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# VISUAL CONTRAST FOR VISUALLY IMPAIRED PEOPLE PROPOSITION OF PARAMETER, THRESHOLD AND EXPERIMENTAL SETUP BASED ON EXPERIMENTS

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*Accessibility, visually impaired people, visual contrast, luminance, experimental setup, threshold, experiment, urban furnishing, tactile warning surface indicator (TWSI)*

Handicap has become a large concern in developed country's policies.

New laws and regulations have been prepared in order to facilitate the moving of handicapped people, their use of public facilities. indoor as well as outdoor. For example, the size of the pathway have to be over a specific wideness. the slopes should be not too steep. and so on.

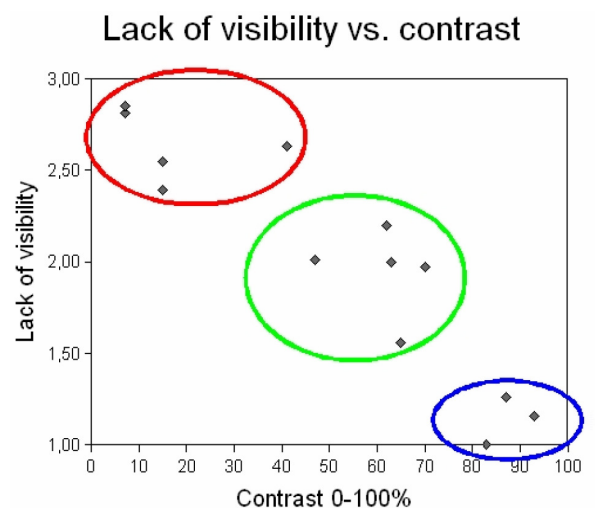
As far as visually impaired people are concerned, two aspects have been mainly considered: tactile indicators and visual contrast.

The information given by tactile devices have been regulated quite easily for warning indicators. Specifications on geometrical dots or line can be easily described.

However, the concern of visual warnings has been a large and difficult part to lead to the proposal of norms and regulation. Why? Because visual contrast has been a notion attached to many parameters (there are many contrasts formulae), with a lack of work in terms of threshold, and the absence of any experimental setup described for the evaluation of it.

The CERTU, head of the scientific and technical network of the French Government, has been asked by the French Ministry of Sustainable Development to work on visual contrast to established a reference that could be used for national regulations and proposed to the European (norms) and International (standards) levels. The paper presents the work that has been performed during the last two years and the current proposal. The aim is to present these findings at the CIE, so that it can be discussed and eventually included in the CIE guidelines that is under construction, as discussed in the last CIE Division 4 meeting.

The paper justifies the formulae, which has been taken for the definition of visual contrast. Then. it

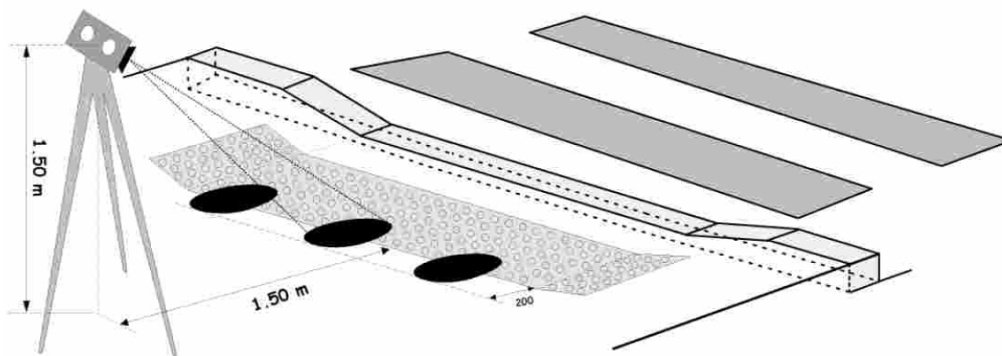


develops the experiments performed, leading to the establishment of thresholds.

The paper finally presents the experimental setup to perform *in situ* measurements on existing materials. Part of this work is based on a campaign of more than 500 measurements, performed by both the Certu and the Laboratory of the Street Equipments (LER) of the City of Paris. Two types of measurements are described: one with a small aperture luminance meter and the other one with calibrated CCD devices.

The tolerance integrates the type of the instrument and the weather conditions.

The conclusion indicates that it is possible with all kinds of pavements (concrete, asphalt, stone, synthetic surfaces, etc.) to find a tactile surface reaching the contrast requirements, which are originally defined upon visual performances regardless of the technical feasibility.



In France, these results have already been totally considered in two national norms: one on the technical requirements of TWSI, and the other one on the method of measuring the visual contrast for TWSI. The thresholds have also been considered in a regulation requiring visual contrast of the urban furnishing in general.