Tobii Pro Glasses 2 Helmet Edition

Product Description

- Head Unit (Firmware version 1.25.3)
- Recording Unit
- Prescription Lenses
- Controller Software
Product Description Tobii Pro Glasses 2 Helmet Edition

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# Table of Contents

1  Introduction ...................................................................................................................... 1

2  System Overview ............................................................................................................... 2
   2.1 Tobii Pro Glasses 2 Helmet Edition ............................................................................ 2
   2.2 System Components ................................................................................................. 3
   2.3 Head Unit .................................................................................................................. 5
   2.4 Recording Unit .......................................................................................................... 5
   2.5 Prescription Lenses ................................................................................................... 6

3  Technical Specifications ................................................................................................. 8
   3.1 Eye Tracking .............................................................................................................. 8
   3.2 Head Unit .................................................................................................................. 8
   3.3 Recording Unit .......................................................................................................... 8
   3.4 Prescription Lenses (Option) ..................................................................................... 9
   3.5 Compliance ............................................................................................................... 9
   3.6 Compatible Software — Feature overview ............................................................... 9
   3.7 Controller Software — Minimum system requirements ........................................... 9

Appendix A  Safety and Compliance ................................................................................. 10
1 Introduction

Tobii Pro Glasses 2 Helmet Edition (below called Pro Glasses 2) is a specialized version of Tobii Pro Glasses 2, which gives researchers the possibility to capture truly objective and deep insights into human behavior in any real-world environments. Pro Glasses 2 shows exactly what a person is looking at in real time. The product consist of a head unit, a recording unit and a controller software. This document describes the main technical features of the Tobii Pro Glasses 2 Helmet Edition product. The only difference between the Helmet Edition and the standard version is the orientation of the electronic box fitted on the head unit, which on the Helmet Edition is faced downwards instead of upwards, to facilitate usage with helmets.

Images in this document will not show the correct orientation of the electronic box on the head unit.

Intended use:

Pro Glasses 2 is intended to be used in research activities about human behavior including eye movements, involving adult participants. The product should only be used as described in the user manual. Please read the User’s Manual and other supplied documentation thoroughly before using the product.

This product is continuously being developed and refined. Please visit www.tobiipro.com for the most recent specifications for the software and for the latest version of this document.
2 System Overview

2.1 Tobii Pro Glasses 2 Helmet Edition

Pro Glasses 2 Helmet Edition comprise of the following.

<table>
<thead>
<tr>
<th>Components</th>
<th>Live View Wireless Package 50</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head unit</td>
<td>●</td>
</tr>
<tr>
<td>Recording unit</td>
<td>●</td>
</tr>
<tr>
<td>50 Hz</td>
<td>●</td>
</tr>
<tr>
<td>Protective lenses (2 pcs) - 1 clear and 1 tinted</td>
<td>●</td>
</tr>
<tr>
<td>Nose pads in different sizes (6 pcs)</td>
<td>●</td>
</tr>
<tr>
<td>Head strap</td>
<td>●</td>
</tr>
<tr>
<td>Rechargeable Li-ion batteries type 18650 (3 pcs)</td>
<td>●</td>
</tr>
<tr>
<td>Battery charger for Li-ion batteries + power cables (EU, US, UK + AUS)</td>
<td>●</td>
</tr>
<tr>
<td>USB charger for recording unit + power plugs (EU, US, UK + AUS)</td>
<td>●</td>
</tr>
<tr>
<td>SD memory cards (3 pcs) + sleeves + SD/USB adapter</td>
<td>●</td>
</tr>
<tr>
<td>Calibration cards (3 pcs)</td>
<td>●</td>
</tr>
<tr>
<td>Calibration stickers (10 pcs)</td>
<td>●</td>
</tr>
<tr>
<td>Carry case for Tobii Pro Glasses 2</td>
<td>●</td>
</tr>
<tr>
<td>USB memory stick with documentation and software</td>
<td>●</td>
</tr>
<tr>
<td>Safety and compliance document (printed)</td>
<td>●</td>
</tr>
<tr>
<td>User’s manual (PDF)</td>
<td>●</td>
</tr>
<tr>
<td>Quick start guide (printed and PDF)</td>
<td>●</td>
</tr>
<tr>
<td>HDMI A to HDMI D cable</td>
<td>●</td>
</tr>
<tr>
<td>Ethernet cable (3 meters)</td>
<td>●</td>
</tr>
<tr>
<td>USB to micro USB cable for recording unit charging</td>
<td>●</td>
</tr>
<tr>
<td>Controller software</td>
<td>●</td>
</tr>
<tr>
<td>SD Card Reader</td>
<td>●</td>
</tr>
<tr>
<td>Tobii Pro Lab¹</td>
<td>●</td>
</tr>
<tr>
<td>WLAN functionality</td>
<td>●</td>
</tr>
<tr>
<td>Windows 10 tablet</td>
<td>●</td>
</tr>
<tr>
<td>One day onsite installation and startup training¹</td>
<td>●</td>
</tr>
<tr>
<td>Tobii Care¹</td>
<td>●</td>
</tr>
</tbody>
</table>

¹. See separate product description for details.
2.2 System Components

The Tobii Pro Glasses 2 system is made up of several components. Each component is briefly described below.

The system includes:

1. A wearable eye tracker (glasses), referred to as the head unit.

2. A recording unit, connected to the head unit via an HDMI cable. The recording unit holds the battery and stores the recorded data on an SD memory card. The recording unit is controlled from a tablet or computer running controller software.

3. A Windows 8 or later tablet or computer with Windows 7 or later running the controller software. The software allows for managing participants, controlling the eye tracker and viewing both real-time and recorded eye tracking data. The software connects to the eye tracker through an Ethernet connection (either wireless or wired).

4. Tobii Pro Lab3 (optional) installed on a Windows computer. Any eye tracking analysis beyond qualitative analysis of eye tracking session replay, is carried out using Tobii Pro Lab.

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2. Only included in the Tobii Pro Glasses 2 Premium Package. Must be purchased separately for all other packages.
3. Only included in the Tobii Pro Glasses 2 Premium and Subscription packages. Must be purchased separately for all other packages.
The recording unit contains radio transmitters and receivers (WLAN). Make sure that it is placed as far as possible from any equipment, objects or body parts sensitive to such signals.

The head unit is designed to connect only to the recording unit and should not be connected to any other device.

The recording unit is designed to connect only to the head unit and a Windows 8 or later Pro tablet or any tablet/computer with Windows 8 or later tablet or computer with Windows 7 or later running the controller software. The recording unit should not be connected to any other devices.

Tobii Pro Glasses Controller Software is designed to be used only with Tobii Pro Glasses 2. No other types of eye trackers can or should be used together with the controller software.

Tobii Pro Glasses Controller Software is designed to be installed and used on Windows 8 or later Pro tablets or any Windows 8 or later tablet, or a computer with Windows 7 or later. The software should not be installed on any other types of devices.
2.3 Head Unit

The head unit is a highly sophisticated measuring device. It consists of several very sensitive sensors and must be cared for as instructed for it to work properly.

The head unit consists of the following parts:

1. **High-definition scene camera** – Captures a Full HD video of what is in front of the participant.
2. **Microphone** – Picks up sounds from the participant and its surroundings.
3. **Eye tracking sensors** – Records eye orientation e.g. the direction of the eye gaze.
4. **IR illuminators** – Illuminates the eyes to support the eye tracking sensors.
5. **Micro HDMI connector** – Connects to the recording unit via the supplied HDMI cable.
6. **Cable guide** – Guides the HDMI cable towards the participant’s back.
7. **Protective lens** – Both clear and tinted versions supplied
8. **Nose pad** – Exchangeable and available in different sizes.

2.4 Recording Unit

The recording unit is a small computer that controls the head unit (the eye tracking glasses). It records and stores eye tracking data, sounds and scene camera video on a removable SD memory card. The recording unit carries a replaceable and rechargeable Li-ion battery that supplies power to both the recording unit and the head unit. The recording unit has several connectors and a power button and is controlled from the controller software.

The recording unit consists of the following parts:
1. **Power button and power indicator LED** - Touch button that turns the recording unit on and off. LED indicates power state and remaining battery power.

2. **3.5 mm connector for data synchronization** – TTL pulse for synchronization with external data sources.

3. **LAN port** – Connects to a Windows tablet or computer running the controller software, via the supplied Ethernet cable. The recording unit can also be connected to the tablet or computer via WLAN.

4. **Connection status LED** – Indicates connection to the controller software.

5. **SD card Activity LED** – Indicates if SD memory card is present and if the recording unit is busy writing on the SD memory card.

6. **HDMI connector** – Connects to the head unit via the supplied HDMI cable.

7. **Micro USB connector** – Connects to USB charger for powering the unit and charging the battery.

8. **SD memory card slot** – Slot for SD memory card for storage of recorded data.

9. **Battery compartment** – Holds the battery for the recording unit and the head unit.

10. **Belt clip** – For attaching the recording unit to participant’s belt.

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The package contains an external SD card reader for users using computers not equipped with an internal SD card reader. For installation instructions, see the documentation in the SD card reader’s package or the manufacturer’s website.

### 2.5 Prescription Lenses

In order to accommodate the head unit to a larger user audience, Tobii has developed a set of dedicated prescription lenses, supplied as a separate kit (optionally available), for correction of either short-sightedness or long-sightedness. The prescription lenses are magnetically fitted onto an adapter on the head unit and the participant can then walk around freely with a corrected sight.

The set also contains two zero strength lenses for both the right and left side for use in the case the participant only need correction on one side. Included in the kit is one spare magnetic attachment adapter and a convenient storage compartment for the participant’s own glasses to keep them well protected during the survey.

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The procedure for selecting suitable prescription lenses is easy and straightforward. Either the participant is already aware what glasses strength he/she uses, if so, it is easy to fit the prescription lenses of the corresponding correction value. If the participant does not know, the kit contains a reading chart that assists you in selecting the most suitable correction strengths.

- The addition of a lens element in front of the head unit may create a small optical offset which should be accounted for.

- If you need prescription lenses of a strength that are not included in the standard package, prescription lenses with sun protection or any other custom made lenses, please contact Tobii sales for a quote.
3 Technical Specifications

3.1 Eye Tracking

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eye tracking technique</td>
<td>Corneal reflection, dark pupil</td>
</tr>
<tr>
<td>Binocular eye tracking</td>
<td>Yes</td>
</tr>
<tr>
<td>Sampling rate</td>
<td>50 Hz</td>
</tr>
<tr>
<td>Calibration procedure</td>
<td>1 point</td>
</tr>
<tr>
<td>Parallax compensation tool</td>
<td>Automatic</td>
</tr>
<tr>
<td>Slippage compensation</td>
<td>Yes, 3D eye tracking model</td>
</tr>
<tr>
<td>Pupil measurement</td>
<td>Yes, absolute measure</td>
</tr>
</tbody>
</table>

3.2 Head Unit

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Material</td>
<td>Grilamid plastic, stainless steel, aluminum</td>
</tr>
<tr>
<td>Protective lens</td>
<td>Plastic, in 2 versions: clear and tinted</td>
</tr>
<tr>
<td>Interchangeable lenses</td>
<td>Yes</td>
</tr>
<tr>
<td>Nose pad</td>
<td>Grilamid plastic, interchangeable</td>
</tr>
<tr>
<td>Scene camera, video resolution</td>
<td>1920 x 1080 at 25 fps</td>
</tr>
<tr>
<td>Scene camera, video format</td>
<td>H.264</td>
</tr>
<tr>
<td>Scene camera, field of view</td>
<td>90 deg. 16:9 format</td>
</tr>
<tr>
<td>Scene camera, horizontal and vertical FOV (approx.)</td>
<td>82 deg. horizontal / 52 deg. vertical</td>
</tr>
<tr>
<td>Weight</td>
<td>45 grams including protective lens</td>
</tr>
<tr>
<td>Frame dimensions (width x depth x height)</td>
<td>179 x 159 x 57 mm</td>
</tr>
<tr>
<td>Cable length</td>
<td>1200 mm</td>
</tr>
<tr>
<td>Visual field of view (frame obstruction)</td>
<td>More than 160 deg. horizontally, 70 deg. vertically</td>
</tr>
<tr>
<td>Audio</td>
<td>Integrated microphone</td>
</tr>
<tr>
<td>Design characteristics</td>
<td>Light weight and discreet</td>
</tr>
<tr>
<td>Number of eye tracking sensors</td>
<td>4 sensors</td>
</tr>
<tr>
<td>Fixed geometry</td>
<td>Yes</td>
</tr>
<tr>
<td>Sensors</td>
<td>Gyroscope and accelerometer</td>
</tr>
</tbody>
</table>

3.3 Recording Unit

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery recording time</td>
<td>120 min.</td>
</tr>
<tr>
<td>Battery type</td>
<td>Rechargeable 18650 Li-ion, Capacity: 3 400 mAh</td>
</tr>
<tr>
<td>Storage media</td>
<td>SD (SDXC, SDHC) card</td>
</tr>
<tr>
<td>Connectors</td>
<td>HDMI, Micro USB, 3.5 mm jack</td>
</tr>
<tr>
<td>Dimensions (height x width x depth)</td>
<td>130 x 85 x 27 mm</td>
</tr>
</tbody>
</table>
3.4 Prescription Lenses (Option)

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correction lenses</td>
<td>34 pcs., ranging from −5.0 dpt. to +3.0 dpt. in increments of 0.5 dpt. Made of plastic with hard coating.</td>
</tr>
<tr>
<td>Magnetic lens attachment adapter</td>
<td>2 units, made of plastic</td>
</tr>
<tr>
<td>Dimensions (height x width x depth)</td>
<td>80 x 270 x 370 mm (complete kit)</td>
</tr>
<tr>
<td>Weight</td>
<td>1150 grams (complete kit)</td>
</tr>
</tbody>
</table>

3.5 Compliance

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingress protection</td>
<td>IP class 20</td>
</tr>
<tr>
<td>CE - European Union</td>
<td>Yes</td>
</tr>
<tr>
<td>FCC - USA</td>
<td>Yes</td>
</tr>
<tr>
<td>CCC - China</td>
<td>Yes</td>
</tr>
<tr>
<td>VCCI - Japan</td>
<td>Yes</td>
</tr>
<tr>
<td>Eye Safety (EN 62471:2008)</td>
<td>Yes</td>
</tr>
<tr>
<td>Underwriters Lab US (UL 60950)</td>
<td>Yes</td>
</tr>
</tbody>
</table>

3.6 Compatible Software

<table>
<thead>
<tr>
<th>Function</th>
<th>Software</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recording and live viewing</td>
<td>Tobii Pro Glasses Controller Software</td>
</tr>
<tr>
<td>Data analysis and export</td>
<td>Tobii Pro Lab Software</td>
</tr>
</tbody>
</table>

3.7 Controller Software — Feature overview

- Manage participants
- Manage recordings
- Live viewing of recordings
- Instant replay of recordings
- One point calibration
- WLAN configuration settings — connect to existing wireless networks
- Recordings playable from local medias
- Gaze based exposure (Gaze spot meter) possible
- Eye images video possible in live view and stored on the SD card (password supplied by Tobii customer service)
- Switch between 50/100 Hz sampling rate (only with 100 Hz Pro Glasses 2)

3.8 Controller Software — Minimum system requirements

- Operating System: Windows 7, 8, 8.1 and 10 (32 bit and 64 bit)
- CPU: Intel Core i5
- Resolution: 1024 × 768
- Memory: 2 GB
Appendix A  Safety and Compliance

A1  Safety and Usage

A1.1  Intended Use

The Tobii Pro Glasses 2 Medical edition is a device intended to track eye movement of patients.

Indications:
The Tobii Pro Glasses 2 Medical edition is a general device intended for non-critical conditions in which analysis of eye movement is a help, but not the only indicator of a diagnosis. Such indications may include, but are not limited to, concussion, psychological disorders and dyslexia.

Contra-indications:
The Tobii Pro Glasses 2 Medical edition is not intended to be used by patients with clinical conditions making it unsafe for them to use common office electronics.

A1.2  Usage Warning

The Tobii Pro Glasses 2 system is composed of several components as described in the user manual and should be used according to manufacturer instructions. Connecting, or by other means using any other component than advised in the user manual may damage or injure a person, their property or recorded data, and is done entirely at the user’s own risk.

The head unit should be fitted on the test participant according to manufacturer instructions. Tobii or its agents are not liable for damage or injuries to a person or their property due to a head unit being dropped in any configuration.

Fitting the head unit onto a test participant is done entirely at the user’s own risk.

The head unit is equipped with a head strap to enable tighter mounting of the head unit onto the wearer’s head. Neither Tobii nor its agents are liable for damages or injuries to a person or their property caused by the head unit’s head strap.

A1.3  Heating Warming

The Recording Unit gets warm during a recording session. Do not place the Recording Unit in direct skin contact to avoid potential discomfort. This is especially important for patients with a lowered level of consciousness as such patients may not be able to detect long term exposure to warm surfaces or communicate perceived discomfort.

A1.4  Emergency Warning

The Tobii Pro Glasses 2 system is to be used for research purposes only. Be aware that due to the low, but possible risk of failure or distraction, Pro Glasses 2 should not be relied upon or used in dangerous or otherwise critical situations.

A1.5  Child Safety

The Tobii Pro Glasses 2 system is an advanced computer system and electronic device. As such it is composed of numerous separate, assembled parts. In the hands of a child some of these parts may become detached from the device, possibly constituting a choking hazard or another danger to the child.

Young children should not have access to, or use of the device without parental or guardian supervision.
A1.6 Infrared Warning

When activated, the head unit emits pulsed infrared (IR) light. Certain medical and other devices are susceptible to disturbance by IR light and/or radiation. Do not use the Tobii Pro Glasses 2 system when in the vicinity of such susceptible devices as their accuracy or proper functionality could be impaired.

A1.7 Epilepsy Warning

Some people with photosensitive epilepsy (PSE) are susceptible to epileptic seizures or loss of consciousness when exposed to certain flashing lights or light patterns in everyday life. This may happen even if the person has no medical history of epilepsy or has never had any epileptic seizures.

A person with PSE would also be likely to have problems with TV screens, some arcade games, and flickering fluorescent bulbs. Such people may have a seizure while watching certain images or patterns on a monitor, or even when exposed to the light sources of an eye tracker. It is estimated that 3 to 5% of those diagnosed with epilepsy have this type of epilepsy. Many people with PSE experience an "aura" or odd sensations before a seizure occurs. If you, or the wearer of the head unit, feel odd during use, turn off and remove the head unit.

A1.8 Mechanical Shock Warning

The Tobii Pro Glasses 2 system is a delicate measuring instrument used for research purposes and should be treated with care at all times. To avoid breaking or damaging the internal electronic circuits, do not drop, knock, or shake the device. Eye tracking quality or accuracy can be seriously affected if the head unit or recording unit has been dropped. If the eye tracker is exposed to mechanical shock, for example, when dropped, do not try to start it or connect it to a power source. Contact Tobii Support for instructions.

A1.9 Bending Warning

To avoid breaking or damaging the internal electronic circuits, do not bend any part of the eye tracking system. Eye tracking quality or accuracy can be seriously affected if the head unit or recording unit has been bent.

A1.10 Do not open the devices

Do not open or disassemble the head unit or the recording unit. Non-compliance will result in loss of warranty! There are no user serviceable components inside. Contact Tobii Support if Tobii Pro Glasses 2 is not working properly.

A1.11 Connectors

The head unit and recording unit have numerous external interfaces (connectors). Connecting any other device or connector than those intended may cause personal injuries and/or damage Tobii Pro Glasses 2. Tobii or its agents are not liable for any damages or injuries to a person or their property due to connecting unintended connectors.

A1.12 HDMI Cable Warning

The provided HDMI cable should only be used to connect the head unit with the recording unit. Do not use the HDMI cable for any other purpose or for connecting to any other devices. Only use HDMI cables provided by Tobii to connect the head unit with the recording unit. Tobii or its agents are not liable for any damages or injuries to a person or property due to wrong use of the provided cables.
A1.13 Environment

The Tobii Pro Glasses 2 system is designed for use in dry indoor environments. Avoid any exposure to direct sunlight as this will affect eye tracking quality and longer exposure can overheat the equipment. Avoid exposure to any liquids, gels, moist, rain, sweat or other damp materials or environments. Do not use the eye tracker near water — the device is not water resistant.

The device complies with IP Class 20 and has no protection against objects smaller than 5 mm. Keep the eye tracker in a clean and dust free environment. When using the equipment take adequate precautions against dust and dirt.

Do not place or use the equipment in places subject to extreme temperatures and humidity, such as on top of and or near a heating element, in a hot or damp room, or in a hot automobile in the sun. Usage temperature: 0℃ to +30℃ / 32℉ to 86℉

A1.14 Battery Warning

The Tobii Pro Glasses 2 system includes rechargeable Lithium-ion batteries. Lithium-ion batteries can explode or cause a fire if they are used or charged incorrectly or if they are defective.

Do not short circuit the battery poles. Do not expose the battery to water or humidity. Do not expose batteries to heat, direct sunlight, solder, or fire. Immediately disconnect the batteries if, during operation, they emit an unusual smell, feel hot, change shape/dimensions, or behave abnormally. Do not use any defective batteries.

To recharge the batteries, use a battery charger specifically designed for the purpose and comply with the recharging instructions specified by the manufacturer of the charger. Charge the batteries under supervision and do not place combustible materials close to or on top of the batteries or the charger as this may result in overheating, explosion or fire.

CAUTION: Danger of explosion if battery is incorrectly replaced. If replacing the battery is necessary, replace only with the same or equivalent type recommended by the manufacturer, discard used batteries according to the manufacturer’s instructions.

Avertissement relatif aux batteries

Le système Tobii Pro Glasses 2 système comporte des piles lithium-ion rechargeables. Les batteries lithium-ion peuvent exploser ou provoquer un incendie si elles sont utilisées ou chargées de façon incorrecte ou si elles sont défectueuses.

Ne pas court-circuiter les pôles de la batterie. Ne pas exposer la pile à l’eau ou à l’humidité. Ne pas exposer les batteries à la chaleur, à la lumière du soleil, une soudure ou un feu. Déconnecter immédiatement les batteries si, pendant le fonctionnement, elles émettent une odeur inhabituelle, sont chaudes, changent de forme/dimensions ou se comportent de manière anormale. Ne pas utiliser des batteries défectueuses.

Pour recharger les batteries, utiliser un chargeur spécialement conçu à cet effet et se conformer aux instructions de recharge fournies par le fabricant du chargeur. Recharger les batteries sous surveillance et ne pas placer de matériaux combustibles à proximité ou au-dessus des batteries ou du chargeur en raison du risque de surchauffe, d’explosion ou d’incendie.

ATTENTION: Danger d’explosion si la batterie est mal remplace. remplacer uniquement par le même type ou équivalent recommandé par le fabricant, jeter les piles usagées selon les instructions du fabricant.

A1.15 Wireless Warning

The Recording Unit contains radio transmitters and receivers (WLAN). Make sure that it is placed as far as possible from any equipment, objects or body parts sensitive to such signals.

電波法により5GHz帯は屋内使用に限ります。

A1.16 Transportation

Always use the supplied carry case and packaging material to transport the eye tracking equipment and provide added protection.
A1.17 Accessories

Only use accessories provided by or approved by Tobii.

A1.18 Cleaning

Before cleaning any part of the Tobii Pro Glasses 2 system, unplug the power cord from the outlet and make sure the device is turned off. Both the head unit and recording unit have surface coatings that require special care. Only use the supplied microfibre cleaning cloth or similar products specially intended for cleaning screens or glass with a special coating. Avoid touching or scratching the glass and the eye tracking sensors and illuminators on the head unit and keep all the surfaces clean. Eye tracking quality may be degraded if surfaces are dusty or damaged. Some plastic parts, such as the ear pieces and the nose pads, can be cleaned with water or disinfectant applied on a piece of soft cloth. Avoid contact with any other parts such as the illuminators, sensors and all electronic components.

Clean the unit between uses to avoid transmission of contagious deceases. Use a disinfectant, such as isopropyl alcohol, on a soft cloth to clean the surfaces that come into direct contact with the patient.

A1.19 Disposal

Do not dispose of the device in general household or office waste. Follow local regulations for disposal of electrical and electronic equipment.

Do not dispose of the batteries in general household or office waste. Follow your local regulations for the disposal of batteries.

A2 Compliance Information

All Tobii Pro Glasses 2 Medical edition are CE-marked, indicating compliance with the essential health and safety requirements set out in European Directives.

A2.1 EU Compliance Statement

Tobii AB declares that this device is in compliance with the essential requirements and other relevant provisions of the RED, EMC and Medical Device Directive.

A2.2 Declaration of Conformity (Standards)

The Tobii Pro Glasses 2 Medical edition Recording unit and its handling comply with the following standards:

- Medical Device Directive 93/42/EEC
- Low Voltage Directive 2006/95/EEG
- EMC Directive 2014/30/EU
- RoHS Directive 2002/95/EC
- RoHS2 Directive 2006/121/EC
- WEEE Directive 2002/96/EC
- Reach Directive 2006/121/EC
- EMC Emission: EN55022:2010 Class B, FCC part 15, Class B
- EMC Immunity: EN55024:2010
- SAR EN62311:2008
- Information Technology Equipment, General Requirements IEC/EN/UL60950-1:2005
- Photobiological safety of lamps and lamp systems IEC/EN 62471:2008
- Medical Electrical Equipment, General Requirements for basic safety and essential performance IEC/EN 60601-1:2012
A2.3 Symbols used in this manual

Warning. Instructions must be read carefully before use to avoid potential risks for the patient, damage to the unit or negative impact on the environment.

Caution. Read information carefully to avoid damaging the unit.

Note. Read information to achieve the best possible performance of the unit.

A2.4 Symbols and markings used

The following symbols are used on the Glasses 2 Medical unit:

- **REF** Type reference (product name)
- **SN** Serial number and date of manufacture of unit
- **Name and address of manufacturer**
- **Caution, read “Instructions for use” before operating the device**
- **Read “Instructions for use” before operating the device**
- **Do not dispose of in regular household or office waste. Follow local regulations for disposal of electrical and electronic equipment**

A3 Other limitations and considerations

A3.1 SD memory cards

SD memory cards used in the recording unit must be formatted as FAT32. SDHC cards are usually pre-formatted as FAT32 and will work out of the box while SDXC cards must be formatted as FAT32 before they can be used with the recording unit. Only use SD cards recommended by or supplied by Tobii.

A3.2 Multiple connections between the controller software and the recording unit

Under no circumstances should the tablet or computer running the controller software connect to the same recording unit using both a wireless and a wired connection at the same time.

A3.3 Eye movement classification

Gaze presented in Live Viewer and replay tabs of the controller software is filtered through a five-point moving average filter. Such filters do not entirely mimic true eye movement behavior and fixations may seem to dynamically shift locations. This has no significant impact for qualitative observational analysis in the controller software. When data is transferred to Tobii Pro Lab, only raw, unfiltered data is transferred, giving the analyst full access to more advanced eye movement classification filters suitable for quantitative analysis of gaze data.
A3.4 Sampling rate

A 100 Hz eye tracker will eye track on a smaller viewing area than the equivalent 50 Hz eye tracker. For extreme viewing angles, the user might get 50 Hz data from a 100 Hz eye tracker.

A3.5 Light conditions

We recommend that eye tracking studies be performed in a controlled and well-lit environment. Sunlight should be avoided since it contains high levels of infrared light which will interfere with the eye tracker system. Sunlight affects eye tracking performance severely and longer exposure can overheat the eye tracker. The eye tracker is not designed for exposure to (direct) sunlight. Eye tracking generally does not work in strong direct sunlight. Shielding the eye tracker adequately from the sun may prevent sunlight from interfering with eye tracking. For better performance, use the supplied tinted lenses if the product is used in an environment with strong sunlight.

A3.6 Eyelashes

Long eyelashes can be obstructive when the participant’s eyes are less open, especially if the participant is wearing mascara. In rare cases, eyelashes may completely block the view of the participant’s pupils, making eye tracking impossible.

A3.7 Droopy eyelids

Droopy eyelids or otherwise obstructive eyelids can block the view of the participant’s pupils. In rare cases, such eyelids may completely block the view of the participant’s pupils, making eye tracking impossible.

A3.8 Eye glasses and contact lenses

Tobii Pro Glasses 2 is not designed to work in conjunction with standard eye glasses. Participants who wear eye glasses might still be included in the study by using Tobii Pro’s optional Prescription Lenses. By attaching correction lenses of a suitable strength, the participant can wear Glasses 2 and still have a corrected vision. See the section 2.5 Prescription Lenses.

Standard contact lenses may slightly increase noise but do not normally introduce any errors in the data. Colored or fancy lenses that change the appearance of the pupil or iris should be avoided as they might make eye tracking impossible.

A3.9 WLAN connectivity

WLAN signal quality is affected by different environmental factors such as the distance between the recording unit and the tablet/computer, the presence of walls, windows, furniture and other objects, and the presence of other WLAN devices and networks in the same area. A weak or low quality WLAN signal will decrease the quality of, or even interrupt the Live Viewing video in the controller software or even disconnect the recording unit from the tablet/computer.

A3.10 Power

We recommend that you connect the power cord of the chargers to an outlet with a protective earth/ground connection. Use an accessible outlet and make sure the cords are properly placed to avoid the risk of tripping. Never use damaged power cords.

The Recording unit is intended to be supplied power by a UL Listed Adapter rated 5V, 2A min.
A3.11 Keeping the controller software and the recording unit's firmware up to date

From time to time Tobii will release updates for the eye tracker firmware and Tobii Pro Glasses Controller Software that will improve performance and/or introduce new functionality. When a new version of Tobii Pro Glasses Controller Software or the recording unit’s firmware is available, the user will be notified with an alert symbol at the top of the user interface if the computer is online. Alternatively, the latest firmware and software can be downloaded from the Tobii Pro Support website http://www.tobiipro.com/learn-and-support Make sure to regularly check for and update to the latest version of the software and firmware.