1. LED color control

On an electrical toothbrush the color of the LEDs should be controlled. Furthermore the ON/OFF – times of the LEDs should be determined, too. Thus a color sensor must be used, which is able to detect lightning sources and which comes with a high scan rate and an adequate switching frequency**.** For the investigations a color sensor type **SPECTRO-3-FIO-CL** is used in connection with an optical fiber type **R-S-A2.0-(2.5)-1200-67°** and an optical frontend type **KL-M18-A2.0**. The distance from the frontend to the object is around 30 mm. During the tests it has emerged that it is helpful to use instead of the LED OFF mode the **DC** mode, but with very low power, just as much as necessary to see the white light spot. Since the white light spot shows exactly the detecting area of the

color sensor it´s easy to direct the optical frontend KL-M18-A2.0 to the right position. As shown in the screenshots, the white light spot influences the result of the LED light just a bit, which can be neglected. A proper detection of the color as well as of the intensity of the respective LEDs is possible. The results are shown in the screenshots.