b. *Compliance with CS 25.1309 (b)*

(4) Acceptable Application of Development Assurance Methods. Paragraph 9b(1)(iii) above requires that any analysis necessary to show compliance with CS 25.1309(b) must consider the possibility of ~~requirement, design, and implementation~~ development errors. Errors made during the design and development of systems have traditionally been detected and corrected by exhaustive tests conducted on the system and its components, by direct inspection, and by other direct verification methods capable of completely characterising the performance of the system. These direct techniques may still be appropriate for simple systems which perform a limited number of functions and which are not highly integrated with other aeroplane systems. For more complex or integrated systems, exhaustive testing may either be impossible because all of the system states cannot be determined or impractical because of the number of tests which must be accomplished. For these types of systems, compliance may be shown by the use of Development Assurance. The level of Development Assurance (function development assurance level (FDAL)/item development assurance level (IDAL)) should be ~~determined by~~ commensurate with the severity of the Failure Conditions it is contributing to. ~~potential effects on the aeroplane in case of system malfunctions or loss of functions.~~

Guidelines, which may be used for the assignment of development assurance levels to aeroplanes and system functions (FDAL) up to items (IDAL), are described in the document referenced in (3)(b)(2) above. Through this document, the Agency recognises that credit can be taken from system architecture (e.g. functional or item development independence) for the assignment of FDAL/IDAL.

Guidelines, which may be used for providing Development Assurance, are described for ~~aircraft~~ aeroplane and systems development in the ~~D~~document referenced in ~~paragraph~~ (3)(b)(2) above, and for software in Documents referenced in paragraphs (3)(a)(3). ~~(~~There is currently no agreed Development Assurance standard for airborne electronic hardware.~~)~~ ~~Because these documents were not developed simultaneously, there are differences in the guidelines and terminology that they contain. A significant difference is the guidance provided on the use of system architecture for determination of the appropriate development assurance level for hardware and software. EASA recognises that consideration of system architecture for this purpose is appropriate. If the criteria of Document referenced in paragraph 3b(3) are not satisfied by a particular development assurance process the development assurance levels may have to be increased using the guidance of Document referenced in paragraph 3b(2).~~