



Report No.:BLC2008032E-D

M-79-08 Test Report

For

Beyond LED Technology (Brand Name: Beyond)

1939 Parker Court, Stone Mountain, GA 30087

Replacement Lamps for Outdoor Pole/Arm-Mounted Decorative Luminaires (UL Type B)

Model name(s): AST-CLW08C-063WBCA1-EXSCA30/40/50K

Remark: the "a" represent the lamp base type, can be "E" for E39, "EX" for EX39

d= dimming type: "L" for Continuous dimming and "S" for Segmented dimmer

c= CAXX for color tunable, XX can be two digital

Representative (Tested) Model:

AST-CLW08C-063WBCA1-adCA30K(Tested at 0% CCT Setting) AST-
CLW08C-063WBCA1-adCA40K(Tested at 50% CCT Setting) AST-
CLW08C-063WBCA1-adCA50K(Tested at 100% CCT Setting)

Model Different: All construction and rating are the same, except CCT

Test & Report By:

Grace Li

Engineer: Grace Li

Date: Sept 9, 2020

Review By:

Jason Luo

Manager: Jason Luo



Report No.:BLC2008032E-D

1.1 Product Information:

| | | |
|---|--|-----|
| Organization Name | Beyond LED Technology | |
| Brand Name | Beyond LED Technology | |
| Model Number | AST-CLW08C-063WBCA1-EXSCA30/40/50K | |
| SKU (if available) | N/A | |
| Type of Luminaire (for integral lamps, list base type and lamp type) | Replacement Lamps for Outdoor Pole/Arm-Mounted Decorative Luminaires (UL Type B) | |
| Rated Voltage / Frequency | 100-277 VAC, 50/60 Hz | |
| Nominal Power | 63W | |
| Rated Initial Lamp Lumen | -- | |
| Declared CCT | 3000K,4000K,5000K(Color tunable) | |
| LED Manufacturer | Lumileds Holding B.V. | |
| LED Model | L128-XX80RA35000H1 | |
| Sample Number | BLC2008032E-D1 | |
| Luminaire Aperture (for downlights) | -- | in. |
| Luminaire Length | -- | mm |
| Luminaires Width | -- | mm |
| Number of Units (modular products) | N/A | s |

Photo





1.2 Test Specifications:

| | |
|----------------------------|---|
| Date of Receipt | Aug 25, 2020 |
| Date of Test | Aug 26, 2020 |
| Test item | <ol style="list-style-type: none">1. Total Luminous Flux2. Luminous Distribution Intensity3. Luminous Efficacy4. Correlated Color Temperature5. Color Rendering Index6. Chromaticity Coordinate7. Electrical Parameters |
| Reference Standard | <ol style="list-style-type: none">1. IES LM-79-2008 Electrical and Photometric Measurements of Solid-State Lighting Products2. ANSI C78.377-2008 Specifications for the Chromaticity of Solid State Lighting Products3. CIE 13.3-1995 Method of Measuring and Specifying Colour Rendering Properties of Light Sources4. CIE 15-2004 Technical Report Colorimetry5. IESNA LM-16-93 Practical Guide to Colorimetry of Light Source6. IESNA TM-16-05 Technical Memorandum on Light Emitting Diode (LED) Sources and Systems |
| Reference Work Instruction | BL-QP-033 |

1.3 Test Methods

1) Photometric and Light Distribution Measurement – Goniophotometer Method:

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$, measured at a point not more than 1 m from the sample and at the same height as the sample. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Luminous flux, luminaire efficacy, zonal lumen were calculated from the software taken at 1° vertical intervals and 22.5° horizontal intervals.

2) Chromaticity Measurement – Sphere-Spectroradiometer Method:

Chromaticity parameters were measured using an integrating sphere, a spectroradiometer and software. The ambient temperature condition inside the sphere was maintained at $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$. The sample measurements were made using a spectroradiometer connected by a fiber optic cable and detector through the detector port of the integrating sphere. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Chromaticity coordinates, correlated color temperature and color rendering index were calculated from the spectral power distribution taken at 5 nm intervals over the range of 380 to 780 nm.

3) Electrical Measurements:

Electrical parameters were measured using power meters incorporated in goniophotometer or sphere-spectroradiometer system. The ambient temperature surrounding the sample was maintained at $25\text{ }^{\circ}\text{C} \pm 1\text{ }^{\circ}\text{C}$. The sample was operated at 120 or rated Volts AC, 60Hz. It was stabilized before measurement was made. Voltage, frequency, current, power, power factor and total harmonic distortion were measured by and read from the power meter.

**2.1 Electrical, Photometric and Chromaticity Measurements***(Refer to Work Instruction BL-QP-033)*

| | | | |
|-------------------------|--|---------------------------------|---------|
| Test date | 2020-08-26 | Test Ambient: | 25.2 °C |
| Test Orientation | As intended | Stabilization Time (min) | 90 |
| Model Number | AST-CLW08C-063WBCA1-EXSCA30/40/50K (Tested at 0% CCT Setting) | | |

Electrical Measurement:

| Sample No. | Voltage (Vac) | Frequency (Hz) | Current (A) | Power (W) | Power Factor | THD % |
|--------------------------|---------------|----------------|-------------|-----------|------------------|---------------|
| BLC200803 | 120.0 | 60 | 0.5299 | 63.08 | 0.992 | 10.91 |
| 2E-D1 | 277.0 | 60 | 0.2354 | 62.52 | 0.959 | 10.43 |
| DLC Pass Criteria | | | | | $\geq 0.9(-3\%)$ | $\leq 20(+5)$ |

Chromaticity Measurement - Sphere-Spectroradiometer Method in King Luminaire K400 Series (Mogul Socket Version):

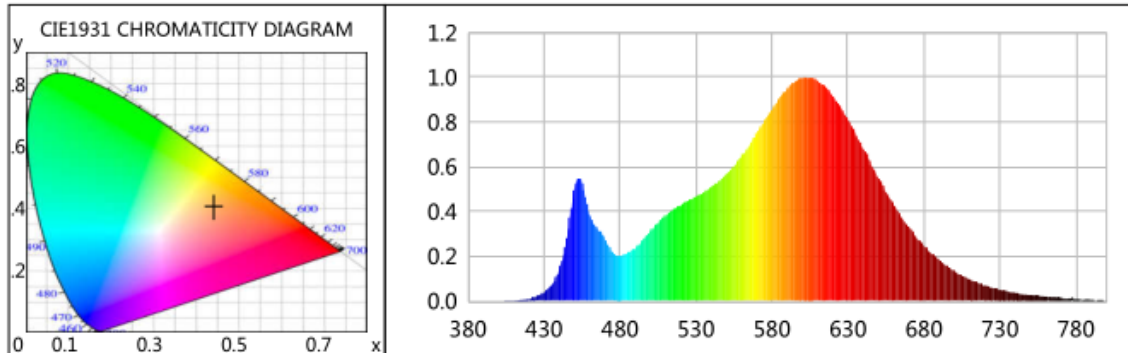
| Parameter | Result | Special Color Rendering Indices | | | |
|-----------------------------|----------------------------|---------------------------------|----|-----|----|
| Test Voltage (V) | 120.0 | R1 | 80 | R9 | 2 |
| Frequency (Hz) | 60 | R2 | 92 | R10 | 83 |
| CCT (K) | 2933 | R3 | 94 | R11 | 79 |
| Duv | -0.0008 | R4 | 79 | R12 | 73 |
| Chromaticity (x, y) | x=0.4405 y=0.4032 | R5 | 82 | R13 | 83 |
| Chromaticity (u', v') | u(u')=0.2533 v'(v')=0.5216 | R6 | 92 | R14 | 97 |
| Color Rendering Index (CRI) | 82 | R7 | 79 | R15 | 72 |
| R9 | 2 | R8 | 55 | -- | -- |
| Rf | 84 | -- | -- | -- | -- |
| Rg | 94 | -- | -- | -- | -- |
| Rcs,h1(%) | -12 | -- | -- | -- | -- |

Photometric Measurement – Goniophotometer Method in King Luminaire K400 Series (Mogul Socket Version):

| Parameter | Result | | DLC V5.1 Pass Criteria |
|-------------------------------------|--------|--------|----------------------------|
| Test Voltage (V) | 120.0 | 277.0 | -- |
| Frequency (Hz) | 60 | 60 | |
| Total Luminous (lm) | 7603.6 | 7570.6 | 5000-10000lm (-10%) |
| Luminous Efficacy (lm/W) | 120.54 | 121.09 | Standard: $\geq 105(-3\%)$ |
| Most worst Luminous/Highest Watts | 120.02 | | |
| Zonal lumens in the 0-90 ° zone (%) | 79.50 | -- | $\geq 65(-3)$ |
| Beam Angle (°) | 189.4 | -- | -- |
| Center Beam Candle Power (cd) | 243 | -- | -- |



Spectral Power Distribution & Chromaticity Diagram



| WL(nm) | PL | PE(mW/nm) | WL(nm) | PL | PE(mW/nm) | WL(nm) | PL | PE(mW/nm) |
|--------|--------|-----------|--------|--------|-----------|--------|--------|-----------|
| 380 | 0.0004 | 0.0725 | 525 | 0.4484 | 72.3631 | 670 | 0.3296 | 53.1840 |
| 385 | 0.0006 | 0.0915 | 530 | 0.4664 | 75.2616 | 675 | 0.2853 | 46.0342 |
| 390 | 0.0004 | 0.0604 | 535 | 0.4846 | 78.1975 | 680 | 0.2477 | 39.9645 |
| 395 | 0.0009 | 0.1453 | 540 | 0.5088 | 82.1074 | 685 | 0.2138 | 34.5075 |
| 400 | 0.0004 | 0.0715 | 545 | 0.5340 | 86.1633 | 690 | 0.1827 | 29.4877 |
| 405 | 0.0013 | 0.2130 | 550 | 0.5658 | 91.2925 | 695 | 0.1570 | 25.3327 |
| 410 | 0.0021 | 0.3466 | 555 | 0.6015 | 97.0675 | 700 | 0.1342 | 21.6620 |
| 415 | 0.0054 | 0.8760 | 560 | 0.6466 | 104.3301 | 705 | 0.1136 | 18.3363 |
| 420 | 0.0108 | 1.7448 | 565 | 0.6943 | 112.0367 | 710 | 0.0978 | 15.7882 |
| 425 | 0.0207 | 3.3342 | 570 | 0.7475 | 120.6142 | 715 | 0.0833 | 13.4395 |
| 430 | 0.0396 | 6.3844 | 575 | 0.8046 | 129.8372 | 720 | 0.0700 | 11.2968 |
| 435 | 0.0745 | 12.0191 | 580 | 0.8577 | 138.3950 | 725 | 0.0605 | 9.7610 |
| 440 | 0.1392 | 22.4569 | 585 | 0.9053 | 146.0796 | 730 | 0.0508 | 8.1996 |
| 445 | 0.2813 | 45.3840 | 590 | 0.9496 | 153.2269 | 735 | 0.0426 | 6.8663 |
| 450 | 0.4963 | 80.0916 | 595 | 0.9795 | 158.0623 | 740 | 0.0371 | 5.9849 |
| 455 | 0.5276 | 85.1323 | 600 | 0.9974 | 160.9453 | 745 | 0.0318 | 5.1322 |
| 460 | 0.3834 | 61.8644 | 605 | 0.9981 | 161.0582 | 750 | 0.0267 | 4.3110 |
| 465 | 0.3245 | 52.3669 | 610 | 0.9850 | 158.9504 | 755 | 0.0239 | 3.8618 |
| 470 | 0.2769 | 44.6872 | 615 | 0.9588 | 154.7219 | 760 | 0.0200 | 3.2282 |
| 475 | 0.2178 | 35.1404 | 620 | 0.9186 | 148.2288 | 765 | 0.0165 | 2.6558 |
| 480 | 0.2015 | 32.5156 | 625 | 0.8682 | 140.0980 | 770 | 0.0145 | 2.3373 |
| 485 | 0.2150 | 34.6865 | 630 | 0.8104 | 130.7763 | 775 | 0.0130 | 2.1003 |
| 490 | 0.2368 | 38.2167 | 635 | 0.7472 | 120.5670 | 780 | 0.0095 | 1.5398 |
| 495 | 0.2718 | 43.8591 | 640 | 0.6836 | 110.3019 | 785 | 0.0066 | 1.0585 |
| 500 | 0.3132 | 50.5446 | 645 | 0.6145 | 99.1642 | 790 | 0.0073 | 1.1727 |
| 505 | 0.3493 | 56.3586 | 650 | 0.5503 | 88.8030 | 795 | 0.0058 | 0.9313 |
| 510 | 0.3834 | 61.8634 | 655 | 0.4887 | 78.8504 | 800 | 0.0051 | 0.8249 |
| 515 | 0.4084 | 65.9050 | 660 | 0.4316 | 69.6478 | | | |
| 520 | 0.4302 | 69.4177 | 665 | 0.3780 | 60.9878 | | | |



TM30

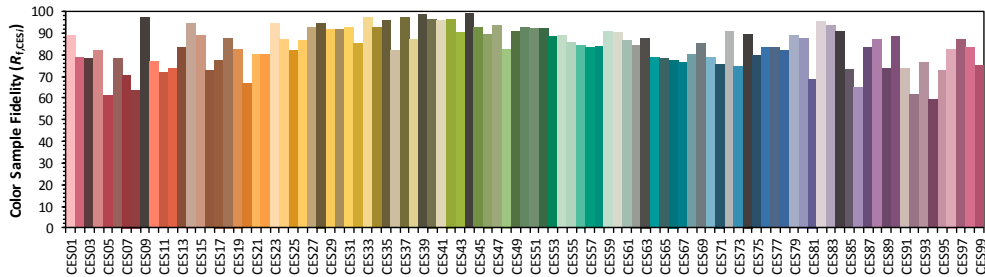
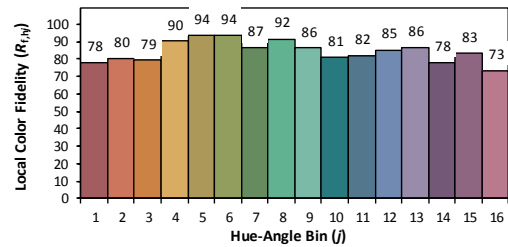
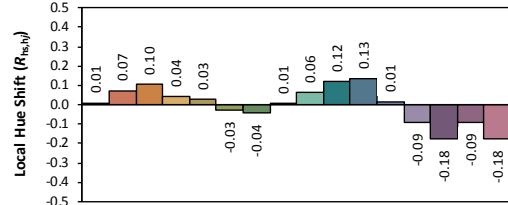
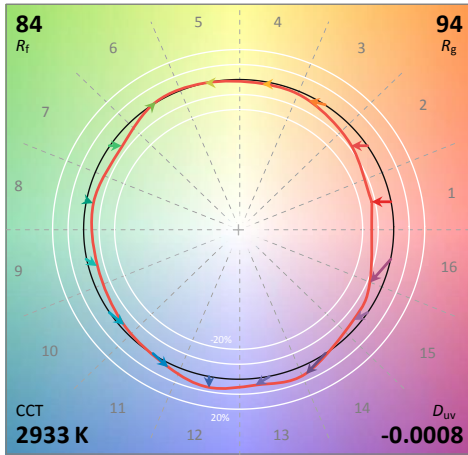
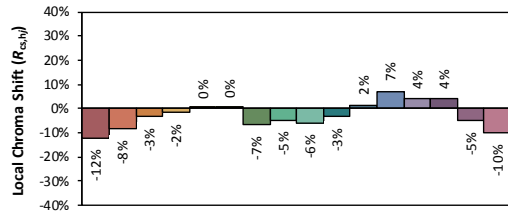
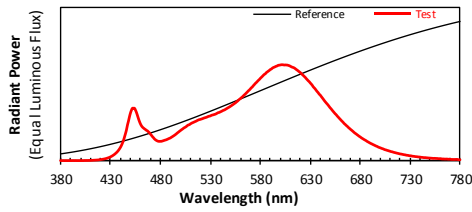
ANSI/IES TM-30-18 Color Rendition Report

Source: L128-XX80RA35000H1

Manufacturer: AS MART LIGHT CO., LTD

Date: 2020/8/26

Model: AST-CLW08C-063WBCA1-ad30K (Tested at 0% CCT Setting)



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.4405
 y 0.4032
 u' 0.2533
 v' 0.5216

| | |
|---------------------|----|
| CIE 13.3-1995 (CRI) | |
| R_a | 82 |
| R_9 | 2 |

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.



Zonal Lumen Tabulation

Zonal Lumen Summary

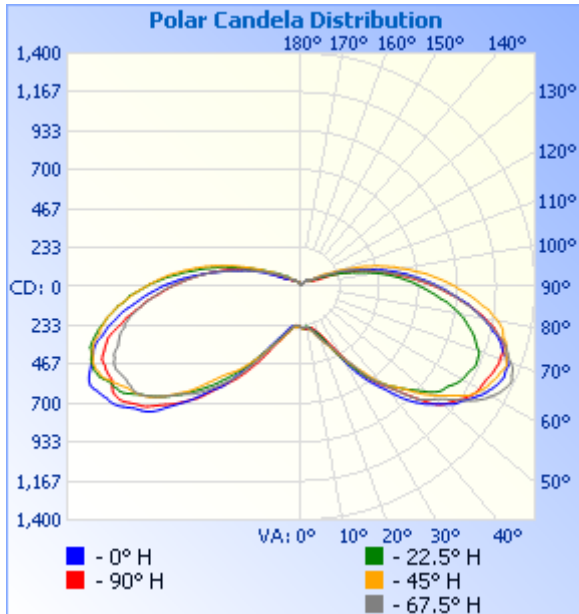
| Zone | Lumens | % Lamp | % Luminaire |
|--------|---------|--------|-------------|
| 0-30 | 285.9 | 3.8% | 3.8% |
| 0-40 | 680.3 | 8.9% | 8.9% |
| 0-60 | 2,422.3 | 31.9% | 31.9% |
| 60-90 | 3,624.8 | 47.7% | 47.7% |
| 70-100 | 3,124.5 | 41.1% | 41.1% |
| 90-120 | 1,400.5 | 18.4% | 18.4% |
| 0-90 | 6,047.1 | 79.5% | 79.5% |
| 90-180 | 1,557.2 | 20.5% | 20.5% |
| 0-180 | 7,604.3 | 100% | 100% |

Lumens Per Zone

| Zone | Lumens | % Total | Zone | Lumens | % Total |
|-------|---------|---------|---------|--------|---------|
| 0-10 | 23.5 | 0.3% | 90-100 | 764.4 | 10.1% |
| 10-20 | 79.6 | 1.0% | 100-110 | 446.1 | 5.9% |
| 20-30 | 182.8 | 2.4% | 110-120 | 190.0 | 2.5% |
| 30-40 | 394.4 | 5.2% | 120-130 | 75.1 | 1% |
| 40-50 | 704.3 | 9.3% | 130-140 | 41.9 | 0.6% |
| 50-60 | 1,037.7 | 13.6% | 140-150 | 23.4 | 0.3% |
| 60-70 | 1,264.6 | 16.6% | 150-160 | 10.9 | 0.1% |
| 70-80 | 1,284.2 | 16.9% | 160-170 | 4.3 | 0.1% |
| 80-90 | 1,075.9 | 14.1% | 170-180 | 1.2 | 0% |



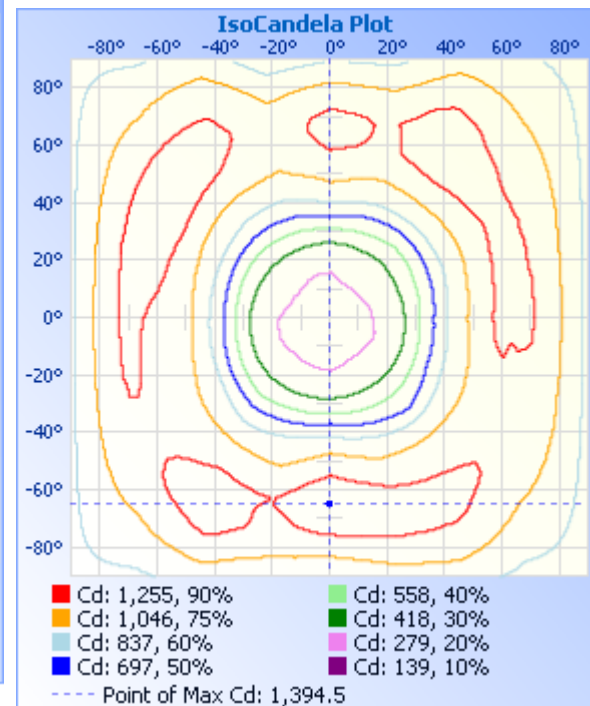
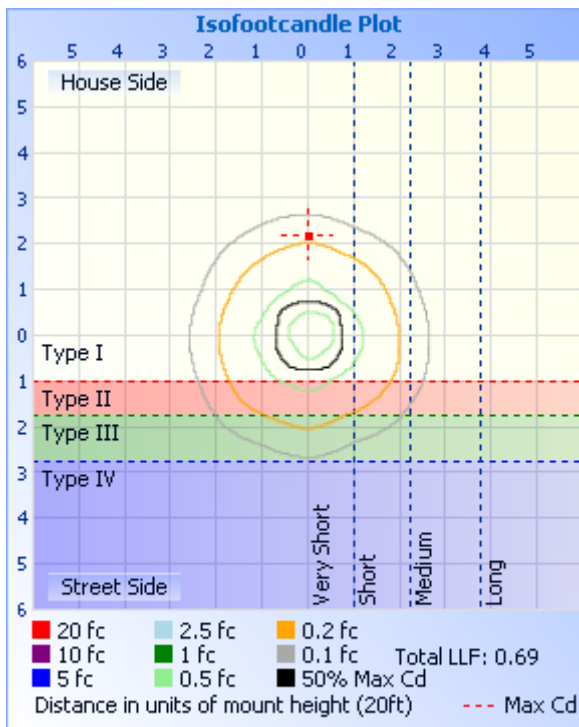
Photometric Data



Illuminance at a Distance

| | Center Beam fc | Beam Width |
|---------|----------------|-----------------|
| 17.0ft | 0.84 fc | 18.7 ft |
| 34.0ft | 0.21 fc | 37.4 ft |
| 51.0ft | 0.09 fc | 56.1 ft |
| 68.0ft | 0.05 fc | 74.8 ft |
| 85.0ft | 0.03 fc | 93.5 ft |
| 102.0ft | 0.02 fc | 112.1 ft |

■ Beam Spread: 57.6°





Candela Table - Type C

| | 0 | 22.5 | 45 | 67.5 | 90 | 112.5 | 135 | 157.5 | 180 | 202.5 | 225 | 247.5 | 270 | 292.5 | 315 | 337.5 | 360 |
|----|-----|------|-----|------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|
| 0 | 243 | 243 | 243 | 243 | 243 | 243 | 243 | 243 | 243 | 243 | 243 | 243 | 243 | 243 | 243 | 243 | 243 |
| 1 | 244 | 244 | 245 | 245 | 245 | 246 | 246 | 243 | 241 | 240 | 240 | 241 | 240 | 240 | 240 | 240 | 244 |
| 2 | 246 | 248 | 251 | 249 | 249 | 249 | 250 | 246 | 245 | 241 | 241 | 242 | 238 | 239 | 240 | 242 | 246 |
| 3 | 249 | 252 | 252 | 249 | 250 | 252 | 252 | 248 | 248 | 245 | 241 | 241 | 240 | 239 | 241 | 241 | 249 |
| 4 | 249 | 254 | 249 | 246 | 251 | 252 | 253 | 243 | 240 | 246 | 242 | 234 | 237 | 241 | 242 | 239 | 249 |
| 5 | 250 | 248 | 245 | 244 | 254 | 260 | 250 | 244 | 236 | 240 | 243 | 234 | 232 | 241 | 243 | 238 | 250 |
| 6 | 249 | 242 | 245 | 246 | 259 | 255 | 250 | 249 | 240 | 237 | 249 | 232 | 234 | 242 | 243 | 239 | 249 |
| 7 | 246 | 242 | 246 | 249 | 259 | 250 | 247 | 250 | 239 | 235 | 248 | 235 | 232 | 249 | 245 | 242 | 246 |
| 8 | 246 | 242 | 247 | 247 | 258 | 248 | 247 | 248 | 243 | 239 | 244 | 236 | 234 | 256 | 251 | 245 | 246 |
| 9 | 248 | 245 | 250 | 249 | 257 | 247 | 248 | 247 | 244 | 241 | 241 | 239 | 236 | 261 | 256 | 249 | 248 |
| 10 | 253 | 248 | 257 | 250 | 256 | 245 | 249 | 248 | 240 | 244 | 243 | 241 | 243 | 263 | 262 | 256 | 253 |
| 11 | 255 | 252 | 261 | 257 | 256 | 244 | 250 | 251 | 239 | 248 | 246 | 245 | 251 | 265 | 269 | 265 | 255 |
| 12 | 257 | 258 | 267 | 260 | 256 | 244 | 250 | 253 | 242 | 254 | 250 | 249 | 254 | 269 | 277 | 273 | 257 |
| 13 | 263 | 262 | 273 | 268 | 255 | 245 | 252 | 251 | 246 | 262 | 256 | 252 | 261 | 274 | 284 | 281 | 263 |
| 14 | 267 | 268 | 276 | 272 | 255 | 247 | 256 | 252 | 252 | 267 | 264 | 261 | 271 | 283 | 290 | 288 | 267 |
| 15 | 272 | 274 | 283 | 282 | 259 | 252 | 262 | 255 | 256 | 274 | 274 | 268 | 283 | 291 | 296 | 297 | 272 |
| 16 | 279 | 279 | 297 | 292 | 265 | 256 | 268 | 263 | 262 | 280 | 285 | 275 | 291 | 300 | 304 | 304 | 279 |
| 17 | 285 | 284 | 307 | 298 | 273 | 263 | 275 | 272 | 270 | 290 | 295 | 285 | 295 | 310 | 312 | 310 | 285 |
| 18 | 291 | 290 | 312 | 311 | 278 | 271 | 284 | 282 | 278 | 300 | 303 | 293 | 304 | 322 | 323 | 318 | 291 |
| 19 | 299 | 297 | 319 | 325 | 285 | 281 | 295 | 294 | 288 | 308 | 315 | 303 | 317 | 334 | 335 | 325 | 299 |
| 20 | 309 | 306 | 331 | 332 | 294 | 292 | 308 | 307 | 299 | 318 | 328 | 315 | 333 | 346 | 345 | 337 | 309 |
| 21 | 321 | 316 | 346 | 339 | 303 | 304 | 319 | 317 | 311 | 327 | 340 | 327 | 345 | 357 | 356 | 348 | 321 |
| 22 | 334 | 327 | 360 | 351 | 312 | 319 | 332 | 329 | 324 | 338 | 349 | 340 | 354 | 367 | 365 | 358 | 334 |
| 23 | 349 | 342 | 370 | 366 | 324 | 334 | 345 | 340 | 335 | 351 | 359 | 353 | 363 | 379 | 374 | 370 | 349 |
| 24 | 367 | 362 | 379 | 377 | 338 | 350 | 358 | 352 | 347 | 368 | 372 | 369 | 379 | 395 | 390 | 384 | 367 |
| 25 | 385 | 384 | 392 | 384 | 355 | 363 | 370 | 365 | 361 | 381 | 386 | 384 | 400 | 411 | 404 | 400 | 385 |
| 26 | 406 | 408 | 407 | 394 | 373 | 376 | 382 | 379 | 378 | 395 | 402 | 403 | 426 | 429 | 421 | 418 | 406 |
| 27 | 429 | 430 | 425 | 410 | 393 | 389 | 394 | 393 | 400 | 411 | 417 | 423 | 450 | 452 | 439 | 440 | 429 |
| 28 | 455 | 452 | 445 | 431 | 417 | 405 | 407 | 411 | 422 | 429 | 434 | 447 | 477 | 474 | 460 | 463 | 455 |
| 29 | 485 | 477 | 466 | 456 | 441 | 423 | 423 | 432 | 445 | 450 | 454 | 472 | 504 | 498 | 480 | 486 | 485 |



Report No.:BLC2008032E-D

Certificate#4810.01

| | | | | | | | | | | | | | | | | | |
|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 30 | 514 | 500 | 492 | 481 | 468 | 445 | 441 | 455 | 469 | 471 | 476 | 498 | 531 | 521 | 500 | 510 | 514 |
| 31 | 547 | 526 | 516 | 505 | 495 | 470 | 463 | 481 | 492 | 493 | 497 | 529 | 557 | 543 | 519 | 538 | 547 |
| 32 | 583 | 553 | 538 | 527 | 528 | 497 | 484 | 508 | 519 | 517 | 518 | 558 | 587 | 563 | 537 | 566 | 583 |
| 33 | 616 | 581 | 559 | 552 | 564 | 526 | 502 | 538 | 551 | 545 | 539 | 587 | 615 | 588 | 558 | 594 | 616 |
| 34 | 649 | 609 | 580 | 584 | 602 | 562 | 520 | 568 | 586 | 575 | 561 | 619 | 644 | 613 | 580 | 621 | 649 |
| 35 | 681 | 638 | 607 | 619 | 639 | 594 | 540 | 599 | 623 | 600 | 584 | 649 | 674 | 641 | 607 | 644 | 681 |
| 36 | 708 | 666 | 633 | 659 | 673 | 625 | 570 | 626 | 666 | 625 | 607 | 680 | 698 | 670 | 636 | 666 | 708 |
| 37 | 733 | 690 | 665 | 689 | 702 | 654 | 608 | 657 | 713 | 651 | 630 | 704 | 722 | 697 | 666 | 691 | 733 |
| 38 | 762 | 715 | 697 | 716 | 728 | 686 | 647 | 691 | 756 | 682 | 648 | 727 | 749 | 721 | 697 | 713 | 762 |
| 39 | 788 | 735 | 730 | 740 | 754 | 713 | 677 | 718 | 779 | 708 | 666 | 752 | 777 | 747 | 731 | 743 | 788 |
| 40 | 823 | 758 | 757 | 765 | 775 | 736 | 699 | 746 | 799 | 736 | 683 | 778 | 809 | 778 | 763 | 772 | 823 |
| 41 | 858 | 781 | 782 | 795 | 802 | 767 | 720 | 781 | 829 | 767 | 706 | 805 | 844 | 803 | 795 | 800 | 858 |
| 42 | 896 | 803 | 804 | 826 | 829 | 805 | 741 | 811 | 865 | 796 | 733 | 835 | 883 | 831 | 828 | 834 | 896 |
| 43 | 928 | 822 | 822 | 863 | 859 | 847 | 764 | 836 | 903 | 822 | 768 | 860 | 917 | 852 | 862 | 863 | 928 |
| 44 | 957 | 843 | 841 | 901 | 896 | 890 | 788 | 856 | 944 | 852 | 801 | 885 | 941 | 881 | 891 | 894 | 957 |
| 45 | 983 | 865 | 866 | 938 | 931 | 922 | 821 | 870 | 976 | 880 | 840 | 909 | 971 | 910 | 921 | 921 | 983 |
| 46 | 1011 | 887 | 894 | 970 | 969 | 947 | 860 | 888 | 1008 | 906 | 882 | 926 | 1000 | 939 | 954 | 950 | 1011 |
| 47 | 1035 | 907 | 925 | 995 | 1006 | 970 | 894 | 900 | 1044 | 934 | 919 | 945 | 1028 | 966 | 985 | 972 | 1035 |
| 48 | 1053 | 931 | 956 | 1013 | 1044 | 991 | 927 | 912 | 1081 | 965 | 948 | 964 | 1056 | 994 | 1018 | 990 | 1053 |
| 49 | 1076 | 954 | 986 | 1031 | 1075 | 1011 | 958 | 928 | 1128 | 991 | 976 | 988 | 1079 | 1024 | 1051 | 1007 | 1076 |
| 50 | 1095 | 981 | 1011 | 1051 | 1099 | 1028 | 986 | 953 | 1166 | 1018 | 1009 | 1017 | 1106 | 1051 | 1080 | 1027 | 1095 |
| 51 | 1120 | 1006 | 1036 | 1071 | 1116 | 1047 | 1008 | 979 | 1191 | 1045 | 1044 | 1046 | 1136 | 1074 | 1106 | 1054 | 1120 |
| 52 | 1144 | 1026 | 1060 | 1096 | 1129 | 1057 | 1033 | 1006 | 1209 | 1071 | 1073 | 1068 | 1167 | 1095 | 1139 | 1081 | 1144 |
| 53 | 1165 | 1041 | 1087 | 1125 | 1143 | 1067 | 1068 | 1030 | 1223 | 1097 | 1102 | 1095 | 1191 | 1121 | 1172 | 1110 | 1165 |
| 54 | 1176 | 1053 | 1109 | 1156 | 1159 | 1078 | 1118 | 1058 | 1239 | 1116 | 1126 | 1117 | 1205 | 1146 | 1191 | 1132 | 1176 |
| 55 | 1190 | 1056 | 1139 | 1188 | 1175 | 1092 | 1174 | 1088 | 1264 | 1137 | 1143 | 1141 | 1223 | 1166 | 1212 | 1155 | 1190 |
| 56 | 1209 | 1066 | 1168 | 1222 | 1191 | 1107 | 1210 | 1118 | 1287 | 1158 | 1161 | 1157 | 1244 | 1196 | 1235 | 1177 | 1209 |
| 57 | 1227 | 1081 | 1197 | 1251 | 1205 | 1126 | 1232 | 1143 | 1311 | 1182 | 1176 | 1172 | 1265 | 1221 | 1261 | 1189 | 1227 |
| 58 | 1242 | 1095 | 1215 | 1277 | 1218 | 1145 | 1243 | 1168 | 1326 | 1210 | 1189 | 1180 | 1280 | 1236 | 1283 | 1202 | 1242 |
| 59 | 1261 | 1105 | 1232 | 1298 | 1224 | 1164 | 1246 | 1191 | 1336 | 1239 | 1196 | 1182 | 1286 | 1248 | 1306 | 1211 | 1261 |
| 60 | 1274 | 1113 | 1242 | 1315 | 1231 | 1176 | 1244 | 1202 | 1342 | 1254 | 1208 | 1181 | 1292 | 1257 | 1320 | 1222 | 1274 |
| 61 | 1285 | 1119 | 1257 | 1333 | 1233 | 1185 | 1253 | 1211 | 1354 | 1261 | 1228 | 1188 | 1291 | 1271 | 1335 | 1228 | 1285 |

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Report No.:BLC2008032E-D

Certificate#4810.01

| | | | | | | | | | | | | | | | | | |
|----|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| 62 | 1299 | 1122 | 1267 | 1350 | 1237 | 1197 | 1267 | 1222 | 1364 | 1273 | 1244 | 1187 | 1280 | 1273 | 1343 | 1225 | 1299 |
| 63 | 1308 | 1128 | 1271 | 1360 | 1239 | 1204 | 1276 | 1233 | 1374 | 1277 | 1262 | 1192 | 1270 | 1268 | 1348 | 1225 | 1308 |
| 64 | 1318 | 1135 | 1282 | 1372 | 1246 | 1212 | 1291 | 1247 | 1388 | 1287 | 1278 | 1200 | 1262 | 1274 | 1357 | 1225 | 1318 |
| 65 | 1325 | 1144 | 1292 | 1380 | 1253 | 1226 | 1302 | 1261 | 1395 | 1307 | 1300 | 1207 | 1268 | 1276 | 1368 | 1228 | 1325 |
| 66 | 1330 | 1148 | 1296 | 1383 | 1260 | 1235 | 1299 | 1255 | 1391 | 1325 | 1312 | 1214 | 1269 | 1274 | 1374 | 1227 | 1330 |
| 67 | 1326 | 1144 | 1303 | 1370 | 1262 | 1237 | 1299 | 1243 | 1381 | 1328 | 1314 | 1213 | 1271 | 1265 | 1374 | 1228 | 1326 |
| 68 | 1324 | 1142 | 1311 | 1364 | 1267 | 1242 | 1309 | 1237 | 1365 | 1337 | 1324 | 1209 | 1266 | 1260 | 1377 | 1230 | 1324 |
| 69 | 1328 | 1141 | 1319 | 1357 | 1272 | 1244 | 1322 | 1234 | 1349 | 1335 | 1327 | 1195 | 1270 | 1256 | 1387 | 1229 | 1328 |
| 70 | 1315 | 1134 | 1307 | 1337 | 1268 | 1241 | 1327 | 1227 | 1337 | 1336 | 1328 | 1193 | 1269 | 1247 | 1386 | 1234 | 1315 |
| 71 | 1298 | 1114 | 1300 | 1314 | 1270 | 1240 | 1332 | 1224 | 1322 | 1331 | 1319 | 1177 | 1256 | 1231 | 1376 | 1213 | 1298 |
| 72 | 1275 | 1102 | 1288 | 1302 | 1268 | 1240 | 1335 | 1219 | 1308 | 1319 | 1313 | 1153 | 1239 | 1201 | 1354 | 1204 | 1275 |
| 73 | 1257 | 1089 | 1283 | 1286 | 1267 | 1233 | 1345 | 1220 | 1300 | 1315 | 1307 | 1144 | 1227 | 1186 | 1345 | 1182 | 1257 |
| 74 | 1248 | 1077 | 1279 | 1272 | 1265 | 1220 | 1345 | 1218 | 1284 | 1314 | 1294 | 1134 | 1211 | 1171 | 1340 | 1178 | 1248 |
| 75 | 1227 | 1062 | 1267 | 1249 | 1244 | 1198 | 1330 | 1207 | 1265 | 1297 | 1284 | 1124 | 1199 | 1160 | 1327 | 1160 | 1227 |
| 76 | 1209 | 1043 | 1248 | 1220 | 1219 | 1173 | 1313 | 1193 | 1229 | 1278 | 1262 | 1110 | 1173 | 1145 | 1318 | 1146 | 1209 |
| 77 | 1176 | 1025 | 1240 | 1195 | 1199 | 1158 | 1301 | 1192 | 1206 | 1259 | 1236 | 1085 | 1142 | 1116 | 1282 | 1110 | 1176 |
| 78 | 1161 | 1008 | 1235 | 1167 | 1181 | 1138 | 1284 | 1175 | 1186 | 1240 | 1231 | 1080 | 1109 | 1102 | 1269 | 1091 | 1161 |
| 79 | 1134 | 991 | 1216 | 1138 | 1151 | 1119 | 1268 | 1167 | 1159 | 1218 | 1210 | 1057 | 1083 | 1092 | 1245 | 1069 | 1134 |
| 80 | 1114 | 968 | 1200 | 1110 | 1120 | 1092 | 1244 | 1151 | 1129 | 1193 | 1192 | 1042 | 1061 | 1084 | 1233 | 1049 | 1114 |
| 81 | 1082 | 949 | 1175 | 1082 | 1097 | 1060 | 1218 | 1115 | 1104 | 1174 | 1177 | 1016 | 1025 | 1062 | 1199 | 1021 | 1082 |
| 82 | 1057 | 922 | 1151 | 1053 | 1064 | 1040 | 1188 | 1085 | 1078 | 1147 | 1145 | 989 | 998 | 1047 | 1183 | 996 | 1057 |
| 83 | 1027 | 899 | 1131 | 1028 | 1031 | 1011 | 1155 | 1064 | 1043 | 1121 | 1126 | 966 | 967 | 1021 | 1147 | 970 | 1027 |
| 84 | 1007 | 878 | 1092 | 991 | 1000 | 968 | 1120 | 1027 | 1008 | 1101 | 1100 | 941 | 945 | 1002 | 1135 | 950 | 1007 |
| 85 | 973 | 841 | 1066 | 965 | 962 | 942 | 1089 | 989 | 979 | 1066 | 1071 | 915 | 918 | 975 | 1096 | 921 | 973 |
| 86 | 941 | 818 | 1041 | 936 | 935 | 923 | 1062 | 971 | 952 | 1043 | 1043 | 886 | 887 | 954 | 1078 | 892 | 941 |
| 87 | 910 | 793 | 1011 | 906 | 899 | 881 | 1026 | 935 | 925 | 1026 | 1017 | 863 | 853 | 914 | 1034 | 863 | 910 |
| 88 | 883 | 766 | 984 | 876 | 865 | 850 | 984 | 904 | 892 | 989 | 991 | 835 | 829 | 901 | 1013 | 840 | 883 |
| 89 | 858 | 743 | 948 | 843 | 837 | 832 | 964 | 885 | 862 | 959 | 962 | 813 | 805 | 871 | 989 | 817 | 858 |
| 90 | 824 | 719 | 928 | 816 | 807 | 797 | 933 | 846 | 837 | 929 | 931 | 779 | 779 | 858 | 958 | 790 | 824 |
| 91 | 799 | 694 | 896 | 785 | 774 | 766 | 887 | 809 | 804 | 905 | 908 | 753 | 748 | 819 | 931 | 762 | 799 |
| 92 | 769 | 675 | 867 | 756 | 741 | 740 | 854 | 789 | 767 | 869 | 876 | 727 | 723 | 804 | 897 | 737 | 769 |
| 93 | 740 | 649 | 837 | 720 | 709 | 712 | 835 | 754 | 737 | 834 | 852 | 698 | 700 | 772 | 881 | 718 | 740 |

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 94 | 710 | 618 | 804 | 694 | 679 | 680 | 795 | 711 | 706 | 809 | 822 | 676 | 673 | 757 | 850 | 689 | 710 |
| 95 | 682 | 601 | 777 | 664 | 646 | 655 | 755 | 689 | 672 | 768 | 797 | 643 | 648 | 723 | 824 | 662 | 682 |
| 96 | 656 | 572 | 749 | 629 | 616 | 627 | 726 | 661 | 639 | 733 | 763 | 624 | 623 | 701 | 792 | 635 | 656 |
| 97 | 629 | 546 | 713 | 602 | 584 | 593 | 703 | 617 | 602 | 706 | 730 | 594 | 598 | 673 | 766 | 612 | 629 |
| 98 | 598 | 519 | 681 | 571 | 554 | 565 | 660 | 588 | 572 | 665 | 703 | 567 | 574 | 649 | 743 | 589 | 598 |
| 99 | 571 | 491 | 654 | 540 | 526 | 538 | 623 | 571 | 540 | 636 | 668 | 544 | 546 | 622 | 709 | 560 | 571 |
| 100 | 541 | 465 | 620 | 511 | 497 | 509 | 603 | 535 | 507 | 607 | 643 | 508 | 520 | 594 | 679 | 531 | 541 |
| 101 | 514 | 440 | 591 | 483 | 469 | 477 | 575 | 501 | 479 | 577 | 611 | 492 | 497 | 568 | 656 | 510 | 514 |
| 102 | 489 | 411 | 572 | 458 | 443 | 451 | 529 | 474 | 453 | 542 | 583 | 458 | 475 | 546 | 625 | 487 | 489 |
| 103 | 457 | 384 | 536 | 431 | 415 | 426 | 495 | 456 | 424 | 514 | 552 | 428 | 452 | 523 | 606 | 459 | 457 |
| 104 | 433 | 357 | 505 | 404 | 390 | 394 | 473 | 425 | 397 | 494 | 524 | 405 | 426 | 492 | 572 | 432 | 433 |
| 105 | 406 | 331 | 480 | 382 | 362 | 363 | 448 | 396 | 370 | 450 | 486 | 379 | 405 | 475 | 538 | 408 | 406 |
| 106 | 380 | 306 | 448 | 361 | 339 | 341 | 406 | 385 | 352 | 416 | 455 | 355 | 380 | 442 | 516 | 385 | 380 |
| 107 | 356 | 282 | 412 | 343 | 312 | 318 | 375 | 353 | 328 | 402 | 433 | 333 | 359 | 421 | 484 | 363 | 356 |
| 108 | 328 | 263 | 390 | 322 | 284 | 289 | 353 | 335 | 304 | 367 | 393 | 311 | 334 | 403 | 454 | 343 | 328 |
| 109 | 307 | 242 | 362 | 303 | 254 | 260 | 328 | 319 | 280 | 339 | 363 | 289 | 315 | 370 | 425 | 323 | 307 |
| 110 | 285 | 220 | 325 | 281 | 224 | 240 | 296 | 306 | 258 | 325 | 335 | 272 | 295 | 355 | 398 | 302 | 285 |
| 111 | 260 | 201 | 294 | 259 | 186 | 218 | 262 | 272 | 231 | 294 | 306 | 252 | 271 | 335 | 369 | 284 | 260 |
| 112 | 236 | 182 | 277 | 236 | 140 | 197 | 233 | 251 | 201 | 268 | 282 | 236 | 247 | 309 | 341 | 266 | 236 |
| 113 | 212 | 166 | 251 | 209 | 105 | 175 | 213 | 237 | 175 | 259 | 255 | 217 | 222 | 288 | 312 | 246 | 212 |
| 114 | 187 | 152 | 219 | 187 | 104 | 155 | 187 | 219 | 154 | 236 | 222 | 200 | 188 | 273 | 288 | 228 | 187 |
| 115 | 167 | 138 | 196 | 170 | 97 | 136 | 162 | 189 | 133 | 208 | 201 | 185 | 156 | 250 | 263 | 213 | 167 |
| 116 | 147 | 125 | 181 | 153 | 87 | 126 | 143 | 170 | 118 | 193 | 196 | 173 | 133 | 233 | 237 | 197 | 147 |
| 117 | 131 | 116 | 168 | 139 | 83 | 120 | 130 | 171 | 110 | 185 | 186 | 167 | 113 | 215 | 209 | 180 | 131 |
| 118 | 119 | 108 | 158 | 127 | 79 | 111 | 124 | 166 | 103 | 176 | 165 | 159 | 109 | 197 | 184 | 166 | 119 |
| 119 | 108 | 100 | 146 | 113 | 74 | 99 | 111 | 148 | 96 | 165 | 146 | 149 | 106 | 176 | 163 | 152 | 108 |
| 120 | 99 | 91 | 128 | 102 | 69 | 88 | 100 | 129 | 90 | 155 | 137 | 139 | 98 | 158 | 147 | 140 | 99 |
| 121 | 94 | 84 | 112 | 90 | 64 | 83 | 90 | 112 | 85 | 142 | 126 | 128 | 91 | 149 | 138 | 132 | 94 |
| 122 | 87 | 77 | 94 | 82 | 61 | 78 | 83 | 106 | 81 | 129 | 119 | 118 | 85 | 139 | 127 | 123 | 87 |
| 123 | 81 | 74 | 80 | 76 | 58 | 74 | 78 | 101 | 78 | 113 | 109 | 108 | 79 | 128 | 116 | 114 | 81 |
| 124 | 77 | 71 | 74 | 73 | 54 | 73 | 74 | 96 | 76 | 107 | 101 | 100 | 73 | 117 | 104 | 106 | 77 |
| 125 | 73 | 68 | 70 | 70 | 53 | 70 | 71 | 89 | 74 | 105 | 93 | 90 | 69 | 107 | 93 | 96 | 73 |

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|-----|----|----|----|----|----|----|----|----|----|-----|----|----|----|----|----|----|----|
| 126 | 70 | 67 | 68 | 68 | 51 | 68 | 68 | 71 | 72 | 103 | 81 | 79 | 65 | 95 | 85 | 86 | 70 |
| 127 | 68 | 64 | 65 | 66 | 50 | 66 | 66 | 69 | 70 | 100 | 80 | 72 | 61 | 87 | 78 | 77 | 68 |
| 128 | 66 | 63 | 63 | 64 | 49 | 64 | 64 | 67 | 68 | 85 | 80 | 67 | 59 | 74 | 74 | 72 | 66 |
| 129 | 64 | 60 | 61 | 61 | 48 | 62 | 62 | 64 | 66 | 69 | 75 | 65 | 57 | 70 | 70 | 67 | 64 |
| 130 | 63 | 59 | 59 | 58 | 48 | 60 | 61 | 62 | 65 | 66 | 67 | 63 | 55 | 66 | 68 | 65 | 63 |
| 131 | 61 | 58 | 58 | 57 | 48 | 59 | 59 | 61 | 64 | 65 | 65 | 62 | 53 | 64 | 65 | 63 | 61 |
| 132 | 59 | 55 | 56 | 56 | 48 | 57 | 58 | 59 | 61 | 63 | 63 | 60 | 52 | 62 | 63 | 61 | 59 |
| 133 | 58 | 54 | 54 | 55 | 47 | 56 | 55 | 57 | 62 | 61 | 60 | 60 | 51 | 61 | 61 | 59 | 58 |
| 134 | 56 | 53 | 52 | 54 | 46 | 54 | 54 | 56 | 60 | 60 | 60 | 58 | 50 | 59 | 60 | 57 | 56 |
| 135 | 54 | 51 | 50 | 52 | 46 | 53 | 52 | 54 | 58 | 58 | 57 | 58 | 50 | 58 | 58 | 56 | 54 |
| 136 | 53 | 50 | 49 | 50 | 46 | 52 | 50 | 53 | 56 | 56 | 55 | 55 | 49 | 57 | 56 | 54 | 53 |
| 137 | 51 | 48 | 46 | 48 | 45 | 50 | 49 | 51 | 54 | 54 | 53 | 54 | 49 | 55 | 54 | 52 | 51 |
| 138 | 49 | 46 | 46 | 47 | 43 | 48 | 46 | 50 | 53 | 53 | 52 | 52 | 47 | 53 | 52 | 50 | 49 |
| 139 | 47 | 44 | 44 | 45 | 42 | 46 | 44 | 48 | 51 | 51 | 49 | 50 | 47 | 51 | 49 | 48 | 47 |
| 140 | 45 | 43 | 42 | 43 | 40 | 45 | 44 | 47 | 50 | 49 | 48 | 49 | 46 | 49 | 48 | 47 | 45 |
| 141 | 44 | 40 | 39 | 41 | 39 | 43 | 41 | 45 | 48 | 47 | 46 | 46 | 45 | 48 | 46 | 44 | 44 |
| 142 | 42 | 39 | 38 | 40 | 38 | 40 | 39 | 44 | 46 | 45 | 44 | 45 | 44 | 46 | 43 | 43 | 42 |
| 143 | 41 | 37 | 36 | 38 | 36 | 39 | 37 | 41 | 43 | 43 | 42 | 43 | 43 | 44 | 41 | 41 | 41 |
| 144 | 38 | 36 | 34 | 35 | 35 | 38 | 36 | 39 | 42 | 41 | 41 | 41 | 40 | 42 | 39 | 40 | 38 |
| 145 | 36 | 33 | 32 | 34 | 33 | 36 | 34 | 38 | 39 | 39 | 38 | 39 | 40 | 40 | 38 | 38 | 36 |
| 146 | 35 | 32 | 31 | 32 | 32 | 34 | 32 | 36 | 38 | 38 | 37 | 37 | 38 | 39 | 36 | 36 | 35 |
| 147 | 34 | 30 | 29 | 31 | 30 | 33 | 32 | 34 | 36 | 36 | 35 | 36 | 36 | 37 | 34 | 34 | 34 |
| 148 | 32 | 29 | 27 | 29 | 28 | 30 | 30 | 33 | 34 | 34 | 34 | 34 | 34 | 34 | 32 | 33 | 32 |
| 149 | 30 | 28 | 26 | 28 | 27 | 29 | 28 | 30 | 34 | 33 | 32 | 33 | 33 | 34 | 30 | 31 | 30 |
| 150 | 28 | 26 | 25 | 27 | 26 | 28 | 27 | 30 | 31 | 31 | 31 | 32 | 32 | 32 | 28 | 30 | 28 |
| 151 | 28 | 26 | 24 | 25 | 24 | 27 | 27 | 28 | 30 | 30 | 30 | 30 | 30 | 30 | 27 | 28 | 28 |
| 152 | 26 | 24 | 24 | 25 | 23 | 25 | 25 | 27 | 29 | 28 | 29 | 29 | 29 | 30 | 26 | 26 | 26 |
| 153 | 25 | 22 | 22 | 23 | 22 | 24 | 25 | 26 | 27 | 27 | 28 | 28 | 28 | 28 | 24 | 24 | 25 |
| 154 | 23 | 21 | 21 | 22 | 21 | 23 | 24 | 25 | 26 | 25 | 27 | 26 | 27 | 26 | 23 | 23 | 23 |
| 155 | 21 | 21 | 20 | 20 | 20 | 21 | 23 | 24 | 25 | 25 | 25 | 25 | 25 | 25 | 22 | 22 | 21 |
| 156 | 21 | 19 | 19 | 19 | 18 | 21 | 23 | 22 | 23 | 24 | 26 | 24 | 25 | 24 | 20 | 20 | 21 |
| 157 | 19 | 18 | 18 | 19 | 17 | 20 | 22 | 22 | 23 | 23 | 23 | 23 | 23 | 22 | 20 | 19 | 19 |

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|-----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 158 | 18 | 17 | 18 | 19 | 17 | 19 | 22 | 21 | 22 | 22 | 23 | 22 | 22 | 22 | 19 | 17 | 18 |
| 159 | 17 | 17 | 18 | 18 | 15 | 18 | 21 | 21 | 21 | 22 | 22 | 21 | 21 | 20 | 18 | 16 | 17 |
| 160 | 16 | 16 | 17 | 17 | 14 | 18 | 20 | 20 | 20 | 20 | 21 | 20 | 20 | 18 | 18 | 16 | 16 |
| 161 | 14 | 16 | 16 | 17 | 13 | 18 | 20 | 20 | 18 | 20 | 21 | 20 | 19 | 18 | 17 | 14 | 14 |
| 162 | 13 | 16 | 16 | 16 | 13 | 17 | 20 | 18 | 17 | 19 | 19 | 20 | 17 | 17 | 16 | 14 | 13 |
| 163 | 13 | 14 | 15 | 16 | 13 | 16 | 19 | 18 | 17 | 17 | 19 | 19 | 17 | 15 | 15 | 13 | 13 |
| 164 | 11 | 14 | 15 | 15 | 12 | 15 | 19 | 17 | 17 | 17 | 19 | 17 | 16 | 16 | 15 | 12 | 11 |
| 165 | 12 | 13 | 14 | 14 | 12 | 14 | 17 | 17 | 16 | 17 | 18 | 17 | 14 | 15 | 15 | 13 | 12 |
| 166 | 10 | 13 | 13 | 13 | 11 | 13 | 17 | 16 | 14 | 17 | 17 | 17 | 14 | 14 | 14 | 12 | 10 |
| 167 | 9 | 10 | 12 | 13 | 10 | 12 | 16 | 15 | 14 | 17 | 17 | 17 | 14 | 14 | 12 | 11 | 9 |
| 168 | 9 | 9 | 12 | 12 | 10 | 12 | 16 | 15 | 14 | 16 | 16 | 17 | 14 | 13 | 12 | 10 | 9 |
| 169 | 9 | 11 | 13 | 12 | 9 | 11 | 14 | 15 | 14 | 16 | 16 | 17 | 14 | 12 | 11 | 10 | 9 |
| 170 | 10 | 10 | 11 | 12 | 10 | 12 | 13 | 15 | 14 | 15 | 16 | 17 | 14 | 12 | 12 | 10 | 10 |
| 171 | 9 | 10 | 12 | 11 | 10 | 10 | 14 | 14 | 14 | 15 | 16 | 16 | 13 | 12 | 11 | 10 | 9 |
| 172 | 10 | 10 | 12 | 12 | 8 | 11 | 14 | 14 | 14 | 15 | 14 | 16 | 13 | 11 | 10 | 8 | 10 |
| 173 | 11 | 10 | 12 | 12 | 8 | 10 | 13 | 14 | 14 | 15 | 15 | 15 | 13 | 11 | 9 | 8 | 11 |
| 174 | 10 | 10 | 12 | 12 | 8 | 10 | 13 | 14 | 13 | 14 | 15 | 15 | 12 | 9 | 9 | 8 | 10 |
| 175 | 8 | 10 | 12 | 11 | 8 | 11 | 13 | 14 | 15 | 15 | 15 | 15 | 11 | 9 | 9 | 8 | 8 |
| 176 | 9 | 12 | 11 | 12 | 11 | 12 | 13 | 15 | 15 | 16 | 16 | 16 | 10 | 10 | 10 | 10 | 9 |
| 177 | 13 | 13 | 14 | 14 | 12 | 12 | 13 | 15 | 15 | 16 | 16 | 15 | 10 | 11 | 11 | 12 | 13 |
| 178 | 14 | 13 | 14 | 14 | 12 | 12 | 13 | 15 | 16 | 16 | 16 | 15 | 11 | 9 | 12 | 13 | 14 |
| 179 | 15 | 14 | 14 | 14 | 11 | 11 | 13 | 15 | 15 | 16 | 16 | 14 | 10 | 10 | 12 | 14 | 15 |
| 180 | 16 | 15 | 13 | 14 | 11 | 10 | 13 | 13 | 15 | 16 | 15 | 13 | 10 | 13 | 13 | 15 | 16 |



Report No.:BLC2008032E-D

BUG Rating

Lum. Classification System (LCS)

| <u>LCS Zone</u> | <u>Lumens</u> | <u>%Lamp</u> | <u>%Lum</u> |
|-------------------|-----------------|--------------|-------------|
| FL (0-30) | 146.8 | 1.9 | 1.9 |
| FM (30-60) | 1080.5 | 14.2 | 14.2 |
| FH (60-80) | 1268.2 | 16.7 | 16.7 |
| FVH (80-90) | 529.9 | 7.0 | 7.0 |
| BL (0-30) | 139.0 | 1.8 | 1.8 |
| BM (30-60) | 1056.2 | 13.9 | 13.9 |
| BH (60-80) | 1280.4 | 16.8 | 16.8 |
| BVH(80-90) | 545.7 | 7.2 | 7.2 |
| UL (90-100) | 764.2 | 10.1 | 10.1 |
| UH (100-180) | 792.7 | 10.4 | 10.4 |
| Total | 7603.6 | 100.0 | 100.0 |
| BUG Rating | B3-U4-G4 | | |

**2.2 Electrical, Photometric and Chromaticity Measurements***(Refer to Work Instruction BL-QP-033)*

| | | | |
|-------------------------|--|---------------------------------|---------|
| Test date | 2020-08-26 | Test Ambient: | 25.2 °C |
| Test Orientation | As intended | Stabilization Time (min) | 90 |
| Model Number | AST-CLW08C-063WBCA1-adCA40K (Tested at 50% CCT Setting) | | |

Electrical Measurement:

| Sample No. | Voltage (Vac) | Frequency (Hz) | Current (A) | Power (W) | Power Factor | THD % | |
|--------------------------|---------------|----------------|-------------|-----------|--------------|------------------|---------------|
| BLC200803 | 120.0 | 60 | 0.5276 | 62.74 | 0.991 | 10.85 | |
| 2E-D1 | 277.0 | 60 | 0.2348 | 62.18 | 0.956 | 10.36 | |
| DLC Pass Criteria | | | | | | $\geq 0.9(-3\%)$ | $\leq 20(+5)$ |

Chromaticity Measurement - Sphere-Spectroradiometer Method in King Luminaire K400 Series (Mogul Socket Version):

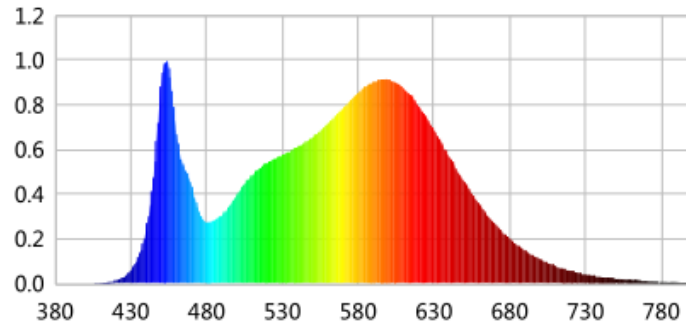
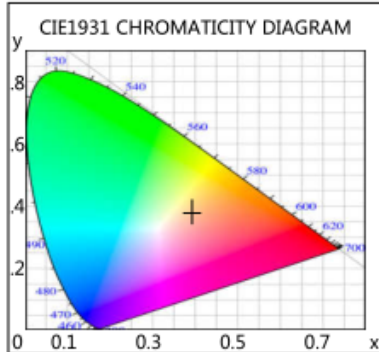
| Parameter | Result | Special Color Rendering Indices | | | |
|-----------------------------|------------------------|---------------------------------|----|-----|----|
| Test Voltage (V) | 120.0 | R1 | 83 | R9 | 9 |
| Frequency (Hz) | 60 | R2 | 92 | R10 | 82 |
| CCT (K) | 3751 | R3 | 96 | R11 | 81 |
| Duv | -0.0016 | R4 | 81 | R12 | 65 |
| Chromaticity (x, y) | x=0.3907 y=0.3794 | R5 | 83 | R13 | 86 |
| Chromaticity (u', v') | u(u')=0.2308 v'=0.5043 | R6 | 89 | R14 | 98 |
| Color Rendering Index (CRI) | 84 | R7 | 83 | R15 | 76 |
| R9 | 9 | R8 | 62 | -- | -- |
| Rf | 84 | -- | -- | -- | -- |
| Rg | 94 | -- | -- | -- | -- |
| Rcs,h1(%) | -12 | -- | -- | -- | -- |

Photometric Measurement –Sphere-Spectroradiometer Method in King Luminaire K400 Series (Mogul Socket Version):

| Parameter | Result | | DLC V5.1 Pass Criteria |
|-----------------------------------|--------|--------|----------------------------|
| Test Voltage (V) | 120.0 | 277.0 | -- |
| Frequency (Hz) | 60 | 60 | |
| Total Luminous (lm) | 8532.0 | 8495.0 | 5000-10000lm (-10%) |
| Luminous Efficacy (lm/W) | 135.99 | 136.61 | Standard: $\geq 105(-3\%)$ |
| Most worst Luminous/Highest Watts | 135.40 | | |



Spectral Power Distribution & Chromaticity Diagram



| WL(nm) | PL | PE(mW/nm) | WL(nm) | PL | PE(mW/nm) | WL(nm) | PL | PE(mW/nm) |
|--------|--------|-----------|--------|--------|-----------|--------|--------|-----------|
| 380 | 0.0007 | 0.1187 | 525 | 0.5600 | 96.1067 | 670 | 0.2686 | 46.0874 |
| 385 | 0.0006 | 0.1021 | 530 | 0.5752 | 98.7099 | 675 | 0.2327 | 39.9386 |
| 390 | 0.0008 | 0.1432 | 535 | 0.5902 | 101.2792 | 680 | 0.2010 | 34.4967 |
| 395 | 0.0004 | 0.0682 | 540 | 0.6111 | 104.8652 | 685 | 0.1730 | 29.6845 |
| 400 | 0.0008 | 0.1447 | 545 | 0.6293 | 107.9949 | 690 | 0.1498 | 25.7114 |
| 405 | 0.0012 | 0.1982 | 550 | 0.6546 | 112.3302 | 695 | 0.1278 | 21.9313 |
| 410 | 0.0027 | 0.4647 | 555 | 0.6821 | 117.0532 | 700 | 0.1096 | 18.8069 |
| 415 | 0.0064 | 1.0981 | 560 | 0.7152 | 122.7418 | 705 | 0.0932 | 15.9936 |
| 420 | 0.0145 | 2.4927 | 565 | 0.7500 | 128.7011 | 710 | 0.0796 | 13.6560 |
| 425 | 0.0294 | 5.0416 | 570 | 0.7839 | 134.5217 | 715 | 0.0667 | 11.4495 |
| 430 | 0.0604 | 10.3657 | 575 | 0.8213 | 140.9443 | 720 | 0.0573 | 9.8338 |
| 435 | 0.1203 | 20.6461 | 580 | 0.8542 | 146.5974 | 725 | 0.0494 | 8.4776 |
| 440 | 0.2331 | 40.0047 | 585 | 0.8799 | 151.0024 | 730 | 0.0414 | 7.1058 |
| 445 | 0.4807 | 82.4868 | 590 | 0.9017 | 154.7362 | 735 | 0.0344 | 5.9029 |
| 450 | 0.8850 | 151.8824 | 595 | 0.9141 | 156.8718 | 740 | 0.0299 | 5.1367 |
| 455 | 0.9680 | 166.1270 | 600 | 0.9135 | 156.7683 | 745 | 0.0265 | 4.5434 |
| 460 | 0.6738 | 115.6362 | 605 | 0.8997 | 154.3956 | 750 | 0.0226 | 3.8787 |
| 465 | 0.5247 | 90.0441 | 610 | 0.8763 | 150.3910 | 755 | 0.0199 | 3.4126 |
| 470 | 0.4335 | 74.3921 | 615 | 0.8421 | 144.5112 | 760 | 0.0167 | 2.8588 |
| 475 | 0.3208 | 55.0565 | 620 | 0.7965 | 136.6871 | 765 | 0.0145 | 2.4955 |
| 480 | 0.2751 | 47.2168 | 625 | 0.7442 | 127.7064 | 770 | 0.0129 | 2.2100 |
| 485 | 0.2834 | 48.6324 | 630 | 0.6892 | 118.2679 | 775 | 0.0107 | 1.8428 |
| 490 | 0.3050 | 52.3373 | 635 | 0.6315 | 108.3657 | 780 | 0.0081 | 1.3872 |
| 495 | 0.3457 | 59.3322 | 640 | 0.5699 | 97.7956 | 785 | 0.0058 | 0.9904 |
| 500 | 0.3972 | 68.1566 | 645 | 0.5113 | 87.7415 | 790 | 0.0066 | 1.1337 |
| 505 | 0.4445 | 76.2763 | 650 | 0.4568 | 78.3884 | 795 | 0.0045 | 0.7703 |
| 510 | 0.4860 | 83.4097 | 655 | 0.4034 | 69.2229 | 800 | 0.0053 | 0.9106 |
| 515 | 0.5170 | 88.7225 | 660 | 0.3531 | 60.5958 | | | |
| 520 | 0.5406 | 92.7659 | 665 | 0.3087 | 52.9704 | | | |

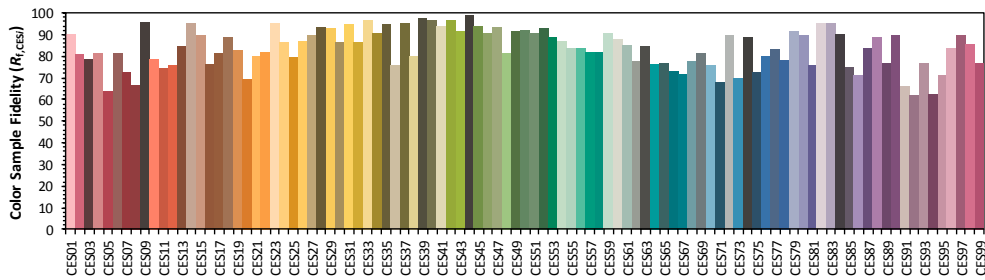
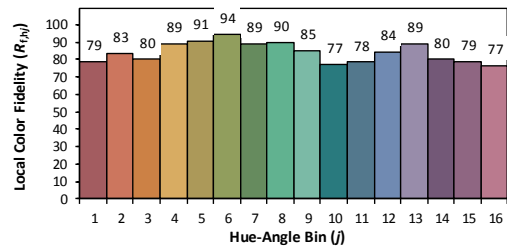
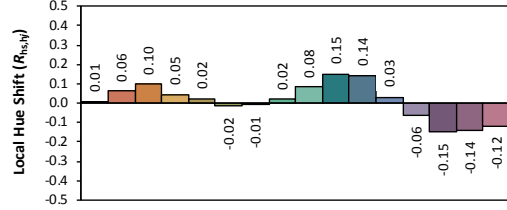
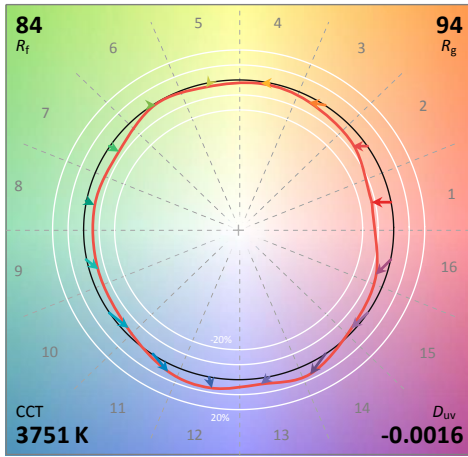
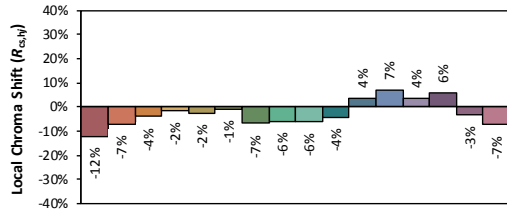
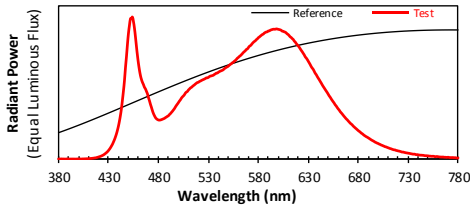


TM30

ANSI/IES TM-30-18 Color Rendition Report

Source: L128-XX80RA35000H1
Date: 2020/8/26

Manufacturer: AS MART LIGHT CO., LTD
Model: AST-CLW08C-063WBCA1-ad40K (Tested at 50% CCT Setting)



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.3907
 y 0.3794
 u' 0.2308
 v' 0.5043

CIE 13.3-1995 (CRI)
 R_a 84
 R_9 9

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

**2.3 Electrical, Photometric and Chromaticity Measurements***(Refer to Work Instruction BL-QP-033)*

| | | | |
|-------------------------|---|---------------------------------|---------|
| Test date | 2020-08-26 | Test Ambient: | 25.2 °C |
| Test Orientation | As intended | Stabilization Time (min) | 90 |
| Model Number | AST-CLW08C-063WBCA1-adCA50K (Tested at 100% CCT Setting) | | |

Electrical Measurement:

| Sample No. | Voltage (Vac) | Frequency (Hz) | Current (A) | Power (W) | Power Factor | THD % | |
|--------------------------|---------------|----------------|-------------|-----------|--------------|------------------|---------------|
| BLC200803 | 120.0 | 60 | 0.5354 | 63.67 | 0.991 | 10.99 | |
| 2E-D1 | 277.0 | 60 | 0.2388 | 63.10 | 0.954 | 10.61 | |
| DLC Pass Criteria | | | | | | $\geq 0.9(-3\%)$ | $\leq 20(+5)$ |

Chromaticity Measurement - Sphere-Spectroradiometer Method in King Luminaire K400 Series (Mogul Socket Version):

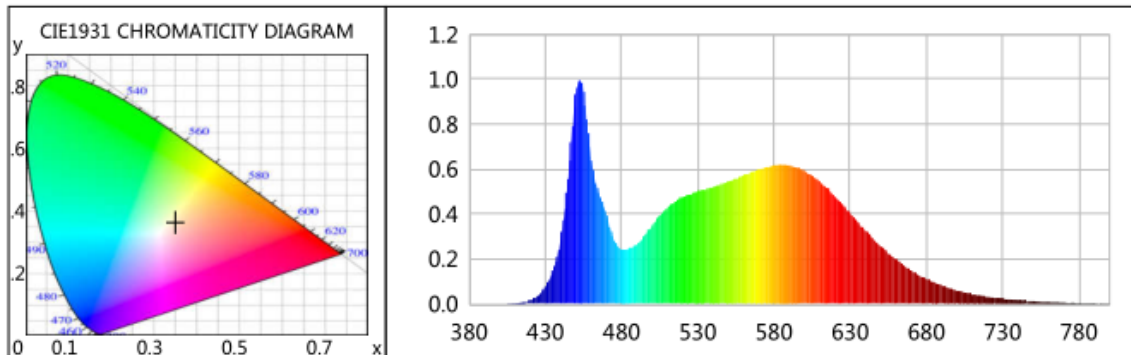
| Parameter | Result | Special Color Rendering Indices | | | |
|-----------------------------|-------------------------|---------------------------------|----|-----|----|
| Test Voltage (V) | 120.0 | R1 | 79 | R9 | -3 |
| Frequency (Hz) | 60 | R2 | 89 | R10 | 73 |
| CCT (K) | 4865 | R3 | 94 | R11 | 77 |
| Duv | 0.0029 | R4 | 79 | R12 | 54 |
| Chromaticity (x, y) | x=0.3497 y=0.3612 | R5 | 79 | R13 | 82 |
| Chromaticity (u', v') | u(u')=0.2108 v'=-0.4900 | R6 | 84 | R14 | 97 |
| Color Rendering Index (CRI) | 81 | R7 | 85 | R15 | 73 |
| R9 | -3 | R8 | 62 | -- | -- |
| Rf | 82 | -- | -- | -- | -- |
| Rg | 94 | -- | -- | -- | -- |
| Rcs,h1(%) | -14 | -- | -- | -- | -- |

Photometric Measurement –Sphere-Spectroradiometer Method in King Luminaire K400 Series (Mogul Socket Version):

| Parameter | Result | | DLC V5.1 Pass Criteria |
|-----------------------------------|--------|--------|----------------------------|
| Test Voltage (V) | 120.0 | 277.0 | -- |
| Frequency (Hz) | 60 | 60 | |
| Total Luminous (lm) | 8481.5 | 8444.7 | 5000-10000lm (-10%) |
| Luminous Efficacy (lm/W) | 133.21 | 133.82 | Standard: $\geq 105(-3\%)$ |
| Most worst Luminous/Highest Watts | 132.63 | | |



Spectral Power Distribution & Chromaticity Diagram



| WL(nm) | PL | PE(mW/nm) | WL(nm) | PL | PE(mW/nm) | WL(nm) | PL | PE(mW/nm) |
|--------|--------|-----------|--------|--------|-----------|--------|--------|-----------|
| 380 | 0.0002 | 0.0417 | 525 | 0.4891 | 109.9407 | 670 | 0.1495 | 33.6062 |
| 385 | 0.0002 | 0.0362 | 530 | 0.5000 | 112.3991 | 675 | 0.1290 | 28.9917 |
| 390 | 0.0001 | 0.0319 | 535 | 0.5096 | 114.5526 | 680 | 0.1117 | 25.1045 |
| 395 | 0.0006 | 0.1266 | 540 | 0.5212 | 117.1541 | 685 | 0.0967 | 21.7411 |
| 400 | 0.0008 | 0.1719 | 545 | 0.5308 | 119.3206 | 690 | 0.0832 | 18.6934 |
| 405 | 0.0017 | 0.3845 | 550 | 0.5440 | 122.2872 | 695 | 0.0714 | 16.0533 |
| 410 | 0.0029 | 0.6477 | 555 | 0.5575 | 125.3205 | 700 | 0.0604 | 13.5676 |
| 415 | 0.0079 | 1.7755 | 560 | 0.5723 | 128.6513 | 705 | 0.0517 | 11.6106 |
| 420 | 0.0176 | 3.9552 | 565 | 0.5873 | 132.0042 | 710 | 0.0439 | 9.8612 |
| 425 | 0.0372 | 8.3533 | 570 | 0.5980 | 134.4081 | 715 | 0.0378 | 8.5048 |
| 430 | 0.0758 | 17.0298 | 575 | 0.6094 | 136.9813 | 720 | 0.0317 | 7.1349 |
| 435 | 0.1487 | 33.4205 | 580 | 0.6174 | 138.7697 | 725 | 0.0268 | 6.0345 |
| 440 | 0.2834 | 63.7045 | 585 | 0.6186 | 139.0381 | 730 | 0.0234 | 5.2555 |
| 445 | 0.5626 | 126.4685 | 590 | 0.6161 | 138.4832 | 735 | 0.0196 | 4.4098 |
| 450 | 0.9336 | 209.8582 | 595 | 0.6074 | 136.5342 | 740 | 0.0169 | 3.8088 |
| 455 | 0.9427 | 211.8984 | 600 | 0.5940 | 133.5119 | 745 | 0.0152 | 3.4165 |
| 460 | 0.6446 | 144.9021 | 605 | 0.5714 | 128.4356 | 750 | 0.0125 | 2.8201 |
| 465 | 0.4942 | 111.0775 | 610 | 0.5450 | 122.5098 | 755 | 0.0107 | 2.3994 |
| 470 | 0.3931 | 88.3544 | 615 | 0.5140 | 115.5392 | 760 | 0.0089 | 2.0095 |
| 475 | 0.2864 | 64.3695 | 620 | 0.4790 | 107.6742 | 765 | 0.0083 | 1.8625 |
| 480 | 0.2435 | 54.7375 | 625 | 0.4415 | 99.2409 | 770 | 0.0066 | 1.4887 |
| 485 | 0.2467 | 55.4429 | 630 | 0.4030 | 90.5900 | 775 | 0.0051 | 1.1511 |
| 490 | 0.2653 | 59.6378 | 635 | 0.3643 | 81.8785 | 780 | 0.0040 | 0.8943 |
| 495 | 0.3022 | 67.9256 | 640 | 0.3272 | 73.5449 | 785 | 0.0034 | 0.7623 |
| 500 | 0.3489 | 78.4189 | 645 | 0.2909 | 65.3977 | 790 | 0.0048 | 1.0701 |
| 505 | 0.3914 | 87.9883 | 650 | 0.2575 | 57.8902 | 795 | 0.0027 | 0.6018 |
| 510 | 0.4275 | 96.0910 | 655 | 0.2263 | 50.8731 | 800 | 0.0020 | 0.4572 |
| 515 | 0.4547 | 102.2169 | 660 | 0.1977 | 44.4283 | | | |
| 520 | 0.4741 | 106.5604 | 665 | 0.1722 | 38.7086 | | | |

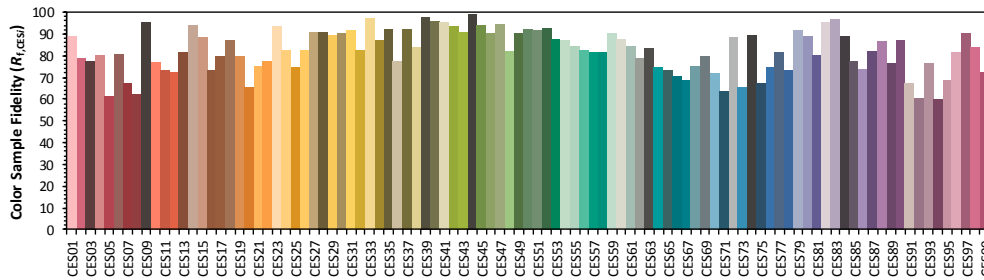
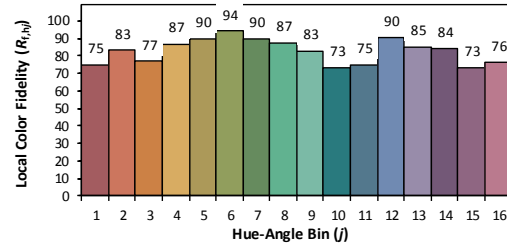
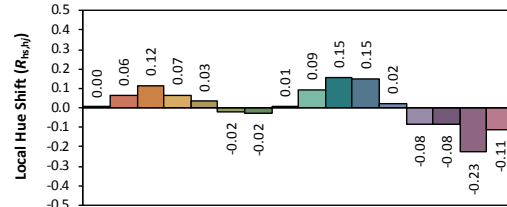
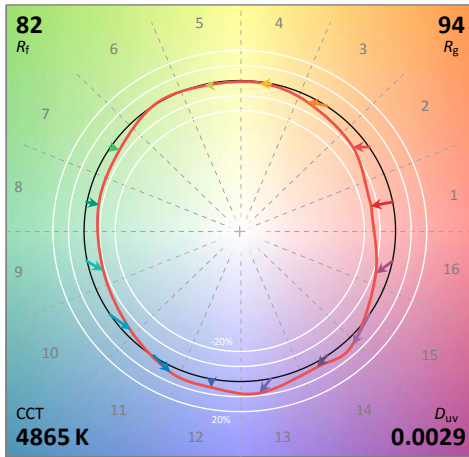
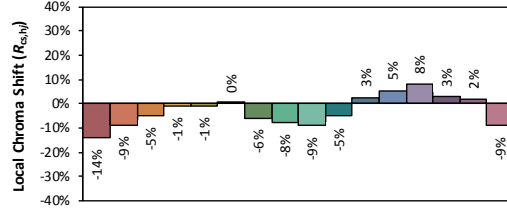
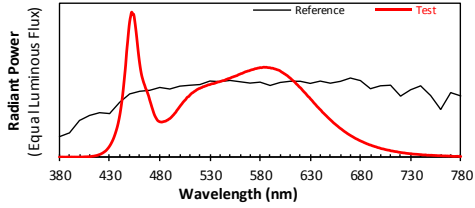


TM30

ANSI/IES TM-30-18 Color Rendition Report

Source: L128-XX80RA35000H1
Date: 2020/8/26

Manufacturer: AS MART LIGHT CO., LTD
Model: AST-CLW08C-063WBCA1-ad50K (Tested at 100% CCT Setting)



Notes: This is a recommended method for displaying ANSI/IES TM-30-18 information.

x 0.3497
 y 0.3612
 u' 0.2108
 v' 0.4900

| | |
|---------------------|----|
| CIE 13.3-1995 (CRI) | |
| R_a | 81 |
| R_9 | -3 |

Colors are for visual orientation purposes only. Created with the ANSI/IES TM-30-18 Calculator Version 2.00.

**3. Test Equipment**

| Equipment Name | Model No. | Serial No. | Next Calibration Date |
|---|-----------|-------------|-----------------------|
| Goniophotometric System | GPM-3000 | DYHXF120001 | 2021/2/26 |
| AC Power Source | CHP-500C | N/A | 2021/3/29 |
| Total Luminous Flux Standard Lamp | 24V/150W | DYJYR040040 | 2021/3/1 |
| Digital Power Meter | WT500 | DYDWQ200006 | 2021/3/29 |
| Integral Sphere (2M) | 2M | DYJCE120067 | 2021/2/26 |
| Digital Power Meter | WT500 | DYDWQ200006 | 2021/3/29 |
| Optical Color and Electrical Measurement System | CMS-3000S | DYJCE120067 | 2021/2/26 |

Expand Uncertainty:
Photometric Measurement (Sphere): 2.08%, k=2
Chromaticity Measurement(Sphere):25.6K, k=2
Photometric Measurement(Goniophotometer):2.645%, k=2

******* END OF REPORT *******