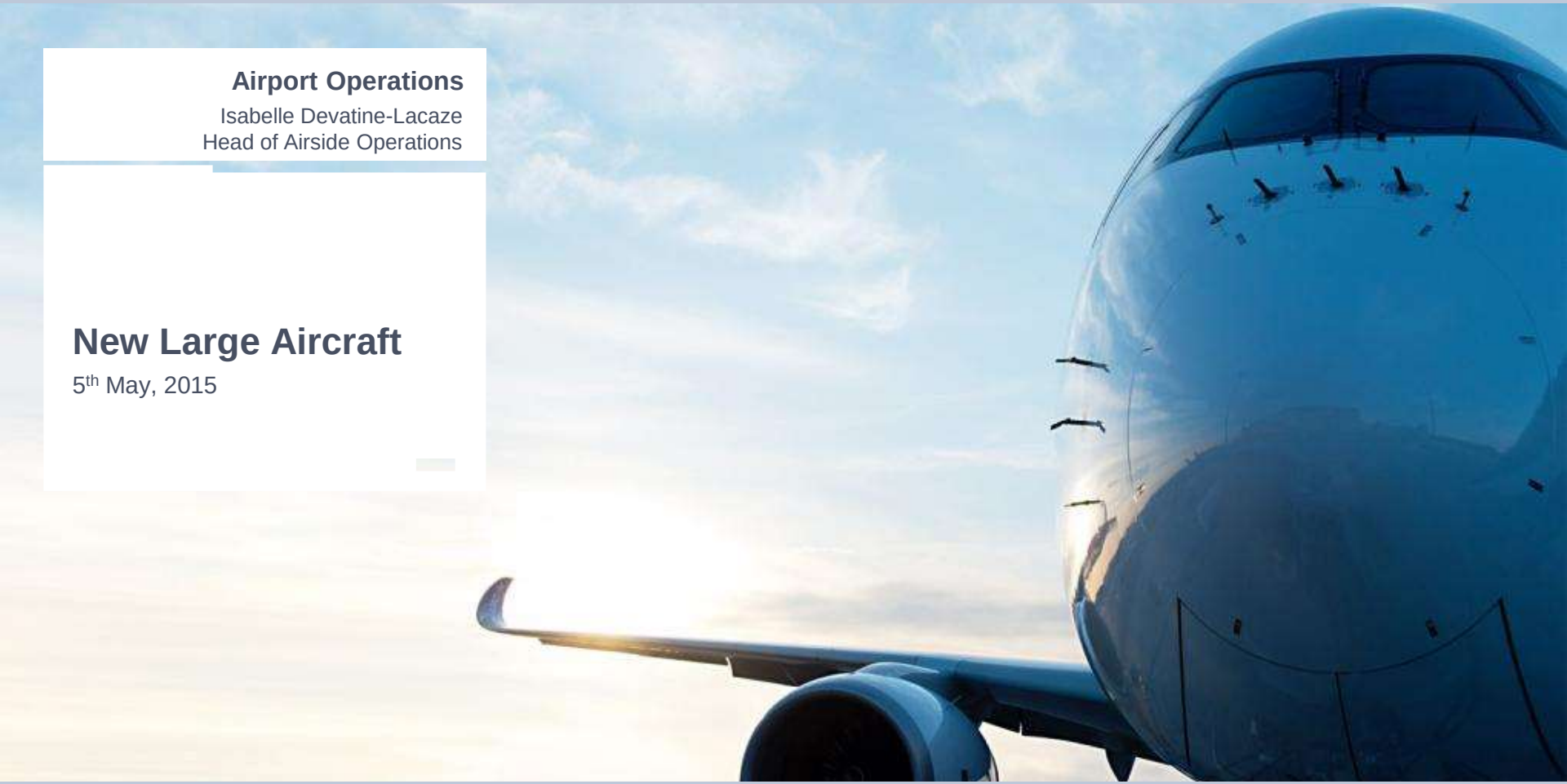


Airport Operations

Isabelle Devatine-Lacaze
Head of Airside Operations

New Large Aircraft

5th May, 2015

AIRBUS

Introduction

- EASA is taking a new role in rule making & certification for Airports operations
- Airbus believes it is the right time to improve the positioning of the A380 at EASA and ICAO based on successful operational experience since 10 years
- With the A380 being the biggest carrier today, Airbus would like to offer its expertise in defining the optimum airport requirements:
    - Point raised at last EASA Aerodrome Sub SSCC
    - Action engaged with ICAO so as to ensure a consistent overall approach

A380 and airports

Airbus wants to engage a revision of the current ICAO/EASA airport classification philosophy

ICAO airport infrastructure categorization

	A350-1000	B777-300ER	B777-9	B747-8I	A380-800
Max. Take-off weight	308t	352t	352t	447t	560t
ICAO code	**E** 52m to 65m	**E** 52m to 65m	**E/F**	**F** 65m to 80m	**F** 65m to 80m
Wingspan	64.8m	64.8m	64.8m 71.8m	68.5m	79.8m
Length	73.8m	73.9m	76. 7m	76.4m	72.7m
Tail Height	17.2m	18.6m	19.7m	19.6m	24.1m
Ext. fuselage width	6.05m	6.2m	6.2m	6.5m	7.1m
ICAO RFF	**Cat 9**	**Cat 9**	**Cat 10**	**Cat 10**	**Cat 10**

Proposed Airbus action plan

Improve A380 positioning at ICAO level

Issue

Code F airport design recommendation is solely based on wingspan and does not take into account the actual aircraft certification standard & demonstrated performance

Our objectives:

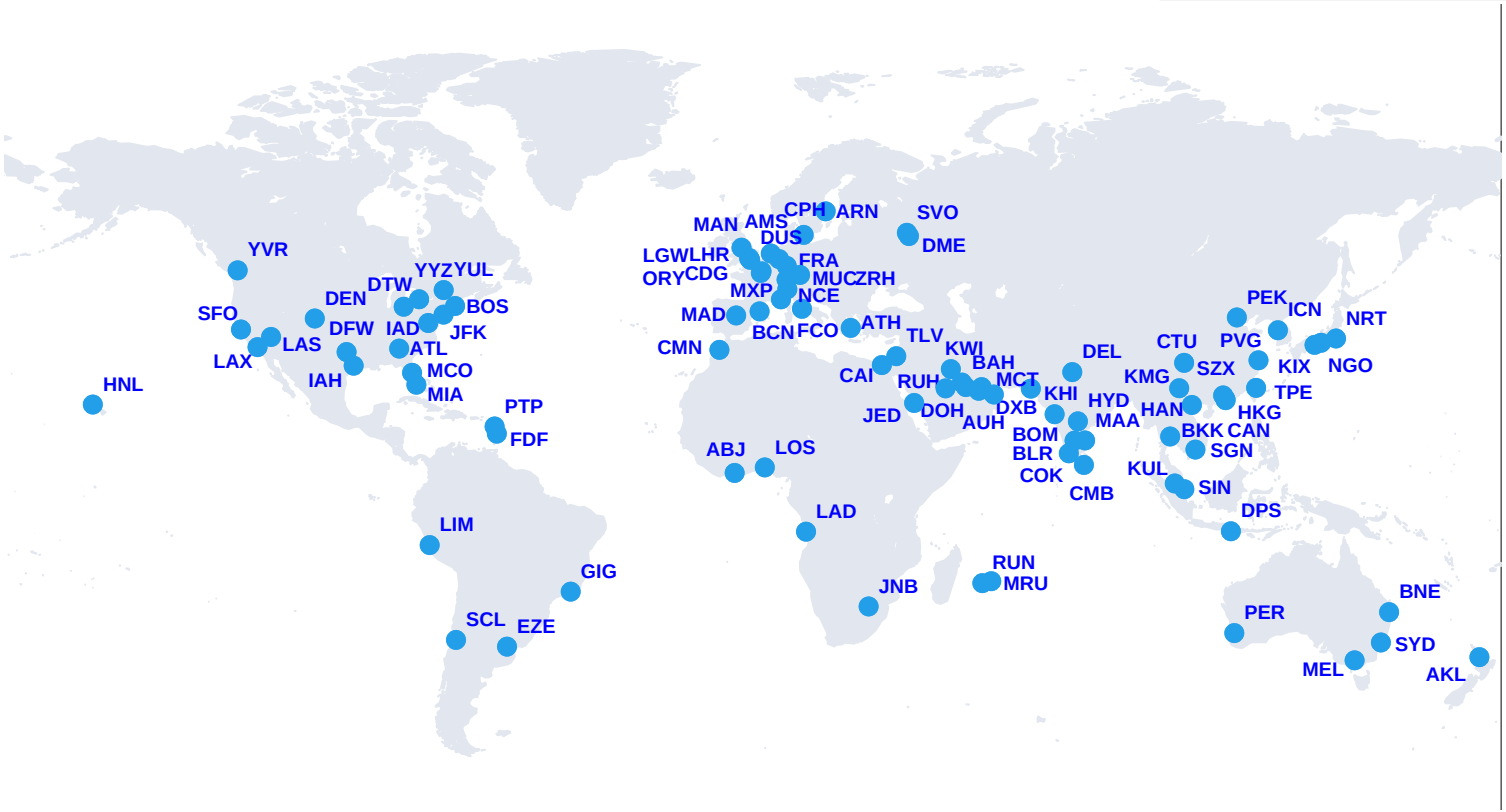
	A380 target
• Runway & Taxi widths: 45m & 23m,	**Code E**
• Runway-taxi way separations: 182.5m	**Code E**
• Taxi-way shoulders:	**Code E**
• OFZ	**Code E**
• Runway shoulders:	**Code F**
• Taxiway/Taxilane-object separation	**Code F (Table D-1/3.1 included)**
• Stand	**Code F (Table D-1/3.1 included)**

Rationale:

- Airbus recommendations provide more realistic guidance to airports (AACG)
- 2-engine taxi must be taken into account to reduce taxiway width-shoulders

* Airport Design & Operations Panel at ICAO

A380 ready Airports along the Code E+ airside criteria (90 airports)



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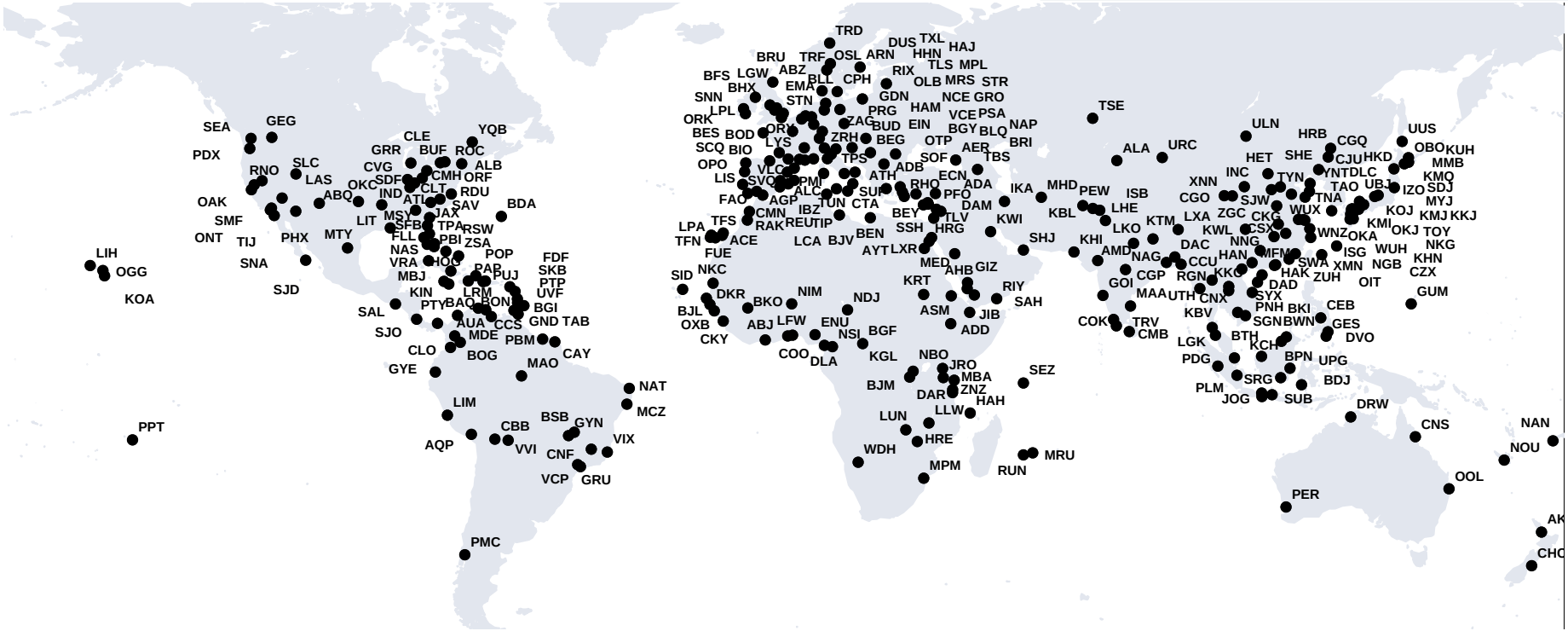
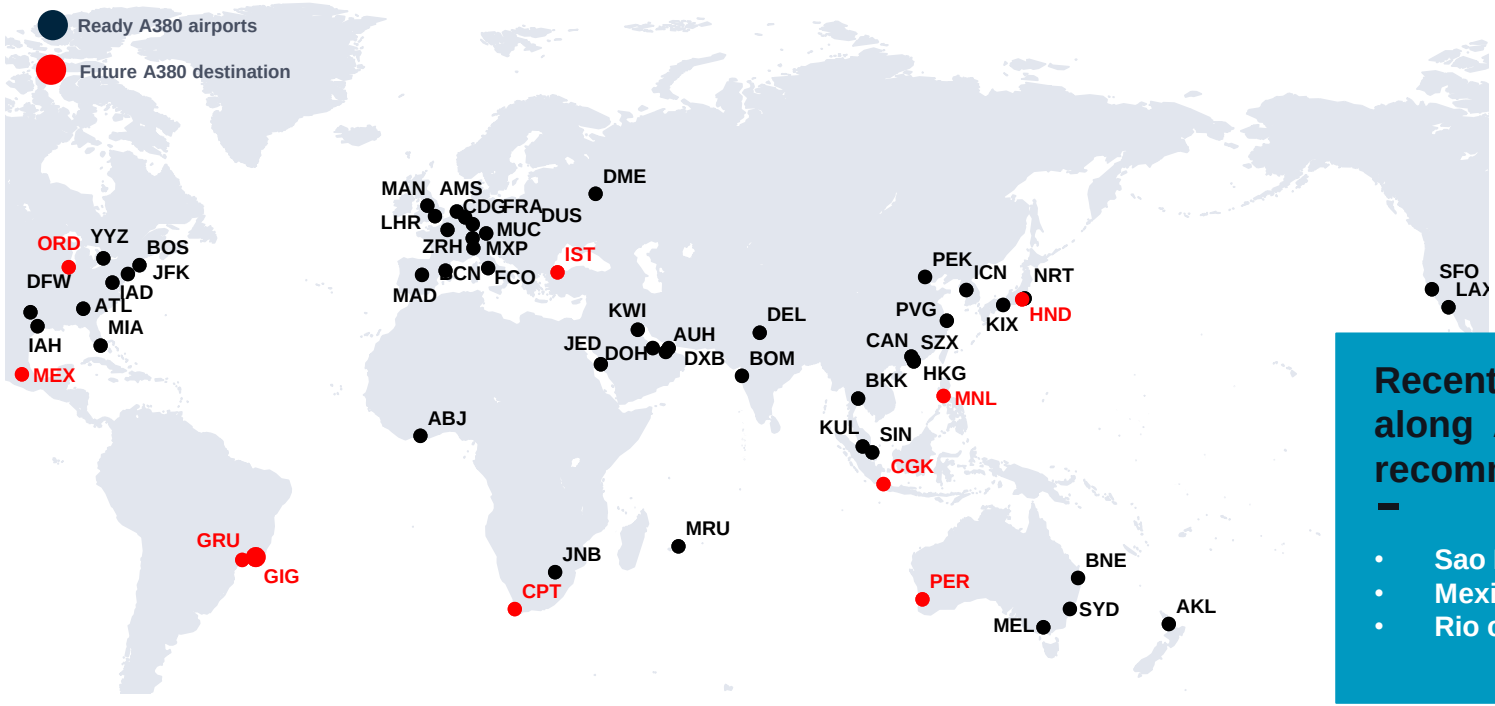
Target airports: Code E airside* (330 airports)



* Code E taxiway/taxiway or taxiway&taxilane/object separations still to be checked among this list

Airbus action plan with airports

Approach airlines, airports & local authorities to get more airports adapted to A380 operations



Recent achievements along AACG (Airbus recommendation)

- Sao Paulo conversion starts
- Mexico Conversion Starts
- Rio conversion started

Airbus involvement in Airport Regulations

- ICAO
  - Participation in ANC Aerodromes Design and Operations Panels and subgroups: ADWG for Annex 14 revision, PASG for PANS Aerodromes, AOSWG for Operations (friction, pavement,…)
  - Next 2 year cycle, aim to revisit criteria and lack of guidance material which are penalizing A380 airport integration
- EASA
  - Participation to Sub SSCC Aerodrome subgroup. Recent NPA implementation on separations.
  - Promotion of AACG use to support the definition of a new standard
- FAA
  - Regular contacts and meetings with FAA Airports, FAA Flight Standards and FAA Tech Centres. Ongoing debate on AC150-5300 change 1
- Other major CAAs in contact
  - DGAC, CAA UK, BMVDS, CAA Netherlands, CASA, JCAB, CAAC …

Existing Operational standards

Circular 305, 301

EASA ADR.OPS.B.090 + flexibility tools (DAAD, ELOS, SC)

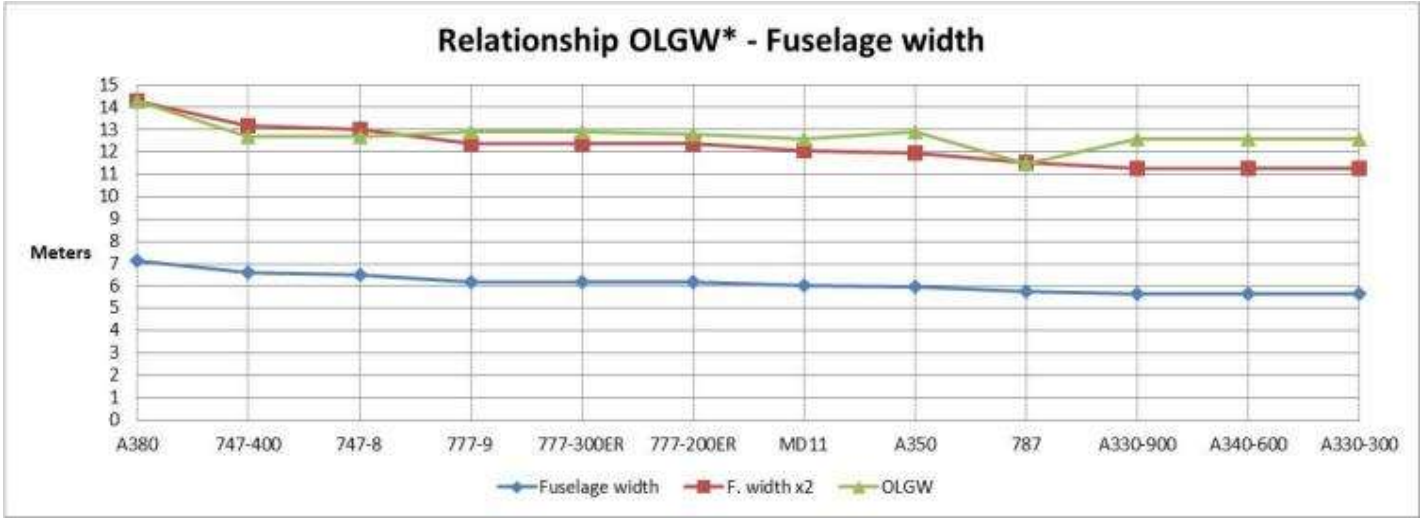
MOS

AACG

RWY & TWY width criteria

- ICAO & EASA rationale unknown
- Criteria challenged as width determination criteria should be linked to:
  - Landing gear overall track
  - Handling qualities
  - Aircraft technology

~~➔ Wingspan~~



Build on AACG efforts and findings

Shoulders and Extra Shoulders strength

ICAO / FAA recommendations* for runway shoulders

More stringent

1. To protect for jet blast erosion
2. To prevent the ingestion of stones or other objects by turbine engines
3. To be capable of supporting ground vehicles which may operate on the shoulder
4. To be capable, in the event of an aeroplane running off the runway, of supporting the aeroplane without inducing structural damage to the aeroplane

Design requirements for ***Extra*** shoulders

✓ *Required*

✓ *Required*

✓ *Required*

✗ ***Not required***

A380 lateral deviations are comparable to existing widebody aircraft (ref. EASA/FAA certification). Extra shoulders do not need to cope with an A380 running off the runway

** ICAO Annex 14 / FAA AC 150/5300-13*

Extra shoulders have much less stringent requirements

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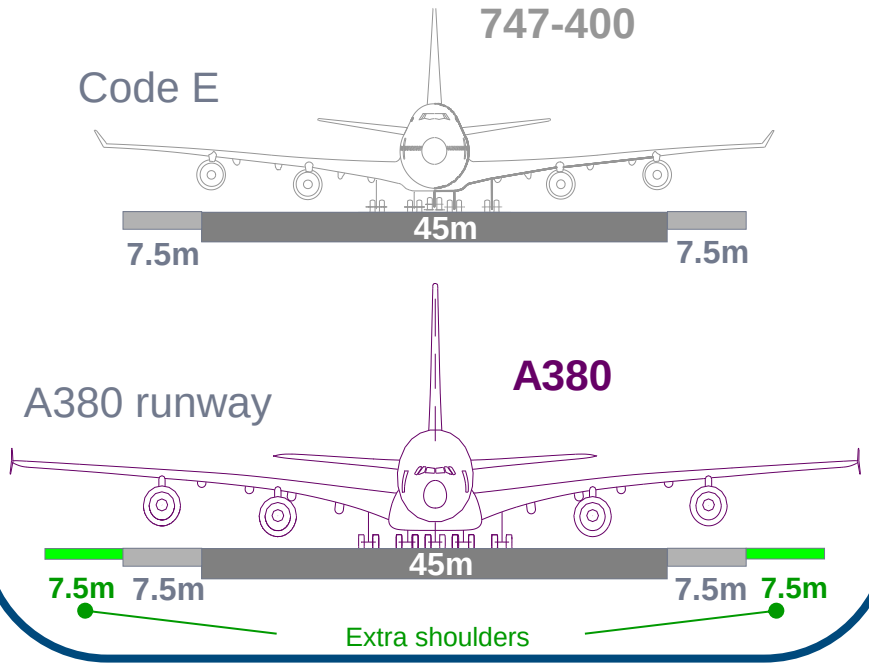
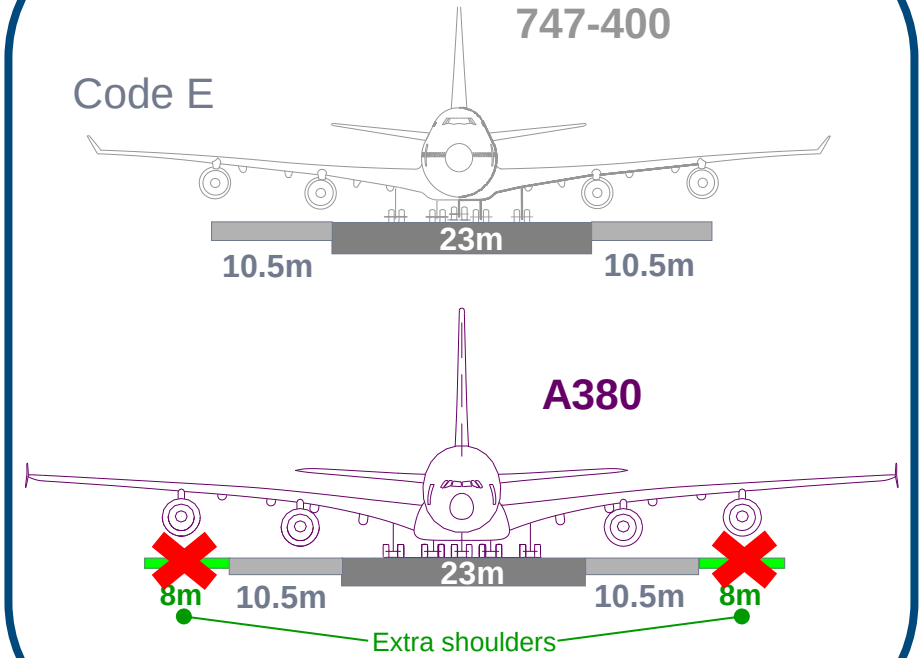
Shoulders and Extra Shoulders width

Runway configuration comparison



Existing surface may be suitable. If not, many solutions exist: seeding grass, netting, chemical binding or asphalt covering

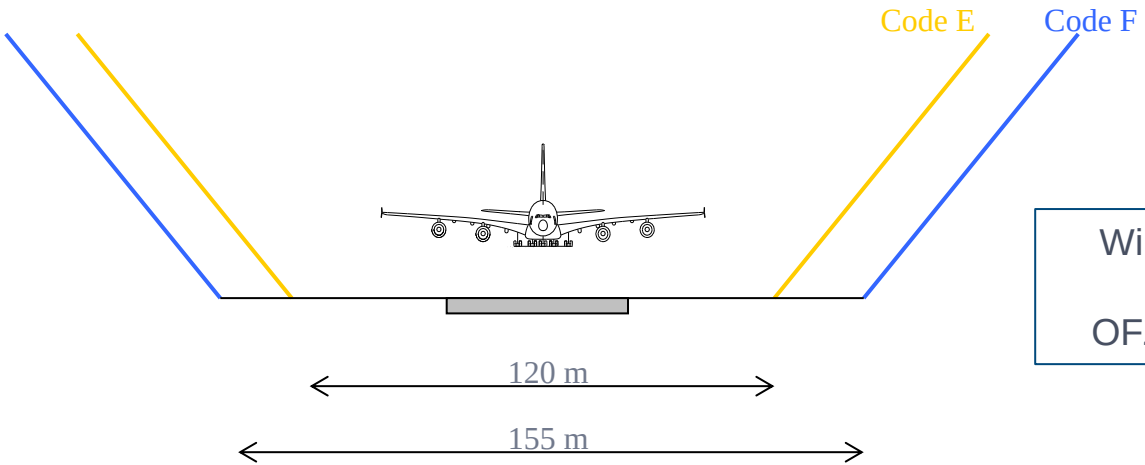
Taxiway configuration comparison



Outer engines ground clearance should allow to operate without extra shoulders

OFZ width criteria

ICAO current criteria's



Wingspan difference code E-F = 15m
vs
OFZ width difference code E-F = 35m!

Criteria challenged as width determination criteria should be linked to **actual aircraft Performance**

Runway – Taxiway separation

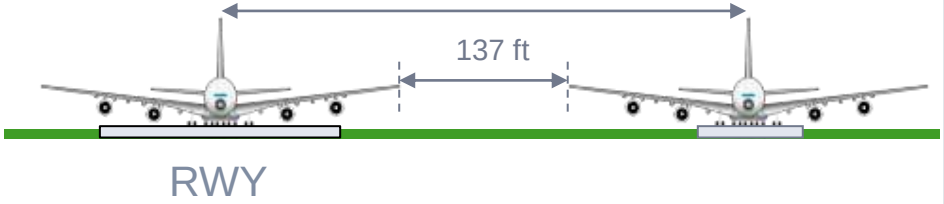
ICAO & FAA have different rationales

*(2) Code E **as a target***

FAA

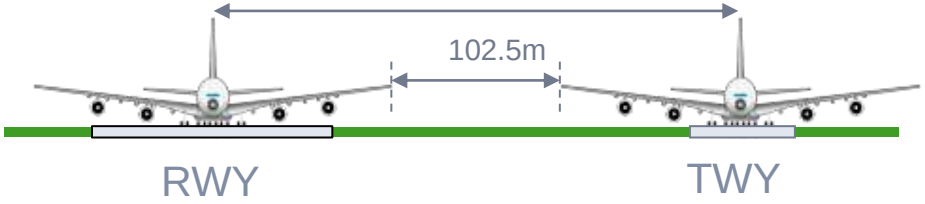
(1) ADG V
Under negotiation for A380 & 777-9X

400 ft(1)



ICAO

182.5m (2)



Criteria challenged as separation determination criteria should be linked to **actual aircraft Performance**

Large Aircraft classification target for Airbus: align ICAO code F on AACG

Items	ICAO Code E	ICAO Code F	AACG A380 Agreement
RWY width (+shoulder)	45m (+ 2x7.5m) = 60m	60m (+ 2x7.5m) = 75m	45m (+ 2x15m) = 75m
TWY width (+shoulder)	23m (+ 2x10.5m) = 44m	25m (+ 2x17.5m) = 60m	23m (+ 2x18.5m) = 60m
TWY width of taxiway/taxilane strip	47.5/42.5 m	57.5/50.5 m	49/47.5 m
RWY/TWY separation	182.5m	190m	TBD, 190m seen as conservative value
OFZ width	120m	155m	120m
TWY/TWY separation	80m	97.5m	91m with proper taxi guidance
TWY/Taxilane/Object separation	47.5m - 42.5m	57.5m - 50.5m	49m - 47.5m with proper taxi guidance
Taxiway bridge width	44m	60m	49m +11m for jet blast protection
Clearance at gate	7.5m	7.5m	< 7.5m with appropriate measure

Target to be ratified in ICAO/EASA

Target to be code E compliant

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European airports operated by A380: AACG already implemented

(1) Airbus view

Airport code	Airport name	Frequencies (flight numbers / week)	AACG validated(1)
FRA	Frankfurt	54	Yes (partly)
CDG	Charles de Gaulle	65	Yes (partly)
MAN	Manchester	7	Yes
MUC	Munich	7	Code F
BCN	Barcelona	New destination in 2014	Code F
ZRH	Zurich	14	Yes
LGW	London Gatwick	New destination in 2014	Yes
FCO	Rome Fiumicino	7	Code F
AMS	Amsterdam	7	Yes
LHR	London Heathrow	89	Yes

Source: Airbus Miki Airline – 2014-11

Targeting same category for 777-9X, A380, A350-1000

Based on capabilities and not only size

	777-9X	A350-1000	A380
Source	*Means of compliance*	*Means of compliance*	*Means of compiance*
Runway width 45m	To be certified	Code E	Code E Certified
Taxi widths: 23m	Code E	Code E	Code E Approved
RW-TW separation	Code E with FWT	Code E	Code E target
Taxi-way shoulders	Code E (44m)	Code E (44m)	Code E (2-engine taxi)
Taxi-way turns	Similar to 777-300ER	Similar to 777-300ER	Similar to 777-300ER
OFZ	Code E target	Code E	Code E target
Runway shoulders	Code E (60m)	Code E (60m)	Code F (75m)
Taxiway/Taxilane-object separation	Code E	Code E	Code F
Stands	Code E with FWT, 76.8m long	Code E, 74m long	Code F, 73m long

Objective: New A380 airside classification

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Conclusion

- A380 accommodation:
  - Today ICAO code F recommendations are too conservative compared to A380 operational reality
  - Operational standards exists ➔ AACG is ratified by European airports and beyond
- Actions launched:
  - EASA: AACG rationale raised at last ADR Sub SSCC in Dec 2014
  - ICAO: AACG rational raised at last ADOP/1
- Next step:
  - ICAO: Agenda item for discussion at next ADWG in June 2015
  - EASA - Aerodrome Rules Implementation conference: feedback?

Airbus objective: promote AACG use to support a new standard