

## **ABSTRACT**

*In the Suitability Test Method there is the Illumination and Collimation Test still using the manual method. This test aims to ensure that the light from the collimator lamp can be seen clearly so that the area of the irradiation field can be identified when irradiating, as well as ensuring that the area of the collimator lamp matches the X-ray beam so that it meets the needs and ensures that the patient does not get an excessive dose. The purpose of this research is to develop the simplest way by which the illumination measurement is carried out simultaneously at four points and the measurement data is directly stored. The contribution of this research is expected to be more testing tools and the data will be stored until the effective time of the next test. This module is designed using the HC-SR04 sensor as a distance meter and the TSL2561 sensor as a lux meter. The TSL2561 sensor allows for precise Lux calculations and can be configured for different gain/timing ranges to detect light ranging from 0.1-40,000+ Lux on the fly. This module is equipped with a display facility in the form of TFT Nextion to display measurement results. In addition, there is also data storage using an SD Card to store display measurement results. In this research, the module has been tested and compared with the suitability test value of the X-ray plane and got an error value of 2.0% with a module efficiency of 98.0% in the illumination test, and an error of 2.2% with a module efficiency of 97.8% in the collimator test. From this research, it can be concluded that the light sensor TSL2561 can be used to measure the illumination area of the collimator lamp.*

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**Keyword : TSL2561, HC-SR04, Lux**