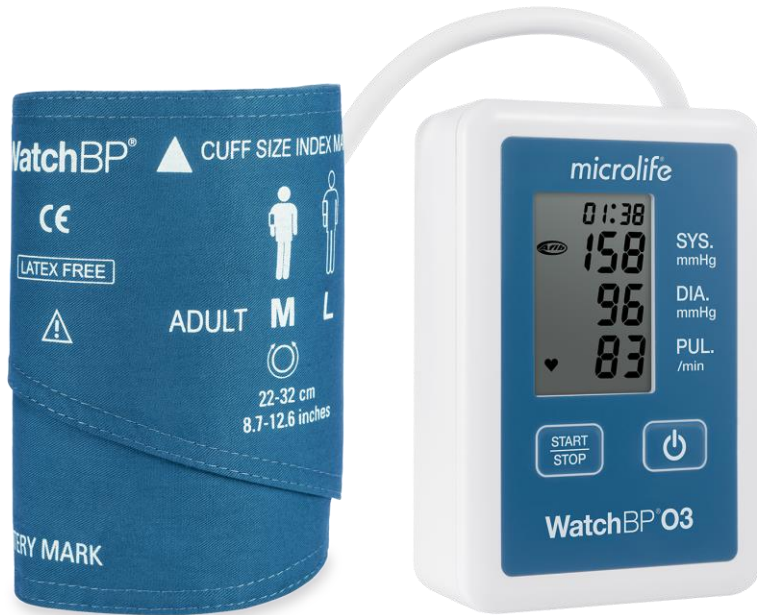


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WatchBP O3 2G



Presenter

Department / Title

Date

Contents

- WatchBP O3
- [WatchBP Analyzer Software](#)
- [Reports](#)
 - [PDF report \(Example\)](#)
 - [XLSX report example](#)
- [Connecting with Bluetooth to PC](#)
- [How to upgrade the device](#)
- [Special patients validations](#)

In order to go direct to the subject click on the text
To go back click at the upper left on each slide





WatchBP O3

Professional 24-hour ambulatory blood pressure monitor



AFIB



24-hour ABPM



Central Blood pressure measurement



Upgradeable device version



Pill button



PC Link



For use in End stage renal disease



For use in children



For use in diabetes patients

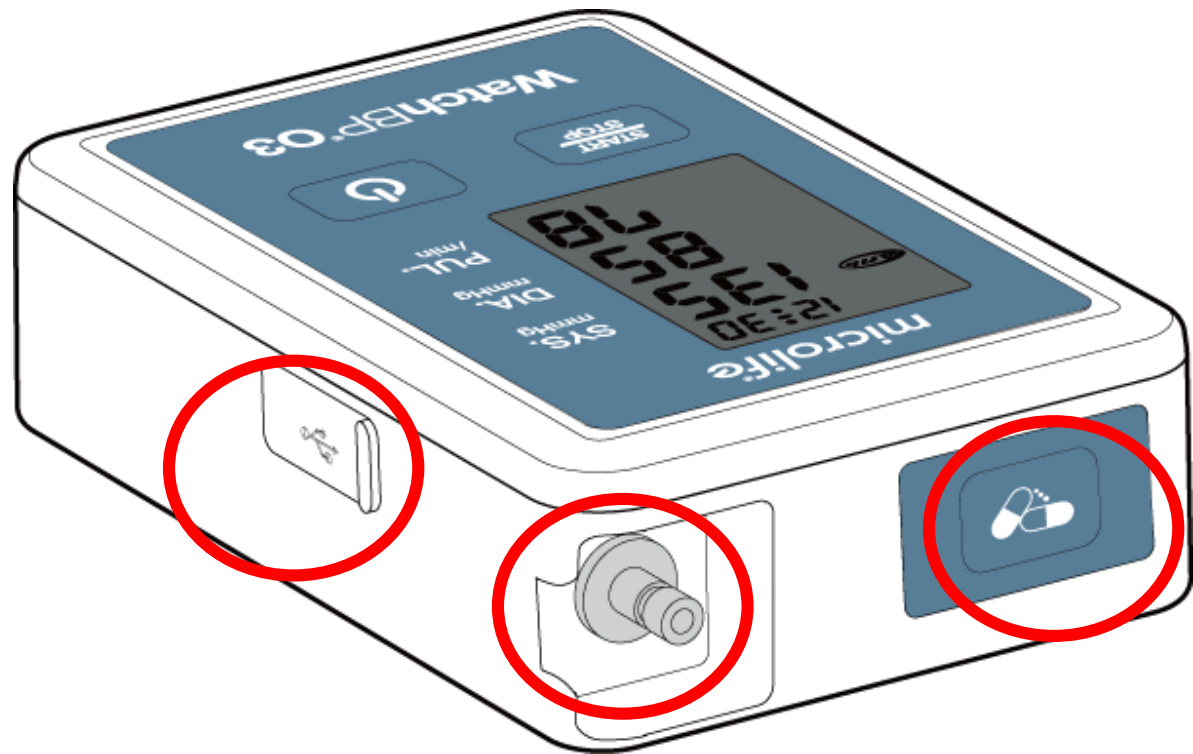
WatchBP O3

- Medication button
- Solid & easier to clean
- USB & BT 4.2 connectivity
- Upgradable Device version
 - Standard: standard ABPM
 - Advanced: AFIB
 - Premier: AFIB and Central BP
- New WatchBP Analyzer



WatchBP O3

- Medication button on top of device
 - No need to remove device from pouch before pushing
- Solid tube connector
- Flat surface
 - Easier to clean



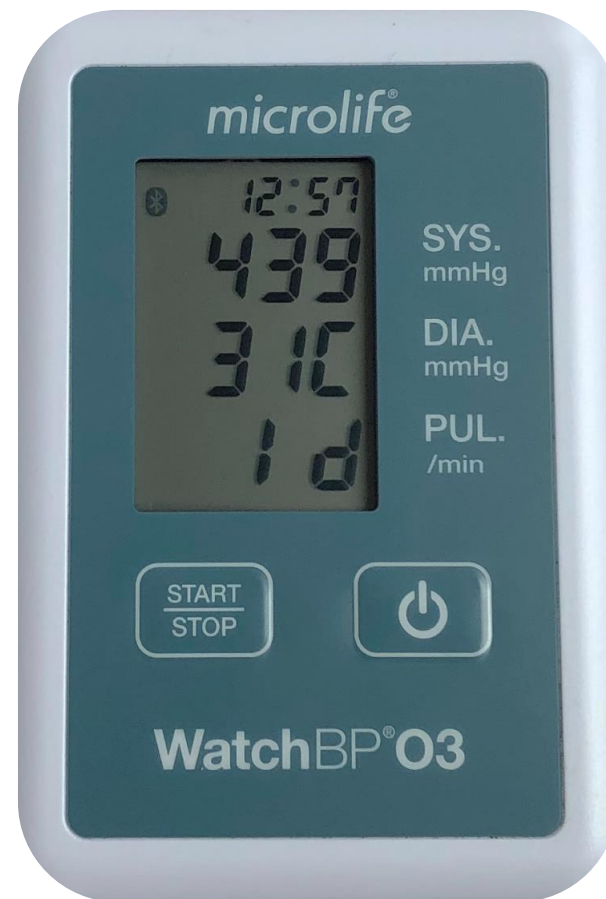
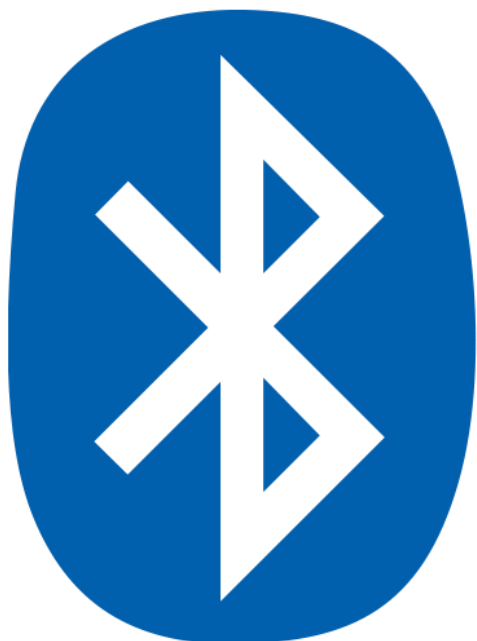
WatchBP O3

- Same delivery but without waste belt and shoulder strap



Bluetooth WatchBP O3 Connectivity

- BT 4.2 connectivity



USB WatchBP O3 Connectivity

- Universal connection



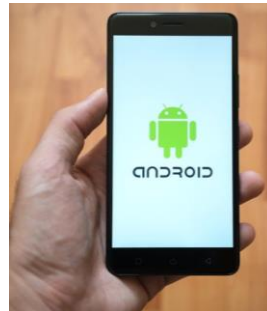
SDK's available

SDK / sample code for integration for:

- **Windows 10** (USB and BT)
 - dll library file and sample code is available



- **IOS** (iPhone/iPad) & **Android** (BT only)
 - sample code and communication protocol available



WatchBP Analyzer Software

WatchBP Analyzer v1.0.0.23

microlife WatchBP Language About

Device

Device Name: **WatchBP O3** Program device

Device ID: **000000000000**

User ID: **WW** Measure

Batteries: **5 V, Normal battery**

Option: **AFIB, Central BP** Download

Patient Search

Name	ID	Gender	Age	DOB	Physician	
Wonder Woman	WW	Female	30	12.14.1988	doctor1	New
Jon Snow	JS	Male	40	07.24.1978	Dr. 1	Edit
Green Lantern	GL	Male	30	07.27.1988	Dr. 1	Delete

Measurement Settings

WatchBP Office ^

05.28.2018 16:51

12.27.2018 11:43

WatchBP O3 ^

07.09.2018 17:43

12.19.2018 08:30

Measurement Report

	Date	SYS	DIA	HR	MAP	PP	cSYS	cDIA	cPP	AFIB	Exclude	PVP wave	CODE	NOT
4	04.20.2017 03:00	120	84	60	96	36	109	81	28		<input type="checkbox"/>			
5	04.20.2017 04:00	151	79	75	103	72	137	72	65		<input type="checkbox"/>			
6	04.20.2017 05:00	185	90	78	121	95	184	78	106		<input type="checkbox"/>			
7	04.20.2017 06:00	120	84	60	96	36	109	81	28		<input type="checkbox"/>		8	Man
8	04.20.2017 06:30	151	79	75	103	72	137	72	65		<input type="checkbox"/>		8	Man
9	04.20.2017 07:00	185	90	78	121	95	184	78	106		<input type="checkbox"/>			

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Measurement interval times

- from 5 min to 1 hour

Program ABPM

Setting Day and Night Period

Day Period	6	~	22	with	5	minutes interval time
					10	minutes interval time
					5	minutes interval time
Night Period	22	~	6	with	5	minutes interval time
					5	minutes interval time

Central BP measurement

Central BP measurement

Setting Highest Inflation Pressure

Auto Manual

180 mmHg

***Auto is Recommended**

Setting Ambulatory Option

Hide BP reading

Silent Mode

Program **Cancel**

***Program device will automatically clear all measurement data on the device**

Central blood pressure measurement (Optional)

Validated against invasive blood pressure measurement

ORIGINAL ARTICLE

Measurement Accuracy of a Stand-Alone Oscillometric Central Blood Pressure Monitor: A Validation Report for Microlife WatchBP Office Central

Hao-Min Cheng^{1,2,4,5}, Shih-Hsien Sung^{3,4,6}, Yuan-Ta Shih⁷, Shao-Yuan Chuang⁸, Wen-Chung Yu^{3,4,5}, Chen-Huan Chen^{2,4,5,6}



BACKGROUND

The superiority of prognostic value of blood pressure (BP) measured at central aorta (CBP) over conventional brachial BP measured by cuff-based BP monitors has reignited the development of new non-invasive techniques for estimating CBP. The present study validated the accuracy of CBP measured by a newly developed stand-alone CBP monitor.

METHODS

The CBP monitor provided readings of brachial systolic BP (SBP), brachial diastolic BP (DBP), central SBP, and central pulse pressure (PP). Brachial PP and central DBP were calculated from the relevant readings. The accuracy of the brachial and central SBP, PP, and DBP was validated against the simultaneously recorded invasively measured central aortic SBP, PP, and DBP according to the invasive standard requirements for the noninvasive brachial BP monitors from the Association for the Advancement of Medical Instrumentation (AAMI) in 85 subjects (255 measurements; age range, 30–93 years).

RESULTS

The mean differences of cuff BP with reference to the invasively measured central SBP, PP, and DBP were -2.6 ± 9.0 , -8.6 ± 11.2 , and 6.1 ± 7.0 mm Hg, respectively, with the former two being obviously underestimated at high CBP and overestimated at low CBP. In contrast, the corresponding differences for the central SBP, PP, and DBP measured by the CBP monitor were -0.6 ± 5.5 , -0.4 ± 7.0 , and -0.2 ± 6.5 mm Hg, respectively, without obvious systematic bias. The distribution of measurement errors for central SBP, PP, and DBP surpassed the AAMI criteria.

CONCLUSION

Central SBP, PP, and DBP can be measured accurately by a stand-alone automatic BP monitor.

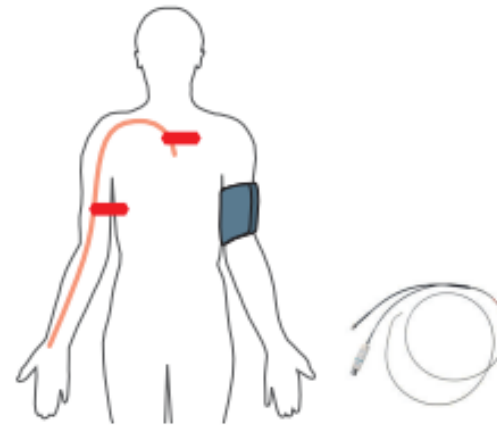
Keywords: blood pressure; central pulse pressure; hypertension; oscillometric signals; pressure wave reflection; pulse volume plethysmography; pulse wave analysis.

doi:10.1093/ajh/hps021

The blood pressure (BP) amplification from central aorta to peripheral arteries, which varies substantially between subjects, causes conceivable discrepancy between central BP (CBP) and BP recorded at a person's upper arm.^{1–6} Although mean BP and diastolic BP (DBP) are relatively constant in the conduit arteries, systolic BP (SBP) and pulse pressure (PP) measured from peripheral arteries are usually higher than those measured at the origin of the arterial tree, namely, the aortic root.^{3,7} CBP can be estimated noninvasively, mainly by using the technique of applanation tonometry.^{8,9}

Thereafter, it has been shown that the noninvasively measured CBP and the conventional brachial BP respond to anti-hypertensive medications differently.^{10,11} Furthermore, the superior prognostic value of CBP over conventional brachial BP demonstrated in previous studies^{12–14} has reignited the development of more convenient noninvasive methods for CBP measurements, including tonometry-based¹⁵ and brachial cuff-based techniques.^{16,17}

We have developed and validated a novel oscillometric method to estimate central SBP and PP.^{16,18,19} Noninvasively



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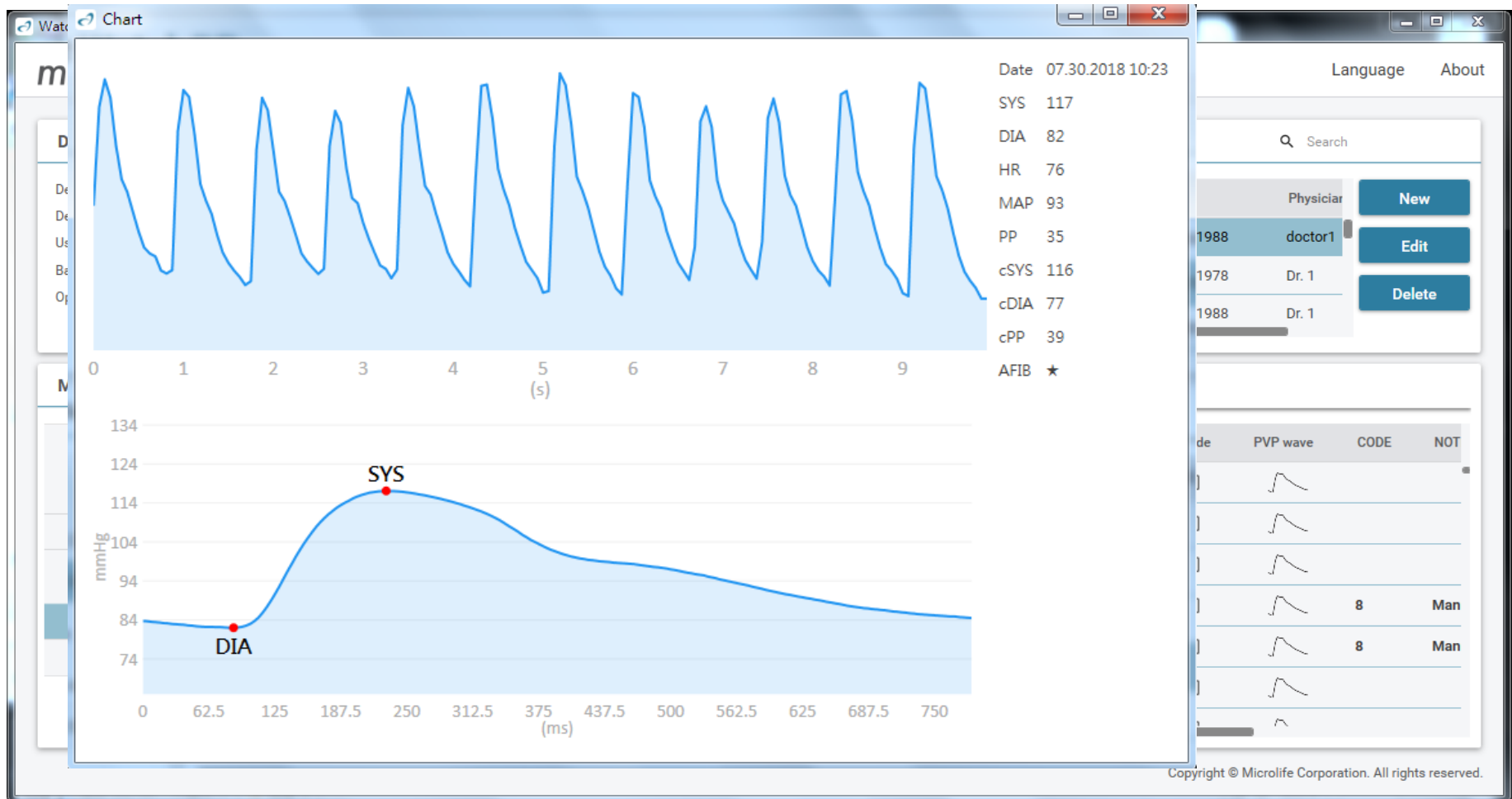
WatchBP Analyzer – Pulse wave analysis

- For central blood pressure measurement Pulse Waves can be displayed

The screenshot displays the WatchBP Analyzer v1.0.0.23 interface. The top left shows the device name 'WatchBP 03' and ID '000000000000'. The top right has 'Language' and 'About' links. The 'Patient' section lists 'Wonder Woman' (WW, Female, 30, DOB 12.14.1988, doctor1) as the selected patient. The 'Measurement Settings' section shows 'WatchBP Office' and 'WatchBP 03' with a list of measurement times. The 'Measurement' table is highlighted, showing columns for Date, SYS, DIA, HR, MAP, PP, cSYS, cDIA, cPP, AFIB, Exclude, PVP wave, CODE, and NOT. A red box highlights the 'Exclude' and 'PVP wave' columns for the selected measurement (04.20.2017 06:00).

	Date	SYS	DIA	HR	MAP	PP	cSYS	cDIA	cPP	AFIB	Exclude	PVP wave	CODE	NOT
4	04.20.2017 03:00	120	84	60	96	36	109	81	28		<input type="checkbox"/>			
5	04.20.2017 04:00	151	79	75	103	72	137	72	65		<input type="checkbox"/>			
6	04.20.2017 05:00	185	90	78	121	95	184	78	106		<input type="checkbox"/>			
7	04.20.2017 06:00	120	84	60	96	36	109	81	28		<input type="checkbox"/>		8	Man
8	04.20.2017 06:30	151	79	75	103	72	137	72	65		<input type="checkbox"/>		8	Man
9	04.20.2017 07:00	185	90	78	121	95	184	78	106		<input type="checkbox"/>			
10	04.20.2017 07:30	185	90	78	121	95	184	78	106		<input type="checkbox"/>			

WatchBP Analyzer – Pulse wave analysis



Central blood pressure measurement (CBPM)

- The schedule for CBPM can be programmed separately from the regular measurement schedule

Program ABPM

Setting Day and Night Period

Day Period	6	~	22	with	5	minutes interval time
	<input checked="" type="checkbox"/>			Central BP measurement	10	minutes interval time
Night Period	22	~	6	with	5	minutes interval time
	<input checked="" type="checkbox"/>			Central BP measurement	5	minutes interval time

Setting Highest Inflation Pressure

Auto Manual

180 mmHg

***Auto is Recommended**

Setting Ambulatory Option

Hide BP reading

Silent Mode

Program **Cancel**

***Program device will automatically clear all measurement data on the device**

Battery indicator

WatchBP Analyzer v1.0.0.23

microlife® WatchBP

Device

Device Name: **WatchBP 03**

Device ID: **000000000000**

User ID: **WW**

Batteries 5 V, Normal battery

Option: **AFIB, Central BP**

Program device

Measure

Download

Patient

Name

Wonder Woman

Jon Snow

Green Lantern

Measurement Settings

Measurement

Report

WatchBP O3 and WatchBP Office 2G have the same software; WatchBP Analyzer

The screenshot displays the WatchBP Analyzer v1.0.0.23 interface. The main window is titled "microlife WatchBP". It features a "Device" section on the left with fields for Device Name (WatchBP O3), Device ID (000000000000), User ID (WW), Batteries (5 V, Normal battery), and Option (AFIB, Central BP). Below this is a "Measurement Settings" section with a list of devices and their measurement times. A "Measurement" table is also visible, showing columns for Date, SYS, DIA, HR, MAP, PP, cSYS, cDIA, cPP, AFIB, Exclude, PVP.wave, and CODE. Two callout boxes provide detailed views of the device configuration for "WatchBP O3" and "WatchBP Office".

Device Configuration for WatchBP O3:

- Device Name: WatchBP O3
- Device ID: 000000000000
- User ID: WW
- Batteries: 5 V, Normal battery
- Option: AFIB, Central BP

Device Configuration for WatchBP Office:

- Device Name: WatchBP Office
- Device ID: CB879C63AA39
- Batteries: 5.3 V
- Option: AFIB

	Date	SYS	DIA	HR	MAP	PP	cSYS	cDIA	cPP	AFIB	Exclude	PVP.wave	CODE	NOT
4	04.20.2017 03:00	120	84											
5	04.20.2017 04:00	151	79											
6	04.20.2017 05:00	185	90											
7	04.20.2017 06:00	120	84											
8	04.20.2017 06:30	151	79											
9	04.20.2017 07:00	185	90											
10	04.20.2017 07:30	151	79											

Reports

WatchBP O3

Ambulatory Blood Pressure Measurement Report

Patient ID HQ
Name Harley Quinn
Sex Female
Age 68
Date of birth 07.02.1950

Health facility Physician Dr. Quinzel
Email hquinn@abc.com
Phone 1-234-567-890
Study date 12.13.2018



Day and Night Period

Day: 7-20h
Night: 20-7h

TIME INTERVAL
 30 min 30 min

Actual Awake / Asleep

Awake: 7-20 h
Asleep: 20-7 h

BP Threshold

Day: 135/85 mmHg
Night: 120/70 mmHg

Readings

Total Readings: 63
Successful: 60 (95.2%)

White Coat Window

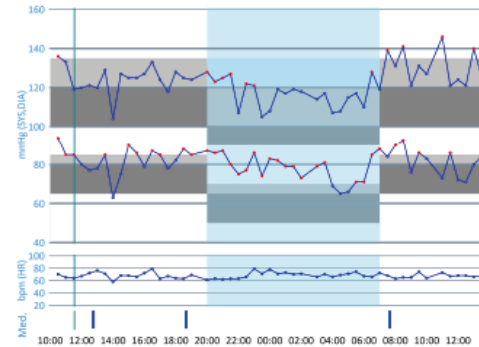
Readings	SYS	DIA	HR
2	2	2	2
1st hr Max	136	94	70

Night-time Dip%

Dip%	SYS	DIA
8 %	8 %	6 %

BP Load

Day readings ≥ 135/85 53.8 %
Night readings ≥ 120/70 85.7 %



Average Blood Pressure (SD)

	SYS	DIA	HR	MAP	PP	cSYS	cDIA	cPP
24-hr	124(8)	81(6)	68(4)	95	42 (-)	(-)	(-)	-
Awake	127(6)	83(6)	68(3)	97	44 (-)	(-)	(-)	-
Asleep	117(5)	78(6)	69(5)	90	38 (-)	(-)	(-)	-

TIME	SYS	DIA	HR	MAP	CODE	TIME	SYS	DIA	HR	MAP	CODE
12.13.2018											
12:30	136	84	70	108		21:30	127	80	63	95	
13:00	133	85	65	101		22:00	107	75	63	85	
13:30	119	85	64	96		22:30	122	77	66	92	
14:00	120	80	67	93		23:00	121	86	79	97	
14:30	127	78	65	92		23:30	106	74	71	84	
15:00	125	80	68	101		12.14.2018					
15:30	125	85	66	99		00:00	108	83	78	91	
16:00	127	79	72	95		00:30	119	82	71	84	
16:30	133	87	79	102		01:00	117	79	73	91	
17:00	124	85	63	98		01:30	119	79	70	82	
17:30	118	78	67	91		02:00	118	71	68		
18:00	126	82	64	97		02:30	114	79	66	90	
18:30	125	86	63	100		03:00	117	81	70	83	
19:00	124	85	69	98		03:30	107	69	65	81	
20:00	126	87	61	100		04:00	108	65	69	79	
20:30	123	86	63	96		04:30	108	65	69	79	
21:00	125	87	62	99		05:00	115	66	71	82	
						05:30	117	71	74	85	
						06:00	110	71	67	84	
						06:30	128	85	86	99	
						07:00	119	86	72	88	
						07:30	130	84	68	102	
						07:38					
						08:00	131	80	83	103	
						08:30	141	80	65	109	

Comment:

Daytime Normotension, Isolated 24-h Diastolic Hypertension, Isolated NightTime Diastolic Hypertension, White Coat Hypertension, Non-Dipper

Signature:

Page 1 of 1



AutoSave

File Home Insert Page Layout Formulas Data Review View Help Search

Clipboard Font Alignment Number

Conditional Formatting Table

	A	B	C	D	E	F	G	H	I	J	K	L
1	Patient ID	123.568			Health facility	Hospital						
2	Name	willem			Physician	willem						
3	Sex	Male			Email	johnsmith@hotmail.com						
4	Age	30			Phone	46469436546						
5	Date of birth	06.08.1988			Study date	17.11.2018						
6												
7	※Average with first measurement											
8	Average		SYS	DIA	HR							
9			92.0	57.0	65.0							
10												
11												
12												
13												
14	DATE	TIME	SYS	DIA	HR	MAP	PP	cSYS	cDIA	cPP	CODE	
15	17.11.2018	10:05	97	59	62	69	38					
16	17.11.2018	10:06	86	51	66	70	35					
17	17.11.2018	10:07	92	60	66	65	32					
18												
19												
20												
21												
22												
23												
24												
25												



WatchBP Analyzer- Report Customization

The screenshot displays the WatchBP Analyzer v1.0.0.23 interface. The main window is titled "microlife WatchBP" and has tabs for "Measurement" and "Report". The "Report" tab is active, showing a "Report Option" section with two checked items: "Hide error and event messages" and "Hide AFIB result". Below this is a "Customization" section with fields for "Physician" (Dr. Quinzel), "Centre/Hospital" (Quinzel Clinic), and "Customized logo" (C:\Microlife\sample logo.png). A "Generate PDF Report" button is visible at the bottom right. A smaller inset window on the left shows a list of measurements, with the entry "09.18.2018 10:48" selected, and a similar "Report Option" and "Customization" section highlighted by a red circle.

Device Information:

- Device Name: WatchBP Office
- Device ID: CB879C63AA39
- Batteries: 5.2 V
- Option: AFIB, Central BP

Patient Information:

Name	ID
Green Lantern	GL
Harley Quinn	HQ
Super Man	SM

Measurement Settings:

- WatchBP O3
- 09.05.2018 15:34
- 11.05.2018 11:01
- 09.18.2018 10:32
- 09.18.2018 10:48 (Selected)
- WatchBP Office
- 10.26.2018 08:51

Report Option:

- Hide error and event messages
- Hide AFIB result

Customization:

- Physician: Dr. Quinzel
- Centre/Hospital: Quinzel Clinic
- Customized logo: C:\Microlife\sample logo.png

Buttons: Program device, Measure, Download, Generate PDF Report

Report in PDF or in XLSX

microlife WatchBP

Bluetooth About

Device

Device Name:

Device ID:

Batteries:

Option:

Patient

Search

Name	ID	Gender	Age	DOB	Physician	
Jason	A123456789	Male	25	13.12.1993	doctor1	<input type="button" value="New"/>
willem	123.568	Male	30	06.08.1988	willem	<input type="button" value="Edit"/>
WillemII	12345	Male	30	13.12.1988	doctor1	<input type="button" value="Delete"/>

Measurement Sets

- WatchBP O3
 - 15.08.2018 11:38
 - 15.08.2018 13:56
 - 15.08.2018 14:02
 - 15.08.2018 14:48
- WatchBP Office
 - 13.12.2018 11:33
 - 13.12.2018 11:35
 - 13.12.2018 11:39
 - 13.12.2018 11:42

Measurement Report

Setting Office Blood Pressure Threshold

SYS mmHg

DIA mmHg

Report Option

Hide error and event messages

Hide AFIB result

Average without first measurement

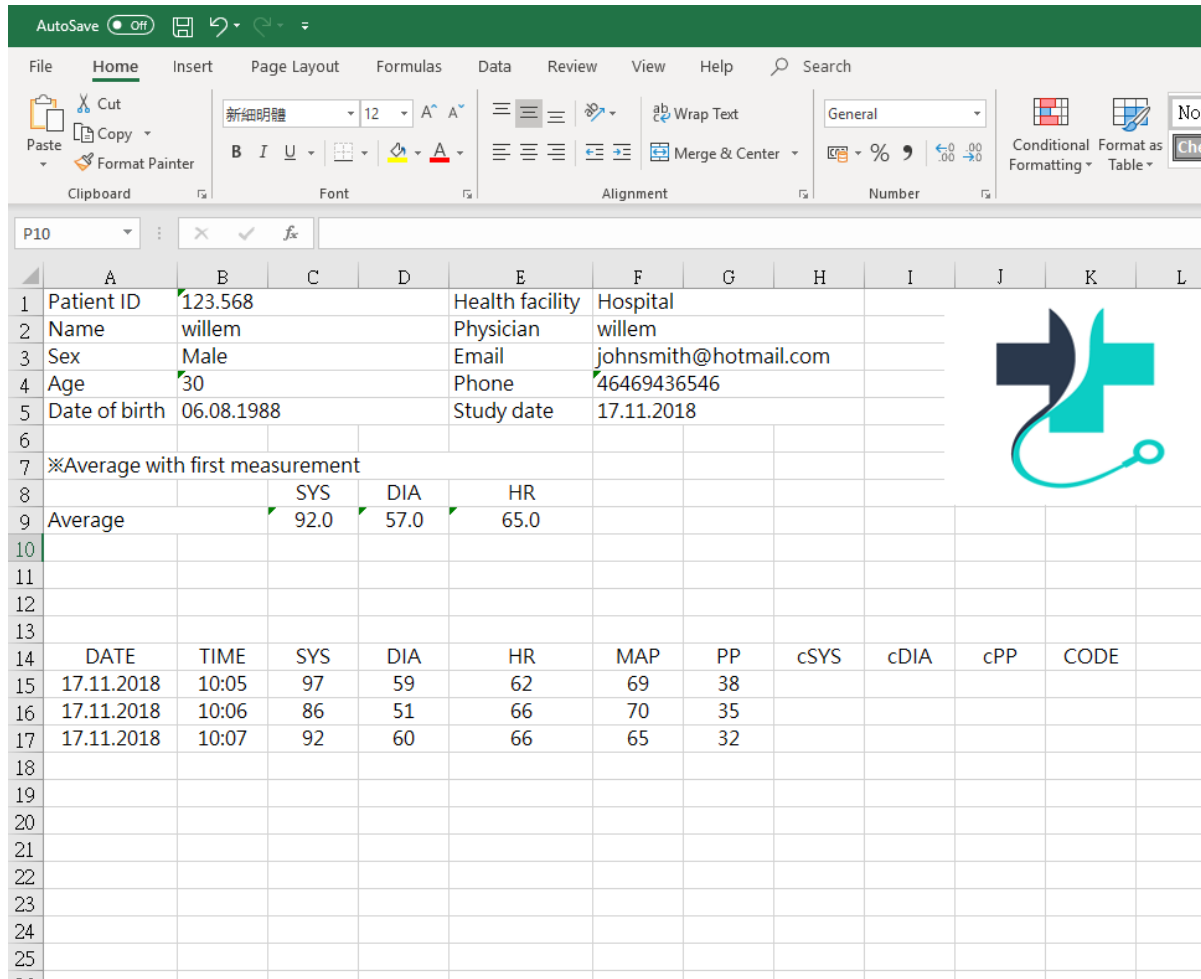
Customization

Physician:

Centre/Hospital:

Customized logo:

XLSX report Hospital logo can be implemented



The screenshot shows an Excel spreadsheet with a patient data report. The report includes patient information, vital signs, and a table of measurements. A hospital logo is visible in the background of the spreadsheet.

	A	B	C	D	E	F	G	H	I	J	K	L
1	Patient ID	123.568			Health facility	Hospital						
2	Name	willem			Physician	willem						
3	Sex	Male			Email	johnsmith@hotmail.com						
4	Age	30			Phone	46469436546						
5	Date of birth	06.08.1988			Study date	17.11.2018						
6												
7	※Average with first measurement											
8			SYS	DIA	HR							
9	Average		92.0	57.0	65.0							
10												
11												
12												
13												
14	DATE	TIME	SYS	DIA	HR	MAP	PP	cSYS	cDIA	cPP	CODE	
15	17.11.2018	10:05	97	59	62	69	38					
16	17.11.2018	10:06	86	51	66	70	35					
17	17.11.2018	10:07	92	60	66	65	32					
18												
19												
20												
21												
22												
23												
24												
25												

PDF report

WatchBP O3

Ambulatory Blood Pressure Measurement Report

Patient ID HQ
Name Harley Quinn
Sex Female
Age 68
Date of birth 07.02.1950
Health facility Quinzel Clinic
Physician Dr. Quinzel
Email Hadey@abc.com
Phone 1-234-567-890
Study date 12.13.2018



Day and Night Period

	TIME	INTERVAL
Day:	7-20h	30 min
Night:	20-7h	30 min

Actual Awake / Asleep

Awake:	7-20 h
Asleep:	20-7 h

BP Threshold

Day:	135/85 mmHg
Night:	120/70 mmHg

Readings

Total Readings:	63
Successful:	60 (95.2%)

White Coat Window

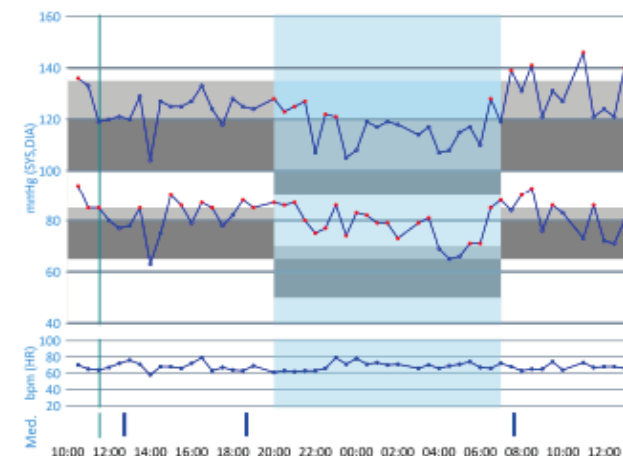
	SYS	DIA	HR
Readings	2	2	2
1st hr Max	136	94	70

Night-time Dip%

	SYS	DIA
Dip%	8 %	6 %

BP Load

Day readings	≥ 135/85	53.8 %
Night readings	≥ 120/70	85.7 %



Average Blood Pressure (SD)

	SYS	DIA	HR	MAP	PP	cSYS	cDIA	cPP
24-hr	124(8)	81(8)	68(4)	95	42	(-)	(-)	-
Awake	127(8)	83(8)	68(3)	97	44	(-)	(-)	-
Asleep	117(5)	78(8)	69(5)	90	38	(-)	(-)	-

TIME	SYS	DIA	HR	MAP	CODE	TIME	SYS	DIA	HR	MAP	CODE	TIME	SYS	DIA	HR	MAP	CODE	
12.13.2018						21:30	127	80	63	95		09:00	121	76	65	91		
10:30	136	94	70	108		22:00	107	75	63	85		09:30	131	86	74	101		
11:00	133	85	65	101		22:30	122	77	66	92		10:00	127	83	64	97		
11:30	119	85	64	96		23:00	121	86	79	97		11:00	146	73	73	97		
12:00	120	80	67	93		23:30	106	74	71	84		11:30	121	86	67	97		
12:30	121	77	72	91		12.14.2018	12:00	124	72	68	89		12:00	124	72	68	89	
12:45					1	00:00	106	83	78	91		12:30	121	71	68	87		
13:00	120	78	76	92		00:30	119	82	71	94		13:00	140	80	69	100		
13:30	129	85	71	99		01:00	117	79	73	91		13:30	128	84	68	96		
14:00	104	63	58	76		01:30	119	79	70	92		14:00	132	79	62	96		
14:30	127	75	68	92		02:00	116	73	71	88		14:30	146	86	67	106		
15:00	125	90	68	101		03:00	114	79	68	90		15:00	131	86	71	102		
15:30	125	86	66	99		03:30	117	81	70	93		15:30	130	77	68	94		
16:00	127	79	72	95		04:00	107	69	66	81		16:00	122	81	69	94		
16:30	133	87	79	102	5	04:30	106	65	69	79		16:30	123	86	74	98		
17:00	124	85	63	96		05:00	115	66	71	82		17:00	128	81	69	96		
17:30	118	78	67	91		05:30	117	71	74	86		17:30	130	78	71	95		
18:00	128	82	64	97		06:00	110	71	67	84								
18:30	125	88	63	100		06:30	126	85	66	99								
18:40					1	07:00	119	86	72	98								
19:00	124	85	69	96		07:30	139	84	68	102								
20:00	128	87	61	100		07:38					1							
20:30	123	86	63	96		08:00	131	90	63	103								
21:00	125	87	62	99		08:30	141	93	65	109								

Comment:

Daytime Normotension, Isolated 24-h Diastolic Hypertension, Isolated NightTime Diastolic Hypertension, White Coat Hypertension, Non-Dipper

Signature:

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PDF report, Hospital logo can be implemented

WatchBP O3

Ambulatory Blood Pressure Measurement Report

Patient ID	HQ	Health facility	Quinzel Clinic
Name	Harley Quinn	Physician	Dr. Quinzel
Sex	Female	Email	Harley@abc.com
Age	68	Phone	1-234-567-890
Date of birth	07.02.1950	Study date	12.13.2018



Day and Night Period



Actual

Awake
Asleep

Patient ID	HQ	Health facility	Quinzel Clinic
Name	Harley Quinn	Physician	Dr. Quinzel
Sex	Female	Email	Harley@abc.com
Age	68	Phone	1-234-567-890
Date of birth	07.02.1950	Study date	12.13.2018



White

Readt

1st hr Max 136 94 70

Night-time Dip%

	SYS	DIA
Dip%	8 %	6 %

BP Load

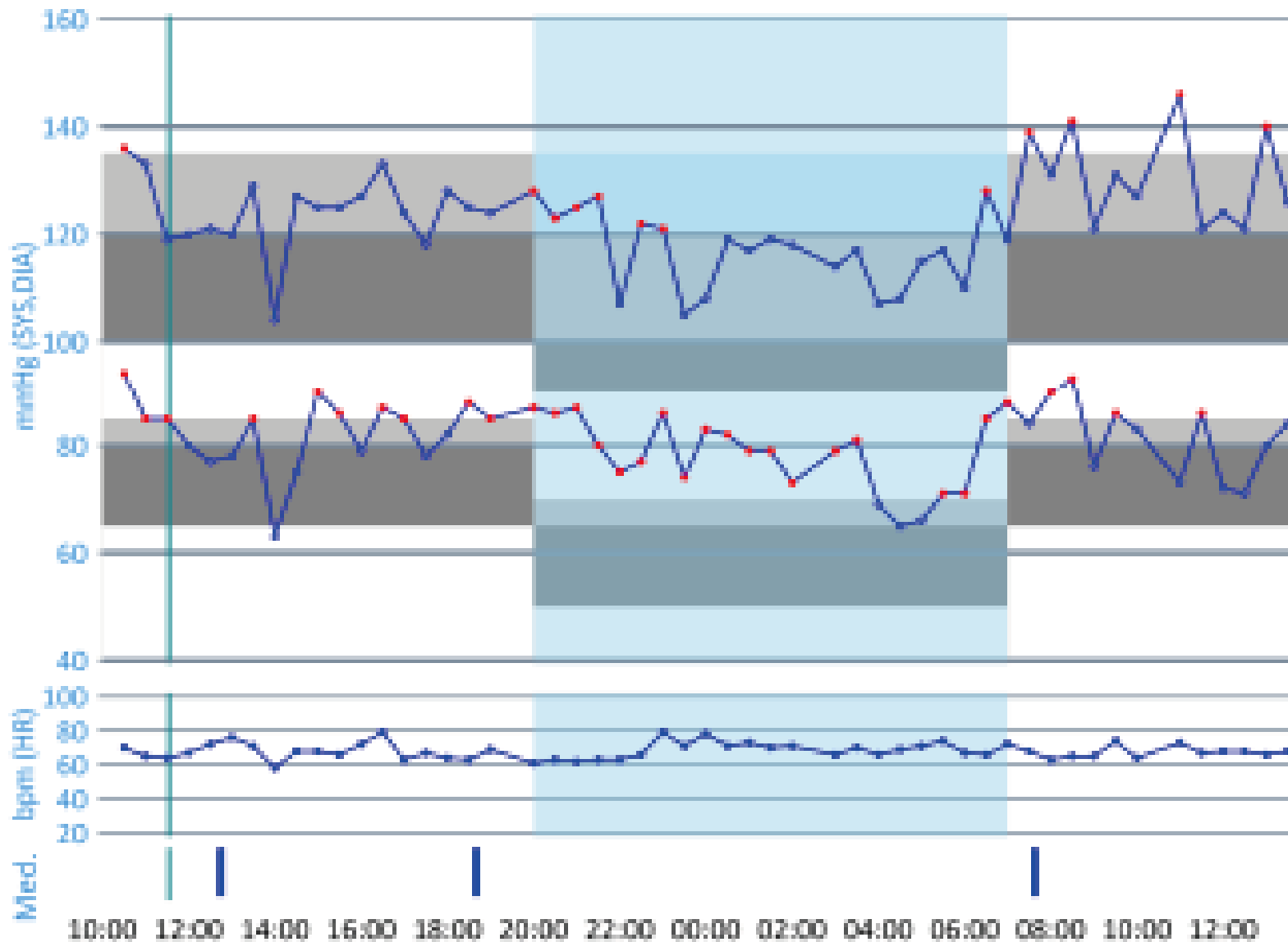
Day readings	≥ 135/85	53.8 %
Night readings	≥ 120/70	85.7 %

Average Blood Pressure (SD)

	SYS	DIA	HR	MAP	PP	cSYS	cDIA	cPP
24-hr	124(8)	81(6)	68(4)	95	42	(-)	(-)	-
Awake	127(8)	83(6)	68(3)	97	44	(-)	(-)	-
Asleep	117(5)	78(6)	69(5)	90	38	(-)	(-)	-

TIME	SYS	DIA	HR	MAP	CODE	TIME	SYS	DIA	HR	MAP	CODE	TIME	SYS	DIA	HR	MAP	CODE
12.13.2018						21:30	127	80	63	95		09:00	121	76	65	91	
10:30	135	94	70	108		22:00	107	75	63	85		09:30	131	86	74	101	
11:00	133	85	65	101		22:30	122	77	66	92		10:00	127	83	64	97	
11:30	119	85	64	96		23:00	121	86	79	97		11:00	146	73	73	97	
11:00	119	85	67	96		23:30	107	81	71	81		11:30	101	71	73	87	

PDF report, graph



PDF report, Automated comment

15:00	125	90	68	101		03:00	114	79	68	90	15:00	131	88	71	102
15:30	125	86	66	99		03:30	117	81	70	93	15:30	130	77	68	94
16:00	127	79	72	95		04:00	107	69	68	81	16:00	122	81	69	94
16:30	133	87	79	102	8	04:30	106	65	69	79	16:30	123	88	74	98
17:00	124	85	63	98		05:00	115	68	71	82	17:00	128	81	69	96
17:30	118	78	67	91		05:30	117	71	74	86	17:30	130	78	71	95
18:00	128	82	64	97		06:00	110	71	67	84					
18:30	125	88	63	100		06:30	128	85	66	99					
18:40					1	07:00	119	88	72	98					
19:00	124	85	69	98		07:30	139	84	68	102					
20:00	128	87	61	100		07:38									
20:30	123	86	63	98		08:00	131	90	63	103					
21:00	125	87	62	99		08:30	141	93	65	109					

Comment:

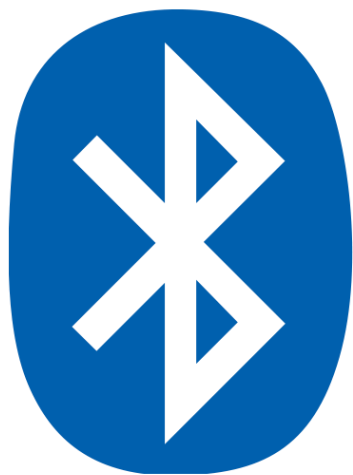
Signature:

Daytime Normotension, Isolated 24-h Diastolic Hypertension, Isolated NightTime Diastolic Hypertension, White Coat Hypertension, Non-Dipper

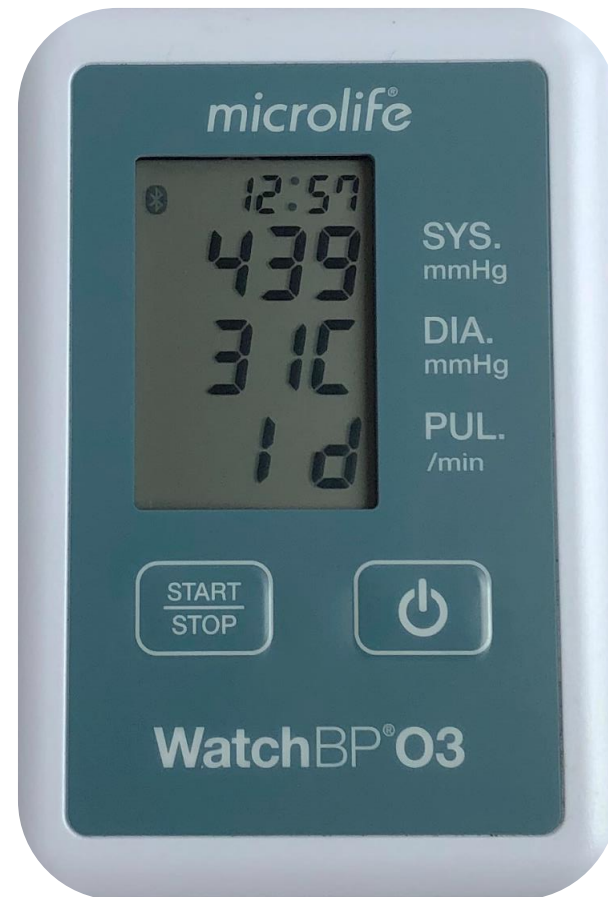
Page 1 of 1

Bluetooth WatchBP O3 Connectivity

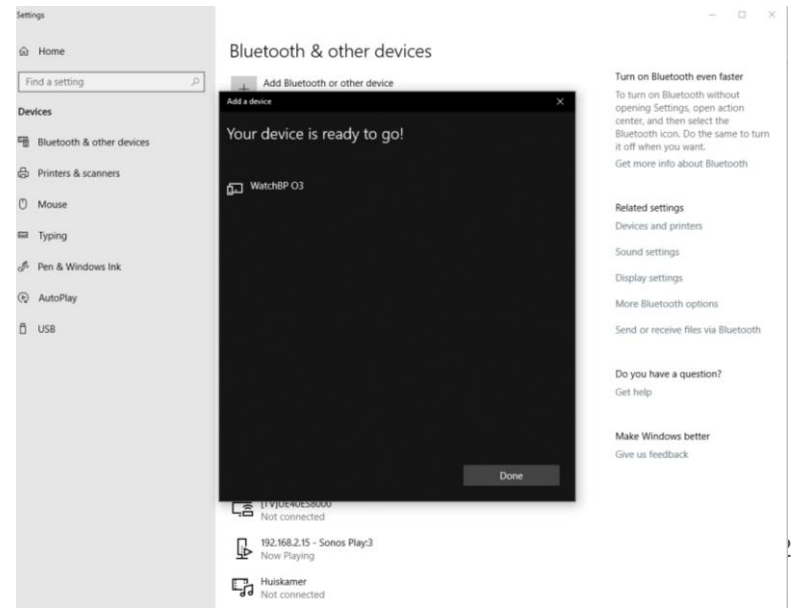
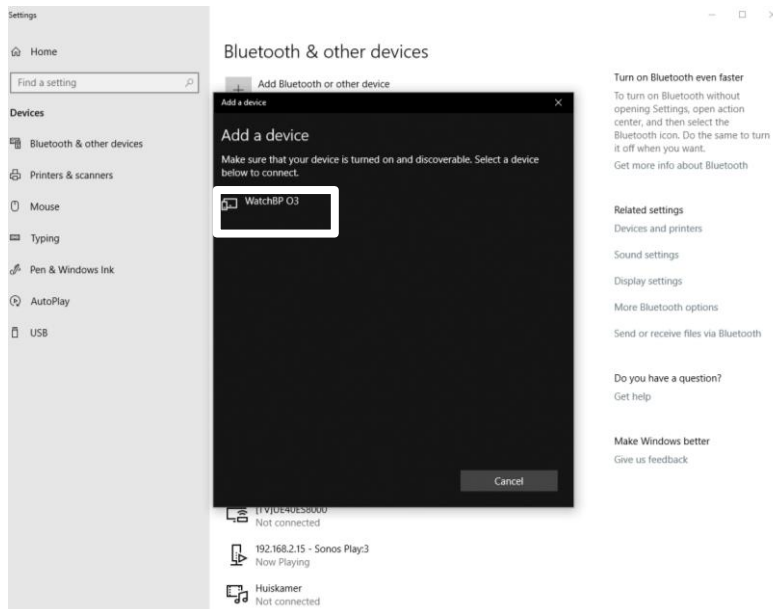
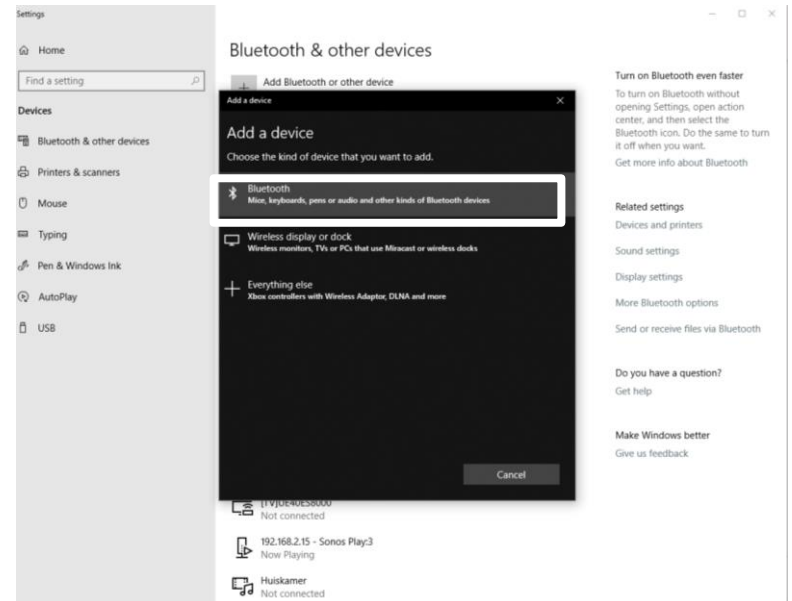
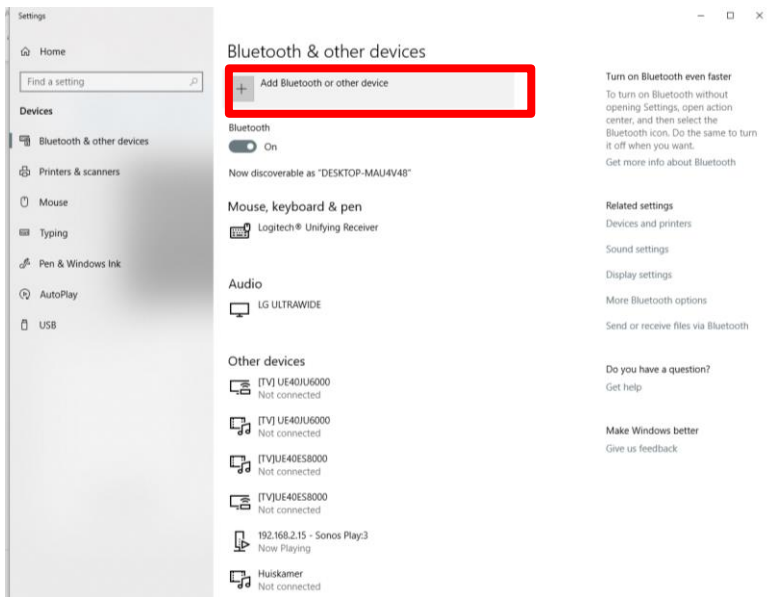
- BT 4.2 connectivity
- To activate press Start/Stop for 5 seconds until the unique key appears on the Display



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Bluetooth WatchBP O3 Connectivity



BT connectivity (3 steps to connect)

1. Open WatchBP Analyzer and
2. Click on “Bluetooth”, on the device and then on “Connect”

The image shows a screenshot of the WatchBP Analyzer software interface. A modal window titled "Bluetooth" is open, displaying the name "WatchBP O3" and MAC address "EB28AF43931C". The "Connect" button is highlighted with a red box. In the background, the main application window shows a "Bluetooth" menu item highlighted with a red box and a "1." next to it. The main application window also displays a "Patient" table with columns for Name, ID, Gender, Age, and DOB, and buttons for "New", "Edit", and "Delete".

Bluetooth

Name: **WatchBP O3**
MAC: EB28AF43931C Pair: True Signal Strength: No data

1. Bluetooth About

2. Connect Close

3.

Name	ID	Gender	Age	DOB
Jason	A123456789	Male	25	13.12.1993
willem	123.568	Male	30	06.08.1988
WillemII	12345	Male	30	13.12.1988

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26/08/2017 10:01

Upgrade the device, easy and convenient



Upgrade the device, easy and convenient

- Features that can be activated
 1. AFIB
 2. Central blood pressure measurement & AFIB

Device		
Device Name:	WatchBP Office	Program device
Device ID:	CB879C63AA39	Measure
Batteries	5.3 V	Download
Option:	1. AFIB	

Device		
Device Name:	WatchBP Office	Program device
Device ID:	CB879C63AA39	Measure
Batteries	5.2 V	Download
Option:	2. AFIB, Central BP	

WatchBP Analyzer – activate device feature

microlife WatchBP Language About

Device

Device Name: **WatchBP Office** **Program device**

Device ID: **CB879C63AA39** **Measure**

Batteries: **5.3 V**

Option: **AFIB** **Download**

Patient Search

Name	ID	Gender	Age	DOB	Physician	
Green Lantern	GL	Male	30	07.27.1988	Dr. 1	New
Harley Quinn	HQ	Female	68	07.02.1950	Dr. Quinz	Edit
Super Man	SM	Male	30	09.05.1988	doctor2	Delete

Measurement Settings

watchBP OS

- 09.05.2018 15:34
- 11.05.2018 11:01
- 09.18.2018 10:32
- 09.18.2018 10:48
- WatchBP Office
- 10.26.2018 08:51
- 10.26.2018 08:52

Measurement Report

Date	SYS	DIA	HR	MAP	PP	cSYS	cDIA	cPP	AFIB	Exclude	PVP wave	CODE	NOTE
04.20.2017 07:00	120	84	60	96	36	109	81	28		<input type="checkbox"/>			
04.20.2017 07:20	151	79	75	103	72	137	72	65		<input type="checkbox"/>			
04.20.2017 07:40	185	90	78	121	95	184	78	106		<input type="checkbox"/>			
04.20.2017 08:00	120	84	60	96	36	109	81	28		<input type="checkbox"/>			
04.20.2017 08:20	151	79	75	103	72	137	72	65		<input type="checkbox"/>			
04.20.2017 08:40	185	90	78	121	95	184	78	106		<input type="checkbox"/>			

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WatchBP Analyzer – activate device feature

- Click on “About”

The screenshot shows the WatchBP Analyzer v1.0.0.23 application window. The 'About' dialog box is open, displaying the following information:

- About**
- WatchBP Analyzer Version: 1.0.0.23 (with a **User Manual** button)
- Device ID: CB879C63AA39
- Firmware Version: RP2.2018.10.18
- Option: AFIB (with **Activated** and **?** buttons)
- Option: AFIB & Central BP (with **Activate** and **?** buttons)
- Please consult Microlife or the local distributor with the option "Activation"
- Okay** button

The main application window shows a sidebar with 'Device' and 'Measurement' sections. The 'About' button in the top right corner of the main window is highlighted with a red box.

Gender	Age	DOB	Physician	
Male	30	07.27.1988	Dr. 1	New
Female	68	07.02.1950	Dr. Quinz	Edit
Male	30	09.05.1988	doctor2	Delete

cDIA	cPP	AFIB	Exclude	PVP wave	CODE	NOTE
81	28		<input type="checkbox"/>			
72	65		<input type="checkbox"/>			
78	106		<input type="checkbox"/>			
81	28		<input type="checkbox"/>			
72	65		<input type="checkbox"/>			
78	106		<input type="checkbox"/>			

WatchBP Analyzer – activate device feature

- Click on “?” of the preferred option to activate

The screenshot displays the WatchBP Analyzer v1.0.0.23 interface. The 'About' dialog box is open, showing the following information:

- Device Name: WatchBP Analyzer
- Device ID: CB879C63AA39
- Firmware Version: RP2.2018.10.18
- Option: AFIB & Central BP

The 'AFIB & Central BP' option is selected, and its 'Activate' button is highlighted with a red box. The background shows a table of patient data and a list of measurements.

Gender	Age	DOB	Physician	
Male	30	07.27.1988	Dr. 1	New
Female	68	07.02.1950	Dr. Quinz	Edit
Male	30	09.05.1988	doctor2	Delete

cDIA	cPP	AFIB	Exclude	PVP wave	CODE	NOTE
81	28		<input type="checkbox"/>			
72	65		<input type="checkbox"/>			
78	106		<input type="checkbox"/>			
81	28		<input type="checkbox"/>			
72	65		<input type="checkbox"/>			
78	106		<input type="checkbox"/>			

WatchBP Analyzer – activate device feature

- Click on “Copy” for the required information activate

The screenshot displays the WatchBP Analyzer v1.0.0.23 software interface. The main window shows the 'About' dialog box for a device. The dialog box contains the following information:

- Device Name:
- Device ID: CB879C63AA39
- Batteries
- Option: AFIB (Activated) and AFIB & Central BP (Activate)
- Firmware Version: RP2.2018.10.18

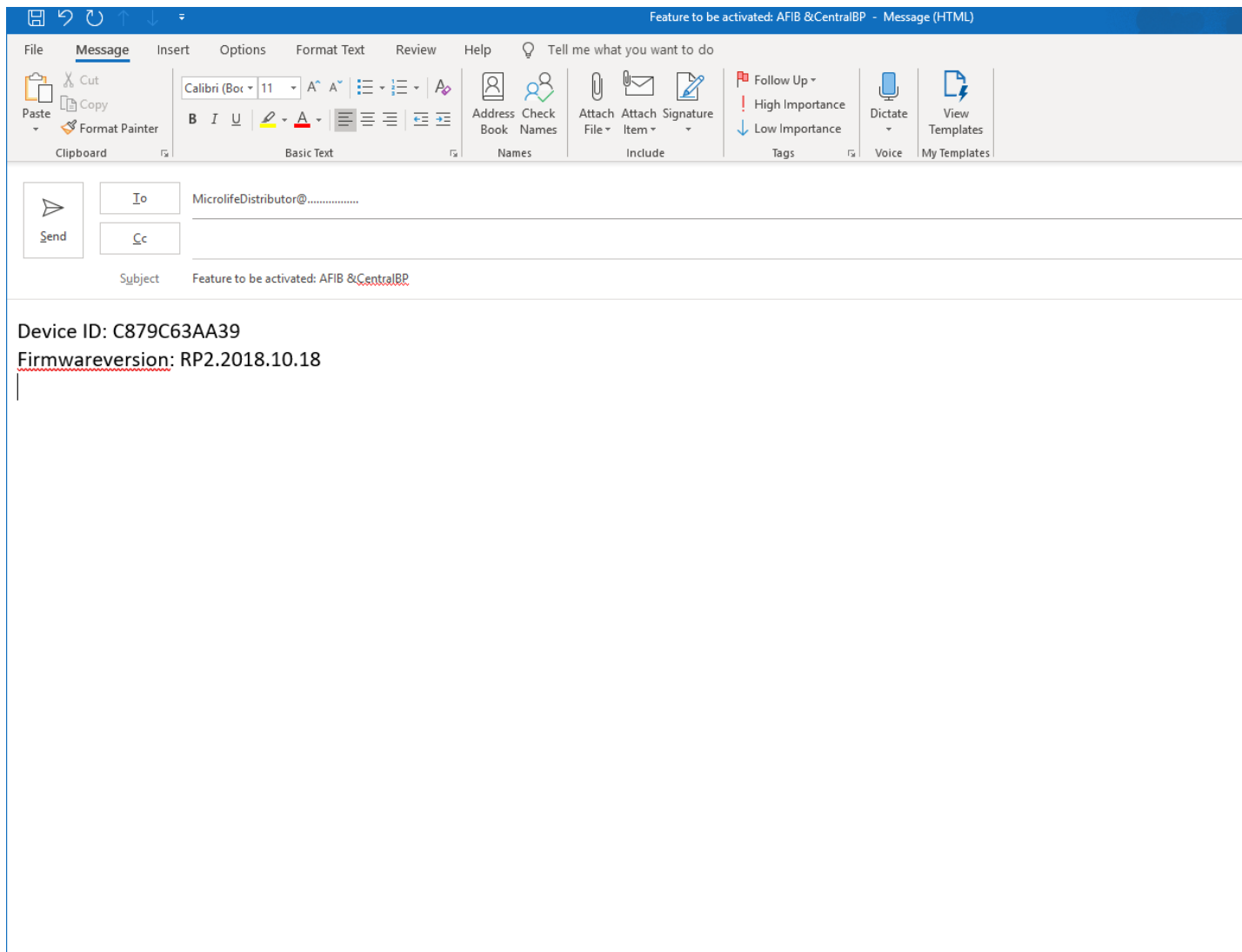
The 'Activate' button for 'AFIB & Central BP' is highlighted with a red box. A 'Copy' button is also visible in the bottom right corner of the dialog box.

The background shows a table of device data:

Gender	Age	DOB	Physician	
Male	30	07.27.1988	Dr. 1	New
Female	68	07.02.1950	Dr. Quinz	Edit
Male	30	09.05.1988	doctor2	Delete

The 'microlife' logo is visible at the bottom left of the image.

Send request to Microlife distributor or Microlife



Activation key will be sent by distributor

The screenshot shows an Outlook window titled "Inbox - willem.verberk@microlife.ch - Outlook". The active window is "RE: Feature to be activated AFIB & CentralBP - Message (HTML)". The ribbon includes "File", "Message", and "Help". The "Message" ribbon has several groups: "Delete" (Ignore, Delete, Archive), "Respond" (Reply, Reply All, Forward, More), "Quick Steps" (Move to: To Manager, Team Email, Reply & Delete, Done, Create New), "Move" (Move, Rules, Actions), "Tags" (Mark Unread, Categorize, Follow Up), "Editing" (Translate, Find, Related, Select), "Speech" (Read Aloud), "Zoom", and "OneNote" (Send to OneNote).

The email content is as follows:

RE: Feature to be activated AFIB & CentralBP

Microlife distributor

Your activation key is:

vk7jg-nphtm-c97jm-9mpgt-3v66t

Best regards,

Microlife distributor

Reply, Reply All, Forward, ...

Wed 26/06/2019 14:17

WatchBP Analyzer – activate device feature

- Click on “Activate”

The screenshot displays the WatchBP Analyzer v1.0.0.23 interface. The 'About' dialog box is open, showing the following information:

- WatchBP Analyzer Version: 1.0.0.23
- Device ID: CB879C63AA39
- Firmware Version: RP2.2018.10.18
- Option: AFIB (Activated)
- Option: AFIB & Central BP (Activate)

The 'Activate' button for 'AFIB & Central BP' is highlighted with a red box. The background shows a table of device data and a list of measurements.

Gender	Age	DOB	Physician	
Male	30	07.27.1988	Dr. 1	New
Female	68	07.02.1950	Dr. Quinz	Edit
Male	30	09.05.1988	doctor2	Delete

cDIA	cPP	AFIB	Exclude	PVP wave	CODE	NOTE
81	28		<input type="checkbox"/>			
72	65		<input type="checkbox"/>			
78	106		<input type="checkbox"/>			
81	28		<input type="checkbox"/>			
72	65		<input type="checkbox"/>			
78	106		<input type="checkbox"/>			

WatchBP Analyzer – activate device feature

- Copy in activation key and click on confirm

Device

Device Name:

Device ID:

Batteries

Option:

Measurement

WATCHBP 03

About

WatchBP Analyzer Version: 1.0.0.23

Device ID: CB879C63AA39

Firmware Version: RP2.2018.10.18

User Manual

Activation

vk7jg-nphtm-c97jm-9mpgt-3v66t

Confirm Cancel

Gender	Age	DOB	Physician	
Male	30	07.27.1988	Dr. 1	New
Female	68	07.02.1950	Dr. Quinz	Edit
Male	30	09.05.1988	doctor2	Delete

cDIA	cPP	AFIB	Exclude	PVP wave	CODE	NOTE
81	28		<input type="checkbox"/>	✓		
72	65		<input type="checkbox"/>	✓		
78	106		<input type="checkbox"/>	✓		
81	28		<input type="checkbox"/>	✓		
72	65		<input type="checkbox"/>	✓		
78	106		<input type="checkbox"/>	✓		

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WatchBP Analyzer – activate device feature

- The option(s) are visible

The screenshot displays the WatchBP Analyzer v1.0.0.23 interface. A red box highlights the 'Device' configuration panel on the left, which includes fields for Device Name (WatchBP Office), Device ID (CB879C63AA39), Batteries (5.3 V), and Option (AFIB). A larger red box highlights a detailed view of the 'Device' configuration on the right, where the 'Option' field is set to 'AFIB, Central BP'. Below these panels is a 'Measurement Settings' section and a 'Measurement' table. The 'Measurement' table has columns for Date, SYS, DI, and several numerical values. The 'Measurement' table contains the following data:

Date	SYS	DI								
04.20.2017 07:00	120	84	60	96	36	109	81	28		
04.20.2017 07:20	151	79	75	103	72	137	72	65	<input type="checkbox"/>	~
04.20.2017 07:40	185	90	78	121	95	184	78	106	<input type="checkbox"/>	~
04.20.2017 08:00	120	84	60	96	36	109	81	28	<input type="checkbox"/>	~
04.20.2017 08:20	151	79	75	103	72	137	72	65	<input type="checkbox"/>	~
04.20.2017 08:40	185	90	78	121	95	184	78	106	<input type="checkbox"/>	~

The device covers many “special patients” validations

Special population validations with oscillometric devices

company	Stiff arteries					Pregnancy alone	Very low BP values		Cuff fit		AF	(n)
	ESRD	Diabetes	elderly	Dialysis	Pre-Eclampsia		Hypo-tension	Children & adolescents	Obesity	Cuff Wide-range		
Microlife												11

AFIB has been investigated in many clinical studies



Full Paper	Patients	Number of subjects	Age (Years)	AF (n)	Non-AF arrhythmia	Sinus (n)	Sensitivity (%)	Specificity (%)
Wiesel 2004	outpatients	450	31-99	54	1	395	100	92
Stergiou 2009	outpatients	73	49-92	27	23	23	100	89
Wiesel 2009	outpatients	405	34-98	93	64	248	97	89
Wiesel 2013	outpatients	139	26-89	14	n.s.	125	99	92
Oxford 2014	Primary care	999	75+	79	n.s.	920	95	90
Wiesel 2014	outpatients	183	50-100	30	n.s.	153	100	92
Gandolfo 2015	Stroke patients	207	27-101	38	n.s.	169	89	99
Chan 2017	Primary care	2052	68	24	156	1872	83	99
Chan 2017	Primary care	5969	67	72	430	5467	81	99

Confirmed with 12-lead ECG

Overall: Sensitivity 98%, Specificity 92%