



Türkiye

Müşteri
Customer

ARGESİM TEKNOLOJİ AŞ

Rapor Başlığı
Title of report

Field Performance Test of Portable Soiling Sensor

Rapor No
Report Number 26-II-0481a-35-T-002

Ay / Yıl
Month / Year September / 2026

Proje / Teklif No
Project / Offer Number 26-II-0481a-35-T

Müşteri Sipariş No / Tarihi
Client P.O. Number / Date Email request dated July 29, 2026

TÜV SÜD SAP Sipariş No
TÜV SÜD SAP Order Number 712928538

Kayıt No
Registration Number 26-TR-0154

TÜV SÜD TEKNİK GÜVENLİK VE KALİTE DENETİM TİC. LTD. ŞTİ.

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TECHNICAL REPORT
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Rapor Başlığı Title of Report	Field Performance Test of Portable Soiling Sensor
Faaliyet Konusu Activity	Field Performance Test

Rapor Özeti Report Summary

An authorized TÜV SÜD inspector visited the premises of ARGESİM TEKNOLOJİ AŞ, located at Pınarçay OSB Mahallesi, Organize Sanayi Bölgesi, Çorum, TÜRKİYE, on 07 September 2026 to witness the “Field Performance Test” of Seven Solar Portable Soiling Sensor.

Following the completion of the witnessing activities, this report was issued.

☒ Müşterinin veya sorumlu organizasyonun izni olmadan dağıtımı yapılamaz. No distribution to third parties without permission of client and/or responsible organization	☐ Firma içinde sınırlı dağıtımı yapılabilir. Limited distribution in company is allowed	☐ Dağıtımı serbesttir. Free distribution
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Hazırlayan Prepared by	Kontrol Eden Controlled by	Onaylayan Approved by
Adı Soyadı Name Surname	Özenç ÇETİN	Mustafa ÖRMECİ
Mesleği Profession	Mechanical Engineer	Local Head of NoBo 0036
İmza ve Kaşe Signature and Stamp		
Tarih Date	23/09/2026	23/09/2026

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Rapor
Report

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1. Genel Bilgi / General Information

Seven Sensor Solutions is the trade mark of ARGESİM TEKNOLOJİ AŞ.

SEVEN Sensor Solutions is manufacturer of weather stations, containing irradiance sensor, pyranometer, wind speed and direction sensors, ambient and module temperature sensors, and relative humidity sensor, which provide meteorological parameters related to climatic variabilities for PV Plants.

Seven Sensor weather stations are compatible with many well know dataloggers.

The Portable Soiling Sensor is an innovative, patented product developed by SEVEN Sensor to measure dust levels directly on the solar panels of photovoltaic power plants.

2. Ekipman Listesi / Equipment List

Test Measuring equipments information were as below ;

2.1. 3S-SMS-P Type Seven Solar Portable Soiling Sensor Serial No: 26430001, Calib. Date: 07.09.2026

2.2. Fluke Multimeter (2 Pieces) Serial No: 48480771WS, Verification. Date: 07.09.2026

2.3. Fluke Multimeter (2 Pieces) Serial No: 46520767WS, Verification Date: 07.09.2026

3. Muayene Prosedürü / Inspection Procedure

The Company ARGESİM TEKNOLOJİ AŞ requested the Third party inspection service in order to conformity assessment from TÜV SÜD for Portable Soiling Sensor and acc. to their procedure.

The procedure was applied with the following conditions

3.1. As part of the Portable Soiling Sensor testing procedure, the PV modules were intentionally and controllably soiled using gray-colored dust. Subsequently, the short-circuit currents (Isc) of one soiled PV module and one clean PV module of the same brand and technical specifications were measured under stable weather conditions.

3.2. Stable weather conditions refer to environmental conditions under which the short-circuit current remains sufficiently stable and consistent, providing suitable conditions for comparative measurements. In accordance with IEC 61724-1:2021, the measurements were performed within ±2 hours of local solar noon, under clear and cloudless sky conditions, avoiding low irradiance levels and variable weather conditions.

3.3. The Soiling Ratio (%) of the soiled PV module was calculated based on the ratio of the measured short-circuit current (Isc) values of the soiled and clean PV modules.

$$\text{Soiling Ratio (\%)} = \frac{I_{sc, \text{Clean Panel}} - I_{sc, \text{Soiled Panel}}}{I_{sc, \text{Clean Panel}}} \times 100$$

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- 3.4.** After determining the soiling ratio based on the PV module short-circuit current measurements, measurements were taken using the Portable Soiling Sensor at three different selected locations on the surface of the soiled PV module. Subsequently, these soiled measurement locations were cleaned, and measurements of the clean surface were taken again at the same locations using the Portable Soiling Sensor.
- 3.5.** Based on the measurement values obtained from the soiled and clean surfaces, the Soiling Ration (%) of the soiled PV module, as determined by the Portable Soiling Sensor, was read directly from the sensor's HMI display.
- 3.6.** Upon evaluation of the results, it was determined that the measurement results were within the $\pm 2\%$ uncertainty limits specified in the product datasheet. The measurement results are provided in the attached Table 1.

Table-1

No	Soiling Color	Clean Solar Panel Short-Circuit Current (A)	Short-Circuit Current of Soiled Solar Panel (A)	Soiling Ratio (%) Calculated Based on Short-Circuit Current	Soiling Ratio (%) Measured via Portable Soiling Sensor	Difference Between Calculated and Measured Soiling Ratios
1. Measurement	Grey	18,70	16,2	13,21%	11,70%	1,51%
2. Measurement	Grey	10,6	9,53	10,35%	11,30%	-0,95%
3. Measurement	Grey	9,60	8,62	10,21%	9,80%	0,41%

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4. Sonuç ve Öneriler / Result and Remarks

The company used IEC 61724 for their test procedure as a reference. But the purpose of our test was not calibration. Our purpose was only comparison/verify of the their sensor.

During the assessment / checks on 07.09.2026;

- 4.1. TÜV SÜD inspector has checked marking and serial numbers of test equipments.
- 4.2. TÜV SÜD inspector witnessed the test according to company procedure.
- 4.3. The test carried out between 11:30 to 12:30.

This report and test result are valid for tested product.

5. Fotoğraflar, Resimler, Çizimler / Photos, Pictures, Drawings



Fotoğraf / Photo 1 : Açıklamalar / Explanations
Test Setup

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ARGESİM TEKNOLOJİ AŞ

Meliha Bayraktar

Pınarçay OSB Mahallesi Organize San. Bölgesi Çorum/
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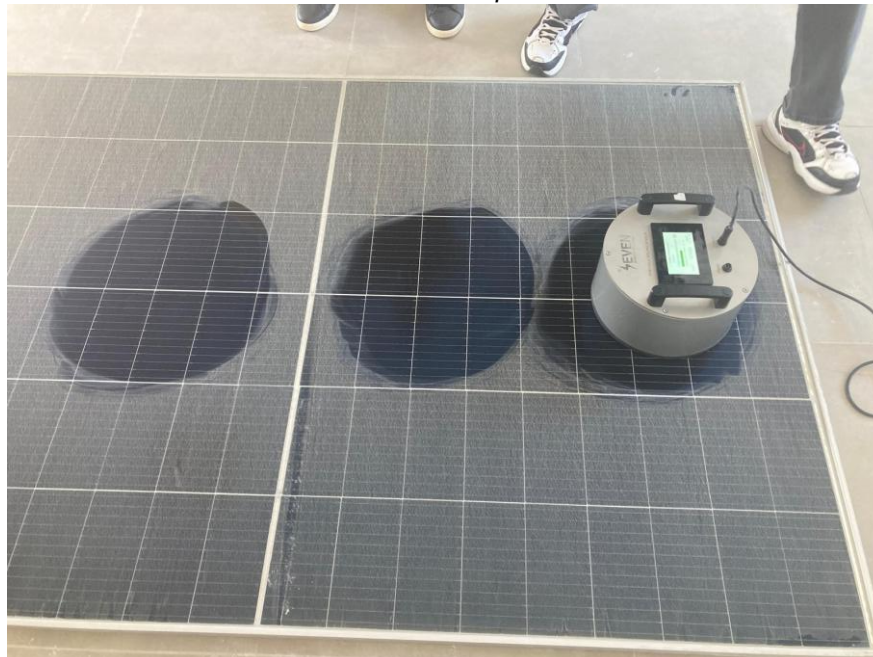
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Fotoğraf / Photo 2 : Açıklamalar / Explanations
Test Setup



Fotoğraf / Photo 3 : Açıklamalar / Explanations
Test Setup

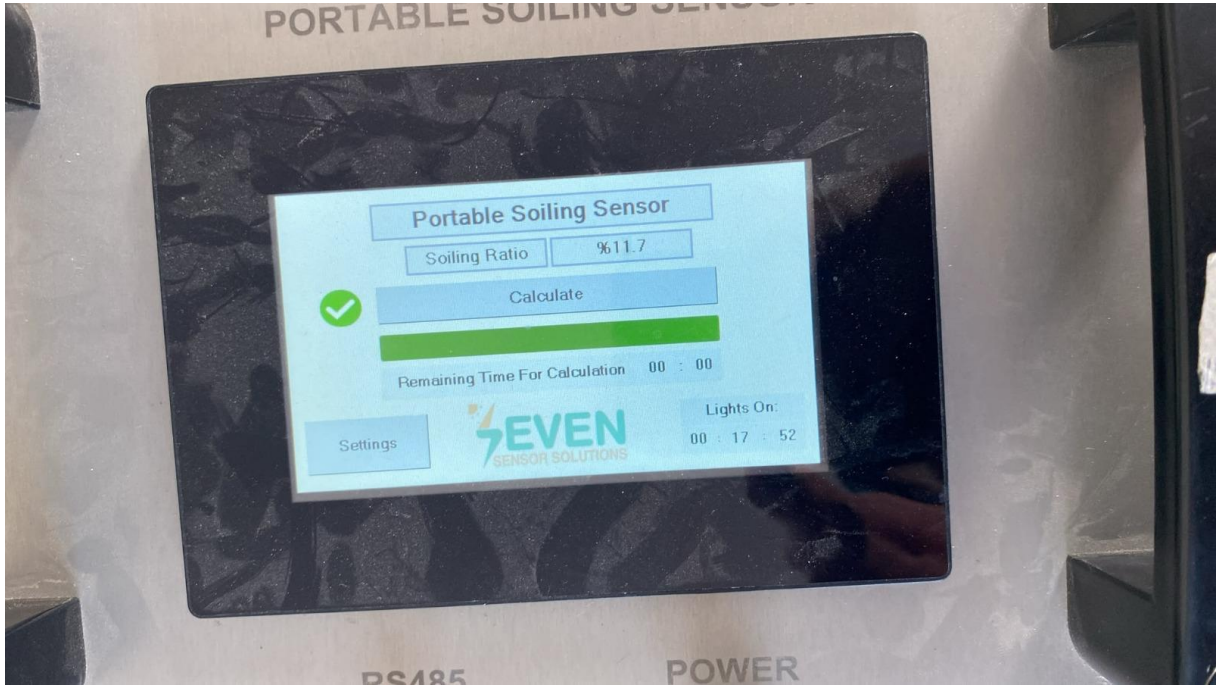
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Fotoğraf / Photo 4 : Açıklamalar / Explanations
Measurement Value Obtained Using Portable Soiling Sensor

6. Ekler / Annex

- 6.1. Argesim Test Procedure
- 6.2. 3S-SMS-P Type Seven Solar Portable Soiling Sensor Technical Data
- 6.3. Test_Result_1_ Portable Soiling Sensor Test Values
- 6.4. Fluke Multimeters Serial No: 48480771WS/ 46520767WS Verification Test Certificates
- 6.5. 3S-SMS-P Type Portable Soiling Sensor Serial No: 26430001 Calibration Certificate