



hsg labs[®]

HSG Labs | Checker (CO2 & CO3) User Manual

Prepared by: *Nicolas Chiovini*

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Project Owner: *HSG Labs*

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☒ *Routing for Document Approval*
☐ *Approved*
☐ *Unapproved*

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Change Log

Version	Note
1.0	Document internal release

Introduction

Thank you for purchasing the HSG Labs Checker. Please read this manual carefully prior to operating the device and keep it for future reference.

This user guide will help you to operate the device effectively, safely and, take full advantage of its features.

 **CAUTION:** Please fully charge the unit before first usage.

General Description

The HSG Labs Checker is a brightness and audio checking device for Cinema Owners, Technical Teams, Managers and Staff. Simple and easy to use, the HSG Labs Checker is a point and click device with an intuitive user interface designed for users with varying levels of technical expertise. This device does not reach the tolerance levels required for Digital Cinema Calibration and should only be used as a checking tool. For light and sound calibration, use devices designed for calibration, like the HSG Labs Spectro or those with professional microphone calibration systems.

Manufacturer Details



151 voie H Impasse des Bruyères
06370 Mouans-Sartoux
France
VAT FR69 948058813

Support And Information Requests

Please contact your original seller, or send an email to support@hsg-labs.com.

Package Contents

- *Hard carry case*
- *Quick start instructions*
- *HSG Labs Checker*
- *1m USB- C cable*

Safety Notice

Read and follow this important safety information. Failure to do so, or use of controls, adjustments, procedures, connections, or signal types other than those specified in this documentation, may result in damage to the equipment, personal injury or death.

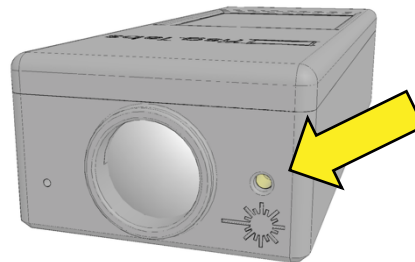


Safety Legend

-  **NOTE:** A NOTE indicates important information that helps to make better usage of the HSG Labs Checker.
-  **CAUTION:** A CAUTION indicates potential damage to hardware or loss of data if instructions are not followed.
-  **WARNING:** A WARNING indicates a potential for property damage, personal injury, or death.

Laser Pointer

The HSG Labs Checker uses a laser pointer to target the desired zone to be measured. The laser emitting point is indicated by a sticker applied on the unit. The laser output is indicated by a laser beam icon at the front of the device, near the lens.



As such, all precautions relative to laser device use must be respected.

⚠ WARNING: Do not stare directly at the laser beam and do not point the laser into someone else eyes.

Laser Specifications:

- *Class: Class 3R*
- *Power: 5mW*
- *Wavelength: 650nm (red)*

General Safety

⚠ WARNING: OBSERVE THE FOLLOWING INSTRUCTIONS TO HELP PREVENT POTENTIAL FOR PROPERTY DAMAGE, PERSONAL INJURY, OR DEATH:

- *Do not operate the equipment with any cover(s) removed.*
- *Do not use damaged equipment, including exposed, frayed, or damaged power cords.*
- *Do not use the equipment where it can get wet. Protect equipment from liquid intrusion. If the equipment gets wet, turn it off and disconnect power to the equipment and to any attached devices. Contact an experienced electrical technician for further help.*
- *Do not push any objects into the air vents or openings of the equipment. Doing so can cause fire or electric shock.*

 CAUTION: OBSERVE THE FOLLOWING INSTRUCTIONS TO HELP PREVENT DAMAGE TO HARDWARE OR LOSS OF DATA:

- *Do not attempt to service the equipment yourself.*
- *If the power supply has a voltage selection switch, be sure to set it for the voltage that most closely matches the AC power available at your location.*
- *Operate the equipment only from the type of external power source indicated on the electrical ratings label.*
- *To avoid possible damage to the system board, wait 30 seconds after turning off the equipment before removing a component from the system board or disconnecting a peripheral device from the equipment.*
- *Ensure that nothing rests on the equipment's cables.*
- *Move equipment with care. Avoid sudden stop and uneven surface.*
- *Keep the unit away from radiators and heat sources.*
- *Keep the equipment away from extremely hot or cold temperatures to ensure that it is used within the specified operating range.*
- *Use only approved power cable(s) rated for the equipment. The voltage and current rating of the cable should be greater than the ratings marked on the equipment.*
- *Observe extension cable and power strip ratings. Ensure that the total ampere rating of all equipment plugged into the extension cable or power strip does not exceed 80 percent of the ampere ratings limit for the extension cable or power strip.*
- *To help protect the equipment from fluctuations in electrical power, use a surge suppressor, line conditioner, or uninterruptible power supply (UPS).*
- *Do not spill liquid or solid items on your equipment.*
- *Before cleaning the equipment, disconnect it from the electrical outlet. Clean the unit with a soft cloth. Do not use liquids or aerosol cleaners, which may contain flammable substances.*
- *If the equipment does not operate normally - in particular, if there are any unusual sounds or smells coming from it - unplug it immediately and contact your original seller or HSG Labs.*

Ergonomic Instructions

Prolonged use of a HSG Labs Checker can lead to muscle ache and nerve pain, if not used correctly. It is recommended that the following guidelines are followed.

- *The wrists should be in a neutral or straight position when holding the unit.*
- *Take breaks. These breaks can be brief and should include stretches for optimal results.*

- *Rest your eyes by refocusing on distant objects intermittently when working.*



CAUTION: Viewing a display or external monitor screen for extended periods of time may result in eye strain.

Wireless Safety

The HSG Labs Checker is provided with an embedded Bluetooth Low Energy (BLE) chip and antenna.

Regulatory Information:

HSG Labs is not responsible for any radio or television interference caused by unauthorised modification of the Wireless devices, or the substitution or attachment of connecting cables and equipment other than that installed by HSG Labs. The correction of interference caused by such unauthorised modification, substitution or attachment is the responsibility of the user. HSG Labs and its authorised resellers or distributors are not liable for any damage or violation of government regulations that may arise from the user failing to comply with these guidelines.

Specifications

Packed size	200.3x142.4x48(mm) - 7.89x5.61x1.89(in)
Packed Weight	463(g) - 1.02(pound)
Device size	147x56x33.5(mm) - 5.79x2.20x1.32(in)
Device Weight	170(g) - 0.375(pound)
Display	2.8 inch TFT LCD resistive touch screen
Resolution	320x240(RGB) - 65k colour LED Backlight
Battery	Li-ion 1800 mAh/3.7V (non-removable)
Battery life	up to 5 hours
Input power	DC 5 V, 1A, USB Type C socket
Laser pointer	Class 3R, 5mW, 650nm (red)

Working Conditions

Always transport in the carry case

For indoor usage only

Operating temperature non-condensing 5 °C to 35 °C (41 °F to 95 °F)

Light Sensor

Measuring aperture	2.5° (FOV)
Spectral response	400nm to 725nm
Luminance range	0.0-40(fL) - 0-137(cd/m ²)
Luminance accuracy	± 1 fL (A Illuminant)

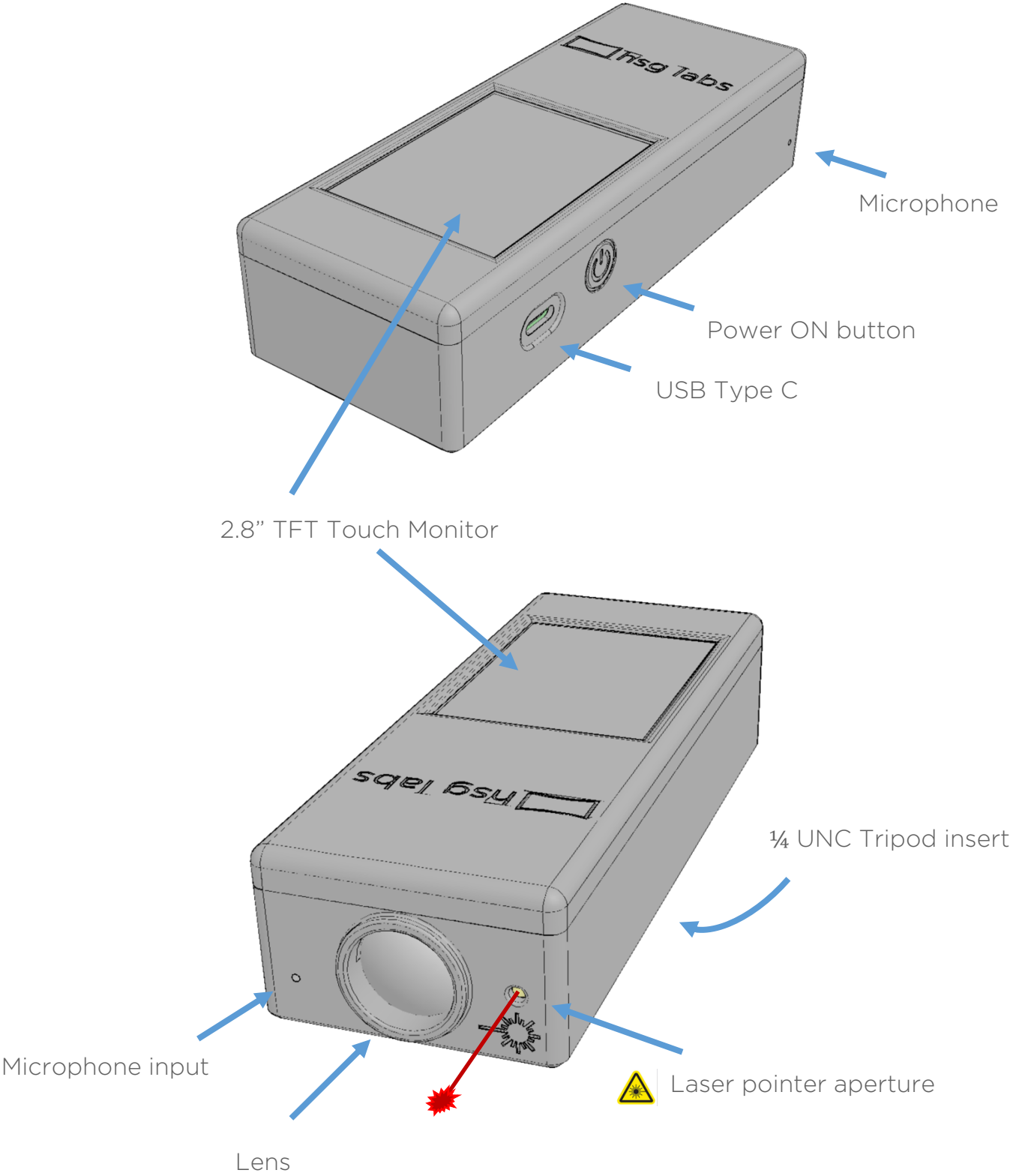
Audio Sensor (C3 version only)

Spectral response	40 Hz to 20 kHz
dBc Accuracy	± 1.5dB (at 1kHz)
A/V Sync accuracy	± 15ms
Spectrum visualization	10 bands (average time ± 6 seconds)

Product Code

Item Name/Number	HSG-CHK-AV2 (light only) HSG-CHK-AV3 (light and sound)
UPC Code	checker
Display Name/Code	HSG Labs Checker
HS Code	90275000

Product Details



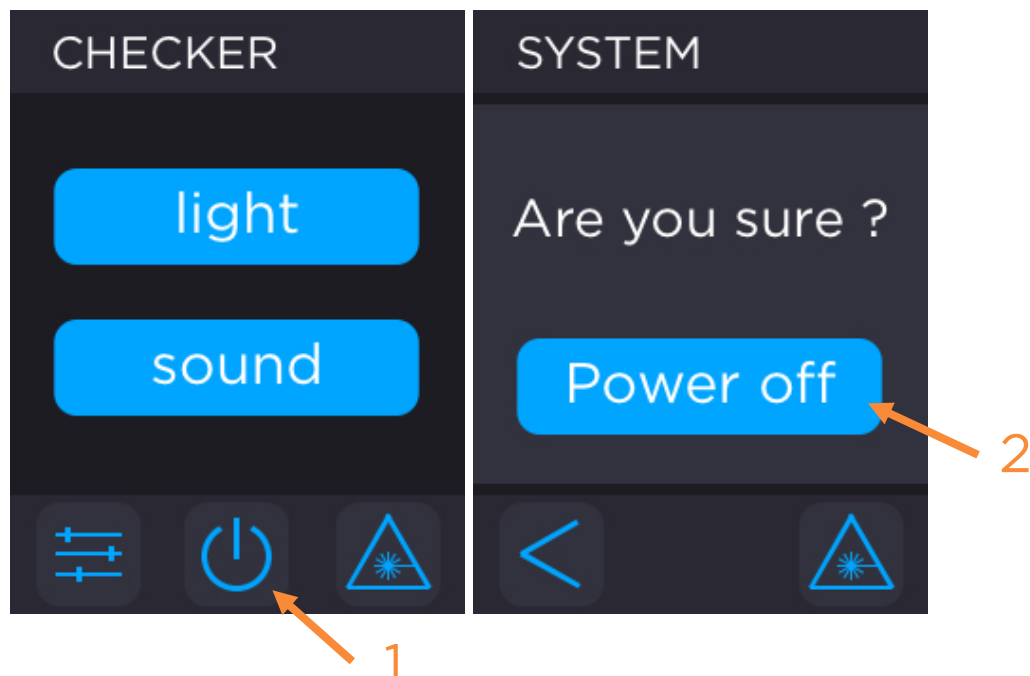
Checker Operation

Power On/Off The Device

To power on the unit, press the power button, located on the side of the device. The display will turn on and a splash screen will be visible during software loading.

⚠ CAUTION: If the unit does not start, it could be due to low battery power, please connect to a power source for a while and test again.

Turning power off is only possible via the touch screen by clicking the power off icon located at the bottom centre of the main page.



✎ NOTE: The device by default has an auto power off feature that automatically turns the device off after a 10 minute period of inactivity. This feature can be turned off from the settings panel.



Feature enabled



Feature disabled

 **CAUTION:** Turning the feature off will completely drain the device battery if left powered on. The device will still turn off automatically, when the battery level is too low.

Automatic Power Save

After 3 minutes of inactivity on the screen the device will automatically dim the LCD backlight.

Charging The Device

When the device is connected to a power source via the USB Type C port, it powers on the device and will stay powered on until the power is removed.

The battery icon located on the top right end of the display.

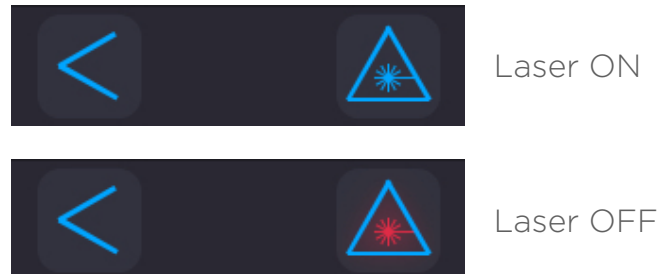
During charging, the icon turns blue and show a plug icon. When the battery is fully charged, the battery icon turns white, and the plug icon is not displayed anymore.

	Charging
	Full
	3/4
	2/4
	1/4
	Low

 **NOTE:** Full charging of the battery can take around 4 hours. During charging the automatic power off feature is disabled.

Laser Operation

The Checker is fitted with a laser pointer to ensure it is pointed at the desired measurement location. This can be operated from the touch screen using the triangular button available at the bottom right.

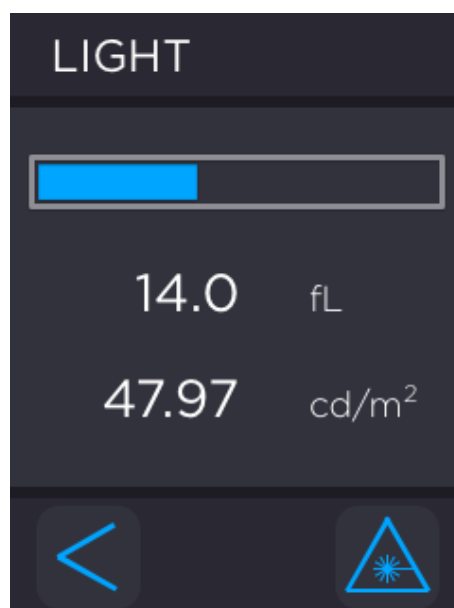


⚠ WARNING: When the button is pressed the laser turns ON without confirmation. Please pay close attention to your surroundings and people who may be around you. Do not stare directly at the laser beam and do not point the laser into someone else eyes.

Taking Measurements

Luminance Measurement

When the Checker is in LIGHT mode, the device constantly reads the light levels and display the read value in fL (foot lambert) and cd/m² (candela per square meter).





NOTE: Each device is calibrated on an A Illuminant light.

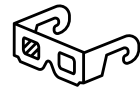
Light level check

The suggested device placement location for light verification is from the centre of the seating area.

1. *Place the Checker on the tripod at eye height to a patron sitting in a seat or hold the device still during the measurement test.*
2. *Ensure the projector is turned on and warmed up. Display a full screen white pattern in the desired projection format and projection settings (flat/scope/preshow).*
3. *Ensure the device is pointing in the centre of the screen using the laser pointer.*
4. *Read the Checker display for the current light measurement.*



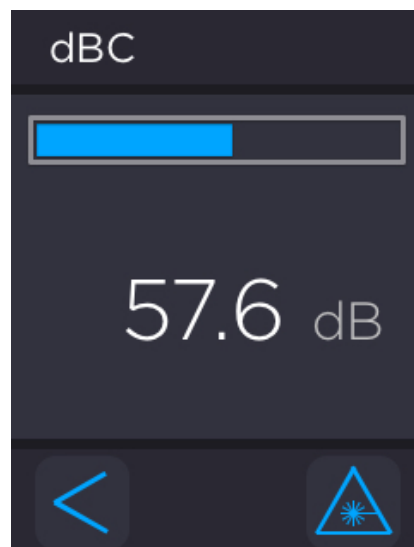
NOTE: for 3D measurements the polarization system must be in place and activated on the projector and the measurement must be done through the according 3D passive or active glasses.



CAUTION: Auditorium house lights, safety lighting, exit signs and stray light, can affect the measurement results from the Checker as can the laser pointer on the device. For optimal results, ensure that the lights and laser are set to presentation or feature mode during the measurements.

Audio dB-C measurement (C3 version only)

The interface displays the dBC levels on the Checker screen.



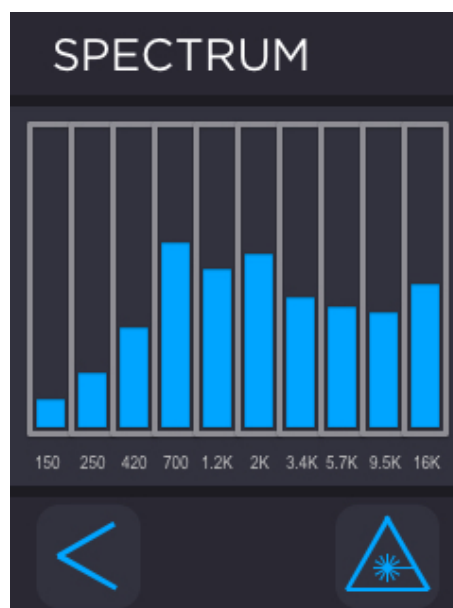
Sound dB check

This feature is useful to verify that left / right channel are balanced or the stage and surround channels are at the correct levels. To take a measurement, place the device on a tripod or hold still during the measures pointing directly at the centre of the screen. A rotating pink noise sound is necessary to perform this operation. It is suggested that the pink noise last more than 9 seconds per channel to stabilise the reading and allowing the house to reverberate.

 **NOTE:** For optimal sound logging, it is recommended to check the audio levels from the same position every measurement with the device pointing at the centre of the screen for all speaker channels.

Audio spectrum visualisation (C3 version only)

The device takes 13 audio readings every 2 seconds and averages them with the last displayed spectrum. The spectrum is updated at every cycle of 2 seconds.



 **NOTE:** To have a stable reading, it is required that the pink noise is recorded for at least 5 to 7 seconds per channel to display a stabilised the reading.

The bands as divided as per the following table.

Centre	Min	Max
150	40	200
252	201	336
420	337	566

700	567	952
1.2k	953	1.6k
2k	1.6k	2.7k
3.4k	2.7k	4.5k
5.7k	4.5k	7.6k
9.5k	7.6k	12.8k
16k	12.8k	20k

Channel frequency presence

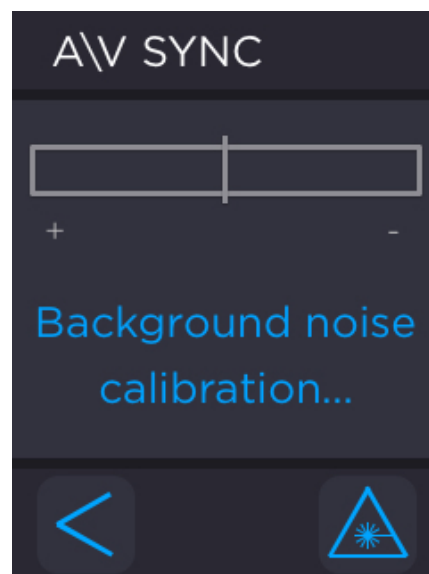
The spectrum analysis allows users to quickly check defective speaker analysis.

Emitting a pink noise signal for each channel for more than 7 seconds allows the spectrum to stabilise and integrate the pink noise signal variation.

This feature is also useful to check the calibration balance between left and right speakers.

A/V Sync (C3 version only)

Displaying a specific audio/video sync pattern, the device can sense the synchronization of the video and sound. The measurement requires a background noise calibration where a black is displayed and no sound is emitted. The calibration is activated when entering in the A/V sync feature.

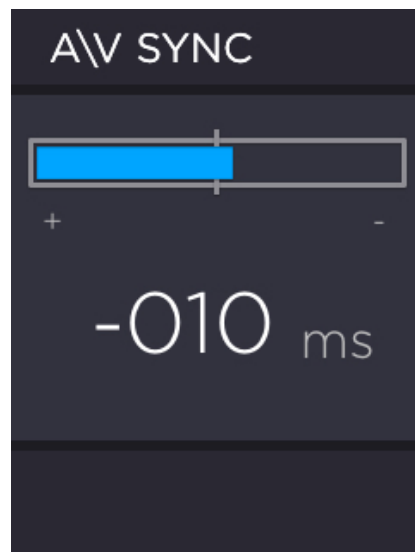


Once the calibration completed the A/V Sync video can be played and the display will display the delay in reference to the light pulse.

Positive values means that the audio is ahead the video frame.

Negative values means that the audio is behind the frame.

Normally, less than 100 ms to 22 ms lag is the preferred target threshold.



 **NOTE:** To have a stable reading is recommended not to move the device during the readings and keep the signal going for a couple of flash / beep sequence.

Disposal and Recycling Information



HSG Labs recommends that customers dispose of their unwanted equipment in an environmentally sound manner. Potential methods include reuse of parts or whole products and recycling of products, components, and/or materials.



The HSG Labs Checker unit contain a Li-ion battery composed by 1 cell with 6.7Wh (3.7V – 1800mAh).

 **WARNING:** Do not dismantle, open or shred the battery; ingredients contained within or their ingredients products could be harmful. The battery is not dangerous with normal use.

Take-back Solution

The product can be shipped back to HSG Labs at any time for the correct disposal, ensure that on the packing there is clearly noted “end-of-life disposal”.

hsg labs
151 voie H impasse des Bruyères
06370 MOUANS-SARTOUX
FRANCE



<http://hsg-labs.com/>

Disposable Packing

Carton/cardboard, including packing material (in grams):

Total Weight: 50g

97/129/EC classification: PAP20



Plastics included in the box used for packing, wrapping or protection (in grams):

Total Weight: 0g

Any paper included in the box, including manuals, etc. (in grams):

Total Weight: 50g

97/129/EC classification: PAP22



FAQ

Can I measure 3D light levels?

Yes, for 3D measurements the polarization system must be in place and activated on the projector and the measurement must be done through the according 3D passive or active glasses.

Why are light measurements drifting?

Check the cleanness of the front lens and clean it. Check that the light source (projector) does not have fluctuations such as lamp flicker.

My unit will not turn on. What can I do?

Connect the USB type C cable to charge the battery and the unit should turn on.

Why will the laser not turn on?

Power cycle the device and try again

If problem persists, contact support

Repair & service

Contact the support that will release proper instructions for device service.

CE



August 01, 2025

CE COMPLIANCE NOTICE for CHECKER

Version 1.0 and higher

Marking by the symbol $\mathcal{C}$ indicates compliance of the device to the EMC (Electromagnetic Compatibility) directive and to the Low Voltage directive of the European Community. Such marking is indicative that this device meets or exceeds the following technical standard:

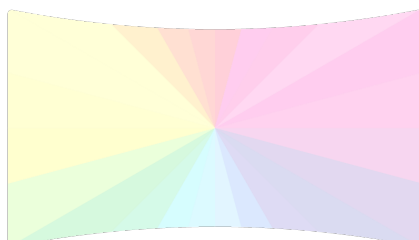
- *EN 55022 "Limits and Methods of Measurement of Radio Interface Characteristics of Information Technology Equipment."*
- *EN 62368-1 "Audio/video, information and communication technology equipment - Part 1: Safety requirements."*

A "Declaration of Conformity" in accordance with the above standard and our CB certification in progress.

Listed below are the Part numbers covered by this compliance notice:

Part #'s: CHECKER

HSG LABS
Impasse des Bruyères
06370 Mouans-Sartoux
SIREN 948058813
TVA FR69948058813



HSG Labs
151 voie H Impasse des Bruyères
06370 Mouans-Sartoux - FRANCE
+33 (0) 769 540 926
SIREN 948058813
VAT FR69948058813

RoHS Compliance



August 01, 2025

Letter of Compliance RoHS for CHECKER

Version 1.0 and higher

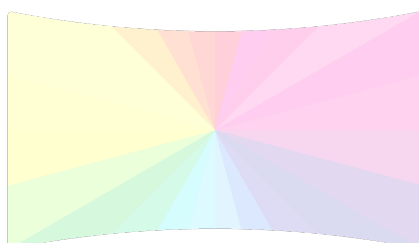
This letter is to confirm compliance with Directive 2002/95/EC and the amendment (EU) 2015/863 in addition to RoHS 2011/65/EU of the European Council on the Restriction of Hazardous Substances in electrical and electronic equipment.

We hereby certify that the materials found in this component meet the acceptable levels as stated by the RoHS directive confirming compliance.

Listed below are the Part numbers covered by this compliance notice:

Part #'s: CHECKER

HSG LABS
Impasse des Bruyères
06370 Mouans-Sartoux
SIREN 948058813
TVA FR69948058813



HSG Labs
151 voie H Impasse des Bruyères
06370 Mouans-Sartoux - FRANCE
+33 (0) 769 540 926
SIREN 948058813
VAT FR69948058813

Laser Pointer Accession Number (FDA 0820048-029)

This message is to acknowledge receipt of your **Product Report**, which was filed pursuant to the regulations for the administration and enforcement of the Radiation Control for Health and Safety Act of 1968 (Title 21, Code of Federal Regulations, Subchapter J) as they pertain to the submission information description below. If your submission is a report, it has been filed according to reporting requirements in Title 21, Code of Federal Regulations (CFR), Part 1002. Your submission has been assigned an informal subject title below after "Purpose:". Your submission has been assigned an ACCESSION NUMBER which can be used by you and FDA to identify your submission.

WARNING:

THE ACCESSION NUMBER ASSIGNED TO YOUR SUBMISSION DOES NOT IMPLY, CONVEY OR CONSTITUTE FDA APPROVAL OF ANY REPORT, APPLICATION FOR VARIANCE OR EXEMPTION, NOTIFICATION, OR ANY OTHER SUBMISSION OR ITS CONTENTS. THE ACCESSION NUMBER IS ONLY AN ACKNOWLEDGMENT THAT FDA HAS RECEIVED YOUR SUBMISSION. IT MAY BE REVOKED BY FDA. ITS DISCLOSURE IS YOUR RESPONSIBILITY. IT IDENTIFIES YOUR SUBMISSION FOR PRODUCTS OR PRODUCT FAMILIES IDENTIFIED IN THIS MESSAGE.

Be advised that failure to comply with FDA regulations may result in notification of affected persons and corrective actions at no cost to the purchaser, pursuant to 21 CFR Part 1003 -- Discovery of Defect or Failure to Comply and 21 CFR Part 1004 -- Repurchase, Repairs, or Replacement of Electronic Products.

----- DOCUMENT RECEIVED, FILED, & ACKNOWLEDGED -----

This automated notification from the CeSub Submission Process contains general information about the aforementioned submission:

Accession Number: **0820048-029**
Date Loaded: **10/21/2013**
Document Date: **10/7/2013**
Establishment Name: **QUARTON INC.**
Purpose: **This submission is a(n) Product Report supplement. These Surveying, Leveling, Alignment Laser Products include designated VLM-650-01 LPA.**

Submitter: **Gordon Lien**
Email: gordon.lien@mail.quarton.com.tw
Reporting Official: **Gordon Lien**
Email: gordon.lien@mail.quarton.com.tw

Please note that your firm is required to submit an Annual Report to CDRH every year by September 1.

If you meet all other applicable FDA requirements, you may market the product(s) reported. Please be aware that additional electronic product radiation control or medical device regulations may apply to your product, such as:

21 CFR 1002.11, requiring report supplements under certain circumstances following the same reporting forms as used for product reports on your products

21 CFR 1002.13, requiring annual reports to be submitted each year by September 1 using the appropriate reporting form for annual reports

21 CFR 1010 - 1050, requiring certification to FDA radiation safety performance standards

21 CFR 807, requiring manufacturer registration and device listing, and

21 CFR 807, 812 and 814, requiring medical device clearance or approval

Battery CB Test Certificate

		Ref. Certif. No. JPTUV-103705
IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME		
CB TEST CERTIFICATE		
Product	Li-ion Polymer Battery	
Name and address of the applicant	Dongguan UFine Electronic Technology Co.,Ltd Luoma Second Bridge, Tiansheng Lake Villager Group, Luoma Village, Qingxi Town, Dongguan, P. R. China	
Name and address of the manufacturer	Dongguan UFine Electronic Technology Co.,Ltd Luoma Second Bridge, Tiansheng Lake Villager Group, Luoma Village, Qingxi Town, Dongguan, P. R. China	
Name and address of the factory	Dongguan UFine Electronic Technology Co.,Ltd Luoma Second Bridge, Tiansheng Lake Villager Group, Luoma Village, Qingxi Town, Dongguan, P. R. China	
Ratings and principal characteristics	3.7V, 1800mAh, 6.66Wh	
Trademark (if any)		
Customer's Testing Facility (CTF) Stage used	N/A	
Model / Type Ref.	UFX 103450	
Additional information (if necessary may also be reported on page 2)		
A sample of the product was tested and found to be in conformity with	IEC 62133-2:2017 See Test Report for National Differences	
As shown in the Test Report Ref. No. which forms part of this Certificate	50322727 001	
This CB Test Certificate is issued by the National Certification Body		
		TÜV Rheinland Japan Ltd. Global Technology Assessment Center 4-25-2 Kita-Yamata, Tsuzuki-ku Yokohama 224-0021 Japan Phone + 81 45 914-3888 Fax + 81 45 914-3354 Mail: info@jpn.tuv.com Web: www.tuv.com
Date: 24.12.2019	Signature:	 Dipl.-Ing. Univ. S. O. Steinke

10001 CB 10.16

Full document available on demand support@hsg-labs.com

Battery UN38.3



中国认可
国际互认
检测
TESTING
CNAS L9291

编号 No.: DSP23070157-2

UN38.3 测试报告

UN38.3 Test Report

样 品 名 称 : 锂离子聚合物电池
3.7V, 1800mAh, 6.66Wh

Sample name : Li-ion Polymer Battery
3.7V, 1800mAh, 6.66Wh

型 号 Model : LP103450

委 托 单 位 : 广东友飞翔新能源有限公司

Consignor : Guangdong Ufine New Energy Co.,Ltd



检测单位: 东莞市中认联科检测技术有限公司

Laboratory: Dongguan ZRLK Testing Technology Co., Ltd.

地址: 广东省东莞市松山湖园区科技十路1号2栋

Address: Building 2, No.1, Technology 10th Road, Songshan Lake Park, Dongguan, Guangdong, China

电话(Tel): +86-769-26621775

邮政编码(Post Code): 523808

Email: Marketing@zrlklab.com

Web: www.zrlklab.com

TRF_UN38.3_Rev.7+A1_01



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