

1	2	(3)	4	5	(6)	(7)
MB ¹ / # (e.g. GB/1)	Clause No./ Subclause No./ Annex (e.g.3, 3.1, Annex A, A.1)	Paragraph/ Figure/Table/ Note (e.g. Table 1)	Type of comment ²	Comment (justification for change) by the MB	Proposed change by the MB	Proposed Editors Disposition
US 1	3		ed	Please add number No need for uppercase	Please add number and lower case 3.1 comparison score 3.2 face quality assessment algorithm 3.3 face image	Accept
GB1	4	Table	ed	Table has lost is indentation and formatting.	Correct formatting.	Accept in principle Do you refer to section 4?
DE 1	4		Ed	A line break is missing between the abbreviations GCF and FQAA.		Accept
DE 2	5	1 st paragraph	Ed	Typo “it mage” should be “image” in the sentence “The performance of an automated face recognition system is affected by the amount of defect or the degree of imperfection present in the face it mage.”		Accept
US 2	5	1 st para – line 4	ed	typo	replace face it mage To face image	Accept, see DE 2
GB2	5	First para, second sentence	ed	Sentence ends - face it mage.	Should read face image.	Accept, See DE 2
US 2	5	last sentence last para	ed/te	reword	replace This final quality score must be predictive with respect to the performance of an automatic facial image recognition system. with The final quality score must predict performance	Accept

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					metrics such as either false match or false non-match of an automatic facial image recognition system.	
CN 1	Section 6	Table 1, Row 2, Col 2	Ed	- anatomical characteristics (e.g. head dimensions, eye position)	Change “position” to “positions”	Accept
CN 2	Section 6	Table 1, Row 2, Col 3	Te/Ed	- physical properties (e.g. resolution and contrast) - camera characteristics ■ sensor resolution Two “resolution” s there. The meaning of the first is ambiguous. It should mean that of the image, but it may also refer to the “sensor resolution” which is explicitly presented in the text. The first “resolution” could be expanded to “Image resolution” to clarify its real meaning.	Add word “image” before “resolution” so that it becomes: “physical properties (e.g. image resolution and contrast)”	Accept
CN 3	Section 6	Table 1, Row 3, Col 3	Te/Ed	Sensor’s dynamic characteristics also affect image acquisition quality	Add: “- Acquisition process and capture device properties, such as ○ camera characteristics ○ dynamic range (response to weak and strong lighting)”	Accept
GB3	6	Final Para	ed	Wrong word: ‘...the effects on printing on the ...’	Change to ‘...the effects of printing on the...’	Accept
CN 4	Section 7	7.1.2, line 6	Ed	“non-symmetry”	Change to “asymmetry”	Accept

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GB4	7.1.2	First sentence	ed	Sentence is unclear	Reword – ‘The following approaches are based on the assumption that the images being analyzed are 2D portrait style images such as those...’	Accept
CN 5	Section 7	7.1.2, line 8	Ed/Te	“or any other local filter”. It should be a suitable local filter though we are unable to give a counter-example.	It’s safer to say “or another suitable local filter”	Accept
US 4	7.1.2	2 nd line	ed	typo	replace IISo with ISO	Accept
MY	Page 5 Subclause 7.1.2		te	7.1.2 Face Image Symmetry Analysis Not all faces can be assumed to possess this symmetric property. For non uniform illumination, what can be suggested is to measure the intensity of the pixels (using histogram for example) between the left and right border of the cropped face image as shown in the diagram. In this manner no symmetry assumption is needed.	It is not necessary to check for Face Image Symmetry Analysis since not all face are symmetrical.	In 7.1.2 symmetry is not a necessary assumption. The idea is to divide the face into two halves using the mid-line of the eyes. This can be the symmetry axis but it must not be. Now differences of the statistics of these two regions are checked. Non symmetric faces would of course influence the outcome. Suggestion: a) Change “object” to “face” in the last section of 7.1.2: “Furthermore, face asymmetry will also influence the result of this analysis. “

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						<p>b) Change the title to:</p> <p>“Analysis based on statistical differences of the left and right half of the face”</p> <p>Replace the second last sentence of section 7.1.2 starting “Ideally....” with</p> <p>“Although the majority of faces seem to be left –right symmetric some faces could have significant deviation, e.g. caused by marks, discoloration etc. that would affect symmetry based quality analysis metrics.”</p>
CN 6	Section 7	7.1.2 & 7.1.3	Ed	7.1.3 “Pose Symmetry should be part of 7.1.2 “Face Image Symmetry Analysis”	Merge 7.1.2 & 7.1.3 and then subsection it into two parts: 7.1.2.1 Lighting Symmetry and 7.1.2.2 Pose Symmetry.	Accept
CN 7	Section 7	7.1.2	Ed	“Note, that from the outcome of the described method one can not distinguish between asymmetry of the object and/or asymmetry of the illumination and/or pose. On the other hand left-right symmetry can be used to evaluate quality of lighting and pose, to the extent that the image symmetry mismatch is	Move this para to after the end of the “Pose Symmetry” subsection.	Accept

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				due to these conditions.”		
US 5	7.1.3	last sentence	ed	typo	delete “to the end of the last paragraph in 7.2.3 Also, please center caption of figure 2	Accept
CN 8	Section 7	7.2.2 The first item of the list	Ed	“CCD-sensor ...” a sensor can be of CMOS type	Replace by “image sensor”	Accept
CN 9	Section 7	7.2.2.1 Title	Ed	subection tile “CCD Acquisition Noise	Change to “Image Sensor Noise”	Accept
GB5	7.3.1	2 nd para, 2 nd sentence	ed	Wording – ‘Some of those information like exposure time is...’	Reword – ‘ Some of this information (e.g.exposure time) is...’	Accept
CN 10	Section 7	7.3.8	Ed	This section is about “lighting symmetry”	Move it into 7.1.2	Accept
GB6	7.3.8	Lighting Symmetry	te	Can this approach differentiate between the effects of lighting and pose? If it can, then this should be pointed out as a benefit of this approach. If not then this should be pointed out in the same way as is already done in 7.1.2 – final para.	Add explanation re use of this method to differentiate between effects of pose and lighting.	Accept. Add: “Note that this method only works for frontal or almost frontal images. On the other hand, if we assume that asymmetry of the object is small in comparison to the other factors we can use this to evaluate quality of

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						lighting, to the extent that the image symmetry mismatch is due to these conditions” at the end of 7.3.8.
GB7	7.3.9	2 nd para	te	Colour information may not affect current automated FR performance but this may not be true in the future	Suggest adding the word ‘current’ somewhere in the first sentence. Also suggest that colour depth be explained a little as this effects face / eye acquisition accuracies.	Accept Accept, add at the end of 7.3.9: “Furthermore, colour depth, i.e the number of bits used to represent the colour of a single pixel in a bitmapped image or video frame buffer, can influence face and/or eyefinding. Therefore, typically 8 bits per pixel for a grey-scale image and 24-bits per pixel for a colour image should be used to prevent such issues.”
CN 11	Section 7	7.3 Dynamic	Te	Many of these are not “dynamic” characteristics.	Change the title to 7.3 Characteristics of Image Acquisition	Accept

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		characteristics of the acquisition process				
CN 12	Section 7	7.3 Dynamic characteristics of the acquisition process	Te	Interlacing is a problem in dynamics with moving subjects.	New content may be added.	Noted Please provide a technical contribution. No change to the document will be done
CN 13	Bibliography			Add reference and cite in 7.1.2	[N] Xiufeng Gao, Stan Z. Li, Rong Liu, Peiren Zhang. "Standardization of Face Image Sample Quality". In Proceedings of IAPR/IEEE International Conference on Biometrics (ICB-2007), pp 242-251. Seoul, Korea , August 2007.	Accept, Reference will be added at the end of the sentence "Left-right symmetry can be used".

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