**TECHNICAL ADVISORY GROUP ON
MACHINE READABLE TRAVEL DOCUMENTS**

Fifteenth Meeting

(Montreal, 17 to 21 May 2004)

Agenda Item 3:   Report of the New Technologies Working Group (NTWG)

**MACHINE-ASSISTED DOCUMENT
SECURITY VERIFICATION**

(Presented by the New Technologies Working Group (NTWG))

1.   **BACKGROUND**

1.1   Recommendations for the minimum security requirements for travel documents were approved by TAG-MRTD/13 for inclusion in future editions of Doc 9303 — *Machine Readable Travel Documents.* The TAG further instructed NTWG to:

> continue to explore and evaluate "*additional aspects of the concept of minimum security standards, including machine assisted document security verification*".

2.   **SCOPE**

2.1   Work has focussed on security features that may be detected and authenticated automatically by suitably designed travel document readers. Historically, readers have been designed to capture the two or three lines of machine readable data printed in the Machine Readable Zone (MRZ) of a travel document. However, the advent of 'whole page' readers created new opportunities to capture additional information from the Visual Zone of the document, including some security features.

2.2   In scope are machine verifiable security features that serve to authenticate a travel document, i.e. that help confirm its authenticity as a genuine document made from genuine materials. Out of scope are security features that identify the holder of a document as its rightful owner. This latter group comprises the biometrics technologies, which have been the subject of other extensive research and reports by the NTWG.

2.3   The combination of biometrics security with effective document security features provide the best available safeguards for an Examiner to check that a travel document presented for inspection is genuine and the person presenting it is its rightful owner. Security features that may be verified automatically by the document reader can play a valuable role in the process, assisting the Examiner to adjudicate the authenticity of a travel document.

(3 pages)

3.   PROGRESS REPORT

3.1   Doc 9303 distinguishes three main categories of machine-verifiable security features. These are described below along with examples, identified in discussion with the industry, of security features that are capable of machine verification.

3.1.1   Data feature

A security feature directly linked to the mandatory machine-readable or other data elements located on the MRP data page.

Examples:
- Digital signatures stored as electronic data on an RFID chip.
- Digital watermarks comprised of bit map patterns embedded in the portrait image.

3.1.2   Structure feature

A security feature containing some form of verifiable information based on the physical construction of the feature.

Examples:
- The interference characteristic of a hologram or other optically variable device that can be uniquely identified by a suitable reader.
- Retro-reflective images embedded within a security laminate.
- Encoded data stored on the document in magnetic media such as special security threads.
- Controlled transmission of light through selective areas of the substrate.

3.1.3   Substance feature

A security feature that has a defined characteristic based on the substance used in the construction of the feature.

Examples:
- Luminescent and infra-red inks that have specific and verifiable spectral responses.
- Spectral fingerprinting using inks or other materials with unique, measurable spectral curves.

3.2   All three types of feature, data, structure and substance may be incorporated in travel documents and verified with suitably designed readers. Readers are now becoming available that can detect such features and use the responses to confirm the authenticity of the document.

3.3   Machine assisted document security verification uses automated inspection technology to assist in verifying the authenticity of a travel document. It should not be used in isolation to determine proof of authenticity, but when used in combination with visible document security features the technology provides the examiner with a powerful new tool to assist in verifying travel documents.

3.4   Machine assisted document security verification features, are optional data elements that may be included on the MRP at the discretion of the Issuing Authority. Doc 9303 provides guidance on the positions these features shall occupy to facilitate interoperability. However, at present there are no specifications for the

functionality or performance of any of these features and hence their use is currently restricted to national use and between Issuing States by bilateral agreement.

3.5   In future it is anticipated there will be increasing emphasis upon automated inspection and machine verification of travel documents. This will add impetus to the development of machine-verifiable security features that are interoperable and universally verifiable.

3.6   In order to progress this work and to ensure that new developments are recognized and reported, the NTWG proposes to continue discussions with the industry on machine-verifiable document security features.

4.   **ACTION BY THE TAG/MRTD**

4.1   The NTWG invites the TAG/MRTD to:

   a)   note the work done to date on machine-verifiable document security; and

   b)   endorse the continuing work plan on this topic.

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