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Road vehicles — Multimedia data exchange format for impact tests

Véhicules routiers — Format d'échange de données multimédia pour les essais de choc

Related electronic document F

Active Safety Recommendation

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1 Normative references

The following referenced documents are necessary for the application of this document.

ISO 8855, *Road vehicles — Vehicle dynamics and road-holding ability — Vocabulary*

ISO 19206, *Road vehicles — Test devices for target vehicles, vulnerable road users and other objects, for assessment of active safety functions —Part 1:Requirements for passenger vehicle rear-end targets*

ISO 19206, *Road vehicles — Test devices for target vehicles, vulnerable road users and other objects, for assessment of active safety functions —Part 2:Requirements for pedestrian targets*

ISO 19206, *Road vehicles — Test devices for target vehicles, vulnerable road users and other objects, for assessment of active safety functions —Part 4:Requirements for bicyclist targets*

2 Hints

For active safety tests a set of specific environments can be described in a general way. Recommendation for the usage of the MME format in the exchange of data between the test laboratories and the customers are summarized in the following pages.

The RED F is to be seen as enhancement to ISO 13499 in special requirement to active safety tests.

3 MME Descriptors

3.1 Test object

In active safety tests the interaction between 2 or more test objects are described. In all scenarios the subject vehicle is engaged, which test object code is 1.

The other objects could be targets like vehicles, vulnerable road users and/or parts of the test rig like lines. The test object code for all targets is 2.

If additional targets, obstruction vehicles or other vehicles are used in the test, the test object codes will be counted continuously. In the count, all targets come before the concealment vehicles.

In most cases the test object T for the test rig resp. testing ground is not explicitly named or listed.

3.2 Type of the test

The given list of types of tests focuses on the description of the test set-up in terms of the test objects, the procedure and the test track. The necessary measuring equipment also plays a role in the grouping in order to cluster similar tests.

Value	Description	Test objects		Remark
		Code	Class	
BSD	Blind Spot Detection	1 2	Subject Vehicle Vehicle Target or other target	Several lanes and road markings required
C2C	Car to Car	1 2	Subject Vehicle Vehicle Target	

DHL	Dynamic Head Light	1	Subject Vehicle	
LSS	Lane Support Systems	1	Subject Vehicle	Various types of road markings required
OSM	Occupant Status Monitor	1	Subject Vehicle	Special remark to occupants
SAS	Speed Assist Systems	1	Subject Vehicle	
VRU	Vulnerable Road User	1 2	Subject Vehicle Target: Pedestrian, Cyclist Target, etc.	
DIV	Diverse test scenarios	Undef.	Undef.	

3.3 Subtype of the test

The values for 'Subtype of the test' can be expanded by the exchanging partners. The table contains recommendation for a subset of the types of test listed in 2.1.2.

The Subtype of the test is a composition of scenario and function.

Type of the test	Subtype of the test	Scenario	Usecase
BSD	C2C_DOW	Car-to-Car	Door Opening Warning
	C2C_M	Car-to-Car	Merging
	C2C_OI	Car-to-Car	Overtaking Intentional
	C2C_On	Car-to-Car	Oncoming
	C2C_OU	Car-to-Car	Overtaking Unintentional
	C2C_Ov	Car-to-Car	Overtaking
	C2C_RCTAd	Car-to-Car	Rear Car Traffic Alert
	C2C_RCTAp	Car-to-Car	Rear Car Traffic Alert
	C2C_RCTBd	Car-to-Car	Rear Car Traffic Alert
	C2C_RCTBp	Car-to-Car	Rear Car Traffic Alert
	C2PDC7_RCTA	Car-to-Pedestrian Child 7y	Rear Car Traffic Alert
	C2TWCA_DOW	Car-to-Cyclist Adult	Door Opening Warning
	C2TWCA_RCTA	Car-to-Cyclist Adult	Rear Car Traffic Alert
	C2TWKS_DOW	Car-to-Kickscooter	Door Opening Warning
	C2TWMB_OI	Car-to-Motorbike	Overtaking Intentional
	C2TWMB_On	Car-to-Motorbike	Oncoming
	C2TWMB_OU	Car-to-Motorbike	Overtaking Unintentional
	C2TWMB_Ov	Car-to-Motorbike	Overtaking
	C2TWMS_Ov	Car-to-Motorbike Small	Overtaking
	C2TWSC_DOW	Car-to-Scooter	Door Opening Warning
	C2TWSC_M	Car-to-Scooter	Merging
	C2TWSC_Ov	Car-to-Scooter	Overtaking
	C2TWSC_OvF	Car-to-Scooter	Overtaking Farlane
	C2TWSC_RCTA	Car-to-Scooter	Rear Car Traffic Alert
	TWMS2C_Ov	Motorbike Small-to-Car	Overtaking
C2C	BDC_FCW		Forward Collision Warning
	BFC_FCW		Forward Collision Warning
	CCCscp_AEB	Car-to-Car Crossing	Autonomous Emergency Braking
	CCCscp_FCW	Car-to-Car Crossing	Forward Collision Warning
	CCCscpo_FCW		Forward Collision Warning
	CCFhol_AEB	Car-to-Car Front Head-On	Autonomous Emergency Braking
	CCFhos_AEB	Car-to-Car Front Head-On	Autonomous Emergency Braking
	CCFtap_AEB	Car to Car Front turn across path	Autonomous Emergency Braking
	CCPbs_FP	Vehicle running straight and passing	FalsePositive

		vehicles parked on both sides in sequence	
	CCPco_FP	Vehicles running on curves and overtaking vehicles in the adjacent lane	FalsePositive
	CCPis_FP	Vehicle turning left at an intersection and meeting a stationary vehicle ahead	FalsePositive
	CCPs_FP	Vehicle running straight and passing vehicles parked on one side in sequence	FalsePositive
	CCPsa_FP	Vehicle running straight and avoiding the stationary vehicle ahead in the same lane	FalsePositive
	CCPtr_FP	Vehicle running straight and meeting a vehicle turning right ahead	FalsePositive
	CCRb_AD		
	CCRb_AEB	Car to Car Rear breaking	Autonomous Emergency Braking
	CCRb_CIB	Car to Car Rear breaking	Crash Imminent Braking
	CCRb_DBS	Car to Car Rear breaking	Dynamic Brake Support
	CCRb_FCW	Car to Car Rear breaking	Forward Collision Warning
	CCRci_AD		
	CCRco_AD		
	CCRH_FCW		Forward Collision Warning
	CCRm_AD		
	CCRm_AEB	Car to Car Rear moving	Autonomous Emergency Braking
	CCRm_CIB	Car to Car Rear moving	Crash Imminent Braking
	CCRm_DBS	Car to Car Rear moving	Dynamic Brake Support
	CCRm_ESS	Car to Car Rear moving	Emergency Steering Support
	CCRm_FCW	Car to Car Rear moving	Forward Collision Warning
	CCRr_AD		
	CCRr_CPNA_AD		
	CCRs_AEB	Car to Car Rear stationary	Autonomous Emergency Braking
	CCRs_CIB	Car to Car Rear stationary	Crash Imminent Braking
	CCRs_DBS	Car to Car Rear stationary	Dynamic Brake Support
	CCRs_ESS	Car to Car Rear stationary	Emergency Steering Support
	CCRs_FCW	Car to Car Rear stationary	Forward Collision Warning
	CCRsC_AD		
	CCRsS_AD		
	CTRs_AEB		Autonomous Emergency Braking
	FP-CCRb_AEB	False Positive - Steel Trench Plate	Crash Imminent Braking
	FP-CCRb_FCW	False Positive - Steel Trench Plate	Autonomous Emergency Braking
	FP-STP_AEB	False Positive - Steel Trench Plate	Dynamic Brake Support
	FP-STP_CIB	False Positive – Car to Car Rear breaking	Autonomous Emergency Braking
	FP-STP_DBS	False Positive – Car to Car Rear breaking	Forward Collision Warning
	SBma_AD		
	SBmn_AD		
	SBsu_AD		
DHL	LC150_onRoad		
	LC250_onRoad		
	RC150_onRoad		
	RC250_onRoad		
	S_onRoad		
VRU	CBFA_AEB	Car to Bicyclist Farside Adult	Autonomous Emergency Braking
	CBLA_AEB	Car to Bicyclist Longitudinal Adult	Autonomous Emergency Braking
	CBLA_ESS	Car to Bicyclist Longitudinal Adult	Emergency Steering Support
	CBLA_FCW	Car to Bicyclist Longitudinal Adult	Forward Collision Warning
	CBNA_AEB	Car to Bicyclist Nearside Adult	Autonomous Emergency Braking
	CBNAO_AEB	Car to Bicyclist Longitudinal Adult Obstructed	Autonomous Emergency Braking
	CBPO_FP		FalsePositive
	CBTA_AEB	Car-to-Bicyclist Turning Adult	Autonomous Emergency Braking
	CBTAfo_AEB		Autonomous Emergency Braking

	CBTAno_AEB		Autonomous Emergency Braking
	CMCscp_AEB		Autonomous Emergency Braking
	CMFtap_AEB	Car-to-Motorcyclist Front Turn Across Path	Autonomous Emergency Braking
	CMRb_AEB	Car-to-Motorcyclist Rear Braking	Autonomous Emergency Braking
	CMRb_FCW	Car-to-Motorcyclist Rear Braking	Forward Collision Warning
	CMRs_AEB	Car-to-Motorcyclist Rear Stationary	Autonomous Emergency Braking
	CMRs_FCW	Car-to-Motorcyclist Rear Stationary	Forward Collision Warning
	CPFA_AEB	Car to Pedestrian Farside Adult	Autonomous Emergency Braking
	CPFAO_AEB		Autonomous Emergency Braking
	CPFAO_FCW		Forward Collision Warning
	CPFOA_AEB		Autonomous Emergency Braking
	CPLA_AEB	Car to Pedestrian Longitudinal Adult	Autonomous Emergency Braking
	CPLA_ESS	Car to Pedestrian Longitudinal Adult	Emergency Steering Support
	CPLA_FCW	Car to Pedestrian Longitudinal Adult	Forward Collision Warning
	CPNA_AEB	Car to Pedestrian Nearside Adult	Autonomous Emergency Braking
	CPNA_FCW	Car to Pedestrian Nearside Adult	Forward Collision Warning
	CPNAO_AEB	Car to Pedestrian Nearside Adult Obstructed	Autonomous Emergency Braking
	CPNC_AEB	Car to Pedestrian Nearside Child	Autonomous Emergency Braking
	CPNCO_AEB	Car to Pedestrian Nearside Child Obstructed	Autonomous Emergency Braking
	CPNDOC_AEB		Autonomous Emergency Braking
	CPNSOC_AEB		Autonomous Emergency Braking
	CPPA_FP		FalsePositive
	CPPC_FP		FalsePositive
	CPRAm_AEB	Car-to-Pedestrian Reverse Adult moving	Autonomous Emergency Braking
	CPRAs_AEB	Car-to-Pedestrian Reverse Adult stationary	Autonomous Emergency Braking
	CPRCm_AEB	Car-to-Pedestrian Reverse Child moving	Autonomous Emergency Braking
	CPRCs_AEB	Car-to-Pedestrian Reverse Child stationary	Autonomous Emergency Braking
	CPSI_FP		FalsePositive
	CPTA_AEB	Car to Pedestrian Turning Adult	Autonomous Emergency Braking
	CPTAfo_AEB		Autonomous Emergency Braking
	CPTAfs_AEB		Autonomous Emergency Braking
	CPTAno_AEB		Autonomous Emergency Braking
	CPTAns_AEB		Autonomous Emergency Braking
	CSFA_AEB	Car to Scooter Farside Adult	Autonomous Emergency Braking
	CSFAO_AEB		Autonomous Emergency Braking
	CSFtap_AEB		Autonomous Emergency Braking
	CSNA_AEB		Autonomous Emergency Braking
	CSNAO_AEB		Autonomous Emergency Braking
	CSTA_AEB		Autonomous Emergency Braking
	CSTAfo_AEB		Autonomous Emergency Braking
	CSTAns_AEB		Autonomous Emergency Braking
	CVFA_AEB	Car to VRU Farside Adult	Autonomous Emergency Braking
	CVNA_AEB	Car to VRU Nearside Adult	Autonomous Emergency Braking
LSS	BN_LDW	Bot dots None	Lane Departure Warning
	CA_ELK		Emergency Lane Keeping
	DA_LDW		Lane Departure Warning
	DA_LKA		Lane Keeping Assist
	DAC_LDW		Lane Departure Warning
	DAC_LKA		Lane Keeping Assist
	DDR_ELK	Dashed Dashed Right	Emergency Lane Keeping
	DN_LDW	Dashed None	Lane Departure Warning
	DN_LKA	Dashed None	Lane Keeping Assist
	DS_LKA	Dashed Solid	Lane Keeping Assist
	EA_AD		
	NDR_ELK	None Dashed Right	Emergency Lane Keeping
	NDR_LKA	None Dashed Right	Lane Keeping Assist
	NNR_ELK	None None Right	Emergency Lane Keeping

	NNR_LKA		Lane Keeping Assist
	Pothole_AD		
	SA_ELK		Emergency Lane Keeping
	SBEND_AD		
	SD_LKA	Solid Dashed	Lane Keeping Assist
	SDR_ELK	Solid Dashed Right	Emergency Lane Keeping
	SN_ELK	Solid None	Emergency Lane Keeping
	SN_LDW	Solid None	Lane Departure Warning
	SN_LKA	Solid None	Lane Keeping Assist
	SNS_ELK		Emergency Lane Keeping
	SNS_LKA		Lane Keeping Assist
OSM	Distraction_AFR		
	Distraction_DT		
	Fatigue_Drowsy		
	Fatigue_Microsleep		
	Fatigue_Sleep		
	Unresponsive _Distrated		
	Unresponsive _Sleep		
	VATS_AFR		
	VATS_AFRml		
	VATS_DT		
	VATS_Phone		
	VATS_PhoneAdv		
SAS	SCF_Acceleration	Speed Control Function	Acceleration
	SCF_Deceleration	Speed Control Function	Deceleration
	SCF_Kickdown	Speed Control Function	Kickdown
	SCF_Overrun	Speed Control Function	Overrun
	SLIF_Display	Speed Limit Information Function)	Display
	SLIF_Warning	Speed Limit Information Function)	Warning
DIV	Diverses		
	Internal		
	POM		

3.4 Regulation

The value of the descriptor regulation in the MME file is a comma separated list of keys each composed by 3 parts separated by '_' (ASCII 95).

The first part describes the *Family* which represents a group of regulations or procedures like UN-R, GTR, EuroNCAP.

The second is the subpart which could be the *Number* of the regulation or an abbreviation of the procedure like 127, VRU, LSS.

The third part gives a specification of the *Version* number or year of publication/entry into force like 8.7, IV, 2022.

A list of examples gives the following table.

Value	**Remark**
EuroNCAP_VRU_3.0.2	Version 3.0.2 of the EuroNCAP test protocol for AEB VRU systems
EuroNCAP_VRU_2026	Version of the EuroNCAP test protocol for AEB VRU systems which is valid for test rating with the beginning of 2026
CNCAP_C2C_2021	Version from 2021 of the China NCAP test protocol for car to car scenarios
USNCAP_DBS_2015	Version from 2015 of the NHTSA test protocol for dynamic brake support
CIASI_C2C_2017	Version from 2017 of the CIASI test protocol for car to car scenarios

ANCAP_LSS_3.0.2	Version 3.0.2 of the ANCAP test protocol for lane support systems
IIHS_VRU_II	Version II of the pedestrian AEB test protocol of the IIHS - or alternatively:
IIHS_VRU_2019	Version II from 2019 of the pedestrian AEB test protocol of the IIHS
…	…

3.5 Additional MME descriptors for active safety

The following descriptors are an enhancement to the definition in ISO MME and cover the special requirements of active safety:

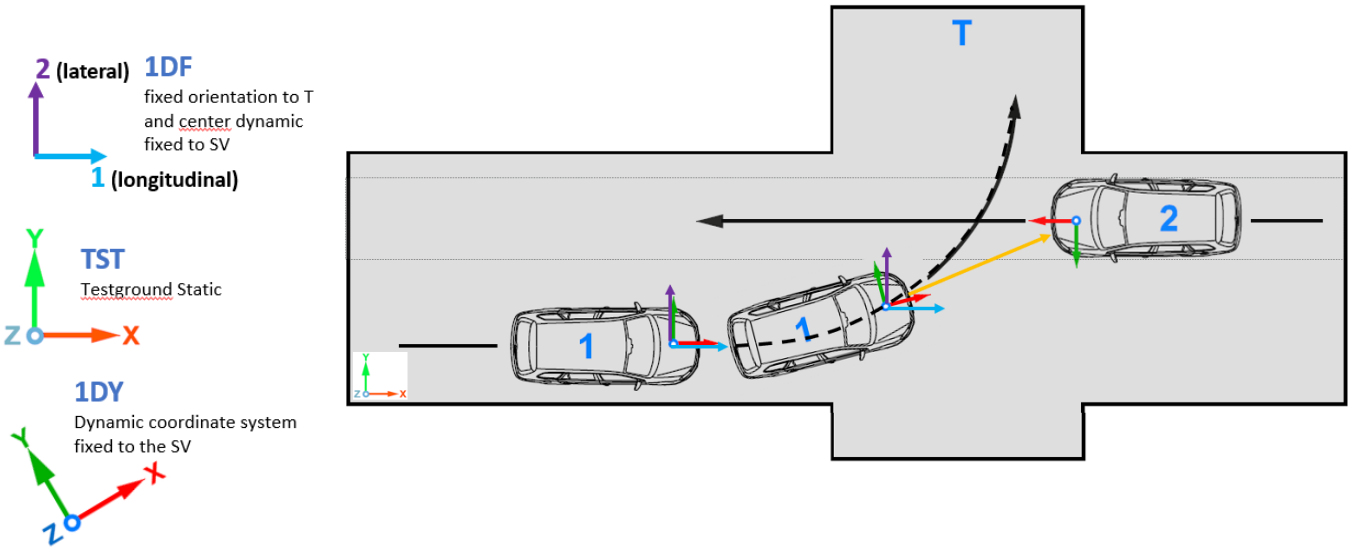
Field descriptor	Data format	Remark	values (List with semicolon or example)
.VUT striking point	string	percentage of the vehicles width which strikes the target without braking in test (striking point) in % or ft	0; 25; 50; 75; -2ft; 0ft; +2ft
.Test function side	string	test function side gives an information of the location of the target (VUT, main line, blind spot, …)	right; left
.Lat. vel. test object x	float	lateral velocity of test object in m/s	
.Nominal vel. test object X	float	Nominal longitudinal velocity of test object to determine validities	
.Nom. lat.vel. test object x	float	Nominal lateral velocity of test object to determine validities	
.Overlap VUT to TV	string	Overlap of VUT and target vehicle in Percent	-50; -75; 100; 75; 50; 10
.Lane marking function line	string	Documentation of lane marking on function side	Any (comment: continuous line marking of not specified lane marking or several lane markings); Bot Dots; Dashed; Solid; none (comment: no line marking); Undefined (comment: line marking available ins sections: interrupted marking or different marking in sections)
.Lane marking secondary line	string	Documentation of lane marking on secondary side	Any (comment: continuous line marking of not specified lane marking or several lane markings); Bot Dots; Dashed; Solid; none (comment: no line marking); Undefined (comment: line marking available ins sections: interrupted marking or different marking in sections)
.VUT distance eye to end	float	Distance from the end of the vehicle to the center of the driver's eye ellipse (e.g. 95% Percentile for CNCAP 2021) in [m]	
.Environment day light	string	day light	day; night; streetlight
.Road surface temperature	float	road surface temperature (in Kelvin)	
.Sky conditions	string	Sky / Cloudiness	cloudless; slightly cloudy; cloudy; not visible (in German: wolkenlos; leicht bewoelkt; bewoelkt; nicht erkennbar)
.Precipitation	string	description of precipitation	none; rain; snow; hail (in German: kein;

type			Regen; Schnee; Hagel)
.Precipitation intensity	string	intensity of precipitation type (in German: Niederschalgsintenität)	not relevant; low; medium; strong (in German: nicht relevant; niedrig; mittel; stark)
.Weather obstruction	string	description of obstruction by weather	fog; smog; spray; none (in German: Nebel; Smog; Gischt; keine)
.Weight of obstruction	string	intensity of weather obstruction	not relevant; low; medium; strong (in German: nicht relevant; niedrig; mittel; stark)
.Wind speed	float	wind speed in m/s	
.Road conditions	string	properties of road conditions od street or proving ground	dry; wet; wet; snowy; icy; NOVALUE (in German: trocken; nass; feucht; schneebedeckt; vereist; NOVALUE)
.VUT Shape Front	tuples	the count starts on front left side; If the number of tuples is odd, the middle one must lie on the centerline of the vehicle	(x1;y1) (x2;y2) (x3;y3) (x4;y4) (x5;y5) (x6;y6) (x7;y7)
.VUT Shape Rear	tuples	the count starts on rear left side; If the number of tuples is odd, the middle one must lie on the centerline of the vehicle	(x1;y1) (x2;y2) (x3;y3) (x4;y4) (x5;y5) (x6;y6) (x7;y7)
.Dimension of test object X	tuples	width and length as tuple in [m]	(width; length)
.Position of the sun	tuples	Proposal for data type: string Data format: (α; β) with α° as angle to VUT main direction β° as angle to proving ground	(α; β)
.Glare angle	float	Glare angle in degrees	

4 Reference Coordinate Systems

All channels are measured or calculated in specific reference coordinate systems. For MME 2.x the coordinate system Id is part of the extended channel code. The related reference system has to be agreed between the exchanging partners. The reference systems used in active safety tests can be reduced to the following table.

Id	Characteristic	Directions	Description	Remark
1DY	SV dynamic	X Y Z	Dynamic coordinate system fixed to the SV according to ISO 8855	Vehicle coordinate system according ISO 8855. Moving direction is X
2DY	Target dynamic	X Y Z	Dynamic coordinate system fixed to the target according to ISO 8855	Analog to a vehicle coordinate system according ISO 8855. Moving direction is X
1DF	SV dynamic with orientation fixed over TST	1 2 3	Dynamic coordinate system with orientation fixed to TST fixed to the moving SV	Vehicle coordinate system based on 1DY on test start. Moving direction is 1
2DF	Target dynamic with orientation fixed over TST	1 2 3	Dynamic coordinate system with orientation fixed to TST fixed to the moving target	Vehicle coordinate system based on 2DY on test start. Moving direction is 1
LOC	Steering Wheel	1 2 3	Local Coordinate system of the steering wheel (1 = Longitudinal)	Only the rotation around the longitudinal axis of the steering system is used.
LOC	Path System	X Y Z	Local coordinate system of the path	Only the lateral deviation from the path is used.
NED	NorthEastDown	1 2 3	Stationary earth-fixed axis system (1 = North, 2 = East, 3 = Down)	Typically from GPS based systems with units [m].
TST	Testground Static	X Y Z	Stationary earth-fixed axis system with an origin that is fixed in the ground plane	Derived from NED system by moving the origin to a point at the test ground and rotating the X axis to the main driving direction.



1DY and 2DY are right-hand coordinate systems according to ISO 8855, where: $Z = \vec{X} \times \vec{Y}$.

The X and Y axes of the coordinate system are parallel to the ground plane, with the X and Y axis aligned with the vertical projection of the X_V and Y_V axis (vehicle axis) on to the ground plane.

The vehicle reference point is the point fixed in the vehicle sprung mass if no other point is explicit named. But this vehicle reference point may be defined in a variety of locations, based on the needs of the analysis or test: vehicle center of gravity, the sprung mass center of gravity, the mid-wheelbase point at the height of the center of gravity, and the center of the front axle.

1DF and 2DF are right-hand coordinate systems according to ISO 8855, where: $\mathrm{Z} = \vec{X} \times \vec{Y}$. 1DF and 2DF are based on 1DY/2DY with fixed orientations of the axis to the initial direction over test ground. Despite all rotations of the test object over the test ground, the coordinate system maintains its orientation in X and Y.

In order to show that only longitudinal and lateral distances are determined, the directions 1, 2 and 3 are used.

5 Channel Codes

The channel code consists of 16 characters, composed of a sequence of codes with a fixed length and specific order, defining test object, position, main location, fine locations, physical dimension, direction and filter class

EXAMPLE	**1 0 VEHC 00 DI 00 VE X P**		
Meaning:	Test object	= 1	Subject Vehicle
	Position	= 0	Undefined
	Main location	= VEHC	The whole vehicle
	Fine location 1	= 00	Undefined
	Fine location 2	= DI	Difference (relative)
	Fine location 3	= 00	Undefined
	Dimension	= VE	Velocity
	Direction	= X	X-direction
	Filter class	= P	Prefiltered

No filter classes are defined for active safety signals. Therefore all channels which could be filtered should have the filter class **P** (Prefiltered). Data sets which not could be filtered like Event or Time Channels should have the filter class **0**. The filter class has to be **S** (Special) when Acceleration, Force or Angular Velocity Channels are filtered according to the specification given in the regulation.

5.1 Additional Main Locations

As ISO MME was focus on passive safety there were main location defined to describe parts of a vehicle. Active safety requires a more function based approach. For this purpose are the following main locations as specific extension defined.

5.1.1 Function based Main Locations

Main Location	Description
TTTC	AEB Time-to-Collision
TAEB	AEB activation time
TFCW	FCW activation time
TIMP	Impact time
TECS	Time where VUT enters in curve segment
TLKA	LKA activation time
TLDW	LDW activation time
TLCR	Line crossing time
TDOP	Time door opening
TRCT	Time Rear Crossing Traffic
THMS	Time Hold Management System
TABS	Time ABS status
TSAS	Time of Speedlimiter Action

5.1.2 Main Location for distances between test objects

Main Location	Description
DSOV	Distance SOV
DGVT	Distance GVT

DCOL	Collision Point distance
DLIN	Distance to Line
DINT	Distance to Intersection
DVUT	Distance to VUT
DIST	other Distance

5.1.3 Main Locations for Vulnerable Road Users

Test devices for targets, vulnerable road users and other objects are described in ISO 19206 Part 1, 2 and 4. Especially for vulnerable road users the number of different targets will grow in the future.

Here is a list of ISO Main Locations for these targets:

	Group	Type	ISO ML code	Description	Comment
Animals	AN	MS	**ANMS**	Moose	
	AN	RO	**ANRO**	Roe	
	AN	WB	**ANWB**	Wild boar	
	AN	DR	**ANDR**	Deer	
	AN	HS	**ANHS**	Horse	
	AN	CW	**ANCW**	Cow	
	AN	DG	**ANDG**	Dog	
	AN	CT	**ANCT**	Cat	
	AN	BB	**ANBB**	Big Bird	walking Bird (e.g. Duck, Chicken, Goose,…)
Toys	TY	RC	**TYRC**	Ride-On Car	= e.g. Bobby Car
	TY	RB	**TYRB**	Running Bike	
	TY	TC	**TYTC**	Tricycle	
	TY	SS	**TYSS**	Self-balancing Scooter	= e.g. Hoverboard or Hover Scooter
Two Wheeler	TW	CA	**TWCA**	Cyclist Adult	
	TW	CC	**TWCx**	Cyclist Child x years old	tbd: replace x by age when target is available
	TW	EB	**TWEB**	Electric Cyclist / Pedelec	EuroNCAP target PTW
	TW	MB	**TWMB**	Motorbike / PTW	EuroNCAP target PTW
	TW	SC	**TWSC**	Scooter Adult	CNCAP e-Scooter or Motor scooter
	TW	KS	**TWKS**	Kick Scooter	adult rider on (electric) kick scooter
	TW	Kx	**TWKx**	Kick Scooter Child x years old	child rider on (electric) kick scooter tbd: replace x by age when target is available
	TW	SW	**TWSW**	Segway or similar	
	TW	WC	**TWWC**	Wheelchair	
Pedestrian	PD	AD	**PDAD**	Adult / Adult Midsize 50%	
	PD	AF	**PDAF**	Adult Female 5%	
	PD	AL	**PDAL**	Adult Large 95%	
	PD	Cx	**PDCx**	Child x years old	tbd: replace x by age when target is available
	PD	C1	**PDC1**	Child 1 year old	existing target PDCx
	PD	C2	**PDC2**	Child 2 years old	existing target PDCx
	PD	C7	**PDC7**	Child 7 years old	existing target PDCx
	PD	AW	**PDAW**	Adult Senior with 4-wheeled walker	
	PD	SB	**PDSB**	Skateboarder	

	PD	IS	**PDIS**	Inline Skater	

5.1.4 Naming of Bus Signals

Bus signals can be named with the main location 2BUS.

Since many bus channels measure quantities that are also recorded by reference measurement technology, the main location of the measured quantity can be used with a specific value in the fine location 3. When bus signals are equivalent to named channels the code of the named channel with the Fine location 3 **CB** (car communication bus).

5.2 Additional Fine Locations

5.2.1 Fine Location 1

FL	long description	comment
WA	main warning signal	main warning signal as reaction for a system/function given by main location
PW	pre-warning signal	prewarning signal as reaction for a system/function given by main location
BE	braking event	breaking event as reaction for a system/function given by main location
PB	pre-braking event	prebreaking event as reation for a system/function given by main location
ST	Status	current system status (e.g. on/off)
DC	dynamic calculation	Addition to TTTC for dynamic calculation of current speed/acceleration (für US-NCAP - Euro-NCAP assumes continous travel) to determien a difference between EuroNCAP ("...would continue to travel with the speed it is travelling.") and US-NCAP (with acceleration)
PE	Path Error	
SH	Shape	
BX	Boundary Box	
RC	Rotation Center	
TY	Tyre	
AX	Axle	
EY	Eye-Position	
DR	Door	
BP	Bumper	

5.2.2 Fine Location 2

FL	long description	comment
RQ	Requested	Indicator for Request on CAN bus or action request like "door opening interface"
AC	accoustical	detection of accoustical signal
OP	optical	detection of optical signal

5.2.3 Fine Location 3

FL	long description	comment
CB	communication bus (e.g. CAN)	Analysis of channel via CAN bus signal and electric/optical measurement
SH	Shape	
BX	Boundary Box	
RC	Rotation Center	
TY	Tyre	
AX	Axle	
EY	Eye-Position	
DR	Door	
BP	Bumper	

5.3 Channel codes for distances

The most distances which must be known in active safety tests are between moving test objects and not located on one of these. There is a kneed to describe the involved test objects and also the used location on the test objects for each distance. So an enhancement for ISO codes is necessary.

The channel codes for distances between test object use TO, SP and FL1 to describe the first test object and FL2 and FL3 the second test object. The first object in this case is the test object, which is more important in this range: VUT, VRU, GVT, SOV.

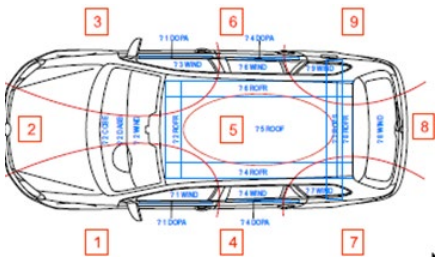
TO	SP	ML	FL1	FL2	FL3	Dimens.	Direct.	Filter	Description
1	2	DGVT	MI	22	MI	DC	1	P	longitudinal distance of front middle VUT to front middle GVT
Fist TO			Fist TO	Second TO					

FL2 is used for the second test object like the values TO+SP for the first test object.

TO	First/more important test Object (definition of VUT, GVT,… is in MME file)
SP	Location on first/more important test object (VUT, Target, GVT,…)
ML	Description of distance location
FL1	location on first object (TO + SP) (MI = middle; LE = left side without mirror; BX = Boundary Box; SH = Shape)
FL2	TO + SP for second test object (e.g. 38 = TO3 (SOV) rear middle)
FL3	location on second test object (MI = middle; LE = left side without mirror; BX = Boundary Box; SH = Shape)
Dimens.	Dimension of the channel (for distances this will be DC)
Direct.	Direction of distance
Filter	Filter class

The following list shows all possible values for the positions in channel codes for distances:

TO	Versuchsobjekt / test object
1	VUT
2	GVT / Target
3	ggf. SOV
x	running no. of Dummy

SP	
0	undefiniert / overall
	

ML	
DSOV	Distance SOV
DGVT	Distance GVT
DCOL	Collision Point distance
DLIN	Distance to Line
DINT	Distance to Intersection
DVUT	Distance to VUT
DIST	other Distance
VEHC	vehicle

FL1		
SH	Shape	VUT / GVT / SOV
BX	Boundary Box	
FR	Front	
UP	Oben	
MI	Middle	
CG	Center of Gravity	
RC	Rotation Center	
RE	Rear	
LE	Left	
RI	Right	
TY	Tyre	
AX	Axle	
EY	Eye-Position	
DR	Door	
BP	Bumper	
00	undef.	

FL2	TO + SP for GVT / SOV / Target
2x	GVT + descr. of SP of MME
3x	SOV + descr. of SP of MME
21	GVT front left
20	VRU target
…	…

FL 2	For Dummies: No. Of test object + impact side
22	front
24	left side
20	undef.
25	nearest side to VUT

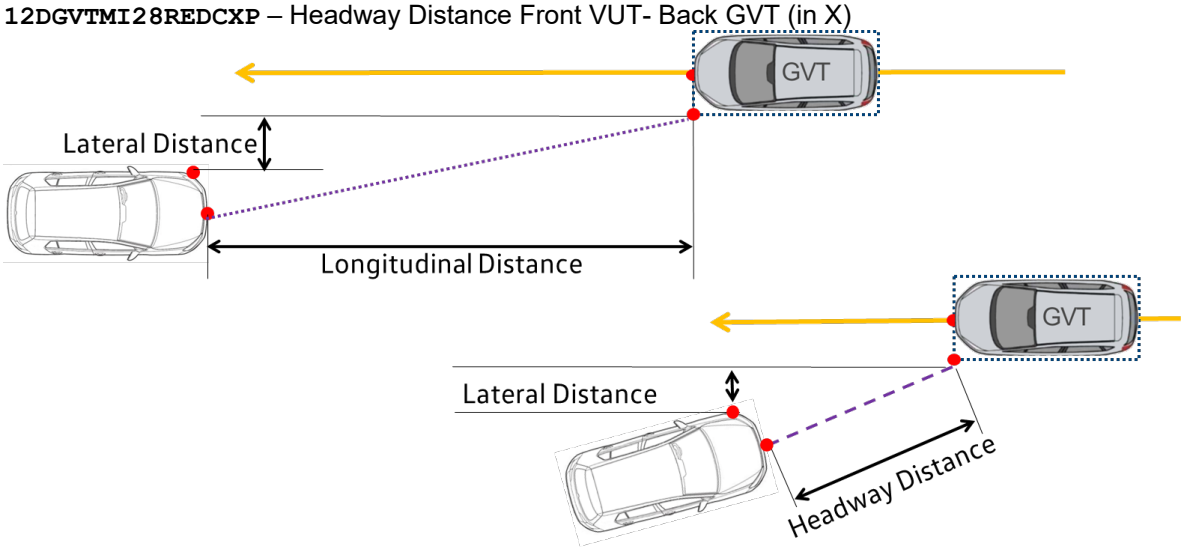
FL3		
SH	Shape	VUT / GVT / SOV
BX	Boundary Box	
FR	Front	
UP	Up	
MI	Middle	
CG	Center of Gravity	
RC	Rotation Center	
RE	Rear	
LE	Left	
RI	Right	
TY	Tyre	
AX	Axle	
EY	Eye-Position	
DR	Door	
BP	Bumper	
00	undef.	
FR	Front	Dummies
LE	Left	
RI	Right	
RE	Rear	
CG	Center	
IN	Inner	Line
OU	Outer	

Direction		coordinate system
0	Undefined/other	
1	Longitudinal	1DT
2	Lateral	1DT
3	Vertical	1DT
X	Longitudinal	1DY
Y	Lateral	1DY
Z	Vertical	1DY
0	Resultant	
The coordinate system refers to test object in TO		

5.3.1 C2C distance channels

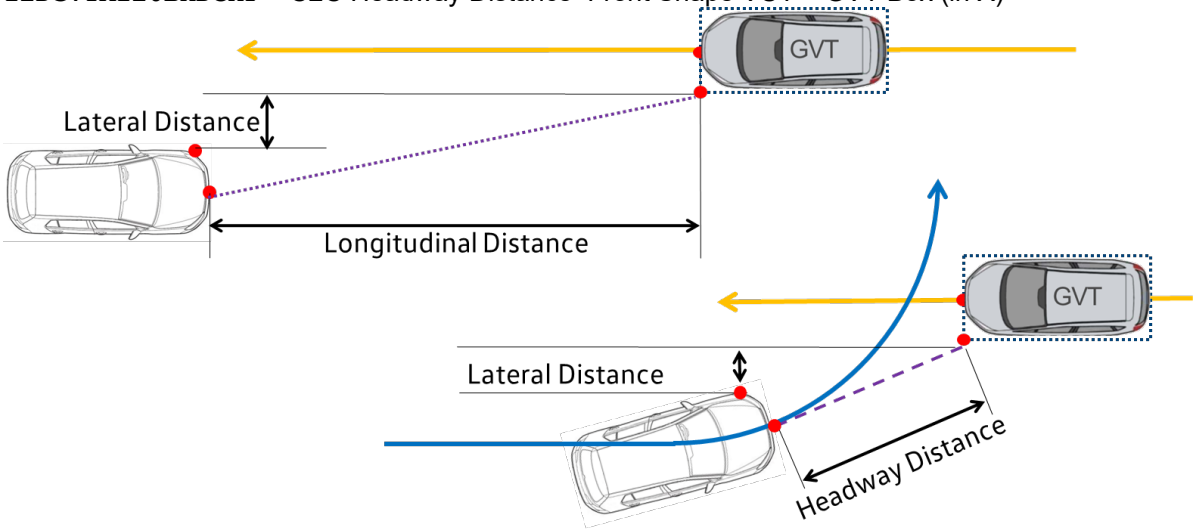
5.3.1.1 CCRs, CCRm, CCRb

12DGVTMI28MIDC1P – longitudinal Distance Front VUT- Back GVT
12DGVTMI28MIDC2P – lateral Distance Front VUT- Back GVT
12DGVTMI28REDCXP – Headway Distance Front VUT- Back GVT (in X)



5.3.1.2 CCFtap

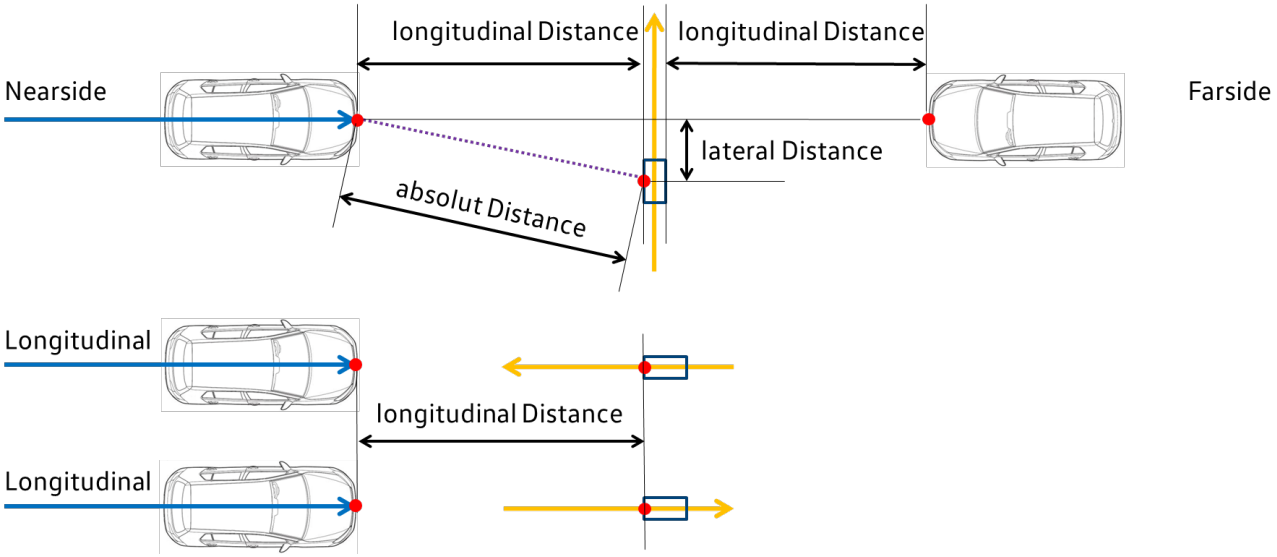
11DGVTSH21BXDC1P – C2C longitudinal Distance Front Shape VUT – GVT Box
11DGVTSH21BXDC2P – C2C lateral Distance Front Shape VUT – GVT Box
12DGVTMI20BXDCXP – C2C Headway Distance Front Shape VUT – GVT Box (in X)



5.3.2 VRU distance channels

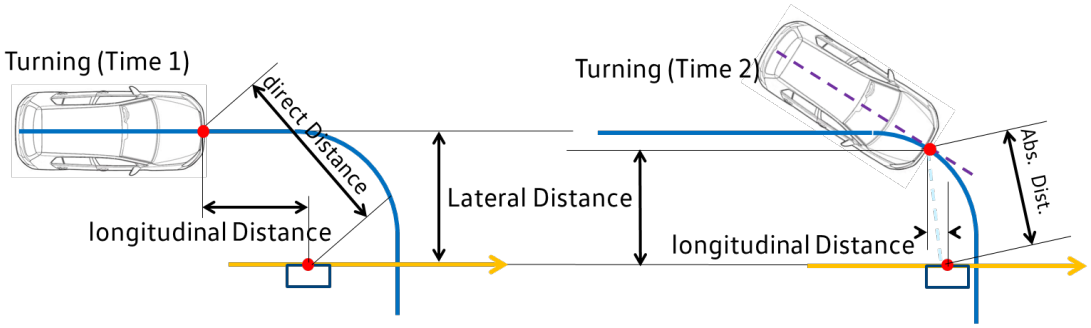
5.3.2.1 Nearside, Farside, Longitudinal

12DVUTSH20MIDC1P – VUT-VRU longitudinal Distance
(0 instead of 2/4/6/8 → same code for nearside and farside)
12DVUTMI20MIDC2P – VUT-VRU lateral Distance
12DVUTMI20MIDC0P – VUT-VRU absolut distance

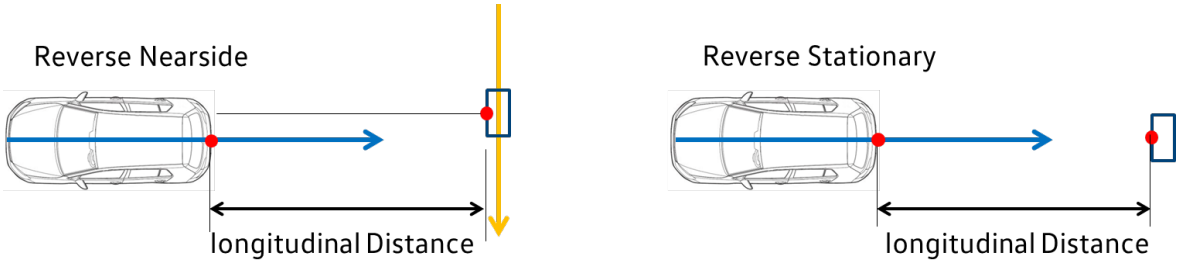


5.3.2.2 Turning, Reverse

12DVUTMI20MIDC1P – VRU longitudinal Distance
12DVUTMI20MIDC2P – VRU lateral Distance
12DVUTMI20MIDC0P – absolut distance



18DVUTMI20MIDC1P – VRU longitudinal Distance
18DVUTMI20MIDC2P – VRU lateral Distance



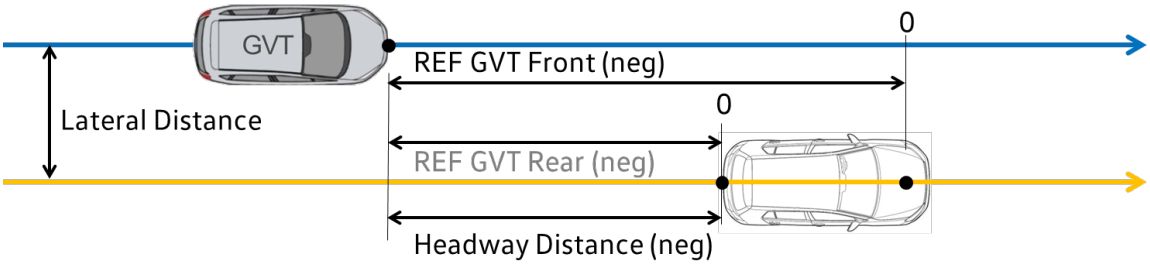
5.3.3 LSS distance channels

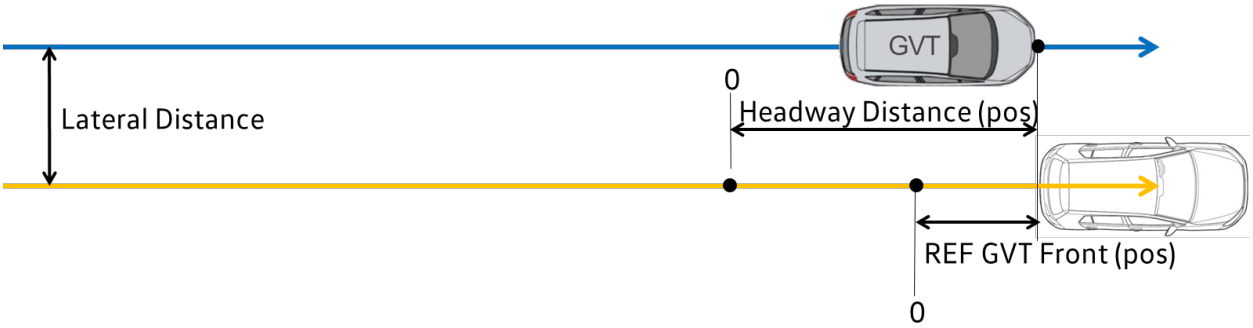
13DLINTY00INDC2P - lateral distance Tyre to line crossing (inner edge)

13DLINTY00OUDC2P - lateral distance Tyre to line crossing (outer edge)

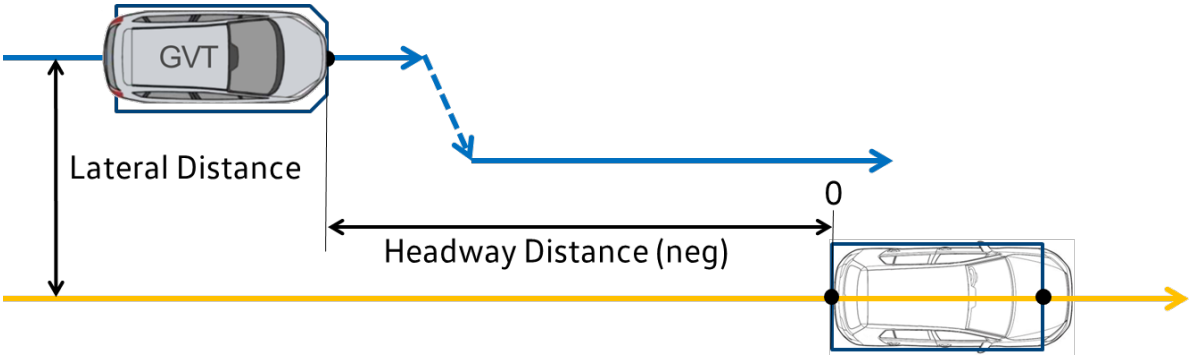
5.3.4 BSD distance channels

5.3.4.1 Overtaking



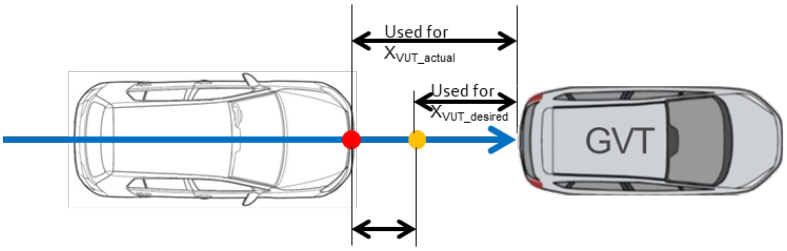


5.3.4.2 Merging



5.3.5 Path Error distance channels

5.3.5.1 VUT longitudinal path error

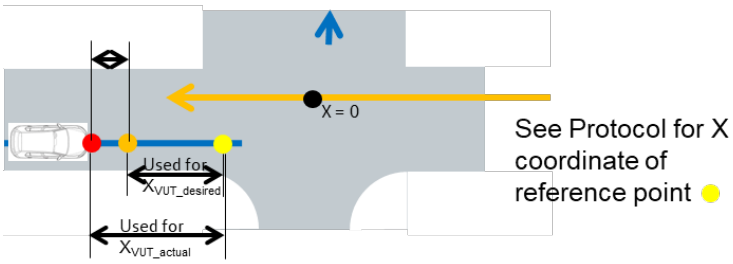


10VEHCPE0000DC1P = $X_{VUT\_desired}$ - X_{VUT_actual}

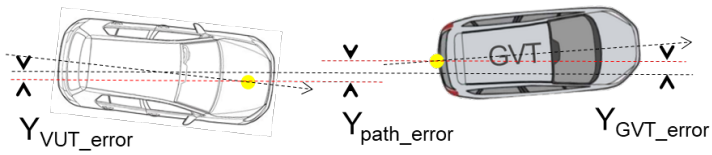
- X_{VUT_actual}: actual X-Coordinate of middle front of the VUT in relation to GVT
- $X_{VUT\_desired}$: desired X-Coordinate of middle front of the VUT in relation to GVT

The longitudinal path error is the difference between actual distance VUT-GVT and desired distance VUT-GVT

***CCFtab+CMFtab:** Instead of GVT a fixed point before the collision point is used:



5.3.5.2 VUT lateral path error



10VEHCPE0000DC2P = Y_{VUT_error} + Y_{GVT_error}

CMFtab: The path error is calculated by Y_{VUT_error}

10VEHCPE0000DC2P = Y_{VUT_error}

5.3.6 Examples

TO	SP	ML	FL1	FL2	FL3	Dim.	Direct.	Filter	Description
1	2	DGVT	MI	22	MI	DC	1	P	longitudinal distance of front middle VUT to front middle GVT
1	2	DGVT	MI	22	MI	DC	2	P	lateral distance of front middle VUT to front middle GVT
1	2	DGVT	MI	22	MI	DC	0	P	absolute distance of front middle VUT to front middle GVT
1	2	DSOV	LE	32	LE	DC	1	P	longitudinal distance of front middle VUT to front middle SOV
1	4	DSOV	LE	34	LE	DC	2	P	lateral distance of front middle VUT to front middle SOV
2	2	DSOV	MI	38	MI	DC	1	P	
1	3	DLIN	TY	00	IN	DC	2	P	VUT tyre to inner side of line
1	3	DLIN	TY	00	OU	DC	2	P	VUT tyre to outer side of line
1	2	DGVT	MI	28	MI	DC	1	P	Headway distance (lateral)
1	2	DGVT	MI	28	MI	DC	2	P	lateral Distance (Middle to Middle)
1	2	DGVT	MI	28	RE	DC	X	P	Headwy distance in X
1	1	DGVT	SH	21	BX	DC	1	P	CCFtab longitudinal distance
1	1	DGVT	SH	21	BX	DC	2	P	CCFtab lateral distance
1	2	DGVT	SH	20	BX	DC	X	P	CCFtab headway distance
1	2	DCOL	MI	00	00	DC	1	P	longitudinal distance VUT middle to collision point
2	1	DCOL	BX	00	00	DC	0	P	absolute distance GVT corner to collision point
1	2	DVUT	SH	20	MI	DC	1	P	VUT-VRU longitudinal distance
1	2	DVUT	MI	20	MI	DC	2	P	VUT-VRU lateral distance
1	2	DVUT	MI	20	MI	DC	0	P	VUT-VRU absolut distance
1	2	DGVT	SH	20	SH	DC	1	P	relative longitudinal distance
1	0	DGVT	SH	20	SH	DC	2	P	relative lateral distance
1	1	DVUT	DR	20	SH	DC	1	P	lateral distance upper corner door to target shape

5.4 Codes for Test Type C2C

A list of examples gives the following table.

Channel Code	Unit	RefSys	Description
10PEAC000000000P	1	LOC	Accelerator Pedal Relative Position
10PEAC00RW00000P	1	LOC	Accelerator Pedal Command
10PEBR000000DS0P	m	LOC	Brake Pedal Position
10PEBR000000FO0P	N	LOC	Brake Pedal Force
10PEBR00RW00000P	1	LOC	Brake Pedal Command
10STWL000000AV1P	rad/s	LOC	VUT Steering Wheel Angle Velocity

10TFCW000000EV00	1	-	FCW acoustical
10TTTC000000TI00	s	-	TTC
10TTTC010000TI00	s	-	TTC with Acceleration
10VEHC000000ACXP	m/(s*s)	1DY	VUT Longitudinal Acceleration
10VEHC000000AVZP	rad/s	1DY	VUT Yaw Rate
10VEHC000000DSXP	m	TST	VUT Position X
10VEHC000000DSYP	m	TST	VUT Position Y
10VEHC000000VEXP	m/s	1DY	VUT Longitudinal Velocity
10VEHC00DI00DCYP	m	LOC	VUT Lateral Path Error
10VEHC00DI00DSXP	m	1DY	Headway Distance VUT - Target
10VEHC00DI00DSYP	m	1DY	Lateral Distance VUT - Target
20VEHC000000ACXP	m/(s*s)	2DY	Target Longitudinal Acceleration
20VEHC000000AVZP	rad/s	2DY	Target Yaw Rate
20VEHC000000DSXP	m	TST	Target Position X
20VEHC000000DSYP	m	TST	Target Position Y
20VEHC000000VEXP	m/s	2DY	Target Longitudinal Velocity
20VEHC000000VEYP	m/s	2DY	Target Lateral Velocity
20VEHC00DI00DCYP	m	LOC	Target Lateral Path Error
…			
Examples for the usage of bus signals:			
10TTTCRD0000TI00	s	-	Bus Signal TTC
10VEHCRD0000ACXP	m/(s*s)	1DY	Bus Signal VUT Requested Acceleration
102BUS010000000P	1	-	Bus Signal 1 Raw
102BUS010000EV00	1	-	Bus Signal 1
102BUS020000EV00	1	-	Bus Signal 2
102BUS030000000P	1	-	Bus Signal 3 Raw
102BUS030000EV00	1	-	Bus Signal 3
…			

5.5 Codes for Test Type VRU

A list of examples gives the following table.

Channel Code	Unit	RefSys	Description
10PEAC000000000P	1	LOC	Accelerator Pedal Relative Position
10PEAC00RW00000P	1	LOC	Accelerator Pedal Command
10PEBR000000DS0P	m	LOC	Brake Pedal Position
10PEBR000000FO0P	N	LOC	Brake Pedal Force
10STWL000000AV1P	rad/s	LOC	VUT Steering Wheel Angle Velocity
10TFCW000000EV00	1	-	FCW acoustical
10VEHC000000ACXP	m/(s*s)	1DY	VUT Longitudinal Acceleration
10VEHC000000AVZP	rad/s	1DY	VUT Yaw Rate
10VEHC000000DSXP	m	TST	VUT Position X
10VEHC000000DSYP	m	TST	VUT Position Y
10VEHC000000VEXP	m/s	1DY	VUT Longitudinal Velocity
10VEHC00DI00DCYP	m	LOC	VUT Lateral Path Error
10VEHC00DI00DSXP	m	1DY	Headway Distance VUT - Target
10VEHC00DI00DSYP	m	1DY	Lateral Distance VUT - Target
20CYCL000000DSXP	m	TST	Cyclist Position X
20CYCL000000DSYP	m	TST	Cyclist Position Y
20CYCL000000VEXP	m/s	2DY	Cyclist Longitudinal Velocity
20CYCL000000VEYP	m/s	2DY	Cyclist Lateral Velocity
20CYCL00DI00DCYP	m	LOC	Cyclist Lateral Path Error
20PEDA000000DSXP	m	TST	Pedestrian (adult) Position X
20PEDA000000DSYP	m	TST	Pedestrian (adult) Position Y
20PEDA000000VEXP	m/s	2DY	Pedestrian (adult) Longitudinal Velocity
20PEDA000000VEYP	m/s	2DY	Pedestrian (adult) Lateral Velocity
20PEDA00DI00DCYP	m	LOC	Pedestrian (adult) Lateral Path Error
20PEDC000000DSXP	m	TST	Pedestrian (child) Position X
20PEDC000000DSYP	m	TST	Pedestrian (child) Position Y
20PEDC000000VEXP	m/s	2DY	Pedestrian (child) Longitudinal Velocity
20PEDC000000VEYP	m/s	2DY	Pedestrian (child) Lateral Velocity
20PEDC00DI00DCYP	m	LOC	Pedestrian (child) Lateral Path Error
…			
Examples for the usage of bus signals:			
10TTTCRD0000TI00	s	-	Bus Signal TTC
10VEHCRD0000ACXP	m/(s*s)	1DY	Bus Signal VUT Requested Acceleration
102BUS010000000P	1	-	Bus Signal 1 Raw
102BUS010000EV00	1	-	Bus Signal 1
102BUS020000EV00	1	-	Bus Signal 2
102BUS030000000P	1	-	Bus Signal 3 Raw
102BUS030000EV00	1	-	Bus Signal 3
…			

5.6 Codes for Test Type LSS

A list of examples gives the following table.

Channel Code	Unit	RefSys	Description
10TLCR000000TI00	s	-	TLC
10TLCRFRLE00EV00	1	-	Line Crossing Time LHS
10TLCRFRRI00EV00	1	-	Line Crossing Time RHS
10TLDW000000EV00	1	-	LDW Activation Time
10TLDW010000EV00	1	-	LDW Vibration
10TLKA000000EV00	1	-	LKA Activation Time
10VEHC000000ACXP	m/(s*s)	1DY	VUT Longitudinal Acceleration
10VEHC000000ACYP	m/(s*s)	1DY	VUT Lateral Acceleration
10VEHC000000AVZP	rad/s	1DY	VUT Yaw Rate
10VEHC000000DSXP	m	TST	VUT Position X
10VEHC000000DSYP	m	TST	VUT Position Y
10VEHC000000VEXP	m/s	1DY	VUT Longitudinal Velocity
10VEHC000000VEYP	m/s	1DY	VUT Lateral Velocity
10VEHC00DI00DCYP	m	LOC	Lateral Path Error VUT
10VEHC00DI00DSYP	m	1DY	Lateral Displacement
11WHEL000000DSXP	m	TST	VUT Front Left Wheel Position X - needed?
11WHEL000000DSYP	m	TST	VUT Front Left Wheel Position Y - needed?
13WHEL000000DSXP	m	TST	VUT Front Right Wheel Position X - needed?
13WHEL000000DSYP	m	TST	VUT Front Right Wheel Position Y - needed?
20VEHC000000ACXP	m/(s*s)	2DY	Target Longitudinal Acceleration
20VEHC000000AVZP	rad/s	2DY	Target Yaw Rate
20VEHC000000DSXP	m	TST	Target Position X
20VEHC000000DSYP	m	TST	Target Position Y
20VEHC000000VEXP	m/s	2DY	Target Longitudinal Velocity
…			
Examples for the usage of bus signals:			
10TLKARD0000000P	1	-	Bus Signal LKA Requested
10TLKARD0000EV00	1	-	Bus Signal LKA Approval
10VEHCRDDI00DSYP	m	1DY	Bus Signal Lateral Displacement
…			

6 Examples

6.1 Examples for MME 1.6

6.1.1 Example of a test information file MME 1.6

Filename: 21C2C-123M.mme

```
Data format edition number  :1.6
Laboratory name             :NOVALUE
Laboratory contact name     :NOVALUE
Laboratory contact phone    :NOVALUE
Laboratory contact fax      :NOVALUE
Laboratory contact email    :NOVALUE
Laboratory test ref. number :21C2C-123M_CARID_20210414_145239
Customer name               :NOVALUE
Customer test ref. number   :NOVALUE
Customer project ref. number:NOVALUE
Customer order number       :NOVALUE
Customer cost unit          :NOVALUE
Customer test engineer name :NOVALUE
Customer test engineer phone:NOVALUE
Customer test engineer fax  :NOVALUE
Customer test engineer email:NOVALUE
Title                       :NOVALUE
Medium No./number of media  :1/1
Timestamp                   :2021-04-14 08:41:35
Type of the test            :C2C
Subtype of the test         :CCRs_AEB
Regulation                  :EuroNCAP_C2C_2020
Reference temperature       :NOVALUE
Relative air humidity       :NOVALUE
Date of the test            :12-04-2021
Number of test objects      :2
Name of test object 1       :VUT
Velocity test object 1      :4.17
Mass test object 1          :NOVALUE
Driver position object 1    :NOVALUE
Impact side test object 1   :FR
Type of test object 1       :1
Class of test object 1      :SV
Code of test object 1       :NOVALUE
Ref. number of test object 1:NOVALUE
Name of test object 2       :GVT
Velocity test object 2      :0
Mass test object 2          :NOVALUE
Driver position object 2    :NOVALUE
Impact side test object 2   :NOVALUE
Type of test object 2       :2
Class of test object 2      :VT
Code of test object 2       :NOVALUE
Ref. number of test object 2:NOVALUE
```

6.1.2 Example of a channel information file MME 1.6

Filename: 21C2C-123M.chn

```
Instrumentation standard    :NOVALUE
Number of channels          :16
Name of channel 001         :10VEHC000000ACXP / VUT Longitudinal Acceleration
Name of channel 002         :10VEHC000000VEXP / VUT Longitudinal Velocity
Name of channel 003         :10VEHC000000VEYP / VUT Lateral Velocity
Name of channel 004         :10VEHC000000AVZP / VUT Yaw Rate
Name of channel 005         :10VEHC00DI00DCYP / Lateral path error VUT
Name of channel 006         :10STWL000000MO1P / VUT Steering Wheel Torque
Name of channel 007         :10TLDW000000EV00 / LDW Activation Time
Name of channel 008         :10TLKA000000EV00 / LKA Activation Time
Name of channel 009         :10VEHC00DI00DSYP / Distance Line - VUT Lateral
Name of channel 010         :11WHEL000000DSXP / VUT Front Left Wheel Position X
Name of channel 011         :11WHEL000000DSYP / VUT Front Left Wheel Position Y
Name of channel 012         :13WHEL000000DSXP / VUT Front Right Wheel Position X
Name of channel 013         :13WHEL000000DSYP / VUT Front Right Wheel Position Y
Name of channel 014         :20VEHC000000ACXP / GVT Longitudinal Acceleration
Name of channel 015         :20VEHC000000VEXP / GVT Longitudinal Velocity
Name of channel 016         :20VEHC000000AVZP / GVT Yaw Rate
```

6.1.3 Example of a channel data file MME 1.6

Filename: 21C2C-123M.008

```
Test object number          :1
Data source                 :transducer
Data status                 :ok
Name of the channel         :X-Position of the VUT
Laboratory channel code     :10VEHC000000DSXP
Customer channel code       :VUT Position X
Reference channel           :implicit
Reference channel name      :NOVALUE
Channel code                :10VEHC000000DSXP
Channel frequency class     :NOVALUE
Unit                        :m
Reference system            :TST
Transducer type             :NOVALUE
Pre-filter type             :NOVALUE
Cut off frequency           :NOVALUE
Channel amplitude class     :NOVALUE
Sampling interval           :0.01
Bit resolution              :NOVALUE
Time of first sample        :0.01
Number of samples           :2406
Start offset interval       :NOVALUE
End offset interval         :NOVALUE
Offset post test            :NOVALUE
Transducer id               :NOVALUE
Transducer natural frequency:NOVALUE
Transducer damping ratio    :NOVALUE
0.01
0.02
0.03
...
```

6.2 Examples for MME 2.1

6.2.1 Example of a test information file MME 2.1

Filename: 21C2C-123M.mme

```
Data format edition number  :2.1
Timestamp                   :2021-04-14T06:41:35+02:00
Laboratory name             :NOVALUE
Laboratory contact name     :NOVALUE
Laboratory contact phone    :NOVALUE
Laboratory contact fax      :NOVALUE
Laboratory contact email    :NOVALUE
Laboratory test ref number  :21C2C-123M_CARID_20210414_145239
Customer name               :NOVALUE
Customer test ref number    :NOVALUE
Customer project ref number :NOVALUE
Customer order number       :NOVALUE
Customer cost unit          :NOVALUE
Customer contact name       :NOVALUE
Customer contact phone      :NOVALUE
Customer contact fax        :NOVALUE
Customer contact email      :NOVALUE
Title                       :NOVALUE
Type of the test            :C2C
Subtype of the test         :CCRs_AEB
Regulation                  :EuroNCAP_C2C_2020
Reference temperature       :NOVALUE
Relative air humidity       :NOVALUE
Date of the test            :12-04-2021
Number of test objects      :2
#Begin of testobjects
Type                        :1
Filename                    :21C2C-123M_1.mmi
#End of testobject
#Begin of testobject
Type                        :2
Filename                    :21C2C-123M_2.mmi
#End of testobject
```

6.2.2 Examples of object information files MME 2.1

Filename: 21C2C-123M_1.mmi

```
Name                        :VUT
Velocity                    :4.17
Mass                        :NOVALUE
Driver position             :NOVALUE
Impact side test            :FR
Class                       :SV
Code                        :NOVALUE
Ref number                  :NOVALUE
Offset                      :NOVALUE
```

Filename: 21C2C-123M_2.mmi

```
Name                        :GVT
Velocity                    :0
Mass                        :NOVALUE
Driver position             :NOVALUE
Impact side test            :NOVALUE
Class                       :VT
Code                        :NOVALUE
Ref number                  :NOVALUE
Offset                      :NOVALUE
```

6.2.3 Example of a channel information file MME 2.1

Filename: 21C2C-123M_Channel.mmi

```
Number of channels          :16
Data origin                 :T
#Begin of channel
Extended channel code       :10VEHC000000ACXP_1DYT
Channel code                :10VEHC000000ACXP
Reference system id         :1DY
#End of channel
#Begin of channel
Extended channel code       :10VEHC00DI00DCYP_LOCT
Channel code                :10VEHC00DI00DCYP
Reference system id         :LOC
#End of channel
#Begin of channel
Extended channel code       :10VEHC00DI00DSXP_1DYT
Channel code                :10VEHC000000DSXP
Reference system id         :1DY
#End of channel
#Begin of channel
Extended channel code       :10VEHC000000DSXP_TSTT
Channel code                :10VEHC000000DSXP
Reference system id         :TST
#End of channel
#Begin of channel
Extended channel code       :10VEHC000000DSYP_TSTT
Channel code                :10VEHC000000DSYP
Reference system id         :TST
#End of channel
…
```

6.2.4 Example of a channel data file MME 2.1

Filename: 21C2C-123M_10VEHC000000DSXP_TSTT.mmd

```
Data structure              :Channel
Instrumentation standard    :NOVALUE
Data source                 :transducer
Data status                 :ok
Unit                        :m
Name of the channel         :10VEHC000000DSXP
Laboratory channel code     :10VEHC000000DSXP
Customer channel code       :VUT Position X
Reference channel           :implicit
Reference channel name      :NOVALUE
Uuid                        :NOVALUE
Transducer type             :NOVALUE
Transducer id               :NOVALUE
Transducer natural frequency:NOVALUE
Transducer damping ratio    :NOVALUE
Calibration date            :NOVALUE
Calibration due date        :NOVALUE
Bit resolution              :NOVALUE
Cut off frequency           :NOVALUE
Channel frequency class     :Prefiltered
Channel amplitude class     :NOVALUE
Prefilter type              :NOVALUE
Sampling interval           :0.01
Time of first sample        :0.01
Number of samples           :2406
Start offset interval       :NOVALUE
End offset interval         :NOVALUE
Offset post test            :NOVALUE
#Start of data
0.01
0.02
0.03
…
```