| California Environmental Protection Agency<br>**Air Resources Board** | GENERAL MOTORS LLC. | Executive Order: A-006-1985<br>New Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles<br>Page 1 of 4 |
|---|---|---|

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code (HSC), Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by HSC Sections 39515 and 39516 and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED:The following exhaust and evaporative emission control systems produced by the manufacturer are certified as described below. Production vehicles shall be in all material respects the same as those for which certification is granted.

**TEST GROUP INFORMATION**

| MODEL YEAR | TEST GROUP | VEHICLE CLASS(ES) | FUEL CATEGORY | FUEL TYPE |
|---|---|---|---|---|
| 2016 | GGMXT04.3187 | LDT3 | FLEX-FUEL VEHICLE (FFV) | 85% ETHANOL, GASOLINE |

| USEFUL LIFE (miles) | | VEHICLE EMISSION CATEGORY | | INTERIM / INTERMEDIATE IN-USE STD | |
|---|---|---|---|---|---|
| EXH/ORVR | EVAP | FTP | SFTP | FTP | SFTP |
| 120000 | 150000 | USEPA TIER2 BIN4 COUNTED AS ARB LEV2 ULEV | LEV 2 SFTP STANDARD | * | * |

| SPECIAL FEATURES & EXHAUST EMISSION CONTROL SYSTEMS | | OBD STATUS | | ENGINE DISPLACEMENT (L) |
|---|---|---|---|---|
| 1 | 2TWC, TWC, 2HO2S(2), DFI | FULL | ALL MODELS | 4.3 |
| * | * | PARTIAL | * | |
| * | * | PARTIAL WITH FINES | * | |

**EVAPORATIVE & REFUELING (EVAP/ORVR) FAMILY INFORMATION**

| EVAP / ORVR FAMILY | EVAPORATIVE STD CATEGORY | EVAP EMISSION STD VEHICLE CLASS | SPECIAL FEATURES |
|---|---|---|---|
| GGMXR0176820 | LEV 2 | LDT3 | * |
| GGMXR0223840 | LEV 2 | LDT3 | * |

**EMISSION CREDIT INFORMATION**

| ALLOWANCE FOR TEST GROUP | | | NMOG CREDIT FOR NON-PZEV ZERO-EVAP | NMOG CREDIT FOR DOR | OPTIONAL EXH. STD FOR WORK TRUCKS |
|---|---|---|---|---|---|
| BASELINE PZEV | AT PZEV | TZEV | | | |
| * | * | * | N | N | N |

**NMOG AND FLEET AVERAGE INFORMATION**

| NMOG RAF | CH4 RAF | FTP NMOG/NMHC RATIO (GASOLINE) | HCHO/NMHC RATIO (GASOLINE) | NMOG+NOX FLEET STD PC+LDT (0-3750 LVW) (g/mi) | NMOG+NOX FLEET STD LDT (3751 LVW-8500 GVWR) + MDPV (g/mi) |
|---|---|---|---|---|---|
| * | * | 1.04 | 0.04 | 0.093 | 0.110 |

See the Attachment for Vehicle Models, Evaporative Family, Engine Displacement, Emission Control Systems, Phase-In Standards, OBD Compliance, Emission Standards and Certification Levels, and Abbreviations.

BE IT FURTHER RESOLVED:
The exhaust and evaporative emission standards and the certification emission levels for the listed vehicles are as listed on the Attachment. Compliance with the 50° Fahrenheit testing requirement may have been met based on the manufacturer's submitted compliance plan in lieu of testing. Any debit in the manufacturer's NMOG+NOx and greenhouse gas Fleet Average (PC or LDT or MDPV) or "Vehicle Equivalent Credit" (MDV) compliance plan shall be equalized as required.

BE IT FURTHER RESOLVED:
For the listed vehicle models, the manufacturer has attested to compliance with Title 13, California Code of Regulations, (13 CCR) Sections 1965 [emission control labels], 1968.2 [on-board diagnostic, full or partial compliance], 2035 et seq. [emission control warranty], 2235 [fuel tank fill pipes and openings] (gasoline and alcohol fueled vehicles only), and "High-Altitude Requirements" and "Inspection and Maintenance Emission Standards" (California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for PC, LDT and MDV).

BE IT FURTHER RESOLVED: The listed vehicle models are federally certified, and are certified under the provisions of 13 CCR Section 1961.2(a)(12) and the incorporated test procedures.

Vehicles certified under this Executive Order shall conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 20th day of May 2015.

M. Francis

FOR Annette Hebert, Chief
Emissions Compliance, Automotive Regulations and Science Division

# ATTACHMENT

## EXHAUST AND EVAPORATIVE EMISSION STANDARDS AND CERTIFICATION LEVELS

### EXHAUST EMISSION STANDARDS AND CERTIFICATION LEVELS (FTP, HWFET, 50°F, 20°F)

CH4: methane; NMOG: non-CH4 organic gas; HC: hydrocarbon; NMHC: non-CH4 HC; CO: carbon monoxide; NOx: oxides of nitrogen; HCHO: formaldehyde; PM: particulate matter; RAF: reactivity adjustment factor; 2DHS/3DHS [g HC/test]: 2/3 days diurnal+hot-soak; RL [g HC/mi]: running loss; ORVR [g HC/gallon dispensed]: on-board refueling vapor recovery; g: gram; mg: milligram; mi: mile; K: 1000 miles; F: degrees Fahrenheit; FTP: federal test procedure; SFTP: supplemental FTP

| | FUEL TYPE | NMOG (g/mi) | | CO (g/mi) | | NOx (g/mi) | | HCHO (mg/mi) | | PM (g/mi) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | CERT | STD | CERT | STD | CERT | STD | CERT | STD | CERT | STD |
| FTP@50K | * | * | * | * | * | * | * | * | * | * | * |
| FTP@UL | E85-EPA (GASOLINE - TIER 2 UNLEADED) | 0.027 (0.033) | 0.070 (0.070) | 0.4 (0.7) | 2.1 (2.1) | 0.01 (0.01) | 0.04 (0.04) | 1 (*) | 11 (11) | * (*) | 0.01 (0.01) |
| 50°F @4K | * | * | * | * | * | * | * | * | * | | |

| | FUEL TYPE | NOx (g/mi) | | CO (g/mi) | |
|---|---|---|---|---|---|
| | | CERT | STD | CERT | STD |
| HWFET @ 50K | * | * | * | | |
| HWFET @ UL | E85-EPA (GASOLINE - TIER 2 UNLEADED) | 0.00 (0.00) | 0.05 (0.05) | | |
| 20°F @ 50K | GASOLINE-COLD CO LOW OCTANE | | | 1.5 | 12.5 |

### SFTP EXHAUST EMISSION STANDARDS AND CERTIFICATION LEVELS

| | FUEL TYPE | | US06 | | | SC03 | | COMPOSITE | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | NMHC+NOx (g/mi) | CO (g/mi) | PM (mg/mi) | NMHC+NOx (g/mi) | CO (g/mi) | NMHC+NOx (g/mi) | CO (g/mi) | PM (mg/mi) |
| @ 4K | GASOLINE - TIER 2 UNLEADED | CERT | 0.02 | 1.2 | | 0.02 | 0.7 | | | |
| | | STD | 0.40 | 10.5 | | 0.31 | 3.5 | | | |
| @ UL | * | CERT | * | * | * | * | * | * | * | * |
| | | STD | * | * | * | * | * | * | * | * |
| | | BIN | | | | | | * | | |

### WHOLE VEHICLE EVAPORATIVE EMISSION STANDARDS AND CERTIFICATION LEVELS

| EVAPORATIVE FAMILY | FUEL TYPE | WHOLE VEHICLE EVAPORATIVE TESTING | | | | | | RL (g/mi) @ UL | |
|---|---|---|---|---|---|---|---|---|---|
| | | 3DHS (g/test) @ UL | | | 2DHS (g/test) @ UL | | | | |
| | | CERT | STD | FEL | CERT | STD | FEL | CERT | STD |
| GGMXR0176820 | E10-EPA | 0.55 | 0.90 | * | 0.38 | 1.15 | * | 0.00 | 0.05 |
| GGMXR0176820 | GASOLINE - TIER 2 UNLEADED | 0.75 | * | * | 0.48 | * | * | 0.00 | * |
| GGMXR0223840 | E10-EPA | 0.71 | 0.90 | * | 0.76 | 1.15 | * | 0.00 | 0.05 |
| GGMXR0223840 | GASOLINE - TIER 2 UNLEADED | 0.71 | * | * | 0.65 | * | * | 0.00 | * |

**ORVR / FUEL ONLY / CANISTER BLEED EVAPORATIVE EMISSION STANDARDS AND CERTIFICATION LEVELS**

| EVAPORATIVE FAMILY | ORVR (g/gallon) @ UL | | | FUEL ONLY EVAP & CANISTER BLEED | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | FUEL TYPE | 3DHS RIG TEST (g/test) @ UL | | 2DHS RIG TEST (g/test) @ UL | | BLEED CANISTER TEST (g/test) @ 4K | |
| | FUEL TYPE | CERT | STD | | CERT | STD | CERT | STD | CERT | STD |
| GGMXR0176820 | GASOLINE - TIER 2 UNLEADED | 0.02 | 0.20 | * | * | * | * | * | * | * |
| GGMXR0223840 | GASOLINE - TIER 2 UNLEADED | 0.03 | 0.20 | * | * | * | * | * | * | * |

*: not applicable; #: pounds; UL: useful life; PC: passenger car; LDT: light-duty truck; LDT1: LDT<6000#GVWR,0-3750#LVW; LDT2: LDT<6000#GVWR,3751-5750#LVW; LDT3: LDT 6001-8500#GVWR,3751-5750#ALVW; LDT4: LDT 6001-8500#GVWR,5751-8500#ALVW; MDV: medium-duty vehicle; MDV4: MDV 8501-10000#GVWR; MDV5: MDV 10001-14000#GVWR; MDPV: medium-duty passenger vehicle; ECS: emission control system; CERT: certification; STD: standard; FEL: family emission limit; GVWR: gross vehicle weight rating; LVW: loaded vehicle weight; ALVW: adjusted LVW; LEV: low emission vehicle; ULEV: ultra LEV; SULEV: super ULEV; ZEV: zero-emission vehicle; PZEV: partial ZEV; AT PZEV: advanced technology PZEV; TZEV: transitional ZEV; TWC/OC: 3-way/oxidizing catalyst; ADSTWC: adsorbing TWC; HAC: HC adsorbing catalyst; WU: warm-up catalyst; NAC: NOx adsorption catalyst; SCR-U or SCRC/SCR-N or SCRC-NH3: selective catalytic reduction-urea/ammonia; NH3OC: ammonia oxidation catalyst; CTOX/PTOX: continuous/periodic trap oxidizer; DPF: diesel particulate filter (active); GPF: PM filter for spark-ignited engine; HO2S/O2S: heated/oxygen sensor; WR-HO2S or AFS: wide range/linear/heated air-fuel ratio sensor; NOXS: NOx sensor; PMS: PM sensor; RDQS: reductant quality sensor; NH3S: ammonia sensor; EGR: exhaust gas recirculation; EGRC: EGR cooler; AIR/AIRE: secondary air injection (belt driven)/(electric driven); PAIR: pulsed AIR; SFI/MFI: sequential/multiport fuel injection; DFI/IFI: direct/indirect fuel injection; TC/SC: turbo/super charger; CAC: charge air cooler; F/P/$: full/partial/partial with fines on-board diagnostic; DOR: direct ozone reducing; HCT: hydrocarbon trap; BCAN: bleed carbon canister; prefix 2: parallel; (2) suffix: series; CNG/LNG: compressed/liquefied natural gas; LPG: liquefied petroleum gas; E85: "85%" ethanol ("15%"gasoline) fuel; E10: "10%" ethanol ("90%"gasoline) fuel; A: automatic (with lockup); M: manual transmission; SA: semi-automatic transmission; CV: continuously variable transmission; SCV: selectable continuously variable transmission; AM: automated manual transmission; AMS: automated manual-selectable transmission; OT: other transmission

## 2016 MODEL YEAR: VEHICLE MODELS INFORMATION

| MAKE | MODEL | VEH CLASS | ENGINE (L) | TRANS TYPE | EVAPORATIVE FAMILY | EXH ECS | OBD | PZEV TYPE |
|---|---|---|---|---|---|---|---|---|
| CHEVROLET | C15 SILVERADO 2WD | LDT3 | 4.3 | A6 | GGMXR0176820 | 1 | F | * |
| CHEVROLET | C15 SILVERADO 2WD | LDT3 | 4.3 | A6 | GGMXR0223840 | 1 | F | * |
| CHEVROLET | K15 SILVERADO 4WD | LDT3 | 4.3 | A6 | GGMXR0176820 | 1 | F | * |
| CHEVROLET | K15 SILVERADO 4WD | LDT3 | 4.3 | A6 | GGMXR0223840 | 1 | F | * |
| GMC | C15 SIERRA 2WD | LDT3 | 4.3 | A6 | GGMXR0176820 | 1 | F | * |
| GMC | C15 SIERRA 2WD | LDT3 | 4.3 | A6 | GGMXR0223840 | 1 | F | * |
| GMC | K15 SIERRA 4WD | LDT3 | 4.3 | A6 | GGMXR0176820 | 1 | F | * |
| GMC | K15 SIERRA 4WD | LDT3 | 4.3 | A6 | GGMXR0223840 | 1 | F | * |