



Volvo Car Corporation

2019 Mid-Model Year Automotive Fuel Economy Report

TABLE OF CONTENTS

	Topic	Applicable Section of 49 CFR §537.7
Attachment I	Import Passenger Car Fuel Economy Information	
Exhibit I	Model Type Summary & CAFE Status	(b)(3), (c)(1), (c)(2)
Exhibit II	Fuel Consumption improvement Information	
Attachment II	Domestic Passenger Car Fuel Economy Information	
Exhibit I	Model Type Summary & CAFE Status	(b)(3), (c)(1), (c)(2)
Exhibit II	Fuel Consumption improvement Information	
Attachment III	Light Duty Truck Fuel Economy Information	
Exhibit I	Model Type Summary & CAFE Status	(b)(3), (c)(1), (c)(2)
Exhibit II	Fuel Consumption improvement Information	
Attachment IV	Light Truck Vehicle Information	(c)(5)
Attachment V	Fuel Economy Methodology Used in Projecting CAFE	537.9 (a)(3)
Attachment VI	Addendum to the Report	537.7(b)(5)



Attachment I

Import Passenger Car Fuel Economy Information



Volvo Car Corporation
Import Passenger Car
Model Type Summary / CAFE Status

Carline Name	Vehicle Class	Engine Name	Transmission Class	IWC	Tire Size	Wheelbase	Front Axle Track Width	Rear Axle Track Width	Average Track Width	Footprint	Projected Sales	City	Highway	MH	MH Rounded
XC40	Small SUV 4WD	2.0T	S8F	4000	235/60R17	106,3	62,9	63,9	63,4	46,8	0	29,8000	47,2000	35,7267	35,7
XC40	Small SUV 4WD	2.0T	S8F	4000	235/55R18	106,3	62,9	63,9	63,4	46,8	613	29,8000	47,2000	35,7267	35,7
XC40	Small SUV 4WD	2.0T	S8F	4000	235/50R19	106,3	62,9	63,9	63,4	46,8	955	29,8000	47,2000	35,7267	35,7
XC40	Small SUV 4WD	2.0T	S8F	4000	245/45R20	106,3	62,9	63,9	63,4	46,8	895	29,8000	47,2000	35,7267	35,7
XC40	Small SUV 4WD	2.0T	S8F	4000	245/40R21	106,3	62,9	63,9	63,4	46,8	0	29,8000	47,2000	35,7267	35,7
V60 FWD	Small Station Wagon	2.0T	S8F	4000	225/50 R17	113,1	62,8	62,8	62,8	49,3	30	30,4246	51,9447	37,3964	37,4
V60 FWD	Small Station Wagon	2.0T	S8F	4000	235/45 R18	113,1	62,7	62,7	62,7	49,2	22	30,4246	51,9447	37,3964	37,4
V60 FWD	Small Station Wagon	2.0T	S8F	4000	235/40 R19	113,1	62,7	62,7	62,7	49,2	31	30,4246	51,9447	37,3964	37,4
V60 FWD	Small Station Wagon	2.0T	S8F	4000	245/35 R20	113,1	62,2	62,3	62,2	48,9	0	30,4246	51,9447	37,3964	37,4
XC60 FWD	Small SUV 4WD	2.0T	S8F	4000	235/60 R18	112,8	64,9	65,1	65,0	50,9	763	27,7000	40,7000	32,3498	32,3
XC60 FWD	Small SUV 4WD	2.0T	S8F	4000	235/55 R19	112,8	64,9	65,1	65,0	50,9	1383	27,7000	40,7000	32,3498	32,3
XC60 FWD	Small SUV 4WD	2.0T	S8F	4000	255/45 R20	112,8	64,8	65,0	64,9	50,8	3919	27,7000	40,7000	32,3498	32,3
XC60 FWD	Small SUV 4WD	2.0T	S8F	4000	255/40 R21	112,8	65,0	65,2	65,1	51,0	331	27,7000	40,7000	32,3498	32,3
XC60 FWD	Small SUV 4WD	2.0T	S8F	4000	265/35 R22	112,8	65,5	65,7	65,6	51,4	0	27,7000	40,7000	32,3498	32,3
S90 FWD	Midsize Car	2.0T	S8F	4000	245/45 R18	120,5	64,0	64,0	64,0	53,6	255	30,4246	51,9447	37,3964	37,4
S90 FWD	Midsize Car	2.0T	S8F	4000	255/40 R19	120,5	63,6	63,6	63,6	53,2	294	30,4246	51,9447	37,3964	37,4
S90 FWD	Midsize Car	2.0T	S8F	4000	255/35 R20	120,5	63,6	63,6	63,6	53,2	0	30,4246	51,9447	37,3964	37,4
V90 FWD	Midsize Station Wagon	2.0T	S8F	4000	245/45 R18	115,8	64,0	64,0	64,0	51,5	0	30,4246	51,9447	37,3964	37,4
V90 FWD	Midsize Station Wagon	2.0T	S8F	4000	255/40 R19	115,8	63,6	63,6	63,6	51,1	104	30,4246	51,9447	37,3964	37,4
V90 FWD	Midsize Station Wagon	2.0T	S8F	4000	255/35 R20	115,8	63,6	63,6	63,6	51,1	242	30,4246	51,9447	37,3964	37,4
S90 AWD	Midsize Car	2.0T	S8A	4000	245/45 R18	120,5	64,0	64,0	64,0	53,6	123	28,4000	45,3000	34,1297	34,1
S90 AWD	Midsize Car	2.0T	S8A	4000	255/40 R19	120,5	63,6	63,6	63,6	53,2	223	28,4000	45,3000	34,1297	34,1
S90 AWD	Midsize Car	2.0T	S8A	4000	255/35 R20	120,5	63,6	63,6	63,6	53,2	1	28,4000	45,3000	34,1297	34,1
V60 AWD	Small Station Wagon	2.0TS	S8A	4500	235/45 R18	113,1	62,7	62,7	62,7	49,2	102	26,5188	44,6440	32,4468	32,4
V60 AWD	Small Station Wagon	2.0TS	S8A	4500	235/40 R19	113,1	62,7	62,7	62,7	49,2	169	26,5188	44,6440	32,4468	32,4
V60 AWD	Small Station Wagon	2.0TS	S8A	4500	245/35 R20	113,1	62,2	62,3	62,2	48,9	0	26,5188	44,6440	32,4468	32,4
S90 AWD	Midsize Car	2.0TS	S8A	4500	245/45 R18	120,5	64,0	64,0	64,0	53,6	19	26,5188	44,6440	32,4468	32,4
S90 AWD	Midsize Car	2.0TS	S8A	4500	255/40 R19	120,5	63,6	63,6	63,6	53,2	320	26,5188	44,6440	32,4468	32,4
S90 AWD	Midsize Car	2.0TS	S8A	4500	255/35 R20	120,5	63,6	63,6	63,6	53,2	319	26,5188	44,6440	32,4468	32,4
V90 AWD	Midsize Station Wagon	2.0TS	S8A	4500	245/45 R18	115,8	64,0	64,0	64,0	51,5	0	26,5188	44,6440	32,4468	32,4
V90 AWD	Midsize Station Wagon	2.0TS	S8A	4500	255/40 R19	115,8	63,6	63,6	63,6	51,1	83	26,5188	44,6440	32,4468	32,4
V90 AWD	Midsize Station Wagon	2.0TS	S8A	4500	255/35 R20	115,8	63,6	63,6	63,6	51,1	112	26,5188	44,6440	32,4468	32,4
S90 AWD	Midsize Car	2.0TSH	S8A	5000	245/45 R18	120,5	64,0	64,0	64,0	53,6	0	80,4920	67,4137	74,0292	74,0
S90 AWD	Midsize Car	2.0TSH	S8A	5000	255/40 R19	120,5	63,6	63,6	63,6	53,2	39	80,4920	67,4137	74,0292	74,0
S90 AWD	Midsize Car	2.0TSH	S8A	5000	255/35 R20	120,5	63,6	63,6	63,6	53,2	131	80,4920	67,4137	74,0292	74,0
Total Volume											11478				

CAFE Status excluding Fuel Consumption Improvement values The current estimate of Volvo's Import Passenger Car CAFE, based on a model year production forecast of [11,478] units. This estimate uses minimum CAFE data requirements	34,0
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CAFE Status including Fuel Consumption Improvement values According to §600.510-12(c) and as calculated in Exhibit III	35,2
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CAFE Requirement The current estimate of Volvo's Import Passenger Car CAFE Requirement, based on a model year production forecast of [11,478] units and calculated according to 49 CFR 531.5(c).	38,8
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Volvo Car Corporation

Import Passenger Car
Fuel Consumption Improvement Information

Vehicle Lifetime Miles | 195264

Model Type Information				Projected production volume	A/C Efficiency Credits [gpm]	A/C Efficiency Credit [megagrams]	FCIV _{AC} [gal/mile]	Stop/Start Credits [g/mile]	Exterior Lights Credits [g/mile]	Vent Seats Credits [g/mile]	Passive Cabin Vent Credits [g/mile]	Active Engine Warm Up [g/mile]	Total Off Cycle Credits [gpm]	OCcredit [megagrams]	FCIV _{OC} [gal/mile]	Final CAFE including Credits		
Carline Name	Drive	Engine	Trans															
XC40 T4	2WD	2.0L	S8	2 463	3,8	1828	0,000516	0,0	0,9	0,0	1,7	1,5	4,1	1972	0,00047990	35,2		
V60 T5	2WD	2.0L	S8	83	4,8	78		0,0	1,0	0,0	1,7	1,5	4,2	68				
S90 T5	2WD	2.0L	S8	549	4,8	515		0,0	0,9	0,0	1,7	1,5	4,1	440				
V90 T5	2WD	2.0L	S8	205	4,8	192		0,0	0,9	0,0	1,7	1,5	4,1	164				
				141	4,8	132		0,0	0,9	1,0	1,7	1,5	5,1	140				
XC60 T5	2WD	2.0L	S8	6 396	4,8	5995		0,0	1,0	0,0	1,7	1,5	4,2	5245				
S90 T5 AWD	4WD	2.0L	S8	347	4,8	325		0,0	0,9	0,0	1,7	1,5	4,1	278				
S90 T6 AWD	4WD	2.0L	S8	283	4,8	265		0,0	0,9	0,0	1,7	1,5	4,1	227				
				375	4,8	351		0,0	0,9	1,0	1,7	1,5	5,1	373				
V90 T6 AWD	4WD	2.0L	S8	87	4,8	82		0,0	0,9	0,0	1,7	1,5	4,1	70				
				108	4,8	101		0,0	0,9	1,0	1,7	1,5	5,1	108				
V60 T6 AWD	4WD	2.0L	S8	271	4,8	254		0,0	1,0	0,0	1,7	1,5	4,2	222				
S90 T8 AWD	4WD	2.0L	S8	2	4,8	2		2,5	0,9	0,0	1,7	1,5	6,6	3				
				168	4,8	157		2,5	0,9	1,0	1,7	1,5	7,6	249				
Sum				11478		10277								9559				

$$FCIV_{AC} \text{ (gal/mi)} = \frac{(ACCredit \times 1,000,000)}{(VLM \times Production \times 8887)}$$

$$FCIV_{OC} \text{ (gal/mi)} = \frac{(OCcredit \times 1,000,000)}{(VLM \times Production \times 8887)}$$

$$\text{Average MPG} = \frac{1}{\frac{1}{MPG} - (FCIV_{AC} + FCIV_{OC} + FCIV_{EU})}$$



Attachment II

Domestic Passenger Car Fuel Economy Information



Volvo Car Corporation

Domestic Passenger Cars
Model Type Summary / CAFE Status

Carline Name	Vehicle Class	Engine Name	Transmission Class	IWC	Tire Size	Wheelbase	Front Axle Track Width	Rear Axle Track Width	Average Track Width	Footprint	Projected Sales	City	Highway	MH	MH Rounded
S60 FWD	Compact Car	2.0T	S8F	4000	225/50 R17	113,1	62,8	62,8	62,8	49,3	0	30,4246	51,9447	37,3964	37,4
S60 FWD	Compact Car	2.0T	S8F	4000	235/45 R18	113,1	62,7	62,7	62,7	49,2	1743	30,4246	51,9447	37,3964	37,4
S60 FWD	Compact Car	2.0T	S8F	4000	235/40 R19	113,1	62,7	62,7	62,7	49,2	3299	30,4246	51,9447	37,3964	37,4
S60 FWD	Compact Car	2.0T	S8F	4000	245/35 R20	113,1	62,2	62,3	62,2	48,9	0	30,4246	51,9447	37,3964	37,4
S60 AWD	Compact Car	2.0TS	S8A	4000	235/45 R18	113,1	62,7	62,7	62,7	49,2	4073	27,0000	46,8000	33,3492	33,3
S60 AWD	Compact Car	2.0TS	S8A	4000	235/40 R19	113,1	62,7	62,7	62,7	49,2	4821	27,0000	46,8000	33,3492	33,3
S60 AWD	Compact Car	2.0TS	S8A	4000	245/35 R20	113,1	62,2	62,3	62,2	48,9	0	27,0000	46,8000	33,3492	33,3
S60 AWD	Compact Car	2.0TSH	S8A	4500	235/45 R18	113,1	62,7	62,7	62,7	49,2	32	91,1500	68,6456	79,4318	79,4
S60 AWD	Compact Car	2.0TSH	S8A	4500	235/40 R19	113,1	62,7	62,7	62,7	49,2	385	91,1500	68,6456	79,4318	79,4
S60 AWD	Compact Car	2.0TSH	S8A	4500	245/35 R20	113,1	62,2	62,3	62,2	48,9	23	91,1500	68,6456	79,4318	79,4
Total Volume											14376				

CAFE Status excluding Fuel Consumption Improvement values The current estimate of Volvo's Domestic Passenger Car CAFE, based on a model year production forecast of [14.376] units. This estimate uses minimum CAFE data requirements	35,5
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CAFE Status including Fuel Consumption Improvement values According to §600.510-12(c) and as calculated in Exhibit III	36,8
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CAFE Requirement The current estimate of Volvo's Domestic Passenger Car CAFE Requirement, based on a model year production forecast of [27.935] units and calculated according to 49 CFR 531 5(c) and (d).	39,6
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Volvo Car Corporation

Domestic Passenger Car
Fuel Consumption Improvement Information

Vehicle Lifetime Miles 195264

Model Type Information				Projected production volume	A/C Efficiency Credits [gpm]	A/C Efficiency Credit [megagrams]	FCIV _{AC} [gal/mile]	Stop/Start Credits [g/mile]	Exterior Lights Credits [g/mile]	Vent Seats Credits [g/mile]	Passive Cabin Vent Credits [g/mile]	Active Engine Warm Up [g/mile]	Total Off Cycle Credits [gpm]	OCcredit [megagrams]	FCIV _{OC} [gal/mile]	Final CAFE including Credits
Carline Name	Drive	Engine	Trans													
S60 T5	2WD	2.0L	S8	5 042	4,8	4726	0,000540	0,0	1,0	0,0	1,7	1,5	4,2	4135	0,00048121	36,8
S60 T6 AWD	4WD	2.0L	S8	8 894	4,8	8336		0,0	1,0	0,0	1,7	1,5	4,2	7294		
S60 T8 AWD	4WD	2.0L	S8	440	4,8	412		2,5	1,0	0,0	1,7	1,5	6,7	576		
Sum				14376		13474							12005			

$$FCIV_{AC} \text{ (gal/mi)} = \frac{(ACCredit \times 1,000,000)}{(VLM \times Production \times 8887)}$$

$$\text{Average MPG} = \frac{1}{\frac{1}{MPG} - (FCIV_{AC} + FCIV_{OC} + FCIV_{EU})}$$

$$FCIV_{OC} \text{ (gal/mi)} = \frac{(OCCredit \times 1,000,000)}{(VLM \times Production \times 8887)}$$



Attachment III

Light Duty Truck Fuel Economy Information



Volvo Car Corporation

Trucks Fuel Consumption Improvement Information

Vehicle Lifetime Miles | 225865

Model Type Information				Projected production volume	A/C Efficiency Credits [gpm]	A/C Efficiency Credit [megagrams]	FCIV _{AC} [gal/mile]	Stop/Start Credits [g/mile]	Exterior Lights Credits [g/mile]	Vent Seats Credits [g/mile]	Passive Cabin Vent Credits [g/mile]	Active Engine Warm Up [g/mile]	Total Off Cycle Credits [gpm]	OCcredit [megagrams]	FCIV _{OC} [gal/mile]	Final CAFE including Credits			
Carline Name	Drive	Engine	Trans																
XC40 T5 AWD	4WD	2.0L	S8	8 587	0	0	0,000663	0,0	0,9	0,0	2,3	3,2	6,4	12413	0,00076866	32,8			
XC40 T5 AWD	4WD	2.0L	S8	12 881	5,4	15711		0,0	0,9	0,0	2,3	3,2	6,4	18620					
V60CC T5 AWD	4WD	2.0L	S8	0	6,8	0		0,0	1,0	0,0	2,3	3,2	6,5	0					
XC60 T5 AWD	4WD	2.0L	S8	12 456	6,8	19131		0,0	1,0	0,0	2,3	3,2	6,5	18287					
V90CC T5 AWD	4WD	2.0L	S8	281	6,8	432		0,0	0,9	0,0	2,3	3,2	6,4	406					
XC90 T5 FWD	2WD	2.0L	S8	2 108	6,8	3238		0,0	1,0	0,0	2,3	3,2	6,5	3095					
XC90 T5 AWD	4WD	2.0L	S8	3 600	6,8	5529		0,0	1,0	0,0	2,3	3,2	6,5	5285					
XC60 T6 AWD	4WD	2.0L	S8	11 518	6,8	17690		0,0	1,0	0,0	2,3	3,2	6,5	16910					
V90CC T6 AWD	4WD	2.0L	S8	288	6,8	442		0,0	0,9	0,0	2,3	3,2	6,4	416					
XC90 T6 AWD	4WD	2.0L	S8	18 390	6,8	28245		0,0	1,0	0,0	2,3	3,2	6,5	26999					
				10 363	6,8	15916		0,0	1,0	1,3	2,3	3,2	7,8	18257					
XC60 T8 AWD	4WD	2.0L	S8	2 161	6,8	3319		4,4	1,0	0,0	2,3	3,2	10,9	5320					
				308	6,8	473		4,4	1,0	0,0	2,3	3,2	10,9	758					
XC90 T8 AWD	4WD	2.0L	S8	993	6,8	1525		4,4	1,0	1,3	2,3	3,2	12,2	2736					
				83934		111651											129503		

$$FCIV_{AC} \text{ (gal/mi)} = \frac{(ACCredit \times 1,000,000)}{(VLM \times Production \times 8887)}$$

$$FCIV_{OC} \text{ (gal/mi)} = \frac{(OCcredit \times 1,000,000)}{(VLM \times Production \times 8887)}$$

$$\text{Average MPG} = \frac{1}{\frac{1}{MPG} - (FCIV_{AC} + FCIV_{OC} + FCIV_{U})}$$



Attachment IV

Light Truck Vehicle Information



Volvo Car Corporation

Light Truck Vehicle Information

		Truck Criteria						
		not<28 deg	not<14 deg	not<20 deg	not<20 cm	not<18 cm		
Truckline Name	4-Wheel Drive	Approach Angle	Breakover Angle	Departure Angle	Running Clearance	Front Axle Clearance	Rear Axle Clearance	3-Row Seating
XC40 AWD	Yes	21,7	21,9	30,4	21,1	21,8	25,8	No
V60CC AWD	Yes	17,0	18,4	22,8	20,1	21,2	25,2	No
V90CC AWD	Yes	18,9	17,7	20,7	20,1	21,0	25,2	No
XC60 AWD	Yes	23,1	20,8	25,5	21,6	22,5	23,2	No
XC90 FWD	No	23,8	21,3	23,3	23,8	23,8	24,4	Yes
XC90 AWD	Yes	23,8	21,3	23,3	23,8	23,8	24,4	Yes

All values in the above table are determined at EPA Curb Weight



Attachment V

Fuel Economy Methodology Used in Projecting CAFE Values

Derived Fuel Economy Values

As provided by 49 CFR §537.9(a)(3), Volvo has used analytically derived fuel economy values, data substitutions and best internal estimates where no EPA approved or Volvo tests results exist at the appropriate sub configuration level for minimum test requirements. These values are derived from a base configuration (ETW), axle ratio, road load horsepower, and engineering judgment.



Attachment VI

Report Addendum

The information contained in this report is, to the best of Volvo's knowledge, accurate and complete. This report is filed subject to the following provisions.

- 49 CFR §537.7(b)(5) requires that a manufacturer state whether the projected average fuel economy submitted herein, sufficiently represent the manufacturer's average and target fuel economy for the current model year for purposes of the act. Volvo hereby represents that, to the best of its present knowledge and belief, it has followed the testing procedures and calculation methods required by EPA in computing fuel economy values for its passenger cars and light trucks. Without waiving its right to later challenge any of the fuel economy testing procedures and methods, Volvo further represents that projected CAFE values contained in the attachments are as sufficiently representative as practicable of Volvo's passenger cars and light truck CAFE values for the purpose of the act., based on the projected sales volumes in the attachments and the relevant EPA test procedures and methods specified in 40 CFR, part 600 subpart F.
- Additional test data and/or analytical data may be substituted for data supplied herewith if warranted after further review and analysis. Such substitutions will be done in accordance with EPA guidelines and requirements