

GCC Lab Conformity Assessment Company

CALIBRATION CERTIFICATE

شركة المختبر الخليجي للتحقق والمطابقة

Certificate # : 202513784

Issue Date : 10-Aug-25

Asset Number : GCS054055

CUSTOMER INFORMATION

Customer Name	: Homeland Security Trading Est.
Address	: Al Murabaa, Riyadh , K.S.A

UUT INFORMATION

Description	: Multiparameter Simulator	Received Date	: 17-Jul-25
Manufacturer	: Fluke	Serial Number	: 0917712
Model	: MPS450	ID Number	: N/A
Range	: N/A	UUT Location	: N/A

CALIBRATION INFORMATION

Calibration Date	: 31-Jul-25	Result Type	: As Found
Due Date	: 31-Jul-26	Amb.Temperature	: 23 ± 5°C
Procedure Used	: FLUKE MPS450:CAL VER/34401	Relative Humidity	: 20 to 80 %RH
		Cal Site	: GCA - Riyadh

The Laboratory Quality Management system complies with the requirements of ISO/IEC 17025:2017.

TRACEABILITY INFORMATION

Measurements are traceable to the SI Units (International System of Units) via national or international laboratories. The estimated expanded uncertainty (if specified) of measurement to be associated with the results is calculated at a confidence level of approximately 95% with a coverage factor of $k = 2$.

REMARKS / DEVIATIONS IF ANY

1. The measurement results are given on the attached sheet(s). The page numbers may be numbered separately.
2. This calibration certificate applies only to the item identified and shall not be reproduced except in full without the approval by GCA.
3. The described instrument has been calibrated under the ambient conditions stated above.
4. UUT meets manufacturer's tolerances for the parameters listed.
5. The UUT was received in good condition.
6. Pass/Fail decisions "if any" are based on acceptance limits chosen based on simple acceptance ($w=0$, $AL= TL$).

Asset # of UUT	Authorized By	
 GCS054055	 Eng. Abdullah Saeed	

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TEST DESCRIPTION	TRUE VALUE	TEST RESULT	LOWER LIMIT	UPPER LIMIT	STATUS	EXPANDED UNCERTAINTY
ECG AMPLITUDE TEST; @ HIGH LEVEL OUTPUT						
100.0 mV @ 0.5 mV		100.3 mV	95.0 mV	105.0 mV	Pass	1.0e-003 V
200.00 mV @ 1 mV		200.30 mV	190.00 mV	210.00 mV	Pass	2.0e-003 V
300.00 mV @ 1.5 mV		300.30 mV	285.00 mV	315.00 mV	Pass	3.0e-003 V
400.00 mV @ 2 mV		402.40 mV	380.00 mV	420.00 mV	Pass	4.0e-003 V
ECG RATE TEST:						
2.000 s @ 30 BPM		2.000 s	1.980 s	2.020 s	Pass	8.0e-003 s
1.490 s @ 40 BPM		1.500 s	1.416 s	1.564 s	Pass	6.0e-003 s
1.000 s @ 60 BPM		1.000 s	0.950 s	1.050 s	Pass	4.0e-003 s
750.0 ms @ 80 BPM		749.5 ms	712.5 ms	787.5 ms	Pass	3.0e-003 s
600.0 ms @ 100 BPM		600.0 ms	570.0 ms	630.0 ms	Pass	2.4e-003 s
500.0 ms @ 120 BPM		500.0 ms	475.0 ms	525.0 ms	Pass	2.0e-003 s
428.6 ms @ 140 BPM		428.0 ms	407.2 ms	450.0 ms	Pass	1.7e-003 s
375.0 ms @ 160 BPM		376.0 ms	356.2 ms	393.8 ms	Pass	1.5e-003 s
333.3 ms @ 180 BPM		332.0 ms	316.6 ms	350.0 ms	Pass	1.3e-003 s
300.0 ms @ 200 BPM		300.0 ms	285.0 ms	315.0 ms	Pass	1.2e-003 s
272.7 ms @ 220 BPM		272.0 ms	259.1 ms	286.3 ms	Pass	1.1e-003 s
250.0 ms @ 240 BPM		252.0 ms	237.5 ms	262.5 ms	Pass	1.0e-003 s
230.8 ms @ 260 BPM		232.0 ms	219.3 ms	242.3 ms	Pass	9.3e-004 s
214.3 ms @ 280 BPM		216.0 ms	203.6 ms	225.0 ms	Pass	8.6e-004 s
200.0 ms @ 300 BPM		200.0 ms	190.0 ms	210.0 ms	Pass	8.0e-004 s
ECG PERFORMANCE TEST						
Square Wave:						
2.000 Hz		2.000 Hz	1.900 Hz	2.100 Hz	Pass	8.0e-003 Hz
0.125 Hz		0.125 Hz	0.119 Hz	0.131 Hz	Pass	7.6e-004 Hz
Triangular Wave:						
2.000 Hz		2.000 Hz	1.900 Hz	2.100 Hz	Pass	8.0e-003 Hz
2.500 Hz		2.499 Hz	2.375 Hz	2.625 Hz	Pass	1.0e-002 Hz
Pulse Wave:						
500.0 mHz @ 30 BPM		499.9 mHz	475.0 mHz	525.0 mHz	Pass	
1.000 Hz @ 60 BPM		1.000 Hz	0.950 Hz	1.050 Hz	Pass	4.0e-003 Hz
Sine Wave:						
500.0 mHz		499.9 mHz	475.0 mHz	525.0 mHz	Pass	2.0e-003 Hz
5.000 Hz		4.997 Hz	4.750 Hz	5.250 Hz	Pass	2.0e-002 Hz
10.00 Hz		10.00 Hz	9.50 Hz	10.50 Hz	Pass	4.0e-002 Hz
40.00 Hz		39.98 Hz	38.00 Hz	42.00 Hz	Pass	1.6e-001 Hz
50.00 Hz		50.01 Hz	47.50 Hz	52.50 Hz	Pass	2.0e-001 Hz
60.00 Hz		59.99 Hz	57.00 Hz	63.00 Hz	Pass	2.4e-001 Hz
100.0 Hz		100.0 Hz	95.0 Hz	105.0 Hz	Pass	4.0e-001 Hz
RESPIRATION BASELINE TEST						
RA - RL:						
500 Ohm		507.4 Ohm	475.0 Ohm	525.0 Ohm	Pass	6.0e-001 Ohm

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1000 Ohm		1004.7 Ohm	950.0 Ohm	1050.0 Ohm	Pass	6.1e-001 Ohm
1500 Ohm		1501.7 Ohm	1425.0 Ohm	1575.0 Ohm	Pass	6.5e-001 Ohm
2000 Ohm		1998.7 Ohm	1900.0 Ohm	2100.0 Ohm	Pass	6.7e-001 Ohm
LA - RL:						
500 Ohm		508.0 Ohm	475.0 Ohm	525.0 Ohm	Pass	6.0e-001 Ohm
1000 Ohm		1005.3 Ohm	950.0 Ohm	1050.0 Ohm	Pass	6.1e-001 Ohm
1500 Ohm		1502.7 Ohm	1425.0 Ohm	1575.0 Ohm	Pass	6.5e-001 Ohm
2000 Ohm		1999.8 Ohm	1900.0 Ohm	2100.0 Ohm	Pass	6.7e-001 Ohm
LL - RL:						
500 Ohm		510.6 Ohm	475.0 Ohm	525.0 Ohm	Pass	6.0e-001 Ohm
1000 Ohm		1008.2 Ohm	950.0 Ohm	1050.0 Ohm	Pass	6.1e-001 Ohm
1500 Ohm		1505.5 Ohm	1425.0 Ohm	1575.0 Ohm	Pass	6.5e-001 Ohm
2000 Ohm		2003.0 Ohm	1900.0 Ohm	2100.0 Ohm	Pass	6.7e-001 Ohm
V1 - RL:						
750 Ohm		749.2 Ohm	713.0 Ohm	787.0 Ohm	Pass	6.1e-001 Ohm
V2 - RL:						
750 Ohm		748.7 Ohm	713.0 Ohm	787.0 Ohm	Pass	6.1e-001 Ohm
V3 - RL:						
750 Ohm		748.5 Ohm	713.0 Ohm	787.0 Ohm	Pass	6.1e-001 Ohm
V4 - RL:						
750 Ohm		746.9 Ohm	713.0 Ohm	787.0 Ohm	Pass	6.1e-001 Ohm
V5 - RL:						
750 Ohm		748.4 Ohm	713.0 Ohm	787.0 Ohm	Pass	6.1e-001 Ohm
V6 - RL:						
750 Ohm		752.4 Ohm	713.0 Ohm	787.0 Ohm	Pass	6.1e-001 Ohm

***** End of Results *****

Standards Used

Asset #	Description	Due Date	Certificate #	Traceability
100300189	Bench Multimeter	16-Jan-26	202500887	GCS RD
100300204	Industrial Scopemeter	18-Nov-25	202419908	GCS RD

***** End of Certificate *****