DSS-TN40

Environment Test Report

Report NO: 13I020023

Summary	☑ **Pass** ☐ **Fail** Note : There is/are ___ defect(s) not list in the report, please check it in the DTS Website. ☐ **Pass with Deviation** **Comment:**

Issue date	Approval	Test Engineer
2013-08-07	**Tom Lin**	**Jerry Chen**

Test item list

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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	

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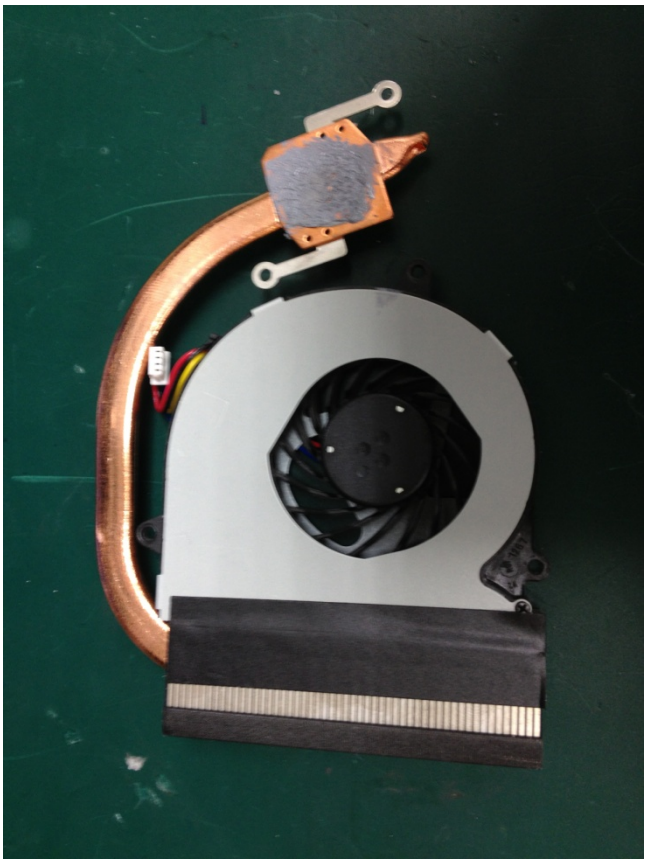
Configuration of EUT

Num	Item	Spec
1.	**Control Box**:	DSS-TN40 A1.0
	1. Main Board	EMB-A70M
	2. BIOS Ver.	DSS-TN40 R1.0 (DS40AM10) (05/15/2013)
	3. CPU	AMD R-260H APU with Radeon HD Graphics / 2.1GHz
	4. Memory	DSL DDR3 1066 4GB*2 / ELPIDA J2108BDBG-DJ-F
	5. HDD	WD 2500BPVT SATA 2.5” HDD 250GB
	6. Test Software	Windows 7 / Run PassMark Burn In Test 7.0 Pro
2.	**AC Adapter**	FSP. FSP060-DBAE1 Output: 12V; 5.0A MAX

Fan



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Temperature rise test

Test Date: 08-05-2013

Test Product: DSS-TN40

Test Site: AAEON QE Dept.

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

Temperature Measurement:

40 Channel Thermal Recorder: (YOKOGAWA Inc,)
Model: DA100-13-1D
Date of Calibration: 10/08/12
Serial Number: 12A323190

Test Condition:

Ambient temperature: 45℃
Continuous running till thermal stability (within less than 1℃)

Test Software:

Windows 7 / Run PassMark Burn In Test 7.0 Pro

Terminal Recorder:

Measuring Thermal Couple Position：

DSS-TN40

Point / Temp. Stage(℃)	Spec	45	25	Note
AIS-E2-CV1				
01. **U22 (TF)AMD APU.R-series.2.0GHz. 827P.RE460LSIE44HJE.R-460L**	**100**	**66.2**	**46.2**	
02. **U47 (TF) Hudson-M3 Fusion.AMD.A70M**	**105**	**60**	**40**	
03. **U46 (TF) Low-Voltage LDO Regulator.UPI.UP0104PSU8**	**100**	**62.3**	**42.3**	
04. **U61 (TF) 7.1+2 Channel Audio Codec. REALTEK.ALC892-CG**	**100.5**	**59.7**	**39.7**	
05. **L4 (TF)CYNTEC.PCMB104E-3R3MS**	**100**	**53.1**	**33.1**	
06. **L3 (TF) Panasonic.ETQP3W4R7WFN**	**125**	**53.4**	**33.4**	
07. **Memory chipset - 1**	**95**	**58.1**	**38.1**	
08. **Memory chipset - 2**	**95**	**56**	**36**	
09. **Q72 (TF)PWR.Dual N-Channel MOSFET.SMD.SO-8.IR.IRF8313PbF**	**150**	**55.6**	**35.6**	
10. **L10 (TF)COIL. Panasonic.ETQP4LR56WFC**	**100**	**62.7**	**42.7**	
11. WD 2500BPVT SATA 2.5” HDD 250GB	**60**	**49.2**	**29.2**	
12. Control Box Inside Air Temperature – 1	**NA**	**50.5**	**30.5**	
13. Control Box Inside Air Temperature – 2	**MA**	**43.6**	**23.6**	
14. Control Box External Surface - 1	**NA**	**50.4**	**30.4**	
15. Chamber Air Temperature	**NA**	**45**	**25**	

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Temperature rise test

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.

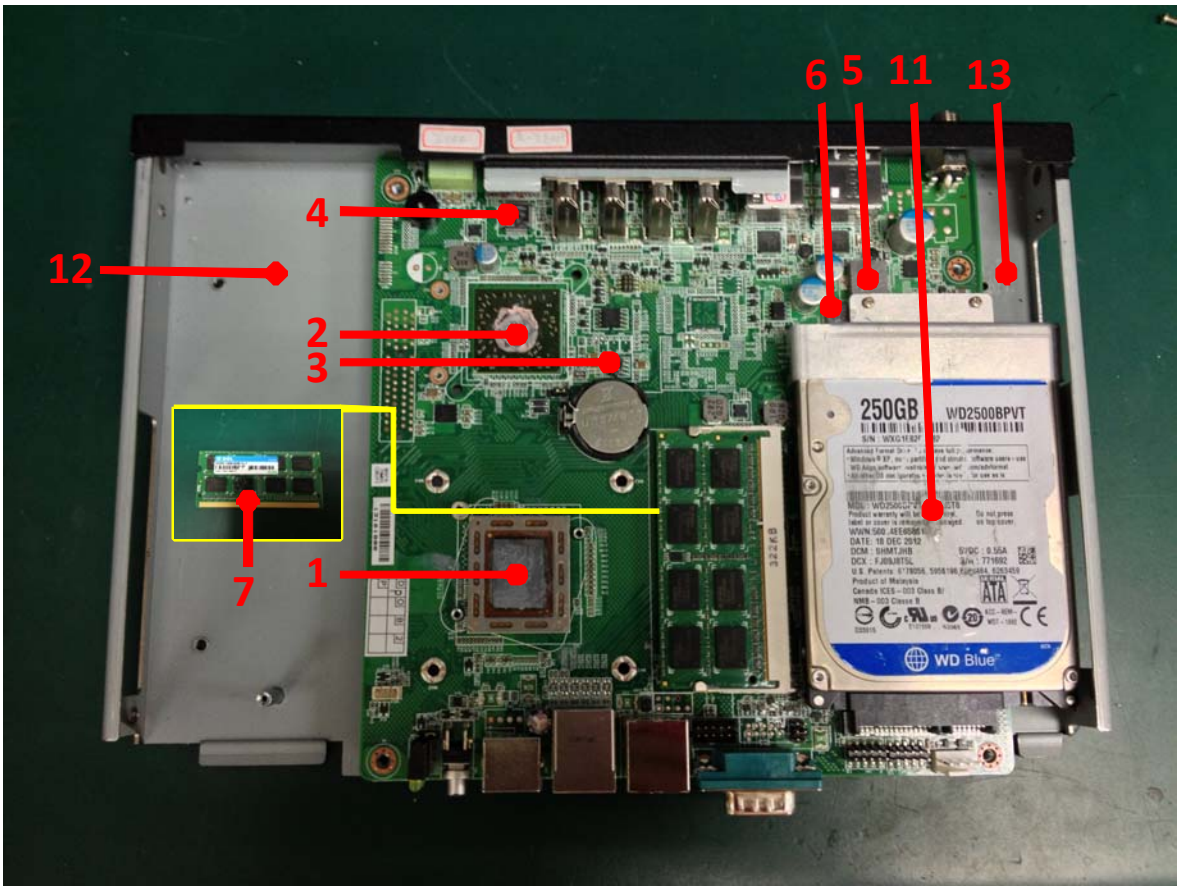
4. Defect NO.

Sample Configuration & Quantity Under Test:

Quantity: 1 (DSS-TN40)

Test Result:

No issues were found during the temperature rise test.



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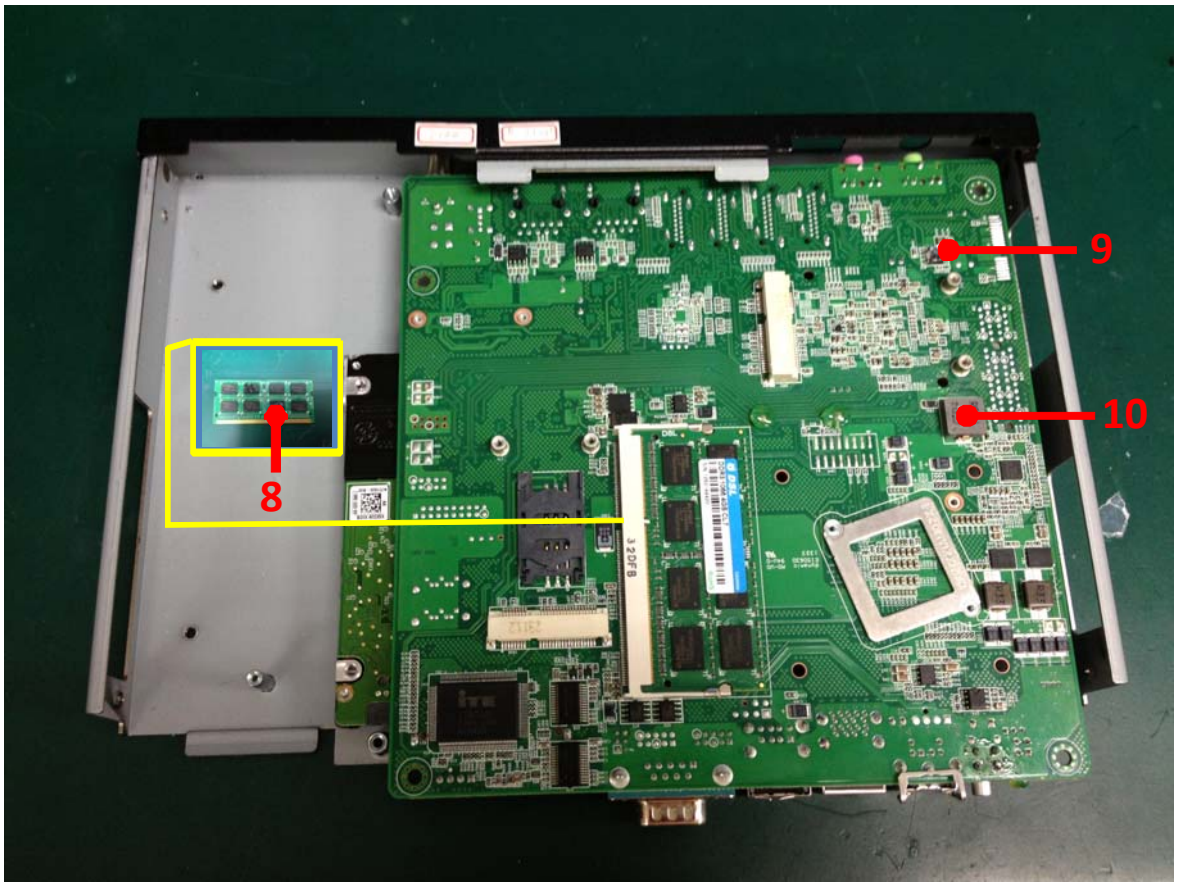
Temperature rise test



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Temperature cycle operation test

Test Date: 07-24 ~ 26-2013

Test Product: DSS-TN40

Test Site: AAEON QE Dept.

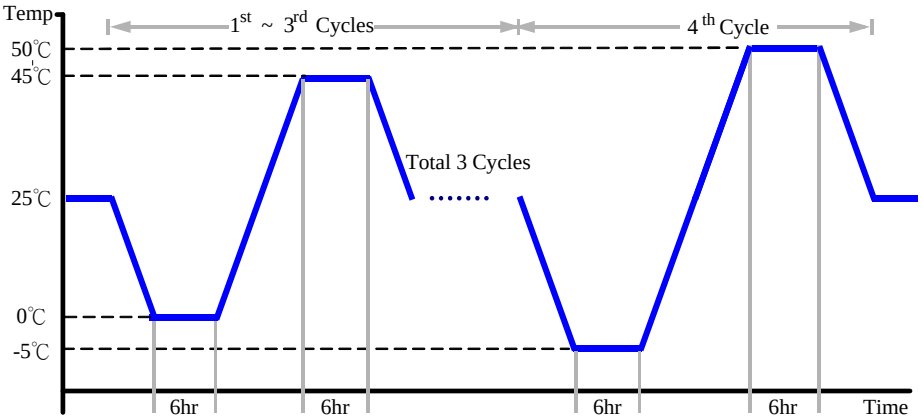
Test Standard: Refer to IEC68-2-14 Testing procedures
Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 03/07/13
Serial Number: 6487KT

Test Condition:

1. Test Low Temperature: 0℃ (1~3 cycles)
   -5℃ (4^{th} cycle)
2. Test High Temperature: 45℃ (1~3 cycles)
   50℃ (4^{th} 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 (DSS-TN40)

Test Result:

No issues were found during the temperature operation cycle test.

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High temperature storage test

Test Date: 07-26 ~ 29-2013

Test Product: DSS-TN40

Test Site: AAEON QE Dept.

Test Standard: Refer to 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-B6T-150+LN2
Date of Calibration: 03/07/13
Serial Number: 6487KT

Testing Item:

1. Test Temperature: 60℃
2. Test Times: 48Hrs
3. Test Software: Windows 7 / Run PassMark Burn In Test 7.0 Pro
4. Test Environment Curve:

Sample Configuration & Quantity Under Test:

Quantity: 1 (DSS-TN40)

Test Result:

No issues were found after the high temperature storage test.

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Low temperature storage test

Test Date: 07-29~ 31-2013

Test Product: DSS-TN40

Test Site: AAEON QE Dept.

Test Standard: Refer to 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-B6T-150+LN2
Date of Calibration: 03/07/13
Serial Number: 6487KT

Testing Item:

1. Test Temperature: -20℃
2. Test Times: 48Hrs
3. Test Software: Windows 7 / Run PassMark Burn In Test 7.0 Pro
4. Test Environment Curve:

Sample Configuration & Quantity Under Test:

Quantity: 1 (DSS-TN40)

Test Result:

No issues were found after the low temperature storage test.

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Humidity test

Test Date: 07-31~ 08-02-2013

Test Product: DSS-TN40

Test Site: AAEON QE Dept.

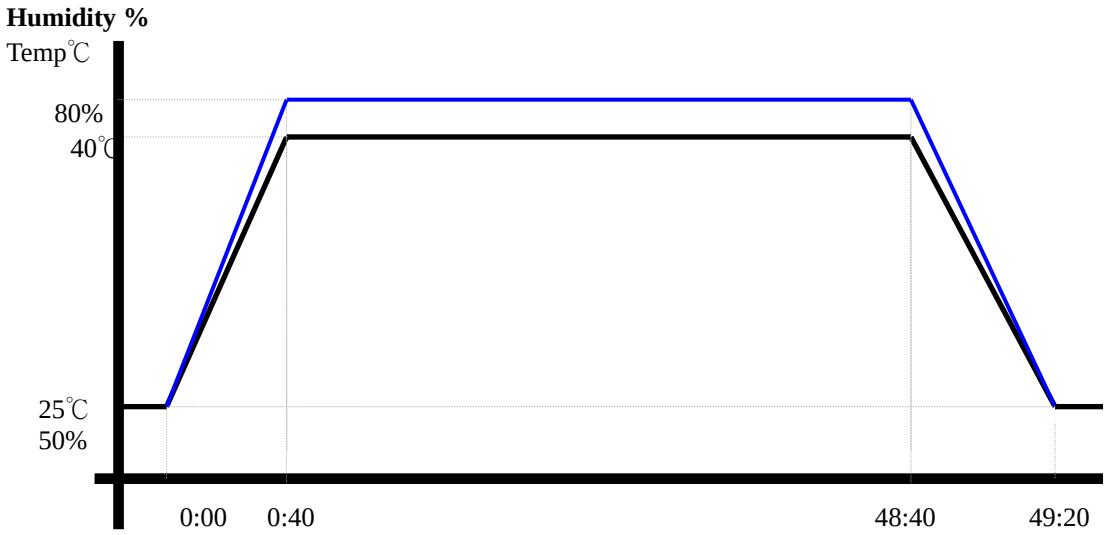
Test Standard: Refer to IEC 68-2-3 Testing procedures
Test Ca: Damp heat, steady state (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber (K.SON. INS. TECH. CORP.)
Model: THS-B6T-150+LN2
Date of Calibration: 03/07/13
Serial Number: 6487KT

Testing Item:

1. Test Temperature: 40℃
2. Test Humidity: 80%RH
3. Test Times: 48Hrs
4. Test Software: Windows 7 / Run PassMark Burn In Test 7.0 Pro
5. Test Environment Curve:



Sample Configuration & Quantity Under Test:
Quantity: 1 (DSS-TN40)

Test Result:

No issues were found after the humidity storage test.

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Cold start and hot start test

Test Date: 08-02~05-2013

Test Product: DSS-TN40

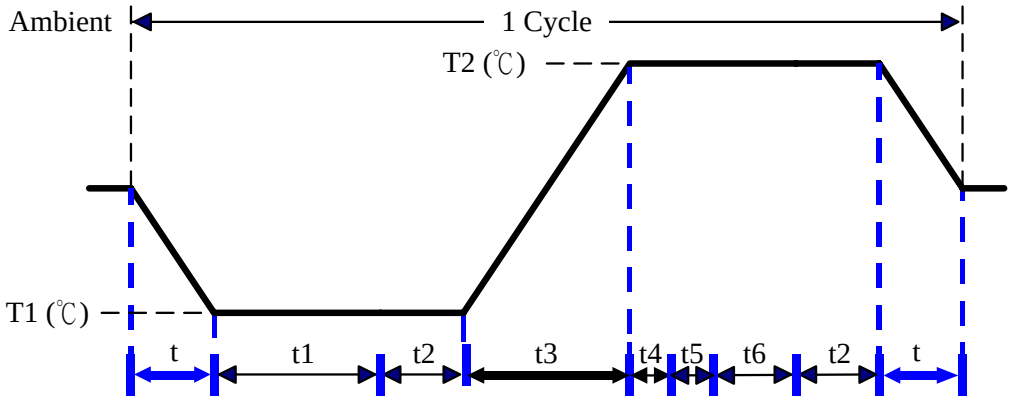
Test Site: AAEON QE Dept.

Test Standard: Refer to 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-B6T-150+LN2
Date of Calibration: 03/07/13
Serial Number: 6487KT

Test Condition:



Parameters	Description
T1	-5℃
T2	50℃
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 5 times (on 2 min / off 5min)
t3, t4: Run PassMark BurnIn Test 7.0 Pro
t5: Win 7 Software restart test 3 times
Test Software:Windows 7

Test Result:

a. No issues were found during the cold start test.
b. No issues were found during the hot start test.

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