





TEST REPORT No. E/1/22.10.15./01

**SIA Baltic Photometric Laboratory Test Report for
Electrical Measurements of Solid-State Lighting Products**

| | |
|--|---|
| Report reference No. | Report No.: E/1/22.10.15./01 |
| Date of Issue | 29.10.2015. |
| Project Handler | Ingmārs Felcis |
| Testing Laboratory | SIA Baltic Photometric Laboratory |
| Address | Gaujas iela 24/32, LV-2136, Inčukalna nov., Vangaži, Latvia |
| Testing location | Same as above |
| Client | SIA "VIZULO" |
| Client number | 1 |
| Address | Ganību dambis 7a, Rīga, LV-1045 |
| Contact person | Sergejs Burtovojš, sergey.burtovoy@vizulo.eu |
| Standard | This SIA Baltic Photometric Laboratory test method is based on the requirements in the following standards: IES LM-79-08 and EN 13032-1:2004+A1:2012 |
| TRF originated by | SIA Baltic Photometric Laboratory, Ingmārs Felcis |
| Copyright blank test report | This report based on the content of the standard (see above). The test report considered selected clauses of the a.m. standard(s) and experience gained with product testing. It was prepared by SIA Baltic Photometric Laboratory SIA Baltic Photometric Laboratory takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context. |
| Number of pages (Report) | 45 |
| Compiled and approved by: | |
| Head of Laboratory Ingmārs Felcis-Kaipšteins | |
| (+signature) | |



| | | | | | | | | | | | |
|-------------------------------------|---|-------------------------------------|--|--------------------------|--|--------------------------|---------------|--------------------------|--------------|--------------------------|---------------|
| Test sample | 1 | | | | | | | | | | |
| Type of test object | LED street luminaire | | | | | | | | | | |
| Trade mark | VIZULO STORK | | | | | | | | | | |
| Model and/or type reference | SR 160 740 02 031 S N DD 03 1 | | | | | | | | | | |
| Rating(s) | AC: 210-250 V~, 50 Hz | | | | | | | | | | |
| Manufacturer | Same as above | | | | | | | | | | |
| Address | Same as above | | | | | | | | | | |
| Order Description | <table border="1"> <tr> <td><input checked="" type="checkbox"/></td><td>Full test according to testing application</td></tr> <tr> <td><input type="checkbox"/></td><td>Partial test according to manufacturer's specification</td></tr> <tr> <td><input type="checkbox"/></td><td>Repeated test</td></tr> <tr> <td><input type="checkbox"/></td><td>Device check</td></tr> <tr> <td><input type="checkbox"/></td><td>Other (_____)</td></tr> </table> | <input checked="" type="checkbox"/> | Full test according to testing application | <input type="checkbox"/> | Partial test according to manufacturer's specification | <input type="checkbox"/> | Repeated test | <input type="checkbox"/> | Device check | <input type="checkbox"/> | Other (_____) |
| <input checked="" type="checkbox"/> | Full test according to testing application | | | | | | | | | | |
| <input type="checkbox"/> | Partial test according to manufacturer's specification | | | | | | | | | | |
| <input type="checkbox"/> | Repeated test | | | | | | | | | | |
| <input type="checkbox"/> | Device check | | | | | | | | | | |
| <input type="checkbox"/> | Other (_____) | | | | | | | | | | |
| Date of order | 01.09.2015. | | | | | | | | | | |
| Date of receipt of test item | 06.10.2015. | | | | | | | | | | |
| Date(s) of performance of test | 22.10.2015. | | | | | | | | | | |
| Equipment used | Digital Multimeter: TEKTRONIX DMM4050 (Current $\pm 0,07$ %) Single-Phase AC Power Analyzer: TEKTRONIX PA1000 (Voltage $\pm 0,08$ % $\pm 0,005$ V, Current $\pm 0,08$ %, Active power $\pm 0,15$ %) Basic AC Power Source, 1000 VA, 270 V, 5 A: KEYSIGHT AC6802A | | | | | | | | | | |
| Test item particulars: | | | | | | | | | | | |
| Lamp type: | <input type="checkbox"/> Bare lamp <input checked="" type="checkbox"/> Cover lamp, no reflector <input type="checkbox"/> Lamp with reflector <input type="checkbox"/> Other: | | | | | | | | | | |
| Rated Voltage: | 210-250 V~ | | | | | | | | | | |
| Rated Frequency: | 50 Hz | | | | | | | | | | |
| Attachments: | 1. Concise form of the test report | | | | | | | | | | |



General remarks:

"(See remark #)" refers to a remark appended to the report.

"(See appended table)" refers to a table appended to the report.

Throughout this report, a point is used as the decimal separator.

The test results presented in this report relate only to the object tested.

This report shall not be reproduced except on full without the written approval of the testing laboratory.

SIA Baltic Photometric Laboratory is an accredited photometric, colorimetric testing laboratory by LATAK (Latvian National Accreditation Bureau) acc. to EN 17025 using testing methods based on IESNA LM-79-08 and EN 13032-1+A1:2012 standards.

The report must not be used by the client to claim product certification, approval or endorsement by any agency of the federal government

Summary of testing object:

| Product Name | Product code | Version number (if applicable) |
|-------------------------------|-------------------------------|--------------------------------|
| VIZULO STORK Street luminaire | SR 160 740 02 031 S N DD 03 1 | |

Additional information:

As the electronic components used in the luminaires are the same, the results of the performed tests can be considered the same or very similar for products from VIZULO product ranges Stork and Stork Little Brother with following parameters:

Power: 84 ... 160 [W]

LED module type: 03 (78 LEDs)

LED module quantity: 1

LED driver: Philips Xitanium 150W 0.35-0.7A GL Prog sXt

These parameters correspond to following model numbers:

SR ppp xxx xx 031 x x xx xx x;

SRL ppp xxx xx 031 x x xx xx x, where ppp - 084 ... 160 [W]

Complete model number overviews of aforementioned product ranges can be seen below.



SR

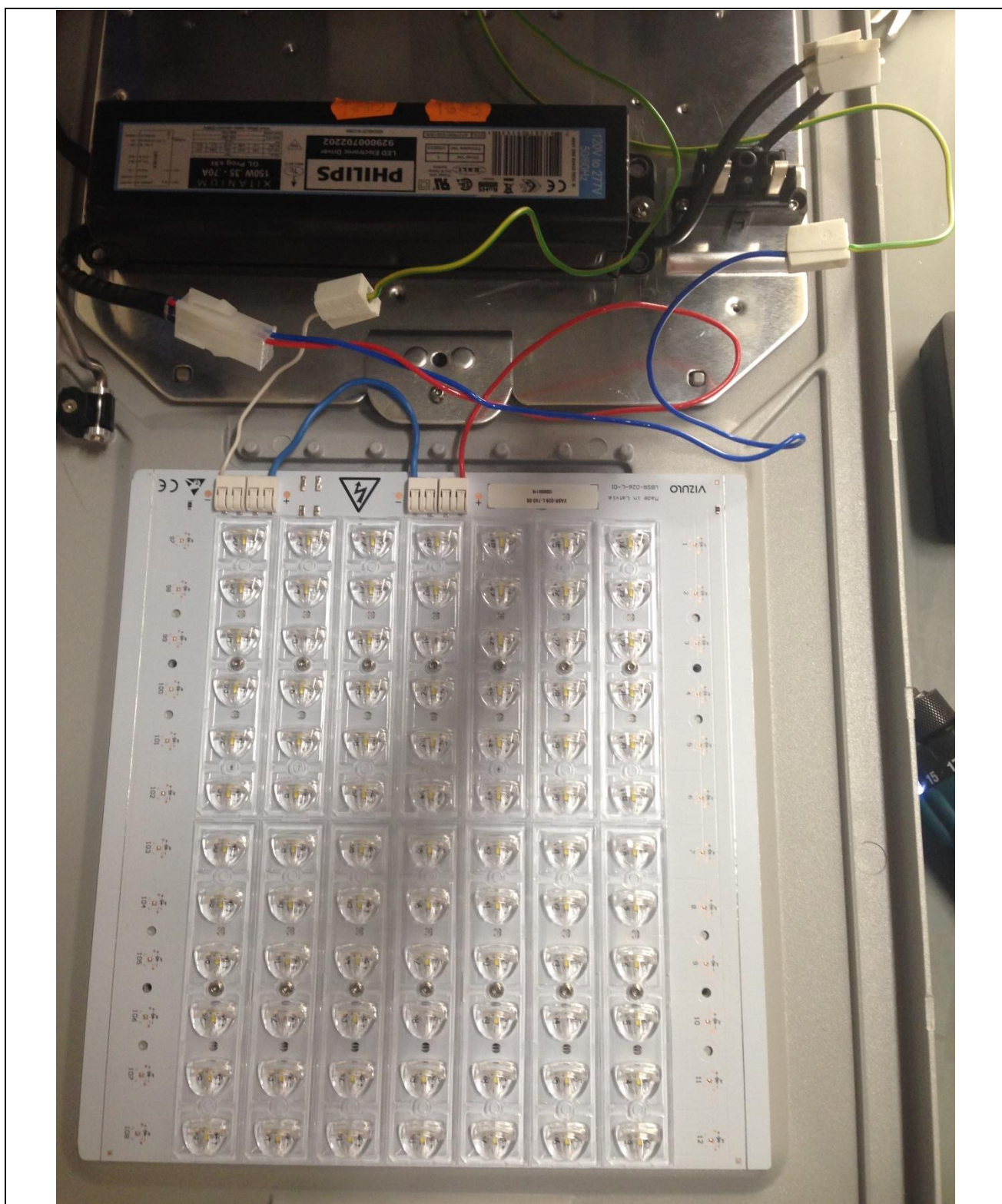
| | |
|-----------------------|--|
| Power [W] | 018 ... 200 |
| Color rendering index | ≥70 - 7 ≥80 - 8 |
| Color temperature [K] | 3000 ... 5000 Standard values: 3000 K - 30 4000 K - 40 |
| Lens type | 01 ... 99 |
| LED module type | 01 ... 04 16 LEDs - 01 108 LEDs - 02 78 LEDs - 03 84 LEDs - 04 98 LEDs - 05 |
| LED module quantity | 1 ... 4 |
| Body color | Silver (RAL 9006) - S Gray (RAL 9007) - G Asphalt (RAL 7138) - A Black (RAL 9005) - B |
| Console | Narrow - N |
| Dimming | Non dimmable - ND DALI - DD 1-10V - D1 Night time dimming - DY Wireless - DW |
| Surge protection [kV] | 03; 06; 10 |
| Protection class | Class I - 1 Class II - 2 Class III - 3 |

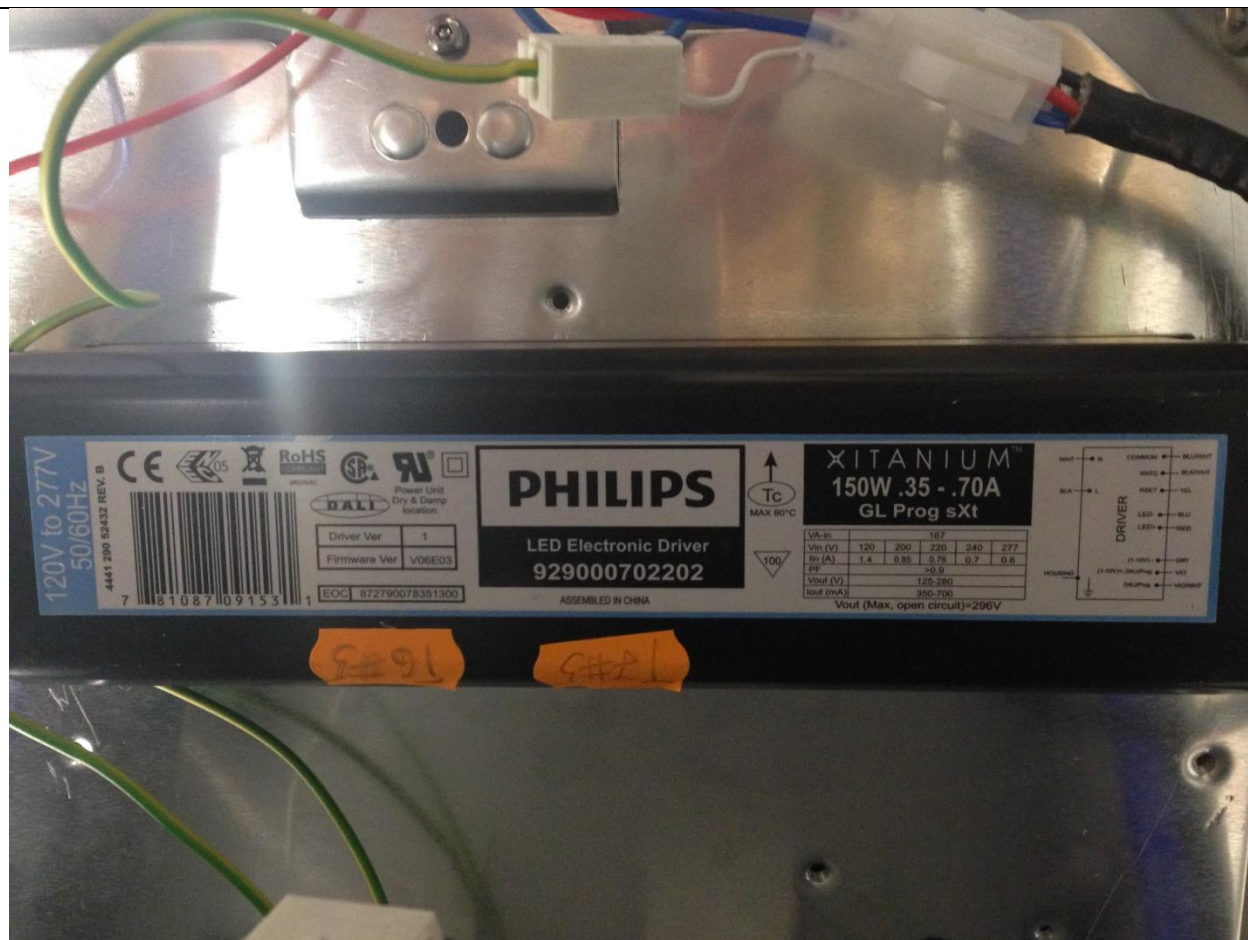
SRL

| | |
|-----------------------|--|
| Power | 018 ... 137 [W] |
| Color rendering index | ≥70 - 7 ≥80 - 8 |
| Color temperature [K] | 3000 ... 5000 Standard values: 3000 K - 30 4000 K - 40 |
| Lens type | 01 ... 99 |
| LED module type | 16 LEDs - 01 |
| LED module quantity | 1 ... 4 |
| Body color | Silver (RAL 9006) - S Gray (RAL 9007) - G Asphalt (RAL 7138) - A Black (RAL 9005) - B |
| Console | Narrow - N |
| Dimming | Non dimmable - ND DALI - DD 1-10V - D1 Night time dimming - DY Wireless - DW |
| Surge protection [kV] | 03; 06; 10 |
| Insulation class | Class I - 1 Class II - 2 Class III - 3 |

Photo of the sample and measuring devices:







Model No.: SR 160 740 02 031 S N DD 03 1



Purpose of the product
(description of intended use)

LED street lamp for general lighting purpose.

Possible test case verdicts:

- test case does not apply to the test object: N (not/ not included in the order)
- test object does meet the requirement: P (pass)
- test object does not meet the requirement: F (fail)

Possible suffixes to the verdicts:

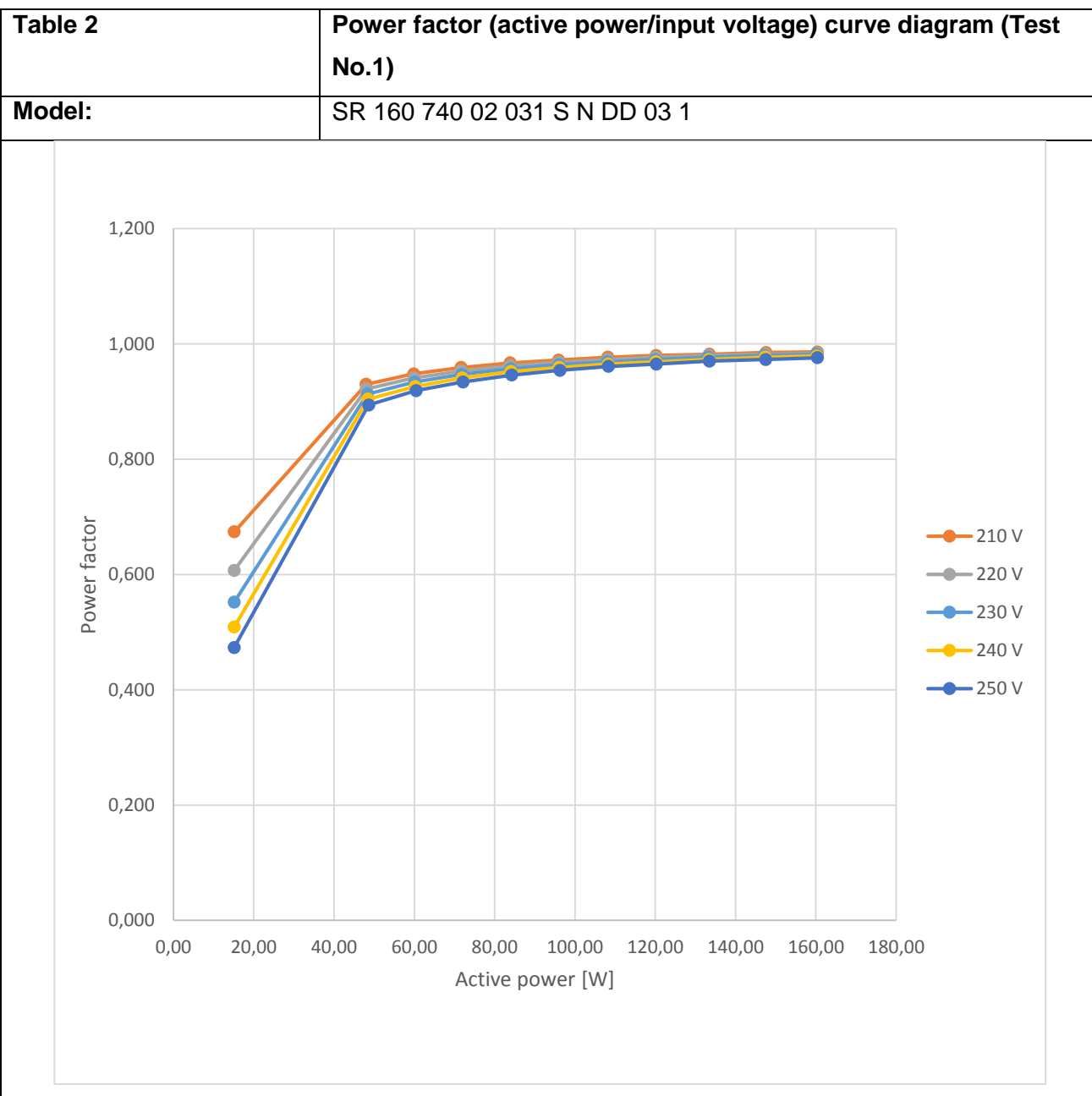
- suffix for detailed information for the client..... C (comment)
- suffix for important information for manufacturer..... M (manufacturing)

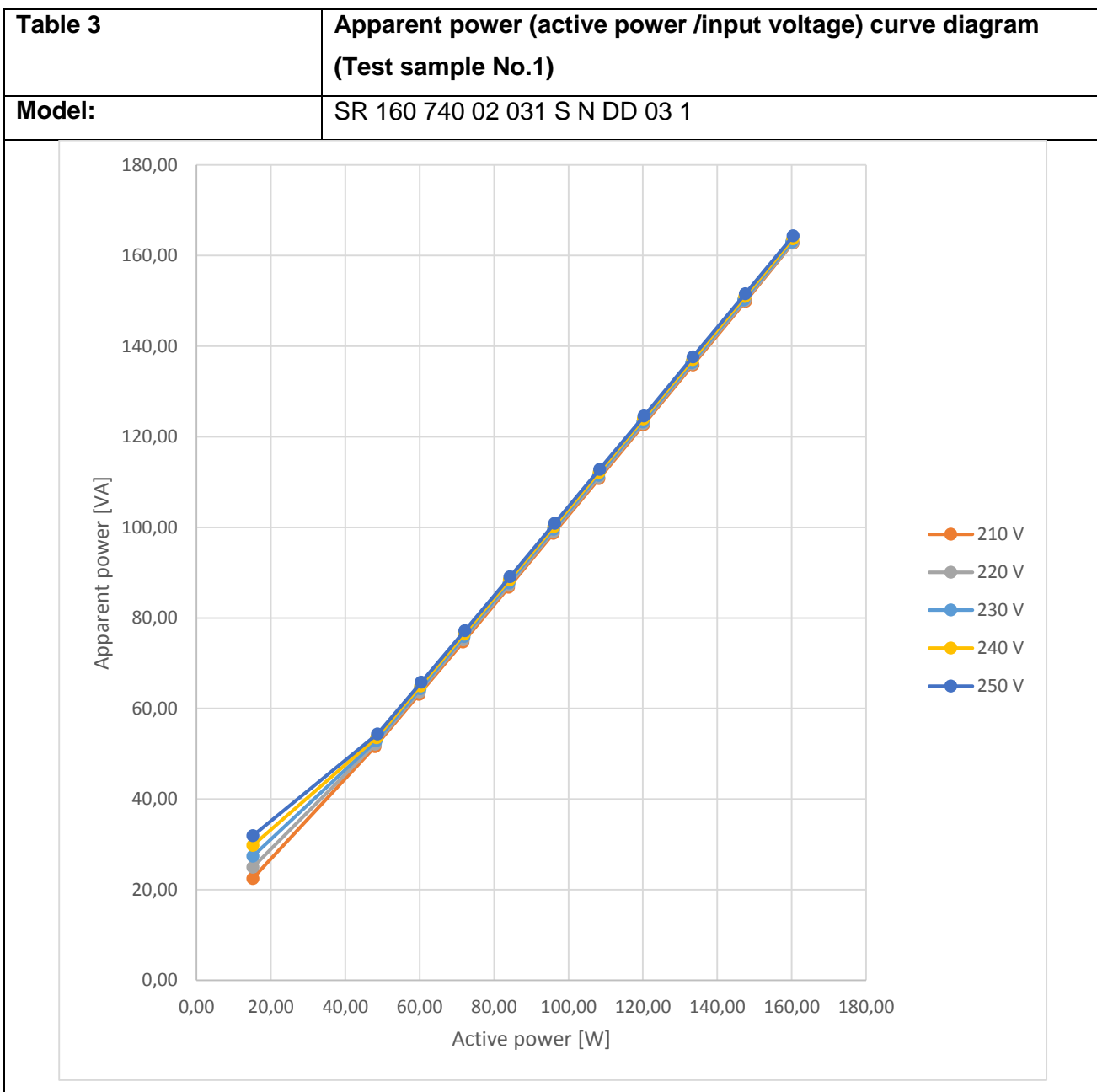


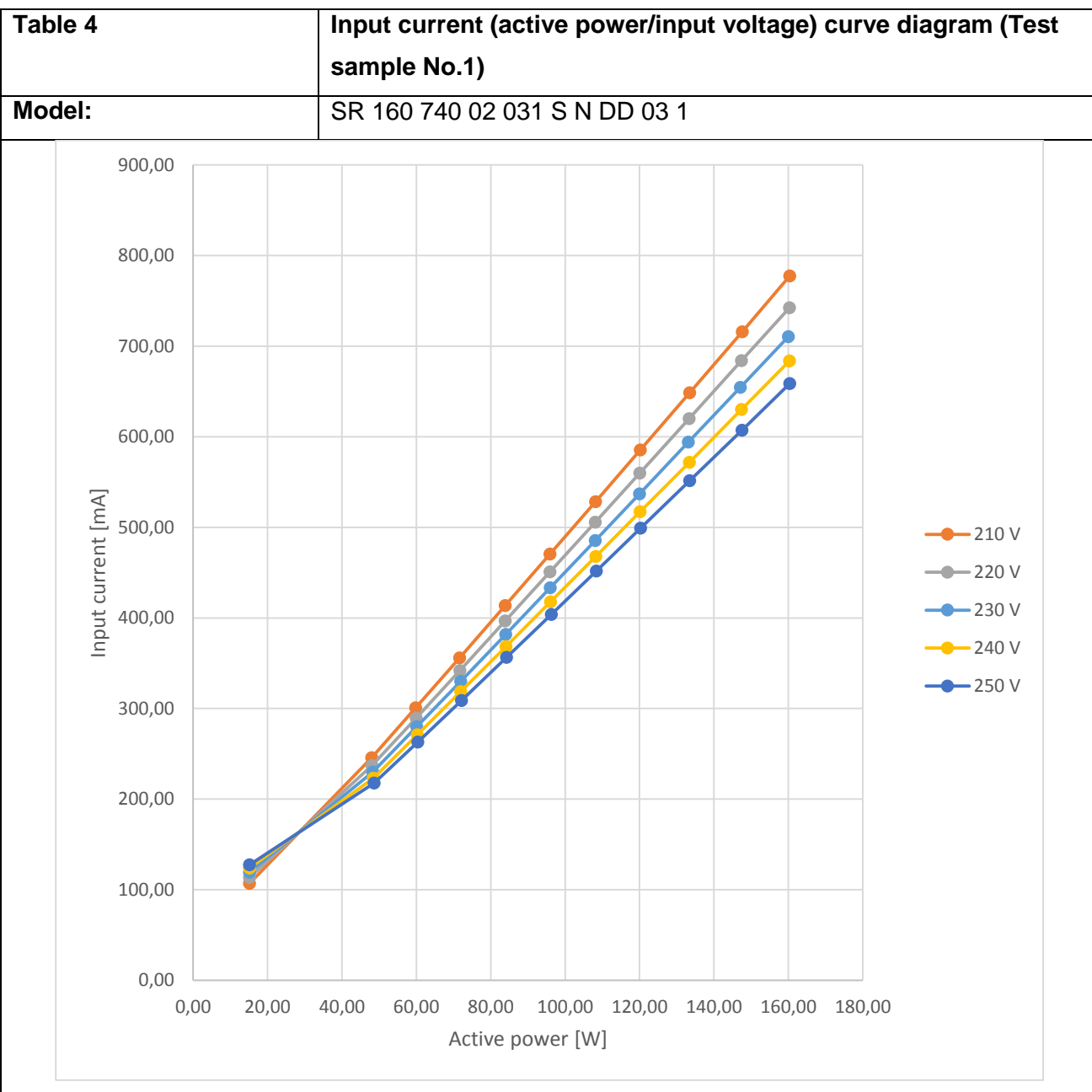
| Clause | Requirement - Test | Measuring result – Remark | Verdict |
|--------|---|---|---------|
| 2.0 | Ambient Conditions | | |
| 2.1 | General | | P |
| 2.2 | Air Temperature | | P |
| 2.3 | Thermal Condition for Mounting SSL Products | | P |
| 2.4 | Air Movement | | P |
| 3.0 | Power Supply Characteristics | | |
| 3.1 | Wave shape of AC power supply | | P |
| 3.2 | Voltage regulation | | P |
| 4.0 | Seasoning of SSL Product | | N |
| | No seasoning of SSL product | | P |
| 5.0 | Stabilisation of SSL Product | | |
| | SSL product has sufficiently stabilised before measurement | | P |
| 6.0 | Operation Orientation | | |
| | SSL product Shall be stabilized and measured in intended operating orientation | Test object is not dependent on operating orientation | P |
| 7.0 | Electrical Settings | | |
| | SSL product shall be operated at rated voltage | | P |
| | SSL product with dimming capability are tested at maximum input power condition | | N |
| | SSL product with different modes are measured in all relevant modes | | N |
| 8.0 | Electrical Instrumentations | | |
| 8.1 | Circuits | | P |



| Table 1 | Test data | | |
|--|-------------------------------|---------------------------------|------|
| Model: | SR 160 740 02 031 S N DD 03 1 | | |
| Rated Voltage (V): | 220-240 | Rated Power (W): | 160 |
| Rated Frequency (Hz): | 50 Hz | Ambient temperature 25 ±1 (°C): | 25.1 |
| Test item | | Measured Value | |
| Electrical Input Results | | | |
| Input Voltage (Volts AC) | | 210 - 250 | |
| Input Frequency (Hertz) | | 50 | |
| Additional Information | | | |
| Ambient Temperature (°C): | | 25.1 | |
| Supplementary Information: <ul style="list-style-type: none">- Stabilisation considered reached: the variation (maximum-minimum) of readings every 5 minutes of the light output and electrical power over a period of 30 minutes is less than 0.5%. | | | |

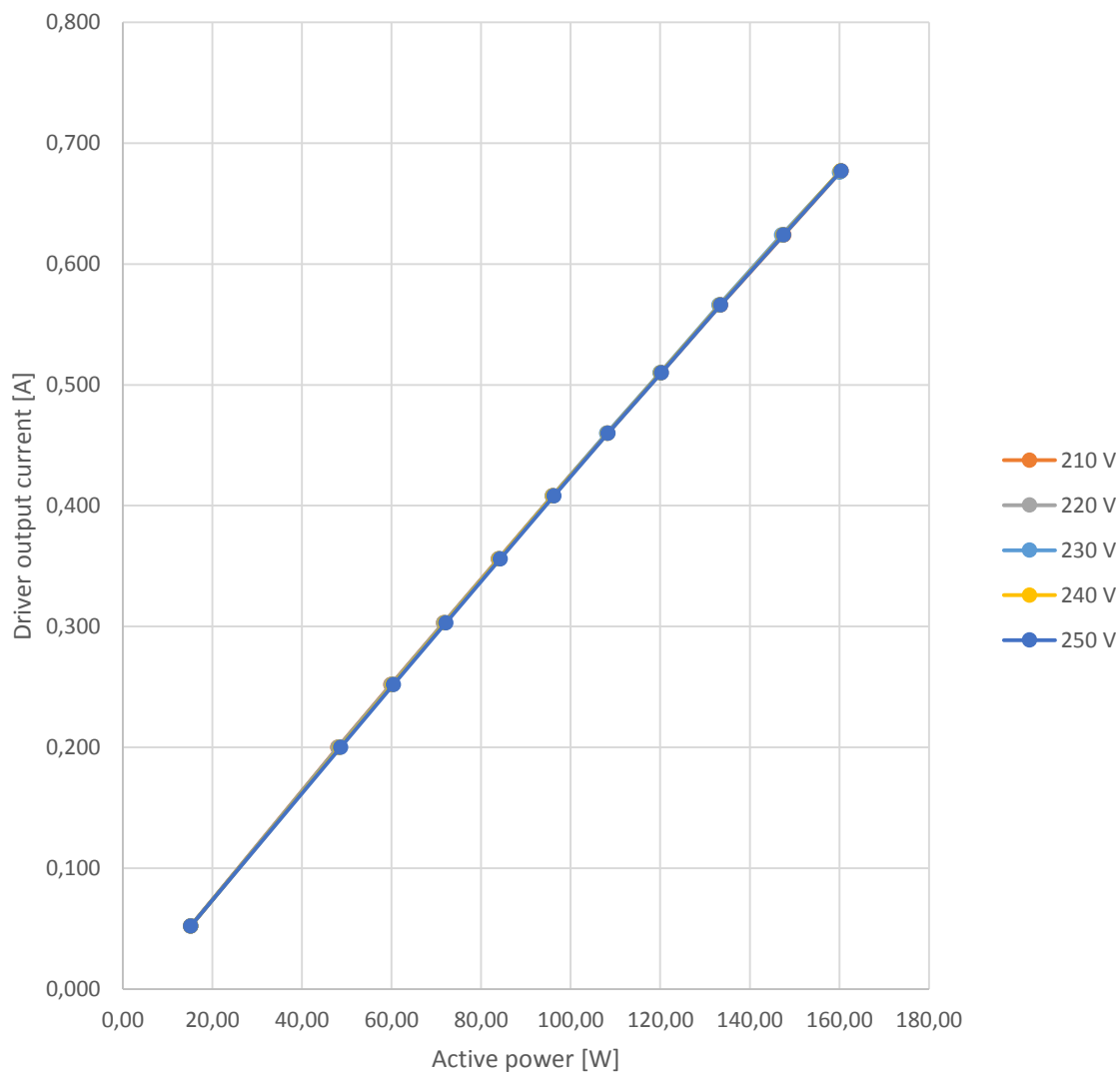








| | |
|----------------|--|
| Table 5 | Driver output current (active power/input voltage) curve diagram (Test sample No.1) |
| Model: | SR 160 740 02 031 S N DD 03 1 |





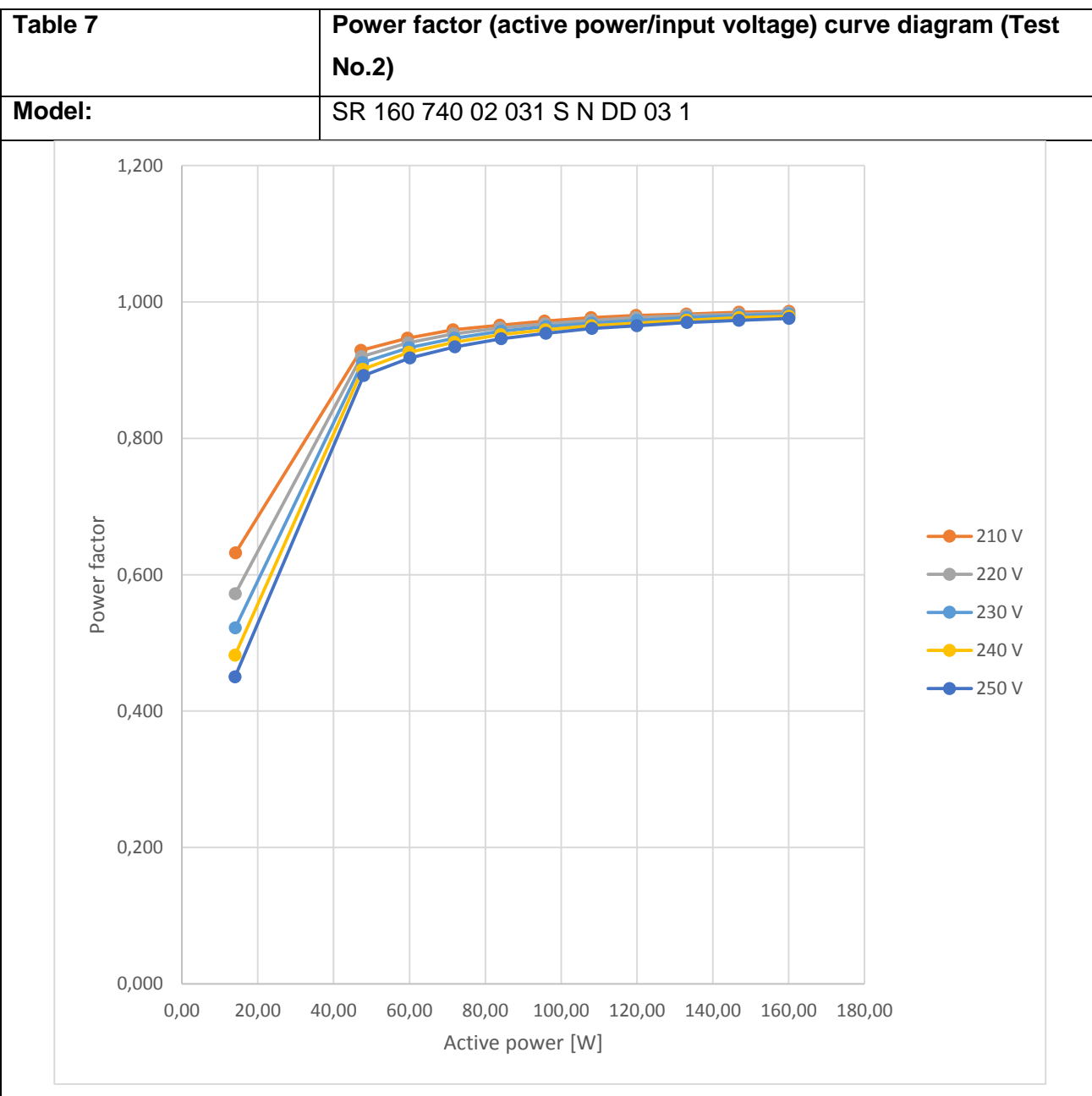
| Table 6 | | Test data table No.1 | | | | | |
|----------|-------------------|-------------------------------|---------------------|--------------|--------------------|---------------------------|---------------|
| Model: | | SR 160 740 02 031 S N DD 03 1 | | | | | |
| Test Nr. | Input voltage [V] | Active power [W] | Apparent power [VA] | Power factor | Input current [mA] | Driver output current [A] | Dimming level |
| 1 | 230 | 160,01 | 163,00 | 0,982 | 710,50 | 0,676 | 100,00% |
| 2 | 230 | 147,11 | 150,21 | 0,980 | 654,50 | 0,624 | 92,31% |
| 3 | 230 | 133,12 | 136,32 | 0,977 | 593,90 | 0,566 | 83,73% |
| 4 | 230 | 120,00 | 123,29 | 0,973 | 536,80 | 0,510 | 75,44% |
| 5 | 230 | 108,05 | 111,48 | 0,969 | 485,40 | 0,460 | 68,05% |
| 6 | 230 | 96,00 | 99,57 | 0,964 | 433,20 | 0,408 | 60,36% |
| 7 | 230 | 84,00 | 87,74 | 0,957 | 381,80 | 0,356 | 52,66% |
| 8 | 230 | 71,86 | 75,85 | 0,947 | 330,00 | 0,303 | 44,82% |
| 9 | 230 | 60,10 | 64,36 | 0,934 | 279,90 | 0,252 | 37,28% |
| 10 | 230 | 48,29 | 52,87 | 0,913 | 229,90 | 0,200 | 29,59% |
| 11 | 230 | 15,13 | 27,40 | 0,552 | 119,08 | 0,052 | 7,69% |
| 1 | 210 | 160,35 | 162,76 | 0,986 | 777,50 | 0,677 | 100,00% |
| 2 | 210 | 147,57 | 149,87 | 0,985 | 715,70 | 0,624 | 92,17% |
| 3 | 210 | 133,45 | 135,84 | 0,982 | 648,50 | 0,566 | 83,60% |
| 4 | 210 | 120,15 | 122,65 | 0,980 | 585,30 | 0,510 | 75,33% |
| 5 | 210 | 108,15 | 110,74 | 0,977 | 528,30 | 0,460 | 67,95% |
| 6 | 210 | 95,93 | 98,65 | 0,972 | 470,50 | 0,408 | 60,27% |
| 7 | 210 | 83,86 | 86,74 | 0,967 | 413,50 | 0,356 | 52,58% |

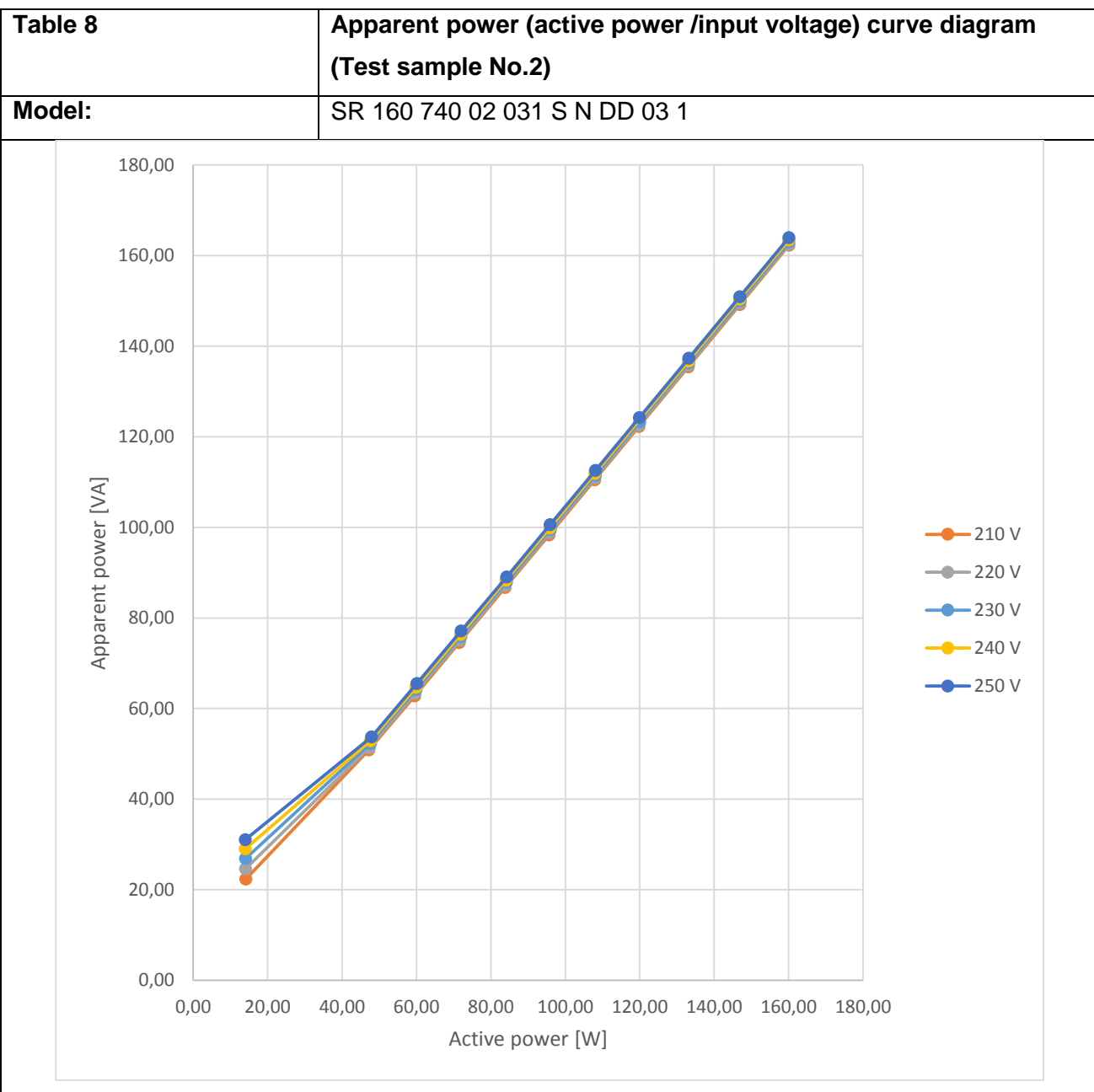


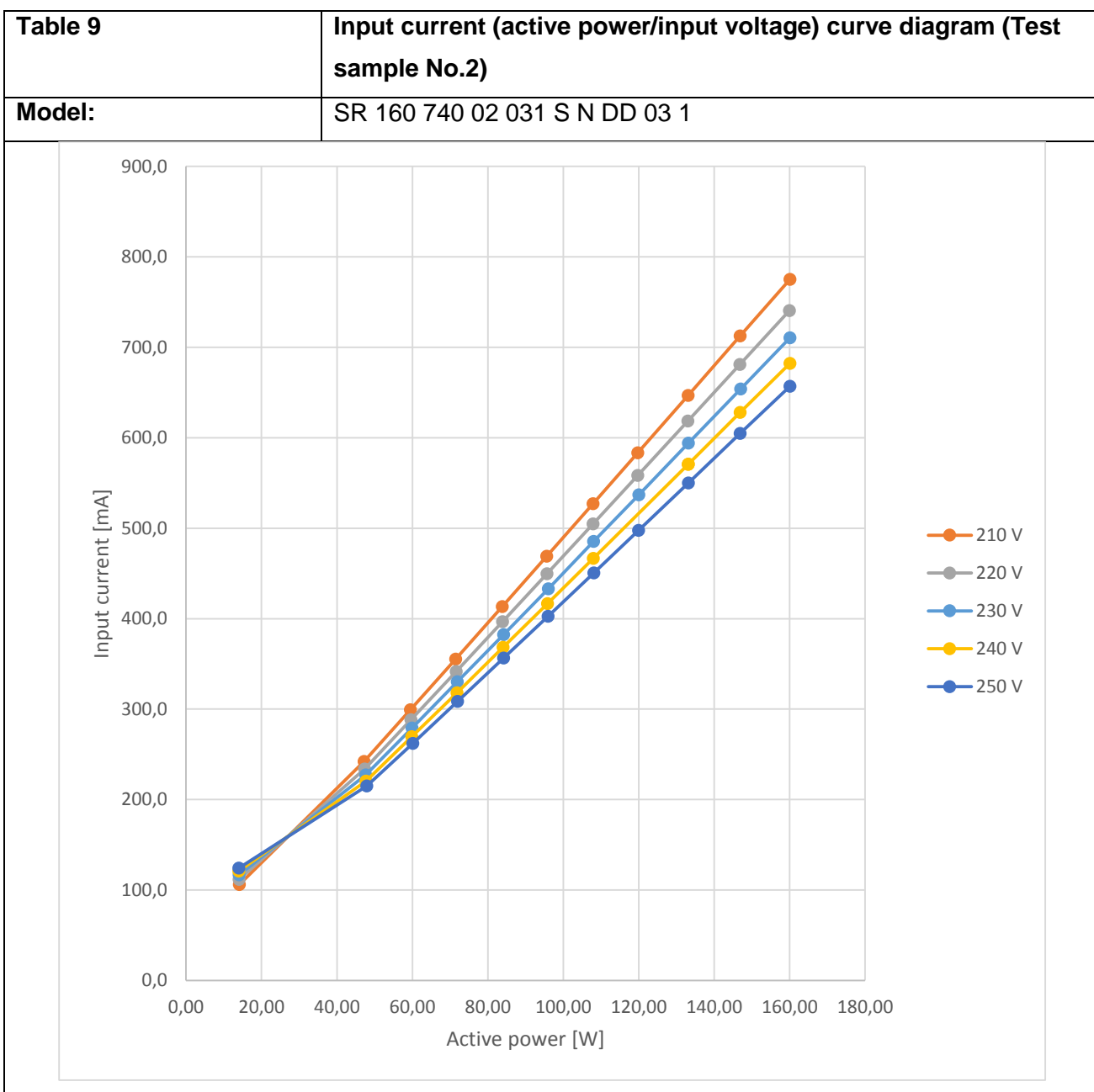
| | | | | | | | |
|----|-----|--------|--------|-------|--------|-------|---------|
| 8 | 210 | 71,62 | 74,66 | 0,959 | 355,80 | 0,303 | 44,76% |
| 9 | 210 | 59,82 | 63,12 | 0,948 | 300,70 | 0,252 | 37,22% |
| 10 | 210 | 47,96 | 51,55 | 0,930 | 245,50 | 0,200 | 29,54% |
| 11 | 210 | 15,12 | 22,45 | 0,674 | 106,81 | 0,052 | 7,68% |
| 1 | 220 | 160,29 | 162,87 | 0,984 | 742,40 | 0,677 | 100,00% |
| 2 | 220 | 147,38 | 150,05 | 0,982 | 683,80 | 0,624 | 91,90% |
| 3 | 220 | 133,30 | 136,07 | 0,980 | 619,90 | 0,566 | 83,36% |
| 4 | 220 | 120,05 | 122,93 | 0,977 | 559,80 | 0,510 | 75,11% |
| 5 | 220 | 108,09 | 111,08 | 0,973 | 505,70 | 0,460 | 67,75% |
| 6 | 220 | 95,91 | 99,04 | 0,968 | 450,70 | 0,408 | 60,09% |
| 7 | 220 | 83,87 | 87,16 | 0,962 | 396,60 | 0,356 | 52,43% |
| 8 | 220 | 71,65 | 75,15 | 0,953 | 341,80 | 0,303 | 44,62% |
| 9 | 220 | 59,90 | 63,66 | 0,941 | 289,50 | 0,252 | 37,11% |
| 10 | 220 | 48,05 | 52,12 | 0,922 | 236,90 | 0,200 | 29,46% |
| 11 | 220 | 15,12 | 24,94 | 0,607 | 113,28 | 0,052 | 7,66% |
| 1 | 240 | 160,25 | 163,70 | 0,979 | 683,50 | 0,677 | 100,00% |
| 2 | 240 | 147,38 | 150,93 | 0,977 | 630,10 | 0,624 | 92,17% |
| 3 | 240 | 133,35 | 137,01 | 0,973 | 571,80 | 0,566 | 83,60% |
| 4 | 240 | 120,14 | 123,93 | 0,969 | 517,10 | 0,510 | 75,33% |
| 5 | 240 | 108,22 | 112,13 | 0,965 | 467,80 | 0,460 | 67,95% |
| 6 | 240 | 96,07 | 100,14 | 0,959 | 417,60 | 0,408 | 60,27% |
| 7 | 240 | 84,07 | 88,35 | 0,952 | 368,40 | 0,356 | 52,58% |



| | | | | | | | |
|----|-----|--------|--------|-------|--------|-------|---------|
| 8 | 240 | 71,90 | 76,41 | 0,941 | 318,50 | 0,303 | 44,76% |
| 9 | 240 | 60,19 | 64,98 | 0,926 | 270,80 | 0,252 | 37,22% |
| 10 | 240 | 48,40 | 53,55 | 0,904 | 223,10 | 0,200 | 29,54% |
| 11 | 240 | 15,12 | 29,75 | 0,509 | 123,80 | 0,052 | 7,68% |
| 1 | 250 | 160,38 | 164,33 | 0,976 | 658,60 | 0,677 | 100,00% |
| 2 | 250 | 147,50 | 151,55 | 0,973 | 607,20 | 0,624 | 92,17% |
| 3 | 250 | 133,45 | 137,63 | 0,970 | 551,30 | 0,566 | 83,60% |
| 4 | 250 | 120,26 | 124,57 | 0,965 | 498,90 | 0,510 | 75,33% |
| 5 | 250 | 108,34 | 112,79 | 0,961 | 451,60 | 0,460 | 67,95% |
| 6 | 250 | 96,23 | 100,86 | 0,954 | 403,70 | 0,408 | 60,27% |
| 7 | 250 | 84,24 | 89,07 | 0,946 | 356,40 | 0,356 | 52,58% |
| 8 | 250 | 72,09 | 77,16 | 0,934 | 308,70 | 0,303 | 44,76% |
| 9 | 250 | 60,40 | 65,77 | 0,919 | 263,00 | 0,252 | 37,22% |
| 10 | 250 | 48,63 | 54,38 | 0,894 | 217,50 | 0,200 | 29,54% |
| 11 | 250 | 15,11 | 31,90 | 0,473 | 127,36 | 0,052 | 7,68% |

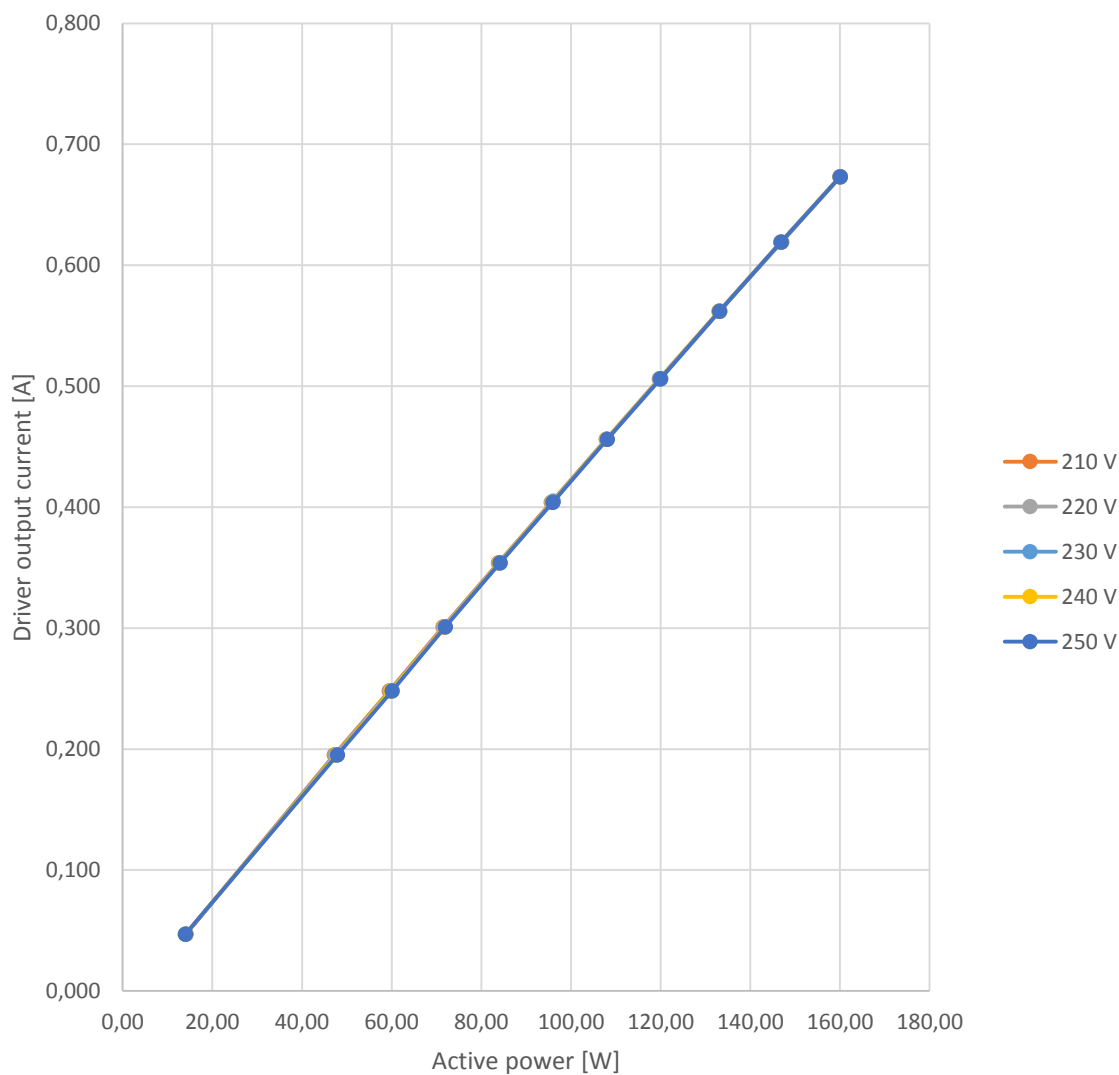








| | |
|-----------------|--|
| Table 10 | Driver output current (active power/input voltage) curve diagram (Test sample No.2) |
| Model: | SR 160 740 02 031 S N DD 03 1 |





| Table 11 | | Test data table No.2 | | | | | |
|----------|-------------------|-------------------------------|---------------------|--------------|--------------------|---------------------------|---------------|
| Model: | | SR 160 740 02 031 S N DD 03 1 | | | | | |
| Test Nr. | Input voltage [V] | Active power [W] | Apparent power [VA] | Power factor | Input current [mA] | Driver output current [A] | Dimming level |
| 1 | 230 | 160,05 | 163,01 | 0,982 | 710,5 | 0,673 | 100,00% |
| 2 | 230 | 147,00 | 150,00 | 0,980 | 653,8 | 0,619 | 91,98% |
| 3 | 230 | 133,14 | 136,36 | 0,977 | 594,0 | 0,562 | 83,51% |
| 4 | 230 | 120,00 | 123,28 | 0,973 | 536,7 | 0,506 | 75,19% |
| 5 | 230 | 108,05 | 111,49 | 0,969 | 485,4 | 0,456 | 67,76% |
| 6 | 230 | 96,00 | 99,52 | 0,964 | 432,9 | 0,405 | 60,18% |
| 7 | 230 | 84,14 | 87,90 | 0,957 | 382,4 | 0,354 | 52,60% |
| 8 | 230 | 71,89 | 75,89 | 0,947 | 330,1 | 0,301 | 44,73% |
| 9 | 230 | 59,89 | 64,17 | 0,933 | 279,0 | 0,248 | 36,85% |
| 10 | 230 | 47,62 | 52,25 | 0,911 | 227,2 | 0,195 | 28,97% |
| 11 | 230 | 14,03 | 26,85 | 0,522 | 116,6 | 0,047 | 6,98% |
| 1 | 210 | 160,06 | 162,25 | 0,986 | 775,1 | 0,673 | 100,00% |
| 2 | 210 | 146,89 | 149,18 | 0,985 | 712,5 | 0,619 | 91,98% |
| 3 | 210 | 133,05 | 135,44 | 0,982 | 646,6 | 0,562 | 83,51% |
| 4 | 210 | 119,75 | 122,23 | 0,980 | 583,4 | 0,506 | 75,19% |
| 5 | 210 | 107,88 | 110,47 | 0,977 | 527,0 | 0,456 | 67,76% |
| 6 | 210 | 95,61 | 98,34 | 0,972 | 469,0 | 0,404 | 60,03% |
| 7 | 210 | 83,81 | 86,68 | 0,966 | 413,2 | 0,354 | 52,60% |



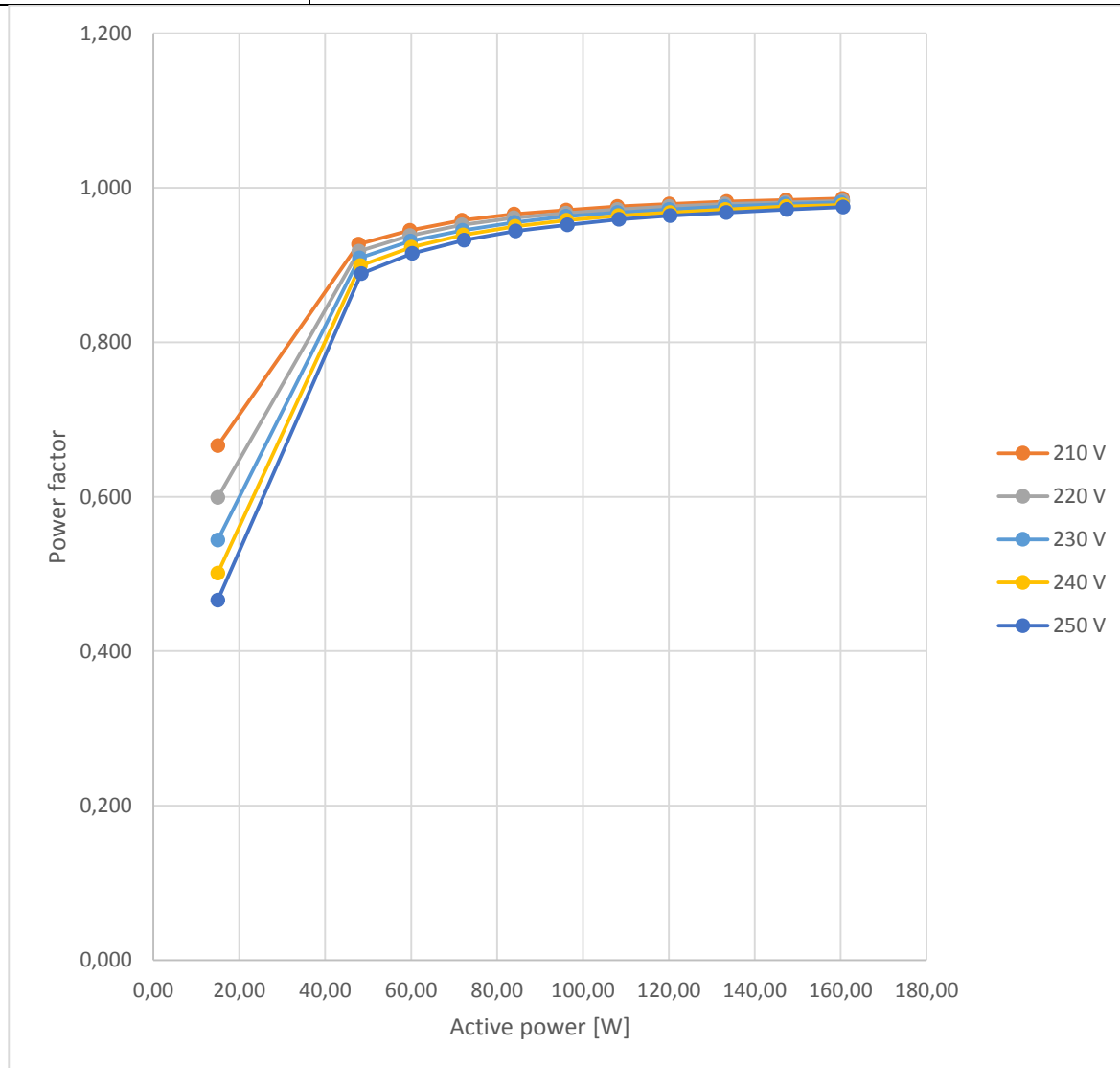
| | | | | | | | |
|----|-----|--------|--------|-------|-------|-------|---------|
| 8 | 210 | 71,49 | 74,54 | 0,959 | 355,2 | 0,301 | 44,73% |
| 9 | 210 | 59,48 | 62,78 | 0,947 | 299,1 | 0,248 | 36,85% |
| 10 | 210 | 47,20 | 50,82 | 0,929 | 242,0 | 0,195 | 28,97% |
| 11 | 210 | 14,08 | 22,30 | 0,632 | 106,1 | 0,047 | 6,98% |
| 1 | 220 | 159,90 | 162,45 | 0,984 | 740,6 | 0,673 | 100,00% |
| 2 | 220 | 146,79 | 149,45 | 0,982 | 681,0 | 0,619 | 91,98% |
| 3 | 220 | 133,03 | 135,79 | 0,980 | 618,5 | 0,562 | 83,51% |
| 4 | 220 | 119,74 | 122,61 | 0,977 | 558,4 | 0,506 | 75,19% |
| 5 | 220 | 107,88 | 110,87 | 0,973 | 504,7 | 0,456 | 67,76% |
| 6 | 220 | 95,65 | 98,78 | 0,968 | 449,5 | 0,404 | 60,03% |
| 7 | 220 | 83,86 | 87,15 | 0,962 | 396,5 | 0,354 | 52,60% |
| 8 | 220 | 71,57 | 75,06 | 0,953 | 341,4 | 0,301 | 44,73% |
| 9 | 220 | 59,58 | 63,35 | 0,940 | 288,1 | 0,248 | 36,85% |
| 10 | 220 | 47,30 | 51,40 | 0,920 | 233,7 | 0,195 | 28,97% |
| 11 | 220 | 14,06 | 24,59 | 0,572 | 111,7 | 0,047 | 6,98% |
| 1 | 240 | 160,06 | 163,45 | 0,979 | 682,0 | 0,673 | 100,00% |
| 2 | 240 | 146,89 | 150,41 | 0,977 | 627,9 | 0,619 | 91,98% |
| 3 | 240 | 133,12 | 136,75 | 0,973 | 570,7 | 0,562 | 83,51% |
| 4 | 240 | 133,06 | 136,71 | 0,973 | 570,5 | 0,562 | 83,51% |
| 5 | 240 | 107,95 | 111,88 | 0,965 | 466,7 | 0,456 | 67,76% |
| 6 | 240 | 95,81 | 99,87 | 0,959 | 416,5 | 0,404 | 60,03% |
| 7 | 240 | 84,04 | 88,32 | 0,952 | 368,2 | 0,354 | 52,60% |

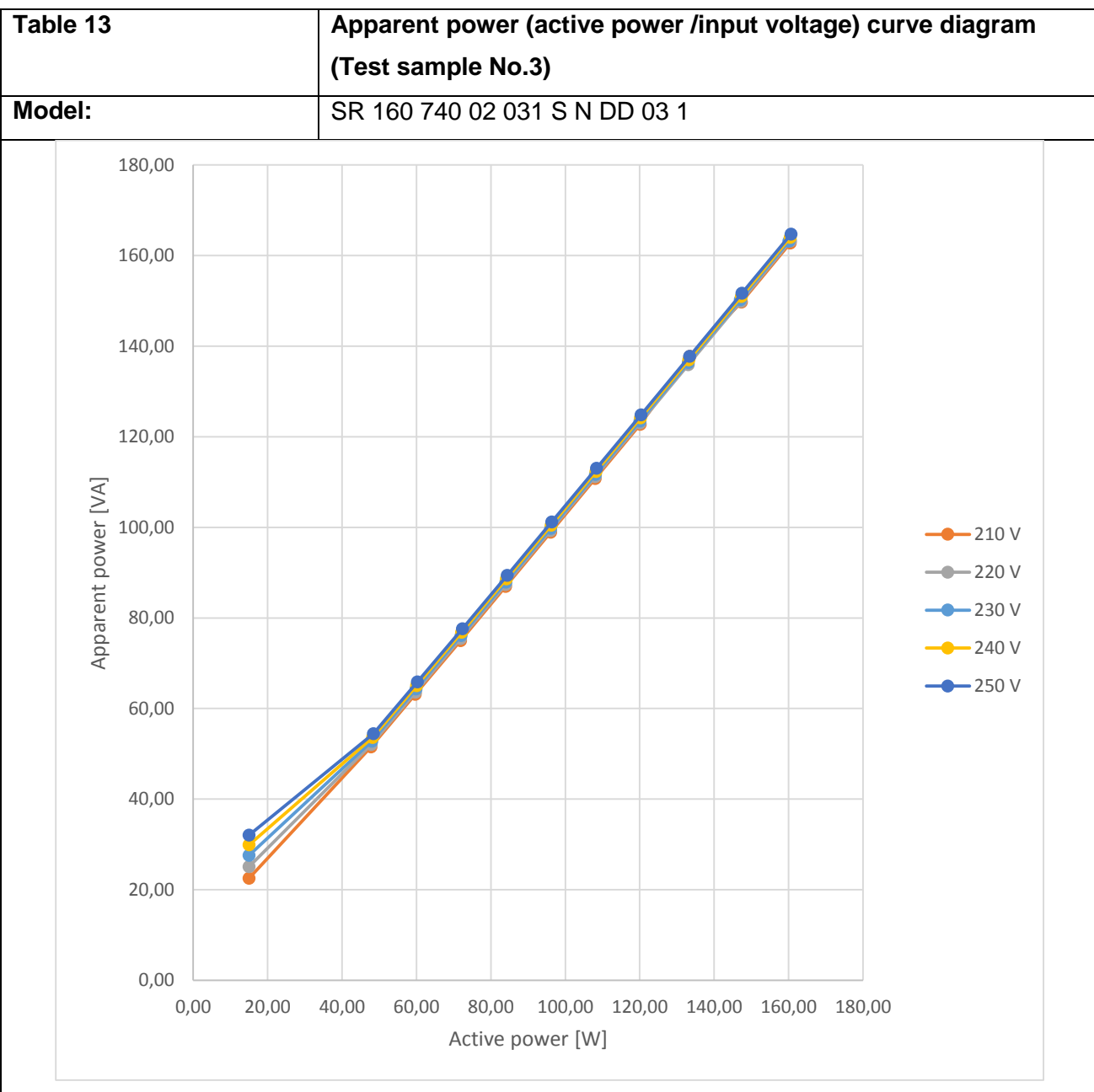


| | | | | | | | |
|----|-----|--------|--------|-------|-------|-------|---------|
| 8 | 240 | 71,79 | 76,32 | 0,941 | 318,1 | 0,301 | 44,73% |
| 9 | 240 | 59,85 | 64,67 | 0,926 | 269,5 | 0,248 | 36,85% |
| 10 | 240 | 47,64 | 52,86 | 0,901 | 220,2 | 0,195 | 28,97% |
| 11 | 240 | 13,99 | 29,00 | 0,482 | 120,7 | 0,047 | 6,98% |
| 1 | 250 | 160,08 | 163,93 | 0,976 | 656,8 | 0,673 | 100,00% |
| 2 | 250 | 146,86 | 150,90 | 0,973 | 604,6 | 0,619 | 91,98% |
| 3 | 250 | 133,16 | 137,31 | 0,970 | 550,0 | 0,562 | 83,51% |
| 4 | 250 | 119,92 | 124,22 | 0,965 | 497,5 | 0,506 | 75,19% |
| 5 | 250 | 108,11 | 112,55 | 0,961 | 450,6 | 0,456 | 67,76% |
| 6 | 250 | 95,93 | 100,55 | 0,954 | 402,5 | 0,404 | 60,03% |
| 7 | 250 | 84,20 | 89,03 | 0,946 | 356,3 | 0,354 | 52,60% |
| 8 | 250 | 71,99 | 77,09 | 0,934 | 308,4 | 0,301 | 44,73% |
| 9 | 250 | 60,08 | 65,48 | 0,918 | 261,9 | 0,248 | 36,85% |
| 10 | 250 | 47,88 | 53,71 | 0,892 | 214,8 | 0,195 | 28,97% |
| 11 | 250 | 13,98 | 31,03 | 0,450 | 124,1 | 0,047 | 6,98% |



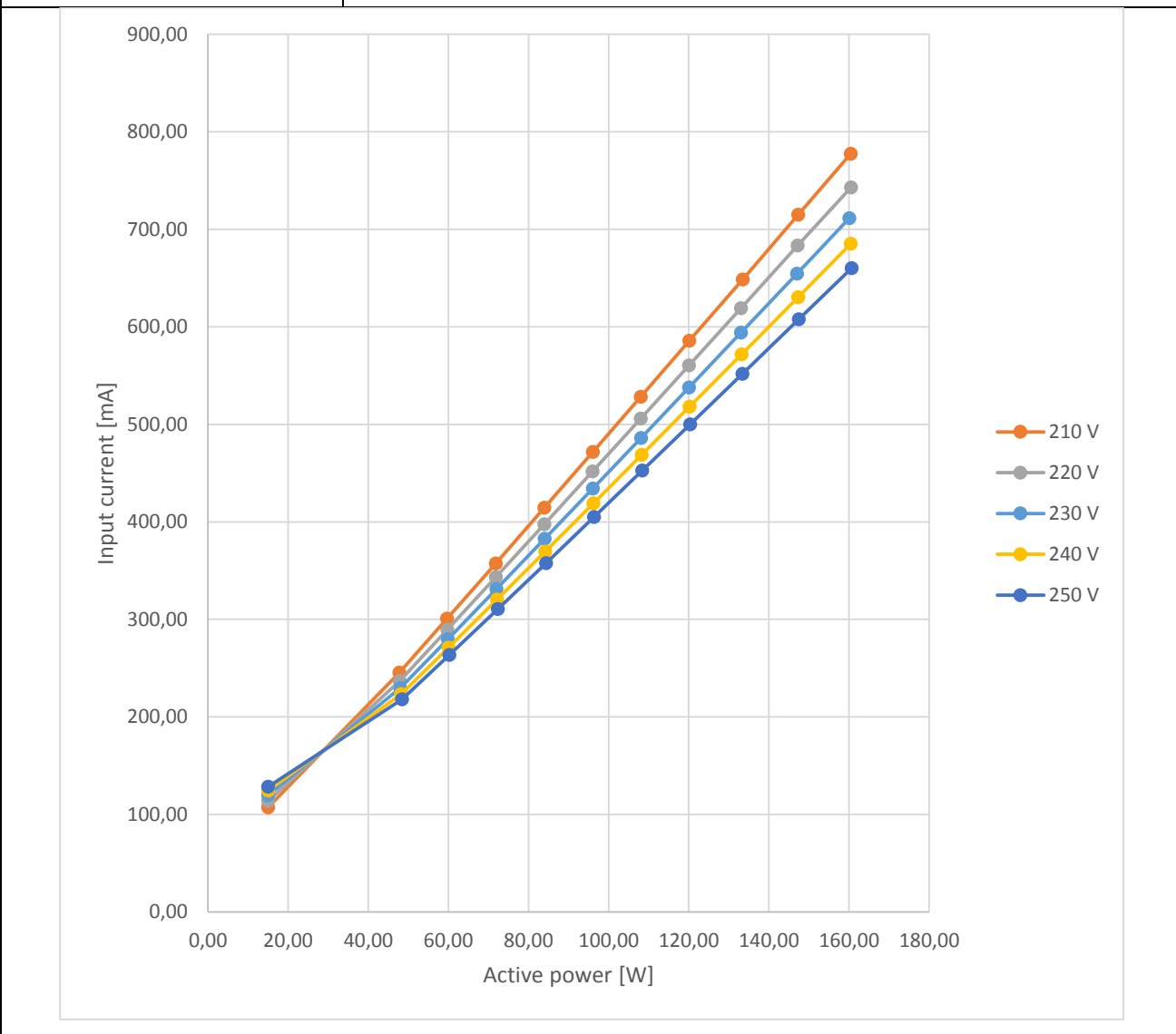
| | |
|-----------------|--|
| Table 12 | Power factor (active power/input voltage) curve diagram (Test No.3) |
| Model: | SR 160 740 02 031 S N DD 03 1 |





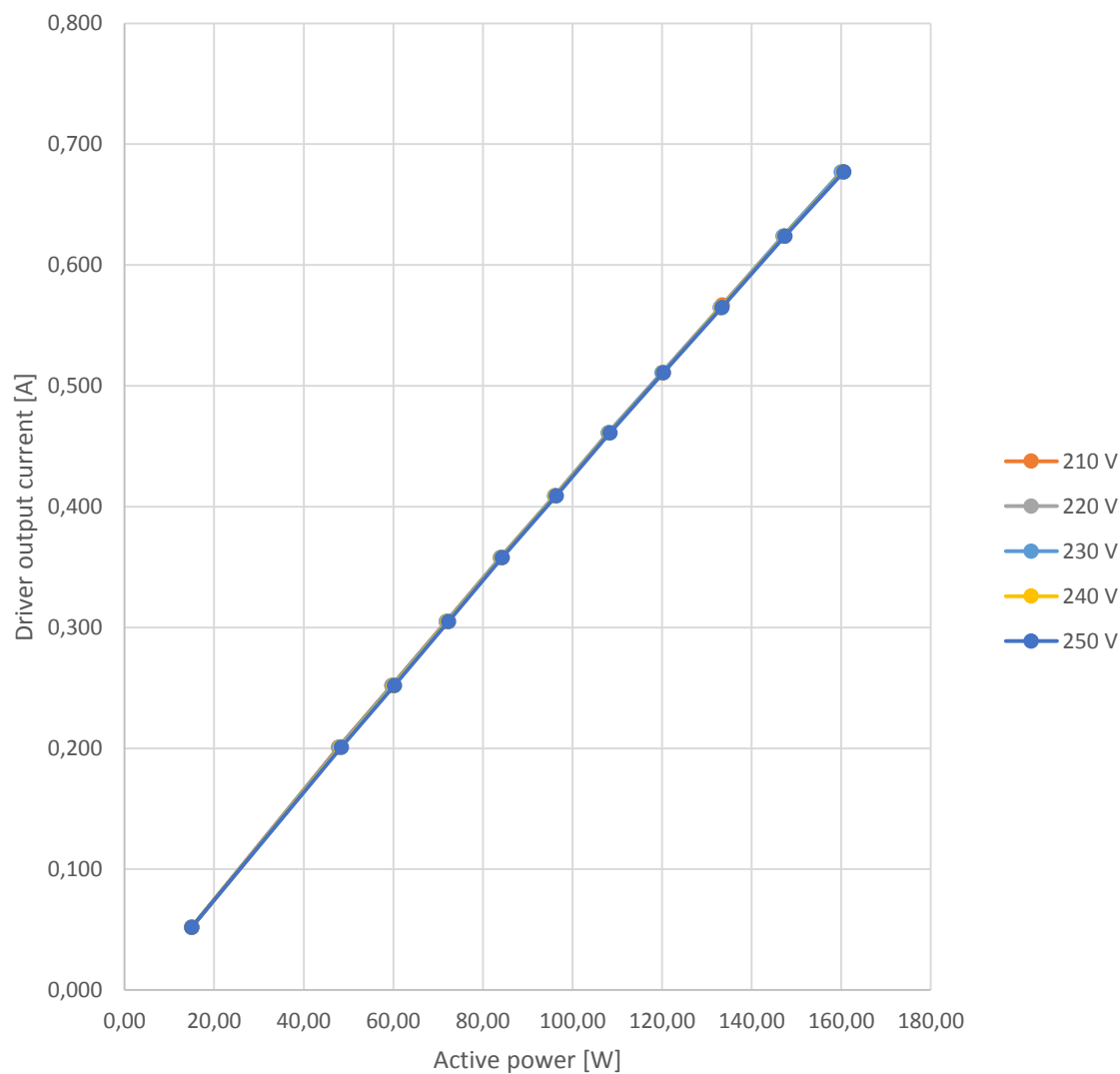


| | |
|-----------------|---|
| Table 14 | Input current (active power /input voltage) curve diagram (Test sample No.3) |
| Model: | SR 160 740 02 031 S N DD 03 1 |





| | |
|-----------------|--|
| Table 15 | Driver output current (active power/input voltage) curve diagram (Test sample No.3) |
| Model: | SR 160 740 02 031 S N DD 03 1 |





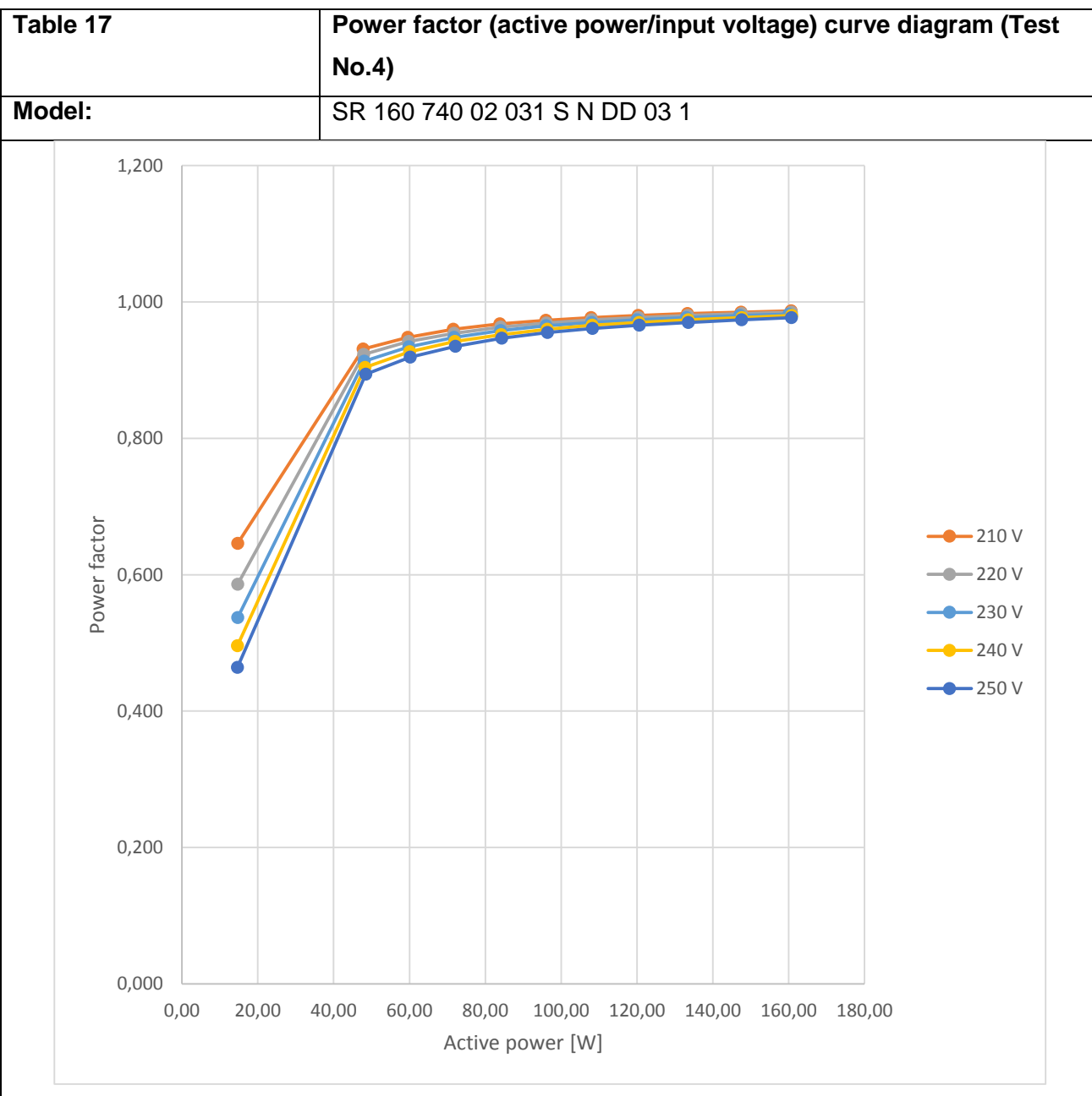
| Table 16 | | Test data table No.3 | | | | | |
|----------|-------------------|-------------------------------|---------------------|--------------|--------------------|---------------------------|---------------|
| Model: | | SR 160 740 02 031 S N DD 03 1 | | | | | |
| Test Nr. | Input voltage [V] | Active power [W] | Apparent power [VA] | Power factor | Input current [mA] | Driver output current [A] | Dimming level |
| 1 | 230 | 160,03 | 163,15 | 0,981 | 711,20 | 0,677 | 100,00% |
| 2 | 230 | 147,00 | 150,23 | 0,979 | 654,50 | 0,624 | 92,17% |
| 3 | 230 | 133,01 | 136,34 | 0,976 | 593,90 | 0,565 | 83,46% |
| 4 | 230 | 120,01 | 123,46 | 0,972 | 537,70 | 0,511 | 75,48% |
| 5 | 230 | 108,04 | 111,63 | 0,968 | 486,00 | 0,461 | 68,09% |
| 6 | 230 | 96,03 | 99,77 | 0,963 | 434,20 | 0,409 | 60,41% |
| 7 | 230 | 84,00 | 87,92 | 0,955 | 382,60 | 0,358 | 52,88% |
| 8 | 230 | 71,95 | 76,12 | 0,945 | 331,10 | 0,305 | 45,05% |
| 9 | 230 | 59,83 | 64,28 | 0,931 | 279,60 | 0,252 | 37,22% |
| 10 | 230 | 47,95 | 52,78 | 0,909 | 229,50 | 0,201 | 29,69% |
| 11 | 230 | 15,00 | 27,55 | 0,544 | 119,66 | 0,052 | 7,68% |
| 1 | 210 | 160,42 | 162,74 | 0,986 | 777,50 | 0,677 | 100,00% |
| 2 | 210 | 147,29 | 149,70 | 0,984 | 715,00 | 0,624 | 92,17% |
| 3 | 210 | 133,44 | 137,73 | 0,982 | 648,50 | 0,567 | 83,75% |
| 4 | 210 | 120,11 | 122,72 | 0,979 | 585,60 | 0,511 | 75,48% |
| 5 | 210 | 108,03 | 110,75 | 0,976 | 528,30 | 0,461 | 68,09% |
| 6 | 210 | 96,07 | 98,90 | 0,971 | 471,60 | 0,409 | 60,41% |
| 7 | 210 | 83,95 | 86,94 | 0,966 | 414,50 | 0,358 | 52,88% |

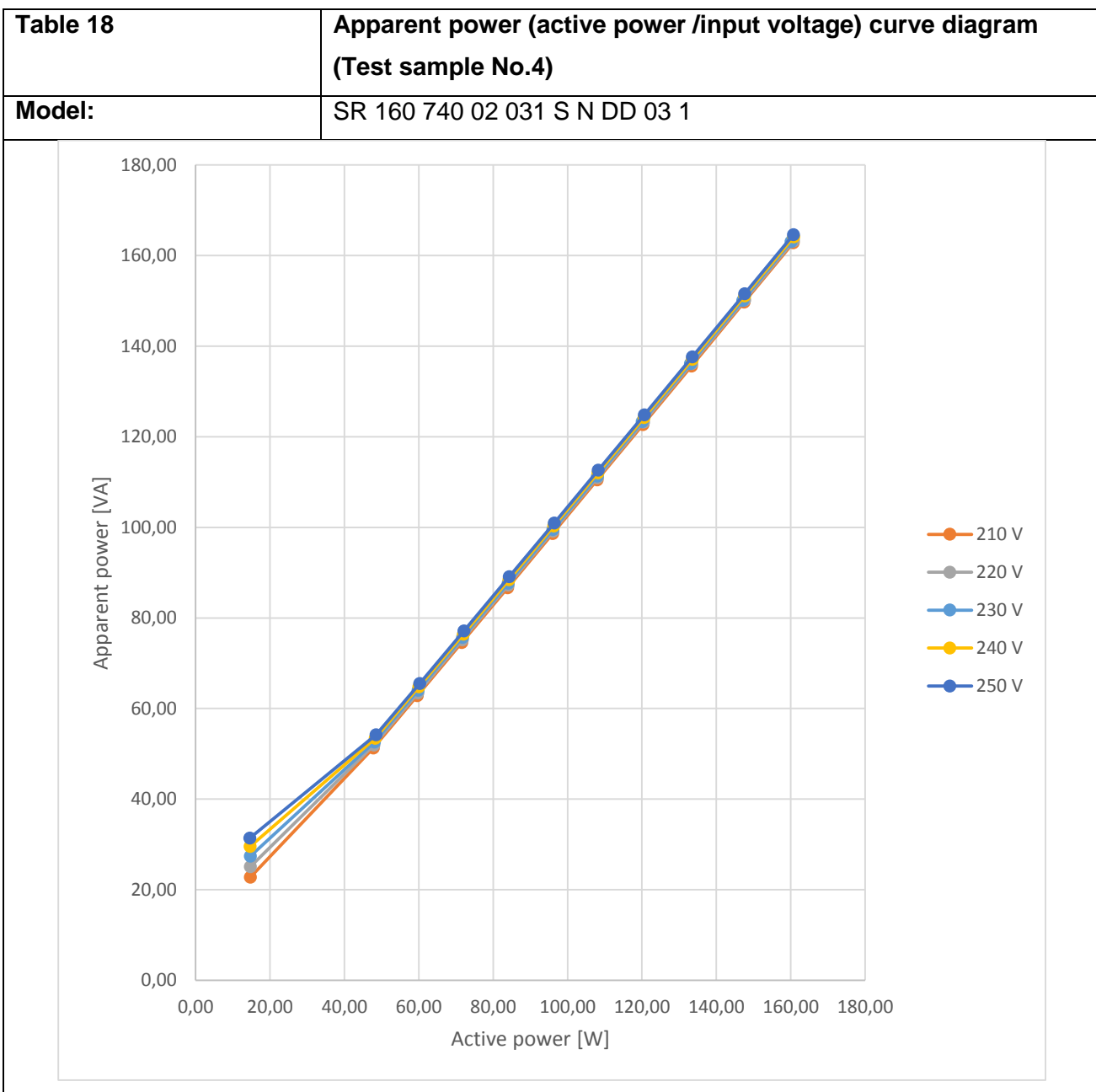


| | | | | | | | |
|----|-----|--------|--------|-------|--------|-------|---------|
| 8 | 210 | 71,81 | 74,99 | 0,958 | 357,40 | 0,305 | 45,05% |
| 9 | 210 | 59,65 | 63,11 | 0,945 | 300,60 | 0,252 | 37,22% |
| 10 | 210 | 47,73 | 51,48 | 0,927 | 245,20 | 0,201 | 29,69% |
| 11 | 210 | 15,00 | 22,53 | 0,666 | 107,16 | 0,052 | 7,68% |
| 1 | 220 | 160,49 | 163,20 | 0,983 | 742,90 | 0,677 | 100,00% |
| 2 | 220 | 147,13 | 149,91 | 0,981 | 683,20 | 0,624 | 92,17% |
| 3 | 220 | 133,00 | 135,89 | 0,979 | 619,10 | 0,565 | 83,46% |
| 4 | 220 | 120,02 | 123,03 | 0,976 | 560,30 | 0,511 | 75,48% |
| 5 | 220 | 108,02 | 111,15 | 0,972 | 506,00 | 0,461 | 68,09% |
| 6 | 220 | 96,00 | 99,26 | 0,967 | 451,80 | 0,409 | 60,41% |
| 7 | 220 | 83,91 | 87,34 | 0,961 | 397,40 | 0,358 | 52,88% |
| 8 | 220 | 71,81 | 75,46 | 0,952 | 343,20 | 0,305 | 45,05% |
| 9 | 220 | 59,68 | 63,62 | 0,938 | 289,30 | 0,252 | 37,22% |
| 10 | 220 | 47,80 | 52,06 | 0,918 | 236,70 | 0,201 | 29,69% |
| 11 | 220 | 14,99 | 25,05 | 0,599 | 113,75 | 0,052 | 7,68% |
| 1 | 240 | 160,44 | 164,03 | 0,978 | 685,00 | 0,677 | 100,00% |
| 2 | 240 | 147,28 | 150,97 | 0,976 | 630,20 | 0,624 | 92,17% |
| 3 | 240 | 133,13 | 136,95 | 0,972 | 571,60 | 0,565 | 83,46% |
| 4 | 240 | 120,21 | 124,16 | 0,968 | 518,00 | 0,511 | 75,48% |
| 5 | 240 | 108,20 | 112,30 | 0,964 | 468,50 | 0,461 | 68,09% |
| 6 | 240 | 96,19 | 100,44 | 0,958 | 418,90 | 0,409 | 60,41% |
| 7 | 240 | 84,15 | 88,62 | 0,950 | 369,50 | 0,358 | 52,88% |



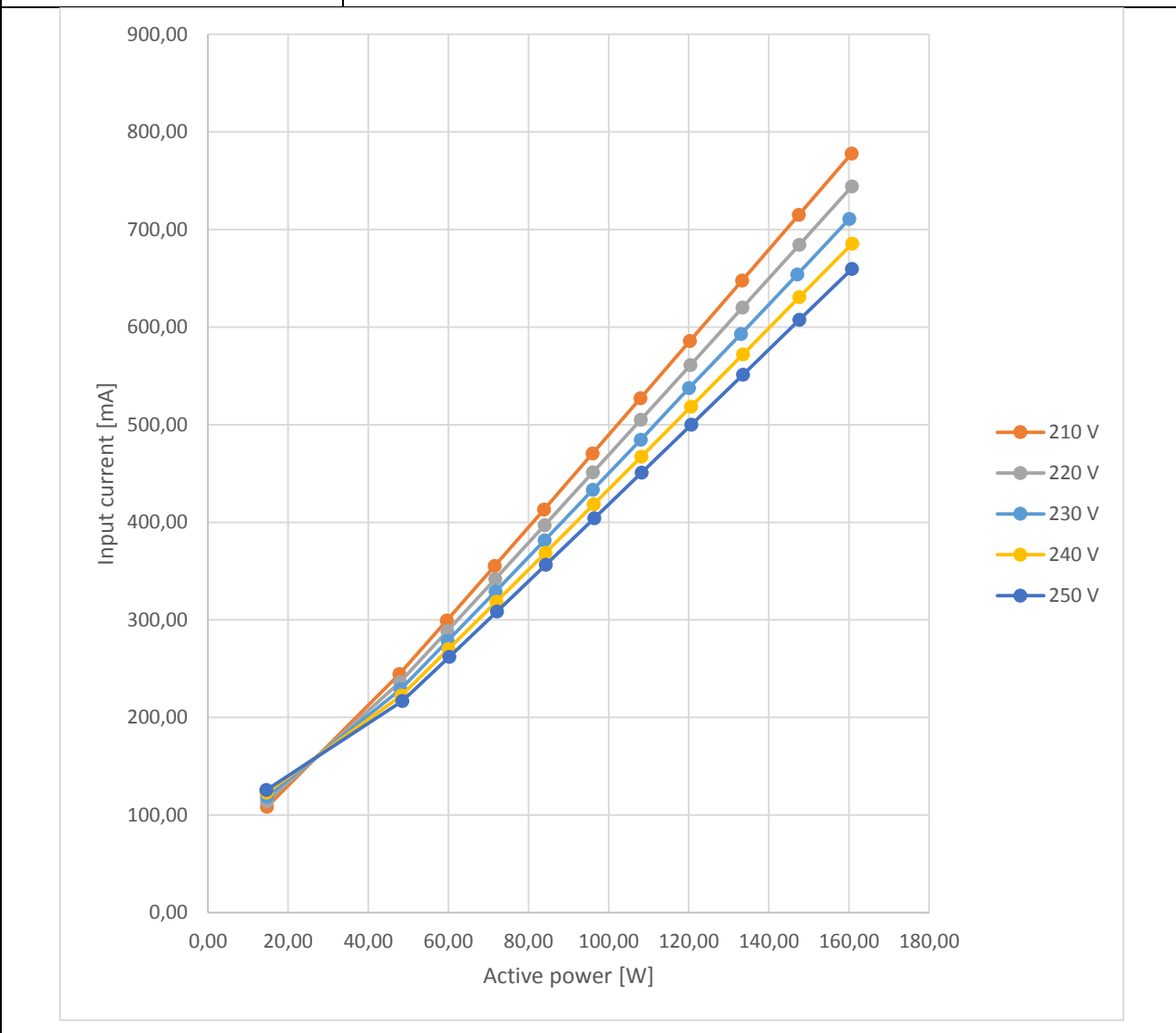
| | | | | | | | |
|----|-----|--------|--------|-------|--------|-------|---------|
| 8 | 240 | 72,12 | 76,83 | 0,939 | 320,30 | 0,305 | 45,05% |
| 9 | 240 | 60,02 | 65,04 | 0,923 | 271,00 | 0,252 | 37,22% |
| 10 | 240 | 48,16 | 53,57 | 0,899 | 223,20 | 0,201 | 29,69% |
| 11 | 240 | 14,98 | 29,89 | 0,501 | 124,40 | 0,052 | 7,68% |
| 1 | 250 | 160,61 | 164,70 | 0,975 | 660,00 | 0,677 | 100,00% |
| 2 | 250 | 147,43 | 151,66 | 0,972 | 607,70 | 0,624 | 92,17% |
| 3 | 250 | 133,37 | 137,72 | 0,968 | 551,70 | 0,565 | 83,46% |
| 4 | 250 | 120,32 | 124,82 | 0,964 | 499,90 | 0,511 | 75,48% |
| 5 | 250 | 108,39 | 113,02 | 0,959 | 452,50 | 0,461 | 68,09% |
| 6 | 250 | 96,35 | 101,17 | 0,952 | 405,00 | 0,409 | 60,41% |
| 7 | 250 | 84,34 | 89,38 | 0,944 | 357,70 | 0,358 | 52,88% |
| 8 | 250 | 72,30 | 77,60 | 0,932 | 310,50 | 0,305 | 45,05% |
| 9 | 250 | 60,22 | 65,85 | 0,915 | 263,40 | 0,252 | 37,22% |
| 10 | 250 | 48,39 | 54,45 | 0,889 | 217,80 | 0,201 | 29,69% |
| 11 | 250 | 14,95 | 32,04 | 0,466 | 128,15 | 0,052 | 7,68% |





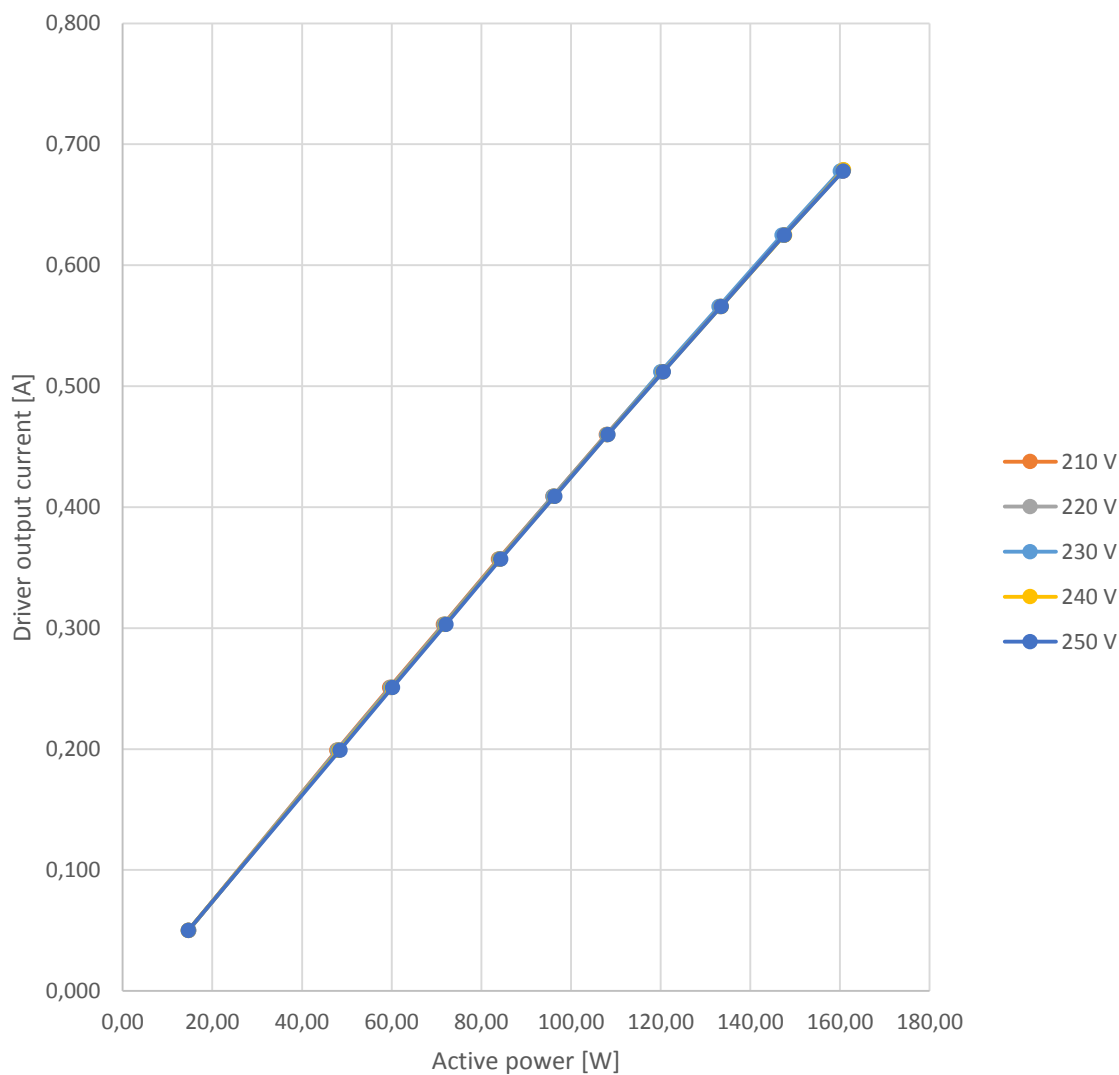


| | |
|-----------------|---|
| Table 19 | Input current (active power /input voltage) curve diagram (Test sample No.4) |
| Model: | SR 160 740 02 031 S N DD 03 1 |





| | |
|-----------------|--|
| Table 20 | Driver output current (active power/input voltage) curve diagram (Test sample No.4) |
| Model: | SR 160 740 02 031 S N DD 03 1 |





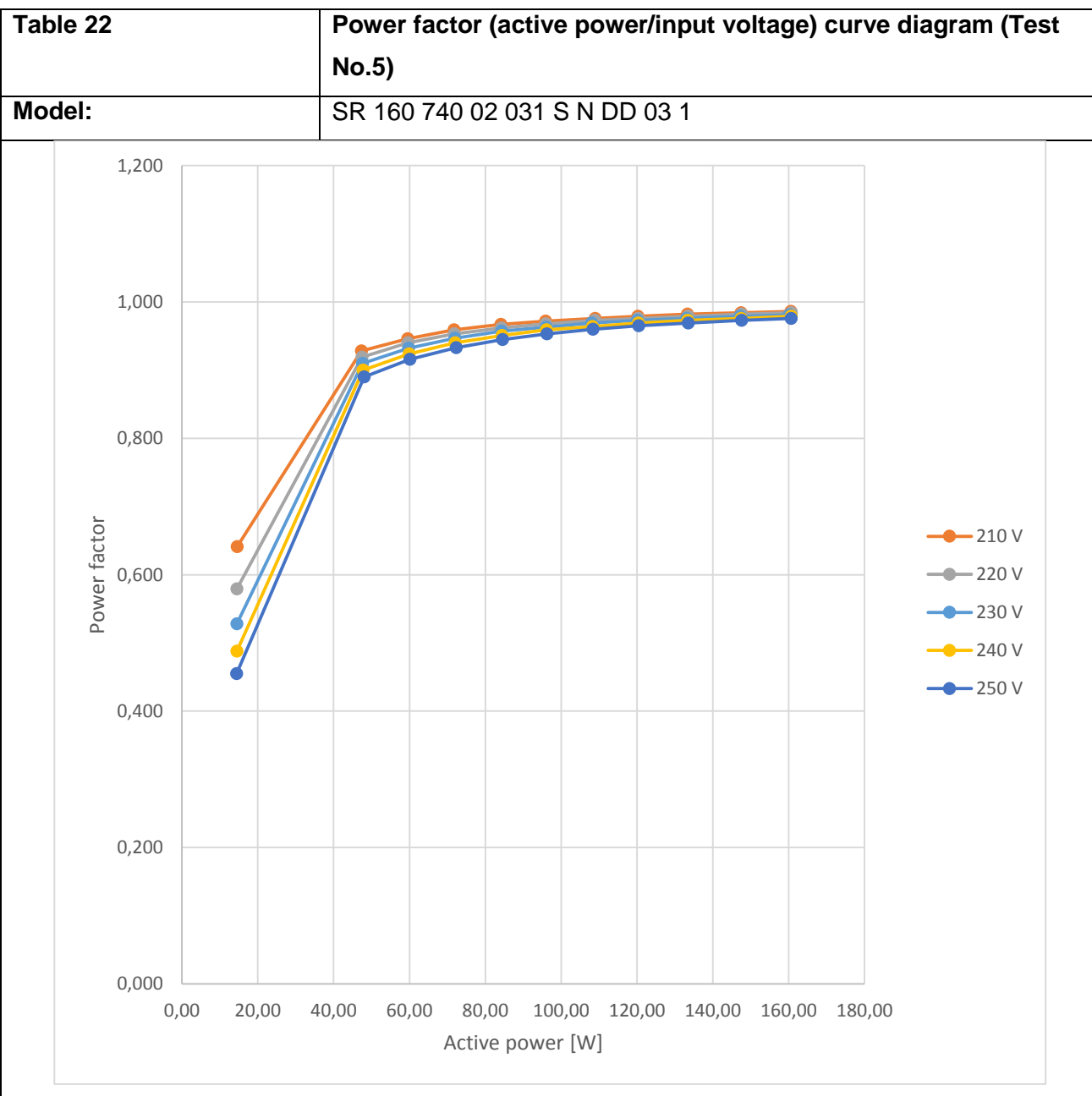
| Table 21 | | Test data table No.4 | | | | | |
|----------|-------------------|-------------------------------|---------------------|--------------|--------------------|---------------------------|---------------|
| Model: | | SR 160 740 02 031 S N DD 03 1 | | | | | |
| Test Nr. | Input voltage [V] | Active power [W] | Apparent power [VA] | Power factor | Input current [mA] | Driver output current [A] | Dimming level |
| 1 | 230 | 160,09 | 163,02 | 0,982 | 710,60 | 0,678 | 100,00% |
| 2 | 230 | 147,05 | 150,05 | 0,980 | 653,90 | 0,625 | 92,18% |
| 3 | 230 | 133,00 | 136,11 | 0,977 | 592,90 | 0,566 | 83,48% |
| 4 | 230 | 120,01 | 123,35 | 0,974 | 537,40 | 0,512 | 75,52% |
| 5 | 230 | 108,00 | 111,32 | 0,970 | 484,40 | 0,460 | 67,85% |
| 6 | 230 | 96,02 | 99,53 | 0,965 | 433,30 | 0,409 | 60,32% |
| 7 | 230 | 84,00 | 87,66 | 0,958 | 381,40 | 0,357 | 52,65% |
| 8 | 230 | 71,73 | 75,67 | 0,948 | 329,10 | 0,303 | 44,69% |
| 9 | 230 | 59,79 | 64,00 | 0,934 | 278,30 | 0,251 | 37,02% |
| 10 | 230 | 48,04 | 52,60 | 0,913 | 228,70 | 0,199 | 29,35% |
| 11 | 230 | 14,68 | 27,39 | 0,537 | 118,80 | 0,050 | 7,37% |
| 1 | 210 | 160,65 | 162,79 | 0,987 | 777,80 | 0,678 | 100,00% |
| 2 | 210 | 147,47 | 149,71 | 0,985 | 715,00 | 0,625 | 92,18% |
| 3 | 210 | 133,29 | 135,62 | 0,983 | 647,50 | 0,566 | 83,48% |
| 4 | 210 | 120,27 | 122,70 | 0,980 | 585,60 | 0,512 | 75,52% |
| 5 | 210 | 107,91 | 110,45 | 0,977 | 526,90 | 0,460 | 67,85% |
| 6 | 210 | 95,95 | 98,62 | 0,973 | 470,30 | 0,409 | 60,32% |
| 7 | 210 | 83,83 | 86,65 | 0,968 | 413,10 | 0,357 | 52,65% |

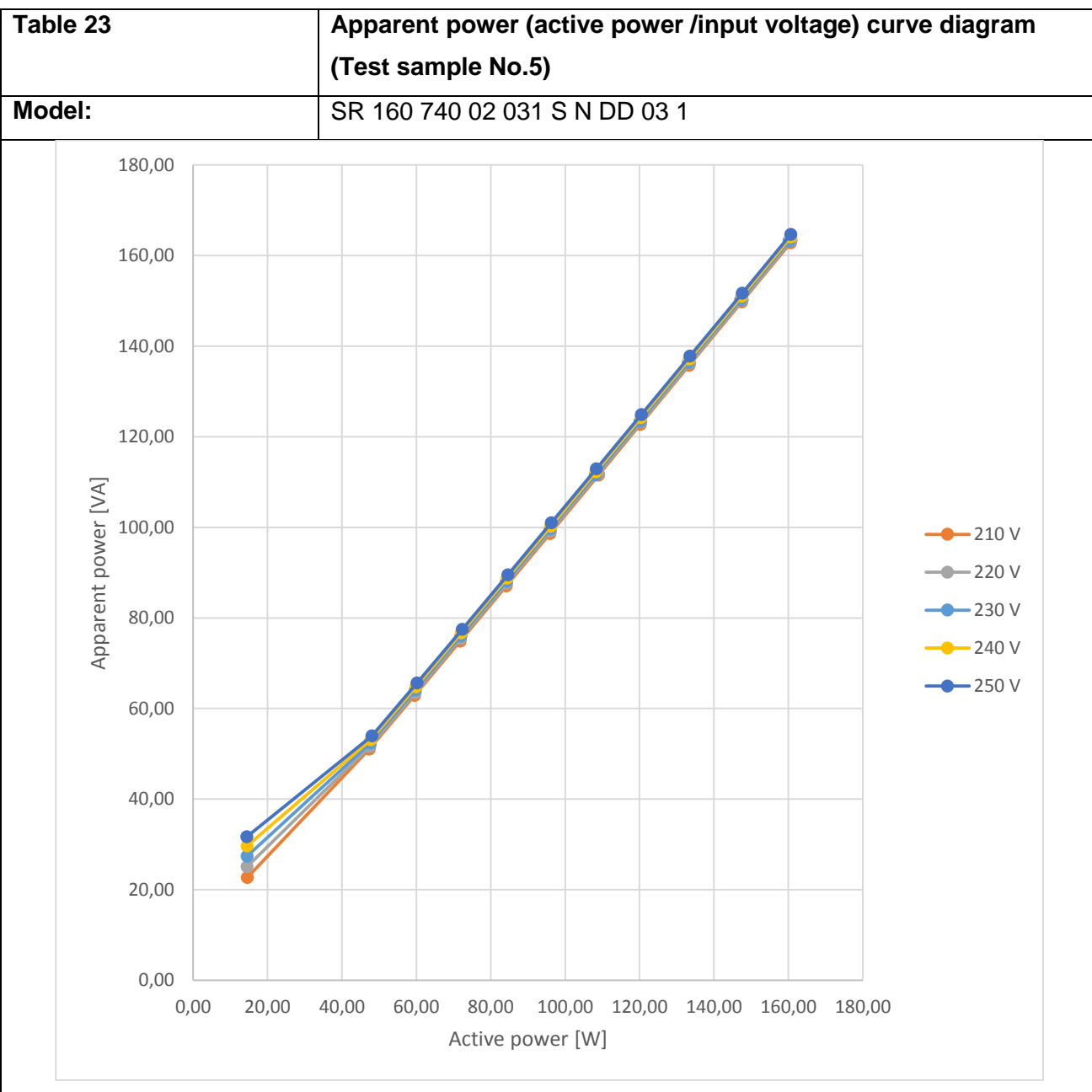


| | | | | | | | |
|----|-----|--------|--------|-------|--------|-------|---------|
| 8 | 210 | 71,54 | 74,53 | 0,960 | 355,20 | 0,303 | 44,69% |
| 9 | 210 | 59,54 | 62,80 | 0,948 | 299,20 | 0,251 | 37,02% |
| 10 | 210 | 47,74 | 51,29 | 0,931 | 244,30 | 0,199 | 29,35% |
| 11 | 210 | 14,70 | 22,76 | 0,646 | 108,31 | 0,050 | 7,37% |
| 1 | 220 | 160,70 | 163,25 | 0,985 | 744,20 | 0,679 | 100,00% |
| 2 | 220 | 147,57 | 150,16 | 0,983 | 684,30 | 0,625 | 92,05% |
| 3 | 220 | 133,40 | 136,10 | 0,980 | 620,00 | 0,566 | 83,36% |
| 4 | 220 | 120,39 | 123,20 | 0,977 | 561,00 | 0,512 | 75,41% |
| 5 | 220 | 107,99 | 110,92 | 0,974 | 505,00 | 0,460 | 67,75% |
| 6 | 220 | 96,07 | 99,14 | 0,969 | 451,20 | 0,409 | 60,24% |
| 7 | 220 | 84,01 | 87,23 | 0,963 | 396,90 | 0,357 | 52,58% |
| 8 | 220 | 71,71 | 75,15 | 0,954 | 341,80 | 0,303 | 44,62% |
| 9 | 220 | 59,72 | 63,43 | 0,942 | 288,40 | 0,251 | 36,97% |
| 10 | 220 | 47,92 | 51,95 | 0,923 | 236,10 | 0,199 | 29,31% |
| 11 | 220 | 14,68 | 25,07 | 0,586 | 113,83 | 0,050 | 7,36% |
| 1 | 240 | 160,78 | 164,13 | 0,980 | 685,40 | 0,679 | 100,00% |
| 2 | 240 | 147,62 | 151,08 | 0,977 | 630,70 | 0,625 | 92,05% |
| 3 | 240 | 133,49 | 137,07 | 0,974 | 572,10 | 0,566 | 83,36% |
| 4 | 240 | 120,52 | 124,23 | 0,970 | 518,30 | 0,512 | 75,41% |
| 5 | 240 | 108,16 | 112,01 | 0,966 | 467,20 | 0,460 | 67,75% |
| 6 | 240 | 96,28 | 100,28 | 0,960 | 418,20 | 0,409 | 60,24% |
| 7 | 240 | 84,19 | 88,40 | 0,952 | 368,60 | 0,357 | 52,58% |



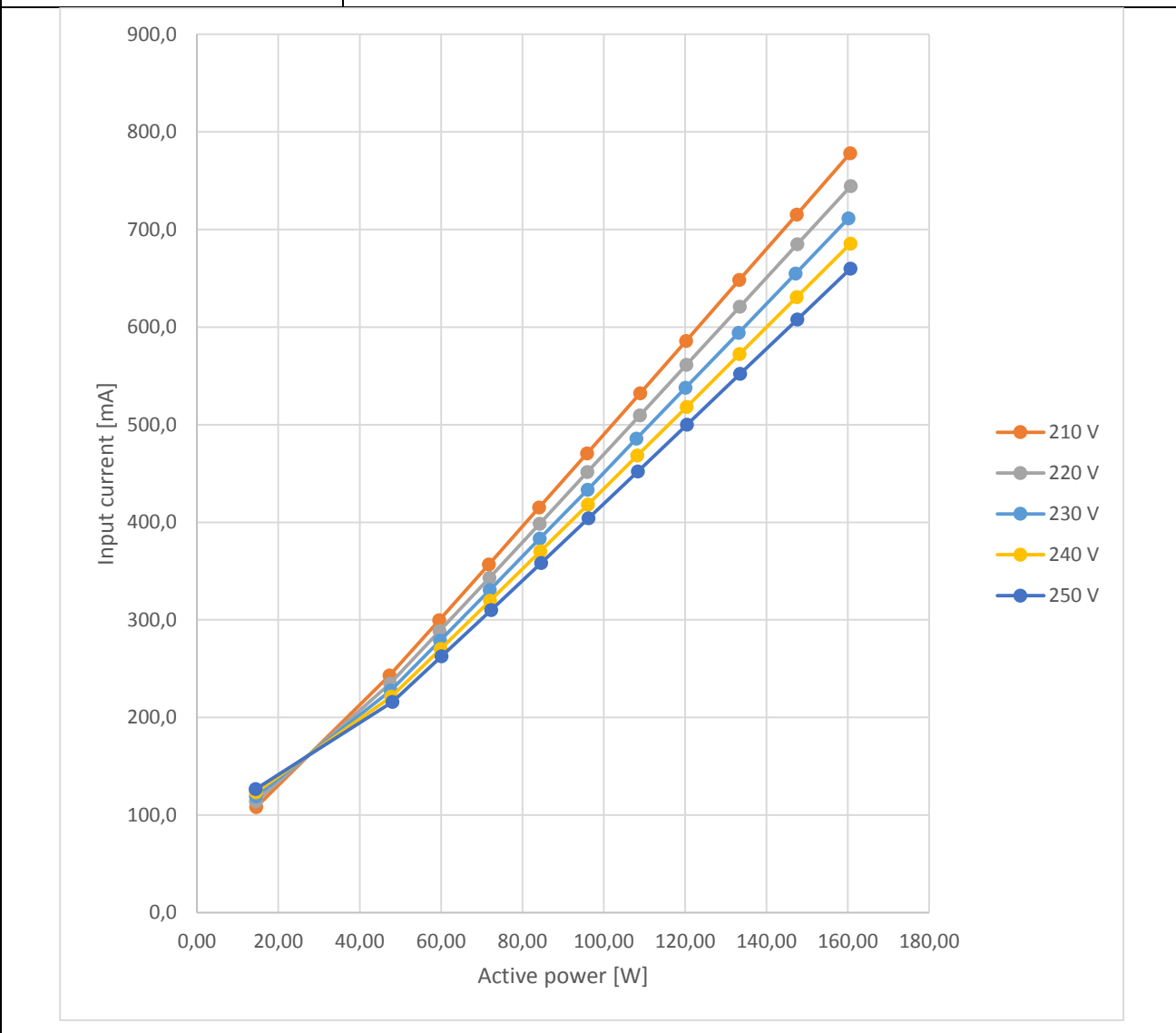
| | | | | | | | |
|----|-----|--------|--------|-------|--------|-------|---------|
| 8 | 240 | 71,95 | 76,40 | 0,942 | 318,50 | 0,303 | 44,62% |
| 9 | 240 | 60,02 | 64,76 | 0,927 | 269,90 | 0,251 | 36,97% |
| 10 | 240 | 48,28 | 53,40 | 0,904 | 222,50 | 0,199 | 29,31% |
| 11 | 240 | 14,64 | 29,52 | 0,496 | 122,93 | 0,050 | 7,36% |
| 1 | 250 | 160,71 | 164,57 | 0,977 | 659,50 | 0,678 | 100,00% |
| 2 | 250 | 147,61 | 151,57 | 0,974 | 607,30 | 0,625 | 92,18% |
| 3 | 250 | 133,52 | 137,62 | 0,970 | 551,20 | 0,566 | 83,48% |
| 4 | 250 | 120,59 | 124,82 | 0,966 | 499,80 | 0,512 | 75,52% |
| 5 | 250 | 108,25 | 112,61 | 0,961 | 450,90 | 0,460 | 67,85% |
| 6 | 250 | 96,37 | 100,93 | 0,955 | 404,00 | 0,409 | 60,32% |
| 7 | 250 | 84,32 | 89,08 | 0,947 | 356,50 | 0,357 | 52,65% |
| 8 | 250 | 72,10 | 77,11 | 0,935 | 308,50 | 0,303 | 44,69% |
| 9 | 250 | 60,19 | 65,51 | 0,919 | 262,10 | 0,251 | 37,02% |
| 10 | 250 | 48,48 | 54,21 | 0,894 | 216,80 | 0,199 | 29,35% |
| 11 | 250 | 14,58 | 31,38 | 0,464 | 125,50 | 0,050 | 7,37% |





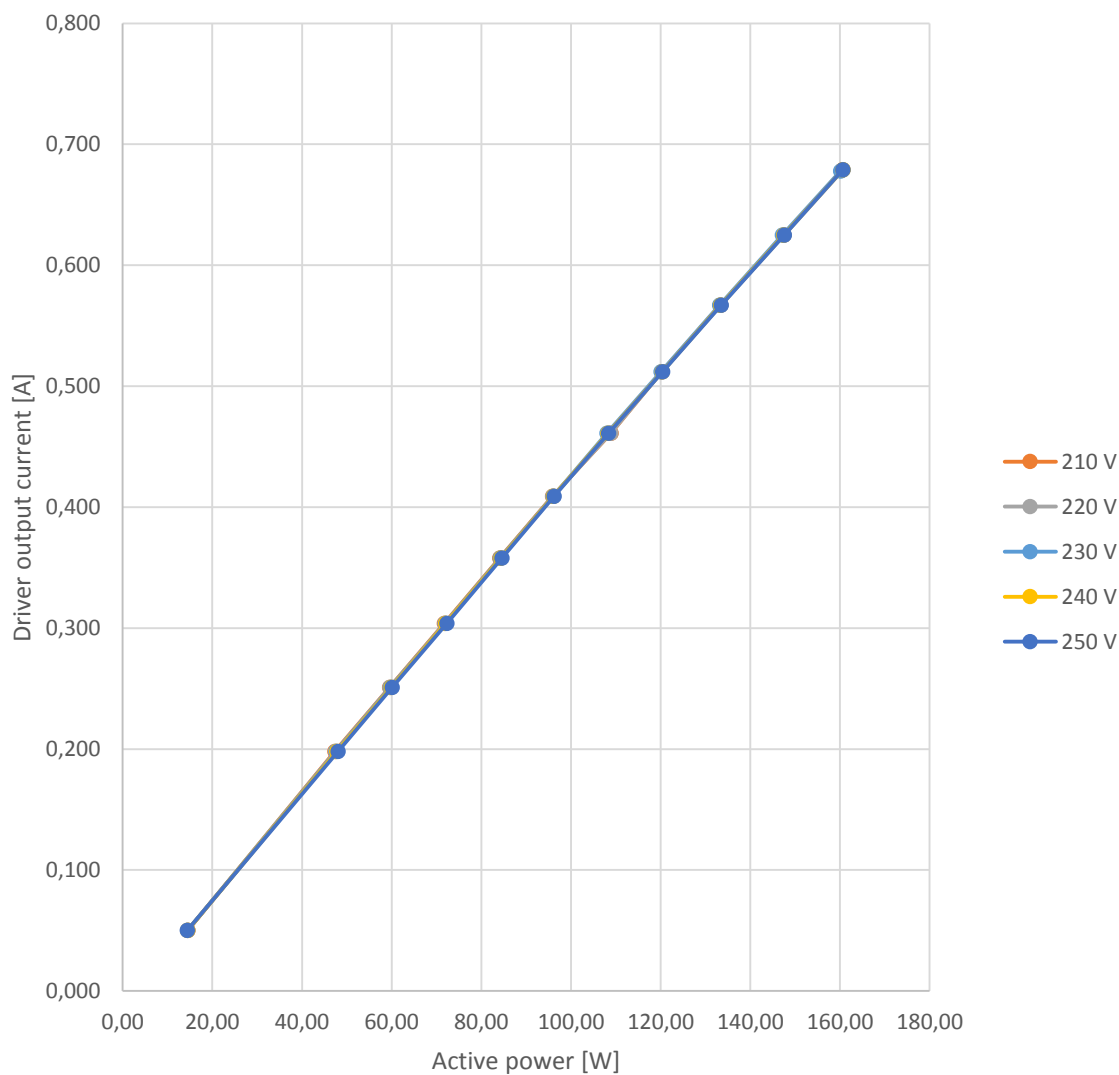


| | |
|-----------------|---|
| Table 24 | Input current (active power /input voltage) curve diagram (Test sample No.5) |
| Model: | SR 160 740 02 031 S N DD 03 1 |





| | |
|-----------------|--|
| Table 25 | Driver output current (active power/input voltage) curve diagram (Test sample No.5) |
| Model: | SR 160 740 02 031 S N DD 03 1 |





| Table 26 | | Test data table No.5 | | | | | |
|----------|-------------------|-------------------------------|---------------------|--------------|--------------------|---------------------------|---------------|
| Model: | | SR 160 740 02 031 S N DD 03 1 | | | | | |
| Test Nr. | Input voltage [V] | Active power [W] | Apparent power [VA] | Power factor | Input current [mA] | Driver output current [A] | Dimming level |
| 1 | 230 | 160,13 | 163,16 | 0,981 | 711,2 | 0,678 | 100,00% |
| 2 | 230 | 147,13 | 150,25 | 0,979 | 654,7 | 0,625 | 92,18% |
| 3 | 230 | 133,12 | 136,36 | 0,976 | 594,0 | 0,567 | 83,63% |
| 4 | 230 | 120,11 | 123,47 | 0,973 | 537,7 | 0,512 | 75,52% |
| 5 | 230 | 108,05 | 111,55 | 0,969 | 485,6 | 0,461 | 67,99% |
| 6 | 230 | 96,00 | 99,64 | 0,963 | 433,3 | 0,409 | 60,32% |
| 7 | 230 | 84,25 | 88,08 | 0,957 | 383,2 | 0,358 | 52,80% |
| 8 | 230 | 71,94 | 76,01 | 0,947 | 330,6 | 0,304 | 44,84% |
| 9 | 230 | 59,74 | 64,09 | 0,932 | 278,7 | 0,251 | 37,02% |
| 10 | 230 | 47,60 | 52,33 | 0,910 | 227,5 | 0,198 | 29,20% |
| 11 | 230 | 14,49 | 27,41 | 0,528 | 119,1 | 0,050 | 7,37% |
| 1 | 210 | 160,57 | 162,81 | 0,986 | 777,9 | 0,679 | 100,00% |
| 2 | 210 | 147,45 | 149,77 | 0,984 | 715,3 | 0,625 | 92,05% |
| 3 | 210 | 133,33 | 135,76 | 0,982 | 648,1 | 0,567 | 83,51% |
| 4 | 210 | 120,22 | 122,75 | 0,979 | 585,8 | 0,512 | 75,41% |
| 5 | 210 | 108,94 | 111,54 | 0,976 | 532,0 | 0,461 | 67,89% |
| 6 | 210 | 95,87 | 98,63 | 0,972 | 470,4 | 0,409 | 60,24% |
| 7 | 210 | 84,13 | 87,04 | 0,967 | 415,0 | 0,358 | 52,72% |



| | | | | | | | |
|----|-----|--------|--------|-------|-------|-------|---------|
| 8 | 210 | 71,73 | 74,83 | 0,959 | 356,7 | 0,304 | 44,77% |
| 9 | 210 | 59,50 | 62,87 | 0,946 | 299,5 | 0,251 | 36,97% |
| 10 | 210 | 47,32 | 51,00 | 0,928 | 242,9 | 0,198 | 29,16% |
| 11 | 210 | 14,52 | 22,69 | 0,641 | 108,0 | 0,050 | 7,36% |
| 1 | 220 | 160,74 | 163,33 | 0,984 | 744,5 | 0,679 | 100,00% |
| 2 | 220 | 147,57 | 150,27 | 0,982 | 684,8 | 0,625 | 92,05% |
| 3 | 220 | 133,46 | 136,26 | 0,979 | 620,7 | 0,567 | 83,51% |
| 4 | 220 | 120,33 | 123,26 | 0,976 | 561,3 | 0,512 | 75,41% |
| 5 | 220 | 108,88 | 111,90 | 0,973 | 509,4 | 0,461 | 67,89% |
| 6 | 220 | 95,97 | 99,16 | 0,968 | 451,3 | 0,409 | 60,24% |
| 7 | 220 | 84,25 | 87,59 | 0,962 | 398,5 | 0,358 | 52,72% |
| 8 | 220 | 71,85 | 75,42 | 0,953 | 343,0 | 0,304 | 44,77% |
| 9 | 220 | 59,62 | 63,46 | 0,940 | 288,5 | 0,251 | 36,97% |
| 10 | 220 | 47,47 | 51,65 | 0,919 | 234,7 | 0,198 | 29,16% |
| 11 | 220 | 14,50 | 25,05 | 0,579 | 113,7 | 0,050 | 7,36% |
| 1 | 240 | 160,64 | 164,14 | 0,979 | 685,4 | 0,679 | 100,00% |
| 2 | 240 | 147,44 | 151,03 | 0,976 | 630,6 | 0,625 | 92,05% |
| 3 | 240 | 133,40 | 137,13 | 0,973 | 572,3 | 0,567 | 83,51% |
| 4 | 240 | 120,35 | 124,20 | 0,969 | 518,2 | 0,512 | 75,41% |
| 5 | 240 | 108,25 | 112,23 | 0,964 | 468,2 | 0,461 | 67,89% |
| 6 | 240 | 96,08 | 100,24 | 0,959 | 418,0 | 0,409 | 60,24% |
| 7 | 240 | 84,39 | 88,76 | 0,951 | 370,0 | 0,358 | 52,72% |



| | | | | | | | |
|----|-----|--------|--------|-------|-------|-------|---------|
| 8 | 240 | 72,06 | 76,67 | 0,940 | 319,6 | 0,304 | 44,77% |
| 9 | 240 | 59,88 | 64,79 | 0,924 | 270,0 | 0,251 | 36,97% |
| 10 | 240 | 47,78 | 53,09 | 0,900 | 221,2 | 0,198 | 29,16% |
| 11 | 240 | 14,45 | 29,64 | 0,488 | 123,3 | 0,050 | 7,36% |
| 1 | 250 | 160,64 | 164,65 | 0,976 | 659,8 | 0,679 | 100,00% |
| 2 | 250 | 147,56 | 151,68 | 0,973 | 607,7 | 0,625 | 92,05% |
| 3 | 250 | 133,52 | 137,78 | 0,969 | 551,9 | 0,567 | 83,51% |
| 4 | 250 | 120,47 | 124,87 | 0,965 | 500,0 | 0,512 | 75,41% |
| 5 | 250 | 108,37 | 112,90 | 0,960 | 452,0 | 0,461 | 67,89% |
| 6 | 250 | 96,24 | 100,97 | 0,953 | 404,1 | 0,409 | 60,24% |
| 7 | 250 | 84,56 | 89,48 | 0,945 | 358,1 | 0,358 | 52,72% |
| 8 | 250 | 72,30 | 77,48 | 0,933 | 310,0 | 0,304 | 44,77% |
| 9 | 250 | 60,13 | 65,64 | 0,916 | 262,5 | 0,251 | 36,97% |
| 10 | 250 | 48,03 | 53,97 | 0,890 | 215,8 | 0,198 | 29,16% |
| 11 | 250 | 14,41 | 31,68 | 0,455 | 126,5 | 0,050 | 7,36% |