

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

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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.

Codes according to DENM/CDD standard			ALERT-C (ISO 14819-2:2021)	
DENM index	CauseCode	SubCauseCode	Code	Text
1_0	trafficCondition	unavailable	1601	delays (Q)
1_1	trafficCondition	increasedVolumeOfTraffic	122	heavy traffic (with average speeds Q)
1_2	trafficCondition	trafficJamSlowlyIncreasing	125	traffic building up (with average speeds Q)
1_3	trafficCondition	trafficJamIncreasing	130	danger of stationary traffic
1_4	trafficCondition	trafficJamStronglyIncreasing	130	danger of stationary traffic
1_5	trafficCondition	trafficStationary	101	stationary traffic
1_6	trafficCondition	trafficJamSlightlyDecreasing	135	traffic easing
1_7	trafficCondition	trafficJamDecreasing	135	traffic easing
1_8	trafficCondition	trafficJamStronglyDecreasing	135	traffic easing
1_9	trafficCondition	trafficJamStable	115	slow traffic (with average speeds Q)
2_0	accident	unavailable	201	(Q) accident(s)
2_1	accident	multiVehicleAccident	203	multi-vehicle accident (involving Q vehicles)
2_2	accident	heavyAccident	202	(Q) serious accident(s)
2_3	accident	accidentInvolvingLorry	204	accident involving (a/Q) heavy lorr(y/ies)
2_4	accident	accidentInvolvingBus	335	accident involving (a/Q) bus(es)
2_5	accident	accidentInvolvingHazardousMaterials	205	(Q) accident(s) involving hazardous materials
2_6	accident	accidentOnOppositeLane	209	(Q) accident(s) in the opposing lanes
2_7	accident	unsecuredAccident	857	(Q) unprotected accident area(s)
2_8	accident	assistanceRequested	201	(Q) accident(s)
3_0	roadworks	unavailable	701	(Q sets of) roadworks
3_1	roadworks	majorRoadworks	702	(Q sets of) major roadworks
3_2	roadworks	roadMarkingWork	824	(Q sets of) road marking work. Danger
3_3	roadworks	slowMovingRoadMaintenance	1700	(Q) slow moving maintenance vehicle(s)
3_4	roadworks	shortTermStationaryRoadworks	703	(Q sets of) maintenance work
3_5	roadworks	streetCleaning	701	(Q sets of) roadworks
3_6	roadworks	winterService	701	(Q sets of) roadworks
4_0	reserved for future usage	-	-	-
5_0	impassability	unavailable	402	blocked
5_1	impassability	flooding	907	flooding
5_2	impassability	dangerOfAvalanches	993	closed due to avalanche risk
5_3	impassability	blastingOfAvalanches	709	(Q sections of) blasting work

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5_4	impassability	landslips	947	road closed due to landslips
5_5	impassability	chemicalSpillage	207 (Q)	chemical spillage accident(s)
5_6	impassability	winterClosure	401	closed
5_7	impassability	sinkhole	916	road surface in poor condition
5_8	impassability	earthquakeDamage	915	earthquake damage
5_9	impassability	fallenTrees	926	blocked by (Q) fallen trees
5_10	impassability	rockfalls	945	closed due to rockfalls
5_11	impassability	sewerOverflow	956	closed due to sewer collapse
5_12	impassability	stormDamage	925	blocked by storm damage
5_13	impassability	subsidence	949	closed due to subsidence
5_14	impassability	burstPipe	62 (Q)	burst pipe(s)
5_15	impassability	burstWaterMain	957	road closed due to burst water main
5_16	impassability	fallenPowerCables	987	blocked by fallen power cables
5_17	impassability	snowDrifts	1016	snow drifts (above Q hundred metres)
6_0	adverseWeatherCondition-Adhesion	unavailable	1003	slippery road (above Q hundred metres)
6_1	adverseWeatherCondition-Adhesion	heavyFrostOnRoad	1115	heavy frost
6_2	adverseWeatherCondition-Adhesion	fuelOnRoad	1058	petrol on road. Danger
6_3	adverseWeatherCondition-Adhesion	mudOnRoad	1055	mud on road. Danger
6_4	adverseWeatherCondition-Adhesion	snowOnRoad	1012	snow on the road (above Q hundred metres)
6_5	adverseWeatherCondition-Adhesion	iceOnRoad	1006	ice (above Q hundred metres)
6_6	adverseWeatherCondition-Adhesion	blackIceOnRoad	1008	black ice (above Q hundred metres)
6_7	adverseWeatherCondition-Adhesion	oilOnRoad	1057	oil on road. Danger
6_8	adverseWeatherCondition-Adhesion	looseChippings	1056	loose chippings. Danger
6_9	adverseWeatherCondition-Adhesion	instantBlackIce	1008	black ice (above Q hundred metres)
6_10	adverseWeatherCondition-Adhesion	roadsSalted	2043	road salted
7_0	aquaplaning	unavailable	1002	danger of aquaplaning
8_0	reserved for future usage	-	-	-
9_0	hazardousLocation-SurfaceCondition	unavailable	1037	extremely hazardous driving conditions (above Q hundred metres)
9_1	hazardousLocation-SurfaceCondition	rockfalls	998	rockfalls. Danger
9_2	hazardousLocation-SurfaceCondition	earthquakeDamage	915	earthquake damage
9_3	hazardousLocation-SurfaceCondition	sewerCollapse	918 (Q)	collapsed sewer(s)

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9_4	hazardousLocation-SurfaceCondition	subsidence	917	subsidence
9_5	hazardousLocation-SurfaceCondition	snowDrifts	1016	snow drifts (above Q hundred metres)
9_6	hazardousLocation-SurfaceCondition	stormDamage	986	storm damage. Danger
9_7	hazardousLocation-SurfaceCondition	burstPipe	64	burst pipe. Danger
9_8	hazardousLocation-SurfaceCondition	volcanoEruption	1090	volcano eruption warning
9_9	hazardousLocation-SurfaceCondition	fallingIce	861	snow and ice debris
9_10	hazardousLocation-SurfaceCondition	fire	921	serious fire
10_0	hazardousLocation-ObstacleOnTheRoad	unavailable	63	(Q) object(s) on the road. Danger
10_1	hazardousLocation-ObstacleOnTheRoad	shedLoad	359	(Q) shed load(s). Danger
10_2	hazardousLocation-ObstacleOnTheRoad	partsOfVehicles	63	(Q) object(s) on the road. Danger
10_3	hazardousLocation-ObstacleOnTheRoad	partsOfTyres	61	(Q) object(s) on roadway {something that does not necessarily block the road or part of it}
10_4	hazardousLocation-ObstacleOnTheRoad	bigObjects	902	(Q) obstructions on the road. Danger
10_5	hazardousLocation-ObstacleOnTheRoad	fallenTrees	906	(Q) fallen trees. Danger
10_6	hazardousLocation-ObstacleOnTheRoad	hubCaps	61	(Q) object(s) on roadway {something that does not necessarily block the road or part of it}
10_7	hazardousLocation-ObstacleOnTheRoad	waitingVehicles	1991	danger of waiting vehicles on roadway
11_0	hazardousLocation-AnimalOnTheRoad	unavailable	923	animals on the road. Danger
11_1	hazardousLocation-AnimalOnTheRoad	wildAnimals	923	animals on the road. Danger
11_2	hazardousLocation-AnimalOnTheRoad	herdOfAnimals	1068	herds of animals on roadway
11_3	hazardousLocation-AnimalOnTheRoad	smallAnimals	922	animals on roadway
11_4	hazardousLocation-AnimalOnTheRoad	largeAnimals	1067	large animals on roadway
11_5	hazardousLocation-AnimalOnTheRoad	wildAnimalsSmall	922	animals on roadway
11_6	hazardousLocation-AnimalOnTheRoad	wildAnimalsLarge	1067	large animals on roadway
11_7	hazardousLocation-AnimalOnTheRoad	domesticAnimals	922	animals on roadway
11_8	hazardousLocation-AnimalOnTheRoad	domesticAnimalsSmall	922	animals on roadway
11_9	hazardousLocation-AnimalOnTheRoad	domesticAnimalsLarge	1067	large animals on roadway
12_0	humanPresenceOnTheRoad	unavailable	1482	people on roadway. Danger
12_1	humanPresenceOnTheRoad	childrenOnRoadway	1483	children on roadway. Danger
12_2	humanPresenceOnTheRoad	cyclistOnRoadway	1484	cyclists on roadway. Danger
12_3	humanPresenceOnTheRoad	motorcyclistOnRoadway	1472	people on roadway

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12_4	humanPresenceOnTheRoad	pedestrian	1482	people on roadway. Danger
12_5	humanPresenceOnTheRoad	ordinary-pedestrian	1472	people on roadway
12_6	humanPresenceOnTheRoad	road-worker	1482	people on roadway. Danger
12_7	humanPresenceOnTheRoad	first-responder	397	rescue and recovery work in progress
12_8	humanPresenceOnTheRoad	lightVruVehicle	1484	cyclists on roadway. Danger
12_9	humanPresenceOnTheRoad	bicyclist	1474	cyclists on roadway
12_10	humanPresenceOnTheRoad	wheelchair-user	1482	people on roadway. Danger
12_11	humanPresenceOnTheRoad	horse-and-rider	1067	large animals on roadway
12_12	humanPresenceOnTheRoad	rollerskater	1482	people on roadway. Danger
12_13	humanPresenceOnTheRoad	e-scooter	1484	cyclists on roadway. Danger
12_14	humanPresenceOnTheRoad	personal-transporter	1472	people on roadway
12_15	humanPresenceOnTheRoad	pedelec	1474	cyclists on roadway
12_16	humanPresenceOnTheRoad	speed-pedelec	1484	cyclists on roadway. Danger
12_17	humanPresenceOnTheRoad	ptw	-	
12_18	humanPresenceOnTheRoad	moped	-	
12_19	humanPresenceOnTheRoad	motorcycle	-	
12_20	humanPresenceOnTheRoad	motorcycle-and-sidecar-right	-	
12_21	humanPresenceOnTheRoad	motorcycle-and-sidecar-left	-	
13_0	reserved for future usage	-	-	
14_0	wrongWayDriving	unavailable	1701 (Q)	vehicle(s) on wrong carriageway
14_1	wrongWayDriving	wrongLane	1701 (Q)	vehicle(s) on wrong carriageway
14_2	wrongWayDriving	wrongDirection	1701 (Q)	vehicle(s) on wrong carriageway
15_0	rescueAndRecoveryWorkInProgress	unavailable	397	rescue and recovery work in progress
15_1	rescueAndRecoveryWorkInProgress	emergencyVehicles	397	rescue and recovery work in progress
15_2	rescueAndRecoveryWorkInProgress	rescueHelicopterLanding	397	rescue and recovery work in progress
15_3	rescueAndRecoveryWorkInProgress	policeActivityOngoing	1498	police activity ongoing
15_4	rescueAndRecoveryWorkInProgress	medicalEmergencyOngoing	1499	medical emergency ongoing
15_5	rescueAndRecoveryWorkInProgress	childAbductionInProgress	1500	child abduction in progress
15_6	rescueAndRecoveryWorkInProgress	prioritizedVehicle	1066	rescue and recovery work in progress. Danger
15_7	rescueAndRecoveryWorkInProgress	rescueAndRecoveryVehicle	1066	rescue and recovery work in progress. Danger
16_0	reserved for future usage	-	-	

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DENM index	CauseCode	SubCauseCode	Code	Text
17_0	adverseWeatherCondition-ExtremeWeatherCondition	unavailable	-	
17_1	adverseWeatherCondition-ExtremeWeatherCondition	strongWinds	1205	strong winds (Q)
17_2	adverseWeatherCondition-ExtremeWeatherCondition	damagingHail	1132	damaging hail (visibility reduced to Q)
17_3	adverseWeatherCondition-ExtremeWeatherCondition	hurricane	1204	storm force winds (Q)
17_4	adverseWeatherCondition-ExtremeWeatherCondition	thunderstorm	1108	thunderstorms (visibility reduced to Q)
17_5	adverseWeatherCondition-ExtremeWeatherCondition	tornado	1201	tornadoes
17_6	adverseWeatherCondition-ExtremeWeatherCondition	blizzard	1130	blizzard (visibility reduced to Q)
18_0	adverseWeatherCondition-Visibility	unavailable	1318	visibility reduced (to Q)
18_1	adverseWeatherCondition-Visibility	fog	1301	dense fog (visibility reduced to Q)
18_2	adverseWeatherCondition-Visibility	smoke	1309	smoke hazard (visibility reduced to Q)
18_3	adverseWeatherCondition-Visibility	heavySnowfall	1134	heavy snowfall. Visibility reduced (to Q)
18_4	adverseWeatherCondition-Visibility	heavyRain	1136	heavy rain. Visibility reduced (to Q)
18_5	adverseWeatherCondition-Visibility	heavyHail	1132	damaging hail (visibility reduced to Q)
18_6	adverseWeatherCondition-Visibility	lowSunGlare	1325	low sun glare
18_7	adverseWeatherCondition-Visibility	sandstorms	1326	sandstorms (visibility reduced to Q)
18_8	adverseWeatherCondition-Visibility	swarmsOfInsects	1340	swarms of insects (visibility reduced to Q)
19_0	adverseWeatherCondition-Precipitation	unavailable	-	
19_1	adverseWeatherCondition-Precipitation	heavyRain	1109	heavy rain (Q)
19_2	adverseWeatherCondition-Precipitation	heavySnowfall	1101	heavy snowfall (Q)
19_3	adverseWeatherCondition-Precipitation	softHail	1106	hail (visibility reduced to Q)
20_0	violence	unavailable	-	
20_1	violence	reserved for future usage	-	
20_2	violence	reserved for future usage	-	
20_3	violence	stoneThrowingPersons	897	people throwing objects onto the road. Danger

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DENM index	CauseCode	SubCauseCode	Code	Text
21_0	reserved for future usage	-	-	
22_0	reserved for future usage	-	-	
23_0	reserved for future usage	-	-	
24_0	reserved for future usage	-	-	
25_0	reserved for future usage	-	-	
26_0	slowVehicle	unavailable	1754 (Q)	slow vehicle(s)
26_1	slowVehicle	maintenanceVehicle	829 (Q sets of)	slow moving maintenance vehicles. Slow traffic
26_2	slowVehicle	vehiclesSlowingToLookAtAccident	208	vehicles slowing to look at (Q) accident(s)
26_3	slowVehicle	abnormalLoad	1751 (Q)	abnormal load(s)
26_4	slowVehicle	abnormalWideLoad	1752 (Q)	wide load(s)
26_5	slowVehicle	convoy	1755 (Q)	convoy(s)
26_6	slowVehicle	snowplough	681 (Q)	snowploughs
26_7	slowVehicle	deicing	675 (Q)	salting vehicles
26_8	slowVehicle	saltingVehicles	675 (Q)	salting vehicles
27_0	dangerousEndOfQueue	unavailable	138	queuing traffic (with average speeds Q). Approach with care
27_1	dangerousEndOfQueue	suddenEndOfQueue	138	queuing traffic (with average speeds Q). Approach with care
27_2	dangerousEndOfQueue	queueOverHill	140	queuing traffic over the crest of a hill
27_3	dangerousEndOfQueue	queueAroundBend	139	queuing traffic around a bend in the road
27_4	dangerousEndOfQueue	queueInTunnel	138	queuing traffic (with average speeds Q). Approach with care
28_0	reserved for future usage	-	-	
90_0	reserved for future usage	-	-	
91_0	vehicleBreakdown	unavailable	393 (Q)	broken down vehicle(s). Danger
91_1	vehicleBreakdown	lackOfFuel	393 (Q)	broken down vehicle(s). Danger
91_2	vehicleBreakdown	lackOfBatteryPower	393 (Q)	broken down vehicle(s). Danger
91_3	vehicleBreakdown	engineProblem	393 (Q)	broken down vehicle(s). Danger
91_4	vehicleBreakdown	transmissionProblem	393 (Q)	broken down vehicle(s). Danger
91_5	vehicleBreakdown	engineCoolingProblem	393 (Q)	broken down vehicle(s). Danger
91_6	vehicleBreakdown	brakingSystemProblem	393 (Q)	broken down vehicle(s). Danger
91_7	vehicleBreakdown	steeringProblem	393 (Q)	broken down vehicle(s). Danger
91_8	vehicleBreakdown	tyrePuncture	393 (Q)	broken down vehicle(s). Danger
91_9	vehicleBreakdown	tyrePressureProblem	393 (Q)	broken down vehicle(s). Danger

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DENM index	CauseCode	SubCauseCode	Code	Text
91_10	vehicleBreakdown	vehicleOnFire	213	(Q) vehicle fire(s)
92_0	postCrash	unavailable	201	(Q) accident(s)
92_1	postCrash	accidentWithoutECallTriggered	201	(Q) accident(s)
92_2	postCrash	accidentWithECallManuallyTriggered	201	(Q) accident(s)
92_3	postCrash	accidentWithECallAutomaticallyTriggered	201	(Q) accident(s)
92_4	postCrash	accidentWithECallTriggeredWithoutAccessToCellularNetwork	201	(Q) accident(s)
93_0	humanProblem	unavailable	1499	medical emergency ongoing
93_1	humanProblem	glycemiaProblem	1499	medical emergency ongoing
93_2	humanProblem	heartProblem	1499	medical emergency ongoing
94_0	stationaryVehicle	unavailable	393	(Q) broken down vehicle(s). Danger
94_1	stationaryVehicle	humanProblem	1499	medical emergency ongoing
94_2	stationaryVehicle	vehicleBreakdown	393	(Q) broken down vehicle(s). Danger
94_3	stationaryVehicle	postCrash	201	(Q) accident(s)
94_4	stationaryVehicle	publicTransportStop	1734	(Q) slow vehicle(s), danger
94_5	stationaryVehicle	carryingDangerousGoods	1734	(Q) slow vehicle(s), danger
94_6	stationaryVehicle	vehicleOnFire	213	(Q) vehicle fire(s)
95_0	emergencyVehicleApproaching	unavailable	1706	(Q) emergency vehicles
95_1	emergencyVehicleApproaching	emergencyVehicleApproaching	1707	(Q) high-speed emergency vehicles
95_2	emergencyVehicleApproaching	prioritizedVehicleApproaching	1707	(Q) high-speed emergency vehicles
96_0	hazardousLocation-DangerousCurve	unavailable	-	
96_1	hazardousLocation-DangerousCurve	dangerousLeftTurnCurve	-	
96_2	hazardousLocation-DangerousCurve	dangerousRightTurnCurve	-	
96_3	hazardousLocation-DangerousCurve	multipleCurvesStartingWithUnknownTurningDirection	-	
96_4	hazardousLocation-DangerousCurve	multipleCurvesStartingWithLeftTurn	-	
96_5	hazardousLocation-DangerousCurve	multipleCurvesStartingWithRightTurn	-	
97_0	collisionRisk	unavailable	-	
97_1	collisionRisk	longitudinalCollisionRisk	-	
97_2	collisionRisk	crossingCollisionRisk	-	
97_3	collisionRisk	lateralCollisionRisk	-	

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DENM index	CauseCode	SubCauseCode	Code	Text
97_4	collisionRisk	vulnerableRoadUser	-	
98_0	signalViolation	unavailable	-	
98_1	signalViolation	stopSignViolation	-	
98_2	signalViolation	trafficLightViolation	-	
98_3	signalViolation	turningRegulationViolation	-	
99_0	dangerousSituation	unavailable	-	
99_1	dangerousSituation	emergencyElectronicBrakeEngaged	-	
99_2	dangerousSituation	preCrashSystemEngaged	-	
99_3	dangerousSituation	espEngaged	-	
99_4	dangerousSituation	absEngaged	-	
99_5	dangerousSituation	aebEngaged	-	
99_6	dangerousSituation	brakeWarningEngaged	-	
99_7	dangerousSituation	collisionRiskWarningEngaged	-	