



C-ITS TEST PLAN VERSION 3.1.0

C-Roads Platform

Working Group 2 Technical Aspects

Taskforce 5 Cross-Testing and Validation

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Publication History

Version	Date	Description, updates and changes	Status
1.7.0	09.07.2020	Framework document for the deliverable “C-ITS Test Plan” created	Release
1.7.1	05.10.2020	Update of the document to include PVD test cases	draft
1.8.0	16.12.2020	New test cases for SREM, SSEM based UCs and for IVIM-DLM UC added Changes for the on-lab security test case listing in the section Preconditions Validation and additional test cases for TLM ECTL added	Release
2.0.1	03.11.2021	Updated TCs to align with release 2.0.0 documents from WG2 TF1, TF2, TF3 and TF4	Release
2.0.3	21.04.2022	Insert the new IVIM Test-cases	Release
2.0.4	07.07.2022	Insert the new CAM / DENM / SPATEM-MAPEM / SREM-SSEM Test-cases due to the reintroduction of the SI Use-cases and the introduction of EPVI and ERVI Use-cases in the TF2/TF3 deliverables and the	Release
2.0.5	26.10.2022	Insert the new DENM Test-cases due to the introduction of the introduction of EPVA Use-case in the TF2/TF3 deliverables	Release
2.0.8	30.06.2023	Updated DENM TCs to align with the DENM Release 2.1.1 Editorial improvements for TCs and new folder structure in line with TF2 services and use cases.	Release
2.0.9	21.09.2023	Insert the TI - Toll Station Approaching TCs (TI-TSA)	Release
2.1.0	16.01.2024	Updated TCs due to CRs: Generic DENM Traces, HLN-TJA CC-sCC Insert the IVS – Destination Travel Time TCs (IVS-DTT) Insert the SI – Toll Station Crossing TCs (SI-TSC)	Release
2.1.1	30.04.2024	Changes from TF2 adopted to rename the UC IVS – Destination Travel Time TCs (IVS-DTT) to IVS – Smart Routing (IVS-SR)	Release
2.2.0	31.07.2024	CRs on CC & sCC inserted for: HLN-TJA; HLN-TSR and HLN-UBR	Release
2.3.0	19.03.2025	CRs on HLN-RLX inserted for new scenario CR on service reallocation from IVS-SR to NG-SR Insert the CP – Collective Perception on Motorways TCs (CP-MW) Insert the CP – Collective Perception on Urban/Interurban Intersections TCs (CP-UI) Insert the POI - Parking Availability Information TCs (POI-PA) Adopting of new C-Roads Extended Template	Release
3.0.0	31.10.2025	Update of the release number.	Release
3.1.0	08.12.2025	Insert the Navigation Guidance - Smart Routing TCs (NG-SR) Update for DENM, CAM, and CPM TCs to the TF3 MP structure	Release

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1 Introduction

1.1 C-Roads platform for harmonisation of C-ITS deployment

The C-Roads Platform is a joint initiative of European Member States and road operators for testing and implementing C-ITS services in light of cross-border harmonisation and interoperability. Through the C-Roads Platform, authorities and road operators join together to harmonise the deployment activities of cooperative intelligent transport systems (C-ITS) across Europe. The goal is to achieve the deployment of interoperable cross-border C-ITS services for road users.

C-ITS enables vehicles to interact directly with each other and the surrounding road infrastructure. In road transport, C-ITS typically involves vehicle-to-vehicle (V2V) and vehicle-to-infrastructure (V2I) communication. In order to enable an efficient and undisturbed exchange of information within these services as well as a cross-border implementation, harmonised C-ITS specifications are indispensable. The approach starts from a functional perspective, then requirements applicable to all implementations and then towards technology specifications of currently validated implementations (ITS-G5 for short range communication, IP based for long range cellular). In order to meet these challenges, the C-ROADS platform is divided into five Working Groups. The first Working Group is concerned with organisational tasks, the second with Technical Aspects and the third with Evaluation and Assessment. The fourth Working Group is about Urban C-ITS Harmonisation and Working Group 5 is about Digital Transport Infrastructure (DTI).

The C-Roads Platform is steered by the C-Roads Steering Committee which is composed by Member State representatives. With the support of the Supporting Secretariat, decisions for achieving the goal of the implementation of interoperable end-user services are taken. In this respect specifications, plans and reports, which are proposed and recommended by specific Working Groups, are approved. Within WG2 these specifications are harmonized in 5 Task Forces and derived from pilot activities and the basis for further pilot and implementation activities. This especially goes with technical decisions, which influence deployment and procurement decisions at pilot sites.

The Working Groups are installed as decision support for the Steering Committee to ensure proper decisions towards interoperable deployments. Individual experts participating in the single pilots work together in these Working Groups to prepare proposals and recommendations. Also, members of the single pilot activities as well as of the C-Roads-Working Groups actively contribute to the work of the EU-C-ITS-Platform.



Figure Fehler! Kein Text mit angegebener Formatvorlage im Dokument.: Overview of C-Roads coverage

1.2 Story board C-Roads C-ITS deployment documentation

This document is part of the C-Roads C-ITS Deployment Documentation and Requirements. The complete set of documents is much related to a common project life cycle of a system implementation. As a guide to the C-Roads Documentation, a story board based on such a project life cycle is provided in this section, with emphasis on the role of this document C-ITS Service and Use Case Definitions. The story board should be read from left to right and shows the different stages of the project life cycle and how each C-Roads Documentation is related to it, thereby it can be supportive to road authorities and other stakeholders.

A complete description of the story board of a C-ITS implementation project, the different stages and the related C-Roads documents is given in *[Introduction to the C-Roads WG2 Deployment Documentation and Requirements]*.

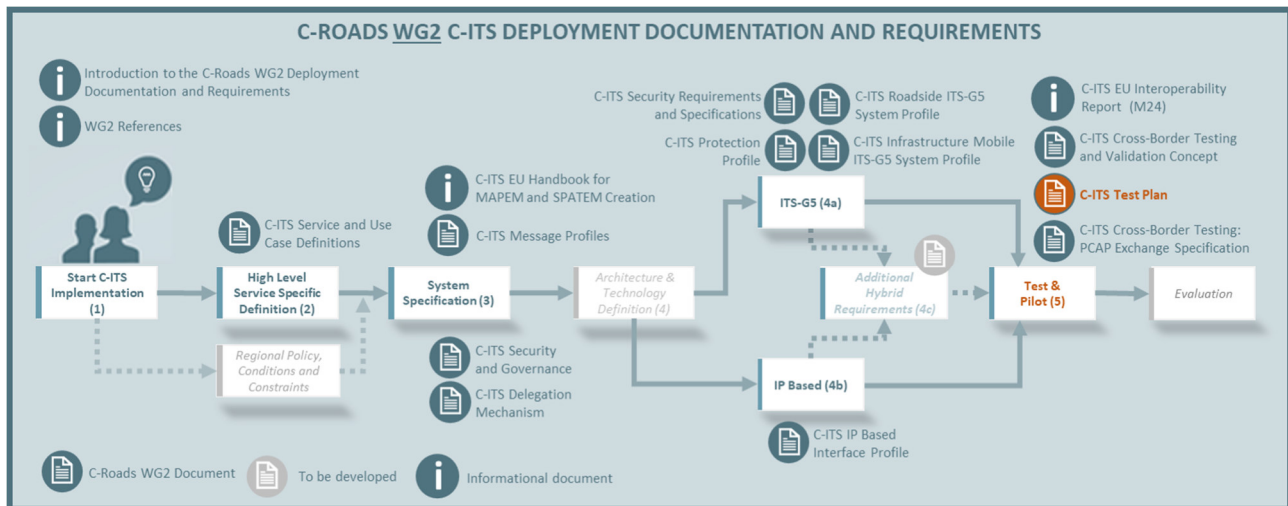


Figure Fehler! Kein Text mit angegebener Formatvorlage im Dokument.:1: highlight of WG2 document in complete story board

The documents cover a wide range of aspects related to several stages as described in section 1.4 of [Introduction to the C-Roads WG2 Deployment Documentation and Requirements]. Starting with stage 3, generic requirements and the required governance are specified - those are applicable for all services, use cases and scenarios in a similar way. On stage 4a and 4b, the more detailed specifications are relevant - including service specific security requirements. Both levels, generic and specific requirements, have impact on the test cases derived on stage 5.

1.3 Scope of this document

This document is one of the deliverables of Taskforce 5 of Working Group 2 of the C-Roads Platform and contributes to stage 5 in the C-Roads workflow. The stage 5 deliverables provide the basis to validate the interoperability of a C-ITS implementation and guide through all aspects of interoperability testing for ITS-G5 systems, IP-Based communication and security elements, as specified by different other Task Forces of Working Group 2 of the C-Roads Platform, namely TF1, TF2, TF3 and TF4.

The test cases provided in this deliverable are the basis to validated interoperability aspects by functional on-road testing using ITS-G5 or IP-Based (cellular) communication and on lab testing of implementations of security systems. All test cases are listed in this deliverable, the test cases them self are single files compiled in a joint directory.

2 List of test cases

2.1 Summary and history of the available test cases

Category	N# from R 1.3	N# from R 1.6	N# from R 1.7	N# from R 1.8	N# from R 2.0.1	N# from R 2.0.3	N# from R 2.0.4	N# from R 2.0.5
On-Lab Security test cases	97	0	2	99	88	88	88	88
On-Lab Hybrid test cases	10	0	0	10	10	10	10	10
On-road ITS-G5 test cases	46	29	9	84	105	116	157	165
DENM	25	18	1		85	85	90	98
IVIM	21	4	4		17	28	26	26
SPaTEM-MAPEM	0	7	0		0	0	16	16
SREM – SSEM	0	0	1		0	0	6	6
CAM	0	0	3		3	3	19	19
On-road Hybrid test cases	42	29	6	77	102	113	138	146
DENM	21	18	1		85	85	90	98
IVIM	21	4	4		17	28	26	26
SPaTEM-MAPEM	0	7	0		0	0	16	16
SREM - SSEM	0	0	1		0	0	6	6
Total of test cases	195	58	17	270	305	327	393	409
On-Lab test cases	107	0	2	109	98	98	98	98
On-Road test cases	88	58	15	161	207	229	295	311

Category	N# from R 2.0.8	N# from R 2.0.9	N# from R 2.1.0	N# from R 2.1.1	N# from R 2.2.0	N# from R 2.3.0	N# from R 3.1.0
On-Lab Security test cases	88	88	88	88	88	88	88
On-Lab Hybrid test cases	10	10	10	10	10	10	10
On-road ITS-G5 test cases	141	151	171	171	171	181	184
Message Generic	22	22	22	22	22	36	44
IVS	13	13	22	22	22	7	7
HLN	66	66	66	66	66	66	56
RWW	13	13	13	13	13	13	9
SI	18	18	29	29	29	29	29
AVG	5	5	5	5	5	10	10
TI	-	10	10	10	10	-	-
NG	-	-	-	-	-	10	19
CP	-	-	-	-	-	1	1
POI	-	-	-	-	-	5	5
PVD	4	4	4	4	4	4	4
On-road Hybrid test cases	123	133	153	153	153	158	163
Message Generic	22	22	22	22	22	30	35
IVS	13	13	22	22	22	13	13
HLN	51	51	51	51	51	51	51
RWW	13	13	13	13	13	13	13
SI	18	18	28	28	28	29	29
AVG	5	5	5	5	5	5	5
TI	-	10	10	10	10	-	-
NG	-	-	-	-	-	10	10
CP	-	-	-	-	-	1	1
POI	-	-	-	-	-	5	5
PVD	1	1	1	1	1	1	1
Total of test cases	362	382	422	422	422	437	445
On-Lab test cases	98	98	98	98	98	98	98
On-Road test cases	264	284	324	324	324	339	347

2.2 On-Lab Security test cases

Category	Test case ID
Preconditions Validation	<p>To test a local C-ITS security implementation prior to a cross-border tests, additional test cases are recommended for a full preconditions validation as described in chapter “4.2.4 Analysis and description of TF1 deliverable (Security)” of the deliverable C-ITS Testing and Validation Concept. These test cases are also listed in this document, but in other categories (Certificate Format/Timing Validation – 2TCs, SSP Validation – 1TCs, Signature Verification TCs with DC nominal – 4TCs).</p> <p>TC_CROADS_GENERIC_SECURITY_ECTL_Update_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_RCA-CTL_Available_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_HOME_RCA_Verification_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_HOME_RCA_Verification_Negative1_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_HOME_RCA_Verification_Negative2_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_HOME_RCA_Verification_Negative3_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_HOME_RCA_Verification_Negative4_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_HOME_RCA_Verification_Negative5_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CRL_Verification_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CRL_Verification_Negative1_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CRL_Verification_Negative2_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CRL_Verification_Negative3_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CRL_Verification_Negative4_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CRL_Verification_Negative5_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CRL_Verification_Negative6_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CRL_Verification_Negative7_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CRL_Verification_Negative8_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CRL_Verification_Negative9_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CRL_Verification_Negative10_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CTL_Verification_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CTL_Verification_Negative2_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CTL_Verification_Negative3_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CTL_Verification_Negative4_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CTL_Verification_Negative5_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CTL_Verification_Negative6_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CTL_Verification_Negative7_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CTL_Verification_Negative8_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CTL_Verification_Negative9_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CTL_Verification_Negative10_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_CTL_Verification_Negative11_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_TLM_ECTL_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_TLM_ECTL_NEGATIVE1_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_TLM_ECTL_NEGATIVE2_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_TLM_ECTL_NEGATIVE3_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_TLM_ECTL_NEGATIVE4_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_TLM_CERTIFICATE_VALIDATION_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_TLM_CERTIFICATE_VALIDATION_NEGATIVE1_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_TLM_CERTIFICATE_VALIDATION_NEGATIVE2_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_TLM_CERTIFICATE_VALIDATION_NEGATIVE3_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_TLM_CERTIFICATE_VALIDATION_NEGATIVE4_4_R2.0.1</p> <p>TC_CROADS_GENERIC_SECURITY_TLM_CERTIFICATE_VALIDATION_NEGATIVE5_4_R2.0.1</p>

Certificate Format Validation	C-Roads_TF5_Test-cases_DENM_Security_CertifFormat_1_R2.0.1 C-Roads_TF5_Test-cases_DENM_Security_CertifFormat_Negative_R2.0.1
Certificate Timing Validation	C-Roads_TF5_Test-cases_DENM_Security_CertifValidity_2_R2.0.1 C-Roads_TF5_Test-cases_DENM_Security_CertifValidity_Negative1_2_R2.0.1 C-Roads_TF5_Test-cases_DENM_Security_CertifValidity_Negative2_2_R2.0.1 C-Roads_TF5_Test-cases_DENM_Security_CertifValidity_Negative3_2_R2.0.1
Signature Verification AA Validation	C-Roads_TF5_Test-cases_SECURITY_AA_NEGATIVE_1_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AA_NEGATIVE_2_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AA_NEGATIVE_3_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AA_NEGATIVE_4_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AA_NEGATIVE_5_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AA_NEGATIVE_6_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AA_NEGATIVE_7_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AA_NEGATIVE_8_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AA_NEGATIVE_9_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AA_NEGATIVE_10_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AA_NEGATIVE_11_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AA_NOMINAL_5_R2.0.1
AT Validation	C-Roads_TF5_Test-cases_SECURITY_AT_NEGATIVE_1_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AT_NEGATIVE_2_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AT_NEGATIVE_3_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AT_NEGATIVE_4_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AT_NEGATIVE_5_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AT_NEGATIVE_6_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AT_NEGATIVE_7_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AT_NEGATIVE_8_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AT_NEGATIVE_9_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AT_NEGATIVE_10_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AT_NEGATIVE_11_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_AT_NOMINAL_5_R2.0.1
RCA Validation	C-Roads_TF5_Test-cases_SECURITY_RCA_NEGATIVE_1_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_RCA_NEGATIVE_2_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_RCA_NEGATIVE_3_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_RCA_NEGATIVE_4_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_RCA_NEGATIVE_5_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_RCA_NOMINAL_5_R2.0.1
Signature Validation	C-Roads_TF5_Test-cases_SECURITY_SIGNATURE_NEGATIVE_1_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_SIGNATURE_NEGATIVE_2_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_SIGNATURE_NEGATIVE_3_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_SIGNATURE_NEGATIVE_4_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_SIGNATURE_NEGATIVE_5_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_SIGNATURE_NEGATIVE_6_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_SIGNATURE_NEGATIVE_7_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_SIGNATURE_NEGATIVE_8_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_SIGNATURE_NEGATIVE_9_5_R2.0.1 C-Roads_TF5_Test-cases_SECURITY_SIGNATURE_NOMINAL_5_R2.0.1
SSP Validation	TC_CROADS_GENERIC_SECURITY_HOME_AT-Permission_DENM_R2.0.1

2.3 On-Lab Hybrid test cases

Category	Test case ID
BI Implementation	C-Roads_TF5_Test-cases_DENM_Hybrid_Routing_R2.0.1
	C-Roads_TF5_Test-cases_Filtering_R2.0.1
	C-Roads_TF5_Test-cases_Filtering_Negative_R2.0.1
	C-Roads_TF5_Test-cases_Filtering_Publish_QuadtreeComplexShape_R2.0.1
	C-Roads_TF5_Test-cases_Filtering_Quadtree_R2.0.1
	C-Roads_TF5_Test-cases_Filtering_Subscribe_QuadtreeComplexShape_R2.0.1
	C-Roads_TF5_Test-cases_Generic_Routing_R2.0.1
	C-Roads_TF5_Test-cases_IVIM_Hybrid_Routing_R2.0.1
	C-Roads_TF5_Test-cases_PublishMultipleReceivers_R2.0.1
	C-Roads_TF5_Test-cases_SubscribeMultipleProviders_R2.0.1

2.4 On-road ITS-G5 test cases

Message / Service	Category/ Use Case	Test case ID
IVIM	GENERIC (14)	TC_CROADS_GENERIC_ITSG5_IVIM_GLC_referencePosition_01_R2.3.0
		TC_CROADS_GENERIC_ITSG5_IVIM_ZONES_02_R2.0.1
		TC_CROADS_GENERIC_ITSG5_IVIM_GLC_GlcParts_2_1_R2.3.0
		TC_CROADS_GENERIC_ITSG5_IVIM_TIMING_03_R2.0.1
		TC_CROADS_GENERIC_ITSG5_IVIM_Update_Cancel_04_R2.0.1
		TC_CROADS_GENERIC_ITSG5_IVIM_Status-Update_4_1_R2.0.1
		TC_CROADS_GENERIC_ITSG5_IVIM_serviceProviderId_45_R2.0.1
		TC_CROADS_GENERIC_ITSG5_IVIM_ividentificationNumber_45_1_R2.0.3
		TC_CROADS_GENERIC_ITSG5_IVIM_GIC_iviType_75_2_R2.3.0
		TC_CROADS_GENERIC_ITSG5_IVIM_GIC_detectionZonelds_110_R2.3.0
		TC_CROADS_GENERIC_ITSG5_IVIM_GIC_roadSignCodes_111_R2.3.0
		TC_CROADS_GENERIC_ITSG5_IVIM_GLC_GlcParts_segment_setOfLanes_112_R2.3.0
DENM	GENERIC (13)	TC_CROADS_GENERIC_ITSG5_IVIM_GIC_extraText_114_R2.3.0
		TC_CROADS_GENERIC_ITSG5_IVIM_GIC_GlcParts_116_R2.3.0
		TC_CROADS_GENERIC_ITSG5_DENM_eventPosition_01_R3.1.0
		TC_CROADS_GENERIC_ITSG5_DENM_Traces_02_R3.1.0
		TC_CROADS_GENERIC_ITSG5_DENM_TIMING_03_R3.1.0
		TC_CROADS_GENERIC_ITSG5_DENM_UPDATE_04_1_R3.1.0
		TC_CROADS_GENERIC_ITSG5_DENM_CANCEL_04_2_R3.1.0
		TC_CROADS_GENERIC_ITSG5_DENM_referenceDenms_36_R3.1.0
		TC_CROADS_GENERIC_ITSG5_DENM_roadWorks_64_R3.1.0
		TC_CROADS_GENERIC_ITSG5_DENM_trafficDirection_65_R3.1.0
		TC_CROADS_GENERIC_ITSG5_DENM_StationType_66_R3.1.0
		TC_CROADS_GENERIC_ITSG5_DENM_eventType_67_R3.1.0
SPATEM-MAPEM	GENERIC (3)	TC_CROADS_GENERIC_ITSG5_DENM_informationQuality_68_R3.1.0
		TC_CROADS_GENERIC_ITSG5_DENM_awarenessArea_69_R3.1.0
		TC_CROADS_GENERIC_ITSG5_DENM_linkedDenms_70_R3.1.0
SREM-SSEM	GENERIC (1)	TC_CROADS_GENERIC_ITSG5_SPATEM-MAPEM_timing_01_R2.0.4
		TC_CROADS_GENERIC_ITSG5_SPATEM-MAPEM_Generic-Relation_02_R2.0.4
		TC_CROADS_GENERIC_ITSG5_MAPEM_Location_03_R2.0.4
CPM	GENERIC (12)	TC_CROADS_GENERIC_ITSG5_SREM-SSEM_REQUEST-ID_23_R2.0.4
		TC_CROADS_GENERIC_ITSG5_CPM_sensorRegionShape_01_R3.1.0
		TC_CROADS_GENERIC_ITSG5_CPM_sensorRegionConfidence_02_R3.1.0
		TC_CROADS_GENERIC_ITSG5_CPM_PRC-sensorIdList_03_R3.1.0
		TC_CROADS_GENERIC_ITSG5_CPM_PRC-numberOfPerceivedObjects_04_R3.1.0
		TC_CROADS_GENERIC_ITSG5_CPM_objectAge_05_R3.1.0
		TC_CROADS_GENERIC_ITSG5_CPM_objectPerceptionQuality_06_R3.1.0
		TC_CROADS_GENERIC_ITSG5_CPM_POC-sensorIdList_07_R3.1.0
		TC_CROADS_GENERIC_ITSG5_CPM_sensorType_11_R3.1.0
		TC_CROADS_GENERIC_ITSG5_CPM_shadowingApplies_12_R3.1.0
		TC_CROADS_GENERIC_ITSG5_CPM_perceivedObjectIds_13_R3.1.0
		TC_CROADS_GENERIC_ITSG5_CPM_objectId_14_R3.1.0
POIM	GENERIC (1)	TC_CROADS_GENERIC_ITSG5_CPM_POC-numberOfPerceivedObjects_15_R3.1.0
		TC_CROADS_GENERIC_ITSG5_POIM_ParkingStatusContainer_01_R2.3.0
IVS (7)	GENERIC (1)	TC_CROADS_IVS_GENERIC_ITSG5_IVIM_GIC_driverAwarenessZonelds_117_R2.3.0
	IVS-TS (0)	No UC specific TCs
	IVS-FT (6)	TC_CROADS_IVS-FT_ITSG5_IVIM_TextContainer_iviType_85_R2.3.0
		TC_CROADS_IVS-FT_ITSG5_IVIM_GlcPart_86_R2.0.1
HLN (56)	HLN-AZ (2)	TC_CROADS_IVS-FT_ITSG5_IVIM_text_86_R2.0.3
		TC_CROADS_IVS-FT_ITSG5_IVIM_TextContainer_84_R2.0.3
	HLN-TJA (2)	TC_CROADS_IVS-FT_ITSG5_IVIM_TextContainer_driverAwarenessZonelds_89_1_R2.3.0
		TC_CROADS_IVS-FT_ITSG5_IVIM_TextContainer_detectionZonelds_89_2_R2.3.0
HLN (56)	HLN-AZ (2)	TC_CROADS_HLN-AZ_ITSG5_DENM_awarenessArea_05_3_R3.1.0
		TC_CROADS_HLN-AZ_ITSG5_DENM_eventSpeed_05_2_R3.1.0
	HLN-TJA (2)	TC_CROADS_HLN-TJA_ITSG5_DENM_awarenessArea_06_5_R3.1.0
		TC_CROADS_HLN-TJA_ITSG5_DENM_validityDuration_06_3_R3.1.0

	HLN-SV (4)	TC_CROADS_HLN-SV_ITSG5_DENM_awarenessArea_16_4_R3.1.0 TC_CROADS_HLN-SV_ITSG5_DENM_eventSpeed_16_2_R3.1.0 TC_CROADS_HLN-SV_ITSG5_DENM_lanePosition_16_8_R3.1.0 TC_CROADS_HLN-SV_ITSG5_DENM_stationaryVehicle_16_5_R3.1.0
	HLN-WCW (1)	TC_CROADS_HLN-WCW_ITSG5_DENM_awarenessArea_18_3_R3.1.0
	HLN-TSR (3)	TC_CROADS_HLN-TSR_ITSG5_DENM_awarenessArea_17_2_R3.1.0 TC_CROADS_HLN-TSR_ITSG5_DENM_alacarteContainer_17_3_R3.1.0 TC_CROADS_HLN-TSR_ITSG5_DENM_eventSpeed_17_4_R3.1.0
	HLN-APR (1)	TC_CROADS_HLN-APR_ITSG5_DENM_awarenessArea_19_2_R3.1.0
	HLN-OR (1)	TC_CROADS_HLN-OR_ITSG5_DENM_awarenessArea_20_1_R3.1.0
	HLN-ERVI (13)	TC_CROADS_HLN-ERVI_ITSG5_DENM_awarenessArea_63_1_R3.1.0 TC_CROADS_HLN-ERVI_ITSG5_DENM_eventPositionHeading_63_6_R3.1.0 TC_CROADS_HLN-ERVI_ITSG5_DENM_eventSpeed_63_4_R3.1.0 TC_CROADS_HLN-ERVI_ITSG5_DENM_Geonet_destinationArea_63_10_R2.0.8 TC_CROADS_HLN-ERVI_ITSG5_DENM_UPDATE_63_11_R3.1.0 TC_CROADS_HLN-ERVI_ITSG5_CAM_vehicleRole_3_1_R3.1.0 TC_CROADS_HLN-ERVI_ITSG5_CAM_incidentIndication_4_1_R3.1.0 TC_CROADS_HLN-ERVI_ITSG5_CAM_lightBarSirenInUse_4_2_R3.1.0 TC_CROADS_HLN-ERVI_ITSG5_CAM_incidentIndication_5_1_R3.1.0 TC_CROADS_HLN-ERVI_ITSG5_CAM_lightBarSirenInUse_5_2_R3.1.0 TC_CROADS_HLN-ERVI_ITSG5_CAM_lightBarSirenInUse_6_1_R3.1.0 TC_CROADS_HLN-ERV_ITSG5_CAM_SpecialVehicleContainer_6_2_R3.1.0 TC_CROADS_HLN-ERVI_ITSG5_DENM_validityDuration_63_12_R3.1.0
	HLN-EPVA (13)	TC_CROADS_HLN-EPVA_ITSG5_DENM_awarenessArea_60_1_R3.1.0 TC_CROADS_HLN-EPVA_ITSG5_DENM_awarenessDistance_60_71_R2.0.8 TC_CROADS_HLN-EPVA_ITSG5_DENM_eventPositionHeading_60_6_R3.1.0 TC_CROADS_HLN-EPVA_ITSG5_DENM_eventSpeed_60_4_R3.1.0 TC_CROADS_HLN-EPVA_ITSG5_DENM_UPDATE_60_12_R3.1.0 TC_CROADS_HLN-EPVA_ITSG5_DENM_validityDuration_60_11_R3.1.0 TC_CROADS_HLN-EPVA_ITSG5_DENM_Geonet_destinationArea_60_72_R2.0.8 TC_CROADS_HLN-EPVA_ITSG5_CAM_vehicleRole_1_1_R3.1.0 TC_CROADS_HLN-EPVA_ITSG5_CAM_incidentIndication_2_1_R3.1.0 TC_CROADS_HLN-EPVA_ITSG5_CAM_lightBarSirenInUse_2_2_R3.1.0 TC_CROADS_HLN-EPVA_ITSG5_CAM_incidentIndication_2_3_R3.1.0 TC_CROADS_HLN-EPVA_ITSG5_CAM_lightBarSirenInUse_2_4_R3.1.0 TC_CROADS_HLN-EPVA_ITSG5_CAM_SpecialVehicleContainer_2_5_R3.1.0
	HLN-RLX (1)	TC_CROADS_HLN-RLX_ITSG5_DENM_awarenessArea_40_3_R3.1.0
	HLN-UBR (1)	TC_CROADS_HLN-UBR_ITSG5_DENM_awarenessArea_48_3_R3.1.0
	HLN-AWWD (1)	TC_CROADS_HLN-AWWD_ITSG5_DENM_awarenessArea_50_R3.1.0
	HLN-PTVC (7)	TC_CROADS_HLN-PTVC_ITSG5_DENM_awarenessArea_52_2_R3.1.0 TC_CROADS_HLN-PTVC_ITSG5_DENM_eventSpeed_52_3_R3.1.0 TC_CROADS_HLN-PTVC_ITSG5_DENM_eventPositionHeading_52_4_R3.1.0 TC_CROADS_HLN-PTVC_ITSG5_DENM_awarenessTrafficDirection_52_5_R2.0.8 TC_CROADS_HLN-PTVC_ITSG5_CAM_vehicleRole_7_1_R3.1.0 TC_CROADS_HLN-PTVC_ITSG5_CAM_SpecialVehicleContainer_7_2_R3.1.0 TC_CROADS_HLN-PTVC_ITSG5_CAM_stationType_7_3_R3.1.0
	HLN-PTVS (6)	TC_CROADS_HLN-PTVS_ITSG5_DENM_awarenessArea_54_2_R3.1.0 TC_CROADS_HLN-PTVS_ITSG5_DENM_eventSpeed_54_3_R3.1.0 TC_CROADS_HLN-PTVS_ITSG5_DENM_eventPositionHeading_54_4_R3.1.0 TC_CROADS_HLN-PTVS_ITSG5_CAM_vehicleRole_8_1_R3.1.0 TC_CROADS_HLN-PTVS_ITSG5_CAM_SpecialVehicleContainer_8_2_R3.1.0 TC_CROADS_HLN-PTVS_ITSG5_CAM_stationType_8_3_R3.1.0
RWW (9)	RWW-LC (3)	TC_CROADS_RWW-LC_ITSG5_DENM_closedLanes_26_2_R3.1.0 TC_CROADS_RWW-LC_ITSG5_DENM_trafficFlowRule_26_5_R3.1.0 TC_CROADS_RWW-LC_ITSG5_DENM_awarenessArea_26_6_R3.1.0
	RWW-RC (2)	TC_CROADS_RWW-RC_ITSG5_DENM_closedLanes_34_2_R3.1.0 TC_CROADS_RWW-RC_ITSG5_DENM_awarenessArea_34_5_R3.1.0
	RWW-RM (2)	TC_CROADS_RWW-RM_ITSG5_DENM_awarenessArea_23_1_R3.1.0 TC_CROADS_RWW-RM_ITSG5_DENM_eventPositionHeading_23_4_R3.1.0
	RWW-WM	TC_CROADS_RWW-WM_ITSG5_DENM_awarenessArea_55_1_R3.1.0

	(2)	TC_CROADS_RWW-WM_ITSG5_DENM_eventPositionHeading_55_3_R3.1.0
SI (29)	SI-SPTI (2)	TC_CROADS_SI-SPTI_ITSG5_SPATEM_SignalPhaseAndTimingInformation_08_R2.0.4 TC_CROADS_SI-SPTI_ITSG5_SPATEM_speeds_08_1_R2.0.4
	SI-GLOSA (7)	TC_CROADS_SI-GLOSA_ITSG5_SPATEM-MAPEM_speedLimit_13_R2.0.4 TC_CROADS_SI-GLOSA_ITSG5_SPATEM-MAPEM_speedLimit_13_1_R2.0.4 TC_CROADS_SI-GLOSA_ITSG5_SPATEM-MAPEM_speedLimit_13_2_R2.0.4 TC_CROADS_SI-GLOSA_ITSG5_SPATEM-MAPEM_speedLimit_13_3_R2.0.4 TC_CROADS_SI-GLOSA_ITSG5_SPATEM-MAPEM_speedLimit_13_4_R2.0.4 TC_CROADS_SI-GLOSA_ITSG5_SPATEM-MAPEM_speedLimit_13_5_R2.0.4 TC_CROADS_SI-GLOSA_ITSG5_SPATEM-MAPEM_speedLimit_13_6_R2.0.4
	SI-ISVW (4)	TC_CROADS_SI-ISVW_ITSG5_SPATEM_SignalPhaseAndTimingInformation_14_R2.0.4 TC_CROADS_SI-ISVW_ITSG5_SPATEM_Latency_15_R2.0.4 TC_CROADS_SI-ISVW_ITSG5_SPATEM_speeds_18_2_R2.0.4 TC_CROADS_SI-ISVW_ITSG5_SPATEM-MAPEM_oneMessageAvailable_18_3_R2.0.4
	SI-TLP (2)	TC_CROADS_SI-TLP_ITSG5_SREM_REQUESTORTYPE_34_1_R2.0.4 TC_CROADS_SI-TLP_ITSG5_SREM_INBOUNDLANE_34_2_R2.0.4
	SI-EVP (3)	TC_CROADS_SI-EVP_ITSG5_SREM_REQUESTORTYPE_47_1_R2.0.4 TC_CROADS_SI-EVP_ITSG5_SREM_REQUESTORDESCRIPTION_47_2_R2.0.4 TC_CROADS_SI-EVP_ITSG5_SREM_INBOUNDLANE_47_3_R2.0.4
	SI-TSC (11)	TC_CROADS_SI-TSC_ITSG5_MAPEM_intersections_50_R2.1.0 TC_CROADS_SI-TSC_ITSG5_MAPEM_refPoint_51_R2.1.0 TC_CROADS_SI-TSC_ITSG5_MAPEM_laneSet_52_R2.1.0 TC_CROADS_SI-TSC_ITSG5_MAPEM_nodeList_53_R2.1.0 TC_CROADS_SI-TSC_ITSG5_MAPEM_attributes_54_R2.1.0 TC_CROADS_SI-TSC_ITSG5_MAPEM_dWidth_55_R2.1.0 TC_CROADS_SI-TSC_ITSG5_MAPEM_signalGroup_56_R2.1.0 TC_CROADS_SI-TSC_ITSG5_SPATEM_eventState_57_R2.1.0 TC_CROADS_SI-TSC_ITSG5_SPATEM_predictions_58_R2.1.0 TC_CROADS_SI-TSC_ITSG5_SPATEM_speeds_59_R2.1.0 TC_CROADS_SI-TSC_ITSG5_SPATEM_Latency_60_R2.1.0
AVG (10)	GENERIC (2)	TC_CROADS_AVG-GENERIC_ITSG5_IVIM_AutomatedVehicleContainer_55_R2.0.1 TC_CROADS_AVG-GENERIC_ITSG5_IVIM_AutomatedVehicleContainer_detectionZones_55_1_R2.3.0
	AVG-SAELG (3)	TC_CROADS_AVG-SAELG_ITSG5_IVIM_automatedVehicleRules_59_R2.0.1 TC_CROADS_AVG-SAELG_ITSG5_IVIM_AutomatedVehicleRule_extraText_59_1_R2.3.0 TC_CROADS_AVG-SAELG_ITSG5_IVIM_allowedSAEAutomationLevels_60_R2.0.1
	AVG-PSI (5)	TC_CROADS_AVG-PSI_ITSG5_IVIM_platooningRules_61_R2.0.1 TC_CROADS_AVG-PSI_ITSG5_IVIM_platooningRules_extraText_61_1_R2.3.0 TC_CROADS_AVG-PSI_ITSG5_IVIM_platooningRules_roadSignCodes_61_2_R2.3.0 TC_CROADS_AVG-PSI_ITSG5_IVIM_allowedSAEAutomationLevels_62_R2.0.1 TC_CROADS_AVG-PSI_ITSG5_IVIM_AutomatedVehicleRule_roadSignCodes_62_1_R2.3.0
NG (19)	NG-TSA (10)	TC_CROADS_NG-TSA_ITSG5_IVIM_direction_91_R2.3.0 TC_CROADS_NG-TSA_ITSG5_IVIM_validTo_92_R2.3.0 TC_CROADS_NG-TSA_ITSG5_IVIM_connectedIviStructures_93_R2.3.0 TC_CROADS_NG-TSA_ITSG5_IVIM_iviStatus_94_R2.3.0 TC_CROADS_NG-TSA_ITSG5_IVIM_referencePosition_95_R2.3.0 TC_CROADS_NG-TSA_ITSG5_IVIM_relevanceZone_96_R2.3.0 TC_CROADS_NG-TSA_ITSG5_IVIM_GicPart_97_R2.3.0 TC_CROADS_NG-TSA_ITSG5_IVIM_applicableLanes_98_R2.3.0 TC_CROADS_NG-TSA_ITSG5_IVIM_extraText_99_R2.3.0 TC_CROADS_NG-TSA_ITSG5_IVIM_laneNumber_100_R2.3.0
	NG-SR (9)	TC_CROADS_NG-SR_ITSG5_IVIM_GicPart_101_R3.1.0 TC_CROADS_NG-SR_ITSG5_IVIM_ISO14823_102_R3.1.0 TC_CROADS_NG-SR_ITSG5_IVIM_PictogramCode_103_R3.1.0 TC_CROADS_NG-SR_ITSG5_IVIM_GDDAttributes_104_R3.1.0 TC_CROADS_NG-SR_ITSG5_IVIM_destinationPlace_105_R3.1.0 TC_CROADS_NG-SR_ITSG5_IVIM_destinationRoad_106_R3.1.0 TC_CROADS_NG-SR_ITSG5_IVIM_distanceToDestinationPlace_107_R3.1.0 TC_CROADS_NG-SR_ITSG5_IVIM_GDDAttributes_108_R3.1.0 TC_CROADS_NG-SR_ITSG5_IVIM_GDDAttributes_109_R3.1.0
CP (1)	CP-MW (1)	TC_CROADS_CP-MW_ITSG5_CPM_PercievedObjectContainer_09_R3.1.0
POI (5)	POI-PA (5)	TC_CROADS_POI-PA_ITSG5_POIM_countryCode_02_01_R2.3.0 TC_CROADS_POI-PA_ITSG5_POIM_OpeningStatus_04_01_R2.3.0
		TC_CROADS_POI-PA_ITSG5_POIM_OccupancyInformation_04_02_R2.3.0

		TC_CROADS_POI-PA_ITSG5_POIM_ParkingStatusList_04_03_R2.3.0 TC_CROADS_POI-PA_ITSG5_POIM_ParkingSupplyCapabilitiesContainer_5_R2.3.0
PVD (4)	PVD-VDC (3)	TC_CROADS_PVD-VDC_ITSG5_CAM_InformationReceived_01_R3.1.0 TC_CROADS_PVD-VDC_ITSG5_CAM_DataAggregation_02_R3.1.0 TC_CROADS_PVD-VDC_ITSG5_CAM_MinimumDataRequirements_03_R3.1.0
	PVD-EDC (1)	TC_CROADS_PVD-EDC_ITSG5_DENM_EventDataCollection_58_R2.0.8

2.5 On-road Hybrid test cases

Message / Service	Category/ Use Case	Test case ID
IVIM	GENERIC (8)	TC_CROADS_GENERIC_HYBRID_IVIM_reference position_01_R2.0.1
		TC_CROADS_GENERIC_HYBRID_IVIM_ZONES_02_R2.0.1
		TC_CROADS_GENERIC_HYBRID_IVIM_GlcPart_2_1_R2.0.3
		TC_CROADS_GENERIC_HYBRID_IVIM_TIMING_03_R2.0.1
		TC_CROADS_GENERIC_HYBRID_IVIM_Update_Cancel_04_R2.0.1
		TC_CROADS_GENERIC_HYBRID_IVIM_Status-Update_04_1_R2.0.1
		TC_CROADS_GENERIC_HYBRID_IVIM_serviceProviderId_45_R2.0.1
		TC_CROADS_GENERIC_HYBRID_IVIM_ivIdentificationNumber_45_1_R2.0.3
DENM	GENERIC (10)	TC_CROADS_GENERIC_HYBRID_DENM_EventPosition_01_R2.0.8
		TC_CROADS_GENERIC_HYBRID_DENM_positionConfidenceEllipse_01_1_R2.0.8
		TC_CROADS_GENERIC_HYBRID_DENM_Traces_02_R2.1.0
		TC_CROADS_GENERIC_HYBRID_DENM_TIMING_03_R2.0.8
		TC_CROADS_GENERIC_HYBRID_DENM_UPDATE_04_1_R2.0.8
		TC_CROADS_GENERIC_HYBRID_DENM_CANCEL_04_2_R2.0.8
		TC_CROADS_GENERIC_HYBRID_DENM_awarenessTrafficDirection_35_R2.0.8
		TC_CROADS_GENERIC_HYBRID_DENM_referenceDenms_36_R2.0.8
		TC_CROADS_GENERIC_HYBRID_DENM_informationQuality_65_R2.0.8
SPATEM-MAPEM	GENERIC (3)	TC_CROADS_GENERIC_HYBRID_SPATEM-MAPEM_timing_01_R2.0.4
		TC_CROADS_GENERIC_HYBRID_SPATEM-MAPEM_Generic-Relation_02_R2.0.4
		TC_CROADS_GENERIC_HYBRID_MAPEM_Location_03_R2.0.4
SREM-SSEM	GENERIC (1)	TC_CROADS_GENERIC_HYBRID_SREM-SSEM_REQUEST-ID_23_R2.0.4
CPM	GENERIC (12)	TC_CROADS_GENERIC_HYBRID_CPM_sensorRegionShape_01_R3.1.0
		TC_CROADS_GENERIC_HYBRID_CPM_sensorRegionConfidence_02_R3.1.0
		TC_CROADS_GENERIC_HYBRID_CPM_PRC-sensorIdList_03_R3.1.0
		TC_CROADS_GENERIC_HYBRID_CPM_objectAge_05_R3.1.0
		TC_CROADS_GENERIC_HYBRID_CPM_objectId_14_R3.1.0
		TC_CROADS_GENERIC_HYBRID_CPM_objectPerceptionQuality_06_R3.1.0
		TC_CROADS_GENERIC_HYBRID_CPM_perceivedObjectIds_13_R3.1.0
		TC_CROADS_GENERIC_HYBRID_CPM_POC-numberOfPerceivedObjects_15_R3.1.0
		TC_CROADS_GENERIC_HYBRID_CPM_POC-sensorIdList_07_R3.1.0
		TC_CROADS_GENERIC_HYBRID_CPM_PRC-numberOfPerceivedObjects_04_R3.1.0
		TC_CROADS_GENERIC_HYBRID_CPM_sensorType_11_R3.1.0
		TC_CROADS_GENERIC_HYBRID_CPM_shadowingApplies_12_R3.1.0
POIM	GENERIC (1)	TC_CROADS_GENERIC_HYBRID_POIM_ParkingStatusContainer_01_R2.3.0
IVS (13)	IVS-TS (4)	TC_CROADS_IVS-TS_HYBRID_IVIM_GenerallviContainer_74_R2.0.3
		TC_CROADS_IVS-TS_HYBRID_IVIM_extraText_74_1_R2.0.1
		TC_CROADS_IVS-TS_HYBRID_IVIM_iviType_75_R2.0.3
		TC_CROADS_IVS-TS_HYBRID_IVIM_roadSignCodes_76_R2.0.3
	IVS-FT (9)	TC_CROADS_IVS-FT_HYBRID_IVIM_GenerallviContainer_74_1_R2.0.3
		TC_CROADS_IVS-FT_HYBRID_IVIM_GenerallviContainer-iviType_75_1_R2.0.3
		TC_CROADS_IVS-FT_HYBRID_IVIM_roadSignCodes_76_1_R2.0.3
		TC_CROADS_IVS-FT_HYBRID_IVIM_TextContainer_84_R2.0.3
		TC_CROADS_IVS-FT_HYBRID_IVIM_GenerallviContainer_85_R2.0.1
		TC_CROADS_IVS-FT_HYBRID_IVIM_TextContainer-iviType_85_R2.0.3
		TC_CROADS_IVS-FT_HYBRID_IVIM_text_86_R2.0.3
		TC_CROADS_IVS-FT_HYBRID_IVIM_GlcPart_86_R2.0.1
		TC_CROADS_IVS-FT_HYBRID_IVIM_extraText_87_R2.0.1
HLN (50)	HLN-AZ (3)	TC_CROADS_HLN-AZ_HYBRID_DENM_CC-sCC_05_R2.0.8
		TC_CROADS_HLN-AZ_HYBRID_DENM_eventSpeed_05_2_R2.0.8
		TC_CROADS_HLN-AZ_HYBRID_DENM_awarenessArea_05_3_R2.0.8
	HLN-TJA (4)	TC_CROADS_HLN-TJA_HYBRID_DENM_CC-sCC_06_R2.2.0
		TC_CROADS_HLN-TJA_HYBRID_DENM_validityDuration_06_3_R2.0.8
		TC_CROADS_HLN-TJA_HYBRID_DENM_eventZone_06_4_R2.0.8
		TC_CROADS_HLN-TJA_HYBRID_DENM_awarenessArea_06_5_R2.0.8
	HLN-SV (6)	TC_CROADS_HLN-SV_HYBRID_DENM_awarenessTrafficDirection_8_R2.0.8
		TC_CROADS_HLN-SV_HYBRID_DENM_CC-sCC_13_R2.0.8
		TC_CROADS_HLN-SV_HYBRID_DENM_eventSpeed_16_2_R2.0.8
		TC_CROADS_HLN-SV_HYBRID_DENM_awarenessArea_16_4_R2.0.8

		TC_CROADS_HLN-SV_HYBRID_DENM_stationaryVehicle_16_5_R2.0.8 TC_CROADS_HLN-SV_HYBRID_DENM_lanePosition_16_8_R2.0.8
	HLN-WCW (3)	TC_CROADS_HLN-WCW_HYBRID_DENM_CC-sCC_18_R2.0.8 TC_CROADS_HLN-WCW_HYBRID_DENM_awarenessTrafficDirection_18_2_R2.0.8 TC_CROADS_HLN-WCW_HYBRID_DENM_awarenessArea_18_3_R2.0.8
	HLN-TSR (4)	TC_CROADS_HLN-TSR_HYBRID_DENM_CC-sCC_17_R2.0.8 TC_CROADS_HLN-TSR_HYBRID_DENM_awarenessArea_17_2_R2.0.8 TC_CROADS_HLN-TSR_HYBRID_DENM_alacarteContainer_17_3_R2.0.8 TC_CROADS_HLN-TSR_HYBRID_DENM_eventSpeed_17_4_R2.0.8
	HLN-APR (3)	TC_CROADS_HLN-APR_HYBRID_DENM_CC-sCC_19_R2.0.8 TC_CROADS_HLN-APR_HYBRID_DENM_awarenessArea_19_2_R2.0.8 TC_CROADS_HLN-APR_HYBRID_DENM_awarenessTrafficDirection_19_3_R2.0.8
	HLN-OR (3)	TC_CROADS_HLN-OR_HYBRID_DENM_CC-sCC_20_R2.0.8 TC_CROADS_HLN-OR_HYBRID_DENM_awarenessArea_20_1_R2.0.8 TC_CROADS_HLN-OR_HYBRID_DENM_awarenessTrafficDirection_20_3_R2.0.8
	HLN-ERVI (6)	TC_CROADS_HLN-ERVI_HYBRID_DENM_CC-sCC_63_R2.0.8 TC_CROADS_HLN-ERVI_HYBRID_DENM_eventZone_63_1_R2.0.8 TC_CROADS_HLN-ERVI_HYBRID_DENM_eventSpeed_63_4_R2.0.8 TC_CROADS_HLN-ERVI_HYBRID_DENM_eventPositionHeading_63_6_R2.0.8 TC_CROADS_HLN-ERVI_HYBRID_DENM_Geonet_destinationArea_63_10_R2.0.8 TC_CROADS_HLN-ERVI_HYBRID_DENM_UPDATE_63_11_R2.0.8
	HLN-EPVA (7)	TC_CROADS_HLN-EPVA_HYBRID_DENM_CC-sCC_60_R2.0.8 TC_CROADS_HLN-EPVA_HYBRID_DENM_awarenessArea_60_1_R2.0.8 TC_CROADS_HLN-EPVA_HYBRID_DENM_eventSpeed_60_4_R2.0.8 TC_CROADS_HLN-EPVA_HYBRID_DENM_eventPositionHeading_60_6_R2.0.8 TC_CROADS_HLN-EPVA_HYBRID_DENM_detectionTime_60_10_R2.0.8 TC_CROADS_HLN-EPVA_HYBRID_DENM_validityDuration_60_11_R2.0.8 TC_CROADS_HLN-EPVA_HYBRID_DENM_Geonet_destinationArea_60_72_R2.0.8
	HLN-RLX (2)	TC_CROADS_HLN-RLX_HYBRID_DENM_CC-sCC_40_R2.3.0 TC_CROADS_HLN-RLX_HYBRID_DENM_awarenessArea_40_3_R2.3.0
	HLN-UBR (2)	TC_CROADS_HLN-UBR_HYBRID_DENM_CC-sCC_48_R2.2.0 TC_CROADS_HLN-UBR_HYBRID_DENM_awarenessArea_48_3_R2.0.8
	HLN-AWWD (2)	TC_CROADS_HLN-AWWD_HYBRID_DENM_CC_sCC_49_R2.0.8 TC_CROADS_HLN-AWWD_HYBRID_DENM_awarenessArea_50_R2.0.8
	HLN-PTVC (3)	TC_CROADS_HLN-PTVC_HYBRID_DENM_CC-sCC_51_R2.0.8 TC_CROADS_HLN-PTVC_HYBRID_DENM_awarenessArea_52_2_R2.0.8 TC_CROADS_HLN-PTVC_HYBRID_DENM_awarenessTrafficDirection_52_5_R2.0.8
	HLN-PTVS (3)	TC_CROADS_HLN-PTVS_HYBRID_DENM_CC-sCC_53_R2.0.8 TC_CROADS_HLN-PTVS_HYBRID_DENM_awarenessArea_54_2_R2.0.8 TC_CROADS_HLN-PTVS_HYBRID_DENM_awarenessTrafficDirection_54_5_R2.0.8
RWW (13)	RWW-LC (5)	TC_CROADS_RWW-LC_HYBRID_DENM_CC-sCC_26_R2.0.8 TC_CROADS_RWW-LC_HYBRID_DENM_closedLanes_26_2_R2.0.8 TC_CROADS_RWW-LC_HYBRID_DENM_referenceDenms_26_3_R2.0.8 TC_CROADS_RWW-LC_HYBRID_DENM_awarenessTrafficDirection_26_4_R2.0.8 TC_CROADS_RWW-LC_HYBRID_DENM_awarenessArea_26_6_R2.0.8
	RWW-RC (4)	TC_CROADS_RWW-RC_HYBRID_DENM_CC-sCC_34_R2.0.8 TC_CROADS_RWW-RC_HYBRID_DENM_closedLanes_34_2_R2.0.8 TC_CROADS_RWW-RC_HYBRID_DENM_awarenessTrafficDirection_34_3_R2.0.8 TC_CROADS_RWW-RC_HYBRID_DENM_awarenessArea_34_5_R2.0.8
	RWW-RM (2)	TC_CROADS_RWW-RM_HYBRID_DENM_CC-sCC_21_R2.0.8 TC_CROADS_RWW-RM_HYBRID_DENM_awarenessArea_23_1_R2.0.8
	RWW-WM (2)	TC_CROADS_RWW-WM_HYBRID_DENM_CC-sCC_55_R2.0.8 TC_CROADS_RWW-WM_HYBRID_DENM_awarenessArea_55_1_R2.0.8
SI (29)	SI-SPTI (2)	TC_CROADS_SI-SPTI_HYBRID_SPATEM_SignalPhaseAndTimingInformation_08_R2.0.4 TC_CROADS_SI-SPTI_HYBRID_SPATEM_speeds_08_1_R2.0.4
	SI-GLOSA (7)	TC_CROADS_SI-GLOSA_HYBRID_SPATEM-MAPEM_speedLimit_13_R2.0.4 TC_CROADS_SI-GLOSA_HYBRID_SPATEM-MAPEM_speedLimit_13_1_R2.0.4 TC_CROADS_SI-GLOSA_HYBRID_SPATEM-MAPEM_speedLimit_13_2_R2.0.4 TC_CROADS_SI-GLOSA_HYBRID_SPATEM-MAPEM_speedLimit_13_3_R2.0.4 TC_CROADS_SI-GLOSA_HYBRID_SPATEM-MAPEM_speedLimit_13_4_R2.0.4 TC_CROADS_SI-GLOSA_HYBRID_SPATEM-MAPEM_speedLimit_13_5_R2.0.4 TC_CROADS_SI-GLOSA_HYBRID_SPATEM-MAPEM_speedLimit_13_6_R2.0.4
	SI-ISVW (4)	TC_CROADS_SI-ISVW_HYBRID_SPATEM_SignalPhaseAndTimingInformation_14_R2.0.4 TC_CROADS_SI-ISVW_HYBRID_SPATEM_Latency_15_R2.0.4 TC_CROADS_SI-ISVW_HYBRID_SPATEM_speeds_18_2_R2.0.4

		TC_CROADS_SI-ISVW_HYBRID_SPATEM-MAPEM_oneMessageAvailable_18_3_R2.0.4
	SI-TLP (2)	TC_CROADS_SI-TLP_HYBRID_SREM_REQUESTORTYPE_34_1_R2.0.4 TC_CROADS_SI-TLP_HYBRID_SREM_INBOUNDLANE_34_2_R2.0.4
	SI-EVP (3)	TC_CROADS_SI-EVP_HYBRID_SREM_REQUESTORTYPE_47_1_R2.0.4 TC_CROADS_SI-EVP_HYBRID_SREM_REQUESTORDESCRIPTION_47_2_R2.0.4 TC_CROADS_SI-EVP_HYBRID_SREM_INBOUNDLANE_47_3_R2.0.4
	SI-TSC (11)	TC_CROADS_SI-TSC_HYBRID_MAPEM_intersections_50_R2.1.0 TC_CROADS_SI-TSC_HYBRID_MAPEM_refPoint_51_R2.1.0 TC_CROADS_SI-TSC_HYBRID_MAPEM_laneSet_52_R2.1.0 TC_CROADS_SI-TSC_HYBRID_MAPEM_nodeList_53_R2.1.0 TC_CROADS_SI-TSC_HYBRID_MAPEM_attributes_54_R2.1.0 TC_CROADS_SI-TSC_HYBRID_MAPEM_dWidth_55_R2.1.0 TC_CROADS_SI-TSC_HYBRID_MAPEM_signalGroup_56_R2.1.0 TC_CROADS_SI-TSC_HYBRID_SPATEM_eventState_57_R2.1.0 TC_CROADS_SI-TSC_HYBRID_SPATEM_predictions_58_R2.1.0 TC_CROADS_SI-TSC_HYBRID_SPATEM_speeds_59_R2.1.0 TC_CROADS_SI-TSC_HYBRID_SPATEM_Latency_60_R2.1.0
AVG (5)	GENERIC (1)	TC_CROADS_AVG-GENERIC_HYBRID_IVIM_AutomatedVehicleContainer_55_R2.0.1
	AVG-SAELG (2)	TC_CROADS_AVG-SAELG_HYBRID_IVIM_automatedVehicleRules_59_R2.0.1 TC_CROADS_AVG-SAELG_HYBRID_IVIM_allowedSAEAutomationLevels_60_R2.0.1
	AVG-PSI (2)	TC_CROADS_AVG-PSI_HYBRID_IVIM_platooningRules_61_R2.0.1 TC_CROADS_AVG-PSI_HYBRID_IVIM_allowedSAEAutomationLevels_62_R2.0.1
NG (10)	NG-TSA (10)	TC_CROADS_NG-TSA_HYBRID_IVIM_direction_91_R2.3.0 TC_CROADS_NG-TSA_HYBRID_IVIM_validTo_92_R2.3.0 TC_CROADS_NG-TSA_HYBRID_IVIM_connectedIviStructures_93_R2.3.0 TC_CROADS_NG-TSA_HYBRID_IVIM_iviStatus_94_R2.3.0 TC_CROADS_NG-TSA_HYBRID_IVIM_referencePosition_95_R2.3.0 TC_CROADS_NG-TSA_HYBRID_IVIM_relevanceZone_96_R2.3.0 TC_CROADS_NG-TSA_HYBRID_IVIM_GicPart_97_R2.3.0 TC_CROADS_NG-TSA_HYBRID_IVIM_applicableLanes_98_R2.3.0 TC_CROADS_NG-TSA_HYBRID_IVIM_extraText_99_R2.3.0 TC_CROADS_NG-TSA_HYBRID_IVIM_laneNumber_100_R2.3.0
CP (1)	CP-MW (1)	TC_CROADS_CP-MW_HYBRID_CPM_PercievedObjectContainer_09_R3.1.0
POI (5)	POI-PA (5)	TC_CROADS_POI-PA_HYBRID_POIM_countryCode_02_01_R2.3.0 TC_CROADS_POI-PA_HYBRID_POIM_OpeningStatus_04_01_R2.3.0 TC_CROADS_POI-PA_HYBRID_POIM_OccupancyInformation_04_02_R2.3.0 TC_CROADS_POI-PA_HYBRID_POIM_ParkingStatusList_04_03_R2.3.0 TC_CROADS_POI-PA_HYBRID_POIM_ParkingSupplyCapabilitiesContainer_5_R2.3.0
PVD (1)	PVD-VDC (0)	Not Applicable for IP-based communication
	PVD-EDC (1)	TC_CROADS_PVD-EDC_HYBRID_DENM_EventDataCollection_58_R2.0.8