WatchPAT™200 Unified

Operation Manual

Itamar Medical REF OM2196336

Rx only Caution: Federal law restricts this device to sale by or on the order of a licensed healthcare practitioner

DISCLAIMER

Itamar Medical Ltd. shall not be held responsible in any manner for any bodily injury and/or property damage arising from operation or use of this WatchPAT™200 Unified other than that which adheres strictly to the instructions and safety precautions contained herein and in all supplements hereto and according to the terms of the warranty provided in the License Agreement in Appendix C.

Itamar Medical Ltd.
9 Halamish St., P.O. Box 3579
Caesarea Ind. Park, 3088900, Israel
Tel: International + 972-4-617-7000, US 1-888-7ITAMAR
Fax + 972 4 627 5598
www.itamar-medical.com

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See appendix D for contact information of the regulatory authorized representative

Record of Editions

Edition	Date	Description	Chapter	Pages
1 (based on OM2196335 Ed.5)	Jan 2018	Updating Copyright Updating screen displays Updating typo	- 2.4.3, 7.4 App.F	- 17, 37 60
2	April 2018	Updated intended use to include AHIc Updating restriction for use Updating exclusion criteria Adding additional precautions Update data generated by the WP200U Added note regarding Central+ Update overview Adding chest movement signal (optional) Adding note regarding pediatric patient Adding explanation regarding using small finger Update SBP section to include RESBP data	1.1 1.2 1.3 1.4 1.5 1.9 2 2.3 7, 8 7.3 4.1,App A	1 2 2 2-3 3 5 10 15 35, 41 37 25, 48
3	March 2019	Updating CE marking with the new notified body number 2797	-,1.12	i,8
4	Sep 2019	Update Standards Update Tamper-Proof Bracelet instructions Update EU REP address	-, 1.7 4.2 App D	i,4-5 27 61
5	Jan 2020	Added warning for double night	4.3	28
6	Feb 2020	Add restriction for AHIc Changed from Exclusion Criteria to Precautions Change Precautions wording for arrhythmias	1.2 1.3 1.3	2 2 2

Note:

- Latest version of the WatchPAT™ system Operation Manual is available at:
  
  http://www.itamar-medical.com/Support/Downloads.html
- zzzPAT Software Manual is also available on the zzzPAT installation CD and is installed as part of the software installation.

Printed copy will be provided within 7 calendar days if requested at no additional cost.

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1 GENERAL INFORMATION

This manual is part of the WatchPAT™200 Unified system.

1.1 Intended Use / Indications for Use

The WatchPAT™200U (WP200U) device is a non-invasive home care device for use with patients suspected to have sleep related breathing disorders. The WP200U is a diagnostic aid for the detection of sleep related breathing disorders, sleep staging (Rapid Eye Movement (REM) Sleep, Light Sleep, Deep Sleep and Wake), snoring level and body position. The WP200U generates a peripheral arterial tonometry ("PAT") Respiratory Disturbance Index ("PRDI"), Apnea-Hypopnea index ("PAHI"), Central Apnea-Hypopnea index ("PAHIc"), PAT sleep staging identification (PSTAGES) and optional snoring level and body position discrete states from an external integrated snoring and body position sensor. The WP200U's PSTAGES and snoring level and body position provide supplemental information to its PRDI/PAHI/PAHIc. The WP200U's PSTAGES and snoring level and body position are not intended to be used as the sole or primary basis for diagnosing any sleep related breathing disorder, prescribing treatment, or determining whether additional diagnostic assessment is warranted.

PAHIc is indicated for use in patients 17 years and older. All other parameters are indicated for 12 years and older.

1.2 Restrictions for Use

1. The WP200U should be used only in accordance with physician's instructions. For precautions see Section 1.3.
2. Only qualified medical personnel may authorize the use of the WP200U.
3. Qualified medical personnel must instruct the patients (and accompanying individual if needed) how to attach and use the WP200U prior to use.
4. In the event of equipment malfunction all repairs should be executed by authorized Itamar Medical Ltd. personnel or licensed service agents.
5. The eligibility of a patient for a PAT® study is entirely at the discretion of a physician, and is generally based upon the patient's medical status.
6. The WP200U system in whole, or in part, may not be modified in any way.
7. The WP200U is used as an aid for diagnostic purposes only, and should not be used for monitoring.
8. Only suitably trained and qualified personnel should be authorized to prepare the WP200U equipment prior to use.
9. The WP200U Operation Manual should be carefully studied by the authorized operators, and kept where it is easily accessible. Periodic review of the Manual is recommended.
10. Itamar Medical Ltd. makes no representation whatsoever, that the act of reading the Manual renders the reader qualified to operate, test or calibrate the system.

11. The tracings and calculations provided by the WP200U system are intended as tools for the competent diagnostician. They are explicitly not to be regarded as a sole incontrovertible basis for clinical diagnosis.
12. In the event that the system does not operate properly, or if it fails to respond to the controls in the manner described in this Manual, the operator should refer to the Troubleshooting section. If necessary, contact our service office to report the incident, and to receive further instructions.
13. The step by step instructions for the patient should be carefully followed when attaching the unit to the patient.
14. The WP200U is not indicated for patient with injuries, deformities or abnormalities that may prevent proper application of the WP200U device.
15. The WP200U is not indicated for children less than 12 years old.
16. The AHIc was not clinically assessed for patients who are in high altitudes or for patients using opioids.

1.3 Precautions

The WatchPAT™200U should not be used in the following cases:

1. Use of one of the following medications: alpha blockers, short acting nitrates (less than 3 hours before the study).
2. Permanent pacemaker: atrial pacing or VVI without sinus rhythm.
3. Sustained* non-sinus cardiac arrhythmias.
   ** In the setting of sustained arrhythmia the WatchPAT's automated algorithm might exclude some periods of time, resulting in a reduced valid sleep time. A minimum valid sleep time of 90 minutes is required for an automated report generation.*
4. The WP200U is not indicated for children who weigh less than 65 lbs.

1.4 Additional Precautions specific to pediatric use

The WatchPAT™200U is indicated for use in patients 12 years and above.
The following Precautions and Notes are referring to pediatric aged 12-17 years.
Precautions:

1. Pediatric patients with severe comorbidities such as Down syndrome, neuromuscular disease, underlying lung disease or obesity hypoventilation should be considered for sleep study in a laboratory polysomnograph (PSG) rather than a home sleep testing (HST).
2. It is recommended that the physician makes sure that the patient and his/her guardian are aware that the use of specific drugs and other substances used to treat ADHA, antidepressants, corticosteroids, anticonvulsants, use of caffeine, nicotine, alcohol and other stimulants might interfere with sleep and affect the sleep study's conditions.

Notes:

1. PAT Respiratory Disturbance Index (PRDI) is indicated for patients 17 years of age or greater

2. The snoring and body position safety and effectiveness was not validated on pediatric patients
3. Special attention on training the pediatric patient and / or his accompanying individual on use and placement of the device prior to initiating a sleep study with the WatchPAT™ device (for further details see section 7 and section 8)

1.5 Data Generated by the WatchPAT™200U

The WatchPAT™200U generates a PAT respiratory disturbance index (“PRDI”) , PAT Apnea-Hypopnea Index (“PAHI”), PAT central Apnea-Hypopnea Index (pAHIc), percentage of total sleep time with Cheyne-Stokes Respiration pattern (%CSR) and PAT sleep staging identification ("PSTAGES"). The WP200U respiratory indices and sleep stages are estimates of conventional values and stages identification that are produced by polysomnography (“PSG”). The WatchPAT™200U also generates optional acoustic decibel detector used for snoring level and body position discrete states from an external integrated snoring and body position (SBP/RESBP) sensor.

PRDI is indicated for patients 17 years of age or greater.

1.6 Equipment Classification

The **WP200U** is a Class IIa medical device under MDD 93/42 EEC: 1993 & Amm. 2007/47/EC Annex IX rule 10.

1.7 Quality Assurance System: EN ISO 13485

The Itamar Medical WP200U is compliant to the following standards.

	STANDARD	#
1.	Medical electrical equipment – Part 1: General requirements for basic safety and essential performance	IEC 60601-1
		ANSI/AAMI ES60601
		CAN/CSA -C22.2 No.60601-1
2.	Medical electrical equipment – Part 1-2: General requirements for basic safety and essential performance - Collateral standard: Electromagnetic compatibility - Requirements and tests	IEC 60601-1-2
3.	Medical Device Software – Software Life Cycle Processes	IEC 62304
4.	Medical electrical equipment -- Part 1-11: General requirements for basic safety and essential performance -- Collateral standard: Requirements for medical electrical equipment and medical electrical systems used in the home healthcare environment	IEC 60601-1-11
5.	Degrees of protection provided by enclosures (IP Code) – IP22	IEC 60529
6.	Medical devices - Application of usability engineering to medical devices	BS EN 62366
7.	Medical electrical equipment - Part 1-6: General requirements for basic safety and essential performance - Collateral standard: Usability	IEC 60601-1-6
8.	Medical devices. Application of risk management to medical devices	EN ISO 14971
9.	Medical devices. Symbols to be used with medical device labels, labelling and information to be supplied. General requirements	ISO 15223-1
10.	Graphical symbols for electrical equipment in medical practice	IEC TR 60878
11.	Graphical symbols - Safety colours and safety signs -- Registered safety signs; refer to instruction manual/ booklet	ISO 7010-M002
12.	Information supplied by the manufacture with medical devices	EN 1041
13.	Biological evaluation of medical devices - Part 1: Evaluation and testing	ISO 10993-1
14.	Medical electrical equipment - Part 2-61: Particular requirements for basic safety and essential performance of pulse oximeter equipment	ISO 80601-2-61
15.	FDA Quality Systems Regulation (QSR)	21 CFR part 820
16.	Medical devices. Quality management systems. Requirements for regulatory purposes	EN ISO 13485:2016

17.	Medical Device Directive	MDD 93/42 EEC MDD 2007/47/EC
18.	RoHS Directive 2011/65/EU (RoHS2)	RoHS - Directive 2011/65/EU

1.8 CE and CSA Compliance

The product complies with MDD 93/42 EEC: 1993 & Amm. 2007/47/EC (Medical Device Directive) requirements and CE approved.

The product is marked with the CE logo.

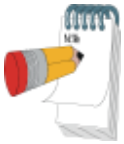
The product is certified by CSA.

1.9 Conventions Used in this Manual

Note: Throughout this document, the references WatchPAT™, WatchPAT™200U and WP200U device are used to refer to the WatchPAT™200 Unified device.
Note: Throughout this document, the reference Snore & Body Position sensor is referring to both SBP sensor and RESBP sensor unless specified otherwise.
Note: Central+ is a WatchPAT™ module that enables identification of central apnea. Central+ functionality can be achieved when using the WatchPAT™ with the RESBP sensor and compatible software.

	Warnings are used to identify conditions or actions, which - if the instructions are ignored - may violate patient safety, or cause damage/malfunction to the system, resulting in non recoverable loss of data. **Les avertissements** sont utilises pour identifier les conditions ou les actions qui- si elles sont ignorées- peuvent porter atteinte à la sécurité des patients ou causer des dommages au système et résulter à une perte irréversible des données.

	Cautions are used to identify conditions or actions, which could cause interference with data acquisition and/or impair study results. **Les précautions** sont utilisées affin d'identifier les conditions ou les actions qui peuvent interférer avec le ramassage de données et provoquer des résultats équivoque.

	**Notes** are used to identify an explanation, or to provide additional information for purposes of clarification. **Les notes** sont utilisées pour identifier les explications et pour donner des informations supplémentaires dans le but de clarifier.

1.10 Warnings, Cautions and Notes

The WP200U is internally powered from a 4.2 V battery.
The WP200U is portable with continuous operation.
The WP200U uses BF patient applied parts.
The WP200U uses UL listed power supply (USA & Canada only).
The power supply is used in a non-patient environment only.
The WP200U should only be transported in its original case.
There are no serviceable parts inside the WP200U.
Environmental conditions during transportation & storage: See Specifications section.
Environmental conditions during operation: See Specifications section.

Sleep professionals (other than patients) using the WP200U should read the Operation Manual.

1.11 Safety Precautions

WARNINGS

Use only the AC adapter provided (5V DC, 5W maximum capacity power supply). Only authorized personnel may charge the WP200U. Failure to heed this warning may cause permanent damage to the equipment.

Do not let the unit get wet.

Avoid placing food or water on any part of the system.

In the event of fire use only fire extinguishers approved for use on electrical fires.

Handle unit with care. This unit is sensitive to extreme movements and to falling.

Do not attempt to connect or disconnect any part of the unit.

Do not try to introduce any foreign object into the unit.

The WP200U MUST be charged ONLY after being removed from the patient!

The WP200U MUST be removed from the patient BEFORE connecting it to a PC!

AVERTISSEMENTS

Utiliser uniquement l'adaptateur CA fourni avec le dispositif (5V DC, 5W alimentation maximale). Seuls les techniciens autorisés peuvent recharger le dispositif WP200U. Cet avertissement est essentiel pour éviter des dommages irréparables à l'équipement.

Ne pas mouiller l'unité.

Éloigner le dispositif de toute source d'eau ou nourriture.

En cas d'incendie, utiliser uniquement des extincteurs homologués pour l'utilisation en cas d'un incendie dû à une source électrique.

Manier avec précaution. L'unité est fragile : éviter les mouvements soudains et chute.

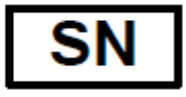
Ne pas tenter de brancher ou débrancher une des parties de l'unité.

Ne pas introduire un corps étranger a l'intérieur de l'unité.

Le système WP200U **doit** être rechargé **uniquement** après avoir été détaché de la main du patient.

Il est impératif de détacher le système WP200U de la main du patient **avant** de le relier à l'ordinateur.

1.12 Symbols Used on the Product Labels

	Follow instructions for use
	Type BF applied part
	The product is certified by CSA
	The product is marked with the CE logo 2797 for BSI
	Date of manufacture
3.7V DC ⎓	Battery Operating Voltage
	Single use, do not re-use
	Temperature limit
	Use-by date
	Medical device Manufacturer
	Catalogue Number
	Serial Number
IP22	Ingress protection The device is protected against insertion of fingers and vertically dripping water shall have no harmful effect when the device is tilted at an angle up to 15° from its normal position

EC REP	Authorized representative in the European Community
Rx only	Caution: Federal law restricts this device to sale by or on the order of a licensed healthcare practitioner
	According to the WEEE Directive 2012/19/EU, all waste electrical and electronic equipment (EEE) should be collected separately and not disposed of with regular household waste. Please dispose this product and all of its parts in a responsible and environmentally friendly way.

1.13 WatchPAT™200U Device Labels

Located on WatchPAT™200U device

Located on WatchPAT™200U device

1.14 FDA information

The WatchPAT200U is cleared by the FDA under K161579, trade name Watch-PAT 200U (WP200U).

2 OVERVIEW

Obstructive sleep apnea syndrome (OSAS) is considered a major public health problem. The prevalence of the syndrome is estimated at 2% to 5% in the adult population. It is characterized by recurrent events of complete or partial obstruction of the upper airways during sleep, often leading to hypoxemia, and/or arousals associated with sympathetic nervous system activation. The diagnosis and assessment of the sleep apnea patient is based on the Respiratory Disturbance Index (RDI), the number of Apneas, Hypopneas and Respiratory Effort Related Arousals (RERA) per hour of sleep, along with sleep architecture. The common consequences of this sleep disruption are daytime sleepiness, poor daytime performance and increased vulnerability to accidents. Cardiovascular complications such as systemic/pulmonary hypertension, ischemic heart disease and arrhythmias are the major sequel of OSAS in the adult population.

The WP200U is worn on the wrist and is utilizing a plethysmographic based finger–mounted probe that measures the PAT® (Peripheral Arterial Tone) signal. The PAT® signal is a measurement of the pulsatile volume changes in the fingertip arteries which reflects the relative state of the arterial vasomotor activity, and thus indirectly the level of sympathetic activation. Peripheral arterial vasoconstriction, which mirrors sympathetic activation, is shown as attenuation in the PAT® signal amplitude.
The same probe measures RED and IR channels used for the measurement of SpO2 signal. The PAT®and SpO2 signals are recorded continuously and stored on an embedded micro SD card, together with data from a built-in actigraph (embedded in the WP200U). Snoring and Body Position signals are generated from the SBP/RESBP integrated sensor (optional). The RESBP (Respiratory Effort Snoring and Body Position) sensor records the subject's chest movement signal in addition to the snoring and body position signals that are included with the SBP sensor.

Following the sleep study, the recordings are automatically downloaded and analyzed in an offline procedure using the proprietary zzzPAT software.

The zzzPAT algorithms use the four WP200U channels (PAT®, Pulse Rate, Oxygen saturation and actigraphy) for the detection of sleep related breathing disorders and sleep staging (Rapid Eye Movement (REM), Light Sleep, Deep Sleep and Wake). In WP200U only, for further identification of central apnea the respiratory movement channel generated from the RESBP sensor is used in the zzzPAT algorithm in addition to the other channels. The zzzPAT uses WP200U's snoring and body position channels to generate snoring level and body position discrete states. The use of SBP/RESBP is optional and according to physician preference.

The software issues comprehensive reports of the study, with statistics and graphic presentation of the results. The whole night data can be viewed and the automatically detected events can be revised manually.

2.1 System Description

The WP200U system is comprised of the following items:

- WP200U device that includes:
  - Embedded actigraph
  - Embedded pulse oximeter
  - Embedded CPU and electrical circuit card
  - Embedded micro SD card drive
  - Rechargeable Lithium Ion Battery
  - LCD display
- uPAT probe (includes oximetry)
- uPAT probe connection cable
- Wrist Strap
- Snore and Body Position sensor (SBP/RESBP) – optional
- Cable for Tamper-Proof Bracelet – optional
- Tamper-Proof Bracelet - optional
- AC adapter
- USB cable
- Step-by-Step Reference Guide (to be used in conjunction with Section 7)
- Quick Reference Cards (to be used in conjunction with Section 8)
- Carrying case

Figure 1 – Packed Device

Figure 2 – WatchPAT™200U Device with Sensors

An additional item required for the operation of the system is the zzzPAT kit. zzzPAT is a proprietary PC software for initializing the study, retrieving, analyzing and displaying the data. For more information, refer to the zzzPAT Operation Manual.

2.2 User Interaction with the WatchPAT™ Device Keys

The WatchPAT™ has the following keys (see Figure 3):

- Central On/Enter key to power on the WatchPAT™ (the only key visible to the patient)
- Outer ring containing four keys (left, right, up, down) that may be used by the Operator for entering the diagnostic mode and navigating through the diagnostic menu. These keys are hidden from the patient.

Figure 3 – The Buttons and Display

LCD Display

The display is used for reading status and error messages. The display is divided to three sections: Title, Info and Status.

- Title (first line): Current operational mode and time
  - PATIENT mode while recording night study
  - DIAGNOSTIC mode while testing device
  - PC HOST while connecting to PC
  - CHARGER mode while connecting to AC adapter
- Info (2^{nd}-5^{th} line): Specific information depending on operational mode
- Status (last line): Message indicating device status depending on operational mode

Service Ports and Peripherals

The WatchPAT™ device has 4 ports that are used either for sensor connections or for servicing and charging (see Figure 4).

- The bracelet port is used for connecting the tamper-proof bracelet.
- The uPAT probe port is used for connecting the uPAT probe
- A port for connecting the optional Snore & Body Position sensor
- The USB port is used for charging or connecting to the PC

Figure 4 – Service Ports and Peripherals

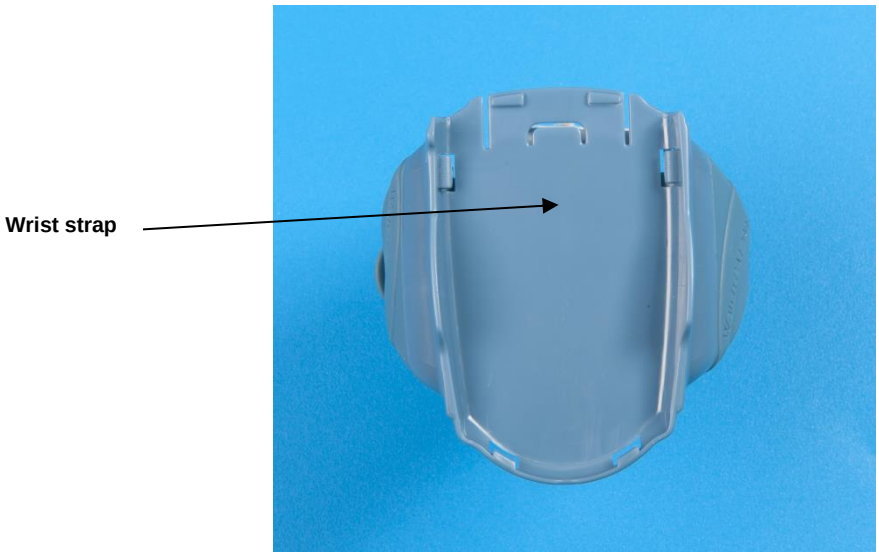


Figure 5 – WatchPAT™ Wrist Strap

2.3 WatchPAT™ Device Function

The WatchPAT™ records the following channels:

- PAT® Signal
- Oxygen saturation
- Actigraphy (movement)
- Acoustic decibel detector for Snoring evaluation (optional)
- Body Position (optional)

- Chest movement signal (optional)

The overnight sleep study data is stored on an embedded micro SD card in the WatchPAT™ device. After the study is recorded, the data is downloaded from the WatchPAT™ device through the USB cable using the zzzPAT software. The zzzPAT software, utilizing automatic algorithms, detects respiratory and other events that occurred during sleep as well as periods of REM, deep sleep, light sleep and wakefulness. The pulse rate signal is derived from the PAT® signal and used in the automatic analysis. The software issues comprehensive detailed reports of the study. The whole night data can be viewed on the PC screen and the automatically detected events can be revised manually.

An optional tamper-proof patient identification function is available using a custom bracelet whose presence during the night verifies that the identified patient is indeed the one sleeping with the device (see Tamper-Proof Testing with WatchPAT™ Device Tamper-Proof Testing with section).

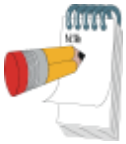
The patient normally sleeps only one night with the WatchPAT™ device unless an optional multi-night option is selected which enables an up to 3 nights study with the same device (see Multi-night study section).

2.4 Built-In Self-Diagnostic Procedures

2.4.1 Operator Tests

The WatchPAT™200 unified contains a comprehensive built-in self-diagnostic procedure. This procedure is available to the operator and hidden from the patient. The procedure can be accessed if the UP and DOWN keys (see Figure 3) are pressed simultaneously after the device is powered ON (during the first 30 seconds only after the device is powered ON). The procedure performs the following test:

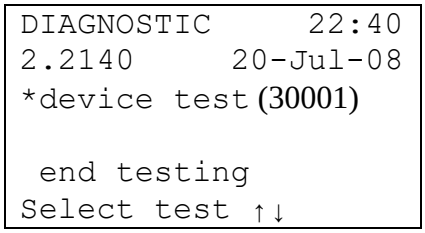
- Device Test – tests the WatchPAT™ for errors before performing a night study (make sure all sensors are connected before initiating this test)

	**Note** In all times, the current time is shown in the upper right hand corner of the LCD display.

To run the self-diagnostic procedure:

- Press the ENTER button (Center key) for 2 seconds till the Itamar medical logo appears on the LCD screen
- Immediately press the **UP + DOWN** keys (see Figure 3) simultaneously for 1 second

The following screen will be displayed:

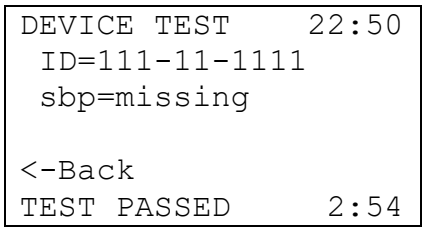


- First line displays title and current time
- Second line displays current embedded S/W version (2.2139) and current date
- Third line displays option for running device test (serial number of device in parenthesis)
- Fifth line indicates option for end testing (turn device off). If no test is selected within 3 minutes the WatchPAT™ device will automatically shut down
- The Up, Down keys (↑↓) navigate between the lines.
- An asterisk will indicate current selection. When moving the ↑↓ keys, the asterisk will move to indicate the current selection. Press the central Enter key to make the desired selection.

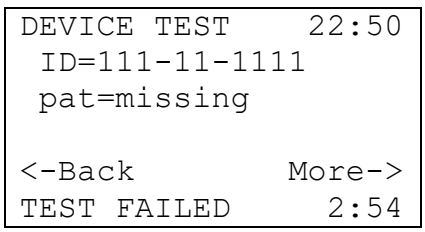
It is recommended that you perform the Device every time you prepare the WatchPAT™ for a night study.

2.4.2 Device Test

At the completion of the device test, a **TEST PASSED** indicates that the device is ready for the night study.



At the completion of the device test, a **TEST FAILED** indicates a problem that should be taken care of before the device is released for a night study.



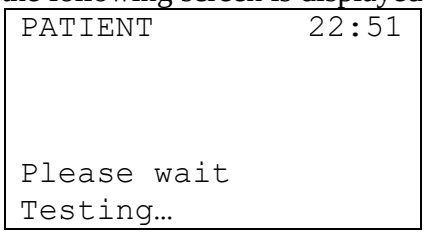
The following are the possible error, warning or information messages:

- File error: not loaded, missing – the study file was not loaded or somehow the file was deleted
- File error: used x/3 x=1..3 – only when multi-night option is selected
- Battery error: low – needs charging
- Probe error: used, missing, bad – connect an unused probe
- Hardware (H/W) error: error code - contact customer support
- SBP/RESBP (Snore and Body Position sensor) warning: sensor missing – does not affect PASSED status
- RTC (Real Time Clock) warning: faulty – indicates problem with internal clock but does not affect PASSED status
- Bracelet error: missing – the study file was chosen with the bracelet option but the bracelet is not connected during the device test
- Information messages:
    - multi-night=on - when a multi night study is required
    - bracelet=on - when a study with tamper-proof patient identification bracelet is required

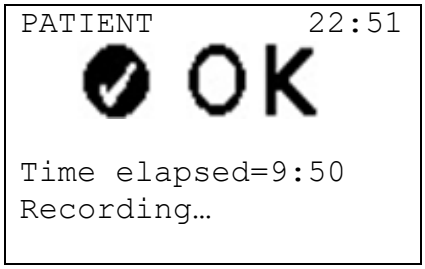
`More->` indicates that there are more error/warning messages and will be displayed if the Right (`->`) button is pressed.
`<-Back` will move to the previous screen if the Left (`<-`) button is pressed.

2.4.3 Patient Test

When the patient (and accompanying individual if needed), turns on the WatchPAT™ device by pushing the On/Enter key (center button) for about 2 seconds a self-diagnostic test is automatically performed and the following screen is displayed:

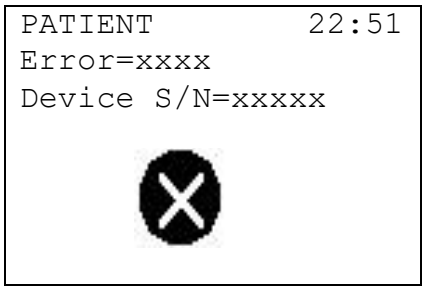


If the WatchPAT™ device passes this self-diagnostic test, the following screen will be displayed:



	Note During recording the LCD display turns off to conserve battery life. Any key pressed during Recording will turn on the LCD for 30 seconds.

If the WatchPAT™ device fails this self-diagnostic test, the following screen will be displayed:



- The error message will be displayed for 1 minute and then the WatchPAT™ device will shut off.
- If this is a study with the tamper-proof bracelet and the wrong bracelet is connected the "wrong bracelet" error message appears.
- If this is study with the tamper-proof bracelet and the bracelet is not connected the "connect bracelet" error message appears in order to remind the patient to connect the bracelet.

The following are the possible error/warning messages:

xxx1 - battery low

xx2x – uPAT probe error (used probe)

xx4x – File error (no new file)

xx8x - uPAT probe error (bad probe)

x4xx – SBP/RESBP missing warning

	Note The "x" stands for 0-F value (Hexadecimal code) Error codes are additive, i.e. both uPAT probe and File errors will produce error code xx6x.

3 PREPARATION FOR SLEEP STUDY

3.1 Charging the Battery

The battery must be charged every time the WatchPAT™ device is prepared for use. The battery may be charged using the AC adapter provided.

To charge the WatchPAT™ device:

1. Gently slide the WatchPAT™ device out of the wrist strap until a click is heard and the USB port is exposed.
2. Connect the USB port of the WatchPAT™ device to the AC adapter provided (see Figure 6).

	**Warning** For charging use only an AC adapter having a 5V DC output, with 5W minimum capacity. Using any other AC adapter may cause permanent damage to the WatchPAT™ and may jeopardize the operator.

Figure 6 – Charging the WatchPAT™ Device

3. The LCD will blink slowly and the following screen will be displayed:

```
CHARGER          22:51

Bat=3.12 V


Charging…
```

- The display will show **"CHARGER"** if you are charging with the AC adapter or **"PC HOST"** if you are charging with a computer.
- The current battery voltage is shown.
- Charge the battery the first time for approximately three hours. Thereafter recharging takes approximately 1-1.5 hours.

4. When charging is complete, the LCD will stop blinking and the following screen will be displayed:

```
CHARGER          22:51

Bat=4.2 V


Charging complete
```

5. Disconnect the AC adapter or communication cable. The WatchPAT™ device will switch off in 30 seconds.
6. Reseat the WatchPAT™ device in the wrist strap by gently sliding it back in until a click is heard.

Should a charging error arise the LCD will blink rapidly and the following screen will be displayed.

```
CHARGER          22:51

Bat=4.2 V


Charger fault
```

3.2 Preparing the Snore and Body Position Sensor

Attach the small round double sided adhesive sticker to the Snore and Body Position sensor on the back side (front side has an image), by peeling off the cover on one side of the sticker.
For more details see Appendix A: WatchPAT™ Integrated snoring + Body Positioning Sensor Operating Instructions (SBP/RESBP).

3.3 Preparing the Wrist Strap

The wrist strap requires no special preparation other than ensuring its cleanliness. You may clean it if needed. See section 6.1 for detailed cleaning instructions.

3.4 Mounting the WatchPAT™ on the Wrist Strap

To mount the WatchPAT™ device on the wrist strap:

Gently slide the WatchPAT™ device into the wrist strap until a click is heard indicating that it is properly seated.

3.5 Replacing the uPAT Probe

	**Warning** The uPAT probe connector is very sensitive and therefore should never be left exposed. **Keep the connector connected to the probe at all times, especially during cleaning**. Replace the probe just before performing the Device test.

Remove a used probe by pressing the small tab (clip) marked by the arrow in Figure 7, and then, holding the connector's slider, gently slide it away from the probe – do not pull the slider off by pulling the cord, as it may damage the wiring. Properly dispose of used probes.

Figure 7 – Disconnecting the Probe

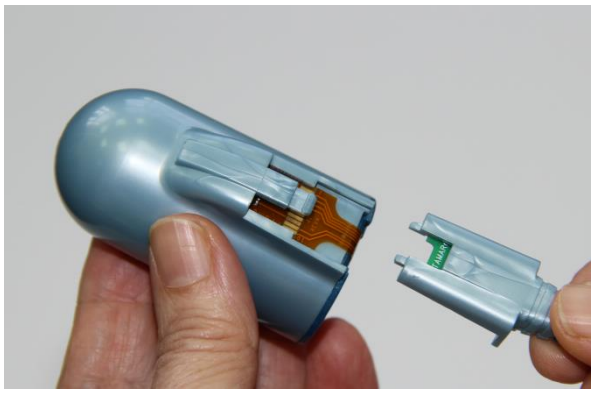
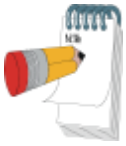


Figure 8 – Probe Disconnected

Connect a new probe by inserting the blue slider to the probe until the blue tab of the probe clicks into its place.

	**Note** Take care when inserting the blue slider to insure proper seating in the probe.

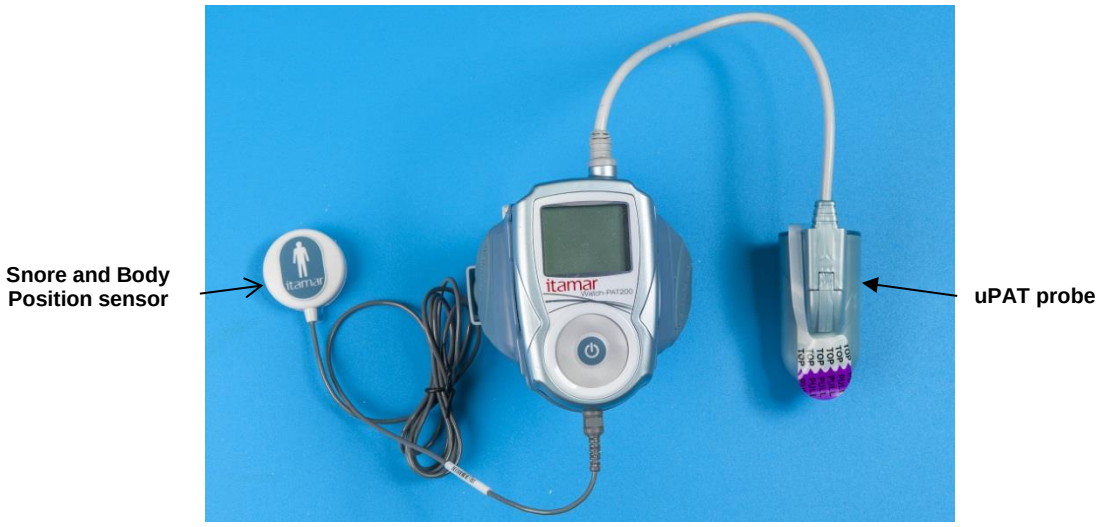


Figure 9 – WatchPAT™ Fully Prepared

3.6 Preparing the WatchPAT™ Device for a New Study

Refer to the zzzPAT Software Manual for preparation of the WP200U for a new study.

3.7 Testing the WatchPAT™ Device

Run the built-in self-diagnostic facility as described in Section 2.4 above.

The WatchPAT™ device is now ready for performance of a sleep study by the patient (Figure 9).

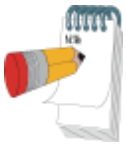
3.8 WP200U Self-diagnostic Test Results and Trouble-shooting

Should any of the self-diagnostic tests fail or report error messages refer to the trouble-shooting guide in Section 9.

3.9 Packing the Carrying Case

The following items must be placed inside the carrying case, in their respective compartments (see Figure 1 – Packed Device):

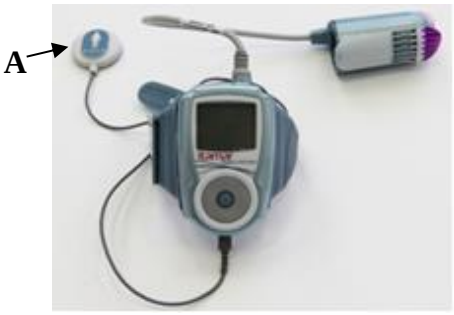
- The WatchPAT™ device mounted in the Wrist strap with the uPAT probe attached.
- Step-by-Step Reference Guide to the WatchPAT™ device.
- Body Position and Snore sensor (optional)
- Cable for bracelet (optional for patient identification)
- 2 extra uPAT probes and AC adapter (optional for multi-night)

	**Note** Demonstrating the use of the WatchPAT™ device to the patient (and accompanying individual if needed), is important for obtaining reliable recordings and improving patient confidence.

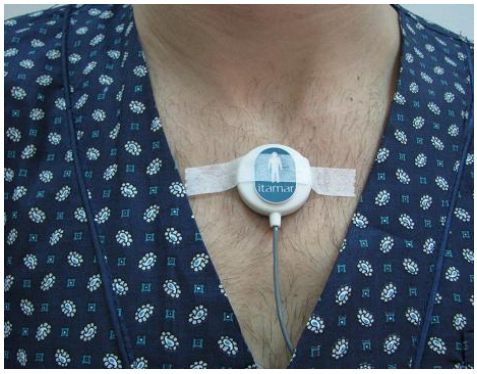
4 OPTIONAL FUNCTIONS

4.1 Using the integrated Snore & Body Position Sensor

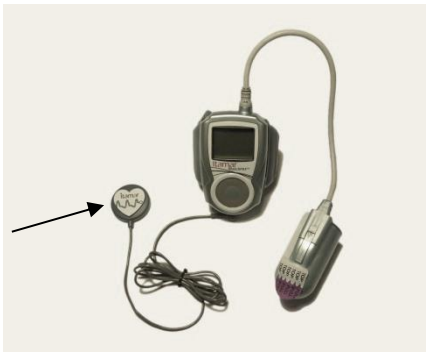
The integrated sensor consists internally of two sensors: a snore sensor and a body position sensor.



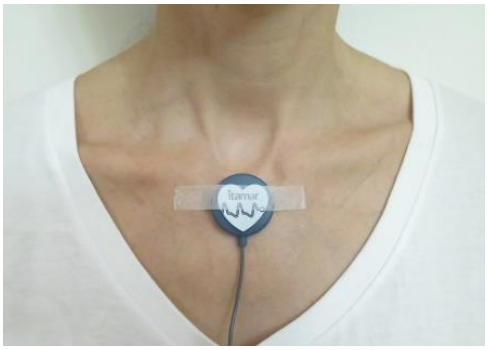
A - Integrated SBP sensor



SBP Sensor Attachment



B - Integrated RESBP sensor



RESBP Sensor Attachment

The integrated sensor is powered by the WatchPAT™ device and does not require a battery. It is automatically activated by the WatchPAT™ device when plugged into the Snore & Body position port.

The **snore sensor** is an acoustic decibel detector. It uses a very sensitive microphone that responds to snoring and other sounds in the audio range and converts them to a small analog voltage that provides a clear, reliable indication of the presence of these sounds.

The **body position** sensor uses a 3-axis accelerometer that provides a signal directly proportional to the patient's sleeping posture (supine, prone, right, left and sit).

For RESBP only: The **chest movement signal** uses the same 3-axis accelerometer to provide raw chest movement signal data for measuring subject's breathing during the night.

See Appendix A: WatchPAT™ Integrated snoring + Body Positioning Sensor Operating Instructions (SBP/RESBP).

4.2 Tamper-Proof Testing with WatchPAT™ Device

The WatchPAT™ device Tamper-Proof bracelet is an add-on accessory used to authenticate the patient doing a sleep study and assure the study is recorded from the right person.
The bracelet is a single use small plastic band designed to be worn around the wrist of the hand. It contains an electronic circuit that signals to the WatchPAT™ device the integrity of the bracelet and a unique identification. During the night the bracelet is connected to the WatchPAT™ device using a small cable (see Figure 10).

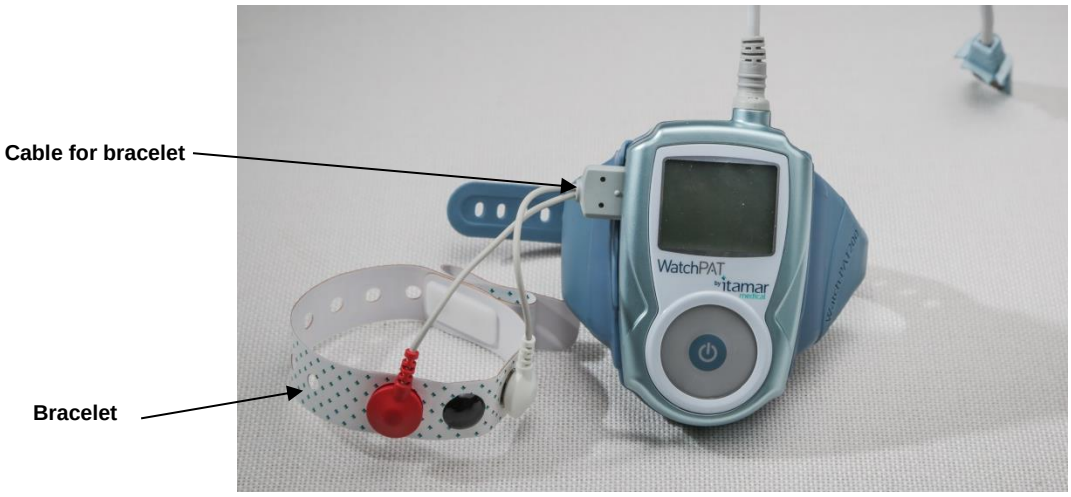


Figure 10 – WatchPAT™ Device with Tamper-Proof Bracelet

Before the device is given to the patient for home sleep study, the technician identifies the patient and secures the bracelet to the patient's wrist by a tamper-proof connector that ensures the bracelet will not be removed without cutting the Bracelet.

Figure 11 – Bracelet on Patient's Hand

When preparing the WatchPAT™ device for a sleep study, the technician pairs the Tamper-Proof Bracelet and the device and registers the bracelet's unique ID in the WatchPAT™ device (see Appendix B: Tamper-proof testing with WatchPAT™).
The patient can wear the Bracelet for several days, continuing normal day-to-day activity until he is ready to record his sleep study. Before starting the recording, the patient will need

to connect the Bracelet, via the bracelet's cable 2 connectors, to the WatchPAT™ device. The device will not start without connection to the paired Bracelet.

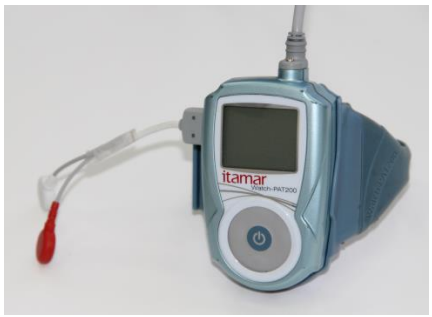


Figure 12 – WatchPAT™ Device with Cable for Bracelet

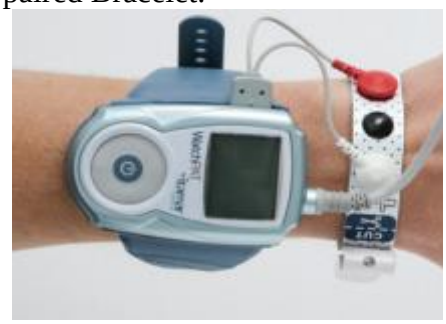


Figure 13 – WatchPAT™ Device with Bracelet

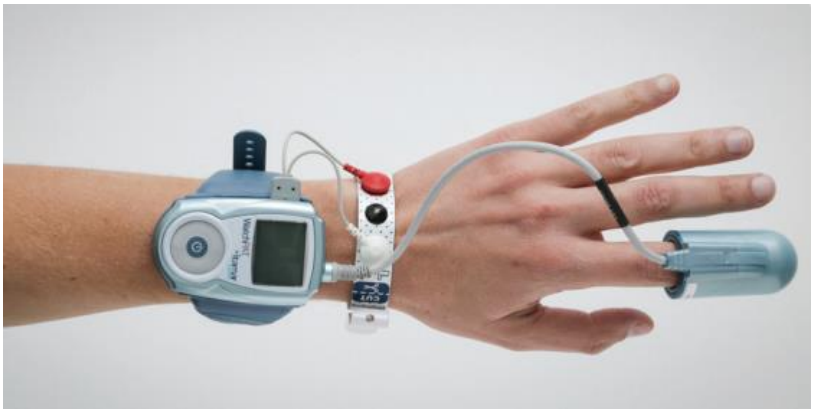


Figure 14 – Bracelet and WatchPAT™ Device on a Patient's Hand

During the recording the device will periodically check the Bracelet connectivity. The recording will be stopped if the connection to the Bracelet will be lost for the time exceeding a predefined limit.
After the recording is completed the patient can cut the Bracelet and return it with the device for study analysis.

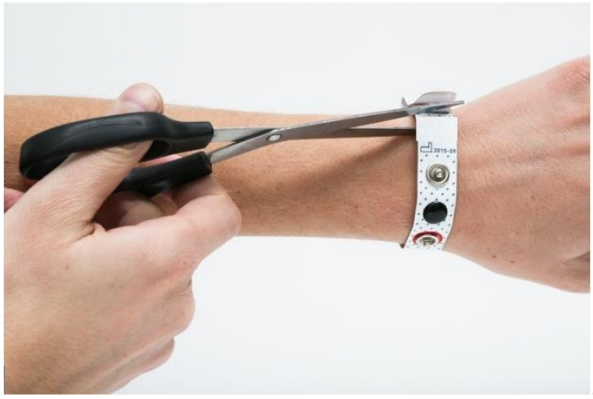


Figure 15 – Cut the Bracelet

4.3 Multi-night study

A patient study may be defined as multi-night study and the patient can sleep up to 3 nights with the same WatchPAT™ device. The multi-night option may be selected during New Study function (see zzzPAT Operation Manual).

If a 3 night multi-night option is selected the patient must replace the uPAT probe and charge the device between nights. Two extra uPAT probes and a WatchPAT™ device AC adapter must be added to the WatchPAT™ device case.

If a 2 night multi-night option is selected the patient must replace the uPAT probe only after the first night without the need to charge the device between nights. One extra uPAT probe must be added to the WatchPAT™ device case.

In case of multi-night study all of the patient studies will be loaded automatically to the zzzPAT during the upload (see zzzPAT Operation Manual).

	Warning
	If your WP200U contains the Semicom 423048A-SL011/ITMR battery (Itamar REF AS0037060), in order to ensure that the WP200U will provide 2 eight hours nights, the WP200U must be charged longer. A period of approximately **4 hours** charging (with the provided AC/DC adapter) must be applied. In this case, the "charging complete" indication on the LCD applies only for a single night charging and is not applicable for a two night study. See Replacing the Battery section for inspecting the battery type inside the device.

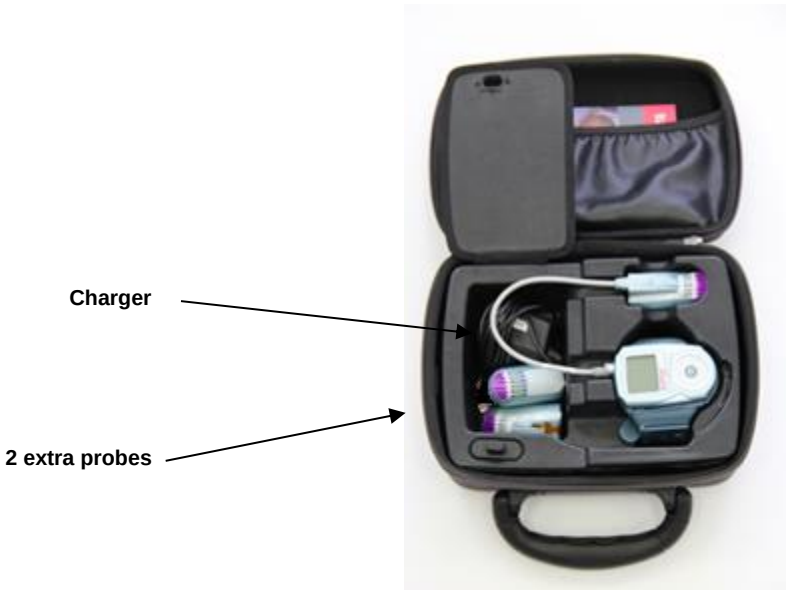


Figure 16 – Case for 3 Night Multi-night Study

5 DATA DOWNLOAD AND ANALYSIS

Following the sleep study the WatchPAT™ device is returned to the referring sleep clinic for data downloading and analysis by the zzzPAT software.

To download and analyze the study data:

1. Connect the USB port of the WatchPAT™ device to the computer (see Figure 4) The WatchPAT™ device will switch off and then switch on in charging mode.
2. Activate the zzzPAT software to download and analyze the study data.

See the zzzPAT Software User Manual for detailed instructions.

6 MAINTENANCE

The WatchPAT™ device has been designed and manufactured to meet all safety requirements applicable to medical equipment. To ensure maximum safety of operation, the system should be used and maintained in strict compliance with the safety precautions, warnings and operating instructions provided in this Manual.

In order to prevent unnecessary failures while patient is using the device, we recommend performing the routine maintenance recommendations as well as the preventive maintenance recommendations as described in this section.

Routine maintenance recommendations

a) Cleaning the device, wrist strap and SBP sensor.
b) Device should be inspected for possible defects, in the device, cables and sensors. The product must be serviced on any case of damage.
c) PAT cable's electrical connectors should be visually inspected while replacing a probe. The product should be serviced in case any damage to the connector is found.
d) The following items should be visually inspected and replaced if found damaged: strap, carrying case and all accessories.
e) Complete technician test must be done and passed with no errors prior to handing the product to a patient.
f) The product should be stored in its carrying case while not in use or charged.

Preventive maintenance recommendations

a) Battery – replace battery after 200 sleep studies, after 1 year or when charging time, using the provided power supply, exceeds 2.5 hours.
b) PAT Cable – replace the PAT cable after 200 sleep studies, after 1 year or when it is found broken on any of its components.
c) SBP Sensor – replace if its connector is broken, if the cable near the connector is peeling off or if it is found broken on any of its components.

See sections 6.1, 6.2, 6.3 and 6.4 bellow for detailed instruction on Cleaning, and replacing the uPAT cable and the battery respectively.

Following is a summary table with routine and preventive maintenance recommendations:

Routine maintenance recommendations:

	Scenario	
Routine maintenance action	Back from sleep study	Handing to patient
Cleaning	X	
Check cable connections	X	
Check carrying case	X	X

Check strap	X	X
Perform technician test		X

Preventive maintenance recommendations:

	Scenario	
Routine maintenance action	Lesser of: 200 studies, 1 year, error message in device test	When a defect is found or upon error message
Replace battery	X	
Replace PAT cable	X	X
Replace SBP sensor		X
Replace strap		X
Replace charger		X
Replace carrying case		X

Other system parts are not user-serviceable parts. Any maintenance needs that are not listed here should be performed only by qualified service personnel, authorized by Itamar Medical Ltd.

6.1 Cleaning

The various components of the WatchPAT™ device have different cleaning requirements:

- The WatchPAT™ device
- The wrist strap
- The Snore & Body Position sensor

6.1.1 Cleaning the WatchPAT™ Device

In order to clean the WatchPAT™ device proceed as follows:

- Wipe parts with a clean, dry, lint-free cloth.
- Clean casing with lint free cloth lightly moistened with 70% ethyl alcohol or isopropyl alcohol (IPA).

	**Warning** Clean the WatchPAT™ device only with the uPAT probe attached.

6.1.2 Cleaning the Wrist Strap

You may clean the wrist strap with lint free cloth lightly moistened with 70% ethyl alcohol or isopropyl alcohol (IPA).

In order to disinfect the wrist strap by immersing into disinfecting liquid follow the steps:

- Remove WatchPAT™ device from wrist strap
- Immerse wrist strap in 70% ethyl alcohol or isopropyl alcohol (IPA)

6.1.3 The uPAT Probe

The uPAT probe is designed for a single use only. It may not be cleaned and must be discarded and replaced before each study.

6.1.4 The Snore & Body Position Sensor

Using 70% ethyl alcohol, thoroughly clean both sensor and cable.

6.2 Handling

Handle with care:

- Use only the designated case for transportation
- Store at room temperature, and avoid direct sun light
- Do not expose the WatchPAT™ device to extreme temperature or humidity conditions (such as storing in a car or bathroom)

6.3 Replacing the uPAT Probe Cable

To replace the uPAT probe cable:

1. Carefully disconnect the uPAT probe cable from the WatchPAT™ device. Make sure you remove the screw prior to disconnecting the uPAT cable.

Figure 17 – uPAT Probe Cable with Screw

2. Connect a new uPAT probe cable by gently inserting the connector into the WatchPAT™ device. Make sure you secure back the screw.

Figure 18 – Replacing the uPAT Probe

	**Warning** Use only the original screw that belongs to the WatchPAT™ device. Using different screw could harm the device.

6.4 Replacing the Battery

	**Warning** Replace the battery only with an authorized battery provided by Itamar Medical Ltd.

In the event of a battery error message during the self-diagnostic tests or after charging, it may be necessary to replace the battery.
To replace the battery:

1. Open the battery compartment cover with a Phillips screwdriver.
2. Gently open the battery connector by disconnecting the 2 parts (you will need to remove the transparent tape that secures the battery connector closed).
3. Remove the battery.

4. Insert the new battery into the battery compartment.
5. Insert the 3 pin connector into the corresponding battery connector (one pin is longer so it may properly be inserted in only one direction). Secure the battery connector closed with a small piece of transparent tape.
6. Close the battery compartment cover and secure back the screw.

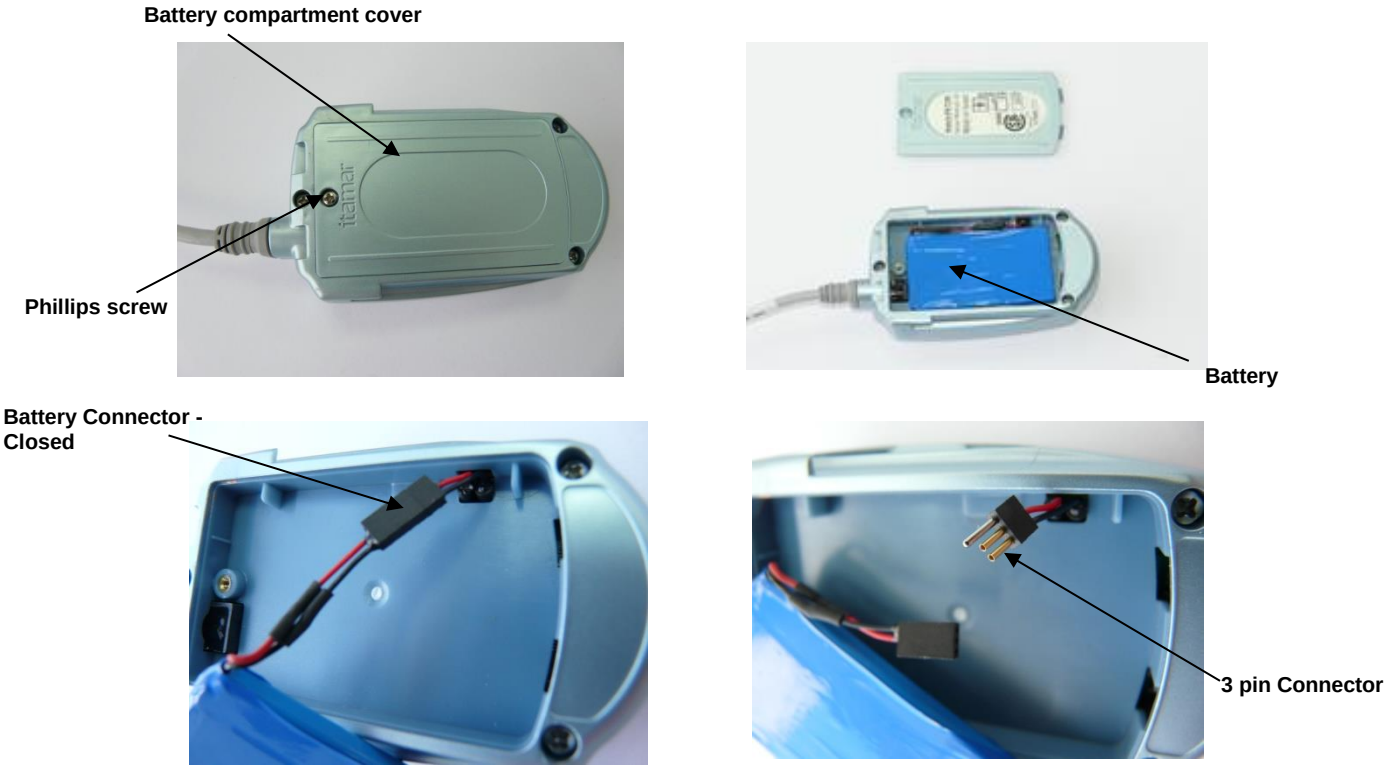


Figure 19 – Replacing the Battery

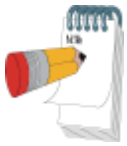
6.5 Setting the Time and Date of the WatchPAT™ device

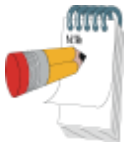
The WatchPAT™ device Time and Date can be set through the zzzPAT application. Refer to the zzzPAT Software Manual for preparation of the WatchPAT™ device for a new study.

6.6 Storing the WatchPAT™ device

- The WatchPAT™ device should be stored in its carrying case at room temperature and low humidity.
- In order to preserve battery performance when the WatchPAT™ device is not in use, store with the battery fully discharged.
- Before storing the WatchPAT™ device allow it to deplete the battery charge until it shuts down automatically.

7 APPLYING THE WATCHPAT™ DEVICE

	**Note** These instructions are designed to help the patient use the WP200U **after** seeing a demonstration by trained personnel of how to mount the probes on his/her fingers and correctly operate the WatchPAT™ device.

	**Note** In the case of pediatric patient, special attention on training the patient and / or his accompanying individual on use and placement of the device prior to initiating a sleep study with the WatchPAT™ device.

The following detailed instructions are summarized in the patient's step-by-step reference guide. They are written as if the reader is the patient using the WatchPAT™ device.

7.1 Preparing for Use of the WatchPAT™ Device

Before using the WP200U, review the following notes:

- Remove tight clothing, rings, watches and jewelry from your non-dominant hand and wrist and from your neck and chest.
- We recommend that the uPAT probe be attached to the index finger of your non-dominant hand (Figure 20). The following instructions relate specifically to this finger. Patients with very large fingers may use their small finger (pinky) for the uPAT Probe.
- Ensure that fingernail of finger that will be monitored are well trimmed, (less than 1mm from nail bed) with no jagged edges. Clip and file nail, if necessary.
- Remove artificial fingernail or dark nail polish from the monitored finger.
- If you are using the SBP/RESBP sensor, trim chest hair to ensure the sensor attached directly to your skin.
- You may need some assistance putting on the WatchPAT™ device. If needed have someone present to assist you.
- Make sure the room you are sleeping in is as quiet as possible during the night, turn off any possible noise sources. When using the Snore & Body Position sensor it is advised to sleep alone in the room.

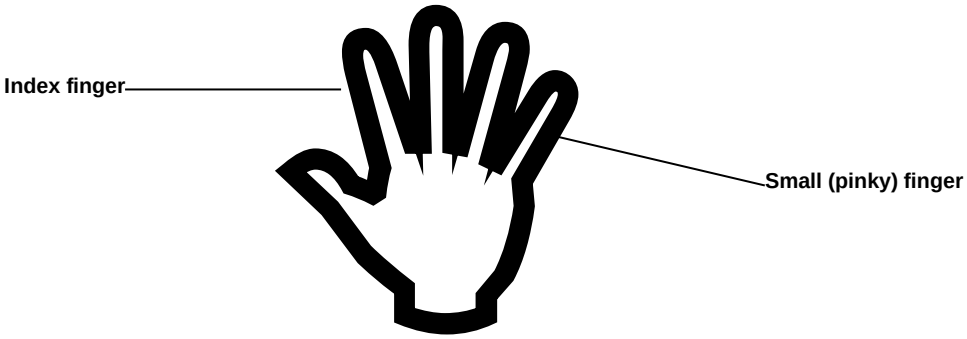


Figure 20 – Finger Designation

7.2 Applying the WatchPAT™ Device

To apply the WatchPAT™ device to your wrist:

1. Open the carrying case and take out the wrist strap with the WatchPAT™ device mounted. All parts should already be connected, as illustrated in Figure 9.
2. Ensure that the WatchPAT™ device is firmly seated in the wrist strap. If not, gently seat the WatchPAT™ device in the strap by sliding it into its seating position. You will hear a click when the WatchPAT™ device is properly seated in the strap.
3. Place the wrist strap with the WatchPAT™ device on the non-dominant arm and close it snugly but not tightly. Ensure that the rounded end is towards the body and the open end towards the fingers. You may find it convenient to place the wrist strap with the WatchPAT™ device face down on the table and then place the back of the wrist over the wrist strap in order to fasten the straps (Figure 21).
4. At this point the uPAT probe is hanging loose (Figure 22 – Wearing the WatchPAT™ Device).

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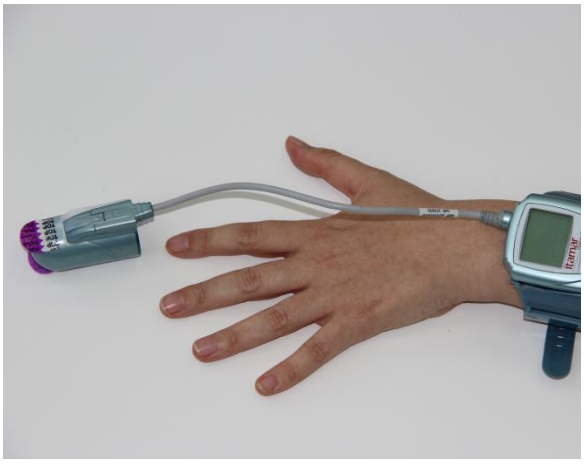
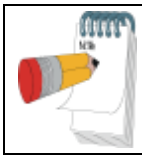


Figure 21 – Putting On The Wrist Strap **Figure 22 – Wearing the WatchPAT™ Device**

7.3 Attaching the uPAT Probe

Proper probe placement is critical for good performance.



Note

The tab inside the probe should be removed only **AFTER** the finger is inserted into the probe.

To attach the uPAT probe:

1. Insert your index finger (or other if so instructed) gently into the probe until it reaches the end (see Figure 23 –).
2. Make sure that the paper tab marked TOP is above your nail.
3. Detach and gradually remove the tab marked TOP slowly and firmly while pressing the tip of probe against a hard surface (WatchPAT™ case, table, etc.) until the tab is completely removed from the probe (Figure 24). You might feel a slight suction once the tab is removed. For small fingers secure the probe to the finger with a medical tape.

   The uPAT probe is now attached (Figure 25).

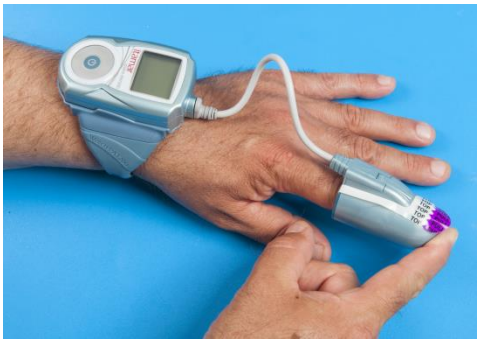


Figure 23 – Placing Finger In uPAT Probe

Figure 24 – Removing TOP Tab

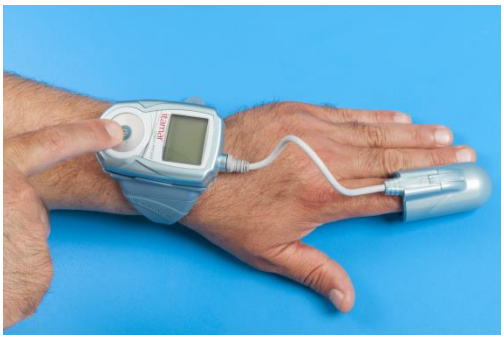


Figure 25 – Wearing the WatchPAT™– Ready for Sleep

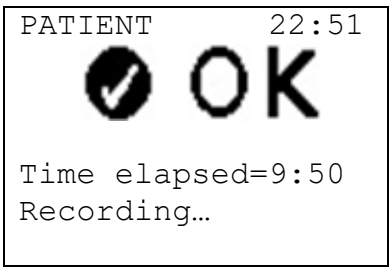
	Note DO NOT remove the uPAT probe before the night study is terminated. Once the probe is removed it cannot be re-attached.

	Note If the Snore & Body position sensor is included in the WatchPAT™ device case see Appendix A: WatchPAT™ Integrated snoring + Body Positioning Sensor Operating Instructions (SBP/RESBP)

7.4 Switching On the WatchPAT™ device

You are now ready to switch on the WatchPAT™ device.

Just before you lie down to go to sleep, firmly press the ON/Enter center button (Figure 3) until the LCD display lights up. After a short delay the LCD will display "OK" sing.

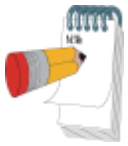


	Note To conserve the battery the LCD display will switch off after a few seconds. Pressing any button will restore the display for about 30 seconds.

7.5 When You Wake Up

When you awake, remove the WatchPAT™ device from your arm as follows:

1. Remove both probes from your fingers.
2. Take off the wrist strap.
3. Place all parts in the carrying case.

	**Note** Pressing the center button does not switch off the WatchPAT™ device. Approximately ten hours after the WatchPAT™ device is turned on, it will switch off. This is normal.

7.6 Important Notes

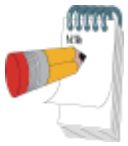
Wearing the WatchPAT™ device should not cause any discomfort or pain. If you experience wrist or arm discomfort, loosen up the wrist strap. If the discomfort is not alleviated immediately, call the service number.

- Do not attempt to connect or disconnect any part of the unit.
- Do not try to introduce any foreign object into the unit.
- Do not try to connect the unit to an electrical supply or any other unit, machine or computer.
- If any part appears disconnected or does not resemble the illustrations, call the service number for assistance.
- Do not, under any circumstances, attempt to fix the problem yourself.

If you have any questions about using the machine, before, during or after your at-home recording session, call the service number.

8 PATIENT TRAINING – GUIDELINES

Instruct the patients (and accompanying individual if needed) how to attach and use the WP200U prior to use.

	**Note** In the case of pediatric patient, special attention on training the patient and / or his accompanying individual on use and placement of the device prior to initiating a sleep study with the WatchPAT™ device.

8.1 Walk Through the Process of Using the WatchPAT™ device

- Product introduction – WatchPAT™ device, wrist strap, uPAT probe
- WatchPAT™ device and wrist strap attachment
- Probe and sensor attachment
- Switch on
- Ending the study

8.2 Product Introduction

- Open the Demo-case and introduce the 'Quick guide step-by-step' instruction manual.
- Introduce each component by its name and identify it as in the figures in the manual.

8.3 Applying the WatchPAT™ device

Use the Demo Kit.

- Demonstrate how to apply the WatchPAT™ device on your wrist while following the 'step by step' guidelines and referring to the relevant figures.
- Demonstrate the following:

1. **Hand Preparation**
   - Remove rings, watches and jewelry from hand
   - Remove fingernail polish and artificial nails
   - Make sure index finger nail is closely trimmed
2. **Attaching the Snore & Body Position Sensor (optional)**
   - The sensor is attached to the patient's chest right under the sternal notch. The sternal notch is the little U shape where the collar bones meet at the top of the breast bone.

- If needed, trim chest hair to ensure the sensor attached directly to your skin.
- To position the sensor attach it with the image standing up (cable pointing down) after peeling off the round adhesive sticker and pressing against the skin.
- Make sure the sensor is tight against the skin.
- Secure the snoring sensor in place with medical tape.

3. **Wearing the Wrist Strap**
   - Should be comfortable, not too tight.
4. **Attaching the WatchPAT™ Device**
   - Make sure the WatchPAT™ device is properly mounted on the wrist strap. If it is loose, gently slide it in until you hear a click.
5. **Attaching the uPAT Probe**
   - Insert finger all of the way into the probe
   - Press tip of probe against a hard surface (WatchPAT™ device case, table, etc.) while removing tabs in order to keep the finger from moving inside the probe
   - Remove the Tab by pulling slowly and gradually
   - For small fingers secure the probe to the finger with a medical tape.
   - The probe is limited to a SINGLE USE. Do not remove probe during the night.

8.4 Switching on the WatchPAT™ Device

- Demonstrate switching on the WatchPAT™ device by pressing the round center button
- Push button firmly until the LCD display lights up

8.5 Removing the WatchPAT™ Device

- Demonstrate how to remove the WatchPAT™ device and place it back in the carrying case.
- The WatchPAT™ device doesn't switch off – once turned on it will record until the battery is exhausted.

8.6 Patient Training

- Following your demonstration have the patient attach the demo device by himself or with the assistance of accompanying individual if needed.

- Verify that the attachment is properly done.

8.7 Review Safety, General and Functional Issues

- Avoid exposing the WatchPAT™ device to extreme conditions (high temperature, high humidity).
- Provide a telephone number to call in case of questions or problems.

9 TROUBLESHOOTING GUIDE

9.1 Operator Error Messages

If an error message is displayed while performing the self-diagnostic tests, take the actions specified below. If the problem persists contact Itamar or an authorized representative.

Table 1 – Operator Troubleshooting

Error	Possible Reason	Action
File error		
Not loaded	Study not initialized for new patient	Connect device to PC and perform New Study in zzzPAT
Battery error % full	Battery defective or uncharged	Charge battery or replace
Probe error		
Used	Probe previously used	Replace probe
Missing	Probe absent	Attach probe
Bad	Probe is defective	Replace probe
Hardware status error code	WatchPAT™ device defective	Consult Itamar or authorized representative
SBP/RESBP disconnected even if it is connected	WatchPAT™ device or SBP/RESBP sensor defective	Consult Itamar or authorized representative
RTC faulty	WatchPAT™ device defective	Consult Itamar or authorized representative
Short recording time	Patient removed the WP200U or probe from hand prematurely	Explain proper use to patient
	Insufficient battery charge caused early termination of recording	Recharge battery and try again
	Damaged WatchPAT™ device	Contact your authorized sales representative

9.2 Patient Error Messages

If an error message is displayed when the patient powers on the WatchPAT™ device, the patient should take the actions specified below. If the problem persists the patient may contact Itamar or an authorized representative directly.

Table 2 – Patient Troubleshooting

Error	Possible Reason	Action
WatchPAT™ device doesn't switch on	ON button not activated	Press the ON button firmly for at least 3 seconds
	uPAT probe not connected	Ensure probe is connected and try again
Probe disconnected	Probe may not be connected, or may be a used probe	Check connection of probe to cable and cable to the WatchPAT™ device; check if probe has been previously used and replace with new probe if necessary
Hardware code	WatchPAT™ device failure	Contact Itamar or authorized representative

10 SPECIFICATIONS

Table 3 – WatchPAT™200U Specifications

Properties		**Description**
uPAT Probe		Itamar's proprietary probe. Measures PAT and Oximetry.
Recording Time		Approx. 10 hours
Channels		Measuring 4-7 signals: PAT, Pulse rate, Oximetry, Actigraphy, Snoring (optional), Body Position (optional), Chest Movement (optional)
Sample Resolution		PAT and Actigraph – 12 bit, oximetry – 1% Snoring – 12 bit, Chest Movements – 12bit x 3 axes, Body Position – 5 discrete states
User Interface		LCD display
Oximetry		Arms ≤ 3% (in range 70%-100%)
Accuracy	*Pulse rate* *Amplitude*	30-150 ± 1 bpm 0-0.5V ± 10%
PAT Channel	*Bandwidth*	0.1-10 Hz
Data Storage	*Media*	Micro SD card
	Capacity	64 MB (minimum)
	Format type	Formatted to FAT 32
Power Supply	*Battery*	Proprietary, rechargeable Lithium Ion Battery
	Capacity	> 500-700 mAh
	Cell Type	Lithium Ion cell type
	Internal Charger	Proprietary Lithium Ion battery charger
	External Power Supply	5V DC, 5W with USB connector
Operating Voltage		3.3 V
Temperature	*Operation*	0^0C to 40 ^{0}C
	Storage (Device)	-20^0C to 40 ^{0}C
	Transport (Device & Probe)	-20^0C to 60 ^{0}C
	Storage (Probe)	0^0C to 40 ^{0}C
Humidity	*Operating*	10% – 93% (non-condensing)
	Storage & Transport	0% – 93% (non-condensing)
Atmospheric pressure	*Operating & Storage*	10 – 15 psi
	Transport	8 – 15 psi
Dimensions	*L x W x H*	80 x 50 x 20 mm
	Weight	130 gr (excluding uPAT probe weight of 20 gr)

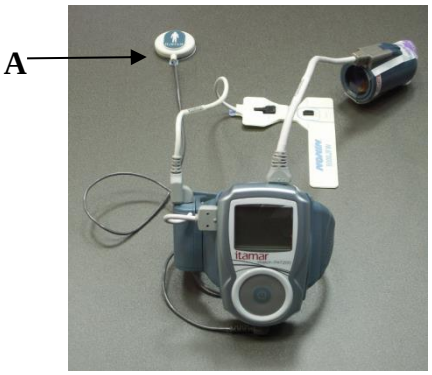
APPENDIX A: **WatchPAT™ Integrated snoring + Body Positioning Sensor Operating Instructions (SBP/RESBP)**

SBP must be used with zzzPAT v 4.3 and above and WatchPAT™200/U
RESBP must be used with zzzPAT v 4.6 and above and WatchPAT™200U with embedded 3.3228 and above

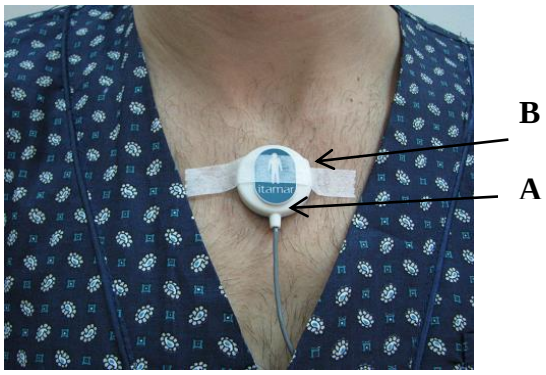
Thank you for purchasing an Integrated Snore & Body Position Sensor.

Description

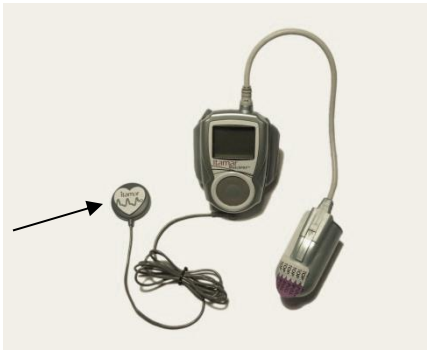
The integrated sensor consists internally of two sensors: a snore sensor and a body position sensor.



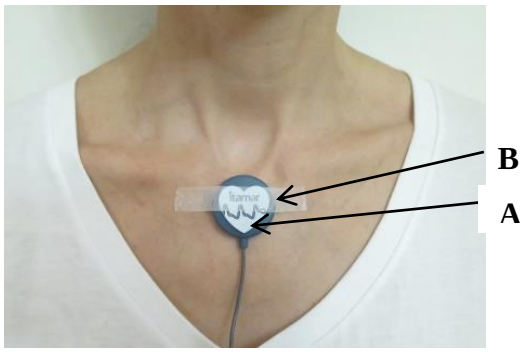
A - Integrated SBP Sensor



A – SBP Sensor attachment
B - Sternal notch



A - Integrated RESBP Sensor



A-RESBP Sensor Attachment
B-Sternal notch

The integrated sensor is powered by the WatchPAT™ device and does not require a battery. It is automatically activated by the WatchPAT™ when plugged into the Snore & Body position port.

The **snore sensor** is an acoustic decibel detector. It uses a very sensitive microphone that responds to snoring and other sounds in the audio range and converts them to a small analog voltage that provides a clear, reliable indication of the presence of these sounds.
The **body position** sensor uses a 3-axis accelerometer that provides a signal directly proportional to the patient's sleeping posture (supine, prone, right, left and sit).
For RESBP only: The **chest movement signal** uses the same 3-axis accelerometer to provide raw chest movement signal data for measuring subject's breathing during the night.

Indications of use
The integrated Snoring & Body position sensor is an accessory of the WatchPAT™ home care device for use with patients suspected to have sleep related breathing disorders. The integrated sensor monitors the snoring level, which aids in the evaluation of the severity of sleep related breathing disorders, and the body position which aids in the evaluation of the type of sleep related breathing disorders. The RESBP sensor also provides raw chest movement signal data to measure the subjects breathing during the night.

Preparing the sensor
- Attach the round double sided adhesive sticker to the blue side of the sensor.

Applying the sensor
Make sure the room you are sleeping in is as quiet as possible during the night, turn off any possible noise sources. When using the SBP/RESBP it is advised to sleep alone in the room.
- The sensor is attached on the patient's chest right under the sternal notch. The sternal notch is the little U shape where the collar bones meet at the top of the breast bone.
- If needed, trim chest hair to ensure the sensor attached directly to your skin.
- To position the sensor attach it with the image standing up (cable pointing down), after peeling off the round adhesive sticker and pressing against the skin.
- Make sure the sensor is tight against the skin.
- Secure the sensor in place with medical tape.

Cleaning the sensor
Using 70% ethyl alcohol, thoroughly clean both sensor and cable.

SPECIFICATIONS	
Snoring Sensor Technology	Sensitive microphone
Body Position and Chest Movement (for RESBP only) Sensor Technology	3-axis Accelerometer
Signal Amplitude	0-3.3 V
Connector Type	1 mm medical safety connector plug from Plastics1 *Wire Length:* 3.2 foot (100 cm)
Physical Size	1.3 inch diameter (32 mm diameter)
Weight	12 gr

Warranty	6 months	
Temperature	*Operation*	0 to 40 ^{0}C
	Storage	-20 to 40 ^{0}C
	Transport	-20 to 60 ^{0}C
Humidity	*Operating, Storage & Transport*	0% – 93% (non-condensing)
Atmospheric pressure	*Operating, & Storage* *Transport*	10 – 15 psi 8 – 15 psi

Snoring and Body Position Accuracy

This section gives statistical performance measure for Itamar SBP sensor, when used with the WatchPAT™ device.

I. Body Position

The body position measured by the WatchPAT™ device with Itamar SBP sensor was compared to the gold standard, manual scoring of the video recording of 31 patients, in 1 minute's epochs (total of 7111 epochs) during sleep.

The Agreement between the device and the video recording was 90%.

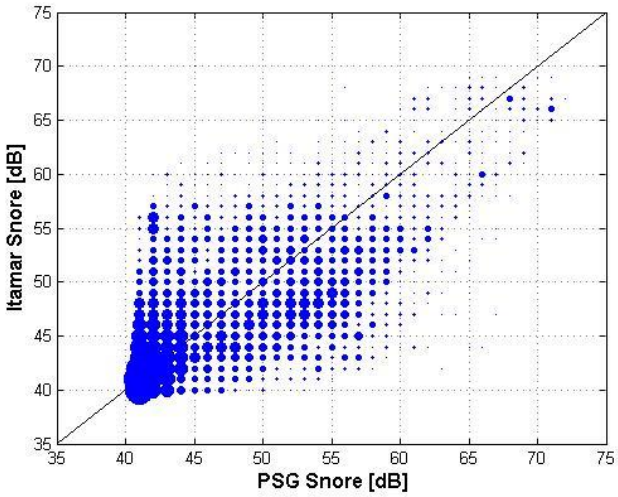
Simple Kappa agreement value was 0.8185 (95% confidence level of 0.8059 and 0.8311).

II. Snoring

The snoring level measured by the WatchPAT™ device with Itamar SBP sensor was compared to a gold standard PSG dB-meter placed 1 meter from patient's head. The study included 26 patients, and the analysis was done in 30sec epochs.

The correlation coefficient was calculated using Pearson method, assuming a linear relation between the results of the two devices. A statistically significant correlation was calculated between the two devices: r=0.65 p value<0.0001.

The next figure shows a scatter plot of sleep disturbance Index produced by WatchPAT™ device and dB-meter, with linear regression line.

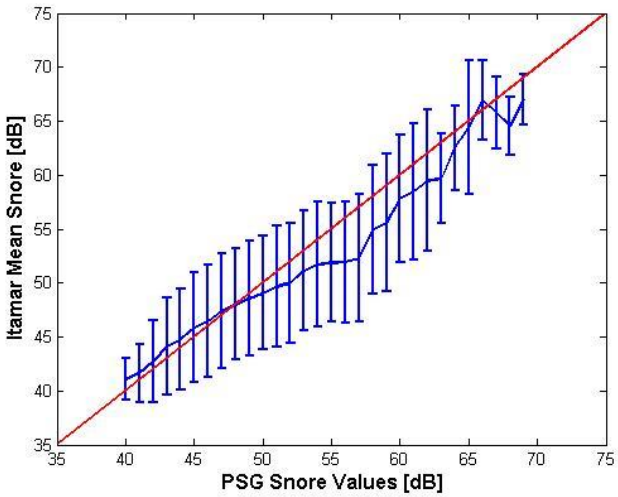


An estimation of the error in each snoring level was calculated by looking at the WatchPAT™ device measurement cut by the results of dB-meter in intervals of 1 dB in the range of above 40dB (below 40 dB was considered not clinically significant being background noise). A high correlation was observed between the results of the two devices for the range of 40-70dB (where sufficient data points were gathered), meaning the resemblance in the results uniformly existed for all the snore levels measured.

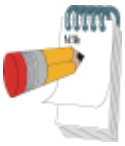
The next table presents the statistics of WatchPAT™ device measurements per dB-meter calculation at that range.

PSG DB Value	N	Mean	Std	Coef. Of Variation [%]	Min	Max	Median	Lower 95% CI	Upper 95% CI
40	2033	41.10	1.89	4.60	40	54	40	41.01	41.18
41	1319	41.61	2.67	6.43	40	54	41	41.47	41.76
42	908	42.68	3.79	8.88	40	62	41	42.44	42.93
43	746	44.12	4.49	10.19	40	58	42	43.80	44.44
44	719	44.75	4.65	10.39	40	65	43	44.41	45.09
45	643	45.90	5.07	11.04	40	59	45	45.51	46.30
46	602	46.45	5.17	11.13	40	59	46	46.04	46.86
47	590	47.39	5.31	11.21	40	66	47	46.96	47.82
48	568	48.03	5.17	10.76	40	61	49	47.60	48.45
49	414	48.56	5.33	10.97	40	64	49	48.05	49.08
50	369	49.07	5.27	10.75	40	61	49	48.53	49.60
51	334	49.68	5.66	11.39	40	63	50	49.07	50.28
52	335	50.00	5.58	11.17	40	64	51	49.39	50.59
53	311	51.18	5.56	10.86	40	63	51	50.56	51.79
54	253	51.71	5.78	11.19	40	66	52	51.00	52.42
55	209	51.85	5.49	10.59	40	66	52	51.11	52.60
56	182	51.91	5.62	10.82	40	64	52	51.09	52.72
57	129	52.29	5.91	11.30	41	64	52	51.26	53.32
58	95	54.94	5.94	10.82	42	67	55	53.73	56.15
59	66	55.53	6.37	11.47	42	66	55.5	53.97	57.10
60	72	57.82	5.92	10.24	44	66	58	56.43	59.21
61	58	58.48	6.31	10.78	43	68	58.5	56.82	60.14
62	43	59.47	6.56	11.02	46	68	60	57.45	61.48
63	32	59.63	4.15	6.96	50	67	59	58.13	61.12
64	15	62.53	3.93	6.28	56	68	64	60.36	64.71
65	22	64.41	6.21	9.64	49	70	67	61.66	67.16
66	48	66.90	3.66	5.48	59	70	68.5	65.83	67.96
67	42	65.76	3.28	4.99	60	71	67	64.74	66.78
68	27	64.56	2.67	4.13	55	68	65	63.50	65.61
69	6	67	2.37	3.53	64	70	67	64.52	69.48

The results are also presented in the next figure. The figure presents the mean WatchPAT™ device with SD error bar.

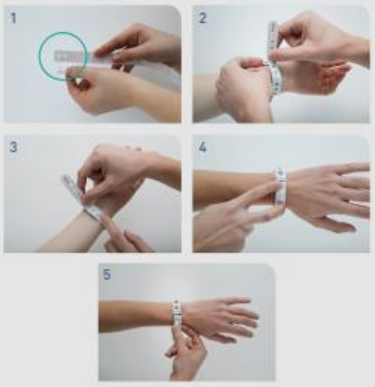


Summary statistics (mean ± SD) of WatchPAT™200U device by dB-meter levels

	**Note** The snoring and body position safety and effectiveness was validated on adult population only.

APPENDIX B: Tamper-proof testing with WatchPAT™

	WatchPAT™ 200U	Action	Comment
Important Note	Important Note	This short guide will instruct a WatchPAT trained operator on how to perform Tamper-Proof testing with the WatchPAT. For complete WatchPAT training and instructions please refer to the WatchPAT user manual and to the zzzPAT user manual.	• Make sure the zzzPAT version is: 4.4.64 or higher • Make sure the WatchPAT embedded software version is: 3.2217 or higher • Make sure you enable the "Tamper-Proof Testing" option from the zzzPAT "Setup" menu > "General Settings"
Study Preparation	1 New Study on zzzPAT	While preparing the new study on the zzzPAT (refer to the user manual for detailed instructions), check the box "Study with Tamper-Proof Testing" at the bottom of the "New Study" screen. Note: Once you enable this option you MUST use a bracelet for the night study. The WatchPAT will NOT function without a bracelet connected to it.	
Bracelet Preparation	2 Bracelet	Select a Tamper-Proof Bracelet for the study.	
Bracelet Preparation	3 Connecting the Cable to the WatchPAT	Connect the gray cable with the red and white snap buttons to the WatchPAT socket.	
Bracelet Preparation	4 Connecting the Bracelet	Connect the red and white snap buttons to the red and white snaps on the bracelet respectively.	

	WatchPAT™ 200U	Action	Comment
Bracelet Preparation	5 Pairing WatchPAT with Bracelet: Site-Diagnostic Test	Make sure the bracelet is connected before starting the test. Perform the standard site diagnostic test ("device test" as described in the user manual). After test is completed, disconnect the bracelet from the WatchPAT and store it in the WatchPAT case. **Note:** Once the "device test" is successfuly done with the bracelet connected - the specific bracelet must be used for the following night recording.	
Patient Preparation	6 Placing Bracelet on Patient	• Make sure you have all 3 parts: bracelet and two white plastic clips. Place the bracelet upside down on a flat surface (white side facing up). 1. Insert the white plastic clip into the two separated holes (flat side facing up). 2. Wrap the bracelet around the wrist of the non-dominant arm (tested arm) of the patient. 3. Insert the white plastic clips into the holes. Make sure it is snug but not too tight. 4. If there is some loose strap left, fold it and re-insert it into the holes. DO NOT CUT LOOSE STRAP – CUTTING IT WILL RENDER THE BRACELET UNUSABLE 5. Secure the bracelet by placing the second white plastic clip on-top of the first. Make sure it is secured tightly.	
Patient Guidance	7 Explain to Patient	• The patient may choose to perform the study during any night of the week. • The patient may shower with the bracelet. • Instruct patient to connect the red and white snap buttons to the red and white snaps on the bracelet respectively. • Instruct patient to turn on the WatchPAT only after it is connected to the bracelet. • THE BRACELET SHOULD NOT BE REMOVED UNTIL THE NIGHT STUDY IS COMPLETED. Removing the bracelet before or during the night will cause the device to shut down. • In the morning, instruct the patient to cut the bracelet along the dotted line by using small scissors and to put it in the WatchPAT case along with all the other parts (DO NOT THROW THE BRACELET AWAY). Do not try to connect ANY other device to the bracelet.	

APPENDIX C: LICENSE AGREEMENT

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Note: Should you have any questions concerning this License Agreement, or if you desire to contact Itamar for any reason, please write to:

USA:
Itamar Medical Inc.
3290 Cumberland Club Drive, Suite 100
Atlanta, Georgia 30339, USA
Tel: 1 888 748 2627

Worldwide:
Itamar Medical Ltd.
9 Halamish St., P.O.Box 3579
Caesarea Ind. Park, 3088900, Israel
Tel: +972 4 617 7000

APPENDIX D: REGULATORY REPRESENTATIVE

Itamar Medical's authorized regulatory representative is:

Arazy Group GmbH

The Squaire 12, Am Flughafen,
60549 Frankfurt am Main,
Germany

APPENDIX E: DESCRIPTION OF THE WATCHPAT™200U UPAT PROBE

The WatchPAT uPAT probe is an opto-pneumatic finger-mounted probe.
Its role is to continuously measure the relative state of the vasomotor activity in the distal part of the finger based on a plethysmographic method. The uPAT probe is designed to cover the distal part of the finger with a uniform pressure field extending to the tip of the finger. This design prevents venous blood pooling, engorgement and stasis, which inhibits retrograde venous shock wave propagation, and allows partial unloading of arterial wall tension that significantly improves the dynamic range of the measured signal. The optic component of the probe measures the optical density related changes of the arterial blood volume in the digital arteries, associated with each heartbeat. Peripheral arterial constrictions, when present, are shown by attenuation in the PAT signal amplitude, a marker of sympathetic activation.
The uPAT probe also measures the changes in absorbance of the finger at both red and infrared light at peak wavelengths of 660nm and 910nm respectively. The maximum optical output power is 65mW. These measurements are used to calculate the oximetry signal in an offline program according to the pulse oximetry principles.
The uPAT probe is an integral part of the WatchPAT™ device and is to be used only with the WP200U device.

APPENDIX F: MANUFACTURING DECLARATIONS ACCORDING TO IEC 60601-1 & 60601-1-2

Notes

- The Itamar Medical's WatchPAT™200U (WP200U) requires special precautions with regard to electromagnetic compatibility.
- It must be installed and prepared for use as described in section 3 - Preparation for Sleep Study.
- Certain types of mobile telecommunication devices such as mobile telephones are likely to interfere with the Itamar Medical's WP200U.
- The recommended separation distances in this paragraph must therefore be complied with.
- The Itamar Medical's WP200U must not be used near or on top of another device. If this cannot be avoided, it is necessary – before clinical use – to check the equipment for correct operation under the conditions of use.
- The use of accessories other than those specified or sold by Itamar Medical as replacement parts may have the consequence of increasing the emissions or decreasing the immunity of the unit.
- To ensure "Isolation means" disconnect the power supply

Electromagnetic Compatibility

Electromagnetic Emissions

- Itamar Medical's WP200U is intended for use in the electromagnetic environment specified in the following tables 1, 2, 4, 6 and 9 below.
- The user and/or installer of the unit must ensure that it is used in such an environment.

<table>
<tr><th colspan="3">Table 1 – based on IEC 60601-1-2:2014</th></tr>
<tr><td colspan="3">Guidance and manufacturer's declaration – electromagnetic emissions – WP200U</td></tr>
<tr><td colspan="3">The WP 200U is intended for use in the electromagnetic environment specified below; The customer or the user of the WP200U should assure that it is used in such an environment.</td></tr>
<tr><th>Emissions test</th><th>Compliance</th><th>Electromagnetic environment - guidance</th></tr>
<tr><td>RF emissions

CISPR 11</td><td>Group 1</td><td>The WP200U uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.

Conducted emission:
Frequency: 1MHz-30MHz
Peak current limit: 24 (dBuA)

Radiated emission:
Frequency: 30MHz-1GHz</td></tr>
<tr><td>RF emissions

CISPR 11</td><td>Class B</td><td rowspan="2">The WP 200U is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes.</td></tr>
<tr><td>Harmonic emissions

IEC 61000-3-2</td><td>Class A</td></tr>
</table>

Table 2 - based on IEC 60601-1-2:2014

Guidance and manufacturer's declaration – electromagnetic immunity – WP200U

The **WP200U** is intended for use in the electromagnetic environment specified below; The customer or the user of the **WP200U** should assure that it is used in such an environment.

Immunity test	IEC 60601-1-2 Test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	±8 kV contact ±15 kV air	±8 kV contact ±15 kV air	Floors should be wood, concrete or Ceramic tile. If floors are covered with synthetic material, the relative humidity Should be at least 30 %.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	30 A/m	30 A/m	Power frequency magnetic fields should be at levels characteristic of a typical public low-voltage power supply network that supplies buildings used for domestic purposes, commercial or hospital, clinic environment.

NOTE: UT is the a.c. mains voltage prior to application of the test level.

Table 4 - based on IEC 60601-1-2:2014

Guidance and manufacturer's declaration – electromagnetic immunity – WP200U

The **WP200U** is intended for use in the electromagnetic environment specified below; The customer or the user of the **WP200U** should assure that it is used in such an environment.

Immunity test	IEC 60601-1-2 Test level	Compliance level	Electromagnetic environment - guidance
			Portable and mobile RF communications equipment should be used no closer to any part of the **WP200U**, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance**
Conducted RF IEC 61000-4-6	3 Vrms outside ISM band 6 Vrms in the ISM band 150 k Hz to 80 MHz	3 Vrms 6 Vrms	$d = 1.17\sqrt{P}$ $d = 0.58\sqrt{P}$ $d = 0.35\sqrt{P}$ 80 M Hz t o 800 MHz
Radiated RF IEC 61000-4-3	10 V/m 80 MHz to 2,5 GHz **<u>Home Healthcare</u>** 80MHz-2.7GHz (10V/m) **<u>Professional healthcare</u>** 80MHz-2.7GHz (3V/m) 80% AM 1KHz	 10 V/m	$d = 0.7\sqrt{P}$ 800 MHz t o 2,7 GHz where P is the maximum output power rating of the transmitter in watts (W)according to the transmitter manufacturer and d is the recommended separation Distance in meters (m). Field strengths from fixed RF transmitters, as

			determined by an electromagnetic site survey ,[a] should be less than the compliance level in each frequency range .[d] Interference may occur in the vicinity of equipment marked with the following symbol: 
NOTE 1 At 80 MHz and 800 MHz, the higher frequency range applies. NOTE 2 These guidelines may not apply in all situations .Electromagnetic propagation is affected by absorption And reflection from structures objects and people.			
a Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the **WP200U** is used exceeds the applicable RF compliance level above, the **WP200U** should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the **WP200U**. b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m.			

Recommended Separation Distances

The Itamar Medical's WP200U is intended for use in an electromagnetic environment in which radiated radiofrequency disturbances are controlled.
The user and/or installer of the unit can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile radiofrequency communications equipment (emitters) and the Itamar Medical's WP200U, according to the maximum output power of the equipment, as recommended in the table below.

Table 6 - based on IEC 60601-1-2:2014

Recommended separation distances between portable and mobile RF communications equipment and the WP200U

Rated maximum output power of transmitter Watts [W]	Separation distance according to frequency of transmitter (in meters) Meters [m]			
	150kHz to 80MHz	150kHz to 800MHz	80MHz to 800MHz	800MHz to 2.5GHz
	$d = 1.17\sqrt{P}$ (3Vrms)	$d = 0.58\sqrt{P}$ (6Vrms)	$d = 0.35\sqrt{P}$	$d = 0.7\sqrt{P}$
0.01	0.12	0.06	0.04	0.07
0.1	0.37	0.18	0.11	0.22
1	1.17	0.58	0.35	0.7
10	3.7	1.83	1.11	2.21
100	11.7	5.8	3.5	7

For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer.

NOTE 1 At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies.
NOTE 2 These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people.

Table 9 - based on IEC 60601-1-2:2014

Proximity Fields from RF Wireless Communication Equipment

Test frequency (MHz)	Band [a] (MHz)	Service [a]	Modulation [b]	Maximum power (W)	Distance (m)	Immunity TEST LEVEL (V/m)	Minimum separation distance [m]
385	360-390	TETRA 400	Pulse modulation [b] 18 Hz	1.8	0.3	27	0.3
450	430-470	GMRS 460, FRS 460	FM [c] ±5 kHz deviation 1 kHz sine	2	0.3	28	0.3
710	704-787	LTE Band 13,17	Pulse modulation [b] 217 Hz	0.2	0.3	9	0.3
745							
780							
810	800-960	GSM 800\900. TETRA 800. CDMA 850. LTE Band 5	Pulse modulation [b] 217 Hz	2	0.3	28	0.3
870							
930							
1720	1 700-1 990	GSM 1800; CDMA 1900; DECT; LTE Band 1, 3, 4, 25; UMTS	Pulse modulation [b] 217 Hz	2	0.3	28	0.3
1845							
1970							
2450	2 400-2 570	Bluetooth, WLAM, 802.11 b/g/n, RFID 2450, LTE Band 7	Pulse modulation [b] 217 Hz	2	0.3	28	0.3
5240	5 100-5 800	WLAM 802.11 a/n	Pulse modulation [b] 217 Hz	0.2	0.3	9	0.3
5500							
5785							

NOTE if necessary to achieve the IMMUNITY test level, the distance between the transiting antenna and the ME equipment or ME system may be reduced to 1m. The 1m test distance is permitted by IEC 61000-4-3.

[a] For some services, only the uplink frequencies are included

[b] The carrier shall be modulated using a 50% duty cycle square wave signal.

[c] As an alternative to FM modulation, 50% pulse modulation at 18Hz may be used because while it does not represent actual modulation, it would be worst case.

The MANUFACTURER should consider reducing the minimum separation distance, based on RISK MANAGEMENT, and using higher IMMUNITY TEST LEVELS that are appropriate for the reduced minimum separation distance. Minimum separation distances for higher IMMUNITY TEST LEVELS shall be calculated using the following equation:

$$E = \frac{6}{d}\sqrt{P}$$

Where *P* is the maximum power in W, d is the minimum separation distance in m, and *E* is the IMMUNITY TEST LEVEL in V/m.

APPENDIX G: SPO2 ACCURACY IN THE WATCHPAT™200U

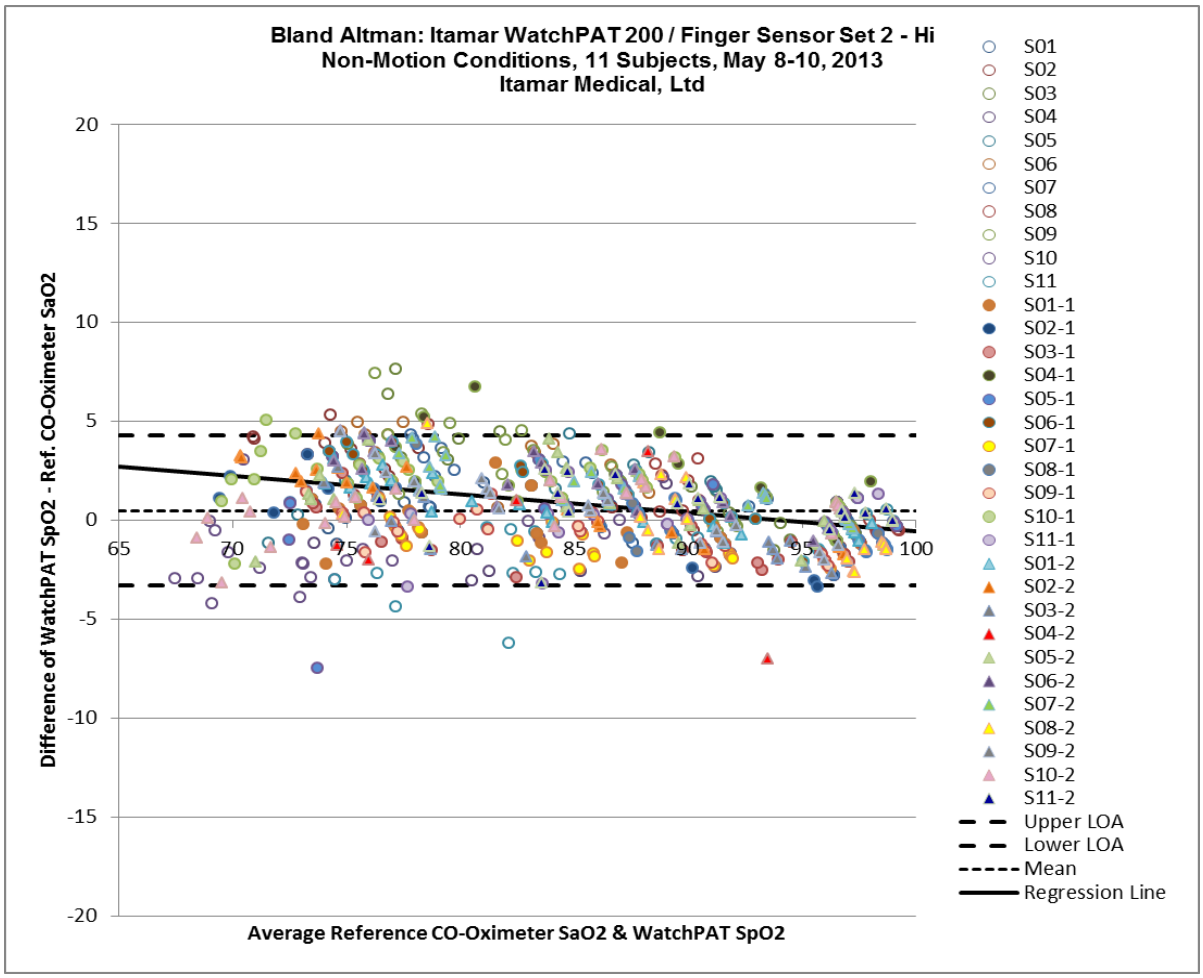
The WatchPAT™200U device uses Itamar Medical Pulse Oximetry system for the measurement of functional oxygen saturation of arterial haemoglobin (SpO2). This appendix includes information regarding the accuracy of these measurements following a clinical study of Itamar Medical Pulse Oximetry.

1. Overall, the Arms is estimated to be 2.1 for the range 70-100%

2. The next table shows SpO2 Accuracy Results:

Test Device	**SpO2 67-100%** **A_{RMS} / Bias**	SpO2 90-100% **A_{RMS} / Bias**	SpO2 80-90% **A_{RMS} / Bias**	SpO2 70-80% **A_{RMS} / Bias**
WatchPAT™200U Finger Sensor Set 2 – H series	A_{RMS} 2.1 (726 pts) Bias 0.6	A_{RMS} 1.4 (255 pts) Bias -0.6	A_{RMS} 1.9 (227 pts) Bias 0.9	A_{RMS} 2.7 (225 pts) Bias 1.5

3. The next table shows the Bland-Altman plot for Itamar-Medical WP200U:

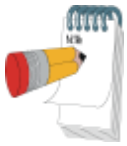


Reference: CO-Oximetry Range	68-99%
Linear Regression (Bland Altman)	y = -0.0931x + 8.7875
Mean Bias	0.51
# pts	726
Upper 95% Limits of Agreement	4.3
Lower 95% Limits of Agreement	-3.3

*Source of data:

Title:	Itamar SpO2 Accuracy Validation vs Reference CO-Oximetry, PR2013-062
Date:	2013-08-20

Clinical Investigator(s):	Clinimark 80 Health Park Drive, Suite 20 Louisville, Colorado 80027, USA
Sponsor:	Itamar Medical, Ltd. 9 Halamish St POB 3579, Caesarea 3088900 Israel
Device(s):	Non-Motion: Itamar Medical WatchPAT 200 Pulse Oximetry
Study Date(s):	May 8-10, 2013



Note

A Functional tester cannot be used to assess the accuracy of the internal pulse oximeter.

APPENDIX H: ZZZPAT HARDWARE REQUIREMENTS

Hardware configuration:

Computer Pentium 4 3GHz or higher
1 available USB port
XGA screen resolution (minimum 1024 x 768 pixels) Colors set to 16 bits or higher
RAM 1GB or higher

Disk space requirements:

- **Standalone installation**
  - 10GB minimum / 60GB recommended disk space on Files folder and at least 1.2GB on boot drive
- **Shared installation**
  - SQL DB drive – 1.2GB if using our default MS SQL Express installation and enough for 1 year worth of studies (500 KB / study).
  - Shared Files folder for raw data signal files - enough for 1 year worth of studies (30 MB / study).

Operating System:

Windows Server 2008 Service Pack 1 and above
Windows 7 with Service Pack 1 and above

APPENDIX I: SPARE PARTS LIST

The following items can be ordered and purchased individually:

- uPAT probe (a box of 12 uPAT probes)
- uPAT probe connection cable
- Wrist Strap
- Snore and Body Position sensor (SBP)
- Snore and Body Position sensor (RESBP)
- Adhesive for Snore and Body Position sensor (a package of 12 units)
- Cable for Tamper-Proof Bracelet
- Tamper-Proof Bracelet (a box of 24 bracelets)
- AC adapter
- USB cable
- Rechargeable Lithium Ion Battery
- Step-by-Step Reference Guide WP200 Unified + Itamar SBP
- Quick Reference Cards WP200 Unified
- Carrying case