Equipos y Laboratorio de Colombia SAS
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MANTENIMIENTO LECTORES DE MICROPLACAS Nº: 64

15/07/2025 11:33

Jorge Pinzon
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Fecha:	15-07-2025
Consecutivo:	.
Equipo:	LECTOR DE PLACAS
Modelo:	Multiskan Sky
Ref:	A51119700
Serial:	1550-802821C
Inventario:	40889
Ubicación:	Instituto Nacional de Salud \ Laboratorio: LSA- Salud Ambiental y Laboral
Solicitante:	Alejandra Parada Lopez
Estado Inicial del Equipo	Equipo buen estado físico y normal funcionamiento.

Foto Equipo



Foto Label



Actividades realizadas

Verificacion mecánico visual del equipo y accesorios, Ensamble del equipo, Verificacion y limpieza de ruletas de filtros, Verificacion y limpieza de partes ópticas, Limpieza y lubricación de sistema mecánico del equipo, Limpieza partes internas del equipo, Verificacion del estado de sistemas eléctricos y mecánicos del equipo, Desensamble del equipo, Prueba de auto chequeo y descarga de resultados, Verificacion de funcionamiento y configuracion vía Skanit, Limpieza externa del equipo, Puesta en marcha y pruebas de funcionamiento pos mantenimiento, Verificacion de configuracion vía Skanit pos mantenimiento

Voltaje F-N	115,7
Voltaje F-T	115,8
Voltaje T-N	0,284
Voltaje DC	23,93

Foto Proceso



Foto Proceso

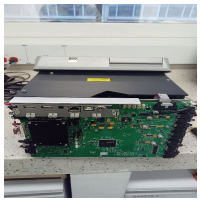


Foto Final	
Observaciones	El equipo cumple con la verificación fotometrica frente a placa estandar.
Responsable del servicio	Jorge Alexander Pinzón Gil

Firma

Recibe

Multiskan SkyHigh: Operation qualification results

Date:	**15/07/2025 10:13:27 a. m.**
Instrument serial number:	**1550-802821C**
Instrument internal software version:	**2.00.45**
SkanIt software version:	
Spectrophotometric verification plate serial number:	**2015-814**
None	**-**
Tester:	

Plate optics

Linearity, 96-well plate, 0 - 2.5 Abs, < 2 % @ 450 nm	**PASSED**
Precision, fast mode, SD < 0.003 Abs or CV % < 1 % @ 450 nm	**PASSED**
Precision, precision mode, SD < 0.003 Abs or CV % < 0.5 % @ 450 nm	**PASSED**
Accuracy, 0 - 2 Abs, < (1 % + 0.003 Abs), 2 - 2.5 Abs, <2%	**PASSED**
Wavelength accuracy, < 2 nm	**PASSED**
Spectral stray light, < 0.05 % @ 230 nm	**PASSED**

Cuvette optics

Linearity, 0 - 2.5 Abs, < 2 % @ 450 nm	**NOT TESTED**
Precision, SD < 0.003 Abs or CV % < 0.5 % @ 450 nm	**NOT TESTED**
Accuracy, 0 - 2 Abs, < (1 % + 0.003 Abs), 2 - 2.5 Abs, <2%	**NOT TESTED**
Wavelength accuracy, < 2 nm	**NOT TESTED**

thermoscientific

Certificate of Calibration

Thermo Scientific Multiskan Verification Plate with 16 wavelengths

Serial number 2105-814

Neutral Density Filter (NDF) glasses
Nominal absorbance level / Serial number:

0.3 Abs	0.6 Abs	1.2 Abs	2.0 Abs	3.0 Abs	4.0 Abs
2025-43	2040-09	2101-14	2053-07	2040-27	2101-14

Calibration equipment

Thermo Scientific's S/N: 357-705824 test setup which has been designed, implemented and controlled according to the requirements of ISO 9001:2015, ISO13485:2016 and ISO14001:2015 management systems.

Traceability

The measuring equipment used in the determination of the absorbance value for Multiskan Verification Plate is periodically calibrated against standards no.:AH19, AJ19, AK19, AL19, AM19, AN19, AP19, having their reference values measured by the National Physical Laboratory (NPL), Teddington, England. Further traceability of the values quoted by the NPL is subject to information supplied by the NPL.

Sessions and reference files

Available in USB memory device (Cat. No. N08803)

Quoted uncertainties of the calibration equipment

Nominal absorbance level/Uncertainty (±):

Up to 0.6 Abs	0.6 - 1.2 Abs	1.2 - 2.0 Abs	2.0 - 3.0 Abs	3.0 - 4.0 Abs
1.09%	0.95 %	0.90 %	0.85 %	1.28 %

Calibration Expires December 2025

Measured at Life Technologies Holdings Pte Ltd, Block 33 #07-06 Marsiling Industrial Estate Road 3

Tested by NUR AINI Date 18 DEC 2023

Certificate reviewed by Quality Control Neo Xin Yi Date 19 DEC 2023

Calibration information

Nominal absorbance level (Standard)

Column	3		4		5		6		7		8	
Wavelength	0.3 Abs	Status	0.6 Abs	Status	1.2 Abs	Status	2.0 Abs	Status	3.0 Abs	Status	4.0 Abs	Status
340 nm	0.306	Pass	0.568	Pass	1.095	Pass	1.976	Pass	2.953	Pass	3.930	Pass
405 nm	0.300	Pass	0.569	Pass	1.104	Pass	1.972	Pass	2.948	Pass	3.906	Pass
414 nm	0.301	Pass	0.570	Pass	1.107	Pass	1.972	Pass	2.949	Pass	3.905	Pass
450 nm	0.302	Pass	0.572	Pass	1.117	Pass	1.969	Pass	2.946	Pass	3.880	Pass
492 nm	0.302	Pass	0.571	Pass	1.126	Pass	1.957	Pass	2.932	Pass	3.834	Pass
540 nm	0.300	Pass	0.566	Pass	1.131	Pass	1.935	Pass	2.906	Pass	3.769	Pass
620 nm	0.295	Pass	0.554	Pass	1.131	Pass	1.889	Pass	2.845	Pass	3.648	Pass
690 nm	0.289	Pass	0.543	Pass	1.129	Pass	1.847	Pass	2.790	Pass	3.546	Pass

Nominal absorbance level (Extended)

Column	3		4		5		6		7		8	
Wavelength	0.3 Abs	Status	0.6 Abs	Status	1.2 Abs	Status	2.0 Abs	Status	3.0 Abs	Status	4.0 Abs	Status
550 nm	0.299	Pass	0.565	Pass	1.131	Pass	1.930	Pass	2.899	Pass	3.756	Pass
560 nm	0.299	Pass	0.563	Pass	1.132	Pass	1.923	Pass	2.891	Pass	3.738	Pass
570 nm	0.298	Pass	0.562	Pass	1.132	Pass	1.918	Pass	2.883	Pass	3.723	Pass
580 nm	0.297	Pass	0.560	Pass	1.132	Pass	1.912	Pass	2.877	Pass	3.711	Pass
595 nm	0.296	Pass	0.558	Pass	1.132	Pass	1.903	Pass	2.864	Pass	3.685	Pass
630 nm	0.294	Pass	0.552	Pass	1.131	Pass	1.882	Pass	2.836	Pass	3.629	Pass
650 nm	0.293	Pass	0.549	Pass	1.130	Pass	1.870	Pass	2.821	Pass	3.604	Pass
750 nm	0.285	Pass	0.534	Pass	1.127	Pass	1.816	Pass	2.748	Pass	3.470	Pass

Overall Result: Pass

Acceptance limits of certificate of calibration						
Column	3	4	5	6	7	8

Nominal absorbance level (Standard)

Wavelength	0.3 Abs	0.6 Abs	1.2 Abs	2.0 Abs	3.0 Abs	4.0 Abs
340 nm	0.300 ±0.030	0.600 ±0.060	1.100 ±0.100	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
405 nm	0.300 ±0.050	0.600 ±0.100	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
414 nm	0.300 ±0.050	0.600 ±0.100	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
450 nm	0.300 ±0.050	0.600 ±0.100	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
492 nm	0.300 ±0.050	0.600 ±0.100	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
540 nm	0.300 ±0.050	0.600 ±0.100	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
620 nm	0.300 ±0.050	0.600 ±0.100	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
690 nm	0.300 ±0.050	0.600 ±0.100	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400

Nominal absorbance level (Extended)

Wavelength	0.3 Abs	0.6 Abs	1.2 Abs	2.0 Abs	3.0 Abs	4.0 Abs
550 nm	0.300 ±0.050	0.599 ±0.068	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
560 nm	0.300 ±0.050	0.600 ±0.069	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
570 nm	0.300 ±0.050	0.600 ±0.070	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
580 nm	0.300 ±0.050	0.600 ±0.070	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
595 nm	0.300 ±0.050	0.600 ±0.070	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
630 nm	0.300 ±0.050	0.600 ±0.070	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
650 nm	0.300 ±0.050	0.600 ±0.070	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
750 nm	0.300 ±0.050	0.600 ±0.070	1.100 ±0.200	1.800 ±0.250	2.700 ±0.300	3.500 ±0.400

Nominal uncertainties of the calibration equipment

Uncertainty values stated in a calibration certificate are calculated for the calibration process with the reference instrument. The uncertainty values are determined during validation phase of the process and they do not vary from plate to plate. Therefore the calibration certificate of each plate there should be exactly the same values that are stated below.

Nominal absorbance	Up to 0.6 Abs	0.6 – 1.2 Abs	1.2 – 2.0 Abs	2.0 – 3.0 Abs	3.0 – 4.0 Abs
Uncertainty	1.09%	0.58%	0.60%	0.64%	0.96%

Multiskan Verification
Plate Ser.no. 2105-814
Date of calibration 16.12.2023

Reference Absorbance Values for eight well positions

Nominal Absorbance		0.3Abs	0.6Abs	1.2Abs	2.0Abs	3.0Abs	4.0Abs
NDF Glass Ser.no.		2025-43	2040-09	2101-14	2053-07	2040-27	2101-14
Wavelength	550nm						
		0.297	0.565	1.121	1.932	2.894	3.746
		0.297	0.566	1.131	1.930	2.898	3.758
		0.294	0.565	1.136	1.931	2.902	3.763
		0.301	0.566	1.134	1.932	2.903	3.766
		0.302	0.565	1.135	1.932	2.903	3.762
		0.302	0.563	1.130	1.931	2.903	3.764
		0.300	0.563	1.131	1.928	2.895	3.749
		0.301	0.564	1.131	1.923	2.894	3.741
Wavelength	560nm						
		0.297	0.564	1.121	1.925	2.885	3.730
		0.297	0.564	1.131	1.923	2.890	3.738
		0.293	0.563	1.136	1.925	2.894	3.740
		0.300	0.565	1.135	1.926	2.894	3.744
		0.301	0.563	1.135	1.925	2.894	3.742
		0.301	0.562	1.130	1.924	2.894	3.740
		0.299	0.561	1.132	1.922	2.888	3.735
		0.301	0.562	1.132	1.917	2.886	3.731
Wavelength	570nm						
		0.296	0.562	1.121	1.920	2.878	3.712
		0.296	0.563	1.131	1.917	2.882	3.725
		0.293	0.562	1.137	1.919	2.886	3.726
		0.299	0.563	1.135	1.920	2.888	3.732
		0.301	0.562	1.136	1.919	2.888	3.725
		0.301	0.560	1.130	1.919	2.886	3.725
		0.299	0.560	1.132	1.916	2.880	3.723
		0.300	0.561	1.132	1.912	2.879	3.713
Wavelength	580nm						
		0.295	0.561	1.121	1.914	2.872	3.700
		0.295	0.561	1.131	1.912	2.876	3.716
		0.292	0.561	1.137	1.913	2.879	3.713
		0.298	0.562	1.135	1.914	2.881	3.717
		0.300	0.560	1.136	1.914	2.880	3.712
		0.300	0.559	1.130	1.913	2.879	3.711
		0.298	0.558	1.132	1.910	2.874	3.710
		0.300	0.559	1.132	1.906	2.873	3.707

Multiskan Verification
Plate Ser.no. 2105-814
Date of calibration 16.12.2023

Reference Absorbance Values for eight well positions

Nominal Absorbance		0.3Abs	0.6Abs	1.2Abs	2.0Abs	3.0Abs	4.0Abs
NDF Glass Ser.no.		2025-43	2040-09	2101-14	2053-07	2040-27	2101-14
Wavelength	595nm						
		0.294	0.558	1.121	1.905	2.859	3.676
		0.294	0.559	1.131	1.902	2.863	3.684
		0.291	0.558	1.137	1.904	2.866	3.686
		0.297	0.559	1.135	1.905	2.868	3.691
		0.299	0.558	1.136	1.904	2.868	3.689
		0.299	0.557	1.130	1.904	2.867	3.695
		0.297	0.556	1.132	1.901	2.861	3.682
		0.299	0.557	1.132	1.897	2.859	3.675
Wavelength	630nm						
		0.292	0.553	1.121	1.884	2.831	3.619
		0.292	0.553	1.131	1.881	2.835	3.627
		0.288	0.553	1.136	1.883	2.838	3.631
		0.295	0.554	1.134	1.884	2.840	3.638
		0.297	0.553	1.135	1.883	2.840	3.633
		0.297	0.551	1.129	1.883	2.839	3.635
		0.295	0.550	1.131	1.880	2.832	3.629
		0.296	0.551	1.132	1.876	2.832	3.620
Wavelength	650nm						
		0.291	0.550	1.120	1.873	2.816	3.598
		0.290	0.550	1.130	1.870	2.820	3.605
		0.287	0.550	1.135	1.871	2.823	3.606
		0.294	0.551	1.134	1.872	2.825	3.611
		0.295	0.550	1.134	1.872	2.824	3.606
		0.295	0.548	1.128	1.871	2.824	3.607
		0.293	0.547	1.131	1.869	2.817	3.603
		0.295	0.548	1.131	1.865	2.817	3.594
Wavelength	750nm						
		0.284	0.535	1.117	1.819	2.745	3.463
		0.283	0.536	1.127	1.816	2.748	3.470
		0.279	0.535	1.132	1.817	2.750	3.475
		0.287	0.536	1.130	1.818	2.753	3.476
		0.288	0.535	1.130	1.817	2.752	3.472
		0.288	0.533	1.124	1.817	2.750	3.473
		0.286	0.532	1.127	1.815	2.744	3.470
		0.288	0.533	1.128	1.810	2.745	3.463

Calibration information

Nominal absorbance level (Standard)

Column	3		4		5		6		7		8	
Wavelength	0.3 Abs	Status	0.6 Abs	Status	1.2 Abs	Status	2.0 Abs	Status	3.0 Abs	Status	4.0 Abs	Status
340 nm	0.306	Pass	0.568	Pass	1.095	Pass	1.976	Pass	2.953	Pass	3.930	Pass
405 nm	0.300	Pass	0.569	Pass	1.104	Pass	1.972	Pass	2.948	Pass	3.906	Pass
414 nm	0.301	Pass	0.570	Pass	1.107	Pass	1.972	Pass	2.949	Pass	3.905	Pass
450 nm	0.302	Pass	0.572	Pass	1.117	Pass	1.969	Pass	2.946	Pass	3.880	Pass
492 nm	0.302	Pass	0.571	Pass	1.126	Pass	1.957	Pass	2.932	Pass	3.834	Pass
540 nm	0.300	Pass	0.566	Pass	1.131	Pass	1.935	Pass	2.906	Pass	3.769	Pass
620 nm	0.295	Pass	0.554	Pass	1.131	Pass	1.889	Pass	2.845	Pass	3.648	Pass
690 nm	0.289	Pass	0.543	Pass	1.129	Pass	1.847	Pass	2.790	Pass	3.546	Pass

Overall Result | Pass |

Acceptance limits of certificate of calibration

Column	3	4	5	6	7	8
Wavelength	0.3 Abs	0.6 Abs	1.2 Abs	2.0 Abs	3.0 Abs	4.0 Abs
340 nm	0.300 ±0.030	0.600 ±0.060	1.100 ±0.100	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
405 nm	0.300 ±0.050	0.600 ±0.100	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
414 nm	0.300 ±0.050	0.600 ±0.100	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
450 nm	0.300 ±0.050	0.600 ±0.100	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
492 nm	0.300 ±0.050	0.600 ±0.100	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
540 nm	0.300 ±0.050	0.600 ±0.100	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
620 nm	0.300 ±0.050	0.600 ±0.100	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400
690 nm	0.300 ±0.050	0.600 ±0.100	1.100 ±0.200	1.800 ±0.250	2.800 ±0.300	3.600 ±0.400

Nominal uncertainties of the calibration equipment

Uncertainty values stated in a calibration certificate are calculated for the calibration process with the reference instrument. The uncertainty values are determined during validation phase of the process and they do not vary from plate to plate. Therefore the calibration certificate of each plate there should be exactly the same values that are stated below.

Nominal	Up to 0.6 Abs	0.6 – 1.2 Abs	1.2 – 2.0 Abs	2.0 – 3.0 Abs	3.0 – 4.0 Abs
Uncertainty	1.09%	0.58%	0.60%	0.64%	0.96%

Multiskan Verification
Plate Ser.no. 2105-814
Date of calibration 16.12.2023

Reference Absorbance Values for eight well positions

Nominal Absorbance		0.3Abs	0.6Abs	1.2Abs	2.0Abs	3.0Abs	4.0Abs
NDF Glass Ser.no.		0	0	0	0	0	0
Wavelength	340nm						
		0.304	0.569	1.082	1.979	2.944	3.920
		0.305	0.568	1.093	1.976	2.949	3.927
		0.303	0.567	1.102	1.977	2.960	3.936
		0.307	0.571	1.099	1.979	2.957	3.937
		0.308	0.568	1.104	1.978	2.956	3.933
		0.308	0.568	1.098	1.977	2.959	3.936
		0.307	0.568	1.093	1.974	2.953	3.933
		0.307	0.568	1.089	1.969	2.948	3.920
Wavelength	405nm						
		0.298	0.570	1.093	1.974	2.940	3.899
		0.298	0.569	1.104	1.972	2.947	3.907
		0.296	0.568	1.108	1.973	2.951	3.905
		0.301	0.571	1.107	1.975	2.952	3.914
		0.302	0.569	1.108	1.974	2.951	3.907
		0.302	0.568	1.104	1.973	2.951	3.912
		0.301	0.569	1.104	1.970	2.946	3.904
		0.302	0.569	1.101	1.965	2.942	3.899
Wavelength	414nm						
		0.298	0.571	1.097	1.975	2.942	3.894
		0.299	0.570	1.107	1.972	2.947	3.901
		0.297	0.569	1.112	1.973	2.952	3.912
		0.302	0.572	1.110	1.975	2.953	3.921
		0.303	0.570	1.112	1.974	2.952	3.903
		0.303	0.569	1.107	1.973	2.952	3.907
		0.301	0.569	1.107	1.970	2.948	3.904
		0.302	0.570	1.105	1.965	2.943	3.895
Wavelength	450nm						
		0.299	0.573	1.107	1.971	2.940	3.863
		0.300	0.572	1.117	1.969	2.946	3.879
		0.297	0.571	1.122	1.970	2.949	3.879
		0.303	0.573	1.120	1.971	2.950	3.888
		0.304	0.572	1.122	1.971	2.950	3.890
		0.304	0.571	1.117	1.970	2.949	3.885
		0.302	0.571	1.117	1.967	2.945	3.879
		0.303	0.571	1.116	1.962	2.942	3.874

Multiskan Verification
Plate Ser.no. 2105-814
Date of calibration 16.12.2023

Reference Absorbance Values for eight well positions

Nominal Absorbance		0.3Abs	0.6Abs	1.2Abs	2.0Abs	3.0Abs	4.0Abs
NDF Glass Ser.no.		0	0	0	0	0	0
Wavelength	492nm						
		0.299	0.571	1.116	1.959	2.925	3.815
		0.300	0.571	1.126	1.956	2.931	3.829
		0.297	0.570	1.131	1.958	2.935	3.837
		0.303	0.572	1.129	1.959	2.937	3.850
		0.304	0.571	1.130	1.958	2.936	3.840
		0.304	0.570	1.125	1.958	2.936	3.845
		0.302	0.569	1.126	1.955	2.930	3.834
		0.303	0.570	1.125	1.950	2.928	3.825
Wavelength	540nm						
		0.298	0.567	1.120	1.936	2.900	3.758
		0.298	0.567	1.131	1.935	2.905	3.769
		0.295	0.566	1.136	1.936	2.908	3.772
		0.301	0.567	1.134	1.937	2.910	3.777
		0.302	0.566	1.135	1.937	2.909	3.770
		0.302	0.565	1.129	1.936	2.908	3.774
		0.301	0.564	1.131	1.933	2.902	3.770
		0.302	0.565	1.131	1.928	2.902	3.765
Wavelength	620nm						
		0.293	0.555	1.121	1.891	2.840	3.640
		0.292	0.555	1.131	1.888	2.845	3.648
		0.289	0.555	1.136	1.890	2.847	3.651
		0.296	0.556	1.135	1.891	2.849	3.658
		0.297	0.554	1.135	1.890	2.848	3.649
		0.297	0.553	1.129	1.890	2.847	3.653
		0.295	0.552	1.131	1.887	2.841	3.645
		0.297	0.553	1.132	1.883	2.841	3.639
Wavelength	690nm						
		0.288	0.544	1.119	1.850	2.786	3.538
		0.287	0.544	1.128	1.847	2.790	3.547
		0.283	0.544	1.134	1.848	2.792	3.546
		0.291	0.545	1.132	1.849	2.794	3.552
		0.292	0.543	1.132	1.849	2.794	3.549
		0.292	0.542	1.126	1.848	2.793	3.553
		0.290	0.541	1.129	1.846	2.787	3.546
		0.292	0.542	1.130	1.842	2.786	3.540