



VALENVERAS

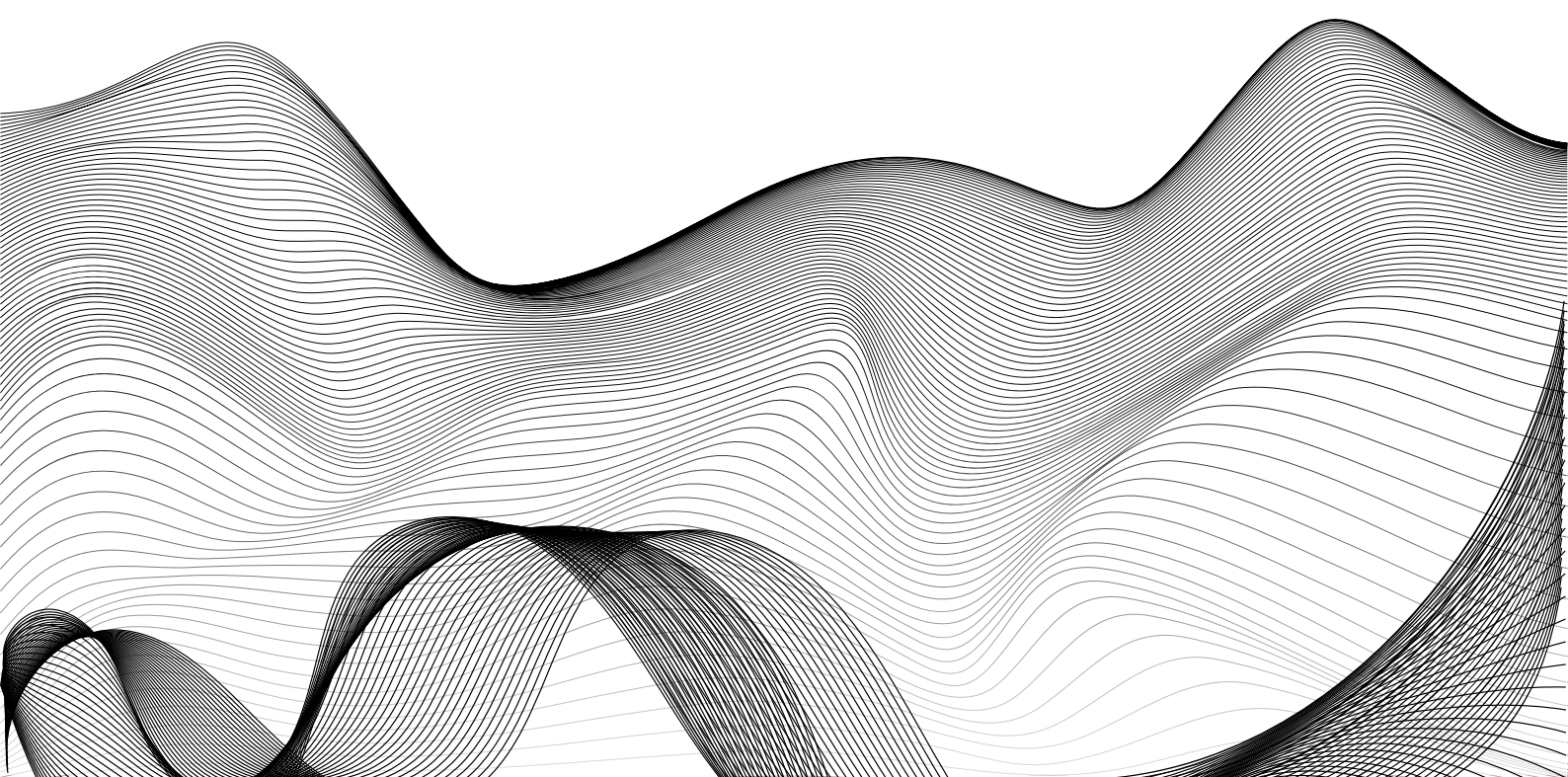
CERTIFICATES





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Certificate Number

00.12.1041

Date of Initial Validity of the Certificate from

23/01/2014

Date of the Validity of the current Certificate from

06/02/2023

The Certificate is valid until

05/02/2026

CERTIFICATE

EUROCERT S.A. certifies that the company
Si-Ware Systems

3, Khaled Ibn Al-Waleed Street, Heliopolis, Cairo, Egypt
implements a Quality Management System
according to the Standard:

EN ISO 9001:2015

for the following Scope of Certification:

SI-WARE SYSTEMS IS A FABLESS SEMICONDUCTOR COMPANY DESIGNING, DEVELOPING, DISTRIBUTING & SUPPORTING FT-NIR END-TO-END REAL TIME MATERIAL SENSING SPECTROSCOPY SOLUTIONS.

On behalf of EUROCERT S.A.,
Sifonios George
Director of International Markets

Lack of fulfillment of the conditions set out in the contract No.06.000058.23, makes this Certificate invalid
The validity of this Certificate is subject to annual surveillance
Check the validity of the Certificate with the QR code at right



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Asociación Empresarial de Investigación
Centro Tecnológico Nacional
Agroalimentario "Extremadura"
Centro Tecnológico nº 80

Badajoz, 29 May 2024

The cannabinoid analysis data used by the company Valenveras for the calibration of the NEOSPECTRA (SI-WARE) equipment were performed by HPLC-DAD techniques by the AOAC 2018.11 method of analysis. They have been performed by HPLC-DAD techniques by the method of analysis of the AOAC 2018.11. The PE-1938 method of analysis for cannabinoid quantification is accredited under the UNE-EN ISO/IEC 17025:2017 standard in different matrices and ranges (attached scope of accreditation).

Fdo. Montserrat Gómez-Cardoso Bernet
Head of QF Unit





EU Declaration of Conformity

Hereby we, the undersigned:

Manufacturer: Address; city: Country: **Si-Ware Systems**
3, Khaled Ibn Al-Waleed St., Sheraton, Heliopolis, Cairo
Address; city: Country: Contact: **Egypt**

Declare that this DoC is issued under 2002/96/EC responsibility and that this product is:

SI-WARE SYSTEMS
16 rue portalis, 75008, Paris
France
hello@si-ware.com

Product description: Handheld Spectral sensing scanner
Type Number: NEO1001
Trademark: NeoSpectra

Object of the declaration:



The object is in conformity with the relevant Union harmonization legislation:

<input checked="" type="checkbox"/>	<u>Radio Equipment Directive – 2014/53/EU</u>		
<input checked="" type="checkbox"/>	Article 3.1(a)	<input checked="" type="checkbox"/>	Article 3.2
	IEC 62368-1: 2020+A11:2020 EN 62479: 2010		EN 300 328 v.2.2.2. (2019-7)
<input checked="" type="checkbox"/>	Article 3.1(b)		EU Type examination:
	EN 301 489-1 V.2.2.3 (2019-11) EN 301 489-17 V.3.2.2 (2019-12)		Notified Body: Phoenix Testlab GmbH Notified Body Number: 0700 Type examination Number: 23-210780 - 23-220780
<input type="checkbox"/>	<u>Ecodesign Directive – 2009/125/EEC</u>		
<input type="checkbox"/>	Regulation EC No. 1275/2008	<input type="checkbox"/>	Regulation EC No. 278/2009
<input type="checkbox"/>	Regulation EC No. 642/2009	<input type="checkbox"/>	Regulation EC No. 617/2013
<input checked="" type="checkbox"/>	<u>RoHS Directive – 2011/65/EU</u>		
<input checked="" type="checkbox"/>	Equipment Class 1	<input type="checkbox"/>	Equipment class 2



Description of accessories and components, including software, which allow the radio equipment to operate as intended and covered by the DoC:

Accessories:

Description:	
	Model Name:
Qualtek AC/DC USB C PD External Wall Mount (Class II) Adapter Fixed Blade Input 5V, 9V, 12V, 15V, 20V 45W [Tensility International Corp] CABLE C PLUG TO C PLUG 3.28' (1m)	QFWC-45-20-USCR
GlobTek AC/DC External Wall Mount (Class II)Adapter Multi-Blade (Sold Separately) Input 5V, 9V, 15V, 20V,5V to 11V, 5V to 16V, 5V to 21V 36 W, with plugged 1.5m type C cable FERRITE CORE HINGED 5MM	10-03673
Software Version: 2206054218	GTM96181-36PD-PPS
	Hardware
Wireless Module:	Version:
Description:	2207

	Module type:	Certificate number:
BLE Module	ESP32-WROOM-32D	B2006163

Signed for and on behalf of:

Place: Cairo
Date: 24 Oct 2023

Name: Ahmed Magdy
Function: General Manager
Signature:



Si-Ware USA
contact@si-ware.com
+1 650 257 9680
101 Jefferson Dr., 1st Floor
Menlo Park, CA 94025, USA

Si-Ware Europe
contact@si-ware.com
+33 1 44 07 98 51
16 Rue Portalis
Paris 75008, France

Si-Ware Egypt
contact@si-ware.com
+20 222 68 47 04
3, Khaled Ibn Al-Waleed St. Sheraton,
Heliopolis, Cairo 11361, Egypt

Declaration article 10.10 Directive 2014/53/EU

Hereby we, the

undersigned:

Manufacturer: Address; city: Country: Telephone number: Authorized representative in Europe:
Si-ware Egypt

Address; city: Country: Contact: 3, Khaled Ibn Al-Waleed St., Sheraton, Heliopolis, Cairo
Egypt

Declare that this declaration is issued under our sole responsibility and that this

product is: SI-WARE SYSTEMS
+20 222 68 47 04

Product description: Type Number: Trademark:
16 rue portalis, 75008, Paris

Object of the declaration: France
hello@si-ware.com

Handheld Spectral sensing scanner
NEO1001
NeoSpectra



This product has been constructed so that it can operate in at least one-member
stat of the European Union. There are no restrictions of use of putting into services of
the radio equipment.

Signed for and on behalf of:

Si-Ware Systems

Place: Cairo

Date: 11 Jan 2023

Name: Ahmed Magdy

Function: General Manager

Signature:



Si-Ware USA
contact@si-ware.com
+1 650 257 9680
101 Jefferson Dr., 1st. Floor
Menlo Park, CA 94025, USA

Si-Ware Europe
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16 Rue Portalis
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Si-Ware Egypt
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+20 222 68 47 04
3, Khaled Ibn Al-Waleed St. Sheraton,
Heliopolis, Cairo 11361, Egypt

Declaration article 10.2 Directive 2014/53/EU

Hereby we, the undersigned:

Manufacturer: Address; city: Si-ware Egypt
Country: Telephone number: 3, Khaled Ibn Al-Waleed St., Sheraton, Heliopolis, Cairo
Authorized representative in Egypt
Europe: Address; city: Country: +20 222 68 47 04
Contact: SI-WARE SYSTEMS
16 rue portalis, 75008, Paris
France
hello@si-ware.com

Declare that this declaration is issued under our sole responsibility and that this

product is:
Product description: Handheld Spectral sensing scanner
Type designation(s): NEO1001
Trademark: NeoSpectra

Object of the declaration:



This product has been constructed so that it can operate in at least one-member state of the European Union without infringing applicable requirements on the use of the radio spectrum.

Signed for and on behalf of:

Si-Ware Systems

Place: Cairo

Date: 11 Jan 2023

Name: Ahmed Magdy

Function: General Manager

Signature:



EU-TYPE EXAMINATION (MODULE B) CERTIFICATE

Radio Equipment Directive (RED) 2014/53/EU

PHOENIX TESTLAB
Notified Body Number 0700



BNetzA-bs-02/51-55

This is to certify that:

PHOENIX TESTLAB did undertake the relevant type examination procedures for the radio equipment identified below which was found to be in compliance with the essential requirements of Radio Equipment Directive (RED) 2014/53/EU subject to any conditions in the annex attached hereto.

Certificate No.	23-210780 - 23-220780
Manufacturer	Si-Ware Systems
Address	3, Khaled Ibn-AI-Waleed St., Sheraton, Heliopolis, Cairo, Egypt
Product Description	Handheld Spectral Sensing Scanner; with Bluetooth
Brand Name / Model Name	NeoSpectra / NEO1001

The radio equipment meets the following essential requirements

Article 3.1 a): Health and Safety	Conform
Article 3.1 b): Electromagnetic Compatibility	Conform
Article 3.2: Effective and Efficient Use of Radio Spectrum	Conform
Additional Essential Requirements:	Not applicable

Date of issue	2023-10-20	Expiry date:	2028-10-19
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This certificate remains valid unless cancelled or revoked, provided the conditions in the attached annex are complied with. The conditions for the validity of this certificate are listed in the Annex.



The attached Annex forms part of this certificate. This certificate consists of 3 pages.

Signed by Wayne Hsu
Notified Body

Phone +49(0)5235-9500-24
+49(0)5235-9500-28
notifiedbody@phoenix-testlab.de

PHOENIX TESTLAB GmbH
Königswinkel 10
D-32825 Blomberg, Germany
www.phoenix-testlab.de



EU-TYPE EXAMINATION CERTIFICATE No. 23-210780 - 23-220780
Date 20 October 2023

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Annex



Technical description

Frequency Range	Bluetooth: 2402 - 2480 MHz
Transmit Power	10.95 dBm EIRP
Hardware Version	2207
Software Version	2206054218

System Components

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Optional Components

Adapter 1

QFWC-45-20-USCR
Input: 100-240 Vac, 50/60 Hz, 1.3 A
Output: 5V/3A or 9V/3A or 12V/3A or 15V/3A or 20V/2.25A
(Qualtek Electronics Corporation)

Adapter 2

GTM96181-36PD-PPS
Input: 100-240 Vac, 50/60 Hz, 1.2 A
Output: 5V – 21V/3A max, 36W
(GlobTek, Inc.)

Type-C Cable

10-03673, 1m, shielded cable, with ferrite core

Approval documentation

Technical Documentation including NeoSpectra_NEO1001
External / Internal Photos, User Manual, Label, Block Diagram,
Circuit Diagram, Operational Description, PCB Layout, Parts
Placement, Parts List.

EU Declaration of Conformity

2 pages, 23 October, 2023

Explanation of compliance
Article 10(2) and Article 10(10)

Declaration of Operation in Member States and application for
certification

Further Documents

Risk Assessment, 4 pages, 23 September, 2023
Radio Module Certificate No. 192140262/AA/01, issued by
telefication, 6 Pages



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EU-TYPE EXAMINATION CERTIFICATE No. 23-210780 - 23-220780
Date 20 October 2023

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Applied Standards and Test Reports

Specification	Laboratory	Test Report Number / Version
EN IEC 62368-1:2020+A11:2020	Cerpass Technology Corp.	23050056-TSLVD01
EN 62479:2010	Cerpass Technology Corp.	22060122-TRCE03
ETSI EN 301 489-1 V2.2.3	Cerpass Technology Corp.	22060122-TECE04
ETSI EN 301 489-17 V3.2.4	Cerpass Technology Corp.	
EN IEC 61000-3-2:2019+A1:2021		
EN 61000-3-3:2013+A2:2021		
ETSI EN 301 489-17 V3.2.4	DEKRA Testing and Certification Co., Ltd.	22B0109R-E3012300001-1
ETSI EN 300 328 V2.2.2	Cerpass Technology Corp.	22060122-TECE02

Limitations / Restrictions

□ Operating Temperature range is -5 - +40 degree .

Notes

1. This certificate will not be valid if the manufacturer makes any changes or modifications to the approved equipment, which have not been notified to, and agreed with PHOENIX TESTLAB.
2. Should the specified regulations or standards be amended during the validity of this certificate, the product(s) is/are to be re-approved prior to it/them being placed on the market.
3. The manufacturer shall take all measures necessary so that the manufacturing process and its monitoring ensure conformity of the manufactured radio equipment with the approved type described in the EU-type examination certificate and with the requirements of Directive 2014/53/EU that apply to it.
- 4.



The manufacturer shall affix the CE marking to each item of radio equipment that is in conformity with the type described in the EU-type examination certificate and satisfies the applicable requirements of the Directive.

5. The manufacturer shall draw up a written EU declaration of conformity for each radio equipment type and keep it at the disposal of the national authorities for 10 years after the radio equipment has been placed on the market. The EU declaration of conformity shall identify the radio equipment type for which it has been drawn up. A copy of the EU declaration of conformity shall be made available to the relevant authorities upon request.

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Uses of portable FT-NIR to determine cannabinoids and terpenes in dry-cured cannabis flowers



Marcal Plans¹; Adham Hesham¹; Ruben Valenzuela²

¹. Si-Ware Inc. 101 Jefferson Drive, Menlo Park, CA, USA. ². Valenveras, Camí Pla de la Torreta 1 BIS, Sant Andreu de Llavaneres, 08392, Barcelona, Spain

INTRODUCTION

The cannabis industry is growing exponentially worldwide. The crop can engage old and new farmers to adopt it as a novel crop. In that sense, there is a need for fast, on-site, accurate technology to provide the growers, distributors, and producers with a tool to manage the quality control of their sites and improve crop optimization. NIR infrared has shown the potential to be used as a tool to predict the cannabinoid content in dry-cured flowers hemp (1) and cannabis (2). Handheld portable devices provide good performance to predict quantitative levels of cannabinoids in flowers (2). This has opened a lot of opportunities to implement this technology in the field and directly to the quality control; from the crop to the distributor to the medical dispensary. Increasing the traceability of the production and improving the transparency for the final user.

METHODOLOGY

A Total of 7000 samples were used to calibrate the cannabinoids, and 4000 samples to calibrate the total terpenes. The reference analyses were done using ISO certified HPLC-PDA method for cannabinoids and GC-FID for the total terpenes.

Partial Least Square regression (PLSR) was used to correlate the spectra obtained from NeoSpectraScanners (17 scanners (Si-Ware Inc., Menlo Park, CA, USA)) from 1350–2550 nm with the reference analysis.

RESULTS

Models showed a good performance predicting THC, CBD, CBG, Total Terpenes, THC acid, and CBD acid with a low error of predictions.

	Low Concentration 0-3%				High Concentration 3-30%			
	RMSECV _{R2}	2σ	RMSEPR _{Rp}	RMSECV _{Rp}	RMSEPR _{Rp}	R _p	R _p	R _p
CBD Total	0.19	0.80	0.16	0.91	1.60	0.89	1.70	0.91
THC Total	0.15	0.85	0.10	0.93	2.10	0.91	2.10	0.90
CBG Total	0.15	0.71	0.11	0.72				
Total Terpenes	0.20	0.70	0.30	0.65				
THC acid	0.16	0.84	0.11	0.91	2.20	0.90	2.20	0.89
CBD acid	0.20	0.79	0.18	0.90	1.65	0.88	1.75	0.90

PLS models for THC and CBD show good linearity between predicted levels and measured by HPLC-PDA levels of the cannabinoids.

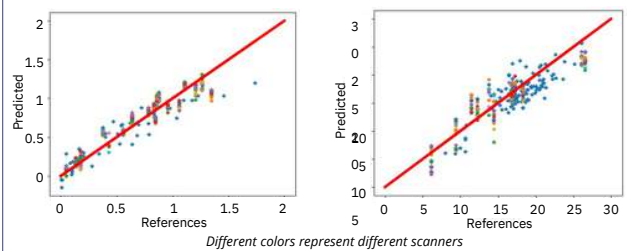
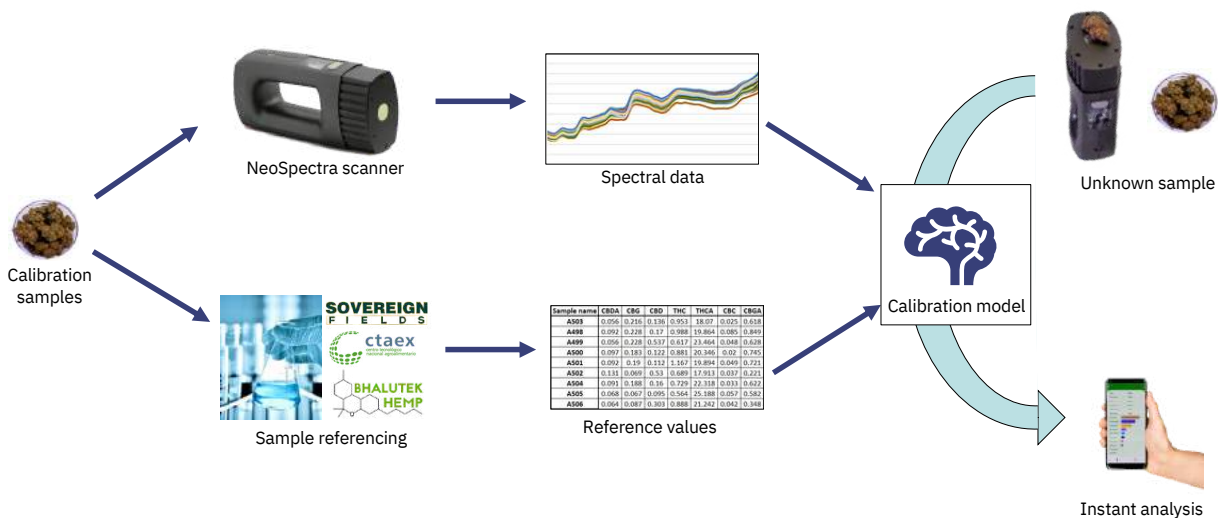


Fig 1. Predicted THC total vs the HPLC-PDA levels in the low range (left) and high range (right). Different colors represent different scanners



CONCLUSIONS

Si-Ware technology coupled with Valenveras as the expert in the cannabis sector, provides reliable and robust models. The current FT-NIR technology could be used as an alternative to the classical HPLC and GC analysis for in-situ analysis of the cannabis flowers. Moreover, besides the prediction of the cannabinoids, total terpenes also can be predicted, giving the final user the tools to discriminate between high and low content of phenotypes.

REFERENCES

1. Yao, S., Ball, C., Miyagusuku-Cruzado G., Giusti, M., Aykas, D., Rodriguez-Saona, L. 2022. A novel handheld FT-NIR spectroscopic approach for real-time screening of major cannabinoids content in hemp. Talanta. Sep 1;247:123559
2. Tran, J., Vassiliadis, S., Elkins, A., Cogan, N., Rochfort, S. 2023. Developing Prediction Models Using Near-Infrared Spectroscopy to Quantify Cannabinoid Content in Cannabis Sativa. Sensors (Basel) 2023 Feb 27;23(5):2607.

CONTACT |

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