

REPORT NUMBER: RAB02136

ISSUE DATE: 06/22/16

PREPARED FOR: RAB LIGHTING INC.

CATALOG NUMBER: PIP20/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 39 LEDS, TRANSLUCENT PLASTIC LENS ON TOP OF THE LED BOARD.

LAMPS: THRITY-NINE WHITE LIGHT EMITTING DIODES (LEDS), AIMED AT THE HORIZON.

NOTE: DATA SHOWN IS ABSOLUTE FOR THE SAMPLE PROVIDED.

TOTAL INPUT WATTS =19.848 AT 277.0 VAC.

LED DRIVER: RDD-20W-042SE-A0450

TEST PROCEDURE: IESNA LM-79-08

\*(SEE PAGE 2 FOR MORE INFORMATION)\*

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### 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 = 19.8

EFFICACY = 137.8 Lm/W

#### 7H X 7V

1277. AT 25.5 H, -1.0 V

102.1 deg

83.8 deg

145.1 deg

132.4 deg

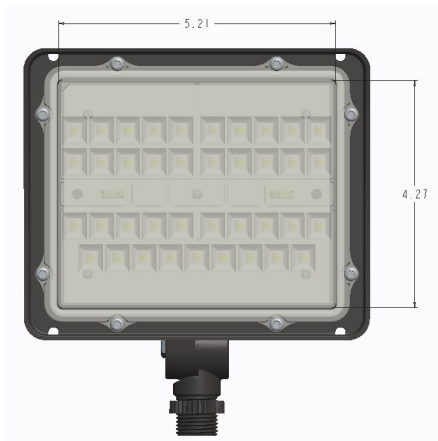
1981. ( 72.6 % )

2616. ( 95.9 % )

2728. (100.0 % )

#### AXIAL CANDLEPOWER

DEG	HORIZ.	DEG	VERT.
90.0	0.	90.0	0.
85.0	16.	85.0	0.
75.0	91.	75.0	43.
65.0	240.	65.0	77.
55.0	484.	55.0	128.
47.5	757.	47.5	234.
42.5	944.	42.5	340.
37.5	1097.	37.5	499.
33.0	1202.	33.0	666.
29.0	1258.	29.0	808.
25.5	1275.	25.5	898.
22.5	1263.	22.5	936.
19.5	1231.	19.5	929.
17.0	1190.	17.0	899.
15.0	1151.	15.0	876.
13.0	1110.	13.0	867.
11.0	1075.	11.0	864.
9.0	1041.	9.0	874.
7.0	1018.	7.0	891.
5.0	1002.	5.0	920.
3.0	991.	3.0	956.
1.0	988.	1.0	981.
0.0	988.	0.0	988.
-1.0	988.	-1.0	989.
-3.0	991.	-3.0	970.
-5.0	1002.	-5.0	950.
-7.0	1018.	-7.0	931.
-9.0	1041.	-9.0	919.
-11.0	1075.	-11.0	931.
-13.0	1110.	-13.0	953.
-15.0	1151.	-15.0	994.
-17.0	1190.	-17.0	1031.
-19.5	1231.	-19.5	1050.
-22.5	1263.	-22.5	1032.
-25.5	1275.	-25.5	968.
-29.0	1258.	-29.0	842.
-33.0	1202.	-33.0	684.
-37.5	1097.	-37.5	534.
-42.5	944.	-42.5	368.
-47.5	757.	-47.5	250.
-55.0	484.	-55.0	134.
-65.0	240.	-65.0	82.
-75.0	91.	-75.0	52.
-85.0	16.	-85.0	16.
-90.0	0.	-90.0	0.



Checked X.CAO

Approved D.WANG-MUNSON

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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.

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### 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.	2.	2.	3.	3.	3.	3.	4.	4.	4.	4.	4.	4.	4.	4.	4.	3.	4.	5.	5.	4.	0.
75.0	43.	43.	43.	40.	40.	40.	39.	39.	38.	37.	37.	37.	38.	38.	40.	41.	39.	37.	28.	20.	10.	6.	0.
65.0	77.	77.	78.	78.	77.	77.	78.	78.	79.	82.	86.	92.	99.	109.	119.	123.	118.	109.	86.	49.	22.	8.	0.
55.0	128.	127.	130.	133.	137.	141.	144.	154.	165.	176.	192.	215.	236.	254.	265.	264.	246.	213.	157.	84.	35.	10.	0.
47.5	234.	231.	240.	247.	251.	267.	277.	291.	314.	337.	359.	385.	425.	464.	455.	439.	388.	321.	221.	117.	45.	11.	0.
42.5	340.	337.	351.	365.	381.	404.	426.	446.	471.	495.	504.	531.	556.	583.	585.	550.	478.	408.	270.	137.	54.	12.	0.
37.5	499.	495.	512.	519.	540.	552.	582.	600.	622.	657.	696.	724.	744.	762.	757.	703.	603.	483.	314.	156.	62.	12.	0.
33.0	666.	662.	680.	686.	713.	728.	764.	794.	815.	848.	896.	923.	930.	929.	913.	835.	702.	552.	352.	174.	68.	13.	0.
29.0	808.	804.	821.	827.	846.	869.	904.	936.	960.	992.	1033.	1058.	1059.	1048.	1008.	917.	765.	597.	389.	189.	73.	13.	0.
25.5	898.	896.	905.	916.	933.	954.	981.	1011.	1039.	1067.	1099.	1122.	1124.	1104.	1055.	956.	798.	624.	416.	200.	77.	14.	0.
22.5	936.	935.	942.	952.	967.	986.	1010.	1039.	1068.	1096.	1125.	1145.	1146.	1124.	1071.	968.	814.	643.	436.	208.	80.	14.	0.
19.5	929.	931.	934.	947.	963.	983.	1009.	1038.	1068.	1098.	1126.	1146.	1147.	1126.	1074.	976.	829.	662.	454.	216.	82.	14.	0.
17.0	899.	903.	905.	919.	935.	956.	984.	1016.	1047.	1080.	1112.	1137.	1142.	1126.	1081.	987.	844.	677.	467.	221.	84.	14.	0.
15.0	876.	879.	882.	896.	913.	935.	965.	999.	1034.	1069.	1106.	1135.	1145.	1133.	1089.	997.	856.	688.	475.	225.	85.	15.	0.
13.0	867.	869.	872.	886.	903.	926.	957.	992.	1029.	1066.	1105.	1138.	1150.	1141.	1099.	1007.	866.	697.	483.	228.	87.	15.	0.
11.0	864.	865.	870.	881.	899.	924.	956.	992.	1032.	1069.	1111.	1147.	1162.	1152.	1110.	1017.	876.	705.	489.	231.	88.	15.	0.
9.0	874.	874.	879.	891.	908.	932.	966.	1001.	1045.	1082.	1124.	1162.	1177.	1166.	1122.	1027.	885.	715.	495.	234.	89.	15.	0.
7.0	891.	890.	896.	907.	924.	948.	982.	1017.	1062.	1099.	1142.	1178.	1194.	1180.	1135.	1040.	896.	723.	499.	236.	90.	15.	0.
5.0	920.	917.	920.	933.	950.	974.	1006.	1040.	1088.	1125.	1166.	1203.	1218.	1201.	1153.	1057.	910.	733.	502.	238.	90.	15.	0.
3.0	956.	954.	957.	969.	986.	1009.	1042.	1075.	1122.	1158.	1198.	1235.	1247.	1230.	1178.	1077.	925.	745.	505.	239.	91.	15.	0.
1.0	981.	981.	983.	994.	1011.	1034.	1067.	1101.	1145.	1184.	1224.	1257.	1268.	1252.	1196.	1093.	939.	754.	505.	240.	91.	15.	0.
0.0	988.	988.	991.	1002.	1018.	1041.	1075.	1110.	1151.	1190.	1231.	1263.	1275.	1258.	1202.	1097.	944.	757.	484.	240.	91.	16.	0.
-1.0	989.	990.	993.	1003.	1020.	1044.	1077.	1114.	1152.	1191.	1233.	1265.	1277.	1260.	1205.	1098.	947.	759.	506.	240.	91.	15.	0.
-3.0	970.	974.	976.	989.	1006.	1029.	1062.	1104.	1138.	1178.	1220.	1255.	1268.	1252.	1198.	1094.	947.	759.	504.	240.	91.	15.	0.
-5.0	950.	948.	952.	964.	982.	1006.	1040.	1081.	1117.	1158.	1200.	1238.	1251.	1236.	1186.	1086.	942.	757.	503.	240.	91.	16.	0.
-7.0	931.	929.	933.	945.	963.	986.	1020.	1062.	1098.	1138.	1181.	1219.	1231.	1218.	1168.	1073.	933.	750.	499.	238.	91.	15.	0.
-9.0	919.	920.	923.	936.	954.	978.	1011.	1049.	1088.	1127.	1169.	1205.	1218.	1206.	1157.	1063.	923.	744.	495.	237.	90.	15.	0.
-11.0	931.	933.	937.	950.	966.	991.	1023.	1057.	1096.	1133.	1173.	1205.	1217.	1202.	1152.	1058.	917.	739.	490.	235.	90.	15.	0.
-13.0	953.	957.	961.	974.	988.	1013.	1044.	1076.	1115.	1150.	1186.	1213.	1222.	1204.	1152.	1056.	911.	733.	485.	233.	89.	15.	0.
-15.0	994.	1001.	1004.	1016.	1029.	1054.	1081.	1108.	1145.	1176.	1206.	1228.	1236.	1213.	1157.	1056.	907.	727.	478.	230.	88.	15.	0.
-17.0	1031.	1035.	1040.	1052.	1066.	1090.	1117.	1147.	1181.	1210.	1239.	1256.	1257.	1228.	1167.	1060.	905.	721.	470.	227.	87.	15.	0.
-19.5	1050.	1050.	1056.	1067.	1084.	1106.	1135.	1165.	1196.	1225.	1254.	1275.	1274.	1248.	1183.	1069.	904.	714.	459.	222.	85.	14.	0.
-22.5	1032.	1028.	1034.	1046.	1064.	1086.	1115.	1145.	1174.	1204.	1235.	1259.	1261.	1238.	1178.	1071.	903.	706.	445.	216.	83.	14.	0.
-25.5	968.	961.	970.	981.	1007.	1027.	1062.	1090.	1120.	1151.	1184.	1213.	1216.	1195.	1140.	1048.	889.	694.	428.	208.	80.	14.	0.
-29.0	842.	831.	843.	854.	886.	903.	945.	972.	1008.	1045.	1084.	1123.	1124.	1111.	1066.	991.	844.	666.	408.	198.	77.	14.	0.
-33.0	684.	675.	688.	698.	725.	747.	788.	812.	847.	883.	925.	966.	974.	974.	951.	896.	769.	613.	384.	185.	72.	13.	0.
-37.5	534.	523.	536.	542.	563.	584.	614.	635.	666.	699.	740.	777.	795.	806.	801.	761.	664.	539.	352.	167.	66.	13.	0.
-42.5	368.	360.	374.	382.	402.	426.	445.	471.	491.	532.	572.	603.	630.	646.	649.	617.	549.	477.	309.	149.	59.	12.	0.
-47.5	250.	244.	251.	258.	269.	289.	302.	322.	352.	385.	428.	483.	473.	503.	499.	491.	441.	396.	258.	130.	50.	11.	0.
-55.0	134.	133.	133.	137.	142.	148.	153.	165.	178.	193.	216.	243.	272.	302.	319.	324.	304.	263.	190.	98.	41.	10.	0.
-65.0	82.	82.	82.	82.	83.	83.	85.	87.	89.	91.	96.	103.	111.	127.	142.	153.	153.	143.	111.	62.	27.	8.	0.
-75.0	52.	51.	52.	52.	52.	52.	51.	51.	51.	51.	52.	53.	55.	58.	62.	65.	64.	51.	31.	14.	6.	0.	0.
-85.0	16.	16.	18.	19.	19.	19.	20.	20.	19.	19.	18.	18.	17.	17.	17.	16.	16.	15.	14.	11.	7.	4.	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 = 639. CP = 50% OF MAX  
 FIELD EDGE = 128. CP = 10% OF MAX

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### 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	128.		130.	133.	137.	141.	144.	154.	165.	176.	192.	215.	236.	254.	265.	264.	246.	213.	157.				
47.5	234.	231.	240.	247.	251.	267.	277.	291.	314.	337.	359.	385.	425.	464.	455.	439.	388.	321.	221.				
42.5	340.	337.	351.	365.	381.	404.	426.	446.	471.	495.	504.	531.	556.	583.	585.	550.	478.	408.	270.	137.			
37.5	499.	495.	512.	519.	540.	552.	582.	600.	622.	657.	696.	724.	744.	762.	757.	703.	603.	483.	314.	156.			
33.0	666.	662.	680.	686.	713.	728.	764.	794.	815.	848.	896.	923.	930.	929.	913.	835.	702.	552.	352.	174.			
29.0	808.	804.	821.	827.	846.	869.	904.	936.	960.	992.	1033.	1058.	1059.	1048.	1008.	917.	765.	597.	389.	189.			
25.5	898.	896.	905.	916.	933.	954.	981.	1011.	1039.	1067.	1099.	1122.	1124.	1104.	1055.	956.	798.	624.	416.	200.			
22.5	936.	935.	942.	952.	967.	986.	1010.	1039.	1068.	1096.	1125.	1145.	1146.	1124.	1071.	968.	814.	643.	436.	208.			
19.5	929.	931.	934.	947.	963.	983.	1009.	1038.	1068.	1098.	1126.	1146.	1147.	1126.	1074.	976.	829.	662.	454.	216.			
17.0	899.	903.	905.	919.	935.	956.	984.	1016.	1047.	1080.	1112.	1137.	1142.	1126.	1081.	987.	844.	677.	467.	221.			
15.0	876.	879.	882.	896.	913.	935.	965.	999.	1034.	1069.	1106.	1135.	1145.	1133.	1089.	997.	856.	688.	475.	225.			
13.0	867.	869.	872.	886.	903.	926.	957.	992.	1029.	1066.	1105.	1138.	1150.	1141.	1099.	1007.	866.	697.	483.	228.			
11.0	864.	865.	870.	881.	899.	924.	956.	992.	1032.	1069.	1111.	1147.	1162.	1152.	1110.	1017.	876.	705.	489.	231.			
9.0	874.	874.	879.	891.	908.	932.	966.	1001.	1045.	1082.	1124.	1162.	1177.	1166.	1122.	1027.	885.	715.	495.	234.			
7.0	891.	890.	896.	907.	924.	948.	982.	1017.	1062.	1099.	1142.	1178.	1194.	1180.	1135.	1040.	896.	723.	499.	236.			
5.0	920.	917.	920.	933.	950.	974.	1006.	1040.	1088.	1125.	1166.	1203.	1218.	1201.	1153.	1057.	910.	733.	502.	238.			
3.0	956.	954.	957.	969.	986.	1009.	1042.	1075.	1122.	1158.	1198.	1235.	1247.	1230.	1178.	1077.	925.	745.	505.	239.			
1.0	981.	981.	983.	994.	1011.	1034.	1067.	1101.	1145.	1184.	1224.	1257.	1268.	1252.	1196.	1093.	939.	754.	505.	240.			
0.0	988.	988.	991.	1002.	1018.	1041.	1075.	1110.	1151.	1190.	1231.	1263.	1275.	1258.	1202.	1097.	944.	757.	484.	240.			
-1.0	989.	990.	993.	1003.	1020.	1044.	1077.	1114.	1152.	1191.	1233.	1265.	1277.	1260.	1205.	1098.	947.	759.	506.	240.			
-3.0	970.	974.	976.	989.	1006.	1029.	1062.	1104.	1138.	1178.	1220.	1255.	1268.	1252.	1198.	1094.	947.	759.	504.	240.			
-5.0	950.	948.	952.	964.	982.	1006.	1040.	1081.	1117.	1158.	1200.	1238.	1251.	1236.	1186.	1086.	942.	757.	503.	240.			
-7.0	931.	929.	933.	945.	963.	986.	1020.	1062.	1098.	1138.	1181.	1219.	1231.	1218.	1168.	1073.	933.	750.	499.	238.			
-9.0	919.	920.	923.	936.	954.	978.	1011.	1049.	1088.	1127.	1169.	1205.	1218.	1206.	1157.	1063.	923.	744.	495.	237.			
-11.0	931.	933.	937.	950.	966.	991.	1023.	1057.	1096.	1133.	1173.	1205.	1217.	1202.	1152.	1058.	917.	739.	490.	235.			
-13.0	953.	957.	961.	974.	988.	1013.	1044.	1076.	1115.	1150.	1186.	1213.	1222.	1204.	1152.	1056.	911.	733.	485.	233.			
-15.0	994.	1001.	1004.	1016.	1029.	1054.	1081.	1108.	1145.	1176.	1206.	1228.	1236.	1213.	1157.	1056.	907.	727.	478.	230.			
-17.0	1031.	1035.	1040.	1052.	1066.	1090.	1117.	1147.	1181.	1210.	1239.	1256.	1257.	1228.	1167.	1060.	905.	721.	470.	227.			
-19.5	1050.	1050.	1056.	1067.	1084.	1106.	1135.	1165.	1196.	1225.	1254.	1275.	1274.	1248.	1183.	1069.	904.	714.	459.	222.			
-22.5	1032.	1028.	1034.	1046.	1064.	1086.	1115.	1145.	1174.	1204.	1235.	1259.	1261.	1238.	1178.	1071.	903.	706.	445.	216.			
-25.5	968.	961.	970.	981.	1007.	1027.	1062.	1090.	1120.	1151.	1184.	1213.	1216.	1195.	1140.	1048.	889.	694.	428.	208.			
-29.0	842.	831.	843.	854.	886.	903.	945.	972.	1008.	1045.	1084.	1123.	1124.	1111.	1066.	991.	844.	666.	408.	198.			
-33.0	684.	675.	688.	698.	725.	747.	788.	812.	847.	883.	925.	966.	974.	974.	951.	896.	769.	613.	384.	185.			
-37.5	534.	523.	536.	542.	563.	584.	614.	635.	666.	699.	740.	777.	795.	806.	801.	761.	664.	539.	352.	167.			
-42.5	368.	360.	374.	382.	402.	426.	445.	471.	491.	532.	572.	603.	630.	646.	649.	617.	549.	477.	309.	149.			
-47.5	250.	244.	251.	258.	269.	289.	302.	322.	352.	385.	428.	483.	473.	503.	499.	491.	441.	396.	258.	130.			
-55.0	134.	133.	133.	137.	142.	148.	153.	165.	178.	193.	216.	243.	272.	302.	319.	324.	304.	263.	190.				
-65.0																	142.	153.	153.	143.			
-75.0																							
-85.0																							
-90.0																							

BEAM EDGE = 639. CP = 50% OF MAX  
 FIELD EDGE = 128. CP = 10% OF MAX

REPORT NUMBER: RAB02136  
 ISSUE DATE: 06/22/16  
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 5 OF 7  
 DATE SAMPLE TESTED: 06/22/16

### LUMEN TABULATION

#### AVERAGE OF RIGHT AND LEFT SIDES

	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.	1.
80	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	6.
70	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	1.	1.	1.	1.	1.	1.	2.	1.	0.	0.	15.
60	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	3.	3.	3.	2.	3.	1.	0.	0.	31.
50	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	2.	2.	3.	2.	2.	2.	1.	0.	0.	26.
45	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	3.	3.	3.	2.	2.	1.	0.	0.	35.
40	2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	4.	4.	3.	2.	3.	1.	0.	0.	46.
35	2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	4.	4.	3.	2.	2.	1.	0.	0.	46.
31	2.	2.	2.	2.	2.	2.	2.	2.	2.	4.	4.	3.	4.	4.	4.	3.	2.	3.	1.	0.	0.	53.
27	2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	3.	3.	3.	2.	2.	1.	0.	0.	42.
24	2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	3.	4.	3.	2.	2.	1.	0.	0.	43.
21	2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	3.	4.	3.	2.	2.	1.	0.	0.	43.
18	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	2.	2.	2.	2.	1.	2.	1.	0.	0.	29.
16	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	2.	2.	2.	2.	1.	2.	1.	0.	0.	29.
14	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	2.	2.	2.	2.	1.	2.	1.	0.	0.	29.
12	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	2.	2.	2.	2.	1.	2.	1.	0.	0.	29.
10	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	2.	2.	2.	2.	1.	2.	1.	0.	0.	29.
8	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	1.	2.	1.	0.	0.	30.
6	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.	0.	0.	30.
4	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.	0.	0.	31.
2	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.	0.	0.	32.
0	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.	0.	0.	32.
-2	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.	0.	0.	32.
-4	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.	0.	0.	31.
-6	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.	0.	0.	31.
-8	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.	0.	0.	31.
-10	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.	0.	0.	30.
-12	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.	0.	0.	31.
-14	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	1.	2.	1.	0.	0.	31.
-16	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	1.	2.	1.	0.	0.	32.
-18	2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	4.	4.	3.	2.	2.	1.	0.	0.	48.
-21	2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	4.	4.	3.	2.	2.	1.	0.	0.	47.
-24	2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	3.	4.	3.	2.	2.	1.	0.	0.	45.
-27	2.	2.	2.	2.	2.	2.	2.	2.	2.	4.	4.	4.	5.	4.	5.	4.	3.	3.	1.	0.	0.	56.
-31	2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	4.	4.	3.	3.	3.	1.	0.	0.	48.
-35	2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	4.	5.	4.	3.	3.	1.	0.	0.	50.
-40	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	3.	3.	3.	3.	4.	3.	2.	3.	1.	0.	0.	39.
-45	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	3.	3.	2.	2.	2.	1.	0.	0.	30.
-50	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	3.	4.	3.	3.	3.	1.	0.	0.	36.
-60	0.	0.	0.	1.	0.	1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	1.	2.	1.	0.	0.	18.
-70	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	1.	1.	1.	1.	1.	1.	0.	0.	0.	9.
-80	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	0.	3.
-90	48.	49.	49.	50.	51.	53.	54.	56.	57.	88.	90.	89.	116.	108.	119.	96.	72.	82.	30.	7.	1.	1364.

LUMEN TOTAL THIS PAGE = 1364.

REPORT NUMBER: RAB02136  
 ISSUE DATE: 06/22/16  
 PREPARED FOR: RAB LIGHTING INC.

PAGE: 6 OF 7  
 DATE SAMPLE TESTED: 06/22/16

### LUMEN TABULATION - FIELD ONLY AVERAGE OF RIGHT AND LEFT SIDES

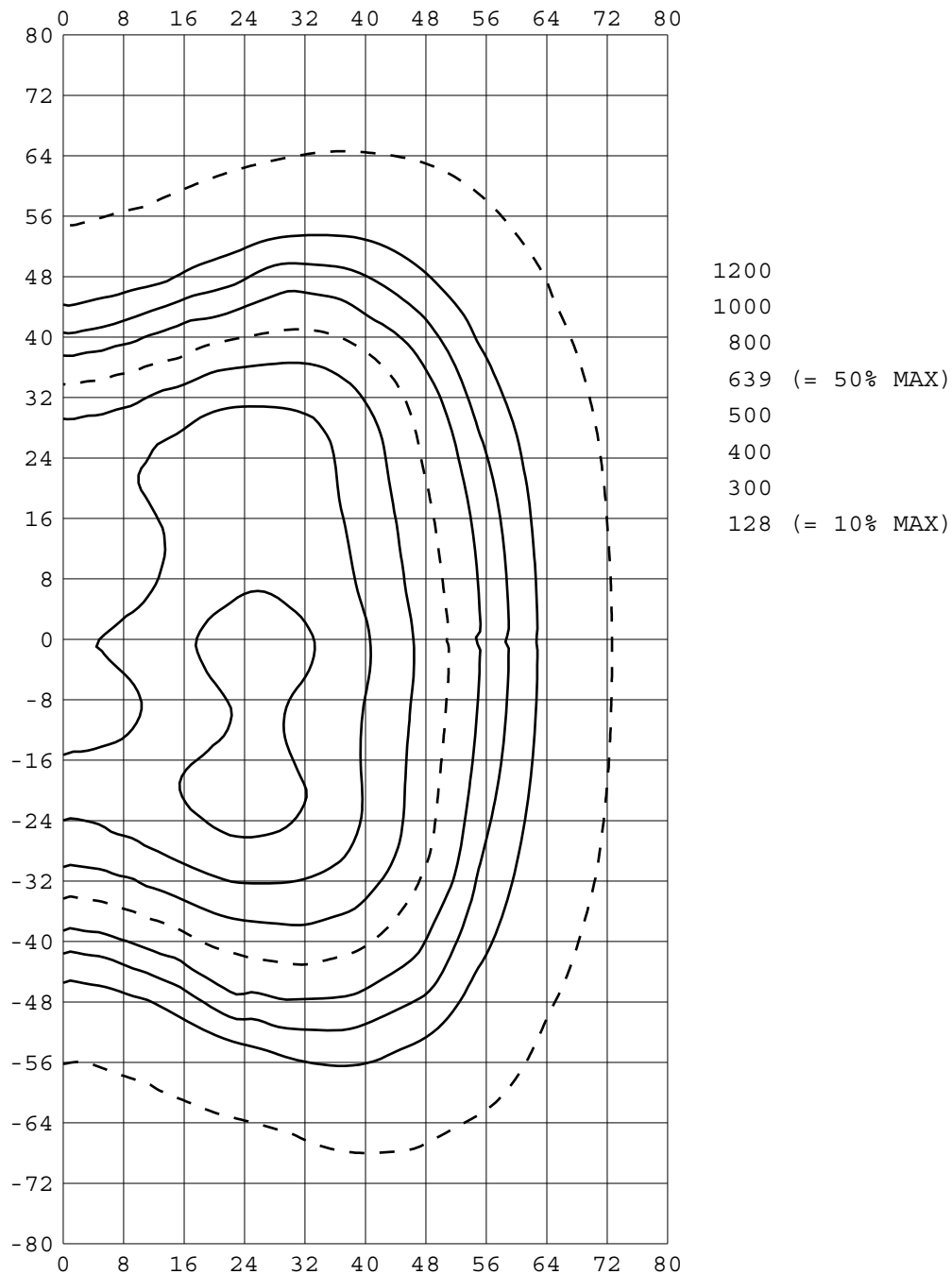
	0	2	4	6	8	10	12	14	16	18	21	24	27	31	35	40	45	50	60	70	80	90	TOTAL
90																							0.
80																							0.
70																							0.
60			1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	3.	3.	3.	2.	3.				29.
50		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	2.	3.	2.	2.	2.					25.
45		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	3.	3.	3.	2.	2.	1.			35.
40		2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	4.	4.	3.	2.	3.	1.			46.
35		2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	4.	4.	3.	2.	2.	1.			46.
31		2.	2.	2.	2.	2.	2.	2.	2.	2.	4.	4.	3.	4.	4.	4.	3.	2.	3.	1.			52.
27		2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	3.	3.	3.	2.	2.	1.			42.
24		2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	3.	4.	3.	2.	2.	1.			43.
21		2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	3.	4.	3.	2.	2.	1.			43.
18		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	2.	2.	2.	2.	1.	2.	1.			29.
16		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	2.	2.	2.	2.	1.	2.	1.			29.
14		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	2.	2.	2.	2.	1.	2.	1.			29.
12		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	2.	2.	2.	2.	1.	2.	1.			29.
10		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	2.	2.	2.	2.	1.	2.	1.			29.
8		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	2.	2.	2.	2.	1.	2.	1.			29.
6		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	1.	2.	1.			30.
4		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.			30.
2		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.			31.
0		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.			31.
-2		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.			32.
-4		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.			31.
-6		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.			31.
-8		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.			31.
-10		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.			30.
-12		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.			30.
-14		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	2.	2.	1.			31.
-16		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	1.	2.	1.			31.
-18		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	2.	3.	2.	1.	2.	1.			32.
-21		2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	4.	4.	3.	2.	2.	1.			48.
-24		2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	4.	4.	3.	2.	2.	1.			47.
-27		2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	3.	4.	3.	2.	2.	1.			45.
-31		2.	2.	2.	2.	2.	2.	2.	2.	2.	4.	4.	4.	5.	4.	5.	4.	3.	3.	1.			55.
-35		2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	4.	4.	3.	3.	3.	1.			48.
-40		2.	2.	2.	2.	2.	2.	2.	2.	2.	3.	3.	3.	4.	4.	5.	4.	3.	3.	1.			49.
-45		1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	3.	3.	3.	3.	4.	3.	2.	3.	1.			39.
-50		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	3.	3.	2.	2.	2.	1.			30.
-60		1.	1.	1.	1.	1.	1.	1.	1.	1.	2.	2.	2.	3.	3.	4.	3.	3.	3.				34.
-70															1.	2.	2.	1.					6.
-80																							0.
-90																							0.
	46.	47.	48.	49.	50.	51.	53.	54.	56.	86.	87.	86.	112.	105.	116.	93.	69.	76.	24.	0.	0.		1308.

LUMEN TOTAL THIS PAGE = 1308.

REPORT NUMBER: RAB02136  
ISSUE DATE: 06/22/16  
PREPARED FOR: RAB LIGHTING INC.

PAGE: 7 OF 7  
DATE SAMPLE TESTED: 06/22/16

ISOCANDELA CURVES  
AVERAGE OF RIGHT AND LEFT SIDES



REPORT NUMBER: RAB02140  
DATE: 6/23/2016  
PREPARED FOR: RAB LIGHTING INC.  
CATALOG NUMBER: PIP20/D10

Page 1 of 4

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 39 LEDS, TRANSLUCENT PLASTIC LENS ON TOP OF THE LED BOARD.

LAMP: THRITY-NINE WHITE LIGHT EMITTING DIODES (LEDS), AIMED AT THE HORIZON.

DRIVER: RDD-20W-042SE-A0450

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 (CRI<sub>a</sub>,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 X.CAO

Approved D.WANG-MUNSON  
Lighting Engineer



REPORT NUMBER: RAB02140  
 DATE: 6/23/2016  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: PIP20/D10

Page 2 of 4

### RESULTS:

PHOTOMETRIC	
Total Integrated Flux (lumens)	2728 *
SPECTRORADIOMETRIC	
Observer	CIE 1931 2 degree
Chromaticity Ordinate x	0.3453
Chromaticity Ordinate y	0.3546
Observer	CIE 1976 2 degree
Chromaticity Ordinate u'	0.2104
Chromaticity Ordinate v'	0.4861
Correlated Color Temp CCT (K)	5004
ANSI C78.377-2008 Duv	0.001
Total Radiant Flux (milliWatts)	8251 *
ELECTRICAL	
Input Voltage (Volts AC)	277.0
Input Current (Amps AC)	0.075
Input Power (Watts)	19.8
Input Power Factor (%)	95.4
Input Current THD (%)	12.4
Input Voltage THD (%)	0.2
EFFICACY (Lumens/Watt)	
	137.8
ELECTRICAL AT MAX NONIMAL INPUT	
Input Voltage (Volts AC)	120.0
Input Current (Amps AC)	0.163
Input Power (Watts)	19.3
Input Power Factor (%)	99.0
Input Current THD (%)	12.3
Input Voltage THD (%)	0.2
Off-State Power (Watts)	
	0.0

COLOR RENDERING INDICES	CRI
Ra (Average 1-8)	77
R1 Light greyish red	74
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	60
R9 Strong red	-15
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:

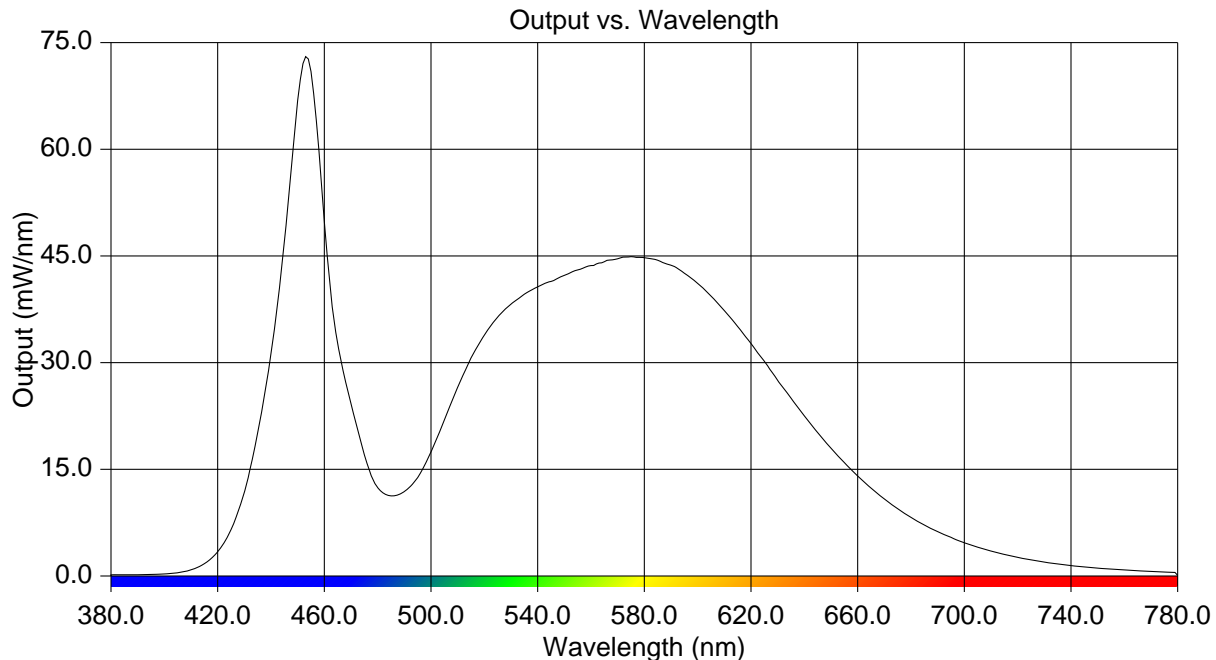
Proper calibration of integrating spheres for measuring total flux output of non-directional samples will produce reliable, repeatable results within the calibration tolerances of the equipment used. However, measurement of test samples with significant self absorption and/or directional output, even 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: RAB02140  
 DATE: 6/23/2016  
 PREPARED FOR: RAB LIGHTING INC.  
 CATALOG NUMBER: PIP20/D10

Page 3 of 4

### RESULTS:

Wavelength	mW per nm	Wavelength	mW per nm	Wavelength	mW per nm
380	0.159	515	30.663	650	17.939
385	0.168	520	33.845	655	15.953
390	0.183	525	36.441	660	14.063
395	0.215	530	38.225	665	12.361
400	0.285	535	39.629	670	10.823
405	0.456	540	40.680	675	9.471
410	0.865	545	41.420	680	8.240
415	1.730	550	42.278	685	7.165
420	3.403	555	43.039	690	6.213
425	6.511	560	43.654	695	5.439
430	11.733	565	44.195	700	4.690
435	20.146	570	44.608	705	4.056
440	31.379	575	44.907	710	3.505
445	46.794	580	44.758	715	3.030
450	66.878	585	44.406	720	2.620
455	70.950	590	43.699	725	2.264
460	49.830	595	42.578	730	1.950
465	32.682	600	41.171	735	1.691
470	24.215	605	39.416	740	1.467
475	17.053	610	37.316	745	1.272
480	12.412	615	35.081	750	1.111
485	11.273	620	32.693	755	0.964
490	11.853	625	30.229	760	0.844
495	13.833	630	27.523	765	0.728
500	17.455	635	25.017	770	0.640
505	21.927	640	22.509	775	0.559
510	26.566	645	20.177	780	0.085



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## CIE Chromaticity Diagram

