2013-12-17

TEST REPORT

THIS REPORT IS RENDERED TO HEFEI HUALING CO LTD AND PERTAINS TO THE ENERGY EFFICIENCY TESTING FOR HOUSEHOLD REFRIGERATOR

Applicant Name and Address:	Hefei Hualing Co., Ltd. Economic & Technological Development Jin Xiu Rd, Hefei Anhui 230601 China
Manufacturer:	Hefei Hualing Co., Ltd.
Listed Brand:	Midea
Multiple Listed Brand Name:	See Appendix for detail
Product Tested:	HS-121LN(S2NZ)
Relevant Standard:	ENERGY STAR Program Requirements Product Specification for Residential Refrigerators and Freezers, Version 5.0 10CFR Part 430, Appendix A to Subpart B-2013
Date of Test:	From 2013-11-01 to 2013-11-04
Report No.:	4786176984.1.1-001-US

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Testing Report

Project No.: 4786176984.1.1 **File No.:** EV23664

Test Summary:

Testing project is on Residential Refrigerator and the tested model is HS-121LN(S2NZ). The test items include Energy Consumption test and Volume Measurement.

The result of tested model **HS-121LN(S2NZ)** is: sample SPL1 is 168 kWh/year, sample SPL2 is 163 kWh/year, sample SPL3 is 169 kWh/year, and the Energy Consumption calculated is 166 kWh/year according to 429.14 of 10CFR Part 429: 2013.

The volume measurement result of model HS-121LN(S2NZ) was obtained from the data of model HS-121LN(SNZ) from project 13CA50183-003, model HS-121LN(S2NZ) is identical to model HS-121LN(SNZ) expect for compressor.

Test Standard of Requirement:

ENERGY STAR Program Requirements Product Specification for Residential Refrigerators and Freezers, Version 5.0

10CFR Part 430, Appendix A to Subpart B-2013 - Uniform Test Method for Measuring the Energy Consumption of Electric Refrigerators and Electric Refrigerator-Freezers

Test Laboratory/Location:

Hefei Hualing Co., Ltd.

Economic & Technological Development Jin Xiu Rd,
Hefei Anhui 230601 China

Test Sample Description:

Sample Card No, Ratings and principal characteristics:

Model	HS-121LN(S2NZ)		
Sample Card	SPL1:0142137198O2Z020	SPL2:0142137198O2Z008	SPL3:0142137198O2Z003
Received Date	2013-11-01	2013-11-01	2013-11-01
Rating	115V/60Hz		
Compressor Manufacturer	FZ40E1J ANHUI MEIZHI COMPRESSOR CO LTD		
Refrigerant	R600a		
Configuration Code	Refrigerator Only - Single Door		
Defrost Code	Manual Defrost		
Product Category	Type 11A. Compact all-refrigerators - manual defrost.		

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Model:	HS-121LN(S2NZ)	**Date of Test:**	From 2013-11-01 to 2013-11-04

1. VOLUME MEASUREMENT

1.1 Volume to be included:

Compartment	Average Height mm	Average Width mm	Average Depth mm	Qty.	Gross Volume L
Fresh Food Cabinet 1	567.1	399.5	365.4	1	82.8
Fresh Food Cabinet 2	185.5	401.4	220.1	1	16.4
Fresh Food Door	331.4	101.6	10	1	0.3

1.2 Volume to be deducted:

Compartment/Description	Average Height mm	Average Width mm	Average Depth mm	Qty.	Volume L
cabinet molded projection 1	16	10	92	2	0.03
cabinet molded projection 2	81.6	10	27.8	2	0.05
cabinet molded projection 3	20.8	10	107.7	4	0.09
cabinet molded projection 4	20	10	25.8	4	0.02
cabinet molded projection 5	100.7	10	49.7	4	0.20
cabinet molded projection 6	108.8	10	20.8	4	0.09
cabinet molded projection 7	21.1	10	95.7	2	0.04
cabinet molded projection 8	5.1	117.1	274	2	0.33
cabinet molded projection 9	113.5	394.7	2	1	0.09
door molded projection 1	20.3	340.1	37.3	1	0.26
door molded projection 2	20.2	340.9	60	1	0.41
door molded projection 3	20.2	191.6	60	1	0.23
door molded projection 4	31.8	191.6	60	1	0.37
door molded projection 5	30.9	191.6	18.5	1	0.11
door molded projection 6	64.7	25.5	30.5	1	0.05
door molded projection 7	32.3	33.9	60	2	0.13
door molded projection 8	740.3	31.2	60	2	2.77
door molded projection 9	57.9	29.1	31	6	0.31
door molded projection 10	57.9	16.3	31	3	0.09
door molded projection 11	163.8	66.8	26	2	0.57
door molded projection 12	31.7	133.6	24	1	0.10
control box	94.8	45.1	65.6	1	0.28
evaporator 1	4.5	374.5	234.5	1	0.40
evaporator 2	117.1	13.95	234.5	1	0.38

1.3 Net Interior (Refrigerated) Volume

Compartment	Net Volume L (ft3)
Fresh Food (Gross volume – Deductions)	92.1 (3.3)
Freezer (Gross volume – Deductions)	N/A
Total Volume	92.1 (3.3)

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2. ENERGY CONSUMPTION TEST

2.1 Test Result of Sample 1:

	Test 1	Test 2
Sample No.	SPL1:014213719802Z020	
Type of Unit	All Refrigerators	
Distance of Unit Back to Wall, mm	50.8	
Ambient Temperature °F		
Weighted TC for Ambient Temperature Measurement – 1ft above the top of cabinet, left side	89.88	89.90
Weighted TC for Ambient Temperature Measurement – 1ft above the top of cabinet, right side	89.60	89.64
Weighted TC for Ambient Temperature Measurement – 3ft above the supporting platform, left side	89.88	89.97
Weighted TC for Ambient Temperature Measurement – 3ft above the supporting platform, right side	89.68	89.74
Weighted TC for Ambient Temperature Measurement – 2inch above the supporting platform, left side	89.64	89.67
Weighted TC for Ambient Temperature Measurement – 2inch above the supporting platform, right side	89.75	89.86
Voltage	116.0	115.0
Frequency, Hz	60	60
Thermostat Setting (Warmest) (Median) (Coldest)	Median	Coldest
Start Time	2013-11-02 18:50:27	2013-11-04 02:09:27
First Cycle On Time (duration)	03min:30sec	06min:30sec
First Cycle Off Time (duration)	07min:30sec	06min:00sec
End Time	2013-11-02 22:12:27	2013-11-04 05:22:27
Target Standardized Refrigerator Temperature °F	39	
TR Average Fresh Food Temperature °F	41.31	31.47
T Test Period (min.)	202	193
EP Energy Consumption during test period (kWh)	0.0589	0.0788
ET Test Cycle Energy Consumption per day (kWh/day)	0.4199	0.5879
E(D) Average Energy Consumption (kWh/day)	0.4593	
E(Y) Average Energy Consumption (kWh/year)	168	

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2. 2 Test Result of Sample 2:

	Test 1	Test 2
Sample No.	SPL2:014213719802Z008	
Type of Unit	All Refrigerators	
Distance of Unit Back to Wall, mm	50.8	
Ambient Temperature °F		
Weighted TC for Ambient Temperature Measurement – 1ft above the top of cabinet, left side	89.29	89.27
Weighted TC for Ambient Temperature Measurement – 1ft above the top of cabinet, right side	89.23	89.24
Weighted TC for Ambient Temperature Measurement – 3ft above the supporting platform, left side	89.26	89.30
Weighted TC for Ambient Temperature Measurement – 3ft above the supporting platform, right side	89.27	89.29
Weighted TC for Ambient Temperature Measurement – 2inch above the supporting platform, left side	89.38	89.42
Weighted TC for Ambient Temperature Measurement – 2inch above the supporting platform, right side	89.25	89.29
Voltage	116.0	115.0
Frequency, Hz	60	60
Thermostat Setting (Warmest) (Median) (Coldest)	Median	Coldest
Start Time	2013-11-02 19:01:27	2013-11-04 02:24:27
First Cycle On Time (duration)	04min:30sec	10min:00sec
First Cycle Off Time (duration)	09min:00sec	07min:30sec
End Time	2013-11-02 22:06:27	2013-11-04 05:36:27
Target Standardized Refrigerator Temperature °F	39	
TR Average Fresh Food Temperature °F	40.26	29.28
T Test Period (min.)	185	192
EP Energy Consumption during test period (kWh)	0.0545	0.0829
ET Test Cycle Energy Consumption per day (kWh/day)	0.4242	0.6218
E(D) Average Energy Consumption (kWh/day)	0.4469	
E(Y) Average Energy Consumption (kWh/year)	163	

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2. 3 Test Result of Sample 3:

	Test 1	Test 2
Sample No.	SPL3:014213719802Z003	
Type of Unit	All Refrigerators	
Distance of Unit Back to Wall, mm	50.8	
Ambient Temperature °F		
Weighted TC for Ambient Temperature Measurement – 1ft above the top of cabinet, left side	89.99	89.95
Weighted TC for Ambient Temperature Measurement – 1ft above the top of cabinet, right side	89.57	89.62
Weighted TC for Ambient Temperature Measurement – 3ft above the supporting platform, left side	89.64	89.74
Weighted TC for Ambient Temperature Measurement – 3ft above the supporting platform, right side	89.43	89.45
Weighted TC for Ambient Temperature Measurement – 2inch above the supporting platform, left side	89.35	89.17
Weighted TC for Ambient Temperature Measurement – 2inch above the supporting platform, right side	89.40	89.43
Voltage	116.0	115.0
Frequency, Hz	60	60
Thermostat Setting (Warmest) (Median) (Coldest)	Median	Coldest
Start Time	2013-11-02 20:06:27	2013-11-04 02:23:27
First Cycle On Time (duration)	03min:30sec	07min:30sec
First Cycle Off Time (duration)	08min:00sec	06min:00sec
End Time	2013-11-02 23:16:27	2013-11-04 05:31:27
Target Standardized Refrigerator Temperature °F	39	
TR Average Fresh Food Temperature °F	41.12	
T Test Period (min.)	190	188
EP Energy Consumption during test period (kWh)	0.0561	0.0783
ET Test Cycle Energy Consumption per day (kWh/day)	0.4252	0.5997
E(D) Average Energy Consumption (kWh/day)	0.4617	
E(Y) Average Energy Consumption (kWh/year)	169	

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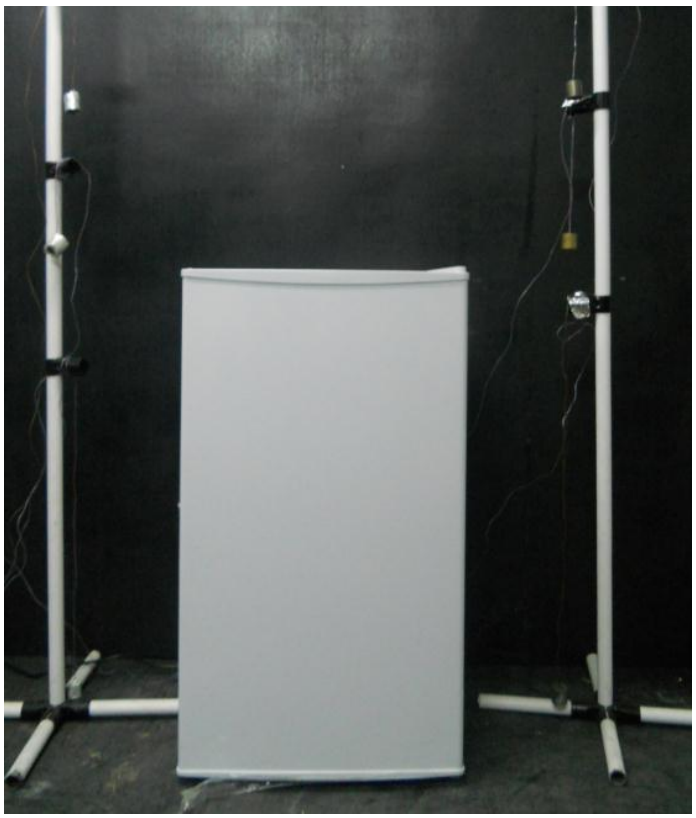
3. Photo of Tested Sample:



4. Nameplate of Tested Sample:

Rated Voltage	AC115V	 Refrigerator HS-121LN(S2NZ)
Rated Frequency	60 Hz	
Rated Power	72W	
Rated Current	0.85A	
Refrigerant	R600a	
Amount	0.71Oz(20g)	
Fresh Food Volume	3.3cu.ft(93L)	
Energy Consumption	220kWh/year	
Net Weight	17.9 kg	
High Side Design Pressure	150psig	
Low Side Design Pressure	60psig	
Compressor	FZ40E1J	
Date of manufacture		
Free-Standing Installation Only		
Hefei Hualing Co., Ltd.		

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5. Thermostat Setting:

Median

Coldest

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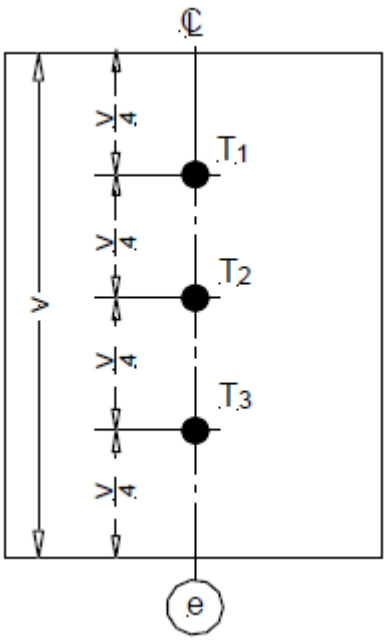
6. TC Locations:



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Appendix A, Model difference between multiple listed model and tested model:

Multiple Listed Model Number		Tested Model Number		Model Difference
Brand Name	Model Number	Brand Name	Model Number	
Electrolux	ERD09W3MMS	Midea	HS-121LN(S2NZ)	Brand Name and Model Designation
Frigidaire	FRD03W3MMW			

END