

Comment Response Document (CRD) to Proposed Temporary Deviation on CS-E 650 – Vibration surveys / High cycle fatigue endurance limits

(Published for consultation on 31 July 2018)

Date
 18th Sept 2018
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Comment from:	江有为	Comment#	1
Paragraph	"The applicant must provide adequate data to show that the assumed sequence of crack initiation, propagation, redistribution of loads, and subsequent effects on crack growth rate under high cycle and low cycle fatigue up to and including failure are predictable and repeatable throughout the ranges of operating conditions, including when considering exposures to abnormal flight conditions."		
Comment	If the identified largest possible crack would't cause to failure under high cycle fatigue, and suitable margins to the endurance limit is shown, the compliance with CS-E 650 is demonstrated.		
EASA position	Rejected		
EASA response	Vibration-induced cracks are normally not allowed per CS-E650. Although it is not strictly written in the rule, this is how it has been historically interpreted and applied by EASA. This is why we believe that allowing large cracks does not comply directly, even though it is considered equally safe to no-crack if it can be shown that no crack will propagate to failure in the life of the engine.		
Proposed Text (if applicable) (added text in bold)	n/a		

Note: small changes were incorporated in the final version of this temporary deviation following internal scrutiny. The minor nature of these changes led EASA to waive the consultation of the updated, final version.