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# The new seventh edition of Doc 9303

**Tom Kinneging**

*Senior Expert Standardization – Morpho  
Convenor ISO/IEC JTC1 SC17 WG3*

## ICAO TRIP: Building Trust in Travel Document Security



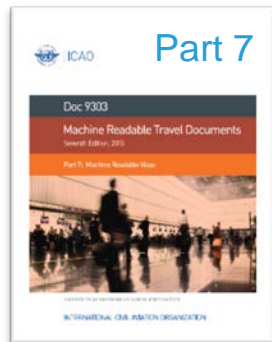
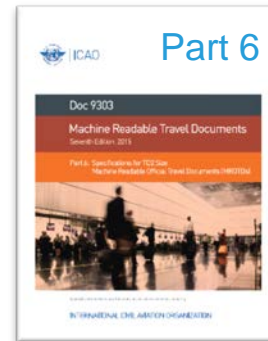
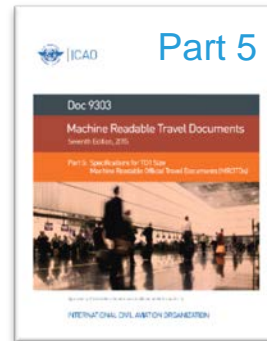
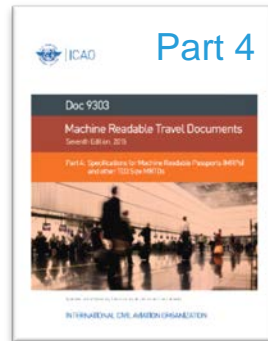
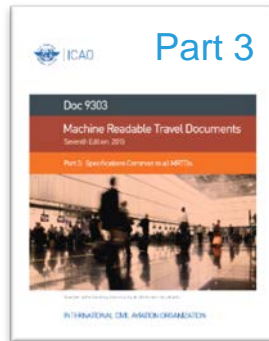
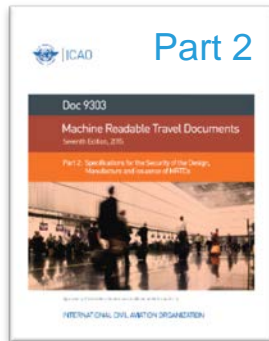
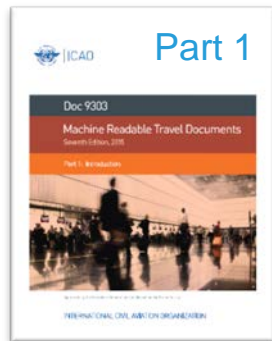
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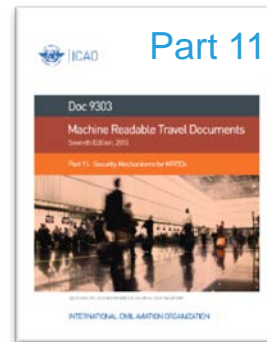
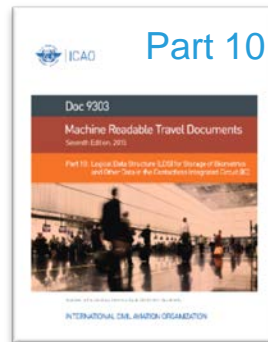
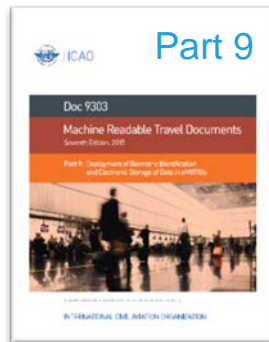
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July 2015 ICAO published the 7<sup>th</sup> edition of Doc 9303



Part 8





Until July 2015 Doc 9303 3<sup>rd</sup> / 6<sup>th</sup> edition





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## Until July 2015 Doc 9303 3<sup>rd</sup> / 6<sup>th</sup> edition

- Part 1 – Machine Readable Passports, sixth edition – 2006
  - Volume 1 – Passports with Machine Readable Data stored in OCR format
  - Volume 2 – Electronically enabled Passports with Biometric Identification Capability
- Part 2 – Machine Readable Visas, third edition – 2005
- Part 3 – Machine Readable Official Travel Documents, third edition – 2008
  - Volume 1 – MRtds with Machine Readable Data stored in OCR format
  - Volume 2 – Electronically enabled MRtds with Biometric Identification Capability
- Supplement to Doc 9303, release 14 – 2014
  - 176 pages – 253 issues
- 8 Technical reports



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# September 2011 Doc 9303 revision

- Re-structuring
  - From 3 to 12 parts
- Supplement incorporation
  - From 253 to 0 issues
- Technical Reports incorporation
  - From 8 to 0 Technical Reports



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# Doc 9303 seventh edition

1. Introduction
2. Specifications for the Security of Design, Manufacture and Issuance of MRTDs
3. Specifications common to all Machine Readable Travel Documents
4. Specifications specific to TD3 size MRTDs, Machine Readable Passports
5. Specifications specific to TD1 size MRTDs, Machine Readable Official Travel Documents
6. Specifications specific to TD2 size MRTDs, Machine Readable Official Travel Documents
7. Machine Readable Visas
8. Reserved for future use (Emergency Travel Documents)
9. The Deployment of Biometric Identification and Electronic Storage of Data in MRTDs
10. Logical Data Structure
11. Security Protocols
12. Public Key Infrastructure for Machine Readable Travel Documents





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# Doc 9303 seventh edition Part 1

## Introduction

1. Foreword
2. Scope
3. General considerations
4. Definitions and References
5. Guidance on the use of Doc 9303
6. References



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# Doc 9303 seventh edition Part 2

Specifications for the Security of Design, Manufacture and Issuance of MRTDs

1. Scope
2. Security of the MRTD and its Issuance
3. Machine Assisted Document Verification
4. Security of MRTD Production and Issuance Facilities
5. Provision of Information on Newly Issued MRTDs
6. Provision of Information on Lost and Stolen MRTDs

Appendix A – Security Standards for MRTDs

Appendix B – Machine Assisted Document Security Verification

Appendix C – The Prevention of Fraud Associated with the Issuance Process

Appendix D – ASF/SLTD Key Considerations





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# Doc 9303 seventh edition Part 3

Specifications Common to all Machine Readable Travel Documents

1. Scope
2. Physical Characteristics of MRTDs
3. Visual Inspection Zone (VIZ)
4. Machine Readable Zone (MRZ)
5. Codes for Nationality, Place of Birth, Location of Issuing State/Authority and other Purposes
6. Transliterations Recommended for Use by States
7. Deviations
8. References

Appendix A – Examples of Check Digit Calculation

Appendix B – Arabic Transliteration, Details and Examples



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# Doc 9303 seventh edition Part 4

Specifications for Machine Readable Passports (MRPs) and other TD3 size MRTDs

1. Scope
2. Construction and Dimensions of the MRP and MRP Data Page
3. General Layout of the MRP Data Page
4. Contents of the MRP Data Page
5. References

Appendix A – Examples of a Personalized MRP Data Page

Appendix B – Construction of the Machine Readable Zone of the Passport Data Page



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# Doc 9303 seventh edition Part 5

Specifications for TD1 size Machine Readable Official Travel Documents (MROTDs)

1. Scope
2. Dimensions of the TD1 size MROTD
3. General Layout of the TD1 size MROTD
4. Contents of a TD1 size MROTD
5. References

Appendix A – Examples of a Personalized TD1 size MROTD

Appendix B – Construction of the Machine Readable Zone of a TD1 size MROTD

Appendix C – Technical Specifications for a Machine Readable Crew Member Certificate (CMC)



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# Doc 9303 seventh edition Part 6

Specifications for TD2 size Machine Readable Official Travel Documents (MROTDs)

1. Scope
2. Dimensions of the TD2 size MROTD
3. General Layout of the TD2 size MROTD
4. Contents of a TD2 size MROTD
5. References

Appendix A – Examples of a Personalized TD2 size MROTD

Appendix B – Construction of the Machine Readable Zone of a TD2 size MROTD



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# Doc 9303 seventh edition Part 7

## Machine Readable Visas

1. Scope
2. Technical Specifications for Format-A Machine Readable Visas (MRV-A)
3. General Layout of the MRV-A
4. Detailed Layout of the MRV-A
5. Technical Specifications for Format-B Machine Readable Visas (MRV-B)
6. General Layout of the MRV-B
7. Detailed Layout of the MRV-B
8. Use of Optional barcodes on Machine Readable Visas
9. References

Appendix A – Examples of a Personalized MRVs

Appendix B – Construction of the MRZ

Appendix C – Positioning in Passport

Appendix D – Materials and Production Methods



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# Doc 9303 seventh edition Part 8

Reserved for Future Use

Emergency Travel Documents



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# Doc 9303 seventh edition Part 9

## Deployment of Biometric Identification and Electronic Storage of Data in eMRTDs

1. Scope
2. eMRTD
3. Biometric Identification
4. The Selection of Biometrics Applicable to eMRTDs
5. Storage of the Biometric and other Data in a Logical Format in a Contactless IC
6. Test Methodologies for (e)MRTDs
7. References

Appendix A – Placement of the Contactless IC in an eMRP

Appendix B – Process for Reading eMRTDs





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# Doc 9303 seventh edition Part 10

Logical Data Structure (LDS) for Storage of Biometrics and other Data in the Contactless IC

1. Scope
2. Requirements of the Logical Data Structure
3. Application Profile for the Contactless IC
4. File Structure Specifications
5. Elementary Files
6. Data Elements Forming Data Groups 1 through 16
7. References

Appendix A – Logical Data Structure Mapping Examples



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# Doc 9303 seventh edition Part 11

## Security Mechanisms for MRTDs

1. Scope
2. Assumptions and Notations
3. Securing Electronic Data
4. Access to the Contactless IC
5. Authentication of Data
6. Authentication of the Contactless IC
7. Additional Access Control Mechanisms
8. Inspection System
9. Common Specifications
10. References



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# Doc 9303 seventh edition Part 11

## Security Mechanisms for MRTDs

Appendix A – Entropy of the MRZ-Derived Access Keys

Appendix B – Point Encoding for the ECDH-Integrated Mapping

Appendix C – Challenge Semantics

Appendix D – Worked Example: Basic Access Control

Appendix E – Worked Example: Passive Authentication

Appendix F – Worked Example: Active Authentication

Appendix G – Worked Example: PACE – Generic Mapping

Appendix H – Worked Example: PACE – Integrated Mapping



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# Doc 9303 seventh edition Part 12

## Public Key Infrastructure for MRTDs

1. Scope
2. Overview of the Public Key Infrastructure
3. Roles and Responsibilities
4. Key Management
5. Distribution Mechanisms
6. PKI Trust and Validation
7. Certificate and CRL Profiles
8. CSCA Master List Structure
9. References

Appendix A – Lifetimes

Appendix B – Certificate and CRL Profile Reference Text

Appendix C – Earlier Certificate Profiles

Appendix D – RFC 5280 Validation Compatibility



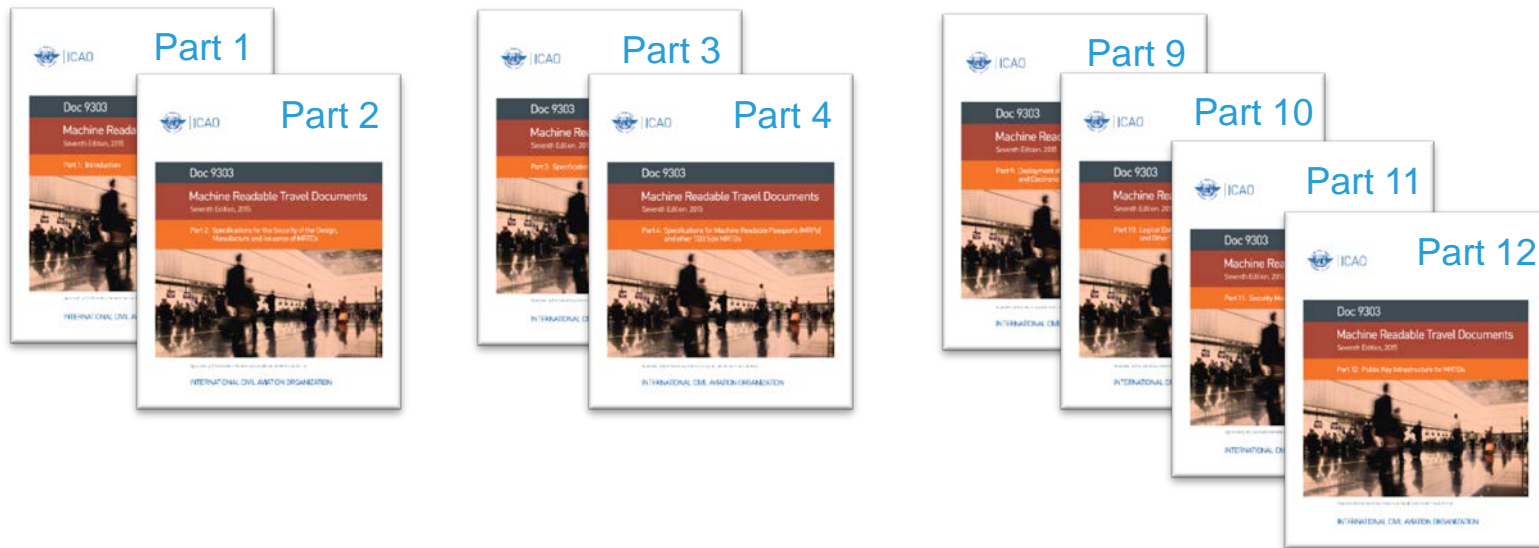
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# Using the seventh edition ePassport Book





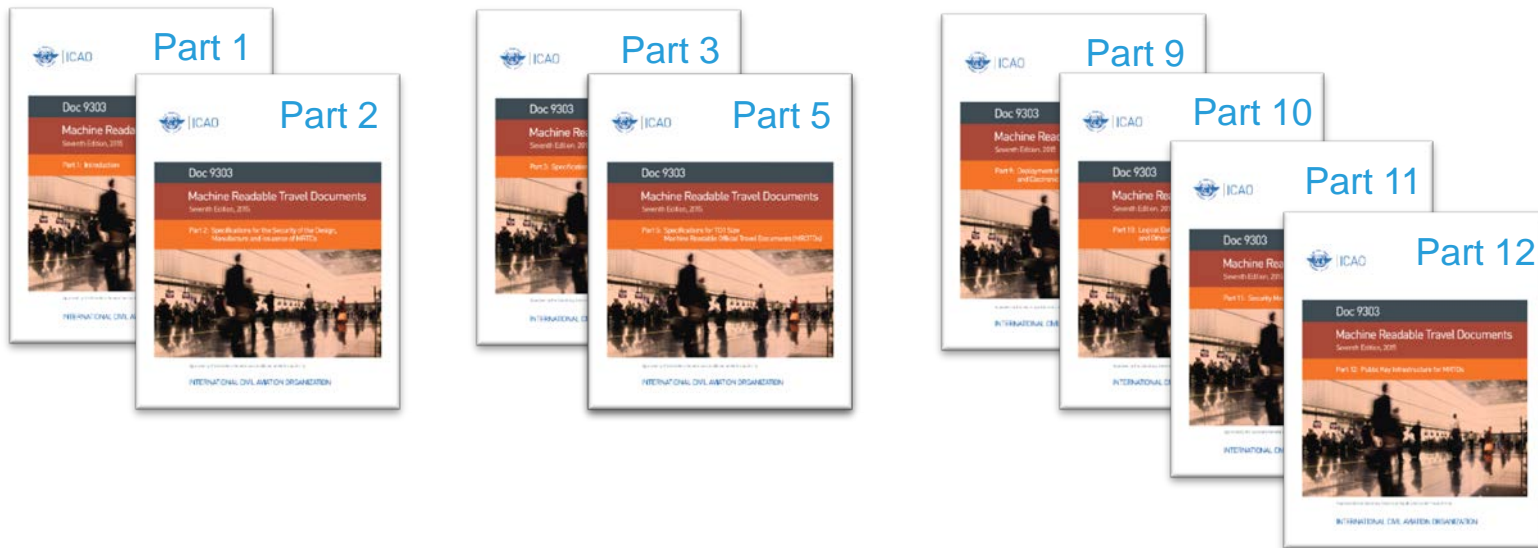
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# Using the seventh edition Chipless TD1 size Card





# Seventh Edition Characteristics

- No more 'Duplicates'
- Normative Specifications in Main Body, Informative Appendices
- Consistant Terminology
  - Form Factor
  - MRTD, eMRTD
  - MRP, eMRP
  - MROTD, eMROTD
- Consistant Formatting
  - Titles
  - Text
  - Figures
  - Tables
  - Notes

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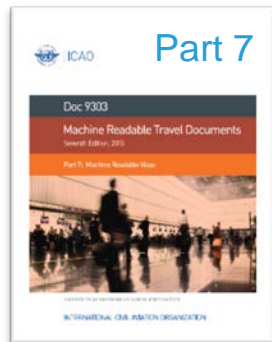
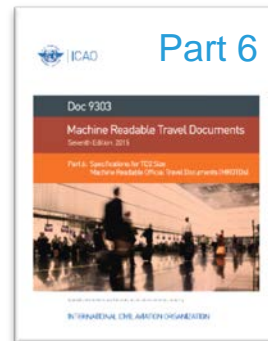
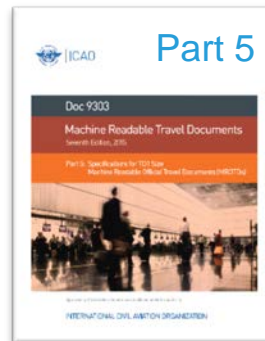
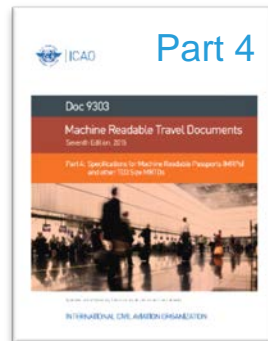
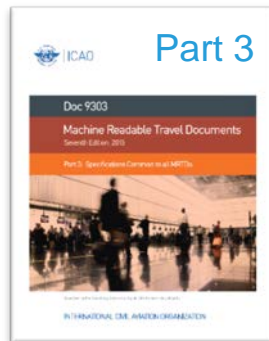
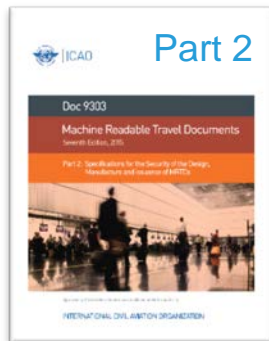
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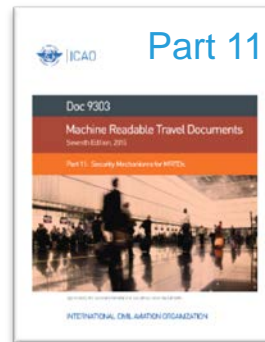
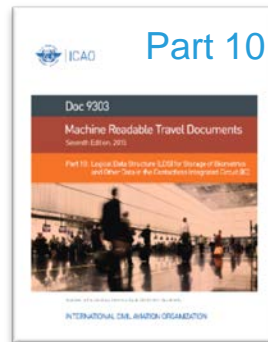
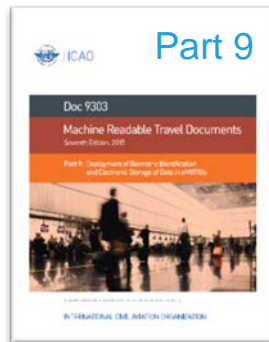
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565 Pages



Part 8





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