

Conformity of Production

2024

Agenda

- Conformity of Production
- Conformity of Production process
- Conformity of Production coordinator meeting
- Markets with Conformity of Production requirement
- Conformity of Production collaboration
- Audit agenda
- External lab tests

Conformity of Production

- CoP is a procedure to ensure that all manufacturing plants, engineering units and suppliers conform to all regulatory requirements globally. Initiated at production start and performed over the production life.
- Mandatory requirement to be able to sell cars on different markets
- Engineering has the responsibility for compliance fulfillment. Responsible team needs to fill in the CoP statement and send this to PRC via CAMSy once per year.
- [Conformity of Production \(CoP\) Statement process - Management System \(volvocars.net\)](https://www.volvocars.net)
- [Conformity of Production \(CoP\) - Management System \(volvocars.net\)](https://www.volvocars.net)



Markets with CoP requirements

EU	Japan	
Great Brit.	Thailand	Hong Kong
Taiwan	Korea & US (self cert)	
Vietnam		

Example of CoP tests

Engine performance	Exhaust emissions
Fuel consumption	Electric cons. (BEV)
Seats and safety belt	Horn
Windshield washer	Airbags

Governance Team (regular meeting)

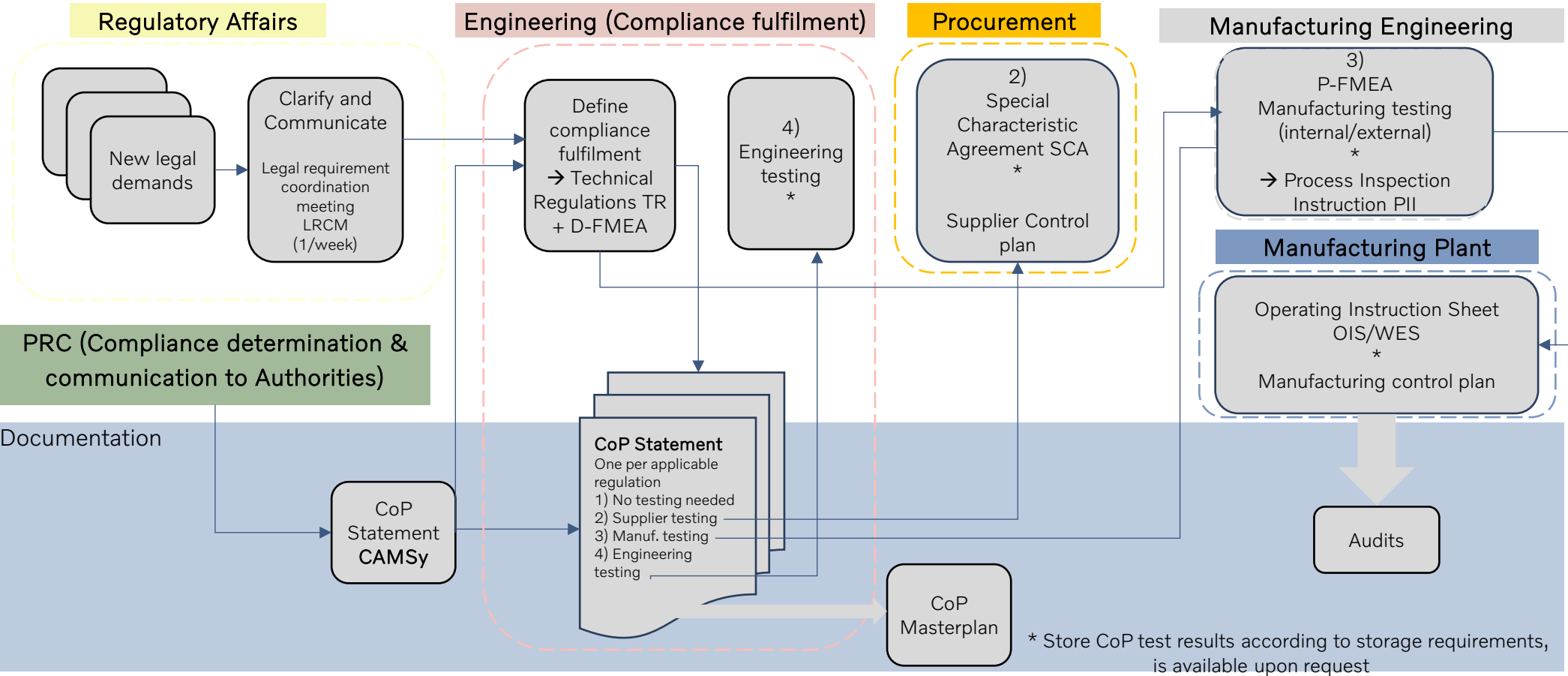
Maria Eng	Product Reg & Compl.
Sofia Boyagi	Manufacturing
Fredrik Christensen	Engineering
Mikael Karlsson	Manufacturing Eng.
David van den Bogaert-Cleenewerck	Proc.
Gaoyu Wei (Grace)	Product Reg & Compl.
Jiali Yan (Ashley)	Product Reg & Compl.



CoP is part of our Quality system, includes processes, documents and a control plan.

Global process covering all plants, Volvo car models (except EX30) and PS 2 & 3

Conformity of Production process



Conformity of Production process

Question #	Question Title	ART/Attribute *	Responsible PO Teams
<input type="checkbox"/> C.O.P.3.0.	Conformity of production (CoP) Statement G02 Tailp...	Attribute Emissions	Select
<input type="checkbox"/> C.O.P.4.0.	Conformity of production (CoP) Statement H02 Softw...	880 (ART Base Technology Solu...	Select
<input type="checkbox"/> C.O.P.5.0.	Conformity of production (CoP) Statement G14 Air...	600 (ART Climate)	Refrigerant HW
<input type="checkbox"/> C.O.P.6.0.	Conformity of production (CoP) Statement G01 Sound...	Attribute NVH	Select
<input type="checkbox"/> C.O.P.7.0.	Conformity of production (CoP) Statement F12 Mecha...	660 (ART Interior Trim & System...	Accessories and special vehicles
<input type="checkbox"/> C.O.P.8.0.	Conformity of production (CoP) Statement F11 Masse...	Attribute Clearance, Attribute ...	Select
<input type="checkbox"/> C.O.P.9.0.	Conformity of production (CoP) Statement F09 Wheel...	Attribute Clearance	Select
<input type="checkbox"/> C.O.P.10.0.	Conformity of production (CoP) Statement F08 Towin...	760 (ART Painted Body)	PDG
<input type="checkbox"/> C.O.P.11.0.	Conformity of production (CoP) Statement F07 Statu...	PR & C	Select
<input type="checkbox"/> C.O.P.12.0.	Conformity of production (CoP) Statement F05 Exter...	700 (ART Exterior Front and Re...	PDG Front Bumper Systems
<input type="checkbox"/> C.O.P.15.0.	Conformity of production (CoP) Statement F01 Regis...	700 (ART Exterior Front and Re...	PDG Front Bumper Systems
<input type="checkbox"/> C.O.P.16.0.	Conformity of production (CoP) Statement E05 Event...	410 (ART Protective Safety)	Select
<input type="checkbox"/> C.O.P.17.0.	Conformity of production (CoP) Statement F03 Door ...	750 (ART Side and Roof)	PDG Closure Mechantronics
<input type="checkbox"/> C.O.P.18.0.	Conformity of production (CoP) Statement E02 Drive...	400 (ART Active Safety Function)	Select
<input type="checkbox"/> C.O.P.19.0.	Conformity of production (CoP) Statement E01 Alco...	550 (ART Base Availability Serv...	Vehicle movement
<input type="checkbox"/> C.O.P.21.0.	Conformity of production (CoP) Statement D16 Emerg...	730 (ART Exterior Systems)	Beam shape light, Signal light
<input type="checkbox"/> C.O.P.22.0.	Conformity of production (CoP) Statement D10 Heat...	600 (ART Climate)	Heating Team
<input type="checkbox"/> C.O.P.23.0.	Conformity of production (CoP) Statement D09 Ident...	430 (ART Infotainment), 670 (A...	Switches

Items per page: 1000
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Info to Authority						
CoP Planning 2024 Ref to EC 2018/858 and ECE						
	Docnr	02022006LLSDF				
	Revision nr	4				
	Classification	Proprietary				
	Revision date	2024-09-24				
Item	Subject	EU/UNECE Reference	Item Great Britain	Great Britain Reference	Test Frequency 1. Engineering judgement 2. Procurement 3. Manufacturing internal/external testing 4. R&D Internal/external testing	Pass/Fail criteria 1. Engineering judgement 2. Procurement 3. Manufacturing internal/external testing 4. R&D Internal/external testing
A	RESTRAINT SYSTEMS, CRASH TESTING, FUEL SYSTEM INTEGRITY AND HIGH VOLTAGE ELECTRICAL SAFETY					
A01	Interior fittings	UN R21 *	12a	UN R21	2. The suppliers are responsible for the CoP testing of the system as stated in the Special Characteristic Agreement.	2. Pass: within specification in supplier agreement contracts (special characteristic agreement) Fail: not within specification in supplier agreement contracts
A02	Seats and head restraints	UN R17	12a 32a	UN R17	2. The suppliers are responsible for the CoP testing of the system as stated in the Special Characteristic Agreement.	2. Pass: within specification in supplier agreement contracts (special characteristic agreement) Fail: not within specification in supplier agreement contracts
A03	Safety-belt anchorage	UN R14	19a	UN R14	2. The suppliers are responsible for the CoP testing of the system as stated in the Special Characteristic Agreement.	2. Pass: within specification in supplier agreement contracts (special characteristic agreement) Fail: not within specification in supplier agreement contracts
A07	Safety-belts and restraint systems	UN R16			2. The suppliers are responsible for the CoP testing of the system as stated in the Special Characteristic Agreement.	2. Pass: within specification in supplier agreement contracts (special characteristic agreement) Fail: not within specification in supplier agreement contracts
A08	Safety-belt reminders	UN R16			2. The suppliers are responsible for the CoP testing of the system as stated in the Special Characteristic Agreement.	2. Pass: within specification in supplier agreement contracts (special characteristic agreement) Fail: not within specification in supplier agreement contracts
A05	Child restraint anchorage	UN R40			2. The suppliers are responsible for the CoP testing of the system as stated in the Special Characteristic Agreement.	2. Pass: within specification in supplier agreement contracts (special characteristic agreement) Fail: not within specification in supplier agreement contracts
A09	Child restraint systems (IF)	UN R44			2. The suppliers are responsible for the CoP testing of the system as stated in the Special Characteristic Agreement.	2. Pass: within specification in supplier agreement contracts (special characteristic agreement) Fail: not within specification in supplier agreement contracts
A10	Enhanced child restraint systems (IF)	UN R42B			2. According to Special Characteristic Agreement(s) 1 of 3000 produced units is tested	2. Supplier production control plan, if the first unit fails a second unit is placed. Fail of two unit from the same batch the whole batch is cancelled
A11	Rear underrun protection	UN R58	3b	UN R58 (not for BEV)	1. Each SW release is integration tested 3. 100% tests in manufacturing, ensuring that no DTC (Diagnostic Trouble Code) relevant for this regulation is active when the vehicle leave the factory	1. Fail in no delivery of the DVV 3. Pass = secure no DTC (Diagnostic Trouble Code) in the vehicle factory

Conformity of Production (CoP) Statement

ECE R34 prevention of fire risk

1) No testing needed (Engineering Judgement)	2) Supplier testing needed (Procurement)	3) Internal testing (Manufacturing)	4) External testing (Manufacturing)	4) External testing (R&D)	4) Internal testing (R&D)
	X				

1. CoP Statement definition

CoP Statement is a CoP analyse and response per legal requirement, of what concerned Product Manager (PM) (or by them appointed person) have agreed to do to meet the legal requirement during product lifecycle.

74 EU and UN ECE regulations included in the CoP Masterplan.

CoP Masterplan is global and applicable for all Volvo production plants.

Conformity of Production coordinator meeting

The screenshot shows the 'Build Prognosis/Forecast' page in the Volvo Conformity of Production system. The table lists various vehicle models across different plants, including Torslanda and Charleston. Key metrics include 'Built Cars', 'Predicted Future Build', 'Current Sampling Rate', 'Cars Sampled', 'Tests (Predicted + Actual)', and 'Market Required Tests'. The 'Sampling Action' column indicates the status of each model, such as 'Good', 'Decrease', or 'Stop'.

Market	Vehicle Model	Engine Code	Gearbox	Plant	Built Cars (247,977)	Predicted Future Build	Current Sampling Rate	Cars Sampled	Tests (Predicted + Actual)	Market Required Tests	Sampling Action	Comment
US	XC90	M1	C	Torslanda	2400	4755	0.10%	3	8	8	Good	
US	XC90	H6	D	Torslanda	8283	11681	0.10%	12	24	20	Decrease	
US	XC90	O6	C	Torslanda	6448	9866	0.10%	9	19	17	Decrease	
US	XC60	M1	C	Torslanda	11762	20421	0.10%	16	37	33	Decrease	
US	XC60	H6	D	Torslanda	8632	10583	0.10%	12	23	20	Decrease	
US	XC40	L1	C	Gent	11073	19160	0.10%	10	30	31	Increase	
US	V90 CROSS COUNTRY	O6	C	Torslanda	272	481	0.10%	0	1	1	Good	
US	V60	H6	D	Torslanda	290	-	0.10%	1	2	1	Stop	
US	V60 CROSS COUNTRY	L1	C	Gent	1028	1456	0.10%	2	4	3	Decrease	
US	S90 L	H6	D	Daqing	152	-	0.10%	0	1	1	Stop	
US	S90 L	O6	C	Daqing	672	178	0.10%	1	2	1	Stop	
US	S60	L1	D	Charleston	1107	-	0.10%	0	1	2	Stop	
US	S60	L1	C	Charleston	1200	-	0.10%	1	2	2	Stop	
US	S60	H6	D	Charleston	484	-	0.10%	1	2	1	Stop	
US	POLESTAR 4	PB	L		-	1843	0.10%	0	2	2	Good	
US	POLESTAR 4	PA	E		-	2970	0.10%	0	3	3	Good	
US	POLESTAR 4	EE	F	Taishan	15	171	0.10%	0	1	1	Good	

One CoP coordinator per Volvo plant.

The CoP coordinator belongs to plant quality department. They are resp. to make sure that CoP tests according to masterplan will be performed.

[CoP - Start page \(volvocars.net\)](https://conformityofproduction.volvocars.net)

Markets with Conformity of Production requirements

Market	Authority	Audit
EU 	RDW, UCA	Every 3 years
Japan 	MLIT	Every 3-5 years
Thailand 	TISI	every 3 years, or whenever new standard enforce and need to apply new license.
Hong Kong 	N/A	N/A
Taiwan 	VSCC	1 audit each third year
South Korea 	N/A	N/A, safety compliance covered by accreditations
Great Britain 	VCA	3 audits each third year (initial req.)
US 	EPA, CARB	N/A, safety compliance
Vietnam	Vietnam Registry	1 every three years

Conformity of Production collaboration



Volvo resp. for CoP on PS2 + PS3
CoP circle every quarter

Audit agenda ex VCA

09:00	Office Meeting Room	Opening Meeting	Introductions Scope of audit Audit criteria
09:30	Office Meeting Room	Quality Documentation	4.1 Quality System Internal audit schedule, report samples sample, NC Closure
11:00	Office Meeting Room	Supplier Selection	4.3 Supplier selection 4.17 Economic operators examples of supplier records. How to ensure traceability in parts fitted to vehicles
11:30	Office Meeting Room	Control Plans	4.2 Control Plans How CoP tests are completed, examples
12:30	Meeting Room Office	Lunch	-
13:00	Stores	Incoming Goods	4.4 Incoming Goods Process overview, non- conforming, segregation, re- work/concessions
13:30	Production Line(s) Final Inspection/EOL Rework Area	Manufacturing Facility Non-Conforming Manufactured Product	4.10 Manufacturing Facility 4.9 Conformity Assurance 4.7 Calibration 4.5 non-conforming manufactured product 4.6 Competency
16:30	Office Meeting Room	VCA Findings write up time	-
17:00	Office Meeting Room	Closing Meeting	-

Day 2			
Time (Approximately)	Location	Activity	To cover / Audit Specific (Grey out if Not Applicable)
09:00	Office Meeting Room	Brief Opening Recap	
09:30	Office Meeting Room	Change Control	4.8 Change Control Change implementation example and check with Job Standard
11:00	Office Meeting Room	Build Records	Historical build records 4.9 Conformity Assurance 4.19 Certificate of Conformity 4.12 Manufacturers marking 4.18 Procedure for retaining CoP records 4.21 RRR
12:00	Meeting Room Office	Lunch	-
12:30	Calibration Lab	Calibration	4.7 Calibration
13:45	Office Meeting Room	Staff Competency	4.6 Competency Follow up on lineside evidence
15:00	Office Meeting Room	VCA Findings write up time/Contingency	-
16:00	Office Meeting Room	Closing Meeting	-

Emission/Electric consumption testing - European market

Market	Plant	Volvo Cars Gothenburg, PV	Essen (TuV)
EU	VCT	X	
	VCG	X (BEV & PHEV)	X (Petrol)
	VCDQ	X	
	VCCD	X	
	VCTZ	X	
	VCCH	X	
	VCMM (N/A)		

MY 24:
447 tests
performed
Volvo

Emission/Electric consumption testing- Japan market

Market	Plant	Volvo Cars Gothenburg, PV	xxx
Japan	VCT	X	
	VCG	X	
	VCDQ		X
	VCCD		X
	VCTZ		X
	VCCH	X	
	VCMM (N/A)		

MY 24:
22 tests
performed

Emission testing - Korea market

Market	Plant	Volvo Cars Gothenburg, PV
Korea	VCT	X
	VCG	X
	VCDQ	X
	VCCD (N/A)	
	VCTZ (N/A)	
	VCCH	X
	VCMM (N/A)	

No CoP electric consumption test on BEV

MY 24:
110 tests
performed

Emission testing - US market

Market	Plant	Volvo Cars Gothenburg, PV	xxx	West Virginia
USA	VCT	X		
	VCG	X		
	VCDQ		X	
	VCCD (N/A)			
	VCTZ (N/A)			
	VCCH			X
	VCMM (N/A)			

MY 24:
128 tests
performed

No CoP electric consumption test on BEV. SPA2 CoP tests will be done

MY 24:

67 tests

performed

Emission testing - Taiwan market

Market	Plant	Volvo Cars Gothenburg, PV	xxx	Essen (TuV)	West Virginia	Lab in Taiwan (managed by sales company)
Taiwan	VCT	X				
	VCG	X				
	VCDQ (N/A)					
	VCCD (N/A)					
	VCTZ (N/A)					
	VCCH	X				
	VCMM					X

No CoP electric consumption test on BEV

Emission testing - Thailand market

Market	Plant	Volvo Cars Gothenburg, PV	xxx	Essen (TuV)	West Virginia	Lab in Thailand/Malaysia
Thailand	VCT (N/A)					
	VCG (N/A)					
	VCDQ (N/A)					
	VCCD					
	VCTZ					
	VCCH (N/A)					
	VCMM					X

No CoP electric consumption test on BEV

Will introduce a variant for Eu6b 2025

MY 24:
31 tests
performed

Electric consumption testing **Polestar**

Market	Plant	Volvo Cars Gothenburg, PV	xxx
EU	VCCD (PS3)	X	
EU	VCTZ (PS2)	X	
Japan	VCCD (PS3)		X (from 2025)
Japan	VCTZ (PS2)	No PS2 for Japan	

Electric consumption testing **Geely EX30**

Market	Plant	xxx	xxx
EU	xxx	X	
Japan	xxx		X

No CoP requirement on electric consumption for the other markets.

Other CoP test for other regulations is performed by Geely.

All the CoP test reports will be share with Volvo once per quarter.

EVAP testing – EU

New requirement to measure EVAP for EU market.

We have this measurement available in VCCD, VCDQ and in VCT (from 24w17).

VCT will test cars from VCT and VCCH

2024: 126 tests planned

Pass by Noise **Volvo - Korea market**

Market	Plant	Volvo Cars Gothenburg, PV
Korea	VCT	X
	VCG	X
	VCDQ	X
	VCCD	X
	VCTZ (N/A)	
	VCCH	X
	VCMM (N/A)	

Sampling rate:

1 vehicle selected when production rate for the model year is from 500 vehicles.

Pass by Noise **POLESTAR**

Market	Plant	Volvo Cars Gothenburg, PV or RDW-Test Centrum Lelystad
EU (incl Japan)	VCCD (PS3)	X
EU (incl Japan)	VCTZ (PS2)	X
Korea	VCCD (PS3)	X (only PV)
Korea	VCTZ (PS2)	X (only PV)

EMC (ElectroMagnetic Compability) testing - Volvo and Polestar

EMC CoP test is required for EU market.

Engineering department select the vehicles needed for CoP test and order the test to be performed in RISE.

Brake testing – Volvo and Polestar

Brake CoP test is required for EU market.

Brake CoP tests is performed at Hällered (on project vehicles, not mass production vehicles).

Ongoing discussions the responsible engineering department how to preform the brake test for MY25.

V O L V O

Thank you