

TKS-E21-HD07

(With mSATA HDD)

Environment Test Report

Report NO: 12E020010

Summary	<input type="checkbox"/> Pass <input type="checkbox"/> Fail Note : There is/are ____ defect(s) not list in the report, please check it in the DTS Website. <input checked="" type="checkbox"/> Pass with Deviation Comment: <u>One temperature point need improving</u>
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Issue date	Approval	Test Engineer
2012-05-18	Vincent Chen	Rex Chang

Configuration of EUT

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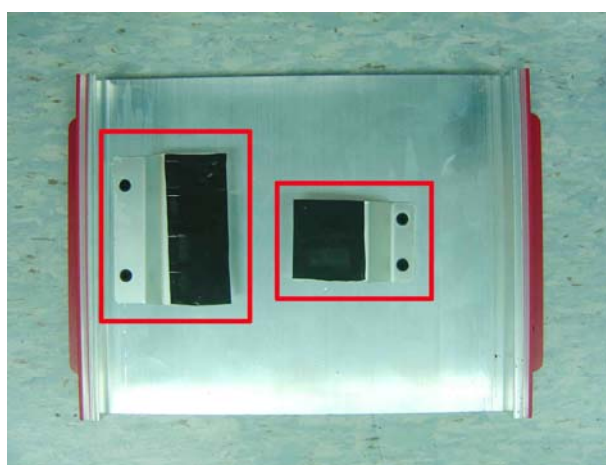
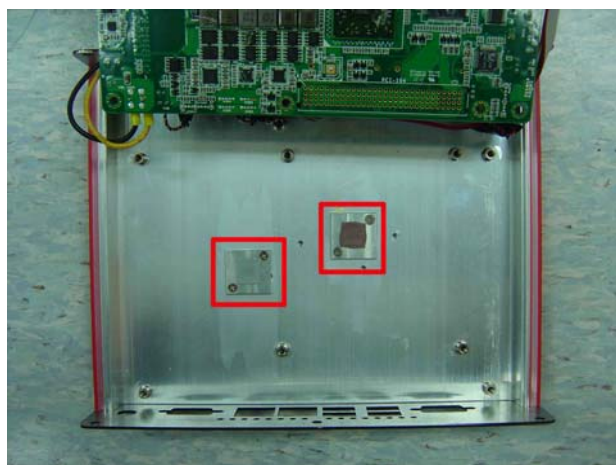
Testing Result

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	

Configuration of EUT

Num	Item	Spec
1.	Control Box:	TKS-E21-HD07
	1. Main Board	EPIC-HD07 A1.0
	2. BIOS Ver.	TKHDAM11(04/05/2012)
	3. CPU	AMD G-T40N / 1.0GHz
	4. Memory	MemoRight / Hynix H5TQ2G83BFA H9C / DDR3 1333 / 4GB
	5. Industrial mSATA HDD	MemoRight MS500 Series / MRMSJ5B032GN4M2100 / 32G
	6. Test Software	Windows 7 / Run PassMark Burn In Test 7.0 Pro
2.	AC Adapter	FSP. FSP060-DBAE1

Heat Sink



Temperature rise test

Test Date: 05-17-2012

Test Product: TKS-E21-HD07

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: 10/12/11
 Serial Number: 12A323190

Test Condition:

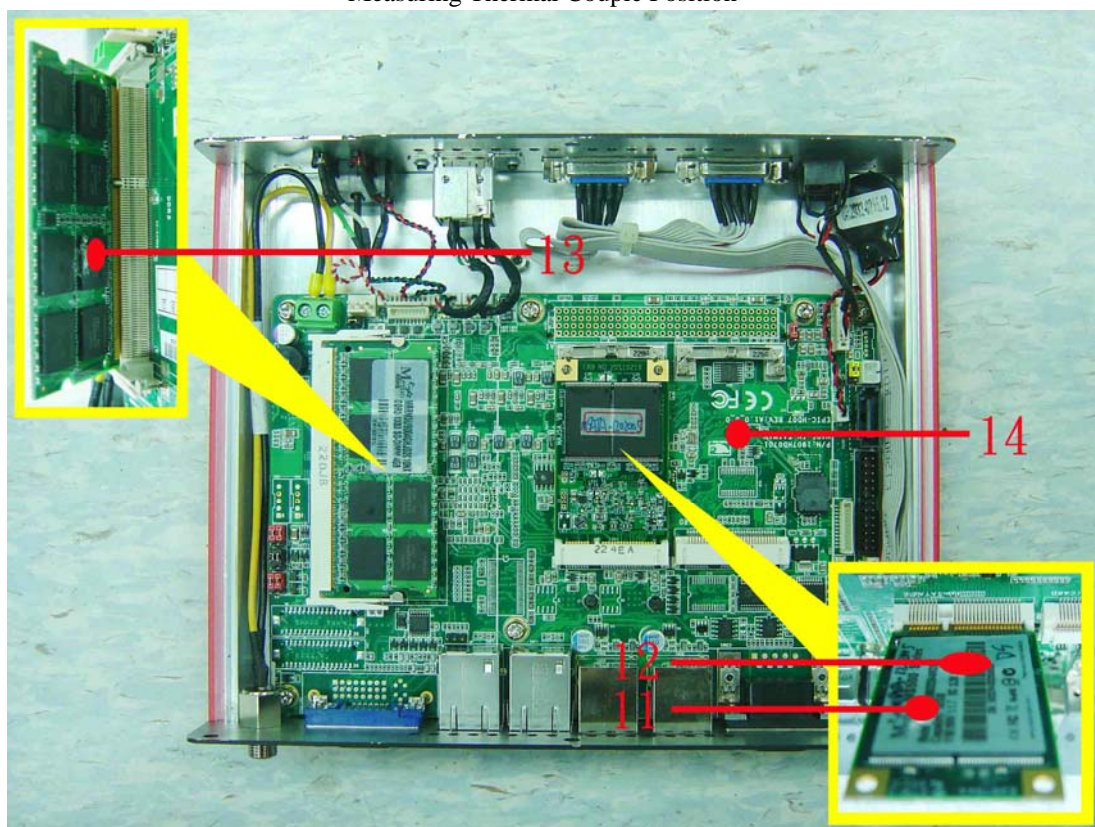
Ambient temperature: 60°C
 Continuous running till thermal stability (within less than 1°C)

Test Software:

Windows 7 / Run PassMark Burn In Test 7.0 Pro

Terminal Recorder:

Measuring Thermal Couple Position :



Temperature rise test



TKS-E21-HD07

Point	Temp. Stage(°C)	Spec	60	Note
EPIC-HD07				
01. U43 - (TF)AMD Hudson-E1 Fusion.Controller Hub.AMD.A55E.100-CG2293		105	81.9	
02. U40 - (TF)AMD APU.G-series.1.0GHz.GET40NFPB22GVE.T40N		90	82.2	
03. U41 - (TF)Super I/O.Fintek.F81866D-I		100	84.9	
04. U45 - (TF)HIGH DEFINITIOND.AUDIO CODEC.REALTEK.ALC662-GR		100.5	90.6	
05. Q29 - (TF)Dual N-Channel.Rds=14/20mohm.APEC.AP4224GM		125	90.0	
06. Q33 - (TF)PWR.SMD.PMPAK5X6 N-MOSFET. APEC.AP3R303GMT-HF		125	88.5	
07. L5 - (TF)COIL.1uH.20%.Zenithtek.ZPWM-6030M-1R0M		125	86.0	
08. U47 - (TF)DUAL SYNCHRONOUS STEP-DOWN CON.TL.TPS51124RGE		100	87.7	
09. U32 - (TF)PCI-express.Gigabit Ethernet Chip.REALTEK.RTL8111E-VB-GR		100	84.9	
10. U19 - (TF)4A.0.33V.Low dropout Linear Regulator.GMT.G9731F11U		125	94.5	
11. mSATA Module - 1		100	83.9	
12. mSATA Module - 2		100	92.7	
13. Memory		85	80.7	Note4
14. Control Box Inside Air Temperature		N/A	82.1	
15. Control Box External Surface - 1		N/A	79.4	
16. Control Box External Surface - 2		N/A	78.2	
17. Chamber Air Temperature		N/A	59.9	

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** : $T_m > T_c$; The measured value is over specification.
- **Margin Pass** : $T_c > T_m > T_c - 5^\circ\text{C}$; The measured value is within specification with margin.
It is strongly recommended to add thermal dissipation design for better reliability.
- **Pass** : $T_m < T_c - 5^\circ\text{C}$; The measured value is with safety margin.

4. Defect NO. E120203QED03

Temperature Measurement Table:

Location	$T_A=59.9^\circ\text{C}$	Temp. Rise (Thermal Couple)	SpeedFan 4.46 (Read from BIOS)	
	CPU		82.2	Core 0

Sample Configuration & Quantity Under Test:

Quantity: 1 (TKS-E21-HD07)

Test Result:

No problem was found during the temperature rise test.

Temperature cycle operation test

Test Date: 05-12 ~ 14-2012

Test Product: TKS-E21-HD07

Test Site: AAEON QE Dept.

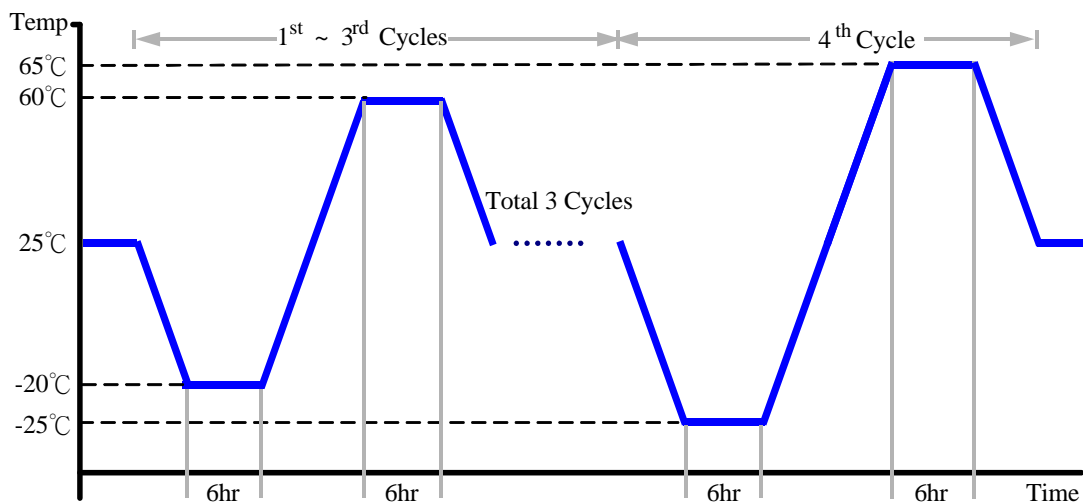
Test Standard: Reference IEC68-2-14 Testing procedures
 Test N: Change of temperature Test

Test Equipment:

Programmable Temperature & Humidity Chamber
 K.SON. INS. TECH. CORP.
 Model: THS-B6T-150+LN2
 Date of Calibration: 04/11/12
 Serial Number: 6488KT

Test Condition:

1. Test Low Temperature: -20°C (1~3 cycles)
 -25°C (4th cycle)
2. Test High Temperature: 60°C (1~3 cycles)
 65°C (4th cycle)
3. Test dwell time: 6Hrs
4. Temperature slope: 2°C/min
5. Test cycle: 4 cycles
6. Test Environment Curve:



Sample Configuration & Quantity Under Test:

Quantity: 1 (TKS-E21-HD07)

Test Result:

No problem was found during the temperature operation cycle test.

High temperature storage test

Test Date: 05-10~ 12-2012

Test Product: TKS-E21-HD07

Test Site: AAEON QE Dept.

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-B6T-150+LN2
 Date of Calibration: 04/11/12
 Serial Number: 6488KT

Testing Item:

1. Test Temperature: 80°C
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 (TKS-E21-HD07)

Test Result:

No problem was found after the high temperature storage test.

Low temperature storage test

Test Date: 05-08 ~ 10-2012

Test Product: TKS-E21-HD07

Test Site: AAEON QE Dept.

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-B6T-150+LN2
 Date of Calibration: 04/11/12
 Serial Number: 6488KT

Testing Item:

1. Test Temperature: -40°C
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 (TKS-E21-HD07)

Test Result:

No problem was found after the low temperature storage test.

Humidity test

Test Date: 05-05 ~ 08-2012

Test Product: TKS-E21-HD07

Test Site: AAEON QE Dept.

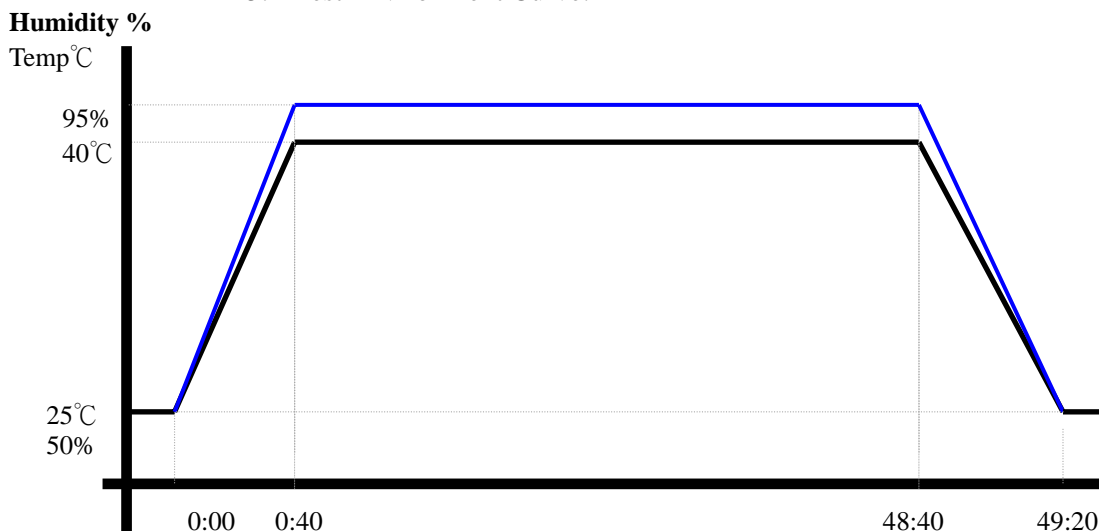
Test Standard: Reference IEC 68-2-3 Testing procedures
 Test Ca: Damp heat, steady state (Non-operation)

Test Equipment:

Programmable Temperature & Humidity Chamber
 K.SON. INS. TECH. CORP.
 Model: THS-B6T-150+LN2
 Date of Calibration: 04/11/12
 Serial Number: 6488KT

Testing Item:

1. Test Temperature: 40°C
2. Test Humidity: 95%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 (TKS-E21-HD07)

Test Result:

No problem was found after the humidity storage test.

Cold start and hot start test

Test Date: 05-15~16-2012

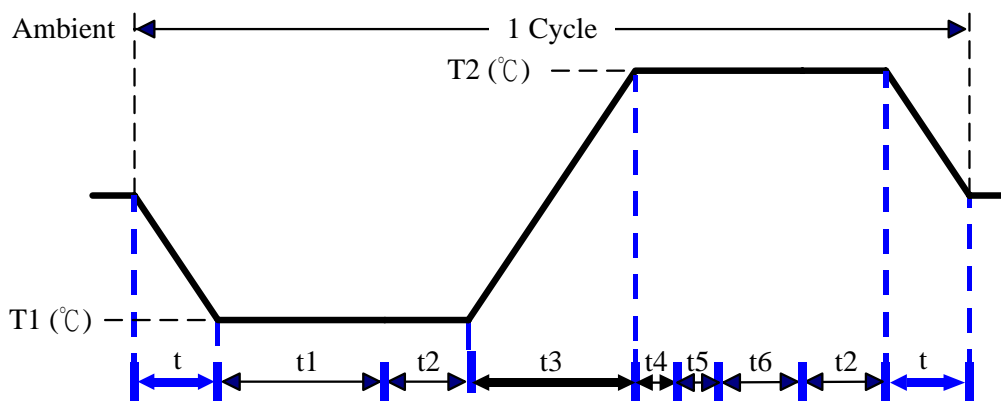
Test Product: TKS-E21-HD07

Test Site: AAEON QE Dept.

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-B6T-150+LN2
 Date of Calibration: 04/11/12
 Serial Number: 6488KT

Test Condition:



Parameters	Description
T1	-25°C
T2	65°C
t1	4 hrs
t2, t6	2 hrs
t4, t5	1hrs
t, t3	2°C/min
n (Cycle)	1

t = temperature slope
 t , t1, t6: Power Off
 t2: Power on/off test 10 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 problem was found during the cold start test.
- b. No problem was found during the hot start test.