

# Comprehensibility of graphical symbols for clarifying security features

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## **Abstract**

Commissioned by the European Central Bank, De Nederlandsche Bank has been investigating the application of graphical symbols on banknotes to inform users on how to verify the various security features. There are eight types of security feature (e.g. watermark and hologram) and four categories of verifying action (e.g. 'look' and 'feel'). Two tests were conducted in which the comprehensibility of candidate symbols was investigated. In the first test promising symbols were selected from among 28 existing or newly designed symbols. The method of ISO's comprehensibility judgement test was followed, in which the task of participants is to estimate the percentage of the user population that they expect to understand a symbol's meaning correctly. Based on the results of this test a coherent set of symbols was chosen, not depicting the security features but the verifying actions. In a second test three of these symbols, indicating 'look', 'feel' and 'tilt', were tested using a variant of ISO's comprehension test. Participants were given a simulated banknote with symbols added and were asked to perform the verifying actions indicated by the symbols. The results showed that the comprehensibility of the 'look' and 'feel' symbols was sufficient (72% and 70% correct responses) but that the 'tilt' symbol (51% correct responses) needed redesign.

## **Introduction**

Banknotes contain various security features to make counterfeiting difficult and enable users to check whether a note is genuine. The general public's knowledge about these security features is limited, however. Research in the Netherlands (de Heij, 2002) showed that people could only name less than two features on average, even after information campaigns.

At the central bank of the Netherlands (De Nederlandsche Bank, DNB) the idea arose to use graphical symbols to familiarize the users of the new Euro banknotes with the security features applied in the notes (de Heij, 2002). These symbols could then be used in information campaigns and could also be printed on banknotes to indicate the location of the security features as well as how to verify them. In general, there are two reasons for applying graphical symbols: they require less space

In D. de Waard, K.A. Brookhuis, and A. Toffetti (Eds.) (2006), *Developments in Human Factors in Transportation, Design, and Evaluation* (pp. 333 - 344). Maastricht, the Netherlands: Shaker Publishing.