ACD-521R

Environment Test Report

Report NO: 13P020010

Summary	☐ **Pass** ☐ **Fail** ☑ **Pass with Deviation** **Comment:** After compared with component datasheet, there was one component's surface temperature located in marginal pass criteria.

Issue date	Approval	Test Engineer
2013-08-01	**Tom Lin**	**Willy Shih**

Test item list

Testing Result

Num	Test item list	Result	Remark
1	Temperature rise test	Pass	
2	Temperature cycle operation test	Pass	
3	High temperature storage test	Pass	
4	Low temperature storage test	Pass	
5	Humidity test	Pass	
6	Cold start and hot start test	Pass	

Configuration of EUT

Num	Item	Spec
1.	Fanless Touch Panel	ACD-521RHTx-Ax-1010
	1. LCD	21.5".AUO. M215HW03 v1 1920x1080 250nits
	2. M/B name	PER-T212+A/D board
	3. Touch Screen	MT9D215C55116 2048x2048 ACD-521RHT-A1 :GeneralGlass ACD-521RHTT-A2 :Projected Capacitive Touch Window
	4. Front I/O	OSD function MENU / LCD on/off / AUTO / UP / DOWN
	5. Rear I/O	Speaker x 2 (2W)
	6. Side I/O	ACD-521RHT-A1 : w/o USB 2.0 PORT ACD-521RHTT-A2 : USB 2.0 x 2 PORT
	7. Bottom I/O	ACD-521RHT-A1 : LAN x 2 / Line-out x 1/ Dip switch 1x4/ push switch x2/Power & Link led ACD-521RHTT-A2 : LAN x 1 / USB 2.0 x 1 port / Line-out x 1/ Dip switch 1x4/ push switch x2/Power& Link led Line-out x 1 (when line-out，Speaker will be disabled)
	8. Test Software	Windows 7 / Run one Microsoft media player simultaneously

Temperature rise test

Test Date: 08-01-2013

Test Product: ACD-521R

Test Site: AAEON QE Internal Lab.

Test Standard: Reference EN 61131-2(94), UL508 (94)

Temperature Measurement:

40 Channel Thermal Recorder:
YOKOGAWA Inc,
Model: ACD-521D
Date of Calibration: 10/12/2011
Serial Number: 12A323190

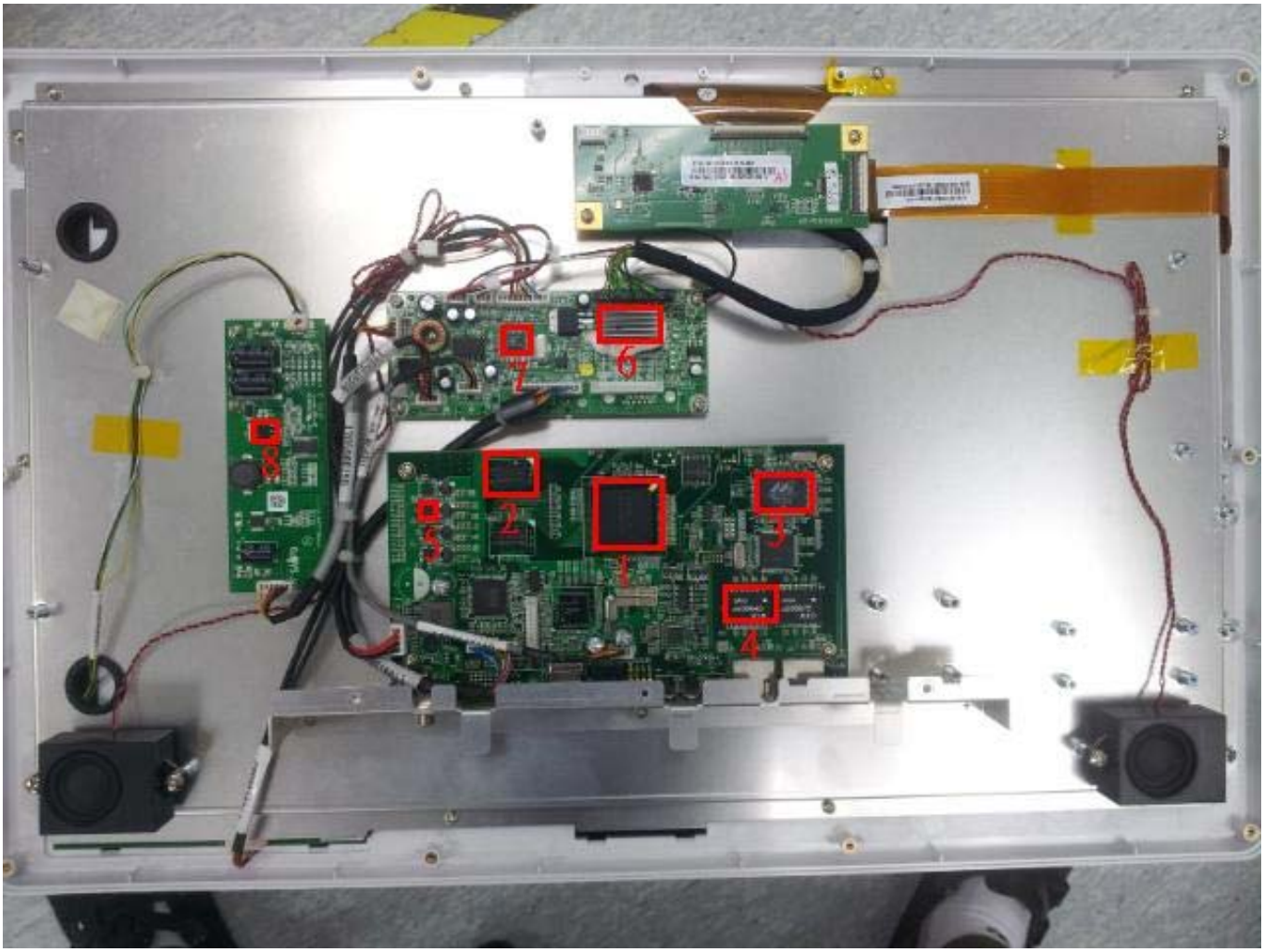
Test Condition:

Ambient temperature: 40℃
Continuous running till thermal stability (within less than 1℃)

Test Software:

Windows 7 / Run one Microsoft media player simultaneously.

Terminal Recorder:



Temperature rise test

Temperature rise test

Thermal profile data:

Point \ Temp. Stage(℃)	Spec	40	Note
I/O board			
01.SU8 - (TF)PBGA487.W/O ASPEED LOGO.ASPEED.AST1500A3-GP	95	71.2	
02.SU7 - (TF)DDRII-SDRAM 400MHz.512Mbits(32M*16bit).Etron.EM68B16CWPA-25H	100	66.3	
03.SU6 – (TF)Gigabit Ethernet Transceiver.MARVELL.88E1111B2-RCJ1C000	100	79	
04.SU26 - (TF)100/1000 Base Transformers.GOTREND.GTX-GH5007P	85	55.7	
05.SU2 - (TF)2A Synchronous.Step down Converter.ITE.CAT7810CA	100	63.8	
A/D board			
06. U8 - REALTEK RTD2555 LH	85	78.0	
07.U4 - REALTEK RTD2120L A6M2002	85	83.9	Note 4
Inverter board			
08. Q2	125	58.7	
09.Box inside air temperature	N/A	61.9	
10.Box surface temperature	N/A	48.1	
11.Chamber air temperature	N/A	40	

Note(*):
1. "Tc" indicates the component's case maximum temperature value specified in its datasheet.
2. "Tm" indicates the measured Tc value under working environmental temperature within product specification.
3. Judgment Criteria:
- **Fail** : Tm > Tc; The measured value is over specification.
- **Margin Pass** : Tc > Tm > Tc-5℃; The measured value is within specification with margin.
  It is strongly recommended to add thermal dissipation design for better reliability.
- **Pass** : Tm < Tc-5℃; The measured value is with safety margin.

Sample Configuration & Quantity Under Test:

Quantity: 1 (ACD-521R)

Test Result:

No problem was found during the temperature rise operation test.

Temperature cycle test

Test Date: 07-30 ~ 08-01-2013

Test Product: ACD-521R

Test Site: AAEON QE Internal Lab.

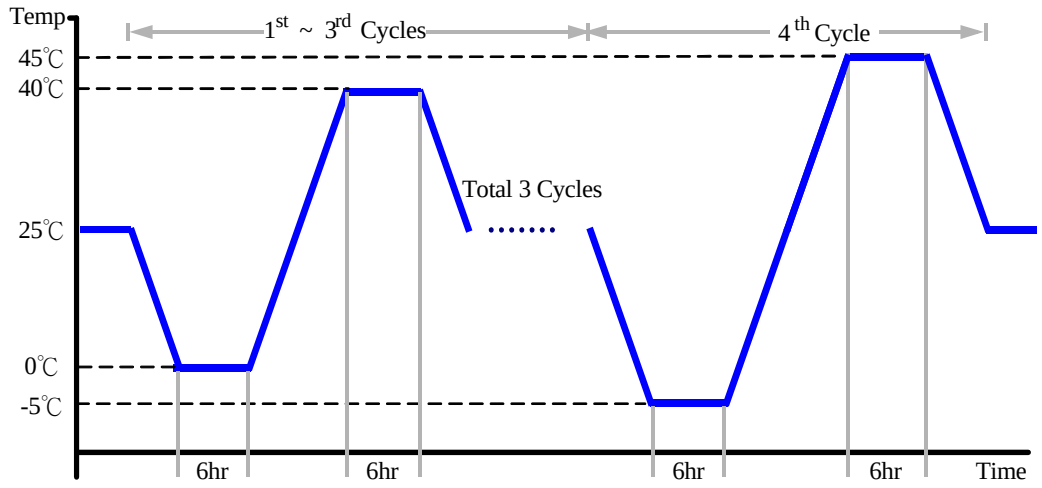
Test Standard: Reference IEC68-2-14 Testing procedures
Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-D75-100+LN2
Date of Calibration: 10/13/11
Serial Number: 6487KT

Test Condition:

1. Test Low Temperature: 0℃ (1~3 cycles)
   -5℃ (4th cycle)
2. Test High Temperature: 40℃ (1~3 cycles)
   45℃ (4th cycle)
3. Test dwell time: 6Hrs
4. Temperature slope: 2℃/min
5. Test cycle: 4 cycles
6. Test Environment Curve:



Sample Configuration & Quantity Under Test:

Quantity: 1 (ACD-521R)

Test Result:

No problem was found during the temperature operation cycle test.

High temperature storage test

Test Date: 07-26 ~ 30-2013

Test Product: ACD-521R

Test Site: AAEON QE Internal Lab.

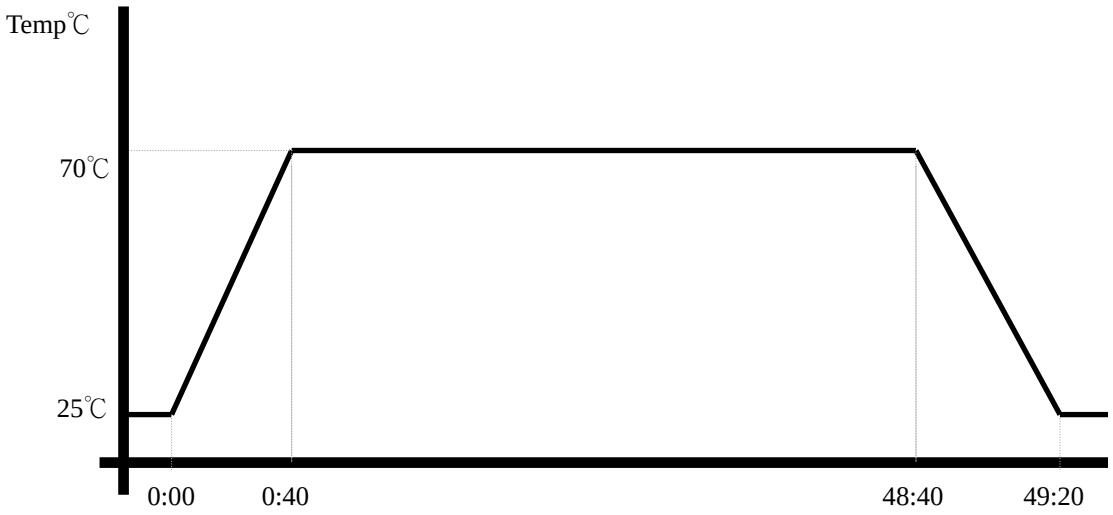
Test Standard: Reference IEC 68-2-2 Testing procedures
Test Bb: Dry Heat Test (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-D75-100+LN2
Date of Calibration: 10/13/11
Serial Number: 6487KT

Testing Item:

1. Test Temperature: 70℃
2. Test Times: 48Hrs
3. Test Software: Windows 7 / Run one Microsoft media player simultaneously.
4. Test Environment Curve:



Sample Configuration & Quantity Under Test:
Quantity: 1 (ACD-521R)

Test Result:

No problem was found after the high temperature storage test.

Low temperature storage test

Test Date: 07-24 ~ 26-2013

Test Product: ACD-521R

Test Site: AAEON QE Internal Lab.

Test Standard: Reference IEC 68-2-1 Testing procedures
Test Ab: Cold Test (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-D75-100+LN2
Date of Calibration: 10/13/11
Serial Number: 6487KT

Testing Item:

1. Test Temperature: -20℃
2. Test Times: 48Hrs
3. Test Software: Windows 7 / Run one Microsoft media player simultaneously.
4. Test Environment Curve:

Sample Configuration & Quantity Under Test:
Quantity: 1 (ACD-521R)

Test Result:
No problem was found after the low temperature storage test.

Humidity test

Test Date: 07-22 ~ 24-2013

Test Product: ACD-521R

Test Site: AAEON QE Internal Lab.

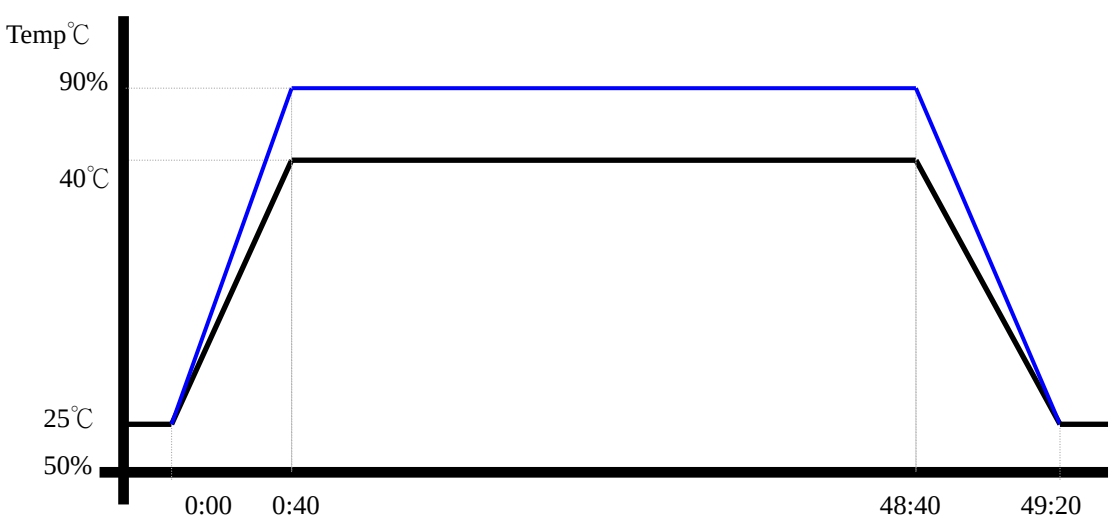
Test Standard: Reference IEC 68-2-3 Testing procedures
Test Ca: Damp heat, steady state (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-D75-100+LN2
Date of Calibration: 10/13/11
Serial Number: 6487KT

Testing Item:

1. Test Temperature: 40℃
2. Test Humidity: 90%RH
3. Test Times: 48Hrs
4. Test Software: Windows 7 / Run one Microsoft media player simultaneously.
5. Test Environment Curve:



Sample Configuration & Quantity Under Test:
Quantity: 1 (ACD-521R)

Test Result:
No problem was found after the humidity storage test.

Cold start and hot start test

Test Date: 07-16 ~ 19-2013

Test Product: ACD-521R

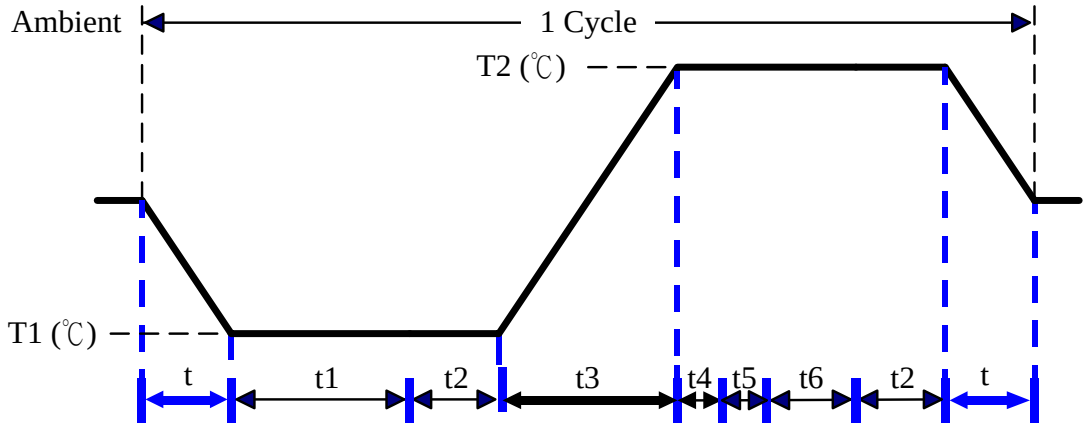
Test Site: AAEON QE Internal Lab.

Test Standard: Reference IEC 68-2-14 Testing procedures
Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber
K.SON. INS. TECH. CORP.
Model: THS-D75-100+LN2
Date of Calibration: 10/13/11
Serial Number: 6487KT

Test Condition:



Parameters	Description
T1	-5℃
T2	45℃
t1	4 hrs
t2, t6	2 hrs
t4, t5	1hrs
t, t3	2℃/min
n (Cycle)	1

t = temprature slope
t , t1, t6: Power Off
t2: Power on/off test 10 times (on 2 min / off 5min)
t3, t4: Run media player
t5: Win 7 Software restart test 3 times
Test Software: Windows 7

Test Result:

a. No problem was found during the cold start test.
b. No problem was found during the hot start test.