

Refrigerating Appliance ErP Test Report

| | |
|---------------------------------|---|
| Report Number | 150105032GZU-001 |
| Test Laboratory Name / Address | Intertek Testing Services Shenzhen Ltd. Guangzhou Branch Block E, No.7-2 Guang Dong Software Science Park, Caipin Road, Guangzhou Science City, GETDD, Guangzhou, China |
| Applicant Name / Address | Hisense Ronshen (Guangdong) Refrigerator Co., Ltd. No.8 Ronggang Road, Ronggui, Shunde, Foshan, Guangdong, P.R. China. |
| Manufacturing Name / Address | Hisense Ronshen (Yangzhou) Refrigerator Co.,Ltd No.19, Hongyang Rd, Economic Development Distrit, Yangzhou city, PRC |
| Product | Refrigerator-freezer |
| Brand Name | NA |
| Description | The product covered by this report is a household, indoor use, cord connected refrigerator-freezer. |
| Model(s) (if applicable) | RQ-56WC4SHA/CLA1; RQ562N4AC1; MKGNF440A+EL; RQ-56WC4SHA/CGA1; RQ562N4GW1; MKGNF440A+GW |
| Model Similarity | The models above are identical except for the model |
| Ratings | 220-240V~, 50Hz, R600a/67g |
| Date of receipt of sample(s) | 20/Oct/2014 |
| Date of test | 21/Oct/2014 - 10/Dec/2014 |
| Test standard(s) or criteria(s) | 643/2009/EC; EC1060/2010; EN 62552:2013 |
| Conclusion | These results are in compliance with the 3 rd stage requirements of the EC regulation 643/2009. Energy efficiency class: A+ |
| Date of issue | 9/Feb/2015 |

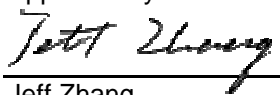
Prepared by:



Felix Li

Engineer

Approved by:



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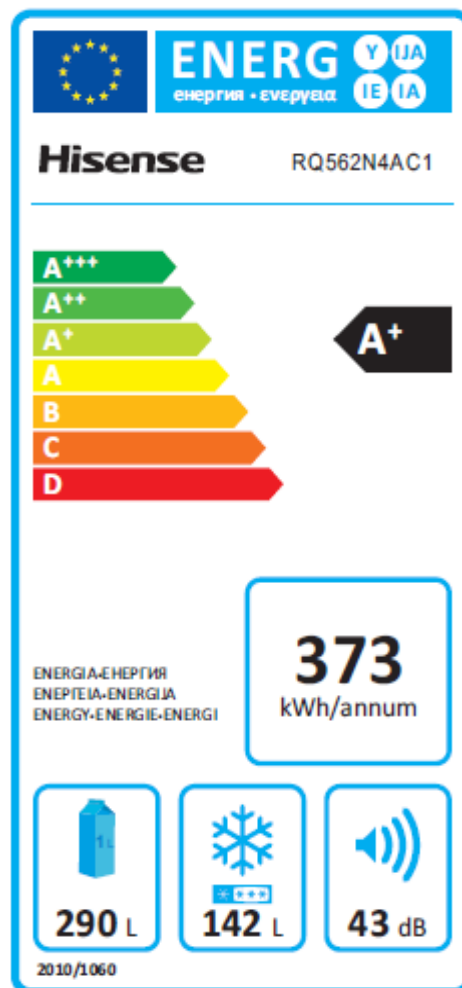
The test report only allows to be revised only within the report defined retention period unless standard or regulation was withdrawn or invalid.

When determining the test result, measurement uncertainty has been considered.

Nameplate:

| FROST FREE REFRIGERATOR FREEZER | |
|--|--------------|
| Hisense | |
| MODEL RQ562N4AC1 | |
| CLIMATIC CATEGORY | SN,N,ST,T |
| RATED VOLTAGE | 220-240V~ |
| RATED FREQUENCY | 50Hz |
| TOTAL NET VOLUME | 432L |
| TOTAL GROSS VOLUME | 512L |
| FRESH-FOOD STORAGE COMPARTMENT | 290L |
| FOOD FREEZER VOLUME | 71L |
| TWO-STAR DEPARTMENT | 71L |
| FREEZING CAPACITY | 12kg/24h |
| TEMPERATURE RISE TIME | 15h |
| REFRIGERANT | R600a(67g) |
| INSULATION BLOWING GAS | CYCLOPENTANE |
| Hisense Ronshen (Guangdong) Refrigerator Co., Ltd. | |

Energy label:



Product Information:

| | |
|---|---|
| Model of Unit Under Tested | RQ562N4AC1 |
| Product Condition | Prototype |
| Serial No. | NA |
| Category | 7 |
| Product Type | Refrigerator-freezer |
| Rated Noise (dB(A) re 1pw) | 43 |
| Refrigerant | R600a |
| Charge of refrigerant (g) | 67 |
| Climate Class | <input checked="" type="checkbox"/> SN <input checked="" type="checkbox"/> N <input checked="" type="checkbox"/> ST <input checked="" type="checkbox"/> T |
| Refrigerating type | Compression-type |
| Condenser type | Smooth wall |
| Condenser location | Sides |
| Power Supply | Single Phase |
| Fast freezing facility? | No |
| Built-in appliances under 58 cm in width? | NA - not built-in type |
| Overall dimensions (glass door) (mm) | Width: 794 Height: 1812 Depth: 706 |
| Overall space required in use (glass door) (mm) | Width: 1375 Height: 2112 Depth: 1135 |
| Overall dimensions (metal door) (mm) | Width: 794 Height: 1812 Depth: 716 |
| Overall space required in use (metal door) (mm) | Width: 1384 Height: 2112 Depth: 1135 |
| Rated total gross volume (L) | NA |
| Rated total storage volume (L) | 432 |
| Defrosting type | Frost-free |
| Rated energy consumption (kWh/24h) | NA |
| Rated energy consumption (kWh/y) | 373 |
| Rated freezing capacity (kg/24h) | 12 |
| Rated temperature rise time (h) | 15 |

Critical Components:

| Name | Manufacturer/trademark | Type/model | Technical data |
|------------|----------------------------|------------|-----------------------|
| Compressor | Huayi Compressor Co., Ltd. | HYE96MDU | 220-240V, 50Hz, R600a |

Measurement conditions:

| | | | |
|---|------|---|------|
| a) General | | | |
| Test voltage (V): | | | 230 |
| Test Frequency (Hz): | | | 50 |
| Air velocity Range (m/s): | 0.04 | – | 0.16 |
| b) 10°C Ambient Temperatures of Storage Temperature | | | |
| Dry Bulb Range (°C): | 9.8 | – | 10.2 |
| Dry Bulb Average (°C): | | | 10.0 |
| Relative Humidity Range (%): | 59.5 | – | 60.5 |
| Relative Humidity Average (%): | | | 60.0 |
| c) 43°C Ambient Temperatures of Storage Temperature | | | |
| Dry Bulb Range (°C): | 42.8 | – | 43.3 |
| Dry Bulb Average (°C): | | | 43.0 |
| Relative Humidity Range (%): | 59.5 | – | 60.5 |
| Relative Humidity Average (%): | | | 60.0 |
| d) 25°C Ambient Temperatures of Energy Consumption | | | |
| Dry Bulb Range (°C): | 24.8 | – | 25.2 |
| Dry Bulb Average (°C): | | | 25.0 |
| Relative Humidity Range (%): | 59.5 | – | 60.5 |
| Relative Humidity Average (%): | | | 60.0 |
| e) 25°C Ambient Temperatures of Freezing Test | | | |
| Dry Bulb Range (°C): | 24.8 | – | 25.2 |
| Dry Bulb Average (°C): | | | 25.0 |
| Relative Humidity Range (%): | 59.5 | – | 60.5 |
| Relative Humidity Average (%): | | | 60.0 |
| f) 25°C Ambient Temperatures of Temperature Rise Test | | | |
| Dry Bulb Range (°C): | 24.8 | – | 25.2 |
| Dry Bulb Average (°C): | | | 25.0 |
| Relative Humidity Range (%): | 59.5 | – | 60.5 |
| Relative Humidity Average (%): | | | 60.0 |

Test and verification results:

| Clause | Ecodesign requirements - GENERIC ECODESIGN REQUIREMENTS | Result - Remark | Verdict |
|--------|--|-----------------|---------|
| 1a) | From 1 July 2010: For wine storage appliances, the following information shall be displayed in the instruction booklet provided by manufacturers: ' <i>This appliance is intended to be used exclusively for the storage of wine</i> '. | | NA |
| 1b) | From 1 July 2010: For household refrigerating appliances, information shall be provided in the instruction booklet provided by manufacturers concerning: - the combination of drawers, baskets and shelves that result in the most efficient use of energy for the appliance, and - how to minimise the energy consumption of the household refrigerating appliance in the use-phase. | | Pass |
| 2a) | From 1 July 2013: The fast freezing facility, or any similar function achieved through modification of the thermostat settings, in freezers and freezer compartments, shall, once activated by the end-user according to the manufacturer's instructions, automatically revert to the previous normal storage temperature conditions after no more than 72 hours. This requirement does not apply to refrigerator-freezers with one thermostat and one compressor which are equipped with an electromechanical control board. | | NA |
| 2b) | From 1 July 2013: Refrigerator-freezers with one thermostat and one compressor which are equipped with an electronic control board and can be used in ambient temperatures below + 16 °C according to the manufacturer's instructions shall be such that any winter setting switch or similar function guaranteeing the correct frozen-food storage temperature is automatically operated according to the ambient temperature where the appliance is installed. | | NA |
| 2c) | From 1 July 2013: Household refrigerating appliances with a storage volume below 10 litres shall automatically enter in an operating condition with a power consumption of 0,00 Watt after no more than 1 hour when empty. The mere presence of a hard off switch shall not be considered sufficient to fulfil this requirement. | | NA |

| Clause | Ecodesign requirements - SPECIFIC ECODESIGN REQUIREMENTS | Result - Remark | Verdict |
|--------|---|--|---------|
| 2 | Household refrigerating appliances within the scope of this Regulation with a storage volume equal to or higher than 10 litres shall comply with the energy efficiency index limits in Tables 1 and 2. | EEI = 41.9 Requirements: 1 July 2010: EEI < 55 1 July 2012: EEI < 44 1 July 2014: EEI < 42 | Pass |
| | The specific ecodesign requirements in Tables 1 and 2 shall not apply to: - wine storage appliances, or, - absorption-type refrigerating appliances and other-type refrigerating appliances belonging to Categories 4 to 9 as set out in Annex IV, point 1. | | NA |

Storage Temperature Test:

| Compartment | Symbol | 10°C ambient temp. | | 43°C ambient temp. | | Limit for non-defrost cycle | Limit for defrost cycle | Verdict |
|---|------------------|--------------------------|----------------------|--------------------------|----------------------|-----------------------------|-------------------------|---------|
| | | During non-defrost cycle | During defrost cycle | During non-defrost cycle | During defrost cycle | | | |
| Other compartment | t _{om} | NA | NA | NA | NA | > +14 | | NA |
| Wine storage compartment | t _{wma} | NA | NA | NA | NA | +5 ≤ t _{wma} ≤ +20 | | NA |
| Cellar compartment | t _{cm} | NA | NA | NA | NA | +8 ≤ t _{cm} ≤ +14 | | NA |
| Fresh-food storage compartment | t _{1m} | 3.2 | NA | 2.7 | NA | 0 ≤ t _{1m} ≤ +8 | | Pass |
| | t _{2m} | 2.8 | NA | 3.3 | NA | 0 ≤ t _{2m} ≤ +8 | | Pass |
| | t _{3m} | 2.3 | NA | 4.0 | NA | 0 ≤ t _{3m} ≤ +8 | | Pass |
| | t _{ma} | 2.8 | NA | 3.3 | NA | ≤ +4 | | Pass |
| Chill compartment | t _{cc} | NA | NA | NA | NA | -2 ≤ t _{cc} ≤ +3 | | NA |
| 0-star compartment | t ^(*) | NA | NA | NA | NA | ≤ 0 | | NA |
| One-star compartment | t [*] | NA | NA | NA | NA | ≤ -6 | | NA |
| Two-star compartment/section | t ^{**} | -14.7 | -14.6 | -13.9 | -13.8 | ≤ -12 | ≤ -9 | Pass |
| Food freezer and three-star compartment | t ^{***} | -19.6 | -16.6 | -18.1 | -16.5 | ≤ -18 | ≤ -15 | Pass |

Remark:

1. Thermostat setting for 10°C ambient temperature: 4/-14/-23
2. Thermostat setting for 43°C ambient temperature: 3/-14/-23
3. The temperature sensors in compartments and the load conditions refer to the pictures in this test report.

Freezing Capacity Test:

| Ballast load (kg) | Light load (kg) | Freezing time of the light load (h) | The max temp. of the M-package of ballast load (°C) | Tested freezing capacity (kg/24h) | Rated freezing capacity (kg/24h) | Deviation (%) | Limit (%) | Verdict |
|-------------------|-----------------|-------------------------------------|---|-----------------------------------|----------------------------------|---------------|-----------|---------|
| 23 | 12 | 20.0 | -16.5 | 12 | 12 | 0.0 | -10 | Pass |

Remark:

Thermostat setting: 4/-14/-25

Temperature Rise Test:

| Tested temp. rise time (h) | Rated temperature rise time (h) | Deviation (%) | Required deviation (%) | Verdict |
|----------------------------|---------------------------------|---------------|------------------------|---------|
| 14.1 | 15 | -6.0 | -15 | Pass |

Remark: The verdict is in accordance with EN 62552:2013 Annex E E.2.5.

Energy Consumption Test:

| Compartment | Symbol | Test 1 | | Test 2 | | Limit for non-defrost cycle | Limit for defrost cycle | Verdict |
|--------------------------------|-----------|--------------------------|----------------------|--------------------------|----------------------|-----------------------------|-------------------------|---------|
| | | During non-defrost cycle | During defrost cycle | During non-defrost cycle | During defrost cycle | | | |
| Other compartment | t_{om} | NA | NA | NA | NA | $> +14$ | | NA |
| Wine storage compartment | t_{wma} | NA | NA | NA | NA | $+5 \leq t_{wma} \leq +12$ | | NA |
| Cellar compartment | t_{cm} | NA | NA | NA | NA | $+8 \leq t_{cm} \leq +12$ | | NA |
| Fresh-food storage compartment | t_{1m} | 4.4 | NA | 5.6 | NA | $0 \leq t_{1m} \leq +10$ | | Pass |
| | t_{2m} | 4.5 | NA | 5.5 | NA | $0 \leq t_{2m} \leq +10$ | | Pass |
| | t_{3m} | 4.4 | NA | 5.4 | NA | $0 \leq t_{3m} \leq +10$ | | Pass |
| | t_{ma} | 4.4 | NA | 5.5 | NA | NA | | NA |
| Chill compartment | t_{cc} | NA | NA | NA | NA | $t_{cc} \leq +3$ | | NA |
| 0-star compartment | $t^{(*)}$ | NA | NA | NA | NA | ≤ 0 | | NA |
| One-star compartment | t^* | NA | NA | NA | NA | ≤ -6 | | NA |
| Two-star compartment/section | t^{**} | -12.4 | -13.4 | -12.6 | -13.4 | NA | | NA |
| Food freezer and three-star | t^{***} | -18.0 | -15.9 | -17.3 | -15.2 | NA | | NA |

Remark:

1. Thermostat setting for test 1: 4/-14/-21
2. Thermostat setting for test 2: 5/-14/-20
3. The temperature sensors in compartments and the load conditions refer to the pictures in this test report.

| | Test 1 (kWh/d) | Test 2 (kWh/d) | Tested | | Rated (kWh/y) | Deviation | Limit (%) | Verdict |
|--------------------|-------------------|-------------------|--------|--------|------------------|-----------|--------------|---------|
| | | | kWh/d | kWh/y | | | | |
| Energy Consumption | 0.972 | 0.940 | 0.963 | 351.50 | 373 | -5.8 | 10 | Pass |

Dimensions, Volumes and Areas:

| Storage volume (measured with bottom freezer drawer and bottom two-star drawer installed) | | | | | | |
|---|--------------------|------------|------------|-------------|--------|------------|
| Compartment type | Description | Width (mm) | Depth (mm) | Height (mm) | Number | Volume (L) |
| Fresh-food compartment | Fresh-food part 1 | 689.9 | 385 | 838 | 1 | 222.58 |
| | Fresh-food part 2 | 700.7 | 85 | 844 | 1 | 50.27 |
| | Fresh-food part 3 | 267.2 | 60 | 803.5 | 2 | 25.76 |
| | Fresh-food part 4 | 6.5 | 42 | 26 | -24 | -0.17 |
| | Fresh-food part 5 | 15 | 56.8 | 63 | -6 | -0.32 |
| | Fresh-food part 6 | 12.7 | 290.7 | 24 | -2 | -0.18 |
| | Fresh-food part 7 | 12.7 | 320.8 | 21 | -2 | -0.17 |
| | Fresh-food part 8 | 15 | 111 | 63 | -6 | -0.63 |
| | Fresh-food part 9 | 140 | 110.5 | 20.4 | -1 | -0.32 |
| | Fresh-food part 10 | 510 | 15.5 | 833.8 | -1 | -6.59 |
| | Total: | | | | | 290.2 |
| Freezer compartment | Freezer part 1 | 287.4 | 31 | 482.4 | 1 | 4.30 |
| | Freezer part 2 | 287.4 | 173 | 472.7 | 1 | 23.50 |
| | Freezer part 3 | 287.4 | 199 | 464 | 1 | 26.54 |
| | Freezer part 4 | 258.7 | 8 | 452 | 1 | 0.94 |
| | Freezer part 5 | 15 | 337.8 | 46 | -2 | -0.47 |
| | Freezer part 6 | 15 | 407 | 30 | -2 | -0.37 |
| | Freezer part 7 | 152 | 15 | 50 | -1 | -0.11 |
| | Freezer part 8 | 127 | 15 | 18.5 | -1 | -0.04 |
| | Freezer part 9 | 126 | 15 | 41.5 | -1 | -0.08 |
| | Freezer part 10 | 59 | 8.5 | 42 | -1 | -0.02 |
| | Freezer part 11 | 15 | 53 | 17 | -1 | -0.01 |
| | Freezer part 12 | 252 | 270.3 | 221.7 | 1 | 15.10 |
| | Freezer part 13 | 252 | 39 | 220.3 | 1 | 2.17 |
| | Freezer part 14 | 252 | 26.4 | 76 | -1 | -0.51 |
| | Total: | | | | | 70.9 |
| Two-star compartment | Two-star part 1 | 287.4 | 31 | 482.4 | 1 | 4.30 |
| | Two-star part 2 | 287.4 | 173 | 472.7 | 1 | 23.50 |
| | Two-star part 3 | 287.4 | 199 | 464 | 1 | 26.54 |
| | Two-star part 4 | 258.7 | 8 | 452 | 1 | 0.94 |
| | Two-star part 5 | 15 | 337.8 | 46 | -2 | -0.47 |
| | Two-star part 6 | 15 | 407 | 30 | -2 | -0.37 |
| | Two-star part 7 | 152 | 15 | 50 | -1 | -0.11 |
| | Two-star part 8 | 127 | 15 | 18.5 | -1 | -0.04 |
| | Two-star part 9 | 126 | 15 | 41.5 | -1 | -0.08 |
| | Two-star part 10 | 59 | 8.5 | 42 | -1 | -0.02 |
| | Two-star part 11 | 15 | 53 | 17 | -1 | -0.01 |
| | Two-star part 12 | 252 | 270.3 | 221.7 | 1 | 15.10 |
| | Two-star part 13 | 252 | 39 | 220.3 | 1 | 2.17 |
| | Two-star part 14 | 252 | 26.4 | 76 | -1 | -0.51 |
| | Total: | | | | | 70.9 |

| Compartment | Rated (liters) | Tested (liters) | Deviation (%) | Deviation (liters) | Verdict |
|---|----------------|-----------------|---------------|--------------------|---------|
| Fresh-food compartment | 290 | 290.2 | 0.1 | 0.2 | Pass |
| Food freezer and three-star compartment | 71 | 70.9 | -0.1 | -0.1 | Pass |
| Two-star section | 71 | 70.9 | -0.1 | -0.1 | Pass |
| Total net volume | 432 | 432.0 | 0.0 | 0.0 | Pass |

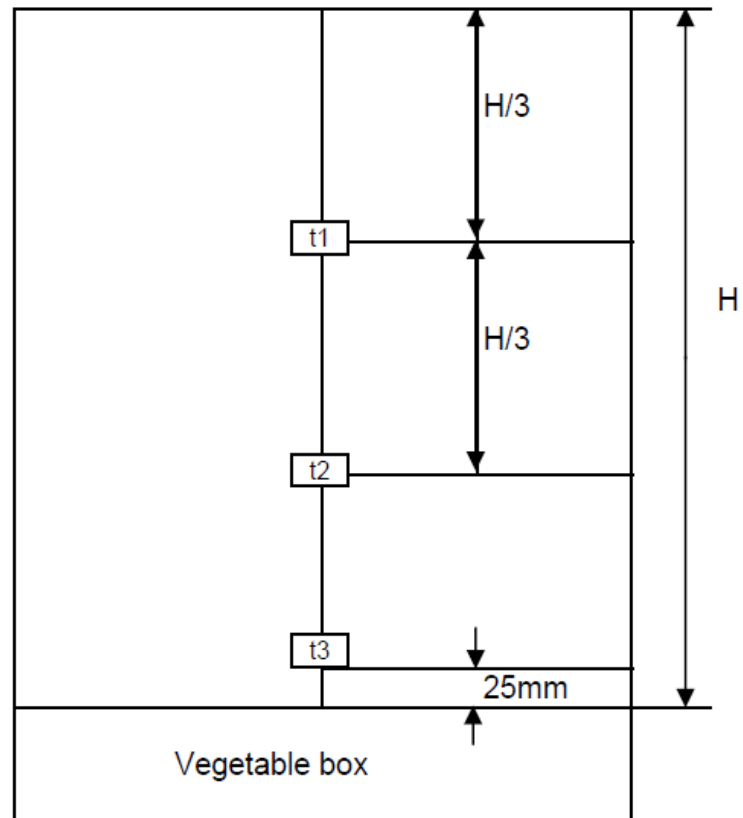
Equivalent volume:

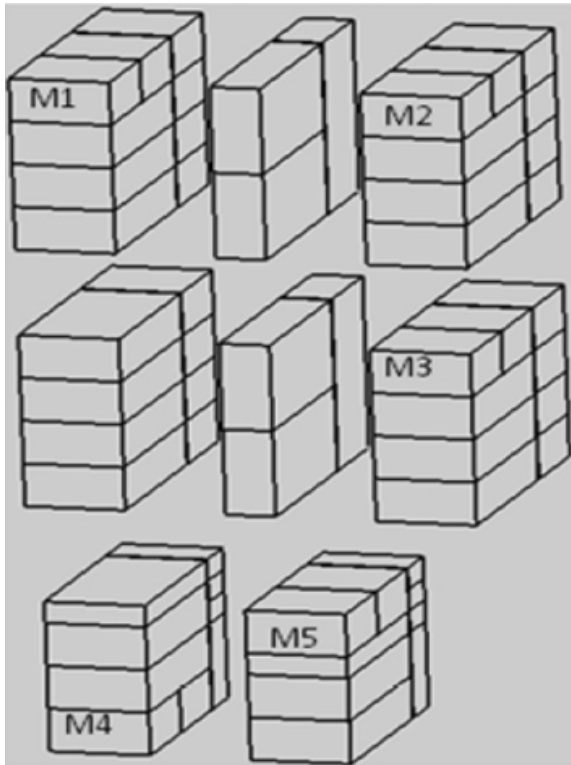
| Compartment type | Rated storage volume, V_c (liters) | Nominal temperature, T_c (°C) | Thermodynamic factor, $(25-T_c)/20$ | FF (Frost-free) | CC (climate class) | BI (built-in) | Equivalent volume, V_{eq} (liters) |
|--|--------------------------------------|---------------------------------|-------------------------------------|-----------------|--------------------|---------------|--------------------------------------|
| Fresh-food storage compartment | 290 | 5 | 1.0 | 1.0 | 1.2 | 1.0 | 348.0 |
| Two-star section | 71 | -12 | 1.85 | 1.2 | 1.2 | 1.0 | 189.1 |
| Food freezer and three-star compartment | 71 | -18 | 2.15 | 1.2 | 1.2 | 1.0 | 219.8 |
| $V_{eq} = \sum_{c=1}^{c=n} V_c \times \frac{(25-T_c)}{20} \times FF_c \times CC \times BI =$ | | | | | | | 757 |

Conclusion:

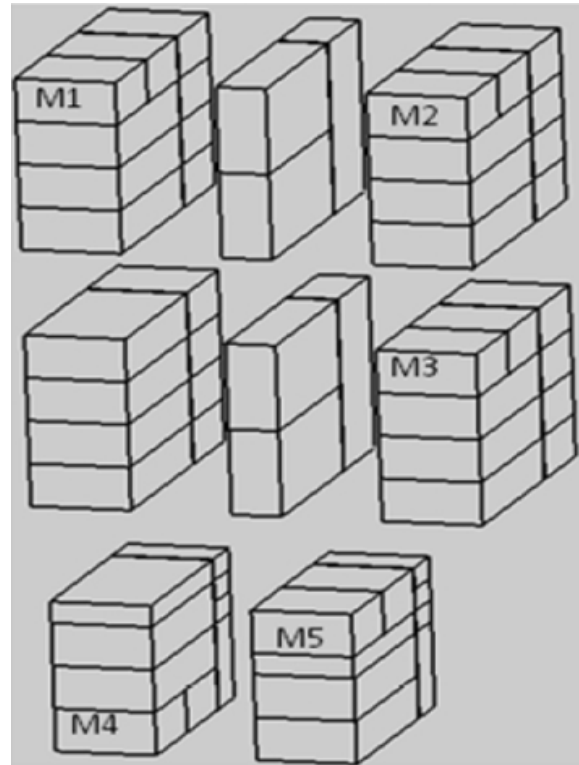
| | |
|---|--------|
| Total equivalent volume, V_{eq} (liters) | 757 |
| M | 0.777 |
| N | 303 |
| CH | 0 |
| Standard Annual Energy Consumption, SAE_c (kWh/y) | 891.19 |
| Annual Energy Consumption, AE_c (kWh/y) | 373 |
| Energy Efficiency Index, EEI | 41.9 |
| Comply with ErP requirement since July 1, 2010? | Pass |
| Comply with ErP requirement since July 1, 2012? | Pass |
| Comply with ErP requirement since July 1, 2014? | Pass |
| Energy efficiency class | A+ |

Temperature measurement in fresh food compartment:



Test load in frozen food compartment (storage temperature, temperature rise and energy test):


Freezer compartment

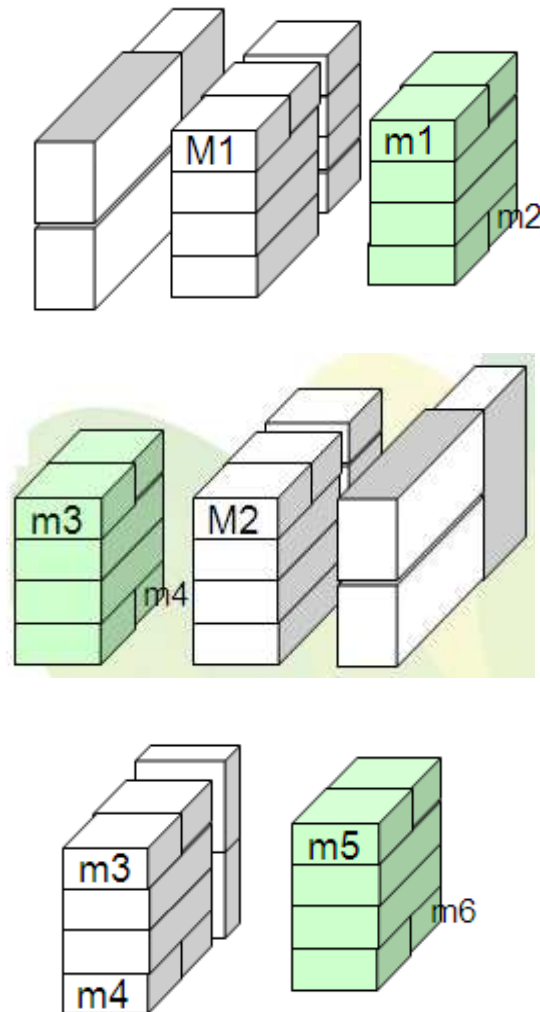


Two-star compartment

Note:

1. Total test load of freezer compartment: 77.5kg;
2. M_x(x=from 1 to 5): M Package in freezer compartment/two-star compartment;
3. Tested with bottom freezer drawer and bottom two-star draw installed.

Test load in freezer compartment (freezing test):



Note:

1. Mx(x=from 1 to 4): M Package of Ballast Load, Ballast Load: 23kg;
2. mx(x=from 1 to 6): M Package of Light Load, Light Load: 12kg;
3. Tested with bottom freezer drawer and bottom two-star draw installed.

Photos:

Photo 1 - Front view



Photo 2 - Back view




Photo 3 - Front view with open door**Photo 4** - Label of compressor

--THE END--

Test Verification of Conformity

On the basis of the referenced test report(s), sample(s) of the below product have been found to comply with the harmonized standards and Directives listed on this verification at the time the tests were carried out. Other standards and Directives may be relevant to the product.

Once all product relevant  mark directives are verified in compliance, the manufacturer may indicate compliance by signing a Declaration of Conformity themselves and applying the mark to product identical to the test sample(s) if the product complies with all relevant CE mark Directives requirements.

| | |
|---|---|
| Applicant Name & Address: | Hisense Ronshen (Guangdong) Refrigerator Co., Ltd. No.8 Ronggang Road, Ronggui, Shunde, Foshan, Guangdong, P.R. China. |
| Product Description: | Refrigerator-freezer |
| Ratings & Principle Characteristics: | 220-240V~, 50Hz, R600a/67g |
| Models: | RQ-56WC4SHA/CLA1; RQ562N4AC1; MKGNF440A+EL; RQ-56WC4SHA/CGA1; RQ562N4GW1; MKGNF440A+GW |
| Brand Name: | NA |
| Relevant Standards/ Specifications/Directives: | This verification and corresponding test report is considered to constitute technical documentation sufficient for an EC Declaration of Conformity and CE marking of the product according to the EC implementing regulation 643/2009 and its underlying frame work directive 2009/125/EC (replacing 2005/32/EC). |
| Verification Issuing Office: | Same as Legal Entity |
| Date of Tests: | 21/Oct/2014 - 10/Dec/2014 |
| Test Report Number(s): | 150105032GZU-001 |

This verification is part of the full test report(s) and should be read in conjunction with them.

Signature: _____

Name:

Jeff Zhang

Position:

Assistant Manager

Date:

February 9, 2015

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