

Performance-Based Spectrum Management

A new approach?

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Scope



- Historical perspective
- Today's challenge
- One potential approach

Historical perspective

- Majority of current aeronautical allocations present in RR 1947
- Exclusive allocations
- Safety of life
- Protection based on intra-system criteria
- 6 dB safety margin

Challenges

- Scenarios are not seen as realistic
- Need for multiple systems
- Need a safety margin
- Use of worst case scenario
- Perception by aviation that it owns the frequency bands
- How can aviation better justify its requirements?

One potential approach (1)



- Understanding of how systems work
- The interdependencies between systems
- Required system performance
 - Availability
 - Reliability
 - Integrity
 - Continuity
- Implications of interference

One potential approach(2)



- Eurocontrol Safety Regulatory Requirement
 - ESARR 4: Risk assessment and mitigation in ATM
 - Regulation (EC) No 2096/2005
- Required link performance
 - Equipment
 - Propagation
- Discussions on-going in ICAO WG-F

One potential approach (3)

ESARR 4 Severity	Probability of Occurrence				
	Extremely improbable	Extremely remote	Remote	Reasonably probable	Frequency
	$<10^{-9}$ per hour	10^{-7} to 10^{-9} per hour	10^{-5} to 10^{-7} per hour	10^{-3} to 10^{-5} per hour	1 to 10^{-3} per hour
Accidents	Review	Unacceptable	Unacceptable	Unacceptable	Unacceptable
Serious incident	Acceptable	Review	Unacceptable	Unacceptable	Unacceptable
Major incident	Acceptable	Acceptable	Review	Unacceptable	Unacceptable
Significant incident	Acceptable	Acceptable	Acceptable	Review	Unacceptable
No immediate effect	Acceptable	Acceptable	Acceptable	Acceptable	Review

- CAP 760: Guidance on the Conduct of Hazard Identification, Risk Assessment and the Production of Safety Cases
- ESARR severity level defined in Council directive 94/56/EC1

Questions?