work. However, a few recent references on modern surface calibration techniques could further strengthen the introductory section. Overall, the introduction is concise, informative, and aligned with the scope of the study.

Literature Review
The literature review adequately discusses previous studies related to surface temperature probe calibration, thermal homogeneity, and uncertainty estimation. The authors compare existing calibration approaches and justify the necessity of improving calibration reliability. The review demonstrates a good understanding of metrological principles and temperature measurement challenges. Relevant concepts such as stability, traceability, and uncertainty analysis are appropriately addressed. Inclusion of a few more recent international standards and comparative studies would further enhance the depth of the review. Nevertheless, the literature coverage is sufficient to support the research objectives.

ISSN: 2320-5407
International Journal of Advanced Research
Publisher's Name: Jana Publication and Research LLP
www.journalijar.com

REVIEWER'S REPORT

Solution Approach / Methodology

The methodology adopted in this work is systematic and technically appropriate. The development of the calibration setup using a precision-machined aluminum plate and flat spiral heater is clearly described. The experimental procedure for evaluating temperature stability, in-homogeneity, and agreement with the reference thermocouple is logical and reproducible. The uncertainty evaluation process is also well presented, considering the significant contributing factors. The chosen temperature range of 50 °C to 300 °C is suitable for practical calibration applications. The methodology demonstrates strong engineering design and sound metrological practice.

Results and Discussion

The results are presented clearly and indicate that the developed system performs effectively within the intended operating range. The achieved temperature stability of ±0.1 °C to ±0.2 °C demonstrates the reliability of the setup. The discussion on temperature in-homogeneity and expanded uncertainty is technically meaningful and adequately interpreted. The comparison with calibrated reference thermocouple measurements validates the performance of the proposed system. The authors successfully relate the obtained results to the objectives of the study and explain the practical advantages over conventional methods.

Conclusion

The conclusion effectively summarizes the major outcomes of the research and confirms the successful development of a reliable surface probe calibration system. The study demonstrates improved traceability, stability, and measurement reliability over conventional calibration techniques. The reported uncertainty range of ±0.3 °C to ±0.6 °C indicates good metrological performance for practical applications. The work has significant value for industrial temperature calibration and standards laboratories. The manuscript is technically sound, experimentally validated, and contributes positively to the field of temperature metrology. Therefore, the paper is recommended for acceptance.