

Safety Case & Assessment of Safety Case update

IWG-ADS-08

Recap

- 11 open items identified in 7th session
 - 2 definition
 - 2 “other requirements”
 - 8 Safety case and assessment
- 3 OPI meetings held since 7th meeting
 - Review of comments
 - Review links to SMS
 - Review definition of “safety case”

Open items -1

Purpose, Scope and Definitions (Reference document [ADS-07-17](#))

Item number	Description of item, task(s) and updates	Actions and timeline for resolving	Status (open/resolved)
2	Change Minimal → Mitigated. Proposed change to definition.		Open
5	'Evidence' definition Proposals to expand beyond just 'results' to include 'data'. Proposals to change 'argument' to 'claim'. (Note – example of a claim, argument and evidence would be helpful to support discussions)		Open

'Other provisions'

Item number	Description of item, task(s) and updates	Actions and timeline for resolving	Status (open/resolved)
1	DSSAD requirements Ask from IWG-ADS: 1) Presentation from IWG-EDR/DSSAD on the DSSAD provisions in Tokyo meeting (#8) 2) IWG-EDR/DSSAD to discuss 'next steps' and involve IWG-ADS experts in drafting requirements.	Pending results of DSSAD meeting 25-27 March	Open
2	Cybersecurity and software updating provisions.	Pending work at Workshop and CS/OTA group	Open

Open items -2

Safety case and assessment

Item number	Description of item, task(s) and updates	Actions and timeline for resolving	Status (open/resolved)
1	Software updates (6.3.1.11 of ADS-07-02Rev.1)	Discussions ongoing in Workshop & CS/OTA	Open
2	Modification of safety case text based on final text from testing OPI (provisions 6.3.1.28 and 6.3.1.29 of ADS-07-02Rev.1)	Revised text will be suggested when testing group has completed work on the corresponding section	Open
3	Potential gaps identified during X-OPI harmonisation (ADS-07-20) Gathering non-testing evidence for a safety case Processes for testing Generation of testing evidence Virtual testing by assessor (<i>Reported in next section</i>) Process to choose test method	Items related to the assessment of testing section will be suggested once the testing group has completed work. New items will be considered and discussed in meetings between 7 th and 8 th session.	Open
4	Comments on safety case section by experts during IWG-07	Items will be discussed during meetings between 7 th and 8 th meeting	Open
5	Links for safety case section to SMS	Review will be conducted and proposal prepared for the 8 th meeting	Open
6	Definition of safety case to be reviewed	Item will be discussed during meetings between 7 th and 8 th meeting	Open
7	Harmonisation document	Stage 2 of harmonization will be based on documents submitted for 8 th meeting – follow-up presentation may be prepared	Open
8	Alignment from workshop, CSOTA etc.	Pending work progress in Workshop & discussions in CS/OTA	Open

Open items addressed

- Reviewed comments received at 7th session
 - Proposed changes in tables ADS-08-XX & ADS-08-XX
 - Most comments addressed (Accepted/modifications or no change)
 - New open items from comments
- Links to SMS
 - Clarified some links to SMS & simplified linkage (changes in tables)
 - Some additional links may be included via open items
- Safety Case Definition (ADS-08-07)
 - Clarified definition and aligned with use in document

New Open item 1 – Clarification (1)

Separate 5th IWG

The function of each component of the ADS shall be outlined and the signals linking it with other components or with other vehicle systems shall be shown. This may be provided by a labelled block diagram or other schematic, or by a description aided by such a diagram. Interconnections within the ADS shall be shown by a circuit diagram for the electric transmission links, by a piping diagram for pneumatic or hydraulic transmission equipment and by a simplified diagrammatic layout for mechanical linkages. The transmission links both to and from other systems shall also be shown. There shall be a clear correspondence between transmission links and the signals carried between components and systems. Priorities of signals on multiplexed data paths shall be stated wherever priority may be an issue affecting performance or safety.

Consolidated 6th IWG

6.3.1.2. The safety case shall outline the function of each component of the ADS.

6.3.1.2.1. The outline shall show the signals linking each function with other components or with other vehicle systems. This may be provided by a labelled block diagram or other schematic, or by a description aided by such a diagram.

6.3.1.2.2. Interconnections within the ADS shall be shown by a circuit diagram for the electric transmission links, by a piping diagram for pneumatic or hydraulic transmission equipment and by a simplified diagrammatic layout for mechanical linkages.

6.3.1.2.3. The transmission links both to and from other systems shall be shown.

6.3.1.2.4. There shall be a clear correspondence between transmission links and the signals carried between components and systems.

6.3.1.2.5. Priorities of signals on multiplexed data paths shall be stated wherever priority may be an issue affecting performance or safety.



New Open item 1 – Clarification (2)

- 6.3.1.1. The safety case shall describe each component of the ADS and any other vehicle systems that are relevant to meeting the requirements of this regulation.
 - 6.3.1.1.1. The description shall include an **outline schematic** of the ADS illustrating the equipment distribution and the interconnections among the components and systems.
 - 6.3.1.1.2. The **outline** shall include how the following elements are addressed:
- 6.3.1.2. The safety case shall **outline** the function of each component of the ADS.
 - 6.3.1.2.1. The **outline** shall show the signals linking each function with other components or with other vehicle systems. This may be provided by a labelled **block diagram** or other **schematic**, or by a description aided by such a **diagram**.
 - 6.3.1.2.2. Interconnections within the ADS shall be shown by a **circuit diagram** for the electric transmission links, by a **pipng diagram** for pneumatic or hydraulic transmission equipment and by a **simplified diagrammatic layout** for mechanical linkages.
 - 6.3.1.2.3.
 - 6.3.1.2.4.
 - 6.3.1.2.5.
- 6.3.1.3.
 - 6.3.1.3.1.
 - 6.3.1.3.2.
 - 6.3.1.3.3. Where functions are combined within a single control unit or within a single computer, but shown in **multiple blocks in the diagram**, then for clarity and ease of explanation, only a single hardware identification marking shall be used.

New Open item 2 – System Description

Moved to Section 4 during consolidation

- The manufacturer shall provide a safety case that includes:
 - 1. the safety concept, which describes the hazard identification and mitigation measures designed into the ADS to meet the requirements of this regulation and achieve the goal of avoidance of unreasonable risk with regard to functional and operational safety;
 - 2. information and documentation necessary to describe the ADS covered by the safety case, including the intended use, the operating environment, the interactions with humans, sub-systems and components, control strategies;
 - 3. structured claims, argumentation, and evidence (including validation tests) that affirms and demonstrates that the ADS meets the requirements in [Requirements section] and is free from unreasonable risks for the ADS vehicle user(s) and other road users;
 - 4. demonstration of credibility and suitability of test tools used in generating evidence; and
 - 5. explanation of the processes for reinforcing ADS safety throughout the life of the ADS.

5th IWG “Safety Case”

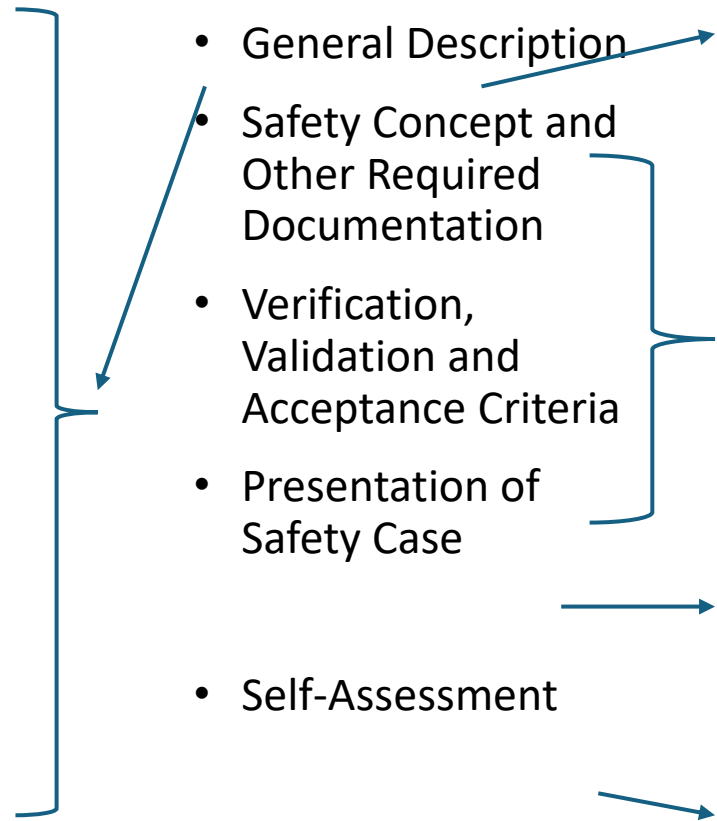
- General Description
- Safety Concept and Other Required Documentation
- Verification, Validation and Acceptance Criteria
- Presentation of Safety Case
- Self-Assessment

Consolidated text

- [Moved to Section 4]
- Safety Concept
- Claims, Arguments and Evidence of the Safety case
- [Manufacturer’s Review of its Safety Case]

Paragraphs in Safety Concept address this item

Create a new sub-section “System Description”



Next Steps

- Address Clarification & System Description
- New requirements based on harmonization document
 - Requirements/Assessment for non-testing evidence
 - Requirements/Assessment for Test method selection
- Review text based on “remote” discussions
- Review Harmonization document (after 8th IWG)
- Monitor progress of work in other groups & propose text to cover related sections
 - Workshop
 - DSSAD
 - CS/OTA
 - Testing