



## A Comparative Study among Shade Matching Systems

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### Abstract

**Objectives:** There is a little information from the literature about validity and accuracy of electronic shade matching. The aim of this comparative study was to assess the accuracy and repeatability of three shade matching methods and to examine the effect of three factors on the accuracy of the evaluation; the sex, the tooth position and the third of the tooth to be evaluated.

**Methods:** Three shade matching methods were used to match one hundred volunteer teeth shade under simulated clinical conditions using Classical shade guide: conventional visual shade matching (VM-Visual Method), photographic shade analysis system (PA- Photographic Analysis) and electronic shade matching (EM-Electronic Method). Shade matching for all methods was completed at two separate sessions for each evaluator at (day 0) and (day 3) as intra calibration factor. Two evaluators blinded to the parameters was executed the procedure to exclude the inter calibration factor. Three variables data were collected, studied and processed which were the sex of the volunteer, the position of the tooth examined whether anterior or posterior and the exact third of the tooth to be examined whether cervical, middle or occlusal. Pearson Correlation statistic was used to determine the intra-rater and inter-rater agreement.

**Results:** Intra-rater calibration revealed agreement; there was strong agreement between the visual and EasyShade methods while there was weak agreement between the visual and the digital photo and between the digital photo and EasyShade methods

**Conclusion:** Analysis based on signal detection theory provided an effective way of controlling for a subject's bias in reporting color differences. No significant difference between visual and EasyShade methods