



A pesquisa que constrói o futuro

Japan-Brazil Cooperation
Summary of Test Results

Paulo
DLF

EUT Identification

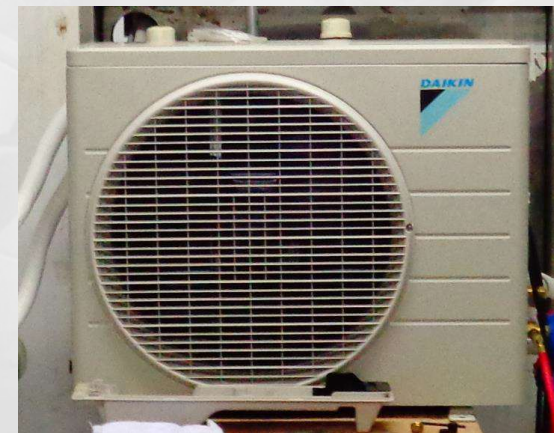
Split High-Wall Air conditioner

Brand: Dainkin

Evaporator unit: Model FTK12P5VL, serial n. R540595

Condenser unit: Model RK12Q5VL, serial n. R525088

| | |
|--------------------------|------------------------|
| Rated cooling capacity | 12,000 BTU/h (3,516 W) |
| Rated voltage | 220 V , single phase |
| Mode | Cool |
| Rotation | Inverter |
| ENCE Registration number | 003536/2015 |



First Test

Test at 100% of EUT capacity – without using the cooling coil

- Test date at Cepel: 11/24/2021

| Temperatures | Cepel | JATL |
|--------------------------------|--------------|-------------|
| Dry bulb evaporator in | 27.04 °C | 27.01 °C |
| Wet bulb evaporator in | 19.01 °C | 18.97 °C |
| Wet bulb evaporator out | 13.55 °C | |
| Dry bulb condenser in | 35.01 °C | 34.99 °C |
| Wet bulb condenser in | 24.04 °C | 24.03 °C |
| | | |
| Electrical measurements | | |
| Voltage | 219.81 V | 219.9 V |
| Current | 4.85 A | 4.76 A |
| Power | 1,031 W | 1,024 W |
| | | |
| Performance | | |
| Cooling capacity | 11,775 BTU/h | |
| Cooling capacity | 3,450 W | 3,440 W |
| EER | 3,35 W/W | 3,36 W/W |

Second Test

Test at 50% of EUT capacity - using the cooling coil

- Test date at Cepel: 11/25/2021

| Temperatures | Cepel | JATL |
|---------------------------------------|-------------|----------|
| Dry bulb evaporator in | 27.04 °C | 27.01 °C |
| Wet bulb evaporator in | 19.01 °C | 18.97 °C |
| Wet bulb evaporator out | 13.55 °C | |
| Dry bulb condenser in | 35.01 °C | 34.99 °C |
| Wet bulb condenser in | 24.04 °C | 24.03 °C |
| Water temp. cooling coil in | 10.63 °C | |
| Water temp. cooling coil out | 13.20 °C | |
| Condensing water temp. (cooling coil) | 19,12 °C | |
| Electrical measurements | | |
| Voltage | 219.82 V | 220.0 V |
| Current | 2.35 A | 2.45 A |
| Power | 348 W | 355 W |
| Performance | | |
| Cooling capacity | 6,959 BTU/h | |
| Cooling capacity | 2,039 W | 1,794 W |
| EER | 5,86 W/W | 5,05 W/W |

Summary of Test Results

- In the first test, with the EUT at full load, the ratio between the measured cooling capacity, 11,775 Btu/h and the EUT rated capacity, 12,000 Btu/h, was 98.1%, therefore higher than the minimum required (92.0%). The product is suitable and it can proceed with the tests.
- In the second test, the EUT works at $(50\pm 5)\%$ of its rated capacity.
- The cooling capacity result in the half load test is higher than the maximum expected value $(50\pm 5)\%$ of the rated capacity of the EUT. In this case the IDRS calculation is not valid
- The test procedure complies with the standards and regulations, but there is a weakness in the calculations for determine the exactly cooling coil capacity.

Comments

- The tests were carried out in accordance with ISO 5151:2017, ISO 16358-1:2013, and JATL guidelines. Inmetro ordinance 269 of 2021 was also considered, but a 7.5 m length pipe was used
- EUT weighing was introduced
- Position of air samplers
- Run the EUT for 30 minutes at low speed before collecting the refrigerant gas.

Plans

- Improvement of the system for determining the EUT cooling capacity at 50% of its rated capacity.
-

Thanks

santos@cepel.br

(21) 2598-6297



A pesquisa que constrói o futuro



A pesquisa que constrói o futuro

MINISTÉRIO DE
MINAS E ENERGIA

