

Condensation Testing

Preface

MAXMAC evaluates ion-module function using a damp-heat condensation program. The method follows a defined temperature/humidity sequence with condensation and drying phases, followed by natural recovery and functional inspection.

The execution record covers samples 31#-36#, a maximum temperature of 80 °C and five cycles over 25 hours. The completed test met Class A and received a Pass judgment. The original profile, chamber history and final functional photographs are presented here.

Recorded Test Program

Parameter	Execution record
Maximum temperature	80 °C
Cycle count	5
Total program duration	25 h
Operating mode	3.2
Samples	6 modules; 31#-36#
Sample clearance	≥100 mm between modules and from chamber walls

Calculated cycle duration:
 $25 \text{ h} / 5 = 5 \text{ h per cycle}$.

Test and Recovery Steps

1. Arrange the modules and their connections in the chamber.
2. Set the chamber to the specified condensation profile and complete five cycles.
3. Allow natural recovery to room temperature after the program.
4. Complete functional inspection, including electrical and ion-generation checks.

After cold-chamber removal: stand for more than 2 hours and allow condensation to evaporate before ion-output measurement.

Original Test Arrangement

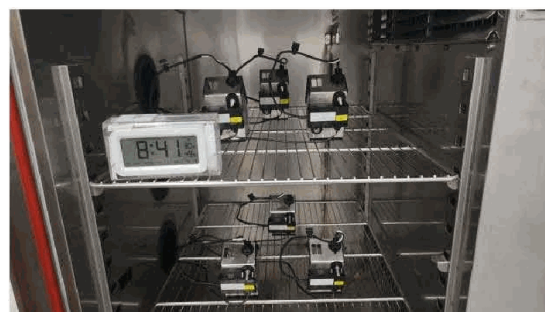


Figure 1 Original sample arrangement inside the chamber.



Figure 2 Original external supply / connection arrangement.

Acceptance Requirements

The procedure requires **Class A** function before and after the test: working current $\leq 0.1 \text{ A}$ (**100 mA**), normal function and ion generation. The execution record states that the sample functional level met Class A.

Test basis: Q/MAT 5502-2023, 9.10.4.

Dates: 1-2 July 2025.

Testing: Zhejiang Kezheng Electronic Information Product Inspection Co., Ltd.

Program Profile, Chamber Record and Functional Results

Original Condensation / Drying Profile

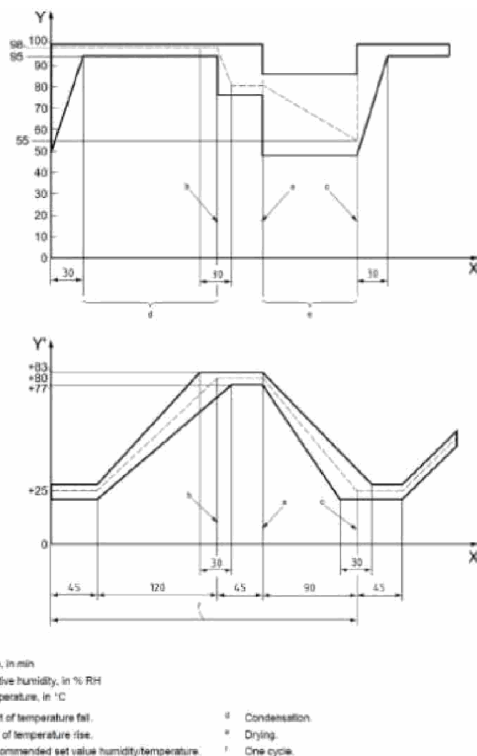


Figure 3 Original temperature/humidity profile and phase key reproduced from the test procedure, source p. 68.

Six-Sample Functional Photograph Index

Sample	Final functional record
31#	p. 69
32#	pp. 69-70
33#	p. 70
34#	pp. 70-71
35#	p. 71
36#	pp. 71-72

Table 1 Source-page references for the original final functional photographs.

Original Chamber History

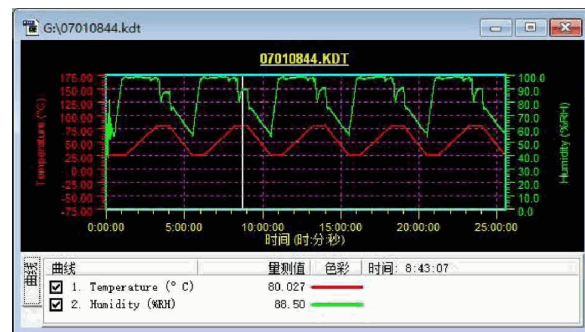


Figure 4 Original five-cycle temperature/humidity history, source p. 72.

Sample 31#: Final Functional Check

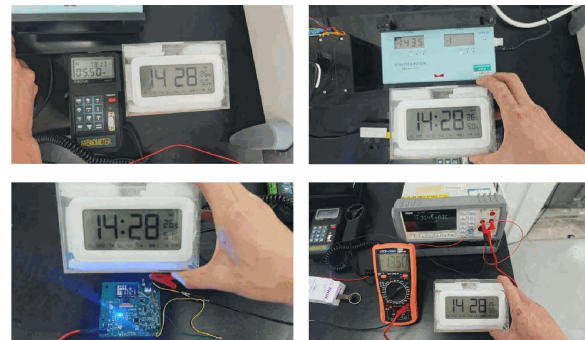


Figure 5 Original post-test photographs: air-speed meter and ion counter above; module monitoring and electrical measurement instruments below. Source p. 69.

Recorded Test Result

Item	Recorded result
Functional status	Meets Class A.
Sample group	31#-36#, six modules.
Overall judgment	Pass.

Equipment: KTHE-715TBS chamber, TH1941 / VC890C meters and SS-3020KD supply.

Records: Leg4 pp. 65-72; execution conditions p. 66; procedure / result p. 68; final conclusion p. 72.

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