

# TECHNICAL BULLETIN

## LED Board Kit, neoBLUE® 2 LED Phototherapy System p/n: 001840

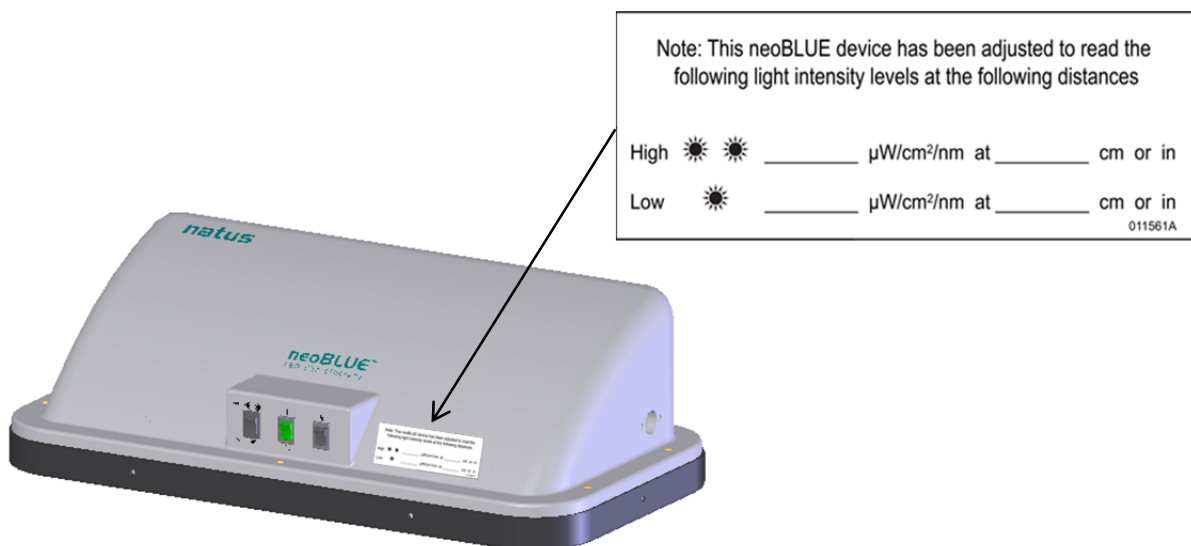
### Treatment intensity with revised LED board for neoBLUE 2 systems (p/n: 040904 & 040906)

There has been a recent change in the intensity of the replacement LED boards for the neoBLUE 2 systems. The efficiency of the LEDs has increased versus the previous generation of LEDs, producing higher intensity phototherapy treatment. This bulletin describes the change and what can be done to adjust the light setting to hospital protocol.

The neoBLUE 2 light contains a Constant Current Board designed for the previous generation of LEDs. It cannot be adjusted to compensate for the newer LEDs so the intensity of the phototherapy treatment with the new boards will be greater if used at the same level (low-high) at the same distance from the infant. As a result, important precautions must be taken to ensure that the intensity of the light meets hospital protocol. One of the features of the neoBLUE LED Phototherapy System is the ability to adjust the light intensity using the device potentiometer or through the treatment distance. By following the recommendations below, each neoBLUE device can be set to the light output that best suits the needs of the hospital and patients.

Please note that recent publications<sup>1</sup> indicate that intensities greater than 35  $\mu\text{W}/\text{cm}^2/\text{nm}$  and up to 55  $\mu\text{W}/\text{cm}^2/\text{nm}$  may bring down bilirubin levels at a faster rate and may be indicated in some cases. If the clinician wishes to maintain intensity levels of approximately 50  $\mu\text{W}/\text{cm}^2/\text{nm}$ , no further action may be required.

The LED Board Kit for neoBLUE 2 (p/n: 001840), contains one LED Board (p/n: 040869) and label (p/n: 011561). To help the users know the intensity and recommended treatment distance of this particular device, we have included a label to be affixed to the outside of the enclosure (per the figure below). It is recommended that this label be filled out by a biomedical technician at the hospital prior to first use and after recalibration.



1. Adjusting the Potentiometer

In order to achieve a lower (or minimum) intensity level, it is recommended that the potentiometers for both high and low settings be turned down. For details on adjustment of the potentiometers, refer to the neoBLUE Service Manual (p/n: 051877). For reference purposes only, the table below provides the approximate peak irradiance on both the low and high settings with each potentiometer set to its minimum value (fully clockwise position). Note that these values all represent the minimum intensity achievable at each particular height. The intensity can be increased by turning the appropriate potentiometer counter-clockwise.

2. Adjusting the distance

The neoBLUE light can be used at a greater distance from the infant, bringing the intensity levels down and increasing the treatment area.

3. Using the Low Setting

For hospitals requiring an intensity lower than the high setting shown below, we recommend you utilize the low setting and adjust the potentiometer to achieve the desired intensity at the chosen distance.

Note: The low and high settings are adjusted independently and can be set to use the light at the same or different distances.

| Height [in] | Height [cm] | LOW SETTING ( $\mu\text{W}/\text{cm}^2/\text{nm}$ )  |                    |                             |                      |
|-------------|-------------|------------------------------------------------------|--------------------|-----------------------------|----------------------|
|             |             | Natus neoBLUE Radiometer                             | Olympic Bili-Meter | Ohmeda Biliblanket Meter II | Joey Dosimeter JD100 |
| 12          | 30          | 20                                                   | 13                 | 19                          | 43                   |
| 14          | 35          | 17                                                   | 11                 | 16                          | 36                   |
| 16          | 40          | 15                                                   | 9                  | 14                          | 32                   |
| 18          | 45          | 14                                                   | 9                  | 13                          | 30                   |
| 20          | 50          | 12                                                   | 8                  | 11                          | 26                   |
| Height [in] | Height [cm] | HIGH SETTING ( $\mu\text{W}/\text{cm}^2/\text{nm}$ ) |                    |                             |                      |
|             |             | Natus neoBLUE Radiometer                             | Olympic Bili-Meter | Ohmeda Biliblanket Meter II | Joey Dosimeter JD100 |
| 12          | 30          | 57                                                   | 36                 | 53                          | 122                  |
| 14          | 35          | 51                                                   | 32                 | 47                          | 109                  |
| 16          | 40          | 45                                                   | 28                 | 42                          | 96                   |
| 18          | 45          | 40                                                   | 25                 | 37                          | 86                   |
| 20          | 50          | 36                                                   | 22                 | 33                          | 76                   |

All the intensity readings above are in units of  $\mu\text{W}/\text{cm}^2/\text{nm}$ . Given variations in radiometers and light sources, this should be used as a guideline only with a tolerance of +/- 10%.

<sup>1</sup>Vandborg PK, et al. Dose-Response Relationship of Phototherapy for Hyperbilirubinemia. Pediatrics. 2012; 130:e352-e357