This document contains all information currently thought to be missing from the three draft 3D Recommendations. July 2015.

# 3D-disp-req

See “VQEG\_3DTV\_2015\_100\_3D-disp-req\_td641”

1. From clause 1 “scope”: [Editor’s note: Insert later in the document: Interactive 3D touchscreens are a problem.]
2. From clause 1.1 “limitations”: [Editor’s note: review this statement] This Recommendation contains insufficient information on overall illumination and display brightness levels for: Mobile devices (e.g., laptops, tablets, phones)
3. From clause 7.1 “Impact of Overall Illumination on Visual Comfort Zone ,“ calculate a number of diopters
4. Definition of “visual comfort zone”

# 3D-fatigue

See “VQEG\_3DTV\_2015\_101\_3D-fatigue\_td642”

1. Within definition of “depth resolution”: [Editor’s note: move next sentence to the appropriate section later in the paper.] Coarse resolution in depth direction may reduce picture quality in 3D television.
2. Clause 6.3, “Comfortable viewing zone,” [Editor’s note: the following clause needs to be written.] The odd thing is that a paragraph follows. Someone needs to review this paragraph for missing information.
3. Clause 8.2, “Disparity constraints” [Editor’s note: this section needs to be improved, notably with diagram showing relationship between content disparity and display disparity.]
4. Clause 8.3, “view asymetries”[Editor’s note: this section needs information about calibration errors between views. Reference table 1 of 3D-sam. This table lists the visibility thresholds. Research is required to determine discomfort thresholds, but the technical factors are identical.] and later in that clause: [Editor’s note: read the following paragraph. See what if anything should be moved to clause 6.1 on accommodation-vergence; delete the rest.]
5. Clause 8.4, “scene cuts”, [Editor’s note: read for needed changes.]
6. Clause 8.5, “excessive parallax” [Editor’s note: the following base text needs to be re-written.]
7. Clause 9.3, “symptoms of 3D visual fatigue” [Editor’s note: this text needs to be examined for changes.]
8. Clause 10, “3D Viewing Environment and Playback Guidelines,” [Editor’s note: Carefully review this section (e.g., the relationship between accommodation, screen size, etc.; constraints),]
9. Clause 11.1, “Questionnaire to assess symptoms of visual fatigue”, [Editor’s note: insert questionnaire, biographical reference, etc.]
10. Clause 11.2, “Pair comparison (PC) subjective test to visual discomfort,” [Editor’s note: describe method, insert biographical reference to paper, etc.]

# 3D-Sam

See “VQEG\_3DTV\_2015\_102\_3D-sam\_td643”

Of these, #4, #7, #23 and Annex B are critical.

1. From summary: [Editor’s note: issues to consider: Limits on disparity for viewing distance, formulae; Resolution & impact on viewing distance, depends on 3D technology; Viewing distance has too few details; Relationship between method & question to be answered; Number of observers: not sure, indicate this. Or may need more subjects; Insert other methods as appropriate, proven by tests-dscqs]
2. From introduction: [Editor’s note: this section needs to be reviewed due to changes elsewhere in the document]
3. From clause 1 “scope”: “These experiments can answer different questions, such as [Editor’s note: Review these terms after agreeing to definitions of terms.] video quality, depth quality, naturalness, visual discomfort, quality of experience, viewing experience, and presence.“
4. From clause 3: choose and carefully define terms
5. Clause 6, “selection of 3D source content” [Editor’s note: search for and look for needed edits]
6. Clause 6.4, “Optional Subjective Methods for 3D Reference Scene Selection: Visual Experience and Visual Comfort requirements” [Editor’s note: Further studies required on threshold values. 6.4 Discrepancies between left and right images]
7. Clause 7 “perceptual scales” is empty [Editor’s note: list appropriate perceptual scales (such as depth quality)]
8. Clause 8, “test method and experimental design” [Editor’s note: search for references showing that the methods have been used for validated assessment in 3D] and [Editor’s note: remove information that goes in prior section] and [Editor’s note: for each technique, note sorts of questions this method can be used to answer]
9. Clause 8.1, “single and multiple answer experiments” [Editor’s note: describe that it is okay to ask multiple questions simultaneously] and [Editor’s note: draft text outlining advantages and disadvantages]
10. Clause 8.2.1, “ACR”, [b-…] [Editor’s note: insert bibliographical references] demonstrated that ACR is suitable for evaluating coding and spatial degradations.
11. Clause 8.2.3.2, “2AFC-PC” [b-…] [Editor’s note: insert bibliographical references (Jing to find references)] demonstrated that 2AFC-PC is suitable for measuring visual discomfort and quality of experience. [b-…] [Editor’s note: insert bibliographical references (Pierre to find references)] demonstrated that 2AFC-PC is suitable for measuring quality of experience in the presence of depth degredations.
12. Clauses 8.2.4 “DSCQS” and 8.2.5 “UPM method (name to be fixed) are empty.
13. Clause 8.3, “changes to the method” [Editor’s note: needs to be checked in context of 3D & references inserted]
14. Clause 9, “environment,” [Editor’s note: needs to be adjusted to reflect changes in J.3D-disp-req and J.3D-fatigue] and [Editor’s note: grey screen or screen with 3D pattern between presentations? Or both?]
15. Clause 9.3, “viewing distance and angle,” [Editor’s note: This section needs further studies.]
16. Clause 9.5, “color temperature of 3D displays” [Editor’s note: This section needs further studies.]
17. Clause 10, “subjects” [Editor’s note: number unknown / guess currently; need research] The number of subjects used in the experiment is extremely important. [Editor’s note: These are the results from NTT. Please check their contribution to VQEG: VQEG\_3DTV\_2011\_037\_Performance Evaluation of 3D Assessment Methods(NTT).doc]
18. Clause 11, “experiment design” [Editor’s note: review & look for needed changes, like 11.3 constraints that no longer apply]
19. Clause 12, “experiment implementation,” [Editor’s note: review & look for needed changes, especially ]
20. Clause 12.2.1, “vision testing,” [Editor’s note: above description may need more information about the 3D acuity test.]
21. Clause 12.5, “questionnaire or interview,” [Editor’s note: look for suitable reference with more information] and [Editor’s note: insert reference to questionnaire in Annex C]
22. Clause 13, “data analysis,” [Editor’s note: review for required changes]
23. Clause 13.3, “2AFC-PC” [Editor’s note: insert data analysis techniques for 2AFC-PC]. Section is empty.
24. Clause 13.4, “aggregation of scale data” [Editor’s note: insert data analysis techniques].
25. Annex B, “Pair selection for 2AFC-PC” is empty
26. Annex C, supply a 3D questionnaire or delete
27. Appendix II, alternate informed consent form from France
28. Appendix III, review instructions for changes related to 3D