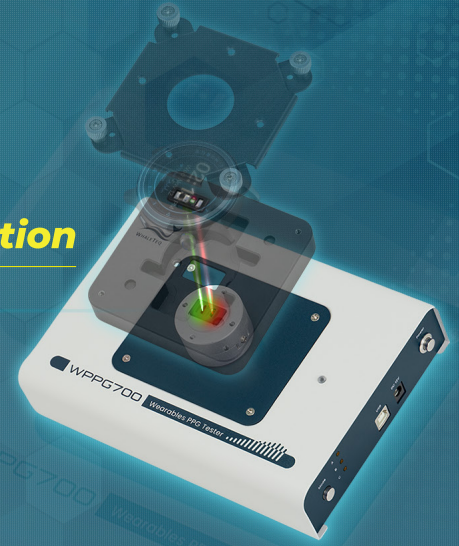


PPG SpO₂ Validation Gaps

Mitigate Downstream Risk Through PPG Simulation

Current testing methods leave gaps that only become visible during clinical trials or market release.




Current Gaps in SpO₂ Validation

1




No controlled, repeatable testing of full performance range

2



Limited edge case testing:
SpO₂ = 70%, PI < 0.5%, BPM > 200

3



High variability and cost of human test subjects

4



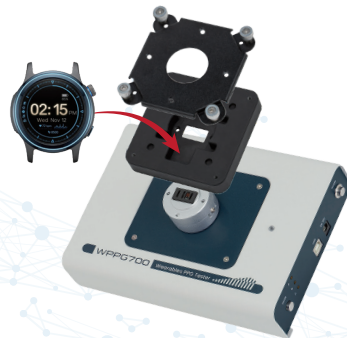
Lack defensible data of full performance claims before trials

WhaleTeq PPG Simulation Closes the Gap

• AECG100 Test Setup



• WPPG700 Test Setup



R&D + Business Wins

• For R&D

- ✓ Test edge cases on demand
- ✓ Repeat identical test conditions
- ✓ Reveal performance gaps before trials
- ✓ Generate defensible performance data

• For Business

- ✓ Clinical trials confirm performance, not discover problems
- ✓ Reduce redesign and late-stage delays
- ✓ Strengthen product claims
- ✓ Accelerate development timelines



“Before implementing **AECG100**, it was difficult to systematically validate our SpO₂ performance range under controlled conditions. Simulation allowed us to verify edge cases and calibration behavior before entering human evaluation, significantly reducing downstream risk.”

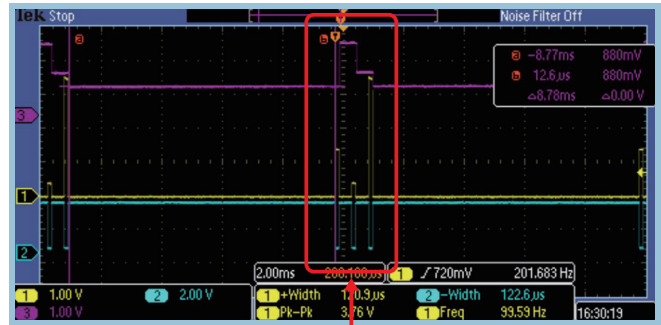
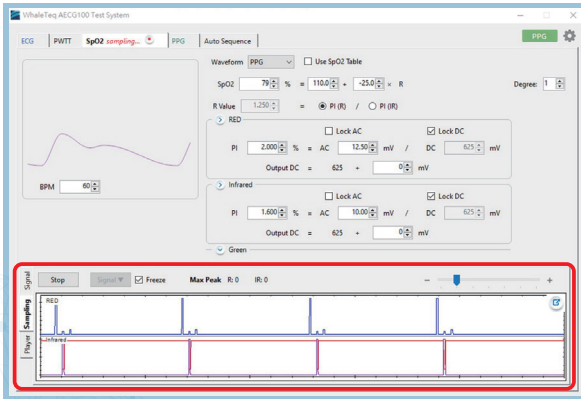
-Eric Hsiao, Ph.D. (Biomedical Engineering), Former Biosensor Engineer at Analog Devices

How WhaleTeq's PPG Simulation Solutions Work

PPG Testing (1) LED Behavior Testing

Test LED behavior against DUT specifications

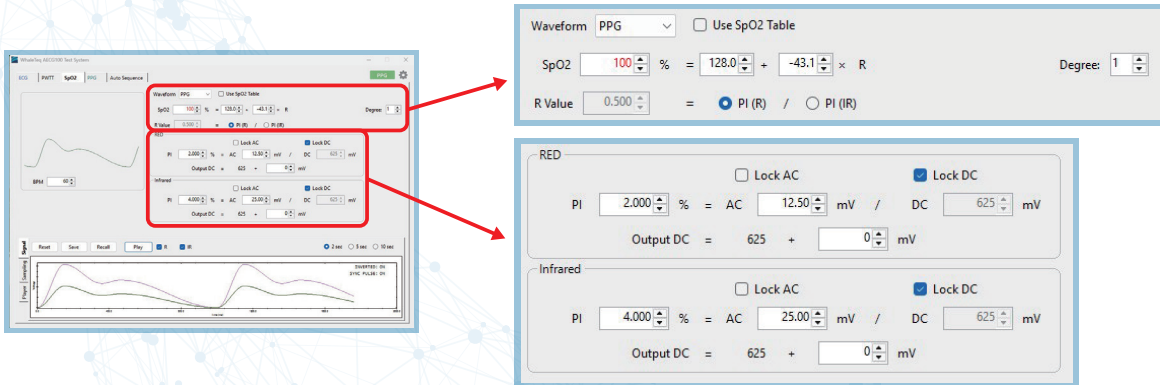
- 1 Display DUT LED behavior on software
- 2 Compare with the DUT design specification



• Oscilloscope port available for detailed view of LED behavior.

PPG Testing (2) DUT Performance and Repeatability Testing

Test vital sign signal processing with adjustable synthetic waveforms



• Adjustable variables (SpO2, PI, AC/DC, Heart Rate)

PPG Testing (3) Algorithm Testing

Test noise filtering and arrhythmia detection with RAW data playback

- 1 Play Raw Data with disease, motion and ambient noise
- 2 Compare Test Result with Raw Data

1 Play Raw Data with disease, motion and ambient noise

2 Compare Test Result with Raw Data

