

NIST comments INCITS 381-2004. These comments are submitted in response to call for comments for a revision posted as M1/06-0955. Contact patrick.grother AT nist.gov

Date: 2006-12-12	Standard: INCITS 381 Approved comment resolution: M1/06-1080
Proposed change by the NB	Proposed Disposition

NB¹ (sub)clause/ Annex Para/Fig/Tab Type Comment (justification for change) by the NB

1.	1		Te	The first sentence states that this data record interchange format used for finger and palm image information must be contained within a CBEFF data structure.	A CBEFF data structure, although allowed is no longer required for containing this image data format.	Remove reference to requirement.
2.	3		ed	Not sure why BioAPI should be a normative reference.	Delete ref here.	Accept. Move to Annex C Bibliography
3.	3		ed	CBEFF is now an INCITS standard, and an ISO standard.	Consult with M1.2 on which of the following to use: ISO/IEC 19785-1:2006 - Common Biometric Exchange Formats Framework - Part 1: Data element specification or INCITS 398 - Common Biometric Exchange Formats Framework	Accept: INCITS 398 undated
4.	3		ed	PNG is an ISO standard	Add ISO/IEC 15948:2004 Information technology - Computer graphics and image processing - Portable Network Graphics (PNG): Functional specification	Accept
5.	6	2 nd para And Table 1	Te / ed	2 nd paragraph says "Table 1 list the minimum requirements for the selected image acquisition parameters ..." That is the case for pixel depth of all acquisition levels and scan resolutions for acquisition levels 10,20,30, and 40. But for levels 31 and 41 scan resolutions shall be equal to 500 ppi and 1000 ppi respectively.	In Table 1, column 4 replace "Pixel depth (bits)" With "Minimum pixel depth (bits)" In Table 1, column 2 and 3 insert operator "≥" before its valid values for acquisition levels 10,20,30, and 40. (e.g ≥49) In Table 1, column 2 and 3 insert operator "=" before its valid values for acquisition levels 31 and 41. (e.g =500)	Accept
6.	6.3		te	Don't know how to pack. Can pack 3 bits per pixel into bytes in at least two ways: aaabbb-- ccdddd-- eeffff-- and aaabbbcc cdddeeff ff	Research this.	Accept - Recommend using approach to sequentially pack all bits. aaabbbcc cdddeeff ffgg00 Bits packed into byte stream such that remaining bits not used for pixel encoding padded with zero in the least significant bits. The only byte with padding shall be the final

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						byte of the image.
7.	6.3		te	Incorrect value of $2^{16} - 1$	Replace 65635 With 65535	Accept.
8.	6.6		ed	Current text implies only that the image resolution may be different from scan resolution. It does not preclude interpolation (scan 384 dpi to image 500 dpi, for example). Table 2, however, bans interpolation.	Text should be consistent with the table. Change the last sentence to: "This value shall be less than or equal to the scan resolution."	Accept.
9.	7	para 1	te	You say one or more views. Why not zero. Suppose a sensor fails to acquire an image of a subject, but wants to write an empty record anyway. INCITS 378 allows zero minutiae.	Replace "for each of one or more" With "for each of zero of more" Also, update/correct Table 4 Line 3 accordingly.	Noted. Is the use of '0' in the views an indication of failure to acquire any images from any finger? Does this conflict with view number "0"? See Nist 27
10.	7	Para 2	te	"The biometric data record specified in this standard shall be embedded in a CBEFF-compliant...."	Change the "shall" requirement to "may". "The biometric data record specified in this standard may be embedded in a CBEFF-compliant...."	Accept
11.	7.1.2	Para 2	te	The version number shall be "010"	Change to: The version number shall be "020" or "011"	Accept "020" Major changes require a version update
12.	7			the first 20 or so lines of text in clause 7 is a "hanging paragraph" banned by every last standards body under the sun. The text should have a subclause title so that a. Reviewers can comment on it specifically (not the whole clause 7) b. Profiles can be written around smallish bits of text unambiguously. Also split the text into sections on "single subject" (that's paragraph 1) and "CBEFF doo daa" (that's para 2+3) and "Organization of record") (from para 4 onwards)	Insert three news subclause titles right below "7 Finger image record format" as follows 7.1 Single-subject records 7.2 CBEFF format owner and type codes 7.3 Record structure	Accept

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13.	6		ed	ditto	insert at least one new subclause with number 6.1 Overview 6.2 Acquisition levels	Accept and use three levels to describe each of the acquisition level parameters.
14.	7.x.y		ed	third level paragraphs are indented by 1/16 of an inch of so.	Set indent to zero.	Accept providing it is not part of template.
15.	7.1		ed	the text "Table 2 lists the" is a hanging para	insert subclause title 7.1.1 Record structure (or some such)	Accept.
16.	7.1.3		ed	Six bytes is a problem to parse in many people's source code. And six bytes allows for colossal sizes.	Make it 4 bytes instead.	Accept.
17.	7.1.3		ed	include text saying how many bytes this field is (all the other 7.1.x clauses do so).	Insert "this six-byte field" ... (see next comment)	Accept.
18.	7.1.3		te major	Current text on the total record length doesn't include the 7.2 finger record header! The text uses the word "includes" which doesn't exclude the header.	Clarify by replacing The combined length in bytes for the entire record that includes the lengths of all finger records and the views for each finger, multiple finger record, and palms shall be placed in this field. With something like this This six-byte (six ugh) field shall contain the value of the combined length in bytes for the entire record. This shall be the sum of the length of the general record header (subclause 7.1) and the lengths of all finger and palm record headers and image data (subclause 7.2).	Accept.
19.	7.1.5		te major	the current text indicates that the four highest bits "should remain unused" and then says so that they "will agree with" INCITS 378. But there's no normative requirement here to align with INCITS 378	Align this paragraph with INCITS 378-2004.	Accept.
20.	7.1.5		ed	Annex C is the bibliography, not minutiae stuff	Fix it.	Noted. Remove 'see Annex C' which contains the reference to the Minutiae format standard.
21.	7.1.7		ed	The last sentence "The number of views ..." is cryptic. The first sentence says the "number ... images" and then covers	Reword entire Replace	Include total number of views and total number of fingers. Prepare a contribution for

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				by saying images of the same finger are counted as a single finger. Hmm...	The number of finger or palm images included in the record shall be recorded in one byte. Multiple fingers acquired by a single capture and contained in the same image are counted as a single finger image. The number of views are not part of the count for this field. With This one-byte field shall contain the total number of images in the record. This is the sum of the number of views of palms, single-finger impressions, and multi-finger impressions. EXAMPLE A INCITS 381 record is generated with 3 images of the left index finger, two images of the right index finger, and one image of the left palm. The value of this field shall be $3 + 2 + 1 = 6$.	SC37. Additionally harmonize with minutiae standard.
22.	7.1.15		te	"Four bytes are..." Does not agree with entry in Table 2	Change to: "Two bytes are..."	Accept.
23.	7.2			Hanging para.	Insert subclause title 7.2.1 "Overview" or somesuch	See NIST 15
24.	7.2.1		ed	"segment" is a new word	Replace "segment" With "record".	Accept.
25.	7.2.3		ed	The current text says: "This one byte field shall contain the total number of specific views available for this finger." This total is present in all finger view records		Noted.
26.	7.2.3	Table 4	te	Are the number of views limited to 16?	Determine if 16 is the maximum number of views per finger.	Yes.
27.	7.2.4		te	Do view numbers start from 0 and increase by 1 for each finger position? This issue needs clarification.	Insert text to require starting at 0 and counting to N-1, where N is the value in 7.2.3. Also update/correct Table 4 Line 4. Give an example: EXAMPLE. An INCITS 381 record contains three images of a left index finger, and two images of a right index. The view number would be 0, 1, 2 (for the left) and 0, 1 (for the right).	Partially accept. 1-N
28.	7.2.4		te major	if a INCITS 381 record contains three left index and two right index finger images then what order are the finger records in:	Needs at least a statement that order is unregulated. Most recent first is probably a good suggestion.	Accept. The order of the fingers and views is "unspecified"

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				L0 L1 L2 R0 R1 or L0 R0 L1 R1 L2 or L2 L0 R1 L1 R0 (random) or R0 L0 R1 L1 L2		
29.	7.2.5	Table 4	ed	Quality value clamped at 254 seems wasteful.	Revisit the quality issue. Either align with INCITS 378-2007 Or accept the 5 byte version from the common headers and quality groups.	Accept. When the standard was developed '254' was used to reserve the field. Recommend the use of the common 5-byte version for quality expression.
30.	Table 4	Line 1	ed	The "Notes" column says "Includes header, and largest image data block" - there's only one image.	Delete "largest"	Accept.
31.	Table 4	Line 3 "count of..."	ed	off-by-one	Replace 1-256 With 1-255 (or 0-255, per previous NIST comment {27})	Accept 1-255
32.	Table 4	Line 4 "view ..."	ed	off-by-one	Replace 1-256 With 1-255 (or 0-255, per previous NIST comment-#22)	Accept 1-255
33.	Table 4	last line	ed	text says $< 43 \times 10^8$ but this is a rounded up version of $2^{32} - 1$. Also the value should be the max size a 32 bit integer provides minus the header size	Replace " $< 43 \times 10^8$ " With " $< 2^{32} - 14$ " (not "less than or equal" here)	Accept.
34.	7.2.9		ed	Missing clause to account for the 1-byte "Reserved" field.	Add a clause between the existing 7.2.8 and 7.2.9 clauses to account for the missing clause	Accept.
35.	Table 5	Lines 12-13	te	Max width is 83.8 mm (3.3 in) The ANSI/NIST standard uses 81.3 mm (3.2 in)	Should 281 be harmonized with the ANSI/NIST standard	Accept. Make maximum values indicate commonly used.
36.	Annex B	Table B.1	ed	table mixes hex and decimal values	Precede hex values with "0x"	Accept.
37.	Annex B		ed	NIST has authored code for handling INCITS 381 samples. NIST also has released some samples.	Insert new paragraph below the first one. NIST maintains software for the reading, writing and conformance checking of various BDBs, including INCITS 381. See: http://www.itl.nist.gov/iad/894.03/nigos/incits.html The software may be useful as a baseline or reference for other implementers of this standard. In addition NIST has released some fingerprint images in the INCITS 381 format. See:	Reject.

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					http://www.itl.nist.gov/iad/894.03/nigos/piv_sample_data.h tml	
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