

ATTACHMENT 1

AEC - Q102-001

DEW TEST (DEW)

Automotive Electronics Council
Component Technical Committee

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METHOD – 001

OPTOELECTRONIC COMPONENT DEW TEST (DEW)

1. SCOPE

1.1 Description:

The test evaluates the robustness of optoelectronic components regarding condensation in an automotive application.

1.2 Terms and Definitions:

The terms used in this specification are defined as follows.

1.2.1 Device Under Test (DUT):

An optoelectronic component being evaluated for its sensitivity to dew.

2. EQUIPMENT:

2.1 Test Apparatus:

The DUT shall be placed on a grille. Optionally, the DUT can be covered by a plastic hood, aligned to the chamber door, in order to eliminate effects caused by the circulation of air and water dropping on the DUT directly.

3. TEST PROCEDURE:

3.1 Sample Size:

Specified in AEC-Q102 Table 2.

3.2 Duration:

Duration is 10 cycles. One cycle takes 6.5 hours.

3.3 Detailed Procedure:

Each test cycle shall be done as shown in Table 1 and Figure 1.

During the condensation phase (phase 2), the climate control (temperature by chamber air condition) is switched off. During this phase, the chamber temperature is controlled by the water bath temperature only.

The DUT shall be turned off all time except in phase 3.

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Table 1: Dew Test Requirements

Phase	Temperature	Relative Humidity	Remark
1	Drop from 20°C to 10°C within 15 min.	Raise from 50% to between 50%-100%	Use climate control.
2	Hold 60 min. at 10°C	First 30 min.: raise to between 90%-100% Second 30 min.: raise to between 95%-100%	Ensure DUT to reach starting temperature. Switch off climate control (temperature by chamber air condition) at the end of phase 2.
3	Raise from 10°C to 70°C within 3 hours by a heating rate of 20°C/hour	Held between 95%-100%	Condensation phase Turn on DUT for 2 min. each 30 min. only. The driving current shall be chosen not to exceed a rise of 3 K for $T_{junction}$.
4	Raise to 80°C within 30 min.	Held between 95%-100%	Condensation phase
5	Decrease to 75°C and held for 30 min.	Undefined and uncontrolled	Switch on climate control (temperature by chamber air condition) at the beginning of phase 5.
6	Decrease from 75° to 20° within 75° min.	Undefined and uncontrolled	Drying phase. DUT shall be dry after phase 6.

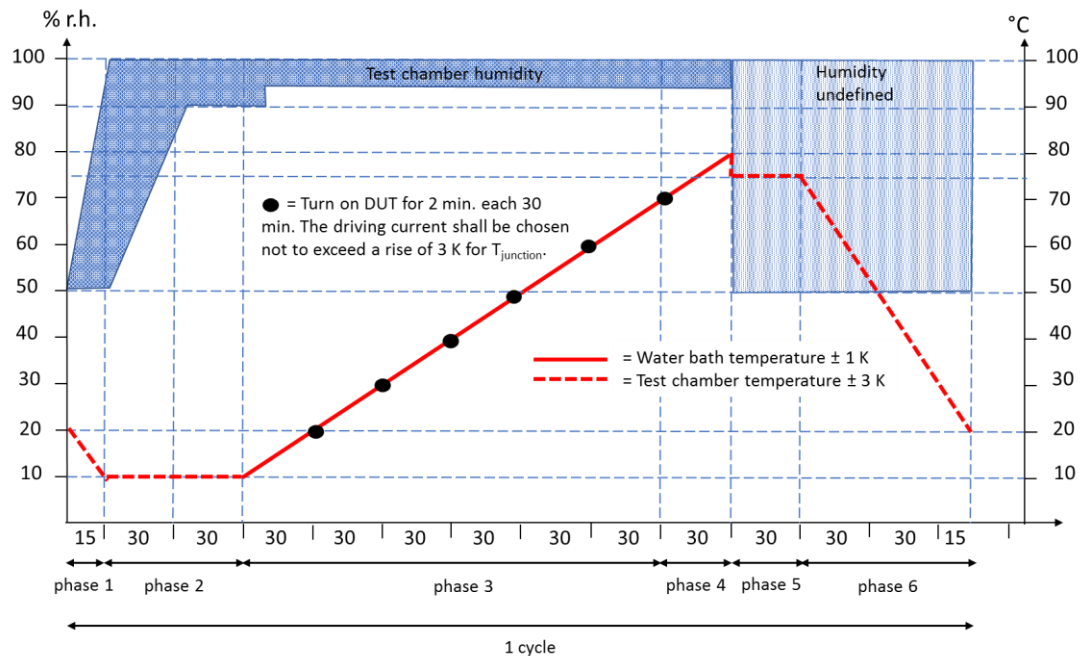


Figure 1: Dew Test Profile

4. FAILURE CRITERIA:

Specified in AEC-Q102 Appendix 5.

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Revision History

<u>Rev #</u>	<u>Date of change</u>	<u>Brief summary listing affected sections</u>
-	Apr. 6, 2020	Initial Release.