# Thermal Performance tests on 4 Radiators

## 11, 21, 22 and 33 models

Carried out for

SANICA ISI SANAYI AS

Report 104472/1

Compiled by Tomas Webster

15 December 2022

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# Thermal Performance tests on 4 Radiators

## 11, 21, 22 and 33 models

| | |
|---|---|
| Carried out for: | SANICA ISI SANAYI AS<br>Kavakli Mahallesi<br>Istanbul Caddesi<br>No:10, P.K:34520<br>Beylikduzu/ISTANBUL<br>Turkey |
| Contract: | Report 104472/1 |
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## QUALITY ASSURANCE

| Issue | Date | Compiled by: | Approved by: | Signature |
|---|---|---|---|---|
| *FINAL* | *15-Dec-2022* | *Tomas Webster* | *Mark Roper* |  |
| | | *Engineering Support* | *Head of Laboratory* | |

# SUMMARY

Thermal performance and pressure tests were carried out on four panel radiators in accordance with the procedures contained in BS EN 442-2:2014, using low pressure hot water in the BSRIA radiator test room, described within Section 3 of this report. The work was requested by Sanica and the thermal testing was carried out during the period 14 to 18 November 2022. Pressure testing was carried out on the 13 December 2022.

A summary of the thermal performance is shown below.

| Test reference | Height | Width | Panels | Convectors | Output W at 30ΔT | Output W at 50ΔT | Factor $K_m$ | Exponent n |
|---|---|---|---|---|---|---|---|---|
| **104472A1TW** | 600 | 1000 | 1 | 1 | 468 | 905 | 5.7827 | 1.2916 |
| **104472A2TW** | 600 | 1000 | 2 | 1 | 658 | 1269 | 8.2582 | 1.2871 |
| **104472A5TW** | 600 | 1000 | 2 | 2 | 838 | 1633 | 9.9202 | 1.3045 |
| **104472A4TW** | 600 | 1000 | 3 | 3 | 1185 | 2286 | 14.9135 | 1.2864 |

Full test results are contained within section 5 and 6 of this report.

# CONTENTS



# APPENDICES

# 1 INTRODUCTION

Thermal performance and pressure tests were carried out on four panel radiators in accordance with the procedures contained in BS EN 442-2:2014, using low pressure hot water in the BSRIA radiator test room, described within Section 3 of this report. The work was requested by Sanica and the thermal testing was carried out during the period 14 to 18 November 2022. Pressure testing was carried out on the 13 December 2022.

All samples were received on 1 November 2022. All samples were received in good condition.

This report relates to the samples tested and no others.

Comments and opinions are outside the scope of UKAS accreditation.

# 2 ITEMS RECEIVED FOR TEST

The test samples consisted of four panel radiators from Sanica. These samples consisted of one each of type 11, 21, 22 and 33 radiators.

The samples were designated by the manufacturer as follows:

Type 600 PK11
Type 600 PKP21
Type 600 PKKP22
Type 600 PKKP33

The samples were four tapping panel radiators. Radiators were plumbed top and bottom same end (T.B.S.E.).

The radiators were installed as standard for BS EN 442, but using the supplied mountings for spacing from the chamber wall.

Further details of the test samples can be found in Appendix A, with manufacturer's drawings included in Appendix B to enable the sample types, sizes, test pressures and finish to be verified.

# 3 TEST FACILITY

The test facility consists of a test room 4.0m (l) x 4.0m (w) x 3.0m (h), which is constructed to the requirements contained in BS EN 442-2:2014, i.e. five water cooled surfaces and one insulated surface against which the test radiator is installed.

When steady state conditions are achieved the appliance output is determined from measurements of the water flow rate and inlet/outlet water temperature difference.

A standard test consists of three test points. For all appliances a first test is carried out with water supply temperature that produces a mean water temperature of 70°C with the water flow rate such that for radiators the inlet/outlet water temperature difference is 10°C. Two further tests are carried out at the water flow rate established in the first test but with different supply water temperatures.

For products marked[1] the temperature drop was set at 5°C to enable the flow rate to remain within the standard measurement uncertainty for the test chamber.

For all tests the enclosure air temperature is controlled to maintain 20°C at the inner room reference point, which is 0.75m from the floor in the centre of the room.

# 4 INSTRUMENTATION

TEST RECORD SHEET TP21/7 : TEST EQUIPMENT / INSTRUMENTS

| | Instrument No. | Calibration expiry date |
|---|---|---|
| Weigh scales | 2026, 2027 | 18/01/23 |
| Resistance thermometer (air) reference & radiant shield | 329 | 14/09/23 |
| Resistance thermometers (water) reference | 1512-1515 | 14/09/23 |
| Digital voltmeter 7½ digit (resistance thermometer measurement) | 266 | 14/09/23 |
| Barometer | 881 | 02/12/22 |
| Electronic timer within PC | 526 | 07/12/22 |
| Vernier caliper (0 – 1.5m) | 359 | 22/03/25 |
| Digital caliper (0 – 150mm) | 2057 | 06/05/23 |
| Weigh scales (water content) | 188 | 18/01/23 |

Comments: None

| | |
|---|---|
| Test Engineer | Tomas Webster |

# 5 THERMAL RESULTS

| Test reference | Height | Width | Panels | Convectors | Output W at 30ΔT | Output W at 50ΔT | Factor $K_m$ | Exponent n |
|---|---|---|---|---|---|---|---|---|
| **104472A1TW** | 600 | 1000 | 1 | 1 | 468 | 905 | 5.7827 | 1.2916 |
| **104472A2TW** | 600 | 1000 | 2 | 1 | 658 | 1269 | 8.2582 | 1.2871 |
| **104472A5TW** | 600 | 1000 | 2 | 2 | 838 | 1633 | 9.9202 | 1.3045 |
| **104472A4TW** | 600 | 1000 | 3 | 3 | 1185 | 2286 | 14.9135 | 1.2864 |

Results for the products are for those heights tested, enabling catalogues to be generated based on overall linear length for each height tested.

Catalogue outputs can be derived for other lengths of those heights tested by using a linear length constant of 1 (divide test output by test length for relevant height and multiply by desired length). The same method can be used to determine the relevant constant '$K_m$' for a different length using the test values of 'Km' as datum. The exponent 'n' will remain the same as the tested values for each height.

Test data is valid for the type, material and surface finish tested. The data may also be valid for other surface finishes with the same emissivity.

Individual test results for samples in this contract are shown below.

| | |
|---|---|
| Date of Test: | 14/11/2022 |
| Manufacturer: | Sanica |
| Model Reference: | Type 600 PK11 |
| Test Reference Number: | 104472A1TW |
| Type of Heater: | Single Panel Single Convector |
| Surface Finish: | White Powder Coat |
| Pipework Connections: | T.B.S.E. |

HEATER DIMENSIONS

| | | |
|---|---|---|
| Overall Height: | (mm) | 603 |
| Overall Length: | (mm) | 1004 |
| Overall Depth: | (mm) | 66 |
| Convector Height: | (mm) | 500 |
| Convector Depth: | (mm) | 30 |
| Height above floor: | (mm) | 110 |
| Distance from wall: | (mm) | 10 |

| | | |
|---|---|---|
| Radiated heat factor | Sk | 0.35 |
| Barometer exponent | np | 0.60 |

| MEAN TEST VALUES | | TEST 1 | TEST 2 | TEST 3 |
|---|---|---|---|---|
| Room air temperature 0.75m: | (°C) | 20.3 | 20.2 | 20.3 |
| Flow rate | (g/s) | 19.7 | 19.6 | 19.5 |
| Flow enthalpy | (J/g) | 313.8 | 219.4 | 363.8 |
| Return enthalpy | (J/g) | 268.9 | 196.2 | 306.0 |
| Flow temperature | (°C) | 75.0 | 52.4 | 86.9 |
| Return temperature | (°C) | 64.3 | 46.9 | 73.1 |
| Output | (W) | 883.1 | 454.5 | 1130.2 |
| Mean water temperature | (°C) | 69.6 | 49.6 | 80.0 |
| Temperature difference | (°C) | 49.3 | 29.5 | 59.7 |
| Barometric pressure | (mbar) | 997.1 | 997.1 | 997.3 |
| Corrected output | (W) | 888.6 | 457.3 | 1137.2 |
| Estimated output | (W) | 888.4 | 457.4 | 1137.4 |

PERFORMANCE EQUATION

Output (W) = $K_M$ (mean water temperature - room air temperature) ^n

From test results $K_M$ = 5.7827
n = 1.2916

VARIATION OF OUTPUT WITH TEMPERATURE DIFFERENCE

| TEMPERATURE DIFFERENCE °C | HEAT OUTPUT W |
|---|---|
| 20 | 277 |
| 30 | 468 |
| 40 | 678 |
| 50 | 905 |
| 60 | 1145 |
| 70 | 1397 |

| | |
|---|---|
| Date of Test: | 15/11/2022 |
| Manufacturer: | Sanica |
| Model Reference: | Type 600 PKP21 |
| Test Reference Number: | 104472A2TW |
| Type of Heater: | Double Panel Single Convector |
| Surface Finish: | White Powder Coat |
| Pipework Connections: | T.B.S.E. |

HEATER DIMENSIONS

| | | |
|---|---|---|
| Overall Height: | (mm) | 603 |
| Overall Length: | (mm) | 1003 |
| Overall Depth: | (mm) | 71 |
| Convector Height: | (mm) | 500 |
| Convector Depth: | (mm) | 29 |
| Height above floor: | (mm) | 110 |
| Distance from wall: | (mm) | 39 |

| | | |
|---|---|---|
| Radiated heat factor | Sk | 0.20 |
| Barometer exponent | np | 0.70 |

| MEAN TEST VALUES | | TEST 1 | TEST 2 | TEST 3 |
|---|---|---|---|---|
| Room air temperature 0.75m: | (°C) | 19.5 | 19.5 | 19.5 |
| Flow rate | (g/s) | 29.2 | 29.1 | 29.1 |
| Flow enthalpy | (J/g) | 311.0 | 216.0 | 359.7 |
| Return enthalpy | (J/g) | 268.4 | 194.3 | 305.7 |
| Flow temperature | (°C) | 74.3 | 51.6 | 85.9 |
| Return temperature | (°C) | 64.1 | 46.4 | 73.0 |
| Output | (W) | 1247.6 | 631.8 | 1569.8 |
| Mean water temperature | (°C) | 69.2 | 49.0 | 79.5 |
| Temperature difference | (°C) | 49.7 | 29.5 | 60.0 |
| Barometric pressure | (mbar) | 983.6 | 983.6 | 983.8 |
| Corrected output | (W) | 1268.3 | 642.3 | 1595.8 |
| Estimated output | (W) | 1259.8 | 643.5 | 1603.7 |

PERFORMANCE EQUATION

Output (W) = $K_M$ (mean water temperature - room air temperature) ^n

From test results $K_M$ = 8.2582
n = 1.2871

VARIATION OF OUTPUT WITH TEMPERATURE DIFFERENCE

| TEMPERATURE DIFFERENCE °C | HEAT OUTPUT W |
|---|---|
| 20 | 390 |
| 30 | 658 |
| 40 | 952 |
| 50 | 1269 |
| 60 | 1605 |
| 70 | 1957 |

| | |
|---|---|
| Date of Test: | 25/11/2022 |
| Manufacturer: | Sanica |
| Model Reference: | Type 600 PKKP22 |
| Test Reference Number: | 104472A5TW |
| Type of Heater: | Double Panel Double Convector |
| Surface Finish: | White Powder Coat |
| Pipework Connections: | T.B.S.E. |

HEATER DIMENSIONS

| | | |
|---|---|---|
| Overall Height: | (mm) | 604 |
| Overall Length: | (mm) | 1002 |
| Overall Depth: | (mm) | 106 |
| Convector Height: | (mm) | 502 |
| Convector Depth: | (mm) | 30 |
| Height above floor: | (mm) | 110 |
| Distance from wall: | (mm) | 38 |

| | | |
|---|---|---|
| Radiated heat factor | Sk | 0.20 |
| Barometer exponent | np | 0.70 |

| MEAN TEST VALUES | | TEST 1 | TEST 2 | TEST 3 |
|---|---|---|---|---|
| Room air temperature 0.75m: | (°C) | 20.1 | 19.9 | 20.4 |
| Flow rate | (g/s) | 38.8 | 38.7 | 38.6 |
| Flow enthalpy | (J/g) | 315.9 | 220.6 | 364.2 |
| Return enthalpy | (J/g) | 273.5 | 198.8 | 310.5 |
| Flow temperature | (°C) | 75.5 | 52.7 | 87.0 |
| Return temperature | (°C) | 65.4 | 47.5 | 74.2 |
| Output | (W) | 1644.6 | 841.8 | 2071.9 |
| Mean water temperature | (°C) | 70.4 | 50.1 | 80.6 |
| Temperature difference | (°C) | 50.3 | 30.2 | 60.2 |
| Barometric pressure | (mbar) | 1008.2 | 1009.5 | 1010.6 |
| Corrected output | (W) | 1649.0 | 843.4 | 2074.7 |
| Estimated output | (W) | 1644.5 | 844.0 | 2078.9 |

PERFORMANCE EQUATION

Output (W) = $K_M$ (mean water temperature - room air temperature) ^n

From test results $K_M$ = 9.9202
n = 1.3045

VARIATION OF OUTPUT WITH TEMPERATURE DIFFERENCE

| TEMPERATURE DIFFERENCE °C | HEAT OUTPUT W |
|---|---|
| 20 | 494 |
| 30 | 838 |
| 40 | 1220 |
| 50 | 1633 |
| 60 | 2071 |
| 70 | 2532 |

| | |
|---|---|
| Date of Test: | 17/11/2022 |
| Manufacturer: | Sanica |
| Model Reference: | Type 600 PKKP33 |
| Test Reference Number: | 104472A4TW |
| Type of Heater: | Triple Panel Triple Convector |
| Surface Finish: | White Powder Coat |
| Pipework Connections: | T.B.S.E. |

HEATER DIMENSIONS

| | | |
|---|---|---|
| Overall Height: | (mm) | 604 |
| Overall Length: | (mm) | 1004 |
| Overall Depth: | (mm) | 162 |
| Convector Height: | (mm) | 499 |
| Convector Depth: | (mm) | 30 |
| Height above floor: | (mm) | 110 |
| Distance from wall: | (mm) | 40 |

| | | |
|---|---|---|
| Radiated heat factor | Sk | 0.10 |
| Barometer exponent | np | 0.80 |

| MEAN TEST VALUES | | TEST 1 | TEST 2 | TEST 3 |
|---|---|---|---|---|
| Room air temperature 0.75m: | (°C) | 20.3 | 19.8 | 20.4 |
| Flow rate | (g/s) | 53.1 | 53.1 | 52.6 |
| Flow enthalpy | (J/g) | 316.5 | 216.7 | 359.9 |
| Return enthalpy | (J/g) | 273.4 | 195.5 | 307.2 |
| Flow temperature | (°C) | 75.6 | 51.8 | 86.0 |
| Return temperature | (°C) | 65.3 | 46.7 | 73.4 |
| Output | (W) | 2290.8 | 1125.2 | 2773.2 |
| Mean water temperature | (°C) | 70.5 | 49.2 | 79.7 |
| Temperature difference | (°C) | 50.2 | 29.5 | 59.3 |
| Barometric pressure | (mbar) | 979.9 | 980.8 | 998.7 |
| Corrected output | (W) | 2346.3 | 1151.8 | 2801.9 |
| Estimated output | (W) | 2297.6 | 1157.6 | 2846.9 |

PERFORMANCE EQUATION

Output (W) = $K_M$ (mean water temperature - room air temperature) ^n

From test results $K_M$ = 14.9135
n = 1.2864

VARIATION OF OUTPUT WITH TEMPERATURE DIFFERENCE

| TEMPERATURE DIFFERENCE °C | HEAT OUTPUT W |
|---|---|
| 20 | 703 |
| 30 | 1185 |
| 40 | 1716 |
| 50 | 2286 |
| 60 | 2891 |
| 70 | 3525 |

# 6 PRESSURE TESTS

## TEST RECORD SHEET TP21/4 : BURST TEST

BS EN 442-1 : 2014 clause 5.6 requirements

Sample heating appliances shall be subjected to a burst test at a pressure 1.69 times the maximum working pressure (See commentary below).

- The sample under test may deform but shall not rupture.
- The sample radiators shall not be less than 500mm long.

Commentary

The leak testing pressure is specified by the manufacturer (usually on the product drawing) and is at least 1.3 times the quoted maximum operating pressure. This pressure shall not be less than 520 kPa (75.4 psi). BS EN 442-1 : 2014 clause 5.4 refers. Furthermore, the burst test pressure shall be maintained for a minimum period of 2 minutes.

Test instrumentation

| | BSRIA instrument number | Calibration expiry date |
|---|---|---|
| Standard pressure gauge | 1535 | 15/04/2023 |
| Stopwatch | 298 | 13/01/2023 |

Test data

| Test item reference number | Date of Test | Burst test pressure [1.3 x leak test pressure] (Bar) | Did test item hold burst pressure for a minimum of 2min without rupture Pass/Fail |
|---|---|---|---|
| 104472A1TW | 13/12/2022 | 16.9 | Pass |
| 104472A2TW | 13/12/2022 | 16.9 | Pass |
| 104472A4TW | 13/12/2022 | 16.9 | Pass |
| 104472A5TW | 13/12/2022 | 16.9 | Pass |

TEST ENGINEER Tomas Webster

# APPENDIX A: PRODUCT INFORMATION

## TEST RECORD SHEET TP21/1: TEST ITEMS

Contract number 103714/A

| Date of receipt | Test Engineer initials | Full description of test item | Test item reference number |
|---|---|---|---|
| | TW | Single white panel radiator with convector, top grille, side plates, 600x1000 | 104472A1TW |
| | TW | Double white panel radiator with single convector, top grille, side plates, 600x1000 | 104472A2TW |
| | TW | Double white panel radiator with double convector, top grille, side plates, 600x1000 | 104472A5TW |
| | TW | Triple white panel radiator with triple convector, top grille, side plates, 600x1000 | 103174A4AF |

Comments:- Test item reference numbers list all items received in the numerical order they were tested.

Test Engineer (signature) *Tomas Webster*

# TEST RECORD SHEET TP21/2 : PRODUCT INFORMATION

| | | |
|---|---|---|
| BSRIA test reference number | | 104472A1TW |
| Client | | Sanica |
| Manufacturer | | Sanica |
| Product reference number | | Type 600 PK11 |
| Product style | | Single Panel with Single Convector |
| Material of construction | | Steel, powder coat white |
| Date of receipt | | 01/11/2022 |
| Product or packaging markings | | Type, Manufacturer, CE |
| Test start date | | 14/11/2022 |
| Weight (dry) | (kg) | 17.5 |
| Water content | (kg) | 3.10 |

## DIMENSIONAL MEASUREMENTS

| Measurement Parameter | Measured value (mm) | Manufacturer's stated value (mm) | EN 442-2 dimensional tolerance (mm or %) | Pass / Fail |
|---|---|---|---|---|
| Overall height | 603 | 600 | +4/-2 | Pass |
| Overall length | 1004 | 1000 | +/-5 | Pass |
| Overall depth | 66 | 68 | +4/-3 | Pass |
| Convector height | 500 | | | |
| Convector depth | 30 | | | |

| | | |
|---|---|---|
| Number of columns per panel | | 30 |
| Distance installed from the wall | (mm) | 10 |
| Distance between centres | (mm) | 545 |
| Panel thickness | (mm) | 14.38 |
| Convector overall length | (mm) | 970 |
| Convector thickness | (mm) | 0.71 |
| Spot weld horizontal pitch | (mm) | 32.3 |
| Additional information | | T.B.S.E. connections |

TEST ENGINEER (Signature) Tomas Webster

## TEST RECORD SHEET TP21/2 : PRODUCT INFORMATION

| | | |
|---|---|---|
| BSRIA test reference number | | 104472A2TW |
| Client | | Sanica |
| Manufacturer | | Sanica |
| Product reference number | | Type 600 PKP21 |
| Product style | | Double Panel with Single Convector |
| Material of construction | | Steel, powder coat white |
| Date of receipt | | 01/11/2022 |
| Product or packaging markings | | Type, Manufacturer, CE |
| Test start date | | 15/11/2022 |
| Weight (dry) | (kg) | 28.6 |
| Water content | (kg) | 6.05 |

## DIMENSIONAL MEASUREMENTS

| Measurement Parameter | Measured value (mm) | Manufacturer's stated value (mm) | EN 442-2 dimensional tolerance (mm or %) | Pass / Fail |
|---|---|---|---|---|
| Overall height | 603 | 600 | +4/-2 | Pass |
| Overall length | 1003 | 1000 | +/-5 | Pass |
| Overall depth | 71 | 68 | +4/-3 | Pass |
| Convector height | 500 | | | |
| Convector depth | 29 | | | |

| | | |
|---|---|---|
| Number of columns per panel | | 30 |
| Distance installed from the wall | (mm) | 39 |
| Distance between centres | (mm) | 543 |
| Panel thickness | (mm) | 13.98 |
| Convector overall length | (mm) | 975 |
| Convector thickness | (mm) | 0.55 |
| Spot weld horizontal pitch | (mm) | 32.5 |
| Additional information | | T.B.S.E. connections |

TEST ENGINEER (Signature) Tomas Webster

## TEST RECORD SHEET TP21/2 : PRODUCT INFORMATION

| | | |
|---|---|---|
| BSRIA test reference number | | 104472A5TW |
| Client | | Sanica |
| Manufacturer | | Sanica |
| Product reference number | | Type 600 PKKP22 |
| Product style | | Double Panel with Double Convector |
| Material of construction | | Steel, powder coat white |
| Date of receipt | | 01/11/2022 |
| Product or packaging markings | | Type, Manufacturer, CE |
| Test start date | | 25/11/2022 |
| Weight (dry) | (kg) | 32.9 |
| Water content | (kg) | 6.28 |

## DIMENSIONAL MEASUREMENTS

| Measurement Parameter | Measured value (mm) | Manufacturer's stated value (mm) | EN 442-2 dimensional tolerance (mm or %) | Pass / Fail |
|---|---|---|---|---|
| Overall height | 604 | 600 | +4/-2 | Pass |
| Overall length | 1002 | 1000 | +/-5 | Pass |
| Overall depth | 106 | 103 | +4/-3 | Pass |
| Convector height | 502 | | | |
| Convector depth | 30 | | | |

| | | |
|---|---|---|
| Number of columns per panel | | 30 |
| Distance installed from the wall | (mm) | 38 |
| Distance between centres | (mm) | 547 |
| Panel thickness | (mm) | 14.04 |
| Convector overall length | (mm) | 970 |
| Convector thickness | (mm) | 0.50 |
| Spot weld horizontal pitch | (mm) | 32.2 |
| Additional information | | T.B.S.E. connections |

TEST ENGINEER (Signature) Tomas Webster

## TEST RECORD SHEET TP21/2 : PRODUCT INFORMATION

| | | |
|---|---|---|
| BSRIA test reference number | | 104472A4TW |
| Client | | Sanica |
| Manufacturer | | Sanica |
| Product reference number | | Type 600 PKKP33 |
| Product style | | Triple Panel with Triple Convector |
| Material of construction | | Steel, powder coat white |
| Date of receipt | | 01/11/2022 |
| Product or packaging markings | | Type, Manufacturer, CE |
| Test start date | | 17/11/2022 |
| Weight (dry) | (kg) | 49.2 |
| Water content | (kg) | 9.29 |

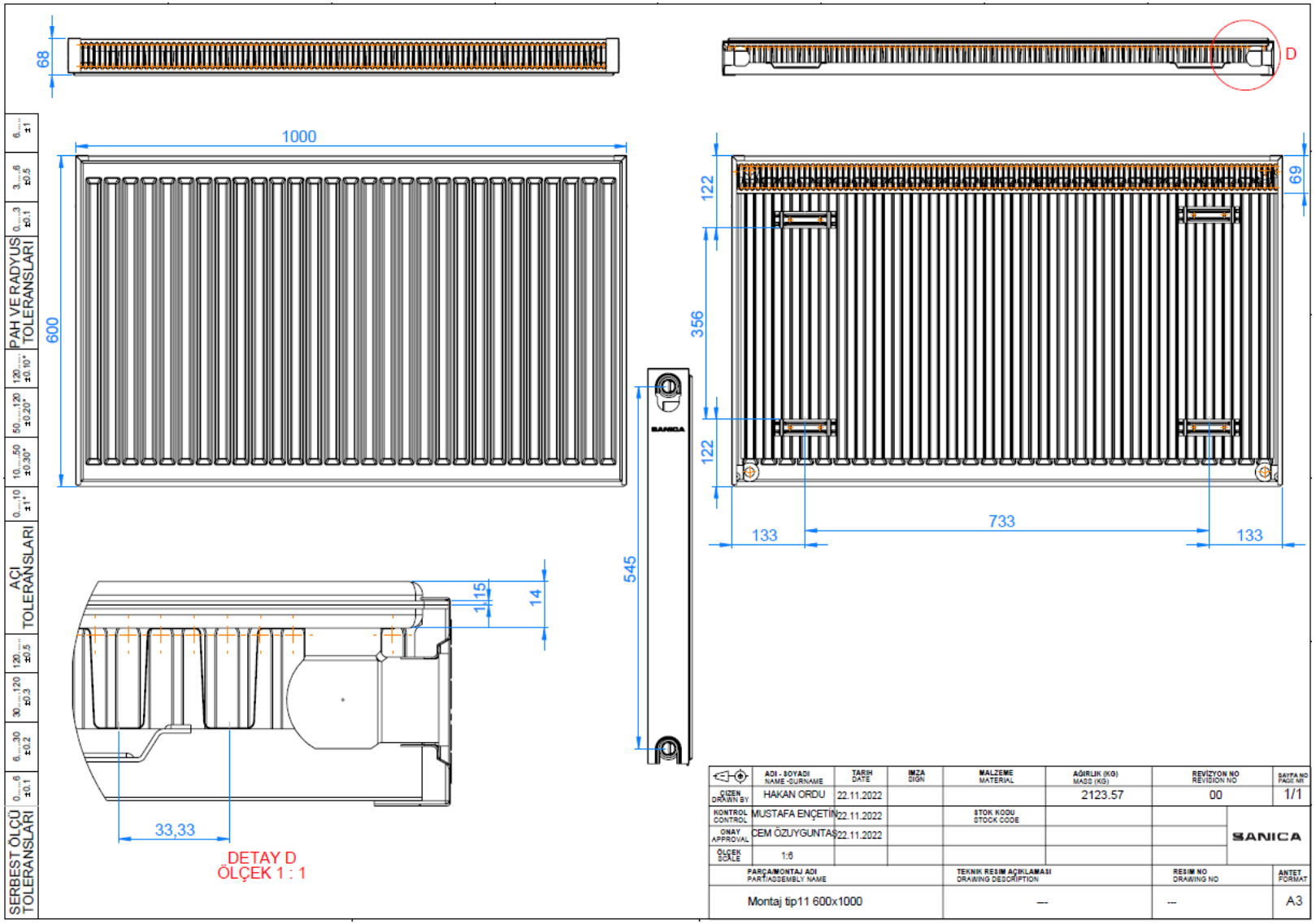
## DIMENSIONAL MEASUREMENTS

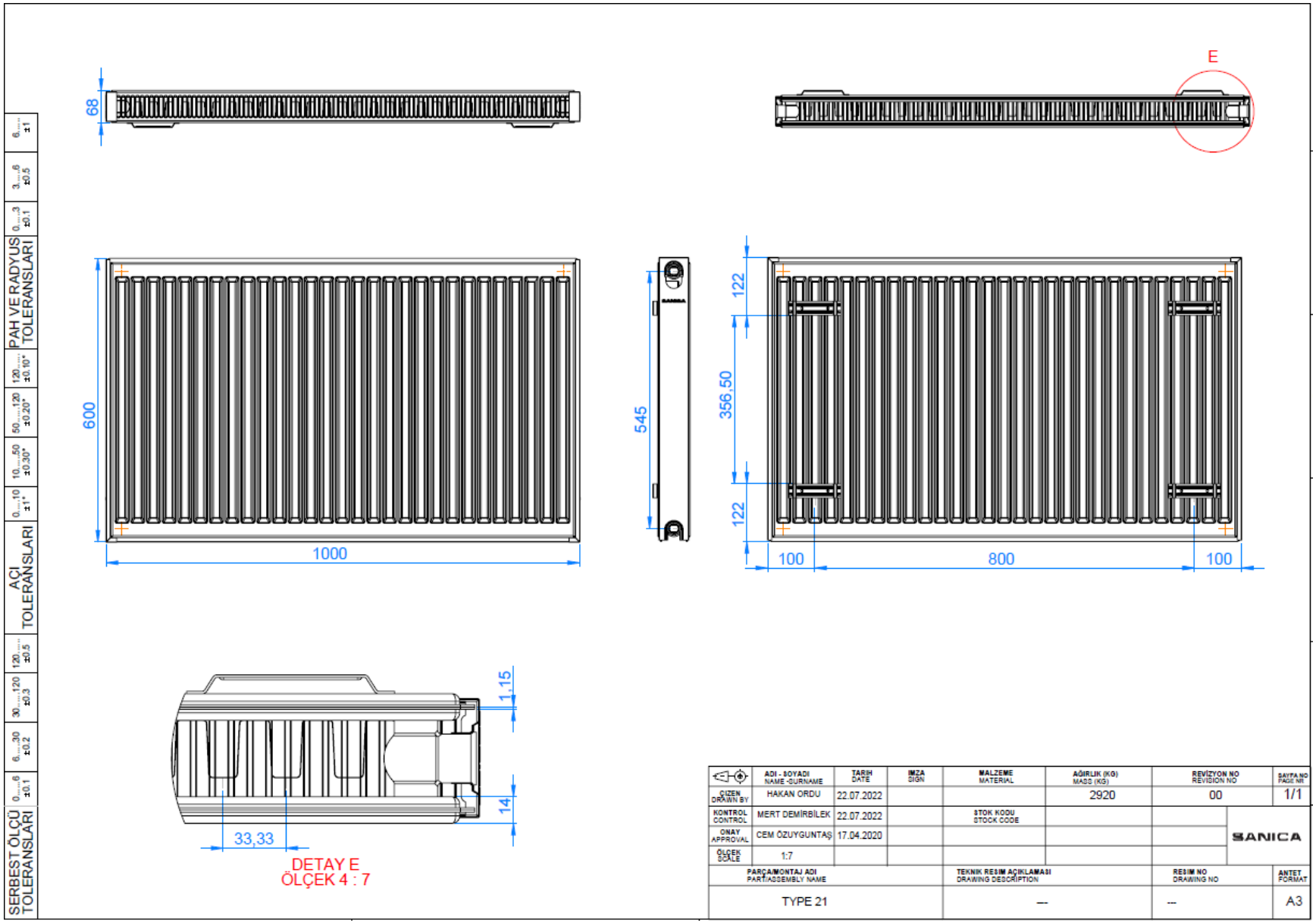
| Measurement Parameter | Measured value (mm) | Manufacturer's stated value (mm) | EN 442-2 dimensional tolerance (mm or %) | Pass / Fail |
|---|---|---|---|---|
| Overall height | 604 | 600 | +4/-2 | Pass |
| Overall length | 1004 | 1000 | +/-5 | Pass |
| Overall depth | 162 | 160 | +4/-3 | Pass |
| Convector height | 499 | | | |
| Convector depth | 30 | | | |

| | | |
|---|---|---|
| Number of columns per panel | | 30 |
| Distance installed from the wall | (mm) | 40 |
| Distance between centres | (mm) | 549 |
| Panel thickness | (mm) | 14.38 |
| Convector overall length | (mm) | 975 |
| Convector thickness | (mm) | 0.54 |
| Spot weld horizontal pitch | (mm) | 32.5 |
| Additional information | | T.B.S.E. connections |

TEST ENGINEER (Signature) Tomas Webster

# APPENDIX B: MANUFACTURERS PRODUCT INFORMATION

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TEKNİK RESİM AÇIKLAMASI DRAWING DESCRIPTION
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TYPE 21
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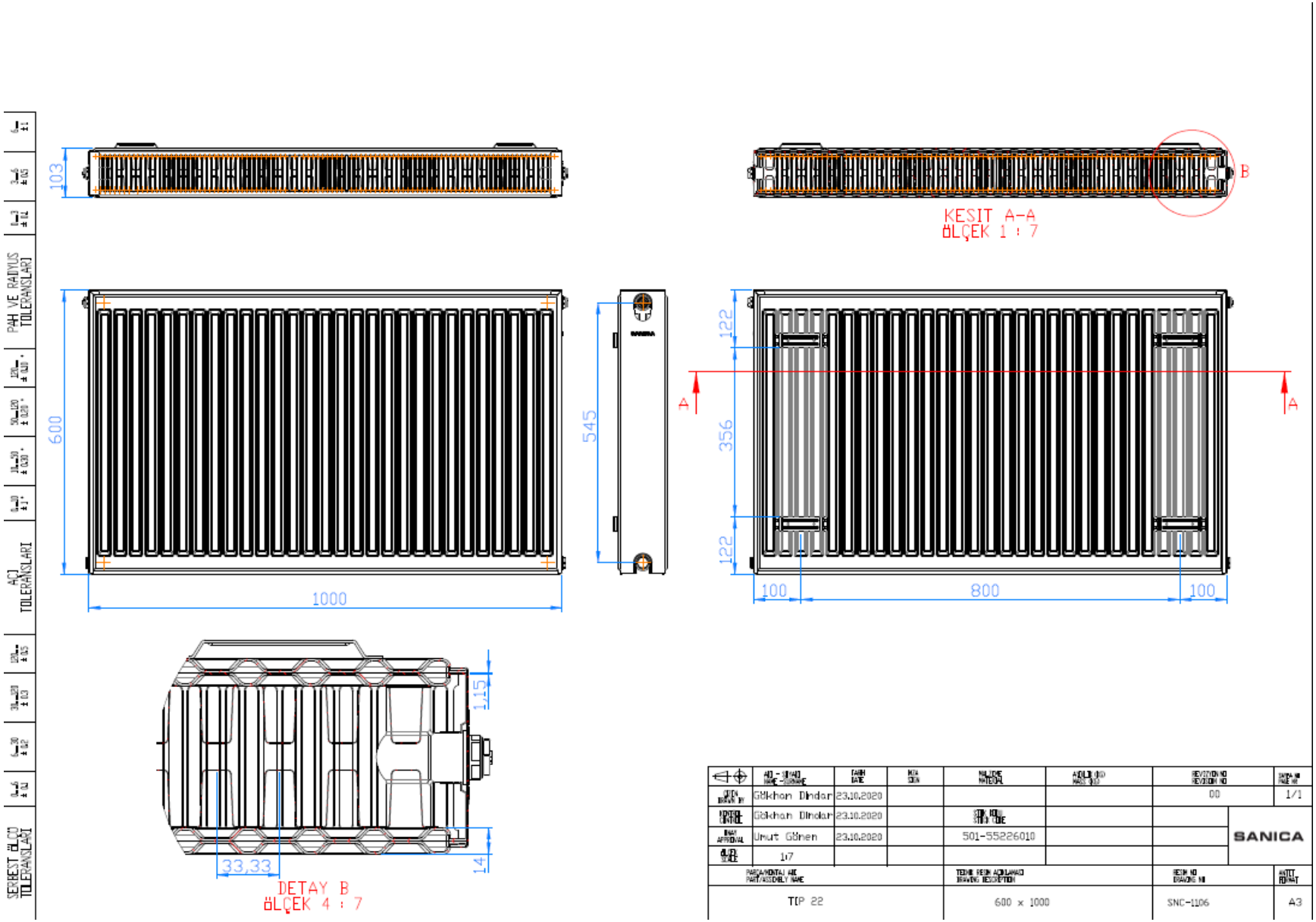
103
600
1000
545
122
356
122
A
A
100
800
100
B
KESIT A-A
ÖLÇEK 1 : 7
115
33,33
14
DETAY B
ÖLÇEK 4 : 7
SANICA
Gökhan Dinçer
23.10.2020
Gökhan Dinçer
23.10.2020
Umut Gönen
23.10.2020
501-55226010
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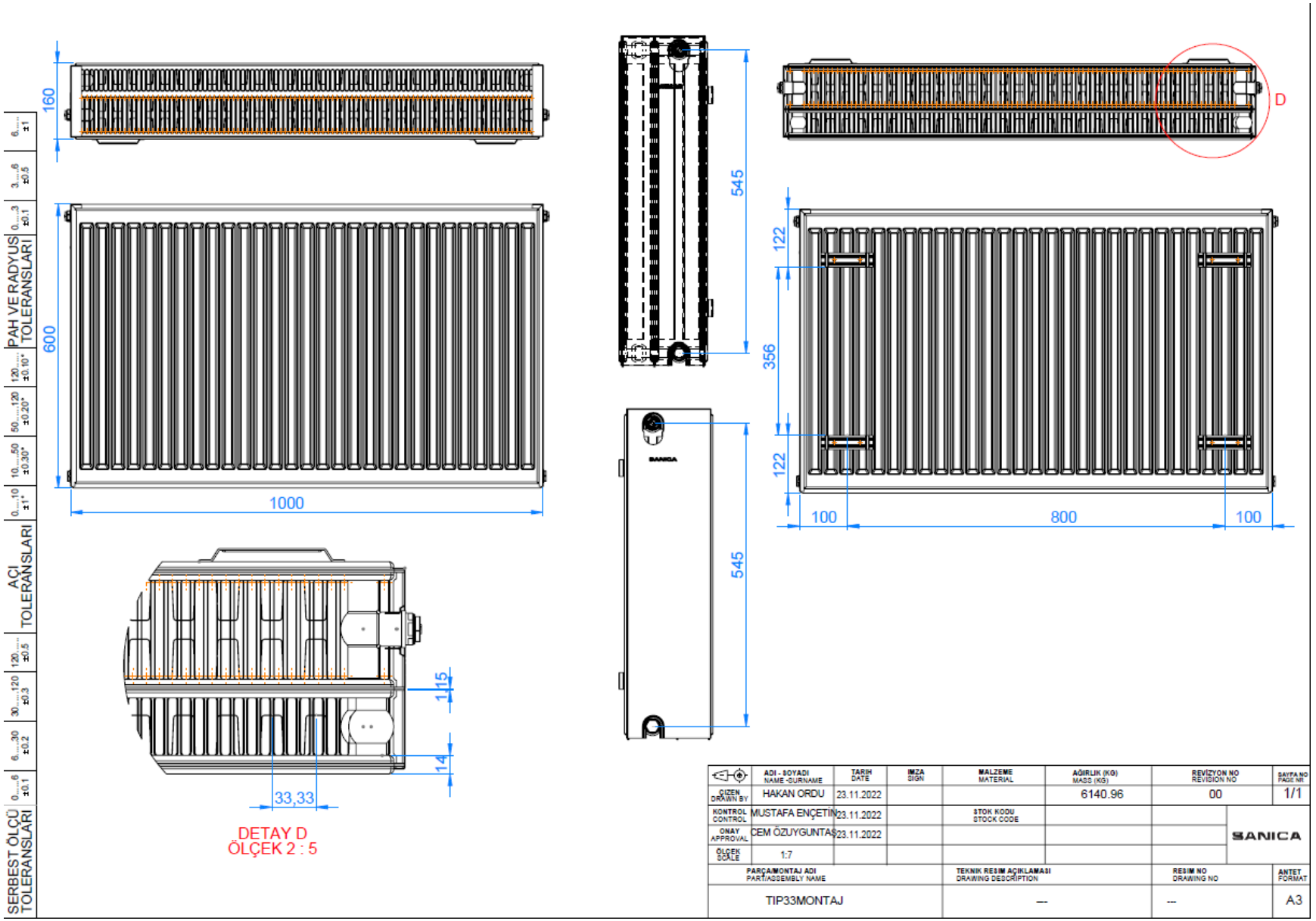
TIP 22
600 x 1000
SNC-1106
A3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33,33
DETAY D
ÖLÇEK 2 : 5
SERBEST ÖLÇÜ TOLERANSLARI
AÇI TOLERANSLARI
PAH VE RADYUS TOLERANSLARI
ADI - SOYADI NAME -SURNAME
TARİH DATE
İMZA SIGN
MALZEME MATERIAL
AĞIRLIK (KG) MASS (KG)
REVİZYON NO REVISION NO
SAYFA NO PAGE NR
ÇİZEN DRAWN BY
HAKAN ORDU
23.11.2022
6140.96
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KONTROL CONTROL
MUSTAFA ENÇETİN
23.11.2022
ONAY APPROVAL
CEM ÖZUYGUNTAS
23.11.2022
STOK KODU STOCK CODE
SANICA
ÖLÇEK SCALE
1:7
PARÇA/MONTAJ ADI PART/ASSEMBLY NAME
TEKNİK RESİM AÇIKLAMASI DRAWING DESCRIPTION
RESİM NO DRAWING NO
ANTET FORMAT
TIP33MONTAJ
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A3