

TOPTESTER OY

TEST REPORT

MIL-STD-810H, Method 507.6 Humidity

Customer:

Niko Peltoniemi

Device name & version:

Lumonite Compass (V7)

Customer: Handshake Finland Oy
Test name: MIL-STD 810H, Method 507.6 Humidity
EUT: Lumonite Compass (V7)

TOPTESTER OY

1. TEST INFORMATION

CUSTOMER: Handshake Finland Oy
TEST NAME: MIL-STD-810H, Method 507.6 Humidity
TEST DATE: 1. – 11. June 2021
TEST SITE: Toptester, Rovaniemi

EQUIPMENT UNDER TEST

DEVICE NAME: Lumonite Compass
VERSION NR.: V7 (2021)
DEVICE ID: LC000008

Test ID: ENV_Handshake_210601
Plan version: 1.0
Class: Cust

Persons in charge of the test

Customer: Niko Peltoniemi
Toptester: Kati Mansikkasalo-Jurvelin
Test ordered by: Niko Peltoniemi
Test order month: May 2021

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2. TEST REPORT HISTORY

Version	Date	Change description	Changes made by
1.0	17.6.2021	First version of the report is 1.0. If no changes are necessary, it will be also the final version.	Kati Mansikkasalo-Jurvelin

3. CONTENTS

1. TEST INFORMATION	1
2. TEST REPORT HISTORY	2
3. CONTENTS	2
4. TEST SUMMARY	3
5. INTRODUCTION	4
5.1. Background	4
5.2. Equipment under test.....	4
5.3. Goals of the test.....	5
6. TEST METHOD AND MEASUREMENT DESCRIPTION	6
6.1. Test Method.....	6
6.2. Acceptance Criteria	7
6.3. Analyses.....	7
6.4. Test Equipment, Reliability Control and Measurement.....	7
6.5. EUT functional Control and Measurement	7
7. TEST PROCESS	8
8. RESULTS AND CONCLUSIONS	12
9. QUALITY CONTROL	12

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4. TEST SUMMARY

Used standard or test method summary

The test was a to MIL-STD-810H, Method 507.6, Humidity, Procedure II (aggravated).

Description of equipment under test

Lumonite Compass (V7), Multifunctional High Power Headlamp

Test result summary

No physical damage was found from the EUT after test. EUT was functional during and after the test.
Test result is Pass.

Signatures

Test performed and reported by:



Date: 17.6.2021

Kati Mansikkasalo-Jurvelin

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EUT: Lumonite Compass (V7)

5. INTRODUCTION

5.1. Background

Test was ordered by Handshake Finland Oy as a part of testing program.

5.2. Equipment under test

- 1 pcs Lumonite Compass
 - Version: V7
 - Device ID: LC000008



Figure 1. EUT and headband

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Postal address: Ahjotie 23, FI-96300 Rovaniemi, Finland
Visiting and courier address: Teollisuustie 34, FI-96300 Rovaniemi, Finland
Tel. +358 (0)400 322 344 | E-mail: info@toptester.com | www.toptester.com
VAT No. FI17036376

Customer: Handshake Finland Oy
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5.3. Goals of the test

The goal of the test was to see if the EUT can withstand high humidity atmosphere and if the EUT pass or fail the acceptance criteria named in the test standard and test plan.

6. TEST METHOD AND MEASUREMENT DESCRIPTION

6.1. Test Method

The test was conducted according to MIL-STD-810H, Method 507.6, Humidity, Procedure II (aggravated).

- temperature was 30°C - 60°C
- humidity 95 % Rh
- a cycle was 24 hours
- total test time was 10 days

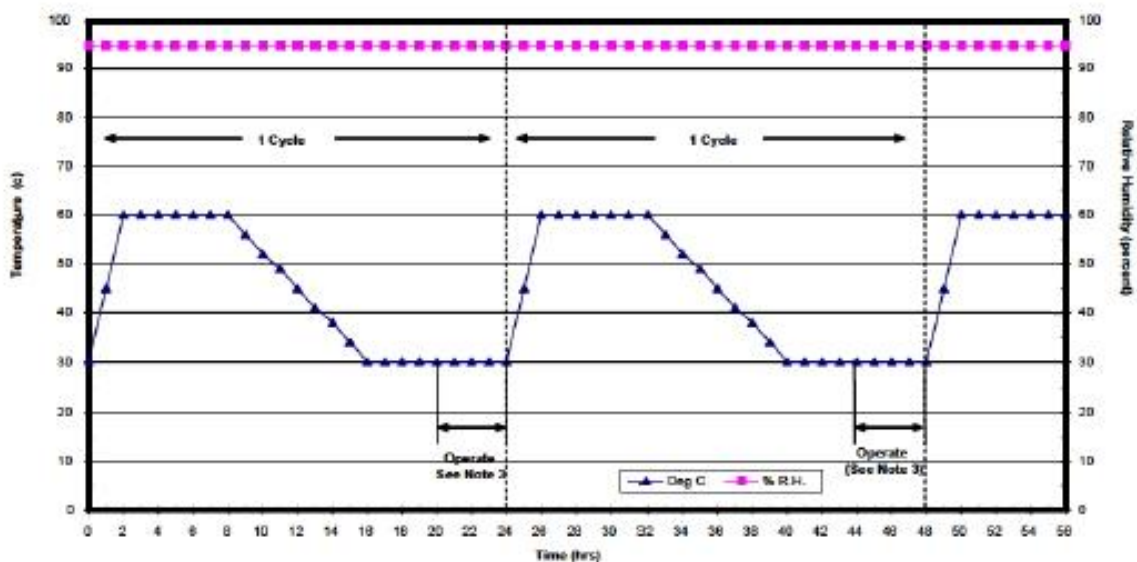


Figure 2. Multi-Cycle Shocks

Table 1. Aggravated cycle

Time	Temp.		RH Percent
	°C	°F	
0000	30	86	Constant at 95 percent
0200	60	140	
0800	60	140	
1600	30	86	
2400	30	86	
0200	60	140	
0800	60	140	
1600	30	86	
2400	30	86	

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6.2. Acceptance Criteria

EUT must be operational during and after the test. Physical damage was not acceptable.

6.3. Analyses

Before and after the test, visual check was made, and the electrical functionality of EUT was verified.

6.4. Test Equipment, Reliability Control and Measurement

The Weiss environmental chamber was controlled, and the temperature data was recorded by SIMPATI chamber control software, version 3.0.

Environmental chamber Weiss WK11/1300/60/10, sn. 59226020590010, calibration date is 17.8.2020, calibration valid until 16.2.2022. The environmental chamber calibration interval is 12-18 months.

Toptester laboratory conditions are measured with VAISALA Temp & Humidity Transmitter HMT337 sn. N2040942, calibration date is 19.8.2020, calibration valid until 18.2.2022 and VAISALA Digital Barometer PTB330 sn. N2040942, calibration date is 19.8.2020, calibration valid until 18.2.2022.

6.5. EUT functional Control and Measurement

EUT was functional during the test. Functionality was tested before and after test.

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7. TEST PROCESS

Before the test, operational inspection was performed.

Laboratory conditions:

- Temperature 21.7 °C
- Relative humidity 31.6 %
- Air pressure 101.61 kPa

EUT was placed into an environmental chamber and the humidity was raised up to 95 %Rh and temperature to +30 °C. Then the multi-cycle test was started according to Aggravated cycle. EUTs light was set to low power mode. After 10 cycles EUT was operational in test chamber.



Figure 3. EUT in environmental chamber.

EUT was functional after the test. No physical damages were found after test. Some variation in the gloss of the Compass's surface was detected.

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Figure 4. EUT after test. No physical damage was found after test.



Figure 5. Variation in the gloss from Compass's surface was found.

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Figure 6. The headband after test. No physical damage was found after test.

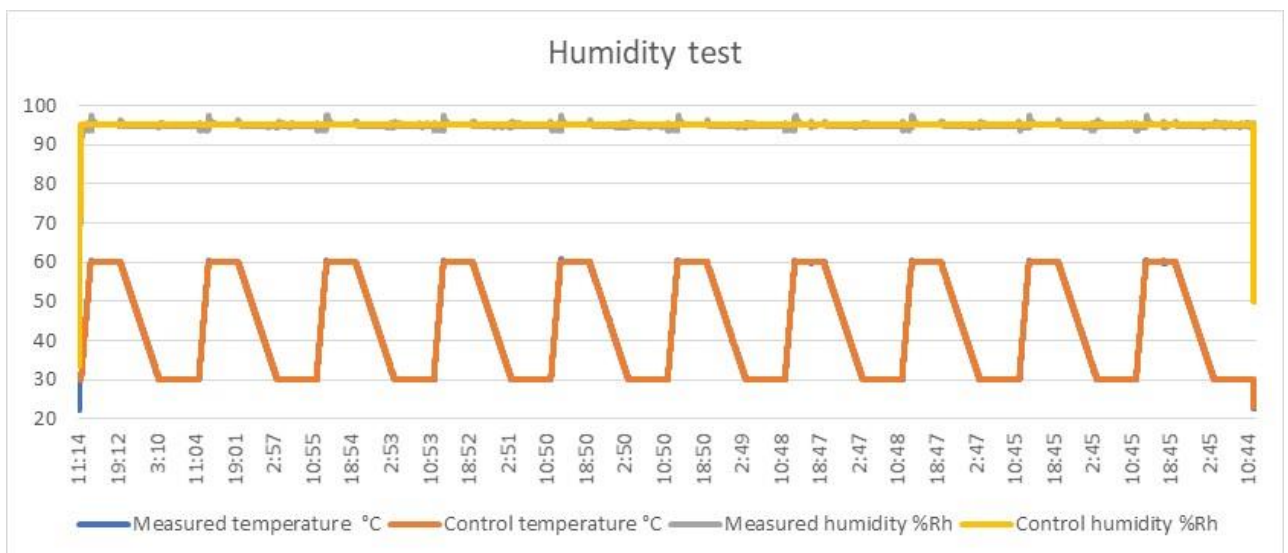


Figure 7. Humidity test curve

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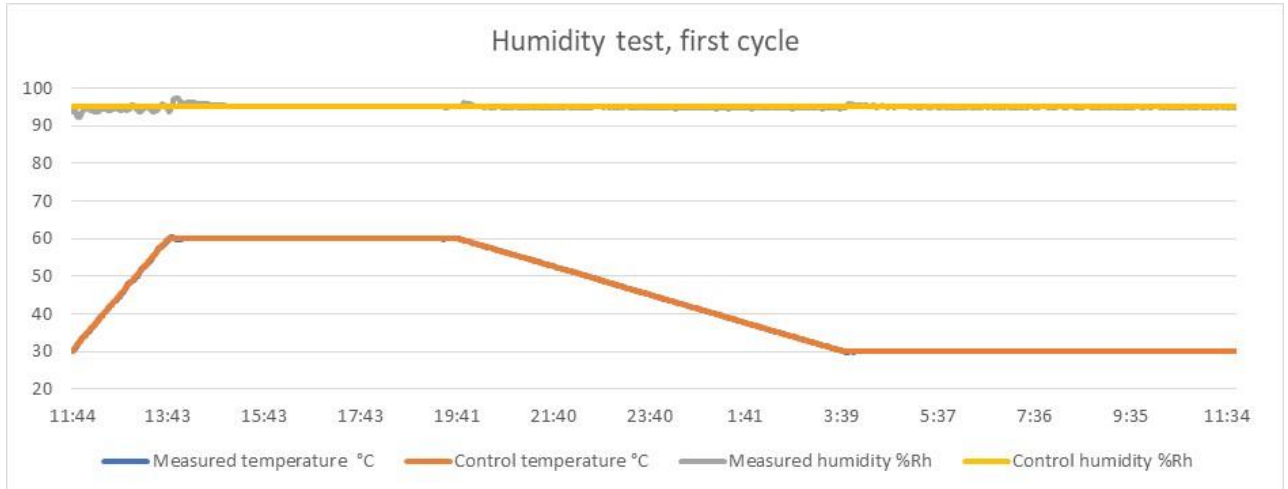


Figure 8. Humidity test first cycle

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8. RESULTS AND CONCLUSIONS

No physical damage was found from the EUT after test. EUT was functional during and after the test.

Test result is Pass.

9. QUALITY CONTROL



Toptester is an ISO 9001
certified organisation



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Postal address: Ahjotie 23, FI-96300 Rovaniemi, Finland
Visiting and courier address: Teollisuustie 34, FI-96300 Rovaniemi, Finland
Tel. +358 (0)400 322 344 | E-mail: info@toptester.com | www.toptester.com
VAT No. FI17036376