Comment-Response Document for Embraer ERJ-170 / -190
ESF B-21 – Issue 2

Commenter	Comment	EASA position
CAA-UK	**1- Comment against ESF Paragraph 'Identification of Issue' :** **1.1-** The term IGAP is not defined or explained. Thus it is unclear as to what the objective or operational need is, such that this procedure has become necessary, post type certification **1.2-** It is not clear whether the IGAP procedures also apply to low visibility (i.e. Category 2 and 3) approaches. It would be helpful if this could be clarified in the ESF.	**EASA position:** **1.1-** Comment noted. The wording will be amended as followed : In Hot & High conditions (high altitude and temperatures) performance on ERJ 170/190 is limited by the missed approach procedures affecting landing and takeoff (through 25.1001(a)). To reduce the limitations on such scenarios, an improved go-around performance procedure "IGAP" can be used. The IGAP consists of, when landing with flaps 5, perform the approach climb (go-around) procedure with flaps set in position 2 instead of presently used position 3. **1.2-** The airspeed changes will be applicable for IGAP operations with decision heights down to CAT I limit (200 ft). For operations with decision heights below 200 ft (CAT II and III), there are no changes in the already certified values for VREF..

CAA-UK	**2- Comment against ESF Paragraph 1:** **2.1-** It is stated that "the increase in VREF should not be excessive [in order] to minimize the effect on safety of longer landing distances…." Surely the effect of the increased IGAP landing speeds must be taken into account in the form of revised 'IGAP' landing distances, such that there should be no adverse effect on landing distance margins. (Also see comment on #5) **2.2-** It would be helpful, only for the record, if the intent of the EASA team is reflected clearly in the ESF, i.e. that the effect of the increased IGAP landing speeds must be taken into account in the form of revised 'IGAP' landing distances.	**EASA position:** **2.1-** Comment noted. The intent of the EASA team is confirmed to be exactly as described. **2.2-** The increase in VREF should not be excessive to minimize the effect on safety of longer landing distances, higher brake energy demands, and reduced margins between VREF and VFE" – on the basis of this understanding it was assumed self explanatory that revised 'IGAP' landing distance will be published.
CAA-UK	**3- Comment against ESF Paragraph 'Identification of Issue' :** It is deduced from the proposals that IGAP is a supplemental procedure, but sub-paragraph (4) recommends that operators selecting the IGAP procedure should adopt IGAP across their fleet to avoid confusion. This in itself would seem to indicate that the airworthiness/human factors implications of such a procedure have not been adequately thought through. Perhaps IGAP should replace the existing normal procedure(s), and not supplement them?	**EASA position:** Comment noted. As indicated in the Comment to Paragraph 1 above, the IGAP would lead to systematically longer landing distances which statistically increases the risk of runway overruns. Therefore it was considered inappropriate to introduce this procedure fleet wide. One the other hand human error should be limited as far as possible, therefore this IGAP should not only be applied when needed for airfields in Hot/High conditions, but if operationally needed it should be implemented consistently in an operators fleet.

CAA-UK	**4- Comment against ESF Paragraph 1 - 3 :** The Identification of issue initially refers to increased VREF speeds only, but paragraph (3) and the table also mention IGAP flap settings too. What configuration and procedural changes does IGAP actually involve?	**EASA position:** Comment noted. In order to substantiate the Equivalent Safety Case to 25.121(d) in light of the increase in Vref, the EASA team required the design approval holder to also address consequences of human errors **in addition** to the requirement of a fleet wide implementation of the IGAP. (see previous comment)
CAA-UK	**5- Comment against ESF Paragraph 3 :** Why is there a climb gradient shortfall? Any defects on climb performance resulting from IGAP must be determined and scheduled so that the operator can use the actual (IGAP) performance when complying with WAT minima and obstacle clearance criteria. IGAP should not adversely affect compliance with other airworthiness and operation requirements.	**EASA position:** See also previous comment. A climb gradient shortfall would be expected in case of human error, but to substantiate the Equivalent Safety Case to 25.121(d) this shortfall was restricted to 0,5%,
CAA-UK	**6- Comment against ESF Paragraph 3 :** Are the two “approach flap setting” entries in the table the wrong way round? There appears to be an inconsistency in the table.	**EASA position:** See also previous comment. The table illustrates the possible human error scenarios, so in other words there is an intended inconsistency in the table.

EASA Note :

Following the comments received, EASA has decided to modify and to re-issue the Embraer ERJ-170 / -190 ESF B-21 for a new consultation period *(*Click here *- hyperlink).*

New comments occurred following the second consultation period. The associated CRD has been updated in that respect.