

Abstract

The amount of radiation given from the phototherapy lamp (Blue Light) who not right for neonates with hyperbilirubin is feared to cause the bilirubin levels in neonates not decrease accordance with the calculated dose. The purpose of this study is to make a Blue Light calibration device with a stable measurement. The contribution of this research is by determine a sensor who able to measure the irradiation value more accurately between TCS3200 and AS7262 sensor. TCS3200 sensor measures the wavelengths of 470nm, 524nm and 640nm while AS7262 sensor can measure wavelengths of 430-670nm. The results of both sensors are stored in the EEPROM so that the measured data can be seen on the device, with the amount of data and the length of measurement can be adjusted according to user needs. Measurement the irradiation value of two sensors is done simultaneously using 3 Watt LED lamp as a Blue Light simulation where the lamp is placed directly above the sensor and distance of the lamp to the sensor is 10cm, 20cm, 30cm, and 40cm. The average uncertainty value with the TCS3200 sensor is 14.65 and the average uncertainty value with the AS7262 sensor is 2.17. Type A uncertainty value is based on results of repeated measurements that show how close the measurement results are to the actual value (stable measurement results). The results showed that the average uncertainty value on the AS7262 sensor is smaller than the TCS3200 sensor, so it can be said the measurement results of the AS7262 sensor are stable. The author suggests using sensors who capable of reading the value of light radiation without conversion. The results of this study can be implemented to measure the intensity of the lamp and be used as a reference to determining the time of lamp replacement.

Keyword: *Phototherapy Radiometer, Blue Light, AS7262, TCS3200*