

SV Univ.-Prof. Dipl.-Ing. Dr. Ernst Pfleger
Reichsapfelgasse 20 / 4 1150 Wien

University Professor for traffic security & accident prevention
Court certified expert witness for accident reporting & simulation
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To:

TEKAEF mediagroup GmbH
Eberschwangerstrasse 63b
4910 Ried im Innkreis

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1 TASK

Utilising the video eye tracking *viewpointssystem*® with a physiological basis connected to the eye, the attention parameters which result from the use of escalator handrails covered with the ad-roller® advertising film is quantitatively assessed.

2 RESULTS

A comprehensive set of video recordings was taken at three separate test sites using the analysis capabilities of the TÜV-certified *viewpointssystem*®. The attention behaviour of eleven test persons was monitored in three age ranges: under 20; 20-30 (business people); and over 60. They were not given prior knowledge about the real purpose of the investigations but were given prescribed tasks to perform at the locations, two of which contained ad-roller® advertising foil. The third site without foil acted as a reference case to compare their attention distribution.

The attention history of the test persons was recorded during the following activities:

• Approaching the escalator

- with moving/static visual obstructions (people, bollards, etc)
- without visual obstructions (direct approach)

• Close Approach

- to ascending escalators
- to descending escalators

Detailed analysis was carried out regarding the gaze and orientation during the close and distant approach considering the direct access of the escalator

3 Expert Report

The *viewpointssystem*® is the latest state-of-the-art method of measuring the gaze of persons, especially the measurement of their visual perception.

Although the *viewpointssystem*® first measures only the position and duration of the gaze, it can also make judgements from the gaze videos about the perception quality.

The gaze behaviour of persons is analysed by the *viewpoint*-High-Tech-Programme 25 times per second

The scientific gaze behaviour analysis clarifies exactly all of the different types of gazing including; information definition and defects; unnecessary viewing; and information overload (since complex situations are the main reason for accidents)

Excluded are:

- The focus distance
- Change of the focus distance
- The measurement and assessment of complexity (high demands) and information density (amount of information per unit of time)

The results of the gaze analysis at escalators without and with advertising foil are presented and compared hereafter:

Escalators without advertising foil:

- Wide-ranging gaze behaviour during approach
- No perception concerning the black handrails (belts)
- Direct and continuous gaze attention fixed on the escalator steps
- Greatly reduced perception regarding the movement condition of the escalator
- Before entry, the gaze is concentrated on the first steps
- During the journey the gaze is far away and looking around

Escalators with ad-roller® advertising foil:

- Recognition and orientation with respect to the escalator from a greater distance
- A more integrated perception of the escalator
- A good perception of the speed of the escalator through the hand rail movement
- In the case of visual obstructions during approach, additional orientation assistance, above all via the handrail (belts)
- The use of the travel time for a controlled gaze behaviour at the advertising content without influencing the safety (for standing travellers)
- Direct attention at the entry advertising surface before accessing the escalator (compared to escalators without ad-roller®)

Expert Recommendation regarding advertising

- Use pictures and logos with large letters rather than words
- Refrain from using long texts
- Use logos and pictures in the direction of the travel

4 Summary

From the gaze analysis and scientific findings it is possible to make the following assessments regarding the technical safety of escalators with ad-roller®:

- From a great distance it is possible to recognise the escalator, its direction of travel and movement pattern. In particular, a more integrated perception is assured
- The extent and range of vision is enhanced, especially in the event of visual obstructions
- There are no safety prejudicial conditions or disadvantages arising from the attention priority change at the point of entry

For escalators with usual black handrails, people exhibit a strong visual habit of looking at the moving steps which results in a reduced perception of contrast