PROPOSED METHODOLOGY FOR EVALUATING SAFETY LEVELS IN WSN ON IOT DEVICES IN NUCLEAR ENVIRONMENTS

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<u>M.M. Savoine</u>[a,1,2], D.A. Andrade[1], M.O. Menezes[1], K.R. Rocha[2], H.M. Morais[2], L.S. Teixeira[2], M.F. Costa[2]

[a] **savoine@gmail.com**
[1] Nuclear and Energy Research Institute, São Paulo, Brazil
[2] Tocantinense University Center President Antonio Carlos, Brazil

Over the last few years, concern for safety in nuclear facilities has grown considerably, and as a result, standards have been stepped up to preserve the physical integrity of these facilities. Similarly, the Internet of Things (IoT), together with Wireless Sensor Networks or Wireless Sensor Networks (WSN), are gaining importance in the continuous advancement of information and communication technologies, especially due to their connection and Internet integration across multiple application areas. Nuclear areas can be considered as critical and hostile environments because of the inherent risk of the presence of radioactivity and the extent of the impact of safety-related problems. Therefore, a WSN is an innovative technology with potential to perform distributed sensing tasks, especially for security monitoring and evaluation applications. Such environments, which are highly critical, require the existence of an appropriate methodology for the evaluation of issues related to the employment security of these WSNs and IoT technologies. Specifically in the nuclear environment, no indications of appropriate methodologies for such an assessment are found today in the literature, even taking into account the nuclear safety scenario and IAEA (International Atomic Energy Agency) recommendations and documentation. Given the high degree of safety importance in these hostile environments, specifically nuclear, due to the scale of the impacts caused by accidents in these places, it is essential to develop a methodology to preserve the physical integrity of these installations from the point of view of the operation of the WSNs and IoT. This work presents, at an early stage of development, an innovative methodology for the evaluation of the security levels in a WSN with IoT devices in nuclear environments, being composed by the hybridization of phases, aggregated to characteristic factors of a context of a WSN coupled to devices IoT.