

# 가

/ swyoo@kari.re.kr,

( 2004 -1 ),

FAR(Federal Aviation Regulations),

(JAA) JAR(Joint Aviation Requirements)

EASA(European Aviation Safety Agency) CS

(Certification Specifications)

1.

3

가

가

가 (ICAO, International  
Civil Aviation Organization)

2002

8

(Type Certificate), (Production Certificate),  
(Airworthiness Certificate)

Design)

(Type

2004 5

5

(SARPs)

가

가

가

(BASA,  
Bilateral Aviation Safety Agreement)

(Airworthiness)

가

가(System Safety

Assessment)

(Airworthiness Standards)



1.

		( )
§3.1309	(a) , 가 (2) , 가 (3) , 가	(N), (U), (A), (C)
§3.1309 / §5.1309	(b) (1) (2) 가	(N), (U), (A), (C) / (T)
§7.1309	(b) , 가 (c) ,	(N)
§9.1309	(1) TB , ,	(TB)
§5.1309 / §9.1309	(d) (b) , (1) , 가 가 (2) , 가 가 (3) , (4) ,	(T) / (TB)
§3.75	가 (a) ; (b) ( (c) 33.23(a) (d)	

가

2.2

가

가

, 가

가

가

1

[1],

1950

FAR JAR

[2],[3]

가

2

/



가

(Automatic Landing System)

1,000

1

가

1,000

1

가

(Critical System)

10

10

가

1

1×10<sup>-9</sup>

3

1980

1996

(JAA)

3.

0.35

₩5.1309

가

?	(Path Tracing Method)
?	(Criticality Analysis)
?	(Reliability Block Diagram Analysis)
?	(Dependency Diagram)
?	(Event Tree Analysis)
?	(Fault Tree Analysis)
?	(Human Reliability Analysis)
?	(Common Mode Failure Analysis)
?	(Simulation)
?	(Markov Analysis)

4가

가 (Extremely Improbable) :

1×10<sup>-9</sup>/hour

, 100

가 1

3,000

3,000

1

가가가

(Extremely Remote) :

가

가

1×10<sup>-7</sup>/hour

100

가 1

3,000

₩5.1309

30

1

1

4×10<sup>-6</sup>

10%

(Remote) :

1

1×10<sup>-7</sup>

1 × 10<sup>-5</sup>/hour 100,000

1

2

가 (Probable) : 1 × 10<sup>-5</sup>/hour

2.4

가

가,

(Minor)

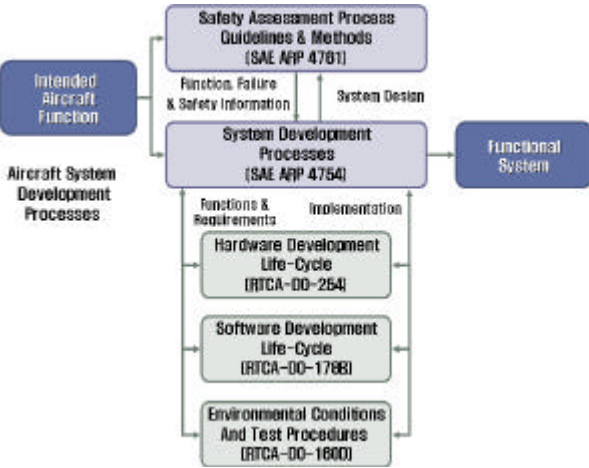
가,

가

4. 가

AC25.1309 - 1A	System Design and Analysis	(FAA)
AC23.1309 - 1C	Equipment, Systems, and Installations in Part 23 Airplanes	
Order 8040.4	Safety Risk Management	
AMJ25.1309	System Design and Analysis	(JAA)
NPA25F-281	Revised General Function and Installation Requirements and Equipment, Systems and Installation Requirements for Large Aeroplanes	
DO-178B	Software Considerations in Airborne Systems and Equipment Certification	RTCA (Radio Technical Commission for Aeronautics)
DO-160D	Environmental Conditions and Test Procedures for Airborne Equipment	
DO-254	Design Assurance Guidance for Airborne Electronic Hardware	
ED-12B	Software Considerations in Airborne Systems and Equipment Certification	EUROCAE (European Organisation for Civil Aviation Equipment)
ED-14D	Environmental Conditions and Test Procedures for Airborne Equipment	
ED-79	Certification Considerations for Highly Integrated or Complex Aircraft Systems	
ED-80	Design Assurance Guidance for Airborne Electronic hardware	
ARP 5150	Safety Assessment of Transport Airplanes in Commercial Service	SAE (the Society of Automotive Engineers)
ARP 926B	Fault/Failure Analysis Procedure	
ARP 1834A	Fault/Failure Analysis for Digital Systems and Equipment	
ARP 4754	Certification Considerations for Highly-integrated or Complex Aircraft Systems	
ARP 4761	Guidelines and Methods for Conducting the Safety Assessment Process on Civil Airborne Systems and Equipment	
AIR 5022	Reliability and Safety Process Integration	
MIL-STD-882D	Standard Practice for System Safety	

가  
가  
4



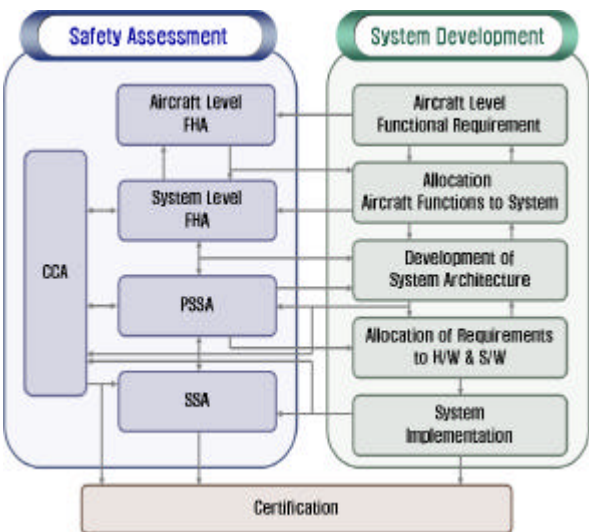
4. 가

가

4

가

가



5. 가

가  
3가  
가(FHA, Functional Hazard Assessment)

. FHA  
FHA  
FHA  
FHA  
FHA  
70~100가  
FHA  
FHA  
가  
가(PSSA)  
가  
가(PSSA, Preliminary System Safety Assessment)  
FHA

가  
. PSSA  
가 FHA  
. PSSA  
가

PSSA  
FTA,  
. PSSA (CCA)  
PSSA  
FHA  
가  
가  
FHA  
FHA  
FTA

가(SSA, System Safety Assessment) , FHA PSSA

가 가 가

SSA PSSA FTA, FMES (Failure Modes and Effects Summary) FMES FMEA

SSA FMES FTA

가 가

SSA 가 가 가

FHA 가 가 가

( )

(MMEL, Master Minimum EquipmentList)

3.

가 가 가

가 가 가

가 가 가

가 가 가

가 가 가

가 가 가

1. 2004-1 , “ ”
2. FAR (Federal Aviation Regulations), 'Code of Federal Regulations Title 14"
3. SAE ARP 4754, "Certification Considerations for Highly-integrated or Complex Aircraft Systems"
4. SAEARP 4761, "Guidelines and Methods for Conducting the Safety Assessment Process on Civil Airborne Systems and Equipment "
5. Cranfield Univ., 2004, "Safety Assessment of Aircraft Systems"
6. Frank C. Fickeisen, SAE 2001-01-2664, "Improving the Effectiveness of Airplane Certification Analysis Processes"
7. Y. Papadopoulos, J.A.McDermid, Reliability Engineering and Systems Safety 63, 1999, 47~66, "The Potential for a generic approach to certification of safety critical systems in the transportation sector"