



From application to certification



Bucharest, Romania, 18-19 April 2013



EASA
European Aviation Safety Agency

Workshop 1

ESTABLISHING THE CB

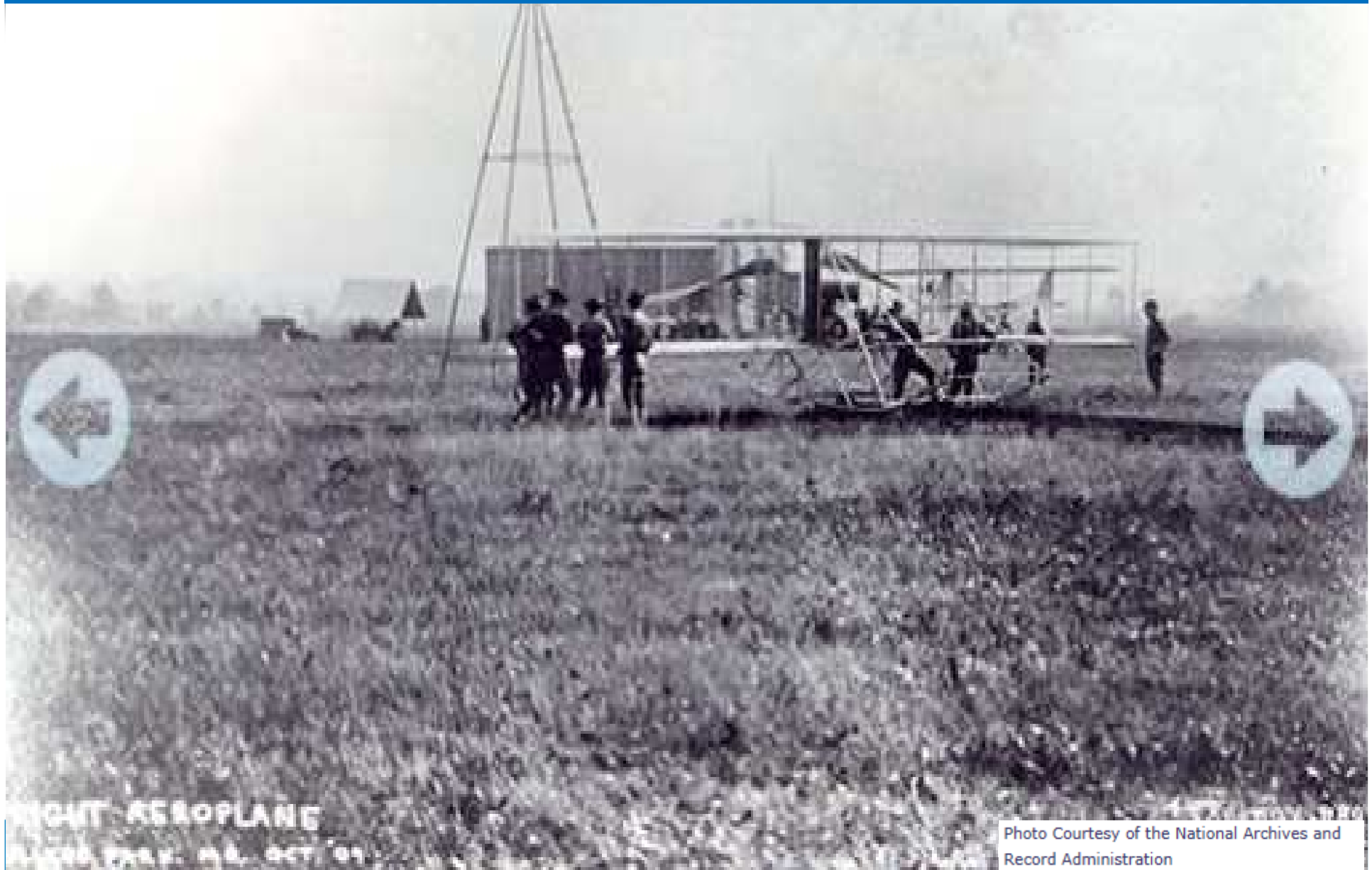
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Aerodromes Section
27 November 2014

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TE.GEN.00409-001

Google search: “first airport ever” ! 1909, College park Airport in Maryland



Google search: „first airport ever“ ! 1909, Coca Cola and Atlanta Speedway

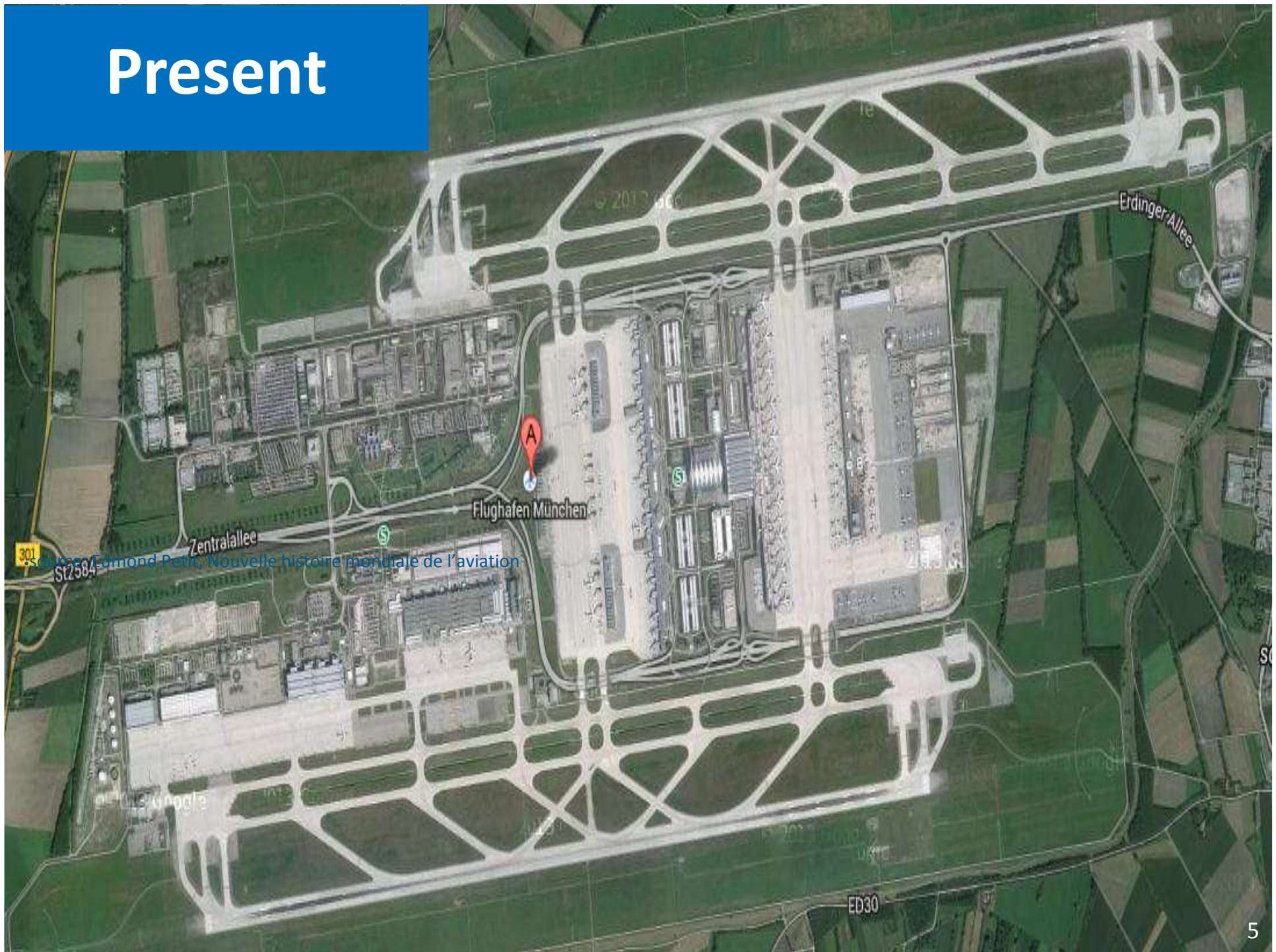


In 1909, before anybody ever thought an airplane could or would fly into

Atlanta, the Atlanta Speedway was built by businessman Asa Candler, founder of the Coca Cola Company. The speedway became one of the country's finest automobile racetracks, but because people did not attend the races, it only lasted about a year. The question of what to do with the track was easily answered in December of 1910 when a need arose to display a new and exciting invention, the airplane, or "giant man-bird" as it was called. Thousands of curious people showed up for a chance to see this flying machine in action at Atlanta's first air show.



Present

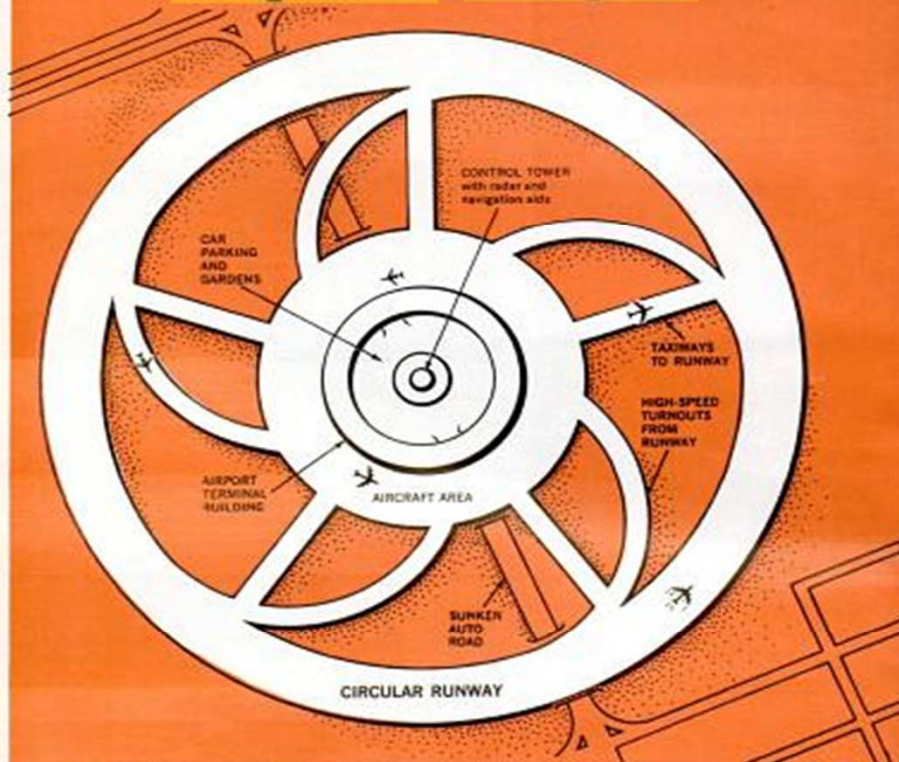


Sources: Edmond Petit, Nouvelle histoire mondiale de l'aviation

... back into the future in 1966 ...

COMING:

Airports Shaped Like



Circular airport would have design pictured above. Endless runway is banked, as at left, and has lanes for craft of different speed, with steepness of banking increasing from slowest (inside) to fastest (outside) lane. Broken lines indicate centers of lanes.

Wheels?

Ready-made proving ground for Navy trials of circular-airport idea is provided by General Motors test track for cars (right), viewed here from air, at Mesa, Ariz.



Navy trials prove advantages of a circular runway, unlimited in length, for plane landings and takeoffs

Will the airport of the future be circular, with an endless banked runway that gives a pilot unlimited room to land and take off, and that he can use whichever way the wind is blowing? Trials in 1964 and 1965, using an automobile test track as an experimental airport, have convinced the Navy that circular runways are both feasible and promising.

An endless runway would make for safety by eliminating accidents that occur when a pilot overruns a conventional runway in landing or taking off. The idea of a circular one seems so simple, says a Navy report, that it's hard to believe no one had thought of it before—but it proved original enough to win a U.S. patent, which licensed government use, when the late Lt. Cmdr. James R. Conway put it on paper in 1961. Later, after his death in a plane accident at sea, his scheme was taken up and flight-tested by the U.S. Naval Weapons Evaluation Facility at Kirtland Air Force Base, N. M. A General Motors test track at Mesa,

Ariz., put at the Navy's disposal for the trials, provided a ready-made circular banked runway of 8,400-foot diameter.

At first, Navy pilots reported, landing ailt on the banked track gave them a strange sensation, "like flying into a hole." But they mastered the knack in a trial or two, and became circular-runway enthusiasts. They made successful landings and takeoffs with propeller and jet planes of varied types, ranging in size to a big C-54 whose main landing gear took up all but 18 feet of the track's width.

Suited as well to civilian as military use, the wheel-shaped flying base envisioned by Commander Conway and the Navy would be rimmed by an endless runway 4,000 to 20,000 feet in diameter, the largest serving for an international airport. Spokelike-turnoffs lead to a ring-shaped terminal building at the hub. A central control tower overlooks the whole airport—which would require only two-thirds the area of a conventional one with straight runways.



Navy plane touches down on banked circular track in Arizona, in one of many successful trials with

various craft and approaches. (In airport design on facing page, plane would land counterclockwise.)



Certification basis (CB)

Basic Regulation, Article 8a *Aerodromes*

Par.1 **Aerodromes, aerodrome equipment and operation of aerodromes shall comply with the essential requirements set out in Annex Va and, if applicable, Annex Vb**

Par.2 **The compliance with 1. shall be established in accordance:**

- (a) the certificate shall be issued when the applicant has shown that the aerodrome complies with the aerodrome **certification basis** and the aerodrome is safe for operation;
- (b) the **certification basis** shall consist of:
 - i) the applicable **CS** related to the type of aerodrome;
 - ii) the provisions for which an Equivalent Level of Safety (**ELOS**) has been accepted; and
 - iii) the Special Detailed Technical Specifications (**SC**) when the designed features of a particular aerodrome or the experience in operation render any of the specifications in i) inadequate or inappropriate to ensure conformity with ER.

(c), (d) and (e) ...



Certification basis (CB)

**The content of the Certification Basis is set out in Article 8a (BR),
no definition needed**



Competent Authority to establish the CB (ADR.AR.C.020)



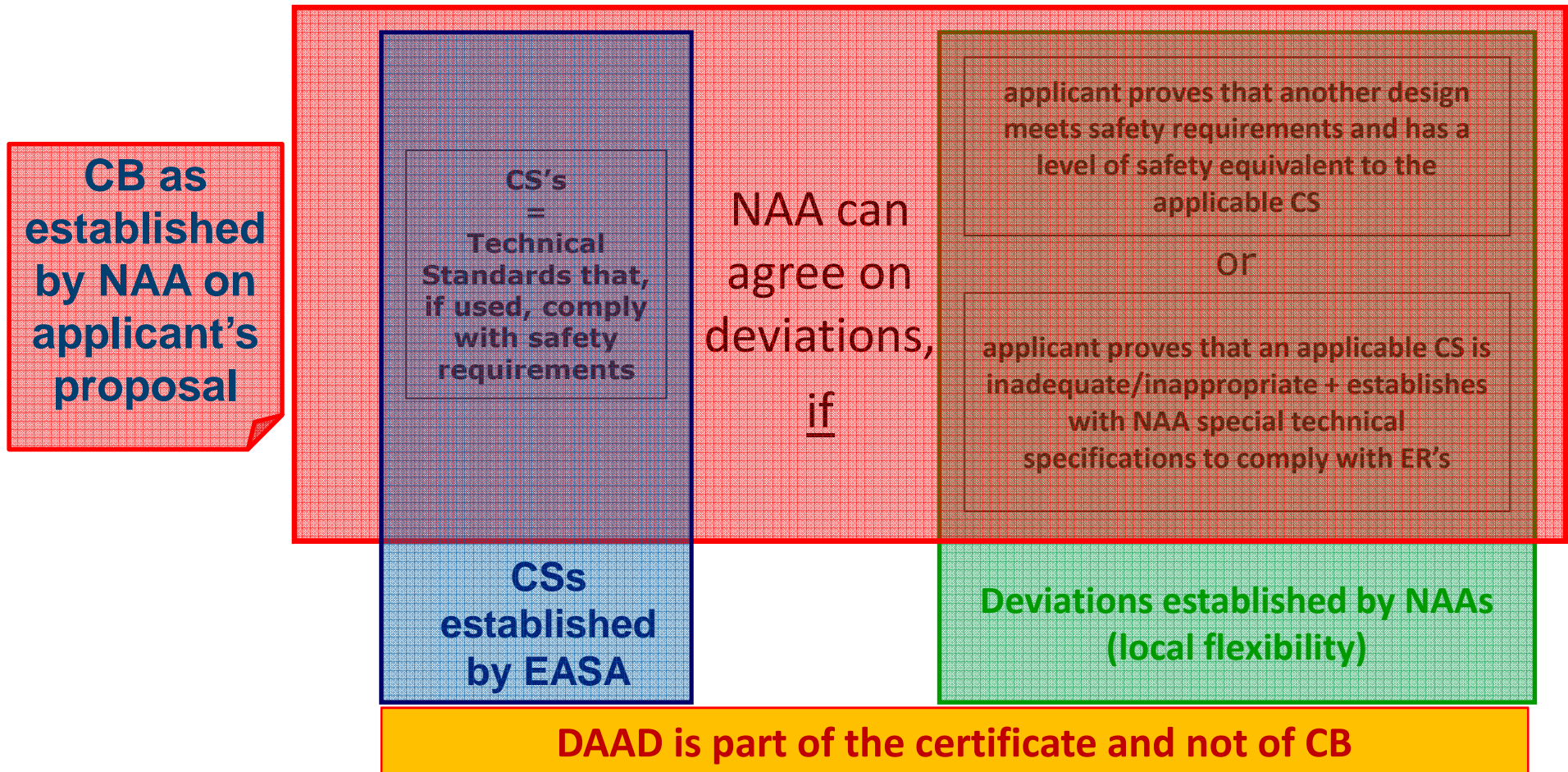
Based on the request received from the applicant (ADR.OR.B.015)

CB & Certification  negotiation process between the Competent Authority and the Applicant



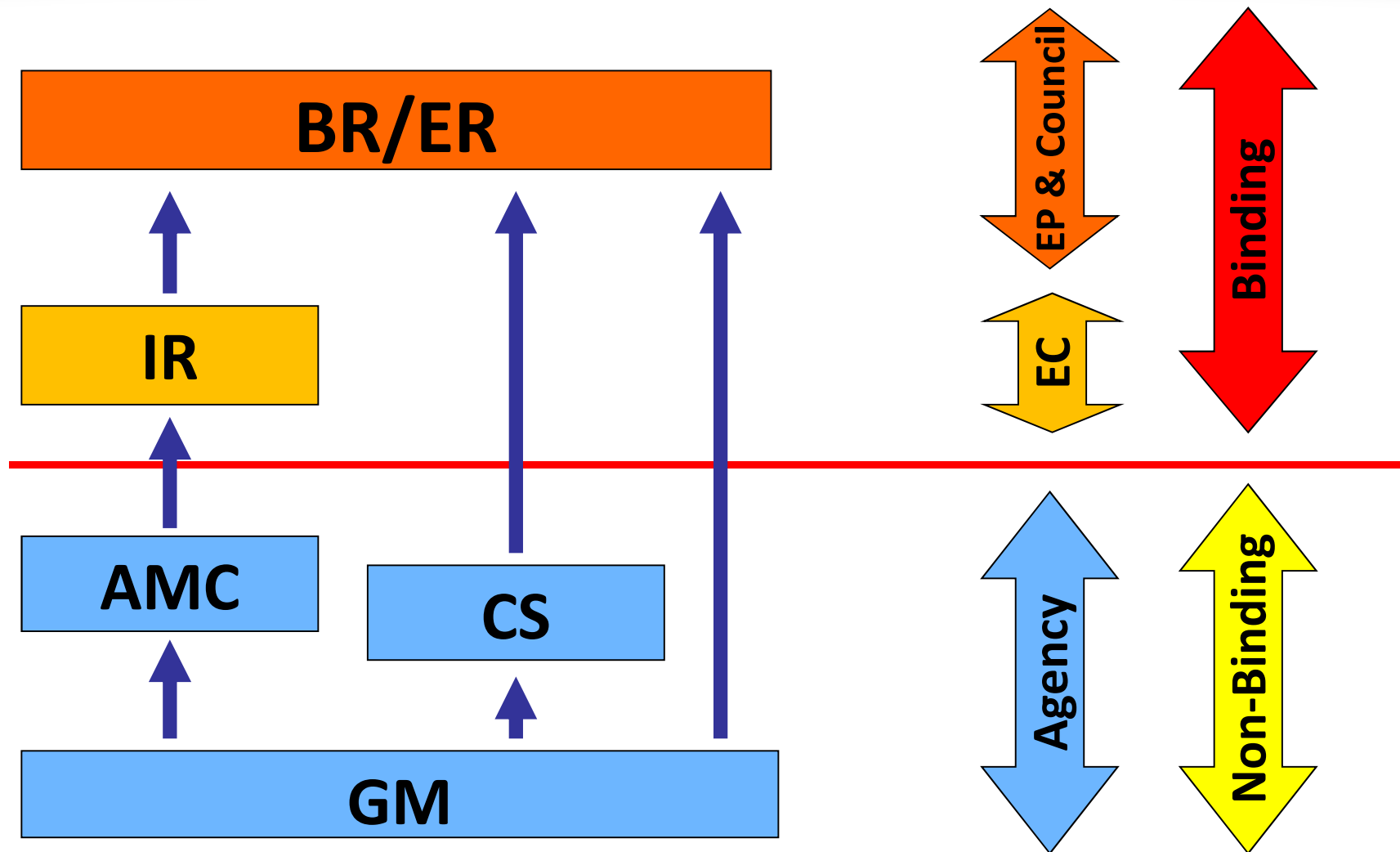
Certification basis (CB)

CB is the NAA's confirmation of how an applicant can show compliance with the safety requirements (ER's and IR's)





Regulatory framework





From application to certification

Summary of three certification elements:

1. Certification Basis

- Applicable Certification Specifications (CS);
- any Equivalent Level of Safety (ELOS);
- any Special Conditions (SC)
- ELOS, SC, DAAD to be supported by Safety Assessment

2. Aerodrome Manual (content)

- General;
- Aerodrome management system, qualification and training requirements;
- Particulars of the aerodrome site;
- Particulars of the aerodrome required to be reported to the AIS; and
- Particulars of the operating procedures of the aerodrome, its equipment and safety measures.

3. Demonstration of Compliance (AD Operator)



CB example Kolndorf - Conf. 2012

EASA CERTIFICATION BASIS

Attachment A

KOLNDORF AERODROME

Precision Approach Runway Cat IIIa

Parallel TWY A leading from apron to the runway

Aerodrome reference code 4E

The aerodrome is bounded by:

1. Sea, north of the RWY at a distance of 450m from RWY C_L

2. Hill, 150m high, south of the RWY at a distance of 4 km from RWY C_L

3. Cliff, starting 650m from the beginning of RWY 09

RUNWAYS		09	27	TWY A	Comments
CS ADR DSN.xxx	Number, siting and orientation of runways				
CS ADR DSN.xxx	Choice of maximum permissible crosswind components				
CS ADR DSN.xxx	Data to be used				
CS ADR	Runway threshold	Y	Y		



CB example – Today

Chapter D – Taxiways

Please complete the table below (dimensions in metres)

Taxiway Designator	Code	Width	Strip Width

C S ADR-DSN.	Certification Specification (CS)	C S Met Yes / No / N/A
D.240	Taxiways general	Choose an item.
D.245	Width of taxiways	Choose an item.
D.250	Taxiway curves	Choose an item.
D.255	Junction and intersection of taxiways	Choose an item.
D.260	Taxiway minimum separation distance	Choose an item.
D.265	Longitudinal slopes on taxiways	Choose an item.
D.270	Longitudinal slope changes on taxiways	Choose an item.
D.275	Sight distance of taxiways	Choose an item.
D.280	Transverse slopes on taxiways	Choose an item.





Certification basis (CB)



A close-up of a silver, spherical microphone with a black grille, positioned in the center. The background is a blurred crowd of people, suggesting a public event or conference. The lighting is warm, with a reddish-brown hue.

It's Your Turn!

Join the discussion, please!



Topics for the discussion:

- CB for the conversion of certificate
- CB for new aerodrome certification
- CB for a change
- Composition / content of CB
- Application for a certificate
- Initiation of the certification process / Declaration of compliance
- Desk top review and audits / inspections
- CS versus GM
- Special condition & ELOS
- Alt MoC
- Safeguarding of Aerodromes



Remarks on implementation 139/2014

- difference in the attitude of the aerodrome management when the Accountable Manager has to sign the Declaration of Compliance. Aerodrome operators realised that they are given more responsibility to ensure they are compliant with the rules.
- An important factor in the conversion of the aerodromes has been the flexibility built into the rules that has allowed both the CAA and the aerodrome operators to mitigate some of the unusual issues that have arisen.



EUROPEAN AVIATION SAFETY AGENCY
AGENCE EUROPÉENNE DE LA SÉCURITÉ AÉRIENNE
EUROPÄISCHE AGENTUR FÜR FLUGSICHERHEIT



Thank you!

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Certification basis – variation elements

Special condition (SC)

- **Part of the CB**
- **Can only be prescribed by Competent Authority**
- **When the CS is inappropriate or inadequate because:**
 - **CS cannot be met due to physical, topographical or similar limitations related to the location of the aerodrome;**
 - **the aerodrome has novel or unusual design features; or**
 - **experience from the operation of that aerodrome or other aerodromes having similar design features has shown that safety may be endangered.**
- **Technical specifications, limitations, procedures to ensure compliance with the Essential Requirements**



Certification basis – variation elements

Equivalent level of safety (ELOS)

- **Part of the CB**
- **Can apply to any variation, must be identified and documented**
- **Applicant has to demonstrate compliance with the CS**
- **Safety assessment**
- **Has to be accepted by the Competent Authority**

Deviation Acceptance and Action Document (DAAD)

- **Part of the Certificate and NOT part of the CB**
- **Competent Authority compiles the evidence**
- **Competent Authority specifies the period of acceptance**
- **Safety assessment**