# LM-79-19 Test Report

For

## LEDVANCE LLC

181 BALLARDVALE STREET, SUITE 203 WILMINGTON, MA 01887

## HAZARDOUS FLOODLIGHT

Model Name(s):
HAZFLOODP/300HUVD850/GR

Representative (Tested) Model:
HAZFLOODP/300HUVD850/GR

**Model Difference: N/A**

Prepared by:

Alan Wang

Engineer: Alan Wang
Date: 2025-07-25

Reviewed by:

Vincent Yuan

Technical Lead: Vincent Yuan
Issue Date: 2025-09-05
Revised Date: N/A

Note: 1. The results contained in this report pertain only to the tested samples.

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3. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST or any agency of the U.S. Government.

**Client Information:**

| | |
|---|---|
| Applicant Name: | LEDVANCE LLC |
| Brand Name: | LEDVANCE |
| Applicant Address: | 181 BALLARDVALE STREET, SUITE 203 WILMINGTON, MA 01887 |
| Manufacturer Name: | LEDVANCE LLC |
| Manufacturer Address: | 181 BALLARDVALE STREET, SUITE 203 WILMINGTON, MA 01887 |

**Product Information:**

| | |
|---|---|
| Model Number: | HAZFLOODP/300HUVD850/GR |
| Product Type: | HAZARDOUS FLOODLIGHT |
| Rating Input: | 277-480Vac, 50/60Hz, 300W |
| Declared CCT: | 5000K |
| Declared Light Output: | 45000 lm |
| LED Manufacturer: | Bridgelux, Inc. |
| LED Model: | BXEN-50E-21L-3C-00-00-0 |
| LED Quantity: | 2240 pcs |
| LED Driver Manufacturer: | MEAN WELL ENTERPRISES CO., LTD. |
| LED Driver Model: | HVG-320-48AB |

**Test Information:**

| | |
|---|---|
| Standard Lamp: | Total Spectral Radiant Flux Standard Lamp, trace to NIST.<br>1. D908S for Gonio<br>2. D215S for Integrating Sphere |
| Date of Receipt Samples: | 2025-07-14 |
| Quantity of Receipt Samples: | 1 pc |
| Sample Number: | 250714018-S1 |
| Test Representation: | N/A |

**Laboratory Information:**

| | |
|---|---|
| Test Laboratory: | Dongguan New Testing Centre Co., Ltd |
| Laboratory Address: | 3F, No. 1 the 1st North Industry Road, Songshan Lake Science & Technology Park, Dongguan, Guangdong, China |
| Laboratory Contact Name: | Neil Zhong |
| Laboratory Contact E-mail: | Neil_zhong@ntc-cert.com |

**Report Information:**

| | |
|---|---|
| Test Report Form: | LM-79_TRF_V1.5 |
| Issued Date of Test Report: | 2025-09-05 |
| Revised Date of Test Report: | N/A |
| Test Report No.: | NTCLR25070199 |
| Remark *(If applicable)*: | N/A |

| Test Specification: | |
|---|---|
| Date of Test | 2025-07-19 |
| Test Item | 1. Total Luminous Flux<br>2. Luminous Distribution Intensity<br>3. Luminous Efficacy<br>4. Correlated Color Temperature<br>5. Color Rendering Index<br>6. Chromaticity Coordinate<br>7. Fidelity Index<br>8. Gamut Index<br>9. Local Chroma Shift<br>10. THD and PF |
| Reference Standard | ANSI/IES LM-79:2019 Optical and Electrical Measurements of Solid-State Lighting Products – Chromaticity Uniformity Measurements<br>ANSI C78.377-2017 Specifications for the Chromaticity of Solid State Lighting Products<br>CIE 13.3-1995 Method of Measuring and Specifying Color Rendering Properties of Light Sources<br>CIE 15-2018 Technical Report Colorimetry<br>ANSI IES TM-30-18 IES Method for Evaluating Light Source Color Rendition<br>IES TM-15-11 Luminaire Classification System for Outdoor Luminaires<br>Addendum A for IES TM-15-11 Backlight, Uplight, and Glare (BUG) Ratings<br>ANSI C82.77-10:2020 Harmonic Emission Limits – Related Power Quality Requirements for Lighting Equipment – Solid State |

## Test Methods:

**1. Photometric and Electrical Measurements – Light Distribution Method:**

Photometric parameters were measured using the goniophotometer and software. The ambient temperature shall be maintained at 25 °C ± 1°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 required Voltage and Frequency. It was stabilized before measurement was made. Luminous Flux, Luminaire Efficacy and Zonal Lumen were calculated from the software taken at 1° vertical intervals and 15° horizonal intervals.

**2. Photometric and Electrical Measurements – Integrating Sphere Method:**

Photometric parameters were measured using an integrating sphere, as spectroradiometer and software. The ambient temperature condition inside the sphere was measured at 25 °C± 1°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 require Voltage and Frequency. It was stabilized before measurement was made. Chromaticity Coordinates, Correlated Color Temperature and Color Rendering Index were calculated from the spectral radiant flux measurements taken at least 1 nm intervals over the rage of 380 to 780 nm.

**3. THD and PF Measurements:**

The sample was tested according to the ANSI C82.77, the sample was operated at requirement Voltage and Frequency, and was stabilized before measurement. The Total Harmonic Distortion was calculated from the Digital Power Meter.

## Integrating Sphere Test Results:

**Test Condition:**

| Test Ambient (°C) | Test Humidity (%) | Orientation | Stabilization Time (minute) | Test Time (minute) |
|---|---|---|---|---|
| 25.0 | 41.4 | Face Down | 90 | 10 |

**Electrical Data:**

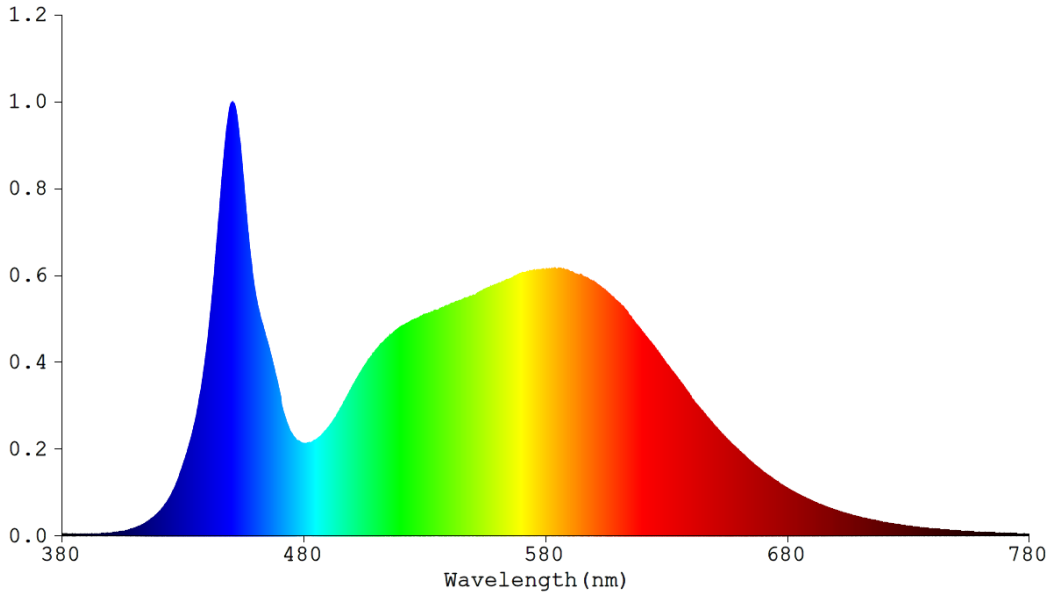
| Voltage (V) | Frequency (Hz) | Current (A) | Wattage (W) | Power Factor |
|---|---|---|---|---|
| 277.0 | 60 | 1.1011 | 303.34 | 0.9945 |

**Color Data:**

| Parameter | | Result |
|---|---|---|
| CCT(K) | 7 steps: 5029±283 | 4994 |
| | 4 steps: 5029±220 | |
| Ra | | 80.8 |
| $R_f$ | | 82 |
| $R_g$ | | 96 |
| $R_{cs,\ h1}$ | | -14% |
| Chromaticity, (x, y) | | (0.3456, 0.3549) |
| Chromaticity, (u', v') | | (0.2105, 0.4863) |
| Duv | | 0.0015 |
| SDCM | | 0.8 |

| Specify Color Rendering | | | |
|---|---|---|---|
| R1 | 78 | R9 | -4 |
| R2 | 86 | R10 | 68 |
| R3 | 92 | R11 | 78 |
| R4 | 80 | R12 | 55 |
| R5 | 79 | R13 | 80 |
| R6 | 81 | R14 | 96 |
| R7 | 86 | R15 | 73 |
| R8 | 64 | - | - |

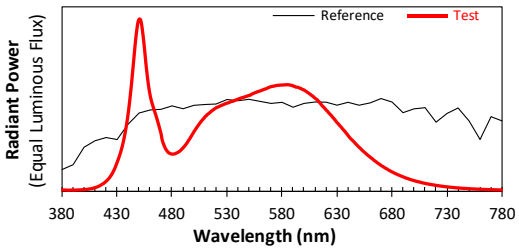
## Spectrum Diagram:

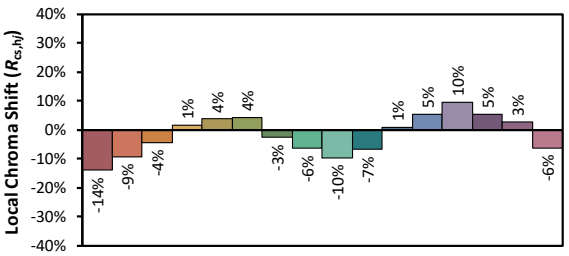


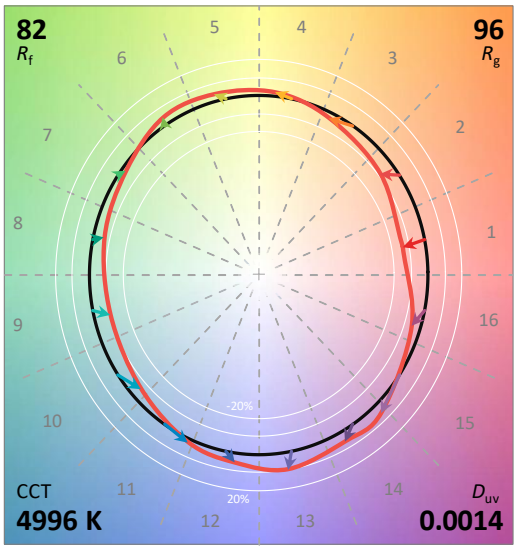
## IES TM-30-18 Color Rendition Result:

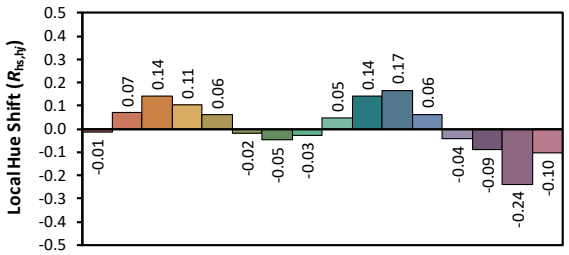
# ANSI/IES TM-30-18 Color Rendition Report

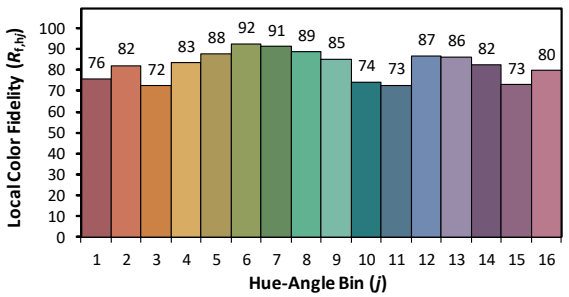
| | | | |
|---|---|---|---|
| **Source:** | 1 CIE F1 | **Manufacturer:** | LEDVANCE LLC |
| **Date:** | 2025/7/25 | **Model:** | HAZFLOODP/300HUVD850/GR |

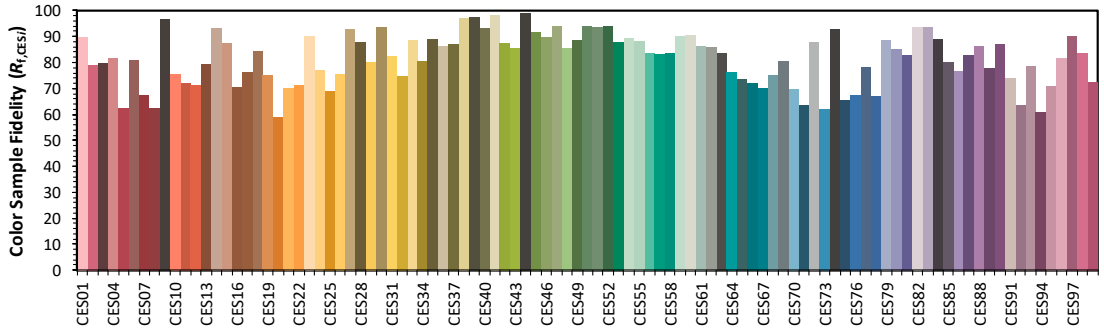



**Notes:** This is a recommended method for displaying ANSI/IES TM-30-18 information.

| | |
|---|---|
| $x$ | 0.3455 |
| $y$ | 0.3547 |
| $u'$ | 0.2105 |
| $v'$ | 0.4862 |

CIE 13.3-1995 (CRI)

| | |
|---|---|
| $R_a$ | 81 |
| $R_9$ | -4 |

## Spectrum Data:

| Spectral Distribution over Visible Wavelength | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| WL (nm) | Radiant (W/nm) | WL (nm) | Radiant (W/nm) | WL (nm) | Radiant (W/nm) | WL (nm) | Radiant (W/nm) | WL (nm) | Radiant (W/nm) | WL (nm) | Radiant (W/nm) |
| 380 | 5.50E-06 | 447 | 8.85E-04 | 514 | 4.53E-04 | 581 | 6.15E-04 | 648 | 2.66E-04 | 715 | 3.68E-05 |
| 381 | 4.70E-06 | 448 | 9.38E-04 | 515 | 4.58E-04 | 582 | 6.16E-04 | 649 | 2.60E-04 | 716 | 3.59E-05 |
| 382 | 4.70E-06 | 449 | 9.80E-04 | 516 | 4.64E-04 | 583 | 6.16E-04 | 650 | 2.53E-04 | 717 | 3.47E-05 |
| 383 | 4.10E-06 | 450 | 9.97E-04 | 517 | 4.68E-04 | 584 | 6.17E-04 | 651 | 2.48E-04 | 718 | 3.37E-05 |
| 384 | 4.60E-06 | 451 | 9.97E-04 | 518 | 4.74E-04 | 585 | 6.16E-04 | 652 | 2.41E-04 | 719 | 3.25E-05 |
| 385 | 3.20E-06 | 452 | 9.78E-04 | 519 | 4.78E-04 | 586 | 6.16E-04 | 653 | 2.34E-04 | 720 | 3.15E-05 |
| 386 | 3.40E-06 | 453 | 9.34E-04 | 520 | 4.82E-04 | 587 | 6.15E-04 | 654 | 2.29E-04 | 721 | 3.06E-05 |
| 387 | 3.60E-06 | 454 | 8.82E-04 | 521 | 4.85E-04 | 588 | 6.13E-04 | 655 | 2.23E-04 | 722 | 2.95E-05 |
| 388 | 4.40E-06 | 455 | 8.21E-04 | 522 | 4.88E-04 | 589 | 6.13E-04 | 656 | 2.18E-04 | 723 | 2.86E-05 |
| 389 | 4.20E-06 | 456 | 7.53E-04 | 523 | 4.91E-04 | 590 | 6.09E-04 | 657 | 2.12E-04 | 724 | 2.76E-05 |
| 390 | 3.50E-06 | 457 | 6.94E-04 | 524 | 4.94E-04 | 591 | 6.08E-04 | 658 | 2.07E-04 | 725 | 2.68E-05 |
| 391 | 4.20E-06 | 458 | 6.40E-04 | 525 | 4.97E-04 | 592 | 6.04E-04 | 659 | 2.01E-04 | 726 | 2.61E-05 |
| 392 | 4.00E-06 | 459 | 5.93E-04 | 526 | 4.99E-04 | 593 | 6.03E-04 | 660 | 1.96E-04 | 727 | 2.51E-05 |
| 393 | 4.50E-06 | 460 | 5.57E-04 | 527 | 5.01E-04 | 594 | 6.02E-04 | 661 | 1.91E-04 | 728 | 2.45E-05 |
| 394 | 4.60E-06 | 461 | 5.28E-04 | 528 | 5.05E-04 | 595 | 6.00E-04 | 662 | 1.86E-04 | 729 | 2.34E-05 |
| 395 | 4.80E-06 | 462 | 5.04E-04 | 529 | 5.08E-04 | 596 | 5.97E-04 | 663 | 1.81E-04 | 730 | 2.29E-05 |
| 396 | 5.60E-06 | 463 | 4.84E-04 | 530 | 5.09E-04 | 597 | 5.95E-04 | 664 | 1.75E-04 | 731 | 2.21E-05 |
| 397 | 5.60E-06 | 464 | 4.64E-04 | 531 | 5.12E-04 | 598 | 5.91E-04 | 665 | 1.71E-04 | 732 | 2.14E-05 |
| 398 | 5.90E-06 | 465 | 4.44E-04 | 532 | 5.13E-04 | 599 | 5.88E-04 | 666 | 1.66E-04 | 733 | 2.08E-05 |
| 399 | 6.70E-06 | 466 | 4.24E-04 | 533 | 5.17E-04 | 600 | 5.86E-04 | 667 | 1.61E-04 | 734 | 2.00E-05 |
| 400 | 7.10E-06 | 467 | 4.02E-04 | 534 | 5.20E-04 | 601 | 5.81E-04 | 668 | 1.57E-04 | 735 | 1.96E-05 |
| 401 | 7.80E-06 | 468 | 3.79E-04 | 535 | 5.20E-04 | 602 | 5.77E-04 | 669 | 1.52E-04 | 736 | 1.89E-05 |
| 402 | 8.20E-06 | 469 | 3.55E-04 | 536 | 5.22E-04 | 603 | 5.73E-04 | 670 | 1.47E-04 | 737 | 1.81E-05 |
| 403 | 8.70E-06 | 470 | 3.31E-04 | 537 | 5.25E-04 | 604 | 5.68E-04 | 671 | 1.44E-04 | 738 | 1.77E-05 |
| 404 | 9.90E-06 | 471 | 2.95E-04 | 538 | 5.28E-04 | 605 | 5.64E-04 | 672 | 1.40E-04 | 739 | 1.70E-05 |
| 405 | 1.09E-05 | 472 | 2.76E-04 | 539 | 5.30E-04 | 606 | 5.59E-04 | 673 | 1.36E-04 | 740 | 1.67E-05 |
| 406 | 1.16E-05 | 473 | 2.59E-04 | 540 | 5.32E-04 | 607 | 5.53E-04 | 674 | 1.31E-04 | 741 | 1.63E-05 |
| 407 | 1.30E-05 | 474 | 2.45E-04 | 541 | 5.36E-04 | 608 | 5.50E-04 | 675 | 1.28E-04 | 742 | 1.56E-05 |
| 408 | 1.46E-05 | 475 | 2.35E-04 | 542 | 5.37E-04 | 609 | 5.43E-04 | 676 | 1.25E-04 | 743 | 1.51E-05 |
| 409 | 1.68E-05 | 476 | 2.27E-04 | 543 | 5.40E-04 | 610 | 5.38E-04 | 677 | 1.20E-04 | 744 | 1.45E-05 |
| 410 | 1.81E-05 | 477 | 2.20E-04 | 544 | 5.42E-04 | 611 | 5.33E-04 | 678 | 1.17E-04 | 745 | 1.43E-05 |
| 411 | 2.03E-05 | 478 | 2.18E-04 | 545 | 5.43E-04 | 612 | 5.29E-04 | 679 | 1.13E-04 | 746 | 1.37E-05 |
| 412 | 2.25E-05 | 479 | 2.15E-04 | 546 | 5.45E-04 | 613 | 5.21E-04 | 680 | 1.10E-04 | 747 | 1.33E-05 |
| 413 | 2.53E-05 | 480 | 2.13E-04 | 547 | 5.48E-04 | 614 | 5.14E-04 | 681 | 1.07E-04 | 748 | 1.31E-05 |
| 414 | 2.82E-05 | 481 | 2.13E-04 | 548 | 5.50E-04 | 615 | 5.06E-04 | 682 | 1.03E-04 | 749 | 1.23E-05 |
| 415 | 3.21E-05 | 482 | 2.14E-04 | 549 | 5.52E-04 | 616 | 4.98E-04 | 683 | 1.00E-04 | 750 | 1.22E-05 |
| 416 | 3.60E-05 | 483 | 2.16E-04 | 550 | 5.55E-04 | 617 | 4.91E-04 | 684 | 9.72E-05 | 751 | 1.17E-05 |
| 417 | 4.04E-05 | 484 | 2.19E-04 | 551 | 5.56E-04 | 618 | 4.85E-04 | 685 | 9.43E-05 | 752 | 1.13E-05 |
| 418 | 4.42E-05 | 485 | 2.22E-04 | 552 | 5.60E-04 | 619 | 4.78E-04 | 686 | 9.15E-05 | 753 | 1.10E-05 |
| 419 | 4.95E-05 | 486 | 2.26E-04 | 553 | 5.63E-04 | 620 | 4.70E-04 | 687 | 8.89E-05 | 754 | 1.06E-05 |
| 420 | 5.50E-05 | 487 | 2.30E-04 | 554 | 5.66E-04 | 621 | 4.64E-04 | 688 | 8.61E-05 | 755 | 1.06E-05 |
| 421 | 6.10E-05 | 488 | 2.36E-04 | 555 | 5.69E-04 | 622 | 4.56E-04 | 689 | 8.35E-05 | 756 | 1.01E-05 |
| 422 | 6.80E-05 | 489 | 2.43E-04 | 556 | 5.72E-04 | 623 | 4.49E-04 | 690 | 8.14E-05 | 757 | 9.50E-06 |
| 423 | 7.51E-05 | 490 | 2.50E-04 | 557 | 5.74E-04 | 624 | 4.42E-04 | 691 | 7.85E-05 | 758 | 9.30E-06 |
| 424 | 8.45E-05 | 491 | 2.57E-04 | 558 | 5.76E-04 | 625 | 4.36E-04 | 692 | 7.61E-05 | 759 | 9.20E-06 |
| 425 | 9.38E-05 | 492 | 2.65E-04 | 559 | 5.78E-04 | 626 | 4.27E-04 | 693 | 7.32E-05 | 760 | 8.90E-06 |
| 426 | 1.05E-04 | 493 | 2.73E-04 | 560 | 5.81E-04 | 627 | 4.20E-04 | 694 | 7.18E-05 | 761 | 8.60E-06 |
| 427 | 1.18E-04 | 494 | 2.83E-04 | 561 | 5.82E-04 | 628 | 4.12E-04 | 695 | 6.93E-05 | 762 | 8.40E-06 |
| 428 | 1.31E-04 | 495 | 2.93E-04 | 562 | 5.86E-04 | 629 | 4.05E-04 | 696 | 6.70E-05 | 763 | 8.10E-06 |
| 429 | 1.48E-04 | 496 | 3.02E-04 | 563 | 5.88E-04 | 630 | 3.96E-04 | 697 | 6.49E-05 | 764 | 7.70E-06 |
| 430 | 1.65E-04 | 497 | 3.13E-04 | 564 | 5.91E-04 | 631 | 3.90E-04 | 698 | 6.29E-05 | 765 | 7.70E-06 |
| 431 | 1.81E-04 | 498 | 3.23E-04 | 565 | 5.92E-04 | 632 | 3.82E-04 | 699 | 6.08E-05 | 766 | 7.40E-06 |
| 432 | 2.00E-04 | 499 | 3.34E-04 | 566 | 5.94E-04 | 633 | 3.75E-04 | 700 | 5.91E-05 | 767 | 7.20E-06 |
| 433 | 2.19E-04 | 500 | 3.45E-04 | 567 | 5.98E-04 | 634 | 3.68E-04 | 701 | 5.73E-05 | 768 | 7.00E-06 |
| 434 | 2.42E-04 | 501 | 3.54E-04 | 568 | 6.01E-04 | 635 | 3.60E-04 | 702 | 5.55E-05 | 769 | 6.80E-06 |
| 435 | 2.66E-04 | 502 | 3.64E-04 | 569 | 6.03E-04 | 636 | 3.53E-04 | 703 | 5.35E-05 | 770 | 6.40E-06 |
| 436 | 2.95E-04 | 503 | 3.73E-04 | 570 | 6.06E-04 | 637 | 3.46E-04 | 704 | 5.24E-05 | 771 | 6.50E-06 |
| 437 | 3.27E-04 | 504 | 3.82E-04 | 571 | 6.06E-04 | 638 | 3.38E-04 | 705 | 5.08E-05 | 772 | 6.20E-06 |
| 438 | 3.61E-04 | 505 | 3.91E-04 | 572 | 6.08E-04 | 639 | 3.30E-04 | 706 | 4.93E-05 | 773 | 6.00E-06 |
| 439 | 4.01E-04 | 506 | 4.00E-04 | 573 | 6.09E-04 | 640 | 3.22E-04 | 707 | 4.73E-05 | 774 | 5.70E-06 |
| 440 | 4.45E-04 | 507 | 4.08E-04 | 574 | 6.11E-04 | 641 | 3.13E-04 | 708 | 4.59E-05 | 775 | 5.50E-06 |
| 441 | 4.97E-04 | 508 | 4.15E-04 | 575 | 6.13E-04 | 642 | 3.06E-04 | 709 | 4.45E-05 | 776 | 5.40E-06 |
| 442 | 5.54E-04 | 509 | 4.22E-04 | 576 | 6.12E-04 | 643 | 2.99E-04 | 710 | 4.34E-05 | 777 | 5.30E-06 |
| 443 | 6.14E-04 | 510 | 4.30E-04 | 577 | 6.14E-04 | 644 | 2.93E-04 | 711 | 4.17E-05 | 778 | 5.20E-06 |
| 444 | 6.82E-04 | 511 | 4.36E-04 | 578 | 6.14E-04 | 645 | 2.87E-04 | 712 | 4.05E-05 | 779 | 5.30E-06 |
| 445 | 7.50E-04 | 512 | 4.43E-04 | 579 | 6.15E-04 | 646 | 2.80E-04 | 713 | 3.92E-05 | 780 | 5.30E-06 |
| 446 | 8.21E-04 | 513 | 4.47E-04 | 580 | 6.15E-04 | 647 | 2.73E-04 | 714 | 3.81E-05 | N/A | N/A |

## Goniophotometer Test Results:

**Test Condition:**

| Test Ambient (°C) | Test Humidity (%) | Orientation | Stabilization Time (minute) | Test Time (minute) |
|---|---|---|---|---|
| 25.0 | 40.4 | Face Down | 90 | 25 |

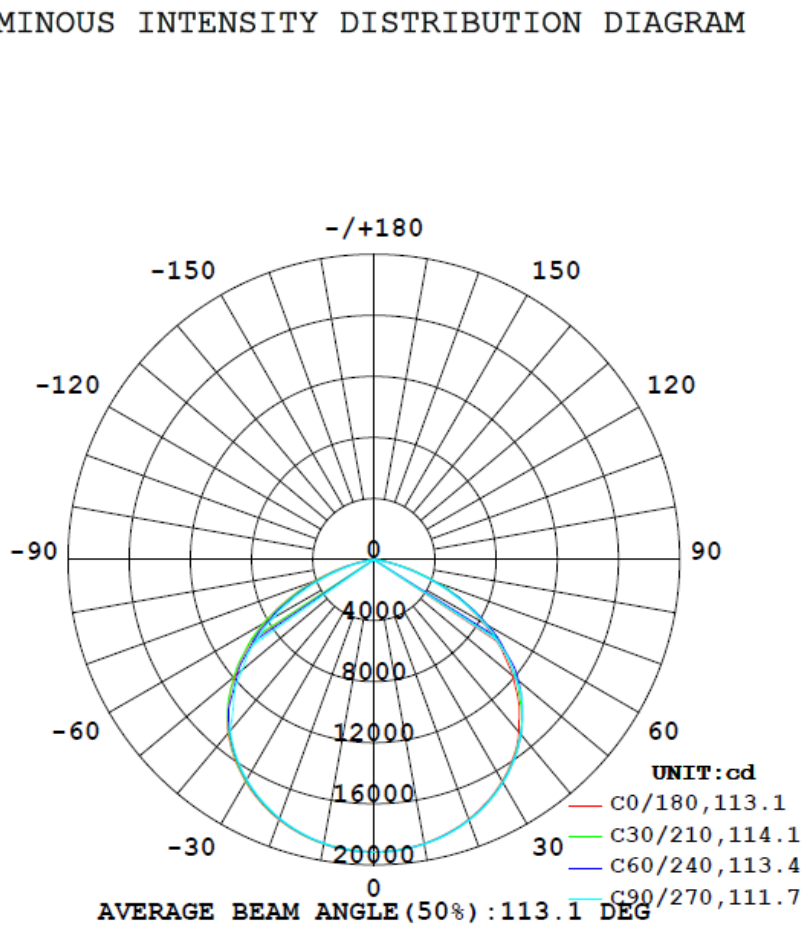
**Electrical Data:**

| Voltage (V) | Frequency (Hz) | Current (A) | Wattage (W) | Power Factor |
|---|---|---|---|---|
| 277.0 | 60 | 1.1011 | 303.34 | 0.9945 |

**Goniophotometer Data:**

| Parameter | Results | |
|---|---|---|
| Total Luminous (lm) | 53258.8 | |
| Luminous Efficacy (lm/W) | 175.57 | |
| Zonal Lumens Distribution (0-90°) | 99.9% | |
| Beam Angle (50%) (°) | Horizontal | Vertical |
| | 112.9 | 111.7 |
| Field Angle (10%) (°) | Horizontal | Vertical |
| | 153.8 | 151.0 |
| NEAM Type | 7H x 7V | |

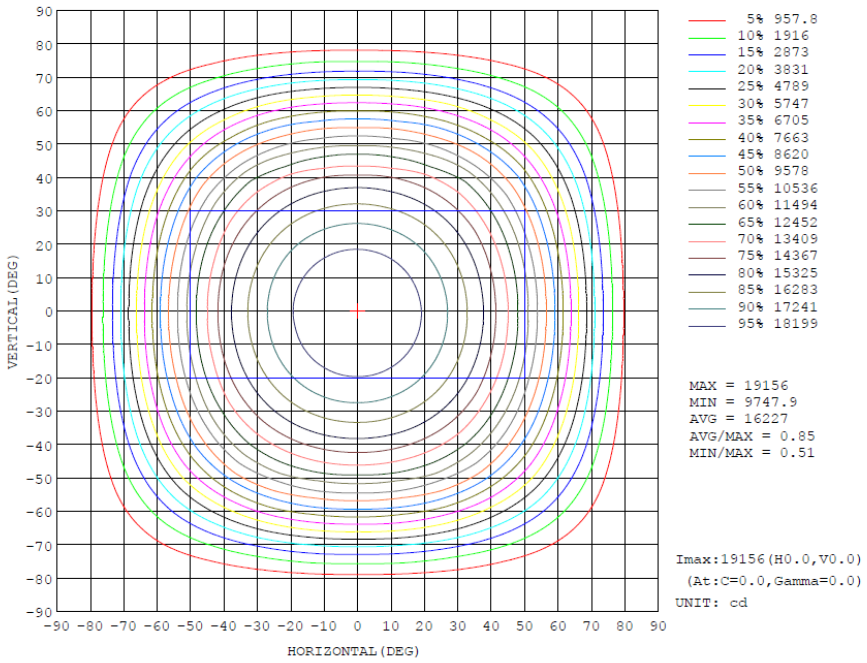
## Luminous Intensity Distribution Diagram:



## Zonal Flux Diagram:

| γ | C0 | C45 | C90 | C135 | C180 | C225 | C270 | C315 | γ | Φ zone | Φ total | %lum,lamp |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 1889 | 1891 | 1892 | 1891 | 1892 | 1889 | 1887 | 1886 | 0- 10 | 1815 | 1815 | 3.41,3.41 |
| 20 | 1811 | 1815 | 1817 | 1816 | 1813 | 1807 | 1803 | 1804 | 10- 20 | 5244 | 7060 | 13.3,13.3 |
| 30 | 1677 | 1684 | 1686 | 1685 | 1679 | 1670 | 1663 | 1668 | 20- 30 | 8074 | 15133 | 28.4,28.4 |
| 40 | 1474 | 1493 | 1495 | 1493 | 1483 | 1472 | 1461 | 1472 | 30- 40 | 9927 | 25061 | 47.1,47.1 |
| 50 | 1187 | 1230 | 1209 | 1233 | 1186 | 1207 | 1127 | 1204 | 40- 50 | 10386 | 35447 | 66.6,66.6 |
| 60 | 824.3 | 861.5 | 832.1 | 859.6 | 829.7 | 801.8 | 755.2 | 801.5 | 50- 60 | 9088 | 44535 | 83.6,83.6 |
| 70 | 422.6 | 429.4 | 412.0 | 428.1 | 419.9 | 387.5 | 353.6 | 388.8 | 60- 70 | 6100 | 50635 | 95.1,95.1 |
| 80 | 87.85 | 80.69 | 72.27 | 79.41 | 84.24 | 64.84 | 53.85 | 66.87 | 70- 80 | 2360 | 52995 | 99.5,99.5 |
| 90 | 0.4422 | 0.3516 | 0.2026 | 0.2291 | 0.2858 | 0.2854 | 0.2759 | 0.2928 | 80- 90 | 209.0 | 53204 | 99.9,99.9 |
| 100 | 0.2388 | 0.2277 | 0.2184 | 0.2327 | 0.5162 | 0.5293 | 0.5193 | 0.5287 | 90-100 | 3.169 | 53207 | 99.9,99.9 |
| 110 | 0.3555 | 0.3465 | 0.3430 | 0.3651 | 0.6674 | 0.6954 | 0.6922 | 0.6994 | 100-110 | 4.814 | 53212 | 99.9,99.9 |
| 120 | 0.5444 | 0.5024 | 0.5290 | 0.5595 | 0.8225 | 0.8473 | 0.8747 | 0.8441 | 110-120 | 5.897 | 53218 | 99.9,99.9 |
| 130 | 0.8320 | 0.7604 | 0.7641 | 0.8208 | 1.194 | 1.224 | 1.247 | 1.163 | 120-130 | 7.469 | 53226 | 99.9,99.9 |
| 140 | 1.068 | 1.006 | 1.007 | 1.059 | 1.470 | 1.600 | 1.600 | 1.515 | 130-140 | 8.864 | 53235 | 100,100 |
| 150 | 1.238 | 1.216 | 1.244 | 1.229 | 1.816 | 1.963 | 2.028 | 1.931 | 140-150 | 9.037 | 53244 | 100,100 |
| 160 | 1.514 | 1.482 | 1.405 | 1.500 | 2.199 | 2.258 | 2.212 | 2.201 | 150-160 | 7.968 | 53252 | 100,100 |
| 170 | 1.714 | 1.735 | 1.559 | 1.650 | 2.224 | 2.254 | 2.203 | 2.155 | 160-170 | 5.433 | 53257 | 100,100 |
| 180 | 2.018 | 2.053 | 1.952 | 1.968 | 2.005 | 2.049 | 1.965 | 1.933 | 170-180 | 1.860 | 53259 | 100,100 |
| DEG | LUMINOUS INTENSITY:×10cd | | | | | | | | | UNIT:lm | | |

## Isocandela Diagram:



## Luminous Distribution Intensity Data:

Table--1 UNIT: ×10cd

| γ (DEG) \ C(DEG) | 0 | 15 | 30 | 45 | 60 | 75 | 90 | 105 | 120 | 135 | 150 | 165 | 180 | 195 | 210 | 225 | 240 | 255 | 270 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | 1916 | 1916 | 1915 | 1915 | 1915 | 1915 | 1915 | 1914 | 1914 | 1914 | 1914 | 1914 | 1916 | 1916 | 1915 | 1915 | 1915 | 1915 | 1915 |
| 5 | 1908 | 1909 | 1909 | 1909 | 1909 | 1909 | 1909 | 1909 | 1909 | 1909 | 1908 | 1908 | 1910 | 1909 | 1908 | 1908 | 1907 | 1907 | 1906 |
| 10 | 1889 | 1889 | 1890 | 1891 | 1891 | 1892 | 1892 | 1892 | 1892 | 1891 | 1890 | 1890 | 1892 | 1891 | 1890 | 1889 | 1888 | 1887 | 1887 |
| 15 | 1856 | 1858 | 1858 | 1860 | 1860 | 1861 | 1861 | 1861 | 1861 | 1860 | 1859 | 1858 | 1859 | 1858 | 1856 | 1854 | 1853 | 1852 | 1851 |
| 20 | 1811 | 1812 | 1814 | 1815 | 1816 | 1817 | 1817 | 1817 | 1817 | 1816 | 1815 | 1813 | 1813 | 1811 | 1809 | 1807 | 1805 | 1804 | 1803 |
| 25 | 1751 | 1753 | 1756 | 1757 | 1758 | 1759 | 1759 | 1760 | 1759 | 1758 | 1756 | 1754 | 1753 | 1751 | 1749 | 1746 | 1744 | 1742 | 1740 |
| 30 | 1677 | 1680 | 1682 | 1684 | 1685 | 1686 | 1686 | 1687 | 1686 | 1685 | 1683 | 1680 | 1679 | 1676 | 1673 | 1670 | 1667 | 1665 | 1663 |
| 35 | 1587 | 1591 | 1594 | 1597 | 1598 | 1598 | 1599 | 1600 | 1599 | 1597 | 1594 | 1591 | 1589 | 1586 | 1583 | 1579 | 1576 | 1574 | 1572 |
| 40 | 1474 | 1484 | 1490 | 1493 | 1495 | 1494 | 1495 | 1495 | 1495 | 1493 | 1490 | 1485 | 1483 | 1480 | 1476 | 1472 | 1468 | 1466 | 1461 |
| 45 | 1343 | 1348 | 1360 | 1372 | 1373 | 1374 | 1373 | 1373 | 1374 | 1373 | 1368 | 1348 | 1342 | 1341 | 1353 | 1349 | 1335 | 1299 | 1297 |
| 50 | 1187 | 1194 | 1213 | 1230 | 1234 | 1227 | 1209 | 1224 | 1234 | 1233 | 1214 | 1197 | 1186 | 1189 | 1196 | 1207 | 1166 | 1141 | 1127 |
| 55 | 1016 | 1023 | 1044 | 1063 | 1050 | 1049 | 1034 | 1048 | 1050 | 1063 | 1041 | 1024 | 1013 | 1014 | 1023 | 1004 | 981 | 971 | 949 |
| 60 | 824 | 838 | 854 | 861 | 855 | 849 | 832 | 850 | 854 | 860 | 856 | 836 | 830 | 827 | 837 | 802 | 788 | 774 | 755 |
| 65 | 625 | 636 | 653 | 646 | 643 | 629 | 628 | 631 | 643 | 641 | 652 | 633 | 626 | 624 | 615 | 591 | 585 | 566 | 561 |
| 70 | 423 | 430 | 435 | 429 | 422 | 416 | 412 | 416 | 420 | 428 | 434 | 430 | 420 | 421 | 404 | 387 | 373 | 365 | 354 |
| 75 | 236 | 243 | 236 | 225 | 221 | 221 | 216 | 219 | 219 | 222 | 232 | 239 | 233 | 234 | 216 | 198 | 190 | 188 | 182 |
| 80 | 87.8 | 92.5 | 86.5 | 80.7 | 79.2 | 76.8 | 72.3 | 76.2 | 77.0 | 79.4 | 86.1 | 90.6 | 84.2 | 81.3 | 71.7 | 64.8 | 57.8 | 56.8 | 53.8 |
| 85 | 10.1 | 11.1 | 10.9 | 10.1 | 11.4 | 9.50 | 8.42 | 9.37 | 10.9 | 9.52 | 10.4 | 10.4 | 9.34 | 9.38 | 8.35 | 7.10 | 6.24 | 6.20 | 5.92 |
| 90 | 0.44 | 0.43 | 0.41 | 0.35 | 0.32 | 0.19 | 0.20 | 1.20 | 0.21 | 0.23 | 0.21 | 0.20 | 0.29 | 0.29 | 0.29 | 0.29 | 0.28 | 0.28 | 0.28 |
| 95 | 0.18 | 0.17 | 0.17 | 0.17 | 0.16 | 0.16 | 0.16 | 0.16 | 0.16 | 0.17 | 0.17 | 0.18 | 0.39 | 0.40 | 0.40 | 0.40 | 0.40 | 0.39 | 0.39 |
| 100 | 0.24 | 0.23 | 0.23 | 0.23 | 0.22 | 0.22 | 0.22 | 0.22 | 0.23 | 0.23 | 0.24 | 0.24 | 0.52 | 0.52 | 0.53 | 0.53 | 0.53 | 0.52 | 0.52 |
| 105 | 0.30 | 0.29 | 0.29 | 0.29 | 0.28 | 0.28 | 0.28 | 0.28 | 0.29 | 0.30 | 0.30 | 0.30 | 0.62 | 0.62 | 0.63 | 0.64 | 0.64 | 0.64 | 0.63 |
| 110 | 0.36 | 0.35 | 0.34 | 0.35 | 0.34 | 0.34 | 0.34 | 0.35 | 0.36 | 0.37 | 0.36 | 0.36 | 0.67 | 0.67 | 0.68 | 0.70 | 0.70 | 0.70 | 0.69 |
| 115 | 0.43 | 0.43 | 0.41 | 0.42 | 0.41 | 0.41 | 0.42 | 0.44 | 0.45 | 0.45 | 0.45 | 0.44 | 0.73 | 0.73 | 0.73 | 0.76 | 0.77 | 0.76 | 0.76 |
| 120 | 0.54 | 0.54 | 0.50 | 0.50 | 0.51 | 0.52 | 0.53 | 0.54 | 0.56 | 0.56 | 0.56 | 0.55 | 0.82 | 0.83 | 0.83 | 0.85 | 0.86 | 0.86 | 0.87 |
| 125 | 0.69 | 0.65 | 0.61 | 0.62 | 0.61 | 0.63 | 0.64 | 0.65 | 0.67 | 0.67 | 0.67 | 0.68 | 1.01 | 1.01 | 0.99 | 1.02 | 1.03 | 1.03 | 1.04 |
| 130 | 0.83 | 0.80 | 0.76 | 0.76 | 0.78 | 0.76 | 0.76 | 0.77 | 0.81 | 0.82 | 0.83 | 0.83 | 1.19 | 1.20 | 1.19 | 1.22 | 1.23 | 1.24 | 1.25 |
| 135 | 0.96 | 0.95 | 0.91 | 0.89 | 0.93 | 0.90 | 0.91 | 0.93 | 0.94 | 0.94 | 0.96 | 0.95 | 1.34 | 1.36 | 1.37 | 1.40 | 1.41 | 1.44 | 1.44 |
| 140 | 1.07 | 1.08 | 1.03 | 1.01 | 1.02 | 1.00 | 1.01 | 1.02 | 1.03 | 1.06 | 1.02 | 1.06 | 1.47 | 1.50 | 1.53 | 1.60 | 1.58 | 1.63 | 1.60 |
| 145 | 1.15 | 1.19 | 1.15 | 1.12 | 1.17 | 1.17 | 1.15 | 1.16 | 1.16 | 1.15 | 1.11 | 1.16 | 1.65 | 1.68 | 1.70 | 1.80 | 1.81 | 1.83 | 1.82 |
| 150 | 1.24 | 1.28 | 1.27 | 1.22 | 1.24 | 1.25 | 1.24 | 1.26 | 1.24 | 1.23 | 1.18 | 1.22 | 1.82 | 1.86 | 1.86 | 1.96 | 2.00 | 2.05 | 2.03 |
| 155 | 1.36 | 1.43 | 1.46 | 1.34 | 1.37 | 1.37 | 1.35 | 1.39 | 1.38 | 1.36 | 1.38 | 1.32 | 2.00 | 1.99 | 2.08 | 2.11 | 2.14 | 2.19 | 2.13 |
| 160 | 1.51 | 1.57 | 1.59 | 1.48 | 1.44 | 1.45 | 1.40 | 1.50 | 1.49 | 1.50 | 1.52 | 1.48 | 2.20 | 2.18 | 2.22 | 2.26 | 2.26 | 2.28 | 2.21 |
| 165 | 1.61 | 1.68 | 1.70 | 1.62 | 1.54 | 1.52 | 1.48 | 1.57 | 1.61 | 1.62 | 1.61 | 1.59 | 2.24 | 2.23 | 2.26 | 2.32 | 2.34 | 2.32 | 2.25 |
| 170 | 1.71 | 1.76 | 1.77 | 1.73 | 1.60 | 1.58 | 1.56 | 1.62 | 1.66 | 1.65 | 1.66 | 1.69 | 2.22 | 2.22 | 2.22 | 2.25 | 2.29 | 2.28 | 2.20 |
| 175 | 1.88 | 1.89 | 1.92 | 1.89 | 1.77 | 1.74 | 1.67 | 1.72 | 1.78 | 1.81 | 1.83 | 1.85 | 2.17 | 2.17 | 2.20 | 2.21 | 2.18 | 2.16 | 2.10 |
| 180 | 2.02 | 2.04 | 2.03 | 2.05 | 1.98 | 1.96 | 1.95 | 1.90 | 1.94 | 1.97 | 1.94 | 1.96 | 2.01 | 2.01 | 2.04 | 2.05 | 2.04 | 1.93 | 1.97 |

Table--2 UNIT: ×10cd

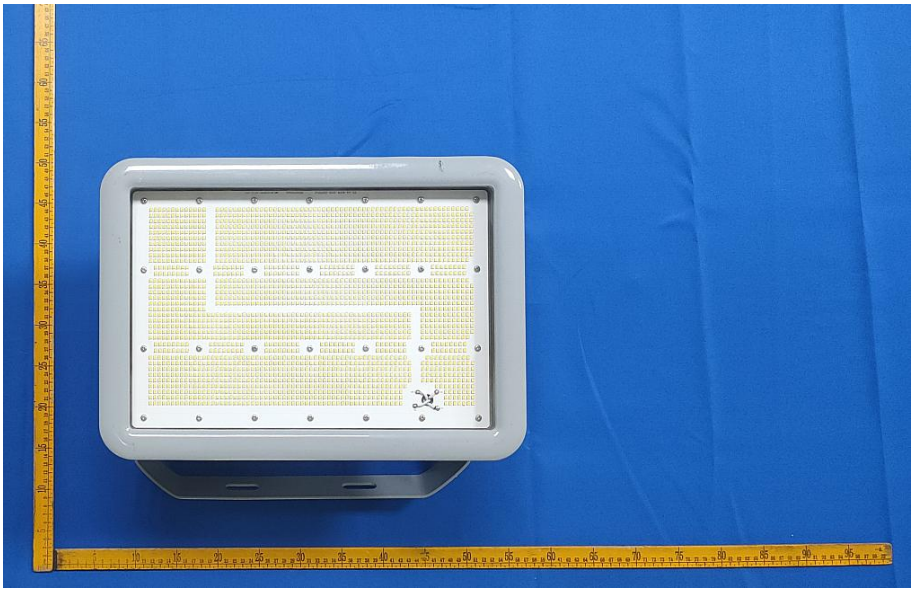
| γ (DEG) \ C(DEG) | 285 | 300 | 315 | 330 | 345 |
|---|---|---|---|---|---|
| 0 | 1914 | 1914 | 1914 | 1914 | 1914 |
| 5 | 1906 | 1906 | 1906 | 1906 | 1906 |
| 10 | 1886 | 1886 | 1886 | 1887 | 1887 |
| 15 | 1851 | 1851 | 1851 | 1852 | 1854 |
| 20 | 1803 | 1803 | 1804 | 1806 | 1808 |
| 25 | 1741 | 1741 | 1743 | 1745 | 1748 |
| 30 | 1664 | 1665 | 1668 | 1670 | 1673 |
| 35 | 1571 | 1574 | 1578 | 1581 | 1584 |
| 40 | 1463 | 1467 | 1472 | 1474 | 1475 |
| 45 | 1297 | 1335 | 1348 | 1342 | 1339 |
| 50 | 1142 | 1166 | 1204 | 1194 | 1184 |
| 55 | 973 | 980 | 1003 | 1023 | 1013 |
| 60 | 775 | 788 | 802 | 835 | 828 |
| 65 | 564 | 584 | 592 | 616 | 626 |
| 70 | 363 | 372 | 389 | 404 | 421 |
| 75 | 188 | 189 | 199 | 218 | 237 |
| 80 | 56.6 | 58.7 | 66.9 | 74.3 | 84.1 |
| 85 | 6.30 | 6.45 | 8.10 | 9.70 | 10.4 |
| 90 | 0.28 | 0.29 | 0.29 | 0.29 | 0.29 |
| 95 | 0.39 | 0.40 | 0.40 | 0.40 | 0.39 |
| 100 | 0.52 | 0.52 | 0.53 | 0.53 | 0.52 |
| 105 | 0.63 | 0.64 | 0.64 | 0.63 | 0.62 |
| 110 | 0.70 | 0.70 | 0.70 | 0.68 | 0.67 |
| 115 | 0.77 | 0.76 | 0.76 | 0.74 | 0.74 |
| 120 | 0.87 | 0.85 | 0.84 | 0.83 | 0.83 |
| 125 | 1.02 | 1.01 | 1.00 | 0.98 | 1.00 |
| 130 | 1.21 | 1.19 | 1.16 | 1.13 | 1.17 |
| 135 | 1.42 | 1.38 | 1.31 | 1.31 | 1.33 |
| 140 | 1.57 | 1.51 | 1.51 | 1.50 | 1.51 |
| 145 | 1.77 | 1.76 | 1.74 | 1.71 | 1.72 |
| 150 | 1.97 | 1.97 | 1.93 | 1.88 | 1.90 |
| 155 | 2.09 | 2.09 | 2.07 | 2.10 | 2.11 |
| 160 | 2.17 | 2.22 | 2.20 | 2.26 | 2.27 |
| 165 | 2.18 | 2.23 | 2.26 | 2.30 | 2.32 |
| 170 | 2.14 | 2.18 | 2.15 | 2.22 | 2.26 |
| 175 | 2.04 | 2.07 | 2.05 | 2.13 | 2.18 |
| 180 | 1.95 | 1.90 | 1.93 | 1.96 | 1.95 |

## THD and PF Measurement Test Results:

### Electrical Measurement:

| Voltage (V) | Frequency (Hz) | Current (A) | Wattage (W) | Power Factor | iTHD(%) |
|---|---|---|---|---|---|
| 277.0 | 60 | 1.1011 | 303.34 | 0.9945 | 3.95 |
| 347.0 | 60 | 0.8773 | 300.30 | 0.9864 | 3.38 |
| 480.0 | 60 | 0.6440 | 297.60 | 0.9628 | 5.22 |

**Photo of Sample:**



**Equipment List:**

| Equipment ID | Equipment Name | Last Cal. | Due Cal. |
|---|---|---|---|
| NTC-F01-001 | Goniophotometer System | 2024-11-07 | 2025-11-06 |
| NTC-F01-006 | 2.0 meter Integrating Sphere | 2024-11-07 | 2025-11-06 |
| NTC-F01-012 | Standard Lamp | 2024-10-28 | 2025-10-27 |
| NTC-F01-013 | Standard Lamp | 2024-10-28 | 2025-10-27 |
| NTC-F01-031 | Digital Power Meter | 2024-08-06 | 2025-08-05 |
| NTC-F01-020 | Temperature & Humidity Meter | 2024-10-29 | 2025-10-28 |

************End of Report************