

Airborne conflict

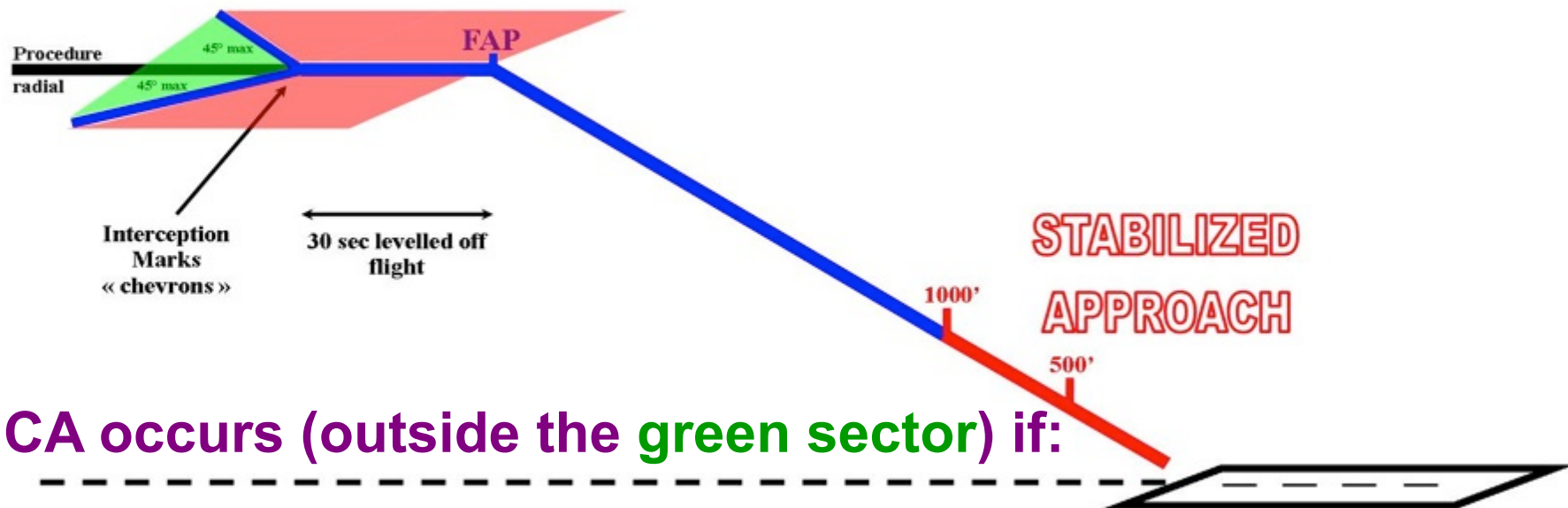
Airspace Built in Safety

Safety analysis through
Non Compliant Approaches

A short list of fatal accidents and severe incidents Involving NCA

- Fatal accident B738 Schiphol February 2009
- Severe incident B737 Air Europa Express November 2006
- Severe incident MD-83 Luxor Air Nantes March 2004
- Fatal accident CRL 100 Brest June 2003
- Fatal accident FK27 Luxair, ELLX November 2002
- Severe incident MD83 Paris Orly November 1997
- Severe incident A310 TAROM Paris Orly September 1994
- Fatal accident Dash 8 Paris CDG January 1993
- Fatal accident A320 Mont Saint Odile January 1992
- Fatal accident EMB120 Bordeaux (Eysines) December 1987

NON COMPLIANT APPROACH



NCA occurs (outside the green sector) if:

- interception angle $> 45^\circ$ (or $> 30^\circ$ on parallel active approaches) **and/or** - intermediate leg < 30 seconds (2Nm for GNSS App) before FAP
- and/or** - glide interception from above
- and/or** - with a non adapted speed (> 180 kts at FAP)

Compliant Approaches : safely built & expected



FOBN Reference : FLT_OPS - GEN - SEQ 02 - REV 01 - OCT. 2007

AMC 20-27 Effective: 23/12/2009

Annex III to ED Decision 2009/019/R of 16/12/2009

**AMC 20-27 Airworthiness Approval and Operational Criteria for RNP
APPROACH (RNP APCH) Operations Including APV BARO-VNAV
Operations**

DOC 4444 PANS/ATM

OPS guide for RNAV approaches (GNSS)

http://www.developpement-durable.gouv.fr/IMG/pdf/ST-GuideO1-PBN-RNAV_GNSS_.pdf

RCA III Chapter 10 Radar use

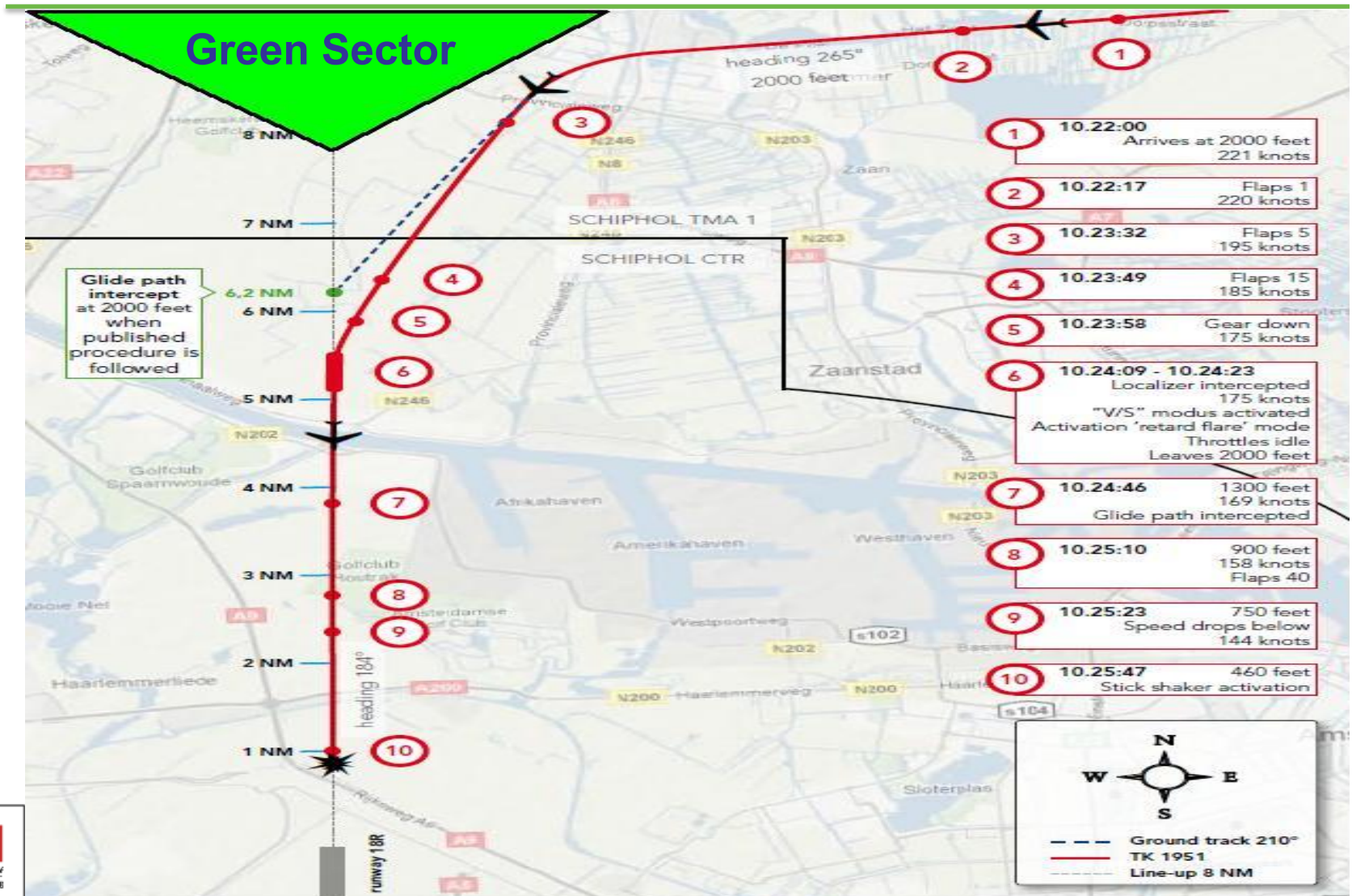
https://www.sia.aviation-civile.gouv.fr/dossier/texteregle/RCA3_291208.pdf



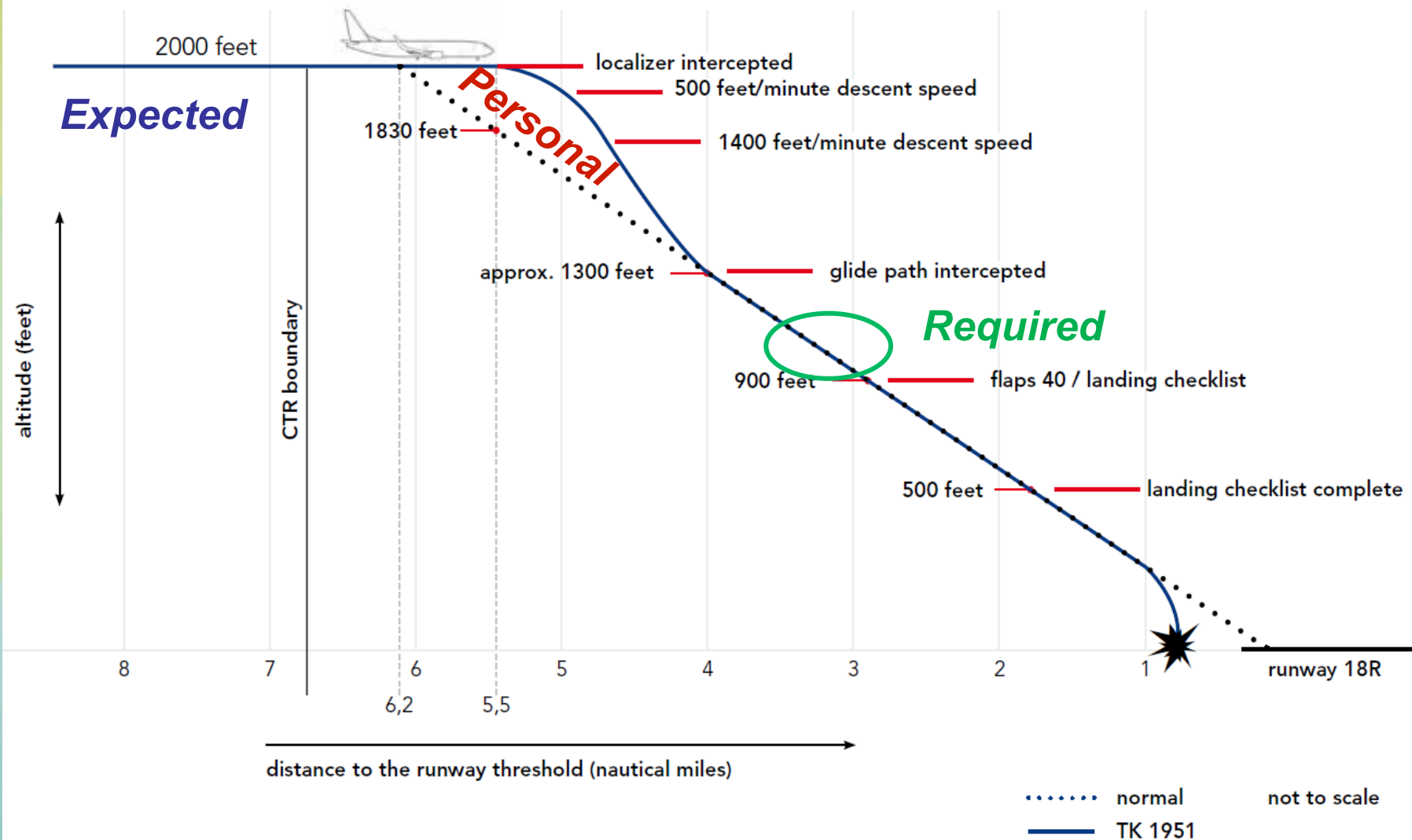
Crash B738 Schiphol 25th February 2009



Crash B738 Schiphol 25th February 2009



Crash B738 Schiphol 25th February 2009



- The aircraft's navigation equipment is designed and optimised for an approach and **interception from below and not from above**.
- Turn-in manoeuvre between 5 and 8 NM at Schiphol airport occurs in **more than 50%** of all for runway 18R approaches. 
- **No feedback mentioned** that this ops mode led to a higher risk.
- As a **result of intercepting the glide slope signal from above**, the incorrect operation of the auto throttle was **obscured** for the crew
- Completing the landing checklist, **no pilot monitored the flight path** and aircraft speed.

Ready for a « DAW » check ? (A. Vernay)



Expected:

Fixed and documented by the authority for the actors' personal database...

Safe area

Personal:

decided with personal criteria and based on experience, emotion of the actor or present encountered conditions...

Required:

Influenced by the procedures developed by an organization, group, association or family...

NCA criterias on approach are strong signals linked to airspace sharing and management





2009-2013 Fatal Aircraft Accidents

94 Accidents

IATA Members	17%
Hull Losses	100%



65%
Passenger



31%
Cargo



4%
Ferry



45%
Jet



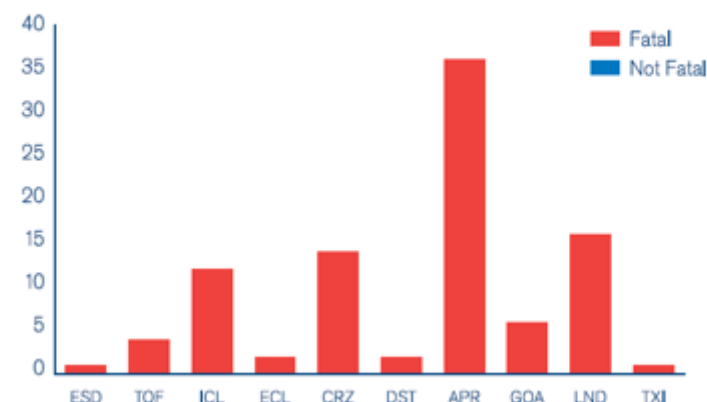
55%
Turboprop

Flight Crew Errors (relating to...)

40% SOP adherence/cross-
verification
Intentional non-compliance
(72% of these cases)
Unintentional non-compliance
(28% of these cases)

Accidents per Phase of Flight

See Annex 1 for detailed "Phase of Flight" definitions



Relationships of Interest, 2009-2013

38% of fatal accidents occurred during the approach phase of flight. Of these, 56% were due to controlled flight into terrain and 63% involved flight crew vertical, lateral or speed deviations.

Deficiencies in the operator's safety management were noted in 79% of events where inadequate standard operating procedures for flight crew were noted as a factor.



Section 4 – IATA Safety Report 2013

Direction générale de l'Aviation Civile

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Regulator actions taken in coordination with designers, operators, actors...

COMMERCIAL AIR TRANSPORT RISK PORTFOLIO

This is the risk portfolio related to commercial air transport, managed by the DGAC within the framework of the State Safety Programme (SSP) and does not affect operators' risk portfolio.

It is noteworthy that in the context of the State Safety Programme:

- An feared consequence (FC) (in the causal chain) is an accident in the sense of ICAO Annex 13;
- An undesirable event (UE) is an unwanted event in view of the services expected. An undesirable event may be technical, procedural or human.

In the analysis model used by DGAC, which is close to the "bowtie" model, the feared consequence is placed on the right side, and the undesirable event at the centre.

No.	Identification of undesirable event	CFIT	LOC-I	In-flight collision	Ground collision	RWY-EXC	Ac ft damage or in-flight POB	Ac ft damage or in-flight POB on ground
UE3.1	Non-stabilised or non-compliant approach	X	X			X		X

European Action Plan for the Prevention of Runway Excursions

Edition 1.0



REF	RECOMMENDATION	OWNER	IMPLEMENTATION DATE	GUIDANCE
3.3.1	Ensure the importance of a stabilised approach and compliance with final approach procedures is included in training and briefing for air traffic control staff.	Air Navigation Service Provider	02 January 2014	APPENDIX C
3.4.7	GENERAL The aircraft operator should ensure the importance of a stabilised approach and compliance with final approach procedures is included in briefing for flight crews. The commander should not accept requests from ATC to perform non-standard manoeuvres when they are conflicting with the safety of the flight.	Aircraft Operator	Immediate	APPENDIX E

Thanks for your attention



“You must learn from the mistakes of others.
You can't possibly live long enough to make them all
yourself...”



