



General Motors

GM Powertrain
Engine Engineering - Bldg. C
Mail Code 483-710-270
895 Joslyn Ave.
Pontiac Mi. 48340
USA

August 4, 2015

Dear Gary:

We propose to certify the 2016 G1UB based on SAE standard –J2723 witness testing completed on June 3, 2015 using a qualified ISO-Power analytical engine model. The process used, consistent with SAE J2723, was to certify a power response surface as a function of exhaust and induction restriction.

Data included:

1. Tabular data of witnessed test results with the G1UB exhaust restriction. Data was witnessed on 06/03/15.
2. A graphical representation of the 2016 LE2 peak power levels determined by an engine analytical model. This graphical representation is commonly referred to as an ISO-Power plot.
3. Tabular data showing proposed SAE- Certified power and torque values determined by the engine analytical model used to determine SAE-J1349 results on the following applications:

2016 Federal Emission Package

Please feel free to contact us if you have any questions.

Regards,

Jim Walker

Lead Development Engineer SGE

248-431-9699

james.w.walker@gm.com

George Washburn

Development and Validation System Manager SGE

586-709-3391

george.washburn@gm.com

Parameter	Units	1500	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000	4200	4400	4600	4800	5000	5200	5400	5600	5800	6000	6200	6400	6600	6800	7000	7200	7400	7600	7800	8000	8200	8400	8600	8800	9000	9200	9400	9600	9800	10000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Engine Speed	rpm	1500	1800	2000	2200	2400	2600	2800	3000	3200	3400	3600	3800	4000	4200	4400	4600	4800	5000	5200	5400	5600	5800	6000	6200	6400	6600	6800	7000	7200	7400	7600	7800	8000	8200	8400	8600	8800	9000	9200	9400	9600	9800	10000																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
Observed Torque	lb-ft	148.6	177.3	178.6	181.1	183.6	186.1	188.6	191.1	193.6	196.1	198.6	201.1	203.6	206.1	208.6	211.1	213.6	216.1	218.6	221.1	223.6	226.1	228.6	231.1	233.6	236.1	238.6	241.1	243.6	246.1	248.6	251.1	253.6	256.1	258.6	261.1	263.6	266.1	268.6	271.1	273.6	276.1	278.6	281.1	283.6	286.1	288.6	291.1	293.6	296.1	298.6	301.1	303.6	306.1	308.6	311.1	313.6	316.1	318.6	321.1	323.6	326.1	328.6	331.1	333.6	336.1	338.6	341.1	343.6	346.1	348.6	351.1	353.6	356.1	358.6	361.1	363.6	366.1	368.6	371.1	373.6	376.1	378.6	381.1	383.6	386.1	388.6	391.1	393.6	396.1	398.6	401.1	403.6	406.1	408.6	411.1	413.6	416.1	418.6	421.1	423.6	426.1	428.6	431.1	433.6	436.1	438.6	441.1	443.6	446.1	448.6	451.1	453.6	456.1	458.6	461.1	463.6	466.1	468.6	471.1	473.6	476.1	478.6	481.1	483.6	486.1	488.6	491.1	493.6	496.1	498.6	501.1	503.6	506.1	508.6	511.1	513.6	516.1	518.6	521.1	523.6	526.1	528.6	531.1	533.6	536.1	538.6	541.1	543.6	546.1	548.6	551.1	553.6	556.1	558.6	561.1	563.6	566.1	568.6	571.1	573.6	576.1	578.6	581.1	583.6	586.1	588.6	591.1	593.6	596.1	598.6	601.1	603.6	606.1	608.6	611.1	613.6	616.1	618.6	621.1	623.6	626.1	628.6	631.1	633.6	636.1	638.6	641.1	643.6	646.1	648.6	651.1	653.6	656.1	658.6	661.1	663.6	666.1	668.6	671.1	673.6	676.1	678.6	681.1	683.6	686.1	688.6	691.1	693.6	696.1	698.6	701.1	703.6	706.1	708.6	711.1	713.6	716.1	718.6	721.1	723.6	726.1	728.6	731.1	733.6	736.1	738.6	741.1	743.6	746.1	748.6	751.1	753.6	756.1	758.6	761.1	763.6	766.1	768.6	771.1	773.6	776.1	778.6	781.1	783.6	786.1	788.6	791.1	793.6	796.1	798.6	801.1	803.6	806.1	808.6	811.1	813.6	816.1	818.6	821.1	823.6	826.1	828.6	831.1	833.6	836.1	838.6	841.1	843.6	846.1	848.6	851.1	853.6	856.1	858.6	861.1	863.6	866.1	868.6	871.1	873.6	876.1	878.6	881.1	883.6	886.1	888.6	891.1	893.6	896.1	898.6	901.1	903.6	906.1	908.6	911.1	913.6	916.1	918.6	921.1	923.6	926.1	928.6	931.1	933.6	936.1	938.6	941.1	943.6	946.1	948.6	951.1	953.6	956.1	958.6	961.1	963.6	966.1	968.6	971.1	973.6	976.1	978.6	981.1	983.6	986.1	988.6	991.1	993.6	996.1	998.6	1001.1	1003.6	1006.1	1008.6	1011.1	1013.6	1016.1	1018.6	1021.1	1023.6	1026.1	1028.6	1031.1	1033.6	1036.1	1038.6	1041.1	1043.6	1046.1	1048.6	1051.1	1053.6	1056.1	1058.6	1061.1	1063.6	1066.1	1068.6	1071.1	1073.6	1076.1	1078.6	1081.1	1083.6	1086.1	1088.6	1091.1	1093.6	1096.1	1098.6	1101.1	1103.6	1106.1	1108.6	1111.1	1113.6	1116.1	1118.6	1121.1	1123.6	1126.1	1128.6	1131.1	1133.6	1136.1	1138.6	1141.1	1143.6	1146.1	1148.6	1151.1	1153.6	1156.1	1158.6	1161.1	1163.6	1166.1	1168.6	1171.1	1173.6	1176.1	1178.6	1181.1	1183.6	1186.1	1188.6	1191.1	1193.6	1196.1	1198.6	1201.1	1203.6	1206.1	1208.6	1211.1	1213.6	1216.1	1218.6	1221.1	1223.6	1226.1	1228.6	1231.1	1233.6	1236.1	1238.6	1241.1	1243.6	1246.1	1248.6	1251.1	1253.6	1256.1	1258.6	1261.1	1263.6	1266.1	1268.6	1271.1	1273.6	1276.1	1278.6	1281.1	1283.6	1286.1	1288.6	1291.1	1293.6	1296.1	1298.6	1301.1	1303.6	1306.1	1308.6	1311.1	1313.6	1316.1	1318.6	1321.1	1323.6	1326.1	1328.6	1331.1	1333.6	1336.1	1338.6	1341.1	1343.6	1346.1	1348.6	1351.1	1353.6	1356.1	1358.6	1361.1	1363.6	1366.1	1368.6	1371.1	1373.6	1376.1	1378.6	1381.1	1383.6	1386.1	1388.6	1391.1	1393.6	1396.1	1398.6	1401.1	1403.6	1406.1	1408.6	1411.1	1413.6	1416.1	1418.6	1421.1	1423.6	1426.1	1428.6	1431.1	1433.6	1436.1	1438.6	1441.1	1443.6	1446.1	1448.6	1451.1	1453.6	1456.1	1458.6	1461.1	1463.6	1466.1	1468.6	1471.1	1473.6	1476.1	1478.6	1481.1	1483.6	1486.1	1488.6	1491.1	1493.6	1496.1	1498.6	1501.1	1503.6	1506.1	1508.6	1511.1	1513.6	1516.1	1518.6	1521.1	1523.6	1526.1	1528.6	1531.1	1533.6	1536.1	1538.6	1541.1	1543.6	1546.1	1548.6	1551.1	1553.6	1556.1	1558.6	1561.1	1563.6	1566.1	1568.6	1571.1	1573.6	1576.1	1578.6	1581.1	1583.6	1586.1	1588.6	1591.1	1593.6	1596.1	1598.6	1601.1	1603.6	1606.1	1608.6	1611.1	1613.6	1616.1	1618.6	1621.1	1623.6	1626.1	1628.6	1631.1	1633.6	1636.1	1638.6	1641.1	1643.6	1646.1	1648.6	1651.1	1653.6	1656.1	1658.6	1661.1	1663.6	1666.1	1668.6	1671.1	1673.6	1676.1	1678.6	1681.1	1683.6	1686.1	1688.6	1691.1	1693.6	1696.1	1698.6	1701.1	1703.6	1706.1	1708.6	1711.1	1713.6	1716.1	1718.6	1721.1	1723.6	1726.1	1728.6	1731.1	1733.6	1736.1	1738.6	1741.1	1743.6	1746.1	1748.6	1751.1	1753.6	1756.1	1758.6	1761.1	1763.6	1766.1	1768.6	1771.1	1773.6	1776.1	1778.6	1781.1	1783.6	1786.1	1788.6	1791.1	1793.6	1796.1	1798.6	1801.1	1803.6	1806.1	1808.6	1811.1	1813.6	1816.1	1818.6	1821.1	1823.6	1826.1	1828.6	1831.1	1833.6	1836.1	1838.6	1841.1	1843.6	1846.1	1848.6	1851.1	1853.6	1856.1	1858.6	1861.1	1863.6	1866.1	1868.6	1871.1	1873.6	1876.1	1878.6	1881.1	1883.6	1886.1	1888.6	1891.1	1893.6	1896.1	1898.6	1901.1	1903.6	1906.1	1908.6	1911.1	1913.6	1916.1	1918.6	1921.1	1923.6	1926.1	1928.6	1931.1	1933.6	1936.1	1938.6	1941.1	1943.6	1946.1	1948.6	1951.1	1953.6	1956.1	1958.6	1961.1	1963.6	1966.1	1968.6	1971.1	1973.6	1976.1	1978.6	1981.1	1983.6	1986.1	1988.6	1991.1	1993.6	1996.1	1998.6	2001.1	2003.6	2006.1	2008.6	2011.1	2013.6	2016.1	2018.6	2021.1	2023.6	2026.1	2028.6	2031.1	2033.6	2036.1	2038.6	2041.1	2043.6	2046.1	2048.6	2051.1	2053.6	2056.1	2058.6	2061.1	2063.6	2066.1	2068.6	2071.1	2073.6	2076.1	2078.6	2081.1	2083.6	2086.1	2088.6	2091.1	2093.6	2096.1	2098.6	2101.1	2103.6	2106.1	2108.6	2111.1	2113.6	2116.1	2118.6	2121.1	2123.6	2126.1	2128.6	2131.1	2133.6	2136.1	2138.6	2141.1	2143.6	2146.1	2148.6	2151.1	2153.6	2156.1	2158.6	2161.1	2163.6	2166.1	2168.6	2171.1	2173.6	2176.1	2178.6	2181.1	2183.6	2186.1	2188.6	2191.1	2193.6	2196.1	2198.6	2201.1	2203.6	2206.1	2208.6	2211.1	2213.6	2216.1	2218.6	2221.1	2223.6	2226.1	2228.6	2231.1	2233.6	2236.1	2238.6	2241.1	2243.6	2246.1	2248.6	2251.1	2253.6	2256.1	2258.6	2261.1	2263.6	2266.1	2268.6	2271.1	2273.6	2276.1	2278.6	2281.1	2283.6	2286.1	2288.6	2291.1	2293.6	2296.1	2298.6	2301.1	2303.6	2306.1	2308.6	2311.1	2313.6	2316.1	2318.6	2321.1	2323.6	2326.1	2328.6	2331.1	2333.6	2336.1	2338.6	2341.1	2343.6	2346.1	2348.6	2351.1	2353.6	2356.1	2358.6	2361.1	2363.6	2366.1	2368.6	2371.1	2373.6	2376.1	2378.6	2381.1	2383.6	2386.1	2388.6	2391.1	2393.6	2396.1	2398.6	2401.1	2403.6	2406.1	2408.6	2411.1	2413.6	2416.1	2418.6	2421.1	2423.6	2426.1	2428.6	2431.1	2433.6	2436.1	2438.6	2441.1	2443.6	2446.1	2448.6	2451.1	2453.6	2456.1	2458.6	2461.1	2463.6	2466.1	2468.6	2471.1	2473.6	2476.1	2478.6	2481.1	2483.6	2486.1	2488.6	2491.1	2493.6	2496.1	2498.6	2501.1	2503.6	2506.1	2508.6	2511.1	2513.6	2516.1	2518.6	2521.1	2523.6	2526.1	2528.6	2531.1	2533.6	2536.1	2538.6	2541.1	2543.6	2546.1	2548.6	2551.1	2553.6	2556.1	2558.6	2561.1	2563.6	2566.1	2568.6	2571.1	2573.6	2576.1	2578.6	2581.1	2583.6	2586.1	2588.6	2591.1	2593.6	2596.1	2598.6	2601.1	2603.6	2606.1	2608.6	2611.1	2613.6	2616.1	2618.6	2621.1	2623.6	2626.1	2628.6	2631.1	2633.6	2636.1	2638.6	2641.1	2643.6	2646.1	2648.6	2651.1	2653.6	2656.1	2658.6	2661.1	2663.6	2666.1	2668.6	2671.1	2673.6	2676.1	2678.6	2681.1	2683.6	2686.1	2688.6	2691.1	2693.6	2696.1	2698.6	2701.1	2703.6	2706.1	2708.6	2711.1	2713.6	2716.1	2718.6	2721.1	2723.6	2726.1	2728.6	2731.1	2733.6	2736.1	2738.6	2741.1	2743.6	2746.1	2748.6	2751.1	2753.6	2756.1	2758.6	2761.1	2763.6	2766.1	2768.6	2771.1	2773.6	2776.1	2778.6	2781.1	2783.6	2786.1	2788.6	2791.1	2793.6	2796.1	2798.6	2801.1	2803.6	2806.1	2808.6	2811.1	2813.6	2816.1	2818.6	2821.1	2823.6	2826.1	2828.6	2831.1	2833.6	2836.1	2838.6	2