Editorial

NIST-Coordinated Standard for Fingerprint Data Interchange

In the May/June 1993 issue of the *Journal of Forensic Identification,* an editorial written by Mssrs. Watling and Evans was published entitled "NIST (National Institute of Standards and Technology) Standards on Livescan". To a readership not familiar with the American National Standards Institute (ANSI) standards process, the authors put forth several arguments in support of their opinions. Unfortunately, much of the information contained in the editorial is erroneous.

The proposed standard discussed in that editorial is ANSI/NIST-CSL 1-1993, entitled "Data Format for the Interchange of Fingerprint Information". It specifies and defines the content, format, and units of measurement for the exchange of information that may be used in the fingerprint identification of a subject.

In their editorial, Mssrs. Watling and Evans imply that the proposed standard encourages "doing away with inked fingerprint cards". This is not true. The proposed standard provides a common method and format for exchanging electronic fingerprint images and other data between dissimilar Automatic Fingerprint Identification Systems (AFIS) or live-scan systems. Use of the standard will eliminate unnecessary costs for developing several customized versions of the same software required to enable separate organizations using dissimilar systems to communicate with each other. It will be the local, state, or federal agency that makes the decision to use and retain fingerprint cards or to discard them in favor of the electronic images.

Neither NIST nor the United States Government sets or establishes ANSI standards. As an accredited developer for ANSI standards, NIST serves as editor and coordinator of this voluntary standard for the interchange of fingerprint information.

This standard is being developed as an ANSI standard. As such, the procedures required by ANSI and adhered to by NIST provide that due process, openness, and consensus be achieved and proved before any

proposed standard can receive ANSI approval. Any organization, company, government agency, or individual with a direct and material interest in the development of the standard has had the right to express a position and have that position considered by the other participants.

The development of this standard was begun nearly three years ago. Principles of fairness and openness were maintained at each step of the proposed standard's development. Three workshops were held at or near NIST in Gaithersburg, Maryland to assist in the development of this standard. Each workshop was open to all directly and materially interested individuals or organizations that wished to send one or more representatives.

During the course of each workshop, opportunities were afforded to every representative to present viewpoints and positions. Issues relating to the contents of the proposed standard and to various aspects of image quality including scanning resolution, compression, and identification studies were discussed. After topics were discussed, motions were presented, voted upon, and included in the subsequent draft standard as determined by the participants. All workshop decisions on substantive issues were decided by consensus ballot. Consensus was established when substantial agreement was reached by the participants. Substantial agreement is defined by ANSI as "more than a simple majority, but not necessarily unanimity".

There were several reasons for holding all of the workshops at or near NIST. A large percentage of the participants at these workshops reside and work in the Washington, DC area or within reasonable driving distance. The Gaithersburg location is easily accessible for these participants. For others, there are three major airports which service the DC area with public transportation readily available to the NIST site.

NIST sponsored and hosted all three of the workshops. Like other local, state, and federal agencies, NIST does not have unlimited funding. Sponsoring workshops for 100 to 200 people required the assistance of several NIST staff members. Conducting the workshops locally to NIST enabled the registration fees charged to be kept to a minimum. Relocating the meeting sites to other cities would have substantially increased the cost to NIST and to the participants.

Each workshop had its own set of topics to be discussed and resolutionsto be agreed upon. Itwasbelieved that the NIST location would attract the maximum number of interested attendees. Furthermore, relocating the workshops to other parts of the country might have resulted in fewer attendees at each meeting and fewer viewpoints considered during the decision-making process.

In addition to workshops sponsored by NIST, the International Association for Identification's annual educational conferences that were held in Nashville, St. Louis, and Atlantic City scheduled several sessions addressing aspects of image quality relating to the fingerprint data exchange standard. These meetings provided an additional opportunity for interested individuals to express their opinion.

Although it was stated in the Watling/Evans editorial that a fourth workshop was conducted, this statement is not correct. A conference was held on December 8, 1992, which was a Technical Review Conference for the Wavelet Scalar Quantization (WSQ) Compression Algorithm. It should not have been confused with the three previous workshops. While the proposed standard provides for optional use of data compression techniques, the particular algorithm is not specified by the standard nor is its use mandated. The purpose of this conference was to explain to vendors the mathematical logic and details required to implement the WSQ compression algorithm in their systems. At this meeting there were no formal topics addressing image quality.

In order to inform the identification community of the development of this standard, over 450 letters were sent to individuals and organizations that had been identified as having a direct and material interest in the development of a standard. Each letter contained an explanation of the ANSI process and procedures, an invitation to participate in the process, and a preprinted form to enroll as a voting canvassee in the development of the standard.

In addition to the individual letters, publications carried announcements for the development of this standard. Articles appeared in the May 3, 1991 and May 31, 1991 issues of *Standards Action* announcing this standard and calling for canvassers for its development. A similar article was published in the March/April 1992 issue of the *Journal of Forensic Identification.* The April 13, 1992, edition of *Computer Government News* also carried an article on the standard's development. The entire text of the December 30, 1991 version of the proposed

standard document was also published in the March/April 1992 issue of the *Journal of Forensic Identification.*

As a result of these efforts, 101 responses were returned from AFIS users, vendors, and consultants agreeing to participate as canvassers. Of these respondents, 26 represented local law enforcement agencies, 23 represented state law enforcement agencies, 11 represented federal agencies, and 8 represented AFIS and live-scan manufacturers. The remainder consisted of members of professional organizations, non-AFIS vendors, system integrators, and private consultants.

Each of the 101 canvassers had one vote in the final balloting process. The only stipulation placed on participants was that each organization was allowed only one vote. The first canvassee enrollment form, received by NIST, from each organization was allowed to cast the vote for that organization. There was one exception to this policy. If two or more individuals from the same organization enrolled as canvassers, the common manager of the potential canvassers had the opportunity to determine the canvassee who would cast the organization's ballot. NIST did not become involved in the internal politics of any agency or organization.

In December of 1992, the proposed ANSI standard for the Data Format for the Interchange of Fingerprint Information was released for balloting to the 101 registered canvassers. After the three-month balloting period expired, 87 ballots had been returned. Initially, 78 **votes** were for approval, 5 abstained from voting, and 4 cast negative votes. According to ANSI procedures, efforts must be made to resolve all objections. As a result of letters and phone conversations to the objecting parties, one of the negative votes was changed to approval by making editorial changes. A second negative vote was changed to approval by clarifying and discussing the points regarding the objection. Agreement could not be reached with the other two parties who cast negative votes.

In April of 1993 the contexts of the two negative votes were sent to the 87 canvassers who had returned ballots. This was done according to ANSI rules, which afford each of the 87 voting canvassers an opportunity to change their original vote. This opportunity expired on May 23, 1993. None of the 87 changed his or her vote.

The fact that five drafts of the standard were circulated for comment, and that there were two opportunities for canvassers to object to the standard contradicts the statement in the editorial that "the new standard (was) unfairly pushed through NIST".

While it is very unlikely that any standard can fully meet all of the desires of all of the participants, the standards process provides an opportunity for the participants to develop a standard that at least meets their minimum needs. To receive approval for a proposed standard, ANSI requires that a consensus be achieved. The canvass vote of 87 canvassers with only two negative votes on the final version of the proposed standard indicates that this consensus has been achieved.

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