PCN – Safety Standard, Design Criteria or Management Tool

(ALACPA 2013, MEXICO)

Background

- **1977 – ICAO Study Group;**
- **1981 – Aerodrome Design Manual – Part 3**
- **Annex 14 –** "The bearing strength of a pavement intended for aircraft of apron (ramp) mass greater than 5 700 kg shall be made available using the aircraft classification number — pavement classification number (ACN-PCN) method"
- **National Authority – "How to calculate" and "What" (Brazil –** Portaria 276 and Resolução 023 ANAC)
- **Many perspectives, approaches and understandings**

How to calculate PCN

- Using x Technical Method
- FAA – AC 150/5335-5B (Appendix 2)
- CBR and pavement structure
- FWD/HWD
- Traffic (Projected, Past…)
- Critical Aircraft
- Routine Measurement X fix PCN
- Operator/Authority Discretion

To Think a little:

- Exactly the same pavement with different traffic = Different PCNs
- Index X Parameter (ACN – Index, PCN – Parameter)
- Two Runways same PCN = Same Performance?
- Who is responsible of calculating PCN
- What is the objective? (Safety, Manag., Economic)

SAFETY STANDARD

- "With the exception of massive overloading, pavements in their structural behaviour are not subject to a particular limiting load above which they suddenly or catastrophically fail. Behaviour is such that a pavement can sustain a definable load for an expected number of repetitions during its design life. As a result, occasional minor overloading is acceptable, when expedient, with only limited loss in pavement life expectancy and relatively small acceleration of pavement deterioration. "(ICAO)

- "It is common to think of pavement strength rating in terms of ultimate strength or immediate failure criteria. However, pavements are rarely removed from service due to instantaneous structural failure. " (FAA)

- WHEN DOES PCN BECOMES A SAFETY ISSUE?

DESIGN CRITERIA

- **"The ACN-PCN system is not intended as a pavement design or pavement evaluation procedure, nor does it restrict the methodology used to design or evaluate a pavement structure."**

- **Once/if the National Authority sets Operational Restrictions based on PCN, it becomes a Design Procedure**

MANAGEMENT TOOL

- Authority or Operator;
- Planning intervention;
- Protect its Assets;
- Charging Fees;
- Implementing new routes and flights;
- Helps Decision Making.

CONCLUSIONS

- **Further discussion is needed – Not only on the methodology itself but also on the clarification of the objectives; ALACPA → ICAO → National Authorities**
- **Different Approaches and different objectives;**
- **Parameter X Index**
- **Experience sharing and Responsible discretion**

THANK YOU

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