

INVENTRA S³

PEG03

Environmental Test Report

MIL-STD-810G High Temperature, Low Temperature and Humidity tests on the Lightweight Portable Goniometer, S/N 0091, battery configuration with handle.

REPORT IDENTIFICATION

Report No.	000-9410-18
Revision	A
Issue Date	31.08.2026
Job Number	ETR26-0403
EUT Arrival Date	20.07.2026
Test Period	03.08.2026 – 28.08.2026
Test Specification	MIL-STD-810G and customer test requirements

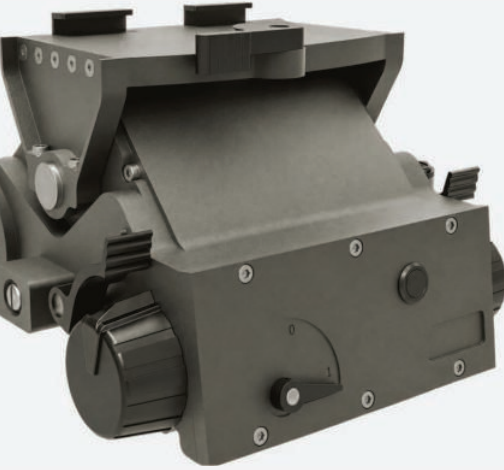
TEST PROGRAM SUMMARY

High Temperature – Operating Method 501.5, Procedure II · +55 °C · 03.08.2026	PASS
High Temperature – Storage Method 501.5, Procedure I · 32–65 °C, 7 cycles · 07.08.2026 – 14.08.2026	PASS
Low Temperature – Operating Method 502.5, Procedure II · –32 °C · 04.08.2026	PASS
Low Temperature – Storage Method 502.5, Procedure I · –40 °C, 24 h · 05.08.2026 – 06.08.2026	PASS
Humidity Method 507.5 · 30–60 °C / 95 % RH, 10 cycles · 17.08.2026 – 28.08.2026	PASS

Detailed results are given in Section 3 and summarized in Section 4.

CLIENT AND TEST FACILITY

Client	Inventra Mühendislik A.Ş.
Test Laboratory	Inventra Mühendislik A.Ş.
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Laboratory Contact	Arda Gerdan, Mechanical Design Engineer Team Lead
Test Personnel	Mehmet Görkem Bilgin, Test Engineer
Approved By	Arda Gerdan



STANDARD	MIL-STD-810G
TESTS	5
RESULT	PASS
SERIAL NO.	0091
REPORT NO.	000-9410-18
ISSUE DATE	31.08.2026

REVISION HISTORY		
REVISION	DESCRIPTION OF MODIFICATIONS	ISSUE DATE
A	Initial Release	31.08.2026

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Introduction

The environmental test program described herein was performed in accordance with the applicable requirements of MIL-STD-810G and the customer test requirements. The program comprised the High Temperature (operating and storage), Low Temperature (operating and storage) and Humidity tests performed on one unit of the Lightweight Portable Goniometer, M/N PEG03, S/N 0091.

All test data are included in Section 3 of this document. All tests were performed under laboratory conditions, using the test setups defined in the relevant standard. The same test setup was used for all tests; it is described in Paragraph 1.7 and shown in Figure 1.

Acronyms and Abbreviations

ABBREVIATION	DEFINITION	ABBREVIATION	DEFINITION
°C	Degrees Celsius	PC	Personal Computer
A	Ampere	RH	Relative Humidity
DC	Direct Current	RS-422	Balanced serial data interface standard
EUT	Equipment Under Test	S/N	Serial Number
h	Hour	SI	International System of Units
M/N	Model Number	TC	Thermocouple
MIL-STD	Military Standard	V	Volt

Equipment Under Test

IDENTIFICATION	
Description	Lightweight Portable Goniometer
Manufacturer	Inventra Mühendislik A.Ş.
Model Number	PEG03
Serial Number	0091
Configuration	Battery configuration with handle (battery removed during the environmental exposures – see Paragraph 1.4)
Software / Firmware Version	3109-0221

PHOTO 1



OPERATING TEST SETUP

01 Test Conditions and Equipment

1.1 Ambient Environmental Conditions

Unless otherwise specified herein, all tests were performed at site atmospheric pressure (86–106 kPa), a temperature of 24 ± 10 °C and a relative humidity of 50 ± 30 %.

1.2 Instrumentation and Equipment

The test chamber, sensors and measuring instruments used in this test program were calibrated within the calibration system of Inventra Mühendislik A.Ş. and were within their calibration validity period during the tests (see Paragraph 3.2). Calibration certificates are retained by the Inventra Mühendislik A.Ş. Quality Assurance Department and are available for inspection upon request by customer representatives.

1.3 Tolerances

All test conditions were maintained within the tolerances specified in MIL-STD-810G, Part One, paragraph 5.2: air temperature ± 2 °C, relative humidity ± 5 % RH, and time ± 5 min for test durations longer than 8 h (± 1 % for durations of 8 h or less). Chamber air temperature was measured with a calibrated sensor located in the free air stream and recorded continuously throughout each test. No test condition exceeded these tolerances during the test program.

In addition, the customer test requirements limit the rate of change of chamber temperature to a maximum of 3 °C/min on every ramp, both to the target condition and back to ambient. The rate achieved on each ramp is recorded on the data sheet of the test concerned.

Thermal stabilization of the EUT is considered to be reached when the EUT response temperature changes by less than 2 °C per hour. The soak durations required by the procedure are counted from this point, not from the moment the chamber air reaches the target value. The time at which EUT stabilization was reached is recorded on each data sheet.

1.4 Test Configuration of the EUT

In accordance with the test method agreed with the customer (Meeting Minutes TPT-000411, 18.02.2026, item 1), all environmental exposures were performed with the battery removed from the EUT for battery safety reasons; the EUT was not powered inside the test chamber. The battery was installed only for the functional tests, which were performed outside the chamber. For the operating tests, the EUT was removed from the chamber immediately after the required soak at the test temperature, the battery was installed and the functional test was performed without delay; this constitutes a customer-agreed tailoring of MIL-STD-810G Methods 501.5 and 502.5, Procedure II. After each exposure, the battery was installed and the post-test functional test was performed at ambient conditions. The test setup is shown in Figure 1 (Paragraph 1.7).

1.5 Functional Test Definition

Unless otherwise stated, the term “functional test” in this report refers to the following checks, agreed with the customer (Meeting Minutes TPT-000411, 18.02.2026, item 5):

- a) Opening (deployment) of the unit;
- b) Closing (stowage) of the unit;
- c) Locking of the azimuth and elevation axes;
- d) Fine (precision) adjustment of both axes;

- e) Electronic interface check over both RS-422 channels (Meeting Minutes TPT-000004, 24.01.2025, item 5);
- f) Communication check using the defined command set (AMS, AFS, ADQ, MIQ and SLP commands and their responses).

During each functional test the angle measurement function of the goniometer is also exercised, to demonstrate that the EUT performs angle measurement without any malfunction.

The functional test is performed with the battery installed: as a pre-test check at ambient conditions before the exposure; for the operating tests, immediately after the EUT is removed from the chamber at the end of the soak; and as a post-test check after the EUT has returned to ambient conditions. The EUT is not powered during the exposures. The results (Pass/Fail) are given in the Functional Test Results table of each test in Section 3.

1.6 Acceptance Criteria

The EUT is considered to have passed a test when all of the following are satisfied:

- every functional check listed in Paragraph 1.5 is completed successfully at each applicable point (pre-test; immediately after the soak for the operating tests; post-test), and the EUT performs angle measurement without any malfunction;
- no physical damage, deformation, corrosion or deterioration attributable to the exposure is found during the visual and physical examination.

Each functional check is recorded as Pass or Fail.

1.7 Test Setup

The same test setup was used for all tests (Figure 1). During the exposures the EUT, fitted with its carrying handles, was mounted on the TML10 tripod in the centre of the chamber, with the battery removed and not powered (panel A). The EUT response temperatures were measured with two thermocouples (TC1, TC2) routed through the cable access port to a 2-channel thermometer. The functional tests were performed outside the chamber with the battery installed, the EUT being connected to the test PC through the RS-422 interface (panel B).

FIGURE 1 · TEST SETUP COMMON TO ALL TESTS

PEG03 goniometer on TML10 tripod · schematic

A · EXPOSURE IN THE TEST CHAMBER

All tests · EUT not powered, battery removed · profile and duration per Section 3

Temperature & humidity

test chamber (door not shown)

Air circulation fan

conditioned air outlet

Calibrated air sensor

in the free air stream

Humidity sensor (humidity test)

TC1 – EUT response I

TC2 – EUT response II

EUT – PEG03 goniometer

battery removed, not powered

Carrying handles

TML10 tripod

Chamber controller

profile · ramp $\leq 3^\circ\text{C}/\text{min}$

Cable access port

2-channel thermocouple

thermometer (TC1 / TC2)

Temperature / humidity

meter

Battery – kept

outside the chamber

EUT taken out and battery installed

B · FUNCTIONAL TEST

Outside the chamber · battery installed

EUT – PEG03, battery installed

with carrying handles

Test PC + RS-422 interface

command set AMS, AFS, ADQ, MIQ and SLP

EUT connector

RS-422 channels 1 + 2

TML10 tripod

TEST SEQUENCE

01

Pre-test at 23 °C

Examination and functional

test, battery installed

(panel B)

02

Chamber loading

Battery removed; EUT placed

in the chamber, not powered

(panel A)

03

Exposure

Profile and duration as given

in Section 3; ramps $\leq 3^\circ\text{C}/\text{min}$

(panel A)

04

Operating tests only

Taken out after the soak,

battery installed, functional

test at once (panel B)

05

Post-test at 23 °C

Examination and functional

test, battery installed

(panel B)

Functional test – Paragraph 1.5

✓ Opening (deployment) and closing (stowage)

✓ Locking and fine adjustment of both axes

✓ RS-422 interface – both channels

✓ Command set AMS, AFS, ADQ, MIQ, SLP

✓ Angle measurement

Humidity test: seal integrity check before the functional test

02 References

2.1 Applicable Specifications

Reference Specification	MIL-STD-810G Environmental Engineering Considerations and Laboratory Tests
Customer Test Requirements	Environmental test requirements for the Lightweight Portable Goniometer
Meeting Minutes	TPT-000411, 18.02.2026 – Prototype Test and Configuration Review (test method and functional test scope) TPT-000004, 24.01.2025 – Goniometer Localisation Study (electronic interface definition)

03

Test Logs, Test Equipment, Test Data and Test Photographs

3.1 Test Log

EUT	Lightweight Portable Goniometer	Job Number	ETR26-0403
Client	Inventra Mühendislik A.Ş.	Model Number	PEG03
Date	31.08.2026	Serial Number	0091
Test Engineer	Mehmet Görkem Bilgin	Test	All tests
Test Specification	MIL-STD-810G	Para./Sec.	See data sheets

DATE	TIME	UNITS	DESCRIPTION	PARA.
20.07.2026	–	1	EUT received at the test laboratory. Preliminary functional evaluation and visual and physical examination performed at ambient conditions; no damage or anomaly found.	–
03.08.2026	07:00–17:25	1	High Temperature Operating test , MIL-STD-810G Method 501.5 Procedure II, +55 °C. EUT thermal stabilization reached at 11:20. After the soak the EUT was removed from the chamber, the battery was installed and the functional test was performed immediately; the EUT performed angle measurement without any malfunction. Post-test examination and functional test completed at ambient conditions.	3.3.1
04.08.2026	07:00–15:40	1	Low Temperature Operating test , MIL-STD-810G Method 502.5 Procedure II, –32 °C. EUT thermal stabilization reached at 11:35. After the soak the EUT was removed from the chamber, the battery was installed and the functional test was performed immediately; the EUT performed angle measurement without any malfunction. Post-test examination and functional test completed at ambient conditions.	3.4.1
05.08.2026 – 06.08.2026	07:00–13:45	1	Low Temperature Storage test , MIL-STD-810G Method 502.5 Procedure I, –40 °C. EUT thermal stabilization reached on 05.08.2026 at 11:45, followed by a 24 h non-operating exposure. Post-test examination and functional test completed at ambient conditions.	3.4.2
07.08.2026 – 14.08.2026	08:00–13:30	1	High Temperature Storage test , MIL-STD-810G Method 501.5 Procedure I. EUT thermal stabilization reached on 07.08.2026 at 11:35; 24 h diurnal storage profile (32–65 °C) applied for 7 consecutive cycles, 168 h in total. Post-test examination and functional test completed at ambient conditions.	3.3.2
17.08.2026 – 28.08.2026	09:00–09:00	1	Humidity test , MIL-STD-810G Method 507.5. 24 h conditioning at 23 °C / 50 % RH (17.08.2026 09:00 – 18.08.2026 09:00), followed by 10 cycles of the 24 h profile at 30–60 °C / 95 % RH. Post-test seal integrity check, examination and functional test completed at ambient conditions.	3.5.1
Test program record: the tests were performed in the sequence given above; during all exposures the battery was removed and the EUT was not powered. No interruption, chamber malfunction, out-of-tolerance condition, repeated cycle or test anomaly was recorded during the test program. A functional test and a visual and physical examination were performed before and after every exposure; no damage, deformation, corrosion or deterioration attributable to the exposures was observed. Detailed step records for each test are given in the paragraphs referenced above.				

3.2 Calibration of Test Equipment

The calibration system is part of the quality management system of Inventra Mühendislik A.Ş. The calibration of the test equipment documents the traceability to national measurement standards which realize the units of measurement according to the International System of Units (SI).

All test and measuring equipment used in this test program was calibrated within this system and was within its calibration validity period at the time of the tests.

3.3 High Temperature Test

3.3.1 High Temperature Operating Test Data

TEST DESCRIPTION

The EUT, Lightweight Portable Goniometer M/N PEG03 S/N 0091, was subjected to the High Temperature Operating test in accordance with MIL-STD-810G Method 501.5 Procedure II and the customer test requirements. The purpose of the test is to demonstrate that the EUT, conditioned at +55 °C, performs all of its functional operations, including angle measurement, and that the exposure causes no damage or permanent degradation.

Before the exposure, the visual and physical examination and the functional test defined in Paragraph 1.5 were performed at ambient conditions with the battery installed; the EUT performed angle measurement without any malfunction at 23 °C. The battery was then removed and the unpowered EUT was placed in the chamber, in accordance with Meeting Minutes TPT-000411 (18.02.2026, item 1). The exposure started on 03.08.2026 at 07:00; the chamber was ramped to +55 °C at 2.8 °C/min and EUT thermal stabilization was reached at 11:20. The EUT was then held at +55 °C for a further 4 h (2 h + 2 h), unpowered. At the end of the soak the EUT was removed from the chamber, the battery was installed and the functional test was performed immediately; the EUT performed angle measurement without any malfunction. The chamber was returned to 23 °C at 2.9 °C/min, and the post-test examination and functional test were performed at ambient conditions. The test setup is shown in Figure 1.

NO.	TEST STEP	STATUS
1	Pre-test visual and physical examination of the EUT performed and recorded.	OK
2	Battery installed; EUT switched on and readiness for the test confirmed; the EUT performed angle measurement without any malfunction at 23 °C; EUT switched off and battery removed.	OK
3	EUT placed in the test chamber, unpowered (battery removed).	OK
4	Chamber ramped to +55 °C at 2.8 °C/min (required limit: max. 3 °C/min).	OK
5	Held 4 h at +55 °C for thermal stabilization; EUT stabilization reached on 03.08.2026 at 11:20.	OK
6	EUT held a further 4 h (2 h + 2 h) at +55 °C, unpowered.	OK
7	EUT removed from the chamber; battery installed and functional test per Paragraph 1.5 performed immediately; the EUT performed angle measurement without any malfunction; EUT switched off.	OK
8	Chamber returned to ambient conditions (23 °C) at 2.9 °C/min; thermal stabilization awaited.	OK
9	Post-test visual and physical examination and functional test performed at ambient conditions, battery installed.	OK

HIGH TEMPERATURE (OPERATING) · FUNCTIONAL TEST RESULTS			
FUNCTIONAL CHECK	PRE-TEST (23 °C)	AT +55 °C ¹	POST-TEST (23 °C)
a) Opening (deployment) of the unit	Pass	Pass	Pass
b) Closing (stowage) of the unit	Pass	Pass	Pass
c) Locking of the azimuth and elevation axes	Pass	Pass	Pass
d) Fine (precision) adjustment of both axes	Pass	Pass	Pass
e) Electronic interface check – both RS-422 channels	Pass	Pass	Pass
f) Command set communication (AMS, AFS, ADQ, MIQ, SLP)	Pass	Pass	Pass
Angle measurement (Paragraph 1.5)	Pass	Pass	Pass

¹ Performed immediately after removal of the EUT from the chamber, with the battery installed (Paragraph 1.4).

HIGH TEMPERATURE (OPERATING) · TEST PHOTOGRAPHS



PHOTO 2 · OPERATING TEST SETUP

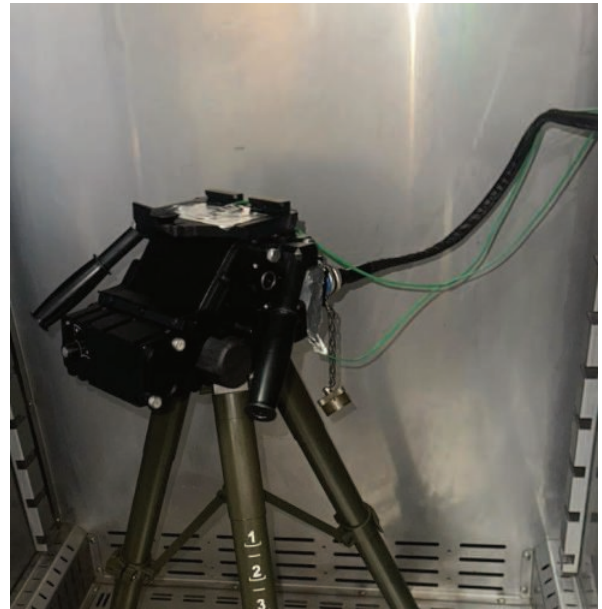


PHOTO 3 · RESPONSE LOCATION



PHOTO 4 · POST-TEST (PRE-FUNCTIONAL CHECK)

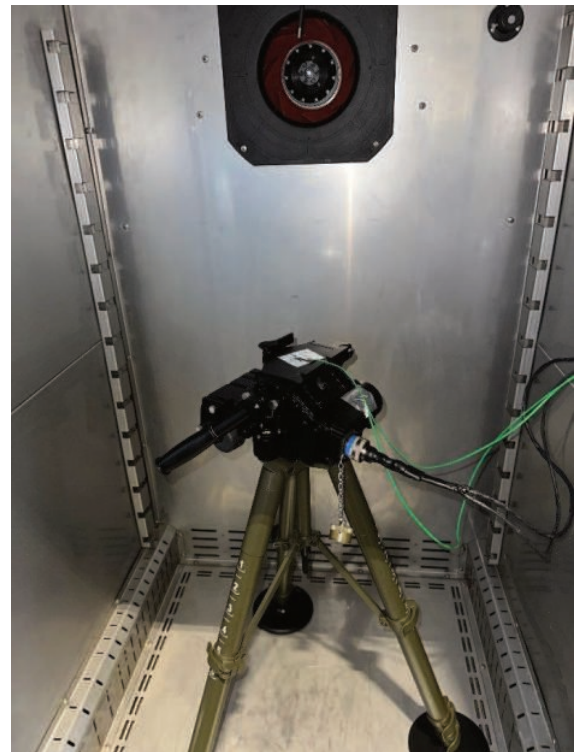


PHOTO 5 · POST-OPERATING FUNCTIONAL VERIFICATION

HIGH TEMPERATURE (OPERATING) · DATA SHEET		MIL-STD-810G Method 501.5, Procedure II	
EUT	Lightweight Portable Goniometer	Job Number	ETR26-0403
M/N	PEG03	S/N	0091
Client	Inventra Mühendislik A.Ş.	Date	03.08.2026
Test Engineer	Mehmet Görkem Bilgin	Para./Sec.	501.5, Procedure II
Test Specification	MIL-STD-810G / Customer test requirements		
TEST PROFILE		Graph 1 · High Temperature (Operating) Test Profile – Chamber and EUT Response	
MIL-STD-810G, Method 501.5, Procedure II High Temperature (Operating) Testing — PEG03 S/N 0091 Functional test & angle measurement — Tolerance ±2 °C - - - Setpoint — Chamber Air — EUT Response I — EUT Response II			
ENVIRONMENTAL PROFILE INFORMATION			
Test Cycle Begins At	03.08.2026 07:00	Test Cycle Ends At	03.08.2026 17:25
Total Number of Cycles	1	Target Temperature	+55 °C
Cycle Duration	4 h stabilization soak + 4 h (2 h + 2 h) additional soak at +55 °C, EUT unpowered (battery removed); functional test immediately after removal from the chamber		
Ramp Rate to Target	2.8 °C/min (required limit: max. 3 °C/min)		
Ramp Rate to Ambient	2.9 °C/min (required limit: max. 3 °C/min)		
EUT Stabilization Criterion	EUT response temperature changing by less than 2 °C per hour		
EUT Stabilization Reached At	03.08.2026 11:20 (EUT response < 2 °C/h)		
Pre-Test Visual & Physical Examination	Pass – no damage, deformation, corrosion or loose fastener found		
Pre-Test Operational Readiness Check	Pass – battery installed, EUT switched on, all axes and communication confirmed ready, EUT switched off and battery removed		
EUT TEST INFORMATION			
Operating During Exposure	No	Powered During Exposure	No – battery removed
Functional Tests	Pre-test at 23 °C; at +55 °C immediately after removal from the chamber following the 4 h stabilization + 4 h soak; post-test at 23 °C – battery installed for each check		
Supply for Functional Tests	24 V DC (battery), current limit 15 A	Physical Damage Noted	No
Engineer/Technician	Mehmet Görkem Bilgin	Approved By	Arda Gerdan

3.3.2 High Temperature Storage Test Data

TEST DESCRIPTION

The EUT was subjected to the High Temperature Storage test in accordance with MIL-STD-810G Method 501.5 Procedure I and the customer test requirements. The purpose of the test is to demonstrate that storage at high temperature causes no damage, deformation or degradation of performance of the EUT. The EUT was not operated and not powered during the exposure (battery removed).

The exposure started on 07.08.2026 at 08:00. The chamber was ramped to 35 °C at 2.8 °C/min, and the 24 h diurnal storage profile (32–65 °C) required by the customer test requirements was then applied for seven consecutive cycles, 168 h in total, from 07.08.2026 11:35 to 14.08.2026 11:35. The chamber was returned to 23 °C at 2.9 °C/min and, after thermal stabilization, the battery was installed and the post-test visual and physical examination and the functional test were performed at ambient conditions. The test setup is shown in Figure 1.

NO.	TEST STEP	STATUS
1	Pre-test visual and physical examination of the EUT performed and recorded.	OK
2	Battery installed; EUT switched on and readiness for the test confirmed; the EUT performed angle measurement without any malfunction at 23 °C; EUT switched off and battery removed.	OK
3	EUT placed in the test chamber in the non-operating condition (battery removed).	OK
4	Chamber ramped to 35 °C at 2.8 °C/min (required limit: max. 3 °C/min).	OK
5	24 h diurnal storage profile (32–65 °C) applied for 7 cycles, 168 h in total.	OK
6	Chamber returned to ambient conditions (23 °C) at 2.9 °C/min; thermal stabilization awaited.	OK
7	Battery installed; post-test visual and physical examination and functional test performed at ambient conditions; the EUT performed angle measurement without any malfunction.	OK

HIGH TEMPERATURE (STORAGE) · FUNCTIONAL TEST RESULTS		
FUNCTIONAL CHECK	PRE-TEST (23 °C)	POST-TEST (23 °C)
a) Opening (deployment) of the unit	Pass	Pass
b) Closing (stowage) of the unit	Pass	Pass
c) Locking of the azimuth and elevation axes	Pass	Pass
d) Fine (precision) adjustment of both axes	Pass	Pass
e) Electronic interface check – both RS-422 channels	Pass	Pass
f) Command set communication (AMS, AFS, ADQ, MIQ, SLP)	Pass	Pass
Angle measurement (Paragraph 1.5)	Pass	Pass

HIGH TEMPERATURE (STORAGE) · TEST PHOTOGRAPHS



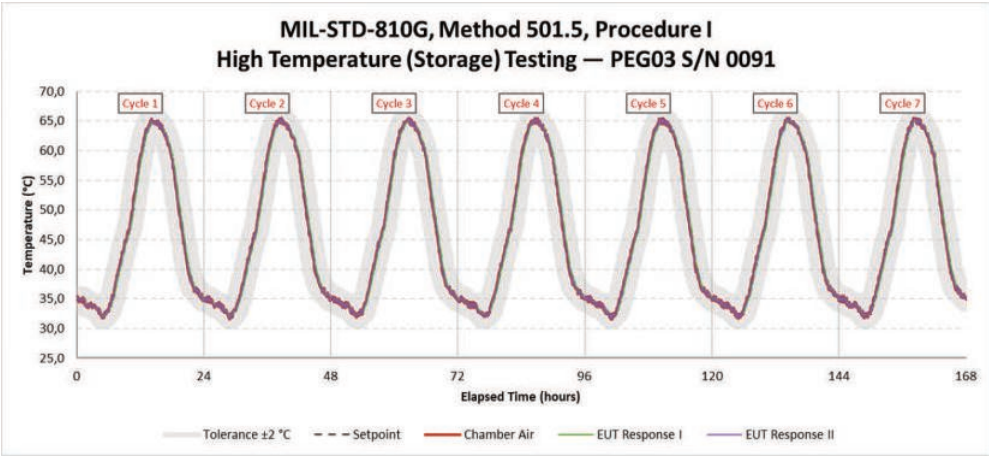
PHOTO 6 · STORAGE TEST SETUP



PHOTO 7 · RESPONSE LOCATION



PHOTO 8 · POST-STORAGE FUNCTIONAL VERIFICATION

HIGH TEMPERATURE (STORAGE) · DATA SHEET		MIL-STD-810G Method 501.5, Procedure I	
EUT	Lightweight Portable Goniometer	Job Number	ETR26-0403
M/N	PEG03	S/N	0091
Client	Inventra Mühendislik A.Ş.	Date	07.08.2026 – 14.08.2026
Test Engineer	Mehmet Görkem Bilgin	Para./Sec.	501.5, Procedure I
Test Specification	MIL-STD-810G / Customer test requirements		
TEST PROFILE		Graph 2 · High Temperature (Storage) Test Profile – Chamber and EUT Response	
MIL-STD-810G, Method 501.5, Procedure I High Temperature (Storage) Testing — PEG03 S/N 0091  Temperature (°C) Elapsed Time (hours) — Tolerance ±2 °C - - - Setpoint — Chamber Air — EUT Response I — EUT Response II			
ENVIRONMENTAL PROFILE INFORMATION			
Test Cycle Begins At	07.08.2026 08:00	Test Cycle Ends At	14.08.2026 13:30
Total Number of Cycles	7		
Target Condition	32–65 °C, 24 h diurnal storage cycle		
Cycle Duration	24 h per cycle, 7 cycles (168 h total), 32–65 °C diurnal storage profile per the customer test requirements		
Ramp Rate to Target	2.8 °C/min (required limit: max. 3 °C/min)		
Ramp Rate to Ambient	2.9 °C/min (required limit: max. 3 °C/min)		
EUT Stabilization Criterion	EUT response temperature changing by less than 2 °C per hour		
EUT Stabilization Reached At	07.08.2026 11:35 (EUT response < 2 °C/h)		
Pre-Test Visual & Physical Examination	Pass – no damage, deformation, corrosion or loose fastener found		
Pre-Test Operational Readiness Check	Pass – battery installed, EUT switched on, all axes and communication confirmed ready, EUT switched off and battery removed		
EUT TEST INFORMATION			
Operating During Exposure	No	Powered During Exposure	No – battery removed
Functional Tests	Pre-test at 23 °C and post-test after return to 23 °C, with the battery installed for each check		
Supply for Functional Tests	24 V DC (battery), current limit 15 A	Physical Damage Noted	No
Engineer/Technician	Mehmet Görkem Bilgin	Approved By	Arda Gerdan

3.4 Low Temperature Test

3.4.1 Low Temperature Operating Test Data

TEST DESCRIPTION

The EUT was subjected to the Low Temperature Operating test in accordance with MIL-STD-810G Method 502.5 Procedure II and the customer test requirements. The purpose of the test is to demonstrate that the EUT, conditioned at $-32\text{ }^{\circ}\text{C}$, performs all of its functional operations, including angle measurement.

The exposure started on 04.08.2026 at 07:00 with the battery removed and the EUT unpowered. The chamber was ramped to $-32\text{ }^{\circ}\text{C}$ at $2.8\text{ }^{\circ}\text{C}/\text{min}$ and EUT thermal stabilization was reached at 11:35. After a further 2 h soak, the EUT was removed from the chamber, the battery was installed and the functional test defined in Paragraph 1.5 was performed immediately; the EUT performed angle measurement without any malfunction. The chamber was returned to $23\text{ }^{\circ}\text{C}$ at $2.9\text{ }^{\circ}\text{C}/\text{min}$, and the post-test examination and functional test were performed at ambient conditions at 15:40. The test setup is shown in Figure 1.

NO.	TEST STEP	STATUS
1	Pre-test visual and physical examination of the EUT performed and recorded.	OK
2	Battery installed; EUT switched on and readiness for the test confirmed; the EUT performed angle measurement without any malfunction at $23\text{ }^{\circ}\text{C}$; EUT switched off and battery removed.	OK
3	EUT placed in the test chamber, unpowered (battery removed).	OK
4	Chamber ramped to $-32\text{ }^{\circ}\text{C}$ at $2.8\text{ }^{\circ}\text{C}/\text{min}$ (required limit: max. $3\text{ }^{\circ}\text{C}/\text{min}$).	OK
5	Held 4 h at $-32\text{ }^{\circ}\text{C}$ for thermal stabilization; EUT stabilization reached on 04.08.2026 at 11:35.	OK
6	EUT held a further 2 h at $-32\text{ }^{\circ}\text{C}$, unpowered.	OK
7	EUT removed from the chamber; battery installed and EUT switched on.	OK
8	Functional test per Paragraph 1.5 performed immediately; the EUT performed angle measurement without any malfunction; EUT switched off.	OK
9	Chamber returned to ambient conditions ($23\text{ }^{\circ}\text{C}$) at $2.9\text{ }^{\circ}\text{C}/\text{min}$; thermal stabilization awaited.	OK
10	Post-test visual and physical examination and functional test performed at ambient conditions, battery installed.	OK

LOW TEMPERATURE (OPERATING) · FUNCTIONAL TEST RESULTS			
FUNCTIONAL CHECK	PRE-TEST ($23\text{ }^{\circ}\text{C}$)	AT $-32\text{ }^{\circ}\text{C}$ ¹	POST-TEST ($23\text{ }^{\circ}\text{C}$)
a) Opening (deployment) of the unit	Pass	Pass	Pass
b) Closing (stowage) of the unit	Pass	Pass	Pass
c) Locking of the azimuth and elevation axes	Pass	Pass	Pass
d) Fine (precision) adjustment of both axes	Pass	Pass	Pass
e) Electronic interface check – both RS-422 channels	Pass	Pass	Pass
f) Command set communication (AMS, AFS, ADQ, MIQ, SLP)	Pass	Pass	Pass
Angle measurement (Paragraph 1.5)	Pass	Pass	Pass

¹ Performed immediately after removal of the EUT from the chamber, with the battery installed (Paragraph 1.4).

LOW TEMPERATURE (OPERATING) · TEST PHOTOGRAPHS



PHOTO 9 · OPERATING TEST SETUP



PHOTO 10 · RESPONSE LOCATION



PHOTO 11 · POST-TEST FUNCTIONAL VERIFICATION

LOW TEMPERATURE (OPERATING) · DATA SHEET		MIL-STD-810G Method 502.5, Procedure II	
EUT	Lightweight Portable Goniometer	Job Number	ETR26-0403
M/N	PEG03	S/N	0091
Client	Inventra Mühendislik A.Ş.	Date	04.08.2026
Test Engineer	Mehmet Görkem Bilgin	Para./Sec.	502.5, Procedure II
Test Specification	MIL-STD-810G / Customer test requirements		
TEST PROFILE		Graph 3 · Low Temperature (Operating) Test Profile – Chamber and EUT Response	
MIL-STD-810G, Method 502.5, Procedure II Low Temperature (Operating) Testing — PEG03 S/N 0091 — Tolerance $\pm 2^{\circ}\text{C}$ - - - Setpoint — Chamber Air — EUT Response I — EUT Response II			
ENVIRONMENTAL PROFILE INFORMATION			
Test Cycle Begins At	04.08.2026 07:00	Test Cycle Ends At	04.08.2026 15:40
Total Number of Cycles	1	Target Temperature	-32 °C
Cycle Duration	4 h stabilization soak + 2 h additional soak at -32 °C, EUT unpowered (battery removed); EUT then removed from the chamber and functionally tested immediately		
Ramp Rate to Target	2.8 °C/min (required limit: max. 3 °C/min)		
Ramp Rate to Ambient	2.9 °C/min (required limit: max. 3 °C/min)		
EUT Stabilization Criterion	EUT response temperature changing by less than 2 °C per hour		
EUT Stabilization Reached At	04.08.2026 11:35 (EUT response < 2 °C/h)		
Pre-Test Visual & Physical Examination	Pass – no damage, deformation, corrosion or loose fastener found		
Pre-Test Operational Readiness Check	Pass – battery installed, EUT switched on, all axes and communication confirmed ready, EUT switched off and battery removed		
EUT TEST INFORMATION			
Operating During Exposure	No	Powered During Exposure	No – battery removed
Functional Tests	Pre-test at 23 °C; at -32 °C immediately after removal from the chamber following the 4 h stabilization + 2 h soak; post-test at 23 °C – battery installed for each check		
Supply for Functional Tests	24 V DC (battery), current limit 15 A	Physical Damage Noted	No
Engineer/Technician	Mehmet Görkem Bilgin	Approved By	Arda Gerdan

3.4.2 Low Temperature Storage Test Data

TEST DESCRIPTION

The EUT was subjected to the Low Temperature Storage test in accordance with MIL-STD-810G Method 502.5 Procedure I and the customer test requirements. The purpose of the test is to demonstrate that storage at low temperature causes no damage or degradation of performance of the EUT. The EUT was not operated and not powered during the exposure (battery removed).

The exposure started on 05.08.2026 at 07:00. The chamber was ramped to $-40\text{ }^{\circ}\text{C}$ at $2.8\text{ }^{\circ}\text{C/min}$, EUT thermal stabilization was reached at 11:45, and the EUT was then held at $-40\text{ }^{\circ}\text{C}$ for 24 h. The chamber was returned to $23\text{ }^{\circ}\text{C}$ at $2.9\text{ }^{\circ}\text{C/min}$ and, after thermal stabilization, the battery was installed and the post-test visual and physical examination and the functional test were performed at ambient conditions on 06.08.2026 at 13:45. The test setup is shown in Figure 1.

NO.	TEST STEP	STATUS
1	Pre-test visual and physical examination of the EUT performed and recorded.	OK
2	Battery installed; EUT switched on and readiness for the test confirmed; the EUT performed angle measurement without any malfunction at $23\text{ }^{\circ}\text{C}$; EUT switched off and battery removed.	OK
3	EUT placed in the test chamber in the non-operating condition (battery removed).	OK
4	Chamber ramped to $-40\text{ }^{\circ}\text{C}$ at $2.8\text{ }^{\circ}\text{C/min}$ (required limit: max. $3\text{ }^{\circ}\text{C/min}$).	OK
5	Held 4 h at $-40\text{ }^{\circ}\text{C}$ for thermal stabilization; EUT stabilization reached on 05.08.2026 at 11:45.	OK
6	EUT exposed to $-40\text{ }^{\circ}\text{C}$ for 24 h after stabilization.	OK
7	Chamber returned to ambient conditions ($23\text{ }^{\circ}\text{C}$) at $2.9\text{ }^{\circ}\text{C/min}$; thermal stabilization awaited.	OK
8	Battery installed; post-test visual and physical examination and functional test performed at ambient conditions; the EUT performed angle measurement without any malfunction.	OK

LOW TEMPERATURE (STORAGE) · FUNCTIONAL TEST RESULTS		
FUNCTIONAL CHECK	PRE-TEST ($23\text{ }^{\circ}\text{C}$)	POST-TEST ($23\text{ }^{\circ}\text{C}$)
a) Opening (deployment) of the unit	Pass	Pass
b) Closing (stowage) of the unit	Pass	Pass
c) Locking of the azimuth and elevation axes	Pass	Pass
d) Fine (precision) adjustment of both axes	Pass	Pass
e) Electronic interface check – both RS-422 channels	Pass	Pass
f) Command set communication (AMS, AFS, ADQ, MIQ, SLP)	Pass	Pass
Angle measurement (Paragraph 1.5)	Pass	Pass

LOW TEMPERATURE (STORAGE) · TEST PHOTOGRAPHS



PHOTO 12 · STORAGE TEST SETUP



PHOTO 13 · RESPONSE LOCATION



PHOTO 14 · POST-STORAGE FUNCTIONAL VERIFICATION

LOW TEMPERATURE (STORAGE) · DATA SHEET		MIL-STD-810G Method 502.5, Procedure I	
EUT	Lightweight Portable Goniometer	Job Number	ETR26-0403
M/N	PEG03	S/N	0091
Client	Inventra Mühendislik A.Ş.	Date	05.08.2026 – 06.08.2026
Test Engineer	Mehmet Görkem Bilgin	Para./Sec.	502.5, Procedure I
Test Specification	MIL-STD-810G / Customer test requirements		
TEST PROFILE		Graph 4 · Low Temperature (Storage) Test Profile – Chamber and EUT Response	
MIL-STD-810G, Method 502.5, Procedure I Low Temperature (Storage) Testing — PEG03 S/N 0091 — Tolerance $\pm 2^{\circ}\text{C}$ - - - Setpoint — Chamber Air — EUT Response I — EUT Response II			
ENVIRONMENTAL PROFILE INFORMATION			
Test Cycle Begins At	05.08.2026 07:00	Test Cycle Ends At	06.08.2026 13:45
Total Number of Cycles	1	Target Temperature	-40 °C
Cycle Duration	4 h stabilization soak + 24 h continuous exposure at -40 °C		
Ramp Rate to Target	2.8 °C/min (required limit: max. 3 °C/min)		
Ramp Rate to Ambient	2.9 °C/min (required limit: max. 3 °C/min)		
EUT Stabilization Criterion	EUT response temperature changing by less than 2 °C per hour		
EUT Stabilization Reached At	05.08.2026 11:45 (EUT response < 2 °C/h)		
Pre-Test Visual & Physical Examination	Pass – no damage, deformation, corrosion or loose fastener found		
Pre-Test Operational Readiness Check	Pass – battery installed, EUT switched on, all axes and communication confirmed ready, EUT switched off and battery removed		
EUT TEST INFORMATION			
Operating During Exposure	No	Powered During Exposure	No – battery removed
Functional Tests	Pre-test at 23 °C and post-test after return to 23 °C, with the battery installed for each check		
Supply for Functional Tests	24 V DC (battery), current limit 15 A	Physical Damage Noted	No
Engineer/Technician	Mehmet Görkem Bilgin	Approved By	Arda Gerdan

3.5 Humidity Test

3.5.1 Humidity Test Data

TEST DESCRIPTION

The EUT was subjected to the Humidity test in accordance with MIL-STD-810G Method 507.5 and the customer test requirements. The purpose of the test is to demonstrate that exposure to a warm, humid atmosphere causes no corrosion, moisture ingress or degradation of performance of the EUT.

As required by the customer test requirements, the exposure was preceded by 24 h of conditioning at 23 °C and 50 % RH, from 17.08.2026 09:00 to 18.08.2026 09:00. Ten 24 h cycles of the 30–60 °C / 95 % RH profile were then applied, ending on 28.08.2026 at 09:00. The EUT was not operated and not powered during the exposure (battery removed). After return to ambient conditions, the post-test visual and physical examination and the seal integrity check required by the customer finding were performed; the battery was then installed and the functional test was performed. The test setup is shown in Figure 1.

NO.	TEST STEP	STATUS
1	Pre-test visual and physical examination of the EUT performed and recorded.	OK
2	Battery installed; EUT switched on and readiness for the test confirmed; the EUT performed angle measurement without any malfunction at 23 °C; EUT switched off and battery removed.	OK
3	EUT placed in the test chamber in the non-operating condition (battery removed).	OK
4	Chamber conditioned to 23 °C / 50 % RH and the EUT held for 24 h (17.08.2026 09:00 – 18.08.2026 09:00).	OK
5	24 h humidity cycle (30–60 °C at 95 % RH) applied for 10 cycles.	OK
6	Chamber returned to ambient conditions (23 °C); thermal stabilization awaited.	OK
7	Seal integrity check performed: battery compartment and side covers opened and inspected for moisture ingress.	OK
8	Post-test visual and physical examination performed; battery installed and functional test performed at ambient conditions; the EUT performed angle measurement without any malfunction.	OK

HUMIDITY · FUNCTIONAL TEST RESULTS		
FUNCTIONAL CHECK	PRE-TEST (23 °C)	POST-TEST (23 °C)
a) Opening (deployment) of the unit	Pass	Pass
b) Closing (stowage) of the unit	Pass	Pass
c) Locking of the azimuth and elevation axes	Pass	Pass
d) Fine (precision) adjustment of both axes	Pass	Pass
e) Electronic interface check – both RS-422 channels	Pass	Pass
f) Command set communication (AMS, AFS, ADQ, MIQ, SLP)	Pass	Pass
Angle measurement (Paragraph 1.5)	Pass	Pass

HUMIDITY · TEST PHOTOGRAPHS



PHOTO 15 · TEST SETUP

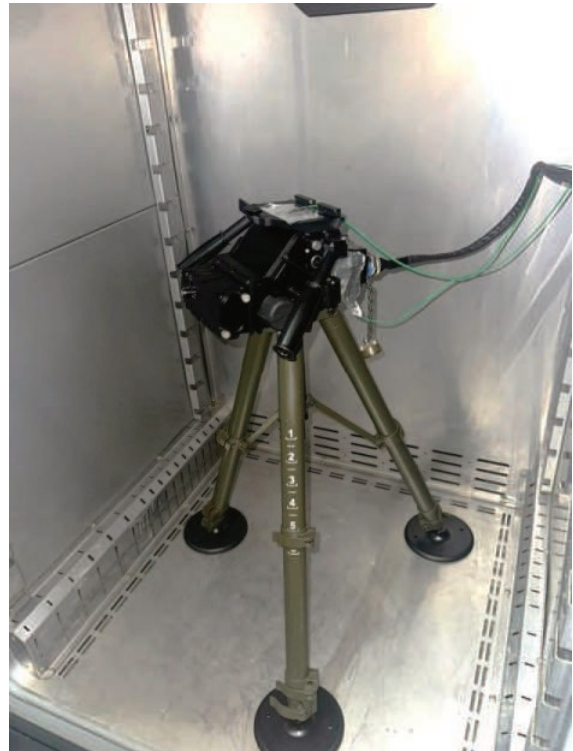


PHOTO 16 · POST-TEST



PHOTO 17 · POST-TEST FUNCTIONAL VERIFICATION

HUMIDITY · DATA SHEET		MIL-STD-810G Method 507.5	
EUT	Lightweight Portable Goniometer	Job Number	ETR26-0403
M/N	PEG03	S/N	0091
Client	Inventra Mühendislik A.Ş.	Date	17.08.2026 – 28.08.2026
Test Engineer	Mehmet Görkem Bilgin	Para./Sec.	507.5
Test Specification	MIL-STD-810G / Customer test requirements		
TEST PROFILE		Graph 5 · Humidity Test Profile – Chamber Temperature and Relative Humidity	
MIL-STD-810G, Method 507.5 Humidity Testing — PEG03 S/N 0091			
ENVIRONMENTAL PROFILE INFORMATION			
Test Cycle Begins At	17.08.2026 09:00	Test Cycle Ends At	28.08.2026 09:00
Total Number of Cycles	24 h conditioning + 10 cycles	Target Condition	30–60 °C at 95 % RH, 24 h cycle
Cycle Duration	24 h per cycle, 30–60 °C at 95 % RH, preceded by 24 h conditioning at 23 °C / 50 % RH		
Ramp Rate to Target	2.8 °C/min (required limit: max. 3 °C/min)		
Ramp Rate to Ambient	2.9 °C/min (required limit: max. 3 °C/min)		
EUT Stabilization Criterion	EUT response temperature changing by less than 2 °C per hour		
EUT Stabilization Reached At	18.08.2026 08:30 (EUT response < 2 °C/h)		
Pre-Test Visual & Physical Examination	Pass – no damage, deformation, corrosion or loose fastener found		
Pre-Test Operational Readiness Check	Pass – battery installed, EUT switched on, all axes and communication confirmed ready, EUT switched off and battery removed		
Initial Conditioning	17.08.2026 09:00 – 18.08.2026 09:00 (23 °C / 50 % RH)		
Post-Test Seal Integrity Check	Pass – battery compartment and both side covers opened and inspected; no moisture ingress or condensation found inside the housing		
EUT TEST INFORMATION			
Operating During Exposure	No	Powered During Exposure	No – battery removed
Functional Tests	Pre-test at 23 °C and post-test after return to 23 °C, with the battery installed for each check		
Supply for Functional Tests	24 V DC (battery), current limit 15 A	Physical Damage Noted	No
Engineer/Technician	Mehmet Görkem Bilgin	Approved By	Arda Gerdan

04

Conclusion

The EUT was subjected to the following environmental tests in accordance with MIL-STD-810G and the customer test requirements, as shown in Table 1.

TABLE 1 · TESTS PERFORMED AND RESULTS			
TEST DESCRIPTION	METHOD	OBSERVATIONS	RESULT
High Temperature (Operating)	501.5, Procedure II	No obvious signs of damage to the EUT due to the high temperature test conditions. The EUT met the criteria of the specification.	PASS
High Temperature (Storage)	501.5, Procedure I	No obvious signs of damage to the EUT due to the high temperature test conditions. The EUT met the criteria of the specification.	PASS
Low Temperature (Operating)	502.5, Procedure II	No obvious signs of damage to the EUT due to the low temperature test conditions. The EUT met the criteria of the specification.	PASS
Low Temperature (Storage)	502.5, Procedure I	No obvious signs of damage to the EUT due to the low temperature test conditions. The EUT met the criteria of the specification.	PASS
Humidity	507.5	No obvious signs of damage to the EUT due to the humidity test conditions. The EUT met the criteria of the specification.	PASS

In every functional test – before the exposures, immediately after the soak of the operating tests and after the exposures – the EUT performed angle measurement without any malfunction.

The results given in this report relate only to the item tested.

APPROVAL		
	PREPARED BY	APPROVED BY
Name	Mehmet Görkem Bilgin	Arda Gerdan
Title	Test Engineer	Mechanical Design Engineer Team Lead
Date	31.08.2026	31.08.2026
Signature	 DIGITALLY SIGNED Mehmet Görkem Bilgin · 31.08.2026	 DIGITALLY APPROVED Arda Gerdan · 31.08.2026

— END OF REPORT —