



14 October 2002

SUBJECT: M1 Doc 191, *Draft US Contribution to JTC 1 SC 37 on an NP for a Finger Image Based Interchange Format.*

Comments from LaserCard Systems Corporation

In the section *Purpose and Justification*, we are concerned that readers will misinterpret some of the statements made and regard this as a “compromise” situation, when in fact it represents an excellent methodology for algorithm interoperability now and into the future, also providing for ways to incorporate new algorithms and techniques developed without re-registration of the holder. This future use of new algorithms and techniques may become necessary if the granularity or approximations of current technologies, to be described in the proposed Data Interchange formats for fingerprint patterns and minutiae, become inadequate (FAR’s found to be too high, for example) in actual field operations or as a result of sophisticated actions of counterfeiters or imposters; in these eventualities, the actual stored image could be used to incorporate the new algorithms or techniques without re-scanning the fingerprint of the holder. This is an important security feature. We would therefore recommend the following wording for this section, largely based on what is already there:

Purpose and Justification

This standard is intended for those applications not constrained by the amount of data storage required. It provides the highest level of data quality and accuracy in exchange for higher data storage requirements, and utilizes the full fingerprint image in contrast to the standard formats used for exchanging fingerprint characteristics such as minutiae, patterns, or other forms. With any of these latter formats, which describe the fingerprint in approximate forms rather than store the actual image due to limited data storage space, information recorded in one standard format (for example, minutiae) cannot be used by algorithms designed to operate with information recorded in other standard formats (such as patterns). These formats are also inherently more prone to error in matching, which reduces security.

Despite this incompatibility between different types of non-image-based fingerprint information forms, all methods initially capture the fingerprint image. Storage and use of this captured image, as proposed by this New Work Item, can therefore be leveraged to produce more accurate matching results and provide interoperability among and between vendors relying on minutiae-based, pattern based, or other algorithms. Establishment of an image-based representation of fingerprint information will not rely on pre-established definitions of minutiae, patterns, or other types. It will provide implementers with the flexibility to accommodate images captured from dissimilar devices, varying image sizes, resolutions, and different grayscale depths. Use of the fingerprint image will allow each vendor or each country to implement their own algorithms to determine whether two fingerprints are from the same finger, and also provide the most secure and direct path for the future to take advantage of new and better algorithms that may be developed without re-enrolling the holder.

Sincerely,
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