Please scan to verify the report

m：PMC202404070001

TEST REPORT

NAMEOF SAMPLE: Air Conditioner

APPLICANT: Panasonic Marketing Middle East & Africa. FZE

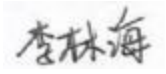
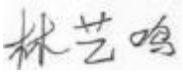
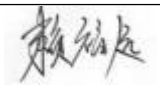
CLASSIFICATION OF TEST: Commission Test

Testing Center of TCL Air Conditioner (Zhongshan) Co., Ltd.

59 Nantou Road West, Nantou, Zhongshan, Guangdong, China

TEST REPORT

The rating and performance tests for Air-conditioner

Applicant Name ..... :	Panasonic Marketing Middle East & Africa FZE		
Address ..... :	P.O Box NO. 17985 Jebel Ali, Dubai, United Arab Emirates		
Manufacturer ..... :	Panasonic Marketing Middle East & Africa FZE		
Address ..... :	P.O Box NO. 17985 Jebel Ali, Dubai, United Arab Emirates		
Factory ..... :	TCL Air Conditioner (Zhongshan) Co., Ltd. 59, Nantou Road West, Nantou, Zhongshan, China		
Product name ..... Trademark ..... Model / type reference ..... Rating and characteristics.	Air conditioner Panasonic CS/CU-FS24AKF-1 230V~ 60Hz		
Date of receipt of test item	2024-04-06	Date(s) of test	2024-04-06
Test specification/Standard	SASO 2663/2021 SASO GSO ISO 5151: 2017 ISO 16358-1 :2013/Cor 1 :2013/AMD1 :2019		
To compile	李林海		
audit	林艺鸣		
The director of the approval	赖福远		
Date of issue	2024-04-07		

The rating and performance tests for Air conditioner	
Test case verdicts	/
Test case does not apply to the test object	N.A.
Test item does meet the requirement	Pass
Test item does not meet the requirement	N.A.
Procedure deviation	N.A.
Non-standard test method	N.A.

General remarks

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

The test report is invalid without the official stamp of TCL.

The test report is invalid without the signatures of Author and Reviewer.

Test Method

T1:Within the first 3 minutes after the indoor unit is powered on, start up and run the cooling mode, set the temperature of 30℃, medium speed wind, press the ECO or Sleep button 7 times continuously within 8 seconds, and the buzzer beeps 3 times, then set 25℃;

T3:Within the first 3 minutes after the indoor unit is powered on, start up and run the cooling mode, set the temperature of 30℃, medium speed wind, press the ECO or Sleep button 7 times continuously within 8 seconds, and the buzzer beeps 3 times, then set 27℃;

Half capacity:Within the first 3 minutes after the indoor unit is powered on, start up and run the cooling mode, set the temperature of 30℃, medium speed wind, press the ECO or Sleep button 7 times continuously within 8 seconds, and the buzzer beeps 3 times, then set 26℃;

(Note: If you do not clearly hear the three short beeps of the buzzer, please power off and operate again)

TCL空调器（中山）有限公司 测试中心 TEST CENTER TCL AIR CONDITIONER (ZHONGSHAN) CO.,LTD.

Brief description of the tested sample(s)		
1	Ratings	
	Rated voltage/rated voltage range (V)	230
	Rated frequency (Hz)	60
	Rated input (W)	Cooling（T1- Full load capacity） : 1885 Cooling （T1- Half load capacity） : 766 Cooling（T3） : 2483 Heating : /
	Rated capacity (Btu/h)	Cooling（T1- Full load capacity） : 23000 Cooling （T1- Half load capacity） : 11500 Cooling（T3） : 21600 Heating : /
	Rated current (A)	Cooling（T1- Full load capacity） : 11.7 Cooling （T1- Half load capacity） : 4.8 Cooling（T3） : 15.4 Heating : /
2	Type of power supply	☒ Single phase ☐ Three phase
3	Construction of the unit	☒ Split type ☐ Single packaged type ☐ Multi-split type
4	Type of the unit considering if it has the air ducts	☐ Spot ☐ Single-duct ☐ Double ducts
5	The number of the indoor units if multi-split type	
6	Type of the indoor unit if split type	☒ Wall-mounted ☐ Free-standing ☐ Ceiling-mounted ☐ Other type
7	Type of outdoor unit if split type	☒ Free-standing ☐ Other type
9	Supplementary heating element	☐ Yes ☒ No
10	Operation function	☐ Cooling mode and heating mode ☒ Cooling only ☐ Heating only
11	Type of the refrigerant	As attach page
12	Mass of refrigerant (kg)	As attach page
13	Compressor information	As attach page
14	Compressor stages type	☐ Fixed capacity unit ☐ Two-stage capacity unit ☐ Multi-stage capacity unit ☒ Variable capacity unit

TCL空调器（中山）有限公司 测试中心 TEST CENTER TCL AIR CONDITIONER (ZHONGSHAN) CO.,LTD

Photo of nameplate:

Panasonic

AIR CONDITIONER
INDOOR UNIT
Model No. CS-FS24AKF-1

PHASE	1
VOLTAGE	230V~
FREQUENCY	60Hz
RATED POWER INPUT/CURRENT	3000W/17.0A

	COOLING(T1)	COOLING(T3)
CAPACITY	23000Btu/h	21600Btu/h
	(4094~25249)	(5118~23543)
	5800kcal/h	5443kcal/h
	6.75kw	6.33kw
CURRENT	11.7A	15.4A
	(1.2~17.0)	(1.2~17.0)
POWER INPUT	1885W	2483W
	(280~3000)	(280~3000)
EER	12.20(Btu/h/W)	8.70 (Btu/h/W)

(CONDITION SASO 2663/2021)

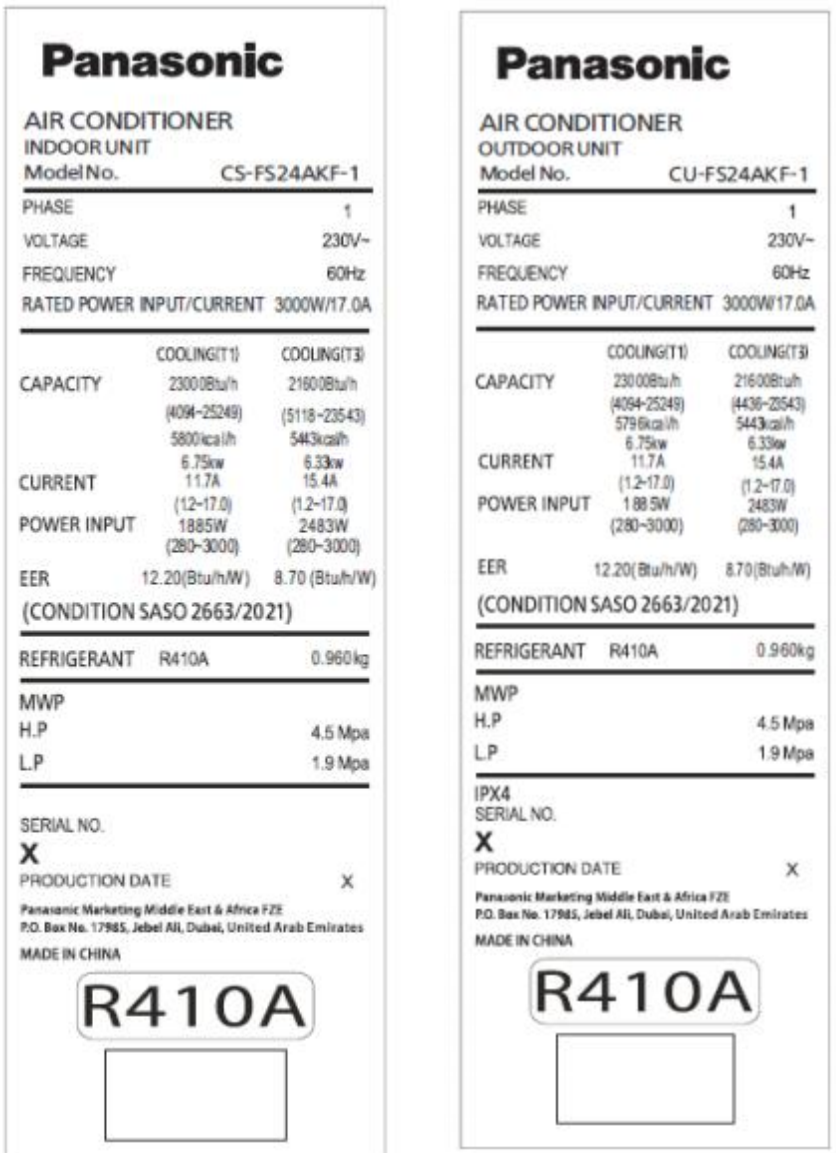
REFRIGERANT	R410A	0.960kg

MWP
H.P 4.5 Mpa
L.P 1.9 Mpa

SERIAL NO.
X
PRODUCTION DATE X

Panasonic Marketing Middle East & Africa FZE
P.O. Box No. 17985, Jebel Ali, Dubai, United Arab Emirates
MADE IN CHINA

R410A



Panasonic

AIR CONDITIONER
OUTDOOR UNIT
Model No. CU-FS24AKF-1

PHASE	1
VOLTAGE	230V~
FREQUENCY	60Hz
RATED POWER INPUT/CURRENT	3000W/17.0A

	COOLING(T1)	COOLING(T3)
CAPACITY	23000Btu/h	21600Btu/h
	(4094~25249)	(4436~23543)
	5796kcal/h	5443kcal/h
	6.75kw	6.33kw
CURRENT	11.7A	15.4A
	(1.2~17.0)	(1.2~17.0)
POWER INPUT	1885W	2483W
	(280~3000)	(280~3000)
EER	12.20(Btu/h/W)	8.70(Btu/h/W)

(CONDITION SASO 2663/2021)

REFRIGERANT	R410A	0.960kg

MWP
H.P 4.5 Mpa
L.P 1.9 Mpa

IPX4
SERIAL NO.
X
PRODUCTION DATE X

Panasonic Marketing Middle East & Africa FZE
P.O. Box No. 17985, Jebel Ali, Dubai, United Arab Emirates
MADE IN CHINA

R410A

TCL空调器（中山）有限公司
测试中心
TEST CENTER
TCL AIR CONDITIONER (ZHONGSHAN) CO.,LTD

Photo of the tested sample:

TCL空调器（中山）有限公司
测试中心
TEST CENTER
TCL AIR CONDITIONER (ZHONGSHAN)CO.,LTD.

Photo of compressor:

TCL空调器（中山）有限公司
测试中心
TEST CENTER
TCL AIR CONDITIONER (ZHONGSHAN)CO.,LTD.

Summary

Test method		Enthalpy test room
COOLING CAPACITY(T1-Full load capacity)	Total cooling capacity in Btu/h	23645
	Air conditioner power consumption in W	1847
	Energy Efficiency Ratio(EER) in Btu/h/w	12.80
COOLING CAPACITY(T1-Half load capacity)	Total cooling capacity in W	11086
	Air conditioner power consumption in W	685
	Energy Efficiency Ratio(EER)	16.18
COOLING CAPACITY(T3)	Total cooling capacity in Btu/h	22205
	Air conditioner power consumption in W	2434
	Energy Efficiency Ratio(EER) in Btu/h/w	9.12
HEATING CAPACITY	Total cooling capacity in w	/
	Air conditioner power consumption in W	/
	Energy Efficiency Ratio(COP) in w/w	/

Test Result:

☒ **Pass** ☐ **Fail**

Note: If failed, it shall be indicated which part it was fail in.

TCL空调器（中山）有限公司 测试中心 TEST CENTER TCL AIR CONDITIONER (ZHONGSHAN) CO.,LTD.

1- Sample Information

Brand	Panasonic				
Model No.	**System (if application)**	CS/CU-FS24AKF-1			
	Indoor (split system only)	CS-FS24AKF-1			
	Outdoor (split system only)	CU-FS24AKF-1			
Serial number	Indoor: G440N02001N100120001	Outdoor: G440W02001N100120002			
Air-Conditioner Type	Split air conditioner				
Air Distribution	Four way				
Type of system	R410A	Mass of Refrigerant (kg)	0.96		
Heat transfer	Cooling only				
Voltage(V)	230				
Phase	1ph				
Hz	60				
Compressor	**Type**	Hermetic motor-compressor			
	Brand	Sanyo			
	Model Name	C-6RZ210H3CDF			
	Maker	AVIC ELECTROMECHANICAL(SHENYANG)SANYO REFRIGERATION EQUIPMENT CO.,LTD.			
	Country of Origin	China			
Indoor Fan motor	**Type**	DC motor			
	Brand	BROAD-OCEAN			
	Model	ZWK465B00501			
	Maker	ZHONGSHAN BROAD-OCEAN MOTOR Co., LTD.			
	Country of Origin	China			
Outdoor Fan motor	**Type**	DC motor			
	Brand	LT			
	Model	RDN85HA10			
	Maker	Jiangmen LT Motor Co.,Ltd.			
	Country of Origin	China			
Evaporator	**Volume(mm)**	843mmx 357mmx 25.4 mm			
	Type	Hydrophilic & Louver Fin; Innergroover tube type			
Condenser	**Volume(mm)**	853 mm x 663 mm x 23.2 mm			
	Type	Louver or Corrugated Fin; Innergroover tube type			
Refrigerant	**Type: R410A**	960g			
Dimensions	Indoor(mm)	Width:1132	Depth :332	Height :229	
	Outdoor(mm)	Width :927	Depth :380	Height :699	

TCL空调器（中山）有限公司 测试中心 TEST CENTER TCL AIR CONDITIONER (ZHONGSHAN) CO.,LTD.

2- Test report

2.1 Cooling capacity test (T1-Full load capacity)

Data to be recorded for Enthalpy cooling capacity tests

Test Duration(min)	90
Power supplied	220-240V
Applied voltage (V)	228.6
Frequency (Hz)	60
Current (A)	11.46
Power Consumption (W)	1847
Power factor	70.5%
Fan speed settings	High speed
Dry bulb temperature, indoor (℃)	27.00
Wet bulb temperature, indoor (℃)	19.00
Dry bulb temperature, outdoor (℃)	35.00
Wet bulb temperature, outdoor (℃)	24.00
Barometer (Pa)	101.89
Indoor cooling capacity (Btu/h)	23645
Sensible cooling capacity(Btu/h)	20612
Latent cooling capacity (dehumidifying capacity) (Btu/h)	3033
Static pressure(Pa)	0.0
Volume flow rate of air(m3/hr)	1482.1
Cooling capacity (Btu/h)	23645
EER(Btu/h)/W	12.80

2.2 Cooling capacity test (T1-Half load capacity)

Test Duration(min)	90
Power supplied	220-240V
Applied voltage (V)	229.8
Frequency (Hz)	60
Current (A)	4.51
Power Consumption (W)	685
Power factor	66.1%
Fan speed settings	High speed
Dry bulb temperature, indoor (℃)	27.00
Wet bulb temperature, indoor (℃)	19.01
Dry bulb temperature, outdoor (℃)	35.00
Wet bulb temperature, outdoor (℃)	24.00
Barometer (Pa)	102.01
Indoor cooling capacity (W)	11086
Sensible cooling capacity (W)	11086
Latent cooling capacity (dehumidifying capacity) (W)	0
Static pressure(Pa)	0.0
Volume flow rate of air(m3/hr)	1486.3
Cooling capacity (Btu/h)	11086
EER(Btu/h)/W	16.18

TCL空调器（中山）有限公司 测试中心 TEST CENTER TCL AIR CONDITIONER (ZHONGSHAN) CO.,LTD.

2.3 Test record of cooling capacity test (T3)

Test Duration(min)	90
Power supplied	220-240V
Applied voltage (V)	228.1
Frequency (Hz)	60
Current (A)	14.90
Power Consumption (W)	2434
Power factor	71.6%
Fan speed settings	High speed
Dry bulb temperature, indoor (℃)	29.00
Wet bulb temperature, indoor (℃)	19.01
Dry bulb temperature, outdoor (℃)	46.01
Wet bulb temperature, outdoor (℃)	24.10
Barometer (Pa)	102.10
Indoor cooling capacity (Btu/h)	22205
Sensible cooling capacity(Btu/h)	22205
Latent cooling capacity (dehumidifying capacity) (Btu/h)	0
Static pressure(Pa)	0.0
Volume flow rate of air(m3/hr)	1608.7
Cooling capacity (Btu/h)	22205
EER(Btu/h)/W	9.12

TCL空调器（中山）有限公司 测试中心 TEST CENTER TCL AIR CONDITIONER (ZHONGSHAN)CO.,LTD.

2.4 Test record of heating capacity test (H1)

Test Duration(min)	/
Power supplied	/
Applied voltage (V)	/
Frequency (Hz)	/
Current (A)	/
Power Consumption (W)	/
Power factor	/
Fan speed settings	/
Dry bulb temperature, indoor (℃)	/
Wet bulb temperature, indoor (℃)	/
Dry bulb temperature, outdoor (℃)	/
Wet bulb temperature, outdoor (℃)	/
Barometer (Pa)	/
Indoor heating capacity (W)	/
Sensible heating g capacity (W)	/
Latent heating capacity (dehumidifying capacity) (W)	/
Static pressure(Pa)	/
Volume flow rate of air(m3/hr)	/
heating capacity W	/
heating capacity (Btu/h)	/
COP (Btu/h)/W	/

TCL空调器（中山）有限公司 测试中心 TEST CENTER TCL AIR CONDITIONER (ZHONGSHAN) CO.,LTD.

2.5 Functional Performance -Cooling&Heating

Operability at Maximum cooling conditions at 52℃	☒ Tested ☐ Declared	Result:	☒ Pass ☐ Fail ☐ Non Relevant
Operability at Minimum cooling conditions	☒ Tested ☐ Declared		☐ Pass ☐ Fail ☒ Non Relevant
Freeze up air blockage and freeze-up drip	☒ Tested ☐ Declared		☒ Pass ☐ Fail ☐ Non Relevant
Condensate control and enclosure sweat performance	☒ Tested ☐ Declared		☒ Pass ☐ Fail ☐ Non Relevant
Operability at Maximum heating conditions	☒ Tested ☐ Declared		☐ Pass ☐ Fail ☒ Non Relevant
Operability at Minimum heating conditions	☒ Tested ☐ Declared		☐ Pass ☐ Fail ☒ Non Relevant
Verification of automatic defrost	☒ Tested ☐ Declared		☐ Pass ☐ Fail ☒ Non Relevant

2.6 Capacity tests at below condition were considered in this report.

Mode	Indoor air temperature		Outdoor air temperature		Test voltage
	Dry bulb	**Wet bulb**	**Dry bulb**	**Wet bulb**	
Cooling mode (T1-Full load capacity)	**27**	**19**	**35**	**24**	230V, 60Hz
Cooling mode (T1-Half load capacity)	**27**	**19**	**35**	**24**	230V, 60Hz
Cooling mode (T3)	**29**	**19**	**46**	**24**	230V, 60Hz
Temperature (H1)	**20**	**15**	**7**	**6**	230V, 60Hz

TCL空调器（中山）有限公司 测试中心 TEST CENTER TCL AIR CONDITIONER (ZHONGSHAN) CO.,LTD.

Conclusion

Cooling capacity test (for condition T1- Full load capacity)					
Mode	**Rated**	**Tested**	**Verifying**	**Required EER**	Verdict
Cooling capacity, Btu/h	**23000**	**23645**	**2.80%**	**>=21850**	Pass
Cooling power input, W	**1885**	**1847**	**-2.02%**	**<=1979.25**	Pass
EER, Btu/W ·h	**12.20**	**12.80**	**4.92%**	**>=11.59**	Pass
Cooling capacity test (for condition T1- Half load capacity)					
Cooling capacity, Btu/h	**11500**	**11086**	**-3.60%**	**>=10925**	Pass
Cooling power input, W	**766**	**685**	**-10.57%**	**<=804.30**	Pass
EER, Btu/W ·h	**15.01**	**16.18**	**7.79%**	**>=14.26**	Pass
Cooling capacity test (for condition T3)					
Cooling capacity, Btu/h	**21600**	**22205**	**2.80%**	**>=20520**	Pass
Cooling power input, W	**2483**	**2434**	**-1.97%**	**<=2607.15**	Pass
EER, Btu/W ·h	**8.70**	**9.12**	**4.83%**	**>=8. 27**	Pass
Heating capacity					
Heating capacity, W	/	/	/	/	/
Heating power input,	/	/	/	/	/
COP, WW	/	/	/	/	/
Annual Energy Consumption (Kwh)	6373				
SEER class	C				
SEER	13.50				

Cooling capacity(T1 Full load capacity)	≥ 0.95 × rated capacity
Cooling power input(T1 Full load capacity)	≤ 1.05× rated
Cooling capacity(Half load capacity)	≥ 0.95 × rated capacity
Cooling capacity(T3)	≥ 0.95 × rated capacity
Cooling power input(T3)	≤ 1.05× rated
Heating capacity	≥ 0.95 × rated capacity
Heating power input	≤ 1.05× rated
EER(T1 Full load capacity)	≥ 0.95 × rated
EER(T3)	≥ 0.95 × rated
COP	≥ 0.95 × rated

Energy Rating Classification

Table 6 – Seasonal Energy Efficiency Ratio (SEER) Classification			
Bar color	**Energy class**		**SEER limits (Btu/W.h)**
Dark green	أ	A	SEER ≥ 18.0
Green	ب	B	18.0> SEER ≥ 15.0
Light green	ج	C	15.0> SEER ≥ 12.5
Yellow	د	D	12.5> SEER ≥ 10.0
Orange	هـ	E	10.0> SEER ≥ 9.0
Red	و	F	9.0> SEER ≥ 8.0
Dark Red	ز	G	8.0> SEER

TCL空调器（中山）有限公司 测试中心 TEST CENTER TCL AIR CONDITIONER (ZHONGSHAN) CO.,LTD.