May 15, 2008
NSTC Subcommittee on Biometrics and Identity Management
Standards and Conformity Assessment Working Group
Approved Disposition of Comments Template for Public Review of Registry (February 8, 2008 -March 10, 2008)

#	SOURCE	TYPE	PAGE	PARA	LINE	COMMENT	RATIONALE	APPROVED DISPOSITION A: ACCEPT R: REJECT M: MODIFY N: NOTED
1.	DoD	Edit	0			Recommend expanding all acronyms on first use.	Although there is a listing of acronyms, most acronyms found within the document are not expanded thus requiring the reader to constantly refer to the listing of acronyms.	R: Every update to the document will necessitate a check on first use. Table in section 5 is sufficient.
2.	DoD	Edit	0			Recommend having two spaces separate sentences, the paragraph marking with the title, and between a colon and the text following a colon	Format.	A: between sentences R: after colon R: title
3.	DoD	Edit	2	2	1	Recommend changing "USG wide" to read "USG-wide".	Consistency and grammar. The other instance in this document, which is correct, for the use of this term was "USG-wide."	A
4.	DoD	Edit	2	2	11	Recommend deleting the comma at the end of the first bullet.	Grammar.	R: The document will use ISO style which introduces the list with a colon, and delimits list items with semicolons.
5.	DoD	Edit	2	2	12	Recommend deleting the ", and" at the end of the second bullet.	Grammar.	R: See row 4.
6.	DoD	Edit	2	2	11	Recommend deleting the period at the end of the third bullet.	Grammar.	R: See row 4.
7.	DoD	Edit	3	2	21	Recommend deleting the comma at the end of the first bullet.	Grammar.	R: See row 4.
8.	DoD	Edit	3	2	22	Recommend deleting the comma at the end of the second bullet.	Grammar.	R: See row 4.
9.	DoD	Edit	3	2	23	Recommend deleting the comma at the end of the third bullet.	Grammar.	R: See row 4.
10.	DoD	Edit	3	2	25	Recommend deleting the ", and" at the end of the fifth bullet.	Grammar.	R: See row 4.
11.	DoD	Edit	3	2	26	Recommend deleting the period at the end of the third bullet.	Grammar.	R: See row 4.
12.	DoD	Edit	3	3	5	Recommend deleting the semi-colon at the end of the first bullet.	Grammar.	R: See row 4.
13.	DoD	Edit	3	3	10	Recommend deleting the semi-colon at the end of the second bullet.	Grammar.	R: See row 4.

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14.	DoD	Edit	3	3	13	Recommend deleting the period at the end of the third bullet.	Grammar.	R: See row 4.
15.	DoD	Edit	3	4	all	Recommend putting all terms and definitions in alphabetical order.	Ease of use. Entries not in any specific order.	R: terms are in logical order. There are few enough to not warrant alphabetic order
16.	DoD	Edit	3	4, base standard	3	Recommend deleting the extra spaces between the words "standardized" and "profile".	Format.	A
17.	DoD	Edit	3	4, biometric profile	1	Recommend changing the word "effect" to read "affect".	Grammar.	R The word "effect" comes from the cited standard.
18.	DoD	Edit	4	4, certification	1	Recommend adding a period to the end of the sentence and capitalizing "third".	Grammar and consistency in format.	R: The document uses ISO style which does not capitalize the first word of the definition and does not add a period. (This allows the definition to be used in place of the term)
19.	DoD	Edit	4	4, conformance testing	1	Recommend capitalizing "process".	Grammar and consistency in format.	R: See row 18.
20.	DoD	Edit	4	4, conformance testing	2	Recommend adding a period to the end of the sentence.	Grammar and consistency in format.	R: See row 18.
21.	DoD	Edit	4	4, sample	1	Recommend capitalizing "raw".	Grammar and consistency in format.	R: See row 18.
22.	DoD	Edit	4	4, sample	3	Recommend adding a period to the end of the sentence.	Grammar and consistency in format.	R: See row 18.
23.	DoD	Edit	4	4, template	1	Recommend capitalizing "encoded".	Grammar and consistency in format.	R: See row 18.
24.	DoD	Edit	4	4, template	2	Recommend adding a period to the end of the sentence.	Grammar and consistency in format.	R: See row 18.

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25.	DoD	Edit	4	4, sample quality	1	Recommend capitalizing "properties".	Grammar and consistency in format.	R: See row 18.
26.	DoD	Technical	4	4, signal	1	Recommend using another term, not signal, to convey these ideas.	Signal is a term associated with the transmission of data or a cue. The use in this context may be confusing to readers.	R
27.	DoD	Edit	4	4, signal	1	Recommend adding a period to the end of the sentence and capitalizing "one".	Grammar and consistency in format.	R: See row 18.
28.	DoD	Edit	4	4, image	1	Recommend capitalizing "two".	Grammar and consistency in format.	R: See row 18.
29.	DoD	Edit	4	4, proprietary image	1	Recommend capitalizing "image".	Grammar and consistency in format.	R: See row 18.
30.	DoD	Edit	4	4, proprietary image	2	Recommend adding a period to the end of the sentence.	Grammar and consistency in format.	R: See row 18.
31.	DoD	Edit	4	4, proprietary signal	1	Recommend capitalizing "signal".	Grammar and consistency in format.	R: See row 18.
32.	DoD	Edit	4	4, proprietary signal	2	Recommend adding a period to the end of the sentence.	Grammar and consistency in format.	R: See row 18.
33.	DoD	Edit	4	4, basic interoperability	1	Recommend capitalizing "ability".	Grammar and consistency in format.	R: See row 18.
34.	DoD	Edit	4	4, basic interoperability	3	Recommend adding a period to the end of the sentence.	Grammar and consistency in format.	R: See row 18.
35.	DoD	Edit	4	4, interoperable	1	Recommend capitalizing "performance".	Grammar and consistency in format.	R: See row 18.

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				performance				
36.	DoD	Edit	4	4, interoperable performance	2	Recommend adding a period to the end of the sentence.	Grammar and consistency in format.	R: See row 18.
37.	DoD	Edit	4	4, native performance	1	Recommend capitalizing "performance".	Grammar and consistency in format.	R: See row 18.
38.	DoD	Edit	4	4, native performance	2	Recommend adding a period to the end of the sentence.	Grammar and consistency in format.	R: See row 18.
39.	DoD	Edit	4	4, performance interoperability	1	Recommend adding a period to the end of the sentence and capitalizing "measure".	Grammar and consistency in format.	R: See row 18.
40.	DoD	Edit	4	4, scenario test	1	Recommend capitalizing "the".	Grammar and consistency in format.	R: See row 18.
41.	DoD	Edit	7	7	3	Recommend deleting the comma at the end of the first bullet.	Grammar and format consistency.	R: See row 4.
42.	DOD	Edit	7	7	4	Recommend deleting the comma at the end of the second bullet.	Grammar and format consistency.	R: See row 4.
43.	DOD	Edit	7	7	5	Recommend deleting the period at the end of the third bullet.	Grammar and format consistency.	R: See row 4.
44.	DOD	Edit	7	7	9	Recommend deleting the comma at the end of the first bullet.	Grammar and format consistency.	R: See row 4.
45.	DOD	Edit	7	7	10	Recommend deleting the comma at the end of the second bullet.	Grammar and format consistency.	R: See row 4.
46.	DOD	Edit	7	7	11	Recommend deleting the comma at the end of the third bullet.	Grammar and format consistency.	R: See row 4.
47.	DOD	Edit	7	7	12	Recommend deleting the comma at the end of the fourth bullet.	Grammar and format consistency.	R: See row 4.
48.	DOD	Edit	7	7	13	Recommend deleting "and ," at the end of the	Grammar and format	R: See row 4.

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						fifth bullet.	consistency.	
49.	DOD	Edit	7	7	14	Recommend deleting the period at the end of the sixth bullet.	Grammar and format consistency.	R: See row 4.
50.	DOD	Edit	7	7	18	Recommend deleting the comma at the end of the first bullet.	Grammar and format consistency.	R: See row 4.
51.	DOD	Edit	7	7	19	Recommend deleting the comma at the end of the second bullet.	Grammar and format consistency.	R: See row 4.
52.	DOD	Edit	7	7	20	Recommend deleting the period at the end of the third bullet.	Grammar and format consistency.	R: See row 4.
53.	DOD	Edit	7	7	23	Recommend moving the period from within the parenthesis following the word "record" to outside the parenthesis.	Grammar.	A
54.	DOD	Edit	7	7	29	Recommend changing "minutia" to read "minutiae".	Grammar. The word should be plural not singular.	N: This paragraph was deleted as part of the disposition of comment in row 84. See row 84.
55.	DOD	Edit	8	T1	Row 2, notes column	Recommend changing the semi-colon at the end of note 5 to a period.	Grammar and format consistency.	A: Use "Types 4 and 14."
56.	DOD	Edit	9	T1	Row 4, notes column	Recommend adding a period to the end of notes one and three.	Grammar and format consistency.	A
57.	DOD	Edit	11	T1	Row 12, notes column	Recommend adding a period to the end of note 4.	Grammar and format consistency.	A
58.	DOD	Edit	11	8	11	Recommend deleting the comma at the end of the first bullet.	Grammar and format consistency.	R: See row 4.
59.	DOD	Edit	11	8	13	Recommend deleting the comma at the end of the second bullet.	Grammar and format consistency.	R: See row 4.
60.	DOD	Edit	11	8	16	Recommend deleting "and ," at the end of the third bullet.	Grammar and format consistency.	R: See row 4.
61.	DOD	Edit	11	8	21	Recommend deleting the period at the end of the fourth bullet.	Grammar and format consistency.	R: See row 4.
62.	DOD	Edit	12	8, Biometric Profiles	12	Recommend changing "DOD" to read "DoD".	Consistency with paragraph 5, acronyms.	A: Will do Global replace.

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63.	DOD	Edit	12	T2	Row 5, notes column	Recommend deleting the carriage return after the word with on line 4.	Format.	A: Error occurs on row 4 last column
64.	DoD	Edit	3	4.	2nd bullet	Omit extra spaces between Standardized and profile.	typo	A
65.	DoD	Technical	7	2		Recommend that the statement " The biometric standards listed in table 1 do not apply to data of any modality that: (etc.) be changed to: "Conformance to the biometric standards listed in table 1 is not required for the data of any modality that: (etc.)	As currently written the statement excludes the use of the standards for the conditions enumerated by the bullets. This is not desirable. We would like to suggest that the standards are observed whenever practicable.- - therefore the language should be more inclusive.	M: Replace "The biometric standards listed in Table 1 do not apply to data of any modality that:" With: "Use of the biometric standards of Table 1 is not required for data" Used in experiment ... Which exists only for the ... Used only within a closed ...
66.	DoD	Technical	8	Table row # 2	3	Recommend omitting the sentence: A compressed version may be generated but only if the parent image is retained without compression.	What is the purpose of data compression if you are forcing the retention of the uncompressed parent image? Isn't the lossless compressed image good enough? The sentence is also ambiguous in that it mentions compression without specifiying whether the compression is lossy or lossless.	M: Replace NOTE 2 with Latent images shall be either uncompressed or losslessly compressed. They shall not be compressed using a lossy compression algorithm. All losslessly compressed images shall be stored in conformance to the ISO/IEC 15948 format (PNG).
67.	DoD	Technical	8	Table row # 3	3	These statements appear to derive image quality measures based upon data compression ratio. Is this the intention and is there precedent for the 15:1 and 10:1 thresholds? I wasn't aware that compression ratio was considered a valid measure of image quality.	JPEG and WSQ compression algorithms don't allow you to specify the compression ratio up front. What you are creating here is a situation where a compliant raw image collected at sufficient resolution is compressed and based upon nothing else but the	R and M: Both JPEG 2000 and WSQ are parameterized by a bit-rate specification, e.g. 0.8 bits per pixel. Reword the text as follows

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						Omit: "When images are captured at 197 pixels/cm and compressed using WSQ the compression ratio shall not exceed 15:1" And "When images are captured at 394 pixels/cm and compressed using JPEG 2000 the compression ratio shall not exceed 10:1"	information theory aspects of the image and the coding method, the compressed image might need to be thrown out if compression worked too well. What can the technician do? If he runs the compression algorithm again he'll get the same result. Either trust the compression algorithms or don't but avoid constraints that you have no means of satisfying. This problem is solved if an image quality quantifier is used as opposed to suppositions based upon compression ratio.	When images are captured at 197 pixels / cm and compressed with WSQ, the compression ratio shall not exceed 15:1. This may be achieved by invoking the WSQ compressor with a bit-rate parameter of 8/15 bits per pixel. Ditto JPEG 2000 8/10 bpp.
68.	DoD	Technical	11	Table row # 12	13	Omit "If lossy compression is applied to iris images the compression ratio shall not exceed 6:1 " Or specify "WSQ" in place of "lossy compression" Also: suggest that a minimum resolution in pixels /cm be specified.	Same rationale as in #5 above. If a lossy compression algorithm is used, you will not be able to specify the compression ratio and you may have to throw out images where compression worked too well.	R and M: Add text after 6:1. For compression algorithms without a bit-rate parameter (e.g., JPEG, this may require an iterative survey over the compression "quality" parameter.) Use "e.g.," not "e.g." throughout the document.
69.	DoD	General	7			"Consistent Collection and Use of Metadata" and the column 2 text are ambiguous. Metadata can be described three different ways: 1) Defense Network Metadata - analogous to URL Tags that tell systems what data is there (e.g., biometrics data) 2) System Level Data - Who owns the data, how	NSTC Policy document must reconcile the ambiguities surrounding the term Metadata.	N: The comment refers to the NSTC Policy Document, not this Registry. The Supplemental document addresses metadata.

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						large the file is, security levels, etc. 3) Data Level Metadata - such as the Type-14 Header data that tells you which finger an image is for, the pattern type, the vertical and horizontal line length, etc.		
70.	DoD	Edit	4		2	Definition of Basic interoperability - the word "a" is inadvertently duplicated.	Delete duplication.	A
71.	DoD	Technical	5			Acronyms and Abbreviations has one entry for EBTS - there should be two entries or two subentries: One for the FBI and one for the DoD.	Add/modify references to reflect both FBI and DoD EBTS.	R: It's the same acronym. But will add DoD or FBI to each use of EBTS elsewhere in the document as appropriate.
72.	DoD	Technical		Table 1		Clarification: Table 1: The use of 197 pixels/cm and 394 pixels/cm are awkward - ANSI/NIST ITL-1 2007 (and its predecessors) used 19.7 ppmm and 39.37 ppmm - why change now?	Recommend Registry use the same terminology found in the standards themselves.	M: Use 19.69 pix/mm and 39.37 pix/mm because it is used in ANSI/NIST ITL-1 2007 . Add a note that sensor resolution certification processes allows +/- 0.2 and + 0.4 respectively.
73.	DoD	Technical		Table 1	Row 1 Note 3	Specifies a compression ratio of no more that 10:1 for Type 14 images. In the FBI-EBTS V8.001 Section 3.9.2 we see that Type-4 and Type-14 images are to be compressed at 15:1 nominally; there is no mention of 1,000 ppi or Type-14 with JPEG 2000.	Will FBI specify 10:1 for these 1,000ppi images as opposed to 15:1?	N: (FBI indicated that when images are scanned at 1000 ppi they should be compressed at no more than 10:1 before they are transcoded to 500ppi and WSQ compressed for transmission to the FBI. Formal FBI guidance is pending). M: Add new text above Table 1: While Table 1 addresses collection, storage and exchange of biometric data, existing transmission profiles such as FBI::EBTS ver. 8.001

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								might further modify or restrict the recommended standards of Table 1.
74.	DoD	Technical	8	Table 1	Row 2	References PNG compression - it is mentioned in FBI-EBTS 8.001 Table 3-2 but not assigned to any biometric record type.	Need clarification as to what the PNG compression is to be used for here under "Latent Fingerprints".	N: See disposition of comment for row 66.
75.	DoD	Technical	9	Table 1	Row 4	In the Notes column - 4th entry. "If ANSI/NIST ITL-1 2007 Type-9 is used, vendor minutiae blocks [fields 13-125] shall not be used.	The ANSI/NIST ITL-1 2007 Table 14 also has a proprietary entry (for Identix Features) in Fields 151-175 and that should also be included in Table 1.	A: to say that f ields 31 - 125 and 151-175 shall not be used. See attached Table below.
76.	DoD	Technical	9	Table 1	Row 6	In the Notes column - 2nd entry appears to be sort of in conflict with the recommended standards column entry that points to the Type-9 Fields 1-4 and 126-150.	ANSI/NIST ITL-1 2007 Type-9 Fields 126-150 are the INCITS 378:2004 fields. The note says INCITS 378:2004 can be used in addition to the recommended standard - this seems like a broken circular logic track.	N: The semantics of INCITS 378 and fields ANSI/NIST ITL -1 2007 Type 9 126-150 are the same, but the syntax is different (ASCII vs. binary).
77.	DoD	Technical	12	Table 2	Row 3	This Registry of Biometric Transmission Profiles says that DoD EBTS V1.2 is for "Applications exchanging data with the DoD ABIS" - is it also true for other DoD exchanges as someday the data might migrate to the DoD ABIS?		N
78.	DoD	Technical	12	Table 2	Row 4	Listed standard, IDENT eXchange Messaging (IXM), is not in the Section 13 Reference list.	Recommend it be added. The same issue is there for Table 4's row 1, INCITS 358:2004.	N: IXM appears on line 30 of references - delete editor's note in the References Table.
79.	DoD	Technical				The NTSC Registry is missing a standard for transcoding 1,000 ppi JPEG 2000 fingerprint images to 500 ppi WSQ images.	Does such a standard or transcoding approach exist?	A: See disposition of row 101 comment.
80.	FBI/CJIS	Technical	Section 7 & 8			The text should be revised so that Section 8 has precedence over Section 7, or the intended purposes of Section 7 should be clearly delineated in cases handled in Section 8.	As written, the dictates of section 7 (Biometric data collection, storage, and exchange standards) and section 8 (Biometric profiles) are unclear or contradictory. Section 8 should take precedence over section 7.	M: See disposition of row 73 comment.

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							(additional info on FBI Comments)	
81.	FBI/CJIS	Technical	Table 1	Row 6		Table 1, Row 6, Recommended standards column should read • ANSI/NIST-ITL 1-2007, Type 9, Fields 1-4 and 13-23 Instead of • ANSI/NIST-ITL 1-2007, Type 9, Fields 1-4 and 126-150	The Recommended standards in Table 1, row #6 are not appropriate for latent fingerprints, and conflict with EBTS. (additional info on FBI Comments)	A: The content of fields 13-23 are defined in EBTS not in ANSI NIST. So add citation to appropriate FBI::EBTS section, i.e. Appendix J.
82.	FBI/CJIS	Technical	Table 1	Row 4		Table 1, Row 4, Recommended standards column should include the FBI EBTS fields, reading • INCITS 378:2004 or ANSI/NIST-ITL 1-2007 Type 9, Fields 1-4 and 126-150 or ANSI/NIST-ITL 1-2007, Type 9, Fields 1-4 and 13-23 Instead of • INCITS 378:2004 or ANSI/NIST-ITL 1-2007 Type 9, Fields 1-4 and 126-150 Table 1, Row 4, Notes column should delete the line reading "If ANSI/NIST-ITL 1-2007 Type 9 is used, vendor minutiae blocks [fields 13-125] shall not be used."	The wording in Table 1, row #4 contradicts EBTS. (additional info on FBI Comments)	A M: See new proposed Table entries below.
83.	CSC	General				Consideration should be given to making some statement as to how Government implementers should maintain awareness of standards currently under development that may impact	The document is well organized and helpful to Government implementers. It is restricted to currently published documents as	N: The Supplemental document will track other modalities and revisions of the standards currently listed

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						or influence their decision-making.	acknowledged on the Scope statement: "Only standards finalized and approved by a standards developing organization are eligible…"	herein.
84.	CSC	Technical	Section 7	2		It seems unnecessary and unwarranted to preclude the use of other modalities with published data interchange format standards from this Registry. What is the motivation for or necessity of excluding whole categories of biometric technology that may serve a suitable purpose for some specific Government applications? Why would a Type 99 record be preferred over the published standard?	includes fingerprint, palmprint, face and iris images only, clearly by intent to bound the modalities used by USG for data collection and exchange. The last paragraph cites ANSI/NIST-ITL 1-2007, Type 99 as the only acceptable record type for other modalities.	M: Revise text in second-to-last paragraph of Clause 2, Scope to read: "Additional biometric standards will be added to this Registry as other standards in the above categories (e.g., other modalities, such as DNA) or additional categories (e.g., biometric quality measurement standards) are approved by the standards developers and evaluated by the USG for USG-wide use. " A: In pre-amble to Table 1, state that: Standards for other modalities have been approved by the various standards developers. They are not listed here because the imperative for development of this Registry was ongoing or anticipated multi-agency or USG-wide applications. For parties seeking to collect, store and exchange data from modalities not covered by this

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								Registry, they have the option of using standards approved by national or international standards developers. FOOTNOTE HERE: The DoD tracks the development of biometric standards. Agencies seeking to use other modalities should consult the "BTF Standards Development Status Update" at: http://www.biometrics.dod.mil/CurrentInitiatives/Standards/DoDCollaboration/tabid/95/Default.aspx

Delete existing paragraph before Table 1 regarding Type 99. |
85.	CSC	Technical	Section 7	3		Please clarify the relationship between the exclusions in paragraph 3 and the content of paragraphs 1 and 2. For example, does a "closed system" allows for a system design within an agency that includes multiple sites sharing a common biometric modality (not on the list)? It is unclear what "closed" would or would not allow.	Paragraph 3 lists some exclusions related to Table 1, but it unclear if these exclusions apply to the list of accepted modalities. Particularly the reference to "closed systems".	N: See disposition of row 65 comment.
86.	CSC	Technical	Section 7	Table 1, entry 12		What is not addressed by Table 1 is the topic of "compact data formats" for iris data when stored on tokens (e.g. RT smart cards). The standards for two forms of polar image data are in the referenced standard, and one of these forms is cited in the RTIC specification. Shouldn't there be another table entry for iris data in the "compact form"?	Table 1, entry 12 addresses iris data standards, and calls for storage of rectilinear images as a minimum, and polar images only if in addition to the rectilinear. For off-line storage this position is fully supported.	R: A new compact format might be recommended in the Registry if it is included in a future revision of ISO/IEC 19794-6. A: Include RT Spec as a new row 2 of Table 3.
87.	CSC	Tech	Section	2		Section 9, Paragraph 2: wording is too	"The TWIC Reader Hardware and	A

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		nical	on 9			restrictive. Do not imply both logical and physical access needs.	Card Application Specification leverages FIPS 201. For all transportation workers requiring unescorted physical ~~and~~ **and/or** logical access to national facilities,…"	
88.	CSC	General	Table 11	Item 3		2. Table 11 item 3. Reference to"INCITS 423.2:2007" is incorrect.	This conformance standard is NOT yet published, and should not be included in this Registry (under the current rules of only listing published standards.) Or if the rule is relaxed, then refer to "**INCITS 423.2-200x**"	M: 423.1 was published in February 2008. Update to 2008

N: If the approval of INCITS 423.2, expected mid-May, does not go through then the standard will be deleted from this edition of the Registry. |
89.	CSC	General	Section 13	Entry 12		Either delete the reference or change to "**INCITS 423.2-200x**"	this standard has yet to be published	N: See disposition of row 88 comment.
90.	CSC	Edit	Section 13	Entry 19		Typo	Should be " — **Part 4 ~~2~~**: Finger image data."	A
91.	CSC	Edit	Section 13	Entry 34		Update version number to v1.5 – update the URL and dates.	Obsolete version	A: Consult DHS and check website rtconsortium.org for latest version.
92.	Fujitsu	Technical				Consider adding biometric data interchange formats (ISO/IEC 19794-9:2007) into the proposed draft on the Registry of USG Recommended Biometrics Standards; and providing some reference to Vascular Authentication in the Registry	Vascular Authentication was already commercialized in 1997 and the data interchange formats for this technology have been established as international standards (ISO/IEC 19794-9:2007, Information technology-Biometric data interchange formats-part 9: Vascular image data). Additionally Vascular Authentication has already been widely used in various	R: See disposition of comment for row 84.

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							applications around the world. (See Fujitsu input for further details)	
93.	Judith Markowitz	General				Standards for voice are under development	Data Exchange format standards, Developer's standard, and process control standard are all under development. (See Markowitz input for further details)	N: Standards under development are not included.
94.	IBIA	Technical	Table 1	Item 5		Recommend that you modify the sentence to read as follows: "INCITS 378:2004 shall not be used for match-on-card but may be used for other applications."	Given that the topic of this item is "Storage Inside Personal Identity Credentials", it would seem appropriate to add a sentence after the above statement that makes it clear that it is acceptable to store INCITS 378:2004 templates inside personal identity credentials for applications other than match-on-card.	A: See new proposed Table entries below.
95.	Lockheed Martin	Technical	Table 1 (Page 7)	Row 1 (and repeated in row 3 – page 8)		Recommend revisit the 10:1 factor and consider reusing the FBI's recommended 1000ppi compression ratio.	The 10:1 factor is inconsistent with the FBI's "Profile for 1000ppi Fingerprint Compression, Version 1.1" (http://www.fbibiospecs.org/fbibiometric/docs/J2K1000.pdf), which specifies JPEG2000 parameters "designed for a 0.55 bpp bitrate (i.e., 14.55:1 compression ratio)" (section 8.3.1).	R: See disposition of row 73 comment.
96.	Lockheed Martin	Technical	Table 1 (page 9)	Row 4		Recommend separate the storage and exchange domains into separate rows, such that storage applications can include both standard and vendor-proprietary components and exchange applications can only include standard components.	The notes in Table 1, Row 4 (page 9) are unclear and seem to contradict the requirement preceding Table 1 that "data records or sets of data records shall not be wrapped in a proprietary wrapper that requires a specific provider's software to	A: See new proposed Table entries below.

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							decode or encode." The notes prohibit the use of vendor-proprietary minutiae blocks (Type-9 fields 13-125) but then state standardized minutiae records are not recommended for identification purposes. In most cases, the minutiae records stored by a system are the same ones used for identification or verification purposes.	
97.	Crossmatch	Technical	Table 1	Item 4		recommends that the use of extended data for 378 is encouraged in order that performance for identification data can be improved, while at the same time allowing for interoperability when the performance constraints for verification data are supported.	The use of vendor defined extended data should be encouraged, with a minor caveat. As described later in this table entry, the use of 378 alone is not recommended due to performance benefits of proprietary data in identification. Therefore, Cross Match recommends that the use of extended data for 378 is encouraged in order that performance for identification data can be improved, while at the same time allowing for interoperability when the performance constraints for verification data are supported.	A: See new proposed Table entries below.
98.	Crossmatch	Technical	Table 4	Item 1		Work should be started on a better application interface standard in the US and International standards working groups.	There is a natural desire to adopt BioAPI as an application interface that abstracts applications from the specifics of a particular vendor or even from the specifics of a given modality.	N: Alternative API standards will be considered for inclusion in the Registry as they become available.

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							However, the use of BioAPI for all USG applications that require Plug and Play capability should not be recommended. BioAPI is a set of "C" level interfaces to some middleware between an application and a vendor supplied biometric service provider. This middleware is only available from one vendor, and is not FIPS certified. It represents a potential for many biometric and security "man in the middle" attacks. This weakness is exacerbated by capabilities in the middleware such as BIP. Furthermore, the complexity provided by BioAPI is more costly than the value it provides. Applications and Biometric Service Providers must maintain side agreements about cryptographic secret exchange and key management, the use of raw data, graphical user interface conventions, and even an agreement over the use of the location of the biometric database that maintains reference biometrics used for identification. These side agreements would work to establish a sort of contract between a particular BSP vendor and government application, and this contract would serve as an artificial barrier to free and fair	

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							market competition. It is also not usable (as is) by most USG applications, as these applications would want to be written in Java or .Net.	
99.	IDTP	Technical				There appears to be an oversight in the registry regarding the proper approach to producing a 500 ppi WSQ finger print (or palm print image) from an originally scanned 1000 ppi JPEG 2K compressed image. MITRE profile should be referenced for these cases.	MTR 04B0000022 (Mitre Technical Report), Margaret Lepley, Profile for 1000ppi Fingerprint compression, Version 1.1 April 2004. Available at: http://www.mitre.org/work/tech papers/tech papers 04/lepley fingerrpint/lepley fingerprint.pdf	A: Include text and citation to the MITRE report in Table 1 row 1 in the notes. Report will be added in Sec 13.
100.	NIST	Edit	14		Table 4 Row 3	Remove the BIAS row.	The INCITS 442 standard is not yet approved.	N: Add note: EDITORS NOTE If the approval of INCITS 442.2, expected mid-May, does not go through then the standard will be deleted from this edition of the Registry.

Attachment: Replacement rows

#	Validity period	Biometric data	Domain of applicability	Recommended standards	Notes
4	October 2007 – current	Fingerprint minutiae, not latent	Storage and exchange outside and	INCITS 378:2004 or	OPTION 2: Verification applications (e.g. access control) shall not use the "vendor-defined extended data" fields of INCITS 378:2004 clause 6.6.

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		minutiae For minutiae encoded in latent images, see row 7.	unrelated to personal identity credentials	ANSI/NIST-ITL 1-2007 Type 9, Fields 1-4 and 13-30 or ANSI/NIST-ITL 1-2007 Type 9, Fields 1-4 and 126-150	Better accuracy will be obtained if, within the target application, it is possible to exchange standardized image records, per row 1 of this Table. Identification applications shall use the INCITS 378:2004 standard. This may include proprietary template data in the "vendor-defined extended data" fields of INCITS 378:2004 clause 6.6. Proprietary template data is non-interoperable but some implementations have been shown to have improved accuracy over standardized data alone [MINEX04]. It is usually usable only if the data is prepared and matched by the products of a single supplier. Reliance on such proprietary data will promote vendor lock-in. In order to mitigate this risk, the parent images shall be retained. To eliminate this risk, standardized image records should be exchanged, per row 1 of this Table. To avoid abuse of this allowance of proprietary data, the standardized minutiae data required by clauses 6.1 through 6.5 of INCITS 378:2004 should be produced by MINEX compliant template generators. Add MINEX to acronym table, and include REF in Section 13. Other standards or standardized records, including those enumerated below shall not be used as a substitute for the required standard; they may be used only in addition: ISO/IEC 19794-2:2005 If ANSI/NIST-ITL 1-2007 Type 9 is used, vendor blocks (i.e. fields 31 - 125 and 151-175) shall not be used.
5a	October 2007 – current	Fingerprint minutiae	Storage and transmission for personal identity credentials for match-on-card	ISO/IEC 19794-2:2005, clause 8 compact card format with clause 9 format types 0001, 0003, 0005.	ISO/IEC 19794-2:2005 (compact card format) shall be stored on the card for match-on-card. ISO/IEC 19794-2:2005 (compact card format) shall be sent to the card for verification against the reference template on the card. In both cases the minutiae may be prepared from parent INCITS 378:2004 records. For match-on-card, neither INCITS 378:2004 nor ISO/IEC 19794-2:2005 clause 7 (record format) shall be stored on the card. For match-on-card, neither INCITS 378:2004 nor ISO/IEC 19794-2:2005 clause 7 (record format) shall be sent to the card. Regarding ISO/IEC 19794-2:2005 card formats, the absence of a header and ambiguities inherent in the sort-ordering of minutiae mean that such records shall not be used for persistent storage off-card.
5b	October 2007 – current	Fingerprint minutiae	Storage and transmission inside personal	INCITS 378:2004	In match-off-card applications, none of the ISO/IEC 19794-2:2005 formats shall be used. This applies to both the reference and verification templates.

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			identity credentials for match-off-card		