

DENM Mapping

CAR 2 CAR Communication Consortium



About the C2C-CC

Enhancing road safety and traffic efficiency by means of Cooperative Intelligent Transport Systems and Services (C-ITS) is the dedicated goal of the CAR 2 CAR Communication Consortium (C2C-CC). The industrial driven, non-commercial association was founded in 2002 by vehicle manufacturers affiliated with the idea of cooperative road traffic based on Vehicle-to-Vehicle Communications (V2V) and supported by Vehicle-to-Infrastructure Communications (V2I). The Consortium members represent worldwide major vehicle manufactures, equipment suppliers and research organisations.

Over the years, the C2C-CC has evolved to be one of the key players in preparing the initial deployment of C-ITS in Europe and the subsequent innovation phases. C2C members focus on wireless V2V communication applications based on Direct Communication and concentrate all efforts on creating standards to ensure the interoperability of cooperative systems, spanning all vehicle classes across borders and brands. As a key contributor, the C2C-CC and its members work in close cooperation with the European and international standardisation organisations

Disclaimer

The present document has been developed within C2C-CC and might be further elaborated within C2C-CC. C2C-CC and its members accept no liability for any use of this document and other documents from C2C-CC for implementation. C2C-CC documents should be obtained directly from the C2C-CC.

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IPRs essential or potentially essential to profiles or specifications may have been declared to the C2C-CC. The declarations pertaining to these essential IPRs, if any, are publicly available for the C2C-CC members and non-members, and can be found in "Essential or potentially Essential IPRs notified to the C2C-CC in respect of C2C-CC profiles or specifications" ([C2CCC IPR R]), which is available with the latest update from the webpage (<https://www.car-2-car.org>) of the C2C-CC.

Pursuant to the C2C-CC's IPR Policy [C2CCC IPR P], no investigation regarding the essentiality of IPRs, including IPR searches, has been carried out by the C2C-CC. No guarantee can be given as to the existence of other IPRs not referenced in [C2CCC IPR R] (or the updates on the C2C-CC web server) which are, or may be, or may become, essential to the present document.

TPEG2-TEC (ISO 21219-15:2023)			Codes according to DENM/CDD standard		
TPEG2 index	referenceWordCC	referenceWordSCC	DENM index	CauseCode	SubCauseCode
1_0	traffic congestion		1_0	trafficCondition	unavailable
1_1	traffic congestion	increased volume of traffic	1_1	trafficCondition	increasedVolumeOfTraffic
1_255	traffic congestion	undecodable traffic congestion	1_0	trafficCondition	unavailable
2_0	accident		2_0	accident	unavailable
2_1	accident	multi-vehicle accident	2_1	accident	multiVehicleAccident
2_2	accident	major accident	2_2	accident	heavyAccident
2_3	accident	accident involving lorry	2_3	accident	accidentInvolvingLorry
2_4	accident	accident involving bus	2_4	accident	accidentInvolvingBus
2_5	accident	accident involving hazardous materials	2_5	accident	accidentInvolvingHazardousMaterials
2_6	accident	accident in opposite lane	2_6	accident	accidentOnOppositeLane
2_7	accident	unsecured accident	2_7	accident	unsecuredAccident
2_255	accident	undecodable accident	2_0	accident	unavailable
3_0	roadworks		3_0	roadworks	unavailable
3_1	roadworks	major roadworks	3_1	roadworks	majorRoadworks
3_2	roadworks	road marking work	3_2	roadworks	roadMarkingWork
3_3	roadworks	slow moving road maintenance	3_3	roadworks	slowMovingRoadMaintenance
3_255	roadworks	undecodable roadworks	3_0	roadworks	unavailable
4_0	narrow lanes				
4_1	narrow lanes	contraflow			
4_2	narrow lanes	hard shoulder closed			
4_3	narrow lanes	slip lane closed			
4_4	narrow lanes	crawler lane closed			
4_255	narrow lanes	undecodable narrow lane type			
5_0	impassability		5_0	impassability	unavailable
5_1	impassability	flooding	5_1	impassability	flooding
5_2	impassability	danger of avalanches	5_2	impassability	dangerOfAvalanches
5_3	impassability	blasting of avalanches	5_3	impassability	blastingOfAvalanches
5_4	impassability	landslips	5_4	impassability	landslips

TPEG2-TEC (ISO 21219-15:2023)			Codes according to DENM/CDD standard		
TPEG2 index	referenceWordCC	referenceWordSCC	DENM index	CauseCode	SubCauseCode
5_5	impassability	chemical spillage	5_5	impassability	chemicalSpillage
5_6	impassability	winter closure	5_6	impassability	winterClosure
5_255	impassability	undecodable impassability	5_0	impassability	unavailable
6_0	slippery road		6_0	adverseWeatherCondition-Adhesion	unavailable
6_1	slippery road	heavy frost on road	6_1	adverseWeatherCondition-Adhesion	heavyFrostOnRoad
6_2	slippery road	fuel on road	6_2	adverseWeatherCondition-Adhesion	fuelOnRoad
6_3	slippery road	mud on road	6_3	adverseWeatherCondition-Adhesion	mudOnRoad
6_4	slippery road	snow on road	6_4	adverseWeatherCondition-Adhesion	snowOnRoad
6_5	slippery road	ice on road	6_5	adverseWeatherCondition-Adhesion	iceOnRoad
6_6	slippery road	black ice on road	6_6	adverseWeatherCondition-Adhesion	blackIceOnRoad
6_7	slippery road	oil on road	6_7	adverseWeatherCondition-Adhesion	oilOnRoad
6_8	slippery road	loose chippings	6_8	adverseWeatherCondition-Adhesion	looseChippings
6_9	slippery road	instant black ice	6_9	adverseWeatherCondition-Adhesion	instantBlackIce
6_10	slippery road	roads salted	6_10	adverseWeatherCondition-Adhesion	roadsSalted
6_255	slippery road	undecodable slippery road	6_0	adverseWeatherCondition-Adhesion	unavailable
7_0	aquaplaning		7_0	aquaplaning	unavailable

TPEG2-TEC (ISO 21219-15:2023)			Codes according to DENM/CDD standard		
TPEG2 index	referenceWordCC	referenceWordSCC	DENM index	CauseCode	SubCauseCode
8_0	fire		9_10	hazardousLocation-SurfaceCondition	fire
8_1	fire	major fire	9_10	hazardousLocation-SurfaceCondition	fire
8_2	fire	forest fire	9_10	hazardousLocation-SurfaceCondition	fire
8_255	fire	undecodable fire	9_10	hazardousLocation-SurfaceCondition	fire
9_0	hazardous driving conditions		9_0	hazardousLocation-SurfaceCondition	unavailable
9_1	hazardous driving conditions	rock falls	9_1	hazardousLocation-SurfaceCondition	rockfalls
9_2	hazardous driving conditions	earthquake damage	9_2	hazardousLocation-SurfaceCondition	earthquakeDamage
9_3	hazardous driving conditions	sewer collapse	9_3	hazardousLocation-SurfaceCondition	sewerCollapse
9_4	hazardous driving conditions	subsidence	9_4	hazardousLocation-SurfaceCondition	subsidence
9_5	hazardous driving conditions	snow drifts	9_5	hazardousLocation-SurfaceCondition	snowDrifts
9_6	hazardous driving conditions	storm damage	9_6	hazardousLocation-SurfaceCondition	stormDamage
9_7	hazardous driving conditions	burst pipe	9_7	hazardousLocation-SurfaceCondition	burstPipe
9_8	hazardous driving conditions	volcano eruption	9_8	hazardousLocation-SurfaceCondition	volcanoEruption
9_9	hazardous driving conditions	falling ice	9_9	hazardousLocation-SurfaceCondition	fallingIce

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TPEG2 index	referenceWordCC	referenceWordSCC	DENM index	CauseCode	SubCauseCode
9_255	hazardous driving conditions	undecodable hazardous driving conditions	9_0	hazardousLocation-SurfaceCondition	unavailable
10_0	objects on the road		10_0	hazardousLocation-ObstacleOnTheRoad	unavailable
10_1	objects on the road	shed load	10_1	hazardousLocation-ObstacleOnTheRoad	shedLoad
10_2	objects on the road	parts of vehicles	10_2	hazardousLocation-ObstacleOnTheRoad	partsOfVehicles
10_3	objects on the road	parts of tyres	10_3	hazardousLocation-ObstacleOnTheRoad	partsOfTyres
10_4	objects on the road	large objects	10_4	hazardousLocation-ObstacleOnTheRoad	bigObjects
10_5	objects on the road	fallen trees	10_5	hazardousLocation-ObstacleOnTheRoad	fallenTrees
10_6	objects on the road	hub caps	10_6	hazardousLocation-ObstacleOnTheRoad	hubCaps
10_7	objects on the road	stationary vehicle	10_7	hazardousLocation-ObstacleOnTheRoad	waitingVehicles
10_255	objects on the road	undecodable objects on the road	10_0	hazardousLocation-ObstacleOnTheRoad	unavailable
11_0	animals on roadway		11_0	hazardousLocation-AnimalOnTheRoad	unavailable
11_1	animals on roadway	wild animals	11_1	hazardousLocation-AnimalOnTheRoad	wildAnimals
11_2	animals on roadway	herd of animals	11_2	hazardousLocation-AnimalOnTheRoad	herdOfAnimals
11_3	animals on roadway	small animals	11_3	hazardousLocation-AnimalOnTheRoad	smallAnimals

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TPEG2 index	referenceWordCC	referenceWordSCC	DENM index	CauseCode	SubCauseCode
11_4	animals on roadway	large animals	11_4	hazardousLocation-AnimalOnTheRoad	largeAnimals
11_255	animals on roadway	undecodable animals on roadway	11_0	hazardousLocation-AnimalOnTheRoad	unavailable
12_0	people on roadway		12_0	humanPresenceOnTheRoad	unavailable
12_1	people on roadway	children on roadway	12_1	humanPresenceOnTheRoad	childrenOnRoadway
12_2	people on roadway	cyclists on roadway	12_2	humanPresenceOnTheRoad	cyclistOnRoadway
12_3	people on roadway	moped rider on roadway	12_3	humanPresenceOnTheRoad	motorcyclistOnRoadway
12_255	people on roadway	undecodable people on roadway	12_0	humanPresenceOnTheRoad	unavailable
13_0	broken down vehicles		91_0	vehicleBreakdown	unavailable
13_1	broken down vehicles	broken-down vehicle on fire	91_10	vehicleBreakdown	vehicleOnFire
13_2	broken down vehicles	broken-down unlit vehicle	91_0	vehicleBreakdown	unavailable
13_255	broken down vehicles	undecodable broken-down vehicle	91_0	vehicleBreakdown	unavailable
14_0	vehicle on wrong carriageway		14_0	wrongWayDriving	unavailable
15_0	rescue and recovery work in progress		15_0	rescueAndRecoveryWorkInProgress	unavailable
15_1	rescue and recovery work in progress	emergency vehicles	15_1	rescueAndRecoveryWorkInProgress	emergencyVehicles
15_2	rescue and recovery work in progress	rescue helicopter landing	15_2	rescueAndRecoveryWorkInProgress	rescueHelicopterLanding
15_3	rescue and recovery work in progress	police activity ongoing	15_3	rescueAndRecoveryWorkInProgress	policeActivityOngoing
15_4	rescue and recovery work in progress	medical emergency ongoing	15_4	rescueAndRecoveryWorkInProgress	medicalEmergencyOngoing
15_5	rescue and recovery work in progress	child abduction in progress	15_5	rescueAndRecoveryWorkInProgress	childAbductionInProgress
15_255	rescue and recovery work in progress	undecodable rescue and recovery work in progress	15_0	rescueAndRecoveryWorkInProgress	unavailable
16_0	regulatory measure				

TPEG2-TEC (ISO 21219-15:2023)			Codes according to DENM/CDD standard		
TPEG2 index	referenceWordCC	referenceWordSCC	DENM index	CauseCode	SubCauseCode
16_1	regulatory measure	security alert			
16_2	regulatory measure	contagious disease	93_0	humanProblem	unavailable
16_3	regulatory measure	environmental	9_0	hazardousLocation-SurfaceCondition	unavailable
16_4	regulatory measure	smog alert			
16_5	regulatory measure	batch service in progress	1_0	trafficCondition	unavailable
16_6	regulatory measure	road closed by the regulatory authorities	5_0	impassability	unavailable
16_255	regulatory measure	undecodable regulatory measure			
17_0	extreme weather conditions		17_0	adverseWeatherCondition-ExtremeWeatherCondition	unavailable
17_1	extreme weather conditions	strong winds	17_1	adverseWeatherCondition-ExtremeWeatherCondition	strongWinds
17_2	extreme weather conditions	damaging hail	17_2	adverseWeatherCondition-ExtremeWeatherCondition	damagingHail
17_3	extreme weather conditions	hurricane	17_3	adverseWeatherCondition-ExtremeWeatherCondition	hurricane
17_4	extreme weather conditions	thunderstorm	17_4	adverseWeatherCondition-ExtremeWeatherCondition	thunderstorm
17_5	extreme weather conditions	tornado	17_5	adverseWeatherCondition-ExtremeWeatherCondition	tornado
17_6	extreme weather conditions	blizzard	17_6	adverseWeatherCondition-ExtremeWeatherCondition	blizzard
17_255	extreme weather conditions	undecodable extreme weather condition	17_0	adverseWeatherCondition-ExtremeWeatherCondition	unavailable
18_0	visibility reduced		18_0	adverseWeatherCondition-Visibility	unavailable
18_1	visibility reduced	visibility reduced due to fog	18_1	adverseWeatherCondition-Visibility	fog

TPEG2-TEC (ISO 21219-15:2023)			Codes according to DENM/CDD standard		
TPEG2 index	referenceWordCC	referenceWordSCC	DENM index	CauseCode	SubCauseCode
18_2	visibility reduced	visibility reduced due to smoke	18_2	adverseWeatherCondition-Visibility	smoke
18_3	visibility reduced	visibility reduced due to heavy snowfall	18_3	adverseWeatherCondition-Visibility	heavySnowfall
18_4	visibility reduced	visibility reduced due to heavy rain	18_4	adverseWeatherCondition-Visibility	heavyRain
18_5	visibility reduced	visibility reduced due to heavy hail	18_5	adverseWeatherCondition-Visibility	heavyHail
18_6	visibility reduced	visibility reduced due to low sun glare	18_6	adverseWeatherCondition-Visibility	lowSunGlare
18_7	visibility reduced	visibility reduced due to sandstorms	18_7	adverseWeatherCondition-Visibility	sandstorms
18_8	visibility reduced	visibility reduced due to swarms of insects	18_8	adverseWeatherCondition-Visibility	swarmsOfInsects
18_255	visibility reduced	undecodable visibility reduced	18_0	adverseWeatherCondition-Visibility	unavailable
19_0	precipitation		19_0	adverseWeatherCondition-Precipitation	unavailable
19_1	precipitation	heavy rain	19_1	adverseWeatherCondition-Precipitation	heavyRain
19_2	precipitation	heavy snowfall	19_2	adverseWeatherCondition-Precipitation	heavySnowfall
19_3	precipitation	soft hail	19_3	adverseWeatherCondition-Precipitation	softHail
19_255	precipitation	undecodable precipitation	19_0	adverseWeatherCondition-Precipitation	unavailable
20_0	reckless persons		20_0	violence	unavailable
20_1	reckless persons	reckless driver	20_0	violence	unavailable
20_2	reckless persons	gunfire on road	20_0	violence	unavailable
20_3	reckless persons	persons throwing objects	20_3	violence	stoneThrowingPersons

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TPEG2 index	referenceWordCC	referenceWordSCC	DENM index	CauseCode	SubCauseCode
20_255	reckless persons	undecodable reckless persons	20_0	violence	unavailable
21_0	overheight warning system triggered		1_0	trafficCondition	unavailable
22_0	traffic regulations changed		99_0	dangerousSituation	unavailable
23_0	major event		1_0	trafficCondition	unavailable
23_1	major event	sports event	1_0	trafficCondition	unavailable
23_2	major event	demonstration	1_0	trafficCondition	unavailable
23_3	major event	demonstration with vehicles	1_0	trafficCondition	unavailable
23_4	major event	concert	1_0	trafficCondition	unavailable
23_5	major event	fair	1_0	trafficCondition	unavailable
23_6	major event	military training	1_0	trafficCondition	unavailable
23_7	major event	emergency training	1_0	trafficCondition	unavailable
23_8	major event	festival	1_0	trafficCondition	unavailable
23_9	major event	procession	1_0	trafficCondition	unavailable
23_255	major event	undecodable major event	1_0	trafficCondition	unavailable
24_0	service not operating				
24_1	service not operating	ferry service not operating			
24_2	service not operating	air service not operating			
24_3	service not operating	train service not operating			
24_4	service not operating	bus service not operating			
24_255	service not operating	undecodable service not operating			
25_0	service not useable				
25_1	service not useable	fuel station closed			
25_2	service not useable	service area closed			
25_3	service not useable	service area busy			
25_4	service not useable	parking full			
25_5	service not useable	car park closed			
25_255	service not useable	undecodable service not usable			
26_0	slow-moving vehicles		26_0	slowVehicle	unavailable

TPEG2-TEC (ISO 21219-15:2023)			Codes according to DENM/CDD standard		
TPEG2 index	referenceWordCC	referenceWordSCC	DENM index	CauseCode	SubCauseCode
26_1	slow-moving vehicles	slow-moving maintenance vehicle	26_1	slowVehicle	maintenanceVehicle
26_2	slow-moving vehicles	vehicles slowing to look at accident	26_2	slowVehicle	vehiclesSlowingToLookAtAccident
26_3	slow-moving vehicles	abnormal load	26_3	slowVehicle	abnormalLoad
26_4	slow-moving vehicles	abnormal wide load	26_4	slowVehicle	abnormalWideLoad
26_5	slow-moving vehicles	convoy	26_5	slowVehicle	convoy
26_6	slow-moving vehicles	snowplough	26_6	slowVehicle	snowplough
26_7	slow-moving vehicles	de-icing	26_7	slowVehicle	deicing
26_8	slow-moving vehicles	salting vehicles	26_8	slowVehicle	saltingVehicles
26_255	slow-moving vehicles	undecodable slow maintenance vehicle	26_0	slowVehicle	unavailable
27_0	dangerous end of queue		27_0	dangerousEndOfQueue	unavailable
27_1	dangerous end of queue	sudden end of queue	27_1	dangerousEndOfQueue	suddenEndOfQueue
27_2	dangerous end of queue	queue over hill	27_2	dangerousEndOfQueue	queueOverHill
27_3	dangerous end of queue	queue around bend	27_3	dangerousEndOfQueue	queueAroundBend
27_4	dangerous end of queue	queue in tunnel	27_4	dangerousEndOfQueue	queueInTunnel
27_255	dangerous end of queue	undecodable dangerous end of queue	27_0	dangerousEndOfQueue	unavailable
28_0	risk of fire				
28_1	risk of fire	leakage of fuel			
28_2	risk of fire	leakage of gas			
28_255	risk of fire	undecodable risk of fire			
29_0	time delay		1_0	trafficCondition	unavailable
29_1	time delay	time delay at frontier	1_0	trafficCondition	unavailable
29_2	time delay	time delay at ferry	1_0	trafficCondition	unavailable
29_3	time delay	time delay at vehicle-on-rail terminal	1_0	trafficCondition	unavailable
29_255	time delay	undecodable time delay	1_0	trafficCondition	unavailable
30_0	police checkpoint		1_0	trafficCondition	unavailable
30_1	police checkpoint	permanent police checkpoint	1_0	trafficCondition	unavailable

TPEG2-TEC (ISO 21219-15:2023)			Codes according to DENM/CDD standard		
TPEG2 index	referenceWordCC	referenceWordSCC	DENM index	CauseCode	SubCauseCode
30_2	police checkpoint	temporary police checkpoint	1_0	trafficCondition	unavailable
30_255	police checkpoint	undecodable police checkpoint	1_0	trafficCondition	unavailable
31_0	malfunctioning roadside equipment				
31_1	malfunctioning roadside equipment	road-rail crossing failure	99_0	dangerousSituation	unavailable
31_2	malfunctioning roadside equipment	tunnel ventilation not working			
31_3	malfunctioning roadside equipment	traffic control signals working incorrectly	99_0	dangerousSituation	unavailable
31_4	malfunctioning roadside equipment	emergency telephones not working			
31_5	malfunctioning roadside equipment	automatic payment lanes not working			
31_255	malfunctioning roadside equipment	undecodable malfunctioning roadside equipment			