

# Blood Pressure Measurement API Service

The “WaveLight Beta-BP” API Service provides Peripheral Blood Pressure Measurement closely related to Blood Pressure from a cPPG mobile video file.

## Facts Summary

**Disclaimer:** This is a business-oriented document. For scientifically accurate information, please refer to the complete reports in the “Accuracy & Quality Assurance” section.

Vital Sign:	<b>Blood Pressure</b>
Algorithm:	<b>BPNN-cPPG-MONO-B01-WF</b>
Error Margin:	<b><math>\pm 10</math> mmHg International standard for PPG devices</b>
Expected Rejection Rate:	<b>15%(*) Laboratory test in a controlled environment</b>
Total Processing Time:	<b>23 seconds</b>
Input	<b>20-40 seconds cPPG anonymous video file</b>
Output:	<b>Average systolic and diastolic measurements in mmHg and detailed peak and valley array</b>
Media Requirements:	<b>+75% Red Intensity Level (190 / 255)</b>
Confidence Intervals:	<b>67-114 map*</b>
Patient Age Range:	<b>17 to 70 years old</b>
Exclusion Conditions:	<b>Dark/Nail Polish</b>
	<b>Finger Skin Abnormalities (Eg. Burns, tattoos, or scar)</b>
	<b>Use of Vasoconstrictors</b>
	<b>Cardiovascular Conditions affecting circulation, such as severe arrhythmias or peripheral vascular disease</b>

\***Mean Arterial Pressure (MAP)** calculates mean arterial pressure from measured systolic and diastolic blood pressure values.

## Suggested Applications

Considering the close relation between Peripheral Pulse Rate and Heart Rate, **WaveLight Beta-PR API Service** can be used to develop applications, such as:

Telemedicine Support	Home-Based Elderly Care
Post-Surgical Recovery monitoring	Chronic Disease Management
Remote Patient Monitoring	Post-Consultation Monitoring
Screening	Wellness
Public Health	

## Working Principles

WaveLight Beta-PR API Service uses the WaveFlow WaveLight's proprietary cPPG Technology to convert mobile contact video captures from individuals fingers into a Peripheral Pulse Rate measure.

Vital Sign:	<b>Peripheral Blood Pressure</b>
WaveFlow:	<b>BPNN-cPPG-MONO-B01-WF</b>
Number Stages:	<b>3</b>
Stage 1 - Extraction:	<b>Video to Time Series Conversion</b>
Stage 2 - Segmentation:	<b>Peaks and Valleys Identification</b>
Stage 3 -Result:	<b>Blood Pressure Calculation</b>

# Usage

API Endpoint: <https://api.wavelighthhealth.com/>

API Documentation: <https://api.wavelighthhealth.com/docs>  
<https://www.postman.com/wave-light/wavelight/>

Service Key: BETA-BP

Required information: Height (cm), Weight (kg), Age and Gender

Capture instructions link: <https://www.wavelighthhealth.com/capture-instructions>

**Notice:** For detailed information developers may access the API documentation

## Accuracy & Quality Assurance

WaveLight's cPPG API services are subject of 3 levels of Testing and Trials:

*Level 1 - Development Accuracy Test							
	N	Accuracy	Mean Error	RMSE	SD Error	Maximum Error	Report
Systolic (SYS)	60	90%	3,66 mmHg (2,99%)	5,65	4,31	17,24 mmHg (13%)	WF 25-004
Diastolic (DIS)		98%	1,31 mmHg (1,81%)	2,57	2,21	14,46 mmHg (17%)	
Mean Blood Pressure (MAP)		97%	1,71 mmHg (1,91%)	2,85	2,27	11,89 mmHg (11%)	

(\*) Level 2 and 3 reports will be available soon