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## Cybersecurity Assessment Summary – Motional AVCDL

File name	Revision	Date	Page
TUVSUD_CybersecurityAssessmentSummary_Motional_AVCDL_v.2.12.docx	Rev 2.12	June 27, 2022	1 of 5

To whom it may concern:

TÜV SÜD has conducted a conformity assessment of Motional's cybersecurity framework called "Autonomous Vehicle Cybersecurity Development Lifecycle (AVCDL)" against the standard ISO/SAE 21434:2021 [1].

This assessment refers to the conformity of the framework specifically with respect to the lifecycle aspects of the above standard; it explicitly does not include any references to the standard's implementation or interpretation. The assessment results, therefore, provide no statement on the underlying processes or the organizational implementation within Motional or any other organization.

The following clauses were not considered in this assessment, as they were considered by Motional as being outside the scope of the framework:

- Clause 5: out of scope
- Clause 6: out of scope

The results of the assessment are as follows:

Clause	Conformity within the specified scope is given (y/n)
Clause 5	N/A (Out of Scope)
Clause 6	N/A (Out of Scope)
Clause 7	Yes
Clause 8	Yes
Clause 9	Yes
Clause 10	Yes
Clause 11	Yes
Clause 12	Yes
Clause 13	Yes
Clause 14	Yes
Clause 15	Yes



Non-conformities and corrective actions have been evaluated and documented in the assessment sheet [2].

The AVCDL's alignment with the process requirements of the ISO/SAE 21434:2021 can be confirmed, as per the assessment date of June 09, 2022, 12:00 PM, within the scope and outcome of the assessment as stated above.

Note that the assessment was performed based on a specific version of the documents related to the above-mentioned date. Any changes to the assessed version will require a reassessment.

Documents assessed are a subset of the documents corresponding to release 2.5.14 according to the AVCDL public GitHub repository [3], subject to commit hash Nr: cf9053da8a3c197833ce490f47d39d6400a09742, with the addition of specific referenced documents omitted from the repository [4]. A reference to the documents assessed is provided in this document in Annex A: Assessed Documents.

This report may not be published in parts, only as a whole. In addition, any public statement about the assessment outside the scope and outcome of the assessment as stated above must be expressly agreed on by TÜV SÜD prior to publication. Any use of the TÜV SÜD logo and/or trademark shall not be permitted unless otherwise agreed in writing between TÜV SÜD and Motional.

## References

- [1] ISO/SAE, ISO/SAE 21434:2021, "Road vehicles — Cybersecurity engineering", 2021.
- [2] TÜV SÜD, "Assessment Checklist ISO 21434\_AVCDL\_rev13.xlsx," 07.06.2022.
- [3] C. Wilson, "Release 2.5.14 nutonomy/AVCDL," Motional, 08 06 2022. [Online]. Available: <https://github.com/nutonomy/AVCDL/releases/tag/2.5.14>. [Accessed 09 06 2022].
- [4] C. Wilson, "AVCDL Phase Requirement Product ISO 21434 Work Product Fulfillment.pdf," 2021.

Yours sincerely,

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Assessor, TÜV SÜD Auto Service GmbH

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Management, TÜV SÜD America Inc.



## Annex A: Assessed Documents\*

File name	Version and date as referred in the documents
Training Catalog.pdf	Version 3 11/15/21 9:17 AM
System to Track Training Participation.pdf	Version 4 11/15/21 9:13 AM
AVCDL 20220105T1310.pdf (Ver. 38); AVCDL.pdf (Ver. 43)	Version 45 4/22/2022 4:19:00 PM
List of Approved Tools and Components.pdf	Version 5 11/15/21 9:05 AM
Global Security Goals.pdf	Version 4 5/3/22 1:31 PM
Global Security Requirements.pdf	Version 3 11/15/21 10:02 AM
Code Protection Plan.pdf	Version 6 6/3/22 12:32 PM
Release Integrity Plan.pdf	Version 4 1/20/22 8:12 AM
Cybersecurity Monitoring Plan.pdf	Version 6 3/10/22 7:01 PM
Incident Response Plan.pdf	Version 11 3/24/22 11:22 AM
Decommissioning Plan.pdf	Version 3 11/15/21 8:46 AM
Threat Prioritization Plan.pdf	Version 9 5/26/22 3:56 PM
Deployment Plan.pdf	Version 3 1/21/22 12:35 PM
Product-level Security Goals.pdf	Version 4 5/3/22 1:29 PM
Product-level Security Requirements.pdf	Version 4 11/15/21 9:33 AM



<b>Requirements Phase Gate.pdf</b>	Version 3 11/15/21 9:59 AM
<b>Design Showing Security Considerations.pdf</b>	Version 3 11/15/21 9:59 AM
<b>Security Design Review Report.pdf</b>	Version 2 2/9/22 3:05 PM
<b>Attack Surface Analysis Report.pdf</b>	Version 3 11/15/21 9:45 AM
<b>Threat Modeling Report.pdf</b>	Version 5 6/2/22 2:48 PM
<b>Ranked - Risked Threat Report.pdf</b>	Version 6 5/31/22 11:19 AM
<b>Threat Report.pdf</b>	Version 5 3/16/22 6:44 PM
<b>Design Phase Gate.pdf</b>	Version 3 11/15/21 9:47 AM
<b>List of Tools and Components Used.pdf</b>	Version 4 11/15/21 10:47 AM
<b>Build Process Documentation.pdf</b>	Version 3 11/15/21 10:06 AM
<b>Secure Settings Document.pdf</b>	Version 3 11/15/21 10:50 AM
<b>Component - Version - Product - Version Cross-reference Document.pdf</b>	Version 2 11/15/21 10:08 AM
<b>Secure Development.pdf</b>	Version 4 11/15/21 10:49 AM
<b>Currently Used Deprecated Functions Document.pdf</b>	Version 3 11/15/21 10:13 AM
<b>Static Analysis Report</b>	Version 2 11/15/21 10:51 AM
<b>Dynamic Analysis Report.pdf</b>	Version 2 11/15/21 10:15 AM
<b>Secure Code Review Summary.pdf</b>	Version 2 11/15/21 10:48 AM
<b>Fuzz Testing Report.pdf</b>	Version 5 11/15/21 10:44 AM
<b>Implementation Phase Gate.pdf</b>	Version 3 11/15/21 10:45 AM
<b>Penetration Testing Report.pdf</b>	Version 5 2/24/22 2:23 PM



<b>Updated Threat Model.pdf</b>	Version 3 11/15/21 10:55 AM
<b>Updated Attack Surface Analysis.pdf</b>	Version 3 11/15/21 10:54 AM
<b>Verification Phase Gate.pdf</b>	Version 3 11/15/21 10:56 AM
<b>Final Security Review Report.pdf</b>	Version 3 11/15/21 11:01 AM
<b>Archive Manifest.pdf</b>	Version 2 1/27/22 8:19 AM
<b>Release Phase Gate.pdf</b>	Version 3 11/15/21 11:09 AM
<b>Cybersecurity Incident Report.pdf</b>	Version 1 1/27/22 2:54 PM
<b>Software Deployment Report.pdf</b>	Version 2 1/24/22 1:25 PM
<b>Decommissioning Report.pdf</b>	Version 5 1/19/22 8:12 AM
<b>Supplier Self-reported Cybersecurity Maturity Assessment.pdf</b>	Version 2 1/5/22 12:24 PM
<b>Autonomous Vehicle Cybersecurity Manufacturer Disclosure Statement.pdf</b>	Version 2 1/5/22 10:43 AM
<b>Cybersecurity Interface Agreement.pdf</b>	Version 3 1/10/22 11:19 AM
<b>AVCDL 20220105T1310.pdf (Ver. 38); AVCDL.pdf (Ver. 43)</b>	Version 45 4/22/2022 4:19:00 PM
<b>AVCDL cybersecurity interface agreement summary template.xlsx</b>	Revision 4
<b>AVCDL Cybersecurity Interface Agreement template.docx</b>	Revision 15
<b>Understanding Cybersecurity Interface Agreements.pdf</b>	Version 8 1/6/22 9:58 AM
<b>Understanding TARA in an AVCDL Context.pdf</b>	Version 4 3/28/22 5:19 PM
<b>AVCDL roles and responsibilities.xlsx</b>	07/13/22 3:29 PM

\*These documents and the review are subject to any and all limitations set forth in the TÜV SÜD America Inc. Cybersecurity Assessment Summary dated as of June 27, 2022 and the TÜV SÜD Standard Terms and Conditions.