Redefining ITU-T P.912 Recommendation Requirements for Subjects of Quality Assessments in Recognition Tasks

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Introduction

- Problems of quality measurements for task-based video partially addressed in Recommendation ITU-T P.912
 - Title: "Subjective Video Quality Assessment Methods for Recognition Tasks"
 - Published: 2008
 - Introducing:
 - Basic definitions
 - Methods of testing
 - Psycho-physical experiments
- Section 7.3 ("Subjects"): "Subjects who are experts in the application field of the target recognition video should be used."
- Nevertheless, to best authors' knowledge, expert viewer issue not well verified in specific academic research
- Consequently, we compared groups of subjects assessing video quality for task-based video

Source Video Sequences Recognition Test-Plans

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Four Categories of Lighting Condition Scenarios

- Outdoor, daytime light
- Indoor, bright with flashing lights
- Indoor, dim with flashing lights
- Indoor, dark with flashing lights

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Three Different Distances Used for Clips Creating

- 5.2 meters for indoor scenarios
- I0.9 meters for outdoor scenarios, objects close
- 14.6 meters for outdoor scenarios, objects far

Source Video Sequences Recognition Test-Plans

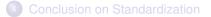
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Viewing Conditions of Room Where Test Took Place Following ITU-R BT.500-12 and ITU-T P.910

- Ratio of luminance of inactive screen to peak luminance: ≤ 0.02
- Ratio of the luminance of the screen, when displaying only black level in a completely dark room, to that corresponding to peak white: ≈ 0.01
- Maximum observation angle relative to the normal (this number applies to CRT displays, whereas the appropriate numbers for other displays are under study): 30°
- Ratio of luminance of background behind picture monitor to peak luminance of picture: ≈ 0.15
- Other room illumination: low

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Arranged Viewing Conditions

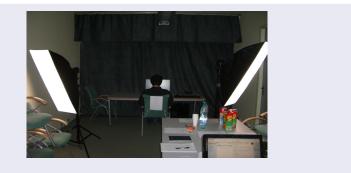


Figure: Test environment

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Example of User Interface



Figure: User interface for subjective target recognition task test performed

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NTIA Test-Plan

Joel, some your slide here!

Mikołaj I. Leszczuk, Joel Dumke, Lucjan Janowski, Artur Koń Redefining ITU-T P.912 Recommendation Requirements for Subjects ...

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Source Video Sequences Recognition Test-Plans

AGH Test-Plan

- Subjects having no experience in image recognition
- All subjects volunteers and weren't paid for their job
- None of them with experience in public safety area
- Almost all subjects 20-25 years old
- One of them with color vision problems did no worse than other viewers so his results included

Introduction to Results

- 15540 answers were totally given in each experiment
- Artur, some more slide text here!

Conclusion on Standardization

- Comparison developed for task-based video
- Specifications amendments for ITU-T P.912 Recommendation developed
- Consequently first sentence of Section 7.3 ("Subjects") of ITU-T P.912 to get rephrased into: "Subjects who are motivated should be used."
- Assisting researchers of task-based video quality to identify subjects that will allow them to successfully perform psychophysical experiment required

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