

**CI 8**

**STUDY BY UV-VIS SPECTROSCOPY. THE EFFECT OF BACTERIA  
ON THE SURFACE OF A BRAGG REFLECTOR**

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Multi-layers of porous silicon (Bragg reflector distributed, RBD) were obtained by electro-chemical etching of c-Si wafers (type p (100), resistivity 0.01-0.02 ohm-cm), using as electrolyte hydrofluoric acid and ethanol. The RBD was obtained with 30 layers of high and low refraction index using current densities of 5 mA/cm<sup>2</sup> (low porosity) and 80 mA/cm<sup>2</sup> (high porosity) respectively. The RBD was designed for a maximum reflectivity at 420 nm. It was worked with five RBD at the same conditions of fabrication, one as control (without bacteria) and four for the presence of two Gram-positive bacteria (*Staphylococcus aureus* and *Staphylococcus epidermidis*) and two Gram-negative bacteria (*Pseudomonasaeruginosa* y *Escherichia Coli*). To avoid the presence of contaminants in the RBD, they were sterilized by autoclaving (121°C, 15 lb, 15 minutes). To evaluate the bacterial strains, it were obtained from massive growths of 18-24 hours in soy agar tripticaseine (TSA) from known concentrations (A tube 0.5 McFarland, 1.5 X10<sup>8</sup> CFU/ml) was used. A sample of each bacterium was placed on the surface on the RBD and analyzed by UV-VIS spectroscopy; this preliminary trial, shows the high sensitivity of the test, since there are different reflectance curve for each bacteria, whose main phenotypic characteristic is the chemical structure of the wall.