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SERIES P: TERMINALS AND SUBJECTIVE AND OBJECTIVE ASSESSMENT METHODS

Methods for objective and subjective assessment of
quality of services other than voice services

Subjective testing methodology for web browsing

Recommendation ITU-T P.1501

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Recommendation ITU-T P.1501

Subjective testing methodology for web browsing

Summary

Recommendation ITU-T P.1501 describes subjective testing methods for assessing the user perceived quality for web browsing in browser-based applications of different device classes. It gives guidance on the selection of a test environment, equipment and content, and how test procedures should be properly planned in order to facilitate realistic web browsing behaviour by the subjects. The methods described can be used to identify the impact of several different factors that influence the user perceived quality of web browsing, e.g., identifying the influence of the browsing device on user perceived quality for identical technical access network settings.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
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Absolute Category Rating, Mean Opinion Score, page view cycle, web browsing, web-QoE.

* To access the Recommendation, type the URL <http://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID. For example, <http://handle.itu.int/11.1002/1000/11830-en>.

FOREWORD

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In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

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Recommendation ITU-T P.1501

Subjective testing methodology for web browsing

1 Scope

This Recommendation describes the methods and procedures used for subjective testing of user perceived quality of web browsing. The method generally applies to degradations and characteristics that can be introduced at the network level (e.g., round-trip time, downlink and uplink bandwidth, packet losses), as well at the application level (e.g., page load-times). Combinations of two or more of these factors also have to be considered. Impacting factors due to webpage design are not in the scope of this Recommendation.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- [ITU-T P.800] Recommendation ITU-T P.800 (1996), *Methods for subjective determination of transmission quality*.
- [ITU-T P.800.1] Recommendation ITU-T P.800.1 (2006), *Mean Opinion Scores (MOS) terminology*.
- [ITU-T P.910] Recommendation ITU-T P.910 (2008), *Subjective video quality assessment methods for multimedia applications*.
- [ITU-T Y.1540] Recommendation ITU-T Y.1540 (2011), *Internet protocol data communication service – IP packet transfer and availability performance parameters*.
- [ITU-T Y.1541] Recommendation ITU-T Y.1541 (2011), *Network performance objectives for IP-based services*.
- [ITU-R BT.500] Recommendation ITU-R BT.500 (2012), *Methodology for the subjective assessment of the quality of television pictures*.
- [ITU-T HSTP] ITU- T Handbook (2011), *Practical procedures for subjective testing*, ITU, Geneva.

3 Definitions

3.1 Terms defined elsewhere

None.

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

3.2.1 condition: Time period in which a defined quality of service (QoS) setting is applied for a certain webpage. A condition is concluded by retrospective user ratings on one or multiple dimensions of quality.

3.2.2 element: Visual content of a webpage, which is displayed to the user on the rendered webpage, e.g., text, pictures, widgets, videos.

3.2.3 object: HTTP object, which is used for processing and rendering the webpage and is referenced by the page mark-up or script. These objects are not necessarily visible on the fully rendered page (e.g., elements).

3.2.4 task: A set of instructions given to the user on how to reach certain information within a test condition.

3.2.5 web browsing session: An interactive information exchange between a user and one or more websites over a limited period of time, mediated via a web browsing application. The starting point of a session is the first page request initiated by the user, which is followed by a number of request-response interactions between the user and the webhost(s), resulting in a series of page views. See [b-Egger-2]. A web session is typically terminated when the user exits the browsing application or stops the browsing activity for a certain period of time.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

DLBW	Downlink Bandwidth
MOS	Mean Opinion Score
RTT	Round Trip Time
ULBW	Uplink Bandwidth
WBS	Web Browsing Session

5 Conventions

The methodology discussed in this Recommendation is tailored for web browsing only. Browser-based applications, such as online office applications, webmail, etc., might be evaluated by the same means, but they have to consider different scenarios depending on the defined tasks during subjective evaluation and the technical implementation of the services.

The focus of this Recommendation is the evaluation method of the complete web browsing session (WBS) to achieve and maintain a flow experience of web browsing for better external validation of the test results. However, this methodology's test set-up with respect to test facilities, test conditions, subject selections and test devices is also applicable to the subjective evaluation of single web page loading times.

6 Web browsing test procedure

6.1 Purpose

Subjective quality tests for web browsing aim to assess the impact of transmission impairments on the user-perceived quality of a web browsing session (WBS) under realistic usage conditions.