



International Civil Aviation Organization

Sixth Symposium and Exhibition
on ICAO MRTDs, Biometrics
and Security Standards

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Current Issues Implementing MRPs and eMRPs

Dwight MacManus
Implementation and Capacity Building Working Group
(ICBWG)

Introduction

- ICBWG is monitoring passport readability & interoperability issues
- 9 national passports initially identified with issues
 - including both MRPs and ePassports
- ICBWG has started to contacting states to seek clarification, offer guidance if requested



Overview

Focus of this presentation:

- 1) Highlight the most common issues through illustrations and examples
- 2) Explore the potential impact of non-compliance with Document 9303 standards
- 3) Guidance on possible solutions



Overview

Four main categories of issues:

- 1) Incorrect MRZ formatting
- 2) MRZ personalization issues
- 3) Passport materials
- 4) ePassport and PKI concerns



Category 1: MRZ formatting

 MRZ follows a specific format to ensure interoperability

APPENDIX 6 to Section IV

**CONSTRUCTION OF THE MACHINE READABLE ZONE
OF THE PASSPORT DATA PAGE**

P indicates that the document is a passport book. One additional character may be used to further identify the document at the discretion of the issuing State.

The three-letter code to indicate the issuing State*

Primary identifier: Where there is more than one component, they shall be separated by a single filler character.

Secondary identifier: Each component is separated by a single filler character.

Double filler characters indicate that this is the end of the primary identifier.

Filler characters used to complete the upper machine readable line, which indicate there are no other name components included.

P <UTO ERIKSSON<<ANNA<MARIA <<<<<<<<<<<<

L898902C<3UTO 690806 1F940623 6 ZE184226B<<<< 1 4

Check digit on the document number

Holder's date of birth in format YYMMDD

Sex of holder (M, F or S)

Check digit on date of expiry

Check digit on optional data

Document number comprising up to 9 alphanumeric characters. Unused character positions occupied by a filler (<).

Nationality of the holder represented by a three-letter code*

Check digit on date of birth

Date of expiry of the document in format YYMMDD

Optional data at the discretion of the issuing State

Overall check digit on the lower machine readable line



Category 1: MRZ formatting

- Common issues:

 Incorrect document type

 ISO Country identifier

 Incorrect check digit calculation



Category 1: MRZ formatting

- Issue: Incorrect document identifier
 - Impact:
 - a) Manual intervention
 - b) Incorrect type identified



Category 1: MRZ formatting

- Issue: Incorrect country identifier
- Impact: Manual intervention required

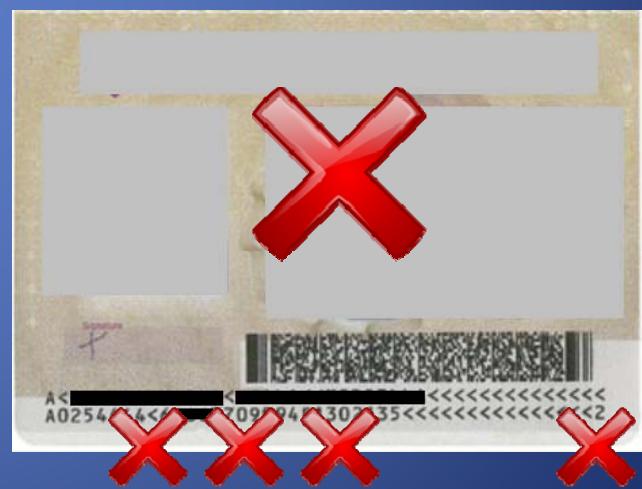


APPENDIX 7 to Section IV	
THREE-LETTER CODES	
(based on Alpha-3 codes for entities specified in ISO 3166-1, with extensions for certain States being identified by an asterisk)	
Part A — Codes for designation of nationality, place of birth or issuing State/authority	
Entity (short name)	Code
Afghanistan	AFG
Aland Islands	KHM
Albania	CYM
Algeria	CAF
American Samoa	TCD
Andorra	CPV
Angola	CHN
Anguilla	CXR
Antarctica	COK
Antigua and Barbuda	CIV
Argentina	COL
Armenia	COG
Aruba	COM
Australia	CRI
Austria	CIV
Azerbaijan	HRV
Bahamas	CUB
Bahrain	CYP
Bangladesh	CZE
Barbados	Dominican Republic
Belarus	Democratic People's Republic
Belgium	of Korea
Belize	Democratic Republic
Benin	of the Congo
Bermuda	Denmark
Bhutan	Djibouti
Bolivia	Dominica
Bosnia and Herzegovina	Dominican Republic
Botswana	Ecuador
Bouvet Island	Egypt
Brazil	El Salvador
British Indian Ocean Territory	Equatorial Guinea
Brunei Darussalam	Eritrea
Bulgaria	GNQ
Burkina Faso	ERI



Category 1: MRZ formatting

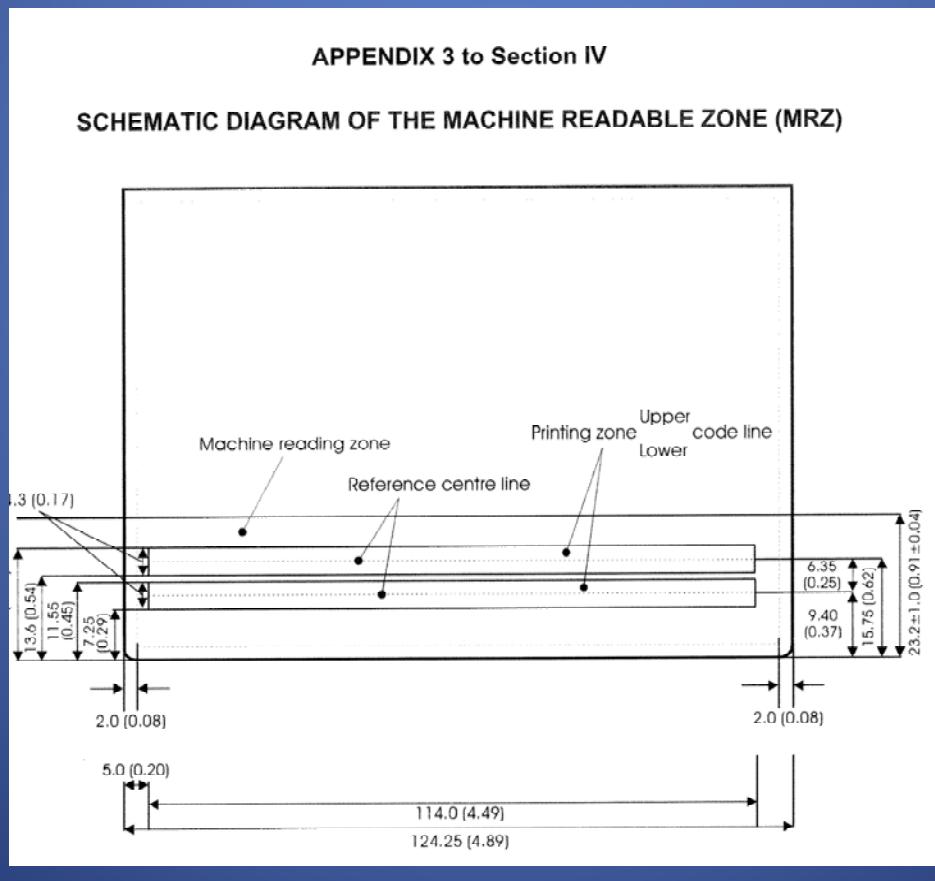
- Issue: Incorrect check digits
 - Impact: a) Possible alerts/flags in border systems
b) Prevent BAC on ePassports



Category 2: MRZ Personalization



Correct positioning is key to readability



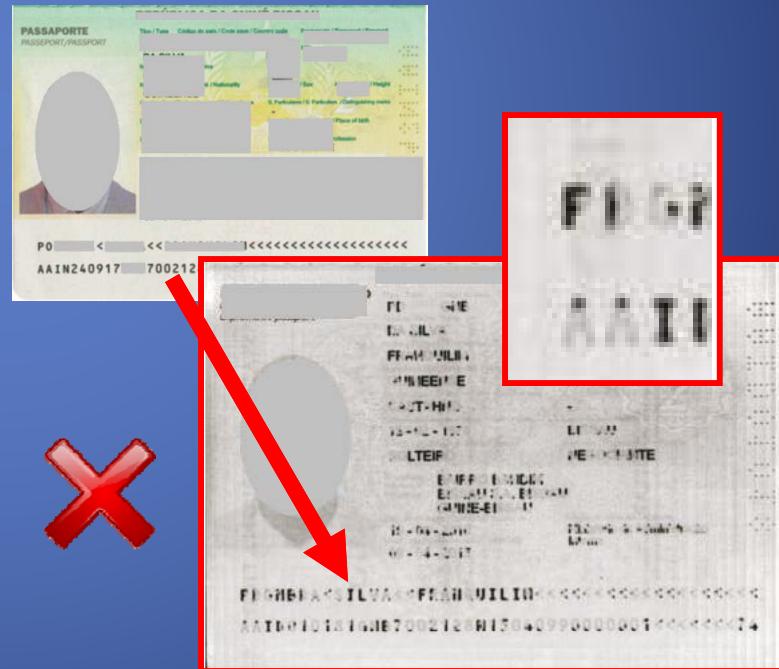
Category 2: MRZ Personalization

- Common problems, found in MRPs & eMRPs:
 - ✗ Poor print quality
 - ✗ Incorrect positioning
 - ✗ Intrusions into the MRZ



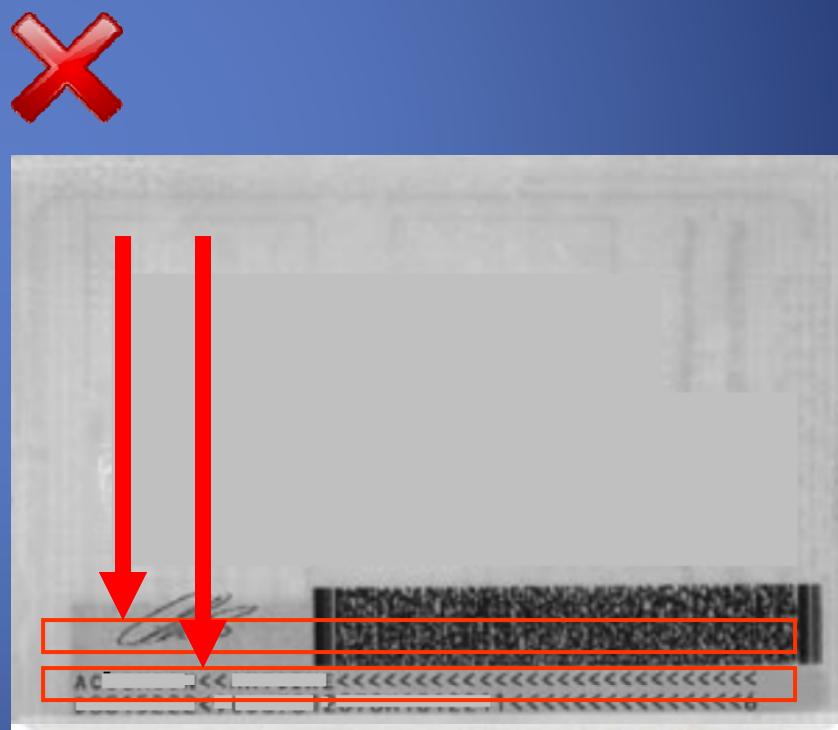
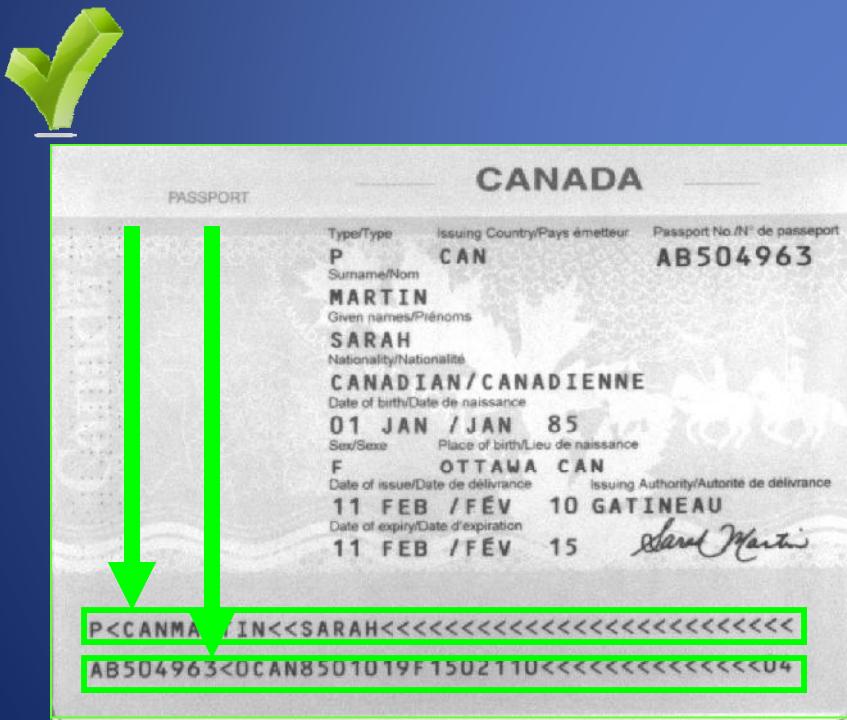
Category 2: MRZ Personalization

- Issue: Poor print quality
 - Impact: Not readable, not compliant



Category 2: MRZ Personalization

- Issue: Position error
 - Impact: Interfere with readability, not compliant



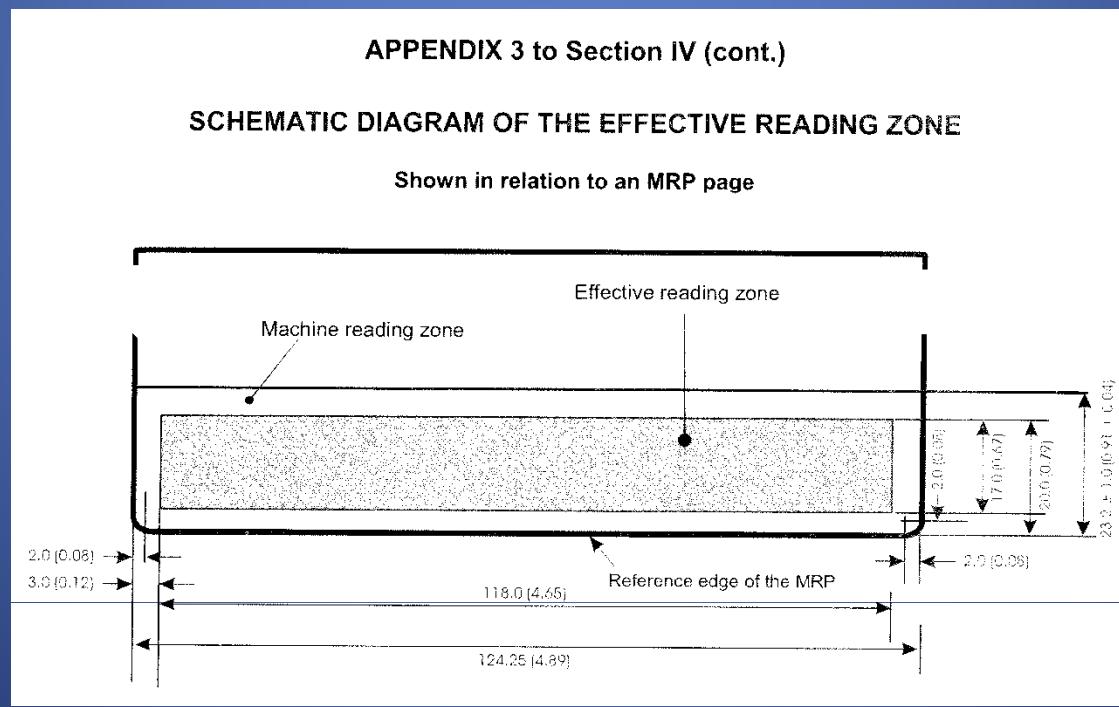
Category 2: MRZ Personalization

- Issue: Intrusions into the MRZ
 - Impact: Not readable, interference



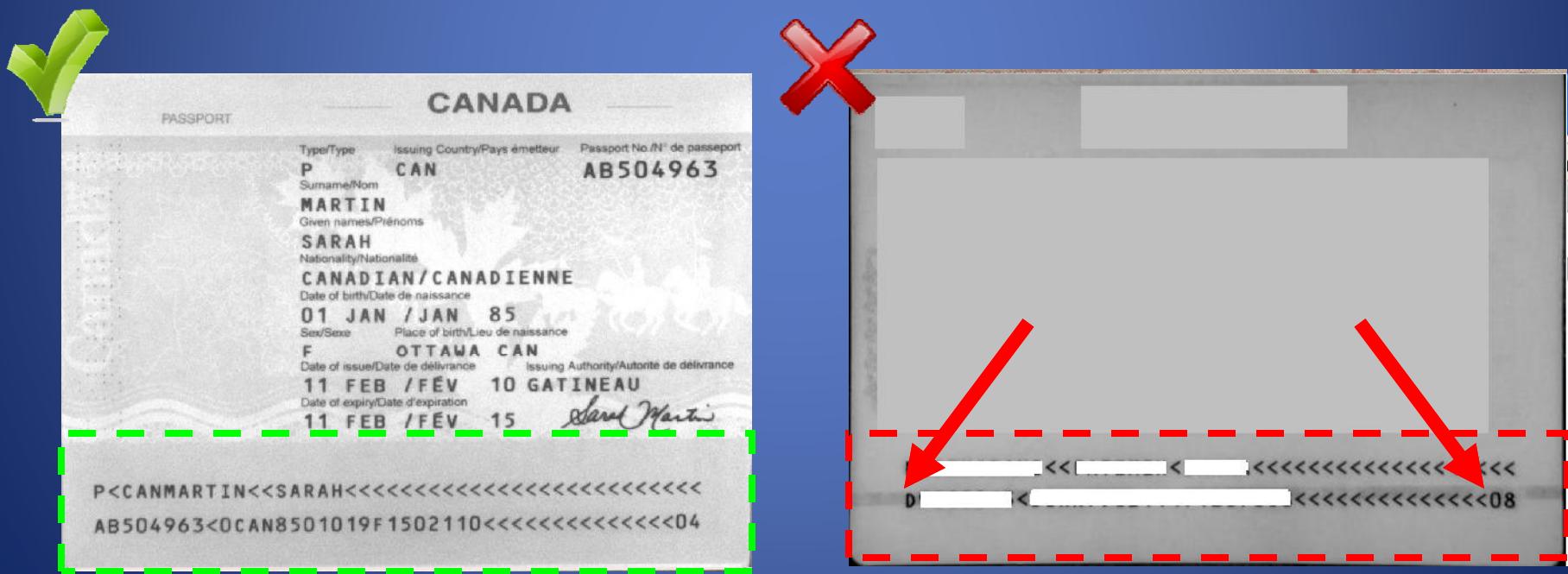
Category 3: Passport materials

- ✓ ICAO 9303 has physical specification regarding the MRZ



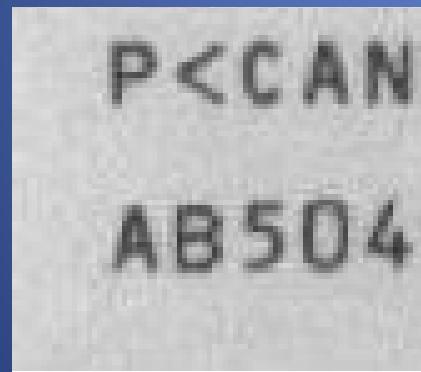
Category 3: Passport materials

- Issue: Presence of security features in the Infrared (IR)
 - Impact: Interference with MRZ



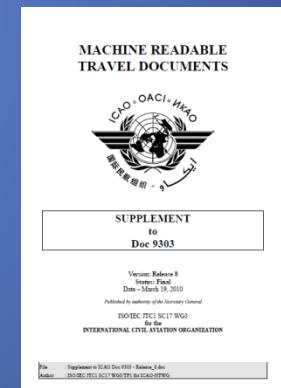
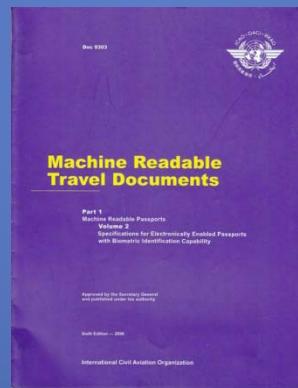
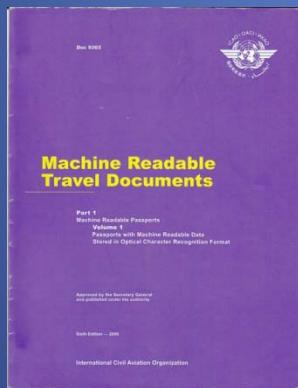
Category 3: Passport materials

- Issue: Security Fibres
- Impact: Interference with character recognition



Category 4: ePassport formatting

- ✓ An ePassport must comply with 9303, Part 1, Volume 1 AND 2, and Supplements.

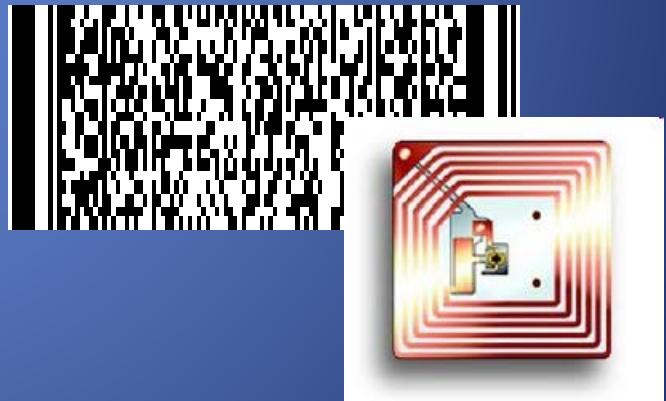
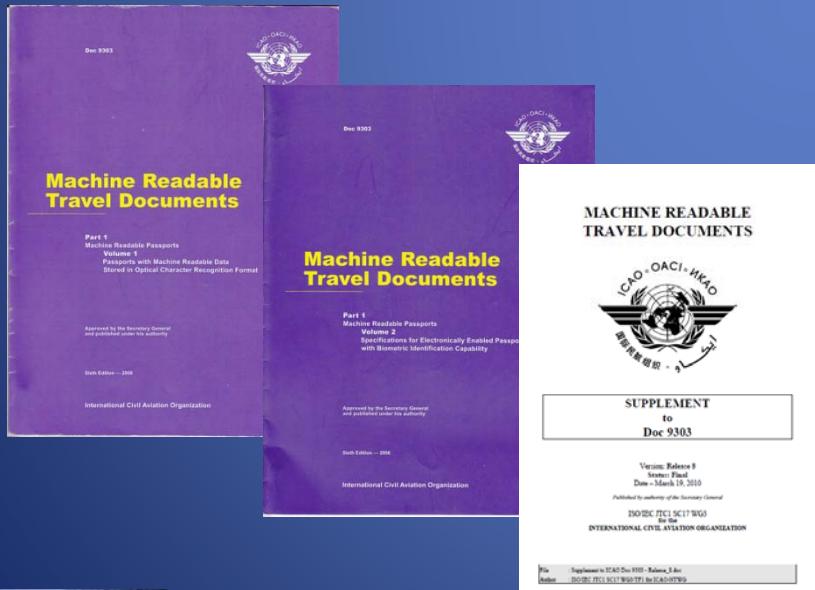


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Category 4: ePassport formatting

- 2D barcode is not an ‘electronic’ passport
- Confusion over ‘chip’ in passport vs. ‘ePassport’

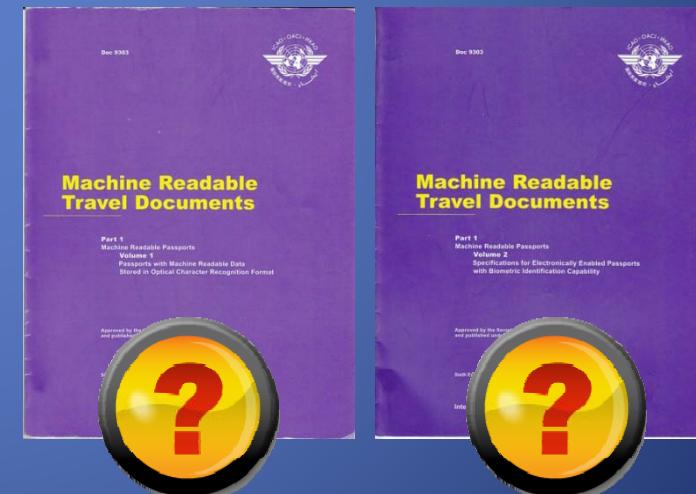


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Category 4: ePassport formatting

- Issue: Incorrect (or no) PKI infrastructure
- Impact:
 - a) Erroneous results during inspection
 - b) Erosion of confidence in the ePassport



Not compliant??



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Summary

- Many of the aforementioned issues can be detected through basic quality practices
- States encouraged to validate their book against 9303 prior to issuance & develop their own in house expertise on the standards
- Particular attention should be paid to eMRP....it must comply with 9303 Part 1, Volumes 1 & 2



Closing Remarks

- ICBWG can assist governments in achieving compliant, interoperable passports
- ICAO Secretariat is interested in receiving information about suspected non-compliance/interoperability issues
- Contact:

Erik Slavenas, Program Officer
e.slavenas@icao.int

