

REPORT NUMBER: RAB02141

ISSUE DATE: 06/27/16

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: PIP30/D10

LUMINAIRE: ONE-PIECE CAST METAL HOUSING WITH PAINTED BRONZE FINISH, LED AND DRIVER COMPARTMENT SEPARATED BY FINNED HEAT SINK, ONE WHITE CIRCUIT BOARD WITH 60 LEDS, TRANSLUCENT PLASTIC LENS ON TOP OF THE LED BOARD.

LAMPS: SIXTY WHITE LIGHT EMITTING DIODES (LEDs), AIMED AT THE HORIZON.

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

TOTAL INPUT WATTS = 30.993 AT 277.0 VAC.

LED DRIVER: RDD-30W-032SE-A0900

TEST PROCEDURE: IESNA LM-79-08

(SEE PAGE 2 FOR MORE INFORMATION)

PAGE: 1 OF 7

DATE SAMPLE TESTED: 06/27/16

FLOODLIGHT CHARACTERISTICS

IES TYPE

MAXIMUM CANDLEPOWER

HORIZONTAL BEAM ANGLE (50%)

VERTICAL BEAM ANGLE (50%)

HORIZONTAL FIELD ANGLE (10%)

VERTICAL FIELD ANGLE (10%)

BEAM LUMENS (% FIXTURE)

FIELD LUMENS (% FIXTURE)

TOTAL LUMENS (% FIXTURE)

TOTAL INPUT WATTS = 31.0

EFFICACY = 134.3 Lm/W

7H X 6V

2272. AT 19.5 H, -1.0 V

AXIAL CANDLEPOWER

| DEG | HORIZ. | DEG | VERT. |
|-------|--------|-------|-------|
| 90.0 | 0. | 90.0 | 0. |
| 85.0 | 17. | 85.0 | 0. |
| 75.0 | 94. | 75.0 | 47. |
| 65.0 | 237. | 65.0 | 113. |
| 55.0 | 528. | 55.0 | 198. |
| 47.5 | 961. | 47.5 | 378. |
| 42.5 | 1375. | 42.5 | 569. |
| 37.5 | 1760. | 37.5 | 822. |
| 33.0 | 2024. | 33.0 | 1094. |
| 29.0 | 2166. | 29.0 | 1321. |
| 25.5 | 2236. | 25.5 | 1502. |
| 22.5 | 2263. | 22.5 | 1646. |
| 19.5 | 2270. | 19.5 | 1772. |
| 17.0 | 2256. | 17.0 | 1853. |
| 15.0 | 2236. | 15.0 | 1912. |
| 13.0 | 2211. | 13.0 | 1962. |
| 11.0 | 2182. | 11.0 | 2011. |
| 9.0 | 2158. | 9.0 | 2047. |
| 7.0 | 2144. | 7.0 | 2076. |
| 5.0 | 2138. | 5.0 | 2101. |
| 3.0 | 2136. | 3.0 | 2119. |
| 1.0 | 2134. | 1.0 | 2131. |
| 0.0 | 2133. | 0.0 | 2133. |
| -1.0 | 2134. | -1.0 | 2134. |
| -3.0 | 2136. | -3.0 | 2133. |
| -5.0 | 2138. | -5.0 | 2134. |
| -7.0 | 2144. | -7.0 | 2139. |
| -9.0 | 2158. | -9.0 | 2142. |
| -11.0 | 2182. | -11.0 | 2138. |
| -13.0 | 2211. | -13.0 | 2126. |
| -15.0 | 2236. | -15.0 | 2101. |
| -17.0 | 2256. | -17.0 | 2053. |
| -19.5 | 2270. | -19.5 | 1960. |
| -22.5 | 2263. | -22.5 | 1804. |
| -25.5 | 2236. | -25.5 | 1601. |
| -29.0 | 2166. | -29.0 | 1365. |
| -33.0 | 2024. | -33.0 | 1131. |
| -37.5 | 1760. | -37.5 | 905. |
| -42.5 | 1375. | -42.5 | 648. |
| -47.5 | 961. | -47.5 | 431. |
| -55.0 | 528. | -55.0 | 238. |
| -65.0 | 237. | -65.0 | 144. |
| -75.0 | 94. | -75.0 | 75. |
| -85.0 | 17. | -85.0 | 27. |
| -90.0 | 0. | -90.0 | 0. |



Checked X.CAO

Approved D.WANG-MUNSON

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ISSUE DATE: 06/27/16
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PAGE: 2 OF 7
DATE SAMPLE TESTED: 06/27/16

ADDITIONAL INFORMATION

ACCREDITED LABORATORY CODE 201058-0
TEST DISTANCE : 28.25 FEET

NOTE: THIS REPORT WITH THE USE OF THE NVLAP LOGO SHALL NOT BE USED BY
THE CLIENT TO CLAIM PRODUCT CERTIFICATION, APPROVAL, OR
ENDORSEMENT BY NVLAP, NIST, OR ANY AGENCY OF THE FEDERAL
GOVERNMENT.

REPORT NUMBER: RAB02141
 ISSUE DATE: 06/27/16
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 3 OF 7
 DATE SAMPLE TESTED: 06/27/16

CANDELA TABULATION AVERAGE OF RIGHT AND LEFT SIDES

| | 0.0 | 1.0 | 3.0 | 5.0 | 7.0 | 9.0 | 11.0 | 13.0 | 15.0 | 17.0 | 19.5 | 22.5 | 25.5 | 29.0 | 33.0 | 37.5 | 42.5 | 47.5 | 55.0 | 65.0 | 75.0 | 85.0 | 90.0 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|
| 90.0 | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |
| 85.0 | 0. | 1. | 4. | 5. | 5. | 6. | 6. | 7. | 7. | 7. | 7. | 8. | 7. | 8. | 8. | 7. | 7. | 7. | 8. | 8. | 7. | 6. | 0. |
| 75.0 | 47. | 48. | 47. | 47. | 47. | 47. | 46. | 46. | 46. | 46. | 46. | 46. | 46. | 46. | 44. | 41. | 38. | 35. | 29. | 21. | 13. | 8. | 0. |
| 65.0 | 113. | 113. | 112. | 112. | 112. | 112. | 114. | 113. | 116. | 117. | 118. | 119. | 118. | 117. | 114. | 110. | 103. | 94. | 75. | 46. | 24. | 10. | 0. |
| 55.0 | 198. | 196. | 196. | 194. | 197. | 200. | 204. | 209. | 217. | 227. | 235. | 243. | 247. | 253. | 254. | 251. | 231. | 196. | 140. | 80. | 37. | 11. | 0. |
| 47.5 | 378. | 370. | 371. | 369. | 382. | 394. | 411. | 432. | 458. | 435. | 449. | 456. | 464. | 503. | 493. | 442. | 433. | 349. | 199. | 110. | 48. | 13. | 0. |
| 42.5 | 569. | 562. | 564. | 560. | 565. | 574. | 586. | 599. | 615. | 631. | 653. | 664. | 678. | 680. | 661. | 616. | 518. | 461. | 248. | 129. | 57. | 14. | 0. |
| 37.5 | 822. | 816. | 820. | 818. | 823. | 832. | 847. | 862. | 879. | 894. | 913. | 927. | 932. | 924. | 886. | 805. | 656. | 483. | 294. | 148. | 64. | 14. | 0. |
| 33.0 | 1094. | 1090. | 1090. | 1090. | 1093. | 1101. | 1116. | 1129. | 1138. | 1154. | 1163. | 1173. | 1166. | 1151. | 1093. | 988. | 792. | 578. | 340. | 166. | 71. | 15. | 0. |
| 29.0 | 1321. | 1316. | 1316. | 1315. | 1319. | 1326. | 1340. | 1356. | 1364. | 1381. | 1385. | 1389. | 1374. | 1351. | 1276. | 1142. | 913. | 657. | 383. | 182. | 76. | 15. | 0. |
| 25.5 | 1502. | 1496. | 1496. | 1496. | 1501. | 1510. | 1524. | 1540. | 1552. | 1565. | 1570. | 1569. | 1552. | 1517. | 1432. | 1272. | 1013. | 718. | 415. | 194. | 80. | 16. | 0. |
| 22.5 | 1646. | 1641. | 1640. | 1641. | 1646. | 1655. | 1670. | 1686. | 1699. | 1711. | 1717. | 1711. | 1692. | 1652. | 1559. | 1377. | 1091. | 767. | 441. | 203. | 83. | 16. | 0. |
| 19.5 | 1772. | 1767. | 1766. | 1767. | 1772. | 1783. | 1798. | 1816. | 1832. | 1843. | 1850. | 1840. | 1820. | 1773. | 1671. | 1469. | 1157. | 814. | 462. | 211. | 86. | 16. | 0. |
| 17.0 | 1853. | 1850. | 1849. | 1851. | 1857. | 1870. | 1887. | 1909. | 1928. | 1940. | 1949. | 1938. | 1915. | 1863. | 1752. | 1535. | 1205. | 847. | 477. | 216. | 87. | 16. | 0. |
| 15.0 | 1912. | 1910. | 1909. | 1913. | 1919. | 1933. | 1951. | 1974. | 1996. | 2009. | 2018. | 2008. | 1984. | 1926. | 1807. | 1580. | 1238. | 869. | 487. | 220. | 89. | 16. | 0. |
| 13.0 | 1962. | 1960. | 1959. | 1965. | 1970. | 1985. | 2006. | 2031. | 2055. | 2070. | 2081. | 2069. | 2043. | 1982. | 1855. | 1617. | 1266. | 889. | 497. | 224. | 90. | 17. | 0. |
| 11.0 | 2011. | 2008. | 2009. | 2014. | 2020. | 2035. | 2057. | 2083. | 2107. | 2122. | 2134. | 2122. | 2094. | 2028. | 1896. | 1650. | 1290. | 906. | 505. | 227. | 91. | 17. | 0. |
| 9.0 | 2047. | 2045. | 2046. | 2050. | 2057. | 2073. | 2095. | 2122. | 2147. | 2163. | 2176. | 2164. | 2135. | 2067. | 1931. | 1679. | 1312. | 920. | 511. | 230. | 92. | 17. | 0. |
| 7.0 | 2076. | 2075. | 2077. | 2080. | 2088. | 2104. | 2127. | 2155. | 2180. | 2196. | 2208. | 2196. | 2169. | 2100. | 1960. | 1704. | 1331. | 933. | 517. | 232. | 92. | 17. | 0. |
| 5.0 | 2101. | 2100. | 2102. | 2106. | 2112. | 2128. | 2151. | 2179. | 2204. | 2221. | 2234. | 2222. | 2196. | 2126. | 1985. | 1724. | 1348. | 944. | 521. | 234. | 93. | 17. | 0. |
| 3.0 | 2119. | 2119. | 2120. | 2124. | 2129. | 2145. | 2168. | 2196. | 2221. | 2238. | 2252. | 2242. | 2216. | 2147. | 2006. | 1742. | 1361. | 952. | 524. | 236. | 94. | 17. | 0. |
| 1.0 | 2131. | 2131. | 2133. | 2135. | 2141. | 2156. | 2179. | 2208. | 2233. | 2252. | 2266. | 2258. | 2231. | 2162. | 2020. | 1755. | 1371. | 959. | 526. | 236. | 94. | 17. | 0. |
| 0.0 | 2133. | 2134. | 2136. | 2138. | 2144. | 2158. | 2182. | 2211. | 2236. | 2256. | 2270. | 2263. | 2236. | 2166. | 2024. | 1760. | 1375. | 961. | 528. | 237. | 94. | 17. | 0. |
| -1.0 | 2134. | 2135. | 2136. | 2139. | 2145. | 2159. | 2183. | 2211. | 2238. | 2258. | 2272. | 2265. | 2238. | 2169. | 2027. | 1763. | 1378. | 964. | 527. | 237. | 94. | 17. | 0. |
| -3.0 | 2133. | 2133. | 2135. | 2138. | 2142. | 2156. | 2179. | 2208. | 2234. | 2254. | 2268. | 2260. | 2235. | 2167. | 2026. | 1765. | 1381. | 966. | 526. | 237. | 94. | 17. | 0. |
| -5.0 | 2134. | 2135. | 2135. | 2137. | 2143. | 2156. | 2178. | 2206. | 2233. | 2252. | 2263. | 2256. | 2229. | 2161. | 2021. | 1760. | 1380. | 967. | 525. | 236. | 94. | 17. | 0. |
| -7.0 | 2139. | 2140. | 2141. | 2143. | 2146. | 2158. | 2178. | 2206. | 2232. | 2250. | 2260. | 2251. | 2221. | 2151. | 2010. | 1753. | 1376. | 966. | 523. | 236. | 94. | 17. | 0. |
| -9.0 | 2142. | 2142. | 2141. | 2142. | 2146. | 2156. | 2176. | 2202. | 2228. | 2246. | 2254. | 2242. | 2207. | 2135. | 1993. | 1740. | 1367. | 960. | 519. | 234. | 94. | 17. | 0. |
| -11.0 | 2138. | 2138. | 2138. | 2138. | 2139. | 2149. | 2167. | 2192. | 2217. | 2234. | 2239. | 2226. | 2186. | 2112. | 1971. | 1722. | 1354. | 953. | 514. | 232. | 93. | 17. | 0. |
| -13.0 | 2126. | 2128. | 2126. | 2126. | 2127. | 2135. | 2152. | 2177. | 2199. | 2215. | 2218. | 2202. | 2160. | 2084. | 1945. | 1701. | 1340. | 943. | 509. | 230. | 92. | 17. | 0. |
| -15.0 | 2101. | 2104. | 2102. | 2102. | 2103. | 2111. | 2128. | 2151. | 2173. | 2190. | 2191. | 2173. | 2129. | 2052. | 1914. | 1678. | 1322. | 932. | 502. | 227. | 91. | 17. | 0. |
| -17.0 | 2053. | 2057. | 2054. | 2055. | 2056. | 2065. | 2084. | 2109. | 2133. | 2150. | 2153. | 2134. | 2090. | 2014. | 1880. | 1650. | 1301. | 916. | 493. | 224. | 90. | 17. | 0. |
| -19.5 | 1960. | 1966. | 1963. | 1964. | 1966. | 1978. | 1997. | 2025. | 2054. | 2073. | 2080. | 2065. | 2024. | 1954. | 1828. | 1609. | 1270. | 894. | 482. | 220. | 89. | 17. | 0. |
| -22.5 | 1804. | 1810. | 1807. | 1808. | 1810. | 1825. | 1844. | 1875. | 1911. | 1934. | 1950. | 1943. | 1915. | 1857. | 1743. | 1541. | 1222. | 861. | 465. | 213. | 87. | 17. | 0. |
| -25.5 | 1601. | 1607. | 1606. | 1616. | 1613. | 1632. | 1662. | 1691. | 1730. | 1756. | 1783. | 1785. | 1773. | 1726. | 1632. | 1457. | 1163. | 823. | 445. | 205. | 84. | 16. | 0. |
| -29.0 | 1365. | 1371. | 1374. | 1383. | 1380. | 1404. | 1430. | 1455. | 1501. | 1526. | 1563. | 1572. | 1577. | 1544. | 1481. | 1336. | 1077. | 773. | 424. | 195. | 81. | 16. | 0. |
| -33.0 | 1131. | 1133. | 1137. | 1146. | 1140. | 1163. | 1178. | 1205. | 1247. | 1272. | 1308. | 1326. | 1340. | 1325. | 1289. | 1181. | 963. | 698. | 385. | 181. | 76. | 16. | 0. |
| -37.5 | 905. | 898. | 898. | 906. | 908. | 918. | 932. | 954. | 985. | 1008. | 1033. | 1065. | 1087. | 1091. | 1065. | 989. | 820. | 599. | 454. | 164. | 70. | 15. | 0. |
| -42.5 | 648. | 647. | 641. | 649. | 652. | 661. | 673. | 694. | 715. | 735. | 774. | 801. | 825. | 842. | 835. | 789. | 664. | 481. | 357. | 147. | 63. | 15. | 0. |
| -47.5 | 431. | 431. | 430. | 433. | 436. | 444. | 454. | 468. | 485. | 506. | 532. | 559. | 584. | 605. | 615. | 597. | 514. | 400. | 247. | 129. | 55. | 14. | 0. |
| -55.0 | 238. | 238. | 238. | 237. | 238. | 238. | 243. | 246. | 254. | 266. | 279. | 314. | 313. | 397. | 410. | 379. | 369. | 264. | 177. | 98. | 45. | 13. | 0. |
| -65.0 | 144. | 143. | 143. | 142. | 141. | 142. | 143. | 145. | 146. | 148. | 150. | 152. | 154. | 154. | 156. | 158. | 150. | 136. | 103. | 64. | 30. | 11. | 0. |
| -75.0 | 75. | 75. | 75. | 76. | 76. | 76. | 75. | 75. | 75. | 75. | 76. | 77. | 76. | 75. | 73. | 72. | 68. | 63. | 50. | 34. | 18. | 9. | 0. |
| -85.0 | 27. | 27. | 30. | 31. | 32. | 32. | 32. | 31. | 31. | 30. | 29. | 28. | 27. | 26. | 25. | 24. | 24. | 22. | 18. | 14. | 10. | 7. | 0. |
| -90.0 | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. |

BEAM EDGE = 1136. CP = 50% OF MAX
 FIELD EDGE = 227. CP = 10% OF MAX

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PAGE: 4 OF 7
 DATE SAMPLE TESTED: 06/27/16

CANDELA TABULATION - FIELD ONLY AVERAGE OF RIGHT AND LEFT SIDES

| | 0.0 | 1.0 | 3.0 | 5.0 | 7.0 | 9.0 | 11.0 | 13.0 | 15.0 | 17.0 | 19.5 | 22.5 | 25.5 | 29.0 | 33.0 | 37.5 | 42.5 | 47.5 | 55.0 | 65.0 | 75.0 | 85.0 | 90.0 |
|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|------|------|------|------|------|------|
| 90.0 | | | | | | | | | | | | | | | | | | | | | | | |
| 85.0 | | | | | | | | | | | | | | | | | | | | | | | |
| 75.0 | | | | | | | | | | | | | | | | | | | | | | | |
| 65.0 | | | | | | | | | | | | | | | | | | | | | | | |
| 55.0 | | | | | | | | | | | 235. | 243. | 247. | 253. | 254. | 251. | 231. | | | | | | |
| 47.5 | 378. | 370. | 371. | 369. | 382. | 394. | 411. | 432. | 458. | 435. | 449. | 456. | 464. | 503. | 493. | 442. | 433. | 349. | | | | | |
| 42.5 | 569. | 562. | 564. | 560. | 565. | 574. | 586. | 599. | 615. | 631. | 653. | 664. | 678. | 680. | 661. | 616. | 518. | 461. | 248. | | | | |
| 37.5 | 822. | 816. | 820. | 818. | 823. | 832. | 847. | 862. | 879. | 894. | 913. | 927. | 932. | 924. | 886. | 805. | 656. | 483. | 294. | | | | |
| 33.0 | 1094. | 1090. | 1090. | 1090. | 1093. | 1101. | 1116. | 1129. | 1138. | 1154. | 1163. | 1173. | 1166. | 1151. | 1093. | 988. | 792. | 578. | 340. | | | | |
| 29.0 | 1321. | 1316. | 1316. | 1315. | 1319. | 1326. | 1340. | 1356. | 1364. | 1381. | 1385. | 1389. | 1374. | 1351. | 1276. | 1142. | 913. | 657. | 383. | | | | |
| 25.5 | 1502. | 1496. | 1496. | 1496. | 1501. | 1510. | 1524. | 1540. | 1552. | 1565. | 1570. | 1569. | 1552. | 1517. | 1432. | 1272. | 1013. | 718. | 415. | | | | |
| 22.5 | 1646. | 1641. | 1640. | 1641. | 1646. | 1655. | 1670. | 1686. | 1699. | 1711. | 1717. | 1711. | 1692. | 1652. | 1559. | 1377. | 1091. | 767. | 441. | | | | |
| 19.5 | 1772. | 1767. | 1766. | 1767. | 1772. | 1783. | 1798. | 1816. | 1832. | 1843. | 1850. | 1840. | 1820. | 1773. | 1671. | 1469. | 1157. | 814. | 462. | | | | |
| 17.0 | 1853. | 1850. | 1849. | 1851. | 1857. | 1870. | 1887. | 1909. | 1928. | 1940. | 1949. | 1938. | 1915. | 1863. | 1752. | 1535. | 1205. | 847. | 477. | | | | |
| 15.0 | 1912. | 1910. | 1909. | 1913. | 1919. | 1933. | 1951. | 1974. | 1996. | 2009. | 2018. | 2008. | 1984. | 1926. | 1807. | 1580. | 1238. | 869. | 487. | | | | |
| 13.0 | 1962. | 1960. | 1959. | 1965. | 1970. | 1985. | 2006. | 2031. | 2055. | 2070. | 2081. | 2069. | 2043. | 1982. | 1855. | 1617. | 1266. | 889. | 497. | | | | |
| 11.0 | 2011. | 2008. | 2009. | 2014. | 2020. | 2035. | 2057. | 2083. | 2107. | 2122. | 2134. | 2122. | 2094. | 2028. | 1896. | 1650. | 1290. | 906. | 505. | | | | |
| 9.0 | 2047. | 2045. | 2046. | 2050. | 2057. | 2073. | 2095. | 2122. | 2147. | 2163. | 2176. | 2164. | 2135. | 2067. | 1931. | 1679. | 1312. | 920. | 511. | 230. | | | |
| 7.0 | 2076. | 2075. | 2077. | 2080. | 2088. | 2104. | 2127. | 2155. | 2180. | 2196. | 2208. | 2196. | 2169. | 2100. | 1960. | 1704. | 1331. | 933. | 517. | 232. | | | |
| 5.0 | 2101. | 2100. | 2102. | 2106. | 2112. | 2128. | 2151. | 2179. | 2204. | 2221. | 2234. | 2222. | 2196. | 2126. | 1985. | 1724. | 1348. | 944. | 521. | 234. | | | |
| 3.0 | 2119. | 2119. | 2120. | 2124. | 2129. | 2145. | 2168. | 2196. | 2221. | 2238. | 2252. | 2242. | 2216. | 2147. | 2006. | 1742. | 1361. | 952. | 524. | 236. | | | |
| 1.0 | 2131. | 2131. | 2133. | 2135. | 2141. | 2156. | 2179. | 2208. | 2233. | 2252. | 2266. | 2258. | 2231. | 2162. | 2020. | 1755. | 1371. | 959. | 526. | 236. | | | |
| 0.0 | 2133. | 2134. | 2136. | 2138. | 2144. | 2158. | 2182. | 2211. | 2236. | 2256. | 2270. | 2263. | 2236. | 2166. | 2024. | 1760. | 1375. | 961. | 528. | 237. | | | |
| -1.0 | 2134. | 2135. | 2136. | 2139. | 2145. | 2159. | 2183. | 2211. | 2238. | 2258. | 2272. | 2265. | 2238. | 2169. | 2027. | 1763. | 1378. | 964. | 527. | 237. | | | |
| -3.0 | 2133. | 2133. | 2135. | 2138. | 2142. | 2156. | 2179. | 2208. | 2234. | 2254. | 2268. | 2260. | 2235. | 2167. | 2026. | 1765. | 1381. | 966. | 526. | 237. | | | |
| -5.0 | 2134. | 2135. | 2135. | 2137. | 2143. | 2156. | 2178. | 2206. | 2233. | 2252. | 2263. | 2256. | 2229. | 2161. | 2021. | 1760. | 1380. | 967. | 525. | 236. | | | |
| -7.0 | 2139. | 2140. | 2141. | 2143. | 2146. | 2158. | 2178. | 2206. | 2232. | 2250. | 2260. | 2251. | 2221. | 2151. | 2010. | 1753. | 1376. | 966. | 523. | 236. | | | |
| -9.0 | 2142. | 2142. | 2141. | 2142. | 2146. | 2156. | 2176. | 2202. | 2228. | 2246. | 2254. | 2242. | 2207. | 2135. | 1993. | 1740. | 1367. | 960. | 519. | 234. | | | |
| -11.0 | 2138. | 2138. | 2138. | 2138. | 2139. | 2149. | 2167. | 2192. | 2217. | 2234. | 2239. | 2226. | 2186. | 2112. | 1971. | 1722. | 1354. | 953. | 514. | 232. | | | |
| -13.0 | 2126. | 2128. | 2126. | 2126. | 2127. | 2135. | 2152. | 2177. | 2199. | 2215. | 2218. | 2202. | 2160. | 2084. | 1945. | 1701. | 1340. | 943. | 509. | 230. | | | |
| -15.0 | 2101. | 2104. | 2102. | 2102. | 2103. | 2111. | 2128. | 2151. | 2173. | 2190. | 2191. | 2173. | 2129. | 2052. | 1914. | 1678. | 1322. | 932. | 502. | | | | |
| -17.0 | 2053. | 2057. | 2054. | 2055. | 2056. | 2065. | 2084. | 2109. | 2133. | 2150. | 2153. | 2134. | 2090. | 2014. | 1880. | 1650. | 1301. | 916. | 493. | | | | |
| -19.5 | 1960. | 1966. | 1963. | 1964. | 1966. | 1978. | 1997. | 2025. | 2054. | 2073. | 2080. | 2065. | 2024. | 1954. | 1828. | 1609. | 1270. | 894. | 482. | | | | |
| -22.5 | 1804. | 1810. | 1807. | 1808. | 1810. | 1825. | 1844. | 1875. | 1911. | 1934. | 1950. | 1943. | 1915. | 1857. | 1743. | 1541. | 1222. | 861. | 465. | | | | |
| -25.5 | 1601. | 1607. | 1606. | 1616. | 1613. | 1632. | 1662. | 1691. | 1730. | 1756. | 1783. | 1785. | 1773. | 1726. | 1632. | 1457. | 1163. | 823. | 445. | | | | |
| -29.0 | 1365. | 1371. | 1374. | 1383. | 1380. | 1404. | 1430. | 1455. | 1501. | 1526. | 1563. | 1572. | 1577. | 1544. | 1481. | 1336. | 1077. | 773. | 424. | | | | |
| -33.0 | 1131. | 1133. | 1137. | 1146. | 1140. | 1163. | 1178. | 1205. | 1247. | 1272. | 1308. | 1326. | 1340. | 1325. | 1289. | 1181. | 963. | 698. | 385. | | | | |
| -37.5 | 905. | 898. | 898. | 906. | 908. | 918. | 932. | 954. | 985. | 1008. | 1033. | 1065. | 1087. | 1091. | 1065. | 989. | 820. | 599. | 454. | | | | |
| -42.5 | 648. | 647. | 641. | 649. | 652. | 661. | 673. | 694. | 715. | 735. | 774. | 801. | 825. | 842. | 835. | 789. | 664. | 481. | 357. | | | | |
| -47.5 | 431. | 431. | 430. | 433. | 436. | 444. | 454. | 468. | 485. | 506. | 532. | 559. | 584. | 605. | 615. | 597. | 514. | 400. | 247. | | | | |
| -55.0 | 238. | 238. | 238. | 237. | 238. | 239. | 243. | 246. | 254. | 266. | 279. | 314. | 313. | 397. | 410. | 379. | 369. | 264. | | | | | |
| -65.0 | | | | | | | | | | | | | | | | | | | | | | | |
| -75.0 | | | | | | | | | | | | | | | | | | | | | | | |
| -85.0 | | | | | | | | | | | | | | | | | | | | | | | |
| -90.0 | | | | | | | | | | | | | | | | | | | | | | | |

BEAM EDGE = 1136. CP = 50% OF MAX
 FIELD EDGE = 227. CP = 10% OF MAX

REPORT NUMBER: RAB02141
 ISSUE DATE: 06/27/16
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 5 OF 7
 DATE SAMPLE TESTED: 06/27/16

LUMEN TABULATION

AVERAGE OF RIGHT AND LEFT SIDES

| | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 21 | 24 | 27 | 31 | 35 | 40 | 45 | 50 | 60 | 70 | 80 | 90 | TOTAL |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|-----|-----|-----|----|----|----|-------|
| 90 | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 1. |
| 80 | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 1. | 0. | 0. | 0. | 0. | 7. |
| 70 | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 0. | 0. | 0. | 17. |
| 60 | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 2. | 2. | 2. | 3. | 3. | 3. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 34. |
| 50 | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 2. | 2. | 2. | 3. | 3. | 3. | 2. | 2. | 2. | 1. | 0. | 0. | 0. | 31. |
| 45 | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 3. | 3. | 3. | 4. | 3. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 43. |
| 40 | 2. | 2. | 2. | 2. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 5. | 5. | 4. | 2. | 3. | 1. | 0. | 0. | 0. | 59. |
| 35 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 5. | 4. | 2. | 2. | 1. | 0. | 0. | 0. | 59. |
| 31 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 5. | 5. | 5. | 6. | 5. | 6. | 4. | 3. | 3. | 1. | 0. | 0. | 0. | 70. |
| 27 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 5. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 59. |
| 24 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 5. | 5. | 4. | 2. | 2. | 1. | 0. | 0. | 0. | 64. |
| 21 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 5. | 5. | 5. | 6. | 5. | 5. | 4. | 3. | 2. | 1. | 0. | 0. | 0. | 69. |
| 18 | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 3. | 3. | 3. | 4. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 48. |
| 16 | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 3. | 3. | 3. | 4. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 50. |
| 14 | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 4. | 3. | 3. | 4. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 51. |
| 12 | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 4. | 4. | 3. | 4. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 52. |
| 10 | 2. | 2. | 2. | 2. | 2. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 4. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 53. |
| 8 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 4. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 54. |
| 6 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 55. |
| 4 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 55. |
| 2 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 55. |
| 0 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 56. |
| -2 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 56. |
| -4 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 56. |
| -6 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 55. |
| -8 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 55. |
| -10 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 55. |
| -12 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 54. |
| -14 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 4. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 54. |
| -16 | 3. | 2. | 2. | 2. | 2. | 2. | 3. | 3. | 3. | 4. | 4. | 3. | 4. | 4. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 53. |
| -18 | 4. | 4. | 4. | 4. | 4. | 4. | 4. | 4. | 4. | 5. | 5. | 5. | 6. | 6. | 6. | 4. | 3. | 3. | 1. | 0. | 0. | 0. | 76. |
| -21 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 5. | 5. | 5. | 6. | 5. | 6. | 4. | 3. | 2. | 1. | 0. | 0. | 0. | 72. |
| -24 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 5. | 5. | 4. | 6. | 5. | 5. | 4. | 3. | 2. | 1. | 0. | 0. | 0. | 66. |
| -27 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 5. | 5. | 5. | 7. | 6. | 6. | 5. | 3. | 3. | 1. | 0. | 0. | 0. | 78. |
| -31 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 5. | 4. | 4. | 6. | 5. | 6. | 4. | 3. | 3. | 1. | 0. | 0. | 0. | 67. |
| -35 | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 6. | 5. | 6. | 5. | 3. | 4. | 1. | 0. | 0. | 0. | 69. |
| -40 | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 3. | 3. | 3. | 4. | 4. | 5. | 4. | 2. | 3. | 1. | 0. | 0. | 0. | 52. |
| -45 | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 2. | 2. | 2. | 3. | 3. | 4. | 3. | 2. | 2. | 1. | 0. | 0. | 0. | 37. |
| -50 | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 2. | 2. | 3. | 3. | 4. | 5. | 4. | 3. | 3. | 1. | 0. | 0. | 0. | 45. |
| -60 | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 2. | 2. | 2. | 2. | 1. | 2. | 1. | 0. | 0. | 0. | 23. |
| -70 | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 0. | 0. | 0. | 0. | 11. |
| -80 | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 0. | 4. |
| -90 | 93. | 93. | 93. | 92. | 93. | 93. | 94. | 95. | 95. | 142. | 140. | 135. | 172. | 157. | 166. | 125. | 83. | 83. | 29. | 8. | 1. | 0. | 2081. |

LUMEN TOTAL THIS PAGE = 2081.

REPORT NUMBER: RAB02141
 ISSUE DATE: 06/27/16
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 6 OF 7
 DATE SAMPLE TESTED: 06/27/16

LUMEN TABULATION - FIELD ONLY AVERAGE OF RIGHT AND LEFT SIDES

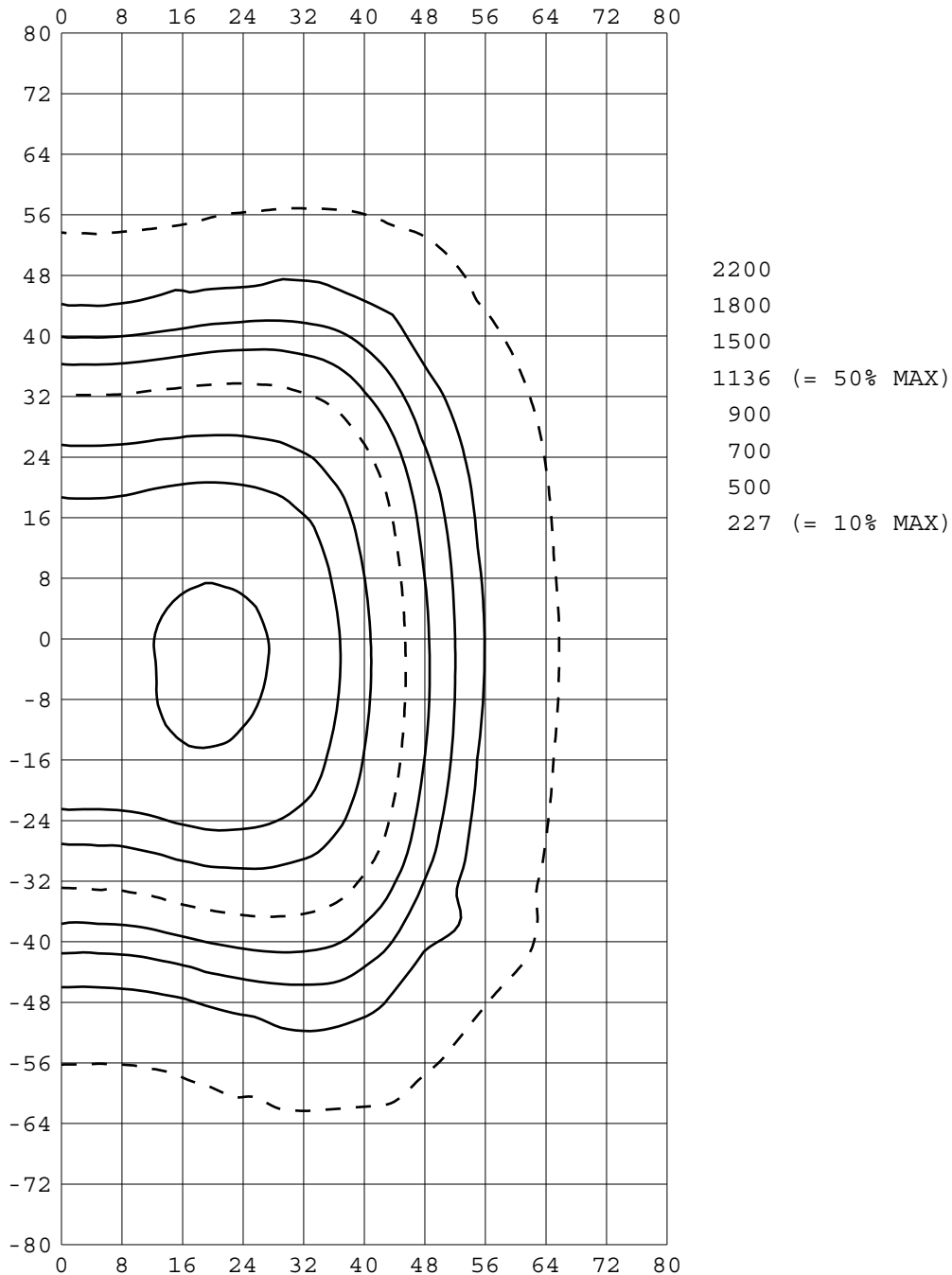
| | 0 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 21 | 24 | 27 | 31 | 35 | 40 | 45 | 50 | 60 | 70 | 80 | 90 | TOTAL |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|-----|-----|----|----|----|----|-------|
| 90 | | | | | | | | | | | | | | | | | | | | | | | 0. |
| 80 | | | | | | | | | | | | | | | | | | | | | | | 0. |
| 70 | | | | | | | | | | | | | | | | | | | | | | | 0. |
| 60 | | | | | | | | | | | 2. | 2. | 2. | 3. | 3. | 3. | 3. | | | | | | 17. |
| 50 | | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 2. | 2. | 2. | 3. | 3. | 3. | 2. | 2. | | | | | 29. |
| 45 | | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 3. | 3. | 3. | 4. | 3. | 4. | 3. | 2. | 2. | | | | 42. |
| 40 | | 2. | 2. | 2. | 2. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 5. | 5. | 4. | 2. | 3. | | | | 57. |
| 35 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 5. | 4. | 2. | 2. | | | | 58. |
| 31 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 5. | 5. | 5. | 6. | 5. | 6. | 4. | 3. | 3. | | | | 69. |
| 27 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 5. | 3. | 2. | 2. | | | | 58. |
| 24 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 5. | 5. | 4. | 2. | 2. | | | | 63. |
| 21 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 5. | 5. | 5. | 6. | 5. | 5. | 4. | 3. | 2. | | | | 68. |
| 18 | | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 3. | 3. | 3. | 4. | 4. | 4. | 3. | 2. | 2. | | | | 47. |
| 16 | | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 3. | 3. | 3. | 4. | 4. | 4. | 3. | 2. | 2. | | | | 49. |
| 14 | | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 4. | 3. | 3. | 4. | 4. | 4. | 3. | 2. | 2. | | | | 50. |
| 12 | | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 4. | 4. | 3. | 4. | 4. | 4. | 3. | 2. | 2. | | | | 52. |
| 10 | | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 4. | 4. | 3. | 4. | 4. | 4. | 3. | 2. | 2. | | | | 53. |
| 8 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 4. | 4. | 4. | 3. | 2. | 2. | 1. | | | 54. |
| 6 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 4. | 4. | 4. | 3. | 2. | 2. | 1. | | | 54. |
| 4 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | | | 55. |
| 2 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | | | 55. |
| 0 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | | | 55. |
| -2 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | | | 55. |
| -4 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | | | 55. |
| -6 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | | | 55. |
| -8 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | | | 55. |
| -10 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | | | 55. |
| -12 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 5. | 4. | 4. | 3. | 2. | 2. | 1. | | | 55. |
| -14 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 4. | 4. | 4. | 3. | 2. | 2. | 1. | | | 54. |
| -16 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 4. | 4. | 4. | 3. | 2. | 2. | | | | 53. |
| -18 | | 3. | 2. | 2. | 2. | 2. | 2. | 3. | 3. | 3. | 4. | 4. | 3. | 4. | 4. | 4. | 3. | 2. | 2. | | | | 52. |
| -21 | | 4. | 4. | 4. | 4. | 4. | 4. | 4. | 4. | 4. | 5. | 5. | 5. | 6. | 6. | 6. | 4. | 3. | 3. | | | | 75. |
| -24 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 5. | 5. | 5. | 6. | 5. | 6. | 4. | 3. | 2. | | | | 71. |
| -27 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 5. | 5. | 4. | 6. | 5. | 5. | 4. | 3. | 2. | | | | 65. |
| -31 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 5. | 5. | 5. | 7. | 6. | 6. | 5. | 3. | 3. | | | | 77. |
| -35 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 5. | 4. | 4. | 6. | 5. | 6. | 4. | 3. | 3. | | | | 65. |
| -40 | | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 3. | 4. | 4. | 4. | 6. | 5. | 6. | 5. | 3. | 4. | | | | 67. |
| -45 | | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 2. | 3. | 3. | 3. | 4. | 4. | 5. | 4. | 2. | 3. | | | | 51. |
| -50 | | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 2. | 2. | 2. | 3. | 3. | 4. | 3. | 2. | 2. | | | | 36. |
| -60 | | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 1. | 2. | 2. | 3. | 3. | 4. | 4. | 5. | 4. | 3. | | | | | 41. |
| -70 | | | | | | | | | | | | | | | | | | | | | | | 0. |
| -80 | | | | | | | | | | | | | | | | | | | | | | | 0. |
| -90 | | | | | | | | | | | | | | | | | | | | | | | 0. |
| | 89. | 89. | 89. | 89. | 89. | 90. | 90. | 91. | 91. | 138. | 136. | 132. | 168. | 153. | 161. | 121. | 78. | 71. | 7. | 0. | 0. | | 1970. |

LUMEN TOTAL THIS PAGE = 1970.

REPORT NUMBER: RAB02141
 ISSUE DATE: 06/27/16
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 7 OF 7
 DATE SAMPLE TESTED: 06/27/16

ISOCANDELA CURVES
 AVERAGE OF RIGHT AND LEFT SIDES



REPORT NUMBER: RAB02142
 DATE: 6/23/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: PIP30/D10

ADDRESS: 170 LUDLOW AVE, NORTHVALE, NJ 07647

LUMINAIRE: ONE-PIECE CAST METAL HOUSING WITH PAINTED BRONZE FINISH, LED AND DRIVER COMPARTMENT SEPARATED BY FINNED HEAT SINK, ONE WHITE CIRCUIT BOARD WITH 60 LEDS, TRANSLUCENT PLASTIC LENS ON TOP OF THE LED BOARD.

LAMP: SIXTY WHITE LIGHT EMITTING DIODES (LEDS), AIMED AT THE HORIZON.

DRIVER: RDD-30W-032SE-A0900

OBJECT OF TEST: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED AT THE RATED INPUT VOLTAGES (277.0 AND 120.0 VAC, 60Hz) TO THE TEST SAMPLE.

| | | |
|--------------|---|------------------|
| INSTRUMENTS: | GWINSTEK PROGRAMMABLE AC POWER SOURCE APS-7100 | Calibration Due: |
| | CHROMA PROGRAMMABLE DIGITAL POWER METER MODEL 66202 | N/A |
| | OCEAN OPTICS QE65PRO Spectroradiometer | 2/26/17 |
| | RAB 2.0 meter Diameter Integrating Sphere, 4PI Geometry | 5/31/17 |

OBJECT OF TEST: Measure the Absolute Flux in lumens*, Total Radiant Flux*, Spectral Power Distribution (SPD), Correlated Color Temperature (CCT), Color Rendering Indices (CRIa,1-14), Chromaticity Coordinates (x,y; u'v'), ANSI C78.377 Duv, and electrical data including ANSI C82.77-2002 Power Factor (PF), and Total Harmonic Distortion (THD) to the test sample. Measure electrical data including Total Harmonic Distortion (THD) at maximum nominal rated input voltage. Report Off-State Power.

PROCEDURE: The test sample was mounted inside the integrating sphere, energized, and allowed to stabilize. After stabilization occurred, measurements were taken. In order to measure mean performance, multiple data sets were recorded and averaged. Readings were taken with the test sample operating at 60 HZ input in a 25 +/-1 degree Celsius free air ambient and in accordance with IESNA LM-79-08. Electrical data was also recorded at maximum nominal rated input voltage (120.0 VAC). All data are traceable to the National Institute of Standards and Technology. Off-State Power was reported with no voltage applied to the sample.

*NOTE: Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even when these effects are compensated for, are likely to have a greater variation in results compared to the flux output calculated from a goniophotometric exploration since these artifacts do not affect the goniophotometric results.

RESULTS: (continued subsequent pages)

| | |
|----------|---|
| Checked | <u>X.CAO</u> |
| Approved | <u>D.WANG-MUNSON</u> Lighting Engineer |

REPORT NUMBER: RAB02142
 DATE: 6/23/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: PIP30/D10

Page 2 of 4

RESULTS:

| | |
|---------------------------------|-------------------|
| PHOTOMETRIC | |
| Total Integrated Flux (lumens) | 4162 * |
| SPECTRORADIOMETRIC | |
| Observer | CIE 1931 2 degree |
| Chromaticity Ordinate x | 0.3445 |
| Chromaticity Ordinate y | 0.3535 |
| Observer | CIE 1976 2 degree |
| Chromaticity Ordinate u' | 0.2103 |
| Chromaticity Ordinate v' | 0.4855 |
| Correlated Color Temp CCT (K) | 5028 |
| ANSI C78.377-2008 Duv | 0.001 |
| Total Radiant Flux (milliWatts) | 12625 * |
| ELECTRICAL | |
| Input Voltage (Volts AC) | 277.0 |
| Input Current (Amps AC) | 0.122 |
| Input Power (Watts) | 31.0 |
| Input Power Factor (%) | 91.6 |
| Input Current THD (%) | 17.0 |
| Input Voltage THD (%) | 0.2 |
| EFFICACY (Lumens/Watt) | |
| | 134.3 |
| ELECTRICAL AT MAX NONIMAL INPUT | |
| Input Voltage (Volts AC) | 120.0 |
| Input Current (Amps AC) | 0.257 |
| Input Power (Watts) | 30.4 |
| Input Power Factor (%) | 98.8 |
| Input Current THD (%) | 10.5 |
| Input Voltage THD (%) | 0.2 |
| Off-State Power (Watts) | |
| | 0.0 |

| COLOR RENDERING INDICES | CRI |
|---------------------------------|-----|
| Ra (Average 1-8) | 77 |
| R1 Light greyish red | 75 |
| R2 Dark greyish yellow | 82 |
| R3 Strong yellowish green | 87 |
| R4 Moderate yellowish green | 76 |
| R5 Light bluish green | 75 |
| R6 Light blue | 75 |
| R7 Light violet | 84 |
| R8 Light reddish purple | 61 |
| R9 Strong red | -14 |
| R10 Strong yellow | 57 |
| R11 Strong green | 73 |
| R12 Strong blue | 49 |
| R13 Light yellowish pink (skin) | 76 |
| R14 Moderate olive green (leaf) | 92 |

*NOTE:

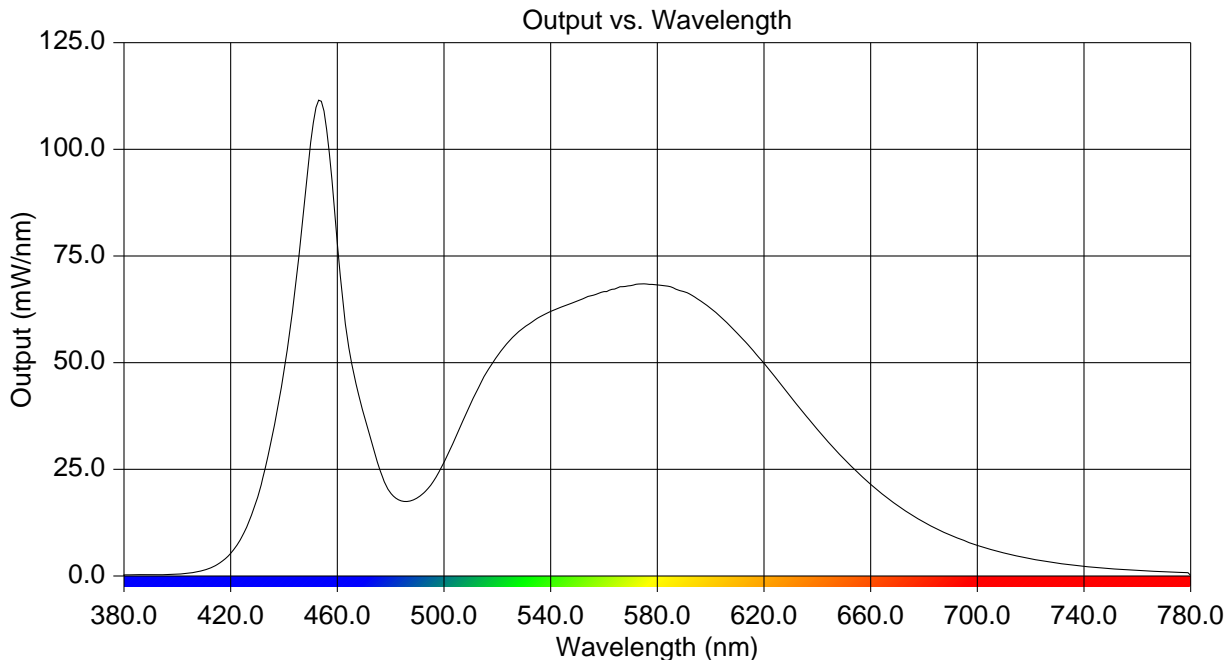
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even when these effects are compensated for, are likely to have a greater variation in results compared to the flux output calculated from a goniophotometric exploration since these artifacts do not affect the goniophotometric results.

REPORT NUMBER: RAB02142
 DATE: 6/23/2016
 PREPARED FOR: RAB LIGHTING INC.
 CATALOG NUMBER: PIP30/D10

Page 3 of 4

RESULTS:

| Wavelength | mW per nm | Wavelength | mW per nm | Wavelength | mW per nm |
|------------|-----------|------------|-----------|------------|-----------|
| 380 | 0.249 | 515 | 46.734 | 650 | 27.408 |
| 385 | 0.271 | 520 | 51.490 | 655 | 24.369 |
| 390 | 0.288 | 525 | 55.474 | 660 | 21.488 |
| 395 | 0.327 | 530 | 58.246 | 665 | 18.885 |
| 400 | 0.457 | 535 | 60.403 | 670 | 16.538 |
| 405 | 0.710 | 540 | 62.043 | 675 | 14.479 |
| 410 | 1.348 | 545 | 63.218 | 680 | 12.605 |
| 415 | 2.696 | 550 | 64.460 | 685 | 10.967 |
| 420 | 5.304 | 555 | 65.665 | 690 | 9.550 |
| 425 | 10.144 | 560 | 66.654 | 695 | 8.342 |
| 430 | 18.166 | 565 | 67.516 | 700 | 7.176 |
| 435 | 31.085 | 570 | 68.048 | 705 | 6.211 |
| 440 | 48.245 | 575 | 68.476 | 710 | 5.391 |
| 445 | 71.461 | 580 | 68.224 | 715 | 4.656 |
| 450 | 101.624 | 585 | 67.788 | 720 | 4.044 |
| 455 | 108.975 | 590 | 66.643 | 725 | 3.486 |
| 460 | 77.918 | 595 | 64.961 | 730 | 3.005 |
| 465 | 51.037 | 600 | 62.783 | 735 | 2.611 |
| 470 | 37.685 | 605 | 60.050 | 740 | 2.265 |
| 475 | 26.708 | 610 | 56.859 | 745 | 1.975 |
| 480 | 19.413 | 615 | 53.495 | 750 | 1.715 |
| 485 | 17.484 | 620 | 49.866 | 755 | 1.490 |
| 490 | 18.281 | 625 | 46.089 | 760 | 1.301 |
| 495 | 21.252 | 630 | 41.962 | 765 | 1.129 |
| 500 | 26.650 | 635 | 38.137 | 770 | 0.993 |
| 505 | 33.364 | 640 | 34.366 | 775 | 0.864 |
| 510 | 40.447 | 645 | 30.765 | 780 | 0.131 |



REPORT NUMBER: RAB02142
DATE: 6/23/2016
PREPARED FOR: RAB LIGHTING INC.
CATALOG NUMBER: PIP30/D10

Page 4 of 4

CIE Chromaticity Diagram

